



version 5.3.14

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# 1 Getting Started with Light-O-Rama

## Welcome to Light-O-Rama

Light-O-Rama is a computerized lighting system designed to control elaborate or simple lighting displays. The Light-O-Rama system can be applied to almost any lighting situation, from stand-alone controllers to synchronizing hundreds of controllers.

This page gives a high-level overview of how to start controlling your lights using Light-O-Rama:

- [Getting Help about Light-O-Rama](#)
- [Important Terms and Information](#)
- [Connecting the Lights Using Light-O-Rama Controllers](#)
- [Creating a Show](#)

For more detailed information, please see [Light-O-Rama Concepts](#) and [the Light-O-Rama Software Package](#).

Experienced users may wish to see [what's new](#) in the latest version of Light-O-Rama.

## Getting Help about Light-O-Rama

This help file contains a lot of information about the Light-O-Rama Software Suite. If you need more help, please visit the [Light-O-Rama website](#). Click the word "Support" at the top of the page to find links to more resources, including tutorials, Frequently Asked Questions, our User Forum, and our Help Desk.

## Important Terms and Information

### ***Companion Unit***

A **companion unit** is a Light-O-Rama controller that receives lighting commands from another source - either a PC running Light-O-Rama software, or from another controller known as a [director unit](#).

### ***Control Panel***

The [Light-O-Rama Control Panel](#) is a program that can be used to manage the Light-O-Rama system on your PC. The Control Panel runs in the system tray (where the PC's clock is displayed). Light-O-Rama is made up of [a number of different programs](#), and the Control Panel is a convenient way of accessing them. The Control Panel must be running in order to control [shows](#) from your PC.

### ***Daisy Chain***

This is the term generally used to describe the manner in which Light-O-Rama light controllers are connected. A [wire](#) goes from the source (a PC running Light-O-Rama software or a [director unit](#)) to a [companion unit](#). Another wire goes from that companion unit to another companion unit, and so on, until all companion units are "chained" together.

Do not put "Y"s or forks in the data cable. Only connect the units in this daisy chain configuration.

## Data Cable

Light-O-Rama controllers can be [connected](#) using both data cables and [phone cables](#), but you *must* know which type of cable it is (for the purposes of Light-O-Rama, a cable is considered a **data cable** if its wires are connected straight through).

How do you know if it is a data cable? Well, most likely the only cable that you will see that is *not* a data cable is a wire that is intended specifically for phones. If you go to your local hardware store and purchase a phone extension cable, then that wire is *not* a data cable. The distinction between data cables and phone cables is important, because the wires are swapped around. There are selectors or jumpers on most Light-O-Rama controllers that allow you to specify which wire type you are using.

Only the wire coming into a controller (from the previous controller or from a PC running Light-O-Rama software) should be used to determine which selector setting to use. The wire leaving a controller (if there is one) can be of any type, and has no bearing on which selector setting should be used. For example, if a controller has a phone cable coming in from the previous controller, and a data cable leaving to the next controller, the selector should be set for "phone cable".

## Director Unit

A **director unit** is a Light-O-Rama controller that sends lighting commands to other controllers (known as [companion units](#)). Controllers can run individually in [standalone mode](#), but to synchronize multiple controllers together, they must be directed either by a PC running Light-O-Rama software, or by a director unit.

Standalone [sequences](#) may contain lighting commands for a number of different units. A director unit is a unit that is running standalone - i.e. not connected to a PC - that contains lighting commands for other units cabled to it (the companion units). The director unit can also control its own lights, simultaneously.

There is no difference in the hardware of a director unit and a companion unit - the only difference is the mode that they are in.

A PC running Light-O-Rama software can also be thought of as a director unit, in that it can send lighting commands to Light-O-Rama controllers. There must be one *and only one* director unit (or PC running Light-O-Rama software) on a [daisy chained](#) group of controllers.

## Hardware Utility

The [Light-O-Rama Hardware Utility](#) is a program that can be used to set up and test the hardware used to control lights, as well as download [sequences](#) to [standalone controllers](#) or [director units](#).

## Phone Cable

Light-O-Rama controllers can be [connected](#) using either data cables or **phone cables**, but you must know which type of cable you are using. See [data cables](#) for details.

## Preview

A [preview](#) is a representation of your light display. It defines the lighting elements, how they are arranged, and what channels they use. Creating a preview is required before you can create a sequence. One preview can be associated with multiple sequences. Update the preview once, and the next time you open any sequence associated with that preview, the update will automatically be applied. The display elements in a preview are referred to as 'props'. You must add a prop to the preview for every display element that you want to control. A prop could be a single string of lights, a wireframe, an arch, a wreath, or a tree. In fact you can model just about any lighting element in a preview.

The [Sequencer](#) program is used to create and modify previews.

## **Schedule**

A [schedule](#) is a list of [shows](#) and the times at which those shows are to be played.

If the Light-O-Rama [Control Panel](#) is running on a PC, and its "[Enable Schedule](#)" option is turned on, then the schedule will be monitored, and its shows will be started and stopped at the appropriate times.

The [Schedule Editor](#) program is used to create and modify schedules.

## **Sequence**

A [sequence](#) is a file that contains a set of lighting commands to be sent to Light-O-Rama controllers. There are two types of sequences: [musical sequences](#), which have an associated music or video file that is to be played at the same time, and [animation sequences](#), which do not.

Before creating a sequence, you must create a [preview](#). The lights you can control in the sequence are defined by the props in the preview.

Sequences can be grouped together into [shows](#).

The [Sequencer](#) program is used to create and modify sequences.

## **Show**

A [show](#) is a file that contains a number of [sequences](#), and the order in which they should be played.

A [schedule](#) can be created to specify the times at which various shows should be played.

The [Show Editor](#) program is used to create and modify shows.

## **Standalone**

A Light-O-Rama controller can be controlled by another controller (or a PC running Light-O-Rama software), or it can control itself and/or other controllers, in **standalone mode**. A [sequence](#), created using the [Sequencer](#), can be downloaded to a standalone controller using the [Hardware Utility](#). The controller can then be set up to run this sequence whenever it has power, or, if the unit is a model with an internal clock, it can be instructed to run the sequence during a particular time.

A standalone controller whose sequence contains lighting commands for other controllers will

transmit those commands to the other controllers. In this case, the controller is known as a [director unit](#).

## Unit

A **unit** is another term for a Light-O-Rama controller. Each unit has a number of circuits, each of which can be used to control lights independently of each other. Each unit is identified by a [unit ID](#).

## Unit ID

Each [unit](#) has an identifier assigned to it, known as a **unit ID**. When a lighting command is sent to a unit, all of the units that are daisy chained together can see that command. However, the command contains a unit ID; only the units having that unit ID will act upon that command.

For [Light-O-Rama controllers](#), the unit ID is a two characters, each of which can have any of the values 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, and F. For example, "01", "25", "37", "5C", "BD", or "E2". However, not all possible combinations are allowed: "00" and "F1" through "FF" are disallowed.

[Controllers other than Light-O-Rama controllers](#) use different formats for their unit IDs.

## Connecting the Lights Using Light-O-Rama Controllers

To connect lights using Light-O-Rama controllers, take the following three steps:

1. [Determine the serial port and hook up a controller.](#)
2. [Select a unit ID.](#)
3. [Test the lights.](#)

### **Step 1. Determine the Serial Port and Hook Up a Controller**

Insert an SC485 converter into your PC's DB9 serial connector which you plan on using for the Light-O-Rama network. If you are using a USB/RS-232 converter, then make sure that it is properly installed, and that the SC485 converter is connected. If you're not sure what all this is about, simply try to find a connector on the back of your PC that has nine pins and which will accept the SC485 adaptor.

Using a [cable](#), connect a Light-O-Rama controller to the SC485 adaptor. Make sure that the LOR controller is powered on. The LED in the controller should be blinking.

Using the Light-O-Rama [Control Panel](#), start the [Hardware Utility](#) program. In the Hardware Utility's **Setup Comm Port** section, use the **Auto Configure** button. This will cause the Hardware Utility to look for the attached controller and determine which comm port is being used.

### **Step 2. Select a Unit ID**

If your controller has [unit ID](#) selection switches, you can select its ID by adjusting the selectors to the desired ID. If your controller does not have these unit ID selection switches, then you will need to set its unit ID by using the [Hardware Utility](#):

To set the unit ID using the Hardware Utility, connect **one and only one** unit to the PC using the

SC485 adaptor and a [cable](#). In the **Set Unit IDs** section, go to **Set New Unit ID**, select the ID that you wish to use for the controller, and click the **Set Unit ID** button. This button will only work on new units that have never been assigned a unit ID (to change the unit ID of a unit that already has one assigned, use the **Change Existing ID** section instead).

**TIP:** Assign unit IDs sequentially, starting at 01. This will make maintenance of the units faster.

### **Step 3. Test the Lights**

With the unit connected to the PC, attach lights and power the unit on. In the [Hardware Utility](#), click the **Refresh** button in the top center of the screen. After a short time, your unit should appear in the dropdown list to the right of the **Refresh** button. Select the unit, and you can then test the lights using the various controls in the **Test Unit's Operation** section of the Hardware Utility.

**TIP:** Before clicking **Refresh**, set the Hardware Utility's **Max Unit ID** to as low a value as possible. This is the maximum unit ID of controllers that you plan on using (you can always change it to a higher value if you add more controllers later). Setting it to a low value makes the Hardware Utility run faster (though it will not find any connected units with higher unit IDs).

## Creating a Scheduled Lights Display

To create a lights display and have it run at certain times, take the following steps:

1. [Make your sequences](#).
2. [Make a show](#).
3. [Make a schedule](#).
4. [Turn on the Control Panel's "Enable Schedule"](#).

### **Step 1. Make Your Sequences**

Using the [Sequencer](#), create the [sequences](#) that will be used in your show.

You can test how the lights will look for a sequence while in the Sequencer: Make sure **Control Lights** is enabled, and that you have assigned the channels in the sequence to a controller that is hooked up to your PC. Then, click the play button (which is the green arrow in the toolbar).

### **Step 2. Make a Show**

A [show](#) is a collection of [sequences](#). A show can be created using the [Show Editor](#) program.

Shows have several sections, each of which can have sequences:

- **Background:** Sequences listed in the "background" section will be played for the entire duration of the show.
- **Startup:** Sequences listed in the "startup" section will be played when the show first begins.
- **Animation and Musical:** After the "startup" sequences have completed, sequences in both of these sections will run, until it is time for the show to stop.
- **Shutdown:** When it is time for the show to stop, the "animation" and "musical" sequences will stop running, and the sequences in the "shutdown" section will start. Only after the "shutdown" sequences are finished will the show truly end.



In the Show Editor, you can add sequences to any of these sections by selecting the appropriate section's tab, and hitting the big PLUS button.

After you have created your show, you should save it using the "Save" or "Save As" button. Assign the show a meaningful name - this is the file name that you will be using in the next step.

### **Step 3. Make a Schedule**

Unlike [sequences](#), you cannot run a [show](#) interactively. Instead, to test a show, put that show into a [schedule](#), using the [Schedule Editor](#) program:

In the Schedule Editor, click the **Add** button, and select the show file with the name that you created in the previous step. Select a start and end time that will allow the show to start at a convenient time for you to view it. Then click **Save** to save your schedule.

### **Step 4. Turn On the Control Panel's "Enable Schedule"**

To view the scheduled show, turn on the "[Enable Schedule](#)" option in the Light-O-Rama [Control Panel](#). Doing this will cause the Control Panel to monitor your schedule, and start and stop your show at the appropriate times.

## **2 What's New?**

### What's New in the Latest Version

- [What's New in Version 5.3.14](#)
- [What's New in Version 5.3.12](#)
- [What's New in Version 5.3.10](#)
- [What's New in Version 5.3.8](#)
- [What's New in Version 5.3.6](#)
- [What's New in Version 5.3.4](#)
- [What's New in Version 5.3.2](#)
- [What's New in Version 5.3.0](#)
- [What's New in Version 5.2.4](#)
- [What's New in Version 5.2.2](#)
- [What's New in Version 5.2.0](#)
- [What's New in Version 5.1.4](#)
- [What's New in Version 5.1.2](#)
- [What's New in Version 5.1.0](#)

### What's New in Version 5.3.14

- [Sequencer Improvements](#)
- [New N4g4MP3 \(4 Port, Generation 4 MP3 Director\) Firmware, V 6.7](#)
- [New CTB32LN \(LOR1600g3/LOR1602g3\) and CTP16PCg3 Controller Firmware, V1.17/V1.10](#)
- [Bug Fixes](#)

### **Sequencer Improvements**

- The status bar now shows the current selection mode: cells, effects, rows, or freeform.

### ***New N4G4MP3 (4 Port, Generation 4 MP3 Director) Firmware V 6.7***

- When starting a new show, there can be a slight delay of up to 2 seconds before the first [sequence](#) starts to play. During this time, heartbeat messages were not sent to controllers allowing them to possibly lose synchronization. If the controllers lost sync, approximately the first second of the first sequence could be lost while the controller re-synchronized with the MP3 director.

### ***New CTB32LN (LOR1600g3/LOR1602g3) and CTB16PCg3 Controller Firmware, V1.17/V1.10***

- When running in Enhanced mode, which does not support LOR Advanced commands like Twinkle and Shimmer, the controller could unexpectedly place channels into Shimmer or Twinkle mode. For LOR1600g3 controllers this is fixed in Firmware 1.17. For CTB16PCg3 controllers this is fixed in firmware V1.10. Only G3 controllers support enhanced mode, so other controllers do not need to be updated.

### ***Bug Fixes***

- When creating a [Simple PC show](#) in [Hub](#), the time entry form incorrectly allowed for typing in a start or end time. This could lead to incorrect start/end times being displayed and [scheduled shows](#) not starting/ending properly.
- When creating an SD card show in Hub for G3 or later MP3 directors that had 2 or more ports with firmware 5.36 or below, the files created did not have the correct extension.
- In the [Hardware Utility](#) it was still possible to configure and change both DIO boards and X-10 settings. Support for both was removed for S5. The contents of these tabs has been removed, and the tabs themselves will be removed with a later release.
- On the Sequencer's [Prop Definition](#) screen, pasting invalid data into the Unit ID or Circuit fields could result in a weird error message or a crash.
- In the Sequencer, added a preview check to ensure only groups with arrangement of 'none' can contain members that are groups with an arrangement of 'none'. <http://forums.lightorama.com/topic/51061-arithmetic-overflow/>
- The [Sequence Compressor](#) tool now handles shows that contain S5 sequences (LOREDIT files). You can also select an LOREDIT file when compressing a single sequence. This can be used to prepare an entire show for playback before its scheduled start time.
- In the Sequencer, the program could hang when inserting a SuperStar effect on top of an existing Motion Effect.
- In the Sequencer, inserting SuperStar effects on motion rows that use only some of the pixels of a prop or group (i.e. a subsection) was not working correctly.
- When playing a sequence in a show, performance was improved for channel effects on DMX networks. For sequences with many channel effects on DMX networks, you will want to regenerate the playback files. Use the [Sequence Compressor](#) with the "Force Compression" option enabled to do this.

## **What's New in Version 5.3.12**

- [Sequencer Improvements](#)
- [Bug Fixes](#)

## Sequencer Improvements

- In the [Motion Effect Generator](#), there is a new button that allows the user to reset all of an effect's parameters back to their default values.
- Users now get a warning if they are about to overwrite existing SuperStar effects with a new SuperStar effect.
- Users now get a warning if they try to insert a SuperStar effect that is less than 1 second long.

## Bug Fixes

- [When creating an SD card in Hub](#), you could not select S5 files [for filler or starter sequences](#). An option on the open dialog has now been added.
- [When creating an SD card in Hub](#), if any time (scheduled start or end) started with '12', the time could be incorrectly set in the SD card configuration file. The show would not then start/stop at the correct time.
- [When creating an SD card in Hub](#), if you were using an S5 Filler, Hub would correctly call the conversion of the file to S4 but then would validate the 'start' sequence file name. If a start file did not exist, Hub could then crash.
- [When creating an SD card in Hub](#), while creating a new show on an new SD card show, if a SHOW01.CFG file existed on the SD card AND that configuration didn't actually contain any sequences, Hub would still attempt to use it even though it was not valid. Later on, Hub would attempt to use the bad configuration and in some instances crash.
- [When creating an SD card in Hub](#), the program was not checking to see if any error was returned from the S5 Sequencer pre-process. If an error was returned, and depending on what the error actually was, subsequent calls to the Sequencer from Hub could be made to functions that were not initialized and hub could crash.
- In the Sequencer, users with a demo license for SuperStar could not save effects to a motion effect row in the Sequencer.
- In the Sequencer's [Prop Definition](#) screen, added validation when entering a start circuit/channel to prevent a crash.
- When running the Sequencer for the first time after a fresh install, the user would get this erroneous message 'The master list of previews, palettes or motion effect favorites has been changed by an external program. Restart to load the updates.'
- In the Sequencer's [VU Wizard](#), moving the threshold slider is now more responsive
- [Motion effects that respond to the music](#) (musical note icon next to the slider) worked correctly in the Sequencer, but not in the Show Player or when written to an SD card.
- In Superstar, the name of images could revert back to "image xx" after doing "manipulate images".
- In Superstar, a degree symbol in the image name would cause the sequencer to fail to save the file.
- In Superstar, increased allowed DMX size from 100 to 200.
- In Superstar, added the ability to add or subtract from color values in an image by pressing the '+' or '-' key while clicking on image pixels
- In Superstar, when servicing a SuperStar Request, if we fail to load the data file then display a "failed to read file" error.

## What's New in Version 5.3.10

- [Bug Fixes](#)

## Bug Fixes

- On some Windows Systems, usually but not limited to Windows 7, the [LOR Show Player](#) would crash upon trying to start a show. When it crashed, the [LOR Control Panel](#) would attempt to recover and restart the Show Player. This would cause the Show Player to loop on these machines and not actually play a show.
- In the Sequencer brightness adjustment on the Playback window was disabled when the background image was embedded with the preview.
- In the Sequencer the title bar of the playback window showed "Playback stopped" during playback after a sequence loops and continues to play back.
- In the Sequencer new sequences lose motion effect rows with "custom" subsections that were defined in the preview. Custom subsections appear often on props loaded using the Boscoyo import. <http://forums.lightorama.com/topic/49712-motion-effect-rows-disappear-536>

## What's New in Version 5.3.8

- [Sequencer Improvements](#)
- [SuperStar Improvements](#)
- [Generation 4 MP3 Director Firmware Updates \(N1 & N4\)](#)
- [Bug Fixes](#)

### ***Sequencer Improvements***

- In [Preview Group Definition](#), there is a new arrangement setting of "custom". When set, 2 additional columns (TOP and LEFT) will appear in the group definition grid. This allows you to specify where each prop is placed in the effects buffer for the group. This is especially useful for SuperStar users with complex layouts. <http://forums.lightorama.com/topic/47742-matrix/>
- New [Chase option](#): Same Row Type. If selected, the chase will only occur on rows of the same type as the first row. For example, if the first row is a regular channel, any RGB channels or motion effect rows will be skipped. If there is no check mark next to this option, then the chase will proceed through all selected rows, regardless of type. Requested by Drew Hickman.
- Changed the way SuperStar effects are stored in the [Sequencer](#) in order to handle larger [SuperStar](#) sequences, like those created using [Instant Sequencing](#).

**SUPERSTAR EFFECTS STORED USING THIS VERSION OF THE SEQUENCER CANNOT BE LOADED INTO PREVIOUS VERSIONS OF THE SEQUENCER.**

### ***SuperStar Improvements***

- Added a "Change Orientation" section to the [Move or Scale Selected Effects](#) dialog. It changes a sequence from vertical to horizontal or horizontal to vertical.
- Added the "Prorated" button to the "Manipulate Selected Images" dialog box. Rotation Angle, Brightness, Move, and Scale can be applied the same to all images, or can be "prorated" across the selected images.
- Added "Clip Rectangle" as an option in "Move or Scale Selected Effects." Previously if you moved or scaled effects it did not move or scale the clip rectangle. Now, if "Clip Rectangle" is selected "Move", "Scale", and "Change Orientation" change the clip rectangle as well.
- In the "Image Setup" dialog box "Rotation" has been added as an option for an Image Action. Rotation can be 0, 90, 180, or 270.

### ***Generation 4 MP3 Director Firmware Updates (N1 & N4)***

- The [firmware](#) for the [N1uMP3g4](#) MP3 Director (One Network, Black Plastic Case, Generation 4) has been updated to resolve an issue which caused the director to sometimes lock up on boot, as well as an update to fix issues with trigger inputs.
- The [firmware](#) for the [N4MP3g4](#) MP3 Director (Four Network, Linkable, Metal Case, Generation 4) has been updated to resolve an issue which caused the director to sometimes lock up on boot.

## Bug Fixes

- In the [Sequencer](#), when [assigning a different preview](#) to a sequence and there were preview groups that share the same name in the old and new previews, the new groups would not render effects until the sequence was closed and then re-opened. Reported by Drew Hickman.
- In the [Sequencer](#), when changing among the bulb and various line shapes of a prop in the [Prop Definition screen](#), the points that define the shape are now preserved.
- In the [Sequencer](#), when changing the shape of a prop in the Prop Definition screen, parameter values will no longer revert to their default values when the parameter for the prior shape and the new shape have the exact same meaning.
- In the [Sequencer](#), when upgrading a legacy sequence to S5, RGB channels would not import unless the "Split RGB" [Sequencer preference](#) was enabled. Now they will import correctly regardless of the preference setting.
- In the [Sequencer](#), if a secondary monitor has been unplugged since the time the Sequencer was last run, any floating windows on the secondary monitor will now be re-positioned onto one of the remaining monitors. Reported by user TitusCarnathan. <http://forums.lightorama.com/topic/49700-tc-73-playback-windows-disappears/>
- In the [Sequencer](#), when a prop used the [Tree 360 Up & Over](#) shape with pixels and a starting location that specified a clock-wise wiring order, the pixels were offset by 180 degrees in the effect buffer. Reported by Drew Hickman.
- In the [Sequencer](#), when adding an LOR device in [Preview Design](#), if you entered a name and then changed the device, the name you entered would get overwritten. Reported by user ndutton. <http://forums.lightorama.com/topic/49762-automation-bugs-in-prop-generation/>
- In the [Sequencer](#), sorting the current [grid view](#) was including the prefix character. Now the prefix character is ignored so everything sorts in alphabetical order.
- In the [Sequencer](#), trailing spaces in prop names are now ignored when the Sequencer decides whether to [archive](#) a prop or not.
- In the [Sequencer](#), when you open a [protected](#) LMS file and then save it (not "save as" but "save") the file name shown on the tab goes away. Reported by Drew Hickman.
- In [Superstar](#), fixed a bug where the Clip Rectangle was not being drawn when in Image mode. This bug was introduced in the previous release when drawing in image mode was optimized.
- In [Superstar](#), fixed a bug where a large grid with 100 ribbons or more would not create a scene using ribbon 100
- In [Superstar](#), fixed an issue where creating a 7 tier, 360 degree of traditional lights could cause a crash.
- In [LORHub](#) when [creating SD cards](#), an incorrect (old) version of an S5 [.LID \(enhanced file\)](#) could be detected and incorrectly used.
- In [LORHub](#) when [creating SD cards](#) using some sequences, the MP3 file attached to the [sequence](#) was not copied to the SD card
- In [LORHub](#) when [creating SD cards](#) that used a [trigger](#), the 'Normally Closed' switch option was not working.

## What's New in Version 5.3.6

- [Sequencer Improvements](#)

- [SuperStar Improvements](#)
- [Bug Fixes](#)

### **Sequencer Improvements**

- A new Sequencer Preference on the [Channel Effects tab](#) controls whether an RGB channel is displayed with its red / green / blue sub-channels or not. Turning this option off can save memory, allowing larger sequences to be loaded. Requested by user dougd. <http://forums.lightorama.com/topic/49460-reverted-back-to-524>
- You can now specify a "default paste mode" on the Startup Tab of Sequencer Preferences. The Default Paste Mode will be shown whenever a sequence is opened. Requested by user User dgrant. <http://forums.lightorama.com/topic/49611-editor-preferences/>
- On Preview [Design's Channel Conflicts & Bulk Changes tab](#), you can now use the "Set LOR Network" and "Set DMX Universe" to change props from LOR to DMX or vice versa. Changes were also made to the "Select All" check box on this tab to make it more intuitive.
- On Preview Design's [Design](#) tab, you can now choose to save the background image with the preview (see the [Background tab](#)). If you export such a preview and send the export file (LORPREV extension) to someone else, the background image will be included. The background image will also be included if you send a sequence to another user and the sequence uses such a preview.

### **SuperStar Improvements**

- Added "rotation angle" to the "Manipulate Selected Images" dialog box.
  - If one image is selected then it sets the rotation angle of that image
  - If more than one image is selected, the angles get applied proportionally to each image. For example, if you selected 4 images and apply 33 degrees, then 0, 11, 22, and 33 degrees get applied to the 4 selected images.

### **Bug Fixes**

- When nothing was set in [Network Preferences](#), it was possible for the [Sequencer](#) to initialize with the [Control Lights](#) box checked and no obvious way to turn it off. Going forward, when nothing is set in Network Preferences the Control Lights button will be unchecked, and a message will remind the user "Network Preferences must be set before you can control lights". Reported by Drew Hickman.
- In the [Sequencer](#), when you created a prop with the [custom shape](#) using version 5.3.4 and earlier, the [autonumber function](#) had a maximum value of 16,000 and would crash when it tried to insert 16,001 in the custom grid. Going forward, the maximum value has been increased to 999,999 and the program will not crash if you exceed that number. Reported by Jeff Banbor via the help desk.
- The [Sequencer](#) could crash when clicking on a motion effect in the grid or when opening the Motion Effect Generator. Reported by Jeff Banbor and others.
- In the [Sequencer](#), in certain situations, clicking any of the play buttons on the Playback Window would result in a message of "Unable to Start Playback", whereas the play buttons above the sequence grid would recalculate data and then start playing the sequence. Reported by user stevehoyt. <http://forums.lightorama.com/topic/49605-unable-to-start-playback/>
- In [LOR Hub](#), when editing or creating a [computer based simple show](#), the 'remove' button would not remove a selected sequence properly.
- In [LOR Show Editor](#), only legacy (.LAS, or .LMS) [sequences](#) could be selected for [interactive](#) shows and cleanup sequences. This has been fixed to include S5 Sequencer (.loreedit and .lorprot) files.
- In [Superstar](#), if you switched to large grid and then did [Instant Sequence](#) the program would crash.

- In [Superstar](#), the progress dialog box was not updating.
- In [Superstar](#), enhanced the "Set group time range" button on the toolbar so that it proportionally sets the start and end time of all selected effects. This is particularly useful if you have a bunch of adjacent image actions and want to change the time range of the entire group.

## What's New in Version 5.3.4

- [Sequencer Enhancements](#)
- [Bug Fixes](#)

### **Sequencer Enhancements**

- Added a text filter to the [Online Prop Import dialog](#), so you can filter the listed props by their description. Requested by Light-O-Rama.
- The timeline now uses a little less vertical space, and is displayed with a better font. Requested by Light-O-Rama.
- Converted the "Timing" select action to a lock icon on the timing grid [toolbar](#). This allows a user to create effects and adjust timing marks without having to go back and click on the toolbar. Requested by Drew Hickman.
- Added a new playback marker style: show moving marker and highlight timing marks. Selectable in the [Playback tab of Sequencer Preferences](#). Requested by users at Christmas Expo 2019.
- The portion of the [toolbar](#) related to the timing grid can now be positioned on the left or right side by right-clicking anywhere on the top toolbar and picking an option from the pop-up menu. Requested by users at Christmas Expo 2019.
- Clicking an effect "Type" button on the [toolbar](#) will automatically change the select action to "Create". Requested by users at Christmas Expo 2019.

### **Bug Fixes**

- In the [Sequencer](#), resizing the Effect Samples window when color favorites are displayed can cause the color samples to be redrawn incorrectly (stutter pattern). Reported by Light-O-Rama.
- In the [Sequencer](#), with license levels of Advanced or below, the Color Favorites buttons at the top of the Effect Samples window do not wrap around if the window is too narrow to display them all. Reported by Light-O-Rama.
- In the [Sequencer](#), disable the background brightness slider on the playback window when a motion effect is playing, or if the sequence's preview doesn't have a background image. Reported by Light-O-Rama.
- In the [Sequencer](#), tick marks on the timeline and timing marks on the sequence grid were misaligned by 1 pixel in many cases. Reported by Light-O-Rama.
- In the [Sequencer](#), subsequence names were not being displayed on the grid. Reported by users at Christmas Expo 2019.
- In the [Sequencer](#), when creating color fade effects, the Slope setting is now taken into account. The "O" shortcut key simply selects the Color Fade effect type on the toolbar, it doesn't actually create an effect. To create color fade effects with shortcut keys, use "A", "I", "D", and "U". Reported by users at Christmas Expo 2019.
- When playing a show or creating an SD card, fixed issue with playback file creation checking the preview revision. As a fix, the preview revision number is now part of the playback file name. Reported by user default. <http://forums.lightorama.com/topic/49511-bug-report-pm02-show-player-processes-all-files-and-updates-playback-files-every-time-it-restarts-even-if-the-base-files-have-not-changed/>
- On a very limited number of computers, [LOR Hub](#) could refuse to open and/or crash with a runtime

error 50003. This error was related to certain graphics used in the application, and those graphics have been replaced. Many thanks to Monty C. for helping us track down this issue.

- When creating [SD cards](#) with [LOR Hub](#) using Sequencer ['.loredit'](#) files, Hub would refuse to create the card with a generic 'There was a problem creating your SD Card' error. Hub was improved to display a more descriptive error, and the bug preventing the creation of the SD cards was fixed.
- When creating [SD cards](#) that use [triggers](#) and the ['Round Robin'](#) style of play, an incorrect configuration was created on the SD card.
- In [LOR Hub](#), when creating a [simple PC show](#), S5 sequences were not sorted properly.
- In [Superstar](#), if you have two screens with the main screen in one monitor and the sequencing grid in another monitor and the main screen is shorter in height than the grid screen, then the click and drag drawing in image mode on the grid screen stops working when you go beyond the height of the main screen.
- In [Superstar](#), scene elements with a Y coordinate beyond 128 were not working.
- In [Superstar](#), when adding images from a gif, it was not remembering the rotation angle.
- In [Superstar](#), "image" now works in group modify.
- In [Superstar](#), fixed it so you can use "large grid" in the "image setup" dialog box when superstar is launched from the S5 Sequencer. Also allow setting the size of the "large grid".
- In [Superstar](#), optimized the "click and drag" drawing speed on the green sequencing grid so you can more easily draw images on pixel grids with large numbers of pixels.
- In [Superstar](#), improved layout of green pixel grid so it fits onto the screen for large numbers of pixels.
- In [Superstar](#), changed the terminology for the license level from things like "2\_CCR" to "100\_pixels".

## What's New in Version 5.3.2

- [Bug Fixes](#)

### **Bug Fixes**

- In [LOR Hub](#), certain store web pages would generate Javascript errors. Instead of opening these pages in Hub itself, now an external web browser is opened.
- In the [Sequencer](#), the user now has a choice of displaying the tool buttons along the right side of the grid, or immediately above it. User can right-click in the tool button area to access available display options. Reported by user PhilMassey and others.
- In the [Sequencer](#), a new select action of "Timing" has been added. It replaces the "Lock Timings" option that was present in a couple of menus in prior versions. The new Timing button is only enabled when a Freeform Timing Grid is selected. If the new Timing button is selected, then timing marks are unlocked and right-clicking on the grid opens directly to the Timing Mark menu. For any other Select Action, timing marks are locked, and right-clicking on the grid opens the context menu present in previous versions (Timing Mark is a sub-menu). Reported by user PhilMassey. <http://forums.lightorama.com/topic/49037-thoughts-on-s5/>
- [Sequencer](#) bug fix: when chasing an RGB color, for example green, the chase becomes white when the chase crosses from one grid view group to the next. Reported by user PhilMassey.
- In the [Sequencer](#), you can now right-click on the toolbar that includes the playback buttons to set the maximum size of the buttons. Choices are: large, medium, and compact. Reported by Drew Hickman.
- When dragging effect edges in the [Sequencer](#), if you drag the beginning of an effect to the right past the effect's end, the effect will now be deleted. Similarly, if you drag the end of an effect to the left past the effect's beginning, the effect will be deleted. Reported by Drew Hickman.
- In the [Sequencer](#), when the motion effect source is set to "Samples", the Effect Samples window



will be made visible if it is hidden. Reported by Light-O-Rama.

- [Sequencer](#) bug fix: after modifying a preview, you might get the following error while opening a sequence: "An entry with the same key already exists". Reported by NJ Malenke via the help desk.

## What's New in Version 5.3.0

- [Creating Shows/SD Cards/Controller Stand-Alone sequences with Native LOR Sequences](#)
- [Support for N4G4 Linked Directors](#)
- [New Firmware for N4G4 Directors](#)
- [Upcoming changes to LOR Hardware Utility](#)
- [Auto Sequencing of Singing Faces in Superstar](#)
- [Sequencer Motion Effect Changes and Additions](#)
- [Sequencer Improvements](#)
- [Bug Fixes](#)

### ***Creating Shows/SD Cards/Controller Stand-Alone sequences with Native LOR Sequences***

In previous versions of the software, you could not directly schedule, load to a controller (stand-alone mode), or create SD cards with native (IE .loredit) files. Instead, you first needed to create legacy files (IE .LMS or .LAS - sometimes referred to as 'playback files'), and then use those. The suite can now instead take native .loredit files for all of these functions without the need for manually creating 'Playback' files, and use them directly.

LOR Hub, LOR Show Editor, and LOR Hardware (stand-alone loading only) can now accept native S5 files.

### ***Support for G4 Linked Directors***

With the newest generation of [LOR MP3](#) directors (Generation 4), some directors [have the ability to be 'linked' together](#) - allowing for a show with an almost unlimited number of networks or DMX universes to be run from these directors.

[LOR Hub](#) is required to create the SD card sets for linked directors, and you must use the [Advanced SD Card Wizard](#) to create them. N4G4 Directors require at least [firmware](#) version 6.2 to use director link.

### ***New Firmware for N4G4 directors***

New firmware for N4G4 directors has been released to support Director Link mode.

### ***Upcoming changes to LOR Hardware Utility***

[LOR Hub](#) has now taken over all SD card creation tasks for [MP3 directors](#). In the future, the [SD card creation](#) process that is available in the LOR Hardware Utility will be removed. You should be using LORHub for ALL SD card creation tasks.

### ***Auto Sequencing of Singing Faces in SuperStar***

A new feature has been added to [auto-sequence singing faces](#) in SuperStar..

### ***Sequencer Motion Effects Changes and Additions***

Added new parameter to the Meteor motion effect called "Speed Mode". Speed mode has 2 values: "pixel rate" uses the existing fall rate calculation; "scaled rate" will cause meteors to fall at a rate that scales with the size of the prop. Requested by Light-O-Rama.

Added a new parameter to the Meteor motion effect called "Drop Mode", which adds new patterns to meteor drops (in addition to the existing random pattern). Requested by Light-O-Rama.

Added new option to fill corners on the Marquee motion effect. Requested by Steve Warner.

Added additional options to pre-scale an image in the picture effect: fit-to-width and fit-to-height -- which maintain the image's aspect ratio. Also increased maximum horizontal and vertical scale values from 100% to 400% so images can be stretched if needed. Requested by Steve Warner.

Added movement options to the Picture and Text effects that are essentially the second half of the Peek-a-boo movement. The options are: reverse, exit\_left, exit\_right, exit\_top, and exit\_bottom. Reverse is the default and replicates the functionality of prior versions. Requested by Drew Hickman and user Little\_b.

Added ability to adjust red level, green level, and blue level independently in the picture Picture effect. Also added the ability to adjust transparency of the picture. Requested by Light-O-Rama.

Made picture and movie effect references stored in a sequence file relative to the sequence directory. This makes it easier to move the sequence to another computer, as long as the picture and movie files are stored in the sequence folder or in a sub-folder below it. Implemented in response to a help desk ticket.

### ***Sequencer Improvements***

You can now select S5 sequences (LOREDIT extension) when creating a show. They can also be selected when creating an SD card in LOR Hub. Playback files are now created and updated automatically behind the scenes. "Create Playback Files" has been removed from the Sequencer File menu, as it is no longer needed. Requested by Light-O-Rama.

The motion effect toolbar button has been combined with the motion effect selection window. Now, when the motion effect toolbar button is selected, the motion effect tool window will open; and when another toolbar button is selected, the window will close. This works in a similar manner to the Color Fade tool. Requested by Light-O-Rama.

Added the ability to drag the ends of channel and motion effects to adjust timing or create a fade. This feature is enabled or disabled by clicking on a new toolbar button next to the "nudge" tools. Requested by Light-O-Rama.

On the toolbar, the channel effect selection has been changed from a drop-down, to a series of buttons. A new "foreground" button allows you to change the intensity of existing effects. Requested by Drew Hickman.

Changed the preview name on the toolbar from a drop-down menu, to a button. Now clicking on the preview name takes you directly into Preview Design. Requested by Light-O-Rama.

The preview name is now displayed on the toolbar in a fixed width box, so that toolbar button location won't vary based on the length of the preview name. If the preview name is longer than the box, you can hover your cursor over it and a tooltip will the full name of the preview will be displayed. Requested by Drew Hickman.

Moved audio wizard items on the main menu from the Sequence menu to the Tools menu (to be more consistent with the S4 Sequence Editor). Menu items have also moved one level up, so they take one less click to access. The audio wizards can also be accessed from various context (right-click) menus -- and those remain unchanged. Requested by Drew Hickman.

Converted the right-click menu of the playback window (play, stop, and background image brightness) to a toolbar, to make it more user-friendly. Requested by Light-O-Rama.

Increased the number of tiers on a "Tree 360 Panels" shape from 12 to 25, and added a pixel offset parameter for each tier. Panels with traditional lights are now supported. Requested by Drew Hickman.

"Tree 360 Wedges" using traditional strings (megatrees) will now display their channels in the correct order when a sequence is first created. Requested by Drew Hickman.

Megatrees and segmented arches with traditional strings will now avoid the r/c nomenclature in their names and instead use "string" or "bundle". Requested by Light-O-Rama.

In File References, allow the user to change a file name, not just a directory. Requested by Light-O-Rama.

In prior versions, space-bar playback moved the selection when stopping, but clicking the stop button on the toolbar did not. Now, clicking the stop button during playback will also move the selection (like the S4 Sequence Editor). You can prevent the selection from moving by shift-clicking on the stop button. Requested by Drew Hickman.

Changed "Unit #" to "Unit ID" in Prop Definition dialog to be consistent with controller documentation. Requested by Light-O-Rama.

On the "Channel Conflicts & Bulk Changes" tab in Preview Design, renamed the "Reorder Strings" menu item to "Reorder Circuit/Channel Numbers". The new name better reflects the function. Requested by Light-O-Rama.

On the "Channel Conflicts & Bulk Changes" tab in Preview Design, added the "Add Leading Zeros To Numbered Prop Names" menu item. Any selected props that have a number in their name will have leading zeros added to the number. This can aid in sorting the props in the desired order on the sequence grid. Requested by Light-O-Rama.

On the "Channel Conflicts & Bulk Changes" tab in Preview Design, added the "Replace Text In Prop Names" menu item. This function gives you the ability to search for and replace text in prop names, just like you would in a word processor. Requested by Light-O-Rama.

Added ability to sort the current grid view. Sort option is on the grid view menu. Requested by Drew Hickman.

Added ability to sort channels by physical channel settings. Requested by Drew Hickman.

When opening the motion effect generator with more than one motion effect row selected, you will now get an error message. Also, when editing a motion effect in a sequence, you can no longer change the prop/group drop-down. Requested by Drew Hickman.

When the toolbar tool is set to Motion Effect or SuperStar, the cursor is now sensitive to the type of row it is over and will only display the pencil cursor when over a motion effect row. Requested by Drew Hickman.

Improved the display of Motion Effect thumbnails for the built-in effects. Requested by Light-O-Rama.

The SuperStar toolbar button now has an option to always apply the effect to the entire row. Requested by Light-O-Rama.

The "Add/Modify Motion Effect Rows" dialog is now resizable, along with other tweaks. Requested by Light-O-Rama.

Importing Boscoyo props will now create Motion Row Defaults where they exist in the Boscoyo data (e.g. Chroma Bulbs). Requested by Light-O-Rama.

Added ability to create and edit custom motion effect subsections (subsection no longer have to be rectangular). Requested by Light-O-Rama.

Made it easier to start dragging timing marks on the grid -- the mouse pointer no longer needs to be directly over the timing mark, it can now be within a few pixels of it. Requested by Light-O-Rama.

The motion effect and SuperStar buttons on the toolbar are now disabled when the current grid view does not contain any motion rows. Requested by Drew Hickman.

If have a Pro license: after changing the preview assigned to a sequence, if there are pixel-based props without a motion effect row, you will be asked whether you want to add a motion effect row to each of those props. Requested by Light-O-Rama.

The sequence file name on the tab header had an asterisk suffix when there were unsaved changes in the sequence. However, being at the end, the asterisk wasn't always visible. So the asterisk indicating unsaved changes has been moved to the front of the file name. Requested by Light-O-Rama.

When selecting a region of the grid using the mouse and you reach the grid's edge, the screen will start automatically scrolling. Now the scroll speed will increase the further outside the grid boundary you get (like SE). Requested by user dgrant.

<http://forums.lightorama.com/topic/49296-s5-suggestions/>

## **Bug Fixes**

### **For LOR Sequencer:**

The pencil cursor now scales with Windows scaling. Reported at Expo 2018.

After selecting "Add/Modify Motion Effect Rows" and then changing the size of a row's subsection, then clicking OK to close the dialog, the preview did not recalculate and display effects using the new subsection size. Reported by Light-O-Rama.

"Add/Modify Motion Effect Rows" and "Delete Motion Effect Row" (and a few other entries on the Item List's right click menu) are now disabled while calculations are running, as this could cause

data corruption. Reported by Light-O-Rama.

Animated GIF images used in a Picture motion effect may flicker. Reported by user default.

<http://forums.lightorama.com/topic/49129-ver-524-problem-with-picture-motion-effect-animated-gifs/>

Text in the title of the Playback window was changing appropriately when the window was docked to the main form, but not when it was undocked/floating. Reported by Light-O-Rama.

When the Playback window was undocked/floating and had focus, the space bar would not start sequence playback. Reported by Drew Hickman.

When double-clicking on a cell in a motion effect row, then cancelling out of the Motion Effect Generator, the playback window no longer displays a motion effect. Reported by Light-O-Rama.

When upgrading a sequence and using the Sequence Editor animation for the preview, for any RGB channels in the sequence that were not in the animation, S5 created an RGB channel prop as well as props for each of its red, green, and blue components. Now it correctly creates a single prop in this situation. Reported by Light-O-Rama.

When creating a new preview group, sub-props (props where the "Uses the same channels as" field is set) were allowed to be members of the group. Reported by Drew Hickman.

If a sequence had beat channels or loop rows, it was possible for the yellow box indicating the selected area to be incorrectly drawn and overlap between fixed rows at the top and the main part of the grid. Reported by Light-O-Rama.

In the Motion Effect Generator, you can now mute and un-mute during the middle of effect playback.

Clipboard files (.LCB file extension) created in S4 (or earlier versions) that contain RGB channel data now paste correctly into S5 RGB channels. Reported by Stephen Chapman via the help desk.

## What's New in Version 5.2.4

- [LOR Hub now supports all SD card options](#)
- [LOR Hub can now turn off SD card schedule days if desired](#)
- [Improvements in LOR Hub for creating SD cards with PC configuration](#)
- [Simple Show Builder is being removed with the next release](#)
- [Superstar Improvements](#)
- [Sequencer Improvements](#)
- [Sequencer Bug Fixes](#)
- [Bug Fixes](#)

### ***LOR Hub now supports all SD card options***

The LOR Hub program can now create SD cards with a full range of options, including triggers, filler sequences, starter sequences, etc. In a future release, SD card building will be removed from the Hardware Utility and the Simple Show Builder will be removed from the suite.

### ***LOR Hub can now turn off SD card schedule days if desired***

Previously there was no way to stop an SD card show from running on a particular day, except by

using a workaround of setting the start and end times for a particular day the same. LOR Hub can now properly turn OFF a schedule for a particular day.

### ***Improvements in LOR Hub for creating SD cards with PC configuration***

When creating an SD card in Advanced mode in Hub, a new option has been added to configure the MP3 Director's ports the same way as those ports are defined on the computer. This can help with ease of setup of MP3 directors.

### ***Simple Show Builder is being removed with the next release***

[LOR Hub](#) has taken over all functions of the old Simple Show Builder program. In the next release this program will be removed from the suite. Instead, use LOR Hub to create your shows.

### ***Superstar Improvements***

- Added support for group modify of "average time length of effects" and "skip inactive grid squares"
- Added the "Do Scene Thinning" option in the ["Move or Scale Selected Effects" dialog box](#)
- Added "Orientation" setting in the [Preferences dialog box](#)
- Added support to convert 6 channel star effects to white effects on RGB stars from other vendors (previously it only worked for the standard 200 pixel RGB star)

### ***Sequencer Improvements***

All 3 windows on the Motion Effect Generator now update simultaneously, which is also a performance improvement. Previously they could update slightly out of sync for very large props. Requested by Light-O-Rama.

If the user selects Create Playback Files from the menu and the sequence hasn't been saved, the user is now offered a chance to save it (without having to cancel, save the sequence, then try and create playback files again). Requested by user ndutton.

<http://forums.lightorama.com/topic/48065-reduce-the-clicks/>

Enhancement: when opening a sequence, archived props will automatically be un-archived if a prop with the same name has been added back to the sequence's preview since the sequence was last opened. Same logic will also apply when you change the preview assigned to a sequence. Requested by Light-O-Rama.

Enhancement: more accurate conversion when assigning a different preview to an existing sequence. Requested by Light-O-Rama.

Performance improvements to the Picture motion effect. Requested by user jamills706.

<http://forums.lightorama.com/topic/48263-spinning-orange-circle-forever/>

In the New Animation Sequence dialog, show the sequence length as words, and give a warning when OK is clicked and the length is more than an hour. Requested by user Rabeiler.

<http://forums.lightorama.com/topic/48288-animation-sequence-will-not-preview/>

In the sequence grid, the drop-down list of grid views would previously display views in the order they were created. Now, the system grid view (Show All Items) is listed first, and then user-created grid views are listed in alphabetical order. Requested by user Jade Rymkos.

<http://forums.lightorama.com/topic/48687-is-there-a-way-to-reorder-grid-views/>

Increased the maximum number of bulbs in a bulb shape to 999. Requested by users dibblejr and gsmith37064.

<http://forums.lightorama.com/topic/48682-moving-s4-to-s5/>

In the Paste Special dialog, you can now specify the spacing between horizontal copies. A negative value yields an overlap, a positive value leaves a blank space between each copy. 0 is always the default value (it is not remembered between uses). Requested by user spascall.

Added new "hold" effect, which freezes the state of the prior effect. For example, you can freeze and unfreeze a spiral effect to the beat of the music by alternating spiral and hold effects on the same motion effect row. The hold effect must be touching the prior effect to work. Requested by Light-O-Rama.

In Prop Definition, added "Arm Thickness" parameter to the Star shape. A value of 1.0 is the normal thickness. Smaller values make the arms thinner. Requested by Light-O-Rama.

New tab on Sequencer Preferences that allows the user to choose among 3 edit cursors. Previously, only the yellow pencil was available. Requested by user bdwillie.

<http://forums.lightorama.com/topic/48787-sequencer-pencil-pointer/>

"Custom Chase" options are now available on the toolbar via a new drop-down arrow next to the chase button. The chase options will also get saved with the sequence, and recalled the next time the sequence is opened. Requested by Jack Richter via help desk.

Add the "+" shortcut key for the Repeat function (to match SE). Requested by Light-O-Rama.

Added the Enter shortcut key to place an effect in the grid (to match SE). Requested by Light-O-Rama.

Added option in preferences (Channel Effects tab) to view fades as ramps. Requested by multiple users.

Added option in preferences (Channel Effects tab) to adjust background color of channel rows in the grid. Requested at Christmas Expo.

In Prop Definition's layout tool for custom and advanced shapes, there is a new "Crop" function that removes extra rows and columns. Requested by Light-O-Rama.

Added Help buttons ("?" icon) to Preview Design, Prop Definition, Group Definition, and Custom Grid screens. Requested by Light-O-Rama.

Increased the max width and height on the SimpleShape effect to 1000% in order to allow shapes to expand beyond the prop boundaries. Requested by user Mike Baldwin.

## ***Sequencer Bug Fixes***

Bug fix: in the sequence grid, right-clicking on a "member props" or "member groups" node and selecting "Hide Group Members" from the pop-up menu disabled further highlighting of prop names as the mouse pointer was moved. Reported by John Johnson Jr via help desk.

Bug fix: in rare cases the Sequencer could crash if 1) the LOR Control Panel was running when the Sequencer started, and 2) a Schedule was enabled or Show on Demand was running, and 3) the

option to Control Lights when the Sequencer started was enabled. Reported by Jim Wright via help desk.

Bug fix: S5 Verifier checked for application files that don't exist in S5, which resulted in "Message Number 7" errors that were not really errors. Reported by stevehoyt, TitusCarnathan, richmuller and others.

<http://forums.lightorama.com/topic/47959-tc-72-verifier-losing-its-mind/>

<http://forums.lightorama.com/topic/47777-52-verifier-errors/>

Bug fix: when using music to control a slider in the Motion Effect Generator, the audio data was being pulled from the wrong part of the sequence. The effect used the correct audio data when placed in the sequence grid -- the error was only when the effect was displayed in the Motion Effect Generator. Reported by Light-O-Rama.

Bug fix: when you imported an S5 prop file in Preview Design, clicked the "Set Channels" button, then changed the name of the prop while setting channels, the resulting list of props and groups to the left of the design canvas would no longer be in alphabetical order. Reported by user ndutton.

<http://forums.lightorama.com/topic/48041-preview-design-bugs-and-suggestions/>

Bug fix: if a sequence gets moved to another folder or to another computer and the media file is in the same folder as the sequence, then playback files created from the new location could point to the wrong folder for the media file. Reported by user ndutton.

<http://forums.lightorama.com/topic/48059-missing-files-bugs-and-suggestions/>

Bug fix: when the sequence length was changed, the sequence was not marked as containing unsaved changes. Reported by Light-O-Rama.

Bug fix: in rare cases, effects could exist in sequences past the end of the sequence. When using playback files for such sequences, the Show Player would refuse to play the song with the message "ERROR STARTING SEQUENCE (Invalid end centisecond for last replacement event: 78195; channel is 55210 centiseconds)". Reported by NJ Malenke and stevehoyt.

Bug fix: if Holiday Lights Designer was enabled in S4 and then the user upgraded to S5, the Show Player would display errors in the log like "ERROR PLAYING SEQUENCE (Address in use Trace: UDP SetIntensity Trace: HandleIO)". Reported by Derek Flint via help desk.

Bug fix: certain combinations of removing and renaming props in a preview could leave a sequence unable to be opened (error message "An entry with the same key already exists"). Reported by Michelle Lovering via help desk.

Fix crash when Windows policy "System cryptography: Use FIPS compliant algorithms for encryption, hashing, and signing" is enabled. Reported by Dave Webb via help desk

<https://support.microsoft.com/en-us/help/811833/system-cryptography-use-fips-compliant-algorithms-for-encryption-hash>

The LOR SC485 serial port adapter (not USB) now works with the S5 Sequencer. Reported by several users via the help desk.

Fixed the online import of "Boscoyo ChromaStar 36 3 ring". Reported by Mike Baldwin via help desk.

Bug fix: in the Motion Effect Generator, double-clicking on a slider did not fully unlock it. Reported by Light-O-Rama.



Bug fix: in the Motion Effect Generator, effects with alpha transparency were not displayed correctly in the left and right windows. The combined window was correct. Reported by Light-O-Rama.

Bug fix: if the user right-clicked on a cell in the sequence grid, and then right-clicked on another cell in a different row, several cells in the clicked column would be selected. Reported by Light-O-Rama.

Bug fix: when doing Repeat, then Undo, then Redo, the Redo was done in the wrong place. Reported by Light-O-Rama.

Fixed a bug with clipboard files, where files created as part of the "Papagayo to LOR" process could not be pasted. Reported by Dennis Holliday via the help desk.

Bug fix: in the Control Lights window, unchecking a box for an enhanced LOR network or for DMX, did not actually stop output from going to those networks. Reported by Light-O-Rama.

### **Other Bug Fixes**

- In [LOR Hub](#) and Hardware Utility, sequences with DMX Fades when written to the SD card could cause the MP3 director to go out of sync.
- [LOR Hub](#) was not able to properly create an SD Card schedule. The schedule would always revert back to the defaults instead of what the user specified.
- [LOR Hub](#) would crash if the user attempted to create an SD card show with no sequences in the create list.
- During installation, the Post Install process was not creating 3 new superstar visualization samples.
- In [Superstar](#), text masks were not working in visualizations where some of the mask is outside of the matrix.
- In [Superstar](#), fixed a bug where the white color control was not appearing if the only white that existed was in images.
- In [Superstar](#), changed it so you can do "merge intensity data files" even in the demo version
- In [Superstar](#), fixed a bug where scene pixels were getting clipped out if the clip region was on the right half of the wrap around screen

## **What's New in Version 5.2.2**

- [Updates to the Sequencer](#)
- [Superstar 'Add +' button](#)
- [Bug Fixes](#)

### **Updates to the Sequencer**

A "Where Used" function has been added to the [File References dialog](#), so you can find the effect that uses a missing reference. Requested by Michael Lenbom via help desk.

In the [Prop Definition](#) screen, when defining a "Tree 360 Up & Over" shape using pixels, the shape diagram will now indicate the location of the first pixel on each string. Requested by Light-O-Rama.

The user now has control over how "smooth to fades" is applied with a new sub-menu: Sequence > Smooth To Fade Level. This setting controls whether adjacent effects are merged together or not. Previously, the level was fixed at the "mild" setting; however, with the mild setting it is impossible to

create DMX intensities that are 2 steps apart (for example: 65, 63, 61). Requested by Drew Hickman.

Updated the pencil icon to be more visible, and moved the tip to the upper left. Requested by Ernie McAnally via help desk.

If the user had a [Pro license](#), when they created Playback Files an intensity data file (.LID extension) was always created. Now an intensity data file is only created if the sequence has props that use DMX or Enhanced LOR networks. Requested by Light-O-Rama.

Added a "How Do I Get Started?" link at the top of the "Start Page". Requested by Light-O-Rama.

### ***Superstar 'Add +' button***

In the "Image Setup" dialog box, a new button was added called "Add +". The "Add+" button adds the current image to the image action, selects the next image, and bumps the time ruler selection forward. This makes it easy to add a series of images for an animation.

### ***Bug Fixes***

- In certain circumstances, [LOR Hub](#) could create a [computer show](#) with incorrect sequence entries. When enabling the show, [LOR Show Player](#) would not be able to find the correct sequence.
- In certain circumstances, [LOR Hub](#) could create an [SD card](#) with sequences that in the future could not be edited. The SD card would however work.
- If a [MotionPak](#) in [LOR Hub](#) did not have the same upper/lowercase as the base sequence, LOR Hub would not be able to find it.

## **What's New in Version 5.2.0**

- [New Program: LOR Hub](#)
- [Updates to the Sequencer](#)
- [Bug Fixes](#)

### ***New Program LOR Hub***

A new program for the [Showtime Suite](#) has been added called '[Hub](#)'. Hub currently has 2 main functions.

1. It enables our new [MotionPak technology](#) which allows you to modify LOR Sequence Store sequences for use with props the LOR Hardware Store will sell. The first props will be 'Singing Faces'
2. It is the replacement for [Simple Show Builder](#). [Simple Show Builder](#) is still available in this release, however it will be removed in a future release. If you previously used Simple Show Builder you should move to Hub.  
Hub can create both [simple computer shows](#), as well as [SD card shows for MP3 directors](#).

In future releases, [Hub](#) will continue to grow and will be taking over all 'show' type functionality including things like the [Show Editor](#), [Show Scheduler](#), and Building advanced SD cards for MP3 Directors from the [Hardware Utility](#).

### ***Updates to the Sequencer***

If the content of the [Start Page](#) extends beyond the bottom of the window, the vertical scrollbar that is displayed now spans the entire right edge of the window - making it easier to scroll. Reported by Light-O-Rama.

Bug fix: if the user made the [Start Page](#) a floating window, then selecting [Window > Reset Window Layout](#) would close the Start Page. Reported by Light-O-Rama.

The first 4 items on the [Windows menu](#) have been renamed: "View Playback Window", "View Motion Effects Window", "View Previews Window", and "View Control Lights Window". Also these items will only be shown if the respective window is currently hidden ("X" in the upper right corner of the window has been clicked). This should make it clearer what these menu items do, particularly the Control Lights item. Reported by Light-O-Rama.

If the content of the [Control Lights window](#) extends beyond the bottom of the window, a vertical scrollbar is now displayed. Reported by Light-O-Rama.

The [Start Page](#) can now be hidden, unhidden, and floated just like the Previews and Control Lights windows. Reported by Light-O-Rama.

Bug fix: the TextPE effect did not display the text specified by the user. Reported by user Dave Trollope via help desk.

Bug fix: if a sequence used video media and Loop At End was enabled for playback and video playback was set for full screen, the video window would often get resized instead of remaining full screen. Reported by user Bry.

<http://forums.lightorama.com/topic/47295-video-playback-issue-in-shows/>

When you right click on the sequence grid, there is a new sub-menu under Timing Marks > Insert Timing at Selection, with options for Left, Right, and Both. This will insert timing marks at the left and/or right edge of the grid selection. Reported by user Luke Kamp via help desk.

Bug fix: on [Preview Design's Channel Conflict tab](#), clicking a column heading in the conflict list would crash the program. Now clicking a column heading sorts the table according to the values in that column. Reported by Light-O-Rama.

On [Preview Design's Channel Conflict tab](#), there are now fields for the user to enter text to filter the list by name or by channel. A "Select All" checkbox was also added. Reported by Light-O-Rama.

When dragging a favorite or subfolder in the [Motion Effect Generator](#), the favorites tree will now auto-scroll when the cursor nears the top or bottom edge. Reported by user NJ Malenke via help desk.

Bug fix: when moving a timing mark with "Drag events with timings" enabled, the [Sequencer](#) could crash in some cases. Reported by user Peter Dusaitis via help desk.

Bug fix: the "Create an empty freeform timing grid" check box on the [New Animation Sequence dialog](#) did not actually create a freeform timing grid. Reported by Light-O-Rama.

You can now right-click on the [Playback Window](#) and change the brightness of the background image (if there is one). Reported by Light-O-Rama.

[RGB aggregates](#) with one or more sub-channels (red, green, or blue) left undefined, could cause the Sequencer to crash when modifying effects. Reported by user Keith Henrickson via help desk.

Added new dimming curves to the Prop Definition screen: Linear\_30pct, Linear\_40pct, PixelCurve\_30pct, PixelCurve\_40pct. Reported by user jamills706.

<http://forums.lightorama.com/topic/47355-dimming-curves-question/>

[Windows Shell Commands](#) get shared between sequences if you use File > Save As to create a new sequence. Specifying a new command from the revised screen will only affect the sequence that is open. Reported by user k6ccc.

<http://forums.lightorama.com/topic/47372-windows-command-changes-affects-multiple-sequences/>

In rare cases where 2 props in a preview have the same name, the entire preview file would not load at startup. Now the preview is loaded and a warning about duplicate names is shown on the "Other Warnings" tab of Preview Design. Reported by Light-O-Rama.

Fixed playback issues when sequences are arranged side-by-side. Reported by user NJ Malenke via help desk.

A "Copy to Clipboard" function has been added to the File References dialog. For sequences with many motion effect file references, this can allow you to paste the list of files into a spreadsheet or word processor for further analysis. Reported by user Stephen Chapman via help desk.

Bug fix: title bar of [Playback Window](#) was not showing the name of the current motion effect when one was clicked on in the sequence grid. Reported by Light-O-Rama.

During sequence playback, the Color Fade tool is now grayed out like the rest of the toolbar. Reported by Light-O-Rama.

If a comm port is unable to be opened, added a tip to the error message: "Make sure shows are disabled and the Hardware Utility is closed". Reported by user stevehoyt.

<http://forums.lightorama.com/topic/47470-problem-enabling-comm-port/>

Added new menu items when right-clicking on the [Preview Design canvas](#): Add, Modify, Copy, and Delete. Reported by Light-O-Rama.

Improvements when upgrading Pixel Editor previews and sequences to S5 for non-US customers -- problem occurred on PC's configured to use a comma as the decimal separator in numbers. Reported by user Niklas Adolfsson via help desk.

Bug fix: When using the space bar in the Tapper Wizard -- if you go one tap past when the music ends, the space bar defaults to the "exit" button and closes the wizard (thus erasing all of your "beats"). Reported by user Steve Warner.

Bug fix: the Sequencer could crash when the toolbar channel effect was set to DMX Intensity and you tried to add a motion effect. Reported by user Steve Warner.

Bug fix: clicking the Refresh button on the online prop import screen did not display the updated data correctly. Reported by Light-O-Rama.

In Archived Prop Management, added button to select all props with no effects. Reported by Light-O-Rama.

### **Bug Fixes**

- The Post Install process failed to copy 3 new examples for Superstar.

- The configuration for PixCon16 MKII devices was incorrectly showing 32 ports.
- In [Superstar](#), if the preview uses horizontal orientation and you go into "floating windows" mode, the program could crash.
- In [Superstar](#), the first time beat marks are created they are created without issue. Creating beat marks a second time incorrectly deleted them.
- In [Superstar](#), if you changed timings the program may not prompt you to save your work.
- In [Superstar](#), when using Text Masks along with scenes or morphs, it was possible that the mask was not applied.
- In [Superstar](#), when using a Text Mask or an Image Mask, if Layer Priority was disabled, foreground effects would be incorrect and background effects would not be rendered.
- In [Superstar](#), if the program was launched from S5 changes would not be saved if "Save" or "Save As" was used to save the sequence as a .sup file.
- In [Superstar](#), when using Autosequence effects, the displayed timings may be incorrectly changed to the most recently used Autosequence settings.
- In [Superstar](#), when using Autosequence if "average the time length of effects" was selected then the last few seconds of an autosequence effect may not generate triggers.
- In [Superstar](#), when using Autosequence if "Burst and Return" was used, there could be a compile issue. This happens most frequently with low sensitivity settings such as 1 or 2.
- In [Superstar](#), when using Autosequence morphs with transparency set to transparent were not being saved properly.
- In [Superstar](#), when shrinking using the pixel extender and smooth effects, the shrink did not occur properly.
- In [Superstar](#), the "Center X,Y" control in the Smooth Effects dialog box the buttons were not oriented properly when creating a horizontal sequencing grid.
- In [Superstar](#), if the pixel extender is enabled and a visualization with a sequencing grid was imported with a "max length" , a crash could occur.
- In [Superstar](#), if the pixel extender is enabled and a sequence was being shunk, only half of the effects would get applied.

## What's New in Version 5.1.4

- [Registry Wipe can now clean Program Files folder](#)
- [Updates to the Sequencer](#)
- [Updates to SuperStar](#)

### ***Registry Wipe can now clean Program Files folder***

Some versions of the LOR S4/S5 uninstaller can leave behind unwanted programs in the user's Program Files(x86)\Light-O-Rama folder. This can lead to installation problems the next time the user tries to install the software. [Registry Wipe](#) can now clean those entries up.

### ***Updates to the Sequencer***

Performance improvements:

1. The Sequencer starts about 20% faster. Reported by Light-O-Rama.
2. Improved the calculation time of Text and Picture effects. Reported by Light-O-Rama.

Countdown effect changes:

1. Added a "MM:SS" display option and allow a max of at least 1 hour. Reported by Light-O-Rama.
2. Text can now be positioned in both the X and Y directions. Forum request.

#### Changes to Preview Design:

1. you can now double-click on a prop in the design area to open its Prop Definition. Reported by Light-O-Rama.
2. The "Tree 360 Spirals" shape could display an erroneous message regarding the number of folds when the number of revolutions was set to a large number. This message has been removed and the revolution limit restored to 25. Reported by Drew Hickman and user ukoberon. <http://forums.lightorama.com/topic/46953-spiral-360-prop-tree-issue-512/>
3. Created new "Cylinder Spiral" shape for spiral-wrapped tree trunks and columns. Reported by user jamills706. <http://forums.lightorama.com/topic/46949-wrapped-tree-trunk-propmodel/>
4. On the Prop Definition screen, if the diagram area was taller than it was wide, many of the shape diagrams would overflow. Now they are properly scaled. Reported by Light-O-Rama.
5. Bug fix: a prop made of pixels that uses the "Tree 360 Spiral" shape could crash the Sequencer. Reported by Light-O-Rama.
6. Bug fix: the Prop Definition window was expecting the "Arial Narrow" font to be installed, but that font is not on all computers. On some computers this could cause the program to show a continual stream of error messages. The program will now check if the font is installed before using it. Reported by user Norm Bowman (via help desk).
7. The "Tree 360 Up & Over" shape now supports folds in the string. When used with pixels, the layout has been redone to represent pixel strings that go up and over the top of the tree. Reported by Drew Hickman and Jesse Tryon.
8. If there are any unsaved changes in the Preview Design screen and you click the Cancel button or click the Windows "X" button to close it, then you will get a message confirming that you want to continue without saving the changes. Reported by user Gordon Varney (via help desk).
9. You can now delete props from the Channel Conflicts tab in Preview Design. Select Change Selected Props > Delete Props. All of the actions on the Change Selected Props menu are also now available by right-clicking on the selected props in the Channel Conflict list. Reported by Light-O-Rama.
10. When copying a prop in Preview Design (Item > Copy), channels will no longer be renumbered if the "Uses the same channels as" field is set on the source prop. Reported by Light-O-Rama.

#### Changes to freeform play ranges:

1. Bug fix: when you were defining a freeform range for playback and you moved the cursor to the left - past the left edge of the grid - it cleared the selection. This made it difficult to select 0:00.00 as the starting point. Reported by Drew Hickman.
2. The following menu items have been added when you right-click on the timeline or the waveform (reported by user spascall):
  - a. Set Play Range Start - if no freeform play range exists, it creates a range from the selected point to the end of the sequence; otherwise it moves the start point of the existing range.
  - b. Set Play Range End - if no freeform play range exists, it creates a range from the beginning of the sequence to the selected point; otherwise it moves the end point of the existing range.
  - c. Clear Freeform Play Range - clears an existing freeform play range.

Do not allow channels to be copied in the "Show All Items" grid view. This grid view is system generated - items can be moved, but not hidden or copied. Reported by user daughjs.

<http://forums.lightorama.com/topic/47021-cant-delete-duplicate-channel-button/>

In the sequence grid, when you right click on a channel name for a prop that has multiple strings, a new "Set Channel Name" option will appear. This capability will primarily help custom props with multiple strings which get channel names like "Horatio Hornblower: r64 c31". The channel name will be stored with the preview, so it will apply to all sequences that use that preview. Reported by Robert Brescia.

In the Skew All and Skew Selection commands, the maximum offset has been increased from 10 seconds to 600 seconds. Also, the user will now have the option of skewing the current timing grid or all

freeform timing grids. Reported by user NJ Malenke.

Bug fix: changes made to the sequence while calculations are occurring (icon in the upper left is spinning), might not be reflected during preview playback. Reported by user k6ccc.

<http://forums.lightorama.com/topic/46930-modifying-motion-effects-sometimes-not-taking-the-change-until-after-opening-and-saving-the-effect/>

After clicking on a slider in the Motion Effects Generator, you can now fine-tune the value using the left or right arrow keys. If the slider is unlocked, shift-left-arrow and shift-right-arrow can be used to change the ending value. Reported by Drew Hickman.

When you right-click on the timeline or the waveform and select "Zoom In" from the menu, the zoomed sequence grid is now centered on where the right-click took place. Reported by Light-O-Rama.

In rare cases, a preview could get saved that had a prop with an invalid circuit number (like 0). In prior versions, this would result in a popup error message as the Sequencer opened; and if the preview were subsequently opened in Preview Design could result in a crash. Going forward there is no popup message when the program is opened. The preview can then be opened in Preview Design and the error will be reported on the "Channel Conflicts" tab - where it can be corrected. Reported by Light-O-Rama.

Bug fix: you are no longer allowed to drag beat channels into the list of preview props and vice versa. Reported by Light-O-Rama.

The 3 versions of the chase tool (intelligent, by prop, and by row) have been condensed into 2: regular chase and custom chase. Regular chase is the same as intelligent chase (chase by prop when the first row is a motion row, and chase by row for anything else) with the addition that the selected area for the chase is now cleared. For a custom chase, the user is prompted whether they want to chase by row or prop, and whether the selected area should be cleared. A new keyboard shortcut shift-H initiates a custom chase. Custom chase is also accessible from the right-click menu. Reported by user spascall.

When exporting the grid configuration and "Show All Items" is the current grid view, the user will now get a warning stating that "Show All Items" is a system-generated view and will not be included in the export file. Reported by Drew Hickman.

In the Paste Special window, the "All the way to the end of" drop-down box now includes the last item in the selection and the last row in the grid view. The last row in the grid view is now the default. Reported by user spascall.

Bug fix: motion effects on props should override effects on groups that they are a member of. However, that was not happening in all cases. Reported by user John Trp (via help desk).

Bug fix: the Fill tool would display the message "Trying to fill between effects, but the row is empty!" when the sequence row was not empty. Reported by user lkubsrule.

<http://forums.lightorama.com/topic/47070-s5-fill-error/>

Bug fix: Ampersands (&) in prop names would not display correctly in the sequence grid. Reported by Light-O-Rama.

When playing back a sequence to real lights and when saving playback files, the Sequencer now checks if motion effects have been placed on props connected to an LOR network that is not enhanced. If so, then the action is cancelled until the condition is fixed. Reported by Light-O-Rama.

The music is only supposed to play one time when you click the play button in the Motion Effect

Generator. However, due to a bug, if the loop button on the toolbar for the sequence was enabled, it would cause the music to repeat in the Motion Effect Generator as well. Reported by Light-O-Rama.

The Motion Effect Generator now has a mute button so users can turn off the music while creating their motion effect. Reported by NJ Malenke.

When using the Max Intensity, Min Intensity, Fade Up, or Fade Down tools, the message "'Motion effect' is selected on the toolbar, but no motion effect is currently displayed in the playback window. Would you like to create an effect using the Motion Effect Generator?" will now only get displayed when motion effect rows are part of the selection. If the effect shown on the toolbar is "motion effect" but only channel rows are selected, then the toolbar effect is changed to the ON effect. Reported by Drew Hickman.

The checkbox to enable or disable looping of effects in the Motion Effect Generator has been replaced by a toggle button (press on, press off). Also, the loop icon shown there and on the sequence toolbar will now show a red slash through it when disabled. Reported by Light-O-Rama.

Bug fix: when attempting to open a playback file (.play.lms), the program would display an error message, then go ahead and open the file anyway. Now no attempt is made to open the playback file after the error is displayed. Reported by Light-O-Rama.

Fixed the File References dialog so that long sequence names, media file names, and preview background file names wrap if they extend beyond the width of the window. Reported by Light-O-Rama.

## ***Updates to SuperStar***

### **FEATURES:**

- Several new options and effects have been added to [Superstar's Auto Sequence](#) tool including effects 'Folding Ricochet', 'Snake Up/Down', along with options to 'Skip Inactive Grid Squares' as well as 'Average the Time Length of Effects'.
- The Sequencer now sends the current timing grid to SuperStar when inserting a SuperStar effect. This allows SuperStar to display the same timings as the Sequencer.

### **BUG FIXES:**

- Exporting as intensity data could cause the program to crash
- [Text](#) masks and [image](#) silhouette masks were not keyed on their clip rectangle. Any effects that fall entirely within the mask's clip rectangle get applied to the mask.
- In the [Auto Sequence](#) dialog box if the user did not select one of the 8 custom colors, a message is now displayed.
- When saving in the [Demo](#) version, the file added to the recent files dialog was incorrectly specified as ',supe.sup'.
- When saving in the [Demo](#) Version, the suggested filename was incorrectly defaulted to ',supe.sup'.
- In some cases, opening a valid .supe file would cause an error stating the file was not created on this computer.
- Improved export speed of sequences that use large Visualizations
- Increased the number of [images](#) allowed from 1500 to 3000.
- When automatic modification of [Star Scenes](#) occurred, it was incorrectly changing the archive status of the file.
- Increased the width of every 5th long tick mark on the edge of the sequence grid
- In sequences with effect [groups](#), after a 'select all' effect groups could no longer be expanded.



- Increased available memory for both 32 and 64 bit systems.
- The number of channel elements has increased from 8 million to 50 million.
- When using Single Step, if the stop button was pressed the first selected effect was not made active. This could lead to a warning or error.
- Writing large [images](#) could cause the program to crash.
- The number of fonts has been increased to 30 to allow for user created fonts to be used.
- While using the Pixel Extender, if the Layer Priority feature was active pixels were extended too far.
- When using the [Move or Scale effects tools](#) after [selecting effects](#) that have a group in the selection, the effects would not be applied.
- When using the [Move or Scale effects tools](#) while in wrap around mode, some effects were not wrapped properly.

## What's New in Version 5.1.2

- [Updates to the Sequencer](#)
- [Updates to SuperStar](#)

### ***Updates to the Sequencer***

Sequence grid row height:

1. Bug fix: if the user repeatedly shrunk the row height in the sequence grid, they would reach certain sizes where some prop/channel names did not get displayed. Now names are always displayed, regardless of the row height. Reported by user ndutton.
2. Enhancement: depending on the row height, the Sequencer would choose one of 3 font sizes to display prop/channel names with. Now it will choose among 4 font sizes - a new one was added when the row height is extra tall. Reported by Light-O-Rama.

In Preview Design, renamed "Channel Conflicts" tab to "Channel Conflicts (and bulk change tool)" to better reflect its functionality. Reported by Light-O-Rama.

Audio wizard changes:

1. Bug fix: when the VU Wizard was set to analyze only part of the song, it would still insert timing marks and/or channel effects for the entire song. Reported by Light-O-Rama.
2. The default timing grid shown in the Beat, VU, and Tapper wizards is now the one currently selected in the sequence grid. Reported by Light-O-Rama.
3. Improved performance when the Apply button is clicked in the Beat, VU, and Tapper wizards. Reported by Light-O-Rama.
4. Bug fix: when clicking the "Start" button on the Tapper wizard, typing the space bar did not produce taps. Reported by Drew Hickman and NJ Malenke.

Moved menu item Sequence > Audio Wizards > Add Beat Channel to Sequence > Add New > Beat Channel. On the sequence grid's right-click menu, the Audio Wizards > Add Beat Channel item was removed. Added item to the Grid View menu: Add New > Beat Channel. Reported by user Drew Hickman.

Fixed multiple issues with the Renumber Strings dialog (accessed by going to Preview Design, Channel Conflicts tab, Change Selected Props > Renumber Strings). Also added a "Reverse Order" button to this dialog. Reported by user k6ccc. <http://forums.lightorama.com/topic/46721-editing-channel-assignments-information/>

The "Other Warnings" tab in Preview Design will now display a warning when the channel assignments

for a master prop and sub-prop are out of sync. A sub-prop has the "Uses the same channels as" field populated in the Prop Definition screen. Reported by user k6ccc. <http://forums.lightorama.com/topic/46721-editing-channel-assignments-information/>

Renamed the opening "Sequences" tab page to "Start Page" to better reflect its purpose. Reported by Light-O-Rama.

Enhancements to the Prop Definition window:

1. All shape parameters are now displayed in a single column list and a scroll bar will be displayed if the list does not fit in the available space.
2. There are no longer separate tabs for the "Custom" and "Advanced" shapes. The grid to edit those shapes is now accessed from a button which opens a separate window -- giving the user much more screen space to edit custom props.
3. A thumbnail view is now displayed for Custom and Advanced props in the lower portion of the Shape section.
4. The delete key can now be used to clear cells on the grid when editing a Custom or Advanced shape.
5. The last shape you used to create a new prop is now remembered and set as the default the next time you create a prop.
6. The Save and Cancel buttons were moved to the upper left corner to be consistent with the Preview Design window.

New shapes in Prop Definition:

1. Tree 360 panels. This can model large commercial trees that are assembled by tiers, and those tiers are broken into panels/branches. The shape assumes each panel has its own set of channels and that every panel is lit the same way. Requested by user Drew Hickman.
2. Tree 360 tiers. Also known as "Z trees". This shape does not support RGB pixels. Requested by user spascall.
3. Sphere and Cylinder shapes. These can be configured to display 1, 2, 3, or all 4 quadrants (vertical sections). The Tree 360 Wedges shape was also updated with a parameter to choose the number of quadrants it displays. Requested by user stevehoyt and others. <http://forums.lightorama.com/topic/46771-how-to-define-prop-for-tree-shaped-like-a-globe/>

If there are no existing previews, the Upgrade Sequence screen now disables the choose existing preview option. Reported by Light-O-Rama.

The sequence upgrade process now does a better job of handling inconsistent settings on RGB channels. Previously, some situations could cause the Sequencer to crash. Reported by user Val Bennett. <http://forums.lightorama.com/topic/46800-upgrading-sequence-error-from-s4-in-s5/>

During the sequence upgrade process, warnings about subsequence channels now include the channel name. Reported by Light-O-Rama.

Adjusted the size and layout of the New Animation Sequence and New Musical Sequence dialogs so they display correctly when the "Visual Effects" tab of Window's Performance Options dialog is set to "Adjust for best performance". Reported by user John Hall.

Adjusted the wording of items in Preview Design's "Add New Item" dialog. Reported by Light-O-Rama.

Changes to motion effects:

1. Removed the align left, center, and right buttons for the Text effect -- as they did not have any effect on actual lights. Reported by user k6ccc. <http://forums.lightorama.com/topic/46834-feature->

[request-horizontal-position-offset-in-motion-effects/](#)

2. Added TextPE effect that exactly replicates the S4 Pixel Editor's text effect to improve sequence upgrades. Adjustments to text effects in upgraded sequences are no longer required. Note there are now 2 text effects in S5: "Text" and "TextPE". Reported by Light-O-Rama.
3. Renamed the "Full Length" option in the Movie effect to "Movie Length Matches Sequence Length". Reported by Light-O-Rama.
4. Bug fix: when inserting a new motion effect, the Motion Effect Generator window could be calculating the effect "None" (blank screen) even though the selection in the drop-down box showed a different effect. This only occurred when Sequencer Preferences > Motion Effects > "When opening, initialize from the current toolbar effect and color" was unchecked. Reported by Light-O-Rama.
5. Bug fix: in some cases the bulb size slider control on the Motion Effects Generator could disappear. Reported by Light-O-Rama.
6. Bug fix: the scanner effect could cause an error during effect calculations and result in the play buttons not being enabled. Reported by Chris Reynolds and Eric Brown.
7. There is no longer a delay when you first open the Motion Effects panel until thumbnail images appear. Reported by Light-O-Rama.

On the grid's toolbar, the Motion Effects and SuperStar tools are now only visible when the user has a PRO level license. Reported by Light-O-Rama.

Added a warning when trying to use the Fill tool on an empty row. Reported by Light-O-Rama.

If the current toolbar effect is set to "Motion Effect" when the Color Fade tool is selected, the toolbar effect is now automatically changed to "On". Reported by Light-O-Rama.

## ***Updates to SuperStar***

### **FEATURES:**

- Added "Snake Up" and "Snake Down" as movement options in the Auto Sequence dialog box
- Added "skip inactive grid squares" option in Auto Sequence dialog box
- Added "Average the Time Length of Effects" option in Auto Sequence dialog box

### **BUG FIXES:**

- Fixed a bug where an encrypted file from previous versions would not read in if it has groups or timings in it.
- Added a check for "Full Range" color mode if launched from a SuperStarRequest. If in "Full Range" mode, SuperStar forces "Balanced" mode and adjusts all the color values to be 100 or less.
- Made it so every 5th long tick mark on the edges of the sequencing grid is thicker.
- Fixed a bug where if you had effect groups in a sequence and you did "select all" then you could no longer expand the effects in the effect groups
- Doubled the amount of memory SuperStar can use This prevents memory errors when compiling large sequences.
- Fixed a bug where writing out a large image could cause the program to crash.
- Fixed it so the Auto Sequence movement options work properly with pixel speeds other than 1.00

## **What's New in Version 5.1.0**

Initial production release of S5 ShowTime Designer Pixels.

### 3 Feature Comparison

The [Light-O-Rama software package](#) must be registered, with a valid license, in order to be used to its full potential. Each license contains two separate types of license levels: the main license level and the SuperStar license level.

The main license level covers all of the Light-O-Rama software package except for the [Light-O-Rama SuperStar Sequencer](#). Several different main license levels exist, each having different features: Basic, Basic Plus, Standard, Advanced, and Pro. Additionally, there is an unlicensed Demo version (which is the same as the Basic version, except that it cannot be used to actually control lights, and has encrypted save files).

The SuperStar license level covers the Light-O-Rama SuperStar Sequencer. Its possible levels have names such as 2\_CCR, 24\_CCR, 60\_CCR, and the like, indicating the number of Cosmic Color Ribbons you can use with SuperStar. Additionally, there is an unlicensed Demo version which does not allow export to an actual [sequence](#).

Any reference in this help file to a "license level" or "feature level" refers to the main license level, not to the SuperStar license level, unless specifically noted otherwise.

You will be given a chance to [register your Light-O-Rama software](#) at the time that you install it. To register after that time, or to upgrade to a higher level license, please see the "[Register Light-O-Rama](#)" (or "Upgrade Light-O-Rama") menu item on the [Sequencer's Help menu](#), or on the [Control Panel's popup menu](#).

The following chart summarizes what features are available with each license level, with details on each feature listed below the chart.

If a feature is listed as "(demo mode)", it means that the feature can be used with this license to see what it's like, but it won't be fully supported. For example, if you try one of the Sequencer's demo mode features while building a [sequence](#), you won't be able to save your changes to that sequence. Please see the details for each feature for exactly what "demo mode" means for that feature.

If a feature is listed as "(S4, not S5)", it means that the feature is support in version 4 of the Light-O-Rama Software Suite, but support has been dropped in version 5.

Any features not listed here are available with all license levels.

FEATURE	DEMO	BASIC	BASIC PLUS	STAN DARD	ADVA NCED	PRO
<a href="#">Number of LOR Units Supported</a>	0	2	4	8	UNLIMI TED	UNLIMI TED
<a href="#">Number of Grid Views Supported</a>	2	2	2	4	UNLIMI TED	UNLIMI TED
<a href="#">Full Access XML Data Storage</a>	No	YES	YES	YES	YES	YES
<a href="#">Beat Wizard</a>	(demo mode)	(demo mode)	YES	YES	YES	YES
<a href="#">VU Wizard</a>	(demo mode)	(demo mode)	YES	YES	YES	YES
<a href="#">Video Playback (Windowed</a>	No	No	YES	YES	YES	YES

FEATURE	DEMO	BASIC	BASIC PLUS	STANDARD	ADVANCED	PRO
<a href="#">Mode)</a>						
<a href="#">Show On Demand</a>	No	No	YES	YES	YES	YES
<a href="#">Schedule Shows Based on Day of Year</a>	(demo mode)	(demo mode)	YES	YES	YES	YES
<a href="#">Startup Sequences in Shows</a>	(demo mode)	(demo mode)	(demo mode)	YES	YES	YES
<a href="#">Shutdown Sequences in Shows</a>	(demo mode)	(demo mode)	(demo mode)	YES	YES	YES
<a href="#">Background Sequences in Shows</a>	(demo mode)	(demo mode)	(demo mode)	YES	YES	YES
<a href="#">Sequence in Sequence</a>	(demo mode)	(demo mode)	(demo mode)	(demo mode)	YES	YES
<a href="#">MIDI File Wizard</a>	(demo mode)	(demo mode)	(demo mode)	(demo mode)	YES	YES
<a href="#">Triggered Interactive Sequences</a>	(demo mode)	(demo mode)	(demo mode)	(demo mode)	YES	YES
<a href="#">Show Startup Options</a>	No	No	No	No	YES	YES
<a href="#">Execute Windows Shell Commands</a>	No	No	No	No	YES	YES
<a href="#">Full Screen Video Playback</a>	No	No	No	No	YES	YES
<a href="#">Multiple Networks</a>	No	No	No	No	YES	YES
<a href="#">Create Protected Sequences</a>	No	No	No	No	YES	YES
<a href="#">DMX Intensity</a>	No	No	No	No	YES	YES
<a href="#">Native DMX Devices Supported</a>	No	No	No	No	YES	YES
<a href="#">Dasher Controllers Supported</a>	No	No	No	No	(S4, not S5)	(S4, not S5)
<a href="#">X10 Controllers Supported</a>	No	No	No	No	(S4, not S5)	(S4, not S5)
<a href="#">Digital IO Cards Supported</a>	No	No	No	No	(S4, not S5)	(S4, not S5)
<a href="#">BSOFT Digital IO Cards Supported</a>	No	No	No	No	(S4, not S5)	(S4, not S5)
<a href="#">Motion Effects</a>	Create Favorites	Create Favorites	Create Favorites	Create	Create	Create

FEATURE	DEMO	BASIC	BASIC PLUS	STANDARD	ADVANCED	PRO
				Favorites	Favorites	favorites and use in sequences
<a href="#">Intensity Files and Enhanced Networks</a>	No	No	No	No	No	YES

## Number of LOR Units Supported

Except for the Advanced and higher license levels (which support an unlimited number of [Light-O-Rama controllers](#)), each license level will send [lighting commands](#) to a limited number of Light-O-Rama controllers: Basic supports a single controller, Basic Plus supports four, and Standard supports eight.

Whether a particular controller is supported or not depends on its [unit ID](#). For example, the Basic license level will send lighting commands only to unit ID numbers 1 and 2, while the Standard license level will send lighting commands to any unit that has a unit ID between 1 and 8.

Regardless of whether a particular unit will be sent lighting commands, you can always use the [Sequencer](#) to build [sequences](#) using that unit; Light-O-Rama simply will not control the lights for that unit unless you upgrade to a higher license level.

The unlicensed Demo version will not send lighting commands to any controllers, so you cannot use it to actually control your lights.

## Number of Grid Views Supported

A [sequence](#) may have multiple [grid views](#); however, certain license levels will only support a limited number of grid views in any given sequence. The Demo, Basic, and Basic Plus levels support 2 grid views per sequence, Standard supports 4, and Advanced and higher support an unlimited number of grid views per sequence. The system grid view "View All Items" is not counted toward the limit.

You will not be able to add new grid views to a sequence if it already has the maximum supported number. However, you can still open sequences that have more grid views (for example, a sequence that was created by someone who has a higher license level than you do). In this case, the extra grid views can be displayed in the Sequencer, but you will not be able to modify them.

## Full Access XML Data Storage

When a [sequence](#) is saved using a licensed version of Light-O-Rama, its save file uses a standard XML format, which is designed to be understandable by people. Technically advanced users may feel comfortable editing these XML-based sequence files directly with a text editor, or even building their own tools that can be used with these files (although *please* be careful when doing so, as it is not terribly difficult to make a small mistake which may render the sequence file incomprehensible

to the Light-O-Rama software package).

On the other hand, when a sequence is saved using the unlicensed Demo version, it is saved encrypted, and so the file itself cannot be easily understood or modified by anyone or anything except the Light-O-Rama software package. Additionally, data from an encrypted sequence cannot be copied and pasted, except on the computer that the sequence was originally encrypted on.

No matter whether a sequence is saved using the open XML format or using encryption, the Light-O-Rama software itself will still be able to use it.

If you create an encrypted sequence using the unlicensed Demo version, and later purchase a license, you can unencrypt the sequence by resaving it on the same computer it was originally encrypted on, using your licensed version of the software.

## Beat Wizard

The [Beat Wizard](#) can be used to analyze a song to try to determine its tempo, and to automatically place [timings](#) and [lighting effects](#) into a [sequence](#) based upon that tempo. It is fully supported in license levels Basic Plus and higher.

It is *not* supported in license level Basic (nor in the unlicensed Demo version). However, you can still try it out in a "demo mode" to see what it is like; after trying it on a sequence, you will not be able to save your changes. You will be given a warning about this when you try it, along with a chance to back out before committing to using it. Additionally, if you do decide to use it, and your sequence already has unsaved changes, you will be given a chance to save them before you actually use this feature.

## VU Wizard

The [VU Wizard](#) can be used to analyze a song to find peaks in the audio - much like a VU meter - and to automatically place [timings](#) and [lighting effects](#) into a [sequence](#) based upon those peaks. It is fully supported in license levels Basic Plus and higher.

It is *not* supported in license level Basic (nor in the unlicensed Demo version). However, you can still try it out in a "demo mode" to see what it is like; after trying it on a sequence, you will not be able to save your changes. You will be given a warning about this when you try it, along with a chance to back out before committing to using it. Additionally, if you do decide to use it, and your sequence already has unsaved changes, you will be given a chance to save them before you actually use this feature.

## Video Playback (Windowed Mode)

You can build [musical sequences](#) based on audio files (such as MP3) or on video files (such as WMV). When a musical sequence is played, the sound will always play, but the actual video (or audio visualization) will only be displayed for license levels Basic Plus and higher. License level Basic will not display video (or audio visualization).

Additionally, your license level may or may not support video playback in full screen mode; see "[Full Screen Video Playback](#)" for details.

## Show On Demand

Using license level Basic Plus or above, you can cause a [show](#) to be played without having [scheduled](#) it. This is done via the "[Show On Demand](#)" menu item of the [Light-O-Rama Control Panel's popup menu](#).

## Schedule Shows Based on Day of Year

The Light-O-Rama [Schedule Editor](#) can be used to [schedule shows](#) to play in two different ways: [by the day of the week](#) (such as "from 6:00 PM to 9:00 PM on Friday") or [by the day of the year](#) (such as "from 9:00 AM to 9:00 PM on December 25th").

However, scheduling based on the day of the year is fully supported only in license levels Basic Plus, Standard, and Advanced.

Using the Basic license level, you will still be able to use the Schedule Editor based on the day of the year in a sort of "demo mode" to see what it is like, but the Light-O-Rama [Show Player](#) will not actually play shows that are scheduled this way - it will only play shows that were scheduled by the day of the week.

## Startup Sequences in Shows

The Light-O-Rama [Show Editor](#) can be used to build [shows](#) with several different sections. Among these is the [Startup Section](#). [Sequences](#) in the Startup Section are played immediately upon the show starting up, one at a time, in order. After all of them have been played, the main portion of the show (i.e. the [Animation Section](#) and the [Musical Section](#)) begins.

However, this section is fully supported only with the Standard or higher license levels.

Using the Basic and Basic Plus license levels, you will still be able to use this section in the Show Editor in a sort of "demo mode", to see what it is like. However, the Light-O-Rama [Show Player](#) will not actually play the sequences in a show's Startup section; instead, the show will simply begin play directly with the Animation Section and the Musical Section.

## Shutdown Sequences in Shows

The Light-O-Rama [Show Editor](#) can be used to build [shows](#) with several different sections. Among these is the [Shutdown Section](#). When the [scheduled](#) end time for the show is reached, the main portion of the show (the [Animation Section](#) and the [Musical Section](#)) stops, and the [sequences](#) in the Shutdown Section are then played, one at a time, in order. After they have all finished, the show is truly finished.

However, this section is fully supported only with the Standard or higher license levels.

Using the Basic and Basic Plus license levels, you will still be able to use this section in the Show Editor in a sort of "demo mode", to see what it is like. However, the Light-O-Rama [Show Player](#) will not actually play the sequences in a show's Shutdown section; instead, when the scheduled end



time for the show is reached, the Animation Section and the Musical section will stop, and the show will be over.

## Background Sequences in Shows

The Light-O-Rama [Show Editor](#) can be used to build [shows](#) with several different sections. Among these is the [Background Section](#). All [sequences](#) in the Background Section will play simultaneously, looping back to their starts when they reach their ends, throughout the entire course of the show.

However, this section is fully supported only with the Standard or higher license levels.

Using the Basic and Basic Plus license levels, you will still be able to use this section in the Show Editor in a sort of "demo mode", to see what it is like. However, the Light-O-Rama [Show Player](#) will not actually play the sequences in a show's Background Section.

## Sequence in Sequence

[Sequences](#) can themselves contain [subsequences](#) - a parent sequence containing a child sequence. The parent sequence can be set to start or stop the child sequence at any given point during play.

However, subsequences are only fully supported with the Advanced license level or higher.

Using other license levels, you will still be able to use subsequences in a sort of "demo mode", to see what they are like, but you will not be able to save changes to your sequence after having done so.

## MIDI File Wizard

The [MIDI File Wizard](#) can be used to automatically insert [timings](#) and [lighting effects](#) into a [musical sequence](#) that is based upon a MIDI song. For example, it can make your lights chase each other in time to the music, or turn certain channels on or off based upon what notes are being played.

However, the MIDI File Wizard is fully supported only with the Advanced license level or higher.

Using other license levels, you will still be able to use the MIDI File Wizard in a sort of "demo mode", to see what it is like, but you will not be able to save changes to your sequence after having done so.

## Execute Windows Shell Commands

Using the Advanced license level or higher, Light-O-Rama can optionally [tell Windows to execute any arbitrary command](#) that you specify when a particular [sequence](#) is started. An example of how this might be used: If you broadcast the songs playing during your [show](#) over the radio, you might set your sequences up so that they tell Windows to tell your RDS ("Radio Data System") program to also broadcast the name of the song, allowing people with RDS-enabled radios to see the name

of the song currently playing in your show.

## Triggered Interactive Sequences

In addition to being able to [control lights](#), some [Light-O-Rama controllers](#) can also accept input, acting as [triggers](#) to start particular [sequences](#) on demand during a show. For example, as part of your display, you could have several buttons for people to push, each of which will play a particular song.

However, this feature is fully supported only with the Advanced license level.

Using other license levels, you will still be able to use this section in the [Show Editor](#) in a sort of "demo mode", to see what it is like. However, the Light-O-Rama [Show Player](#) will not actually play any sequences which are triggered during your [show](#).

## Show Startup Options

Normally, the [sequences](#) in a [show](#) will start playing immediately at the show's [scheduled](#) start time. The Advanced license level or higher allows more control over this; for example, you could hook a big red button labeled "Start the Show" up to one of your [Light-O-Rama controllers](#), and the show will not start until that button is pushed.

For details, please see "[Show Startup Options](#)".

## Full Screen Video Playback

When a [musical sequence](#) is based upon a video file (such as a WMV file), the Advanced license level or higher can show the video in full screen mode (and similarly, it can show full screen audio visualizations for musical sequences based upon audio files).

Lower license levels cannot show full screen video (or full screen audio visualizations), but they may still be able to show video and visualizations in a window instead of in full screen. See [Video Playback \(Windowed Mode\)](#) for details.

## Multiple Networks

The [Light-O-Rama Software Package](#) can send [lighting commands](#) to [Light-O-Rama controllers](#) over several different [Comm ports](#) simultaneously. This has several potential uses, especially for people with large numbers of controllers, or lights spread out physically far from each other.

However, this is supported only in the Advanced license level or higher. Other license levels will send lighting commands to Light-O-Rama controllers only over a single Comm port.

## Create Protected Sequences

The Light-O-Rama [Sequencer](#) can be used to create [protected sequences](#), which are [sequences](#)

which cannot be modified (generally speaking) or viewed in the Sequencer, but which can still be played, control lights, [scheduled](#) in [shows](#), and so forth.

However, this is supported only in the Advanced license level or higher. Other license levels can use protected sequences, but cannot create them.

## DMX Intensity

Light-O-Rama allows the possible intensity of most [lighting effects](#) ranges from 0 to 100, i.e. a percentage of full intensity. DMX devices, however, are capable of taking 256 different intensities (from 0 to 255), rather than 101. Light-O-Rama supports this possibility via the [DMX Intensity tool](#).

However, this is only supported in the Advanced license level or higher. Other license levels will not have access to the DMX Intensity tool.

## Native DMX Devices Supported

The Advanced license level or higher can send lighting commands to [DMX devices](#), in addition to [Light-O-Rama controllers](#). Lower license levels can only send lighting commands to Light-O-Rama controllers.

## Dasher Controllers Supported

These controllers are not supported in the S5 version.

## X10 Controllers Supported

These controllers are not supported in the S5 version.

## Digital IO Cards Supported

These controllers are not supported in the S5 version.

## BSOFT Digital IO Cards Supported

These controllers are not supported in the S5 version.

## Motion Effects

Motion Effects can be fully used only with the Pro license level. Lower license levels can use the [Motion Effect Generator](#) to test effects and save those effects as favorites, but they cannot be used in [sequences](#).

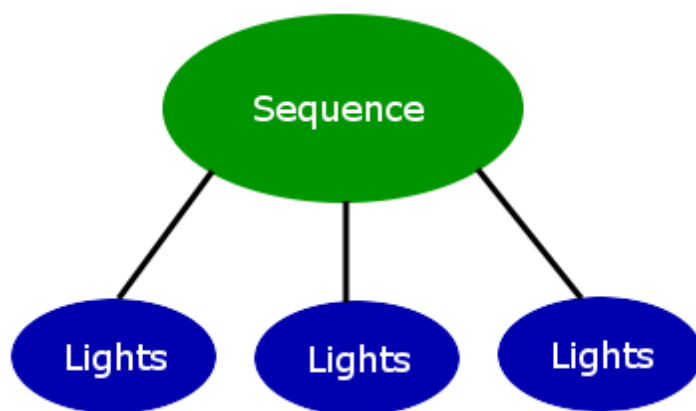
## Intensity Files and Enhanced Networks

The Pro license level can use intensity files and [enhanced LOR networks](#). These can help with displays involving very large numbers of independent lighting elements. Lower license levels cannot use these features.

## 4 Light-O-Rama Concepts

Light-O-Rama allows your computer to control your lights and other equipment in synchronized displays. Such a display is organized into several levels:

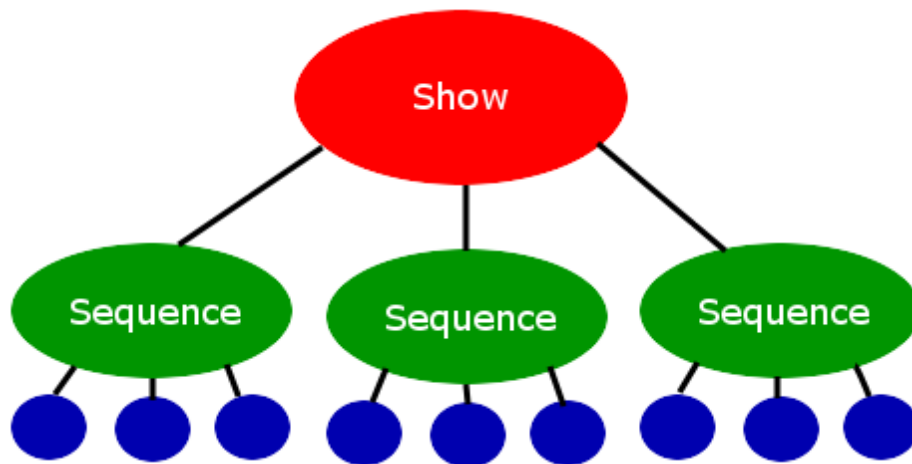
At the lowest level, a [sequence](#) contains commands to be sent to your Light-O-Rama [hardware](#), which will actually control your lights. For example, a sequence might contain a command to turn on one string of lights while making another string twinkle, and two seconds later, fading the first string down while fading the second string up. A sequence can contain commands for many circuits.



**A sequence contains commands to control lights**

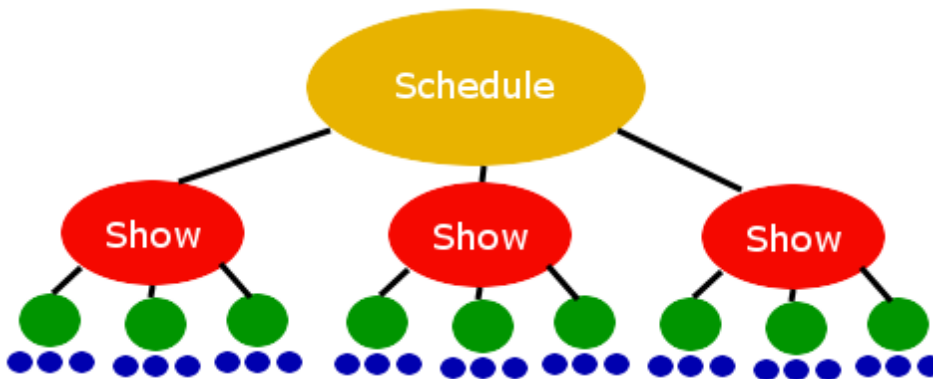
Typically, people build a sequence per song that they want in their display (known as [musical sequences](#)), each one containing all of the lighting commands for its particular song. People also build [animation sequences](#), not associated with any particular song, and often build one for each independent part of their display - for example, one animation sequence to control a group of snowmen having a snowball fight, and another to control a tin soldier firing a cannon.

Sequences can be grouped together into [shows](#). A show allows several sequences to be played at the same time, or sequentially, or in random order. A show can contain different sections - for example, some sequences might be played only at the beginning of a show, others only at the end, others in between, and still others for the entire duration of the show.



A show contains sequences to be played together, or in order, or randomly

Finally, shows can be [scheduled](#) to be played at certain times. Only one show (at most) can be playing at any given time, but any number of shows can be scheduled for different times, and the same show can be scheduled to play at many different times.



A schedule is used to play shows at specific times

## 4.1 Sequences

A sequence is a set of commands to be sent to lights - for example, a sequence may command the lights to turn on when the sequence starts, turn off a second later, stay off for a tenth of a second, start twinkling for the next two seconds, and then fade up, from completely off to completely on, during the next three seconds. The Light-O-Rama [Sequencer](#) is used to create and modify sequences.

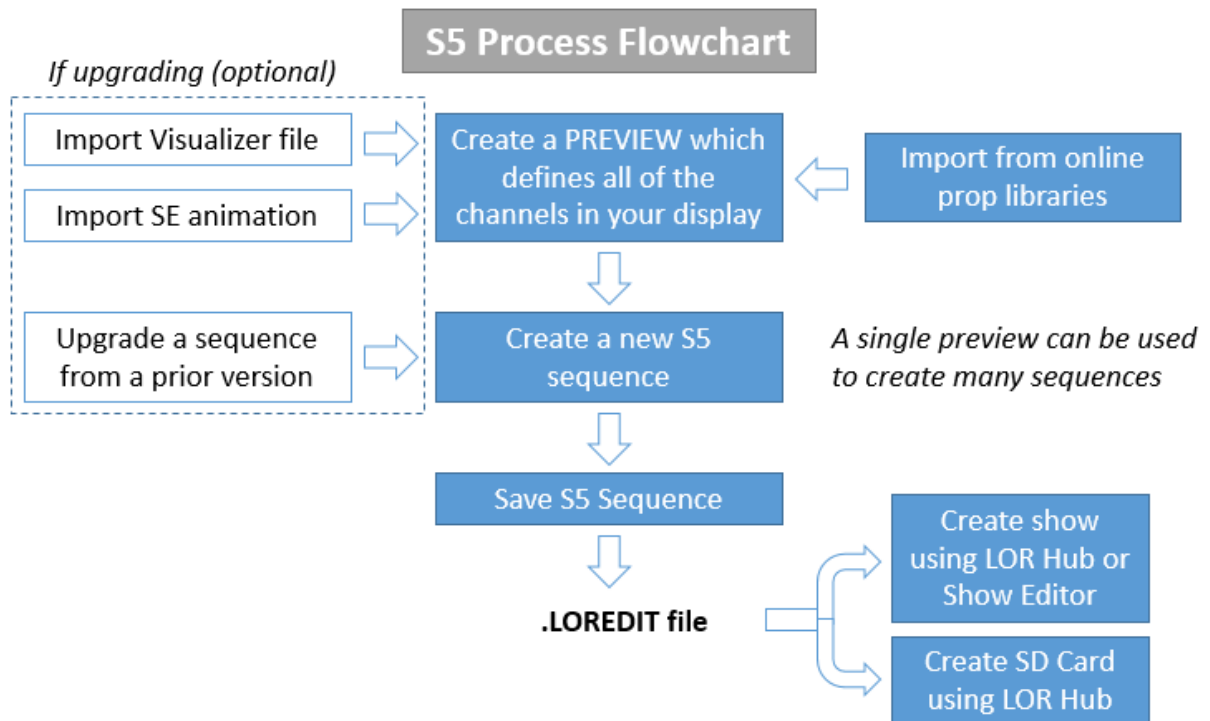
- [Key Sequencing Steps](#)
- [The Sequence Grid](#)
- [More Information](#)

### Key Sequencing Steps

There are several key steps in the sequence process as shown in the flowchart below:

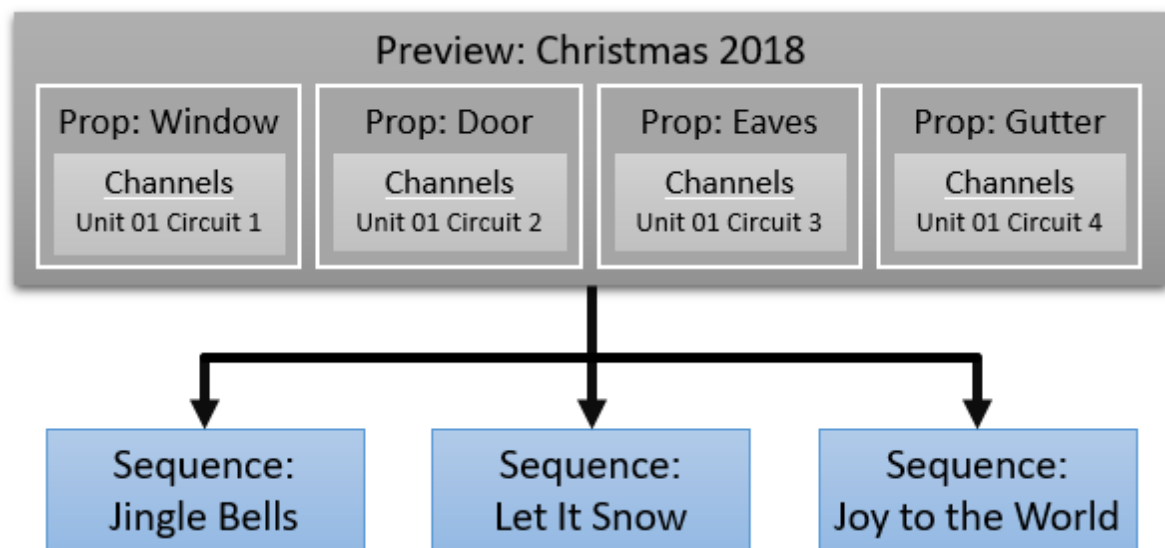
- [Create a preview](#)

- [Create a sequence](#)
- [Save a sequence](#)



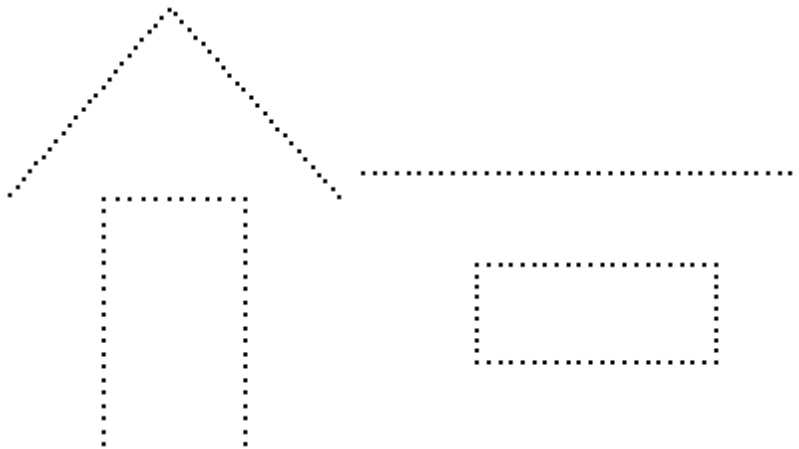
### Create a Preview

A sequence can control multiple sets of lights independently of each other. Each set of lights should be hooked up to a particular circuit on a particular controller; each such circuit is referred to as a "[channel](#)". Channels are assigned to props, and props are part of a [preview](#). Every sequence is associated with a single preview, and that preview determines the set of channels the sequence can control. A preview can be associated with multiple sequences.



In the example above, the 3 sequences are all assigned to the "Christmas 2018" preview. Each sequence will have 4 props that can be controlled: Window, Door, Eaves, and Gutter.

Not only do you assign channels to a prop, but you also assign a shape to each prop. This lets you draw and arrange your lights in a way that resembles your actual display. When you play a sequence in the Sequencer and display its preview, the drawing will behave just like your lights will - the props in your drawing will turn on and off, fade up and down, and so forth.



A preview with Window, Door, Eaves, and Gutter props

## Create a Sequence

There are two types of sequences: [animation sequences](#) and [musical sequences](#). Musical sequences are associated with songs (or sound effects, videos, etc.); the lights can be made to turn off and on (and do other [effects](#)) in sync with the music. Animation sequences are not associated with songs. Many sequences can be played simultaneously, but at most one musical sequence can be playing at a time - all others must be animation sequences. This means that you can control some of your lights in sync to a song via a musical sequence, while simultaneously controlling other lights independently, via animation sequences.

You can create a new sequence:

- from the [File Menu](#),
- by clicking links on the [Start Page](#), or
- by right-clicking on a preview name in the [Previews Window](#).

You can also create an S5 sequence by upgrading a sequence created in a prior version.

## Save Your Sequence

It is important to save your sequence often so you don't lose any work if your computer crashes or you lose power. It is also a good idea to make backup copies of your sequences to a flash drive or to the cloud. The Sequencer's [Save Copy options](#) can be configured to make time-stamped backup copies every time you save.

S5 sequence files use a different file extension than prior versions:

	S5 Sequences	Prior Versions
Musical Sequences	LOREDIT	LMS
Animation Sequences	LOREDIT	LAS

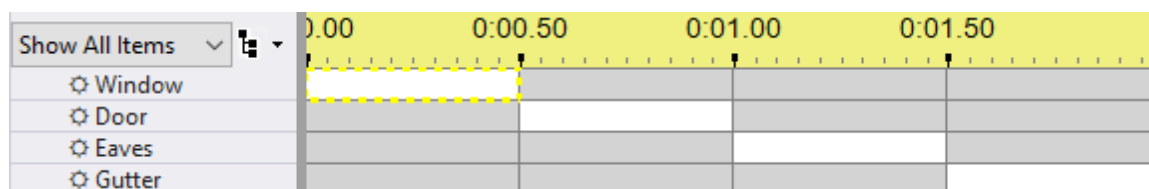
#### Sequence File Extensions

Once your sequence is complete, you can use the sequence file (LOREDIT extension) to:

- create a show using the [Show Editor](#) or [LOR Hub](#)
- create an SD card for an LOR MP3 Director using [LOR Hub](#)

## The Sequence Grid

Here is an example of a simple sequence containing 4 props, as represented in the [Sequencer](#). The props are listed down the left side and a timeline is displayed across the top. As time passes (from left to right), you can see that the Window prop is turned on, then it is turned off and the Door prop is turned on, then *that* is turned off and the Eaves prop is turned on, and so forth, through the 4 channels:

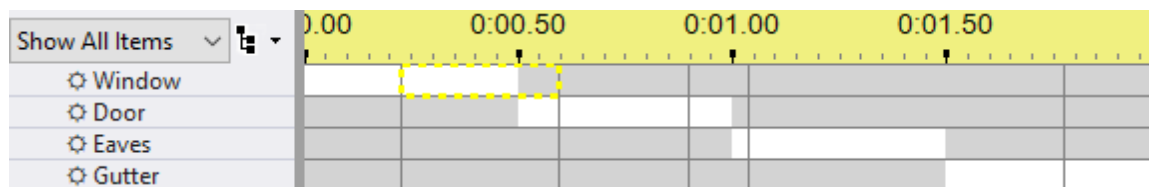


A simple sequence with a fixed timing grid

### Timings

The vertical lines in the sequence grid, representing distinct points in time, are known as [timings](#). These timings do not have any direct effect on how your lights will look; instead, they allow you to select time ranges for lighting [effects](#) to happen, using various tools in the Sequencer.

Timings are grouped together into [timing grids](#). There are 2 types of timing grids: fixed and freeform. In a fixed timing grid, all of the timings are a fixed distance apart and the timings cannot be moved, deleted, or added to. In a freeform timing grid, timings can be at any location, and can be moved, added, and deleted. A sequence can have more than one timing grid. For example, here is the same sequence, but now with a freeform timing grid displayed:



A simple sequence with a freeform timing grid

Note that the timings in this freeform grid are not the same distance from each other. Also note that the timings and the effects do not line up with each other - there is no reason that they would have to. This is so as to allow flexibility in where effects can be applied, without cluttering the display with many timings.

For example, perhaps you might want a sequence to have some effects that follow the drum beats in a song, and other effects that follow the lead guitar. You could simply add timings representing both the



drum beats and the guitar to a single timing grid, but if you do, it could be difficult to remember which timing is for which instrument; also, the display might become cluttered with so many timings. So, instead, you could put the timings for the drums into one timing grid, and the timings for the guitar in another timing grid, and use the drop-down box to easily switch between the two timing grids as appropriate. The effects that you add using the timing grid for the drums will not necessarily line up with the timing grid for the guitar, nor the effects added using the timing grid for the guitar with the timing grid for the drums, but neither should they.

## Grid Views

A grid view is the group of props displayed in the sequence grid. A sequence can contain multiple [grid views](#). Each grid view can have its own props, or can share props with other grid views, or both. There is one system-generated grid view call "Show All Items" - it automatically shows all props in the preview. You can change the order of the props displayed in the "Show All Items" grid view, but you cannot remove items from it.

## Grid Rows

The sequence grid can display several types of [grid rows](#):

- [Regular channel rows](#) have a gray background and control a single output channel
- [RGB channel rows](#) have a black background and are used for props composed of RGB lights that can display any color
- [Motion effect rows](#) are only available with a Pro license. They allow you to apply color patterns to a prop made of RGB pixels. Motion effects can also be applied to groups of pixel props. Motion effects can be created using the [Motion Effect Generator](#) or the [SuperStar Sequencer](#) (SuperStar is licensed separately).
- [Loop rows](#) can be used in [animation sequences](#) (but not musical sequences). When playing a sequence that contains a loop, when the end of the loop is reached, the sequence will jump back to the beginning of the loop. It will do this a certain number of times (that you specify), and then will continue past the end of the loop. Each time that it jumps back, you can make it go through the loop faster, slower, or the same speed as before. There can be many loops in a sequence (set up for different time ranges), and loops can even contain other loops.
- [Beat channels](#) can be used in [musical sequences](#), and are intended to hold [effects](#) related to the beat of the music. They are merely a sequencing convenience and do not control lights.
- [Subsequence rows](#) point to a separate sequence file. The subsequence can be turned on or off at different points in the main sequence, and its effects will play only when it is turned on.
- [Archived prop rows](#) contain effects for props that were once part of the preview, but have since been deleted.
- [RGB aggregate rows](#) aid in the conversion of effects from props made of traditional lights to [RGB channels](#) or [motion effect rows](#).

A prefix symbol is added to certain types of grid rows to help identify them. Here is a master list of symbols used:

♪ Beat Channel
Δ Motion Row
✂ Regular Channel
≡ RGB Channel
@ Archived Prop
§ Subsequence

## More Information

For more detailed information on sequences, please refer to the following sections:

- [The Sequencer](#)
- [Previews](#)
- [Animation Sequences](#)
- [Musical Sequences](#)
- [Grid Rows](#)
- [Channels](#)
- [Timings](#)
- [Effects](#)
- [Archived Props](#)
- [RGB Aggregates](#)
- [Freeform Play Range](#)

### 4.1.1 Previews

A 'Preview' is a representation of your light display. It defines the lighting elements, how they are arranged, and what channels they use. Creating a preview is required before you can create a sequence.

A preview can be a quick rough sketch, or a detailed, highly realistic depiction of your display. It is up to you to decide how much effort you want to put in to it. In any case, the preview must define every channel that will be controlled by your sequences.

When you play a sequence using the [Sequencer](#), you can also watch the sequence's preview in the Playback window. The drawing will change as if it were the lights that the sequence controls - that is, parts of the drawing will turn on and off, fade up and down, twinkle, and shimmer, just as the sequence commands.

## Props

The display elements in a preview are referred to as 'props'. You must add a prop to the preview for every display element that you want to control. A prop can be as simple as a single channel string of traditional lights, or as complex as a big pixel tree or matrix. When you create a prop, you define the type and color of lights that it uses, its shape, and the channels assigned to it. If one of the built-in shapes doesn't meet your needs, then you can define a custom shape.



A sample of some of the shapes that come built-in to S5

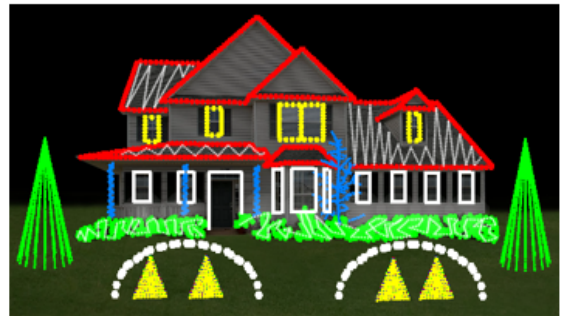
## Groups

Props can be grouped together.

- You might do this so that the props appear together in the sequence grid.
- You might also create a group so that you can apply an effect to the group instead of individual props. This enables things like sweeping a color across your entire display.

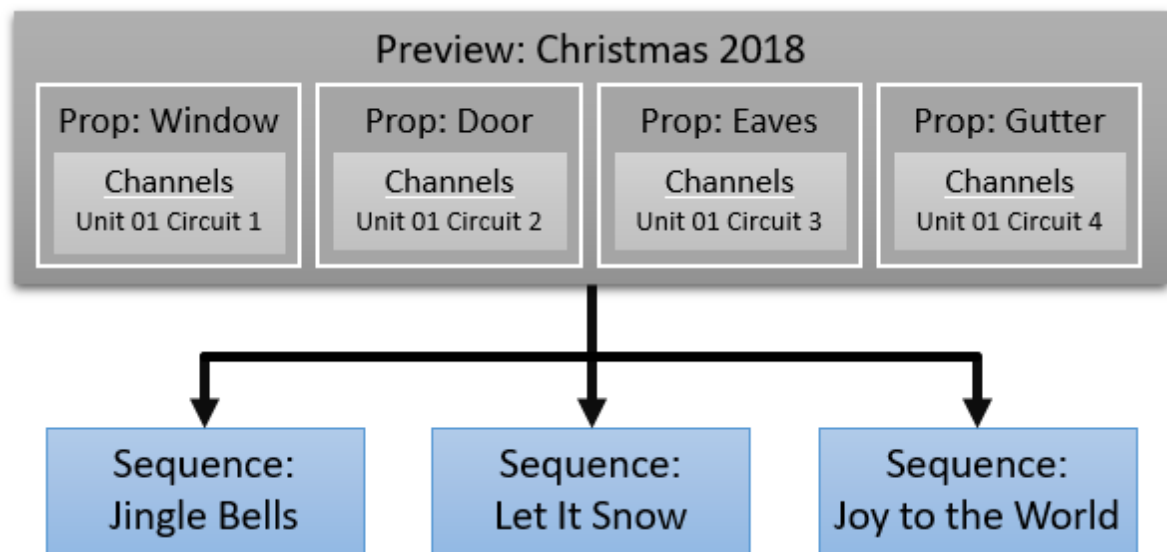
## Background Image

A preview can be assigned a background image (for example, a photo of your house), which you can draw the lights on top of. The brightness of the background image can be adjusted from within the [Sequencer](#).



## One Preview > Many Sequences

One preview can be associated with multiple sequences. Update the preview once, and the next time you open any sequence associated with that preview, the update will automatically be applied.

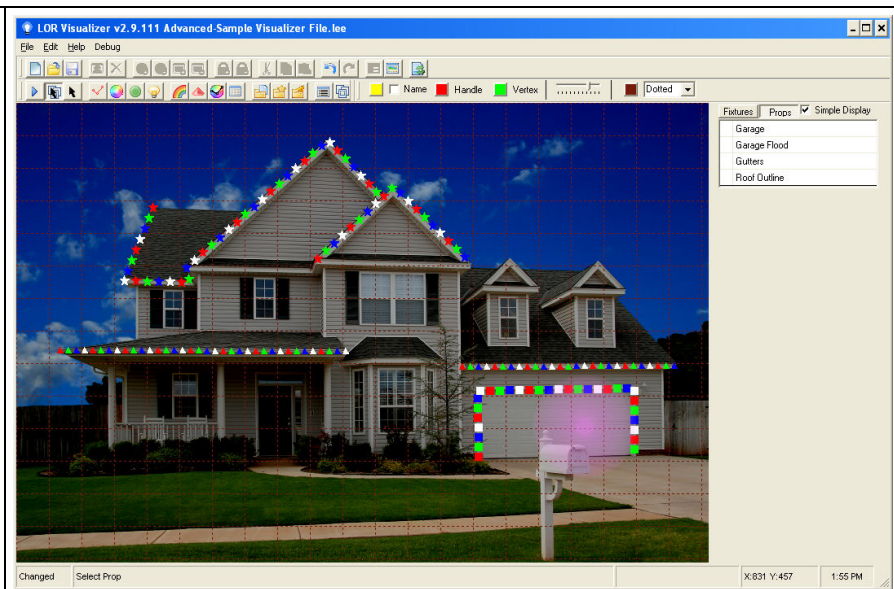


## Importing a Preview

You don't necessarily need to create a preview from scratch. S5 can import an existing display definition from a variety of sources.

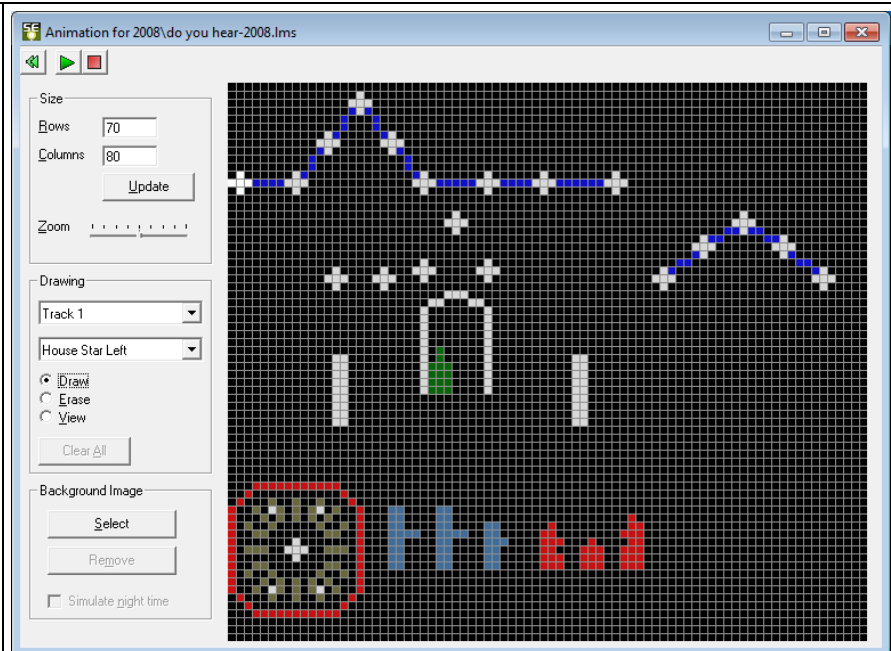
### Import an S4 Visualizer file

You can perform the import from the Preview Management window, when [upgrading a sequence](#), or from within [Preview Design](#)



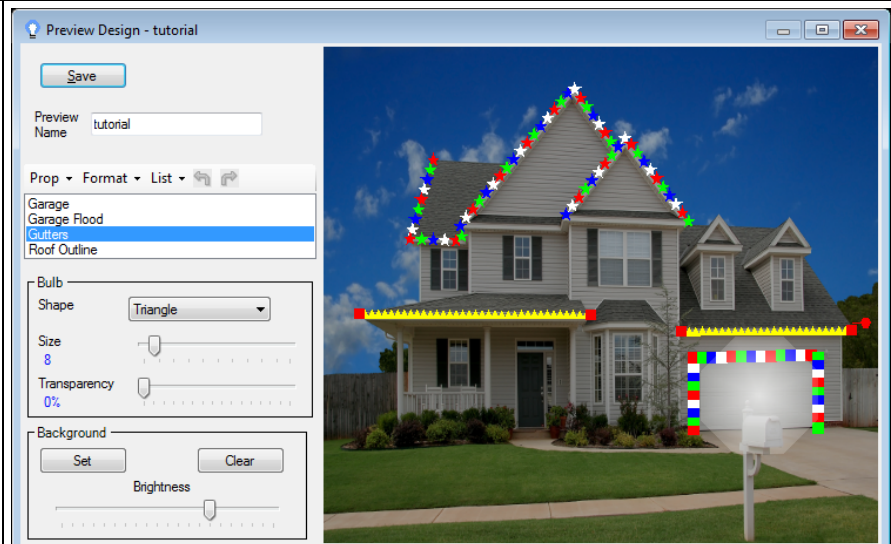
Import a block-style animation defined in a legacy sequence

You can perform the import from the [Previews Window](#), or when [upgrading a sequence](#)



Import an S4 Pixel Editor preview

Pixel Editor previews are automatically upgraded to S5 previews the first time you run the S5 Sequencer



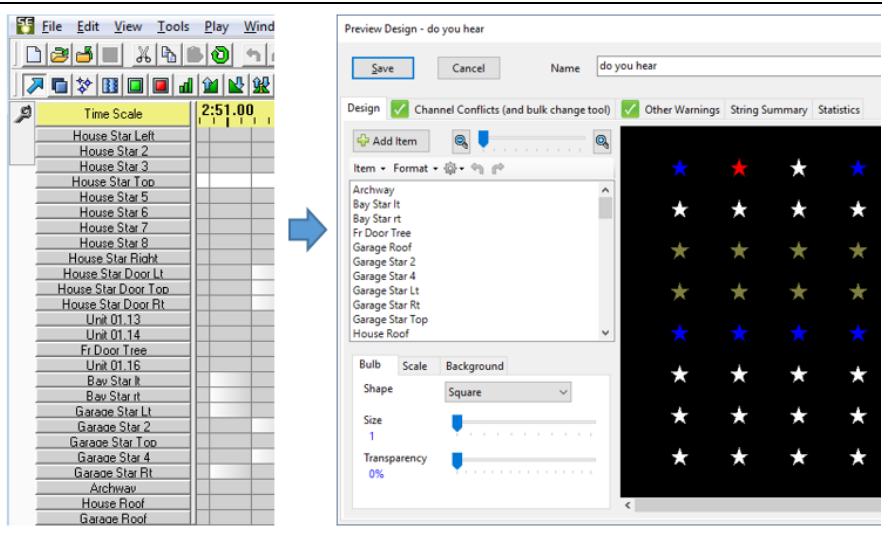
Import a preview from an S5 sequence sent to you from someone else

Each S5 sequence contains a backup copy of the preview it uses. When you open an S5 sequence that has been sent to you, the copy of the preview inside the sequence will automatically be imported



Convert any legacy sequence to an automatically generated preview. The preview won't look like your house, but channel information will be set correctly and it will allow you to get started with your sequencing right away.

You can auto-generate a preview when [upgrading a legacy sequence](#), or by using the Quick Preview feature when creating a new S5 sequence.

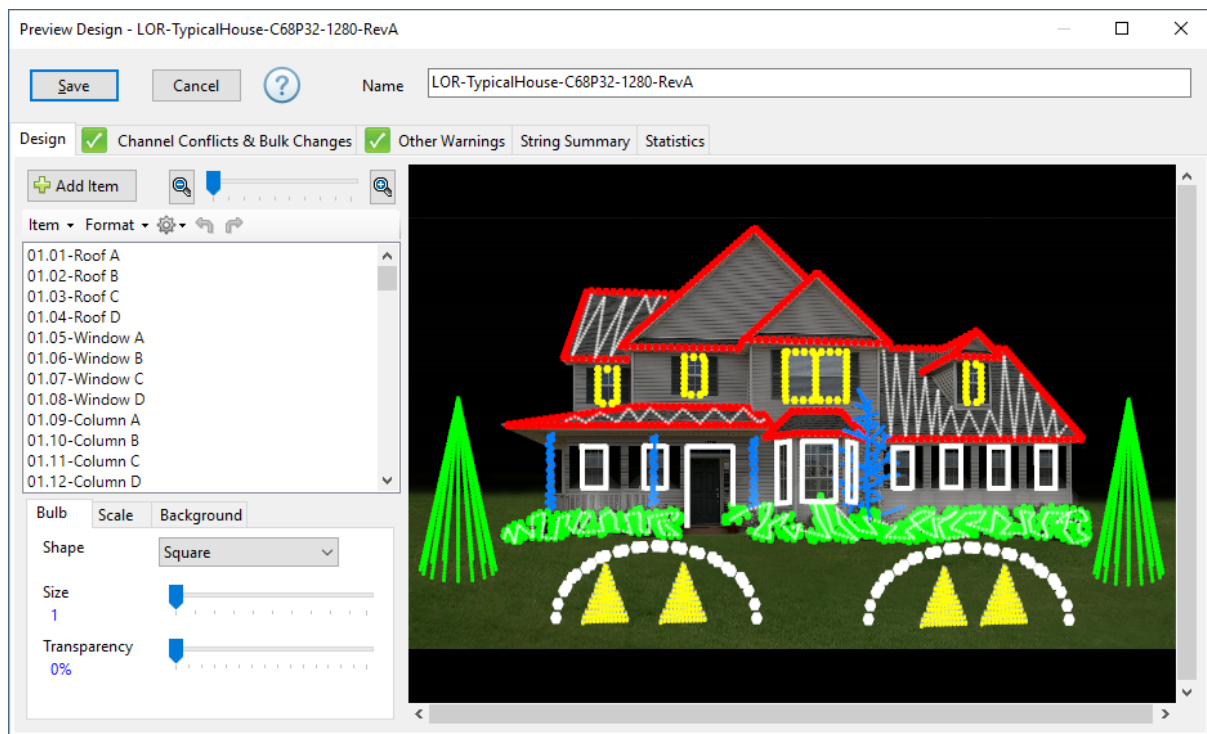


## The Preview Design Window

Previews are modified using the [Preview Design](#) window. It can be accessed several ways:

- To create a preview, go to the Previews window and click the "+" icon.
- To modify a preview, go to the Previews window and double-click on a preview name.
- To modify the preview for an open sequence, click the preview name on the sequence's toolbar and select Preview Design from the drop-down menu; or you can select [Preview Design](#) from the [Sequence menu](#).

For details on how to create and modify previews, please see the [Preview Design](#) topic.



The Preview Design window with lights drawn on top of a background photo of a house

### 4.1.2 Animation Sequences

An animation sequence is a [sequence](#) that is not associated with a song (or video, or other audio file). This is as opposed to a [musical sequence](#).

There are some other differences between animation sequences and musical sequences:

- Animation sequences can contain [loops](#), which musical sequences cannot;
- Various song-related tools such as the [Beat Wizard](#), [MIDI File Wizard](#), [VU Wizard](#) and [Tapper Wizard](#) are only available for musical sequences.
- Animation sequences cannot contain [beat channels](#).
- Generally speaking, only one musical sequence can be played at a time (although there is an exception to this, described in the help page on [musical sequences](#)), whereas many animation sequences can be played simultaneously.

You can convert an animation sequence to a musical sequence by simply setting the media file via [Sequence > Media File](#).

In S5, animation sequences and musical sequences have the same file extension (LOREDIT). This is different from prior versions, where animation sequences had an LAS extension and musical sequences had an LMS extension.

To create an animation sequence in the [Sequencer](#), use the [New Animation dialog](#).

**New Animation Sequence**

Sequence Author (cannot be changed later):  
Jane Doe

Select Preview

A preview defines all of the display elements and channels in your sequence

Existing Preview Quick Preview

2017 class sample

Length of animation (not including loops):  
1:00.00 1 minute

☐ Use Loops

Initial Timing

☐ Tenth second intervals  
☒ Half second intervals  
☐ One second intervals  
☐ Custom interval  
0.05  
☐ Create an empty freeform timing grid

Default number of motion effect rows for pixel props: (requires PRO license) 1

☒ Save these choices as defaults

Create Cancel

The New Animation dialog

### 4.1.3 Musical Sequences

A musical sequence is a [sequence](#) that is associated with a song (or video, or other audio file), allowing you to synchronize the song with [lighting effects](#). This is as opposed to an [animation sequence](#).

There are some other differences between animation sequences and musical sequences:

- Animation sequences can contain [loops](#), which musical sequences cannot;
- Various song-related tools such as the [Beat Wizard](#), [MIDI File Wizard](#), [VU Wizard](#) and [Tapper Wizard](#) are only available for musical sequences.



- Musical sequences can contain [beat channels](#).
- Generally speaking, only one musical sequence can be played at a time (although there is an exception to this, noted below), whereas many animation sequences can be played simultaneously.

The exception to the rule that "only one musical sequence can be played at a time" is that musical sequences put into any section of a [show](#) *other* than the [musical section](#) are, effectively, treated as animation sequences. That is, their associated songs will *not* be played, and more than one of them can be played simultaneously.

You can convert a musical sequence to an animation sequence with the [Sequence > Convert to Animation](#) menu item.

In S5, animation sequences and musical sequences have the same file extension (LOREDIT). This is different from prior versions, where animation sequences had an LAS extension and musical sequences had an LMS extension.

To create a new musical sequence in the [Sequencer](#), use the [New Musical Sequence dialog](#).

New Musical Sequence

Sequence Author (cannot be changed later):

Select Preview

A preview defines all of the display elements and channels in your sequence

Existing Preview Quick Preview

Music

File name

Artist

Title

Album

Initial Timing

Use a Wizard to create timings

☒ Not now, maybe later

☐ Use the MIDI Wizard

☐ Use the Tapper Wizard

☐ Use the Beat Wizard

☐ Use the VU Wizard

Create equally spaced timings

☐ Tenth second intervals

☒ Half second intervals

☐ One second intervals

☐ Custom interval

Default number of motion effect rows for pixel props: (requires PRO license)

☒ Save these choices as defaults

Create Cancel

The New Musical Sequence dialog

#### 4.1.4 Channels

A channel is a particular circuit on a particular [controller](#) which can control lights (or servos in the case of the Servo Dog controller). The [Sequencer](#) can be used to assign [effects](#) to channels, to make the lights turn on and off, fade, shimmer, twinkle, and so forth.

## Regular Channels

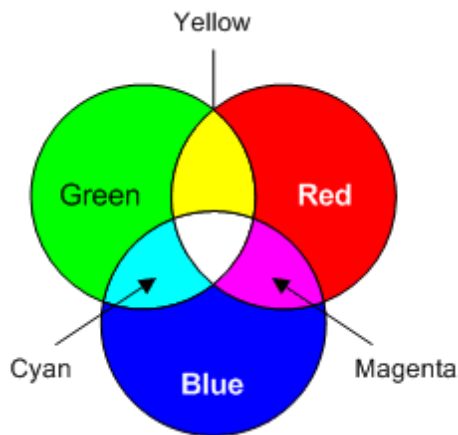
Single channels can control a string of traditional incandescent or LED lights, or a single-color flood light, or perhaps some strobe lights. We will refer to these as "Regular Channels" to distinguish them from "RGB Channels".



A single channel from an AC controller

## RGB Channels

An RGB channel is a group of three channels - a red channel, a green channel, and a blue channel. By varying the amount of red, green, and blue light, any color can be produced. A device may have a single RGB channel, like an RGB flood light (sometimes referred to as "dumb RGB"); or it can have many RGB channels, like a Cosmic Color Ribbon (sometimes referred to as "Smart Pixels").



Mixing red, green, and blue light

## Pixels

Pixels are just a collection of RGB channels, 1 RGB channel controls one pixel. So a string with 50 pixels would have 50 RGB channels. Light-O-Rama Pixie Controllers, as well as the PixCon16 controller, are used to control pixels.

## Device Type

When defining a channel, you first start with the Device Type. Device type specifies the type of commands the controller understands (i.e. command protocol). The S5 software can send commands using the Light-O-Rama protocol and also the DMX protocol.

### ***Light-O-Rama Protocol***

When using the Light-O-Rama protocol, a channel has a unique combination of:

- Network, which is the COM port that this channel's controller is hooked up to;
- Unit, which is the unit ID of the controller, allowing different controllers to be distinguished from each other;
- Circuit, which represents an electrical circuit that can be controlled. It could be a single output from an AC controller, DC controller, or servo controller. Or a group of circuits could be used to control a string of RGB pixels - one RGB channel per pixel.

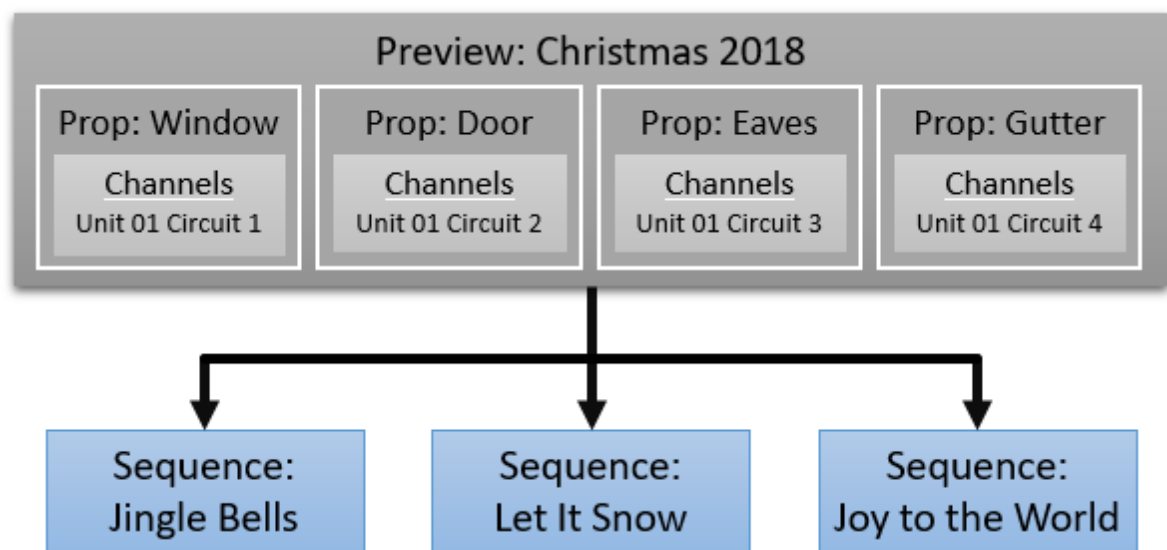
### ***DMX Protocol***

When using the DMX protocol, a channel has a unique combination of:

- DMX Universe, and
- DMX Channel. There are 512 available channels in each DMX universe.

## Assigning Channels

Channels are assigned to props in the [Prop Definition screen](#) within [Preview Design](#). A preview is assigned to a [sequence](#), and the sequence can only control the channels defined in its assigned preview.

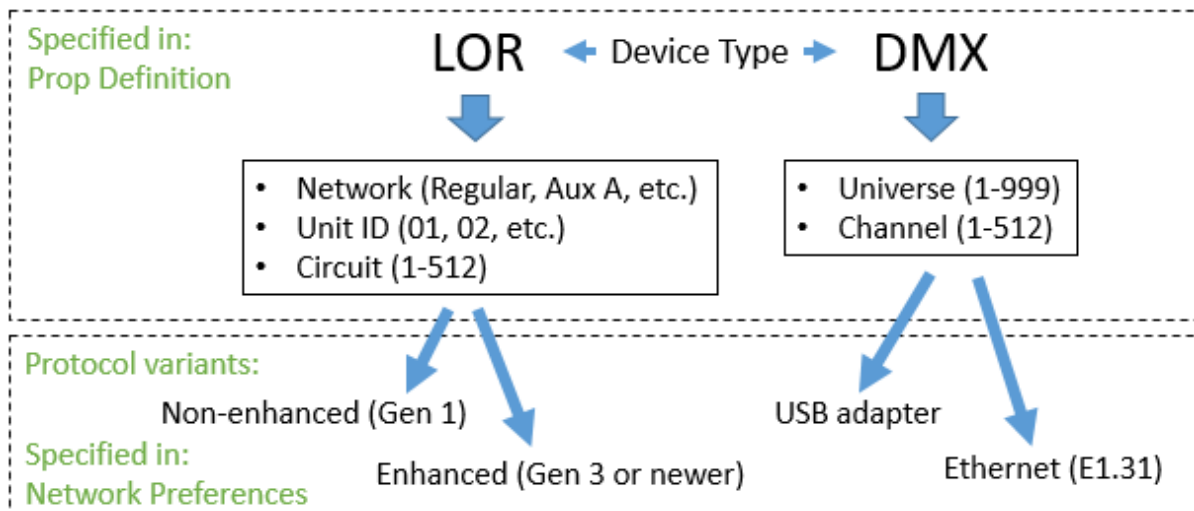


## Network Preferences

There are 2 variants of the Light-O-Rama protocol: there is the non-enhanced protocol for "Gen 1" devices and the enhanced protocol (ELOR) for "Gen 3" and later devices.

There are also 2 variants of the DMX protocol: there is DMX sent over a USB adapter and DMX sent over Ethernet (also known E1.31 and sACN).

Which variant to use as well as other connection properties are set using the [Network Preferences](#) program.



### 4.1.5 Effects

The lighting effects available depend on the type [channel](#):

- [Regular channels](#)
- [RGB channels](#)
- [Pixels](#)

## Effects for Regular Channels

### On 💡

The "On" effect is just what it says - the light turns on. This could be the light turning on at full (100%) intensity, or at some other intensity, or fading on, or fading off.

### Twinkle ✨

The "Twinkle" effect causes your lights to quickly vary between on and off. The effect could be twinkling at full (100%) intensity, or at some other intensity, or fading on, or fading off.

The difference between "Twinkle" and "Shimmer" is that twinkle is more random: Two different strings of

lights that are both told to shimmer at the same time will quickly turn off and on in sync with each other; if they are instead told to twinkle, they will still quickly turn off and on, but not in sync with each other.

### **Shimmer**

The "Shimmer" effect causes your lights to quickly vary between on and off. The effect could be shimmering at full (100%) intensity, or at some other intensity, or fading on, or fading off.

The difference between "Shimmer" and "Twinkle" is that twinkle is more random: Two different strings of lights that are both told to shimmer at the same time will quickly turn off and on in sync with each other; if they are instead told to twinkle, they will still quickly turn off and on, but not in sync with each other.

### **DMX Intensity**

DMX devices receive values between 0 and 255. Most of the time it is sufficient to specify that a light be turned on at 50% or 75% brightness - in which case the DMX Intensity effect is not necessary (the Light-O-Rama software will handle the conversion between percentage and DMX value for you). However, there are some DMX devices (moving head lights for example) where a precise DMX value is required. In these cases, the DMX Intensity effect can be used to specify that value.

## Effects for RGB Channels (also called dumb RGB)

For RGB channels, the 4 effects for regular channels (on, twinkle, shimmer, and DMX intensity) can be applied in combination with a color or a color transition.

## Effects for Pixels (also called smart pixels)

For pixels you have 3 options for creating effects. The [S5 Sequencer](#) allows you to mix and match all 3 approaches.

- Assign colors to each pixel individually. This can be tedious work for display elements with more than a few pixels. However, sequences for sale are sometimes delivered this way.
- You can use the [SuperStar](#) sequencer (separate license required)
- You can use the [Motion Effect Generator](#) that is built in to the Sequencer. [Pro license](#) required.

### 4.1.6 Grid Rows

When a sequence grid is displayed on your screen, each row in the grid will be of a certain type. Different row types can hold different kinds of [effects](#).

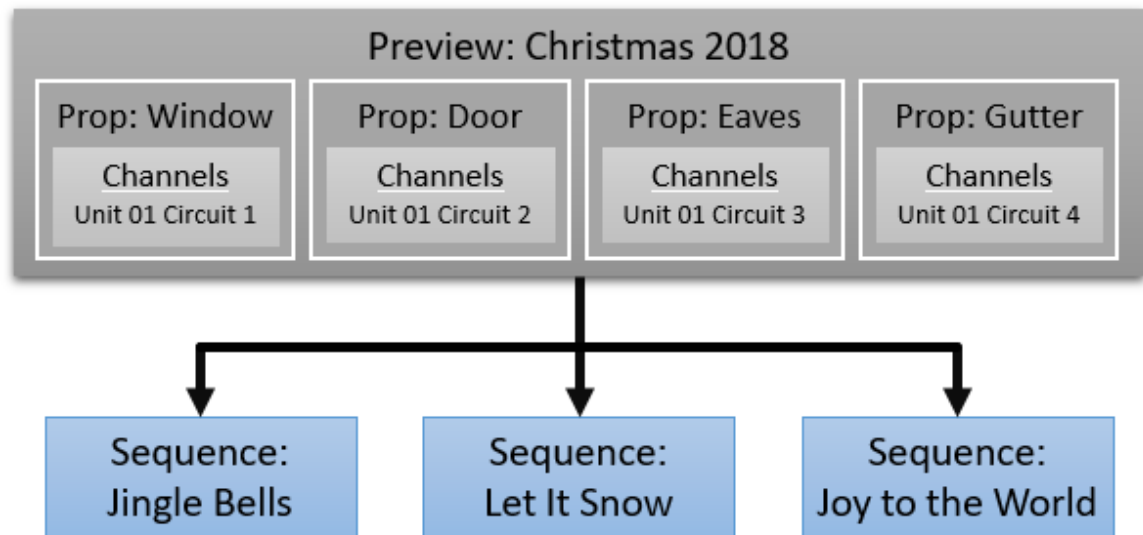
- [Regular channels](#)
- [RGB channels](#)
- [Motion Effect Rows](#)
- [Subsequences](#)
- [Beat channels](#)
- [Loop Rows](#)

Some row types are displayed with a symbol as a prefix to help identify the type of grid row. Here is a summary of the symbols that are used:

♪ Beat Channel
△ Motion Row
✂ Regular Channel
≡ RGB Channel
@ Archived Prop
§ Subsequence

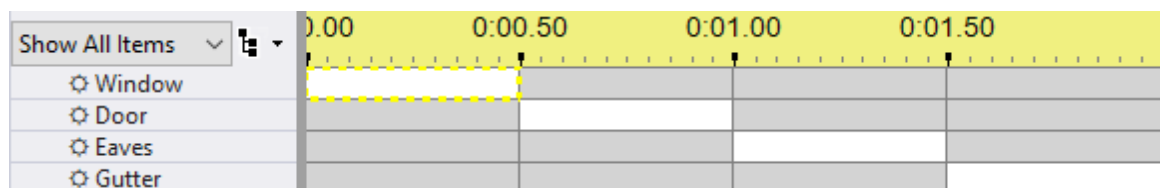
## Regular Channels (non-RGB)

A [channel](#) is assigned to a [prop](#), which belongs to the [preview](#) associated with the [sequence](#). A sequence can only control the channels defined in its associated preview. In order to add a channel to a sequence, you must edit the preview using the [Preview Design](#) screen. Channel names and colors are also derived from the preview, so changing the name or color requires a change to the preview.



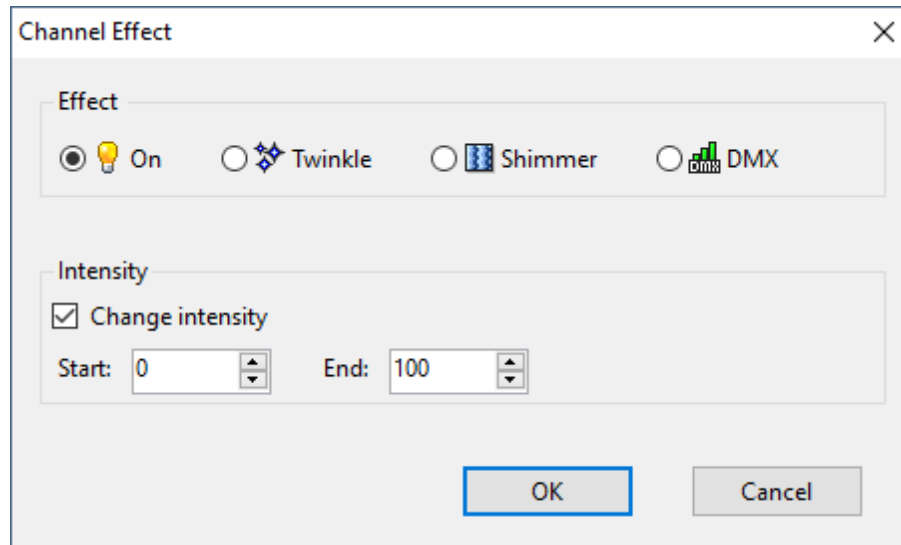
The [Sequencer](#) is used to assign [effects](#) to channels, to make the lights turn on and off, fade, shimmer, twinkle, and so forth.

In the Sequencer, channels are represented as horizontal rows. On the left side of a row is the channel name; on the right side is a grid showing what effects are assigned to the channel at what times. The grid for a regular channel is displayed with a gray background. For example, the following sequence has 4 channels, and they are named "Window", "Door", "Eaves", and "Gutter". Each one of them has an "on" effect that turns the respective channel on at 100% intensity for 1/2 of a second.

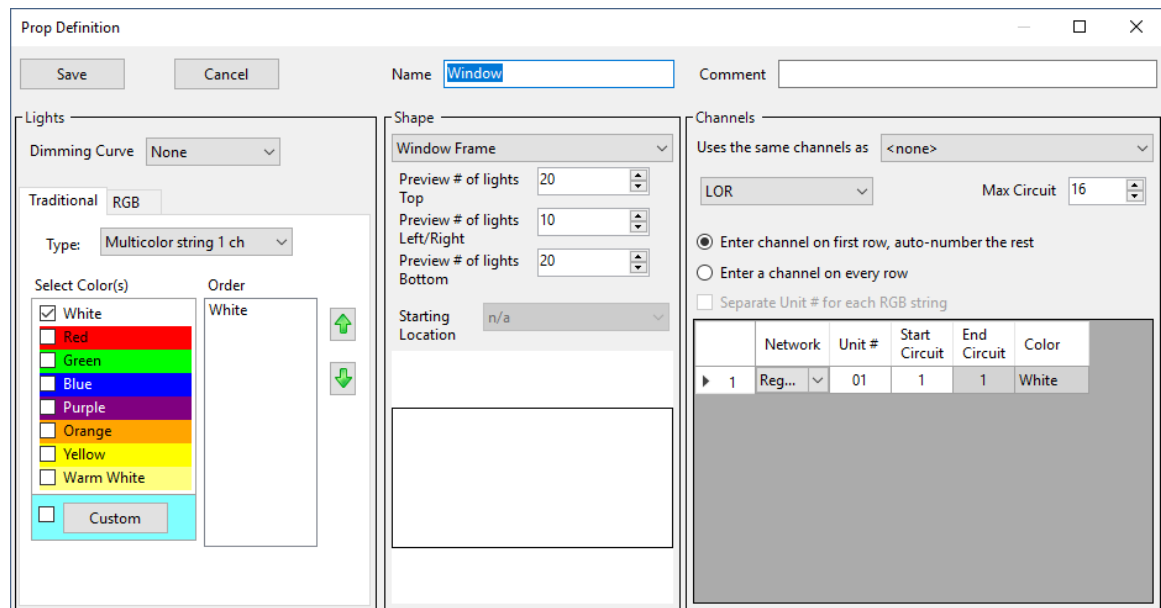


A sequence with 4 channels

See the [Adding Effects](#) topic for more details. To [change an existing effect](#) on a regular channel row, just double-click on the [effect](#) and a pop-up window will prompt for the new effect. For example, you can use this to change a twinkle to a shimmer.



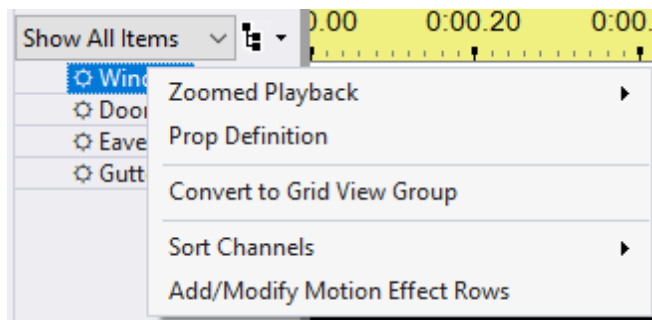
Double-clicking on a channel's name brings up the [Prop Definition](#) dialog (which is part of the [preview](#)). This allows modifications to various things like the channel's name, color, unit, and circuit:



Prop Definition screen for the Window prop

Right-clicking on a channel's name brings up a [popup menu with various channel-related tools](#):





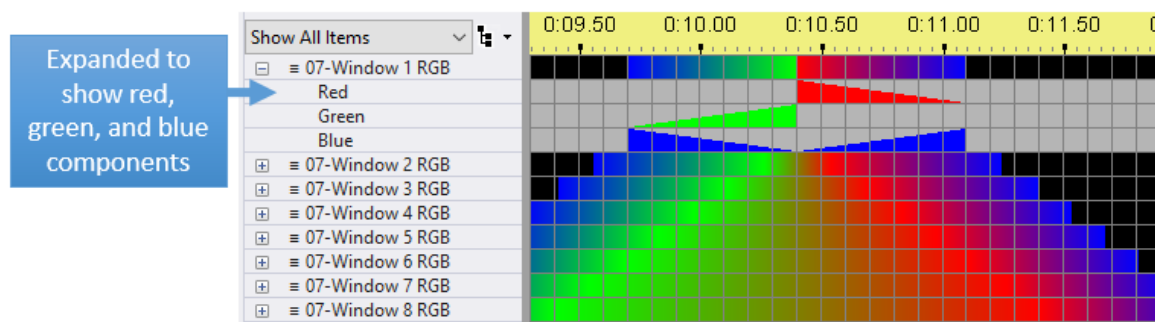
Right-click menu

Regular channel rows can be dragged up and down to rearrange their order. This has no effect on your lights; it only affects the order that they are displayed in the Sequencer. Each [grid view](#) can display channels in a different order - changing the order in the currently displayed grid view does not change the order in any other grid view.

When you play a sequence in the Sequencer, the area just to the right of the channel name flashes with the color that you selected as it turns on and off; it will also fade up and down, shimmer, twinkle, and so forth, just as your lights will. You can change the width of the "color sample" area in the [Sequence Grid Preferences](#) dialog.

## RGB Channels

An RGB channel is a group of three [channels](#) - a red channel, a green channel, and a blue channel - which can be combined to produce any color. A device may have a single RGB channel, like an RGB flood light; or it can have many RGB channels, like a Cosmic Color Ribbon. In the [Sequencer](#), an RGB channel is displayed with a black background. [Lighting effects](#) on an RGB channel are represented in the row as colors:



8 RGB channels, the first one expanded

It is important to note that the colors displayed on your computer's screen in the Sequencer are not necessarily the same colors that will appear on your actual lights, and in some cases may actually be very different. Different RGB devices may produce different colors when their constituent red, green, and blue channels are set to the exact same intensities. So, you may have to experiment a bit to figure out colors as displayed in the Sequencer that wind up looking the way you want on your actual RGB devices.

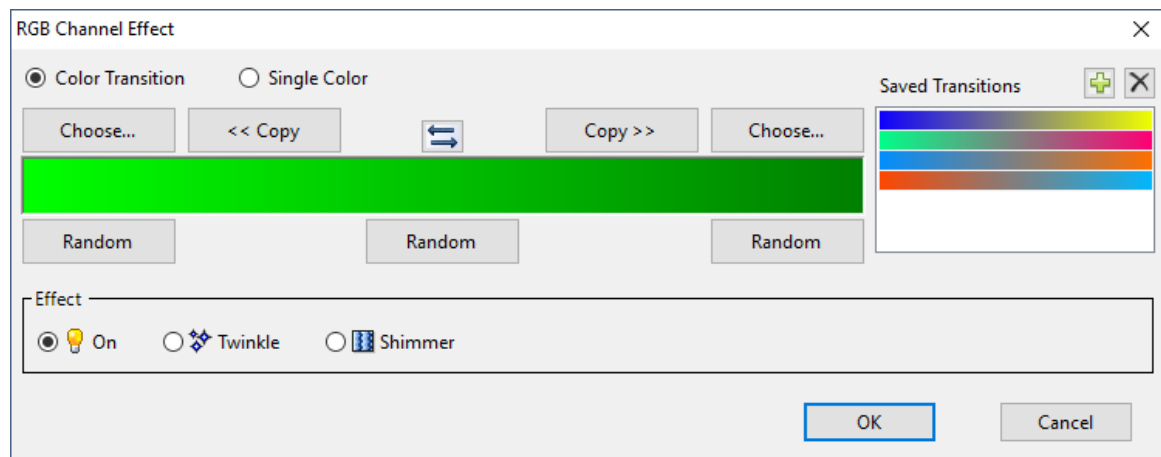
The primary tool for applying colors to an RGB channel is the [Color Fade](#) tool. This tool allows you to specify a start color and an end color; when applied to a time range in the RGB channel, it will cause that time range to gradually fade from the start color to the end color.

Another tool which may be particularly useful for RGB channels is the [Fill](#) tool, which (on a normal channel) allows you to click an empty area and cause it to become a fade from the preceding intensity to the following intensity. For example, if you have a normal channel which has a fade up from 40 to 60, followed by the lights being off, followed by a fade down from 80 to 20, then applying the Fill tool to the area where the lights are off will cause that area to become a fade up from 60 to 80 (because the effect preceding the empty area ended at intensity 60, and the effect following the empty area started at 80). On an RGB channel, the Fill tool will instead cause a color fade from the preceding color to the following color, allowing you to quickly set up smooth color transitions across several different colors.

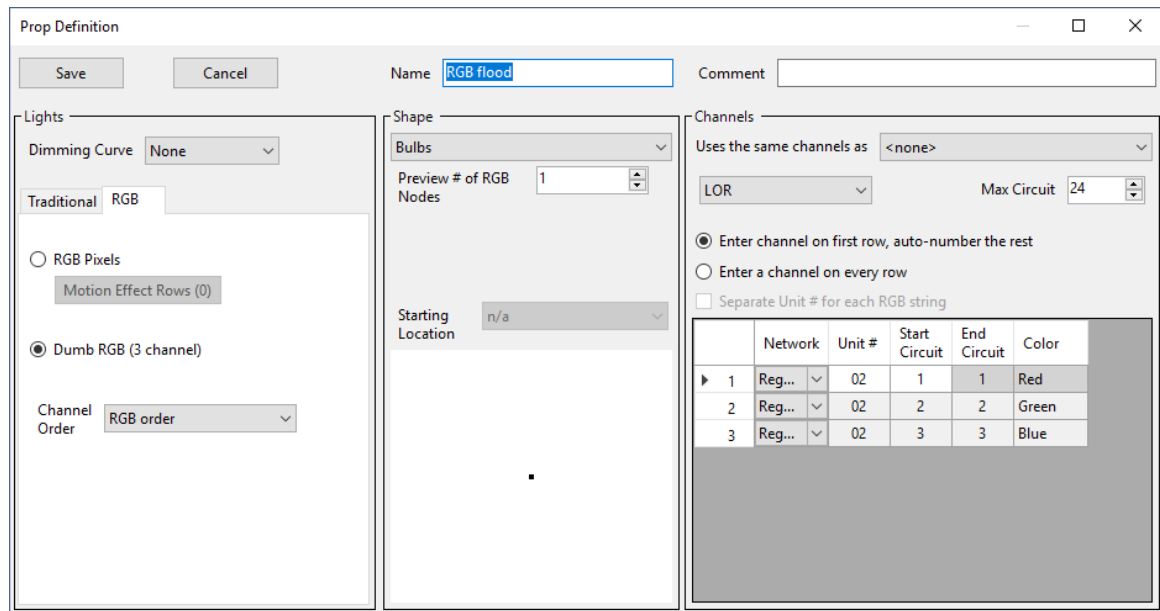
The [Chase](#) and [Repeat](#) tools may also be of particular use on RGB channels. The Chase tool causes the lighting effects in a single channel (or RGB channel) to be applied through a range of following channels (or RGB channels), offset in time a bit with each passing row, so that the effect seems to be "chasing" through the channels (or RGB channels) as time passes. The Repeat tool causes one or more copies of the lighting effects in your selection to be applied immediately following your selection.

Other tools, such as [Max Intensity or Fade Up or Fade Down](#), can also be applied to RGB channels. Doing so will cause the tool to be applied using the current color shown on the toolbar. For example, if the toolbar color is solid blue, applying the Fade Up tool, with intensities 0 to 100, to an RGB channel will cause the toolbar blue to fade up from 0 to 100, thus making the RGB channel itself fade from black to blue.

To edit an effect on an RGB channel row, just double-click on the effect and a pop-up window will prompt for the new colors and effect.

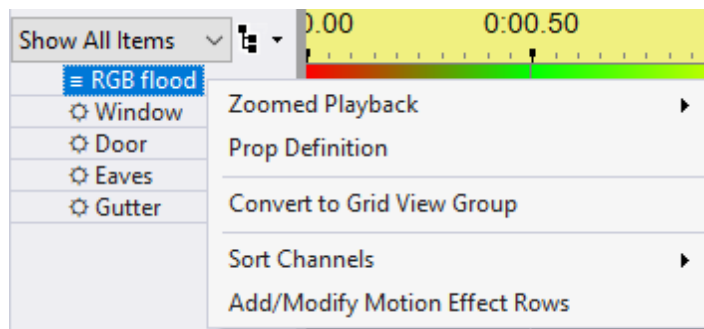


Double-clicking on an RGB channel's name brings up the [Prop Definition](#) dialog (which is part of the [preview](#)). This allows modifications to various things like the channel's name, unit, and circuit:



The RGB Channel Settings dialog

Right-clicking on an RGB channel's button will open up a [popup menu](#) with various channel and RGB channel-related tools:



Right-click menu

RGB channel rows can be dragged up and down to rearrange their order. This has no effect on your lights; it only affects the order that they are displayed in the Sequencer. Each [grid view](#) can display channels in a different order - changing the order in the currently displayed grid view does not change the order in any other grid view.

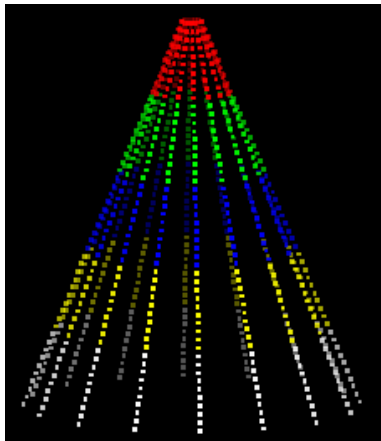
When you play a sequence in the Sequencer, the area just to the right of the RGB channel name is filled with the color of the current effect; the same color as your lights will display. You can change the width of the "color sample" area in the [Sequence Grid Preferences](#) dialog.

RGB channels are added to the sequence by adding props to the [preview](#) associated with the sequence.

## Motion Effect Rows

Motion effect rows contain motion effects, which are moving color patterns applied to props (or groups of props) built with RGB pixels. For example, there are motion effects for spirals, snowflakes, fireworks, pictures, text, etc.

You can only add motion effect rows to a sequence if you have a [Pro level license](#).

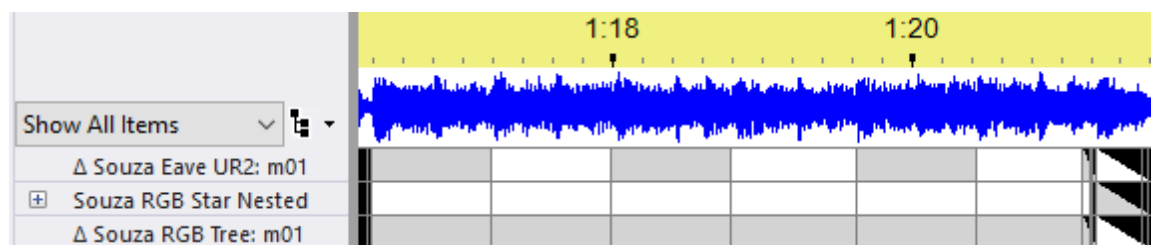


Motion effect on a pixel tree

Motion effects can be created using the [Motion Effect Generator](#) or the [SuperStar Sequencer](#). The SuperStar Sequencer requires a separate license. To edit an existing effect on a motion effect row, just double-click on the effect -- the Motion Effect Generator or SuperStar Sequencer will open and allow you to make changes to the effect.

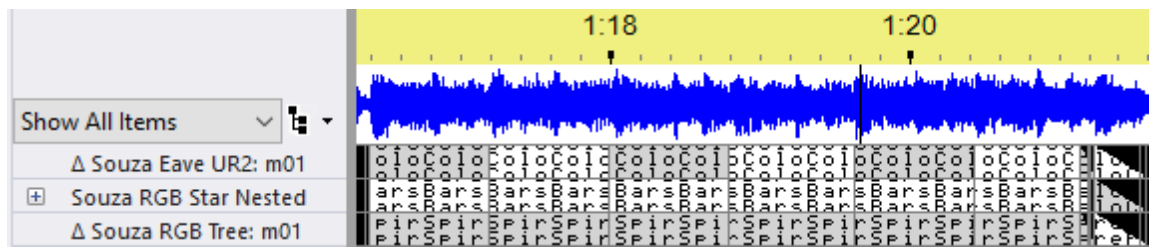
Motion effects can be displayed on lights connected to [Enhanced LOR networks](#), as well as [DMX networks](#). They cannot be displayed on LOR networks that are not enhanced. Furthermore, they cannot be used in a [stand-alone sequence](#) that is loaded into a controller.

Motion effect rows are displayed with a black background. The row names have a " " prefix. Effects on a motion row alternate colors in order to show where one effect stops and the next effect starts. By default the 2 colors are white and gray. So the first effect on a row will be white, the second effect gray, the third effect white, etc. The colors shown on the grid have nothing to do with the colors that are used in the effect.



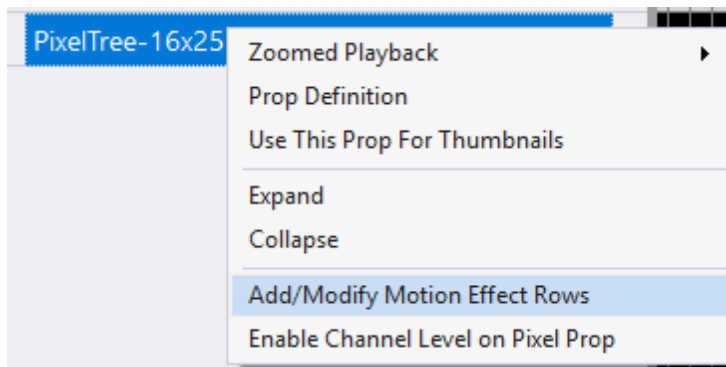
3 motion effect rows

You can customize the alternating colors in the [Motion Effect Preferences](#) screen. Also on that preferences screen, you can enable a feature that displays the first 4 letters of the effect's name on the sequence grid. This can help identify the effect. Here is the same example with name display enabled. You can see that the first row contains a series of Colorwash effects, the second contains Bars effects, and the third row contains Spiral effects.

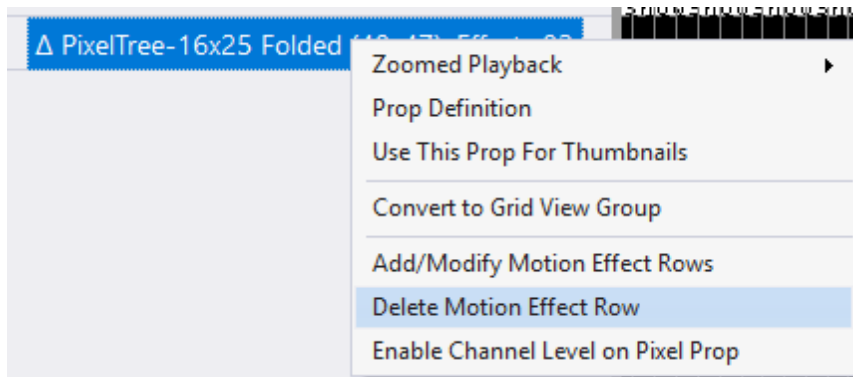


Motion effects with naming enabled

Motion effect rows are created automatically for pixel-based props and groups when you create a sequence and set the "Default number of motion effect rows for pixel props" field to a number greater than 0 (see the [New Animation Sequence](#) and [New Musical Sequence](#) dialogs). You can create them later (or add more) by right-clicking on a prop, group, motion row, or channel name on the left side of the sequence grid and selecting "Add/Modify Motion Effect Rows".

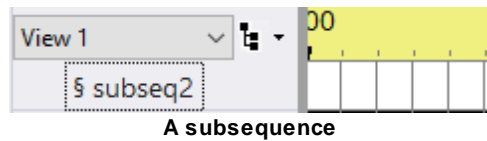


You can remove a motion effect row by right-clicking on the motion effect row name and selecting "Delete Motion Effect Row". You can do some bulk deletions by selecting [Sequence > Delete Grid Rows](#) from the main menu.



## Subsequences

A subsequence is a [sequence](#) that is used as a part of another sequence (its "parent sequence", or "the main sequence"). Subsequences are displayed with a "\$" prefix in the sequence grid.



A sequence grid row for a subsequence can be turned on and off, using the [Sequencer](#), in the same ways that other channels can be. When the channel in the main sequence is turned on, the subsequence will begin playing, from its beginning. It will continue playing for as long as the channel remains on; if play of the subsequence reaches its end before the channel has been turned off in the main sequence, the subsequence will simply loop back to its beginning and continue playing.

When the channel in the main sequence is turned off, the subsequence will stop playing. If the channel is subsequently turned back on, the subsequence will start playing again, from its beginning (not from the last point that it left off at).

In S5, the effects contained in a subsequence will be displayed in the playback window while the sequence is being played. This is different from prior versions.

**Tip:** Do not set up the same physical unit and circuit to be a channel in a sequence *and* a channel in a subsequence of that sequence (or two channels in two different subsequences of a sequence). Doing so will likely cause unexpected and undesired results, as the two channels compete for control over the same physical circuit.

**Note:** If a sequence with a [Windows shell command](#) is used as a subsequence, that command will *not* be executed. Only the shell command associated with the main sequence (if any) will be executed.

A subsequence can be created by selecting "Subsequence" from the "Add New" item on the [Sequence menu](#) or on the [Grid View menu](#).

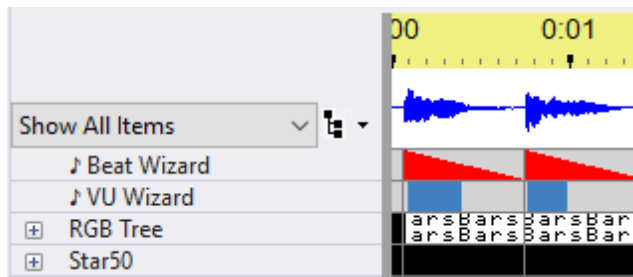
Right-click on a subsequence's name and select "Modify Subsequence" to change its name, color, or referenced sequence file.

Right-click on a subsequence's name and select "Delete Subsequence" to remove it completely from the sequence.

## Beat Channels

Beat channels are intended to hold sequence effects related to the beat of the music; however, you can put any regular channel effect anywhere you want in a beat channel. Beat channels can only be added to [musical sequences](#) and are shown with a "?" symbol as a prefix. Beat channels are not shown in the [playback window](#) when the sequence is played and they cannot control real lights. Beat channels stay frozen at the top of the sequence grid so they are always visible. You can add as many beat channels as you want to a sequence, there are no limits.

If you have many beat channels in a sequence, you might not want to see all of them at one time - as it could take up a lot of valuable screen space. You can control this by selecting the [Beat Channel Row Count](#) item from the Grid View menu.



2 beat channels at the top of a sequence

Beat channels can be created:

- Within any of the 4 [audio wizards](#).
- By selecting "Beat Channel" from the "Add New" item on the [Sequence menu](#) or on the [Grid View menu](#).
- By right-click on an existing beat channel name and selecting "Add Beat Channel"

Right-click on a beat channel's name and select "Modify Beat Channel" to change its name and/or color.

Right-click on a beat channel's name and select "Delete Beat Channel" to remove it completely from the sequence.

You can copy sequencing from a beat channel to other areas of your sequence using copy/paste.

## Loop Rows

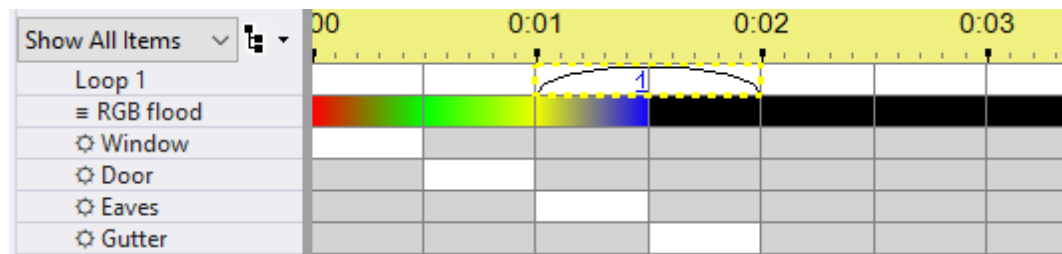
An [animation sequence](#) (but not a [musical sequence](#)) can contain loops. When the [Show Player](#) or the [Sequencer](#) plays a sequence with loops, when the end of a loop is reached, the sequence will go back to the beginning of the loop. This will happen a certain number of times (which you specify), after which the sequence will continue on past the end of the loop.

Each time through a loop, you can have the sequence speed up, slow down, or remain at the same speed.

A sequence can contain many loops. Loops can be nested - that is, a loop can contain other loops.

Loop rows are shown with a white background and are fixed to the top of the sequence grid. They do not scroll away when the rest of the sequence is scrolled vertically.

For example, the following picture shows a sequence with a loop starting at 1 second and ending at 2 seconds. The number of times the loop will repeat is shown in the middle of loop (1 in this case). If the loop were to speed up after each pass, then the repeat count would be followed by a "+" symbol. If the loop were to slow down after each pass, then the repeat count would be followed by a "-" symbol. In this case the loop speed is set to stay the same, so no symbol is displayed.



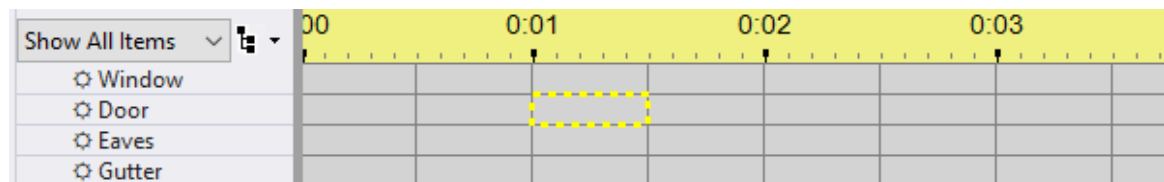
A sequence with a loop starting at 1 second and ending at 2 seconds

See the [Loops in Animation Sequences](#) topic for more information.

## 4.1.7 Timings

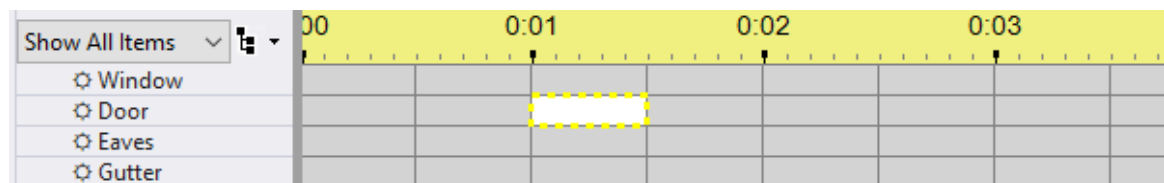
Timings are the times in a [sequence](#) at which you can command the lights to do various [effects](#) - to turn on, turn off, fade up, fade down, and so forth.

Timings are represented in the [Sequencer](#) by vertical grey lines. For example, the following sequence has timings every half a second, at 0.5 seconds, 1 second, 1.5, 2, 2.5, 3, and so forth:



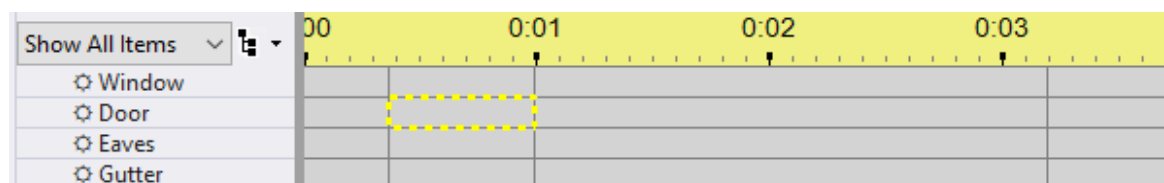
A sequence with timings every half a second

Timings do not have any direct effect themselves on the behavior of your lights; rather, they simply give you a way to specify a start time and an end time for [effects](#) on a [grid row](#). You can fill the space between two timings with an effect by selecting the appropriate tool (such as the "Fade Up" tool) and clicking on a grid cell (see [Adding Effects](#) for details). For example, selecting the "Max Intensity" tool and clicking the cell between 1 second and 1.5 seconds for the "Door" prop results in:



The Door prop has been turned on, between 1 second and 1.5 seconds

Timings do not have to be equally spaced (as they are in the above example). For example, the following sequence has timings at 0.37 seconds, 1 second, and 3.2 seconds:



A sequence with timings at 0.37 seconds, 1 second, and 3.2 seconds

## Timing Grids



A set of timings is known as a "timing grid". A sequence can have more than one timing grid, with one being shown at a time. The timing grid that is currently shown can be changed by selecting from the "Timings" drop-down box on the Toolbar. There are two types of timing grids: [fixed grids](#) and [freeform grids](#).

### ***Fixed Timing Grids***

In a fixed timing grid, each timing is the same length of time from the next timing. For example, a fixed timing grid might have a timing every second, or every tenth of a second.

The timings in a fixed timing grid cannot be moved, deleted, or added to.

### ***Freeform Timing Grids***

In a freeform timing grid, timings do not have to be equidistant. For example, a freeform timing grid might have one timing at time 1.00 (i.e. one second), another half a second later at time 1.50, and another 2.2 seconds past that at time 3.70.

The timings in a freeform grid can be moved or deleted, and new timings can be added.

## **Creating, Deleting, and Modifying Timings**

Timings can be automatically inserted into a sequence when it is created, in a variety of ways. For example, you can tell the Sequencer to insert timings every so often - for example every half second, or, for a [musical sequence](#), insert timings based on the song itself using various tools like the [Beat Wizard](#), [VU Wizard](#), [Tapper Wizard](#), and [MIDI File Wizard](#). If you tell it to insert timings every so often (such as every half second), it will create them in a [fixed timing grid](#). If you tell it to use one of the [audio wizards](#), or not to insert timings, it will use a [freeform timing grid](#). Please see the [New Animation dialog](#) and [New Musical Sequence dialog](#) for details. The [audio wizards](#) can also be run at any time after sequence creation.

New Musical Sequence

Sequence Author (cannot be changed later):

Select Preview

A preview defines all of the display elements and channels in your sequence

Existing Preview Quick Preview

Music

File name

Artist

Title

Album

Initial Timing

Use a Wizard to create timings

☒ Not now, maybe later

☐ Use the MIDI Wizard

☐ Use the Tapper Wizard

☐ Use the Beat Wizard

☐ Use the VU Wizard

Create equally spaced timings

☐ Tenth second intervals

☒ Half second intervals

☐ One second intervals

☐ Custom interval

Default number of motion effect rows for pixel props:  (requires PRO license)

☒ Save these choices as defaults

Create Cancel

The New Musical Sequence dialog

In a [freedom timing grid](#):

- Timings can be added during sequence [playback](#) by using the "T" shortcut key
- Timings can be moved by clicking and dragging them. This behavior can be turned on or off by "locking" the timings.

Timings can also be added, deleted, and resized in a variety of other ways. See these topics for more information:

- The toolbar's [timings section](#)
- The [Timing Mark sub-menu](#) on the grid's right-click menu

### 4.1.8 Compressed Sequences

The layout of a Light-O-Rama [sequence](#) file is somewhat verbose. This is intended to make it easier for third party tools which use LOR sequence files to be created. However, it has a drawback: Large sequences may be fairly slow to load. When loading a large sequence in the [Sequencer](#), this may be an inconvenience. But the real problem is when loading a large sequence in the [Show Player](#): It may take several seconds, during which time your [show](#) is effectively paused.

To resolve this issue, Light-O-Rama supports the concept of a "compressed sequence". A compressed sequence is a separate save file, associated with a sequence but containing only enough information to play the sequence in the Show Player, and optimized for loading speed. This can speed up loading times dramatically - for example, for a certain large sequence that takes eight seconds to load on a certain computer, the associated compressed sequence only takes a small fraction of a second to load on that same computer.

Light-O-Rama will automatically create compressed sequences whenever appropriate, and the Show Player will automatically use them instead of the associated sequence file whenever they are present. So, you should not have to take any steps in order to start taking advantage of this feature. You can, however, prevent the Show Player from using compressed sequences (for example, if something unexpected goes wrong with them), in which case it will simply use the sequences instead. This can be controlled through the [LOR Control Panel's](#) "[Use Compressed Sequences](#)" option.

[Animation sequences](#) which contain [loops](#) cannot be compressed. All other sequences are eligible for compression.

It is highly recommended that you manually ensure that each of your sequences has an up-to-date compressed sequence built before starting your show. You can do this for an entire show or schedule via the [Sequence Compressor](#) program.

Assuming that you do not turn "Use Compressed Sequences" off, the way that the Show Player handles sequences and compressed sequences is this:

When your show calls for a certain sequence to be loaded, the Show Player will first check to see if there is a compressed sequence associated with that sequence. If so, and if the compressed sequence is more recent than the sequence, it will load the compressed sequence instead of the sequence.

Otherwise, it will load the sequence. After loading the sequence, it will check whether or not a compressed sequence can be made for it, and, if so, it will create the compressed sequence. This is so that in future runs of the show, it can simply use the compressed sequence instead of the sequence.

### 4.1.9 Protected Sequences

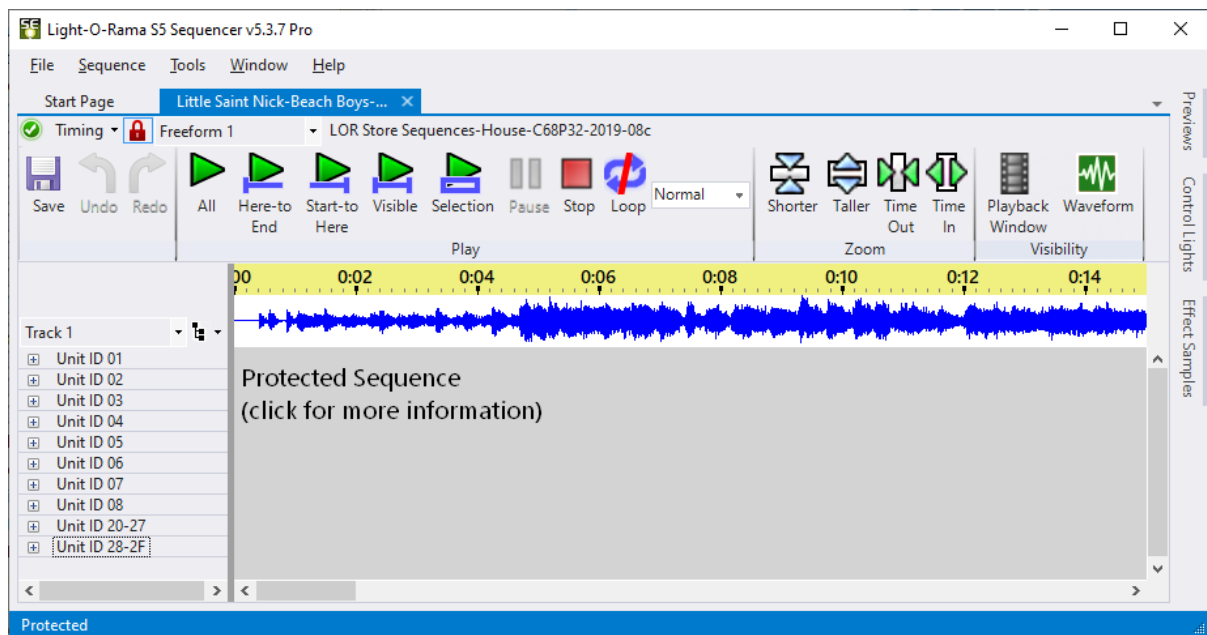
A protected sequence is a [sequence](#) which, generally speaking, cannot be modified, and whose sequence grid cannot be viewed in the [Sequencer](#). Protected sequences can, however, be played just like any other sequence; they can be [scheduled](#) in your [shows](#), they can be played in the Sequencer, they can be [downloaded as standalone sequences](#), and they will control your lights.

There are some things about a protected sequence which can be modified:

- The location of the media file (via [Sequence > Media File](#))
- The [preview](#) (via [Sequence > Assign Different Preview](#))
- The [Windows shell command](#) (via [Sequencer > Windows Command](#))

To create a protected sequence, open the sequence which you wish to protect, and then select "[Export as Protected](#)" from the [File menu](#). It will prompt you to select a file name for the protected sequence. In S5, protected sequences have a different file extension than regular sequences: .LORPROT versus .LOREDIT

The ability to create a protected sequence is available only with the [Advanced license level](#) or higher.



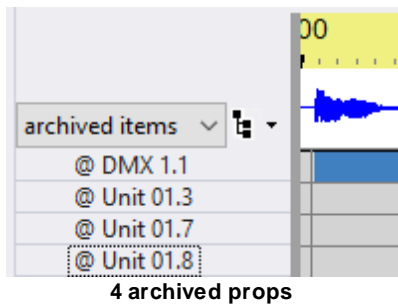
A protected sequence, as displayed in the Sequencer

#### 4.1.10 Archived Props

##### What Are Archived Props?

Archived props are an inactive part of the sequence. They contain effects and can be displayed on the sequence grid (they are shown with an "@" symbol as a prefix). Each archived prop has its own prop definition that is not part of the preview. Archived props are not shown in the playback window when the sequence is played and they cannot control real lights.

Archived props are a benefit because the sequencing on old props is preserved, allowing you to decide what action to take and when.



## How Are They Created?

If an existing sequence is opened and contains information for props that are no longer part of the preview, those props and their associated sequence are automatically converted to archive props. You cannot create an archive prop manually. Scenarios where this might occur:

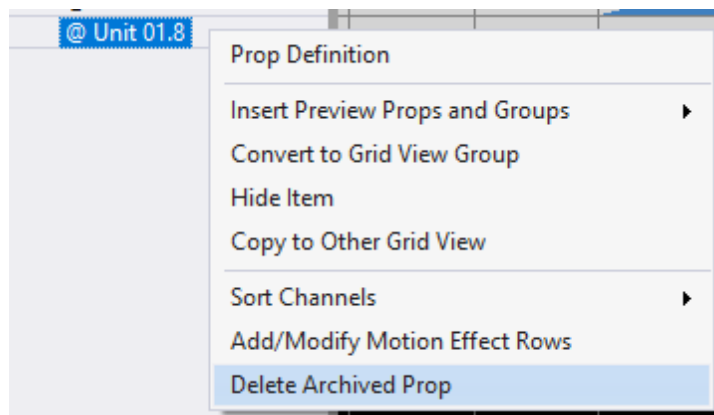
- You are upgrading sequences for S4 and you created your preview by importing a Visualizer file. However, there are some old channels in your sequence that you don't use any and were not in the Visualizer file - and thus won't be in your S5 preview either. Those old channels in the sequence will get archived because they are not in the preview.
- You created an S5 sequence with a last year's preview (e.g. 2017 Christmas) and now you have created a new preview for this year (e.g. 2018 Christmas). Your display has changed from last year and you have retired a few props. If you assign the new 2018 Christmas preview to your 2017 sequences, then the sequencing for the retired props will be archived because they are no longer in the preview.
- You were working on this year's sequence (e.g. Sequence-A), which is currently closed. You edit the preview and remove a prop because you decide you are not going to use it this year. When you next open Sequence-A, the sequencing for the prop you removed from the preview will be archived.

If you delete a group from the preview and your sequence had motion effects on that group, then the group will be archived.

## What Can You Do With Them?

You can do several things with archive props:

- You can copy sequencing from the archive prop to other areas of your sequence using copy/paste.
- If the sequence for the archived prop is no longer needed, you can delete it by right-clicking on the prop's name and selecting "Delete Archived Prop".



Delete an archived prop directly from the sequence grid

- From the [Manage Archived Props dialog](#) you can perform bulk deletions, convert archived props to [beat channels](#), or add them to your preview (making them a full-fledged members of your sequence, capable of controlling lights).

#### 4.1.11 RGB Aggregates

##### What Are RGB Aggregates?

RGB aggregates allow you to combine any 3 existing channels (the channel colors don't need to be red, green, and blue necessarily), and the combination of the 3 is treated as an RGB channel for sequencing purposes. This can be useful for people who are converting sequences with traditional strings to RGB.

In rare circumstances the S5 sequence upgrade process may create an RGB aggregate, but generally they are manually created as needed by the user.

RGB aggregates do not need to have channels assigned to all 3 slots (red, green, and blue). You could create an RGB aggregate with just the green and blue slots assigned, for example.

In the following example, "Hoop 2" is an RGB aggregate consisting of red, white, and blue traditional channels. The white channel "Hoop Wh 2" is placed in the aggregate's green slot. "Hoop 2" can be sequenced as either an RGB channel or as 3 individual channels. Changes made to the RGB Channel row are immediately reflected on the individual channels, and vice versa.



"Hoop 2" is an RGB Aggregate

##### How Are They Created?

RGB aggregate channels can be created:

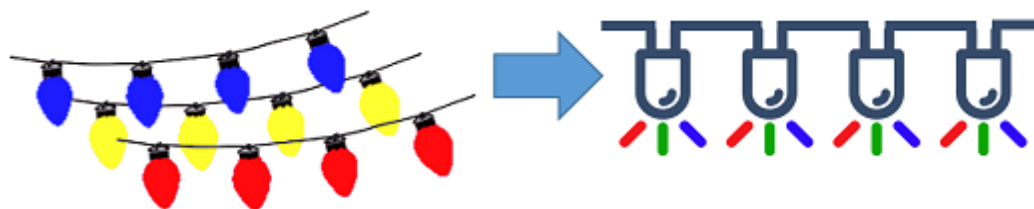
- By selecting "RGB aggregate" from the "Add New" item on the [Sequence menu](#) or on the [Grid View menu](#).
- By clicking the "+" icon on the [Manage RGB Aggregates dialog](#).

Right-click on a RGB aggregate's name and select "Modify RGB aggregate" to change its name and/or its assigned channels.

Right-click on a RGB aggregate's name and select "Delete RGB aggregate" to remove it completely from the sequence.

## What Can You Do With Them?

Suppose that in last year's display you used several colors of traditional lights (bundles) on your roof outline, and that this year you are replacing them with RGB pixels. You need to somehow change the sequences you used last year to control the new pixels in this year's display.



Here are the steps:

1. [Copy the preview](#) for last year's display to a new preview.
2. Add the pixels for the roof outline to the new preview, without deleting the strings used the prior year.
3. [Open](#) last year's sequence.
4. [Assign](#) the new preview to the sequence.
5. Use [Save As](#) to give the sequence a new name
6. Create an RGB aggregate for the a bundle in the roof outline
7. Copy the RGB aggregate's RGB channel to the clipboard
8. If you have a Pro license, paste onto the motion effect row for the new pixels. If you have a lower level license, select all of the RGB pixel rows and paste into the selected area.

### 4.1.12 Time Format

Whenever the [Light-O-Rama Sequencer](#) asks you for a length of time, you can generally specify hours, minutes, seconds, and hundredths of a second. You don't have to specify all of them if you don't want to.

The general format is:

**HH:MM:SS.hh**

Where HH is hours, MM is minutes, SS is seconds, and hh is hundredths of a second. You usually do not have to type all of that in, though; for example, if you are concerned only with seconds, you don't have to type in anything about hours, minutes, or hundredths of seconds.

The Sequencer also uses this same format whenever it displays a length of time to you.

The following examples show how to specify various lengths of time:

Length of Time	Format
Ten seconds	10
Ten and 37/100 seconds	10.37
Three minutes and ten seconds	3:10
Three minutes, ten and 37/100 seconds	3:10.37
Seven hours, three minutes, and ten seconds	7:03:10
Seven hours, three minutes, ten and 37/100 seconds	7:03:10.37

## 4.2 Shows

### What is a Show?

A show is a collection of [sequences](#), to be played as a set. After creating sequences with the [Sequencer](#), you can build a show from them using the [Show Editor](#). Shows can then be [scheduled](#) to play at certain times, using the [Schedule Editor](#), and are then actually played by the [Show Player](#).

Assuming that your [license level](#) is at least Basic Plus, you can also [cause a show to be played on demand](#), without scheduling it, via the [Light-O-Rama Control Panel](#).

There are six different parts to a show, each of which consists of sequences:

- [The Background Section](#)
- [The Startup Section](#)
- [The Animation Section](#)
- [The Musical Section](#)
- [The Interactive Section](#)
- [The Shutdown Section](#)

Each of these parts is optional. For example, a show can be built having only a musical section and a shutdown section.

By default, when a show is being played in the Show Player, any given sequence in the show will not be loaded until when it is about to be played for the first time. Depending upon the size of the sequence and the power of the computer, it may take a human-noticeable amount of time to load a sequence; if so, this may cause an undesired delay between sequences, the first time they are played. So, optionally, you can choose to [preload all sequences](#) before any of them are played.

Additionally, if your [Light-O-Rama software license](#) is for the Advanced feature level, you can modify exactly how your show will start up - for example, immediately at its scheduled start time, or after a certain [circuit](#) on a certain [Light-O-Rama controller](#) has been triggered (for example, by someone hitting a "start" button). See "[Show Startup Options](#)" for details.

Note that the duration of a show is not part of the show itself; rather, it is determined by the



schedule.

## 4.3 Schedules

### What Is a Schedule?

The schedule is at the top of the Light-O-Rama [schedule/show/sequence hierarchy](#):

- The schedule is created and modified by the [Light-O-Rama Schedule Editor](#), and played by the [Light-O-Rama Show Player](#).
- It consists of [shows](#), which are created and modified by the [Light-O-Rama Show Editor](#). The schedule schedules these shows to be played at certain times.
- Shows consist of [sequences](#), which are created and modified by the [Light-O-Rama Sequencer](#).
- Sequences are composed of commands to be sent to your lights, producing various [lighting effects](#).

The schedule has two parts: the [weekly schedule](#) and the [calendar schedule](#). The weekly schedule contains information on shows that should be played on a recurring, weekly basis - for example, every Wednesday night from 7:00 PM to 10:00 PM. The calendar schedule contains information on shows that should be played once, at a specific date and time.

When the [Light-O-Rama Show Player](#) looks at the schedule to decide whether a show should be played, it first checks the calendar schedule to see if it has any shows scheduled for the current date and time. If there are, the Show Player will play that show. Otherwise, the Show Player will check the weekly schedule.

### Example

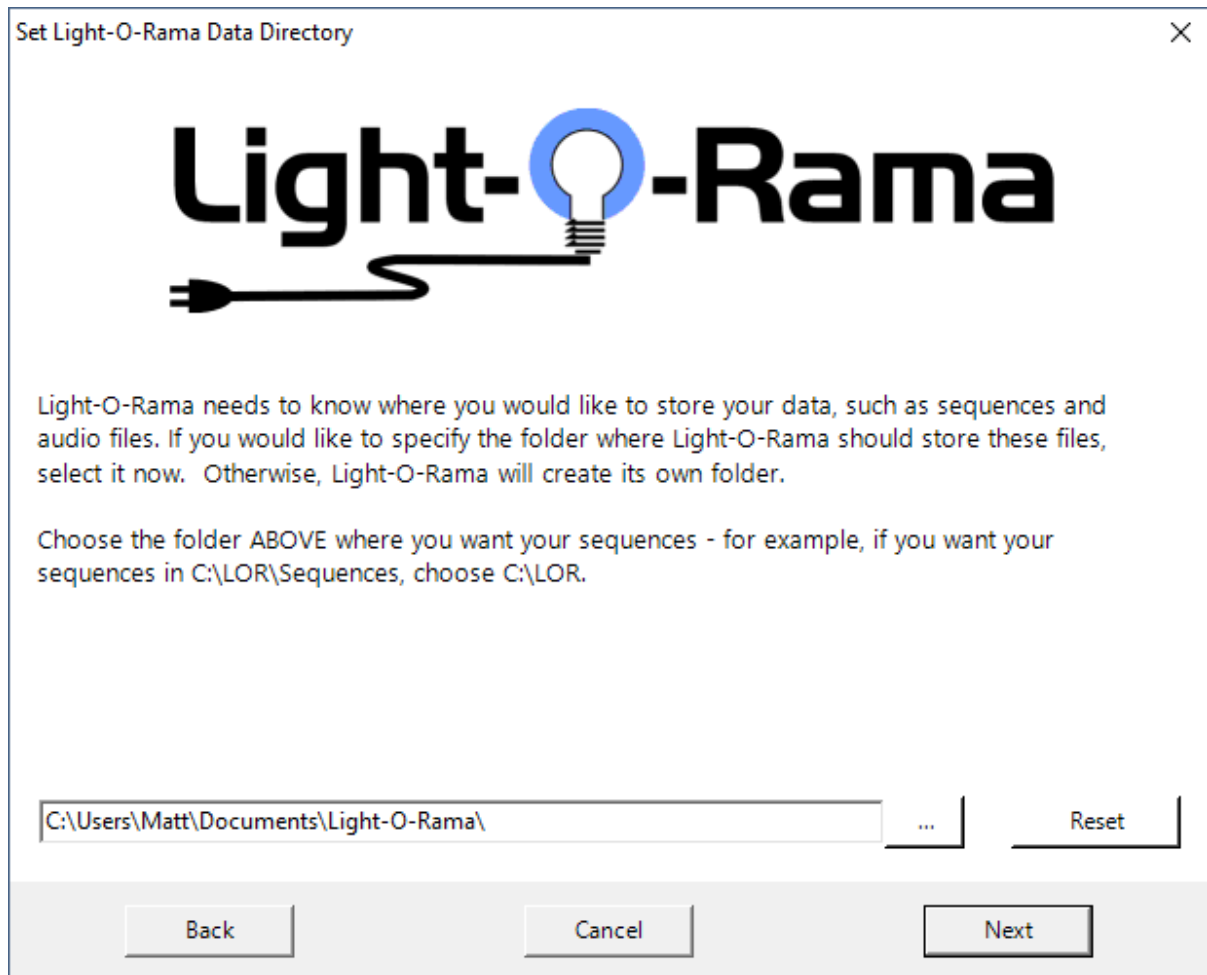
Suppose you have a single show which you want to play every Friday and Saturday night, from 7:00 PM to 10:00 PM, except for Christmas Eve (when you want it to run from 5:00 PM to 11:00 PM) and Christmas Day (when you want it to run from 8:00 AM to 2:00 PM). Then you would put the Friday and Saturday shows into the [weekly schedule](#), and the Christmas Eve and Christmas Day shows in the [calendar schedule](#). The Light-O-Rama Show Player would then follow the weekly schedule on every day except Christmas Eve and Christmas Day, when it would then follow the calendar schedule.

### Considerations

- Unlike the [Show Editor](#), which can be used to create many [shows](#), and the [Sequencer](#), which can be used to create many [sequences](#), the [Schedule Editor](#) only maintains a single schedule, and the [Show Player](#) only uses that single schedule.
- The [Show Player](#) will not play any scheduled [shows](#) unless it is started and scheduled shows are enabled, via "[Enable Schedule](#)" in the [Light-O-Rama Control Panel](#).
- After modifying your schedule in the [Schedule Editor](#), make sure to save it. Changes to your schedule will not be picked up by the [Show Player](#) until the schedule has been changed.

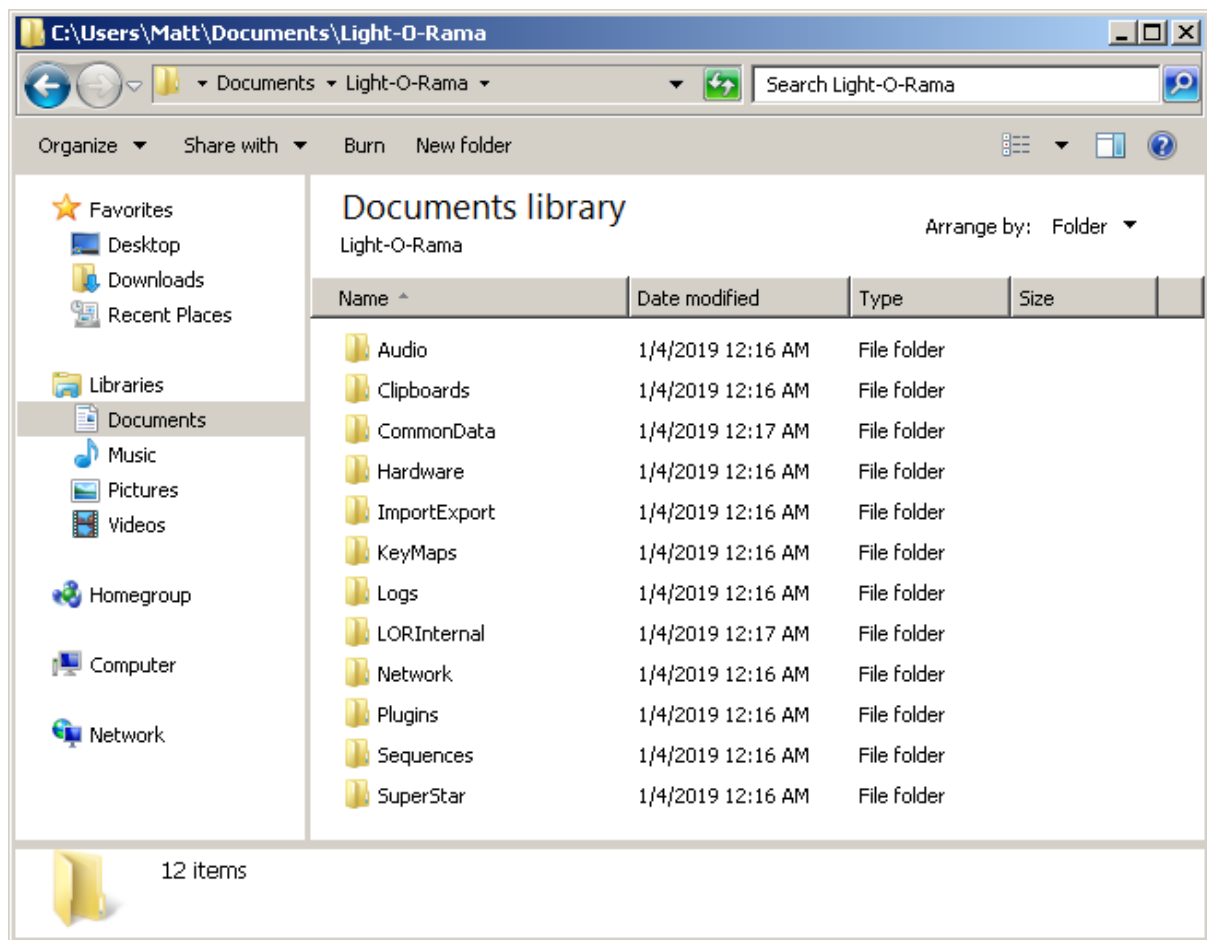
## 4.4 File Locations

The first time you start the Light-O-Rama software, you will be prompted for the name of the folder where you want to store [sequences](#) and other related files. The default choice is to create a "Light-O-Rama" sub-folder below your "Documents" folder, as shown below.



### Light-O-Rama Sub-folders

Regardless of where you choose to put the Light-O-Rama data folder, it will contain the following sub-folders:



## Audio

The "\\Light-O-Rama\\Audio" folder is where you should store the media files (audio and/or video) that you will use as the music track for your sequences. The advantage of storing them here, is that Light-O-Rama programs will look for the media files here by default. If you move your sequences to a different computer, or share your sequences with another user, as long as you store the media file here, Light-O-Rama programs will always be able to find the media file without prompting.

## Clipboards

The "\\Light-O-Rama\\Clipboards" folder is where clipboards for the Sequencer are stored when cutting, copying, or pasting [effects](#). Clipboard files have a ".LCB" file extension. Clipboard files created by third-party programs should be placed in this folder.

## CommonData

The "\\Light-O-Rama\\CommonData" folder contains a number of important files:

- [Previews](#) (LORPreviews.xml)
- [Motion Effect Favorites](#) (LORFavorites.xml)
- [Color Fade tool](#) favorites (LORGradients.xml)
- [Motion Effect Generator](#) palettes (LORPalettes.xml)

?

## **Hardware**

The "\\Light-O-Rama\\Hardware" folder stores dimming curves that can be loaded into a controller.

## **ImportExport**

The "\\Light-O-Rama\\ImportExport" folder is the default location for files exported from the [Sequencer](#), including previews, props, and motion effect favorites.

## **KeyMaps**

The "\\Light-O-Rama\\KeyMaps" folder is not currently used in S5.

## **Logs**

The "\\Light-O-Rama\\Logs" folder is not currently used in S5.

## **LORInternal**

The "\\Light-O-Rama\\LORInternal" folder is used as temporary storage by some Light-O-Rama programs. You should not make any changes to the items stored in this folder or any of its sub-folders.

## **Network**

Below "\\Light-O-Rama\\Network" folder is a sub-folder called "SavedConfigurations", where exports from [Network Preferences](#) are saved. These files have a ".LIV" extension.

## **Plugins**

The "\\Light-O-Rama\\Plugins" folder contains sub-folders where files can be added to extend the functionality of the Sequencer:

- prop shapes (not yet supported)
- motion effects (not yet supported)
- software dimming curves

## **Sequences**

The "\\Light-O-Rama\\Sequences" folder is where your sequence files should be stored. S5 Sequence files have a ".LOREDIT" extension.

## **SuperStar**

The "\\Light-O-Rama\\SuperStar" folder contains files used by the [SuperStar Sequencer](#).

## **Moving Files To A New Computer**

If you move your Light-O-Rama software to a new computer, you should copy files in all of the sub-folders noted above, with the exception of Logs and LORInternal.

## 4.5 Hardware

Light-O-Rama can control your lights via [Light-O-Rama controllers](#) and [Native DMX devices](#). The S5 version has dropped support for: Dasher controllers, Digital IO cards, BSOFT digital IO cards, and X10 controllers.

When a prop is created in a [preview](#) using the [Sequencer](#), the kind of controller (known as "device type") is assigned in the [Prop Definition window](#). It can also be changed on the [Channel Conflicts & Bulk Changes tab](#) of [Preview Design](#).

### 4.5.1 Light-O-Rama Controllers

Light-O-Rama allows your computer to control your lights via a variety of hardware controllers. Primary among these are Light-O-Rama controllers.

Some Light-O-Rama controllers can also act as [input triggers](#), allowing you to start particular [sequences](#) on demand (such as when a person pushes a button).

## Unit IDs

Each Light-O-Rama controller is assigned a unit ID. A unit ID is an identifier for the controller, and is two characters long, with each character being a digit (0-9) or a letter from A to F. For example, 37, 25, 4B, C8, and DA are all valid unit IDs. Some such combinations are reserved, though, and should not be used for as a unit ID. Specifically, 00, F1 through F9, and FA through FF are not valid unit IDs.

Controllers will only react to lighting commands that are intended for their own unit ID; if two controllers on the same [network](#) have the same unit ID, both will react simultaneously to the same commands. However, a unit set up to use [input triggers](#) must have its own unique unit ID, not shared with any other unit, and must not be on an [LOR Enhanced network](#). Also, the [Hardware Utility](#) may react strangely with respect to a unit ID which has more than one unit - for example, detecting them as a single unit, or misdetecting them as some unknown controller type.

The unit ID of a controller is set in one of two ways, depending upon the type of controller:

- Most controllers have physical switches on them that allow you to set the unit ID by moving the switches.
- Otherwise, the Hardware Utility can be used to select a unit ID for controllers without such switches.

It is generally a good habit to assign your unit IDs sequentially starting at 01. This is not necessary, but it will speed up some maintenance such as configuring and testing your controllers in the [Hardware Utility](#).

## Circuit IDs

Within a controller, each string of lights is assigned a specific circuit ID. This allows Light-O-Rama

to make different lights do different effects at the same time, using the same controller.

## Standalone Mode and Computer Controlled Mode

Light-O-Rama controllers can be set up in standalone mode, in which a [sequence](#) is downloaded to them in advance via the [Hardware Utility](#), or hooked up to your computer via a COM port, in which case the [Light-O-Rama Show Player](#) will send them lighting commands (during [scheduled shows](#)), or the [Light-O-Rama Sequencer](#) will (on demand for a single sequence).

A controller in standalone mode can also send lighting commands to other controllers that are hooked up to it via phone lines or data lines, similarly to the way that the Show Player or Sequencer would. Therefore, in standalone mode, a sequence only needs to be downloaded (via the Hardware Utility) to a single controller; the other controllers hooked up to it will receive their commands from it.

Only one source of lighting commands should be present in any group of controllers that are hooked up to each other - either the Show Player, the Sequencer, or a single controller with a downloaded sequence. Having more than one source of commands will cause unexpected and undesired results, as lighting commands will be missed or garbled.

## Light-O-Rama Networks

The [Show Player](#) and [Sequencer](#) can control up to sixteen different networks of Light-O-Rama controllers, each hooked up over a different COM port. These networks are referred to as "Regular" (which is the default), "Aux A", "Aux B", "Aux C", and so on, up to "Aux O".

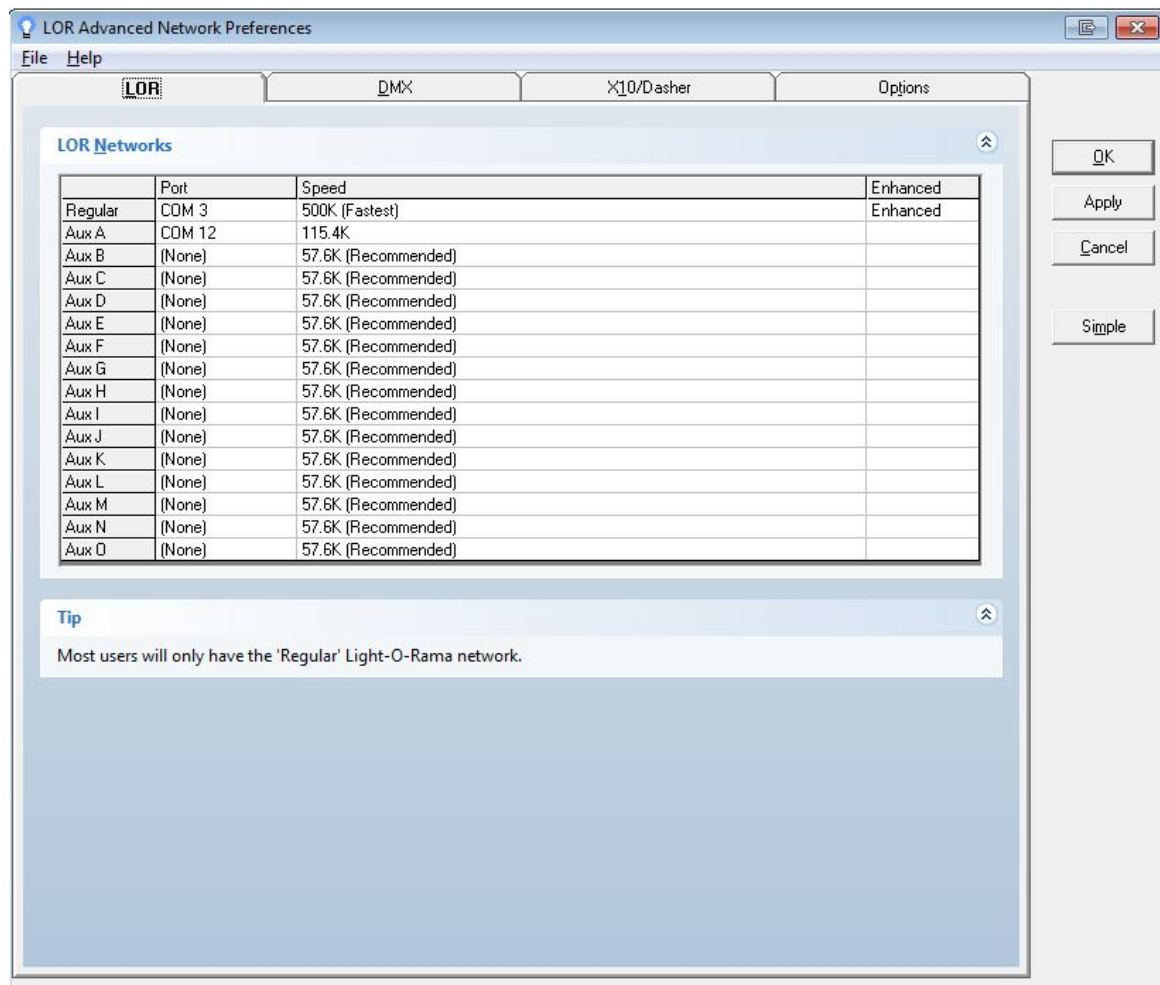
One main use of multiple networks is for displays with very large numbers of controllers; they enable more lighting commands to be sent out at a single time. They also allow you to set up a sort of star network centered on your PC, rather than a single long daisy chain of controllers; both of these may make such sequences perform more smoothly.

