



Lightwright[®]6

THE PROFESSIONAL'S PAPERWORK TOOL

REFERENCE MANUAL

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WELCOME TO LIGHTWRIGHT 6

Whew! Almost 7 years after Lightwright 5 was released, version 6 is finally DONE!

You know how this works - you have a list of things to do, some look easy and some look complicated, so you start work on the easy ones and it turns out they're full of unexpected puzzles.

I knew electricians really, really wanted Lightwright to print labels (imagine printing 60,000 labels a year), but I didn't realize just how byzantine the process was. It took over two years of talking to electricians, reading their minds, and experimenting to puzzle that one out.

Then there was something I had always wanted for myself: To step through an instrument schedule in Lightwright, bringing up lights to check out the rig. Gurus suggested having Lightwright spit out a DMX stream, but there's no way I could program that, and even if I could, processing all of those bits and bytes would slow Lightwright to a dead crawl. So the idea stagnated until the fall of 2014, when ETC agreed to work with me in implementing an OSC connection with their Eos consoles. The work didn't go quickly, but I LOVE it!

There were also ideas that had been lingering on the wish list, including things like how to count bodies vs. barrels and support for Mac Retina displays.

Oh, and more than 62 universes. Back in 2009, everybody laughed about Lightwright supporting 62 DMX universes, saying nobody would ever need that many! Then LED's happened, and now there are moving lights that use 146 addresses for each light.

Year after year, I told Gary Fails that Lightwright 6 would be ready in time for LDI. I turned down design work because I thought the extra weeks or months would be enough time to get LW6 finished. Somehow 2013 turned into 2014, then 2015, and finally here we are, April 2016, and it's ready for you!

And yes, Lightwright 6 prints labels, counts bodies vs. barrels, and supports more universes than you can ever imagine needing...:)

Of course, the wish list is always growing, so at some point I'll have to hunker down and start work on Lightwright 7. In the meantime, if you have any ideas for features that didn't make it into this release, please let me know. I'm always eager to hear what you think!

Enjoy -



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MAC VS. WINDOWS KEYBOARDS:

Macintoshes use a “Command” key (the one with  on it) where Windows computers use the “Control” key (usually labeled “Ctrl”). Also, Macintoshes have an Option key that is used for a variety of Lightwright functions. Windows doesn’t have an equivalent, so folks using Windows computers use the Shift and Control keys together. In this manual, if you see the notation [Option/Shift-Ctrl], that’s what we’re talking about.

ILLEGAL CHARACTERS IN FILENAMES

Windows and macOS have certain characters that cannot be used in filenames. In addition, if you use certain characters in Dropbox files, the files will fail to sync.

Severe problems can happen if you use one or more of these characters in a label or layout name inside a show file on one operating system and then try to open it in a different one.

To prevent these problems and to ensure that all show files, layouts, and other files that Lightwright creates can be used on all platforms, beginning with version 6.0.11, Lightwright prohibits using these characters:

|?[]/\= + < > : ; " , *

If you try to save a file with a name containing any of these characters, Lightwright will remove the illegal characters and ask you to try saving again.

The Label Manager and the Layout Manager include commands to automatically fix label and layout names that include any of these characters in existing filenames.

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GENERAL

PHILOSOPHY

Lightwright was made for working professional designers and electricians. As such, its primary emphasis is on speed and making changes easily, without having to become a database expert.

As a result of this orientation, Lightwright has a sort of “split personality.” The basic working area is the Worksheet, where you add lights, view them, and make changes. At the bottom of the Worksheet is a file folder tab that lets you work on Layouts.

Layouts describe generally how you want each kind of paperwork to look. They include page margins, fonts, sizes, header and column arrangements, and any graphic embellishments (such as outlines or lines between units) that you may want to include.

All the layout elements for all the different kinds of paperwork are combined into a single Layout file. The layout is a file that can apply to many different shows, while your actual hookup information is stored in individual show files. You can have as many different layout files as you want, and by choosing a different one at print time you can produce radically different looking printouts from the same show file.

This splitting of the process between the actual work of manipulating your data and deciding how it looks when it's printed is fundamental to Lightwright's philosophy. The focus of our paperwork has to be on content and presenting it in a useful form. Beware: we all love pretty things, and while layouts give you a great deal of control over the finished appearance of the paperwork, it's all too easy to waste time worrying about appearance rather than content. This is why Lightwright separates the process: once you've designed a layout you can put that part aside and concentrate on other things. After all, there is a life outside the theatre, right?

LEARNING LIGHTWRIGHT®

Lightwright is so friendly that there's a great temptation to start using it without taking the time to really learn it. However...

The best way to learn is by working through the *Lightwright Tutorial* and then experimenting while reading this *Reference manual*.

No two people think or work the same way, and a large part of the effort in creating Lightwright has been to accommodate a wide range of working habits. Some people find it easiest to enter their paperwork at the same time they make a rough plot; others prefer to enter all the information at once, after the plot has been developed. Some designers work from an Instrument Schedule; others swear by a Dimmer or Channel Hookup. Some will start with Vectorworks, others on a piece of tracing paper. One group likes having text lists made for them automatically; another group wants to make lists before they add any equipment at all. Some designers work in theaters with equipment inventories, while others rent everything. Every designer in the world seems to have a different notation to indicate “No Color.”

As you play around with Lightwright you'll develop your own personal way of working. Try the *Lightwright Tutorial* to learn many of the ways of using Lightwright.

SYSTEM REQUIREMENTS

Mac OS X 10.7 (Lion) or newer, or Windows 7 (service pack 1), Windows 8.1, or Windows 10

At least 6GB of physical RAM

A color monitor with at least 1024x768 resolution.

A hard drive with at least 350MB of disk space.

An internet connection for installation and use of some features.

The Console Link feature requires at least ETC Eos/Nomad family version 2.3.3 or newer, or version 2.4.1.1.0.16 or newer.

INSTALLATION

MACINTOSH INSTALLATION

You will need to be connected to the internet to install Lightwright.

1. Download the Lightwright 6 application from <http://www.mckernon.com>.
2. Locate the downloaded Lightwright 6.x.x.dmg file within your hard drive and double-click it. This will mount the disk image and open it.
3. Drag the resulting Lightwright 6 application and drop into the Applications folder on your hard drive (either the real one on your hard drive or the icon one in the mounted .dmg window).
4. Lightwright 6 is now installed. Click on the Lightwright 6 icon in your Applications folder to launch the program. It will run in Demo mode until you enter your registration information. For information about how to register, see the "Registration" section below.

Additional Notes:

- If you have an Institutional License, someone with Admin privileges will need to log on to enter the registration information. Institutional licenses permit use of Lightwright by anyone who logs onto the computer, not just the person who installed it.
- Connect to the internet, then start Lightwright and choose Check for Updates from the Lightwright menu to be sure you are using the most up-to-date version available.
- After you install and enter your license information, each user should go to Preferences/Email to enter their email account information so that they can email Work Notes.

UNINSTALL

If you decide to uninstall Lightwright, you can simply drag the Lightwright 6 application into the Mac's trash can. You should also remove Lightwright 6's files from your ~Library:Application Support:Lightwright folder, including the LWFixtureDB.lwdb file.

VERSION 5 USERS

Lightwright 5 does not need to be installed on your computer in order to install Lightwright 6.

PORTS & FIREWALLS

Lightwright's network requirements for real-time notifications between Lightwright users are:

- Port 24695 must be open for TCP.
- Port 24696 must be open for UDP.
- All of the computers **must be on the same subnet**, typically connected by Wi-Fi. To find out whether they are on the same subnet, click Lightwright's console button and look at the active interface's subnet mask. "255" in the subnet mask means those groups of numbers must match.

Example: Two computers whose IP addresses are 123.145.89.1 and 123.145.89.2 are on the same subnet if the subnet mask is 255.255.255.0, but 123.145.89.1 and 123.145.50.2 are not.

- The network's routers must support multicasting.
- The network must permit UDP Multicasting using the Class D address 239.192.0.1.
- All computers must be within 32 network "hops" (a.k.a. "Time to Live") of each other.
- Also be sure that whatever port is needed by your email server is open (typically port 25 or 587). If you are using Gmail, be sure you have SMTP enabled.

WINDOWS INSTALLATION

You will need to be connected to the internet to install Lightwright.

1. Download the Lightwright 6 installer from <http://www.mckernon.com>.
2. Once the download is complete, you will have an LW6setup.exe file on your computer. Locate this file within your hard drive, double-click it, and follow the setup program's instructions.
3. Lightwright is now installed. Click on the Lightwright icon in your Applications folder or on your desktop to launch the program. It will run in Demo mode until you enter your registration information. For information about how to register, see the "Registration" section below.

Additional Notes:

- Lightwright 6 cannot be installed on a network server. It must be installed on the local desktop computer. It is compatible with network-based KeyServer systems.
- After you install Lightwright, DO NOT move or rename the Lightwright 6 program folder or any of the items contained in it.
- If you have an Institutional License, someone with Admin privileges will need to log on to enter the registration information. Refer to the section below for further details.

Institutional licenses permit use of Lightwright by anyone who logs onto the computer, not just the person who installed it.

- Connect to the internet, then start Lightwright and choose Check for Updates to be sure you are using the most up-to-date version available.
- After you install and enter your license information, each user should go to Preferences/Email to enter their email account information so that they can email Work Notes.

VERSION 5 USERS

Lightwright 5 does not need to be installed on your computer in order to install Lightwright 6. Version 6 belongs in its own folder, separate from the Version 5 folder. Version 6 has a new set of serial numbers and approval codes.

IF YOU HAVE AN INSTITUTIONAL LICENSE

1. You will need to run the LW6Admin.exe program to enter your license information.
2. To run it, log onto your computer as a user with admin privileges, then launch Lightwright. Choose Edit/Preferences, click the Registration tab, then click the "Launch LW6Admin.exe" button.
3. When LW6Admin launches, follow the instructions to enter your serial number, licensed name, and approval code exactly as shown in your registration approval email.

Additional Notes:

- Using LW6Admin.exe places the license information in the LOCAL_MACHINE section of the computer's Registry, which will permit any user who logs onto the computer to use Lightwright.
- Connect to the internet, then launch Lightwright and choose Check for Updates from the Help menu to be sure you are using the most up-to-date version available.
- Each user should launch Lightwright and go to Preferences/Email and enter their email account information so that they can email Work Notes and have Lightwright email bug reports to John McKernon.
- Account information is encrypted while stored in Lightwright.
- After this information has been entered successfully once, you will not need to do it again unless your copy of Lightwright is damaged or erased or moved to another computer.

UNINSTALL

If you decide to uninstall Lightwright, run the Windows "Add/Remove Programs" control panel to do so.

PORTS & FIREWALLS

Lightwright's network requirements for real-time notifications between Lightwright users are:

- Port 24695 must be open for TCP.
- Port 24696 must be open for UDP.
- All of the computers **must be on the same subnet**, typically connected by Wi-Fi. To find out whether they are on the same subnet, click Lightwright's console button and look at the active interface's subnet mask. "255" in the subnet mask means those groups of numbers must match.

Example: Two computers whose IP addresses are 123.145.89.1 and 123.145.89.2 are on the same subnet if the subnet mask is 255.255.255.0, but 123.145.89.1 and 123.145.50.2 are not.

- The network's routers must support multicasting.
- The network must permit UDP Multicasting using the Class D address 239.192.0.1.
- All computers must be within 32 network "hops" (a.k.a. "Time to Live") of each other.
- Also be sure that whatever port is needed by your email server is open (typically port 25 or 587). If you are using Gmail, be sure you have SMTP enabled for your Google account. Also have POP enabled, and "Use SSL" checked in Preferences/Email.

REGISTRATION

Before you can begin using Lightwright, you will need to register with John McKernon Software and obtain an approval code. In addition to validating your license, registering your software also helps us keep you informed of maintenance updates of the software as they become available.

When Lightwright starts, it will display the About Window. This shows the Lightwright VERSION NUMBER, your NAME, LICENSE TYPE, and your copy's SERIAL NUMBER. If you have a student license, it will also show the expiration date.

The *VERSION NUMBER* shows which version of the software you're using. As the program improves or as bugs are found and corrected, John McKernon Software will issue new versions. Numbers after the decimal point designate various releases of the same basic version of the program. For example, version 6.0.0 would be the original release, while versions 6.0.1 and 6.0.2 would have the same features, but with bugs or other problems corrected.

Lightwright 6 will automatically check for software updates daily and optionally download and install them. You can also check manually at any time by selecting Lightwright/Check for Updates... (Mac) or Help/Check for Updates... (PC).

After installing the software, Lightwright 6 will run in demo mode (limited to 75 worksheet rows) until you enter valid registration information, including registered name, serial number, and approval code.

Register by visiting the John McKernon Software web site at <http://www.mckernon.com> and filling out the form there. Please allow 1-2 business days for a reply, which will include all the registration information you will need, including an approval code.

REGISTRATION DETAILS

The name you register under must match the kind of license you purchased. If you purchased a single-user license, then the registration must be in the name of a living individual, not the name of an organization. If you purchased an institutional license, then the registration should be in the name of the organization that purchased it. Refer to the registration form for complete details.

In order for the registration system to operate properly, you will need to supply an anglicized version of any words that would normally contain letters with accents or other "computer-hostile" text.

For example, Kurt Schöny would have to be entered as Kurt Schoeny in order for the registration to be accepted and processed.

Once you receive your approval code, be sure to keep copies of it in a safe place and you should also take a copy with you whenever you travel, in case your software is damaged or stolen and you need to reinstall or borrow someone else's copy.

If you have any questions at any time, you'll find the answers to 95.2% of users' questions at www.mckernon.com under "Support."

When you register your Lightwright license online, you will receive an email containing the registered name, serial number, and approval code.

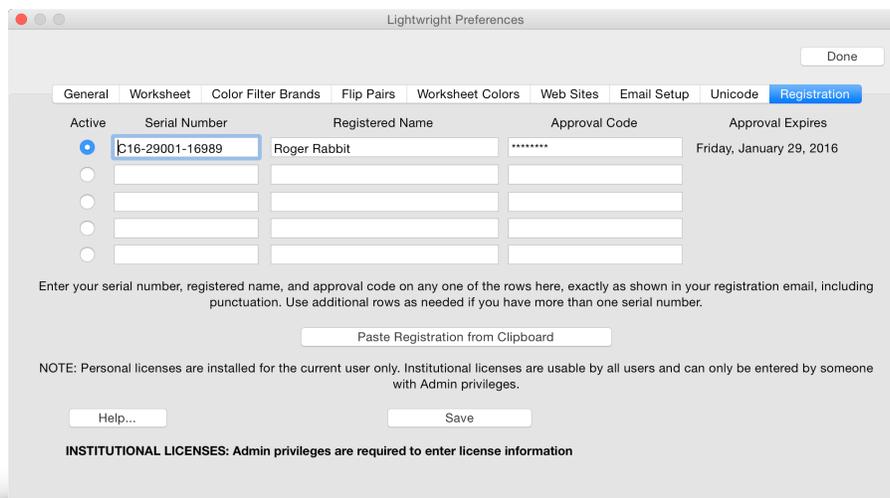
If you have an Institutional license and are using Microsoft Windows, you will need to run LW6Admin.exe by clicking the button in the Preferences/Registration pane to enter the registration information and get Lightwright out of Demo mode. Information on LW6Admin is in the Installation section of these instructions.

Otherwise, you need to enter the information in Lightwright's Preferences window, on the Registration tab.

You can manually type your registration information into any of the rows here, or you can do it quickly:

TO DO IT QUICKLY

In the email you received with your approval code, look for the line of text you can copy, it will look something like this, with vertical bars separating the information:



John McKernon|C16-1234-12345|AX789-Y4562-98XMP

1. Copy this text from the email using the usual keyboard or menu command.
2. With the data still on the clipboard, open Lightwright's Preferences window and click the "Registration" tab.
3. Click the appropriate Active button for the row you want your information in, then click the "Paste Registration Information" button.
4. Finally, click the "Save" button.

YOUR LICENSE

Your license for Lightwright allows you to use either the Windows or Macintosh version of the software and to freely move back and forth between the two versions so long as you do not exceed the maximum number of concurrent users permitted under the terms of the license.

If you have an Individual registration, this means only one person can use it at a time, but he or she can be using either the Windows or Mac version. If you have an Institutional registration, this means up to six people can be using Lightwright at a time, and it does not matter which platform any of them are using.

In addition, both the program and the instruction manual are copyrighted. This means that you must treat the software just like a book. For example, an Individual Registration copy of Lightwright can be used by any number of people and may be freely moved from one computer location to another on either the Macintosh or Windows as long as there is NO POSSIBILITY of it being used at one place while it's being used at another. Like a book that can't be read by two different people in two different places at the same time, neither can Lightwright be used by two different people in two different places at the same time. (Unless, of course, they're violating the copyright and the licensing agreement.)

STUDENT LICENSES

The student license of Lightwright uses the same software and has exactly the same set of features and capacities as the Individual and Institutional licenses. However, it does have restrictions:

- Licensed only to bona fide students with valid student ID
- Licensed for a three year period maximum, after which time it will cease to function
- The word "STUDENT:" is printed in front of the student's name on all paperwork

The student version can be upgraded to a regular Individual license by paying an additional upgrade fee. Under no circumstances can the student version be upgraded to an Institutional Registration.

IF LIGHTWRIGHT REJECTS YOUR REGISTRATION

If Lightwright rejects your information, then you are entering it incorrectly. The serial number, registered name, and approval code must all be entered into Lightwright exactly as they are shown in the approval email.

Additional Notes:

- You do not need a new approval code if you get a new computer or switch from Windows to the Mac (or vice versa).
- If Lightwright keeps losing your registration information, you need to be sure you are running as an Admin user when you enter the information.
- On the Mac, this may also include running as "root". To run as Root, go to System Preferences, click the Accounts icon, then click "Login Options," then "Join the Network Account Server." From there, click the "Open Directory Utility" option, then use the menu item Edit/Enable Root User for the Admin account. Then restart your computer, run Lightwright, and enter your registration information.

TO DELETE A REGISTRATION

Clear the data out of the row you want to delete, then click the Save button.

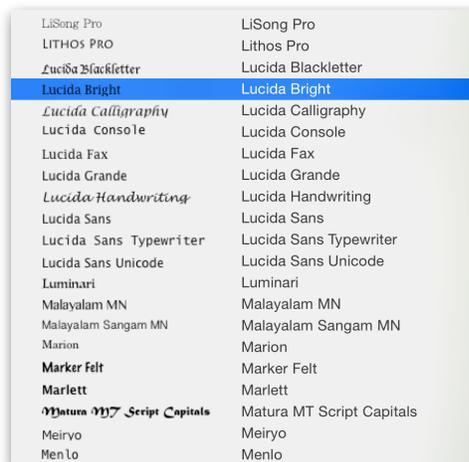
WYSIWYG FONT LISTS

On Mac OSX, all font menus show a WYSIWYG sample of the font, in addition to the name of the font. This feature is not available on Windows.

At the top of the font menu is a list of the fonts currently used in whatever view you're working in.

There is also a "Font Preferences..." choice. Choose this to tell Lightwright which fonts you want displayed on the font menu.

Note that on Mac OS X, not every font can be shown in italic or boldface. This is determined by OS X, not by Lightwright.



LiSong Pro	LiSong Pro
LITHOS PRO	Lithos Pro
Lucida Blackletter	Lucida Blackletter
Lucida Bright	Lucida Bright
Lucida Calligraphy	Lucida Calligraphy
Lucida Console	Lucida Console
Lucida Fax	Lucida Fax
Lucida Grande	Lucida Grande
Lucida Handwriting	Lucida Handwriting
Lucida Sans	Lucida Sans
Lucida Sans Typewriter	Lucida Sans Typewriter
Lucida Sans Unicode	Lucida Sans Unicode
Luminari	Luminari
Malayalam MN	Malayalam MN
Malayalam Sangam MN	Malayalam Sangam MN
Marion	Marion
Marker Felt	Marker Felt
Marlett	Marlett
Matura MT Script Capitals	Matura MT Script Capitals
Meiryo	Meiryo
Menlo	Menlo

SORTING

When you ask Lightwright to alphabetize, it uses a smart sorting method that puts most text containing numbers into the correct numeric sequence.

TEXT			When sorting the	NUMBERS	
Position	Circuit Name	VW Class		Channel	VW X Coordinate
Purpose	Color Frame	VW Focus Point	Address	VW Y Coordinate	
Instrument Type	Data Cable	Mark	Dimmer	VW Z Coordinate	
Color	Gobo Size	Scenery	Load	VW Symbol Rotation	
Gobo	System	Dimmer Phase	Unit Number	User Columns (as numbers)	
Accessory	VW Layer	User Columns (as text)	Circuit Number		
Cable	VW Label Legend	Custom			

worksheet by accessory, both the column headers and gaps options are not available.

GENERAL LIST NAVIGATION

You can navigate and edit lists using just the keyboard (when the Mac's Full Keyboard Access option is turned on), in addition to using a mouse. The space bar, for example, can be used to toggle settings on/off, and it can open any pop-up lists in a cell.

When the active cell has a colored border and a white background, you can type your changes and press Enter or Tab to have Lightwright accept them. When the active cell has a solid colored background, press <Space> or <Enter> to change the contents. If it's a cell such as "On Light Plot", the status will toggle. If it's a cell that has multiple choices (such as Gobo Size), a pop-up menu will appear, and you can use the keyboard to make your choice from the menu. If it's a cell such as "Attribs", clicking the cell will open the Attributes List window.

When you edit a cell using the keyboard, all other currently selected cells (outlined in dark grey) will also be changed. Using the mouse to change a cell will only affect that cell.

You can also select multiple cells (in the same column) and change them all at once. This is particularly helpful in the Maintenance window (Instrument Type and Circuit Name) and Control window (Dimmers, Universes, and Dimmer Details), and the Worksheet behaves the same way.

CAPACITIES & RULES

BY THE NUMBERS

- The highest possible number is 1,000,000 (Channels, dimmers, etc.)
 - The highest possible DMX address is 23,040,000 (45,000 universes of DMX512)
- Note: This does not mean your computer has enough RAM or horsepower to process this many addresses...

- Loads can be specified in hundredths from 0.01 to 32,000 watts or amps.

Examples: 0.01w
 0.5w
 1w
 575w
 1.2kw
 5A
 11.78A

- The maximum number of universes is 45,000. However, note that the practical maximum may be considerably lower, depending on your computer's RAM and speed; numbers this high may slow Lightwright down to the point of being unusable.
- You can use 62 single-character marks (it was 15 in Lightwright 5).
- Lightwright can calculate up to 9,999 frames per sheet of color.
- You can use unit numbers up to 1,000.

CATEGORIES

The information that you enter into Lightwright can be divided into two general categories:

TEXT		
Position	Circuit Name	VW Class
Purpose	Color Frame	VW Focus Point
Instrument Type	Data Cable	Mark
Color	Gobo Size	Scenery
Gobo	System	Dimmer Phase
Accessory	VW Layer	User Columns (as text)
Cable	VW Label Legend	Custom

NUMBERS	
Channel	VW X Coordinate
Address	VW Y Coordinate
Dimmer	VW Z Coordinate
Load	VW Symbol Rotation
Unit Number	User Columns (as numbers)
Circuit Number	

NUMBERING RULES

In order for Lightwright to handle numerical information properly, the following numbering rules must be followed.

	Options	Examples
Channel, Dimmer, and Circuit Numbers	Whole numbers	1, 3000, 1000000
	Single letter prefix A-Z	N400, H12, Z52
	Single letter suffix A-Z	400N, 3C
	Decimal number suffix 0-250	1.0, 1.1, 1.2, 32000.250
	Letter prefixes should generally be used for things like non-dims or hot pockets.	

	Options	Examples
	Decimal number suffixes are normally used for moving light attributes.	
	Dimmer numbers cannot have a decimal number suffix.	
	Dimmer capacities and instrument wattages can be entered in either watts or amps. To accommodate this, the wattage column is called "load." Typically, conventional lights will use watts, while moving lights use amps.	
	Examples of illegal numbers: N400C, B3.2	

	Options	Examples
Unit Number	Whole numbers	1, 3000, 1000000
	One or two letter prefixes	A4, ZG3, ML6
	Letter suffix a-z	14a, 1600z
	Decimal number suffix 0-250	14.1, 14.2, 14.250
	Letter suffix and decimal	26a.4, 2b305
	Unit numbers cannot include a decimal with a suffix letter (i.e. 26.4a)	
	Letter prefixes are normally used for striplights.	
	Letter suffixes indicate lights inserted between other lights.	
	Decimal suffixes can be used for moving light attributes and intelligent devices/accessories	1Elec #14.0 VL4000 ML3 1Elec #14.1 VL4000 Pan 1Elec #14.2 VL4000 Tilt

Options		Examples	
	<p>When you use a single letter as a unit number without any numerals (for example, "A" or "b"), then Lightwright takes the case of the letter into account:</p> <ol style="list-style-type: none"> If the letter is uppercase, then it is treated as if you entered the letter followed by the number zero (for example, "A" is treated as if you entered "A0" or "a0"). If the letter is lowercase, then it is treated as if you entered zero followed by the letter (for example, "a" is treated as if you entered "0A" or "0a"). <p>This means that when sorting, "A" will be sorted at the end of the sort along with streetlights, while "a" will be sorted at the beginning, before any unit numbers with numerals in them.</p>	a	
		b	
		1	
		2	
		A	
		A1	
	<p>When you use a single letter as a unit number without any numerals, you can enter it fully qualified, to force Lightwright to ignore the actual case that you use when entering the number.</p>	Entered Number	Result
		A0	A
		0A	a
		a0	A
		0a	a

Notice the difference between Circuit NUMBERS and Circuit NAMES. If you have circuits in your theatre with labels such as "Floor Pocket 16" then use the NAMES part for "Floor Pocket" and the NUMBERS part for "16." If you use multicable, the Circuit Name could be "Mult A" while the individual circuits within the cable are given Circuit Numbers from 1-12.

Options		Examples
Load	Loads can be specified in hundredths from 0.01 to 32,000 watts or amps.	
	<p>Loads can be entered as either <i>watts</i> or <i>kilowatts</i> by following the number with the appropriate <i>K</i> or <i>KW</i> suffix. Follow the number by "A" to indicate amps.</p>	0, 500, 750, 1000, 2000, 3200, 1K, 5KW 20A, 14.5A

Options		Examples
	In order to correctly check for dimmer and/or circuit overloads, you'll need to indicate the load for a striplight as the TOTAL load of the ENTIRE COLOR CIRCUIT in that unit, not the load of each individual lamp. For instance, in a 3-color striplight with 4 lamps per color circuit, if you're using 150w lamps the total load for that color in that striplight will be 600w.	

Options	
User Columns	All User Columns (1-24) are available to hold either numbers or text. Use Setup/Column Names and Definitions to change the definitions and names of the columns.
	When you open an existing version 2, 3, or 4 show file, User Columns 1-6 will be defined as Number and User Columns 7-12 will be defined as Text, because that is how the columns are defined in those older show files.

Options	
Color Sheet Sizes	Can be anywhere from 1" to 320" (25mm to 8100mm) on each side
	There is only one size sheet at any time, no matter how many different brands you use in each show.
	Lightwright can calculate up to 9,999 frames per sheet of color.

Options	
System	This column is a single letter from A-F, used to determine which of six different possible control systems applies to each particular light. The default is "A."
	Each control system has its own separate set of dimmer capacities and information. If two lights have the same dimmer number but different System letters, Lightwright will understand that they are not really in the same dimmer.
	Printing, error checking, phase load calculations, and automatic dimmer assigning will pay attention to the System column.
	If you only have one control system, you can ignore this category altogether.

Options	
Vectorworks UID	This is a field dedicated to connecting Lightwright to Vectorworks Spotlight. The only way to put data into this field is via Vectorworks Data Exchange. You can view the contents of this column on the Worksheet, but Lightwright will never put data into it or modify it in any way.

	Options	Examples
Striplights	Striplights use CAPITAL LETTERS followed by a NUMBER indicating the color circuit.	A 4-color striplight will use unit numbers A1, A2, A3 and A4. If there was another 4-color striplight on the same pipe, its numbers would be B1, B2, B3 and B4.
	Instruments with the same striplight letter or the same unit number and suffix are considered the same light. If the striplight letters are different, then they are considered different lights. If the unit numbers are the same but the suffix letters are different, then they are considered different lights.	<ul style="list-style-type: none"> • 3 rows on the worksheet are all No. 1 ELEC #12. They are all considered the same light. • 3 rows on the worksheet are No. 1 ELEC with unit numbers 12, 12a, and 12b. They are considered three separate lights. • 3 rows on the worksheet are No. 1 ELEC with unit numbers A1, A2, and A3. They are considered all one single striplight.
	The syntax for adding more than one striplight in one operation is "A3-D3" to enter four striplights numbered A, B, C, and D - all with color circuit 3.	
	Please be aware that if you choose to number moving lights using letters traditionally used for striplights (such as "M1"), Lightwright will count the lights as striplights unless you give the instrument type a device type of Moving Light (see Maintenance Menu).	

WHAT MAKES A LIGHT?

With all the options for unit numbers, you probably want to know how Lightwright decides when two worksheet rows are multiple parts of the same light:

- Rows with unit# 0 are always different lights
- Rows with different position names are always different lights
- If the position names are the same, then:
 1. If the unit numbers in both rows are the same, then they are parts of the same light.
 2. If the two rows use letters in different ways, then they are different lights.

Example: Unit numbers 4 and 4.0 are the same light
 Unit numbers 4.0 and 4.1 are the same light
 Unit numbers 4 and 4a are different lights
 Unit numbers A1 and 4.1 are different lights
 3. If the unit numbers use decimals and the whole number parts match, then they are considered a single light.

Example: Unit numbers 4.0, 4.1, and 4.25 are all parts of the same light
 Unit numbers 4.5 and 5.1 are two separate lights
- If the unit numbers use prefix letters (such as A1, B2, M1, or ML4):
 1. If the two instrument types are either moving lights or devices, and the unit numbers are different in any way, then they are separate lights.

Example: Unit numbers M1 and M2 are separate lights
 2. Otherwise, they are considered striplights, which means only their letters have to match.

Example: Unit numbers M1 and M2 are two circuits in a single striplight
 numbers A1 and B1 are two separate striplights

When counting instrument types or color, if the position names and unit numbers are identical but the instrument types are different, then they will be considered separate lights.

FILE TYPES

SHOW FILES



Lightwright keeps all of your show's data in a unique file format that only Lightwright understands. This is a special compressed format that occupies less than a fifth of the space the same data would take stored in a standard database format, and it is all kept in one easy-to-use file.

The show files created by the Windows and Macintosh versions are absolutely identical and can be freely exchanged between systems. In order for Windows to recognize a Lightwright show file, it must have .lw6 as the last four characters of its name.

Show-specific header graphics are stored in the show file, and if a layout is stored in the show file then any layout header graphic will also be stored in the show file. Otherwise, it will be saved in the same folder as the layout that is using it.

Focus sketch pictures are normally stored in the show file, but if they make the show file too large they can be saved in a separate file with the same name as the show file, but with .lw6pix as its extension. If they are saved in the .lw6pix file and it is not in the same folder/directory as the .lw6 file it belongs to, the focus charts will be missing those pictures. .lw6pix files cannot be opened independently of their show file, instead they are automatically opened whenever you open the corresponding .lw6 file

Use File/Save Options... to change where focus sketch pictures are saved.

The "Open Layout – In This Show's File" menu item opens layouts contained in the show file. You can save any number of layouts in each show file. "Open Layout – In Shared Folder" and "Open Layout – Anywhere" open layout files stored outside of the show file.

In Lightwright 6, more than one show file can be open at one time. Each document automatically opens with a different background color. All of the windows relating to that file will open in the same background color (i.e. blue to blue, green to green). You can change this color using Preferences/Worksheet Colors.

Each show file contains the visibility and order of all worksheet columns for each person who has saved the show file, so the order and visibility will change, depending on who opens the file. Each show file also contains the limits, bookmarks and worksheet flags set by each user.

You can set default vocabulary to be used for new show files using Setup/Vocabulary and Setup/Column Names & Definitions. When you open a show file, if the vocabulary in it is different from your defaults, Lightwright will tell you, but it will NOT change your default settings.

Flags and Limits are saved with the show file, along with worksheet column order and visibility.

OLD SHOW FILES

Version 6 can read show files from versions 2, 3, 4, and 5, but it cannot read work notes from files prior to version 5.

To save in version 5 format, use File/Save As. Select the desired format at the bottom of the standard Save dialogue window. Note that version 5 show files will include only the data which that version supports.

Lightwright 6 can read most older layouts, libraries, and phase template files, and will convert them to version 6 format when necessary. Once converted, they cannot be opened by older versions. Because there are more kinds of paperwork in version 6 than there were in previous versions, layouts saved using version 6 cannot be used by older versions.

Show file reconciliation, merging, and comparing only works successfully with two show files that originated as the same LW6 file. Saving a LW6 file as a version 5 or other file format and then opening the resulting non-LW6 file (which converts it to a new LW6 file) will make the resulting file incompatible with the original LW6 file for reconciling, merging, and comparing because the internal LW6 ID's for each light will have been lost.

If you want to make a layout available to anyone who uses your computer, open the layout and then use Save Layout As/ In Shared Folder to put the layout in a place where everyone can access it.

FILE FOLDERS

Lightwright 6 has folders within the Lightwright application folder to hold various support documents such as default Layouts, Attribute Lists, Libraries, Phase templates, Labels, and Watermarks. However, operating systems such as Microsoft Windows and Mac OS X will only allow users with admin privileges to modify program folders and their contents.

Lightwright uses a **Shared Folder** to hold files that you want frequent access to by any user. This shared folder will contain Layout, Attribute Lists, Automated Actions, and other folders that Lightwright will offer as default locations whenever you save layouts, attribute lists, etc. Each time you run Lightwright, it will copy any files from the protected folders in its application folder into the corresponding folders in the Shared Folder. Be sure you designate a folder with read/write privileges so that any user who needs to be able to modify layouts, attribute lists, watermarks, etc. can do so.

These are the default locations for the Shared folder:

<i>Mac OS X:</i>	Users:Shared:Lightwright:
<i>Windows:</i>	C:\Documents and Settings\All Users\Shared Documents\Lightwright\

When copying the default files into the shared folder, if a file with the same name already exists in the shared folder, Lightwright will not replace the existing file.

Use Preferences to change the folder Lightwright uses for its shared folders if these are not convenient.

Macintosh Users:

OS X uses file permissions to control access to files. The defaults for all files created by Lightwright are:

Owner:	Read/Write
Group:	Read Only
Others:	Read Only

If you are working on a network and want to allow other users to share your files, go to Preferences and activate the "Group and Others have read & write permission for all files" option. This will change the permissions for everyone to Read/Write.



ATTRIBUTE LISTS

Attribute lists determine the number of rows, decimal unit numbers, and purposes for the associated

instrument type. If attributes are listed for an instrument type, whenever you add one of those lights to your show, a separate worksheet row is automatically added for each attribute, with a decimal unit number suffix corresponding to the attribute.

AUTOMATED ACTIONS



Automated Action files contain Import & Export settings. Choose one from the File/Automated menu to perform file import or export automatically. These files must be kept in the "Automated Actions" folder inside the Shared folder.

LABEL FILES



Label files contain all the formatting and data source information for printed labels. They can be used with any Lightwright 6 show file, and are often kept in the "Labels" folder inside the Shared folder.

LAYOUT FILES



Layout files contain all the formatting information that describes how you want your paperwork printed. Since they do not contain any show-specific information, you can use them with any show file. Pop-up Layout menus will show layouts in both the shared Layouts folder as well as any layouts found in the current show's file.

LIBRARY FILES

There are two kinds of Library files, both share the same icon.



Wheel Library files contain all of the information about a moving light wheel, including the number of slots, their attributes, and pictures of any gobos or colors used in the wheel. They are normally stored in the "Wheel Libraries" folder in the Shared folder.

Scroll Library files contain information about a scroll, including the number of frames and the color used in each frame. They are kept in the "Scroll Libraries" folder in the Shared folder.

PHASE TEMPLATES



Phase template files contain a pattern of dimmer phase assignments. By applying a phase template to a dimmer range, you can quickly assign phases to all of the dimmers in the range instead of tediously assigning ranges one dimmer at a time. These files should be kept in the Shared folder.

RACK FILES



Rack files contain the dimmer specifications for one row in the Setup/Dimming & Control window's Dimmer list.

TAB-SEPARATED

This is a general-purpose format that is the standard data format on the Macintosh and is available with most Windows applications. The file extension is .txt.

In a tab-separated file, each column represents a category of information, and each row represents a new item or record. Columns are separated by tab characters, and each row ends in a carriage return.

Here is an example of a tab-separated file:

(`\t` represents a single tab character ASCII 9, and `\n` is a carriage return; they're usually invisible or blank when you look at the file)

```
No. 1 ELEC\t1\t6x12\t1000\tFront Light\tR-33\nNo. 1 ELEC\t2\t6" Fresnel\t500\tDownlight\tN/C\nNo. 1 ELEC\t3\t6x16\t1000\tChair Special\tR-33,R-119\nNo. 1 ELEC\t4\t6x12\t1000\tFront Light\tR-33
```

Tab-separated format is superior to comma-separated format (CSV) for most purposes, and in most applications when you save a file as "Text" it's usually in tab-separated format. It is important to know, though, that this format can hold only one kind of data at once. If you have a file with Lightwright's worksheet information in it, you'll have to use another file for dimmer range information, and another file for color frame sizes, etc.

COMMA-SEPARATED

This format is often referred to as CSV ("comma separated values") and is very similar to tab-separated format, but the data categories are separated by commas instead of tabs. However, because commas are common in text data, double quotes are often put around each column. The file extension is .csv.

Here is an example of a comma-separated file (`\n` is a carriage return):

```
No. 1 ELEC,1,6x12,1000,Front Light,R-33\nNo. 1 ELEC,2,"6" Fresnel",500,Downlight,N/C\nNo. 1 ELEC,3,6x16,1000,Chair Special,"R-33,R119"\nNo. 1 ELEC,4,6x12,1000,Front Light,R-33
```

Here again, both tab and carriage return characters are usually invisible or show up as blank spaces onscreen.

The CSV format isn't completely standardized, Lightwright follows the Microsoft Excel® format. If at all possible, avoid using CSV format, use Tab-separated instead.

Like tab-separated format, this format can hold only one kind of data at once. If you have a file with Lightwright's worksheet information in it, you'll have to use another file for dimmer ranges, and another file for color frame sizes, etc.

ASCII SOFT PATCH

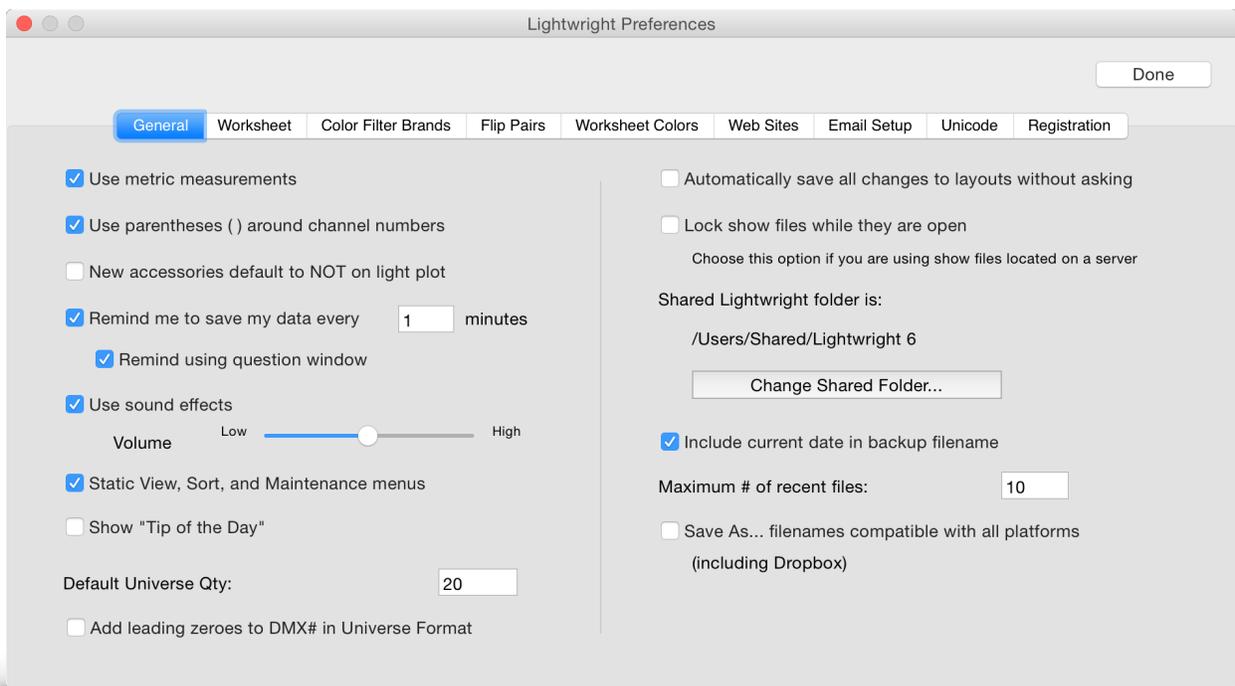
This is a file format developed by USITT to allow transferring cues, soft patch, and other control-related information between consoles made by different manufacturers.

If you save a file in this format, it will contain the necessary instructions for patching dimmers to channels as you've entered them in your Lightwright file. It will not configure the console in any other way or set the overall number of channels or dimmers. Also, because Lightwright does not record proportional patch information, all dimmers will be patched at full.

EOS PATCH FILE

This is a file format developed by ETC to allow Lightwright to send patch and fixture profile information to the Eos family of consoles. It also includes purposes, positions, colors, and other information to populate Eos query tiles.

PREFERENCES



Please note that in Macintosh OS X, the Preferences item is under the Lightwright menu. In Microsoft Windows®, it is at the bottom of the Edit menu.

GENERAL

USE METRIC MEASUREMENTS

If you want Lightwright to measure color frames in millimeters instead of inches, check this option.

USE PARENTHESES () AROUND CHANNEL NUMBERS

If you want Lightwright to always put parentheses around channel numbers, check this option.

NEW ACCESSORIES DEFAULT TO NOT ON LIGHT PLOT

If you are using Data Exchange to share your data with Vectorworks, any new kinds of accessories you enter into Maintenance or the worksheet are automatically added to the Vectorworks drawing. If you choose this option, Lightwright will NOT put new accessories on the light plot until you manually check the “on plot” status for that accessory on the Vectorworks tab in Maintenance.

REMIND ME TO SAVE MY DATA AFTER ____ MINUTES

If you want to, Lightwright can remind you to save your data at regular intervals to help you prevent an accidental loss of your paperwork. The clock will start when you make any kind of change and will begin warning you after the designated number of minutes have passed by displaying a reminder message at the bottom of the worksheet window at the chosen interval. Lightwright will not remind you if you haven’t made any changes that need saving, even if this option is checked. Save reminders will appear only when the Worksheet is the active window.

If you select the “Remind using question window” option, Lightwright will interrupt your work with a window asking if you want to save your show file.

USE SOUND EFFECTS

This option turns on and off musical effects such as the fanfare when printing is finished. It does not turn off the system beep that accompanies Alert messages. There is also a slider to adjust the sound volume.

STATIC VIEW, SORT, AND MAINTENANCE MENUS

Lightwright normally adjusts the order of items on these menus based on how frequently you choose them, but if you would like these menus to **not** adjust their order, check this option.

SHOW “TIP OF THE DAY”

This option turns on and off the “Tips” that show you shortcuts and handy things you can do with Lightwright. Changing it here is the same as clicking the checkbox in the Tips window. The Tips window can be opened via the Lightwright Help menu, and opening it activates this option.

DEFAULT UNIVERSE QTY

The Default Universe Qty determines how many universes Lightwright automatically creates for every new show. Be careful: depending on how fast your computer is, the Setup/Dimming & Control window may be sluggish with large numbers of universes.

ADD LEADING ZEROES TO DMX# IN UNIVERSE FORMAT

This option adds zeroes to the beginning of two digit DMX addresses to keep a consistent number of digits for each address. For example, an address “3/45” becomes “3/045” when this option is activated.

AUTOMATICALLY SAVE ALL CHANGES TO LAYOUTS WITHOUT ASKING

Normally, if you make any changes to a layout, Lightwright will ask you if you would like to save those changes. Select this option if you would like for Lightwright to always save those changes without asking you.

LOCK SHOW FILES WHILE THEY ARE OPEN

Files can be locked whenever they are opened, so multiple users on a network can read a file simultaneously, without overwriting files accidentally. Even a stand-alone computer is considered “networked”, since modern operating systems don’t distinguish between files on a local hard drive and those on a remote file server. Choose this option if you have multiple users accessing your show file.

SHARED LIGHTWRIGHT FOLDER IS ...

This allows you to choose where Lightwright should put the shared folders file on your hard drive.

INCLUDE CURRENT DATE IN BACKUP FILENAME

When using “File/Save a Backup”, this option adds the current date (in the form YYYY-MM-DD) to the default filename. If a date in that form already exists in the filename, it will be replaced with the current date. This option defaults to ON.

MAXIMUM # OF RECENT FILES

This option allows you to set the maximum number of recently opened files shown in the File menu. The minimum is 1, the default is 10.

SAVE AS... FILENAMES COMPATIBLE WITH ALL PLATFORMS

THIS OPTION HAS BEEN REMOVED AS OF VERSION 6.0.10. Lightwright now blocks all of these characters from being used in filenames: | ? [] / \ = + < > ; , * because they are not compatible on all platforms (Mac, Windows, Dropbox).

WORKSHEET

ENTER KEY MOVES DOWN THE WORKSHEET (EXCEPT IN FOCUS CHARTS)

Lightwright’s normal behavior is for the selection rectangle to stay in place after you press [Enter]. If you would like the rectangle to move down one worksheet row, choose this option. Note that this option can interfere with some features such as Append.

UP AND DOWN ARROW KEYS ENTER DATA

Lightwright’s normal behavior is for the worksheet cells and other list-like data entry forms throughout Lightwright to only accept data when you press [Enter]. This option enables up and down arrows to enter data as well as move the current selection up or down.

USE AUTOFILL

AutoFill is global. It is on by default.

USE IN-CELL EDITING

On a Mac, this option allows you to enter data directly into the cells on the worksheet. Turning this off will activate an edit box at the top of the worksheet window, where you can enter information for the selected cell(s). The Windows version of Lightwright does not have this option, editing is always done via a cell outside of the worksheet.

CLICKING BLANK WORKSHEET AREA OPENS ADDING UNITS WINDOW

If you check this option, any time you click in an empty area of the worksheet the Adding Units window will open.

WORKSHEET EDITING CHANGES MAINTENANCE LIST CAPITALIZATION

Normally, the capitalization of items on the worksheet is determined by the capitalization of that entry in the relevant Maintenance list. If you make a mistake and want to correct it, you need to go to Maintenance to fix it. If you would prefer to be able to make changes in capitalization directly in the worksheet, check this option.

SHOW ROTATION ARROWS IN COLOR

If this option is active, rotation arrows are filled with the same color as the gel color used in the light.

REDUCE TEXT SIZE TO FIT ON SCREEN

This option reduces the size of text to fit into worksheet cells and other windows. It is turned on by default and automatically shrinks text down to as small as 6 points (or whatever size you choose). The default minimum size is 9.

SHOW "JUMP TO" MAGNIFYING GLASS ICONS

If you find the magnifying glass icons that indicate cells you can "Jump" from to see other items with the same data distracting, you can un-check this option to turn them off. Turning this option off does NOT disable the "Jump" feature, it merely hides the icons, which will give you a bit more space for data.

COLOR FILTER BRANDS

The "Avail?" column checkmarks determine which of the color filter brands are on the Standard Colors palette. You can also change the label assigned to each manufacturer. The option to use hyphens between the label and the color number only affects colors entered using the Standard Colors window, it does not change colors you enter manually, and it does not affect how Lightwright interprets colors when counting or making color swatches.

FLIP PAIRS

When you are Cloning or using the Balance command on a position, you have the option of "flipping" the purposes. If you ask Lightwright to do this, it will attempt to swap purposes for each other on the basis of the flip pairs you enter here. If you enter Left/Right pairs as your Flip Pairs, this can change purposes being used for instruments on Stage Left into the appropriate purposes for Stage Right.

Example: You have entered the following information for BOOM L:

<u>Unit#</u>	<u>Purpose</u>
1	SL Far X
2	SL Mid X
3	SL Near X

And you have SL and SR as flip pairs in Personal Preferences.

If you Clone this to BOOM R and ask Lightwright to flip purposes (and confirm each of Lightwright's suggested flips), you will get:

<u>Unit#</u>	<u>Purpose</u>
1	SR Far X
2	SR Mid X
3	SR Near X

Be VERY careful what phrases you enter as flip pairs, and check the altered purposes carefully before allowing Lightwright to change each purpose. It's very easy to change BULB into BURB or SLEAZY into SREAZY.

Both leading and trailing spaces are significant. This can help prevent unwanted changes like the SLEAZY/SREAZY example. Use the underscore character “_” wherever you want Lightwright to look for leading or trailing spaces. You may want to enter pairs such as SR_ and SL_ or _SR and _SL.

WORKSHEET COLORS

Lightwright shades the bottom edge of each window with the related show's color. With each show file that you open, Lightwright will use a new color to visually differentiate between different show files. In this tab, you can select the order of the colors that Lightwright uses for each subsequent open file. Drag the window background colors up and down the list to put them in order of preference.

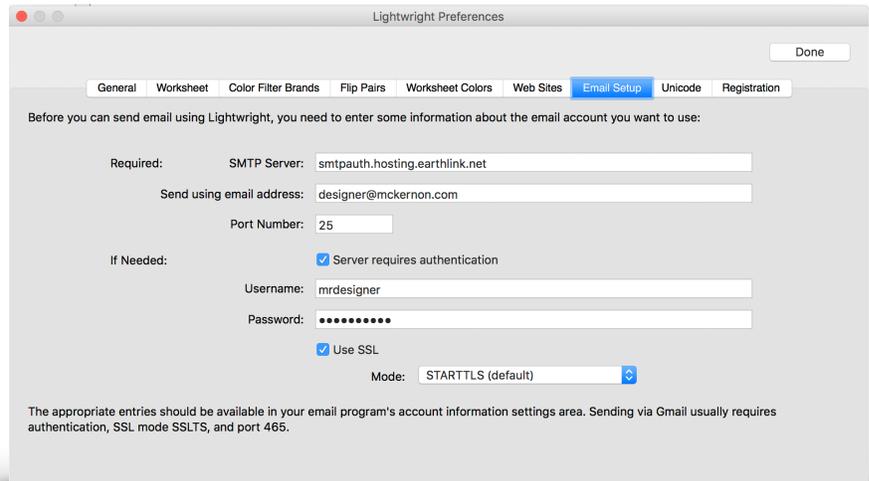
Click the Use Default Colors button to restore the original settings.

WEB SITES

This is where you enter web sites you want quick access to via Lightwright's web site button. The Description is what you will see when you click a web site button, the URL is the address of the web site you want to open. To remove a web site, select the row and click the Del button. In this window, there is also a button to restore the default web site entries.

EMAIL SETUP

In order to send Work Notes to other people via email, or to send bug reports to John McKernon Software via email, you need to fill out the fields in this preference pane. Your email program will have this information on each of your email accounts, just copy it from there and paste it here. For instance, in Apple Mail®, the information is under Preferences/Accounts. In Entourage, the settings are under Tools/Accounts. A SMTP server account is required to send email.



Almost all email services require authentication. If that is true for your provider, check the “Server requires authentication” option and fill in your username and password. Lightwright stores your username and password in encrypted form, so even if your computer is stolen it will not be available to anyone other than yourself.

As an example, here are the settings for Gmail (these are from the Gmail web site, check with Google to confirm):

1. First, enable POP in Gmail using the Gmail web site. Don't forget to Save Changes when you're done.
2. This what goes in the Lightwright window:

SMTP Server: smtp.gmail.com
Send using email address: Your full email address, including @gmail.com or @your_domain.com
Port Number: 465
Check “Server requires authentication” and “Use SSL”.
Gmail may require the mode to be SSLTLS instead of the usual STARTTLS
Username: Your full email address, including @gmail.com or @your_domain.com
Password: Your Gmail password

If you have trouble connecting:

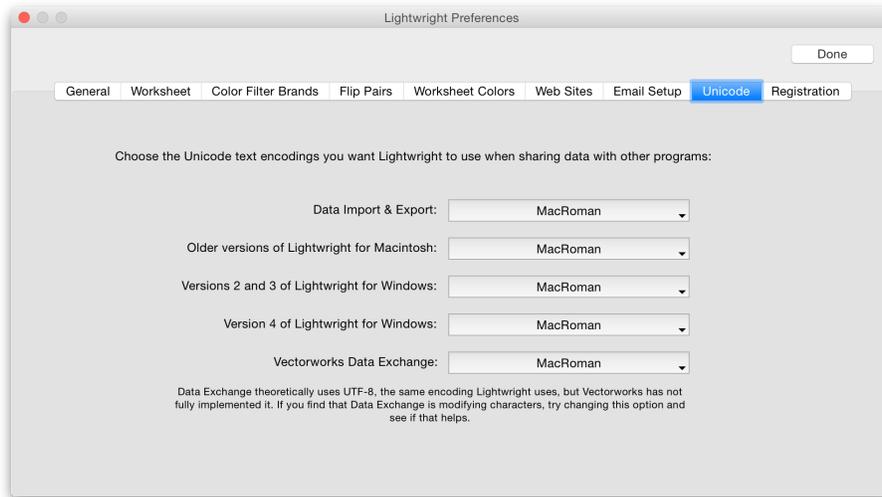
Try changing the SSL Mode.

Google may also require you to configure your settings in Gmail to allow email to be sent outside of the Gmail web browser app.

UNICODE

This preference pane determines how Lightwright handles character translation when moving data between it and other programs, and between Lightwright 5 show files and older Lightwright show files.

There are hundreds of encodings, but Lightwright has pared down that unmanageable list to a few that commonly used ones. If you find things like accented characters being mangled when moving to and from Lightwright, try selecting a different encoding.



WHAT IS UNICODE?

Computers encode each character you type as a numeric value. When they need to display that character, they consult an “encoding scheme” to determine what character to show you. Early computers used a scheme called “ASCII”, which has a range of numbers from 0-255 to represent upper- and lowercase characters as well as numbers and common keyboard symbols. Unfortunately, there are far more than 255 possible characters in the world, when you consider accented characters and characters in alphabets far more complex than the standard English alphabet. As a result, extensions to the ASCII encoding scheme have been developed. Outside the range of 0-127, the schemes do not agree. For example, in the US, Mac and Windows computers use different encodings for codes 128-255, a range of numbers that includes the degree symbol.

The solution to the problem is an encoding scheme called “Unicode”. It is designed to handle every character in every language, and Lightwright internally uses a specific kind of Unicode called UTF-8. However, earlier versions of Lightwright used whatever encoding the computer they were running on used. Most Macs in the U.S. have used MacRoman, while DOS used strictly ASCII, and Windows often uses an encoding called Windows Latin 1. Depending on the language system in use on the computer, other encodings are used.

REGISTRATION

The Registration tab pane is where you enter your serial number, registered name, and approval code.

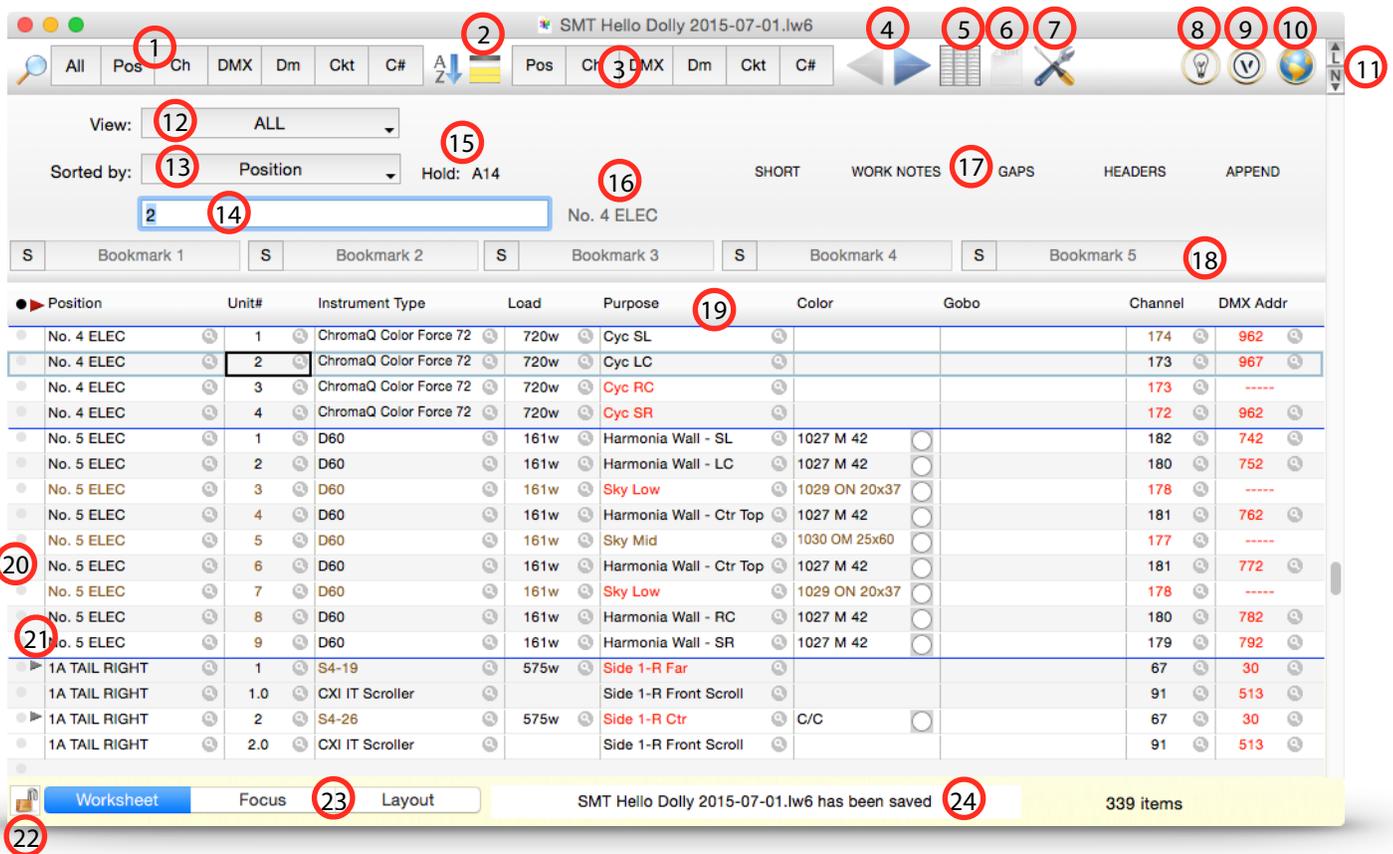
For full information on how to enter registration, refer to the General section at the beginning of this manual.

WORKSHEET

THE WORKSHEET WINDOW

The Worksheet is where most editing is done, and it's always open whenever you're working on a Lightwright show file.

There are several important parts of the Worksheet to become familiar with:



Points of interest are:

1	Toolbar View Buttons	9	Vectorworks Data Exchange Button	17	Option Buttons
2	Sorting Blanks Button	10	Open Web Browser	18	Bookmark Buttons
3	Worksheet Sorting Buttons	11	View Next/Last Buttons	19	Column Headers
4	Browse Forward/Backward Buttons	12	View Menu	20	Select Column
5	Labels Button	13	Sorted by... Menu	21	Disclosure Column
6	Lists Button	14	Edit Field	22	Position Lock Button
7	Work Notes Button	15	Hold Area	23	Worksheet/Focus/Layout Tabs
8	Console Link Button	16	"Mouse Over" Area	24	Message Area

① TOOLBAR VIEW BUTTONS

Instead of choosing from the View and Sorted By pop-up menus, you can click any of these buttons to do the same things. To set what each button does, choose the View or sort you want from the View & Sort pop-ups, then right-click on the button you want to have that View or Sort and choose the option to set the button. You can also Control-Click (Cmd-Click on the Macintosh) the button you want to have the current View or Sort.

② SORTING BLANKS BUTTON

Toggles worksheet sorting so blank rows are either at the beginning of the worksheet or at the end. Worksheet rows that don't have any content in a cell for the category that you are sorting by are treated as a "blank row" by the sorting operation and can be sorted to either the beginning or end of the worksheet.

③ WORKSHEET SORTING BUTTONS

[placeholder text]

④ BROWSE FORWARD/BACKWARD BUTTONS

These buttons can step back and forward (Cmd+[) or forward (Cmd+]) through what you have been looking at on the worksheet and focus charts, similar to how a web browser works. You can also press [Esc] to step back.

⑤ LABELS BUTTON

Opens the Labels window, to choose, design, and print labels. For detailed information, please visit the "Labels" section of this manual.

⑥ LISTS BUTTON

If the contents of the edit field came from a text category, you can click on this button and the appropriate Choose List will open. If you then choose something from the list, it will be transferred to the edit field and also immediately into any currently selected cells.

If the currently selected cell or column is the Mark column, then the List button will bring up the Marks Editor. For more information, refer to the Marks Editor section of the manual.

The keyboard shortcut for this is Control-L (Cmd-L on the Macintosh)

⑦ WORK NOTES BUTTON

Opens the work notes window. See the chapter on Work Notes for complete information.

⑧ CONSOLE LINK BUTTON

Opens the Console Link Setup window, to enable a real-time OSC connection with ETC's Eos family of consoles. See the chapter on Vectorworks Data Exchange for complete information.

9 VECTORWORKS DATA EXCHANGE BUTTON

If you have Vectorworks Spotlight 2009 or later, you can share data between Lightwright and Vectorworks in real time, without tedious importing and exporting. This button opens the Data Exchange window. See the chapter on Vectorworks Data Exchange for complete information.

10 OPEN WEB BROWSER

Pressing this button brings up a list of web pages you can visit. Choosing a site from the list opens your default web browser and displays that page. If you find yourself frequently needing to go to a web page to browse a catalog of gobos or other material, adding that web page to Lightwright's web sites list can speed up your workflow. Use Preferences/Web Sites to add, edit, or remove web sites from this list. It also appears in the maintenance, choose list and work notes windows.

If you are visiting a web site with graphic images such as gobos, you can drag the graphic from the web site and drop it directly into the related area in Lightwright.

11 VIEW NEXT AND VIEW LAST BUTTONS

When you are viewing ALL, these move you quickly from place to place in the worksheet. Clicking on the "L" button moves the worksheet up to the previous break in the worksheet, and the "N" button moves you to the next one. There are also keyboard equivalents: Cmd+Option+N (Mac) or Ctrl+Alt+N (Windows) for "Next" and Cmd+Option+L (Mac) or Ctrl+Alt+L (Windows) for "Last."

When you are viewing any single channel, dimmer, or circuit number (not a range of numbers or ALL), the "N" button will re-search and re-sort your paperwork, showing you the next-higher channel, dimmer, or circuit number. The "L" button does the same thing, showing you the next-lower number. Note, though, that these buttons will not work if you are viewing Non-Dims (dimmer numbers N1 thru N99).

When you are viewing a Position, Purpose, Instrument Type, Color, or Circuit name, then clicking on the "N" button will re-search and re-sort your paperwork, showing you the *next* position, purpose, type, color, or circuit name on the list. The "L" button takes you the other way.

12 VIEW MENU

Use this pop-up menu to choose what gets displayed on the Worksheet. Choose "All" if you want every item on your paperwork to appear on the Worksheet.

The View and Sort menus adjust their contents to your work habits. The most used categories in any given show file appear towards the top of the View pull-down list, with the rest of the categories listed in alphabetical order below them.

Explanation: Because there are now so very many categories to choose from, the View, Sort, and Maintenance menus are quite long. As a result, there is a "popularity" ranking for items chosen from these menus. The menu items you choose the most often will occupy the first group of menu slots on each menu. After that, things depend a bit on which menu you're looking at. The View and Sort menus follow the top items with some standard non-category-related items, and at the very bottom will be all of the "unpopular" categories, in alphabetical order.

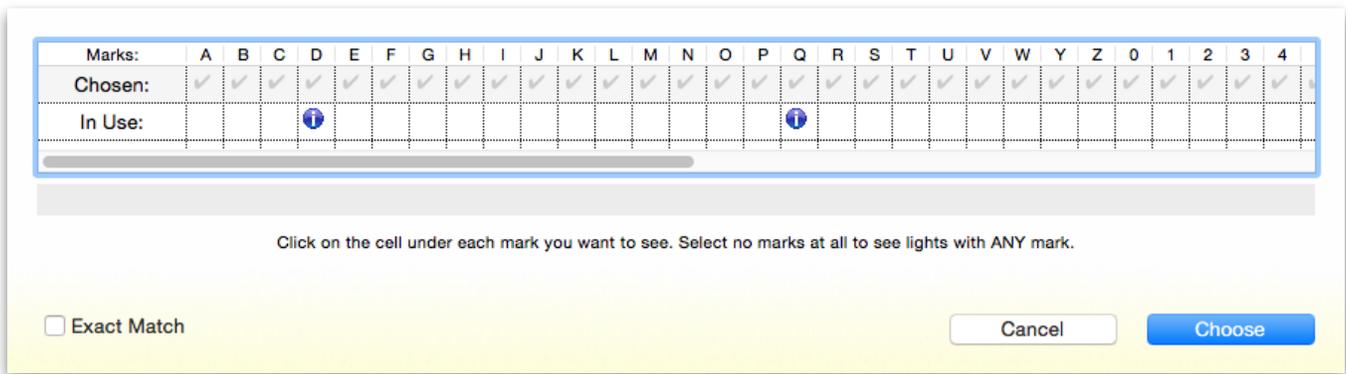
Each time you choose an item from one of these menus, Lightwright notices and keeps track of which ones you use the most. When you first start using Lightwright, the first item you choose is obviously going to be the most popular,

so it goes to the top of the list. As you choose items, their frequency of use will determine whether they're in the top group. In typical use, the item you're looking for will almost always be near the top of the menu, and your eye can scan that list very quickly and find the item.