Another use is for displays whose controllers are hooked up using wireless communications, via a Light-O-Rama Easy Light Linker. Wireless communications has a lower top speed than wired, but using multiple wireless networks allows commands to be sent over all of them simultaneously. So, depending upon how many controllers you have and how many lighting effects you send them during your show, using multiple wireless networks could make your show perform more smoothly than using a single wireless network.

It is simplest, though, to just use a single Light-O-Rama network, and in many situations, this is perfectly sufficient.

Light-O-Rama networks can be either normal or "[enhanced](#)".

The COM ports represented by each of the networks can be set via the [Light-O-Rama Network Preferences program](#). For example, the following picture shows COM3 assigned to the Regular network, COM12 assigned to auxiliary network Aux O, and the remainder of the networks unassigned, with Regular (COM3) being an enhanced network:



Multiple COM ports assigned to various Light-O-Rama networks

## Enhanced Light-O-Rama Networks

A [Light-O-Rama network](#) can be an "enhanced" network (via the [Advanced Mode](#) of the [Light-O-Rama Network Preferences](#) program). This allows intensity files to be used for [controllers](#) on the network, which can be especially helpful with displays having large numbers of channels and lighting effects. Intensity files do not have to be used, though; [effects](#) defined in regular [sequence](#) files will still work fine on an enhanced LOR network. In fact, effects from both a regular sequence and from its associated intensity file can be used simultaneously.

A Pro level [license](#) is required to use this feature, and the [Light-O-Rama Comm Listener](#) must be running in order for the lights to be controlled. Not all controllers can be used on such a network, and some controllers may require [firmware updates](#) before they are able to be used on an enhanced network. Also, [input triggers](#) are not supported on LOR Enhanced networks.

## Assigning Circuits in a Sequence

When you add a controller to your display, you add the strings of lights attached to that controller as

props in your [preview](#) using the [Preview Design](#) window.

## 4.5.2 Light-O-Rama Pixel Controllers

Light-O-Rama sells several different Pixel Controllers which support multiple different Pixel ICs. The Pixie 16, Pixie 8, and Pixie 4 controllers can support up to 100 pixels per port and fully integrate into the existing Light-O-Rama network.

When you add a pixel controller to your display, you add the strings of pixels attached to that controller as props in your [preview](#) using the [Preview Design](#) window.

## 4.5.3 Light-O-Rama PixCon16 Devices

With the introduction of the PixCon 16 controller, Light-O-Rama is now selling and supporting native E1.31 devices. These devices are configured from the [Network Preferences](#) program on the advanced tab. To start the configuration of LOR E1.31 devices, press the 'Find/Configure E1.31 devices' button.

When you add a PixCon 16 controller to your display, you add the strings of pixels attached to that controller as props in your [preview](#) using the [Preview Design](#) window.

## 4.5.4 Native DMX Devices

In addition to [Light-O-Rama controllers](#) and [various other types of controllers](#), Light-O-Rama can control native DMX devices, either directly over a serial port and adapter or over ethernet via E1.31.

When you add a DMX device to your display, you add the controller's channels as props in your [preview](#) using the [Preview Design](#) window.

Several DMX universes can be used, each having a unique universe number from 1 to 999. Each should be assigned a separate DMX adapter (such as an ENTTEC Open DMX USB adapter) or else E1.31 settings (such as IP address and port). You can assign adapters or E1.31 settings to universes via the [Network Preferences program](#).

Unlike other protocols (such as LOR), the DMX protocol requires that the [LOR Control Panel](#) be running in order to actually control the devices. The LOR Control Panel will, in turn, start up the [LOR Comm Listener](#). When a program such as the Sequencer or [Show Player](#) wants to send a command to a DMX device, it actually sends the command to the LOR Comm Listener, which in turn sends it out over the adapter or E1.31 address assigned to the device's specified universe.

Note that you do *not* have to use the "[DMX Intensity](#)" effect on DMX channels. You can, but you can also use any other effect (such as Fade Up or Twinkle). If you use a DMX Intensity effect, it will have a natural DMX intensity range of 0 to 255. If you use any other effect, it will have a range of 0 to 100, but Light-O-Rama will automatically scale it to DMX's 0 to 255 range immediately before sending it out to the actual DMX device.

## 4.5.5 LED Pixel and Node Terminology

When discussing individually addressable bulbs, there are many terms that can be used. In an effort to standardize these terms when dealing with RGB devices, Light-O-Rama defines the following:

- **'LED' (or 'Light')**: A single locus (point) of light. One **or more** LEDs are part of a **NODE**. LEDs (or LIGHTs) are elemental - they can **NOT** be broken down further.
- **'Node'**: A single processor for one or more LEDs. Nodes are **PHYSICAL**. Think of them as the



processor chip on every individual *LED/LIGHT*.

- **'Pixel'**: A pixel is a collection of one or more *NODEs*. Pixels are **VIRTUAL**, and controlled by a single *TRIPLET*. All nodes that are part of a pixel will react in the same way. Pixels are the 'bridge' between the physical world and the virtual (sequencing) world.
- **'Triplet'**: A group of 3 *CHANNELs* that set the color of a *PIXEL*. When we speak about a triplet we do not specify the order of the *CHANNELs*. For example, some pixels are in RGB order, while some others could be in GRB order. Either of those orders refer to the same triplet.
- **'Channel'**: A channel controls a single color of a *TRIPLET*. A *TRIPLET* consists of 3 channels: Red, Green, Blue in the order specified by the manufacturer of the string.

The number of *TRIPLETs* required will always be the same as the number of *PIXELs*. When we talk about something that you can physically touch we use 'Pixel'. When we are talking about it otherwise, say in reference to a sequence, we use 'Triplet'.

Here are some examples to help:

A Light-O-Rama Cosmic Color Ribbon has 150 *LEDs*. Every 3 *LEDs* are attached to a single *NODE*. When you set the resolution of the CCR, you control how many consecutive *NODEs* are assigned to a single *PIXEL*. At a resolution of 50, each *NODE* is controlled by 1 *PIXEL* for a total of 50 *PIXELs*. At a resolution of 25, every **two** *NODEs* are controlled by 1 *PIXEL* for a total of 25. In all cases a single *TRIPLET* will control a single *PIXEL*.

You may have a string of 170 RGB *LEDs*. Each one of these *LEDs* is attached to a single *NODE*. If you do not group any of the *NODEs* together, you will have 170 *PIXELs* that are controlled by 170 *TRIPLETs* which consist of 3 *CHANNELs* each for a total of 510 *CHANNELs*.

Separating the notion of Nodes from Pixels also allows virtual addressing to make more sense. For example, say you have 30 pixels that are arranged as a 10 x 3 matrix. When you physically construct this matrix, you will most likely use a snake pattern as that minimizes the amount of wire/etc. Your *NODEs* will look like this:

```
1  2  3  4  5  6  7  8  9 10
20 19 18 17 16 15 14 13 12 11
21 22 23 24 25 26 27 28 29 30
```

Notice how when we get to the right side, we don't start over at the left, but instead go one line lower and in reverse order. While that makes a lot of sense while building the matrix, logically the pixels are not in the correct order. Since we read left-to-right, we'd like to see all the pixels ordered from left to right. If we were to set the 'Zig-Zag' parameter on a PixCon16 to 3, the physical nodes will still be in the same order, **however** the pixels will be numbered:

```
1  2  3  4  5  6  7  8  9 10
11 12 13 14 15 16 17 18 19 20
21 22 23 24 25 26 27 28 29 30
```

Since *NODE* refers to the physical and *PIXEL* refers to the virtual, we now can state 'Node 18 is Pixel 13', and it makes sense.

## 5 The Light-O-Rama Software Package

The Light-O-Rama software package is a suite of programs, each helping with a different portion of computerized control of your lights to help build a dynamic display:

- The [Control Panel](#) runs in your system tray, and gives convenient access to control over your shows.
- The [Sequencer](#) is used to create, modify, and test sequences.
- The [SuperStar Sequencer](#) can be invoked from the Sequencer and used to create unique effects. It also has auto-sequencing capabilities.
- The [Show Editor](#) is used to package sequences together into shows.
- The [Schedule Editor](#) is used to schedule shows to play at certain times.
- The [Simple Show Builder](#) is an alternative to the Show Editor and the Schedule Editor. It is generally simpler to use, but less flexible.
- The [Show Player](#) monitors the schedule, and plays the scheduled shows at the appropriate times.
- The [Comm Listener](#) is used by other programs (such as the Sequencer and Show Player) to communicate with DMX devices.
- The [Network Preferences](#) program allows you to configure the comm networks that your computer will use to communicate with your controllers.
- The [Hardware Utility](#) can be used to test your controllers, and to download sequences to them to be used in standalone mode.
- The [ServoDog Utility](#) can be used to configure Light-O-Rama ServoDog controllers.
- The [Verifier](#) can be used to check for certain types of problems with your Light-O-Rama configuration, schedule, shows and sequences.
- The [Sequence Compressor](#) can be used before shows to make sure that your compressed sequences are up-to-date.
- The [Diagnostic](#) is a troubleshooting tool that displays various information about your Light-O-Rama configuration.
- The [Offline Registration Utility](#) can be used to register Light-O-Rama on a computer that does not have access to the internet.

Additionally, [add-ons](#) can be used with Light-O-Rama (these are not supplied as a part of the Light-O-Rama software package).

The Light-O-Rama software package must be [registered](#) with a valid license in order to use it to its full potential. There are several different possible license levels, each having [different features available](#). Light-O-Rama can also be used unlicensed, in Demo mode, but you will not be able to actually control lights while in Demo mode.

Please note that the Light-O-Rama software package must be installed on a local drive; it is not supported when installed on a network drive.

## 5.1 Registering Light-O-Rama

The [Light-O-Rama Software Package](#) must be registered, with a valid license, before it can be used to its full potential. Without a license, Light-O-Rama can be used as a demo, but it will not actually control your lights.

There are several different license levels, each having different features available; please see the [feature comparison](#) for details.

To register Light-O-Rama first visit the [Light-O-Rama website](#), and purchase a license. You will then be able to enter your license information in any of a few different ways:

- When you first install the software, or
- By going to the [Sequencer's Help menu](#) and selecting [Register Or Upgrade Light-O-Rama](#), or
- By selecting "Register Light-O-Rama" (or "Upgrade Light-O-Rama") on the [Control Panel's popup](#)

[menu](#)

Doing any of these things will open the Registration dialog:

The image shows a Windows-style dialog box titled "Register Light-O-Rama". It has a blue title bar with a light bulb icon on the left and a close button (X) on the right. The main area has a light beige background. The text inside reads: "Please enter your registration information. Note that your name is considered case-sensitive, so please type all uppercase and lowercase letters exactly as they are in your registration information." followed by "If you do not yet have registration information, you can purchase a license from Light-O-Rama's website:" and a blue hyperlink "http://www.lightorama.com/". Below this are two input fields: "Name:" and "License Key:". At the bottom are two buttons: "Register" and "Cancel". At the very bottom, it says "Need to register offline? [Click here.](#)"

The Registration Dialog

If your computer is connected to the internet, you can register simply by entering the name and license key from your license information, and clicking "Register" (the license name and key can be copied and pasted from the email in which they were sent to you). Light-O-Rama will then automatically verify your license information, and, if it is valid, register your computer.

You may then have to close any Light-O-Rama programs that are running, and then restart them, before all of your newly available features will be available.

If your computer is not connected to the internet, click on the link at the bottom of the Registration dialog in order to [register offline](#).

### 5.1.1 Registering Offline

If your computer is connected to the internet, you can register Light-O-Rama directly in the [Registration dialog](#). If not, though, you can still register while offline. Open the Registration dialog and click the link at its bottom ("Need to register offline? Click here.").

Doing so will open the Offline Registration dialog:

**Offline Registration**

First, please enter your registration information. Note that your name is considered case-sensitive, so please type all uppercase and lowercase letters exactly as they are in your registration information:

**Name:**

**License Key:**

When you have entered them, please click the "Show Offline Registration Key" button:

**Your Offline Registration Key:**

Next, you will need an offline authorization key. If you have another computer, with LOR installed, which has internet access, you can get one by running the LOR Offline Registration Utility on that computer, and entering your license name, license key, and offline registration key into it.

If you do not have another computer, with LOR installed, with internet access, please call Light-O-Rama at 518-539-9000, and a person there will create an offline authorization key for you. You will need to provide the person with your license name, license key, and offline registration key.

After you have received your offline authorization key, please enter it below, and click the "Register" button:

If a box turns red, that means that LOR has detected an error in that box, so please double-check what you have typed in it.

**The Offline Registration Dialog**

Once this dialog is opened, follow the instructions on it to register offline. A brief summary:

First, enter your license name and license key (these can be copied and pasted from the email in which they are sent to you).

Next, click "Show Offline Registration Key".

At this point, you will need to use your offline registration key to get an offline authorization key. There are two ways to do this:

First, if you have another computer, which is connected to the internet and which has Light-O-Rama installed, you can run the [Offline Registration Utility](#) on that computer. Make sure to have your license name, license key, and offline registration key available to enter onto that computer; the Offline Registration Utility will use them to create an offline authorization key.

If you do not have another computer that you can use to run the Offline Registration Utility, then you can obtain an offline authorization key by calling Light-O-Rama, at the telephone number shown on the form. Provide the person you speak to with your license name, license key, and offline registration key, and they will provide an offline authorization key to you.

After you have obtained an offline authorization key, type it into the boxes near the bottom of the form, and click "Register".

After you have successfully registered, you may need to close any Light-O-Rama programs that are running and restart them before all of your newly available features can be used.

## 5.2 Control Panel

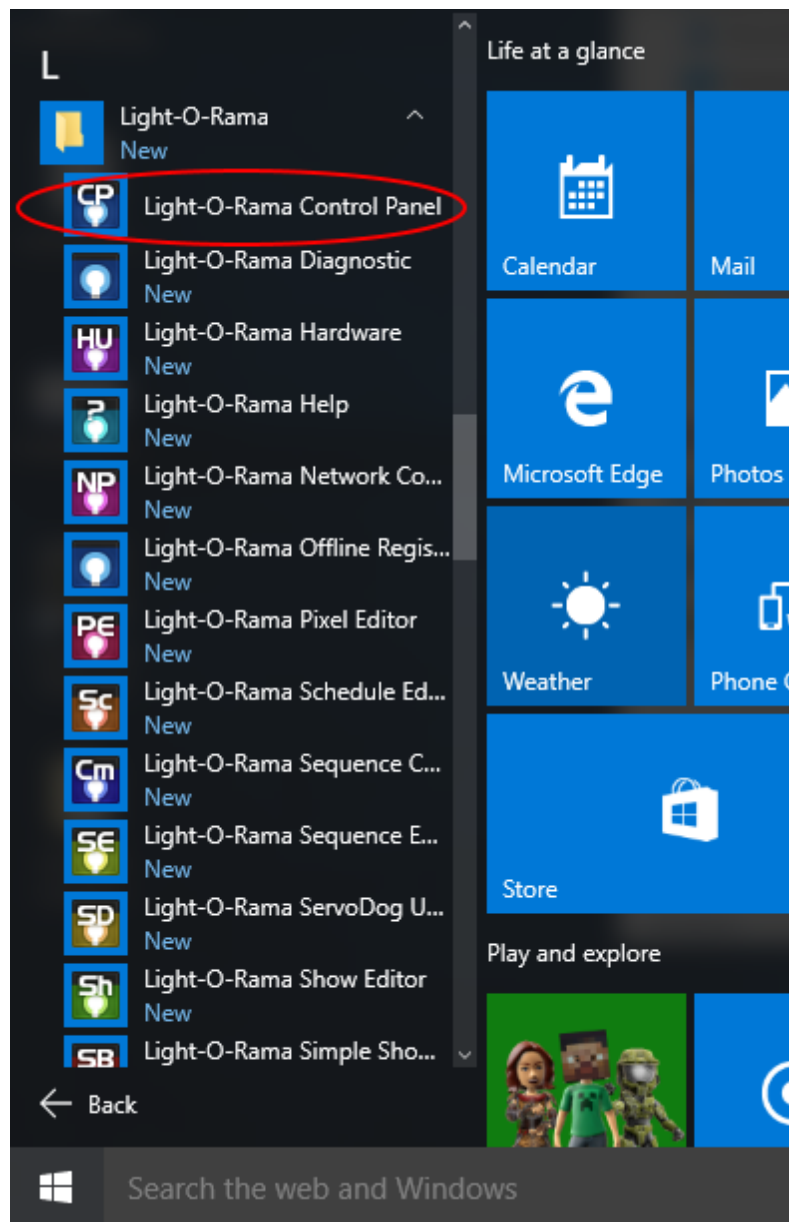
### What is the Light-O-Rama Control Panel?

The Light-O-Rama Control Panel is an application that runs in your system tray, allowing convenient access to other programs in the [Light-O-Rama software package](#), as well as control over your displays.

The Light-O-Rama control panel *must* be running in order for the [Show Player](#) to play your [scheduled shows](#) (additionally, "[Enable Schedule](#)" must be turned on). It also must be running in order to control lights on [LOR Enhanced networks](#) or on [DMX networks](#).

### Running the Light-O-Rama Control Panel

To run the Light-O-Rama Control Panel, select it from your computer's Start menu, under All Programs (or "All apps") / Light-O-Rama / Light-O-Rama Control Panel:



Run the Light-O-Rama Control Panel from your computer's Start menu

## System Tray Icon

Once running, the Control Panel will show up as a Light-O-Rama light bulb icon in your system tray:



The Control Panel, running in the system tray

The color of the light bulb describes the current state of the [Show Player](#): If [scheduled shows](#) are currently [enabled](#), it will be blue; if they are [disabled](#), but [shows on demand](#) are enabled, it will be orange; if shows are disabled entirely, it will be red:



#### The different possible colors of the Control Panel

If you wish, you can set it up so that the Control Panel will automatically be run whenever your computer starts up (and therefore you won't have to start it via the Start menu anymore). To do this, select [Launch at Startup](#) from the [Control Panel's popup menu](#).

## The Status Window

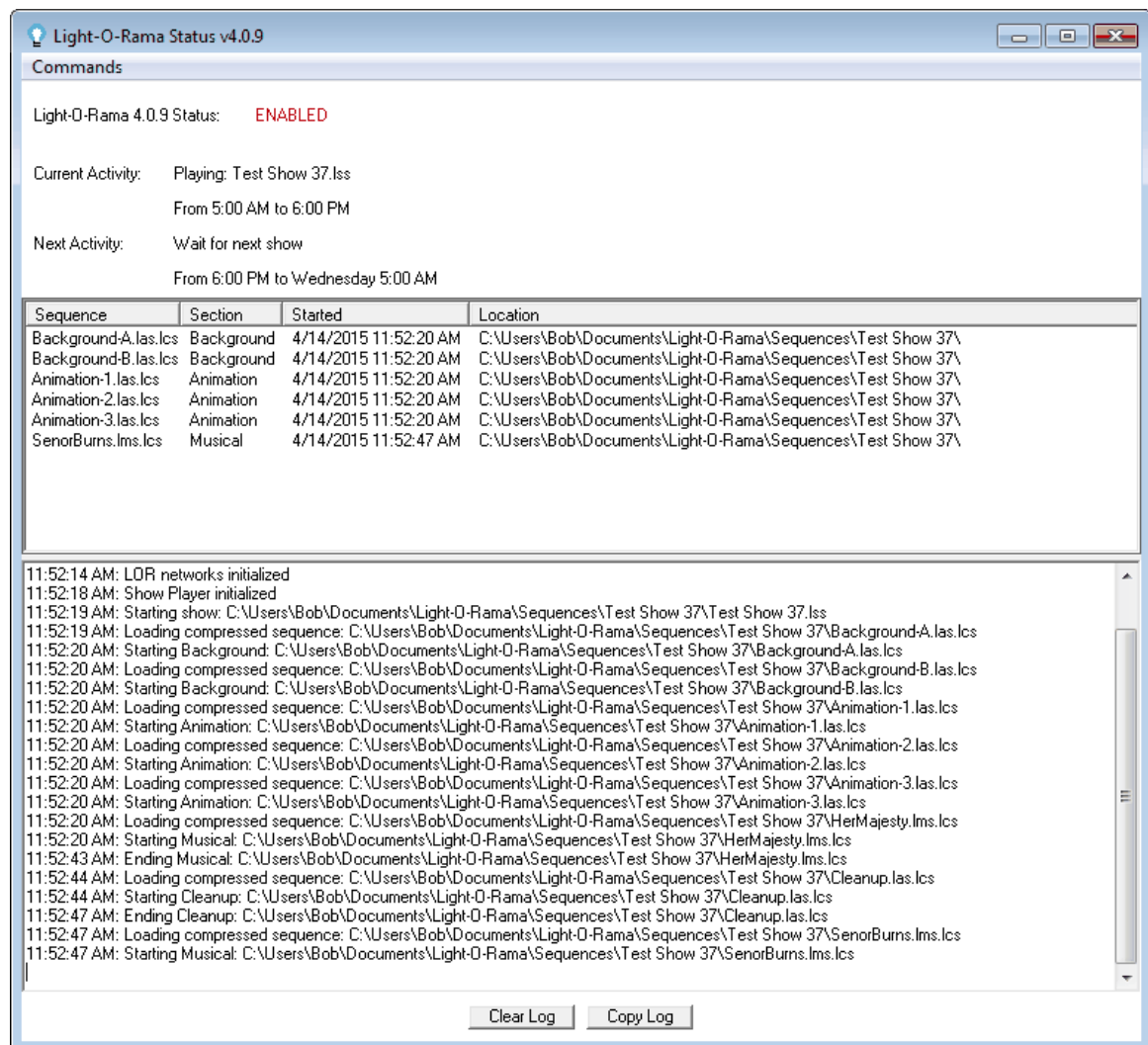
Left-clicking on the Light-O-Rama Control Panel's icon in your computer's system tray opens up the Light-O-Rama status window. This window shows whether or not the [Light-O-Rama Show Player](#) is currently monitoring your [schedule](#) to play [shows](#) at their scheduled times, and, if so, whether a show is currently running, what show that is, and what the next show will be. If any sequences are currently running, it also shows information about all of them.

The Status window also has a "Commands" menu, which has the same menu items as the [right-click popup menu](#).

It also shows various log messages, indicating such things as that a show or a [sequence](#) is starting or stopping, that an error occurred playing a sequence, or that an [interactive trigger](#) was detected. The "Clear Log" button will clear out all existing messages from the display, and "Copy Log" will copy the log messages to your computer's clipboard, so that you can paste them into a file. Please note that the log does not retain its messages indefinitely; it will periodically clear earlier messages out.

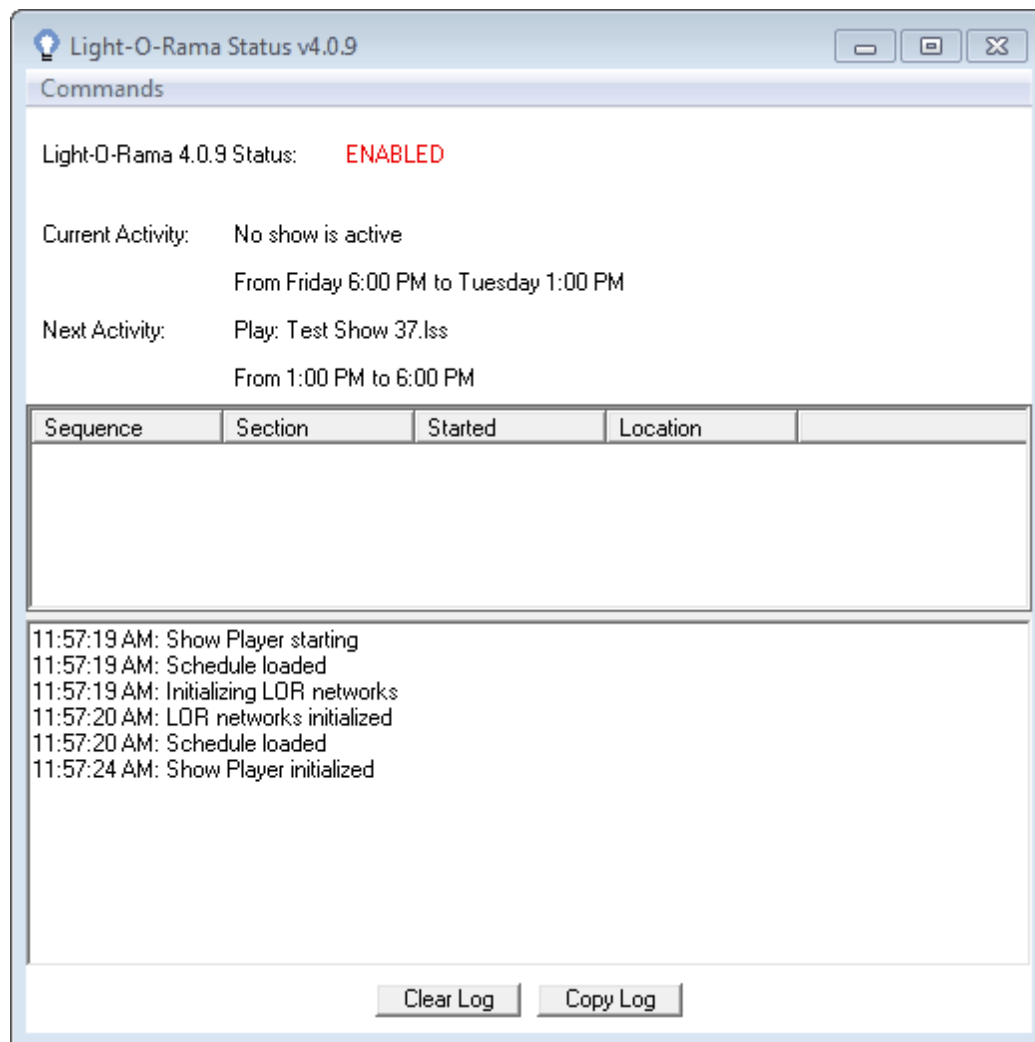
If that Status window shows Light-O-Rama's status as "Scheduled Play is Off", your scheduled shows will not play. If you wish to enable them, select "[Enable Schedule](#)" from its "Commands" menu or from the [Control Panel's right-click popup menu](#). Similarly, if the Status window says that they Light-O-Rama is "enabled", your scheduled shows will play; if you wish to disable them, select either "[Disable Shows Gracefully](#)" or "[Disable Shows Immediately](#)".

The Status window can also say that Light-O-Rama is "enabled (only for on demand shows)", in which case your scheduled shows will not play, but [on demand shows](#) will. In this situation, you will be able to either enable your scheduled shows or disable shows entirely (either gracefully or immediately).

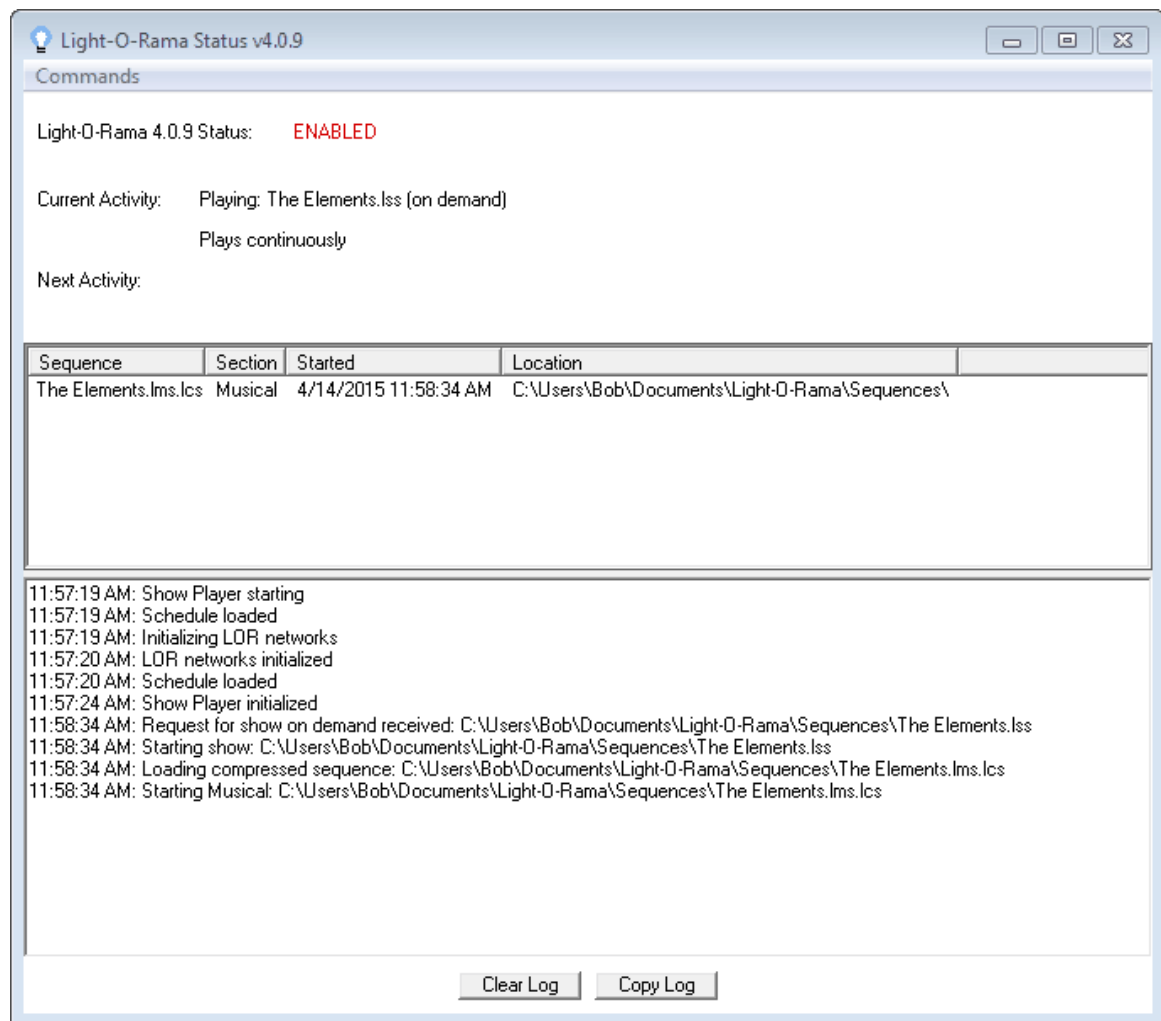


The status window, with scheduled shows enabled and a show currently playing

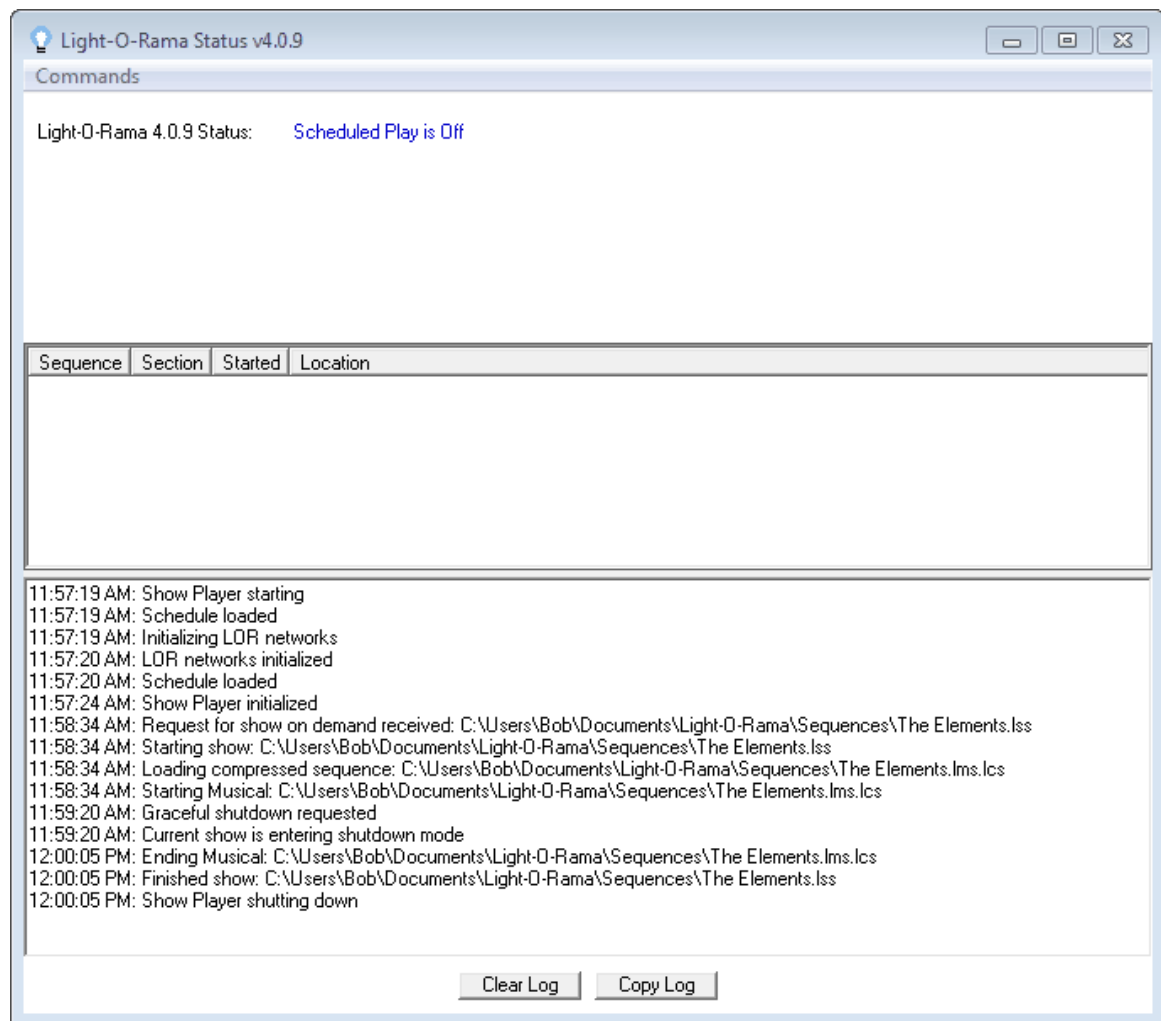




The status window, with scheduled shows enabled, but no show currently playing



The status window, with on demand shows enabled, but not scheduled shows



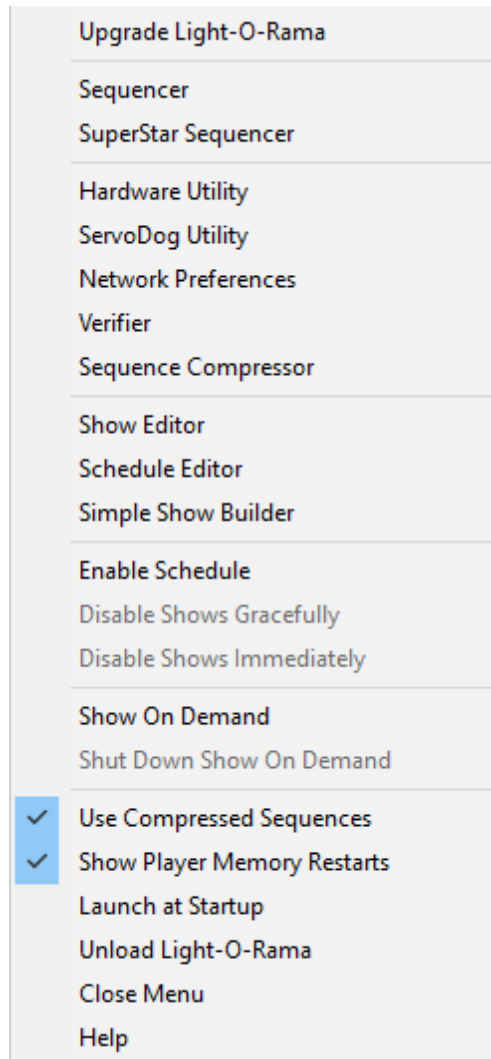
The status window, with shows disabled

## The Popup Menu

Right-clicking on the Light-O-Rama Control Panel's icon in the system tray brings up a popup menu (this same menu is also available as the "Commands" menu in the [Status window](#)). This menu contains items to quickly launch other programs in the Light-O-Rama software package, and to control your display in various ways:

- [Register \(or Upgrade\) Light-O-Rama](#)
- [Sequencer](#)
- [SuperStar Sequencer](#)
- [Hardware Utility](#)
- [ServoDog Utility](#)
- [Network Preferences](#)
- [Verifier](#)
- [Sequence Compressor](#)
- [Show Editor](#)
- [Schedule Editor](#)
- [Simple Show Builder](#)
- [Enable Schedule](#)

- [Disable Shows Gracefully](#)
- [Disable Shows Immediately](#)
- [Show On Demand](#)
- [Shut Down Show On Demand](#)
- [Use Compressed Sequences](#)
- [Show Player Memory Restarts](#)
- [Launch at startup](#)
- [Unload Light-O-Rama](#)
- [Close Menu](#)
- [Help](#)



The Control Panel's right-click popup menu

### ***Register (or Upgrade) Light-O-Rama***

Selecting "Register Light-O-Rama" (or "Upgrade Light-O-Rama") from the Control Panel's right-click popup menu allows you to [register your Light-O-Rama software](#), or to upgrade to a higher level license, unlocking various [features](#).

This item will show up as "Register Light-O-Rama" if you are using the unlicensed Demo version of

the software, or "Upgrade" if you are using a license, but it is not the highest possible license level. If you are using the highest possible license level, this item will not be displayed at all.

## **Sequencer**

Selecting "Sequencer" from the [Control Panel's right-click popup menu](#) launches the [Light-O-Rama Sequencer](#), used to create, modify, and test [sequences](#).

## **SuperStar Sequencer**

Selecting "SuperStar Sequencer" from the [Control Panel's right-click popup menu](#) launches the [Light-O-Rama SuperStar Sequencer](#).

**Note: it is recommended to access SuperStar via the [Sequencer's SuperStar Effect tool](#) rather than opening SuperStar directly from the Control Panel menu.**

## **Hardware Utility**

Selecting "Hardware Utility" from the [Control Panel's right-click popup menu](#) launches the [Light-O-Rama Hardware Utility](#), used for various things such as testing [controllers](#) and downloading [sequences](#) to them for use in standalone mode.

## **ServoDog Utility**

Selecting "ServoDog Utility" from the [Control Panel's right-click popup menu](#) launches the [Light-O-Rama ServoDog Utility](#), used to configure Light-O-Rama ServoDog controllers.

## **Network Preferences**

Selecting "Network Preferences" from the Control Panel's right-click popup menu launches the [Light-O-Rama Network Preferences program](#).

## **Verifier**

Selecting "Verifier" from the [Control Panel's right-click popup menu](#) launches the [Light-O-Rama Verifier](#), used to check for certain problems with Light-O-Rama's configuration, [schedule](#), scheduled [shows](#), and scheduled [sequences](#).

## **Sequence Compressor**

Selecting "Sequence Compressor" from the [Control Panel's right-click popup menu](#) launches the [Light-O-Rama Sequence Compressor](#), which can be used before [shows](#) to ensure that all [compressed sequences](#) are up-to-date.

## **Show Editor**

Selecting "Show Editor" from the [Control Panel's right-click popup menu](#) launches the [Light-O-Rama Show Editor](#), used to create and modify [shows](#).

## **Schedule Editor**

Selecting "Schedule Editor" from the [Control Panel's right-click popup menu](#) launches the [Light-O-](#)

[Rama Schedule Editor](#), used to [schedule shows](#) to be played by the [Light-O-Rama Show Player](#).

### ***Simple Show Builder***

Selecting "Simple Show Builder" from the [Control Panel's right-click popup menu](#) launches the [Light-O-Rama Simple Show Builder](#), which is intended as an easier to use, but less flexible, alternative to the [Show Editor](#) and the [Schedule Editor](#).

### ***Enable Schedule***

Selecting "Enable Schedule" from the [Control Panel's right-click popup menu](#) causes the [Light-O-Rama Show Player](#) to monitor your [schedule](#) and to play your [shows](#) at their scheduled times.

Note that [on demand shows](#) can be played regardless of whether your scheduled shows are enabled or not.

When scheduled shows are enabled, the light bulb icon in the computer's system tray will be blue.

**Note:** If "Enable Schedule" is greyed out, this means that it has already been selected, and the Show Player is monitoring your schedule. To stop the Show Player from monitoring your schedule, select "[Disable Shows Gracefully](#)" or "[Disable Shows Immediately](#)".

### ***Disable Shows Gracefully***

Selecting "Disable Shows Gracefully" from the [Control Panel's right-click popup menu](#) causes the [Light-O-Rama Show Player](#) to put your current [show](#) (if one is running) into shutdown mode, and to stop monitoring your [schedule](#) for shows to be played. When the show goes into shutdown mode, any song from the [Musical section](#) that is currently playing will be allowed to finish, and then the show's [Shutdown section](#) will start.

To instead shut down your show immediately, including abruptly stopping any [sequences](#) or song that might be playing, choose [Disable Shows Immediately](#) instead.

When shows are disabled, the light bulb icon in the computer's system tray will be red.

**Note:** If "Disable Shows Gracefully" is greyed out, this means that the Show Player is *not* monitoring your schedule. To have the Show Player start monitoring your schedule, select "[Enable Schedule](#)".

### ***Disable Shows Immediately***

Selecting "Disable Shows Immediately" from the [Control Panel's right-click popup menu](#) causes the [Light-O-Rama Show Player](#) to immediately stop your current show (if one is running), and to stop monitoring your [schedule](#) for [shows](#) to be played.

Stopping your show immediately will abruptly stop your [sequences](#), including any song that happens to be playing. To have the Show Player stop your show more gracefully, choose [Disable Shows Gracefully](#) instead.

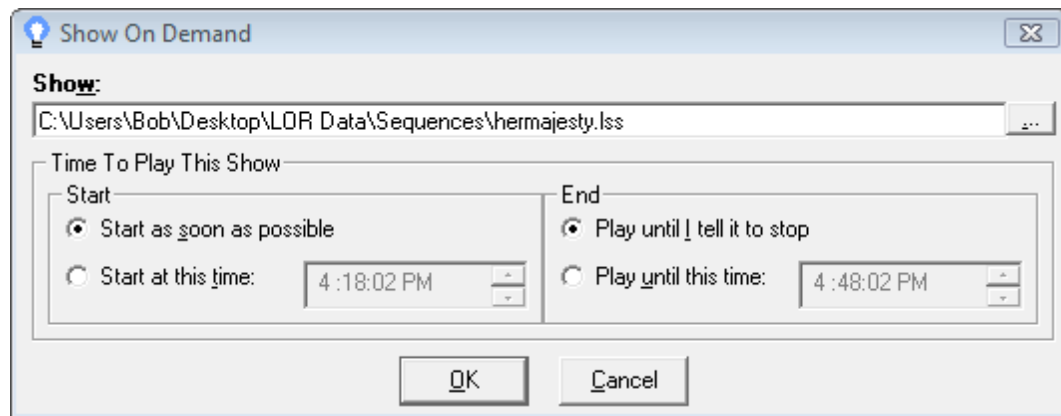
When shows are disabled, the light bulb icon in the computer's system tray will be red.

**Note:** If "Disable Shows Immediately" is greyed out, this means that the Show Player is *not*

monitoring your schedule. To have the Show Player start monitoring your schedule, select "[Enable Schedule](#)".

## Show On Demand

Selecting "Show On Demand" from the [Control Panel's right-click popup menu](#) causes the following dialog to open:



The Show On Demand dialog

Using this dialog, you can choose a [show](#) file to play immediately, or at a certain time, without needing to add it to your [schedule](#). You can choose to let it play until a certain time, or else indefinitely, in which case it will not stop until you "[shut down show on demand](#)", "[disable shows gracefully](#)", "[disable shows immediately](#)", or "[unload Light-O-Rama](#)".

If a show is already playing at the time the on demand show is supposed to start, the playing show will be allowed to stop gracefully before the on demand show will start. That is, if a [sequence](#) from its [Musical Section](#) is currently playing, that sequence will be allowed to continue to play until its natural end; also, the sequences from its [Shutdown Section](#), if any exist, will be played (after the current sequence from the Musical Section ends, or immediately if there is no current sequence from the Musical Section).

If "Show On Demand" is used when scheduled shows are disabled, it will not enable your scheduled shows; only your on demand show will play (if desired, though, you can enable your scheduled shows too, simply by clicking "[Enable Schedule](#)"). When this is the case, the light bulb icon in the computer's system tray will be orange.

Please note that the Show On Demand feature is only available for [license level](#) Basic Plus and higher.

## Shut Down Show On Demand

If an [on demand show](#) is currently playing, selecting "Shut Down Show On Demand" from the [Control Panel's right-click popup menu](#) will cause the on demand show to stop. It will be allowed to stop gracefully; that is, if a [sequence](#) from its [Musical Section](#) is currently playing, that sequence will be allowed to continue to play until its natural end; also, the sequences from its [Shutdown Section](#), if any exist, will be played (after the current sequence from the Musical Section ends, or immediately if there is no current sequence from the Musical Section).

After the on demand show stops, if [scheduled shows are enabled](#), the [Show Player](#) will start

whatever show is [scheduled](#) for the current time (if any).

"Shut Down Show On Demand" can also be used to cancel an on demand show that has been requested, but not yet started (either due to its start time not having been reached, or else due to another show still being in the process of shutting down).

### ***Use Compressed Sequences***

Checking "Use Compressed Sequences" from the [Control Panel's right-click popup menu](#) causes the Light-O-Rama [Show Player](#) to create and use [compressed sequences](#) if possible, which should cut down on the time it takes to load. Unchecking it causes it to ignore compressed sequences, and instead use the regular [sequences](#).

### ***Show Player Memory Restarts***

Checking "Show Player Memory Restarts" from the [Control Panel's right-click popup menu](#) causes the [Show Player](#) to automatically restart in certain situations: When no [show](#) is playing, and no show is [scheduled](#) to start playing within the next sixty seconds, if the Show Player is using more than 100 megabytes of memory, it will automatically shut down. Assuming that the schedule is enabled, the [Light-O-Rama Control Panel](#) will then automatically restart the Show Player. The intention of this is a preventive measure to protect against ill effects of possible memory leaks in the Show Player, which could otherwise build up over time to a point that would cause the Show Player to crash.

### ***Launch at Startup***

Checking "Launch at Startup" from the [Control Panel's right-click popup menu](#) causes the [Light-O-Rama Control Panel](#) to automatically run whenever your computer starts up. Unchecking it causes it not to run at startup time, in which case you can start it manually whenever you like.

### ***Unload Light-O-Rama***

Selecting "Unload Light-O-Rama" from the [Control Panel's right-click popup menu](#) will shut down both the [Light-O-Rama Control Panel](#) and the [Light-O-Rama Show Player](#). Your [scheduled shows](#) will *not* run while these are shut down.

To start the Light-O-Rama Control Panel again, [run it from your computer's Start menu](#). Or, if "[Launch at startup](#)" has been enabled, the Control Panel will automatically run the next time that your computer starts up.

### ***Close Menu***

Selecting "Close Menu" from the [Control Panel's right-click popup menu](#) will close the popup menu. The Light-O-Rama control panel will still remain active.

### ***Help***

Selecting "Help" from the [Control Panel's right-click popup menu](#) will open up the Light-O-Rama help files.



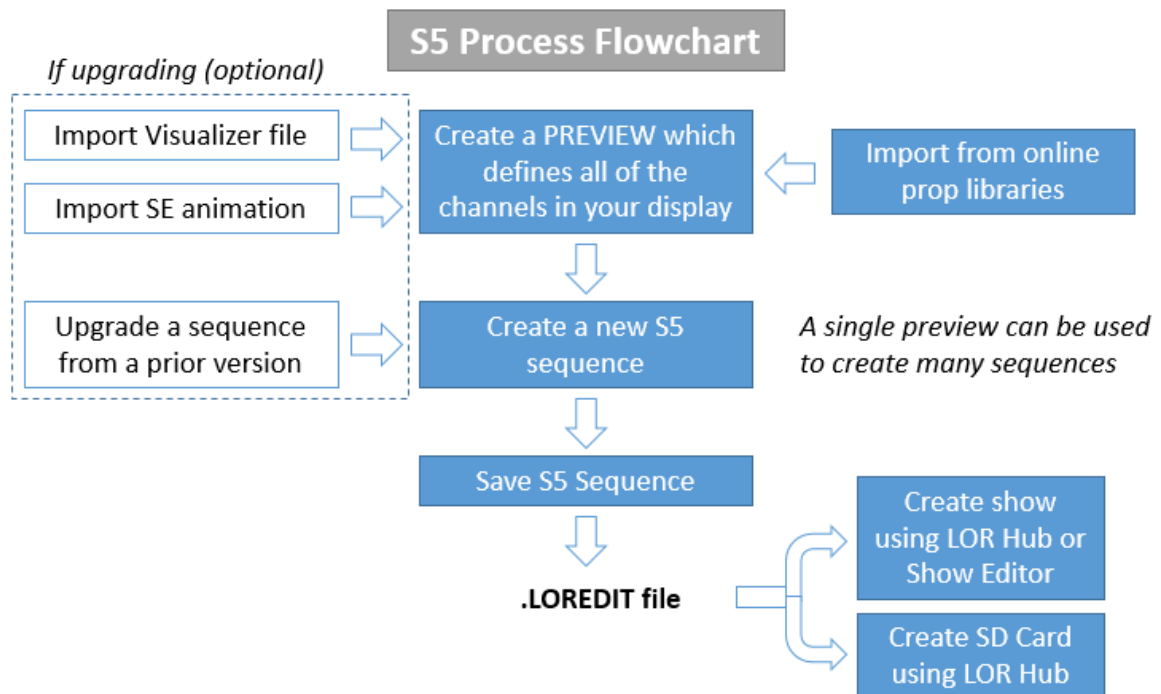
## 5.3 S5 Sequencer



The Light-O-Rama S5 Sequencer is a tool used to create [sequences](#), which are files that contain commands to be sent to [controllers](#) to produce various [lighting effects](#) - to turn lights on and off, make them twinkle or shimmer, fade up or down, and so forth.

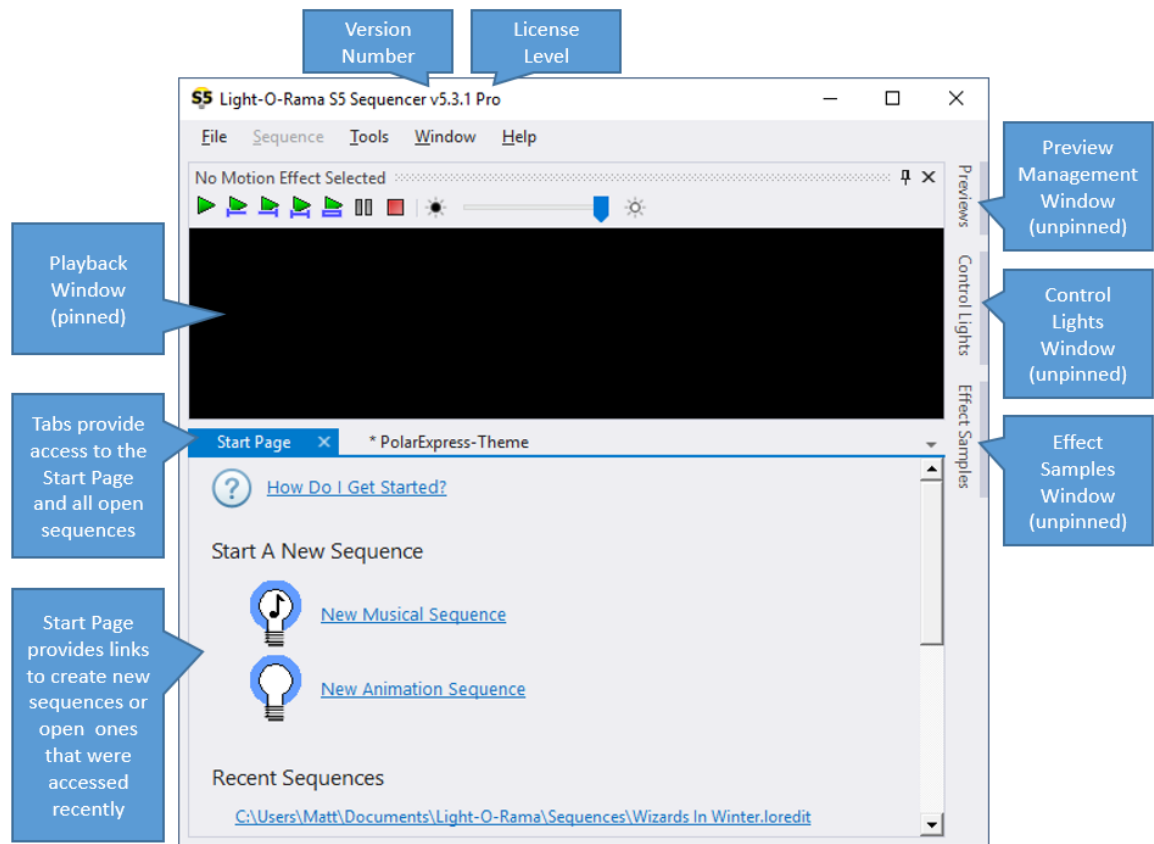
There are several keys steps in the sequence process as shown in the flowchart below:

- [Create a preview](#)
- [Create a sequence](#)
- [Save a sequence](#)



The main S5 Sequencer window is divided into several sub-windows. In the following picture it is shown with the sub-windows in their default positions; however, the layout of the sub-windows can be easily [customized](#). Also, the S5 Sequencer comes with several [themes](#) that control the background and text colors in the main window. In the configuration that is shown, the [Playback Window](#) is pinned, meaning it stays open (notice the pin icon in the upper right corner of the window). The [Preview Management Window](#) and [Control Lights Window](#) on the right side are all unpinned, meaning you can click on the name of the window to open it temporarily, but once you click on something else the window will close. To change a window from pinned mode to unpinned mode (or vice versa), just click the pin icon for that window.

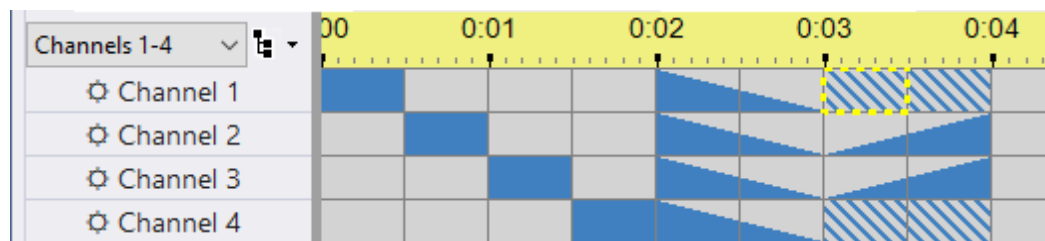
The [Start Page](#) gives you links to quickly start a new [animation](#) or [musical](#) sequence, and to open sequences that have been recently viewed.



Sequences are displayed in the S5 Sequencer as a grid. Rows represent regular channels, RGB channels, motion effect rows, subsequences, beat channels or loops, and columns represent timings. Cells in the grid therefore represent the lighting effects that will happen on props at various points in time while the sequence is being played.

Regular channels, RGB channels, and motion effect rows are associated with props in the preview or with archived props. Motion effect rows can also be used with preview groups.

As an example, the following sequence has four props, each with a single channel. At the start of the sequence, the first prop's channel turns on. It stays on for half a second, then turns off, and the second prop's channel then turns on. Then it turns off, and the third turns on, and then the third turns off and the fourth turns on. This brings us two seconds into the sequence, at which point all four channels fade down, for a second. After that, the first and fourth channels start shimmering, while the second and third fade up:



**A sequence with four channels, and various lighting effects**

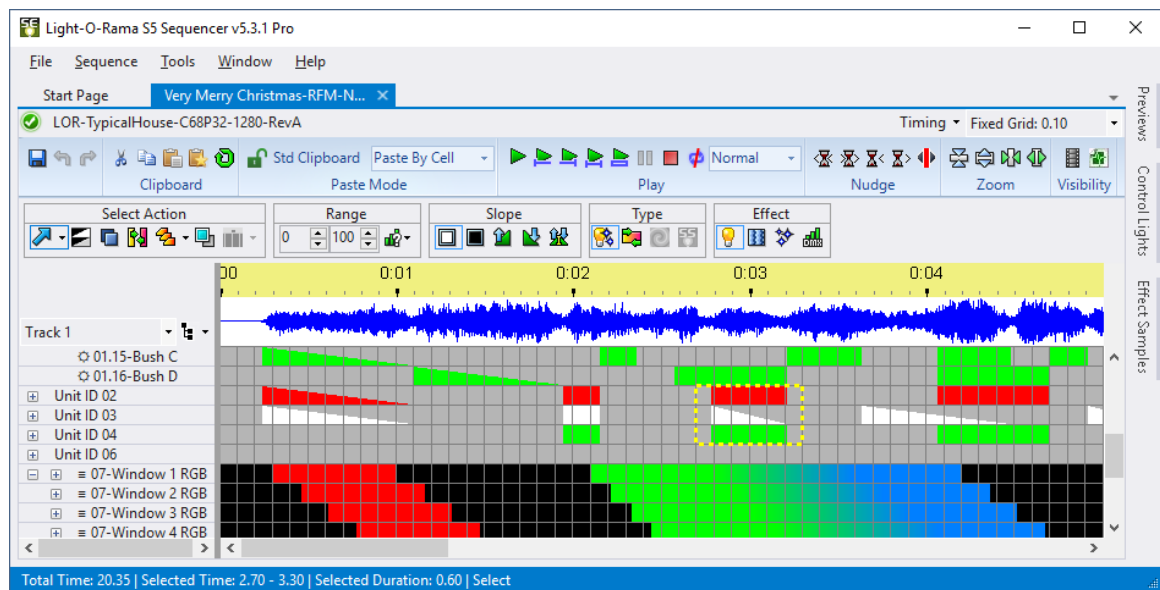
Notice that one cell is highlighted with a thick yellow box - the cell of the first channel from 3 seconds to

3.5 seconds. That is the currently selected cell. Various tools can be applied to the selected cell (or cells), for example to change the lighting effect used on that channel at that time.

Before proceeding, you should understand [what a sequence is](#) and [what a preview is](#).

For more detailed information about using the S5 Sequencer, please see the following topics:

- [The Main Menu](#)
- [The Start Page](#)
- [The Previews Window](#)
- [Preview Design](#)
- [The Sequence Tab \(editing a sequence\)](#)
- [Motion Effect Generator](#)
- [Playback Window](#)
- [Control Lights Window](#)
- [Customizing Window Layouts](#)

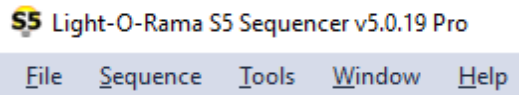


The Sequencer with an open sequence

### 5.3.1 Menu Bar

The [Light-O-Rama S5 Sequencer](#)'s menu bar gives access to all of the program's major functionality. For detailed help, please refer to the help pages for each individual menu on the menu bar:

- [File Menu](#)
- [Sequence Menu](#)
- [Tools Menu](#)
- [Window Menu](#)
- [Help Menu](#)



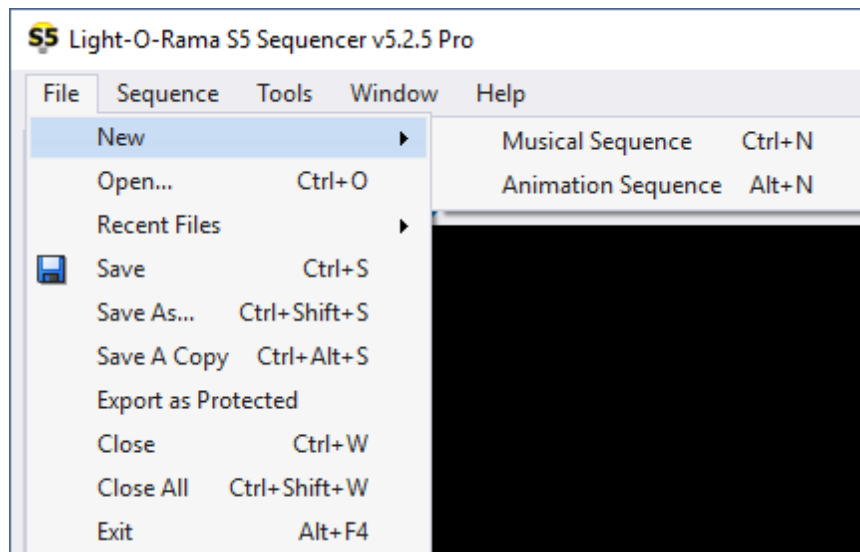
The S5 Sequencer's menu bar

### 5.3.1.1 File Menu

The [Light-O-Rama S5 Sequencer's](#) File menu has menu items related to creating, opening, and saving [sequences](#), as well as exiting the program.

Several of these menu items operate on the "currently selected sequence". Many sequences can be open simultaneously in the S5 Sequencer, but only one is the currently selected sequence. Each open sequence has a tab that displays the sequence's name. The currently selected sequence's tab will be highlighted (the highlight color depends on which [theme](#) you are using). To select a sequence, simply click on its tab.

- [New](#)
- [Open](#)
- [Recent Files](#)
- [Save](#)
- [Save As](#)
- [Save A Copy](#)
- [Export as Protected](#)
- [Close](#)
- [Close All](#)
- [Exit](#)



The File Menu

## New

Selecting "New" on the [Sequencer's File menu](#) opens a sub-menu which gives you a choice between creating a [new animation sequence](#) or a [new musical sequence](#). You can also initiate the creation of a new musical or animation sequence from the Start Page, or by right-clicking on a [preview](#) in the [Previews Window](#).

"New Musical Sequence" has a keyboard hotkey:



"New Animation Sequence" has a keyboard hotkey:



## Open

Selecting "Open" on the [Sequencer's File menu](#) opens a dialog that allows you to select a sequence file. If you select an S5 sequence file (.LOREDIT file extension) it will immediately open on a new tab within the Sequencer. If you choose a sequence file created in an older version like S4 (.LMS or .LAS file extension), then the sequence will be upgraded to S5 and you will receive some prompts during the upgrade process.

"Open" has a keyboard hotkey:



## Recent Files

Selecting "Recent Files" on the [Sequencer's File menu](#) opens a sub-menu which lets you select from a list of the most recently opened sequences. The list of files on the "Recent Files" sub-menu are the same ones listed on the [Start Page](#).

## Save

Selecting "Save" from the [Sequencer's File menu](#) saves the changes that you have made to the currently selected [sequence](#). If the sequence was newly created and has never been saved before, Save will also prompt you for a file name to use for the new sequence.

The Save function will be followed by a Save A Copy function if specified in [Save Copy Preferences](#).

"Save" has a keyboard hotkey:



## Save As

Selecting "Save As" from the [Sequencer's File menu](#) saves the current [sequence](#) to a new file name. The old file will still exist, but will not include any of the changes that you made to the sequence since the last time that you saved it.

## Save A Copy

Selecting "Save A Copy" from the [Sequencer's File menu](#) saves the current [sequence](#) to a new file name. The old file will still exist, but will not include any of the changes that you made to the sequence since the last time that you saved it.

This function has a several options that control its behavior. See the [Save Copy Preferences](#) topic for

details. In particular, this function can be used to make backup copies of the sequence when the "Date and Time" [suffix](#) is specified.

## Export as Protected

Selecting "Export as Protected" from the [Sequencer's File menu](#) can be used to create a [protected sequence](#) based upon the current [sequence](#).

## Close

Selecting "Close" from the [Sequencer's File menu](#) closes the currently selected [sequence](#).

If the sequence has unsaved changes, you will be prompted on whether you wish to save the changes or not; if the sequence has never been saved before, and you choose to save it, you will also be prompted to select a filename for the new sequence.

## Close All

Selecting "Close All" from the [Sequencer's File menu](#) closes all open [sequences](#).

If any of the sequences have unsaved changes, you will be prompted on whether you wish to save them or not; if any of the sequences have never been saved before, and you choose to save them, you will also be prompted to select filenames for the new sequences.

## Exit

Selecting "Exit" from the [Sequencer's File menu](#) closes the Sequencer. If any currently open sequences have changes that have not yet been saved, you will be prompted for whether or not you want to save them.

### 5.3.1.1.1 New Animation Sequence Dialog

The [Sequencer's](#) New Animation dialog is used to create a new [animation sequence](#) (a sequence with no music). The New Animation dialog can be reached several ways:

- Selecting [File > New > Animation Sequence](#) from the main menu
- Clicking the "New Animation Sequence" link on the [Start Page](#)
- Right-clicking on a preview in the [Previews window](#) and selecting "New Animation Sequence" from the pop-up menu
- Using the keyboard shortcut Alt-N

For detailed help, please refer to the following sections:

- [Sequence Author](#)
- [Preview](#)
- [Sequence Length](#)
- [Use Loops](#)
- [Initial Timing Grids](#)
- [Number Of Motion Effect Rows For Pixel Props](#)
- [Save these choices as defaults.](#)

**New Animation Sequence**

Sequence Author (cannot be changed later):  
Jane Doe

Select Preview

A preview defines all of the display elements and channels in your sequence

Existing Preview Quick Preview

2017 class sample

Length of animation (not including loops):  
1:00.00 1 minute

☐ Use Loops

Initial Timing

☐ Tenth second intervals  
☒ Half second intervals  
☐ One second intervals  
☐ Custom interval  
0.05  
☐ Create an empty freeform timing grid

Default number of motion effect rows for pixel props: (requires PRO license) 1

☒ Save these choices as defaults

Create Cancel

The New Animation Sequence dialog

## Sequence Author

If you wish, you can put your name here. It will be saved with the [sequence](#), and will be displayed on the [Sequence Information](#) screen. Once set, even if set to a blank value, it cannot be changed.

## Preview

A [preview](#) is a representation of your light display. It specifies all of the props that you can apply effects to in your sequence. It also specifies all of the channels your sequence will be able to control.

Normally, you will select a preview that you have already created on the "Existing Previews" tab. However, you can use the [Quick Preview](#) feature to create a new preview on the fly.

After assigning a preview here, you may continue to update the preview and those updates will be automatically reflected in the sequence (for example, adding a new prop). You can also later [assign a different preview](#) to the sequence; although if you do that, the new preview should be substantially similar to the originally assigned preview.

## Sequence Length

This allows you to specify the duration of the [sequence](#). You will be able to change the value later, using [Change Sequence Length](#) in the [Sequence menu](#).

The time can include hours, minutes, seconds, and hundredths of a second. For details on the format used to specify various lengths of time, please see [Time Format](#).

## Use Loops

If you check the "Use Loops" check box, the newly created [sequence](#) will automatically include a loop level, which can be used to insert [loops](#) into the sequence.

If you create an [animation sequence](#) without having selected "Use Loops", and you later decide that you do want loops in the sequence, you can add a loop level by selecting "Loop Level" from the Add New menu, available on the [Sequence menu](#) and the Grid View menu.

## Initial Timing Grids

This allows you to tell the [Sequencer](#) to automatically insert [timings](#) into the new [sequence](#). Timings are the spots in time where you can easily place [lighting effects](#) - for example, turn a string of lights on, or have it twinkle, or have it fade down.

If you don't know how far apart you want timings to be, just take a guess. You can always insert, delete, or move timings later. Note that although the New Animation dialog only allows you to set timings up at equal lengths from each other, timings in general can be any length from each other. For example, you could later add a timing three seconds away from another, and a third timing half a second away from that one.

If you select "Custom Interval", you can enter any length you want, rather than one of the defaults. This value must be entered using the standard [Time Format](#).

## Number Of Motion Effect Rows For Pixel Props

If you have a [Pro level license](#), then you can use [motion effects](#) to sequence your props that utilize



RGB pixels. You can also have multiple motion effects playing on a prop at the same time. This setting specifies how many motion effect rows should be created for every pixel-based prop. Typically 1 or 2 is a good choice to start. And then you can add more rows to specific props as your sequencing needs dictate.

## Save These Choices As Defaults

If you turn this check box on, your answers to the questions in this dialog will be saved so that whenever you create a new [animation sequence](#) in the future, those answers will automatically show up in this dialog as the default answers.

### 5.3.1.1.2 New Musical Sequence Dialog

The [Sequencer's](#) New Musical Sequence dialog is used to create a new [musical sequence](#) (a sequence with an associated audio or video file). The New Animation dialog can be reached several ways:

- Selecting [File > New > Musical Sequence](#) from the main menu
- Clicking the "New Musical Sequence" link on the [Start Page](#)
- Right-clicking on a preview in the [Previews window](#) and selecting "New Musical Sequence" from the pop-up menu
- Using the keyboard shortcut Ctrl-N

After doing one of these things, but before the New Musical Sequence dialog opens, you will be prompted to select the audio or video file that will be used to build the new [sequence](#). After you select the file, then the New Musical Sequence dialog will open.

Behind the scenes, the Sequencer will open the media file to determine its length. When the new sequence is created, its length will match that of the media file.

For detailed help, please refer to the following sections:

- [Sequence Author](#)
- [Preview](#)
- [Music Information](#)
- [Initial Timing Grids](#)
- [Number Of Motion Effect Rows For Pixel Props](#)
- [Save These Choices As Defaults](#)

**New Musical Sequence**

Sequence Author (cannot be changed later):

Select Preview

A preview defines all of the display elements and channels in your sequence

Existing Preview Quick Preview

Music

File name

Artist

Title

Album

Initial Timing

Use a Wizard to create timings

☒ Not now, maybe later

☐ Use the MIDI Wizard

☐ Use the Tapper Wizard

☐ Use the Beat Wizard

☐ Use the VU Wizard

Create equally spaced timings

☐ Tenth second intervals

☒ Half second intervals

☐ One second intervals

☐ Custom interval

Default number of motion effect rows for pixel props: (requires PRO license)

☒ Save these choices as defaults

Create Cancel

The New Musical Sequence dialog

## Sequence Author

If you wish, you can put your name here. It will be saved with the [sequence](#), and will be displayed on the [Sequence Information](#) screen. Once set, even if set to a blank value, it cannot be changed.

## Preview

A [preview](#) is a representation of your light display. It specifies all of the props that you can apply effects to in your sequence. It also specifies all of the channels your sequence will be able to control.

Normally, you will select a preview that you have already created on the "Existing Previews" tab. However, you can use the [Quick Preview](#) feature to create a new preview on the fly.

After assigning a preview here, you may continue to update the preview and those updates will be automatically reflected in the sequence (for example, adding a new prop). You can also later [assign a different preview](#) to the sequence; although if you do that, the new preview should be substantially similar to the originally assigned preview.

## Music Information

If you wish, you can put the name of the artist, song, and album of the associated song here. It will be saved with the [sequence](#), and will be displayed in the [Sequence Information dialog](#).

Some media files have already been tagged with this information. If you utilize such a media file, the Sequencer will automatically discover those tags and populate the fields in this section (though you can still change or delete it if you wish).

You can change this information later in the [Sequence Information dialog](#).

## Initial Timing Grids

This allows you to tell the [Sequencer](#) to automatically insert [timings](#) into the new [sequence](#). Timings are the spots in time where you can easily place [lighting effects](#) - for example, turn a string of lights on, or have it twinkle, or have it fade down.

In addition to placing timings a certain length of time apart (a tenth of a second, a half second, a second, or "Custom Interval"), adding no timings at all ("Don't add any timings"), you can instruct the Sequencer to use various wizards to insert timings based upon the song itself:

- The [MIDI File Wizard](#) can insert timings and effects based upon the beat of a MIDI song, as well as based on the individual notes played by different instruments in the song.
- The [Tapper Wizard](#) allows you to tap the keyboard or mouse while the song plays, and will record the times at which you tap.
- The [Beat Wizard](#) attempts to determine the tempo of the song, and insert timings and effects based upon it.
- The [VU Wizard](#) looks for peaks in the song, much like a VU meter, and inserts timings and effects based upon them.

Not all of these wizards are available for every type of media file; for example, the MIDI File Wizard can only be used with MIDI files. Any wizards that cannot be used with the type of media file being used will be greyed out.

If you select "Custom Interval", you can enter any length you want, rather than one of the defaults. For details on the format used to specify various lengths of time, please see [Time Format](#).

If you choose to have equally spaced timings, then you will be given the option to use a [fixed timing grid](#) or a [freeform timing grid](#), by checking or unchecking the "Use a fixed timing grid" box. Otherwise, a freeform timing grid will be used.

Note that you can always insert, delete or move timings later, in a variety of ways.

## Number Of Motion Effect Rows For Pixel Props

If you have a [Pro level license](#), then you can use [motion effects](#) to sequence your props that utilize RGB pixels. You can also have multiple motion effects playing on a prop at the same time. This setting specifies how many motion effect rows should be created for every pixel-based prop. Typically 1 or 2 is a good choice to start. And then you can add more rows to specific props as your sequencing needs dictate.

## Save These Choices As Defaults

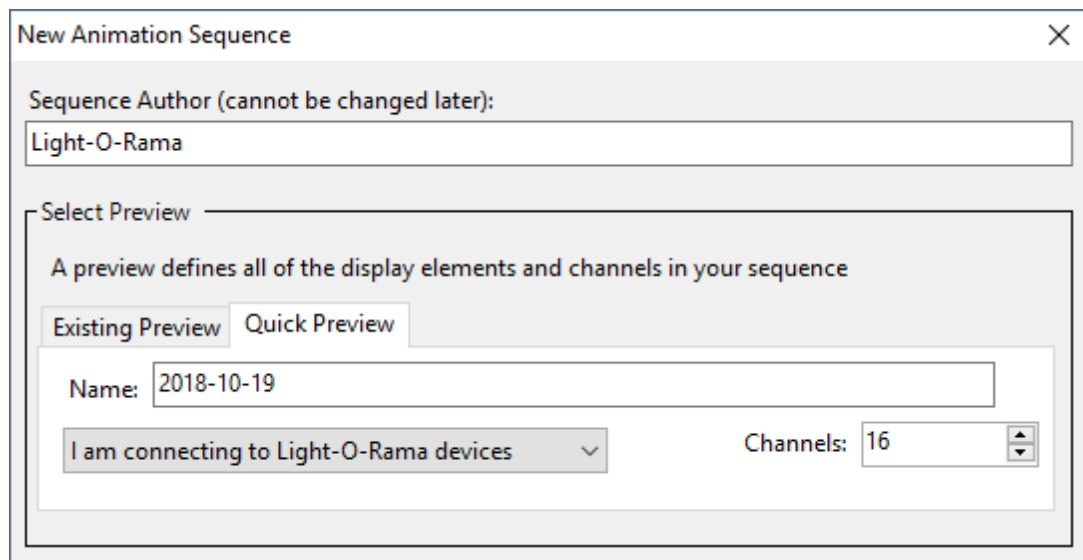
If you turn this checkbox on, your answers to most of the questions in this dialog will be saved so that whenever you create a new [musical sequence](#) in the future, those answers will automatically show up in this dialog as the default answers.

The artist name, album name, and song name will not be saved as defaults (though if you use an MP3 tagged with this information, it will automatically be placed into that section).

### 5.3.1.1.3 Quick Preview

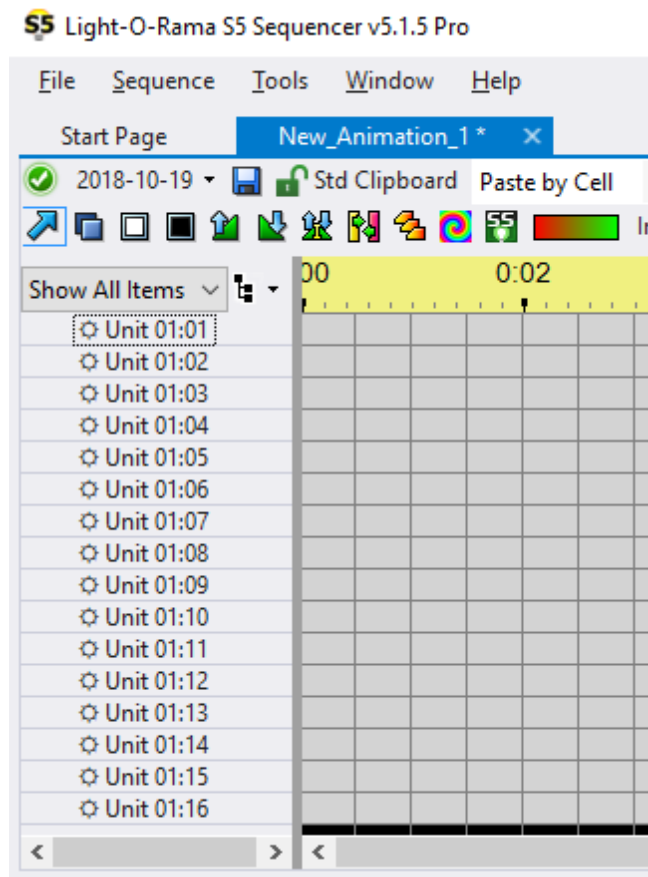
When creating a [new sequence](#), you have the option of associating that sequence with an existing [preview](#), or creating a "Quick Preview". To create a Quick Preview, click on the "Quick Preview" tab in the [New Musical Sequence](#) or [New Animation Sequence](#) dialog. It only requires 3 pieces of information:

1. Sequence Name. This defaults to today's date, but you can change it to whatever you want; however, it cannot be blank.
2. Tell it what kind of devices you are connecting to. This can be either be:
  - [Light-O-Rama devices](#), or
  - [DMX devices](#), or
  - "I do not know what I am connecting to yet". If you choose this option, the sequence you create will not control any lights; but allows you to defer your decision for later. When you come to a decision and are ready to control lights, you will need to open this preview in [Preview Design](#) and change the props to another Device Type.
3. The number of [channels](#) the sequence will control.



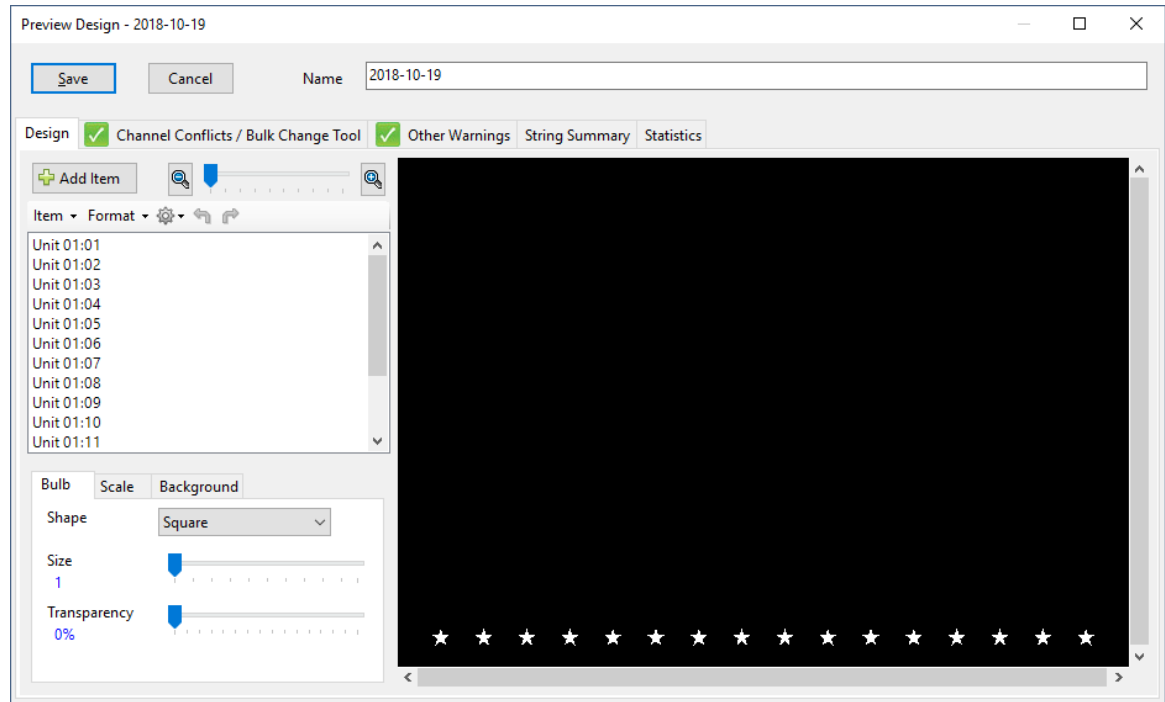
The Quick Preview tab

Using the choices shown above would result in the following [sequence](#). The 16 channels are listed down the left side. The name of the preview is shown to the right of the green check mark.



A sequence grid created using Quick Preview

Using the choices shown above would result in the [preview](#) shown below. The 16 stars represent the 16 channels. If the [Playback Window](#) is visible when the sequence is played in the [Sequencer](#), then the stars will turn on and off according to the [effects](#) in your sequence. The preview will be listed on the [Previews Window](#) just like any other the preview.



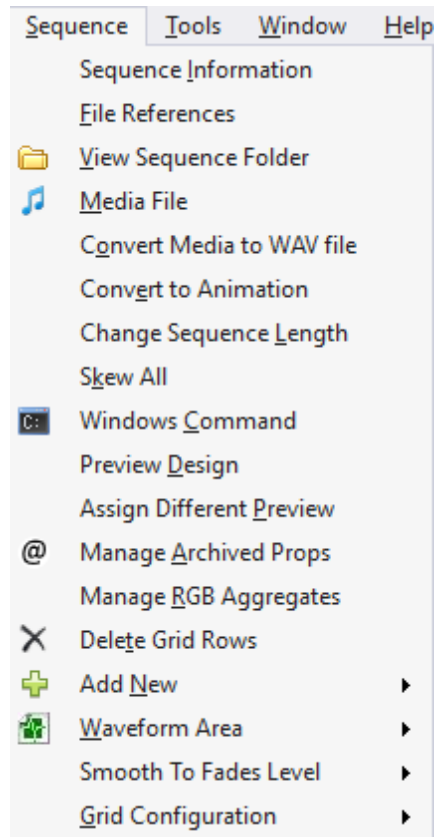
A preview created using Quick Preview

### 5.3.1.2 Sequence Menu

The [Light-O-Rama Sequencer's](#) Sequence Menu gives you access to a set of functions that operate on the currently selected [sequence](#) (the highlighted tab). If there is not any file open, then the Sequence Menu is disabled.

- [Sequence Information](#)
- [File References](#)
- [View Sequence Folder](#)
- [Media File](#)
- [Convert Media to WAV file](#)
- [Convert to Animation](#)
- [Change Sequence Length](#)
- [Skew All](#)
- [Windows Command](#)
- [Preview Design](#)
- [Assign Different Preview](#)
- [Manage Archived Props](#)
- [Manage RGB Aggregates](#)
- [Delete Grid Rows](#)
- [Add New](#)
- [Waveform Area](#)
- [Smooth To Fades Level](#)

- [Grid Configuration](#)



The Sequence Menu

## Sequence Information

This menu item opens the [Sequence Information dialog](#), giving you visibility to key information about the current [sequence](#). This includes who created the sequence and when, as well as information about the music (artist, title, and album).

## File References

This menu item opens the [File References dialog](#), giving you visibility to all files referenced by the current [sequence](#).

## View Sequence Folder

This menu item will open a Windows Explorer window with the current folder set to the folder containing the current [sequence](#).

This might be of use if you want to see the file size of the current sequence, or to make a copy the sequence file. If you are going to make a copy, make sure and save it first!

## Media File

This menu item allows you to specify the audio or video file that should be used with the current [sequence](#). This may be useful, for example, if you have changed the directory that you store your media files in.

When used on an [animation sequence](#), it will convert the animation sequence to a [musical sequence](#).

## Convert Media to WAV file

This menu item converts the media file associated with the sequence to the wave format (which has a WAV file extension).

Some media file formats do not position accurately when play back is started in the middle of the file. This can cause inaccuracies in sequencing - your lights would turn on at slightly different times depending on whether play back was started from the beginning of the sequence or the middle. MPG video files and variable bit rate MP3 files are most susceptible to this issue. Converting to a wave file can eliminate this problem.

## Convert to Animation

This menu item will convert the current [sequence](#) from a [musical sequence](#) to an [animation sequence](#).

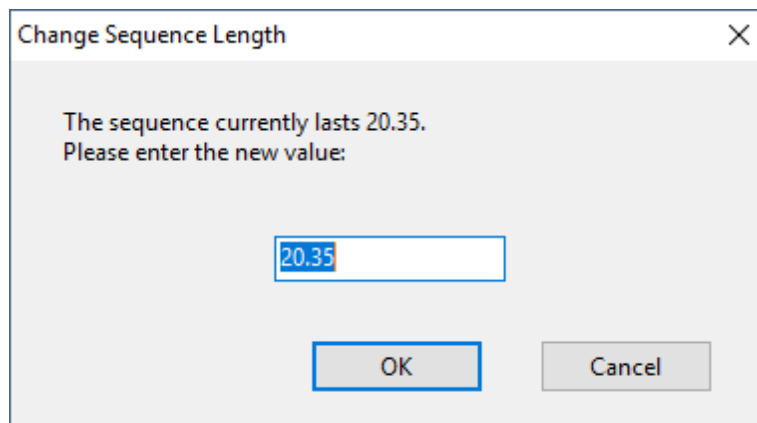
Perhaps someone has sent you a sequence, but you don't have the media file to go with it. By converting the sequence to an animation, you can still play it back and watch the [preview](#).

To convert an [animation sequence](#) to a [musical sequence](#), use the [Media File](#) menu item.

## Change Sequence Length

This menu item allows you to change the duration of the current [sequence](#).

For information on the format used to specify an amount of time, please see the [Time Format](#) topic.



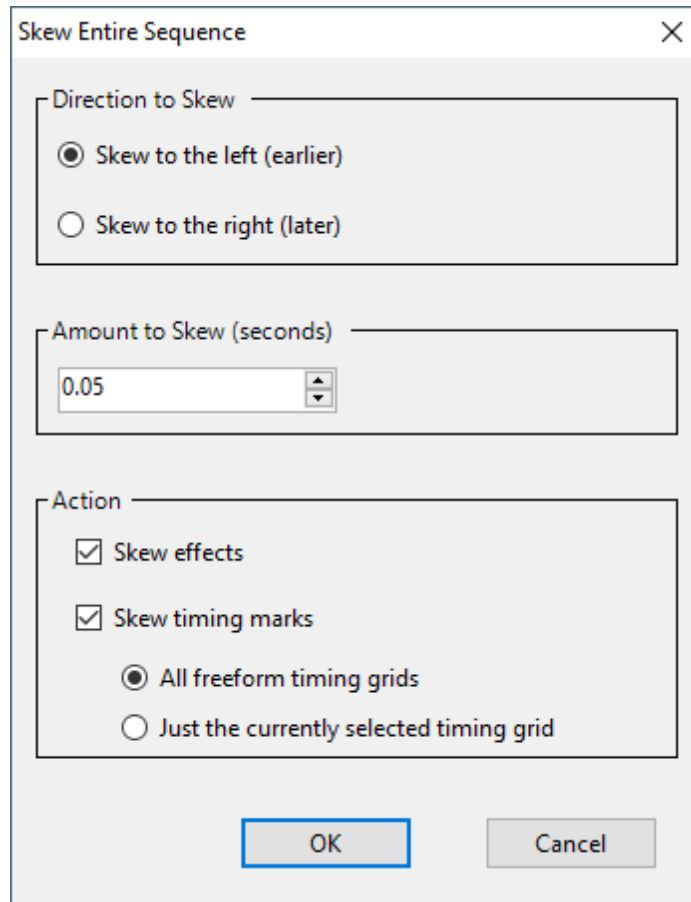
The Change Sequence Length dialog



## Skew All

Skewing a [sequence](#) will move all of its [events](#), [timings](#), and [loops](#) by some specified amount of time. A sequence can be skewed either to the left - i.e. shifting its events (and such) earlier in time - or to the right - i.e. shifting them later in time.

After selecting "Skew All" from the [Sequence menu](#), a window will open up, allowing you to choose the size and direction of the skewing:



Skew Entire Sequence

Direction to Skew

☒ Skew to the left (earlier)

☐ Skew to the right (later)

Amount to Skew (seconds)

0.05

Action

☒ Skew effects

☒ Skew timing marks

☒ All freeform timing grids

☐ Just the currently selected timing grid

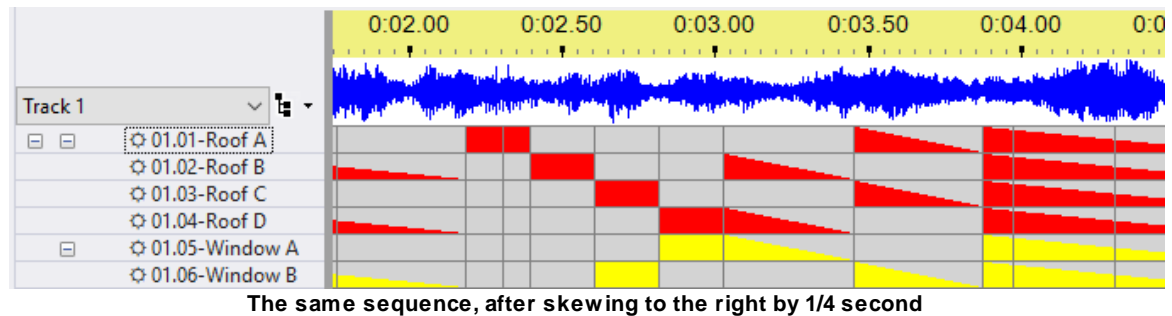
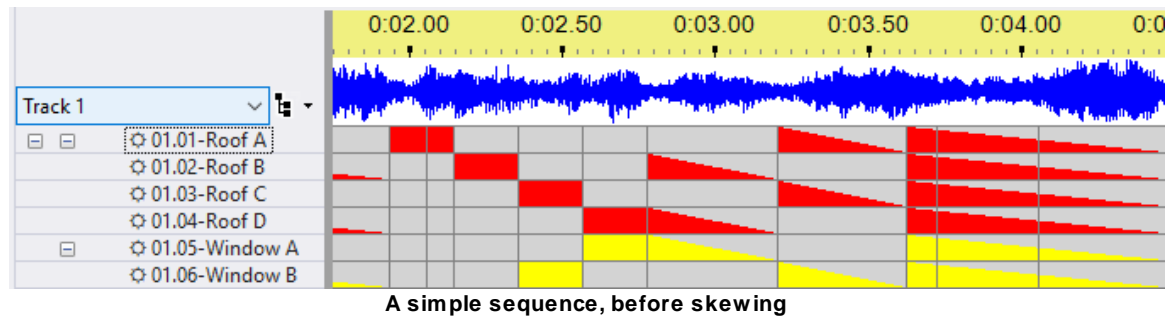
OK Cancel

The Skew All dialog

In most cases, you should leave the "Action" section with the default choices. However, if you have a special situation, you can turn off skewing of [effects](#) or [timing marks](#) as needed.

After completing this dialog, the sequence will be skewed by the amount, and in the direction, that you chose.

Here is an example of a simple sequence, before and after skewing to the right by one-quarter second:



## Windows Command

This menu item will open the [Windows Shell Command dialog](#) which allows a command to be executed whenever the current [sequence](#) is run (whether by the Sequencer or by the [Show Player](#)).

## Preview Design

This menu item opens the [Preview Design window](#) for the current [sequence](#).

## Assign Different Preview

This menu item allows you to associate a different [preview](#) to the current [sequence](#). This function works best if the new preview started out as a [copy of the original preview](#). However, the function will also look for matching [prop](#) names between the old preview and the new preview. Effects will be preserved for props and groups that match. Where there is no match, those items and their effects will be [archived](#).

## Manage Archived Props

This menu item will open the [Manage Archived Props dialog](#) which allows you to change [archived props](#) in the current [sequence](#): delete them, turn them into preview props, or turn them into [beat channels](#).

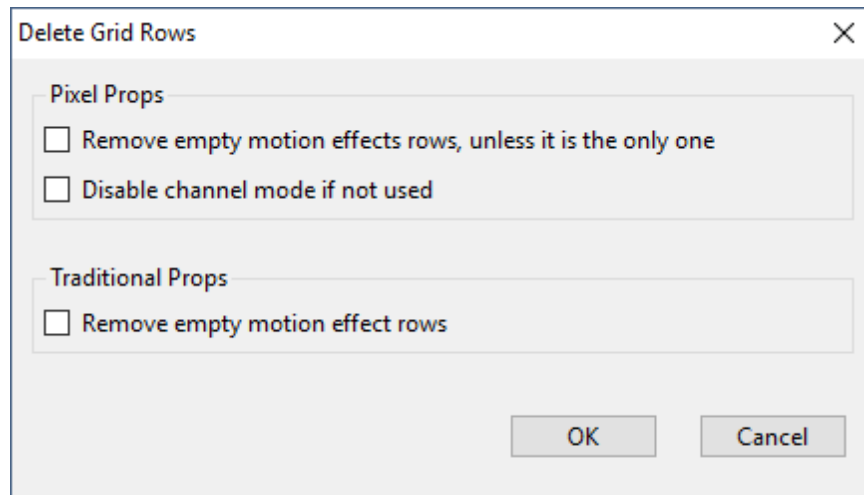
## Manage RGB Aggregates

This menu item will open the [Manage RGB Aggregates dialog](#) which allows you to add, modify, and delete RGB aggregate channels. RGB aggregates allow you to combine any 3 existing channels (the colors don't need to be red, green, and blue necessarily), and the combination of the 3 is

treated as an [RGB channel](#) for sequencing purposes.

## Delete Grid Rows

This menu item will open the Delete Grid Rows dialog which allows you to permanently remove certain types of unused grid rows from the [sequence](#). This menu item is only available to users with a Pro license.



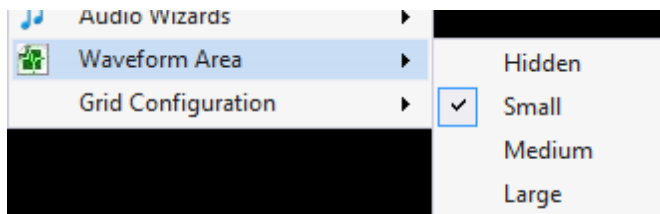
The Delete Grid Rows dialog

## Add New

This menu item opens a sub-menu, allowing you to add a new [loop level](#), [beat channel](#), [subsequence](#), or [RGB aggregate](#). "Add New" is also available on the [Grid View menu](#).

## Waveform Area

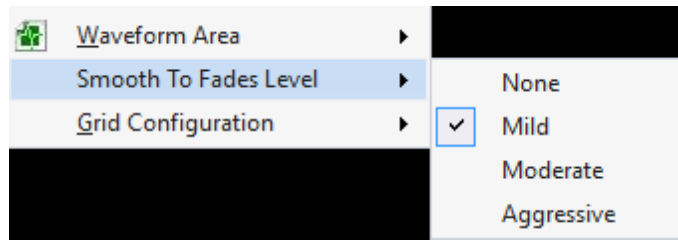
The "Waveform" sub-menu allows you to set the audio waveform area's height. Choose "Large" to see the maximum amount of detail in the waveform. Choose "Small" to see the waveform, but have more room to display the [sequence](#). [Animation sequences](#) are automatically set to hide the waveform. The height can also be set by right-clicking in the [waveform area](#).



## Smooth To Fades Level

The "Smooth To Fades Level" sub-menu allows you to control whether adjacent effects are merged with one another. Being more aggressive may reduce the number of commands sent to your controllers. On the other hand, if you are sequencing DMX fixtures that require specific DMX values to control their functions, then you should probably set this to "None". Changing this setting only

applies to new effects, it does not change effects already in the sequence. So you can change the setting back and forth as needed over the course of creating a sequence.



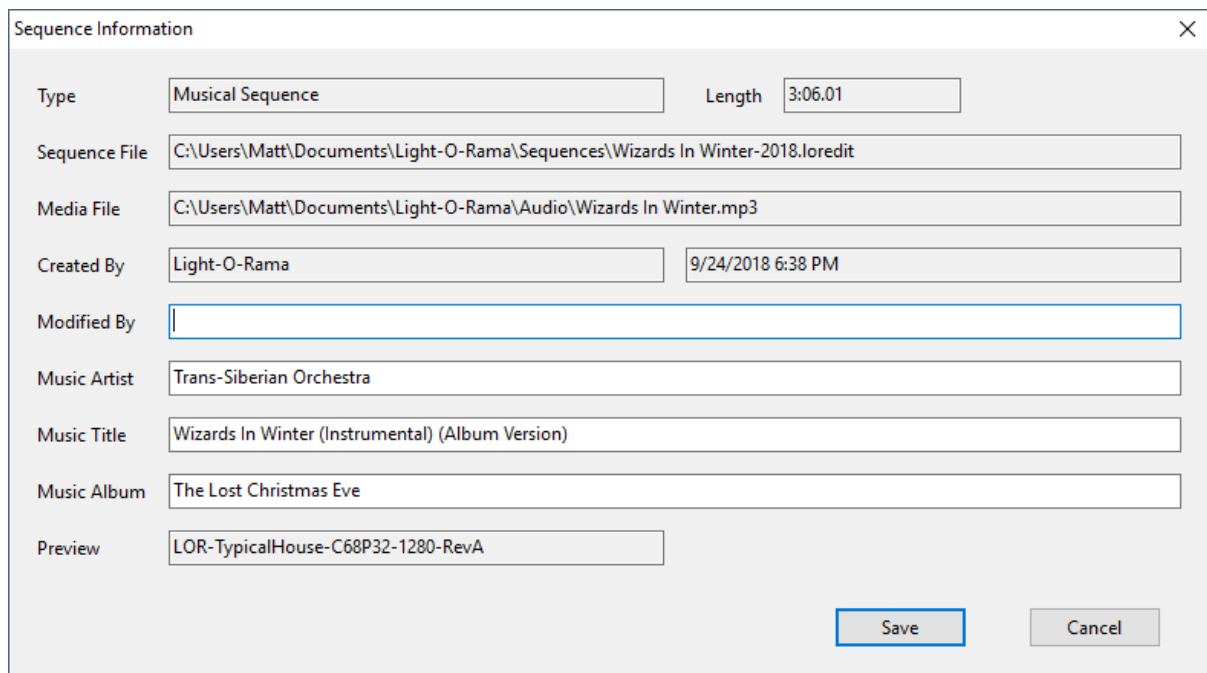
## Grid Configuration

This item opens a sub-menu allowing you import or export the user-defined [grid views](#) in the sequence. For Pro users, it will also import/export the properties of each motion effect row. The system-generated "Show All Items" grid view is not included in the export. "Grid Configuration" is also available on the [Grid View menu](#).

### 5.3.1.2.1 Sequence Information Dialog

Selecting "Sequence Information" from the [Sequencer's Sequence menu](#) opens a dialog that displays key information about the [sequence](#), allowing you to change some of it:

- **Created By:** The creator of the sequence as specified in the [New Animation dialog](#) or the [New Musical Sequence dialog](#). This value cannot be edited.
- **Created At:** The date and time at which the sequence was created. This value cannot be edited.
- **Modified By:** If you modify a file that was created by someone else, you can enter your name here, if you wish.
- **Music Artist:** For [musical sequences](#), the artist who performed the song.
- **Music Title:** For musical sequences, the name of the song.
- **Music Album:** For musical sequences, the name of the album that the song is from.

The image shows a 'Sequence Information' dialog box with a title bar and a close button. It contains several input fields for sequence metadata. The fields are: Type (Musical Sequence), Length (3:06.01), Sequence File (C:\Users\Matt\Documents\Light-O-Rama\Sequences\Wizards In Winter-2018.loredit), Media File (C:\Users\Matt\Documents\Light-O-Rama\Audio\Wizards In Winter.mp3), Created By (Light-O-Rama), a date field (9/24/2018 6:38 PM), Modified By (empty), Music Artist (Trans-Siberian Orchestra), Music Title (Wizards In Winter (Instrumental) (Album Version)), Music Album (The Lost Christmas Eve), and Preview (LOR-TypicalHouse-C68P32-1280-RevA). At the bottom right are 'Save' and 'Cancel' buttons.

Type	Musical Sequence	Length	3:06.01
Sequence File	C:\Users\Matt\Documents\Light-O-Rama\Sequences\Wizards In Winter-2018.loredit		
Media File	C:\Users\Matt\Documents\Light-O-Rama\Audio\Wizards In Winter.mp3		
Created By	Light-O-Rama		9/24/2018 6:38 PM
Modified By			
Music Artist	Trans-Siberian Orchestra		
Music Title	Wizards In Winter (Instrumental) (Album Version)		
Music Album	The Lost Christmas Eve		
Preview	LOR-TypicalHouse-C68P32-1280-RevA		

Save Cancel

**The Sequence Information dialog**

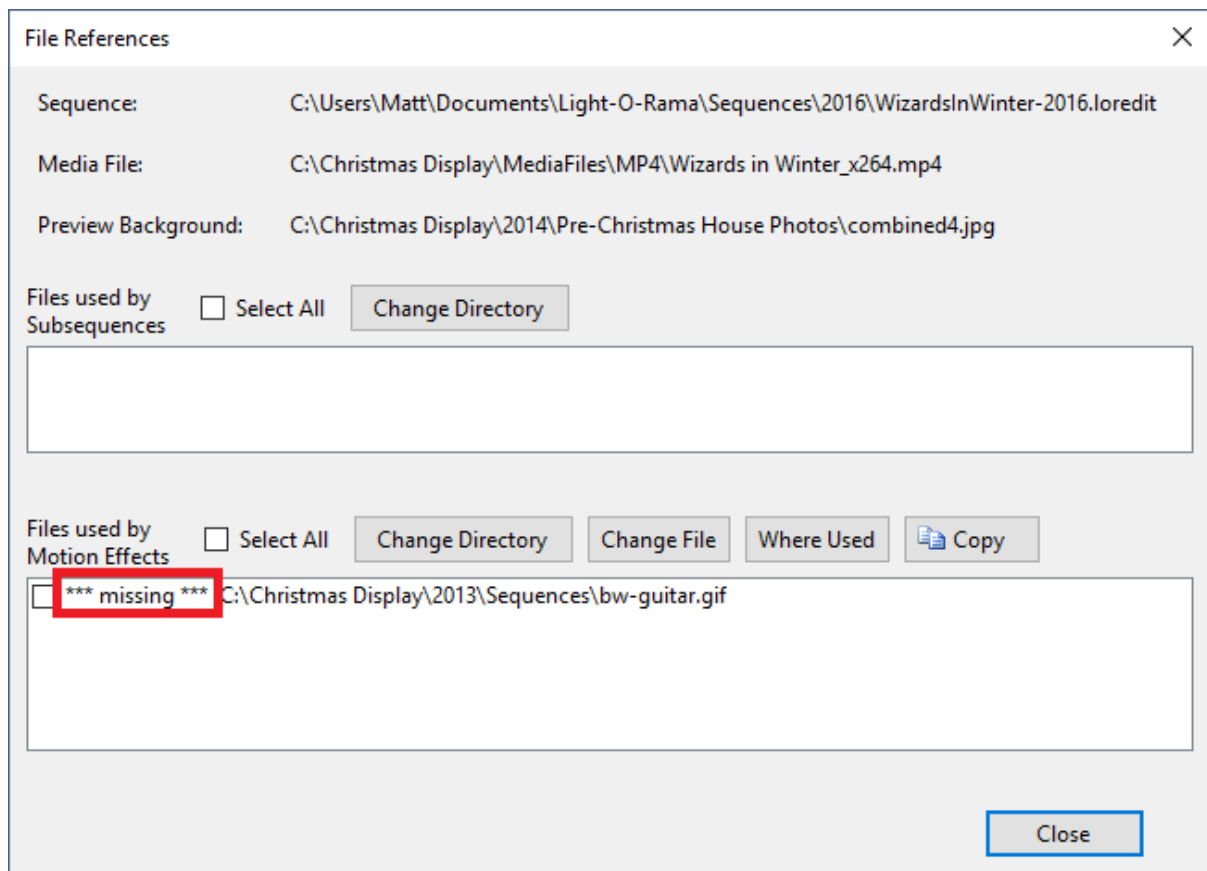
#### 5.3.1.2.2 File References Dialog

Selecting "File References" from the [Sequencer's Sequence menu](#) opens a dialog that lists all files referenced by the sequence. This includes the media file, the background image for the preview, [subsequences](#), and files used by motion effects (e.g. Movie and Picture [effects](#)).

Files that don't exist at the specified location are listed with a prefix of "\*\*\*\* missing \*\*\*\*". This is an indication that the file reference should be fixed.

You can resize this window, if needed, so you can more easily view the information.

The media file can be fixed using the [Media File](#) item on the [Sequence menu](#). The Preview Background file can be fixed in [Preview Design](#). Subsequence and motion effect references can be fixed using the [Change Directory](#) and [Change File](#) commands described below.



The File References dialog

## Change Directory

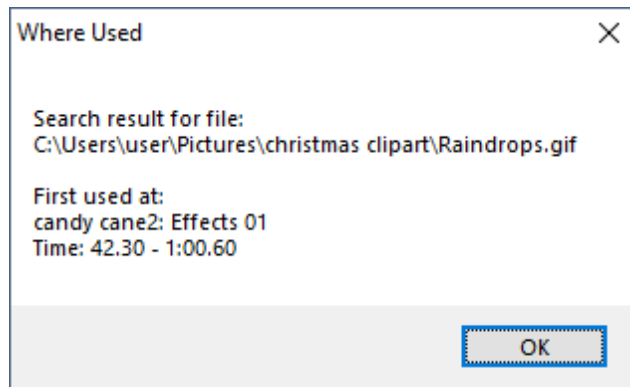
To specify a new location for one or more files, click the check box next to the filename(s), then click the Change Directory button. You will be prompted for the new location. Note that this function does not actually move the file(s), rather it updates the effects that reference those file(s). This can be useful if you move your sequence directory, or open the sequence on a different computer.

## Change File

In some cases, your file hasn't moved, but rather has changed names. In the screen shot above, perhaps you edited "bw-guitar.gif" and the new version is "bw-guitar-2.gif". In that case, you will want to select the check box next to the file name, then click the "Change File" button. This will prompt you for the new file location (folder and file name).

## Where Used

If you want to know where a file is used in the sequence, click the check box next to the file name, then click the "Where Used" button. A pop up message will show where the file is first used (not *everywhere* it is used). In the example below, "Raindrops.gif" is first used on the prop "candy cane2", on motion effects row "Effects 01", starting at 42.30 seconds and continuing until 1 minute, 0.60 seconds.



## Copy

Clicking the "Copy" button will place a copy of the list of files used by motion effects onto the clipboard, so you can then paste the information into another document.

### 5.3.1.2.3 Windows Shell Command Dialog

When a [sequence](#) is started, Light-O-Rama can optionally also execute an arbitrary Windows command, running any program that you specify.

For example, some people broadcast the songs that play during their [shows](#) over radio, and would like the name of the song to be broadcast along with it, using the RDS ("Radio Data System") protocol, allowing people with RDS-enabled radios to see the name of the song that they are listening to. RDS is not *directly* supported by Light-O-Rama, but you could set up your [musical sequences](#) so that, whenever one of them is played, Light-O-Rama will tell Windows to tell your RDS program to broadcast the name of the song for that [sequence](#).

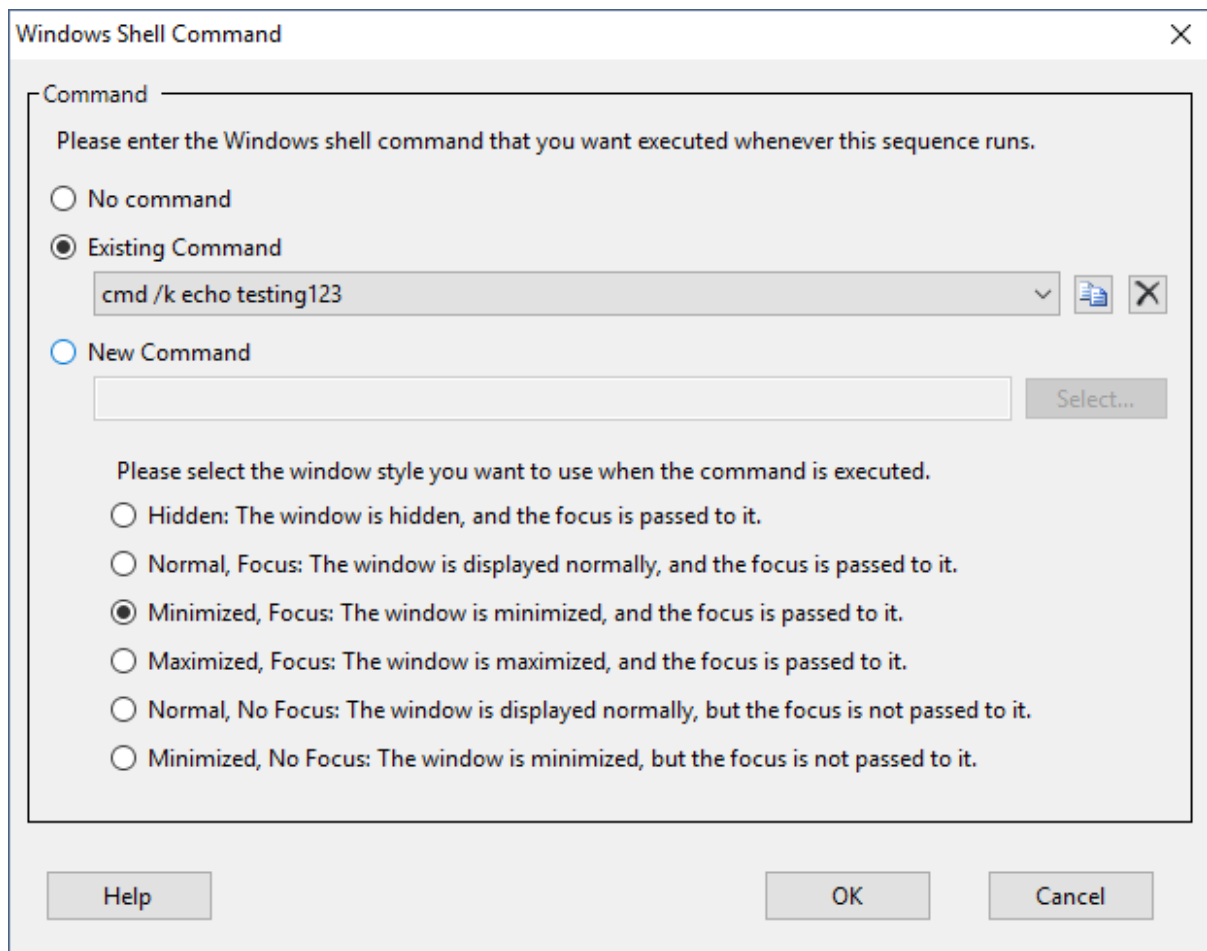
To set up a sequence to execute a Windows command, select "Windows Command" from the [Sequencer's Sequence menu](#). After that, whenever that sequence is played (either by the Sequencer or the [Show Player](#)), the command will be executed.

Important notes:

- the command will *not* be executed if the sequence it is associated with is used as a [subsequence](#) of another sequence.
- if the Show Player is running when you change the command associated with a sequence, you may have to stop and start the Show Player in order for this change to be picked up.
- This feature is available only at the [Advanced feature level](#) and higher.

Topics:



- [Reuse Existing Command](#)
- [Create New Command](#)
- [Shell Command Variables](#)
- [Sharing Sequences between Computers, and Security](#)



The Windows Shell Command dialog

## Reuse Existing Command

Select the "Existing Command" radio button and choose a command from the drop-down list to use a command that was already set up for another sequence. Both sequences will run the same command when they start.

- The  button copies the selected existing command to the "new command" box so you can use an existing command as the basis for a new one.
- The  button deletes the selected command. This will affect all sequences that use the same command; so be very certain that the command is no longer needed before deleting it. If your intent is that the current sequence no longer run a command, use the "No command" radio button instead.

## Create New Command

Select the "New Command" radio button for creating an entirely new command, not used by any other sequence. If your command is an executable file or batch file, you can use the "Select" button to select the desired file and the full path to the file will be placed in the new command text box. Your command



can also include special [shell command variables](#) as noted below.

## Shell Command Variables

For the most part, a shell command will be executed exactly as you type it. You can, however, additionally use certain variables, which will be replaced at run-time with various information, such as the title of the song associated with the sequence. The following variables can be used (*note: the exact result of using any of the date/time "DT\_" variables may depend upon your computer system, so try them out if you need to rely upon an exact format*):

Variable	Meaning
%%	A single percent character ("%")
%DT_a%	Day of week, abbreviated ("Mon")
%DT_A%	Day of week ("Monday")
%DT_b%	Month name, abbreviated ("Aug")
%DT_B%	Month name ("August")
%DT_c%	Date and time ("Sunday, March 09, 2008 4:05:07 PM")
%DT_d%	Day of month (01 through 31)
%DT_H%	Hour, 24 hour clock (00 through 23)
%DT_I%	Hour, 12 hour clock (01 through 12)
%DT_j%	Day of year (001 through 366)
%DT_m%	Month number (01 through 12)
%DT_M%	Minute (00 through 59)
%DT_p%	AM or PM
%DT_S%	Second (00 through 61)
%DT_w%	Day of week, number (0 through 6, Sunday being 0)
%DT_x%	Date ("11/29/10")
%DT_X%	Time ("16:32:37")
%DT_y%	Year, two digit ("10")
%DT_Y%	Year, four digit ("2010")
%ENV_something%	The value of your computer's environment variable "something"; for example, use %ENV_PATH% to get the value of your computer's PATH environment variable
%MEDIA_ALBUM%	The name of the album that this sequence's media file is from (if set in your sequence)
%MEDIA_ARTIST%	The name of the artist that this sequence's media file is by (if set in your sequence)
%MEDIA_FILENAME%	The name of the sequence's media file, without path information
%MEDIA_FILENAME_FULL	The name of the sequence's media file, with path information

%	
% MEDIA_FILENAME_NO_EXT%	The name of the sequence's media file, without path information and without the file extension (such as ".mp3")
%MEDIA_TITLE%	The name of the song that this sequence's media file is (if set in your sequence)
%SEQUENCE_AUTHOR%	The author of this sequence (if set in your sequence)
% SEQUENCE_CREATED_AT%	The date and time at which the sequence was created
%SEQUENCE_FILENAME%	The name of the sequence file, without path information
% SEQUENCE_FILENAME_FULL%	The name of the sequence file, with path information
% SEQUENCE_FILENAME_NO_EXT%	The name of the sequence file, without path information and without the file extension (such as ".lms")
% SEQUENCE_MODIFIED_BY%	The name of the person who has modified the sequence (if set in your sequence)

These variables were supported in prior versions, but are no longer supported in S5

Variable	Meaning
%DT_U%	Week of year, with the first Sunday of the year starting week 01 (00 through 53)
%DT_W%	Week of year, with the first Monday of the year starting week 01 (00 through 53)
%DT_Z%	Time zone ("EST")

## Sharing Sequences between Computers, and Security

The ability to execute an arbitrary Windows command is very powerful, and even potentially harmful - for example, you could execute a command which will install spyware on your machine. Therefore, it would not be wise to execute whatever Windows command another person chose, unless you are absolutely sure that the command they chose is safe and harmless.

For this reason, Light-O-Rama imposes a security measure: The command to be executed is *not* stored directly in the sequence file itself. Instead, the sequence file contains a key for an entry in another file ("cmdmap.lcm", located in your Light-O-Rama sequences directory); that entry specifies the Windows command to be executed. If that file doesn't contain an entry for that key, Light-O-Rama simply does not execute any command when the sequence plays.

So, you can use sequences created by other people without fear of spyware or other harmful programs,

as long as you continue to use your own version of cmdmap.lcm, not a copy of the other person's cmdmap.lcm.

However, this means that if you yourself use Light-O-Rama on two separate machines - for example one to create your sequences on, and another to run your shows on - you will have to copy your "real" version of cmdmap.lcm from one machine to the other if you want your sequences to execute Windows shell commands. You would typically do this at the same time that you copy your sequences themselves over from one machine to the other.

#### 5.3.1.2.4 Manage Archived Props Dialog

Selecting "Manage Archived Props" from the [Sequence menu](#) opens a dialog where you can view all of the [archived props](#) in a sequence.

Prop	# of Effects
<input type="checkbox"/> DMX 1.1	2
<input type="checkbox"/> New RGB	1
<input type="checkbox"/> RGB Tree	1
<input type="checkbox"/> Star50	0
<input type="checkbox"/> Unit 01.3	0
<input type="checkbox"/> Unit 01.7	0
<input type="checkbox"/> Unit 01.8	0

Checked Items

Add To Preview    Move To Beats    Delete

Total: 0    Total: 0    Total: 0

Save    Cancel

Check the boxes next to the archived props you want to take action on. You can use the "Select All" button to set or clear all of the boxes at once.

After you have selected the desired props, take action by clicking one of the 3 big buttons:

- "Move to preview" will convert the archived prop to a preview prop (i.e. it adds the prop to the preview). The prop is no longer archived and its sequencing will appear during preview playback and will control real lights.
- "Move to beats" will convert the archived prop to [beat channels](#). While upgrading a sequence, a beat channel in the legacy sequence could get archived because it does not exist in the preview.

This command will allow that issue to be corrected.

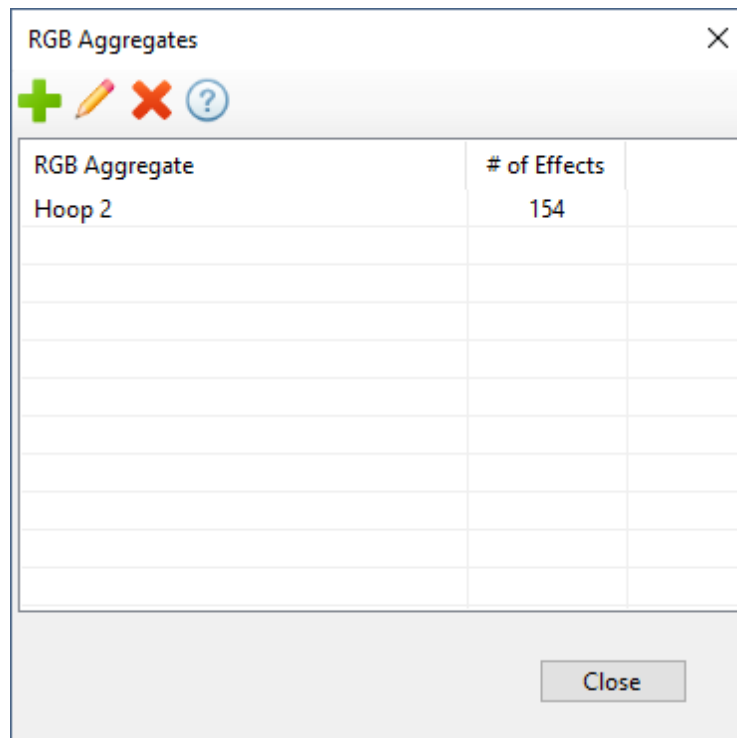
- "Delete" permanently removes the selected archive props from the sequence. A legacy sequence might contain channels that were no longer used and those channels would get archived because they don't exist in the preview. There is no reason to keep such channels in an S5 sequence, so this command gives you an efficient way to remove them.

After you are done, click "Save" to close the dialog and make the actions permanent, or click "Cancel" to revoke the changes.

#### 5.3.1.2.5 Manage RGB Aggregates Dialog

Selecting "Manage RGB Aggregates" from the [Sequencer's Sequence menu](#) opens a dialog where you can view all of the [RGB aggregates](#) in a [sequence](#). From this dialog you can:

- [Add a new RGB aggregate](#)
- [Modify an existing RGB aggregate](#)
- [Delete an RGB aggregate](#)



The Manage RGB Aggregates dialog

### Add a new RGB aggregate

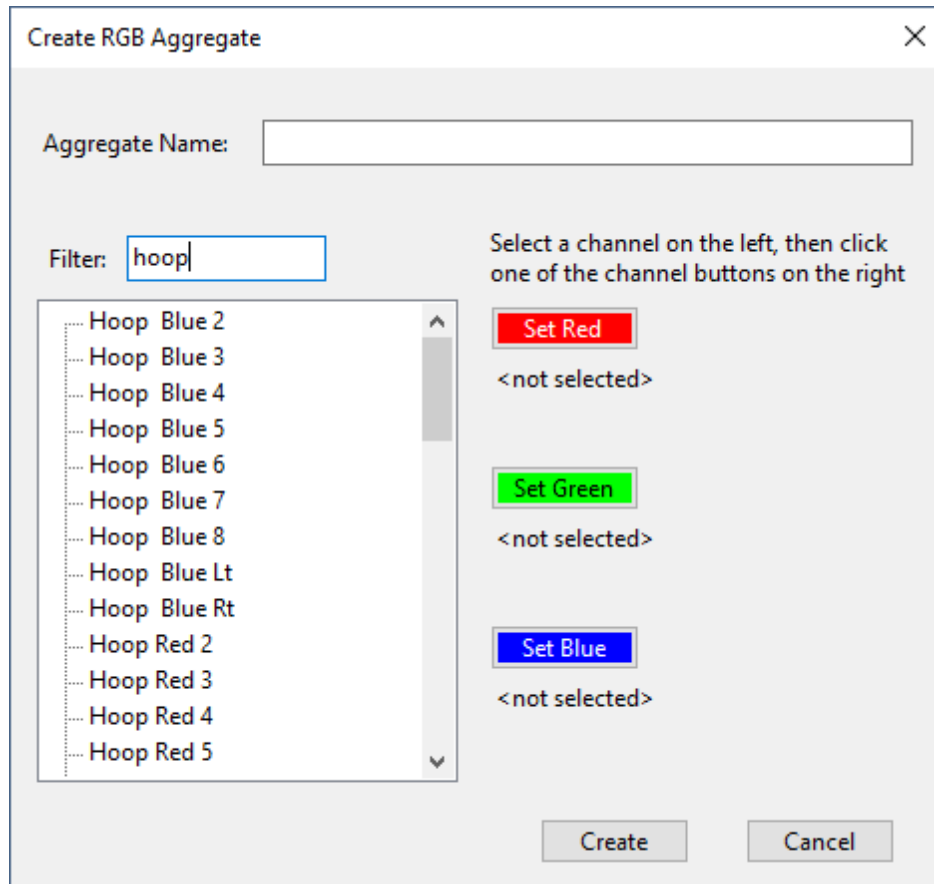


Clicking the "+" icon will open a dialog allowing you to create a new [RGB aggregate](#).

- Enter the name for the new aggregate.
- Use the filter box to narrow down the list of channels to choose from.

- Click on a channel name that will occupy the red slot in the aggregate, then click the "Set Red" button. The name of the selected channel will appear below the button.
- Click on a channel name that will occupy the green slot in the aggregate, then click the "Set Green" button. The name of the selected channel will appear below the button.
- Click on a channel name that will occupy the blue slot in the aggregate, then click the "Set Blue" button. The name of the selected channel will appear below the button.
- Click the "Create" button to create the aggregate.

It is not required to set all 3 slots. Setting only 1 or 2 of the slots is fine.

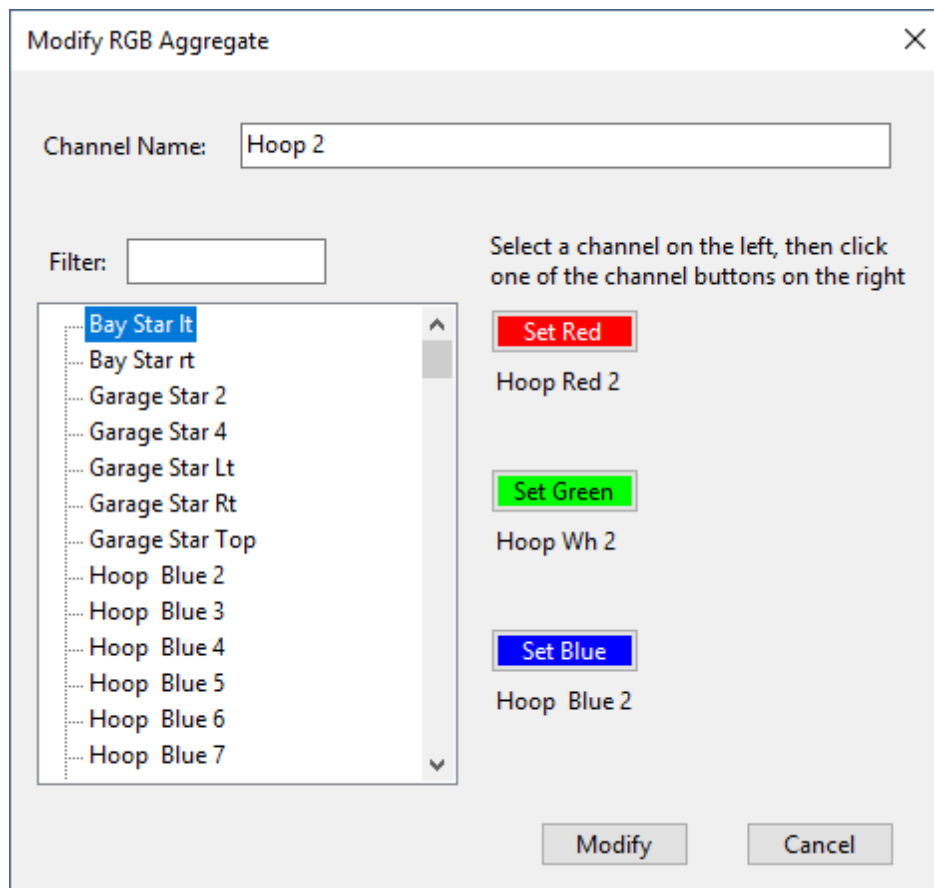


Creating a new RGB Aggregate

## Modify an existing RGB aggregate



Double-clicking on an RGB aggregate name (or clicking a name to select it then clicking the pencil icon) will open a dialog allowing you modify the selected [RGB aggregate](#). Here you can change the name, or change the channels assigned to any of the 3 slots. To change the channel assigned to a slot, use the same procedure described in [creating an aggregate](#).



Modifying an RGB Aggregate

## Delete an RGB aggregate

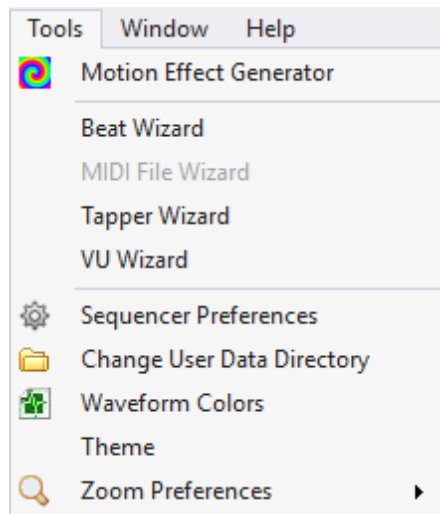


Click on an aggregate name to select it then click the red "X" icon to delete it. You can also use Shift-click and Ctrl-click to select multiple items before clicking the delete icon.

### 5.3.1.3 Tools Menu

The [Light-O-Rama S5 Sequencer's](#) Tools Menu gives you access to a set of functions that are unrelated to a specific [sequence](#).

- [Motion Effect Generator](#)
- [Beat Wizard](#)
- [MIDI File Wizard](#)
- [Tapper Wizard](#)
- [VU Wizard](#)
- [Sequencer Preferences](#)
- [Change User Data Directory](#)
- [Waveform Colors](#)
- [Theme](#)
- [Zoom Preferences](#)



The Tools Menu

## Motion Effect Generator

This option on the [Tools menu](#) opens the [Motion Effect Generator](#) window.

- When no sequences are open, this menu item can be used to create motion effects and optionally save the one's you like as [favorites](#). In the Motion Effect Generator, you can freely switch the preview and prop down-down selections to see how your effect looks on any display element. You can do this at any license level.
- When a sequence is open, this menu item can be used to place a motion effect into the current [grid selection](#). See the [Sequencing](#) topic for more information on how to use the Motion Effect Generator when editing your sequences. Placing motion effects in a [sequence](#) requires the [Pro license level](#).

## Beat Wizard

This option on the [Tools menu](#) opens the [beat-detecting audio wizard](#).

## MIDI File Wizard

This option on the [Tools menu](#) opens the [MIDI file audio wizard](#). This option will only be enabled if the sequence's media file is a MIDI file (.MID file extension).

## Tapper Wizard

This option on the [Tools menu](#) opens the [Tapper audio wizard](#).

## VU Wizard

This option on the [Tools menu](#) opens the [VU audio wizard](#).

## Sequencer Preferences

This option on the [Tools menu](#) opens the [Sequencer Preferences](#) dialog, which allows you to customize some of the look and behavior of the [S5 Sequencer](#).

## Change User Data Directory

This option on the [Tools menu](#) allows you to change the default directory where your audio and sequence files are stored. You should back up your sequence files before initiating this action.

## Waveform Colors

This option on the [Tools menu](#) allows you to customize the colors of the [waveform display](#).

## Theme

This option on the [Tools menu](#) allows you to choose among several [themes](#) (color schemes) for displaying the main window of the [Light-O-Rama Sequencer](#)

## Zoom Preferences

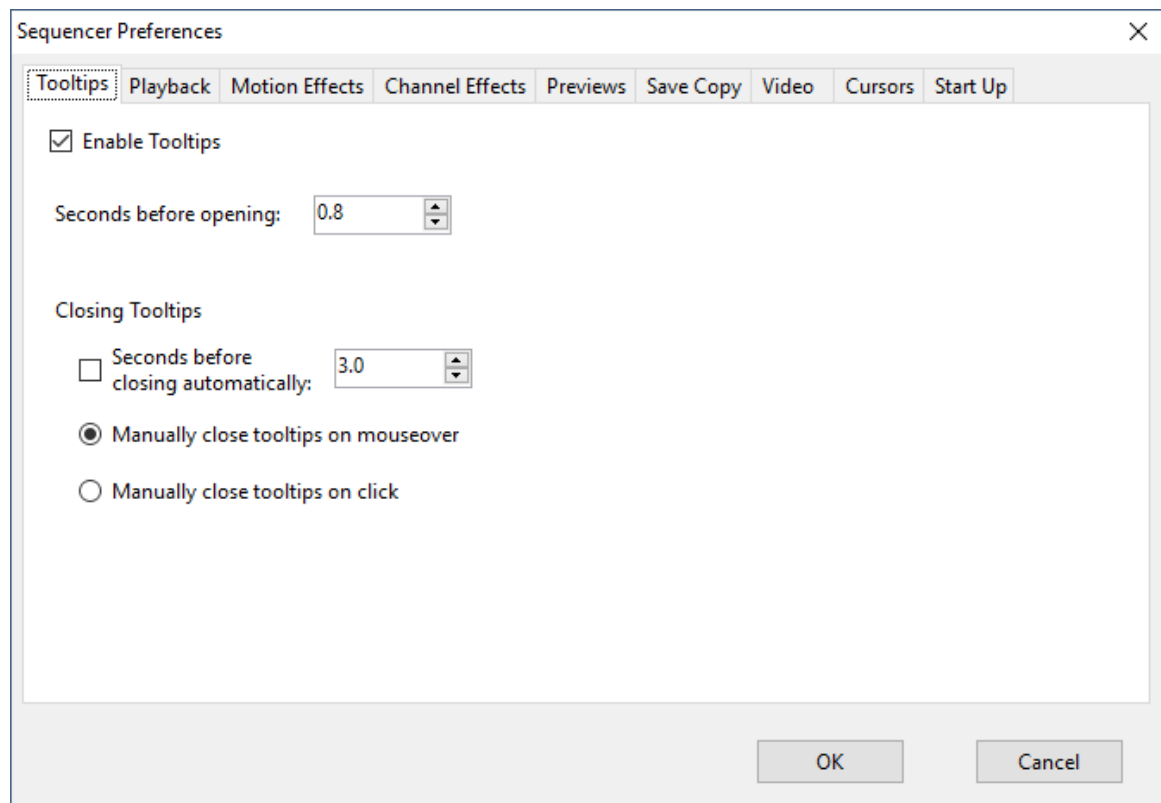
This option on the [Tools menu](#) allows you to customize [zoom preferences](#) (default row height and time scale width) for new sequences.

### 5.3.1.3.1 Sequencer Preferences

The Sequencer Preferences sub-menu on the [Light-O-Rama S5 Sequencer's Tools menu](#) opens a dialog that allows you to customize the behavior of certain functions in the Sequencer. The dialog has several tabs:

- [Tooltips](#)
- [Playback](#)
- [Motion Effects](#)
- [Channel Effects](#)
- [Previews](#)
- [Save Copy](#)
- [Video](#)
- [Cursors](#)
- [Start Up](#)



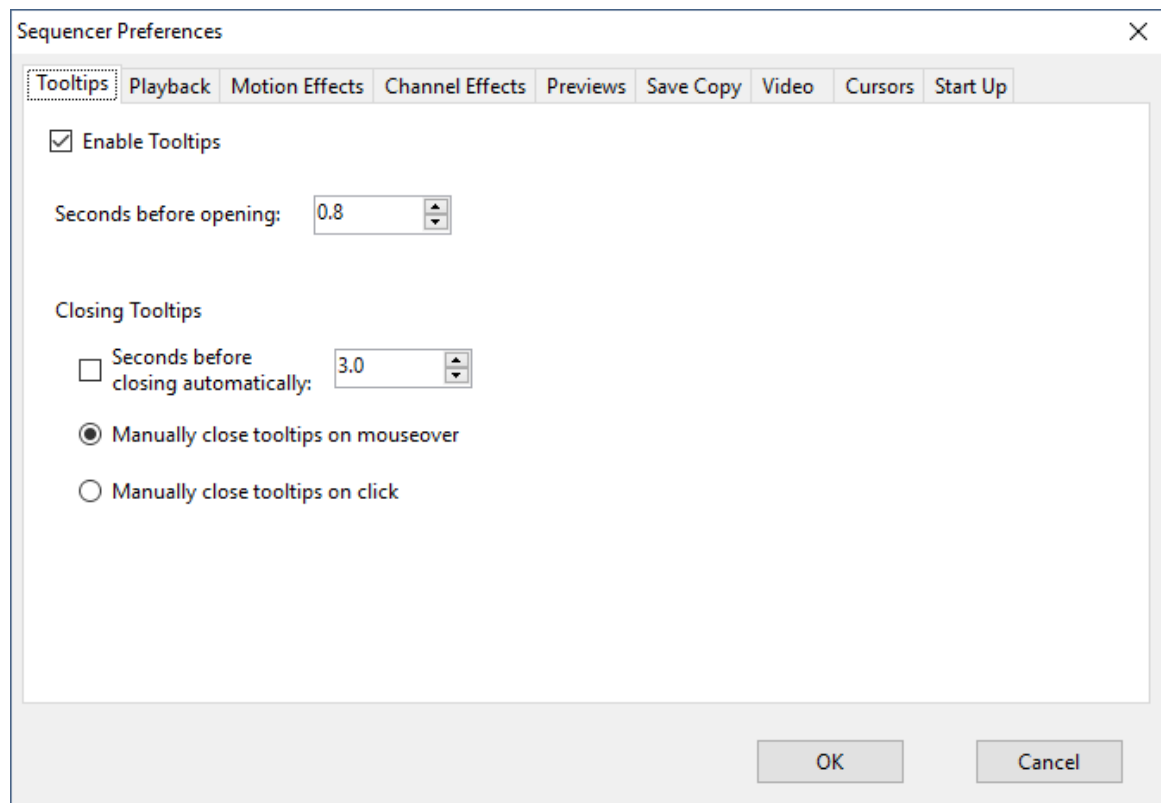


The Sequencer Preferences Dialog

#### 5.3.1.3.1.1 Tooltip Preferences

The "Tooltips" tab is accessed by selecting [Sequencer Preferences](#) from the [Sequencer's Tools menu](#). From here you can control how tool-tips are displayed on the sequence grid.

- [Enable tooltips](#)
- [Seconds before opening](#)
- [Seconds before closing automatically](#)
- [Manually close tooltips on mouseover](#)
- [Manually close tooltips on click](#)



Sequencer Preferences - Tooltips Tab

## Enable tooltips

If this box is checked, when the mouse is over a [sequence](#) grid, a tool-tip displaying information about the cell being pointed to can be displayed.

## Seconds before opening

If [tool-tips are enabled](#), this text box controls how many seconds it will take before the tool-tip pops up, when the mouse is kept still over a [sequence](#) grid.

You do not have to specify a whole number; for example, you can set it to six tenths of a second by entering "0.6".

## Seconds before closing automatically

If [tool-tips are enabled](#), this checkbox and text box control whether or not they will automatically close themselves a certain amount of time after being opened. If the checkbox is checked, they will automatically close after the number of seconds specified in the text box.

You do not have to specify a whole number; for example, you can set it to three-quarters of a second by entering "0.75".

## Manually close tool-tips on mouseover

If [tool-tips are enabled](#), selecting this option will make them close when you roll your mouse over them. The other option is to make them [close when you click on them](#).

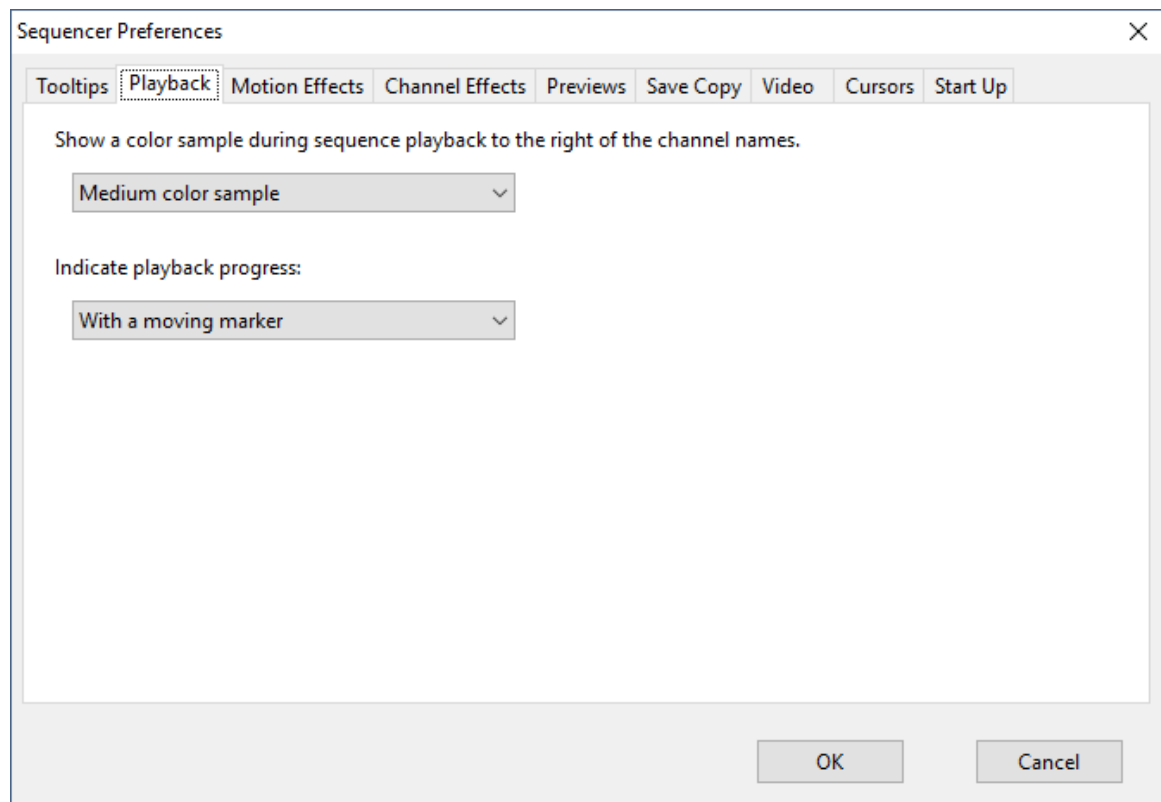
## Manually close tool-tips on click

If [tool-tips are enabled](#), selecting this option will make them close when you click on them. The other option is to make them [close when you roll your mouse over them](#).

### 5.3.1.3.1.2 Playback Preferences

The "Playback" tab is accessed by selecting [Sequencer Preferences](#) from the [Sequencer's Tools menu](#). From here you can control how:

- [How color samples are displayed during playback](#)
- [How progress is indicated during playback](#)



Sequencer Preferences - Playback Tab

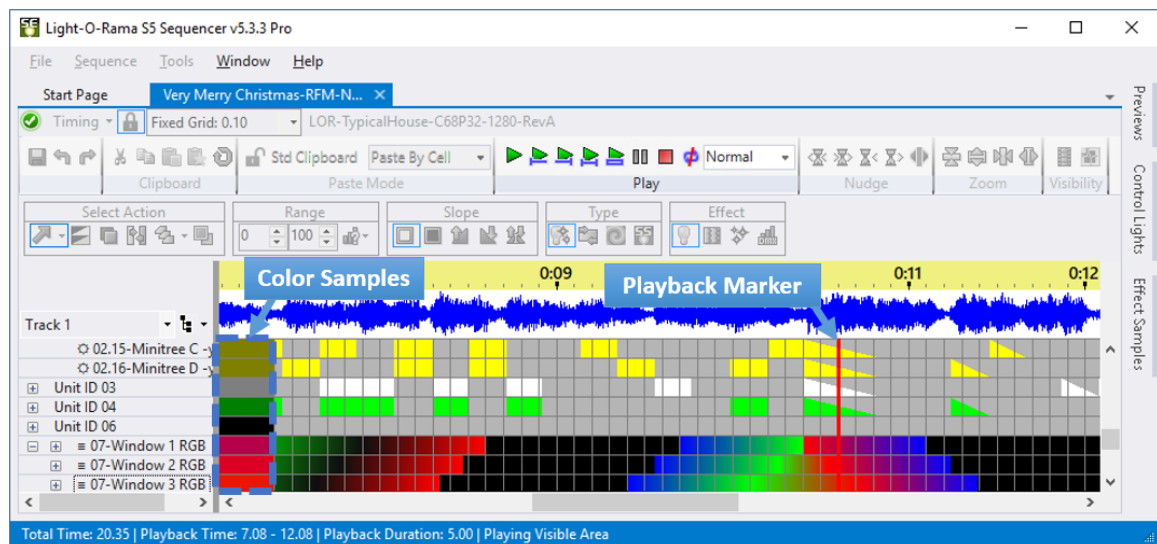
## Color Sample Preferences

This option controls the width of the color sample area (just to the right of the channel names, as shown in the picture below). Choose "No color sample" to not display color samples at all.

## Playback Progress Preferences

This option controls how the playback marker is displayed. The options are:

- **Use a moving marker** - this mode displays a marker at the current playback location, regardless of timing marks.
- **Highlight the current column** - this mode highlights the timing marks immediately before and after the current playback location.
- **Highlight the current timing mark** - this mode highlights a timing mark as the current playback position reaches it. When the playback position is between timing marks, nothing is highlighted. This mode is useful for verifying that your timing marks match the music.
- **Use a moving marker and highlight the current timing mark** - this mode displays the moving marker until it reaches a timing mark, at which point the timing mark is highlighted.

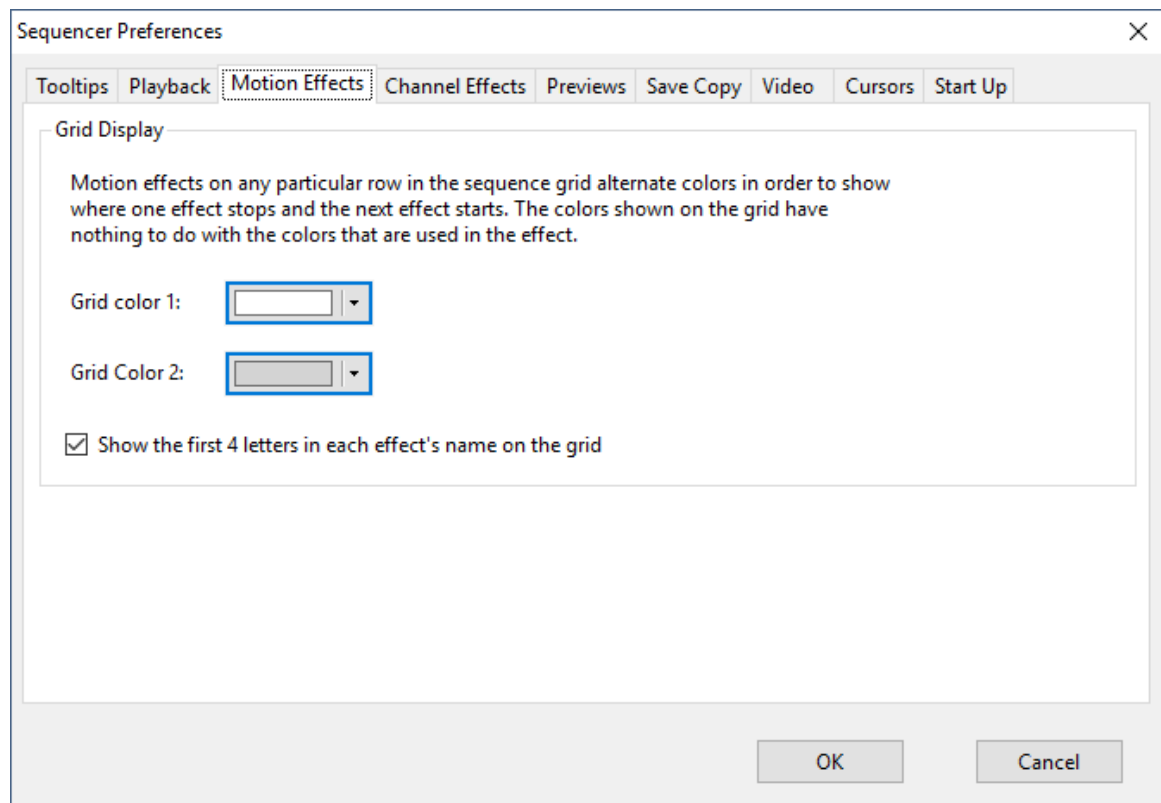


Playback in Progress

### 5.3.1.3.1.3 Motion Effect Preferences

The "Motion Effects" tab is accessed by selecting [Sequencer Preferences](#) from the [Light-O-Rama S5 Sequencer's Tools menu](#). From here you can control:

- [How motion effects are displayed in the sequence grid](#)



The Sequencer Preferences - Motion Effects Tab

## How motion effects are displayed in the sequence grid

### ***Motion Effect Row Colors***

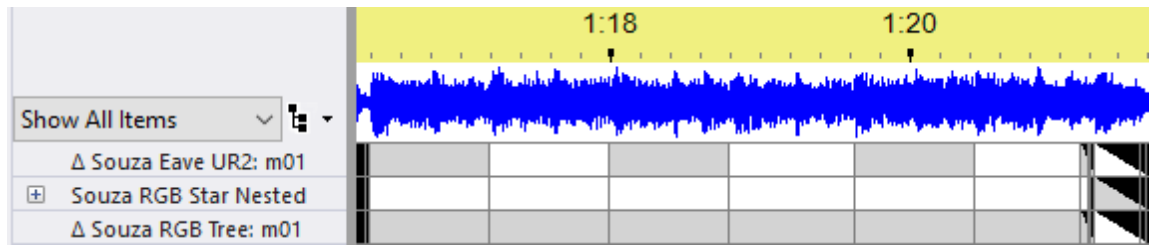
Motion effects on any particular row in the sequence grid alternate colors in order to show where one effect stops and the next effect starts. The colors shown on the grid have nothing to do with the colors that are used in the effect. Use "Grid color 1" and "Grid color 2" to set the 2 colors displayed on the sequence grid for motion effect rows.

The pictures in the next section demonstrate what this actually looks like in the sequence grid.

### ***Motion Effect Names***

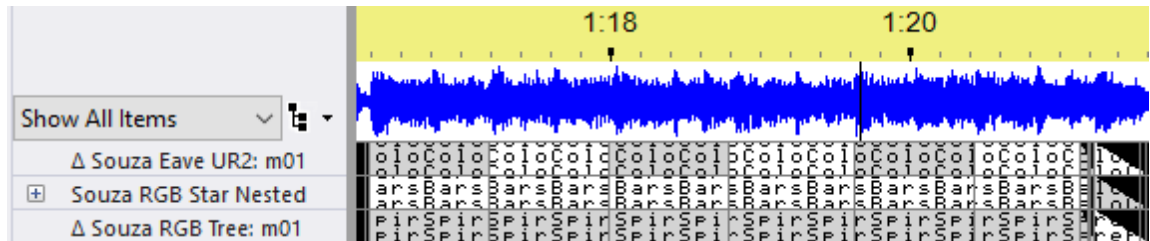
The first 4 letters of the effect's name can be displayed on the sequencer grid. This can help identify the effect.

Here is an example with name display disabled. The only ways to identify an effect are to either 1) double-click on the effect to open it in the [Motion Effects Generator](#), or 2) single-click on the effect and it will be displayed in the playback window (assuming the playback window is not hidden).



Motion effects with naming disabled

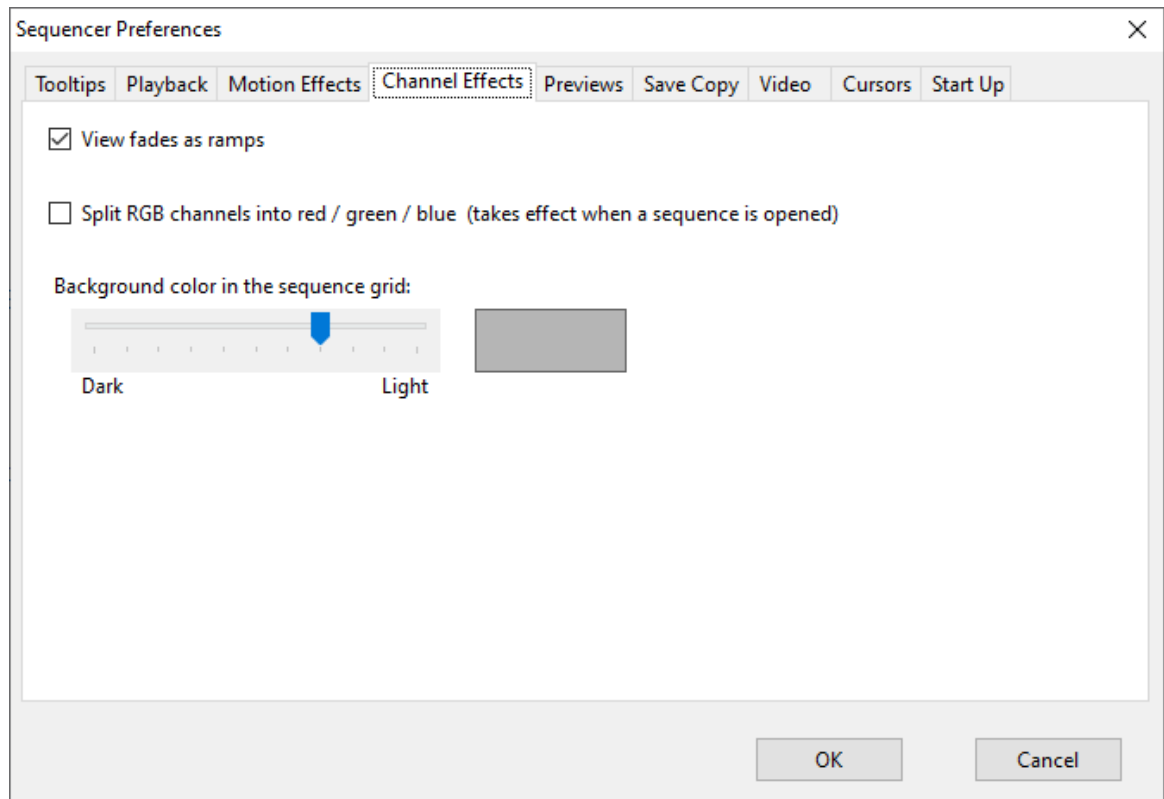
Here is the same example with name display enabled. You can see that the first row contains a series of Colorwash effects, the second contains Bars effects, and the third row contains Spiral effects.



Motion effects with naming enabled

#### 5.3.1.3.1.4 Channel Effect Preferences

The "Channel Effects" tab is accessed by selecting [Sequencer Preferences](#) from the [Sequencer's Tools menu](#). From here you can control how channel effects are displayed on the sequence grid.



The Sequencer Preferences - Channel Effects Tab

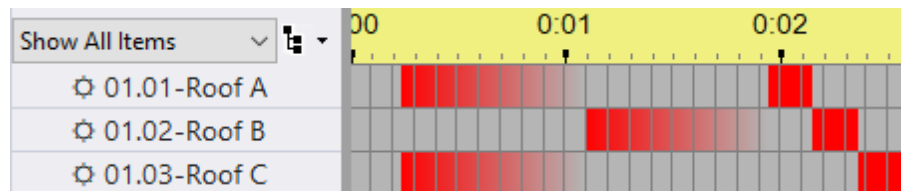
## Fades

When fade or intensity [lighting effects](#) are displayed in the [Sequencer](#), they are displayed in one of two ways: "as ramps" or "as colors". You can use the "View fades as ramps" check box to control which is used.

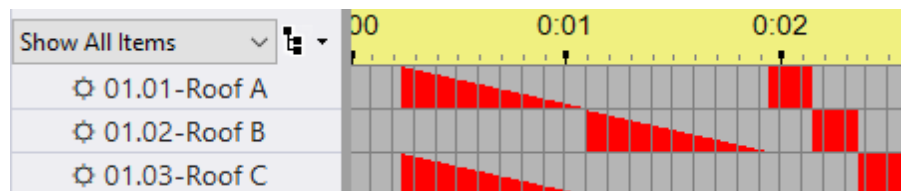
When viewed "as colors", fades and intensities will be displayed as gradually varying shades between light grey (which indicates that the [channel](#) is off, i.e. the intensity is zero) and the color assigned to the channel (which indicates an intensity of 100%, i.e. full brightness).

When viewed "as ramps", they are instead displayed as partially filling in their cells with the color of the channel, to a degree based upon the intensity.

Neither of these settings have any effect on the behavior of your actual lights; they only affect how the Sequencer displays these lighting effects in the [sequence grid](#).



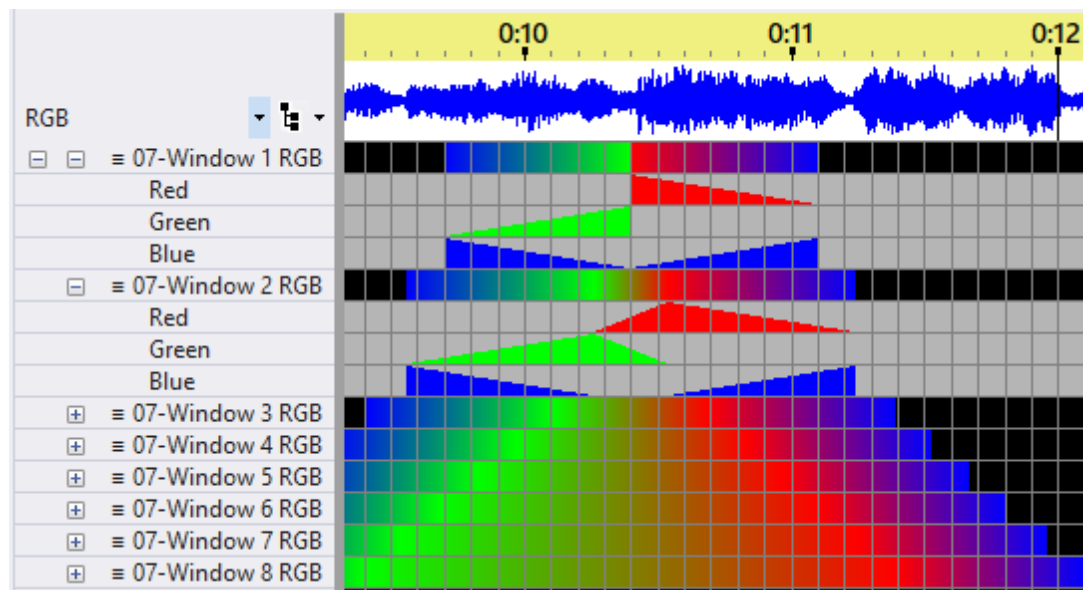
A sequence with fades viewed using colors



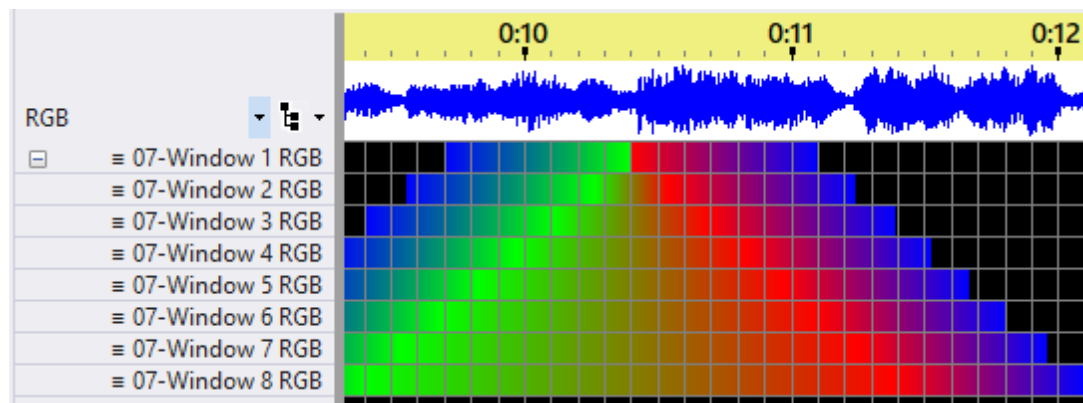
The same sequence, with fades viewed as ramps

## Split RGB Channels

The "Split RGB Channels" check box controls whether RGB channels are displayed with their red / green / blue sub-channels or not. Turning this option off can save memory, allowing larger sequences to be loaded. Note that this option is applied when a sequence is opened. Changing the option with sequences already open will not change the way the open sequences are displayed. To view those sequences with the new setting, close the sequences and then reopen them.



Split RGB Channels is enabled



Split RGB Channels is disabled

## Channel Background Color

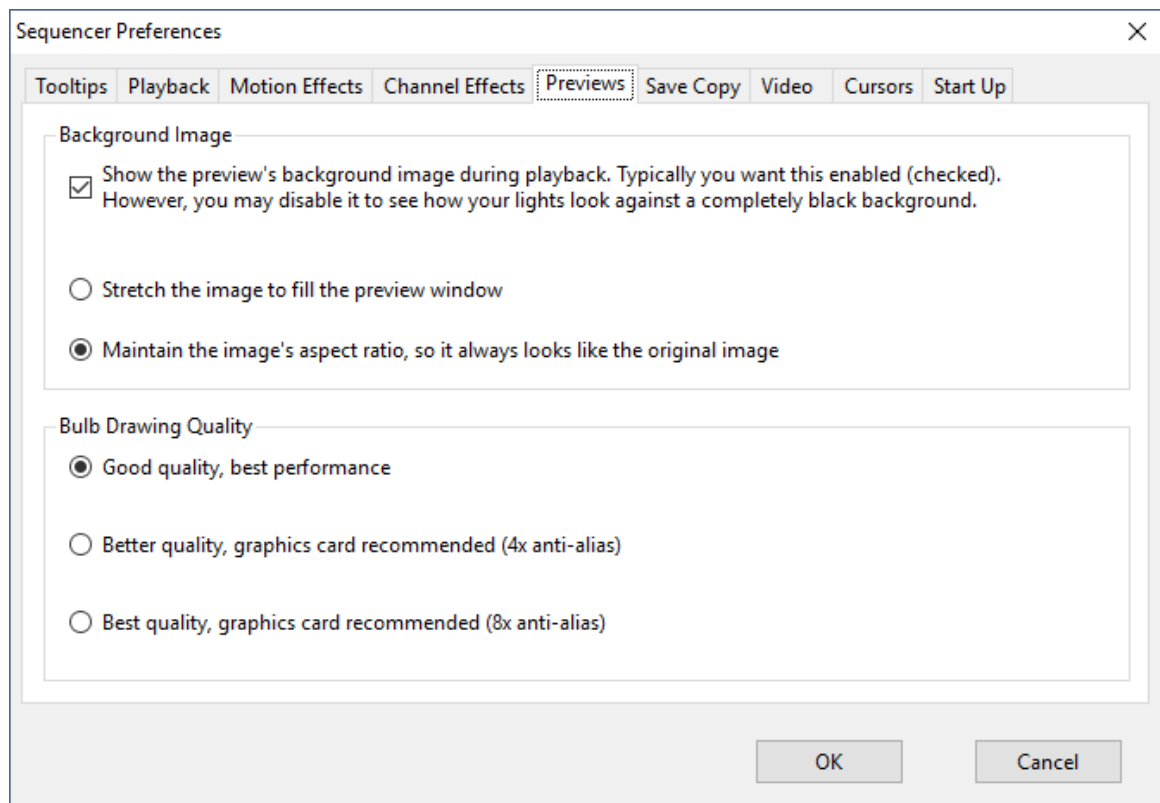
[Regular channels](#) and [beat channels](#) are displayed with a gray background on the sequence grid. However, you can control how light or dark you want the gray background to be. Use the slider to control the lightness. A sample is shown to the right of the slider.

### 5.3.1.3.1.5 Preview Preferences

The "Previews" tab is accessed by selecting [Sequencer Preferences](#) from the [Light-O-Rama S5 Sequencer's Tools menu](#). From here you can control:

- [How preview background images are handled](#)
- [The screen drawing quality](#)





The Sequencer Preferences - Previews Tab

## How preview background images are handled

The first check box controls whether the background image is displayed at all. We recommend that you leave this box checked.

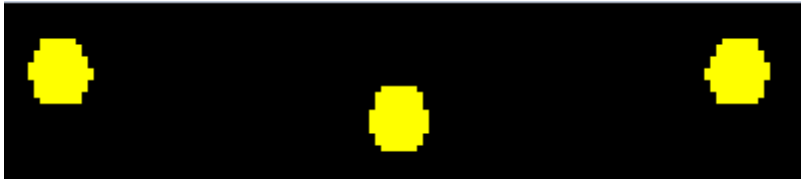
The second part determines whether the background image will be stretched to completely fill the playback window, or whether the image's aspect ratio (the ratio of the width to the height) will be maintained. Note that props are drawn in relation to the background image; so if you choose the option where the aspect ratio is maintained, then it will also be maintained for all of the props in the preview. Maintaining the image's aspect ratio is highly recommended.

## The screen drawing quality

If you are running the [Sequencer](#) on a game-rated computer (one that has a graphics card), then the Sequencer can take advantage of that hardware in [Preview Design](#) and while playing a sequence in the playback window. This is a performance versus display quality trade-off. If you choose a higher quality setting and then notice that playback lags, then you will want to return to this tab and choose a lower quality setting.

Changing the drawing quality will not take effect until the next time the [Sequencer](#) is started.

Hexagon-shaped bulbs at the lowest quality setting (enlarged to show detail):



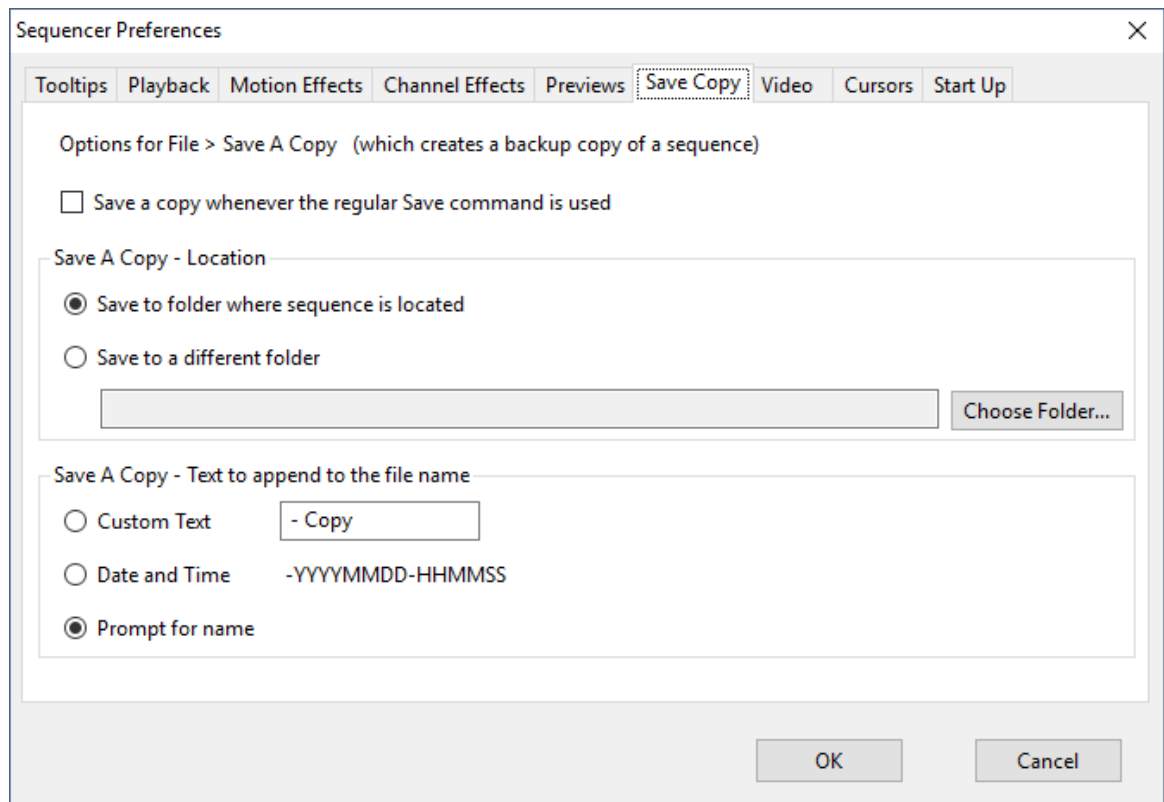
Hexagon-shaped bulbs at the highest quality setting (enlarged to show detail):



#### 5.3.1.3.1.6 Save Copy Preferences

The "Save Copy" tab is accessed by selecting [Sequencer Preferences](#) from the [Light-O-Rama S5 Sequencer's Tools menu](#). From here you can customize the behavior of the [Save A Copy](#) item on the [File menu](#). The available options are:

- [Save A Copy During Regular Save](#)
- [Save A Copy Location](#)
- [File Name Suffix](#)



The Sequencer Preferences - Save Copy Tab

## Save A Copy During Regular Save

If this box is checked, then every time the user performs a regular [Save](#) operation it will be automatically followed by a Save A Copy operation. If unchecked, then Save A Copy will only be performed when the user selects it from the [File menu](#).

## Save A Copy Location

This option allows the user to specify the folder for Save A Copy operations.

## File Name Suffix

This option allows you to customize the default suffix that is applied. Choosing the "Date and Time" option is particularly useful for making multiple backup copies of your sequence.

If you enter custom text, you can only use characters that are valid in Windows file names. These characters are forbidden: \* . " / \ [ ] : ; | = ,

### 5.3.1.3.1.7 Video Preferences

[Musical sequences](#) are associated with a song or other sound effect, from either an audio file (such as an MP3) or a video file (such as an AVI, WMV, or MP4 file). If a musical sequence is associated with a video file, Light-O-Rama can display the video during play.

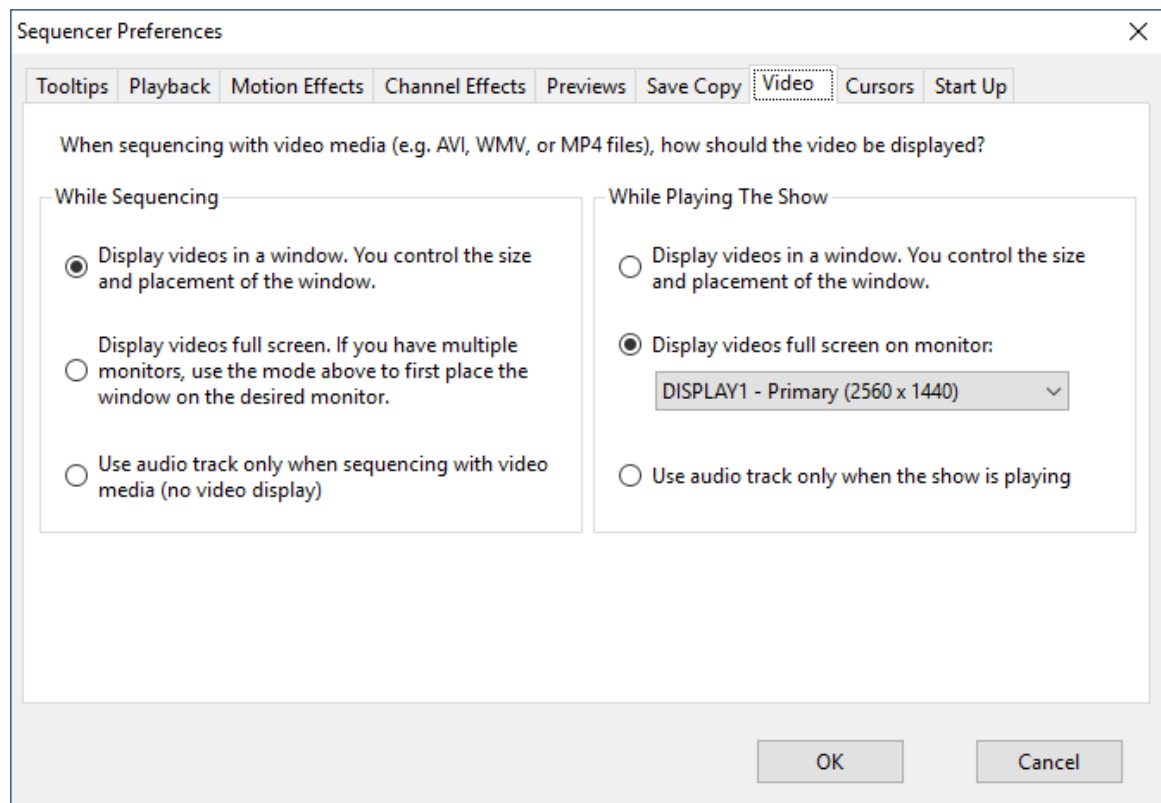
The "Video" tab is accessed by selecting [Sequencer Preferences](#) from the [Sequencer's Tools menu](#) and can be used to control whether and how video is displayed during playback.

There are 2 sets of video preferences. The left side controls how videos are displayed during sequencing (while using the [Sequencer](#)). The right side controls how videos are displayed in [shows](#) by the [Show Player](#).

On either side you have the same 3 choices:

- [Display Videos in a Window](#)
- [Display Videos in Full Screen Mode](#)
- [Use Audio Track Only When Sequencing With Video Media](#)

Not all modes are supported at all license levels. See the [Feature Comparison](#) page for more information.



The Sequencer Preferences - Video Tab

## Display Videos in a Window

In this mode, video will be displayed in a window. You can move the window and resize it as needed.

## Display Videos in Full Screen Mode

In this mode, video will be displayed full screen. If you have multiple monitors, the method for choosing the monitor where the video will be display is different for sequencing and show playback:

- For sequencing, first select the [Display Vidoes in a Window](#) option. Play a sequence and position the video window on the desired monitor. Stop playback. Go back into Video Preferences and change the option to Full Screen Mode.
- For show playback, select the desired monitor from the drop-down list.

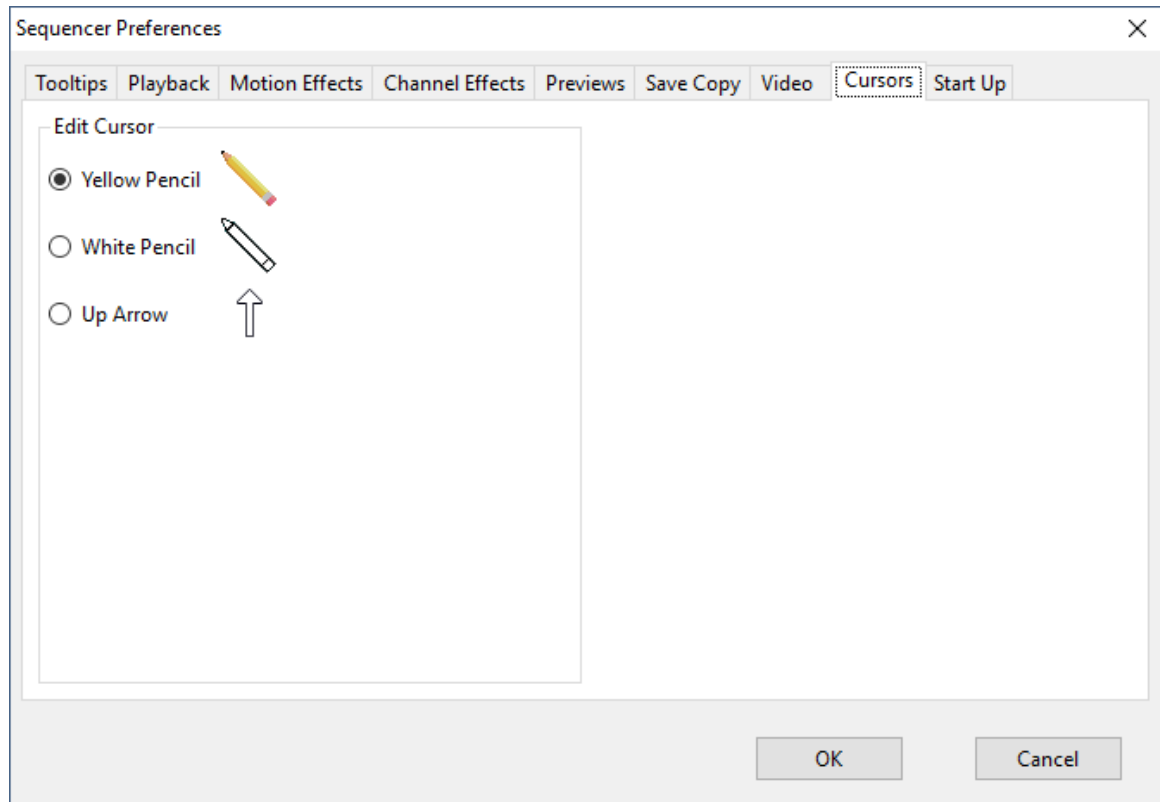
## Use Audio Track Only When Sequencing With Video Media

In this mode, when a [musical sequence](#) with a video is played, only the audio track of the video will be played. There will be no video window.

### 5.3.1.3.1.8 Cursor Preferences

The "Cursors" tab is accessed by selecting [Sequencer Preferences](#) from the [Light-O-Rama S5 Sequencer's Tools menu](#). From here you can customize the cursor that is displayed when:

- drawing light strings in [Preview Design](#)
- using effect tools on the [toolbar](#), like "on" or "chase"



Sequencer Preferences - Cursors Tab

You have your choice of:

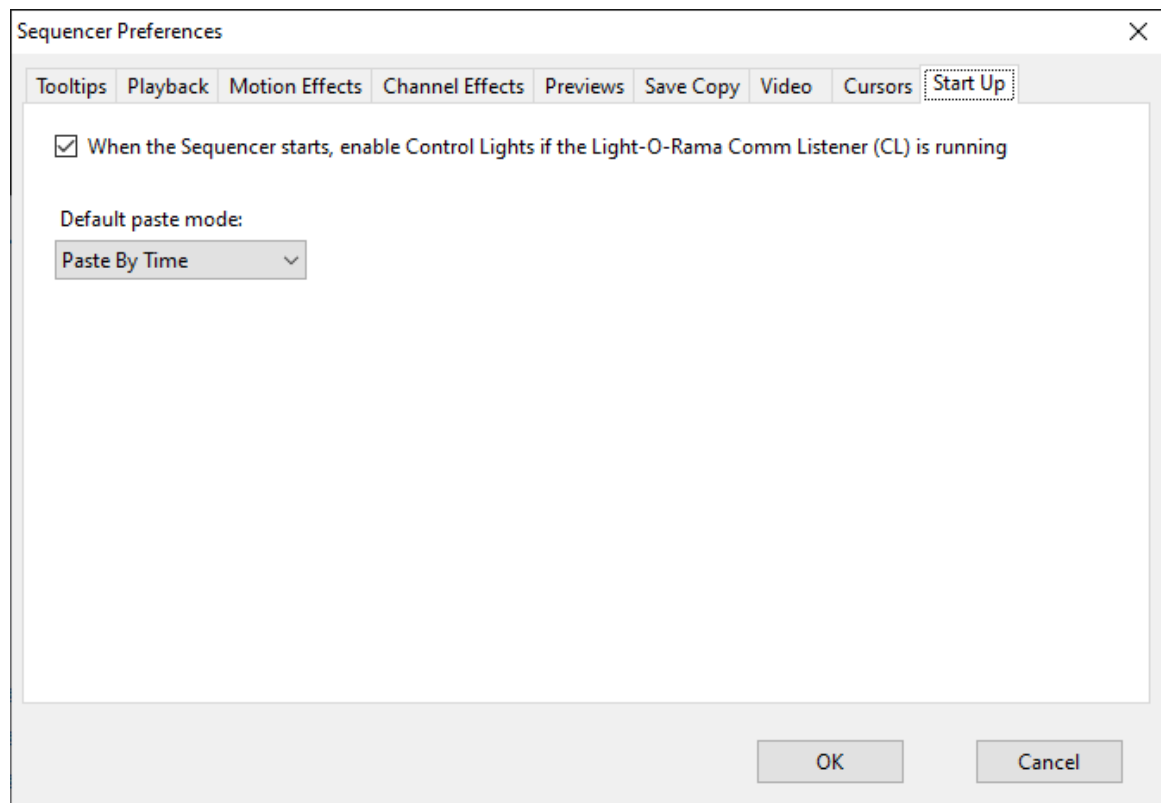
- Yellow pencil (default). Some users say the black tip of the pencil makes the exact location of the cursor hard to determine. Therefore, you can also choose...
- White pencil, or
- Up Arrow. This cursor is built into Windows. So if you have custom cursors loaded onto your system, the arrow may look slightly different than what is shown in the dialog.

The intent is that the Sequencer uses the default Windows arrow cursor for selection and a different cursor when drawing.

#### 5.3.1.3.1.9 Start Up Preferences

The "Start Up" tab is accessed by selecting [Sequencer Preferences](#) from the [Light-O-Rama S5 Sequencer's Tools menu](#). From here you can control:

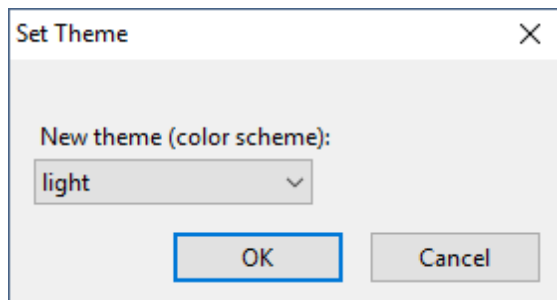
- Whether [Control Lights](#) is automatically enabled if the [Comm Listener](#) is already running when the Sequencer is started.
- The [paste mode](#) that is selected when a sequence is opened.



The Sequencer Preferences - Start Up Tab

#### 5.3.1.3.2 Themes

The Themes menu item on the [Light-O-Rama S5 Sequencer's Tools menu](#) opens a dialog that allows you to select a color scheme for the main Sequencer window.



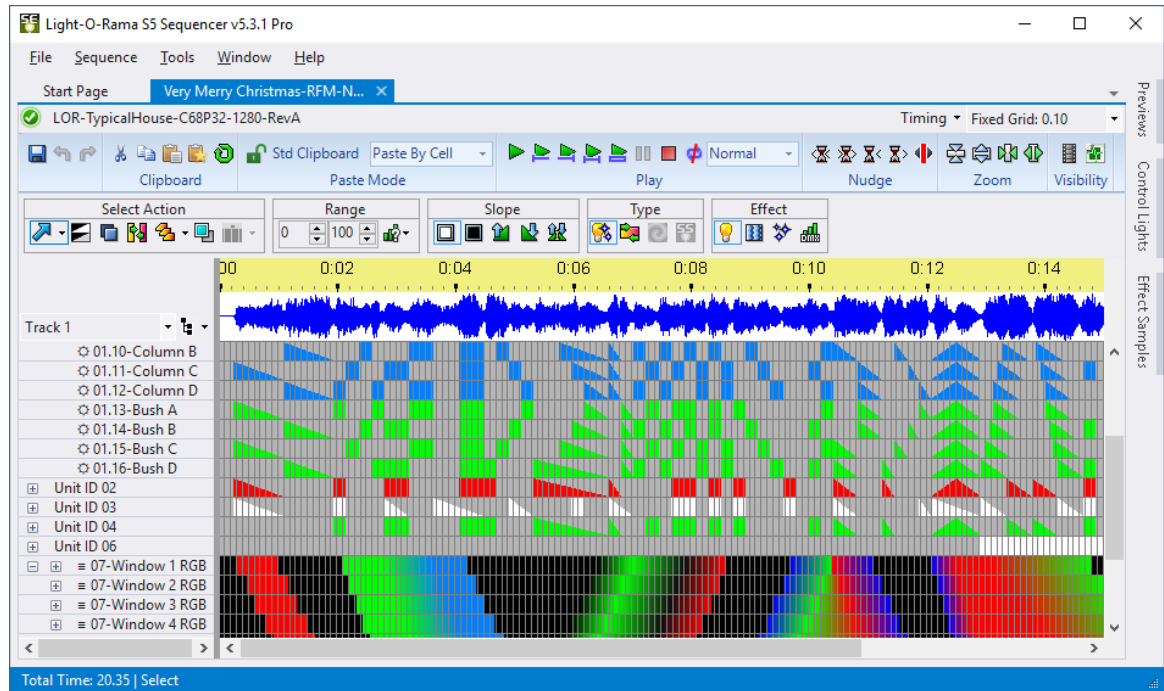
Theme Selection Dialog

There are 3 themes to choose from:

- [Light](#)
- [Dark](#)
- [Blue](#)

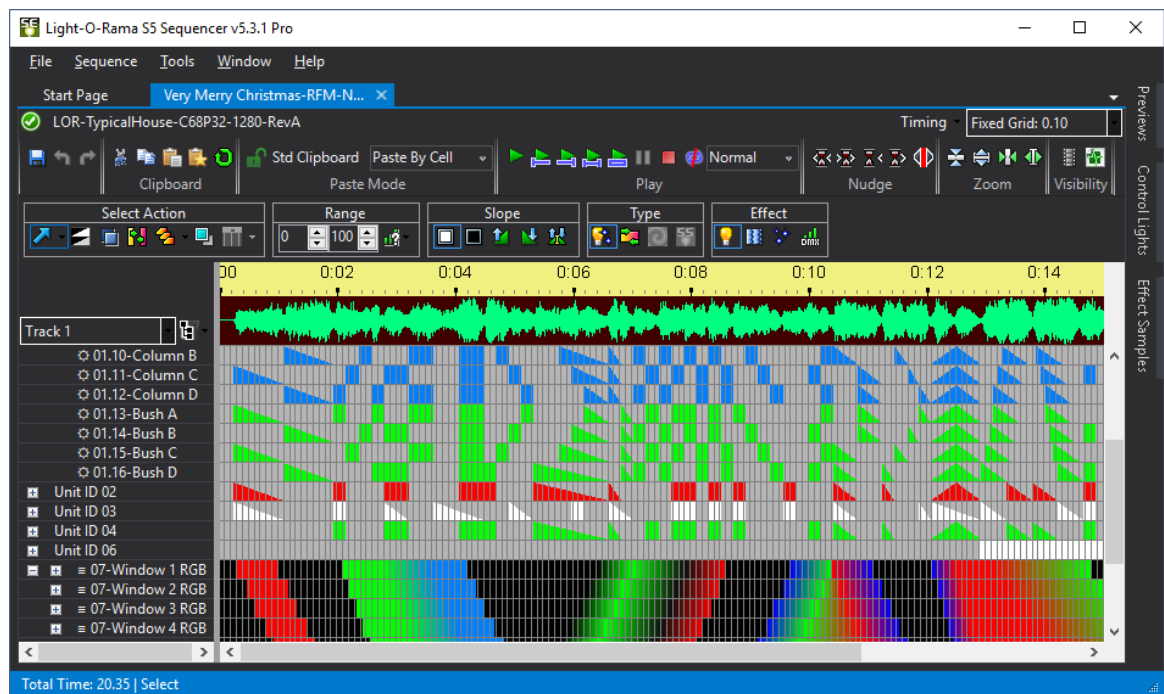
After selecting a theme, the Sequencer will need to be restarted in order for the new theme to take effect.

## Light Theme



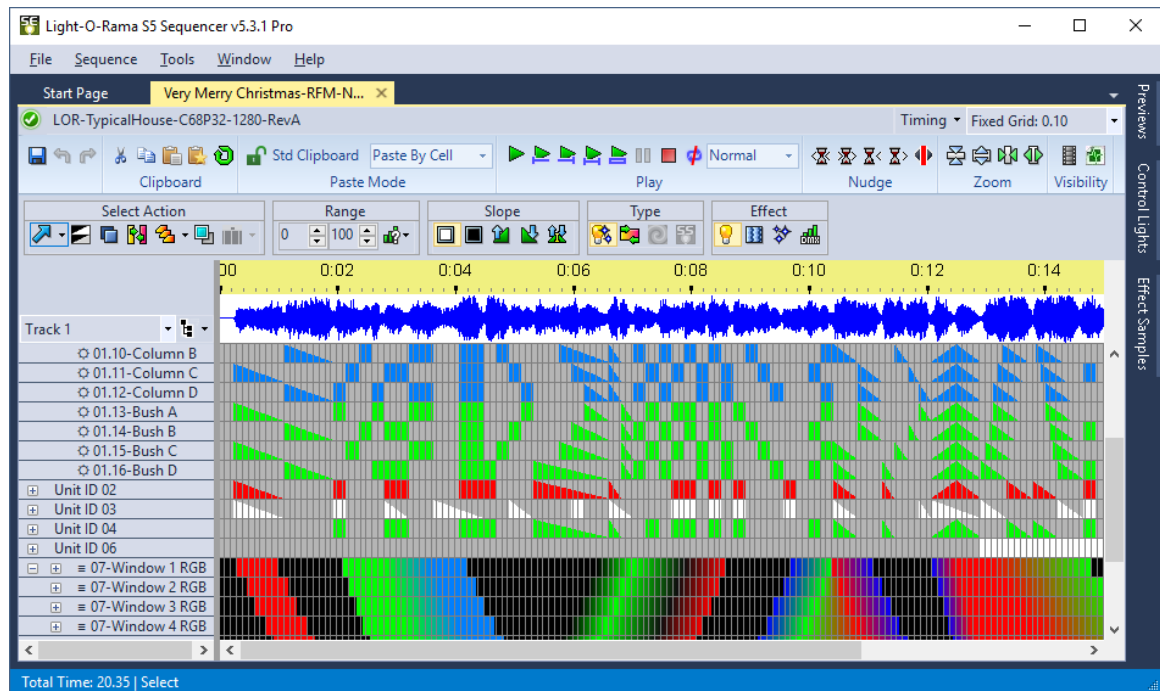
The Light Theme

## Dark Theme



The Dark Theme (with waveform colors customized)

## Blue Theme



The Blue Theme

### 5.3.1.3.3 Zoom Preferences

When a [sequence](#) is displayed in the [Sequencer](#), it is represented as a grid. You can zoom in or out of the grid in either the horizontal and vertical direction at any time. See the [Scrolling and Zooming](#) topic for more information.

Whenever save your sequence the zoom level is saved too. And when you re-open that sequence, the zoom level will be restored. However, whenever the Sequencer creates a new sequence, it will use some default zoom level settings. If you prefer some particular zoom level, you probably do not want to zoom in or out every time that you create a sequence. So, the Zoom Preferences sub-menu (of the [Tools menu](#)) allows you to save your current zoom level settings as defaults, by selecting "Save Zoom Preferences".

Later, when you create a new sequence, it will default to the zoom level settings that you had saved.

If you change the zoom level on a sequence and want to get back to your saved default zoom level settings, the Zoom Preferences sub-menu also provides a way to do this: by selecting "Apply Saved Preferences".

There is also a system default zoom level, and selecting "Apply System Defaults" will apply that to the active sequence.



Zoom Preferences Sub-menu

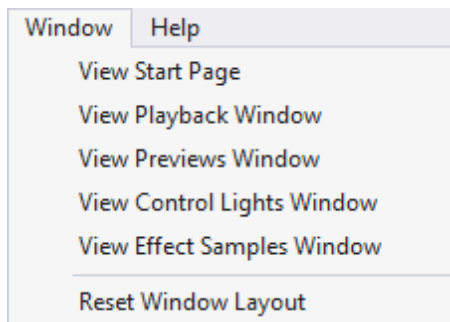


#### 5.3.1.4 Window Menu

The Window menu of the [Light-O-Rama Sequencer](#) enables you to hide or show certain Sequencer windows on your screen. Most importantly, it allows you to reset the position of all windows to their default locations.

The following menu items are available:

- [View Start Page](#)
- [View Playback Window](#)
- [View Previews Window](#)
- [View Control Lights Window](#)
- [View Effect Samples Window](#)
- [Float Current Window](#)
- [Reset Window Layout](#)



#### View Start Page

Selecting this option on the [Window menu](#) unhides the [Start Page](#). This menu item is only shown if the Start Page is currently hidden.

#### View Playback Window

Selecting this option on the [Window menu](#) unhides the [Playback window](#). This menu item is only shown if the Playback window is currently hidden.

#### View Previews Window

Selecting this option on the [Window menu](#) unhides the [Preview Management window](#). This menu item is only shown if the Preview Management window is currently hidden.

#### View Control Lights Window

Selecting this option on the [Window menu](#) unhides the [Control Lights window](#). This menu item is only shown if the Control Lights window is currently hidden.

#### View Effect Samples Window

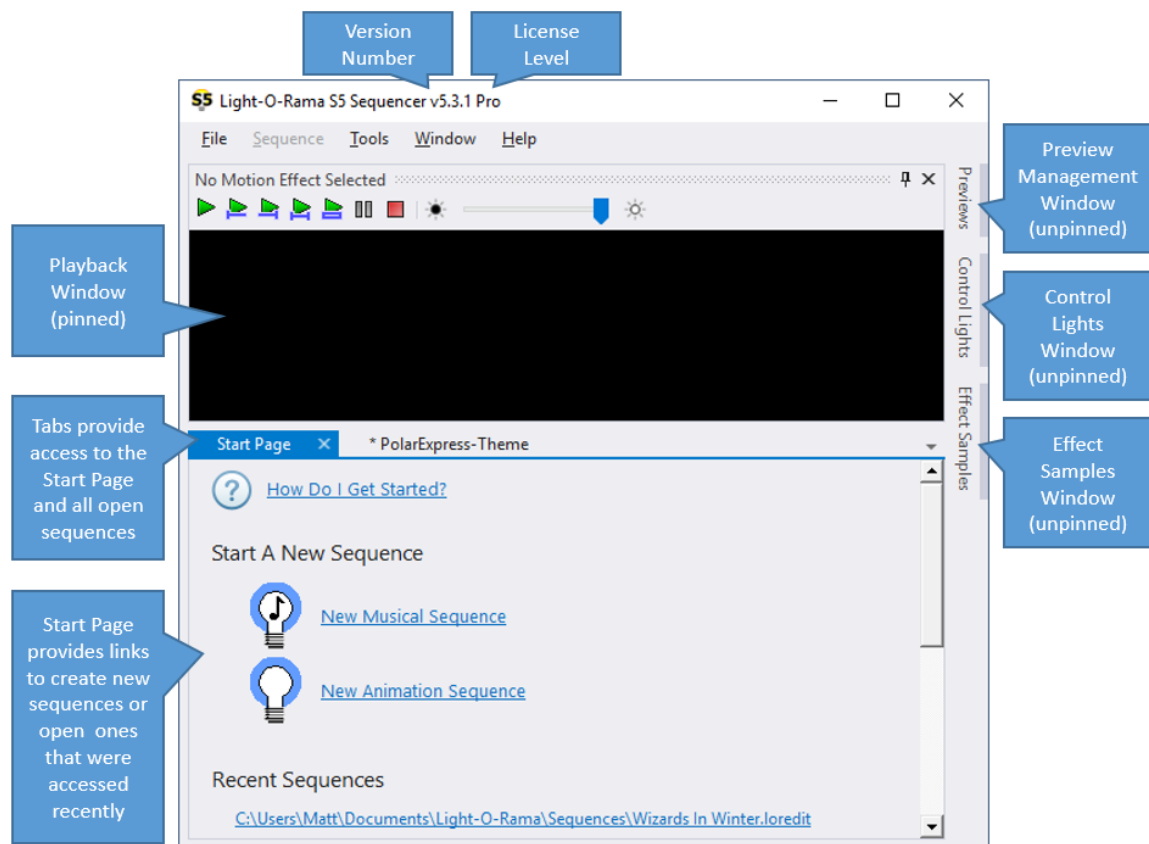
Selecting this option on the [Window menu](#) unhides the [Effect Samples window](#). This menu item is only shown if the Effect Samples window is currently hidden.

## Float Current Window

This option on the [Window menu](#) floats the current window so that it can be moved and sized independently of the main Sequencer window. If you have multiple display monitors, you can move a floating window to a separate monitor. Only the Playback, Preview, Motion Effects, and Control Lights windows can float. Sequence windows cannot float.

## Reset Window Layout

This option on the [Window menu](#) resets the position of all windows to their default locations, as shown below.

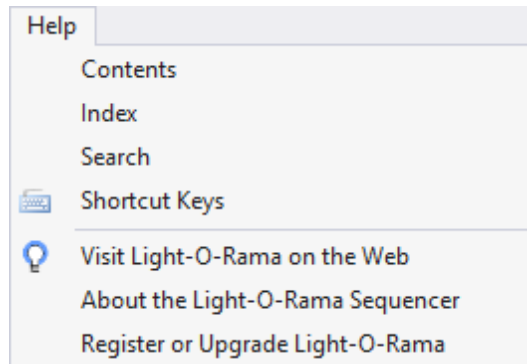


### 5.3.1.5 Help Menu

The Help menu of the [Light-O-Rama Sequencer](#) brings up help and other information about Light-O-Rama.

The following options are available on the Help menu:

- [Contents](#)
- [Index](#)
- [Search](#)
- [Shortcut Keys](#)
- [Visit Light-O-Rama on the Web](#)
- [About the Light-O-Rama Editor](#)
- [Register or Upgrade Light-O-Rama](#)



## Contents

This option on the [Help menu](#) opens up the main Sequencer topic in the Light-O-Rama help file.

It has a keyboard hotkey: F1

## Index

This option on the [Help menu](#) opens up the index of the Light-O-Rama help file.

## Search

This option on the [Help menu](#) opens up the search menu of the Light-O-Rama help file.

## Shortcut Keys

This option on the [Help menu](#) opens up the [Keyboard Shortcut Summary](#) in the Light-O-Rama help file.

## Visit Light-O-Rama on the Web

This option on the [Help menu](#) opens the [Light-O-Rama website](#) in your web browser.

## About the Light-O-Rama Editor

This option on the [Help menu](#) brings up the Sequencer's [About box](#), which displays some information about the program and your computer.

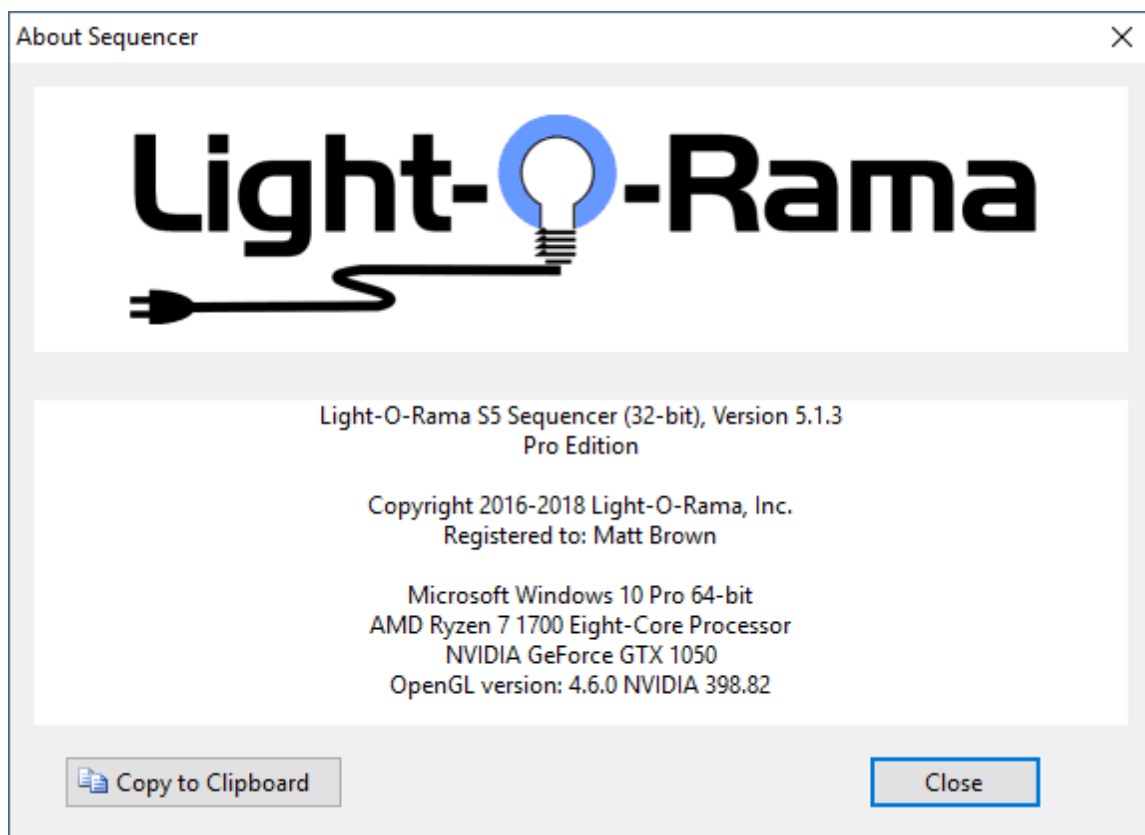
## Register or Upgrade Light-O-Rama

Use this item on the [Help menu](#) to [register your Light-O-Rama software](#), or to upgrade to a higher level license, unlocking various [features](#).

#### 5.3.1.5.1 About

Selecting "About" from the [Light-O-Rama Sequencer's Help menu](#) displays the version of the Sequencer that you are running, your Light-O-Rama license information, and information about your computer. When contacting Light-O-Rama for help with the Sequencer, being ready with the information displayed in the "About" window can assist in getting your problem resolved faster.

If you create a ticket with the Light-O-Rama Help Desk, you can use the "Copy to Clipboard" button to copy the information shown in the window so that you can paste it into your ticket. This will assist in getting your issue resolved faster.



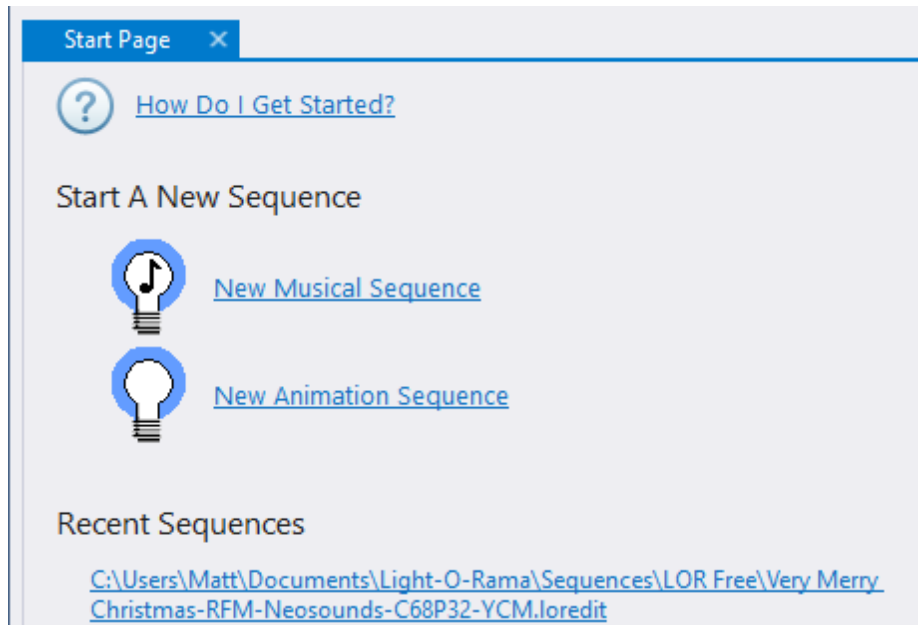
The S5 Sequencer's About Box

## 5.3.2 Start Page

The Start Page provides you with some useful links:

- If you are new to the Light-O-Rama software, click "How Do I Get Started?". It will open the help file where you can learn what a sequence is, and then start learning how to use the Sequencer.
- In the second section, you can quickly start a new [animation](#) or [musical](#) sequence.
- At the bottom of the page is a list of sequences that have been recently viewed. Click on a link to open the sequence. The recent sequences shown on the Start Page are the same ones listed on the [File > Recent Files](#) sub-menu.

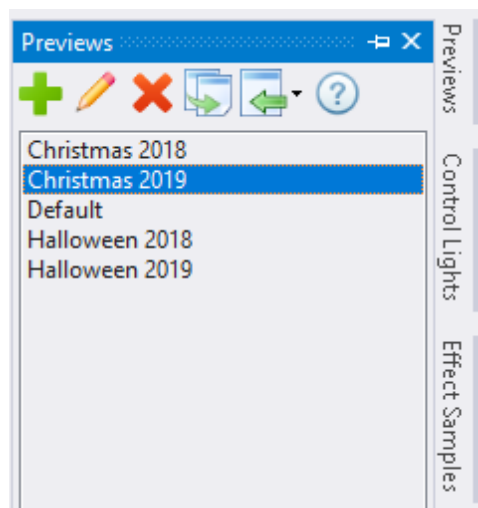
The Start Page can be [docked in any location, floated, or hidden](#).



### 5.3.3 Previews Window

A [preview](#) is a representation of your light display. It defines the lighting elements, how they are arranged, and what channels they use. From the "Previews" window you can create, modify, delete, and import/export previews. The "Previews" window is normally docked on the right side of the main [Light-O-Rama S5 Sequencer](#). To keep the window open, click the pin icon in the upper right corner of the window.

- [Add a New Preview](#)
- [Modify an Existing Preview](#)
- [Delete a Preview](#)
- [Copy a Preview](#)
- [Import or Export a Preview](#)
- [Right-Click on a Preview Name](#)



## Add a New Preview



Click the "+" icon to start a new [preview](#). This will open an empty [Preview Design](#) window ready for you to create a preview from scratch.

## Modify an Existing Preview



Click on a preview name and then click the pencil icon. This will open a [Preview Design](#) window with the selected preview loaded.



Alternatively, you can double-click on a preview name to edit it.



Alternatively, you can right-click on a preview name and select "Modify" from the pop-up menu.

## Delete a Preview



Click on a preview name and then click the red "X" button. You will be prompted to confirm that you want to proceed with the deletion. Click "Yes" to delete or click "No" to cancel. If after deleting it you find that you want to get it back, assuming you have a [sequence](#) associated with that preview you can just open that sequence and the preview will be imported from it.



Alternatively, you can right-click on a preview name and select "Delete" from the pop-up menu.

## Copy a Preview

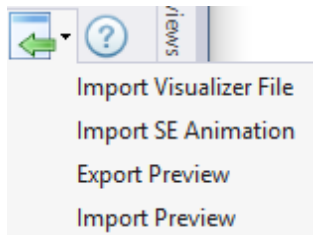


Click on a preview name and then click the "Copy" button. You will be prompted for the name of the new preview. If you keep a copy of a preview for each year of your display (recommended), then this is the command you should use to copy one year's preview to the next (e.g. 2018 to 2019).



Alternatively, you can right-click on a preview name and select "Copy" from the pop-up menu.

## Import or Export a Preview

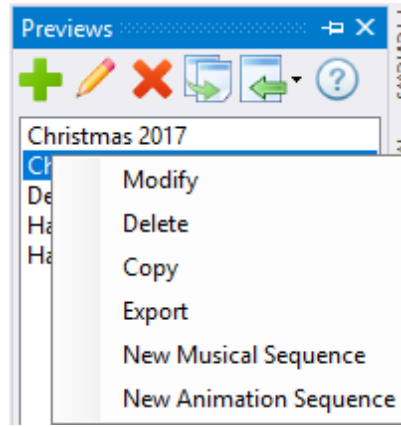


**The Import/Export menu**

Click the Import icon to open a menu that allows you to:

- [Import a Visualizer \(LEE\) file](#). You will be prompted to select an LEE file and it will then be imported into a new preview. During the import process, Visualizer fixtures will be converted to [props](#), and Visualizer props will be imported as preview groups.
- [Import a Sequence Editor Animation](#). You will be prompted to select the LMS or LAS sequence file that contains the animation.
- Export an S5 preview. You will be prompted for the file name. This creates a file with an LORPREV extension. You can also perform this action by right-clicking on a preview name and selecting "Export" from the pop-up menu.
- Import an S5 preview. You will be prompted to select a file with an LORPREV extension.

## Right-Click on a Preview Name



The right-click menu

Right-click on a preview name to open a menu that allows you to:

- Modify the selected preview in a [Preview Design](#) window.
- Delete the selected preview. You will be prompted to confirm that you want to proceed with the deletion.
- Copy the selected preview. You will be prompted for the name of the new preview.
- Export the selected preview. You will be prompted for the file name. This creates a file with an LORPREV extension.
- Create a new [musical sequence](#) using the selected preview.
- Create a new [animation sequence](#) using the selected preview.

### 5.3.4 Preview Design

Creating a preview is the first step in using the [Light-O-Rama S5 Sequencer](#). No [sequencing](#) can be done without a preview. While it is possible to create a preview outside of the Preview Design window (via [import](#), or using the [Quick Preview feature](#) when creating a new sequence), any editing of a preview must be done in Preview Design.

A [preview](#) defines the lighting elements in your display and how they are arranged. It allows your [sequences](#) to be simulated during playback. A preview can be a quick rough sketch, or a detailed, highly realistic depiction of your display. It is up to you to decide how much effort you want to put in to it. In any case, the preview must accurately define every [channel](#) that will be controlled by your sequences.

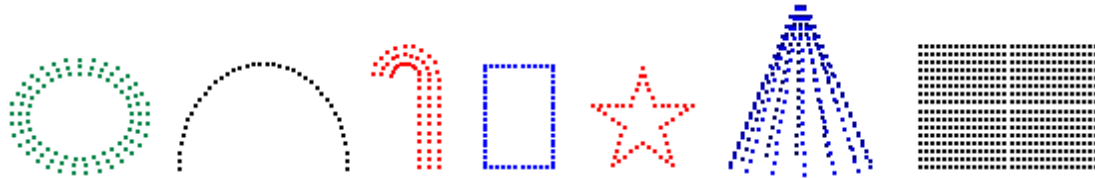
You can access the Preview Design window from the [Previews Window](#) or from the Preview Menu on the [sequence toolbar](#).

## Props and Groups

The display elements in a preview are referred to as 'props'. You must add a prop to the preview for every display element that you want to control. A prop can be as simple as a single channel string of traditional lights, or as complex as a big pixel tree or matrix. When you create a prop, you define the type and color of lights that it uses, its shape, and the channels assigned to it. If one of the built-in



shapes doesn't meet your needs, then you can define a custom shape.



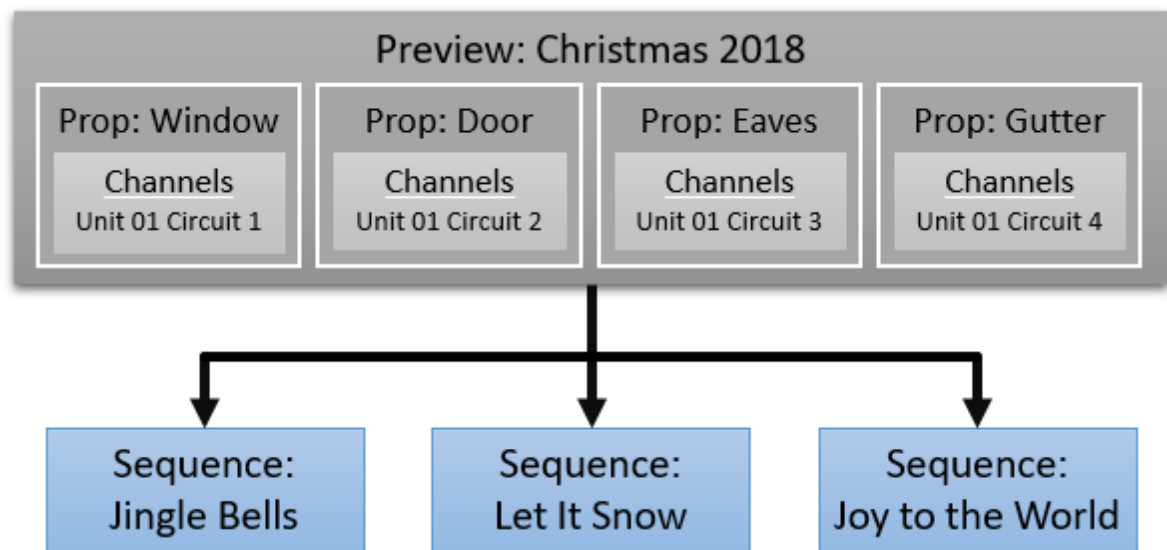
A sample of some of the shapes that come built-in to S5

Props can be grouped together.

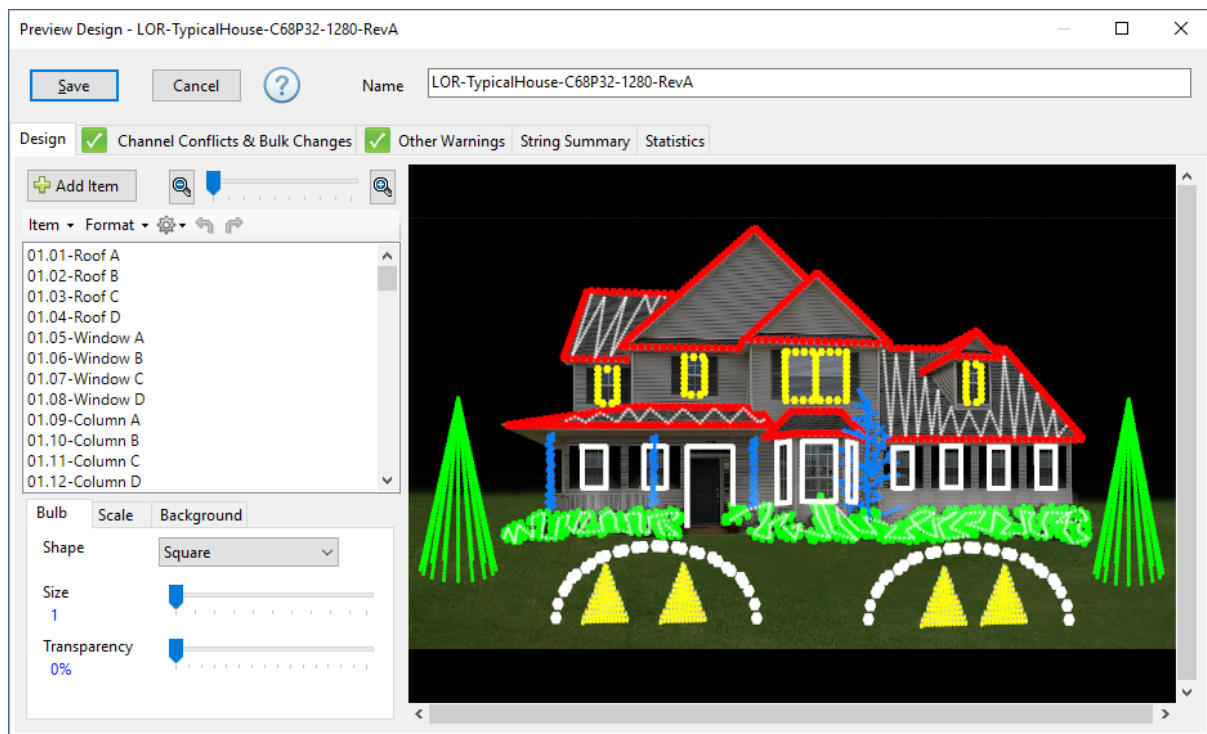
- You might do this so that the props appear together in the sequence grid.
- You might also create a group so that you can apply an effect to the group instead of individual props. This enables things like sweeping a color across your entire display.

## One Preview > Multiple Sequences

One preview can be associated with multiple sequences. Update the preview once, and the next time you open any sequence associated with that preview, the update will automatically be applied.



## Using Preview Design



The Preview Design window showing a sample preview

At the top of the Preview Design window are:

- The Save and Cancel buttons
- The Preview Name field. The name must be unique -- having 2 previews with the same name is not allowed. If a preview is already associated with one or more sequences and you change the preview name, the association with sequences will be preserved. See the topic on [Naming Strategies](#) for a deeper discussion of how to name previews.

Below this there are 5 tabs:

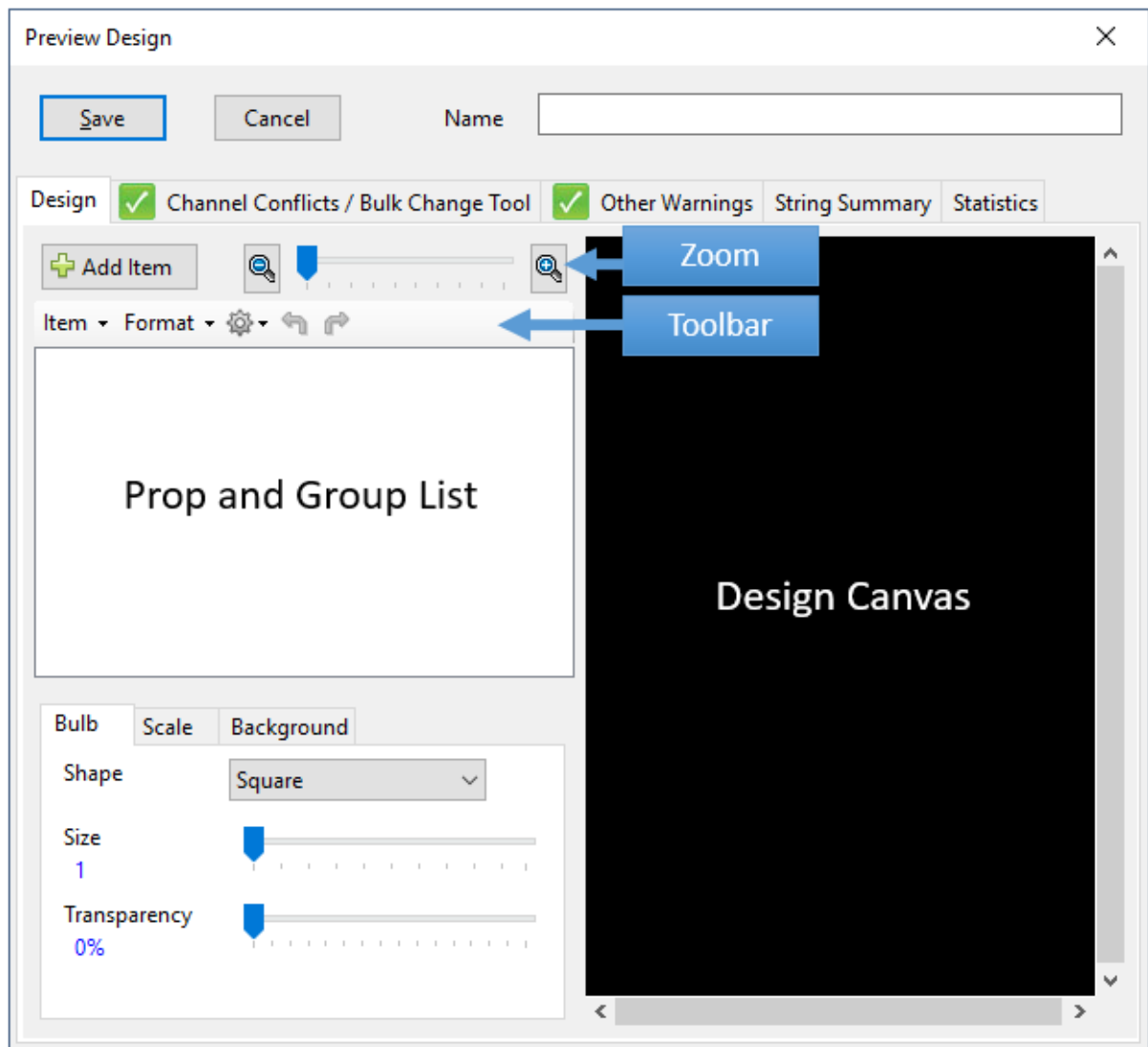
- [Design](#) - this is where you will do most of your work, creating props and arranging them so that they match your display.
- [Channel Conflicts & Bulk Changes](#) - this tab will show a green check mark if everything is OK, or a warning sign if there are problems with the channels you have assigned to your props. The tab allows you to quickly identify the issues and resolve them. It can also be used to make changes that affect multiple props, such as when you change a controller's unit id (e.g. 01 to 11) or network (e.g. Regular to Aux A).
- [Other Warnings](#) - this tab will show a green check mark if everything is OK, or a warning sign if there are problems with prop definitions (e.g. a sub-prop is not assigned the same channels as its master prop).
- [String Summary](#) - this tab displays a table of all strings defined by every prop in the preview. If you want a print-out of your props and channel assignments to carry with you as you wire up your display, you can use this table, copy it to the clipboard, and paste it into any spreadsheet program. In the spreadsheet you can sort and filter the data, add and remove columns, and print it out.
- [Statistics](#) - this tab displays statistics about the preview: number of props, groups, pixels, channels, etc.

#### 5.3.4.1 Design Tab

The Design tab of the [Preview Design](#) window is where you create props (display elements) and arrange them so that they match your display.

This is the first of 5 tabs on the Preview Design window. The others are:

- [Channel Conflicts & Bulk Changes](#)
- [Other Warnings](#)
- [String Summary](#)
- [Statistics](#)



The Design Tab

The Design Tab is divided into 2 main sections:

The left side contains controls that allow you to create and modify props and groups:

- [Add Item button](#)
- [Zoom control](#)
- [Toolbar](#)
- [Prop and Group List](#)
- [Bulb tab](#)
- [Scale tab](#)
- [Background tab](#)

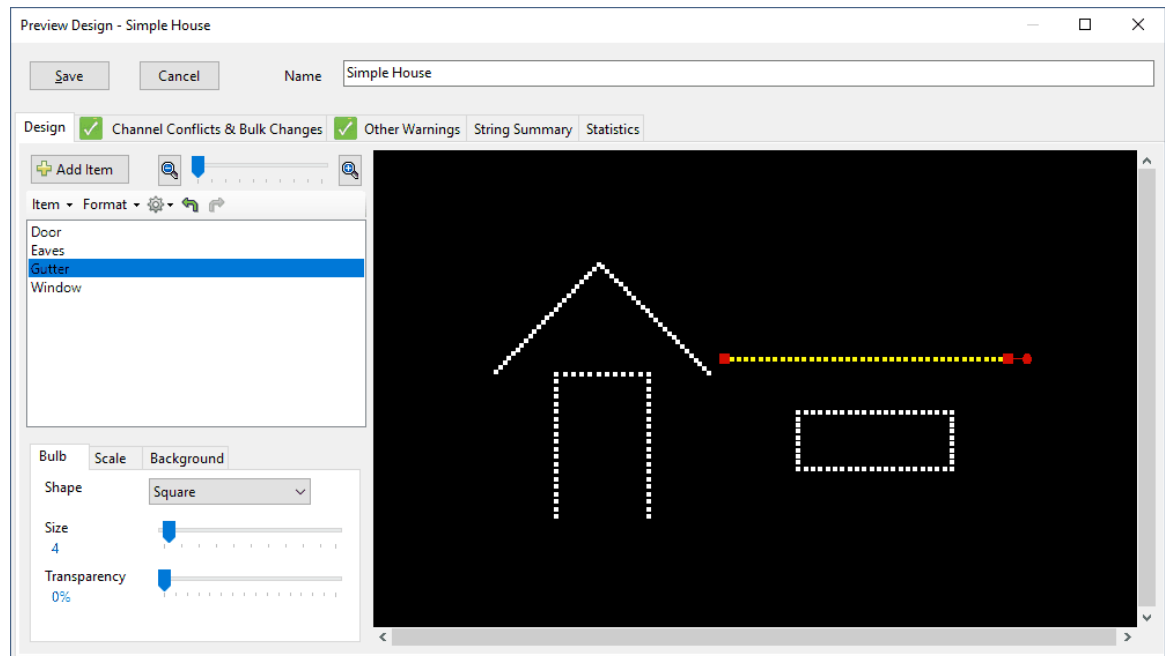
The right side is the visual [design canvas](#) - a representation of your display that will be used to simulate your lights during sequence playback.

## Selecting Items

Items in the [Prop and Group List](#) can be selected by clicking on them. The prop or group that is selected will then be displayed in yellow on the [design canvas](#) to the right. You can also do the reverse: you can click on a prop on the design canvas and its name will be highlighted in the [Prop and Group List](#).



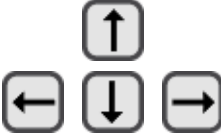







You can also select more than one item at a time. This is often useful for moving several props at the same time or for creating groups. In the [Prop and Group List](#), Ctrl-click on an item to select it in addition to items already selected. Use Shift-click to select a range of items in the list. When selecting items using the mouse on the [design canvas](#), hold the Shift button down on the keyboard while clicking the mouse and that prop will be added to the ones already selected.

In the picture below, the “Gutter” prop has been selected – it is highlighted in the [Prop and Group List](#) and displayed in yellow on the design canvas.



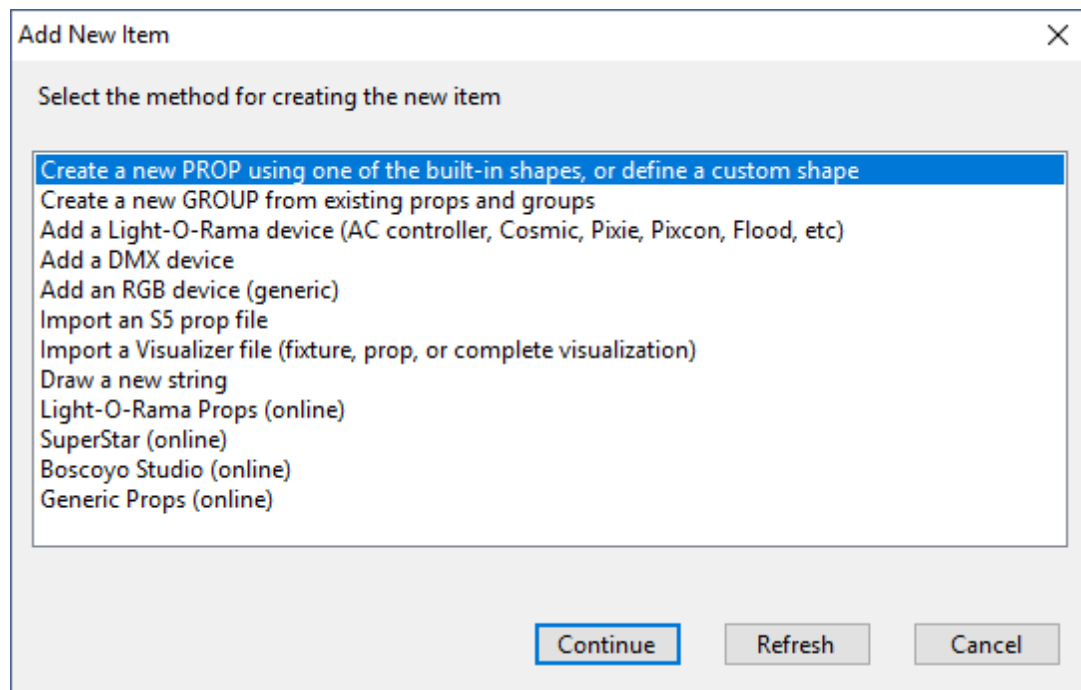
## Keyboard Shortcuts

The following keyboard shortcuts can be used on the design tab:

Shortcut	Action
	deletes the selected prop or group
	selects all props and groups
	moves the selected props by a small amount
	Makes the selected items larger. Hold the keys down longer to engage the keyboard auto-repeat if needed.
	Makes the selected items smaller. Hold the keys down longer to engage the keyboard auto-repeat if needed.
	rotates the selected props counterclockwise
	rotates the selected props clockwise
	Control-zero resets prop rotation to its default value ( <a href="#">fixed prop shapes</a> only)
	<a href="#">undo</a> last operation
	<a href="#">redo</a> last operation

## Add Item

Click the Add Item button to add Props and Groups to your preview. After saving the new prop or group, it will be added to the [Prop and Group List](#) and displayed on the [design canvas](#) on the right.



### ***Create a new prop using one of the built-in shapes, or define a custom shape***

This option opens the [Prop Definition window](#), allowing you to create a prop from scratch. The wide variety of built-in shapes makes it easy to create many common display elements.



Some of the shapes that can be selected in the Prop Definition window

### ***Create a new group from existing props and groups***

This option opens the [Group Definition window](#), allowing to create a new group. Any props and groups that are currently selected on the Design tab will be preselected on the Group Definition window as members of new group. Of course you can change the selections once you are in the Group Definition window.

### ***Add a Light-O-Rama device (AC controller, Cosmic, Pixie, Pixcon, Flood, etc)***

This option will create props according to the Light-O-Rama controller and unit id you specify. It is a good way to quickly create props that have accurate channel assignments. Flood lights created with this option will look realistic, but you may need to change the shape for props created for other controllers if you are going for realism in your preview.

### ***Add a DMX device***

This option can be used to create a generic DMX device that uses regular (single) or RGB [channels](#).

It is a quick way to create props that have accurate channel assignments; but if you are going for realism, use "Create a new prop" or one of the "online" options instead.

### ***Add an RGB device (generic)***

This option can be used to create RGB floods and "dumb RGB" props attached to Light-O-Rama controllers. Each prop will be created as single RGB bulb with a star shape. It is a good way to quickly create RGB props that have accurate channel assignments; but if you are going for realism, use "Create a new prop" or one of the "online" options instead.

### ***Import an S5 prop file***

This option loads props and groups into your preview from a file that had previously been [exported](#). These files have an ".lpeprop" extension. You should review the channel assignments on any imported props to make sure they match your controllers – this can be done by double-clicking on the name of an imported prop to open the [Prop Definition window](#). By default, an imported prop will be assigned the name that it had when it was exported. However, if that name is already being used in the preview, then a numeric suffix will be added to the name in order to make it unique.

### ***Import a Visualizer file (fixture, prop, or complete visualization)***

This option imports a file created with the S4 Visualizer. You will be prompted to select a Visualizer fixture file (.LFF extension), prop file (.LPF extension), or complete visualization file (.LEE extension). All of the fixtures and props defined in the selected file will then be loaded into the preview. Visualizer fixtures will become S5 props. Visualizer props will become S5 groups. You should review the channel assignments on any imported props to make sure they match your controllers.

### ***Draw a new string***

When you select this option, the cursor will change to the [edit cursor](#) when moved over the design canvas. Click on the [design canvas](#) to start drawing your string. A single click of the left mouse button will insert a vertex into the line and allow you to continue drawing the next segment. To stop drawing, double-click the left mouse button or use the ESC key. When you stop drawing, the [Prop Definition window](#) will open so you can adjust the number of bulbs in the string and also assign a channel.

This option is also available from the Design Canvas's [right-click menu](#).

### ***Light-O-Rama props (online)***

This option will open the [Online Prop Import](#) screen, allowing you to import props for items sold in the Light-O-Rama store, such as pixel trees and singing faces. It is recommended that you have internet access when using this option so that you see the latest available content (content will likely change over time). You should review the channel assignments on any imported props to make sure they match your controllers.

### ***SuperStar (online)***

This option will open the [Online Prop Import](#) screen, allowing you to import props that match sequences sold by [SuperStar Lights](#). It is recommended that you have internet access when using this option so that you see the latest available content (content will likely change over time). You

should review the channel assignments on any imported props to make sure they match your controllers.

### ***Boscoyo Studio (online)***

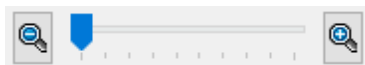
This option will open the [Online Prop Import](#) screen, allowing you to import props for items sold by [Boscoyo Studio](#). You will need internet access when using this option so that you can retrieve the content. You should review the channel assignments on any imported props to make sure they match your controllers.

Prop definitions imported from this link were created by [Boscoyo Studio](#). Light-O-Rama provides a connection to the data in order to make our software easier to use, but is not responsible for the content.

### ***Generic Props (online)***

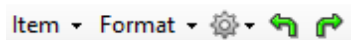
This option will open the [Online Prop Import](#) screen, allowing you to import props for some commonly used lights. It is recommended that you have internet access when using this option so that you see the latest available content (content will likely change over time). You should review the channel assignments on any imported props to make sure they match your controllers.

## **Zoom**




You can zoom in on your props to make fine adjustments. The buttons on the left and right will zoom in or out one step at a time. Or you can use the slider to quickly move to the desired zoom level. If you are zoomed in, clicking on a prop in the [Prop and Group List](#) will cause the canvas to scroll so the selected prop becomes visible.

## **Toolbar**

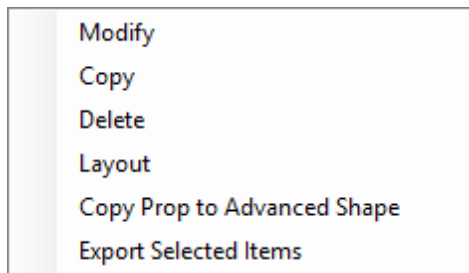


The toolbar consists of:

- [Item menu](#)
- [Format menu](#)
- [Options menu](#):  icon
- [Undo and Redo](#) buttons

### ***Item Menu***

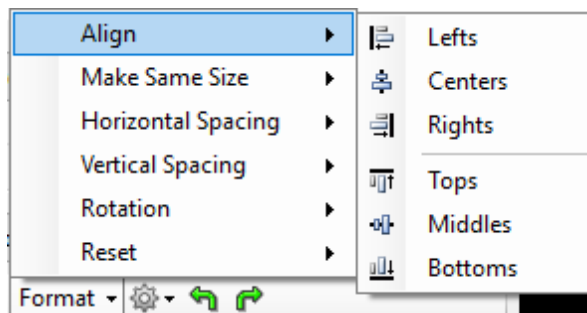




Most of the choices on the Item menu are also available when you right-click on the [Prop and Group List](#) and also when you right-click on the [design canvas](#).

- **Modify** - you can double-click on an item's name, or you can single-click on it and select "Modify" from the Item Menu. Either method will open the [Prop Definition](#) window if a prop is selected, or the [Group Definition](#) window if a group is selected.
- **Copy** - this command opens the [Copy Prop Dialog](#), which is very helpful in creating a collection of props that all look the same, such as a series of arches or mini-trees.
- **Delete** - use this command to delete the selected props and groups. You will be asked to confirm before the delete actually takes place.
- **Layout** - use this command to view a printable layout of the selected prop or group with channel information for every string or pixel. This can be quite large depending on the number of channels/pixels involved.
- **Copy prop to advanced shape** - this command is used to copy a pixel-based prop to a new prop with the same channel assignments and pixel locations but with the [Advanced shape](#) so it can be further customized.
- **Export selected items** - this command exports the selected props and groups to a file. You might do this so they can be imported into another preview or so they can be shared with other users. You will be prompted for a location to save the export file. Export files have the extension ".lpeprop". To import props, see the [Add Item](#) button.

## Format Menu



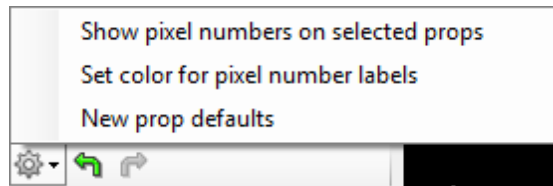
Format menu with Align submenu open

All items on the Format menu are also available on the Design Canvas's [right-click menu](#).

- **Align** - if multiple props are selected, the items on this sub-menu allow you to align those props in various ways.
- **Make same size** - if multiple props are selected, the items on this sub-menu allow you to resize the selected items such that they all have the same width, height, or both.
- **Horizontal spacing** - if multiple props are selected, the items on this sub-menu allow you to make the horizontal spacing between them equal, or to remove any space between them (so they abut one another).

- Vertical spacing - if multiple props are selected, the items on this sub-menu allow you to make the vertical spacing between them equal, or to remove any space between them (so they abut one another).
- Rotation - after [selecting](#) 1 or more props, the actions listed under the "Rotation" menu allow you to rotate the selected items back to their default orientation (0 degrees), to 90 degrees right, or 90 degrees left. Selected props and/or groups can be rotated to any angle by dragging the rotation handle that is displayed when they are selected or using the [keyboard shortcuts](#) Ctrl-LeftArrow and Ctrl-RightArrow. Ctrl-0 (control key + zero key) is a shortcut for resetting rotation back to the default orientation (0 degrees). Note that [freeform prop shapes](#) do not have a default orientation, so the Rotation > 0 command has no effect on them.
- Reset - after [selecting](#) 1 or more props, the actions listed under the "Reset" sub-menu allow you to reset the selected items back to their default position (centered), or default size (half of the canvas size), or both. Resetting the position is particularly useful because it is possible to drag items off the edge of the design canvas. When this happens, select the prop from the [Prop and Group List](#), then choose Format > Reset > Position from the menu to make it visible again.

### Options Menu

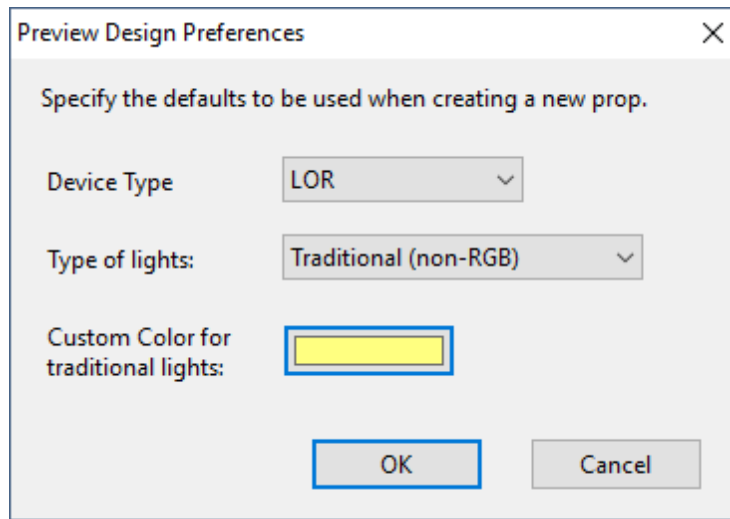


- Show pixel numbers on selected props - this option displays a number next to each pixel in the selected pixel-based prop. The number indicates the order in which the pixels should be wired; however, it does not indicate which string the pixel is on. You will need to [zoom in](#) to read the numbers. A check mark will be displayed to the left of the menu item when enabled. This option is also available on the Design Canvas's [right-click menu](#).



Numbered Pixels

- Set color for pixel number labels - this option allows you to change the color used to display pixel numbers when "Show pixel numbers" is enabled.
- New prop defaults - this option allows you to set some defaults when the [Prop Definition](#) screen is used to create new props.




Preview Design Preferences

## Undo/Redo

Prop adds, deletes, movement, scaling, and rotation can be undone and redone. Undo/redo does not apply to modifying [props](#) or [groups](#).

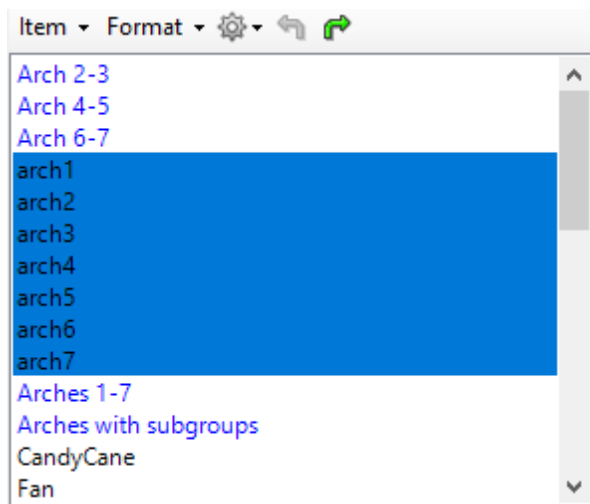
 clicking this button undoes the last operation, and has the keyboard shortcut Ctrl-Z.

 clicking this button reapplies an operation that was previously undone, and has the keyboard shortcut Ctrl-Y.

## Prop and Group List

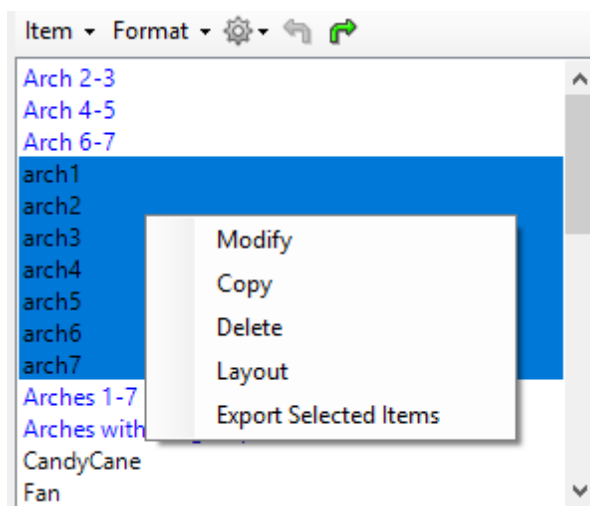
The Prop and Group List is displayed immediately below the toolbar. Every prop and group in your preview will be listed here in alphabetical order. To help distinguish groups from props, groups will be listed with blue text. In the picture below, "Arch 2-3", "Arch 4-5", "Arch 6-7", "Arch 1-7" and "Arches with subgroups" are groups, and the others are props. Props "arch1" through "arch7" are selected.

To select an item in the list, just click on it with the left mouse button. You can use shift-click to extend the selection, and ctrl-click to select additional items. More information is available in the [Selecting Items](#) section.



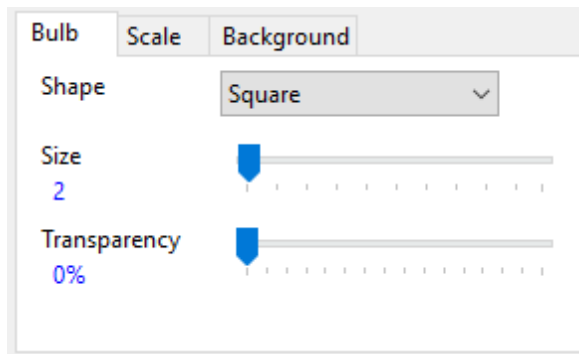
The Prop and Group List

After selecting 1 or more items in the list, you can use the [toolbar](#) to select actions to perform, or you can right-click on them to view a menu that has many of the same options as the [Item menu](#).



The Prop and Group List with right-click menu displayed

## Bulb Tab



After [selecting](#) 1 or more props, you can change the bulb settings for the selected props. The default bulb shape is square, which uses the least amount of computer resources; however there are a variety of shapes available.

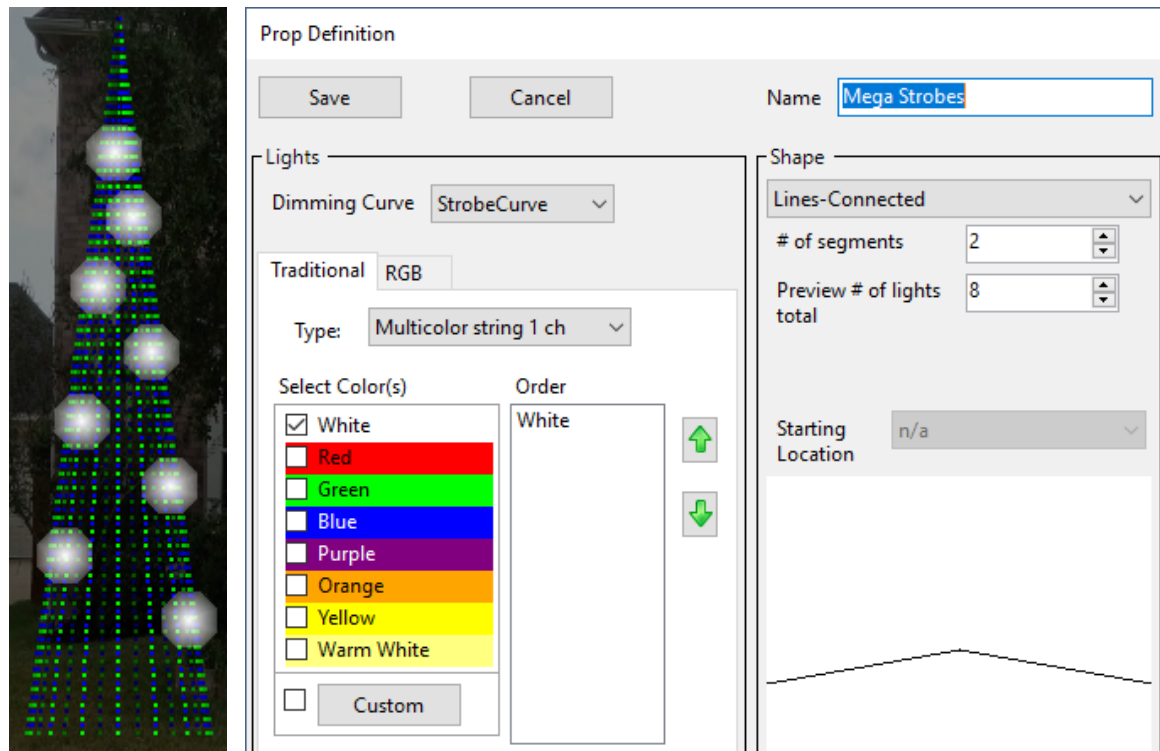
There are some specialized bulb shapes:

- Strobe 1 - a strobe that flashes about once per second
- Strobe 3 - a strobe that flashes about 3 times per second
- Snowfall Tube - simulates single color snowfall tubes (also known as drip tubes and meteor tubes).
- Flood - use for flood lights, single color or RGB.

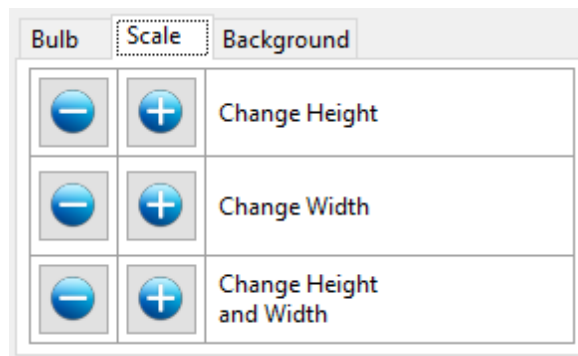
Making the bulb size larger can make the prop easier to see on the computer screen. For strobes and floods you will almost always want to make the bulb size larger than the default in order to make them look realistic.

For most props, you will want to leave the bulb transparency setting at 0%. For floods, you may want something more transparent (> 0%). Adjust the transparency slider until you achieve the desired appearance.

An example of strobes on a megatree along with the associated [prop definition](#):



## Scale Tab







After [selecting](#) one or more props or groups, you can use the buttons on this tab to increase or decrease the size of the selected items. This can be useful for fine-tuning the size of an item. It also the best way to resize [freeform prop shapes](#), as they do not display resize handles on the design canvas.

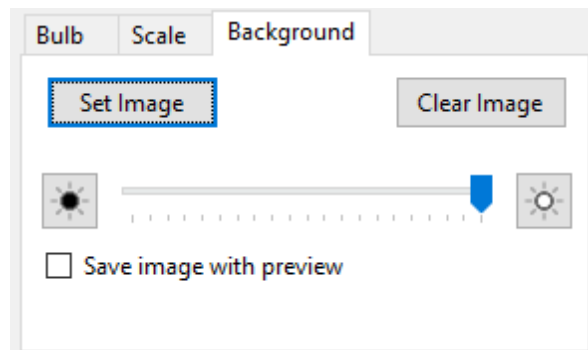
Click a button once to perform a small change, or hold the button down to continuously scale the selected items.

The "Change height and width" buttons have the following keyboard shortcuts:

Shortcut	Action
----------	--------

 	Makes the selected items larger. Hold the keys down longer to engage the keyboard auto-repeat if needed.
 	Makes the selected items smaller. Hold the keys down longer to engage the keyboard auto-repeat if needed.

## Background Tab



Using a [background image](#) (such as a picture of your house) can be a great help in creating a realistic preview. Click the “Set Image” button to choose the image file. Clicking the “Clear Image” button will remove the image from the preview. Move the Brightness slider to the left to dim the background image, simulating the view of your display during nighttime. Image brightness can also be changed from [other areas of the program](#).

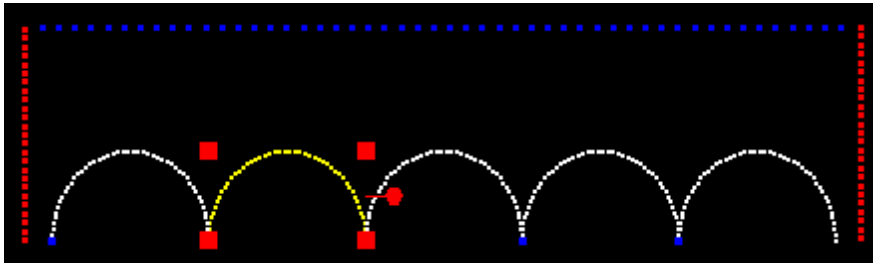
**Note that there are other [settings](#) that control whether the background image is shown at all and whether it maintains its aspect ratio.**

### ***Save Image with Preview***

If this box is unchecked, then the image file will remain separate from your preview, and the sequences that use the preview.

If this box is checked, then the image file is stored with the preview. If you [export](#) such a preview and send the export file (LORPREV extension) to someone else, the background image will be included. The background image will also be included if you send a sequence to another user and the sequence uses such a preview.

## Design Canvas



In the picture above, there is 1 blue string, 2 red strings, and 5 RGB arches. The second arch is selected.

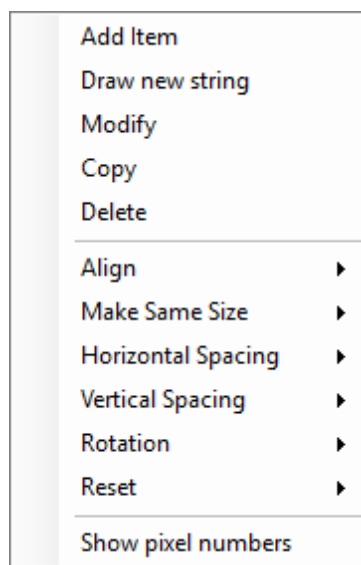
In the preview design window, traditional strings (incandescents, LEDs, strobes) are displayed with the color of the string (e.g. a string of red LEDs will show as red). RGB pixels and dumb RGB strings are displayed in white. Any string that has been selected, traditional or RGB, is shown in yellow.

The selected item is always shown in yellow and has 4 red scaling “handles” at the corners (lines just have 2 handles) and a rotation handle to the right. You can [select](#) multiple props using Shift-click on the design canvas, or Ctrl-click or Shift-click in the [Prop and Group List](#). The selected prop (s) can be dragged around the preview window using the mouse. They can be resized by dragging any one of the 4 red handles in the corners, or by using the Ctrl-UpArrow and Ctrl-DownArrow keyboard shortcuts. You can rotate them by dragging the handle on the right side, by using the Format > Rotation menu, or by using the Ctrl-LeftArrow and Ctrl-RightArrow keyboard shortcuts. If you have multiple props selected, you can align them in many ways using the [Format menu](#).

You can double-click on a prop to open its [Prop Definition](#).

Any movement, scaling, or rotation action can be undone by clicking the [undo button](#) or using the Ctrl-Z keyboard shortcut.

### ***Right-Click Menu***

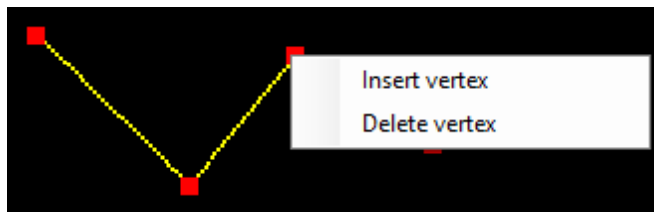


After right-clicking on the design canvas you can:



- Add an item - this has the same effect as clicking the [Add Item button](#).
- Draw a new string - this allows you to interactively [draw a new light string](#) directly on the design canvas.
- [Modify](#) the selected prop
- [Copy](#) the selected prop
- [Delete](#) the selected props
- Perform any of the operations available on the [Format menu](#)
- Enable or disable the [display of pixel numbers](#) on pixel-based props when they are selected

### ***Right-Click on Lines-Connected Vertex***



With these menu options, you can add and remove line segments without opening the [Prop Definition](#) window.

#### **5.3.4.2 Channel Conflicts & Bulk Changes Tab**

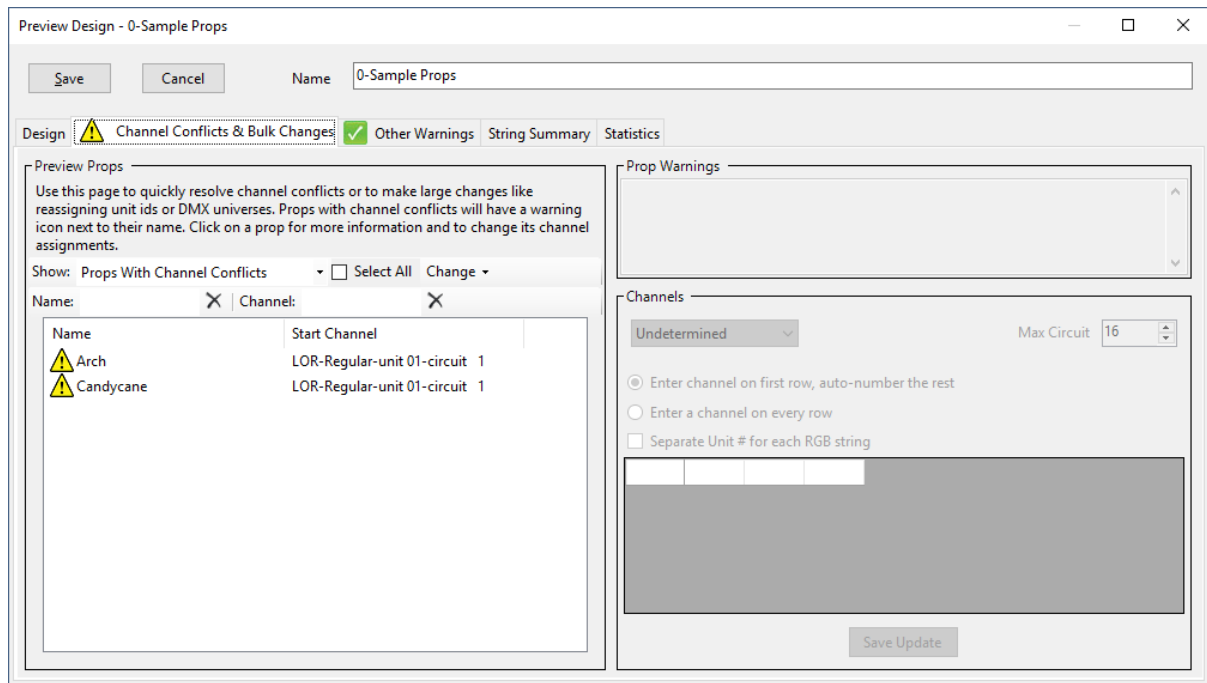
The Channel Conflicts & Bulk Changes tab of the [Preview Design](#) window has 2 functions:

1. It can be used to quickly identify and resolve props with [conflicting channel assignments](#)
2. It can be used change the channel assignments for multiple props at once (i.e. [bulk change](#)); for example, moving multiple props from the Aux A network to the Aux B network, or from one DMX universe to another.

The tab will show a green check mark if everything is OK, and a warning sign if there are channels conflicts. A [filtered list](#) of props is displayed down the left side. Clicking on a prop will list its channel assignments in the "Channels" area, where they can be changed. When clicking on a prop with a channel conflict, the list of conflicts will be shown in the "Prop Warnings" area.

This is the second of 5 tabs on the Preview Design window. The others are:

- [Design](#)
- [Other Warnings](#)
- [String Summary](#)
- [Statistics](#)



The Channel Conflicts &amp; Bulk Changes tab

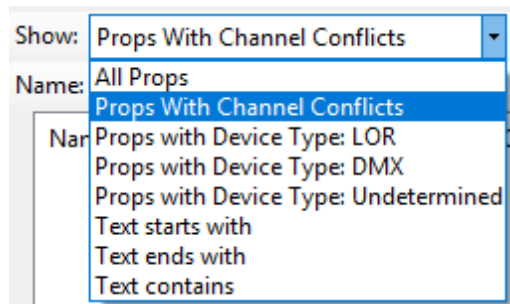
## Sorting The List

The list of props can be sorted by Name or Start Channel by clicking the column heading. Clicking the column heading a second time will reverse the direction of the sort.

## Filtering The List

There are 3 filters that can be applied to the list of props. By default, the list is filtered to show only channel conflicts.

### The "Show" Filter



From this drop-down box you can choose to display:

- All props in the preview
- All props with channel conflicts

- All props with device type "LOR" (as shown in the channel section of the [Prop Definition](#) window)
- All props with device type "DMX"
- All props with device type "Undetermined"
- Text starts with -- when using the Prop Name or Channel filters, compare the entered text with the start of the name or channel
- Text ends with -- when using the Prop Name or Channel filters, compare the entered text with the end of the name or channel
- Text contains -- when using the Prop Name or Channel filters, select the prop if the entered text appears anywhere within the name or channel. This is also the text comparison method used when any of the first 5 drop-down options is selected.

### Prop Name Filter

Type some text into the "Name" box to filter the list by prop name. In the example below, only props with the word "star" in their name are shown. If the "Show" filter is set to "Text starts with" or "Text ends with", then only that part of the prop name will be matched; otherwise any prop name that contains the text that was entered will be matched.

Show: All Props ☐ Select All Change ▾

Name: star ✕ | Channel:  ✕

Name	Start Channel
MEGA STAR	DMX-131-channel 79
MINI STAR 1	DMX-131-channel 93
MINI STAR 2	DMX-131-channel 94
MINI STAR 3	DMX-131-channel 95
MINI STAR 4	DMX-131-channel 96

### Channel Filter

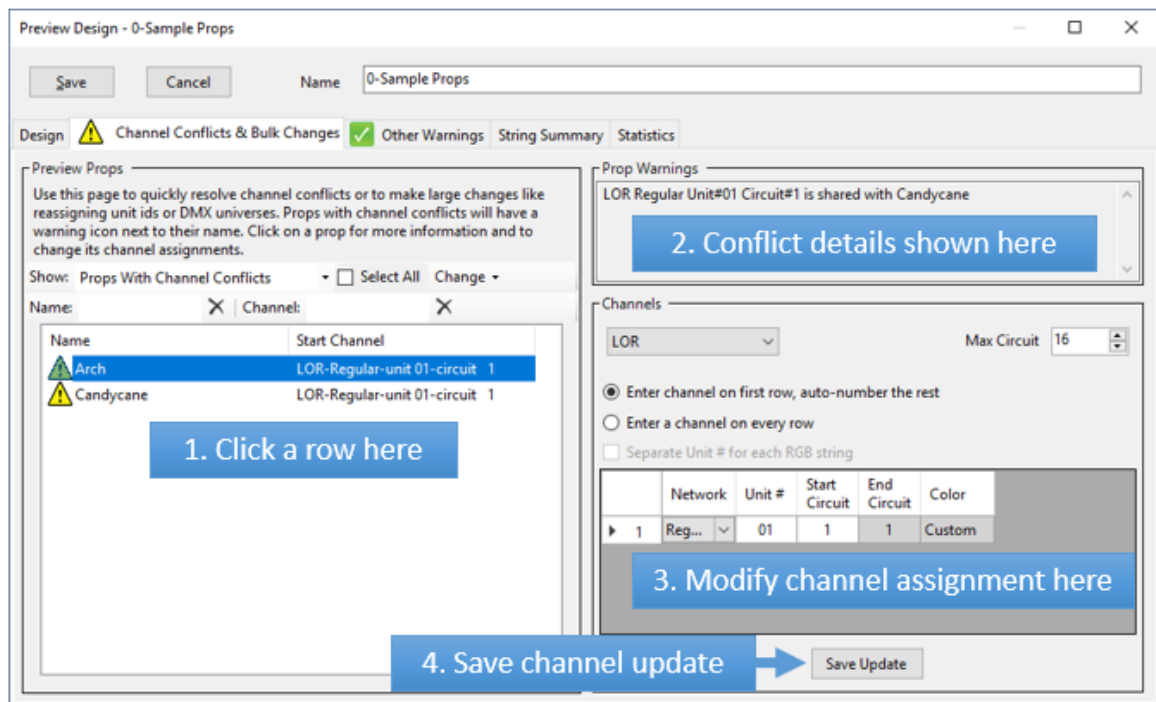
Type some text into the "Channel" box to filter the list by start channel. In the example below, only LOR props with the word "aux b" in their channel name are shown. If the "Show" filter is set to "Text starts with" or "Text ends with", then only that part of the channel name will be matched; otherwise any channel name that contains the text that was entered will be matched.

Show: Props with Device Type: LOR ☐ Select All Change ▾


Name:  ✕ | Channel: aux b ✕

Name	Start Channel
ribbons 1-8	LOR-Aux B-unit 01-circuit 1
ribbons 9-16	LOR-Aux B-unit 09-circuit 1

## Resolving Channel Conflicts



Steps for resolving a channel conflict

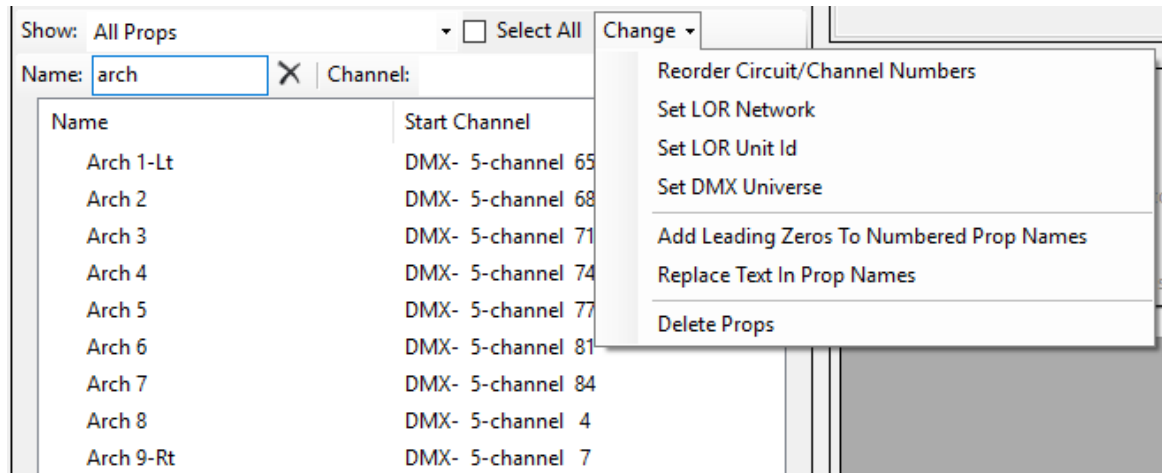
1. Click on a row with a  warning sign.
2. Note that conflict details shown in the "Prop Warnings" area. Multiple conflicts may be listed here if multiple props all have the same channel assigned, or the prop uses multiple channels and those channels conflict with other props.
3. Determine the new channel that should be assigned to this prop and make the changes in the "Channels" area. You might find a quick review of the information shown on the [String Summary tab](#) helpful in determining the correct channel. Alternatively, you could go back to the [Design tab](#), double click on the prop name, and change the channel information in the [Prop Definition](#) screen (but that would take longer).
4. After changing the assigned channel, click the "Save Update" button to commit the change. If you go back to step 1 without performing this step, your changes will be lost.

## Making Bulk Changes

"Bulk changes" means that you want to modify the channels assignments of many props at once. To do this, you first need to select all of the props that you are going to change. You could do this by clicking on the first prop, then Ctrl-Clicking on all of the other props that you want to change. However, it is often faster to use the [Filter Tools](#) to narrow the list of props to just those that need to change, then clicking the "Select All" check box to select them all.

After selecting the desired props, then you can select an action from the "Change" menu (these actions can also be accessed by right-clicking on the selected props). From the Change menu you can:

- [Reorder Circuit/Channel Numbers](#)
- [Set the LOR Network](#)
- [Set the LOR Unit ID](#)
- [Set the DMX Universe](#)
- [Add Leading Zeros To Numbered Prop Names](#)
- [Replace Text In Prop Names](#)
- [Delete Props](#)



The Change menu

### ***Reorder Circuit/Channel Numbers***

Selecting "Reorder Circuit/Channel Numbers" from the Change menu (or right-clicking on the prop list and selecting "Reorder Circuit/Channel Numbers") will open a dialog that will allow you to consecutively renumber the LOR circuits (or DMX channels) on the selected props. At the same time, you can change the selected props from LOR to DMX or vice versa.

When you renumber, the number of channels used by each prop is taken into account. For example, if you are renumbering 3 props and props 1 and 3 each require 1 channel, but the second prop requires 6 channels; then if you renumber starting at channel 9, the new channel numbers will be:

- First prop - channel 9
- Second prop - channels 10-15
- Third prop - channel 16

**Reorder Circuit/Channel Numbers** ✕

Use this function to consecutively renumber strings across multiple props. At the same time, you can change props from LOR to DMX or vice versa.

☒ LOR
 ☐ DMX
 ☐ Undetermined

Network: Regular

Start Unit Id: 1

Start Circuit: 1

Circuits per Unit Id: 512

☐ Separate unit id for each pixel string

Props that will be renumbered. Renumbering will be done from top to bottom. You can drag props up or down to change the order.

Name	Start Channel
Arch 1-Lt	LOR-Regular-unit 01-circuit 1
Arch 2	LOR-Regular-unit 01-circuit 10
Arch 3	LOR-Regular-unit 01-circuit 11
Arch 4	LOR-Regular-unit 01-circuit 12
Arch 5	LOR-Regular-unit 01-circuit 13
Arch 6	LOR-Regular-unit 01-circuit 14
Arch 7	LOR-Regular-unit 01-circuit 7
Arch 8	LOR-Regular-unit 01-circuit 8
Arch 9-Rt	LOR-Regular-unit 01-circuit 9

In this example, the wiring order of the arches is about to be made consecutive

**Reorder Circuit/Channel Numbers** [X]

Use this function to consecutively renumber strings across multiple props. At the same time, you can change props from LOR to DMX or vice versa.

**LOR** DMX Undetermined

Network: Regular

Start Unit Id: 1

Start Circuit: 1

Circuits per Unit Id: 512

☐ Separate unit id for each pixel string

Props that will be renumbered. Renumbering will be done from top to bottom. You can drag props up or down to change the order.

Renumber Channels Reverse Order

Name	Start Channel
Arch 1-Lt	LOR-Regular-unit 01-circuit 1
Arch 2	LOR-Regular-unit 01-circuit 2
Arch 3	LOR-Regular-unit 01-circuit 3
Arch 4	LOR-Regular-unit 01-circuit 4
Arch 5	LOR-Regular-unit 01-circuit 5
Arch 6	LOR-Regular-unit 01-circuit 6
Arch 7	LOR-Regular-unit 01-circuit 7
Arch 8	LOR-Regular-unit 01-circuit 8
Arch 9-Rt	LOR-Regular-unit 01-circuit 9

Save Changes Cancel

After pressing the Renumber Channels button

### Set the LOR Network

The selected props will be moved to the LOR network you specify. For example, you could use this function to move props from the Regular network to Aux A.

**Set LOR Network** [X]

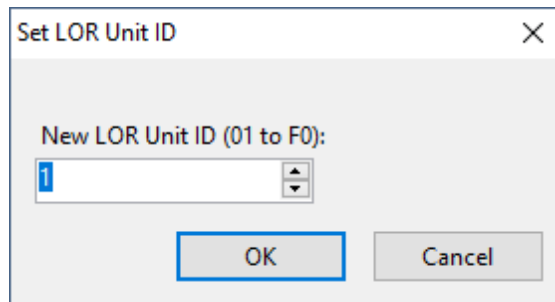
New LOR network:

Regular

OK Cancel

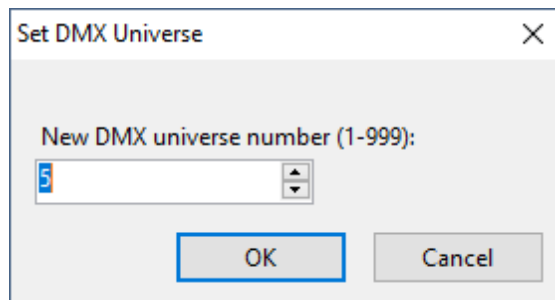
### ***Set the LOR Unit ID***

The selected props will be moved to the LOR unit id you specify. For example, you could use this function to move props from unit 10 to unit 11.



### ***Set the DMX Universe***

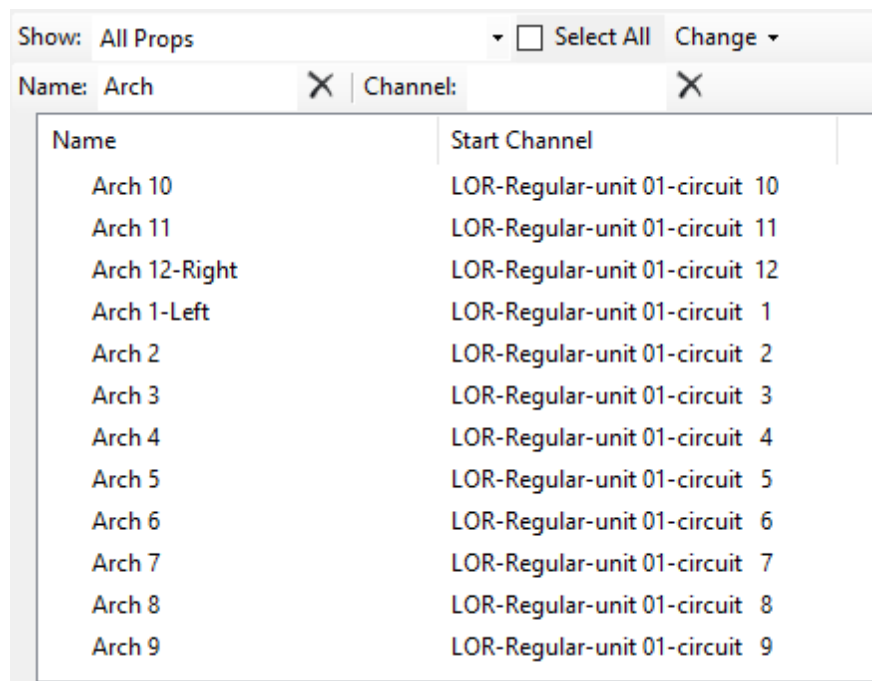
The selected props will be moved to the DMX universe you specify. For example, you could use this function to move props from Universe 2 to Universe 12.



### ***Add Leading Zeros To Numbered Prop Names***

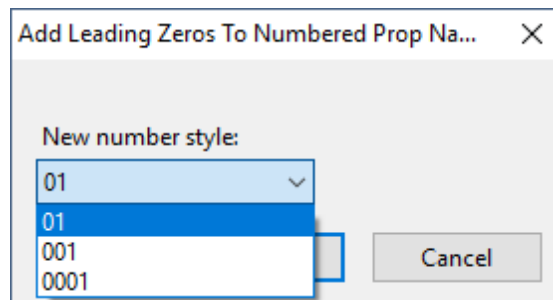
Any selected props that have a number in their name will have leading zeros added to the number. This can aid in sorting the props in the desired order on the sequence grid. For example, here are 12 arches sorted alphabetically -- the same order they would be displayed by default in the sequence grid.





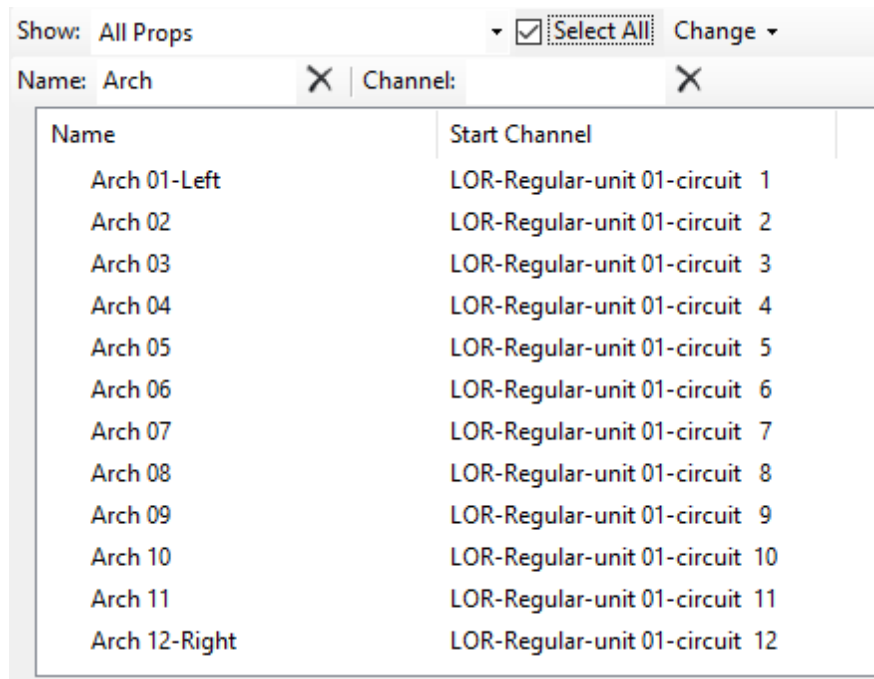
Props not listed in the desired order

Now click the "Select All" box, then select Change > Add Leading Zeros To Numbered Prop Names. You will be prompted for the number format to be used:



Choose number style

After clicking the OK button, the props now sort in the desired order:

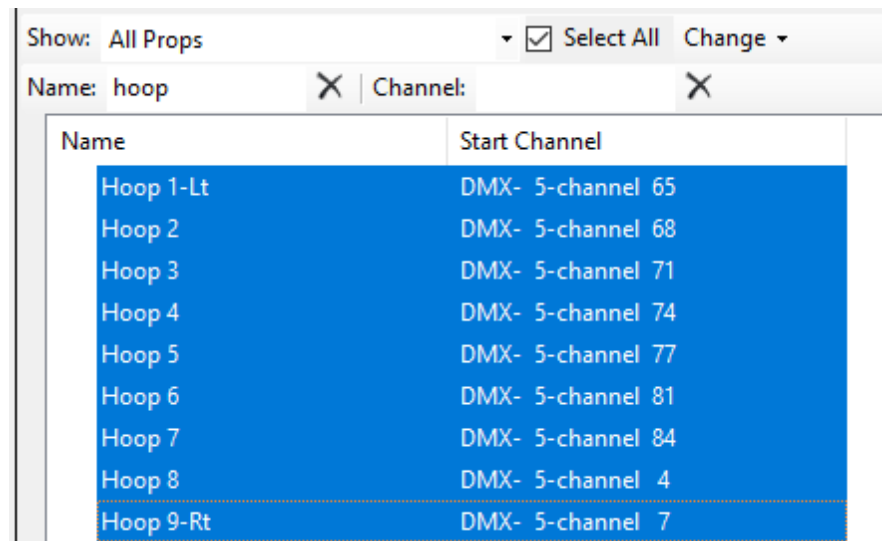


After adding leading zeros, the props are now listed in the desired order

### Replace Text In Prop Names

This function gives you the ability to search for and replace text in prop names, just like you would in a word processor.

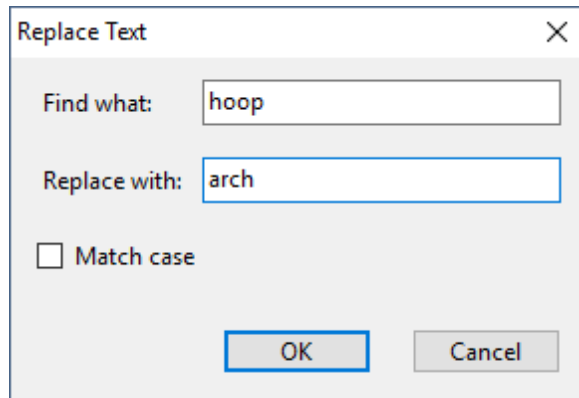
Here is an example of replacing the word "hoop" in the selected props with the word "arch". First we have [filtered the list](#) to show only props with the word "hoop" in their name, and then selected them all:



Before replacing text

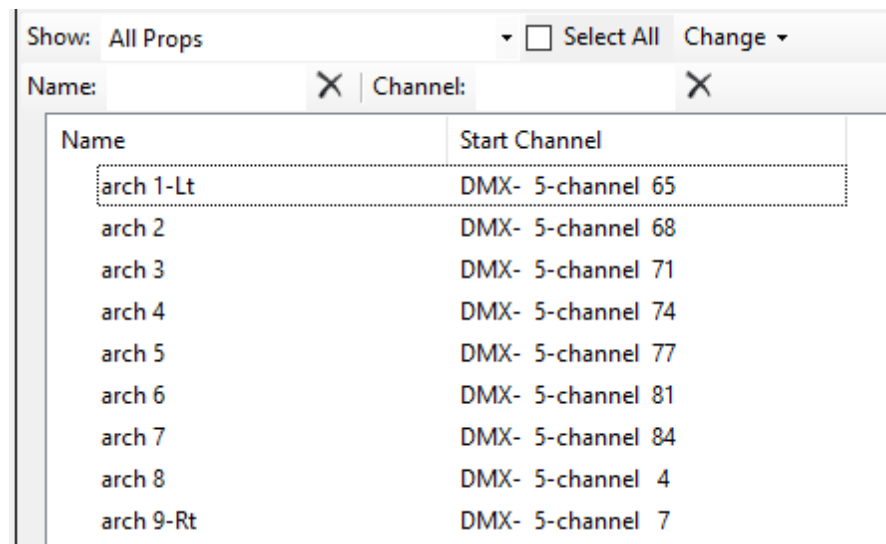
Next select Change > Replace Text In Prop Names from the menu (or right-click and choose it from the pop-up menu). A dialog window will open asking for the text to search for and the replacement

text:



Replace "hoop" with "arch"

After clicking the OK button in the dialog window (and also clearing the name filter in this case), you will see the updated prop names:



After replacing text

### Delete Props

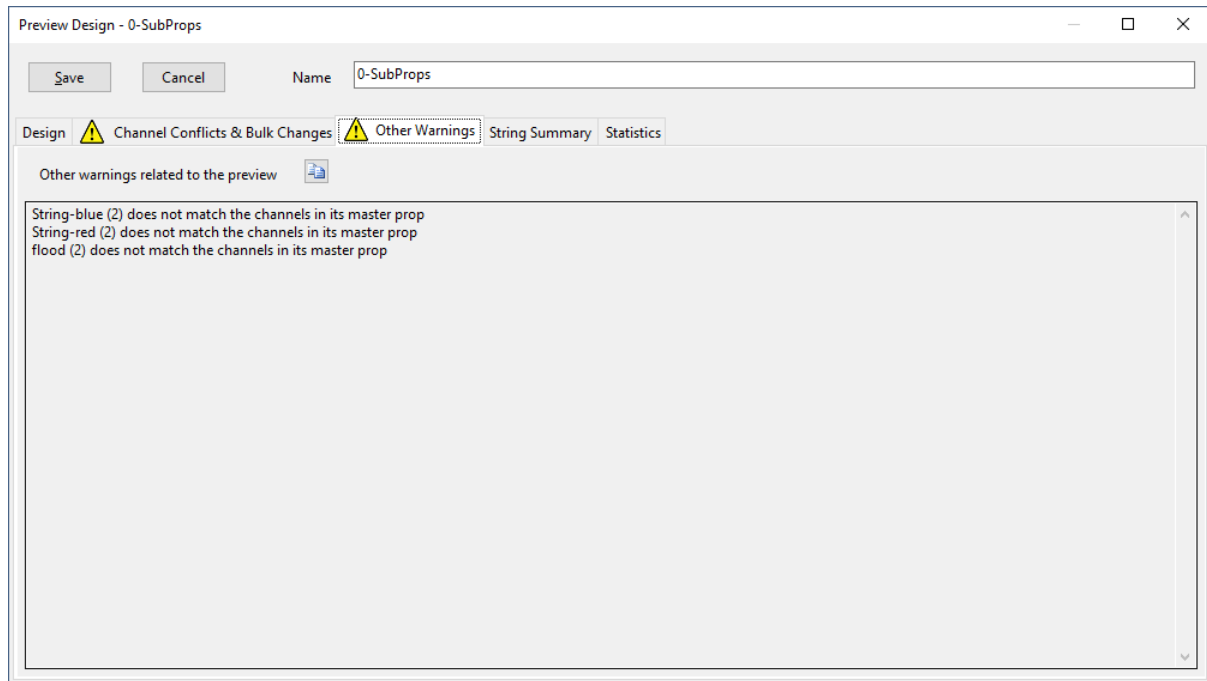
The selected props will be permanently deleted from the preview. This can be useful if a preview contains items that are no longer needed and should be removed. Sometimes this situation can even be the source of channel conflicts.

#### 5.3.4.3 Other Warnings Tab

The Other Warnings tab of the [Preview Design](#) window displays warnings that are not related to channel assignments. If there are warnings on this tab, any sequence that uses this preview cannot be played back while [control lights](#) is enabled. The tab will show a green check mark if everything is OK, and a warning sign if there are problems.

This is the third of 5 tabs on the Preview Design window. The others are:

- [Design](#)
- [Channel Conflicts & Bulk Changes](#)
- [String Summary](#)
- [Statistics](#)



The Other Warnings tab

## Warning Messages

Possible warnings that can appear on this tab include:

- A sub-prop is not assigned the same channels as its [master prop](#). If you change the channels assigned to a master prop, you will also need to update the channel assigned to its sub-props.
- A group has no members. Either add some members, or delete the group.
- A group has a circular definition (it includes itself as a member).
- Two or more groups share the same name. Each group should have a unique name.
- Two or more props share the same name. Each prop should have a unique name.

### 5.3.4.4 String Summary Tab

The String Summary tab of the [Preview Design](#) window displays a table of all strings defined by every prop in the preview (props with device type "undetermined" are not included).

If you want a print-out of your props and channel assignments to carry with you as you wire up your display, you can use this table, copy it to the clipboard, and paste it into any spreadsheet program. In the spreadsheet you can sort and filter the data, add and remove columns, and print it out.

This is the fourth of 5 tabs on the Preview Design window. The others are:

- [Design](#)
- [Channel Conflicts & Bulk Changes](#)
- [Other Warnings](#)
- [Statistics](#)

Preview Design - 0-SubProps

Save Cancel Name 0-SubProps

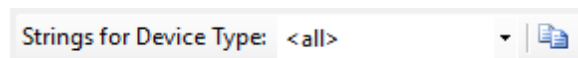
Design Channel Conflicts & Bulk Changes Other Warnings String Summary Statistics

Strings for Device Type: <all>

Prop	Item #	Lights	Bulb Shape	Dimming Curve	Device Type	Network	Unit	Start Circuit	End Circuit	Carryover	String Color	Master
String-blue	1	Channel per color: Blue	Square	None	LOR	Regular	01	1	1	0	Blue	Strings
String-red	1	Channel per color: Red	Square	None	LOR	Regular	01	1	1	0	Red	Strings
flood	1	Channel per color: White	Flood	None	LOR	Regular	01	1	1	0	White	Strings
Megatree CCW	1	Channel per color: Green,Blue	Octagon	None	LOR	Regular	02	1	1	0	Green	
Megatree CCW	2	Channel per color: Green,Blue	Octagon	None	LOR	Regular	02	2	2	0	Blue	
Megatree CCW	3	Channel per color: Green,Blue	Octagon	None	LOR	Regular	02	3	3	0	Green	
Megatree CCW	4	Channel per color: Green,Blue	Octagon	None	LOR	Regular	02	4	4	0	Blue	
Megatree CCW	5	Channel per color: Green,Blue	Octagon	None	LOR	Regular	02	5	5	0	Green	
Megatree CCW	6	Channel per color: Green,Blue	Octagon	None	LOR	Regular	02	6	6	0	Blue	
Megatree CCW	7	Channel per color: Green,Blue	Octagon	None	LOR	Regular	02	7	7	0	Green	
Megatree CCW	8	Channel per color: Green,Blue	Octagon	None	LOR	Regular	02	8	8	0	Blue	
Megatree CCW	9	Channel per color: Green,Blue	Octagon	None	LOR	Regular	02	9	9	0	Green	
Megatree CCW	10	Channel per color: Green,Blue	Octagon	None	LOR	Regular	02	10	10	0	Blue	
Megatree CCW	11	Channel per color: Green,Blue	Octagon	None	LOR	Regular	02	11	11	0	Green	
Megatree CCW	12	Channel per color: Green,Blue	Octagon	None	LOR	Regular	02	12	12	0	Blue	
Megatree CCW	13	Channel per color: Green,Blue	Octagon	None	LOR	Regular	02	13	13	0	Green	

The String Summary tab

## The Toolbar



The drop-down box allows you to filter the list by Device Type, so you can view just the LOR devices or just the DMX devices.

You can use the copy button to copy the displayed information to the clipboard so that it can be pasted into a spreadsheet, where it can be sorted, filtered and printed.

## The Grid

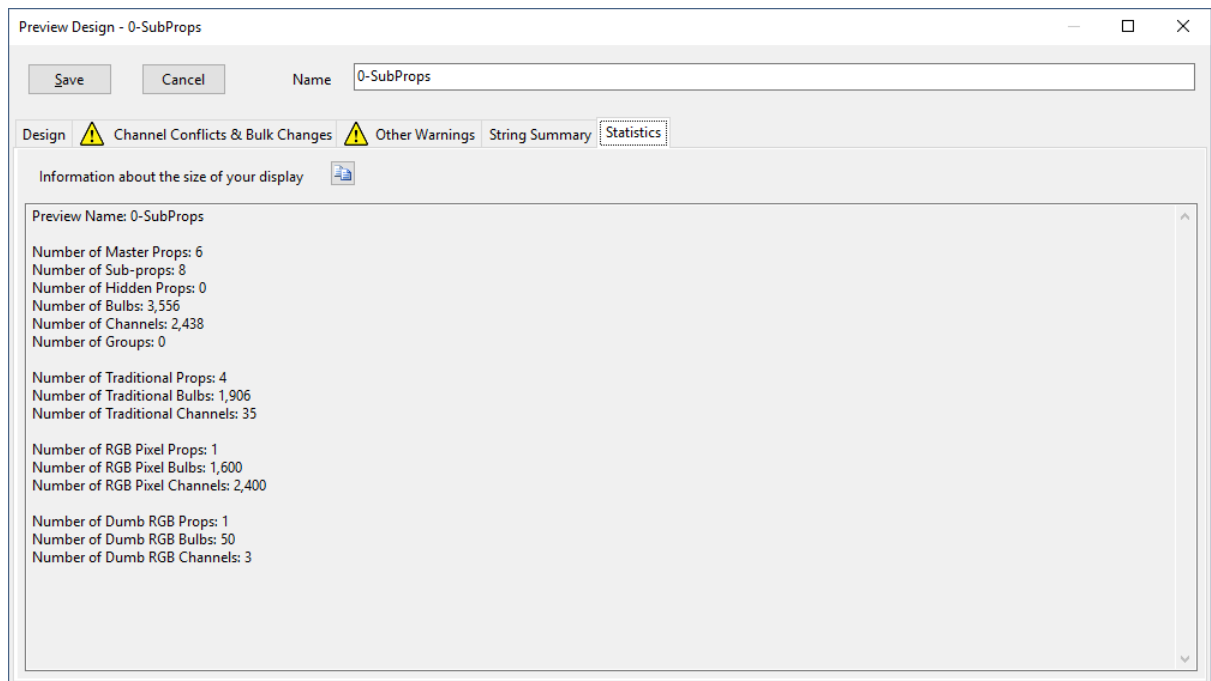
You can sort the grid by any column by clicking on the heading for that column. Clicking on a column heading once will sort it in ascending order; clicking on it again will sort in the reverse order. Particularly useful is clicking on the Device Type column heading, as this will sort first by Device Type, then by Network, then by Unit, and then by Start Circuit giving you list ordered by physical connection (which makes a good reference).

#### 5.3.4.5 Statistics Tab


The Statistics tab of the [Preview Design](#) window gives you statistics about the preview: number of props, groups, pixels, channels, etc.

This is the fifth of 5 tabs on the Preview Design window. The others are:

- [Design](#)
- [Channel Conflicts & Bulk Changes](#)
- [Other Warnings](#)
- [String Summary](#)



**The Statistics tab**

You can use the copy button  to copy the displayed information to the clipboard so that it can be pasted into other applications.

#### 5.3.4.6 Prop Definition

A prop in the [Sequencer](#) allows you to define a single item that is in your display. This item could be simple, like a string of lights, or a wreath; or it could be complex, like a pixel tree or matrix. For every prop, you assign it a name and then define the [type of lights](#) that it uses, its [shape](#), and its [assigned channel\(s\)](#).

**Prop Definition**

Save Cancel ? Name Candycane Comment

**Lights**

Dimming Curve: None

Traditional RGB

Type: Multicolor string 1 ch

Select Color(s):

- ☐ White
- ☒ Red
- ☐ Green
- ☐ Blue
- ☐ Purple
- ☐ Orange
- ☐ Yellow
- ☐ Warm White
- ☐ Custom

Order: Red

**Shape**

Candycane-Left

Actual # of Strings: 1

Preview # of lights per String: 66

# of Folds in each String: 2

Starting Location: Bottom Left

**Channels**

Uses the same channels as: <none>

LOR Max Circuit: 16

☒ Enter channel on first row, auto-number the rest

☐ Enter a channel on every row

☐ Separate Unit ID for each RGB string

	Network	Unit ID	Start Circuit	End Circuit	Color
1	Reg...	01	1	1	Red

## Name

Each [prop](#) must have a name. The name must be unique within the [preview](#).

## Comment

This is an optional field for you to make notes about this [prop](#).

## Lights Section

Use this section to define the types of lights your [prop](#) consists of.

### ***Dimming Curve***

Some controllers have the ability to apply dimming curves in the hardware. This setting allows you to apply a dimming curve in software, for controllers that do not have the capability or where that capability is disabled. You do not want to have dimming curves enabled in both software and in the controller.

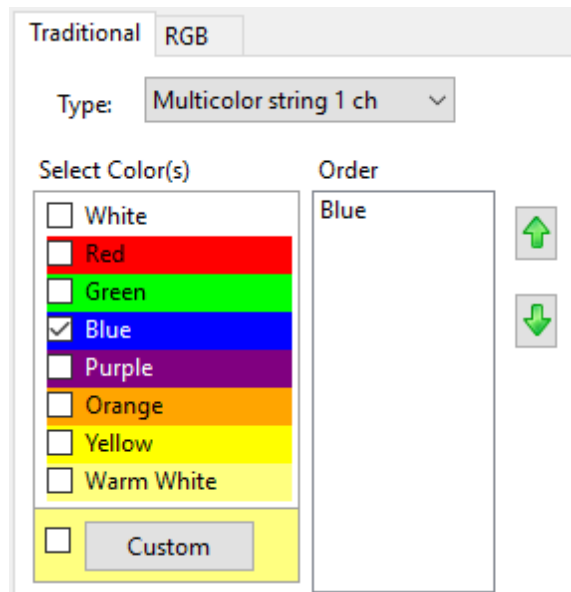
- Use the Linear Curves for traditional lights. The percentage at the end of the curve name indicates the maximum brightness.
- Use the Pixel Curves for RGB pixels. The percentage at the end of the curve name indicates the maximum brightness.
- Use the Strobe Curve for strobes. It will prevent intermediate values (e.g. 50%) from reaching the string.

### ***Traditional***

Choose the “Traditional” tab of the Lights section of the [Prop Definition](#) window to model:

- strings of LEDs or incandescent lights (single color or multicolor)
- strobe lights
- wire frames
- rope lights
- net lights
- single-color flood lights

Colors for your string are defined on the left. Click the “Custom” button to choose a custom color. By default, the custom color is close to an incandescent warm white bulb; however, you can change the default custom color by selecting “New prop defaults” from the Design Tab's [Options Menu](#).

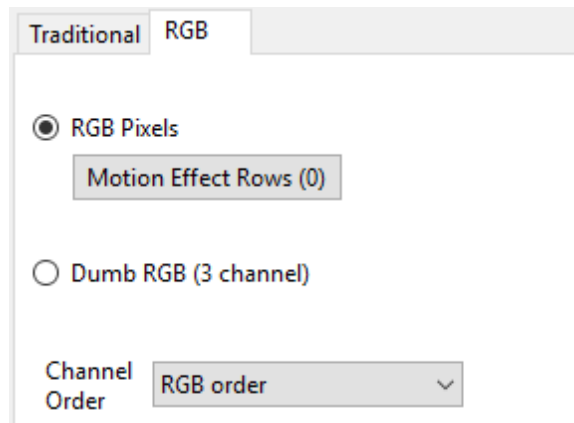


Set the “Type” drop-down as follows:

- Select “Multicolor string 1 ch” for single color strings or single color flood lights or a single string with various light colors. Choose the colors that make up the string.
- Choose “Channel per color” for bundles of single color strings (sometimes referred to as “superstrings”). Select color(s) for the strings on the left. For each color you choose, that color will show up in the “Order” list on the right. The [Sequencer](#) will assign one [channel](#) for each color that you choose. If the channels for these strings are numbered consecutively, it is recommended that you use the up and down arrows on the right-hand side to put the colors in the order that their channels are assigned (click on a color to select it, then use the arrow buttons to move it into the correct position). This way, the channels will be assigned correctly without any additional action.

## RGB

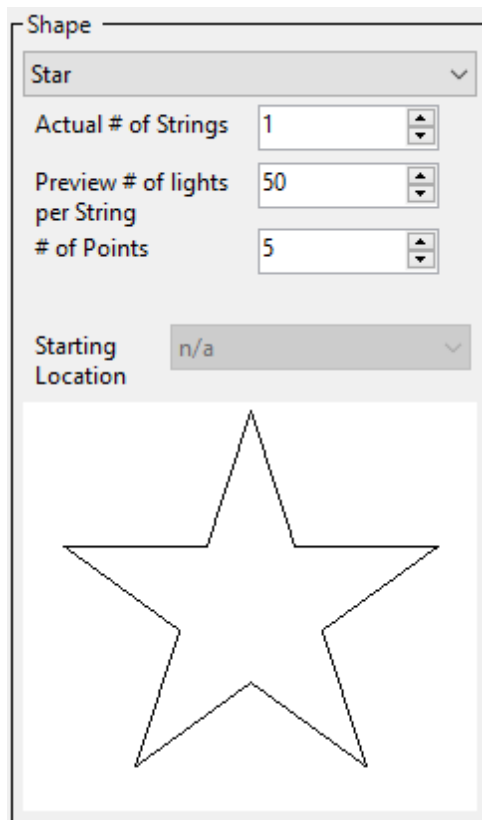




- Choose "RGB Pixels" for Light-O-Rama Cosmic Color Devices and any other pixel-based strips, nodes, bulbs, or panels.
- Use the "Motion Effects Rows" button to define default motion effect rows that will be incorporated into new sequences (this setting has no effect on existing sequences). The number in parentheses on the button reflects the number of default motion effect rows that have already been defined for the prop. The dialog for adding default motion rows to a prop works just the same way as the dialog for adding motion effect rows to an existing sequence. See the [Motion Effect Rows Dialog](#) topic for more information.
- Choose "Dumb RGB (3 channel)" for display elements that have a single red, green, and blue channel. This includes RGB floods and dumb RGB strips and nodes.
- The channel order should be set to reflect the way the red, green, and blue channels are physically wired. If you are unsure, this may take some experimentation. This setting applies to both RGB Pixels and Dumb RGB.

## Shapes Section

Use this section to define how your prop looks on your computer screen during sequence playback. Defining the shape accurately is also very important for pixel-based props so that motion effects get displayed correctly.



In the [Prop Definition](#) window, choose a shape that most closely matches your prop. Use "Lines-Connected", "Lines-Unconnected", "Lines-Closed Shape", or "[Custom](#)" to define a shape that isn't listed. Any shape can be resized and rotated, so you are not limited to the traditional orientation of the shape.

The description of the numerical entries in the middle of the shape section will change depending on the shape that is selected and type of lights (traditional, RGB pixels, or dumb RGB). Many shapes will require you to specify the number of lights in the prop (or in a section of the prop). For props with traditional or dumb RGB lights, this number can be an approximation -- set it to a value that looks good on your computer screen. For RGB pixels, the value must be the exact number of physical pixels.

At the bottom will be diagram of your shape primarily intended to show channel number orientation for props with multiple [channels](#).

## Channels Section

In the right-most section of the window you define the [channels](#) assigned to the prop. This section should be filled in last because the entries will change automatically based on the values you enter in the "[Lights](#)" and "[Shape](#)" sections. Take care to enter this information accurately, or your lights will not come on.

Channels

Uses the same channels as <none>

LOR Max Circuit 510

☒ Enter channel on first row, auto-number the rest

☐ Enter a channel on every row

☒ Separate Unit ID for each RGB string

	Network	Unit ID	Start Circuit	End Circuit	Carry Over
1	Reg... ▾	01	1	150	0
2	Reg... ▾	02	1	150	0
3	Reg... ▾	03	1	150	0
4	Reg... ▾	04	1	150	0
5	Reg... ▾	05	1	150	0
6	Reg... ▾	06	1	150	0
7	Reg... ▾	07	1	150	0
8	Reg... ▾	08	1	150	0

The Channels section (LOR device type)

Channels

Uses the same channels as <none>

DMX Max Channel 512

☒ Enter channel on first row, auto-number the rest  
☐ Enter a channel on every row  
☒ Separate Universe for each RGB string

	Universe	Start Channel	End Channel	Carry Over
1	1	1	150	0
2	2	1	150	0
3	3	1	150	0
4	4	1	150	0
5	5	1	150	0
6	6	1	150	0
7	7	1	150	0
8	8	1	150	0

The Channels section (DMX device type)

### Uses The Same Channels As

Normally, you can leave this field set to "<none>". However, if you connect more than one set of lights to the same channel, then you can create a "Master prop" and one or more "sub props" to model this configuration. For example, if you have several candy canes that are all connected to the same channel and turn on and off together, then you can create one candy cane as the Master Prop. The master candy cane will have the "Uses The Same Channels As" field set to "<none>" and it will appear in the sequence grid (as an example, assume this prop is named "Candy cane master"). The other candy canes will be "sub props" -- the "Uses The Same Channels As" field will be set to "Candy cane master" and the props will not appear in the sequence grid. In the Prop Definition for each of the sub-props, the channel section must specify one or more channels from the master prop.

Should you change the channel(s) assigned to the master prop, it is up to you to also update the related sub-props. If you fail to keep them synchronized, you will get a warning on the [Other Warnings tab](#) in [Preview Design](#).

### Device Type

Select the device type from the drop-down that matches your hardware.

- Use "LOR" for [Light-O-Rama controllers](#) using the Light-O-Rama protocol (or enhanced protocol). Note that the [PixCon16 controller](#) can use the Light-O-Rama protocol or E1.31 (DMX) protocol -- so your Device Type selection on the Prop Definition screen needs to match the way you have configured the controller..

- Select “**DMX**” for [controllers](#) that connect via the E1.31 protocol over Ethernet or connect via a DMX USB adapter..
- A device type of “Undetermined” is available for situations where the device type is not known. With this device type, lighting effects will be displayed during [playback](#) on the computer screen, but the prop cannot control real lights.

### Max Circuit (or DMX Channel)

The number box at the top right defines how many [channels](#) are in each [DMX universe](#) or the maximum [circuit number](#) if LOR is selected. For DMX, you can leave this at the default value of 512, unless you have a controllers that does not allow an RGB pixel to cross universe boundaries. In this case, set the DMX universe size to 510 (170 pixels per universe).

### Channel Numbering

There are 2 options for channel numbering:

- **Enter channel on first row, auto-number the rest:** with this option, you must enter channel information for the first string only. Subsequent strings will be calculated automatically. This works well for many situations, but there are exceptions. For those exceptions you should use the second option.

	Network	Unit ID	Start Circuit	End Circuit	Color
1	Reg...	05	7	7	Red
2	Reg...	05	8	8	Green
3	Reg...	05	9	9	Blue
4	Reg...	05	10	10	White

This prop uses 4 consecutive channels

- **Enter a channel on every row:** with this option, you enter channel information for every string.

Channels

Uses the same channels as <none>

LOR Max Circuit 16

☐ Enter channel on first row, auto-number the rest  
☒ Enter a channel on every row  
☐ Separate Unit ID for each RGB string

	Network	Unit ID	Start Circuit	End Circuit	Color
1	Reg... ▾	05	7	7	Red
2	Reg... ▾	05	8	8	Green
3	Reg... ▾	06	3	3	Blue
4	Reg... ▾	06	4	4	White

This prop uses 2 channels on controller 05 and 2 channels on controller 06

### Separate Unit ID (or DMX Universe) for each RGB String

This check box will cause each string to start at [circuit](#) 1 of the subsequent [Unit ID](#) (or [DMX Universe](#)) from the previous row. If this box is unchecked, then each row starts from the last Unit ID and circuit from the previous row.

### Channel Grid

It is very important that the values you enter in the channel grid match your controller settings. The values you enter depend on the [device type](#) that was selected:

- For LOR: enter the network (Regular, Aux A, etc), [Unit ID](#) as a hexadecimal value (01 to F0), and the [circuit](#) (between 1 and the [Max Circuit](#))
- For DMX: enter the universe number (1 to 999) and channel (between 1 and the [Max Circuit](#))
- For Undetermined: there is nothing to enter

#### 5.3.4.6.1 Prop Shapes

Prop shapes can be separated into 2 categories: freeform shapes which allow you to manipulate the shape directly; and scalable shapes, where the position of all of the individual light bulbs are fixed in relationship to one another.

For many shapes, you will specify a "starting location". This is the location of the first string or first pixel. The starting location may contain the abbreviations "CW" and "CCW".

- **CW** stands for "clockwise" and means the strings proceed in a clockwise direction when looking down from the top of the prop.
- **CCW** stands for "counter-clockwise" and means the strings proceed in a counter-clockwise direction when looking down from the top of the prop

These are the [freeform shapes](#):

- [Bulb Shape](#)
- [Lines-Connected](#)
- [Lines-Unconnected](#)
- [Lines-Closed Shape](#)
- [Matrix-Horizontal-Quad](#)
- [Matrix-Vertical-Quad](#)
- [Advanced Shape](#)

These are the [fixed shapes](#):

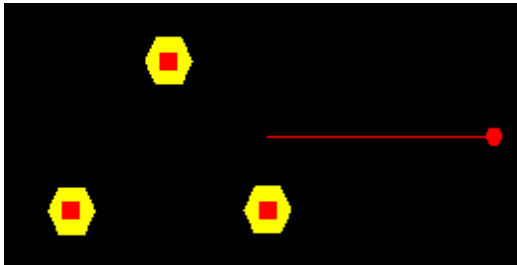
- [Arch](#)
- [Arch Opposing Strings](#)
- [Candycane-Left, Candycane-Right](#)
- [Custom](#)
- [Cylinder](#)
- [Cylinder spiral](#)
- [Fan](#)
- [Firestick](#)
- [Globe 8 Rows](#)
- [Hidden](#)
- [Matrix-Horizontal-Rectangle](#)
- [Matrix-Vertical-Rectangle](#)
- [Sphere](#)
- [Spokes](#)
- [Star](#)
- [Stars Nested](#)
- [Tree 90, 180, 270](#)
- [Tree 360 wedges](#)
- [Tree 360 tiers](#)
- [Tree 360 panels](#)
- [Tree 360 up&over](#)
- [Tree 360 spiral](#)
- [Window Frame](#)
- [Wreath](#)

## Freeform Shapes

Freeform shapes display handles that allow you to manipulate the shape directly. There are no scaling handles; if you wish to scale them you must use the [Scale Tab](#) or the Ctrl-UpArrow / Ctrl-DownArrow [keyboard shortcuts](#). Also these shapes can be rotated, but they do not have a natural orientation so [Format > Rotation > 0](#) has no effect.

### ***Bulb Shape***

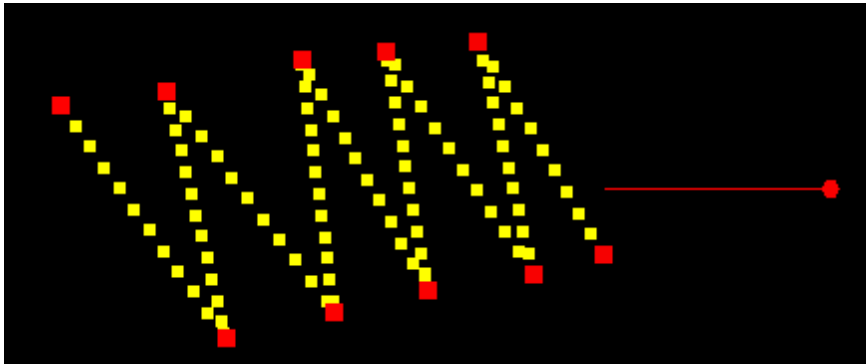
In a bulb shape, every light is displayed with a red handle, allowing each one to be moved independently of one another.



Bulb shape with 3 lights

### ***Lines-Connected***

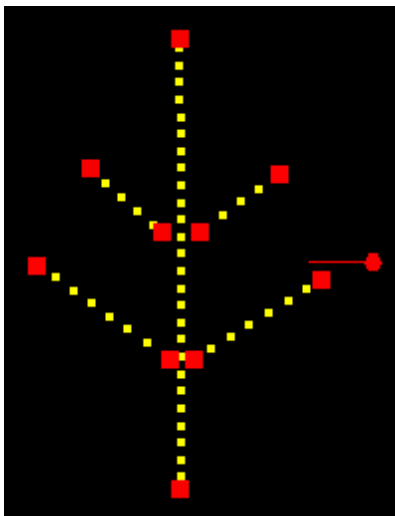
In a Lines-Connected shape, each vertex can be moved independently of one another. This makes it great for drawing regular strings of lights. You can draw a Lines-Connected shape interactively by right-clicking on the [design canvas](#) and selecting Draw New String from the pop-up menu.



Lines-Connected

### ***Lines-Unconnected***

In a Lines-Unconnected shape, the string is modeled as series of line segments, each of which can be moved independently of one another.

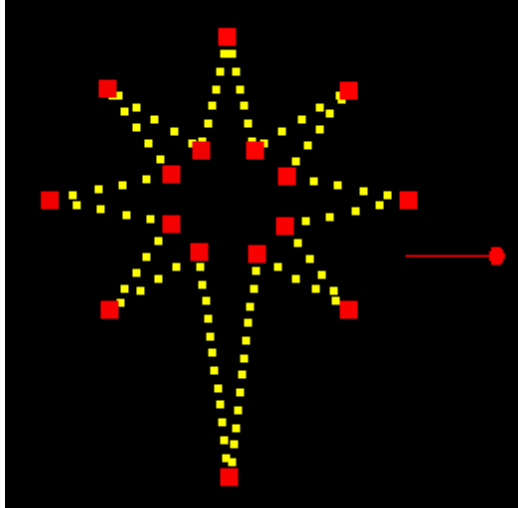


A Lines-Unconnected shape with 5 segments



### ***Lines-Closed Shape***

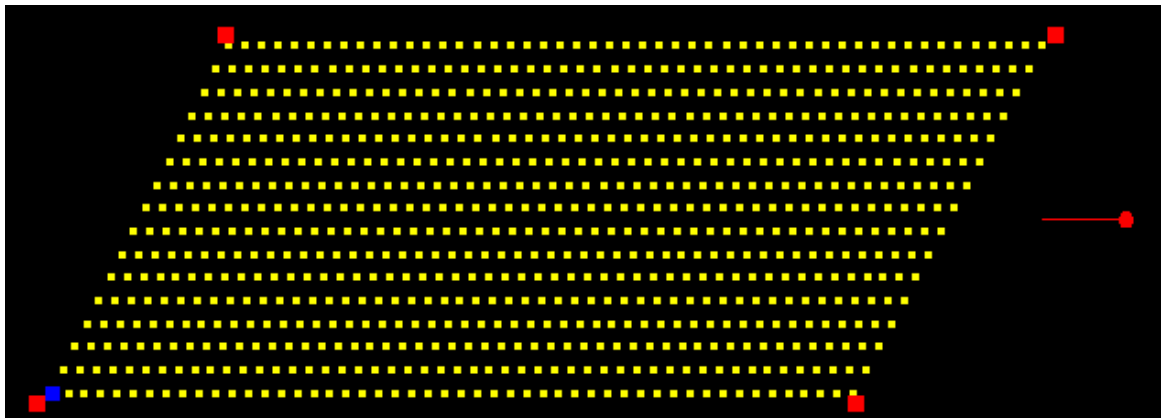
A Lines-Closed Shape is modeled as a polygon with each vertex movable.



Lines-Closed Shape

### ***Matrix-Horizontal-Quad***

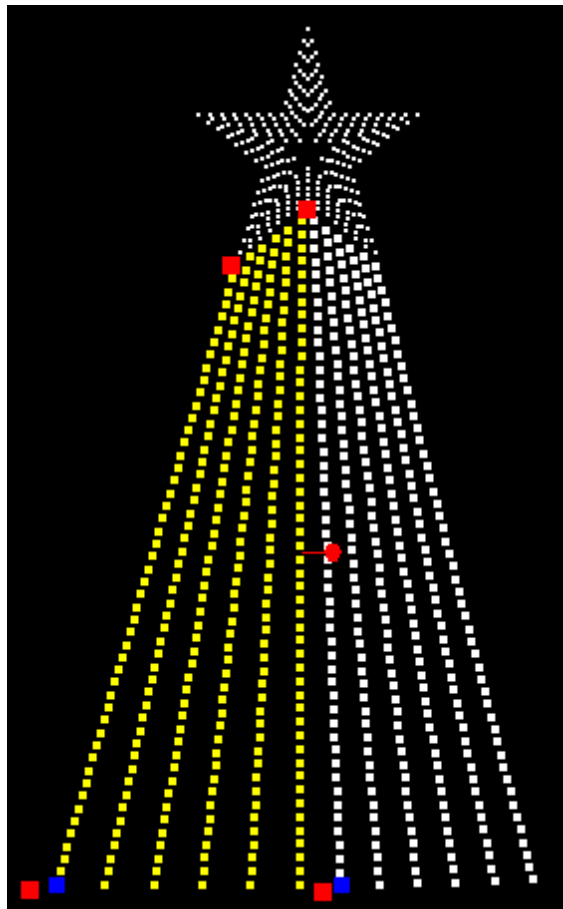
The Matrix-Horizontal-Quad shape is like the Matrix-Horizontal-Rectangle, except that the corners are movable.



Matrix-Horizontal-Quad shape

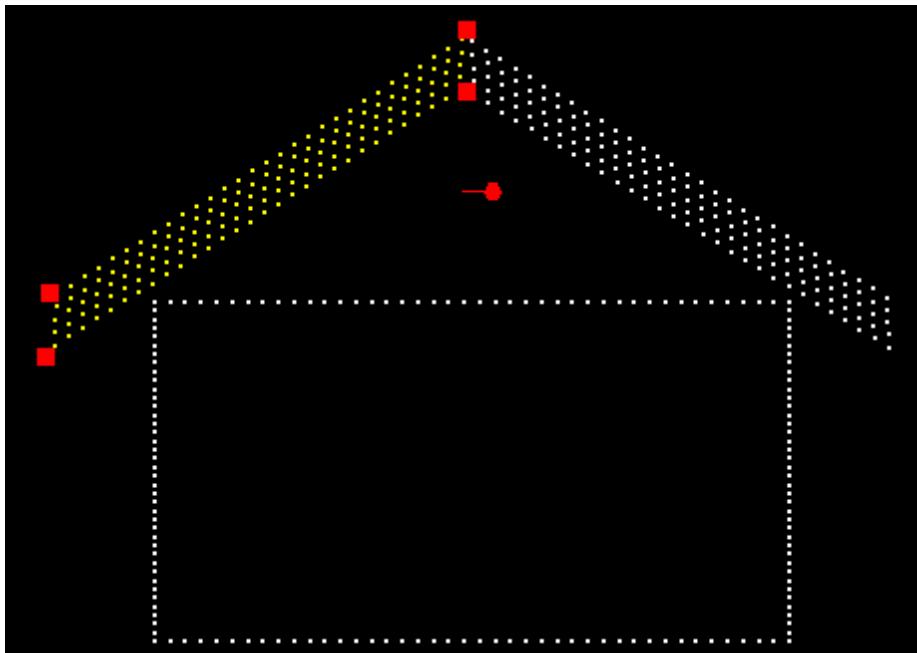
### ***Matrix-Vertical-Quad***

The Matrix-Vertical-Quad shape is like the Matrix-Vertical-Rectangle, except that the corners are movable. This shape is useful for creating "CCR Trees" like the one shown below. Two props, each with a Matrix-Vertical-Quad shape and 6 strings of 50 RGB pixels, are used to represent the ribbons.



12 Ribbon CCR Tree

The Matrix-Vertical-Quad shape can also be used to represent icicle lights -- made with either traditional lights or RGB pixels. The next picture uses 2 Matrix-Vertical-Quad shapes: 1 for the icicle lights on the left (highlighted in yellow), and another for the ones on the right. In this example, each quad shape has 1 string of 150 lights with 29 folds.



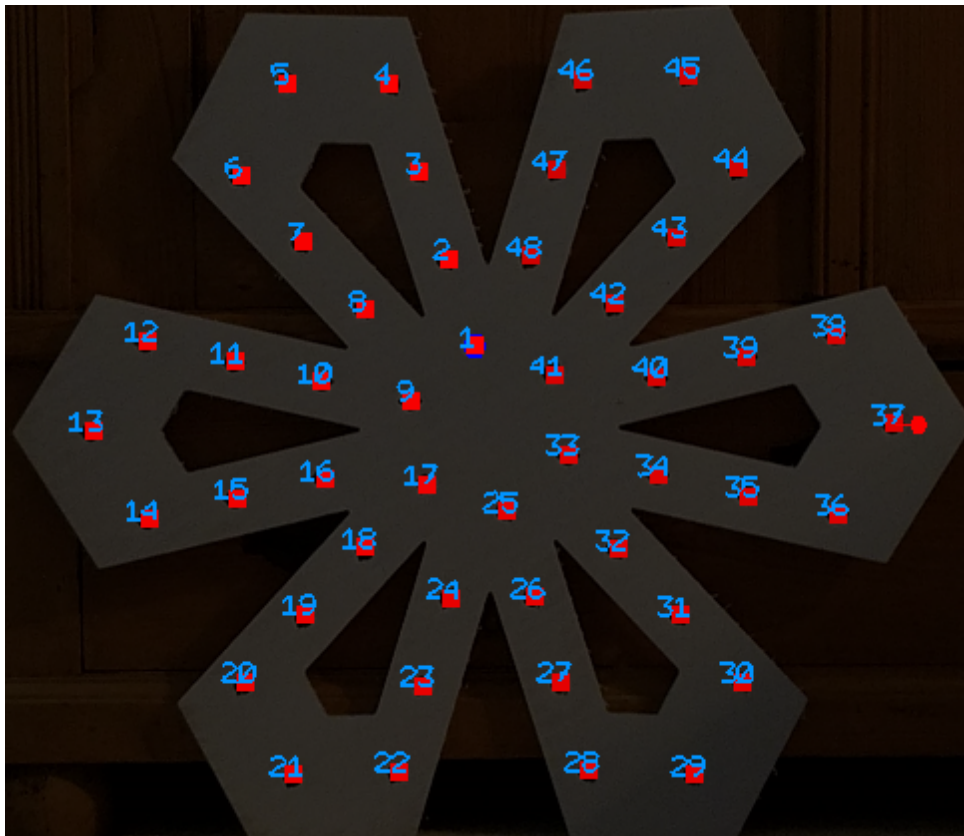
Icicle Lights

### ***Advanced Shape***

With an advanced shape you can move each individual pixel as needed by dragging them on the design canvas. When moving pixels you should enable [the display of pixel numbers](#) so you know which pixel you are moving.

You can also change how the pixels are arranged in the effects buffer by clicking the "Edit Advanced Buffer Layout" button. As the name implies, this is an advanced function, but can be used to create pixel props that cannot be represented by other shapes.

In the next picture, a preview has been created with a background image of a snowflake. The pixels have been arranged ([with pixel numbers showing](#)) to match how the prop is wired.



Snowflake prop with pixel numbers shown

Next, the buffer layout for the snowflake is defined such that each arm of the snowflake is 4 columns in the grid. Each number in the layout grid corresponds to the pixel number shown above. For help in using the buffer layout grid, see the [Custom Shape Light Placement](#) grid topic (it works the same way). With this buffer layout, motion effects that move left or right will go around the snowflake. Motion effects that move up will expand from the center, and effects that move down will go from the outside of the snowflake inward.

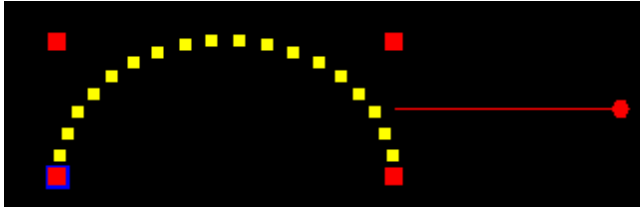
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
► 1	45					37				29				21				13				5		
2	46		44		38		36		30		28		22		20		14		12		6		4	
3	47		43		39		35		31		27		23		19		15		11		7		3	
4	48		42		40		34		32		26		24		18		16		10		8		2	
5				41					33				25				17			9				1

The buffer layout for the snowflake

This preview contains just one prop; but this prop would be one of many in someone's display. So the final step would be to [export this prop](#) from this preview, and then [import it](#) into the preview containing the full display.

## Fixed Shapes

Every shape that is not a "freeform shape" is a "fixed shape" -- the position of all of the individual light bulbs within the shape are fixed in relationship to one another. Fixed shapes display scaling handles when selected -- you can drag any of the 4 red handles to make the prop bigger or smaller. These shapes also have a natural orientation, so you can use [Format > Rotation > 0](#) to reset the prop to that orientation.



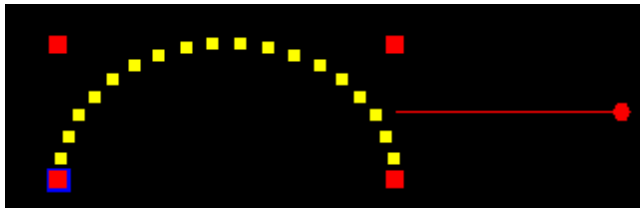
Selected prop showing 4 scaling handles and a rotation handle

## Arch

The arch shape can be used for:

- an arch with traditional light strings
- a segmented arch with traditional light strings
- a pixel-based arch

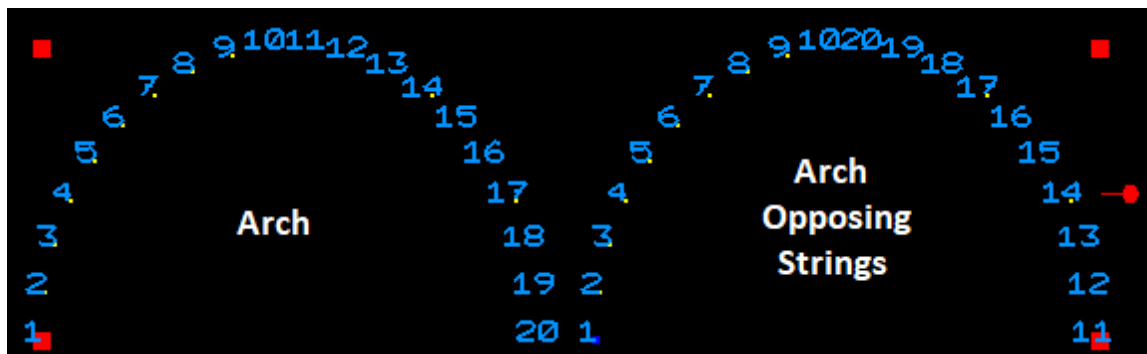
The arch shape prompts for the number of segments. This value should be set to 1, unless you are modeling a segmented arch with traditional light strings.



Arch shape

## Arch Opposing Strings

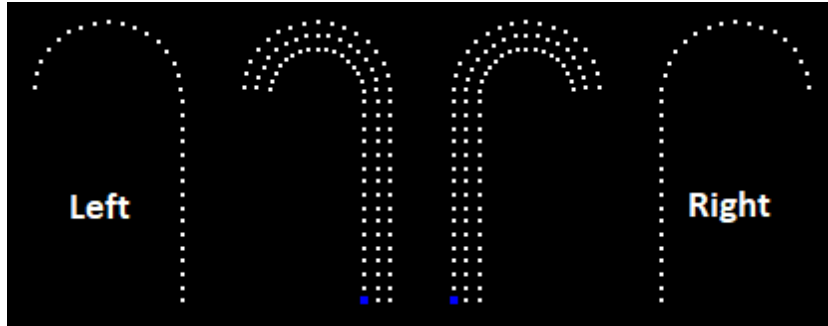
The "Arch Opposing Strings" shape is intended for large, pixel-based arches that have controllers on both sides of the arch. The pixel strings run up both sides and meet at the top of the arch.



Pixel Numbering: Arch vs. Arch Opposing Strings

## Candycane-Left, Candycane-Right

These shapes can be used to represent candy-canes of various sizes. When used with multiple columns of pixels, the pixel strings are assumed to be run vertically.



Candy-cane shapes

## Custom

A custom shape allows you to define where the lights are using a grid. If you are using traditional lights, you will have more flexibility defining your prop by using one of the [freeform shapes](#). However, for pixel-based props, a custom shape can be an easy way to define the arrangement of those pixels. See the [Custom Shape Light Placement](#) topic for more information using the grid to define your custom prop.

Here is an example of a candy cane defined using a custom shape with traditional strings.

- a "1" in a grid cell identifies lights on the first string
- a "2" in a grid cell would identify lights on the second string
- a "3" in a grid cell would identify lights on the third string, and so on

	A	B	C	D
▶ 1	1	1	1	
2	1			1
3				1
4				1
5				1
6				1
7				1
8				1
9				1
10				1

Custom Candy  
Cane-Traditional Lights

Next is an example of a candy cane defined using a custom shape with pixels.

- "1" in a grid cell identifies the first pixel of the first string

- "2" in a grid cell identifies the second pixel of the first string, and so on up to 999
- "1001" in a grid cell identifies the first pixel of the second string
- "1002" in a grid cell identifies the second pixel of the second string, and so on up to 1999
- "2001" in a grid cell identifies the first pixel of the third string
- "2002" in a grid cell identifies the second pixel of the third string, and so on up to 2999

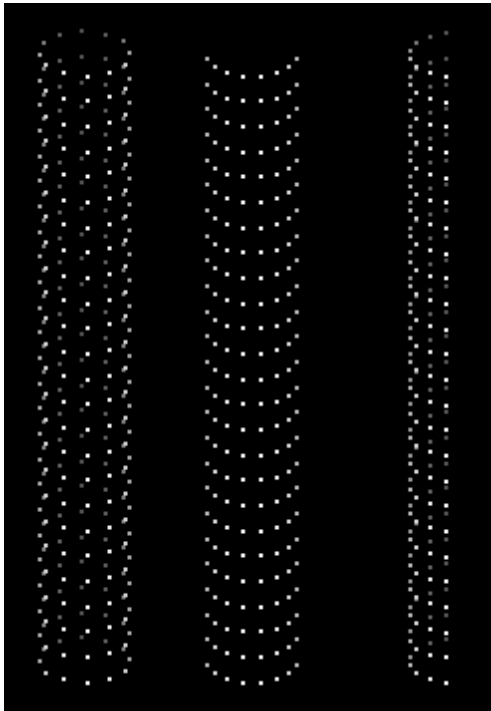
The next example shows 1 string of 12 pixels.

	A	B	C	D
▶ 1		11	10	
2	12			9
3				8
4				7
5				6
6				5
7				4
8				3
9				2
10				1

**Custom Candy  
Cane-Pixels**

## ***Cylinder***

The cylinder shape allows you to model lights placed on a column. The lights can go completely around the column, or you can specify 1/4, 1/2, or 3/4 coverage. If you choose partial coverage, be sure choose the Starting Location entry carefully. When used with pixels, the pixel strings are assumed to run vertically. Lights facing away from the viewer are shown at a lower intensity in the preview; however, this does not affect the actual lights.

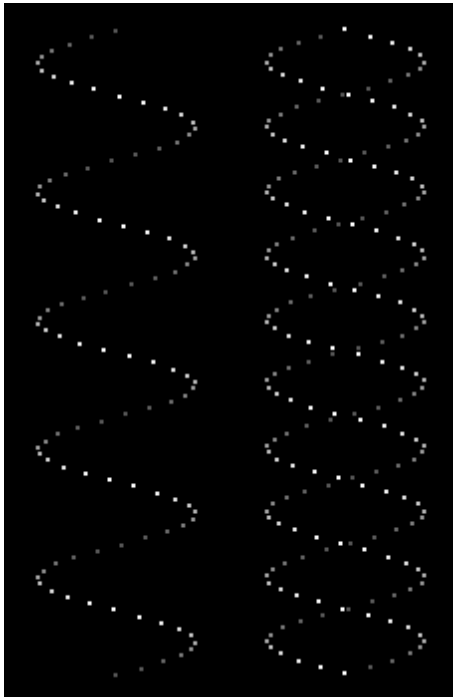


The column shape: 1 full coverage, and 2 half coverage examples

### ***Cylinder spiral***

The Cylinder Spiral shape models one or more strings wrapped around a column. Lights facing away from the viewer are shown at a lower intensity in the preview; however, this does not affect the actual lights.

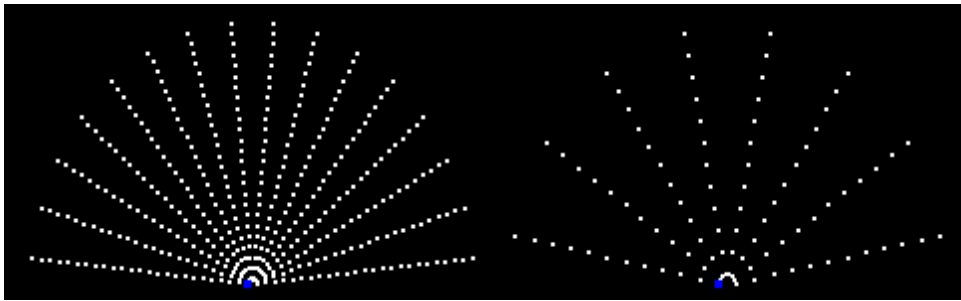




Cylinder Sprial Shapes with 1 and 2 strings

### ***Fan***

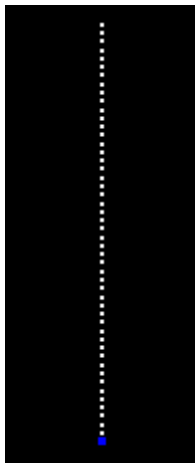
The fan shape models a 180 degree fan.



2 fan shapes with differing numbers of lights

### ***Firestick***

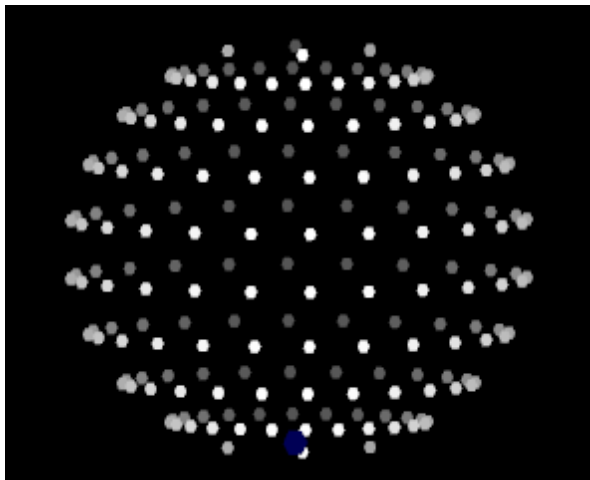
The firestick shape models a single vertical column of lights. When used with pixels, the "# of Sections" parameter should be set to 1.



Firestick Shape

### ***Globe 8 Rows***

The Globe 8 Rows shape models the spherical tree-topper sold by SuperStar lights. However, you could also use the shape with traditional lights to model a single-color sphere. The number of lights on this shape is fixed at 200. Lights facing away from the viewer are shown at a lower intensity in the preview; however, this does not affect the actual lights.



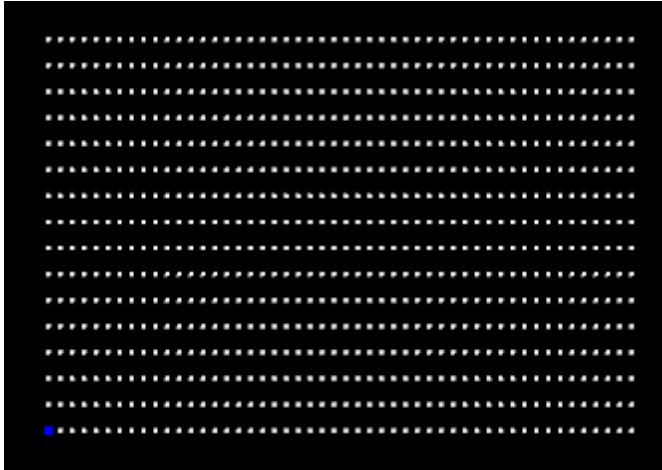
The Globe 8 Rows shape

### ***Hidden***

Use the Hidden shape to model items that are assigned channels but don't have any lights. This could include macro channels on Light-O-Rama's Cosmic Color Ribbons, or control channels on a DMX fixture.

### ***Matrix-Horizontal-Rectangle***

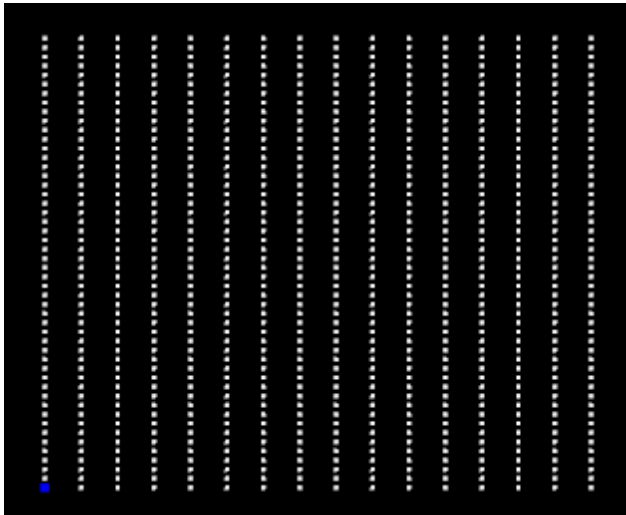
The Matrix Horizontal Rectangle shape models a set of lights arranged in a rectangle, where the strings run horizontally. If the matrix needs to be skewed in some way, use the [Matrix Horizontal Quad](#) shape instead. When modeling a pixel string on a gutter or eave, use this shape with the number of strings set to 1.



A Matrix Horizontal Rectangle shape with 16 strings

### ***Matrix-Vertical-Rectangle***

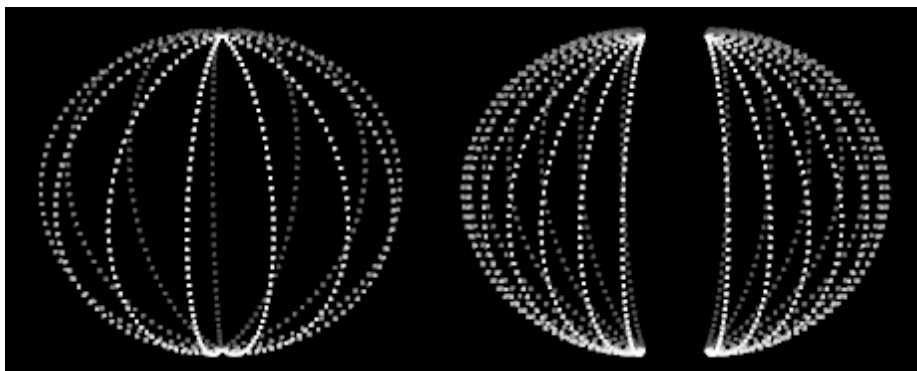
The Matrix Vertical Rectangle shape models a set of lights arranged in a rectangle, where the strings run vertically. If the matrix needs to be skewed in some way, use the [Matrix Vertical Quad](#) shape instead.



A Matrix Vertical Rectangle shape with 16 strings

### ***Sphere***

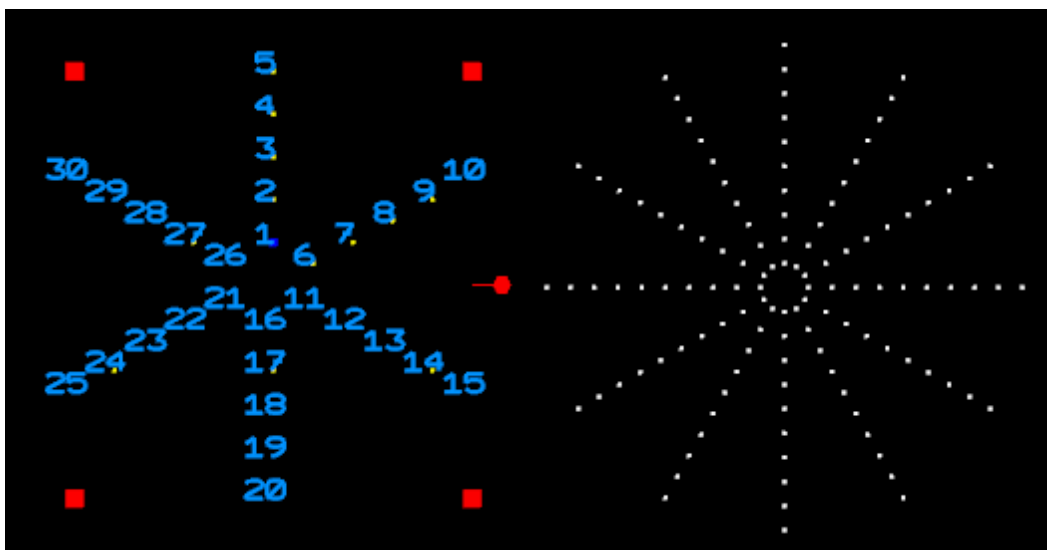
The cylinder shape allows you to model lights placed on a spherical object. The lights can go completely around the sphere, or you can specify 1/4, 1/2, or 3/4 coverage. If you choose partial coverage, be sure choose the Starting Location entry carefully. When used with pixels, the pixel strings are assumed to run vertically. Lights facing away from the viewer are shown at a lower intensity in the preview; however, this does not affect the actual lights.



The sphere shape: 1 full coverage, and 2 half coverage examples

## Spokes

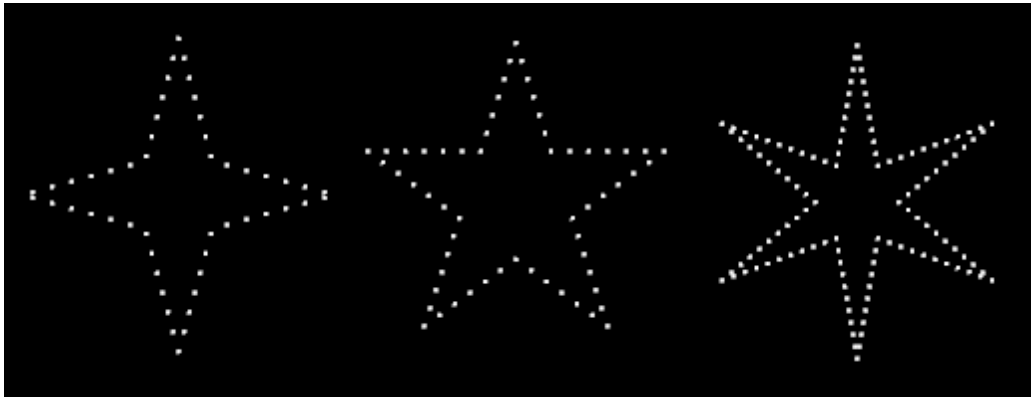
The spokes shape models strings radiating from a central point.



The Spokes shape: 6 spokes with pixel numbers on the left, 12 spokes on the right

## Star

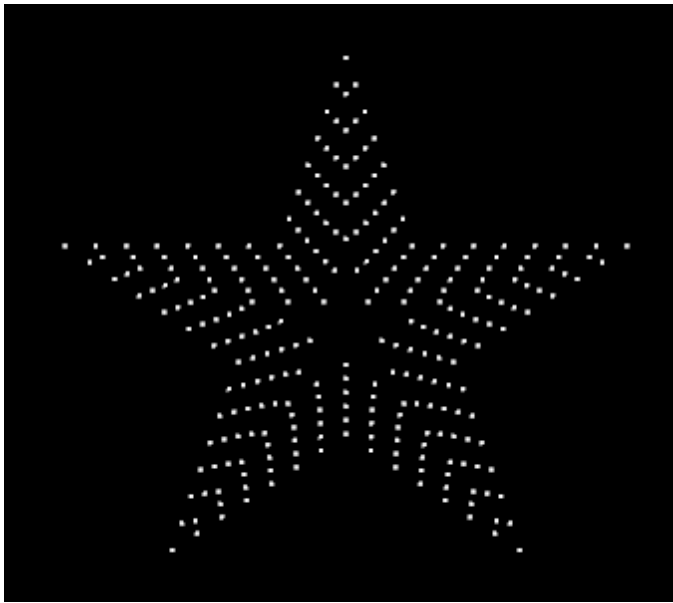
The Star shape can model a single star with any number of points.



4, 5, and 6-pointed stars

### ***Stars Nested***

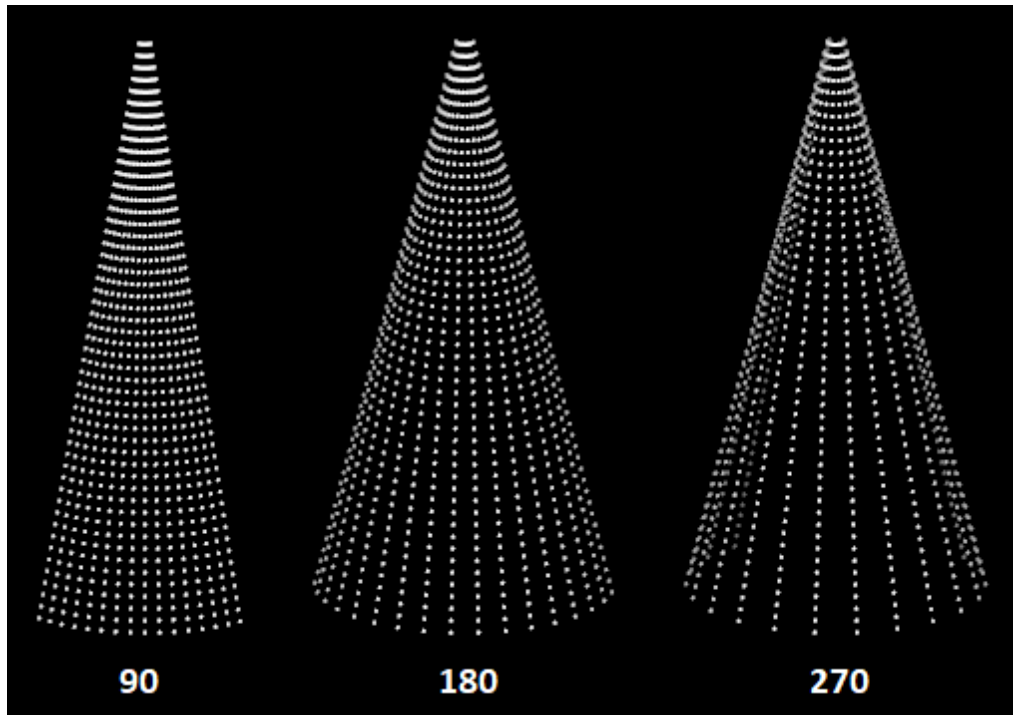
The Stars Nested shape models 5-pointed stars that are nested one within the other. Up to 6 nested stars are supported. It looks best when the number of lights in each star is divisible by 10.



The Stars Nested shape

### ***Tree 90, 180, 270***

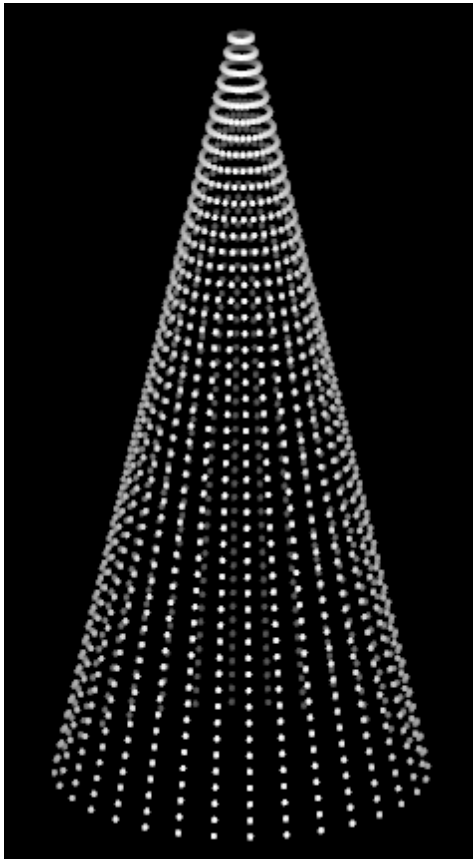
These shapes model trees that are not a complete circle. Whether you choose 90 degrees, 180 degrees, or 270 degrees is a matter of preference - how it looks on the [preview](#) -- it does not change the [effects](#) on the actual lights. Strings are assumed to run vertically up and/or down the tree.



90, 180, and 270 degree trees

### ***Tree 360 wedges***

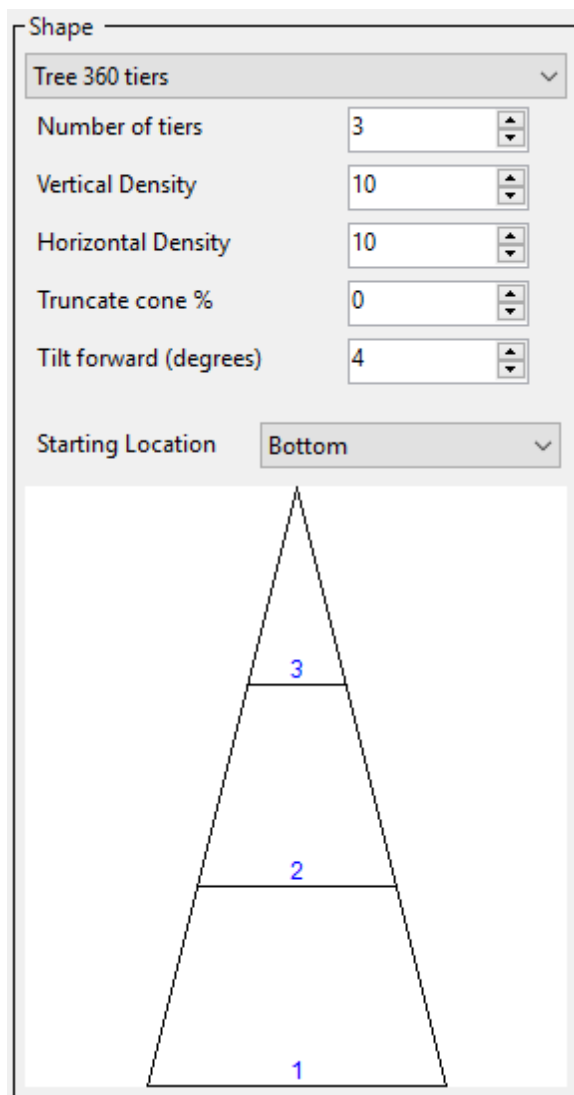
The Tree 360 Wedges shape models the most common type of lighted tree -- one where all sides of the tree are lit. Strings are assumed to run vertically up and/or down the tree. Lights facing away from the viewer are shown at a lower intensity in the preview; however, this does not affect the actual lights.



The Tree 360 shape

### ***Tree 360 tiers***

The Tree 360 Tiers shape divides the tree into layers and is sometimes referred to as a "z tree". Each layer is activated by a different channel. This shape does not support pixels.



Tree 360 Tiers shape parameters and diagram

### ***Tree 360 panels***

Commercial trees are often built with panels or branches that are placed around each layer of the tree. When creating a panel tree you:

1. define the arrangement of lights on a single panel, and then
2. specify how many panels there are on each layer of the tree.

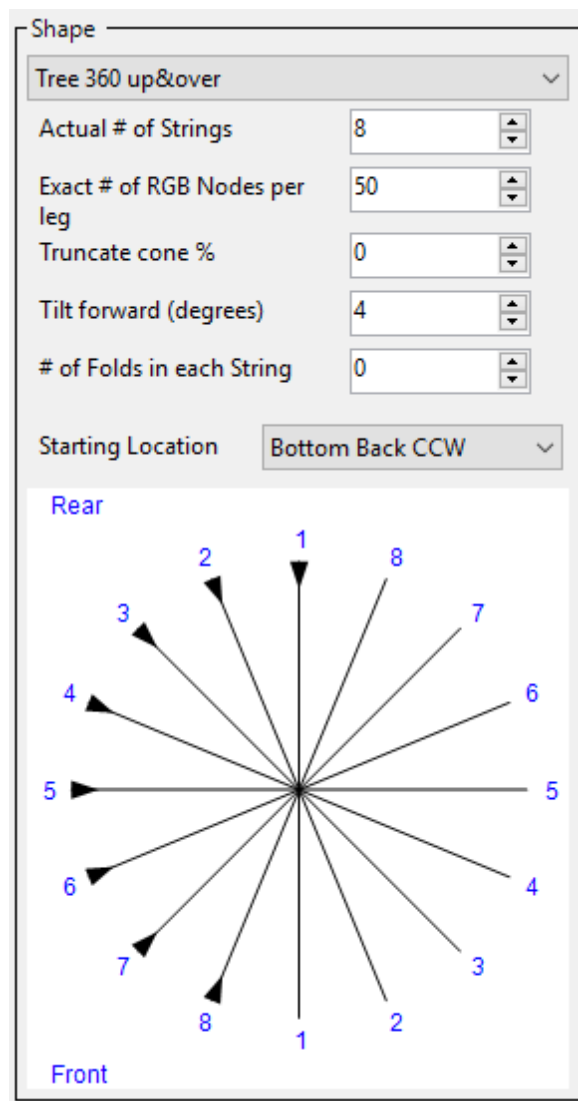
There is a limit of 999 lights per panel.





### ***Tree 360 up&over***

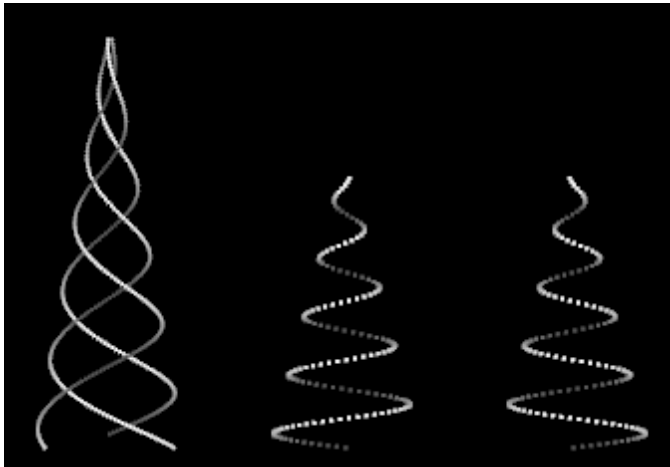
In a Tree 360 Up & Over shape, a string of lights goes up one side of the tree and down the opposite side. Lights facing away from the viewer are shown at a lower intensity in the preview; however, this does not affect the actual lights.



Tree 360 Up & Over shape parameters and diagram.  
The diagram is a view from the top.

### ***Tree 360 spiral***

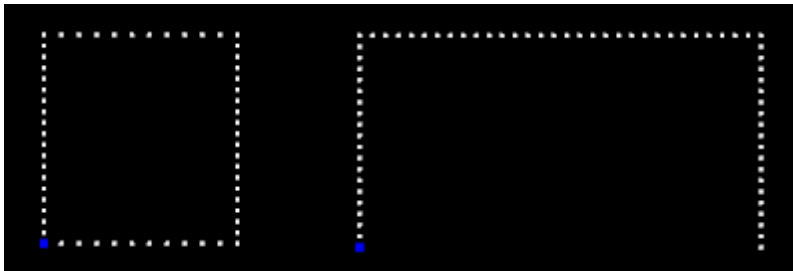
Tree 360 Spiral shapes model a tree where the strings spiral up around the outside of the tree. The "revolutions" parameter can be positive or negative -- the sign controls the direction of the wrapping. Lights facing away from the viewer are shown at a lower intensity in the preview; however, this does not affect the actual lights.



Spiral Trees: 1 with 3 strings, and 2 with 1 string

### Window Frame

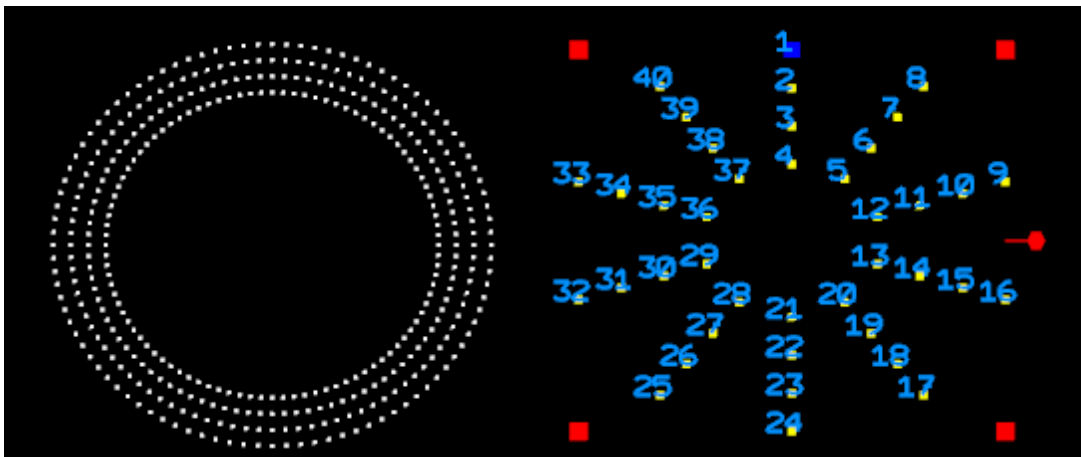
You can use the Window Frame shape to model windows and doors. When modeling a door, set the "# of lights at the bottom" to 0.



Using the Window Frame shape to model a window and a garage door

### Wreath

Use the Wreath Shape to model any circular prop. When used with pixels, the pixels are assumed to be wired outside to inside, and then continuing back to the outside, then inside, etc.

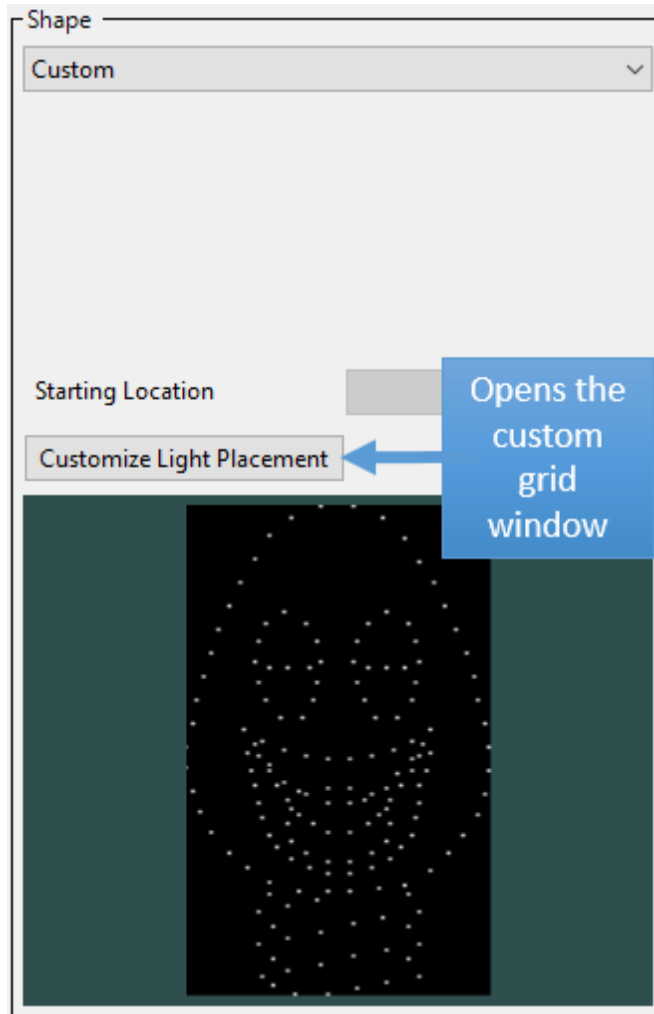


2 Wreaths, one with pixel numbers displayed

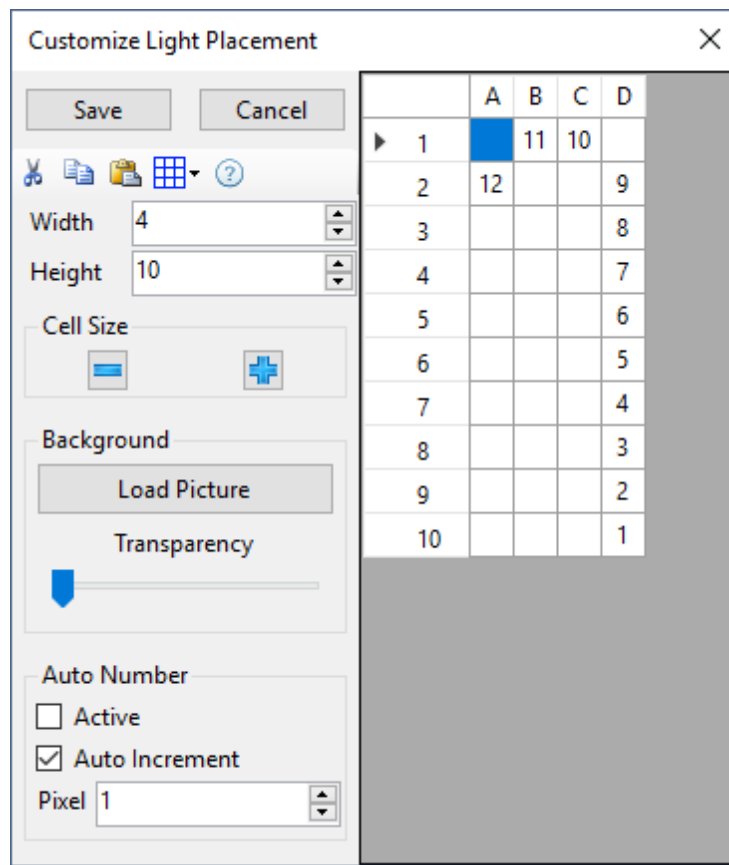
## 5.3.4.6.2 Custom Grid

When using a [Custom shape](#), [Advanced shape](#), or [Tree 360 Panels](#) shape on the [Prop Definition window](#) you will click a button to open the Custom Grid Window:

- For a Custom shape, you are using the grid to define the placement of your lights.
- For an Advanced shape, you are using the grid to define the placement of pixels in the effect buffer.
- For a Tree 360 Panels shape, you are defining the location of lights on a single panel.



Button that opens the Custom Grid Window



Custom Grid Window

## Entering Grid Data

To define the shape, place a number in each cell where there is a light or pixel. A number can be entered into a cell by:

- Clicking on a cell and entering the number using the keyboard
- Using the [cut, copy, and paste buttons](#)
- Using the [auto-numbering feature](#)

### ***Traditional & Dumb RGB Lights***

For props that use traditional strings or dumb RGB lights, the number you enter in the custom grid is the string number. So if you were defining a candy cane made using a single incandescent string or a single dumb RGB string, then all of the numbers in the grid would be "1", as in the picture below.

If this prop had a second string connected to another channel, you would use the number "2" to represent that string.

		A	B	C	D
▶	1		1	1	
	2	1			1
	3				1
	4				1
	5				1
	6				1
	7				1
	8				1
	9				1
	10				1

Custom Candy  
Cane-Traditional Lights

## RGB Pixels

The picture below shows a candy cane with 12 RGB pixels. For RGB pixels, the number you enter is the pixel number: 1 for the first pixel, 2 for the second pixel, etc.

		A	B	C	D
▶	1		11	10	
	2	12			9
	3				8
	4				7
	5				6
	6				5
	7				4
	8				3
	9				2
	10				1

Custom Candy  
Cane-Pixels

## Multiple Pixel Strings

When you have multiple strings of RGB pixels: numbers 1-999 represent pixels on the first RGB string; 1001-1999 represent pixels on the second RGB string; 2001-2999 represent pixels on the third RGB string, etc. You cannot represent a string with more than 999 pixels when using a [Custom shape](#), [Advanced shape](#), or [Tree 360 Panels](#) shape.

	A	B	C	D
▶ 1	3010	2010	1010	10
2	3009	2009	1009	9
3	3008	2008	1008	8
4	3007	2007	1007	7
5	3006	2006	1006	6
6	3005	2005	1005	5
7	3004	2004	1004	4
8	3003	2003	1003	3
9	3002	2002	1002	2
10	3001	2001	1001	1

String 1: starts at 1  
String 2: starts at 1001  
String 3: starts at 2001  
String 4: starts at 3001

A pixel matrix with 4 strings of 10 pixels each

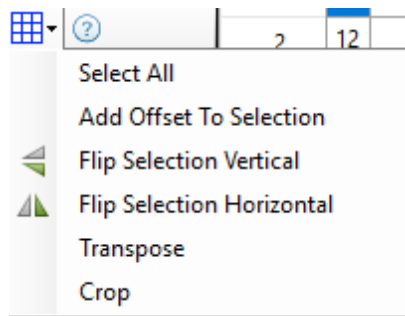
## The Toolbar

### ***Cut, Copy, Paste***



Within the custom grid you can use the cut, copy and paste buttons (or their [keyboard shortcuts](#)) to move blocks of data around the grid. You can also use them to move data to and from an external spreadsheet (like Microsoft Excel).

### ***Grid Menu***



The Custom Grid Menu

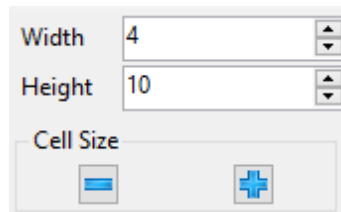
From this menu you can:

- Select All - selects all grid cells
- Add Offset To Selection - prompts for a number (can be positive or negative), and then adds that number to the selected cells. This can be used to change the string assigned to the selected cells.
- Flip Selection Vertical - flips the selected cells vertically. Using the example at the beginning of this topic: a right-side-up candy cane will become an upside-down candy cane.
- Flip Selection Horizontal - flips the selected cells horizontally. Using the example at the beginning of this topic: a candy cane facing left will become a candy cane facing right.
- Transpose - flips the entire grid so that the rows become columns and the columns become rows. Here is the original candy cane example transposed:

		A	B	C	D	E	F	G	H	I	J
▶ 1		12									
2		11									
3		10									
4			9	8	7	6	5	4	3	2	1

- Crop - deletes any blank rows at the top or bottom, and any blank columns on the left or right

## Grid Size

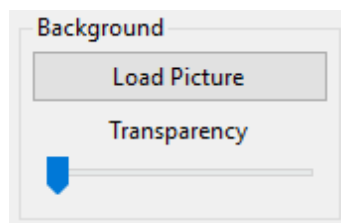


The grid size controls

Using these controls you can:

- Change the width of the grid - adds or removes columns
- Change the height of the grid - adds or removes rows
- Change the size of the grid cells - make them smaller or larger

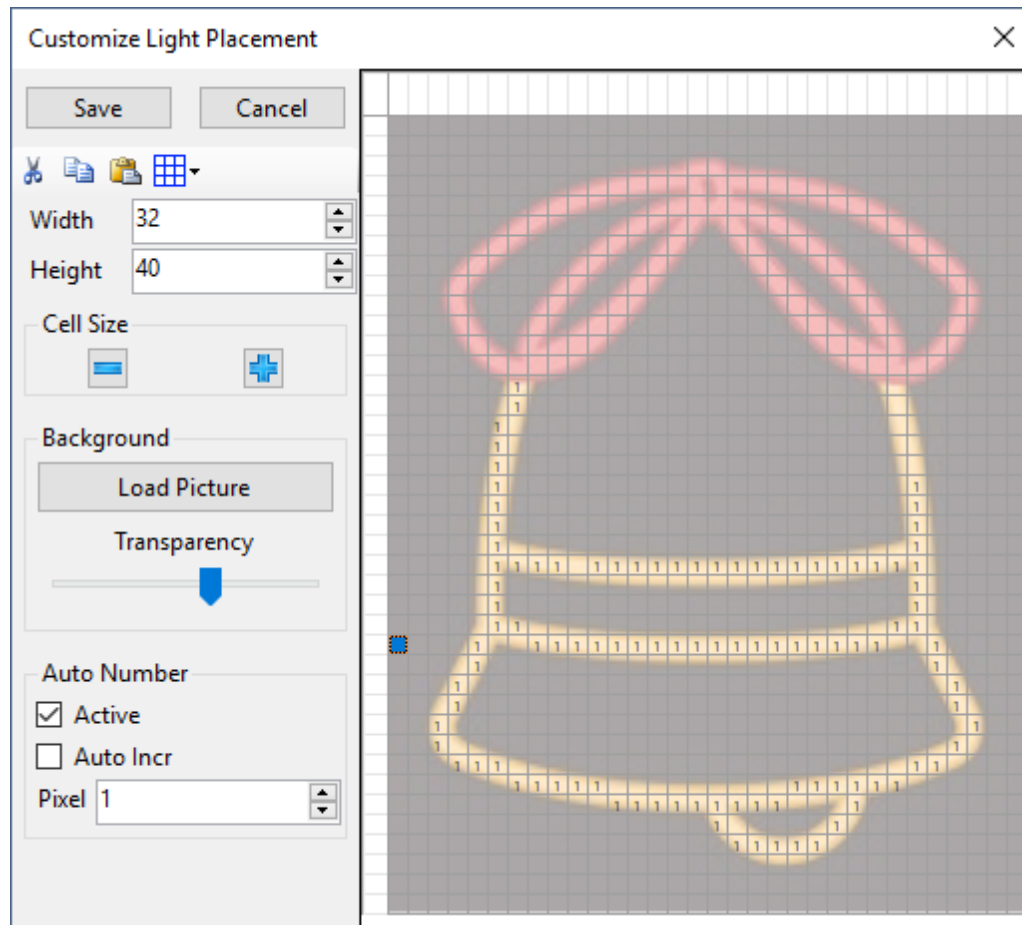
## Using a Background Image



Using a background image can make placing the numbers in the grid much easier. Simply click the

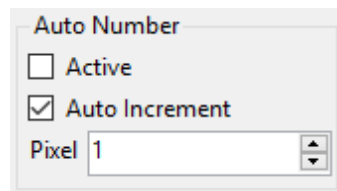


Load Picture button to load a picture of your prop. The selected picture will be used as the background of the grid. Acceptable file formats are JPG, PNG, and BMP. Then adjust the Transparency slider so that the background image and the numbers you type in can both be seen.



A background image made partially transparent, and numbers entered for part of the outline






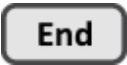








## Auto-numbering



When auto-numbering is active (i.e. the Active box is checked), you can just click on a cell with the left mouse button to insert a number. If Auto Increment is checked, then the pixel number will automatically increment after every mouse click. In general, Auto Increment should be unchecked when creating a custom grid for traditional lights, and checked when creating a custom grid for pixel-based props.

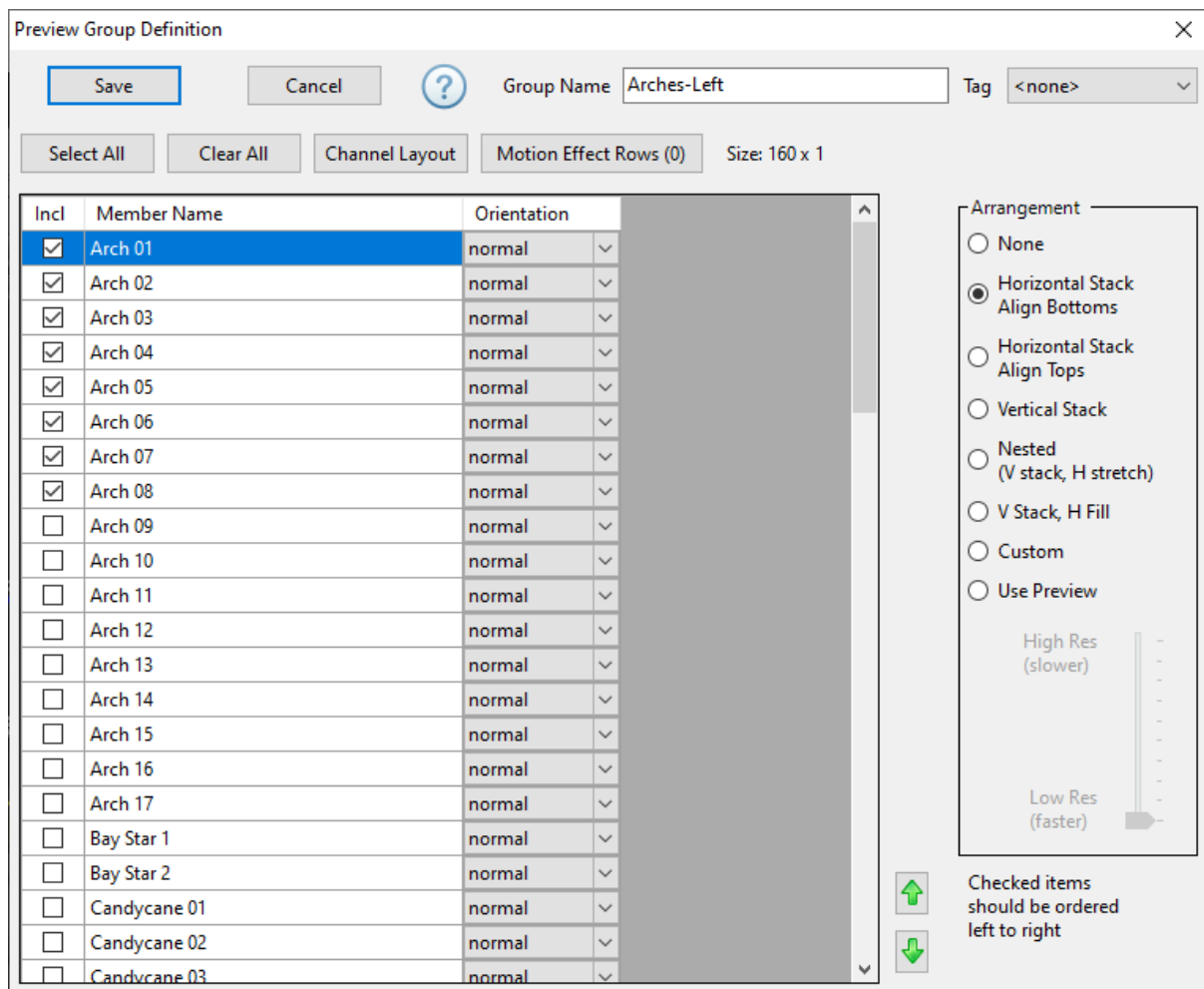
## Keyboard Shortcuts

Use these shortcut keys to navigate and modify the grid.

Key	Action
   	Use the arrow keys to move one cell in the direction of the arrow
	Move to the first cell in the current row
	Move to the last cell in the current row
	Move up 1 screen
	Move down 1 screen
	Expand the selection by holding down the shift key while using any of the keys listed above
	Deletes the contents of the selected cells
	Selects the entire grid
	Cut
	Copy
	Paste

### 5.3.4.7 Group Definition

In [Preview Design](#), you can create groups of [props](#). This enables you to apply [effects](#) to the entire group. For example, if you have 4 arches in row, you could put them in a group. A curtain effect applied to the group will be different than the same curtain effect applied to each prop individually.



Preview Group Definition Window

## Items In The Group

Place a check mark next to each prop that you want included in the group. You can use the Select All button to check all of the boxes, and the Clear All button to clear all of the boxes.

## Arrangement

There are different ways to group props. In the arch example above, you would set the arrangement to "horizontal stack" because arches are usually arranged horizontally. There is also a "use preview" arrangement setting which applies effects according to the way the props are laid out in the [preview](#). You can even put all of your RGB elements in a single preview group and then apply effects to that group and your entire display will appear to move together.

### None

The group will only be used to keep items together in the sequence grid. You cannot create motion effect rows for groups with an arrangement of "none".

### ***Horizontal Stack Align Bottoms***

Members of the group are arranged side-by-side. If there are members with varying heights, they will be arranged using the bottom as a reference.



### ***Horizontal Stack Align Tops***

Members of the group are arranged side-by-side. If there are members with varying heights, they will be arranged using the top as a reference.



### ***Vertical Stack***

Members of the group are arranged bottom to top. If there are members with varying widths, they will be arranged using the left side as a reference.



### ***Nested***

Members of the group are arranged bottom to top. If there are members with varying widths, items

with shorter widths are stretched to match the widest item.

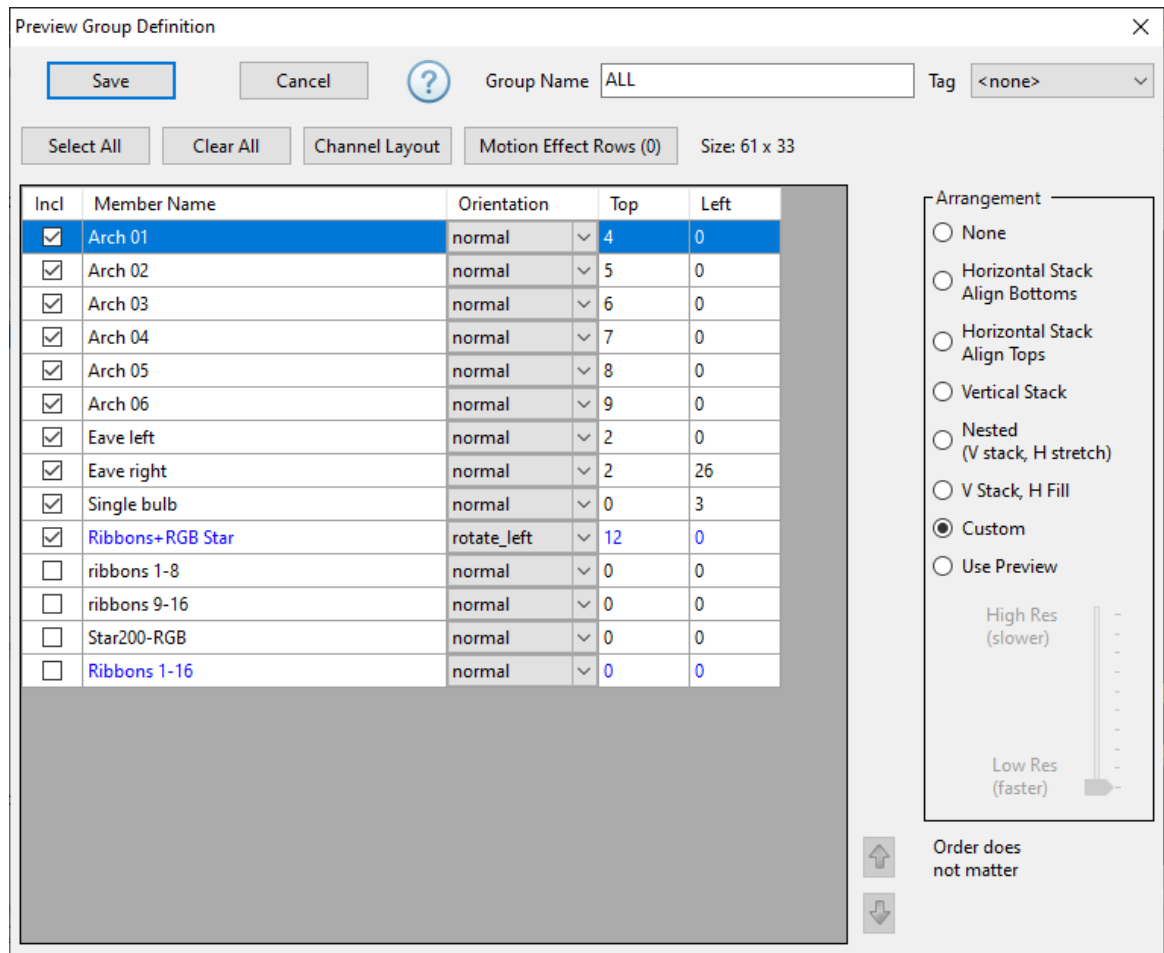


### ***V Stack, H Fill***

This is like the "nested" arrangement, except that when items are stretched, pixels are repeated in the buffer so that there are no gaps.

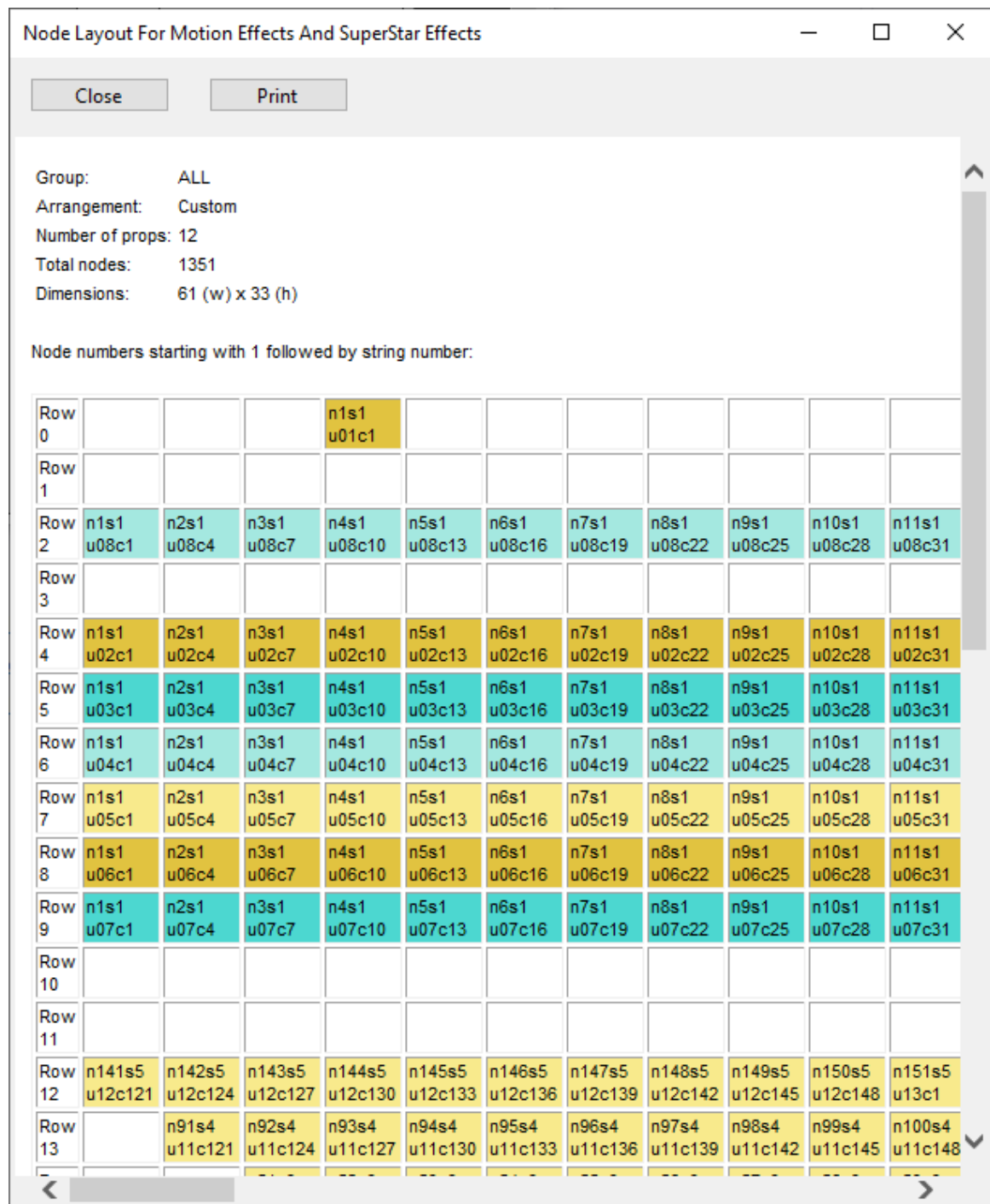
### ***Custom***

When you click the "Custom" button, 2 additional columns are added to the member grid: Top and Left. You can use these columns to specify where the effect buffer should be placed. Specifying 0, 0 will place the effect buffer for that group in the upper left corner. This arrangement can be useful for who users who want to sequence all of their props at the same time in [SuperStar](#).



Custom Arrangement

Use the "Channel Layout" button to visualize how the props are arranged. Here is a portion of the layout for the custom arrangement shown above:



The Channel Layout

### Use Preview

Pixels are arranged according to their placement in the preview. The slider associated this arrangement can be used to adjust the granularity of the placement. Coarser granularity results in faster performance, but might make your effects look "blocky" if you have many pixels. Finer granularity will eliminate the "blockiness" but takes more memory and takes longer to calculate the effects.

## Channel Layout

Use the channel layout to view the results of the arrangement setting. This is the pixel configuration that will be used when motion effects are applied.

## Motion Effect Rows

You can define a set of motion effect rows that will be applied when the preview is used during the creation of a new sequence. Changes made to these motion effect rows do not affect existing sequences.

## Tag

This field is used to identify groups that correspond to items in sequences purchased from the Light-O-Rama Sequence Store.

### 5.3.4.8 Copy Prop Dialog

The “Copy” command is very helpful in creating a collection of props that all look the same, such as a series of arches or mini-trees. This opens a window where you can specify how many copies should be made. If the source name has a numeric suffix, then that number will be automatically incremented for each copy. After the “Make Copies” button is pressed the new copies will be displayed

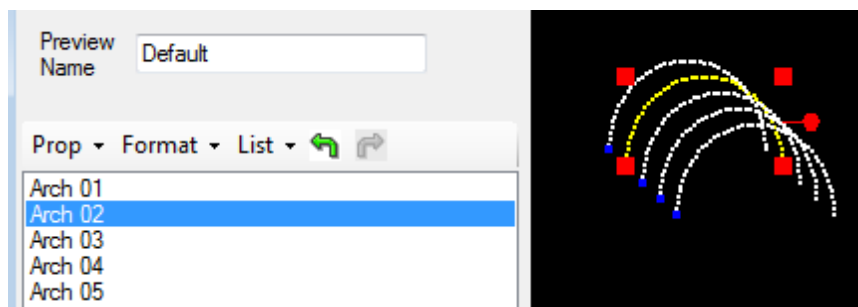
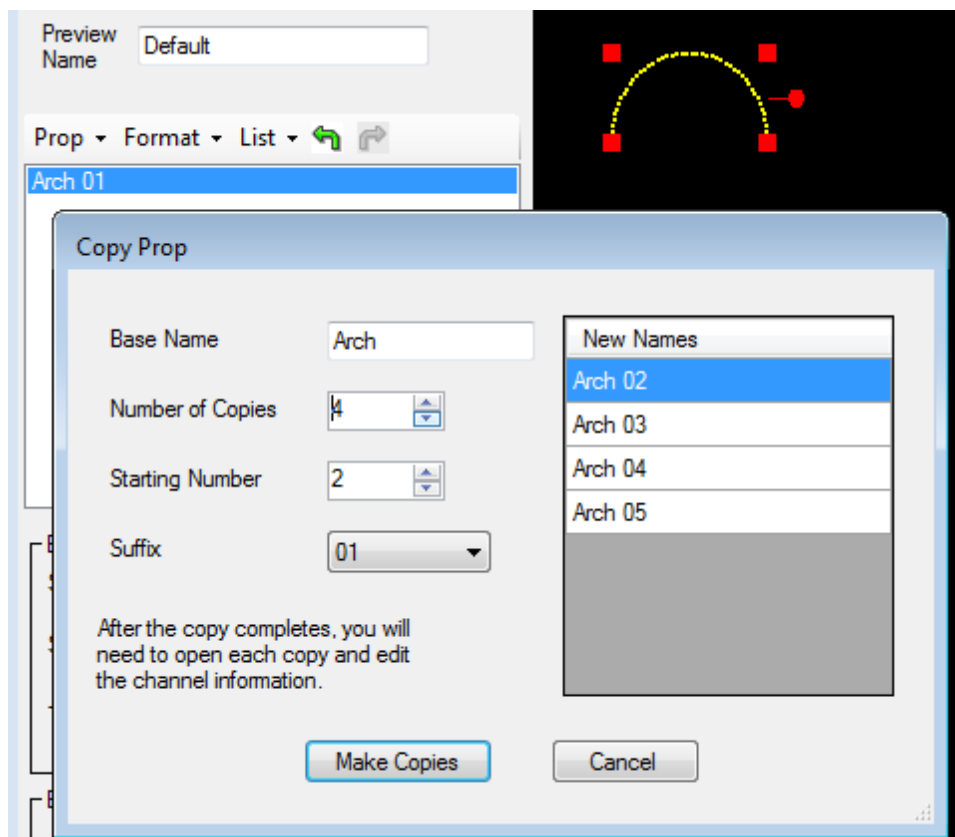
Here is the process for copying a prop:

- Select the prop in the item list that will be the source of the copy. For props with a numeric suffix, this prop’s name should end with “1”, “01”, “001”, “(1)”, “(01)”, or “(001)”. If you have created 5 arches and then decide you need more, you can select the last one (e.g. “Arch 05”) and the Copy command will continue your number sequence from there.
- Select “Prop”, then “Copy” from the menu. This will open the Copy window. See the picture below for an example.
- The “Base Name” field should already be filled in for you. If you are creating a non-numeric sequence such as “Left”, “Center”, “Right”, then you might want to edit the base name to remove the suffix in the source prop’s name.
- Select the number of copies to make. The New Names list on the right will automatically update as this value is changed.
- If the source prop’s name has a numeric suffix, then the “Starting Number” field should be set automatically.
- The “Suffix” field should be set automatically, but can be changed if desired. For example, if your source prop does not have a numeric suffix, but you want the copies to be numbered, then change this field to the desired number format.



- You can change the automatically generated names by double-clicking any entry in the “New Names” list and making edits as desired.
- After making all of your edits, click the “Make Copies” button. This will close the Copy window and the new copies should appear in the preview design window.
- The [channel](#) information in the copies will be set automatically -- incremented from the source prop. However, after the copy completes, you should double-click on the name of each copied prop in the list and when the [Prop Definition](#) window opens, verify that the channel information for that prop is correct.

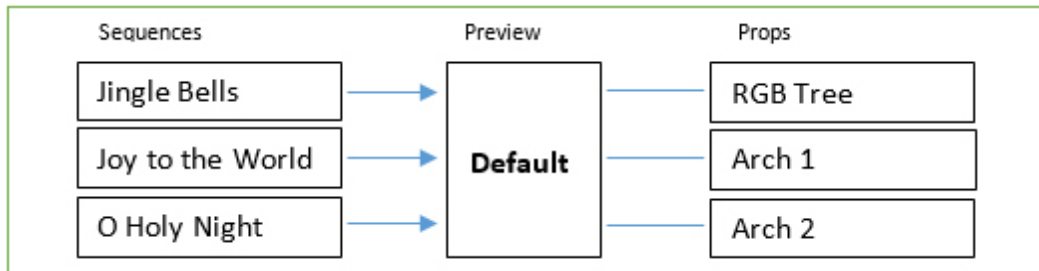
The picture below shows the Copy command being applied to a prop named “Arch 01”. The numeric suffix is automatically detected and the fields set accordingly. The only action is to set the desired number of copies (4 in this example).



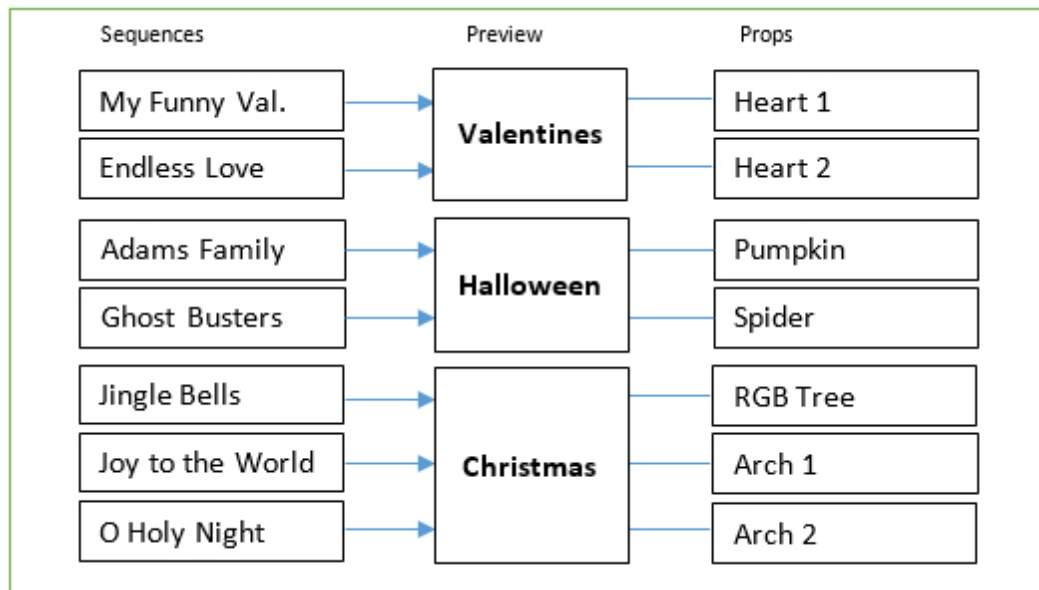
Result of making 4 copies

#### 5.3.4.9 Naming Strategies

The [Sequencer](#) comes with an empty [preview](#) called “Default”. If you want to keep things simple, you can create all of your props in the Default preview and associate all of your sequences with Default:



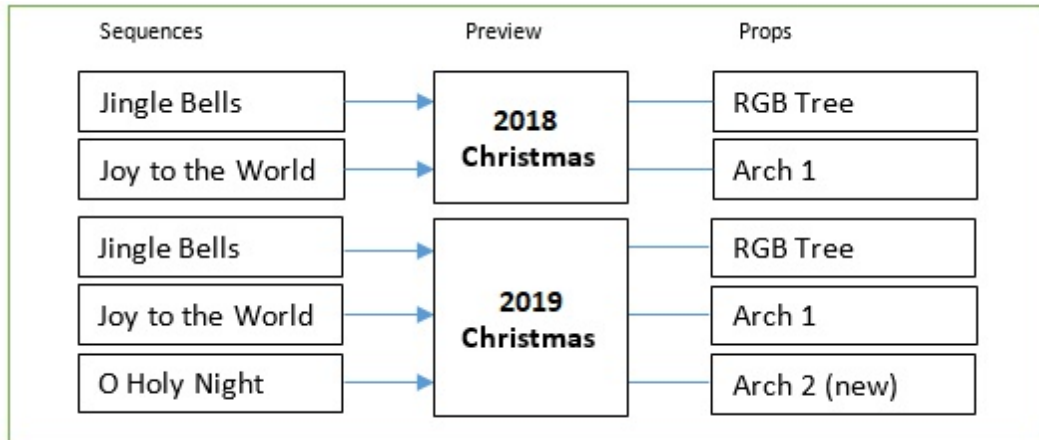
Another approach is to create a preview for each holiday for which you have a light [show](#). For example, you could have previews called “Valentines”, “Halloween”, and “Christmas”. If your display were to change from year to year, you would update the props in the preview for the relevant holiday.



Finally, you can create a preview for each display, for each year. So you might start with a preview called “2018 Christmas” associated with all of your [sequences](#) for 2018. Then in 2019, you would archive your 2018 sequences for reference, and make copies that you would work with for your 2019 show. Something like this:

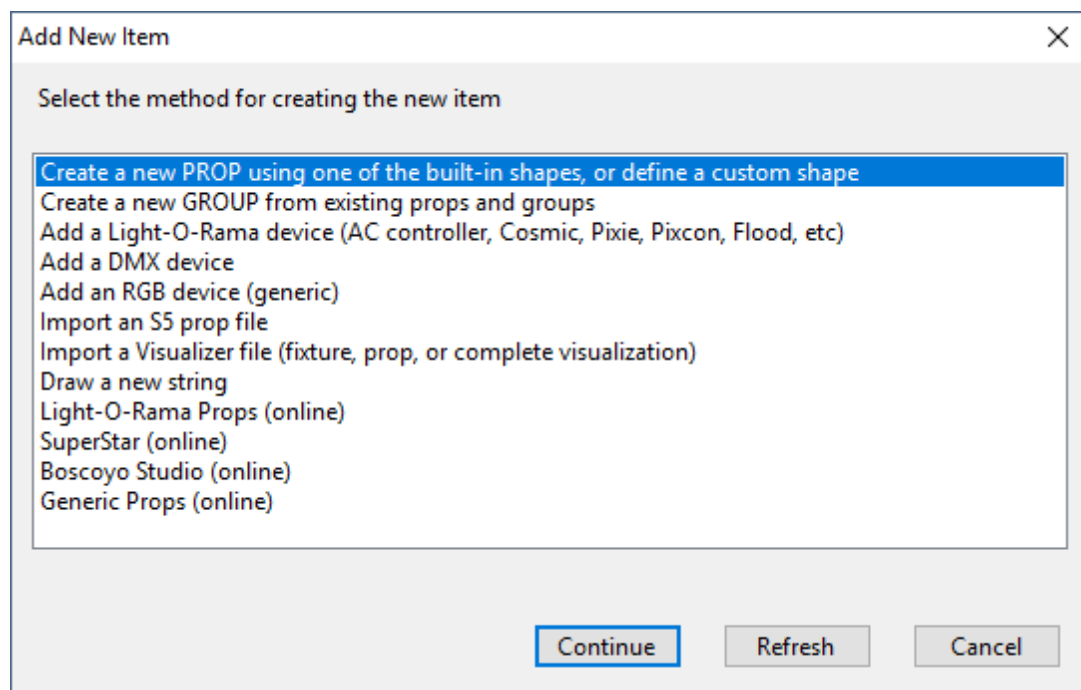
- Copy all of your 2018 sequences to a new folder for 2019.
- In the Sequencer, [copy](#) the “2018 Christmas” preview to “2019 Christmas”. This would make a copy of the preview’s visual layout as well as make a copy of every prop in the preview.
- Open each sequence in the 2019 folder and change the sequence’s preview to “2019 Christmas” (with the sequence open, select [Sequence](#) > [Assign Different Preview](#) from the menu).
- With that complete, you could proceed with adding and removing props in the “2019 Christmas” preview and revising the 2019 sequences as desired

The Advantage of this approach is that it gives you a history of your old sequences and those sequences can be opened in the Sequencer and viewed using the preview in effect for that year.



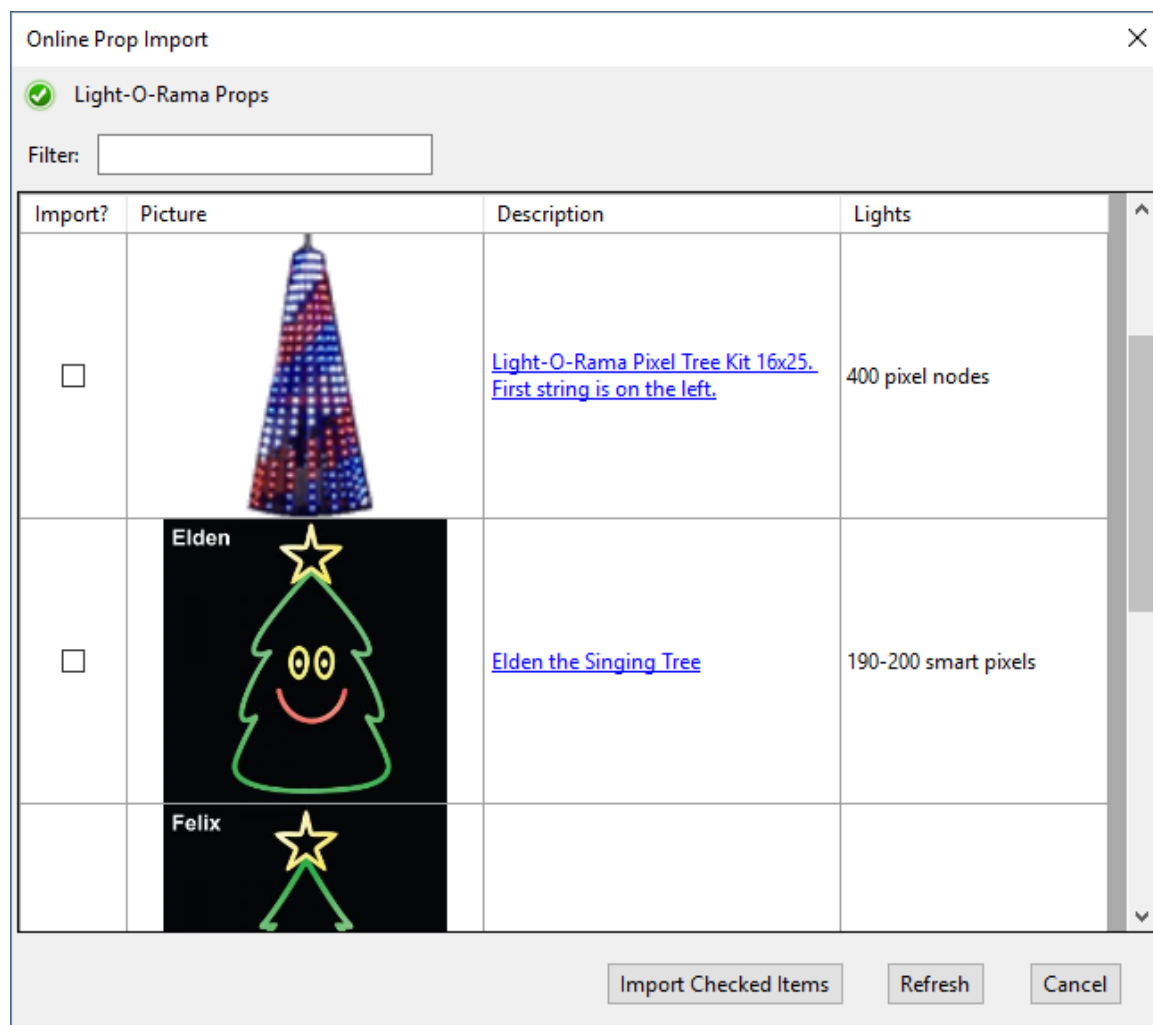
#### 5.3.4.10 Online Prop Import

There are several online repositories of prop definitions that you can access from the Sequencer and import directly onto the [Preview Design](#) canvas. To start an online import, click the [Add Item](#) button on the Design Tab. This will open the following window:



Preview Design's Add New Item dialog

Notice that the last 4 items have "(online)" as a suffix. This means that their content resides online and requires an Internet connection to access them. If you select one of them and then click the "Continue" button (or just double-click on one), then you will see the following window (the content will vary depending on which item you clicked on).



Online Prop Import

## Importing A Prop

To import a prop, click the check box next to one or more props that you want to bring into your preview. Then click the "Import Checked Items" button.

## Filtering The List

You can filter the list by entering text into the box labeled "Filter". The list will change with each character you type. To see all items, remove all text from the filter box.

## Find Out More About The Prop

Depending on which online source you are viewing the description column might be displayed as a link. If it is, then you can click on the link and the product page for that item will open in your web browser.

## Where To Buy Lights For The Prop

Depending on which online source you are viewing the lights column might be displayed as a link. If it is, then you can click on the link and the page for purchasing lights and controllers in the Light-O-Rama Store will open in your web browser.

## Refresh The List

In rare cases, the list of props may not download correctly -- perhaps there was a problem with your internet connection. In such cases, you can click the "Refresh" button and an attempt to download the prop information will be made again.

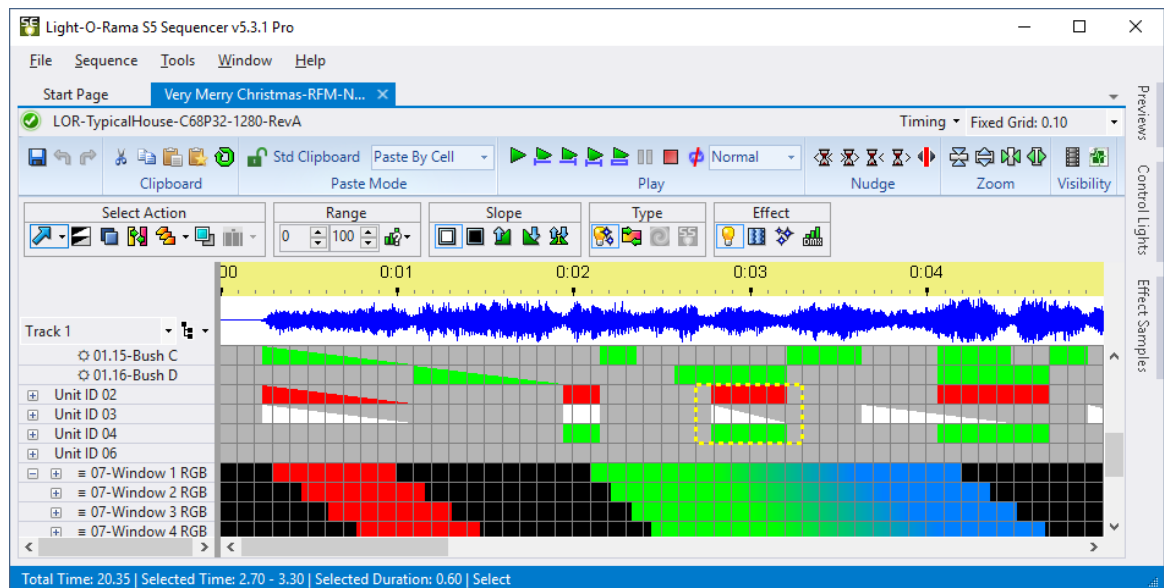
### 5.3.5 Sequence Tab

This section will describe the various parts of an open sequence tab, and how you go about editing a sequence. Before proceeding, you should understand [what a sequence is](#) and the [high-level description of the S5 Sequencer](#).

To start sequencing, open an existing sequence or start a new one.

- To open an existing sequence:
  - select [File > Open](#) or [File > Recent Files](#) from the main menu, or
  - click on one of the recent files listed on the [Start Page](#).
- To start a new sequence:
  - select [File > New](#) from the main menu, or
  - click New Animation Sequence or New Musical Sequence on the [Start Page](#), or
  - right-click on a preview in the [Previews Window](#) and select New Animation Sequence or New Musical Sequence from the pop-up menu.

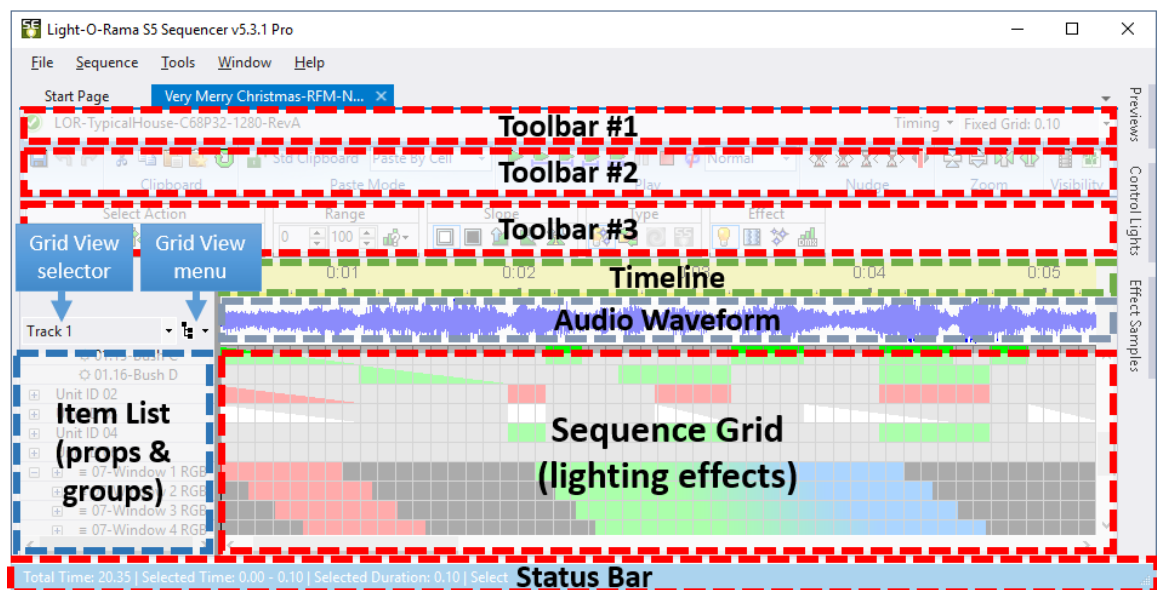
The sequence will be displayed in its own tab. Normally, you view only one sequence tab at a time; however, you can view sequences side-by-side as described in the [Customizing Window Layouts](#) topic.



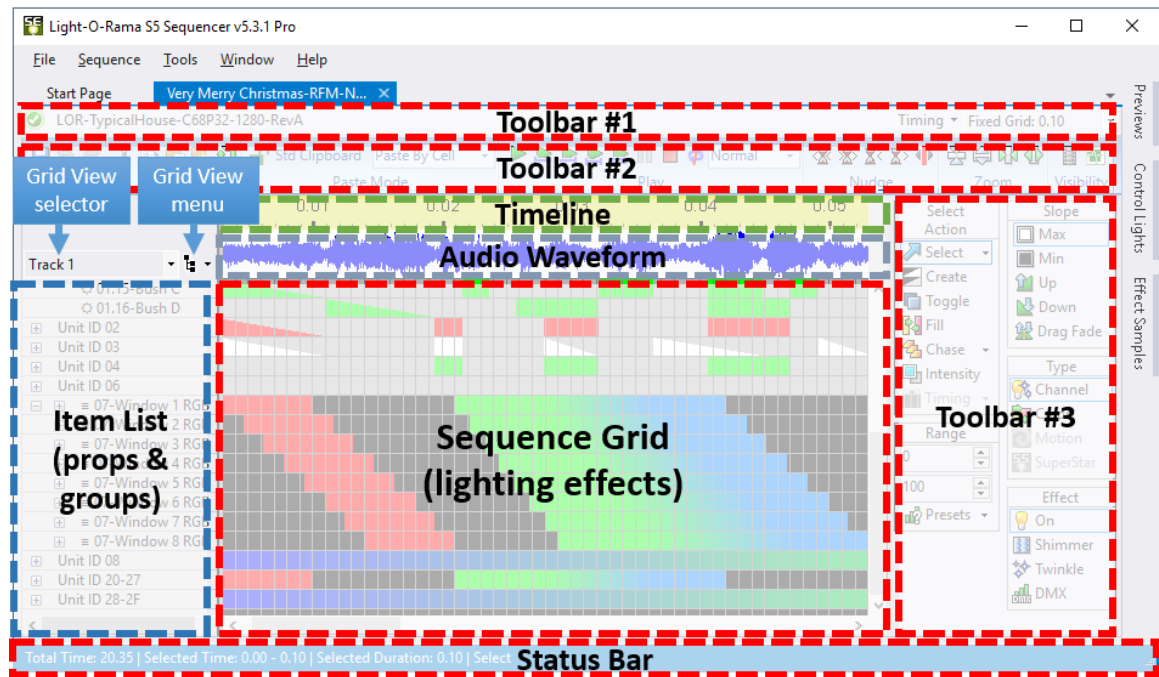
The Sequencer with an open musical sequence

Each sequence tab has several sections:

- At the very top, the tab displays the sequence name. The name is preceded by an asterisk "\*" if there are unsaved changes. Hovering your cursor over the tab will display a tool-tip showing the full path to the sequence file. After the name is an "X", which when clicked will close the sequence.
- [The Toolbars](#) - there are 3 toolbars which contain command buttons for saving, playing, and modifying the sequence. Toolbar #3 can be displayed above the sequence grid or to the right of it (compare the 2 configurations shown below).
- [Grid Views](#) and the [Grid View Menu](#) - which control the content of the [item list](#)
- The Timeline - displays the time dimension of the sequence. It shows where you are in your sequence time-wise.
- [The Waveform](#) - if this is a [musical sequence](#), the audio waveform can be displayed to help place [effects](#) so that they are synchronized to the music.
- [Item List](#) - the list of [preview props](#), [preview groups](#), [grid view groups](#), [subsequences](#), [archive props](#), [RGB aggregates](#), [beat channels](#) (in [musical sequences](#)), and [loops](#) (in [animation sequences](#)) shown to the left of the sequence grid.
- Sequence Grid - there is a row in the sequence grid for every item in the [item list](#). Cells in the grid display the [lighting effects](#) that will happen on an item at various points in time while the sequence is being played.
- The Status Bar displays the total length of the sequence, as well as information about the [selected region](#) of the grid.



Areas within the Sequence Tab, Toolbar #3 Above



Areas within the Sequence Tab, Toolbar #3 Right

For more information on using the Sequence Tab, please see the following topics:

- [Scrolling & Zooming](#)
- [Item List](#)
- [Grid Views](#)
- [Grid View Menu](#)
- [Selecting Cells](#)
- [Intensity Range](#)
- [Adding Effects](#)
- [Modifying Effects](#)
- [Deleting Effects](#)
- [Cut/Copy/Paste/Repeat](#)
- [Toolbars](#)
- [Right-Click Context menu](#)
- [Freeform Play Range](#)
- [Playback](#)
- [Audio Waveform](#)
- [Audio Wizards](#)
- [Tooltips](#)
- [Loops in Animation Sequences](#)

### 5.3.5.1 Scrolling & Zooming

Your sequence grid is often larger than your display. To access all parts of your sequence, you will need to be able to:

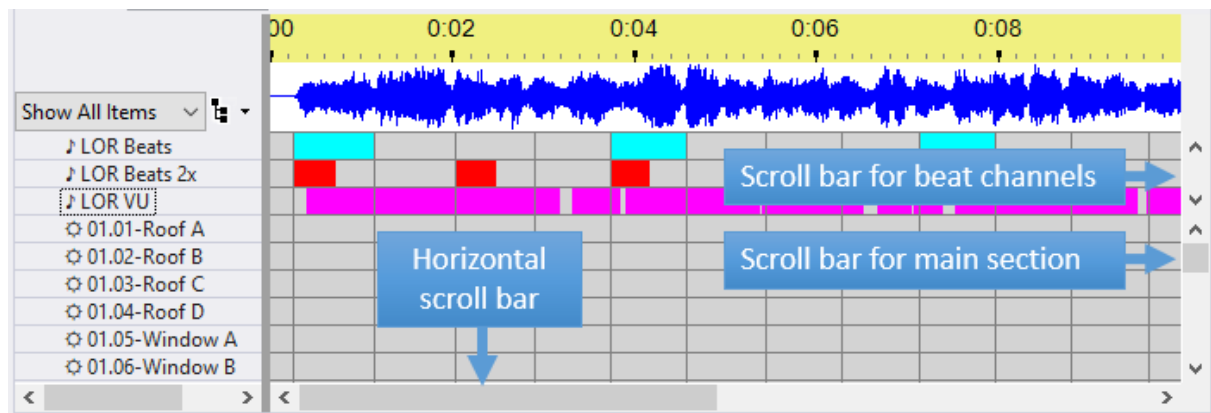
- [Scroll the grid](#) in any direction
- [Zoom in and out](#) of the grid both horizontally and vertically

## Scrolling

There are several ways to scroll the grid.

### Scroll Bars

You can click on the scroll bars to scroll the grid. There are 2 vertical scroll bars on the right edge: one scrolls the beat channels section and the other scrolls the main section. If there are no beat channels displayed, the beat channel scroll bar will be hidden. Also, the beat channel scroll bar will only need to be used if you have defined more beat channels than can be displayed at one time. The maximum number of beat channels displayed at one time defaults to 10, but you can change this value from the [grid view menu](#).



Sequence Grid Scroll Bars

### Mouse Wheel

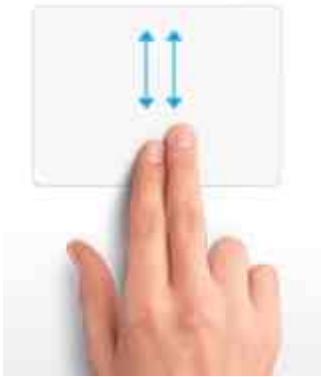
You can scroll the grid vertically using the mouse wheel on your mouse.



Using a mouse wheel makes it easier to scroll

If you are using a laptop and only have the built-in touch pad available, you can use 2 fingers to scroll vertically; though this tends to not work as reliably as a mouse with a mouse wheel





Using a touch pad to scroll



Hold the shift key down while using the mouse wheel to scroll horizontally.









## Keyboard

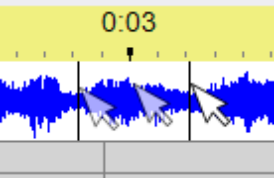
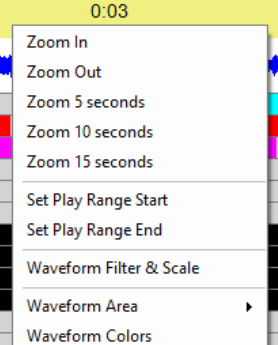
As you move the [selected area](#) of the grid using the arrow keys, home, end, page up, or page down, the grid will scroll so the current cell is always visible.

## Zooming



You can zoom in or out in the [sequencing grid](#):

### Zoom The Timescale (horizontal)

	Click the Zoom Time In button on the toolbar
	Click the Zoom Time Out button on the toolbar
 	Zoom in using Ctrl +
 	Zoom out using Ctrl -
 	Hold the Ctrl key down while using the mouse wheel

	Zoom in by dragging the mouse pointer across the audio waveform
	Right click on the time scale or on the wave form. <ul style="list-style-type: none"> <li>• The first 2 options on the menu allow you to zoom the time scale in and out.</li> <li>• The next 3 options zoom to a fixed time scale: 5, 10, or 15 seconds wide. These can quickly take you to a reasonable time scale if you have zoomed in too far.</li> </ul>

### ***Zoom The Row Height (vertical)***

	Click the Zoom Channels In button on the toolbar to make the height of each grid row shorter
	Click the Zoom Channels Out button on the toolbar to make the height of each grid row taller

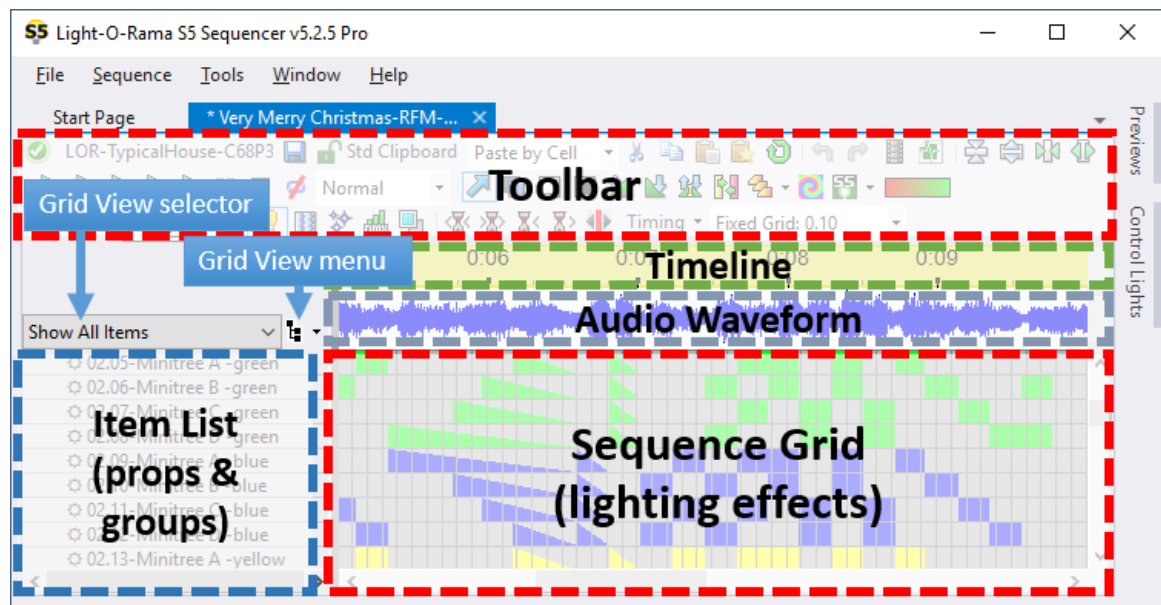
### ***Zoom Preferences***

[Zoom Preferences](#) (under the [Tools menu](#)) allows you to set a preferred horizontal and vertical zoom level and to restore it when desired.

#### **5.3.5.2 Item List**

The "item list" is the list of [preview props](#), [preview groups](#), [grid view groups](#), [subsequences](#), [archive props](#), [RGB aggregates](#), [beat channels](#) (in [musical sequences](#)), and [loops](#) (in [animation sequences](#)) shown to the left of the sequence grid. For every item in the list, there is a corresponding row immediately to its right in the sequence grid.

Between the item list and the sequence grid is a thick gray vertical bar. Dragging the bar left or right changes the width of the item list.

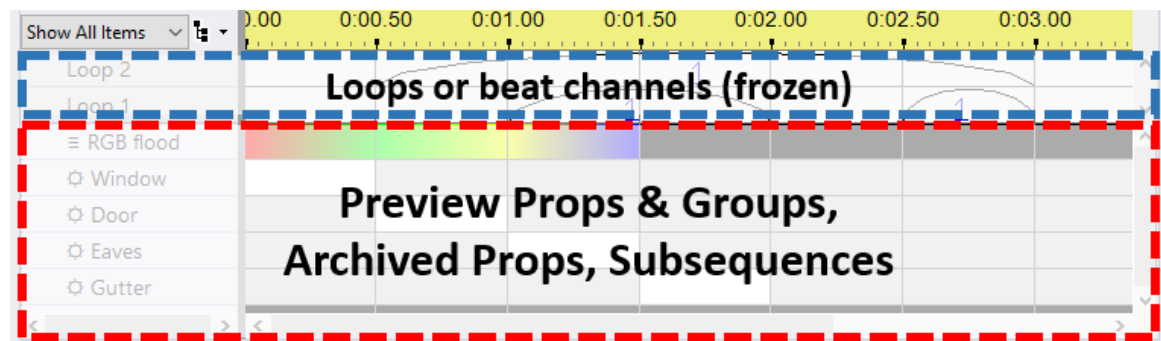


Areas within the Sequence Tab

The item list and sequence grid are divided into 2 sections:

- An upper part for [beat channels](#) (in [musical sequences](#)), and [loops](#) (in [animation sequences](#)). This part is fixed (frozen) at the top of the sequence grid so that loops and beat channels always remain visible.
- A lower part for all other items: [preview props](#), [preview groups](#), [grid view groups](#), [subsequences](#), [archive props](#), [RGB aggregates](#). You can create subsets of props and groups that you want to display in this section by using [Grid Views](#).

If there are no beat or loop channels, then the upper part will be hidden. However, if both sections are shown then each will have its own vertical [scroll bar](#) on the far right.



Subjects covered in this topic:

- [Row Types](#)
- [Item List Hierarchy](#)
- [Condensed Mode](#)
- [Item List Double-Click](#)
- [Reordering The Item List](#)
- [Item List Right-Click Menu](#)

## Row Types

When a sequence grid is displayed on your screen, each row in the grid will be of a certain type. Different row types can hold different kinds of [effects](#).

- [Regular channels](#)
- [RGB channels](#)
- [Motion Effect Rows](#)
- [Subsequences](#)
- [Beat channels](#)
- [Loop Rows](#)

Some row types are displayed with a symbol as a prefix to help identify the type of grid row. Here is a summary of the symbols that are used:

♪ Beat Channel
Δ Motion Row
✂ Regular Channel
≡ RGB Channel
@ Archived Prop
§ Subsequence

If a row is displayed with an "X" pattern, it is a placeholder in the item list and cannot have effects applied to it. This most often occurs when [Condensed Mode](#) is off -- the placeholder rows can be hidden by turning Condensed Mode on.

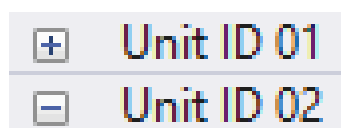


A placeholder row

## Item List Hierarchy

The item list is a hierarchical tree where items in the list can have child items, and those children can in turn have children. Items in the hierarchy with child items below them will be displayed with a "+" or "-" symbol inside a small box to the left of the name:

- a "+" symbol means the children are hidden; clicking on the "+" will expand the tree node and display the children
- a "-" symbol means the children are displayed; clicking on the "-" will collapse the tree node and hide the children.



- You can [right-click](#) on a collapsed item (one with a "+" button next to it) and select "Expand" from

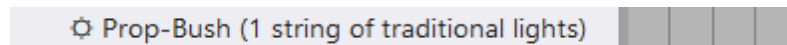
the pop-up menu to display all children at all levels below the item that was clicked.

- You can [right-click](#) on an expanded item (one with a "-" button next to it) and select "Collapse" from the pop-up menu to hide all children at all levels below the item that was clicked.
- You can select [Expand All](#) from the [Grid View Menu](#) to display all children for every item in the Item List.
- You can select [Collapse All](#) from the [Grid View Menu](#) to hide all children for every item in the Item List.

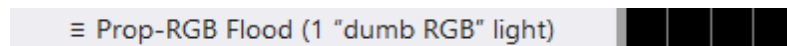
## Preview Props

[Preview props](#) that have a single [regular channel](#), [RGB channel](#), or [motion effect row](#) will be displayed as a single row in the sequence grid.

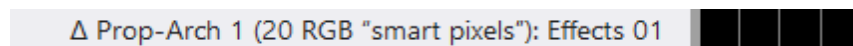
A prop with a single string of lights (such as a bush):



An RGB flood light:



A pixel-based arch with 1 motion effect row and the [channel level disabled](#) (motion effect rows require a [Pro license](#)):

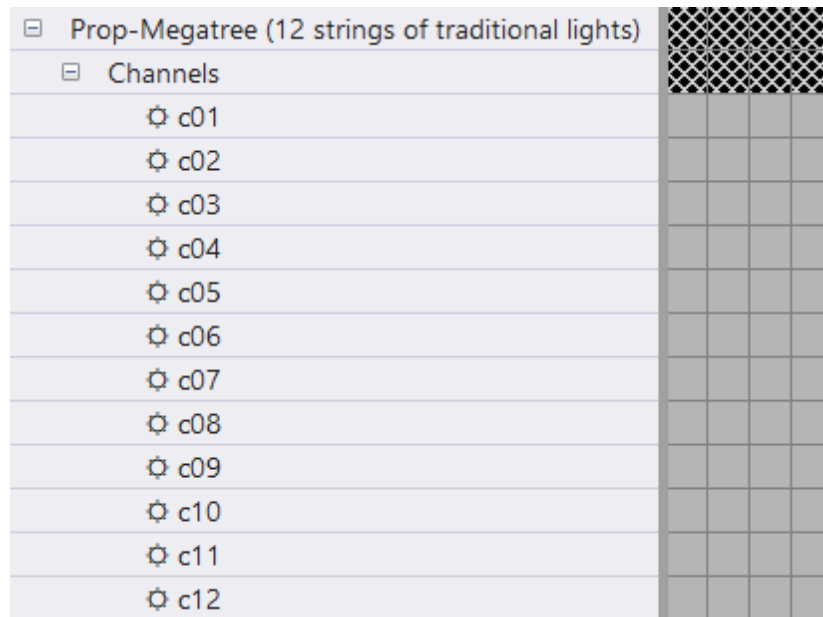


[Preview props](#) that have more than one [regular channel](#), [RGB channel](#), or [motion effect row](#) will be displayed as a tree in the item list. The examples below are shown with [Condensed Mode](#) off.

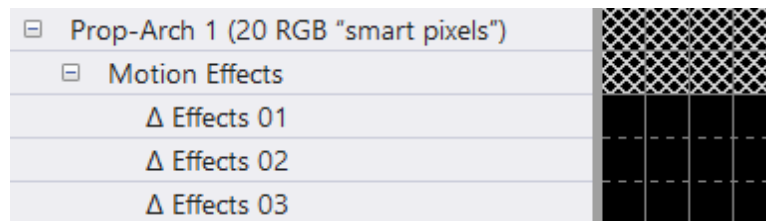
A mini-tree with multiple strings of lights, and each string color is assigned to a separate [channel](#):



A megatree built with strings of traditional lights (c01 is the first string, c02 the second, etc):



A pixel-based arch with 3 motion effect rows and the [channel level disabled](#) (motion effect rows require a [Pro license](#)):

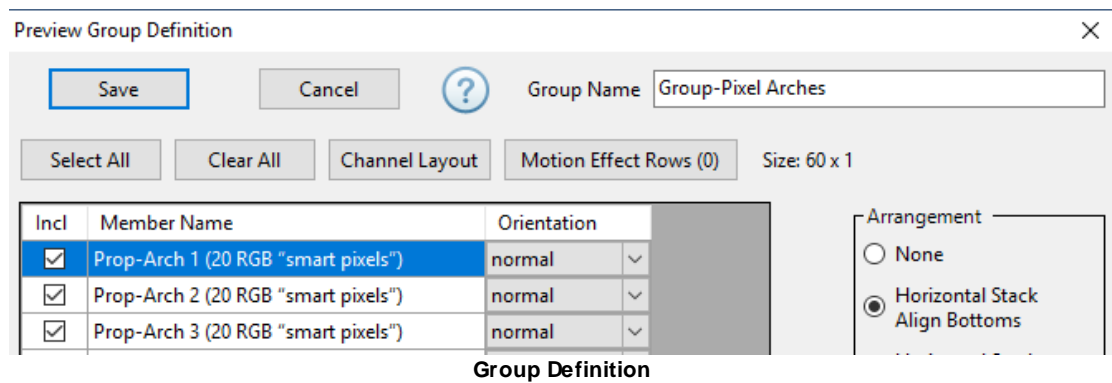


## Preview Groups

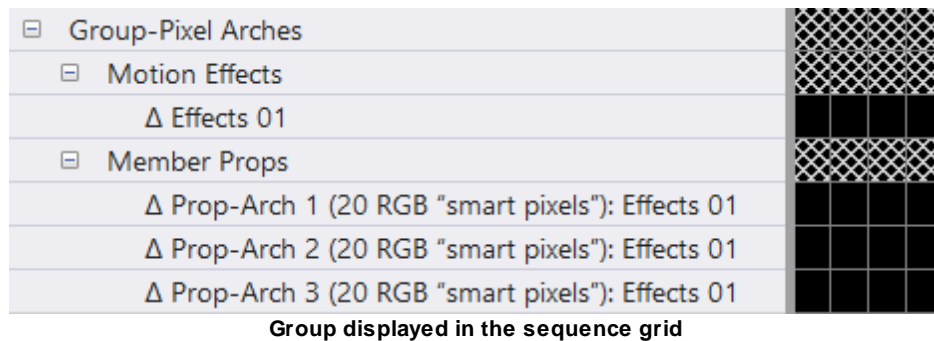
[Preview groups](#) can generate a hierarchy because they can have motion effect rows (if the group's [arrangement setting](#) is not "none"). Members of the group (props and/or other groups) are also listed under the group.

Note: motion effects on groups allow you to do some amazing things, like color sweeps across several props or even your entire display.

As an example, here are 3 pixel arches combined into a group.



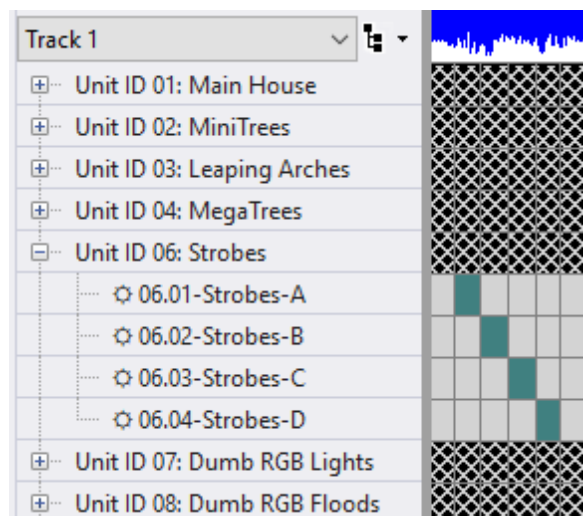
The first [motion effects row](#) is for group - effects created here will act as if the combined arches are one big prop. This is followed by motion effect rows for each individual prop.



## Grid View Groups

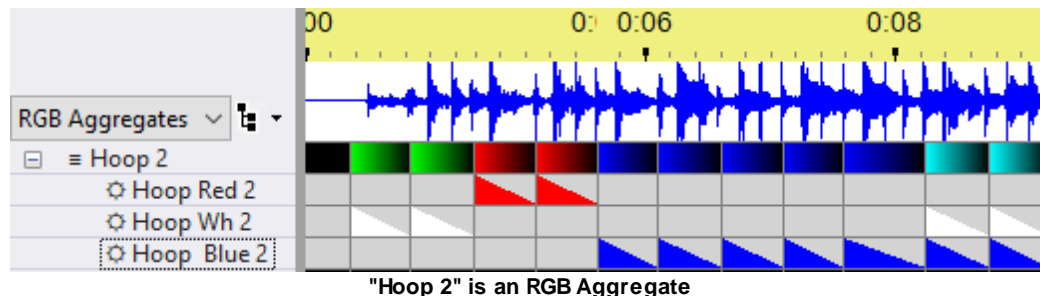
A [grid view group](#) is a set of [regular channels](#) or [RGB channels](#) or [Motion Effect rows](#) or [beat channels](#) (or, conceivably, other grid view groups) that is nested together, so that it can be collapsed down to a single row in the [sequence grid](#), or expanded to show all of its members.

In this example, the grid view group "Unit ID 06: Strobes" has been expanded. The other grid view groups are collapsed.