If you do not like this behavior and would prefer that these menus remain static, go to Preferences/General and check the "Static View, Sort, and Maintenance menus" option.

When choosing to view number categories such as Channel and Dimmer, you can enter both individual numbers and a range of numbers to view by separating them with commas and hyphens (i.e. Channels 1-3, 7, 46, 69-74).

If you choose to view Marked or Not Marked, Lightwright will open this window, for you to choose the marks you want to see (or not):



Click in the top row (to the right of "Chosen") to check the marks you want Lightwright to use when searching. The "In Use" row shows which you which Marks are actually being used by lights.

If the "Exact Match" option is checked, then Lightwright will only show you lights with ALL of the marks you choose. Otherwise, it will look for lights containing ANY of the chosen marks.

If you want to repeat a View and Sort that's currently on the worksheet, you can use the Worksheet/Refresh menu command to avoid wading through the View menu again.

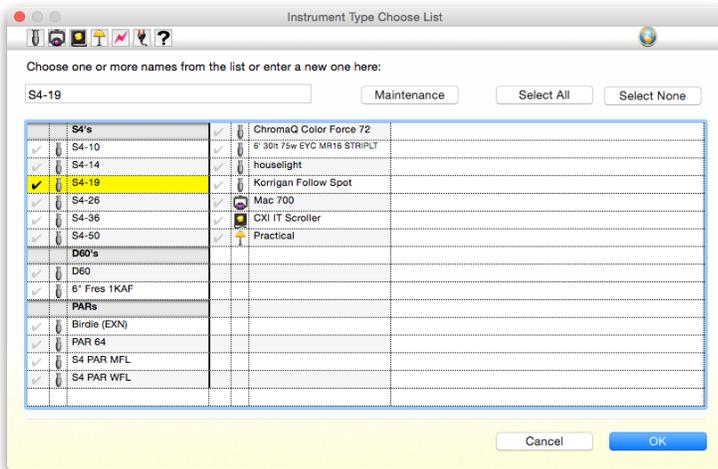
GLOBAL SEARCH

There is a Global Search function in the in the pulldown View menu and under Edit/Global View (Cmd-G on a Mac or Ctrl-G on Windows). This allows you to search across all worksheet columns and all lights for any mention of the search item. If you enter any number, phrase or part of a word, number or phrase and hit Enter, Lightwright will search all of the categories for a match. The search function is not case-sensitive and will find bits of text within longer words or numbers. If you want to search for a particular channel, enclose it in parentheses.

TEXT CATEGORIES

When you pick a text category, the related Choose List will open.

A typical choose list for Instrument Types looks like this:



To choose a single instrument type, either click on it and then click "OK" or double-click it. To choose a continuous group of instrument types, click on the first one, shift-click on the last one, then click OK. To choose a discontinuous group of instrument types, Control-Click (Cmd-Click on a Mac) on each type and then click OK.

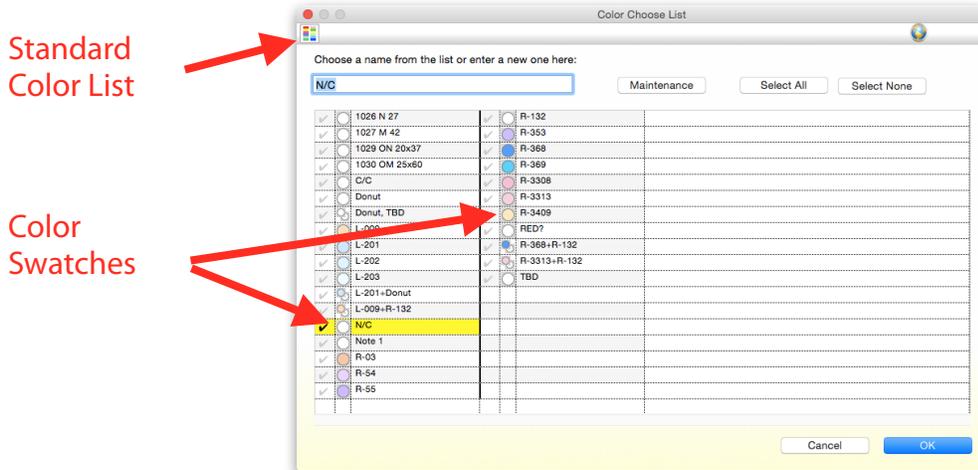
You can also enter just a few characters or part of a word or phrase and ask Lightwright to find items that contain it. To do this, just type the text into the Choose List edit field and then click OK. If Lightwright doesn't find any items that match it exactly, it will ask you if you'd like it to look for items containing the text. If you answer "Yes," it will

look through your entire show and find items that contain the text anywhere within the chosen category. If you answer "No," the worksheet will set the View to whatever you were looking for and clear the worksheet.

Click on the Maintenance button if you need to edit the list or change its order.

If you are viewing Instrument Types in the Choose window, small device type buttons will appear at the top of the window. Clicking on any one of them will automatically scroll the Instrument Types list to bring those kinds of devices into view.

When the category being shown is a color, you can make use of the Standard Colors list by clicking its icon, and if Lightwright recognizes an entry on your color list, it will show a small swatch next to the color:



NUMBER CATEGORIES

Number categories include Channel, Address, Universe, Dimmer, Unit#, Circuit#, and any User columns defined as numbers. Choosing one of these categories, you can enter either a single number, a range of numbers (such as 1-6) to view or a combination.

OTHER CATEGORIES

Item	Description
Has Work Note	Lights that have notes that are marked "To Do" or "Discuss."
Work Note Status	Lights that have a chosen work note status: To Do, Discuss, On Hold, Done, or Cancelled.
On Light Plot	Lights that already exist in Vectorworks.
Vectorworks Categories	View lights that have certain parameters in Vectorworks, such as X, Y, Z Coordinates or belong to a specific class, for example.
Marked	Lightwright will ask you to choose one or more marks that it will then search for in the Marks column. If "Exact match" is chosen, then it will look for lights that have ALL of the marks.
Not Marked	The reverse of the above choice. Choose the marks you do NOT want to be in any worksheet rows. Everything else will be displayed.
Focused	Lights that have their Focus Status set to Focused (green dot)
Partly Focused	Lights that are Partly Focused (yellow diamond)
Not Focused	Lights that are Not Focused (F with a red circle)
Needs Focusing	Any lights that are either Partly Focused or Not Focused
Changed by Me	Lights that have changes made my you.
Changed by Others	Lights that have changes made by other users.
Changed by Vectorworks	Lights that have changes made through Vectorworks Data Exchange.
Flagged	Lights that have flags as a result of what you set up in Worksheet/Flags
Row Colors	Lightwright will ask you to choose a row color. Any lights highlighted in that color will be displayed.
Deleted Items	Lights that have been deleted. You can select a deleted item and use Edit/Undelete Items (or choose UnDelete from the right-click menu) to restore them to the worksheet. Deleted Items will not be sorted in any particular order. When viewing Deleted Items, if you open the Add Units window, the Add/View Button will be grayed out because you cannot view newly added lights when viewing deleted ones.

Whatever you've chosen to view will be shown just below the View Menu, and the worksheet rows will contain the items fitting your choice.

13 SORTED BY MENU

This pop-up menu determines what order the worksheet is sorted in. When you choose something with the View Menu, the results will be sorted according to the current setting of the Sorted By menu. If something is already on the worksheet and you choose a sort from this order, the worksheet will be re-sorted accordingly.

Each kind of sort can have a different arrangement and number of columns associated with it, so changing the sort order may change what you see on the worksheet. Use Worksheet/Columns... or right-click the worksheet and choose "Columns..." to determine which columns are on the worksheet. You can change the criteria used when sorting by choosing the Setup/Sorting.. menu item.

If you want to temporarily view the worksheet sorted backwards (for instance, viewing channels sorted from largest down to lowest), click the A-Z sort icon at the top of the worksheet. When reverse sort order is active, the A-Z icon inverts and changes color:



When this reverse sort is active, any worksheet rows that can normally be collapsed will always be expanded.

To restore the normal sort order, click the A-Z icon again, or choose a different sort order from the View menu or one of the Sort buttons.

14 EDIT FIELD

For Mac users, the edit box will be off by default in favor of "In Cell Editing" which allows you to make edits directly in the selected cell. If you prefer to work with an edit box, go to Preferences/Worksheet and deselect "Use In Cell Editing." For those using Lightwright on Windows or for Mac users who turn off In Cell Editing, the edit field is where you edit the contents of cells on the worksheet. When you click on a cell, it is selected and its contents are temporarily transferred to this edit field. When you press either [Return] or one of the arrow keys, the contents of this field are copied into whichever cells are currently selected. Selected cells are highlighted.

You can also use the Command key (on the Mac) or the Control key (in Windows) in conjunction with other keys to paste the contents of the edit field directly into a series of cells on the worksheet. The equals sign "=" can also be used to make global changes using the edit field. For details on all these options, see the section on Worksheet Cell Editing of this Manual.

Lightwright has a couple of options to help you enter data into the edit field much faster. The AutoFill option will suggest completions to the things you type into the edit field.

AutoFill can be turned on and off by going to Preferences/Worksheet.

15 HOLD AREA

This is a temporary area similar to a clipboard, used to put things "on hold" for later use. For details on how to use it, refer to the Worksheet Cell Editing reference of this Manual.

16 "MOUSE OVER" AREA

If you move your mouse over any cell in the Worksheet, this area will show the full contents of that cell. This comes in handy when the contents of the cell are too long to be displayed in its Worksheet cell.

17 OPTION BUTTONS

The options worksheet checkbox buttons located in the toolbar are both outlined and will be highlighted in red when they are active. Clicking on them changes their status. The option buttons are:



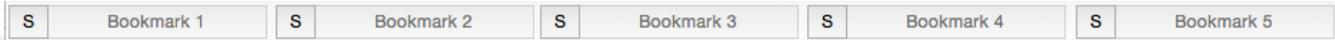
Description	
Short	All text entries have a regular and short version, which you can edit in Maintenance. When this option is active, the short version of all names is displayed on the worksheet and in ALL other parts of the application, including anything printed or counted. For instance, the designer might like the phrase "No. 1 Electric", but the electrician prefers "1E", so the electrician enters the short version in Maintenance/Position and turns on the Short option. When the "regular" name is changed, the "short" version also changes.
Work Notes	<p>Selecting this option causes any Work Notes attached to specific lights to appear on the worksheet directly under the relevant light. If the total number of lights plus the total number of Work Notes exceeds 60,000, then some Work Notes will not be displayed.</p> <p>When you choose this option, Lightwright will ask which notes you want to see on the worksheet, based upon their status.</p> <p>If you click on a work note on the worksheet, the work note editing form will open, allowing you to modify or delete the note.</p>
Gaps	When the worksheet is sorted numerically, this option displays a gray horizontal bar where there are gaps in the numeric sequence. Gap rows will also show you the quantity of free space available within the gap.
Headers	When the worksheet is sorted by Address, Dimmer, Multicable, or any text column, header rows are inserted in the worksheet between the universes, dimmer racks, positions, circuit names, or text names. If the worksheet is sorted by a text category (such as Position) and the category has Families, then a header row is inserted for each Family. For more information on Headers, see below. This option is not available when sorting by Accessory.
Append	Checking this option causes whatever text is entered into the Edit field and subsequently transferred to currently selected cells to be <i>added to the end</i> of any text already existing in those cells instead of replacing it. You can use this option when editing accessory and number columns such as channel and dimmer. Note that you cannot have more than one instance of any particular accessory on each light, and that only letters can be appended to number columns.

EXPRESS APPEND

You can select one or more cells on the worksheet, type the text you want to append into the edit field, then press Option+Enter (Mac) or Ctrl+Shift+Enter (Windows). The text in the edit field is added to the end of the already existing text in the selected cells.

18 BOOKMARK BUTTONS

Bookmarks take you back to a specific place in either the worksheet or focus charts with a single mouse click. They restore the View, Sort, scroll position, and Limits. There are nine bookmarks. All can be chosen and set via the Worksheet/Bookmarks menu. The first five are also buttons on the worksheet when the bookmarks buttons are visible.



To toggle the visibility of bookmark buttons, choose Worksheet/Show Bookmarks Bar. All can be accessed using keyboard shortcuts:

Mac: Cmd+1 through Cmd+9 activate bookmarks 1-9
Cmd+Option+1 through Cmd+Option+9 set bookmarks 1-9

Win: Ctrl+1 through Ctrl+9 activate bookmarks 1-9
Ctrl+Alt+1 through Ctrl+Alt+9 set bookmarks 1-9

These keyboard shortcuts can be used even if the bookmark buttons are not visible.

For more information about Bookmarks, please see "Show/Hide Bookmarks/Bookmarks" in the Worksheet section of this manual.

19 COLUMN HEADERS

Each category on the worksheet has a column with a header. The columns vary their width automatically depending on what has been entered in them to make as much text visible as possible at all times while still keeping all the desired columns visible. The column titles will be automatically abbreviated if the column becomes quite narrow.

Click on a column's header to select all the cells in that column. Drag the column header left and right to change the order of the columns.

On the Mac, you can hold down [Option] while the mouse pointer is over a column header to either expand the column or narrow it by clicking on the header. The mouse pointer will show you which effect will take place if you click.

In Windows, you can right-click while the mouse pointer is over a column header and you will be able to either expand the column or narrow it by choosing from the menu that pops up.

You can select what columns are visible by using the Worksheet/Columns... menu.

Lightwright 6 is user-aware in many aspects. Each show file contains the visibility and order of all worksheet columns for each person who has saved the show file, so the order and visibility will change, depending on who opens the file. Each show file also contains the limits, bookmarks and worksheet flags set by each user.

20 SELECT COLUMN

The far left-hand column of the worksheet is the Select Column, which cannot be moved or hidden. To select an entire row on the worksheet, click in this column on the appropriate row. A black bullet • will appear in this column to show that you've selected the entire row, including any hidden columns. The bullets are gray when the row is not selected.



Position	Unit#	Instr
FOH 1	1	S4-1
FOH 1	2	S4-2
FOH 1	3	S4-1
• FOH 1	4	S4-1
FOH 1	5	S4-1
FOH 1	6	S4-2

You can also select all the visible columns in a row by shift-clicking on the first and last columns, but the bullet will not appear because the hidden columns have not been selected. Clicking in the Select Column is the only way to select hidden columns, for example if you want to clear them.

Click in the header of the Select Column to select all the rows and all the columns of the worksheet at once.

You can put the lights within each hanging position in whatever order you want, not necessarily in order by unit#. If you re-select either the View or the Sorted By menu, your manual order will remain. To move lights into a locked order, click in that row's select column and drag each unit up or down to wherever you want it. Devices associated with the light will move automatically with it as long as they have the same hanging position and unit number as the light. To override this, hold down Ctrl (Windows) or Cmd (Macintosh) while dragging.

Once one or more units have been dragged out of their "normal" sorted-by-unit# position, the order will be "locked" and the lock icon in the bottom left hand side of the Worksheet will appear "locked" and a lock icon will be drawn next to each unit number in that position. However, keep in mind that the lock icon will only "lock" when you are viewing one hanging position only.

To "unlock" this manual sort order and allow Lightwright to once again sort this position numerically, select the position by using the View drop down menu and then click on the Lock icon on the bottom left hand side of the screen. Other positions that are not currently being viewed will not be affected by this operation and their manual sort order will remain.

If you drag rows into a new order and then choose the Renumber command, renumbering will be done in the physical order of the rows on the worksheet, not by the contents of the column being renumbered. For moving lights with attributes, all of the attributes associated with that moving light will automatically move with it.

21 DISCLOSURE COLUMN

On Windows machines, you will see a standard plus or minus sign in this column, on the Mac you will see a triangle.

Lights can be collapsed down into one visible worksheet row, for instance to hide moving light attributes you may not want to see. If this is the case, a disclosure icon will appear next to the primary item. If the either a plus sign or a red triangle pointing to the right, then there are one or more rows hidden. Clicking on the disclosure icon will expose the rows, and the icon will change to its exposed state. Clicking the icon again will hide the rows.

Instrument Type	Position	Unit#
Korrigan Follow	FOH 2	
Mac 700	HI GALLERY 2-L	2
Mac 700	HI GALLERY 2-R	1
Mac 700	No. 1 ELEC	5
Mac 700	No. 1 ELEC	15
▼ CXI IT Scroller	1A TAIL RIGHT	1.0
▶ CXI IT Scroller	1A TAIL RIGHT	1.1
▶ CXI IT Scroller	1A TAIL RIGHT	1.2
▶ CXI IT Scroller	1A TAIL RIGHT	2.0
▶ CXI IT Scroller	1A TAIL RIGHT	3.0

In order for a row to be hidden when viewing sorted by Position, the associated attribute list must have the "Collapsible" option checked for one or more of its attributes.

To hide or reveal all possible rows on the worksheet, click on the disclosure icon in the column header. Paperwork printouts also have options to show or hide rows.

22 POSITION LOCK ICON

This icon will be red and “locked” when the lights in the Worksheet have been dragged into a specific order (and are no longer sorted by unit number). To unlock the order, select the position by using the View drop down menu and then click on the Lock icon which will then unlock the position. Dragging lights into a specific order is often useful when a position has a mix of units that go by different numbering systems, such as conventionals and moving lights, or conventionals and striplights.

23 WORKSHEET, FOCUS & LAYOUT TABS

Click these to switch the window between the Worksheet, Focus Charts, and Layout design windows.

24 MESSAGE AREA

This space is where the number of items currently being viewed on the worksheet is displayed. Any warnings such as irregular unit numbering or overloaded dimmers are also noted here. When you save, you will also see a confirmation message here.

WORKSHEET GRAPHICS STANDARDS

Lightwright uses alternating gray rows on worksheet rows for all open show files, and shades the bottom edge of each window with the show’s color. The Preferences window has options to change the alternating row color and to prioritize which colors are used to shade the window edges.

If a light has something entered in its color cell, a color frame swatch will always appear. If Lightwright can't recognize the color, the center of the frame will be white. If there is more than one color for a light, the color swatch shows two color frames, the left/upper one is the first color and the right/lower one the last color.

Here’s an example:

Color	
R-119+R-33	
L-029,L-079	
R-79,L-161,R-33,G-315	
L-029,L-079L-161	
N/C	

There is a preference under Preferences/Worksheet that automatically shrinks the size of text to fit into worksheet cells and other windows. It is on by default and will shrink text down to as small as 9 points.

The On Plot, Focus Status, and VW Rotation columns cannot be edited using the editing box, but they can be selected by navigating to its cell using the arrow keys on your keyboard (with or without Shift and Cmd) and then edited by pressing the Space Bar. They can also be edited by directly clicking inside the cell.

WORKSHEET ICONS

- [A] If dimmer ranges have been entered using Setup/Dimming & Control and a dimmer number on the worksheet is outside those ranges, then a small yellow alert icon is drawn in the cell with the dimmer number .
- [B] If universe information is available, a yellow alert icon is drawn in the address cell when the address is outside the show's defined universes.
- [C] If the dimmer rack for the worksheet row's dimmer has Address Linking turned on, then the address cell will show a small pair of chain links unless the cell is empty.
- [D] If a dimmer number is being set by an active Circuit Name and Cir# link, a small pair of chain links will be drawn next to the dimmer number.

Dimmer	Address
360	1/169
193	1/5
169	2152
1	1/2
169	1/170

WORKSHEET EDITING

WORKSHEET CELL EDITING – MICROSOFT WINDOWS®

In most cases, cells must be selected before you can edit them. To select a single cell, click on it with the mouse pointer. To select a continuous section of cells, click on the first one and then shift-click on the last one. To select discontinuous cells, Control-click on each cell. You can also extend the current selection by holding down the shift key while pressing the up or down keys.

Also, to select a range of continuous cells, click and hold the mouse button on the first cell and drag across and/or down the Worksheet.

There are several ways to edit the contents of selected worksheet cells:

EDITING USING A MOUSE

- If you drag while holding down [Ctrl] and [Shift], all of the cells you drag over will have the contents of the edit field pasted into them as you drag over them.
- Hold down [Ctrl] and [Shift] together and then click on a cell. Whatever was in the edit field before the click will be pasted into the cell you click, and that cell will be selected.
- Double-click on a text cell to select it and bring up the Choose List for that category. If you then choose anything from that list (by clicking OK or by double-clicking the text), the Choose List will close and whatever you chose will be inserted in the cell.
- To edit the contents of the Accessory column, double-click the desired cell, which will open the Accessories Editor. To edit more than one Accessory cell, select the cells and then choose Edit/Show List(Ctrl+L). You can also edit accessories using the [Ctrl+Shift] paste brush method.

EDITING USING THE KEYBOARD

The Enter key (or Tab key) are required everywhere you enter data in Lightwright. If you start to make an entry then change your mind and click on something else, the cell you were working on will NOT have any of the changes you made. You can also use the up and down arrow keys to enter data and to move, but you will need to turn this option on using Preferences/Worksheet. In preferences, you can also choose to have the Enter key move down a worksheet row. The left and right arrow keys will never enter data, they will only move the selection rectangle left or right.

- Type new or corrected information into the edit field and press [Return]. This also puts the new information into the "Hold" area located above the edit field (see below). This can also move the selection rectangle down a row if the "Enter key moves down the worksheet" option is selected in Preferences. If Append is active, then the information in the edit field is added to the end of the selected cells.
- [Insert] can put information into worksheet cells. Use Enter to pick info up from a cell, then press [Insert] to put it back down into a different cell.
- If you have more than one numeric cell selected, you can type in a number followed by a plus sign (+), which will cause each selected cell to be made one higher than the cell selected above it. You can also enter a number followed by [+] followed by an "increment amount", which will cause each selected cell to be higher than the previous cell, based on the increment amount. If you enter a plus sign followed by an "increment amount" but do not include a starting number, then the number in each worksheet cell will be raised by the increment amount. You can also use a minus sign [-] instead; the numbers will lower instead of raise.

If you are editing a address cell and the instrument type for that row has a DMX quantity entered for it in Maintenance and you enter the plus sign without a number after it, then Lightwright will automatically increment the address by the DMX quantity.

Examples:

20+	enters 20 into the first cell, then 21 into the next selected cell, then 22, etc.
20+4	enters 20 into the first cell, then 24 into the next selected cell, then 28, etc.
20+	on an address cell where the instrument type has a DMX quantity of 12, enters 20 into the first cell, then 32 into the next selected cell, then 44, etc.
20+1	on any numeric cell, enters 20 into the first cell, then 21 into the next selected cell, then 22, etc.
+100	adds 100 to the contents of each numeric cell:

<u>Before</u>	<u>After</u>
25	125
80	180
200	300

- You can renumber any of the number columns by selecting cells and choosing Renumber from the Edit menu.
- If the Append button is activated, the text in the edit field will be appended to the end of any text existing in the cell.
- You can "Express Append" by typing into a text cell and then pressing [Enter] while holding down the [Ctrl] and [Shift] keys. This is the same as entering text while the Append option is active.
- Hold down [Ctrl] while pressing [Enter] and whatever is on "hold" will be pasted into the currently selected cells. Whenever you use [Enter] to enter text into a cell, that text will automatically be put on "hold" for you.

- Hold down [Ctrl] while pressing [Up Arrow] and if a number is on “hold” it will be raised by one, the result pasted into the currently selected cells, and the next row down the worksheet will be selected instead of the currently selected cell(s).
- Hold down [Ctrl] while pressing [Down Arrow] and if a number is on “hold” it will be lowered by one, the result pasted into the currently selected cells, and the next row down the worksheet will be selected instead of the currently selected cell(s).
- Select a numeric cell, then select Edit/Raise# or press [Ctrl]+[=] to raise the number in that cell.
- Select a numeric cell, then select Edit/Lower# or press [Ctrl]+[-] to lower the number in that cell.

You can make *partial* changes in columns this way:

- Select the cell(s) you want to make changes in.
- Type the text you want to replace into the edit field, followed by an equals sign, followed by the replacement text, then press [Return].

Example: Wash=Backlight [Return]

This would replace the text “Wash” with “Backlight” any place it was found in the selected cell(s), even within phrases.

You can also cut, clear, copy, and paste worksheet cells. See the Edit menu reference entry for details.

More options are available via contextual menus (Right-click), including Cut/Copy/Paste/Clear and other helpful tools.

WORKSHEET CELL EDITING - MACINTOSH

In most cases, cells must be selected before you can edit them. To select a single cell, click on it with the mouse pointer. To select a continuous section of cells, click on the first one and then shift-click on the last one. On the Mac, Command-click on each cell. To select discontinuous cells, Control-click on each cell. You can also extend the current selection by holding down the shift key while pressing the up or down keys.

There are several ways to edit the contents of selected worksheet cells.

EDITING USING A MOUSE

- Hold down [Option] and then click on a cell. Whatever was in the edit field before the click will be pasted into the cell you click, and that cell will be selected.
- If you drag while holding down [Option], all of the cells you drag over will have the contents of the edit field pasted into them as you drag over them.
- Double-click on a text cell to select it and bring up the Choose List for that category. If you then choose anything from that list (by clicking OK or by double-clicking the text), the Choose List will close and whatever you chose will be inserted in the cell.
- To edit the contents of the Accessory column, double-click the desired cell, which will open the Accessories Editor. To edit more than one Accessory cell, select them and then choose Edit/Show List(Cmd+L). You can also edit accessories using the [Option] paste brush method.

EDITING USING A KEYBOARD

The Enter key (or Tab key) are required everywhere you enter data in Lightwright. If you start to make an entry then change your mind and click on something else, the cell you were working on will NOT have any of the changes you made. You can also use the up and down arrow keys to enter data and to move, but you will need to turn this option on using Preferences/Worksheet. In preferences, you can also choose to have the Enter key move down a worksheet row. The left and right arrow keys will never enter data, they will only move the selection rectangle left or right.

- Type new or corrected information into the edit field and press [Return]. This also puts the new information into the "Hold" area located next to the "Sorted by" dropdown menu (see below). This can also move the selection rectangle down a row if the "Enter key moves down the worksheet" option is selected in Preferences. If the Append button is active, then the information you enter is added to the end of the selected cells.
- If the Append button is active, the text in the edit field will be appended to the end of any text existing in the cell.
- You can "Express Append" by typing into a text cell and then pressing [Enter] while holding down [Option]. This is the same as entering text while the Append option is active.
- Hold down [Option] and [Shift] and then click on a cell in a numeric category. The number in the edit field will be raised by one and then pasted into the cell.
- Select a numeric cell, then select Edit/Raise# or press [Cmd]+[=] to raise the number in that cell.
- Select a numeric cell, then select Edit/Lower# or press [Cmd]+[-] to lower the number in that cell.
- If you have more than one numeric cell selected, you can type in a number followed by a plus sign (+), which will cause each selected cell to be made one higher than the cell selected above it. You can also enter a number followed by [+] followed by an "increment amount", which will cause each selected cell to be higher than the previous cell, based on the increment amount. If you enter a plus sign followed by an "increment amount" but do not include a starting number, then the number in each worksheet cell will be raised by the increment amount. You can also use a minus sign [-] instead, the numbers will lower instead of raise.

If you are editing an Address cell and the instrument type for that row has a DMX quantity entered for it in Maintenance and you enter the plus sign without a number after it, then Lightwright will automatically increment the address number by the DMX quantity.

Examples:

20+	enters 20 into the first cell, then 21 into the next selected cell, then 22, etc.
20+4	enters 20 into the first cell, then 24 into the next selected cell, then 28, etc.
20+	on an address cell where the instrument type has a DMX quantity of 12, enters 20 into the first cell, then 32 into the next selected cell, then 44, etc.
20+1	on any numeric cell, enters 20 into the first cell, then 21 into the next selected cell, then 22, etc.
+100	adds 100 to the contents of each numeric cell:

<u>Before</u>	<u>After</u>
25	125
80	180
200	300

- You can renumber any of the number columns by selecting all or part of one of them and choosing Renumber from the Edit menu.
- Hold down [Cmd] while pressing [Enter] and whatever is on “hold” will be pasted into the currently selected cells.
- Hold down [Cmd] while pressing [Up Arrow] and if a number is on “hold” it will be raised by one, the result pasted into the currently selected cells, and the next row down the worksheet will be selected instead of the currently selected cell(s).
- Hold down [Cmd] while pressing [Down Arrow] and if a number is on “hold” it will be lowered by one, the result pasted into the currently selected cells, and the next row down the worksheet will be selected instead of the currently selected cell(s).

You can make *partial* changes in columns this way:

- Select the cell(s) you want to make changes in.
- Type the text you want to replace into the edit field, followed by an equals sign, followed by the replacement text, then press [Return].

Example: Wash=Backlight [Return]

This would replace the text “Wash” with “Backlight” any place it was found in the selected cell(s), even within phrases.

You can also cut, clear, copy, and paste worksheet cells. See the Edit menu reference entry for details.

More options are available via contextual menus (Ctrl+click or right click if you have a two button mouse), including Cut/Copy/Paste/Clear and other helpful tools.

COPY/PASTE

Copying and pasting entire worksheet rows (with the left-edge black dot showing) into other entire rows (in the same file or a different one) puts data into the correct columns, whether or not the columns in the destination row are visible or in the same order as the source row. If entire rows are not selected, then copy and paste will only affect the visible selected cells. The paste cells do not have to be the same kind of column as the source cells.

In neither case will Lightwright copy and paste LWID or External ID data into Lightwright rows.

'PLUS' EDITING

There are a number of ways you can edit worksheet cells using the plus [+] and minus [-] signs. In many cases, these same commands also work in other windows, such as the Control and Maintenance windows.

- If you have more than one numeric cell selected, you can type in a number followed by a plus sign [+], which will cause each selected cell to be made one higher than the cell selected above it. You can also enter a number followed by [+] followed by an "increment amount", which will cause each selected cell to be higher than the previous cell, based on the increment amount. If you enter a plus sign followed by an "increment amount" but do not include a starting number, then the number in each worksheet cell will be raised by the increment amount. You can also use a minus sign [-] instead, the numbers will lower instead of increasing.

If you are editing an Address cell and the instrument type for that row has a DMX quantity entered for it in Maintenance and you enter the plus sign without a number after it, then Lightwright automatically increments the address by the DMX quantity.

Some Examples:

20+	enters 20 into the first cell, then 21 into the next selected cell, then 22, etc.
20+4	enters 20 into the first cell, then 24 into the next selected cell, then 28, etc.
20+	on an address cell where the instrument type has a DMX quantity of 12, enters 20 into the first cell, then 32 into the next selected cell, then 44, etc.
20+1	on any numeric cell, enters 20 into the first cell, then 21 into the next selected cell, then 22, etc.
20-4	enters 20 into the first cell, then 19 into the next selected cell, then 18, etc.
+100	adds 100 to the contents of each numeric cell:

<u>Before</u>	<u>After</u>
25	125
80	180
200	300

TEXT ENTRIES

If you enter a text phrase that contains a list separator, Lightwright automatically adds maintenance list entries for each of the sub-phrases. Please refer to the Maintenance List section of this manual for more information about Maintenance Lists.

Example If you enter L-201 , R-119 when the List Separator is a comma, the Maintenance/Color list will automatically get these three entries:

L-201 , R-119
L-201
R-119

This lets you set and keep a list order for the sub-phrases, it also lets you assign custom colors or gobo pictures to them.

JUMP

The worksheet shows a small magnifying glass icon at the right side of many cells. Clicking this icon makes Lightwright show you all of the lights that have that same information in that category. Here's an example:

  Instrument Type	Position	Unit#
 S4-26 	HI GALLERY 2- 	4 
 S4-26 	HI GALLERY 3- 	2 
 S4-26 	HI GALLERY 3- 	4 
 S4-26 	LOW GALLERY 	2 
 S4-26 	LOW GALLERY 	3 

Clicking on the magnifying glass to the right of "Low Gallery" makes the worksheet display all of the lights that have "Low Gallery" as their position. Clicking on the magnifying glass to the right of Unit# 4 will show you all of the lights on the worksheet whose unit number is also "4". If a column is showing a color swatch or gobo picture, clicking on the swatch or picture will have the same effect as clicking on the magnifying glass.

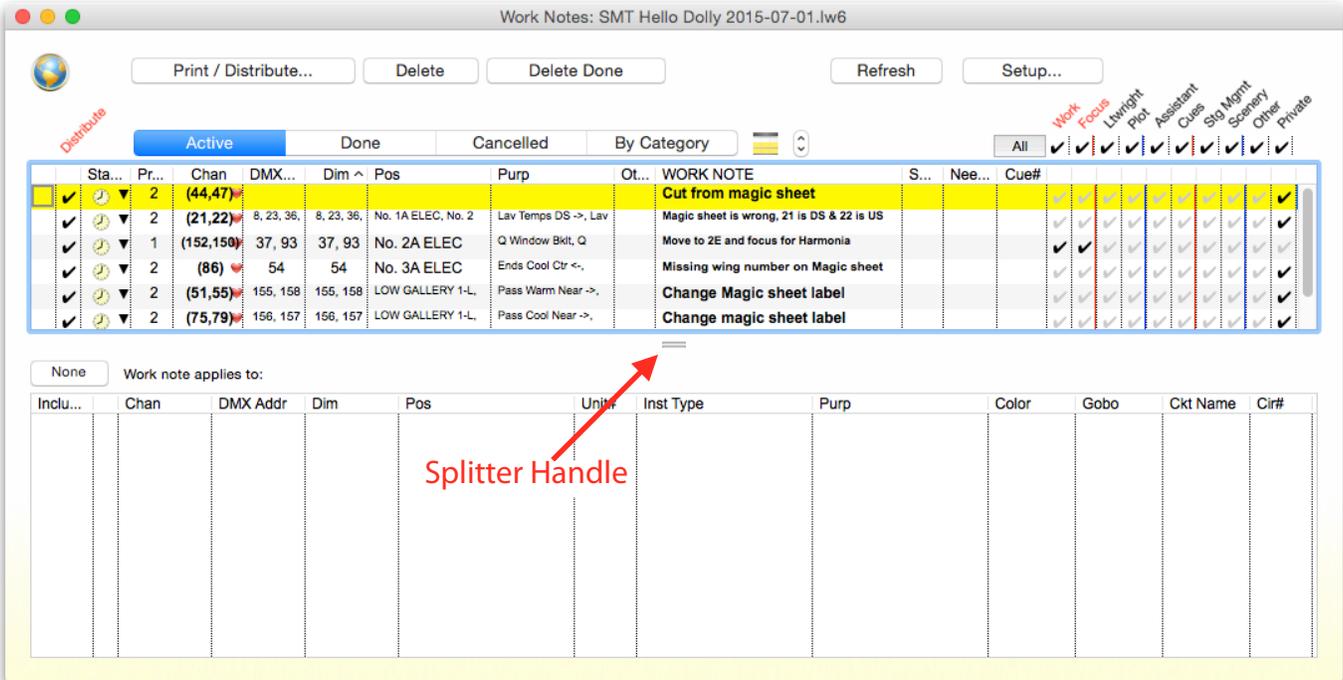
You can use the "Go Back" button or press [Esc] to return to where you were before you jumped.

If you find the icons distracting, you can go to Preferences/Worksheet and un-check the "Show 'Jump To' magnifying glass icons" option. The Jump feature is enabled even when the icons are turned off.

LISTBOXES

Most of the windows (other than the worksheet, which has its own rules) contain “listboxes” that have a consistent look and behavior. The currently selected row will have a yellow background, and you can click on any cell and begin typing to enter data. To enter the data, press Return, Tab, or Enter. You can also use Option+Pasting to copy data from one cell to another .

Many windows also have splitter controls, which let you resize the various lists in them by dragging the splitter handle. One example is the Work notes window, which has a splitter between the list of work notes at the top and the list of relevant lights at the bottom:



A gray check mark indicates an *unchecked* item. When an item is selected, the checkmark turns black.

HISTORY AND HIGHLIGHTING CHANGED CELLS

Lightwright differentiates between changes made by you (the current user), changes made by Vectorworks (via Data Exchange), and those made by anyone else. Each kind of change is displayed in a different color on the worksheet. The default colors are dark green for you, brown for Vectorworks, and red for other people, but you can change them using Preferences/Worksheet Colors.

Whenever you, or anyone else, makes a change in any cell or adds or removes lights, Lightwright sets a special internal “flag” for that cell and row. When you choose one of the Worksheet/Reset Highlights commands, Lightwright clears the flags associated with those changes.

You can choose whether to show these highlighted changes from the Worksheet/Highlights menu by un-checking one of the options there. You can turn the highlighting back on at any time, but the Reset Cell Highlighting command permanently clears the internal change flags. You can reset your highlighted changes separately from those made by Vectorworks and other users and turn your changes on or off separately from others. All of these options are in the Worksheet/Highlights menu.

When converting from a Lightwright 5 file, the history will import along with the show file. When converting from a Lightwright 4 file to a Lightwright 6 file, Lightwright knows there have been changes and highlights them, but it cannot show the history because Lightwright 4 does not have the history or who made the changes.

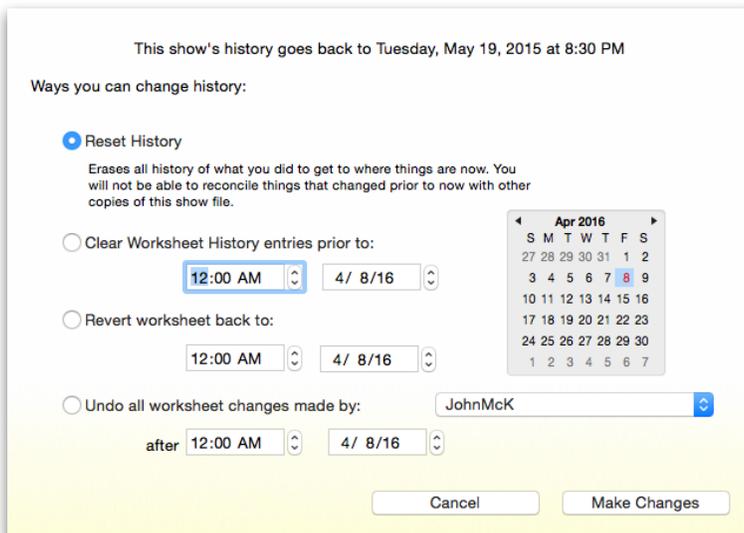
CHANGING HISTORY

Lightwright keeps a complete running history of all changes made to the worksheet, from the time the file is first created.

There are three history-related choices on the worksheet's View pop-up menu: Changed by Me, Changed by Others, and Changed by Vectorworks. You can also sort the worksheet by When Changed. This sort is in reverse chronological order, based on when each worksheet cell was edited. This creates a new, non-editable worksheet column called "When, what and who changed" that shows the date, time, category, and who made each change.

To see the history of changes in a highlighted cell, right-click on the cell and choose the History item. A list showing all of the changes made to that cell will pop up. You can revert to an earlier change by selecting it from this History list. The act of reverting a cell's contents is also added to the history.

The menu command Worksheet/Reset Highlights & History/Reset History opens a window where you can choose to clear worksheet histories based on a certain date, or revert back to a previous (dated) version of the show file.



"Reset History" is commonly used to clean up the file after it is first created, before sending it to the electrician.

"Clear Worksheet History" can be used to help shrink the size of the show file by removing history that isn't needed anymore. This option is also available as part of the menu command "Worksheet/Reset Highlights & History."

"Revert Worksheet Back To" is useful if editing mistakes were made and you want to revert back to a point in time where you know the data is good.

"Undo All Worksheet Changes Made By" is used to unwind edits made by a particular person. If changes were made to the file by other people after that person's edits, those later changes will be preserved.

WORKSHEET ROW ITEM COLORS

In Lightwright, there are two separate kinds of row colors:

FLAG COLORS

These colors are paired with flags you set to alert you to specific conditions, such as Purposes containing the word "Spare". They occupy a small square on the appropriate worksheet row, but they can be expanded behind an entire row on printouts. These colors are set using the Worksheet/Flags menu command.

ROW COLORS

These colors are assigned to specific worksheet rows and, like background bars, fill the entire width of the worksheet. They can also appear on printouts. These are set by right-clicking on a worksheet row and choosing a color from the pop-up Row Item Color menu item.

If you are printing using both Flag Colors and Row Colors, Flag Colors will be drawn on top of Row Colors, and if the Flags are set to extend the full width of the printout, they will cover up any Row Color.

NON-EDITABLE CELLS

Worksheet cells that cannot be edited will show a small black dot in the lower right-hand corner of the cell. (A red dot means the cell has been locked manually using Worksheet/Lock Cells...). The following restrictions apply to black dot cells:

Load	If the instrument type has the load locked, the load will always match the default load shown in list maintenance.
Purposes	If the instrument type has attributes and the worksheet row is an attribute, then the purpose cannot be changed in the worksheet, only in the attributes list (Maintenance/Instrument Type, click the Attrib column).
Positions	If the instrument type has attributes and the worksheet row is an attribute, then changing the position name will change the name of all of the rows that are parts of that light.
Unit Numbers	If the instrument type has attributes and the worksheet row is an attribute, then the unit number's decimal suffix cannot be changed.
Instrument Type	If the instrument type has attributes, then changing the instrument type to one that does not have attributes will produce a warning.

COLLAPSIBLE ROWS

Lights with decimal unit numbers can be collapsed down into one visible worksheet row, for instance to hide moving light attributes you may not want to see.

In order for a row to be hidden when viewing sorted by Position, the instrument type must have the "Collapsible" option checked for one or more of its attributes.

The possibility of collapsing a light is indicated by the presence of a Disclosure Icon to the left of the appropriate worksheet row. If the icon is red then there are one or more rows hidden. Clicking on the icon will expose the rows, and the icon will then be dark gray and pointing down. Clicking again on the icon will hide the rows again.

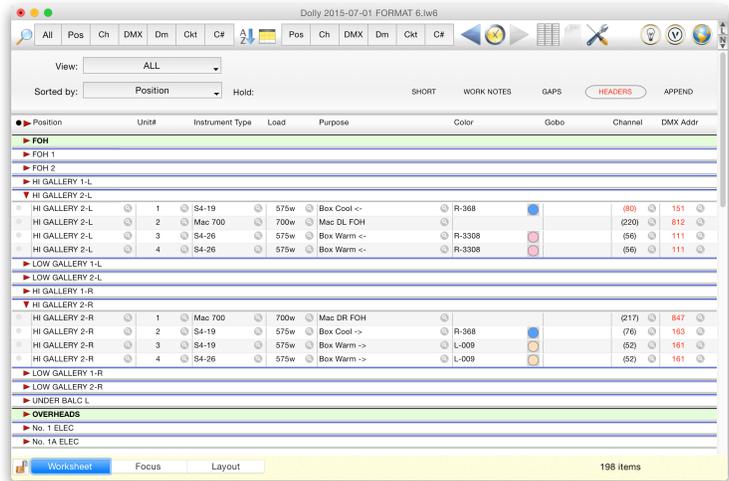
To hide or reveal all possible rows on the worksheet, click on the Disclosure Icon in the column header. Paperwork printouts also have options whether or not to include attribute rows.

FAMILIES

A Family in Lightwright 6 is a grouping of related items. You can create maintenance list Families of positions, instrument types, colors, or any other category that has a maintenance list. One example of a Family might be an instrument type Family called "Source 4 PAR," for example, and the members of the family might be S4 PAR WFL, S4 PAR MFL, S4 PAR NSP, etc. Another Family may be a position Family named "FOH" and it might consist of members Cat 1, Cat 2, Cat 3, HR Box Boom, HL Box Boom, etc.

Once you create Families, you can collapse the worksheet down to just the name of each Family, expand the worksheet rows belonging to one or more Family, or expand all of the Families.

A Family cannot contain other families.



These can be useful for organizing a long maintenance list, but they are useful in other ways, too:

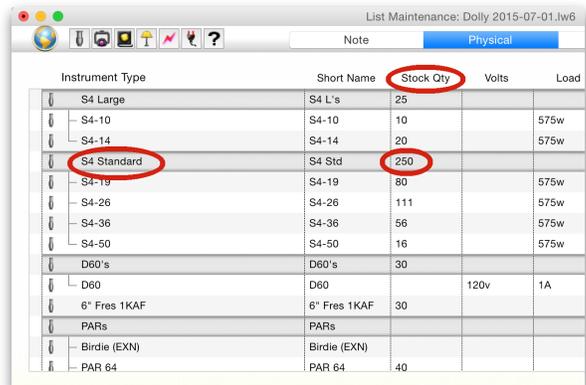
BODIES VS. LENSES

The header row for each Family can have a stock quantity, and counting will show the overall (header) total as well as sub-counts for each item in the Family.

In this case, the Family contains S4's that all use the same barrel size, so Lightwright counts the overall number of barrels used and the count of each kind of S4 within the Family.

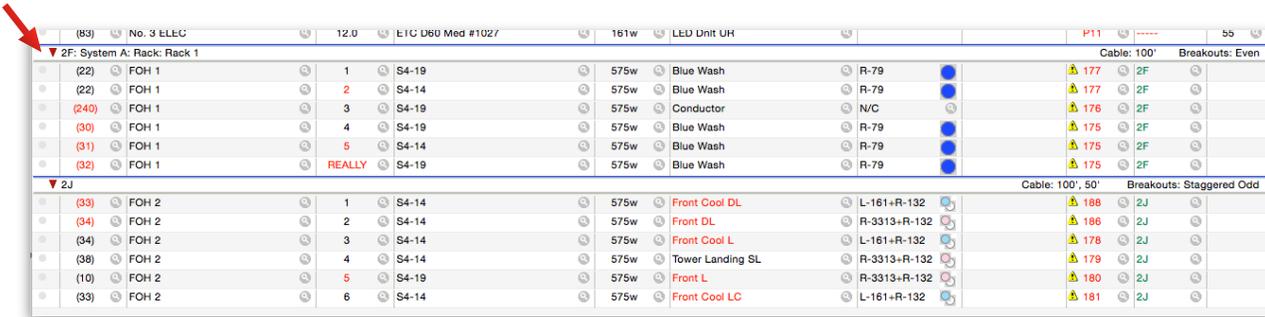
Family headers can also include things such as cable types and quantities in each position.

For detailed information about Families, please refer to the "Maintenance Families" segment in the "Maintenance" section of this manual.



HEADERS

When the worksheet is sorted by Address, Dimmer, Circuit Name, or other text column, you can click the Headers button to toggle header rows, which are inserted in between the positions, circuit names (or other text category names), universes, and dimmer racks. These header rows include relevant information such as the beginning and ending addresses, cable lengths, breakouts, and any notes that are attached to text categories. This feature makes Maintenance List Families extremely useful for regular worksheet use. Making Families of positions lets you show or hide the individual members of each Family with a single click.



Clicking the disclosure triangle in the far left column header opens a pop-up menu containing four options to expand or collapse the worksheet rows under headers or rows that are attributes (also an option under Worksheet/Collapse [or Expand] all row headers...). You can also collapse the individual sections under each header by clicking on the collapse triangle on the left hand side of each header.

Double clicking a header row opens the appropriate editor window. For example, when you click on a circuit range header, the Control window opens, and the dimmer range is selected and ready for editing.

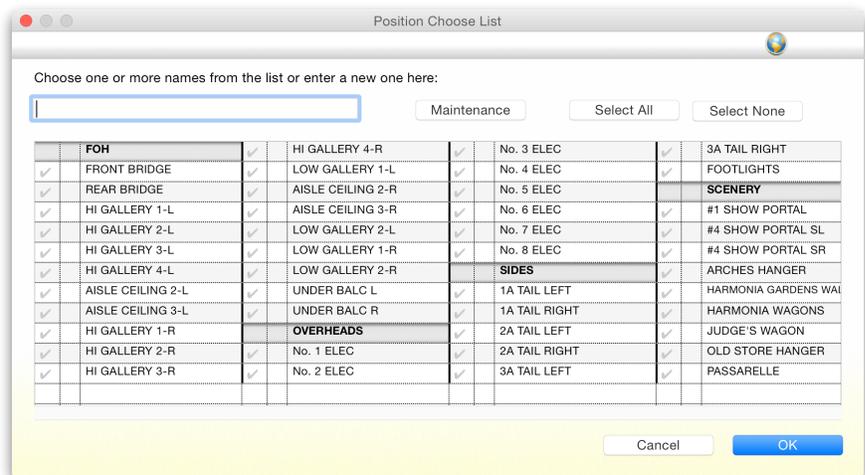
Note that when sorting by Accessory, the Headers option is not available.

CHOOSE LIST

The Choose List window where you choose text items (such as which position you want to view) has been redesigned. The space bar can check items on the list, as will a mouse click.

Double-clicking selects the item you click and closes the window, returning with the clicked item to wherever you were working.

If you defined Families (in Maintenance), the Family names are shown in bold against a dark grey background. Click the name of a Family to select all of the items within the Family.



WORKSHEET COLUMNS

INSTRUMENT TYPE

This column contains the name of any equipment used in your show. Roughly speaking, each item on the worksheet is going to be a device that receives power or data rather than providing it. Equipment that provides power or data, such as dimmers, PDs, light boards, etc, do not need worksheet rows (that information is tracked elsewhere) nor does it include static accessories, such as top hats and barn doors (these types of accessories have their own column). Examples of equipment that would end up as a worksheet item would be lights, scrollers, practicals, foggers, hazers, electrified special effects, and so on. Note that for fixtures that have multiple parameters, there will be a row on the worksheet for each parameter, so each row on the worksheet does not necessarily translate to one piece of equipment.

Since everyone's preference for naming equipment on the paperwork is a little different, Lightwright does not limit how you identify each piece of equipment. However, if you list the same equipment using different names, Lightwright has no way of knowing that you are talking about the same thing. For example, if the designer adds a light named "Source Four 19deg" and the assistant lighting designer adds a light named "S4-19," Lightwright will consider these to be different pieces of equipment (and would count them separately, for example). Once you pick a name or naming convention, it's important to be consistent throughout your show file.

CHANNEL

This column tracks the channel assigned to each piece of equipment. Worksheet cells for equipment that does not have a channel can be left blank. In this case, when you sort the worksheet by channel, all equipment without channel information will be listed together at the top or bottom of the list, depending on how you are "sorting blanks" (see the section titled "Sorting Blanks Button" earlier in this manual).

POSITION

This column tracks the name of the physical location of each piece of equipment.

Since everyone's preference for naming positions on the paperwork is a little different, Lightwright does not limit how you identify each position. However, if you list the same position using different names, Lightwright has no way of knowing that you are talking about the same thing. For example, if the designer adds a light to a position named "#1 Electric" and the assistant lighting designer adds a light to a position named "1E," Lightwright will consider these to be different hanging positions. Once you pick a name or naming convention, it's important to be consistent throughout your show file.

UNIT#

The number in this column is used in conjunction with the position name in order to track the physical location of your equipment. If you select a reference point for your position, you can number your equipment sequentially from that point. For example, if you have 3 lights on the 1st electric and your reference point is the far stage left end of the pipe, then the first light is unit number 1, the second is number 2, and the third is number 3.

After the lights are hung, if you add a lights in between two existing ones, you would attach a letter to the unit number in order to indicate that equipment was added between two lights, rather than change all of the unit numbers throughout the position. So add lights between unit 1 and 2, then you would give you new lights unit # 1a, 1b, 1c, and so on. Lightwright understands this convention and will sort the hanging position accordingly on the worksheet.

DIMMERS/ADDRESS/UNIVERSE#/DMX#

The dimmer column tracks the numbers for dimmers and other power sources (such as PD's for moving lights). **Except when Lightwright 6 is in "Legacy mode," the dimmer column will not reference universe definitions or serve as a place to put DMX addresses.**

There are three columns for DMX addresses: Address, Universe#, and DMX# (see below for more details on each column). All three columns are linked to each other, so changing data in any of these columns automatically changes the contents of the other two columns. **These columns are not available when working in Legacy Mode.** If you chose to use Legacy Mode and later decide not to, go to Setup/Dimming & Control, click the General tab, and uncheck the Legacy Mode button. You should then copy the appropriate entries from the worksheet's Dimmer column into the Address column and then do whatever other editing is needed to ensure that only dimmer/power numbers are in the dimmer column.

ANATOMY OF A DMX ADDRESS



ADDRESS

This is a number column that holds addresses for up to 45,000 DMX universes. It can be displayed in Absolute, Universe, or Absolute & Universe format. The format of the Address column can be changed using Setup/Address Format and Setup/Show Address as Range. If an instrument type has a DMX Qty and an address is entered on the worksheet, Lightwright will use that as the starting address to calculate the ending address and show both addresses on the worksheet. 'Plus' editing this column on the worksheet uses the DMX Quantity column in the Instrument Type Maintenance window and respects universe boundaries, preventing an instrument that occupies multiple addresses from beginning in one universe and ending in another.

The best procedure is to use Dimmers for power, including things like actual dimmers, power distribution units for moving lights, hot pockets, and any other object that provides power.

The address column can then be used as the starting address for the moving light whose power is supplied by the number in the Dimmer column. This will often result in fewer worksheet rows and clearer organization throughout the paperwork.

Additional Notes:

- * When a light uses a range of addresses, the worksheet and printouts can display the starting and ending addresses. Use Setup/Show Address As Range to use this format.
- * Dimmer numbers beginning with letters (such as "H1" or "P1") are usually used to indicate non-addressable power sources.
- * The Dimmer Detail window contains individual addresses for each dimmer.

- * If an instrument type has an attribute list attached to it, then the parent item (attribute .0) can show the address as a range, but the individual rows will never show as a range.
- * Each dimmer rack (or range of other power types) can optionally be linked with the address column, so that changing the dimmer number automatically changes the address, based on the addresses in the Detail window.
- * When an address on the worksheet falls outside of the defined universes, a yellow warning icon alerts you.
- * When editing an address on the worksheet, if the DMX footprint crosses a universe boundary, all worksheet cells are deselected, the edit reverts to what it was before the edit, and a red line is drawn under the address, universe, and DMX# cells where the error occurred. If you use 'Plus' editing on the address worksheet column, editing will stop and warn you if the range of addresses for a moving light is about to cross a universe boundary.



UNIVERSE#

This column contains only the universe number for a given address. For example, if the absolute DMX address is 518 (a.k.a. 2/6), then the universe column will contain "2".

DMX#

This column contains the DMX number within the universe. For example, if the absolute DMX address is 518 (a.k.a. 2/6), then the DMX# will be 6.

LOAD

Dimmer capacities and instrument wattages can be entered in either watts or amps.. Typically conventional lights will use watts, while moving lights use amps.

DIMMER PHASE

The dimmer phase column tracks the phase of the dimmer from which the equipment is receiving power. Please refer to the section on "Dimming & Control" in this manual for more information about setting up your dimming system so that Lightwright can automatically track the dimmer phases for you.

CIRCUIT NAME & NUMBER

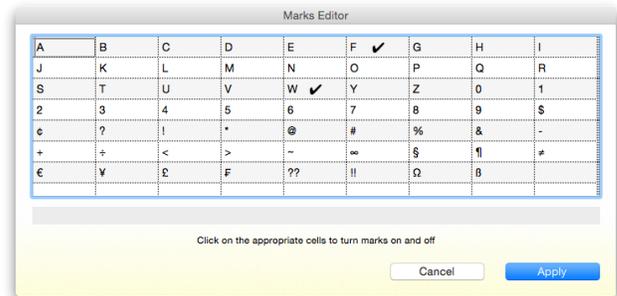
If you are using multicable, enter the name of the multicable in this column. In Maintenance/Circuit Name, enter the number of circuits in each multicable in the Mult Qty column for each Circuit Name that is a multicable.

Multicable circuit name can also be linked to dimmer numbers if the multi has a starting dimmer number assigned to it in Maintenance. When this linking is active, entering a multicable name and circuit number on the worksheet automatically enters the appropriate dimmer number.

THE MARKS EDITOR

The Marks Editor makes changing the status of marks quick and easy. When you double-click on a worksheet cell in the mark column or choose List from the edit menu while the mark column is selected, the Marks Editor will open.

Marks that are currently used in one or more of the selected cells will have a checkmark inside its corresponding box (in this example, "F" and "W").



The Marks Editor lets you turn individual marks on and off without affecting other marks. To turn a mark on or off, click inside its box, which will toggle the status of that mark. To set a mark, click in its box until you see a "+" sign. To remove it, click until you see an "X". When you are done, click "Apply".

You can also edit cells in the mark column using regular editing commands, but you cannot selectively turn on or off individual marks this way without affecting other marks.

SYSTEM

This column is a single letter from A-F, used to determine which of six different possible control systems applies to each particular light. The default is "A." Each control system has its own separate set of dimmer capacities and information. If two lights have the same dimmer number but different System letters, Lightwright will understand that they are not really in the same dimmer.

Printing, error checking, phase load calculations, and automatic dimmer assigning will pay attention to the System column.

If you only have one control system, you can ignore this category altogether, just be sure all worksheet rows are in System A.

ACCESSORY

"Dumb" non-electrified accessories such as top hats and barn doors are entered into a separate "Accessory" column. Any device that needs power or control information is considered an instrument, not an accessory. Use Worksheet/Columns... to show the Accessories column in the Worksheet if it is not there already or right click on a column header or worksheet cell.

You can't attach more than one of any given accessory to each light. For example, you can't attach two top hats to one light. Use Maintenance/Accessory to enter the names of the accessories you want to have available.

To add accessories to lights on the worksheet, select the appropriate accessory cells on the worksheet and either choose Edit/Show List or double-click the cell. A form will open, where you can add and remove any number of accessories from the selected cell(s). Accessories that have already been added to this particular light(s) will have a green check mark in the "Used" column. Click the "Add" column for the appropriate accessory you wish to add, or click the "Remove" column to remove the accessory from the selected worksheet cells.

If the accessory fits on only one kind of light, be sure its name is specific enough. For example, if all your top hats fit all your lights, then you can simply use "top hat" as the instrument type. However, if you have 6" top hats and 8" top hats, you should name them that way.

Accessories can also be edited by typing new information into any accessory worksheet cell, by using Option/Shift+Cmd Paste (with or without append), or by selecting cells and choosing Show List (Cmd/Ctrl+L). Show List will open the Accessories Editor, where you can add or remove any number of accessories from the selected lights.

To add multiple accessories at once, use the Accessories separator which you set in Setup/Vocabulary (the default is a plus (+) sign).

Accessories can have stock quantities and weights. You can enter this information in the Maintenance/Accessory menu.

COLOR/COLOR FRAME

There aren't any fixed rules about how you enter or use color and gobos, but there are some things to know about how Lightwright counts them.

Each designer has their own personal vocabulary they use on their paperwork. Lightwright uses your own set of words and phrases to interpret color and gobo entries. Use Setup/Vocabulary to tell Lightwright what your personal vocabulary is.

Color can be used many different ways, and there are various methods of entering them, depending on what you plan to do.

Here are some examples of how you would do a variety of things, using this typical vocabulary, as entered using Setup/Vocabulary:

The notation for "No Color" is:	NC
Separate lists to count items individually with:	,
When combining colors in a single frame, separate the colors with:	+
Separate accessories with:	+
Footnote key phrase is:	Note

What You Want	What To Enter	Where
No color.	NC	Color
Intermission changes between R-17, R-33, and R-62 in the same light.	R-17,R-33,R-62	Color
R-33 and R-114 in the same frame in the same light.	R-33+R-114	Color
R-80 and R-45 split in the same frame.	R-80/R-45	Color
Color scroller using L136, R21, GAM320, R52, R68, and R75	Scroll 1	Color
	L136,R21,GAM320,R52,R68,R75	Scroll 1
6 colors in a follow spot	Note 4	Color
	R-02,R-21,R-33,R-52,R-55,R-119	Footnote 4
Color and gobo R#77702 in same unit	R-87	Color
	R#77702	Gobo

What You Want	What To Enter	Where
Gobo only, no color	R#77702	Gobo
6x12 using top hat.	6x12	Inst. Type
	Top Hat	Accessories
6x16 with Iris and gobo	6x16	Inst. Type
	Iris	Accessories
	R#77702	Gobo
6x16 with Iris and top hat	6x16	Inst. Type
	Iris+Top Hat	Accessories

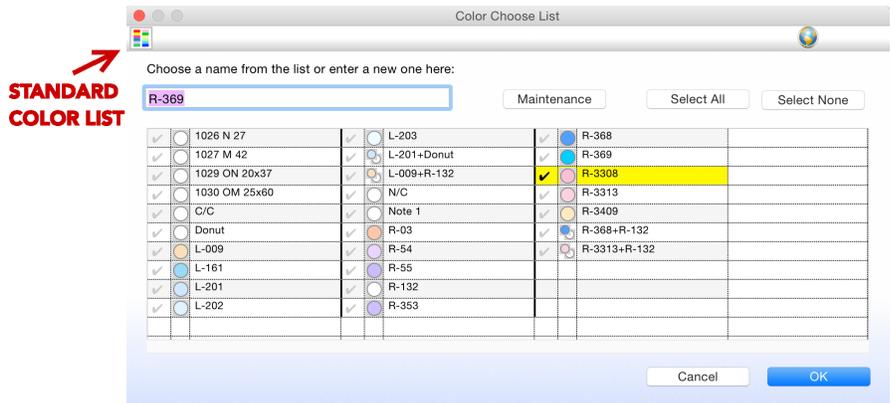
In the example for follow spot colors, you would probably want to check-mark Footnote #4 so that the actual list of colors in the footnote replaces Note 4 during counting. What's important is to use the same keyword phrases you've entered in Setup/Vocabulary.

Lightwright doesn't care how you write your color notations as long as you're consistent. If you prefer to use G847, or G-847, that's fine, just remember that you need to enter a letter before the number if you want Lightwright to recognize the color and provide a swatch for it.

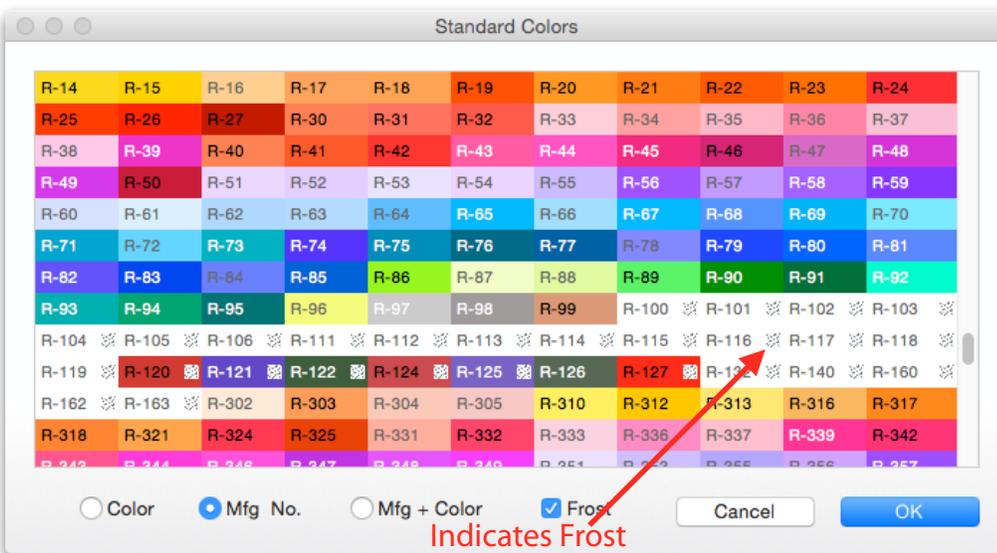
STANDARD COLORS LIST

Lightwright comes with a list of most of the colors available from the major color filter manufacturers. The Standard Colors List shows a swatch of each color, its brand label, and color number and is accessible from an icon in the upper-left corner of the Color Choose List.

You can view the list sorted by color, by manufacturer and color number, or by color within each manufacturer. Double click any color to choose it.



You can control which brands of color filters are in the list and what prefix is used for each brand by going to Preferences/Color Filter Brands.



The colors shown are approximations based on each manufacturer's interpretation of the color as shown on their web sites and printed literature. To view the true color, consult the manufacturer's swatch book.

The Standard Colors List is accessible from an icon in the upper-left corner of the Color Choose List. It is also accessible from the Scroller and Wheel windows.

If you have a color that Lightwright doesn't recognize and you'd like to assign a color to it, go to Maintenance/Color, click the name of the color you want a custom color for, then click the Assign Swatch Color button.

GOBO/GOBO SIZE

The gobo column behaves in similar fashion to the Color column described above.

The information in the Gobo Size column is the **default** gobo size assigned to this instrument type. You can choose from a list of existing sizes, or create a new one by going to Maintenance/Gobo Size. When you add a new light to the worksheet, it will have this gobo size. You can then edit the worksheet's gobo size column as needed if the actual gobo sizes are different for each light.

PURPOSE

You can use the Purpose column to enter a short descriptor of what that piece of equipment is for. For example, you may label a particular unit hung front of house as "Front Light Warm." On a light with multiple parameters, if the instrument type has an attribute list attached to it and the worksheet row is an attribute, then the purpose cannot be changed in the worksheet, only in the attributes list (Maintenance/Instrument Type, click the Attrib column located in the "Profiles + Others" tab).

USER COLUMNS

There are 24 user-definable columns. You can change the names of each these columns by going to Setup/Column Names & Definitions. There, you can also change the data type that each particular user column will contain, such as DIP Switch, IP Address, Text, Number, etc.. When one or more user columns are defined as "DIP switch" they will not have printed paperwork associated with them. There are also additional data columns in the Maintenance/Circuit Name category, for labels & multicable.

FOCUS CUTS/FOCUS STATUS

Please refer to the "Focus Charts" section of this manual to learn more about the various options for the focus columns.

VECTORWORKS COLUMNS

When Vectorworks Data Exchange is active, Lightwright can receive various pieces of information from Vectorworks which can be viewed in Lightwright.