## RGB Aggregates

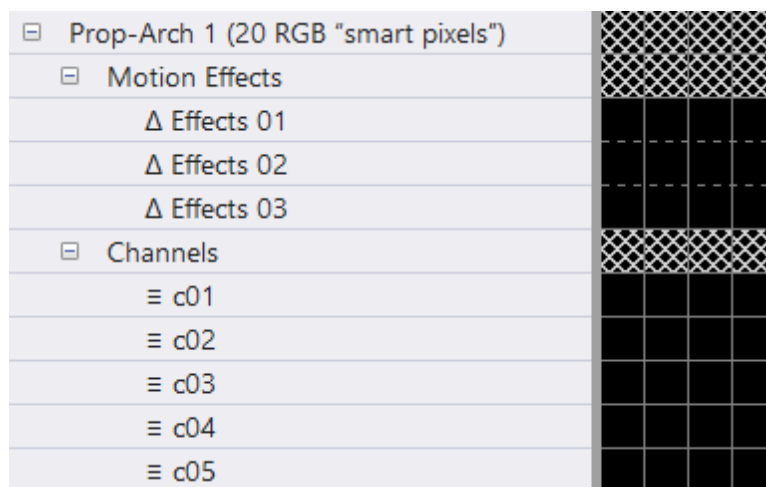
[RGB aggregates](#) have 3 channels that are displayed as children in the hierarchy.



## RGB Channels on Pixel Props

If you have a [Pro license](#), pixel-based props are displayed with [motion effect rows](#) by default. You can display the [RGB channels](#) by right-clicking on the prop name and selecting "Enable Channel Level on Pixel Prop" on the pop-up menu. Later, if you decide that you no longer need the channel level, you can right-click on the prop name and select "Remove Channel Level on Pixel Prop". If you don't have a [Pro license](#), then [RGB channels](#) are always displayed (motion effect rows are not available at these license levels).

As an example, here is a pixel-based arch with the [channel level enabled](#) (only the first 5 [RGB channels](#) are included in the picture). With these settings, the prop can be sequenced using motion effects and channel effects interchangeably.

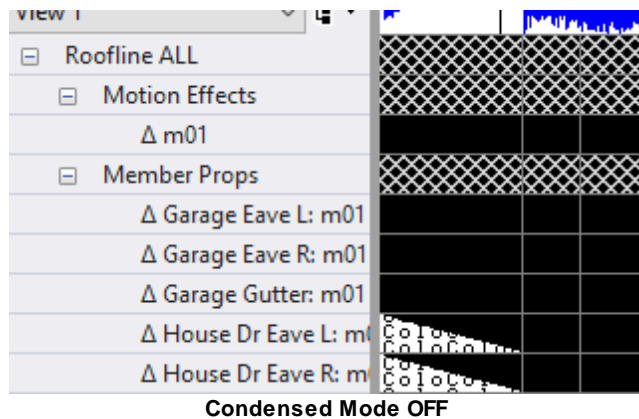


## Condensed Mode

The item list hierarchy can be displayed such that all levels of the tree are displayed, or a "condensed" mode where higher levels of the tree are hidden when lower levels are displayed.

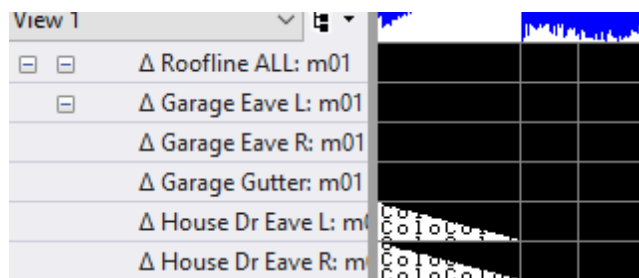
Turning condensed mode off makes it easier to understand the item list hierarchy, but it leaves "blank" rows (the ones with Xs) in the sequence grid.





Condensed Mode OFF

Turning condensed mode on mimics the behavior of the Sequence Editor in prior versions, and uses the screen space more efficiently. This is the same example as above; however, with condensed mode enabled, the "Roofline ALL", "Motion Effects", and "Member Props" items have been hidden because their children are visible.



Condensed Mode ON

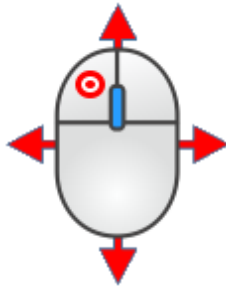
You can turn condensed mode on or off via the [Grid View Menu](#).

## Item List Double-Click

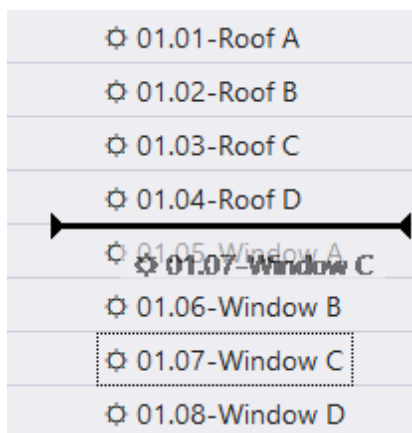


Double-clicking on an item name brings up the [Prop Definition](#) or [Group Definition](#) or Beat Channel Definition, depending on the type of item that was clicked. If a prop or group definition is modified in this way, the sequence grid will be updated to reflect the changes and the [preview](#) will be saved to disk.

## Reordering The Item List



You can reorder the list by clicking and dragging items. In the picture below, "01.07-Window C" is being dragged to a new position. You can also use this technique to move items in and out of [grid view groups](#).



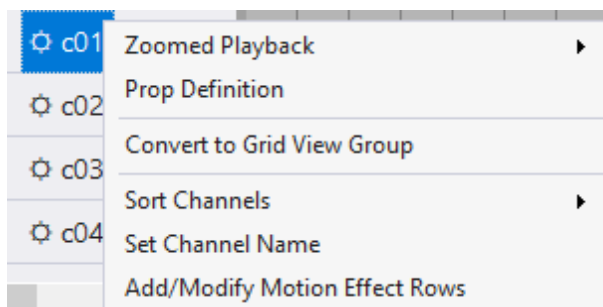
Other ways of reordering the item list include:

- [Right-clicking on a channel name](#) and selecting "Sort Channels" from the pop-up menu.
- Selecting [Sort Item List](#) from the Grid View Menu.

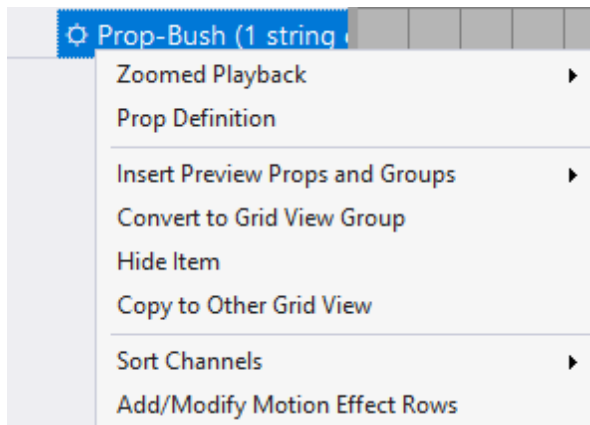
## Item List Right-Click Menu

Right-clicking on an item name brings up a context menu of actions you can take with that item. The content of the menu is highly dependent on the type of item that was clicked.

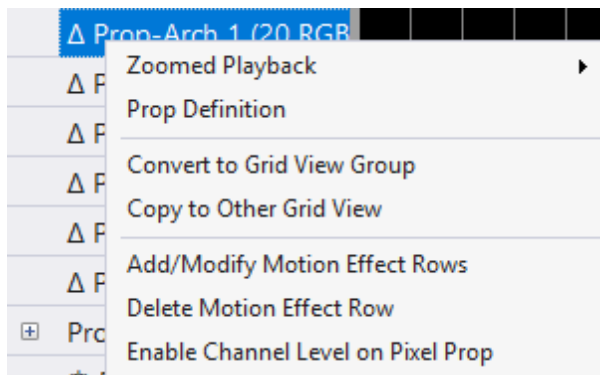
### ***Menus for regular channels, RGB channels, motion effect rows, and preview groups***



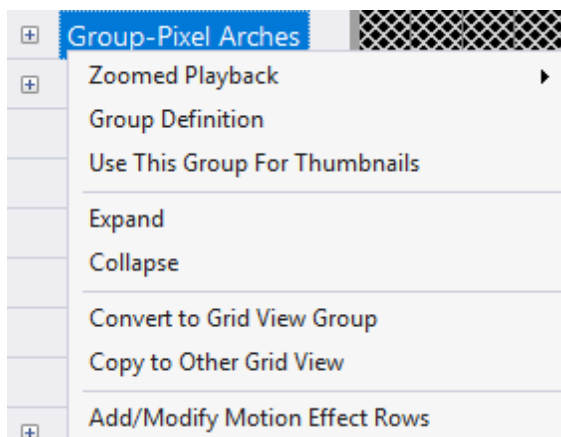
Menu for a regular channel or RGB channel in the "Show All Items" grid view



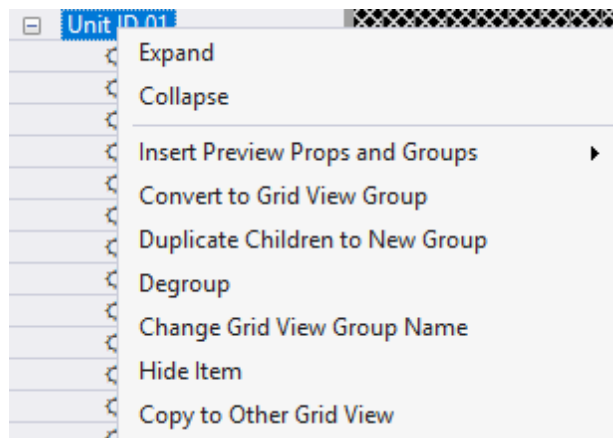
Menu for a regular channel or RGB channel in a user grid view



Menu for a motion effect row



Menu for a preview group



Menu for a grid view group

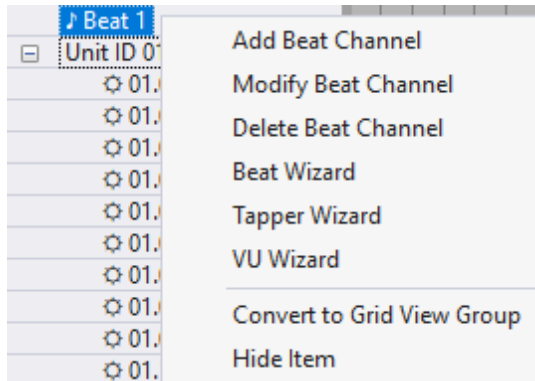
As you can see from the examples above, not all menu items are available in every situation. However, here is a compilation of the menu items you will encounter:

- **Zoomed Playback** - opens the [Zoomed Playback](#) sub-menu
- **Prop Definition** - opens the [Prop Definition](#) window for the prop
- **Group Definition** - opens the [Group Definition](#) window for the group
- **Use This Prop (or Group) For Thumbnails** - by default, effect thumbnails displayed in the [Motion Effects Window](#) use a 50 by 50 matrix. However, with this command you can have the thumbnails generated using the selected prop or group.
- **Expand** - expands all [levels](#) of the selected prop or group, such that all child items are displayed.
- **Collapse** - collapses all [levels](#) of the selected prop or group, such that all child items are hidden.
- **Insert Preview Props and Groups** - adds additional props or groups to the current [grid view](#) via the [Insert Props And Groups Dialog](#). This menu item is for user grid views only (not the "Show All Items" grid view).
- **Convert to Grid View Group** - opens a dialog that allows you to move the clicked item, and optionally those below it, into a new [grid view group](#).
- **Duplicate Children to New Group** - allows you to copy the children of the current [grid view group](#) into a new group.
- **Degrup** - removes the selected [grid view group](#), but leaves the members of the group in its place.
- **Change Grid View Group Name** - allows you to change the name of the selected [grid view group](#).
- **Hide Item** - removes the selected item for the current [grid view](#). The item is not deleted, it is simply no longer visible in the current view. This menu item is for user grid views only (not the "Show All Items" grid view).
- **Copy to Other Grid View** - opens a dialog that allows you to copy the selected item to another [grid view](#) (an existing grid view or a new one).
- **Sort Channels** - Sort all of the channels on the same [hierarchy level](#) by name, channel color, row number within the [prop layout](#), column number within the [prop layout](#), physical channel settings, or reverse the current order.
- **Set Channel Name** - sets the channel name. This menu item is only available on props with multiple strings (e.g. megatrees).
- **Add/Modify Motion Effect Rows** - allows you to add new [motion effect rows](#) and/or modify existing ones via the [Motion Effect Rows Dialog](#).
- **Delete Motion Effect Row** - displays a confirmation message, and then deletes the selected

motion effect row. If you need to delete multiple rows, see the [Sequence > Delete Grid Rows](#) option on the main menu.

- **Enable Channel Level on Pixel Prop** - enables [channel level sequencing on pixel-based props](#).

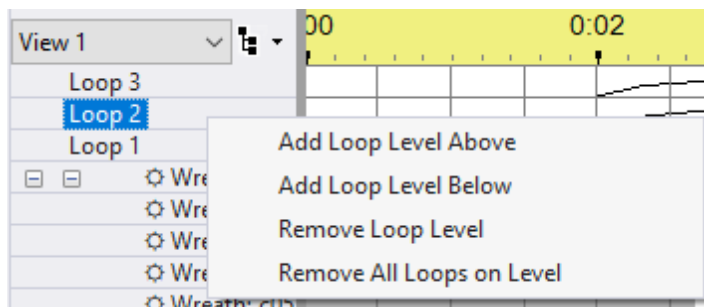
### ***Menu for a beat channel***



Options on this menu include:

- **Add Beat Channel** - opens a dialog that allows you to add a new [beat channel](#) to the sequence.
- **Modify Beat Channel** - open a dialog that allows you to change the name and/or color for the selected [beat channel](#).
- **Delete Beat Channel** - displays a confirmation message, and then deletes the selected [beat channel](#).
- **Beat Wizard** - opens the [Beat Wizard](#).
- **Tapper Wizard** - opens the [Tapper Wizard](#).
- **VU Wizard** - opens the [VU Wizard](#).

### ***Menu for a loop row***



Menu when right-clicking on a loop name

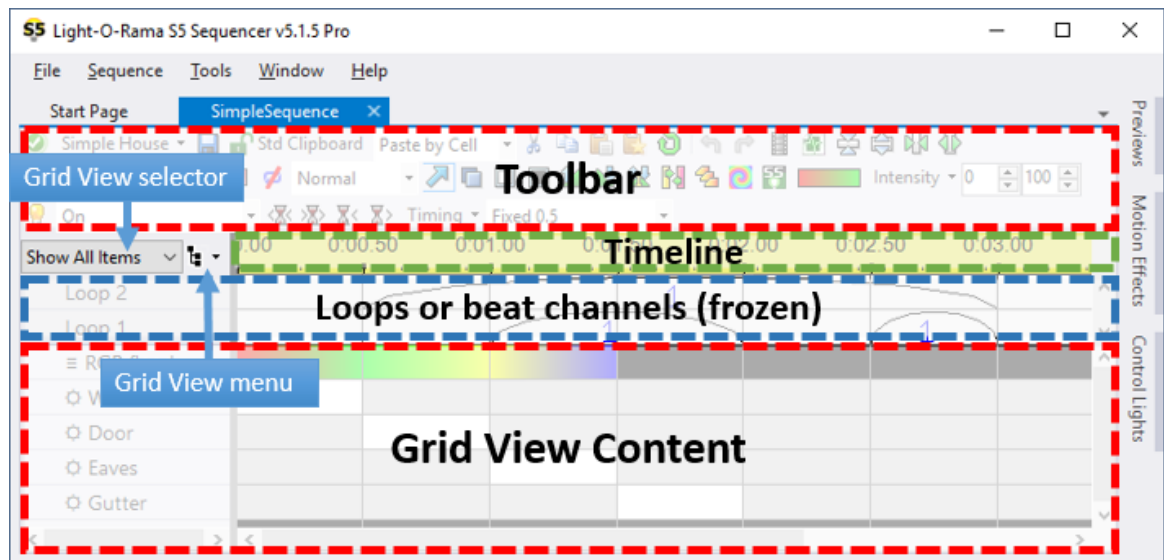
These items are described in the [Loops in Animation Sequences](#) topic.

#### 5.3.5.2.1 Grid View s

A grid view is an ordered collection of [grid rows](#). A grid view can contain any type of grid row except [loop rows](#) and [beat channels](#). Loop rows (in [animation sequences](#)) and beat channels (in [musical sequences](#)) are fixed to the top of the sequence grid and do not change when the grid view is changed.

A [sequence](#) can contain multiple grid views, and there is a grid view selector that allows you to quickly flip between them. To the right of the grid view selector, is a button that opens the [grid view menu](#).

There is a system grid view named "Show All Items" which automatically displays all items in the sequence. If an item is added to the preview, it is automatically added to the "Show All Items" grid view. You can change the order of items in the "Show All Items", but you cannot add, remove, or copy items within it. All other grid views are user created, and you have complete control over their content. You might have a grid views for lights in your yard and another for lights on your house. Or you might have one grid view for props with traditional lights and another for ones that have pixels. Creating grid views is optional; you can stick with the "Show All Items" grid view and leave it at that.



Areas within the Sequence Tab

All sequences are initially created with a "Show All Items" grid view. There are a few ways to add another grid view using the [Sequencer](#):

- From the [Grid View menu](#):
  - "Add New View" will add a grid view and let you pick the props and groups that appear in it
  - "Save View As" will create a new grid view with the same props and groups as the current grid view. This can also be used to copy the "Show All Items" system grid view to a user grid view, which you can more extensively customize.
- [Right-click](#) on a channel, prop, or group name on the left side of the grid and select "Copy to Other Grid View". This will allow you to add the item to an existing grid view or to a brand new grid view.

## Import/Export

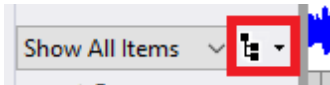
It can make the process of sequencing easier if your props and groups are listed in the same order in every sequence. You can do this by setting up the desired order in one sequence, and perhaps categorize the props into several grid views. To make your grid views available in other sequences you export then from the original sequence and import them into the others. See the "Grid Configuration" item on the [Grid View menu](#) (also available on the [Sequence menu](#)).

**Note: the "Show All Items" grid view is excluded from the export/import process because it is system-generated. Use the "Save View As" item on the [Grid View menu](#) to copy it to a user**

view, which will be exported.

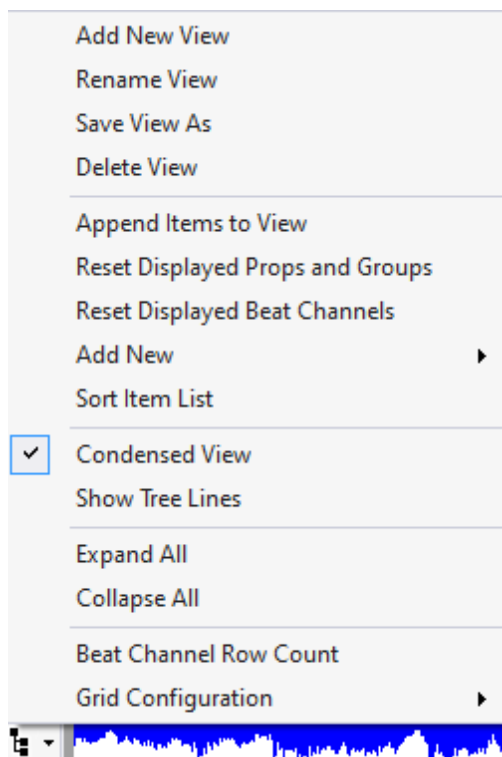
#### 5.3.5.2.2 Grid View Menu

The Grid View Menu is opened by clicking the icon just to the right of the Grid View selector. The icon is marked with a red box in the following picture:



When opened, the menu displays options to control the grid view:

- [Add New View](#)
- [Rename View](#)
- [Save View As](#)
- [Delete View](#)
- [Append Items To View](#)
- [Reset Displayed Props And Groups](#)
- [Reset Displayed Beat Channels](#)
- [Add New Sub-menu](#)
- [Sort Item List](#)
- [Condensed View](#)
- [Show Tree Lines](#)
- [Expand All](#)
- [Collapse All](#)
- [Beat Channel Row Count](#)
- [Grid Configuration Sub-menu](#)



## Add New View

This menu item prompts for the name of a new grid view. It then opens the [Insert Props And Groups Dialog](#) so that you can select the items that will be in the grid view.

## Rename View

This menu item allows you to enter a new name for the current grid view

## Save View As

This menu item prompts for the name of a new grid view. It then copies the current grid view into the new one.

## Delete View

This menu item displays a confirmation message, and then deletes the current grid view. You cannot delete the "Show All Items" grid view, as it is system-generated.

## Append Items To View

This menu item opens the [Insert Props And Groups Dialog](#), and then appends the selected items to the bottom of the current grid view. Does not apply to the "Show All Items" grid view.

## Reset Displayed Props And Groups

This menu item opens the [Insert Props And Groups Dialog](#), and then replaces the items in the current grid view with the ones selected in the dialog. Does not apply to the "Show All Items" grid view.

## Reset Displayed Beat Channels

This menu item opens a dialog that allows you to select amongst the beat channels defined in the sequence. The newly selected beat channels replace any that are currently displayed in the grid.

## Add New Sub-menu

This menu item opens a sub-menu that allows you to add a new a [loop row](#), [subsequence](#), [beat channel](#), or [RGB aggregate](#). "Add New" is also available on the main menu at [Sequence > Add New](#).

## Sort Item List

This menu item opens the sort dialog, allowing you to reorder the [item list](#). It sorts the top level of the item list. For each category of item, click the radio button according to your desired sort priority. "1" means it sorts to the top; "6" means it sorts to the bottom. Items at the same sort priority will be intermixed and sorted together alphabetically.



Sort Item List

Items at the same sort priority will be intermixed and sorted together alphabetically.

Grid Item	Count	Sort Priority					
		1	2	3	4	5	6
Preview Props	0	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Preview Groups	0	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Grid View Groups	9	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Subsequences	0	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
RGB Aggregates	0	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Archived Props	0	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

OK Cancel

The Sort Item List Dialog

Other ways of reordering the item list include:

- [Dragging an item and dropping it](#) in its new position in the list.
- [Right-clicking on a channel name](#) and selecting "Sort Channels" from the pop-up menu.

## Condensed View

This menu item toggles the [condensed mode](#) on and off.

## Show Tree Lines

This menu item toggles the display of tree lines in the [item list](#).

## Expand All

This menu item causes all children for every item in the [item list](#) to be displayed.

## Collapse All

This menu item causes all children for every item in the [item list](#) to be hidden.

## Beat Channel Row Count

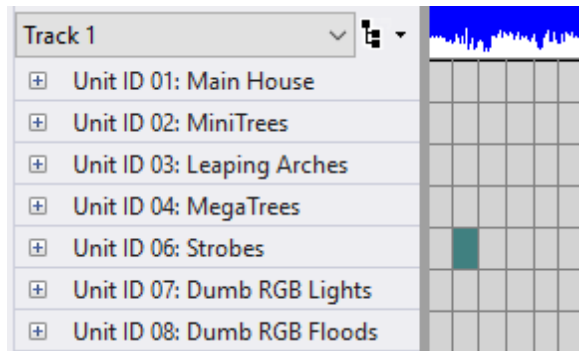
This menu item opens a dialog that allows you to modify the maximum number of [beat channels](#) that are displayed. The default is 10.

## Grid Configuration Sub-menu

This item opens a sub-menu allowing you import or export the user-defined [grid views](#) in the sequence. For Pro users, it will also import/export the properties of each motion effect row. The system-generated "Show All Items" grid view is not included in the export. "Grid Configuration" is also available on the main menu at [Sequence > Grid Configuration](#).

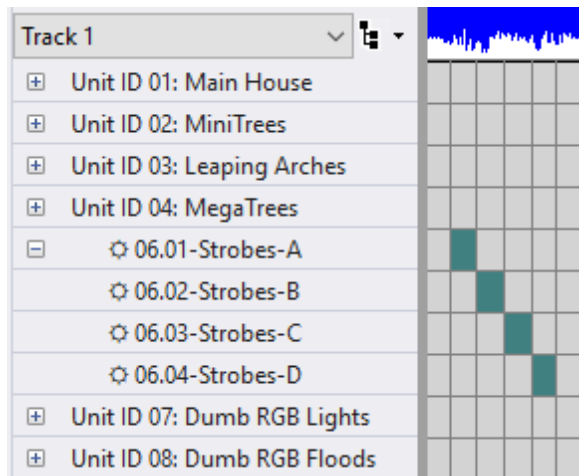
#### 5.3.5.2.3 Grid View Groups

A grid view group is a set of [regular channels](#) or [RGB channels](#) or [Motion Effect rows](#) or [beat channels](#) (or, conceivably, other grid view groups) that is nested together, so that it can be collapsed down to a single row in the [sequence grid](#), or expanded to show all of its members. When a grid view group is first created, the grid view group is shown as a single row:



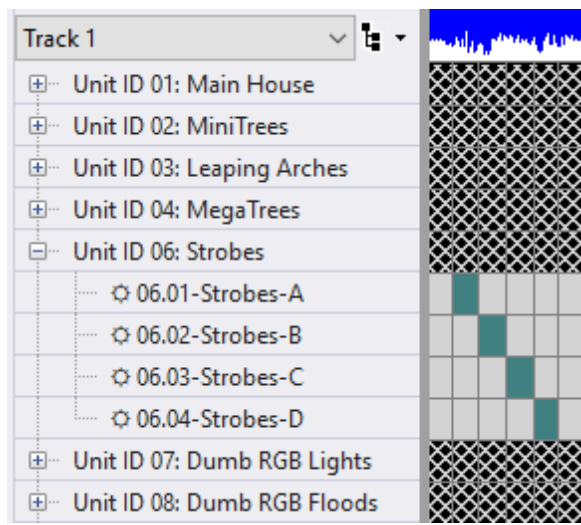
Several collapsed grid view groups

Click the "+" button on the left to expand the group, and the "-" button to collapse it.



The "Strokes" group has been expanded

Notice that the "Unit ID 06: Strokes" row has been hidden in the picture above. This is the sequence grid's "condensed view". Sequences often have many rows and it is usually important to display as many rows as possible to make sequencing go faster. This is the purpose of the condensed view -- to show as many grid rows as possible. So when a parent (the grid view group) is expanded, the parent node is hidden and only the child nodes (the channels) are displayed. For new users this can sometimes be confusing, so S5 allows condensed mode to be turned off. Condensed mode is turned on or off from the [Grid View menu](#).



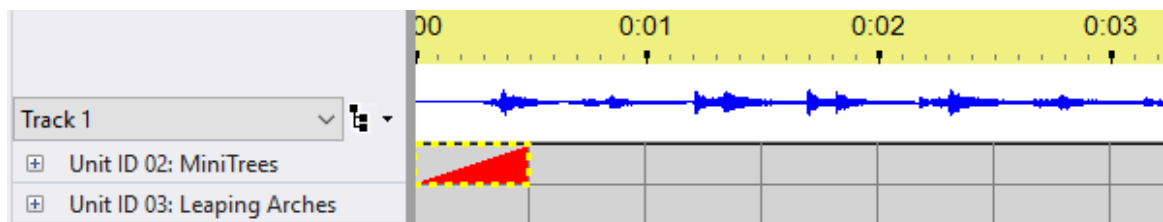
Condensed mode off, Show tree lines on

In the picture above, condensed mode has been turned off and now you can see both the parent "Unit ID 06: Strobes" and its 4 children, which makes clear the parent/child relationship. Now you can see that a [grid view](#) is a hierarchical tree!

But what happened to the sequence grid on the right -- it is showing an "X" pattern? Well, that is the other thing that condensed mode does: collapsed parent rows (where a "+" button is at the beginning of the row) display the effects for their first child in the grid. So in the top picture, the grid row for "Unit ID 06: Strobes" was actually showing the effects for "06.01-Strobes-A". When condensed mode is turned off, there is nothing to be displayed for the parent, which is what the "X" pattern indicates.

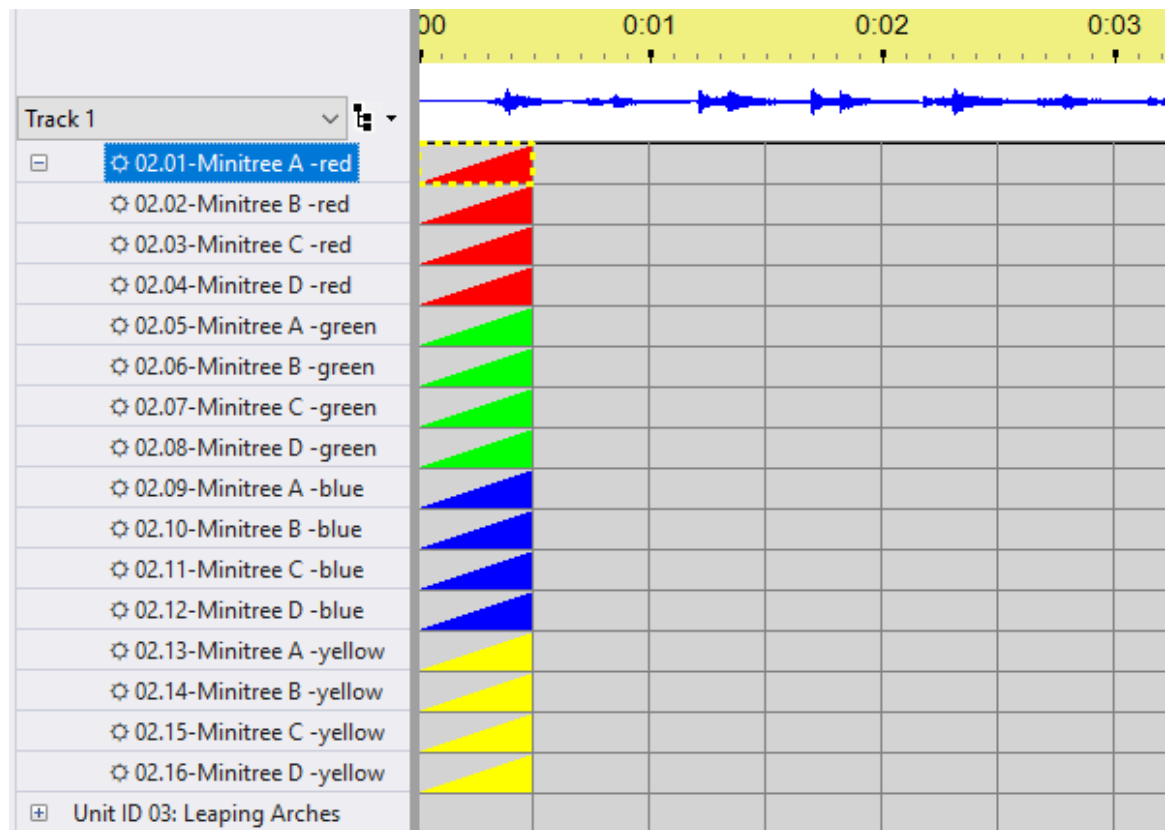
The rest of this topic will show the sequence grid with condensed mode enabled.

So again, when a grid view group is collapsed, the [effects](#) displayed on its row are the events of its first member (be it a regular channel, RGB channel, or motion effect row). However, applying a tool to the row actually applies it to ALL of its members. For example, with the grid view group collapsed, if you apply the [Fade Up tool](#) to its first cell, the result will look like this:



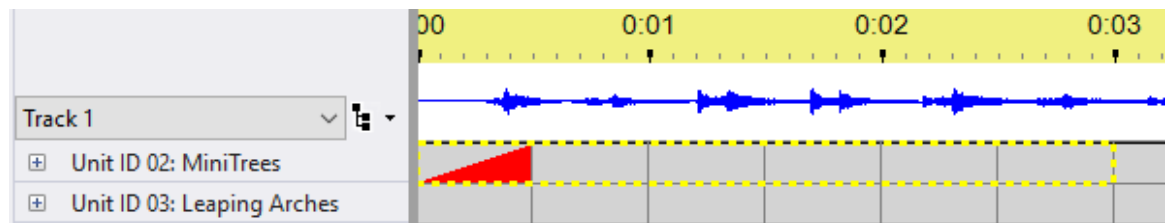
Fade Up tool applied while group was collapsed

But when you expand the grid view group, it becomes apparent that the Fade Up tool was applied to all of the grid view group's members:



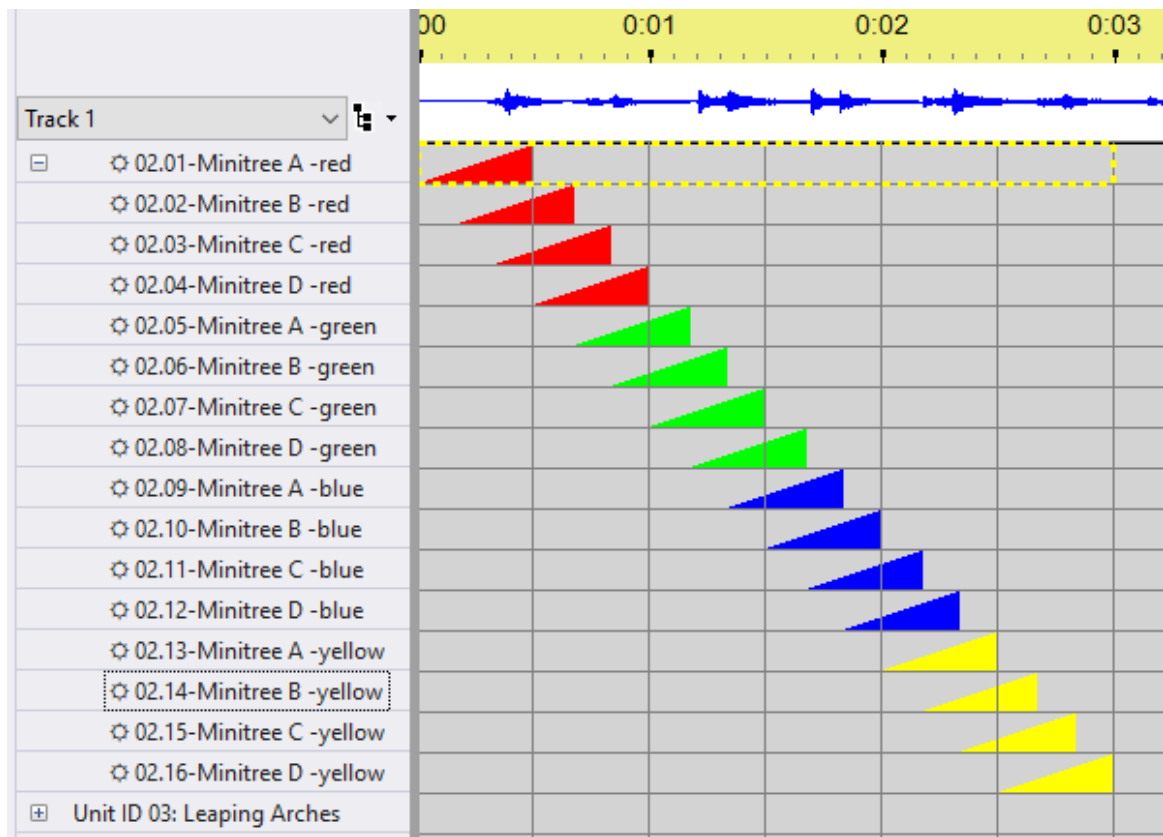
The same group, expanded

If you then collapse the grid view group, and apply the [Chase tool](#) to it while it is collapsed, no change will be evident from what is displayed:



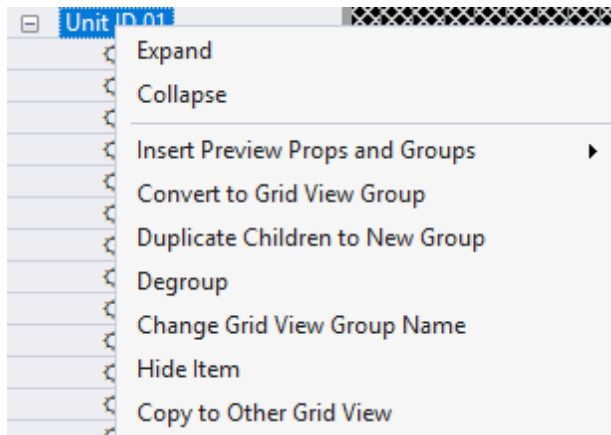
After applying the Chase tool, while collapsed

But a change did happen - the Chase tool was applied to the entire grid view group. The only reason that no change is evident from what is displayed is because when the grid view group is collapsed, only the effects of the first channel are displayed, and the Chase tool did not alter the effects of the first channel. Expanding the grid view group reveals the change:



Expanded, after a chase

You can convert existing channels (and RGB channels, etc.) so that they become part of a new grid view group, by right-clicking on a channel, prop, or group name on the left side of the grid and select "Convert to Grid View Group" on the pop-up menu. You can also "degrou" a group -- that is, remove the group node and leave the group's children in its place -- by using "Degroup" on that same pop-up menu.



Menu for a grid view group

The complete menu is described in the [Item List](#) topic.

## 5.3.5.2.4 Motion Effect Rows Dialog

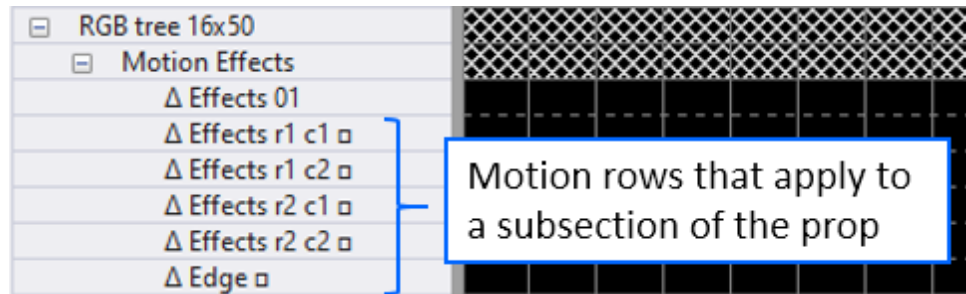
This dialog window serves 2 distinct purposes:

- When right-clicking on a prop or motion effect row in a sequence's [Item List](#) and selecting "Add/Modify motion effect rows" from the pop-up menu, you add or modify motion effect rows in the sequence. Any changes made while in this dialog will be applied to the sequence after clicking the "OK" button.
- When clicking on the "Motion Effect Rows" button in [Prop Definition](#) or [Group Definition](#), you can define motion effect rows that will be applied when new sequences are created. It does not change existing sequences.

Motion effect rows do not have to apply to all of the pixels in a prop (or group). Using this dialog, you can specify that a motion effect row applies to:

- all of the pixels in a prop or group (subsection=none)
- a rectangular subsection of the prop's pixels (subsection=rectangle). For example, you could divide a pixel tree into tiers.
- a custom set of pixels chosen by you (subsection=custom). For example, you could draw a face.

When motion effect rows are displayed in a sequence's [Item List](#), the row name is displayed with a square icon suffix to indicate those rows apply to a subsection of the prop or group. Rows with subsection=none are displayed without the suffix, indicating they apply to the entire prop or group.

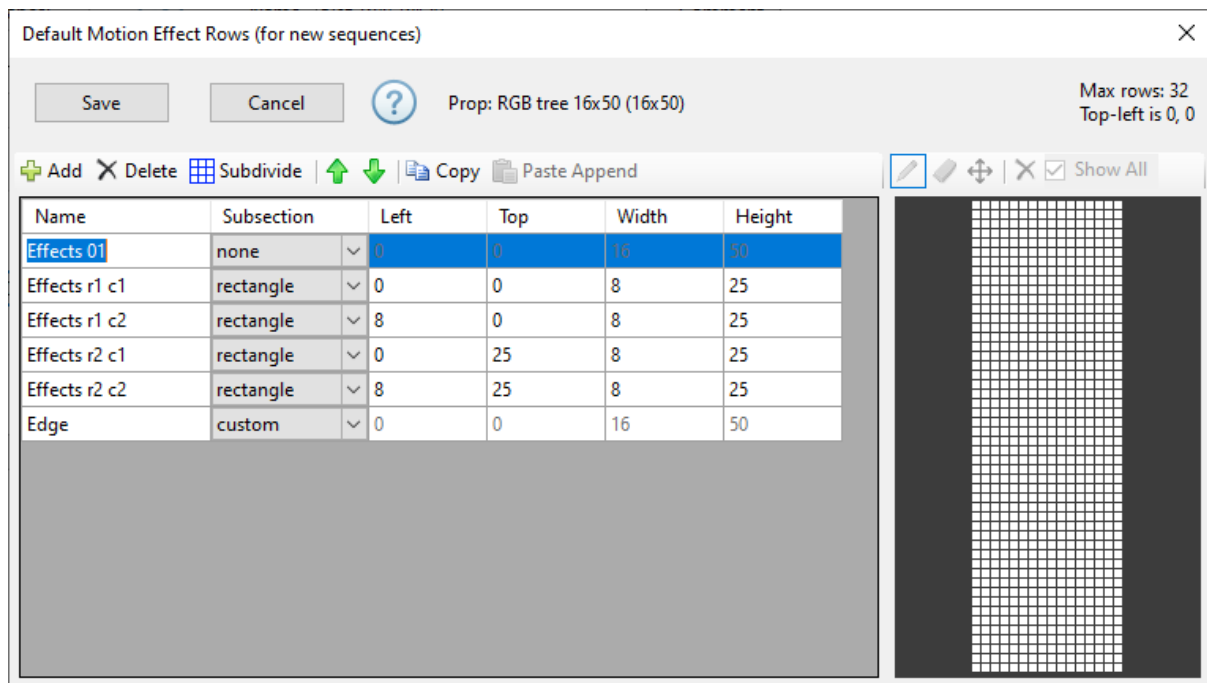


Motion effect rows in a sequence

In the window, the current set of motion effect rows are listed in the table on the left, and the prop's pixels are shown on the right. If you click on a row in the table on the left, then the pixels used by that entry will be graphically represented on the right.

Within this dialog you can:

- [Add A New Row](#)
- [Change Row Name](#)
- [Add Rows By Subdividing](#)
- [Manually Specify a Rectangular Subsection](#)
- [Creating a Custom Subsection](#)
- [Copy/Paste the Motion Row Configuration](#)



The Motion Effect Rows Dialog

## Add A New Row

Clicking the "Add Row" button will add a new motion effect row to the table. The new row will use all of the pixels in the prop or group (the Subsection field will be set to "none").

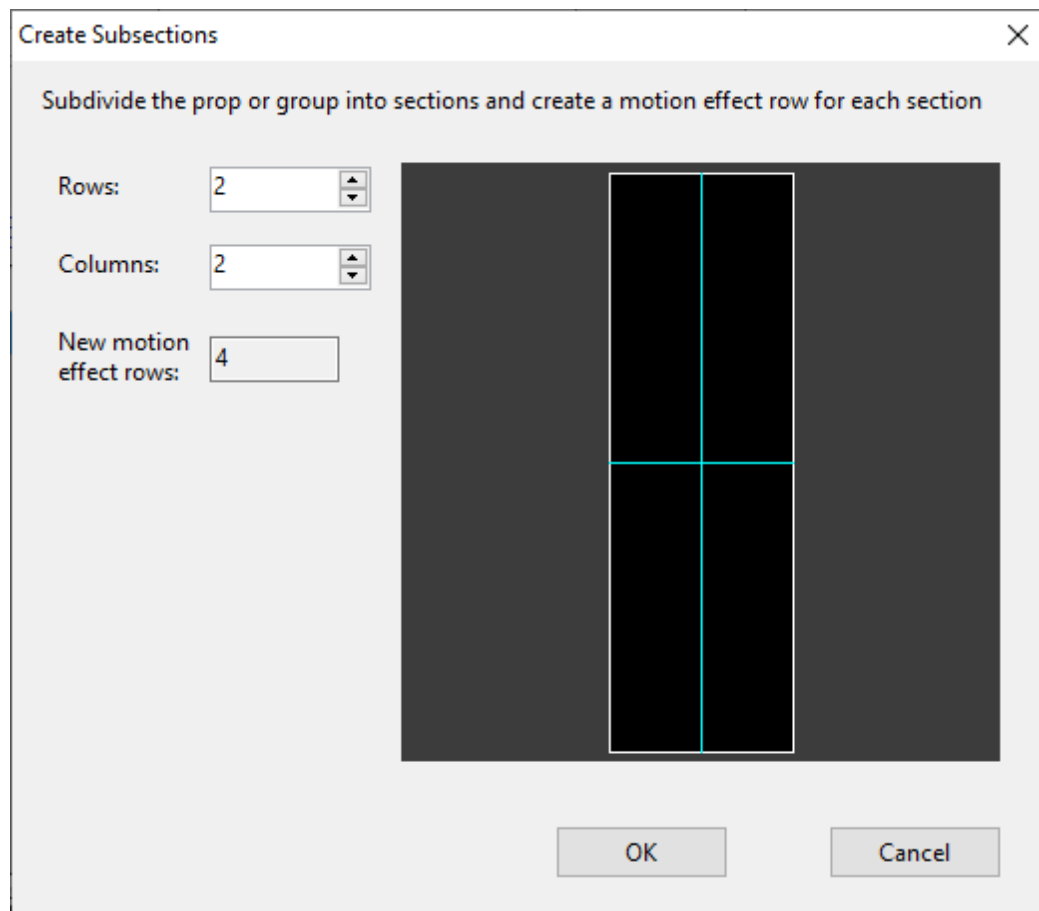
## Change Row Name

By default, motion effect rows are named "Effects 01", "Effects 02", etc. You can change the name of a row by clicking on the name in the table, and then typing the new name.

## Add Rows By Subdividing

Using the "Subdivide" button, you can divide the pixels into rows and columns, creating a separate motion effect row for each section.

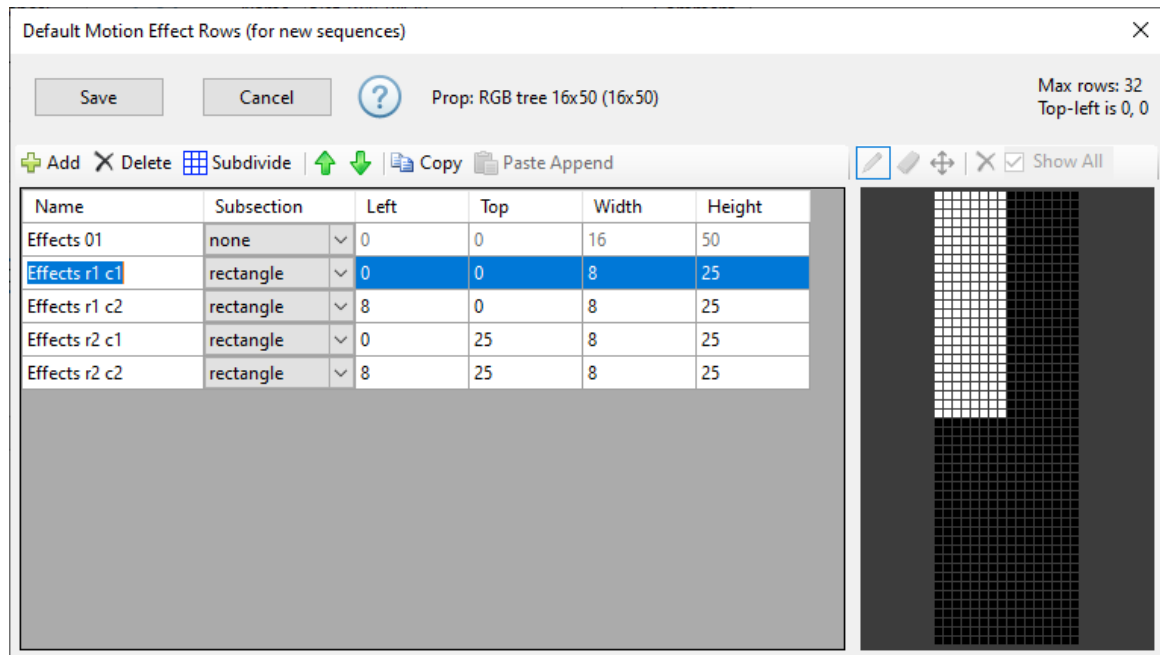
The following picture shows a 16x50 pixel tree subdivided into 2 columns and 2 rows. There will be 4 new motion effect rows created, with each subsection being 8x25 pixels



**Subdividing a pixel tree into 2 columns and 2 rows**

After clicking "OK" in the Create Subsections dialog, this is the result. The "r" in the name stands for "row" and the "c" stands for "column". Notice that clicking on a row in the table graphically displays the subsection on the right.





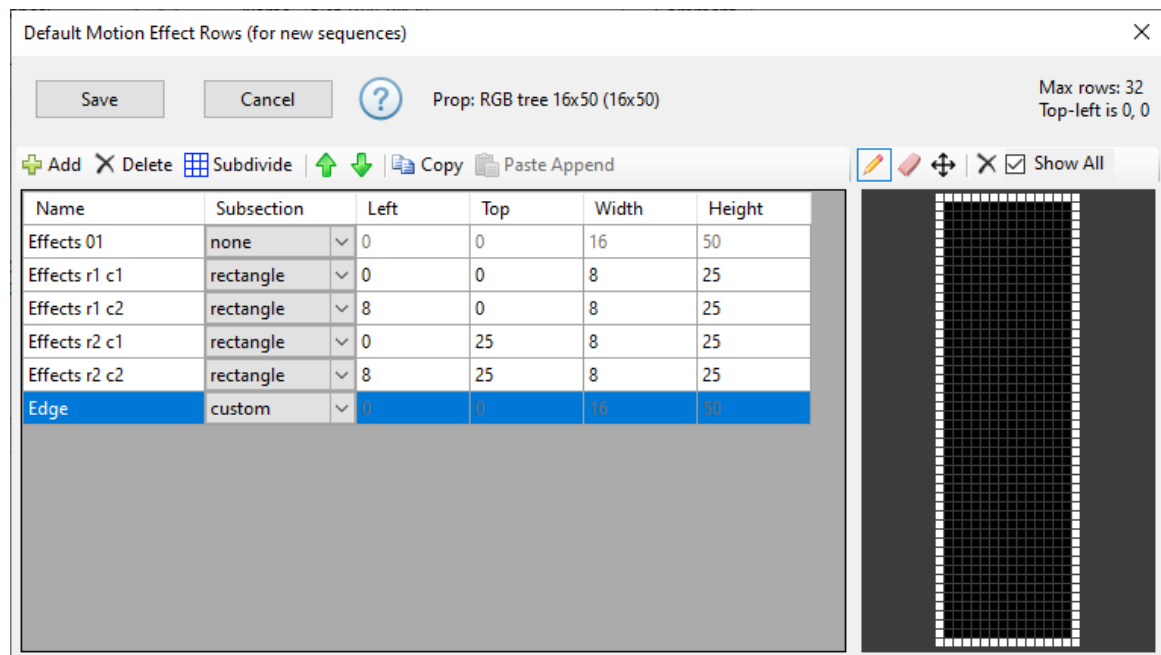
Result of subdividing the pixel tree into 4 sections

## Manually Specify a Rectangular Subsection

While the "Subdivide" button is very convenient for creating equally sized subsections, you might have need to manually specify a subsection. You can do this by making sure the "Subsection" drop-down is set to "rectangle" for the motion effect row, and then manually typing the values for left, top, width, and height.

## Creating a Custom Subsection

Custom subsections allow you to do things like define singing faces on a pixel matrix or pixel tree. You can also use it to define sections of a pixel-based custom shape -- for example arms of a snowflake.



**Defining a custom set of pixels to be controlled by the motion effect row**

The first step is to change the "Subsection" drop-down to "custom". Once that is done, you will notice that the toolbar on the right side is now enabled.

- Use the "pencil" tool to turn on pixels (make them part of the subsection). Left-click on a pixel in the diagram to turn it on, or drag across the diagram with the left mouse button depressed to select multiple pixels at a time.
- Use the "eraser" tool to turn off pixels (remove them from the subsection). Left-click on a pixel in the diagram to turn it off, or drag across the diagram with the left mouse button depressed to deselect multiple pixels at a time.
- Use the "move" tool to reposition the selected (on) pixels.
- Use the "clear all" tool to turn off all of the pixels. This is useful if you want to start over with your custom selection.
- Use the "Show all" check box to show all of the motion effect rows with a "custom" subsection on the diagram at the same time. For example, if you are drawing a face on a pixel matrix, you might first draw the outline of the head on one motion effect row. Then you might draw the eyes on another row. While drawing the eyes, it is useful to see where the outline of the head is, so you would keep "Show all" enabled.

## Copy/Paste the Motion Row Configuration

You can copy the contents of the motion effect row table to the clipboard, and then use the paste button to append the data into the Motion Effect Row dialog for another prop. This can be useful:

- To copy motion effect rows defined in a sequence to the motion effect row defaults for a prop or group, so they will be applied whenever a new sequence is created.
- To copy motion effect row defaults you just created on a prop or group into existing sequences.
- To copy motion effect rows defined in one sequence to the motion effect rows for a same prop or group in another sequence.
- To copy motion effect rows defined on one prop to other props with the same shape and

dimensions. For example, you might define some motion effect rows for a pixel-based mini-tree and copy those rows into your other mini-trees.

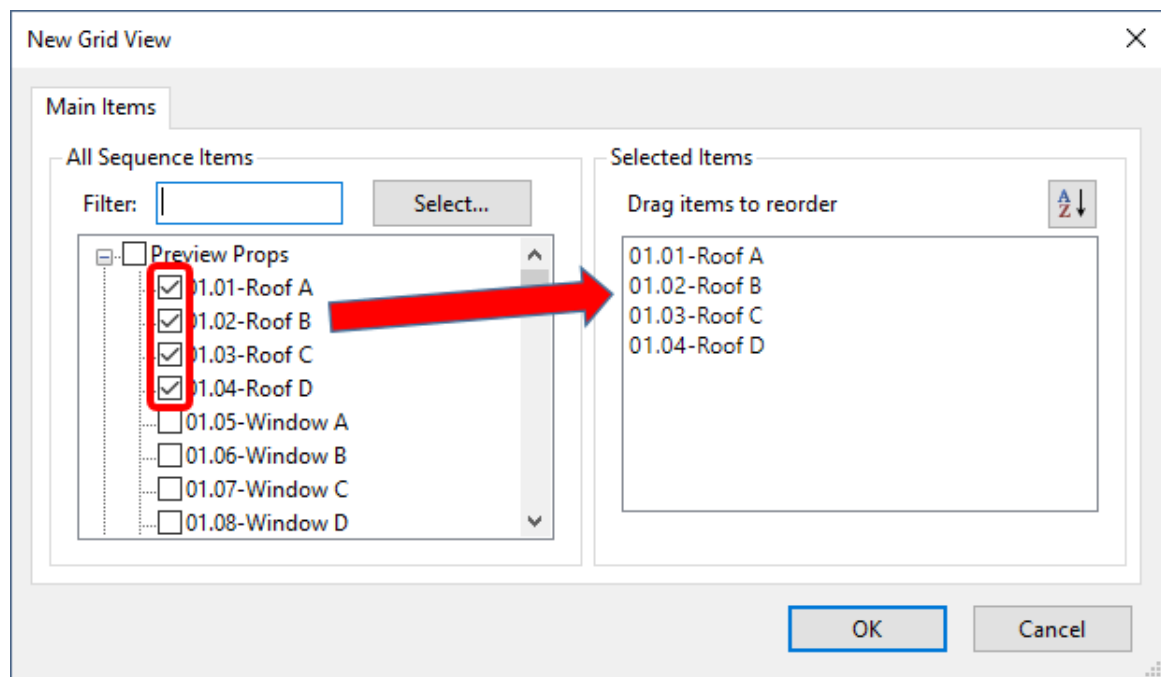
#### 5.3.5.2.5 Insert Props And Groups Dialog

This dialog is opened when you select "Add New View", "Append Items to View", or "Reset Displayed Props and Groups" from the [Grid View menu](#). It is also opened after you select "Insert Props and Groups" from the [Item List's right-click menu](#). It allows you to choose [preview props](#), [preview groups](#), and [archived props](#) that will become part of a [grid view](#).

Check the boxes next to the items you want to include. The selected items will appear in the list on the right. Only items listed on the right side will be applied to the [grid view](#) after you click the "OK" button.

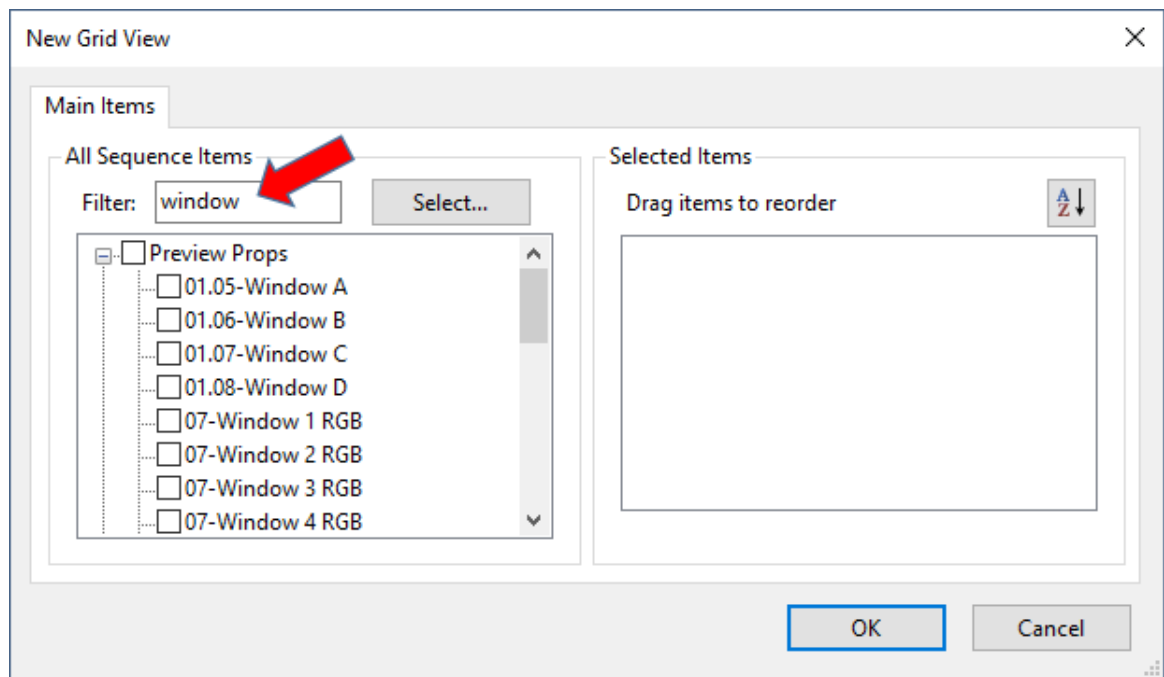
### Selecting Items (left side)

Check the boxes next to the items you want to include. The selected items will appear in the list on the right. Clicking the box for "Preview Props" will cause all props to be selected. The check boxes for "Preview Groups" and "Archived Props" work the same way.

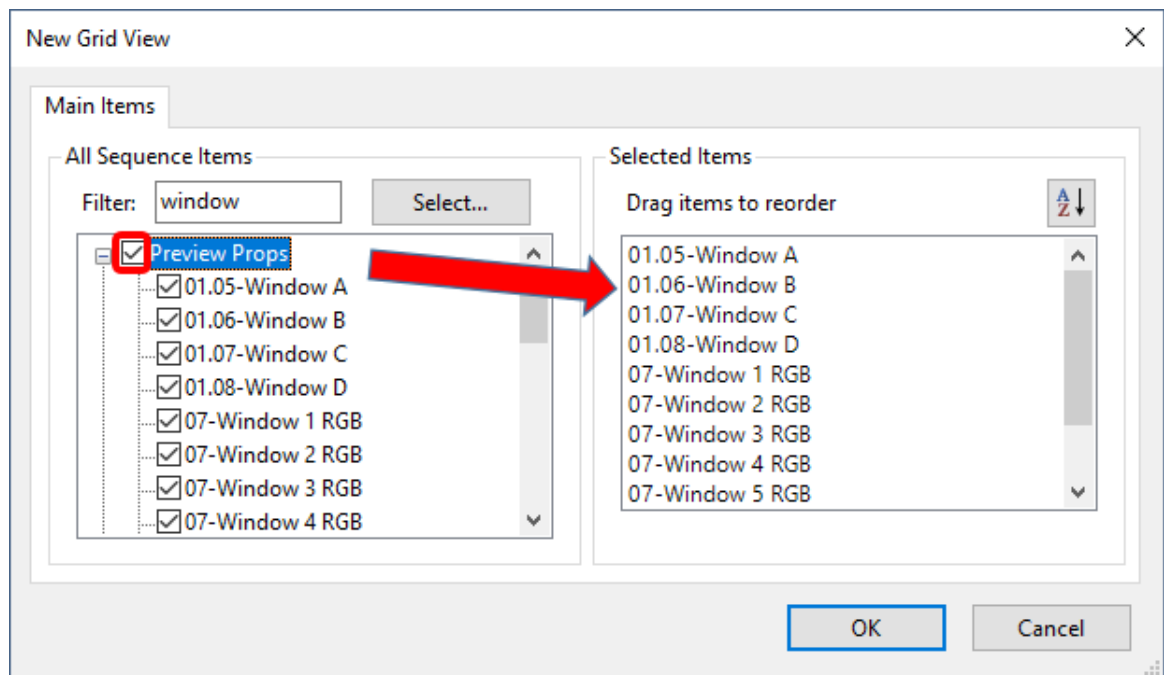


### Applying a Filter

You can enter some text into the Filter box and the list on the left side will only show items that contain that text in their name. The list is automatically filtered as you type each character. In the example below, only props and groups with the word "window" in their name will be listed:

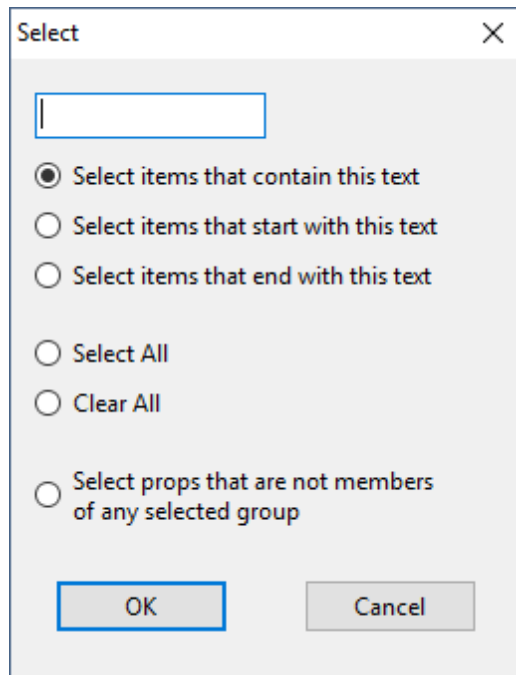


If you subsequently click the box next to "Preview Props", then all of the props with "window" in their name will be selected and appear in the list on the right.



### ***Using the "Select..." button***

If you have special selection requirements, you can click the "Select..." button, which opens the following window:

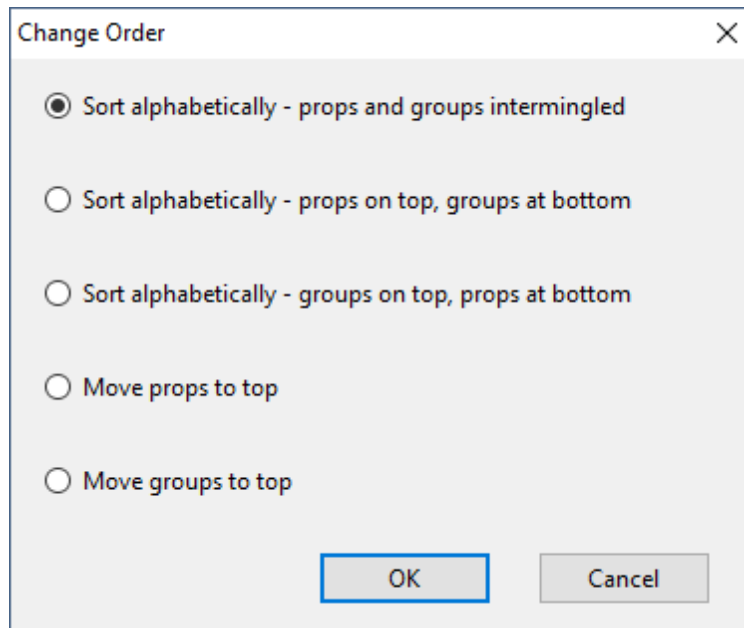


- **Select items that contain this text** - enter some text in the box at the top of this dialog, then click the "OK button. All of the items that contain the text that was entered will be selected. You can get the same functionality by using the Filter box on the main dialog.
- **Select items that start with this text** - enter some text in the box at the top of this dialog, then click the "OK button. All of the items that start with the text that was entered will be selected.
- **Select items that end with this text** - enter some text in the box at the top of this dialog, then click the "OK button. All of the items that end with the text that was entered will be selected.
- **Select All** - selects all of the items that are currently listed on the left side.
- **Clear All** - clears all of the items that are currently listed on the left side.
- **Select props that are not members of any selected group** - if you select some or all of your preview groups first, you can then use this function to select props that are not members of any group. This ensures that the grid view you are creating will contain all of your props: props that are members of a group and those that are not.

## Sorting Items (right side)

You can re-order items on the right side so that they are in the desired order when added to the sequence grid. You can move individual items by clicking and dragging them up or down.

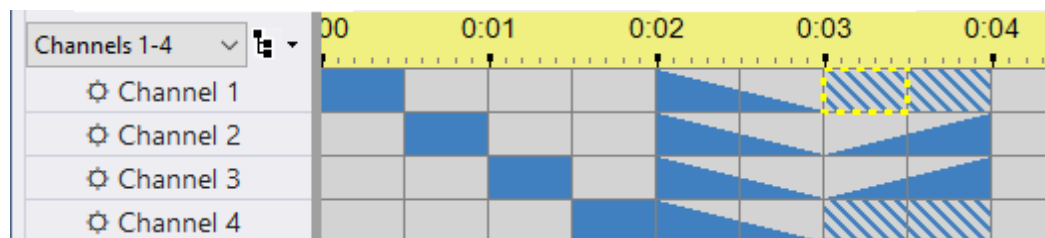
You can also click the sort icon at the upper right to sort items alphabetically. It will open the following dialog:



- **Sort alphabetically - props and groups intermingled** - this option sorts all of the items in the list on the right according to their name. Props and groups are intermingled.
- **Sort alphabetically - props on top, groups at bottom** - this option sorts all of the items in the list on the right according to their name, except props are sorted to the top, leaving groups at the bottom.
- **Sort alphabetically - groups on top, props at bottom** - this option sorts all of the items in the list on the right according to their name, except groups are sorted to the top, leaving props at the bottom.
- **Move props to top** - this option leaves the order of items intact, except that props are moved to the top of the list, leaving groups at the bottom.
- **Move groups to top** - this option leaves the order of items intact, except that groups are moved to the top of the list, leaving props at the bottom.

### 5.3.5.3 Selecting Cells

A cell, or a range of cells, can be selected in the [sequencing grid](#), allowing you to apply various tools to it (such as specifying what lighting effects should be placed in that cell). You can recognize the currently selected cell (or cells) by a thick dashed yellow border. For example, in the following [sequence](#), a cell on the first row is selected between 3.00 seconds and 3.50 seconds:



A cell on the first row is selected

In the [sequencing grid](#), you can select cells using the:

- [mouse](#)

- [keyboard shortcuts](#)
- [right-click context menu](#)

## Grid Selection Using The Mouse

### **Click On A Cell**



Click on a single cell to select it. If the cell has a [motion effect](#) in it, that effect starts playing in the [Playback Window](#).

### **Click And Drag**

Select multiple cells by clicking on a cell and then dragging the mouse across the range.



If you drag with the left mouse button depressed, what happens after the button is released depends on which tool is selected on the toolbar. For example:



Select – no effect is applied to the selected cells



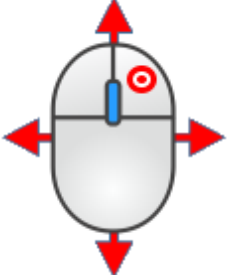
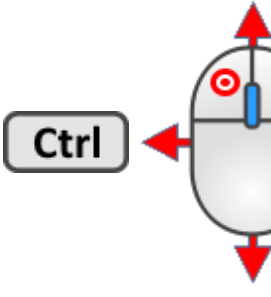
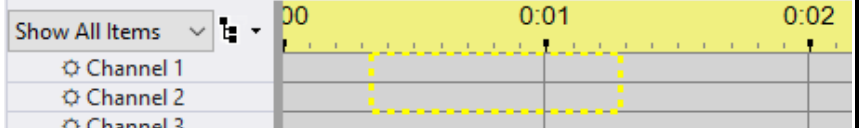
Max Intensity – will apply the current effect, as listed on the toolbar, to the selected cells at the maximum intensity shown on the toolbar.




Fade Up – will apply the current effect, as listed below the Effect Generator button, to the selected cells. The effect is ramped up from the minimum intensity at the left-most selected cell to the maximum intensity at the right.




Fade Down – will apply the current effect, as listed below the Effect Generator button, to the selected cells. The effect is ramped down from the maximum intensity at left-most selected cell to the minimum intensity at the right.

	<p>If you drag with the right mouse button depressed, after the button is released the grid's <a href="#">context menu</a> will open</p>
	<p>Normally a mouse selection will be bound on the left and right by the <a href="#">timing marks</a> in the grid. However, you can make a selection that starts and ends between timing marks by holding down the Ctrl key as you start to click and drag. For example, here is a selection from about 0.3 to 1.3 seconds on a fixed timing grid with 1 second spacing:</p> 

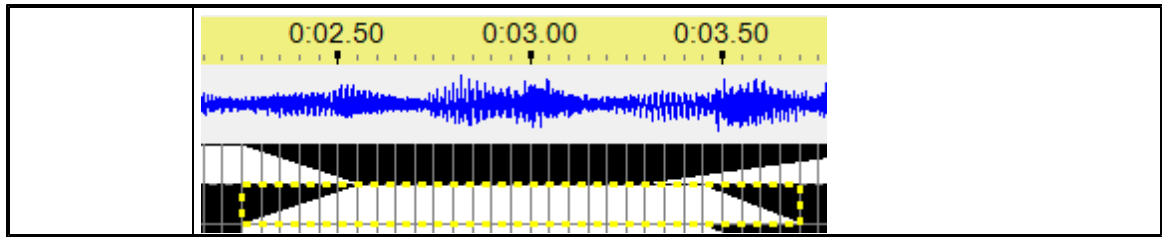
### Expanding the Selection

	<p>Expand the selection by shift-clicking on a cell.</p>
---	--






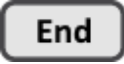








### Double-Click Selection And Edit

	<p>Double-clicking on an effect in the <a href="#">sequencing grid</a> will select all of the cells for that effect, then open a dialog window that allows the effect to be modified:</p> <ul style="list-style-type: none"> <li>• Regular Channels - effect can be changed from intensity, shimmer, twinkle, or DMX intensity</li> <li>• RGB Channels - colors can be modified</li> <li>• SuperStar Effects - <a href="#">SuperStar</a> is opened, allowing the effect to be edited</li> <li>• Other Motion Effects - the <a href="#">Motion Effect Generator</a> is opened</li> <li>• Loops - the repeat count and speed can be modified</li> </ul> <p>If the effect is modified and the user clicks "OK", then those modifications are applied to the selected cells. In the following picture, one of the cells in the second row was double-clicked, causing all of the cells for that effect to be selected (including the ramp up and ramp down portions).</p>
---	---



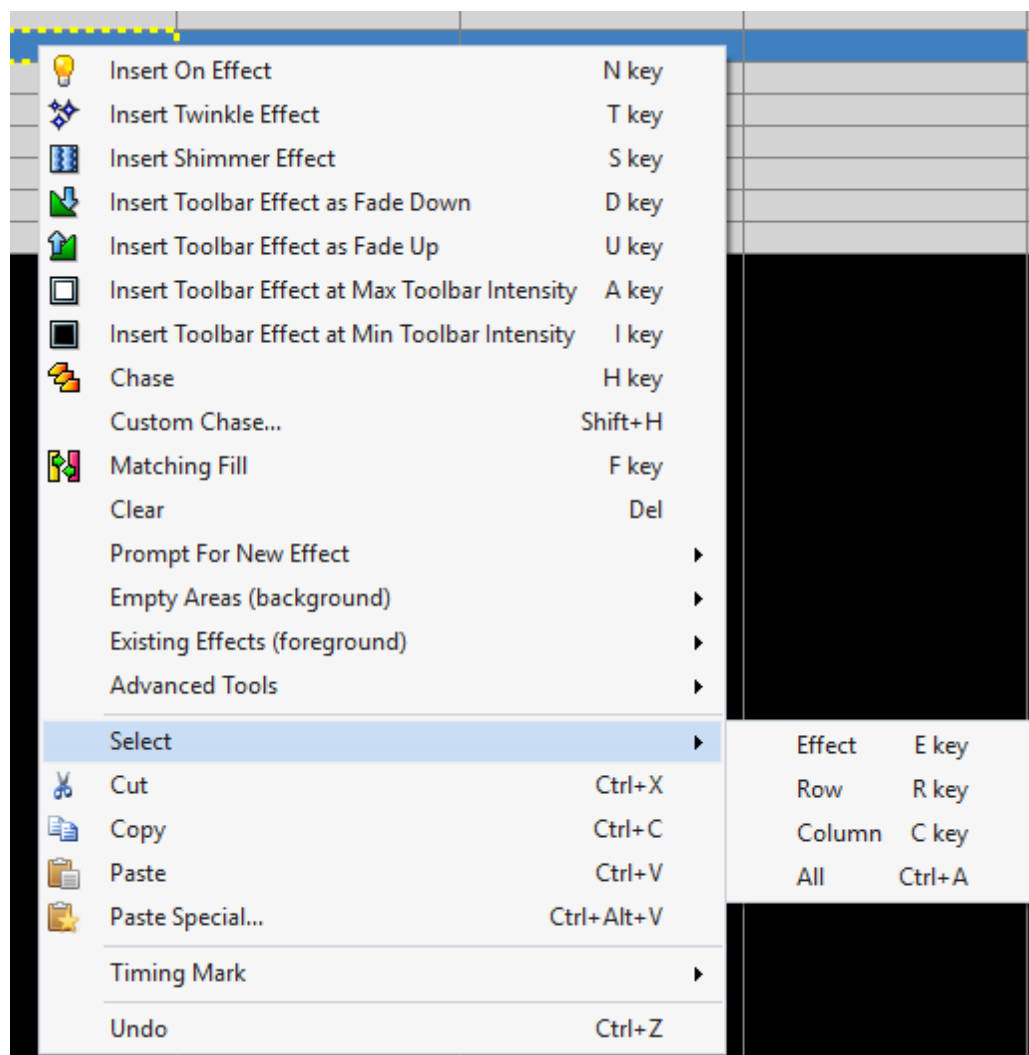


## Keyboard Selection

Key	Effect
   	Use the arrow keys to move one cell in the direction of the arrow
	Move to the first cell in the current row
	Move to the last cell in the current row
	Move up 1 screen
	Move down 1 screen
	Expand the selection by holding down the shift key while using any of the keys listed above
	If part of an effect is selected, then "E" will expand the selection to encompass the entire effect
	"C" will expand the selection to the entire column
	"R" will expand the selection to the entire row
 	Ctrl-A will select the entire grid.

## Right-Click Context Menu, Select sub-menu

Right-clicking in the [sequencing grid](#) provides a variety of options, including cell selection:

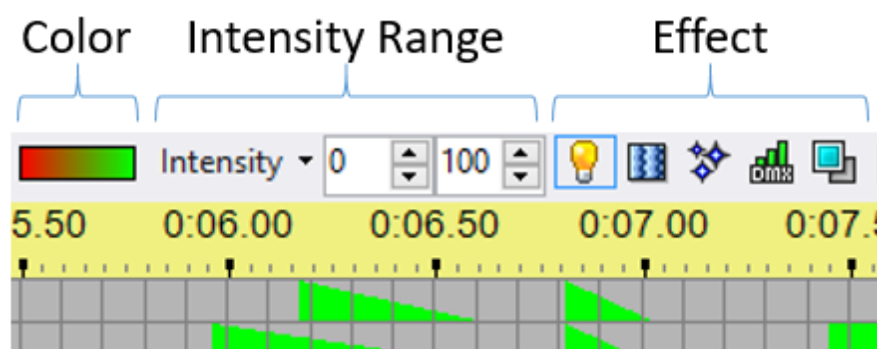


Right-click context menu with Select sub-menu shown

#### 5.3.5.4 Intensity Range

Many commands in the [Sequencer](#) take into account the intensity range displayed on the [toolbar](#). When you open a sequence the intensity range will be set at "0" and "100". This means that :

- the "[Max Intensity](#)" [tool](#) will create effects at 100% (maximum brightness)
- the "[Min Intensity](#)" [tool](#) will create effects at 0% (since 0% is completely off, this erases any effects where it is applied)
- the "[Fade Down](#)" [tool](#) will create effects that go from 100% to 0%
- the "[Fade Up](#)" [tool](#) will create effects that go from 0% to 100%



A portion of the S5 toolbar

The intensity section of the toolbar consists of 3 parts:

1. The intensity menu, opened by clicking on the word "Intensity"
2. The first intensity value
3. The second intensity value

It doesn't matter which order you enter the 2 intensity values. "100" and "0" is the same as "0" and "100".

The full intensity range is normally 0 to 100. However, if the toolbar effect is set to [DMX Intensity](#), then the full intensity range is 0 to 255. You should set the toolbar effect drop-down to "DMX Intensity" *before* entering DMX values in the intensity fields.

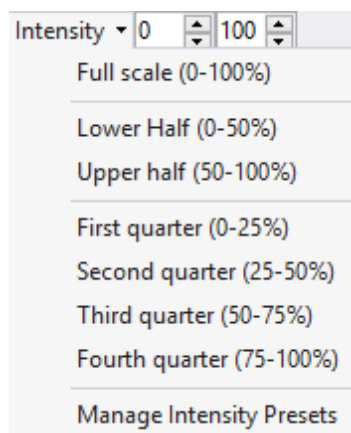


DMX Intensity Range

## Entering Values

There are 3 ways to change an intensity value on the toolbar:

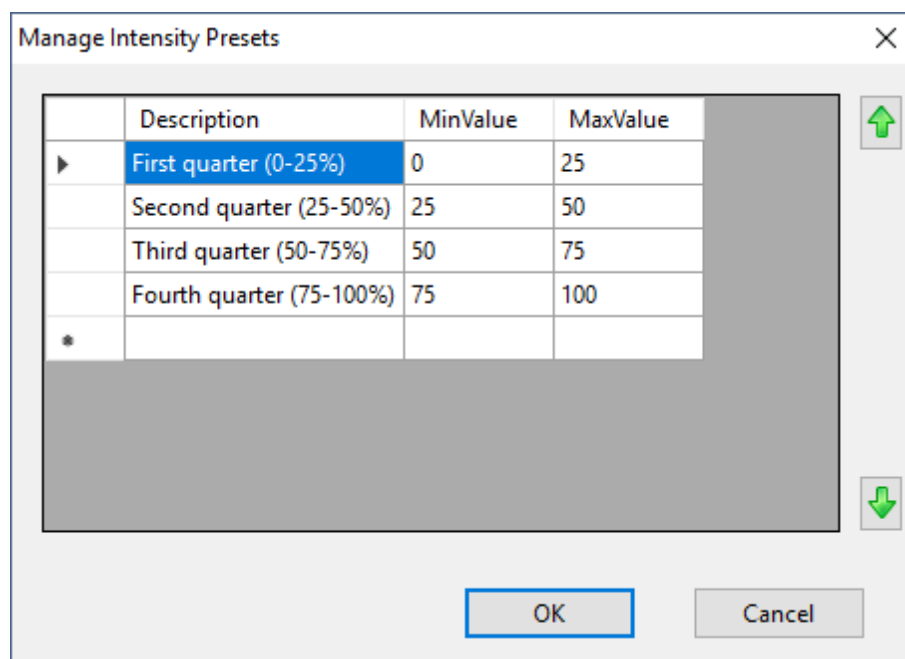
- You can type numbers for the desired intensity range directly into the number boxes.
- You can increment and decrement the intensity values by clicking on the small buttons to the right of the number.
- Clicking the "Intensity" button to the left of the number boxes will open a menu where you can select from some predefined ranges. You can also create your own ranges from this menu by choosing [Manage Intensity Presets](#).



Intensity Menu. Upper and lower half are built-in, the quarters are presets.

## Managing Presets

Selecting the "Manage Intensity Presets" item from the toolbar's Intensity menu, will open the "Manage Intensity Presets" dialog:



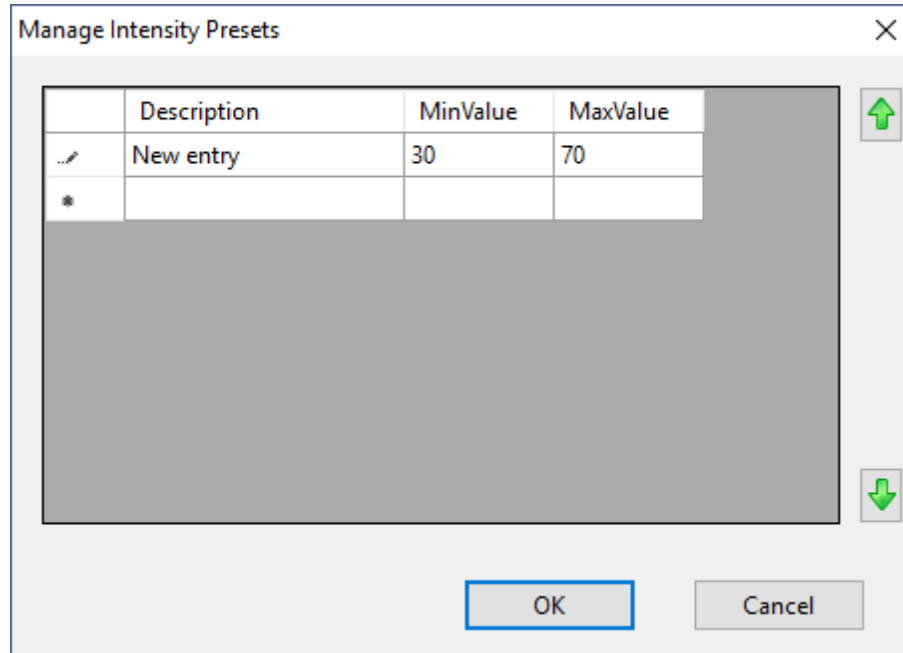
The Manage Intensity Presets dialog

You can use the arrows keys to navigate around the grid, or left-click on any cell using your mouse pointer. Click the OK button to save your changes when you are done.

### Add a Preset

Start adding your information on the last row of the grid - the one marked with a "\*" in the left margin.

As soon as you start typing, a new empty row will be created, but keep entering data on the row you started. Enter data in all 3 columns. Use the Tab key after finishing the entry in one cell - it will move you to the next cell. After entering data in the last column, you can use the Tab or Enter key to finish the entry for that row.



Adding a new preset

### Modify a Preset

To start editing a cell, left-click on it using the mouse pointer, or use the F2 shortcut key if the desired cell is already highlighted. To commit the change, type the Enter key. To cancel the change, use the Esc key.

### Delete a Preset

Click in the left margin of the row you want to delete, then use the Delete key.

#### 5.3.5.5 Adding Effects

Light-O-Rama gives you the tools to make your lights do amazing things. In addition to simply turning them on and off, you can turn them on to varying levels of brightness, have them fade up or down, shimmer, or twinkle. You can make RGB lights change to any color. And with [motion effects](#), you can apply colorful patterns to pixel-based [props](#).

The process involves assigning these effects to [grid rows](#) in a [sequence](#) using the [Sequencer](#). The sections below will describe how to create effects using the [toolbar](#). However, most tools also have a shortcut key, which will be noted below. In addition, most tools can be accessed using the grid's [right-click context menu](#).

To summarize, you can add effects by using any of the following methods:

- [the toolbar](#)
- [keyboard shortcuts](#)

- [the right-click context menu](#)

When using the toolbar, only one Select Action can be active at a time. Click on the icon for the tool in order to make it active. The active tool will have a border drawn around it.

- When the Select tool is active, the standard mouse pointer is displayed when you move the mouse over the grid, and the mouse can be used to [select grid cells](#).
- When any other tool is active, the mouse pointer specified in [Cursor preferences](#) is displayed, and effects will be placed in cells that are selected.





When using keyboard shortcuts or the right-click context menu to create effects, the Select Action on the toolbar is ignored.

## Basic Operations: Max Intensity, Min Intensity, Fade Up, and Fade Down




To start adding effects to a sequence using the toolbar, the first step is to set the Select Action to "Create". This is important! If you leave the Select Action as "Select", then no effects will be created.


Now set the Intensity Range. The range defaults to 0-100, which is usually fine for starting out. If you want different values, then type the numbers into the 2 boxes. The order of the numbers does not matter: entering 0 in the first box and 50 in the second has the same effect as entering 50 in the first box and 0 in the second. You can use the "Presets" button to quickly set common ranges.

Now choose the "Slope".





Slope Tool	Button	Action
Max Intensity		Applies the selected effect at the maximum value in the <a href="#">intensity range</a>
Min Intensity		Applies the selected effect at the minimum value in the <a href="#">intensity range</a> . If the minimum intensity is 0%, this will erase any existing effects where it is applied.
Fade up		Ramps the selected effect from the minimum value in the <a href="#">intensity range</a> to the maximum value in the <a href="#">intensity range</a>
Fade down		Ramps the selected effect from the maximum value in the <a href="#">intensity range</a> to the minimum value in the <a href="#">intensity range</a>


Now choose the Effect Type:

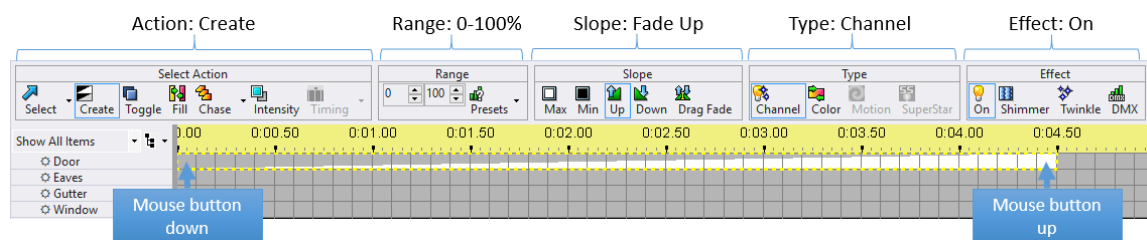
Effect Type	Description
 Channel Effect	Simple effects originally meant to control AC-powered lights. However these effects can also be applied to RGB lights and pixels.
 Color Fade	Applies a color transition to an RGB light. However, these effects work equally well on RGB pixels.
 Motion Effect	an effect intended for pixel-based display elements created by the <a href="#">Motion Effect Generator</a> or the <a href="#">SuperStar Sequencer</a> . The motion effect that will be applied when drawing on the grid is the one currently displayed in the <a href="#">Playback Window</a> . Motion Effects can only

	be placed on <a href="#">Motion Effect Rows</a> , and require a <a href="#">Pro level license</a> . Furthermore, motion effects can only be displayed on lights connected to <a href="#">Enhanced LOR networks</a> , or <a href="#">DMX networks</a> . They cannot be displayed on LOR networks that are not enhanced. Lastly, they cannot be used in a <a href="#">stand-alone sequence</a> that is loaded into a controller.
 SuperStar Effect	These effects are created using the <a href="#">SuperStar Sequencer</a> , but the data is stored in the S5 Sequencer's file.

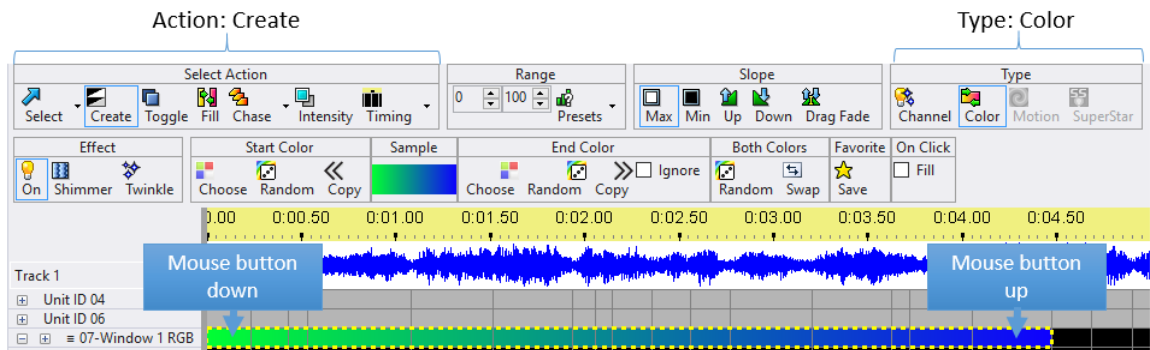
For a channel type, choose the specific effect:

Channel Effect	Description
 On	the light is turned on (no shimmer or twinkle)
 Shimmer	causes your lights to quickly vary between on and off at a constant high rate.
 Twinkle	causes your lights to quickly vary between on and off at a random rate.
 DMX Intensity	this is useful for sending DMX commands to DMX devices that require specific DMX values (like some moving head lights). The DMX protocol supports intensities from zero to 255, and so this effect gives you precise control over the DMX intensities sent to a device. Please note that not all Light-O-Rama controllers support this functionality; DMX intensity events sent to a controller that does not support them will simply be ignored. To check whether any particular controller supports it, please refer to that controller's documentation.

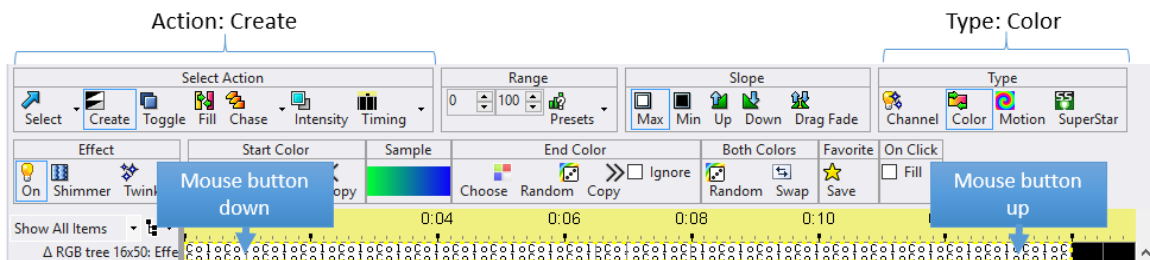
After making those choices and then moving your cursor over the sequence grid, your cursor will change to a pencil  indicating that you are in "effect drawing mode". Click the left mouse button and drag over some cells. When you release the mouse button those cells will be filled with the effect you chose, at the intensity range you chose, and reflecting the tool type you chose.



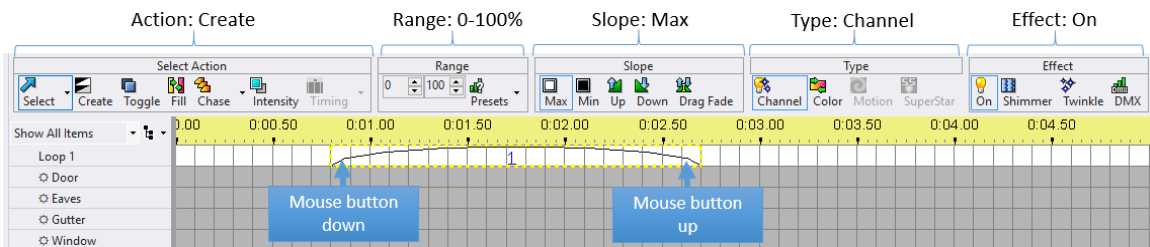
In the example above, an effect was applied to a [regular channel row](#). However, this technique applies equally well to [RGB channel rows](#). The only difference is that RGB channel rows need a color. If the color fade tool is open, then the color currently shown in the tool is used for the effect. If not, then the color shown on the toolbar (on the color fade button) is used.



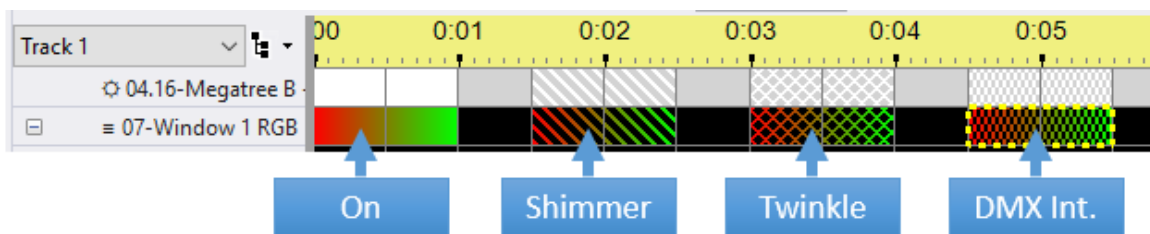
In the example above, a colorized effect was applied to an RGB Channel Row. This technique applies equally well to [Motion Effect Rows](#). When you do, it will apply the color to all of the pixels in the prop (a ColorWash motion effect). The only difference is the way the resulting motion effect is displayed in the grid. In the picture below, the [display of motion effect names option](#) is enabled.



You can even use the same technique to create loops in [animation sequences](#). Loops don't use color, so it is more like the first example.











Each channel effect (on, shimmer, twinkle, and DMX intensity) has its own pattern when displayed on the sequence grid. This makes it easy to identify what your sequence is doing without even playing it back. The patterns are applied to both [regular channel rows](#) and [RGB channel rows](#).



## Keyboard Shortcuts for Basic Operations



All of the actions listed above can be performed using keyboard shortcuts. The actions listed below are also available on the [right-click context menu](#).

Tool	Shortcut Key	Action
Max Intensity		applies the selected toolbar effect at the maximum value in the intensity range
Min Intensity		applies the selected toolbar effect at the minimum value in the intensity range
Fade up		ramps the selected toolbar effect from the minimum value in the intensity range to the maximum value in the intensity range
Fade down		ramps the selected toolbar effect from the maximum value in the intensity range to the minimum value in the intensity range
On		set selected cells to the ON effect at max toolbar intensity (ignores the toolbar effect selection)
Shimmer		set selected cells to the SHIMMER effect at max toolbar intensity (ignores the toolbar effect selection)
Twinkle		set selected cells to the TWINKLE effect at max toolbar intensity (ignores the toolbar effect selection)
Any		Use the currently selected tool (from the <a href="#">toolbar</a> ) on the grid selection

## Intelligent Fade Tool

When using your mouse, the intelligent fade tool will create a:

- Fade Up when you use it by clicking and dragging left-to-right
- Fade Down when clicking or dragging right-to-left
- [Fill](#) if you click without dragging

This tool is not available when using the keyboard. Use the shortcuts for fade-up, fade-down, and fill instead.

## Fill Tool

Shortcut Key:



The Fill tool can be used to create smooth fades from one effect to another. For example, if a fade up from 10% to 40% is followed by the lights being off, which is followed by a fade up from 20% to 80%, then applying the Fill tool on the area where the lights are off will make it into a fade down from 40% to 20%:



Before a fill...



... and after a fill

It can also be used in a similar manner on [RGB channels](#) to smoothly fade from one color to another.



Before a fill...

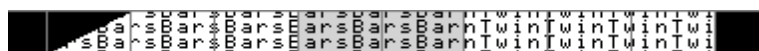


... and after a fill

The Fill tool can also be used on [Motion Effect Rows](#).



Before a fill...



... and after a fill

With motion effects, the Fill tool tries to perform a cross-fade. However, you will achieve better results by creating the cross-fade yourself (which requires a second motion effects row):



Cross fading the 2 effects using a second motion effect row

The Fill tool does not do anything when used on cells that contain an effect.

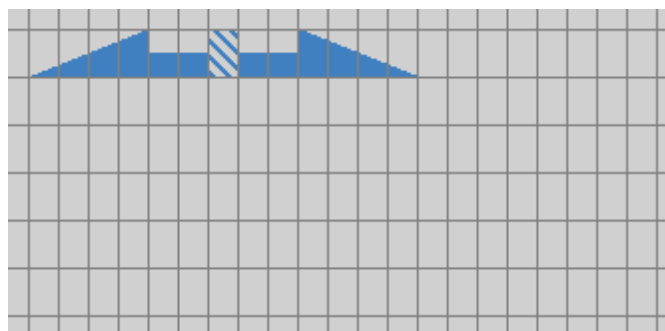
The [Intelligent Fade tool](#) and the [Color Fade tool](#) can also be used to apply fills in certain situations.

## Chase Tool

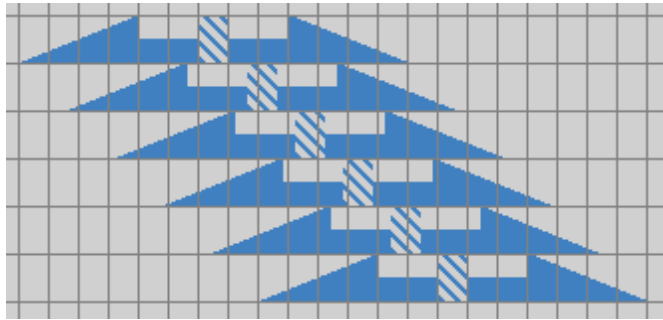
Shortcut Key:



The Chase tool can be used to take a pattern and "chase" it through several [channels](#) over a time range. For example:



Before a chase...

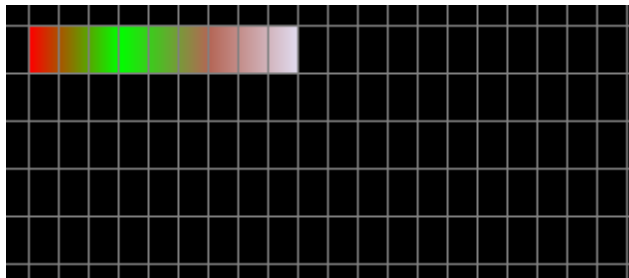


... and after a chase

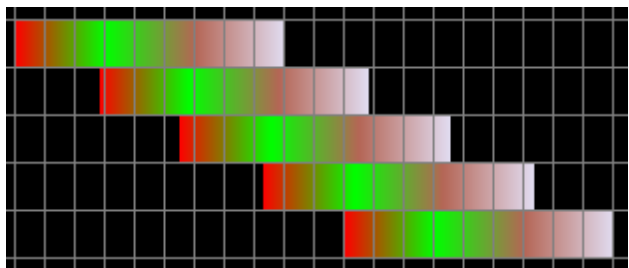
Exactly what is chased, and where it is chased to, depends upon how you click-and-drag (or, if using the keyboard, how you expanded the selection). The lighting [effects](#) in the corner that you started dragging from will be chased to the corner that you finished dragging to so that, for example, you could chase effects "up" or "down" through channels.

The effects that are chased will include everything up to and including the last lighting effect in the channel that you start dragging from (or, if dragging backwards, everything from the first lighting effect).

The Chase tool can also be used on [RGB channels](#):

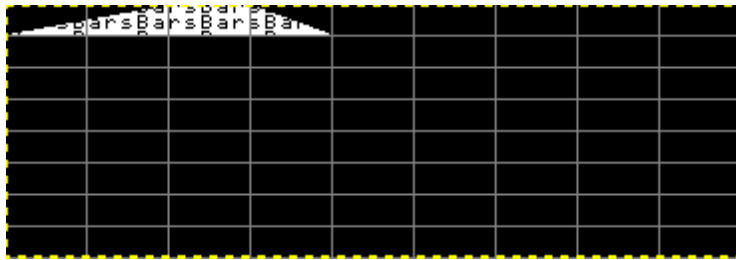


Before an RGB chase...

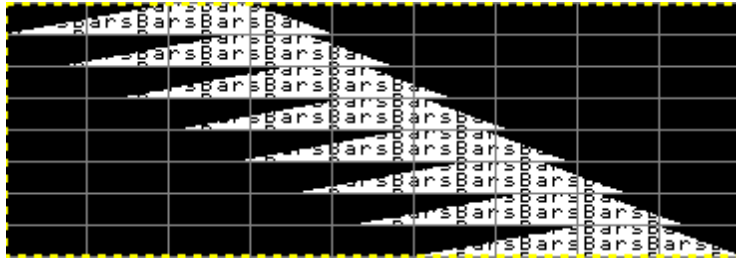


... and after an RGB chase

The Chase tool can also be used on [Motion Effect Rows](#):

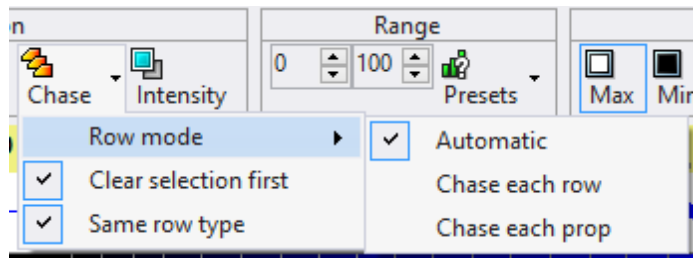


Before a motion effect chase...



... and after a motion effect chase

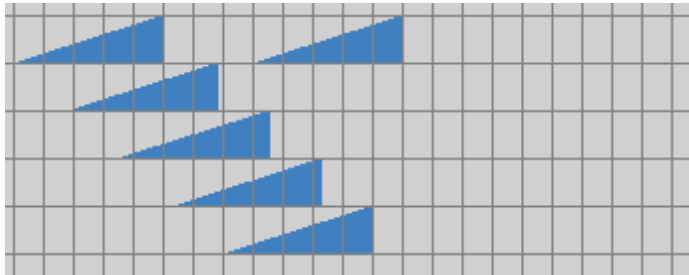
The Chase tool has additional options that can be accessed by clicking on the small down arrow to the right of the chase button.



The Chase Options menu

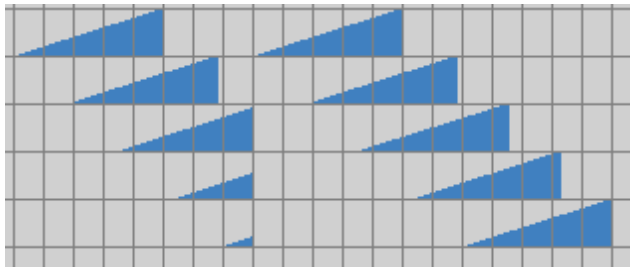
- Row Mode:
  - Auto: chase each prop if the effect being chased is a motion effect and that motion row applies to the entire prop (not a subsection); otherwise chase each row
  - Chase Each Row: perform the chase on each row in the selected area
  - Chase Each Prop: perform the chase on the first row of each prop in the selected area (makes a difference on pixel props with multiple motion effect rows)
- Clear Selection First: clears the chase area of any existing effects before placing the new effects that are part of the chase.
- Same Row Type: if selected, the chase will only occur on rows of the same type as the first row. For example, if the first row is a regular channel, any RGB channels or motion effect rows will be skipped. If there is no check mark next to this option, then the chase will proceed through all selected rows, regardless of type.

For example, consider the following sequence, and imagine that you want to chase the second fade up in the first channel:



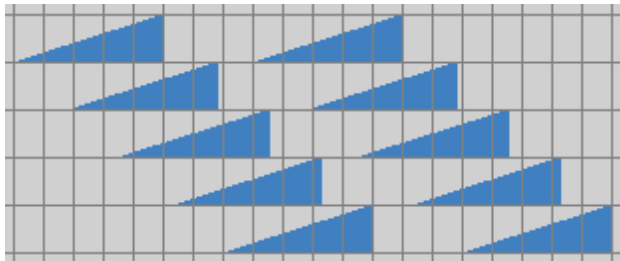
Before chasing the second fade

If you had "Clear selection first" turned on, the chase would overwrite the ends of the existing fades in some of the other channels:



After chasing the second fade, with "Clear selection first" enabled

But with "Clear selection first" turned off, the existing effects are kept in place:



After chasing the second fade, with "Clear selection first" disabled

## Motion Effect Tool

After [selecting one or more cells](#) on a [motion effect row](#) with this tool active, the [Motion Effect Generator](#) will open. Create your effect and then click the OK button to close the Motion Effect Generator. The new effect will be placed in the selected cells. This tool requires a [Pro level license](#).

## SuperStar Tool

After [selecting one or more cells](#) on a [motion effect row](#) with this tool active, the [SuperStar Sequencer](#) will open. After you finish your sequencing in SuperStar, close SuperStar by clicking on the Red X in the upper right of the program (there is no need to use SuperStar's save function). You will then be returned to the [S5 Sequencer](#) and your new SuperStar effects will be automatically saved as part of the [S5 Sequencer's](#) sequence. They will be displayed in the [selected cells](#) as a

single effect at the maximum value in the [toolbar's intensity range](#). This tool requires a [Pro level license](#).

## Color Fade Tool

Shortcut Key:



**Note: the colors displayed on your screen will not necessarily match those shown by your actual RGB lights; you may have to experiment to determine colors that wind up looking the way you want, and different RGB devices may show different colors when sent the same intensities.**

The Color Fade tool can be used to apply colors to [RGB channels](#) and [Motion Effect Rows](#). Setting the Effect Type to "Color" on the toolbar displays a set of buttons that enables you to specify the colors to be used:



With the Color Fade tool selected, clicking and dragging an area of an RGB channel or multiple RGB channels will cause that area to become those colors:



Applying a color fade to an RGB channel

If you drag backwards, however, the colors will be applied in reverse order (this also happens if you are using the keyboard, and expand the [selection](#) from right to left instead of left to right):



Applying a color fade to an RGB channel by dragging backwards

If the "On Click - Fill" box is checked in the window and you click on an empty cell (as opposed to clicking-and-dragging) will cause the Color Fade tool to perform a [fill](#), smoothly fading from the preceding color to the following color:



Before clicking the empty area...



... and after clicking the empty area

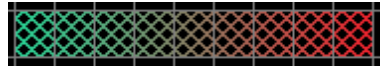
If the "On Click - Fill" box is not checked and you click on an empty cell, then the color sample will be applied to the cell that was clicked.

The Color Fade toolbar buttons give several ways to select the colors to be used:

- The "Choose" buttons on either side will open a color picker dialog to specify the color for that side
- The "Copy" button on either side will copy the color from the opposite side
- The "Swap" button will move the two colors to their opposite sides
- The "Random" buttons on either side will apply a random color for that side

- The "Random" button in the "Both Colors" section will apply random colors to both sides

The Color Fade tool takes into account the selected effect on the toolbar. For example, here is a [twinkling](#) color fade:



A twinkling color fade

### 5.3.5.6 Modifying Effects

This section covers techniques for modifying existing effects.

- One simple way to edit your [sequence](#) is to place new effects over the old ones -- if that is what you want to do, then see the [Adding Effects](#) topic.
- You can also use cut, copy, paste, and repeat to modify a sequence -- which is covered in the [clipboard topic](#).

Covered in this topic are:

- [Double-Click Selection And Edit](#)
- [Nudge Tools](#)
- [Changing Colors](#)
- [Changing Intensity](#)
- [Prompt For New Effect](#)
- [Toggle Tool](#)

A condensed list of keyboard shortcuts for modifying a sequence can be found in the [Keyboard Shortcut Summary](#).

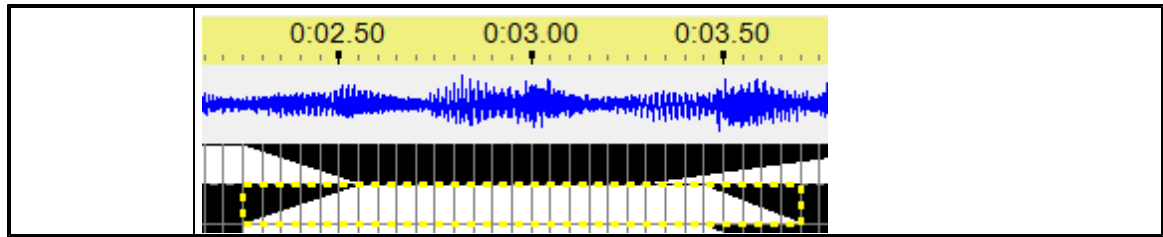
## Double-Click Selection And Edit



Double-clicking on an effect in the [sequencing grid](#) will select all of the cells for that effect, then open a dialog window that allows the effect to be modified:

- Regular Channels - effect can be changed from intensity, shimmer, twinkle, or DMX intensity
- RGB Channels - colors can be modified
- SuperStar Effects - [SuperStar](#) is opened, allowing the effect to be edited
- Other Motion Effects - the [Motion Effect Generator](#) is opened
- Loops - the repeat count and speed can be modified

If the effect is modified and the user clicks "OK", then those modifications are applied to the selected cells. In the following picture, one of the cells in the second row was double-clicked, causing all of the cells for that effect to be selected (including the ramp up and ramp down portions).



## Nudge Tools

The nudge tools allow you to make small adjustments to existing effects in the grid. By default, each click of the button moves effects in 0.05 second increments. However, if you hold the Ctrl key down while clicking the button, effects will move in 0.25 second increments.

Effects can also be moved left or right by using the [Skew Selection](#) command.



Nudge tools on the toolbar

### **Nudge Effect Left**

When you click on this button, any effects completely or partially within the selected area will be moved to the left.

### **Nudge Effect Right**

When you click on this button, any effects completely or partially within the selected area will be moved to the right.

### **Shorten Effect**

When you click on this button, any effects completely or partially within the selected area will be shortened. The starting time of the effect remains the same.

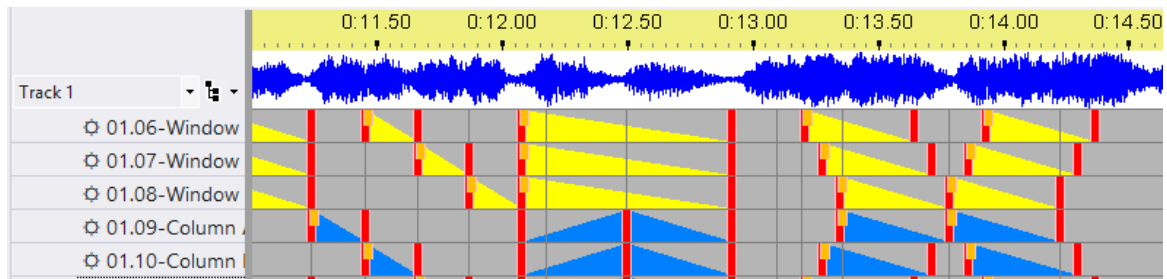
### **Lengthen Effect**

When you click on this button, any effects completely or partially within the selected area will be lengthened. The starting time of the effect remains the same.

### **Display Drag Handles**

When you click this button, all effects (except RGB effects) display a drag handle on each side of the effect. Dragging the red part of the handle with your mouse will move the edge of the effect. Dragging the green part of the handle will create a fade. When your cursor is over the green part of the handle the cursor will change to an angle. The direction of the angle will indicate whether you are creating a fade in or a fade out.





## Changing Colors

You can change the colors of RGB Channel effects by:

- setting Effect Type to "Color" and select the new color
- [selecting](#) an area of the grid that contains the effects to be changed. These must be [RGB Channel rows](#).
- right-click on the area, then opening the [Existing Effects \(foreground\) Sub-menu](#), then selecting [Apply Toolbar Color](#) or [Apply Toolbar Hue](#).

## Changing Intensity

Tools to change the intensity of existing effects are accessed by right-clicking on the sequence grid, then opening the [Existing Effects \(foreground\) Sub-menu](#).

You can also change the intensity of existing effects by using the "Change Intensity" select action on the toolbar. To use the tool, set the intensity range and slope to the desired values, then select a region of the grid containing effects you want to change.

## Prompt For New Effect

You can modify a group of [effects](#) to all be a new effect that you choose. First [select an area](#) that contains effects you wish to modify, then either:


- right-click on the selection, open the [Prompt For New Effect Sub-menu](#) and select [Modify Existing Effects](#), or
- use the Shift-M [keyboard shortcut](#)

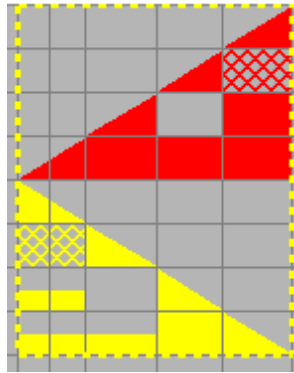
This works with [regular channels](#), [RGB channels](#), and [motion effect rows](#).

## Toggle Tool

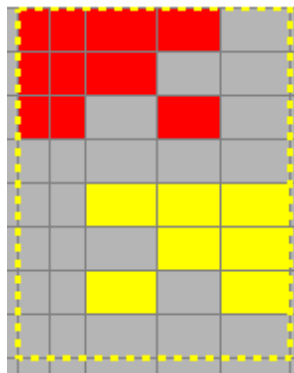
This command will toggle the [effects](#) in the [selected area](#) between on and off. Any that had been off will be turned on; all others will be turned off (note that this includes not just those that had been on, but also, for example, those that had been shimmers or fades).

You can invoke it by:

- Selecting the Toggle select action  on the [toolbar](#), then selecting an area of the grid to toggle.
- Selecting an area on the grid, then right-clicking and select "Toggle" on the [Advanced Tools sub-menu](#).
- Selecting an area on the grid, then using the "G" shortcut key



Before Toggle



After Toggle

#### 5.3.5.7 Deleting Effects

To delete existing effects in the grid, [select an area](#), then:

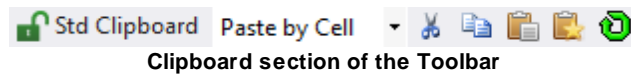
- Click the [Cut button](#) on the toolbar, or
- Use the Delete [keyboard shortcut](#), or
- Select [Clear](#) from the right-click menu
- Use the [Min Intensity tool](#) when the minimum intensity is set to 0%

#### 5.3.5.8 Clipboards & Cut/Copy/Paste/Repeat

In the [S5 Sequencer](#), the [sequence grid](#) supports cut, copy, and paste operations on 2 types of data:

- The copying and pasting of [timing marks](#) is covered in the [Timing Mark sub-menu](#) topic.
- The copying and pasting of lighting effects is covered in this section.

The Sequencer supports basic cut, copy, and paste operations on lighting effects. But it also supports more advanced operations. All operations can be accessed from the [toolbar](#).



From the toolbar you can:

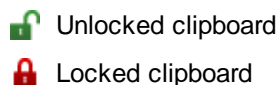
- [Select And Manage Clipboards](#)
- [Choose The Paste Mode](#)
- [Cut](#)
- [Copy](#)
- [Paste](#)
- [Paste Special](#)
- [Repeat](#)

Cut, copy, paste, and paste special can also be accessed using [keyboard shortcuts](#) or from the [right-click menu](#).

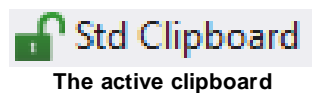
## Select And Manage Clipboards

Clipboards are used to copy (or cut) and paste lighting [effects](#) from one area of the sequence grid to another. In the [Sequencer](#), you can have multiple different clipboards, allowing you to keep several different sets of effects available to be pasted. However, only one clipboard can be active at any given time.

You can also [lock clipboards](#) so that they cannot be copied into (thus preventing accidental overwriting of their contents):



The default clipboard is named "Std Clipboard" and it cannot be locked. The active clipboard is shown on the [toolbar](#) with an icon to indicate whether it is locked or unlocked.

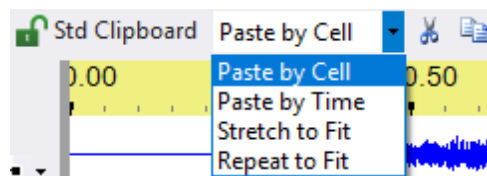


Click on the name of the active clipboard to open the [Clipboard Management](#) window.

## Choose The Paste Mode

When pasting in the [sequencing grid](#), use the paste mode selector on the [toolbar](#) to choose the desired mode before you paste. There are 4 different paste modes:

- [Paste By Cell](#)
- [Paste By Time](#)
- [Stretch to Fit](#)
- [Repeat to Fit](#)

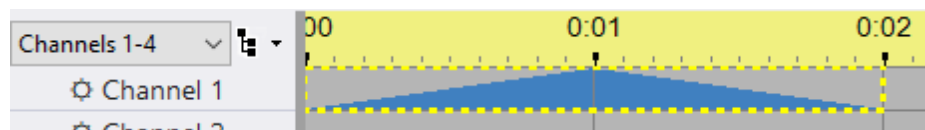


Paste Mode selector on the toolbar

## Paste By Cell

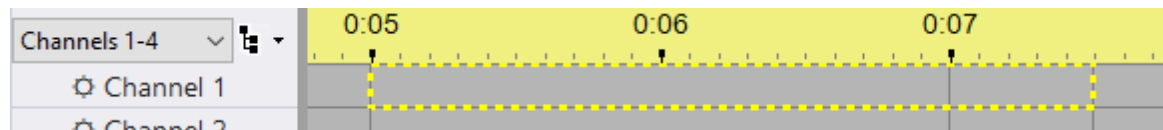
Paste by Cell pastes [effects](#) based upon the relative durations of the copied cells and the cells where they will be pasted.

For example, consider [timings](#) at 0 seconds, 1 second, and 2 seconds. Between 0 and 1 is a fade up, and between 1 and 2 is a fade down:



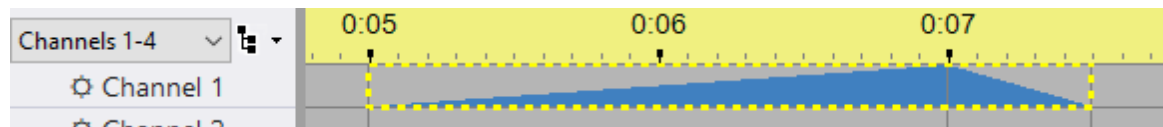
Effects to be copied

These events will be copied, and pasted to the time starting at 5 seconds. There are timings at 5 seconds, 7 seconds, and 7.5 seconds:



Where they will be pasted to

If "Paste by Cell" is selected, then there will be a fade up from 5 to 7, and a fade down from 7 to 7.5:

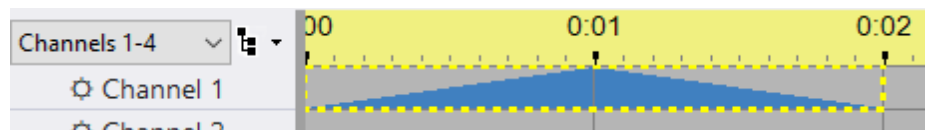


After pasting by cell

## Paste By Time

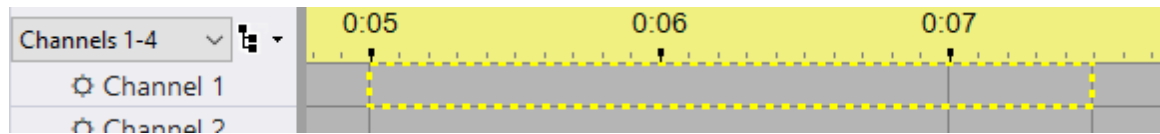
Paste by Time pastes [effects](#) based upon their durations as they were copied.

For example, consider [timings](#) at 0 seconds, 1 second, and 2 seconds. Between 0 and 1 is a fade up, and between 1 and 2 is a fade down:



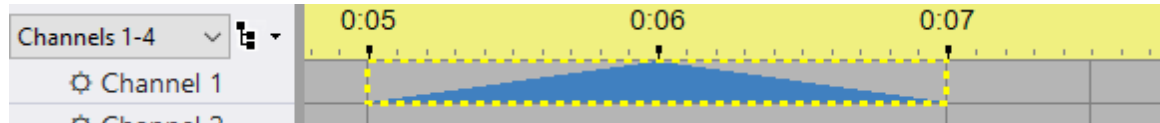
Effects to be copied

These events will be copied, and pasted to the time starting at 5 seconds. There are timings at 5 seconds, 7 seconds, and 7.5 seconds:



Where they will be pasted to

If "Paste by Time" is selected, then there will be a fade up from 5 to 6, and a fade down from 6 to 7. The timings at 7 and 7.5 are ignored; only the original lengths of the events are used:

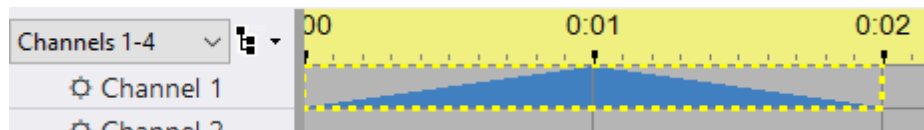


After pasting by time

### Stretch to Fit

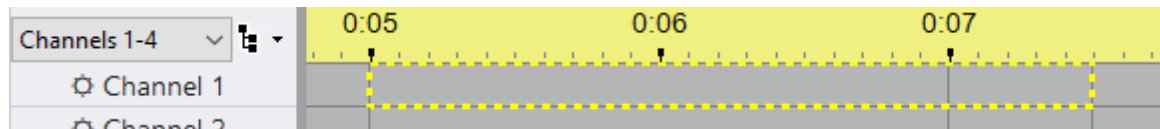
Stretch to Fit stretches (or compresses) [effects](#) to fit into the area that you have selected, without regards to any [timings](#) within that area.

For example, consider timings at 0 seconds, 1 second, and 2 seconds. Between 0 and 1 is a fade up, and between 1 and 2 is a fade down:



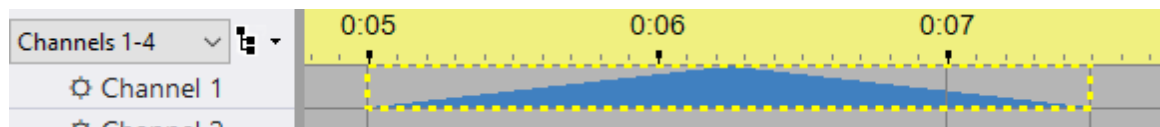
Effects to be copied

These events will be copied, and pasted to the time starting at 5 seconds, with the area between 5 seconds and 7.5 seconds selected. There are timings at 5 seconds, 7 seconds, and 7.5 seconds:



Where they will be pasted to

If "Stretch to Fit" is selected, then since the copied effects totalled two seconds in length, and since the area being pasted to is two and a half seconds in length, each effect will be stretched to 125% of its original length (since 2.5 seconds is 125% of 2 seconds). Therefore, there will be a fade up from 5 seconds to 6.25 seconds, and a fade down from 6.25 seconds to 7.5 seconds:



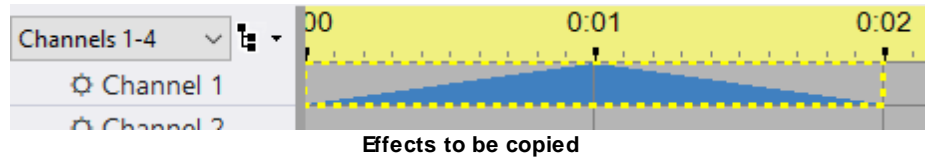
After stretching to fit

### Repeat to Fit

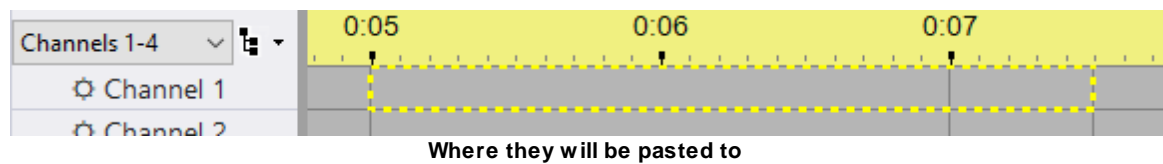
Repeat to Fit repeats (or cuts off) [effects](#) to fit into the area that you have selected, without regards

to any [timings](#) within that area.

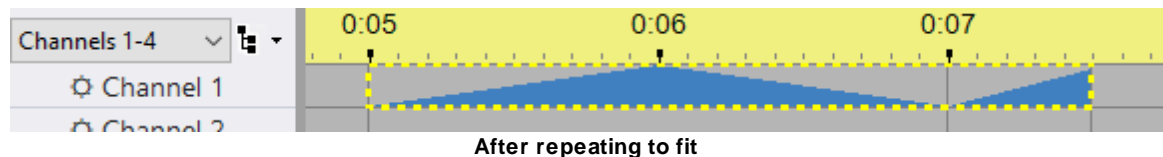
For example, consider timings at 0 seconds, 1 second, and 2 seconds. Between 0 and 1 is a fade up, and between 1 and 2 is a fade down:



These events will be copied, and pasted to the time starting at 5 seconds, with the area between 5 seconds and 7.5 seconds selected. There are timings at 5 seconds, 7 seconds, and 7.5 seconds:



If "Repeat to Fit" is selected, then since the copied effects totalled two seconds in length, and since the area being pasted to is two and a half seconds in length, there will be one full copy of the copied effects for the first two seconds, followed by the first half second of a second copy of the effects. That is, there will be a fade up from 5 seconds to 6 seconds, a fade down from 6 seconds to 7 seconds, and the first half of a fade up from 7 seconds to 7.5 seconds:



## Cut ✂

The Cut command removes the [selected effects](#) from their original position in the grid and stores those effects on the [current clipboard](#). If the current clipboard is locked, an error message is displayed.

"Cut" has a keyboard hotkey:



## Copy 📄

The Copy command copies the [selected effects](#) onto the [current clipboard](#). If the current clipboard is locked, an error message is displayed.

"Copy" has a keyboard hotkey:



## Paste 📄

The Paste command copies the effects in the [current clipboard](#) onto the [selected area](#) of the grid, taking into account the [current paste mode](#). The source row doesn't necessarily need to be of the same type as the destination row, as shown in the table below.

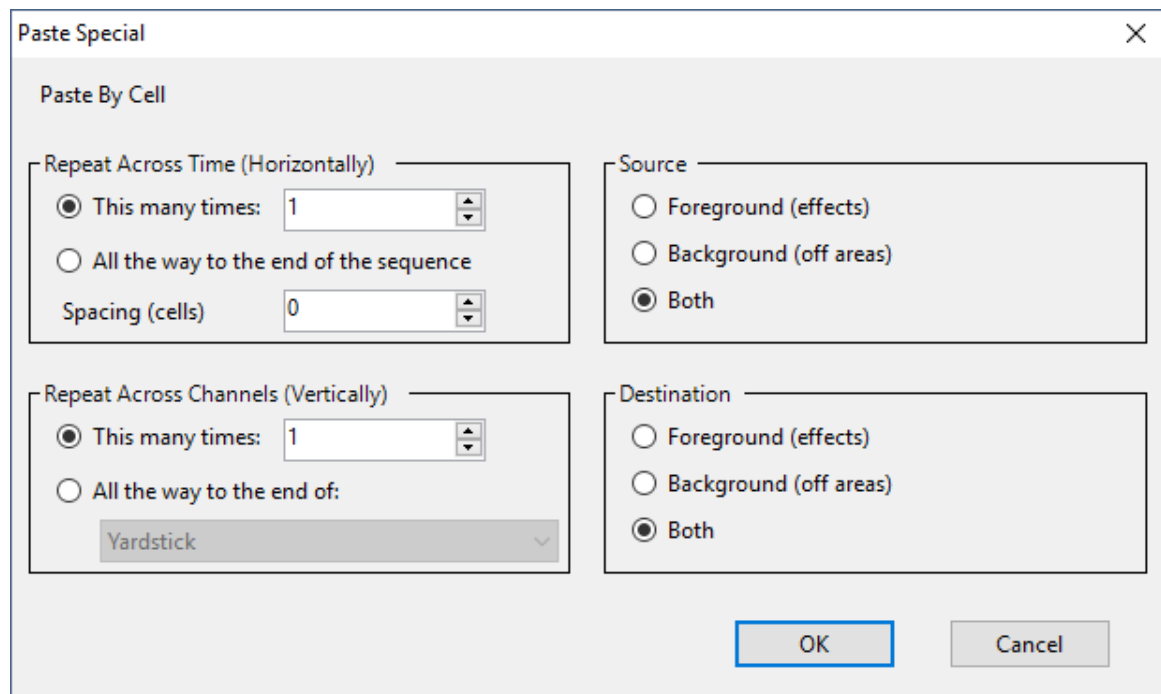
Copy From:	Paste Into:		
	Regular Channel or Beat Channel	RGB Channel	Motion Effects Row
Regular Channel or Beat Channel	Fully supported - no change to the effect	"on", "twinkle", and "shimmer" are preserved. The RGB channel effect takes on the color of the source channel.	"on", "twinkle", and "shimmer" are recreated as motion effects. The motion effect takes on the color of the source channel.
RGB Channel	"on", "twinkle", and "shimmer" effects are created at 100% intensity, wherever those RGB channel effects existed in the source. Color information is not used in conversion.	Fully supported - no change to the effect	"on", "twinkle", and "shimmer" are recreated as motion effects. The motion effect takes on the color of the source effect.
Motion Effects Row	A twinkle motion effect is converted to a twinkle channel effect. All other motion effects get converted to the "on" channel effect. Start and end intensity of the source motion effect are preserved in the destination channel effect.	A twinkle motion effect is converted to a twinkle channel effect. All other motion effects get converted to the "on" channel effect. The first selected color of the motion effect is used as the color for the RGB channel effect. That color is dimmed according to the source motion effect's starting and ending intensity values.	Fully supported - no change to the effect

"Paste" has a keyboard hotkey:



## Paste Special

The Paste Special command will open a dialog window, allowing you to specify additional options when pasting.



The Paste Special dialog

"Paste Special" has a keyboard hotkey:



### ***Repeat Across Time (Horizontally)***

Specify the number of times the clipboard data should be repeated horizontally. The Spacing entry can be used to control the spacing between copies as shown in the picture below. If pasting by cell, then the spacing value is the number of cells. For all other paste modes, the spacing is specified in seconds and fractions of a second. Every time you open the Paste Special dialog, spacing will initially be set to 0, regardless of any value you might have entered before.

Spacing < 0



Spacing = 0



Spacing > 0





## Repeat Across Channels (Vertically)

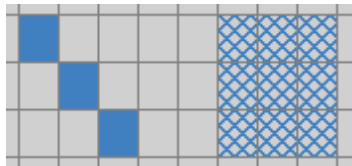
Specify the number of times the clipboard data should be repeated vertically.

### Source and Destination

The "Source" box controls which portions of the copied effects will be pasted:

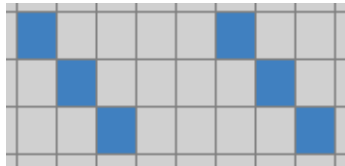
- "Background" means that only areas that are completely off will be pasted;
- "Foreground" means that only effects will be pasted;
- "Both", which is the default, means that off areas as well as effects will be pasted (i.e. foreground and background).

For example, consider the following portion of a sequence, and imagine that the simple chase on the left will be copied and pasted on top of the twinkling effects on the right:



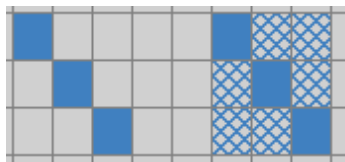
Before pasting the chase on top of the twinkling

For now, assume that the "To" box (which we will discuss momentarily) is set to "Both". Then if the "From" box is also set to "Both", then the entire copied area - including the off effects - will be pasted:



After pasting, from Both to Both

But if "From" is set to "Foreground", then the empty areas are not pasted, leaving some of the cells twinkling:



After pasting, from Foreground to Both

Or if "From" is "Background", then only the off areas are pasted:

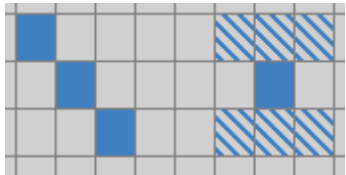


### After pasting, from Background to Both

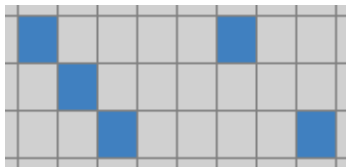
The "To" box is similar, but it controls which of the cells in the area being pasted into will actually be overwritten. For example, if "From" is set to "Both":



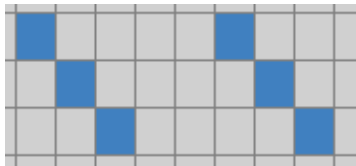
Before pasting



After pasting, from Both to Background



After pasting, from Both to Foreground



After pasting, from Both to Both

You can even combine "From" and "To". For example:



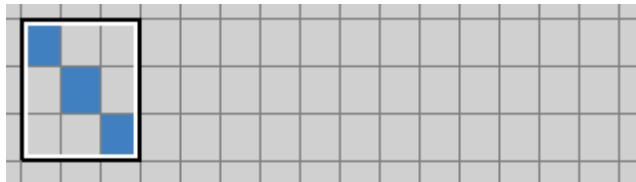
Before pasting



After pasting, from Foreground to Foreground

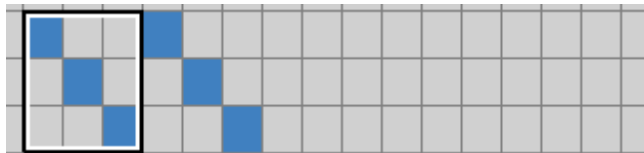
Repeat 

The Repeat tool can be used to automatically place a copy of the selected area immediately after the selected area. For example, consider the following:



Before repeating

Then pressing the Repeat button will make the following:



After repeating once

And you can repeat as many times as you like thereafter; for example, pressing Repeat three more times will make the following:



After repeating four times



"Repeat" has a keyboard hotkey:



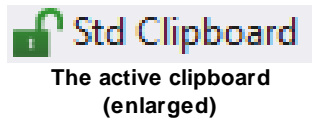
#### 5.3.5.8.1 Clipboard Management

Clipboards are used to copy (or cut) and paste lighting [effects](#) from one area of the sequence grid to another. In the [Sequencer](#), you can have multiple different clipboards, allowing you to keep several different sets of effects available to be pasted. However, only one clipboard can be active at any given time.

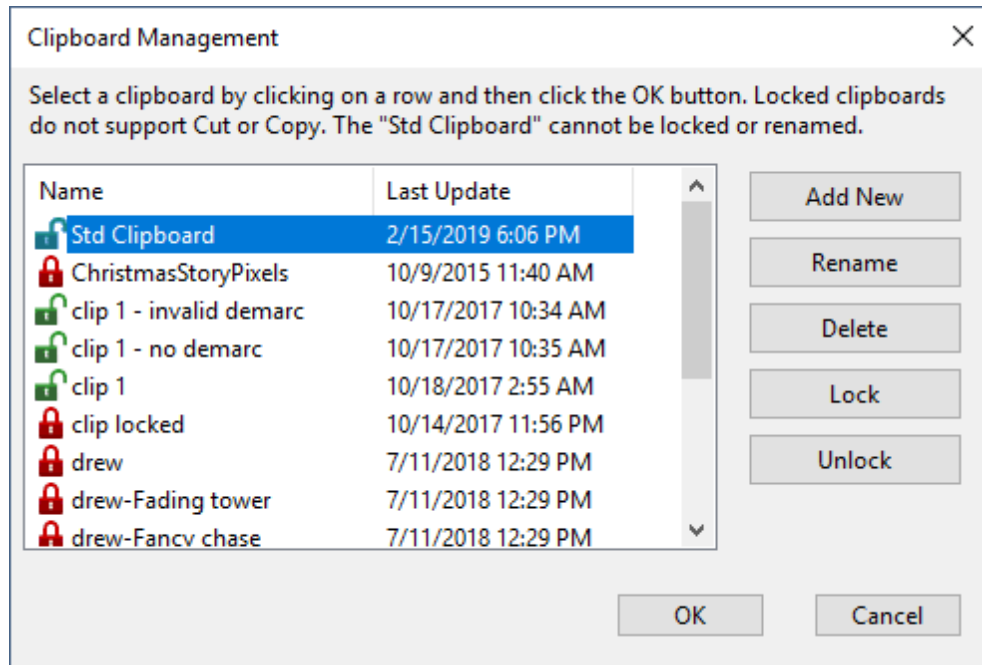
You can also [lock clipboards](#) so that they cannot be copied into (thus preventing accidental overwriting of their contents):

-  Unlocked clipboard
-  Locked clipboard

The default clipboard is named "Std Clipboard" and it cannot be locked, renamed, or deleted. The active clipboard is shown on the [toolbar](#) with an icon to indicate whether it is locked or unlocked.



Click on the name of the active clipboard on the [toolbar](#) to open the Clipboard Management window.



The Clipboard Management Window

## Setting the Active Clipboard

To select the active clipboard (the one that will be used for cut, copy, paste, and repeat operations), simply click on its name in the Clipboard Management window so that the desired row is selected, then click the OK button to close the window. The [toolbar](#) will update to reflect your selected clipboard.

## Adding New Clipboards

By default, the [Sequencer](#) has a single clipboard. However, the "Add New" button can be used to quickly create multiple clipboards. After clicking the button, you will be prompted for the new clipboard name.

## Renaming a Clipboard

Click on a clipboard in the list, then click the Rename button. You will be prompted for the new name.

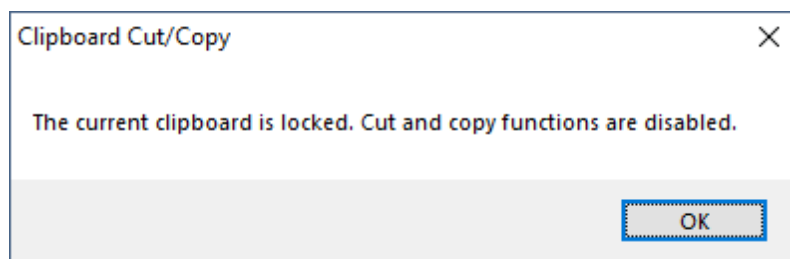
## Deleting a Clipboard

Click on a clipboard in the list, then click the Delete button. The deletion will happen immediately --

you will not be prompted to confirm.

## Locking and Unlocking Clipboards

A [clipboard](#) can be locked or unlocked; a locked clipboard cannot be copied into (though it can still be pasted from). This prevents accidentally overwriting copied [effects](#) that you want to keep available. If you attempt to copy to a locked clipboard, you will get a pop-up message:



To lock a clipboard, click on its name to select it, then click the Lock button. To unlock a clipboard, click on its name to select it, then click the Unlock button.

## Adding Clipboard Files Created by External Applications

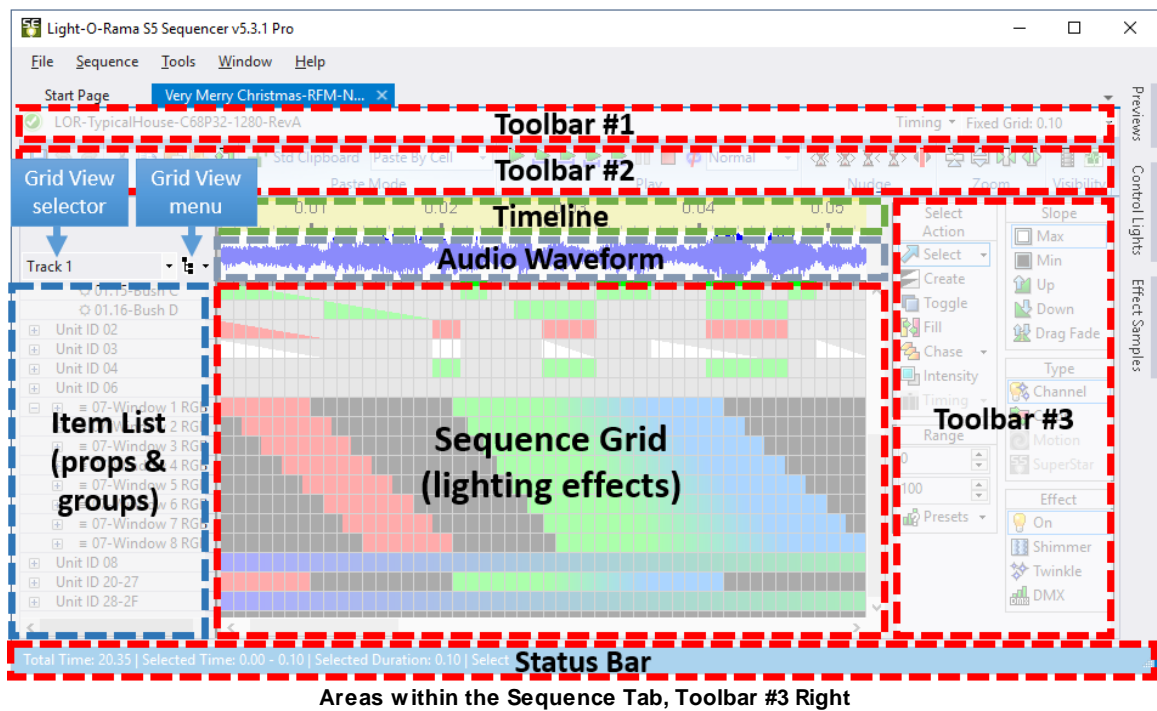
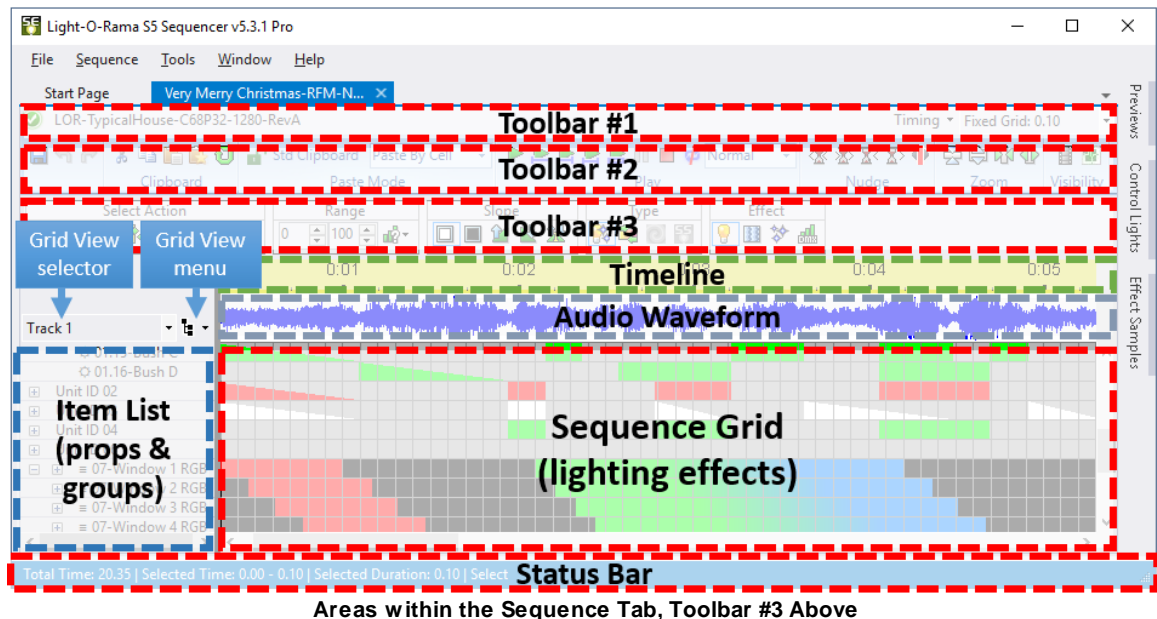
There are some third-party tools that can create clipboard files (files with an LCB extension). You can make these available in the Sequencer by moving or copying the file into the [Clipboards folder](#). Once the file is in that folder, the file name will appear the Clipboard Management window.

### 5.3.5.9 Toolbars

Each [sequence tab](#) in the [Light-O-Rama Sequencer](#) has its own set of toolbars. The toolbar selections on one tab can be different than the selections on another tab. For example, the current intensity range and current effect can be set differently for each sequence.



Command buttons for saving, playing, and modifying the sequence are organized into 3 toolbars:

- [Toolbar #1](#) is fixed at the top. If you right-click on this toolbar, you can choose from 2 display options:
  - Timing Toolbar - Left
  - Timing Toolbar - Right
- [Toolbar #2](#) is positioned immediately below Toolbar #1. If you right-click on this toolbar, you can choose from 3 display options:
  - Large - display large icons and text, if space permits
  - Medium - display small icons and text, if space permits
  - Compact - display small icons without text (recommended for experienced users)
- [Toolbar #3](#) can be displayed above the sequence grid or to the right of it (compare the 2 configurations shown below). You can right-click on this toolbar to set the location, and to choose among 3 display options:
  - Icon and text
  - Text only
  - Icon only (recommended for experienced users)




















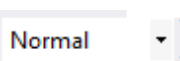











## Toolbar #1

Toolbar Item	Description
	Calculation Status: certain data is calculated in the background in order to






	facilitate on-screen <a href="#">playback</a> . When calculations are in progress, this icon spins and the playback buttons on the toolbar are disabled. Once calculations are completed, the green check mark icon is displayed and playback is enabled.
Preview 2019	Shows the name of the <a href="#">Preview</a> assigned to the sequence. Click on the name to open the sequence's preview for editing in the <a href="#">Preview Design</a> window.
<b>Timing Grid</b>	
Timing ▾	Click here to open the toolbar's <a href="#">Timing Grid Menu</a>
 	Indicates whether the timing marks are locked or unlocked. Click the icon to toggle the mode. When unlocked, you can change the location of a timing marks in <a href="#">freeform timing grids</a> by hovering over its line with your mouse (which will change your mouse cursor from a "pointer" cursor to an "east-west" cursor), and clicking and dragging the line to the left or the right. When in this mode, right-clicking on the grid shows only the Timing Mark sub-menu, which can save time. You can specify whether effects should move when adjacent timing marks are moved using the last option on the <a href="#">Timing Grid Menu</a> .
Fixed Grid: 0.10 ▾	Shows the current <a href="#">Timing Grid</a> and allows you to change it

## Toolbar #2


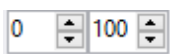










Toolbar Item	Description
	<a href="#">Save</a> Button
<b>Undo / Redo</b>	
	<a href="#">Undo</a> Button. This will undo the last modification to the sequence grid.
	<a href="#">Redo</a> Button. This re-applies the last action performed by the Undo button.
<b>Clipboard Cut / Copy / Paste</b>	
	<a href="#">Cut</a> Button
	<a href="#">Copy</a> Button
	<a href="#">Paste</a> Button
	<a href="#">Paste Special</a> Button -- opens a dialog that allows you to specify additional options when you paste
	<a href="#">Repeat</a> Button
 Std Clipboard	Shows the name of the active clipboard (the one that will be used for <a href="#">cut</a> , <a href="#">copy</a> , <a href="#">paste</a> , and <a href="#">repeat</a> operations). To the left of the clipboard name is an icon that indicates whether the clipboard is locked or unlocked. Cut and copy operations can only be performed with an unlocked clipboard. Click the clipboard name to open the <a href="#">Clipboard Management</a> window.
Paste by Cell ▾	Shows the current <a href="#">Paste Mode</a> , and allows you to change it.
<b>Playback Control</b>	
	<a href="#">Play</a> the full sequence
	<a href="#">Play</a> from the left edge of the visible sequence grid to the end of the sequence
	<a href="#">Play</a> from the beginning of the sequence to the right edge of the visible sequence grid

	<a href="#">Play</a> the visible portion of the sequence
	<a href="#">Play</a> the current selection. If there is a <a href="#">freeform play range</a> defined then that is played; otherwise the current grid selection (dashed yellow outline) is played.
	Pause playback. Press again to un-pause
	Stop playback
	Repeat playback. When enabled, this will cause playback to repeat until the Stop Playback button is pressed. When disabled, this icon will have a red slash through it.
	Shows the current Playback Speed and allows you to change it. Playback speeds other than normal may not be supported on some types of media files.
<b>Nudge Tools</b>	
	<a href="#">Nudge Effect Left</a>
	<a href="#">Nudge Effect Right</a>
	<a href="#">Shorten Effect</a>
	<a href="#">Lengthen Effect</a>
	Show handles on the edge of every effect that can be dragged to resize the effect
<b>Zoom Control</b>	
	<a href="#">Zoom</a> row height shorter
	<a href="#">Zoom</a> row height taller
	<a href="#">Zoom</a> time out (total number of visible seconds will increase)
	<a href="#">Zoom</a> time in (total number of visible seconds will decrease)
<b>Visibility Toggles</b>	
	Toggle <a href="#">playback window</a> visibility
	Toggle <a href="#">waveform</a> visibility

## Toolbar #3





Toolbar Item	Description
<b>Select Actions - only 1 action can be active at a time</b>	
	Select tool. If this effect tool is enabled, then clicking on a cell or cells in a sequence's grid will simply <a href="#">select those cells</a> . No lighting effect will be applied, nor will any be applied by hitting the enter key.
	Create an effect. This will cause the effect specified in the Effect Type area to be placed in the sequence grid.
	<a href="#">Toggle tool</a> . If this effect tool is enabled on the Tools menu, then clicking on a cell or cells in a sequence's grid will turn individual parts of the selection on or off. Each portion of the selection that had been on will be turned off, and every other portion will be turned on. Note that the latter includes not just portions of the selection that had been off, but also those that had been twinkles, fades, shimmers, and intensities.
	<a href="#">Fill</a>
	<a href="#">Chase</a> . Click the down arrow next to the button to specify chase options.






	Change Intensity. This tool allows you to change the intensity of existing effects, using the intensity range and slope specified on the toolbar.
<b>Intensity Range</b>	
	Shows the current <a href="#">Intensity Range</a> and allows you to change it by: 1) typing new numbers into the boxes, or 2) using the up and down arrows to adjust the current values. Valid values are from 0 to 100.
	Click here to open the <a href="#">Intensity Menu</a> , which will allow you to choose from a list of preset intensity ranges.
<b>Slope - only 1 slope can be active at a time</b>	
	<a href="#">Maximum Intensity</a> . Inserts the current effect (as shown on the toolbar) into the grid - at the maximum intensity shown on the toolbar.
	<a href="#">Minimum Intensity</a> . Inserts the current effect (as shown on the toolbar) into the grid - at the minimum intensity shown on the toolbar.
	<a href="#">Fade Up</a>
	<a href="#">Fade Down</a>
	<a href="#">Intelligent Fade</a>
<b>Effect Type - only 1 effect type can be active at a time</b>	
	Channel Effect
	Color Fade Effect
	<a href="#">Motion Effect</a> (only displayed with a Pro license)
	<a href="#">SuperStar Effect</a> (only displayed with a Pro license)




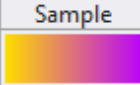






The icons that appear next on the toolbar depend on which Effect Type is selected.

### ***Toolbar #3 - Channel Effect***




Toolbar Item	Description
<b>Channel Effect - only 1 effect can be active at a time</b>	
	On effect
	Shimmer effect
	Twinkle effect
	DMX intensity effect. Selecting this effect will cause a pair of numeric entry boxes to appear where you can specify the starting and ending DMX values (0-255)

### ***Toolbar #3 - Color Fade Effect***


Toolbar Item	Description
<b>Channel Effect - only 1 effect can be active at a time</b>	
	On effect
	Shimmer effect
	Twinkle effect
<b>Start Color</b>	

	Select the start color
	The system chooses a random start color
	Copy the end color to the start color
<b>Color Sample</b>	
	Displays a sample of the color that will be placed in the grid. You can also click on the left side of the sample to set the start color, or the right side to set the end color.
<b>End Color</b>	
	Select the end color
	The system chooses a random end color
	Copy the start color to the end color
<input type="checkbox"/> Ignore	When checked, the end color is ignored and only the start color is used. In other words, you are specifying a solid color, not a color transition.
<b>Both Colors</b>	
	The system chooses a random start and end color
	Swaps the start and end colors
<b>Favorite</b>	
	Save the current color sample as a favorite
<b>On Click</b>	
<input type="checkbox"/> Fill	When checked and you click on an empty cell in the grid, the system will attempt to perform a <a href="#">matching fill</a> . When unchecked, the system will place the color sample in the selected cell.

### Toolbar #3 - Motion Effect (Pro license only)

Toolbar Item	Description
<b>Source of motion effect that will be placed in the sequence</b>	
	Prompt for new effect (opens the <a href="#">Motion Effect Generator</a> )
	Insert the effect displayed in the <a href="#">Playback Window</a>
	Insert the selected effect in the <a href="#">Effect Samples Window</a>

### Toolbar #3 - SuperStar Effect (Pro license only)

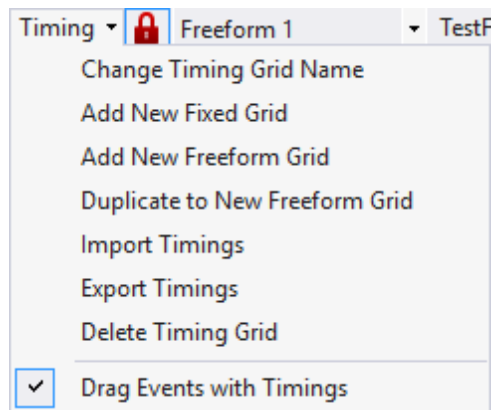
Toolbar Item	Description
<b>Source of SuperStar effect that will be placed in the sequence</b>	
	Prompt for new effect (opens <a href="#">SuperStar</a> )

#### 5.3.5.9.1 Toolbar Timing Grid Menu

The Timing Grid menu is the second-to-last item on the [toolbar](#). This menu can be used to create, rename, and delete [timing grids](#). You can also create timing grids in a [Musical Sequence](#) using the [audio wizards](#). Use the [Right-Click Timing Mark Sub-menu](#) to manipulate timing marks within a timing grid.

From this menu you can:

- [Change Timing Grid Name](#)
- [Add New Fixed Grid](#)
- [Add New Freeform Grid](#)
- [Duplicate to New Freeform Grid](#)
- [Import Timings](#)
- [Export Timings](#)
- [Delete Timing Grid](#)
- Drag Events with Timings



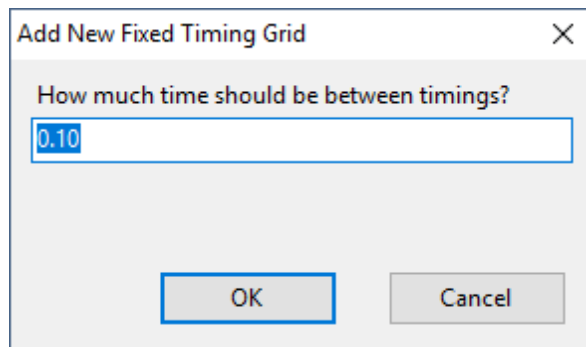
The Toolbar's Timing Grid Menu

## Change Timing Grid Name

This menu item can be used to change the name of the current [timing grid](#). The main purpose of giving a timing grid a name is to make it easier to distinguish when it is listed on the [toolbar](#).

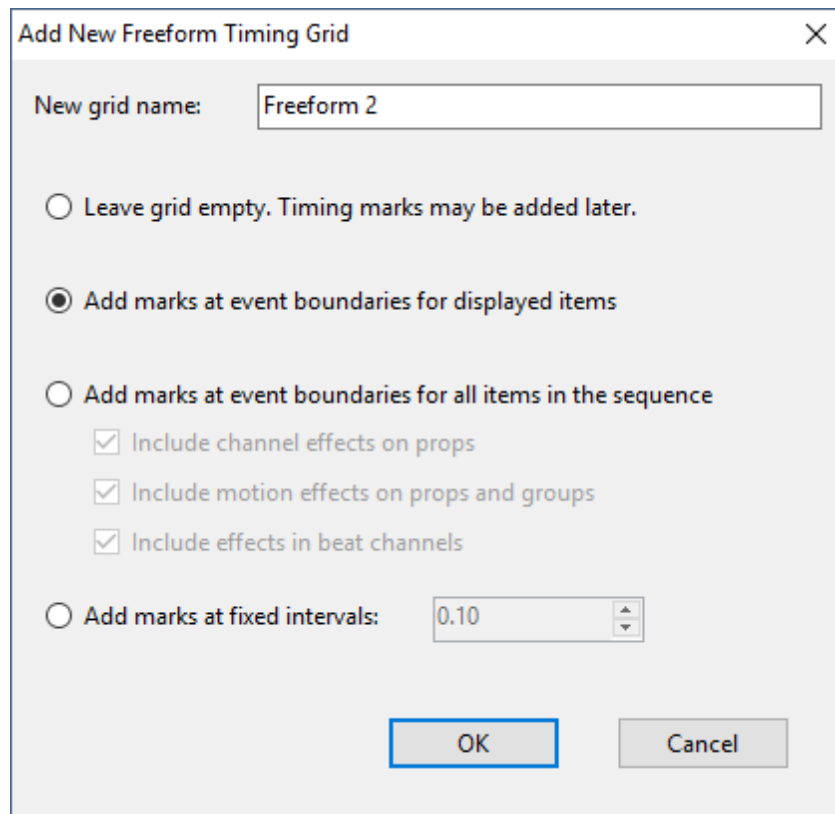
## Add New Fixed Grid

This menu item can be used to add a new [fixed timing grid](#) to the [sequence](#). After you select this item, you will be asked to specify the length of time between [timings](#) - for example, to make the timings a quarter second apart, enter "0.25".



## Add New Freeform Grid

This menu item can be used to add a new [freeform timing grid](#) to the [sequence](#). After you select this item, you will be prompted to enter a name for the new timing grid.



The dialog box titled "Add New Freeform Timing Grid" has a close button (X) in the top right corner. It contains a text field for "New grid name:" with the value "Freeform 2". Below this are four radio button options: "Leave grid empty. Timing marks may be added later.", "Add marks at event boundaries for displayed items" (which is selected), "Add marks at event boundaries for all items in the sequence", and "Add marks at fixed intervals:". The third option has three checked checkboxes: "Include channel effects on props", "Include motion effects on props and groups", and "Include effects in beat channels". The fourth option has a text field for intervals with the value "0.10" and a spinner control. At the bottom are "OK" and "Cancel" buttons.

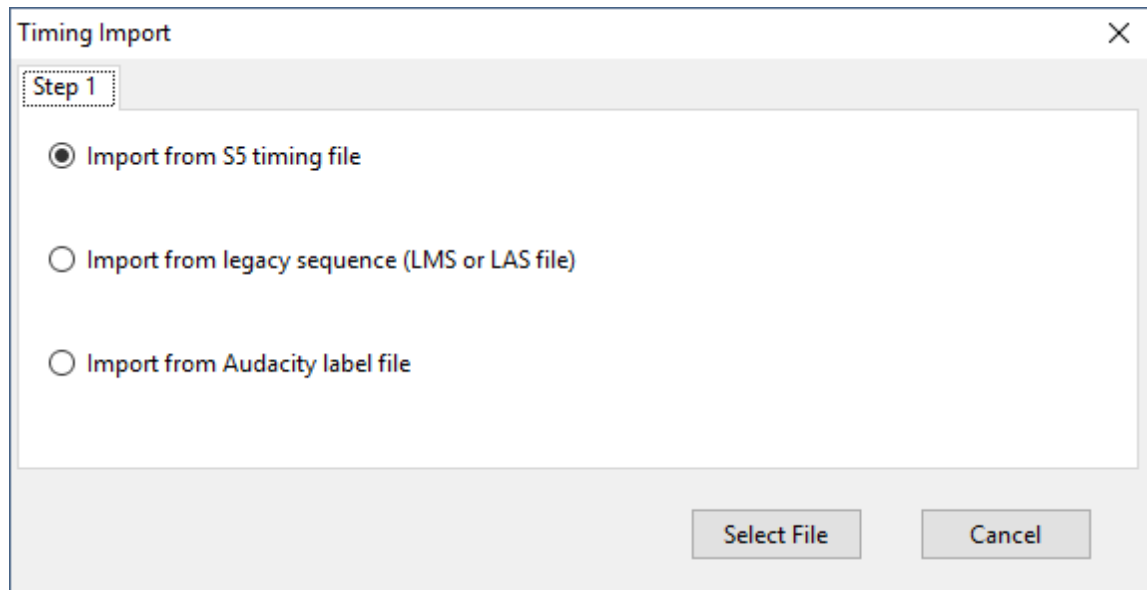
## Duplicate to New Freeform Grid

This menu item can be used to create a new [freeform timing grid](#), initially populating it with the same [timings](#) that are in the current timing grid.

Note that this can be done regardless of whether the current timing grid is a [freeform grid](#) or a [fixed grid](#).

## Import Timings

This menu item opens a dialog that allows you to import timing marks from several sources.



Timing grid import - source selection

### ***S5 Timing File***

You can import an S5 timing file which has an LORTIME extension -- one created using [Export Timings](#).

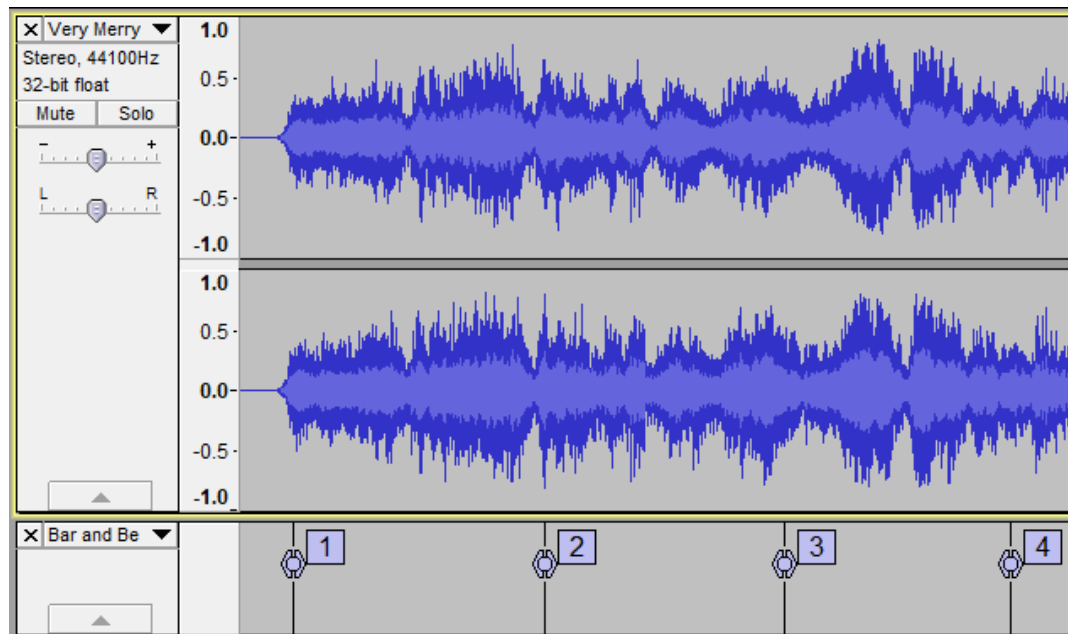
### ***LMS or LAS Sequence***

You can import timings from an LMS or LAS file. Typically you would [upgrade](#) one of these sequences, which would bring in the timings and the effects; but this function is available if you just need the timing marks.

### ***Audacity Label File***

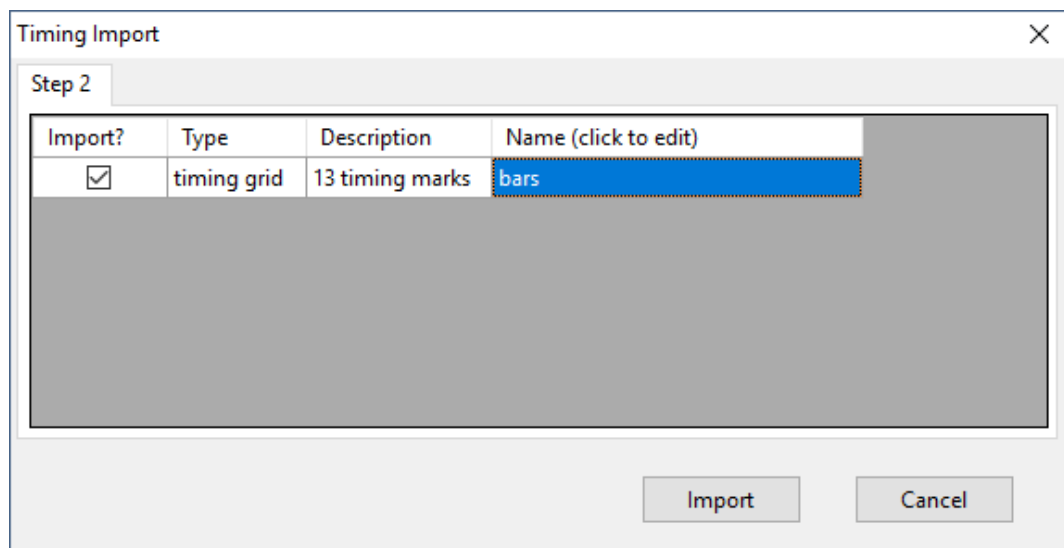
An Audacity label file. Audacity is a free audio editing and analysis program available from <https://www.audacityteam.org/>. It has the ability to analyze beats and notes in music. As an example:

1. Start the Audacity program
2. Open your music file in Audacity
3. Open the Analyze menu and choose a tool, for example "Bar and Beat Tracker: Bars". After the analysis is run, you should see a label track with some markers in it.



Audacity screen with timing labels at the bottom

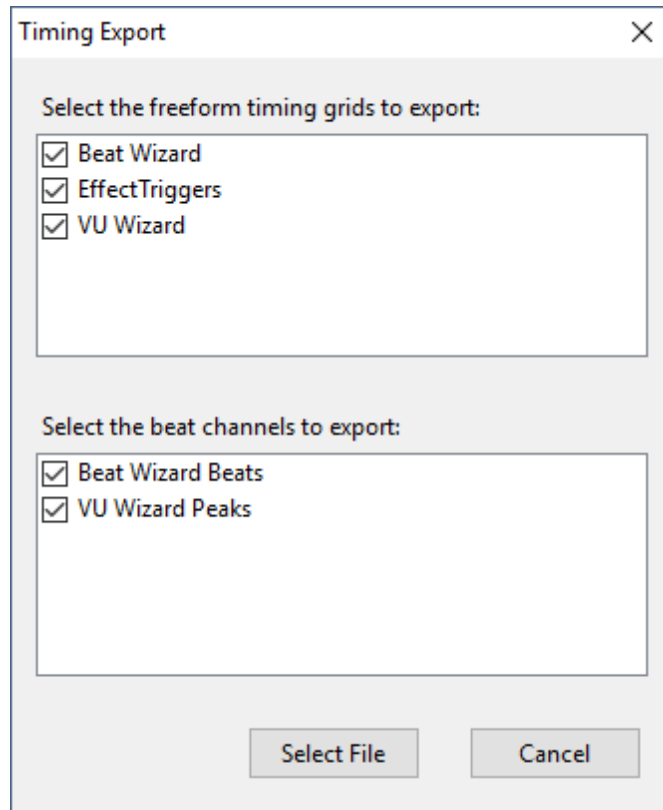
4. Select File > Export Labels from the Audacity menu. Choose a file name and location. The file extension will be TXT.
5. In the S5 Sequencer, select Import Timings from the toolbar's Timing Grid menu.
6. Select the "Import from Audacity label file" option
7. Select the timing grids to import, then click the "Import" button



## Export Timings

This menu item will open a dialog allowing to choose the [freeform timing grids](#) and beat channels to be included in the export file. After choosing the items to include in the file, click the "Select File" button. Select a name for the file and click "Save". By default, these files will be saved to the [ImportExport](#) folder, but you can change the folder if desired. Files created by this method will have

an LORTIME extension.



The Timing Export dialog

## Delete Timing Grid

This menu item can be used to delete the current [timing grid](#) from the [sequence](#). There must be at least one timing grid in a sequence, so this menu item will be unavailable if there is only one timing grid.

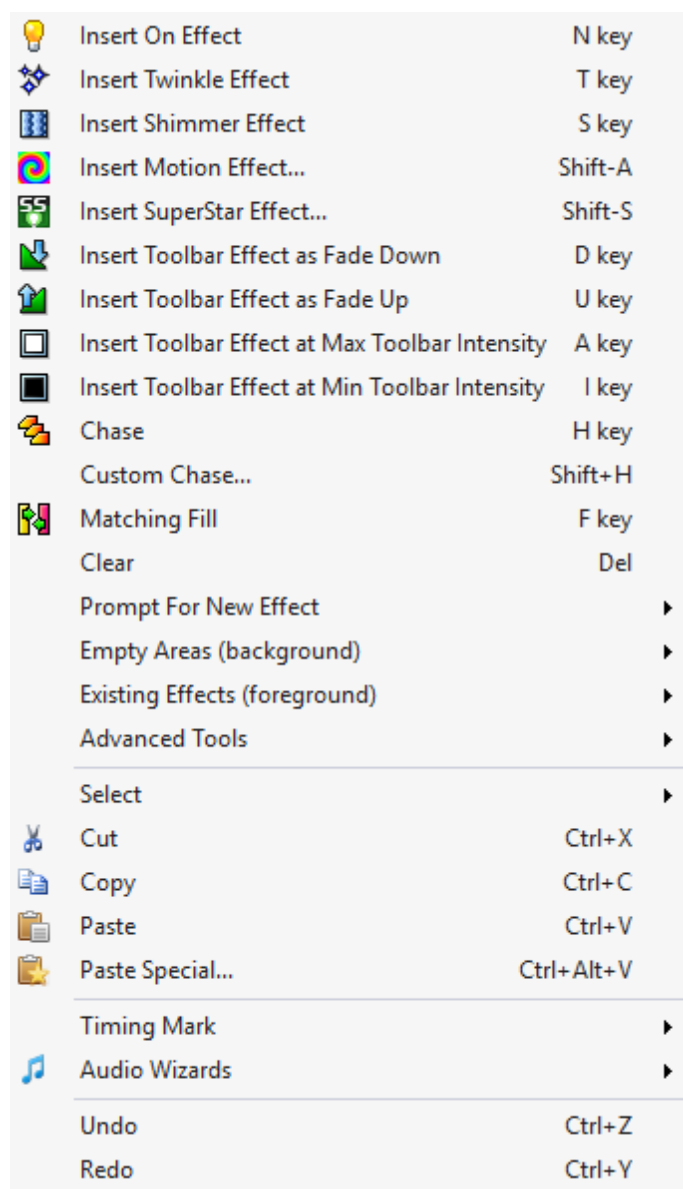
## Drag Events with Timings

When a timing grid is [unlocked](#), the [timings](#) in a [sequence](#) can be dragged with the mouse to change their location. If "Drag Events with Timings" is turned on, and any [effects](#) start or end at the same time as the timing mark being dragged, the edges of those adjacent effects will be dragged along with the timing mark. If not, only the timing mark will move, and the adjacent effects will remain unchanged.

Note that the effects of [archived props](#) are never moved with the timing mark.

### 5.3.5.10 Right-Click Context Menu

Right-clicking on the sequence grid brings up a pop-up menu. This menu contains items which allow you to modify the currently selected cells, in a variety of ways. For example, you can insert lighting effects, cut, copy, and paste (both effects and timings), and delete or resize timings. Some items on the menu may be hidden depending on the type of [grid row](#) you click on and your [license level](#).



**The Right-Click Context Menu**

The following items are available on this right-click context menu:

- [Insert On Effect](#)
- [Insert Twinkle Effect](#)
- [Insert Shimmer Effect](#)
- [Insert Motion Effect](#)
- [Insert SuperStar Effect](#)
- [Insert Toolbar Effect as Fade Down](#)
- [Insert Toolbar Effect as Fade Up](#)
- [Insert Toolbar Effect at Max Toolbar Intensity](#)
- [Insert Toolbar Effect at Min Toolbar Intensity](#)
- [Chase](#)
- [Custom Chase](#)



- [Matching Fill](#)
- [Clear](#)
- [Prompt For New Effect sub-menu](#)
- [Empty Areas \(background\) sub-menu](#)
- [Existing Effects \(foreground\) sub-menu](#)
- [Advanced Tools](#)
- [Select sub-menu](#)
- [Cut, Copy, Paste](#)
- [Paste Special](#)
- [Timing Mark sub-menu](#)
- [Audio Wizards](#)
- [Undo and Redo](#)

## Insert On Effect

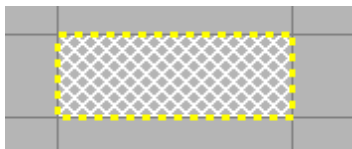
Inserts an "on" effect into the currently [selected cells](#) at the maximum value in the [toolbar's intensity range](#). It does this regardless of the currently selected effect on the toolbar.



**ON effect (with intensity range 50-100%)**

## Insert Twinkle Effect

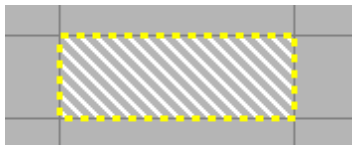
Inserts a "twinkle" effect into the currently [selected cells](#) at the maximum value in the [toolbar's intensity range](#). It does this regardless of the currently selected effect on the toolbar.



**TWINKLE effect (with intensity range 0-100%)**

## Insert Shimmer Effect

Inserts a "shimmer" effect into the currently [selected cells](#) at the maximum value in the [toolbar's intensity range](#). It does this regardless of the currently selected effect on the toolbar.



**SHIMMER effect (with intensity range 0-100%)**

## Insert Motion Effect

This command only appears on the menu if you have [selected](#) one or more cells on a [motion effect](#)

[row](#). It opens the [Motion Effect Generator](#), where you can create an effect. After clicking the OK button in the Motion Effect Generator, the effect that was created will be inserted into the [selected cells](#) at the maximum value in the [toolbar's intensity range](#),

To edit the motion effect, just [double-click on the effect](#) in the sequence grid and the [Motion Effect Generator](#) will re-open.

This command requires a [Pro level license](#).

## Insert SuperStar Effect

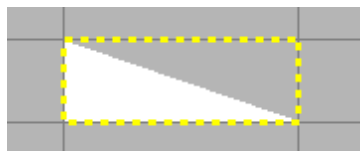
This command only appears on the menu if you have [selected](#) one or more cells on a [motion effect row](#). It opens the [SuperStar Sequencer](#), where you can create one effect, or many effects, or load a purchased sequence. After you finish your sequencing in SuperStar, close SuperStar by clicking on the Red X in the upper right of the program (there is no need to use SuperStar's save function). You will then be returned to the [S5 Sequencer](#) and your new SuperStar effects will be automatically saved as part of the [S5 Sequencer's](#) sequence. They will be displayed in the [selected cells](#) as a single effect at the maximum value in the [toolbar's intensity range](#),

To edit the SuperStar effect, just [double-click on the effect](#) in the [S5 Sequencer's](#) grid and [SuperStar](#) will re-open.

This command requires a [Pro level license](#).

## Insert Toolbar Effect as Fade Down

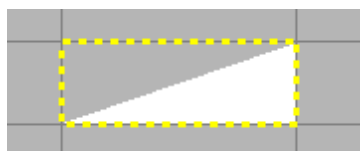
Inserts the [current effect](#) into the [selected cells](#) as a ramp from the maximum value in the [toolbar's intensity range](#) to the minimum value in the [toolbar's intensity range](#).



Fade Down (ON effect with intensity range 0-100%)

## Insert Toolbar Effect as Fade Up

Inserts the [current effect](#) into the [selected cells](#) as a ramp from the minimum value in the [toolbar's intensity range](#) to the maximum value in the [toolbar's intensity range](#).



Fade Up (ON effect with intensity range 0-100%)

## Insert Toolbar Effect at Max Toolbar Intensity

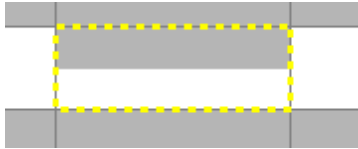
Inserts the [current effect](#) into the [selected cells](#) at the maximum value in the [toolbar's intensity range](#)



Max Intensity (ON effect with intensity range 50-100%)

## Insert Toolbar Effect at Min Toolbar Intensity

Inserts the [current effect](#) into the [selected cells](#) at the minimum value in the [toolbar's intensity range](#)



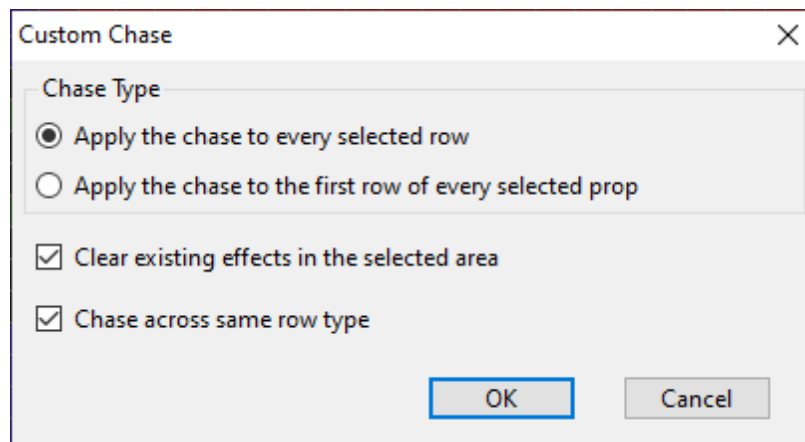
Min Intensity (ON effect with intensity range 50-100%)

## Chase

Creates a [chase](#) across the [selected cells](#).

## Custom Chase

Opens the Custom Chase dialog, then creates the [chase](#) across the [selected cells](#) with the options specified in the dialog.



The Custom Chase dialog

- Row Mode:
  - Chase Each Row: perform the chase on each row in the selected area
  - Chase Each Prop: perform the chase on the first row of each prop in the selected area (makes a difference on pixel props with multiple motion effect rows)
- Clear existing effects: clears the chase area of any existing effects before placing the new effects that are part of the chase.
- Same Row Type: if selected, the chase will only occur on rows of the same type as the first row. For example, if the first row is a regular channel, any RGB channels or motion effect rows will be skipped. If there is no check mark next to this option, then the chase will proceed through all selected rows, regardless of type.

## Matching Fill

Creates a [matching fill](#) across the [selected cells](#).

## Clear

Deletes any effects in the selected area of the grid.

## Prompt For New Effect sub-menu

Opens the [Prompt For New Effect sub-menu](#).

## Empty Areas (background) sub-menu

Opens the [Empty Areas \(background\) sub-menu](#).

## Existing Effects (foreground) sub-menu

Opens the [Existing Effects \(foreground\) sub-menu](#).

## Advanced Tools

Opens the [Advanced Tools sub-menu](#).

## Select sub-menu

This sub-menu displays items to expand the grid selection to encompass:

- the entire effect
- the entire row
- the entire column
- the entire grid

## Cut, Copy, Paste

These items perform standard cut, copy, and paste functions. See the [Clipboards & Cut/Copy/Paste/Repeat](#) topic for more information.

## Paste Special

Opens a dialog window that allows you to select additional options when you are pasting. See the [Clipboards & Cut/Copy/Paste/Repeat](#) topic for more information.

## Timing Mark sub-menu

Opens the [Timing Mark sub-menu](#).

## Audio Wizards

Opens a sub-menu that allows you to initiate an [Audio Wizard](#).

## Undo and Redo

These allow you to undo and redo changes that you make to a [sequence](#). A wide variety of changes can be undone and redone - changing [lighting effects](#), moving [timings](#), and many more. If there is no action to be undone, the "Undo" menu item will not be shown. If there is no action to be redone, the "Redo" menu item will not be shown.

There is a limit to how many changes will be remembered for the purposes of undo and redo, so if you make many changes to a sequence and then start undoing them all, you may eventually reach a point where you can't undo any more, even though you haven't undone all of the changes that you made.

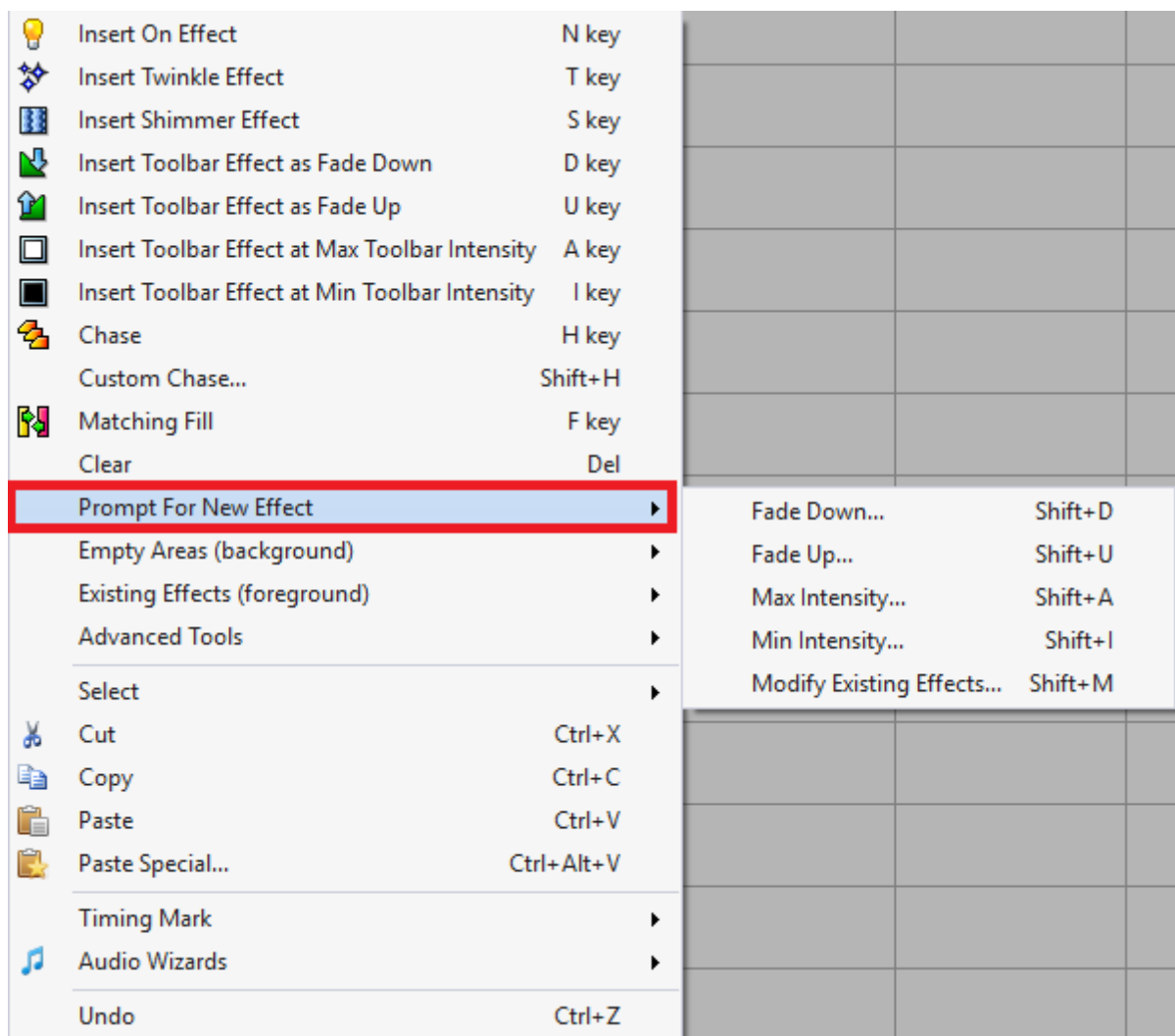
Undo and redo have [keyboard shortcuts](#): Ctrl-Z and Ctrl-Y, respectively.

### 5.3.5.10.1 Right-Click Prompt For New Effect Sub-menu

A variety of tools for adding new effects are available by [right-clicking](#) on the sequence grid and then opening the "Prompt For New Effect" sub-menu. As the name implies, you will be prompted for the effect first, and then the chosen effect will be inserted into the [selected area](#) of the grid.

From "Prompt For New Effect" sub-menu you can:

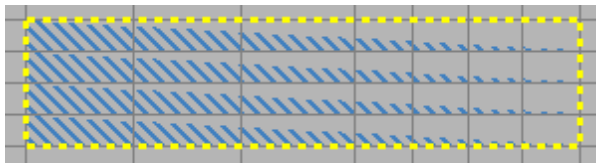
- [Create new Fade Down, Fade Up, Max Intensity, or Min Intensity effects](#)
- [Modify Existing Effects](#)



Right-click menu with the Prompt For New Effect sub-menu open

## Fade Down, Fade Up, Max Intensity, Min Intensity

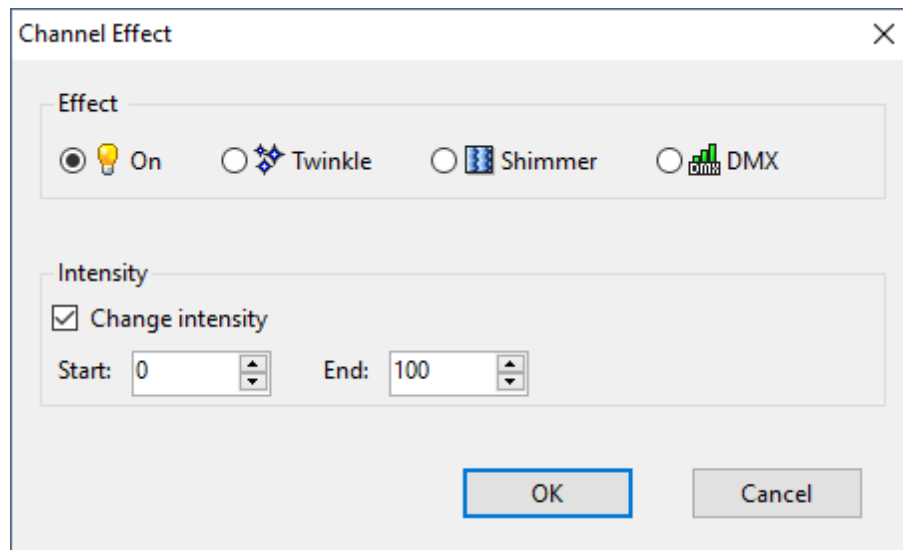
These items will open a dialog that allows you to choose the type of effect to be inserted. The particular dialog that is opened will depend on the type of grid rows in the [selection](#). The dialog for each row type is shown below. After clicking the OK button in the dialog, the entire [selection](#) will be filled with the chosen effect at the intensity level specified by the menu item.



The result of Prompt For New Effect > Fade Down, and then choosing the Shimmer effect from the dialog

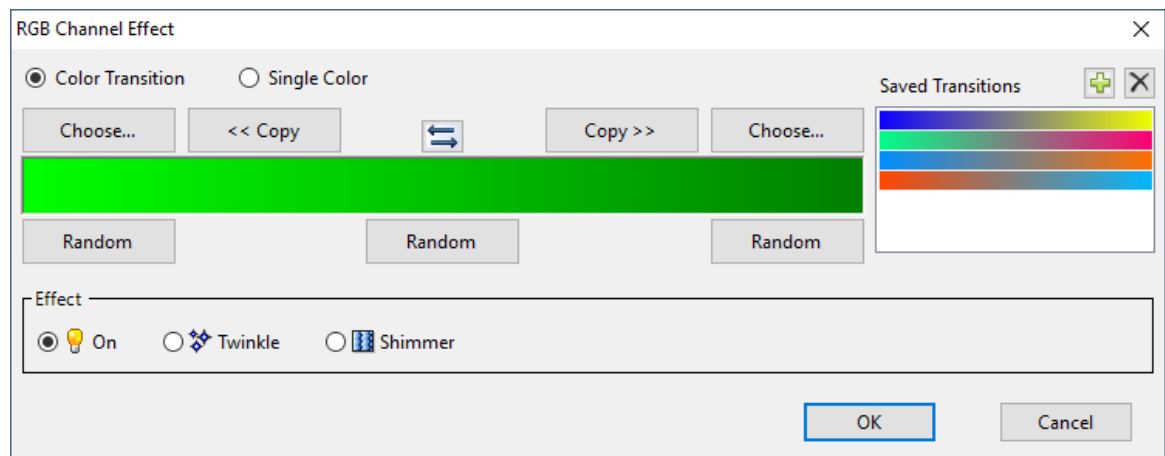
## Regular Channels and Beat Channels

When used on [Regular Channels](#) and [Beat Channels](#), these menu items will open the following dialog:



## RGB Channels

When used on [RGB Channels](#), these menu items will open the following dialog:



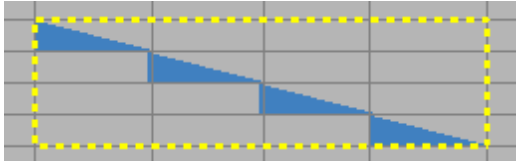
## Motion Effect Rows

When used on [Motion Effect Rows](#), these menu items will open the [Motion Effect Generator](#).

## Modify Existing Effects

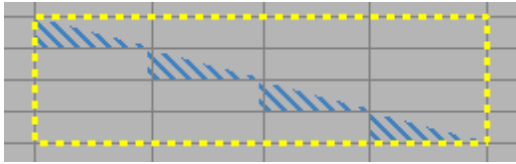
This menu item will open the same dialogs shown above. However, after clicking the OK button in the dialog, only existing effects in the [grid selection](#) will be changed, and the intensity of those effects will remain the same.

For example, if the grid contained this:



**Before Modify Existing Effects**

Selecting Prompt For New Effect > Modify Existing Effects, then selecting Shimmer from the dialog, would result in this:

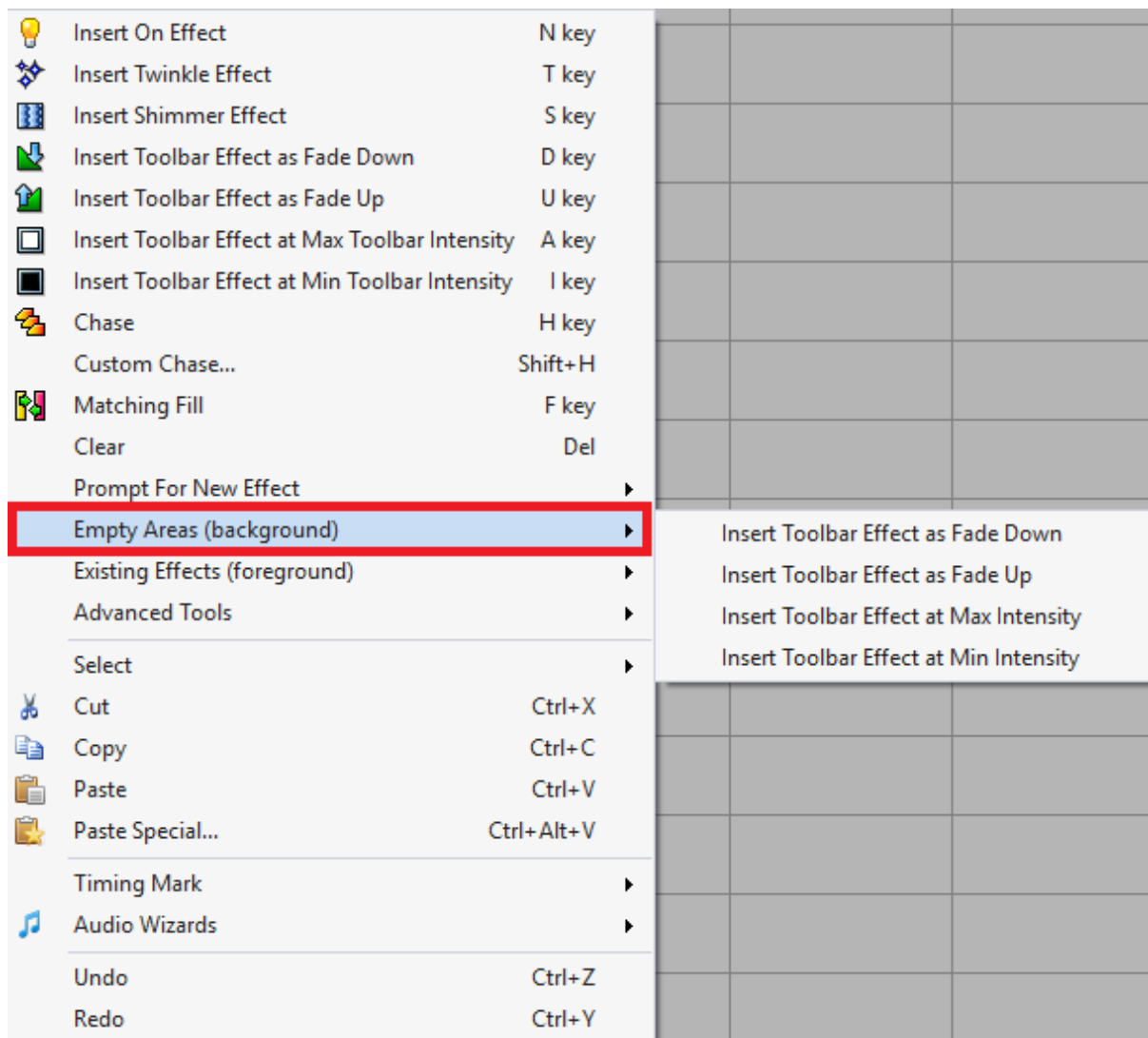


**After Modify Existing Effects**

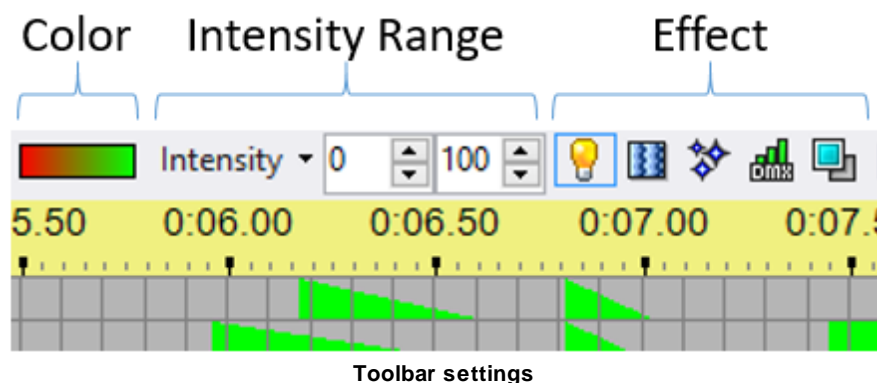
#### 5.3.5.10.2 Right-Click Empty Areas (background) Sub-menu

The "Empty Areas (background)" sub-menu contains a list of functions that are applied to empty parts of the [selected area](#). These functions do not make any changes to grid cells that already contain effects.



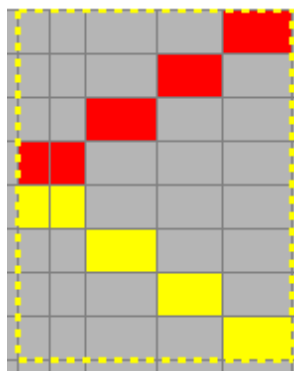


The effects that are created using these tools depend on the [Intensity Range](#) and current effect that are shown on the toolbar. For [RGB channels](#) and [motion effect rows](#), the toolbar color will also be used. For a more detailed explanation of the toolbar settings, see the [Adding Effects](#) topic.

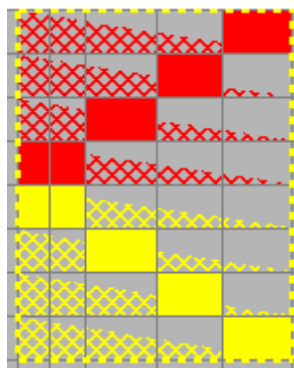


## Insert Toolbar Effect as Fade Down

Adds the currently selected effect to empty portions of the [selected area](#). This function applies the maximum intensity in the [intensity range](#) to the left side of the selection, and ramps down to the minimum intensity on the right.



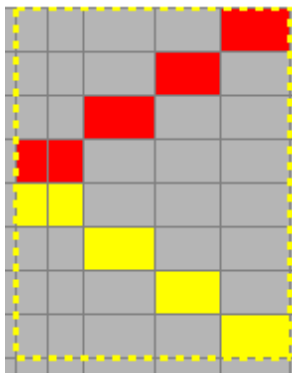
Before Insert



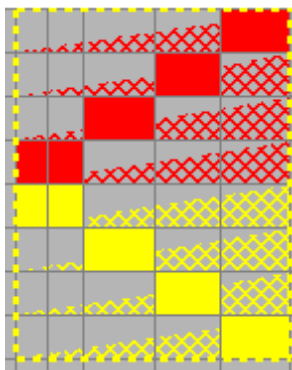
After Insert with twinkle  
effect, intensity range  
0-100%

## Insert Toolbar Effect as Fade Up

Adds the currently selected effect to empty portions of the [selected area](#). This function applies the minimum intensity in the [intensity range](#) to the left side of the selection, and ramps up to the maximum intensity on the right.



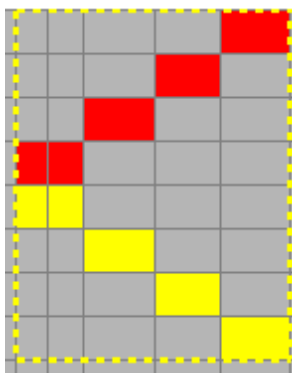
Before Insert



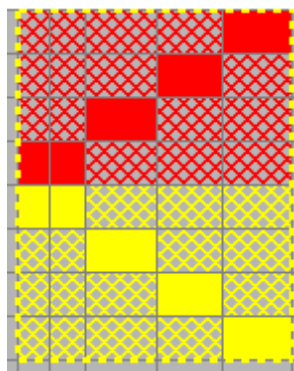
After Insert with twinkle  
effect, intensity range  
0-100%

## Insert Toolbar Effect at Max Intensity

Adds the currently selected effect to empty portions of the [selected area](#) at the maximum intensity in the [toolbar intensity range](#).



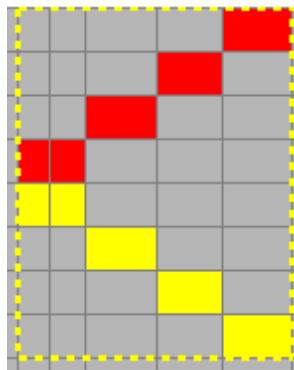
Before Insert



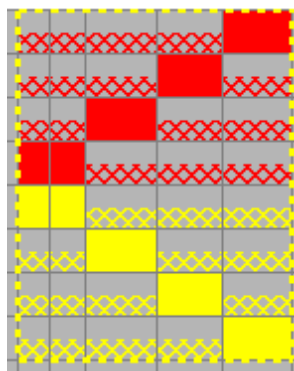
After Insert with twinkle  
effect, intensity range  
0-100%

## Insert Toolbar Effect at Min Intensity

Adds the currently selected effect to empty portions of the [selected area](#) at the minimum intensity in the [toolbar intensity range](#).



Before Insert



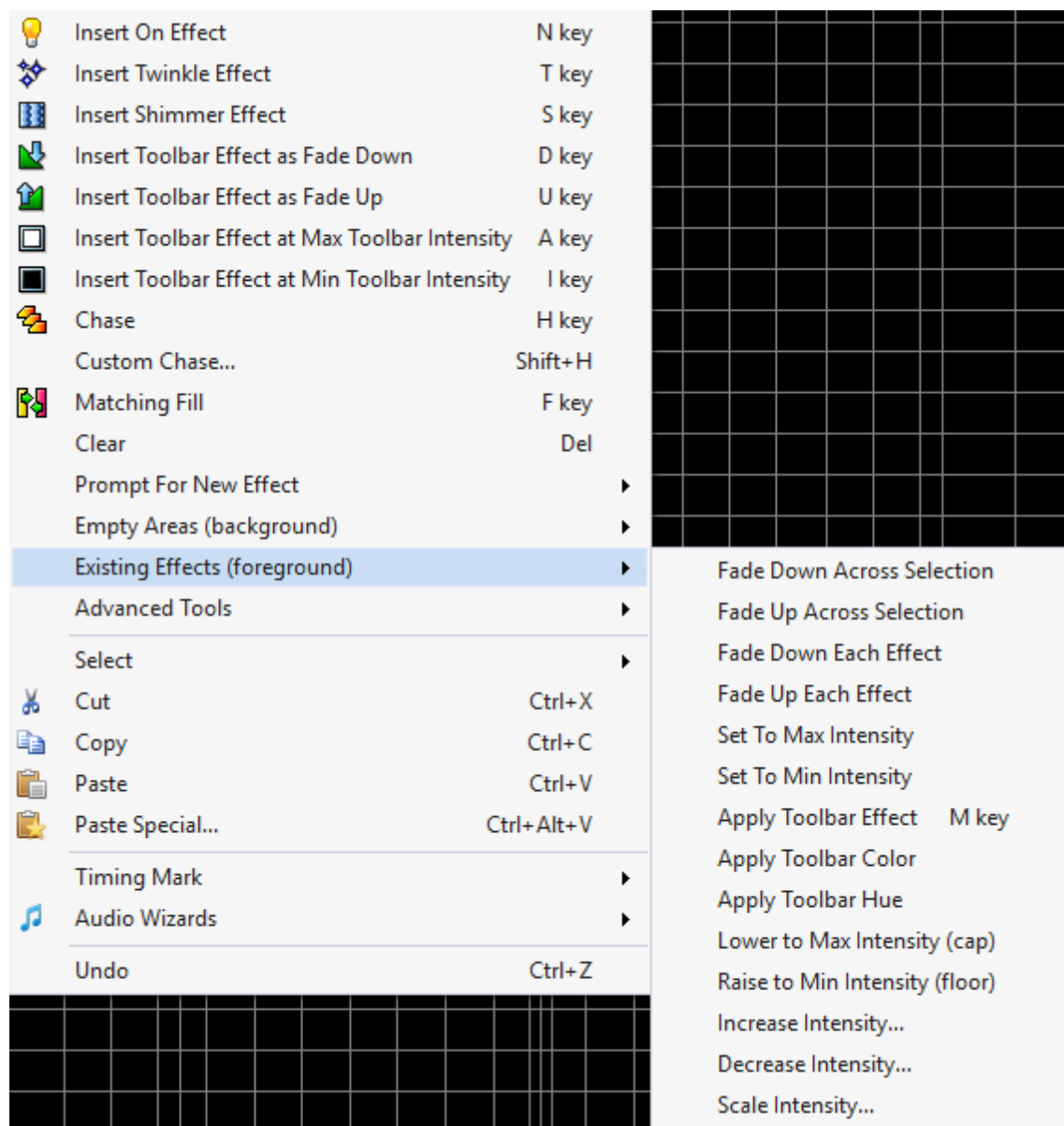
After Insert with twinkle  
effect, intensity range  
50-100%

#### 5.3.5.10.3 Right-Click Existing Effects (foreground) Sub-menu

The "Existing Effects (foreground)" sub-menu contains a list of functions that are applied to existing effects in the [selected area](#). These functions do not make any changes to grid cells that are empty.

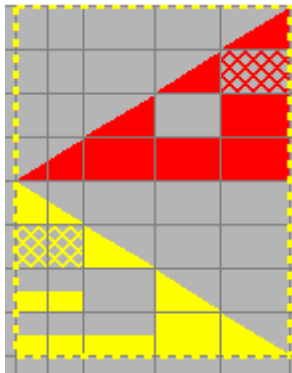
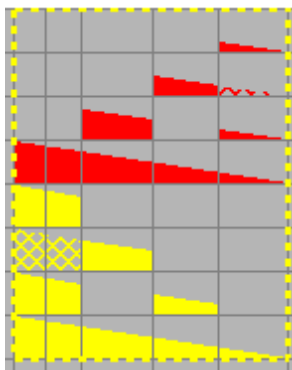
The available functions are:

- [Fade Down Across Selection](#)
- [Fade Up Across Selection](#)
- [Fade Down Each Effect](#)
- [Fade Up Each Effect](#)
- [Set to Max Intensity](#)
- [Set to Min Intensity](#)
- [Apply Toolbar Effect](#)
- [Apply Toolbar Color](#) (RGB channels only)
- [Apply Toolbar Hue](#) (RGB channels only)
- [Lower to Max Intensity \(cap\)](#)
- [Raise to Min Intensity \(floor\)](#)
- [Increase Intensity](#)
- [Decrease Intensity](#)
- [Scale Intensity](#)



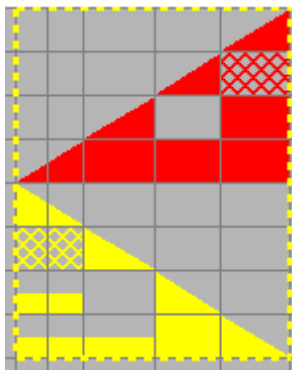
## Fade Down Across Selection

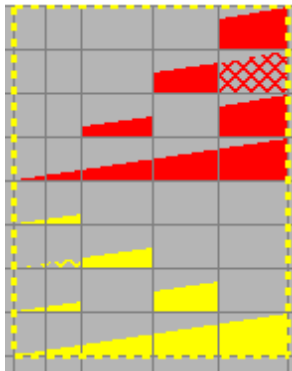
Resets intensities on existing effects in the [selected area](#). This function applies the maximum intensity in the [intensity range](#) to the left side of the selection, and ramps down to the minimum intensity on the right. This is useful for fading out your lights at the end of a [sequence](#).

**Before Fade Down****After Fade Down, intensity  
range 0-100%**

## Fade Up Across Selection

Resets intensities on existing effects in the [selected area](#). This function applies the minimum intensity in the [intensity range](#) to the left side of the selection, and ramps up to the maximum intensity on the right. This is useful for fading in your lights at the beginning of a [sequence](#).

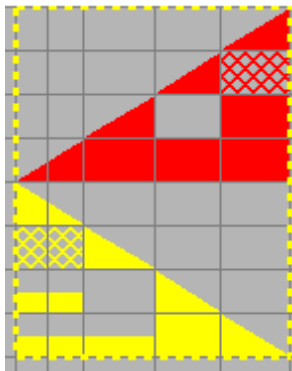
**Before Fade Up**



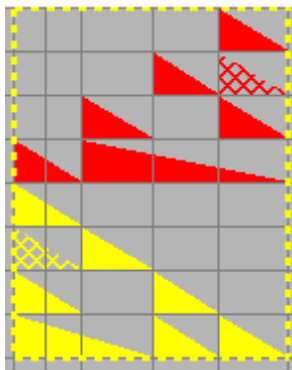
After Fade Up, intensity  
range 0-100%

## Fade Down Each Effect

Resets intensities on existing effects in the [selected area](#). This function applies the maximum intensity in the [intensity range](#) to the left side of each effect, and ramps down to the minimum intensity on the right side of the effect.



Before Fade Down

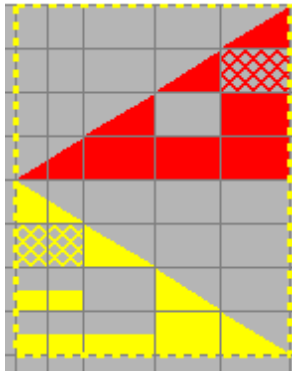


After Fade Down, intensity  
range 0-100%

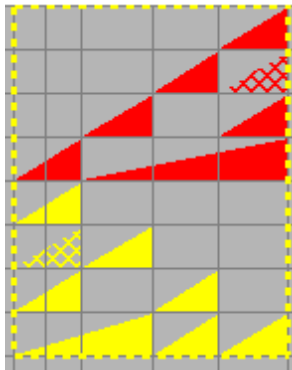
## Fade Up Each Effect



Resets intensities on existing effects in the [selected area](#). This function applies the minimum intensity in the [intensity range](#) to the left side of each effect, and ramps up to the maximum intensity on the right side of the effect.



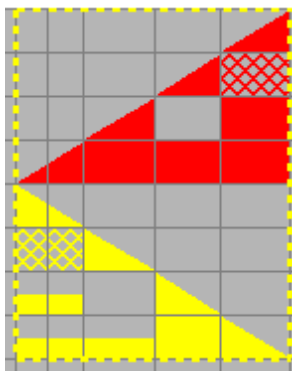
Before Fade Up



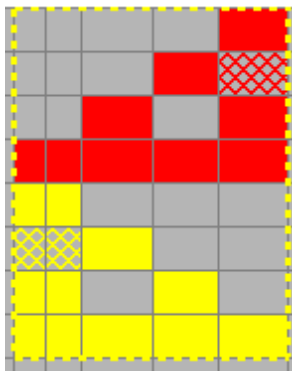
After Fade Up, intensity  
range 0-100%

## Set to Max Intensity

Resets intensities on existing effects in the [selected area](#). This function applies the maximum intensity in the [intensity range](#) to each effect.



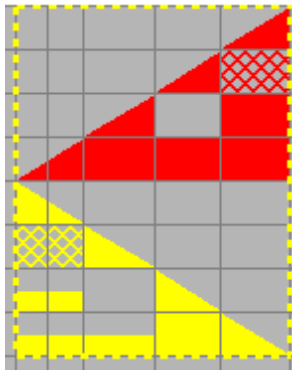
Before Max Intensity



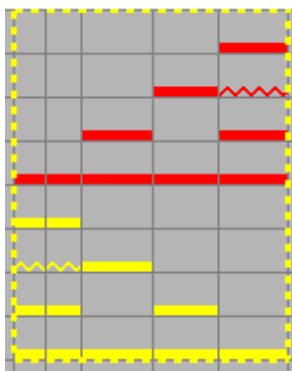
After Max Intensity,  
intensity range 0-100%

## Set to Min Intensity

Resets intensities on existing effects in the [selected area](#). This function applies the minimum intensity in the [intensity range](#) to each effect.



Before Min Intensity



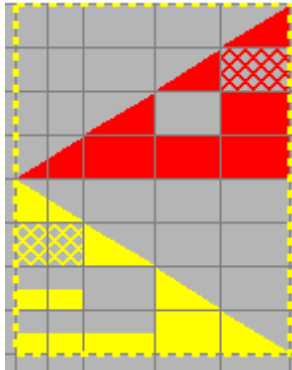
After Min Intensity,  
intensity range 25-50%

## Apply Toolbar Effect

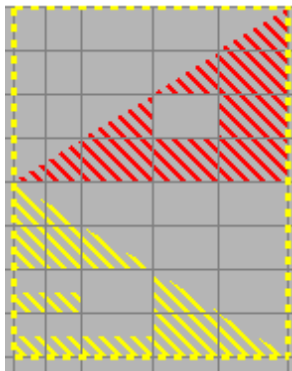
Changes existing effects in the [selected area](#) to be the effect on the toolbar. It does not change the

intensity.

### ***Regular Channels***



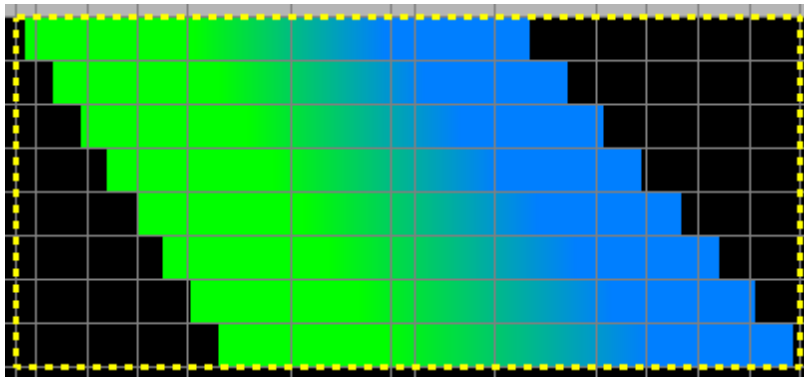
Before "Apply Toolbar  
Effect"



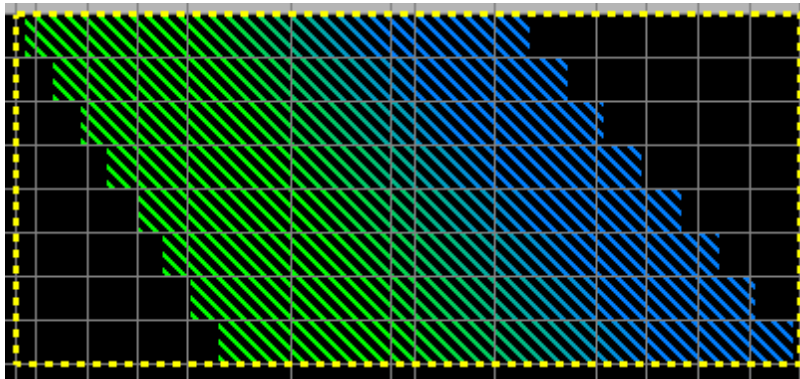
After "Apply Toolbar  
Effect", effect on toolbar  
was SHIMMER

### ***RGB Channels***

On RGB channels, the color is maintained; only the toolbar effect is applied.