	Description
VW Layer	This is the layer where the light is located in the Vectorworks drawing.
VW Label Legend	This is the label legend assigned to the light in Vectorworks.
VW Class	This is the class assigned to the light in Vectorworks.
VW X coordinate	Not editable. All three coordinate fields round to the nearest 1"
VW Y coordinate	Not editable. All three coordinate fields round to the nearest 1"

Description	
VW Z coordinate	Not editable. All three coordinate fields round to the nearest 1"
VW Focus Point	This is the focus point assigned to the light in Vectorworks.
VW Symbol Rotation	<p>Editable when using Vectorworks 2015 and later. This column shows arrows showing the direction for the eight standard rotations (0°, 45°, 90°, 135°, 180°, -45°, -90°, or -135°). For all others, it shows the numeric value. The color of the arrows normally matches the color in the light unless the Preferences/Worksheet option "Show rotation arrows in color" is turned off. When printing paperwork, the arrows are drawn in color if the "Print in Color" option is active. If Vectorworks' "Automatically Rotate 2D to Focus Point" preference is active, Lightwright draws a red question mark on top of the rotation when the light has a focus point, to remind you that the rotation value may not match what Vectorworks is drawing.</p> <p>You can edit this cell's contents by selecting the cell and pressing either the space bar or Enter key, or by clicking it with a mouse.</p> <p>You can choose any of the standard rotations from the worksheet's View menu.</p>

You can set the visibility of the X, Y, Z, and Rotation columns using Maintenance/Position on the Vectorworks tab. If a position's symbol rotation is set "not visible", then choosing View/VW Symbol Rotation will not include any lights in that position.

Symbol rotation is only shown for worksheet rows that are not derived from attribute lists.

LIGHTWRIGHT ID

Lightwright uses internal serial numbers assigned to each unit to make matches when comparing between files. A serial number is made for each new light you add to your show and the user's initials are part of it to help Lightwright keep track of who made changes. The serial number is known as the "Lightwright ID". This "Lightwright ID" is used by Lightwright to steer data imported from an external source into the Lightwright record that it came from originally (if any). It cannot be changed.

VECTORWORKS UID

The Vectorworks UID field aligns data records that originated in Vectorworks when they are Exported back to Vectorworks. Vectorworks UID's, if they are imported into Lightwright, will never be touched by it unless an entire unit is deleted. If you are working with Spotlight, then Spotlight's UID must go into Lightwright's Vectorworks UID field.

CONSOLE LEVEL

When Console Link is turned on, you can turn console channels off using this column. See the Console Link section of this manual for complete information.

WORK NOTE STATUS

Lights that have a chosen work note status: To Do, Discuss, On Hold, Done, or Cancelled.

WHEN, WHAT, AND WHO CHANGED

This is a non-editable column that shows the date, time, category, and who made each change.

CONTEXTUAL MENUS

Right-clicking on the Worksheet (ctrl-click on a Mac) will bring up a contextual menu. This menu contains many frequently used tools to help you work faster. The Contextual menu in Layout is the same as the Attribute menu, refer to the Attributes section of this manual for information regarding those options.

ADD WORK NOTE FOR [CELL THE CURSOR IS OVER]/THIS LIGHT/ ...

You can add work notes directly from the worksheet. These commands will open the Work Note Window and insert the selected information or add a new blank note.

ADD ITEMS ...

This opens the Adding Units Window.

DELETE THIS ROW ITEM

You can delete the entire row from any cell in that row.

HISTORY

This allows you to not only see, but also restore to, any of the previous states of the selected cell. To restore, just choose the entry you want to go back to from the menu list. Your restoration will also be entered in the history of the cell

SELECT ENTIRE ROW

This selects the entire row your cursor was over when you right-clicked.

ROW ITEM COLOR

Each worksheet row can be assigned any one of six background colors. This is a different color than the worksheet background color. This allows you to change the color of the row. You can also select a number of rows and change their color using Edit/Worksheet Row Color for all selected rows.

SELECT ENTIRE COLUMN

This selects the entire column your cursor was over when you right-clicked.

WIDEN (CURRENT) COLUMN

If the content of any cell is wider than the current cell width then some of the content will not be visible. You can use this command if you would like to force Lightwright to widen a column so that the entire content of its cells is visible.

AUTOMATIC COLUMN WIDTHS

If you select this option, Lightwright will automatically set the column widths on the Worksheet based on the length of the cell contents in order to show you as much information as possible.

HIDE (CURRENT) COLUMN

This hides the column that your cursor was over when you right-clicked.

SHOW COLUMN

This brings up the full list of columns that are not currently on the worksheet. Choose one to add it to the current worksheet view. Columns that have data in them are indicated by a blue small "i" icon.

COLUMNS...

This opens a dialog where you can set which worksheet columns are visible for each sort order. This is also where you set the current columns and their order as the defaults for all new shows.

(CURRENT COLUMN) MAINTENANCE

This opens the Maintenance window for the selected column's category.

FONT/SIZE

The Font & Size menus change the current font and text size of the worksheet cells. The change is global and applies to all cells, selected or not.

CUT/COPY/PASTE/CLEAR

These commands will apply to entire cells or rows. They do not apply to text in the edit field at the top of the worksheet.

Cut will not clear selected cells unless an entire row has been selected (shown by the dot at the left-hand edge of the worksheet). If an entire row has been selected, it will be deleted from the worksheet and put into the clipboard by the Cut command, from where you can paste it into other programs or other parts of Lightwright.

Copy will transfer the contents of currently selected cells to the clipboard. Once the data is there, you can paste it into other programs or cells.

Paste will replace the contents of any currently selected cells with the contents of the clipboard. If there is more data on the clipboard than selected cells, Lightwright will add rows of data to the clipboard until everything on the clipboard has been transferred. If you paste into a group of worksheet cells and there is not enough data on the clipboard to fill the cells, Lightwright 6 will repeat the existing data on the clipboard until all of the selected cells have been filled.

Clear will erase the contents of any selected cells. It will not delete items from the worksheet, even if the entire row has been selected. Use Edit/Delete or Cut for that.

MENUS

FILE MENU

NEW

This does just what it says: wipes the slate clean and gives you a fresh worksheet to start a new show. Everything is erased, including the show title, dimmer ranges, and color frame info.

OPEN...

Use this to open any existing Lightwright show file. There is no limit to the number of show files able to be opened at a time. Show files contain all of your hookup information: items on the worksheet, control information, color frame sizes and quantities, the show's title and other page header information, footnotes, and stock quantities, as well as focus sketches and any layouts embedded in the show file.

Files are locked whenever they are opened, so multiple users on a network can read a file simultaneously, without overwriting files accidentally. Even a stand-alone computer is considered "networked," since the operating systems don't distinguish between files on a local hard drive and those on a remote file server. As a result, if you open a file on your local hard drive and then exit Lightwright "unexpectedly," the file may not be unlocked correctly and will still be locked the next time you try to open it.

To unlock a file that has become inadvertently locked on the Mac, go to the Finder, select it, and choose File/Get Info, then uncheck the "Locked" checkbox. To unlock a file that has become locked on Windows, select the file and right-click it, choose Properties, then uncheck the "Read-only" property.

If you know a show file exists but Lightwright won't display it in the File Open dialog box, there are several possible reasons and cures:

Show files must have filenames ending in .lw6 or .lw5 or .lw4 or .lw3 or .lw2. Without one or the other of these, the operating system will not understand that it's a Lightwright file. If the file came from the Mac, it may not have one of these extensions. Simply rename the file so that it ends in .lw2 or .lw3 or .lw4 or .lw5. or .lw6 and try opening it again. (If the file is a Lightwright version 6 file, the correct extension would be .lw6, a version 5 file, the extension should be .lw5, and so on)

If the filename is correct, then it should appear in the File Open dialog window and if it's an intact file, Lightwright will open it.

OPENING OLDER SHOW FILES

Lightwright 6 can open show files created by Lightwright 2 or newer.

When you open an old show file, you have the option to work in Legacy Mode, where the dimmer column in Lightwright 6 behaves the same as it did in older versions, storing both dimmer numbers and DMX addresses at your discretion.

When Legacy mode is active, the Address, Universe#, and DMX# columns are not available and all other features relating to their data are unavailable.

If the file being opened is in Lightwright Version 2, 3, 4, or 5 format, then the data will be converted to Version 6 format and the default show file name will have the .lw6 extension added. Before the newly made LW6 file is saved, you will see (Converted) following the file name at the top of the show file window.

TEMPLATES VS. GOBOS

Lightwright 6 refers to those things we put in lights to make pretty patterns as Gobos. However, in Lightwright 3 and 4, they were referred to as templates. If you open a show file that originated in an older version, the column title will appear "Template", and that is what will appear in all of the menus and options.

You can change the vocabulary to whatever you prefer by going to Setup/Column Names & Definitions.

CLOSE

Closes the active window (does not work with all windows in Lightwright, as some are modal and can only be closed by clicking a button).

SAVE

Just like it says -- it saves everything into an already-named Lightwright Version 6 show file. This option is only enabled after you've used Save As... to save the file with a Lightwright 6 file name.

SAVE AS...

Use this command to save a show file the first time or to save an existing show file under a new file name. This option gives you the choice of saving your show in version 5 or version 6 format. However, version 5 does not support a lot of the data that version 6 uses.

SAVING BACK TO LIGHTWRIGHT 5

Lightwright 6 can save show data in Lightwright 5 format, but because there are many new kinds of information in Lightwright 6 and existing data types have expanded greatly, **not everything can make the trip back.**

These categories are especially problematic:

Address, Universe, and DMX#	Addresses cannot go back into Lightwright 5's Dimmer column. If you want to send any of these columns back to Lightwright 5, choose one of the user columns 1-18, define it as Integer, then copy and paste all the addresses from the Address column (in absolute format) into the user column, then save as .lw5. When you open the .lw5 file, you can either leave the addresses in the user column, or copy them manually into Lightwright 5's dimmer column.
Bookmarks	Bookmarks in Lightwright 6 are stored and accessed like web sites, and cannot be back-converted to version 5 format.
History	Saving in version 5 format loses all editing history.

Instrument Profiles	Profiles assigned to instrument types, DIP switches, voltages, and Family groups are lost when saving in version 5 format.
Loads in Amps	All loads in Lightwright 6 will be saved as watts in version 5 format. Volts are lost.
Layouts	Lightwright 6 layouts can have multiple kinds of paperwork, with different page orientations, new kinds of columns, and background shading. Layouts created in Lightwright 6 cannot be back-converted to version 5 format.
Dimmer Setup	Service, starting address, DMX offset, and other dimmer information that does not exist in version 5 will be lost.

Any other information that is new in Lightwright 6 will be lost in the .lw5 file, including breakouts, cable, Vectorworks inventory and symbol rotation, cue lists, group lists, etc.

To save a file in Lightwright 5 format, use File/Save As and choose "Lightwright 5" from the File Type button when entering the name of the file.

OLDER LIGHTWRIGHT FORMATS

Because Lightwright 6 adds so many new kinds of data and stores it in memory and on disk in much more efficient ways than older versions, it is not possible for Lightwright 6 to save in .lw2, .lw3, or .lw4 formats.

SAVE A BACKUP...

Use this command to save a copy of your show file under a new filename, without disturbing the currently open file. This option also turns off Data Exchange on the new backup file so that you do not run into inadvertent conflicts with the main working show file. You can also use this command to make a copy of your show file to give to another user. Because Data Exchange is off, opening their copy of the show file will not inadvertently modify the .xml file used by Vectorworks Data Exchange.

A preference option, "Include current date in backup filename" under the Preferences/General tab adds the current date (in the form YYYY-MM-DD) to the default filename when using "File/Save a Backup". If a date in that form already exists in the filename, it will be replaced with the current date. This option defaults to ON.

SAVE OPTIONS

This gives you the option of saving your focus chart pictures inside the show file, instead of in a separate .lw6pix file. The default will be to save the focus chart pictures in the show file, but you can change that default if you want to.

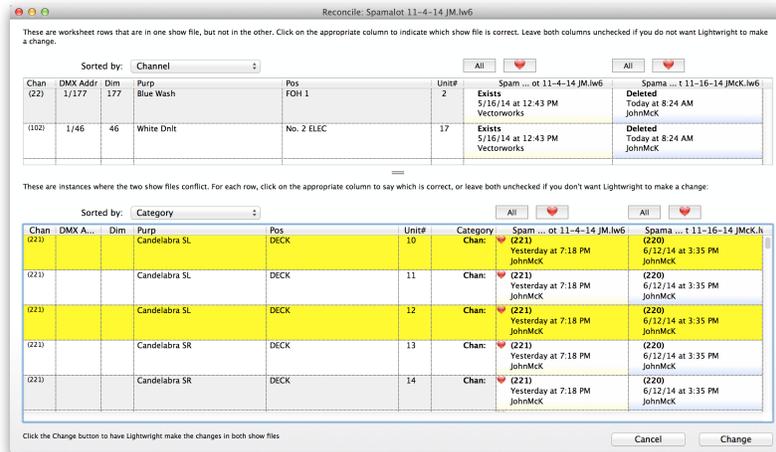
RECONCILE WORKSHEET WITH ...

It is common for more than one person to work on the same show file, the hard part is keeping everyone's data synchronized. In older versions of Lightwright, everyone generally had one copy of the show file that they passed back and forth to each other, often known as the "football".

Worksheet Reconciliation makes it possible for one or more users to all work on their own copy of a show file and reconcile everyone's changes without the need to pass the football around, you simply give the other person a copy of your show file and they can reconcile your changes with theirs.

Reconciliation takes two show files and automatically shows you where the worksheets are different: which cells have been changed, which lights have been added or deleted, and which focus charts have been revised, and it shows you who made each of those changes and when. Lightwright then suggests places where items in one file likely need to be copied to the other show file (or deleted or added) to make the two files agree with each other. Once you review those suggestions, you can have Lightwright make all of the changes at once, with the result being two identical worksheets that incorporate the desired parts of both files.

To use Worksheet Reconciliation, open the first show file and then choose Reconcile Worksheet With... from the File menu. You will be asked to choose which file you want to reconcile with. Lightwright then opens the second show file and compares the two files. It will process the files and show you the results:



Each row in the top section is a light that was added or deleted in one of the files, with some general information to help you identify each light. The two right-hand columns are the two show files. Each of those columns shows you what that file did with the light and the date, time, and who made the change.

Lightwright suggests that the most-recent information is likely to be correct, and places a small heart icon next to the appropriate entry. If you disagree, you can click a heart to de-select it, or click on the other show column to tell Lightwright that's the entry you want it to use. Click on any row to select it (it will turn yellow). Shift+click to select a range of rows, or Cmd+click to select discontinuous rows in order to change multiple items at once.

The bottom section shows individual worksheet cell changes. Each row corresponds to one cell on the worksheet, with some identifying information followed by a column with the name of the category and two show columns. In each show column is what that file contains in that worksheet cell, the date, time, and who made the entry. Lightwright displays a heart on the most-recent entry as the one you probably want to keep. If that is not correct, click on either column to de-select it or select the other column to select it. Click on any row to select it (it will turn yellow). Shift+click to select a range of rows, or Cmd+click to select discontinuous rows in order to change multiple items at once.

The "All" buttons will select all or none of the entries in their column (the title on the button will change).

You can leave this window open while you browse the two show files to determine which entries are correct. Once you've made your final decisions, click the Change button and Lightwright will make all of the changes to both show files, making them identical

There are some important things to know about how Lightwright handles this process:

- Internally, Lightwright keeps track of time down to the second, but it rounds to the nearest minute when it shows you the time each change was made.

- Lightwright bases focus chart “correctness” on whichever focus chart had the most recent change in any part of it, whether that is a shutter cut note or something drawn on the sketch. When you choose one show’s focus chart to replace the other’s, Lightwright will copy the entire contents of the focus chart, including all of the shutter cut notes, background picture, and graphics drawn on the sketch.
- The identifying information shown on for each light is usually based on the information in the first show file, but if the light was newly added by the second show then that will be the source.
- Any rows on the reconciliation that do not have a heart in either column will not be disturbed.
- When the reconciliation is finished, be aware that both worksheets will have identical current content, but they might have very different histories, depending on how many changes they went through before the reconciliation. Reconciliation will not overwrite these histories.
- If either of the files has had its history cleared, then Lightwright will not show any change information and will not suggest which of the two files is correct.
- Both show files must use the same Accessory Separator.
- If you reconcile two shows and both of the reconciliation lists are empty, that means the two worksheets are already identical.

Show file reconciliation only works successfully with two show files that originated as the same LW6 file. Saving an LW6 file as a version 5 and then opening the resulting non-LW6 file (which converts it to a new LW6 file) will make the resulting file incompatible with the original LW6 file for reconciling because the internal LW6 ID’s for each light will have been lost.

Additional Notes:

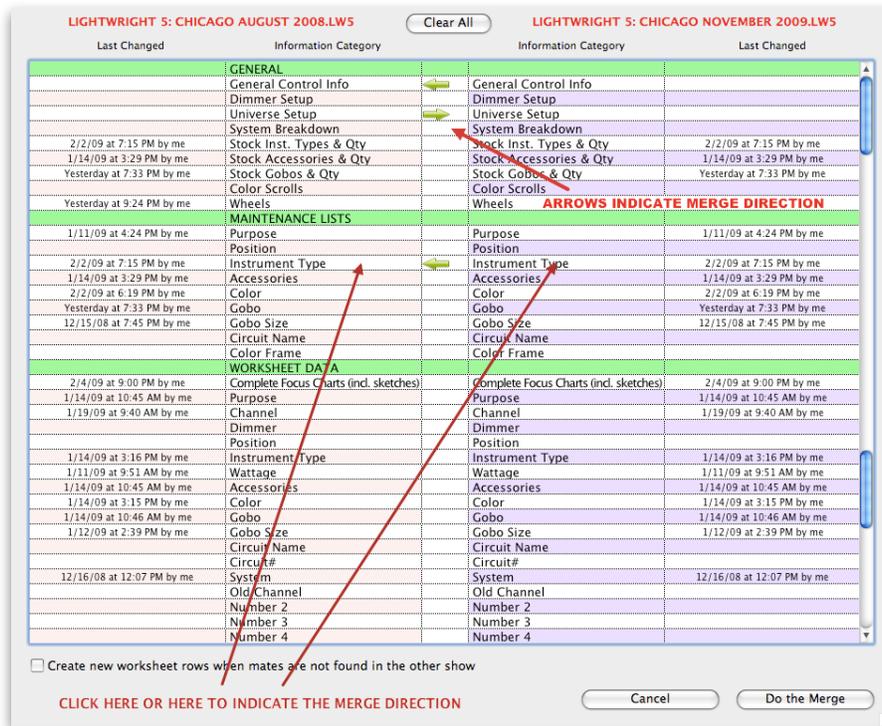
- Drag the vertical header divider lines left or right to change the width of columns.
- Drag the double-line section divider up or down to change the relative heights of the two lists.
- The three reconciliation windows (Lightwright, Lightwright Touch, and Vectorworks) now have multiple-row selection and the ability to sort by any column by clicking on its header.

MERGE SHOW FILES

Merge Show Files allows you to combine parts of two files into one.

To merge two show files, open both of them and then choose File/Merge Show Files, or open one and then use File/Merge Show Files... to choose the second file. It does not matter which show you choose first.

Lightwright will show you a list of all the things you can merge from one show file to the other. Here is an example:



The arrows in the center column indicate which direction data is going to flow from one show to the other. You can choose as many kinds of information as you want to, in whichever directions you need. Click in the left or right half of the window to choose the destination show, or click in the middle to clear an arrow. Click the "Clear All" button to clear all of the arrows.

Categories being merged from one show to another must generally have the same kind of information in them. For instance, a category that has been defined as text may not successfully merge into one that has been defined as numbers. Maintenance list categories being merged **must** be the same kind.

If the information is available, the outside columns will show when each category was last changed, and by whom. This can help you identify which categories have data that might need to move from one show to the other when you are synchronizing them.

Here are some notes about each kind of information you can merge:

GENERAL

General Control Info	Info such as the highest channel number, circuit capacity, and phase labels
Dimmer Setup	All of the dimmer range information, including details
Universe Setup	The beginning and ending numbers of all your universes
System Breakdown	The categories that are always broken down by universe
Stock Inst. Types & Qty	Any rows in the instrument type list that have stock quantities for them will be copied into the other show.
Stock Accessories & Qty	Any rows in the accessories list that have stock quantities for them will be copied into the other show.
Stock Gobos & Qty	Any rows in the gobos list that have stock quantities will be copied into the other show.
Color Scrolls	All color scrolls in one show will be copied into the other
Wheels	All wheels in one show will be copied into the other

MAINTENANCE LISTS

There will be one category here for each kind of information in the Maintenance Menu. Selecting a category will copy all of the maintenance list rows for that category from one show to the other. This is similar to the “Stock Inst. Types & Qty” category described above, but it will include ALL maintenance rows, not just those with stock quantities assigned to them.

WORKSHEET DATA

When copying data in these categories from one show to another, Lightwright will use its internal ID numbers for each light to tell which lights are mates to each other in the two shows, and then copy the information in that category from one show’s worksheet row to the other. If the show files did not begin life as the same file, or if otherwise identical worksheet rows were added to the two files, then the matching process may result in unmatched worksheet rows. Click the “Create new worksheet rows” option to have Lightwright add new rows whenever matches for them are not found.

Merging worksheet data only works successfully with two show files that originated as the same LW6 file. Saving a LW6 file as a version 5 and then opening the resulting non-LW6 file (which converts it to a new LW6 file) will make the resulting file incompatible with the original LW6 file for worksheet data merging because the internal LW6 ID’s for each light will have been lost. **All of the other info under the General and Maintenance List headers can be successfully merged even if the two show files are completely different.**

COMPARE SHOW WITH...

Compares two show files to each other. The current file (usually the most recent) is compared to a second (usually older) file.

Lightwright compares the two files, matching up units in each file. If it finds a match between two units, it notes any categories where the two units differ.

Show file comparing only works successfully with two show files that originated as the same LW6 file. Saving a LW6 file as a version 5 or other file format and then opening the resulting non-LW6 file (which converts it to a new LW6 file) will make the resulting file incompatible with the original LW6 file for comparing because the internal LW6 ID's for each light will have been lost.

Whenever you start a brand-new show file, Lightwright gives it a hidden file label. If you copy the file or modify it, it will still have this label. If you compare two show files that didn't begin life as the same file, their hidden labels will not match, and Lightwright will warn you that the compare operation may not be accurate.

This is important because Lightwright uses internal serial numbers assigned to each unit to make matches when comparing. A serial number is made for each new light you add to your show and the user's initials are part of it to help Lightwright keep track of who made changes. The serial number is known as the "Lightwright ID".

If the serial numbers do not in fact point to the same light, the results will be wrong. As long as both show files began life as the same file (and hence have the same hidden file label), the internal serial numbers should also match up no matter how many changes have been made to the file or who made them, and comparing should always be accurate, even if unit numbers have changed.

You can get Compare results as either regular printouts or as a series of reports. The printouts will use the current Layout, and any items that have been added, removed, or changed will be specially marked:

The screenshot shows a report titled "Hello, Dolly! Instrument Schedule". It includes a header with the show name, page number (Page 1 of 27), date (4/20/16), and a note: "SHOWS CHANGES FROM Hello, Dolly! Demo.lw6 to Hello, Dolly! Demo Lee Rosco.lw6". The main content is a table for "FRONT BRIDGE" with columns: U, Inst Type & Access, Load, Purpose, Clr & Gbo, C#, Lvl, Univ, Ch, Dm. The table lists five units. Unit 2 is outlined, unit 3 is crossed out, and unit 4 is outlined. A note "Too steep?" is in the top right of the table area.

U	Inst Type & Access	Load	Purpose	Clr & Gbo	C#	Lvl	Univ	Ch	Dm
1	Source Four 19	575w	Q Fire Escape Front	L-202	1	1	(149)	170	
2	Source Four 26+D60 HH-US	575w	Blue Wash	R-369	1	1	(24)	167	
3	Source Four 19+D60 HH-US	575w	Q Wnd Front	N/C	2	1	(155)	169	
4	Source Four 19+D60 HH-US	575w	Q SL Porch Door	L-202	5	1	(148)	168	
5	Source Four 19+D60	575w	Q Wnd Front	N/C	2	1	(155)	169	

1. UNITS THAT WERE ADDED ARE OUTLINED AS A WHOLE

2. UNITS THAT WERE DELETED ARE CROSSED OUT

3. PARTS THAT CHANGED ARE OUTLINED

AVAILABLE REPORTS

Added Items
Deleted Items
Soft Patch Changes
Items With Changes
Changes by Category

Like all reports, these can be formatted for a Window, Printout, Clipboard or File.

The Patch Changes show any instance where the channel assigned to a dimmer has changed. And of course it is possible for more than one light to use a single dimmer. However, if only one of those lights has changed its channel, the patch list will show a repatch on that channel, even though all of the other lights in that dimmer are still patched to the old channel. To avoid being misled this way, run the “Dimmers in More Than One Channel” error check before comparing show files.

LIGHTWRIGHT TOUCH

Lightwright Touch provides a portable version of your Lightwright 6 worksheet on your Apple iPad®. You can use familiar Lightwright controls to view and sort worksheet data, make notes and changes, and reconcile the changes back to your Lightwright 6 show. Lightwright Touch is a product of West Side Systems and is available from the App Store. For more information, visit <http://pocketlighting.com>.

EXPORT LIGHTWRIGHT TOUCH

Use File/Export Lightwright Touch to export all of the show’s current worksheet rows and columns to an .lwx file. This file can then be dropped into iTunes, Dropbox, or whatever other method you use to transfer the file onto your iPad. The .lwx file only includes basic worksheet rows. The .lwx file includes focus chart shutter cuts and notes, but does not include sketches or work notes.

RECONCILE WITH LIGHTWRIGHT TOUCH

To bring changes made in Lightwright Touch back into your show file, open the appropriate show file in Lightwright. Then get the .lwx file from the iPad. You can use the File/Reconcile with Lightwright Touch command, or you can drag and drop it into the Lightwright worksheet. Whichever method you use, Lightwright will bring the data in from the .lwx file and open a Reconciliation window where you can choose to accept or refuse each of the changes made by LWT. Any notes you created (whether general notes or attached to specific lights) will be displayed in a separate window.

If an instrument type was changed from one with attributes (such as a moving light) to one without (such as a Source Four), or vice versa, reconciliation will NOT make the change. Instead, a note about this will be added so that you can make the change manually in Lightwright.

After Reconciliation is complete, Lightwright will offer you a chance to save a new .lwx file you can drop back into iPad to keep Lightwright Touch up to date.

You will need version 1.2.7 or later of Lightwright Touch to work with Lightwright 6 data. Older versions will crash when opening Lightwright 6 data.

Data sent to Lightwright Touch is always in Short format, whether or not the Short option is active.

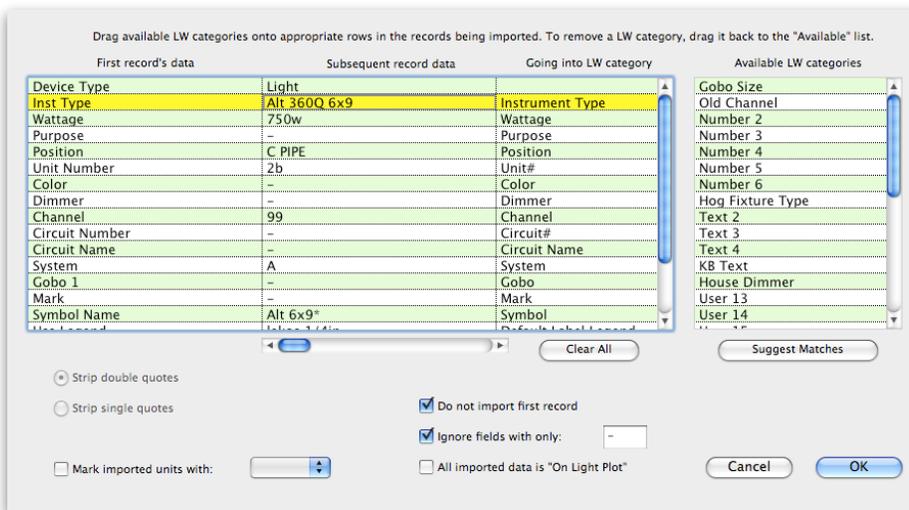
The Address column will be sent to Lightwright Touch, but not the universe or DMX# columns.

IMPORT DATA...

Importing a file lets you bring data into Lightwright from an outside source, such as a general-purpose database or CAD program. Files being imported can be in tab-separated, comma-separated, or Lightwright format.

Import Data is not necessary and must NOT be used with Vectorworks data if you are using Vectorworks Data Exchange to share data between Vectorworks and Lightwright.

When you choose a file for Lightwright to import, it will automatically scan the first part of the file to determine the file's format. If the file is in tab-separated or comma-separated format, you will have a chance to say which data you want to retrieve from the file and which Lightwright column the data will go into.



You need to align the fields in the data being imported with Lightwright's categories. Assuming the first record's data shows the data field names, use the Suggest Matches button to have Lightwright automatically match up most of the fields.

To align the fields, drag the Lightwright categories up and down the list until they are next to the desired field in the data being imported. Because the categories push each other out of the way as

you move them up and down the list, it is generally more successful to drag Lightwright data categories up the list into their final resting places rather than attempt to drag them down.

Only fields with a corresponding Lightwright field will be imported. If you're bringing data in from a CAD program and it has supplied some sort of ID or "handle", then be sure to put it into the Vectorworks ID field unless you are using Vectorworks Data Exchange, in which case you will need to use one of the user-definable fields for the ID.

If you are importing each instrument's Device Type, be sure that the data coming in matches Lightwright's terms exactly: "Light", "Moving Light", "Device", "Accessory", "Power", and "Other". These terms are not case-sensitive, but they must be spelled exactly as shown here. If a unit being imported doesn't specify a device type or if the device type phrase being imported doesn't match exactly, Lightwright will default to "Light". You should also be aware that because each kind of light is often used many different times, if every instance of that kind of light doesn't have the same device type, confusion will occur and Lightwright will simply use the last device type imported.

Note that there are data fields you can export from Lightwright, but cannot import back into Lightwright, in most cases either because they are derived (such as phase status, which depends on the dimmer# and the phase it uses in the rack), or because they are combinations of two or more data fields.

Export Only Fields
Positions Order
Unit Sequence
Phase Status
Work Status
Position & Unit#
Type & Accessories
Type & Watts
Type & Accessories & Load
Circuit & Cir#
Color & Gobo
Universe
DMX#

DO NOT IMPORT FIRST RECORD

Allows you to ignore the first record in cases where the first record contains the names of the fields instead of useful data.

IGNORE FIELDS WITH ONLY

Allows you to filter out undesired data. Some programs that export data cannot leave blank fields blank and insist on filling them with one or more characters. If you find this is the case, enter those characters here and Lightwright will consider fields with matching contents blank.

ALL IMPORTED DATA IS ON LIGHT PLOT

This will automatically set the "On Light Plot" flag in List Maintenance for each instrument type you import. Exporting can also use the "On Light Plot" flag to control which worksheet rows get exported.

STRIP DOUBLE/SINGLE QUOTES

The options to strip quotes let you clean up incoming data in a comma-separated file. Tab-separated files usually do not need this option, so it will be greyed out. If you are importing from AutoCad, then you will want to strip single quotes.

SYMBOL IMPORT AND OTHER NOTES

When you import data into the symbol data field, if there is no default symbol name for that instrument type, then the symbol name being imported will become the default for that instrument type.

If the instrument type does not have a default load in the Maintenance window, then Lightwright will set a default based on the first instance of that instrument type that is imported that has a load.

Furthermore, if you change the instrument type for a worksheet row while in Lightwright, it will assign a new symbol to the worksheet row based on the default symbol for the new instrument type.

MERGE DATA

Merge Data (not to be confused with Merge Show Files) combines parts of two files into one. The currently open show file will have information from a second, **non-Lightwright** file merged into it.

Merge Data is not necessary and must NOT be used with Vectorworks data if you are using Vectorworks Data Exchange to share data between Vectorworks and Lightwright.

If you are not using Data Exchange, then you can merge a text file from any outside source such as Filemaker Pro or older versions of Vectorworks into Lightwright. Lightwright will compare the two files, matching up units in each file. If it finds a match between two units, it brings selected information from the second file into the first.

Lightwright uses internal serial numbers assigned to each unit to make matches when merging. A serial number is made for each new light you add to your show. This "Lightwright ID" is used by Lightwright to steer data imported from an external source into the Lightwright record that it came from originally (if any).

Lightwright will first attempt to match lights during a merge based on its internal ID numbers (which you don't ever see), then by Vectorworks ID, then by position & unit#, then position and purpose, and finally by purpose. It will scan the file being brought in to see which of these methods are possible and then advise you of what it's going to do.

If Lightwright cannot match lights automatically, it will open a window in each case and ask you to identify the matching light. If you answer "none of the above" it will add the light being imported as a new light.

MERGE DATA OPTIONS

Add unmatched items

If you want Lightwright to add new units whenever it can't find a match for one being brought in, check this option.

and mark them

If you also want new units marked, check this option and enter a mark character in the edit field. Be sure to enter a valid mark -- that is, one that is on the Utilities/Notes & Marks/Mark Notes list.

Be sure to check the categories you want merged into the current show file. If you want to select all of them, you can click the "All" column header.

When importing or merging data from another program into Lightwright, you can match an incoming Instrument Type field that contains both instrument types and accessories to Lightwright's Instrument Type field, and Lightwright will automatically separate the accessories from the instrument type (assuming the accessories are delimited by Lightwright's accessory separator phrase).

IMPORTANT: If the two combined files exceed any of the capacity limits (such as maximum number of colors), the merge may not complete.

EXPORT DATA

Export allows you to transfer information from Lightwright into another program, such as a general-purpose database.

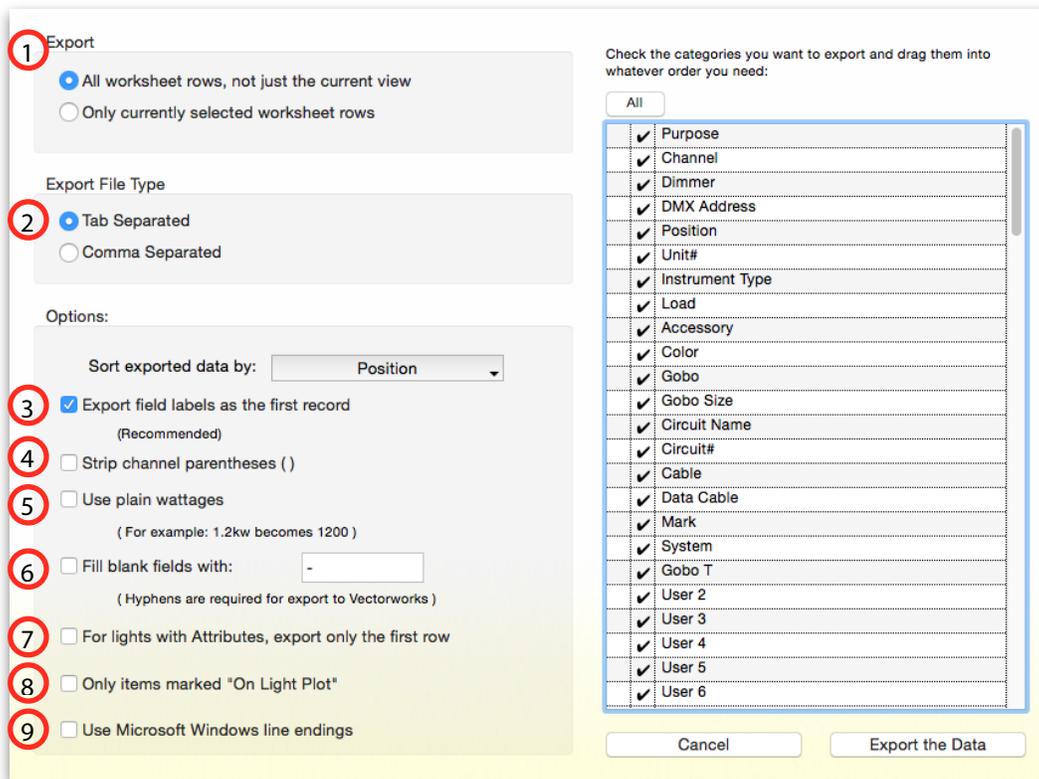
SOME NOTES ABOUT EXPORTING DATA

These are data fields you can export from Lightwright, but cannot import or merge back into Lightwright, in most cases either because they are derived (such as phase status, which depends on the dimmer# and the phase it uses in the rack), or because they are combinations of two or more data fields:

Export Only Fields
Positions Order
Unit Sequence
Phase Status
Work Status
Position & Unit#
Type & Accessories
Type & Watts
Type & Accessories & Watts
Circuit & Cir#
Color & Gobo
Universe
DMX#

DATA...

Export Data/Data is not necessary and should NOT be used if you are using Vectorworks Data Exchange to share data between Vectorworks and Lightwright.



The list on the right side of the window shows all of the Lightwright data categories that are available for export. Check each one you want exported, and drag the rows into the order you want the data to be in the exported file.

- 1 **Export:** Choose to export either all worksheet rows, or just currently selected rows. If you choose "currently selected," be sure to select the rows by clicking in the far left edge of the worksheet so that the "all columns" dot appears for each selected row. If you export from the Worksheet, the export will be in the same order as the Worksheet, otherwise the order will use the sort order you select here.

You can also apply Limits to control what will be exported. These are the same Limits that control the worksheet view, counting, and printing.

- 2 **Export File Type:** You can export data with the columns separated by either tab characters, or by commas. Tabs are the preferred choice, as punctuation such as commas and quote marks cannot be confused with column separators. However, some programs only accept comma separators. If you choose comma separators, be careful not to use commas, single quotes, and double quotes in any of your worksheet entries.

- 3 **Export Field Labels as First Record:** Checking this option adds a data row to the beginning of the exported file, containing the name of each of the categories being exported. When you are importing data in another program, this field-label row makes it easy to tell which column contains which kind of data.

- 4 **Strip Channel Parentheses:** Choose this option if you want exported channels to be plain numbers, without enclosing parentheses.

- 5 **Use Plain Wattages:** Lightwright normally formats wattages with a trailing “w” or “kw” (for example “575w” or “2kw”). If you would rather have plain numbers used (for example 575 or 2000), then choose this option.
- 6 **Fill blank fields with:** Worksheet cells that are blank are normally left blank in the exported data. However, some programs (such as Vectorworks) cannot handle blank entries. If you need blank entries replaced with something else, then enter it here and choose this option. If you are using Vectorworks WITHOUT Data Exchange, you will need to check this option and put a hyphen in the entry field here. If you are using Data Exchange, you do NOT need this option and File/Export Data.
- 7 **For lights with Attributes, export only the first row:** Worksheet rows derived from attribute lists are normally exported along with the rest of the data. Choose this option if you do not want attribute list rows included in the exported data.
- 8 **Only items marked “On Light Plot”:** If you want the exported data to include only worksheet rows whose “On Plot” column status is “on plot”  , then choose this option.
- 9 **Use Microsoft Windows Line Endings:** Each row of exported data is normally ends with whatever end-of-line character(s) are normal for the operating system Lightwright is running on. For Windows, that is CR/LF; on the Mac, it is CR only. If you want the data to use the line ending for the other kind of operating system, then choose this option.

Drag the Lightwright categories up or down the list until they’re in the order you want to export them in, and click in the checkbox column to choose whether or not you want each category exported.

Example: Your computer is running Macintosh OS X. This option will say “Use Microsoft Windows line endings”. You need the exported data to include Windows-style line endings so you can import the data into the Eos/Ion consoles, so you choose this option.

Example: Your computer is running Microsoft Windows®. This option will say “Use Macintosh line endings”. You are sending exported data to someone with a Mac, so you choose this option.

Additional Notes:

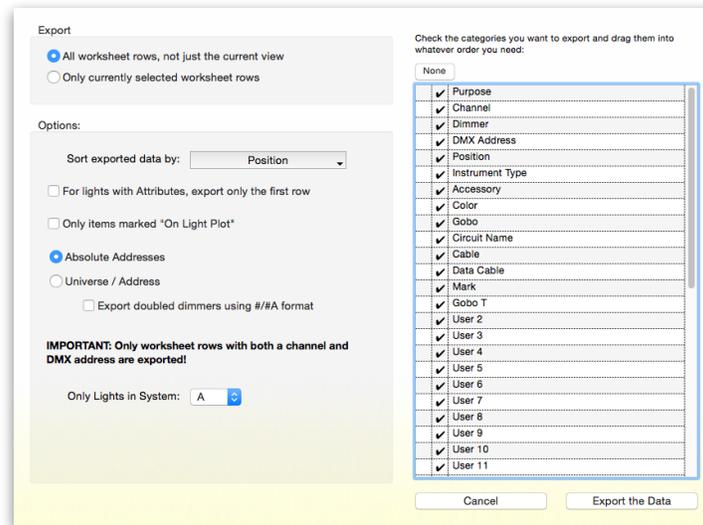
- You can’t export things such as dimmer ranges, footnotes, or any other things that aren’t part of the Worksheet’s columns and rows.
- If you are exporting each instrument’s Device Type, Lightwright will use the terms “Light”, “Moving Light”, “Device”, “Accessory”, “Power”, and “Other.”
- “Positions Order” is the order of the hanging positions as you’ve set them using Maintenance/Position. It will be a number you can use in other programs to sort items the same way Lightwright does.
- “Unit Sequence” is the order of the lights within each position. It will be a number other programs can use to sort items the same way Lightwright does, including lights whose order has been “locked.”
- When a column defined as a DIP switch is exported, it is formatted as a binary number, with bit zero on the far right. For example, a binary “1” will be shown as “000001” and a binary “2” as “000010”, no matter whether the physical switch uses “Up is Down” or “1 is All Off” or whatever.
- Lightwright uses the current Short name setting when exporting text data.

EXPORT DATA FOR EOS FAMILY CONSOLES

Version 2.3.3 (and later) of the ETC's Eos family of consoles includes enhanced support for importing Lightwright worksheet data. This new support patches the show, populates query tiles, and creates keyword lists based on data exported from Lightwright. **To use this successfully requires Eos 2.5.1.0.25 or newer.**

EXPORT THE DATA FROM LIGHTWRIGHT

Choose File/Export Data/For Eos Family Consoles, which opens this window where you can choose exactly what you want to send to Eos:



The first thing to decide is which worksheet rows you want to export. The default is ALL rows, but many Lightwright files include worksheet rows with data that the console can't use, such as power for work lights or other lights not controlled by the console, so you may want to use the worksheet's View menu to narrow the list down to the relevant lights, then select the specific worksheet rows you want to send to Eos. Once you've done that, choose File/Export Data/For Eos Family Consoles and then select the "Only currently selected worksheet rows" option here.

Most of the options here are obvious, but there are a few important things to know:

- As of version 2.3.0.0, Eos always sorts all of the incoming data alphabetically, but the option to sort the outgoing data in other ways is here in case a future version of Eos uses Lightwright's sort order.
- Because Eos needs both a channel number and an address to patch, only worksheet rows containing both channel and address information are exported, even if rows without them are selected.
- To work best, Channel, Address, and Device Type columns should always be included in the export. When the Device Type column is chosen for export, Lightwright will replace its generic Device Types (Light, Moving Light, etc.) with the name of any Profile assigned to the light's instrument type. To assign a profile, go to Maintenance/Instrument Type, click the "Profiles + Other" tab, then click the appropriate row in the Profile tab and choose the appropriate profile in the Profile window that opens.
- When Lightwright exports the color column, if there are multiple colors in the light (such as R-33,L-161), it will only export the first color in the list. Frost and heat shield are also omitted.

- If a column contains a plus sign (“+”), Lightwright will substitute an ampersand (“&”) because Eos interprets the plus sign as a command key.
- If the show’s Universe Separator is set to a character that is invalid for Eos, “/” will be used instead.
- Export to Eos always use the Short version of text entries.

Note that there is an option in this window to choose the Address format, including “#/#A” (which typically looks like “2/146A and 2/146B”). This format is available only when exporting to Eos.

When you click the “Export the Data” button, a .txt file will be saved.

TO IMPORT THE DATA INTO EOS:

Copy the .txt file you just created onto a flash drive and insert the flash drive into the Eos console. In Eos, choose File/ Import/Lightwright and select the .txt file. Eos will show you a table with Eos data fields and Lightwright column names. For each Eos data field, choose the Lightwright column you want imported into that data field.

These matches will provide the best results:

Eos	Lightwright
Channel	Channel
Address	Address
Type	Device Type
Fixture Type	Instrument Type
Label	Purpose
Gel	Color

Depending on how you plan to use the Query feature, it can be helpful to match Eos Text columns to Position, Instrument Type, Gobo, and Circuit Name, or whatever other columns make sense for you.

Click the Eos’ Map Devices button to choose Eos equivalents for Lightwright’s Profiles. Eos will display a Lightwright column containing Device Types and Instrument Types, in alphabetical order. For each item on the list that is a multi-address device (such as a moving light or LED source), select the appropriate manufacturer and model from the Eos column, then click the Link Devices button. Repeat for each multi-address device.

Other options here are Overwrite, Starting Channel, and Ending Channel. When you are done mapping and setting these other choices, click the OK button and Eos will patch the show and create query tiles.

For more information about communicating with the Eos family consoles, please refer to the Console Link section of this manual.

Additional Notes:

- In some cases, you may see two versions of the same instrument type, for example “D60 Vivid” and “Desire D60 Vivid”. If this happens, you only need to map one or the other of them, not both.

EXPORT CURRENT WORKSHEET AS EXCEL SPREADSHEET

Allows you to export the current worksheet in Excel’s native .xls format. This spreadsheet will only include the currently visible columns in your worksheet.

EXPORT ASCII SOFT PATCH...

Some control consoles and software support the USITT ASCII Cue Standard format, so that cue and soft patch information can be transferred easily. This option will create a soft patch file in this standard format.

If you save a file in this format, it will contain the necessary instructions for patching dimmers to channels as you've entered them in your Lightwright file. It will not configure the console in any other way or set the overall number of channels or dimmers. Also, because Lightwright does not record proportional patch information, all dimmers will be patched at full.

There are five optional statements you can manually add to or change in an ASCII Soft Patch file:

Clear All
Clear Patch
Clear Groups
Clear Subs
Clear Cues

What each of these statements do is defined in the USITT standard, you can include none/any/all of them as needed.

AUTOMATED...

Whenever you import or export a show in non-Lightwright file formats, Lightwright will ask you when you finish if you'd like to automate what you just did. If so, it will ask you to name the automated action and then it will save all of the various import & export options (including any Limits in effect), adding the name of that action to the File/Automated list.

When you choose that action from the File/Automated list, all of the various import/export options in effect at the time the action was created (such as field order, which fields are being imported/exported, various stripping options, etc.) will be put into effect and then whatever action you took will be automatically executed, whether it's a simple export or a complicated Import/Merge.

This was designed to ease the difficulties inherent in exchanging Lightwright data with other programs, which will often require very specific column orders & data formatting.

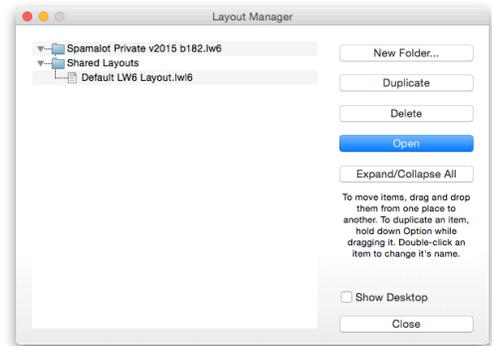
The information for each automated action is recorded in a separate file, which should be kept in the Automated Actions folder inside the Shared folder. If you set up a system of data exchange with another program and want to distribute your system to other users, you will probably want to automate the import & export and distribute a copy of the automated action file along with your system.

Automated Actions include the line ending used to export the data, no matter whether the action itself was saved on a Mac or a PC.

LAYOUT MANAGER

Choosing File/Layout Manager opens this window that lets you browse, duplicate, delete, and rename Layouts anywhere on your hard drive. Click the disclosure triangles on the left to show or hide folder contents. Double-click any filename to change it. You can drag files from one location to another and duplicate them by selecting them and clicking Duplicate or by holding down the Option key while dragging the filename to a new location. To delete a layout file, select it and click Delete.

If there are any filenames with illegal characters in them, a “Fix Filename” button will appear. It removes illegal characters from the selected item. Yellow icons indicate files in the list which have illegal characters in them.



Be aware that if you open a location with a lot of files inside it, there may be a significant (maybe even endless) delay while Lightwright digs through all of the files to find files.

OPEN LAYOUT...

The default Layout file is named “Default Layouts.lwl”. If you have created other Layout files, use this Menu selection to open them. Layout files contain all the formatting information that describes how you want your paperwork printed. Since they do not usually contain any show-specific information, you can use them with any show file.

Layouts can be kept in in this show file, in a shared folder, or some other place that you designate.

IN THIS SHOW'S FILE

Opens a layout file which has been saved within the show file. You can store as many layouts in a show file as you want.

IN SHARED FOLDER

Offers the option to select any of the layout files saved in the folder you have previously chosen to be the Shared Folder. (See Preferences)

In Windows, layout files must end in .lwl or Lightwright won't be able to recognize them. On the Mac, they can have any name. Layouts saved by version 6 can be shared freely between the Windows and Macintosh versions of Lightwright without any kind of conversion. If you open a version 2, 3, 4, or 5 layout and then save it, it will be saved in version 6 format and will not be able to be opened by older versions of Lightwright.

ANYWHERE

Opens layouts stored somewhere else on your computer.

SAVE LAYOUT AS ...

This command saves the current Layout formatting into a Layout file. Layout files contain all the formatting information that describes how you want your paperwork printed. Since they do not contain any show-specific information other than a logo, you can use them with any show file.

Layouts can be kept in in this show file, in a shared folder, or some other place that you choose.

IN THIS SHOW'S FILE

Saves the current layout in the current show file. You can also check the "Layout is in show file" option at the top of Layout view, which will cause Lightwright to save the layout inside the show file when you save the show file.

IN SHARED FOLDER

Opens the Shared folder for you to save a layout into it, thereby making it available to all shows.

ANYWHERE

Allows you to save a layout somewhere else on your computer.

Pop-up Layout menus will present a list of layouts that are in either the current show's folder or the Shared folder.

In Windows, layout files must end in .lwl or Lightwright won't be able to recognize them. On the Mac, they can have any name. Layouts saved by version 6 can be shared freely between the Windows and Macintosh versions of Lightwright without any kind of conversion. If you open a version 2, 3, 4, or 5 layout and then save it, it will be saved in version 6 format and will not be able to be opened by older versions of Lightwright.

DELETE LAYOUT

Deletes the layout you choose, whether it is inside a show file or somewhere else.

PAGE/PRINT SETUP...

This is the standard setup window where you can change things like page orientation, paper size, and printer options. Most layout formatting is based on relative locations on the page, but if you make significant changes to the page setup you might want to check your layout before printing with it.

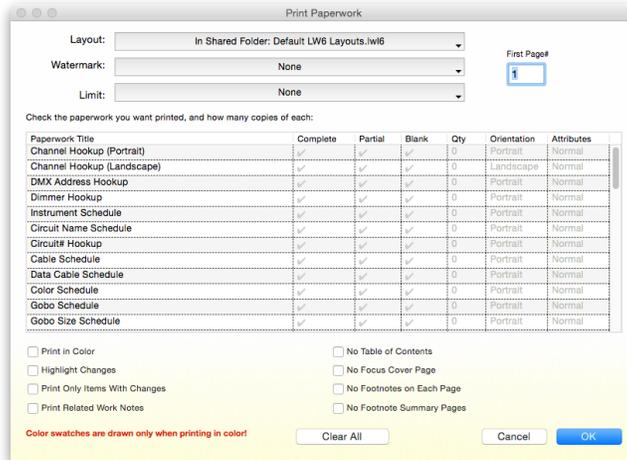
If you set custom column widths in Layout, be sure to choose the same page orientation before printing that you used when you set the column widths. Otherwise, text may spill into the margins or be truncated.

Page/Print Setup is also available in many windows by clicking this button: 

The orientation of the button will change to reflect the current printer's portrait/landscape orientation.

PRINT PAPERWORK...

Choose this option to print the standard paperwork:



Use the drop down menus at the top of the window to pick a layout and set both limits and watermarks for this particular set of printouts. See “Watermarks” below to learn how to use watermarks.

Select the number of copies of each kind of paperwork that you would like to print. A separate print dialogue box will open for each item, thus allowing you to send your paperwork to several destinations at once.

Attribute rows will normally be included in printouts if they are check-marked to print on the relevant attribute list. If you prefer to override those settings and have either ALL or NO attribute rows printed, click in the “Attributes” column, which will toggle between “Normal”, “All”, and “None”.

If you choose to print several kinds of paperwork at the same time, Lightwright will open a separate print dialogue box for each kind of paperwork you have paperwork so that you can choose the page range, number of copies, and destination (such as PDF or page orientation) on a per-paperwork basis.

If you choose to print an Instrument Schedule, Lightwright will use the current order of the Positions list. A Circuit Name Hookup will use the order of the Circuit Names list, and any user-definable text categories will (predictably) use their current order.

Notice the two kinds of Circuit Hookups: a Circuit Name Hookup and a Circuit Number Hookup. The Circuit Name Hookup is organized by Circuit Names, much as an instrument schedule is organized by hanging position. Individual circuits are listed within the name they're used with. The Circuit Number Hookup essentially ignores circuit names and is sorted by number, starting at one and ending at whatever the highest circuit number in use is.

The current layout will be selected on the pop-up Layout menu. If you want Lightwright to use a different one, just pick it from the pop-up. Remember, though, that only layouts in the current show's Layouts folder or in the Shared/Layouts folder will be on this menu.

Unless column widths have been set manually, their widths are calculated immediately before printing each kind of paperwork, optimizing for the least possible amount of word-wrap within columns.

If you choose to print the current worksheet, the column order will be taken from the worksheet and the column widths adjusted for the paper size.

Choose a *Partial* printout if you need to re-print one or more pages to correct an error or to update only part of the paperwork without a complete re-printing. For each kind of paperwork which you choose, Lightwright will open a dialogue box for you to enter the constraints of the print. If it's a numeric type such as Channel or Dimmer Hookup, Lightwright will ask you for the Starting and Ending numbers. If it's a text type such as an Instrument Schedule, you'll get to choose the Positions you want to print.

Instrument Schedules, Focus Charts, Circuit Name Hookups and other text-category printouts can have a table of contents printed showing which page each position begins on that can serve as the first page of the paperwork. This option is set as part of the layout (see Layout/Options...), but if you do not want this page printed even if it's normally printed, check the "NO Table of Contents" option.

If you want one or more empty versions of the paperwork to photocopy and fill in later (if you add equipment in the theatre, for instance), check the Blanks option.

The Page Setup dialog will open the first time you do anything related to the printed page. That includes clicking on the Layout tab, or choosing to print anything. If you press Cancel in the dialog, you will be returned to where you were. The exact options available in the Page Setup dialog will vary depending on your operating system, but often include choosing your printer and paper size and orientation. This dialog appears only once each time you start Lightwright.

Here is a list of other options and buttons available when printing out paperwork:

Item	Description
Print In Color	If this option is NOT checked, then change highlights will be done by underlining or outlining the relevant text.
Highlight Changes	Like the worksheet, changes are printed in appropriate colors.
Print Only Items With Changes	Only worksheet rows with changes somewhere in them will be printed
Print Related Work Notes	Any Work Notes attached to specific lights, positions, channels, dimmers, etc. will be printed adjacent to the appropriate item.
No Table of Contents	When printing out Instrument Schedules, this option will print them without a table of contents.
No Focus Cover Page	When printing out focus charts, this option will print them without a cover page.
No Footnotes on Each Page	If the layout says to print footnotes, and footnotes are used but this option is checked, they will be printed on a separate footnote summary page at the end of the paperwork instead of on each page.
No Footnote Summary Pages	Choose this option if you do not want Lightwright to print a footnote summary page under any circumstances.
Clear All	Clears all current choices for what you want to print

WATERMARKS

You can use any .jpg, .bmp, .png, or .gif graphic to serve as a watermark behind the text on printouts. Put the graphic into the Watermarks folder inside your shared folder (you can find and/or change the location of this folder by going to Preferences/General/Shared Lightwright Folder Is:) or in the Watermarks folder inside the Lightwright 6 application folder, and it will appear on the Watermarks pop-up menu. The graphic can be any size or resolution. When printing, watermarks automatically scale to fill the area within the page margins.

A selection of suitable watermarks is included in Lightwright's Watermarks folder as part of the Lightwright package. You may modify or remove them as you like.

OTHER KINDS OF PAPERWORK

The Cheat Sheet is a quick reference, usually a shorthand version of the channel hookup. It can contain any of the available information columns and can be formatted as either a single column or two columns. The information in the columns is simply a list of the things found in each channel. Unlike the other kinds of paperwork, text on a cheat sheet is truncated to fit the available space. The columns that make up the cheat sheet are chosen when you click the Cheat Sheet checkbox.

The Current Worksheet can also be printed. The columns will be arranged the same as the worksheet itself.

The Dimmer Information Page contains whatever dimmer range information you've entered for the show. It will also print a page showing the DMX Universe information.

The Footnotes Page is a summary listing all of the footnotes you've entered. Footnotes are always printed on the bottom of the page containing references to them (up to five different footnotes per page), but you may also want this summary.

Printouts other than the standard ones here are available through the "Reports" menu.

QUIT/EXIT

You'll be prompted if you need to save changes before quitting. Lightwright will save all of your current worksheet column orders, sort orders, window sizes, and other options as it quits. The sort orders are also saved in Layouts.

EDIT MENU

UNDO

Lightwright has unlimited undo capability in that it can undo any number of worksheet changes you make, stepping back all the way to when you opened the show file. The text of the Edit/Undo menu item will change to show you what can be undone. When you Undo, the worksheet will undo the appropriate cell edits, switch the worksheet back to where it was when the cells were edited, and highlight the cells that have been restored. This undo ability is in addition to the History features, which permit you to roll back changes based on time and date.

Note that the Undo command cannot undo changes made to focus chart sketches, axis and beam settings, or any parts of the show file other than the worksheet.

CUT/COPY/PASTE/CLEAR/SELECT ALL

These are the usual editing commands, but depending on where you're working in Lightwright, they change character somewhat.

IF YOU ARE WORKING WITH THE WORKSHEET:

These commands will apply to entire cells or rows. They do not apply to text in the edit field at the top of the worksheet.

Cut will not clear selected cells unless an entire row has been selected (shown by the dot at the left-hand edge of the worksheet). If an entire row has been selected, it will be deleted from the worksheet and put into the clipboard by the Cut command, from where you can paste it into other programs or other parts of Lightwright.

Copy will transfer the contents of currently selected cells to the clipboard. Once the data is there, you can paste it into other programs or cells.

Paste will replace the contents of any currently selected cells with the contents of the clipboard. If there is more data on the clipboard than selected cells, Lightwright will add rows of data to the clipboard until everything on the clipboard has been transferred. If you paste into a group of worksheet cells and there is not enough data on the clipboard to fill the cells, Lightwright will repeat the existing data on the clipboard until all of the selected cells have been filled.

Clear will erase the contents of any selected cells. It will not delete items from the worksheet, even if the entire row has been selected. Use Delete or Cut options for that.

Select All selects all the rows and columns on the worksheet, including columns that are not currently showing.

IF YOU ARE WORKING ON FOCUS CHARTS:

These commands do not copy text from cell to cell. Instead, they cut/copy/paste the entire focus chart.

IF YOU ARE WORKING WITH THE LAYOUT PAGE:

The only one of these commands that is available is Select All. The rest are not available because there is no text to be manipulated, and the system clipboard would not understand what is being manipulated.

Select All selects all the various layout objects on the page.

IF YOU ARE WORKING IN MAINTENANCE:

These commands can work with text to/from any selected cells, including pictures of gobos.

SELECT

ENTIRE ROW

This command selects all columns (both visible and hidden) for any worksheet rows where any part of the row is selected.

ENTIRE COLUMN

This command searches the worksheet from left to right, looking for selected cells. It selects the entire column of cells for the first selected cell it finds. It does not de-select existing selections. A similar command is available by right-clicking on the worksheet.

You can also click in a column header to select an entire column, but this does not work on Focus Charts with data categories such as Note. Edit/Select Entire Column lets you select these categories.

SELECT IN VECTORWORKS

This command tells Vectorworks to select any currently selected worksheet rows. Make sure that Data Exchange is active and that you have linked the Lightwright file to a Vectorworks drawing via Data Exchange before using this option. Select one or more items in the Lightwright worksheet, choose "Edit/Select/Select In Vectorworks" and then switch to the Vectorworks drawing that is linked to this file via Data Exchange. The item(s) will be selected for you in Vectorworks. Note that Vectorworks can only select items that are in the current active layer unless the Layer Option "Show/Snap/Modify Others" is active and the layer that contains the item that you want to select is in a visible layer in the drawing.

RAISE#

This will increment the value of selected cells by one, providing they are in numeric columns (does not work with Load). If you select a range of cells, the numbers will increase proportionately.

LOWER#

This will decrement the value of selected cells by one, providing they are in numeric columns (not including Load). If you select a range of cells, the numbers will decrease proportionately.

FOCUS

CLEAR FOCUS...

This will allow you to clear the focus chart for either the selected light, all lights in current view, or for the entire show. When you select this option a window will open that will allow you to make the appropriate selection.

MODIFY FOCUS

This lets you change the color, line weight, and text size for all objects drawn on the focus chart sketches. This command applies to all lights, not just those currently being viewed, and there is no Undoing this command.

FOCUS STATUS

There are four options here: Toggle (to flip through the focus status options in order), Set to Focused, Set to Partly Focused, and Set to Not Focused. Use these items to change the focus status for one or more selected lights. Simply select any of the cells belonging to each light you want to change the focus status for and select one of these options (you do not need to select the entire row). You can also click on the focus icon in the Focus Status column to toggle the status.

WORKSHEET ROW COLOR

Each worksheet row can be assigned any one of six background colors. This is a different color than the worksheet background color. This allows you to change the color of the row. You can also select a number of rows and change their color using Edit/Worksheet Row Color for all selected rows.

ON PLOT STATUS

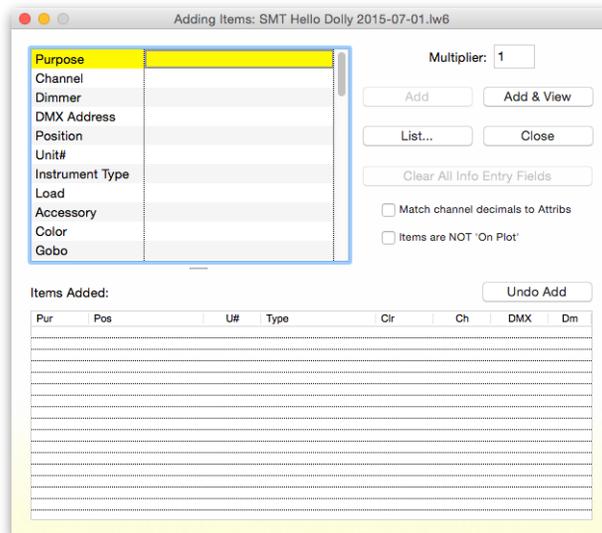
You can change the status of worksheet rows to either "On Plot" (drawn on the Vectorworks drawing) or "Not On Plot". To set this status, you can use either one of two methods:

- Click on the appropriate row in the On Plot column to change that light's status.
- Select any part of one or more worksheet rows, then choose the desired option from the Edit/On Plot Status menu.

After choosing either method, you will need to switch to Vectorworks and Refresh Instruments.

ADD ITEMS...

This is how you add items to the worksheet. When you choose this menu selection or click in any open area below the last row on the worksheet, the Adding window will open:



Most of the worksheet categories are here, with an edit field to fill in next to each. To add items, simply fill in as many of the edit fields as you want, then click on one of the buttons.

If you want the categories in a different order, use the mouse to drag the category names up or down. Use the scrollbar to bring other categories into view.

You can use the Adding Items window to add multiple worksheet rows in any category. For text categories, separate the items with backslashes ("\"). For numeric categories, use commas and/or hyphens. However, you can only do this in one category at a time. So if you want to enter dimmers 1-12, you can't enter colors L-201\R-33\L-161 at the same time.

Example: Unit #: 1,3,5,10-15,17,19,30-40

Adds a total of 22 lights.

Normally Lightwright will add one unit for each one of these items you just added. If you instead want Lightwright to enter several lights for each item, put a number greater than one into the multiplier field.

To add more than one striplight at a time, you enter the letter of the first fixture followed by a number indicating the first circuit in the strip then, after a dash, you would enter the letter of the last fixture followed by the number indicating that this is still the first circuit.

Example: A1-D1

Adds four striplights numbered A1, B1, C1, and D1.
Repeat the process for each circuit in the striplight.

If you are filling in a text category and would like to choose from a list of text already used in that category, click on the List button. The Choose window will open, letting you select text from that already being used in that category.

When adding lights, you can enter "+" at the end of any number field. This tells Lightwright to raise that number by one for each new light it adds.

Example: You are adding units 1,2, and 3 and you put "100+" into the Channel column. When you add the lights, unit 1 will get channel 100, unit 2 will get channel 101, and unit 3 will get channel 102.

You can use this feature on more than one category at a time, for instance starting channel numbers at 100+ and dimmer numbers at 512+.

The other buttons do the following things:

ADD

Like it says, this option just adds the items you've asked for, then puts the text cursor in the top edit field, ready for more. After you click either the "Add" the lights that were added will be added to a list at the bottom of the Adding Items window, so you can see what you did. This list includes as many as 200 lights, and is cleared each time you close the Adding Units window.

ADD & VIEW

Adds items with the information in the edit fields and then switches to the Worksheet and shows you the items that were added. The last item added will be the first row on the worksheet. If you added more than one item, you will need to scroll up to see the first ones.

LIST

This button opens the choose list for the category field you are currently editing.

CLOSE

This button closes the Adding form and refreshes the worksheet. If the lights you added were in the category being viewed on the worksheet, you will see them there.

CLEAR ALL INFO ENTRY FIELDS

Will erase all the fields.

MATCH CHANNEL DECIMALS TO ATTRIBUTES

This tells Lightwright to make the channel numbers decimal and to use the attribute number for each attribute as the decimal part of the channel number.

Example: You are adding a Mac 700 with attributes 1-23, in channel 20. If this option is turned on, the resulting channel numbers will be 20.0, 20.1, 20.2, 20.3, 20.4, 20.5, and so on.

This option can be used at the same time as the "+" option, and is particularly useful if you are using Strand consoles.