Before "Apply Toolbar Effect"



After "Apply Toolbar Effect", effect on toolbar was SHIMMER

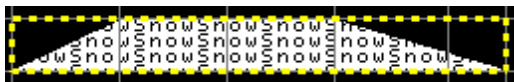
### ***Motion Effect Rows***

In order to use this tool with [motion effect rows](#):

1. Left-click on a motion effect that you want to apply to another area. This makes the effect you clicked on the "current effect", and it will be displayed in the [playback window](#).
2. [Using the right-click and drag technique](#), drag over the destination and select this menu item from the pop-up menu.
3. Any existing motion effects in the selected area will be changed to the source effect, while leaving the intensity of those effects unchanged.



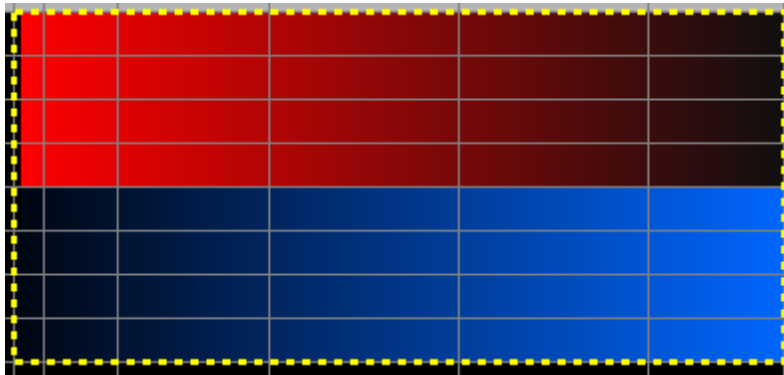
Before "Apply Toolbar Effect" (Bars)



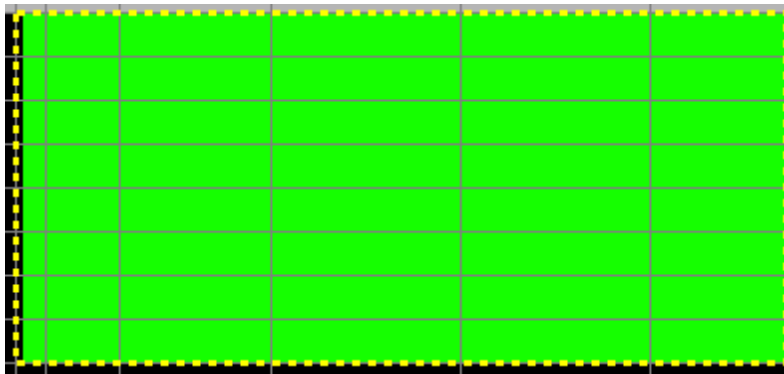
After "Apply Toolbar Effect" (Snowflakes)

### **Apply Toolbar Color**

Replaces the color of [selected](#) RGB channel effects with a new color. The new color will be taken from the [Color Fade Tool](#) if it is open; otherwise the color on the color fade button on the toolbar will be used.



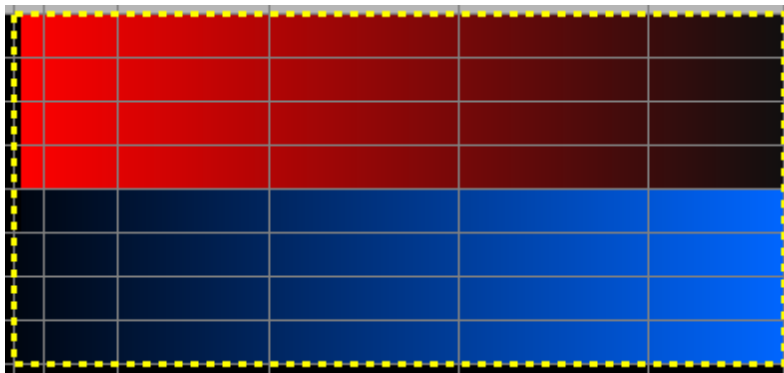
Before "Apply Toolbar Color"



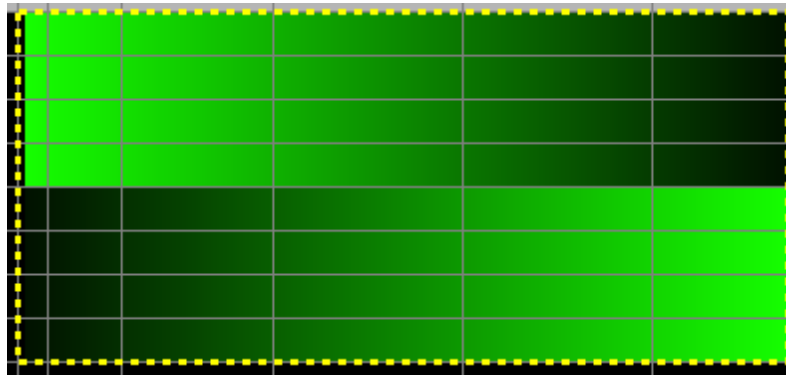
After "Apply Toolbar Color" (green)

## Apply Toolbar Hue

Replaces the hue of [selected](#) RGB channel effects with a new hue. The new color will be taken from the [Color Fade Tool](#) if it is open; otherwise the color on the color fade button on the toolbar will be used. The difference between this tool and "Apply Toolbar Color" is that this tool will maintain any place there is a fade to black.



Before "Apply Toolbar Hue"

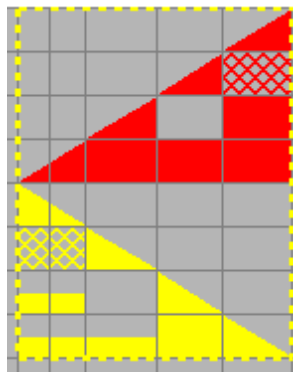


After "Apply Toolbar Hue" (green)

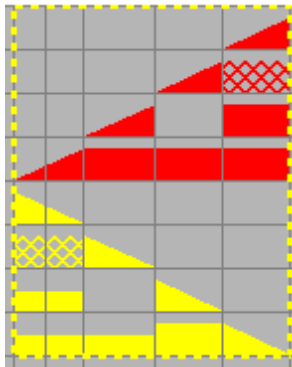
## Lower to Max Intensity (cap)

The Cap operation imposes a maximum upon the intensities in the [selected area](#). This function applies the maximum intensity in the [intensity range](#) to each effect. The starting and ending effect intensities are treated independently. For example, using a percent of 80, any intensities above 80% of the effect type's maximum will be reduced to 80%, and any intensities that are already at or below 80% will be left unchanged.

Note that most effect types (intensity, twinkle, shimmer) have maximum possible values of 100, so for those effect types this means the same thing as "any intensity above 80 will be reduced to 80". However, the [DMX intensity effect](#) has a maximum value of 255, not 100, so for it, capping with a percent of 80 means capping at a value of 204 (i.e. 80% of 255).



Before "Lower to Max Intensity"

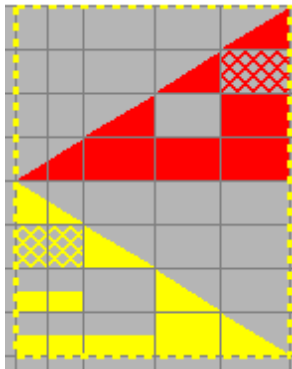


After "Lower to Max  
Intensity", intensity range  
0-80%

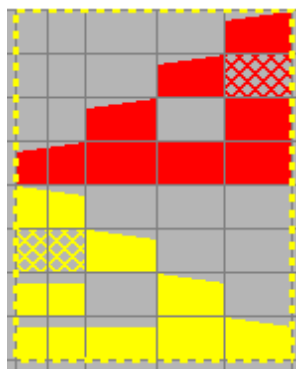
## Raise to Min Intensity (floor)

The Floor operation imposes a minimum upon the intensities in the [selected area](#). This function applies the minimum intensity in the [intensity range](#) to each effect. The starting and ending effect intensities are treated independently. For example, using a percent of 80, any intensities below 80% of the effect type's maximum will be increased to 80% of the maximum, and any intensities that are already at or above 80% will be left unchanged.

Note that most effect types (intensity, twinkle, shimmer) have maximum possible values of 100, so for those effect types this means the same thing as "any intensity below 80 will be increased to 80". However, [DMX intensity effect](#) has a maximum value of 255, not 100, so for it, imposing a floor with a percent of 80 means imposing a floor at a value of 204 (i.e. 80% of 255).



Before "Raise to Min  
Intensity"



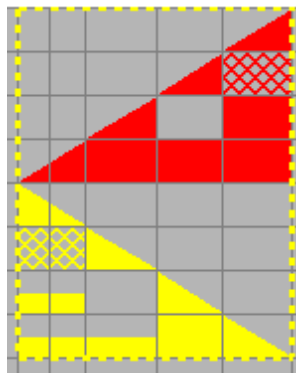
After "Raise to Min  
Intensity", intensity range  
80-100%

## Increase Intensity

The Increase operation increases all intensities in the [selected area](#) by the specified percent of the effect type's maximum value. For example, using a percent of 20, a fade up from 0 to 60 will be changed to a fade up from 20 to 80.

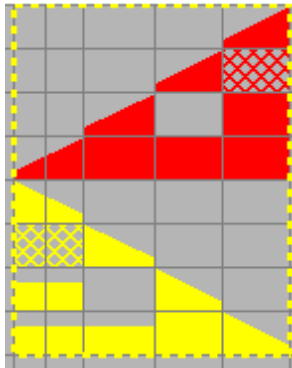
Note that most effect types (intensity, twinkle, shimmer) have maximum possible values of 100, so for those effect types this means the same thing as "any intensity will be increased by 20". However, the [DMX intensity effect](#) has a maximum value of 255, not 100, so for it, increasing with a percent of 20 means increasing by a value of 51 (i.e. 20% of 255).

If the increase pushes any intensity above the effect type's maximum possible value, it will be set to that maximum. For example, using a percent of 20, a fade up from 50 to 90 will be changed to a fade up from 70 to 100.



Before "Increase  
Intensity"





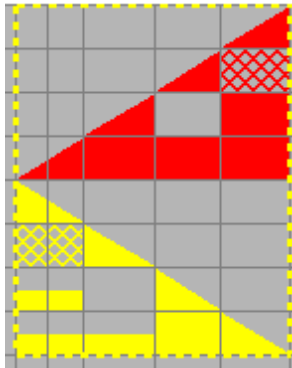
After "Increase Intensity"  
by 20

## Decrease Intensity

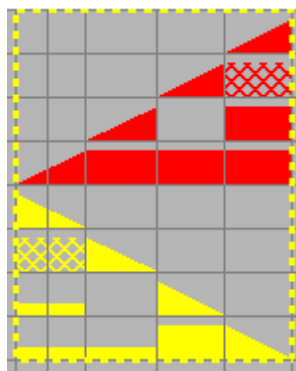
The Reduce operation decreases all intensities in the [selected area](#) by the specified percent of the effect type's maximum value. For example, using a percent of 20, a fade up from 50 to 60 will be changed to a fade up from 30 to 40.

Note that most effect types (intensity, twinkle, shimmer) have maximum possible values of 100, so for those effect types this means the same thing as "any intensity will be reduced by 20". However, the [DMX intensity effect](#) type has a maximum value of 255, not 100, so for it, decreasing with a percent of 20 means decreasing by a value of 51 (i.e. 20% of 255).

If the decrease pushes any intensity below zero, it will be set to zero. For example, using a percent of 20, a fade up from 10 to 90 will be changed to a fade up from 0 to 70.



Before "Decrease  
Intensity"

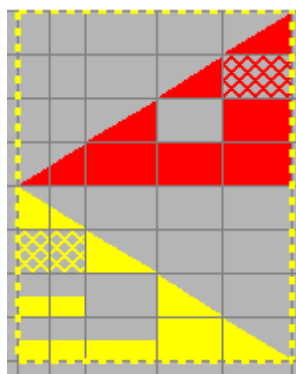


After "Decrease Intensity"  
by 20

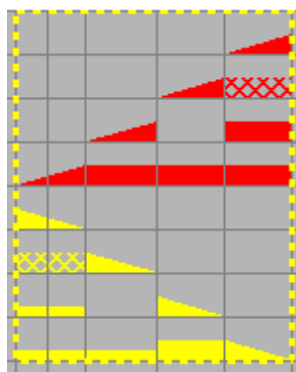
## Scale Intensity

The Scale operation scales all intensities in the selected area by the specified percentage. For example, a percent of 200 means doubling; a fade up from 30 to 40 will become a fade up from 60 to 80. A percent of 50 means halving; a fade up from 30 to 40 will become a fade up from 15 to 20.

If the scaling pushes any intensity above the effect type's maximum possible value, it will be set to that maximum. For example, using a percent of 200, a fade up from 30 to 80 will become a fade up from 60 to 100.



Before "Scale Intensity"



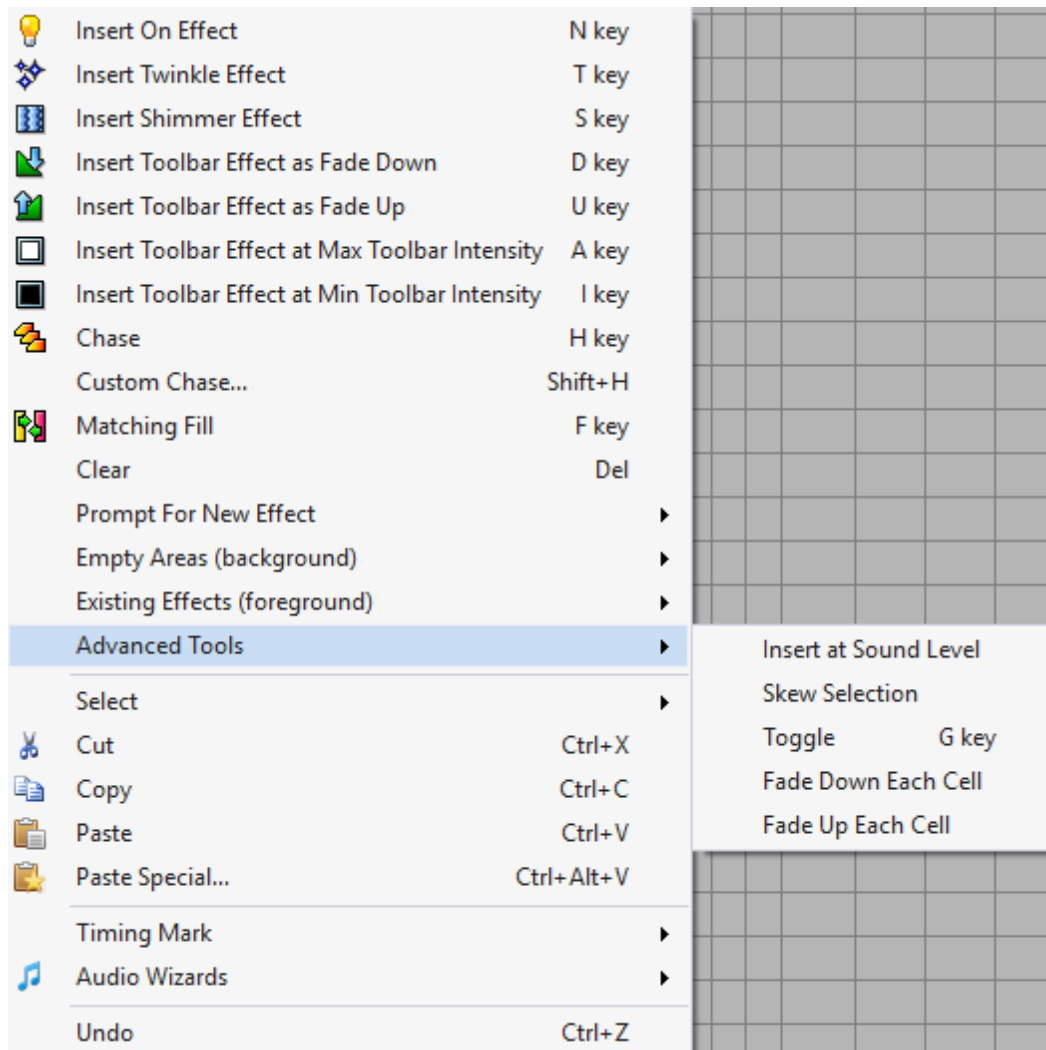
After "Scale Intensity" by  
50%

## 5.3.5.10.4 Right-Click Advanced Tools Sub-menu

The "Advanced Tools" sub-menu contains a list of functions that are valuable in specific circumstances.

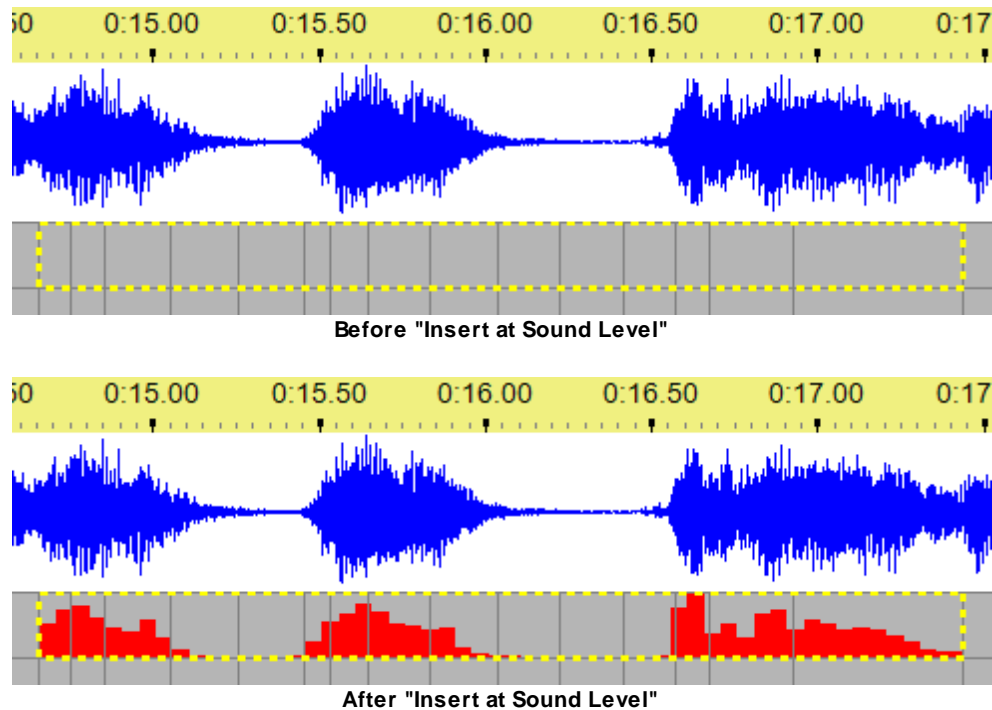
The available functions are:

- [Insert at Sound Level](#) ([musical sequences](#) only)
- [Skew Selection](#)
- [Toggle](#)
- [Fade Down Each Cell](#)
- [Fade Up Each Cell](#)



## Insert at Sound Level

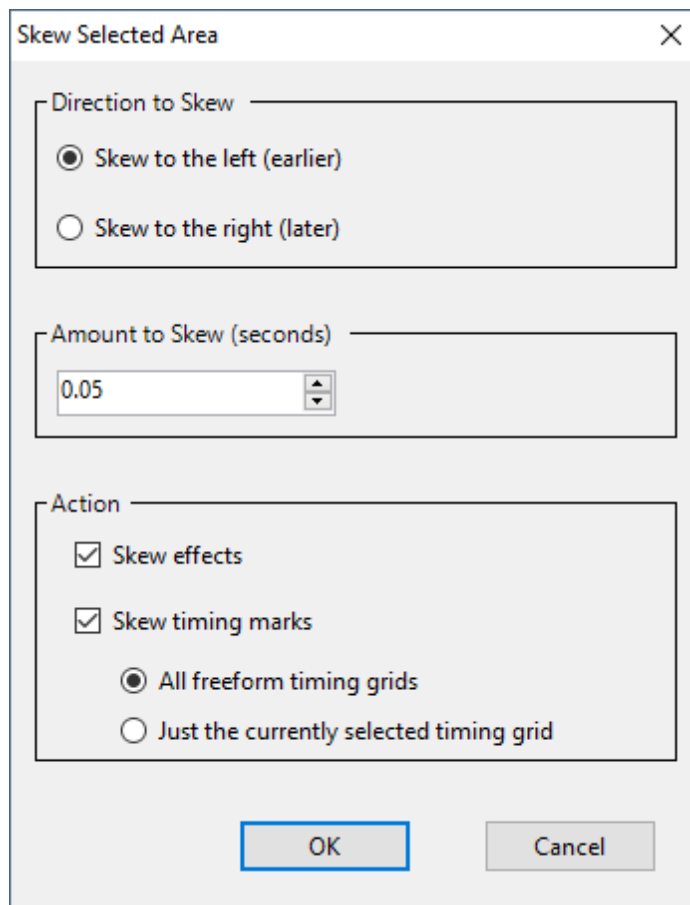
This command inserts a series of ON effects into the selected area, whose intensity reflects the sound level of the music. The command finds the loudest sound across the selection and uses that sound level as the 100% intensity level. All other effects being added are scaled using that loudest sound.



## Skew Selection

This command will allow you to move effects and/or timing marks to the left or right. It opens a dialog with fields that allow to specify how the [effects](#) and [timing marks](#) in the [selected area](#) should be moved.

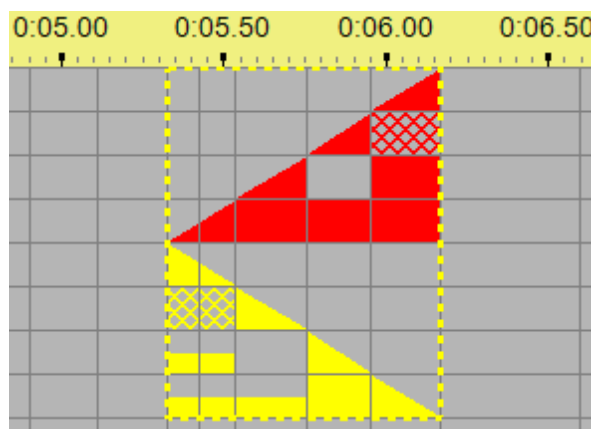
Also see the [Nudge Tools](#) for a similar function.



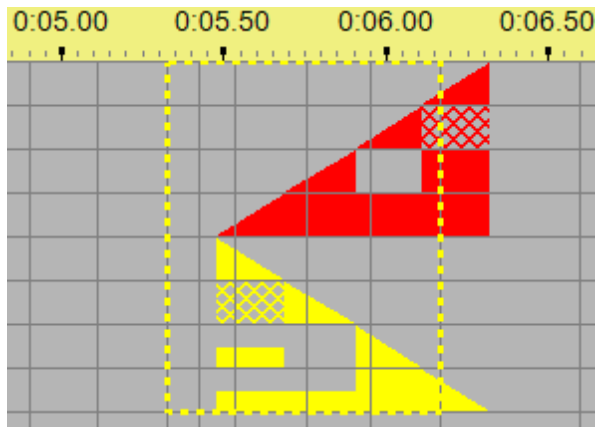
The Skew Selected Area dialog box is a standard Windows-style window with a title bar and a close button. It contains three main sections: 'Direction to Skew' with two radio buttons ('Skew to the left (earlier)' is selected), 'Amount to Skew (seconds)' with a text box containing '0.05' and a spinner, and 'Action' with two checked checkboxes ('Skew effects' and 'Skew timing marks') and two radio buttons ('All freeform timing grids' is selected). At the bottom are 'OK' and 'Cancel' buttons.

The Skew Selection dialog

After you click the OK button, the actions you specify will be applied to the selected area of the sequence.



Before Skew Selection



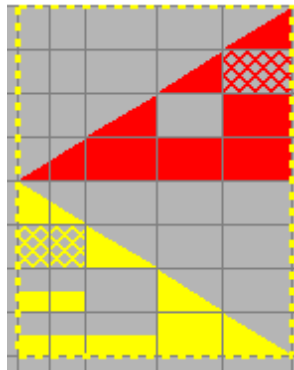
After Skew Selection, effects but not timing marks,  
to the right by 0.15 seconds

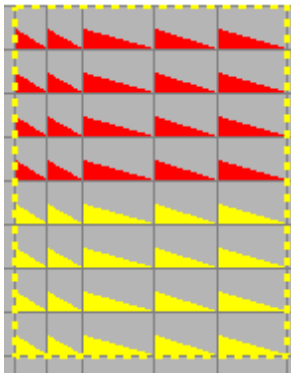
## Toggle

This menu item applies the [Toggle function](#) to the [selected area](#) of the sequence grid.

## Fade Down Each Cell

Creates a fade down effect in each selected cell using the [toolbar intensity range](#) and toolbar effect.

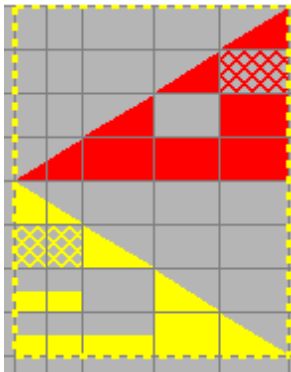




After Fade Down Each Cell,  
intensity range 0-50%, ON  
effect

## Fade Up Each Cell

Creates a fade up effect in each selected cell using the [toolbar intensity range](#) and toolbar effect.



Before Fade Up Each Cell



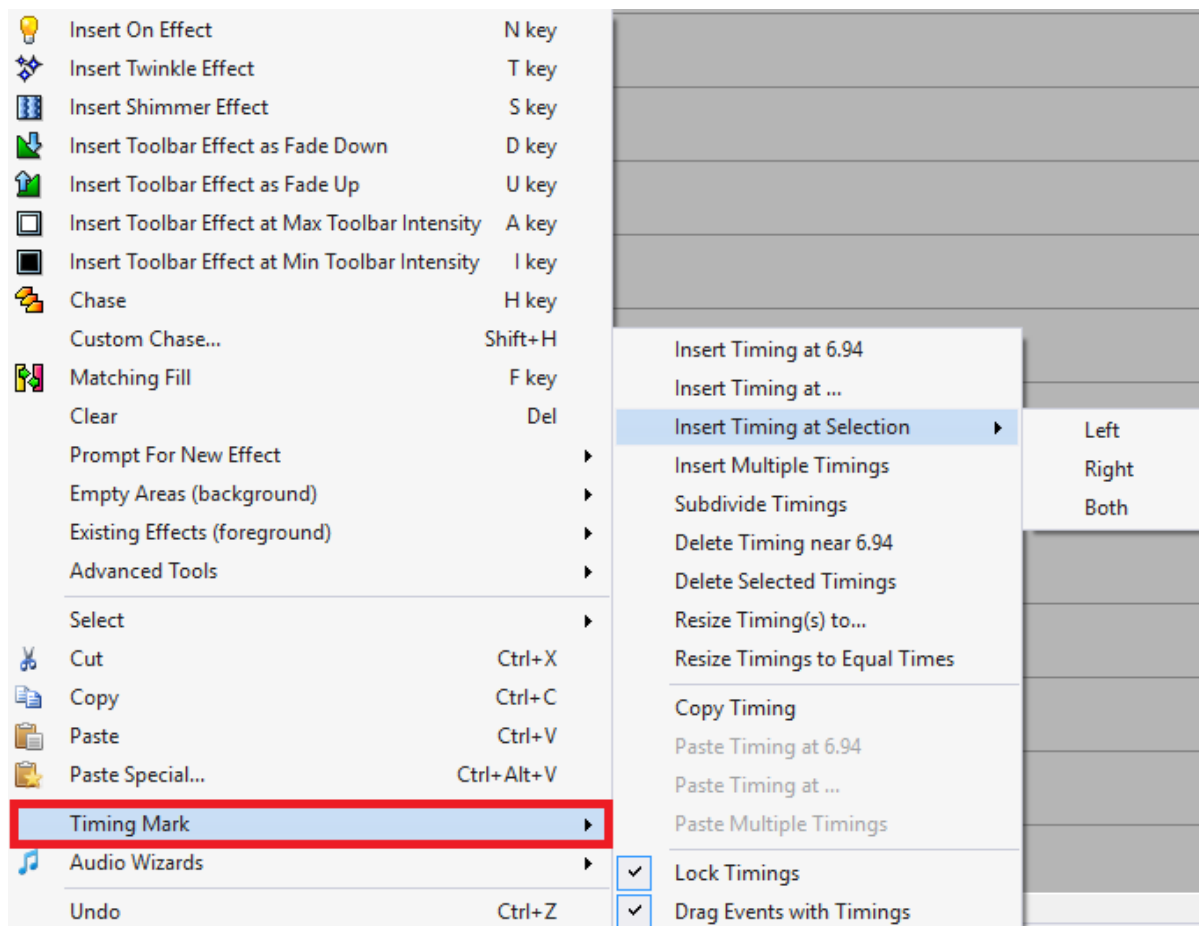
After Fade Up Each Cell,  
intensity range 0-100%,  
TWINKLE effect

### 5.3.5.10.5 Right-Click Timing Mark Sub-menu

A variety of tools to modify timing marks in [freeform timing grids](#) are available by [right-clicking](#) on the sequence grid and then opening the "Timing Mark" sub-menu.

From the "Timing Mark" sub-menu you can:

- [Insert Timing at X.XX](#)
- [Insert Timing at ...](#)
- [Insert Timing at Selection \(Left, Right, or Both\)](#)
- [Insert Multiple Timings](#)
- [Subdivide Timings](#)
- [Delete Timing near X.XX](#)
- [Delete Selected Timings](#)
- [Resize Timing\(s\) to ...](#)
- [Resize Timings to Equal Times](#)
- [Copy Timing](#)
- [Paste Timing at X.XX](#)
- [Paste Timing at ...](#)
- [Paste Multiple Timings](#)
- [Lock Timings](#)
- [Drag Events With Timings](#)



Right-click menu with the Timing Mark sub-menu open

## Insert Timing at X.XX



This menu item can be used to insert a [timing](#) into the [sequence](#). It opens a dialog asking you for the time that you want to insert a timing at (defaulting to the time that you right-clicked when opening the context menu). Please see [Time Format](#) for details on how to enter times.

## Insert Timing at ...

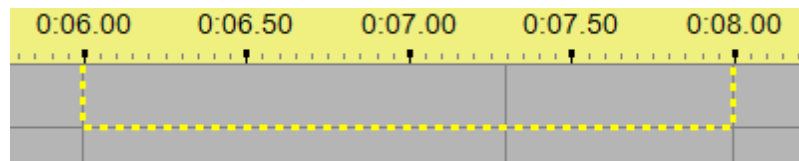
This menu item can be used to insert a [timing](#) into the [sequence](#) at the time that you right-clicked when opening the context menu.

## Insert Timing at Selection (Left, Right, or Both)

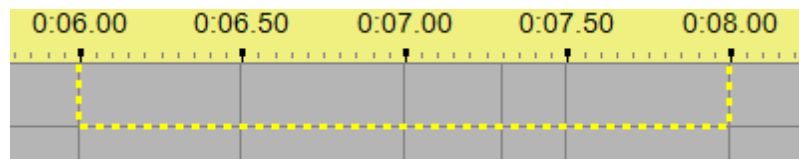
If you [make a selection](#) that does not start or end on a timing mark (perhaps by using the Ctrl key while dragging the mouse), you can use this function to add timing marks where the selection starts and/or ends.

## Insert Multiple Timings

This menu item can be used to insert multiple timings into the current selection by dividing it into equally-sized parts. For example, if you select an area whose time range is from 6 to 8 seconds, and use "Insert Multiple Timings" to insert 3 equally spaced timings, then the new timings will be inserted at 6.5, 7, and 7.5 seconds, splitting the selection into four equally spaced parts of half a second each.



Before applying Insert Multiple Timings



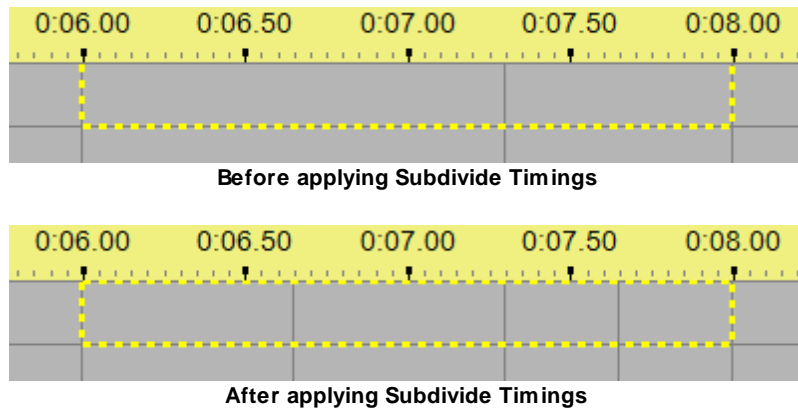
After applying Insert Multiple Timings

Also see [Subdivide Timings](#), which divides each **selected cell** into equally-sized parts, as opposed to dividing the **entire selection** into equally-sized parts.

## Subdivide Timings

This allows you to insert multiple timings into the current selection, dividing each selected cell into equally-sized parts. For example:

- if you select 2 cells: from 6 to 7.3 seconds, and 7.3 seconds to 8 seconds,
- then use "Subdivide Timings" to subdivide each original cell into two new cells,
- then you will end up with 4 cells: from 6 to 6.65, 6.65 to 7.3, 7.3 to 7.65, and 7.65 to 8.



Also see [Insert Multiple Timings](#), which divides the entire selection into equally-sized parts, as opposed to dividing each selected cell into equally-sized parts.

## Delete Timing near X.XX

This item can be used to delete the [timing](#) closest to where you right-clicked when opening the context menu.

## Delete Selected Timings

This item can be used to delete the [timings](#) inside the currently selected cells. Note that the two timings on the edges of the currently selected cells are not deleted.

## Resize Timing(s) to ...

This item can be used to change the duration of time between the selected [timings](#). It will not allow any of the timings to be pushed beyond the next timing in the sequence. Please see [Time Format](#) for details on how to enter times.

Note that the length of the sequence will not be affected, nor the positions of the timings past the selected range. So, if you choose to resize some timings such that their total length decreases, this will cause the cell just past them to increase in size (since the last selected timing is moved earlier, while the next timing remains the same).

## Resize Timings to Equal Times

This item can be used to change the duration of time between the selected [timings](#) so that all such durations are equal (or as close to equal as possible). For example, if you select two cells with durations of 0.2 seconds and 0.8 seconds, and use "Resize Timings to Equal Times", they will both change to 0.5 seconds.

## Copy Timing

After [selecting an area](#) on the grid, you can use "Copy Timing" function to record the [timing marks](#) within the selection. After that, you can paste the timings to another point in the sequence (or even to another sequence) using any of the "Paste Timing" functions. Note that this copies only the timings, not any [lighting effects](#) (see [Clipboards & Cut/Copy/Paste/Repeat](#) for information on

copying lighting effects).

For example, if you copy timings that are at 3 seconds, 3.5 seconds, and 5 seconds, and paste those timings starting at 7 seconds, you will wind up with timings at 7 seconds, 7.5 seconds, and 9 seconds.

## Paste Timing at X.XX

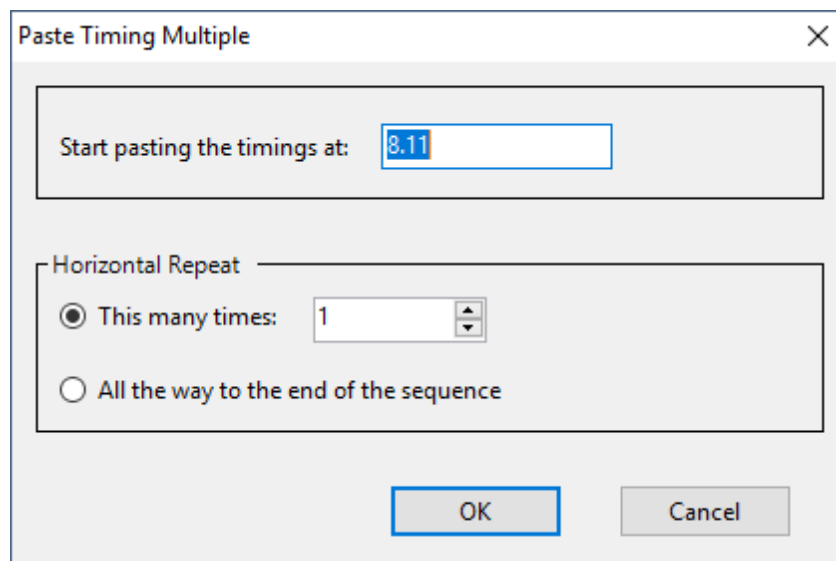
This menu item can be used to paste [copied timings](#) into the sequence, starting at the time that you right-clicked when opening the context menu.

## Paste Timing at ...

This menu item can be used to paste [copied timings](#) into the [sequence](#). It opens a dialog asking you for the time that you want to paste the timings to (defaulting to the time that you right-clicked when opening the context menu). Please see [Time Format](#) for details on how to enter times.

## Paste Multiple Timings

This item can be used to paste [copied timings](#) into the sequence, multiple times in a row.



## Lock Timings

Each [timing](#) in a [sequence](#) is a particular point in time (since the beginning of the sequence), and is represented by a vertical gray line. If "Lock Timings" is off (unchecked), and the current [timing grid](#) is a [freeform timing grid](#), you can change the time of a timing by hovering over its line with your mouse (which will change your mouse cursor from a "pointer" cursor to an "east-west" cursor), and clicking and dragging the line to the left or the right.

If "Lock Timings" is on (checked), you cannot do this. This prevents you from accidentally changing the time of a timing while you're trying to modify the [lighting effects](#) in a cell between two timings.

See also [Drag Events with Timings](#), which controls whether or not effects that start or end at the

dragged timing will be dragged along with it.

## Drag Events With Timings

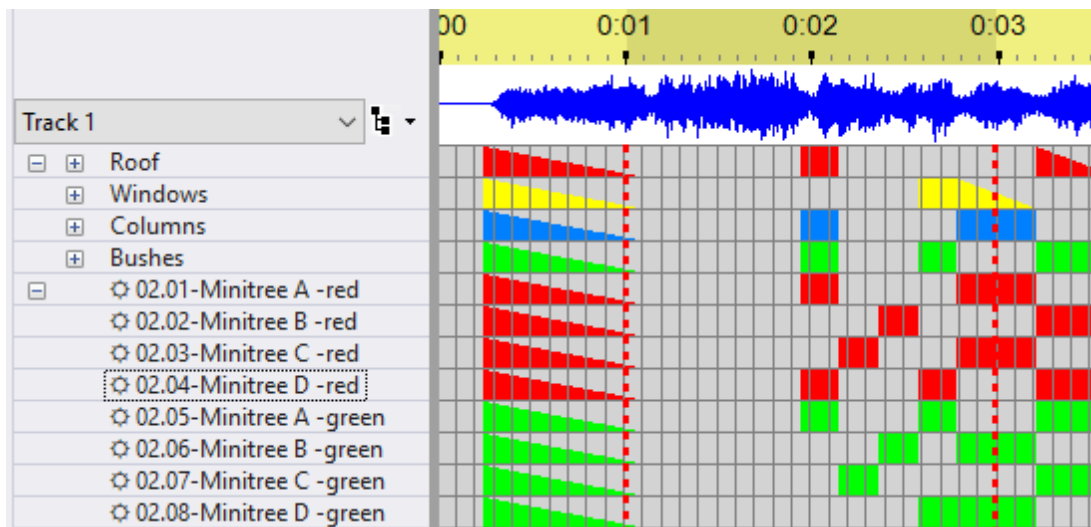
[Timings](#) in a [sequence](#) can be dragged with the mouse to change the time that they are at (unless the [Lock Timings](#) option is turned on). If "Drag Events with Timings" is turned on, and any [effects](#) start or end at the same time as the timing being dragged, they will be dragged along with it. If not, only the timing will move; the effects will remain unchanged.

### 5.3.5.11 Freeform Play Range

## What Is A Freeform Play Range?

A freeform play range is a user selected time range within a [sequence](#). There can be at most one freeform play range specified at any given time.

A freeform play range is displayed with a dimmed area on the time scale and dashed vertical red lines running through the sequence grid at the beginning and end of the range.



A sequence with a freeform play range

## How Are They Created?

A freeform play range can be created using either of these techniques:

- By clicking and dragging across the time scale (not the waveform area). This is the quickest way to create a range that is limited to the visible area of the sequence grid.
- By right-clicking on the time scale or waveform area and using the [Set Play Range Start/End](#) menu items.
- During sequence playback, pressing the keyboard's down arrow will mark the current time as the start of a "freeform play range". Later pressing the up arrow will mark the current time as the end of the freeform play range.
- After right-clicking on the [audio waveform](#) or timeline, select the "Set Play Range Start" or "Set Play Range End" menu items to create or extend a freeform play range.

## What Can You Do With Them?

As the name implies, a freeform play range can be used to [play back](#) the specified region of the sequence.

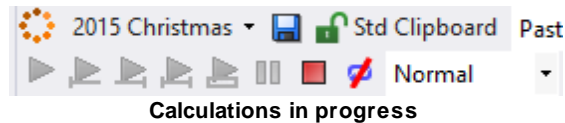
### 5.3.5.12 Playback

You can play back your [sequence](#) in the [Light-O-Rama Sequencer](#). If the [playback window](#) is open, it will show a simulation of your display. The simulation is based on the [preview](#) associated with the sequence.

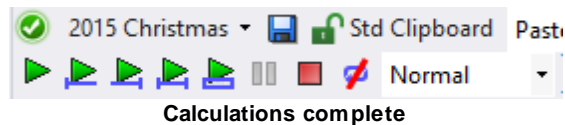
- [Calculating Preview](#)
- [Sequence Playback](#)
- [Zoomed Playback](#)
- [Playback in Action](#)

## Calculating Preview

When opening your [sequence](#), the simulated preview is calculated in memory, which can take some time. A spinner will be displayed and the play buttons disabled until the calculations are complete:



Once complete, a green check mark is displayed next to the preview name. Any subsequent changes to the sequence will cause the preview for the affected props to be recalculated; the play buttons will again be temporarily disabled until the recalculation is complete.






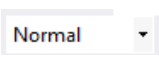


## Sequence Playback

### *Playback Using The Toolbar Buttons*

There is a set of playback buttons on the Sequence Tab's [toolbar](#), and another set on the [Playback Window](#). You can use the buttons in either location to start and stop playback. These are the toolbar buttons that control [sequence](#) playback:

	Play the full sequence
	Play from the left edge of the visible sequence grid to the end of the sequence
	Play from the beginning of the sequence to the right edge of the visible sequence

	grid
	Play the visible portion of the sequence
	Play the current selection. If there is a <a href="#">freeform play range</a> defined then that is played; otherwise the current grid selection (dashed yellow outline) is played.
	Pause playback. Press again to resume playback
	Stop playback
	Repeat playback. This icon will have a red slash through it if repeat is disabled
	Playback speed. Playback speeds other than normal may not be supported on some types of media files.

### Playback Using The Spacebar



Play the sequence using the space bar

Sequence playback can also be started and stopped using the spacebar.

If playback is currently stopped, then pressing the spacebar will:

- Play the [freeform play range](#) if one is defined, otherwise it will
- Play starting with the current selection (yellow outline) and continue to the end of the sequence if a grid selection exists, otherwise it will
- Play starting at the left edge of the visible sequence area and continue to the end of the sequence

If the sequence is playing when the spacebar is pressed, playback will be stopped and the grid column where playback was stopped will be selected. Pressing the spacebar again will restart playback at approximately the place where you had stopped it. This can be used to effectively pause and un-pause play.

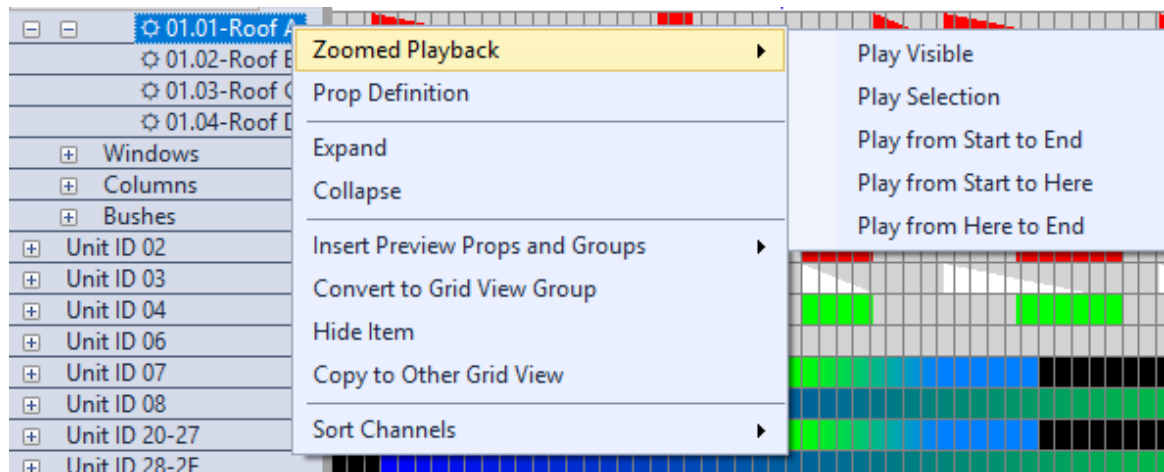


Pressing shift and spacebar together will clear any [freeform play range](#), and then perform the same

action as pressing the spacebar without the shift key.

## Zoomed Playback

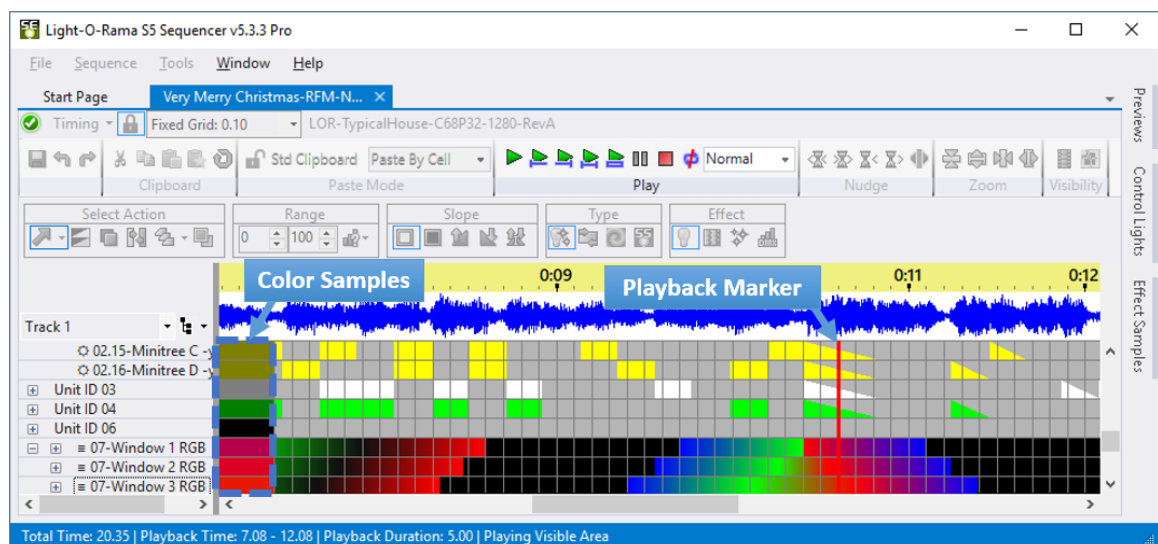
You can also zoom in on a specific [prop](#) or preview group during playback. To do this, right-click on a prop name (not a grid view group) and open the "Zoomed Playback" sub-menu.



Zoomed Playback menu

## Playback in Action

During playback, color samples will be displayed real-time, immediately to the right of the channel name. The color samples will be displayed for traditional channels and RGB channels. They will not be displayed for motion effect rows. A playback marker will move as play progresses. You can change the width of the color samples and the behavior of the playback marker in [Sequence Grid Preferences](#).



Playback in progress

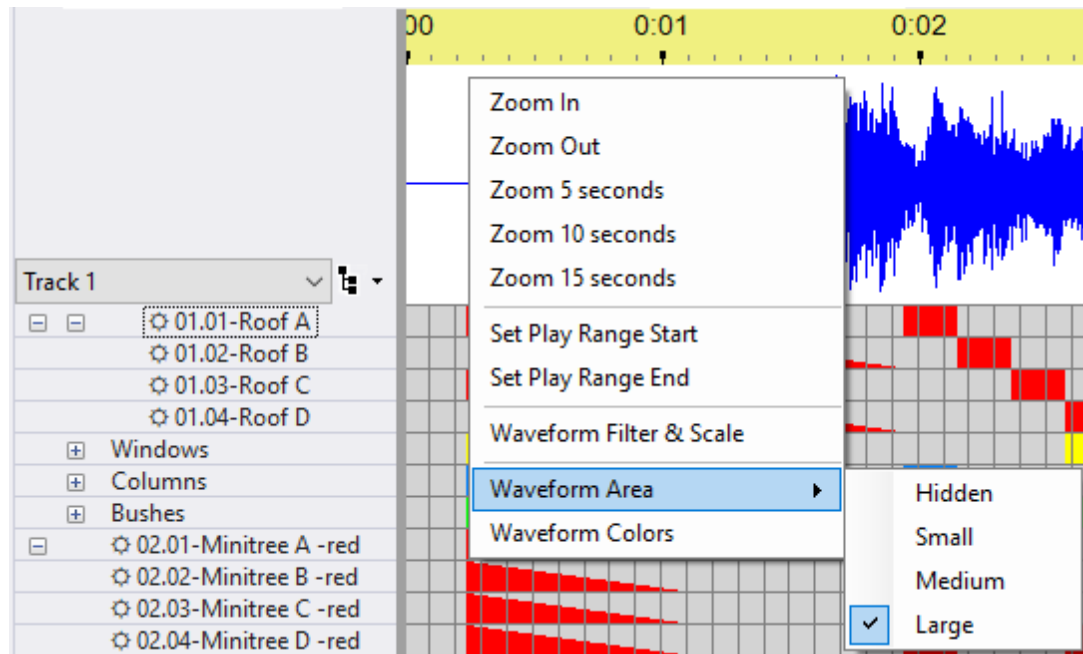
### 5.3.5.13 Audio Waveform

For most [musical sequences](#), the [Sequencer](#) can display a waveform of the audio at the top of the sequence grid. This can be useful for visually matching up [timings](#) and [events](#) to the sound. The Waveform Display supports a wide range of media types, including video media. However, not all types of media or media containers are supported (for example, midi files are not supported).

In addition to the waveform itself, a vertical highlight bar is displayed at the current time that your mouse is pointing at.

Right-clicking on the waveform or the time scale will open a menu that allows you to:

- [Zoom in and out](#)
- [Set the freeform play range](#)
- [Scale and filter the waveform](#)
- [Set the waveform area height](#)
- [Change the waveform area colors](#)



Waveform area height set to large and the right-click menu displayed

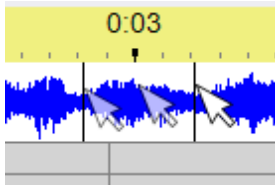
## Zooming In And Out

The first 2 options on the menu allow you to zoom the time scale in and out.

The next 3 options zoom to a fixed time scale: 5, 10, or 15 seconds wide. These can quickly take you to a reasonable time scale if you have zoomed in too far.

You can also zoom in by left-clicking on the waveform and dragging across the area of the waveform where you want to zoom. When you release the mouse button, the new zoom level will take effect. Note that this only works in the waveform area, not on the time scale.





See the [Zoom](#) topic for more ways to zoom the sequence grid in and out.

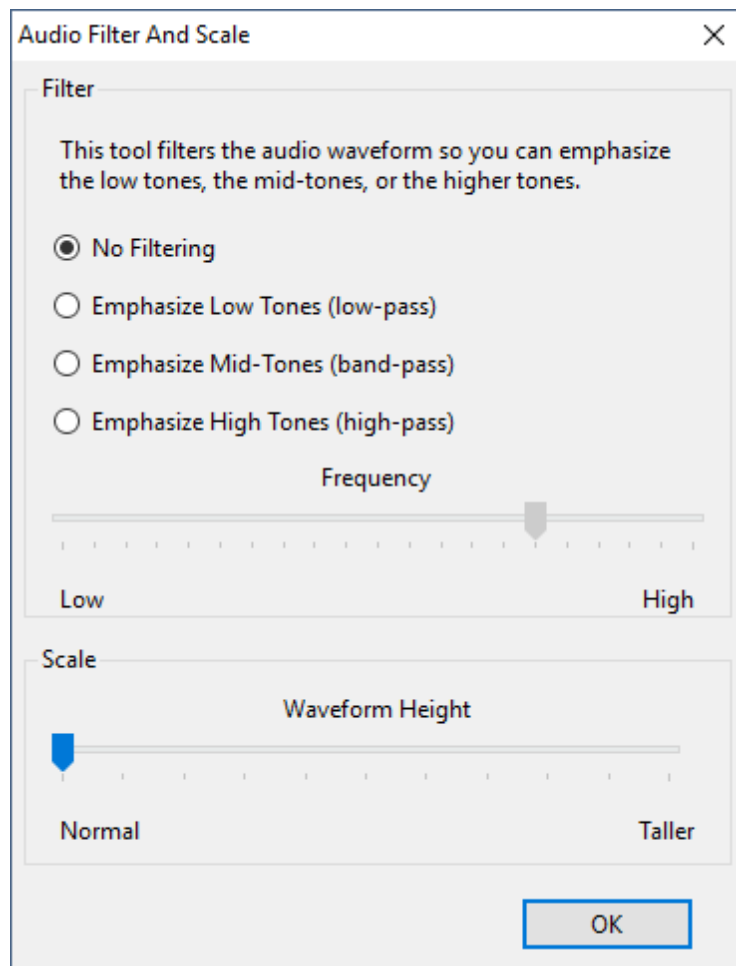
## Setting The Freeform Play Range

The "Set Play Range Start" and "Set Play Range End" menu items can be used to create or extend a [freeform play range](#).

## Scaling And Filtering The Waveform

The [Sequencer](#) will automatically scale the audio waveform vertically so that it fills the entire height of the waveform area. By default, all audio frequencies are displayed.

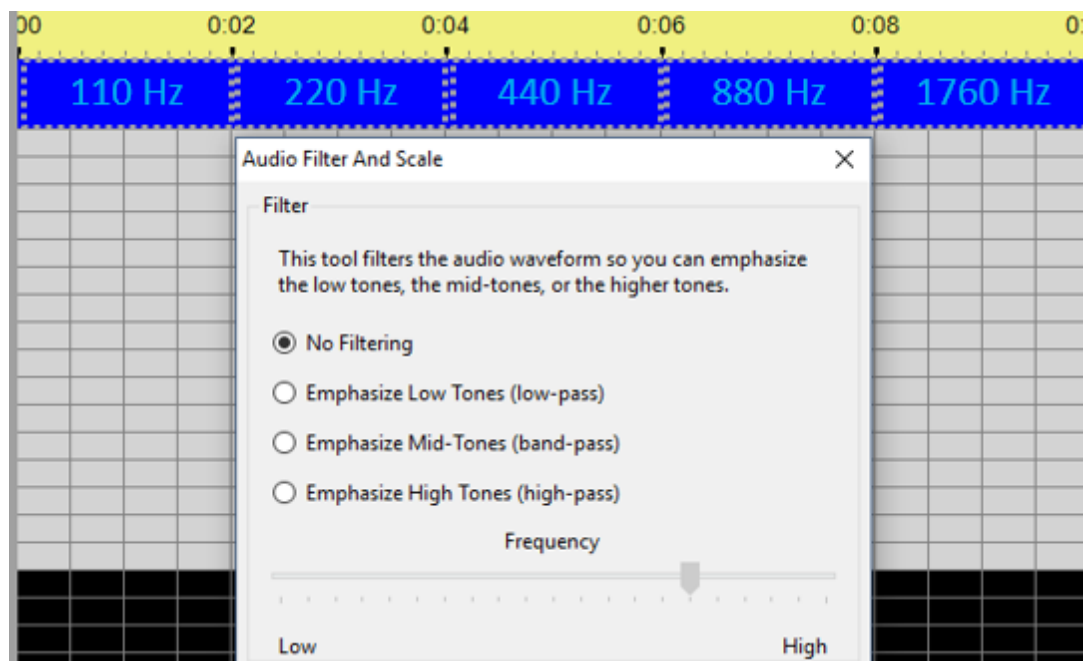
You can zoom the waveform up or down, or apply a frequency filter by choosing "Waveform Filter & Scale" from the right-click menu.



The Audio Filter and Scale dialog

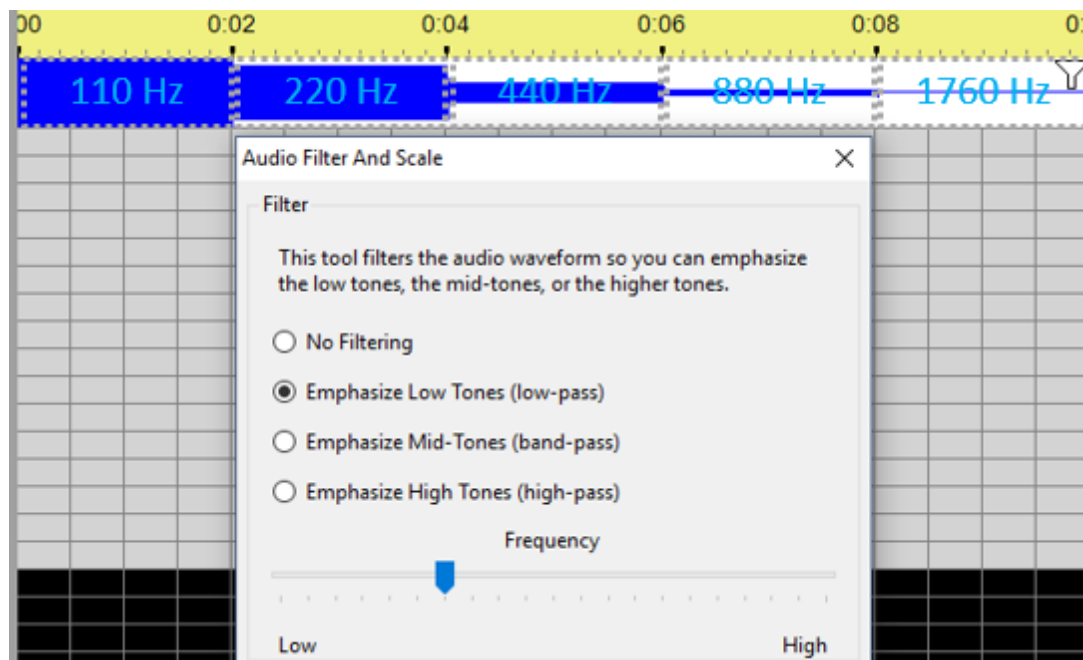
### **No Filter**

The following screens are taken from a sequence that uses a specially constructed audio file. The audio consists of 5 tones, each 2 seconds long and each one an octave higher than the previous tone (10 seconds total). The first 2 seconds have a 110 Hz tone (A2), followed by 2 seconds at 220 Hz (A3), followed by 2 seconds at 440 Hz (A4), followed by 2 seconds at 880 Hz (A5), followed by 2 seconds at 1760 Hz (A6). Here is what the waveform looks like with no audio filtering:



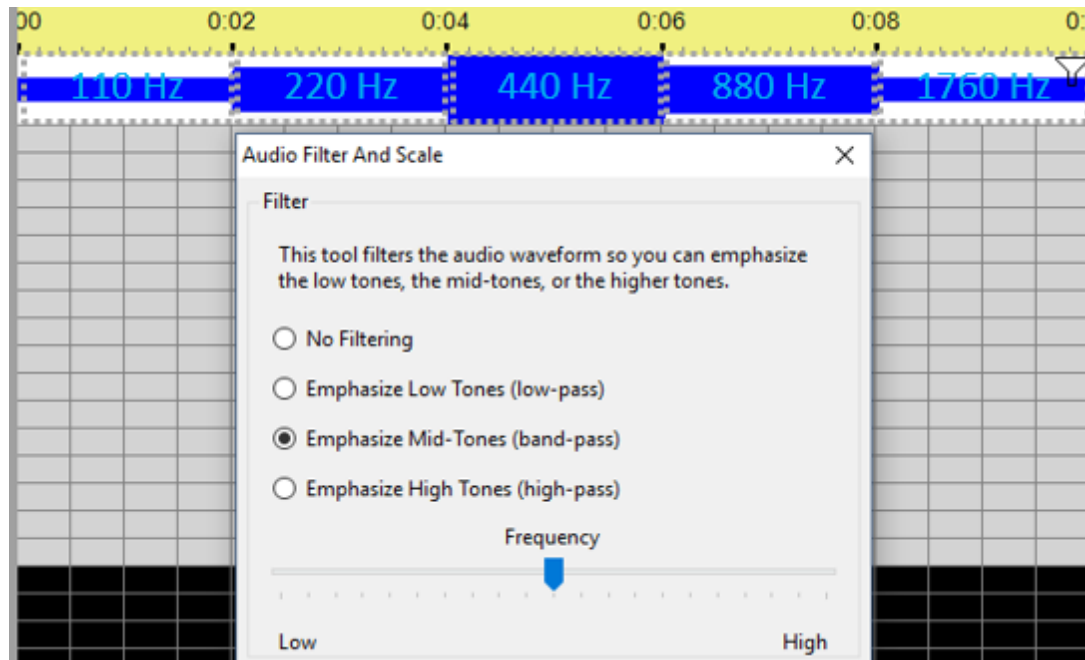
### ***Emphasize Low Tones***

Here is the same sequence with the low tones emphasized. Notice that the frequency cut-off for the filter is adjustable using the slider.



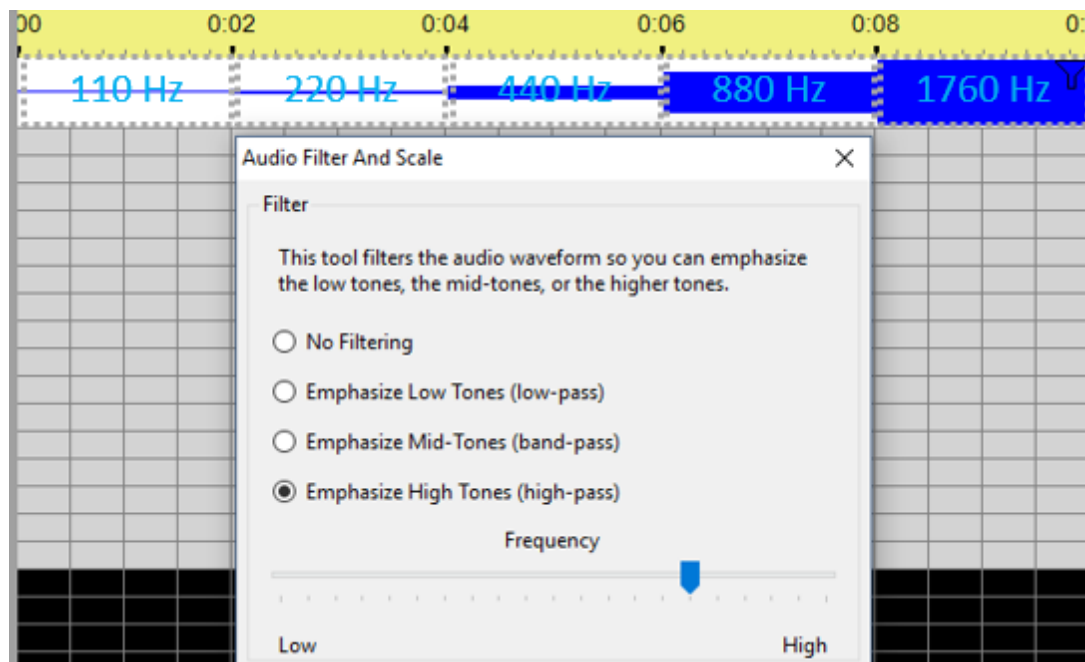
### ***Emphasize Mid Tones***

Here is the same sequence with the middle tones emphasized. Notice that the mid-point frequency for the filter is adjustable using the slider.



### ***Emphasize High Tones***

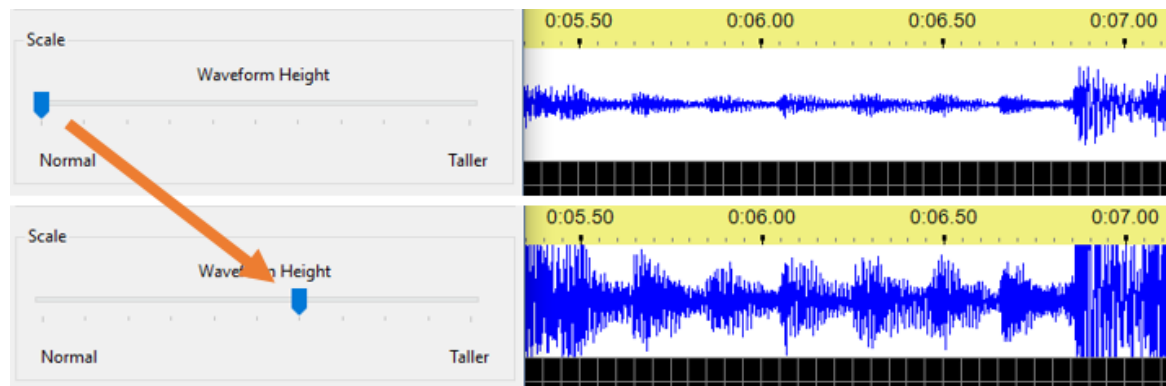
Here is the same sequence with the high tones emphasized. Notice that the frequency cut-off for the filter is adjustable using the slider.



### ***Scaling the Waveform***

You can use the bottom section of the "Audio Filter and Scale" dialog to scale up low level audio

signals to see more detail. The next example shows how this can be used to see where the beats are more clearly.



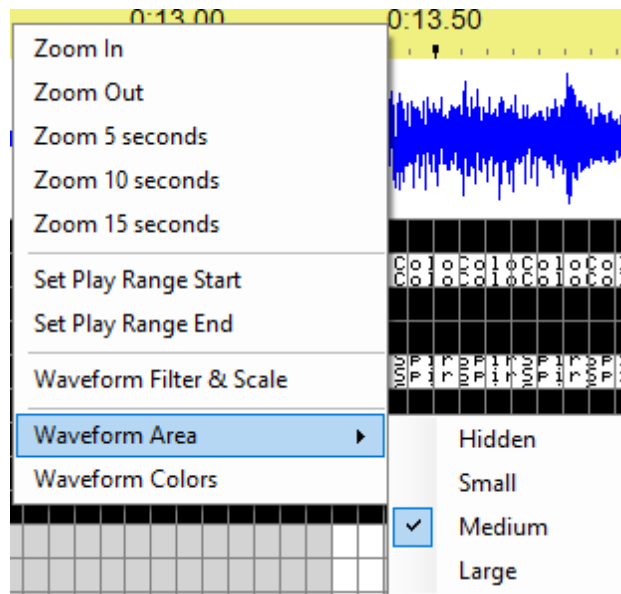
Increasing the vertical scale of the waveform

## Setting The Waveform Area Height

The height of the waveform area can be set to small, medium, large, or hidden -- small is the default for musical sequences. Choose "Large" to see the maximum amount of detail in the waveform. Choose "Small" to see the waveform, but have more room to display the [sequence](#). The height can be changed by selecting [Sequence > Waveform Area](#) from the main menu, or by right-clicking inside the waveform area.



You can also click on the waveform icon on the toolbar to hide or unhide the waveform area.

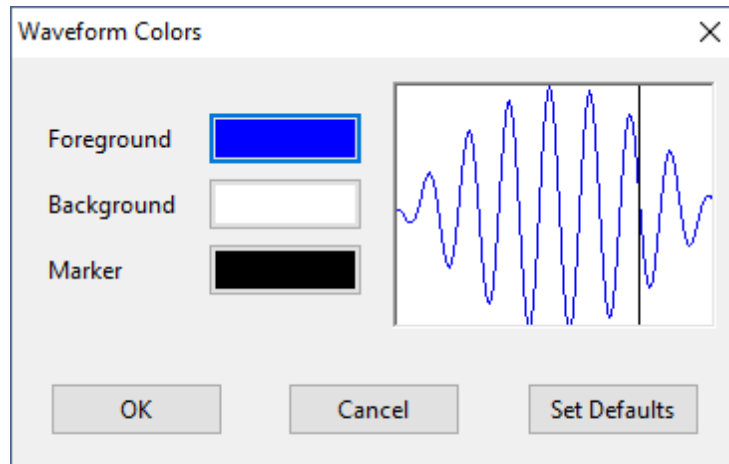


The waveform area right-click menu

## Changing the Waveform Area Colors

The colors used to display the [waveform](#) can be changed via the Waveform Colors dialog, which can

be opened by right-clicking on the waveform and selecting "Waveform Colors" from the pop-up menu:



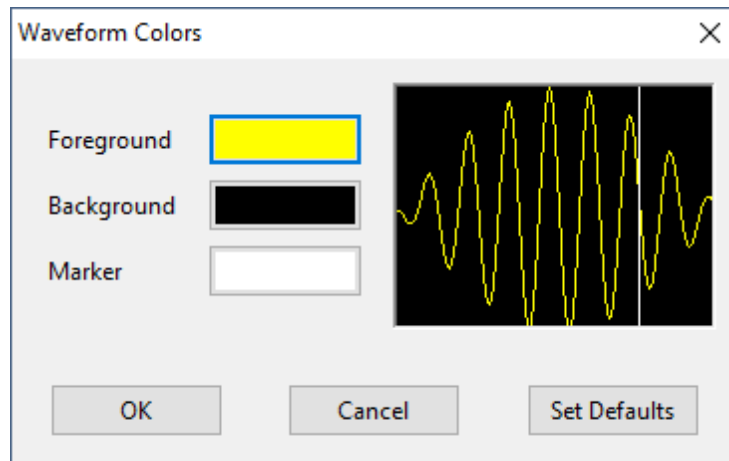
The Waveform Colors dialog

Three different colors can be set: "Foreground" is the color of the wave itself; "background" is the field that it is drawn upon; "highlight" is the vertical bar showing the position of the mouse.

The colored buttons on the left can be used to set each of these three colors, and the display on the right shows how a sample waveform would look using these colors.

The [Sequencer](#) will remember the colors that you chose, so that other waveforms will automatically be displayed using those colors.

You can revert to the system default of blue on white by clicking the "Set Defaults" button.



The Waveform Colors dialog, with different colors chosen

#### 5.3.5.14 Audio Wizards

There are 4 audio wizards that you can use to convert the beat of the music to [timing marks](#) and/or [channel effects](#):

- [The Tapper Wizard](#)
- [The Beat Wizard](#)

- [The VU Wizard](#)
- [The MIDI File Wizard](#) (can only be used on MIDI files)

They can be accessed from:

- the [Tools menu](#)
- by [right-clicking on the sequence grid](#)
- by right-clicking on the name of a [beat channel](#) in the sequence grid

#### 5.3.5.14.1 The Tapper Wizard

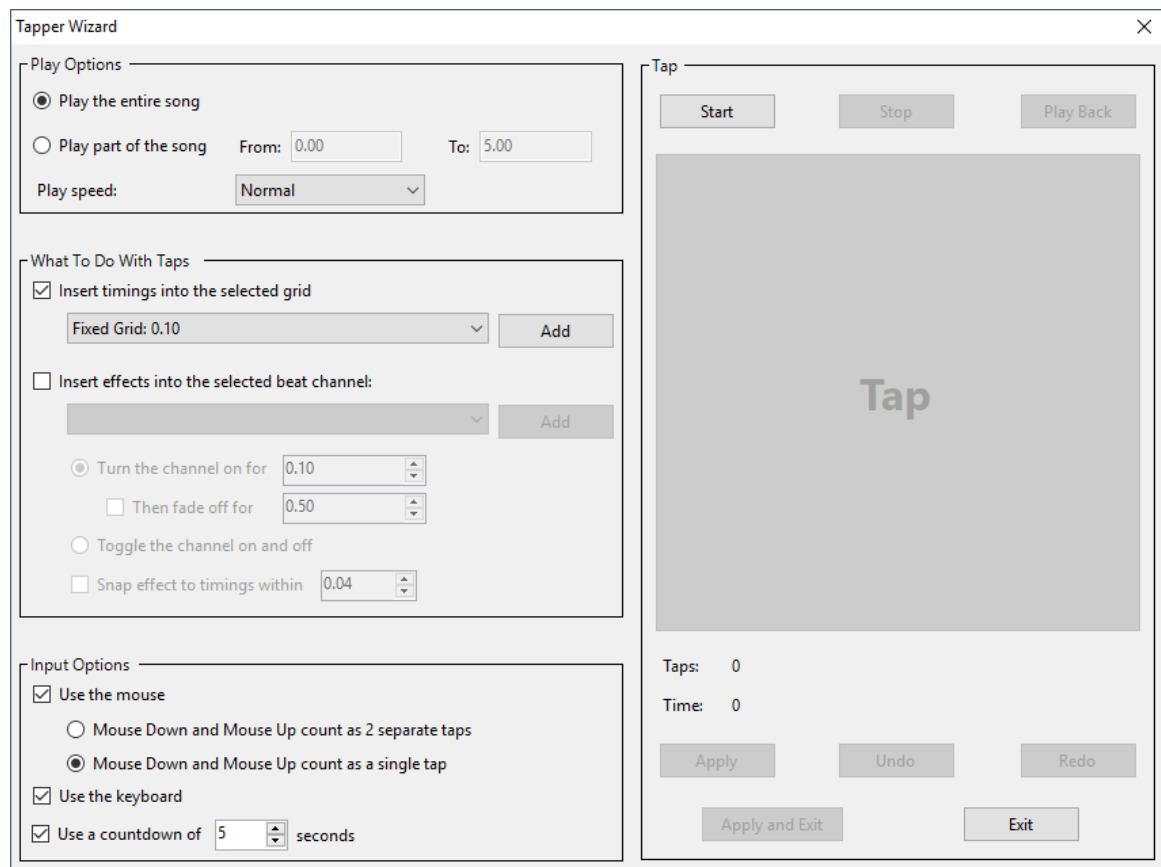
The [Light-O-Rama Sequencer's](#) Tapper Wizard is a tool that lets you populate a [musical sequence](#) with [timings](#) and [lighting effects](#) simply by tapping along with the song, on your keyboard or your mouse. The Tapper Wizard will remember the moments in the song that you tapped at, and will insert timings and effects into the sequence at those times.

The Tapper Wizard is available as an option when [creating a new musical sequence](#), and can be accessed later by selecting [Tools > Tapper Wizard](#) from the main menu, by right-clicking on a [beat channel](#) name, or by [right-clicking in the sequence grid](#) and opening the [Audio Wizards sub-menu](#).

Note that you can insert timing marks into the sequence grid without using the Tapper Wizard. Simply start [playing the sequence](#), then use the "T" [shortcut key](#) to insert timing marks.

The Tapper Wizard has the following sections and controls:

- [Play Options](#)
- [What to Do with Taps](#)
- [Input Options](#)
- [Start and Stop](#)
- [Play Back](#)
- [Tap](#)
- [Apply](#)
- [Undo and Redo](#)
- [Apply and Exit](#)
- [Exit](#)



The Tapper Wizard

## Play Options

This section of the [Tapper Wizard](#) lets you control how the song will be played while you are tapping. You can select to play the entire song, or just a certain time range of the song. You can also choose the speed at which the song will be played: half speed, normal speed, or double speed.

Whenever the sequence is opened, this option will be set to "Play the entire song". If you change this to "Play part of the song", that option will be used as long as the sequence is open, or until you change it back to "Play the entire song".

The time range will be set as follows:

- If there is a [freeform playback range](#) defined, that range will be used, otherwise
- If there is a [selection](#) on the sequence grid, its time range will be used, otherwise
- The currently visible time range will be used

## What to Do with Taps

This section lets you tell the [Tapper Wizard](#) what you want it to do with your taps. You can choose the [track](#) and the [timing grid](#) to apply the taps to (or create a new timing grid to use), and then choose to insert [timings](#) into the timing grid, or to insert [lighting effects](#) into a [channel](#) of the track, or both.



If you choose to insert lighting effects into a channel, you can either have the channel briefly turn on for each tap, or you can choose to have it toggle on with one tap, off with the next, on with the third, and so forth. If you choose to have it turn briefly on for each tap, you can additionally choose to have it fade off after the tap (otherwise it will simply turn off).

You also have the option to "snap to existing events". If you select this option, and you tap at a point in time that is near an existing timing (with "near" meaning within the number of hundredths of a second that you specify here), instead of using the exact time that you tapped, the Tapper Wizard uses the time of that timing. This makes it easier to cleanly use the Tapper Wizard multiple times on the same sequence (for different channels), without introducing minor timing errors based upon your reaction time.

After you have done your tapping, and used this section to tell the Tapper Wizard what to do with your taps, click "[Apply](#)", or "[Apply and Exit](#)" to apply them to the sequence. If you clicked "Apply" rather than "Apply and Exit", then the Tapper Wizard will remain open. At this point, you could change your settings in this section to apply your existing taps in a different way (such as to a different channel, or with different types of effects), or you could tap again (by hitting "[Start](#)" again) to collect new taps. You could also [undo and redo](#) any changes that the Tapper Wizard made to your sequence.

## Input Options

This section of the [Tapper Wizard](#) allows you to control how you will tap.

You can use the mouse, or the keyboard, or both.

If you use the mouse, you have two options: pushing the mouse button down and then letting it up count as two separate taps, or as a single tap. To use the mouse, you must click on the [Tap](#) button.

If you use the keyboard, you can tap with practically any key, or even multiple keys.

You can also choose whether to use a countdown or not; if you do, then when you start the song (by clicking [Start](#)), a countdown will be displayed before the song begins, rather than starting immediately. This may give you time to get ready after clicking "Start".

## Start and Stop

Use these buttons to start playing the song (or to start the countdown before play), and to stop the song. When the song begins, the [Tap](#) button will become enabled. When the song ends, you do not have to use the Stop button; the Stop button is for stopping the song in the middle, for example if you are unhappy with the taps that you made.

After the song ends (or after you hit Stop), you can click Start again in order to redo your taps. This will wipe out any previously recorded taps. You will be warned that they will be wiped out, and will be given an option to cancel.

You can also redo your taps after having [applied](#) them to the sequence. This lets you use different sets of taps for different purposes, all without closing the Tapper Wizard.

## Tap

While a song is playing, the Tap button is enabled. Every time that you tap (whether by mouse or by keyboard), it will provide feedback by briefly flashing.

## Play Back

After you have recorded taps, you can click "Play Back" to play the song over again. The [Tap button](#) will flash at the points in time that you tapped. You can use this to double check that you are satisfied with your taps before entering them into the [sequence](#) (by clicking the [Apply button](#)); if you are not satisfied with them, you can wipe them out and try again by hitting the [Start button](#) again.

## Apply

After you have [tapped](#), and have told the [Tapper Wizard what to do with the taps](#), click the Apply button to apply those taps to your [sequence](#).

Note that you can then change the settings in the "What To Do with Taps" section, and click Apply again; this will apply the new settings, using the same taps, to the sequence.

Or, you could click [Start](#) again, to collect new taps. Your old taps will be deleted when you do this, but any [timings](#) or [effects](#) that you inserted into the sequence based on them will remain. In this way, you can use different sets of taps to do different things, all without closing the Tapper Wizard.

## Undo and Redo

After applying your taps to the [sequence](#), you can use these buttons to undo and redo any such applications, without exiting from the [Tapper Wizard](#).

## Apply and Exit

Clicking the [Tapper Wizard's](#) Apply and Exit button will apply your taps to the [sequence](#), in the manner that you specify in the "[What To Do with Taps](#)" section, and then exit from the Tapper Wizard.

If you want to apply your taps without exiting the Tapper Wizard, so that you can apply them again using new settings, or so that you can collect different taps, use the [Apply](#) button instead.

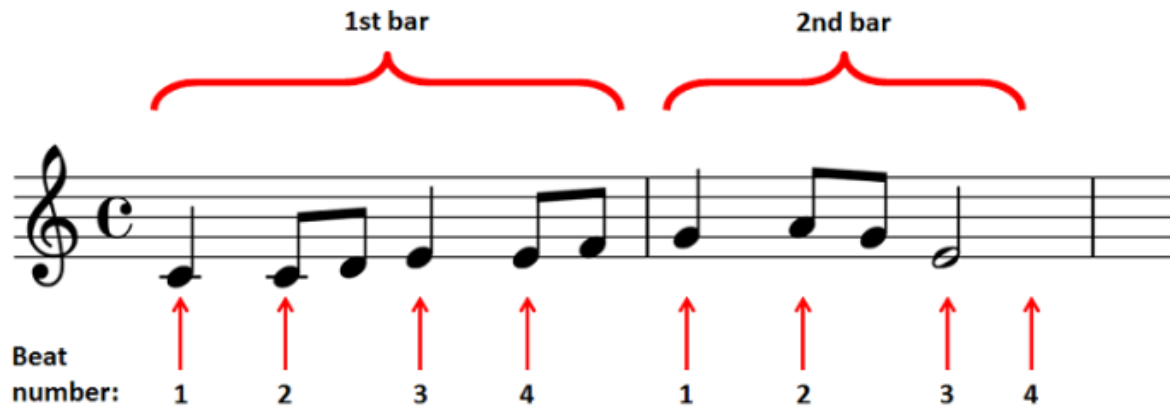
## Exit

This button simply exits from the [Tapper Wizard](#), without applying your taps to the [sequence](#). Note, though, that if you have already applied your taps (using the [Apply](#) button), they will remain in your sequence; using this button (instead of [Apply and Exit](#)) will prevent your taps from being applied *again*.

For example, if you apply your taps, then change the settings in the [What To Do with Taps](#) section, and then click Exit, your applied taps, based on your original settings, will remain in the sequence, but your taps will not be reapplied based on the changed settings.

## 5.3.5.14.2 The Beat Wizard

The [Light-O-Rama Sequencer's](#) Beat Wizard can analyze the song associated with a [musical sequence](#) to try to determine its tempo, and can insert [timings](#) and [lighting effects](#) into the [sequence](#) based upon it. These are not necessarily inserted exactly the same distance apart from each other; rather, the Beat Wizard attempts to match them up with peaks in the audio that are near the tempo. This is to allow for subtle variation in the speed of the song.



The Beat Wizard is available as an option when [creating a new musical sequence](#), and can be accessed later by selecting [Tools > Beat Wizard](#) from the main menu, by right-clicking on a [beat channel](#) name, or by [right-clicking in the sequence grid](#) and opening the [Audio Wizards sub-menu](#).

The Beat Wizard supports a wide range of media types, including video media. However, not all types of media or media containers are supported. If the Beat Wizard cannot be used with the media file associated with your sequence, you will be presented with a message box alerting you to that fact. Also, the Beat Wizard may not be able to be used with very large media files.

- [Selecting the Time Range](#)
- [Selecting the Tempo](#)
- [Previewing](#)
- [What To Do with Beats](#)

**Beat Wizard**

**Time Range**

☒ The entire song

☐ Just part of the song    From: 0.30    To: 0.40    **Update**

**Tempo**

☒ Use the detected tempo: 71 beats per minute

☐ Use a faster related tempo: 2x Faster (142 BPM) ▾

☐ Use a slower related tempo: 2x Slower (35 BPM) ▾    with beat offset: 0 ▾

**Preview**

**Start**    ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐    **Stopped**

☐ ☐ ☒ ☐ ☐ ☐ ☐

**What To Do With Beats**

☒ Insert timings into the selected grid for each beat

Fixed Grid: 0.10 ▾    **Add**

☐ Turn on the selected beat channel every so many beats:

▾    **Add**

This many beats: 4 ▴ ▾    with beat offset: 0 ▴ ▾

☐ Snap effect to timings within 0.04 ▴ ▾

**Apply and Exit**    **Apply**    **Exit**    **Undo**    **Redo**

The Beat Wizard

## Selecting the Time Range

The [Beat Wizard](#) can try to determine the tempo of a song as a whole, or of just a portion of the song. Use the "Time Range" settings to tell it which to try. If you select a portion of the song, be sure to click the "Update" button after changing the "From" or "To" times.

Choosing a portion of the song is useful if the song's tempo changes; the Beat Wizard will be more accurate if it only is asked to operate on a section with a near-constant tempo throughout. It may also be useful if the Beat Wizard has a problem with a certain portion of a song; if the beats seem off in a particular spot, you may want to try running the Beat Wizard on that spot individually.

Whenever the sequence is opened, this option will be set to "Play the entire song". If you change

this to "Play part of the song", that option will be used as long as the sequence is open, or until you change it back to "Play the entire song".

The time range will be set as follows:

- If there is a [freeform playback range](#) defined, that range will be used, otherwise
- If there is a [selection](#) on the sequence grid, its time range will be used, otherwise
- The currently visible time range will be used

## Selecting the Tempo

The [Beat Wizard](#) shows its best guess as to the tempo of the [selected portion of the song](#). You can choose to use that tempo, or faster or slower related tempos - for example, three times as fast, or twice as slow. Depending upon the song, one of the related tempos may seem more natural when you [preview](#) it.

Another use of related tempos is to simply insert more timings, allowing for faster lighting effects to be used that are still synchronized to the beat of the song. For example, it is unlikely that a "10x Faster" tempo will seem "more natural" in any sense, because it will probably be too quick to count along with. However, selecting it will, for example, let you set up a [lighting effect](#) with ten different [channels](#) that looks like the lights are quickly chasing each other to the beat of the music.

If a slower related tempo is chosen, you must also choose a "beat offset" to determine which beats of the "best guess" tempo will be selected: You might feel that the best guess tempo is actually twice as fast as it should be - that you would count along to it as "one - and - two - and" instead of "one - two - three - four", for example. If you therefore choose a "2x Slower" tempo, the Beat Wizard will use only every other beat from its "best guess" tempo, but it doesn't know whether to use every first beat or every second beat. So, you can let it know which to use by selecting the "beat offset".

## Previewing

After you choose a tempo to use in the [Beat Wizard](#), you can get an idea of what it will make your lights look like by using the controls in the "Preview" section. Simply click "Start" to start the preview.

The boxes to the right of the button will light up sequentially, in time with the tempo. Only the white boxes will be used; the greyed out boxes will not. However, you can choose how many white boxes there are by selecting the radio button under one of the boxes.

This allows you to make the preview section look more natural - for example, the boxes lighting up sequentially in a song that you count along with as "one, two, three, one, two, three" will look most natural if you select three boxes - doing so will make the same box light up every time you count the same number.

Clicking directly in one of the boxes will reset it so that that box lights up at that moment (and the other boxes follow sequentially from there). This is also useful for making the preview seem more natural - for example, the third box might be lighting up every time that you count "one", and if so, it might look more natural if you reset it so that the first box lights up at that time instead.

None of this has any effect on the [timings](#) or [lighting effects](#) that will be inserted into the [sequence](#) when you decide [what to do with beats](#) - it is merely to help you see how the selected tempo looks

in relation to the song.

Finally, if you are unsatisfied with the selected tempo, simply [choose another tempo](#), or [choose a different portion of the song to analyze](#).

## What To Do with Beats

When you have [selected a time range](#) and a [tempo](#) for the [Beat Wizard](#) to use, and are satisfied with it after [previewing](#) it, you can use the controls in the "What To Do with Beats" section to insert [timings](#), [lighting effects](#), or both, based upon the selected tempo into the [sequence](#).

If you choose "Turn on a channel every so many beats", you will also have to specify the [channel](#), the number of beats, and a "beat offset". For example, to make a set of four channels chase each other in time with the beat, you could:

- Select the first channel, four beats, and a beat offset of zero;
- Click "Apply";
- Select the second channel, four beats, and a beat offset of one;
- Click "Apply";
- Select the third channel, four beats, and a beat offset of two;
- Click "Apply";
- Select the fourth channel, four beats, and a beat offset of three;
- Click "Apply and Exit".

Note that you can apply multiple effects to different channels, all in the same use of the Beat Wizard, by using "Apply" multiple times. You can even apply effects based on different portions of the song or different tempos, all without leaving the Beat Wizard.

### 5.3.5.14.3 The VU Wizard

The [Light-O-Rama Sequencer's](#) VU Wizard can analyze the song associated with a [musical sequence](#) to try to find peaks in the audio - much like a VU meter - and can insert [timings](#) and [lighting effects](#) into the [sequence](#) based upon them.

The VU Wizard is available as an option when [creating a new musical sequence](#), and can be accessed later by selecting [Tools > VU Wizard](#) from the main menu, by right-clicking on a [beat channel](#) name, or by [right-clicking in the sequence grid](#) and opening the [Audio Wizards sub-menu](#).

The VU Wizard supports a wide range of media types, including video media. However, not all types of media or media containers are supported. If the VU Wizard cannot be used with the media file associated with your sequence, you will be presented with a message box alerting you to that fact. Also, the VU Wizard may not be able to be used with very large media files.

- [Selecting a Time Range](#)
- [Attack and Decay Settings](#)
- [The Peak Threshold](#)
- [Preview](#)
- [What To Do with Peaks](#)

**VU Wizard**

**Time Range**

☒ The entire song

☐ Just part of the song    From: 0.30    To: 0.40    **Update**

**Attack and Decay**

Attack: 65.2 milliseconds

Delay: 65.2 milliseconds    **Update**

Presets: **VU Meter**    **Peak Program Meter**    **Peak Meter**

**Peak Threshold**

Time on: 80%

**Preview**

**Start**    ☐    **Stopped**

**What To Do With Beats**

☒ Insert timings into the selected grid whenever the peak threshold is crossed

Fixed Grid: 0.10    **Add**

☐ Turn on the selected beat channel when above the threshold

☐ Snap effect to timings within 0.04    **Add**

**Apply and Exit**    **Apply**    **Exit**    **Undo**    **Redo**

The VU Wizard

## Selecting a Time Range

You can choose to let the [VU Wizard](#) look for audio peaks throughout the entire song, or limit it to a specific portion of the song. If you choose to use only a portion of the song, be sure to hit the "Update" button after setting the "From" and "To" times.

Whenever the sequence is opened, this option will be set to "Play the entire song". If you change this to "Play part of the song", that option will be used as long as the sequence is open, or until you change it back to "Play the entire song".

The time range will be set as follows:

- If there is a [freeform playback range](#) defined, that range will be used, otherwise
- If there is a [selection](#) on the sequence grid, its time range will be used, otherwise
- The currently visible time range will be used

## Attack and Decay Settings

These two values determine how quickly the [VU Wizard](#) will react to changes in the audio volume. "Attack" is how quickly it reacts to increased volume, and "Decay" is how quickly it reacts to decreased volume. The higher the number, the more slowly it reacts to changes.

You can enter specific numbers (make sure to hit "Update" if you do), or you can use one of the "Preset" buttons to simulate common types of audio meters:

- "VU Meter" simulates a standard VU meter, as often found on home stereo systems.
- A "Peak Program Meter" reacts very quickly to increased volume, but very slowly to decreased volume. This causes peaks to last longer.
- A "Peak Meter" reacts instantaneously to changes in volume.

## Peak Threshold

Using the Peak Threshold section, you can tell the [VU Wizard](#) to look for audio peaks on either the left stereo channel or the right stereo channel, or on the sum of the two.

The track bar (slider) represents the threshold for what will be considered a peak. Above the slider's handle is a peak; below the handle is not. The handle can be slid left and right to increase and decrease the threshold.

The "Time On" percentage displayed in this section shows the percentage of the selected time range that is above the specified peak. Updating any of the settings such as the peak threshold, the [attack and decay](#), or the [time range](#) will cause the "Time On" percentage to be automatically updated as well, taking the new settings into account.

When you play the song (using the "[Preview](#)" section), the rows will pulse along with the audio volume, showing blue starting at the left and continuing rightwards based upon how loud the audio is at any given point in time. When the selected stereo channel (or channels) is above the threshold, it will turn red instead of blue.

Note that this is strongly affected by the attack and decay settings - lower values will cause the pulsing to react more slowly to the music, and higher values more quickly. Try playing with the various "Preset" buttons to see this.

## Preview

Clicking the Start button in the [VU Wizard's](#) Preview section plays the song, and pulses the rows in the [Peak Threshold section](#) along with the audio. It also flashes the box in the Preview section whenever the pulse is above the selected threshold.



You can change both threshold settings and the [attack and decay settings](#) during preview, and the VU Wizard will react instantly to such changes. However, only the final settings will be used when you apply the peaks to the [sequence](#) (using the "[What To Do with Peaks](#)" section).

## What To Do with Peaks

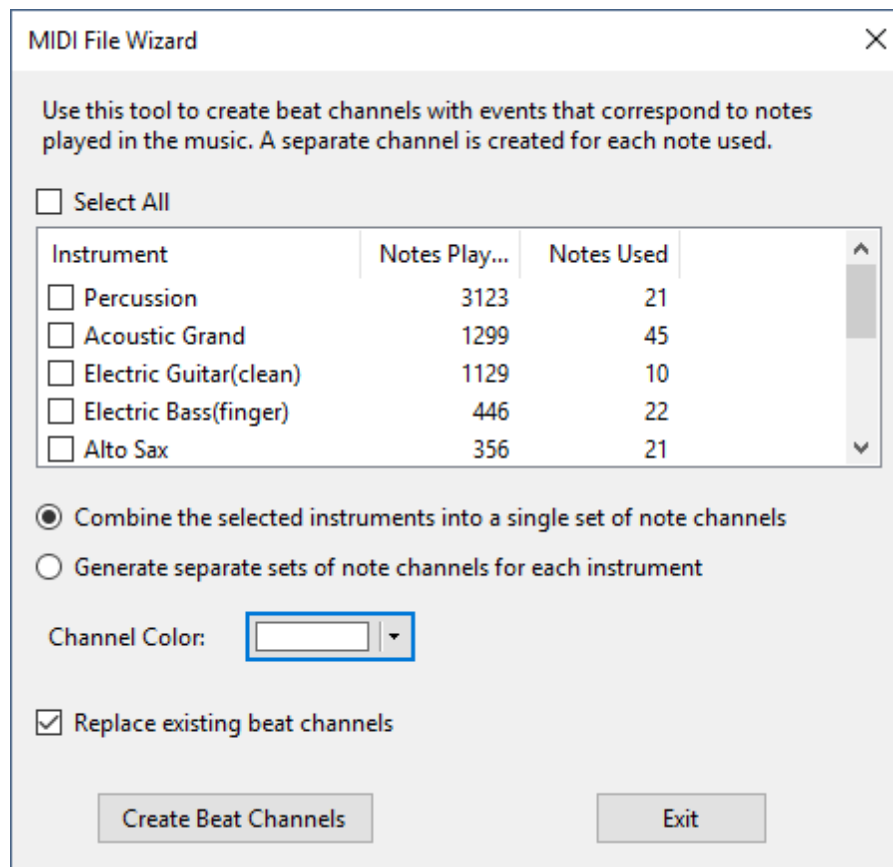
Once you are satisfied with the peaks found using your chosen [attack and decay settings](#) and [peak threshold settings](#), you can apply the peaks to the [sequence](#) using the "What To Do with Peaks" section of the [VU Wizard](#). You can insert a timing every time the threshold is crossed (no matter whether from below or from above), or turn a selected [channel](#) on whenever above the threshold, and off whenever below, or both.

You can reuse the VU Wizard for multiple channels (and multiple settings) without closing it by clicking "Apply" rather than "Apply and Exit".

### 5.3.5.14.4 The MIDI File Wizard

The [Light-O-Rama Sequencer's](#) MIDI File Wizard can be used to automatically populate [beat channels](#) based on a the notes in the MIDI file.

The MIDI File Wizard is available (for musical sequences based on MIDI files) as an option when [creating a new musical sequence](#), or can be accessed later via any of the methods listed in the [Audio Wizards](#) topic.



The MIDI Wizard window

## Select Which Instruments to Include

The window lists all of the instruments used in the song. For each instrument it lists:

- how many total notes are played by the instrument
- the number of distinct notes played by the instrument

Check the boxes next to the names of the instruments you wish to include.

## Combine Instruments?

Click the radio button that indicates how you want the [beat channels](#) created:

- One channel for each note -- combining the notes for all selected instruments
- One channel for each note and instrument (this can produce a lot of beat channels)

## Channel Color

Choose the color that the new beat channels will use when displayed on the sequence grid.

## Replace Existing Beat Channels?

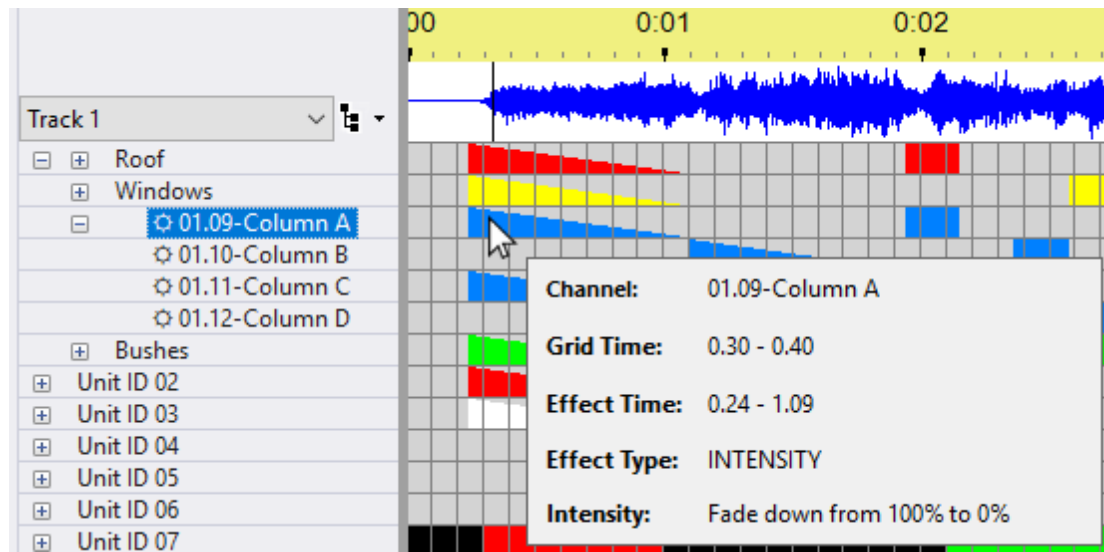
The MIDI wizard can create a lot of beat channels. By checking this box, you can have the existing beat channels deleted and replaced with the new set you are creating. Leave the box unchecked if you want to keep the existing beat channels -- the new ones will be appended to the list.

## Finish

Click the "Create Beat Channels" button to create the new beat channels and close the window.

### 5.3.5.15 Tooltips

When hovering over a cell in the [Sequencer's](#) sequence grid, a tool-tip can be displayed which shows information about the grid cell and any effect it might contain.



Tool-tips can be turned on or off. There are also options for how long to hover before they are displayed and how they should be closed. These settings can be changed in [Sequence Grid Preferences](#).

### 5.3.5.16 Loops in Animation Sequences

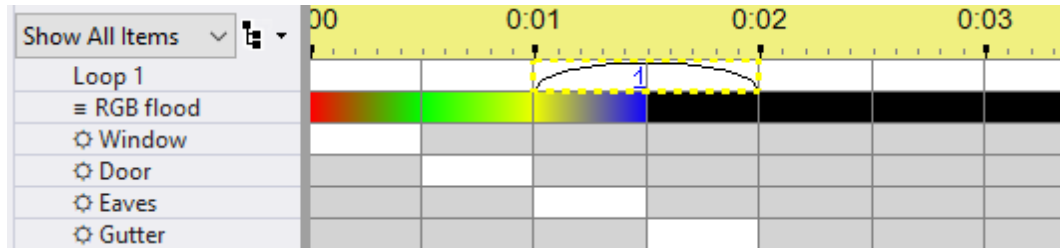
An [animation sequence](#) (but not a [musical sequence](#)) can contain [loops](#). When the [Show Player](#) or the [Sequencer](#) plays a sequence with loops, when the end of a loop is reached, the sequence will go back to the beginning of the loop. This will happen a certain number of times (which you specify), after which the sequence will continue on past the end of the loop.

Each time through a loop, you can have the sequence speed up, slow down, or remain at the same speed.

A sequence can contain many loops. Loops can be nested - that is, a loop can contain other loops.

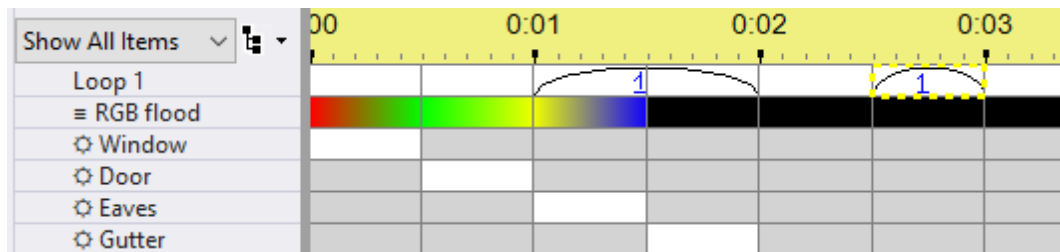
Loop rows are shown with a white background and are fixed to the top of the sequence grid. They do not scroll away when the rest of the sequence is scrolled vertically.

For example, the following picture shows a sequence with a loop starting at 1 second and ending at 2 seconds. The number of times the loop will repeat is shown in the middle of loop (1 in this case). If the loop were to speed up after each pass, then the repeat count would be followed by a "+" symbol. If the loop were to slow down after each pass, then the repeat count would be followed by a "-" symbol. In this case the loop speed is set to stay the same, so no symbol is displayed.



A sequence with a loop starting at 1 second and ending at 2 seconds

More than one loop can be in a sequence. For example, here is the same sequence, with a second loop added, from 2.5 seconds to 3 seconds:



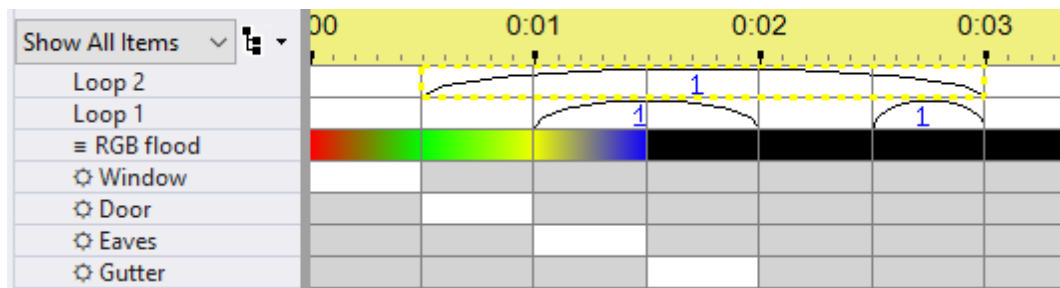
Two loops in a sequence

Subjects covered in this topic:

- [Adding a Loop Row](#)
- [Adding A Loop](#)
- [Modifying a Loop](#)
- [Deleting a Loop](#)
- [Right-Clicking on the Loop Name](#)

## Adding a Loop Row

Loops can contain loops; this is represented by having multiple rows of loops. For example, in the following picture, a second loop level has been added, and a loop was put into it from 0.5 seconds to 3 seconds, thus containing both of the loops of the lowest loop level.

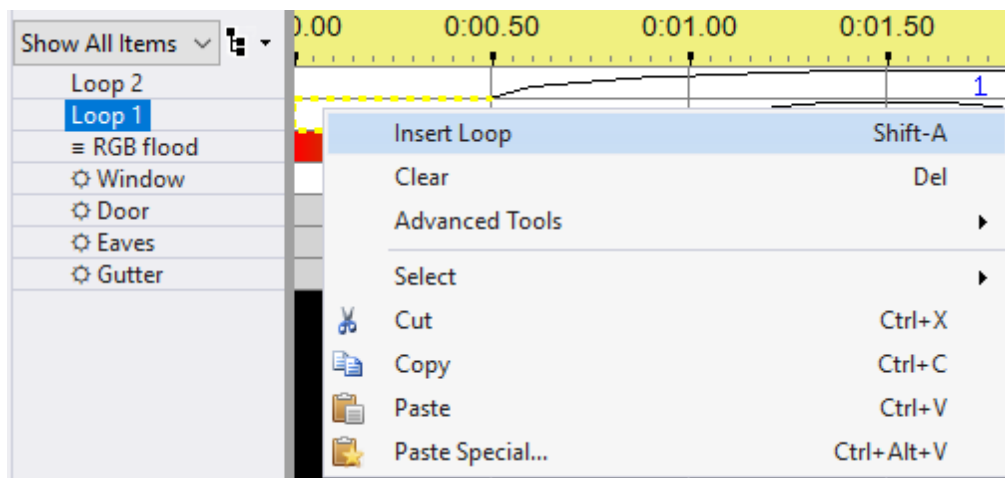


A loop containing loops

To create a loop row, select "Loop Level" from the "Add New" menu present on both the [Sequence menu](#) and the [Grid View menu](#). You can also [right-click on the name of an existing loop](#) to add additional levels. The bottom loop level in a sequence is always labeled "Loop 1"; the one immediately higher than that is labeled "Loop 2", and so on.

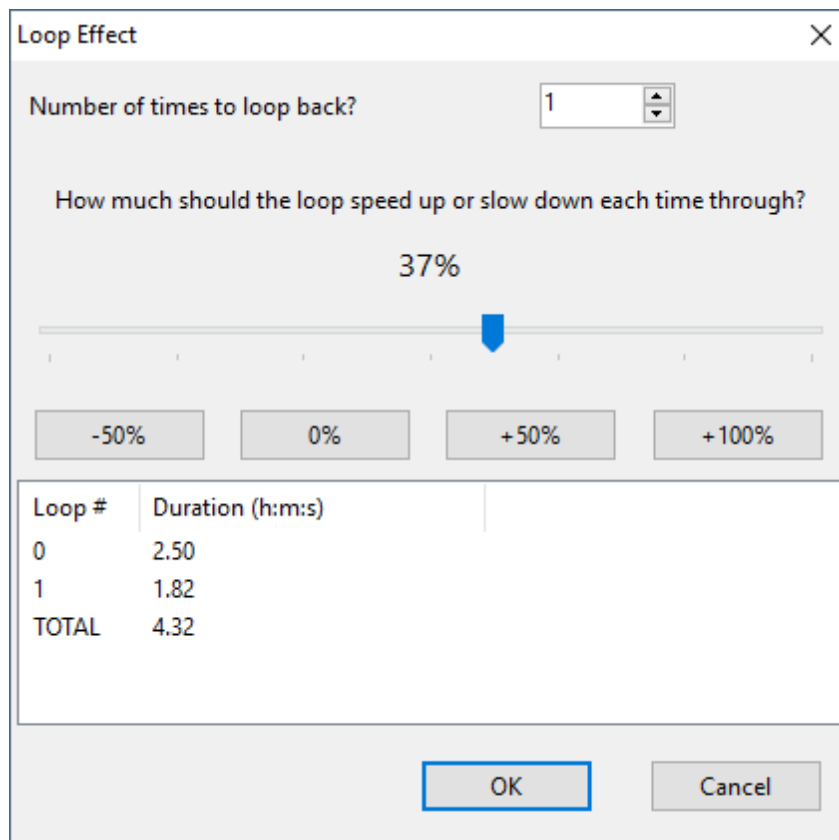
## Adding A Loop

To add a loop to a loop row, [select the desired time range on the row](#), then either right-click and select "Insert Loop" or use the "shift-A" shortcut key.



The Loop Context menu

You will then be prompted for how many times the loop should loop back and whether (and by how much) it should increase, decrease, or remain the same speed in each pass through the loop:



Loop Effect dialog

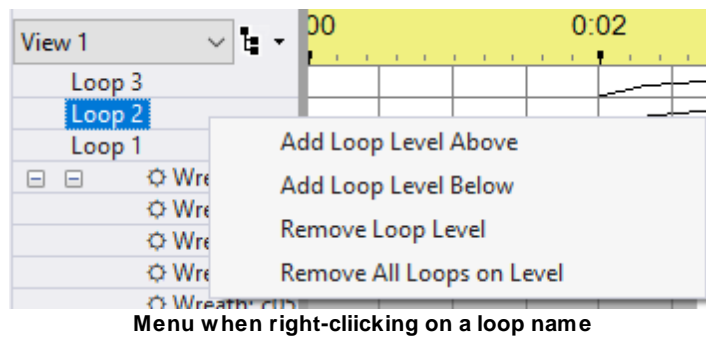
## Modifying a Loop

To modify a loop, just double-click on it -- the Loop Effect dialog will open, allowing you to make changes.

## Deleting a Loop

To delete a loop, [select it](#), then either right-click on the selection and choose "Clear" from the pop-up menu, or use the "Delete" shortcut key.

## Right-Clicking on the Loop Name



Right-clicking on a loop name, such as clicking on "Loop 2" in the picture above, opens the Loop Context menu.

### ***Add Loop Level Above***

This item on the Loop Context menu can be used to add another loop level to the [sequence](#), above the selected loop level. [Loops](#) on the new (higher) level can contain loops within the preexisting (lower) level.

### ***Add Loop Level Below***

This item on the Loop Context menu can be used to add another loop level to the [sequence](#), below the selected loop level. [Loops](#) on the preexisting (higher) level can contain loops within the new (lower) level.

### ***Remove Loop Level***

This item on the Loop Context menu can be used to delete the entire selected loop level, including all [loops](#) on it.

If you wish to delete all of the loops on a level, but to keep the level itself, use [Remove All Loops on Level](#) instead.

### ***Remove All Loops on Level***

This item on the Loop Context menu can be used to delete all of the [loops](#) on the selected loop level, but to keep the loop level itself.

If you wish to additionally delete the loop level itself, use [Remove Loop Level](#) instead.

#### **5.3.5.17 Sharing Sequences**

Sequences created using the [S5 Sequencer](#) can be shared with fellow lighting enthusiasts. To share a sequence, you would send the other person your LOREDIT file. This file includes a copy of the preview for that sequence. However, your sequence may also need other files to play back properly. To see a list of those files, select [Sequence > File References](#) from the main menu.

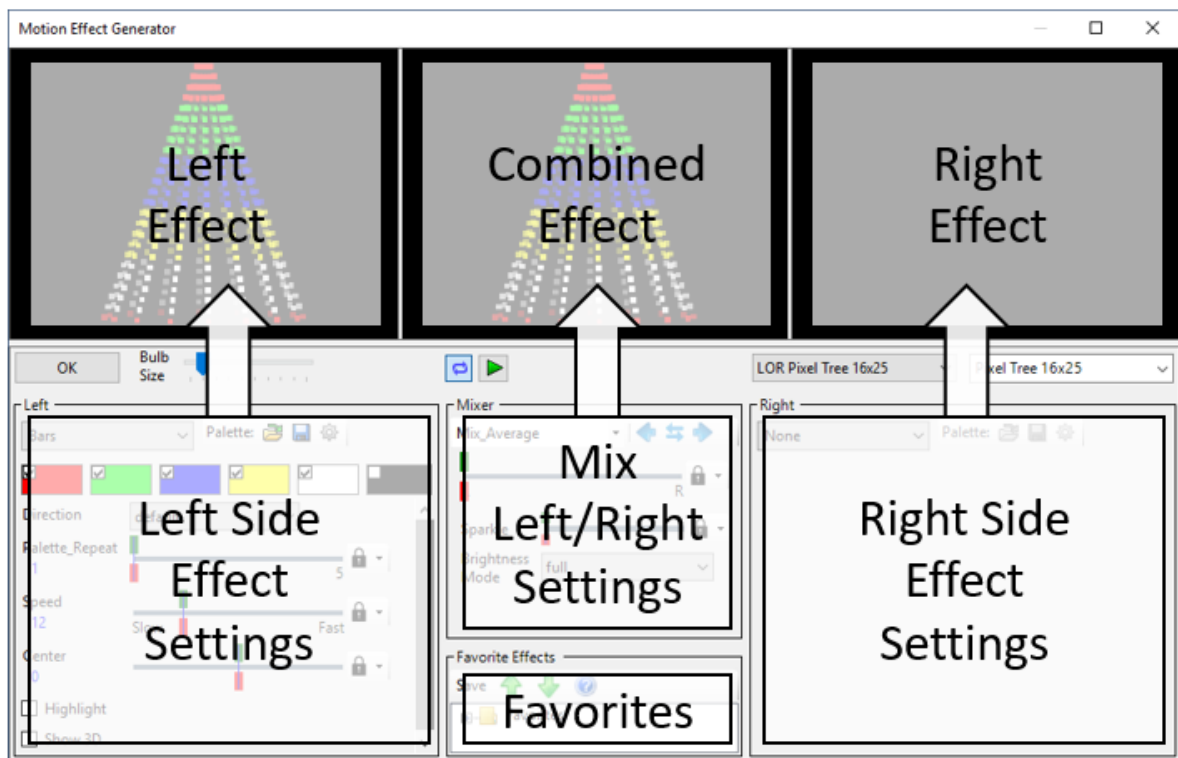
Conversely, if a person shares a sequence with you, they should send you their LOREDIT file and potentially other files. The first time you open their file in the Sequencer, you will receive a pop-up message indicating that the preview was imported. The new preview will have a name like "Imported from JingleBells.loredit on 6/17/2018". After the sequence opens, you should then check [File References](#) to make sure the sequence can find any other files it needs, and make corrections if necessary.

### 5.3.6 Motion Effect Generator

The Motion Effect Generator is the tool used to create and modify [motion effects](#) in the [Light-O-Rama Sequencer](#).

The Motion Effect Generator window has three parts. The left and right sides can each independently generate an effect. The result of those two effects is mixed in the middle. This middle portion is what gets saved to the grid when you click OK to close the Motion Effect Generator window.

- [Opening the Effects Generator](#)
- [Creating an Effect](#)
- [Using the Effect Slider](#)
- [Mixing Two Effects](#)
- [Favorites](#)
- [Effect Length](#)
- [Bulb Size](#)




#### 5.3.6.1 Opening the Motion Effect Generator

The [Light-O-Rama S5 Sequencer](#)'s [Motion Effect Generator](#) can be opened in several ways:

- From the [Tools menu](#).
  - This menu item can be used when no sequences are open to test effects and optionally save the one's you like as [favorites](#). You can do this at any license level.
  - When a sequence is open, this menu item can be used to place a motion effect into the current [grid selection](#). See the [Sequencing](#) topic for more information on how to use the Motion Effect Generator when editing your sequences. Placing motion effects in a [sequence](#) requires the [Pro license level](#).

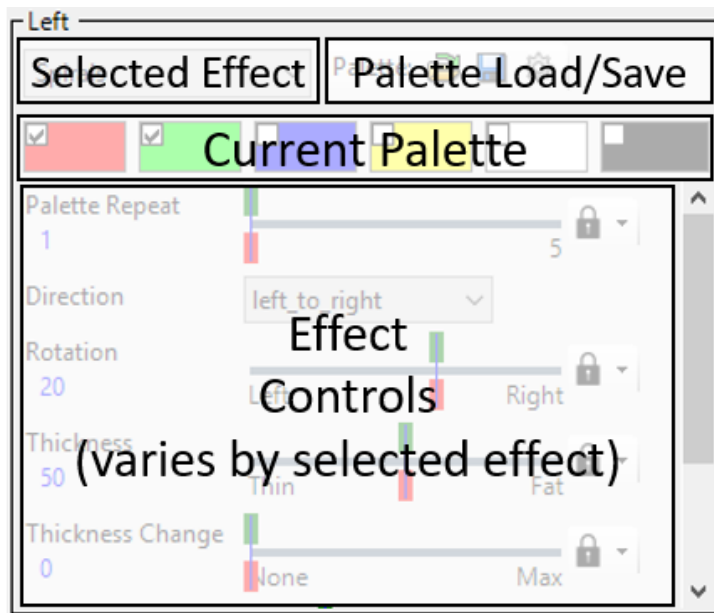


- Double-click on a motion effect on the sequence grid. This will select the entire motion effect and then open the Motion Effect Generator set to this effect. If you make changes and click OK, the changes will be saved back to the selected effect on the grid. This is the fastest way to modify existing motion effects in your sequence.
- Select an empty set of cells on a [motion effect row](#), and then right-click and select Insert Motion Effect from the pop-up menu. Or you can use one of these shortcut keys: shift-A (max intensity), shift-U (ramp up), or shift-D (ramp down). The Effect Generator will open allowing you to choose a new effect. When closed, the new effect will be applied to the selected cells.
- Select a range of cells containing one or more effects on the grid, right-click in the selected area, and choose Prompt For New Effect > Modify Existing Effects from the pop-up menu (or shortcut key shift-M). In this case, the new effect will overwrite the existing effects in the selection. However, the intensity (for example 100% on, ramp up, or ramp down) of the existing effects will be preserved.
- With a [sequence](#) open, click the Motion Effect button  on the toolbar. The pointer will change to the [edit cursor](#) when positioned over the sequence grid. Drag the edit cursor over some cells on a motion effect row. The Motion Effect Generator will open, allowing you to build a motion effect.
- Double-click on a thumbnail in the [Motion Effects window](#). The Motion Effects window can only be displayed when you have a [Pro license](#).

#### 5.3.6.2 Creating an Effect

When creating an effect in the [Sequencer's Motion Effect Generator](#), the left and right sides operate identically. However, it is recommended to always start on the left side, just to be consistent. On the effect settings panel, you can:

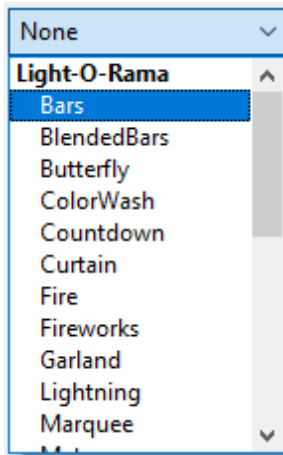
- [Select an effect](#)
- [Select colors from the current palette](#)
- [Load and save the color palette](#)
- [Modify effect parameters](#)



Effect Settings Panel

## Select An Effect

The first step in creating an effect is selecting the effect from the drop down list. The list is grouped by effect author/publisher.



The best way to get familiar with the effects is to try each one.

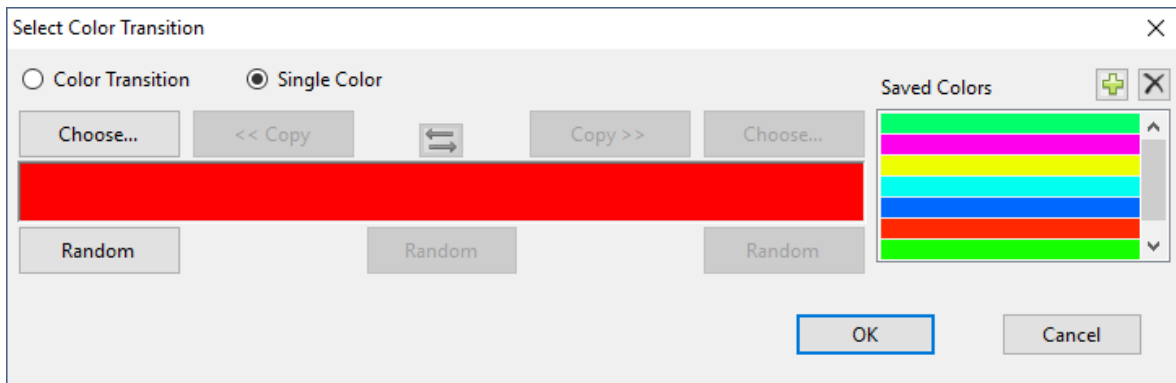
## Select Colors From The Current Palette

Choose the colors for the [selected effect](#) by clicking the checkboxes next to the desired colors. Not all effects use every chosen color. For example, the Color Wash effect only uses the first selected color. The Butterfly effect doesn't use any. If you haven't selected any check boxes, the color defaults to white.



The Color Palette

The size of the palette is fixed at 6 entries, but each palette entry can be set to a color of your choosing. Simply click on the color (not the check box), and the Select Color Transition window will open allowing you to choose a previously saved color, a custom color, or a random color. Selecting a single color will cause that color to be used for the entire duration of the effect. Selecting a color transition will cause the color to change over the course of the effect, starting with the color on the left and ending with the color on the right.



The Select Color Transition Window

For some effects, color order is important. Color order can be changed by dragging a color to a new location. To start dragging, click on the color you want to move (avoiding the check box). Then drop it on top of another color square. When you do, the colors will rearrange.


## Load And Save The Color Palette


The current palette (6 colors) can be saved for later reuse. This is controlled using the palette toolbar.



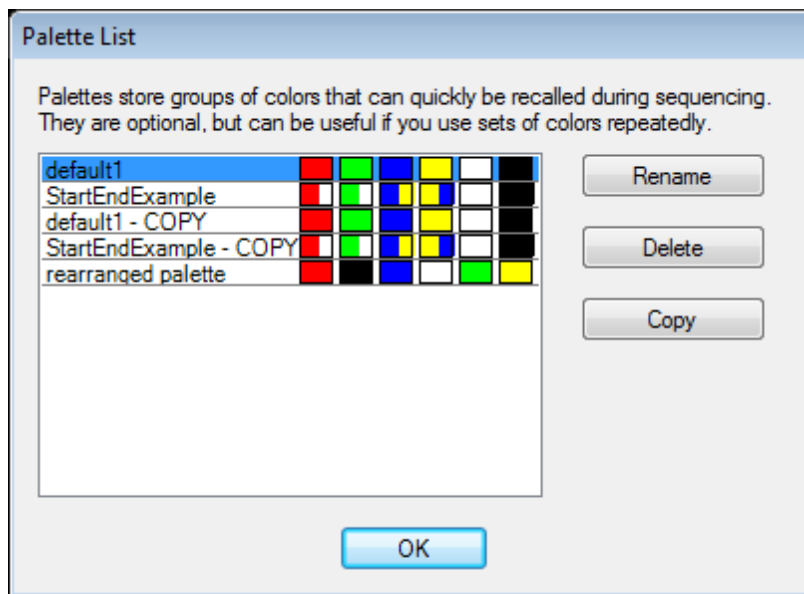
The palette toolbar

 Click this icon to load a palette that has previously been saved

 Click this icon to save the current palette.

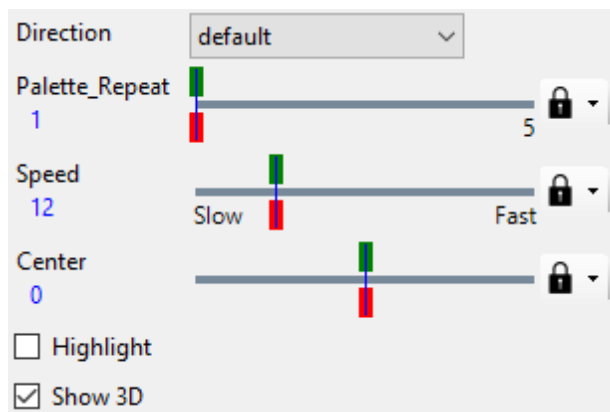
 Click this icon to open the Palette List dialog, which allows you to rename, copy, and delete the saved palettes.

In the Palette List dialog, each palette is listed by name. Following the name are the 6 palette entries. If an entry is split into 2 parts, the left part is the color at the start of an effect and the right part is the color that applies at the end of an effect.



The Palette List dialog

## Modify Effect Parameters




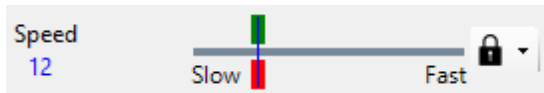
Example of Effect Controls

Below the palette area will be a set of buttons, sliders, and other controls that are specific to the type of effect you have chosen in the drop down. Each time you [select a different effect type](#), these buttons, [sliders](#), and other controls will change. Modifying a control will change how the effect is displayed. Feel free to experiment with all of the options. That is part of the fun of the Motion Effect Generator – seeing all of the different effects you can make!

### 5.3.6.3 Using the Effect Slider

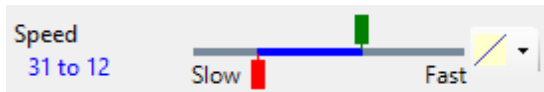
#### Basic Operation

In the [Sequencer's Motion Effect Generator](#), the top of the effect slider is green, indicating the value that will be used when the effect begins. The bottom of the slider is red, indicating the value that will be used when the effect ends. By default, the red and green handles are locked together, which is indicated by the lock icon . In this mode, the value does not change during the course of the effect, and the value can be changed by dragging the top or bottom handle using your mouse.



Speed fixed at 12

However, if you double-click anywhere along the effect slider, the handles will become unlocked and you can set the start and stop values independently. In the example below, the speed will start out fast and then get slower during the course of the effect. To re-lock the start and stop positions, just double-click on the slider again.



Speed starts at 31 and slows to 12

## Keyboard Operation

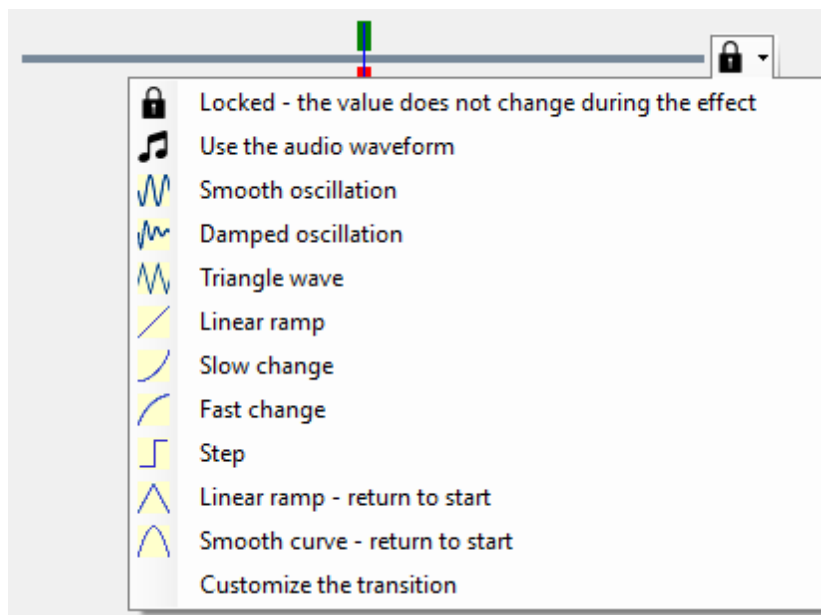
After clicking on a slider using your mouse, the slider will have "focus", meaning that the value can be adjusted using the left and right arrows on your keyboard. A slider with focus will have a box drawn around it, as shown below. You can move focus to the next control using the tab key. You can move focus to the previous control using the shift-tab keyboard combination.



A slider with focus

## Transition Modes

You can customize how the value transitions from the start value to the end value by clicking on the icon to the right of the slider. This will open the menu of choices shown below:

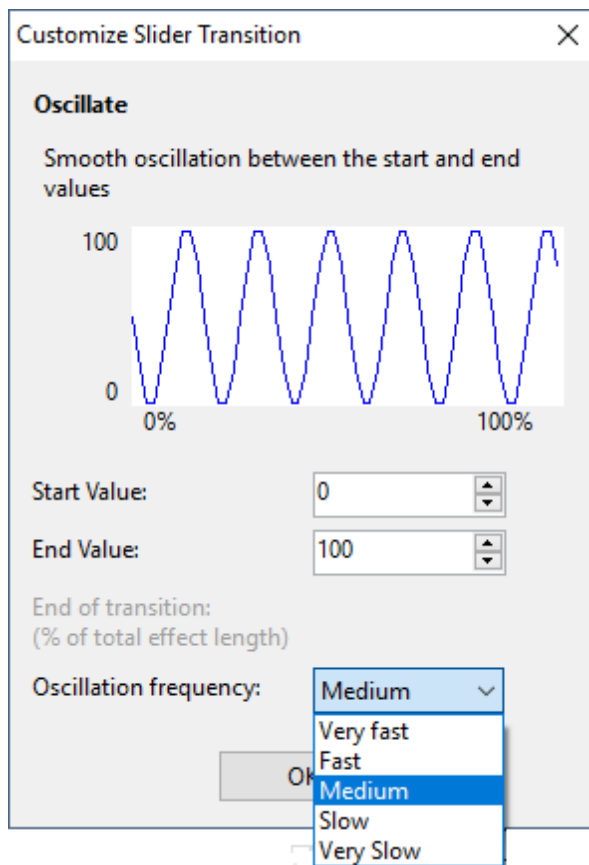


Slider transition menu

Icon	Mode
	Slider is locked. The start and end values are always the same.
	Slider value changes with the loudness of the music. The start value corresponds to low volumes, and the end value corresponds to high volumes.
	Slider value smoothly oscillates between the start value and the end value (sine wave).
	Slider value starts oscillating between the start and end values, but dampens to the mid-point between the start and end values when the effect finishes.
	Slider value ramps back and forth between the start and end values (triangle wave).
	Slider value ramps from the start value to the end value (linear).
	The transition starts slowly and then speeds up.
	The transition starts quickly and then slows down.
	The transition happens all at once (step).
	The slider value ramps from start value to end value and then returns back to the start value.
	The slider value smoothly transitions from start value to end value and back to the start value

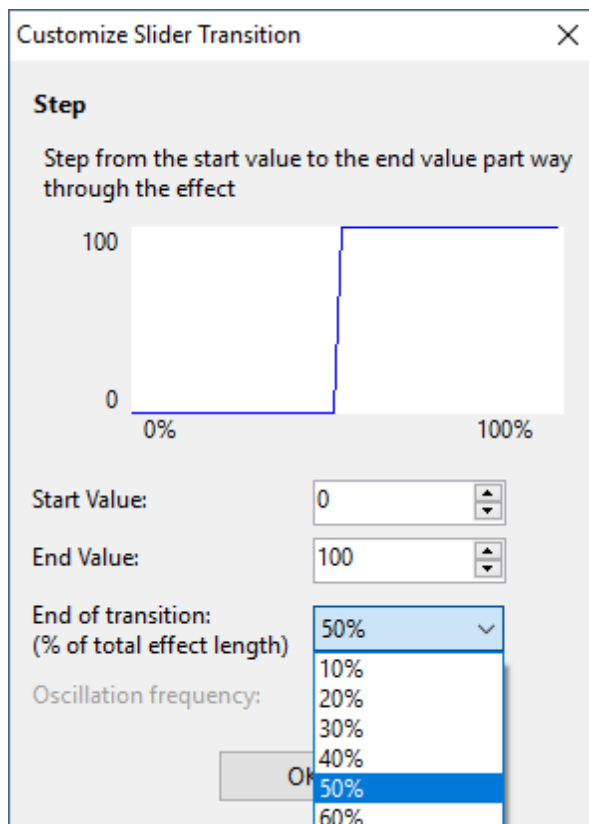
## Customizing the Transition

Opening the slider transition menu and selecting "Customize the transition" (last option) allows you to further customize how the transition occurs during the course of the effect. For transitions that oscillate, you can customize the oscillation frequency as shown below:



**Customizing the oscillation frequency**

For most transitions, you can also customize when the transition ends. This is specified as a percentage of the total effect length. It is especially useful for the step transition mode, as this controls when the step occurs. In the picture below, the step transition is customized to occur at 50% of the way through the effect.



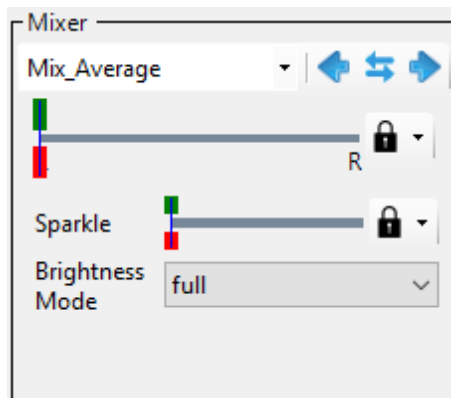
Customizing the end of the transition

#### 5.3.6.4 Mixing Two Effects

In the [Sequencer's Motion Effect Generator](#), you can use just the left side of the window to create your effects. But for even more creative possibilities, you can create a second effect on the right and see the mixed result in the middle. Controls below the middle window adjust how the left and right sides are mixed. You can select the type of mixing with the drop down, then control the strength (more left or more right) using the slider. You can also adjust the brightness of the result using the Brightness Mode drop down.

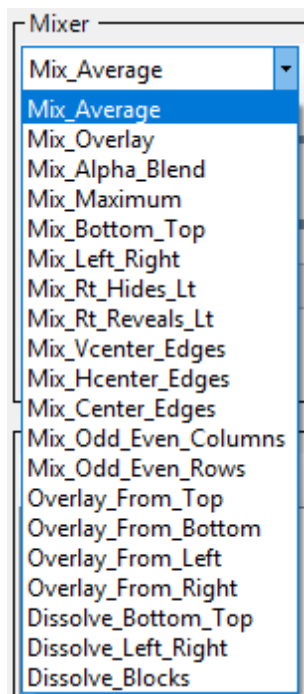
- [Mix Types](#)
- [Copy/Swap Buttons](#)
- [Sparkle](#)
- [Brightness Modes](#)
- [Masking Effects on One Side](#)
- [Masking Effects on Arbitrary Rows or Columns](#)





Mixer Section of the Motion Effect Generator

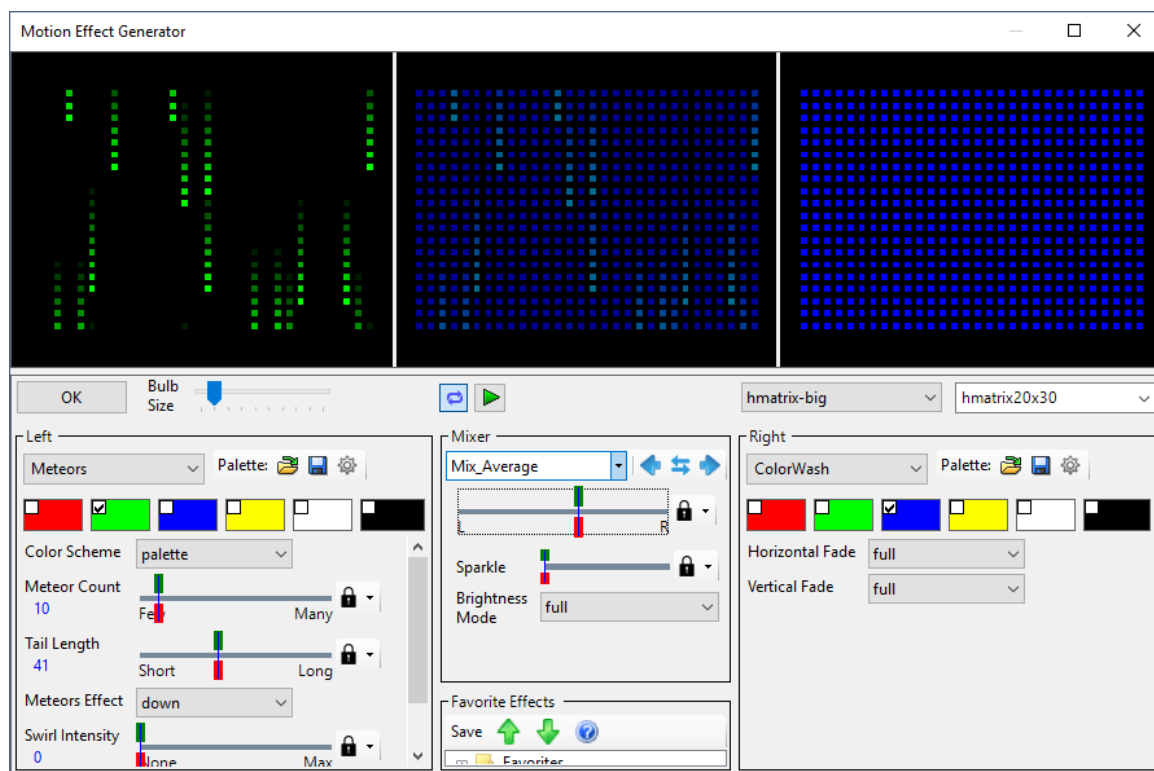
## Mix Types



Mix Types

### **Mix Average**

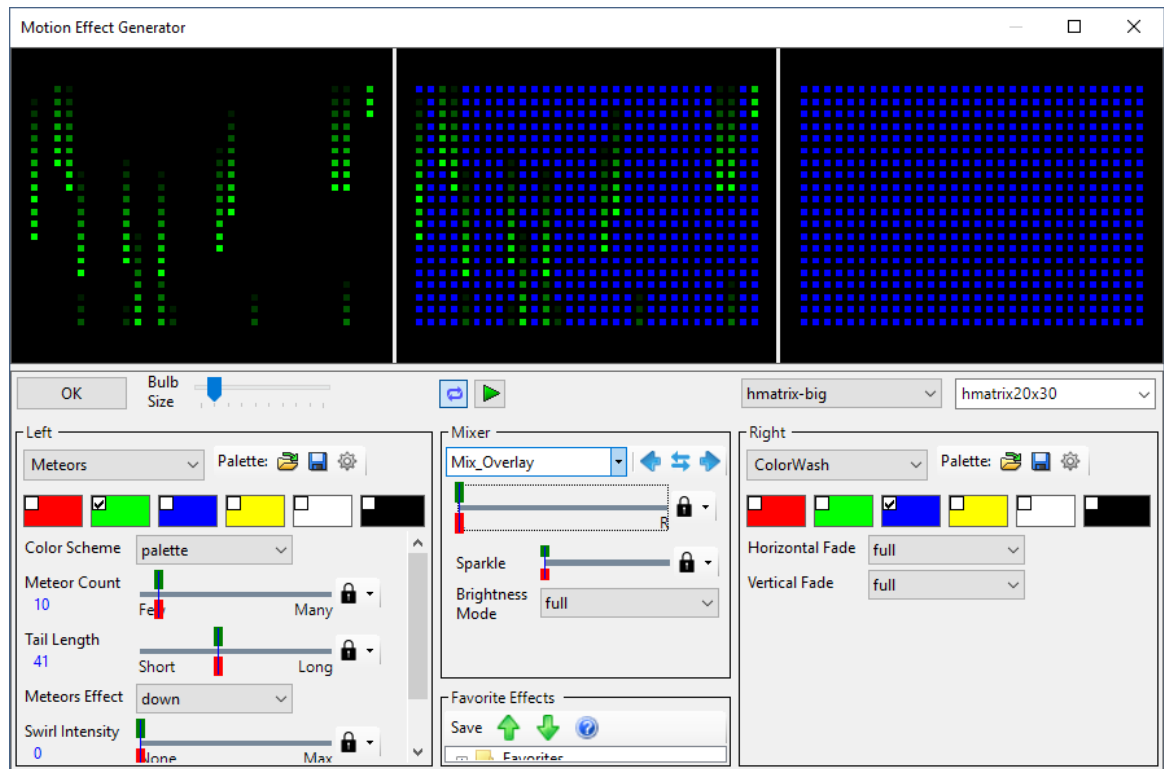
The combined effect is a weighted average of the effect on the left side with the effect on the right side. The weighting is determined by the slider below the Mix Type selector. Setting the slider all the way to the left will result in the combined effect being the same as the left effect. Setting the slider all the way to the right will result in the combined effect being the same as the right effect. Setting a [transition mode](#) on the slider can be used to smoothly transition between the left and right effects.



A 50% mix of left and right, leaves both effects dimmed in the combined effect.

### ***Mix Overlay***

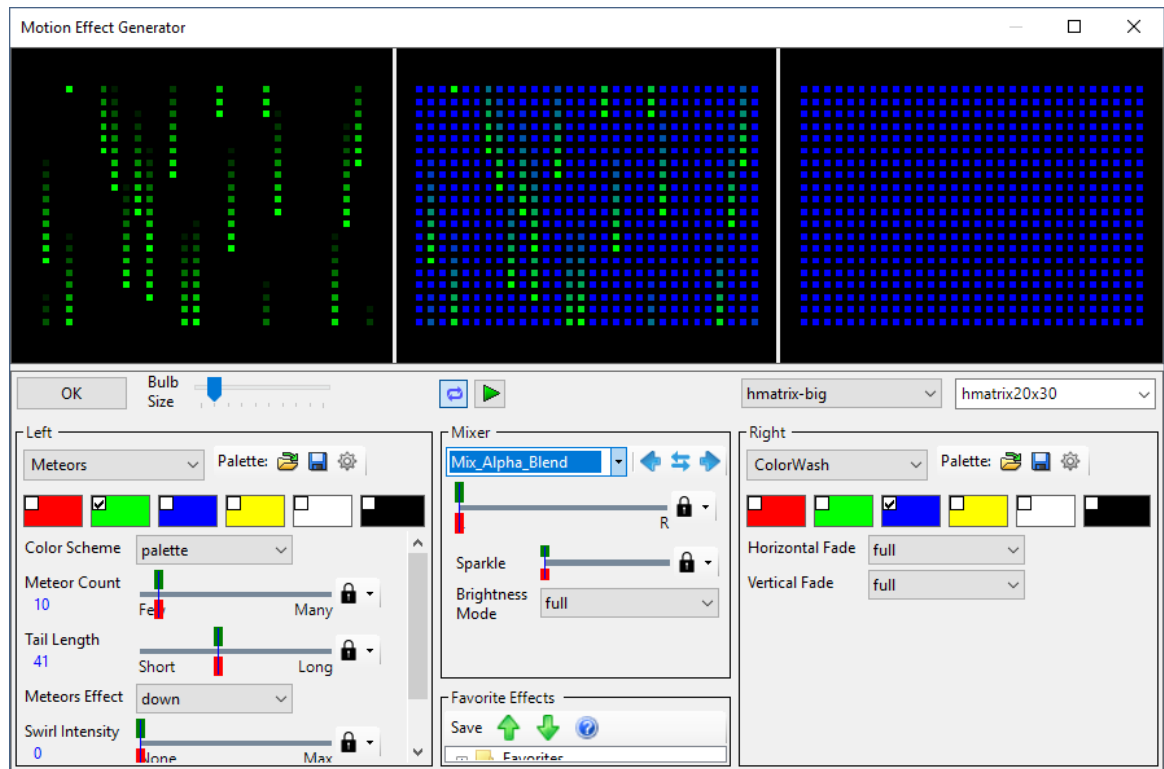
Areas that are completely black on one side, will be replaced by the corresponding area on the other side. Areas that are not black on both sides will behave like Mix Average.



In Mix Overlay mode, the transparency of the meteor tails is not taken into account.

### ***Mix Alpha Blend***

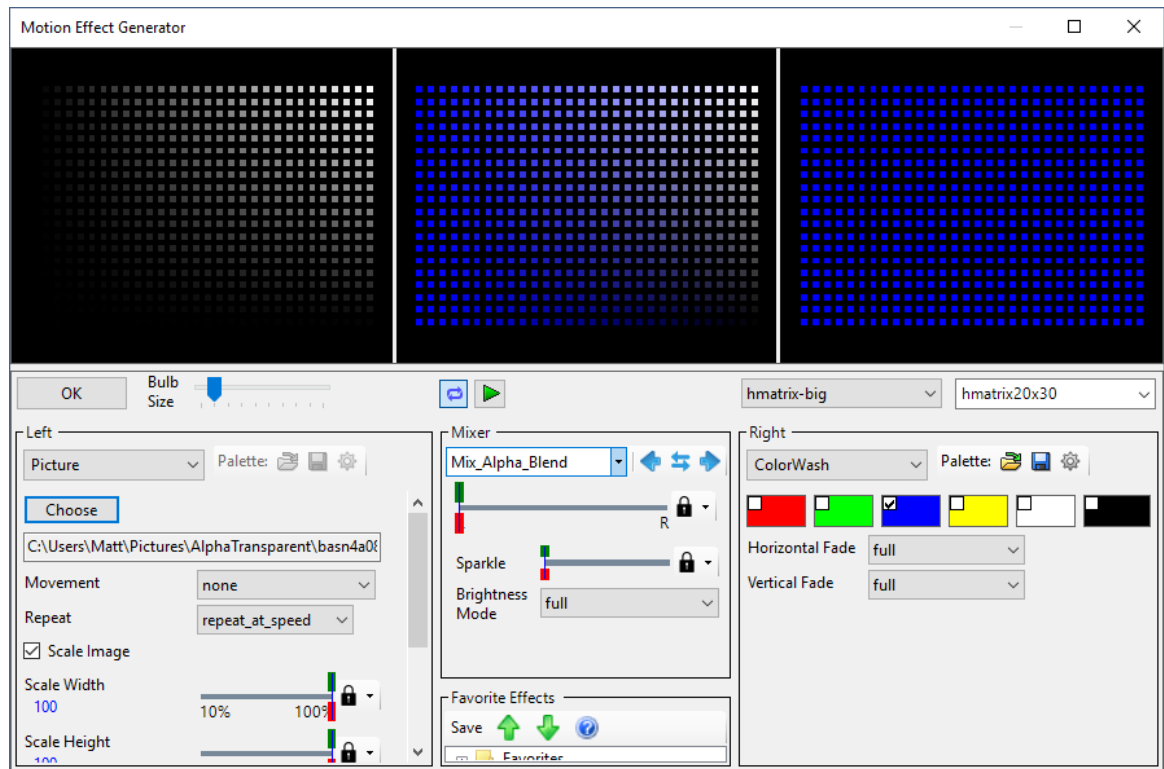
Darkened areas of effects are treated as partially transparent (or completely transparent if black). The combined effect overlays the left effect on top of the right effect, blending the areas that are partially transparent.



**With Mix Alpha Blend, the tails of the green meteors are properly blended with the blue background.**

Note that the Picture effect also supports transparency:

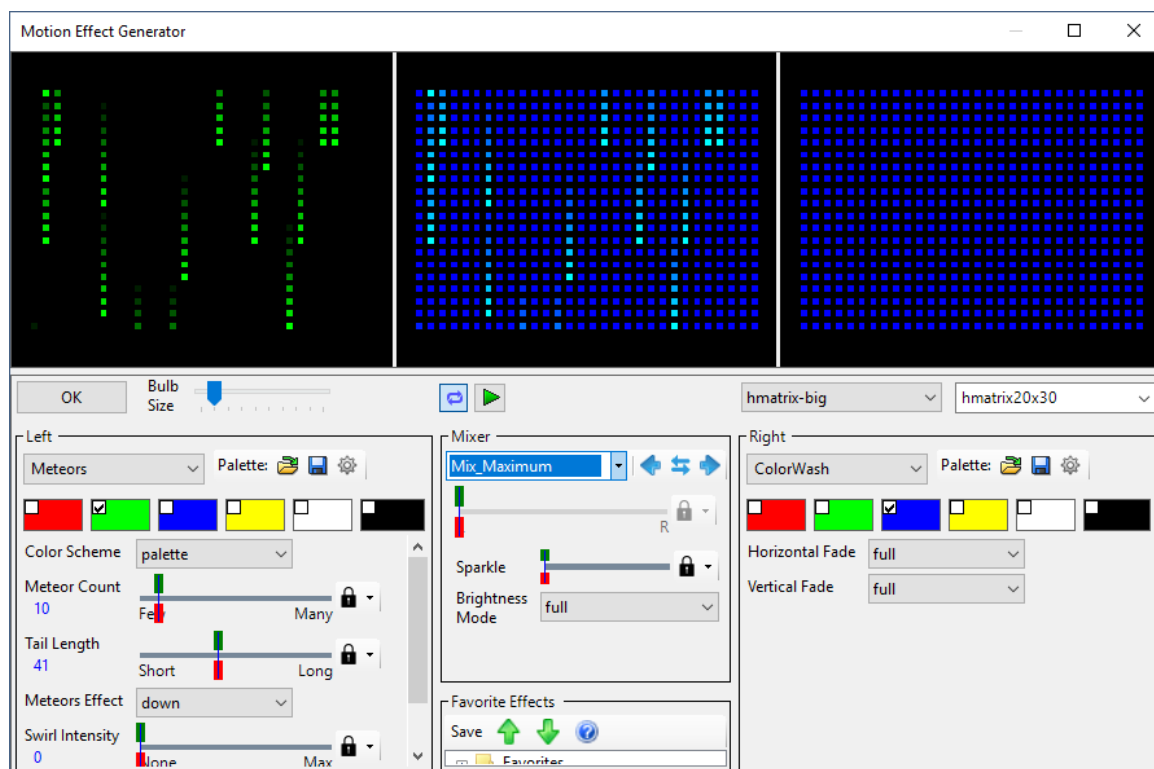
- GIF images can have a single color that is designated as the transparent color, and any pixels with that color are treated as transparent. Thus pixels in a GIF image are either fully transparent or fully opaque.
- PNG images support partial transparency -- any pixel in the image can be fully transparent, fully opaque, or somewhere in between.



**PNG image blended with a blue color wash. The picture on the left is white across the top and gradually fades out to black across the bottom; transparency goes from completely transparent on the left to completely opaque on the right.**

### ***Mix Maximum***

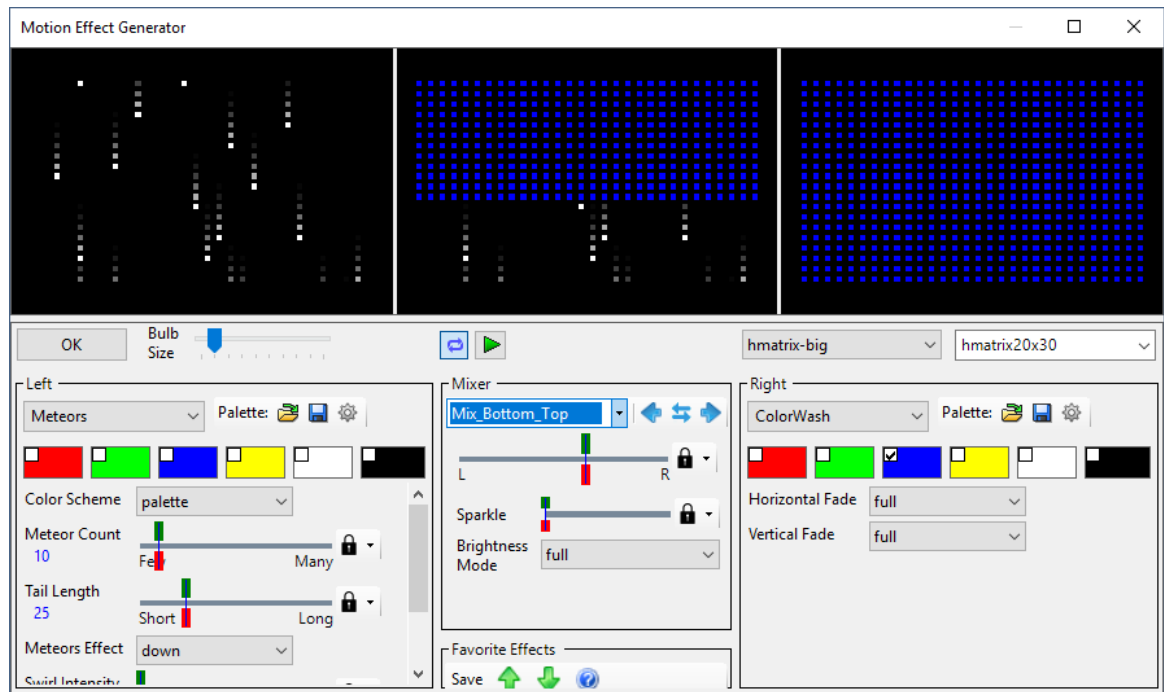
For each pixel in the combined effect, the pixels from both sides are used to achieve maximum brightness. This is calculated as the maximum of the red values from each side, the maximum of the green values from each side, and the maximum of the blue values from each side.



In Mix Maximum mode, the meteor tails get blended, but produce the wrong color (teal instead of green).

### ***Mix Bottom / Top***

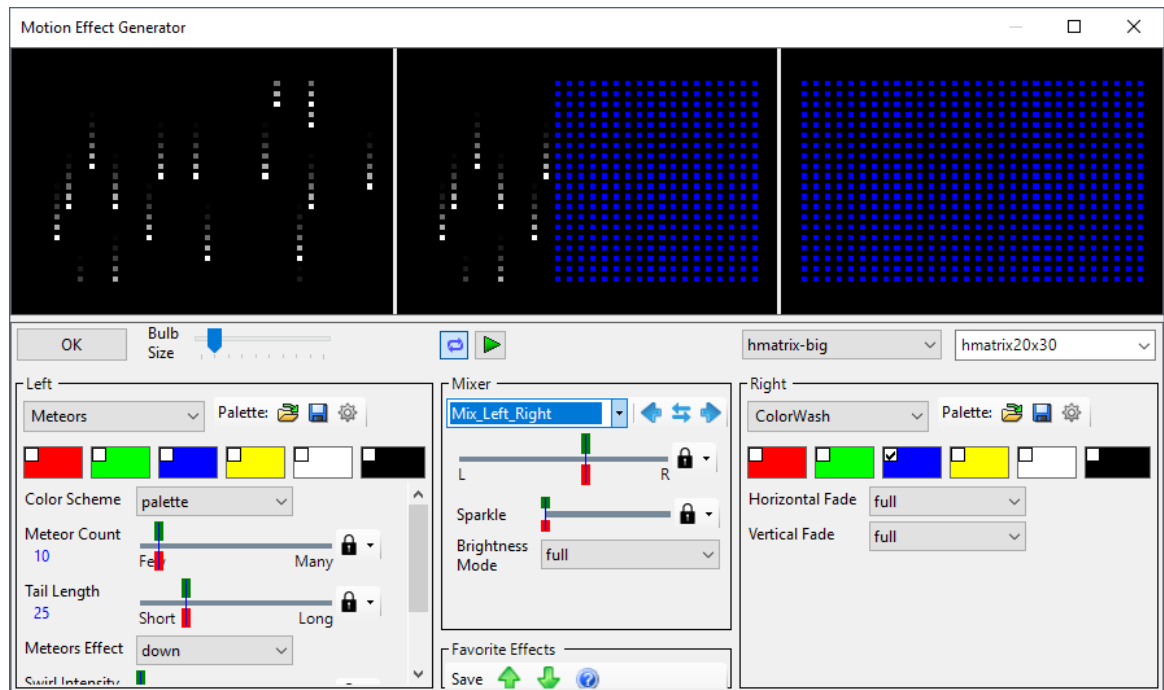
The left effect is used on the bottom portion of the combined effect, and the right effect is used on the top portion. The split between bottom and top is controlled by the slider below the Mix Type selector.



Mix Bottom / Top example

### *Mix Left / Right*

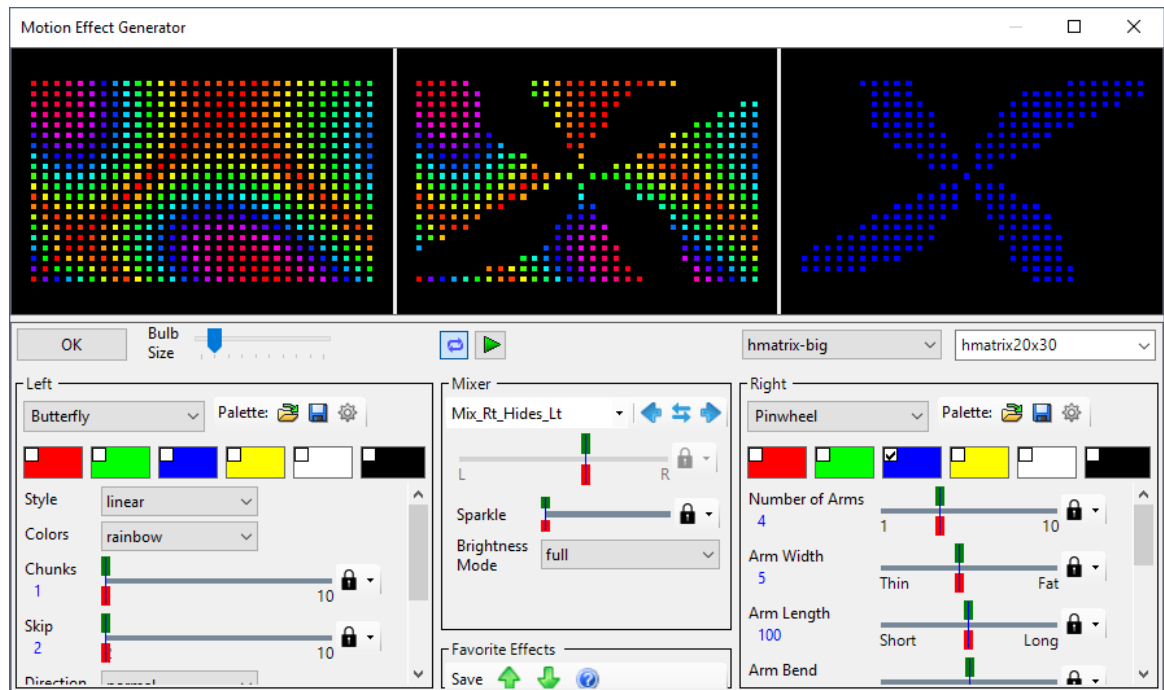
The left effect is used on the left portion of the combined effect, and the right effect is used on the right portion. The split between left and right is controlled by the slider below the Mix Type selector.



Mix Left / Right example

### *Mix Right Hides Left*

The combined effect is the left effect, except where there are non-black pixels on the right. In other words, the right side creates a hole in the left side.

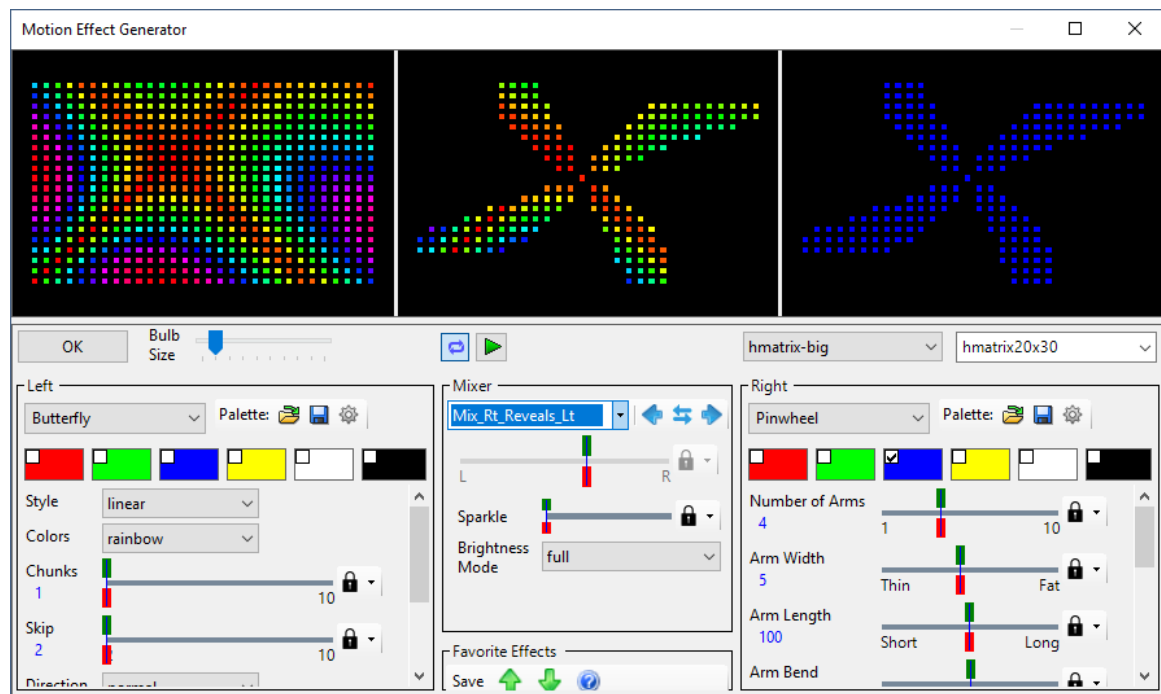


Mix Right Hides Left example

### ***Mix Right Reveals Left***

The combined effect is the left effect, only where there are non-black pixels on the right.

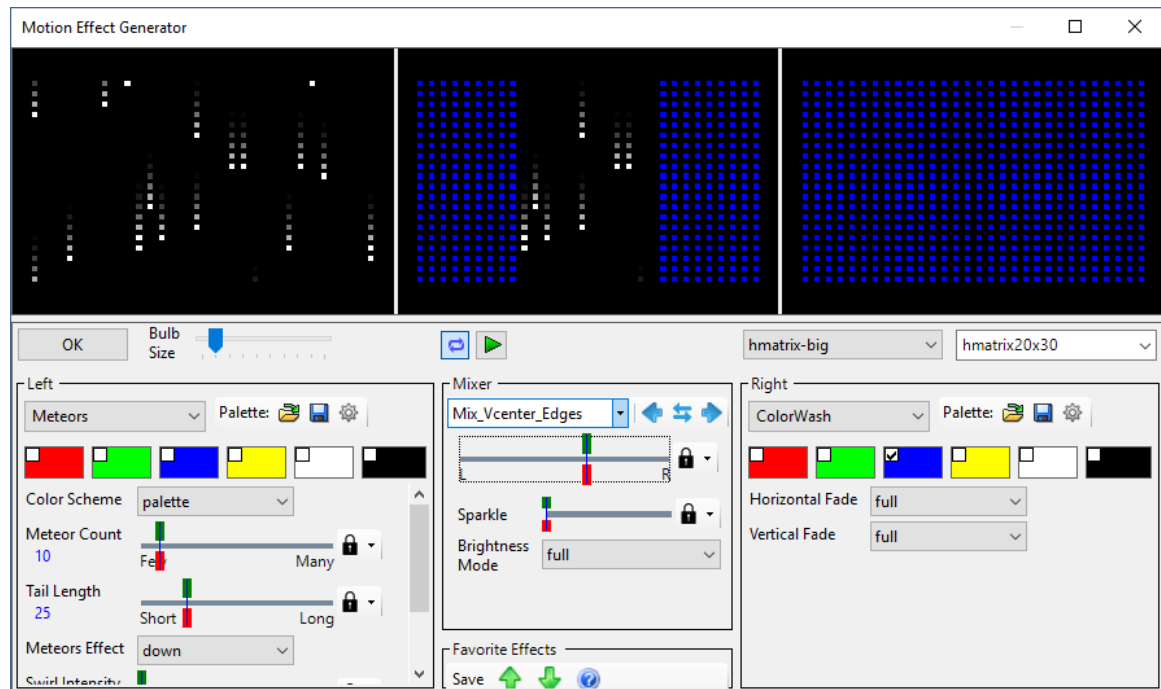




Mix Right Reveals Left example

### Mix Vertical Center / Edges

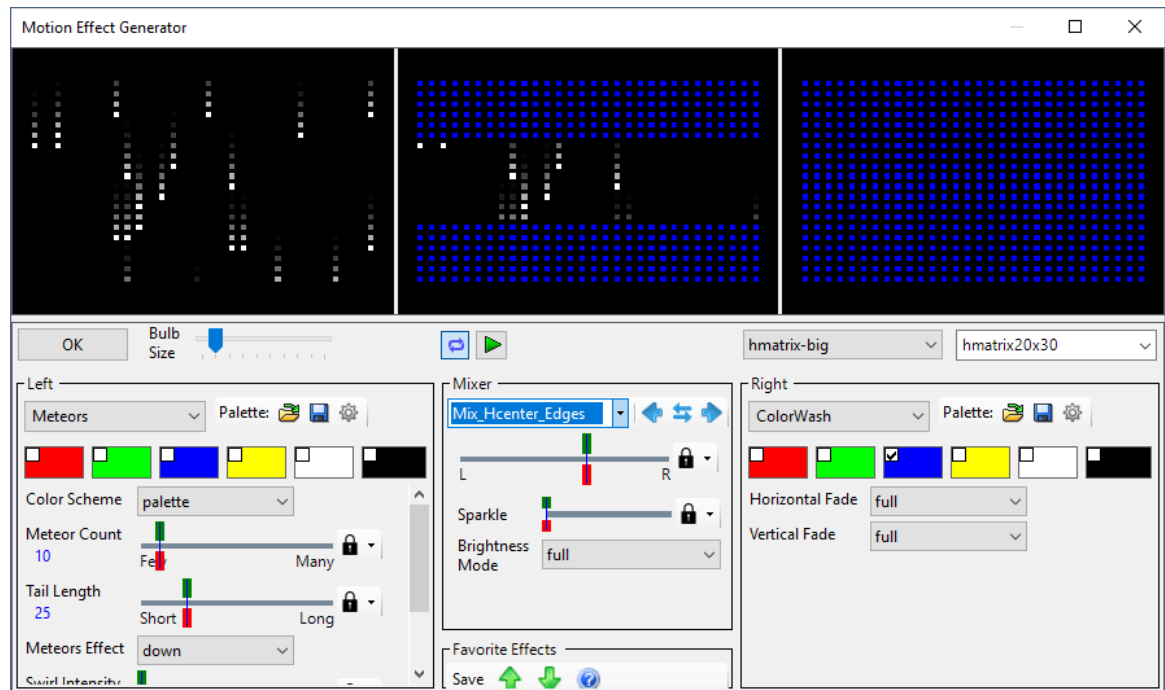
The left effect is used on the center portion of the combined effect, and the right effect is used on the left and right edges. The split between the center and edges is controlled by the slider below the Mix Type selector.



Mix Vertical Center / Edges example

### ***Mix Horizontal Center / Edges***

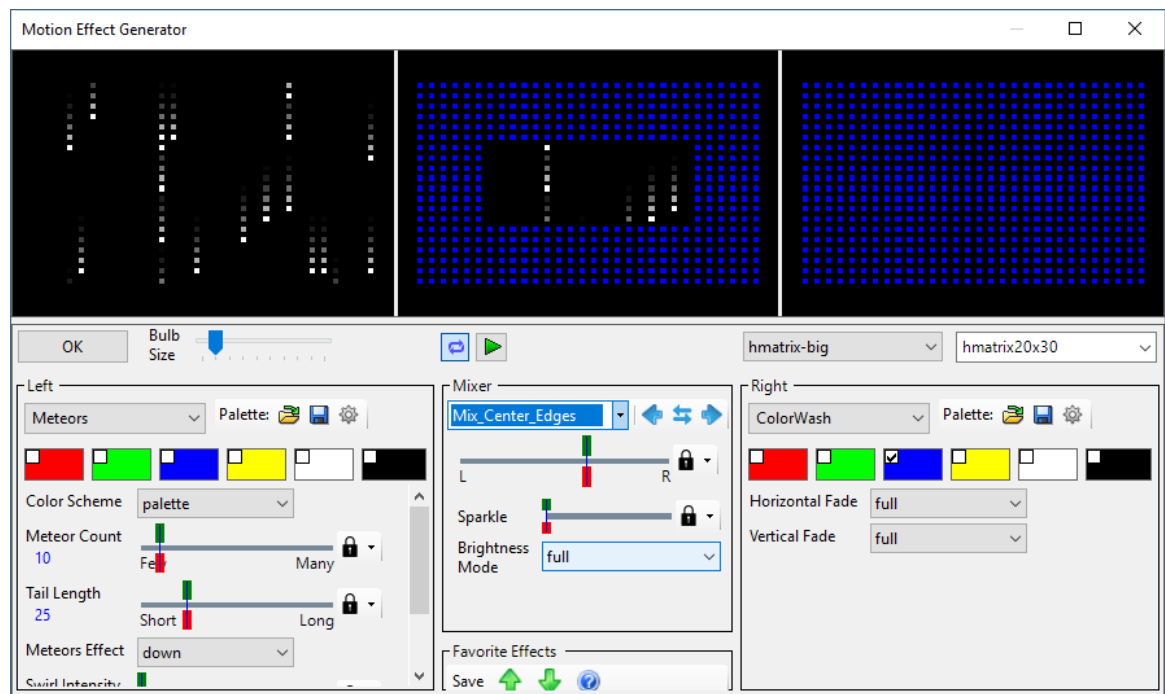
The left effect is used on the middle portion of the combined effect, and the right effect is used on the top and bottom edges. The split between the middle and edges is controlled by the slider below the Mix Type selector.



**Mix Horizontal Center / Edges example**

### ***Mix Center / Edges***

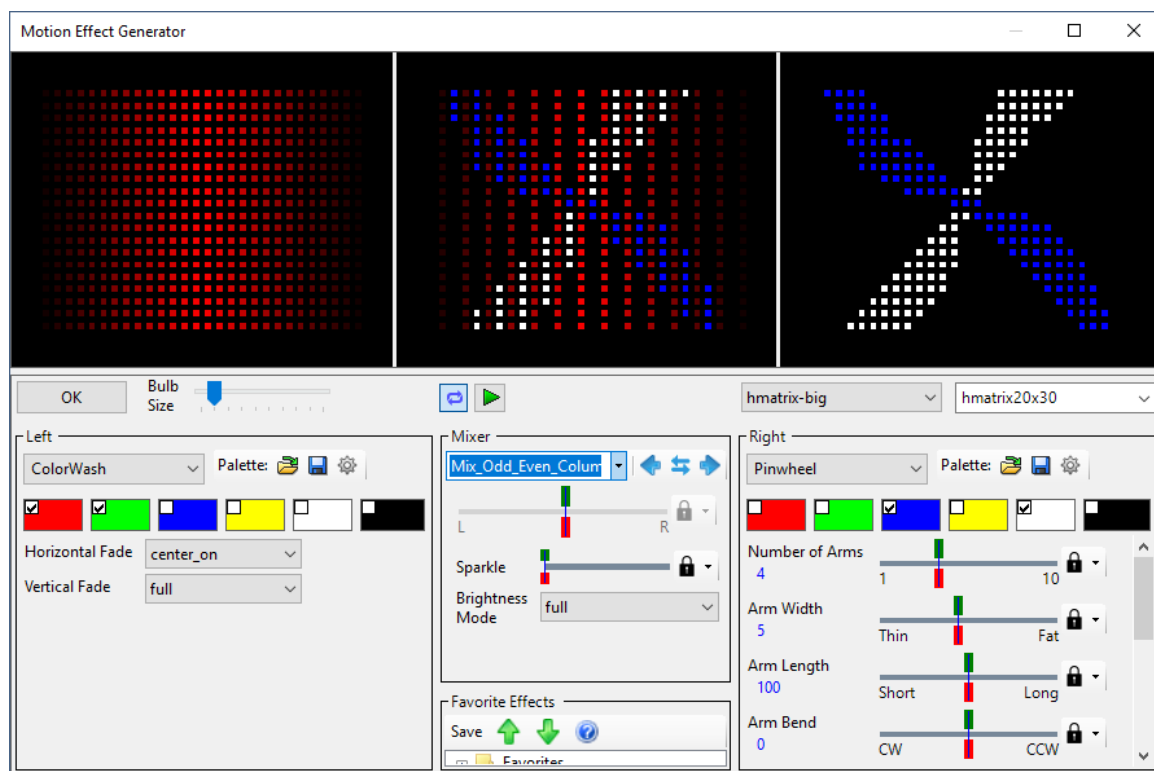
The left effect is used on the center portion of the combined effect, and the right effect is used on all edges. The split between the center and edges is controlled by the slider below the Mix Type selector.



Mix Center / Edges example

### ***Mix Odd / Even Columns***

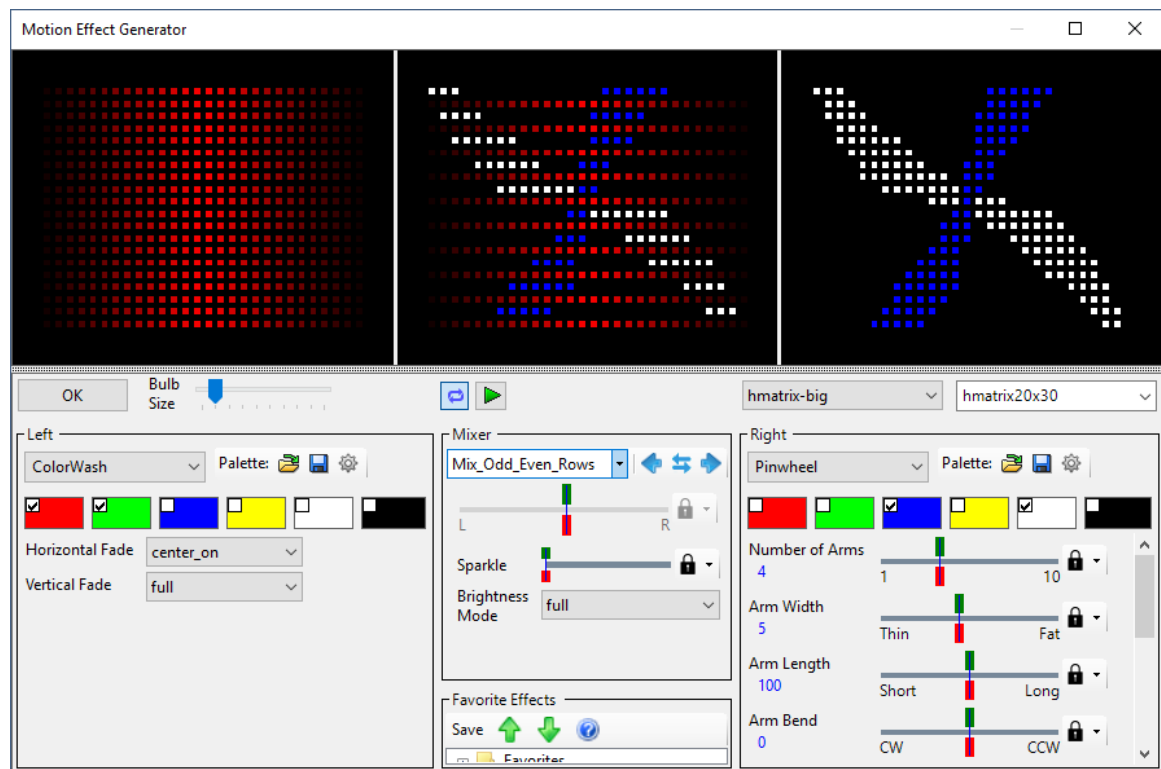
The left effect is used on odd-numbered columns of the combined effect, and the right effect is used on even-numbered columns.



Mix Odd / Even Columns example

### ***Mix Odd / Even Rows***

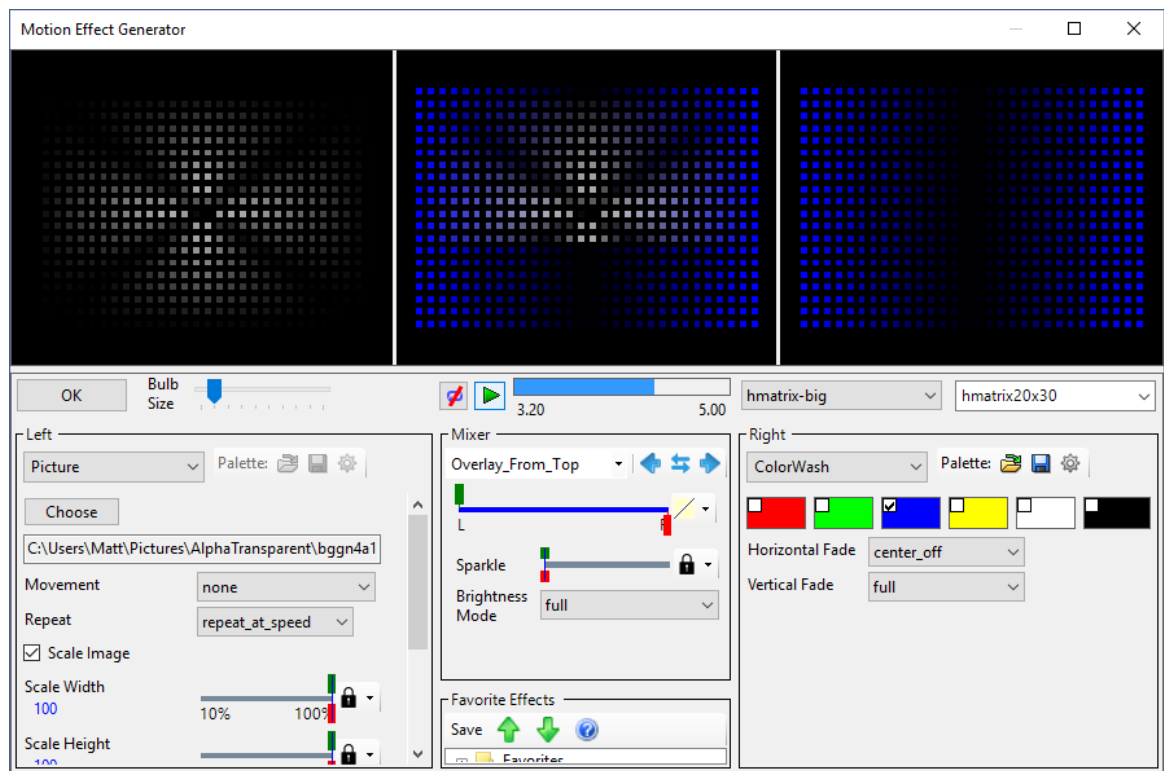
The left effect is used on odd-numbered rows of the combined effect, and the right effect is used on even-numbered rows.



Mix Odd / Even Rows example

### ***Overlay From Top***

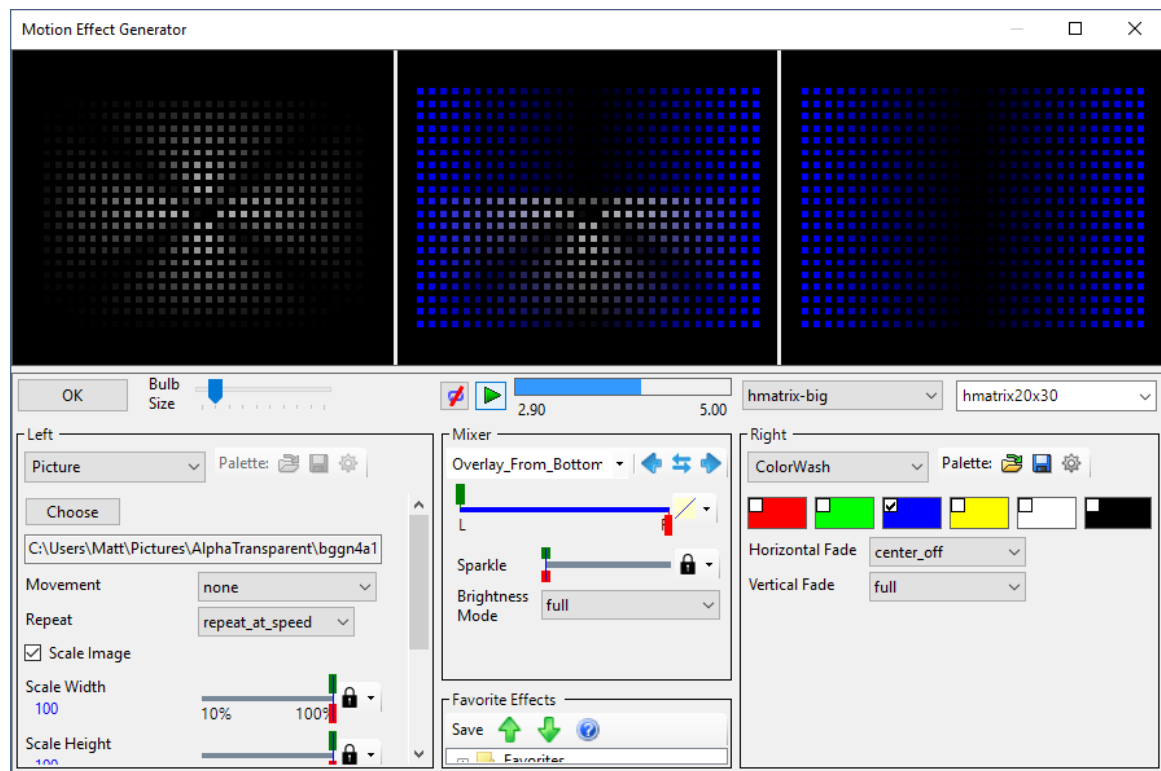
This does an alpha blend on the top and the right effect on the bottom. The split between bottom and top is controlled by the slider below the Mix Type selector.



Overlay From Top example

### ***Overlay From Bottom***

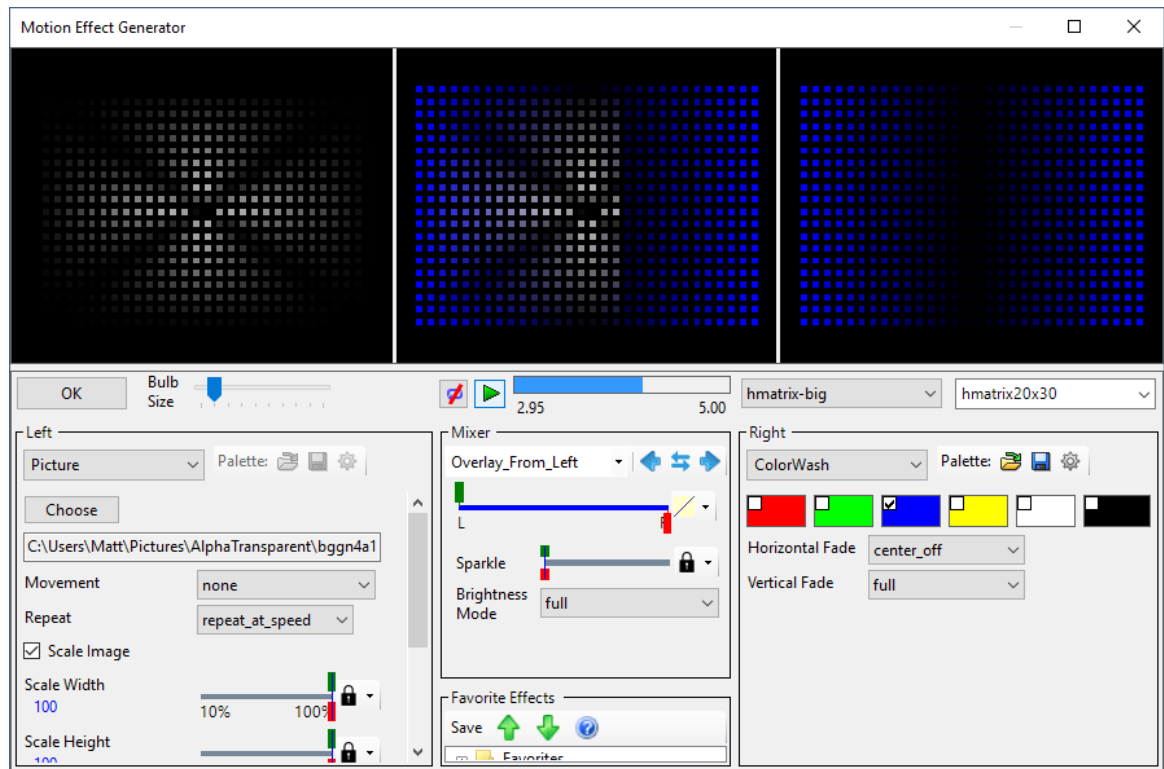
This does an alpha blend on the bottom and the right effect on the top. The split between bottom and top is controlled by the slider below the Mix Type selector.



Overlay From Bottom example

### ***Overlay From Left***

This does an alpha blend on the left and the right effect on the right. The split between left and right is controlled by the slider below the Mix Type selector.

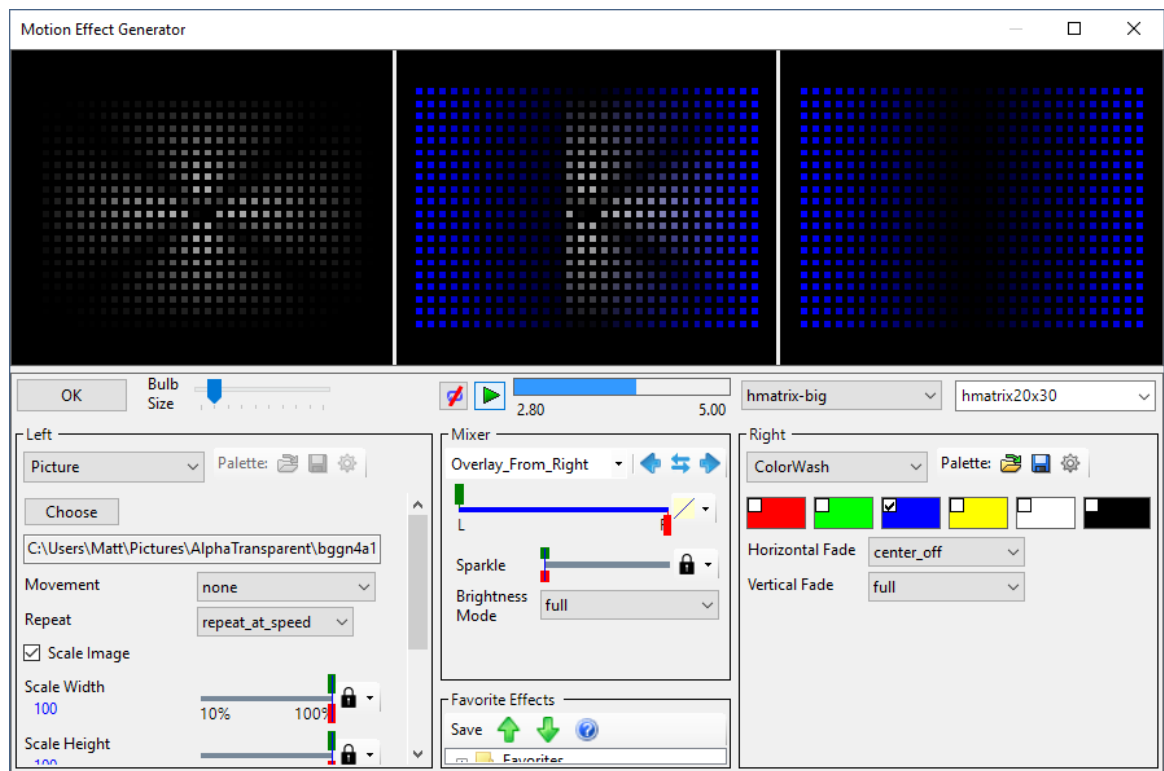


Overlay From Left example

### ***Overlay From Right***

This does an alpha blend on the right and the right effect on the left. The split between left and right is controlled by the slider below the Mix Type selector.

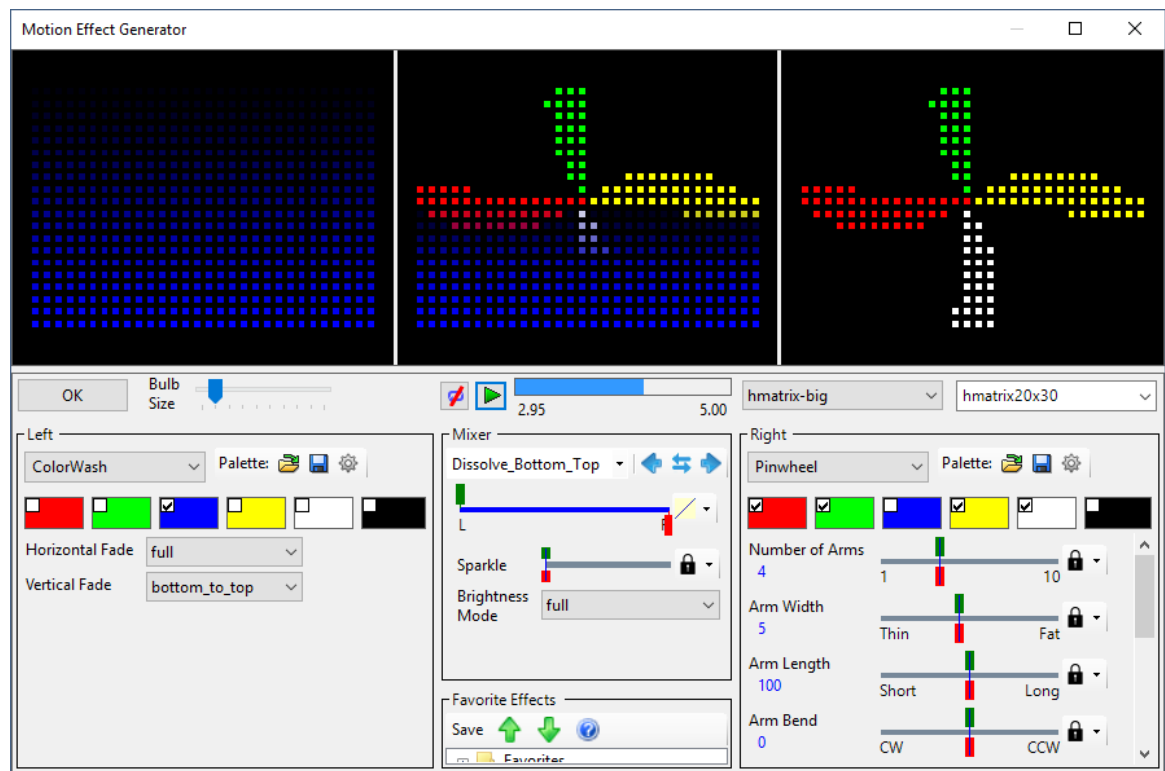




Overlay From Right example

### ***Dissolve Bottom / Top***

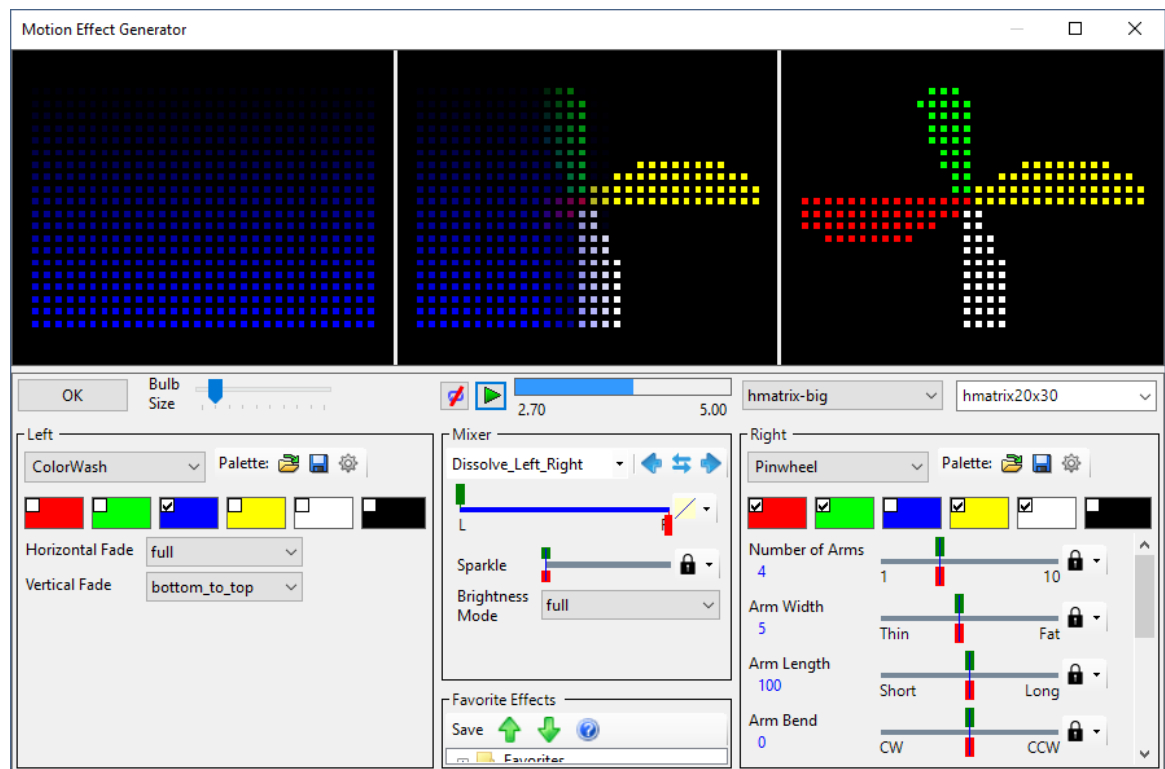
This is like Mix Bottom / Top, except that the transition area is blended.



A transition from the left effect to the right effect, with a blended area in the middle.

### ***Dissolve Left / Right***

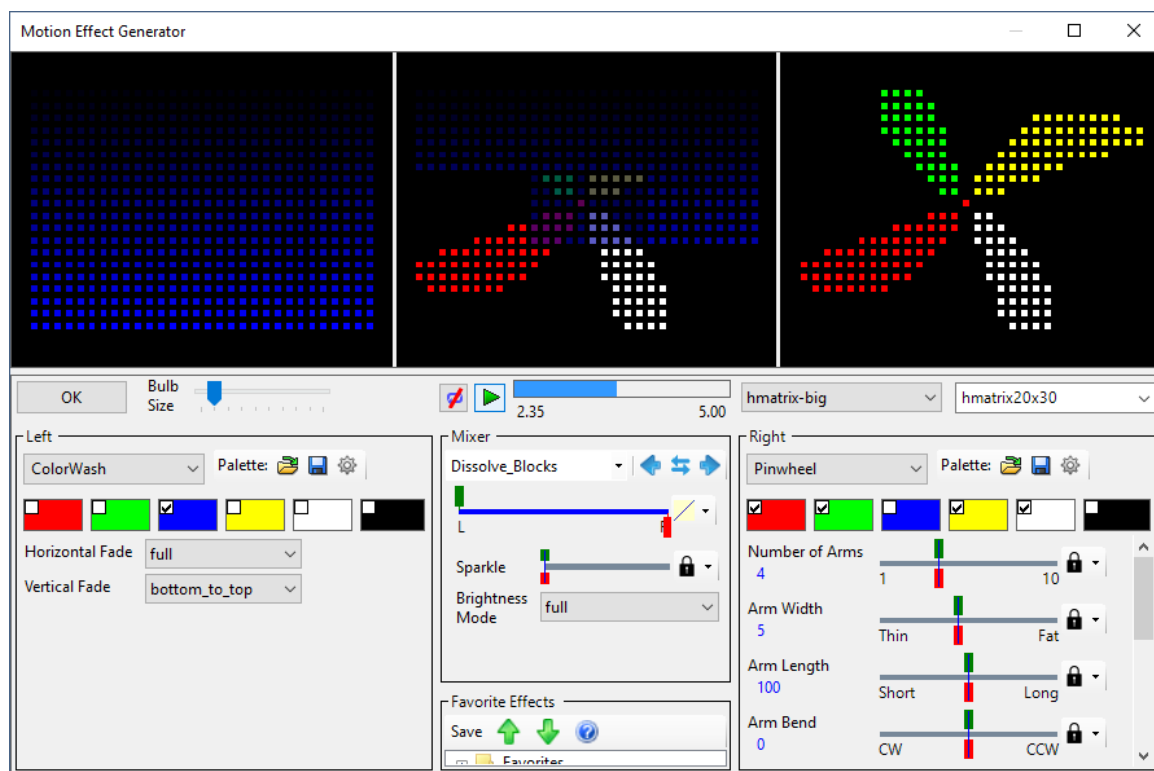
This is like Mix Left / Right, except that the transition area is blended.



A transition from the left effect to the right effect, with a blended area in the center.

### ***Dissolve Blocks***




This divides the effect area into 9 sub-blocks (3 x 3) and transitions one block at a time.



Here, 4 of the 9 blocks have completely transitioned, and the 5th block (center) is partially transitioned.

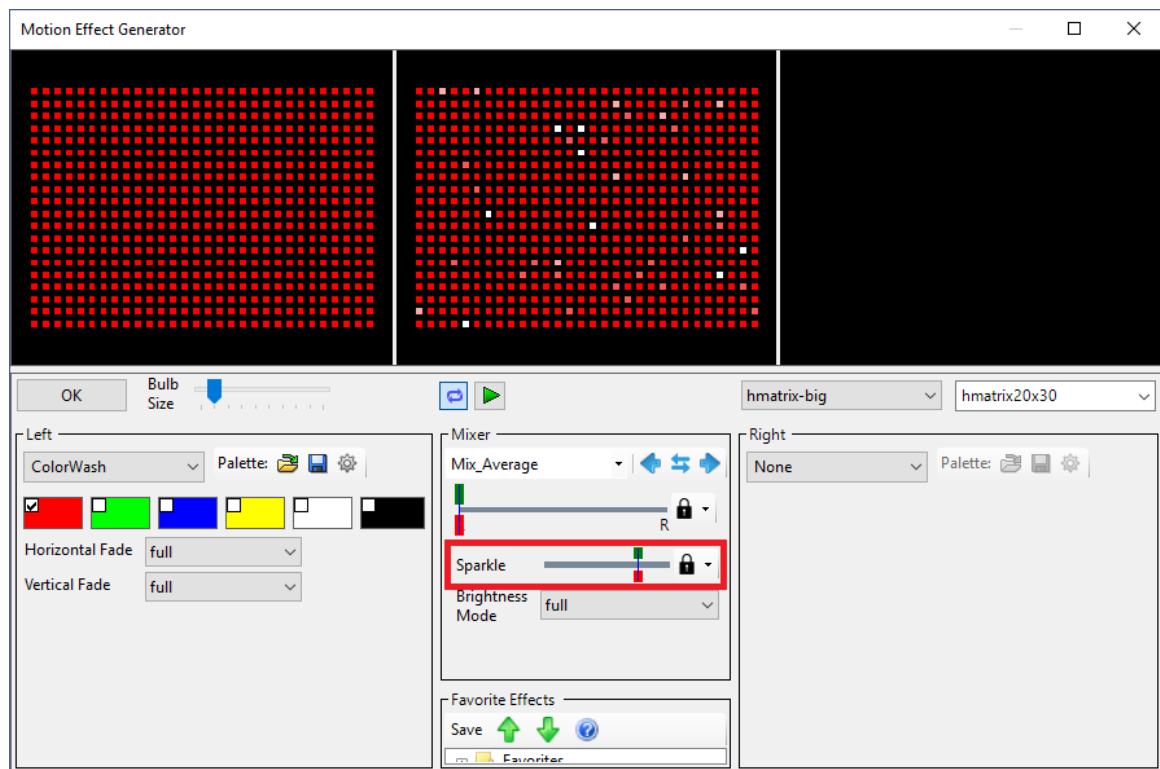
## Copy/Swap Buttons

In some cases, you might want to copy an effect from one side to the other, or to swap them. This can be done using the buttons to the right of the [mix type selector](#). If the buttons are not displayed, try making the Motion Effect dialog wider by dragging the left or right edge of the dialog.

Button	Action
	Copies the effect on the right side to the left side.
	Swaps the effects on the left and right sides.
	Copies the effect on the left side to the right side.

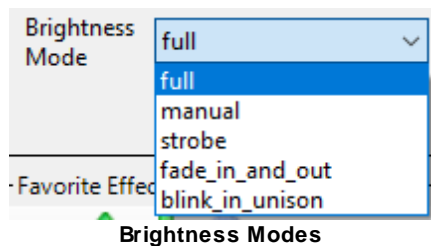
## Sparkle

The Sparkle slider does what it says: move it to the right to add some sparkle to the combined effect. Move it farther to the right and sparkles will be created at a faster rate.



Sparkle applied to a red Color Wash effect

## Brightness Modes



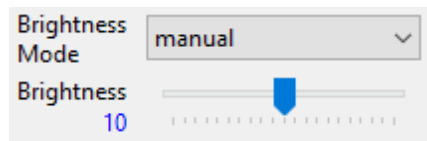
Brightness Modes

### **Full**

The "Full" mode displays the effect at maximum brightness. Note that with the brightness mode set to "Full", the effect can still be dimmed by placing the effect in the sequence grid at less than 100% intensity.

### **Manual**

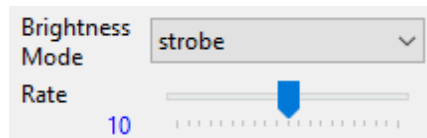
Switching to "Manual" mode will display a slider below the Brightness Mode selector, allowing you to manually adjust the brightness of the combined effect. Move the slider to the left to make the effect dimmer; move it to the right to make it brighter.



Manual brightness example

## Strobe

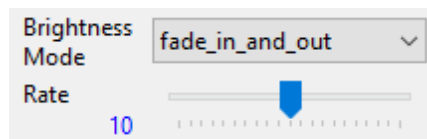
The "Strobe" mode will cause the combined effect to flash with a short "on" time and long "off" time. A slider below the Brightness Mode selector allows you to adjust the flash rate. Move the slider to the left to make the flash rate slower; move it to the right to make it faster.



Strobe example

## Fade In And Out

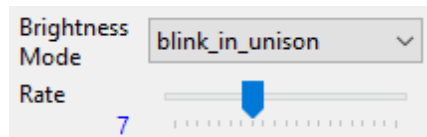
The "Fade In and Out" mode will cause the combined effect to smoothly fade in and out. A slider below the Brightness Mode selector allows you to adjust the fade rate. Move the slider to the left to make the fade rate slower; move it to the right to make it faster.



Fade In And Out example

## Blink In Unison

The "Blink In Unison" mode will cause the combined effect to flash with equal on and off times. A slider below the Brightness Mode selector allows you to adjust the blink rate. Move the slider to the left to make the blink rate slower; move it to the right to make it faster. Effects with the same blink rate on multiple props will result in those props blinking in unison (i.e. the blinking will be synchronized).



Blink In Unison example

## Masking Effects on One Side

If you just want effects displayed on the left or right side of your [prop](#), set the mixer to "Mix\_Left\_Right".

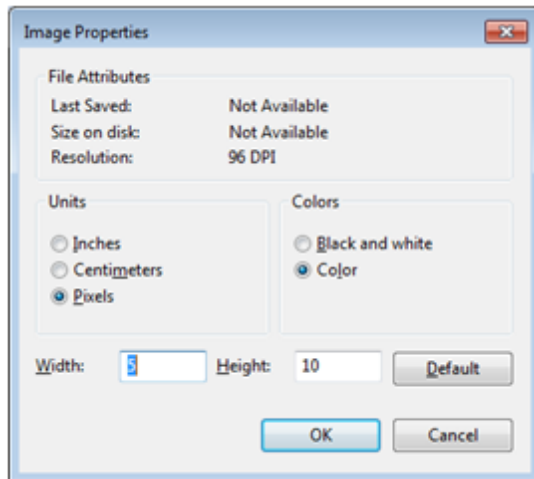
If you want an effect on the left side of your prop, use the effect selection on the left side of the [Effect Generator](#) and make sure the right side effect is set to "none". If you just want the effect on the right side of your prop, use the effect selection on the right side of the Effect Generator and make sure the left side effect is set to "none". Use the slider below the Mix selection to determine where the separation between left and right occurs.

The same technique can be used if you want an effect only displayed at the top or bottom. Just set the mixer to "Mix\_Bottom\_Top".

## Masking Effects on Arbitrary Rows or Columns

Sometimes you just want to light up certain rows or columns on your display element (e.g. a pixel tree or matrix). In this topic we show you how. Here are the steps:

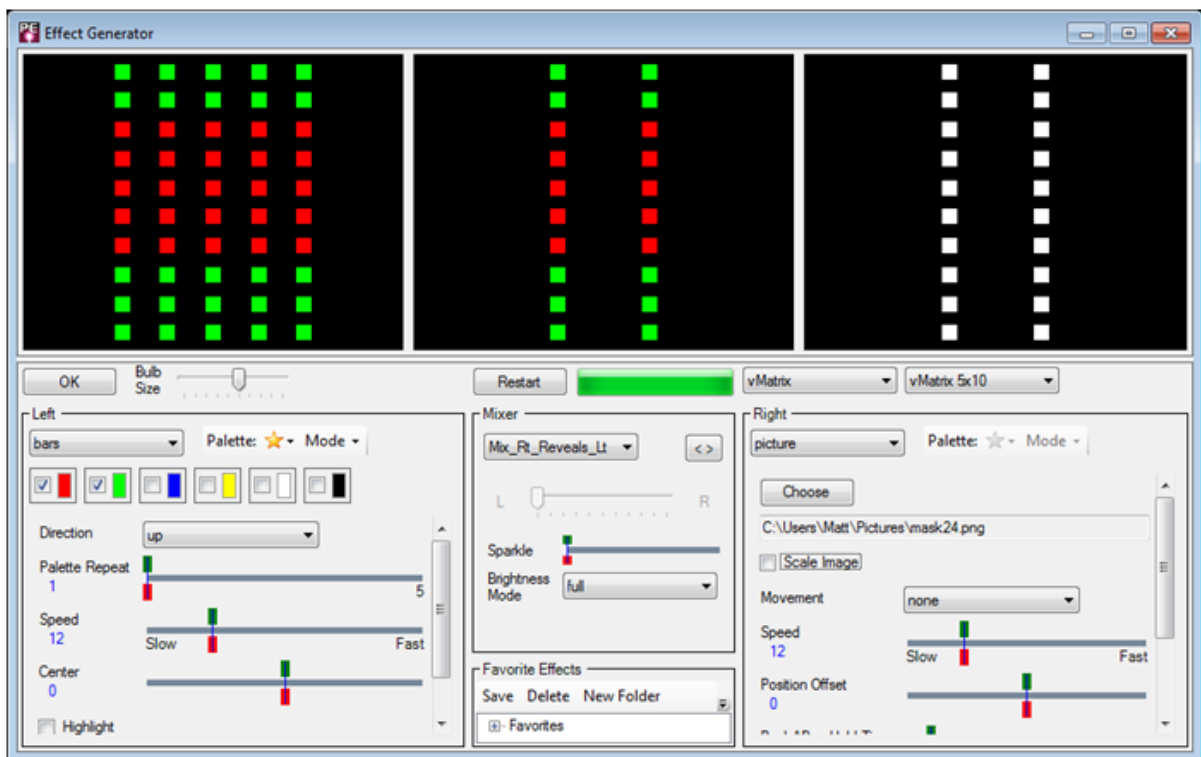
1. Open Microsoft Paint (you can use other paint programs, but you will have to adapt these instructions for your preferred paint program).
2. Type Ctrl-E to open the image properties. Set the units to "Pixels" and the Colors to "Color". Set the width and height to exactly match the dimensions of your [prop](#). Click "OK" to save the changes.



3. Zoom in as much as possible to make it easier to see your new image.
4. Make the current color black. Use the fill tool (the paint can icon) to turn the entire image black.
5. Make the current color white. Use the pencil tool to draw white in the rows and/or columns where you will want effects displayed. The example shown below is 5 pixels wide by 10 pixels high. Columns 2 and 4 have been painted white. When used as a mask in the following steps, this will only allow effects to be displayed in those two columns.



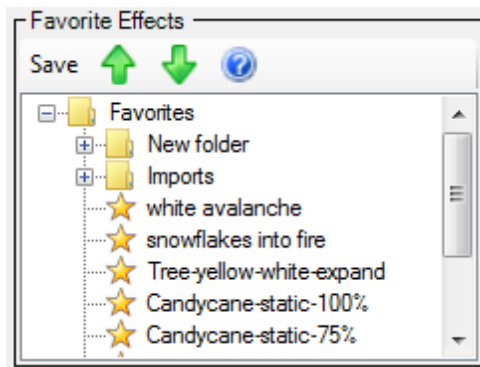
6. Save the result as a PNG image (BMP is OK too), and then close Microsoft Paint. Remember where you save it.
  7. Open the [Motion Effect Generator](#).
  8. On the right side, select the prop you generated the mask for.
  9. Change the right effect to "Picture". Click the "Choose" button and select the image file that was created above. Uncheck "Scale Image".
  10. In the middle, set the mix to "Mix Rt. Reveals Lt."
  11. Change the left effect to the desired effect. Only the rows or columns you enabled (turned white) in your image will light up in the middle (result) window.
  12. You can enable the opposite columns by changing the mix to "Mix Rt. Hides Lt."
  13. You can make the mask move by changing the "Movement" setting on the picture effect.
- Here is the result (the bars effect is shown, but the technique works with any effect selected on the left):



#### 5.3.6.5 Favorites

In the [Sequencer's Motion Effect Generator](#), if you create an effect and want to save it for later use, you can save it to the Favorite Effects area (bottom center).





- To save the current Effect Generator settings as a favorite: first click a folder in the favorites tree where the effect should be saved (the first time click on “Favorites”), then click Save.
- To recall a favorite (i.e. load it into the Effect Generator), just double click on it.
- To move an entry up or down: select an entry by left-clicking on it, then use the up and/or down arrows on the toolbar to move it to the desired position. Alternatively, you can right-click on the entry, then select Move Up or Move Down from the pop-up menu.
- You can move effects from one folder to another simply by dragging the effect to the new folder. You can even drag entire branches of the tree if you need to move them.
- To delete an entry or an entire branch: right-click the node to delete, then select Delete from the pop-up menu.
- To add a new branch to the tree: right-click on the parent folder, then select New Subfolder from the popup menu. Enter the name for the new folder when prompted, then click OK.
- To rename an entry (folder or favorite effect): right-click on the node, then select Rename from the pop-up menu. Enter the new name when prompted, then click OK.
- To copy an effect: right-click on the node, then select Copy from the pop-up menu. Enter the name for the copy when prompted, then click OK.
- To export favorites to a file: right-click on a folder, then select Export from the pop-up menu. Select the directory and file name, then click OK. All children of the selected folder will be exported. This file will have an LPEFAV extension.
- To import favorites from a file: right-click on a folder, then select Import from the pop-up menu. Select the file to import, then click OK. Imported favorites will become children of the selected folder.

#### 5.3.6.6 Effect Length

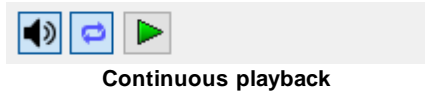
In the [Sequencer](#), every effect on the [sequence grid](#) has a length. Even when you open the [Motion Effect Generator](#) with no sequence open, effects are displayed with a default length of 5 seconds. Over the course of the effect, palette colors and parameter values can change:

- You can [set a color transition](#) for a palette entry. The effect will begin with the starting color and smoothly transition to the ending color.
- For [slider controls](#), you can set a starting and ending value or have the value change with the loudness of the music.

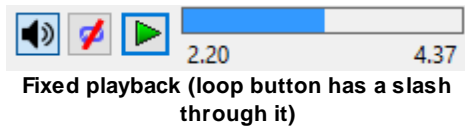
## Playback Modes

There are 2 playback modes in the Motion Effect Generator: continuous and fixed. The mode is switched by clicking the button with the blue loop icon.

- Continuous Playback: playback never stops. After effect playback has reached the effect length, the ending value of color transitions and slider controls is used.

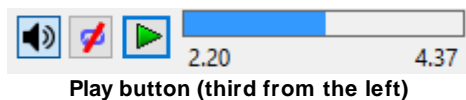


- Fixed Playback: playback stops once the effect length is reached. A progress bar shows playback status.



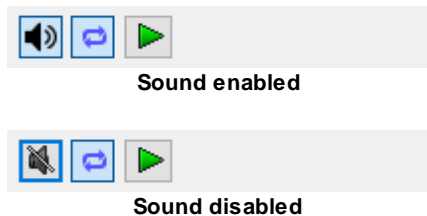
## Restart Effect Button

In both modes, a play button is available to restart the effect from the beginning.



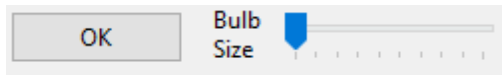
## Mute Button

When editing effects in musical sequences, a mute button is displayed so you can choose to hear the music that goes with the effect, or not.



### 5.3.6.7 Bulb Size

The [Sequencer's Motion Effect Generator](#) has a bulb size setting that is separate from the [preview bulb size](#). To change the bulb size for the prop currently displayed in the Motion Effect Generator, move the slider next to the OK/Cancel buttons.



### 5.3.7 Playback Window

The "Playback" window is normally docked to the top of the main [Light-O-Rama S5 Sequencer](#) program window. It can also be [dragged and dropped](#) such that it "floats" outside of the main window.