Example: You are adding Mac 700s with 23 attributes as unit numbers 1,2, and 3. You put "100+" into the Channel column and check the "Match channel decimals to attributes" option. The result will be channels 100.0 through 100.23 on unit 1, channels 101.0 through 101.23 on unit 2, and channels 102.0 through 102.23 on unit 3.

This option affects only channel numbers and cannot be used with channels that have letter suffixes (such as 32a).

ITEMS ARE NOT 'ON PLOT'

Check this option if you are using Data Exchange and don't want the items you are adding to be put on the light plot. Note that in order for an item to be put on the drawing at all, its Instrument Type must have its "On Plot" status checked in Maintenance. If that isn't set, then this option is irrelevant. Checking this option does not change the Maintenance list's "On Plot" status.

UNDO ADD

Removes the lights you just added.

DELETE ITEMS

To delete items from your show, select it by clicking in the Select column of the worksheet. A bullet (•) will appear to show that you've selected all the columns for that row, not just the visible ones. If you press shift as you click on another row, it and all of the lights between the two will be selected. If you use the Cmd key (ctrl key in Windows) instead of the shift key then you can select discontinuous rows. After you've selected all the items you want to delete, choose Delete Items from the Edit Menu. After confirming that you want to delete the selected items, they will be erased from your paperwork.

Unlike Cut, Delete Items does not transfer the deleted rows to the system clipboard.

In Lightwright, striplights and moving lights that consist of many worksheet rows can be handled as a single object.

When you choose to delete a worksheet row, you can choose between deleting just the one selected row, or you can have Lightwright also delete all of the other related rows that make up that light, including things like attached color scrollers.

Example: If you delete one row of a striplight, it will delete all of the rows that make up that striplight.

If you delete one row of a moving light (or any kind of light with attributes attached to it), Lightwright will delete all of the worksheet rows that are part of that moving light.

If you have a regular light with a color scroller attached and you delete the light, the scroller will not be deleted unless you select it also or choose to delete "ALL".

If you have ten worksheet rows, all with the same position but no unit numbers and you choose to delete one of them, only that one will be deleted because lights without unit numbers are always considered as separate lights.

Delete is not permanent, you can use View/Deleted Items to view them, then right-click to restore them to active use.

Counting will not include deleted worksheet rows under any circumstances.

AFTER DELETING

After you delete all existing worksheet rows, Lightwright asks if you want to clear all history. This makes it impossible to restore deleted rows to active use and also resets highlights and removes all Undo information. This helps prevent duplicate Vectorworks UIDs from causing problems with Data Exchange.

UNDELETE

When you View/Deleted Items from the dropdown menu on the worksheet, you can select one or more of them and then choose this option to Undelete them.

CLONE...

Clone can copy any one position, channel, dimmer, or other single thing (as chosen with the View menu) to one or more other positions, channels, dimmers, etc.

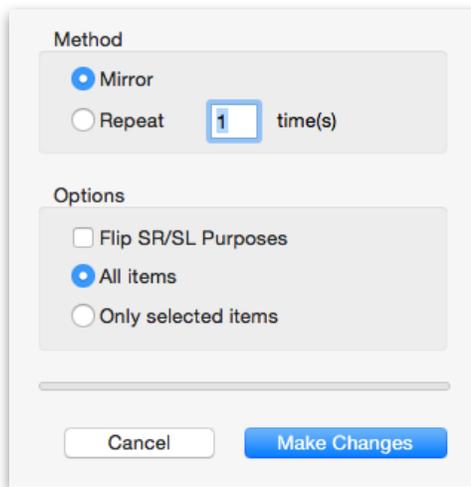
There are also two options:

- You can choose to clone only the contents of selected cells. If you do, new items will be added only for rows where at least one cells has been selected, and everything will be blank for the new items except for the information copied from the selected cells.
- You can have Lightwright flip the Purposes of the items being cloned, according to the Flip Pairs you've entered in Preferences. This can make copying items from stage left to stage right much easier than using Copy then Paste would.

Example: One of your Flip Pairs is "SR" and "SL". If you Clone a unit whose purpose is "SR Ends" and ask Lightwright to flip, it will make the purpose of the new unit "SL Ends."

Clone only works with items currently being viewed on the Worksheet.

BALANCE...



If you have a single position displayed on the Worksheet, you can use Balance to mirror or repeat copy existing items on the worksheet.

If you Mirror, items will be added, but in reverse order, producing a reverse-and-repeat of what is already on the worksheet.

If you Repeat, one item will be added for each item on the worksheet for each repeat you've asked for, and the unit numbers will continue from the last item on the worksheet

If you check the "Flip" option, Purposes will be checked and flipped according to the Flip Pairs you've entered under Setup/Preferences.

If you check "All," every item currently shown on the Worksheet will be copied; if "only selected," then only those items you've selected will be copied.

BALANCE MIRROR EXAMPLE

Assume you have No. 1 ELEC displayed on the worksheet, and it consists of these items:

Position	Unit#	Purpose	Type	Watts
No. 1 ELEC	1	SL Ends	50°	575w
No. 1 ELEC	2	SL Ends	36°	750w
No. 1 ELEC	3	SL Ends	26°	750w

If you Balance Mirror and check "Flip," you will get this:

Position	Unit#	Purpose	Type	Watts
No. 1 ELEC	1	SL Ends	50°	575w
No. 1 ELEC	2	SL Ends	36°	750w
No. 1 ELEC	3	SL Ends	26°	750w
No. 1 ELEC	4	SR Ends	26°	750w
No. 1 ELEC	5	SR Ends	36°	750w
No. 1 ELEC	6	SR Ends	50°	575w

BALANCE REPEAT EXAMPLE:

Assume you have No. 2 ELEC displayed on the worksheet, and it has these items:

Position	Unit#	Purpose	Type
No. 1 ELEC	1	WARM BKLT	PAR 64 MFL
No. 1 ELEC	2	COOL BKLT	PAR 64 MFL
No. 1 ELEC	3	N/C BKLT	PAR 64 MFL

If you Balance Repeat this, asking for 2 times, the No. 2 ELEC will be:

Position	Unit#	Purpose	Type
No. 2 ELEC	1	WARM BKLT	PAR 64 MFL
No. 2 ELEC	2	COOL BKLT	PAR 64 MFL
No. 2 ELEC	3	N/C BKLT	PAR 64 MFL
No. 2 ELEC	4	WARM BKLT	PAR 64 MFL
No. 2 ELEC	5	COOL BKLT	PAR 64 MFL
No. 2 ELEC	6	N/C BKLT	PAR 64 MFL
No. 2 ELEC	7	WARM BKLT	PAR 64 MFL
No. 2 ELEC	8	COOL BKLT	PAR 64 MFL
No. 2 ELEC	9	N/C BKLT	PAR 64 MFL

Note that both of these examples assume you checked "All." Also remember that Balance only applies to items currently being viewed on the Worksheet. If you have letter suffixes, they will be preserved and copied as part of the Balance.

Example: The No. 1 ELEC has these items on the Worksheet:

Unit#	Purpose
1	First Light
1a	In-Between Light
2	Second Light
3	Third Light

If you Balance Mirror this you'll wind up with:

Unit#	Purpose
1	First Light
1a	In-Between Light
2	Second Light

Unit#	Purpose
3	Third Light
4	Third Light
5	Second Light
6a	In-Between Light
7	First Light

As you can see, the result is completely symmetrical, but the “a” suffix has been preserved.

GLOBAL VIEW

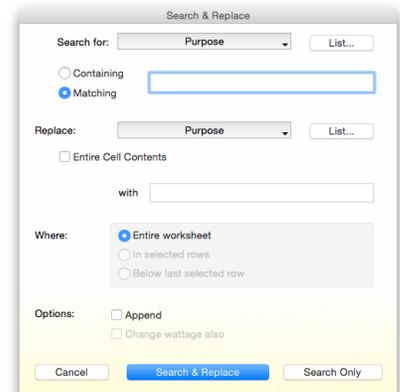
There is a Global Search function in Edit/Global View (Cmd-G on a Mac or Ctrl-G on Windows) and in the View pulldown menu on the Worksheet header bar. This allows you to search across all worksheet columns and all cells for any mention of the search item. If you enter any number, phrase or part of a word, number or phrase and hit Enter, Lightwright will search all of the categories for a match. The search function is not case-sensitive and will find bits of text within longer words or numbers. If you want to search for a particular channel, enclose it in parentheses.

SEARCH & REPLACE...

There are actually two different ways to search and replace. This is the first and most obvious. When you choose this option, the Search & Replace dialog box will open.

Use the “Search for:” and “Replace:” pop-up menus to select the categories you want to search and replace in. They can be the same or different.

“Search” can be either “containing” or “matching.” If you search for items “containing,” Lightwright will look within text to see if the text you’ve entered is anywhere within the text of the units being searched. Upper and lower-case are significant in the search. If you check “matching,” Lightwright will look only for exact matches.



Use the Where option to decide whether you want to search the entire worksheet, within rows that have selections in them, or after rows with selections. It will also select the cells that it changes when you are using the Replace option. Using the “below last selected row” option, you can do a Search & Replace within one or more selected rows, then repeat the command again and it will begin where the last Search/Replace left off.

If you check the “append” option, the text you enter into the Replace field will be appended to the end of existing text instead of replacing it.

If you're replacing the Instrument Type, you can check "Change load also" and the load for each lamp changed will be changed to the load assigned to the light in List Maintenance.

The second way to search and replace works entirely within the context of the Worksheet. You do not use the Search & Replace dialog box for this method. To use this second technique, select the cells on the worksheet you want to search, and then enter the search text, followed by an equals sign, followed by the replacement text, into the worksheet edit field. When you press [Return], Lightwright will replace any text it finds matching the search text with the replacement text.

In other words, this is what you enter into the worksheet's edit field:

old info=new info

The equals sign is what does the trick.

Wherever Lightwright finds [old info] it will replace it with [new info]. It will look for [old info] *within* all the cells currently selected. If it finds [old info], it will remove [old info] and replace it with [new info].

If you try to do this to a NUMBER category, Lightwright *will not look within* the numbers; it will only make the change if [old info] matches the existing number *completely*.

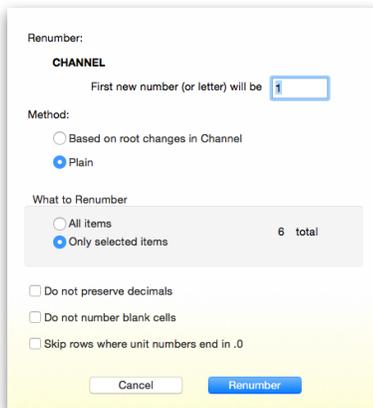
Example: Assume you have one column of cells selected on the worksheet, and they are:

6x22
6x12
6x16

If you enter x12=x9 in the edit field, the resulting cells will be:

6x22
6x9
6x16

RENUMBER...



Use this menu selection to renumber a column of numbers on the Worksheet. When you choose this option, the Renumber dialog box will appear.

In the top left corner is the name of the column being renumbered. If you selected a column before you chose "Renumber," it will be the target, otherwise the Unit# column is automatically targeted.

The two numbering methods are "Based on root changes" and "Plain". Both methods will preserve the decimal portions of numbers. A new option, "Do not preserve decimals" has been added for those cases where you want decimals removed. However, even with this option checked, renumbering unit numbers will always preserve decimals for worksheet rows derived from attribute lists.

Here are some examples of renumbering channel numbers with various methods and options. Notice how each affects the channels with decimals and those shown in boldface:

Original Channel#	Plain Renumber	Plain renumber, decimals not preserved	Renumber based on root changes	Root renumber, decimals not preserved
1	1	1	1	1
1a	2	2	2	2
2	3	3	3	3
2.1	3.1	4	3.1	4

Original Channel#	Plain Renumber	Plain renumber, decimals not preserved	Renumber based on root changes	Root renumber, decimals not preserved
2.2	3.2	5	3.2	5
3	4	6	4	6
4	5	7	5	7
4	6	8	5	7
4	7	9	5	7
N2	8	10	N1	N1
N2	9	11	N1	N1
7	10	12	6	8

Whichever kind of renumbering you choose, you can also choose what the first number will be and whether you want all of the items on the Worksheet renumbered, or just ones you've selected.

RENUMBERING VS. DRAGGED ROWS

If you've dragged the rows on the worksheet out of their sorted order (by clicking and dragging in the far left-hand column of the worksheet), renumbering will be done from the top of the worksheet down, in the physical order of the rows. Lightwright will not sort the worksheet before renumbering.

SKIP ROWS WHERE UNIT NUMBERS END IN .0

When you have attribute lists attached to lights, you may not want to renumber the first worksheet row (the light itself), where the unit number ends in .0 (a decimal point followed by a zero). This can be especially useful when assigning DMX numbers to moving lights. However, remember that other kinds of lights can also have decimal unit numbers ending in zero, so use this option carefully!

RENUMBERING WITHOUT USING THE RENUMBER COMMAND

When editing numeric worksheet cells, you can use Plus editing (adding a plus sign (+) or a minus sign (-) to the end of any number), which tells Lightwright to raise or lower that number once for each selected cell, thereby renumbering the cells instead of just editing them.

Example: Your worksheet looks like this:

Position	Unit#	Type	Purpose	Channel
No. 1 ELEC	1	S4-36	Ends L Near	(101)
No. 1 ELEC	2	S4-36	Ends L Far	(102)
No. 1 ELEC	3	S4-19	Downlight	(103)
No. 1 ELEC	4	S4-19	Special	(104)
No. 1 ELEC	5	S4-26	US Area	(105)

If you select the three cells containing 102,103, and 104 and enter 4+ into the worksheet's edit field, you will get these results:

Position	Unit#	Type	Purpose	Channel
No. 1 ELEC	1	S4-36	Ends L Near	(101)
No. 1 ELEC	2	S4-36	Ends L Far	(4)

Position	Unit#	Type	Purpose	Channel
No. 1 ELEC	3	S4-19	Downlight	(5)
No. 1 ELEC	4	S4-19	Special	(6)
No. 1 ELEC	5	S4-26	US Area	(105)

You can also add a number after the plus sign, which tells Lightwright to raise the number by that amount for each selected cell, thereby renumbering the cells instead of just editing them.

Example: Your worksheet looks like this:

Position	Unit#	Type	Purpose	Channel
No. 1 ELEC	1	S4-36	Ends L Near	(101)
No. 1 ELEC	2	S4-36	Ends L Far	(102)
No. 1 ELEC	3	S4-19	Downlight	(103)
No. 1 ELEC	4	S4-19	Special	(104)
No. 1 ELEC	5	S4-26	US Area	(105)

If you select the three cells containing 102,103, and 104 and enter 4+6 into the worksheet's edit field, you will get these results:

Position	Unit#	Type	Purpose	Channel
No. 1 ELEC	1	S4-36	Ends L Near	(101)
No. 1 ELEC	2	S4-36	Ends L Far	(4)
No. 1 ELEC	3	S4-19	Downlight	(10)
No. 1 ELEC	4	S4-19	Special	(16)
No. 1 ELEC	5	S4-26	US Area	(105)

SPECIAL CASE FOR ATTRIBUTE LISTS:

If the worksheet is sorted By Position and you select one cell that is derived from an attribute list, then each of the corresponding cells for every subsequent attribute of that light will automatically be given a new number, even though you only selected and edited one cell.

Example: You are viewing the No. 1 ELEC in order by Position. One of the lights is a moving light, made up of these rows:

Position	Unit#	Type	Channel
No. 1 ELEC	1.0	VL 2000 Fixture	(101)
No. 1 ELEC	1.1	VL 2000 Pan	(102)
No. 1 ELEC	1.2	VL 2000 Tilt	(103)
No. 1 ELEC	1.3	VL 2000 Gobo	(104)
No. 1 ELEC	1.4	VL 2000 Color	(105)
No. 1 ELEC	1.5	VL 2000 Speed	(106)

If you select just the one cell containing (102) and enter 1+ into the worksheet's edit field, you will get this:

Position	Unit#	Type	Channel
No. 1 ELEC	1.0	VL 2000 Fixture	(101)

Position	Unit#	Type	Channel
No. 1 ELEC	1.1	VL 2000 Pan	(1)
No. 1 ELEC	1.2	VL 2000 Tilt	(2)
No. 1 ELEC	1.3	VL 2000 Gobo	(3)
No. 1 ELEC	1.4	VL 2000 Color	(4)
No. 1 ELEC	1.5	VL 2000 Speed	(5)

SNAPSHOT

This option is pretty simple; all it does is take the contents of whatever cell(s) you have selected on the worksheet and makes them the default entries in the Adding Items window edit fields. You won't see anything happen unless the Adding Items window is open, but you'll hear a camera shutter click when you have cells selected and choose this option.

SHOW LIST

This menu item brings up the appropriate Choose List if a text cell is currently selected or if the current information in the Worksheet edit field is based on a text cell. It is the same as clicking on the toolbar's List button. If an accessory cell is selected, it opens the Accessories Editor. If a mark cell is selected, it opens the Marks Editor.

SHOW CLIPBOARD

If you want to see what's currently on your system's clipboard, choose this menu item. It will open a window onto the text clipboard. You can't change what's on the clipboard with this window, you can only view it. If you're not too confident about cutting, copying, and pasting, this window should help relieve your anxiety.

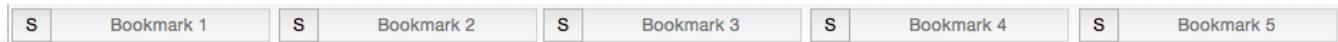
PREFERENCES...

Please note that in Macintosh OS X, the Preferences item is under the Lightwright menu. In Microsoft Windows®, it is at the bottom of the Edit menu. For a detailed explanation of Lightwright's Preferences options, please see the Preferences section earlier in this manual.

WORKSHEET

SHOW/HIDE BOOKMARKS BAR/BOOKMARKS

Bookmarks take you back to a specific place in either the worksheet or focus charts with a single mouse click. They restore the View, Sort, scroll position, and Limits. There are nine bookmarks. All can be chosen and set via the Worksheet/Bookmarks menu. The first five are also buttons on the worksheet when the bookmarks buttons are visible.



To toggle the visibility of bookmark buttons, choose Worksheet/Show Bookmarks Bar. All can be accessed using keyboard shortcuts:

Mac: Cmd+1 through Cmd+9 activate bookmarks 1-9
Cmd+Option+1 through Cmd+Option+9 set bookmarks 1-9

Win: Ctrl+1 through Ctrl+9 activate bookmarks 1-9
Ctrl+Alt+1 through Ctrl+Alt+9 set bookmarks 1-9

These keyboard shortcuts can be used even if the bookmark buttons are not visible.

To set a bookmark, click the "S" button to the left of one of the visible bookmark buttons. You can also set all bookmarks (including the ones above and beyond the 5 visible button bookmarks) by holding down the Ctrl key while pressing the appropriate function key (Use the Cmd key in Macintosh) or by going to Worksheet/Bookmarks and selecting one of the "Set Bookmarks" items.

To jump to a bookmarked location, either click the corresponding bookmark button on the worksheet toolbar (for the first 5 bookmarks) or hold down Ctrl (Cmd key on Mac) while pressing the number that corresponds to the bookmark. Alternatively, you can go to Worksheet/Bookmarks and select it there.

Bookmarks can be particularly useful during focus sessions. When you need to switch between electrics, click the appropriate bookmark or use its shortcut.

Note: Lightwright will NOT translate bookmarks when it opens show files made by previous versions, and bookmarks cannot be saved back into version 5, or older, show files.

VIEW

REPEAT VIEW

This command chooses the same category from the View menu that you chose last time, and opens whatever dialog is needed for you to choose what you want to see. For instance, if you're currently viewing a position, using Worksheet/Repeat View will open the Position choose list so you can choose a new position to view. If you're viewing one or more channels, Worksheet/Repeat asks you which channel(s) you want to view.

The keyboard shortcut is Cmd+Y (Ctrl+Y in Windows), so the keyboard shortcut for Edit/Toggle Status has been changed to Cmd+Option+Y (Ctrl+Alt+Y in Windows).

REFRESH

Refresh re-finds and re-sorts the current worksheet view, usually leaving the worksheet scrolled to the same place it was before you chose the command. If anything changed that would affect the sort order or which lights are included in the worksheet, Refresh will reflect those changes. It is much faster than wading through the View menu if all you want to do is see the same thing again.

BROWSE BACK/FORWARD

These buttons can step back and forward (Cmd+[) or forward (Cmd+]) through what you have been looking at on the worksheet and focus charts, similar to how a web browser works. You can also press [Esc] to browse back.

VIEW NEXT/LAST

These menu commands have the same function as the “Next” and “Last” buttons in the upper right-hand corner of the worksheet window (above the scroll bar). When you are viewing ALL, these move you quickly from place to place in the worksheet. Last moves the worksheet up to the previous break in the worksheet, and Next moves you to the next one

When you are viewing any single channel, dimmer, or circuit number (not a range of numbers or ALL), Next will re-search and re-sort your paperwork, showing you the next-higher channel, dimmer, or circuit number. Last does the same thing, showing you the next-lower number. Note, though, that these buttons will not work if you are viewing Non-Dims (dimmer numbers N1 thru N99).

When you are viewing a Position, Purpose, Instrument Type, Color, or Circuit name, then Next will re-search and re-sort your paperwork, showing you the *next* position, purpose, type, color, or circuit name on the list. Last takes you the other way.

VIEW ACTIVE COLUMN CATEGORY

This menu command is a shortcut you can use instead of the View pop-up menu.

To use it, select any cell on the worksheet in the category you want to view, then choose this menu command, or press its keyboard equivalent: Cmd+Shift+Y.

Examples: A channel cell is selected on the worksheet. Pressing Cmd+Shift+Y opens a window asking what channels you’d like to view on the worksheet.

A position cell is selected on the worksheet. Pressing Cmd+Shift+Y opens the Position Choose List so you can choose the position(s) you want to view.

TOGGLE ROW EXPANDING

This menu command is a shortcut you can use to expand or collapse worksheet Families instead of using the mouse to click the disclosure triangle in the top left corner of the worksheet when the Headers option is active. Choose this menu command or press its keyboard equivalent (Cmd+J) to expand or collapse all worksheet Families.

COLUMNS...

You can have a different arrangement of worksheet columns for each of the possible sort orders. To change the order of the columns, just drag the column headers left and right while the worksheet is sorted in the appropriate way.

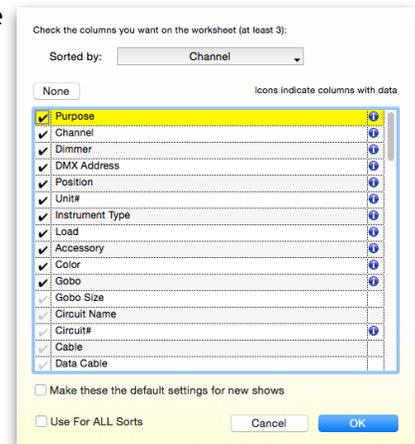
To add or remove columns from the worksheet, use this menu option or right-click on the Worksheet. The Columns dialog box will open.

Use the pull-down menu to pick the sort order you're interested in, and then check or un-check each category name.

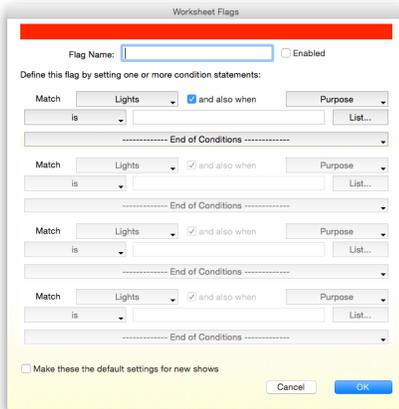
Worksheet columns and their order have no affect at all on printouts; use Layout to set those.

Once you select the columns you want to see on the Worksheet, you can choose to use these columns for all of your sorts operations by pressing the "Use For ALL Sorts" button.

Lightwright keeps track of who is using it, based on the name you use when logging onto your computer, and restores the worksheet column arrangement to however you had it set the last time you saved the show file.



FLAGS



You can set Flags to make rows on the worksheet stand out clearly whenever they meet conditions you set up. You can choose and edit each flag color separately. Flags have a name and can include more than one conditional statement.

You can set up to six different conditions which will make a colored square appear at the far right-hand edge of the worksheet next to each row that matches specific conditions.

When you choose a color from the list, the Worksheet Flags dialog box will open.

You can give the flag a name and assign it one or more conditions. The name you assign will now show up in the Flags menu next to the color.

In order to see the flags on the Worksheet, make sure that you check the "Enabled" button in the Worksheet Flags dialog box for each flag that you would like to be active.

You can also View flagged items. Choose "Flagged" from the worksheet's View menu. A window will open showing the available colors. To see what conditions a color means, move your mouse over the color sample and a description of the conditions will be displayed. Click on any one color and items that match the color's conditions will be displayed on the worksheet. If that color's condition isn't active, selecting the color will make the condition active. This window can also take you directly to the Flags & Colors window so you can edit or create new flags.

If an item on the worksheet matches more than one active flag's conditions, the flags will stack and form stripes.

Worksheet flags can be one of the columns in a Layout, and if you choose [Layout Options Drop Down Menu]/Options/Flags Extend Across Page, then the color will be carried all the way across the printed page, behind the entire row that it applies to.

HIGHLIGHTS

HIGHLIGHT MY CHANGES/OTHER PEOPLE'S CHANGES/VECTORWORKS CHANGES

Lightwright differentiates between changes made by you (the current user), changes made by Vectorworks (via Data Exchange), and those made by anyone else. Each kind of change is displayed in a different color on the worksheet. The default colors are dark green for you, brown for Vectorworks, and red for other people, but you can change using Preferences/Worksheet Colors.

You can reset your highlighted changes separately from those made by Vectorworks and other users and turn your changes on or off separately from others. See the "Reset Highlights & History" section for instructions on how to do that.

If you decide to have Lightwright highlight cells with changes in them, any cells that have had their information changed by any command will appear in red. Printouts can also show this status, in either red or by outlining the relevant areas on the printout. To turn this option on or off, choose Highlight/My Changes from the Worksheet menu.

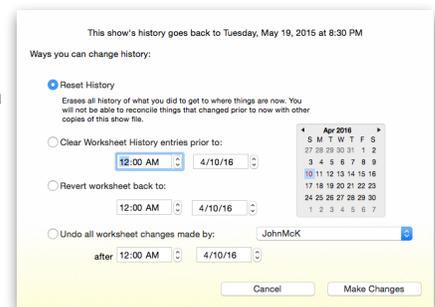
You can use the View menu to view just lights that have had changes made anywhere in them. (See the View Menu section for more information)

Cells will stay highlighted in color until you choose Worksheet/Reset Cell Highlights and History". You can reset your changes separately from Vectorwork's changes or those made by others.

RESET HIGHLIGHTS & HISTORY

Lightwright keeps a history of all worksheet changes. This allows you to view changes and deleted items. The "Reset History" option opens a window where you can choose to clear worksheet histories based on a certain date, or revert back to a previous (dated) version of the show file.

To see the history of changes in a highlighted cell, right-click on the cell and choose the History item. You can revert to an earlier change by selecting it off this History item.



SHOW COLOR SWATCHES

If color swatches are turned on in the Worksheet menu, and Lightwright can identify the text you've entered in the color field as a color it knows about, it will show you a swatch of it next to the number in the worksheet cell.



If more than one color is listed, Lightwright will stack the colors, showing the first and last ones:



If Lightwright does not recognize the color you enter, you can go to Maintenance/Color and assign a color swatch to it.

SHOW GOBO PICTURES

If gobo pictures are turned on and you have added gobo pictures to the maintenance list, they will appear on the worksheet.

Example:



3+			17	
3		GAM 611		18
3		GAM 611		18
3		GAM 611		18

FOCUS SKETCH SIZE

Allows you to change the size of the focus sketch when working in the Focus Charts tab. Bigger will be easier to see but smaller will allow you to view more Focus Chart items on your screen.

LOCK/UNLOCK ALL/SELECTED CELLS

Any number of worksheet cells can be protected so that changes can't be made in them until they've been unlocked. This can be very helpful on occasion: For example, you have moving lights number ML1 through ML6 interspersed with other lights on a pipe. If you lock the cells containing the unit numbers for the moving lights, then you can select the entire unit number column and renumber it without changing the moving light unit numbers.

To protect cells, select them and then choose Worksheet/Lock Selected Cells. You can also unlock cells with this menu as well as lock and unlock all of the worksheet rows in the show. When cells are locked, a small red dot appears in the lower right corner of the cell.

ATTACH TO ATTRIBUTES LIST

If you would like to add already existing Worksheet rows to an Attributes List, you can select this option. This could come in handy if the attributes already exist on the Worksheet such as when you are working on a file that was created in previous versions of Lightwright.

Select one or more cells in one or more worksheet rows and choose this option. If the instrument type has an attributes list and the unit# has decimal suffix, the worksheet row will be attached to the attributes list.

DETACH FROM ATTRIBUTES LIST

This will allow you to detach an attribute(s) from its associated light.

Select one or more cells in more or more worksheet rows, choose this option. Any rows linked to an attributes list will be disconnected from the list.

If a light has attributes, changing the instrument type directly on the Worksheet will also detach the light from the attribute rows that were attached to it.

UTILITIES

WORK NOTES

This command opens the Work Note window. You can also open the Work Notes window by clicking on the Work Notes icon in the Worksheet toolbar. Work Notes can be attached to a specific light, associated with a particular bit of information in a column, or just some useful text not linked to anything in particular. For detailed information about Work Notes, there is a full section later on in this manual.

ADD WORK NOTE

To add a new work note, either click on the New button in the Work Note window, use Utilities/Add Work Note while working in the Worksheet, or click a blank Work Status column on the worksheet. Any of these methods will open the Work Note form, where you can add a new work note

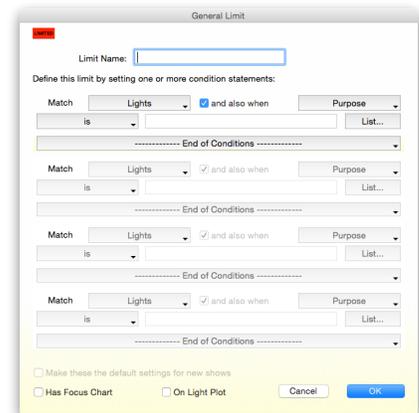
Work Notes can be attached to a specific light, associated with a particular bit of information in a column, or just some useful text not linked to anything in particular. For detailed information about Work Notes, there is a full section later on in this manual.

LIMITS

Limits are filters that limit what you can see on the worksheet and what is counted, printed, or exported. General limits apply to any show, while Show limits are stored in each show file. There are ten of each kind available, but you can only have one of them in effect at a time.

To set up or use a limit, select Utilities/Limits from the menu bar and select one of the limits, either General or in the show file.

The limits window lets you create a filter based on the contents of a particular column. You can also select lights that have a focus chart or that are already on the light plot by clicking on those boxes. Make sure to enter a name for this particular limit in the field "Label on Limits Menu" so that you can activate the limit again at a later time.



The Limit Name is the name that will appear on the Setup/Limits menu.

If a limit is in effect, the worksheet will show a message in the bottom right-hand edge of the worksheet saying "LIMITED". To turn off the limit, you can either click on the "LIMITED" sign or select Utilities/Limits/None from the menu bar. A similar message will appear on other windows to remind you whenever a Limit is in effect.

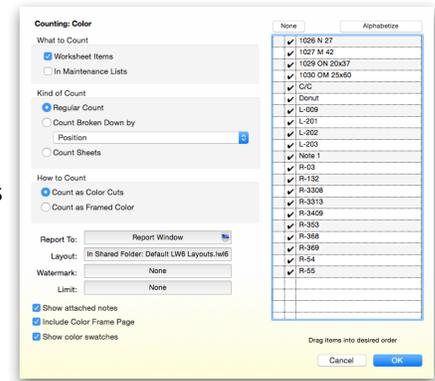
Limits can be very useful on the worksheet to help keep you from drowning in a sea of information. For example, if you want to assign channels to lights but don't want to see accessories or the electricians' spare circuits, set a limit that displays only Lights. Or if you are working with multiple control systems, set a limit that only lets you see lights in one particular system.

To print paperwork from only one control system, set a limit that looks in the System column.

To export only certain kinds of lights, set a limit before you choose File/Export. If you use a limit while exporting and then choose to record an Automated Action, the limit will be included in the Automated Action, and whenever the Automated Action is run, the related Limit will be set to whatever it was when the Automated Action was saved.

COUNTING

This is the place to go for complete reports that count how many Instrument Types, Colors, Gobos, etc. are in the current show file. Each category has a slightly different dialog window, but all are similar to this one for counting color. Use the check marks to select items to be included in the count. Lightwright assumes you want to count everything, unless you indicate otherwise. (For example, Lightwright will include your indication for “no color” in the count, unless you uncheck it.)



If you choose to count by position, Lightwright will ask you to check those positions to be included, otherwise this column will not be visible.

You can change the order of the items to be counted by dragging them up or down the list, and you can alphabetize the list by clicking the Alphabetize button. The order of the positions is the same as it is in Maintenance and cannot be modified here.

Notes attached to colors, instrument types, etc. can be printed alongside the count results.

At the bottom of the window is the name of the current layout, shown as the selected item on a pull-down menu. If you'd rather use a different layout, just choose it from the Layout pull-down menu within either the Show File or the Shared Folder.

Use the pull-down Limits menu if you want to limit counting in some way.

Use the pull-down Watermarks menu to put a watermark on the kind of paperwork

There are 4 available Report Formats which can be chosen from the pull-down menu: Window, Printer, Clipboard, or File:

Window	This format puts the results into a Report window onscreen where you can cut/copy/paste.
Printer	This format prints the results, as determined by the current Layout. There is usually an accompanying pop-up Layout menu you can use to pick the Layout instead of having to use File/Open Layout.
Clipboard	This sends the results in tab-delimited format to the system clipboard so you can paste them into Excel or other applications. The clipboard is limited to 32k, so you may or may not get everything counted. This is rarely a problem, but Lightwright will let you know if it becomes one.
File	This puts the results in tab-delimited format in a disk file that can be read by other programs that can read text files.

Note: Gobos and colors in Wheels are counted based on how each row in the wheel's “Count?” column is checked.

When counting, the regular and stock qty counts **will** include family header rows. The count broken down by all other categories **does not**.

COUNTING CURRENT WORKSHEET

Worksheet Count counts items used anywhere in the worksheet. There is a choice of counting by any of the visible columns currently on the worksheet. It can send the results to screen, printer, clipboard, or file.

When counting the Current Worksheet, there are no options to count broken down by position or using the list separator.

COUNTING INSTRUMENT TYPES

There are three radio-button options when you're counting Instrument Types:



The screenshot shows a dialog box with three radio buttons: 'Regular Count' (selected), 'Count Broken Down by', and 'Count Stock Qty vs. Qty in Use'. Below the 'Count Broken Down by' radio button is a dropdown menu with 'Position' selected.

Regular Count	This counts instrument types, in the order set in Maintenance/Instrument Type.
Count Broken Down by...	This counts everything, and gives you totals broken down by the category selected in the dropdown menu. When counting by position, you can choose which positions you want counted.
Count Stock Qty vs. Qty In Use	This will compare the number of instrument types being used with the number currently in the show. Stock quantities need to be entered in the Instrument Types Maintenance window before using this option.

If inventory information has been entered in the Maintenance/Instrument Type window, Lightwright can provide a lens barrels vs. bodies count by using Lightwright's new Family feature in the Instrument Type maintenance list, entering the total number of bodies as the Stock Qty in the family header row.

You can limit instrument counting to one or more particular device types (such as counting only instrument types or only accessories) by creating an appropriate Limit.

Note that there is an option to include any notes that you entered for any/all instrument types in the Instrument Type Maintenance.

COUNTING ACCESSORY

When counting by Accessory, the Kind of Count options are similar as the ones for counting by instrument type, but the order in which they are counted is determined by the order they are listed in Maintenance/Accessory.

If you decide to include a list of accessories in a footnote, be sure to put the Accessories Separator phrase in between each of the accessories. Otherwise, counting will not be able to count them separately.

Note that there is an option to include any notes that you entered for any/all accessories in the Accessory Maintenance.

COUNTING COLOR

The options when counting color are:

<p>Regular Count</p>	<p>This counts everything, in order by color and then by color frame and/or instrument type. It will not separate colors combined in a single frame, but it will separate color change colors. Every color on the list will be marked with a check-mark to show that you want it counted. If there's one you don't want to count, just click on the mark to un-mark it.</p> <p>If you use footnotes in colors, be sure your check-marks on the footnotes page accurately reflect the way you want color broken down for counting.</p> <p>Color swatches can be printed next to each color when color counts are printed.</p> <p>If you have a worksheet row with a color but no instrument type, a warning about the missing information will be included in the count results.</p>
<p>Count Broken Down by...</p>	<p>This counts everything, and gives you totals broken down by the category selected in the dropdown menu.</p>
<p>Count Sheets</p>	<p>This has Lightwright count everything, then figure out how many sheets of each color you will need. The color maintenance list can include a custom sheet size for every color. These sizes will be used to calculate the number of color frames that fit on a sheet of color. If it can't find either color frame dimensions or the number of frames per sheet, it will ask you and then save your answers for future reference. If you're asked how many frames per circuit in a particular unit and that unit doesn't use color (perhaps it's a chase controller), click on the button that says "Don't count this instrument type."</p>

When counting sheets of color, Lightwright will calculate using:

- The custom sheet size if one is defined, otherwise it will use the default sheet size.
- The dimensions of the color frame assigned to the instrument type if they are available, otherwise it will use the "frames per sheet" entry of the color frame type.

The default sheet size entry fields are located in both the Color list and in the Color Frame list. Changing this default in one list will automatically change it in the other one.

TIP: An easy way to set custom sheet size for an entire brand of color is to enter the dimensions in the brand's Family header row.

Lightwright makes a list of colors, using whatever separator character you have entered in the Setup/Vocabulary window to break down multiple colors into single ones. Scrolls are never broken down into their constituent colors when counting. Colors included in scrolls are not included when counting sheets of color. However, the scroll indicator (i.e. "Scroll 1") can be counted to give you a total number of each scroll on the worksheet.

Colors in wheels can be counted, if you check the "Count?" Box on the wheel set up page.

Once Lightwright has all the frame size information it needs, it'll compile a list of *all the* colors being used. It will separate colors combined in a single frame, and it'll separate color change colors. Every color on the list will be marked with a bullet check mark to show that you want it counted. If there are colors you do not want counted, click on the bullet or arrow to select or de-select that color. You can also click on the "->" in the header above the list to select or de-select every color on the list at once.

In addition to the Kind of Count that Lightwright will perform, you can also tell it how you would like the information to be displayed in terms of color cuts or frames:

Count as Color Cuts	This looks at cells and breaks them down into individual colors using both the "list separator" and "combining in a single frame" entries. This option presents the results as color frames.
Count as Framed Color	This looks at cells and breaks them down into individual colors using only the "list separator" entry. This option presents the results as color frames. When counting framed color, the count includes how many of each size of color frame are needed.

If you use footnotes in colors, be sure your check-marks on the footnotes page accurately reflect the way you want sheets of color counted.

Please note that when Lightwright counts sheets of color, it will always say you need at least ONE sheet of each color. This is to avoid rounding errors involved in calculating extremely small frame sizes. Also note that there is an option to include any notes that you entered for any/all instrument types in the Instrument Type Maintenance.

COUNTING GOBOS

When counting by Gobo, the Kind of Count options are similar as the ones for counting by instrument type and Accessory, but the order in which they are counted is determined by the order they are listed in Maintenance/Gobo.

You can choose whether you want a picture of each gobo next to its name or number in the report.

Lightwright also differentiates between those gobos assigned to lights in the worksheet and those used in wheels.

COUNTING OTHER CATEGORIES

The contents of any user-definable column that has been defined as Text can be counted. Use one of the list separator characters to have them counted separately.

When counting Circuit Names, Lightwright can count cable and breakout entries from the Maintenance/Circuit Name window in addition to the "Other" columns tab. These are the options that are available when counting text categories:



Regular Count	This counts the items in the order set in Maintenance for the category.
Count Broken Down by...	This counts everything, and gives you totals broken down by the selected category. When breaking down by Hanging Position, you can choose which positions you want counted.
Count Stock Qty vs. Qty in Use	This will compare the quantity entered in the corresponding Maintenance List for the category that you are counting with the quantity being used currently in the show. Stock quantities need to be entered in the appropriate Maintenance List window before using this option.
Count Normally	This style of counting provides you with a simple count of the category.
Count broken down by list separator	<p>This consults the character set under Setup/Vocabulary as the "Separate lists to count items individually" character, and breaks up the text within each cell into separate items whenever the separator character is used.</p> <p>This can be useful if you are using a text column for things like twofers, adapters, or cable runs. Simply enter the items for each light, and if there are multiple entries for a single light, put the "Separate lists to count items individually" character in between each one.</p> <p>Example: You are entering jumpers, twofers, and cable runs into a text cell. With a comma designated as the character to separate items so they are counted separately, you might see these entries in the worksheet:</p> <p>10' Jumper, Twofer, 100' Multicable 5' Jumper, 10' Jumper, Female Breakout</p> <p>"Count normally" will give you a total of one "10' Jumper, Twofer, 100' Multicable" and one "5' Jumper, 10' Jumper, Female Breakout".</p> <p>Choosing the "Count broken down by list separator" option, Lightwright will count a total of two 10' jumpers, one 5' jumper, one twofer, a 100' multicable, and a female breakout.</p>

LIVE COUNT

This opens a floating window with continually updated running totals of all instrument types and accessories. The counts here will include changes made by Vectorworks Data Exchange.

LABELS

Choosing Utilities/Labels or clicking the Label icon in the worksheet window's toolbar opens the Labels window, where you can choose, design, and print labels. For detailed information about creating and using labels, please refer to the Labels section later in this manual.

ERROR CHECKING...

One feature that distinguishes Lightwright from most database programs is its error checking abilities. Some error checks are done automatically whenever you work on the Worksheet, and others are available by using this menu option.

These are the error checks that you can do using the Utilities/Error Checking menu:

Missing Information	Other
Color frame details	Irregular unit #s
Focus Chart entries	Blank footnotes being used
General Control Setup entries	Empty scrolls being used
Gobo sizes	Empty wheels being used
Default symbols	Dimmer numbers outside ranges
Label legends	Overloaded dimmers
Information in specific worksheet columns	Bad or empty dimmer being used
Focus Cuts	Overlapping DMX Assignments
Vectorworks UID	Dimmers in more than one channel
Instrument symbols	Dimmers without phases
	Positions with multiple phases
	Overloaded circuits
	Circuits in more than one dimmer
	Channels with more than one purpose
	Channels with more than one color
	Similar entries

All of these error checks look through your entire paperwork for errors - they do not confine themselves to any one dimmer or hanging position.

The results of the Error checks can be sent to a report window, printed out, sent to the clipboard, or into a disk file. Usually, you will want them sent to the report window, although if you suspect many errors you might want them printed so that you can refer to them later.

Please note that Lightwright reports what appear to be errors. It may well be that what appears to be an error is simply an unusual situation or something you've done on purpose. Use these error checks only as a guide, not as a guarantee.

The "Missing Information" error checks simply look for items on your paperwork that are missing entries for these categories.

The other error checks are more sophisticated and will take multiple dimming systems into account:

Item	Description								
Irregular Unit Numbers	Checks every hanging position for consistent numbering, including consistent striplight numbering.								
Blank Footnotes Being Used	Scans your show for places where you've used a footnote (such as "Note 2" but haven't entered a note for it.								
Empty Scrolls/Wheels Being Used	Scans your show for places where you've referred to a Scroll or Wheel that has not been created								
Addresses Outside of Universes	Finds DMX addresses that are not within universes defined in Setup/Dimming & Control/Universes								
Addresses In More Than One Channel	Finds DMX addresses that are assigned to more than one channel.								
Overlapping DMX Assignments	<p>Looks for instrument types with DMX Quantities assigned to them and checks to see where dimmer addresses that are implied by the DMX Quantity overlap with worksheet rows assigned to those addresses.</p> <p><i>Example:</i> A Mac 700 has a DMX quantity of 26. If you have one instance of a Mac 700 on the worksheet, and it's dimmer number is 40 and another light has dimmer number 45, then an error will be reported because the Mac 700 will likely be using addresses 40-65, which conflicts with the single light using dimmer 45. to see where dimmer addresses that are implied by the DMX Quantity overlap with worksheet rows assigned to those addresses.</p>								
Dimmer Numbers Outside Ranges	If you've accidentally given a unit a non-existing dimmer number, this check will find it, assuming you've entered your dimmer numbers and capacities.								
Dimmers Without Phases	Looks for dimmer that do not have phases assigned to them. This check will not look at dimmers that are Peripherals or LED Addresses								
Positions With Multiple Phases	In some countries, there are (or have been until recently) safety restrictions that prohibit having dimmers in separate phases within arm's reach of each other.								
Overloaded Circuits	<p>This check looks for circuits with a larger load than the rating entered under Dimming & Control/General. In Lightwright terms, a Circuit consists of either a non-blank Circuit number cell and an empty Circuit Name cell, or non-blank Circuit Name cell and a non-blank Circuit number cell.</p> <p>For example, these are each considered separate circuits:</p> <table> <thead> <tr> <th><u>Ckt Name</u></th> <th><u>Cir#</u></th> </tr> </thead> <tbody> <tr> <td>Mult A</td> <td>1</td> </tr> <tr> <td>Mult B</td> <td>1</td> </tr> <tr> <td></td> <td>101</td> </tr> </tbody> </table>	<u>Ckt Name</u>	<u>Cir#</u>	Mult A	1	Mult B	1		101
<u>Ckt Name</u>	<u>Cir#</u>								
Mult A	1								
Mult B	1								
	101								

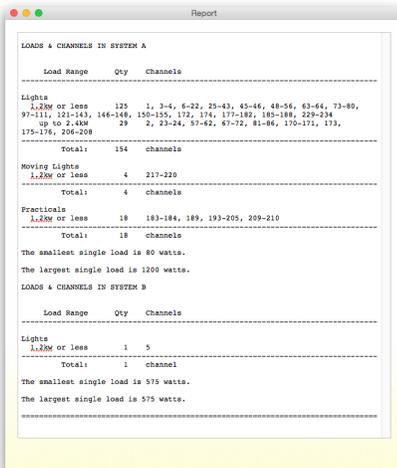
Item	Description
Circuits In More Than One Dimmer	Looks for circuits that have more than one dimmer assigned to them. It uses the same criteria to determine what constitutes a circuit as the "overloaded circuits" error check.
Channels With More Than One Purpose	Looks for channels that have more than one purpose in them.
Channels With More than One Color	Looks for channels that have more than one color in them.
Similar Entries	If you've inadvertently used different punctuation or spacing when entering names, this option will look for them. For instance, it is easy to use "R-80", "R 80", and "R80" when you really meant for them all to be the same. This option helps find this kind of error. This option will also look for instances where one name is a mirror image of the other, such as "SL Boom" and "Boom SL", and for entries that contain other entries such as "Boom 1" and "Boom 1-L".

THESE ERROR CHECKS ARE DONE AUTOMATICALLY WHENEVER YOU USE THE WORKSHEET:

- If you enter dimmer ranges and their capacities and include a correct load for each instrument as you add it to your plot, each time you view an individual dimmer on the worksheet it'll be checked for overloading.
- If you mark any of your dimmers as bad, you'll be warned you whenever you view that dimmer.
- Hanging positions are always checked for consistent numbering whenever they're viewed.
 - A reminder: What appears to be inconsistent numbering may only be an odd situation and completely intentional.
- If you use circuit numbers, they are checked for overloading whenever you view any individual circuit.

Worksheet error-check warnings appear on the bottom edge of the worksheet, to the right of the Worksheet and Layout tabs.

LOADS & CHANNELS REPORT



This report shows you a range of dimmers with a count of how many channels have that size load on them and a list of those channels. If dimmers have already been assigned, this option does not take that into account. It is primarily used as a guide to what size dimmers would be most useful.

Using this table, you can see fairly quickly what dimmer capacities might be ideal. If more than one device type (lights, moving lights, devices, accessories, etc.) is being used, then this table will be broken down by device type as well as load range.

This report is always sent to the Report Window, and will work within any Limit that may be active.

REPORTS...

This section of Lightwright gives you all kinds of information about your channels, dimmers, and circuits. Many of these reports are primarily of interest to electricians, but designers may also want to use them on occasion.

Printed reports (including counting, error checking, and tech reports) have a standard Report Paperwork format. The overall arrangement of the reports cannot be changed, but the fonts, type sizes, margins, and other layout options can be changed in Layout. Use Layout/Options to set these choices.

Lightwright can send report results to a window on the screen, a printer, the system clipboard, or a disk file. Here are a few things to note:

Report data sent to the Report Window will be in a standard list format. You can select one or more entire rows and copy and paste them into other programs. The copied data will be in UTF-8 format.

Report data put on the system clipboard will also be in UTF-8 format.

Report data saved into disk files will be in either Windows ANSI format (Windows) or MacRoman (Mac) format.

If multiple dimming systems are being used, the reports will also be broken down by system whenever it's appropriate, and if any limit is currently in effect, the reports will work within the limit. Any reports that calculate or show loads will show the results in either amps or watts, depending on what the relevant dimmer range or instrument type uses.

REPORTS AVAILABLE

Spare Channels	Lists all the channels without anything assigned to them.
Spare Addresses	Counts how many addresses are unassigned in each universe and their numbers.
Spare Dimmers	Simply reports which dimmers and aren't being used.
Multicable Circuits not on Worksheet	This report shows multicable circuits that are not on the worksheet. In cases where at least one of the multi's circuits is on the worksheet, it will also show you the name of the position where the circuit name is used. If the circuit name serves more than one position, the most common position is shown, appended with "...".
Cable and Breakouts for each multicable	Lists the cable and breakouts for each Circuit Name that has a Mult Qty and has cable and/or breakout entries.
Count of channels in each position	Counts the number of channels assigned to worksheet rows in each position.
Channels in each position	Provides a list, broken down by hanging position, of which channels are used in each position.
Addresses in each position	Shows how many addresses are used in each position and their numbers.

Dimmers Used in Each Position	Provides a list, broken down by hanging position, of which dimmers have been used in every position. Non-dims are not included.
Positions in each channel	Provides a list, broken down by channel, of which positions are being used in each channel.
Positions in each dimmer	Makes a list, broken down by dimmer, of which positions have been used in each dimmer. Non-dims are not shown.
Circuit Names in each position	Provides a list, broken down by position, of which Circuit Names are being used in each position.
Power Service & Rack Loads	Gives you the total load in amps for each service rack, including phase loads for each. Whatever voltage you have entered in Setup/Dimming System will be used to calculate the load. If dimmer phases have been entered, then both the overall total load and the load on each phase will be calculated for each dimmer range if a voltage has also been entered.
Current and maximum loads on each dimmer	Shows the load on each dimmer along with the maximum capacity and the remaining capacity.
Power load in each position	Provides a list, broken down by position, of the total load of each position, even if there are no dimmers set up.
Weight of lights and accessories in each Position	Provides a list, broken down by position, of the total weight of the lights and accessories used in each position.
Minimum quantity of circuits needed in each Position	This report will look at each hanging position and will, based on the dimmer numbers you've assigned to the items there, figure out the minimum number of circuits you'll need in each. It will gang items together until it reaches the limit of your and it will tell you how many twofer's it used. This option can be used to figure out how many cables will be needed for each hanging position in a show, but it's usually wise to add one or more extra cables as spares beyond what this report shows.
Minimum qty of circuits needed for each dimmer	This report will go through every dimmer and hanging position, essentially figuring out circuitry just as it did in the previous report, but instead of reporting the results by position, it will tell you how many circuits there are for each dimmer. This is very useful for determining twofer requirements at the dimmer racks, or for checking to see if there are enough holes in a patch panel.

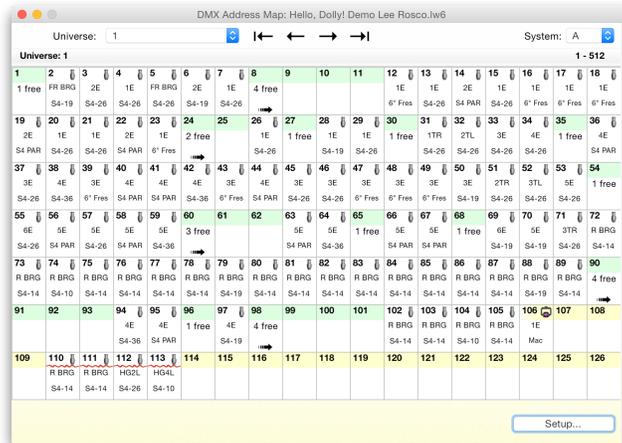
CONSOLE LINK UTILITIES

Please refer to the Console Link chapter of this manual for information about the following commands:

- View Active Channels in Worksheet
- Send Short Purposes to Console as Channel Labels
- Compare Console Patch vs Lightwright
- Get All Cue Lists & Cues From Console
- Get Only Cue Lists From Console
- New Cue List
- Open Existing Cue List
- Delete Cue List
- Group List
- Create Console Group From Selected Worksheet Rows

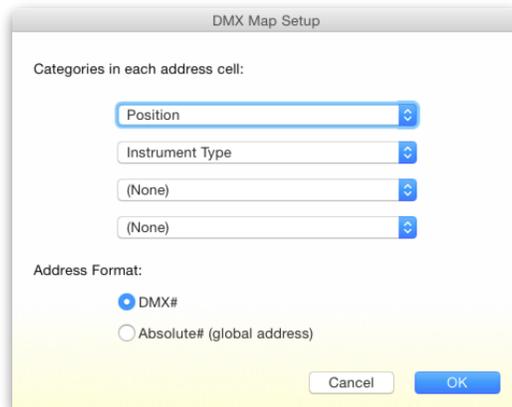
DMX ADDRESS MAP

The DMX Address Map shows occupied and free addresses universe-by-universe. The starting address for each light is shown with its device type icon, and yellow shading shows the DMX footprint for multi-address lights. Green shading indicates empty addresses, and red squiggly lines indicate where footprints overlap.



Click the arrows to move through the universes, or use keyboard shortcuts Cmd+[and Cmd-], or choose a specific universe from the pop-up Universe menu.

Click the Setup button to choose options:



You can choose up to four categories of information to show in each cell in addition to the DMX number (which can be shown in either local or absolute format).

POPULATE SPARE MULTI CIRCUITS

This command adds worksheet rows for any Multicables that don't have all of their circuit numbers assigned to at least one worksheet row, based on the Mult Qty entered in Maintenance/Circuit Name. It adds one worksheet row for each unused circuit. The default for the Purpose on new rows is "Spare Circuit," but it can be changed at any time. You can also choose a color for the new rows.

REARRANGE HOOKUP...

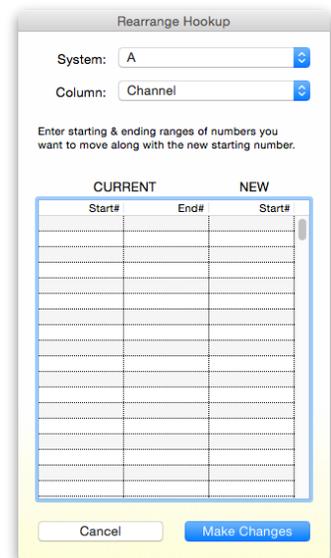
What this option does is renumber or move entire ranges of dimmers, channels, or other number columns. It lets you rearrange your hookup in a wholesale way, without taking hours to edit individual items. If you've nearly completed your paperwork and decide to insert a few dimmers into the middle of your hookup, use this option to open up one or more gaps to make way for the new equipment.

When you choose this option, you'll see this dialog box 

First, select the appropriate system and the column you want to modify.

In the "Current" columns, enter the starting and ending numbers as they are now. If you want to move just one number, put it in both the current start# and current end# columns.

In the "New" column, enter the new starting number. Lightwright will calculate the ending number automatically. You don't need to enter any numbers you aren't changing.



CURRENT		NEW
Start#	End#	Start#

When you're entering single dimmers, be sure to include any repatches. Repatches are considered separate dimmers in this section.

Example: Dimmer 5 is completely separate from Dimmer 5A and can be renumbered independently of it.

Caution: Rearrange Hookup is extremely powerful!

Before proceeding with the changes this option will make, be absolutely sure that you have mapped out your changes very carefully. It is all too easy to rearrange dimmers into already-existing dimmers which aren't themselves being moved out of the way, making so much instant muck out of your entire hookup. It's probably a good idea to save your show before you make these changes, in case you accidentally make a mistake.

AUTO DIMMER ASSIGNING

This utility can automatically assign dimmers to all items having channels. It's particularly useful for designers to see how many dimmers their show actually needs; they can always erase the dimmer numbers before passing the hookup on to their electrician. Electricians, on the other hand, may find it good enough to use for actual dimmer numbers. It can also be used to have Lightwright assign addresses to lights.

If you haven't entered channel numbers, this option will not be available.

WHAT TO ASSIGN TO WHAT

You can choose to any of the various dimmer types (dimmer, non-dim, peripheral, etc.) to any kind of device type (lights, moving lights, devices, etc.) in any one dimming system.

ASSIGNING METHOD

Lightwright can either assign as many dimmers as it takes to accommodate the entire show, or it can work within any pre-existing dimmer ranges.

If you ask it to add ranges, it will erase all existing dimmer ranges and dimmer assignments before it begins work.

If you ask it to work within existing ranges, you can fill in the "Spares per rack" field for the number of spare dimmers you want Lightwright to leave in each rack when it does the assigning. This is NOT a report showing how many spare dimmers you have, it is the number of extra dimmers to leave blank.

When working within existing ranges, Lightwright will preserve any existing dimmer assignments, so if you want Lightwright to assign fresh dimmer numbers to everything but stay within your present dimmer ranges, check the "Erase existing dimmer assignments" option. Otherwise, Lightwright will work around any existing assignments. By selecting "Assign DMX addresses based on dimmer range addresses," Lightwright assign addresses to lights whenever it assigns a dimmer number that has address linking turned on for its dimmer rack.

Assigning Fluorescent dimmers automatically uses two dimmer slots for each dimmer needed, as most fluorescent dimmers occupy two slots in the dimmer rack.

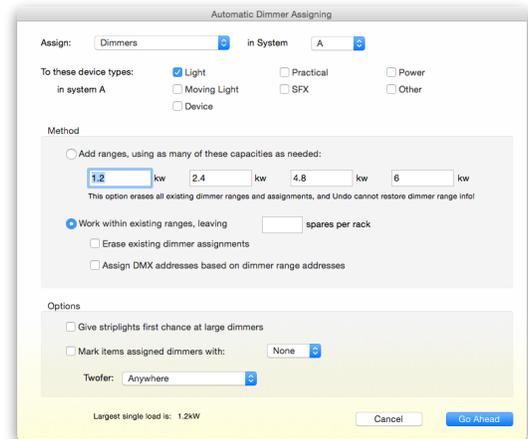
If dimmers in any rack are of more than one capacity, then the option to Work Within Existing Ranges will not be available. All of the dimmers within a rack must be the same capacity in order to use Automatic Dimmer Assigning.

GIVE STRIPLIGHTS FIRST CHANCE AT LARGE DIMMERS

You can also choose to give striplights first chance at large dimmers, in an effort to keep strips together in single dimmers, which is better for things like cycs where differences between individual dimmers could make for uneven intensities.

MARK ITEMS ASSIGNED...

Sometimes it can be useful to know which units Lightwright assigned dimmers to. Put a valid mark character into this field and any unit assigned a dimmer will be marked with that mark.



TWOERING

Use the Twofer pop-up menu to say how you want your equipment twofered. These options can drastically affect the number of dimmers needed for a given show, and should be chosen with care. The menu options are:

Anywhere	Lights will be put into whatever dimmer is best without regard to what position they're in; this will often result in lights in different hanging positions being in the same dimmer (if they're in the same channel). It can be awkward if the dimmer racks aren't all located in one central place.
By Positions	If two lights in the same channel are in two different positions, they will be put into separate dimmers. There will be no twofering across positions. This can waste dimmers, but it solves the problem of dimmer racks in several different locations.
By Groups of Positions	You'll be given a chance to put positions into groups lettered from A to T. Lights in a given channel within the same group will be put into the same dimmer, but other lights in that same channel in a different group will be go into different dimmers.
By Circuit Name	This works the same as "By positions," except that different Circuit Names will cause lights to be put into separate dimmers. There will be no twofering between items with different Circuit Names.
By Groups of Circuit Names	This is the same as "By groups of positions," except that you put Circuit Names into groups instead of positions.

HOW AUTOMATIC DIMMER ASSIGNING WORKS

First, Lightwright separates your equipment into the groups of positions or circuits you made, if any.

It sorts through those groups, looking for high-load lamps which have to be in a particular dimmer size and gives those lights priority.

Next, it moves through each group one unit at a time. It finds out what other items in that same group share its channel, and looks for a free dimmer which can hold all of them. If it finds a big enough dimmer, it assigns all of those items to it. If it can't find a big enough dimmer, it finds one for the first light and then puts as many of the other lights in that channel in the same dimmer. In either case, it then moves on to the next light and repeats the process until it's done.

While it's doing this, it will skip over however many spare dimmers you've asked it to leave in each rack.

The result is a dimmer hookup basically sequential through the hanging positions (or circuit names), with the dimmer numbers occasionally jumping into higher- or lower-capacity dimmer ranges to accommodate large loads.

If Lightwright can't find a dimmer for one or more lights, it will give you a message to that effect once it finishes.

Please remember that a mechanical process like this cannot do all the work for you; there will necessarily be things you would do differently. This option can, however, tell you whether or not you have enough dimmers for your show, and can suggest a logical way of plugging. Just be careful to understand the various options and how they can dramatically affect how many dimmers are needed.

MAINTENANCE

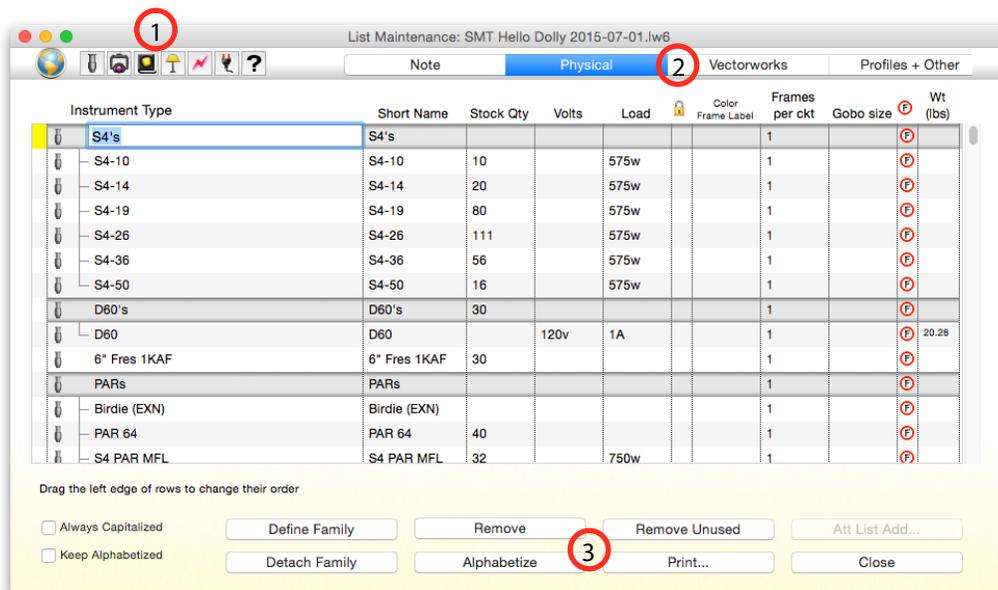
GENERAL

Lightwright automatically keeps lists of all the text phrases you're using in each category of your paperwork. Whenever you type something new into a Worksheet cell, that text is added to the appropriate list if it's not already there.

The Maintenance Menu lets you organize these lists of data by adding new phrases, removing unused ones, and putting the lists into order so that Lightwright can show you, both on the screen and in the printed paperwork, the information in the order that you desire. The List Maintenance window can be left open for reference while working. If you want to look at a different list, choose it from the Maintenance Menu and the window will show the new list.

All sorting and printing is based on the order of these lists, including the order of positions for Instrument Schedules. When you ask Lightwright to alphabetize a list, it now a smart sorting method that puts most text containing numbers into correct numeric sequence.

A typical List Maintenance window is this one for Instrument Types:



Each text phrase is listed here on a separate row, You can also group items in a maintenance list into "Families" of related items. Maintenance Families allow you to organize long maintenance lists, group items together for counting purposes (barrels vs bodies, for example), include information on the Worksheet about the family as a whole, and many other benefits.

The tabs across the top right let you view additional data related to the list.

To edit, click on the item you want to change and make whatever changes or additions you want, then press [Return] or [Tab], and the list will be updated. The change will be global throughout your entire show. To add a new entry, scroll to the bottom of the list to an empty row.

Lightwright generally ignores case, except in Maintenance lists. If you enter "R-33" as a color in the worksheet, then "R-33" will appear in Maintenance. If you later enter "r-33" on the worksheet, then the Maintenance list will change to "r-33", and all entries on the worksheet using "R-33" will be changed to "r-33". Similarly, changing an entry in Maintenance will change all instances of that phrase on the worksheet.

If you edit a name in a Maintenance list to match another name that is already on the list, Lightwright can combine the two entries into one. For instance, if you have entries "S4-19" and "Source Four-19" in Maintenance, and you then edit "Source Four -19" to be "S4-19," LW5 will ask you if you want to combine the rows into a single entry. If so, then it will change all of the related worksheet cells as needed.

You can drag the phrases into any order you want by dragging the far left column up and down the list. You can also drag groups of phrases by [Shift]- or [Cmd]- clicking (Ctrl-click in Windows) on the phrases and then dragging any one of them to the final location of all of them. If you change the order of the list, when you click back on the worksheet, Lightwright will take time to re-index the show's sorts and sort the worksheet to match any changes you made in the maintenance order.

Whenever you add a new text item (via the worksheet or directly into the Maintenance window) that contains the list separator character (such as a comma), Lightwright also adds a Maintenance row for each individual item in the list. These rows cannot be removed if their content is part of any other maintenance row.

1 DEVICE TYPE BUTTONS

Instrument types can be categorized with a "Device Type": Light, Moving Light, Device, Practical, SFX, Power, or Other. To the left of each instrument type is a small symbol showing what kind of device it is. Click on the symbol and a menu listing the various kinds of devices will pop-up so you can choose the appropriate kind of device.

Click one of the device type buttons in the upper right-hand section of the window to quickly scroll the list to the chosen device type.

	Light	Most standard lights: usually the part that puts out the light
	Moving Light	An automated fixture that wiggles and does tricks
	Device	Something that needs a control channel: often a scroller, or gobo rotator, or automated yoke.
	Practical	Table lamps, chandeliers, sconces, etc.
	SFX	Special effects that are controlled through the light board such as projectors, smoke, etc..
	Power	Hot lines for scrollers, fog machines, or whatever. Also can be spare circuits.
	Other	Who knows what's next?

When Lightwright sorts by instrument type, sorting will always be done by device type first, then by instrument types within each type of device.

If you are viewing a category other than Instrument Type, the device type column will be empty.

② MAINTENANCE TABS

Maintenance Tabs serve as a repository for various bits of information about the items on the chosen Maintenance List. Depending on which Maintenance List you are looking at, only the columns that are relevant to that Maintenance List will be active and they will be populated by columns that relate specifically to that Maintenance List. There is an explanation later in this chapter of Maintenance List columns that have specific information, but for now here is a short summary of each of these tabs:

NOTE

Every text category entry, including hanging position, circuit name, and others, can have a short note attached to it (60 characters maximum). These notes are printed on relevant printouts and reports.

The notes are often something such as the trim of an electric or mounting instructions for a specific piece of equipment.

Maintenance Lists show "SEE NOTE" to the right of a name that has a note attached when the note tab is not the active tab..

PHYSICAL

This tab includes physical details such as the stock quantity, weight, and load.

VECTORWORKS

When using Vectorworks Data Exchange to transfer information back and forth from the light plot that is associated with the show file, this tab will be active for certain categories. It allows you to see and edit directly from Lightwright some select bits of information about your equipment's settings in Vectorworks and have it transfer over to your plot.

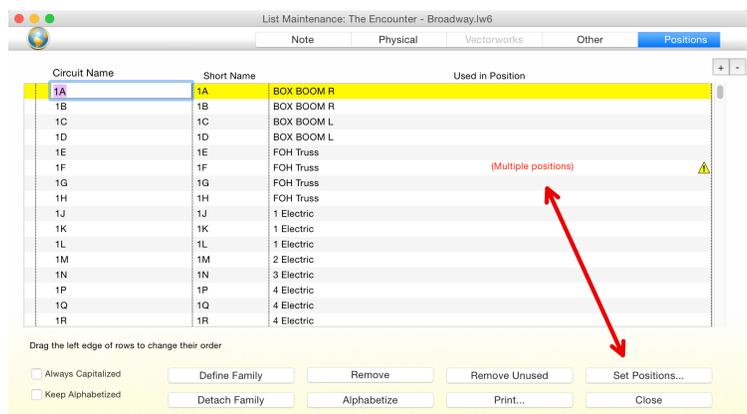
OTHER

Serves as a place to store additional information about the items on a list. Please refer to the section on "Optional Related Columns" for more information.

POSITIONS

This tab has a column on it named "Used in Position". This is used to tell Lightwright which position something such as a Circuit Name is used with, you can enter any existing position name. In this example, the multicable named "1A" is used in the Box Boom R.

The 'Set Positions' button goes through the worksheet and figures out for you which circuit names are used by lights in which positions. If a circuit name appears in more than one position, you will see the "(Multiple positions)" reminder, along with a yellow alert triangle.



Entering positions here lets you count related maintenance list entries broken down by position. For example, counting Breakouts can be broken down by position because Lightwright knows which breakouts are used for which circuit names and what positions those circuit names are on.

This tab is not available to maintenance categories (such as Position) where it would not make sense.

MAINTENANCE FAMILIES

You can select one or more maintenance list rows and group them together with a name that describes the Family. These can be useful for organizing a long maintenance list, but they are useful in other ways, too:

The header row for each Family can have “master” stock quantities and counting will include the total of the Family members in the header row’s count. This is particularly helpful if you want to track bodies vs. lenses.

Enter the number of bodies in the Family header row’s Stock Qty column and the number of barrels in the regular instrument row’s Stock Qty cells. When you do a Stock count, Lightwright will add up the total number of barrels and subtract that from the number of bodies to show you how many more bodies you need, or how many extras you have.

Instrument Type	Short Name	Stock Qty
S4's	S4's	280
— Source Four 10	S4-10	10
— Source Four 14	S4-14	20
— Source Four 19	S4-19	80
— Source Four 26	S4-26	111
— Source Four 36	S4-36	56
— Source Four 50	S4-50	16
Desire D60 Vivid	D60v	30
Source Four PAR MFL	S4 PAR MFL	32
6" Fresnel 1KAF	6" Fres 1KAF	30
6' 30lt 75w EYC MR16 STRIPLT	MR16 Strip	

The same principle of grouping related items works for other categories, such as color. If you go to Maintenance/Color and create a Family named “Rosco,” for example, then all Rosco colors will be grouped together under this category. When counting sheets of color, Lightwright shows the total number of sheets of Rosco needed in addition to how many sheets of each color.

Additional Notes:

- When counting, the regular and stock qty counts **will** include Family header rows. The count broken down by position **does not**.
- Family header rows and their stock quantities are not shared with Vectorworks.
- Depending on the column, changing the attribute of a Family header (such as default load or label legend) can also change that attribute for all of the rows in that Family. Lightwright will always ask before changing attributes of Family members.
- Dragging the header up or down the maintenance list always drags the members with it.
- When alphabetizing a maintenance list with Families, the Family is alphabetized first, and then the sub-items within each Family is alphabetized.
- If you add a new entry to the maintenance list (for example, by typing a new entry into the worksheet or by adding it to the bottom of an existing maintenance list) and you want it to be part of a Family, you will need to go to Maintenance, select both the existing Family as well as the new entry, and select “Define Family” once again. This will incorporate the new entry into the Family.

- A maintenance Family header name cannot be used on the worksheet, color scroll, or wheel slot. *Example:* You have a color Family named "Roscolux" containing R-33, R-54, etc. Because it is the name of a Family, "Roscolux" cannot be used as a color on the worksheet, in a color scroll, or in a wheel slot.

DEFINE FAMILY BUTTON: CREATING A FAMILY

Select the rows you want to be in the Family, then click the "Define Family" button. Lightwright will ask you to name the Family, then click OK. A new header row will appear in the maintenance list with the Family rows just below it.

TO MODIFY (REDEFINE) A FAMILY

Select the rows you want to be in the Family, including the header row, then click the Define Family button. Lightwright will ask you to name the Family, then click OK. If it is a Family that already exists, the default name is the name of the Family.

Selecting the header row when modifying a Family changes the name to the name you give the Family. Otherwise, a new header row is added with the new name.

Maintenance rows that were previously part of the Family but not selected when you modify a Family will still be on the list, but not as part of the family.

DETACH FAMILY BUTTON

To remove a family header row, select the row and press either "Detach Row" or "Remove". That will remove the row and the family status of the former child rows.

You can select one or more child rows and click "Detach Row" to remove them from the family while retaining the rest of the family rows. . The "Detach Family" button does not remove worksheet rows, it only clears the Family status from the rows.

REMOVE BUTTON: HOW IT AFFECTS A FAMILY

This button permanently removes the selected row from the list. If you select a Family header row and remove it, the Family status of rows in the Family will be cleared. If you remove one member of a Family, the rest of the Family will be intact.

REMOVE UNUSED BUTTON: HOW IT AFFECTS A FAMILY

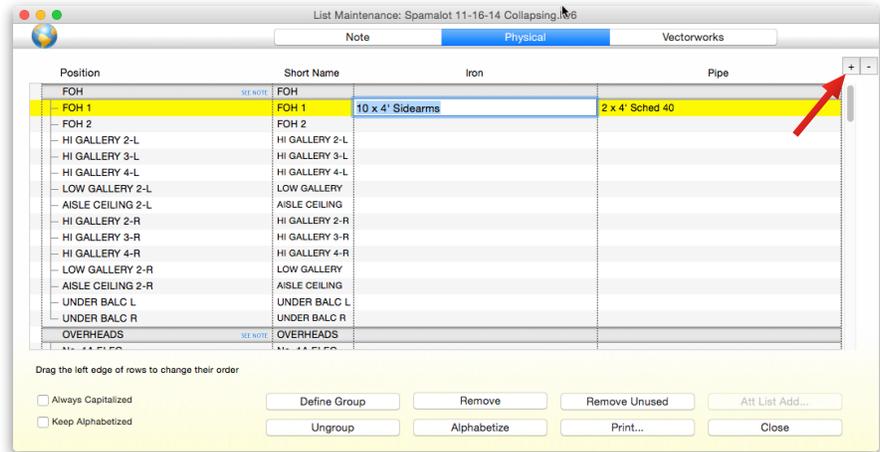
This button removes rows that aren't being used anywhere in the show (including color scrollers, wheels, etc.) and which don't have stock quantities. This button will not remove Family header rows.

OPTIONAL RELATED COLUMNS

You can add up to three more columns to most of the maintenance lists. Each of these columns can contain data in another related category. The data in these columns can be counted and included on labels and paperwork.

Example:

The show has a user text field named "Iron". This column can be added to the Position maintenance list. It would contain whatever iron is needed in each position. In older versions of Lightwright, iron was often put into a worksheet column, which could make it look like the iron was for one specific light instead of being part of the position.



To add a column, open the maintenance list for the category you want to add a column to, then click the "+" button in the upper right corner of the window and choose a category. To remove a column, select any cell in it, then click the "-" button. This action cannot be undone.

Added columns are always placed on the Physical tab. Columns cannot be added to the Purpose, Instrument Type, Color, Gobo, or Gobo Size lists.

3 MAINTENANCE WINDOW BUTTONS

REMOVE

If you want to remove a phrase, click on it and then click the "Remove" button. If the phrase is currently being used, you will get an alert saying so and the phrase will not be removed from the list.

REMOVE UNUSED

In order to speed up Lightwright and let you re-use text you may want to use again, Lightwright does not remove phrases from the lists when they're erased from the Worksheet. To remove any and all unused phrases, click on the "Remove Unused" button in the Maintenance window.

To remove unused phrases from ALL of the lists in the Maintenance category, select "Remove All" Unused from the bottom of the Maintenance menu.

ATT LIST ADD

Attribute lists determine the number of rows, decimal unit numbers, and purposes for the associated instrument type. If attributes are listed for an instrument type, whenever you add one of those lights to your show a separate worksheet row is automatically added for each attribute, with a decimal unit number suffix corresponding to the attribute.

Example: You have a fog machine that needs 8 channels to control it. Create an attribute list that automatically adds worksheet rows for each additional channel, giving them purposes such as "Flow", "Volume", "Reset", etc. Adding a worksheet row with the fog machine instrument type in it automatically adds the rows defined by the attribute list, giving them decimal unit numbers such as 3.1, 3.2, etc.

If you later delete or change the instrument type, the rows defined by the attribute list are deleted.

To use one of the attribute lists that come pre-built with Lightwright choose the "Att List Add..." button in List Maintenance. To edit or review the list after you select one with this button, click on the "Profiles + Other" tab at the top of the Maintenance window and then click in the *Attrib* column in the row of the light you want to review. The *Attributes* window will open, where you can set each attribute number and its purpose. You can also choose whether or not a particular attribute can be hidden on the worksheet using the collapsible row arrow.

ALPHABETIZE/CAPITALIZE

If you want Lightwright to sort the list alphabetically, click on the "Alphabetize" button. If you want Lightwright to keep the list sorted alphabetically all the time, check the "Keep Alphabetized" option. If you want all of the entries to always be capitalized, check the "Always Capitalized."

If you rearrange the list by dragging an item up and down the list, the "Keep alphabetized" option will un-check.

PRINT

Click on the Print button if you would like to get a printed copy of the current list.

CLOSE

Closes the Maintenance List window.

INSTRUMENT TYPE MAINTENANCE

PHYSICAL TAB

SHORT NAME

The contents of the Short Name column are initially the same as the regular name column, but can be edited to reduce the amount of space entries take on printed paperwork. It is particularly useful to electricians and when printing labels, where space is limited. When the "regular" name is changed, the "short" version also changes.

STOCK QTY

This is the number of items currently in stock. If you've entered a quantity here, the item type will not be removed when unused names are eliminated. If the list you are viewing is a Gobo list, you can enter the stock quantity of each gobo in each gobo size available.

Sharing Inventory with Vectorworks

Beginning with Vectorworks 2015, Lightwright can share stock equipment quantities (inventory). When activating Data Exchange, click on the "Share Stock Inventory Quantities" in the options tab in order to enable this functionality. Lightwright reads inventory quantities of instrument types entered in Vectorworks and put them into its "Stock Qty" column in Maintenance/Instrument Type. Note that Vectorworks only sends inventory for instrument types with an inventory quantity greater than zero. When sharing equipment quantities, Lightwright does not share the inventory for maintenance list Family items.

If you activate "Always Use Lightwright Quantities" in the options tab of the Data Exchange window, Lightwright will push non-zero, "Stock Qty" entries to Vectorworks. When this option is active, inventory quantities are shared in one direction and so Lightwright will not receive inventory quantities from Vectorworks.

VOLTS

When you enter a number into the Volts column, Lightwright will add "v" after it. This number, combined with the Load column, lets Lightwright calculate loads properly whether they're entered as watts or amps. Voltages can be anywhere from 0 to 1000.

LOAD

Is the default wattage or amperage for each kind of light. If you enter a load here, whenever you add a new item in the Worksheet with that instrument type, the load will default to whatever you've entered here. If you want to force a light to always have this load, activate the "Lock Load" column. This column can hold either watts or amps, as appropriate. In most cases, conventional lights will have watts, while moving lights have amps. If you want the load to be in amps, enter the number followed by "A".

Examples: 0.01w
 0.5w
 1w
 575w
 1.2kw
 5A
 11.6A
 20A

LOCK LOAD

Selecting this option enforces the default load for every instance of the light. This changes any existing worksheet cells so they match the wattage or amperage entered here, and it prohibits changing the load on the worksheet.

If the load is locked, a small black dot will appear in the lower right-hand corner of the affected cells on the Worksheet.

If you have an instrument type with its load locked and you clear a worksheet cell containing that instrument type, Lightwright will automatically also clear the load from the corresponding Load cell.

COLOR FRAME LABEL

This is the color frame assigned to this instrument type. You can choose from a list of existing frame labels, or create a new one. To enter the dimensions for a new frame, choose Maintenance/Color Frame.

FRAMES PER CKT

This is the number of color frames per circuit. For instance, a 12 light 3 circuit striplight will typically have 4 color frames per circuit, while a Source Four 19° will have just one. If an instrument type doesn't use color, or you don't want color counted for that instrument type, enter N/A in this column.

GOBO SIZE

This is the **default** gobo size assigned to this instrument type. You can choose from a list of existing sizes, or create a new one. When you add a new light to the worksheet, it will have this gobo size. You can then edit the worksheet's gobo size column as needed if the actual gobo sizes are different for each light.

FOCUSABLE

Focus charts (and focus status) will only be available for instrument types with this option checked.

WEIGHT

The weight of the item, in either kg or pounds, depending on whether you have chosen to display measurements in metric (see Preferences).

VECTORWORKS TAB

DEFAULT SYMBOL

The default symbol used by Vectorworks when it draws the instrument.

DEFAULT LABEL LEGEND

The Label Legend used by Spotlight to show information attached to an instrument.

DEFAULT ON LIGHT PLOT

This column determines whether or not an instrument type CAN be on the drawing. When a light is added to the show, the "On Plot" choice for its instrument type determines whether or not LW is going to put the light onto the VW drawing initially. You can then use the worksheet's "On Plot" column to determine whether or not each individual light belongs on the plot. Instrument types default to being on the drawing.

PROFILES + OTHERS TAB

DMX Qty

This is the number of DMX addresses the instrument type uses. When you are using 'Plus' editing in the address column, Lightwright will increment address numbers based on the DMX Quantity for each instrument type.

The Unused Dimmer report will also use the DMX Quantity: If an instrument type has a dimmer number and a DMX quantity, then Lightwright will assume that both the starting dimmer number and the DMX Quantity of addresses following it are in use.

Example: A Mac 700 has a DMX Quantity of 26. If you have one instance of a Mac 700 on the worksheet, and it's dimmer number is 1, then Lightwright will consider dimmers (DMX addresses) 1-26 to be in use.

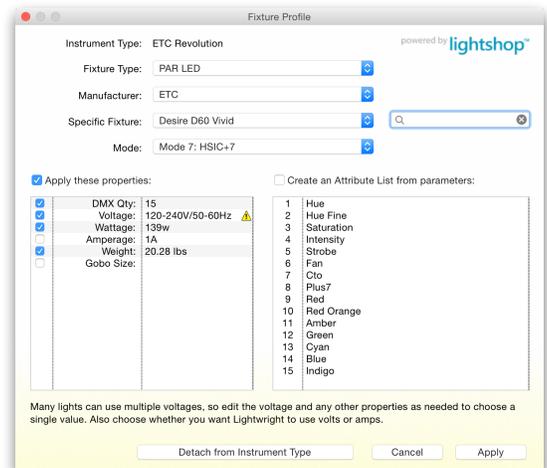
A new Error Check, "Overlapping DMX Assignments" uses the DMX Quantity to see where addresses may overlap each other.

PROFILE/INSTRUMENT PROFILE DATABASE

Clicking on a cell under the "Profile" column for any of the instruments opens the Instrument Profile Database. This feature lets you get detailed technical information about an instrument type, including its DMX footprint, voltage, and other properties.

Click in the Profile column of any existing maintenance list item to open the Fixture Profile window.

If you know the name of the light you're looking for, type it (or part of it) into the Search field. The Specific Fixture pop-up list will be filled with any lights with a name containing the text in the Search field. You can also use the four pop-up menus to progressively narrow your search down to a specific make and model.



Choosing a Fixture Type narrows down the list of Manufacturers to those who make that kind of light.

Choosing a Manufacturer further narrows the search by limiting the Specific Fixture pop-up to lights that match both the Fixture Type and the Manufacturer.

You can also choose a light from the Specific Fixture list without first selecting a Fixture Type or Manufacturer, but since there are thousands of lights in the database, it will be very tedious to find the one you're looking for.

Once you narrow the search down to one specific fixture and choose a Mode (if needed), Lightwright fills in the Properties and Parameters lists.

THE PROPERTIES LIST

In the above screen shot, the chosen instrument type is an ETC Source 4 Revolution, and the available information is:

DMX Qty	This is the number of DMX addresses the light will use in the selected mode.
Voltage	Often, this is shown as a range of values, but since Lightwright needs to know exactly what voltage you will be using, it shows a yellow alert triangle.

Wattage	Some manufacturers only list the lamp wattage, others include the lamp and other electronics. Check directly with the manufacturer for clarification.
Amperage	Like wattage, this may include just the lamp, or the entire light.
Weight	Most manufacturers only include the weight of the actual light in the specifications. If you are using hanging hardware with significant weight, you may want to add it to the weight shown here.
Gobo Size	Some manufacturers show standard gobo sizes here. Others say only the name of the lights, while some provide no information at all.

NOTE:

Lightwright needs specific information in order to be useful. If one or more of the results is non-specific (as it is in the voltage entry shown in this screen shot), a yellow warning triangle is drawn next to the entry. Double-click these entries and edit them to something more precise. In this case, you would need to change "100-240V/ 50-60Hz" to the specific voltage you are using, such as "120v".

Each entry on the properties list has a checkbox. Select any entries you want applied to the Maintenance List entry.

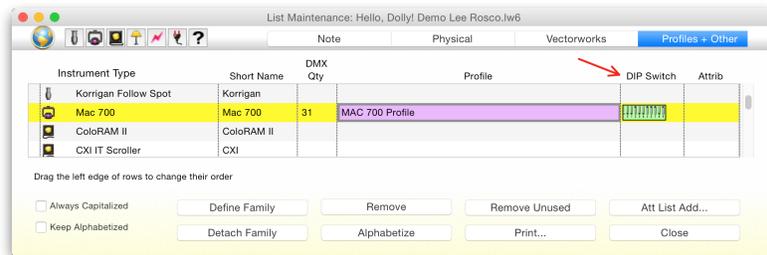
THE PARAMETERS LIST

The Parameter list shows you what each DMX address is used for. This is extremely helpful in understanding what each Mode can do.

If you are using an older lighting console that requires a separate channel for each DMX address and you want to create an Attribute List, check the "Create an attribute list from these parameters" checkbox.

DIP SWITCH

If an instrument or device has a DIP switch, use this column to define the number of switches and how they behave. Clicking this column opens a window showing the DIP switch definition for the selected maintenance row item.



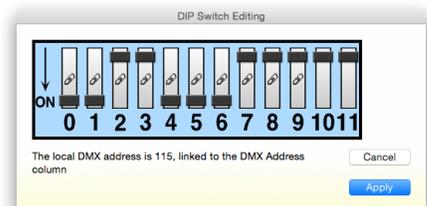
If you want the DIP switch to automatically set itself to the Univ Address derived from the Address column, then click the "Gets value from DMX" option. This links the two columns: Changing one on the worksheet changes the other.

Once you've defined a DIP switch for an instrument type, the DIP switch column in maintenance shows a sample of the switch.

To use DIP switches, define one of your User columns as a DIP switch.

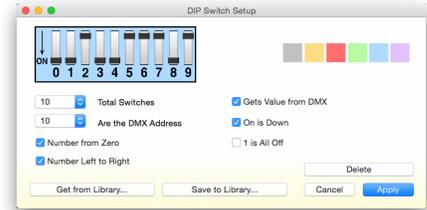
Worksheet rows for lights or devices with a DIP switch will show a sample of the switch in the appropriate cell. Moving your mouse over the sample displays a larger (more legible) version of the DIP switch at the top of the worksheet window.

To edit the switch settings for one or more DIP switch cells, select them and then press the Space Bar, which will open an edit window. In this case, the first 10



switches are DMX# switches and are linked to the address columns, as indicated by the link icons. Changing those switches here changes the address on the worksheet, and changing the address in the worksheet changes the switch settings here. If the two are not linked, then changing one has no effect on the other.

The last two switches are undefined and can be set to indicate device parameters or whatever purpose the manufacturer has defined for them. Their settings are independent of the address.



DIP switches on Labels

You can add a DIP switch to any label by adding a panel object and setting its data source to the user column you've defined as a DIP switch.

Things that are not possible with DIP switches

- * The worksheet's Pastebrush feature
- * Copy and Paste
- * Jump
- * View / DIP switch category
- * There is no "DIP switch Hookup"
- * They cannot be linked to Vectorworks

ATTRIB

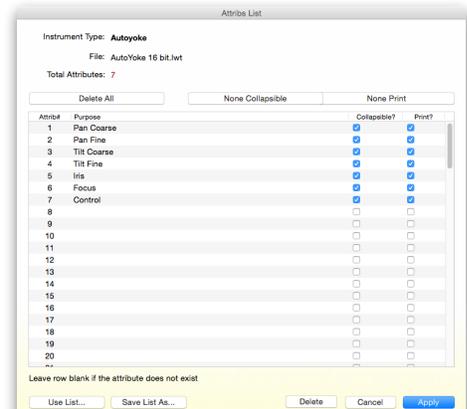
Moving lights and other multi-channel fixtures can have multiple attributes, indicated by decimal unit number suffixes. For instance, a moving light with separate channels for Pan, Tilt, Intensity, and Color would need four attributes, indicated by unit numbers ending in .1, .2, .3, and .4 (such as 100.1, 100.2, 100.3, and 100.4). If you are using a modern lighting desk that has built-in profiles for your moving lights, you will probably not need attribute lists, as most of these consoles only ask you for the starting DMX address, not the address for every attribute. **Only use attribute lists when you need to assign DMX addresses individually.** The DMX Quantity column and 'Plus; editing can make it easy to assign starting DMX addresses.

ATTRIBUTE LISTS

Attribute lists determine the number of rows, decimal unit numbers, and purposes associated with an instrument type. If an instrument type has an attribute list, whenever you add one of those lights to your show a separate worksheet row is automatically added for each attribute, with a decimal unit number suffix corresponding to the attribute.

Example: Your AutoYoke entry in list maintenance has an attribute list consisting of 7 items. If you then add unit #3 to your show and make its instrument type "AutoYoke", Lightwright will add unit #3 but it will also add 7 additional worksheet rows numbered 3.1 through 3.7, one for each attribute in the list. Whenever you drag unit #3 up and down the worksheet, all of the attached units 3.1 through 3.7 will automatically drag along with it. If you click the Disclosure Icon when displaying unit #3, units 3.1 through 3.7 will be hidden or exposed. If you delete unit #3, units 3.1 through 3.7 will also automatically be deleted.

To set attributes for an instrument type, click on the "Attrib" column in List Maintenance. The Attributes window will open, where you can set each attribute number and its purpose. You can also choose whether or not a particular attribute can be hidden on the worksheet using the collapsible row arrow, and whether the attribute is normally printed on your paperwork. When you close the Attributes window, the instrument type will automatically be



classified as a Moving Light, so if it isn't, you will want to change it to match reality.

You can use the "Delete" button at the bottom of the window to delete the attribute list from the assigned instrument type.

To use one of the attribute lists that come pre-built with Lightwright, choose the "Att List Add..." button in List Maintenance, or click the "Use List" button within the Attributes window.

To build your own attribute list, click on the Attributes column in List Maintenance, then:

- Enter an attribute number between 1-100 in each Attrib# field you want to use, and enter a purpose for that attribute in the Purpose field. Attribute numbers do not need to be consecutive.
- Enter a Purpose for each attribute row.
- Once you set up attributes, you can save them as a reusable list by clicking on "Save List As...", or you can retrieve a previously saved set of attributes by clicking the "Use List" button.

Worksheet rows that have been created this way cannot have their purpose, instrument type, or load edited on the worksheet, and only the major unit number for the row can be changed, not the decimal attribute number. To change the instrument type, use List Maintenance to change the name of the instrument type. To change the purpose cells of worksheet rows linked to attributes, choose List Maintenance/Instrument Types and click the Attribute column.

You can edit any attribute list, including the ones that come with Lightwright, by clicking the "Use List" button, modifying the attributes as desired, and then saving the list.

If you change the quantity of attributes or their purposes, all lights using that attribute list will have their purposes changed, and worksheet rows will be added and deleted appropriately.

If the unit being added uses numerical unit numbers, the attributes will be put into decimal suffixes. If the unit uses letters followed by numbers, then all of the attributes will have the same unit number.

If you select one or more attribute rows on the worksheet and choose Edit/Delete, the entire instrument will be deleted, which includes all of the attribute rows.

Attribute lists can be freely shared between the Windows and Macintosh versions of Lightwright without any kind of file or format conversion.

If you are using a modern lighting desk that has built-in profiles for your moving lights, you will probably not need attribute lists, as most of these consoles only ask you for the starting DMX address, not the address for every attribute. Only use attribute lists when you need to assign DMX addresses individually to each attribute. Instead, use the Maintenance window's DMX Quantity column and 'Plus' editing on the worksheet to assign starting DMX addresses without using Attribute Lists.

THE APPLY BUTTON

If the "Apply these properties" is chosen, the selected entries are inserted into the current row in the Maintenance List.

If the "Create an Attribute List" option is chosen, Lightwright opens a new Attributes window and fills in the parameters. You can then select the other Attribute List options as needed.

RETURNING TO THIS WINDOW

Once you've selected a fixture type from this window, clicking the fixture profile cell in Maintenance opens this window with all of the current information - you will not need to dig through the menus again to select the profile.

ACCESSORY MAINTENANCE

PHYSICAL TAB

STOCK QTY

This is the number of items currently in stock. If you've entered a quantity here, the item type will not be removed when unused names are eliminated. If the list you are viewing is a Gobo list, you can enter the stock quantity of each gobo in each gobo size available.

WEIGHT

The weight of the item, in either kg or pounds, depending on whether you have chosen to display measurements in metric (see Preferences).

VECTORWORKS TAB

Similar to Instrument Type maintenance's Vectorworks tab. If an accessory's "On Plot" column is checked in maintenance, then ALL instances of that accessory will appear on the light plot.. If "On Plot" is unchecked, then NONE of the instances of that accessory will be on the plot. The Maintenance and Preferences/General windows have a "New accessories default to NOT on light plot" checkbox. If you activate this option, any new accessory names will not be added to the drawing until you check their "On Plot" column on the Vectorworks tab in Maintenance/Accessories.

POSITION MAINTENANCE

VECTORWORKS TAB

You can choose which hanging positions will show coordinates and which won't. You can also choose whether or not a zero dimension shows as zero or as "CTR", "Floor", or "Deck". Choose Maintenance/Positions and click the Vectorworks tab to set these options.

You can also choose which hanging positions will show symbol rotation and which won't. Choose Maintenance/Positions and click the Vectorworks tab to set this option for each position.

If a position's symbol rotation is set not visible, then choosing View/VW Symbol Rotation will not include any lights in that position.

Symbol Rotation can be included as a column on all paperwork, including Cheat Sheets.

COLOR MAINTENANCE

PHYSICAL TAB

The color list includes a custom sheet size for every color. These sizes are used to calculate the number of color frames that fit on a sheet of color.

When counting sheets of color, Lightwright calculates them using:

- The custom sheet size if one is defined, otherwise it will use the default sheet size.
- The dimensions of the color frame assigned to the instrument type if they are available, otherwise it will use the "frames per sheet" entry of the color frame type.

The default sheet size entry fields are located in both the Color list and in the Color Frame list. Changing this default in one list will automatically change it in the other one.

TIP: An easy way to set custom sheet size for an entire brand of color is to enter the dimensions in the brand's Family header row.

COLOR SWATCHES

If the list you are viewing is Color, you will see a color swatch to the left of the name whenever Lightwright recognizes the color. If it does not recognize a particular color and you would like to give it a swatch color, click item and then click the Assign Color Swatch button. This will open your computer's standard Color Picker, which you can use to choose any color for that item.

To remove a custom swatch color from an item, click the item and then click the Assign Color Swatch button and choose Black as the color.

GOBO MAINTENANCE

PHYSICAL TAB

GOBO PICTURES

Maintenance includes columns for pictures of gobos and stock quantities of each gobo. Pictures can be .bmp, .jpg, or .gif format. There are seven different ways to add gobo pictures to the show file:

1. With Maintenance/Gobos open, scroll to the appropriate row and then drag a picture from a web page and drop it into the picture column.
2. With Maintenance/Gobos open, scroll to the appropriate row and then drag a picture file from anywhere on your computer and drop it into the picture column.
3. With Maintenance/Gobos open, scroll to the appropriate row, right-click on the picture cell, and choose "Select Picture..." from the pop-up menu, then select the picture file.

4. With Maintenance/Gobos open, scroll to the appropriate row and click on the picture cell, then choose Edit/Paste. **This only works if there is a picture on the clipboard.**
5. On the worksheet, display any row where you want to use a template. Drag a picture from any web page and drop it onto the template column for that light.
6. On the worksheet, display any row where you want to use a template. Drag a picture file from anywhere on your hard drive and drop it into the template column for that light.
7. If you have two show files open, you can drag template pictures from one maintenance window to the other.

A bit of advice: Keep your gobo pictures small so the show file can be emailed!

CAUTION: DO NOT ATTEMPT TO STORE YOUR ENTIRE GOBO CATALOG IN A LIGHTWRIGHT SHOW FILE

Every gobo picture added to Lightwright increases its need for RAM, and although modern computers will never complain when they run out of RAM, you can easily bring your computer to its knees by using large quantities of pictures. Unlike many programs, Lightwright does not keep pictures on your hard drive and bring them into memory as needed.

CIRCUIT NAME MAINTENANCE

PHYSICAL TAB

MULT QTY

The number of circuits for this multicable. The default is 6. Lightwright will use this quantity when printing multicable labels.

RACK

The name of the dimmer rack or other power source that supplies this Multicable. Derived from the Setup/Control/Dimmers window entries.

LINK

If this is set and a start dim# is entered for the circuit row, then whenever you change either the Multicable or circuit number the dimmer number will automatically be changed. Note that changing the dimmer number will not automatically change the Multicable and #. If the starting dimmer number begins with a letter, that letter will be preserved: Only the number portion of the start dimmer number will be changed.

START DIM#

The starting dimmer number (or PD breaker). Lightwright will assume each of the individual circuits (from 1 to the Cir Qty) are mapped one-to-one beginning with this dimmer number when Link is active. You can use 'Plus' editing on this column, usually by typing the starting dimmer number followed by a plus sign and the number of dimmers in the rack.

CABLE

Text describing the length and/or kind of the multicable.

Examples:

25'	one piece
100', 50'	two pieces
S400 100'	one S400 100' long piece

Use any format or nomenclature you want to. In addition to being shown in Maintenance/Multicable Name, it can also be edited using Maintenance/Cable. Use the list separator character (typically a comma) if you need more than one item in the list.

This column makes use of Autofill, and you can also use Edit/Show List to open the choose list.

This category can also be counted and printed on labels.

BREAKOUTS

Text describing the breakout. Example: "8' Even". Use any format or nomenclature you want to. In addition to being shown in Maintenance/Multicable, it can also be edited using Maintenance/Breakouts. Use the list separator character (typically a comma) if you need more than one item in the list.

This column makes use of Autofill, and you can also use Edit/Show List to open the choose list.

This category can also be counted and printed on labels.

USER COLUMN MAINTENANCE

There is a Stock Quantity column for all user-definable columns that are defined as text, and Utilities/Counting can also count stock on those columns.

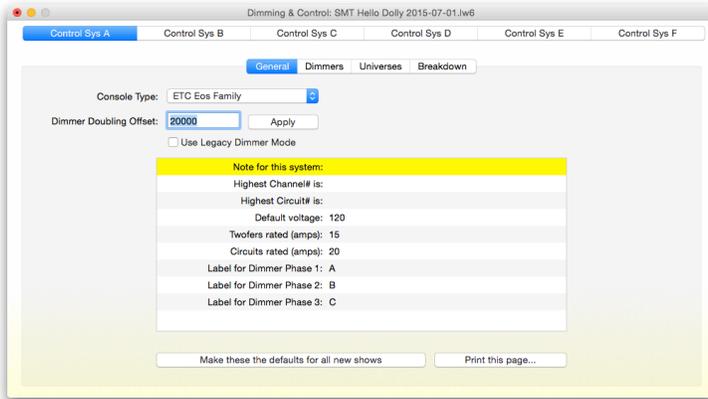
SETUP MENU

DIMMING & CONTROL

In Lightwright 5 and older, the Dimmer column served to hold both dimmer numbers and DMX addresses. There was no distinction between them, when in fact one supplies power and the other is a number used to connect channel numbers with either power or control features. The dimmer numbers could be viewed in "universe format," which assumed that every dimmer number was actually a DMX address. In some cases, this was true, but just as often it wasn't.

Beginning with Lightwright 6, there is a new Address column specifically for DMX addresses, and those numbers can range from 0 to several million (up to 45,000 universes). The Dimmer column is now only for devices that provide power to lights and other devices and is limited to numbers 0-32000. As a result, the dimmer types "DMX Only" and "LED Addresses" are no longer useful. This also means that "dimmer numbers" that were actually DMX addresses in Lightwright 5 and older should not be included in the Dimmer Rack setup list. If the dimmer type is set to LED Address or Peripheral, a yellow alert triangle will appear next to them to remind you that they are not valid in Lightwright 6 (they're preserved only in case you defined them in a version 5 file and still need that information).

Dimmer	DMX Addr
90	90
91	91
92	92
93	93
94	94
95	95



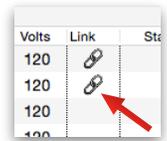
The Dimming & Control window lets you enter your show's dimmers & capacities, circuit and twofer capacities, and other dimmer information.

You can enter dimmer information for up to six completely separate control systems, lettered A thru F, each accessible by clicking on the appropriate tab.

Each system has its own note, dimmer range information, highest channel and circuit numbers, voltages, and circuit and twofer capacities. Dimmer numbers can be duplicated between systems; Lightwright will look at the System column on the

worksheet to determine which system a particular unit has been assigned to and will print and do error checking accordingly.

If the Link column is active on the Worksheet (showing a pair of chain links), then changing the Dimmer number on the Worksheet will automatically enter the appropriate number into the Address cell. If the dimmer's type is set to Doubled and ends in "b," the address will be offset according to the Dimmer Doubling Offset amount set in the Dimmer Details window. You can still change the address manually on the worksheet, but the next time the dimmer# is changed, the address will change along with it.



If the dimmer range's type is ML Power, Hot Pocket, or Address Only, then you cannot enter a starting DMX# and linking cannot be turned on.

You can print your dimmer information page, using the button at the bottom of this window.

You can enter and display addresses in "universe" format. When this option is active (in the "Universes" tab), instead of seeing an address such as 518, you will see "2/6", which means that this is the 6th address in the second DMX universe (assuming the universe size is 512). You can also view numbers in "universe and dimmer" format. When this option is active, you will see "2/6=518". You can enter address numbers in any format. To turn this on or off, choose the Address Format pulldown from the Setup menu. To set the universe sizes, choose DMX Universes from the Setup menu. The default "Universe Separator" is a slash "/", but depending on the setting for Universe Separator under Setup/Vocabulary, you may see a decimal point or other character used between the universe number or label and the dimmer number.

Additional Notes:

- 'Plus' editing in the Address column will alert you and not go past a universe boundary.
- 'Plus' editing in the dimmer column does not use DMX quantities in Instrument Type Maintenance because the dimmer column doesn't handle DMX addresses.
- Universe format is not available for the Dimmer column (because Dimmers are not Addresses except when using Legacy mode), instead the Address column uses this format, and Cmd+U changes the format of the Address column.
- Dimmer types DMX Only and LED Address are available in the Dimmer Rack list but have been deprecated and should not be used anymore. Instead, you may want to enter an appropriate description in the universe containing those addresses.

- You can enter a Starting DMX# for each dimmer range and the Dimmer Details will be filled in automatically with a default address for each dimmer. DMX addresses can also be edited manually in the Details window.
- Dimmer numbers that are Doubled Dimmers now always have an (uppercase) "A" or "B" suffix. Dimmer numbers without an "a" suffix will show an "A" by default. This makes it clear when dimmers are doubled.
- There is a system-wide Dimmer Doubling Offset entry in the General tab of the Dimming & Control window. Pressing the "Apply" button next to this entry can optionally change the offset for all existing doubled dimmer ranges and worksheet rows.
- If a dimmer number on the worksheet is not within ranges in Setup/Dimming & Control, then a small yellow alert symbol is drawn in the cell with the dimmer number. In Lightwright 5, users often had two worksheet rows for each moving light: One row used the dimmer cell for the dimmer number that supplied the power, and the other row used the dimmer cell for the mover's DMX address. In most cases in Lightwright 6, the dimmer cell should be used for the power and the address column for the address.
- Editing the Address column alerts you if the address plus the instrument type's DMX quantity will go past a universe boundary.
- In the Worksheet, you can choose the menu options Setup/Show Rack Label and Setup/Show Rack Service to display dimmer numbers with these labels in front of them. Both the worksheet and printouts will display using whatever options are currently chosen.
- The highest possible number is 1,000,000 (Channels, dimmers, etc.)
- The highest possible DMX address is 23,040,000 (45,000 universes of DMX512)
Note: This does not mean your computer has enough RAM or horsepower to process this many addresses...
- Loads can be specified in hundredths from 0.01 to 32,000 watts or amps.



Examples: 0.01w
 0.5w
 1w
 575w
 1.2kw
 5A
 11.78A

- The maximum number of universes is 45,000. However, note that the practical maximum may be considerably lower, depending on your computer's RAM and speed; numbers this high may slow Lightwright down to the point of being unusable.

DIMMING & CONTROL WINDOW BUTTONS

	Description
Restore Normal Sort	This puts the list back in its original, "normal" order before any columns headers were clicked to sort by that column.
Set As Normal Sort	This defines the current order list as the "normal" order. This is the order printouts such as the Dimmer Hookup will use.
Delete Rows	This button deletes whichever rows are currently selected on the worksheet, as indicated by the yellow highlighting.
Save Rack Template...	You can save the selected rack as a template that can then be applied to one or more other racks. To use this command, select the desired row, then click this button and Lightwright will save the rack info as a Rack File. The Service and Rack Label are *not* saved in rack files.
Use Rack Template...	<p>Select one or more existing ranges, then click this button and choose an appropriate rack template file. The contents of the rack template will be applied to those ranges.</p> <p>When a rack template is applied to a range, the port and phasing will be set to whatever the rack template has. If there is a Start Address already entered in the selected range, then the addresses, ports, and phases are adjusted to relative to the Start Address.</p> <p>The Lightwright 5, Link, and Notes columns are also stored in the rack template and will be applied to selected ranges. The Service and Rack Label columns are not stored in the template.</p> <p>You can select multiple dimmer ranges and apply one template to all of them at once, as if you had selected each range one at a time and applied the template to each of them in turn.</p> <p>Rack template files can be stored & retrieved from anywhere, but the default location for them is in the "Dimmer Rack Templates" file inside the Lightwright folder on your computer's Users/Shared folder.</p>

GENERAL TAB

In the Dimming & Control window, select the General tab to setup different phase labels for each system and set the settings for Highest Channel Number, Highest Circuit number, Default Voltage, Twofer ratings and Circuit Ratings. You can also make these settings the defaults.

CONSOLE TYPE

You can enter the type of console being used here and it will be printed along with your dimmer specs.

DIMMER DOUBLING OFFSET

This option changes the dimmer doubling offset.

When you are using Dimmer Doubling, the "A" side of the dimmer doubler uses the address assigned to the dimmer. the "B" side uses an address based on the "A" address plus an offset amount. In a basic one-universe system, the offset value is 256. In a multiple-universe setup, the default offset is 20000.

For example, in a one-universe setup, dimmer 145 is patched to address 200. Therefore, 145A will be at address 200, and 145B will be at 456. In a multiple-universe setup where the offset is 20000, then 145A will still be at address 200, but 145B will be at 20145.

USE LEGACY DIMMER MODE

When you open up Lightwright 6, Legacy Dimmer Mode is OFF by default, but when you open a Lightwright 5 file, "Legacy Dimmer Mode" is turned on automatically. This lets the dimmer column contain both dimmers and DMX addresses, very much like they were in Lightwright 5. This mode can be turned on and off at any time using the checkbox in the Dimming & Control/General tab.

When Legacy mode is ON:

- Universe Format is enabled for the Dimmer column, and Cmd+U toggles the display format for the Dimmer column, just as it did in Lightwright 5.
- The Address, Universe#, and DMX# columns are not available, and all of the other features relating to addresses are disabled.
- The Start Address column in Setup/Dimming & Control is disabled.
- Dimmer/Address linking is disabled.
- 'Plus' editing will use DMX quantities in Instrument Type Maintenance when editing dimmer numbers, just as in Lightwright 5.
- No checking is done to detect when a dimmer number plus an instrument's DMX quantity goes through a DMX universe boundary.

When Legacy mode is active, the dimmer column's format can be changed using the keyboard shortcut Cmd+U (the same as in Lightwright 5). When legacy mode is off, the dimmer format will always be "Dimmer", and Cmd+U will change the format for the Address column.

NOTE FOR THIS SYSTEM

The "Note for this system" is usually something describing the type of system being used, but it can be anything you want. Whatever it is, it's printed along with your dimmer specs.

HIGHEST CHANNEL#

The "Highest Channel#," if available, determines where printed Channel Hookups will end. If there is a channel number higher than this number actually being used in your paperwork, then this number will be ignored.

DEFAULT VOLTAGE

Enter the default voltage for this system here.

TWOFRER/CIRCUIT RATINGS

The Circuit and Twofer ratings and Voltage are used by various utility reports and error checking. The reports and checks that need them may make incorrect assumptions if you don't fill in these blanks, but otherwise they are optional. If you're using circuits of varying capacities, you should enter the *lowest* capacity here and then be aware of it when interpreting any error messages regarding circuits.

PHASE LABELS

Phase labels default to the standard A, B, and C. However, you can change the label if you need to for your purposes.

DIMMERS TAB

Clicking the Dimmers tab reveals the Dimmer Information pane.

You can select multiple rows to edit together, using mouse clicks along with either the Shift or Command (Ctrl on Windows) key, just like on the worksheet.

You can reorder the list by dragging the far left edge of any row to drag the currently selected rows up and down, or click the Sort button to sort the list by starting#.

Dimmer numbers beginning with a letter (such as "H1") or with a Dimmer Type of "Moving Light Power" are considered non-addressable power supply devices, often used to provide power for moving lights.

You do not need to enter dimmer capacities & quantities if you don't know them or don't care to deal with them. However, in order to check for dimmer overloads and get other reports such as the load on each dimmer phase, you'll need to enter this information.

If you enter dimmer range information here, Dimmer Hookups are printed according to the ranges. If no range information is entered, Dimmer Hookups will include all dimmers from #1 to the last dimmer number actually used.

When a Dimmer Hookup is printed according to range, each range will begin a new page, and the dimmer numbers and capacity for that range are printed at the top of the page. You can have up to 300 ranges in each of the six possible control systems.

To enter dimmer range information, click on a row and enter the rack size and starting number for the range. Lightwright will fill in the ending number.

SERVICE

This column allows you to enter a description of where the show power comes from. For example "House Power 1" or "Company Switch A."

RACK LABEL

The Rack Label can be any sort of short label such as "House Board" or "FOH Rack" and it can be used as a label field when printing labels.

TYPE

Choose the type of dimmers in the rack from the Type pop-up menu in that row. You can also have more than one kind of dimmer in a range, if this is the case then either choose "Mixed" or click the Details button and enter specific dimmer types for each dimmer. Doing that will automatically change the rack's dimmer type to Mixed.

Type	Description
Dimmers	These are standard, normal dimmers
Doubled Dimmer	Dimmers that use ETC Dimmer Doubling and special 77v lamps. Multiplexed dimmer numbers should end in either "A" or "B". Example: 45A and 45B would be the two multiplexed "halves" of dimmer 45.
NonDim	Can be a PD or regular dimmer modules that have been switched into non-dim mode.
DMX Only	If the dimmer range's type is DMX Only, then you cannot enter a starting DMX# and linking cannot be turned on. This type is only useful when in Legacy mode.
Fluorescent	Much like regular dimmers, except that they usually take up to two slots in the rack.
Hot Pocket	If the dimmer range's type is Hot Pocket, then you cannot enter a starting DMX# and linking cannot be turned on. If you have non-dims such as switches or hot-patch circuits with their own numbering system, enter a separate range for those using numbers from A1 to Z32000. All other dimmers, whether dimmer, non-dim, or peripheral, use numbers from 1-32000.
LED Address	These are "phantom" dimmers that don't actually exist in a rack anywhere and are really just DMX addresses. Use this type only when in Legacy mode.
ML Power	If the dimmer range's type is ML Power, then you cannot enter a starting DMX# and linking cannot be turned on.
Other	Whatever you need, it can be addressed and linked just like dimmers.
Mixed	The rack contains more than one kind of dimmer. Setting the individual dimmer types in Dimmer Details automatically sets the rack's dimmer type to Mixed.

RACK SIZE

"Rack Size" is the number of dimmers in each rack in this range. A range can have more than one rack, but only one rack size. This number is printed on your paperwork along with the rest of the dimmer information, but it's only important when you use automatic dimmer assigning. If you don't intend to use automatic dimmer assigning you can leave it blank.

START#

The address of the Start#. If the dimmer and DMX addresses are linked, then changing one changes the other relative to the difference between the start address and the Start#. If you want the dimmer number and address to always be the same, then enter the same number for Start# and Start Address. Changing this number changes the addresses of all dimmers within the range, though you can also go into Details and set a custom address for each dimmer.

Lightwright will always try to fill in range numbers for you, replacing zeros whenever possible. A quick way to enter ranges is to move to the Start# or End# column and enter either Starting or Ending numbers, then move down to the next range. Lightwright will figure out the connecting numbers for you.

You can use 'Plus' editing on the Start#.

END#

If you enter a Rack Size and a Start#, Lightwright will calculate the End# for you and will enter the result here.

CAPACITY

Capacities can be entered in either amps or watts and will be shown in that format throughout Lightwright. If you intend kilowatts, be sure to use "k" or "kw" (such as "2.4 kw").

VOLTS

Each rack can have its own voltage, enter whatever is appropriate, in whole numbers such as "120."

LINK

This is an option you can toggle on and off. If this is turned on and a Start DMX# is available, then editing the dimmer number on the worksheet automatically fills in the appropriate address. If the worksheet cell's dimmer number ends in "B" and Dimmer Doubling is turned on for that dimmer, then the address will be offset based on the Dimmer Doubling Offset amount (set in the Dimmer Details window).

Changing a dimmer number can change the address if they are linked. However, changing the address will never change the dimmer number. Changing a multicable or circuit number can change the dimmer number if they are linked (and that may in turn change the Address). However, changing the dimmer number will never change the multicable name or the circuit number. One way to remember how this works is to think about the physical reality: Plugging a light into a different circuit changes the dimmer that controls it and therefore the DMX address. However, changing the address assigned to the dimmer doesn't change which circuit the light is plugged into.

START ADDRESS

You can use 'Plus' editing on the Starting Address column.

If you want to make any changes just type them in over the old ones. It's perfectly acceptable to skip groups of numbers if they aren't used.

DIMMER DETAILS

Dimmer	Address	Port	Type	Capacity	Volts	Current Load	Status	Phase		
								A	B	C
1	1		Dimmer	2.4KW	120	1,725w	Good			
2	2		Dimmer	2.4KW	120	1,725w	Good			
3	3		Dimmer	2.4KW	120	575w	Good			
4	4		Dimmer	2.4KW	120	1.15kW	Good			
5	5		Dimmer	2.4KW	120		Good			
6	6		Dimmer	2.4KW	120	575w	Good			
7	7		Dimmer	2.4KW	120	575w	Good			
8	8		Dimmer	2.4KW	120	575w	Good			
9	9		Dimmer	2.4KW	120		Good			
10	10		Dimmer	2.4KW	120		Good			
11	11		Dimmer	2.4KW	120	500w	Good			
12	12		Dimmer	2.4KW	120	575w	Good			

Doubling Offset: 256 Total Amps:

Dimmer Doubling Offset... Use Phase Template... Print...

Auto Balance Save Template... Put on Clipboard

To set up information about individual dimmers including their status, phase assignments, and current loads, select the dimmer tab, click on the rack you want to work with, and then click the Details... button to open that range's Dimmer Details window. Dimmer ranges identified as "Peripheral" or "LED Address" will not appear in the Dimmer Details window, as they are really DMX addresses and have no physical characteristics.

This window lets you assign a unique type, status, and phase to each dimmer in the current range. It also shows you some useful information about the loads on the dimmers.

When you start, all of the dimmers in the range will have the same type and capacity you entered for the range.

Note that if you have one or more ranges consisting of mixed types of dimmers and capacities, you cannot use Automatic Dimmer Assigning to assign dimmers within existing ranges.

This window uses the new in-cell editing style, letting you select multiple cells and change them all at once.

Reminder: You can use single-click pasting to copy entries from one cell to another, just like you can in the worksheet (Windows: hold down Ctrl+Shift keys, Mac hold down Option key) while clicking on a cell.

DIMMER DETAILS WINDOW BUTTONS

	Description
Dimmer Doubling Offset...	Use this button to set the offset for ETC dimmer doubling that determines the DMX address of the "b" dimmer relative to the address of the "a" dimmer. The default is 256, but it can also commonly be 20,000.
Auto Balance	<p>The Auto Balance button automatically rearranges your dimmer assignments to balance the loads between phases. It assumes that the load on any dimmer can be swapped with the load on any other dimmer within the same dimmer rack, which is commonly the case with portable dimmer racks using multicable. This feature will not reassign dimmers with lights assigned to them if any of the lights have a load of 0 (zero) watts, and it will not move lights from one kind of dimmer to another, even if they are in the same rack (i.e. from a dimmer to a nondim).</p> <p>After using this option, carefully examine the resulting dimmer patch, and if it is not acceptable, use Edit/Undo to revert the dimmer numbers back to what they were beforehand.</p>
Use Phase Template	If you want the pattern to continue, open the Lightwright 6 phase template file and it will automatically be applied repeatedly to every dimmer on the list. More information on Phase Templates below.
Save Template	Phase template files created by Lightwright 6 only store information the selected rows in the Dimmer Details window, so you only need to set the phase for the first few dimmers (enough to show the pattern) then save a phase template file.

ADDRESS

Each dimmer can have a manually set DMX address. You can use 'Plus' editing on this column.

PORT

Port is the name of the DMX input port on a rack that provides signal to that dimmer. The valid entries here are "A", "B", "C", or nothing.

TYPE

To change one dimmer's type, click the Type popup menu in the appropriate row and pick the type from the list.

CAPACITY

To change one dimmer's capacity, click the appropriate Capacity cell and enter a new number.

VOLTS

The voltage on all dimmers in a range must be the same, so that column cannot be edited here.

CURRENT LOAD

The current load on each dimmer is shown in the Current Load column. This column is derived from your dimmer assignments and instrument wattages in the worksheet and cannot be edited here.

IMPORTANT NOTE:

Lightwright 6 calculates phase loads on 208v power using vector math, and assumes the loads are linear and there are no phase shifts or harmonics. When 208v loads are not balanced, they can be very different from the loads that Lightwright calculates, so always plan 208v power supplies carefully. Non-linear loads, phase shifts, and loads that generate harmonics can increase the actual load significantly. **When calculating phase loads, Lightwright will use vector math when the voltage is between 190 and 210 volts and the phasing is set to AB/AC/BC. Otherwise, it will use ordinary arithmetic.**

STATUS

If one or more dimmers are not working or have not been installed, click on the Status column and choose "Good", "Bad", or "None", as appropriate for that dimmer. Use None for cases where the slot in the dimmer rack is empty or where you need to have a dimmer number but there isn't actually a physical dimmer involved. Automatic dimmer assigning will not assign dimmers to Bad or None slots.

PHASES

To assign a phase to each dimmer, click in the appropriate column. Clicking the first time puts the dimmer in that phase, a second click removes it. If a dimmer has two phases (such as when using 208v power for moving lights), use the plus buttons to add a second phase to the existing one.

Loads for each phase within the current dimmer range are automatically calculated whenever loads and voltages are available.

To get totals for all phases in all ranges, choose Tech Reports from the Utilities menu and select the "Total load of entire show" report.

You can go back and forth between the Control and Dimmer Details windows at any time. If you select a new range in the Control window, the Details window will then show the details for that range. You can also move forward and backward within a control system by using the "Last Range" and "Next Range" buttons.

PHASE TEMPLATES

Assigning phases by clicking on phases one at a time can be tedious and boring. To speed up the process, you can create Phase Templates. These templates store the pattern of phases, without the dimmer numbers.

To create a phase template, assign phases to all of the dimmers in a range and then click the "Save as Phase Template..." button. This will create a template which you can then apply to any other range by choosing the "Use Phase Template..." option while you're displaying that range.

To apply a phase Template, just click the "Use Phase Template" button and choose a phase Template file.

If a range template has fewer entries in it than the current dimmer range, Lightwright will automatically repeat the pattern to finish out the range. This way, if you create a very short phase template, you can apply it to a much larger rack.

Example:

- Create a range with just three dimmers.
- Assign phase A to the first dimmer, B to the second, and C to the third.
- Save a Phase Template and label it "ABC".
- Go to an actual range you're using (you can delete the temporary 3-dimmer range) and use the ABC phase template you just created.
- All of the dimmers in the range will automatically be assigned phases A, B, and C, repeating the pattern to the end of the rack.

Phase Templates should be stored in the Shared "Phase" file folder and can be used on any appropriate show file.

Several phase template files come pre-made with Lightwright, you can find them in the Shared Phases folder. Please note that these may or may not match the actual racks you have: racks are often custom-modified and will not be phased exactly the same way, even if they are labeled identically.

UNIVERSES TAB

To set up the universes, click the Universe tab in the Dimming & Control window. This window uses the new in-cell editing style, letting you select multiple cells and change them all at once. You can use plus editing in the Start# and End# columns, very much like the worksheet. As a result, the "+1" and "+512" buttons that were in Lightwright 5 have been removed. This tab has Undo available for simple edits. There is no undo for adding or removing rows.

Universes can begin and end on boundaries other than the default 1 and 512, but when you add new universes Lightwright 6 will always assume 512 addresses per universe.

Warning icons and messages will show where universes cover more than 512 DMX addresses, where universe numbers overlap each other, and where there are duplicate labels.

UNIVERSES TAB BUTTONS

	Description
Change...	Changes the number of universes and fills in the starting and ending DMX address for any that it adds.
Delete All	Deletes all universe information for the current system.
+	Adds one universe row to the bottom of the list
+...	Adds multiple universe rows to the bottom of the list
-	Removes the currently selected row(s)

If you want a particular system to always use universe format for dimmers, check the "Always view this system in Universe format" option.

UNIV#

When you open up a new show file, Lightwright 6 will automatically create the default number of universes that you set in Preferences/General. You can change this here by pressing the "Change" button. To set the universe separator character, go to Setup/Vocabulary.

Lightwright has an overall capacity of 45,000 DMX universes, though the physical limits of system memory and processor speed may make this many impractical.. If you choose to display dimmer numbers by universe, the entries you make here will determine the universe number and number within the universe.

LABEL

This is where you can enter a label that you would like to use to identify each universe. If you enter something here, it can be used instead of the universe number. For example, if you had a universe that the console identifies as "4a" but is really universe 5, giving it the label "4a" lets you enter addresses such as "4a/206" which is really "5/206".

DESCRIPTION

Typically, this describes what the universe is used for, such as "FOH" or "SL Booms" or "Overhead Scrollers".

QTY

This column is for the quantity of DMX addresses in each universe.

ABSOLUTE START#/END#

If you have more than one universe of DMX numbers, you will want to enter the starting DMX numbers for each universe here. The ending numbers are calculated based on the starting address and the quantity. The ending addresses cannot be edited manually.

BREAKDOWN TAB

Since some information in your show may be unique to each control system, you may want printouts organized by system for some categories.

This tab is where you tell Lightwright which columns you want broken down by System when it does reports and printouts.

Channel, Dimmer, Circuit Name, and Circuit Number are always broken down by system when paperwork is printed (for Channel Hookups, Dimmer Hookups, Circuit Name Schedules, and Circuit Number Hookups). They are also always broken down by system for tech reports and error checking. For all other categories, it is optional.

Here are some examples of when you may want to do things in different ways:

Example: System A is an Obsession controlling regular lights and System B is a Whole Hog controlling moving lights. In this case, you would probably not want Positions broken down by System, since you need to have both systems on the same Instrument Schedule.

Example: System A is a theatrical system and System B controls the house lights. In this case, you probably would want Positions to be broken down by System, since the systems don't have any overlapping positions and you wouldn't want the auditorium aisle lights included in a printout for System A and you wouldn't want the No. 1 Electric included in a printout for System B.

Caution: Dimmer numbers beginning with letters are not part of the usual dimmer ranges, so they cannot switch to universe format!

FOOTNOTES

Footnote text is set here. There are 100 possible footnotes numbered from 1-100. Each footnote can consist of any text up to 60 characters long.

To use a footnote, enter the Footnote Phrase in a Worksheet cell followed by a number from 1 to 100 into any text category. You can repeat each footnote any number of times, and the footnote does not need to be the only text in the cell.

You may want Lightwright to use the full text of the footnote when it counts colors or instrument types. If so, check-mark that footnote by clicking in the check-mark column. This toggles the check-marks on and off.

Example: Footnote phrase is: Note
 Text for footnote #2 is: R-08,R-17,R-41,R-60
 Color separator is: , (comma)
 Two S4-36 items use Note 3 as their color.

If footnote #3 is not check-marked, then counting color will produce this total:

 Note 3.....2 frames for S4-36

If footnote #3 is check-marked, then counting color would give these results:

 R-02.....2 frames for S4-36
 R-17.....2 frames for S4-36
 R-41.....2 frames for S4-36
 R-60.....2 frames for S4-36

Note that counting *sheets* of color will also respect the check marks.

Footnotes are generally printed at the bottom of the page containing the reference to them, but if there are too many on the page, they will be moved to an "end notes" position following the last page of paperwork.

Footnotes can contain gobos or any other phrase, but you cannot use more than one footnote in a single name if you want to check-mark them. Be sure to check-mark any note containing a gobo, or it won't be counted!

Example: R-55,Note 1 is okay
 Note 1, Note 2 is not okay if either Note 1 or Note 2 is check-marked
 Note 1, Note 2 is allowed if neither Note 1 nor Note 2 is check-marked

If one of your footnotes is especially long and spills past the end of the edit field, a triangular "warning" icon will appear to the left of it and you'll see a warning at the bottom of the window that not everything is fully visible.

COLOR SCROLLS

You can use Lightwright to create color scrolls by choosing Setup/Color Scrolls.

Add a scroll to the list at the top and select the fixture type. Then drag color swatches into the scroll or move them around.

Refer to the scroll in the worksheet by using the scroll phrase followed scroll's number.

Example: Use "Scroll 4" in the light's color column to indicate scroll #4 is what belongs on that light.

If you want to see levels a console will need to control the scroller, check one of the Console Levels options. The Percentages option shows you where each frame is as a percentage of the entire scroll. The DMX 0-255 option shows it as a number from 0-255.

If you want to manually enter a level, be sure the appropriate Console Levels option is checked, then enter your level value into the bottom of the scroll preview, where the percentages appear. The "User-Entered Levels" option will be automatically checked. If you want Lightwright to calculate the percentages for you, un-check the "User-Entered Levels" option.

Each scroll has a maximum of 62 colors.

Right-clicking on the scroll sample gives you options to save the scroll as a .jpg file, copy the scroll to the clipboard as text, or copy it to the clipboard as a picture.

Use Cut/Copy/Paste/Clear to duplicate scroll list rows or delete them, you can also click the Del button to delete a scroll.

You can drag scrolls from one Lightwright show file window to another so you don't have to keep creating the same scroll. To do this, drag the row from the upper list and drop it into the upper list in the other show's Color Scrolls window.

You can also drag scrolls from Lightwright to other programs. To do this, drag any cell from the selected scroll's scroll picture and drop it into an open window in the other program. If you just drag the scroll, you will get a text only list of the frame number, color, and percentage. If you hold down the Ctrl+Shift (Win) or Option (Mac) key while dragging, a JPEG of the scroll will be dragged instead of a text list.

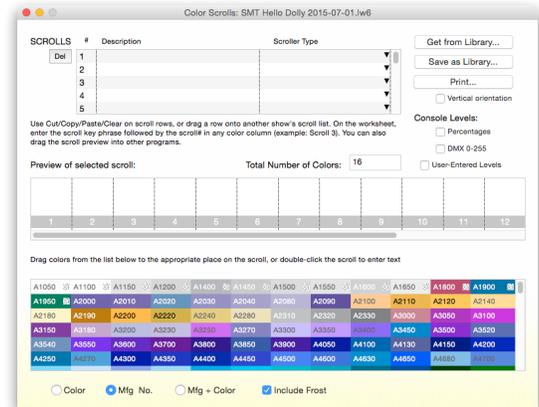
You can also put either a text or graphic image of the scroll on the clipboard or into a file by right-clicking on the scroll.

If the Vertical Orientation box is checked, then colors will be arranged vertically in both printed copies of the scroll and in JPEG images.

Click the Print button to get a printed copy of the selected scroll.

If you want to share a scroll with someone or keep a copy of it handy for reuse, use the Save as Library and Get from Library buttons. Scroll library files are compact and easily emailed.

There is a maximum of 200 different kinds of scrolls per show file.

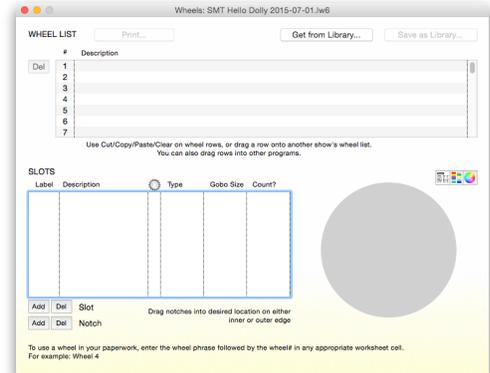


WHEELS

Lightwright lets you create Moving Light Wheels to document the colors and gobos available in your Intelligent Fixtures. To add and edit Moving Light Wheels, go to Setup/Wheels.

To add a wheel, click on an empty row in the upper list area and type in a name for the it. Once you have added a wheel and selected it, you can add either color or gobos into openings (called Slots). The first slot will initially occupy the entire wheel. If you have more than one slot they are automatically spaced evenly around the wheel.

If you right-click on the picture of the slot in the right lower area of the window, you can choose to open a graphic image file to insert into the slot. You can also drag a graphics file into the appropriate slot, or drag an image from a web page into a slot. You can change the rotation of the gobos in the Wheels window by dragging within the outer quarter of the gobo. The cursor will change into arrows to show you when you are in the area to rotate. Check the Gear column to indicate whether the slot is rotating or fixed.



Gobos used in wheels will be shown in the gobo choose list and can be given stock quantities using Maintenance.

You can also add notches to the wheel. Notches can be on the outer edge and/or the inner hole of the wheel. If you want it on the inner hole, add a notch (by clicking on the plus sign, and then dragging it to where you want it).

You can choose whether or not to count color and wheels in a Moving Light Wheel. Refer to the wheel in the worksheet by using the wheel phrase followed by the wheel's number. Example: "Wheel 2"

Use Cut/Copy/Paste/Clear to duplicate or remove wheel list rows. You can also use the Del button to delete the selected wheel list entry.

You can drag the completed wheel picture from the Wheel window and drop it into other programs as either a graphic or text. Which you get depends what the target program will accept. You can also right-click on the wheel picture to save it as a graphic image on your computer or copy it to your clipboard.

You can drag a wheel row from the list of wheels from one open Lightwright show file and drop it into the wheel list in another show.

You can save each wheel as a separate library entry, for easy re-use later. Click on the appropriate row in the wheel list, then click the Save As Library button. Wheels will be saved in a Wheel Libraries folder in your shared Lightwright folder.

To add an existing wheel library to a show, click an empty wheel list row, then click the Get From Library button.