The playback window has 2 purposes:

1. [Display a simulation of your lights during sequence playback](#)
2. [Display a motion effect when one is selected in the sequence grid](#)

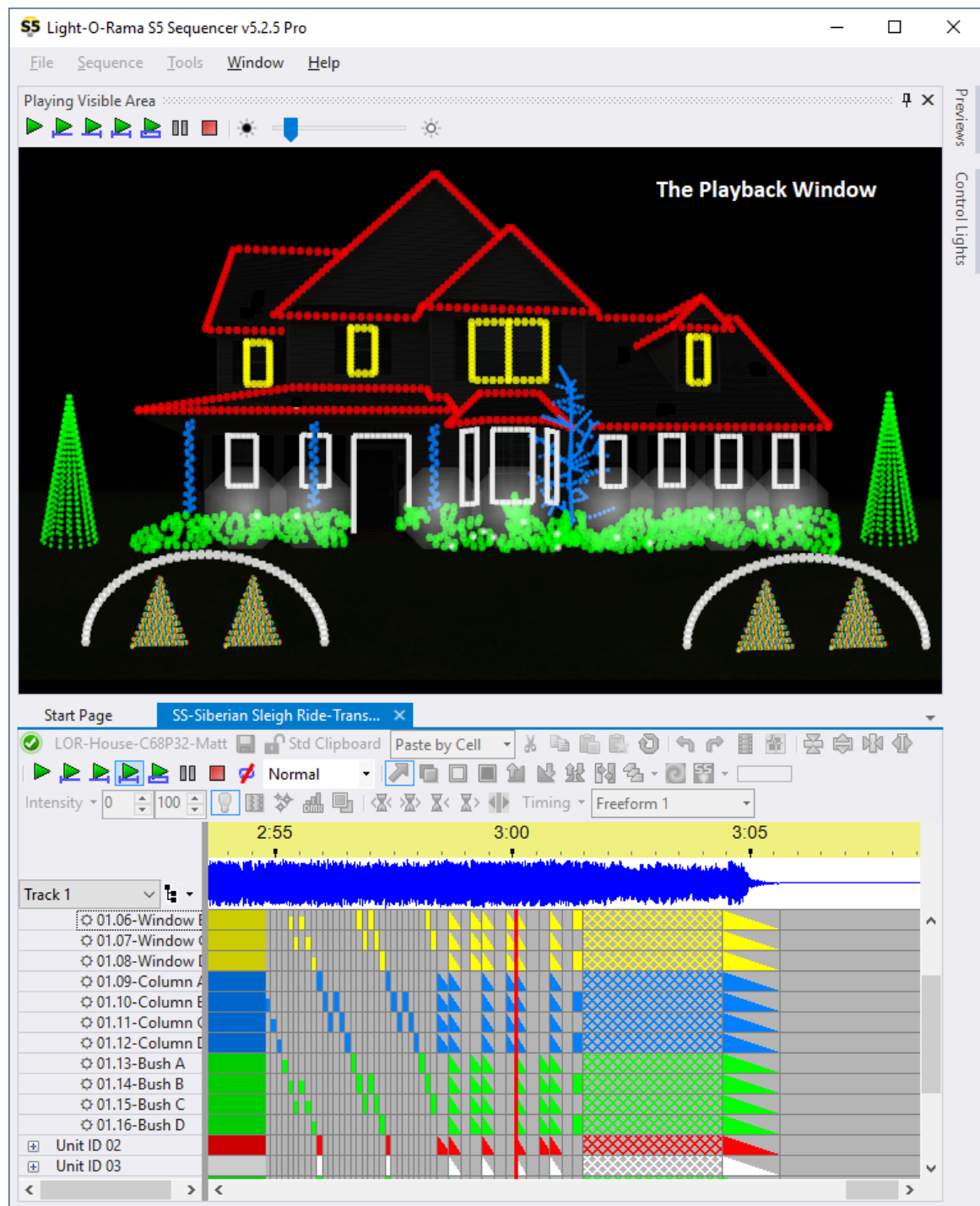
## Sequence Playback

The primary purpose of the playback window is to display a simulation of your lights while the [sequence is playing](#) in the Sequencer. If you have a second display monitor, this is a good window to [float](#) and drag to the other monitor. That way you can sequence on one monitor and view playback on the other.

Note that there are certain items that are not displayed during sequence playback. These include:

- props with a shape of "hidden"
- [archived props](#)
- [beat channels](#)

The Playback Window has a set of toolbar buttons that allow you to start and stop [sequence playback](#). The Sequence Tab's [toolbar](#) also has a set of playback buttons -- you can control playback using either set. If your preview has a background image, the toolbar can also be used to [change the brightness of the image](#).

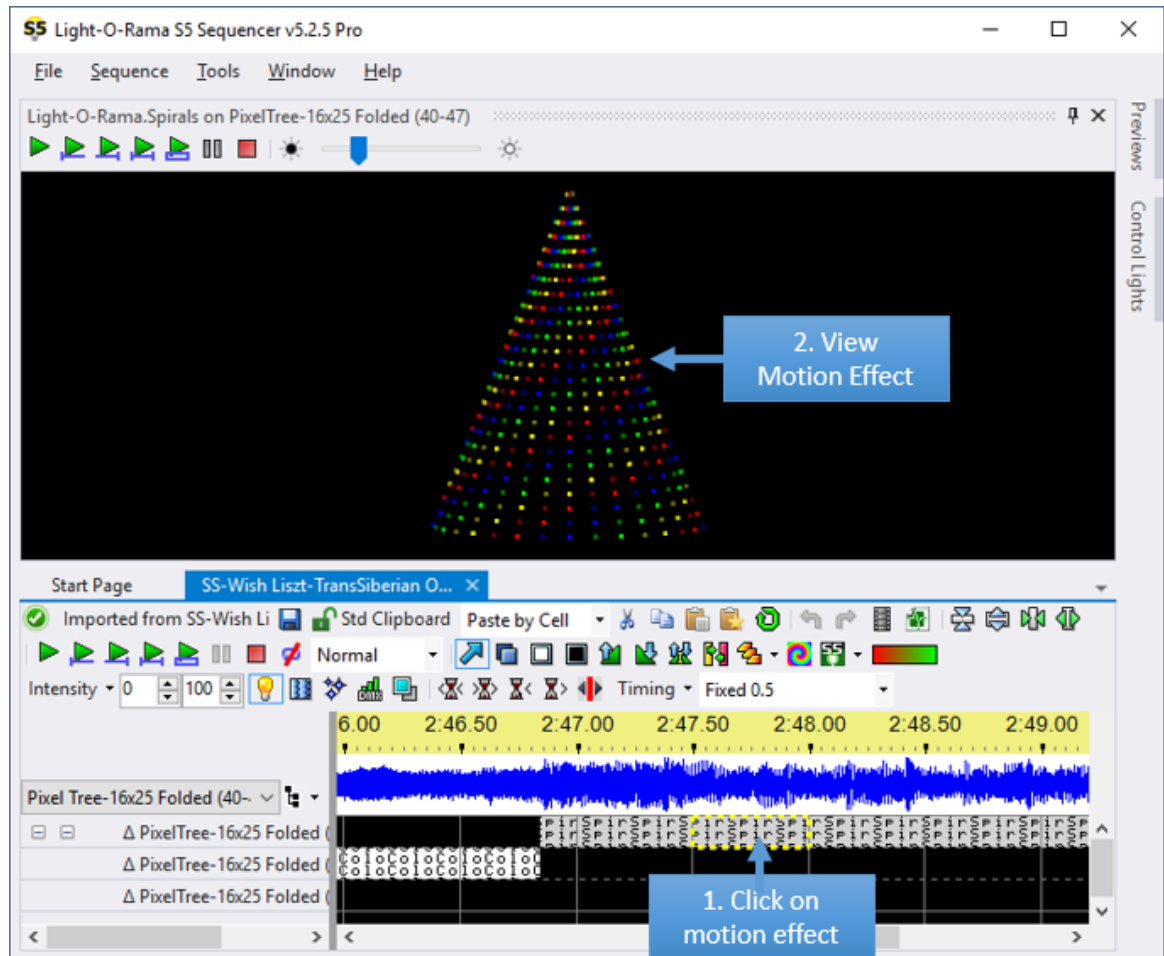


The Playback Window displaying a simulation of the lights while the sequence is being played

## Displaying Motion Effects

If you have the [Pro version](#) and are using motion effects, the playback window has a second purpose: it displays the currently selected [motion effect](#). So if you use a lot of motion effects, you will want to keep the playback window visible at all times. This allows you to click on any motion effect in the grid and

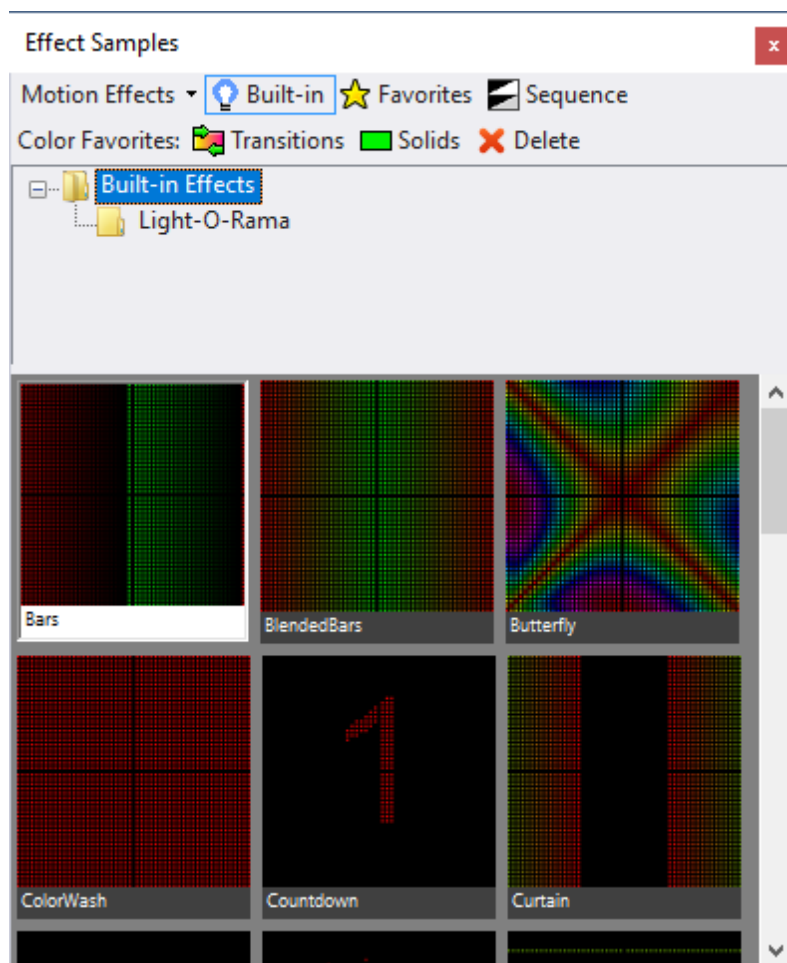
have it play in the playback window. This makes it much faster to identify motion effects on the sequence grid.



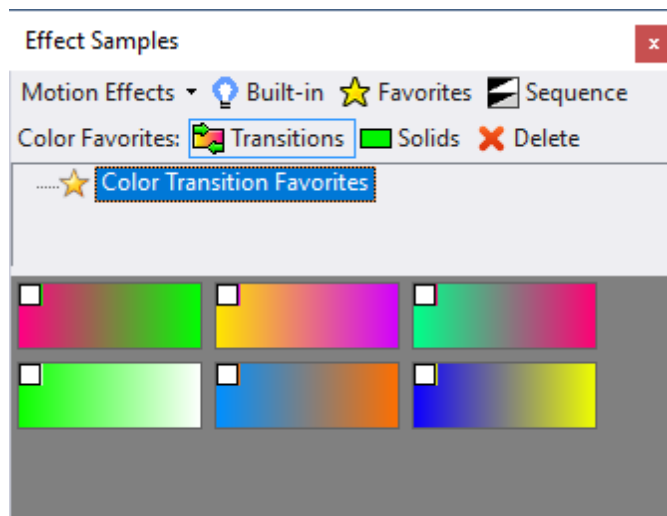
The Playback Window displaying a motion effect

### 5.3.8 Effect Samples Window

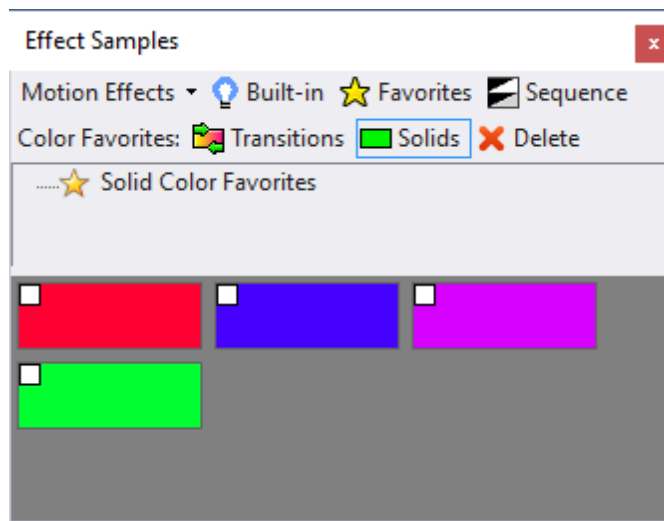
The "Effect Samples" window displays Color Fade favorites as well as thumbnails for motion effects. It is normally docked on the right side of the main [Light-O-Rama S5 Sequencer](#) program window. To keep the window open, click the pin icon in the upper right corner of the window. It can also be [dragged and dropped](#) such that it "floats" outside of the main window.



The Effect Samples window displaying motion effects



The Effect Samples window displaying color transition favorites



The Effect Samples window displaying solid color favorites

## Choosing What Is Displayed

Select one of the 3 motion effect buttons to display:

- built-in effects
- favorites saved in the Motion Effect Generator
- motion effects used in the current sequence (perhaps you want to re-use one)

There may be a hierarchical tree of motion effects, in which case the tree will be displayed between the buttons on top and the effect samples below. You can click on any node in the tree to just display favorites under that section of the tree. The motion effect buttons are only displayed at the Pro license level.

Select one of the 2 color favorites buttons to display:

- Favorite color transitions
- Solid color favorites

## Using A Sample In Your Sequence

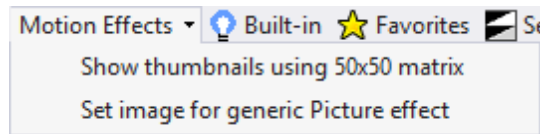
This is the easy part: just click on a sample, then select a region on the sequence grid. The selected region will be filled in with the selected sample.

## Removing Color Favorites

Perhaps you have some color favorites that you no longer need. To delete them, click the check-box in the upper left corner of each color sample to be removed, then click the "Delete" button up top. Be careful, this operation cannot be undone.

## Motion Effect Options

There are a couple of options that control how thumbnails are displayed. To access them, click the down arrow next to the word "Motion Effects"



### ***Show thumbnails using 50x50 matrix***

By default, thumbnails are displayed using a 50 by 50 matrix. However, this can be overridden by selecting "Use This Prop (or Group) For Thumbnails" from the pop-up menu when you [right-click on an item](#) in the item list. This menu item will restore the default.

### ***Set image for generic Picture effect***

When displaying "Basic Motion Effects", the Light-O-Rama Picture effect will be displayed as a blank. This option allows you to select a picture file to use for the thumbnail.

## **Motion Thumbnail Double-Click**



When you double-click on a motion effect thumbnail, the [Motion Effect Generator](#) is opened and the selected motion effect is displayed.

This can be used to:

- [Modify a motion effect favorite](#)
- [Create a new favorite based on an existing one](#)
- [Set the current effect based on one shown in the window](#)

### ***Modify a motion effect favorite***

- Set the selection to Motion Effect: Favorites
- Double-click on a thumbnail of a favorite
- Modify the effect the in the [Motion Effect Generator](#)
- The name of the favorite should already be highlighted in the [Favorites area](#) of the Motion Effect Generator, so click the "Save" button on the Favorites toolbar to update it. You will be asked if you want to overwrite the existing favorite.

### ***Create a new favorite based on an existing one***

- Set the selection to Motion Effect: Favorites
- Double-click on a thumbnail of a favorite
- Modify the effect the in the [Motion Effect Generator](#)



- Click on a folder name in the [Favorites area](#) of the Motion Effect Generator, then click the "Save" button on the Favorites toolbar.

### ***Set the current effect based on one shown in the window***

- Double-click on a thumbnail
- Modify the effect the in the [Motion Effect Generator](#)
- Click "OK" to close the [Motion Effect Generator](#)
- The new effect will start playing in the [Playback window](#), the [toolbar effect](#) will be changed to "Motion Effect", the current tool on the toolbar will be changed to [Max Intensity](#), and the mouse pointer will change to the [edit cursor](#) when it is moved over the sequence grid

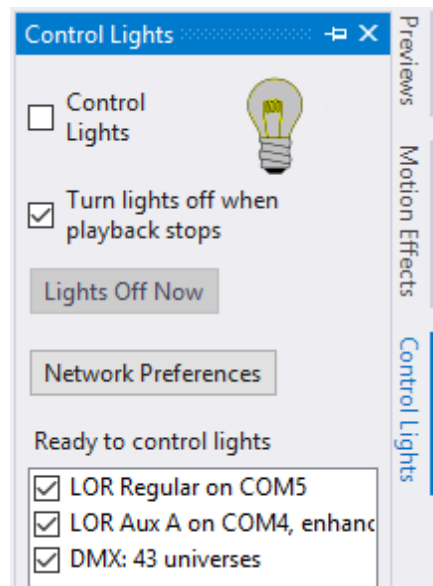
Now when you click and drag the edit cursor over some cells in a [motion effect row](#), the new effect will be added to those cells.

## **5.3.9 Control Lights Window**

The "Control Lights" window is normally docked on the right side of the main [Light-O-Rama S5 Sequencer](#) program window. To keep the window open, click the pin icon in the upper right corner of the window. It can also be [dragged and dropped](#) such that it "floats" outside of the main window.

From the Control Lights window you can:

- [Control whether the effects in your sequence are sent to real lights](#)
- [Specify whether lights will be turned off when playback stops](#)
- [Turn all lights off immediately](#)
- Access [Light-O-Rama Network Preferences](#)
- [Specify which networks are enabled when controlling lights](#)



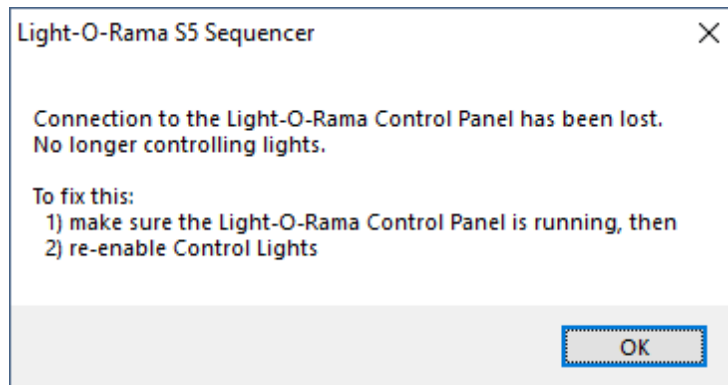
## **Control Lights Check Box**

If the Control Lights box is checked, then the Sequencer will control your lights. This setting applies to all open sequences.

When the Control Lights box is checked, the Sequencer will send out data to:

- A [prop](#) when an [effect](#) for that prop is selected in the sequencing grid
- A prop when you double click on the prop's name (or right-click on the prop name and select one of the play options)
- All props when you click one of the play buttons above the sequencing grid.

If the Control Panel is not running and the "Control Lights" box is checked, you will get this message:



## Turn Lights Off When Playback Stops

This check box specifies whether lights should be turned off whenever playback stops. This only affects playback in the sequencer; it does not affect playback in a scheduled [show](#).

## Lights Off Now

This will turn off all lights on the networks being controlled.

## Networks Being Controlled

Check the boxes next to each network that you want to control. Each Light-O-Rama network will be listed separately. If you have DMX universes defined, they will be grouped together into a single line item.

## Why Aren't My Lights Turning On?

Before trying to control your lights, make sure these steps are done first:

- Connect LOR and/or DMX USB adapters to the computer where the Sequencer is running.
- Make sure your light controllers are initialized correctly with the correct [unit IDs](#) (for the LOR protocol) and DMX universes (for the DMX protocol).

- Make sure the firmware for your controllers is up-to-date.
- Define the LOR and DMX lighting networks in the [Light-O-Rama Network Preferences](#) tool.
- [Motion Effects](#) (including SuperStar effects) can only be sent to [enhanced LOR networks](#) and DMX networks.
- Connect your light controllers to the USB adapters (or to your Ethernet network in the case of E1.31 devices).
- Ensure all lights and controllers have power.
- Start the [Light-O-Rama Control Panel](#) if you haven't already done so. You should see the [light bulb icon](#) in the Windows notification area (also called the "system tray") in the lower right corner of your screen.
- No shows should be currently scheduled or playing. The [light bulb icon](#) in the Windows notification area should be red.?
- The [Hardware Utility](#) should be closed while the Sequencer is running.
- Make sure the [props](#) you have created in your S5 [preview](#) have the correct [network](#), [unit IDs](#), and [circuit numbers](#) defined (they must match the hardware settings).

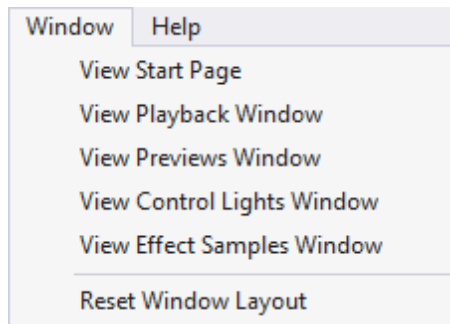
### 5.3.10 Customizing Window Layouts

In the [S5 Sequencer](#), you can customize the position, size and behavior of windows to create window layouts that work best for your computer setup. When you customize the layout, the Sequencer remembers it. For example, if you change the docking location of the Playback window and then close the Sequencer, the next time that you start, the Playback window will be docked in that same location.

#### Windows That Can Float

The [Playback Window](#), [Previews Window](#), [Control Lights Window](#), [Motion Effects Window](#), and [Start Page](#) can be docked in any position within the main program window, or they can float outside the program window. Note that the Motion Effects Window is only displayed when you have the a [PRO license](#).

- Clicking the "X" in the upper right corner of one of these windows will hide it. Hidden windows will appear on the the [Window menu](#). Selecting the name of a hidden window on the Windows menu will unhide it.



**The Window menu with all options displayed**



If a sequence is open, you can click on this toolbar icon to hide and unhide the Playback Window.

- Any of these windows that is docked inside the main windows can be pinned so that they stay open, or unpinned so that they automatically hide themselves after use.



**Unpinned Window**



**Pinned Window**

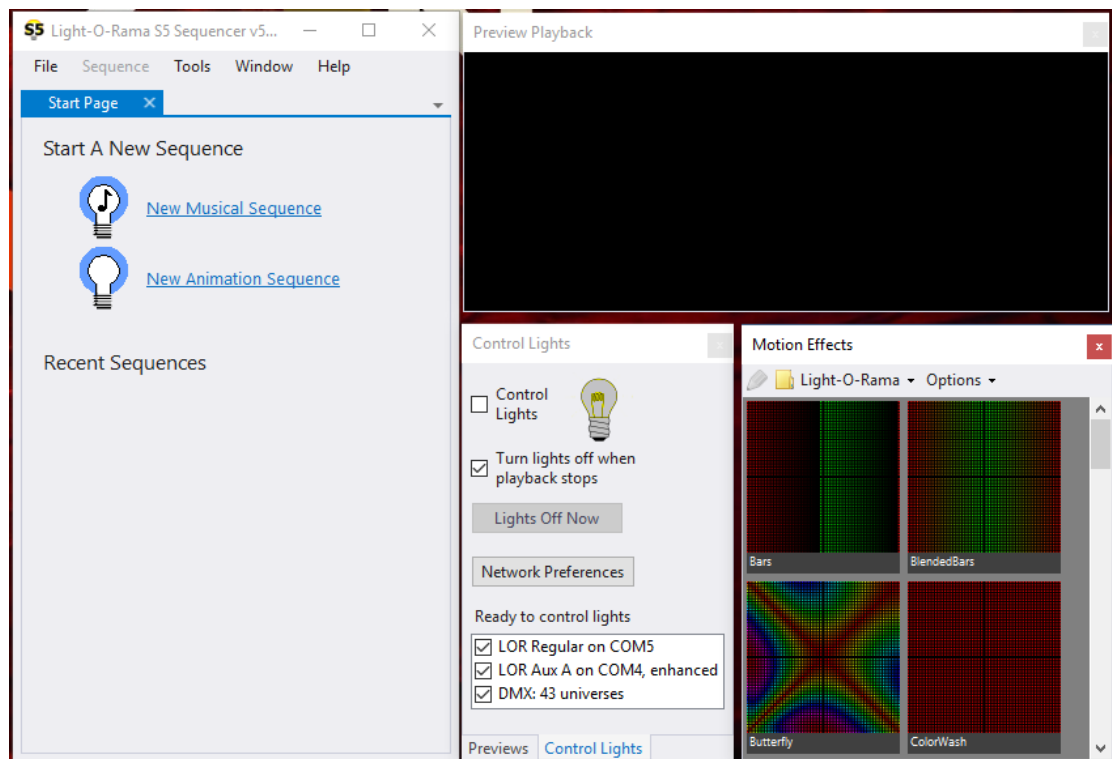
- These windows can float outside of the main program window. If you have multiple display monitors, the floating windows can be moved onto them, giving you lots of space to do your sequencing.

There are several ways to float a window:

- To float the current window (the one whose title bar is highlighted), select [Window > Float Current Window](#) from the main menu, or
- Click on the title bar of a window and drag it away from the main window, or
- Double-click on the title bar of a window

Likewise, there are several ways to dock a window that is floating:

- Click on the title bar of a floating window and drag it back over the main window. As you are dragging, landing spot icons will appear -- release the mouse button when the cursor is over one of the landing spots to finish the docking, or
- Double-click on the title bar of a floating window, or
- Select [Window > Reset Window Layout](#) from the main menu, which will dock all windows

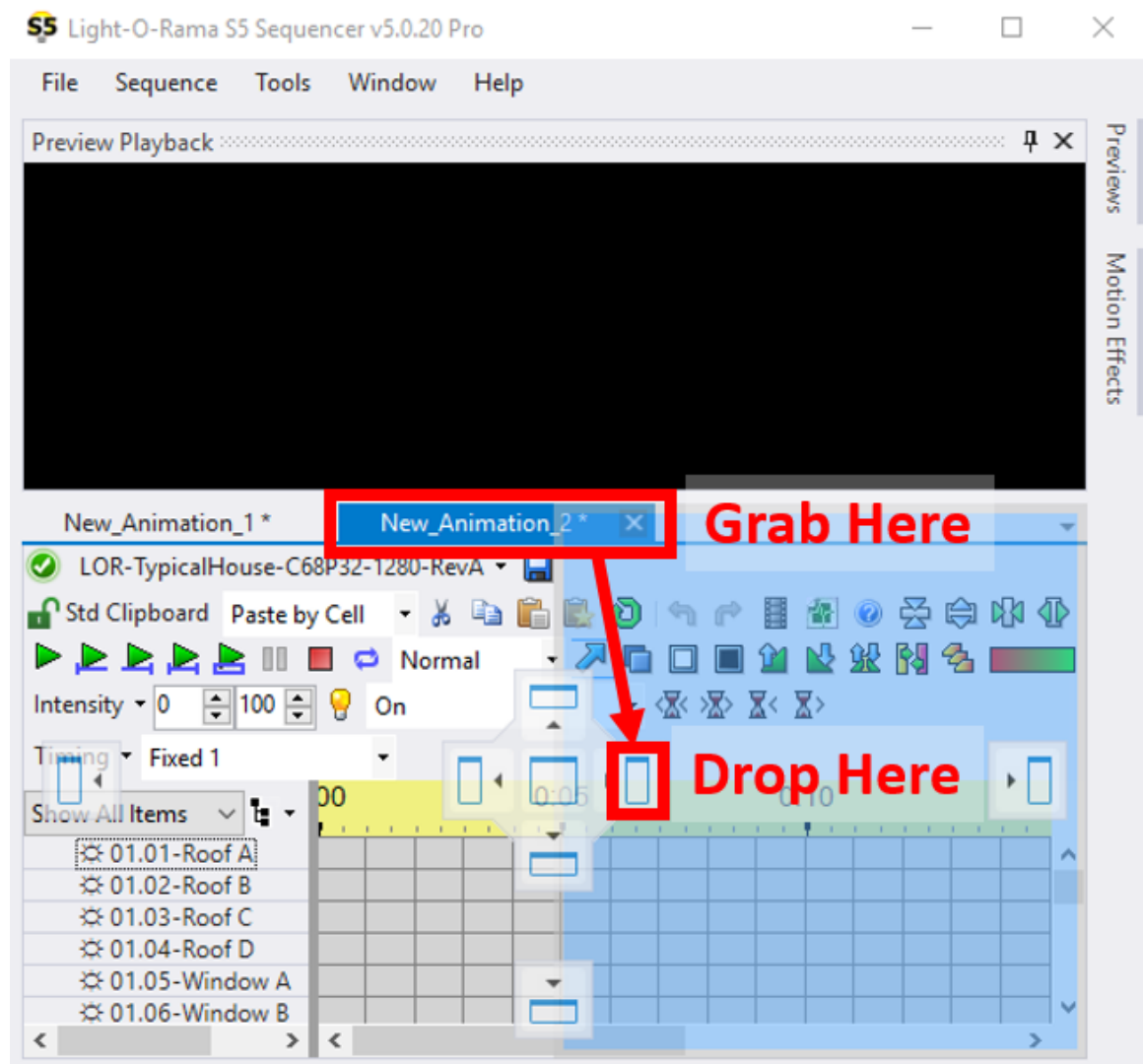


An example with 3 floating windows

## Sequence Windows

Sequence windows can only be docked within the main program window; they cannot float or be hidden. Each sequence window has a tab at the top which displays the name of the sequence. Hovering your cursor over a tab will display a tool-tip with the full path to the sequence file.

- To the right of the name is an "X", which when clicked, will close the sequence. If you close the sequence and there are unsaved changes, you will be asked whether you want those changes saved or discarded.
- While sequence tabs cannot float outside of the main window, the tab can be dragged and docked to other sequences. This allows for sequences to be viewed side by side or one below the other. Select [Window > Reset Window Layout](#) from the main menu to restore the sequence tabs and all other windows to their default locations.



How to view sequences side by side

### 5.3.11 Upgrading Sequences

[Sequences](#) in the S5 version are stored in a different format and have a different file extension than in prior versions.

	S5 Sequences	Prior Versions
Musical Sequences	LOREDIT	LMS
Animation Sequences	LOREDIT	LAS

Sequence File Extensions

Therefore, sequences created with prior versions must be upgraded. You do this by selecting [File > Open](#) from the main menu, and then selecting the LMS or LAS file you want to upgrade. After opening the file, you will be presented with the following dialog:

Upgrade Sequence to S5 Format

**do you hear-2018.lms**

This sequence must be upgraded in order to work with S5.

In S5, every sequence is assigned to a preview that defines ALL of the props, lights, and channels used in your display. Typically, you will need just one preview for all of the sequences in your show.

Here you will assign a preview to this sequence.

Preview Source

☒ Use an existing preview 2018 Christmas

☐ Import a Visualizer file into a new preview and assign that new preview to the sequence. You only need to import your Visualizer file once; after importing, the new preview can be assigned to any sequence.

☐ Import the block-style animation created with the S2/S3/S4 Sequence Editor

☐ Auto-generate a new preview using the channel information in the sequence

Beat Channels

☒ Do not detect beat channels

☐ Treat any channel with device type "none" as a beat channel

☐ Beat channel names contain this word:

OK Cancel ?

The Upgrade Sequence to S5 Format Dialog

The name of the sequence being upgraded is shown at the top, followed by some instructions. Below that you need to:

1. [Choose the preview source](#)
2. [Decide how beat channels should be handled](#)
3. Click OK to continue

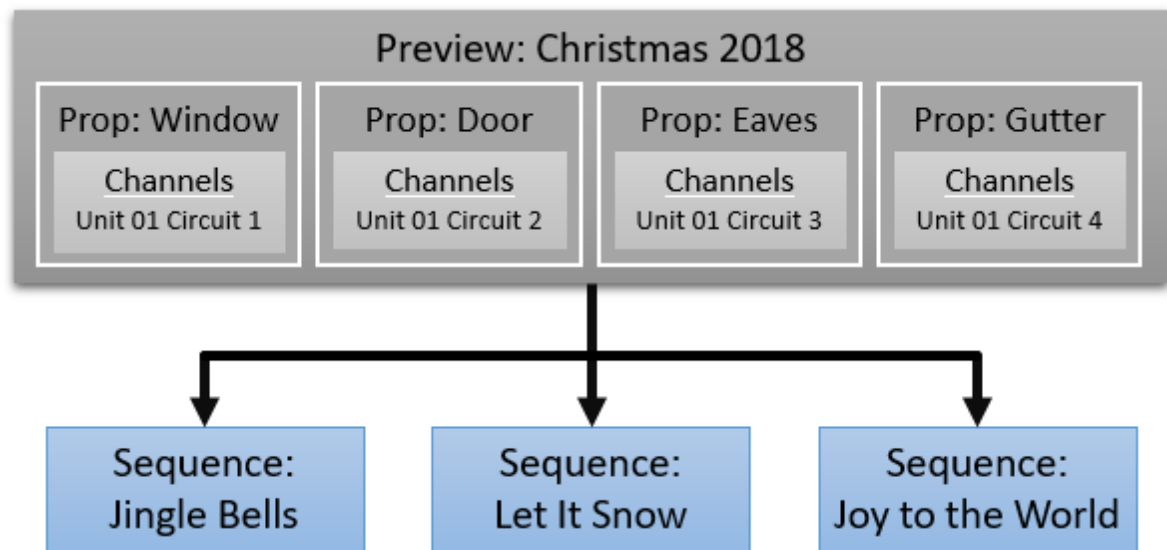
If there were channels in the sequence being upgraded that did not exist in the preview, then those channels will get "archived". Archived channels cannot control lights, but they preserve the effects that were in the original sequence. You will get a message at the end of the upgrade process listing any channels that were archived. For more information on archived props, see the [Archived Props](#) and [Manage Archived Props Dialog](#) topics. If you ended up with some archived props after the upgrade, one thing you can do is to [modify the preview](#) that you used (add any props that were missing), and then try

upgrading the sequence again.

## Preview Source

S5 sequences require a [preview](#) - this is new to S5. A preview specifies all of the channels that will be used in the sequence (among other things). You can create a preview during the upgrade process or you can create one ahead of time. If you have more than a few controllers, you should strongly consider creating a preview ahead of time.

One preview can be associated with multiple sequences.



So if you had 3 sequences in your 2018 show that you are upgrading to S5, you only need one preview that will be shared with all 3 sequences:

- If you create a preview before you start upgrading the sequences, you only need to create one preview. You will select [Use an existing preview](#) as you upgrade each sequence.
- If you create a preview during the upgrade process, you only need to do that for the first sequence you upgrade. For the other sequences, you will select [Use an existing preview](#) and choose the preview you created while upgrading the first sequence.

These are the Preview Source options on the upgrade dialog:

- [Use an existing preview](#)
- [Import an S3 / S4 Visualizer file](#)
- [Import a block-style animation created with the Sequence Editor](#)
- [Auto-generate a new preview using channel information in the sequence](#)

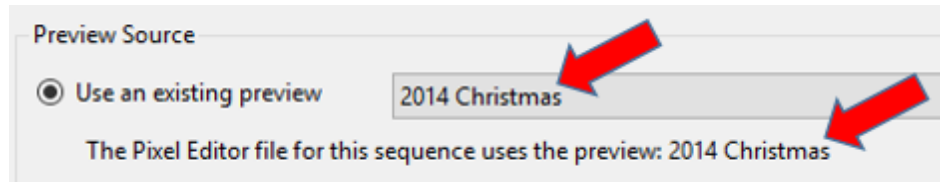
### ***Use an existing preview***

Choose this option if you have already created a preview -- where the channels in the preview match the channels in the sequence being upgraded. Select the desired preview from the drop-down list.

If the sequence being upgraded also has an S4 Pixel Editor file associated with it, the name of the

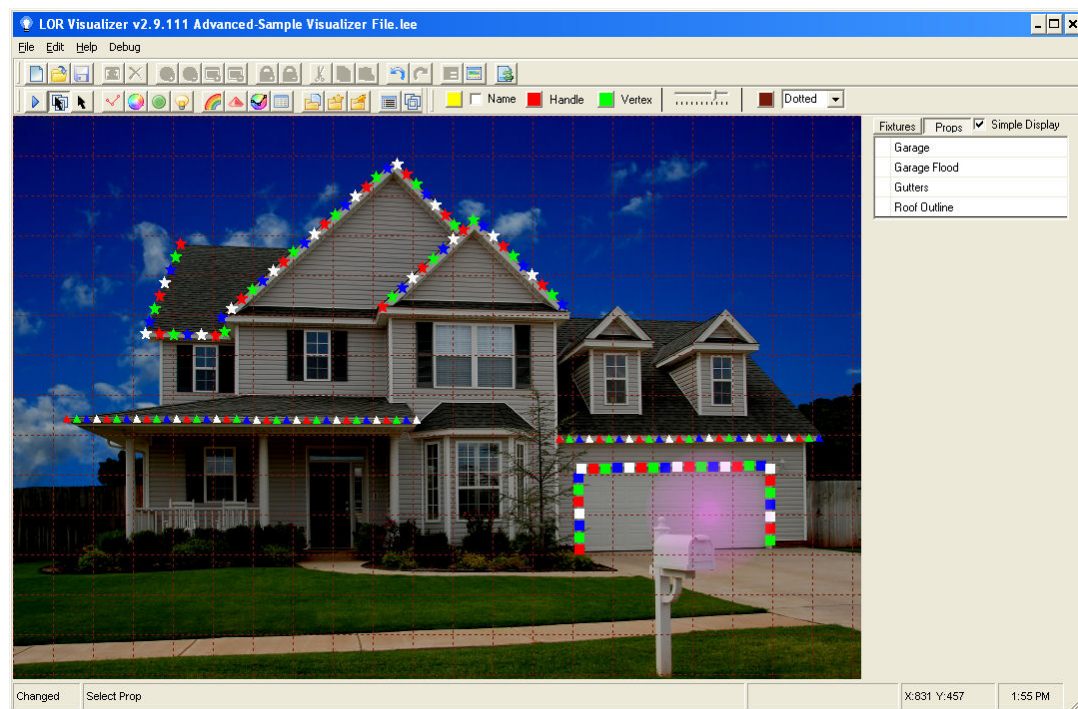


preview associated with the Pixel Editor file will be shown below the radio button (your Pixel Editor previews were upgraded to S5 the very first time you ran the S5 Sequencer and will be listed in the [Previews Window](#)). If your Pixel Editor preview also defines all of the channels used in the Sequence Editor portion of the sequence, then go ahead select the Pixel Editor preview from the drop-down list. If not, you should cancel the upgrade process, go back and add those Sequence Editor channels to the preview, then restart the upgrade process.



### ***Import an S3 / S4 Visualizer file***

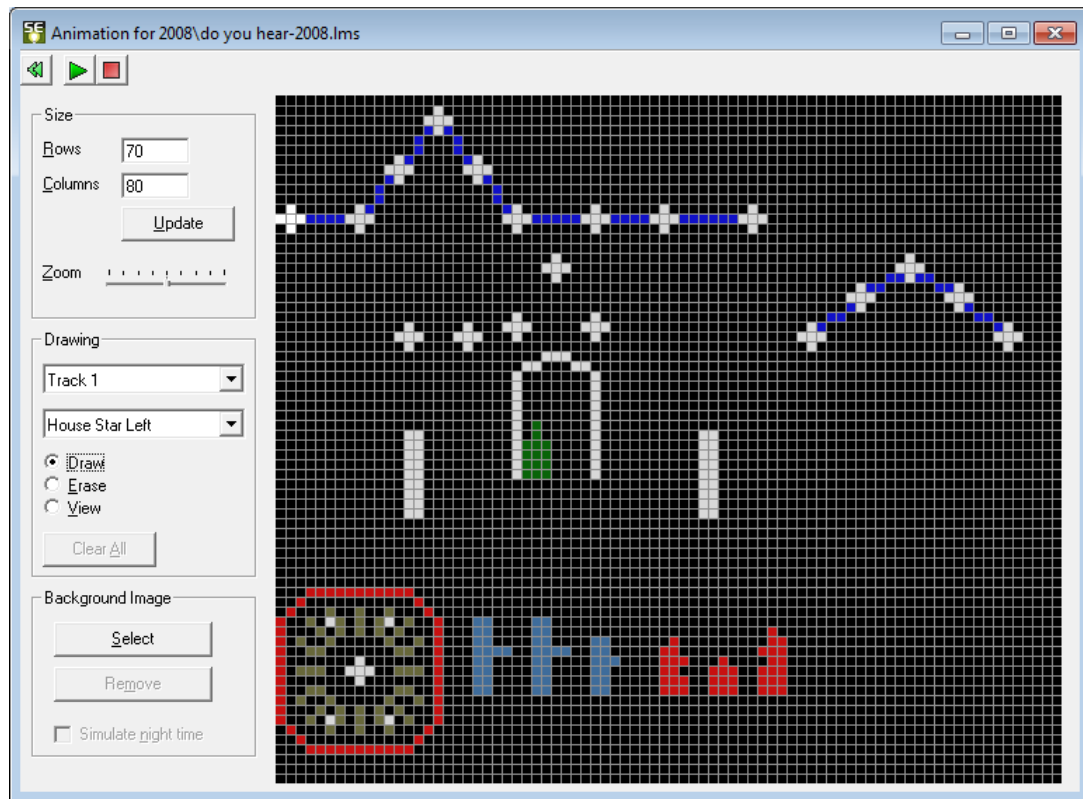
If you have created a Visualizer file that defines all of the channels in the sequence being upgraded, you can select this option. After clicking the "OK" button to close this dialog, you will be prompted for the location of the Visualizer file to be used.



A sample Visualizer file

### ***Import a block-style animation created with the Sequence Editor***

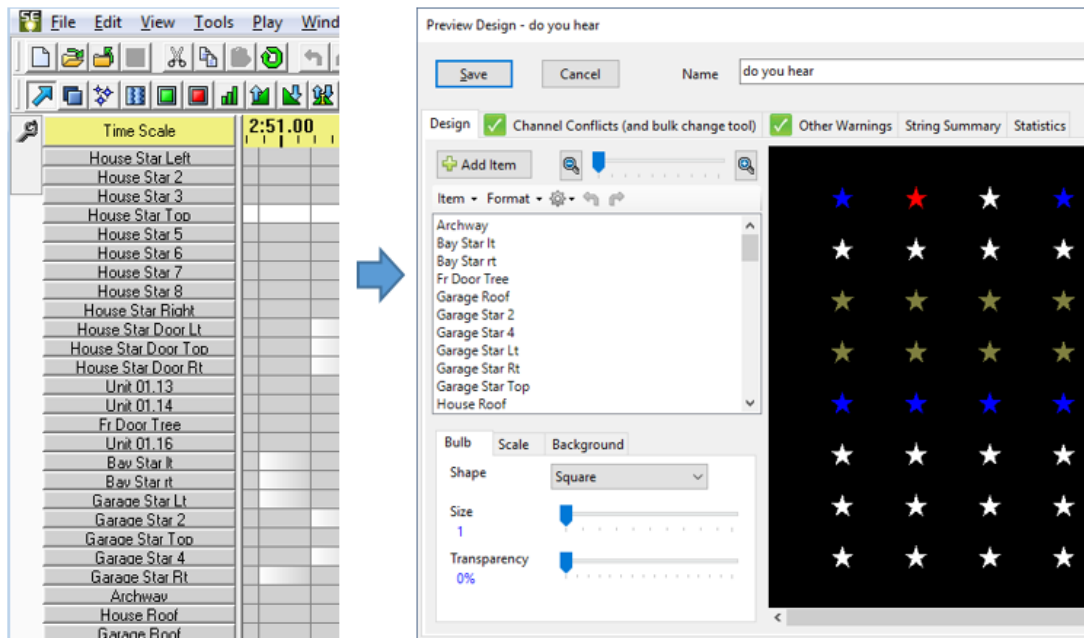
If the sequence you are upgrading has an animation in it that you created with the Sequence Editor, it can be imported into a preview. If there is no animation in the sequence file, then this option will be grayed out.



A sample animation in the Sequence Editor

### ***Auto-generate a new preview using channel information in the sequence***

As a last resort, you can have the upgrade process scan the sequence being upgraded and automatically generate a preview using the settings for each channel. The preview won't look like your house, but channel information will be set correctly and it will allow you to get started with your sequencing right away.



A sample Sequence Editor file (left), and the corresponding auto-generated preview (right)

## Beat Channels

[Beat channels](#) are new to S5. In the S4 Sequence Editor, when you wanted to represent the musical beat, you just used a regular channel to do that. In S5, beat channels are a separate row type in the grid. They are intended to hold sequence effects related to the beat of the music; however, you can put any [regular channel effect](#) anywhere you want in a beat channel. Beat channels can only be added to [musical sequences](#).

You can use the options in the upgrade dialog to automatically convert channels in the sequence being upgraded to [beat channels](#), or you can do it manually after the sequence is upgraded. If you choose to convert beat channels later, use the [Manage Archived Props](#) tool to convert channels in [archived props](#) to beat channels. From the upgrade dialog you can select:

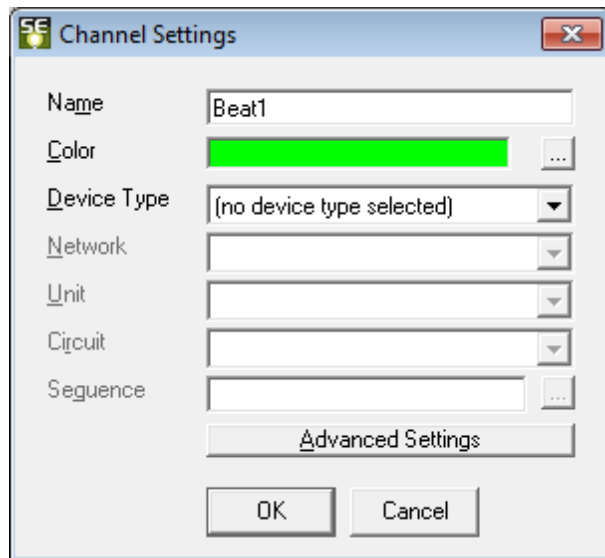
- [Do not detect beat channels](#)
- [Treat any channel with device type "none" as a beat channel](#)
- [Beat channel names contain this word](#)

### ***Do not detect beat channels***

This option skips the detection and conversion of beat channels during the upgrade process. Use this option if your sequence doesn't have any beat channels in it.

### ***Treat any channel with device type "none" as a beat channel***

When beat channels are used in the S4 Sequence Editor, they are usually created with no device type, as shown in the picture below. If you have a sequence where beat channels were created this way, then this option can be used to detect them and convert them to [S5 beat channels](#).



A channel with no Device Type  
in the S4 Sequence Editor

### ***Beat channel names contain this word***

If the sequence being converted has beat channels with a special word in the channel name (e.g. "beat"), then this option can be used to detect them and convert them to [S5 beat channels](#).

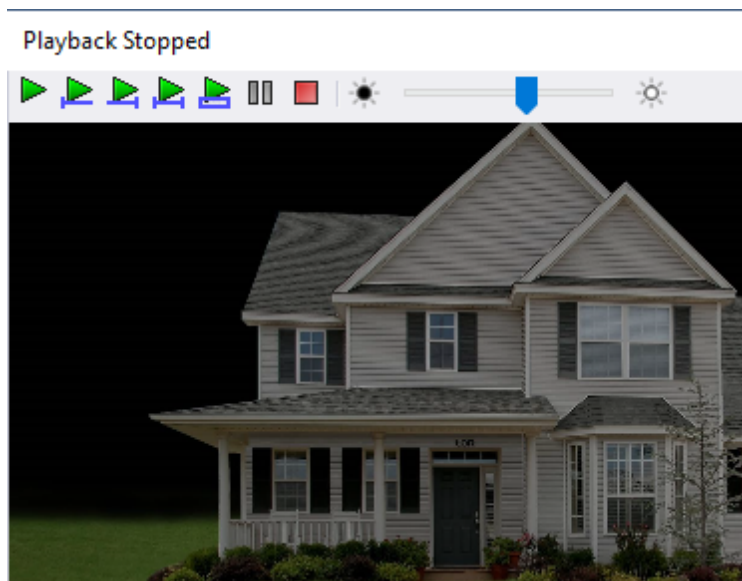
## **5.3.12 Background Image Brightness**

If you have set a [background image](#) for your preview, you can change the image's brightness at any time to suit your needs (for example to simulate nighttime). Changing the brightness of the background image for a preview changes the image's brightness for all sequences that use that preview. There are 2 places where the background image brightness can be changed:

- [in the Playback Window](#)
- [in Preview Design](#)

### **Change Background Brightness in the Playback Window**

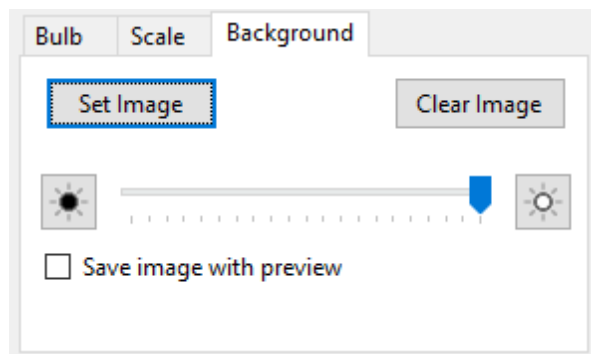
Drag the Brightness slider to adjust the background image on the Preview Playback window. You can also click the Darker and Lighter buttons on either end of the slider to make an incremental adjustment.



Change background image brightness from the Playback window

## Change Background Brightness In Preview Design

Select the [Background tab](#), then drag the Brightness slider to adjust the background image. You can also click the Darker and Lighter buttons on either end of the slider to make an incremental adjustment.



Change background image brightness from Preview Design











### 5.3.13 Keyboard Shortcut Summary

There are separate lists of keyboard shortcuts for:

- Preview Design's [Design tab](#)
- Prop Definition's [Custom Grid window](#)











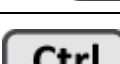
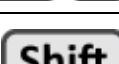


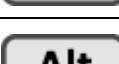


All keyboard shortcuts that can be used in the main [Sequencer](#) window are listed below:

## Main Menu



















Key	Action
 	Alt-F opens the <a href="#">File menu</a>
 	Alt-S opens the <a href="#">Sequence menu</a>
 	Alt-T opens the <a href="#">Tools menu</a>
 	Alt-W opens the <a href="#">Windows menu</a>
 	Alt-H opens the <a href="#">Help menu</a>

Once the menu is opened, the arrow keys can be used to navigate around the menu and open sub-menus. Once you have reached the desired menu item, use the Enter key to activate it.





## Sequence Open / Close / Save

Key	Action
 	create a <a href="#">new musical sequence</a>
 	create a <a href="#">new animation sequence</a>
 	<a href="#">open existing sequence</a>
 	<a href="#">close the current sequence</a>
 	<a href="#">save the current sequence</a>
  	<a href="#">save as (current sequence takes on the new name)</a>
  	<a href="#">save a copy (make a backup)</a>
	help

## Sequence Grid Navigation and Selection

Key	Action
   	Use the arrow keys to move one cell in the direction of the arrow
	Move to the first cell in the current row
	Move to the last cell in the current row
	Move up 1 screen
	Move down 1 screen
	Expand the selection by holding down the shift key while using any of the keys listed above
	If part of an effect is selected, then "E" will expand the selection to encompass the entire effect
	"C" will expand the selection to the entire column
	"R" will expand the selection to the entire row
 	Ctrl-A will select the entire grid.
 	zoom in on time scale
 	zoom out on time scale







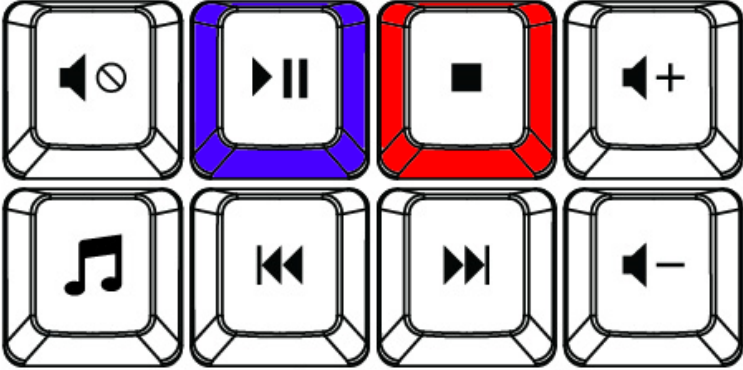
## Sequence Modification

Key	Action
	Set the selected cells to the current toolbar effect at MAX toolbar intensity
	set selected cells to toolbar effect at MIN toolbar intensity
	set selected cells to FADE UP using toolbar intensity range
	set selected cells to FADE DOWN using toolbar intensity range

<b>M</b>	apply current settings to selected effects
<b>Shift</b>	SHIFT plus any of the keys above, will prompt for a new effect then fill the selection
<b>F</b>	<a href="#">fill</a> selected cells
<b>G</b>	toggle selected cells
<b>H</b>	create <a href="#">chase</a> in selected cells
<b>Delete</b>	clear selected cells
<b>O</b>	open the <a href="#">color fade</a> selector
<b>Enter</b>	Use the currently selected tool (from the <a href="#">toolbar</a> ) on the grid selection
<b>N</b>	set selected cells to ON effect at max toolbar intensity
<b>T</b>	set selected cells to TWINKLE effect at max toolbar intensity
<b>S</b>	set selected cells to SHIMMER effect at max toolbar intensity
<b>L</b> or <b>Shift L</b>	activate the Select Tool
<b>Shift S</b>	<a href="#">insert a SuperStar effect</a> into the selected area (requires a <a href="#">Pro license</a> )
<b>+</b>	<a href="#">the repeat function</a>
<b>Ctrl X</b>	cut
<b>Ctrl C</b>	copy
<b>Ctrl V</b>	paste
<b>Ctrl Alt V</b>	paste special
<b>Ctrl Z</b>	undo last operation
<b>Ctrl Y</b>	redo

## Sequence Playback



Key	Action
	Start and stop <a href="#">playback</a>
 	Clear the <a href="#">freeform play range</a> , then start <a href="#">playback</a>
 	During sequence playback, pressing the keyboard's down arrow will mark the current time as the start of a <a href="#">freeform play range</a> . Later pressing the up arrow will mark the current time as the end of the freeform play range.
	During playback, "T" inserts a <a href="#">timing mark</a>
 <p>If you have media keys on your keyboard (like the ones shown above), then you can:</p> <ul style="list-style-type: none"> <li>• Use the play/pause button (shown in blue) to start and pause <a href="#">playback</a>. If there is a <a href="#">freeform play range</a>, then this button will play that range; otherwise, it will play the visible portion of the sequence.</li> <li>• Use the stop button (shown in red) to stop <a href="#">playback</a>.</li> <li>• Use the mute and volume keys to adjust the volume.</li> </ul>	

## 5.4 SuperStar Sequencer



The Light-O-Rama SuperStar Sequencer can be used as a sort of front end to the [Light-O-Rama Sequencer](#), to create sequences for Cosmic Color Ribbons or other lights visually instead of using a channels-versus-time grid. For more information, please see the following pages:

- [Welcome](#)
- [Overview](#)
- [Instant Sequences](#)
- [Custom Sequences](#)
- [Summary of Commands and Keyboard Accelerators](#)
- [Purchased Sequences](#)

## 5.4.1 Welcome

### Launching SuperStar in S5

To launch SuperStar from the [S5 Sequencer](#) you must have the [Pro license](#). Once you have the Pro license you can create [motion effect rows](#). If you do not plan on purchasing the Pro license then it is recommended that you use S4. The version of SuperStar that is in S4 has all the same features as the version that is in S5.

Once you have the Pro license then the way to use SuperStar in S5 is to do the following:

1. Select some of all of a [motion effect row](#) (To select all of a row do right click on the row and select "Select" and then select "Row").
2. Right click on the region you just selected and select [Insert SuperStar Effect](#)
3. Wait a few seconds and SuperStar will launch.
4. Do your sequencing. There are several ways to do your sequencing as listed below:

#### **Load in a Purchased Sequence**

Click on the "File" menu and select "Open" and open a .sup file that you have purchased. The effects will be loaded into the SuperStar screen and you can play them to the screen. Note that you should be using a [preview](#) that matches the layout that the sequence was designed for.

#### **Instant Sequences**

Create sequences in seconds using the "Instant Sequence" feature by simply doing the following:

- Press Ctrl+I to launch the Instant Sequence dialog box, use the 3 buttons in the lower left of the dialog box
- Click on the "Open Audio File" button to open your audio file
- Click on the "Sequence All" button
- Click on the "Play/Stop All" button

#### **Custom Sequences**

Create Super Sequences like the ones at [www.superstarlights.com](http://www.superstarlights.com)

These sequences were created using scenes, morphs, images, and text actions. Learn more about how to do this in the [Custom Sequences](#) topic.

#### **Auto Sequence**

In the Scene, Morph, Smooth Effects, Image, and Text dialog boxes you can click on the button that has a car on it and add an Auto Sequence Effect. SuperStar will automatically move the effect with the music. It takes a little longer to learn to do Auto Sequence than Instant Sequence but it is more versatile and allows individual creativity in applying your effects. For complete instructions visit the [Auto Sequence](#) topic.

5. After doing your sequencing in any of the ways listed in step 4, simply shut down SuperStar by clicking on the Red X in the upper right of the program. You will be returned to the [S5 Sequencer](#) and the the sequencing that you did will automatically get saved into the S5 Sequencer. Click on the "Play" button in the S5 Sequencer and the sequencing will be played to the S5 computer screen.
6. If you wish to edit your sequencing, double click on the sequencing in the S5 Sequencer motion effect row, SuperStar will launch and the effects that you saved will be in SuperStar and you can edit the effects and then shut down superstar and those changes will automatically be saved.

## 5.4.2 Overview

This page gives an overview of the [Light-O-Rama SuperStar Sequencer](#):

- [Launching SuperStar in S5](#)
- [Exporting a sequence](#)
- [Exporting in the legacy format](#)
- [Exporting in the new intensity data format](#)
- [Playing a sequence exported as intensity data](#)
- [Floating windows](#)

## Launching SuperStar in S5

To launch SuperStar from the [S5 Sequencer](#) you must have the [Pro license](#). Once you have the Pro license you can create [motion effect rows](#). Then you do the following:

1. Select some of all of a motion effect row (to select an entire row, [right click on the row](#), open the "Select" sub-menu, and then select "Row").
2. Right click on the region you just selected and select "Insert SuperStar Effect"
3. Wait a few seconds and SuperStar will launch.
4. Do your sequencing
5. Shut down SuperStar by clicking on the Red X in the upper right of the program. You will be returned to the S5 Sequencer and the the sequencing that you did will automatically get saved into the S5 Sequencer. Click on the "Play" button in the S5 Sequencer and the sequencing will be played to the S5 computer screen.

Note:

If you have the Demo version of SuperStar the sequence is still saved, but you will not be able to play the SuperStar Sequencing to the S5 Preview nor will you be able to play the SuperStar sequencing to your actual lights. But everything else in SuperStar will be fully functional.

## Exporting a Sequence

**In S5, "Export to Sequence Editor" is allowed but not recommended. The only reason you would use it would be to export the sequence so it can be played in the S4 Sequence Editor.**

To export a sequence so you can play it in the S4 Sequencer, click on the File menu and select "Export to Sequence Editor". The "Export to Sequence Editor" dialog box will appear.

- "Export in Legacy Format": Legacy format is the format that was always used prior to the S4 release. Use this option to export in the same way that was always used prior to the release of S4.
- "Include Macro Channels for Cosmic Color Devices". Light-O-Rama Cosmic Color Devices have seven macro channels. Superstar does not use the macro channels, but the default is to include them in the export. If you use copy/paste into a main sequence, the main sequence will have the

macro channels and it is important for the source and destination of the copy/paste to match. If you are using RGB pixel devices not made by Light-O-Rama they will not have macro channels. If you are using copy/paste to get the exported sequence into the RGB pixels you will not want the macro channels in the export.

- "Export in New Format (as Intensity Data)": This option will export in the new format as intensity data. All of the exported data will appear as one line at the bottom of the [sequence](#) in the [Sequencer](#). The new intensity data format is designed to better support large numbers of channels and pixels. The intensity data format is also very handy because it automatically gets merged in with your main sequence and will play alongside your main sequence. Please note that you must have a [Pro level license](#) in order to use intensity data.
- "Add Intensity Data to Existing Sequence": Choose this option if you already have a main [sequence](#) and you want to add the exported data to the existing main sequence.
- "Add Intensity Data to New Sequence": Choose this option if you want to add the intensity data to a new [sequence](#). [SuperStar](#) will create a new [Sequencer](#) sequence with a main body that is empty and will add the intensity data to it. You can then play the sequence. This is a way to play the exported sequence as a "stand alone" sequence.

## Exporting in the Legacy Format

If the name of your [SuperStar](#) sequence was "MyAwesomeSequence.sup" then the default name for the exported [sequence](#) will be "MyAwesomeSequence\_sup.lms." You can change the name if you wish.

When use the legacy format you can play it as a stand-alone sequence in the S4 Sequence Editor.

## Exporting in the New Intensity Data Format

Intensity data gets placed on a line at the bottom of an S4 Sequence Editor sequence. The intensity data is played alongside the rest of the sequence so it automatically gets merged with the rest of the sequence. Note that the intensity data should not send commands to any of the same channels that are in the main sequence.

## Playing a Sequence Exported as Intensity Data

- Launch the Light-O-Rama S4 Sequence Editor
- Click on the "Existing Sequence" tab
- Select the file you exported
- Click on the "Ok" button
- Click on the "Play" button in the Light-O-Rama Sequence Editor

## Floating Windows

When using a large number of CCRs, the sequencing grid and/or the visualization in [SuperStar](#) can become small. You can put the sequencing grid and the visualization each in their own window. That way you can place them where you want, and size them how you want. And if you have two monitors, you can put one of them in each monitor.

To activate floating windows, click on the "View" menu and select "Floating Windows".

### 5.4.3 Instant Sequences

Using the [Light-O-Rama SuperStar Sequencer](#), you can now create a [sequence](#) in seconds using the "Instant Sequence" feature. This is a first for the home light show industry.

- [Creating an instant sequence](#)
- [Timing map description](#)
- [Apply different sets of theme, color, and movement to different parts of the song](#)

### Creating an Instant Sequence

Click on the Tools menu and select "Instant Sequence..." (or you can press Ctrl+I), which will open the Instant Sequence dialog. In the lower left of the Instant Sequence dialog, click on the "Open Audio File" button. Then click on the "Sequence All" button. The effects for a sequence will appear in the time layers. Click on the "Play/Stop All" button.

Was that totally awesome or what! The timing marks were created by analyzing the audio file. The sequence was created using the timing marks and the theme, color and movement variations that you see in the dialog box. Now let's create another sequence:

Click on the "Roll Dice" button to get a random set of theme, color, and movement variations. Click on the "Sequence All" button; it will ask you if you want to erase the current sequence without saving (answer "Yes"). Click on the "Play/Stop All" button.

"Roll Dice" is the easiest way to try different TCM ("[theme](#), [color](#), [movement](#)") settings, but you can set them manually also:

- **Theme:** The theme contains one or more effects. These effects are placed at each trigger. For example, "3 Segs" is made of three scenes that will place segments onto the ribbon, with segments having gaps between them. "1 Morph Full Length" has one morph in it which is always assigned to span the entire length of the ribbon. "Morphs colliding" is two morphs, each morph being half the length of the ribbon, with the two morphs coming towards each other and stopping when they meet each other. The best way to see what each morph is is to try it out and play it back.
- **Color:** This setting controls the colors assigned to the theme:
  - **Native:** The theme uses the colors that the effect was created in. Most themes were created using red. If the theme has more than one effect, then it may have other colors. For example, the three segments in "3 Segs" were created using red, green, and blue, and so using Native for "3 Segs" will result in all of the effects being red, green, and blue.
  - **RGBW by group:** This setting will take each group of effects in the theme and assign red, then green, then blue, then white to them. For example, if using the "3 Segs" theme, all three scenes in the theme will be red the first time the theme is triggered, green the second time, blue the third time, and white the fourth time. The fifth time, it will cycle back to red.
  - **RGBW by effect:** This setting will take each effect in the theme and assign red, then green, then blue, then white to them. For example, if using the "3 Segs" theme, the first time the theme is triggered, the first scene will be red, the second green, and the third blue. The

second time the theme is triggered, the first scene will be white, the second red, and the third green. The end result is that RGBW by effect results in more colors than RGBW by group. Note that if the theme has only one effect in it, there will be no difference between RGBW by group and RGBW by effect.

- **Color wheel by group:** This works similarly to RGBW by group, except it cycles through 21 different shades of colors in the color wheel when assigning a color to the group of effects in a theme.
- **Color wheel by effect:** This works similar to RGBW by effect except it cycles through 21 different shades of colors in the color wheel when assigning a color to individual effects in a theme.
- **Custom Colors by group:** This works similar to RGBW by group except it cycles through the custom colors chosen for this TCM. For example, to choose the custom colors for TCM 1 click on the "Set Custom Colors 1" button.
- **Custom Colors by effect:** This works similar to RGBW by effect except it cycles through the custom colors chosen for this TCM. For example, to choose the custom colors for TCM 1 click on the "Set Custom Colors 1" button.
- **Red, Orange, Yellow, White, Green, Blue, Purple:** Select any of these colors to make all effects in the theme be that color
- **Color by time:** This setting can only be used when color is set to RGBW by group, RGBW by effect, Color wheel by group, or Color wheel by effect. With this setting, you choose a length of time for all of the effects in the theme to change color. For example, if you select "every 4 seconds", then instead of changing color at each trigger, the theme will change every four seconds.
- **Movement:** This setting controls the start and end point of the effects in the theme. The first drop-down list is the movement type. The second drop-down list is the movement speed:
  - **None:** The theme will start and end at the same location every time it is triggered. Note that "None" does not mean that the theme will have no movement; it just means that the start and end of its movement does not change.
  - **Right same row:** Move the start and end points of a theme to the right every time it is triggered. When a start or end point reaches the end of the ribbon it wraps around to the beginning. The themes that contain effects that span the entire length of the ribbon are special cases. For those effects assigning any movement other than "None" will make them alternate directions. "1 morph full length" is an example of a theme that always spans the entire length of the ribbon.
  - **Left same row:** Same as "Right same row" except the start and end points of the theme move to the left.
  - **Up same column:** Same as "Right same row" except the start and end points of the theme move up.
  - **Down same column:** Same as "Right same row" except the start and end points of the theme move down.

- **Pass by:** The start point is moved at a faster pace than the end point so that it “passes by” the end point.
- **Random same row:** The start and end points are random on the same row
- **Right multi-row:** The start and end points move to the right. When the end of a row is reached, the point moves down to the next row. When the end of the bottom row is reached it wraps back up to the top row.
- **Left multi-row:** The start and end points move to the left. When the left end of the row is reached the point moves up to the next row. When the end of the top row is reached it wraps down to the bottom row.
- **Up multi-column:** The start and end points move up. When the top column is reached it wraps to the next column to the right. When the top of the last column is reached it wraps to the first column on the left.
- **Dn multi-column:** The start and end points move down. When the bottom column is reached it wraps to the next column to the left. When the bottom of the beginning column is reached it wraps to the last column on the right.
- **Snake up:** The start and end points move to the right and then when the end of the row is reached it moves to the next row up, and then moves to the left until it reaches the beginning of that row and then moves up and starts moving to the right and so on.
- **Snake dn:** The start and end points move to the right and then when the end of the row is reached it moves to the next row down, and then moves to the left until it reaches the beginning of that row and then moves down and starts moving to the right and so on.
- **Random Rows:** The start and end points move to random rows. In other words, the start and end points will always be on the same row, but the row they are on will be random.
- **Random Points:** The start point is at a random location, and the end point is at a random location.
- **VU Meter:** Makes the triggers behave like a VU Meter at the top of the ribbons. A VU Meter is a meter like what you might see on a stereo that has an equalizer. When using VU Meter as the movement, you should use “1 Pixel” as the Theme.
- **Movement Speed:** This is the number of pixels moved at every trigger. For example, a value of 1.0 will move 1 pixel every trigger. A value of 0.2 will move 0.2 pixels every trigger, but since fractional pixel movement cannot be seen on the screen, it will move 1 pixel for every 5 triggers.
- **Intensity:** This setting controls the intensity of the color assigned to the theme.
- **Trigger:** This is the trigger type.
  - **Normal:** This is the only trigger type that Instant Sequence originally had. It produces one trigger every time the strength of the sound at the Frequencies chosen go above and below a certain threshold.
  - **Rapid Fire:** Think of this trigger type as the “scoot along” trigger. This is a new trigger type that is designed to work better for visualization sequences, especially those with low numbers

of channels. Rapid Fire produces a trigger for each of the Frequencies chosen. If there are many frequencies chosen for a ribbon in the timing map, then many triggers can get produced. The result is that the effects “scoot along” with the music. You should use “1 Pixel” as the Theme when using Rapid Fire. You can use other Themes but realize that since it produces so many triggers, you can end up with thousands of effects. It is recommended to use Rapid Fire on only one or two of the ribbons.

To get "Rapid Fire" to respond to all frequencies in the song, click on the Timing Map button and set "All Freqs" for the row that corresponds to the row assignment of the TCM that is using "Rapid Fire". For example:

- Set "Rapid Fire" for TCM 1.
- In "Row Assignments to TCM (Theme/Color/Movement)", set TCM 1 to Row 1. Set all other rows to "None".
- Click on the "Timing Map" button.
- In the Timing Map dialog box, set "All Freqs" under Row 1.
- In the Instant Sequence dialog box, click on the "Sequence All" button, then the "Play/Stop All" button.

**Ribbon assignments to TCM:** Across the top are the ribbon numbers. On the left is TCM1, TCM2, TCM3, TCM4, and None. By clicking on the grid of circles, you can assign a TCM to each ribbon. For example, if you have four ribbons, you could assign TCM1 to Ribbons 1 and Ribbons 2 by clicking on the two upper left circles. Then you could assign TCM2 to Ribbon 3 and Ribbon 4 by clicking on the circles in the second row that are underneath the numbers 3 and 4. You can choose "Non" to make no effects be assigned to a ribbon.

To increase or reduce the number of effects being created, you can change the sensitivity. Do this by clicking on the "Timing Map" button and changing the Sensitivity setting in the upper left of the Timing Map dialog box. Click on the "Sequence All" button in the "Instant Sequence" dialog box to create a new sequence using the new sensitivity setting.

The sensitivity setting may be the only setting that you ever change in the Timing Map dialog box, but if you are adventuresome and want to experiment with the other Timing Map settings, read [the next section](#).

## Timing Map Description

Click on the "Timing Map" button in the [Instant Sequence](#) dialog box. A large dialog box entitled "Timing Map" will appear. This dialog box gives you control over the mapping of the frequency spectrum to the ribbons, which is how the timing marks get created:

- [Freq 1 through Freq 32](#)
- [Beat, Both, Left, Right](#)
- [Sensitivity](#)
- [Length of Effects](#)
- [Extend Length of Effects](#)
- [Apply Sensitivity as](#)
- [Default Freq Settings](#)
- [Change the Timing Map](#)

### ***Freq 1 through Freq 32***



Note that there are check marks showing that Freq 1 and Freq 2 are mapped to Ribbon 1. Freq 3 and Freq 4 are mapped to Ribbon 2, and so on. On the right side of the dialog box is a piano keyboard which shows which notes the Freqs map to. The default is to have the low frequencies assigned to ribbon 1 and assign higher frequencies to each ribbon thereafter, with the highest frequency assigned to the highest number ribbon that you have.

One reason you might want to change these settings is if your high number ribbons are not getting many effects assigned to them. This would happen if the song does not have many high notes in it. So, to get more action on the high number ribbons, you can assign more frequencies to them.

### ***Beat, Both, Left, Right***

The default setting is "Both", meaning both the left and right channels of the stereo sound will be used when creating effects. You can also set "Left" or "right" to use the left or right channel of the stereo sound. Click on "Beat" to use the beat when creating effects.

### ***Sensitivity***

Sensitivity can be set to values from 1 to 10. The default is 5. Setting to a higher number will create more effects. Setting to a lower number will create fewer effects.

### ***Length of Effects***

Length of Effects can be set to values from 1 to 10. The default is 5. Setting to a higher number will make some of the effects last longer. Setting to a lower number will make some of the effects shorter. You can also think of this as the "Ritalin" setting, in that a higher number will sedate hyperactive sequences and make them more mellow.

### ***Extend Length of Effects***

This option extends the length of each effect. The length of each effect will extend up to the start of the next effect. This makes the [instant sequence](#) less "blinky".

### ***Apply Sensitivity as***

- **Volume Relative:** This is the default. With this setting, the sensitivity is applied by looking at the overall volume of the song. In essence, it raises and lowers the sensitivity to more nearly match the volume of the song at each point in the song. This helps even out the number of effects that are triggered even in the quieter parts of the song. Note, however, that the quieter parts of the song will still have fewer effects triggered than the louder parts of the song.
- **Freq Relative:** With this setting, the sensitivity is applied by looking at the volume for an individual frequency and adjusting the sensitivity for each frequency to more nearly match the volume of the song for that frequency at that point in the song. This helps even out the number of effects that are triggered for all frequencies. For example, if the song has a strong bass part in it and has some distinctive higher notes that are not as strong, this setting will help trigger those higher frequencies even though their volume is weaker. Note that it helps even out the number of effects in all frequencies, but the weaker frequencies will still have fewer effects triggered than the louder frequencies.
- **Absolute:** With this setting, the sensitivity is applied "as is". In other words, the louder parts of the song and the louder frequencies will get triggered more than the weaker parts of the song, and

no attempt is made by the software to level out the number of effects that are triggered.

### ***Default Freq Settings***

There are seven default freq settings that you can use. For example, click on "Stereo Low to High" and then click on "Set Freq Spectrum", and you will see the check marks and radio buttons change in the timing map so that the left and right channels of the stereo sound are used.

You can choose to "Include Beat" in the generation of effects.

By default, "Set Theme, Color, and Movement" is selected, meaning that when you click on the "Set Freq Spectrum" it will also set some default values for the [Theme, Color, and Movement](#). If you want to keep the Theme, Color, and Movement settings that you have, then you would uncheck "Set Theme, Color, and Movement".

### ***Change the Timing Map***

In the "Default Freq Settings" area, click on "Stereo Low to High", and then click on "Set Freq Spectrum". Go back to the "Instant Sequence" dialog box and click on "Sequence All". It will ask you if you want to overwrite your existing timings; answer "Yes". It will ask you if you want to erase the existing sequence without saving; answer "Yes". Click on "Play/Stop All".

Notice that the ribbons on the left half have effects applied based on the left stereo channel, and the ribbons on the right half have effects applied based on the right stereo channel.

## **Apply Different Sets of Theme, Color and Movement to Different Parts of the Song**

By default, you sequence the entire song each time you click on "Sequence All". To add more variation to your sequence, you can just do a portion of the song. To do this:

- Launch the "[Instant Sequence](#)" dialog box by pressing Ctrl+I.
- Near the top of the dialog box, click on the "Sequence the Selection Only" radio button.
- Use the Rewind or Forward buttons on the toolbar to scroll to the beginning of the region you want to sequence.
- Use a single left mouse click to mark the beginning of the region.
- Use the Forward or Fast Forward buttons on the toolbar to scroll to the end of the region you want to sequence.
- Use a single right mouse click to mark the end of the region.
- Before clearing the region, it is a good practice to click on "Unique Save As". This button is a quick way to save the current state of the sequence to a unique file name so that you can go back to it if you need to.
- If the region is not already cleared, click on "Clear Selection without Saving".
- Click on "Roll Dice", or set the theme, color, and move variations manually.
- Click on "Sequence Selection".

Note that "Clear Selection without Saving" uses the beginning of an effect to decide if it should be deleted. In other words, all effects whose start time falls within the selection region will be deleted.

### **5.4.4 Custom Sequences**

What you won't see in the [Light-O-Rama SuperStar Sequencer](#) is the giant grid that the traditional [Sequencer](#) uses; instead, effects are added by:

1. Setting time ranges in the time scale.
2. Selecting squares in the Green Pixel grid (also referred to as the sequencing grid).
3. Using the Scenes, Morphs, Images, and Text dialog boxes in the Tools menu.

For more information, please refer to the following sections of this help file:

- [Creating a Scene](#)
- [Creating a Morph](#)
- [Creating an Image Action](#)
- [Import Image](#)
- [Creating an Animation](#)
- [Creating Text](#)
- [Smooth Effects](#)
- [Groups of Effects](#)
- [Select One or More Rows](#)
- [Transfer Effects from One Sequence to Another](#)
- [Load/Save Clipboard](#)
- [Change to 10 Pixels per Ribbon](#)
- ["Star Rays", "Wide Grid", and "Thin Grid"](#)
- [The Layout Dialog Box](#)
- [The Preferences Dialog Box](#)
- [Configure Controller Unit IDs Using the Light-O-Rama Hardware Utility](#)
- [Configure Controller Unit IDs in the SuperStar Sequencer](#)
- [Select All, Select All Left, and Select All Right](#)
- [Importing a Timing Grid and up to 3 Timing Channels](#)

#### 5.4.4.1 Creating a Scene

In the [Light-O-Rama SuperStar Sequencer](#), a "scene" is a set of pixels that have the same start color, the same end color, a start time, and an end time.

- [Initialize the Screen](#)
- [Launch the Scene Dialog Box](#)
- [Select Some Pixels in the Pixel Grid](#)
- [Add the Scene](#)
- [Play the Scene](#)
- [Create a Scene that Has an End Color](#)
- [Play the Scenes](#)
- [Change Some Settings](#)
- [Modify a Scene](#)
- [Play the Scenes Again](#)
- [Why Did the First Scene Go from Red to Purple to Blue?](#)
- [Undo and Redo Your Modification](#)
- [Group Select](#)
- [Group Modify](#)
- [Using Group Modify to Clone](#)
- [Pause and Freeze Frame](#)
- [Add Some More Scenes of Your Choosing](#)
- [Save the Scenes You Have Created](#)

### Initialize the Screen

Click on the toolbar button with a piece of paper on it. This will do three things: It will clear the pixel grid, set the Start color as red, and set the time duration to 1.00-2.00 seconds.

## Launch the Scene Dialog Box

Click on the Tools menu and select "Scenes". The Scene dialog box will launch. Whenever the scene dialog box is launched, the "Monochrome" mode is automatically selected and the toolbar button with a black and red rectangle will depress.

## Select Some Pixels in the Pixel grid

While in "Monochrome" mode, you can color pixels in the pixel grid using the left mouse button. You can use single click or click and drag. You can erase pixels in the pixel grid using the right mouse button. Ctrl + right mouse button will erase the entire grid. Since the Start color is already set to red, the pixels will become red as you select them.

## Add the Scene

In the Scene dialog box, click on the "Add" button to add the scene.

## Play the Scene

Click on the play button in the toolbar (the button with a triangle pointing to the right). Note that at 1.00 seconds, the group of pixels you selected will turn red.

## Create a Scene that Has an End Color

The default is for the "Start" and "End" color to both be red. Let's change that and create another scene:

- Set the start and end time to 2.00 to 3.00 seconds. You can select the time with the mouse by selecting a region in the time scale, or you can type into the fields in the dialog box.
- Color some pixels.
- The left red control is already at 100%; the selected pixels will turn red.
- Set the right red control to 0%; this represents the "End" color. When you set the "End" color it does not appear in the pixel grid, but it does appear as a number in the Scene dialog.
- Click on the "Add" button to add this scene.

## Play the Scenes

Click on the Play button in the toolbar. At 1.00 seconds the first group of pixels will turn red and stay red. At 2.00 seconds, the second group of pixels will turn red and fade to black.

## Change Some Settings

In the Scene dialog box, there is a list box listing the scenes you have added. They are listed chronologically by their start times. Select the first scene in the list. Note that the time, colors, and pixels for that scene appear in the main screen. The "End" color for this scene is black. Set 100% Blue for the end color. You can do this with the right Blue color control, or by manually typing 100 into the field in the Scene dialog box.

Note: Right click on the colored box above the color controls to bring up a "[Color Picker](#)" dialog.

## Modify a Scene

Click on the "Modify" button. This will apply the new settings to the currently selected scene.

## Play the Scenes Again

Click on the Play button. at 1.00 seconds, the pixels in the first scene will turn red, fade to purple, and then fade to blue by 2.00 seconds. At 2.00 - 3.00 seconds, the second scene will play, same as it did before.

## Why Did the First Scene Go from Red to Purple to Blue?

You probably already figured this out: What you really did was set a red ramp that started at 100 and ended at 0. You also set a blue ramp that started at 0 and ended at 100. So in the middle, red was at 50 and blue was at 50, and the red and blue mix to make purple.

## Undo and Redo Your Modification

Click on the Edit menu and select "Undo Scene Modify". Then click on the Edit menu and select "Redo Scene Modify".

If you do an Add, Modify, or Delete, and change your mind, you can undo your change. You can undo up to ten actions. After undoing up to ten actions, you can also redo them.

## Group Select

There are two ways to use the mouse to select both of the scenes:

1. Click and hold the left mouse button and drag the selection rectangle to contain both of the scenes in the time layer area.
2. Click on the first scene to select it, then press and hold the Ctrl key while clicking on the second scene.

## Group Modify

Set the start color to yellow, by setting 100% red and 100% green (red and green mix to make yellow). Click on "Group Modify" in the Scene dialog box. A popup box will appear, entitled "Scene Group Modify".

Because you changed the start color, "Modify Start Color" will already be selected. Click on "OK". Note that the start color of both the scenes has changed to yellow.

## Using Group Modify to Clone

Click on "Group Modify" again; because you have not changed anything, none of the boxes are selected. However, you can select any or all of the checkboxes to clone the attributes of the first scene onto all the selected scenes. For example, select "Modify End Color", then click "OK". The

End color will be cloned onto the second scene.

Group Modify is a very powerful tool that can save a lot of time as you fine tune a sequence. It allows you to change an attribute across an entire group of effects just to see how it looks. As with other features, you can undo and redo a group modify.

## Pause and Freeze Frame

To the left of the stop button on the toolbars is the pause button. When you press the pause button, a white line appears at the time selection point. While paused, the rewind and forward keys will step through the sequence in "freeze frame" manner. You can also click anywhere on the timeline to reposition the location of the freeze frame. This is very useful while developing sequences, to better see what each frame of the sequence will look like.

Unpause by clicking on the pause button again, or by clicking on the stop button.

## Add Some More Scenes of Your Choosing

Go ahead and add some more scenes and play with the different settings. The times of the scenes can overlap. However, scenes that share the same time period should not share the same pixels. This creates a "pixel collision", and currently the results are not predictable (in the future, the SuperStar Sequencer will detect and prevent collisions).

## Save the Scenes You Have Created

Click on the File menu and select "Save As". Save the scenes you have created as a file named "MyScenes.sup".

### 5.4.4.2 Creating a Morph

In the [Light-O-Rama SuperStar Sequencer](#), a "Morph" consists of the following:

- Layer: Defines priority if there are collisions (future)
- Acceleration: The morph can accelerate as it goes from "State 1" to "State 2"

State 1 and State 2 each consist of:

1. Start point and end point of a line
2. Head color
3. Time
4. Head length

Tail consists of:

1. Color, which can be determined in one of two ways:
  - (a) Start Color and End Color
  - (b) Use the Head Color
2. Time length

Here is an example of how to create a morph:

- [Get a new screen](#)

- [Launch the Morph dialog box](#)
- [Observe the default settings](#)
- [Add first morph](#)
- [Play the morph](#)
- [Set a simple morph with a different start and end color](#)
- [Modify the morph](#)
- [Play the morph](#)
- [Add a trail length](#)
- [Modify the current morph](#)
- [Play the morph again](#)
- [Change the State 1 line to a vertical line](#)
- [Change the State 2 line to a vertical line](#)
- [Set color of the State 2 line to 100% green](#)
- [Set the time to 2.00 to 3.00](#)
- [Add a second morph](#)
- [Play the morph](#)
- [The morph twist](#)
- [Save your morph](#)
- [Morph summary](#)
- [The length of a morph](#)

## Get a new screen

Click on the toolbar button that has a picture of a piece of paper on it.

## Launch the Morph dialog box

Click on the Tools menu and select Morph. The Morph dialog box will launch, and the Scene dialog box will automatically be shut down. Whenever the Morph dialog box is launched, the "Morph" mode is automatically selected, and the black toolbar button with horizontal lines on it will be depressed.

## Observe the default settings

By default, a red line for State 1 will be at the top of the pixel grid, and a red line for State 2 will be at the bottom of the pixel grid. The time duration will be 1.00 to 2.00 seconds. The Tail start color will be red, and the time length will be 1.00 seconds.

## Add first morph

Press the "Add" button to add the morph.

## Play the morph

On the toolbar, press the Play button. At 1.00 seconds, a red line will start from the top and go down to the bottom, leaving a trail that fades to black in one second.

## Set a simple morph with a different start and end color

Leave the start color at red. Set the end color to blue. Set the Tail Time length to 0.00.

## Modify the morph

Press the "Modify" button to modify the selected morph.

## Play the morph

On the toolbar, press the Play button. At 1.00 seconds, a red line will start from the top and go down to the bottom. The line will change from red to purple and then to blue by the time it reaches the bottom at 2.00 seconds.

## Add a trail length

The trail length defaults to 1. Make the morph leave a trail by typing in a number in the Trail Length field. For this exercise, change the State 1 Trail Length to 2, and change the State 2 Trail Length to 10.

## Modify the current morph

Click on the "Modify" button. This applies your changes to the currently selected morph in the morph list.

## Play the morph again

This time, the morph will leave a trail of two lines at the top, and will change to leaving a trail of 10 lines at the bottom.

## Change the State 1 line to a vertical line

The State 1 line is defined using a click and drag with the left mouse button. Note that one end of the State 1 line is labeled "1a" and the other end is labeled "1b". The start of the mouse drag will be "1a" and the end will be "1b". Make a vertical line by dragging on the left side of the pixel grid. Make your selection from top to bottom. When you are done, the top of the line should be labeled "1a", and the bottom of the line should be labeled "1b".

## Change the State 2 line to a vertical line

The State 2 line is defined using a click and drag with the right mouse button. Note that one end of the State 2 line is labeled "2a" and the other end is labeled "2b". The start of the mouse drag will be "2a" and the end of the drag will be "2b". Make a vertical line by dragging on the right side of the pixel grid. Make your selection from top to bottom. When you are done, the top of the line should be labeled "2a" and the bottom of the line should be labeled "2b".

## Set color of the State 2 line to 100% green

The color of the State 2 line is controlled by the right color controls. Set the right Blue control to 0% and the right Green control to 100%. This will change the State 2 line color from blue to green.

## Set the time to 2.00 to 3.00

You can do this with the mouse on the time scale, or you can type the values into the dialog box.



State 1 time is the start time, and State 2 time is the end time.

## Add a second morph

Press the "Add" button to add the second morph.

## Play the morph

On the toolbar, press the Play button. At 1.00 seconds, the first morph will play as it did before. At 2.00 seconds, the second morph will start from the left and end at the right.

## The morph twist

Set the Tail Time Length back to 1.00 seconds. The Tail start color should be 100% red. Redefine the State 1 line by doing a mouse drag from bottom to top. Now "1a" will be on the bottom, and "1b" will be on the top. Click on the "Modify" button. Play the morph.

This time, the line will twist as it travels across. The effect will be that the line will become shorter in the middle and then get bigger. This is because as the morph progresses, point "1a" moves to point "2a", and point "1b" moves to point "2b".

## Save your morph

Click on the File menu and select "Save As". Save the morphs you have created as a file named "MyMorphs.sup". Note that files can contain any combination of scenes and morphs. In this example, you saved them separately, but you could have saved your scenes and morphs together into a file of any name you choose.

## Morph summary

Are morphs cool or what? You can do a lot with morphs. In the exercise, we morphed between two horizontal lines and between two vertical lines. You can also morph between diagonal lines.

Head Length and Tail Time Length can end up giving similar effects, but are applied differently. Head Length leaves a head that is a certain number of pixels long. Tail Time Length is applied after the Head effect, and is on for a certain amount of time. Experiment with different Head and Tail Time Length settings to get a feel for how they work.

Also, realize that when you specify a Tail Time Length to use the Head Color, it means to use the colors specified for the head. If the State 1 and State 2 head colors are different, then the Tail will use the appropriate intermediate color for the tail for the length of the tail. When you specify "Use Head Color", the intermediate color is determined by the location of the Tail along the morph, whereas when you specify a start and end color for the Tail in the Tail section, the intermediate color is determined by the time since the morph started.

## Show Entire Head at Start

This setting allows you to start with the entire head being visible from the start. For example, if the morph travels 50 pixels, you can set State 1 Head Length to 50 and set State 2 Head Length to 0, and the morph will be 50 pixels long right from the start, and will get shorter and disappear at the end.

## Acceleration

An acceleration of 0 means no acceleration. A positive number means accelerate from a slower speed to a faster speed. A negative number means decelerate from a faster speed to a slower speed. Try making a morph that travels downward and give it an Acceleration of 5. The morph will look like gravity is accelerating it downward. Try making a morph that travels upward and give it an Acceleration of -5. The morph will look like gravity is slowing the morph down as it travels upwards.

## The length of a morph

Most people won't care about the details of the total length of a morph. But for those that really want to know, there are three parts to a morph:

1. **Root:** This is the time for the leading edge of the morph to travel from State 1 to State 2.
2. **Head Length:** The State 2 Head Length will add the length of the head at the end of the morph. This head will take some time to travel past the end location of the morph.
3. **Tail Length:** The tail length is in seconds, and is applied after the Root and Head.

The length of the Head and the Tail are displayed on the timeline as a narrow rectangle. Note that only the root can be selected. Clicking on the head or the tail will not do anything.

### 5.4.4.3 Creating an Image Action

In the [Light-O-Rama SuperStar Sequencer](#), an "image action" will move an image from a start point to an end point. At the end, a ramp can be applied. An image action consists of:

- Layer: Defines priority if there are collisions (future)
- Acceleration: The image can accelerate or decelerate as it goes from point A to point B (future)
- Image: A bitmap
- Start point
- End point
- Ramp

Ramp consists of:

- Time length
- Start color (future)
- End color (future)

Here is an example of how to create an image action:

- [Get a new screen](#)
- [Launch the Image Action dialog box](#)
- [Observe the default settings](#)
- [Draw an image](#)
- [Add an image name](#)
- [Add the image](#)
- [Observe the default image action values](#)
- [Type an image action name](#)
- [Add the image action](#)
- [Play the image action](#)

- [Add another image action](#)
- [Play the image actions](#)
- [Stop at the right edge](#)
- [PreRamp and PostRamp](#)
- [View the image actions on a square grid](#)
- [Play it again](#)

## Get a new screen

Click on the toolbar button that has a picture of a piece of paper on it.

## Launch the Image Action dialog box

Click on the Tools menu and select "Images". The Image Action dialog box will launch, and the Morph dialog box will automatically be shut down. Whenever the Image Action dialog box is launched, the "Draw" mode is automatically selected and the toolbar button with a pencil on it will be depressed.

## Observe the default settings

By default, the left red color control will be set to 100%. The time duration will be 1.00 to 2.00 seconds. All pixels in the pixel grid will be black.

## Draw an image

Leave the left red color control at 100%. Set the left green color control to 100%. The start color will now be yellow. When drawing an image, only the start color is used; the end color is not used.

Click on the pixel grid to draw a smiley face at the top of the pixel grid. Single clicks will draw one pixel; click and drag will leave a trail of pixels. Right click erases pixels. Ctrl-right click will clear the entire grid.

## Add an image name

At the top of the dialog box is the Image group. In the "Name" field of the Image group area, type "Smiley Face".

## Add the image

In the Image group at the top of the dialog box, click on the Image "Add" button.

## Observe the default image action values

The default start point (x,y) is (0,0), and the default end point (x,y) is (0,50). The default start and end times are 1.00 and 2.00. Leave these settings at their default values.

## Type an image action name

In the Image Action group at the bottom of the dialog box, type "Smiley down".

## Add the image action

In the Image Action group at the bottom of the dialog box, click on the Image Group "Add" button.

## Play the image action

Play the image action. at 1.00 seconds, your image will start from the top and travel downward, disappearing off the bottom of the ribbons.

## Add another image action

We will use the same image again, and this time move it horizontally.

For the time, select 2.00 to 3.00. For the start point, type (-12, 10) (enter minus twelve so that the start point and end point are different). For the end point, type (12, 10). For the Image Action name, type "Smiley right" in the bottom name field. Click on the bottom "Add" button.

## Play the image actions

At 1.00 to 2.00 you will see the first image action, which goes from top to bottom. At 2.00 to 3.00, the second image action will move from left to right across the ribbons.

## Stop at the right edge

Select the image action that goes from left to right. Keep the start point at (-12, 10), but change the end point to (0, 10). At the bottom of the dialog box, enter a "Post Ramp Time" of 1.00. Click the Modify button.

Play the image actions and you will see the first image action go from top to bottom. The second image action will move from the left to the right edge and then fade for 1.00 seconds at the right edge.

## PreRamp and PostRamp

"PreRamp Time" will fade the image in. Selecting "Make Brighter" with a "PreRampTime" will fade the image in brighter. It gives the effect of "poof" and the image appears.

"PostRamp Time" will fade the image out. Selecting "Make Brighter" with a "PostRamp Time" will make the image brighter and then fade to black. It gives the effect of "poof" and the image disappears.

## View the image actions on a square grid

At the right end of the toolbar are three buttons. If you hover the mouse over the buttons you will see they are called ["Star Rays"](#), ["Wide Grid"](#), and ["Thin Grid"](#). Currently the "Star Rays" button is pressed. Click on the "Wide Grid" button.

## Play it again

Play the image actions again and you will see how they look when the ribbons are parallel to each

other and form a grid of pixels.

#### 5.4.4.4 Import Image

On the right half of the Image Setup dialog box is the Import Image section. This section is used to import image files such as .jpg, .gif, .bmp, .png, and .ico files. To import an image file, do the following:

- Click on the Tools menu and select "Images..."
- In the Import Image section, click on the "Import image File (JPG, GIF, BMP, PNG, ICO, etc)" button
- If you are in CCR Mode, the sequencing grid will become larger and will be 64x50 pixels in size. This allows you to define a large image if you want. You can manipulate the image by using the following controls:
  - [Move Origin X Y](#)
  - [Squish/Stretch X Y](#)
  - [Rotation Angle](#)
  - [Enlarge/Shrink](#)
  - [Clip Grid Bitmap](#)
  - [Images on a Small Grid](#)
  - [Images on a Grid Larger than Your Actual Lights](#)

### Move Origin X Y

This control will move the origin of the image. Use the arrow buttons to move it left, right, up, or down.

### Squish/Stretch X Y

This control will squish or stretch the image in the X or Y direction. Using this control will change the aspect ratio of the image.

### Rotation Angle

Use this control to rotate the image. A positive angle will rotate the image clockwise; a negative angle will rotate it counterclockwise.

### Enlarge/Shrink

Use this control to enlarge or shrink the image.

### Clip Grid Bitmap

While manipulating the image, you can click on "Clip Grid Bitmap" and set a clipping rectangle on the sequencing grid using "Shift + Left Mouse Button". Then when you click on "Set Grid Bitmap from Image File", only the pixels within the clipping rectangle will get set.

After you have manipulated the image to the location, angle, and size that you want, click on the "Set Grid Bitmap from Image File" button. This will set the pixels on the sequencing grid to represent the original imported image. At this point you can manually edit the image if you wish. Note that you can set the color controls to the color of a pixel in the sequencing grid by moving the mouse to a pixel and then doing a Shift + Left mouse click. To set a pixel, set the color controls to

the color you want and then click on one or more pixels.

After you have the image the way you want it, type in a name in the Image section and click on the "Add" button in the Image section.

## Images on a Small Grid

For example, if you have 12 CCRs and you are in CCR mode, then you have a grid of 12x50 pixels to work with. However, when you import the image, the grid will become larger and will be 64x50 pixels in size. If you want your image to fit within your 12x50 pixels that you have, then you will need to shrink the imported image and move it to the left so that it will fit within the first 12 columns of pixels. Then you can click on the "Set Grid Bitmap from Image File" button. You can then set the Grid Mode to "Standard", and the sequencing grid will become the standard size of 12x50 pixels.

## Images on a Grid Larger than Your Actual Lights

For example, if you have 12 CCRs and you are in CCR mode, then you have a grid of 12x50 pixels in your actual display. However, when you import the image, the Grid Mode will automatically be set to "Large" and the grid will become large and will be 64x50 pixels in size. Even though your actual lights are only 12x50 pixels in size, you can create a larger image and move the image through your 12x50 pixels. This allows you to display large images on a small grid. To do this, do the following:

- In the Import Image section, click on the "Import Image File (JPG, GIF, BMP, PNG, ICO, etc)" button.
- The sequencing grid becomes larger and will be 64x50 pixels in size.
- Manipulate the image but keep it large so that it uses most or all of the 64x50 pixels.
- Click on the "Set Grid Bitmap from Image File" button.
- If you want, manually edit the pixels further.
- In the image section, type in a name and click on the "Add" button.

Now you want to add an image action that will move the image through your 12x50 pixels, so do the following:

- Set the Grid Mode to "Standard". This will change the grid to be the size of your actual display).
- In the time ruler at the top of the screen, set the time length to something long, such as 4 seconds.
- In the Image Action section, set Start x, y to 12, 0, and set End x, y to -64, 0.
- In the Image Action section, click on the "Add" button.
- Click on the "Play 8 seconds" button to play the Image Action. You should see the Image move through your 12 CCRs from right to left.
- To make the image move from left to right, set Start x, y to -64, 0, and set End x, y to 12, 0. Note that these values assume your image is 64 pixels wide. If it is not that wide, then you would use smaller values.

### 5.4.4.5 Creating an Animation

Using the [Light-O-Rama SuperStar Sequencer](#), you can create an animation using a series of stationary images. Here is an example of how to create an animation:

- [Load some pre-drawn images](#)
- [Launch the Image dialog box](#)
- [Select "Apply x,y in Preview \(for animations\)"](#)
- [Add the first image](#)
- [Add the second image](#)
- [Add the third image](#)
- [Add the fourth image](#)
- [What are those boxes under the timeline?](#)
- [Check your work](#)
- [How does cut/copy/paste work?](#)
- [Copy/paste four images](#)
- [Image group modify](#)
- [Copy/paste 8 images](#)
- [Image group modify](#)
- [Copy/paste 16 images](#)
- [Image group modify](#)
- [Copy/paste 13 images](#)
- [Image group modify](#)
- [Play the animation](#)
- [Nudge the animation to the left](#)
- [Play on "Wide grid" and "Narrow Grid"](#)
- [Save your animation](#)
- [Add an eye to Pac Man](#)
- [Play it again, Sam](#)

## Load some pre-drawn images

Click on the File menu, select "Open...", and open the file "PacManImages.sup", located in the "Samples" directory of your SuperStar Sequences directory. Be sure to load PacManImages.sup, *not* PacManAnimation.sup.

## Launch the Image dialog box

Click on the Tools menu and select "Images...". Click on each image in the image list box to view them.

## Select "Apply x,y in Preview (for animations)"

Select the checkbox labeled "Apply x,y in Preview (for animations)". This applies the (x,y) coordinate in the preview of the image and it also disables the "End x" and "End y" edit fields (for animation images, the start (x,y) and end (x,y) are the same).

## Add the first image

- In the image list box, select "01 Circle".
- In the Time Line, select from 1.00 to 1.10 seconds.
- In the Image Action x,y Start, type "0" and "44"
- In the Image Action name field, type "Mouth shut".
- In the Image Action section, click the "Add" button.

"1.00 Mouth shut" should appear in the Image Action list box.

Remember: If you make a mistake, you can always undo your mistake by clicking on the Edit menu and selecting Undo.

## Add the second image

- In the image list box, select "02 Half open".
- In the timeline, select from 1.10 to 1.20 seconds.
- In the Image Action x,y Start, type "0" and "42".
- In the Image Action name field, type "Mouth half open".
- In the Image Action section, click the "Add" button.

"1.10 Mouth half open" should appear in the Image Action list box.

## Add the third image

- In the image list box, select "03 Full open".
- In the timeline, select from 1.20 to 1.30 seconds.
- In the Image Action x,y Start, type "0" and "40".
- In the Image Action name field, type "Mouth full open".
- In the Image Action section, click the "Add" button.

"1.20 Mouth full open" should appear in the Image Action list box.

## Add the fourth image

- In the image list box, select "02 Half open".
- In the timeline, select from 1.30 to 1.40 seconds.
- In the Image Action x,y Start, type "0" and "38".
- In the Image Action name field, type "Mouth half shut".
- In the Image Action section, click the "Add" button.

"1.30 Mouth half shut" should appear in the Image Action list box.

## What are those boxes under the timeline?

Under the yellow timeline, you should see four light gray boxes. These boxes are the four image actions you just added. Click on the first of the four boxes and it will highlight the first image action, labeled "Mouth shut". Click on the second and it will highlight the second image action, "Mouth half open". You can also highlight the image action in the list box, and it will highlight the corresponding box under the timeline.

## Check your work

It is easy to make a mistake while adding the image actions. Click on the first image action, labeled "Mouth shut", in the image action list box. Use the down arrow key to step through the image actions. The y coordinate should step through 44, 42, 40, and 38, and the top of the image should step up two pixels each time. If the image is not moving, make sure you have "Apply x,y in Preview (for animations)" selected.

## How does cut/copy/paste work?



The fourth, fifth, and sixth buttons on the toolbar are the Cut, Copy, and Paste buttons. By default, the objects you paste will be placed in the first open layer, so that effects do not end up on top of each other. If you wish the pasted objects to stay in their original layers, press the Shift key while clicking on the Paste button.

## Copy/paste four images

- Select all four of the light gray boxes under the yellow timeline.
- Click on the "Copy" toolbar button. The selected effects will be copied to the clipboard.
- Click on the timeline just after the light gray boxes, which will be at 1.40 seconds.
- Click on the Paste toolbar button. The effects in the clipboard will be pasted starting at 1.40 seconds.

Remember, if you make a mistake you can click on the Edit menu and select Undo.

## Image group modify

- You should now have eight image actions on the timeline. Select the last four.
- Click on "Group Modify"; the Image Group Modify dialog box should appear.
- Select "Modify x,y".
- "Add as Offsets to x,y Positions" should already be selected; leave it selected.
- Underneath "Start", type "0" into the left field, and type "-8" into the second field. Click on "OK". This will subtract 8 from the y coordinate in the selected image actions.
- Click on each of the image actions, and you should see your animation move up the screen.

## Copy/paste 8 images

Select all of the eight light gray boxes that you now have under the timeline. Click on the timeline just after the boxes that are already there. Click on Copy, and then Click on Paste.

## Image group modify

- You should now have 16 image actions on the timeline. Select the last eight.
- Click on "Group Modify"; the Image Group Modify dialog box should appear.
- Select "Modify x,y".
- "Add as Offsets to x,y Positions" should already be selected; leave it selected.
- Underneath "Start", type "0" into the left field, and type "-16" into the second field. Click on "OK". This will subtract 16 from the y coordinate in the selected image actions.
- Click on each of the image actions, and you should see your animation move up the screen.

## Copy/paste 16 images

Select all of the 16 light gray boxes that you now have under the timeline. Click on the timeline just after the boxes that are already there. Click on Copy, and then Click on Paste.

## Image group modify

- You should now have 32 image actions on the timeline. Select the last 16.
- Click on "Group Modify"; the Image Group Modify dialog box should appear.
- Select "Modify x,y".

- "Add as Offsets to x,y Positions" should already be selected; leave it selected.
- Underneath "Start", type "0" into the left field, and type "-32" into the second field. Click on "OK". This will subtract 32 from the y coordinate in the selected image actions.
- Click on each of the image actions, and you should see your animation move up the screen.

## Copy/paste 13 images

Select the first 13 light gray boxes that you now have under the timeline. Click on the timeline just after the boxes that are already there. Click on Copy, and then Click on Paste.

## Image group modify

- You should now have 45 image actions on the timeline. Select the last 13.
- Click on "Group Modify"; the Image Group Modify dialog box should appear.
- Select "Modify x,y".
- "Add as Offsets to x,y Positions" should already be selected; leave it selected.
- Underneath "Start", type "0" into the left field, and type "-64" into the second field. Click on "OK". This will subtract 64 from the y coordinate in the selected image actions.
- Click on each of the image actions, and you should see your animation move up the screen.

Your animation is now complete.

## Play the animation

Click on the Play button. You should see Pac Man chase the red ghost up the ribbons.

## Nudge the animation to the left

The chomping sound starts before you see the animation start. To synchronize the appearance of the animation with the start of the chomping sound, select all of the image actions under the timeline. Click on the "Nudge Left" toolbar button (the button with an hourglass and a left arrow on it). All the image actions should move left by 0.05 seconds. Nudge left three or four more times and the animation should be more in sync with the sound.

## Play on "Wide Grid" and "Narrow Grid"

Click on the "Wide Grid" toolbar button and play the animation.

Click on the "Narrow Grid" toolbar button and play the animation.

## Save your animation

Click on the file menu, and select "Save As...". Save the file as "MyPacManAnimation.sup".

Note: There is already a file named PacManAnimation.sup in the Samples directory. You can compare your animation with this animation.

Well, it was a bit tedious, but it was worth the effort: You now have a cool Pac Man animation!

## Add an eye to Pac Man

Even after the image actions are all defined, you can still modify the images that they use. For example, you could add an eye to the yellow Pac Man. Note that to change the images, you will be working in the upper Image section of the image dialog. Do not click on anything in the lower Image Action section.

- Select "01 Circle" in the Image list box.
- Use the right mouse button to erase some pixels on the yellow Pac Man to make an eye.
- Click on the Image "Modify" button in the upper Image section (not the lower Image Action "Modify" button).
- Repeat the same process for "02 Half open" from the Image list box.
- Repeat the same process for "03 Full open" from the Image list box.

## Play it again, Sam

Play the animation again, and you will see the eye in the entire animation.

### 5.4.4.6 Creating Text

In the [Light-O-Rama SuperStar Sequencer](#), text can be stationary or can move in any direction. At the end of the movement, the text can be stopped and displayed stationary for a specified period of time. Different size fonts can be used, and you can choose the text color or let the text be rainbow colored. Text can be treated as a positive mask or a negative mask. Let's get started!

- [Select Wide Grid or Thin Grid](#)
- [Set Layout to 24 ribbons](#)
- [Get a new screen](#)
- [Launch the Text dialog box](#)
- [Observe the default settings](#)
- [Add a text action](#)
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- [Change the color of the text](#)
- [Modify and play the text action](#)
- [Change Rotation to 0 degrees and set Direction of Motion to left](#)
- [Try different rotations and directions of motion](#)
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- [It works with morphs too!](#)
- [Move the morph to the foreground](#)
- [Negative text masks](#)
- [Discussion](#)
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- [Summary](#)

## Select Wide Grid or Thin Grid

At the right end of the toolbar are three buttons that control how the ribbons are laid out. The text will be harder to read if you have "Star Rays" selected. Select "Wide Grid" or "Thin Grid" and the text will be easier to read.

## Set Layout to 24 ribbons

Click on the Tools menu and select Layout. In the layout dialog box, set the Number of Ribbons to 24. We may not actually have 24 ribbons, but for the sake of this exercise, let's pretend we do!

## Get a new screen

Click on the toolbar button that has a piece of a paper on it.

## Launch the Text dialog box

Click on the Tools menu and select "Text". The Text Setup dialog box will launch. Whenever the Text Setup dialog box is launched, "Text" mode is automatically selected and the toolbar button with "ABC" on it will be depressed.

## Observe the default settings

By default, the color is white, font is "8-8x8 Thin - System", time duration is 1.00 - 5.00 seconds, text is "ABCDEF", text mode is Normal, rotation is 90 degrees, direction of motion is Up, and Stop at Edge is unselected.

## Add a text action

In the Text Action group, click on the "Add" button.

## Play the text action

Click on the Play button. You should see "ABCDEF" scroll like a marquee from the bottom to the top of the ribbons.

## Change the color of the text

Currently, the text is white. Leave the red color control at 100, but change the green and blue color controls both to 0. The text preview will now be red.

## Modify and play the text action

In the Text Action group, click on Modify, then play the text action again. Red text will scroll from the bottom to the top.

## Change Rotation to 0 degrees and set Direction of Motion to left

Set Rotation to 0 degrees and set Direction of Motion to Left. Click on Modify, and play the text action. Red text will scroll from right to left across the ribbons.

## Try different rotations and directions of motion

You can mix and match the rotation and direction of motion. Try some different combinations. Remember to always click on Modify and then to click on Play to see the results of your new settings. Also, try "Stop at Edge" to see what it does.

## Rainbow

In the Color/Mask group, select Rainbow. Each character of the text now becomes a different color. Click on Modify, and play the text action with rainbow colors.

## Rainbow start color

You can set the start color of the rainbow. For this exercise, use the following settings:

- Set Color to Rainbow
- Leave Mask at Normal
- Set Rotation to 90 Degrees
- Set Direction of Motion to Center
- Unselect Stop at Edge
- Set Start time to 1.00 seconds and End time to 2.00 seconds

Click on Modify and play the text. The rainbow text will be centered on the ribbons and will not move.

## Change the start color

- Set Start time to 2.00 seconds and End time to 3.00 seconds.
- Set the start color to orange.
- Click on Add. You will now have two text actions.
- Click on Play.

The rainbow colors will display with red as the start color from 1.00 to 2.00 seconds, and then the text will display with orange as the start color from 2.00 to 3.00 seconds.

By continuing to add text actions one after another with different start colors, you can make the colors move across the characters!

## Try a different font and change the text

- Delete any text actions that you currently have. You can do this by clicking on Delete until all text actions in the Text Action list box are gone.
- In the Font list box, select "10-12x12 Bold - System". The text will become larger.
- In the Text field in the middle of the dialog box, change "ABCDEF" to "Merry Christmas!"
- Set the start time to 1.00 seconds and the end time to 5.00 seconds.
- Set Color to Rainbow.
- Set Start Color to whatever color you want.

- Set Rotation to 270 Degrees.
- Set Direction of Motion to Down.
- Unselect Stop at Edge.

Click on Add and play the text action. "Merry Christmas!" will scroll from top to bottom in rainbow characters.

## Discussion on fonts

We just used the font "10-12x12 Bold - System". The first number in the name is the pixel height of a capital letter. The second and third numbers are the character cell width and height. In this font there are two pixels reserved for the lower case descenders (for example, the bottom tail of a "y"). This is why the height of the character cell, 12, is greater than the height of a capital letter, 10.

Note that in the smaller fonts, the cell height is the same as the capital letter height. This is because there are not enough pixels to reserve room for lower case descenders. In those fonts, the tail of a "y" does not go below the bas line.

As mentioned, the second number is the font character cell width, but realize that this is an average width. The width of any individual character may be different.

## Custom fonts

In the font list, there are five system fonts and five custom fonts. The custom fonts are shipped identical to the system fonts. The only difference is that system fonts are not allowed to be modified, while the custom fonts are. If you wish to tweak some of the characters in a font, you can do so in any of the custom fonts. For example, let's say we want to make the exclamation point bigger in the "10-12x12 Bold - Custom" font. To do this, do the following:

- In the central area of the dialog box, select the radio button labeled "Font Character Entry".
- In the font list, select "10-12x12 Bold - Custom". It should be the second to last font in the list. The Modify button in the Chars group will become enabled.
- In the Char list, select the "!" character (the second character in the list).
- The char cell width is 4; change this to 6 and click on the Modify button immediately below the Char list. Note that the yellow line indicating the char cell width changed from 4 to 6.
- The current "!" character is two pixels wide. Redraw the pixels to make a fatter 4 pixel wide "!" character.
- Click on the Char List Modify button again.
- Now click on the Save button immediately below the Font list. This saves your change to a file.
- Click on the Text Action Entry radio button.
- Type the word "Merry!" as the text.
- In the font list, select "10-12x12 Bold - Custom". You should see the new exclamation point that you customized.

## PreRamp and PostRamp

"PreRamp Time" will fade the text in. Selecting "Make Brighter" with a "PreRamp Time" will fade the text in brighter. It gives the effect of "poof" and the text appears.

"PostRamp Time" will fade the text out. Selecting "Make Brighter" with a "PostRamp Time" will make the text brighter and then fade to black. It gives the effect of "poof" and the text disappears.

## Discussion

You now know how to control many features of a text action. You can move the text, have it stand still, rotate the text, change its color, change the font, and even customize the characters within a font. But there is more.

## What is a text mask?

In the Color/Mask group, there are three radio buttons, labeled "Normal", "Pos Mask", and "Neg Mask". So far we have done everything with the "Normal" setting. Normal means that there is no mask applied, and the text will behave normally. "Pos Mask" and "Neg Mask" are advanced features that allow you to apply any effect to the background and/or foreground of text.

## Try some positive mask text

- Delete any text actions that you have by clicking on the Delete button until all text actions are gone from the list.
- Set the start time to 1.00 seconds and the end time to 5.00 seconds.
- Type the word "Merry" as the text.
- Select font "10-12x12 Bold - System".
- Set Color/Mask to Choose Color.
- Set Color to red by setting red to 100, green to 0, and blue to 0.
- Set Pos Mask.
- Set Rotation to 270 Degrees.
- Click on Add.
- Play the text action.

The word "Merry" appears in red in the center of the ribbons. Nothing special yet...

## Apply a background effect

- Click on Tools and select Scenes.
- Set the start time to 2.00 seconds and the end time to 4.00 seconds.
- Set the start and end colors to blue.
- Set all the pixels in the pixel grid by pressing the Ctrl key and then clicking with the left mouse button on the pixel grid. All the pixels in the pixel grid should be blue.
- Click on Add.
- Play the text action.

You should first see the red "Merry", and then at 2.00 seconds the background should become blue.

## Understanding a positive text mask

In the time layer area, there should be a red bar going from 1.00 seconds to 5.00 seconds. This bar is the Text mask. Click on this bar and the Text dialog should launch.

There is a box in the lower right area of the dialog box labeled "Mask Diagram". As the diagram shows, the effects above a text mask appear in the background, and the effects below a text mask appear in the foreground. So, let's try moving the scene from the background to the foreground.

- Select the blue bar in the time layers.

- Locate the "Move Effects Down" button in the toolbar. It is the fourth button from the right.
- The "Move Effects Down" button changes the layer of the effect. Click on it until the scene effect is below the mask.
- Click on Play.

This time the scene gets applied to the foreground and the text becomes purple from 2.00 to 4.00 seconds. Note: If the scene fails to get applied to the foreground, make sure the Positive Text Mask color is set to pure red - i.e. set red to 100, green to 0, and blue to 0.

## It works with morphs too!

- Click on the scene and delete it.
- Click on the Tools menu and select Morphs. The Morph dialog box will launch.
- Set the start time to 2.00 seconds and the end time to 3.00 seconds.
- Set the start and end colors to green.
- Set the tail time length to 0.50 seconds.
- Set the ramp start color to green and leave the ramp end color as black.
- Click on Add and then Play.

The text should appear and then the morph will be applied to the background. Text masks are cool!

## Move the morph to the foreground

Click on the green bar in the time layers and move it to the other side of the mask. Click on Play.

This time the morph gets applied to the foreground of the text. Note: If the morph fails to get applied to the foreground, make sure the Positive Text Mask color is set to pure red - i.e. set red to 100, green to 0, and blue to 0.

## Negative text masks

We started out using a positive text mask. Let's try a negative text mask.

- Leave the morph on the foreground side of the text mask.
- Click on the red bar in the time layers; the Text dialog box appears.
- Select "Neg Mask". A message box appears recommending that you set the text color to white when using negative masks. Answer "Yes" to the message box"; the text color will then be automatically set to white.
- Click on the Modify button and then Play. This time, you will see nothing until the morph gets applied to the text foreground.
- Move the morph to the background side of the text mask, and play. This time, you will see nothing until the morph is applied to the background.

## Discussion

The weird thing about negative masks is that they are invisible until other effects are applied to their foreground and/or background. This seems weird at first, but it is the key to their power. You can apply multiple effects on either side of the mask. You can even apply image actions and normal text to the background or foreground. But you cannot apply a mask to a mask.

## Applying normal text to the background of a text mask



- Move the morph to the foreground side of the mask.
- Set the morph start time to 1.00 and the end time to 2.00.
- Increase the tail time to 3.00.
- Click on Play. You should see the morph applied to the foreground of the text mask.
- Click on the white bar in the time layer area; the Text dialog box is launched.
- Type "Christmas" for the text.
- Leave Rotation at 270 degrees.
- Click on Normal.
- Set Direction of Motion to DownRt.
- Set the color of the text to red.
- Set the start time to 2.00 seconds and the end time to 5.00 seconds.
- Click on Add.
- The red bar in the time layers represents the normal text you just added. Move it to the background side of the text mask.
- Click on Play.

The morph should play across the word "Merry", and "Christmas" should move across the background.

This same sequence is stored as a sample file named "TextMaskMerryChristmas.sup".

## Summary

Text masks take some time to learn, but are well worth the effort. With all the other effects, the time layers were just a way to view the effects. With text masks, the layers have a new meaning. This tutorial explored only a few of the variety of text effects that are now possible. Cosmic Color Ribbons have been taken to a whole new level!

### 5.4.4.7 Smooth Effects

Smooth Effects look best on a large matrix of RGB lights. They are designed to change large areas of lights in a smooth flowing manner. There are three types of smooth effects: [Shockwave](#), [Spiral](#), and [Fan](#).

## Shockwave

After launching the Smooth Effects dialog box, click on the "Shockwave" tab.

- [Center Point and Radius](#)
- [Angle](#)
- [Width](#)
- [Acceleration](#)

### ***Center Point and Radius (Shockwave)***

In the green sequencing grid, there will be a small circle and a line ending with an arrow head. The small circle marks the center of the [shockwave](#). The line ending with an arrow head marks the radius. Click on the "Add" button in the "Smooth Effects" dialog box, and then click on the "Play" button to see the shockwave. You should see a shockwave effect start from the center and end where the arrow head was.

To change the center point and radius, do a click and drag with the left mouse button. You can change the direction and length of the radius with the right mouse button. For example, do a click and drag with the right mouse button starting at the end of the arrow line and drag towards the center where the circle is. This will make the line start at the outside and go towards the middle with the arrow pointing towards the middle. Add another shockwave effect and play it, and you should see a shockwave start big and contract to a smaller size.

### ***Angle (Shockwave)***

The Start Angle and End Angle are grayed out, because [Shockwave](#) does not use them.

### ***Width (Shockwave)***

There is a Start Width and an End Width. The Start Width is the width of the "leading edge" of the [shockwave](#). The End Width is the width of the "trailing edge" of the shockwave. Click on the Up or Down Arrow buttons next to the Start Width or End Width to change their values.

### ***Acceleration (Shockwave)***

Setting a positive number will make the [shockwave](#) start slowly and increase in speed as it travels. Setting a negative number will make the shockwave start quickly and slow down as it travels.

## **Spiral**

After launching the Smooth Effects dialog box, click on the "Spiral" tab.

- [Center Point and Radius](#)
- [End Angle](#)
- [Width](#)
- [Tail Time Length](#)
- [Acceleration](#)

### ***Center Point and Radius (Spiral)***

In the green sequencing grid, there will be a small circle and a line ending with an arrow head. The small circle marks the center of the [spiral](#). The line ending with an arrow head marks the radius and start angle. Click on the "Add" button in the "Smooth Effects" dialog box, and then click on the "Play" button to see the spiral. You should see a spiral effect start from the center and end where the arrow head was.

To change the center point and radius, do a click and drag with the left mouse button. You can change the direction and length of the radius with the right mouse button. For example, do a click and drag with the right mouse button starting at the end of the arrow line and drag towards the center where the circle is. This will make the line start at the outside and go towards the middle with the arrow pointing towards the middle. Add another spiral effect and play it. You should see a spiral start at the outside and spiral inward, ending where the arrow head was.

### ***End Angle (Spiral)***

The end angle of the [spiral](#) can be changed by changing the value in the End Angle field. Changing the value of the Revolutions field will also change the value in the End Angle field. The default is an end angle of 360 degrees and 1.00 revolutions. The default setting will make a spiral that travels

clockwise from 0 degrees to 360 degrees. Set Revolutions to 2.00 to make the spiral go around two times. Setting a negative number for End Angle or Revolutions will make the spiral travel counterclockwise.

### **Width (Spiral)**

There is a Start Width and an End Width. The Start Width is the pixel width at the start of the [spiral](#). The End Width is the pixel width at the end of the spiral.

### **Tail Time Length (Spiral)**

This is the time length the [spiral](#) will stay on screen before it erases itself.

### **Acceleration (Spiral)**

Setting a positive number will make the [spiral](#) start slowly and increase in speed as it travels. Setting a negative number will make the spiral start quickly and slow down as it travels. Setting acceleration to zero means do not accelerate, but even with acceleration set to zero, spiral effects will have a natural acceleration if the start width is smaller than the end width, and a natural deceleration if the start width is bigger than the end width.

## **Fan**

After launching the Smooth Effects dialog box, click on the "Fan" tab. Fan uses a series of [Spiral](#) effects that can look like a fan.

- [Center Point, Radius and Start Angle](#)
- [Width](#)
- [Blades](#)
- [Blade Width](#)
- [Revolutions Per Second](#)
- [Element Angle](#)
- [Element Step Angle](#)
- [Acceleration](#)
- [Show Entire Blade at Start](#)

### **Center Point, Radius and Start Angle (Fan)**

In the green sequencing grid, there will be a small circle and a line ending with an arrow head. The small circle marks the center of the [fan](#). The line ending with an arrow head marks the radius and start angle. Click on the "Add" button in the "Smooth Effects" dialog box, and then click on the "Play" button to see the fan. You should see a fan effect start from the start angle and rotate at the default speed of 0.25 [revolutions per second](#).

To change the center point and radius, do a click and drag with the left mouse button. You can change the direction and length of the radius with the right mouse button. For example, do a click and drag with the right mouse button, starting at the end of the arrow line, and drag towards the center where the circle is. This will make the line start at the outside and go towards the middle with the arrow pointing towards the middle. Add another fan effect and play it. The fan will start from the start angle and rotate at the default speed of 0.25 revolutions per second as it did before, except this time each element of the fan will travel inward instead of outward.

### ***Width (Fan)***

There is a start width and an end width. The start width is the pixel width of the start of each element of the [fan](#). The end width is the pixel width at the end of each element of the fan.

### ***Blades (Fan)***

This is the number of blades in the [fan](#). The default is two. You can set the number of blades from 1 to 16.

### ***Blade Width (Fan)***

This is the width of each [blade](#) in the [fan](#). 50% means the blade width will be 50% of the distance to the next blade. Note that the blades start out being thin and get thicker as they rotate until they get to their Blade Width setting.

### ***Revolutions Per Second (Fan)***

This is the rotation speed of the [fan](#). The default is 0.25 revolutions per second. This means it will rotate one quarter of a revolution in one second, meaning it will take four seconds to make one full revolution. Positive numbers will rotate clockwise; negative numbers will rotate counterclockwise. With a setting of 0, the fan will build from the center outward and will not rotate.

### ***Element Angle (Fan)***

The [fan](#) is built using a series of [spirals](#). Each spiral is an element of the fan. Changing the element angle will change the angle of each one of the spirals that make up the fan. Setting an angle of 0 will make straight elements. Setting a large angle will make the fan look sort of like a spinning galaxy.

### ***Element Step Angle (Fan)***

This is the spacing between each element of the [fan](#). Each element is a [spiral](#). An element step angle of 10 means that each spiral will be built at intervals of 10 degrees. Setting a large element step angle will add space between the spirals.

### ***Acceleration (Fan)***

Setting 0 means do not accelerate. Setting a positive number will make the [fan](#) start slow and increase in speed as it travels. Setting a negative number will make the fan start quickly and slow down as it travels. Note that if you use acceleration in a fan, the width of the fan will change as it accelerates or decelerates.

### ***Show Entire Blade at Start (Fan)***

This means build the entire width of the [blade](#) of the [fan](#) all at once, so that the entire blade width is seen from the start to the finish.

### ***Modify Selected Effects***

This dialog box is used to modify attributes that are shared by all types of effects. Currently it supports modification of the Clip Rectangle in all the effects that are selected. The "Undo" feature is not supported for this dialog box. So it is a good practice to rename your sequence before

performing this function. That way you will keep the original file before you changed it. So the steps you want to follow are:

1. Click on the "File" menu and select "Save As" and rename your sequence
2. Select the effects you want to modify. To select all effects, click on the "Edit" menu and select "Select All"
3. Click on the "Tools" menu and select "Modify Selected Effects..." or click on the "Modify Selected Effects" button on the Toolbar
4. In the "Modify Selected Effects" dialog box you can choose the types of effects you want modified. It defaults to all of them being modified.

- **Manual Clip Rectangle**

Select "No Clip" if you do not want the effects to have a clip rectangle

Select "Manual Clip" and then press the "Shft" key while doing a mouse drag on the sequencing grid. This will define the clip rectangle on the sequencing grid. Click on the "Modify Selected Effects" button.

#### 5.4.4.8 Auto Sequence Effects

Auto Sequence effects are a cross between standard effects and Instant Sequence. You create the effect and then give it Auto Sequence settings and the effect moves and/or blinks with the music. In the lower left of each effect dialog box is a button with an image of an automobile in it. This is the "Auto Sequence" button. Click on the "Auto Sequence" button and the "Auto Sequence" dialog box will appear. Click on "Add" in the effect dialog box and you will see an Auto Sequence appear in the time layers. "Auto Sequence" effects have an image of an automobile on them.

Click on the "File" menu and select "Open Audio File".

- [Scenes](#)
- [Morphs](#)
- [Smooth Effects](#)
- [Image Actions](#)
- [Text Actions](#)

## Scenes

Bring up the "Scene Setup" dialog box.

Click on the squares in the green sequencing grid to create the scene pixels

Click on the "Auto Sequence" button in the lower left. The "Auto Sequence" dialog box will appear.

Select several seconds on the time ruler

Click on the "Add" button in the "Scene Setup" dialog box and an Auto Sequence Scene effect will be added to the time layers

Click on the "Play 8 Seconds" button. You will see the scene move with the music

## Morphs

Bring up the "Morph Setup" dialog box.

Click on the squares in the green sequencing grid and create a small morph. It will be easier to see the movements of a small morph.

Click on the "Auto Sequence" button in the lower left. The "Auto Sequence" dialog box will appear.

Select several seconds on the time ruler

Click on the “Add” button in the “Morph Setup” dialog box and an Auto Sequence Scene effect will be added to the time layers

Click on the “Play 8 Seconds” button. You will see the morph move with the music

## Smooth Effects

Bring up the “Smooth Effects” dialog box.

Click on the “Auto Sequence” button in the lower left. The “Auto Sequence” dialog box will appear.

Select several seconds on the time ruler

Click on the “Add” button in the “Smooth Effects” dialog box and an Auto Sequence Scene effect will be added to the time layers

Click on the “Play 8 Seconds” button. You will see the smooth effect move with the music

## Image Actions

Bring up the “Image Setup” dialog box.

Click on the “Auto Sequence” button in the lower left. The “Auto Sequence” dialog box will appear.

Select several seconds on the time ruler

Click on the “Add” button in the “Image Setup” dialog box and a message box will appear saying, “When adding an Auto Sequence Image Action it is recommended that the start point be 0,0 and end point be 0,0 and “Apply X,Y in Preview (for animations)” be selected. Set start point be 0,0 and end point be 0,0 and select “Apply X,Y in Preview (for animations)” ?”

Click on the “Yes” button in the message box and an Auto Sequence Scene effect will be added to the time layers

Click on the “Play 8 Seconds” button. You will see the Image move with the music

If you want to change the starting position of the Image you can change to start point and end point.

With “Apply X,Y in Preview (for animations)” selected the start point and end point will be forced to be the same. Having them be the same value is normally what you will want for Auto Sequence Image Actions, otherwise the movement will be “jerky” because every time Auto Sequence moves the Image Action it will also move from the start point and end point of the effect. If you want the movement to be “jerky” then deselect “Apply X,Y in Preview (for animations)” and make the start point and end point be just a few pixels different.

## Text Actions

Bring up the “Text Setup” dialog box.

Click on the “Auto Sequence” button in the lower left. The “Auto Sequence” dialog box will appear.

Select several seconds on the time ruler

Click on the “Add” button in the “Text Setup” dialog box and a message box will appear saying, “When adding an Auto Sequence Text Action it is recommended that the text be set to the center and “Apply X,Y in Preview (for text that does not move)” be selected.

Set text to the center and select “Apply X,Y in Preview (for text that does not move)” ?”

Click on the “Yes” button in the message box and an Auto Sequence Scene effect will be added to the time layers

Click on the “Play 8 Seconds” button. You will see the Text move with the music

If you want to change the starting position of the Text you can change to start point and end point.

With “Apply X,Y in Preview (for text that does not move)” selected the start point and end point will be forced to be the same. Having them be the same value is normally what you will want for Auto Sequence Text Actions, otherwise the movement will be “jerky” because every time Auto Sequence moves the Text Action it will also move from the start point and end point of the effect. If you want

the movement to be “jerky” then unselect “Apply X,Y inPreview (for text that does not move)” and make the start point and end point be just a few pixels different.

#### 5.4.4.9 Auto Sequence Dialog Box

The Auto Sequence dialog box is launched by clicking on the button with an automobile in it. The automobile button will be in the lower left of each of the effect dialog boxes. The Auto Sequence dialog box has settings that will control the movement and color of the effect as it is moved with the music. If the Auto Sequence dialog box is visible then when you click on the “Add” button of the effect dialog box then an Auto Sequence effect will be added to the time layers. The Auto Sequence effect will have a picture of an automobile in it. The following are the settings in the Auto Sequence dialog box.

- Settings
  - [Sensitivity](#)
  - [Trigger Type](#)
  - [Movement](#)
  - [Direction Angle](#)
  - [Speed](#)
  - [Use Native Color of the Effect](#)
  - [Cycle Through Colors Below](#)
  - [Freqs \(Frequencies\)](#)
- [Creating A Sequence using Auto Sequence Effects](#)

### Sensitivity

This setting sets the sensitivity to the audio file. It is like a volume control. If you are not getting much movement from the song then try increasing the sensitivity. But if you set it too high it could also be less responsive. For most songs, setting the sensitivity to 4, 5, or 6 will work best.

### Trigger Type

“Rapid Fire” is the default and is typically what you will want to use. The more Freqs you have selected in the Auto Sequence dialog box, the more triggers will be produced and the effect will move more

“Single Fire” is good if you want slower movement. Even with many Freqs selected only one trigger will fire. This can be good for effects that have a lot of movement in them such as smooth effects.

Average the Time Length of Effects – Select this option to smooth out the length of effects. Unselect this option and places where the music is strong to cause effects to linger.

### Movement

This is the Movement pattern that will be done on the effects. The movement will happen within the clip rectangle for that effect.

Skip Inactive Grid Squares – Select this option to have the movement skip inactive squares on the green sequencing grid

No Movement – The effect will happen in the same location every time it is triggered

Wrap Around – The effect will move and will wrap around to the other side of the screen when it reaches the each of the clip rectangle for that effect.

Ricochet – The effect will move and will bounce off the edges of the clip rectangle for that effect. The movement is like a billiard ball bouncing off edges of a billiard table.

Folding Ricochet – Images will fold on themselves as they bounce off the edges of their clip rectangle.

Bounce and Retrace – The effect will move and bounce off the edge of the clip rectangle and will return to its original position and will keep going back and forth along that path.

Burst and Return – The effect will move until the end of a trigger burst and then will return to its original position. If the movement goes beyond the edge of the clip rectangle before the end of the burst then it goes back to its original position.

Snake Up, Snake Down – The effect will move until it hits the edge of the clip rectangle for that effect, and then it will move up or down a pixel and reverse direction. This movement is best used with direction angles of 0, 90, 180, and 270 degrees. It will make the effect move in path as if it is a lawn mower going back and forth until all the region has been mowed and then it reverses direction and keeps mowing. Also, this movement is recommended for displays with traditional lights. For example you can make a scene made of one pixel automatically traverse the entire display.

## Direction Angle

The setting controls the direction angle of the movement. The angle can be set in 5 degree increments. The angle is shown with an orange arrow at the center of the green sequencing grid.

Note that this controls only the direction angle. The original location of the effect is controlled by the location of the native effect that you create.

## Speed

This controls the speed of the movement in pixels. For example, with the speed set at 1.00 the effect will move one pixel each time it is triggered.

## Use Native Color of the Effect

The effect will always be rendered using the native color of the effect.

## Cycle Through Colors Below

Use this setting to cause the effect to change colors as it moves. You number of colors for it to cycle through can be set to 1-8. Click on a color square and a Color Picker dialog box will appear.

Note that even though there are many colors you can choose from, it will always set the color to one of the 8 basic colors, red, orange, yellow, green, blue, purple, white and black. Also note that when setting black it is really a very dark gray.

## Freqs (Frequencies)

This setting controls the frequencies that the effect will be responsive to. Click and drag with the mouse to set or erase multiple freqs. Note that when an instrument in a song plays a musical note, the frequencies are strongest at the note but there can be strong harmonics on either side of the note as well. The result is that any note played in a song can get “splattered” across the freq spectrum. The “splatter” will be wider with higher sensitivity.

These freqs are equivalent to the freqs in the Timing Map dialog box. If you click on the Tools menu and select “Timing Map” you will see the Timing Map dialog box which has a picture of a piano keyboard and shows how the freqs map to a piano keyboard.



## Creating a Sequence using Auto Sequence Effects

You can use different Auto Sequence effects throughout your song. The typical approach is to use the same set of Auto Sequence effect for 10-30 seconds of a song and change to another set of Auto Sequence effects at a point where the song changes.

In SuperStar you can only see 8 seconds of the song at a time, so if you want to add or modify Auto Sequence effects that are longer than 8 seconds then do the following:

Select the effects you want to change the time range of. Scroll to the start time that you want and mark it with a left click on the time ruler. Then scroll to the end time that you want and mark it with a right click on the time ruler. Then click on the "Set Group Time Range" button. The "Set Group Time Range" button is on the toolbar and looks like an hour glass with down arrows on either side of the hour glass.

### 5.4.4.10 Auto Sequence Singing Faces

This feature can automatically move the mouth of a singing face to match the singing in a song! To access this feature, either:

1. From the "Tools" menu, select "Auto Sequence Singing Faces..."; or
2. Click on the "Image Setup" button on the toolbar, then in the "Image Setup" dialog box click on the "Auto Sequence Singing Faces" button in the lower right of the dialog box

## Singing Faces on a Pixel Matrix

In the "Singing Faces" dialog box there are settings for five mouth positions, closed, 1/4 open, 1/2 open, 3/4 open, and Full Open. The first time you launch the "Singing Face" dialog box default images will load and those images will appear in the mouth image settings. The images will default to a position at the top half of a 16x50 pixel matrix.

There is a field that shows the "Audio File to Use to Auto Sequence the Singing Face." This will default to the audio file that is loaded for the sequence you are making. If the words to the song are prominent then you can use this song. Merely click on "Auto Sequence the Singing Face" and it will create image effects at the top of the image layers for the singing face. Click on the "Play All" button in the toolbar to play the effects that were created

But normally to get the best results you will want to record the words using your own voice.

## Recording your own voice

For best results, make a recording of your own voice by doing the following:

- Plug in some earphones into your computer
- Plug in a microphone into your computer
- Click on "Start Voice Record"
- While listening to the song in the headphones sing or speak the words of the song into the microphone
- When the song reaches the end the recording will stop. The recording will automatically become the "Audio File to Use to Auto Sequence the Singing Face"

- Click on “Auto Sequence the Singing Face”
- Click on the “Play All” button in the toolbar to play the sequence

## More Singing Faces

- At the top of the “Singing Faces” dialog box is a setting labeled “Which Singing Face?” To sequence a second singing face set this setting to “2”
- The default images for face 2 will appear in the images for each mouth
- You can record your voice using words to a different singer in the song
- Click on “Auto Sequence the Singing Face” and effects will appear on the time layers. The effects for Face 2 will appear below the effects for Face 1.
- Click on the “Play All” button to play both faces

To use the default images for more than two faces, click on the “Tools” button and select “Layout.” Set the number of ribbons to 32. You can now do sequencing for face 3 and face 4.

If you want to use 6 singing faces using the default images then set the number of ribbons to 48.

## Standard Singing Faces

Standard singing faces have a face with four channels for the mouth. One channel is for the closed mouth, another channel for the half open mouth, another channel for a full open mouth, and a channel for an “O” mouth.

## How to use the S5 Sequencer to set up an S5 Preview of one or more Standard Singing Faces

- In Preview Design, click on the “Add Item” button
- In the list of items, select “Light-O-Rama Props (online)”
- Select one or more of the singing trees and click on “Import Checked Items”
- There should be a group for each tree. For example, there should be an “Elden the Tree (RGB)” group
- Double click on “Elden the Tree (RGB)” make sure “Vertical Stack” is selected for the “Arrangement,” click on “Save”
- If you have more than one singing tree, you can make a group containing all the trees. Click on “Add Item” and select “Create a new GROUP from existing props and groups”
- In the “Preview Group Definition” dialog box select each tree group. Then set “Horizontal Stack Align Bottoms” for the “Arrangement,” name the group something like “Singing Trees,” click on “Save”
- In the “Preview Design” dialog box click on “Save”
- In the main screen of the “Sequencer” find the “Singing Trees” group, expand it so you can see the motion effects row.
- Right click on the motion effects row and click on “Select,” then click on “Row”
- Right click on the motion effects row again and select “Insert SuperStar Effect”
- SuperStar will launch

## Sequencing Standard Singing Faces in SuperStar

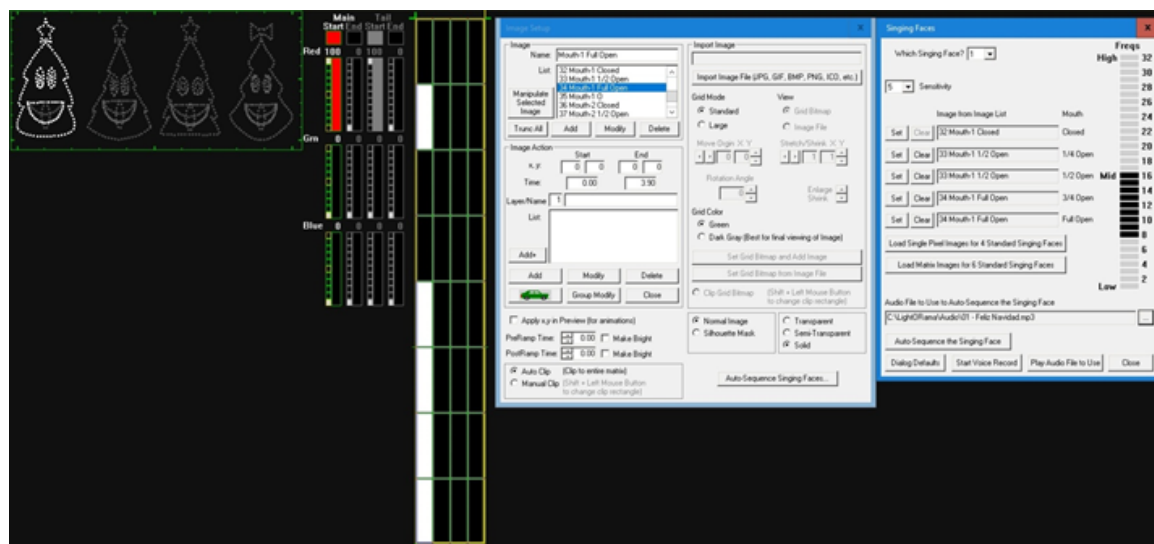
After creating a Preview in the S5 Sequencer and you have launched SuperStar do the following:

- Bring up the “Image Setup” dialog box and click on “Auto Sequence Singing Faces”
- Click on the “Load Single Pixel Images for 4 Standard Singing Faces” button.
- Sixteen images will load and be placed at the bottom of the Image List. Scroll to the end of the Image List and the last four images should be:
  - Mouth-4 Closed
  - Mouth-4 1/2 Open
  - Mouth-4 Full Open
  - Mouth-4 O

The images will have been automatically set into the “Singing Faces” dialog box. But if you were to enter them manually you would do the following:

- Scroll the list up until you see the four images that start with “Mouth-1”
- Select “Mouth-1 Closed” and then click on the top “Set” button in the “Singing Faces” dialog box
- Select “Mouth-1 1/2 Open” and then click on the second “Set” button in the “Singing Faces” dialog box
- Keep “Mouth-1 1/2 Open” selected and click on the third “Set” button in the “Singing Faces” dialog box
- Select “Mouth-1 Full Open” and click on the fourth “Set” button in the “Singing Faces” dialog box
- Keep “Mouth-1 Full Open” selected and click on the fourth “Set” button in the “Singing Faces” dialog box
- We will not be using “Mouth-1 O” because the O is intended for “oooo” sounds and the SuperStar code has nothing in it that detects “oooo” sounds. So it works best to not use it

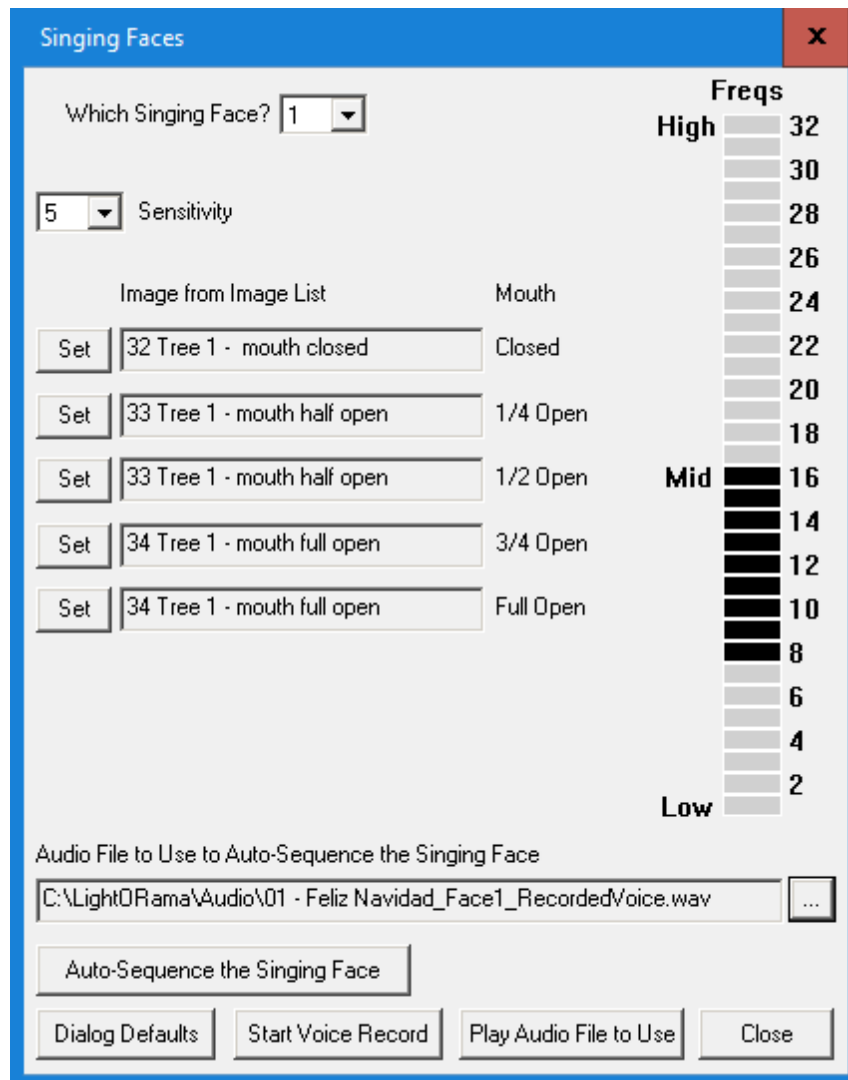
Your screen should look like this



At this point if you want to see what is generated using the audio file you can click on “Auto Sequence the Singing Face” and effects will appear in the time layers. Click on the “Play All” button to play the sequence. If the voices in the song are prominent you may be happy with using what you see. But for best results you should record only the words of the song using your own voice using these steps:

- Plug in some earphones into your computer
- Plug in a microphone into your computer
- Click on “Start Voice Record”
- While listening to the song in the headphones sing or speak the words of the song into the microphone
- When the song reaches the end the recording will stop. The recording will automatically become the “Audio File to Use to Auto Sequence the Singing Face”

The Singing Faces dialog box should look like this except the number at the beginning of the image may be different.



- Click on “Auto Sequence the Singing Face”
- Effects should appear in the first 5 layers of the time layers
- Click on the “Play All” button in the toolbar to play the effects that have been created for the singing face

If the mouth is not responding well to the voice, you can increase the sensitivity or increase the number of Freqs selected but normally you can leave Sensitivity set at 5, and Freqs 8-16 selected.

## Set Images for the next Singing Face

- In the Singing Faces dialog box set “Which Singing Face?” to “2”
- Using the same steps you used for Tree 1, you can add images to the image list for Tree 2 and set them into the “Singing Faces” dialog box.
- You can record your voice again and this time you can speak words that match a different singer in the song.
- Click on “Auto Sequence the Singing Face” and effects will appear on the time layers for Tree 2. The effects for Tree 2 will be below the effects for Tree 1
- Click on the “Play All” button on the toolbar and both singing faces will play

You can do the same for tree 3 and tree 4

### 5.4.4.11 Move or Scale Selected Effects

This feature is used to move or scale the selected effects according to the settings in the dialog box. Note that you cannot undo the changes done by this dialog box so it is recommended that you save the sequence to a new name prior to using this dialog box. For example if you are moving all the effects two pixels to the right you would do the following:

1. Click on the File menu and select “Save As” and save the sequence to something like “MySequence\_movedRight2Pixels.sup”
2. Click on the Edit menu and select “Select All”
3. Leave “Move Origin” selected and set “Left/Right” = 2
4. Click on the OK button
5. Click on any effect and you should see that it has been moved to the right by 2 pixels

This feature is also useful for converting a sequence to different dimensions. For example, if you want to stretch a 12 CCR sequence to be a 16 CCR sequence you would do the following:

1. Click on the File menu and select “Save As” and save the sequence to something like “MySequence\_16CCR.sup”
2. Click on the Edit menu and select “Select All”
3. Click on “Scale”
4. Set:

Source Width = 12	Dest Width = 16
Source Height = 50	Dest Height = 50
5. Click on the Ok button
6. Click on any effect and you should see that it has been stretched to fit onto a 16 CCR layout

## Selected Effects to Modify

This defaults to all effect types being selected. But if, for example, you only want to modify the selected “Scenes” then you would uncheck all the effect types and leave “Scenes” selected

## Move Origin

Select this if you want to move the effects left, right, up, or down, the number of pixels set in the

Left/Right control and the Up/Down control

## Scale

Select this if you want to scale the effects. Scale means to stretch or squish. The “Source Width” and “Source Height” is the original width and height of the sequence. The “Dest Width” and “Dest Height” is the destination width and height, or in other words, the width and height that you want the sequence to become.

## Do Scene Thinning

This setting is used when “Scale” is selected. It is easiest to explain this setting by using the example of a scene that is random pixels that look like stars in the sky. If you shrink the stars and have “Do Scene Thinning” selected then some of the stars will get removed or “thinned” out so that the density of stars in the shrunken sky stays the same. If you shrink the stars and have “Do Scene Thinning” unselected then all of the stars will be kept, and in the shrunken sky the density of stars will be greater. In the extreme case, if you shrunk the sky a lot then there would be no space between the stars anymore.

## Change Intensity

Select this if you want to increase or decrease the intensity of the color of all selected effects. Note this change is always relative to the current intensities.

For example, if you set 50% then all color intensities will be reduced by 50%. If you then select the same effects and reduce the intensity by 50% again, then the intensities will be 25% of what they were before you did any changes.

As another example, if you set 200% then color intensities of 50 and lower will get doubled. All values 50 and greater will become 100. This means that increasing the color intensities by 200% and then decreasing them by 50% will not necessarily get you back to the original intensities.

## Change Orientation

If the orientation of your visualization is different than the orientation of your sequence then you can change the orientation of the effects in the sequence by using “Change Orientation.”

For example, let us say you have a horizontal sequence designed for a 50 wide by 16 tall horizontal display where the strings of lights run horizontally. But you have a display that is 50 wide by 16 tall and the strings of lights run vertically.

The default is for SuperStar to see the display as a vertical display because the strings run vertically. And when the sequence is played, the sequence will look rotated by 90 degrees. So to get it to look right on the display you can change the orientation by doing the following:

1. Click on the “File” menu and select “Open” and open the sequence
2. Click on the “File” menu and select “Save As” and save the sequence to a name such as “MySequence\_horizontal.sup”
3. Click on the “Edit” menu and select “Select All”
4. Click on the Tools menu and select “Move or Scale Selected Effects”
5. Select “Change Orientation”

6. Select "Rotate 90° Left (Vert to Horz)"
7. Click on "OK"

The effects in the sequence should now all be rotated to the right and should play properly to your display.

Note: Another way to address the problem of orientation of the grid being different than the orientation of the sequence is to change the orientation of the grid. To do this click on "Tools" menu and select "Preferences" and then change the orientation of the grid.

#### 5.4.4.12 Groups of Effects

- [Make a Group](#)
- [Ungroup](#)
- [Expand Group](#)
- [Compress Group](#)

### Make a Group

- Do a right mouse click and drag to select a group of effects (you can add or remove effects by doing Ctrl+Right mouse click).
- After doing a right mouse click and drag, a popup menu will appear.
- In the popup menu, choose "Grouping", and then choose "Group Selected Effects into a Group".
- The "Edit Name of Group" dialog box will appear, allowing you to name the group if you wish.
- After clicking on "Ok" in the "Edit Name of Group" dialog box, the selected effects will be compressed into one "Group" effect.

### Ungroup

- Do a right mouse click on a group effect.
- In the popup menu, choose "Grouping", and then choose "Ungroup Selected Group into Separate Effects".
- The "Group" effect will disappear, and the grouped effects will become separate effects.

### Expand Group

- Do a right mouse click on a "Group" effect.
- In the popup menu, choose "Grouping" and then choose "Expand Selected Group". Alternatively, you can select a "Group" effect and hit the "+" key.
- All the other effects in the sequence will become hidden, and only the effects in the group will be displayed. You can now modify the existing effects, add new effects, or delete effects. Anything you do will become the new state of the group.

### Compress Group

- While a group is expanded, do a right mouse click anywhere in the time layers.
- In the popup menu, choose "Compress Group". Alternatively, you can press the "-" key.
- All the effects currently displayed will be compressed back into the group. You will now see the "Group" effect displayed along with all the other effects in the sequence

#### 5.4.4.13 Select One or More Rows

Open a sequence or create a bunch of effects. Do a right click on a row in the Time Layers. For example, you could do a right click on Row 3 in the Time Layers.

In the popup menu that appears, select "Row 3" and then select "Select All", "Select All Left", or "Select All Right", and the selection will be applied only to Row 3.

You can also do a right mouse click and drag across more than one row. For example, you could do a right mouse click and drag across Rows 3-6.

In the popup menu that appears, select "Rows 3-6" and then select "Select All", "Select All Left", or "Select All Right", and the selection will be applied only to Rows 3-6.

#### 5.4.4.14 Transfer Effects from One Sequence to Another

In the [Light-O-Rama SuperStar Sequencer](#), using the clipboard, you can transfer effects from one sequence to another, as in this example:

- Open the file "JingleBellRock\_24sec.sup", located in the Samples directory of the SuperStar Sequences directory.
- Scroll to the 16.00 second mark and you will see a stack of six white boxes in the time layers.
- Select the stack of boxes.
- Click on the Copy button.
- Click on the toolbar button with a piece of paper on it. This will do three things: It will clear the pixel grid, set the start color as red, and set the time duration to 1.00-2.00 seconds.
- Click on the Paste button, and the stack of boxes gets pasted to the new file.

#### 5.4.4.15 Load/Save Clipboard

In the [Light-O-Rama SuperStar Sequencer](#), there are 20 sample effects that can be loaded into the clipboard. Once the effects are loaded into the clipboard, you can paste them into your sequence. Anything that you copy to the clipboard can also be saved to a file.

- [Start with a new sequence](#)
- [Launch the Load/Clip dialog box](#)
- [Load a sample file into the clipboard](#)
- [Paste the clipboard into your sequence](#)
- [Play the pasted effects](#)
- [Save your own clipboard effects](#)
- [Discussion](#)

### Start with a new sequence

Click on the "New" button on the toolbar, which looks like a piece of paper.

### Launch the Load/Clip dialog box

Click on the Edit menu, then select Load/Save Clipboard. You can also launch the dialog using Ctrl +B.

### Load a sample file into the clipboard



At the top of the dialog box is a list of the saved clip files ("clip" is short for "clipboard"). All of the sample files start with "Sys -", meaning they are a system file that can be loaded but not saved to. Select the "SharkFinForHorizontalRibbons.scb" file, then click on "Load Clipboard from File".

Note that the lower half of the dialog box is now populated. In the description area are the description and instructions on how to modify the effects.

## Paste the clipboard into your sequence

Once the clipboard is loaded, you can paste the effects into your sequence. There are four ways to do this:

1. Use the Paste button in the dialog box.
2. Use the Paste button on the toolbar.
3. Put the focus on the work area by clicking on the time layers area, and then press Ctrl-V.
4. Click on the Edit menu and select Paste.

## Play the pasted effects

A shark fin will travel lengthwise across the ribbons, first one direction and then the other. The water underneath the shark fin will shimmer.

For demonstration purposes, the shimmering water is done in two different ways: The first time, it is done with scenes that fade between two intensities. The second time, it is an animation done with images. The description of this effect in the Load/Save dialog box describes how to modify the shark fin and the water.

## Save your own clipboard effects

Any effects you have modified or created can be saved to file by doing the following:

- Select what you want to save.
- Click on the "Copy Effects" button on the toolbar.
- Press Ctrl-B to launch the Load/Save Clipboard dialog.
- In the Clipboard Name field, type your filename (such as "MyAwesomeEffects").
- Click on the "Save Clipboard to File" button.

Note that your file is now in the list of saved clip files.

## Discussion

The load/save of the clipboard is a powerful feature! You can now store and easily transfer effects from one file to another. The shark fin effect shows how a shaded object can be drawn as an image action. Artists will have fun with this, and non-artists will be grateful they can copy and paste these images!

Currently the SuperStar Sequencer does not support importing .gif or .jpg images. However, realize that even if you have twelve CCRs, you only have 12x50 pixels to work with. This is very low resolution by computer standards. Import of images would typically not look good at such low resolution. The best images will always be those that are carefully tailored to the low resolution that

we must work with.

#### 5.4.4.16 Change to 10 Pixels per Ribbon

Cosmic Color Ribbons default to having 50 pixels per ribbon. Each pixel is actually a group of three LEDs with red, green, and blue elements. You will normally want to keep the ribbons in 50 pixel mode.

You can, however, change the number of pixels per ribbon to 25, 10, 5, or 1, using one of the macro commands built into the ribbons. The reason you may want to do this is to reduce the number of channel commands, making the effect more instantaneous. For example, a white morph that goes the full length of 12 ribbons will generate  $12 \times 50 \times 3 = 1800$  commands. If the morph is fast, and tries to do this in a short period of time, like 0.4 seconds or less, you may perceive some lag in the ribbons. In a fast effect, you will get better results by using 10 pixels per ribbon, because it will use 1/5 the number of channel commands and so will eliminate the lag, and since it travels fast, it will still look good in 10 pixel resolution.

Here is an example of how to use both 10 pixel and 50 pixel resolution in the [Light-O-Rama SuperStar Sequencer](#):

- [Initialize the screen](#)
- [Launch the Macro dialog box](#)
- [Add a "10 pixel per ribbon" macro](#)
- [Add a scene inside the macro region](#)
- [Add a morph inside the macro region](#)
- [Add a morph outside the macro region](#)
- [Try to add a morph that straddles the macro](#)
- [Discussion](#)

### Initialize the screen

Click on the toolbar button with a piece of paper on it. This will do three things: It will clear the pixel grid, set the start color to red, and set the time duration to 1.00 to 2.00 seconds.

### Launch the Macro dialog box

Click on the Tools menu and select Macro.

### Add a "10 pixel per ribbon" macro

- Set "Pixels Per Ribbon" to 10.
- Set the time duration to 1.00 to 3.00 seconds.
- Click on the Add button.

A bracket should appear in time layer 6.

### Add a scene inside the macro region

- Click on the Tools menu and select Scene.
- Set the time duration to 1.00 to 2.00 seconds.
- Set some pixels at the top of the pixel grid.
- Click the Add button.

A scene should appear in time layer 1. Note that the scene only has ten pixels per ribbon in the pixel grid. Also note that the ribbons still display as if they were in 50 pixel mode, but when playing the sequence to the real Cosmic Color Ribbons, they will be in 10 pixel mode.

## Add a morph inside the macro region

- Click on the Tools menu and select Morph.
- Set the time duration to 2.00 to 3.00 seconds.
- Click on the Add button.

A morph should appear in time layer 2. Note that the morph has ten pixels per ribbon in the pixel grid.

## Add a morph outside the macro region

- Set the time duration to 5.00 to 6.00 seconds.
- Click on the "Add" button.

Note that the morph has 50 pixels per ribbon in the pixel grid.

## Try to add a morph that straddles the macro

- Set the time duration to 2.00 to 4.00 seconds.
- Click on the Add button.

An error message will appear.

## Discussion

When playing the sequence to the Cosmic Color Ribbons, the ten pixel macro will send a command 1/100th of a second before the macro time duration to set each ribbon in 10 pixel mode. It will send a command 1/100th of a second after the macro time duration to set each ribbon back to 50 pixel mode. No effects should be active when these commands are sent.

Note that at 32.45 in the sample file CarolOfTheBells.sup, there is a morph that uses 10 pixel mode. In this morph, all the ribbons burst downward into a flash of white. In normal 50 pixel per ribbon mode, this would require 1800 channels to be turned on in a very short period of time. Using 10 pixel per ribbon mode requires only 360 channel commands, and can make the effect more instantaneous.

### 5.4.4.17 "Star Rays", "Wide Grid", and "Thin Grid"

In the [Light-O-Rama SuperStar Sequencer](#), there are three buttons at the right end of the toolbar that will set the ribbons into "[Star Rays](#)", "[Wide Grid](#)", or "[Thin Grid](#)":

## Star Rays

In this layout, morphs that come from the top to the bottom should accelerate, and the trail should get longer. Typical settings might be a start trail of 2 and an end trail of 12.

Scenes that come from the top to the bottom should get larger. The yellow perspective marks on

the right side of the pixel grid are designed to help you do this.

## Wide Grid

This view spaces the ribbons to give square pixels. That is, the space between the ribbons is equal to the height of each pixel. If you are using the ribbons primarily for animations and text, you will probably use a layout like this.

## Thin Grid

This view spaces the ribbons closer together. The quality of the animations will improve, but it will take more ribbons to cover the same amount of area.

### 5.4.4.18 The Layout Dialog Box

In the [Light-O-Rama SuperStar Sequencer](#), the layout settings get saved into each .sup file. The layout you set also gets saved as a default layout. This default layout will be used for new sequences that you create.

- [CCR Mode](#)
- [Number of Ribbons \(1-24\)](#)
- [Ribbon Orientation](#)
- [Ribbon Shape](#)
- [Ribbon Length](#)
- [Visualization Mode](#)
- [Visualization Files](#)
- [Pixel Extender](#)

## CCR Mode

In CCR mode, the screen will use the layout you have selected in the lower part of the [Layout dialog box](#). The [unit ID](#) and configuration information will be obtained from the [Configuration dialog box](#), and this information will be used when exporting the file to the [Sequencer](#).

## Number of Ribbons (1-24)

This will set the number of rows of ribbons if in horizontal view, or the number of columns of ribbons if in vertical view. Note that if you are using half ribbons, this setting is the number of rows, not the number of ribbons.

## Ribbon Orientation

Setting "Vertical" will display the ribbons vertically in columns.

Setting "Horizontal" will display the ribbons horizontally in rows. Note that the star is not supported in the horizontal view.

## Ribbon Shape

Setting "Straight" will display the ribbons in straight lines. This is the common way to display the ribbons.

Setting "Circle" will display the ribbons in circles. The start of the ribbon will be at the left center of each circle. This allows for a variety of circular patterns. Sequencing circles can be a challenge, but the results can be amazing. An example can be seen on the Light-O-Rama website with Deck the Halls for 2 CCRs and for 4 CCRs.

## Ribbon Length

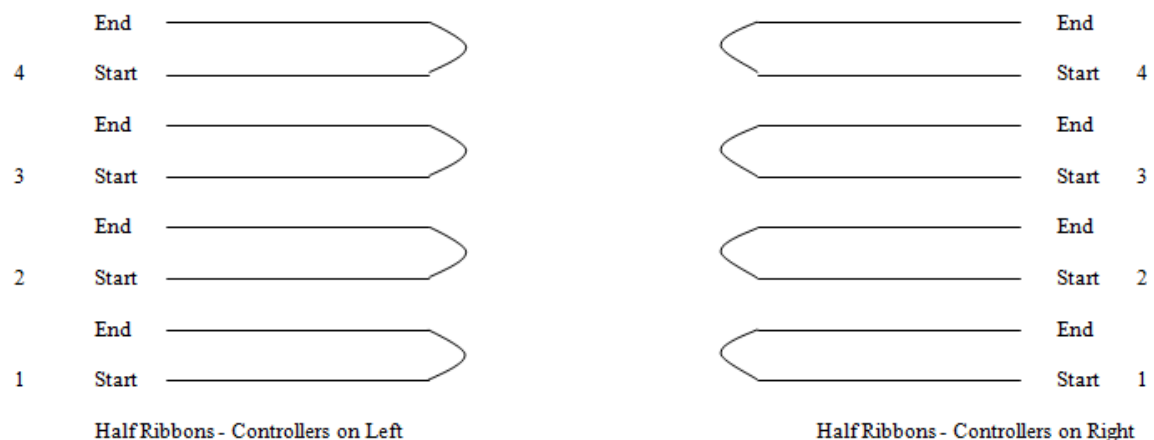
Setting "Full" will display the ribbons as a full length 50 pixel ribbon. This is the normal setting.

Setting "Half" will display the ribbons as a half length 25 pixel ribbon. The common use of this setting is to allow a matrix with fewer ribbons. For example, using 4 CCRs you can create a matrix of 8 rows with 25 pixels in each row. You can cut the ribbons per the instructions that come with the CCRs, but if you do this, you void the warranty. Another option is to loop the ribbons back without cutting them. You will lose some pixels in the loop, but you will not void the warranty.

When using half ribbons you must lay out your ribbons as diagrammed below:

- [Location of Ribbon Controllers when Ribbon Length is set to Half and Ribbon Orientation is set to Horizontal](#)
- [Location of Ribbon Controllers when Ribbon Length is set to Half and Ribbon Orientation is set to Vertical](#)

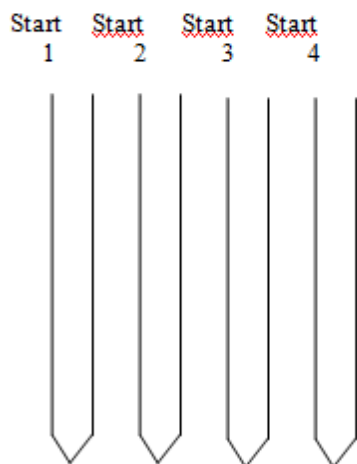
### ***Location of Ribbon Controllers when Ribbon Length is Set to Half and Ribbon Orientation is Set to Horizontal***



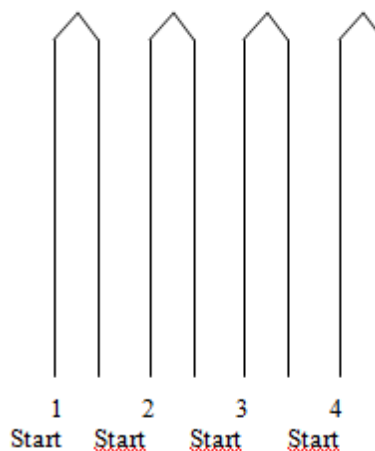
- Set "Left" if your CCR controllers are on the left end of your ribbons.
- Set "Right" if your CCR controllers are on the right end of your ribbons.
- Note that for a horizontal layout, the first controller should be at the bottom, and the last controller at the top.

### ***Location of Ribbon Controllers when Ribbon Length is Set to Half and Ribbon Orientation is Set to Horizontal***

Half Ribbons – Controllers on Top



Half Ribbons – Controllers at Bottom



- Set "Top" if your CCR controllers are on the top of your ribbons.
- Set "Bottom" if your CCR controllers are on the bottom of your ribbons.
- Note that for a vertical layout, the first controller should be at the left, and the last controller should be at the right.

## Visualization Mode

In visualization mode, the screen will use the row visualization file you have imported. All [unit ID](#) and configuration information is obtained from the real visualization file, and this information will be used when exporting the file to the [Sequencer](#).

## Visualization Files

This area shows the names of the row visualization and the real visualization. The row visualization should be laid out in rows, and is used when SuperStar maps the fixtures to the sequencing grid. The real visualization should be laid out the way your light display actually appears, and is used when playing the sequence and when exporting the sequence. Note that the row visualization and the real visualization will be the same file if you do "Import Visualization" in the File menu. If you do "Import Visualization Pair" in the File menu, then you can specify different files for the row visualization and the real visualization.

## Pixel Extender

The Pixel Extender allows you to stretch or shrink the pixels in a region of a sequence done on a visualization. While you can stretch or shrink the pixels, the most common use is to stretch or extend the pixels. For example, it allows you to convert a sequence written for 25 or 50 pixels on strings that have 100 or 150 pixels.

- **Enable Pixel Extender:** Select this to enable the Pixel Extender.
- **X Origin:** The X origin of the region to be extended.
- **Y Origin:** The Y origin of the region to be extended.
- **Width:** The width of the region to be extended.
- **Length:** The length of the region to be extended.
- **Stretched/Shrunk Length:** The new length after the region has been stretched or shrunk.

### ***Pixel Extender Example***

Make a visualization of your CCP Tree that has 50 pixels per strand.

Load the standard sequence made for a CCP Tree with 25 pixels per strand.

Import your visualization of your CCP Tree that has 50 pixels per strand.

Set the Pixel Extender as follows:

- **X Origin:** 0
- **Y Origin:** 16 (this is because the Globe is at the top of the sequencing grid and the CCP Tree starts at row 16)
- **Width:** 24
- **Length:** 25
- **Stretched/Shrunk Length:** 50

At this point, you can play the sequence to your visualization and see the stretched pixels play to your visualization.

#### **5.4.4.19 The Preferences Dialog Box**

The [Light-O-Rama SuperStar Sequencer](#) has the following choices in the Preferences dialog:

- [Color Mode \(Balanced vs. Full Range\)](#)
- [Color Temperature \(Cool White vs Warm White\)](#)
- [Enable Time Layer Priority Feature](#)
- [Smooth Ramps](#)
- [Export Raw Color Values](#)
- [Grid Orientation](#)

### **Color Mode (Balanced vs. Full Range)**

If you use the [Light-O-Rama Hardware Utility](#) to try various setting for the RGB values of CCR pixels, you will find three important characteristics:

1. The brightness is not linear. For example, a setting of 100 is only a little brighter than a setting of 50, but 50 is significantly brighter than 25.
2. The red, green, and blue elements are not balanced. For example, on a computer screen, setting red to 100 and green to 100 will result in yellow, but on a CCR pixel, it will be more of a greenish yellow. This is because the CCR's green element is stronger than the red element. Setting red and blue to 100 will result in a bluish purple, because the blue element is stronger than the red element.
3. The LEDs are so bright that the perceived colors will not be as deep as what you see on the computer screen. This must be taken into account when comparing the colors on the computer screen with what you will get on the ribbons. For example, red 100 and green 50 will give a bright orange; red 60 and green 30 will give a dim orange that will show as a muddy orange on the computer screen, but on the Cosmic Color Ribbons it will still be a fairly bright orange.

### ***Making the brightness linear***

The [Light-O-Rama SuperStar Sequencer](#) automatically adjusts the start and end settings to make them linear. For example, a start setting of 50 in the SuperStar Sequencer will export to a setting of 25 in the [Sequencer](#). This gives the proper intensity for the start and end color of an effect. But realize that a ramp that goes from 100 to 0 will not go from 100 to 0 smoothly: The hardware will bring the voltage down from 100% to 0% smoothly, but the brightness will go down slowly at first, then quickly at the end. The SuperStar Sequencer simulates this fast drop off when it plays the sequence onto the ribbons. Note that this fast drop off can be solved using the "[Smooth Ramps](#)" setting.

### ***Balanced Color Mode***

The SuperStar Sequencer defaults to "Balanced Color Mode". In this mode, the red element is used in its full range, but the green and blue elements are limited to less than full brightness. So, for example, if you set red to 100 and green to 100, you will get a true yellow on the ribbon.

### ***Full Range Color Mode***

To set this mode, go to the Tools menu and select Configuration. When in Full Range Color Mode, the color controls will have the following ranges:

- Red: 0-100
- Green: 0-120
- Blue: 0-130

In this mode, setting red, green, and blue all to 100 will give the same results as in Balanced Color Mode. Setting red to 100, green to 120, and blue to 130 will give a bluish white. The SuperStar Sequencer simulates this color shift, but to do so it must "dim down" the settings that are 100 and below in order to support simulation of the colors that are at 100 and above. Realize that even though the colors on the screen are dimmed down, the colors on the Cosmic Color Ribbon will not be.

### ***Go Back to Balanced Color Mode***

When going back to Balanced Color Mode, the SuperStar Sequencer advises that any settings greater than 100 will automatically be adjusted down to 100. Note that after going into Balanced Color Mode, the next time you click on a color control, a warning box may appear that says "Enter an Integer between 0 and 100." This is a bug which will be fixed in the future. Click "OK" on the warning box; if another warning immediately appears, click "OK" on that also. These warnings can be ignored.

## **Color Temperature (Cool White vs Warm White)**

Most Cosmic Color Ribbons have "cool white" LEDs which means they are bluish white when Red, Green, and Blue are completely "on." But some batches of Cosmic Color ribbons have "warm white" LEDs which means they are a true white when Red, Green and Blue are completely "on." Although they are a true white, when held next to a "cool white" pixel that is completely "on" they will look yellowish.

The same is true for DMX ribbons and strings. Some of them are "cool white" and some are "warm white." Choose the setting that matches your particular lights and the colors on the lights will more



nearly match the colors that you saw on the computer screen when you made the sequence.

## Enable Time Layer Priority Feature

When this checkbox is not selected all effects are transparent. This means that effects that where effects of different colors overlap the colors will mix. For example, , if a red effect is place on top of a green effect, in the places where the effects overlap the red and green will mix and will be yellow.

When this checkbox is selected the effects on low time layers will render in front of effects on higher time layers. For example, if you place a morph on time layer 1 and you place a scene on time layer 3, then if the morph goes across the same area as the scene then the morph will render on top of the scene. In other words it will look like the morph is above the scene.

For backward compatibility sequences created before this feature was available will have this feature unselected.

Each of the effect dialog boxes has the options Transparent, Semi-Transparent, and Solid. Their behavior is as follows:

- **Transparent** – The effects are transparent. For example, if a red effect is place on top of a green effect, in the places where the effects overlap the red and green will mix and will be yellow.
- **Semi-Transparent** – The colors in an effect that are dim will be transparent, but the colors in the effect that are the full color of the effect will be solid. For example, if a green morph with a tail is placed above a red scene, then the green head of the morph will be solid but the tail will be transparent. This is probably the setting you will want to use for scenes, morphs, and smooth effects.
- **Solid** – All colors in the effect will appear solid. This is probably the setting you will want for use with images, and text.

## Smooth Ramps

As discussed in the [Color Mode \(Balanced vs. Full Range\)](#) section, the start and end setting of each color is adjusted by the [Light-O-Rama SuperStar Sequencer](#) so that the brightness is linear. However, on a single fade, the SuperStar Sequencer cannot control the rate at which the brightness changes in between the start and the end. To get around this, the SuperStar Sequencer can use "smooth ramps". In smooth ramps mode, ramps that are one second long or longer are actually treated as ten short ramps. In this way, the SuperStar Sequencer gains control of the rate of change of the ramp.

The fast change of ramps is not easily perceived for short ramps, but with very long ramps you will notice it. To see the difference, try the following:

1. Set Smooth Ramps mode

- Click on the Tools menu and select Configuration.
- Select Smooth Ramps in the Configuration dialog box.

2. Add a non-smooth ramp

- Launch the Scene dialog box.
- Select pixels 0-10 on the pixel grid.

- Set the time duration to 1.00 to 1.95 seconds.
- Set the start color to red = 100.
- Set the end color to red = 0.
- Click on the Add button.

The scene will be added to layer 1.

### 3. Add a smooth ramp

- Select pixels 11-20 in the pixel grid.
- In the scene dialog box, set the time duration to 1.00 to 2.00 seconds.
- Leave the start color at red = 100.
- Leave the end color at red = 0.
- Click on the Add button.

The scene should be added to layer 2 so that they both are stacked on top of each other.

### 4. What are we doing?

Both of the scenes cover almost the same time range. The two scenes should be stacked on top of each other. The pixels you selected should not collide (that is, each scene should turn on a different set of pixels).

### 5. Observe the difference

Click on the Play button. The first scene added is of a duration less than one second, so the ramp will not be smoothed. The second scene is a second long, and so the ramp will be smoothed.

Note that the top pixels (belonging to the first scene) will not drop in brightness as fast as the bottom pixels (belonging to the second scene).

### 6. Summary

When in Smooth Ramps mode, only ramps 1.00 second long and longer are smoothed. Even if you are in Smooth Ramps mode, smoothing is not done for ramps less than 1.00 second. This is because the smoothing of short ramps is not easily perceptible to the eye. Realize that any ramp that is smoothed gets chopped up into ten ramps, and thus the number of commands is ten times greater, and the length of the exported sequence file is ten times greater for that effect. This is why smoothing of short ramps is not done.

Smooth Ramps mode defaults to off, but you can turn it on, and then the setting gets stored in both your launch configuration file and in the .sup file. It affects the export of a Light-O-Rama .lms or .las file, and as mentioned, exported files using smoothed ramps will be larger.

## Export Raw Color Values

When exporting a [sequence](#), [SuperStar](#) will adjust the color values so they appear best on your lights. This is because LED lights require adjusted values in order to get them to best match the colors that you see on the computer screen. The result is that the colors you see in the exported file in the [Sequencer](#) may look a bit different than in SuperStar, but they will look good on your actual lights.

If you do not want SuperStar to adjust the exported values, then select "Export Raw Color Values." This will make the colors in the exported file match what you saw on the computer screen in superstar, but the colors will not look as good on your actual lights.

## Grid Orientation

Use this setting to change the orientation of the sequencing grid between Horizontal and Vertical.

### 5.4.4.20 Configure Controller Unit IDs Using the Light-O-Rama Hardware Utility

After purchasing Cosmic Color Ribbons, you must configure them using the [Light-O-Rama Hardware Utility](#). There are instructions on how to do this in the manual that comes with the ribbons. You will assign a [unit ID](#) to each controller, the same as you would with any other [controller](#).

In addition, the Hardware Utility has a [Cosmic Color Ribbon Configuration screen](#). Be sure to use the following settings on it:

- Unit ID Mode: Normal (single ID).
- Channel Mode: Triples (RGB, RGB, ...)
- Resolution: 50 pixels
- Strips: 1
- DMX Mode: Both macro and RGB channels

The "Standalone Speed" setting does not matter with respect to the [Light-O-Rama SuperStar Sequencer](#).

### 5.4.4.21 Configure Controller Unit IDs in the SuperStar Sequencer

After [setting the unit ID for each of your Cosmic Color Ribbons with the Light-O-Rama Hardware Utility](#), you then must let the [Light-O-Rama SuperStar Sequencer](#) know which [unit IDs](#) you assigned.

Note that a Light-O-Rama unit ID is a hexadecimal number from 01 to F0. If they were decimal numbers, the ID would be from 1 to 240, but since they are hexadecimal, the IDs are 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B, 0C, 0D, 0E, 0F, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 1A, 1B, 1C, 1D, 1E, 1F, 20, and so on.

- [Launch the Configuration dialog box](#)
- [Set the unit ID of the star controller](#)
- [Set the unit ID of the first ribbon controller](#)
- [Number of DMX pixels](#)
- [Network settings](#)
- [Examples](#)
- [Do I need more hardware to use more than one network?](#)
- [Setting more than one network in the Light-O-Rama Sequencer](#)

## Launch the Configuration dialog box

Launch the [SuperStar Sequencer](#), click on the Tools menu, and select Configuration.

## Set the unit ID of the star controller

If you are not using a star, select "No" underneath "Star in Use". The Unit ID field will be dimmed, indicating that no [unit ID](#) for a star [controller](#) will be used.

If you are using a star, select "Yes" underneath "Star in Use". Set the unit ID of the Light-O-Rama controller for the star using the dropdown list.

The typical Light-O-Rama controller has 16 channels. Note that if you use the star, you must use the first 6 channels of the controller for it. The remaining 10 channels will not be used by the [SuperStar Sequencer](#), which means you can use them in your main [sequence](#) if you choose to do so.

## Set the unit ID of the first ribbon controller

Set the [unit ID](#) of the first ribbon [controller](#) using the dropdown list. The remaining ribbon controllers must be assigned unit IDs that are in successive numeric order, keeping in mind that they are hexadecimal numbers. For example, if you have four ribbons, and the first ribbon has unit ID 18, then the next three ribbons must have unit IDs 19, 1A, and 1B.

If you have [DMX](#) pixels then select "DMX" and set the Universe and Channel of the first pixel of your first ribbon/string. There are three DMX addressing options to choose from:

- **Tightly Packed:** All 170 pixels are used in each Universe. After all pixels in the first string are assigned, the first pixel of the second ribbon/string will use the next available DMX channel. When all the available channels of a Universe are used then the addressing moves to channel 1 of the next Universe. This is done until all pixels of all ribbons/strings are defined.
- **Semi-Packed:** As many full strings as possible are put into each Universe. For example, if each string has 50 pixels, then 3 strings will fit into the 170 pixels available in one Universe. So the first 3 strings will use the first Universe; strings 4, 5, and 6 will use the Universe after that. With Semi-Packed, a transition to another Universe will never happen in the middle of a string.
- **Not Packed:** Each string has its own universe. This means that each string will start with pixel one of a Universe.

## Number of DMX Pixels (10-170)

Set the number of [DMX](#) pixels that are in each of your DMX pixel strings. For example, if your strings have 150 pixels in each string, set 150, and when the [sequence](#) is exported it will expand the 50 pixel sequence into 150 pixels. This is an important feature! It makes sequences written for 50 pixels transportable to DMX strings of any length between 10 and 170.

## Network settings

Generally speaking, Light-O-Rama supports up to 16 [Light-O-Rama networks](#), but the [SuperStar Sequencer](#) currently only supports up to four of them. The default setting for the SuperStar Sequencer is to use one network (the Standard network), with the other three networks (Auxiliary Networks A, B, and C) disabled. When using one network (the Standard network), you must set the first and last [unit IDs](#) that are controlled by the network.

If using more than one network, enable the auxiliary networks you are using and set the first and last unit IDs controlled by each auxiliary network.

## Examples

- [Setting up one network for the star and 12 ribbons](#)
- [Setting up one network for the star, 8 ribbons, and other lights](#)
- [Setting up four networks with no star, 24 ribbons, and other lights](#)

### ***Setting up one network for the star and 12 ribbons***

Let's say we have a star, 12 ribbons, and no other lights. We are controlling the star with a standard 16 channel [Light-O-Rama controller](#) that has [unit ID](#) 01, and the twelve ribbons are controlled by their respective controllers with unit IDs 02 through 0D. Then we would use the following settings:

- Star in Use: Yes
- Unit ID of Star Controller: "01"
- Unit ID of First Ribbon Controller: "02"
- Standard Network: Enabled
- Standard Network, Unit ID of First and Last Controller: "01" "0D"
- Auxilliary Networks: Disabled

### ***Setting up one network for the star, 8 ribbons, and other lights***

Let's say we have a star and 8 ribbons, and will be running them alongside other lights. We are controlling the star with a standard 16 channel [Light-O-Rama controller](#) that has [unit ID](#) 01. We also have three other 16 channel Light-O-Rama controllers, with unit IDs 02, 03, and 04. The eight ribbons are controlled by their respective controllers with unit IDs 05 through 0C. Then we would use the following settings:

- Star in Use: Yes
- Unit ID of Star Controller: "01"
- Unit ID of First Ribbon Controller: "05"
- Standard Network: Enabled
- Standard Network, Unit ID of First and Last Controller: "01" "0C"
- Auxiliary Networks: Disabled

### ***Setting up four networks with no star, 24 ribbons, and other lights***

Let's say we have no star, but 24 ribbons, and will be running them alongside other lights. We have 256 channels for other lights, which are controlled by 16 standard 16 channel [Light-O-Rama controllers](#) with [unit IDs](#) 01 through 10. We have 24 ribbons controlled by their respective controllers, with unit IDs 11 through 28. We want to run the various ribbons on four different [networks](#). Then we could use the following settings:

- Star in Use: No
- Unit ID of Star Controller: Disabled
- Unit ID of First Ribbon Controller: "11"
- Standard Network: Enabled
- Standard Network, Unit ID of First and Last Controller: "01" "10"
- Auxiliary Network A: Enabled
- Auxiliary Network A, Unit ID of First and Last Controller: "11" "18"
- Auxiliary Network B: Enabled
- Auxiliary Network B, Unit ID of First and Last Controller: "19" "20"
- Auxiliary Network C: Enabled

- Auxiliary Network C, Unit ID of First and Last Controller: "21" "28"

## Do I need more hardware to use more than one network?

If you have one USB485 connector plugged into one USB port of your computer, then you are using one [network](#). To use more than one network, you must first purchase other USB485 connectors (one for each additional network). Plug in each USB485 connector to a different USB port on your computer. Then plug in the Cat 5 cable coming from each USB485 connector into the first controller of the network group you are going to control with that network.

## Setting more than one network in the Light-O-Rama Sequencer

- Launch the [Light-O-Rama Network Preferences](#) program.
- Make sure you are in [Advanced Mode](#).
- Select a comm port for each [network](#) that you plan to use.

### 5.4.4.22 Select All, Select All Left, and Select All Right

In the [Light-O-Rama SuperStar Sequencer](#), you will find these actions in the Edit menu. "Select All" will select all effects in the SuperStar sequence; "Select All Left" will select all that are left of the time selected in the time scale; "Select All Right" will select all to the right of the time selected in the time scale.

Select All is useful for adding some blank space to your SuperStar sequence: If you needed to create a small amount of blank space at the beginning of a sequence, you could Select All, then use the Nudge Right button. To create a large amount of space, you could Select All, press the Cut button, select a time on the time scale, and then press the Paste button.

Similarly, Select All Right is useful for creating some blank space in the middle of your SuperStar sequence: You could Select All Right, Cut, then Paste at the desired new location.

### 5.4.4.23 Importing a Timing Grid and up to 3 Timing Channels

In the [Light-O-Rama SuperStar Sequencer](#), you can create a timing grid and timing marks by clicking on the Tools menu and selecting "Create Timings". However, if you already have a [timing grid](#) and some timing [channels](#) that you have created in the [Light-O-Rama Sequencer](#), you can import one timing grid and up to three timing channels from a [sequence](#) file:

- Launch the SuperStar Sequencer.
- Click on the Tools menu, select Layout, and set the number of CCRs that you have.
- Click on the File menu, and select Import Timings.
- Uncheck "Import First Freeform Timing Grid".
- Type the name of the timing grid to import.
- Type the name of the first timing channel to import.
- Type the name of the second timing channel to import.
- Type the name of the third timing channel to import.
- Click on the "..." button and select the sequence file that you wish to import timings from.
- Click on OK.

The timing grid and timing marks will appear at the top of the time layers.

## 5.4.5 Summary of Commands and Keyboard Accelerators

The following pages in this help file summarize various commands and keyboard accelerators in the [Light-O-Rama SuperStar Sequencer](#):

- [Toolbar Summary](#)
- [Toolbar Buttons that have Keyboard Modifiers](#)
- [Timeline and Effect Object Selection](#)
- [Top Part of Color Controls](#)
- [Color Picker Dialog Box](#)
- [Bottom Part of Color Controls](#)
- [Sequencing Grid Commands for Scenes](#)
- [Selection Grid Commands for Morphs](#)
- [Sequencing Grid Command for Images](#)

### 5.4.5.1 Toolbar Summary

The following is a summary of the various buttons in the toolbar of the [Light-O-Rama SuperStar Sequencer](#):



New Sequence, Open Sequence, Save Sequence, Cut, Copy, Paste



Delete a selected group, Fast Rewind, Rewind, Pause or Freeze Frame, Stop, Play 8 seconds, Forward, Fast Forward, Play All

Note: The space bar is an accelerator for "Play All".



Scene Mode, Morph Mode, Smooth Effect Mode, Image Mode, Text Mode



Set Group Time Range, Nudge Left, Nudge Right, Nudge Length Left, Nudge Length Right, Move Effects up, Move Effects Down



Star Rays, Wide Grid, Narrow Grid



Select Props, Select Fixtures

### Time Line

To create a selection on the Time Line of 8 seconds or less – Do a click and drag to select a region on the time line.


To create a selection on the Time Line that is longer than 8 seconds - Scroll to where you want the selection to start and mark the start of the selection with a left mouse click. Scroll to the region where you want the selection to end and mark the end of the selection with a right mouse click.


Set Group Time Range – Create a selection on the Time Line, Select a group of effects, and then click on the “Set Group Time Range” button. All the selected effects will be set to the time range on the Time Line.


See also [Toolbar Buttons that have Keyboard Modifiers](#).


#### 5.4.5.2 Toolbar Buttons that have Keyboard Modifiers

The following is a summary of toolbar buttons that have keyboard modifiers in the [Light-O-Rama SuperStar Sequencer](#):


Shift +  = Paste and keep all effects in their original locations


Ctrl +  = Fast rewind to beginning


Ctrl +  = Fast forward to end

 = Freeze frame mode: Use the left and right arrow keys to step through the sequence.

Ctrl +  = Big nudge left

Ctrl +  = Big nudge right

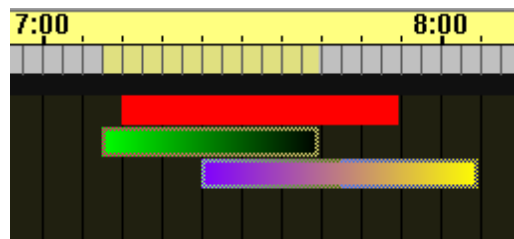
Ctrl +  = Big nudge length left

Ctrl +  = Big nudge length right

See also [Toolbar Summary](#).

#### 5.4.5.3 Timeline and Effect Object Selection

The timeline and selecting effect objects in the [Light-O-Rama SuperStar Sequencer](#):



Timeline and Effect Object Selection

Dragging the mouse on the gray area of the timeline will select the time duration. Selecting an object will also set the time duration in the timeline.

To set a timeline selection longer than eight seconds, mark the beginning of the timeline selection with a



left mouse click, scroll the timeline as necessary, and then mark the end of the timeline selection with a right mouse click.

Ctrl+mouse click on an unselected object will add that object to the selection group.

Ctrl+mouse click on a selected object will remove that object from the selection group.

Ctrl+mouse drag on unselected objects will add those objects to the selection group.

Ctrl+mouse drag on selected objects will remove those objects from the selection group.

#### 5.4.5.4 Top Part of Color Controls

The top part of color controls in the [Light-O-Rama SuperStar Sequencer](#):



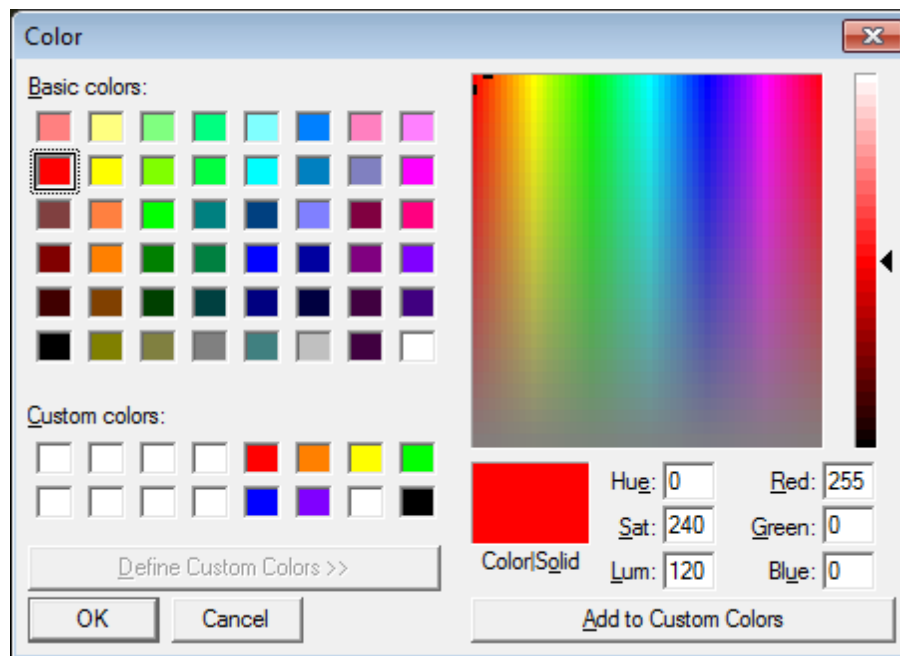
Top part of color controls

Left click on a color box, or on "Main" or "Tail" = Step through the 8 basic color wheel colors.

Right click on a color box, or on "Main" or "Tail" = Launch the [Color Picker dialog box](#).

#### 5.4.5.5 Color Picker Dialog Box

The Color Picker dialog box of the [Light-O-Rama SuperStar Sequencer](#):



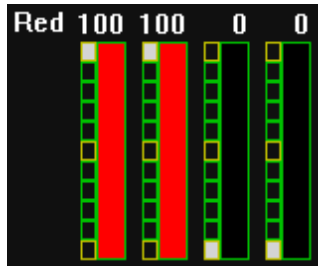
The Color Picker dialog box

Select a color and click OK to set the color.

Note that the eight basic colors of the color wheel are already among the custom colors.

#### 5.4.5.6 Bottom Part of Color Controls

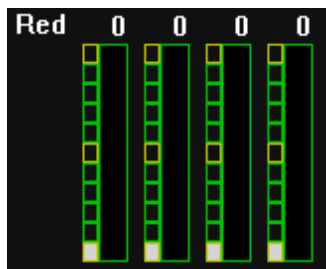
The bottom part of color controls in the [Light-O-Rama SuperStar Sequencer](#):



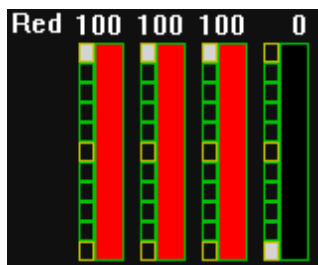
Bottom part of color controls

Mouse click on the control to set the intensity. Mouse drag will also set the intensity.

Double click on the first color to set the second and third colors also. For example:



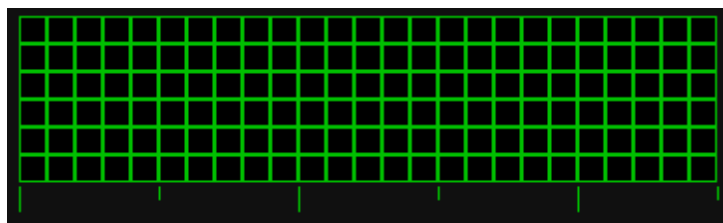
Before a double click on the first color



After a double click on the first color

#### 5.4.5.7 Sequencing Grid Commands for Scenes

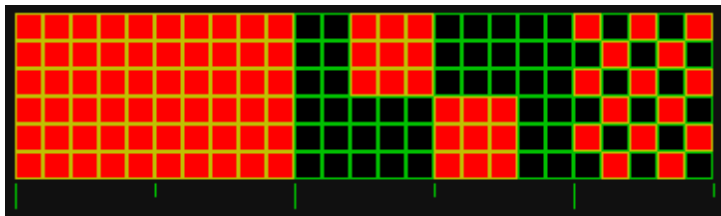
Sequencing grid commands for scenes in the [Light-O-Rama SuperStar Sequencer](#):



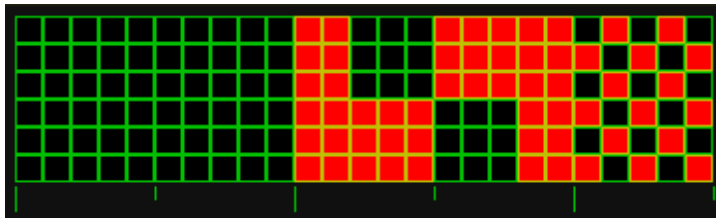
Sequencing grid for scenes

- Left mouse click = Set a pixel.
- Right mouse click = Clear a pixel.
- Left mouse drag = Set pixels.
- Right mouse drag = Clear pixels.
- Ctrl+left mouse click = Set all pixels.
- Ctrl+right mouse click = Clear all pixels.
- Shift+left mouse click = Toggle pixel.
- Shift+left mouse drag = Toggle pixels.

Example of a toggle:



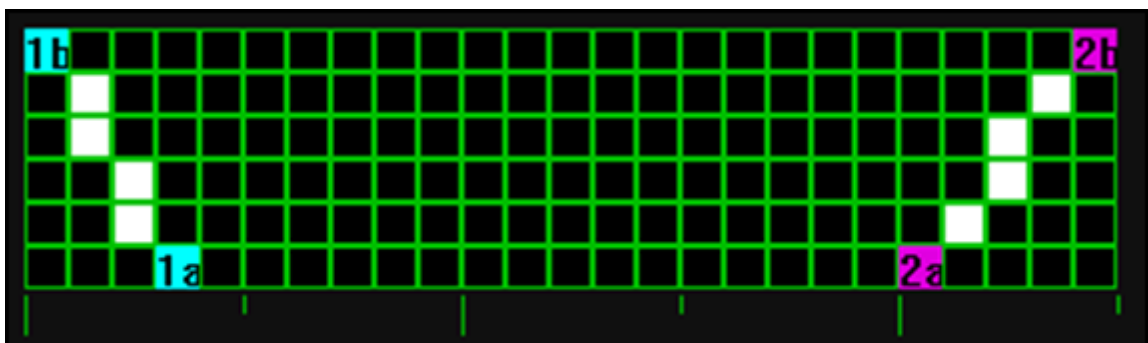
Before Shift+left mouse drag



After Shift+left mouse drag

#### 5.4.5.8 Selection Grid Commands for Morphs

Selection grid commands for morphs in the [Light-O-Rama SuperStar Sequencer](#):



Selection grid for morphs

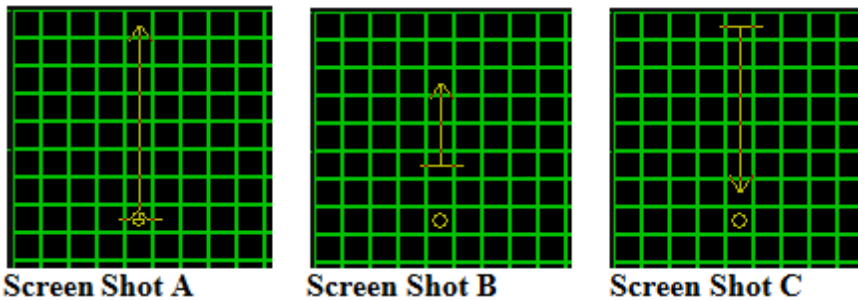
Left mouse drag to set the State 1 line: "1a" marks the beginning of the left mouse drag; "1b" marks the end.

Right mouse drag to set the State 2 line: "2a" marks the beginning of the right mouse drag; "2b" marks the end.

When the morph is performed, "1a" morphs to "2a", and "1b" morphs to "2b".

#### 5.4.5.9 Sequencing Grid Commands for Smooth Effects (Shockwave, Spiral and Fan)

Sequencing Grid commands for [Smooth Effects](#) ([Shockwave](#), [Spiral](#) and [Fan](#)) in the [Light-O-Rama SuperStar Sequencer](#):



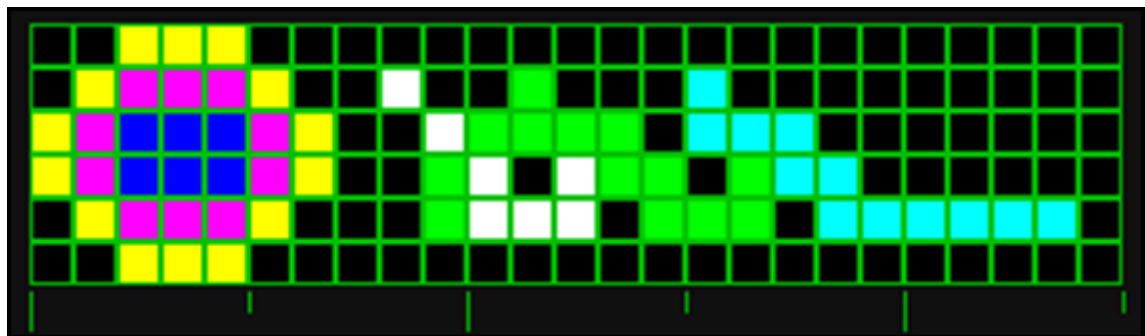
Use left mouse drag to set the center point and start angle. For example, Screen Shot A was created with a left mouse drag that started at the circle and ended at the arrow head.

Use right mouse drag to modify the radius. For example, Screen Shot B was created with a right mouse drag that started at the base of the line and ended at the arrow head of the line.

Use right mouse drag to modify the direction of the radius. For example, Screen Shot C was created with a right mouse drag that started at the base of the line and ended at the arrow head of the line.

#### 5.4.5.10 Sequencing Grid Command for Images

Sequencing grid commands for images in the [Light-O-Rama SuperStar Sequencer](#):



Sequencing grid for images

- Left mouse click = Set a pixel
- Right mouse click = Clear a pixel
- Left mouse drag = Set pixels (draws like a pencil)
- Right mouse drag = Clear pixels (clears like an eraser)
- Ctrl + left mouse click = Set all pixels
- Ctrl + right mouse click = Clear all pixels

- Shift + left mouse click = Set the color control to the color of the pixel
- Shift + left mouse drag = No action performed

### 5.4.6 Purchased Sequences

Sequences purchased from SuperStar lights are archive files and will have the word "archive" at the end of the file name. For example:

WizardsInWinter\_12CCRs\_archive.sup

Archive files can be exported by any license level of the [SuperStar Sequencer](#), including the free demo version. However, if you add, delete, or modify any of the effects in the file, then it is no longer an archive file and will only export if you have the appropriate license level.

Note that you can change the following in an archive file and it will still export with any license level:

- You can open an audio file
- You can set unit ID information and any other information in the [Configuration dialog box](#)
- You can set the location of the controllers and any other information in the [Layout dialog box](#)

## 5.5 Show Editor



The Light-O-Rama Show Editor is used to create [shows](#). Shows are groups of [sequences](#) to be played as a group. They can be [scheduled](#) to play at certain times using the [Schedule Editor](#), and will then be played using the [Show Player](#).

To start the Show Editor, you can run it from your computer's Start Menu by selecting "All Programs" -> "Light-O-Rama" -> "Light-O-Rama Show Editor". Alternatively, if the [Light-O-Rama Control Panel](#) is already running, you can right-click its icon in your computer's system tray, and select "Show Editor" from the popup menu that will open.

Shows consist of several sections. Each section serves a different purpose - for example, the "[startup section](#)" is a list of sequences that will be played when the show begins, while the "[animation section](#)" is a list of animation sequences that will be played throughout most of the show's duration (after startup and before [shutdown](#)). All sections are optional.

For details on each of the sections, please refer to the following:

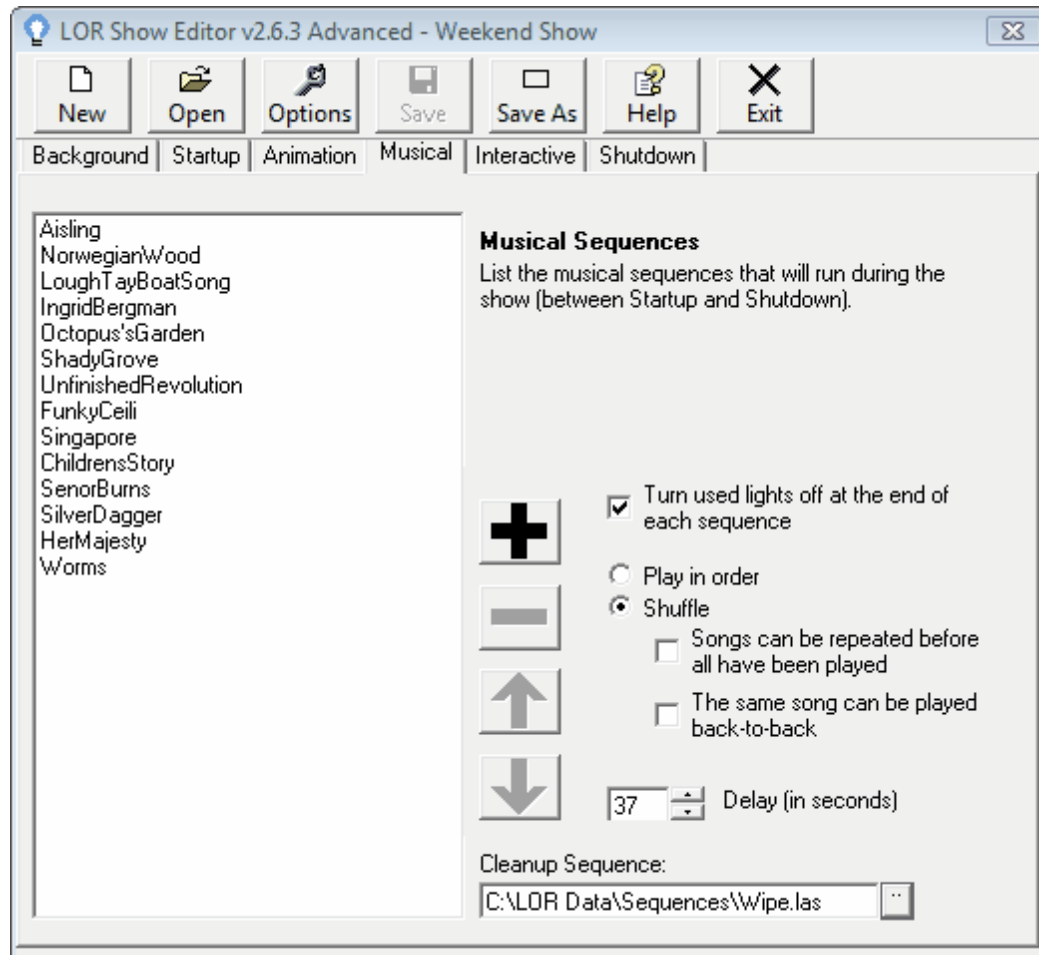
- [The Background Section](#)
- [The Startup Section](#)
- [The Animation Section](#)
- [The Musical Section](#)
- [The Interactive Section](#)
- [The Shutdown Section](#)

The Show Editor consists of six main tabs, and a toolbar at their top. Each of the tabs is associated with one of the six sections of the show (such as "background" and "animation"), while the toolbar has buttons to create, open, and save shows.

To add a sequence to a section, click on that section's tab, and then on the large "+" button. This will

prompt you for the name of the sequence that you want to add. Similarly, to remove one, select the sequence from the section's list by clicking on its name, and then click the large "-" button.

A sequence can be moved up or down in a section's list by clicking on its name and then on the large up arrow or down arrow buttons. This generally affects the order that the sequences will be played in, but not always: For example, in the musical section, you can select that the sequences will be played in the order listed, or in a random shuffle; if you choose the latter, it doesn't matter what order they are listed in. Similarly, in the animation section, you can select that the sequences be played simultaneously (as opposed to sequentially); if you do, their listed order does not matter.



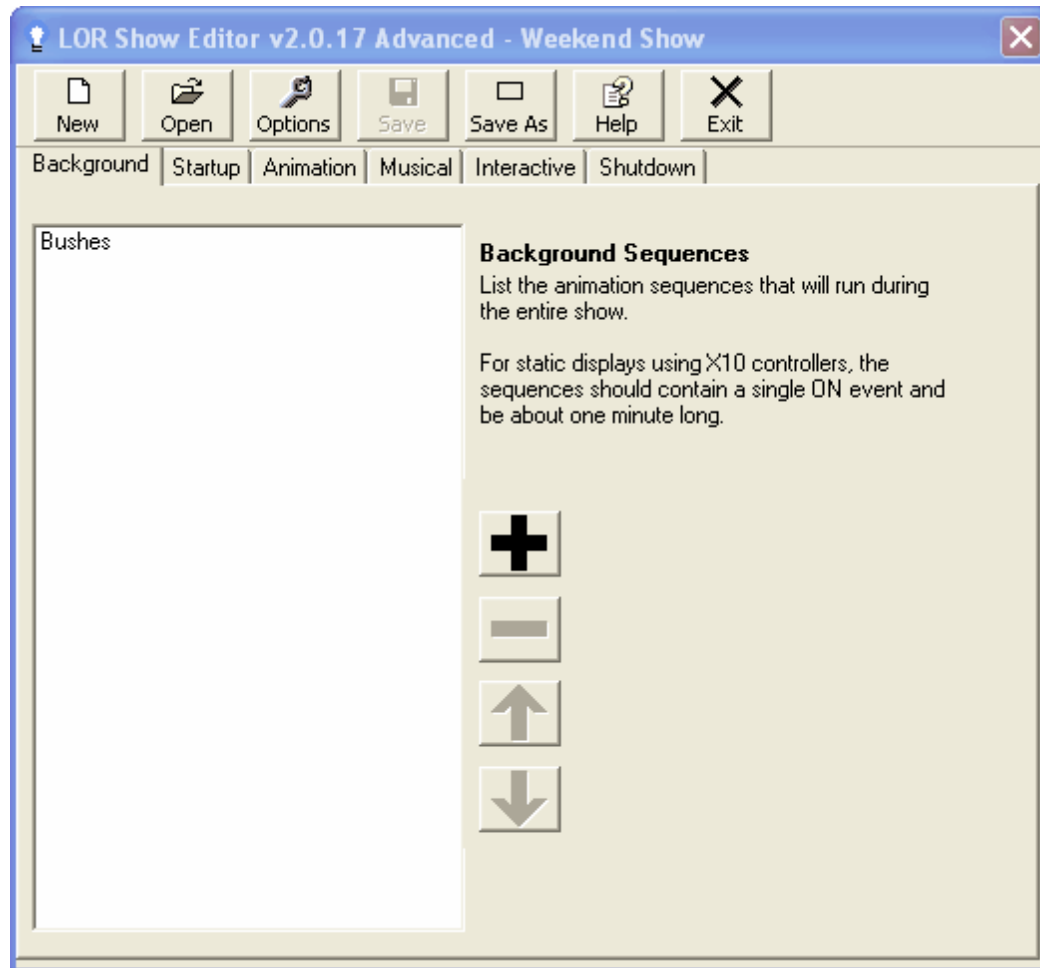
The Show Editor's tab for the musical section of a show

## The Background Section

When a show is started (at a time determined by the [schedule](#)), all of the [sequences](#) in the show's background section will start playing, simultaneously. When such a sequence reaches its end, it will simply loop back to its beginning and keep playing. All of these sequences will continue playing in this way until the show ends (also at a time determined by the schedule).

If your [Light-O-Rama software license](#) is for the Advanced feature level, you additionally have control over whether this section (and/or the rest of your show) starts immediately at its scheduled time, or upon an input trigger (for example, when someone hits a "start" button). See "[Show Startup Options](#)" for details.

Only [animation sequences](#) can be used in the background section of a show.



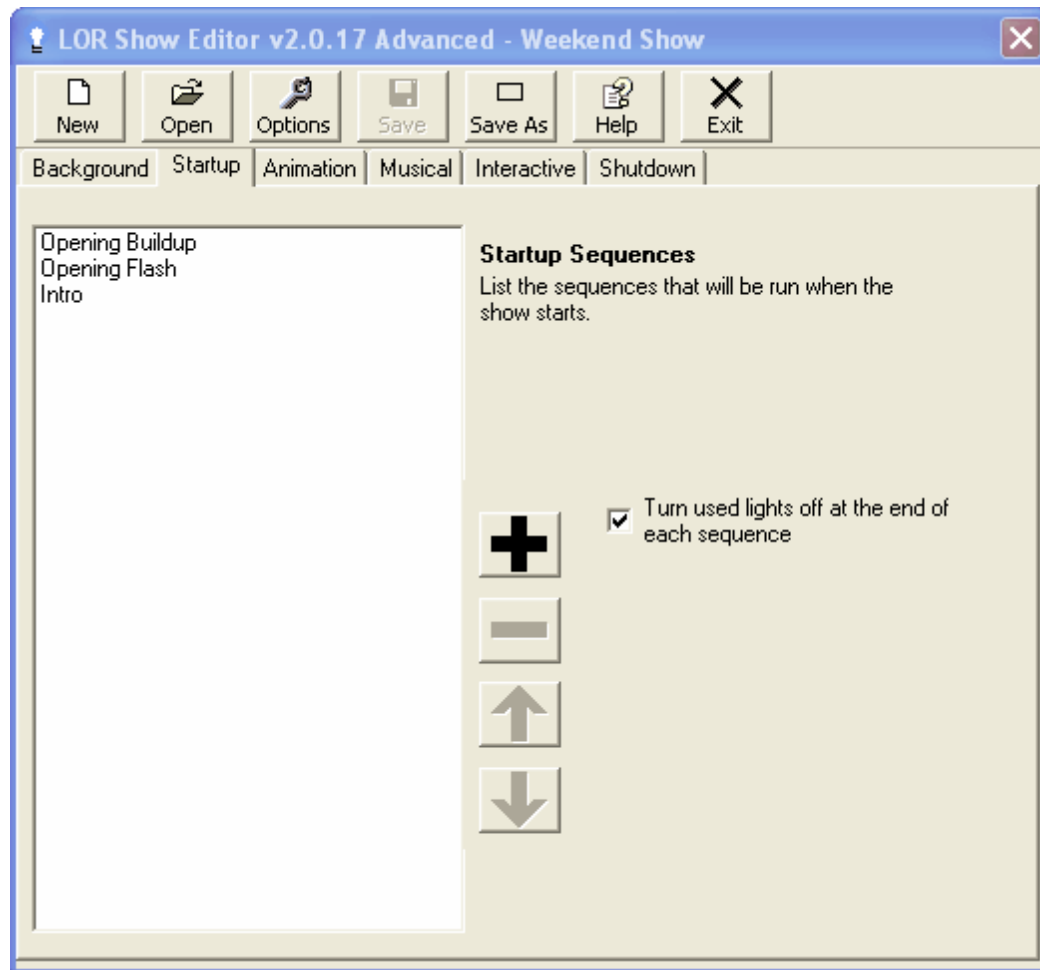
The Show Editor's tab for the background section of a show, with one sequence

## The Startup Section

When a show is started (at a time determined by the [schedule](#)), the sequences in its startup section will be played, one at a time, in order. After they all have finished, the main portion of the show will begin, consisting of the [animation section](#) and the [musical section](#).

You can control whether or not sequences in this section will automatically turn their lights off when they reach their end by setting the "Turn used lights off at the end of each sequence" checkbox.

If your [Light-O-Rama software license](#) is for the Advanced feature level, you additionally have control over whether this section (and the rest of your show) starts immediately at its scheduled time, or upon an input trigger (for example, when someone hits a "start" button). See "[Show Startup Options](#)" for details.



The startup section in the Show Editor, with three sequences

## The Animation Section

After a show's [startup section](#) has completed, its animation section will begin (as will its [musical section](#)).