To get a printed image of the wheel, click on the desired wheel list row, then click the Print button.

There is a maximum of 200 different kinds of wheels per show file.

MARKS

You can "mark" each unit in your show with one or more of 62 possible characters. Each mark must be a single alphanumeric character and can have a line of text describing it. What these marks mean and how you use them is up to you. For instance, you may want to mark lights that are part of a repertory plot with an "R".

Note: Lightwright 2 had only one mark, the asterisk. When Lightwright 6 opens version 2 files, it will translate any marked unit into an asterisk mark.

Use this window to enter the characters you want to use for Marks and (optionally) some text to describe what each mark means. You cannot use a character as a mark unless it has been entered here.

SHOW TITLE & PAGE HEADER...

This menu item opens the Show Title & Page Header window, where you can enter the name of your show and three rows of other text used in “Long Headers.”

The “Long Header” is a block of text up to three rows high and two columns wide that is always printed on the first page of every printout and can also appear on subsequent pages.

PEOPLE & NETWORK

If your computer is connected to other Lightwright users via either a wired or wireless network, you can share Lightwright Work Notes and show files with them electronically, without having to log onto their computer or go through any complicated setup or connection process. It can also send Work Notes to anyone via email.

When Lightwright launches, it automatically broadcasts its presence to all other copies of Lightwright that are currently running on the network and it makes a list of everyone it discovers.

If you find that you cannot discover other users you know are connected and are running Lightwright, check your computer’s firewall and network configuration. The network requirements are:

Port 24695 must be open for TCP.

Port 24696 must be open for UDP.

All of the computers **must be on the same subnet**, typically connected by Wi-Fi. To find out whether they are on the same subnet, click Lightwright’s console button and look at the active interface’s subnet mask. “255” in the subnet mask means those groups of numbers must match.

Example: Two computers whose IP addresses are 123.145.89.1 and 123.145.89.2 are on the same subnet if the subnet mask is 255.255.255.0, but 123.145.89.1 and 123.145.50.2 are not.

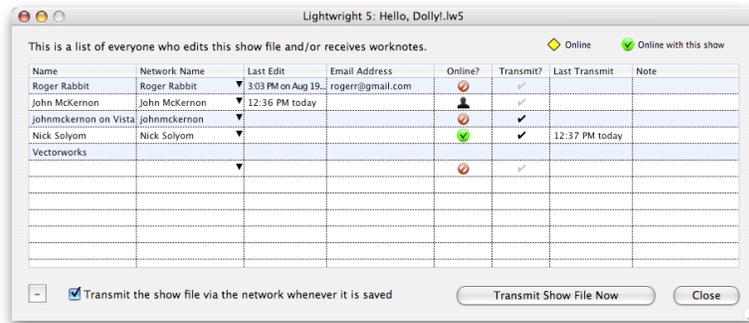
The network’s routers must support multicasting.

The network must permit UDP Multicasting using the Class D address 239.192.0.1.

All computers must be within 32 network “hops” (a.k.a. “Time to Live”) of each other.

Each show file has its own list of people that need to be kept informed about changes in the show file. That list is under Setup/People & Network, and it includes anyone who has edited the show file and people who need to receive copies of the Work Notes (whether printed, emailed, or transmitted via the network).

Here is a typical example:



Anyone who edits the show file will automatically be on this list, with a note showing when they last made changes to it. To add someone manually, pick an empty row and type their name into the Name column. If they are currently on the network, choose their network name from the pop-up arrow in the Network Name column. To enable sending the Work Notes via email, enter their email address.

If you are using Vectorworks Data Exchange, then Vectorworks will also be listed as a user, but you cannot transmit to Vectorworks or send it Work Notes.

To send someone a copy of the show file via the network, click their row in the Transmit column, then click the Transmit Show File Now button. Select the "Transmit the show file via the network whenever it is saved" option if that is appropriate.

The person receiving the file has the choice of either saving the file you sent them (perhaps to reconcile with their current copy of the file) or discarding it.

To send Work Notes via the network, open the Work Notes window and click the Distribute button.

To remove someone from the list, select their row then click the button in the lower left-hand corner with the minus "-" sign on it.

OTHER SHOW SETUP

These settings are saved with your show file and if someone else opens the show file, the settings on their computer will change to match the ones in the show file.

These are the categories of Show Setup information available under the Setup menu:

Vocabulary
Column Names & Definitions
Focus Charts
Flag Colors
FKeys

VOCABULARY

These are the various words and symbols you'll use to tell Lightwright how you're handling colors and gobos. The "Current" entries are those in the open show file, the "Default" entries are what will be used when a new show file is created.

The Vocabulary phrases are:

THE NOTATION FOR "NO COLOR" IS

Every designer seems to use a different notation to mean NO COLOR. Some use "CL", others use "OW", or "NC" or "N/C" and so on. This option lets you enter whatever *you* use. Items using this notation will not be included when color is counted. If you've entered "N/C" as your "NO COLOR" and then use "NC" as the color for a unit, Lightwright will say you need frames of NC when it counts color. This option comes set as "N/C".

It's probably obvious, but you should also note that you can't include any of the various color separators in your NO COLOR phrase, since it would confuse the program to no end.

FOOTNOTE KEY PHRASE IS

This phrase flags the use of a footnote. You can have up to 100 footnotes, and you can use them in any of the text columns (Purpose, Color, etc.). To enter a footnote, use the footnote phrase followed by the number of the note from 1-100. You can use any sort of word, symbol, or letter as your Footnote Phrase as long as it's unique and won't be confused with things like N/C or CLR. Some suggestions might be Note, Foot, Ref, or Scroll. Lightwright comes with this phrase preset as "Note." Be sure that whatever you use does not get used in any other context. Footnote phrases without a number after them are ignored.

GOBO KEY PHRASE IS

Older versions of Lightwright needed a way to recognize gobos, in much the same way that it still recognizes footnotes. This phrase is now used only to identify gobos when you include the combined Color & Gobos column on a layout, or when you save a version 4 file in version 2 format. You can use whatever you like, but some suggestions might be "T:", "Temp#", or "T#".

Example: Gobo phrase is T:. A unit with L-161 as the color and R77345 as the gobo will show up in a Combined Color & Gobo column as L-161,T:R77345.

SCROLL KEY PHRASE IS

This phrase is used to identify Scrolls. You can use whatever you like, but a suggestion might be "Scroll."

WHEEL KEY PHRASE IS

This phrase is used to identify Wheels. You can use whatever you like, but a suggestion might be "Wheel."

SEPARATE ACCESSORIES WITH

In order to distinguish one accessory from another when they are being typed directly on the Worksheet's Accessory column, Lightwright needs some sort of standard phrase or symbol so that it can recognize each one (the default is a plus (+) sign).

Note that only "dumb" accessories such as barndoors and top hats go into the "Accessory" column on the Worksheet. Intelligent or powered accessories require their own separate Worksheet row and should NOT be put in the accessories column.

The accessories separator can be any single character or combination of characters.

You can't attach more than one of any given accessory to each light. For example, you can't attach two top hats to one light.

Because the accessories separator has special meaning, it cannot be used within instrument type names.

SEPARATE LISTS TO COUNT THEM INDIVIDUALLY WITH

Whenever you want to show color or gobo changes for an instrument, you need to separate the colors or gobos with something to show that's what you're doing. Whatever you enter here will be the symbol Lightwright looks for when it counts individual colors or gobos. Be sure that whatever you enter here isn't used in color names or in your NO COLOR phrase.

Example: You have a light that changes from L-161 to L-110 during intermission. If your color separating phrase is a comma, then you would enter L-161,L-110 in the color column.

WHEN COMBINING COLORS IN A SINGLE FRAME, SEPARATE THE COLORS WITH

If you're putting more than one piece of color into a single frame, you'll need to use some sort of symbol to tell Lightwright about it. These separators will be used to count your color when figuring how many sheets of color you need. You can have more than one of these symbols, each of which can have a different meaning for you.

Enter *all the* various characters or symbols you want to use, *without any spaces in between them* (otherwise Lightwright will think you want to use a space as one of the symbols).

Examples: +/:

Any ONE of the symbols you enter will tell Lightwright to separate the colors when it counts *sheets* of color. If you want only one of these symbols, that's fine too.

Example: You have a light with both R-119 and L-110 in the frame, one atop the other. If a plus mark is included in your color combining characters, then you could enter their color as R-119+L-110.

The actual meaning of these characters is up to you.

UNIVERSE SEPARATOR CHARACTER IS

This is a single character, used when viewing dimmer numbers in one of the Universe formats. It separates the universe number or label from the address within that universe. The default is a slash ("/"), but it can be any other single character. Consoles such as the GrandMA often use a decimal point to separate the universe from the local DMX address, so changing to a decimal point in Lightwright might be helpful if you are using one of those consoles.

For example, if the slash ("/") is the Universe separator, dimmer numbers will be displayed as "2/135". If a decimal point (".") is used instead, you will see the same information displayed as "2.135".

If you are using a decimal point as the universe separator and you are also using decimal dimmer numbers, you will usually need to enter the entire number to make it clear what you intend. For example, "2.45" can be interpreted as either the 45th address in the second universe, or the 45th attribute of dimmer 2. If you want the 45th address in the second universe, you could enter "2.45.0" to be explicit about it. Using Universe Dimmer format will make clear what the entry really is.

The Universe separator character is stored in the show file.

CIRCUIT NAME/CIRCUIT# SEPARATOR CHARACTER IS

This is a single character, used when viewing Circuit Names and Circuit Numbers in one of the Universe formats. It separates the Circuit Name from the Circuit Number within that universe. The default is a dash ("-"), but it can be any other single character.

COLUMN NAMES & DEFINITIONS ...

There are 24 User definable columns in Lightwright. You can use Setup/Column Names and Definitions to change the definitions and names of the columns.

Any of the User Defined Columns 1-24 can be defined as any one of these:

Channel	IP Address
Dimmer	Load
Number #####	Color
Number #####.#	Gobo
Number #####.##	Text
	DIP Switch

Note: When you open an existing version 2, 3, or 4 show file, User Columns 1-6 will be defined as Number and User Columns 7-12 will be defined as Text, because that is how the columns were defined in those older show files.

Lightwright will do its best to preserve the data in the column if you change the data type, within the limits of what the new column definition allows. For instance, "1" in a Text column will still be "1" if you change the column type to Dimmer, but "Front light" would become 0 because there isn't any dimmer# equivalent..

Changing a User Column's data type to "Color" or "Gobo" means that column will share its color or gobo list with all other existing color or gobo columns. Therefore, "Eliminate Unused" looks at ALL columns that use that list. On the other hand, User Columns defined as Dimmer, Channel or Watts simply accept these kinds of data. They DO NOT make use of dimmer ranges you have set up, highest channel numbers, etc., and they are not checked for overloads.

Paperwork for user-defined columns defined as "Dimmer" can use the Layout options "Print Unused," "Print Actual Loads," and "Print items Without" but CANNOT use "Print Dimmer Types" or "Print Dimmer Status"

You can change the name used to refer to each of Lightwright's data categories. This is especially important to customize the user-definable columns. You cannot change the function of any of the "standard" columns (such as Channel, Dimmer, Color, etc.), but you can change their names. Note that you will need to enter three different lengths of names, which Lightwright will use as needed for varying column widths on printouts.

The "Permanent" name will never be printed out; only the names you enter in the "Long", "Medium", and "Short" columns will be used. The Permanent name is there to remind you what kind of column you're dealing with. If you want to restore the standard default Lightwright names for all of the columns, click the "Use Default Names" button.

FOCUS CHARTS

DEFAULT BACKGROUND GRAPHIC

Click on Choose to add a .jpg, .gif, or .bmp file to use as the default background for Focus Charts. Macintosh users can also use PICT graphics, but the Windows version of Lightwright will not be able to read them. Be sure that the aspect ratio of your focus sketch graphics is 1:1.5. For example, if your graphic is 300 pixels high, it should be 450 pixels wide, otherwise the image will be distorted when Lightwright fits it into the sketch area.

A copy of any graphics you use in the focus charts or in your layout will be placed into your show file. No matter how many times you use a particular graphic in a show, only one copy of the graphic file will actually exist.

FOCUS CHARTS COVER PAGE GRAPHIC

Use this option to choose the graphic you have created for your focus charts cover page.

The Focus Charts Cover Page Graphic is usually a nearly full-page-sized graphic that includes a floor plan showing where the zero-zero reference point is as well as common abbreviations used in the charts (such as "OOH" for "Out Of House").

FLAG COLORS

These colors are paired with flags you set to alert you to specific conditions, such as Purposes containing the word "Spare". They occupy a small square on the appropriate worksheet row, but they can be expanded behind an entire row on printouts, just like they did in Lightwright 4. These colors are set using the Worksheet/Flags menu command.

FKEYS

If your keyboard has function keys, you can use F5 through F12 to automatically type words or phrases you use often. (F1 through F4 are reserved for bookmarks.)

If you check the "Show FKey Window" check box, the Function Key Assignments window will open so you can see what each key is going to do while you're working.

Each function key has a pair of text items for it. The first is the "Short" text, which is what will show up in the Function Key Assignments window.

The second text item for each key is the "Playback when pressed" text. This is the actual words, phrases, numbers, or punctuation that will automatically be typed for you when you press that function key.

The reason for having two separate text items is that the full playback text may be too long to fit into the limited space available in the Function Key Assignments window. For example, you may want to playback "12lt 3ckt R40 Striplight" each time you press F5, but you put "R40 Strip" into the short text field because the full text is too long.

If you want both the short and playback texts to match each other, just enter it in the short field. When you leave the function keys preferences window, Lightwright will make the playback text match the short text. If you need one or more of the function keys for other things, just blank both the short and playback text fields.

SORTING

Normally, Lightwright sorts the way you'd expect it. However, you may need it to sort differently, especially with regards to user-definable fields. Use Setup/Sorting to do this.

Some sort orders are defined by what they are. For instance, a sort by Position naturally sorts by Position and then Unit#. However, how a sort by Channel works would depend on who you were and what you were doing. A designer might want things sorted by Channel and then by Position and Unit#, while an electrician might prefer sorting by Channel and then by Dimmer and then by Position and Unit#. Other sorts, such as sorting by Color, are even less clear. To set the sort, drag the categories into the appropriate box and order.

When Lightwright sorts by instrument type, sorting is always by device type first, then by instrument type within each kind of device.

Sorting will use any manually set "locked" order of lights in each position instead of sorting strictly by unit number.

However you set them, the sort order applies every time that sort is used, whether on the Worksheet or when paperwork is printed.

Sort orders are saved as part of your Layouts, so if you set up a particular sort order you will probably want to create a specific layout to go with it.

Example: You decide to use the Number 1 column to hold attribute numbers for channels. You go into Column Names and Definitions and change the title of the Number 1 user column to "Chan Attrib", then you go to Setup/Sorting, choose Sorted By Channel and change it so that Lightwright will sort first by Channel, then by Chan Attrib, then by Position and Unit# and then by Instrument Type.

In order for the Chan Attrib column to appear on your paperwork, you go to Layout and add the Chan Attrib column to all of the various kinds of paperwork that need it. You then use File/Save Layout As to save your layouts as "Paperwork with Attributes."

This way, whenever you have a show that uses the User 1 column to hold channel attributes, you can select the layout go to with it and the sort order will automatically change to match what you set when you saved the layout.

REBUILD ALL SORTS

If you find that sorting is suddenly erratic and unpredictable, first make sure that you aren't seeing locked position order (where the order of worksheet rows has been set by dragging them into a specific order, and flagged by small lock icons next to each unit number). If the problem is locked position order, View the errant position and then click the lock icon in the bottom left corner of the worksheet.

If in fact, sorts appear to be damaged, you can choose this option, which will rebuild all of Lightwright’s internal sort indexes. This process can take a good deal of time, so plan it for a time when you are not in a hurry. At the end of rebuilding, if the sorts are not what you expect, then check Setup/Sorting and see if the sort order is what you expect.

FOCUS CHARTS

GENERAL

Clicking on the Focus Charts tab brings up the Focus Charts page. Note that only instrument types with “Focus” checked in List Maintenance will have a focus status, and only focusable lights are included in focus charts. (The default is focusable.).

The Focus Status column is where you indicate the current focus status of each light:

	Red circle with “F” in the middle if the light is not focused
	Yellow diamond if partially focused
	Green circle if the light is focused

Click on the focus status column to change the light’s status, all of the Worksheet rows that are part of that light will automatically change. Entering any data into any of the focus fields or drawing anything on the Focus Sketch will automatically set the status to Partially focused. You can use both Limits and the worksheet’s View menu to see what has and has not been focused.

Most editing and other commands work the same in focus charts as they do in the regular worksheet, but there are some important differences, especially when copying and pasting:

Key(s)	Worksheet	Focus Charts
Home	Moves to first column of worksheet	Move to first field (L/R) of current unit
End	Moves to last column of worksheet	Moves to last field of current unit
Enter	Puts data in edit field into cell and moves down the worksheet (if selected in preferences)	Puts data into cell, but does NOT move down the worksheet
Up/Down	Moves up or down one row	Moves up or down one field
Ctrl+Up	Moves up one row	Moves to the previous light
Ctrl+Down	Moves down one row	Moves to the next light
Copy	Copies selected cell(s)	Copies entire focus, including graphics
Clear	Applies to selected cell(s)	Applies to entire focus form
Cut	Applies to selected cell(s)	Applies to entire focus form
Copy	Applies to selected cell(s)	Applies to entire focus form

Key(s)	Worksheet	Focus Charts
Paste	Applies to selected cell(s)	Applies to entire focus form if unit being pasted to is not the one the on the clipboard was copied from
Ctrl+G Cmd+G		Opens Sketch window
Ctrl+Y Cmd+Y	Toggles Focus Status	Toggles Focus Status
Left/Right	Moves between columns	Moves between fields
Ctrl+Left/Right	Moves between columns	Sets Beam & Axis tick marks

To rearrange the order of the shutter cut fields on the worksheet, drag the **label** for the cut into a new position.

To clear the Beam and Axis entries, click their label.

The format of the worksheet's focus chart form cannot be changed, but printouts can use any arrangement of fields.

Focus Charts come in two types: 1 column and 2 column. 2 column charts can have a different hanging position in each column or can wrap the end of the position in the first column to the top of the second column. When working on Focus Charts you can select what kind of chart you want on screen by making the appropriate choice from the Paperwork menu. Keep in mind that this is independent of what you want the Focus Charts to look like if/when you print them out. The choice of which kind and in what order you want the Hanging Positions to print out is set when you actually print the paperwork using the File/Print menu.

Using Layout, you can design the layout of the focus charts. There are Standard charts available which have a fixed layout (except for font & type size, which can be changed), or you can assemble your own layout from the various parts that make up a focus chart. For more information refer to the Layout section of this manual.

In addition to using them on focus charts, you can also add focus chart objects to the Channel Hookup.

ANATOMY OF A FOCUS CHART

Unit#	Type & Accessories	Watts	Purpose	Color & Template	Chn	Dim
1	S4-19	575w	Warm Wash	R-33	(1)	1/1
Needs: Beam: In/Sp- - + - <input checked="" type="radio"/> Out/FI Axis: - / \ L/R US/DS						
Note: US: DS: SR: Off Table SL: Top: Bot:						
2	S4 PAR MFL Donut	575w	Warm Wall	L-204, T:Breakup	(2)	1/2
Needs: Beam: In/Sp- - + - - <input checked="" type="radio"/> Out/FI Axis: - / Q L/R US/DS						
Note: Neutral Density Near Side/Focus						

Text on the Focus Chart view of the worksheet shrinks to fit, to a minimum of 9 pt. text, before it wraps. A yellow Warning Triangle ⚠ will appear next to any entry that is too long for the available space in the Focus Chart view. The entire entry will always appear on printed reports.

PRIMARY CATEGORY

The Primary Category is the name of the Hanging Position. Whatever font and size you use for this will also be used for the unit number.

COLUMN HEADER/COLUMN BODY

The Column Header and the Column Body are just like those on other kinds of paperwork. To move columns around, click and drag the column header left or right.

DESIGNER LOCATION

Place on stage where the designer stands so the light can be focused on him/her. In the example above, on Unit# 1 the designer stood four feet SR of center at 8' from the plaster line (4R @ 8). Please remember that the zero-zero reference point is different for every show so make sure you indicate this on the Focus Chart Cover Page (see below).

BEAM CHARACTERISTICS

Here you can indicate the beam characteristics such as barrel in/out on a leko (spot/flood on a fresnel) or somewhere in between the two. There are also various graphics that can help you indicate the filament rotation on a PAR can. Clicking on the "Beam" or "Axis" labels clears the beam or axis information.

NOTE

This is a space where you can indicate any special instructions that someone would need in order to focus this light once again.

CUTS

All shutter cuts should be noted here. Abbreviations used here should be noted on the Focus Chart Cover Page (see below). If a shutter was not used, leave the appropriate space blank.

You can drag either the field label or the field content of any shutter cut field (UR, SL, DS, US, Top, Bottom) and drop it onto any other shutter cut field to change where that field lives on the screen view. Doing this for any one light changes all of the lights. This only affects the worksheet view of the focus charts, NOT the printed version, which are determined by the Layout being used.

GRAPHIC (A.K.A. SKETCH)

This is the location of a small version of your focus sketch. Click within this area to bring up the Focus Sketch window. Please see Focus Sketch below for more details.

FOCUS SKETCH

In addition to the entry fields for focus location, shutter cuts, and other information, there is also a Focus Sketch area. The Sketch can have a default background image (usually the ground plan), no background, or a specific graphic as its background. Using simple drawing tools, you can then draw on top of the background to show shutter cuts or make other notes.

Use Setup/Focus Charts to choose a graphic file to use as the default background. This is also where you can choose the cut field labels and a graphic for the Focus Charts Cover Page. A copy of any graphics you use in the focus charts or in your layout will be placed into your show file. No matter how many times you use a particular graphic in a show, only one copy of the graphic file will be saved in the file.

You can drag and drop images into the focus chart sketch, where they will become the background graphic for that light. You can also drag and drop a default background graphic into the focus chart setup window. Graphics can be in .jpg, .gif, or .bmp format. If you are working exclusively on the Macintosh, you can also use PICT graphics, but the Windows version of Lightwright will not be able to read them. Be sure that the aspect ratio of your focus sketch graphics is 1:1.5. For example, if your graphic is 300 pixels high, it should be 450 pixels wide, otherwise the image will be distorted when Lightwright fits it into the sketch area.

To work on the sketch, click anywhere in it and a window will open with an enlarged version of the sketch, with a palette consisting of a row of tools, a row of colors, and a group of line weight samples

There is a choice of three sizes (small, medium and large) when viewing and editing the Focus Chart Sketch. To change the size, use Worksheet/Focus Sketch Size. You can see a close-up of the Focus Sketch by clicking directly on it while in the Focus Chart View.

In the Focus Sketch window, you can use the standard Cut, Copy, Paste, etc. options in the Edit menu, as well as the traditional Apple or Ctrl commands.

You can select elements in the drawing and modify them by clicking on the appropriate color, text size, line weight, etc. Font size on sketches can now be up to 24 pt. and can be boldface. Line weight on sketches can be up to 10 mil.

The tools available are Line, Dashed Line, Rectangle, Circle, Freehand, and Text. If one or more objects have already been drawn on the sketch, then Selection and Eraser tools will also appear.

To draw, click on a tool, color, and line weight then use the mouse to draw. Line weight on sketches can be up to 10 mil.

The freehand tool cannot draw infinitely long lines; if it stops short before you are finished, simply start another freehand segment.

To put text on your sketch, select the Text Tool, click on the sketch where you want the text to be, then start typing. Press Enter, Return, or Tab when you are finished typing to set the text. Press Escape if you decide you do not want the text.

The left edge of the text will always be where you click, but the rest of the text may vary in size depending on the size of the graphic when it is printed, because Lightwright will try to keep text readable, and in doing so the text may be relatively larger than the other drawn objects when the chart is very small.

To move objects already drawn, click the Selection tool and use it to drag objects as needed.

To duplicate any already-drawn object, click on the selection (arrow) tool, then hold down the Alt key (Windows) or Option key (Macintosh). While holding down the key, click and drag the object you want to duplicate.

To erase one or more objects, click the Eraser tool and then click on each object you want to delete.

To choose a background other than the default, use the Default pop-up menu. You can also drag and drop graphics into the focus chart sketch, where they will become the background graphic for that light. You can also drag and drop a default background graphic into the focus chart setup window.

The focus sketch will be scaled on the worksheet and on printouts to fit the available space.

FOCUS CHART COVER PAGE

To create a cover page for your focus charts, first design a nearly full-page-sized graphic using your favorite graphics editor such as Photoshop. The cover page graphic normally includes a floor plan showing where the zero-zero reference point is as well as common abbreviations used in the charts (such as "OOH" for "Out Of House").

Next, switch to Layout and choose Focus Cover Page from the Paperwork menu. After that, use Layout/Focus Charts Cover to add the cover page graphic to the page, and then drag the graphic into the desired location. You can also drag and drop a graphic directly onto the Focus Chart Cover Page.

HOW TO USE FOCUS CHARTS

The focus charts Lightwright prints are the kind most of the New York/Broadway designers use, and if you haven't worked here, you probably feel a little lost.

WHY USE FOCUS CHARTS?

If a show is touring, it's obvious that there needs to be a written record of where each light is focused. If a show is just sitting in a theatre, then focus charts are needed in case a unit isn't tightened down properly and falls out of focus, or if the electrician has to break the focus in order to change a burnout, or if the light needs to be refocused for a special event and then restored to its usual focus. Even clearer are cases where a show is revived some years after the original production, or where the show has to move out of the theatre temporarily.

THE FOCUSING PROCEDURE

To focus each light, you stand wherever the chart says to. The electrician points the light at you there. If you need to stand someplace downstage of your zero line, then the US/DS distance is shown as a negative number. If you need to be sitting down or standing on something when the light is pointed at you, be sure to include that in the chart (usually in the note field).

Once the light is focused on you, the electrician locks it down and begins to make shutter cuts, which are indicated in the body of the chart below the dimensions.

US, DS, TP, and BT can sometimes mean the same thing: For example, a shutter cut on the top of a light may well be the same as an upstage cut. Fill in whatever parts of the chart make sense for each light, and leave the rest blank. It depends on where the light is pointing and what would be clearer to understand. If you're focusing a front-of-house light and you want to indicate a cut off masking borders overhead, you'd probably say "TP Off Borders" instead of "US Off Borders" just because it's more what you want to do.

If you want to indicate Soft or Hard edges, sharp is the center plus (+) sign and then you indicate how far from sharp you go towards either Sf (soft) or Hd (hard).

If you're using a fresnel and want to indicate Spot or Flood focus, you circle Sp, Fl, or somewhere in between.

If you're focusing a PAR or other light which has an oval beam, then select one of the angled lines next to "Axis:" showing the orientation of the filament. You can also circle either the horizontal or vertical bar or L/R or US/DS instead of drawing an arrow. Whether the orientation is from the perspective of the light or the way it falls on the floor is up to you: just be consistent and include a note on your title page showing which way you did it.

SCENERY & OTHER ODDITIES

The stand-here-and-focus-like-this method works fine for most acting areas, but it rarely works for things like curtain warmers or gobo washes that streak dramatically across scenery. For those lights, you sketch little pictures showing what the light looks like on the object. It doesn't need to be overly artistic, but it does need to be clear. Here's a focus chart showing some curtain warmers:

Balcony Rail						
Unit#	Type	Wattage	Purpose	Color	Chn	
1	6x12	1kw	Curtain Warmer	R-33	(1)	
			UPPER RIGHT			
			SR	SL	BT	ST + Hd Sp. + . FI Axis: — US/DS LR
			US	DS	TP	
			BT			
2	6x12	1kw	Curtain Warmer	R-33	(1)	
			LOWER RIGHT			
			SR	SL	BT	ST + Hd Sp. + . FI Axis: — US/DS LR
			US	DS	TP	
			BT			
3	6x12	1kw	Curtain Warmer	R-33	(1)	
			LOWER LEFT			
			SR	SL	BT	ST + Hd Sp. + . FI Axis: — US/DS LR
			US	DS	TP	
			BT			
4	6x12	1kw	Curtain Warmer	H-33	(1)	
			LOWER LEFT			
			SR	SL	BT	ST + Hd Sp. + . FI Axis: — US/DS LR
			US	DS	TP	
			BT			

This light covers the upper right corner of the curtain

Notice that this light's edge is solid. The other lights are dotted lines.

The heavy lines indicate shutter cuts

No, this isn't great art (or even to scale), but it gets the idea across...

John McKernan / Lightwright 2 Balcony Rail

ABBREVIATIONS

Abbreviations are used a LOT. Why? To save time. Focus time is expensive and often hectic, and no one wants to wait while the focus charts are filled in, although everyone knows that they are essential. Some common abbreviations are:

OOH	Out of House
OOP	Off of Portal
HH+1 (or whatever)	Head Height plus one foot
OOS	Off of Screen
SAA	Same As Above
PROS	Proscenium
PORT	Portal
BK	Back
DIAG	Diagonal
BDR	Border
@	At
<	Angle
L/A	Lands At
F/O	Falls Off of

And now you know everything you need to know about focus charts. When in doubt, write down whatever makes sense -- but never take anything for granted -- the person reading the charts will NOT know what you mean unless it is blindingly obvious. I'll never forget the first time I focused the national tour of "Lettice and Lovage" off someone else's paperwork: the focus charts said stand on the 4th step on the staircase. They didn't say 4 steps from the top counting down, or 4 steps from the bottom counting up, and they hadn't drawn a picture.

LAYOUT

Layout is where you design the appearance of your printed paperwork. To switch from the Worksheet to the Layout Page, click on the Layout tab at the bottom of the Worksheet.

Layouts describe generally how you want each kind of paperwork to look. They include page margins, fonts, sizes, header and column arrangements, and any graphic embellishments you may want to include.

Each layout includes multiple kinds of paperwork, such as Channel Hookup, Instrument Schedule, etc. In addition, you can have multiple versions of each kind of paperwork, for instance you may want three different versions of the Cue List: One for the stage manager, another for the designer, and a third for the assistant. Each has its own layout of columns, formatting, and page orientation. All three versions are stored in the same Layout.

All the layout elements for all the different kinds of paperwork are combined into a single Layout file. The layout is a file that can apply to many different shows, while the data that fills the printouts is kept in separate show files. You can have as many different layout files as you want, and by choosing a different one at print time you can produce radically different-looking printouts from the same show file. The idea here is to not to waste time creating a new layout for each show, but to make layouts that you can use over and over.

The Layout tab is a cross between a page designing utility and a print preview function. What it shows onscreen is what your paperwork will actually look like when it is printed. This is generally a Very Good Thing, but it can also be confusing.

For example, if you have a show that doesn't have dimmers assigned to lights yet, when you go to the Layout and try to design your Dimmer Hookup, nothing will appear onscreen because Lightwright won't print a Dimmer Hookup if there aren't any dimmers assigned.

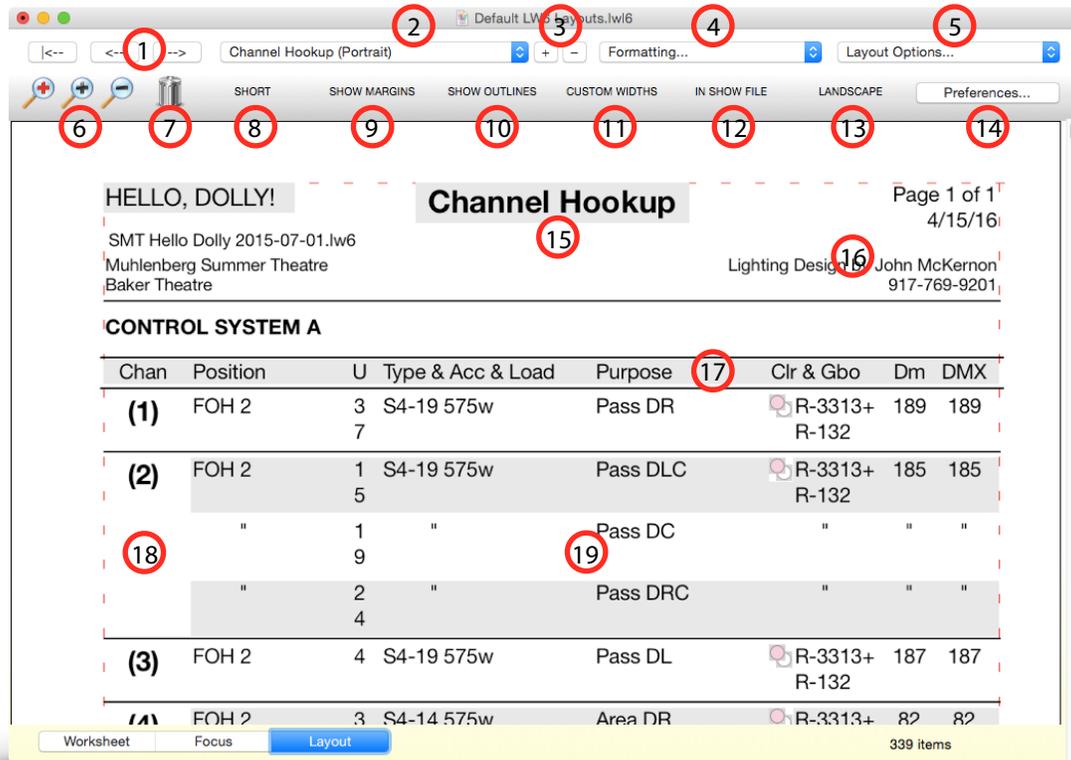
Because of this slightly-odd-but-understandable twist, you need to have a show with enough on it for you to work with.

Lightwright can open and use layouts created by older versions; however, layout files created by Lightwright 6 are not compatible with older versions.

To show you accurate views of your printer paperwork, the Page Setup dialog will open the first time you do anything related to the printed page. That includes clicking on the Layout tab, or choosing to print anything. If you press Cancel in the dialog, you will be returned to the worksheet. The exact options available in the Page Setup dialog will vary depending on your operating system, but often include choosing your printer and paper size and orientation. This dialog only displays once each time you start Lightwright.

DESIGNING LAYOUTS

THE LAYOUT WINDOW



You will see that clicking on the Layout tab enables menus in the menu bar. For information about what these menus do, see the upcoming section on Layout Menus.

1 FIRST, LAST, AND NEXT PAGE BUTTONS

In the Layout View, you can navigate between pages using the arrow buttons at the top of the window.

Page headers include the total number of printed pages. Each page will show the number of pages you have viewed, increasing as you advance through pages.

2 PAPERWORK MENU

This pop-up menu lists all of the kinds of paperwork in the current layout, showing the name of the paperwork and the worksheet column it is based on.

3 ADD/REMOVE PAPERWORK

There are a total of 44 different base kinds of paperwork. Each new kind of paperwork is created by copying an existing paperwork and modifying it. Paperwork can be deleted when it is no longer needed, but at least one instance of each base kind must be kept.

To create a new instance of an existing kind of paperwork, click the “+” button to the right of the paperwork name. A window opens where you can give the copy a new title or add a note to the name. You can use the same title for more than one kind of paperwork, but if you do then you must have a unique note for each of those paperworks. You cannot have the same paperwork-title-and-note for more than two kinds of paperwork.

To delete a kind of paperwork, click the “-” button to the right of the paperwork name.

4 **FORMATTING MENU**

This menu has options to format selected objects on the page.

5 **LAYOUT OPTIONS MENU**

Use this menu to add columns to the current paperwork, set margins, and to choose options such as whether or not empty dimmers are printed.

6 **ZOOM IN/OUT BUTTON**

This button switches the magnification between close up and full page. You can edit the layout in either mode.

	The red “+” icon zooms you in all the way.
	The black “+” zooms you in one step with each click.
	Clicking the “-” zoom icon after clicking the red “+” restores the view to your previous zoomed-out scale. Each succeeding click zooms you out more, until the full page is visible.

7 **TRASH CAN**

To remove any element from the paperwork, drag it over this trash can.

8 **SHORT OPTION**

When this option is active, all printouts use the short version of text entries. It matches the same setting on the worksheet and layout tabs.

9 **SHOW MARGIN GUIDELINES BUTTON**

Selecting this option enables red dashed lines that you show where the margins are. Margins are always measured from the edge of the paper towards the center of the paper. The guidelines are NOT printed on your paperwork.

10 **SHOW OUTLINES**

This option turns on or off pale green lines that show you where the right edge of columns are. These guidelines are NOT printed.

11 CUSTOM COLUMN WIDTHS OPTION

Lightwright will normally automatically determine the best width for each column and word-wrap within columns as needed.

You can also manually change the widths of columns by dragging the right-hand edge of the column header left or right. The cursor will change (like this: ) to let you know when you're dragging the edge as opposed to the whole column. Once you drag an edge manually, all of the column widths will be considered "locked" and this option will be checked automatically.

If you decide to let Lightwright adjust the column widths automatically, uncheck this option and column widths will be adjusted automatically again.

12 IN SHOW FILE BUTTON

When activated, it means that you are working on the layout that is associated with this show file. Saving the show will also save this layout along with it. If this button is not activated, then selecting "Save" will update the original layout file that you were working from, but not the show's layout specifically.

13 PORTRAIT/LANDSCAPE BUTTON

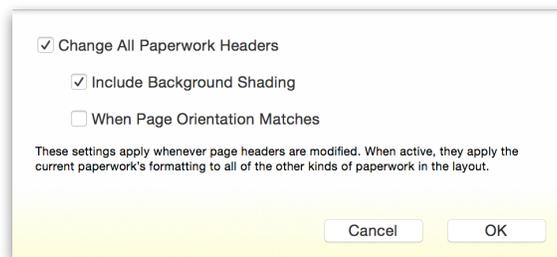
This option can be set individually for each kind of paperwork by going to Layout, choosing the Paperwork, and then clicking the Landscape button at the top of the window [C] to toggle between Portrait and Landscape. (The button will be red when the orientation is set to Landscape). Focus charts and any other kind of paperwork that includes a focus chart can only be printed in portrait orientation. The landscape button in Layout is not available for these kinds of paperwork.

File/Page Setup must always be set to Portrait orientation. Lightwright rotates the pages internally as it prints them, based on their layout orientation setting. As a result, there are no longer any Print Setup buttons in the Counting, Reports, or other windows.

When you choose File/Print, the list of paperwork includes an option to set the orientation of each kind of paperwork individually.

14 LAYOUT PREFERENCES

When working in the Layout tab, there is a new Preferences button located in the toolbar which will bring up the following window:



Activating "Change All Paperwork Headers" makes the headers for all kinds of paperwork in the layout automatically match each other. "Include Background Shading" makes the matching includes background shading attributes for all

objects. “When Page Orientation Matches” makes header changes only to other pages with the same page orientation as the current paperwork.

These options are preferences that are saved independently of each specific show file or layout.

15 SHORT HEADER

The “Short Header” is the top part of the page header, beginning at the top margin. It can contain any (or none) of these elements:

Element	Description
Show Title	Whatever you entered under Setup/Show Title & Page Header.
Paperwork Title	Title of the paperwork you are printing (i.e. Channel Hookup, Instrument Schedule, etc.)
Page #	Starts with 1 normally; see Partial Printouts for details...
Show File Name	Puts the file name in the header. Good to use when the Show Title and the file name are different.
Date	The date changes were last made in the paperwork, not necessarily when it was printed
Time	The time changes were last made in the paperwork, not necessarily when it was printed
Graphic	Choose any appropriate graphic in .jpg, .gif, or .bmp format. If you are working exclusively on a Mac, you can also use PICT graphics, but the Windows version of Lightwright will not be able to read them.

These objects all “float” and do not have to be placed in any particular location at the top of the page; all of their locations are relative to the top and left margins unless you assign specific “hug” attributes to them with the Attributes menu.

You can select more than one object by shift-clicking, but you can only drag one object to the trash at a time.

If you want to print your paperwork on letterhead paper and want Lightwright to reserve a fixed amount of vertical height for the Short Header, use the Layout Options/Margins dropdown menu item to set the “Height of Short Header” relative to the top margin.

The Short Header ends at the bottom of whichever Short Header element is lowest on the page or the “Height of Short Header” dimension, whichever is lower on the page.

Lightwright begins the “Long Header” (see below) at the bottom of the Short Header.

16 LONG HEADER

The “Long Header” is an optional three rows of two columns of other information which is often printed only on the first page (use Layout Options/Options to set this preference). Set the information in them using the Setup/Show Title & Page Header menu item.

Each of the six possible items in the Long Header can be formatted individually, but their location and justification cannot be changed. Lightwright will always snug the Long Header rows up as tight as possible to the Short Header.

17 COLUMN HEADERS

Each column of information has a header. The labels in the column headers will be abbreviated as needed to fit in the column, using the various entries in the Setup/Column Names & Definitions window.

To move columns around, click and drag the column header left or right. To delete a column, drag the column header over the trash can icon.

To add columns, choose one of the column categories from the Layout Options/Body Columns... dropdown menu.

When you click on one column header, all the headers are selected.

You can then choose a font, size, or style from the Formatting dropdown menu.

All body columns use the same font, size, and style.

18 PRIMARY CATEGORY

Each kind of paperwork has a "Primary Category" that is implicit in the kind of paperwork it is. A Channel Hookup will always have the channel as its primary category, a Dimmer Hookup will have dimmer as its primary category, and an Instrument Schedule will always have the Hanging Position as its primary category.

When you click on the body of the paperwork, everything except for the Primary Category is selected. The Primary Category is selected separately and can have a different font, size, and style from the body.

The location of the Primary Category is set by selecting the Layout Options/Options menu item. It can either float above the rows of information for it, or it can be the first column.

19 BODY

The body of the printout is made up of the rows of information that make up the bulk of the report. Individual rows and columns can't be formatted differently from each other (except for the Primary Category, as noted above), so if you click anywhere in the body of the printout, the entire body is selected. To move columns around, drag their headers. To remove columns, drag the headers to the trash can.

If you select one of the box attributes for the body, the box will be drawn around all the rows of information as a whole.

CREATING LAYOUTS

The Layouts chapter in the *Lightwright Tutorial* manual has some basic instructions on creating a layout; if you haven't looked at it yet, you should.

To design a layout, follow these steps:

1. Open a show file with data in enough categories to be useful.
2. Switch to Layout by clicking on the Layout tab at the bottom of the worksheet.

3. Choose the kind of paperwork you would like to use as a template layout from the Paperwork menu. If you would like to create a custom Channel Hookup layout, for example, you should start from one of the existing Channel Hookup layouts. We'll copy it in the next step and edit the copy.
4. Press the "Add Paperwork" ("+" sign) button at the top of the header bar.
5. Press the "Layout Options..." dropdown menu from the header bar to bring up the Layout Options window, where you can set the title of the paperwork, its note, the general arrangement of the items on the paperwork, and other useful options regarding the paperwork.
6. Add header items by choosing them from the Layout Options menu. Header items can be placed anywhere, but the further down on the page they are placed, the taller the header will be. Any changes made to the Long and Short Header are automatically copied to all of the other kinds of paperwork.
7. Header items can have attributes such as outlining or automatic positioning relative to the margins. Make a selection from the Formatting dropdown menu to change them.
8. Add columns to the body of the paperwork by choosing them from the Layout Options/Body Columns dialogue box. When you first add a column, it is added to the far right edge of the page. Drag its header to move it wherever you want it. This includes vertical lines.
9. Remove columns, header items, and vertical lines by dragging them to the trash can icon at the top of the layout page.
10. To change an item's font or size, first select it and then choose a font or size from the Formatting menu.
11. Column widths are normally set automatically, but only if the "custom widths" button isn't pressed. If you want to set the column widths yourself, drag the right-hand edge of each column. The custom column widths button will automatically select, and the column widths will not change after that, even if your paper size or orientation changes. To go back to automatic column widths, deselect the custom column widths checkbox.
12. Save your layout using File/Save Layout As.... You can save the layout (with its paperwork) within the show file or you can save it in your application's layout folder to make it available for multiple show files.

MISCELLANEOUS LAYOUT MENU ITEM NOTES

DMX ADDRESS HOOKUP

Some notes about this kind of paperwork:

- Only addresses that are within established universe ranges are included.
- If a light has a DMX quantity, then the starting and ending address are shown.

Example: A Mac700 has an address of 380, and it has a DMX quantity of 22.
On the Address Hookup, it will be shown as address 380-401.

SHOW AS RANGES

This option shows addresses as ranges, not just as the starting address. It is only available for the DMX Address Hookup.

CHANNEL FOCUS CHARTS

This option prints focus charts in order by channel number. All worksheet rows with an instrument type that is set as focusable in Maintenance are printed, including lights without a channel number.

FORMATTING MENU

This menu contains all text style and location attributes. If you select an element on the page and then choose one of these menu items, the selected element(s) will be drawn in that style or spaced according to your menu selection. This menu is also accessible as a “contextual” menu by right-clicking with the mouse.

FONT, SIZE, STYLE, JUSTIFY

Here you can determine what the text itself will look like when printed out.

To make a change to the layout text, select the item and then choose how you want that text to look using these options.

The format of the column headers can only be changed as a group.

Also, you can only click on and format the first block of information in the layout. All other rows in the layout will format identically to this first block. You can, however, format the main category (i.e. channel in a Channel Hookup, positions in an Instrument Schedule) different from the rest of the body if you would like these to stand out from the paperwork. Again, if you change the first item, the rest of them will follow suit.

BACKGROUND SHADING

You can have Lightwright shade areas behind printed text. To assign a background color, click on the page object you want to assign shading to (such as the show title). Then click the Formatting pop-up menus [A] and choose "Background Shading...". Choose a color from the color picker that opens and press OK. To remove a background color, do the same thing, but click Cancel instead of OK. Note that background row shading is not compatible with watermarks. If you choose a watermark when printing paperwork, background shading behind text will be turned off temporarily.

HELLO, DOLLY!
Channel Hookup

Page 1 of 1
4/4/16
Hello, Dolly! Demo Lee Rosco.lw6

Lighting Design by John McKernon
Based on Muhlenberg Summer Theatre Production

Chan	Position	U	Inst Type & Access & Load	Purpose	Color & Gobo	Dim	Addr
(1)	REAR BRIDGE	3	Source Four 19 575w	Pass DR	R-3313+R-132	189	1/190
(2)	REAR BRIDGE	3	Source Four 14 575w	Area DL	R-3313+R-132	84	1/85
	"	1	Source Four 19 575w	Pass DLC	"	185	1/186
	"	5	"	"	"	"	"
	"	1	"	Pass DC	"	"	"
	"	2	"	Pass DRC	"	"	"

These are the objects that can have shading behind them:

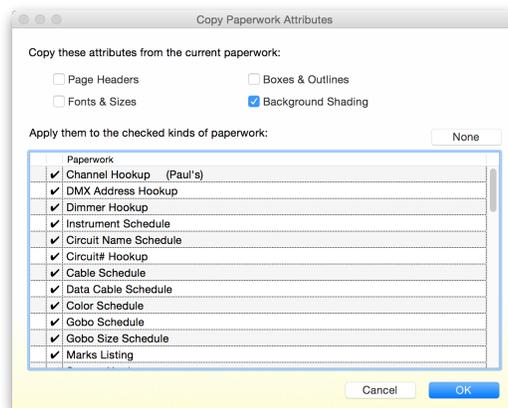
Show Title	Paperwork Title	Page Number	Show Filename
Date	Time	Show File Note	Column Headers *
The six "long header" text blocks (left & right)	The body of the paperwork**	Comment (Work Notes only)	Recipient (Work Notes Only)

* Assigning a color to any column automatically puts shading across the page behind all of the column headers.

** If the paperwork is anything other than a Work Note List, Lightwright will draw page-wide color bars behind alternating data rows down the page. Assigning a background color to a Work Note List column puts color only behind entries in that column.

COPY FORMATTING TO PAPERWORK

A new "Copy Formatting to Paperwork" option is now available in the Formatting pop-up menu. It lets you copy Page Headers, Font & Sizes, Boxes & Outlines, and Background Shading from the current paperwork to one or more other kinds of paperwork.



HUG OPTIONS

These menu items can constrain elements to certain locations on the page and will draw lines and boxes around them.

HUG TOP MARGIN
HUG LEFT MARGIN
HUG RIGHT MARGIN
HUG CENTER

These menu items can constrain Short Header elements (Show Title, Paperwork Title, Date, Time, etc.) to certain locations on the page. To make an element position itself relative to the page margins, select it and then choose one or more of these “hug” options. Hug Top will force the top edge of the element to be at the bottom of the top margin, Hug Left will always put the left edge of the element against the left margin, Hug Right will put the right edge of the element against the right margin, and Hug Center will align the object centered between the left and right margins.

When you select an item in the Short Header, any “hug” that has been applied to it will contain a check mark next to it in the menu.

If you select an object with one of these “hugs” already applied to it and then drag it out of position, the affected “hug” will be turned off automatically.

ALIGN/DISTRIBUTE OPTIONS

ALIGN TOPS
ALIGN BOTTOMS
ALIGN LEFT SIDES
ALIGN RIGHT SIDES
DISTRIBUTE HORIZONTALLY
DISTRIBUTE VERTICALLY

These commands will align or distribute selected elements relative to each other, including header items and focus chart objects. Shift-click to select more than one or more objects, then choose the appropriate menu option.

BOXES/GRAPHICS

These attributes can be applied to any part of the layout. Selecting an element and then choosing one of the box attributes will put a box or lines around it:

CHANNEL HOOKUP

No Box

CHANNEL HOOKUP

Plain Box

CHANNEL HOOKUP

Thick Box

CHANNEL HOOKUP

Shadow Box

CHANNEL HOOKUP

Frame Box

CHANNEL HOOKUP

Top & Bottom Thin



Top & Bottom Thick



Top & Bottom Double



Bottom Thin

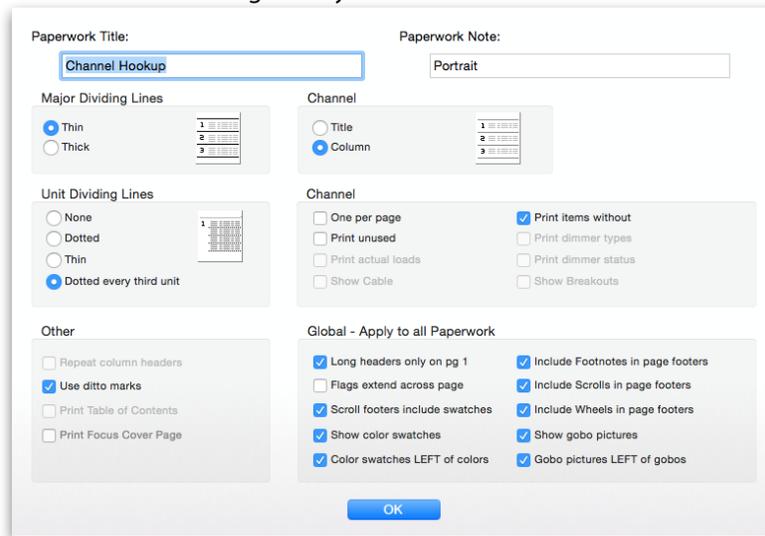


Bottom Double

LAYOUT OPTIONS MENU

OPTIONS...

This menu item opens a window with formatting and layout choices:



PAPERWORK TITLE

The Paperwork Title is what is printed at the top of each page to identify it. The Paperwork Note is used to distinguish different kinds of paperwork with the same title from each other. The key is that the combined paperwork-title-and-note must be unique from all other kinds of paperwork and their note.

Not all of the other options are available for all kinds of paperwork, but here's what each of them does:

MAJOR DIVIDING LINES

Serve as breaks between numbers or positions on the paperwork. On a Channel Hookup a major dividing line divides each channel from the other. On an Instrument Schedule, major dividing lines separate each position. They can be either thin or thick.

UNIT DIVIDING LINES

Separate individual rows on the hookup. Some people like to have a line between every item, while others hate lines.

OTHER

REPEAT COLUMN HEADERS

If you've chosen to locate the principal category as a title above the rows of information for it, then you can choose to repeat the column headers under each title.

Example: An instrument schedule where the Position is located as a title. If column headers do not repeat, then the printout looks something like this:

Unit#	Instrument Type	Wattage	Purpose	Color	Chn	Dim
Ceiling Truss						
1	6x16	1kw	Warm Wash	R-33	(1)	1
2	6x16	1kw	Cool Wash	L-161	(2)	2
3	6x16	1kw	Warm Wash	R-33	(1)	1
4	6x16	1kw	Cool Wash	L-161	(2)	2
5	6x16	1kw	Warm Wash	R-33	(1)	1
6	6x16	1kw	Cool Wash	L-161	(2)	2
7	6x16	1kw	Warm Wash	R-33	(1)	1
8	6x16	1kw	Cool Wash	L-161	(2)	2
9	6x16	1kw	Warm Wash	R-33	(1)	3
10	6x16	1kw	Cool Wash	L-161	(2)	4
No. 1 ELEC						
1	PAR 64 MFL	1kw	Downlight	R-80	(3)	5
2	PAR 64 MFL	1kw	Downlight	R-21	(4)	6
3	PAR 64 MFL	1kw	Downlight	R-80	(3)	5

If you do repeat the column headers, then the same printout would look like this:

Ceiling Truss						
Unit#	Instrument Type	Wattage	Purpose	Color	Chn	Dim
1	6x16	1kw	Warm Wash	R-33	(1)	1
2	6x16	1kw	Cool Wash	L-161	(2)	2
3	6x16	1kw	Warm Wash	R-33	(1)	1
4	6x16	1kw	Cool Wash	L-161	(2)	2
5	6x16	1kw	Warm Wash	R-33	(1)	1
6	6x16	1kw	Cool Wash	L-161	(2)	2
7	6x16	1kw	Warm Wash	R-33	(1)	1
8	6x16	1kw	Cool Wash	L-161	(2)	2
9	6x16	1kw	Warm Wash	R-33	(1)	3
10	6x16	1kw	Cool Wash	L-161	(2)	4

No. 1 ELEC						
Unit#	Instrument Type	Wattage	Purpose	Color	Chn	Dim
1	PAR 64 MFL	1kw	Downlight	R-80	(3)	5
2	PAR 64 MFL	1kw	Downlight	R-21	(4)	6
3	PAR 64 MFL	1kw	Downlight	R-80	(3)	5

USE DITTO MARKS

To save space, you can have Lightwright use ditto marks whenever information in one row is the same as the row above it.

PRINT TABLE OF CONTENTS

Text-category paperwork such as Instrument Schedules, Focus Charts, and Circuit Name Hookups can have an contents page printed showing which page each position begins on that can serve as the first page of the paperwork. If you want this page printed, check this option. Note that Lightwright will always print this page last (after it knows what page everything is on), but the page itself has no page number.

PRINT FOCUS COVER PAGE

If you want Lightwright to print a cover page for your focus charts, select this option. The focus cover page includes a .jpg or other graphic that usually shows a basic ground plan showing where the zero point is and a list of the abbreviations and other conventions used in the charts. The graphic can be made by any graphic program that can create .jpg or .bmp files. Note that the Print window's option "NO Focus Cover Page" overrides this option.

ADD SPACE BELOW EACH CUE

This option adds blank space below each printed cue. In the edit field, enter the amount of space you want, in inches or millimeters (depending on your current metric preference). This option can be useful if you need a copy of the cue list that the designer can write notes on. If you need this frequently, make a new copy of the Cue List paperwork and give it a note such as "with note spaces" and turn on this option. This option is only visible when Cue List is the current paperwork.

PRINCIPAL CATEGORY

TITLE VS. COLUMN

You can have the principal category placed as a title above the rows of information, or as the first column. A number hookup (such as a Channel Hookup) will usually place the principal category (Channel) as a column, while things like Instrument Schedules usually have the principal category (Position) as a title.

ONE PER PAGE

If you want each new Channel, Dimmer, Position, or whatever to start a new page, check this option. Otherwise, Lightwright will put as much on each page as possible.

Lightwright uses this logic to insert page breaks:

If One Per Page is selected, then a page break is inserted whenever the principal category's information changes (for instance, between channels on a Channel Hookup)

Otherwise, a page break is inserted whenever Lightwright runs out of room on the page. If the entire principal category's rows could have fit on a page, then it moves that entire block of rows to the following page, unless the principal category's rows would overflow the page even if they had a page all to themselves.

Example: Lightwright is printing an Instrument Schedule. It has already printed all of the items that make up the No. 1 Electric on this page. It starts to print the No. 2 Electric, but finds that only some of the lights on the No. 2 Electric will fit on this page, so it inserts a page break at the end of the No. 1 Electric and starts a new page for the No. 2 Electric. When it finishes the No. 2 Electric, it begins the No. 3 Electric but notices that there isn't enough room for all of the No. 3 Electric's lights to fit on the page. However, the No. 3 Electric is so big that they would spill over onto a second page even if they started a new page, so Lightwright goes ahead and prints as many units for the No. 3 Electric at the bottom of the No. 2 Electric page before doing a break and finishing the No. 3 Electric on the new page.

PRINT UNUSED

This fills in the gaps between numbers on numeric columns so that there's still a space for the number. For example, a Channel Hookup may have channels numbered from 1 to 10, but channels 5, 6, and 7 aren't used. If this option is not selected, then the channel hookup will jump from channel 4 to channel 8. If you do check this option, then the channel hookup will show channels 5, 6, and 7 but without any information other than the channel number.

PRINT ACTUAL LOADS

This option only applies to Dimmer Hookups. If you select it, then an extra line will be added at the bottom of each dimmer showing the total load on that dimmer.

SHOW CABLE

Shows cable entered in Maintenance/Multicable Name.

PRINT ITEMS WITHOUT

This prints those items which do not have an entry for the principal category. For example, in a Channel Hookup, those lights which have not been assigned channels will only print if this option is selected.

PRINT DIMMER TYPES

If you want to show what kind of dimmer each dimmer is on a dimmer hookup, select this option.

PRINT DIMMER STATUS

If you want to show the current status of each dimmer on a dimmer hookup (such as "Bad" or "Multiplexed"), then turn this option on.

SHOW BREAKOUTS

Shows breakouts entered in Maintenance/Multicable Name

GLOBAL – APPLY TO ALL PAPERWORK

Options in this section will automatically be applied to all printed paperwork, no matter which paperwork is being viewed when you choose Layout Options/Options.

LONG HEADERS ONLY ON PAGE 1

The "Short Header" is the top part of the page header which usually contains the show's title, the name of the paperwork, the page number, and other optional elements. The "Long Header" is an optional three rows of two columns of other information which is often printed only on the first page. If you want to save space, then check this option.

FLAGS EXTEND ACROSS PAGE

If you select this option then the color will be carried all the way across the printed page, behind the entire row that it applies to. In the Worksheet Flags & Colors window, a new slider control lets you determine the intensity of the color used when printing colors when they are extended across the page.

SCROLL FOOTERS INCLUDE SWATCHES

If a scroll is used anywhere on the page, then a band of color swatches will be drawn under the list of colors at the bottom of that page.

SHOW COLOR SWATCHES

If you select this option, Lightwright will print a color swatch in the right edge of the color column next to any color which it recognizes from the Standard Color List.

COLOR SWATCHES LEFT OF COLORS

If you select this option, Lightwright will print the swatch to the left edge of the color column.

INCLUDE FOOTNOTES IN PAGE FOOTERS

If a footnote is used anywhere on the page, the full text attached to that footnote will be drawn at the bottom of that page, up to a maximum of 5 footnotes per page.

INCLUDE SCROLLS IN PAGE FOOTERS

If a scroll is used anywhere on the page, the list of colors in that scroll will be shown at the bottom of that page.

INCLUDE WHEELS IN PAGE FOOTERS

If a wheel is used anywhere on the page, then a list of the gobos and/or colors used in that wheel will be included at the bottom of that page.

SHOW GOBO PICTURES

If you select this option, then Lightwright will print a small picture, to the right of the gobo column, of any gobo which are included in the show file.

GOBO PICTURES LEFT OF GOBOS

If you select this option, Lightwright will print the gobo picture to the left edge of the gobo column.

CUE LISTS

If your show file has a cue list, you can click the Layout Options pop-up button then choose Options to set other formatting choices specific to Cue Lists.

Paperwork Title: Cue List Paperwork Note:

Cue Dividing Lines
 Thin
 Thick

Part Dividing Lines
 None
 Dotted
 Thin
 Dotted every third cue

Cues Included
 All
 Only Called

Other
 Highlight called cues
 Include related work notes
 Double space

Category Name
 One per page
 Print unused
 Print actual loads
 Show Cable
 Print items without
 Print dimmer types
 Show Breakouts

Global - Apply to all Paperwork
 Long headers only on pg 1
 Include Footnotes in page footers
 Flags extend across page
 Include Scrolls in page footers
 Scroll footers include swatches
 Include Wheels in page footers
 Show color swatches
 Show gobo pictures
 Color swatches LEFT of colors
 Gobo pictures LEFT of gobos

OK

MARGINS...

Each kind of paperwork can have different margins. Margins are always measured as the amount of space between the outside edge of the paper and the text. Many printers cannot print all the way to the edge of the paper, so there are minimum margin settings that Lightwright will get from your printer. If you change printers after you set the margins and the new printer's print area is within your margins, the margins will be adjusted so that everything stays visible.

The "Use for All" button in the Margins window (click Layout Options, then select Margins) copies the margins from the current paperwork to all the other kinds of paperwork that have the same page orientation.

The "Short Header" is the top part of the page header that usually contains the show's title, the name of the paperwork, the page number, and other optional elements. The "Long Header" is an optional three rows of two columns of other information which is often printed only on the first page. If you set the height of the Short Header to zero, then Lightwright will move the Long Header up as tight as possible to the bottom of the lowest element in the Short Header. If you want to leave blank space below the Short Header (perhaps to accommodate letterhead graphics), then measure from the top margin down to where you want the top of the Long Header to begin and enter that dimension in the Short Header edit field.

See the sections on the Short and Long Headers for a graphic showing more clearly where the Short and Long headers begin and end.

TEMPORARY SETTINGS

This menu selection opens a window where you can choose options that are normally set when you print paperwork, but which are not part of the layout:

- Highlight changes
- Print only items with changes
- Omit attributes
- Watermark

HEADER OPTIONS

This menu has the elements you can add to the Short Header:

Item	Description
Show Title	The title of the show
Paperwork Title	The name of the paperwork
Show File Name	The name that you have given this file, as opposed to the actual title of the show.
Show File Note	The show's file note can be included in the page header. You can create the note by going to Setup/ Show Title & Page Header.
Page#	The current page number
Date	The date changes were last made to the paperwork (not necessarily today's date!)
Time	The time changes were last made to the paperwork
Picture	You can use a graphic in .jpg, .png, gif, or .bmp format. Be sure that the aspect ratio of your focus sketch graphics is 1:1.5. For example, if your graphic is 300 pixels high, it should be 450 pixels wide, otherwise the image will be distorted when Lightwright fits it into the sketch area.
Work Note Recipient	The person/department that is receiving the work note.

To add any of these things to your layout, just select it from the Layout Options dropdown menu. The current paperwork will re-draw, with the chosen element added to it. The location of the element will probably be wherever you last placed it, unless it would be off the page.

Once an object is on the page, you can drag it around and apply other options to it. To apply options to an object, click on it once to select it and then choose an option from one of the other menus to change its style, alignment, or graphical attributes. You can drag any of the header objects freely anywhere within the page header.

If you would like to remove any of these elements from the Layout, drag them to Lightwright's trash icon. Doing this will not remove the item permanently. You can always add it back by selecting it once again from the Layout menu.

Change the size of the graphic by clicking on it and then dragging the drag handle (in the lower right corner of the graphic) in and out. To move a graphic, click on it and then drag it. If you want to replace the current graphic with another, drag it to the trash icon and then select Graphic from the Layout menu.

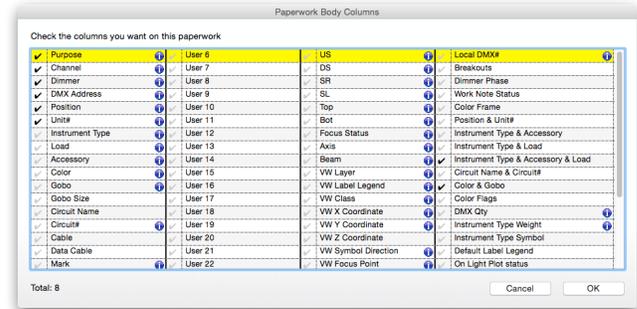
A copy of any graphics you use in the focus charts or in your layout is included in your show file. There are reports and error checks available that can tell you where each graphic is being used or if there are any unused or missing graphics..

Changes made to any part of the page header automatically apply to all of the various kinds of paperwork, not just the one being worked on.

BODY COLUMNS

This menu item has column categories and graphics you can add to the body of the paperwork.

All the Lightwright data categories that are available for each kind of paperwork are included in this menu. The primary category on each kind of paperwork is fixed and cannot be changed (such as Channel# on a Channel Hookup). Each category can appear only once on each kind of paperwork. Some kinds of paperwork will not have some categories available, for instance Work Notes have just a few columns available, and Reports do not include all columns.



There are also special columns that combine two ordinary columns into one (such as Position & Unit#, Type & Accessory, etc.). Each of these combined columns can appear only once on each kind of paperwork.

You can also drag column headers to Lightwright's trash can to remove items, and this is the only way to remove vertical lines from paperwork.

Worksheet flags can be one of the columns in a Layout, and if you choose Layout Options/Options/Flags extend across page, then the color will be carried all the way across the printed page, behind the entire row that it applies to. In the Worksheet Flags & Colors window, there is a slider that lets you determine the intensity of the color used when printing colors when they are extended across the page.

FOCUS CHART OBJECTS

When designing a layout for focus charts, you can either choose a standard pre-defined focus chart layout that matches the one in Lightwright's Focus worksheet tab, or you can design your own. Choose Focus Chart Objects from the Layout menu to choose which kind of charts you want to use and which objects you want on the focus chart.

The Standard charts have a fixed layout (except for font & type size, which can be changed), or you can assemble your own layout from the various parts that make up a focus chart. If you choose to use the Standard chart, the overall size of the chart will depend on the type font and size you choose. If you assemble your own chart using the various objects, you have complete control over the size of the chart.

Using Standard Focus Charts, you can drag shutter cut labels and fields around to change where they appear when printed. However, you can only swap the location of one cut with another. This only changes the printed version, not the focus chart view. When viewing the layout for Focus Charts, gray boxes with field names in them will appear whenever a focus chart field is blank. Those gray boxes are only there to help you select the fields and modify them, they will not appear on printed charts.

Each label and focus chart data field can have its own font, size and style. Select the data field you want to change and use the Attributes menu to choose the font, size or style. Text in printed focus chart entries will either shrink to fit the available space or wrap vertically.

You can choose one of four sizes of the focus sketch to print (small, medium, large and jumbo), using Layout Options/ Focus Chart Objects. Jumbo is only available as an option with the Custom Focus Chart.

Caution! Standard charts will grow and shrink depending on the data in them, and will use word wrap within the areas of the chart. Custom charts do not use word wrap, which can result in messy printouts unless care is taken when planning the layout.

In addition to using them on focus charts, you can also add focus chart objects to the Channel Hookup.

Unit numbers are always boldfaced on standard charts, as are the entries for the designer location.

Blank focus chart fields appear as grey filled-in boxes containing the name of the data category so you can see where they are in the layout. When printing focus chart objects, blank focus chart fields will have the field labels printed in gray, while those with data will have black field labels.

FOCUS COVER PAGE GRAPHICS

To create a cover page for your focus charts, first design a nearly full-page-sized graphic using your favorite graphics editor such as Photoshop. The cover page graphic normally includes a floor plan showing where the zero-zero reference point is as well as common abbreviations used in the charts (such as “OOH” for “Out Of House”).

Next, switch to Layout and choose Focus Cover Page Graphic from the Layout Options pop-up menu. After that, use Layout/Focus Charts Objects to add the cover page graphic to the page then drag the graphic into the desired location.

GRAPHICAL ELEMENTS

DOTTED VERTICAL LINE
THIN VERTICAL LINE
THICK VERTICAL LINE
EXTRA SPACE

These are graphical elements. You can use as many of these as you need. The “Extra Space” is a blank space about 1/4” wide.

All of the above categories are added initially to the far right-hand edge of the paperwork; drag them wherever you want them after that. To remove any of these items, drag it to Lightwright’s trash can.

GANGING

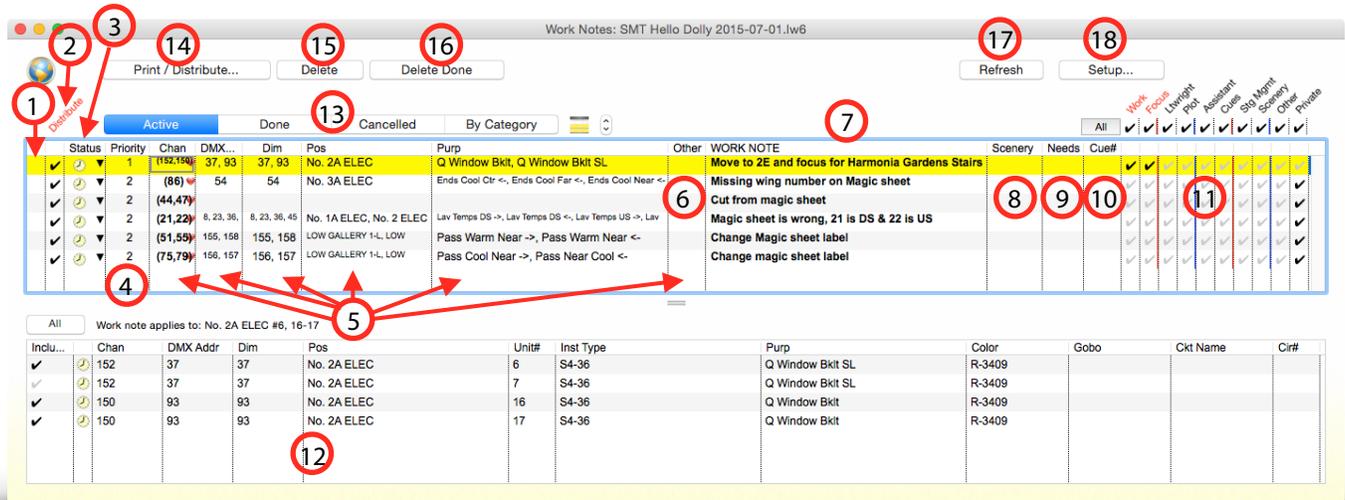
NO GANGING
BY CHANNEL
BY DIMMER
BY CKT#
BY CKT NAME & #

This menu can add a description under each unit on the paperwork showing how that unit is ganged with others in the show.

The position and formatting of this element is automatic and will always match the formatting of the paperwork body.

WORK NOTES

The Lightwright Work Notes window can be accessed via Utilities/Work Notes or using Ctrl or ⌘-K or pressing on the Work Note icon in the Worksheet toolbar.



GENERAL

Work Notes can be attached to a specific light, associated with a particular bit of information in a column, or just some useful text not linked to anything in particular.

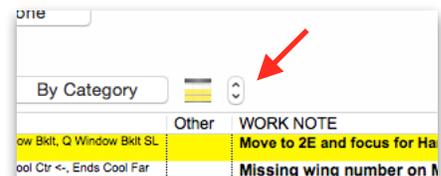
THE WORK NOTE WINDOW

To add a note in this window, click below the last existing row, then enter the Work Note in the Work Note column. You can also choose Add Work Note from the Utilities menu, which will open the Work Notes window (if it is not already open), and select the Work Note cell in the first empty Work Note row, ready for you to enter the note. The Add Work Note window has a keyboard shortcut assigned to it, making it very easy to enter a new Work Note.

The default data entry column can be changed by right-clicking on the column you want to be the default column and choosing "Make this column the default entry column for new Work Notes." You can use a different search column for each Work Note. In the example above, the first Work Note searched the Channel column, while the second note searched the Purpose column.

You can also see the history of a note (When it was created and done) by Right-Clicking on the note.

Individual Work Notes can have a background color, which can be changed by right-clicking on the note and choosing Row Color.



The widths of most columns can be changed by dragging the right edge of the column's header. There is an up/down arrow that changes the height of the rows in the work note list.

- 1 Drag the far left Work Note column up or down to manually change the order of the Work Notes. This is independent from their priority. The order you drag rows into will remain until you close the Work Notes window and reopen it, or click the Priority column header, at which time Lightwright will sort the work list, first by the priority labels. Within each group of rows sharing a common label, the rows will be in the same relative order in which you dragged them. If you do not assign priorities to one or more rows, the effect will be the same as if they all had the same priority label (in that case, a blank label).
- 2 Use the Distribute column to determine which Work Notes are distributed to other people. If any Work Notes have this column checked, then only Work Notes with this column checked will be distributed. If none of them are checked, then ALL of the Work Notes will be available for distribution.
- 3 To change the status of a note, click on the arrow next to the status icon and choose from the pulldown menu which appears. When the note has been completely finished, mark the note as Done.
- 4 The priority column can contain any kind of notation to determine how important a Work Note is or when it needs to be done, for example "High", "Low", "Today", or "Friday". Lightwright will sort the work list based on these priority labels.
- 5 The Channel, DMX Address, Dimmer, Position, Purpose, and Other columns can be used to search for worksheet entries that the Work Note applies to. The search cell will turn bold with a red heart, and the other cells will automatically be filled with information drawn from the related worksheet entries. You can also use Edit/Set Find to Current Cell to make an existing cell the Search cell.
- 6 Use the Other column to search for matches in data columns not shown here (such as Color or Template).

You can use a different search column for each Work Note. In the example above, the first Work Note searched the Channel column, while the second note searched the Purpose column.

Pressing Enter while a search cell is highlighted causes Lightwright to re-search for lights that match that cell's contents.
- 7 To edit a work note, click in the Work Note category.
- 8 Enter any specific scenery pieces that are needed to complete the note. For example, if the note is to take a shutter cut off the scrim, then you would enter "Scrim" into this field. If the living room wagon sconces need to be re-wired, then enter "Living Room Wagon" here. If you need to refocus a high side for the ballroom scene and you are uncertain if the new focus will end up hitting the chandelier, then you may want to add "chandelier" here so that the crew knows that it will need to be flown in for focus.
- 9 The Needs column typically contains items that will be needed in order to complete the note, for example "2 S4 frames L-201".

10 This is the cue number that is associated with the work note, assuming that the note is related to a cue. The Cue# column can contain any kind of number or text, but one special feature of it is that when the Cue List window is open, choosing Utilities/Add Work Note adds a work note with the cue# filled in and sets the "Cue" category.

11 To change the categories for a note, click in the appropriate column(s) to the right of the note. You can use categories as a kind of ripple sheet by clicking all of the relevant categories at first and then unchecking them as each relevant category has been dealt with.

Each Work Note must be placed in at least one category in order to be printed and/or distributed to other users. If no category is chosen for the work note, a red question mark will appear in every category column to warn you.

Click in the checkboxes under the category names to make Work Notes in each category visible (or not). To see all Work Notes in all categories, click the All button.

You can change the categories for the check boxes to the right by using the Category Setup button. You can either create a new set of defaults, which will open with all shows, or edit the categories for just the show you are working on.

You can use your mouse to click on category cells to select them, or use the keyboard arrow keys to move to the appropriate cell and press [Space] to select or deselect the category.

The Category Setup button also lets you choose a sort order for each kind of category when you distribute your Work Notes to other people.

12 To view the lights that a Work Note applies to, select the Work Note in the upper section and all of the lights the note applies to will appear below the Work Notes list. You can change the status of the note to Done on a per light basis. When all of the lights have been marked as Done, the note will automatically be marked as Done.

The results of the search will appear in the bottom section of the window and you can check the exact lights to which your note applies.

Only one of these columns will be used to find matching lights, and the text in that cell will be **boldfaced and have a heart next to it**. The other columns will have information based on the lights that match your search entry.

13 Tabs at the top of the window let you view Active, Done and Cancelled notes. The tab "By Category" shows the Work Notes grouped together by category and has fewer columns than the Active tab, making it easier to see what needs to be done.

Some notes about the By Category view:

- If a work note doesn't have any category assigned, it will not appear in this view.
- If a work note isn't marked for distribution, it will not appear in this view.
- If a category isn't checked as active, it (and the notes assigned to it) are not shown.
- If a work note has more than one category assigned to it, it will appear in every category grouping.

- The order of work notes in each category can vary based on the sort order chosen by clicking the Category Setup button.
- You cannot sort individual columns by clicking their headers because the same note can appear in multiple categories
- You cannot prioritize work notes by dragging them up and down the list.
- If you add a new work note while in this view, it will appear at the bottom of the list and will not move into category sections until you click Refresh, choose a different tab, or turn a category on or off.

14 Printing your Work Notes is just one of the ways you can distribute your Work Notes to people. Clicking on the Print/Distribute button at the top of the Work Notes Window opens the Work Note Distribution Window, which contains a list of people you want to get a copy of the Work Notes. You can distribute Work Notes by exporting them, printing, transmitting (via a shared network) or sending via email directly from Lightwright.

You can specify which notes each person receives based on the Work Note categories that are relevant to them, and you can also enter a personal comment to each person getting the notes.

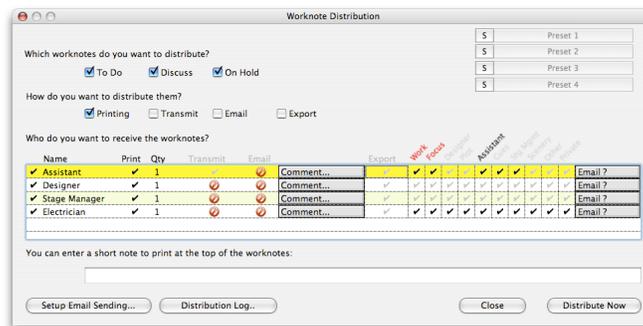
The basic procedure is straightforward:

Decide whether you want to distribute Work Notes with To Do, Discuss, or On Hold status.

Choose how you want to distribute them: Printing, Transmitting, Emailing, or Exporting. If you want to print and the current layout has more than one kind of Work Note paperwork, a pop-up menu will be in the center of this window, listing the available kinds of paperwork for you to choose from.

Enter the names of the people you want to send the Work Notes to and optionally decide on a person-by-person basis, the number of printed copies for each and how you want to distribute the notes to them. If you need to remove a person, select their row and then click the Del button to the left of the names list.

For each person, click categories that contain Work Notes relevant to that person's work.



Work Notes without a category will not be distributed.

Only Work Notes who's "To Do", "Pending", or "Discuss" status matches the checkboxes will be distributed.

There are four methods you can distribute Work Notes to people, each is useful in different circumstances:

Printing	When you have a printer and need hard copy
Transmit	Sends the Work Notes to other Lightwright users who are currently connected to you via Ethernet or WiFi
Email	If you are currently connected to the internet
Export	Creates a disk file containing just the Work Notes that other users can bring into their copy of the show file

To send Work Notes via email, first use the Setup button to enter the relevant network information. When you send notes via email, Lightwright emails the recipient an emailed HTML version of the Work Notes and also attaches a file containing the notes, which can be merged into their Lightwright show file using File/Merge/Work Notes or simply dropped into the Work Notes window. This will only work with Work Notes exported from Lightwright. The file that is exported or attached via email has the new file extension .lwks. You can include an individual note with the email by clicking on the "Comment ..." Button next to their name.

Note: Distributed Work Note files only contain the Work Notes send to the recipient. Exported Work Notes include ALL notes.

If two or more users are on the same network, the Work Notes can be updated automatically. For example, if you check a note as Done, the change will be reflected in the other user's Work Notes window.

You can also view the Work Note distribution history by clicking on the "Distribution Log ..." Button. This will open a window, which shows you when Work Notes were distributed, to whom, via what method, and any comments you included. You can also view which Work Notes were distributed by clicking on the "View Work Notes ..." Button.

If you are viewing Done or Cancelled Work Notes in the Work Notes window, the Distribution window's options will change, as most of them don't apply to Done and Cancelled Work Notes.

WORK NOTE DISTRIBUTION PRESETS

At the top of the Work Notes distribution window are four Preset buttons. Presets work like bookmarks: They record the current distribution settings (who gets what & how).



Click on the "S" button next to the preset you want to set and you'll get a chance to name the preset.

Click the preset button itself and everyone's distribution settings will default to their preset settings.

- 15 To delete a Work Note, clear all of its cells OR right-click on the row and select "Delete this Row" OR Click anywhere in the row and click the Delete button at the top of the screen. Deletions are immediate and do not require confirmation, so think carefully...
- 16 To delete all Work Notes marked as "Done", click the Delete done button.
- 17 A new Refresh button refills and re-sorts the list of work notes.

- 18 To set the sort order for the priority phrases, click the Setup button at the top right side of the Work Notes window. It opens a window with these options:

Description	
Priorities	Enter and set the order for phrases in the Priority column.
Columns	Set the column order for each of the four work note views by dragging the items up or down the list. Choose the default data entry column whenever a new work note is added. The Column tab now has a checkbox, "Restore default column widths" to set the column widths back to the default widths. This option is automatically checked whenever you rearrange the column order (This button replaces the Priority and Category setup buttons in Lightwright 5).
Categories	Rename the categories that work notes can be assigned to and set the sort order for each.

SORTING

To sort the Work Notes, click on the appropriate column heading. Sorting by dimmer and channel are numeric, based on the "root" number in each entry. (For example, dimmer 3 will be sorted between dimmers 2 and 4, and dimmer H7 will be sorted between 6 and 8.)

Sorting the position column will group rows with the same position together, but it will **not** sort based on the unit numbers of the lights. If a Work Note has more than one position assigned to it, only the first position will be used when sorting. Sorted positions and purposes will be in the same order set for them in Maintenance.

Like the worksheet, there is a Sorting Blanks icon that toggles sorting so blank cells are either at the beginning of the list or at the end.

WORK NOTE PRINTING

When printing Work Notes, you can choose to print Work Notes in any of the ten categories and with any of the five work note status levels. You can also sort the notes by Priority (their order in the Work Notes list), Position, Channel, or any of the other usual sorting categories.

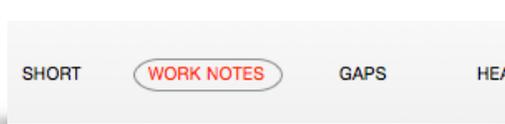
Work Note printouts do not include the Long Header. The Work Note short header is independent of all other short header styles. The short header can include the name of the person the Work Note is being distributed to and any comments you add to the Comment Box at the bottom of the distribution window. Also unique to Work Notes is the ability to set a different font, size, and style for each column. Users can manually change the widths of printed work note columns in Layout.

Work Notes cannot be printed from the Print menu.

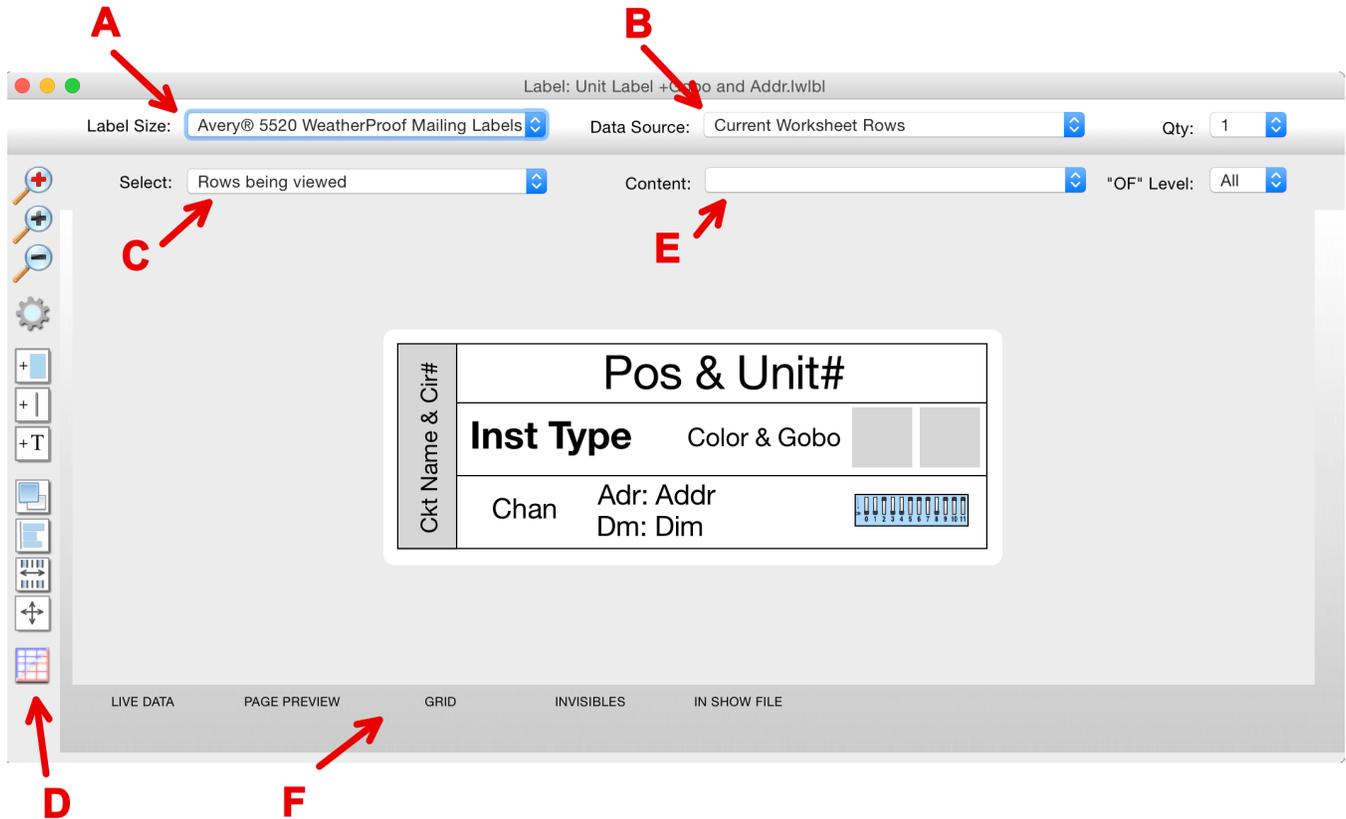
In a Work Note printout, the "Done" column prints a check box.

WORK NOTES ON THE WORKSHEET

WORK NOTES OPTION BUTTON



This button is located on the right side of the Worksheet header. Selecting this option makes work notes attached to specific lights to appear on the worksheet directly under the relevant light. If the total number of lights plus the total number of Work Notes exceeds 32700,



then some work notes will not be displayed.

When you choose this option, Lightwright will ask which notes you want to see on the worksheet, based upon their status.

If you click on a work note on the worksheet, the work note editing form will open, allowing you to modify or delete the note.

ADDING WORK NOTES FROM THE WORKSHEET

To add a Work Note that refers to one or more specific lights, select any part of the light in the worksheet by clicking on it. Right-click (or Ctrl-Click) on the light and select "Add Work Note for this Light." This will open the Work Notes window.

To add a work note that applies to a specific bit of information in a column (such as changing R-33 to L-161), right-click on the cell containing that information and select "Add Work Note for ...". This will open the Work Notes window and insert the selected information. Below the notes list, you will see all of the lights which will be affected by this note. You can uncheck any of those which the note should not apply to.

To add a work note for anything, right-click on any worksheet cell, selected or not, and select "Add Work Note ...". This will open the Work Notes window and select the Work Note cell in the first empty Work Note row, ready for you to enter the note.

Once you do this, any light that has text matching your entry in the category you've chosen will be flagged on the worksheet with the appropriate work note status symbol.

STATUS

Lightwright can record and track the progress of Work Notes from the Worksheet. Each work note has a Status and can be assigned to one or more Categories.

The Status can be:

	To Do	The note has not yet been done.
	On Hold	The note is something you will probably want to do, but "not quite yet". Perhaps you want to think some more before actually asking someone to get out their wrench.
	Discuss	Something that you need to talk about before you can decide what needs to happen.
	Done	The note has been dealt with.
	Cancelled	You've decided not to do the note, but you want to keep it around.

When a note pertains to multiple lights, individual lights can be flagged as Done or not done. When all of the lights are marked as Done, the note they are part of is automatically marked as Done.

To change the status, either click in the status column with your mouse or use the keyboard arrow keys to move to the appropriate cell and press Enter to open a popup menu and select the status.

LABELS

DESIGN YOUR LABEL

Choose Utilities/Labels or clicking the Label icon in the worksheet window's toolbar to opens the Labels window, where you can choose, design, and print labels.

STEP ONE

The first step is to either use the File/Open Label command or File/Label Manager to open an existing label, or if you want to make a new label from scratch, then choose a Label Size using the Label Size pop-up menu **[A]**. You can double-click the list to choose a size and close the window. You can also sort the list by clicking in the column headers.

STEP TWO: CHOOSE A DATA SOURCE

The second step is to choose a Data Source **[B]**: Where in Lightwright the data for each component of the label is coming from - the worksheet, a maintenance list, or a control list. When you change the Data Source for a label, some of the categories assigned to the objects on the label may not be valid for the new data source. In these cases, text object will say "CAT NOT AVAIL." The components can also be purely decorative, such as lines or panels that are not linked to data sources. You can design labels without the data, if you would like to print out blank labels to be filled in later.

The data for labels always comes from an open window, usually the worksheet, but it can also be one of the other lists such as Control/Universes or any Maintenance list. The Select menu **[C]** lets you choose to print all of the items in the source window or just the currently selected rows.

STEP THREE: ADD ELEMENTS TO THE LABEL

At this point, you can start laying out your label by adding one or more panels, lines, and text fields. You can access these elements via the sidebar on the left hand side of the window **[D]**.

Description		
	Zoom Full	Zoom all the way in until the label fills the available window space.
	Zoom In	Zoom in incrementally.
	Zoom Out	Zoom out incrementally.
	Label Formatting	Opens the Label Formatting window. Use this option in order to change the properties of any of the items on the label (fonts, color, line thickness, etc).
	Add Panel	Add a panel graphic to the label. The size of this panel is editable by dragging the reshape handles along the periphery.

Description		
	Add Line	Add a line graphic to the label. The size of this line and its rotation are editable by dragging the reshape handles at either end of the line.
	Add Text	Add text to the label.
	Stacking	Options: Bring Forward, Send Backward, Bring to Front, Send to Back
	Align	Options: Align Tops, Align Left Sides, Align Bottoms, Align Right Sides, Align Centers, Align Middles
	Distribute	Options: Distribute Horizontally, Distribute Vertically
	Size	Options: Heights Same as Shortest, Widths Same as Narrowest, Heights Same as Tallest, Widths Same as Widest.
	Grid	Toggles the grid between Reference (blue) and Snap (red)

Text fields can be static text that doesn't change from one label to the next, or you can link it to a particular data source. Select the text object, then choose from the Content pop-up menu **[E]**. The format of dimmer and address text fields will be whatever the current settings are for the show file. When the Data Source for the label is from the Circuit Name Maintenance List, a "Position (derived)" option is available for the content of a selected text object. The text is whatever position name is used in the majority of the worksheet entries that use that circuit name. If there is more than one position, then the position name will end in "...".

You can use the Edit menu to Select All, cut, copy, clear, and paste - including from one label to another. Select Edit/Undo to undo a change.

OPTIONS

On the bottom left corner of the window there are some text toggle buttons **[F]**:

Description	
Live Data	When activated, Lightwright populates the label with show data. Use the scroll bar at the bottom of the screen (visible only when Live Data is active) to navigate from one label to the next. You can also use arrow keys to move through Live Data when that option is active.
Page Preview	When activated, Lightwright shows a preview of the top part of the actual finished label sheet so that you can see what these will look like when you print them out. You can't do any other work on labels while you are in Preview. Click the "Page Preview" button again to return to the regular view.

	Description
Grid	<p>The Snap Grid is set to 1/32". When you drag a label element, it will "drop" into the nearest point on the grid to assist you in lining up the various elements. If you want to have finer control over the placement of these objects, turn "Snap Grid" off.</p> <p>When one or more items are selected and the Live Data option is off, the arrow keys can move label items around. If the Snap Grid is turned on, then they will move 1/32" at a time, otherwise they will move 1/100" per key press.</p>
Invisibles	<p>Any objects with their color set to 'None' are fully shown when this option is active. Normally, these objects show only their selection handles when they are selected (which can be difficult when their color is none). When Live Data or Preview are active (or when labels are being printed) and a conditional color sets their color, then these objects are fully shown, irrespective of this option's setting.</p>
In Show File	<p>When activated, it means that you are working on a label layout that is stored inside the current show file. Saving the show also saves this label layout along with it (and if you don't save the show file after saving the label file, the label file will be lost). If this button is not activated, then selecting "Save" updates the label file in its current location outside of the show file.</p>

AVERY LABEL DATABASE

Lightwright can print to most Avery labels that come on letter or A4 size sheets. It can't use all of the Avery labels: Labels that are particularly long and skinny (such as DVD edge labels) would shrink to nothing when scaled to fit into Lightwright's label layout window, so they are not included in the list of available labels and cannot be used.

If you would like to use a label size that is not on the Avery list, click on the Label Size pop-up menu **[A]** and select "Create new label size..." This will open the Label Setup window where you can enter the information for the type of label you are going to use.

EDITING LABEL SHEET SIZES

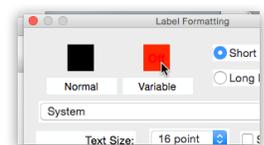
Avery label sizes cannot be edited (they are specified by Avery), but you can edit any custom label sizes you create by choosing the label size from the Label window's Label Size pop-up menu and then choosing "Edit label size..." from the same pop-up.

FORMATTING



To change the appearance of any selected item, click the Formatting icon to open the Label Formatting palette. The contents of the formatting palette change depending on which text field is selected and what category it has assigned to it. For instance, the Dimmer Format pop-up menu comes and goes, as do other fields.

You can also set conditional formatting for labels by selecting the text, line, or panel you want to conditionally format, opening the Label Formatting palette, and clicking on the "Variable" color swatch. This will open the Variable Label Color where you can select the conditional rules you desire.



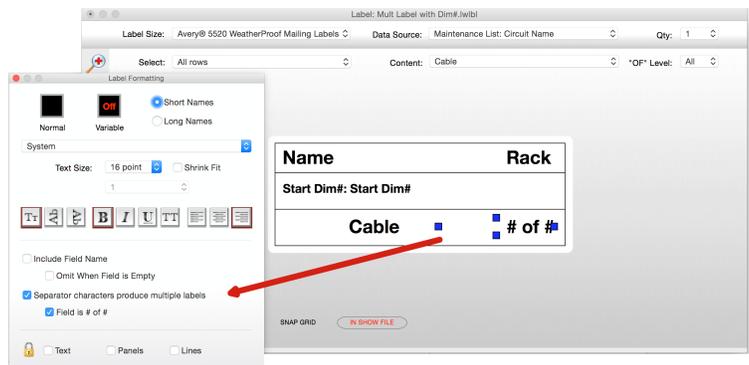
Warning: Be careful when typing text into the Special conditions window - if you want to color an instrument name red when its voltage is 208, Lightwright will look for "208v", because that's how it's displayed in Maintenance/Instrument Type. In this case, it might be best to have Lightwright look for items containing 208, rather than an exact match.

OBJECTS WITH COLOR "NONE"

Click the "Normal" color swatch on the formatting palette to choose the color you want the object to be drawn in. If you choose "None", the object will be invisible unless you set a condition to give the object a color. This also means those objects are invisible except for their selection rectangles when you are designing your labels, unless you turn on the Invisibles option or have the Live Data or Preview buttons active. Using "None" in conjunction with variable color based on content is a powerful way to control the appearance and content of labels.

PRINTING MULTIPLE LABELS FROM ONE ENTRY & USING # OF

There are times when you want to print more than one label from a single row on the worksheet or one of the maintenance lists. Lightwright's Cable column can hold more than one piece of cable by entering the lengths of each piece, separated by a comma (or whatever the separator character is defined to be).



Example: A worksheet row has the entry 75' Jumper, 10' Jumper in its Cable column. When you count Cable, Lightwright will count totals of 75' Jumpers and 10' Jumpers.

Lightwright will print separate labels for each of these pieces of cable if you put the Cable column on a label and then choose the "Separator characters produce multiple labels" option in the Label Formatting window. One label will say 75' Jumper and the other label will say 10' Jumper.

You can do also this with cable entries in Circuit Name maintenance's Cable column.

Example: You have a multicable entry in Circuit Name maintenance, named MB. It consists of a 100' mult and a 50' mult plugged together. In the MB row in Circuit Name maintenance, enter 100' , 50' in the Cable column.

To make labels for each of these lengths of multicable, add a text field to your label and assign it to the Circuit Name maintenance list's Cable column. Then select the text field, open the Label Formatting window, and choose the "Separator characters produce multiple labels" option. This will produce one label for the 100' entry and another one for the 50' entry.

If you would like the crew to know that the two cables are supposed to be plugged together, add another text field to your label and assign it to the same source, in this case the Circuit Name maintenance list's Cable column. Then select the new text field, open the Label Formatting window, and choose both the "Separator characters produce multiple labels" option as well as the "Field is # of #" option.

Here is what the finished pair of labels look like:
You can do this with any text column on the worksheet or in maintenance lists, not just the Cable



column, and the list separator does not have to be a comma, you can change it using the Setup/Vocabulary menu item.

The # of # pop-up menu in the upper right corner of the Label window controls which “of” are printed. In this example, choosing “All” would print label 1 of 2 and 2 of 2. If you choose “1” it will only print the “1 of 1” label. Choosing “2” would limit printing to the “2 of 2” label. This setting applies to all labels being printed.

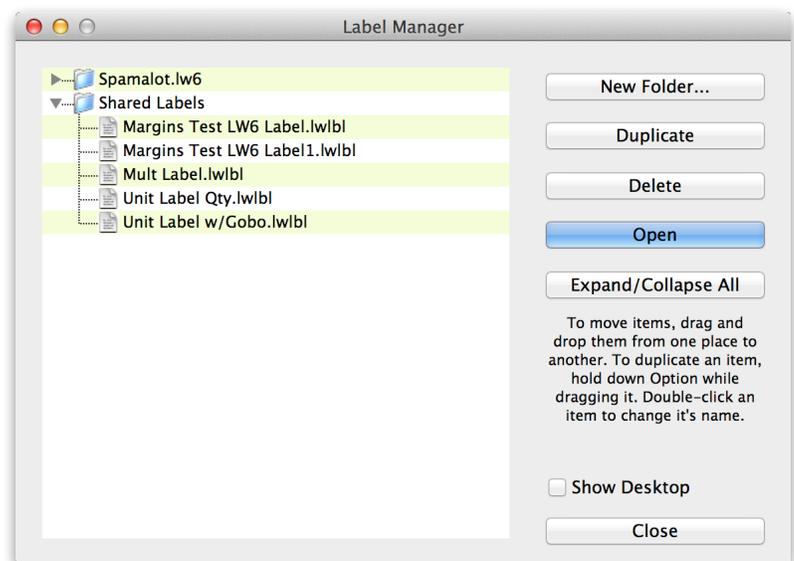
LIVE LABEL DATA

When activated, Lightwright populates the label with actual show data, instead of the column names. Use the scroll bar at the bottom of the screen (visible only when Live Data is active) to navigate from one label to the next. You can also use arrow keys to move through Live Data when that option is active.

LABEL FILE MANAGER

A label layout file includes only the instructions for one label at a time. When you are working in the Labels window you can choose File/Label Manager to duplicate, delete, move, or rename label files.

If there are any filenames with illegal characters in them, a “Fix Filename” button will appear. It removes illegal characters from the selected item. Yellow icons indicate files in the list which have illegal characters in them.



VECTORWORKS DATA EXCHANGE

Beginning with Vectorworks Spotlight 2009 and Lightwright, you can share data between Lightwright and Vectorworks in real time, without tedious importing and exporting.

USING VECTORWORKS DATA EXCHANGE

Vectorworks Data Exchange is an easy and reliable way of sharing data with Vectorworks, and should be used whenever possible instead of using the Import/Export routines used in earlier versions of Lightwright.

Data Exchange requires Vectorworks Spotlight 2009 or later.

HOW IT WORKS

When you work in Vectorworks, each time you add or remove a light or change any of the data associated with it, Vectorworks writes those changes to an .xml file that has the same name as your drawing.

When you start Lightwright or click in it, Lightwright looks for that file and reads the data in it and updates your show file with the new information. It will also add any new lights or delete any that were removed in Vectorworks.

The same dance happens going the other way: Whenever you make changes in Lightwright, it writes those changes to the .xml file.

If you are using Vectorworks 2009, getting the Lightwright changes back into Vectorworks isn't automatic. When you click back on your VW drawing, you will need to choose Refresh Instruments or edit a light. That will make VW read the .xml file and update the drawing based on the Lightwright changes. With newer versions of Vectorworks, although Lightwright will say "Refresh instruments in Vectorworks", all you need to do is click on Vectorworks to activate it, Vectorworks will then automatically read the .xml file.

You can add lights while you're working in Lightwright, and Vectorworks does not have to be running. When you add lights in Lightwright, the light(s) will appear in the center of the appropriate position. If there are already lights there, the new one(s) will be placed on top of the existing ones. If you add more than one light in the same position, they will all be piled on top of each other.

If you add a light while in Lightwright and Lightwright knows the symbol for it, then the light will have that symbol when it appears in Vectorworks, otherwise a rectangle will be used for its symbol.

Use unit numbers on your drawing. Without unit numbers, it's almost impossible to tell in Lightwright which worksheet row corresponds to which light in Vectorworks.

SHARED CATEGORIES

In addition to the lighting device info it shared with Vectorworks in previous releases, Lightwright 6 automatically gets each light's Univ#, Address, Focus Point, Layer, Class, Symbol Rotation, Label Legend, and X, Y, and Z coordinates when used with Vectorworks 2014 or later. Beginning with Vectorworks 2015, Lightwright can also share stock equipment quantities (inventory) and universe setup information. When used with Vectorworks 2016 or later, it can also share Focus Points.

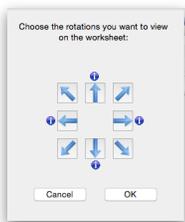
Address, Rotation, Class, Layer, Focus Point, and Label Legend can be edited in Lightwright. Coordinates cannot be edited by Lightwright.

FOCUS FIELDS

Lightwright can share focus fields: Focus L/R, Focus U/D, Focus Note, Focus Status, and all six Focus Cut fields. Note that Focus Status behaves as a text field with possible values of “Focused”, “Partly Focused”, “Needs Focusing” and “Not Focused”. Using any other values for this field in data coming from Vectorworks causes Lightwright to change the light’s status to “Not Focused”.

ROTATION

If the rotation is a “normal” angle (0, 45, 90, 135, 180, 225, 270, or 315) then the rotation is shown by an arrow pointer (which matches the color of the light), otherwise the degree is shown as a number.



Selecting “VW Symbol Rotation” from the View pop-up menu in the worksheet opens the rotation view selection window. Click on one (or more) arrows that contain  to view the lights that point in that direction.

Straight up = 0 degrees, matching a Lighting Device’s rotation value (which is 90 degrees off from the rotation values for things like lines and rectangles).

X, Y, AND Z COORDINATES

Choose Maintenance/Position and click the Vectorworks tab to choose which hanging positions will show coordinates and which won’t. You can also choose whether or not a zero dimension shows as zero or as “CTR”, “Floor”, or “Deck” and which hanging positions will show symbol rotation and which won’t.

X, Y, and Z coordinates are rounded to the nearest inch.

STOCK EQUIPMENT QUANTITIES (VW2015 OR LATER)

When sharing equipment quantities, Lightwright does not share the inventory for maintenance list Family items. For more information about Maintenance Families, see the chapter in this document on Maintenance.

FOCUS POINTS (VW2016 OR LATER)

Vectorworks 2016 and later includes a new Lighting Device preference, “Automatically Rotate 2D to Focus Point”. When this is active, Vectorworks draws lights in the direction of their focus point instead of the symbol’s designated rotation value. Lightwright knows when this is happening, but Vectorworks does not tell it the actual direction the light is pointing. In these cases, Lightwright draws a red question mark on top of the rotation arrow to remind you that the direction shown in Lightwright may not match the actual direction being drawn by Vectorworks.



SPECIAL CASE FOR (STATIC) ACCESSORIES

Static accessories added to lights in Vectorworks do not have data records attached to them, so the accessory names shown in Lightwright will be the name of the accessory's SYMBOL.

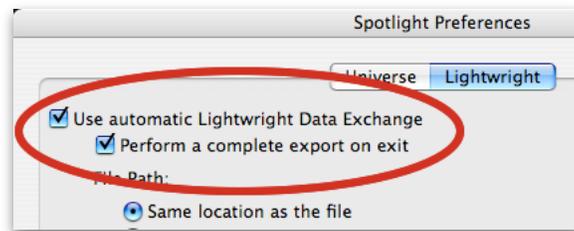
For example, assume you have a top hat symbol for regular Source Four's and another top hat symbol for 10 degree Source Four's. If the symbol names are "S4 TH" and "S410 TH," then when you add those top hats to lights in Vectorworks, Lightwright's accessory column will show "S4 TH" and "S410 TH". If you change the name of the accessory in Maintenance, you are actually changing the symbol! This is a limitation of Vectorworks and so Lightwright has to go along with it.

There is a column in Lightwright, "VW Layer," which will always have the name of the layer each light is on. Layer is on the View pop-up menu so you can see which lights are on which layers, and Layers is an option on the Maintenance menu, but you cannot change the names of layers or edit layer cells on the worksheet.

HOW TO SET IT UP

Start by opening an existing drawing in Vectorworks, or make a new one and save it with an appropriate name.

Using the Spotlight workspace, choose Document Settings/Spotlight Preferences and turn on both of these options:



The "Perform a complete export on exit" option is not persistent: It tells Spotlight to export all of the information for all of the lights in the drawing the next time you click out of Vectorworks. It does not mean when you quit Vectorworks, or save your drawing file, it simply means the next time you click on something other than Vectorworks, such as the desktop, or a Lightwright window. You will not normally need this option set, only the first time you set up data exchange with Lightwright on each drawing file should be enough.

If you go to this dialog and see "Perform a complete export on exit" grayed, it means that Vectorworks cannot find an existing .xml file for the drawing and will automatically create one. In this case you do not need to re-select the option to make it happen.

Note: When you do a "full export on exit" from Vectorworks, if there are no worksheet rows in the Lightwright file (or only deleted rows), Lightwright automatically clears all history. This prevents duplicate Vectorworks UIDs in deleted-but-not-gone lights from causing problems with Data Exchange.

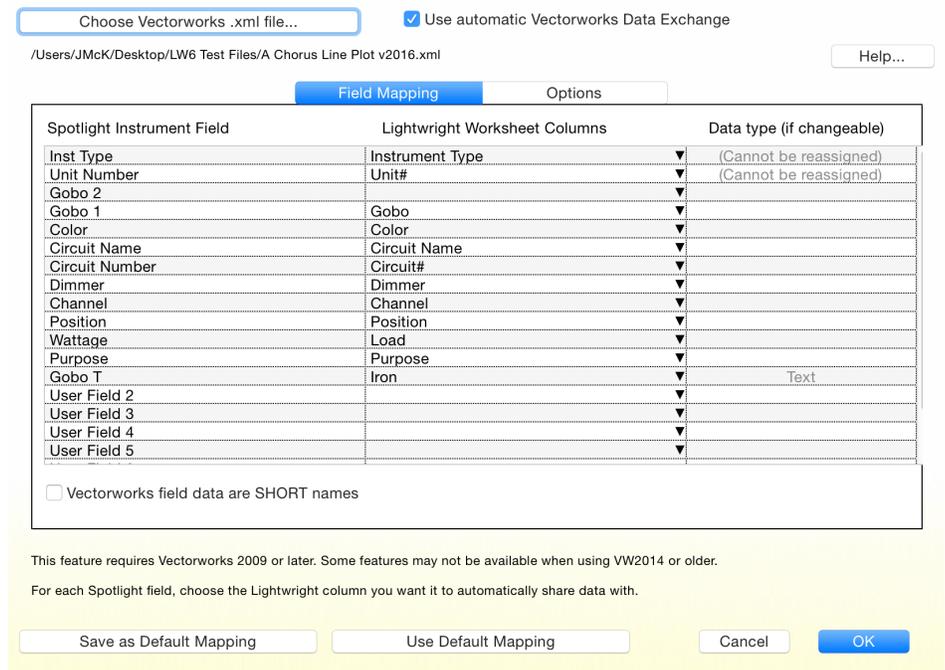
You can also choose which data fields you want available to Lightwright if the defaults do not include what you want. If you change your mind later, come back here and add or remove fields. When you switch to Lightwright, the Data Exchange window will automatically open for you to make adjustments as needed.

When you click out of Vectorworks, if you look you'll see the .xml file on your hard drive, in the same folder as the drawing file.

Next, open Lightwright and begin a new show file. Click the Vectorworks icon on at the top of the worksheet to open the Data Exchange window.

Check the “Use automatic Vectorworks Data Exchange” option, and choose the .xml exchange file. If you move the file to a different folder or another computer, Data Exchange will turn off until until you choose the exchange file again so Lightwright knows where to look for it.

When you choose the file, Lightwright will get the names of the available Vectorworks data fields and fill in the field-matching worksheet with appropriate matches that you can change to suit your needs. If you are sending VW data into one of Lightwright’s user-definable fields, be sure to choose an appropriate data type for it. Note that Lightwright can read Vectorworks’ X, Y, and Z coordinates, but cannot modify them.



“VECTORWORKS FIELD DATA ARE SHORT NAMES” OPTION

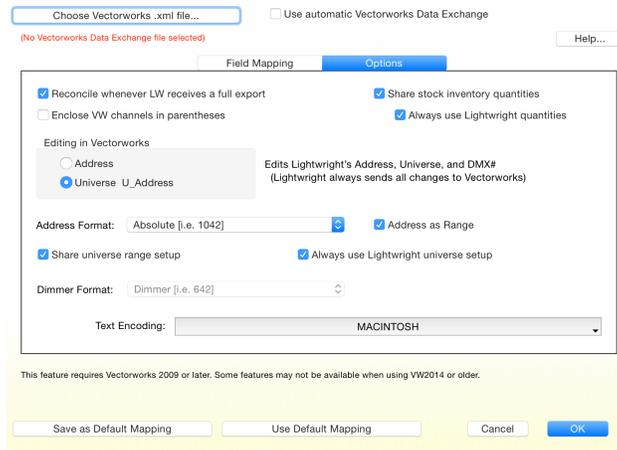
Vectorworks field data is normally Regular (long) names in Lightwright. If you want Vectorworks to use Short names, then *begin your Vectorworks drawing by using the Short names for everything*, especially the names assigned to position objects. Then do a “full export on exit” in Vectorworks, which will send the short names to Lightwright. Once they are in Lightwright, edit the Regular (long) names to whatever you want to use. Otherwise, it’s possible for lights to have position names that do not match the name of the position they are placed on in Vectorworks.

DEFAULT FIELD MAPPING

If you want to save the current field matching as the default matches for all new show files, click the Save as Default button. If you have changed the field matching and want to use the default matching instead, click the Use Defaults button. Defaults also include your settings for reconciling and channel parentheses.

OPTIONS TAB

The Vectorworks Exchange window has a new Field Mapping and Options tab control that toggles the contents of the Data Exchange window. It opens showing Field Mapping. This is what it looks like when showing Options:



OPTIONS

	Description
Reconcile whenever LW receives a full export	Whenever this option is selected, Lightwright will detect if Vectorworks created a “full export on exit” and will check the entire export file and compare it with the equipment already present in the Lightwright show file. If it detects any discrepancies, Lightwright will open the reconcile window to allow let you incorporate the most up-to-date information.
Enclose VW channels in parentheses	If you want channel numbers in your Vectorworks drawing to have parentheses around them, check the “Enclose VW channels in parentheses” option. This option is independent of the option for Lightwright to use parentheses around channels.
Editing in Vectorworks	Vectorworks does not link its Address, Universe, and U_Address fields to each other (changing one does not change the others), so Lightwright needs to know which field you want it to watch for changes. This option is new in Lightwright 6.0.4.
Address Format	This determines the format of addresses that Lightwright sends to Vectorworks. If you open a Vectorworks drawing from Vectorworks 2014 or earlier you will need to manually add the Address column to the list of fields exported to Lightwright. Vectorworks 2015 and later maps the Address column by default.
Share Universe Range Setup	When active, Lightwright reads the label, start# and end# of universes set up in Vectorworks.

	Description
Dimmer Format	This is the same option available in Lightwright 5, except that the options for Universe and Universe & Dimmer format are not available when Lightwright 6 is using Legacy mode for dimmer numbers. Dimmer format is also independent of the current Lightwright dimmer format setting.
Share stock inventory quantities (Vectorworks 2015 or later)	When active, Lightwright reads inventory quantities of instrument types entered in Vectorworks and put them into its "Stock Qty" column in Maintenance/Instrument Type. Vectorworks only sends inventory for types with an inventory quantity greater than zero.
Always Use Lightwright Quantities	When active, Lightwright will push non-zero "Stock Qty" entries to Vectorworks. Only instrument types with an inventory greater than zero that are not Family headers will be sent. It will not read inventory quantities from Vectorworks.
Address As Range	Choose this option if you want address to always be shown as ranges, instead of just the beginning address.
Always Use Lightwright Setup-	When active, Lightwright pushes its universe labels, start# and end# to Vectorworks. It will not read the Vectorworks universe setup information.

If you want to track lens barrels vs. bodies and share that information with Vectorworks, choose the Share Stock Inventory option and also the Always Use Lightwright Quantities option. In Maintenance/Instrument Type, make a Family that includes all of the instruments that have the same body and label it something appropriate such as "S4 Ellipsoidals". Enter the total number of S4 bodies available in the Stock Qty column for the Family row and the number of lenses into the Stock Qty column for each kind of S4.

For more information about grouping and ungrouping items together into Families, refer to the Maintenance Family section of this manual.

Click the OK button and everything else happens automatically.

CAUTION: There is a bug in some versions of Vectorworks that will cause Data Exchange to become corrupted. If you are using VW 2009, or a version of VW 2010 older than VW 2010 Service Pack 1, DO NOT COPY AND PASTE LIGHTING DEVICES IN VECTORWORKS. Using Edit/Duplicate, Mirror, and Option/Alt+dragging are OK.

LIGHTWRIGHT 6 ADDRESSES AND VECTORWORKS

Many users run into problems when sharing addresses between Vectorworks® and Lightwright® 6. Here is some information that should help you make Data Exchange work easily with addresses.

Both Vectorworks and Lightwright have three data fields that contain address information.

VECTORWORKS

Address	The entire address, in absolute format:	1771
Universe	The universe number:	4
U Address*	The DMX address within the universe:	235

These three fields may or may not agree with each other.

LIGHTWRIGHT

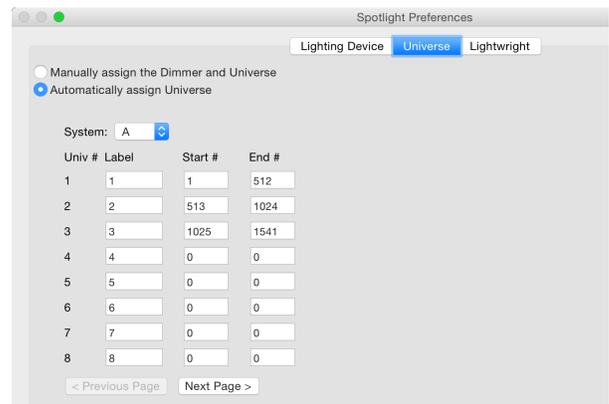
Address	The entire address, in either absolute or universe format:	1771 absolute 4/235 universe
Universe	The universe number:	4
DMX#	The DMX address within the universe:	235

These three fields *are always linked together*, so changing any one automatically changes the others and the data is always valid. You can enter the Address in either absolute or universe format, and Lightwright will display it using whatever format is active in Setup/Address Format (which you can change at any time).

VECTORWORKS SPOTLIGHT PREFERENCES

Spotlight Preferences has settings on its Universe tab that control how Vectorworks address fields behave.

When you choose **Manually assign the Dimmer and Universe**, all three address fields are available for editing in the Object Info Palette and *you can enter anything you want into them*. Vectorworks does not validate or sync the content of these fields between each other. As a result, the contents of these fields may not agree with each other. For instance, you can enter 2284 as the Address, 1 as the universe number, and 789 as the U Address, and Vectorworks will not alert you to the conflicts or try to correct them.



* U Address was called U Dimmer in Vectorworks prior to 2016.

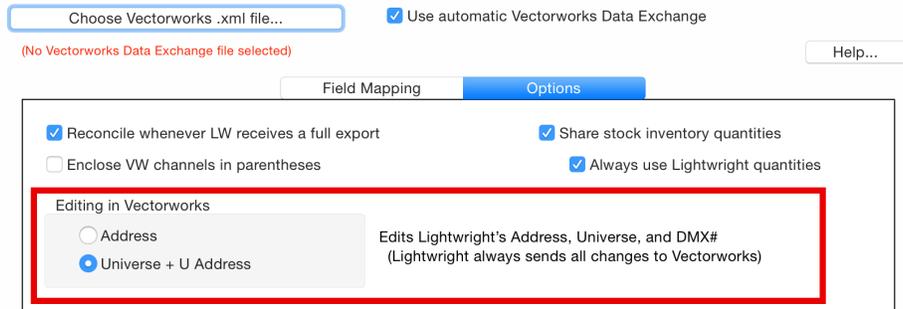
When you choose **Automatically assign Universe** and set the Start# and End# entries for each Universe, Vectorworks disables the Universe and U Address fields in the Object Info Palette. When you enter an absolute-value address into the Address field, Vectorworks calculates the Universe and U Address values and automatically enters them into the Universe and U Address fields. If you enter anything other than a valid absolute address, it puts zeroes into the Universe and U Address fields.

LIGHTWRIGHT DATA EXCHANGE SETTINGS

When you do a “perform complete export on exit” from Vectorworks to set up Data Exchange, be sure to include all three address fields in the list of export fields.

In Lightwright’s Data Exchange window, in addition to mapping worksheet columns to Vectorworks data fields, you need to click the Options tab and tell Lightwright which Vectorworks fields you will be editing.

Because the data in the Vectorworks fields may not agree with each other, Lightwright can get data from EITHER the Vectorworks Address field OR the Address and U Address fields.



If you choose *Automatically assign Universe* in Vectorworks, then **you must choose the Address option here and only edit the Address field in Vectorworks, using Absolute format data.**

If you choose *Manually assign the Dimmer and Universe*, in Vectorworks, then **you can use either option here.**

If you choose Address, then **always edit only the Address field in Vectorworks** (using either Absolute or Universe format), as Lightwright will ignore changes made to the Universe and U Address fields (though it will fill them with data once it receives the Address or when you change anything in Lightwright).

If you choose Universe + U Address here, then **always edit the Universe and U Address fields in Vectorworks.** Lightwright will fill the Vectorworks Address field with data when it receives the universe and U Address data or when you make changes in Lightwright.

ADDRESS FORMAT

Lightwright's Options tab also lets you choose the format for the Vectorworks address field:

The screenshot shows the 'Options' tab in Lightwright. The 'Address Format' dropdown is set to 'Absolute [i.e. 1042]' and is highlighted with a red box. Other options include 'Share universe range setup' and 'Always use Lightwright universe setup', both of which are checked. The 'Editing in Vectorworks' section shows 'Universe + U Address' selected.

"Address as Range" fills the Vectorworks Address field with the starting and ending numbers for lights with a DMX footprint other than one. For example, "2/34-2/48". When you edit the Vectorworks Address field, only enter the starting address, Lightwright will handle it from there.

UNIVERSE SETUP

If you choose *Automatically assign Universe* in Vectorworks, then you must make sure that the Universe entries in Vectorworks match those in Lightwright. Otherwise, you will have chaos.

Univ#	Label	Description	Qty	Absolute Start#	Absolute End#
1			512	1	512
2			512	513	1024
3			512	1025	1536
4			512	1537	2048
5			512	2049	2560
6			512	2561	3072
7			512	3073	3584
8			512	3585	4096
9			512	4097	4608

The screenshot shows the 'Universe Setup' dialog in Vectorworks. The 'Automatically assign Universe' option is selected. The 'System' is set to 'A'. The dialog displays a table with columns for 'Univ #', 'Label', 'Start #', and 'End #'. The data matches the Lightwright table shown in the previous image.

Note that the Vectorworks Label field should be the Univ# from Lightwright, not Lightwright's Label.

OTHER OPTIONS

These Lightwright options can help. Both are strongly recommended, as Lightwright's universe options are more complete than Vectorworks.

- Share universe range setup
- Always use Lightwright universe setup

HOW TO RE-MAP VECTORWORKS FIELDS TO LIGHTWRIGHT COLUMNS

If you want to change which Vectorworks fields are mapped to which Lightwright columns, here's how to do it:

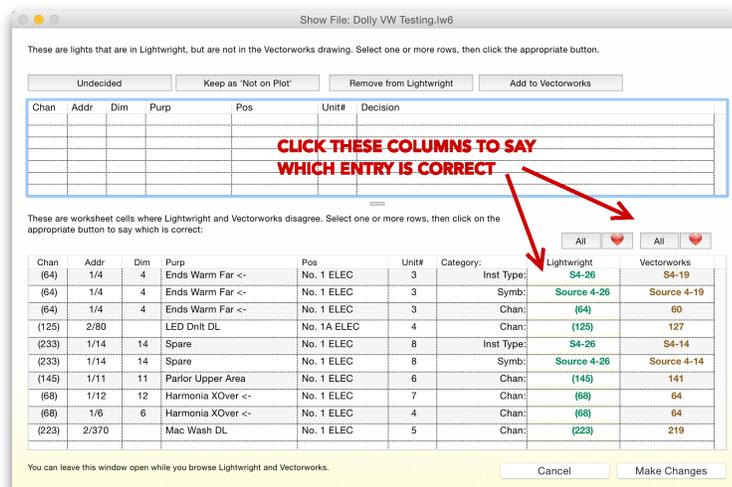
1. Open the LW6 file
2. Click on the Vectorworks Data Exchange button
3. Turn OFF Data Exchange by un-clicking the "Use automatic Vectorworks Data Exchange" option.
4. Click OK to close the Data Exchange window
5. Open the .vwx file in Vectorworks
6. Choose File/Document Settings/Spotlight Preferences and click the Lightwright tab.
7. Check the "Perform a complete export on exit" option, then click OK.
8. In Lightwright, click the Vectorworks Data Exchange button.
9. Choose the .xml file
10. Click to the right of each Vectorworks field category to select it's new Lightwright column
11. Click OK to close the Data Exchange window.

VECTORWORKS RECONCILIATION

If you make changes in a Vectorworks drawing and then quit without saving them (but do save the Lightwright changes), or if you accidentally delete the .xml file, or if you make changes while Data Exchange is turned off, then the drawing file will not agree with the Lightwright data.

To reconcile the two, be sure the "Reconcile whenever LW receives a full export" option is turned on in Lightwright, then go to Vectorworks and check the "Perform a complete export on exit" option in Spotlight Preferences. Then click out of Vectorworks and back on Lightwright.

Lightwright will read all of the data from the .xml file and compare it with the data in the show file, then open a Reconciliation window:



In the Reconciliation window, you can copy lights that are missing from the drawing from Lightwright, or delete them from the Lightwright file. This window also shows you a list of lights where the data entries disagree, and you can choose which file has the correct entry.

If a worksheet row in Lightwright isn't actually something that belongs in Vectorworks, you can choose the option to keep it in Lightwright but set its status to "Not on Light Plot".

Click the Make the Changes button and Lightwright will copy or delete the lights and their data per your instructions. In order to transfer the data back into Vectorworks, you will need to click back in *Vectorworks* when Lightwright tells you to do so.

Reconciling the drawing and the Lightwright show file is a good thing to do in any case before finishing your light plot, to ensure that they agree with each other.

"ON PLOT" STATUS COLUMN

There are several places in Lightwright where you set the "On Plot" status of lights and accessories:

MAINTENANCE

The "On Plot" column (the one with the pencil) determines whether or not an instrument type CAN be on the drawing. When a light is added to the show, the maintenance choice determines whether or not LW is going to put the light onto the VW drawing initially. Instrument types default to being on the drawing.

ACCESSORIES (VECTORWORKS' STATIC ACCESSORIES)

If their "On Plot" column is *checked* in Maintenance, then ALL instances of that accessory will appear on the light plot. If "On Plot" is *unchecked*, then NONE of the instances of that accessory will be on the plot. The Maintenance and Preferences windows have an option "New accessories default to NOT on light plot". If you activate this option, any new accessory names will not be added to the drawing until you check the "On Plot" column on the Vectorworks tab in Maintenance/Accessories.

WORKSHEET

The worksheet's "On Plot" column has four different states, which you can change by clicking in the worksheet cell:

Blank means the light is not on the VW drawing
A pencil means the light is on the VW drawing
A pencil with a plus means it's going to be put on the drawing when you sync with VW
A pencil with a minus means it's on the drawing now, but it will be removed when you sync with VW

RECONCILING

When reconciling the VW drawing with Lightwright, one of the options available when deciding what to do with lights that are in Lightwright but not in Vectorworks is to retain the light in Lightwright, but set its status to "Not On Light Plot". Choosing this option does NOT change the default "On Plot" status for that instrument type in Maintenance.

“SELECT IN VECTORWORKS” COMMAND

If you are using Vectorworks 2011 or later and have Data Exchange, you can use this Edit Menu command to select the same lights in Vectorworks that are currently selected on the Lightwright worksheet. To do this, make sure Data Exchange is active, then select one or more worksheet cells (the category doesn't matter) for each light you want to select in Vectorworks and then chose Edit/Select in Vectorworks, Switch to Vectorworks and then Refresh Instruments. All of the lights selected in Lightwright will be selected in Vectorworks, the rest will be deselected. If Vectorworks does not select anything, it could be that the light(s) is not sitting on the active layer and your layer visibility option is not set to "Show/Snap/Modify Others." If this is the case, switch the layer visibility to "Show/Snap/Modify Others" and your light(s) will be selected automatically. It could also be that the light(s) is sitting on a layer that is currently not visible, so dig around any currently invisible layers and see if you can find which one your light might be in.

TURNING OFF DATA EXCHANGE TEMPORARILY

Hold down the shift key while you open a show file to keep Data Exchange from starting when the file opens. This can be helpful if you don't want Lightwright to process changes made in Vectorworks immediately upon opening the show file. Keep holding the Shift key down until the worksheet window opens.

WORKFLOWS

There are two basic workflow models for using Data Exchange:

SOLO DESIGNER, NO ASSISTANT

The designer who does his own drafting and paperwork, without an assistant. In this scenario, the designer generally lays out the rough plot in Vectorworks and brings Lightwright into the workflow after some lights are already on the page. The designer often runs both programs concurrently and switches back and forth between them, with the data moving back and forth as changes are made.

If you prefer to begin with Lightwright, be sure to assign positions and unit numbers before switching to Vectorworks so that you can easily see where the lights need to be moved to on the plot.

DESIGNER AND ASSISTANT WORKING TOGETHER

In this workflow, the designer may do a rough plot on paper or in Vectorworks and has the assistant finish the plot in Vectorworks. While the assistant is doing that, the designer finalizes colors, channels, and other details in Lightwright. When both are nearly done, they reconcile the drawing data with the Lightwright data. In this case, Data Exchange is usually left turned off on both the VW and LW side until the two are ready to reconcile.

Be sure the Position names and unit numbers in the drawing EXACTLY match those being used in the Lightwright file. Data Exchange Reconciliation can then use the position names and unit numbers to match the records up with each other until LW and VW can match up their internal ID's.

When you are ready to synchronize the Lightwright show file with the Vectorworks drawing, select the "perform a full export on exit" option in Spotlight, then go to Lightwright and select the .xml file and let Lightwright do the reconciling. Click back in Vectorworks and Refresh Instruments to get all of the data sync'd, and then turn off Data Exchange until the plot is done, at which point it's easiest to leave it on and have both the plot and the Lightwright show file on the same computer.

KEEPING DATA EXCHANGE HAPPY

There are some simple rules you need to follow to make sure the data link between Vectorworks and Lightwright works well:

- Whenever you have been working in Lightwright and then click in Vectorworks, refresh instruments (required only in Vectorworks 15 and earlier, later versions refresh automatically).
- Whenever you open the Vectorworks drawing, refresh instruments before starting work in it.
- If you move the .vwx file, move the .xml and .lw6 files along with it, and re-select the .xml file in Lightwright.
- If you want to rename the .vwx file, first refresh instruments. Then you can rename the .vwx file. Also rename the .xml file to match the .vwx filename (keeping the .xml extension), and re-select the newly-named .xml file from inside Lightwright. Otherwise, Lightwright will be using a different .xml file than Vectorworks.
- Keep the .vwx, .xml, and .lw6 files all in the same folder, or in a folder structure that remains consistent. Lightwright locates the .xml file based on where it is in relation to the .lw6 show file. If you change the folder structure or move the .vwx, .xml, or .lw6 files, re-select the .xml file in Lightwright.
- If you find that Vectorworks will not do a complete export on exit, throw the .xml file in the trash and empty the trash, then ask VW to do a complete export on exit.
- If the Lightwright and Vectorworks files disagree with each other, do a “Complete Export on Exit” in Vectorworks and then switch to Lightwright. If Lightwright does not automatically reconcile the two files, it means VW and LW are looking at different .xml files or the .xml file is corrupted. Re-select the appropriate .xml file in Lightwright, or delete it entirely and start Data Exchange over again.
- Do NOT use symbols and instrument type names with a degree symbol in them. These will often fail to translate properly between Lightwright and Vectorworks, which can result in your symbols being replaced with generic rectangles! For more information refer to “Cautions” later in this section of the manual.
- **An up to date list of common Data Exchange problems is available at www.mckernon.com. Please visit it if you have problems with Data Exchange, and if the solution is not found there, contact Vectorworks technical support.**

THINGS THAT CAN BREAK DATA EXCHANGE

If you give the .vwx file a new name (by using Save As... or by renaming it), the .xml file associated with it will change, too. However, Lightwright will still be reading and writing to the original .xml file.

Example: If the .vwx file is named Hello.vwx, then by default the .xml file will be named Hello.xml. You start Lightwright and choose Hello.xml for Data Exchange, so Vectorworks and Lightwright are both using Hello.xml to exchange data with each other.

If you use Save As... in Vectorworks to simply rename the Hello.vwx file to Goodbye.vwx, then Vectorworks will use a new file named Goodbye.xml for Data Exchange.

However, Lightwright will still be using Hello.xml. As a result, the two programs cannot exchange data with each other.

If you want to save multiple copies of your .lwx and .lw6 files, go ahead and make copies with new names (such as Hello Backup1 .vwx), then continue using the original files (Hello .vwx) for your daily work. Or keep the .vwx, .xml, and .lw6 files together in the same folder and duplicate the entire folder to make a backup of it.

If the .xml file is located on a central file server, or if the .xml file is copied from one hard drive or flash drive to another, your operating system can change the .xml file's "permissions" so that you can't make any changes to the .xml file. On the Mac, right-click the .xml file and choose Get Info, then look in the Sharing & Permissions pane. You need to have Read & Write privileges. On Windows, right-click the .xml file and look at the file's Permissions property. You need to have Read/Write permissions for it.

Lightwright stores the location of the .xml file *relative* to the location of the .lw6 file. If you move the .vwx and .xml file to a different place, then Lightwright may not be able to find the .xml file anymore.

On Mac OS X, the name of the folder containing the data exchange .xml file cannot contain backslashes (/). If it or any of the folders containing that folder have backslashes in their names, Vectorworks cannot communicate with Lightwright. This is a limitation of Vectorworks.

CAUTIONS

When you delete lights in Vectorworks, if the object deleted is a light, then Lightwright will delete all of the worksheet rows related to that light, including devices such as color scrollers that share the same position name and unit number as the deleted light. Otherwise, Lightwright will only delete the worksheet row corresponding to the object deleted in Vectorworks.

If you use Save As to make a copy of one file or the other, be sure to go into Lightwright and choose the .xml file for the new Vectorworks file so that Lightwright will be working with the correct one.