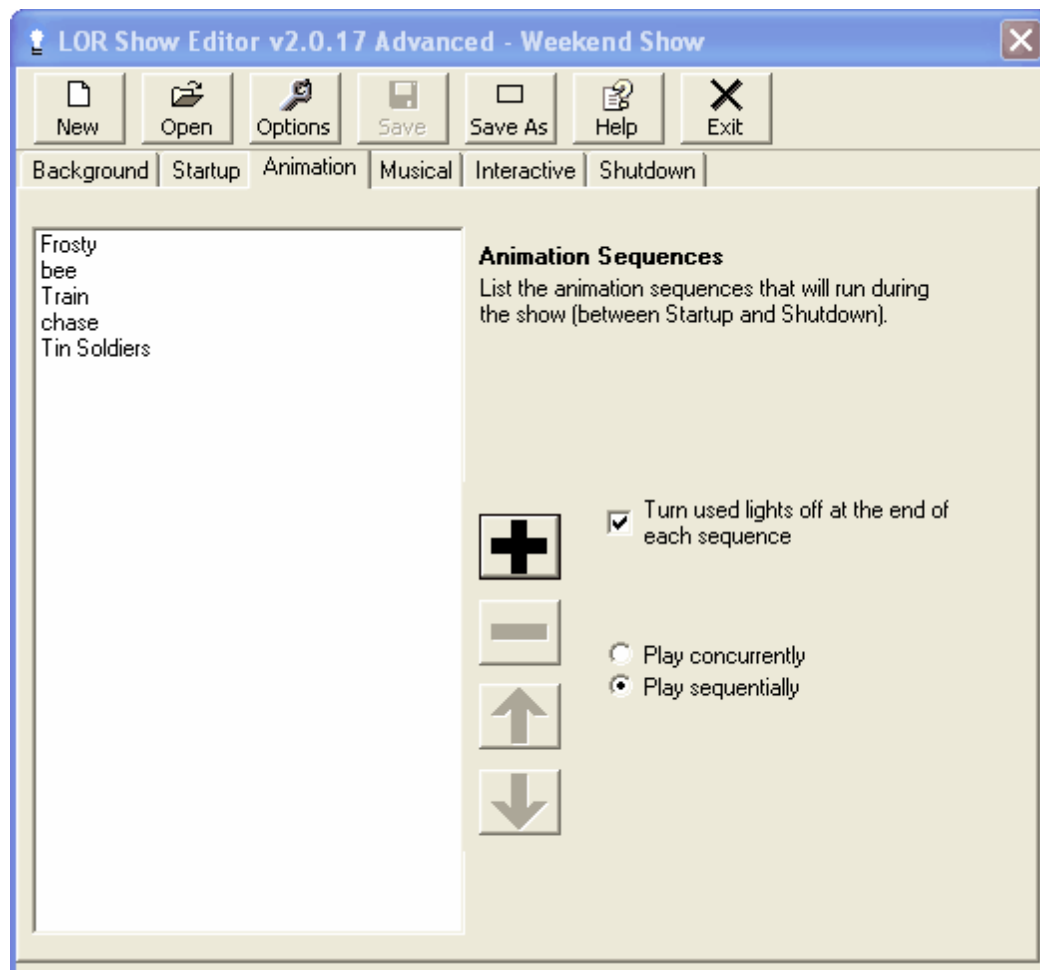
[Sequences](#) in the animation section can be played concurrently or sequentially. If you choose to play them sequentially, the first in the list (as displayed in the [Show Editor](#)) will be played, and when it finishes, the next will be played, and so forth. After all of them have been played, the first in the list will be played again. This pattern will continue until the show is shut down (at a time determined by the [schedule](#)).

If they are played concurrently, all of them will be played at once, and whenever one reaches its end, it will simply loop back to its beginning and keep playing. Again, this will continue until the show is shut down.

You can control whether or not sequences in this section will automatically turn their lights off when they reach their end by setting the "Turn used lights off at the end of each sequence" checkbox.

Only [animation sequences](#) can be used in the animation section of a show.





The animation section in the Show Editor, with five sequences, played sequentially

## The Musical Section

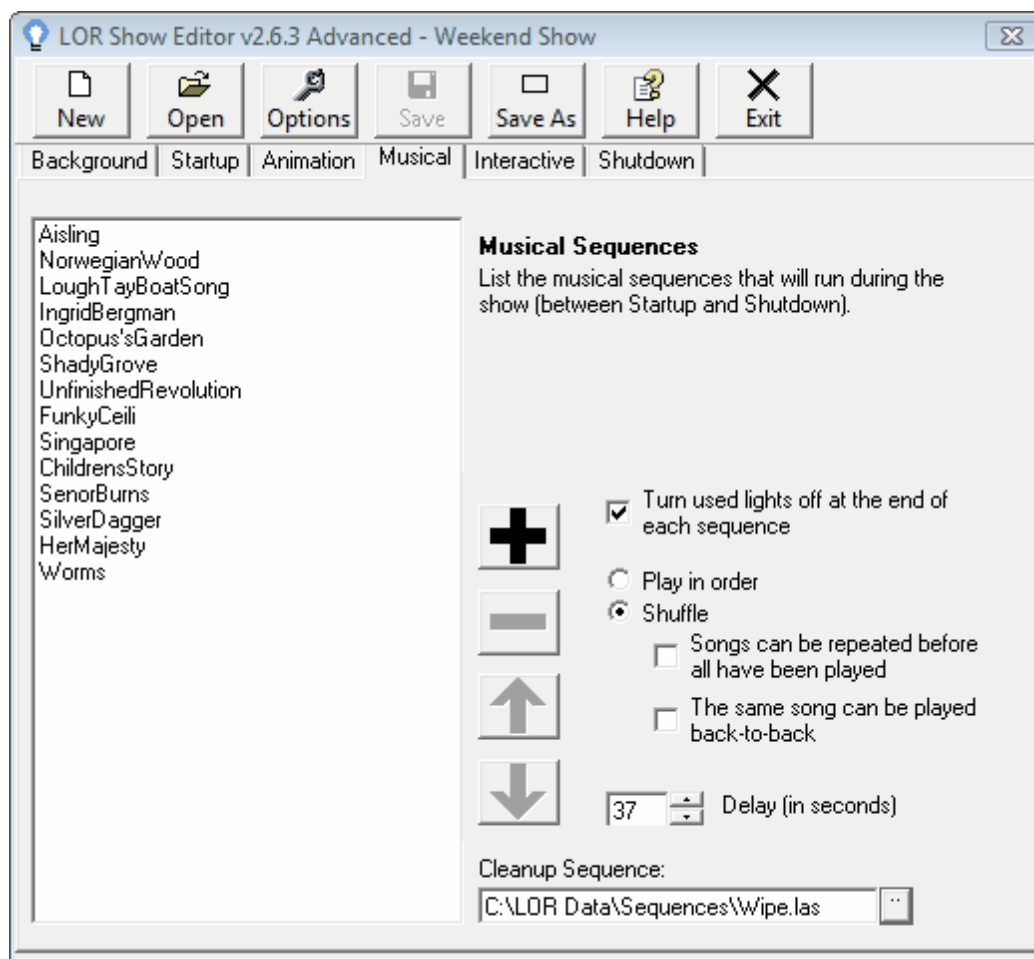
After a show's [startup section](#) has completed, its musical section will begin (as will its [animation section](#)).

Only one [sequence](#) from the musical section will play at a time. They can be played in the order listed in the [Show Editor](#), or shuffled randomly. If shuffled randomly, you can also control two different aspects of how shuffling is done: Whether or not a sequence is allowed to be played a second time before all sequences have played once, and whether or not a sequence is allowed to play twice in a row (this latter does not apply if you have only one sequence in the musical section - it will definitely be played back-to-back).

Play will continue until the show is shut down (at a time determined by the [schedule](#)). If the sequences are to be played in the order listed, and the end of the list is reached before the show is to shut down, play will loop back to the first sequence in the list.

Optionally, a "cleanup sequence" can also be specified in the musical section. If so, that sequence will be played immediately after the completion of any sequence in the musical section, before the next one begins. Also optionally, a delay can be specified between songs.

You can control whether or not sequences in this section will automatically turn their lights off when they reach their end by setting the "Turn used lights off at the end of each sequence" checkbox.



The musical section in the Show Editor, with several sequences, shuffled, with a delay and a cleanup sequence

## The Interactive Section

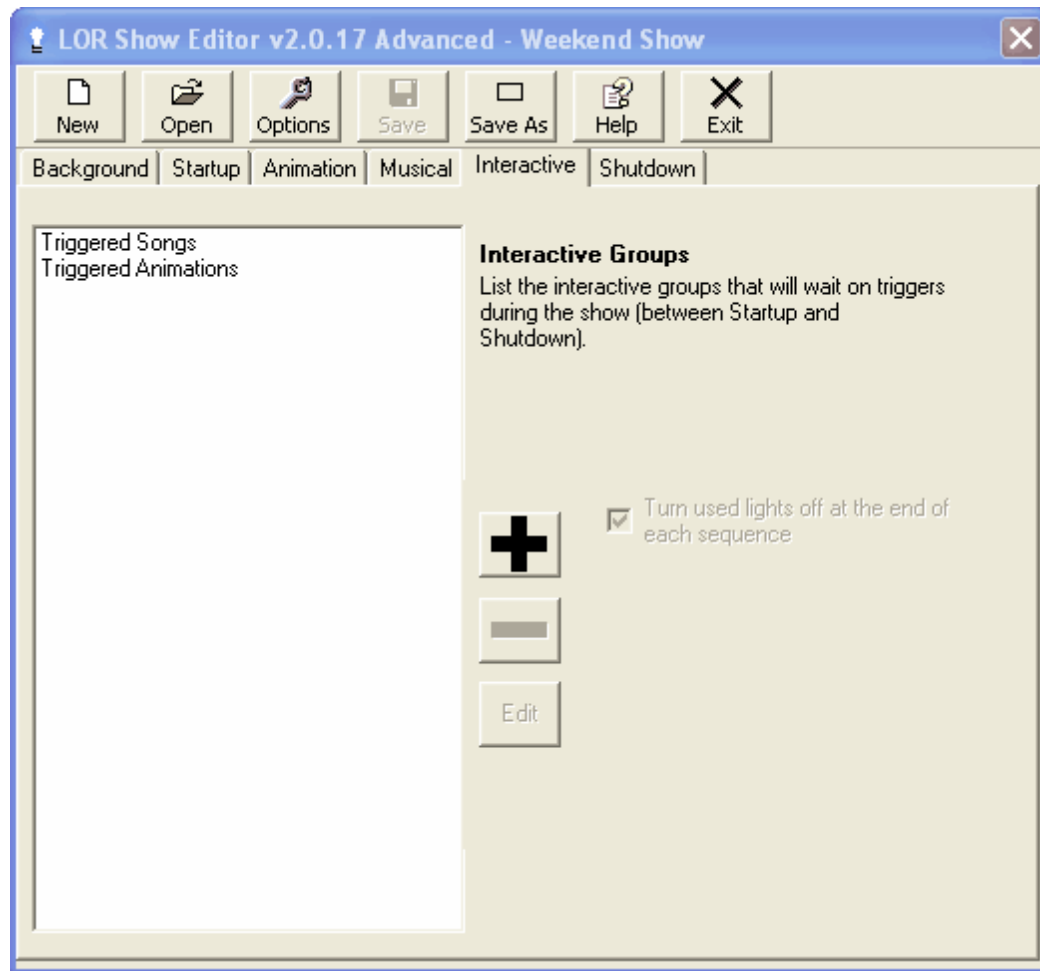
Some [Light-O-Rama controllers](#) can be used not only to control lights, but also to accept input from people, causing Light-O-Rama to play [sequences](#) on demand. For example, you could have a big red button as part of your display, which, when pressed, will cause Light-O-Rama to start playing a particular song or songs.

This is controlled through the interactive section of the [show](#). You can use this tab in the [Show Editor](#) to specify what sequences are to be played when which inputs are triggered. Please see the separate page on [interactive groups](#) for details.

Note that, unlike for the other sections of the show, the Show Editor's "Interactive" tab actually lists groups of sequences, rather than directly listing sequences. Again, please see the page on interactive groups for details on how to create and modify these groups of sequences.

You can control whether or not sequences in this section will automatically turn their lights off when

they reach their end by setting the "Turn used lights off at the end of each sequence" checkbox, but unlike in other sections of the show, this setting is controlled individually for each interactive group, rather than for the section as a whole.

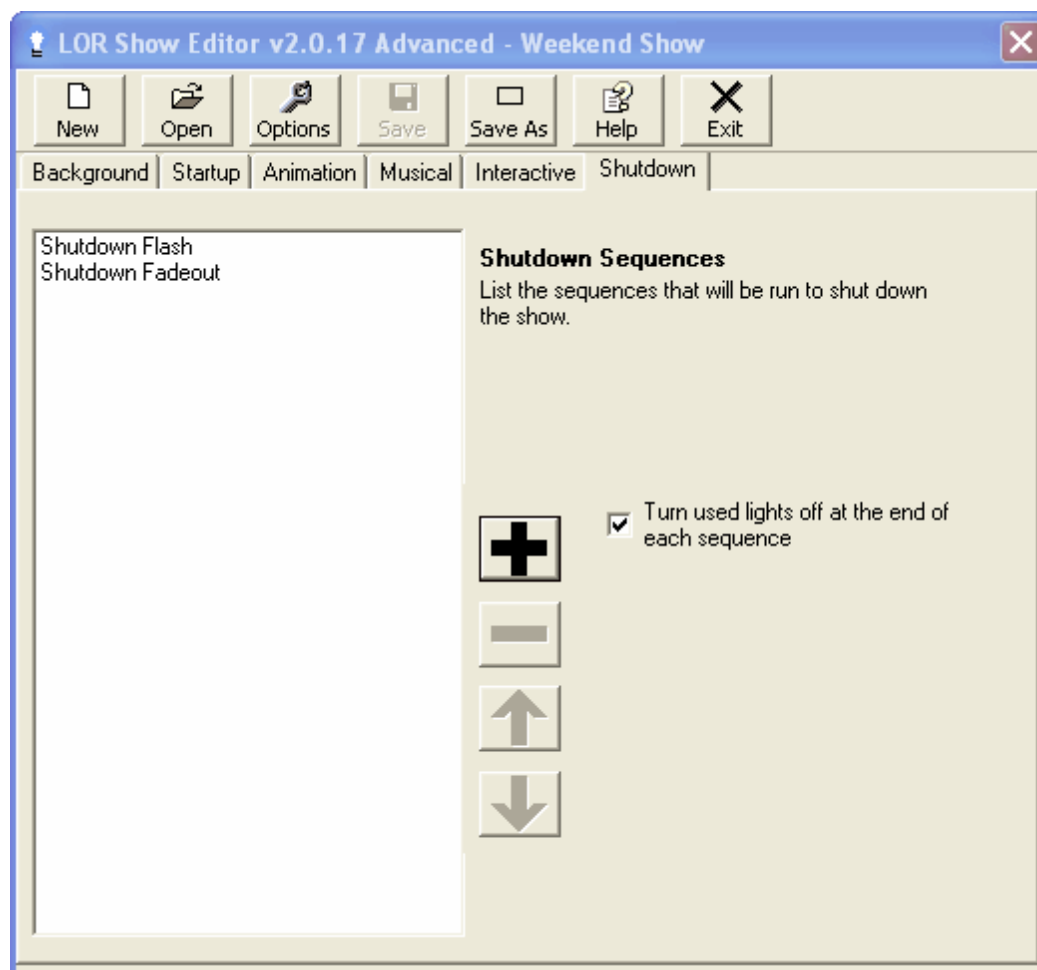


The interactive section in the Show Editor, with two groups of sequences

## The Shutdown Section

When the end of a show is reached (at a time determined by the [schedule](#)), its [animation section](#) and [musical section](#) will end, and its shutdown section will begin. [Sequences](#) in the shutdown section will play, one at a time, in the order listed in the [Show Editor](#). After they all have completed, the show is truly finished.

You can control whether or not sequences in this section will automatically turn their lights off when they reach their end by setting the "Turn used lights off at the end of each sequence" checkbox.



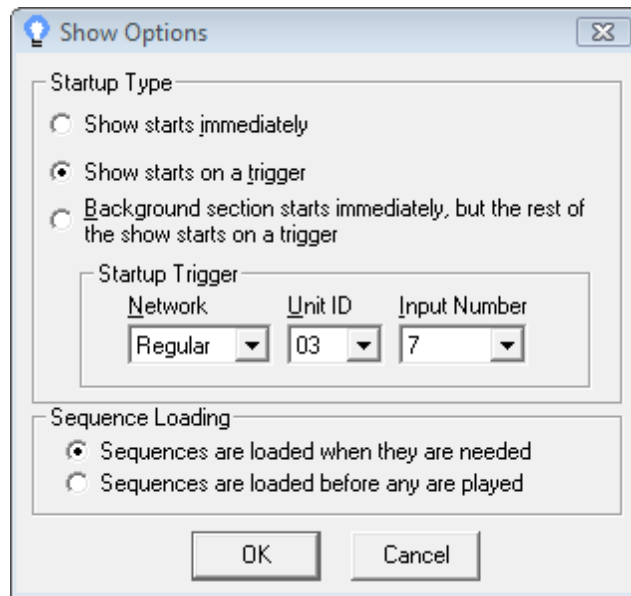
The shutdown section in the Show Editor, with two sequences

## Show Startup Options

If your [Light-O-Rama software license](#) is for the Advanced feature level, you have more control over exactly how your [show](#) will start up:

- [Immediate startup](#)
- [Triggered startup](#)
- [Immediate background startup](#)

To choose which way you want your show to start, select the "Options" button at the top of the [Show Editor](#). This will bring up the following dialog, which has a "Startup Type" section where you can choose which way the show will start:



The Show Options dialog, with triggered startup selected

### **Immediate Startup**

In immediate startup mode, your [show](#) will begin immediately at its [scheduled](#) start time.

This is equivalent to the same way that shows always started in earlier releases of Light-O-Rama.

### **Triggered Startup**

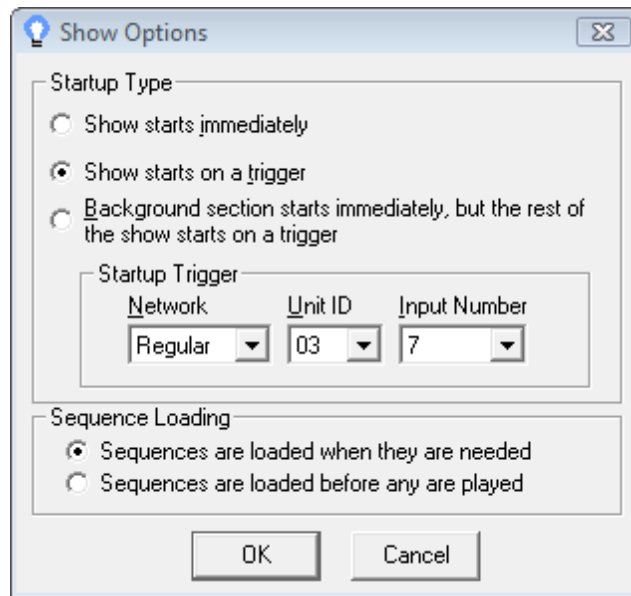
In triggered startup mode, your [show](#) will start when a specified [circuit](#) on a specified [Light-O-Rama controller](#) is triggered (as long as it is triggered during the show's [scheduled](#) run time). For example, you could hook up a big red button labeled "Start the Show" to a controller. Please note that triggers are not supported on [LOR Enhanced networks](#).

### **Immediate Background Startup**

In immediate background startup mode, your [show's Background section](#) will start immediately at the show's [scheduled](#) start time, but the rest of the show will not start until a specified [circuit](#) on a specified [Light-O-Rama controller](#) is triggered (as long as it is triggered during the show's scheduled run time). Please note that triggers are not supported on [LOR Enhanced networks](#).

## **Sequence Loading Options**

By default, when a [show](#) is being played in the [Show Player](#), any given [sequence](#) in the show will not be loaded until when it is about to be played for the first time. Depending upon the size of the sequence and the power of the computer, it may take a human-noticeable amount of time to load a sequence; if so, this may cause an undesired delay between sequences, the first time they are played. So, optionally, you can choose to preload all sequences before any of them are played. To do so, click on the "Options" button in the [Show Editor's](#) toolbar, and then select "Sequences are loaded before any are played" from the "Sequence Loading" section of the options dialog:



The Show Options dialog

### 5.5.1 Interactive Groups

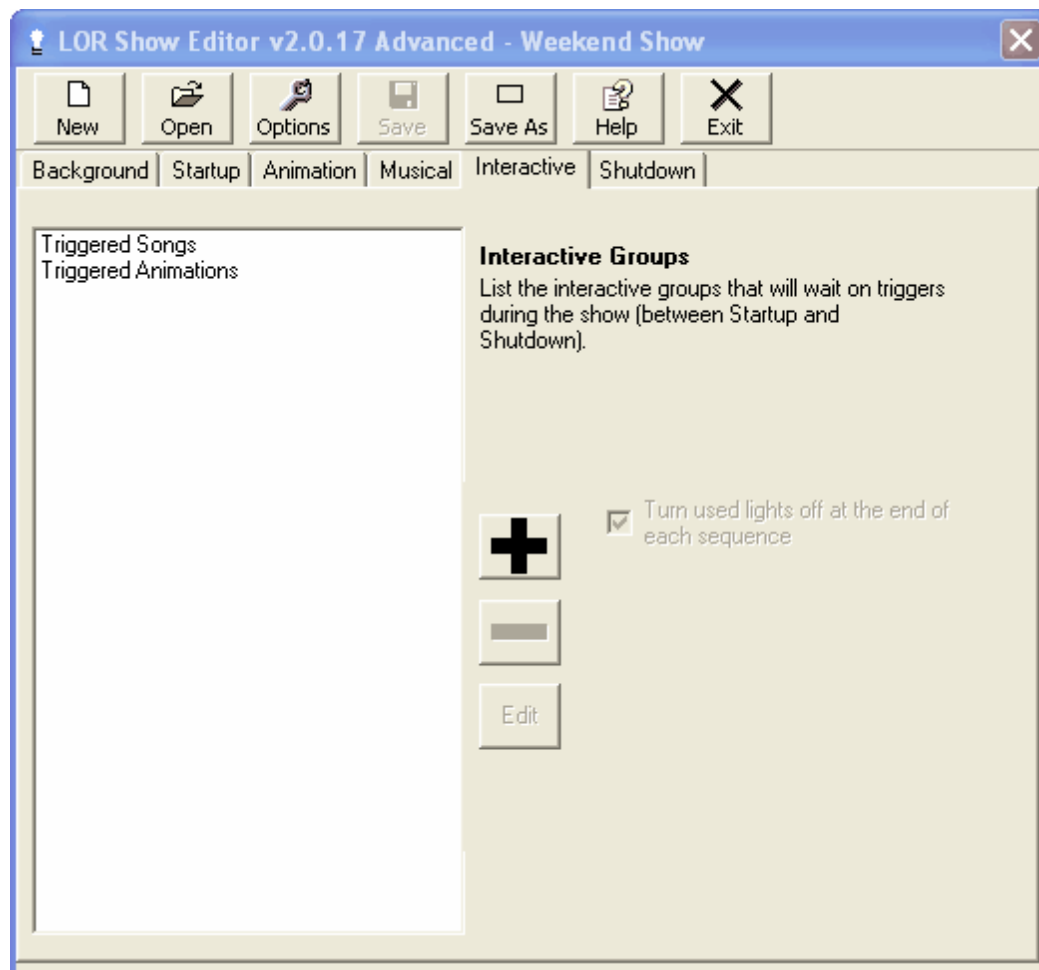
Some [Light-O-Rama controllers](#) can be used not only to control lights, but also to accept input that can be used to trigger a [sequence](#) or sequences. For example, your display might have several buttons for people to press, each of which will cause Light-O-Rama to play some particular song on demand.

This is controlled through the [Interactive Section](#) of a [show](#). Unlike the other sections of a show, the [Show Editor's](#) "Interactive" tab displays not sequences, but groups of sequences, known as "interactive groups". Each group matches individual [circuits](#) on individual controllers with individual sequences to be played when those circuits are triggered.

Only one [musical sequence](#) can be playing at any given time. Therefore, if a musical sequence from an interactive group is triggered, any musical sequence that happens to already be playing will be stopped (for one exception to this, see the "[Jukebox](#)" type of interactive group, below).

Interactive groups cannot be used on [LOR Enhanced networks](#). If you want to use an interactive group, in order to function during your show, it must be defined on a non-enhanced [LOR network](#).

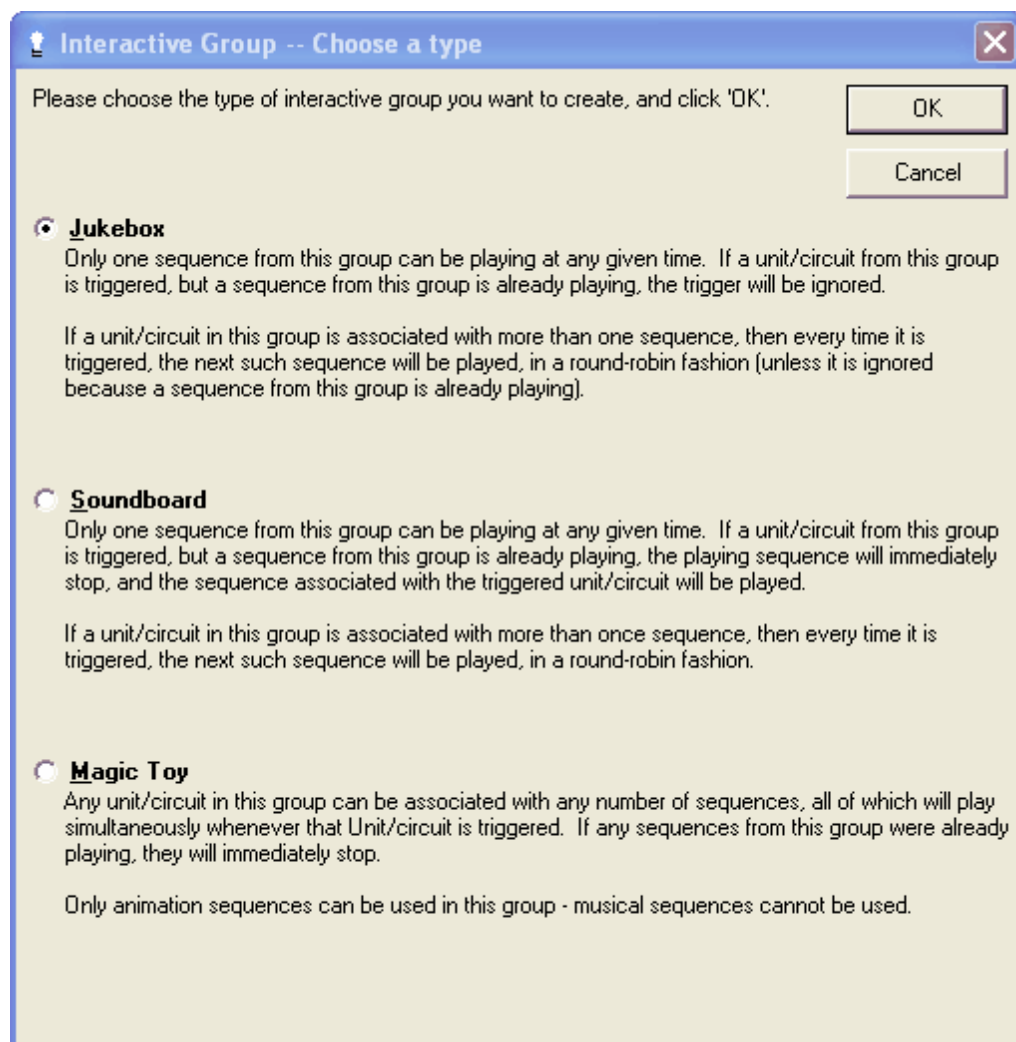
- [Types of Interactive Groups](#)
  - [Jukebox](#)
  - [Soundboard](#)
  - [Magic Toy](#)
- [Choosing Sequences for a Group](#)



The Show Editor's Interactive tab

## Types of Interactive Groups

When you click the large "+" button, to add a new [interactive group](#) to the [show](#), you will then be prompted to choose the type of interactive group to add:



Choosing the type of a new interactive group

There are three types of interactive groups:

- [Jukebox](#)
- [Soundboard](#)
- [Magic Toy](#)

After choosing which type of interactive group you want, you will be given a [choice of which sequences to put in the group](#).

## Jukebox

"Jukebox" [interactive groups](#) allow you to define a group of [sequences](#), each hooked up to be triggered by an individual [circuit](#) on some [LOR controller](#), such that only one sequence in the group can be playing at any given time, and if one already is playing when another is triggered, the first will continue playing uninterrupted, and the trigger will be ignored.

If you assign more than one sequence to a single circuit in a single jukebox, then whenever that circuit is triggered, the "next" sequence in the list, round-robin, will be played.



Both [musical sequences](#) and [animation sequences](#) can be placed into a jukebox interactive group.

## **Soundboard**

"Soundboard" [interactive groups](#) are similar to [jukebox](#) interactive groups in that only one [sequence](#) in the group can be playing at any given time. However, unlike jukebox interactive groups, triggering a sequence while another sequence from the group is currently playing will cause the playing sequence to stop, and the triggered sequence to start.

If you assign more than one sequence to a single circuit in a single soundboard, then whenever that circuit is triggered, the "next" sequence in the list, round-robin, will be played.

Both [musical sequences](#) and [animation sequences](#) can be placed into a soundboard interactive group.

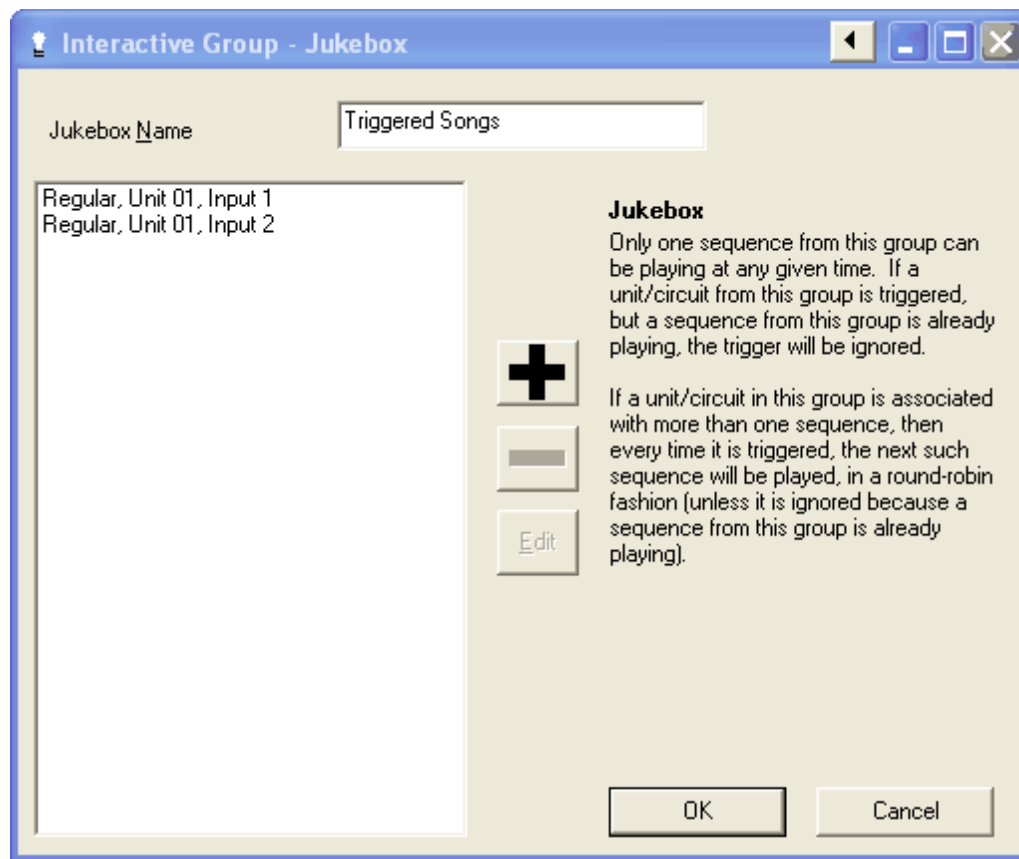
## **Magic Toy**

"Magic toy" [interactive groups](#) allow you to set up a group of [sequences](#) such that many of them can be started simultaneously by a single trigger. Any sequences already playing from the group will be stopped when the new set is started.

Only [animation sequences](#) (as opposed to [musical sequences](#)) can be placed into a magic toy interactive group.

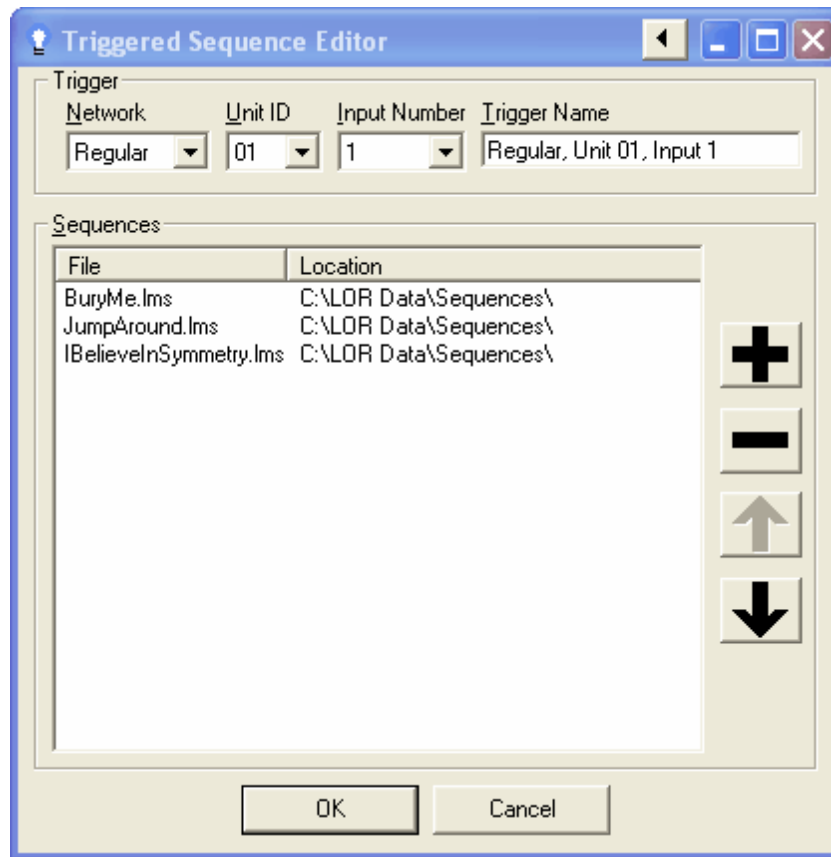
## **Choosing Sequences for a Group**

After you choose the [type](#) of your new [interactive group](#), or upon editing an existing group, you will be shown a list of the triggers for the group:



The triggers in an interactive group

When you add a new trigger to this list (by clicking the large "+" button) or edit an existing trigger, you will be given a choice of which sequences are assigned to the trigger, and which [circuit](#) on which [unit](#) of which [network](#) triggers them (please note that triggers are not supported on [LOR Enhanced networks](#)). You can also assign a name to the trigger:



Choosing the sequences assigned to a trigger in an interactive group

## 5.6 Schedule Editor



The Light-O-Rama Schedule Editor is used to [schedule shows](#) to be played at certain times. Shows are created using the [Light-O-Rama Show Editor](#), and consist of [sequences](#), which are created using the [Light-O-Rama Sequencer](#). Scheduled shows are then played by the [Light-O-Rama Show Player](#).

To start the Schedule Editor, you can run it from your computer's Start Menu by selecting "All Programs" -> "Light-O-Rama" -> "Light-O-Rama Schedule Editor". Alternatively, if the [Light-O-Rama Control Panel](#) is already running, you can right-click its icon in your computer's system tray, and select "Schedule Editor" from the popup menu that will open.

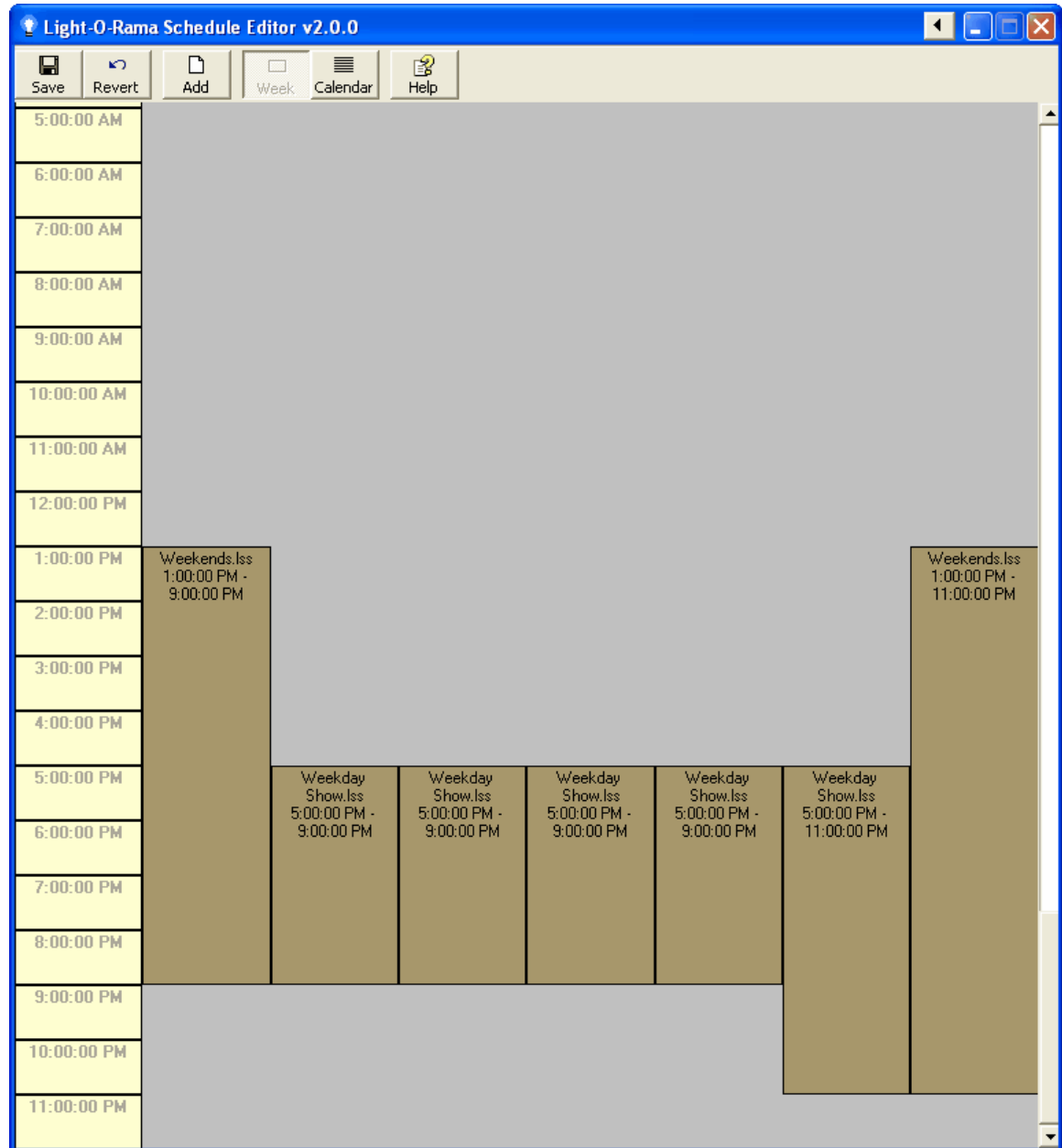
For an overview of schedules, please refer to:

- [Schedules](#)
  - [The Weekly Schedule](#)
  - [The Calendar Schedule](#)

For help on the Schedule Editor, please refer to:

- [Opening, Saving, and Reverting](#)
- [Switching between the Weekly and Calendar Schedules](#)
- [Adding a Show to the Weekly Schedule](#)

- [Adding a Show to the Calendar Schedule](#)
- [Editing a Scheduled Show](#)
- [Deleting a Scheduled Show](#)



The Schedule Editor, showing the weekly schedule

## Opening, Saving, and Reverting

Light-O-Rama maintains just a single [schedule](#) (with two parts - the [weekly schedule](#) and the [calendar schedule](#)), so when the [Schedule Editor](#) starts, it automatically opens and displays the current schedule. Once you start editing it, however, the displayed schedule may differ from the saved schedule. So, after you have edited the schedule and are satisfied with the changes you made, click the toolbar's Save button to save your changes.

On the other hand, if you wish to discard your changes without saving them, click the toolbar's Revert button instead. Only the changes made since the last time that you saved will be discarded.

In order for the changes that you have made to the schedule to take effect, you must first save the schedule.

## Switching between the Weekly and Calendar Schedules

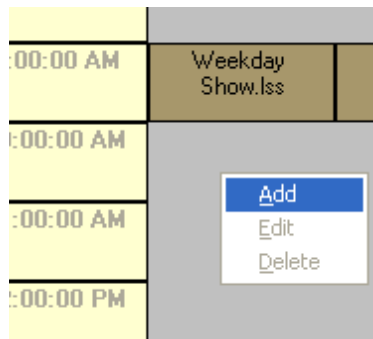
The [schedule](#) consists of two parts - the [weekly schedule](#) and the [calendar schedule](#). The [Schedule Editor](#) only displays one of these two at a time, although both are always in effect.

When the Schedule Editor starts, it displays the weekly schedule. You can switch to the calendar schedule by pressing the toolbar's Calendar button, and you can switch back to the weekly schedule by pressing its Week button.

## Adding a Show to the Weekly Schedule

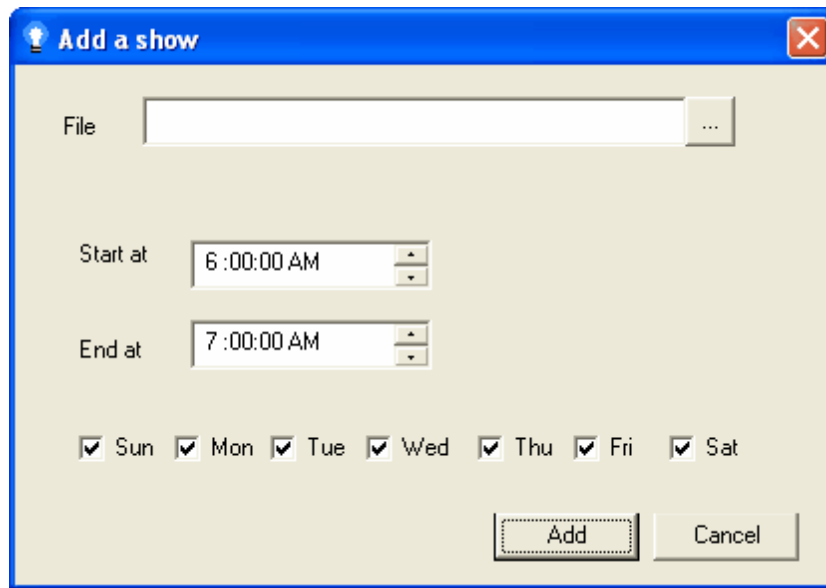
With the [weekly schedule displayed](#), there are two ways to add a [show](#) to it:

- Click the toolbar's Add button.
- Click on an unscheduled area of the schedule and select "Add" from the popup menu.



**Adding a new show to the weekly schedule**

In either case, the Add Show dialog will open:



The Add Show dialog for the weekly schedule

Opening the Add Show dialog by clicking on an unscheduled area, rather than by using the Add button, has a couple advantages: First, it will automatically be populated with a start time and an end time based on where you had clicked. In the above example, the click was made at approximately 6:30 AM, and so the start and end times were automatically set to 6:00 AM and 7:00 AM.

Second, it automatically takes into account conflicts between the new show and any existing shows. For example, if there were already a show scheduled starting at 6:45, the end time of the new show would have automatically been set to 6:45 rather than 7:00. Similarly, if a show had already been scheduled at this time on Sunday, the "Sun" checkbox for the new show would have automatically been unchecked.

To add a new show using this dialog, first select the name of the show file; it is easiest to do this using the "..." button next to the File box, which will open up a dialog allowing you to choose among the existing show files.

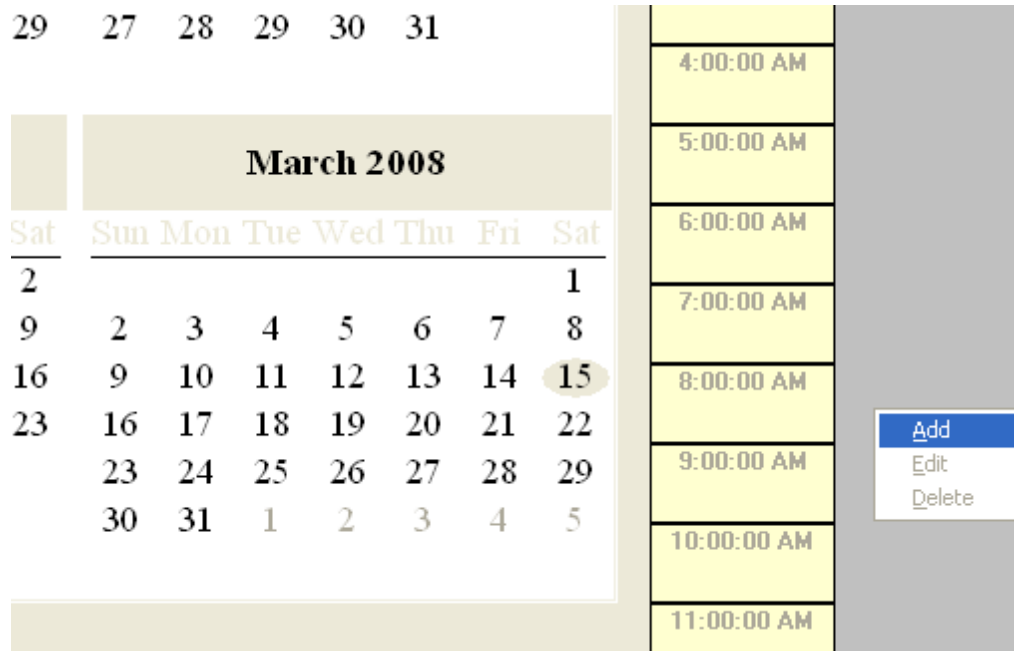
Next, choose the start and end time for the show, and then select the day or days of the week that you wish this show to run.

Close the dialog by pressing "Add" (or "Cancel" if you no longer wish to add the new show), and [save your changes](#) by pressing the toolbar's "Save" button (or "Revert" if you wish to get rid of your changes).

## Adding a Show to the Calendar Schedule

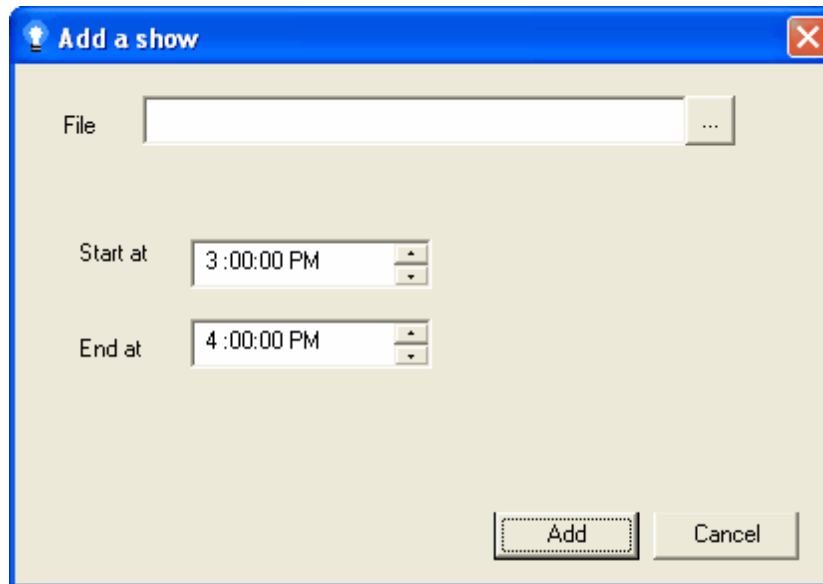
With the [calendar schedule displayed](#), there are two ways to add a new [show](#). In either case, first select the day that you want to schedule the show for (by clicking that day in the calendar), and then either:

- Click the toolbar's Add button, or
- Click on an unscheduled area of the schedule and select "Add" from the popup menu.



Adding a show to the calendar schedule for March 15, 2008

In either case, the Add Show dialog will open:



The Add Show dialog for the calendar schedule

Opening the Add Show dialog by clicking on an unscheduled area, rather than by using the Add button, has a couple advantages: First, it will automatically be populated with a start time and an end time based on where you had clicked. In the above example, the right-click was made at approximately 3:30 PM, and so the start and end times were automatically set to 3:00 PM and 4:00 PM.

Second, it automatically takes into account conflicts between the new show and any existing shows. For example, if a show had already been scheduled to start at 3:45 PM, the end time in the

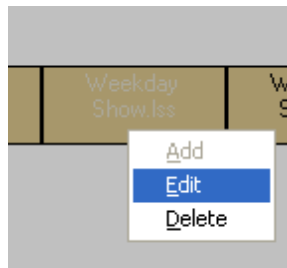
above dialog would have automatically been set to 3:45 rather than 4:00. Note that this conflict checking is only done for other shows in the calendar schedule, not for shows in the weekly schedule; this is because the purpose of the calendar schedule is to easily override the weekly schedule for specific dates and times.

To add a new show using this dialog, simply select the show's filename (this is easiest using the "..." button, which will let you choose from the list of existing shows), select the start and end times, and "Add" (or "Cancel" if you wish to discard the new show).

Finally, remember to [save your changes](#) using the toolbar's "Save" button (or, if you wish to discard your changes, "Revert" instead).

## Editing a Scheduled Show

No matter whether the [weekly schedule](#) or the [calendar schedule](#) is currently [displayed](#), you can edit a [scheduled show](#) by clicking on that show in the schedule, and selecting "Edit" from the popup menu:



Editing an existing show

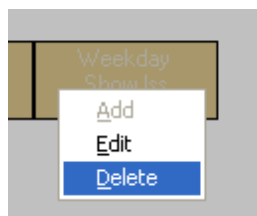
This will open a dialog very similar to the one you originally used to add the show. It will allow you to modify the name of the show file to be used, the start and end time, and, in the weekly schedule, the days of the week that the show will run on.

Finally, remember to [save your changes](#) using the toolbar's "Save" button (or, if you wish to discard your changes, "Revert" instead).

You cannot edit the contents of a show - such as the sequences it uses - from the [Schedule Editor](#). In order to do that, you need to use the [Show Editor](#).

## Deleting a Scheduled Show

No matter whether the [weekly schedule](#) or the [calendar schedule](#) is currently [displayed](#), you can delete a [scheduled show](#) by clicking on that show in the schedule, and selecting "Delete" from the popup menu:



Deleting an existing show



Note that this does not actually delete the show - it only deletes it from the schedule. The show will still be available for editing with the [Show Editor](#), or for scheduling at some other time.

Finally, remember to [save your changes](#) using the toolbar's "Save" button (or, if you wish to discard your changes, "Revert" instead).

### 5.6.1 The Weekly Schedule

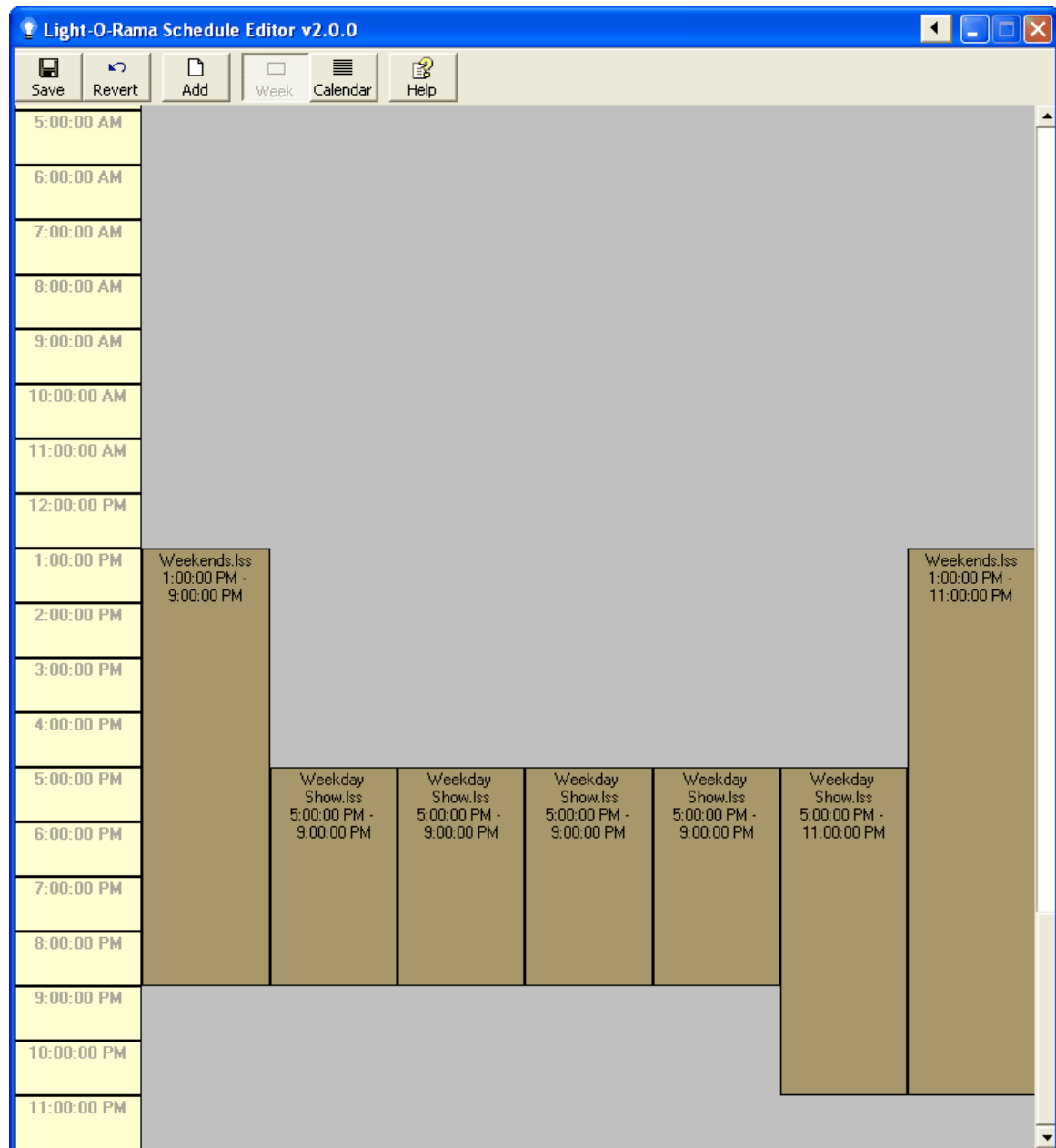
The weekly schedule is part of the [schedule](#), saying which shows should be played when. The other part of the schedule is the [calendar schedule](#).

The difference between these two parts of the schedule is that the weekly schedule allows you to specify shows that should be played by the [Light-O-Rama Show Player](#) on a recurring, weekly basis, while the calendar schedule allows you to specify shows that should be played by the Show Player once, at a specific date and time. For example, the weekly schedule would be used to have a show run every Thursday between 5:00 PM and 10:00 PM, while the calendar schedule would be used to have a show playing specifically on Christmas Eve.

Both parts of the schedule are created and modified using the [Light-O-Rama Schedule Editor](#), and shows in them are played at the scheduled times by the [Light-O-Rama Show Player](#) (assuming that "[Enable Schedule](#)" has been turned on in the [Light-O-Rama Control Panel](#)). The Show Player, when deciding whether a show should be played, will first check the calendar schedule, and only play a show from the weekly schedule if none is scheduled for the current date and time in the calendar schedule.

The following picture shows the weekly schedule, as displayed in the Schedule Editor, with two different shows scheduled:

- "Weekday Show.Iss", run Mondays to Thursdays from 5:00 PM to 9:00 PM, and Fridays 5:00 PM to 11:00 PM;
- "Weekends.Iss", run Saturdays from 1:00 PM to 11:00 PM, and Sundays from 1:00 PM to 9:00 PM.



The weekly schedule, as displayed in the Schedule Editor, with some scheduled shows

For details on creating and modifying the weekly schedule, please see the [Schedule Editor](#).

## 5.6.2 The Calendar Schedule

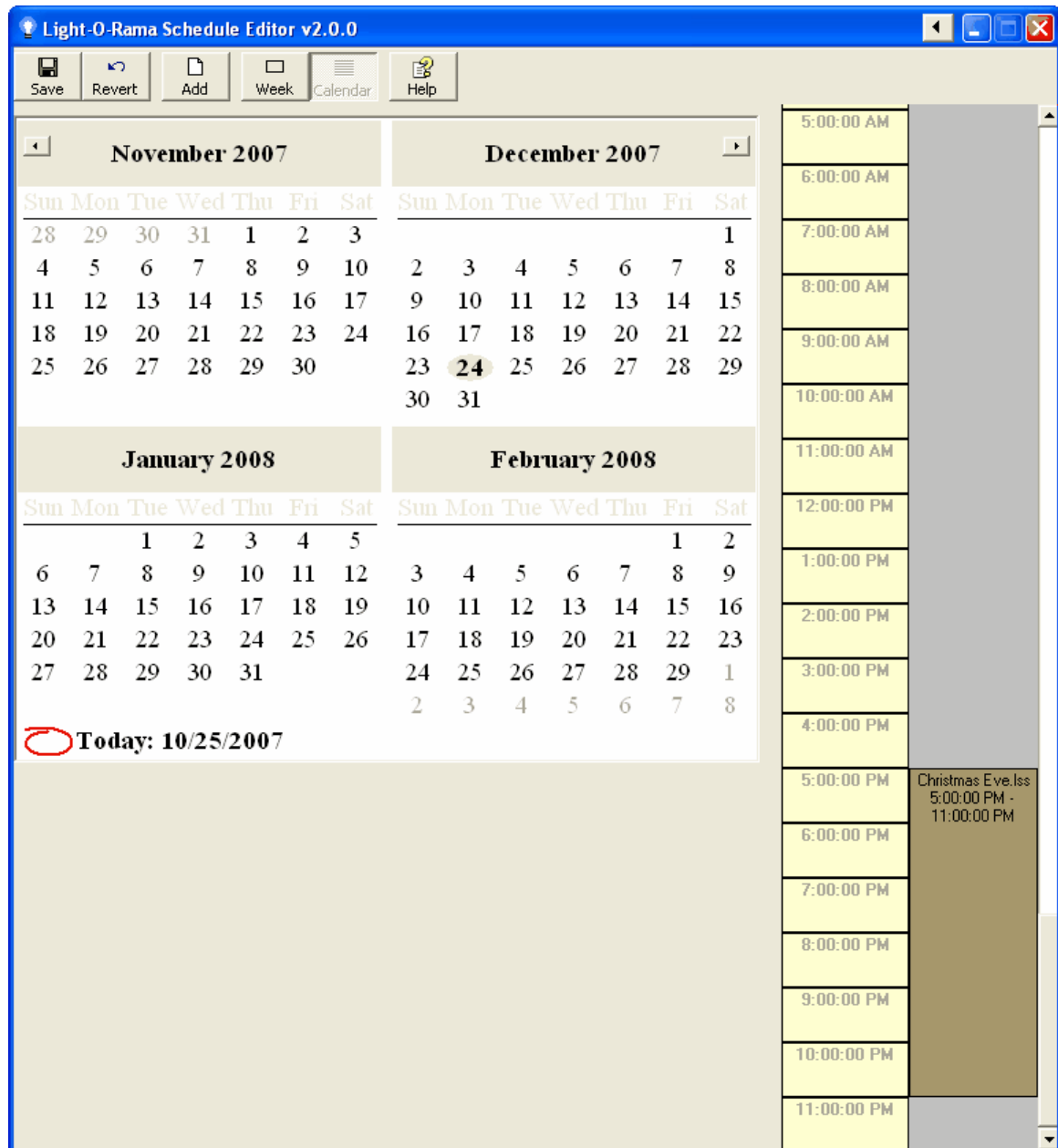
The calendar schedule is part of the [schedule](#), saying which shows should be played when. The other part of the schedule is the [weekly schedule](#).

The difference between these two parts of the schedule is that the weekly schedule allows you to specify shows that should be played by the [Light-O-Rama Show Player](#) on a recurring, weekly basis, while the calendar schedule allows you to specify shows that should be played by the Show Player once, at a specific date and time. For example, the weekly schedule would be used to have a show run every Thursday between 5:00 PM and 10:00 PM, while the calendar schedule would be used to have a

show playing specifically on Christmas Eve.

Both parts of the schedule are created and modified using the [Light-O-Rama Schedule Editor](#), and shows in them are played at the scheduled times by the [Light-O-Rama Show Player](#) (assuming that "Enable Schedule" has been turned on in the [Light-O-Rama Control Panel](#)). The Show Player, when deciding whether a show should be played, will first check the calendar schedule, and only play a show from the weekly schedule if none is scheduled for the current date and time in the calendar schedule.

The following picture shows the calendar schedule, with a show named "Christmas Eve.Iss" scheduled to be run on December 24, 2007 from 5:00 PM to 11:00 PM:



The calendar schedule, displayed in the Schedule Editor, with a show scheduled on December 24 at 5:00 PM

For details on creating and modifying the calendar schedule, please see the [Schedule Editor](#).

## 5.7 LOR Hub

Light-O-Rama Hub (or just Hub for short) is the new location in the LOR Software for all things Show Related. LOR Hub will eventually take over all functions of the LOR Show Player, LOR Show Scheduler, Simple Show Builder, and SD Card creation - both simple and advanced.

Hub also enables our new ['MotionPak' technology](#). When purchasing sequences from the LOR Sequence Store, you'll also be able to purchase optional additional programming for things like Singing Faces, Pixel Trees, and a host of other LOR Created props. LORHub will then combine the MotionPak with your sequence to automatically customize it.

Hub is also one of the first fully internet integrated programs from LOR. Hub can help you find sequences and MotionPaks, as well as be dynamically updated to support new props in the future.

Hub is going to be continuously updated for the next several release cycles. Currently LOR Hub supports the following: All Simple Show Builder functionality (Simple Show Builder has been removed), MotionPak Functionality, new SD Card show functionality.

Hub is not just a replacement for existing LOR programs as it also aims to improve on their functionality and ease of use. For example in this release is the ability to now EDIT SD cards without the need to re-create an entire show. This allows you to move sequences around on an SD card show, remove some, add new, and update existing ones from the computer. Cards must have been created with Hub or a newer version of Hardware Utility to be edited - not all Hardware Utility MP3 functions are currently supported.

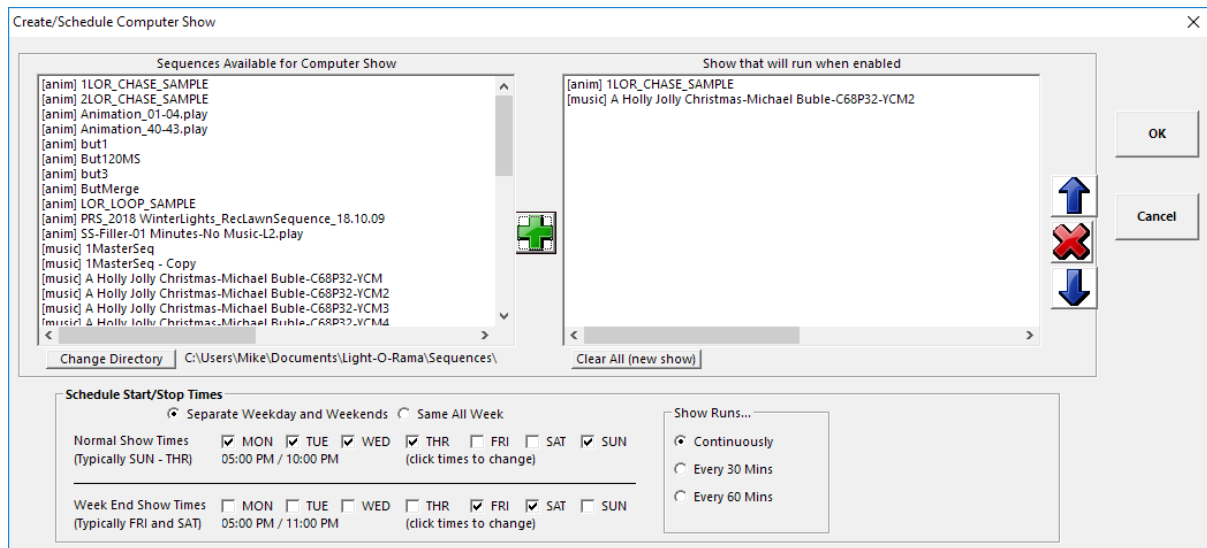
Where possible, we try to make things simple and familiar. For example if you have been creating shows that run from a computer and now wish to start using an MP3 director, you will already be familiar with how to add sequences and schedule the show.

### 5.7.1 Creating Shows and SD Cards

Hub is your your one-stop-shop for creating and scheduling all shows - [computer](#) and [MP3 Director](#) based. Currently Hub has replaced all the functionality of the old Simple Show Builder as well as the MP3 tab of the Hardware Utility. If you have previously used SSB or Hardware Utility to create your show, you should begin using Hub.

#### 5.7.1.1 Run from Your Computer

For building simple Computer based shows, like the ones that were previously created by Simple Show Builder, use the HUB Computer Show Builder. For complex computer-based shows, continue to use the LOR [Show Editor](#) and LOR [Show Sceduler](#) (which can be accessed from buttons within Hub). In a future release, Hub will incorporate all functions of Show Editor and Show Scheduler.



Please remember that if you have an existing show or schedule, they will be replaced by what you create here. If you have used the Show Editor or Schedule Editor programs, you should continue to use them instead.

On the left side are all of the sequences that are available on your computer in the specified directory. If your sequences are not located in your Light-O-Rama data directory, you can press the 'Change Directory' button to move to another folder on your computer.

Sequences are displayed with either [anim] or [music]. Anim are ANIMATION (.las) sequences. Music are of course MUSICAL (.lms) sequences.

Select one or more sequences on the left and press the "+" button. The sequences will then be added to the show you are creating on the right side.

To remove a sequence from the show, select it on the right side and press the "X" button. This removes the sequence from the show, but does not delete the sequence from your computer.

To change the order of sequences that are played in your show, select a sequence on the right and use the UP or DOWN arrow buttons.

You can schedule this show to run at up to 2 different times. If you want the same schedule all 7 days a week, select 'Same All Week' and set the time.

If you would like to have 2 different show start/stop times, select 'Separate Weekday and Weekends'. You can then select which days are considered 'Normal' and what days are considered 'Weekend' and set different times for both. Please note that even though we say 'weekday and weekend', you can select any days for either schedule. To change the time for a schedule, click the times. You will then be able to change the schedule times:

Next, choose whether you want the show to run continuously, or once every hour or every half hour. If you select "continuously", then after all of its sequences have been played, the show will automatically start over with the first sequence; this will continue until the end time is reached. If, instead, you select "once every hour" or "once every half hour", the show will stop after its last sequence, and start again once every hour (or half hour), until its end time is reached.

If you select Every 30 or Every 60 minutes, you can also choose what happens between shows. 'Lights On', 'Lights Off', or 'Slowly changing'. Please note that these options will only control a limited number of controllers, so not all of your lights may come on.

Pressing OK will create your show as well as schedule it for the times you selected. Please do not forget that you will need to load the LOR Control Panel and 'Enable Shows' for your show to start.

### 5.7.1.2 Run from an MP3 Director

LOR Hub can create SD cards for all types of Director Based shows. This includes all generations of MP3 Directors, including the new G4 Link directors.

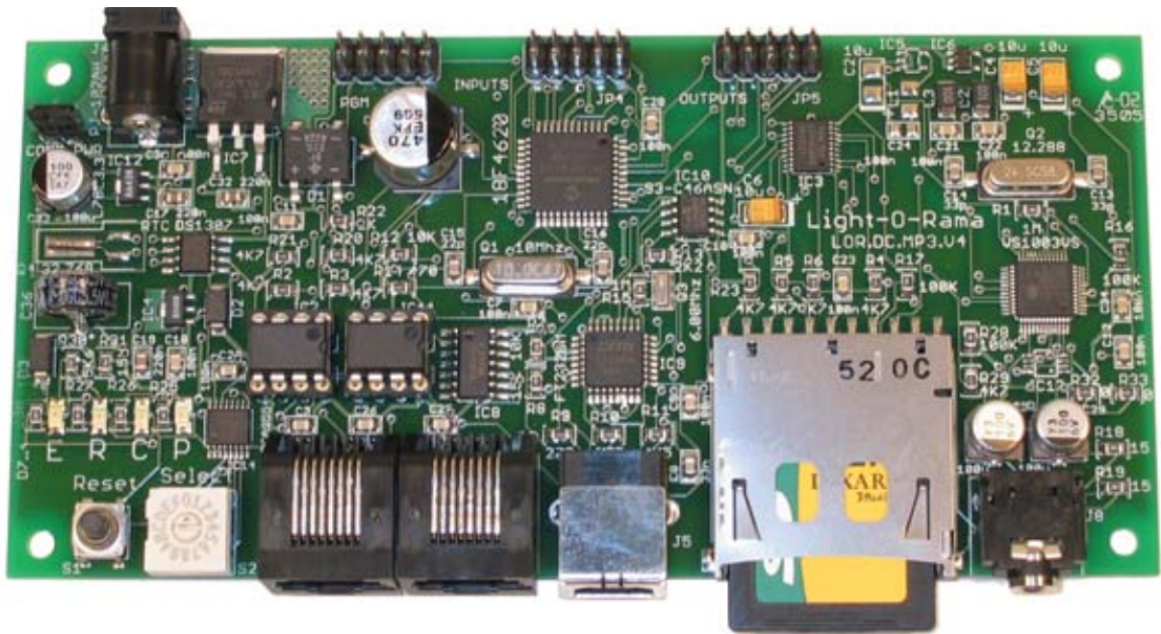
#### 5.7.1.2.1 Differences Between MP3 Directors

Over the years, Light-O-Rama has released several different versions of MP3 directors. Here are some pictures and descriptions to help you determine which MP3 director you have and what its functionality:

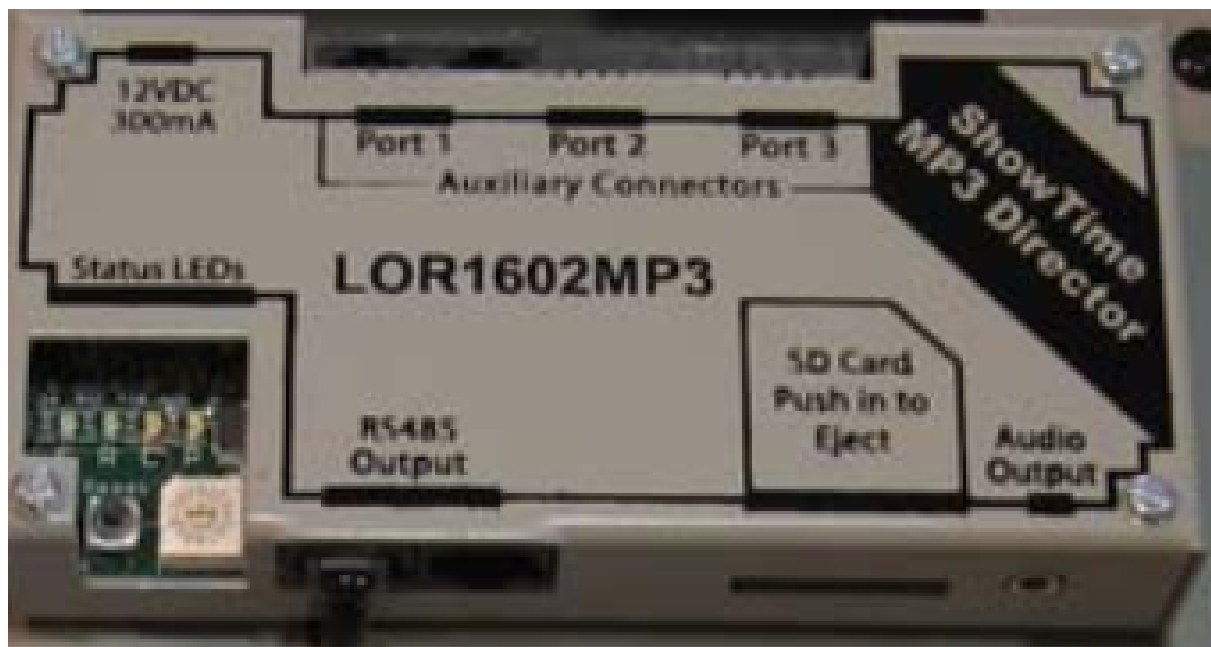
## Generation 1 LOR MP3 Directors

Generation 1 MP3 directors include the DC-MP3 and the original mDM-MP3 director.

Your DC-MP3 director may be just a plain circuit board, in a metal case that only contains the director, or as part of an LOR1602 controller:



DC-MP3 Board



DC-MP3 in Case. Some cases were labeled DC-MP3 rather than LOR1602MP3.



DC-MP3 as part of an LOR1602

The mDM-MP3 Mini Director is in a black plastic case. The mDM-MP3 and the uMP3g3 look similar. Be sure you carefully check the front of the unit. the uMP3g3 will explicitly say it is a uMP3g3, while the older mDM-MP3 will not. The uMP3g3 also has a power input connector that the mDM-MP3 does not.







The Front and Back of an mDM-MP3 Mini Director. Carefully compare these pictures to the uMP3g3 to ensure you have identified the correct version that you have.

## Generation 3 LOR MP3 Directors

Light-O-Rama did not manufacture any Generation 2 MP3 directors. Generation 3 MP3 directors include the G3-MP3 and the uMP3g3 Mini Director

The G3 MP3 director was sold in a metal case, or as part of an LOR160xMP3g3 controller.



Stand Alone G3MP3 Director



G3 MP3 Director as part of an LOR1602MP3g3. LOR1600MP3g3 similar. Note: the LOR160xg3 looks similar but does NOT have an MP3 Director



This is an LOR160xG3 that does **not** have an MP3 director.

The uMP3g3 was sold in a black plastic case. It looks similar to the older mDM-MP3 director but has significant differences.



The Front and Back of the uMP3g3 Mini Director. To identify if you have a uMP3g3 or a mDM-MP3: the front of the uMP3g3 identifies it as such. On the back of the uMP3g3 there is a power socket, while on the mDM-MP3 there is none.

## Generation 4 LOR MP3 Directors

G4 MP3 Directors come in several variants, including the N4-G4-MP3 a metal case 4 port MP3 director with Director Link, 1 and 2 port black plastic directors without Director Link, and a 2 port adapter with Director Link will be available in the future.



## Summary of Differences Between Directors

Director Name	Gen	Real	Nu	Supp	Sup	Sup	Has

	eraton	Time Clock (Can have scheduled)	mb of Ports	orts LOR Enhanced Protocol	ports LOR 500K/100K speed	ports Director Link	Display
DCMP3/LOR1602MP3	1	Yes	1	No	No	No	No
mDM-MP3 (Mini)	1	No	1	No	No	No	No
G3MP3/LOR160xMP3g3	3	Yes	2	Yes	Yes	No	Yes
uMP3-G3 (Mini)	3	No	1	Yes	Yes	No	No
N1uMP3G4 (mini)	4	No	1	Yes	Yes	No	No
N4-G4-MP3	4	Yes	4	Yes	Yes	Yes	Yes

#### 5.7.1.2.2 How to Use Director-Link

Some Directors have the ability to link up and control many more networks or DMX universes. These directors have a feature called 'Director Link'. To use Director Link you need:

1. Two or more directors that support Director Link. Only directors that specifically say they support director link can be used. No exceptions.
2. CAT 5/6 wired connections between all directors
3. A show that was created specifically for Linked Directors using multiple SD cards

In a Multi-Director setup, the first director is considered the 'Master' director. In this director is placed the first card of the multi-card set. All other directors are considered secondary directors and while they can be connected in any order we strongly recommend you have a logical system in place. It can become very confusing remembering which director needs which SD card. The best way to do this would be to sketch out all your directors and all the networks you want attached to them. Label everything to reduce the confusion.

Linking up directors physically is very simple: They daisy-chain the same way that LOR lighting controllers do with a CAT 5 cable. From your first (master) director, run a cat 5 from Net 1 (Labeled G4 Link or just Link) to the next (secondary) MP3 director's port 1. For a third director, connect to the OTHER jack on the secondary director labeled 'Link' or 'Net 1' to the third controller's Net 1/Link port. Continue on that way for any additional directors.

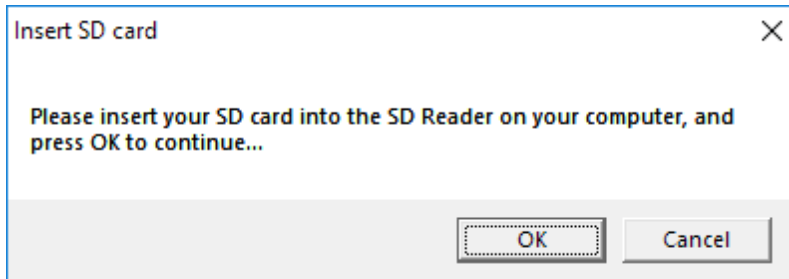
When using MP3 Directors in Link mode remember that NET 1 is reserved ONLY for linking directors together. You can only attach other linkable directors to the link port, not lighting controllers. If you do attach a lighting controller while the director is being used in link mode, the controller will not work or will light random channels.

The connection between 2 directors' link ports can use ELLs. Please ensure that the ELLs that you use are on a different channel than any other ELL that may be in use for your show.

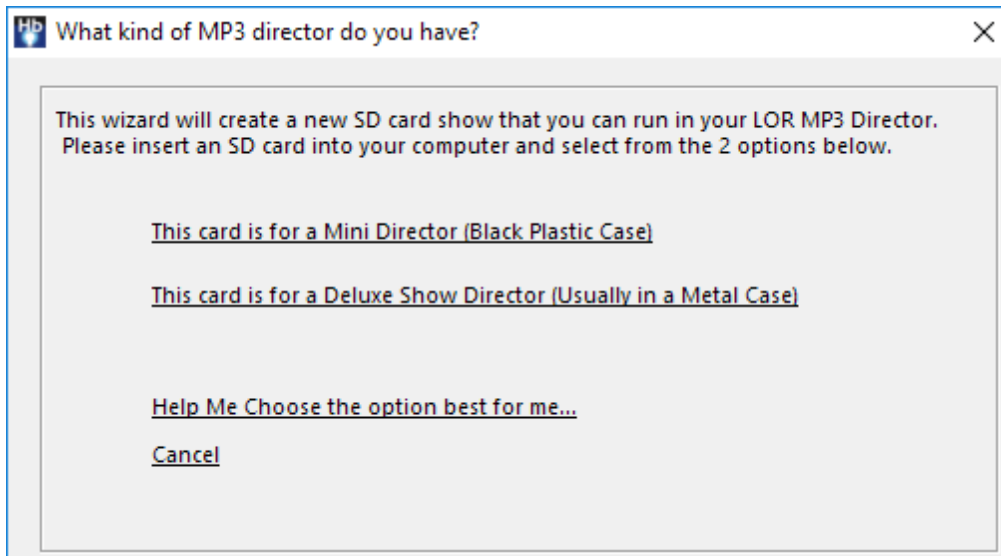
To create the SD cards needed for multi-link directors, you must use the [Advanced SD Card Wizard](#).

## 5.7.1.2.3 Creating a new SD Card Show

Before starting to create a new SD card show, please first insert the SD card you would like to use into your computer's SD card reader/writer. This will allow Hub to search for the card and correctly identify the drive. If you forget to insert the SD card, Hub will remind you:

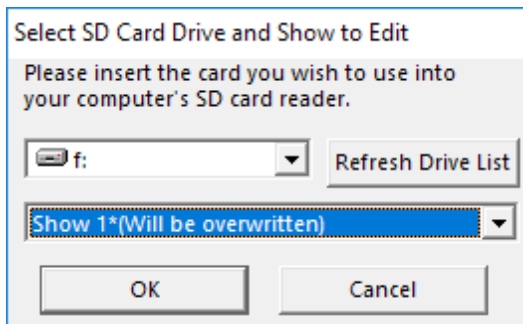


When creating a new SD card show, the first thing you will be asked is which type of MP3 director you are using:



You should select the option for the MP3 director you own. LOR Showtime Central controllers all use the Mini Director, so you should select that. If you are unsure of which director you have, select 'Help Me Choose'. Hub will then show and describe the Show Directors we sell and have sold in the past so you can decide.

Next, you will be asked to verify the correct drive for your SD card, as well as select the show you will be creating. Hub will attempt to correctly identify the drive, however you should always double check to ensure that you are using the correct location on your computer.



If you insert a different SD card into your computer, please press the 'refresh drive list' button.

### Show Selection

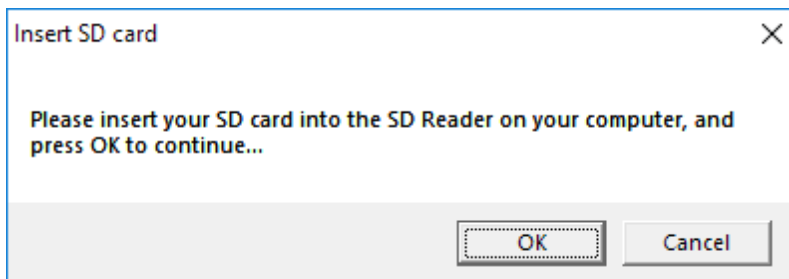
Up to nine shows can be downloaded to an SD card, and each will be assigned a number between 1 and 9. If two shows are scheduled for the same time, the lower numbered show will be played. Mini Directors do not have a time clock and so the lowest show number will *always* be played. For this reason if you have a Mini Director, it is best to only ever create 'Show 1' to avoid confusion.

Once you press the OK button, you are brought to the [Sequence Selection and Show Options screen](#).

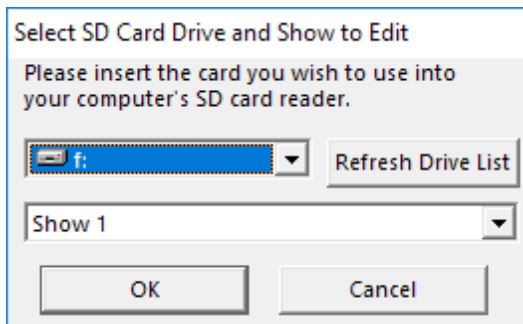
#### 5.7.1.2.4 Editing an SD Card Show

Hub allows for the editing of previously created SD cards without the need to completely re-build them from scratch. In order to use the editing functionality, the SD card must have been previously created with Hub. If the card was not created with Hub, you will need to create a new show the first time. You can then start to use Hub's SD card editing features.

Before starting to create a new SD card show, please first insert the SD card you would like to use into your computer's SD card reader/writer. This will allow Hub to search for the card and correctly identify the drive. If you forget to insert the SD card, Hub will remind you:

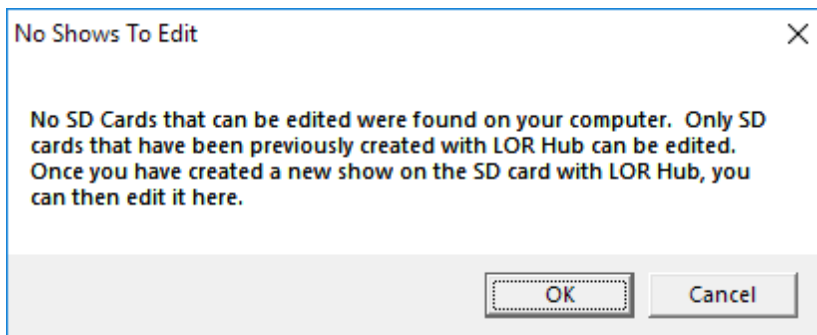


Next, you will be asked to verify the correct drive for your SD card, as well as select the show you will be creating. Hub will attempt to correctly identify the drive, however you should always double check to ensure that you are using the correct location on your computer.

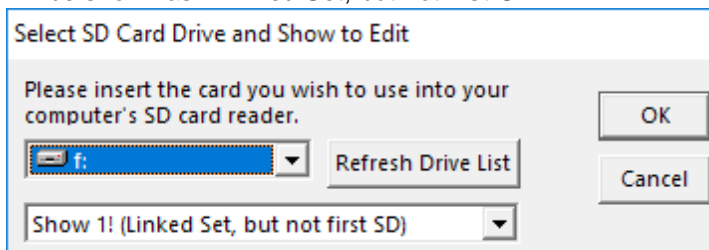


Only shows that can be edited will be listed here. If a show is not listed here that is on your SD card, that show was created with either the Hardware Utility or the Simple Show Builder and does not have the required data to be edited. You will need to re-create that show as new.

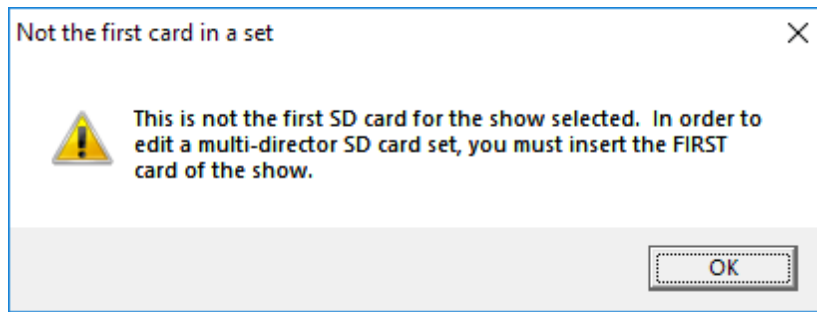
If there are no shows found on an SD card that can be edited, Hub will warn you:



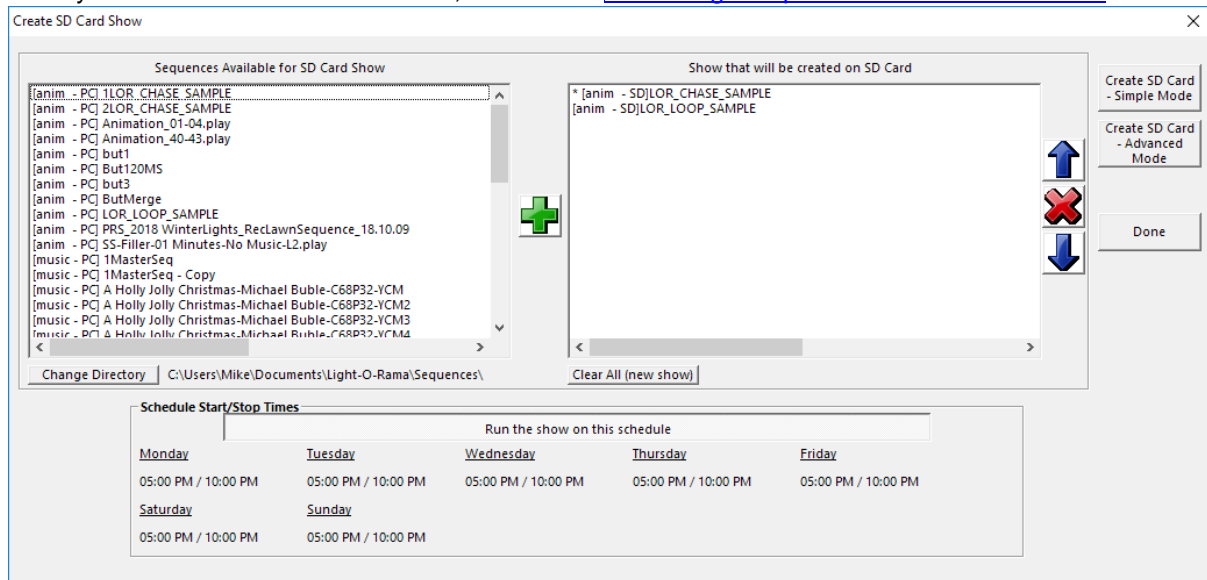
If you are editing a Multi-Director SD card show, you must insert the FIRST card of the show. If you insert a card that is part of a multi-director show, and that card is not the FIRST card for that show, it will be shown as '! Linked Set, but not first SD'



You can not edit a show unless you start with the first card. If you attempt to do so, hub will warn you and ask you to insert the first card:



Once you have selected a show to edit, the familiar [add/change sequence screen will be shown](#)



The sequences on your computer are shown on the right, the sequences in the order they play on the SD card is shown on the left.

There are several important things you need to be aware of:

1. The \* in front of a sequence name on the SD card side means the sequence cannot be found in the folder on your computer where it was originally created from. You may have deleted the sequence on your computer.
2. For each sequence on the SD card, Hub will verify that sequence still exists *in the same folder as it did when the SD card was created*. The \* in front of a sequence name on the SD card side means the sequence can not be found. If you move that sequence, even to a folder that is currently displayed on the right, hub will not be able to update the sequence when you write the SD card. You should *always* keep your sequences in the Light-O-Rama Sequences directory.
3. For any sequence with a \* on the SD card side, if you remove that sequence from the SD it is lost. In order to re-create that sequence you **MUST** have the original sequence. You can still move the sequence in the show, or duplicate it on the SD card, but once removed it is gone. Before removing, you will be warned and asked if you really want to remove the sequence or not..
4. For multi-director shows, all sequences in the show must be present on the computer and must be in the same directory. If they are not, you'll receive a warning. If you continue that sequence will be removed from the SD card show.
5. Once an SD card is created, there is no indicator on the card if it is for a Deluxe MP3 director, or a Mini Director. Even if you edit an SD card and turn ON scheduling, the Mini director will run the show whenever there is power. Mini Directors **ALWAYS** ignore a schedule.



Here you will be able to add and change the order of sequences to be built for your show. If you have a Deluxe Show Director, you can also optionally schedule when the show should play. Mini Directors do not have a time clock and so the schedule is not displayed.

In the Sequences Available for SD Card Show, you will find a list of all sequences that can be added from your computer or duplicated from the SD card. The list is first sorted by sequences available on the computer, and then by sequences already on the SD card. Within those sequences are sorted based on if they are Animation or Musical. You may think it is strange to include sequences already on the SD card in the available list. However, this allows you to duplicate any sequence already on the SD card - including ones where you may no longer have the source (.LMS or .LAS). If your sequences are not located in your Light-O-Rama data directory, you can press the 'Change Directory' button to move to another folder on your computer.

Sequences are displayed with either [anim], [music] or [S5]. Anim are ANIMATION (.las) sequences. Music are of course MUSICAL (.lms) sequences. S5 are sequences created in the LOR S5 Sequencer. Animation sequences are sorted to the top, followed by Musical sequences and then S5. PC is a sequence located on your computer. SD is a sequence located on the SD card show.

Select one or more sequences on the left and press the "+" button. The sequences will then be added to the show you are creating on the right side. You can duplicate any sequence as many times as you like (up to 99)

To remove a sequence from the show, select it on the right side and press the "X" button. This removes the sequence from the SD card show, but does not delete the sequence from your computer. If you attempt to remove a sequence that can't be found, you will be warned.

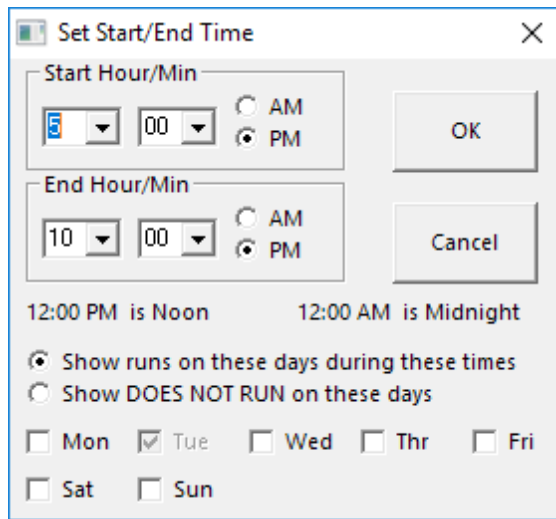
To change the order of sequences that are played in your show, select a sequence on the right and use the UP or DOWN arrow buttons.

### **Schedule (for Deluxe Show Directors only)**

If you have a Deluxe Show Director, you can also optionally set a schedule for when this show should run. If the SD card was created with a schedule, the current schedule is displayed.

- To change to a show that runs whenever the MP3 director has power (and the card is inserted), the button in the schedule section should say 'Schedule Ignored'.
- To change to a show that runs on a schedule, the button should say 'Run the Show on this Schedule', and the days/times will be enabled.

To change the scheduled start/stop time, click on the times under the day you wish to change. The change time dialog will then be shown:



The 'Set Start/End Time' dialog box contains two sections for time selection. The 'Start Hour/Min' section has a dropdown for hours (set to 5) and a dropdown for minutes (set to 00), with radio buttons for AM and PM (PM is selected). The 'End Hour/Min' section has a dropdown for hours (set to 10) and a dropdown for minutes (set to 00), with radio buttons for AM and PM (PM is selected). To the right of these sections are 'OK' and 'Cancel' buttons. Below the time sections, there are two reference times: '12:00 PM is Noon' and '12:00 AM is Midnight'. Further down, there are two radio buttons: 'Show runs on these days during these times' (selected) and 'Show DOES NOT RUN on these days'. At the bottom, there are checkboxes for each day of the week: Mon, Tue (checked), Wed, Thr, Fri, Sat, and Sun.

Select the start and end time you desire. If you would also like to quickly set other days to the same schedule, click the boxes at the bottom (the day you initially clicked is always selected and can not be un-selected).

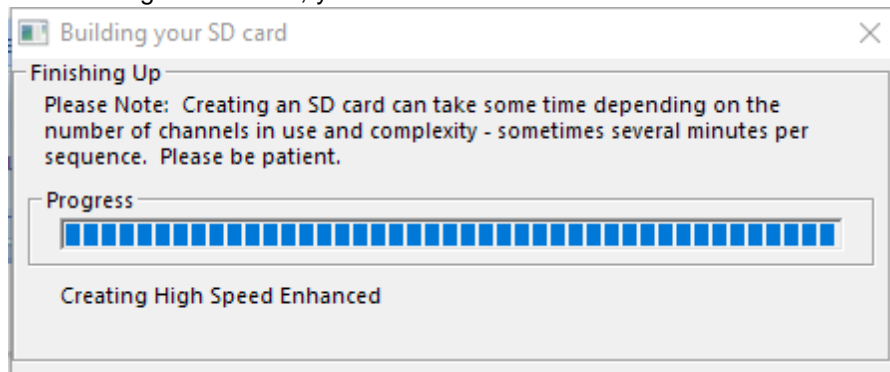
### Writing the SD Card

Once you are satisfied with the sequences to be created on the SD card as well as their order, press either Create SD Card - Simple Mode or Create SD Card - Advanced Mode.

Simple mode will create an SD Card for 90% of situations. It will use a single port of your MP3 director at a default speed that should work with all controllers and sequences. All sequences from the existing SD card that were also found on the computer will be automatically updated on the SD card.

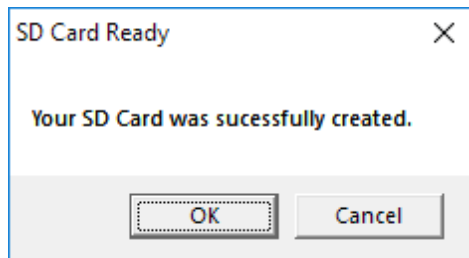
Advanced mode allows you to customize how the SD card will be written. You should use advanced mode if your display contains pixels, DMX channels, or Intensity Files (Enhanced LOR protocol), or if you wish to select which sequences on the SD card are updated.

While writing the SD card, you will see the SD Card status screen:



The 'Building your SD card' status screen has a title bar with a close button. The main content area is titled 'Finishing Up' and contains a note: 'Please Note: Creating an SD card can take some time depending on the number of channels in use and complexity - sometimes several minutes per sequence. Please be patient.' Below the note is a 'Progress' section with a horizontal progress bar consisting of many small blue rectangles. At the bottom of the screen, the text 'Creating High Speed Enhanced' is displayed.

It may take several minutes per sequence to create your SD card. Once complete, you will see this message:



#### 5.7.1.2.5 Select Sequences and Show Options for SD cards

At this point going forward there is no difference between creating a new show or editing an existing show. For new shows, defaults are provided that should work in almost all cases. If you are editing a show, all of your previous selections and choices will be filled in.

**If you previously used the 'Simple Show Builder' to create SD cards:**

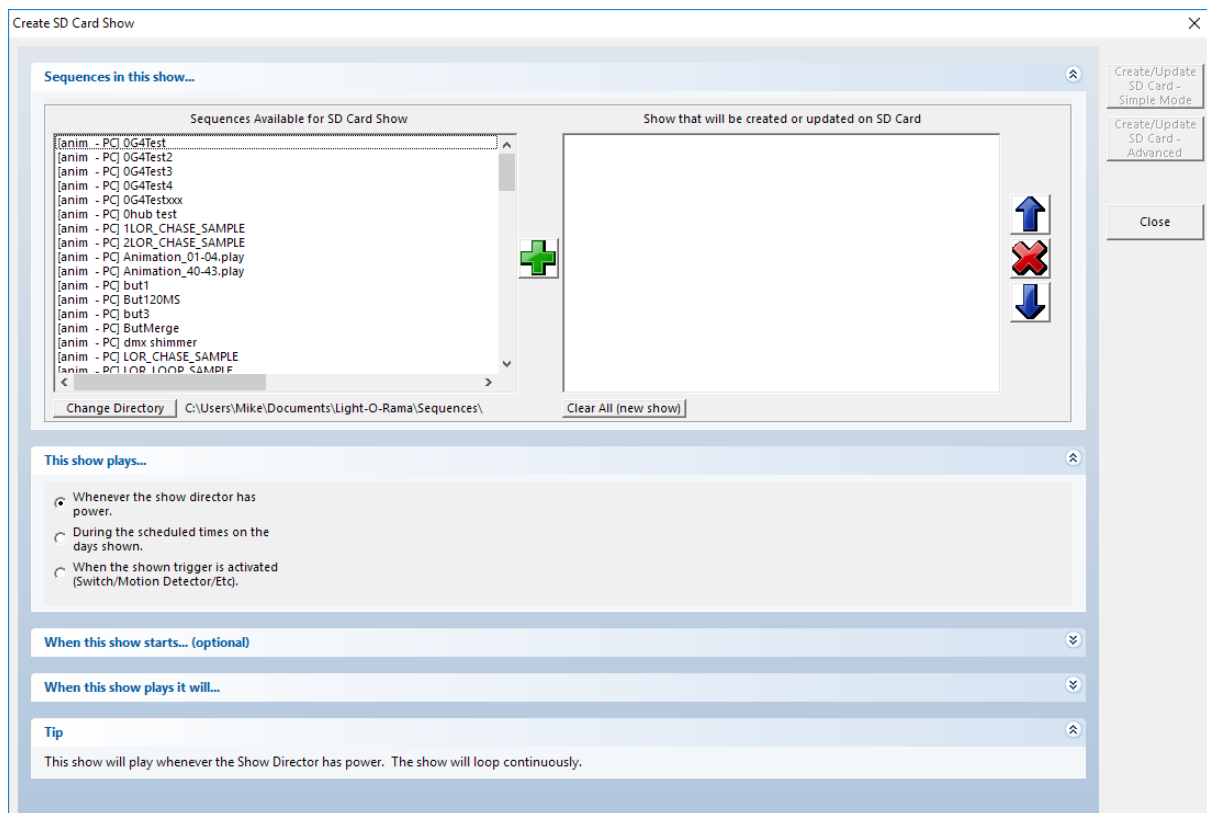
There are several sections to this form that allow for very complex shows to be created and scheduled. You can ignore most of them as they are options that were never available in the Simple Show Builder. The only additional section you may need to be concerned with is the 'This show plays...'

- For [MP3 Directors that do not have a real time clock](#):

All of the options for a new show have been made to create a 'runs anytime powered' show. All you need to do is add/arrange your sequences into the right side of the screen and when ready press the 'Create SD Card - Simple Mode' button.

- For [MP3 Directors with real time clock](#) (allows for scheduling):

All of the options for a new show have been set to default to a show that will run whenever the director has power. If you would like to instead run on a schedule, simply select the option that says 'During the scheduled times on the days shown'. From there, follow the instructions to update the days/times you would like your show to run. When complete, press the 'Create SD Card - Simple Mode' button. Please remember that not all directors can run on a schedule.



On the left side are all of the sequences that are available on your computer in the specified directory. If your sequences are not located in your Light-O-Rama data directory, you can press the 'Change Directory' button to move to another folder on your computer.

Sequences are displayed with either [anim], [music], or [S5]. Anim are S1-S4 ANIMATION (.las) sequences. Music are of course S1-S4 MUSICAL (.lms) sequences, and S5 are sequences created in the LOR S5 sequencer. Animation sequences are sorted to the top, followed by Musical sequences, and then S5 sequences.

Select one or more sequences on the left and press the "+" button. The sequences will then be added to the show you are creating on the right side. You can duplicate a sequence onto the SD card as many times as you like (up to 99)

To remove a sequence from the show, select it on the right side and press the "X" button. This removes the sequence from the show, but does not delete the sequence from your computer.

To change the order of sequences that are played in your show, select a sequence on the right and use the UP or DOWN arrow buttons.

There are several important things you need to be aware of when selecting/deleting sequences from a show:

1. When editing an existing SD card show, a \* in front of a sequence name on the SD card side means the sequence cannot be found in the folder on your computer where it was originally created from. You may have deleted the sequence on your computer.
2. When editing an existing SD card show, for each sequence on the SD card, Hub will verify that sequence still exists *in the same folder as it did when the SD card was created*. The \* in front of

a sequence name on the SD card side means the sequence can not be found. If you move that sequence, even to a folder that is currently displayed on the right, hub will not be able to update the sequence when you write the SD card. You should *always* keep your sequences in the Light-O-Rama Sequences directory.

3. For any sequence with a \* on the SD card side, if you remove that sequence from the SD it is lost. In order to re-create that sequence you MUST have the original sequence. You can still move the sequence in the show, or duplicate it on the SD card, but once removed it is gone. Before removing, you will be warned and asked if you really want to remove the sequence or not..
4. For multi-director shows, all sequences in the show must be present on the computer and must be in the same directory. If they are not, you'll receive a warning. If you continue that sequence will be removed from the SD card show.
5. Once an SD card is created, there is no indicator on the card if it is for a Deluxe MP3 director, or a Mini Director. Even if you edit an SD card and turn ON scheduling, the Mini director will run the show whenever there is power. Mini Directors *ALWAYS* ignore a schedule

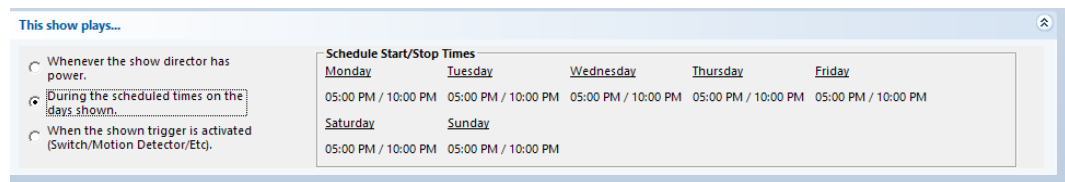
### More Complex Shows:

There are multiple sections available which allow you to tailor this show to your liking. Those options are broken down into 3 sections that allow you to change when the show plays ("This Show Plays...."), if there are any special options when the show first starts ("When this show starts..."), and how the show will behave while running ("When this show plays it will..."). Each section can be expanded and collapsed by clicking on it's title or the small double arrow located on the right side. If you are ever confused as to what will and wont happen with your show, check in the 'Tip' section. That section will in plain words tell you exactly how the show will run.

#### • This Show Plays....

Options in this section control how the show actually starts up:

- Whenever the Show Director has power  
In this mode, the show will run as soon as power is applied to the MP3 director and it has finished booting. The show with the lowest show number will be the one that runs regardless of any scheduling information (all schedules are ignored).
- During the scheduled times on the days shown  
If you have a Deluxe Show Director, you can set a schedule for when this show should run. Once you have selected this option the schedule section will appear to the right:



To change the scheduled start/stop time, or to skip a day completely, click on the times under the day you wish to change. The change time dialog will then be shown:

There are two options here, and the default is 'Show runs on these days...'. If you do NOT want this show to run on a specific day (or days), change the option to 'DOES NOT RUN'.

For those days you do wish the show to run, select the start and end time you desire.

If you would also like to quickly set other days to the same schedule, click the boxes at the bottom (the day you initially clicked is always selected and can not be un-selected).

- **When the shown trigger is activated**

A show on an MP3 director can be started when a trigger is detected. A trigger is a switch or other device, like a motion detector, that tells the director to start playing a show. It is important to know that the show you selected to create/edit must be the same as the trigger number on the director itself. So for example if you want a show to start running when 'Trigger 4' is activated, be sure that you are creating or editing Show 4.

Switches come in 2 different varieties - normally open and normally closed. For most switches, you select 'Normally Open'. That means there is no signal sent to the MP3 director until the switch is operated. There are some devices (usually motion detectors and other 'security' type devices) that are 'Normally Closed'. Normally Closed switches constantly send a signal back to the MP3 director, and once they are activated STOP sending that signal.

- **When this show starts...**

The option of having a starter sequence or not is here. When this is enabled, the very FIRST thing the director will do is play the 'starter sequence'. It is played one time and one time only - at the very start of the show. Even if the show is set to loop (see below), the starter sequence will only be played once.

- **When this show plays it will...**

This section controls what will happen once the show has started. Not all of these options are available for every type of show. For example, Round Robin play is only available for triggered shows. The 4 main options in this section are:

- **Loop continuously**

This show will continue to run until told to stop. For shows that run when the director is powered, that would mean turning off the power. If you are using a schedule, the show will stop at the end time. If you are using a trigger, once the trigger condition is met, the show will continue to play until powered off.

- **Play once from Start to End, then stop**  
The show will run once from top to bottom and then stop. Usually triggered shows use this option, but it can be used with the other two options as well. When used with a triggered show, the list plays and then stops at the end waiting again for the trigger signal.
- **Repeat Every (10/15/30/60 minutes)**  
This option is only available for MP3 directors that have a real time clock. The show will play from start to end and then stop. At the time selected the show will start and run again from top to bottom. Note that the 'start' time is based on the 'clock' time. That is to say that a show that is set to run every 15 minutes will run on the hour and then at 15, 30, 45 past the hour. You should ensure that your show is no longer than the amount of time you select here. For example, if you show is 11 minutes long and you select every 10 minutes, the show will simply keep repeating.
- **Play the next song in the list (Round Robin).**  
This option is only available for triggered shows. When the trigger is activated, the first sequence in the list will be played and then the show will stop. Every time after that when the trigger is activated the next sequence in the list will play and then will also stop. Once the last sequence is reached, the next trigger will start over with the first sequence again.

Depending on your selection above, you may also be able to control what happens with your lights while the show is not playing. For every option except 'Loop Continuously' you can select if you lights are ON, OFF, or Running a filler sequence. If you use a filler sequence, the sequence that you select will loop continuously until the next event occurs. That could be a trigger, a repeat of the show at X minutes, etc.

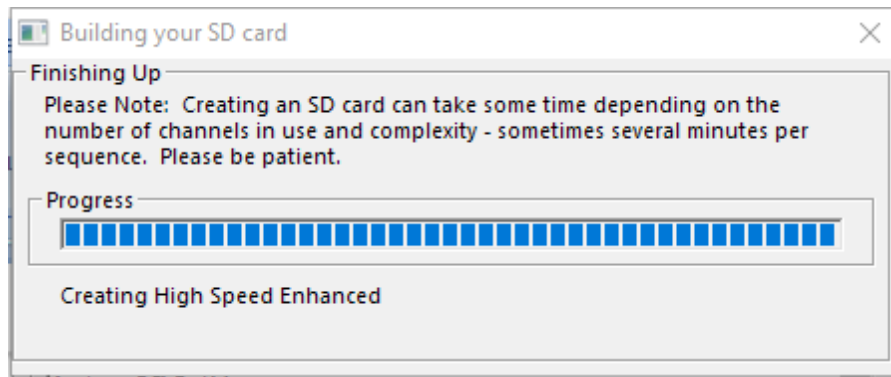
Once you have completed the selection of the sequences you want to use in the show, as well as the options for that show, move on to creating the SD card by pressing one of the 'Create/Update SD Card' buttons on the right.

▪ **Simple Mode:**

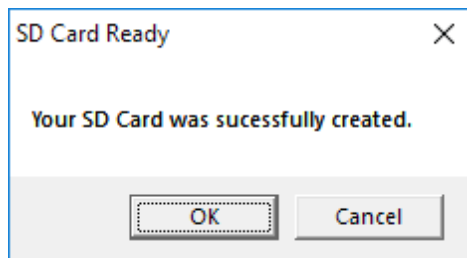
When creating a NEW show, this will create a show that works port 1 (or the only port if your director only has one) on your MP3 director. The show will use defaults for all other parameters including speed, number of ports, protocol, etc. If you have a non-linkable MINI mp3 director you should use this button. LOR Hub will verify that there are no errors on in any of the sequences you selected and immediately start to write the SD card.

When editing an Existing show, this will update the sequences on the SD card and keep any parameters as they were.

While writing the SD card, you will see the SD Card status screen:



It may take several minutes per sequence to create your SD card. Once complete, you will see this message:



▪ **Advanced Mode**

Pressing this button will start the [SD Card Wizard](#). The wizard will allow you to select if you are going to update sequences from the computer or not, port speeds and protocols, etc. Most users can use the 'Simple SD Card' Creation button, however you want to use the Advanced SD wizard if any of the following are true:

- You are using Pixels or a large number of channels and need to increase the speed of the network
- You are using intensity files, and/or want to use LOR Enhanced networking protocol (if your license supports it)
- You are using multiple generations of LOR controllers some of which support enhanced mode or high speed.
- You have a G3 or higher multi-port director and wish to use more than the first port
- You have a G4 Director and want to use 'director link'
- You need to change any of the Misc options as shown in Step 5 (not common)
- You need to change any of the advanced throttling options (not recommended)

5.7.1.2.6 Advanced SD Card Wizard

LOR Hub can create very powerful shows for MP3 Directors. Most users can use the 'Simple SD Card' Creation button, however you want to use the Advanced SD wizard if any of the following are true:

- You are using Pixels or a large number of channels and need to increase the speed of the network
- You are using intensity files, and/or want to use LOR Enhanced networking protocol (if your license supports it)
- You are using multiple generations of LOR controllers some of which support enhanced mode or high speed.
- You have a G3 or higher multi-port director and wish to use more than the first port



- You have a G4 Director and want to use 'director link'
- You need to change any of the Misc options as shown in Step 5 (not common)
- You need to change any of the advanced throttling options (not recommended)

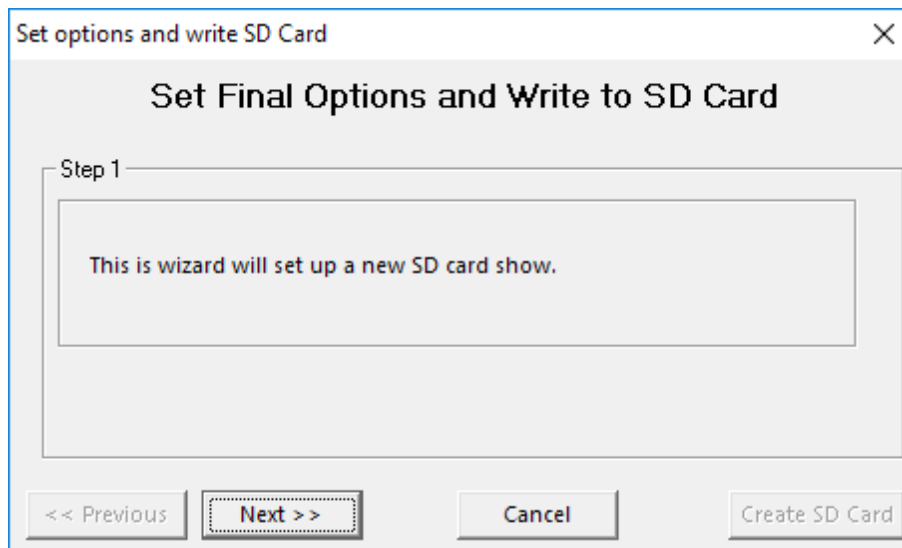
When using Advanced Mode to create an SD card, either by creating a new show or editing an existing show, the SD Card Wizard will appear.

Depending on the Director type selected, if this is a new show or not, and other options, some of these steps may not appear or some options may not be available.

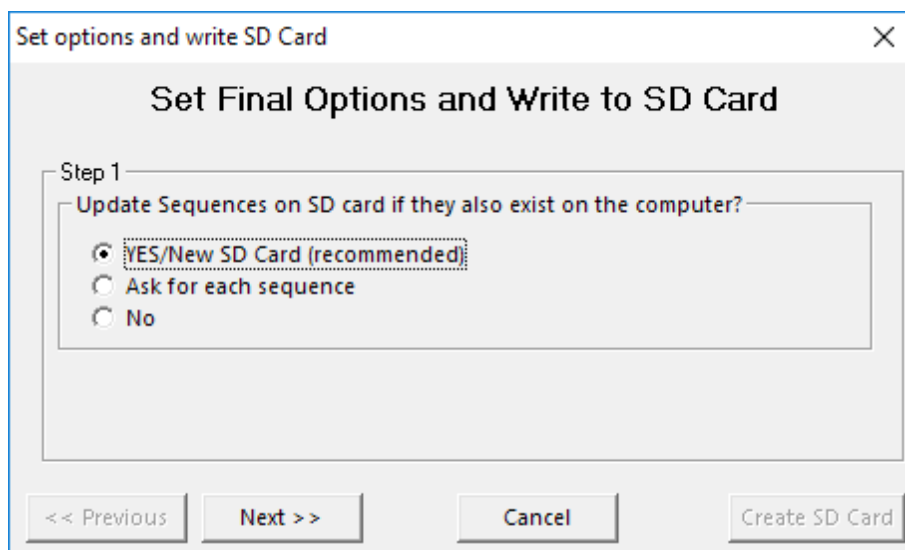
When editing an SD card, the options here will default to the options of the current show on the card.

### Step 1 - Update existing sequences or not

NEW show: When creating a new Sequence, there is nothing that needs to be done here, just press NEXT



Existing Show: If you are editing a show you will be asked if you would like to update the existing sequences on the SD card or not:



NOTE: if you are editing a Multi-Director SD Card set, you MUST update the sequences each time. Ask and No are not available.

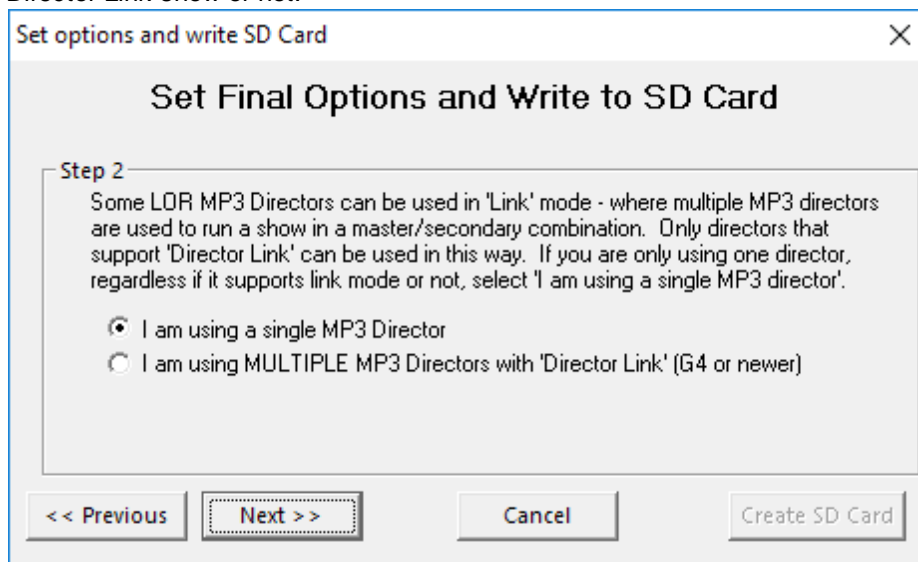
Selecting Yes will search your computer for the sequence originally used to create the SD card. If it is found, any changes in the sequence on the computer will be moved to the SD card. This is recommended.

Selecting 'Ask' will prompt you for each sequence that is found on the computer that is also on the SD card. There you can select yes or no.

Selecting 'No' will leave the existing sequence on the SD card as-is. No changes from the computer for that sequence will be moved.

### Step 2 - Linked Directors or Single Director

When creating an SD card/SD card set for a new show you'll be asked if this show will be part of a Multi-Director Link show or not.



In this step you need to tell the wizard if you are going to be using Linked Directors or not. For most users, the 'I am using a single MP3 director' should be selected.

Select the other option only if **ALL of these are true**:

- a. You plan on using MORE THAN 1 director to run this show.
- b. ALL of the directors you plan to use in this show are Generation 4
- c. ALL of the directors you plan to use support Director Link

For existing shows, you can not change this once the SD card is written. For new shows, once you have moved past step 3, you can no longer change this. If you do need to change it at step 4 or later, cancel the wizard and start again.

### Step 3 - Generation and Ports

If in the previous step you selected that you are using multiple MP3 directors, the check box selection has already been made for you and you can not change it. If you selected the default single MP3 director, the wizard now needs to determine if you have a G3 OR NEWER MP3 director.

If you have a G3MP3 director or newer, you should select the check box here. Once this is selected you can also specify the number of ports that your MP3 director has.

If you are creating a set of SD cards for Linked directors, the number of ports here is the number of total ports on your FIRST (Master) director. You will be able to add your additional directors in Step 4.

Set options and write SD Card

Set Final Options and Write to SD Card

Step 3

☐ SD Card is for a Generation 3 or Newer Director

Number of Ports: ☒ 1 ☐ 2 ☐ 4

<< Previous   Next >>   Cancel   Create SD Card

Remember, if you are creating a linked director set of SD cards, the number of ports here is the number of total ports on your FIRST (Master) director.

### Step 4 - Port information

Step 4 differs slightly if you are using a single director, or if you are creating a Linked Director set.

**For Single Director shows:**

Step 4 - Select Network(s) for director(s) and Set Parameters

Port	Net/Univ	Protocol	Speed	Comment
1	REG	LOR/ELOR	57.6K	
2	AUX A	LOR/ELOR	57.6K	
3	AUX B	LOR/ELOR	57.6K	
4	AUX C	LOR/ELOR	57.6K	

For LOR networks, attempt to configure the communications parameters for the listed networks the same as this show computer

<< Previous    Next >>    Clear All    Cancel    Create SD Card

In this example, the user selected that they had a 4 port G4 director being used as a single (not multi-director) setup.

- Port: The physical port number of the director
- Net/Univ: The LOR Network or DMX universe that this port will control
- Protocol: The data protocol in use: LOR, ELOR (Enhanced LOR) or DMX.
- Speed: The speed of the network. DMX universe speed can not be changed.
- Comment: User comment if desired.

The LOR Networks or DMX Universes to be written are selected based on the SD Card Priority system and can not be changed.

The Wizard will allow you to quickly set the parameters of the MP3 director to the same as this computer. This is very handy if you have been using a computer to test and tune your show. Once you are satisfied with how the computer runs the show, you can press the '...configure the communications parameters...' button and the wizard will configure each port to run the same as the computer.

If you would like to manually configure the ports, clicking on a row will bring up the settings of that port:

Port Settings

Network/Universe: Regular

Protocol: LOR/ELOR

Speed: 57.6K

Comment:

OK    Cancel    Don't Use This Port

- Net/Univ: The LOR Network or DMX universe that this port will control. You can not change this as it is selected by the priority system.
- Protocol: The data protocol in use: LOR, LOR/ELOR (LOR AND Enhanced LOR) or DMX. Depending on your license level, you may be restricted from using DMX or ELOR.
- Speed: The speed of the network.

**Protocol and Speed go Hand-In-Hand. If a port is using LOR devices:**

Select the communications speed that will be used to broadcast lighting commands. The recommended setting (57.6) will suffice for many users' displays. If you have many controllers that are far distances apart, a slower speed may help; if your sequences use many rapid lighting commands, a faster speed may help.

- G3 directors (and higher) have additional speeds of 500K and 1000K available. The 500K speed is approximately four times faster than the previous high speed of 115.4K, but is only supported on Generation 3 (G3) devices with updated firmware.
- The 1000K speed can ONLY be used with networks that only contain PixCon16 controllers or Pixie family controllers. No other LOR controllers support 1000K.
- For directors that have multiple ports, you can specify a different speed(s) for each port. The MP3 Director will keep both networks synced even if your show uses multiple ports at different speeds.
- If your license supports Enhanced LOR Protocol and you are creating a card for a G3 or above director, an additional option may be available depending on the first sequence loaded. If the first sequence has both Normal LOR and Enhanced LOR commands available, you can select if you want BOTH to be written to the card (checked). If you do not have a G3 controller, or you do not have a license that supports Enhanced LOR protocol, or if your sequence does not have both types of networks, then this option is not available. There is no option that will allow for only Enhanced commands, even if your sequence has both available.

**If a port is using DMX devices**

DMX Universes run at a fixed speed, and therefore the options to change port speed are not available.

- Comment: User comment if desired.

**For Multi-Director shows:**

Step 4 - Select Network(s) for director(s) and Set Parameters

	Port	Net/Univ	Protocol	Speed	Comment
Director 1	1	Uplink to next director			
	2	REG	LOR/ELOR	57.6K	
	3	AUX A	LOR/ELOR	57.6K	
	4	AUX B	LOR/ELOR	57.6K	
Director 2	1	Uplink from previous director			
	2	AUX C	LOR/ELOR	57.6K	
	3	AUX D	LOR/ELOR	57.6K	
	4	AUX E	LOR/ELOR	57.6K	
Click here to add another director					

For LOR networks, attempt to configure the communications parameters for the listed networks the same as this show computer

<< Previous    Next >>    Clear All    Cancel    Create SD Card

Step 4 for Multi-Director shows has many additional features to support these more complex shows.

In the list, each director is a group of ports. In this example, there are 2 four port directors in use. To add a director, simply click the bottom line of the table. The wizard will then ask you how many ports are on the director you are adding:

**Add Director** X

☒ 2-Port linkable director

☐ 4-Port linkable director

OK    Cancel

Please remember that all directors you add to a 'Link Director' chain MUST support link mode. You cannot mix two different types.

You may add any number or combination of 2 and 4 port linkable directors to a show. **HOWEVER** please be aware that **ALL** directors **MUST** be Director-Link capable. **You can not mix linkable and older non-linkable directors in the same show.**

Once added, your new director will appear:

## Step 4 - Select Network(s) for director(s) and Set Parameters

	Port	Net/Univ	Protocol	Speed	Comment
Director 1	1	Uplink to next director			
	2	REG	LOR/ELOR	57.6K	
	3	AUX A	LOR/ELOR	57.6K	
	4	AUX B	LOR/ELOR	57.6K	
Director 2	1	Uplink from previous and to next director			
	2	AUX C	LOR/ELOR	57.6K	
	3	AUX D	LOR/ELOR	57.6K	
	4	AUX E	LOR/ELOR	57.6K	
Director 3	1	Uplink from previous director			
	2	REG	LOR/ELOR	57.6K	
Click here to add another director					

For LOR networks, attempt to configure the communications parameters for the listed networks the same as this show computer

<< Previous

Next >>

Clear All

Cancel

Create SD Card

Here we have added a 3rd 2-port linkable director.

To change the order or remove a director, first click on the first column of the director you would like to change. Once you click, control icons will be shown. Remember, you should click on the 'Director' column. If you click on any other column: you will be presented the port settings for that particular port.

Step 4 - Select Network(s) for director(s) and Set Parameters

	Port	Net/Univ	Protocol	Speed	Comment
Director 1	1	Uplink to next director			
	2	REG	LOR/ELOR	57.6K	
	3	AUX A	LOR/ELOR	57.6K	
	4	AUX B	LOR/ELOR	57.6K	
Director 2	1	Uplink from previous and to next director			
	2	AUX C	LOR/ELOR	57.6K	
	3	AUX D	LOR/ELOR	57.6K	
	4	AUX E	LOR/ELOR	57.6K	
Director 3	1	Uplink from previous director			
	2	REG	LOR/ELOR	57.6K	
Click here to add another director					

For LOR networks, attempt to configure the communications parameters for the listed networks the same as this show computer

<< Previous    Next >>    Clear All    Cancel    Create SD Card

- Up Arrow: Move this director UP the chain
- Down Arrow: Move this director DOWN the chain
- Red X: Delete this director from the chain

The Wizard will allow you to quickly set the parameters of all the MP3 directors to the same as this computer. This is very handy if you have been using a computer to test and tune your show. Once you are satisfied with how the computer runs the show, you can press the '...configure the communications parameters...' button and the wizard will configure each port to run the same as the computer.

If you would like to manually configure the ports, clicking on a row will bring up the settings of that port: Please remember that since Port 1 is the 'Link' connection between MP3 directors, you can not assign or change any of it's parameters.

Port Settings

Network/Universe: Regular

Protocol: LOR/ELOR

Speed: 57.6K

Comment:

OK    Cancel    Don't Use This Port



Unlike in a Single Director show, a Multi-Director show allows for changing which LOR network or DMX universe is attached to a port, and even allows for a port to be skipped entirely

- **Net/Univ:** The LOR Network or DMX universe that this port will control. This drop-down contains all the networks that are available in the first sequence that was added to the show. If a network or universe was not in use in that first sequence, it is not shown here.
- **Protocol:** The data protocol in use: LOR, LOR/ELOR (LOR AND Enhanced LOR) or DMX. Depending on your license level, you may be restricted from using DMX or ELOR.
- **Speed:** The speed of the network.

**Protocol and Speed go Hand-In-Hand. If a port is using LOR devices:**

Select the communications speed that will be used to broadcast lighting commands. The recommended setting (57.6) will suffice for many users' displays. If you have many controllers that are far distances apart, a slower speed may help; if your sequences use many rapid lighting commands, a faster speed may help.

- G3 directors (and higher) have additional speeds of 500K and 1000K available. The 500K speed is approximately four times faster than the previous high speed of 115.4K, but is only supported on Generation 3 (G3) devices with updated firmware.
- The 1000K speed can ONLY be used with networks that only contain PixCon16 controllers or Pixie family controllers. No other LOR controllers support 1000K.
- For directors that have multiple ports, you can specify a different speed(s) for each port. The MP3 Director will keep both networks synced even if your show uses multiple ports at different speeds.

If your license supports Enhanced LOR Protocol and you are creating a card for a G3 or above director, an additional option may be available depending on the first sequence loaded. If the first sequence has both Normal LOR and Enhanced LOR commands available, you can select if you want BOTH to be written to the card (checked). If you do not have a G3 controller, or you do not have a license that supports Enhanced LOR protocol, or if your sequence does not have both types of networks, then this option is not available. There is no option that will allow for only Enhanced commands, even if your sequence has both available.

**If a port is using DMX devices**

DMX Universes run at a fixed speed, and therefore the options to change port speed are not available.

- **Comment:** User comment if desired.
- **Don't Use This Port:** Press this button if you do not want to use this particular port in your show. It will then be disabled:

Step 4 - Select Network(s) for director(s) and Set Parameters

	Port	Net/Univ	Protocol	Speed	Comment
Director 1	1	Uplink to next director			
	2	None			
	3	AUX A	LOR/ELOR	57.6K	
	4	AUX B	LOR/ELOR	57.6K	
Director 2	1	Uplink from previous and to next director			
	2	AUX C	LOR/ELOR	57.6K	
	3	AUX D	LOR/ELOR	57.6K	
	4	AUX E	LOR/ELOR	57.6K	
Director 3	1	Uplink from previous director			
	2	REG	LOR/ELOR	57.6K	
Click here to add another director					

For LOR networks, attempt to configure the communications parameters for the listed networks the same as this show computer

<< Previous    Next >>    Clear All    Cancel    Create SD Card

### Step 5 - Misc Options

Here is where you can specify different options that your show or hardware may require. For most users, the defaults are OK:

Set options and write SD Card

### Set Final Options and Write to SD Card

Step 5

Select Misc. Options

- ☐ Lock Step --- ( Note: Not supported by CTB08 and MCP )
- ☐ Add a file to the SD card to set the MP3 Director's internal clock
- ☒ Strip MP3 Header Information (Allows Director hardware to load MP3 faster)
- ☐ Keep Lights ON at end if using DMX
- ☐ Show cannot be interrupted by input triggers

Advanced Throttling Options

<< Previous    Next >>    Cancel    Create SD Card

- **Lock Step:** If you have a very large display, selecting "lock step" may help the different controllers used in the display react with a higher degree of synchronization. This is not supported on all controller types, and the level of firmware in the controllers must be 3.0 or higher.
- **Set MP3 player's internal clock:** If you wish to add a file to the SD card to set the MP3

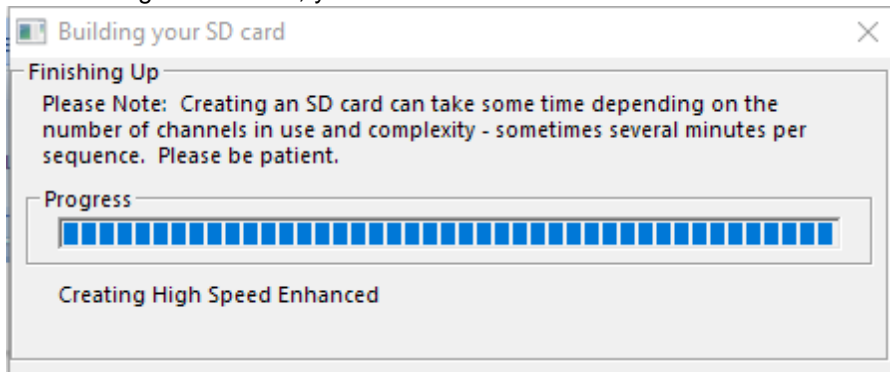
director's internal clock, check the box that says so. Note that there are also [other ways to set the director's clock](#).

- **Strip MP3 Header Information:** Some MP3s may have a large data block before the actual music data. For example, an MP3 may have several high-resolution pictures in its ID3 Tags. The MP3 director will correctly ignore this data, however it does take time to find the actual start of the music file. Stripping this data will allow the MP3 director to start playing the sequence faster.
- **Keep lights ON at end if using DMX:** Previously if one or both ports were controlling DMX Universes the MP3 director would always shut off all the lights. Checking this box will allow channels in DMX universes controlled by the MP3 director to remain in the last state they were sent. If you leave a light on at the end of a sequence, that light will remain on until the start of the next sequence.
- **Show can not be interrupted by input triggers:** Once this show has started on the MP3 director, pressing an input will not interrupt the show - it will run to completion.
- **Advanced Throttling Options:** The advanced options button will [bring up an additional window](#) that allows you to change parameters which relate to how data will be transmitted from your MP3 Director. **Unless a specific issue is preventing your MP3 Director from working correctly, you should not change these options.**

## Step 6 - Ready to Create SD Card/Cards

At this point Hub is ready to create your SD card show or SD card set. Press the Create SD card button, and Hub will start the process. It can take some time to create an SD card show depending on the complexity of your sequences, number of networks, etc. Once the process is complete, Hub will let you know.

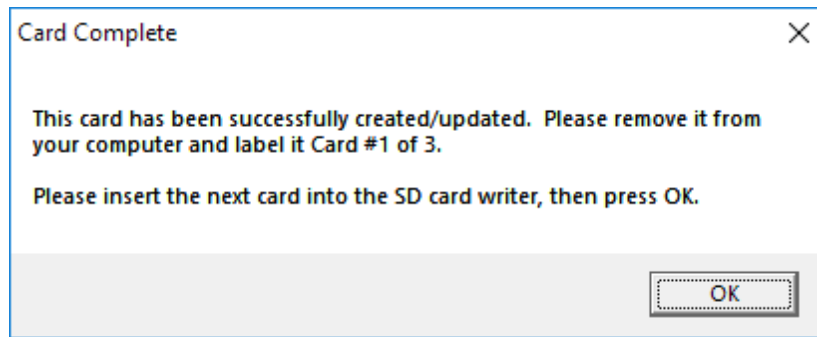
While writing the SD card, you will see the SD Card status screen:



### Multi-Director SD card sets:

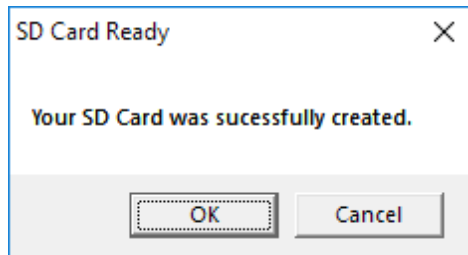
Hub will tell you the total number of SD cards that are required for your show. Please remember that these cards need to be placed into the correct directors and should be labeled to avoid confusion.

When it is time to change cards, Hub will pause and let you know with a message on screen:



Please be aware that there are no checks or validations that happen when changing cards, Hub will overwrite the show on all subsequent cards without warning.

It may take several minutes per sequence to create your SD card. Once complete, you will see this message:



#### 5.7.1.2.6.1 SD Card Priority System

### ***MP3g3 Directors can control DMX Devices***

In addition to [LOR Devices](#), G3 and newer Directors can also drive [DMX devices](#) on one or both output ports. In order to control DMX devices, your G3 MP3 Director must have at least [firmware](#) version 5.28.

### ***Network and Universe Priorities***

New advanced MP3 Directors, like the Dual Port G3MP3 Director, or G4N4 4-Port can drive 2 or 4 separate physical networks of devices. These advanced directors can control LOR devices, DMX devices, or a combination of them on separate ports. For single (non-linked) directors, LOR Hub will automatically select which networks and/or universes in your sequence will be used by the director.

Only the [ADVANCED](#) level of the LOR software will allow for the creation of DMX output for a director. All other levels are limited to creating LOR output only.

Older Directors, like the DC-MP3-SHOWTIME, are limited to ONLY the LOR REGULAR network.

For Advanced Directors, LOR Hub uses a 'priority system' based on the contents of the **FIRST** sequence added to the show list. In order to prevent confusion, all sequences that are part of a single show should use the same [preview](#). Shows that use Director Link use these rules as a default however the user has the ability to change them as they see fit.

1. If your license supports them, there is no difference between LOR Enhanced networks and normal LOR networks. Both are treated the same when it comes to priority.
2. LOR networks have priority over DMX universes.
3. The LOR REGular network has the highest priority, followed by AUX A through AUX O.
4. A lower number DMX Universe is higher priority than a higher number.
5. If the sequence contains more than 2 (or 4) networks, universes, or a combination thereof, those Networks and Universes are silently discarded.
6. If your director only has one port, then only the PORT 1 column applies. 4 port directors use the same rules and simply extend the table to 4 columns.

Examples assuming that you have the 'Advanced' level of the software:

Your sequence contains....	PORT 1 on the director controls	PORT 2 on the director controls	Notes
1. LOR REG	LOR REG	(*)	Only one network, so it is placed on port 1. <a href="#">See note for port 2/3/4.</a>
1. LOR REG 2. LOR AUX B	LOR REG	LOR AUX B	Two ports active with LOR <a href="#">See note for port 3/4.</a>
1. LOR REG 2. LOR AUX A 3. LOR AUX B	LOR REG	LOR AUX A	Aux B is silently discarded for two port directors. Used as port 3 on 4 port directors.
1. DMX Universe 1	DMX Universe 1	(*)	DMX on port 1. <a href="#">See note for port 2..</a>
1. LOR AUX A 2. DMX Universe 1	LOR AUX A	DMX Universe 1	LOR devices have priority over DMX, so AUX A is on port 1. <a href="#">See note for port 3/4</a>
1. DMX Universe 1 2. DMX Universe 99	DMX Universe 1	DMX Universe 99	DMX Universes are assigned in ascending order. <a href="#">See note for port 3/4</a>

Your sequence contains....	PORT 1 on the director controls	PORT 2 on the director controls	Notes
1. LOR REG 2. LOR AUX A 3. LOR AUX B 4. DMX Universe 1 5. DMX Universe 99	LOR REG	LOR AUX A	LOR Devices have priority over DMX. REG has highest priority followed by AUX A. For 2 port directors all others are discarded. For 4 port directors, AUX B is on port 3, DMX Universe 1 is on port 4. All others are discarded.

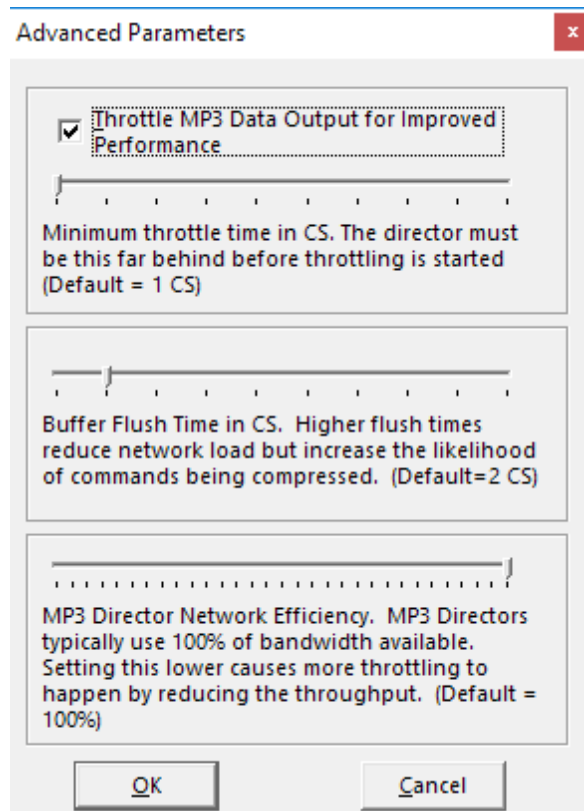
\* **Please note** that the dual network and 4 network directors will mirror the output of Port 1 onto Port 2 on a per-sequence basis - as well as any other empty ports. If you wish to have all controllers on port 2 stay dark during certain sequences, ensure that ALL of the sequences in that show use the same [preview](#). That is to say, ensure all of your sequences contain channels for BOTH ports, even if those channels are all OFF for the duration of the sequence.

'Startup' sequences as well as 'Filler' sequences can also use LOR or DMX devices on advanced directors and the same rules apply to them.

#### 5.7.1.2.7 Throttle Parameters

While writing your show to the SD card for an MP3 player, LOR Hub will automatically monitor how much bandwidth is required by your sequence every centi-second. When the bandwidth is exceeded, the program can 'compress' your data so that your music and lights stay better in sync. The advanced options window allows you to turn this functionality on/off or adjust its parameters.

**Please note that changing these parameters can cause your show to fall out of sync, have unacceptable delays, or cause other issues. You should only change these if you are having issues with the defaults, and even then be prepared to restore to the defaults should your show fail. For 99.9% of shows, these defaults are already optimized.**



The Advanced Parameters window

- **Throttle Data Output for Improved Performance:** It is recommended that this option remain ON (checked). When checked, your sequence is monitored. For each centi-second that passes, the program will compute the amount of bandwidth required and compare it to the amount available. If unchecked, no throttling is done - this is the same mode as versions previous to 3.12.0.
- **Minimum Throttle Time in CS:** If throttling is enabled, this is the minimum amount that the sequence must be behind before compression starts. For example, if this is set to 5 CS, then once the sequence is 5 or more centi-seconds behind the audio, compression will begin. Setting this higher will allow for more complex areas of your sequence to remain uncompressed at the expense of lagging further behind your audio. The default value is 1, and this means that as soon as the sequence falls behind, compression should begin.
- **Buffer Flush Time in CS:** This can be thought of as the 'resolution' that your MP3 Director will run at. Setting the value lower will increase resolution as well as network load. Setting the value higher will decrease network load at the expense of having more commands be compressed. The default value of 2 most closely emulates what a computer produces for output, either in the [Sequencer](#) or the [Show Player](#), when running a sequence on your hardware. For versions before 3.12.0, this value was 1.
- **MP3 Director Network Efficiency:** MP3 directors will typically use 100% of the bandwidth that is available for a port. Setting this to a lower percentage reduces the amount of throughput, which will cause more throttling to happen. It may be best to think of this option as a reduction in the network speed. For example, if you set a port to 57.6K speed, and set this option to 70%, then the hardware utility will throttle the sequence as if it was for a network that runs at approximately 40.3K (57.6 \* 70%).

## 5.7.2 Applying and Using MotionPaks

MotionPaks are the exciting new way to customize your LOR purchased sequences. MotionPaks allow you to add programming for custom props that you build or purchase from Light-O-Rama.

For example, LOR sells 'Singing Faces' - ready-to-go items for your display. Once you have purchased the hardware prop, from our sequence store you can purchase the programming to make them work. LOR Hub will then take the MotionPak and combine it with your sequence. You will only ever have to pay for programming you want, saving money.

MotionPaks are a lot like sequences - but they only contain the programming for specific elements. You use LOR Hub to combine the MotionPak with the existing Base Sequence

### 5.7.2.1 LOR Sequences

Sequences are the programs that make your show work. The Light-O-Rama software allows you to create your own sequences, or you can purchase ready made sequences from our sequence store.

Purchasing sequences from our sequence store makes having a show a breeze! Our sequences are designed to get you off to a fast start and to make you look great! Once you have purchased a sequence, you can customize it with MotionPaks - additional programming for additional display items to make your show unique!

To see what sequences are available, press the 'Shop for Sequences' button in Hub.

### 5.7.2.2 LOR Hardware Props

While it is possible to create your own Props and use them with MotionPaks, the easiest and fastest way to add a new dimension to your show is to purchase the prop from Light-O-Rama.

Light-O-Rama props are pre-configured to work with MotionPaks and Light-O-Rama sequences right from the box. Simply connect your new prop to your existing controllers with a CAT-5 cable, purchase and download the MotionPak for each sequence in your show for that prop, press the 'Scan For MotionPaks' button in hub, then 'Do it!'. All of your sequences are updated and it just works!

To see the props available from Light-O-Rama, press the 'Shop for Props/Hardware' button in Hub.

### 5.7.2.3 LOR MotionPaks

MotionPaks are what bring unique display elements to life. These are not 'sequences' in themselves as they do not contain the programming for any other part of your show - you will need to already own (or purchase) the 'Base Sequence' from the Light-O-Rama sequence store.

The 'Base Sequence', usually just called the 'Sequence' contains all the main commands for a particular song. If a MotionPak is available for that particular sequence, it *adds* additional programming to make things like singing faces or pixel trees work. A MotionPak is unique to the sequence it is for, as well as for the prop it is made to control. For example, you could have the sequence "A Mad Russians Christmas" by TSO in your show. There could be several different MotionPaks available for that sequence - one for singing faces, another for a pixel tree, and perhaps even one for a pixel screen. You only need to purchase the MotionPak(s) for that sequence for the prop(s) you own. And remember that the 'Singing Face' MotionPak for this sequence is not the same as a MotionPak for a singing face for



"Hard Candy Christmas" by Dolly Parton.

#### 5.7.2.4 Updating Sequences with MotionPaks

You use Light-O-Rama Hub to combine the programming of a MotionPak with an existing LOR Sequence store sequence. If you have not made any changes to your sequences or props purchased from Light-O-Rama, the process is very simple.

First, be sure that your Light-O-Rama base sequences (the files with the main programming for a sequence) are all in the Light-O-Rama Sequences directory.

Next purchase and download the MotionPak(s) you would like for the sequences you already own. You can always purchase a new sequence and then install a MotionPak.

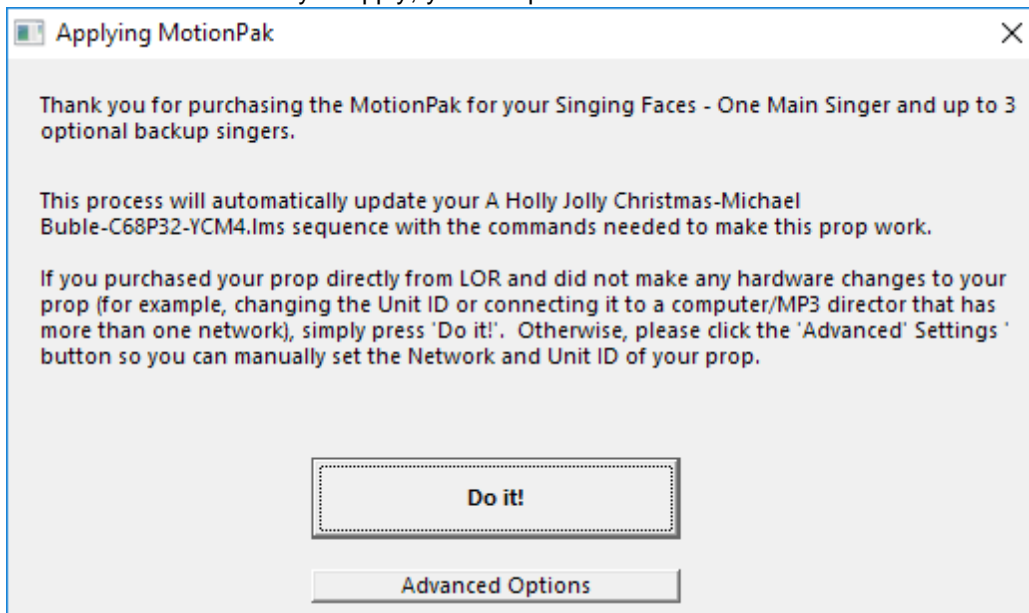
In Hub, press the 'Scan/Apply MotionPaks button'. When you do, Hub will look to find all new MotionPaks since the last time you ran the scan. When it is done looking you'll see something like this:



In this case Hub has found 3 new MotionPaks, along with their associated 'Base' sequence. For most people, simply press 'Perform Selected Action' to continue. Otherwise to the left of each MotionPak are 3 options you can select from:

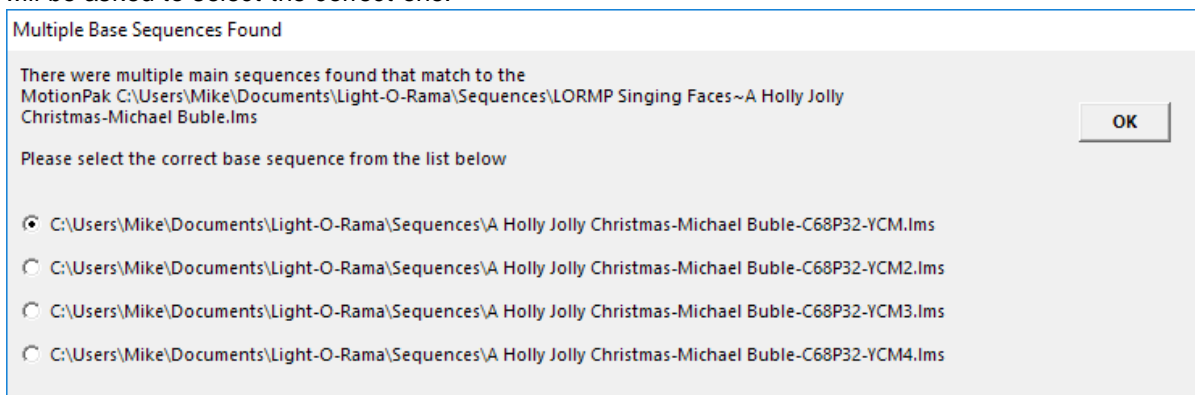
1. Apply MotionPak - Updates your base sequence with the MotionPak programming
2. Skip This Time - Does not update the base sequence. The next time you scan for MotionPaks, this one will re-appear
3. Don't Ask Again - Does not update the base sequence, and the Motion Pak will not re-appear in a scan. See Reset Scan for why you may need this option.

For each MotionPak that you apply, you'll be presented with some information about it:



If you did not make any changes to your LOR Prop or LOR Sequence, simply press 'Do It!'. Your Sequence will be updated with all the commands from the MotionPak, and the job is complete.

If when applying a MotionPak Hub finds more than one sequence that could be the base sequence, you will be asked to select the correct one.



In this case, there are 4 sequences in the Sequences Directory that are matching up to the MotionPak. Please select the correct one and press the OK button.

If you need to change the default settings of a MotionPak, for example you changed the Unit ID of the prop, press the 'Advanced Options' button. Here you can change the network and unit ID of the MotionPak to match your hardware.

Assign Net/Unit ID to Props

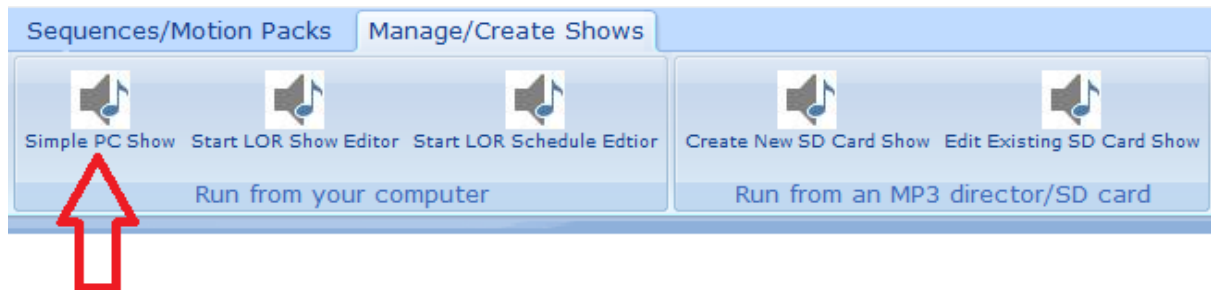
	Network	Unit	
Main Singer-8 channel pixel controller	Aux A	30	OK
Optional Backup Singer 1-8 channel pixel controller	Aux A	32	
Optional Backup Singer 2-8 channel pixel controller	Aux A	34	
Optional Backup Singer 3-8 channel pixel controller	Aux A	36	

In this case, the show has 2 LOR networks and the Singing Faces prop for the MotionPak is on Aux A (rather than REGular)

## 5.8 Simple Show Builder

Simple Show Builder functionality has been replaced by [LOR Hub](#)

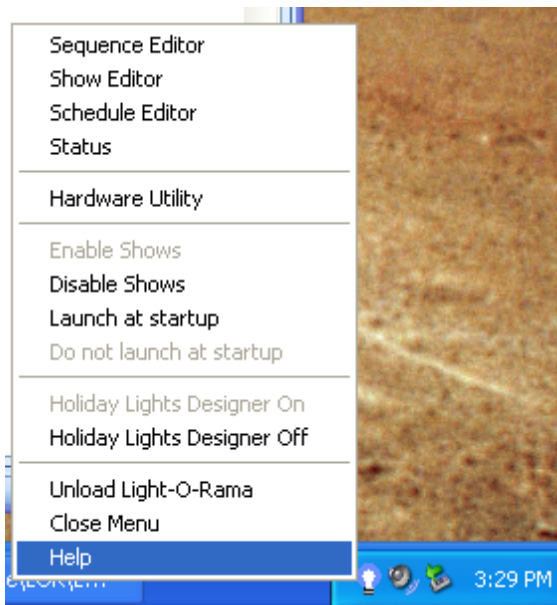
In [LOR Hub](#), select the "Manage/Create Shows" tab, then click the "Simple PC Show" button.



## 5.9 Show Player

The Light-O-Rama Show Player is a program that runs behind the scenes, monitoring your [schedule](#) to see if a [show](#) should be playing at the current time, and if so, playing it.

To make sure that the Show Player is running, and therefore that your scheduled shows will be played, you first must ensure that the [Light-O-Rama Control Panel](#) is running. Next, right-click on the Light-O-Rama Control Panel's icon in your computer's system tray, and select "[Enable Schedule](#)" from the [popup menu](#). If "Enable Shows" is greyed out, that means that it is already selected.



The Light-O-Rama Control Panel, with shows enabled

If the Light-O-Rama Control Panel is not running, or if "[Disable Shows](#)" is greyed out, your scheduled shows will *not* be played.

Note that only one source can control your lights at any time - either the Show Player, the [Sequencer](#), or the [Hardware Utility](#). So, if you try to enable the Show Player with one of the others running, you may be shown a message saying that you need to shut down the others before "Enable Shows" will work.

## 5.10 Network Preferences



[Light-O-Rama software](#) running on a computer can control several different types of [hardware devices](#) via several different methods. In most cases, the devices are connected to the computer via a serial port (if your computer does not have any available serial ports, adapters such as the USB-RS485 are available from Light-O-Rama). Light-O-Rama also supports [E1.31/ACN](#), which allows for control of various devices via Ethernet and a gateway device, and various other types of hardware.

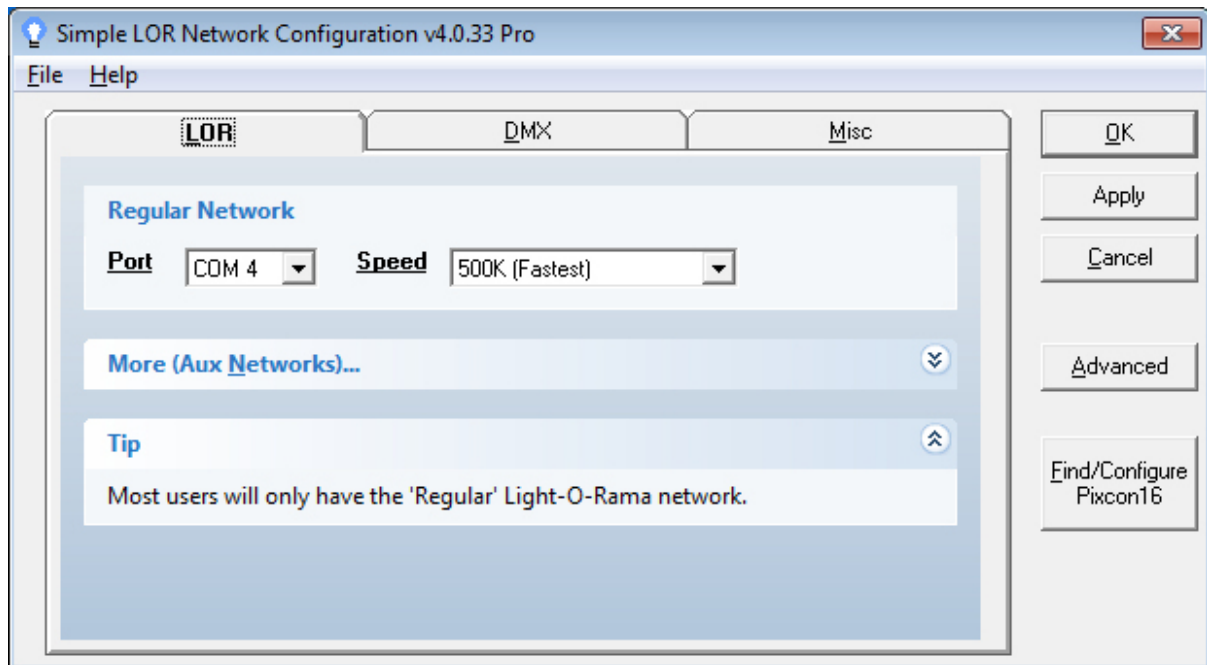
Typically, [Light-O-Rama controllers](#) are on up to sixteen different serial ports - that is, sixteen different "[networks](#)". In many cases, a Light-O-Rama user will use only a single network -- that is, a single serial port -- for all of his or her controllers: the "Regular" network. Should additional networks be needed, fifteen auxiliary networks ("Aux A", "Aux B", and so on, up to "Aux O") are also available, each of which would be controlled via a different serial port.

The Light-O-Rama Network Preferences program allows you to configure all of these Light-O-Rama networks, as well as configure various other communications networks such as [DMX universes](#).

The Network Preferences program has two operating modes: "[Simple](#)" and "[Advanced](#)". Most users will only need the Simple mode. The Advanced mode is only needed by users who have more than sixteen DMX networks, or users who have E1.31 devices. To change between modes, use the button on the right side marked "Simple" or "Advanced".

The Network Preferences program is also used to [configure Light-O-Rama E1.31 devices](#), like the [PixCon16](#).

- [Simple Mode](#)
- [Advanced Mode](#)



The Light-O-Rama Network Preferences program

### 5.10.1 Configuring LOR E131 Devices

E1.31 devices, like the PixCon16, are usually used for high channel density configurations. For example, a fully populated PixCon16 can control over 10,000 channels across 20 DMX universes. Using just a few of these controllers can quickly saturate a Local Area Network (LAN). Improperly configured networks can also generate additional traffic. Unlike the traditional LOR network of controllers which are run on a serial port, using E1.31 devices may require advanced knowledge of TCP/IP routing and configuration.

E1.31 devices may also negatively impact an existing LAN with the additional traffic. Light-O-Rama recommends that you run E1.31 devices on a separate physical network from your home or office LAN. If you are knowledgeable in TCP/IP and/or Ethernet devices, you may be able to successfully run your existing devices and the new E1.31 devices by segregating your network, running multiple adapter cards, etc. How to successfully do that however is beyond the scope of this documentation.

#### 5.10.1.1 E131 Device List

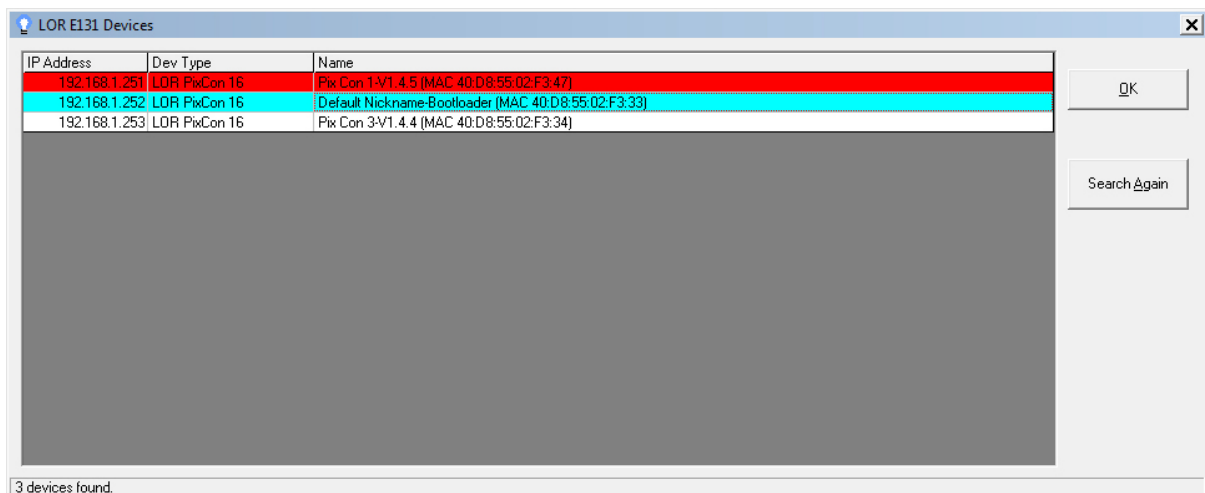
The E1.31 device list will show all detected LOR E1.31 devices found on the network. The E1.31 devices should be powered up before accessing the list. If there are any missing devices, be sure they are powered up and press the 'Search Again' button.

Under some circumstances, the program may not be able to detect all the controllers connected to your LAN. This can be due to multiple issues since the routing and configuration of TCP/IP can be tricky:

- Typically if a previously found device can no longer be found, it may simply have missed the command for it to report in. Pressing 'Search Again' will usually find the missing controller. It

could also be that the network is currently saturated with lighting commands. You may want to stop any running show before attempting to configure a E1.31 device.

- If this is the first time you are configuring a board, or if you changed the configuration of your network, the device may no longer be on an IP that you are expecting. In that case, you may want to reset the board to factory specifications. This will then place the board into 'DHCP' mode where it will request an IP from your network. This requested IP should then be able to be found with the program. Please note that resetting the board will clear all of your configuration information, and you will need to re-configure the board.
- Your board may also be in a state which is preventing it from booting up properly. If that is the case, you will need to place the board into boot-loader mode using the switch. The boot-loader mode will force the board to the IP address of 192.168.0.50. Please see the hardware manual for the board for more information about boot-loader mode.



**The LOR E1.31 device list**

The E1.31 device list shows the current IP address of the board, the board's type, as well as its user assigned name and MAC address to help you identify the actual physical hardware. When you click a row in the E1.31 device list, you will be brought to the configuration screens for that particular board. Remember, boards that are shown in red can not be configured, and those in blue must first have firmware loaded to them.

Depending on the status of a particular E1.31 device, the list will be shown in one of 3 background colors:

- Red: Devices listed in RED can not be configured. Either these devices are not manufactured by LOR, or are at a firmware level that is not supported by the software.
- Blue: Controllers listed in blue are currently in 'boot-loader' mode. That is, they are awaiting firmware to be sent to them. Clicking on a blue device will bring you to a screen that will allow you to update the firmware.
- White: Any controller listed in White is operating normally and ready to be configured. Clicking on a row in white will bring up one or more screens allowing you to configure the device.

## 5.10.1.1.1 IP Troubleshooter

The E131 Device List will show all LOR E1.31 devices that can be found on the local network. However those devices could be at IP addresses that can not be directly configured from the computer you are attempting to use due to with how TCP/IP packets are routed. More information on routing and setup can be found in our "[An Introduction to DMX and E1.31 for Pixel Control](#)" document found on the [LOR Website](#).

If you click on a board whose configuration can not be loaded, you will be offered the opportunity to run the IP Troubleshooter. This troubleshooter will look at the configuration of your E131 device as well as the network configuration of your computer and attempt to resolve the issue.

You may need to run the troubleshooter multiple times as it may need to configure several different parameters.

The following messages can be generated by the Troubleshooter:

- **This is not an LOR PixCon16 device. Please contact the board manufacturer.**  
This device while presented in the list of devices is not manufactured or supported by LOR. You will need to contact the manufacturer of the device for more information.
- **This device needs to have firmware loaded. Please follow the device 's instructions on how to update firmware.**  
The device is currently awaiting a firmware load. IP Settings can not be changed while the board is waiting for new firmware. Power the board off then back on and see if it boots normally, then try again.
- **This version of the software does not know how to handle a device with this firmware version. You most likely need to update your LOR Software.**  
The Light-O-Rama Showtime Software suite in use is too old. This is most likely because the firmware on the device is newer than what the software can understand. You will need to either downgrade the firmware, or install the latest version of Showtime. Installing the latest version of Showtime may require a license renewal.
- **This troubleshooter will allow you to configure the board when directly connected to the computer. However if you plan on using E1.31 and later move this board to a network with a router/switch it may no longer be able to communicate. You should connect the board and the computer in the configuration you will run shows in, then run the troubleshooter.**  
You said that you are directly connected to the board instead of connected through a switch or router. If you intend on running in this configuration, OR if you intend on eventually running the board in ELOR mode, you can ignore this message completely. If however you intend to use the board on a network with other computers and/or E131 devices, you should connect them in the configuration you intend on running them in.
- **Your computer is using Dynamic IP addresses. Have you tried setting the board to run a Dynamic Address as well?**  
The Troubleshooter has determined that your computer is using a DHCP address, and that your board should be using one as well. Answering NO will force the board to use a DHCP address. Answering YES will continue the troubleshooter. You should initially allow the troubleshooter to set the dynamic IP by answering NO.
- **Troubleshooter 1-Force DHCP failed.**  
You indicated that you wanted to use a dynamic IP address, however while attempting to set that parameter something went wrong. Run the Troubleshooter again, and if you get the same error,

please contact support and include the error message.

- **Setting the board to Dynamic should have fixed the issue. Are you sure you selected the correct adapter? Many computers have multiple adapters which can all have different IP addresses.**

You indicated that you previously set the board to use a dynamic IP address, and that should have fixed the error. However the computer is still not able to communicate with the board. This could be that you selected a network adapter in the drop down that is not connected to the device. Be sure you have selected the correct adapter.

- **Have you rebooted your entire network? If not shut down and power off ANY device that is connected to your LAN (Computers including this one, Lighting Controllers, Hubs/Switches/ Routers, TVs and Media Players,etc). Reboot your router, and then turn your network devices back on.**

You indicated that you have in fact selected the correct adapter. The Troubleshooter now wants you to reboot your entire network (LAN). That includes ALL devices that are attached to the LAN including devices that are not lighting controllers.

- **As a last resort, would you like to try to set a static IP address?**

You indicated that you rebooted the entire network but are still unable to communicate with the board. The troubleshooter can attempt to set a Static IP address to see if that will help.

- **Troubleshooter 2-Force DHCP negative.**

The reboot failed, and you indicated you did not want to force a static IP. This will prevent the board from being able to be configured.

- **Your adapter is using a Static IP address. Your board should probably be using one as well. We can force a new IP onto the board which may fix the issue.**

Your computer appears to be using a static IP address, so your device should be as well. The troubleshooter would like to know if you want to proceed to try a static IP address.

- **Troubleshooter 3-User did not force Static.**

You did not want to attempt to set a static IP. This will prevent the board from being able to be configured.

- **We will now try to set the board to use IP address: [xxx.xxx.xxx.xxx]. We have tested this address and it appears to not be in use on your network, HOWEVER another device on your network that is not currently powered may attempt to use this same address in the future. You should ensure that this address is not in use on any other device.**

The Troubleshooter has determined that the computer is using a static IP address, and the device should be as well. The suggested IP address should work and allow the device to be configured. The troubleshooter checked to see if the address was already in use on your network and it appears to be unused. However, another device that is currently powered off may attempt to use the same address in the future. You should ensure that the suggested address is not in use anywhere else. If it is, you can temporarily use it to gain access to the device. You must then change the IP to a known unique one.

- **Troubleshooter 4-Force IP failed.**

You indicated that you wanted to use this IP address, however while attempting to set that parameter something went wrong. Run the Troubleshooter again, and if you get the same error, please contact support and include the error message.



### 5.10.1.2 PixCon16 Configuration

The LOR PixCon16 is configured from this screen. No configuration changes are sent to the Plxcon16 until you select either the OK or Apply button. Should you exit the screen without pressing these buttons, all changes are lost.

The configuration screens are designed to handle multiple different firmware revisions. If an option is disabled, it may be that the firmware on the board needs to be update to a more recent version. This can be done on the Misc tab.

- [Dual Modes \(E1.31/LOR Enhanced\)](#)
- [Network Configuration](#)
- [Pixel Port Setup](#)
  - [Simple Mode](#)
  - [Advanced Mode](#)
- [Misc settings](#)
- [Automatic configuration of Network Preferences for DMX/E1.31](#)

#### ***Dual Modes (E1.31/LOR Enhanced)***

The PixCon16 is a little different than other Light O Rama controllers when it comes to configuration and use. All configuration of the board is done while it is connected to a standard LAN. The PixCon16 can not be configured via the LOR RS485 mode. The PixCon16 however *can* run in either E1.31 mode (via an Ethernet network), or as an LOR device on an LOR ENHANCED network at 500K. If you would like to use the PixCon16 as an LOR device, be sure to select 'LOR Mode', explained below.

#### ***Network Configuration (Tab 1)***

The screenshot shows the 'LOR PixCon 16 Configuration (192.168.1.62)' window. The 'Unit Name' field is set to 'Default Nickname'. The 'Network Configuration' tab is active, showing options for 'Static' IP (192.168.0.50) and 'DHCP'. Below this, there's a section for 'LOR or Auxiliary DMX Ports' with checkboxes for Port 1 through 4, each with a 'Universe' dropdown set to '1'. A checkbox for 'J3/J4 (DMX#1) are LOR RS485 Network IN/OUT, not DMX [use board in LOR mode]' is also present. At the bottom, a 'Test Mode' section has 'OFF' and 'ON' buttons, a color dropdown set to 'Red/Green/Blue/White', and a small color swatch.

**Network Configuration tab of the PixCon16 configuration**

The first tab of the Pixcon 16 configuration screen allows you to change the name of the board (can be accessed on all tabs), various network IP settings, as well as the Auxiliary DMX ports available on the board. There is also a section that allows the board to be put into test mode.

You should set the *name* of the board to something meaningful to you. For example, if this particular controller is used for a tree, you may want to name it 'Pixel Mega Tree' or the like.

The IP address section allows you to change if the board is to use a Static or a Dynamic IP address. If you are familiar with IP addressing, it is recommended that you use a static address. Using a Dynamic (DHCP) IP address is best if you will eventually run in LOR mode.

*To set a static address*, select static and then type in the IPV4 address you would like for the board, as well as the Subnet Mask. The address should be in the same range as the computer you are currently using to configure the board. The subnet mask should match the computer's as well. If you change the address to one that is not within the range of your local LAN, the board may 'disappear'. In that case you should reset the board to factory settings, search again for the board, and attempt to reconfigure it again.

*Mode of Operation:* The PixCon16 can be run in 2 different modes -> As an E1.31 controller on an Ethernet network, or as an LOR device on an LOR RS485 network. To run the board as an LOR device, select the check box labeled 'J3/J4 (DMX #1) are LOR RS485 Network IN/OUT, not DMX [use board in LOR mode]'. Be sure to also move the jumpers on the board from the ESTA side to the LOR side near J4.

*The Auxiliary DMX Ports* section allows you to enable/disable the 4 DMX ports available on the board, as well as assign the universe each will control. These ports act as a bridge between E1.31 and a DMX universe. By using one or more of these ports, you can eliminate the use of one or more USB DMX adapters. These ports are not active when using the board in LOR mode.

*The Test Mode* section allows you to put your PixCon16 into test mode. This is the same mode that is described in the PixCon16 hardware manual, except when run from the PixCon16 configuration program, a new test that allows for a custom color can also be used. This mode is not available with the hardware buttons.

### ***Pixel Port Setup (Tab 2)***

This tab allows you to set up how the 16 pixel ports behave on your Pixcon 16. For most users, simple mode should suffice. However there is an Advanced mode that allows for more control.

*Pixel Type:* The Pixcon 16 can support multiple different pixel chip-sets, depending on the firmware loaded to the board. Select your pixel's chip-set here. Most LOR pixels use the WS2801 chip-set.

*High Speed:* Some pixel chip-sets have a low and high speed. If your chip-sets supports high speed, check the box.

*Loss of Heartbeat:* Typically when a DMX device loses the DMX signal, it will reset to a known state (usually OFF). If you check this box however, the PixCon16 will continue sending the last known DMX data to each port/universe. This will basically 'freeze' all the pixels/devices into the last state they heard.

There are 2 modes available for setting up the pixel ports of a PixCon16, simple and advanced. For most users simple is all that will be needed, however for more complex configuration options please use the advanced mode. Please keep in mind that Simple Mode and Advanced Mode update separate parameters on the board and are mutually exclusive. That means if you switch from easy mode to advanced mode, (or vice versa) some or ALL of your changes may be lost.

### **Simple Mode Setup:**

Unit Name: BL 2801 U1-U16

Pixel Type: WS2801

High Speed: ☒ On loss of heartbeat, keep last state (don't turn off pixels): ☐

Port ID/Universe Configuration Options:

- Simple Configuration (selected)
- Advanced Configuration

When automatically creating address settings (in Simple or Advanced mode)...

- Pack Pixels Tightly(not recommended): ☐
- Maximum 170 Pixels per Port (selected)
- Maximum 340 Pixels per Port

Simple Settings:

Settings are automatically applied to all ports. To update ports individually, select 'Advanced Configuration'

Starting Universe of Board: 1 Triplet Channel Order: RGB

Number of Nodes (pixels) per port: 170

	Start Univ	Start Chan	+ # Pixels	= End Univ	End Chan	Triplet Order	# Null Pixels
Port 1	1	1	170	1	510	RGB	0
Port 2	2	1	170	2	510	RGB	0
Port 3	3	1	170	3	510	RGB	0
Port 4	4	1	170	4	510	RGB	0
Port 5	5	1	170	5	510	RGB	0
Port 6	6	1	170	6	510	RGB	0
Port 7	7	1	170	7	510	RGB	0
Port 8	8	1	170	8	510	RGB	0
Port 9	9	1	170	9	510	RGB	0
Port 10	10	1	170	10	510	RGB	0

Board Config Loaded

Pixel Port Setup in Simple Configuration mode

*Pack Pixels Tightly***Notes about addressing using the Pixcon 16 in *simple* mode:**

The pixel ports on the PixCon16 can be automatically configured using two different schemes, either 'Unpacked' or 'Pack Tightly'.

Unpacked is self explanatory. Each port will be assigned a sequential Universe/Unit ID, starting with the Universe/UID specified for port 1, and continuing for all 16 ports. This mode may be most familiar to those people who have used Cosmic Color controllers previously. For example, the Cosmic Color Bulb or Cosmic Color Pixel controller can be configured in 'Dual Normal' mode. That means string 1 is controlled with the UnitID specified, and string 2 is controller with the next higher unit ID. In the 'One ID per Port' mode, each string will have a sequential Unit ID number based on the first ports Unit ID.

The Plxcon16 can also minimize the number of universes/unit IDs and channels/circuits required to run your RGB nodes. This mode is called 'Pack Tightly' or 'Packed Pixels'. In the typical configuration, each port on the PixCon16 will have 50 pixels, and the starting channel for the board would be 1. That would mean that port 1 consumes 150 channels from 1-150, port 2 would be 151-300, port 3 would be 301-450, all on the same starting universe. At port 4, the PixCon16 will continue to assign FULL pixels until it runs out of channels. In this case it will assign 20 pixels (Channels 451-510). While there are 2

channels left (511 and 512), that is not enough for a FULL pixel. The PixCon16 will then assume that the next pixel will start with channel 1 on the NEXT universe. It will assign 30 more pixels (since there are 50 on a string), and end with channel 90 on that next universe. Addressing like this will continue for the entire board if desired. If you wish to use a different scheme, please use the advanced mode.

These addressing notes apply to using the board in both LOR mode and E1.31 DMX mode.

#### **Notes about addressing using the Pixcon 16 in *advanced* mode:**

In the advanced mode, you are responsible for all addressing and ensuring that addresses do not overlap, etc. There are several options that are available when editing a port to set the addresses or parameters of other ports.

*Maximum 170/340 pixels per port:* The PixCon16 can support up to 340 pixels per port in DMX (not LOR) mode. If you are going to use more than 170 pixels per port, please change this setting to 340. Note that you can set the pixels per port to 340 even if you are using LESS than 170 pixels. Doing so will change how the ports are addressed, so care must be taken to ensure that you have the correct settings.

*Starting Universe/Unit ID of Board:* Select the universe that this board should start at. The first pixel port will be this address, and then each higher universe will be incremented from this value, depending on the addressing mode selected. If you did not select 'Packed Tightly' then each port will get one or two IDs depending on the max 170/340 selection. If you selected 'Packed Pixels' the Unit/Universe will be dependent on the starting channel as well as the number of pixels. For example, setting the starting universe to 5 (with 170 pixels on a port, starting channel 1) means that port 1 will be universe 5, port 2 will be universe 6, all the way up to port 16 which will be universe 20 when using 170 pixels per port.

*Number of Nodes (Pixels) per port:* This is the number of physical pixels that are attached to each physical port on the board.

*Triplet Order:* If the strings that you are using are not in RGB order, you can change it here. In general most strings are RGB and you should not need to change this.

*Port Table:* The Port Table will be updated each time you make a change showing how each physical port will be configured. In simple mode, this table is read only.

#### **Advanced Mode Setup:**

LOR PixCon 16 Configuration (192.168.1.252)

Unit Name: BL 2801 U1-U16

Network Configuration | **Pixel Port Setup** | Misc

Board Setup  
Pixel Type: WS2801 ☒ High Speed ☐ On loss of heartbeat, keep last state (don't turn off pixels)

Port Unit ID/Universe Configuration Options  
☐ Simple Configuration ☒ Advanced Configuration  
☐ Pack Pixels Tightly(not recommended)  
☒ Maximum 170 Pixels per Port ☐ Maximum 340 Pixels per Port

When automatically creating address settings (in Simple or Advanced mode)...

	Start Univ	Start Chan	+ # Pixels	= End Univ	End Chan	Triplet Order	# Null Pixels
Port 1	1	1	170	1	510	RGB	0
Port 2	2	1	170	2	510	RGB	0
Port 3	3	1	170	3	510	RGB	0
Port 4	4	1	170	4	510	RGB	0
Port 5	5	1	170	5	510	RGB	0
Port 6	6	1	170	6	510	RGB	0
Port 7	7	1	170	7	510	RGB	0
Port 8	8	1	170	8	510	RGB	0
Port 9	9	1	170	9	510	RGB	0
Port 10	10	1	170	10	510	RGB	0
Port 11	11	1	170	11	510	RGB	0
Port 12	12	1	170	12	510	RGB	0
Port 13	13	1	170	13	510	RGB	0
Port 14	14	1	170	14	510	RGB	0
Port 15	15	1	170	15	510	RGB	0
...	...	...	...	...	...	...	...

Board Config Loaded

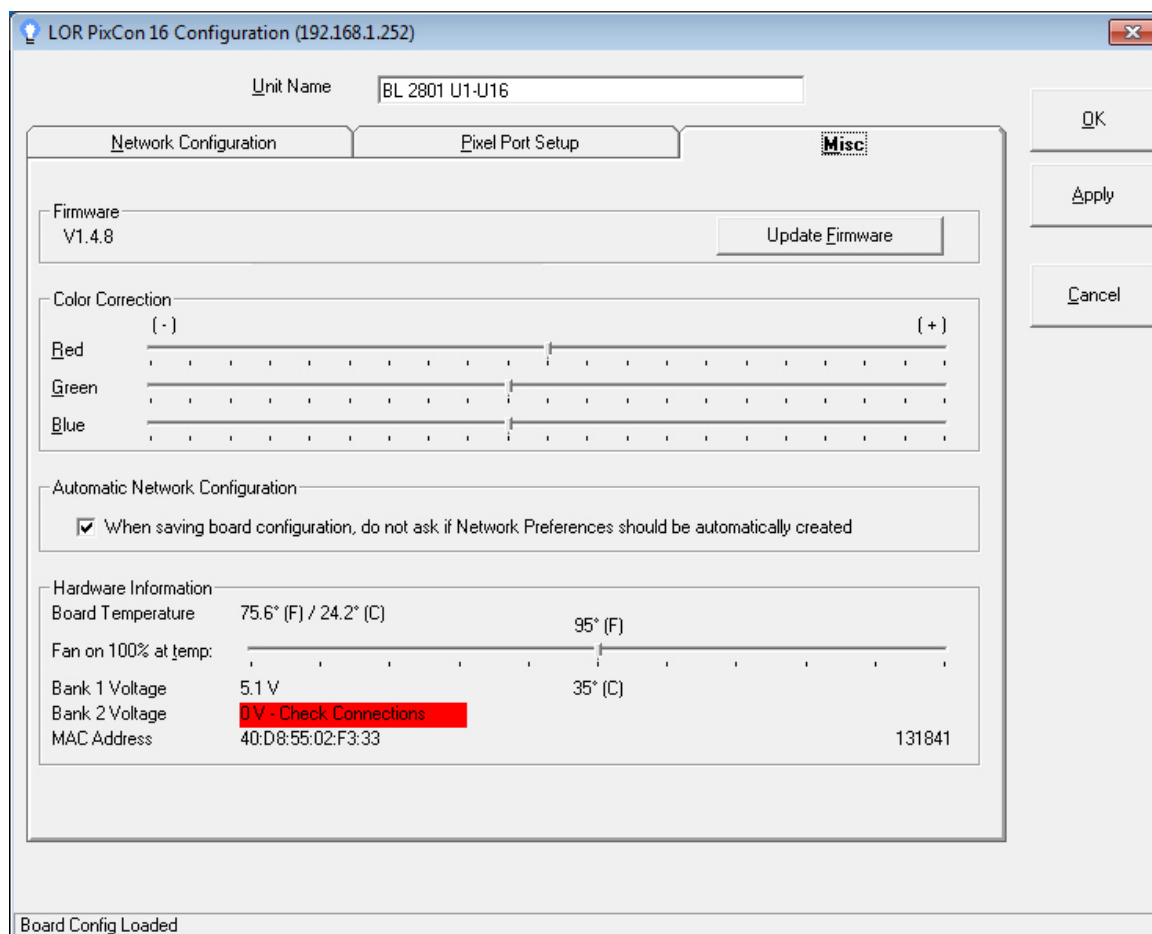
OK  
Apply  
Cancel

**Pixel Port Setup in Advanced Configuration mode**

The table shows the settings of each port of the PixCon16. Scroll the list down to see higher ports, and scroll the list to the right to see additional settings. Clicking on a port will bring up the [advanced port configuration screen](#) for that port.

### Misc (Tab 3)

The miscellaneous tab allows you to update the firmware on the board, change the color curves, and set up the aux power port to power a fan or other cooling device.



#### Misc PixCon16 settings

#### Firmware Update:

To update the firmware, press the Update Firmware button. You will then be asked for the location of an LOR PixCon16 Firmware File. To ensure you have the latest firmware available, please check the Light-O-Rama website and download the latest available.

Once you have selected the correct file, the firmware update process will start. The process is typically safe to perform, however we recommend that you do not update firmware unless you are addressing a known problem, or need to add some new functionality that a new firmware offers.

When updating the firmware of a PixCon16, the power and status lights will flash on/off in different patterns. Please do not power off the board while the update is in progress. If you are unsure if the update was applied properly or not, wait a few minutes and then observe the power and status lights. This will give the board enough time to reboot and stabilize. Also, pay attention to any instructions that may be shown on your screen.

Should the update process fail, the board could be in one of several states after the failure:

- If the status light is blinking and the power light is solid, this typically means the update was successful. However, it could also mean the board did not receive or it did not properly start the update process.

- If the power and status lights are alternating, then the board is currently in the boot-loader mode.
- If the power light is ON but the status light is OFF there was a problem with the firmware update.

In all cases after allowing the board to sit for a few minutes, power it off then back on. The board should return to normal operation at that time. If not, please refer to the hardware manual of the PixCon16 for additional troubleshooting information.

The PixCon16 will only operate and be able to be updated by Light-O-Rama signed firmware. No other companies firmware can be used on the board.

### **Automatic Network Configuration**

When saving the configuration of a PixCon16, the program can also [optionally create all of the entries needed in the DMX Configuration of Network Preferences using Multi-Cast settings](#). However you may have already set up proper parameters for this board and don't want to be bothered again. This setting is saved with the board.

### **Color Correction ('Color Curving')**

These sliders allow you to adjust the relative amount of power supplied to each channel of a triplet attached to the 16 pixel ports of the board. Color Correction is typically used so that pixels attached to this board can be adjusted to more closely match pixels on other boards. Please note that this setting is for the entire board and not per port. Use the sliders to increase or decrease the amount of 'color' for each component.

### **Fan Percentage**

A fully populated PixCon16 can draw a significant amount of power and needs to be properly cooled. To help with this, the Pixcon 16 can automatically regulate power to the accessory power connector based on the temperature the board is currently sensing. The slider here will control when the power is at 100% based at what the current temperature is. You should consider the amount of load on your PixCon16 as well as the typical ambient temperature of your installation.

### ***Automatic configuration of network preferences for DMX/E1.31***

When you press the OK button and have configured the PixCon16 to use DMX/E1.31 you will be asked if you would like to automatically create the necessary Network Preferences entries. If you select yes, the program will automatically determine all of the universes that this board will use and then create the correct multi-cast entries in the DMX tab of LOR Network Preferences. The system will warn you if there are already conflicting settings present and allow you to opt-out of the changes.

The program will only create Multicast entries for the universes in use. If you would rather use the boards Unicast address, you will need to edit the entries created and specify the static IP address of the board. If you are not an expert in IP addressing, you may wish to leave the boards in multicast mode.



## 5.10.1.2.1 Advanced Port Configuration

The Advanced Port Configuration screen allows you to change many parameters on a port-by-port basis.

**LOR PixCon16 Port 7 Settings**

**Addressing**

Starting Universe of Port: 7      Number of Nodes (pixels) per UNIVERSE or Unit ID: 170

Starting Channel of Port: 1

(End of Port - Universe 7 Channel 510)

**Port Parameters**

Number of Null Pixels: 0      Max Intensity: 100 %

Number of Zig Zags: 0      Triplet Channel Order: RGB

Group: 1      ☐ Reversed node order (highest pixel is nearest controller)

**Update Options**

☐ Set Port Parameters on all ports the same as this one      ☐ Automatically compute Addresses of all ports after this one

OK      Cancel

#### Advanced Port Configuration

*Starting Universe of Port*, *Number of Nodes (Pixels)*, and *Triplet Channel Order* work nearly the same as they do on the [simple configuration](#) with the exception that they only affect the selected port, not the whole board.

*Starting Channel of Port*: Setting this allows for a port to start at a channel other than 1. Please note that it is best to leave the starting channel for a port at 1 to reduce confusion.

*Number of Null Pixels*: Most pixel strings have a limit on the length of wire between any 2 pixels. This is because each pixel 'regenerates' the signal for the next pixel in line. However, there may be instances where the distance to your first pixel exceeds this length. In this case, null pixels can be used between the board and the first 'real' pixel on the string. The only thing these NULL pixels do is regenerate the signal. They do not consume any channels or light up. Select the number of those null pixels here.

*Number of Zig-Zags*: For some uses, it is much more efficient to continue to use pixels in reverse order. For example, you may create a left-to-right matrix that is 10 pixels wide by 17 pixels tall. The first row of pixels would be 1-10 from left to right. However, the most efficient way to build the next line is from right to left. Doing that will put pixel 11 under pixel 10, not on the left side as expected. Selecting the number of Zig Zags allows the Pixcon 16 to internally re-map those pixels so while physically it may be pixel 20 that is on the left, numerically it is #11.

*Group*: If you like, you can group one or more nodes into a single pixel. For example, if you set the group to 2, then every 2 nodes will act identically.

*Max Intensity*: DMX uses values of 0-255 to set an intensity. Setting a channel to 255 will tell the light

to turn on at 100%. This field however lets you limit that at the port level. For example, perhaps the pixels attached to this port are brighter than your other pixels. You can adjust the Max Intensity of this port lower so that it more correctly matches the other pixels.

*Reversed Node Order.* Typically, the lowest number pixel is the closest to the controller. Selecting this option reverses that. When selected the HIGHEST pixel is now closest to the controller.

#### **Quickly Configuring other ports:**

There are two options available when updating the port to quickly update other ports on the same board. If neither option is selected than only this particular port will be updated when you press OK. If you select one or both, the following will occur:

- Checking 'Set Port Parameters...' and pressing OK will set all 16 ports to the same values as specified in the 'Port Parameters' - that is all ports will be updated with these parms but not any addresses.
- Checking 'Automatically compute Addresses...' and pressing ok will set this port to the address parameters specified, and then compute the correct addresses for all FOLLOWING ports, using the parameters here along with the number of nodes and if you are using 'Packed Pixels'. The ['Notes about Addressing the Pixcon 16' section](#) has more information on how addressing will happen with this option.

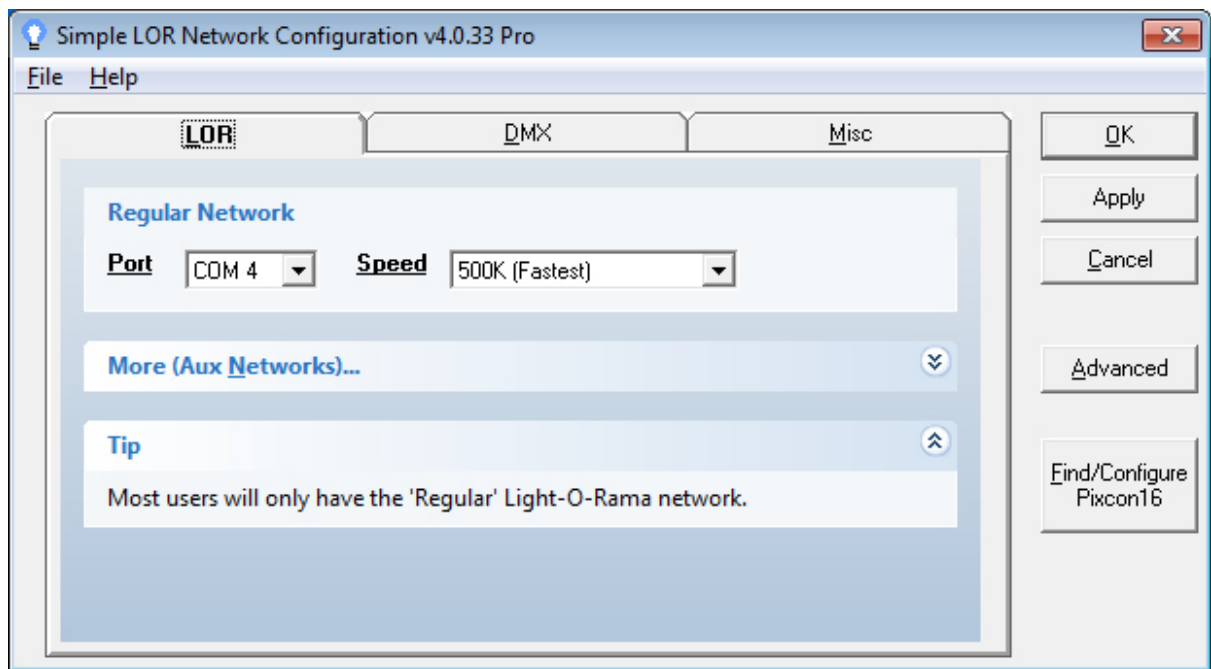
### **5.10.2 Simple Mode**

Most Light-O-Rama users will only need the Simple mode of the [Network Preferences program](#). Simple mode allows for the configuration of all sixteen [Light-O-Rama networks](#), sixteen [DMX universes](#) that use adapters (rather than E1.31), and various options.

Please note that if at any time you see a row or setting with a yellow background, that indicates that the network or universe uses advanced settings, and can only be modified using the [Advanced mode](#). If you attempt to change something that uses an advanced setting here, you will be reminded to switch to Advanced mode.

Simple mode has several different tabs:

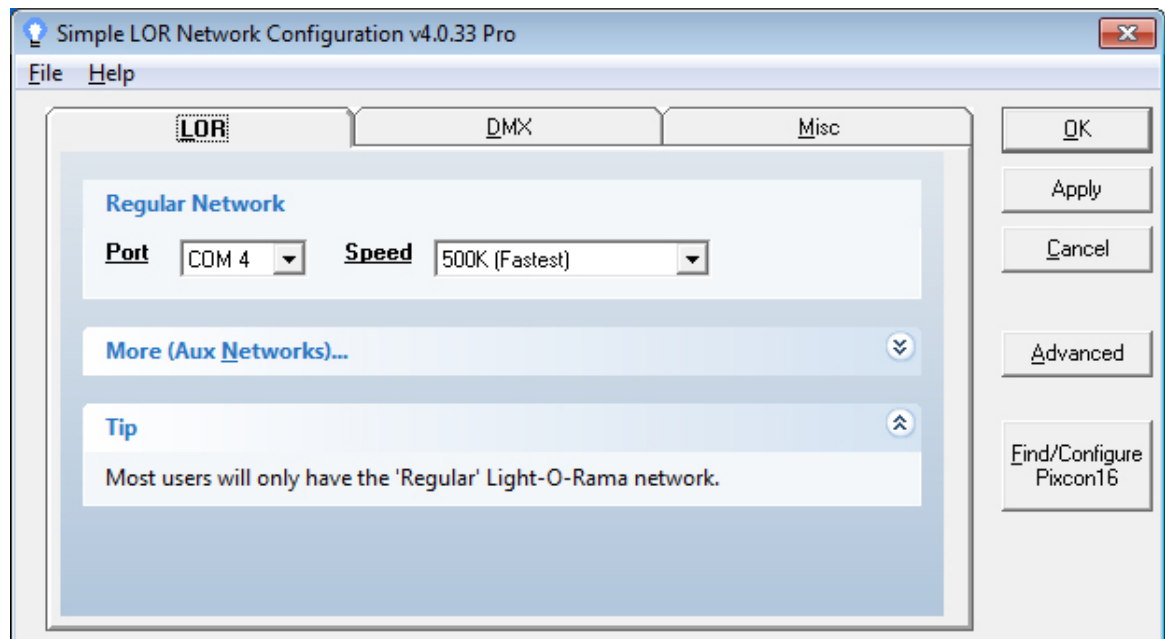
- [The LOR tab](#)
- [The DMX tab](#)
- [The Misc tab](#)
- [Find/Configure LOR PixCon16 Devices](#)



Simple mode of the Light-O-Rama Network Preferences program

#### 5.10.2.1 The LOR Tab

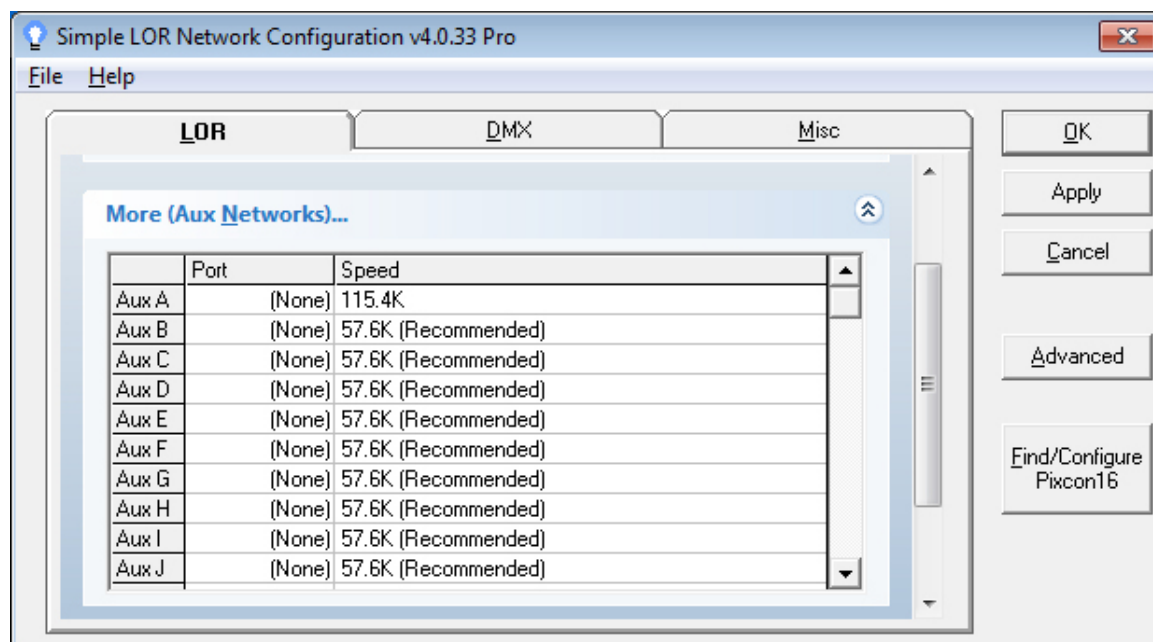
The LOR tab of [Simple mode](#) of the [Light-O-Rama Network Preference program](#) enables you to specify up to sixteen different [networks](#) for [Light-O-Rama controllers](#), each using a different serial port. The communications speed of each network can be set independently. Many users will only ever require a single network, referred to as the "Regular Network". You can quickly configure the Regular network using the two dropdown boxes: [Port](#) and [Speed](#).



The LOR tab, showing only the Regular network

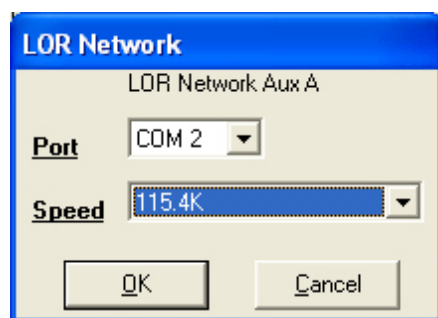
If you need to configure additional networks (referred to as "auxiliary networks" or "Aux networks"),

expand the second section (entitled "More (Aux Networks)"). Here you will be presented a list of all available auxiliary networks:



The Aux networks

Clicking on any row in the list of auxiliary networks will bring up a dialog box allowing you to set the [port](#) and [speed](#) for that particular network:



The Aux network configuration dialog

If you need to set a network up to be an [enhanced network](#), use [Advanced Mode](#) (by clicking on the "Advanced" button).

## Serial Ports ("Port")

In the dropdown box for each [Light-O-Rama network](#) that you wish to configure, chose the serial port that you wish to use for that network. Make sure that they do not conflict with each other, or with the [Dasher port](#), [X10 port](#), or [DMX adapters](#).

If you do not want to use all possible networks, you can simply set the adapters for some of them to "(None)". Using only a single Light-O-Rama network is perfectly sufficient for the needs of many users.

## Connection Speed ("Speed")

Light-O-Rama can communicate with [Light-O-Rama controllers](#) using various communication speeds.

These speeds can be set independently for each Light-O-Rama network:

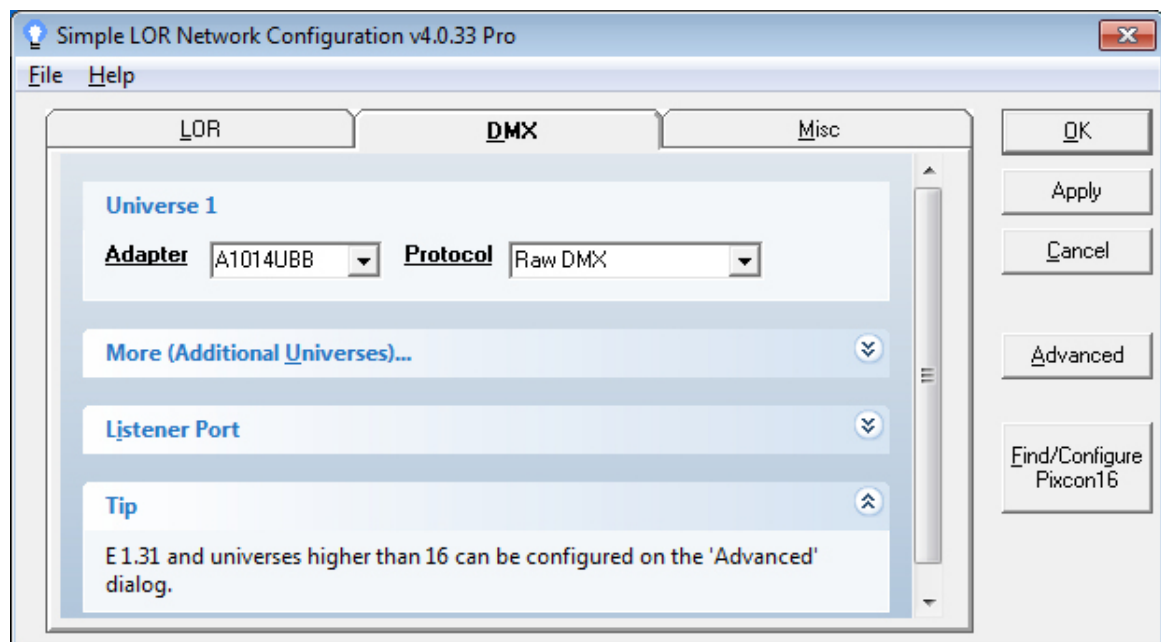
- If you do not have extraordinary needs, "57.6K (Recommended)" is suggested.
- If you have controllers that are hooked up to your computer using a very long or poor quality communications cable, you may need to set the speed to "19.2K (Slowest)".
- If you have many circuits with very fast action, you may need to set the speed to "115.4K", or even "500K (Fastest)". Note that these settings are not supported if you are using Light-O-Rama Easy Light Linkers for wireless communications, and that 500K is currently supported only on G3 controllers, Cosmic Color Ribbons, Cosmic Color Bulbs, Cosmic Color Pixels, and the Pixcon 16. You may also have to upgrade your firmware to use 500K.
- If this network **ONLY** contains Pixcon 16 controllers running on an Enhanced LOR Network, you may select 1000K. 1000K speed can be selected in ['Advanced' mode](#).

## Comments

Use the comment field as you see fit for notes/etc.

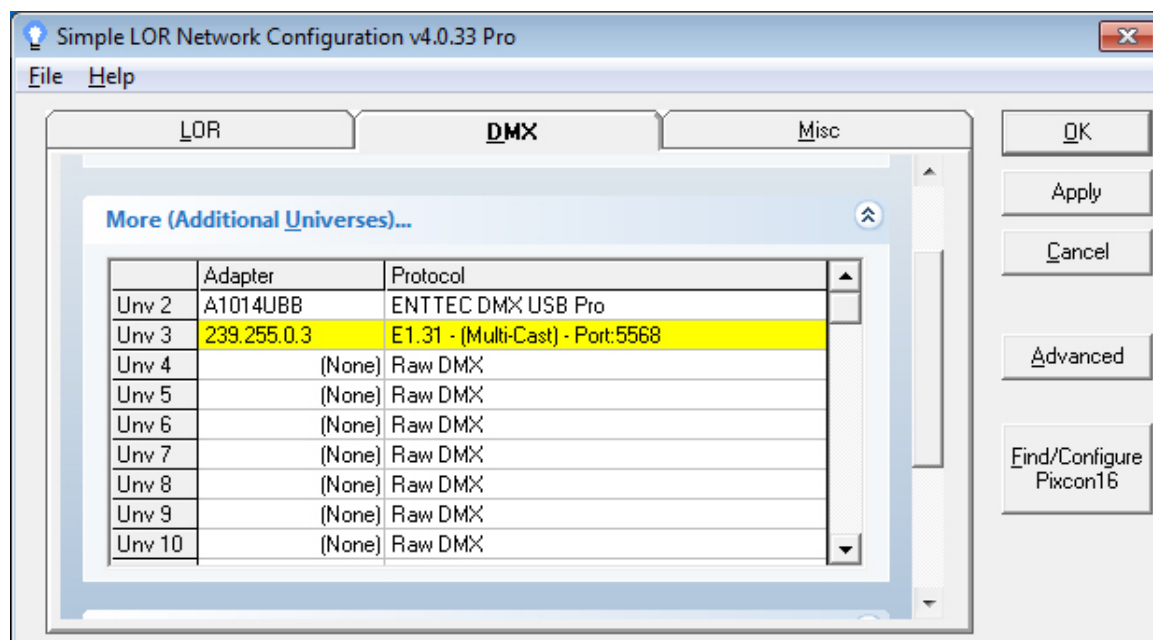
### 5.10.2.2 The DMX Tab

The DMX tab of the [Simple mode](#) of the [Light-O-Rama Network Preferences program](#) can be used to specify up to sixteen different [DMX universes](#), each using a separate adapter (to configure more universes, or universes that use E1.31 instead of adapters, you will need to use [Advanced mode](#) instead of Simple mode). The protocol used for each universe can be individually specified as well. Many users will not use DMX, and many of those who do will only require a single DMX universe (typically universe 1), and so by default only universe 1 is shown:



The DMX tab, showing only universe 1.

To configure additional universes (numbers 2 through 16), expand the "More (Additional Universes)" section of the tab:



The DMX tab, showing additional universes

For each universe, the Network Preferences program presents a dropdown list of adapters available on the system. Note that the Network Preferences program cannot detect adapters that are currently in use. For example, if you have an LOR USB485 adapter that is currently assigned to an [LOR network](#), and you wish to assign it to a DMX universe instead, you will first need to unassign it from the LOR network before it can be reassigned for the DMX universe. Furthermore, you may need to stop and restart the [Sequencer](#), [Hardware Utility](#), and/or [Show Player](#) before the device will be shown in the Adapter dropdown box.

A row that is highlighted in yellow (such as universe 3's row in the picture above) indicates that the universe is currently configured with advanced settings, and can only be changed using [Advanced mode](#). Clicking on any other universe's row will bring up a dialog box enabling you to set the [adapter](#) and [protocol](#). You can also set the [DMX listener port](#) by expanding the third section of the tab (labeled "Listener Port").

## DMX Adapter ("Adapter")

Each DMX universe (other than those that use E1.31, which are configured using [Advanced mode](#)) must be assigned to a DMX adapter, such as the LOR USB485 or the ENTTEC Open DMX USB adapter. Each adapter can be assigned to only one universe. If you are attempting to reassign an adapter, you may need to stop and restart various programs in the LOR suite. See earlier on this page for details.

Note that there are different types of DMX protocols that can be used. Please be sure to [select the correct protocol for your adapter](#).

## DMX Protocol ("Protocol")

Different [DMX adapters](#) use different protocols. You must specify the correct protocol for the DMX adapter you wish to use:

Adapter Type	Protocol
DMXKing UltraDMX Micro	ENTTEC DMX USB Pro
DMXKing UltraDMX RDM Pro	ENTTEC DMX USB Pro
ENTTEC DMX USB Pro	ENTTEC DMX USB Pro
ENTTEC Open DMX USB*	Raw DMX
*: Some old ENTTEC Open devices, built in approximately 2008 or earlier, may not be supported	
LOR USB485	Raw DMX
LOR USB485B	Raw DMX
LOR USB485-ISO	Raw DMX
Lynx	Lynx

Other types of adapters may or may not work with LOR software. If they do, you may need to experiment to find the correct protocol to use.

## DMX Listener Port ("Listener Port")

This section can be used to configure the port that the [LOR Comm Listener](#) will listen on for lighting commands to be sent to DMX devices. The default port of 8837 should work for nearly all users, but can be changed here if needed.

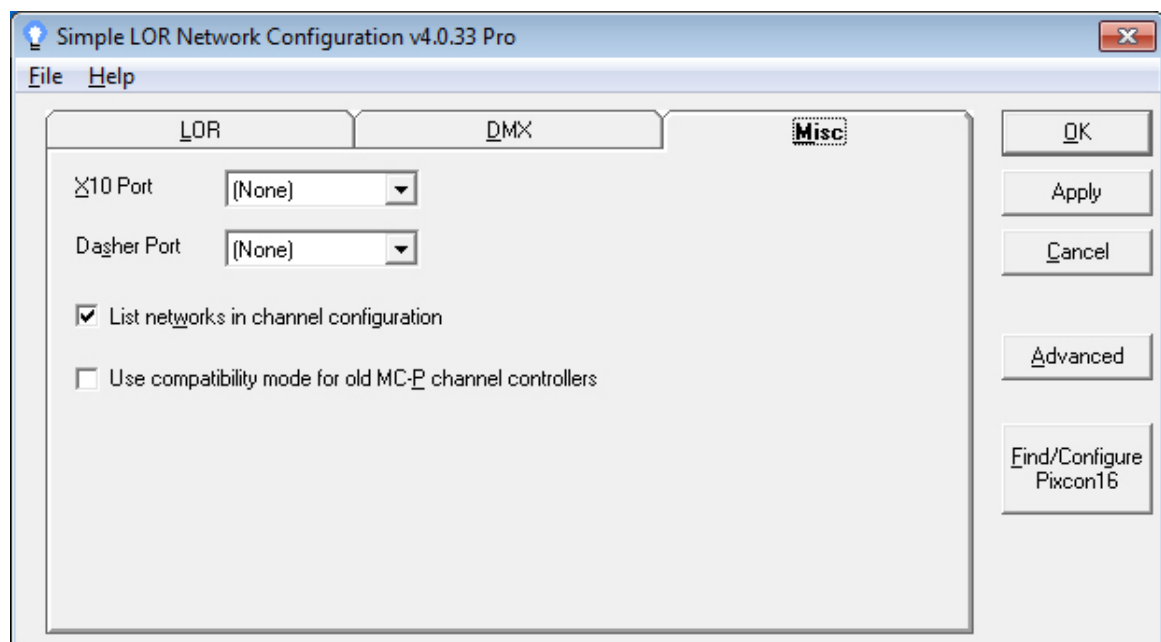
If you set the port to 0, the Comm Listener will be disabled, and lighting commands will not be sent to your DMX devices.

## Comments

Use the comment field as you see fit for notes/etc.

### 5.10.2.3 The Misc Tab

The Misc tab of the [Simple mode](#) of the [Light-O-Rama Network Preferences program](#) enables you to configure a [Dasher network](#) and/or an [X10 network](#), along with general communications options. Most Light-O-Rama users will not have need for this tab.



The Misc tab

## X10 Port

No longer used.

## Dasher Port

No longer used.

## List Networks in Channel Configuration

No longer used.

## Use Compatibility Mode for Old MC-P Channel Controllers

If you are using Light-O-Rama MC-P controllers purchased prior to November 15, 2003, they you should enable Old MC-P compatibility mode by checking this box. If you do not check this box, then you will see odd behavior on [circuits](#) 9 through 16 of such controllers.

Old MC-P compatibility mode only affects controllers on the Regular LOR network; those on Aux networks are unaffected. Therefore, make sure to put all such controllers on your Regular network.

**NOTE: Enabling Old MC-P compatibility mode may have a significant effect on communications speed for the regular network.** It is therefore strongly recommended that you do not enable it without reason, and that if you do enable it, you should consider moving any other Light-O-Rama controllers (which do not need Old MC-P compatibility mode) off of the Regular network, and onto one or more auxiliary networks.



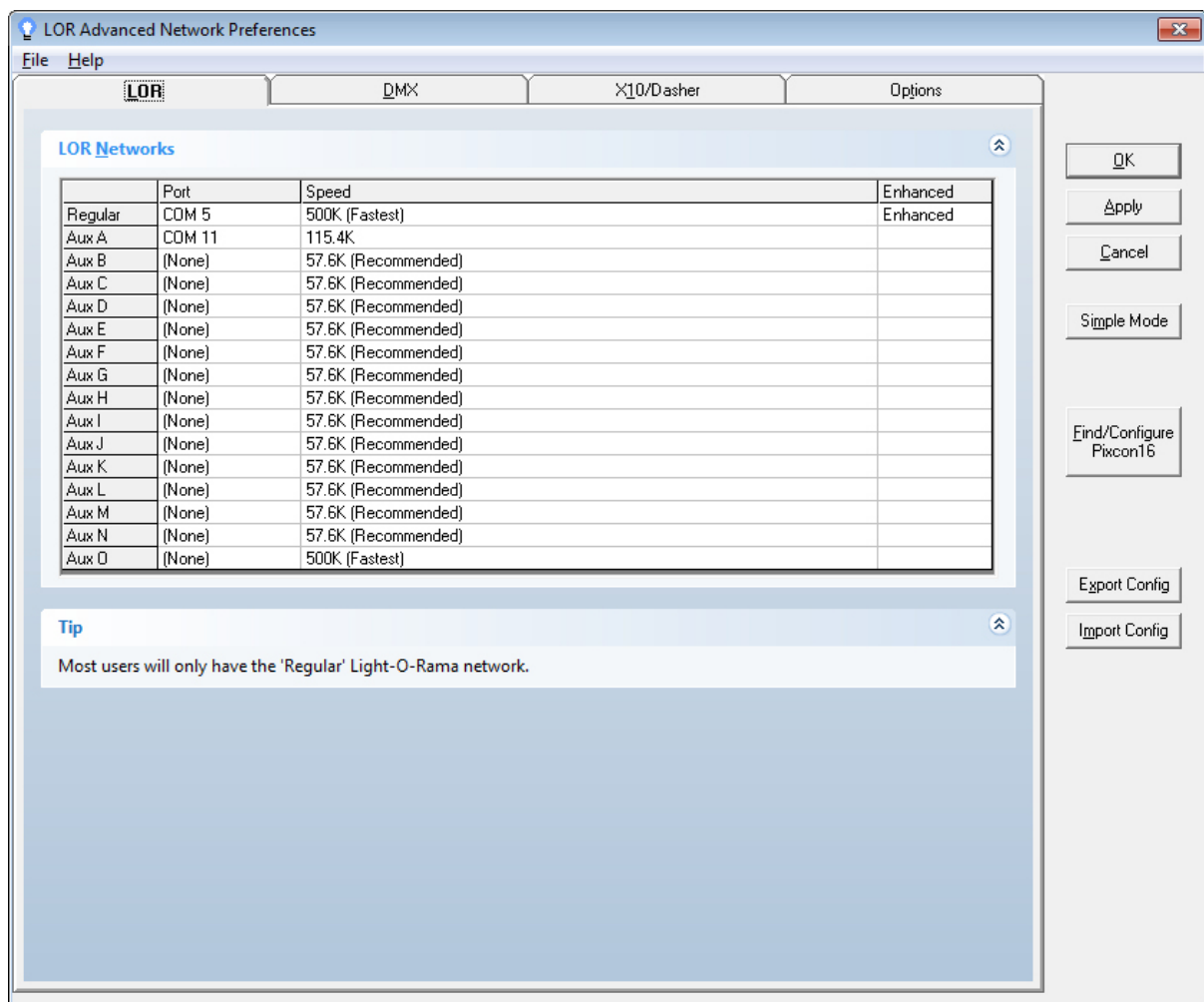
### 5.10.3 Advanced Mode

Most users' network configuration settings can be handled using the [Simple mode](#) of the [Network Preferences program](#). However, for certain types of configuration, the Advanced mode is required. These types include having more than sixteen [DMX universes](#), and having DMX universes that use E1.31 instead of adapters. The Advanced mode also supports all of the same options that Simple mode does, so even if you do not need any advanced configuration options, you may still find that you prefer to use Advanced mode.

If at any time you are in Simple mode and see a device or port that is shown in yellow, that means that it is currently using advanced configuration options and can only be modified from Advanced mode.