Unlike Vectorworks, Lightwright does not support unit numbers such as "4.A" and "4.B." Lightwright does not recognize these numbers and will import them as "4.0" Lightwright will recognize numbers such as "4a", "4a.0", and "4.0."

DEGREE SYMBOLS

Lightwright is Unicode savvy, which means it can handle fonts and characters from different languages. Unfortunately, the data fields in Vectorworks do not understand Unicode. This means that you are likely to encounter problems when you use characters such as the degree symbol and accented letters in your Vectorworks data fields or symbol names. Lightwright has a Unicode Preference, changing its settings may improve character translation.

DROPBOX

Working with the .vwx, .xml, and .lw6 files while they are on Dropbox can cause all kinds of unexpected errors. The problem is that when things get busy (such as when you select more than one light in Lightwright and ask it to select the lights in Vectorworks), Dropbox stops syncing and when that happens, it can also cause the Dropbox folder to become read-only. This prevents either Vectorworks or Lightwright, or both, from writing to the .xml file.

AVG ANTIVIRUS FOR MAC

For some reason, using having this utility active prevents Lightwright from writing to the .xml file, no matter where it's located. This stops all data from flowing from Lightwright to Vectorworks.

WEB ROOT ANTIVIRUS FOR MAC

This utility's anti-keylogger feature prevents you from shift-clicking in many Lightwright windows.

VITAL DISTINCTIONS

ACCESSORY VS. DEVICE VS. STATIC ACCESSORY VS. ACCESSORY

Remember that Vectorworks and Lightwright use very similar terminology to mean very different things: A Vectorworks Accessory is a Lightwright Device. A Vectorworks Static Accessory is a Lightwright Accessory. Here are some examples:

Equipment	Lightwright	Vectorworks
Source Four-19	Light	Light
Color Scroller	Device	Accessory
Top Hat	Accessory	Static Accessory

One very important accessory note:

Vectorworks will always insist that static accessories be attached to lights, not to accessories.

Example: You add a Source Four in Vectorworks, then you add a color scroller to it, and you then add a top hat to the color scroller. When the data moves into Lightwright, the Source Four will be on one worksheet row and the color scroller will be on a separate one. The top hat will be in the accessory field for the LIGHT, not the scroller

Similarly, if you add a top hat to a scroller's accessory field in Lightwright, then switch to Vectorworks, when you switch back to Lightwright you will find the top hat has moved to the light's accessory field. If you do not want this behavior, then set the top hat's "On Plot" attribute in Maintenance to OFF and do not use the Spotlight accessory insertion tool to add the top hats in Vectorworks – leave them plain symbols, unattached to lights

CATEGORY NAMES

You can change the name of the Vectorworks class, layer, focus point, or label legend entries in Lightwright, but you can't change their Vectorworks definition, so be sure you use names that exist in the drawing!

OTHER VECTORWORKS NOTES

In order to make a position number automatically, you need to select the position and then Refresh Instruments.

If you are using Vectorworks 2009, Spotlight has a keyboard shortcut for Refresh Instruments: Ctrl/Cmd plus the forward slash (/). You need to execute this command each time you switch from Lightwright to Vectorworks.

In Vectorworks 2009, when you duplicate lights in Vectorworks, any static accessories attached to them will be duplicated, but they will no longer be attached to the light. Accessories become “orphans” and will show up in Lightwright on their own worksheet row with their instrument type as the name of the accessory and nothing in the accessories column. To solve this problem when you notice it has happened, make a note of which lights are affected, delete the “orphan” rows (being sure you do NOT check the “Delete ALL worksheet rows that are part of this light” option), then switch to Vectorworks, run Refresh Instruments, and then use the Accessory Insertion Tool to put new static accessories on those lights.

When you add lights in Lightwright, Vectorworks may pile them on top each other, not knowing exactly where to put them. If you want to see what lights were added by Lightwright, look for numbered Spotlight worksheets, which show the lights added by Lightwright. If the light you add has a Position that exists in Vectorworks, then Vectorworks will put it on the same layer as that position when it adds the light to the drawing. If the position name does not exist in Vectorworks or the position name is blank, then Vectorworks will add it on the active layer.

If you change the name of a lighting position in Vectorworks, the new name will show up in Lightwright. If you change the position name of lights in Lightwright, the lights themselves will get the new position name in Vectorworks, but the hanging position itself will NOT change its name. It is always better to change the position name in Vectorworks if you are changing the entire position.

OTHER THINGS TO CONSIDER

Because Lightwright uses the equals sign for Partial Editing on the worksheet, **you cannot use the equals sign within Vectorworks data fields**. Any that you do use will be replaced with spaces. Equals signs are OK in the names of symbols and label legends.

Lightwright will not bring data in from Vectorworks when it is doing anything that modifies data or depends on the data not changing, such as during File/Save, counting, printing, using Maintenance, or Renumbering. It will bring the data in at its first opportunity after these tasks are finished.

CONSOLE LINK

Console Link is a live connection between Lightwright and the lighting console controlling your lights. It lets you turn channels on and off or run cues from within the Lightwright worksheet, have the console automatically populate Lightwright's Cue List, and send cue labels, groups, and channel purposes to the console. It can also compare the patch in the console with Lightwright's channel and address entries, and it can be especially useful when wringing out patching, circuiting, or color problems, and when doing a rig check.

Console Link works by networking with the lighting console, so the console must be running and have the appropriate networking settings enabled.

At this time, the ETC Eos family of consoles running software version 2.3.3 or later are the only ones that support this feature. Other consoles may be added in the future.

SETTING UP THE CONSOLE AND LIGHTWRIGHT

You need to configure both the console and Lightwright before the Console Link can be used.

ETC EOS SETTINGS

Unless you are running the Eos software offline on the same computer as Lightwright, you will need to find its IP address.

1) To find the Eos' IP address, press the About button. The IP Address is the group of four numbers to the right of "IP:"

Example: 10.101.100.101

Both the console and the computer running Lightwright **must be on the same subnet**, typically connected by Wi-Fi. To find out whether they are on the same subnet, click Lightwright's console button and look at the active interface's subnet mask. "255" in the subnet mask means those groups of numbers must match.

Example: Two computers whose IP addresses are 123.145.89.1 and 123.145.89.2 are on the same subnet if the subnet mask is 255.255.255.0, but 123.145.89.1 and 123.145.50.2 are not.

Note that if you connect the console to your computer directly via an Ethernet cable, be sure the ethernet cable has reversed pins or use an ethernet switch and plug both your computer and Eos into the switch. Exit the console to the welcome screen and make the connection. Confirm that it says "Online" in the shell settings before starting Eos.

2) In the Eos' **Shell**:

- Set OSC format to 1.0 (packet length headers)

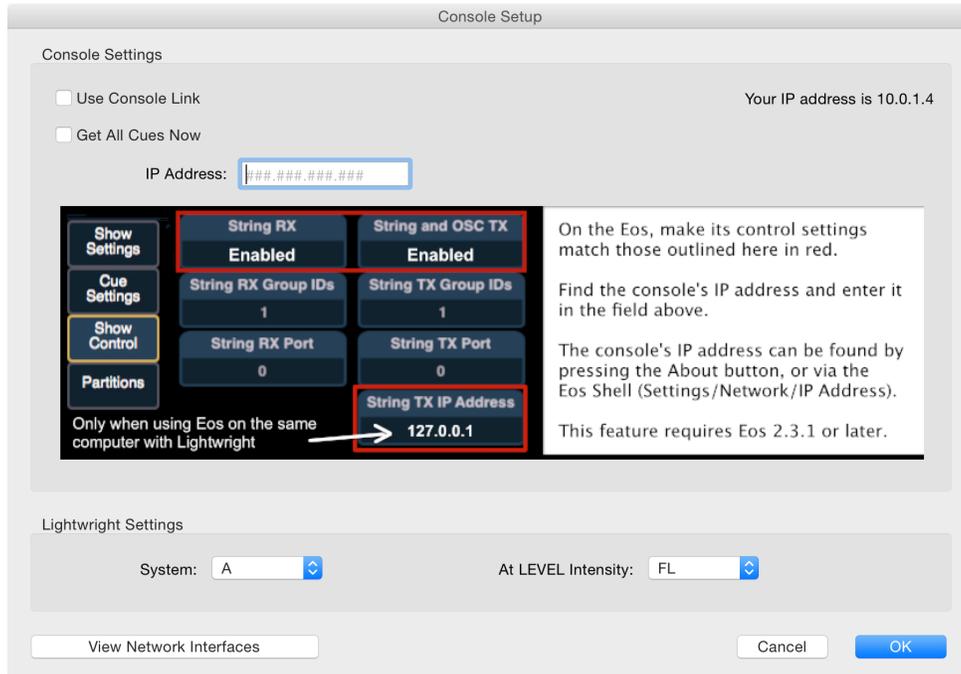
3) In the Eos' **Show Control Settings** window:

- Set RX String to Enabled
- Set TX String to Enabled

- Leave the OSC TX IP Address field empty, this will let Eos talk to all of the computers running Lightwright on the network with it. If you want it to talk to just one specific computer running Lightwright, then enter that computer's IP address.

LIGHTWRIGHT'S CONSOLE SETUP WINDOW

1. Go to Setup>Dimming & Control and click on the "General" tab.
2. Click on the "Console Type" pop-up menu and select "ETC Eos Family." (At this time, this is the only option available.)
3. If you would like to "Use Legacy Dimmer Mode", select it's checkbox here as well.
4. Close the Dimming & Control window to return to the worksheet.
5. Click the light bulb icon in the worksheet toolbar to open the Console Link Setup Window. If the Console Link button is not available, repeat steps 1-4 to set the console type.



6. Enter the Eos' IP address in the Console IP Address field.
7. Choose a System. Lightwright can only communicate with one console at a time.
8. Choose the intensity level you want Lightwright to use for "ON".
9. Click the OK button.

The setup window will close and the worksheet's Console Link icon (the light bulb) will turn yellow if the connection was successful.

Additional Notes:

- If the console operator opens a new show file, Console Link turns off automatically, to protect existing Lightwright data from being sync'd with the wrong show file.
- When selecting "Get All Cues Now" from the Console Setup window, Lightwright gets all cues for all cue lists when console link is turned on by clicking the OK button.
- Console Link automatically retrieves all cue lists from the console (but not the cues in them) when you turn on Console Link.
- The View Network Interfaces button shows you a list of the network interfaces that are currently available. Click on a network interface row and then the Select button to choose one to use with Console Link. This can be very useful when figuring out why Lightwright and the console are not connecting to each other.

USING CONSOLE LINK ON A SINGLE COMPUTER

You can run the Eos ETC Nomad software on the same computer as Lightwright and have them share information just like you can when using an actual console connected by network.

To do this, in nomad's Show>Show Control set the OSC TX IP Address to either 127.0.0.1 (or leave it blank), and use 127.0.0.1 as the console's IP address in the Console Link setup window as described above.

RAISE/LOWER CHANNELS IN THE WORKSHEET



When Console Link is active, you can turn channels on and off from within the worksheet. To do this, turn on the Console Level column. If Console Link is active, you will see "off" light bulbs in this column.

- At Level
- At Out
- Set to 20
- Set to 40
- Set to 60
- Set to 80
- Set to FL
- ✓ Rem Dim
- Home Color
- Home Fixture

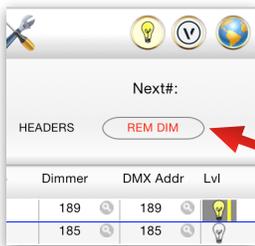
Turn on the Console Level column, then select one or more cells in the level column and press Enter to toggle the channels on and off. The selected rows must be in the same system chosen in the Console Setup window.

Pressing the space bar when Level cells are selected pops up a menu with options to set the lights to a specific level, turn Rem Dim on and off, or to tell the console to home color or the fixture.

When "Rem Dim" is active, setting any level turns all the other Lightwright-activated channels off. It does not turn off channels brought up by the console or other devices.



When Lightwright brings a channel's level above zero, the level column bulbs are yellow, with a vertical rectangle to its right showing the approximate level. Lightwright does NOT show all of the channels in the show that have non-zero intensities, only those you have turned on using Console Link.

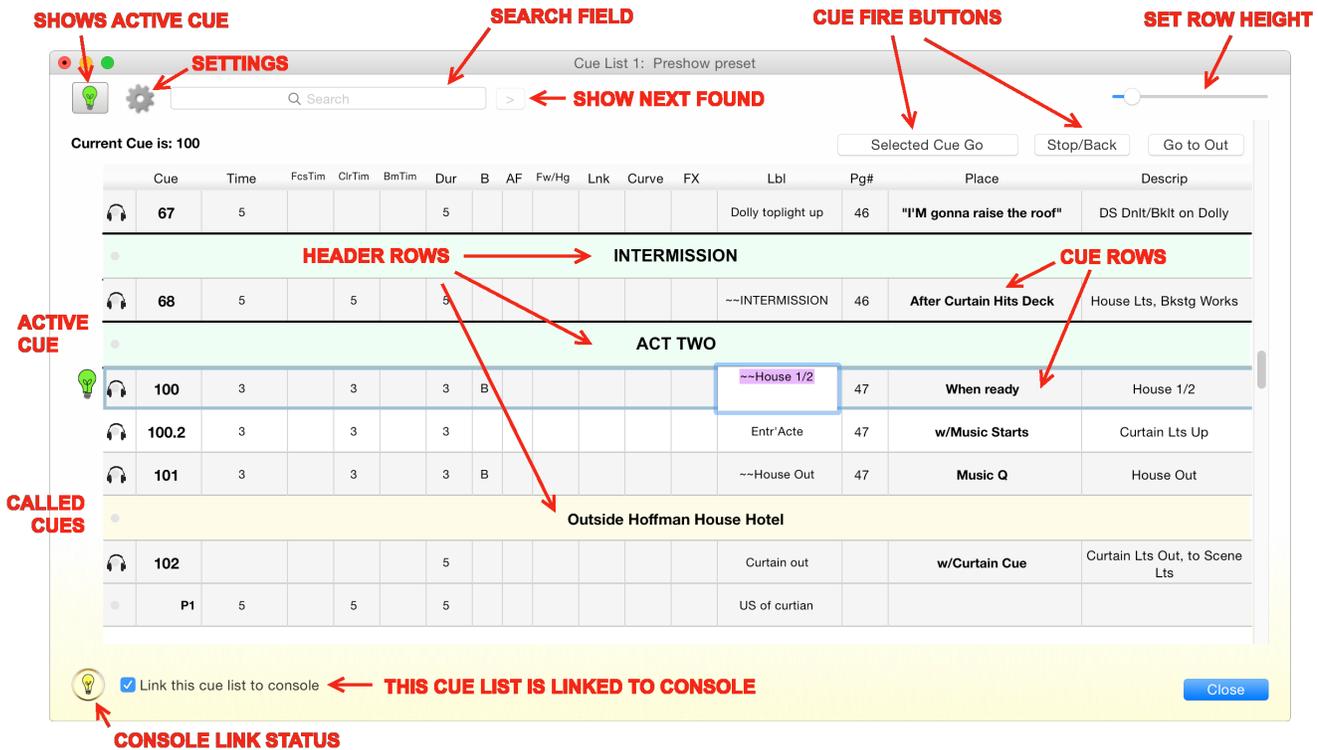


Rem Dim can also be turned on and off by clicking the Rem Dim button on the worksheet. This button normally controls Append editing, but when a console level column is selected, it controls and shows the status of Rem Dim.

CUE LISTS

A Cue List is a list of light cues and their attributes, including the placement of each cue and a short description of what it does.

To create a new cue list, choose Utilities/New Cue List. A new Cue List window opens.



If Console Link is being used, most of the columns are filled by the console, leaving the cue placement and descriptions to be entered by the user. Columns filled by the console cannot be changed by the user.

There are 3 permanent user columns (Page, Placement, and Description), and you can add more user-defined columns at any time.

The Label column can be changed by either the console or you. Whoever changes it last, wins.

If you want to connect the cue list with the one in the console, turn on Console Link (either from the worksheet or by clicking the bulb icon at the bottom left corner of the cue list window). By default, the cue list is connected to the console.

To get existing cues from the console, open the Cue List window and choose Cue List/Get Cues From Console. This brings all existing cues from the console into Lightwright, filling the console-provided columns. It does not alter user column data. If an existing cue list has user-entered cues in it before connecting to the console, cue data brought in from the console is merged with existing cues. If there are two cue rows with the same cue# and part#, the console data will go to the row whose cue UID matches the one coming from the console (Each cue that comes from the console has its own UID).

To send cue labels to the console, choose Cue List/Send Cue Labels etc. to Console.

To change data in the console columns manually, deselect the “Link this cue list to console” option. However, as soon as you turn the link back on or use Cue List/Get Cues From Console, that information will be replaced with console data.

There is a green “Scroll to Active Cue” button on the top left of the cue list window. Clicking it scrolls the cue list to the active cue. This button is only available when Console Link is on.

SEARCHING CUE LIST CELLS

The Cue List window has a search field and menu commands Edit/Find and Edit/Find Next that will help you find information within the cue list. Enter your search text into the search field and press Return to do the search. Use Edit/Find Next or click the “>” button located next to the search field to see the next item found. Click the gear icon to choose the columns you want searched.

EDITING CUE LIST CELLS

To make changes on the cue list, click on the appropriate cell and type the appropriate information, then either Enter or Tab, the same way you edit on the worksheet.

ADDING NEW ROWS

There are two kinds of cue list rows:

Description	
Normal	Contain columns of information about a specific cue. Most cue rows will be this kind.
Header	These have a single cell the full width of the cue list, typically used to break the cue list into logical sections. A header row can have content or be blank.

To add a new row in between existing rows, select an existing row by clicking in the far left column and choose Cue List/Insert Row and either Normal or Header.

To add a row to the bottom the cue list, move to the blank row that is always at the bottom of the list and enter content into one of the available cells. A new blank row will also be added after the new row, ready when needed to be filled for additional rows.

REMOVING ROWS

To remove a row, click the far left column (the one with the grey dot in the middle of it) to select it, then choose Cue List/Remove Selected Rows. You can also Shift+Click or Cmd+Click to select more than one row at a time.

If Console Link is active and the cue list is linked to the console, then this command only works on cue list rows that are not filled by the console. If Console Link is off or the cue list is not linked to the console, then you can remove any rows. However, when Console Link is turned back on and the cues are updated from the console, cue rows you deleted will be restored if they are still on the console.

PRINTING CUE LISTS WITH PARTS

If the printed Cue List does not include a Part column, then the Cue# column will show "P" plus the part number. If the printed Cue List has a Part column, then the part row within the cue will not show the Cue#, only the Part# in the Part column.

The default cue list in the default layout does not include a separate Part column.

FORMATTING CELL CONTENT

Any cue list cell can have these formatting attributes set for it, either one at a time or several at once:

Font	Size	Style	Justify	Box	Text Color	Background Shading
------	------	-------	---------	-----	------------	--------------------

To set any of these, select one or more cells and choose the appropriate option from the Formatting menu.

Text Color is the foreground color of the text, Background Shading is the background color of the cell.

The cell formatting used here is also used on printouts unless overridden by the Layout used when printing.

To change the height of each row, use the slider on the upper right hand corner of the window. This slider has no effect on the printed row heights.

ROW FORMATS

If you want the same formatting attributes to be used on multiple rows, you can create one or more Row Formats containing those attributes. If you modify an existing Row Format, it automatically changes the appearance of all the cells in rows assigned that format.

To create or apply a Row Format, first format the row's cells the way you want them, then select that row and choose an option from the Row Formats menu:

Description	
Rename Row Format	Changes the name of any Row Format.
Delete Row Format	Removes the chosen Row Format.
Restore Row Format Defaults	Restores the default formats to their original definitions.
Save Row Formats as Defaults	Saves the current set of Row Formats as defaults for future cue lists.
Show Row Format Labels	Shows a label on each row showing the name of the Row Format that controls its formatting.

Other Row Format commands:

Description	
Define New Format...	Creates a new Row Format based on the attributes of each cell in the row.
Apply to Selected Rows	Tells the row to always format its cells based on the Row Format.

Description	
Remove Row Format From Selected Rows	Tells the selected rows to ignore the Row Format.
Redefine Row Format	Update the definition of the Row Format to match the current row's cell formatting.

EOS SCENES & NOTES

When running Eos 2.4.1.1.0.16 or later, Lightwright supports the console's Scenes, Scene Ends, and Notes features. The Cue List window has additional menu commands and screen options to support these. Scenes, Scene Ends, and Notes cannot be applied to cue parts, only the main cue.

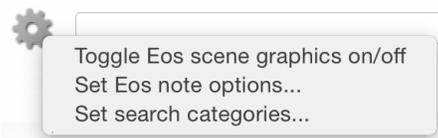
SCENES

Any existing Header row can be a Scene. Select one or more header rows, then choose **CueList/Eos Scene/Set** to make the row a Scene. The text of the header row will be sent to Eos when you choose **Send CueLabels etc. to Console**. Any existing Scenes in the console will be removed and replaced with the ones from Lightwright. When you **Get All Cue Lists & Cues from Console**, all Scenes are brought into Lightwright.

Header rows that are Scenes are flagged with a green rectangle in the header row:

Cue	Time	FcsTim	ClrTim	BmTim	Dur	B	AF	Fw/Hg	Lnk	Curve	FX	Lbl	Pg#	Place
14	2	[0] 0	[0] 0	[0] 0	2			F0				Ambrose enters	11	w/entrance
Yonkers Street														
15					5			F0				Scene 1.2 Yonkers	11	w/Drop Cue In
P0	2	[0] 0	2	[0] 0	2							Scene DR	12	w/V. Enter DR

Mouse down on the Cue List window's gear icon to toggle these rectangles on and off.



To remove the Scene status from a header row, select the row and choose the **Cue List/Eos Scene/Clear** menu item.

SCENE END

Cue rows can have a Scene End attribute applied to them by selecting them and choosing **CueList/Eos Scene/Set End Cue**. This causes Eos to draw a line between that cue and the next one in the PSD. To remove the Scene End attribute, choose **CueList/Eos Scene/Clear End Cue**. Scene Ends are not required to be related to Scene headers. Scene Ends are sent to, and retrieved from, the cue list whenever you send or get cue labels.

NOTES

Eos 2.4 supports a text Note for each cue. They are shown as either a column on the PSD, or at the bottom of the PSD display. There are two ways of handling notes:

- Choose one of Lightwright's cue list columns to be linked to each cue's Note on the console. The data in the chosen column is sent and received whenever labels, etc. are sent or retrieved from the console.
- Choose several of Lightwright's cue list columns to be sent together as a single entry to the cue's Note. This is a one-way link, the Notes can not be retrieved from the console.

Mouse down on the Cue List window's gear icon to set these Eos note options.

Examples:

Choose only the Description column to link to Note. Editing the description column in Lightwright syncs with the cue's note in the console, and changes made to notes in the console are synced back into the cue's Description column.

Choosing the Page#, Placement, and Description columns makes Lightwright concatenate the contents of those three columns (separated by a separator) into a single text entry that is sent to Eos as a Note.

If the page# is 12, the placement is "with actor X DS", and the description is "DS Pool Up" and the separator is a hyphen, then this what is sent to the console: `12 - With actor X DS - DS Pool Up`

If the note is edited on the console, it WILL NOT be brought back to Lightwright, simply because Lightwright has no way of knowing how to split up the content.

OTHER CUE LIST COMMANDS & OPTIONS

These commands and options are on the Cue List menu which is available when the Cue List window is open:

COLUMN SETUP

Choose this option to add or remove columns from the current cue list, or to change the order of existing columns. The cue number must always be the first column in the window and on printouts.

Columns with content provided by the console can be hidden, but not removed permanently. Columns that can be edited by the user, such as Description, Placement, and Page#, can be removed permanently.

SORT

This command sorts the cue list by cue number.

DELETE CUE LIST

This removes the selected cue list permanently. This action cannot be undone. It cannot remove the cue list from the console.

NAME THIS CUE LIST

If the cue list is linked to the console, then the name of the cue list is initially set by the console. Otherwise, use this option to name the current cue list. If you re-name a cue list that is linked to the console, the new name will be sent when you use the “Send Cue Labels to Console” menu command.

You can also use this command to change the number of the cue list if it is not linked to the console.

SHOW ACTIVE CUE

When this option is active, the active cue on the console is shown on the cue list by a green light bulb to the left of the cue, and the top of the cue list will also show the current number of the active cue. This can be especially helpful if you have the “Show Only Called Cues” option turned on and the active cue isn’t shown on the list.

HIGHLIGHT CALLED CUES



This option makes it clear which cues are called by the stage manager by drawing a headset icon to the left of each cue that is not executed automatically via TimeCode or console features such as AutoFollow and Hang.

SCROLL AS CUES FIRE

When this option is active, the cue list scrolls whenever cues are executed so that the current cue and the ones just before and after it are always visible.

SHOW CUE BUTTONS

Turning this option on reveals three buttons at the top of the cue list that let you execute cues:

CUE GO, STOP/BACK, GO TO OUT

Selected Cue Go	Fires the cue currently selected on Lightwright’s cue list.
Stop/Back	Stops the executing cue, or if it has already completed, then it goes back a cue.
Go to Out	Does a “Go to Cue out” on the console.

GROUPS

A Group is a list of channels controlled by a Group command on the console. For each group you want to use, enter its number and then the list of channels. Channel numbers are entered separated by commas and hyphens.

Example: 1-10, 21, 26, 31-40

The Groups Window has columns for the Group number, Channel list, Label, and Description. The group numbers, channel lists, and labels can be sent to a linked console by choosing Group List/Send Groups to Console.

CREATE, EDIT, AND LABEL GROUPS

View the Group List by choosing Utilities/Group List...

If you want to retrieve existing groups from the console, open the Groups window and choose Groups/Get Groups From Console. These groups will replace all existing groups in the Groups window.

If you want to send group definitions and labels to the console, open the Groups window and choose Groups/Send Groups To Console. Any existing groups with the same group number as in Lightwright will be replaced by the new group definitions. Any groups already on the console that are not in Lightwright will not be modified.

EDITING GROUP LIST CELLS

All Group List columns can be edited freely by the user, but the Groups/Get Groups from Console command will overwrite any existing Group numbers, channel lists, and labels.

To make changes on the group list, click on the appropriate cell and type the appropriate information, then either Enter or Tab, the same way you edit on the worksheet.

ADDING NEW ROWS

There are two kinds of group list rows:

Description	
Normal	Contain columns of information about a group. Most rows will be this kind.
Header	These have a single cell the full width of the group list, typically used to break the list into logical sections. A Header row can have content or be blank.

To add a new row in between existing rows, select an existing row by clicking in the far left column and choose Group List/Insert Row and either Normal or Header.

To add a row to the bottom the group list, move to the blank row that is always at the bottom of the list and enter content into one of the available cells. A new blank row will also be added after the new row, ready when needed to be filled for additional rows.

FORMATTING CELL CONTENT

Any group list cell can have these formatting attributes set for it, either one at a time or several at once:

Font	Size	Style	Justify	Box	Text Color	Background Shading
-------------	-------------	--------------	----------------	------------	-------------------	---------------------------

To set any of these, select one or more cells and choose the appropriate option from the Formatting menu.

Text Color is the foreground color of the text, Background Shading is the background color of the cell.

The cell formatting used here is also used on printouts unless overridden by the Layout used when printing.

To change the height of each row, use the slider on the upper right hand corner of the window.

ROW FORMATS

If you want the same formatting attributes to be used on multiple rows, you can create one or more Row Formats containing those attributes. If you modify an existing Row Format, it automatically changes the appearance of all the cells in rows assigned that format.

To create or apply a Row Format, first format the row's cells the way you want them, then select that row and choose an option from the Row Formats menu:

	Description
Define New Format...	Creates a new Row Format based on the attributes of each cell in the row.
Apply to Selected Rows	Tells the row to always format its cells based on the Row Format.
Remove Row Format from Selected Rows	Tells the row to always format its cells based on the Row Format.
Remove Row Format from Selected Rows	Tells the selected rows to ignore the Row Format.
Redefine Row Format	Update the definition of the Row Format to match the current row's cell formatting.

Other Row Format commands:

	Description
Rename Row Format	Changes the name of any Row Format.
Delete Row Format	Removes the chosen row Format.
Restore Row Format Defaults	Restores the default formats to their original definitions.
Save Row Formats as Defaults	Saves the current set of Row Formats as defaults for future cue lists.
Show Row Format Labels	Shows a label on each row showing the name of the Row Format that controls its formatting.

DELETE GROUPS

When you delete a groups in Lightwright, it's gone from Lightwright. If you then send groups to the console, the group will be deleted from the console. Groups that are already in the console that Lightwright doesn't know about won't be deleted. If Lightwright knows about the group and you delete it in Lightwright, then it will be deleted in the console. If you record a group in the console and then ask the console to send you the groups, you'll get the groups that it has. Groups already in Lightwright will not be deleted.

OTHER GROUP LIST COMMANDS

COLUMN SETUP

Choose this option to add or remove columns from the current group list, or to change the order of existing columns. The group number must always be the first column in the window and on printouts.

Columns with content provided by the console can be hidden, but not removed permanently. Columns added by the user can be removed permanently.

SORT

This command sorts the group list by group number.

SHOW SELECTED GROUP ON WORKSHEET

This command takes the channels listed in the currently selected group row and shows their contents on the worksheet, sorted by Channel.

UTILITIES / CREATE GROUP LIST FROM SELECTED WORKSHEET ROWS

This command creates a group list based on the channels in currently selected worksheet rows. To use it, select the appropriate worksheet rows and then choose the command. You do not have to select the channel column, selecting any cell in a row selects it for the purpose of this command.

When you choose the command, Lightwright will ask what group number you want to create. If the group already exists, the new channels will replace the current channels in the group.

CONSOLE LINK FUNCTIONS IN THE UTILITY MENU

VIEW ACTIVE CHANNELS IN WORKSHEET

The menu command Utilities/View Active Channels In Worksheet is a Console Link Command. It queries the console for all channels that have an intensity greater than zero and shows them to you on the worksheet after it notifies you that the query is completed. Channels that are at zero or do not control intensity will not be shown.

SEND SHORT PURPOSES TO CONSOLE

This command uses Console Link to send the “short” version of the Purpose column to the console as the label for each channel. If there is more than one Purpose for a channel, a list of purposes separated by “&” will be assigned as the channel label. Lightwright always sends the short version, even if the Short option is off.

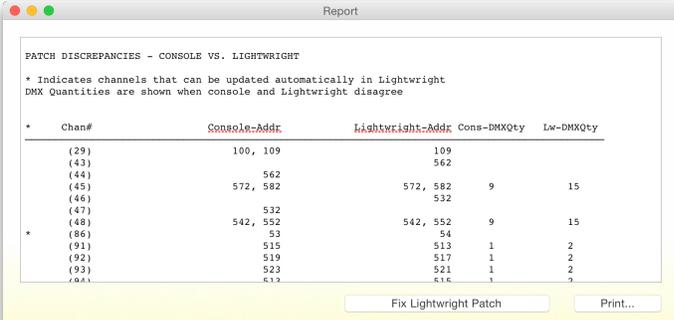
Only purposes from worksheet rows in the same System as the console are sent to the console. If a channel on the worksheet does not exist on the console, it will not be created.

COMPARE CONSOLE PATCH

This command uses Console Link to get the current patch from the console and compare it with Lightwright’s data. Console Link must be active before you choose this feature.

Lightwright will take a few minutes to get the data from the console. If it finds discrepancies, it will open this report window:

Only channels where the addresses assigned to the channel are different on the console than in Lightwright.



* Chan#	Console-Addr	Lightwright-Addr	Cons-DMXQty	Lw-DMXQty
(29)	100, 109	109		
(43)		562		
(44)	562			
(45)	572, 582	572, 582	9	15
(46)		532		
(47)	532			
(88)	542, 552	542, 552	9	15
(86)	53	54		
(91)	515	513	1	2
(92)	519	517	1	2
(93)	523	521	1	2
(64)	612	616	1	5

Buttons: Fix Lightwright Patch, Print...

The first column shows an asterisk if the console patch is correct and the conflict can be fixed automatically. These will be cases where a worksheet row for the channel exists and all of the lights in that channel have either the same address or no address and Lightwright's worksheet addresses need to be changed to match the console addresses. Click the "Fix Lightwright Patch" button to apply these changes automatically.

If there are multiple worksheet rows with the same channel but different addresses, Lightwright has no way of knowing which address from the console applies to each worksheet row, so you will need to edit these manually.

When an instrument type uses a range of addresses, it is possible for the console and Lightwright to disagree on the quantity of addresses needed. In these cases, the "Cons-DMXQty" column and the "Lw-DMXQty" columns will show the quantities in the console and in Lightwright. You will need to puzzle out which is correct and fix them manually, either in the console's fixture setup features or in Lightwright's Maintenance/instrument Type window.

Due to limitations in the Eos OSC communication protocol, Lightwright has no way of changing individual patch entries on the console, so any mistakes in the console's patch must be made manually on the console.

The Print button prints the patch report in this window.

PART V-REFERENCE

COLOR REFERENCE

STANDARD COLOR MEDIA SIZES

Brand	Sheet Size		Roll Size	
	Imperial	Metric	Imperial	Metric
GamColor	20" x 24"	50.8cm x 61cm	24" x 16.5' 24" x 50' 48" x 25'	61cm x 5.03m 61cm x 15.24m 122cm x 7.62m
Lee Filters	21" x 24"	53cm x 61cm	48" x 25' Quick rolls available in widths by the inch up to 46". All quick rolls are 25' long.	122cm x 7.62m Quick rolls available in widths by the cm up to 1.17m. All quick rolls are 7.62m long.
Roscolux	20" x 24"	50.8cm x 61cm	24" x 25'	61cm x 7.62m
Rosco Cinegel	20" x 24"	50.8cm x 61cm	48" x 25' 60" x 20'	122cm x 7.62m 1.52m x 6.1m
Rosco Supergel	20" x 24"	50.8cm x 61cm	24" x 25'	61cm x 7.62m
Rosco E Colour+	21" x 24"	53cm x 61cm	48" x 25'	122cm x 7.62m
Apollo Gel	20" x 24"	50.8cm x 61cm	24" x 25'	61cm x 7.62m

COMMON COLOR FRAME SIZES

Courtesy of PRG, New York

Instrument Type	Fraction Inches	Decimal Inches	Millimeters
Fresnels			
3" Fresnel	3-3/4" x 3-3/4"	3.75" x 3.75"	95 x 95
3" Arri Fresnel	5" Diameter	5" Diameter	127
6" Fresnel	7-1/2" x 7-1/2"	7.5" x 7.5"	191 x 191
6" Laniro Fresnel	9" x 9"	9" x 9"	229x229
8" Fresnel	10" x 10"	10" x 10"	254 x 254
10" Fresnel	14-1/2" x 15"	14.5" x 15"	368 x 381
Source Four Fresnel	7-1/2" x 7-1/2"	7.5" x 7.5"	191 x 191
Source Four PARnel	7-1/2" x 7-1/2"	7.5" x 7.5"	191 x 191
Lekos			
3.5" Leko	4" x 4"	4" x 4"	102 x 102
Mini Ellipse (Colortran)	4-1/2" x 4-1/2"	4.5" x 4.5"	114 x 114
6" Leko (Altman)	7-1/2" x 7-1/2"	7.5" x 7.5"	191 x 191
8" Leko	10" x 10"	10" x 10"	254 x 254
5 degree Leko (Colortran)	12" x 12"	12" x 12"	305 x 305

Instrument Type	Fraction Inches	Decimal Inches	Millimeters
10 degree Leko (Colortran)	10" x 10"	10" x 10"	254 x 254
8 x 13 Leko (Strand)	10" x 10"	10" x 10"	254 x 254
10 x 23 Leko (Strand)	12" x 12"	12" x 12"	305 x 305
Source Four 5°	14" x 14"	14" x 14"	356 x 356
Shakespeare 5°	14" x 14"	14" x 14"	356 x 356
Shakespeare 10°	12" x 12"	12" x 12"	305 x 305
Shakespeare S6-50, 40°, 30°, 20°	6-1/4" x 6-1/4"	6.25" x 6.25"	159 x 159
Source Four 10°	12" x 12"	12" x 12"	305 x 305
Source Four 14°, 70°, 90°	7-1/2" x 7-1/2"	7.5" x 7.5"	191 x 191
Source Four 19°, 26, 36°, 50°	6-1/2" x 6-1/2"	6.5" x 6.5"	165 x 165
Source Four Junior/Junior Zoom	6-1/4" x 6-1/4"	6.25" x 6.25"	159 x 159
Source Four Zoom	7-1/2" x 7-1/2"	7.5" x 7.5"	191 x 191
PAR			
Source Four PAR	7-1/2" x 7-1/2"	7.5" x 7.5"	191 x 191
PAR 36 Rainlight	6" Diameter	6" Diameter	152
PAR 46	5-3/4" Diameter	5.75" Diameter	146
PAR 46 Low Voltage	5" Diameter	5" Diameter	127
PAR 56	7-1/8" Diameter	7.13" Diameter	181
PAR 64	10" x 10"	10" x 10"	254 x 254
PAR 64 Low Voltage	7-5/8" Diameter	7.63" Diameter	194
Open Face			
10" Scoop	10-1/2" x 10-1/2"	10.5" x 10.5"	267 x 267
14" Scoop	15-3/4" x 16"	15.75" x 16"	406 x 406
18" Scoop 19"	19" Diameter	19" Diameter	500
10" Beam Projector	14" Diameter	14" Diameter	356
Mini Light 10	8-3/4" x 11"	8.75" x 11"	222 x 279
Reiche-Vogel 500w Beamlight 24v	10-1/2" x 10-1/2"	10.5" x 10.5"	266 x 266
Cyc and Striplights			
Far Cyc	14-3/4" x 15-1/2"	14.75" x 15.5"	375 x 394
Ground Cyc	9" x 13"	9" x 13"	229 x 330
R-40 Striplight	5-1/2" x 6-1/2"	5.5" x 6.5"	140 x 165
PAR 56 Striplight	7-3/4" x 8"	7.75" x 8"	197 x 203
PAR 64 Striplight	9" x 9-1/2"	9" x 9.5"	229 x 241
T-3 Striplight	8-5/8" x 13"	8.63" x 13"	219 x 330
	7-3/4" x 9-3/4"	7.75 x 9.75	197 x 247
Zip Strip (Altman)	4-3/4" x 4-3/8"	4.75" x 4.38"	121 x 111
Broad Cyc 2k	10-1/4" x 11-3/4"	10.25" x 11.75"	260 x 298
Mini-Strip (L&E)	4-11/16" x 3-5/16"	4.69" x 3.31"	119 x 84
Double R-30 Striplight	6" x 7-3/8"	6" x 7.38"	152 x 187
Iris Cyc Light (Strand)	12-1/4" x 15-3/4"	12.25" x 15.75"	311 x 400
Pallas Ground Row	10" x 11-5/8"	10" x 11.63"	254 x 295
Followspot			
Altman Follow Spots (Satellite, Orbiter, Q1000, Comet)	6" Diameter	6" Diameter	152

Instrument Type	Fraction Inches	Decimal Inches	Milimeters
Colortran Colorsport	6" Diameter	6" Diameter	152
Colortran Colorarc	9-1/2" Diameter	9.5" Diameter	241
Pani Follow Spot	9-1/2" Diameter	9.5" Diameter	241
Lycian Short Throw	6" Diameter	6" Diameter	152
Strong Followspots (Trooper, Super Trooper, Xenon, and Carbon Arcs)	9" Diameter	9" Diameter	229
Others			
Wybron The Scroller (7")	7-1/16" x 9-13/16"	7.06" x 9.82"	179 x 249
Wybron The Scroller (10")	10-1/16" x 13-15/16"	10.06" x 13.94"	256 x 354
Wybron ColorRam	10" x 7-13/16"	10" x 7.82"	254 x 198

KEYBOARD SHORTCUTS

Here is a summary of what all of the various keys do, with notes as to where they are different in the Worksheet vs. Focus Charts:

MAC	WINDOWS	ITEM
General		
⌘ ,	Ctrl + ,	Preferences...
⌘ + N	Ctrl + N	File/New (everywhere except Label window) File/New Label (label window only)
⌘ + O	Ctrl + O	File/Open
⌘ + W	Ctrl + W	Close Window
⌘ + S	Ctrl + S	File/Save
⌘ + Shift + S	Ctrl + Shift + S	File/Save As
⌘ + P	Ctrl + P	Print (Paperwork or Labels, depending on which window is open)
⌘ + Q	Ctrl + Q	Quit
⌘ + Z	Ctrl + Z	Undo
⌘ + X	Ctrl + X	Cut
⌘ + C	Ctrl + C	Copy
⌘ + V	Ctrl + V	Paste
⌘ + K	Ctrl + K	Work Notes Window
Option + ⌘ + K	Ctrl + Alt + K	Add Work Note
Option + ⌘ + C	Ctrl + Alt + C	Live Count Window
Option + ⌘ + G	Ctrl + Alt + G	Group List Window
Option + ⌘ + A	Ctrl + Alt + A	DMX Address Window
⌘ + E	Ctrl + E	Remove All Unused Entries from Maintenance Lists
⌘ + U	Ctrl + U	Change Address Format (when not in Legacy mode) Change Dimmer Format (Legacy mode only)
⌘ + M	Ctrl + M	Minimize Window
Worksheet Only		
⌘ + Shift + A	Ctrl + Shift + A	Select Entire Row (worksheet only)
⌘ + Shift + T	Ctrl + Shift + T	Select in Vectorworks (worksheet only)
⌘ + =	Ctrl + =	Raise #
⌘ + -	Ctrl + -	Lower #
Option + ⌘ + Y	Ctrl + Shift + Y	Toggle Focus Status (worksheet only)
⌘ + I	Ctrl + I	Add items (worksheet only)
⌘ + D	Ctrl + D	Delete items (worksheet only)
⌘ + 1 through 10	Ctrl + 1 through 10	Go to Bookmark (worksheet only)

MAC	WINDOWS	ITEM
Option + ⌘ + 1 through 10	Ctrl + Alt + 1 through 10	Set Bookmark (worksheet only)
Option + Enter	Ctrl + Shift + Enter	Express Append (used after typing text into the edit field)
⌘ + Y	Ctrl + Y	Repeat View (worksheet only)
⌘ + \	Ctrl + \	Refresh (worksheet only)
⌘ + [Ctrl + [Browse Back (worksheet only)
⌘ +]	Ctrl +]	Browse Forward (worksheet only)
Option + ⌘ + N	Ctrl + Alt + N	View Next (worksheet only)
Option + ⌘ + L	Ctrl + Alt + L	View Last (worksheet only)
⌘ + Shift + Y	Ctrl + Shift + Y	View Active Column Category (worksheet only)
⌘ + J	Ctrl + J	Toggle Rows Expanding (worksheet only)
⌘ + B	Ctrl + B	Balance (worksheet only)
Shift + ⌘ + G	Ctrl + Shift + G	Create Console Group from Selected Worksheet Rows
⌘ + G	Ctrl + G	Global View (worksheet only)
⌘ + F	Ctrl + F	Search & Replace (worksheet only)
⌘ + R	Ctrl + R	Renumber (worksheet only)
⌘ + T	Ctrl + T	Snapshot (worksheet only)
Shift + ⌘ + K	Shift + Ctrl + K	View Active Channels in Worksheet (worksheet only)
⌘ + L	Ctrl + L	Show List
Cue List Only		
⌘ + I	Ctrl + I	Insert Cue List Row (cue list window only)
Group Window Only		
⌘ + I	Ctrl + I	Insert Group List Row (group window only)

DATA SHARING CONSIDERATIONS

Show files created by Lightwright for the Macintosh are absolutely identical to those used by the corresponding Windows version of Lightwright. However, because of inherent differences in the two operating systems, here are some words of wisdom on sharing files with folks using the other kind of system:

IF YOU ARE A MACINTOSH USER

When you give a Lightwright show file to someone for use with the Windows versions of Lightwright, make sure the filename includes the required file extension: .LW2, .LW3, .LW4, .LW5, or .LW6. OS X requires the use of file extensions, even if you don't see them, so Lightwright automatically uses them.

IF YOU ARE A WINDOWS USER

You will need to make sure the show file's filename has .LW2, .LW3, .LW4, .LW5, or .LW6 as its file extension. Without one of these extensions, Windows will not know how to connect the show file with Lightwright, and it will not appear in Lightwright's File/Open dialog windows, although you can use File/Import to open it.

FOR BOTH SIDES OF THE FENCE

If you use symbols or accented letters (like Å, ö, or ñ) they will probably not print or display properly on the other platform. There are characters in the Windows/DOS character set that aren't always available on the Mac, and the Windows ASCII code for ö is different from the Macintosh version of ö. Lightwright will try to translate the degree symbol for you, but other than that there's nothing it can do to help: it's an inherent conflict in standards between the two systems. To be safe, you will have to avoid "exotic" symbols and anglicize any non-English spellings. Lightwright has a Unicode preferences setting; changing it can affect these character translations.

TRAVELING

Many designers like to take Lightwright with them when they work out of town; here are some comments, reminders, and suggestions:

You may find e-mail to be the easiest way to keep a connection with far-flung theaters and your home base. However, be sure that internet access is available at your destination.

Also, remember that your copy of Lightwright is your copy, not anyone else's. John McKernon Software has given you what is called a non-exclusive license to use the program. This means that legally, John McKernon Software still owns it; giving away or selling copies of the program is considered theft (besides being rude and inconsiderate to John McKernon).

In addition, both the program and the instruction manuals are copyrighted. This means that you must treat the software just like a book. This means, for example, that an Individual Registration copy of Lightwright can be used by any number of people and may be freely moved from one computer location to another or either the Macintosh or Windows as long as there is NO POSSIBILITY of it being used at one place while it's being used at another. Like a book that can't be read by two different people in two different places at the same time, neither can Lightwright be used by two different people in two different places at the same time. (Unless, of course, they're violating the copyright and the licensing agreement.)

If you want to put your copy of Lightwright onto your host's hard disk for use more than once and are concerned that someone might make copies of it when you're not around, erase the registration information after your final save of the

day and before you exit Lightwright. Just be sure to keep a copy of the registration information with you so you can enter it again the next time you go to use Lightwright.

Finally, remember that the theatre business is very, very small and pirated copies of Lightwright are easy to trace. If someone has your registration information and uses the software illegally, you are the responsible party.

SUGGESTIONS & REMINDERS

Sometimes people are confused when they start to enter a show into Lightwright, not knowing what to do first. There aren't any hard-and-fast rules (since everybody has their own way of working), but here are some suggestions:

1. Start by entering your show's title. It's an easy thing to forget, and embarrassing to have it missing from your printouts.
2. If you're working in a theater with permanently installed dimmers, you will probably want to enter their numbers and capacities next. You may also want to enter the maximum number of channels and mark any bad dimmers.
3. If you want to make lists of equipment, positions, or colors to choose from, enter them using the Maintenance menu. Otherwise, Lightwright will make the lists automatically as you work.
4. If you find yourself always starting with the same equipment or theater, try making a file with no items in it, just equipment lists and/or dimmer capacities. Then start each new show by opening that file, changing the show title, and saving it under a new name. On the Mac, you can make the file Stationery, so that a new file is automatically created each time you double-click on the stationery file.

Here are some other ideas for working with Lightwright, including reminders of functions or procedures you may have forgotten, in no particular order:

- If you go back and try to shorten the names you're using to reduce word wrap, be sure to shorten the names in all the text categories. If only one category is narrowed, less width will be allocated to that column because Lightwright sees that it's narrower and therefore needs less width! Shortening the text in the wider columns will give Lightwright a better chance to optimize the rest of the columns.
- Don't forget that the Layout/Clone menu item on the Focus and Layout pages can copy all or parts of the formatting from one kind of printout to another.
- Don't forget you can use "+" or "-" editing on the worksheet to quickly renumber selected cells.
- If you find yourself looking at a series of hanging positions one at a time in sequence, remember the Next and Last buttons in the upper right corner of the worksheet. If you have a single hanging position displayed on the worksheet, you can click Next and the worksheet will display the units in the next hanging position on the positions list. Last goes backwards through the positions list. This also works for any other single category such as channel, dimmer, circuit name, or instrument type.
- If you want to add lights to a new hanging position that isn't on the Positions list yet, choose the View/Hanging Position menu item and enter the name of the new position. Lightwright will say "Nothing found under that exact name. Do you want to look for items CONTAINING this name?" Click "No" and the worksheet will be cleared, with your new position as what's being viewed. If you click in the blank worksheet space, the Adding Items window will have your new position name as the default location for new lights.

- Don't forget Copy & Paste can be used for rows of worksheet items. If need to copy just parts of one or more lights from one hanging position into another, select the cells whose parts you want, then choose the new hanging position with the View menu. Next, click in the top of the Worksheet to make sure no cells are selected. Finally, paste the clipboard into the worksheet. Lightwright will add new items with just the information you selected.
- You can also Copy & Paste from one column into another. If you want to copy channel numbers into the dimmer column, just select the whole channel column, copy it, select the dimmer column, and then paste.
- You can also Copy & Paste to/from other applications such as Excel.
- Work from a rough light plot whenever possible, not off of a hookup. Go ahead and get all the equipment on the plot in general terms; never mind the colors or exact purposes (use "SPARE" and edit it later). It's very fast to go back and edit or make global changes to the information.
- You'll probably want to let Lightwright alphabetize the Purpose, Color, and Circuit Name lists, while setting the order of the names for Hanging Positions and Instrument Types yourself, so use the Maintenance menu and check the "Keep Sorted" option for each one you want permanently alphabetized.
- *Always* use the error checking routines for similar names, overloaded dimmers, irregular numbering, etc. It's very easy to make mistakes you may not readily notice.
- Remember you can enter more than one unit at a time, using commas and dashes to separate the unit numbers; you can also add multiple hanging positions by separating them with backslashes [\]. Note the important difference between a forward slash [/] and the backslash [\].
- Use descriptive phrases for colors, then do a global change to change them to their actual color numbers.
- Remember the "Clone" command - if you have 8 booms that are all similar (but with some variation), it's faster to "Clone" them and then make the changes as needed on each than it is to do them all from scratch.
- Watch out for hanging positions, color, etc. you've given slightly different names (#1 ELEC vs. # 1 ELEC for instance); it's very easy to do unintentionally. Use the "similar names" error check to find these, but remember it won't spot #1 ELECTRIC as being the same as 1P.
- Use the channel/dimmer rearranging option to make sense of a hookup which has gotten confused by continual adding, etc. However, be very careful that you don't make matters worse: write out your changes by hand to map out your shuffling before using Lightwright to make the changes.
- If you know what kinds of equipment you'll be using when you start entering info into Lightwright, you might find it convenient to enter all the instrument types and default wattages using Maintenance/Instrument Type before you start. It helps keep things consistent and lets you choose names from lists instead of typing them in.
- Besides the regular error checks you may find it useful to run the *Positions in each channel* report (Utilities/Tech Reports menu item). It can help you see errors in channel assignments the regular error checks can't spot.
- If you're a designer, you might very well want to give your electrician a copy of your show's data file so that he can enter dimmer numbers while you assign colors. How do you merge the dimmer numbers into your file without losing the colors?

Use Reconcile and/or Merge: Give the electrician a copy of your file, then use your copy to enter the colors. When he finishes entering dimmers, load your copy of the file, then select Reconcile or Merge Show Files from the File menu. Mark

the dimmers category to be merged, and merge his copy of the file. Only the dimmer numbers will be brought into your file. Just be sure to save your revised copy when you're done.

TROUBLESHOOTING

Here are some of the most-asked questions and their answers.

LIGHTS WON'T SORT BY UNIT NUMBER!

Display the offending position using the View menu - use the View/Position choice, not View/All. Look in the bottom left-hand corner of the worksheet and you'll see a small lock icon.

The icon is probably red and showing "locked". You will also see small lock icons next to the unit numbers. This will happen whenever you drag lights out of their normal sorted order, so that you can put lights in any order you want them. To let them go back to sorting by unit number, click on the lock icon to "unlock" it.

LIGHTWRIGHT ISN'T COUNTING MY COLOR AND/OR EQUIPMENT PROPERLY -- IT'S OFF BY HUNDREDS!

You're probably using the same unit number for all or most of your lights. Unit numbers help Lightwright determine whether or not a light is a multiple-channel fixture, so if all your lights have the same unit number, Lightwright thinks they're one giant moving light. Lights with zero as the unit number will always be considered separate lights when counting.

LIGHTWRIGHT WILL NOT SEPARATE MY COLORS PROPERLY; IT THINKS R-33,L-110 IS ONE COLOR.

Look in Vocabulary (Setup / Vocabulary) and see what your list/color separator phrases are. They do not match what you are actually using to separate your colors

HOW DO I GET RID OF COLORS (HANGING POSITIONS, INSTRUMENT TYPES, ETC.) THAT I AM NOT USING ANYMORE?

To get rid of the unused names in all categories, use Maintenance / Remove All Unused.

If you want to clean up just ONE category, choose Maintenance for the category you want to clean up. When the Maintenance list for that category opens, click the [Remove Unused] button.

Note: If you clean up instrument types using either of these methods, any with stock quantities will not be removed from the list. To get rid of them, set the stock quantity to zero for that type and then click [Remove Unused]. You can alternatively use the following method:

If you want to get rid of just ONE NAME type in any category, choose Maintenance for the category you want to clean up, click on the name you want to delete, and click [Remove]. If you choose to delete an instrument type with a stock quantity, Lightwright will ask for confirmation before doing so.

MY WORKSHEET CELLS ARE TURNING RED/GREEN/BROWN. HOW DO I GET THEM BACK TO BLACK?

Lightwright keeps track of which cells you've changed and shows them in various colors depending on who made the changes if the menu item Worksheet/Highlight Changed Cells is selected.

When you want to reset the change status, choose Worksheet/Reset Cell Highlighting. Everything will go back to black until you start making changes again.

If you don't want to see the highlighting, but do not want to reset the change status, simply select Worksheet/Highlight Changed Cells again to turn the display option off.

HOW CAN I ADD A LIGHT BEFORE UNIT #1 ON A PIPE?

Use 0a, 0b, etc. for the unit number and Lightwright will understand how to sort this properly. Another option is that while displaying the hanging position it is on, drag the light to the top of the worksheet. Alternately, add the light using the unit number of your choice and then drag it up the worksheet until it's before the first unit.

ONE OR MORE OF MY LAYOUTS DO NOT APPEAR ON THE LAYOUT POPUP MENUS.

Layout popups are divided into two sections:

The top half has layouts that Lightwright finds in your show's layouts folder.
The bottom half has layouts that are in Lightwright's Shared layouts folder.

To use a layout located in any other place, use File/Open Layout.

WHY DON'T SOME (OR ALL) OF MY COLORS GET COUNTED? WHY ARE COLORS COUNTED FOR SOME OF MY INSTRUMENTS BUT NOT FOR OTHERS?

Check Maintenance/Color Frames... and see if the number of frames per instrument has been inadvertently set to N/A. Instrument types that are marked this way mean that they don't use color so Lightwright ignores them when it counts. Be sure there is a correct number there, usually 1.

LIGHTWRIGHT COUNTS THE WRONG NUMBER OF COLOR FRAMES FOR ONE OR MORE OF MY INSTRUMENT TYPES.

Choose Maintenance/Color Frames and check the Per Ckt column to see if an incorrect number has been entered there. Lights other than striplights should normally have 1 in this column.

I AM HAVING TROUBLE WITH CUT/COPY/PASTE; THINGS WIND UP IN THE WRONG CATEGORY COLUMNS.

Make sure the order of the categories on the worksheet is the same as the categories on the clipboard. Lightwright pastes in order from left to right and from top down, irrespective of categories.

I CANNOT GET LIGHTWRIGHT TO PRINT A TABLE OF CONTENTS, EVEN WHEN I UNCHECK NO PAGE INDEXES.

The layout you are using must specify that indexes are to be printed. If the layout does not call for indexes, then they will not be printed in any case. If the layout does include the page index, then the NO Page Indexes option will suppress the index.

To see whether or not a layout includes the page index, go to Layout, select the appropriate paperwork using the Paperwork menu, then select Layout Options/Options. In the bottom left-hand corner of the Options window you will see Print Table of Contents. This option must be checked in order for page indexes to be printed.

I LIKE THE LAYOUT I DESIGNED FOR MY CHANNEL HOOKUP, BUT IT SEEMS LIKE AN AWFUL LOT OF WORK TO HAVE TO GO THROUGH ALL THAT AGAIN TO MAKE MY DIMMER HOOKUP AND INSTRUMENT SCHEDULES LOOK THE SAME WAY.

In Layout, go to the Channel Hookup. Then, from the Formatting pop up menu, select Copy Formatting To Paperwork and choose the parts of your Channel Hookup that you like. Also choose the Dimmer Hookup and Instrument Schedule (and any other kinds of paperwork you want to have the same look), then click OK.

The headers and footers are the same for all of your paperwork. Only the columns and other data objects will vary from one kind of report to another.

WHY ARE SOME WORKSHEET ROWS COLLAPSIBLE AND OTHERS AREN'T?

There are several conditions that have to be met before a group of worksheet rows will collapse:

1. You have to be viewing sorted by Position.
2. The instrument type must have an attributes list attached to it.

To see what attributes are collapsible, click in the Attributes column (the one on the far right with a little "list" symbol in its heading). The Attribute List window will open, showing the various attributes. Each attribute has a "Collapsible" checkbox. If the box is checked, then that attribute will be hidden when the instrument is collapsed.

3. The adjacent worksheet rows must have the same position and unit number, and the unit number cannot be zero. Decimal unit numbers such as 4.0, 4.1, and 4.2 are considered to be the same unit number, as are striplight letters A1, A2, and A3.

HOW DO I ATTACH AN ATTRIBUTES LIST TO ONE OF MY LIGHTS?

IF THE INSTRUMENT TYPE ALREADY EXISTS:

Go to Maintenance/Instrument Type and click in the Attributes column (the one on the far right with a little "list" symbol in its heading). The attribute list will open. You can either fill in the fields or choose a pre-built list. To choose a pre-built list, click <Use List> button and select from one of the files in Lightwright's Attributes folder. When you have the attributes to your liking, click <Close> to close the Attribute list, then click <Close> again to close the Maintenance window. Lightwright will automatically add or remove worksheet rows to match the attribute list.

IF THE INSTRUMENT TYPE DOESN'T EXIST YET:

Go to Maintenance/Instrument Type and click <Att List Add>. Choose one of the attribute lists in Lightwright's Attributes folder. If you want to use a different name (something less cumbersome, perhaps), then click on the name, make corrections or changes to it, and click <Update>.

HOW DO I REMOVE AN ATTRIBUTES LIST FROM ONE OF MY LIGHTS?**TO DISCONNECT A LIST FROM ALL INSTANCES OF AN INSTRUMENT TYPE:**

Go to Maintenance/Instrument Type and select the Profiles + Others tab, then click in the Attributes column. The attribute list will open. Click <Clear All>, then <Close>. Lightwright will automatically remove all associated worksheet rows.

TO DISCONNECT A LIST FROM JUST ONE PARTICULAR LIGHT:

Select all of the worksheet rows for that light, then choose Worksheet/Detach From Attributes List.

WHAT DOES IT MEAN WHEN LIGHTWRIGHT ASKS ME IF I WANT TO DELETE "ALL PARTS OF THE LIGHT"?

"ALL Parts" includes anything that can be considered part of that light, including attribute rows, additional striplight circuits, and any devices having the same position name and unit number as the selected light.

HOW DO I ADD MORE THAN ONE STRIPLIGHT AT A TIME?

Just like you would any other number: Enter the beginning and ending numbers, separated by a hyphen. Examples: A1-D1 or A1-A4.

WHAT DO THE LITTLE BLACK DOTS IN WORKSHEET CELLS MEAN?

A black dot in the lower right corner of a worksheet cell means the cell is locked and can't be changed on the worksheet. If cell is in the Load column, then the load has been locked in List Maintenance. If the cell is in any other column, then it is being controlled by an attributes list.

CAN I MOVE FOCUS CHARTS FROM ONE SHOW FILE TO ANOTHER?

Yes. Use File/Merge. One of the things it can bring into the current show file is the complete focus charts from another file. Note that for best results, both show files must have started life as the same file. Otherwise, Lightwright will try to use Positions and Unit numbers to match up lights, which can work but is not as precise as Lightwright's internal methods.

WHAT ARE THE RULES FOR NUMBERING?

Please see the Capacities and Rules section of this manual for a full summary of all numbering rules.

WHERE CAN I GET TECHNICAL SUPPORT?

Please visit <http://www.mckernon.com>. If you don't find what you're looking for there, then send an email with your question to help@mckernon.com. Most email questions are answered within 24 hours.

THE SHOW FILE I WAS WORKING ON IS "READ-ONLY" OR "LOCKED". HOW DID THIS HAPPEN AND HOW CAN I GET BACK TO NORMAL?

Lightwright sets show files to "read-only" while it's working on them so that other folks who might be on the network with you won't be able to screw up your work. When it finishes with the show file or quits normally, it clears the read-only status. If Lightwright crashes or "quits unexpectedly" while you're working on a show, it doesn't have a chance to clear the read-only status. The same thing happens in both Windows and the Mac versions, except that on the Macintosh the term is "locked" instead of "read-only".

To clear the read-only status of a file in Windows: Quit Lightwright. Use Windows Explorer to find the show file, then right-click on it and select "Properties". At the bottom of the resulting dialog box is a check-box option "Read-only". Un-check the box.

To clear the locked status of a file on the Macintosh: Quit Lightwright. Locate the show file, then click on it once to select it. Press Command-I or choose Get Info from the File menu. At the bottom of the resulting dialog box is a check-box option "Locked". Un-check the box.

CAN I SAVE A VERSION 6 SHOW FILE IN VERSION 2, 3, OR 4 FORMAT?

Because Lightwright 6 adds so many new kinds of data and stores it in memory and on disk in much more efficient ways than older versions, it is not possible for Lightwright 6 to save in .lw2, .lw3, or .lw4 formats.

CAN I SAVE A VERSION 6 SHOW FILE IN VERSION 5 FORMAT?

Lightwright 6 can save show data in Lightwright 5 format, but because there are many new kinds of information in Lightwright 6 and existing data types have expanded greatly, **not everything can make the trip back.**

These categories are especially problematic:

Address, Universe, and DMX#

Addresses cannot go back into Lightwright 5's Dimmer column. If you want to send any of these columns back to Lightwright 5, choose one of the user columns 1-18, define it as Integer, then copy and paste all the addresses from the Address column (in absolute format) into the user column, then save as .lw5. When you open the .lw5 file, you can either leave the addresses in the user column, or copy them manually into Lightwright 5's dimmer column.

Bookmarks Bookmarks in Lightwright 6 are stored and accessed like web sites, and cannot be back-converted to version 5 format.

History Saving in version 5 format loses all editing history.

Instrument Profiles Profiles assigned to instrument types, DIP switches, voltages, and Family groups are lost when saving in version 5 format.

Loads in Amps All loads in Lightwright 6 will be saved as watts in version 5 format. Volts are lost.

Layouts Lightwright 6 layouts can have multiple kinds of paperwork, with different page orientations, new kinds of columns, and background shading. Layouts created in Lightwright 6 cannot be back-converted to version 5 format.

Dimmer Setup Service, starting address, DMX offset, and other dimmer information that does not exist in version 5 will be lost.

Any other information that is new in Lightwright 6 will be lost in the .lw5 file, including breakouts, cable, Vectorworks inventory and symbol rotation, cue lists, group lists, etc.

To save a file in Lightwright 5 format, use File/Save As and choose "Lightwright 5" from the File Type button when entering the name of the file.

I CANNOT USE THE PHASE TEMPLATE FILE. IT WILL NOT OPEN OR SAVE FILES. STATES IT IS MISSING FILES OR CORRUPT.

Phase template files do not contain dimmer numbers, only patterns of phases - so you need to have starting and ending dimmer numbers entered into the current dimmer range before you can use or create a phase template file.

LIGHTWRIGHT WON'T CORRECTLY IMPORT UNIVERSES IN UNIVERSE FORMAT: IT PUTS THEM ALL INTO THE FIRST UNIVERSE.

Go into Setup/Dimming & Control/Universes and set a Start# and End# for each universe BEFORE you import. If you are using a label (such as "Univ 1" or "3a" instead of simple universe numbers, you'll also need to enter a label for each universe. Also check to see what the current setting is for the Universe Separator in Setup/Vocabulary.

WHY DO I GET THE MESSAGE "SOME OF YOUR MARGINS WERE TOO NARROW FOR THE PRINTER AND HAVE BEEN ADJUSTED" ?

Whenever Lightwright opens a layout file, it checks the margins to make sure they work with the current printer and adjusts them if necessary. When Lightwright first starts, it automatically opens the layout you were using the last time you worked with Lightwright. So if that layout's margins need fixing, you will get this message. To stop it from coming up (assuming you don't change layouts), choose Save Layout from the File menu. This will save the layout with the corrected margins. Of course, you should probably go to Layout and choose Layout/Margins to see what Lightwright set them to.

HOW DO I UNINSTALL LIGHTWRIGHT?

If you're using the Macintosh version, you're in luck: just drag the Lightwright folder to the trash.

If you're using the Windows version, use Windows' "Add/Remove Programs" Control Panel.

HOW DO I MOVE LIGHTWRIGHT TO A DIFFERENT PLACE?

You can't.

TECHNICAL SUPPORT

If your problem isn't on this list or you still need assistance, either ask a friend who's already using Lightwright, or visit the John McKernon Software web site:

<http://www.mckernon.com> (once there, look under Support)

The current phone number and email address for tech support is displayed in Lightwright's title window, which is also available under About Lightwright or the Help menu. Because John McKernon is often out designing lighting, it can take several days to receive a reply, so if you leave a message, please include as many phone numbers as possible and when you can be reached, speak slowly, and include your Lightwright serial number as part of the message.

If you are emailing about a problem you're having with a show file, including the show file in your email message can often speed up answering your question.

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Having said that, please feel free to contact John McKernon Software if you experience any kind of problem using Lightwright. It is possible that the software contains hitherto undiscovered bugs, and once they are found we will try to correct them within a reasonable time period.

You should also feel free to contact us if you have suggestions for ways to improve this manual, the program, or our customer support. The best way to submit suggestions is in writing, sent to John McKernon Software by e-mail to help@mckernon.com.

PRODUCTION

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