Advanced mode has several different tabs and options:

- [The LOR tab](#)
- [The DMX tab](#)
- [The Misc tab](#)
- [Find/Configure LOR PixCon16 Devices](#)
- [Export/Import configuration](#)



Advanced Network Preferences with Find/Configure LOR E1.31 devices button.

#### 5.10.3.1 Export/Import

The Advanced and Pro versions of the software can export/import your entire network configuration to a file. This is useful if you would like to have multiple different configurations available, or if you use the software on multiple machines and want to move the configuration between them.

The Import/Export function works on ALL the parameters that can be changed in the Network Configuration program. This includes not only actual network configurations, but also things like X10 and Dasher networks, MCP Compatibility mode, etc.

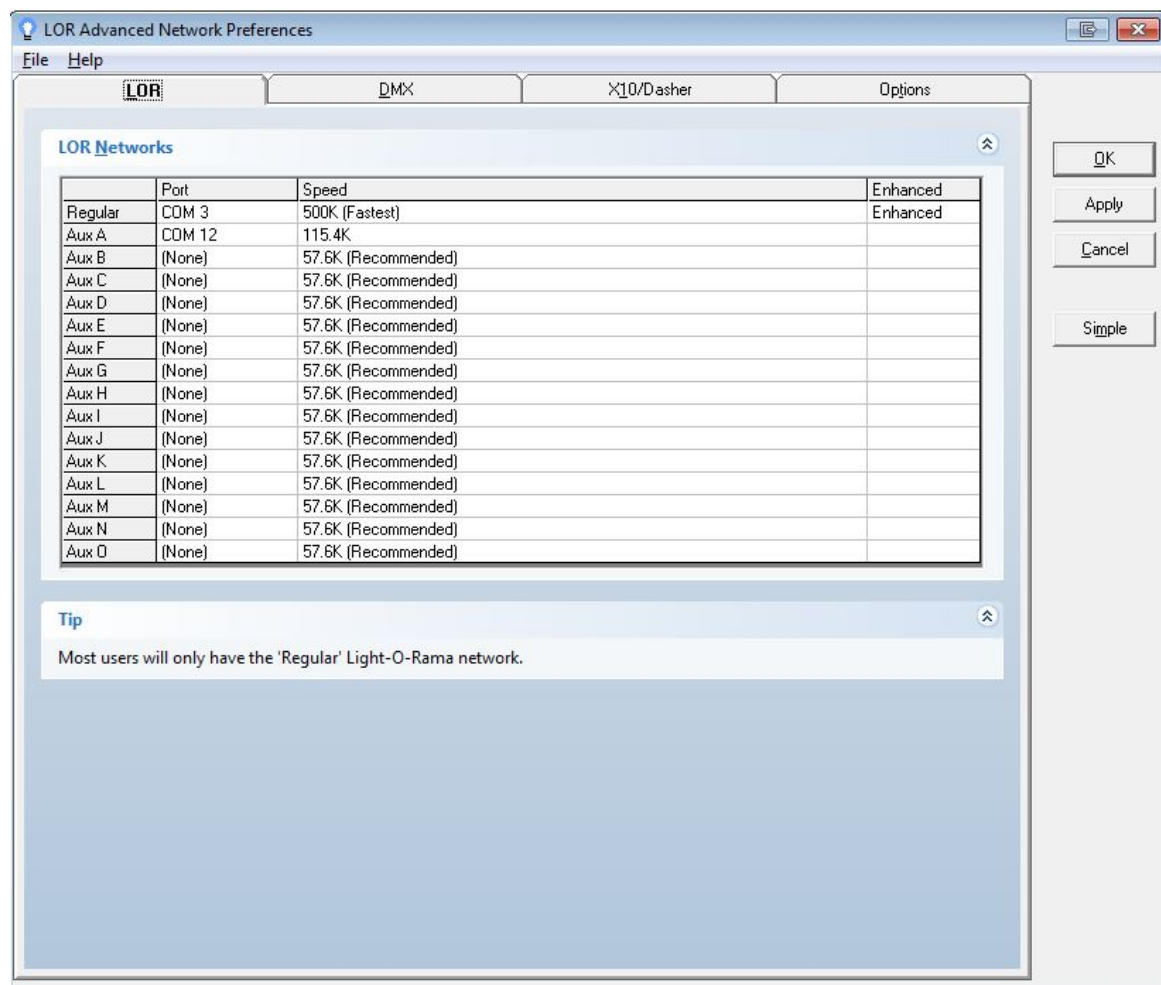
Please be careful when importing a network configuration from another computer. While the hardware and software give a best-effort to configure themselves the same way across physical machines, that is not guaranteed. This is especially true of COM port settings, and IP addresses. After importing a configuration, you should always check all values to ensure they are correct.

To export your configuration, press the Export button and give the file a name. The exported files are normally saved in the LOR Data path under "Network\SavedConfigurations". An exported file will have the .LIV extension.

To import a configuration, press the Import button and select the configuration to import.

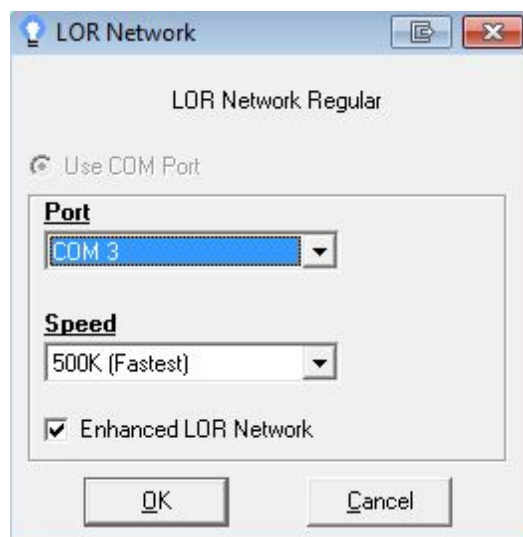
#### 5.10.3.2 The LOR Tab

The LOR tab of the [Advanced mode](#) of the [Light-O-Rama Network Preferences program](#) presents a list of all sixteen available [Light-O-Rama networks](#), including the Regular network and all of the auxiliary networks (Aux A through Aux O):



The LOR tab in Advanced mode

Clicking on any row will bring up a dialog box allowing you to set the port and speed for that particular network, as well as choosing whether or not the network should be an [enhanced network](#):



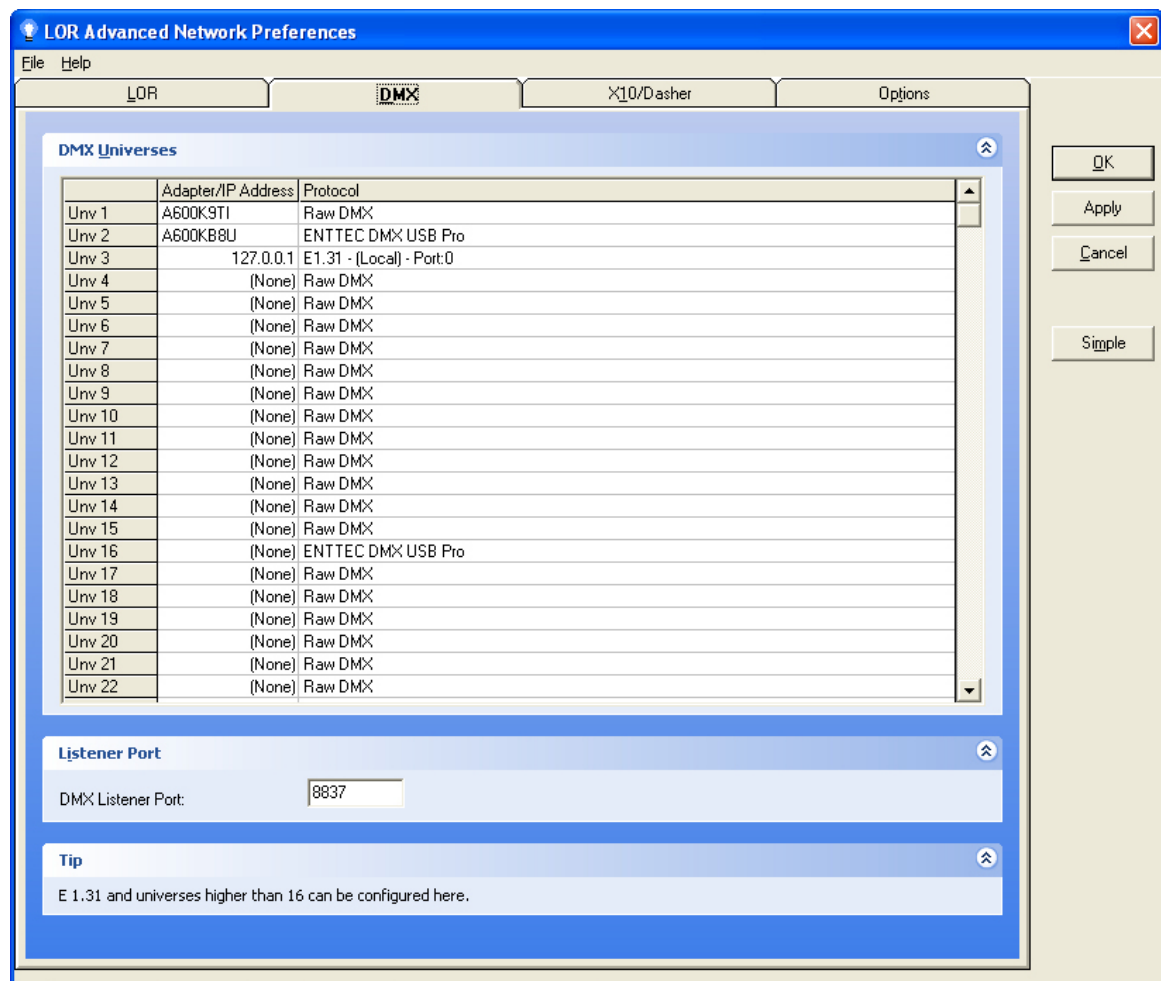
Configuration for an LOR network

Please refer to the Simple mode's documentation for further details on [port](#), [speed](#), and [comments](#).

### 5.10.3.3 The DMX Tab

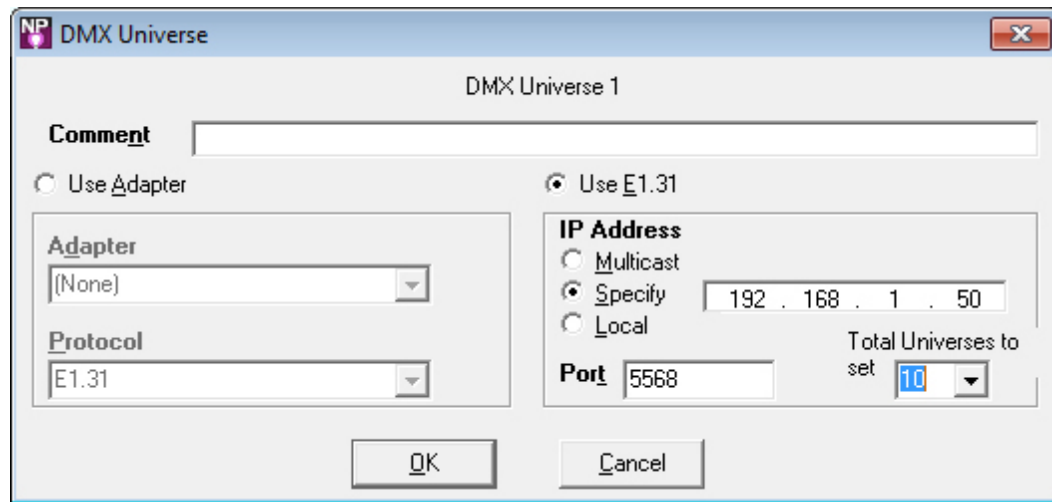
The DMX tab of the [Advanced mode](#) of the [Light-O-Rama Network Preferences program](#) can be used to configure up to 999 separate [DMX universes](#), each using a separate adapter or E1.31 address (although please note that the software and your computer may not be able to adequately drive nearly that many universes simultaneously). For DMX universes that use an adapter, [the adapter and the protocol](#) used on each can be specified; for those using E1.31, [the remote IP address and port can be specified](#). You can also use this tab to specify the [COMM listener port](#).

Note that the DMX tab can also be used in [Simple mode](#), but Advanced mode is required to configure universes beyond number 16, and also to configure E1.31 universes.



The DMX tab in advanced mode

To configure a particular universe, click on its row in the list. You will then be presented with the Advanced DMX Universe Configuration dialog, which has two main options - "[Use Adapter](#)" and "[Use E1.31](#)":



The Advanced DMX Universe Configuration dialog

## Use Adapter

If you select "Use Adapter", you will then be able to choose the adapter to use for the universe and the protocol that the adapter uses. Please refer to [Simple mode's](#) documentation on [adapters](#) and [protocols](#) for details.

## Use E1.31

If you choose "Use E1.31", you will then be able to select the IP configuration for the universe to use, by specifying the [IP address](#) and [port](#) that the E1.31-to-DMX gateway devices are listening on.

Please note that E1.31 configurations can be complex, and may require a firm grasp of networking, network topologies, and addressing. Such topics are beyond the scope of this document.

### **IP Address**

Here, you must select the type of IP address you wish to use for this universe:

- **Multicast:** Selecting this option will cause the universe to use multicast mode, allowing lighting commands for the universe to be received by multiple E1.31-to-DMX gateway devices. The actual IP address that will be used depends upon the universe number, in the manner described by the E1.31 standard. For example, universe 37 will use IP address 239.255.0.37, while universe 650 will use IP address 239.255.2.138.
- **Specify:** Selecting this option will cause the universe to use unicast mode, and lighting commands for the universe will be received by a single specific E1.31-to-DMX gateway device, using the IP address that you specify.
- **Local:** This option will cause the universe to send lighting commands to the computer itself, using the local loopback address (127.0.0.1).

### **Port**

The IP port that the remote device or devices will listen on for lighting commands should be specified

here. In most cases, the default value (5568) should be appropriate.

This should not be confused with the [DMX Listener port](#).

### **Total Universes to Set**

If you would like to set any following ports to these same parameters, simply change the value here to the total number of Universes you would like. The universe being edited along with as many additional universes following this one will have the identical settings created.

## **COMM Listener Port**

This section can be used to configure the IP port that the [Light-O-Rama Comm Listener](#) listens on for lighting commands to be delivered over DMX networks. Please refer to the [COMM Listener Port section](#) of the [Simple mode](#) documentation for details.

## **Comments**

Use the comment field as you see fit for notes/etc.

### **5.10.3.4 The Misc Tab**

The Misc tab of the [Advanced mode](#) of the [Light-O-Rama Network Preferences program](#) allows you to change various communications options. It is equivalent to the [Misc tab](#) of [Simple mode](#); please refer to that documentation for details.

## **5.11 Comm Listener**



The LOR Comm Listener is a program that runs in the background, allowing other programs (such as the [Sequencer](#) and the [Show Player](#)) to control [LOR devices](#) that are on [LOR Enhanced networks](#), and also to control [DMX devices](#). The Comm Listener must be running in order for those programs to control such devices.

The LOR Comm Listener is automatically started when the [LOR Control Panel](#) is started, unless the [license level](#) does not support it or if no [Listener port](#) is specified in [Network Preferences](#). Also, it is automatically shut down when the LOR Control Panel is shut down. So, to make sure that you can control your LOR Enhanced devices and DMX devices, make sure that the LOR Control Panel is running.

## **5.12 Hardware Utility**



The Light-O-Rama Hardware Utility is used to manage the [hardware](#) that you use to control your lights. This includes several types of controllers as well as other devices such as Light-O-Rama MP3 Directors and Light-O-Rama wireless devices.

Each of these types has a different tab in the Hardware Utility. When you start the Hardware Utility, the tab for Light-O-Rama controllers is displayed; to access one of the others, simply click its tab.

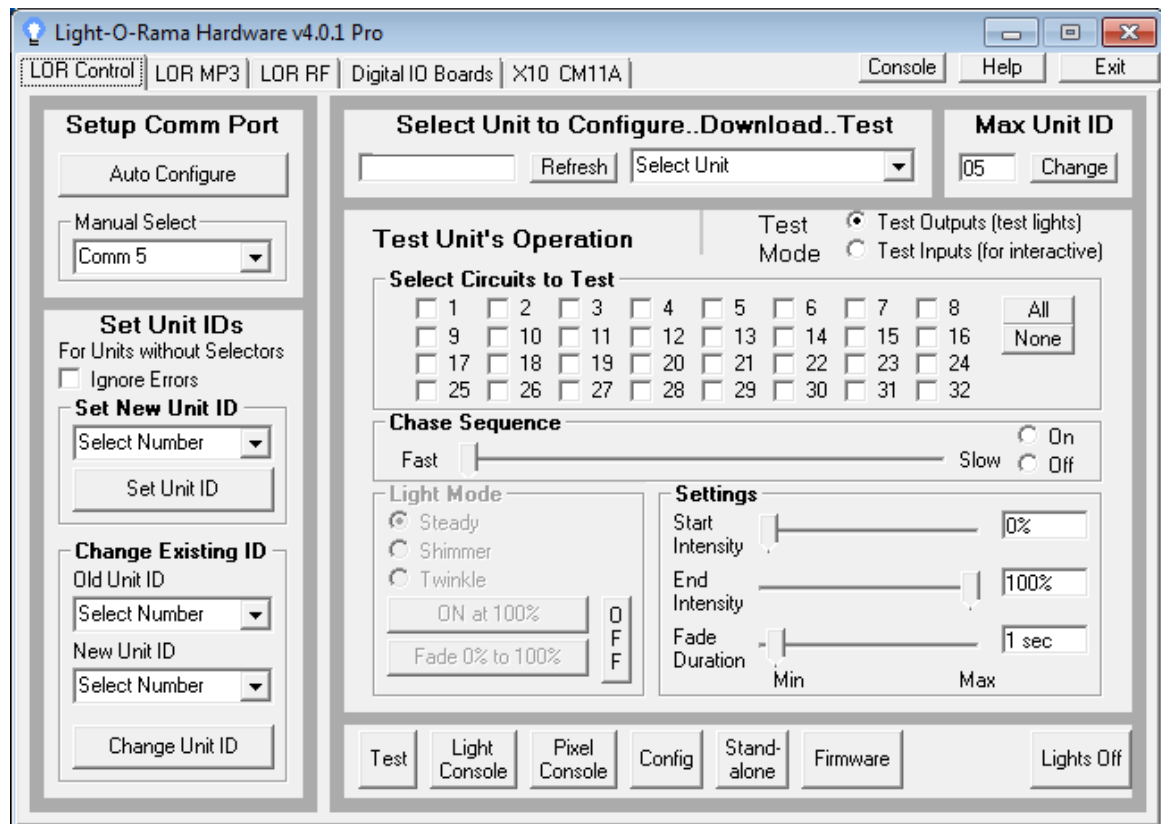
For details on each, please refer to the following sections:

- [Light-O-Rama Controllers](#)
  - [Selecting a Comm Port](#)
  - [Setting Unit IDs](#)
  - [Configuring Units](#)

- [Testing Units](#)
- [Downloading Sequences](#)
- [Firmware Update](#)
- [Light-O-Rama MP3 Directors](#)
- [Light-O-Rama Wireless Devices](#)
- [Digital IO Boards](#) (Support removed in S5)
- [X10 Controllers](#) (Support removed in S5)
- [Test Console](#)

To run the Hardware Utility, select it from your computer's Start menu (Start / Light-O-Rama / Hardware Utility) or, if the [Light-O-Rama Control Panel](#) is currently running, right-click on its icon in your computer's system tray and select "Hardware Utility" from the popup menu.

Note that support for X10 was discontinued in S5. The X10 tab and other references to X10 in the software will be removed in coming releases.



The Hardware Utility's tab for Light-O-Rama controllers

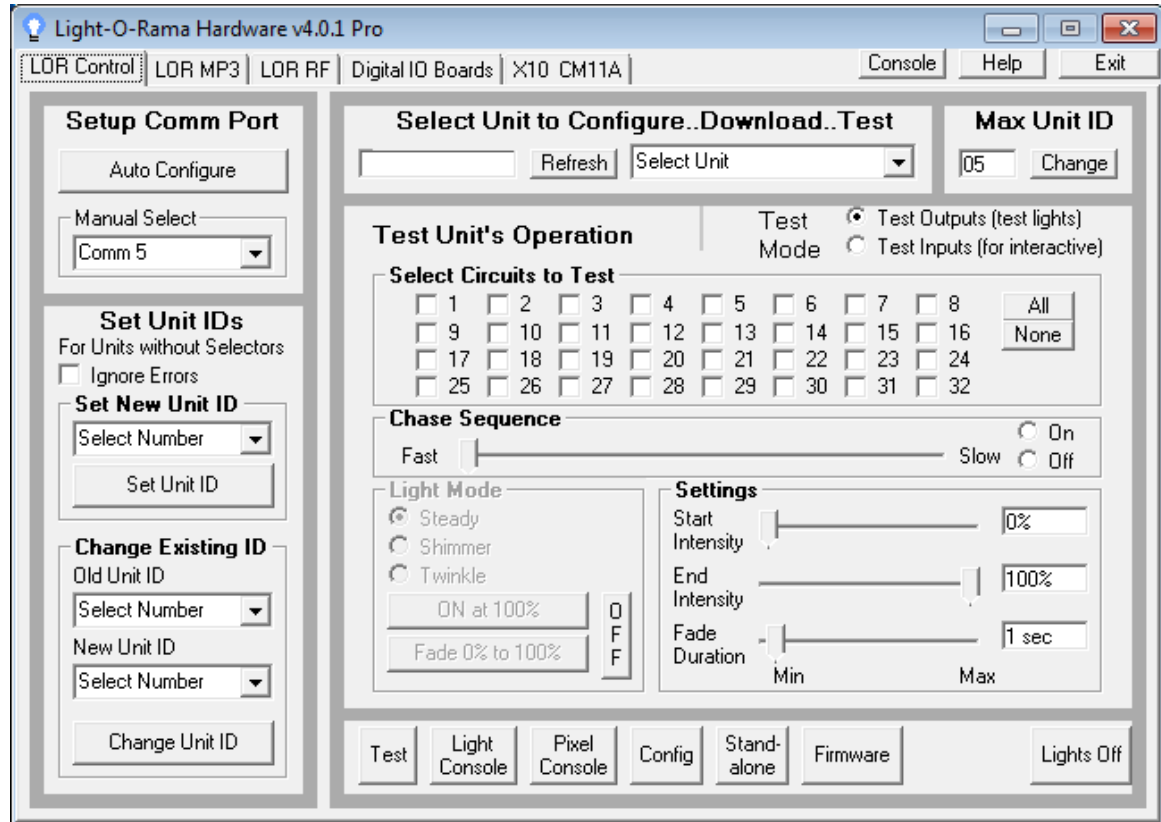
### 5.12.1 Light-O-Rama Controllers

The [Light-O-Rama Hardware Utility](#) can be used to configure and test [Light-O-Rama controllers](#) in several ways:

- [Selecting a Comm Port](#)
- [Setting Unit IDs](#)
- [Configuring Units](#)
- [Testing Units](#)
- [Downloading Sequences](#)

- [Firmware Updates](#)

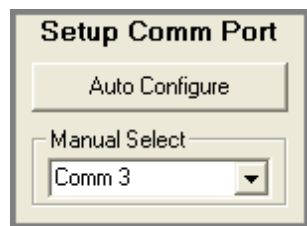
To use these, select the Hardware Utility's tab labeled "LOR Control" (it is already selected by default when the Hardware Utility is started).



The Hardware Utility's "LOR Control" tab, for configuring and testing Light-O-Rama controllers

#### 5.12.1.1 Selecting a Comm Port

The "Setup Comm Port" section of the [LOR Control tab](#) of the [Light-O-Rama Hardware Utility](#) is used to set which RS-232 comm port the Hardware Utility will use for [Light-O-Rama controllers](#).



The Setup Comm Port section

While the [Sequencer](#) and [Show Player](#) can use up to four different comm ports simultaneously for Light-O-Rama controllers, the Hardware Utility only uses one at a time. By default, it will be set to use the port you have configured to be your "Regular" port (if you have done so); see ["Network Preferences"](#) in the Sequencer for details on how to set your Light-O-Rama ports.

Only comm ports 1 through 16 are supported in the Hardware Utility.



If you know the comm port that it should be using, you can simply select it from the "Manual Select" dropdown box. If you select a port other than your "Regular" port, the Hardware Utility will offer to automatically change your "Regular" port to be the one that you selected.

If you do not know the comm port to be used, you can ask the Hardware Utility can automatically detect it:

- Connect a Light-O-Rama controller to your PC, for example using an SC485 connector or a USB-RS485 adapter.
- Connect the controller to AC power, and turn it on.
- Click on the "Auto Configure" button.

The Hardware Utility should then automatically detect the comm port that you have hooked the controller up to. If it does not:

- Check the physical connection (such as cables and the SC485 connector).
- Check that the controller's power is on.
- Ensure that switches or jumpers on the controller are correct.
- Ensure that the correct type of cable is used.
- Retry the "Auto Configure" button.

If all of the above fails to find the port, then watch the controller's blinking LED light while manually selecting different comm ports from the list. Once a comm port is selected, wait about five seconds. If the LED stops blinking, then that is the correct port. If it does not stop blinking, try the next comm port in the list.

If this still does not determine the correct comm port, there may be a problem with the connector or the controller.

If "Auto Configure" does not work, but you were able to determine the comm port by manual selection, there may be a problem with the connector. Or, if your computer is an older PC or laptop, there may be a compatibility issue with the computer's communications drivers.

In any case, if you can get the unit's LED to stop blinking, then that controller will most likely work on your PC.

#### 5.12.1.2 Setting Unit IDs

Each [Light-O-Rama controller](#) must have a unique assigned [unit ID](#), identifying this particular controller. The reason for this is that every Light-O-Rama controller in a network can see every [lighting command](#) message that is sent over the [network](#), not only the lighting commands sent for that controller. So, all of the commands contain a unit ID, and a controller only acts upon a command if the unit ID of the controller matches the unit ID of the message.

A unit ID is a two-character field. Each character can have any of the values 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, and F. For example, a unit ID might be "03", "07", "25", "37", "6B", "C8", or "DA". However, certain values are reserved, and so not allowed (specifically, "00", and "F1" through "FF").

Some Light-O-Rama controllers have selector switches that allow you to directly set their unit IDs. In that case, simply use a small screwdriver (making sure that the unit is not attached to power) to dial the switches to the desired unit ID.

Other controllers do not have selector switches. To set the unit IDs of these controllers, you can use

the [LOR Control tab](#) of the [Light-O-Rama Hardware Utility](#):

- [Connect the Unit to the Computer](#)
- [Select the Comm Port](#)
- [Set the ID of a New Unit](#)
- [Change the ID of an Existing Unit](#)
- [Troubleshooting](#)

## Connect the Unit to the Computer

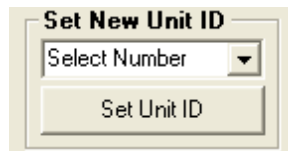
The first step in setting a [Light-O-Rama controller's unit ID](#) using the [Hardware Utility](#) is to connect the unit to the computer, for example using an SC485 adaptor or a USB-RS485 adaptor. Make sure that the selector switches are correctly set for the type of cable used (units are shipped ready to use [data cables](#)). Plug the unit into an AC outlet, and turn the unit on.

## Select the Comm Port

After you have [connected the unit](#) to the computer, [select the comm port](#) that the [Hardware Utility](#) should use to communicate with the controller.

## Set the ID of a New Unit

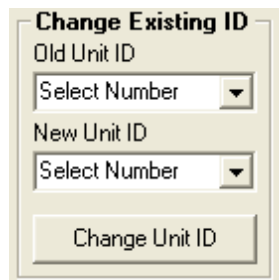
If this is a new unit that has not previously been assigned a [unit ID](#), use the "Set New Unit ID" section of the [LOR Control tab](#) of the [Hardware Utility](#). Simply select the unit ID you want to assign, and click the "Set Unit ID" button.



Setting the ID of a new unit

## Change the ID of an Existing Unit

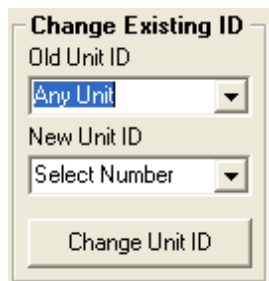
If you have previously assigned a unit ID to this unit, but want to change it, use the "Change Existing ID" section of the LOR Control tab of the Hardware Utility. Select the unit's current ID in the "Old Unit ID" list, and the unit ID that you want to change it to in the "New Unit ID" list. Finally, click the "Set Unit ID" button.



Changing a unit ID

If you do not remember the unit's current unit ID, or if the controller doesn't seem to be reacting to its

current ID, you can change it to a new unit ID by selecting "Any Unit" in the "Old Unit ID" list. However, **be very careful**. If you select "Any Unit", then *all* units that are connected to the PC will have their unit IDs changed. So, make sure that you have only the one controller (whose unit ID you wish to change) connected.



Changing a unit ID for "Any Unit"

## Troubleshooting

If, while setting a [Light-O-Rama controller's unit ID](#), you receive an error saying that the unit cannot be located, the first thing to do is to check all connections and to [make sure that the correct comm port is selected](#). If the [Hardware Utility](#) still cannot locate the unit, check the Communication LED on the unit. When the unit is disconnected from the data cable the LED should blink; when it is connected and the Hardware Utility is running with the correct comm port selected, the LED should stop blinking, turning on steady.

If the Communications LED continues to blink regardless of the steps taken, then there may be a problem with the cable, the adaptor, the controller, or the PC's comm port.

If the LED stops blinking but you still get an error when attempting to set the unit ID, then there may be a problem with the adaptor or the controller, or the PC may have a communications driver that is not completely compatible with Light-O-Rama. However, you may still be able to set the unit ID by checking the "Ignore Errors" box and then trying to set the unit ID again. If you do check the "Ignore Errors" box, make sure that the unit ID has been set correctly by [running some tests](#) on the controller.

### 5.12.1.3 Configuring Units

Some [Light-O-Rama controllers](#), such as the MC-Px and CTBxxD units, have special options that can be configured. You can use the [LOR Control tab](#) of the [Hardware Utility](#) to do so, using the following steps:

- [Connect The Unit to the PC](#)
- [Select the Comm Port](#)
- [Select the Unit](#)
- [Choose "Configuration"](#)
- [Set the Minimum and Maximum Intensities](#)
- [Set the Input Channel Types](#)
- [Set the Port Type](#)
- [Configuring DIO32 Servos](#)
- [Configuring Original Cosmic Color Ribbons, Bulbs, and Pixels](#)
- [Configuring Pixie Controllers including Cosmic Color 2 Ribbons, Bulbs, Pixels](#)
- [Dimming Curves](#)
- [Update](#)

## Connect the Unit to the PC

The first step is to connect the unit to the computer, for example using an SC485 adaptor or a USB-RS485 adaptor. Make sure that the selector switches are correctly set for the type of cable used (units are shipped ready to use [data cables](#)). Plug the unit into an AC outlet, and turn the unit on.

## Select the Comm Port

After you have [connected the unit](#) to the computer, [select the comm port](#) that the [Hardware Utility](#) should use to communicate with the controller.

## Select the Unit

After you have [connected the unit to the PC](#) and [selected the comm port](#), select the [unit ID](#) of the [controller](#) that you wish to configure: Hit the "Refresh" button, and the [Hardware Utility](#) will scan your [network](#) for connected units. You can then select the unit ID from the dropdown list. Alternatively, if you already know the unit ID, you could simply type it into the dropdown box, without hitting "Refresh" first; this is quicker, but has some drawbacks:

Depending upon the type of controller and the level of firmware, hitting "Refresh" may allow the Hardware Utility to automatically populate the configuration settings screen with the actual current configuration of the controller. Typing in the unit ID, without first hitting "Refresh", will not do this, and so the configuration settings screen will simply show default values, which may or may not be how the controller is currently configured.

Also, "Refresh" allows the Hardware Utility to figure out the type of the controller, which lets it know various things about how to interact with this controller specifically; for example, the maximum number of bytes in a [standalone sequence](#) varies with the type of controller. If you hit "Refresh", the Hardware Utility will know how many bytes this controller can handle, and so won't allow a larger sequence to be sent to the controller. Simply typing in the unit ID, without first hitting "Refresh", will not do this, and so the Hardware Utility may try to send a standalone sequence that is larger than the controller can deal with.

**NOTE:** Scanning the network may take some time. If you have set the unit IDs of your controllers to low values, you can use the "Max Unit ID" section to speed up this scan drastically. It is therefore a good habit to assign your controllers unit IDs starting at 01, and increasing sequentially through 02, 03, and so on.



The screenshot shows a software window titled "Select Unit to Configure..Download..Test". Inside, there is a text input field, a "Refresh" button, and a "Select Unit" dropdown menu. To the right, there is a "Max Unit ID" section with a text input field containing "05" and a "Change" button.

Selecting the unit to configure

## Choose "Configuration"

Next, click the "Configuration" button (near the bottom of the [LOR Control tab](#) of the [Hardware Utility](#)). This brings up configuration settings:

**General Configuration**

**Intensity Range**

100% Maximum

0% Minimum

**Input Channels**

	1	2	3	4	5	6	7	8
Switch N/O	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Switch N/C	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	9	10	11	12	13	14	15	16
Switch N/O	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Switch N/C	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Update Unit**

DIO32-Servo Screen
Cosmic Color/Pixie Config
Advanced Configuration

The configuration section of the LOR Control tab

## Set the Minimum and Maximum Intensities

While active, the [controller](#) will not set its lights' intensities below the specified minimum. If, however, it loses communications with its director, it will turn them off (i.e. 0% intensity). The lights are not turned up to the minimum until the unit receives its first lighting command.

Setting a maximum intensity below 100% may be used to help prolong the life of bulbs, although there is an important exception: Retro LED C7 and C9 bulbs (also known as replacement LEDs) can be harmed by using them at any intensity *other* than 100% or 0%.

The initial values displayed in this section are read from the controller itself (although this is supported only for certain versions of firmware - your controller may need a [firmware update](#) in order to read the values from the controller).

These settings only take effect for [ports that are configured](#) as "Triac Board".

**Intensity Range**

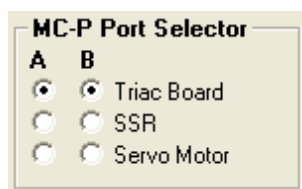
100% Maximum

0% Minimum

Setting the intensity range

## Set the Port Type

The port type can be set to Triac Board, SSR, or Servo Motor. When set to Triac Board, dimming and fading are possible. When set to SSR, the unit will support SSRs with zero cross detectors. For the CTB08D controller, the two servo pins can be activated by setting Port B to Servo.



**MC-P Port Selector**

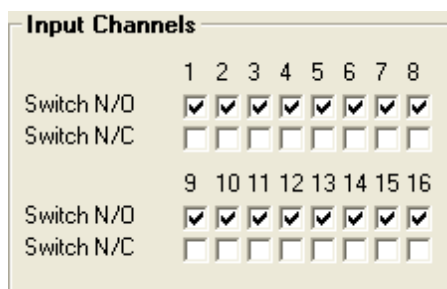
A	B
<input checked="" type="radio"/>	<input checked="" type="radio"/> Triac Board
<input type="radio"/>	<input type="radio"/> SSR
<input type="radio"/>	<input type="radio"/> Servo Motor

Setting the port type

## Set the Input Channel Types

[Circuits](#) that are used for [interactive triggers](#) can be either normally open ("N/O") or normally closed ("N/C"). The current value for each circuit is read from the [controller](#) itself, and the value can be updated in the "Input Channels" section.

Not all versions of [firmware](#) support this feature; if your controller has not yet been updated with firmware that supports it, the circuit will be treated as normally open (which is also the default for versions of firmware that can support both).



**Input Channels**

	1	2	3	4	5	6	7	8
Switch N/O	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Switch N/C	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

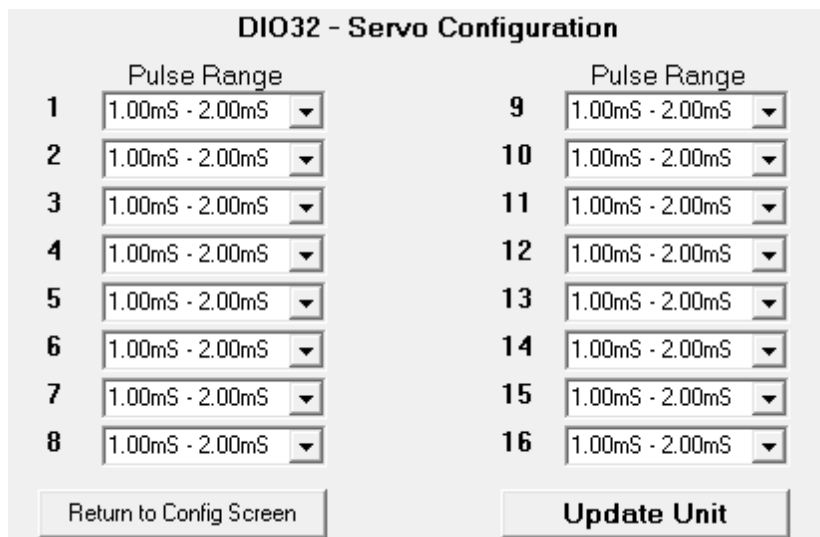
  

	9	10	11	12	13	14	15	16
Switch N/O	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Switch N/C	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Setting the input channel types

## Configuring DIO32 Servos

DIO32 devices can be set up to control servos; the [Hardware Utility](#) can be used to configure them by clicking the "DIO32-Servo Screen" button in the [Configuration](#) section. Doing so brings up the following:



**DIO32 - Servo Configuration**

	Pulse Range		Pulse Range
1	1.00mS - 2.00mS	9	1.00mS - 2.00mS
2	1.00mS - 2.00mS	10	1.00mS - 2.00mS
3	1.00mS - 2.00mS	11	1.00mS - 2.00mS
4	1.00mS - 2.00mS	12	1.00mS - 2.00mS
5	1.00mS - 2.00mS	13	1.00mS - 2.00mS
6	1.00mS - 2.00mS	14	1.00mS - 2.00mS
7	1.00mS - 2.00mS	15	1.00mS - 2.00mS
8	1.00mS - 2.00mS	16	1.00mS - 2.00mS

Return to Config Screen      Update Unit

DIO32 servo configuration options

For each [circuit](#), you can select the appropriate pulse width to be used for the servo attached to that circuit. There are at least two reasons why you might want to do this: First, some servos support different pulse widths than others; second, you might want to use this to limit the range of the servo.

The minimum value in the selected pulse width will be used whenever a 0% intensity is set on that circuit's [channel](#); the maximum value will be used whenever a 100% intensity is set. Regardless of the pulse width, 50% intensity always corresponds to 1.5 milliseconds.

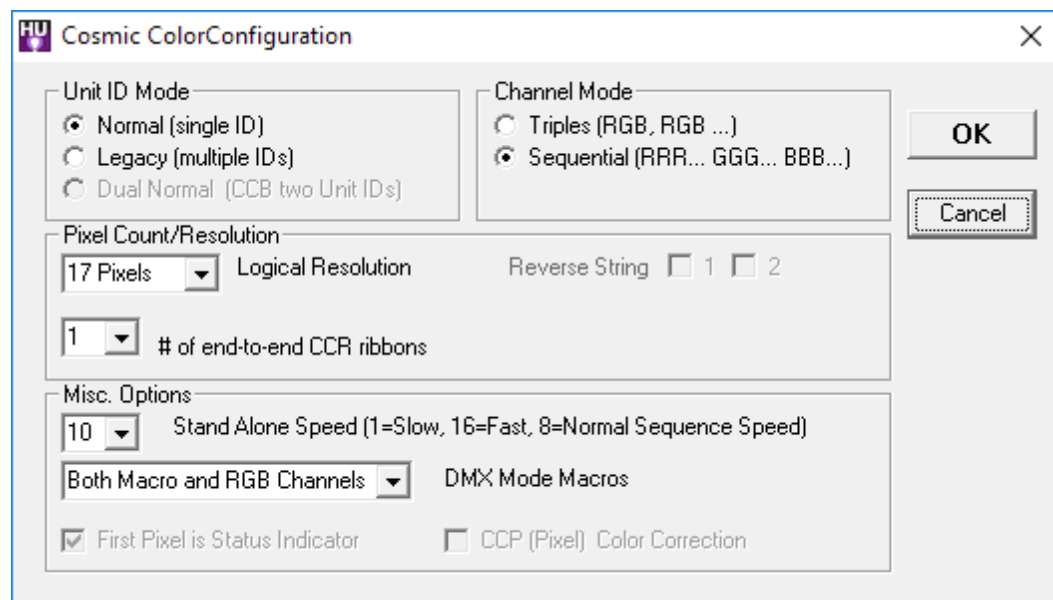
Note that only sixteen circuits are displayed, though the DIO32 has 32 circuits. This is because its 32 circuits are spread among two [unit IDs](#). For example, the first sixteen circuits might be for unit ID 01, in which case the next sixteen would be for unit ID 02. Both sets of sixteen can be configured independently, by [selecting the appropriate unit ID](#). However, if you want to configure both, make sure to [update](#) the controller with your changes for one before proceeding to the other.

## Configuring Original Cosmic Color Ribbons, Bulbs, and Pixels

Cosmic Color Ribbons, Bulbs, Pixels, have their own configuration options, unique to them. You can use the [Hardware Utility](#) to configure these options by clicking the "Cosmic Color/Pixie Config" button in the [Configuration](#) section (note, though, that this button will be grey and non-selectable unless you have [selected a Cosmic Color Ribbon, Bulb, Pixel or Pixie unit](#); you may have to use the Refresh button in order to let the Hardware Utility know about your Cosmic Color Ribbon or Cosmic Color Bulb).

There are currently 2 versions of Cosmic Color devices available, the 'Original' and the new Cosmic Color 2 devices which are based on our Pixie controllers. The Hardware Utility can distinguish the difference between the two when connected to your computer and will present you the correct dialog.

When you press the button with an Original Cosmic Color device selected, you will be presented the following window:



Cosmic Color Ribbon/Bulb/Pixel/Pixie configuration options

For details on these options, please refer to your device's manual (All of our hardware manuals are available on our website in PDF format here: <http://www1.lightorama.com/documentation/> ). Not all devices support all options. If a device does not support a particular option, that option is grey and can not be used. Here is a brief overview of each:

- **Unit ID Mode:** In "Normal" mode, the Cosmic Color device will be a single [unit ID](#), with 157 [circuit IDs](#) for a one-string CCD or 314 for a two-string. In "Legacy" mode, the Cosmic Color device will use up to ten sequential unit IDs per string (depending upon the configured resolution), with up to 16 circuit IDs for each unit ID. In "Dual Normal" mode, which is applicable for two-string CCDs, the device will have two contiguous unit IDs, each having 157 circuit IDs.
- **Channel Mode:** In "Triples" mode, [channels](#) will be arranged red, green, blue, red, green, blue, and so forth. For example, circuit 1 is red for the first pixel; circuit 2 green for the first pixel; circuit 3 blue for the first pixel; circuit 4 red for the second pixel; and so on. In "Sequential" mode, all red pixels will come first, then all green pixels, then all blue pixels.
- **Resolution:** The number of logical pixels that the Cosmic Color device will be. For example, setting it to 50 will give individual control over each of the 50 physical pixels, using 150 channels (one red, one green, and one blue for each pixel), while setting it to 1 will make all of the lights on the Cosmic Color device act as a single pixel, using three channels (red, green and blue).
- **Num of end-to-end connected CCR Ribbons** The number of end-to-end connected Cosmic Color Ribbons.
- **Reverse String #:** Reverses the order of the pixels on the ribbon, or string of the Cosmic Color Device. Thus, when unchecked, pixel 1 is nearest the controller, and when checked, the highest pixel is nearest the controller.
- **Standalone Speed:** The speed at which a [standalone sequence](#) will run. A value of 8 is normal speed; higher values are faster, and lower values are slower.
- **DMX Mode:** Selects how the Cosmic Color device will appear in a DMX universe: just the RGB channels, just the Macro channels, or both.
- **First Pixel is Status Indicator:** For Cosmic Color devices, if this field is checked, for the first minute after the unit is powered up (or until a lighting command is received), the first pixel of the unit will act similarly to the unit's status indicator, blinking on and off if there is no communication, and holding on steady if there is.
- **CCP Color Correction:** Select this option if you are using Cosmic Color Pixels and notice that colors are slightly off, especially when compared to a Cosmic Color Bulb controller.

## Configuring Pixie Controllers including Cosmic Color 2 Ribbons, Bulbs, Pixels

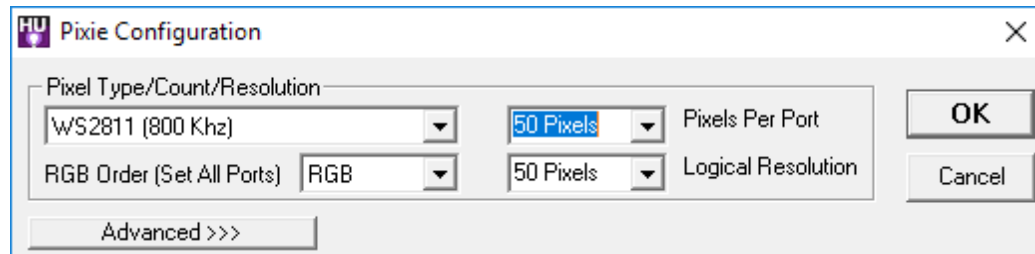
Pixie Controllers, Cosmic Color 2 Ribbons, Bulbs, Pixels, have their own configuration options unique to them. You can use the [Hardware Utility](#) to configure these options by clicking the "Cosmic Color/Pixie Config" button in the [Configuration](#) section (note, though, that this button will be grey and non-selectable unless you have [selected a Cosmic Color Ribbon, Bulb, Pixel or Pixie unit](#); you may have to use the Refresh button in order to let the Hardware Utility know about your Cosmic



Color Ribbon or Cosmic Color Bulb).

There are currently 2 versions of Cosmic Color devices available, the 'Original' and the new Cosmic Color 2 devices which are based on our Pixie controllers. The Hardware Utility can distinguish the difference between the two when connected to your computer and will present you the correct dialog.

When you press the button with a Pixie Controller or Cosmic Color 2 device selected, you will be presented the following window:



For most users, simple mode will be all that is needed. For details on these options, please refer to your device's manual (All of our hardware manuals are available on our website in PDF format here: <http://www1.lightorama.com/documentation/> ). Not all devices support all options. If a device does not support a particular option, that option is grey and can not be used. Here is a brief overview of each:

- **Pixel Type:** Select the type of pixels connected to your Pixie controller. A list of supported pixels can be found in the documentation for your hardware.
- **RGB Order:** Order of the Red Green and Blue channels for your pixel. RGB is the default. Selecting an option here will set ALL ports on the Pixie device to the same order.
- **Pixels Per Port:** Number of pixels connected to each physical port of the Pixie controller. Can any value 1-100.
- **Logical Resolution:** The number of logical pixels that the Cosmic Color device will be. For example, setting it to 50 will give individual control over each of the 50 physical pixels, using 150 channels (one red, one green, and one blue for each pixel), while setting it to 1 will make all of the lights on the Cosmic Color device act as a single pixel, using three channels (red, green and blue).

### Advanced Mode

If you press the 'Advanced' button, the dialog expands and shows the following:

**Pixie Configuration**

Pixel Type/Count/Resolution  
 WS2811 (800 Khz) 50 Pixels Pixels Per Port  
 RGB Order (Set All Ports) RGB 50 Pixels Logical Resolution

OK Cancel

<<< Simple

**Port Settings**

Port	RGB	Reverse	Prop
Port 1	RGB	<input type="checkbox"/>	(no prop selected)
Port 2	RGB	<input type="checkbox"/>	
Port 3	RGB	<input type="checkbox"/>	Elden - Elden Singing Face - @ 100 Pixels
Port 4	RGB	<input type="checkbox"/>	
Port 5	RGB	<input type="checkbox"/>	Ralphie - Ralphie Singing Face - @ 100 Pixels
Port 6	RGB	<input type="checkbox"/>	
Port 7	RGB	<input type="checkbox"/>	Ralphie - Ralphie Singing Face - @ 100 Pixels
Port 8	RGB	<input type="checkbox"/>	
Port 9	RGB	<input type="checkbox"/>	
Port 10	RGB	<input type="checkbox"/>	
Port 11	RGB	<input type="checkbox"/>	
Port 12	RGB	<input type="checkbox"/>	
Port 13	RGB	<input type="checkbox"/>	
Port 14	RGB	<input type="checkbox"/>	
Port 15	RGB	<input type="checkbox"/>	
Port 16	RGB	<input type="checkbox"/>	

**Misc. Options**

☐ First Pixel is Status Indicator

8 Stand Alone Speed (1=Slow, 16=Fast, 8=Normal Sequence Speed)

RGB Channels Only DMX Mode Macros

Triplet order

☒ Triples (RGB, RGB ...) [Recommended] ☐ Sequential (RRR... GGG... BBB...)

#### Port Settings:

In the Port Settings section you will see 1 line for each port that your Pixie has. For example, if you are configuring a Pixie 4, you would only see ports 1-4.

Depending on the firmware your Pixie has, you may not be able to change all of these. Only newer Pixie firmware allows for the configuration of by port RGB Order as well as prop selection. If your version of the firmware does not support these, they will be grey and you will see a message that your firmware does not support them.

For each port you can configure:

- **RGB Order:** Order of the Red Green and Blue channels for your pixel. RGB is the default. Selecting an RGB order effects only that port. That means each port on your Pixie can have a different RGB order.
- **Reverse:** Reverses the order of the pixels on the ribbon, or string connected to that port of the Pixie. Thus, when unchecked, pixel 1 is nearest the controller, and when checked, the highest pixel is nearest the controller.
- **Prop:** Pixie controllers can be configured to run certain available LOR props, like singing faces. Selecting the prop here will allow the pixie to control that prop on that and the next port. If you have a pixie 16, props are only supported on the first 8 ports. For more information, please see the manual that came with your LOR prop. For regular operation select 'no prop selected', otherwise select the name of the prop connected to that and the next port.

#### *Misc. Options*

In this section one can change some uncommon parameters.

- **First Pixel is Status Indicator:** For Cosmic Color devices, if this field is checked, for the first minute after the unit is powered up (or until a lighting command is received), the first pixel of the unit will act similarly to the unit's status indicator, blinking on and off if there is no communication, and holding on steady if there is.
- **Standalone Speed:** The speed at which a [standalone sequence](#) will run. A value of 8 is normal speed; higher values are faster, and lower values are slower.
- **DMX Mode:** Selects how the Cosmic Color device will appear in a DMX universe: just the RGB channels, just the Macro channels, or both.
- **Triplet order:** In "Triples" mode, [channels](#) will be arranged red, green, blue, red, green, blue, and so forth. For example, circuit 1 is red for the first pixel; circuit 2 green for the first pixel; circuit 3 blue for the first pixel; circuit 4 red for the second pixel; and so on. In "Sequential" mode, all red pixels will come first, then all green pixels, then all blue pixels. It is recommended that you use Triples mode - some parts of the LOR software do not support Sequential mode.

## Dimming Curves

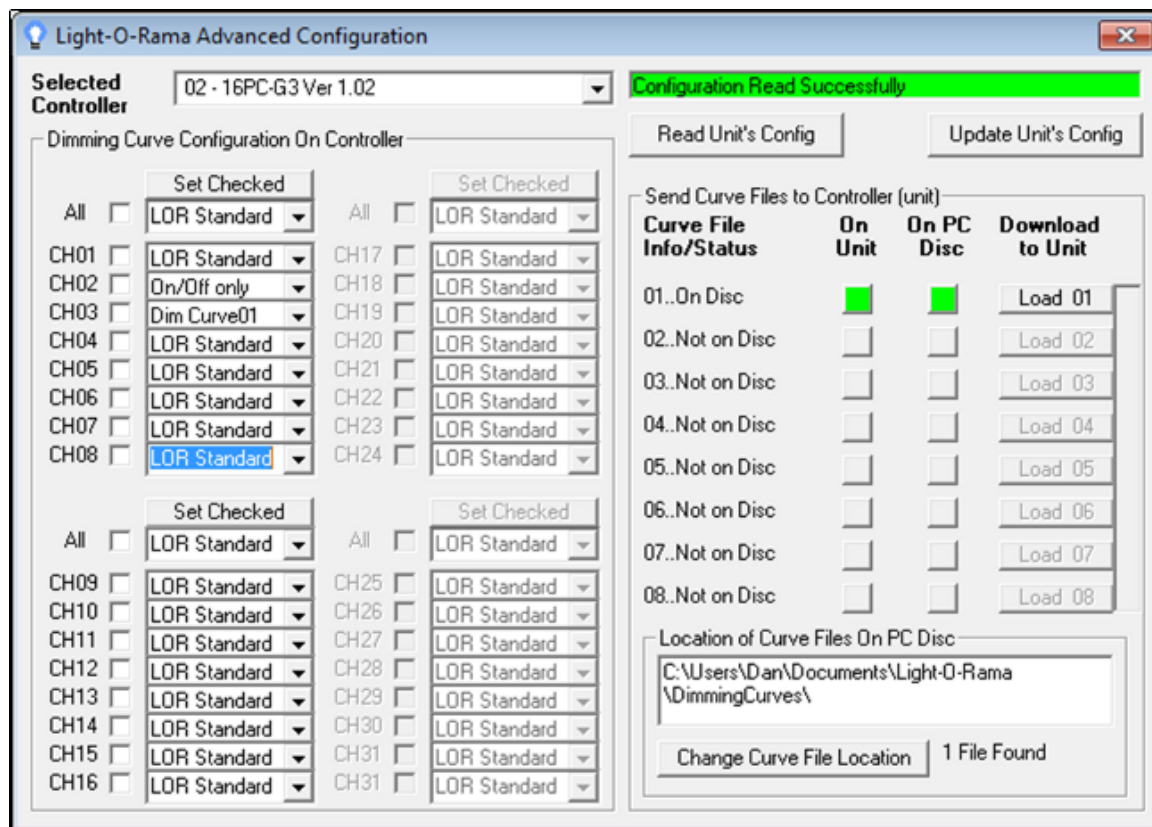
The [Hardware Utility's](#) Advanced Configuration screen can be used to set dimming curves for Gen3 [controllers](#), or for pre-Gen3 controllers that have Gen3 firmware installed. To get to the Advanced Configuration screen, click on the Advanced Configuration button in the [Configuration section](#) of the [LOR Control tab](#) of the Hardware Utility.

Dimming curves determine the output of a [channel](#) versus the intensity setting of that channel. For example, the On/Off only curve has the output set at 100% for intensity values greater than 50% (or DMX 128), and the output at 0% for any other intensity value.

Each channel can be configured for a specific dimming curve. Gen3 firmware comes with three curves: "LOR standard" (which is normal for incandescent lights), "Dim Curve01" (which is a good curve for LED Lighting), and "On/Off only" (which is best with loads such as strobe lights that should

never be dimmed).

The LOR Standard and On/Off curves cannot be changed. Any other curves can be downloaded and updated on the controller. If a channel is set to use a dimming curve that is not present on the controller, then the channel will default to using LOR Standard.



The Advanced Configuration screen

## Update

When you have set the configuration settings to the value you want, click the "Update Unit" button to send the new configuration information to the [controller](#). Note: Doing so will update both the settings from the [main screen](#) and the settings from the [DIO32 servo screen](#).

After updating, hit "[Refresh](#)" again to reload the new settings from the controller into the Hardware Utility.

### 5.12.1.3.1 Light-O-Rama MP3 Directors

[The functionality this tab provides](#) has been replaced by [LOR HUB](#). You should start using LOR Hub for ALL SD creation tasks. This tab will be removed in a future version of the software.

The LOR MP3 tab of the [Light-O-Rama Hardware Utility](#) can be used to download both [musical sequences](#) and [animation sequences](#) to a Light-O-Rama MP3 director (such as an "LOR1602W with Show Director and MP3 Player"), and schedule when those sequences should be played.

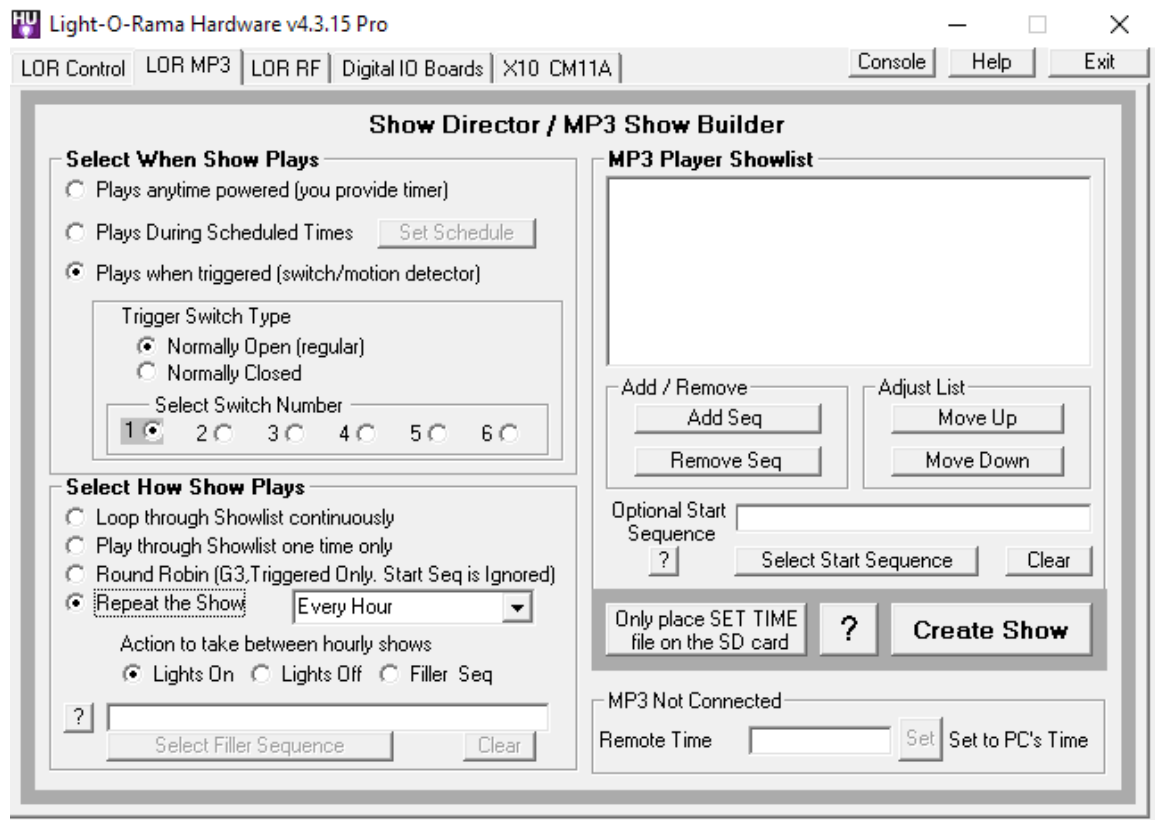
Newer Generation 3 MP3 Directors, like the MP3g3 Dual Network Director, can drive both LOR and DMX hardware.

Note, that any [loops](#) in an animation sequence will be ignored. Up to nine separate shows can be downloaded to an MP3 director.

In the future, Light-O-Rama Hub will completely replace this tab of the Hardware Utility.

For details, please refer to the following sections:

- [Scheduling/Show Options](#)
  - [Select When Show Plays](#)
  - [Select How Show Plays](#)
- [MP3 Player Showlist](#)
  - [MP3g3 Directors can control DMX Devices](#)
  - [Priority of Networks and Universes](#)
- [Download the Show](#)
- [Set the Time](#)



The LOR MP3 tab of the Hardware Utility

## Scheduling/Show Options

This section allows you to select various options about the show:

- [Select When Show Plays](#)
- [Select How Show Plays](#)

### Select When Show Plays

This section gives three main options for when the show will play: "plays anytime powered", "plays during scheduled time", and "plays when triggered". Additionally, you can specify that the show cannot be interrupted by input triggers, even if other shows are set up to start on those triggers.

Selecting "plays anytime powered" will cause the show to run whenever the MP3 director is powered on.

Selecting "plays during scheduled time" allows you to specify a time or times when the show should play. Up to nine shows can be downloaded to a controller, and each will be assigned a number between 1 and 9. If two shows are scheduled for the same time, the lower numbered show will be played.

Selecting "plays when triggered" will cause the show to start whenever some external trigger happens (such as a circuit being closed or a motion detector being tripped). If you choose this option, you will be prompted to select the trigger's switch number (up to six switches are supported),

and whether the switch is normally open or normally closed.

A normally open switch has its contacts open until you activate it, at which point they close; a normally closed switch has its contacts closed until you activate it, at which point they open. Most switches are normally open; motion detectors, however, are typically normally closed. This is because they are often used in security systems, where it is important to notice that a wire has been cut.

## **Select How Show Plays**

In this section, you can choose whether the show should loop continuously (that is, when it finishes playing the last sequence in its list, it will start over at the first), or only one time, or every so often (every hour, half hour, fifteen minutes or ten minutes). If you are using a triggered sequence you can also select if you would like to run the sequence list in a 'Round Robin'.

If you choose to play the show every so often, you will also be prompted for what the lights should do in between. You can choose to have all your lights on, or off, or else use an [animation sequence](#) as a "filler" that will play continuously during the time in between.

If you choose to play the sequences in a Round Robin, only the first sequence in the sequence list will play. The next time the MP3 director is triggered, it will play the next sequence in the list. After playing the last sequence in the list, the next trigger will start over with the first sequence. **Note:** Round Robin play can only be used with triggered sequences on G3 MP3 directors with Firmware version 5.34 or higher.

## **MP3 Player Showlist**

You can add both [musical sequences](#) and [animation sequences](#) to the show by clicking the "Add Sequence" button. To remove one, click on it to highlight it, and then click the "Remove Sequence" button.

The sequences will be played in the order listed. You can change the order by clicking on a sequence to highlight it, and then clicking "Move Up" or "Move Down".

Sequences with [subsequences](#) cannot be added to the showlist.

Optionally, you can also specify a "start sequence", which will be played once and only once every time the show starts up, before the other sequences. This is most useful if you selected that the show should loop continuously. For example, a show with a start sequence and three sequences in the showlist will, when "loop continuously" is turned on, first play the start sequence, then the first sequence of the showlist, then the second, then the third, and then back to the first in the showlist - *not* back to the start sequence.

Both musical sequences and [animation sequences](#) can be used as start sequences.

## **MP3g3 Directors can control DMX Devices**

In addition to [LOR Devices](#), MP3g3 Directors can also drive [DMX devices](#) on one or both output ports. In order to control DMX devices, your MP3g3 must have at least [firmware](#) version 5.28.

## **Network and Universe Priorities**

New advanced MP3 Directors, like the Dual Port G3MP3 Director, can drive 2 separate physical networks of devices. In the future new MP3 directors will be available that can drive 4 physical networks. These advanced directors can control LOR devices, DMX devices, or a combination of them on separate ports. The Hardware Utility will automatically select which networks and/or universes in your sequence will be used by the director.

Only the [ADVANCED](#) level of the LOR software will allow for the creation of DMX output for a director. All other levels are limited to creating LOR output only.

Older Directors, like the DC-MP3-SHOWTIME, are limited to ONLY the LOR REGULAR network.

For Advanced Directors, the Hardware Utility uses a 'priority system' based on the contents of the **FIRST** sequence added to the show list. In order to prevent confusion, all sequences that are part of a single show should use the same [preview](#).

1. If your license supports them, there is no difference between LOR Enhanced networks and normal LOR networks. Both are treated the same when it comes to priority.
2. LOR networks have priority over DMX universes.
3. The LOR REGular network has the highest priority, followed by AUX A through AUX O.
4. A lower number DMX Universe is higher priority than a higher number.
5. If the sequence contains more than 2 networks, universes, or a combination thereof, those Networks and Universes are silently discarded.
6. If your director only has one port, then only the PORT 1 column applies.

Examples assuming that you have the 'Advanced' level of the software:

Your sequence contains....	PORT 1 on the director controls	PORT 2 on the director controls	Notes
1. LOR REG	LOR REG	<a href="#">(*)</a>	Only one network, so it is placed on port 1. <a href="#">See note for port 2.</a>
1. LOR REG 2. LOR AUX B	LOR REG	LOR AUX B	Both ports active with LOR
1. LOR REG 2. LOR AUX A 3. LOR AUX B	LOR REG	LOR AUX A	Aux B is silently discarded.
1. DMX Universe 1	DMX Universe 1	<a href="#">(*)</a>	DMX on port 1. <a href="#">See note for port 2.</a>



Your sequence contains....	PORT 1 on the director controls	PORT 2 on the director controls	Notes
1. LOR AUX A 2. DMX Universe 1	LOR AUX A	DMX Universe 1	LOR devices have priority over DMX, so AUX A is on port 1.
1. DMX Universe 1 2. DMX Universe 99	DMX Universe 1	DMX Universe 99	DMX Universes are assigned in ascending order.
1. LOR REG 2. LOR AUX A 3. LOR AUX B 4. DMX Universe 1 5. DMX Universe 99	LOR REG	LOR AUX A	LOR Devices have priority over DMX. REG has highest priority followed by AUX A. Others are discarded.

\* **Please note** that the MP3g3 dual network controller will mirror the output of Port 1 onto Port 2 on a per-sequence basis. If you wish to have all controllers on port 2 stay dark during certain sequences, ensure that ALL of the sequences in that show use the same [preview](#). That is to say, ensure all of your sequences contain channels for BOTH ports, even if those channels are all OFF for the duration of the sequence.

'Startup' sequences as well as 'Filler' sequences can also use LOR or DMX devices on advanced directors and the same rules apply to them.

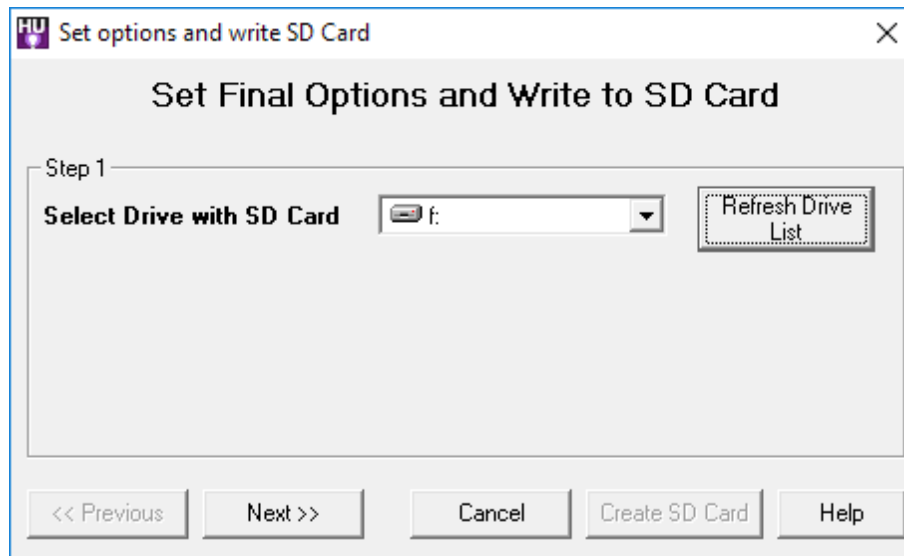
## Download the Show

When you have selected the show's options and the [sequences](#) to be played, you can download the show to an SD card (which can later be placed into the MP3 director). Make sure that you have your SD card reader/writer hooked up to your PC, and click on the "Create Show" button. This brings up a the Write Show to SD Card Wizard. Once you have made your selections, press 'NEXT' to continue. If you would like to go back and change a selection, press 'PREVIOUS'.

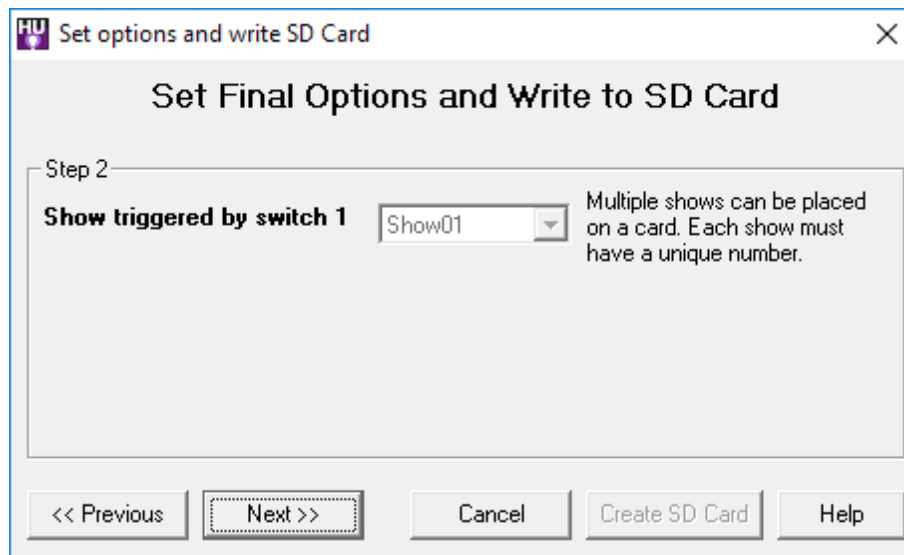
There are several steps to specify the options you need to set up the SD card properly, depending on your hardware, preferences, etc.

### Step 1

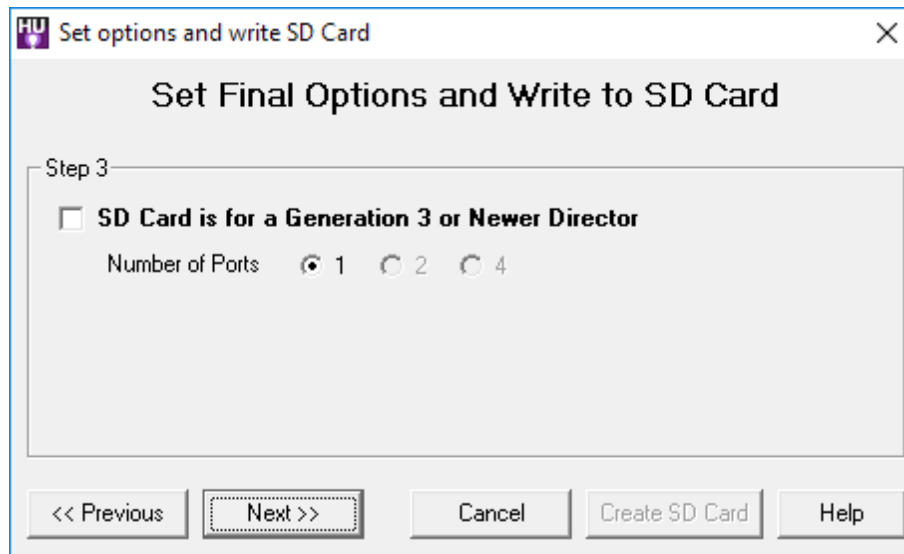
Select the drive that contains your SD card.

**Step 2**

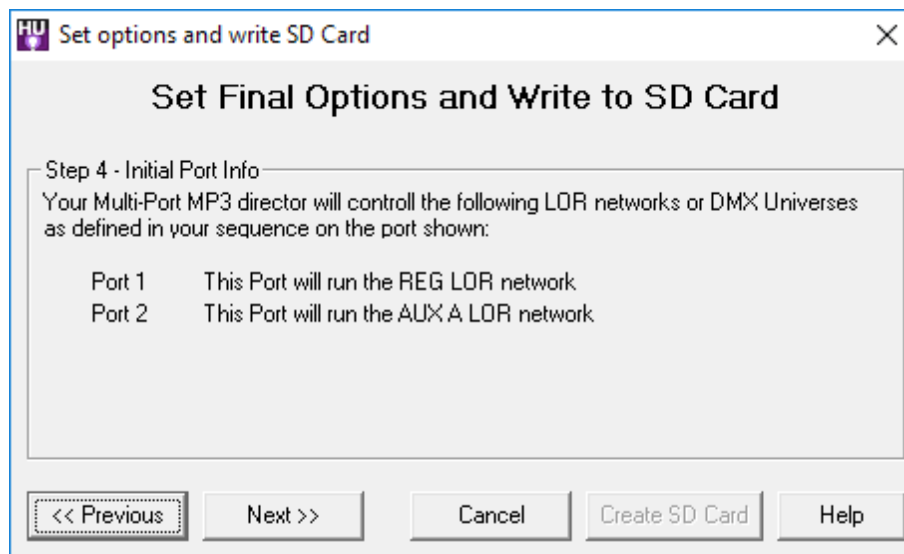
Select the show number that you want to use for this show. Each show on a card must have a unique number assigned. If multiple shows are scheduled at the same time, the lowest numbered show will take priority.

**Step 3**

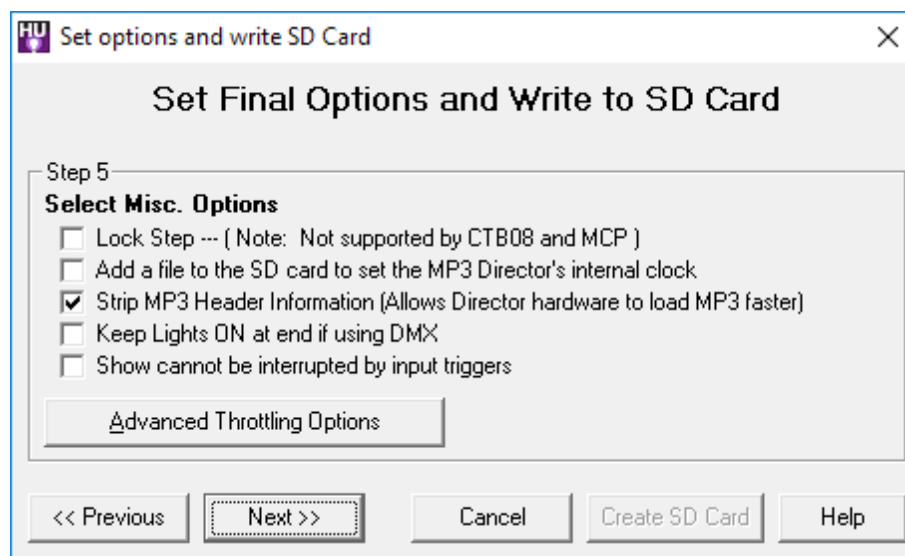
if you have a G3MP3 director, select the check box here, and then specify the number of ports for your director.

**Step 4**

This is what LOR Networks and/or DMX Universes the SD Card Wizard will write to the card, [based on the priority system](#) from above. This is informational only, there are no changes to be made here.

**Step 5**

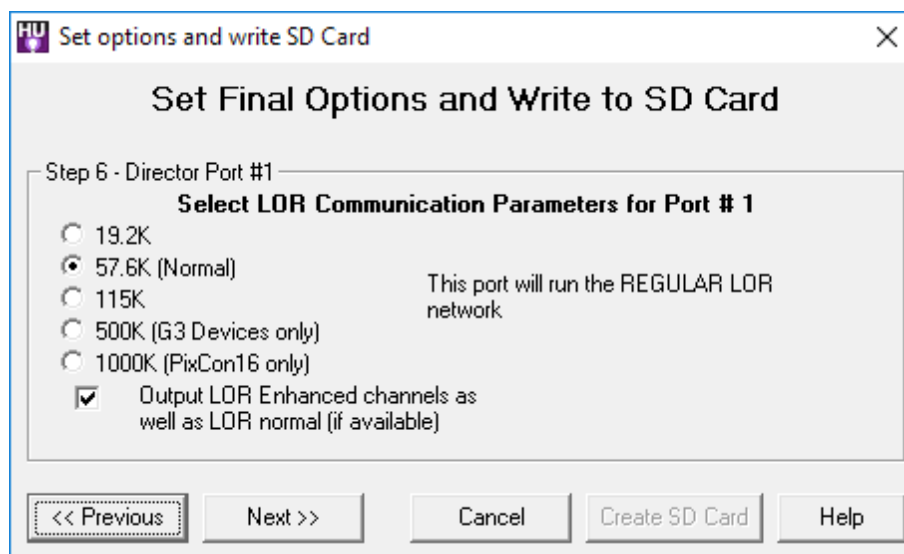
Here is where you can specify different options that your show or hardware may require:



- **Lock Step:** If you have a very large display, selecting "lock step" may help the different controllers used in the display react with a higher degree of synchronization. This is not supported on all controller types, and the level of firmware in the controllers must be 3.0 or higher.
- **Set MP3 player's internal clock:** If you wish to add a file to the SD card to set the MP3 director's internal clock, check the box that says so. Note that there are also [other ways to set the director's clock](#).
- **Strip MP3 Header Information:** Some MP3s may have a large data block before the actual music data. For example, an MP3 may have several high-resolution pictures in its ID3 Tags. The MP3 director will correctly ignore this data, however it does take time to find the actual start of the music file. Stripping this data will allow the MP3 director to start playing the sequence faster.
- **Keep lights ON at end if using DMX:** Previously if one or both ports were controlling DMX Universes the MP3 director would always shut off all the lights. Checking this box will allow channels in DMX universes controlled by the MP3 director to remain in the last state they were sent. If you leave a light on at the end of a sequence, that light will remain on until the start of the next sequence.
- **Show can not be interrupted by input triggers:** Once this show has started on the MP3 director, pressing an input will not interrupt the show - it will run to completion.
- **Advanced Throttling Options:** The advanced options button will [bring up an additional window](#) that allows you to change parameters which relate to how data will be transmitted from your MP3 Director. Unless a specific issue is preventing your MP3 Director from working correctly, you should not change these options.

## Step 6

Communications port setup is done here.



For each port your director has, you will be presented these options. So for example if you have a G3MP3 Dual Network director, you see this dialog twice. Once for the first physical port, and then again for the other physical port. Depending on the type of equipment you have, your LOR license level, and/or the contents of your sequence, one or more of these options may not be available to you.

#### If a port is using LOR devices:

Select the communications speed that will be used to broadcast lighting commands. The recommended setting (57.6) will suffice for many users' displays. If you have many controllers that are far distances apart, a slower speed may help; if your sequences use many rapid lighting commands, a faster speed may help.

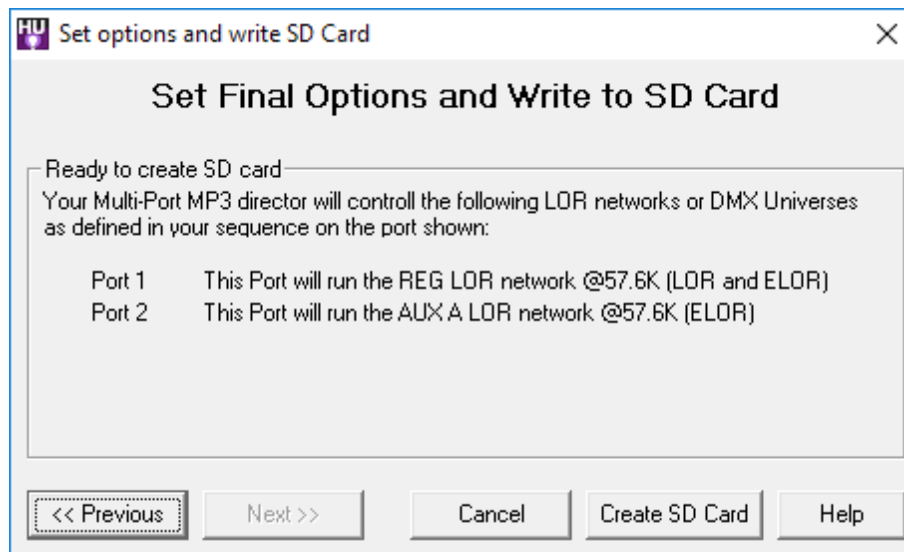
- G3 directors (and higher) have an additional speeds of 500K and 1000K available. The 500K speed is approximately four times faster than the previous high speed of 115.4K, but is only supported on Generation 3 (G3) devices with updated firmware.
- The 1000K speed can ONLY be used with networks that only contain PixCon16 controllers. No other LOR controllers support 1000K.
- Since the MP3g3 director has two ports, you can additionally specify a different speed for port 2 if your show will use both ports. Single network directors do not have a second port and so these options are not available.
- If your license supports Enhanced LOR Protocol and you are creating a card for a G3 or above director, an additional option may be available depending on the first sequence loaded. If the first sequence has both Normal LOR and Enhanced LOR commands available, you can select if you want BOTH to be written to the card (checked), or if you only want Normal (unchecked) commands written. If you do not have a G3 controller, or you do not have a license that supports Enhanced LOR protocol, or if your sequence does not have both types of networks, then this option is not available. There is no option that will allow for only Enhanced commands, even if your sequence has both available.

#### If a port is using DMX devices

DMX Universes run at a fixed speed, and therefore the options to change port speed are not available.

### Final Step

This final screen will confirm the choices you made. When you are ready to write to the SD card, press the 'Create SD Card' button.



## Set the Time

If any of your shows are set up to run on schedules, it is important to set the MP3 director's clock appropriately. There are several ways to do this:

First, you can directly hook your MP3 director up to your PC, and click on the "Set to PC's time" button (in the lower right-hand corner of the LOR MP3 tab).

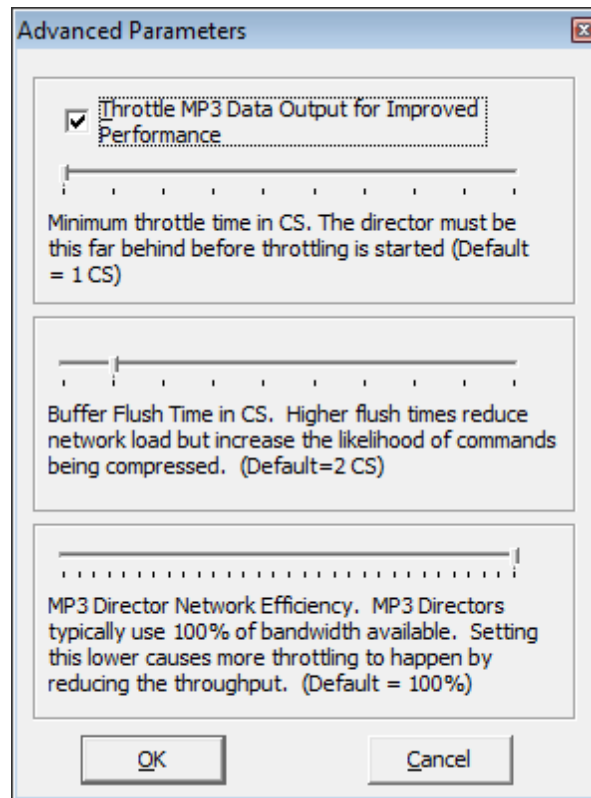
If you cannot (or do not wish to) hook the MP3 director up to your PC, you can instead create a "time file" to be placed on an SD card. The first time that SD card is placed in the MP3 director, the director's clock will be set to the time specified in the time file (which you can choose, so that you have enough time to move the card from your PC to your MP3 director).

There are two ways to build a time file: First, you can click on the "Only place SET TIME file on the SD card"; this will create a time file and download it, without downloading a show as well. Second, when you create a show, during the final options dialog, you can request that a time file be created and downloaded along with the show.

Finally, you can manually set the time on an MP3 director. See the director's user's guide for details.

## Advanced Parameters

While writing your show to the SD card for an MP3 player, the Hardware Utility will automatically monitor how much bandwidth is required by your sequence every centi-second. When the bandwidth is exceeded, the program can 'compress' your data so that your music and lights stay better in sync. The advanced options window allows you to turn this functionality on/off or adjust its parameters.



The Advanced Parameters window

- **Throttle Data Output for Improved Performance:** It is recommended that this option remain ON (checked). When checked, your sequence is monitored. For each centi-second that passes, the program will compute the amount of bandwidth required and compare it to the amount available. If unchecked, no throttling is done - this is the same mode as versions previous to 3.12.0.
- **Minimum Throttle Time in CS:** If throttling is enabled, this is the minimum amount that the sequence must be behind before compression starts. For example, if this is set to 5 CS, then once the sequence is 5 or more centi-seconds behind the audio, compression will begin. Setting this higher will allow for more complex areas of your sequence to remain uncompressed at the expense of lagging further behind your audio. The default value is 1, and this means that as soon as the sequence falls behind, compression should begin.
- **Buffer Flush Time in CS:** This can be thought of as the 'resolution' that your MP3 Director will run at. Setting the value lower will increase resolution as well as network load. Setting the value higher will decrease network load at the expense of having more commands be compressed. The default value of 2 most closely emulates what a computer produces for output, either in the [Sequencer](#) or the [Show Player](#), when running a sequence on your hardware. For versions before 3.12.0, this value was 1.
- **MP3 Director Network Efficiency:** MP3 directors will typically use 100% of the bandwidth that is available for a port. Setting this to a lower percentage reduces the amount of throughput, which will cause more throttling to happen. It may be best to think of this option as a reduction in the network speed. For example, if you set a port to 57.6K speed, and set this option to 70%, then the hardware utility will throttle the sequence as if it was for a network that runs at approximately

40.3K (57.6 \* 70%).

#### 5.12.1.4 Testing Units

You can test the operation of [Light-O-Rama controllers](#) using the [LOR Control tab](#) of the [Hardware Utility](#), sending commands to turn lights on and off and to do other [effects](#), or generate [interactive triggers](#), by taking the following steps:

- [Connect the Unit to the Computer](#)
- [Select the Comm Port](#)
- [Select the Unit](#)
- Testing
  - [Testing Pixie and Cosmic Color devices](#)
  - [Test All Other Units](#)

### Connect the Unit to the Computer

The first step is to connect the unit to the computer, for example using an SC485 adapter or a USB-RS485 adapter. Make sure that the selector switches are correctly set for the type of cable used (units are shipped ready to use [data cables](#)). Plug the unit into an AC outlet, and turn the unit on.

### Select the Comm Port

After you have [connected the unit](#) to the computer, [select the comm port](#) that the [Hardware Utility](#) should use to communicate with the controller.

### Select the Unit

After you have [connected the unit to the PC](#) and [selected the comm port](#), select the [unit ID](#) of the [controller](#) that you wish to use. If you know the controller's unit ID, you can simply type it into the dropdown box labelled "Select Unit". If not, use the "Refresh" button, and the [Hardware Utility](#) will scan your [network](#) for connected units. You can then select it from the dropdown list.

**NOTE:** Scanning the network may take some time. If you have set the unit IDs of your controllers to low values, you can use the "Max Unit ID" section to speed up this scan drastically. It is therefore a good habit to assign your controllers unit IDs starting at 01, and increasing sequentially through 02, 03, and so on.



Selecting the unit to use

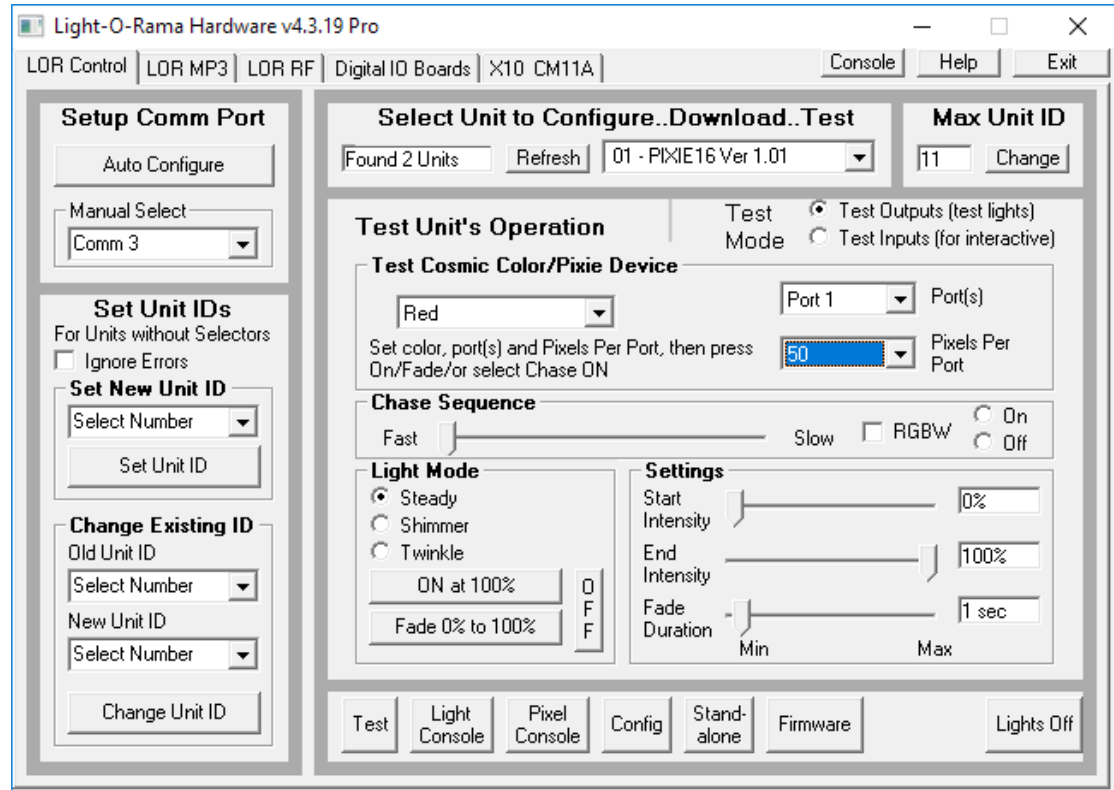
### Testing Pixie and Cosmic Color devices

Because of their high channel counts, output to Pixie and Cosmic Color devices, like Cosmic Color Bulb, Cosmic Color Pixel, and Cosmic Color Ribbon, are tested a little differently than other LOR Controllers. If you want to test inputs on a Cosmic Color or Pixie device that supports them, [please see below](#).

The "Test Unit's Operation" screen of the [LOR Control tab](#) of the [Hardware Utility](#) is the screen



displayed by default when the Hardware Utility is opened. If it is not currently open, make sure you have selected the LOR Control tab, and then hit the "Test" button near the bottom of the Hardware Utility. If you have selected a Pixie or Cosmic Color device, the test screen for those devices is displayed:



The testing section of the LOR Control tab for Pixies and Cosmic Color Devices

Depending on the device you have selected as well as the parameters of that device, not all options will be available.

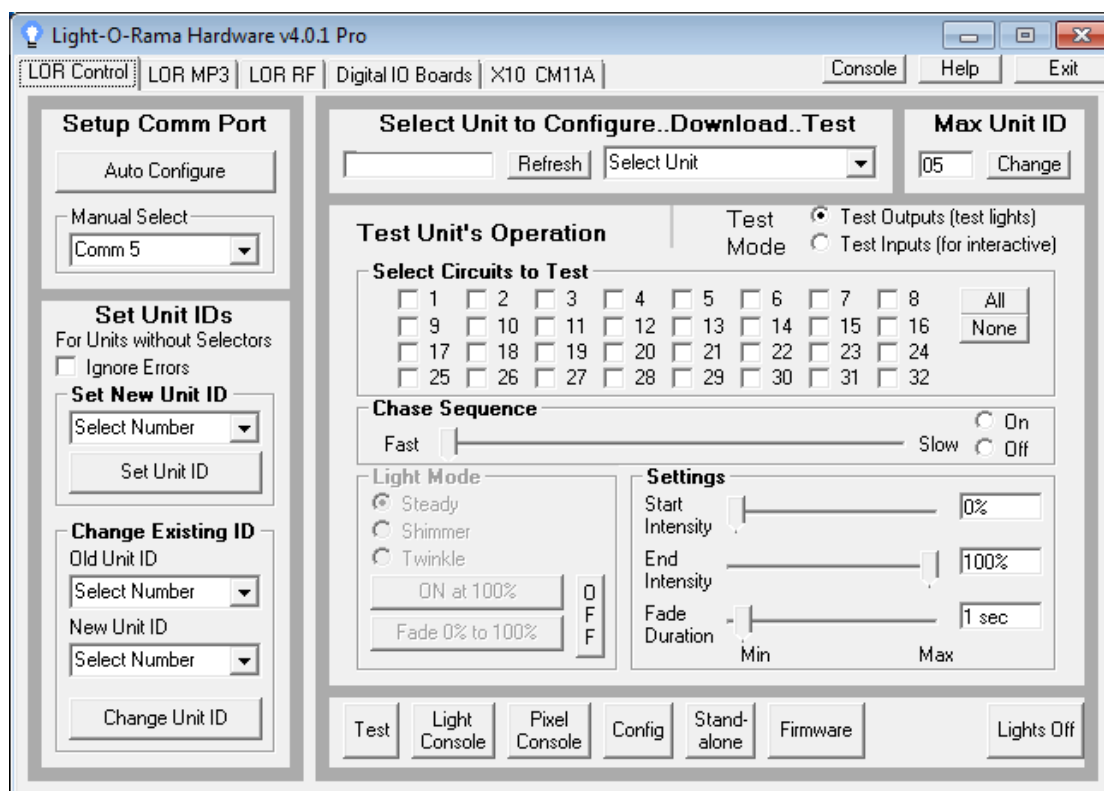
Because of the large number of circuits available on Cosmic Color Devices like the Cosmic Color Ribbon or Cosmic Color Bulbs, you do not test individual circuits. Instead, you can select a color to be displayed across the device/port. You can select from a list of pre-determined colors, or select 'Custom' to set the RGB values. Please note that due to differences in hardware, the color that is displayed on your computer screen may not match what is displayed by the device.

Advanced effects like twinkle, shimmer, and fade are only available on devices that are configured for 50 pixels or less.

If you would like to test individual circuits on a Pixie or Cosmic Color device, the [Pixel Console](#) can be used.

## Test All Other Units

The "Test Unit's Operation" screen of the [LOR Control tab](#) of the [Hardware Utility](#) is the screen displayed by default when the Hardware Utility is opened. If it is not currently open, make sure you have selected the LOR Control tab, and then hit the "Test" button near the bottom of the Hardware Utility:



The testing section of the LOR Control tab

By setting the "Test Mode" appropriately, you can either [test output to the controllers](#) - that is, test that they can control your lights - or [test input from your controllers](#) - that is, test that they can generate [interactive triggers](#).

### ***Test Outputs (test lights)***

To test that your controllers can control your lights, select "Test Outputs (test lights)" as your "Test Mode".

After selecting the circuits that you wish to test (by checking their boxes in the "Select Circuits to Test" section), you can send a [lighting effect](#) command to those circuits by choosing the "Light Mode", "Start Intensity", "End Intensity", and "Fade Duration", and clicking on either the "ON", "OFF", or "Fade" buttons. **Note:** If "ON" is used, the intensity is specified via "End Intensity", not "Start Intensity".

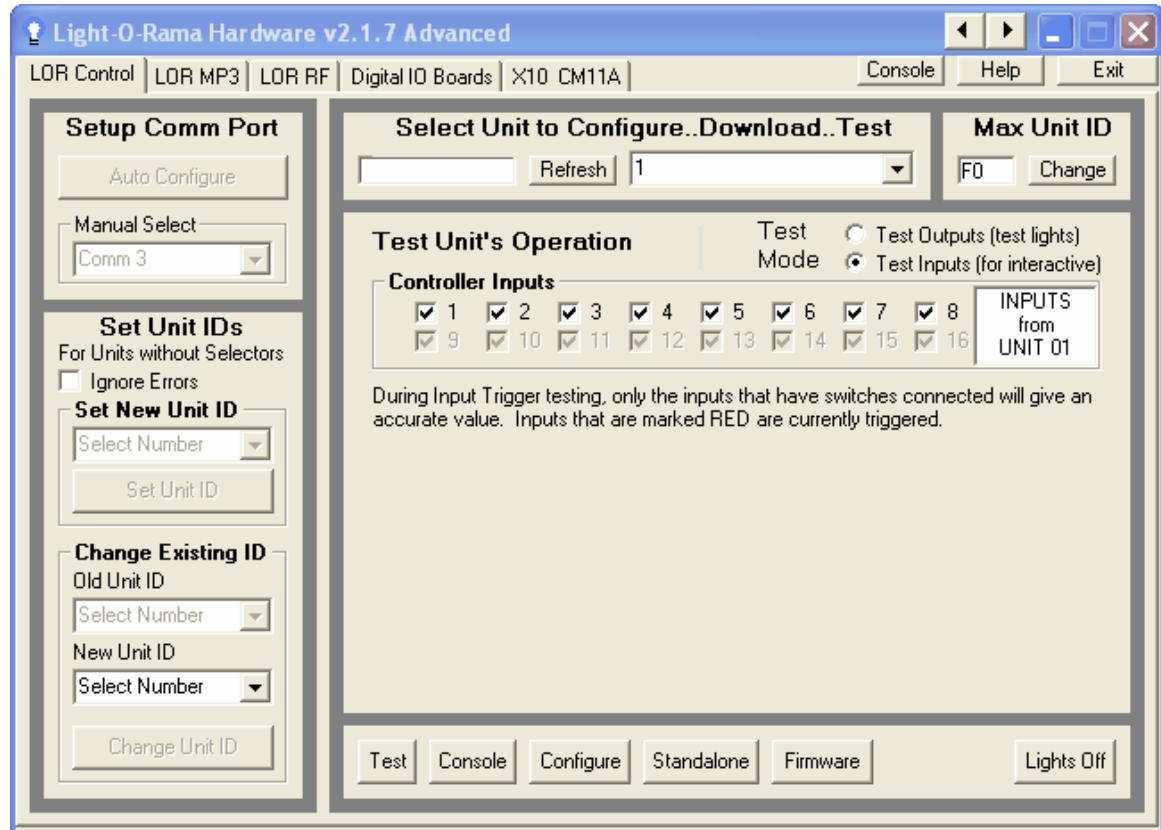
Alternatively, the "Chase Sequence" section can be used to turn the selected [circuits](#) on and off in sequence.

### ***Test Inputs (for interactive)***

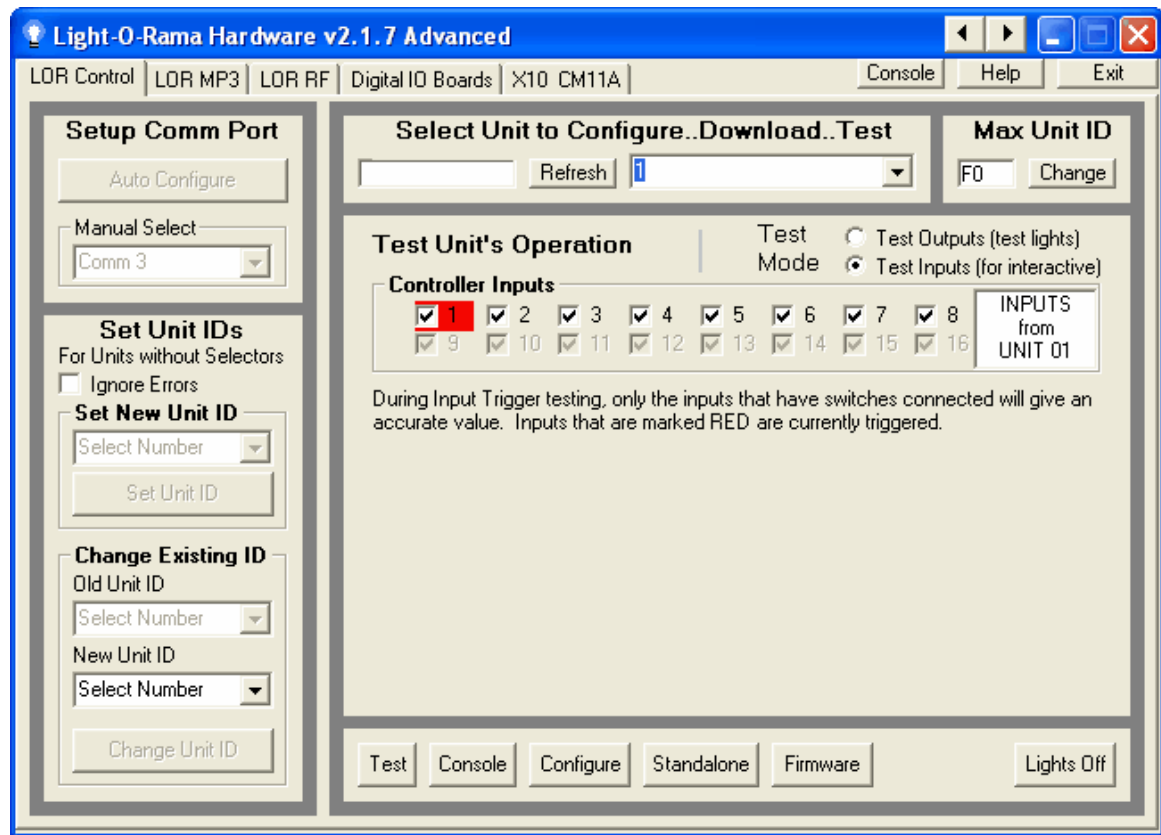
To test that your controllers can generate [interactive triggers](#), select "Test Inputs (for interactive)" as your "Test Mode".

Select the circuits that you want to test. When you trip a trigger for one of those [circuits](#), it should show up as red in this screen.

Please note that triggers are not supported on [LOR Enhanced networks](#). If your trigger is on a [controller](#) that is on an LOR Enhanced network, you will be able to test it in the [Hardware Utility](#), but it will not work during your [show](#).



The input testing section of the LOR Control tab, with no circuits tripped



The input testing section of the LOR Control tab, with circuit 1 tripped

#### 5.12.1.5 Downloading Sequences

The Standalone Sequence Downloader section of the [LOR Control tab](#) of the [Light-O-Rama Hardware Utility](#) can be used to send an [animation sequence](#) to a [Light-O-Rama controller](#), which can later run that sequence independently, in "standalone" mode, without being hooked up to a computer running [Light-O-Rama software](#).

When a unit runs a [sequence](#) in standalone mode, it not only executes the [lighting commands](#) in the sequence that are for that controller itself, but also, if the sequence contains any commands for other units, it will transmit them to the other units that it is connected to. In this way, a single controller can be downloaded with a sequence, and act as a "director" for several linked controllers.

It is important that only one controller in any mutually connected group act as a director. Downloading sequences to two separate controllers that are hooked up in a mutually connected group will have undesired results, as the commands transmitted by the two will interfere with each other. Similarly, it is important not to also control sequences from your computer while you have a controller hooked up to it acting in standalone mode, for the same reason.

Normally, the controller will execute the standalone sequence any time that it is powered on. However, some controllers have internal clocks that allow the standalone sequence to be scheduled to run during a particular timeframe.

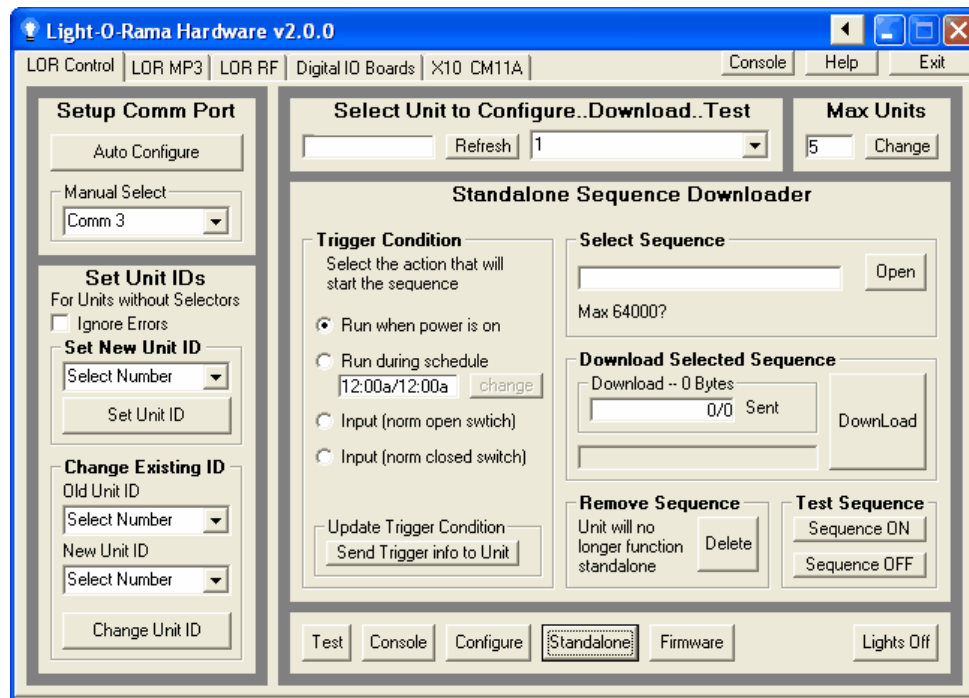
**Note:** The CTB08 controller does not have transmit capability in standalone mode.

To download a sequence to a controller to be used in standalone mode, take the following steps:

- [Create the Sequence](#)
- [Connect the Controller to the PC](#)
- [Select the Comm Port](#)
- [Select the Unit](#)
- [Download the Sequence](#)

You can also use this section of the Hardware Utility to [choose when the sequence will run](#) (for controllers that support this), to [remove the standalone sequence from a controller](#), and to [test a standalone sequence](#).

To get to the Standalone Sequence Downloader screen, make sure that you are in the [LOR Control tab](#) of the Hardware Utility, and then click on the "Standalone" button.



The Standalone Sequence Downloader section of the Hardware Utility

## Create the Sequence

Using the [Sequencer](#), create an [animation sequence](#). Only animation sequences - not [musical sequences](#) - can be downloaded for standalone mode. When you create the [sequence](#), associate it with a [preview](#) that has the appropriate [unit IDs](#) and [circuit IDs](#), as normal.

Some [controllers](#) have very little storage space for sequences. Because size is a limiting factor, you should consider the following tips to keep your sequence's size at a minimum:

- Fade commands take up the most space.
- The least space is used when all lights on a controller are at either 100% or 0% intensity.
- When possible, place similar commands at the same time. For example, if you turn one circuit of a controller off and then, a tenth of a second later, turn another circuit on the same controller off, that will take about twice as much space as would turning both of them off at the same time.
- Use [loops](#) whenever possible.

- Different types of controllers have different maximum sequence sizes; controllers such as the CTB08 have little space and can handle only very simple animations.

Also, sequences to be used in standalone mode have some limitations:

- You must download the playback file (.play.las) created by the Sequencer.
- The sequence's [preview](#) should only contain props that are on a single [network](#); unexpected results may occur if you have more than one network listed in the preview.
- The network must not be marked as "enhanced" in [Network Preferences](#).
- The sequence cannot contain [motion effects](#).
- [Timings](#) are only supported on tenth-of-a-second boundaries (for example, 1 second, 1.1 seconds, 1.2 seconds). If any timings in the sequence are at some centisecond other than a tenth-of-a-second boundary (for example, 1.15 seconds), they will be considered to be at the next tenth-of-a-second boundary.
- Depending on the device type, between 1 and 10 loop levels may be supported.
- Loop speed modification is not supported, and will be ignored.

## Connect the Controller to the PC

Connect the unit to the computer, for example using an SC485 adaptor or a USB-RS485 adaptor. Make sure that the selector switches are correctly set for the type of cable used (units are shipped ready to use [data cables](#)). Plug the unit into an AC outlet, and turn the unit on.

## Select the Comm Port

After you have [connected the unit](#) to the computer, [select the comm port](#) that the [Hardware Utility](#) should use to communicate with the controller.

## Select the Unit

After you have [connected the unit to the PC](#) and [selected the comm port](#), select the [unit ID](#) of the [controller](#) that you wish to use. If you know the controller's unit ID, you can simply type it into the dropdown box labelled "Select Unit". If not, use the "Refresh" button, and the [Hardware Utility](#) will scan your [network](#) for connected units. You can then select it from the dropdown list.

**NOTE:** Scanning the network may take some time. If you have set the unit IDs of your controllers to low values, you can use the "Max Unit ID" section to speed up this scan drastically. It is therefore a good habit to assign your controllers unit IDs starting at 01, and increasing sequentially through 02, 03, and so on.

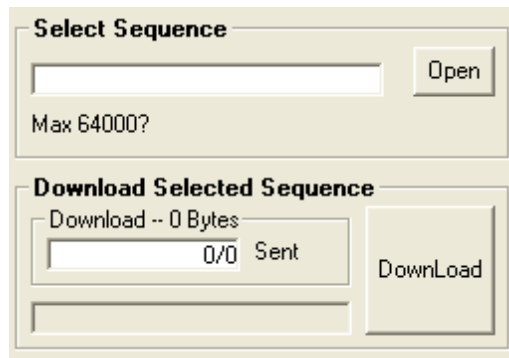


The screenshot shows a software interface for selecting a unit. It has a title bar that says "Select Unit to Configure..Download..Test". Below the title bar, there is a "Refresh" button, a text input field, and a "Select Unit" dropdown menu. To the right of these is a "Max Unit ID" section, which includes a text box with the value "05" and a "Change" button.

Selecting the unit to use

## Download the Sequence

Choose the [animation sequence](#) you wish to download using the "Open" button in the "Select Sequence" section, and then download it using the "DownLoad" button in the "Download Selected Sequence" section:

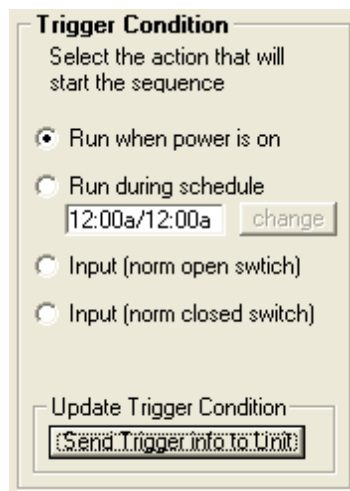


Selecting and downloading the sequence

If you do not see this in the [Hardware Utility](#), make sure that you are on the [LOR Control tab](#), and click on the "Standalone" button near the bottom.

## Scheduling the Sequence

Some [Light-O-Rama controllers](#) can schedule the downloaded [sequence](#) to run at certain times or in certain conditions (those that cannot will run the sequence continually whenever powered on). To schedule when it will run, use the "Trigger Condition" section:



Scheduling the sequence

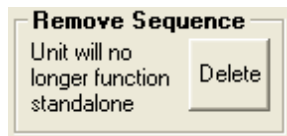
Select the condition you want to start the sequence, and click "Send Trigger info to Unit".

If you do not see this in the [Hardware Utility](#), make sure that you are on the [LOR Control tab](#), and click on the "Standalone" button near the bottom.

**Note:** If you choose to use specific scheduled times, the clock on the controller is set to the current time according to your computer. Make sure that the time on your computer is correct.

## Removing the Sequence

To remove a downloaded [sequence](#) from a standalone [controller](#), use the "Delete" button in the "Remove Sequence" section:



Removing a sequence

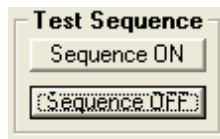
**Note:** This does not *actually* remove the sequence from the controller; rather, it makes it so that the controller will no longer play the sequence. So, if you later decide to use the sequence again, you can simply [reschedule the sequence](#) to run, rather than [downloading the sequence](#) again.

If you do not see this in the [Hardware Utility](#), make sure that you are on the [LOR Control tab](#), and click on the "Standalone" button near the bottom.

## Testing the Sequence

After downloading a [sequence](#) to a [controller](#) to be used in standalone mode, it is recommended that you test the sequence, using the buttons in the "Test Sequence" section. To start the sequence, click "Sequence ON"; to stop it, click "Sequence OFF".

Note that the "Sequence OFF" button will stop the sequence even if it was started automatically (by powering on or by schedule, as opposed to via the "Sequence ON" button).



Testing the sequence

If you do not see this in the [Hardware Utility](#), make sure that you are on the [LOR Control tab](#), and click on the "Standalone" button near the bottom.

### 5.12.1.6 Firmware Updates

The Firmware Update section of the [LOR Control tab](#) of the [Hardware Utility](#) can be used to send new firmware to [Light-O-Rama controllers](#). A controller's firmware has a similar purpose to the operating system on your computer (such as Windows XP or Windows Vista): The operating system on your computer is used to run other programs that you load on the computer, such as [Light-O-Rama](#). The firmware on a Light-O-Rama controller is used to execute the commands to control the lights and run standalone sequences.

From time to time, new versions of firmware will become available. In general, unless the new version of firmware has a new feature that you need to use, you should not update the firmware.

If you do wish to update the firmware of a controller, do so using the following steps:

- [Select the Unit](#)
- [Select the Firmware File](#)
- [Download the Firmware](#)

If any problems are encountered, please see "[Troubleshooting](#)".

To get to the Firmware Update section of the Hardware Utility, make sure that you are in the LOR Control tab, and click the "Firmware" button (near the bottom).



**Firmware**

**Caution:** Updating firmware should be undertaken when absolutely necessary. Carefully follow directions and make every attempt not to interrupt the download of firmware..

**Step1 - Select Unit**

☒ Selected unit listed above    ☐ MP3 Player  
☐ Only one unit is connected    ☐ Wireless Unit

**Step 2 - Select firmware file**

Selected file:

**Step 3 - Press Download Button**

Update progress:

**Status**

Activity:

The Firmware Update section of the Hardware Utility

## Select the Unit

It is recommended that only one [controller](#) be connected to the computer when updating firmware. Units can have firmware updated when more than one is attached to the computer, but if you choose to do this, make sure that "Selected unit listed above" is selected, and make sure that the proper unit is selected in the "Select Unit to Configure.. Download.. Test" section (above the "Firmware" section).

If you instead use the recommended method of having only a single controller attached to the PC during a firmware update, choose "Only one unit is connected".

To update the firmware of a Light-O-Rama MP3 Player or a Light-O-Rama Wireless Unit, select the matching entry in the "Select Unit" section.

**Step1 - Select Unit**

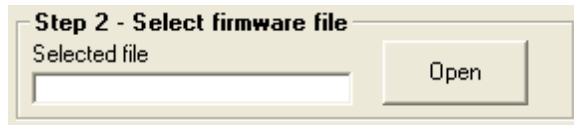
☒ Selected unit listed above    ☐ MP3 Player  
☐ Only one unit is connected    ☐ Wireless Unit

Selecting the unit

## Select the Firmware File

Use the "Open" button to select the firmware file that you wish to send to the [controller](#). The "Open" button starts in your Light-O-Rama base directory; the firmware files are typically located in the "Firmware" subdirectory.

Select the latest version of firmware for the unit being updated. The names of the firmware files correspond with the names of the controllers.

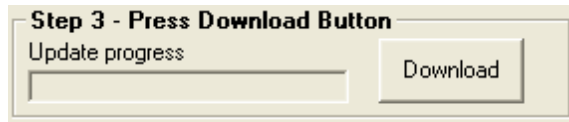


Selecting the firmware file

## Download the Firmware

Finally, start the download by pressing the "Download" button. The progress bar will provide you with an update.

If you encounter any problems, please see "[Troubleshooting](#)".



Starting the download

## Troubleshooting

If the download does not start within 15 seconds of hitting the "Download" button, check that the unit is powered and properly connected to the PC. If all else fails, power the unit on and off ***after you click the download button and the PC is attempting to start the download.***

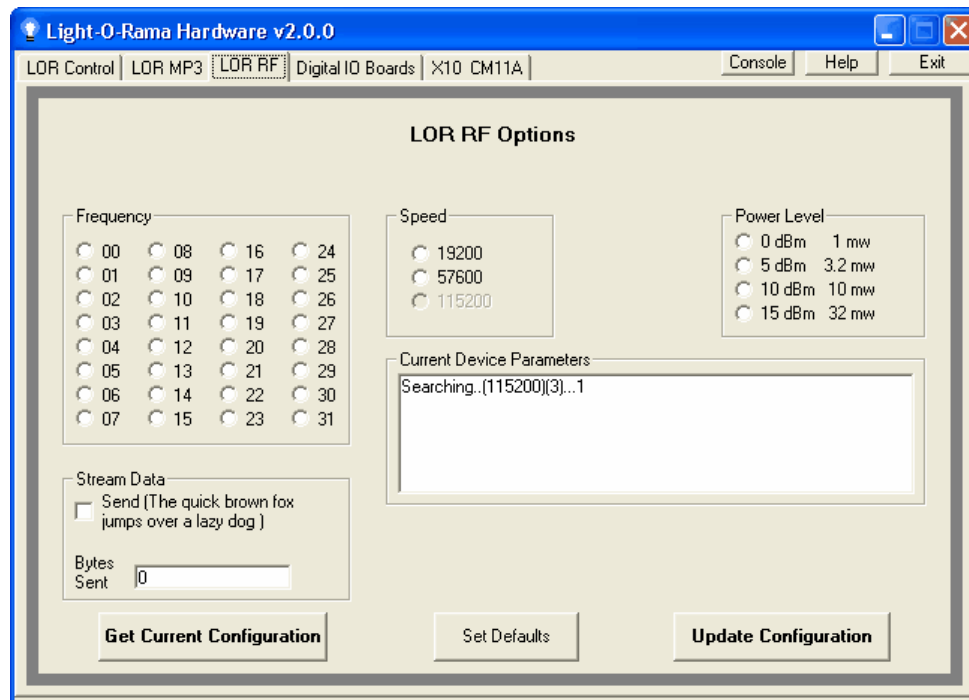
### 5.12.2 Light-O-Rama Wireless Devices

The LOR RF tab of the [Light-O-Rama Hardware Utility](#) can be used to configure Light-O-Rama wireless devices (such as the Easy Light Linker).

When using this tab, make sure that only a single wireless device is in the daisy-chained network hooked up to the PC.

For details, please see the following sections:

- [Frequency](#)
- [Speed](#)
- [Power Level](#)
- [Stream Data](#)
- [Get Current Configuration](#)
- [Set Defaults](#)
- [Update Configuration](#)



The LOR RF tab of the Hardware Utility

## Frequency

Use this section to control the frequency used by the wireless device. Note that the transmitter and any receivers for it must be set to use the same frequency.

You can also use this to set the frequencies of two different transmitters to different values, so that they will not interfere with each other; these different transmitters can then be placed far apart from each other, effectively increasing the range of your wireless network.

Finally, some other wireless source in your area may interfere with Light-O-Rama's wireless communications at certain frequencies, so if you notice problems with the controllers hooked up to your wireless devices, try changing the frequency that is used.

If you change this setting, make sure to click the [Update Configuration button](#) so that the change will be sent to the wireless device currently hooked up to the PC.

## Speed

Use this section to control the communications speed used by the devices. The faster speed is typically the better, allowing more frequent lighting effects, unless your controllers are separated over large distances. In that case, if you notice problems with the higher speed, try changing to the lower speed.

Note that a transmitter and its receivers must use the same speed.

If you change this setting, make sure to click the [Update Configuration button](#) so that the change will be sent to the wireless device currently hooked up to the PC.

## Power Level

If your transmitter and receivers are physically close to each other, using too much power might cause unintended effects. If you notice this, try setting a lower power level.

If you change this setting, make sure to click the [Update Configuration button](#) so that the change will be sent to the wireless device currently hooked up to the PC.

## Stream Data

This section continuously streams data. This is mostly for internal testing purposes, and it is unlikely that you will need to use this.

## Get Current Configuration

Clicking this button will retrieve the settings (such as frequency) from the wireless device currently hooked up to the PC, and display them in the "Current Device Parameters" section.

## Set Defaults

Clicking this button will reset the settings (such as frequency) of the wireless device currently hooked up to the PC back to their factory defaults.

## Update Configuration

After you have changed the frequency, speed, or power level, click this button to send the changes to the wireless device currently hooked up to the PC.

### 5.12.3 Digital IO Boards

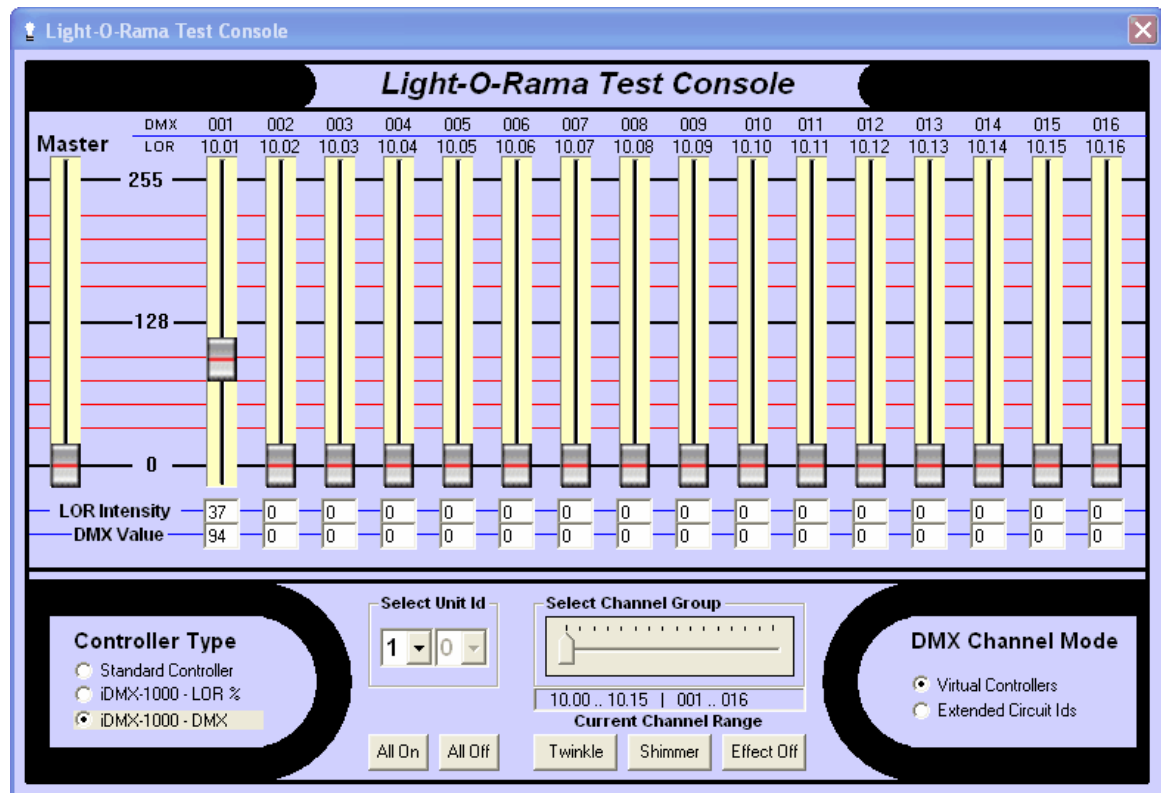
Please note that support for DIO boards was removed with S5.

### 5.12.4 X10 Controllers

Please note that support for X10 was removed with S5.

### 5.12.5 Light Console

Clicking on the "Light Console" button of the [Light-O-Rama Hardware Utility](#) opens the Test Console. The Test Console can be used to test standard Light-O-Rama controllers, or to configure and test Light-O-Rama iDMX-1000 DMX interface. If you are trying to test RGB based devices, you may want to instead use the [Pixel Console](#).



The Test Console of the Hardware Utility

## Controller Type

Use this section (in the lower left) to choose whether to use a test a standard Light-O-Rama controller or to configure and test a Light-O-Rama DMX interface. In the latter case, you can choose between the ability to send any of 101 different intensities, from 0 to 100 ("LOR %" mode), or the ability to send any of 256 different intensities ("DMX" mode).

## DMX Channel Mode

This section (in the lower right) is available only if the [controller type](#) is set to "iDMX-1000 - LOR %" or "iDMX-1000 - DMX". It allows you to choose how to map Light-O-Rama channels to DMX channels.

**NOTE:** Only "Virtual Controllers" is currently supported. "Extended Circuit IDs" will be supported in a future release.

In "Virtual Controllers" mode, the DMX interface is treated as sixteen separate Light-O-Rama controllers each having its own unit ID and each with sixteen circuits, for a total of 256 channels. These 256 channels are each mapped to an individual DMX channel.

In "Extended Circuit IDs" mode (which is *not* currently supported), the DMX interface will be treated as a single Light-O-Rama unit ID, but can individually address all 256 circuits (whereas currently a single Light-O-Rama unit ID supports up to 16 circuits).

## Select Unit ID

Use this section to select the unit ID.

If the [controller type](#) is set to "Standard Controller", or if the [DMX channel mode](#) is set to "Extended Circuit IDs", both dropdown lists are enabled, with 0 through F available as the choices in each. So, for example, to use unit ID C7, select "C" from the first dropdown list, and "7" from the second.

If the DMX channel mode is set to "Virtual Controllers", only the first dropdown list is enabled. The DMX interface will use all sixteen unit IDs starting with the value selected there. For example, to use unit IDs 30 through 3F, select "3" in the first dropdown box.

## Select Channel Group

A Light-O-Rama DMX interface can support up to 256 DMX channels simultaneously. However, the [intensity sliders](#) at the top of the [Test Console](#) only show sixteen of them at once (plus the master slider). To select which sixteen are currently displayed, use the "Select Channel Group" slider with the [controller type](#) set to iDMX-1000.

## Set Intensities

The top portion of the [Test Console](#) shows sixteen sliders for the intensities of sixteen channels, plus a master slider (on the left) which can be used to slide them all simultaneously.

Above each slider are the Light-O-Rama [unit ID](#) and [circuit ID](#) associated with that slider. Also, if the controller type is set to iDMX-1000, then above *those* is the corresponding DMX address. These values depend upon the selections made for the [controller type](#), [DMX channel mode](#), [unit ID](#), and [channel group](#).

A common use of this is to determine the Light-O-Rama intensities to be used to produce various effects on a DMX controller. For example, a DMX controller may be able to turn on red, green, or blue lights; each of these is done by sending the same circuit a different command value. In Light-O-Rama, these are represented as intensities. The Light-O-Rama intensities and the corresponding DMX values are displayed below each slider.

So, for example, you could use this portion of the Test Console to determine that your controller turns on a blue light when sent a value of 94, which corresponds to a Light-O-Rama intensity of 37%. So, when building a [sequence](#) in the [Sequencer](#), you can tell this DMX controller to turn on a blue light by applying a Set Intensity effect for 37%.

## Test Buttons

You can use the various buttons at the bottom of the Test Console to send lighting effect commands to the controller.

### 5.12.6 Pixel Console

Clicking on the "Pixel Console" button of the [Light-O-Rama Hardware Utility](#) opens the Pixel Test Console. The Pixel Test Console is best used to test RGB Light-O-Rama controllers. The labels above each group of sliders show the physical pixel number, as well as the LOR channels in use.

The Pixel Console can be used to test DMX and E1.31 RGB devices as long as:

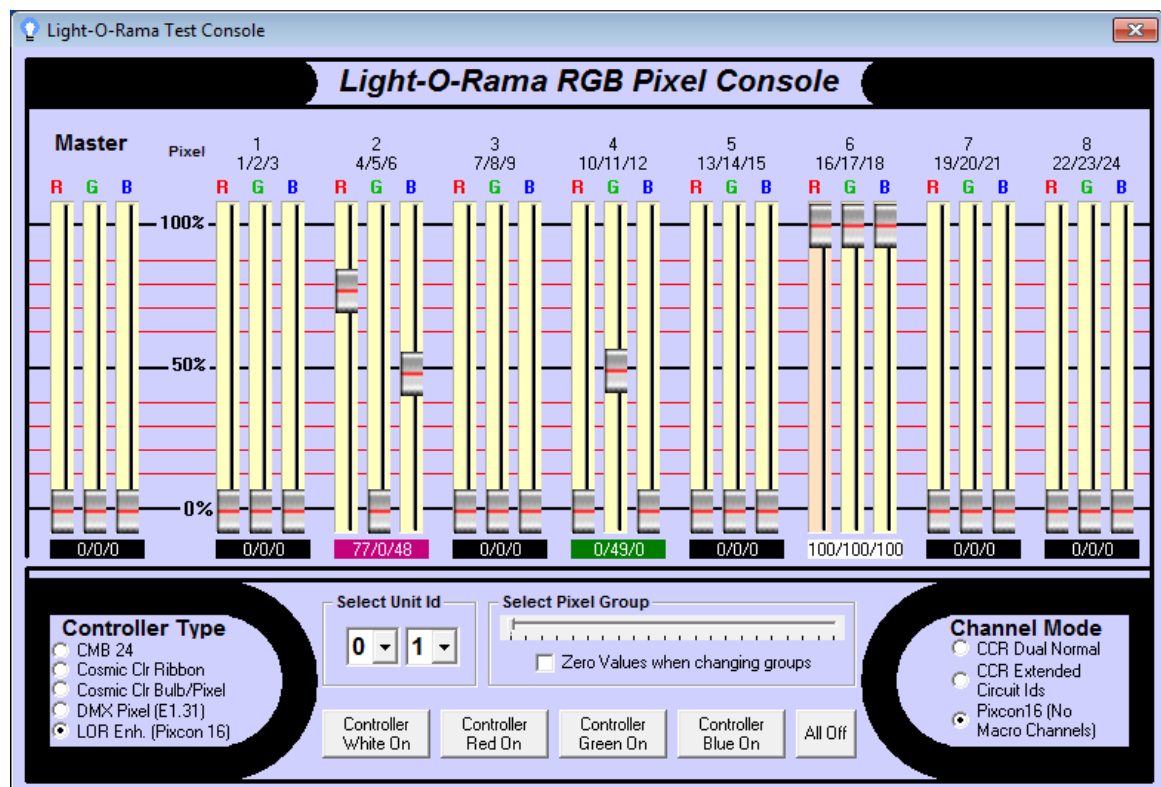
1. Your software is registered and your [license level](#) supports Native DMX Devices (Advanced or

Higher)

2. The [Comm Listener](#) is running. This will require that you have the [LOR Control Panel](#) loaded.
3. You have properly defined your DMX Universe in [Network Preferences](#).

The Pixel Console can be used to test PixCon16 devices running in LOR mode as long as:

1. Your software is registered and your [license level](#) supports Enhanced LOR Networks (Pro)
2. The Comm Listener is running. This will require that you have the LOR Control Panel loaded.
3. Only devices on the REGular network can be tested.
4. The REGular network must be defined to be running at 500K in Enhanced mode.
5. You did not allow the Hardware Utility to take control of the REGular port from the Listener on start up.



The Pixel Test Console of the Hardware Utility

## Set Intensities

The top portion of the pixel console shows up to twenty four sliders for the intensities of eight RGB pixels, plus a master slider (on the left) which can be used to slide them all simultaneously.

Above each slider are the Physical Pixel Number and the Light-O-Rama [circuit IDs](#), or DMX Channels associated with that triplet. The top number is the Pixel Number, the bottom three numbers are the Circuit or Channel IDs.

## Color Label

The colored label box under each group of 3 sliders shows an approximate representation of the

color that will be output by the device. NOTE: colors on your monitor may not exactly match what you would see on the actual device. You should always reference what is actually output on the physical device when selecting color values. Clicking this box will bring up a color selection dialog that will set the R G and B components automatically. The numbers shown in the box are the LOR intensities of each of the sliders, or the DMX Channel values in R/G/B order.

## Controller Type

Use this section (in the lower left) to choose whether to use a test a Light-O-Rama CMB24 controller, Cosmic Color Ribbon, Cosmic Color Bulb/Pixel device, a DMX universe, or network device like the PixCon16 running on the REGular network in LOR Enhanced mode. If your license does not support native DMX the DMX and LOR Enh. options are not available. If your license does not support Enhanced LOR networks, the LOR Enh. option is not available,

## Channel Mode

This section (in the lower right) is available only if the [controller type](#) is set to "Cosmic Color Bulb/Pixel" or LOR Enhanced. Set this to match the configuration of your Cosmic Color device or to No Macro Channels (PixCon16). The No Macro Channels option is only available if you have selected the LOR Enh (Pixcon 16) controller type.

Please note that the Pixel Console does not know exactly what device(s) you have connected to your Enhanced LOR network. If you incorrectly set the channel mode, you may experience strange behavior on your device. For example, if you have a Cosmic Color device connected to your Enhanced LOR network, but have specified No Macro Channels (Pixcon 16) channel mode, results are going to be random once you pass channel 150. Always ensure the channel mode matches the device you are trying to test.

## Select Unit ID/Select Universe

Use this section to select the unit ID. When working with DMX devices, this changes to allow selection of a DMX Universe.

## Select Pixel Group

A Light-O-Rama RGB device can support up to 300 channels as 100 pixels, and DMX Universes can support up to 510 channels as 170 pixels. Due to screen space limitations, the Pixel Console can only show sliders for 8 pixels at one time. If your device supports more than 8 pixels, this selector is active and allows you to set which group of pixels to control.

## Zero Values when changing groups

When using the Select Pixel Group slider, the lights for the next selected group will be updated with the values of the current sliders. However, if you check this box, the sliders will all be set to 0 when changing groups.

## Test Buttons

You can use the various buttons at the bottom of the Test Console to send lighting effect commands to the controller. Please remember that while the buttons may refer to 'Controller', Cosmic Color Bulbs or Pixels that are in Dual Normal mode will only update the string the Unit ID corresponds to.



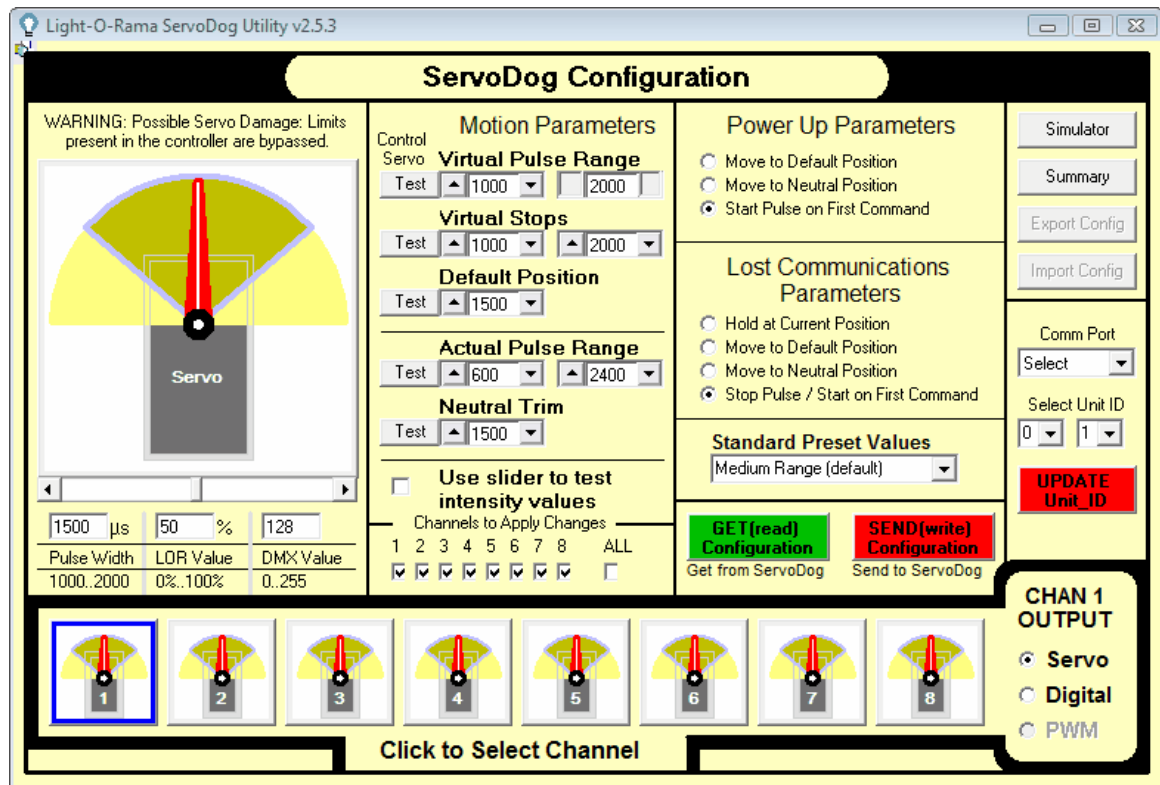
Using these buttons with an incorrect Channel Mode selected will produce unintended results.

## 5.13 ServoDog Utility



The Light-O-Rama ServoDog Utility can be used to configure the Light-O-Rama ServoDog, which is a fourteen channel digital controller that can perform digital input, digital output, servo control and PWM ("Pulse Width Modulation") dimming.

For details on how to use the ServoDog Utility, please refer to your ServoDog manual. This can be downloaded from [the Light-O-Rama Support page](#).



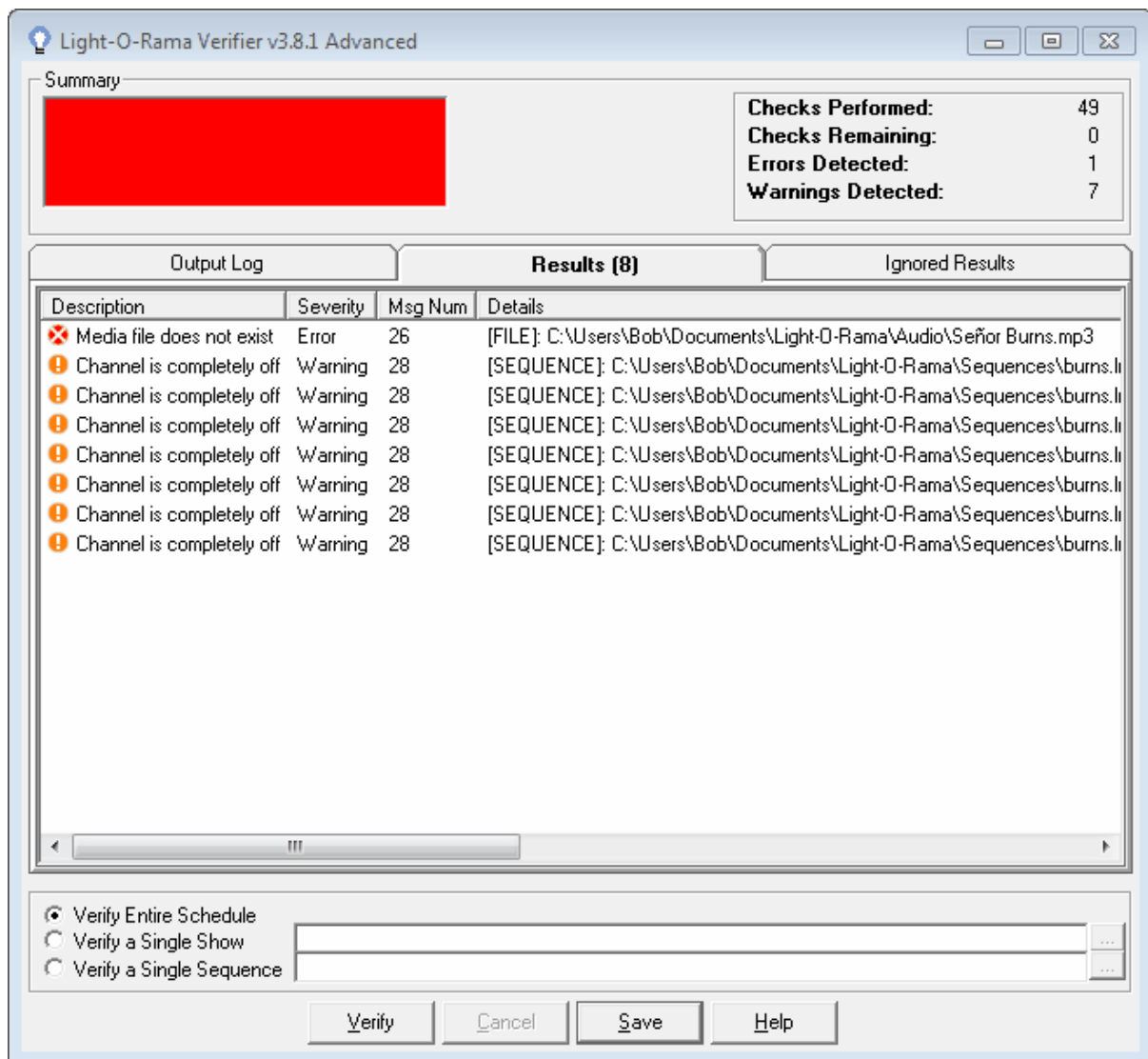
The Light-O-Rama ServoDog Utility

## 5.14 Verifier

The Light-O-Rama Verifier can be used to check for certain types of problems with the way that Light-O-Rama is configured on your machine, and with your [schedule](#), [shows](#), and [sequences](#).

To use the Verifier, simply click its "Verify" button. By default, this will cause it to check for issues in your Light-O-Rama configuration, your schedule, shows that you have scheduled, and sequences in those shows. You can also tell it to "Verify a Single Show" or "Verify a Single Sequence"; note, though, that two sequences which each pass "Verify a Single Sequence" without any problems might have problems when used together in a single show, so it's always a good idea to do "Verify a Single Show" and especially "Verify Entire Schedule" at least once before going live with your show.

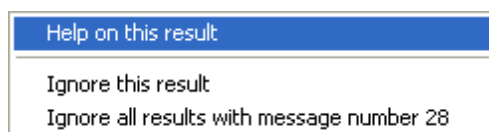
As the Verifier is checking for issues, it will display what it is doing in its "Output Log" tab; when it is complete, it will switch to its "Results" tab, showing a list of the issues that it has found:



The Verifier has found one error and seven warnings

Each result has a description, severity, and message number, and may have additional details. There are several "Details" columns, each of which may contain a piece of information specific to the detected problem. For example, in the above screenshot, several warning messages appear, all with [message number 28](#), meaning "Channel is completely off". This message number's first "Details" column shows the name of the sequence in which the problem was found and its second "Details" column shows the [track](#) containing the [channel](#) which is completely off. Its third "Details" column (which cannot be seen in the screenshot above, but which could be seen by scrolling to the right) displays the name of the channel.

If you right-click on a particular result, a popup menu will appear:



The right-click popup menu for a result

Clicking "Help on this result" simply opens the help file to the page for the result number in question.

The two "ignore" options let you tell the Verifier that you are not interested in seeing this result in the future - either it specifically ("Ignore this result") or all results with the same message number ("Ignore all results with message number 28").

If you ignore a result (or all results with a certain message number), then whenever such results are detected in the future, they will not count towards the number of errors or warnings which the Verifier says it detected, and they will be displayed on the Verifier's "Ignored Results" tab instead of the "Results" tab. You can later decide to stop ignoring such results by going to that tab, right-clicking on a result, and unchecking the ignore option that you had previously selected.

You can also save the list of results to a text file, by clicking the Verifier's "Save" button. Only results on the "Results" tab will be saved to the file; those on the "Ignored Results" will not be.

Please see the [list of Verifier](#) messages for details on the types of problems that the Verifier checks for.

### 5.14.1 List of Verifier Messages

The following messages can be generated by the [Light-O-Rama Verifier](#). For details on any given one, please refer to its individual help page.

- [Message 1](#) (Info): **No errors or warnings found**
- [Message 2](#) (Warning): **Verification cancelled**
- [Message 3](#) (Error): **Light-O-Rama is not fully installed**
- [Message 4](#) (Error): **No registry entry for application path**
- [Message 5](#) (Error): **Application directory does not exist**
- [Message 6](#) (Warning): **Verifier not running from LOR application path**
- [Message 7](#) (Error): **Application file does not exist**
- [Message 8](#) (Error): **Unlicensed LOR demo version used**
- [Message 9](#) (Warning): **Unsupported version of Windows Media Player**
- [Message 10](#) (Error): **No registry entry for user data path**
- [Message 11](#) (Error): **User data directory does not exist**
- [Message 12](#) (Warning): **No registry entry for non-media data path**
- [Message 13](#) (Warning): **Non-media data directory does not exist**
- [Message 14](#) (Warning): **No registry entry for media data path**
- [Message 15](#) (Warning): **Media data directory does not exist**
- [Message 16](#) (Error): **Application file has unexpected version number**
- [Message 17](#) (Warning): **Weekly schedule file does not exist**
- [Message 18](#) (Warning): **Yearly schedule file does not exist**
- [Message 19](#) (Warning): **Calendar scheduling not supported**
- [Message 20](#) (Warning): **No shows are scheduled**
- [Message 21](#) (Error): **Show file does not exist**
- [Message 22](#) (Error): **Error reading show file**
- [Message 23](#) (Error): **Sequence file does not exist**
- [Message 24](#) (Error): **Sequence file cannot be loaded**
- [Message 25](#) (Warning): **Show has no sequences**
- [Message 26](#) (Error): **Media file does not exist**
- [Message 27](#) (Warning): **Conflicting channel settings in sequence**
- [Message 28](#) (Warning): **Channel is completely off**
- [Message 29](#) (Warning): **Sequence is completely off**
- [Message 30](#) (Warning): **Channel is missing settings**

- [Message 31](#) (Warning): **Channel uses undefined comm network**
- [Message 32](#) (Warning): **Channel in tracks of conflicting length**
- [Message 33](#) (Warning): **Musical file used in non-audio section of show**
- [Message 34](#) (Warning): **Subsequences not supported**
- [Message 35](#) (Warning): **Background sequences unsupported**
- [Message 36](#) (Warning): **Startup sequences unsupported**
- [Message 37](#) (Warning): **Shutdown sequences unsupported**
- [Message 38](#) (Warning): **Interactive triggers unsupported**
- [Message 39](#) (Warning): **Unsupported number of tracks**
- [Message 40](#) (Warning): **Shell commands unsupported**
- [Message 41](#) (Warning): **Shell command map file does not exist**
- [Message 42](#) (Warning): **Shell command not set**
- [Message 43](#) (Warning): **Channel conflict**
- [Message 44](#) (Warning): **Old MC-P compatibility enabled**
- [Message 45](#) (Warning): **Channel settings conflict in sequence/intensity file**
- [Message 46](#) (Warning): **Channel settings conflict in intensity file**
- [Message 47](#) (Warning): **Intensity file conflict**
- [Message 48](#) (Warning): **Channel/intensity file conflict**
- [Message 49](#) (Warning): **Intensity file uses undefined comm network**
- [Message 50](#) (Warning): **Intensity files not supported by license level**
- [Message 51](#) (Warning): **Use Compressed Sequences disabled**
- [Message 52](#) (Warning): **Show Player Memory Restarts disabled**
- [Message 53](#) (Warning): **Trigger uses undefined network**
- [Message 54](#) (Warning): **Trigger uses LOR Enhanced network**

#### 5.14.1.1 Verifier Messages 1-10

The following are some messages can be generated by the [Light-O-Rama Verifier](#). For details on any given one, please refer to its individual help page. To see all possible messages, please refer to the [List of Verifier Messages](#).

- [Message 1](#) (Info): **No errors or warnings found**
- [Message 2](#) (Warning): **Verification cancelled**
- [Message 3](#) (Error): **Light-O-Rama is not fully installed**
- [Message 4](#) (Error): **No registry entry for application path**
- [Message 5](#) (Error): **Application directory does not exist**
- [Message 6](#) (Warning): **Verifier not running from LOR application path**
- [Message 7](#) (Error): **Application file does not exist**
- [Message 8](#) (Error): **Unlicensed LOR demo version used**
- [Message 9](#) (Warning): **Unsupported version of Windows Media Player**
- [Message 10](#) (Error): **No registry entry for user data path**

5.14.1.1.1 1: No errors or warnings found

**Message Number:** 1

**Severity:** Info

**Summary:** No errors or warnings found

If the [LOR Verifier](#) does not find any errors or warnings (other than those you have told it to ignore), it will output this message.

[The LOR Verifier](#)  
[List of Verifier Messages](#)

5.14.1.1.2 2: Verification cancelled

**Message Number:** 2

**Severity:** Warning

**Summary:** Verification cancelled

If you hit the cancel button while the [LOR Verifier](#) is checking for problems, it will stop checking, display any issues that it has found to that point, and additionally display this message to warn you that there may be other issues that it would have found had it not been cancelled.

Note that it may not stop immediately when you hit the cancel button; it may finish its current check first.

---

[The LOR Verifier](#)  
[List of Verifier Messages](#)

5.14.1.1.3 3: Light-O-Rama is not installed

**Message Number:** 3

**Severity:** Error

**Summary:** Light-O-Rama is not fully installed

The installation of Light-O-Rama is not complete. This could occur, for example, if the installation was interrupted, or if a registry cleanup utility deleted certain Light-O-Rama entries from your computer's Windows registry.

If the problem is that the registry entries have been deleted, you can solve it by running the LORPost utility, which is typically automatically run after installation. This utility can be found in the directory where you installed your Light-O-Rama program files, which is typically (but not always) C:\Program Files\Light-O-Rama.

Note that the LORPost utility will ask where your Light-O-Rama data files should be stored. If you already have a "Sequences" directory, and would like to keep your sequences there by default, tell it the directory one level *above* that directory. For example, if your sequences are stored in C:\LOR\Sequences, tell the LORPost utility to store your Light-O-Rama data files in C:\LOR.

Otherwise, try reinstalling Light-O-Rama, or uninstalling and then reinstalling.

---

[The LOR Verifier](#)  
[List of Verifier Messages](#)

5.14.1.1.4 4: No registry entry for application path

**Message Number:** 4

**Severity:** Error

**Summary:** No registry entry for application path

A required Light-O-Rama entry in the Windows registry cannot be found. This could occur, for example, if the installation was interrupted, or if a registry cleanup utility deleted certain Light-O-Rama entries from your computer's Windows registry. You will not be able to use Light-O-Rama until this problem is resolved.

If the problem is that the registry entries have been deleted, you can solve it by running the LORPost utility, which is typically automatically run after installation. This utility can be found in the directory where you installed your Light-O-Rama program files, which is typically (but not always) C:\Program Files\Light-O-Rama.

Note that the LORPost utility will ask where your Light-O-Rama data files should be stored. If you already have a "Sequences" directory, and would like to keep your sequences there by default, tell it the directory one level *above* that directory. For example, if your sequences are stored in C:\LOR\Sequences, tell the LORPost utility to store your Light-O-Rama data files in C:\LOR.

Otherwise, try reinstalling Light-O-Rama, or uninstalling and then reinstalling.

---

[The LOR Verifier](#)

[List of Verifier Messages](#)

5.14.1.1.5 5: Application directory does not exist

**Message Number:** 5

**Severity:** Error

**Summary:** Application directory does not exist

**Details:** The name of the directory that is missing

The Windows registry says that the Light-O-Rama program files, such as the [Sequencer](#) and the [Hardware Utility](#), can be found in a certain directory, but that directory does not actually exist. You will not be able to use Light-O-Rama until this problem is resolved.

It is suggested to uninstall and reinstall Light-O-Rama.

---

[The LOR Verifier](#)

[List of Verifier Messages](#)

5.14.1.1.6 6: Verifier not running from LOR application path

**Message Number:** 6

**Severity:** Warning

**Summary:** Verifier not running from LOR application path

**Details #1:** The name of the directory that LOR program files should be contained in

**Details #2:** The name of the directory that the Verifier is running from

The various Light-O-Rama program files, such as the [Sequencer](#) and the [Hardware Utility](#), are expected to be found in a certain Windows directory. The [Verifier](#) itself is one such program. However, the copy of the Verifier that you are running is actually contained in a different directory.

This may not be a problem, for example if you intentionally copied the Verifier to a different directory and ran it from there.

However, it might indicate that you are using an old version of the Verifier from a previous installation, and that old Verifier may not be completely compatible with the current installation. Or, it might be indicative of a deeper problem with the installation of Light-O-Rama.

It is suggested that you run the Verifier from the same directory where the Light-O-Rama program files are installed. If you are doing so, and still get this error, consider uninstalling and reinstalling Light-O-

Rama.

---

[The LOR Verifier](#)

[List of Verifier Messages](#)

5.14.1.1.7 7: Application file does not exist

**Message Number:** 7

**Severity:** Error

**Summary:** Application file does not exist

**Details:** The expected directory and filename of the missing application file

One of the Light-O-Rama program files, such as the [Sequencer](#) or the [Hardware Utility](#), cannot be found.

Depending upon exactly what is missing, your [shows](#) may still be able to play. However, they may not, and in any case, something is definitely wrong.

It is suggested that you uninstall and reinstall Light-O-Rama.

---

[The LOR Verifier](#)

[List of Verifier Messages](#)

5.14.1.1.8 8: Unlicensed LOR demo version used

**Message Number:** 8

**Severity:** Error

**Summary:** Unlicensed LOR demo version used

Your Light-O-Rama software has not been registered. Until you register it, it will not actually control your lights (and will have [other limitations](#) as well).

This may have occurred for various reasons - for example, it simply may be that you have not yet purchased a Light-O-Rama license. If you do have a license, though, you may not have entered it on this computer, or perhaps you have recently installed a new version of Light-O-Rama (in which case your license may or may not be valid for this new version). Or, perhaps your licensing information has been deleted from the Windows registry, perhaps by a registry cleanup tool.

If you have not yet purchased a license, you can do so from the [Light-O-Rama website](#).

If you have already purchased one, try using it to [register Light-O-Rama](#) on this computer. If this does not work, perhaps you have already installed Light-O-Rama on the maximum number of computers covered by your license, or perhaps your license is for an older version of Light-O-Rama than the one that you are trying to run.

---

[The LOR Verifier](#)

[List of Verifier Messages](#)

5.14.1.1.9 9: Unsupported version of Windows Media Player

**Message Number:** 9

**Severity:** Warning

**Summary:** Unsupported version of Windows Media Player

The version of Windows Media Player installed on this computer is older than the minimum version required by Light-O-Rama, or, perhaps, Windows Media Player is not correctly installed.

You may still be able to use Light-O-Rama, but it will (at the very least) be severely limited - for example, [musical sequences](#) will not play. It is suggested that you install the latest version of Windows Media Player.

---

[The LOR Verifier](#)

[List of Verifier Messages](#)

#### 5.14.1.1.10 10: No registry entry for user data path

**Message Number:** 10

**Severity:** Error

**Summary:** No registry entry for user data path

A required Light-O-Rama entry in the Windows registry cannot be found. This could occur, for example, if the installation was interrupted, or if a registry cleanup utility deleted certain Light-O-Rama entries from your computer's Windows registry.

Your [shows](#) will not run successfully until this problem is resolved.

If the problem is that the registry entries have been deleted, you can solve it by running the LORPost utility, which is typically automatically run after installation. This utility can be found in the directory where you installed your Light-O-Rama program files, which is typically (but not always) C:\Program Files\Light-O-Rama.

Note that the LORPost utility will ask where your Light-O-Rama data files should be stored. If you already have a "Sequences" directory, and would like to keep your sequences there by default, tell it the directory one level *above* that directory. For example, if your sequences are stored in C:\LOR\Sequences, tell the LORPost utility to store your Light-O-Rama data files in C:\LOR.

Otherwise, try reinstalling Light-O-Rama, or uninstalling and then reinstalling.

---

[The LOR Verifier](#)

[List of Verifier Messages](#)

#### 5.14.1.2 Verifier Messages 11-20

The following are some messages can be generated by the [Light-O-Rama Verifier](#). For details on any given one, please refer to its individual help page. To see all possible messages, please refer to the [List of Verifier Messages](#).

- [Message 11](#) (Error): **User data directory does not exist**
- [Message 12](#) (Warning): **No registry entry for non-media data path**
- [Message 13](#) (Warning): **Non-media data directory does not exist**
- [Message 14](#) (Warning): **No registry entry for media data path**
- [Message 15](#) (Warning): **Media data directory does not exist**
- [Message 16](#) (Error): **Application file has unexpected version number**
- [Message 17](#) (Warning): **Weekly schedule file does not exist**
- [Message 18](#) (Warning): **Yearly schedule file does not exist**
- [Message 19](#) (Warning): **Calendar scheduling not supported**
- [Message 20](#) (Warning): **No shows are scheduled**



## 5.14.1.2.1 11: User data directory does not exist

**Message Number:** 11**Severity:** Error**Summary:** User data directory does not exist**Details:** The name of the missing directory

The directory that Light-O-Rama expects to find Light-O-Rama data files in does not exist. This could occur, for example, if the installation was interrupted, or if a registry cleanup utility deleted certain Light-O-Rama entries from your computer's Windows registry, or if the directory was deleted or renamed.

Your [shows](#) will not run successfully until this problem is resolved.

You may be able to solve this problem by running the LORPost utility, which is typically automatically run after installation. This utility can be found in the directory where you installed your Light-O-Rama program files, which is typically (but not always) C:\Program Files\Light-O-Rama.

Note that the LORPost utility will ask where your Light-O-Rama data files should be stored. If you already have a "Sequences" directory, and would like to keep your sequences there by default, tell it the directory one level *above* that directory. For example, if your sequences are stored in C:\LOR\Sequences, tell the LORPost utility to store your Light-O-Rama data files in C:\LOR.

Otherwise, try reinstalling Light-O-Rama, or uninstalling and then reinstalling.

---

[The LOR Verifier](#)[List of Verifier Messages](#)

## 5.14.1.2.2 12: No registry entry for non-media data path

**Message Number:** 12**Severity:** Warning**Summary:** No registry entry for non-media data path

A required Light-O-Rama entry in the Windows registry cannot be found. This could occur, for example, if the installation was interrupted, or if a registry cleanup utility deleted certain Light-O-Rama entries from your computer's Windows registry.

Until this problem is resolved, it is possible that your [shows](#) will run successfully, but it is likely that they will not. Even if the shows themselves do run, certain [sequences](#) in them may not.

If the problem is that the registry entries have been deleted, you can solve it by running the LORPost utility, which is typically automatically run after installation. This utility can be found in the directory where you installed your Light-O-Rama program files, which is typically (but not always) C:\Program Files\Light-O-Rama.

Note that the LORPost utility will ask where your Light-O-Rama data files should be stored. If you already have a "Sequences" directory, and would like to keep your sequences there by default, tell it the directory one level *above* that directory. For example, if your sequences are stored in C:\LOR\Sequences, tell the LORPost utility to store your Light-O-Rama data files in C:\LOR.

Otherwise, try reinstalling Light-O-Rama, or uninstalling and then reinstalling.

---

[The LOR Verifier](#)

[List of Verifier Messages](#)

## 5.14.1.2.3 13: Non-media data directory does not exist

**Message Number:** 13**Severity:** Warning**Summary:** Non-media data directory does not exist**Details:** The name of the missing directory

The directory that Light-O-Rama expects to find Light-O-Rama sequence files in does not exist. This could occur, for example, if the installation was interrupted, or if a registry cleanup utility deleted certain Light-O-Rama entries from your computer's Windows registry, or if the directory was deleted or renamed.

Until this problem is resolved, it is possible that your [shows](#) will run successfully, but it is likely that they will not. Even if the shows themselves do run, certain [sequences](#) in them may not.

You may be able to solve this problem by running the LORPost utility, which is typically automatically run after installation. This utility can be found in the directory where you installed your Light-O-Rama program files, which is typically (but not always) C:\Program Files\Light-O-Rama.

Note that the LORPost utility will ask where your Light-O-Rama data files should be stored. If you already have a "Sequences" directory, and would like to keep your sequences there by default, tell it the directory one level *above* that directory. For example, if your sequences are stored in C:\LOR\Sequences, tell the LORPost utility to store your Light-O-Rama data files in C:\LOR.

Otherwise, try reinstalling Light-O-Rama, or uninstalling and then reinstalling.

---

[The LOR Verifier](#)[List of Verifier Messages](#)

## 5.14.1.2.4 14: No registry entry for media data path

**Message Number:** 14**Severity:** Warning**Summary:** No registry entry for media data path

A required Light-O-Rama entry in the Windows registry cannot be found. This could occur, for example, if the installation was interrupted, or if a registry cleanup utility deleted certain Light-O-Rama entries from your computer's Windows registry.

Until this problem is resolved, it is possible that your [shows](#) will run successfully, but it is likely that they will not. Even if the shows themselves do run, certain [sequences](#) in them may not.

If the problem is that the registry entries have been deleted, you can solve it by running the LORPost utility, which is typically automatically run after installation. This utility can be found in the directory where you installed your Light-O-Rama program files, which is typically (but not always) C:\Program Files\Light-O-Rama.

Note that the LORPost utility will ask where your Light-O-Rama data files should be stored. If you already have a "Sequences" directory, and would like to keep your sequences there by default, tell it the directory one level *above* that directory. For example, if your sequences are stored in C:\LOR\Sequences, tell the LORPost utility to store your Light-O-Rama data files in C:\LOR.

Otherwise, try reinstalling Light-O-Rama, or uninstalling and then reinstalling.

---

[The LOR Verifier](#)  
[List of Verifier Messages](#)

5.14.1.2.5 15: Media data directory does not exist

**Message Number:** 15

**Severity:** Warning

**Summary:** Media data directory does not exist

**Details:** The name of the missing directory

The directory that Light-O-Rama expects to find audio and video files in does not exist. This could occur, for example, if the installation was interrupted, or if a registry cleanup utility deleted certain Light-O-Rama entries from your computer's Windows registry, or if the directory was deleted or renamed.

Until this problem is resolved, it is possible that your [shows](#) will run successfully, but it is likely that they will not. Even if the shows themselves do run, certain [sequences](#) in them may not.

You may be able to solve this problem by running the LORPost utility, which is typically automatically run after installation. This utility can be found in the directory where you installed your Light-O-Rama program files, which is typically (but not always) C:\Program Files\Light-O-Rama.

Note that the LORPost utility will ask where your Light-O-Rama data files should be stored. If you already have a "Sequences" directory, and would like to keep your sequences there by default, tell it the directory one level *above* that directory. For example, if your sequences are stored in C:\LOR\Sequences, tell the LORPost utility to store your Light-O-Rama data files in C:\LOR.

Otherwise, try reinstalling Light-O-Rama, or uninstalling and then reinstalling.

---

[The LOR Verifier](#)  
[List of Verifier Messages](#)

5.14.1.2.6 16: Application file has unexpected version number

**Message Number:** 16

**Severity:** Error

**Summary:** Application file has unexpected version number

**Details #1:** The name of the application file

**Details #2:** The expected version number of the application file

**Details #3:** The actual version number of the application file

A certain Light-O-Rama program file, such as the [Sequencer](#) or the [Hardware Utility](#), has a version number other than the one that the [Verifier](#) was expecting.

This may be because you are using an old version of the Verifier from a previous installation, and that old Verifier may not be completely compatible with the current installation. Or, it might be indicative of a deeper problem with the installation of Light-O-Rama.

Make sure that you are running the copy of the Verifier that is in the same directory where your current version of Light-O-Rama is installed. If you are doing so, it is suggested that you uninstall and reinstall Light-O-Rama.

[The LOR Verifier](#)  
[List of Verifier Messages](#)

5.14.1.2.7 17: Weekly schedule file does not exist

**Message Number:** 17

**Severity:** Warning

**Summary:** Weekly schedule file does not exist

**Details:** The name of the missing file

The file which is supposed to contain your [weekly schedule](#) does not exist.

If you do not intend to have any [shows scheduled](#) via the weekly schedule, this is not an issue; any shows that you have scheduled via the [calendar schedule](#) should play as scheduled. But if you do intend to have shows scheduled via the weekly schedule, they will not be played until this problem is resolved.

Perhaps the file was renamed out of the way, in which case you can rename it back to the expected name. Or, perhaps it was deleted; check your computer's Recycle Bin. If neither of these is the problem, then you will have to recreate your weekly schedule via the [Schedule Editor](#) or the [Simple Show Builder](#).

---

[The LOR Verifier](#)  
[List of Verifier Messages](#)

5.14.1.2.8 18: Yearly schedule file does not exist

**Message Number:** 18

**Severity:** Warning

**Summary:** Yearly schedule file does not exist

**Details:** The name of the missing file

The file which is supposed to contain your [calendar schedule](#) does not exist.

If you do not intend to have any [shows scheduled](#) via the calendar schedule, this is not an issue; any shows that you have scheduled via the [weekly schedule](#) should play as scheduled. But if you do intend to have shows scheduled via the calendar schedule, they will not be played until this problem is resolved.

Perhaps the file was renamed out of the way, in which case you can rename it back to the expected name. Or, perhaps it was deleted; check your computer's Recycle Bin. If neither of these is the problem, then you will have to recreate your weekly schedule via the [Schedule Editor](#) or the [Simple Show Builder](#).

---

[The LOR Verifier](#)  
[List of Verifier Messages](#)

5.14.1.2.9 19: Calendar scheduling not supported

**Message Number:** 19

**Severity:** Warning

**Summary:** Calendar scheduling not supported

**Details #1:** The date on which a show is scheduled via the calendar

**Details #2:** The name of the show

A [show](#) is [scheduled](#) via the [calendar schedule](#), but your [license](#) does not support calendar scheduling (or you are using the unlicensed demo version of the software). The show will not play at the scheduled time.

If you already have a license, and have registered Light-O-Rama on this computer, then to get the show to play, you can either upgrade to a higher level license which does support calendar scheduling, or else remove the show from your calendar schedule and schedule it in your [weekly schedule](#) instead.

If you are using the unlicensed demo version, and you have not yet purchased a license, you can do so from the [Light-O-Rama website](#).

If you have already purchased one, try using it to [register Light-O-Rama](#) on this computer. If this does not work, perhaps you have already installed Light-O-Rama on the maximum number of computers covered by your license, or perhaps your license is for an older version of Light-O-Rama than the one that you are trying to run.

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[The LOR Verifier](#)

[List of Verifier Messages](#)

5.14.1.2.10 20: No shows are scheduled

**Message Number:** 20

**Severity:** Warning

**Summary:** No shows are scheduled

You have no [shows scheduled](#). None of your shows will play until you schedule them, via the [Schedule Editor](#) or the [Simple Show Builder](#).

---

[The LOR Verifier](#)

[List of Verifier Messages](#)

### 5.14.1.3 Verifier Messages 21-30

The following are some messages can be generated by the [Light-O-Rama Verifier](#). For details on any given one, please refer to its individual help page. To see all possible messages, please refer to the [List of Verifier Messages](#).

- [Message 21](#) (Error): **Show file does not exist**
- [Message 22](#) (Error): **Error reading show file**
- [Message 23](#) (Error): **Sequence file does not exist**
- [Message 24](#) (Error): **Sequence file cannot be loaded**
- [Message 25](#) (Warning): **Show has no sequences**
- [Message 26](#) (Error): **Media file does not exist**
- [Message 27](#) (Warning): **Conflicting channel settings in sequence**
- [Message 28](#) (Warning): **Channel is completely off**
- [Message 29](#) (Warning): **Sequence is completely off**
- [Message 30](#) (Warning): **Channel is missing settings**

5.14.1.3.1 21: Show file does not exist

**Message Number:** 21

**Severity:** Error

**Summary:** Show file does not exist

**Details:** The name of the missing show file

You have a [show scheduled](#), but the file that is supposed to contain that show does not exist. The show will not play until this problem is resolved.

If you do not want the show to play, this is not a problem, but you may want to remove it from your schedule (using the [Schedule Editor](#)) so that this error message does not appear in the future.

If you do want the show to play, perhaps its file was renamed, or deleted. If it was renamed, either rename it back, or else use the Schedule Editor to point to the new name of the show file instead of the old name. If it was deleted, check your computer's Recycle Bin.

If these suggestions do not resolve the situation, you may have to recreate the show, using the [Show Editor](#).

---

[The LOR Verifier](#)

[List of Verifier Messages](#)

#### 5.14.1.3.2 22: Error reading show file

**Message Number:** 22

**Severity:** Error

**Summary:** Error reading show file

**Details:** The name of the show file

You have a [show scheduled](#), but the show cannot be loaded. For example, perhaps the show's file has become corrupted. The show will not play until this problem is resolved.

If you have any backups of the show file, check to see if they work. Otherwise, you may have to recreate the show, using the [Show Editor](#).

---

[The LOR Verifier](#)

[List of Verifier Messages](#)

#### 5.14.1.3.3 23: Sequence file does not exist

**Message Number:** 23

**Severity:** Error

**Summary:** Sequence file does not exist

**Details #1:** The name of the missing sequence file

**Details #2:** The name of the show file that this sequence is referenced in

One of your [scheduled shows](#) refers to a [sequence](#) file that does not exist. The sequence will not play in the show until this problem is resolved.

If you do not want the sequence to play, this is not a problem, but you may want to remove it from the show (using the [Show Editor](#)) so that this message does not appear in the future.

If you do want the sequence to play, perhaps its file was renamed (or placed in a different directory), or deleted.

If it was renamed (or placed in a different directory), you can either rename it back, or else use the Show Editor to point to the new name instead of the old one.

If it was deleted, check your computer's Recycle Bin, or any backups that you may have. Note that whenever you change a sequence and save it (using the [Sequencer](#)), Light-O-Rama automatically saves a backup copy of the file as it was before your changes, so you may be able to use that backup copy. It will be saved to the same directory as the original, with the file extension ".bak" appended to its name. For example, if your sequence is named "MySequence.las", the automatic backup will be named "MySequence.las.bak".

If none of these suggestions help, you may have to recreate the sequence, using the Sequencer.

---

[The LOR Verifier](#)

[List of Verifier Messages](#)

5.14.1.3.4 24: Sequence file cannot be loaded

**Message Number:** 24

**Severity:** Error

**Summary:** Sequence file cannot be loaded

**Details:** The name of the file

One of your [scheduled shows](#) refers to a [sequence](#) file that cannot be loaded. For example, perhaps the sequence file has become corrupted. The sequence will not play in the show until this problem is resolved.

If you have any backups of the sequence file, check to see if they work. Note that whenever you change a sequence and save it (using the [Sequencer](#)), Light-O-Rama automatically saves a backup copy of the file as it was before your changes, so you may be able to use that backup copy. It will be saved to the same directory as the original, with the file extension ".bak" appended to its name. For example, if your sequence is named "MySequence.las", the automatic backup will be named "MySequence.las.bak".

Otherwise, you may have to recreate the sequence, using the Sequencer.

---

[The LOR Verifier](#)

[List of Verifier Messages](#)

5.14.1.3.5 25: Show has no sequences

**Message Number:** 25

**Severity:** Warning

**Summary:** Show has no sequences

**Details:** The name of the show file

One of your [scheduled shows](#) has no [sequences](#) in it. This will not cause any problems - your other scheduled shows should play fine - but there isn't much point to scheduling a show without sequences, so this probably indicates a mistake.

If you want sequences to play in the scheduled show, use the [Show Editor](#) to add the sequences to the show.

If you do not want any sequences to play in the scheduled show, consider removing the show from your schedule, using the [Schedule Editor](#), so that this message does not appear in the future.

[The LOR Verifier](#)  
[List of Verifier Messages](#)

5.14.1.3.6 26: Media file does not exist

**Message Number:** 26

**Severity:** Error

**Summary:** Media file does not exist

**Details #1:** The name of the missing media file

**Details #2:** The name of the sequence file that refers to the missing media file

One of your [scheduled musical sequences](#) refers to an audio file or video file that does not exist. The [sequence](#) will not play until this problem is resolved.

It is possible that the file has been renamed, placed in a different directory, or deleted.

If it has been renamed or placed in a different directory, you can either move it back to its original location, or else use the [Sequencer](#) to modify the sequence so that it points to its new location.

If it has been deleted, check your computer's Recycle Bin, or for any backups that you may have of the file.

---

[The LOR Verifier](#)  
[List of Verifier Messages](#)

5.14.1.3.7 27: Conflicting channel settings in sequence

**Message Number:** 27

**Severity:** Warning

**Summary:** Conflicting channel settings in sequence

**Details #1:** The name of the sequence having the conflict

**Details #2:** The track containing the first conflicting channel

**Details #3:** The name of the first conflicting channel

**Details #4:** The track containing the second conflicting channel

**Details #5:** The name of the second conflicting channel

One of your [scheduled sequences](#) contains two different [channels](#) that both are set up to control the same physical string of lights - for example, they are both set up to control [circuit 3](#) of [Light-O-Rama unit 7](#) on the regular Light-O-Rama [network](#).

Your sequence will play, but these two channels will fight for control over the lights hooked up to the circuit, which may have make the lights behave in ways that you weren't expecting.

The cause of this may simply be that one of the two channels is set up with the wrong unit ID, circuit number, network, or device type. In this case, use the [Sequencer](#) to change the channel's settings appropriately.

If you do intend both channels to control the same string of lights, the lights may or may not behave as you expect. The suggested way to do what you probably want is not to have two different channels with the same settings, but to have a single channel that is contained in two different [tracks](#):

Let's say that you have "Channel A" in the first track, and "Channel B" in the second track. These channels have the same physical settings as each other, but different [effect events](#). Then to change this situation to the suggested way, use the Sequencer as follows:



First, copy Channel A from the first track to the second track.

Next, merge the effect events from Channel B into Channel A, so that Channel A contains the effect events from both channels.

Finally, delete Channel B.

This will leave you with a single channel - Channel A - which is contained in both tracks, and which contains all of the effect events that you wanted for its string of lights. Having this single channel in two tracks, instead of two different channels in the two tracks, will make the lights behave as you probably expect.

---

[The LOR Verifier](#)

[List of Verifier Messages](#)

5.14.1.3.8 28: Channel is completely off

**Message Number:** 28

**Severity:** Warning

**Summary:** Channel is completely off

**Details #1:** The sequence containing the channel

**Details #2:** The track containing the channel

**Details #3:** The name of the channel

One of your [scheduled sequences](#) contains a [channel](#) which is completely off for its entire duration.

Consider removing the channel from the sequence, using the [Sequencer](#).

---

[The LOR Verifier](#)

[List of Verifier Messages](#)

5.14.1.3.9 29: Sequence is completely off

**Message Number:** 29

**Severity:** Warning

**Summary:** Sequence is completely off

**Details:** The name of the sequence file

One of your [scheduled sequences](#) has no [lighting effects](#) for any of its [channels](#), except for having each of them off for the sequence's entire duration.

This may be intentional - for example, you may have scheduled a [musical sequence](#) so that a song plays while your lights are off. Otherwise, consider adding effects to the sequence, or removing the sequence from the [show](#).

---

[The LOR Verifier](#)

[List of Verifier Messages](#)

5.14.1.3.10 30: Channel is missing settings

**Message Number:** 30

**Severity:** Warning

**Summary:** Channel is missing settings

**Details #1:** The name of the sequence file containing the channel

**Details #2:** The track containing the channel

**Details #3:** The name of the channel

One of your [scheduled sequences](#) has a [channel](#) which is missing a required part of its physical settings - for example, perhaps it does not have a [unit ID](#) set.

This may be intentional - for example, perhaps you have a channel that shows the beat of a song, which you intend to use to help build other channels rather than to actually control lights when your [show](#) plays. If not, though, use the Sequencer to set the channel's settings appropriately.

---

[The LOR Verifier](#)

[List of Verifier Messages](#)

#### 5.14.1.4 Verifier Messages 31-40

The following are some messages can be generated by the [Light-O-Rama Verifier](#). For details on any given one, please refer to its individual help page. To see all possible messages, please refer to the [List of Verifier Messages](#).

- [Message 31](#) (Warning): **Channel uses undefined comm network**
- [Message 32](#) (Warning): **Channel in tracks of conflicting length**
- [Message 33](#) (Warning): **Musical file used in non-audio section of show**
- [Message 34](#) (Warning): **Subsequences not supported**
- [Message 35](#) (Warning): **Background sequences unsupported**
- [Message 36](#) (Warning): **Startup sequences unsupported**
- [Message 37](#) (Warning): **Shutdown sequences unsupported**
- [Message 38](#) (Warning): **Interactive triggers unsupported**
- [Message 39](#) (Warning): **Unsupported number of tracks**
- [Message 40](#) (Warning): **Shell commands unsupported**

##### 5.14.1.4.1 31: Channel uses undefined comm network

**Message Number:** 31

**Severity:** Warning

**Summary:** Channel uses undefined comm network

**Details #1:** The sequence that the channel is in

**Details #2:** The track that that the channel is in

**Details #3:** The name of the channel

One of your [scheduled sequences](#) contains a [channel](#) which is set up to use a network which does not have a comm port defined for it. The channel will not control lights until this issue is resolved.

The channel could be for a [Light-O-Rama controller](#), which can be set up to use one of four different [networks](#).

It is possible that the channel's network (or device type) is simply set incorrectly. For example, perhaps a channel for a Light-O-Rama controller was accidentally set to use the Aux A network, whereas you only have a comm port assigned to the Regular network. Or perhaps a channel was accidentally set to control a Dasher controller, whereas it was intended to control a Light-O-Rama controller. In cases like these, use the [Sequencer](#) to change the channel's settings in [Prop Definition](#).

Another possibility is that you do intend to use the network that the channel has assigned to it, but that

network is not set up to use any comm port on your computer. In this case, use the [Network Preferences program](#) to specify a comm port for the network to use.

---

[The LOR Verifier](#)

[List of Verifier Messages](#)

5.14.1.4.2 32: Channel in tracks of conflicting length

**Message Number:** 32

**Severity:** Warning

**Summary:** Channel in tracks of conflicting length

**Details #1:** The sequence that the channel is in

**Details #2:** The name of the channel

**Details #3:** A track that the channel is in

**Details #4:** Another track that the channel is in

One of your [scheduled sequences](#) contains a [channel](#) which is in two different [tracks](#), but those tracks are of different lengths. For example, one track is a minute long, while the other is two minutes long.

This will likely cause the lights hooked up to that channel to behave in a way that you don't expect, as different [lighting effects](#) from different parts of the same channel could be sent to the lights in an order that you were not expecting.

Unless you have done this intentionally, and understand the way that your lights will behave because of this, consider using the [Sequencer](#) to either remove the channel from one of the tracks or to change the tracks to be of the same length.

---

[The LOR Verifier](#)

[List of Verifier Messages](#)

5.14.1.4.3 33: Musical file used in non-audio section of show

**Message Number:** 33

**Severity:** Warning

**Summary:** Musical file used in non-audio section of show

**Details #1:** The sequence file

**Details #2:** The show file that refers to the sequence

**Details #3:** The section of the show that refers to the sequence

One of your [musical sequences](#) is [scheduled](#) in a section of a [show](#) that does not support audio or video. For example, perhaps a musical sequence is contained in the [Background section](#) of the show. The sequence will play at its scheduled time, but will only control lights; it will not play audio or display video.

Make sure that the sequence is in the section of the show that you intend it to be in. If it is not, use the [Show Editor](#) to move it to the appropriate section.

If it is in the section that you intended, consider using an animation sequence instead, to avoid possible confusion in the future.

---

[The LOR Verifier](#)

[List of Verifier Messages](#)

## 5.14.1.4.4 34: Subsequences not supported

**Message Number:** 34**Severity:** Warning**Summary:** Subsequences not supported**Details #1:** The name of the subsequence**Details #2:** The name of the parent sequence containing the subsequence**Details #3:** The name of the channel in the parent sequence referencing the subsequence

One of your [scheduled sequences](#) contains a [channel](#) set up to be a [subsequence](#), but your [license](#) does not support subsequences (or you are using the unlicensed demo version of the software). The parent sequence will play at its scheduled time, but the subsequence will not.

If you already have a license, and have registered Light-O-Rama on this computer, then to get the subsequence to play, you would have to upgrade to a higher license level which supports subsequences.

If you are using the unlicensed demo version, and you have not yet purchased a license, you can do so from the [Light-O-Rama website](#).

If you have already purchased one, try using it to [register Light-O-Rama](#) on this computer. If this does not work, perhaps you have already installed Light-O-Rama on the maximum number of computers covered by your license, or perhaps your license is for an older version of Light-O-Rama than the one that you are trying to run.

---

[The LOR Verifier](#)[List of Verifier Messages](#)

## 5.14.1.4.5 35: Background sequences unsupported

**Message Number:** 35**Severity:** Warning**Summary:** Background sequences unsupported**Details:** The name of the show file containing sequences in its Background section

One of your [scheduled shows](#) contains [sequences](#) in its [Background section](#), but your [license](#) does not support sequences in this section. The show will play at its scheduled time, but sequences in this section will not.

If you already have a license, and have registered Light-O-Rama on this computer, then to get these sequences to play, you would have to either move them to a different section of the show, or else upgrade to a higher license level which supports this feature.

If you are using the unlicensed demo version, and you have not yet purchased a license, you can do so from the [Light-O-Rama website](#).

If you have already purchased one, try using it to [register Light-O-Rama](#) on this computer. If this does not work, perhaps you have already installed Light-O-Rama on the maximum number of computers covered by your license, or perhaps your license is for an older version of Light-O-Rama than the one that you are trying to run.

---

[The LOR Verifier](#)[List of Verifier Messages](#)

## 5.14.1.4.6 36: Startup sequences unsupported

**Message Number:** 36**Severity:** Warning**Summary:** Startup sequences unsupported**Details:** The name of the show file containing sequences in its Startup section

One of your [scheduled shows](#) contains [sequences](#) in its [Startup section](#), but your [license](#) does not support sequences in this section. The show will play at its scheduled time, but sequences in this section will not.

If you already have a license, and have registered Light-O-Rama on this computer, then to get these sequences to play, you would have to either move them to a different section of the show, or else upgrade to a higher license level which supports this feature.

If you are using the unlicensed demo version, and you have not yet purchased a license, you can do so from the [Light-O-Rama website](#).

If you have already purchased one, try using it to [register Light-O-Rama](#) on this computer. If this does not work, perhaps you have already installed Light-O-Rama on the maximum number of computers covered by your license, or perhaps your license is for an older version of Light-O-Rama than the one that you are trying to run.

---

[The LOR Verifier](#)[List of Verifier Messages](#)

## 5.14.1.4.7 37: Shutdown sequences unsupported

**Message Number:** 37**Severity:** Warning**Summary:** Shutdown sequences unsupported**Details:** The name of the show file containing sequences in its Shutdown section

One of your [scheduled shows](#) contains [sequences](#) in its [Shutdown section](#), but your [license](#) does not support sequences in this section. The show will play at its scheduled time, but sequences in this section will not.

If you already have a license, and have registered Light-O-Rama on this computer, then to get these sequences to play, you would have to either move them to a different section of the show, or else upgrade to a higher license level which supports this feature.

If you are using the unlicensed demo version, and you have not yet purchased a license, you can do so from the [Light-O-Rama website](#).

If you have already purchased one, try using it to [register Light-O-Rama](#) on this computer. If this does not work, perhaps you have already installed Light-O-Rama on the maximum number of computers covered by your license, or perhaps your license is for an older version of Light-O-Rama than the one that you are trying to run.

---

[The LOR Verifier](#)[List of Verifier Messages](#)

## 5.14.1.4.8 38: Interactive triggers unsupported

**Message Number:** 38**Severity:** Warning**Summary:** Interactive triggers unsupported**Details:** The name of the show file using interactive triggers

One of your [scheduled shows](#) uses interactive triggers, either in an [interactive group](#) or as part of its [startup options](#), but your [license](#) does not support interactive triggers. The show will play at its scheduled time, but its interactive triggers will not.

If you already have a license, and have registered Light-O-Rama on this computer, then to get these triggers to work, you would have to upgrade to a higher license level which supports subsequences. If your triggers are used for interactive groups, you could also move the sequences in them to a different section of the show (but if so, they will play immediately, not upon being triggered).

If you are using the unlicensed demo version, and you have not yet purchased a license, you can do so from the [Light-O-Rama website](#).

If you have already purchased one, try using it to [register Light-O-Rama](#) on this computer. If this does not work, perhaps you have already installed Light-O-Rama on the maximum number of computers covered by your license, or perhaps your license is for an older version of Light-O-Rama than the one that you are trying to run.

---

[The LOR Verifier](#)[List of Verifier Messages](#)

## 5.14.1.4.9 39: Unsupported number of tracks

**Message Number:** 39**Severity:** Warning**Summary:** Unsupported number of tracks**Details #1:** The name of the sequence using too many tracks**Details #2:** The number of tracks the sequence uses**Details #3:** The allowed number of tracks

One of your [scheduled sequences](#) uses more [tracks](#) than your [license](#) supports. The sequence will play at its scheduled time, but its excess tracks will not.

If you already have a license, and have registered Light-O-Rama on this computer, then to get these tracks to play, you would have to upgrade to a higher license level which supports more tracks.

If you are using the unlicensed demo version, and you have not yet purchased a license, you can do so from the [Light-O-Rama website](#).

If you have already purchased one, try using it to [register Light-O-Rama](#) on this computer. If this does not work, perhaps you have already installed Light-O-Rama on the maximum number of computers covered by your license, or perhaps your license is for an older version of Light-O-Rama than the one that you are trying to run.

---

[The LOR Verifier](#)[List of Verifier Messages](#)

## 5.14.1.4.10 40: Shell commands unsupported

**Message Number:** 40**Severity:** Warning**Summary:** Shell commands unsupported**Details:** The name of the sequence using a shell command

One of your [scheduled sequences](#) is set up to use a [Windows shell command](#), but your [license](#) does not support such commands. The sequence will play at its scheduled time, but the command will not be executed.

If you already have a license, and have registered Light-O-Rama on this computer, then to get the command to execute, you would have to upgrade to a higher license level which supports this feature.

If you are using the unlicensed demo version, and you have not yet purchased a license, you can do so from the [Light-O-Rama website](#).

If you have already purchased one, try using it to [register Light-O-Rama](#) on this computer. If this does not work, perhaps you have already installed Light-O-Rama on the maximum number of computers covered by your license, or perhaps your license is for an older version of Light-O-Rama than the one that you are trying to run.

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[The LOR Verifier](#)[List of Verifier Messages](#)

## 5.14.1.5 Verifier Messages 41-50

The following are some messages can be generated by the [Light-O-Rama Verifier](#). For details on any given one, please refer to its individual help page. To see all possible messages, please refer to the [List of Verifier Messages](#).

- [Message 41](#) (Warning): **Shell command map file does not exist**
- [Message 42](#) (Warning): **Shell command not set**
- [Message 43](#) (Warning): **Channel conflict**
- [Message 44](#) (Warning): **Old MC-P compatibility enabled**
- [Message 45](#) (Warning): **Channel settings conflict in sequence/intensity file**
- [Message 46](#) (Warning): **Channel settings conflict in intensity file**
- [Message 47](#) (Warning): **Intensity file conflict**
- [Message 48](#) (Warning): **Channel/intensity file conflict**
- [Message 49](#) (Warning): **Intensity file uses undefined comm network**
- [Message 50](#) (Warning): **Intensity files not supported by license level**

## 5.14.1.5.1 41: Shell command map file does not exist

**Message Number:** 41**Severity:** Warning**Summary:** Shell command map file does not exist**Details:** The expected name of the shell command map file

One of your [scheduled sequences](#) is set up to use a [Windows shell command](#), but the command map file that defines the commands to execute does not exist. The sequence will play at its scheduled time, but the command will not be executed.

This could be because you created the sequence on one computer, and moved it to another computer to play in your show, but did not move the command map file. Light-O-Rama keeps these commands in the command map file, rather than in the sequences themselves, due to security concerns. Please see [Sharing Sequences between Computers, and Security](#) for details.

---

[The LOR Verifier](#)

[List of Verifier Messages](#)

#### 5.14.1.5.2 42: Shell command not set

**Message Number:** 42

**Severity:** Warning

**Summary:** Shell command not set

**Details:** The name of the sequence file with the missing shell command

One of your [scheduled sequences](#) is set up to use a [Windows shell command](#), but the command map file does not list a command to be executed by that sequence. The sequence will play at its scheduled time, but no command will be executed.

This could be because you created the sequence on one computer, and moved it to another computer to play in your show, but did not move the command map file. Light-O-Rama keeps these commands in the command map file, rather than in the sequences themselves, due to security concerns. Please see [Sharing Sequences between Computers, and Security](#) for details.

---

[The LOR Verifier](#)

[List of Verifier Messages](#)

#### 5.14.1.5.3 43: Channel conflict

**Message Number:** 43

**Severity:** Warning

**Summary:** Channel conflict

**Details #1:** The name of the show containing the channel conflict

**Details #2:** One of the sections of the show containing a sequence with the conflicting channel

**Details #3:** The sequence file in that section containing the conflicting channel

**Details #4:** The track in that sequence containing the conflicting channel

**Details #5:** The name of the conflicting channel in that track

**Details #6:** Another section of the show containing a sequence with the conflicting channel

**Details #7:** The sequence file in that section containing the conflicting channel

**Details #8:** The track in that sequence containing the conflicting channel

**Details #9:** The name of the conflicting channel in that track

One of your [scheduled shows](#) contains [sequences](#) which could possibly play at the same time, but which each contain a [channel](#) representing the same physical string of lights. For example, perhaps the show contains one sequence in its [Background section](#), and another in its [Musical section](#), which each contain a channel for Light-O-Rama [unit 3 circuit 7](#) on the regular [network](#). Since sequences in the Background section can play at the same time as those in the Musical section, this is a conflict.

The show, and its sequences, will play at the appropriate times, but the two channels may fight for control over the single string of lights that they are set up to use. This may lead to those lights behaving in a manner that you are not expecting.



It is suggested that you use the [Sequencer](#) to check whether the channels are set up properly - for example, perhaps the unit ID of one of the channels was mistakenly set to an incorrect value. Otherwise, consider removing the conflicting channel from one of the sequences, or moving one of the sequences to a different section of the show, where it could not be played at the same time as the other sequence.

---

[The LOR Verifier](#)

[List of Verifier Messages](#)

5.14.1.5.4 44: Old MC-P compatibility enabled

**Message Number:** 44

**Severity:** Warning

**Summary:** Old MC-P compatibility enabled

**Details #1:** The network on which old MC-P compatibility is enabled

One of your [networks](#) has [old MC-P compatibility](#) enabled. This compatibility mode is required for certain [controllers](#), but they are rare (Light-O-Rama MC-P controllers purchased prior to November 15, 2003). If you do not have any such controllers on this network, there is no reason to have this compatibility mode enabled, and in fact it can cause significant overhead on the network, potentially leading to lag in your [lighting effects](#). It is suggested to turn this compatibility mode off (unless you have controllers that require it), which can be done through the [Network Preferences](#) program's "[Misc](#)" tab.

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[The LOR Verifier](#)

[List of Verifier Messages](#)

5.14.1.5.5 45: Channel settings conflict in sequence/intensity file

**Message Number:** 45

**Severity:** Warning

**Summary:** Channel settings conflict in sequence/intensity file

**Details #1:** The sequence having the channel setting conflict

**Details #2:** The name of the track containing the channel having the settings conflict

**Details #3:** The name of the channel having the settings conflict

**Details #4:** The name of the intensity file having the channel settings conflict

**Details #5:** The range of addresses in the intensity file having the channel settings conflict

One of your [sequences](#) has a conflict between a [channel](#) defined in the sequence itself and an address defined in an intensity file associated with the sequence. For example, perhaps the sequence contains a channel which is set up to control [Light-O-Rama unit 25 circuit 3](#) on the Regular LOR [network](#), and the associated intensity file has a range of controlled addresses that includes that circuit - for example, perhaps the intensity file controls circuits 1 through 7 on unit 25 on the Regular Light-O-Rama network. In such cases, both the channel and the intensity file will simultaneously attempt to control the same physical circuit, and the resulting behavior of the lights is unlikely to be what you want or would expect.

To resolve this issue, change the channel and/or address range so that they no longer conflict with each other. Exactly how to do this depends upon the situation - for example, perhaps the conflict is due to a typo made in the channel's settings (perhaps its unit number is incorrect), in which case change the channel's settings. Or perhaps the issue should be resolved by changing the address range in the intensity file, or by deleting either the channel or the address range.

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[The LOR Verifier](#)

[List of Verifier Messages](#)

## 5.14.1.5.6 46: Channel settings conflict in intensity file

**Message Number:** 46**Severity:** Warning**Summary:** Channel settings conflict in intensity file**Details #1:** The sequence having the channel setting conflict**Details #2:** The name of the first intensity file having the channel settings conflict**Details #3:** The first range of addresses having the channel settings conflict**Details #4:** The name of the second intensity file having the channel settings conflict**Details #5:** The second range of addresses having the channel settings conflict

One of your [sequences](#) has a conflict between two ranges of addresses controlled by its associated intensity files. For example, perhaps an intensity file is set up to control [DMX](#) universe 8 addresses 20 through 40, and also to control DMX universe 8 addresses 39 through 50. In this example, addresses 39 and 40 are both set up to be controlled twice, and the resulting behavior on the lights for those two addresses is unlikely to be what you would expect.

To resolve this issue, change the intensity file (or files) so that the address ranges do not overlap with each other.

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[The LOR Verifier](#)[List of Verifier Messages](#)

## 5.14.1.5.7 47: Intensity File Conflict

**Message Number:** 47**Severity:** Warning**Summary:** Intensity file conflict**Details #1:** The show with the conflict**Details #2:** The section of the show containing the first sequence with the conflict**Details #3:** The name of the first sequence with the conflict**Details #4:** The name of the intensity file associated with the first sequence with the conflict**Details #5:** The range of addresses for the first side of the conflict**Details #6:** The section of the show containing the second sequence with the conflict**Details #7:** The name of the second sequence with the conflict**Details #8:** The name of the intensity file associated with the second sequence with the conflict**Details #9:** The range of addresses for the second side of the conflict

One of your [shows](#) contains two separate [sequences](#) which could possibly play at the same time as each other, and those two sequences each have associated intensity files which attempt to control some of the same physical lights as each other. For example, perhaps one intensity file attempts to control [LOR](#) Regular [network unit](#) 10 [circuits](#) 8 through 12, and the other attempts to control LOR Regular network unit 10 circuits 10 through 15. In this case, both are attempting to control circuits 10, 11, and 12 on that unit. If the two sequences actually do wind up playing at the same time as each other, the resulting behavior on the lights attached to those circuits is unlikely to be what you would expect.

How to resolve this issue depends upon the particulars of the situation. For example, perhaps the overlap is because of a typo in one of the intensity files' settings; perhaps "circuits 10 through 15" should have been "circuits 13 through 15". In this case, change the intensity file. Another possibility is that one of the sequences might not be in the correct section of the show -- for example perhaps it is in the [Background section](#) but should have been in the [Animation section](#) -- in which case the show file should

be modified to correct it.

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[The LOR Verifier](#)

[List of Verifier Messages](#)

5.14.1.5.8 48: Channel/intensity file conflict

**Message Number:** 48

**Severity:** Warning

**Summary:** Channel/intensity file conflict

**Details #1:** The show with the conflict

**Details #2:** The section of the show containing the conflicting channel

**Details #3:** The name of the sequence containing the conflicting channel

**Details #4:** The name of the track containing the conflicting channel

**Details #5:** The name of the conflicting channel

**Details #6:** The section of the show containing the conflicting intensity file

**Details #7:** The name of the sequence with the conflicting intensity file

**Details #8:** The name of the conflicting intensity file

**Details #9:** The range of addresses containing the conflict in the intensity file

One of your [shows](#) contains two separate [sequences](#) which could possibly play at the same time as each other, and one of those sequences has a particular [channel](#) while the other has an intensity file which attempts to control the same physical lights as that channel. For example, perhaps one sequence has a channel that is set up to control [LOR Regular network unit 10 circuit 8](#), while the intensity file attempts to control LOR Regular network unit 10 circuits 5 through 15. In this case, both are attempting to control circuit 8 on that unit. If the two sequences actually do wind up playing at the same time as each other, the resulting behavior on the lights attached to that circuit is unlikely to be what you would expect.

How to resolve this issue depends upon the particulars of the situation. For example, perhaps the overlap is because of a typo in one of the intensity files' settings; perhaps "circuits 5 through 15" should have been "circuits 13 through 15". In this case, change the intensity file. Or, similarly, perhaps the channel's settings are mistaken, in which case those settings should be modified. Another possibility is that one of the sequences might not be in the correct section of the show -- for example perhaps it is in the [Background section](#) but should have been in the [Animation section](#) -- in which case the show file should be modified to correct it.

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[The LOR Verifier](#)

[List of Verifier Messages](#)

5.14.1.5.9 49: Intensity file uses undefined comm network

**Message Number:** 49

**Severity:** Warning

**Summary:** Intensity file uses undefined comm network

**Details #1:** The sequence whose intensity file uses the undefined comm network

**Details #2:** The intensity file using the undefined comm network

**Details #3:** The undefined comm network being used

One of your [sequences](#) uses an intensity file which attempts to control lights on a comm network that has not been defined. For example, perhaps it attempts to use the [LOR Aux A network](#), but you have not set up the LOR Aux A network to use any particular COM port. In this case, your sequence will play, but the lights that attempt to use the undefined network will not be controlled.

How to fix this issue depends upon the particulars of the situation. Perhaps the comm network used by the intensity file is mistaken, in which case the intensity file should be modified to use the correct network. Or perhaps the correct comm network is being used, but that comm network has not been set up via the [Light-O-Rama Network Preferences program](#).

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[The LOR Verifier](#)

[List of Verifier Messages](#)

5.14.1.5.10 50: Intensity files not supported by license level

**Message Number:** 50

**Severity:** Warning

**Summary:** Intensity files not supported by license level

**Details #1:** The sequence which is attempting to use an intensity file

One of your [sequences](#) uses an intensity file, but your [license level](#) does not support intensity files. The sequence will play, but any effects defined in the intensity file itself will not happen on your actual physical lights.

This issue can be resolved by [upgrading](#) your Light-O-Rama license to a level that supports intensity files.

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[The LOR Verifier](#)

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#### 5.14.1.6 Verifier Messages 51-60

The following are some messages can be generated by the [Light-O-Rama Verifier](#). For details on any given one, please refer to its individual help page. To see all possible messages, please refer to the [List of Verifier Messages](#).

- [Message 51](#) (Warning): **Use Compressed Sequences disabled**
- [Message 52](#) (Warning): **Show Player Memory Restarts disabled**
- [Message 53](#) (Warning): **Trigger uses undefined network**
- [Message 54](#) (Warning): **Trigger uses LOR Enhanced network**

5.14.1.6.1 51: Use Compressed Sequences disabled

**Message Number:** 51

**Severity:** Warning

**Summary:** Use Compressed Sequences disabled

The [LOR Control Panel](#) option [Use Compressed Sequences](#) is disabled. When enabled, this option causes the [Show Player](#) to use compressed sequences instead of regular sequences. Loading a compressed sequence is significantly faster than loading a regular sequence, and the behavior of your lights should be exactly the same no matter whether you use a compressed sequence or the sequence that that compressed sequence was based on. Thus, enabling this option has the benefit that it may decrease loading delays in your show, with no drawback.

Unless you have a specific reason to believe that having this option enabled causes problems with your show, it is recommended that you enable it. You can do so via the LOR Control Panel's [right-click](#)

[popup menu](#).

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[The LOR Verifier](#)

[List of Verifier Messages](#)

5.14.1.6.2 52: Show Player Memory Restarts disabled

**Message Number:** 52

**Severity:** Warning

**Summary:** Show Player Memory Restarts disabled

The [LOR Control Panel](#) option [Show Player Memory Restarts](#) is disabled. When enabled, this option causes the [Show Player](#) to automatically shut down and restart in certain situations (not while your [show](#) is playing), as a proactive measure to mitigate the effects of possible hypothetical memory leaks.

Unless you have a specific reason to believe that having this option enabled causes problems with your show, it is recommended that you enable it. You can do so via the LOR Control Panel's [right-click popup menu](#).

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[The LOR Verifier](#)

[List of Verifier Messages](#)

5.14.1.6.3 53: Trigger uses undefined network

**Message Number:** 53

**Severity:** Warning

**Summary:** Trigger uses undefined network

**Details #1:** The name of the show containing the trigger

**Details #2:** The name of the undefined network that the trigger uses

**Details #3:** The name of the trigger

One of your triggers (either a [show startup trigger](#) or an [interactive group trigger](#)) uses a [network](#) that is not defined in [Network Configuration](#). The trigger will not function during your show.

There are at least two different reasons why this warning may occur, and how to resolve the issue depends upon which one is the cause. First, there may be a mistake in the settings of the trigger itself; for example it may be set up to use network Aux B, whereas you intended it to use network Aux A. In this case, change the definition of the trigger (either in the show startup options or the interactive group, depending upon what kind of trigger it is). Second, the trigger may be set up to use the intended network, but that network might mistakenly not have a comm port defined for it. In this case, use the [Network Configuration](#) program to set the configuration of the network.

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[The LOR Verifier](#)

[List of Verifier Messages](#)

5.14.1.6.4 54: Trigger uses LOR Enhanced network

**Message Number:** 54

**Severity:** Warning

**Summary:** Trigger uses LOR Enhanced network

**Details #1:** The name of the show containing the trigger

**Details #2:** The name of the LOR Enhanced network that the trigger uses

**Details #3:** The name of the trigger

One of your triggers (either a [show startup trigger](#) or an [interactive group trigger](#)) uses an [LOR Enhanced network](#). Triggers are not supported on LOR Enhanced networks, and the trigger will not function during your show.

There are at least two different reasons why this warning may occur, and how to resolve the issue depends upon which one is the cause. First, there may be a mistake in the settings of the trigger itself; for example it may be set up to use the Enhanced network Aux B, whereas you intended it to use non-enhanced network Aux A. In this case, change the definition of the trigger (either in the show startup options or the interactive group, depending upon what kind of trigger it is). Second, the trigger may be set up to use the intended network, but that network might mistakenly be marked as Enhanced. In this case, use the [Network Configuration](#) program to change the configuration of the network.

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[The LOR Verifier](#)

[List of Verifier Messages](#)

## 5.15 Sequence Compressor

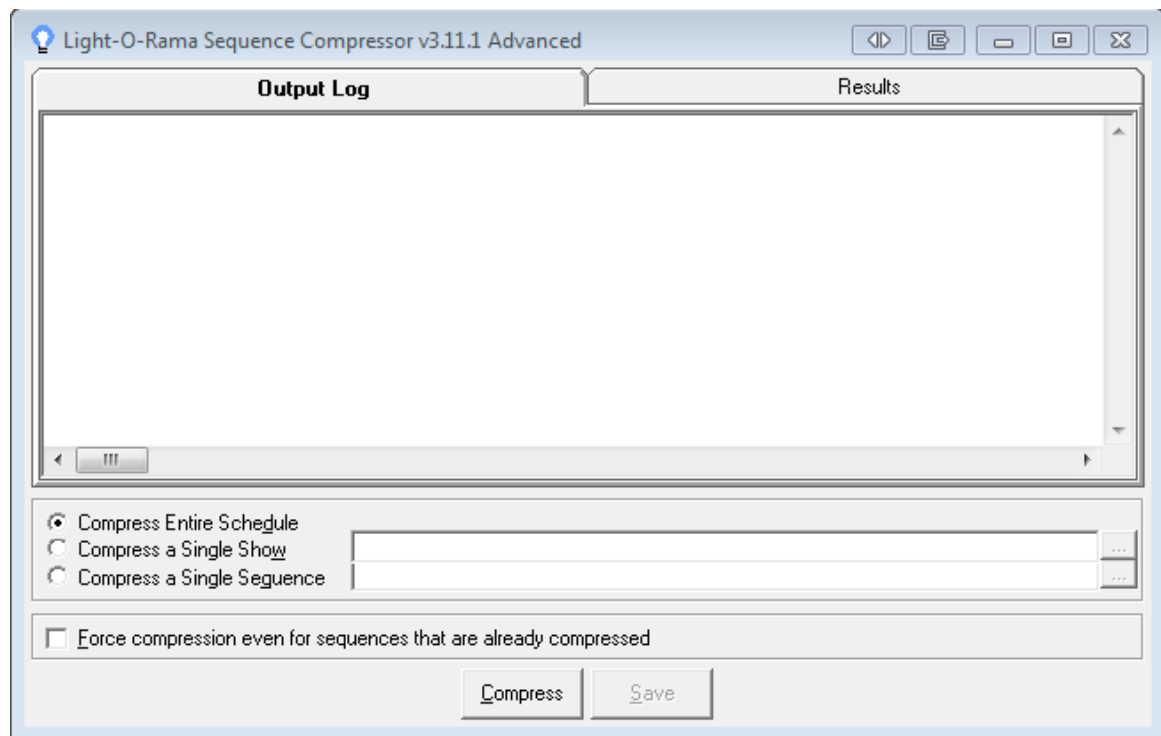
Compressed sequences are intended for use during [shows](#), as they can be loaded much faster than their associated sequences, yet contain all information necessary to play the sequence. The [Show Player](#) will try to create compressed versions of the scheduled sequences (.PLAY.LMS files) when each sequence is first played, but this can delay the start of the sequence by more than a minute for large sequences (this delay only occurs the first time the sequence is played). To avoid this delay, you can compress your sequences ahead of time using the Sequence Compressor program.

It can be used to compress all sequences in the entire [schedule](#), or all sequences in a specified show, or a single specified sequence. Simply choose which of those you want to do (and, if appropriate, choose the show or sequence), and click the "Compress" button. The "Output Log" tab will show what the Sequence Compressor is doing, as it does it. When the Sequence Compressor finishes, it will open a message box saying so, and the "Results" tab will contain a summary of what has been done. The summary will say, for example, how many (and which) sequences were compressed, and give details about any errors or warnings that happened. If desired, the "Save" button can be used to save both the results summary and the output log to a file.

If some particular sequence already has an up-to-date compressed sequence available, the Sequence Compressor will simply skip that sequence, unless the "Force compression even for sequences that are already compressed" box is checked.

Please note that not all sequences can be compressed. In particular, any sequence that contains a [loop](#) cannot be compressed, nor can any S4 sequence that contains two or more tracks with different time lengths. If such a sequence is encountered, the Sequence Compressor will issue a "warning" about it.

Compressed sequences have a .LCS file extension.



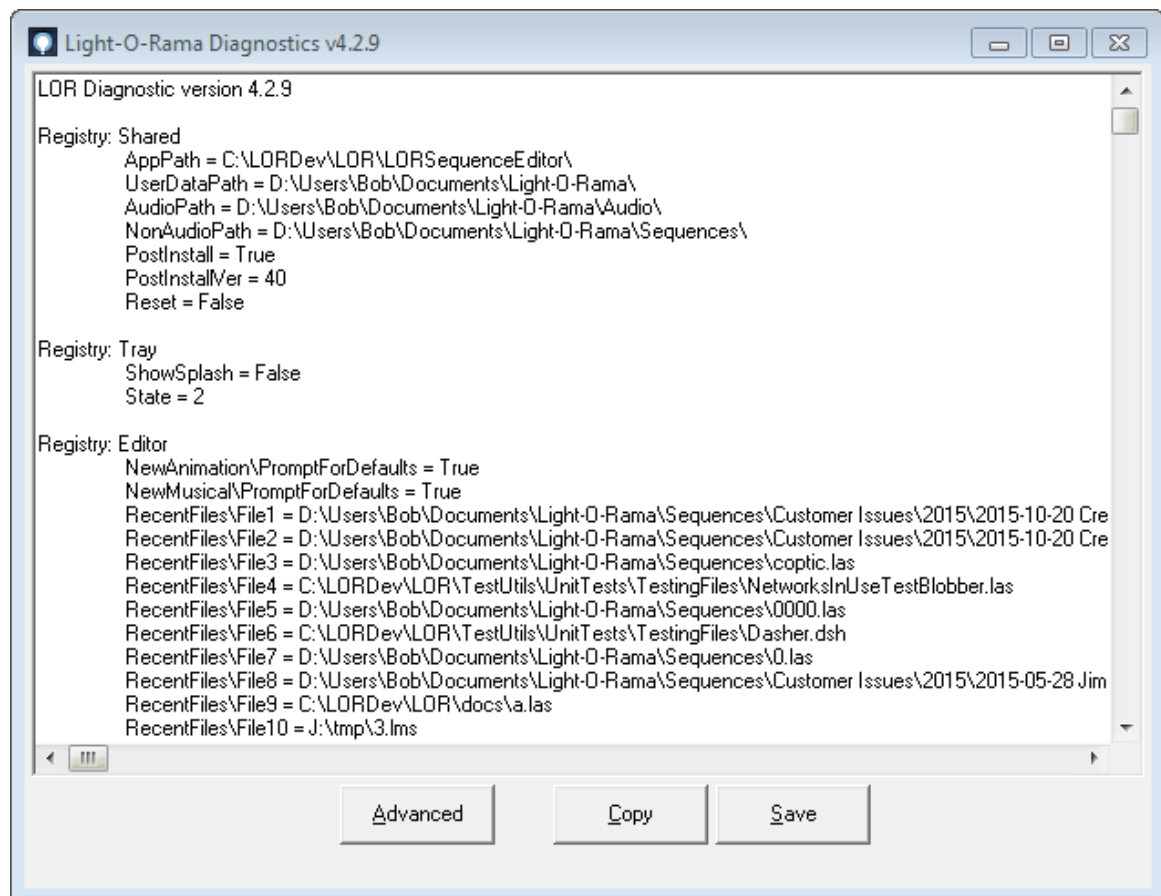
The Light-O-Rama Sequence Compressor

## 5.16 Diagnostic

The Light-O-Rama Diagnostic tool can be used in troubleshooting. It shows a snapshot of your Light-O-Rama configuration, such as registry settings and the version numbers of the various Light-O-Rama programs.

When the Light-O-Rama Diagnostic tool starts up, it may take several seconds before it displays your configuration information. During this time, it will tell you to please wait while Light-O-Rama gathers information.

After the configuration information has been displayed, you can copy the results to the Windows clipboard via the "Copy" button, or save them to a disk file via the "Save" button. There is also an "Advanced" button, which can be used to collect additional information that LOR Diagnostic does not collect by default.



The Light-O-Rama Diagnostic tool

## 5.17 Offline Registration Utility

The Offline Registration Utility is a program that you can use to help register the [Light-O-Rama Software Package](#) on a computer which is not connected to the internet. It must be run on another computer, which is connected to the internet. If you do not have another computer which is connected to the internet, you can still register an offline computer by calling Light-O-Rama.

Please see the help file page "[Registering Offline](#)" for details.



**LOR Offline Registration v2.8.3**

**Step One**  
Enter the name that your Light-O-Rama registration is for. Note that you'll have to get upper and lower case exactly the same as they are in your registration information.  
Customer Name:

**Step Two**  
Enter your license key. This will be eight groups of five characters, with each character being either a number from 0 through 9 or else a letter from A through F. If any of the eight boxes turns red, that means that the group of five characters in that box is incorrect, so double check what is typed in there.  
License Key:

**Step Three**  
Enter the offline registration key from the computer to be registered. This will be similar to the license key - eight groups of five characters, each character being 0 through 9 or A through F, and a box turning red indicating a mistake in that group of characters. If you do not see an offline registration key, make sure that you are using the offline registration form on the computer to be registered, that you have entered your name and license key on that form, and that you have clicked the "Show Offline Registration Key" button.  
Registration Key:

**Step Four**  
Click on the register button, and wait for registration. If registration succeeds, Step Five will turn on. Otherwise, an error message will appear.

**Step Five**  
Enter the following authorization key in the offline registration form on the computer to be registered. If you see a box turn red, it indicates a mistake in that box.  
Authorization Key:

**Error Text**

The Offline Registration Utility

## 5.18 Add-Ons

In addition to the standard programs that come with the [Light-O-Rama software package](#), there is one add-on program available:

- Light-O-Rama Add-Ons
  - [The Light-O-Rama Registry Wiper tool](#)

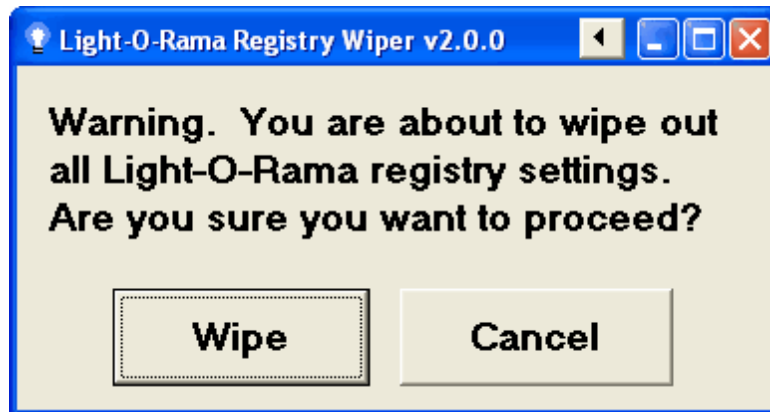
### 5.18.1 Registry Wiper

The Light-O-Rama Registry Wiper tool deletes your Light-O-Rama configuration from your computer's registry. This is for use in troubleshooting severe cases.

**IMPORTANT:** After running the Light-O-Rama Registry Wiper tool, your Light-O-Rama software will not run. You will need to reinstall Light-O-Rama. Also, even after having reinstalled, you will have lost certain preferences settings that you may have previously set.

The Registry Wiper tool is not a standard part of the Light-O-Rama software package. It is available from Light-O-Rama, for troubleshooting severe cases.

The Registry Wiper tool *should not be used* except in extreme situations.



The Light-O-Rama Registry Wiper tool

If you have previously [registered](#) your copy of Light-O-Rama, after selecting "Wipe", you may be presented with a choice of whether to keep your licensing information (such as your license name and license key) in the registry or not. If you choose not to, your copy of Light-O-Rama will run in [Demo mode](#) afterwards, until you re-register. Note, though, that you will still be able to re-register using your exact same licensing information.

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