

# ***Virtual Light Lab***

## ***Reference Guide***

Version 3

for

Macintosh® OSX

Windows® 98, ME, 2000, XP

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Version 3.0  
07/04

Guide version 3.0 07/12/04

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## ***Welcome to the Virtual Light Lab***

The Virtual Light Lab is a computer simulation of a large stage lighting laboratory. It provides a variety of simple tools for rapidly creating and modifying lighting looks and stage pictures. Lighting design ideas can be explored, compared, presented, discussed, modified, and printed. The lighting ideas developed in the Virtual Light Lab can be used to guide creation of a full lighting plot for a specific real-world stage.

### ***Quick overview***

Virtual Light Lab provides a means to light figures and arrange them on a stage, light a backdrop image behind them, record these stage setups as scenes, and play the scenes back for review and discussion.

Three prototypical models are included: a male and a female figure and a geometric sphere. Multiple copies of these models can be placed anywhere on the stage, and each copy can be painted with any color, and can be lighted individually.

Models can be illuminated from 70 different angles, using a library of over 700 industry standard filter colors, plus over 1,300 RGB and CMY color mixes. Colors can be changed instantly, light intensities set and balanced, and a breakup template can be dropped into any light.

The Virtual Light Lab stage has four plain backdrops (white, blue, grey and black), and a color swatch backdrop useful for observing the effects of colored lights on a range of surface colors. You can also import any graphic image and use it as a backdrop. The backdrops can be lighted from top and bottom using eight different colors.

When you have lighted the models and composed a scene, you can record the stage setup into the scene list. The Slideshow window can display recorded scenes at full screen size and show timed fades from one scene to the next. Any recorded scene can be reloaded onto the stage for further modification.

Virtual Light Lab is a tool for working designers as well as students and teachers of lighting design. It provides an easy way to demonstrate principles of lighting angles and additive color mixing, to explore the psycho-emotional effects of color and composition in the context of stage lighting, to explain lighting ideas to a director or choreographer, or just to play in a very well-equipped small theatre.

This guide will take you through every step from installation to lighting complete scenes. Virtual Light Lab is actually very easy to use, which is why this booklet is so thin. We suspect you don't want to spend all day reading a manual anyway.

## **System Requirements**

### *Macintosh version*

Virtual Light Lab requires an Apple Macintosh 400 MHz PowerPC G3 or faster with at least 128MB of RAM memory and at least 8 megabytes of disk space or equivalent running Mac OSX 10.2.6 or later. A color monitor with a resolution of at least 800x600 is required with colors set to thousands or millions (preferred). QuickTime is required before installing VLL3. Visit <http://www.apple.com/quicktime/> to download the free QuickTime Player.

### *Windows version*

Virtual Light Lab requires a Pentium processor-based PC or compatible computer with at least 128MB of RAM memory and at least 10 megabytes of disk space or equivalent running Windows 98, ME, 2000 or XP. A color monitor with a resolution of at least 800x600 is required with colors set High Color 16 bit or True Color 32 bit (preferred). QuickTime is required before installing VLL3. Visit <http://www.apple.com/quicktime/> to download the QuickTime Player.

## **Installing Virtual Light Lab**

### *Macintosh CD version*

1. Insert the Virtual Light Lab CD . Open it if its window is not open.
2. Open the "for Macintosh OSX" folder.
3. If there is a "Read Me" file, open it and follow any additional instructions.
4. Drag the VLL3 folder to your applications folder.
5. Eject the CD and store it in a safe place.

### *Macintosh download version*

1. Unstuff the download archive if it is not already.
2. Open the folder.
3. If there is a "Read Me" file, open it and follow any additional instructions.
4. Drag the VLL3 folder to your application folder.

### *Windows CD version*

1. Insert the Virtual Light Lab CD . Open it if its window is not open.
2. Open the "for Windows" folder.
3. If there is a "Read Me" file, open it and follow any additional instructions.
4. Drag the VLL3 folder to your programs folder to copy it.
5. Eject the CD and store it in a safe place.

### *Windows download version*

1. Unzip the download archive if it is not already.
2. Open the folder.
3. If there is a "Read Me" file, open it and follow any additional instructions.
4. Drag the VLL3 folder to your programs folder.

## **Registration**

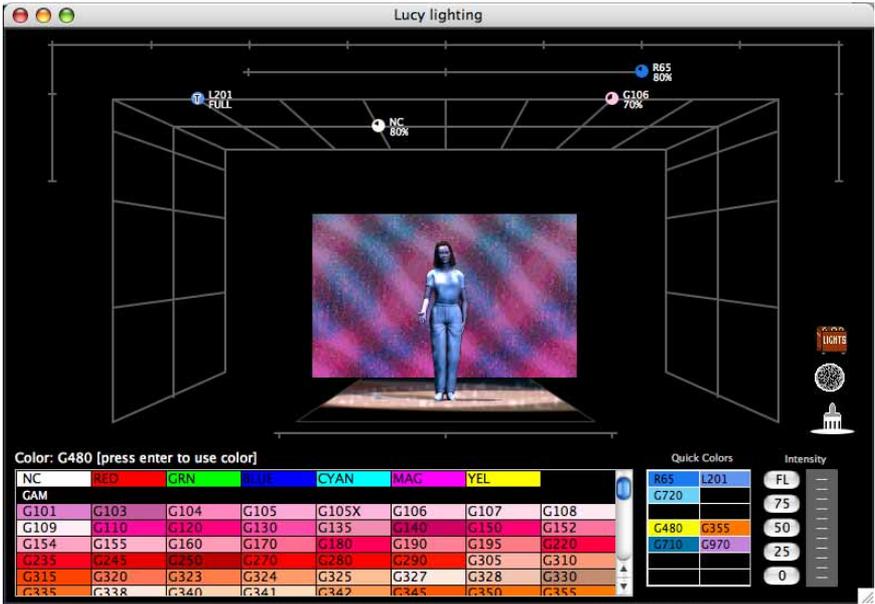
To use Virtual Light Lab just double-click the Virtual Light Lab icon. It will operate in demo mode until registered. In demo mode only the sphere model is available, and you cannot save or open show files.

After purchasing Virtual Light Lab, contact Future Light with your serial number and desired registration name to obtain a registration code. When you have received your registration code, choose the Register command under the Help menu and enter your registration name, serial number, and registration code. Click OK and you will see a confirmation message.

Should you see a registration failure message, recheck all registration information, paying careful attention to capitalization and punctuation in the registration name, which must exactly match the name registered with Future Light.

Virtual Light Lab has two types of windows. There is a Stage & Scenes window, and each model on the stage has an individual Lighting window.

## Lighting Window



In the Lighting window the model is shown surrounded by a virtual grid where lights can be placed. Color palettes and intensity controls are at the bottom of the window. To the right is a box of lights, a template, and a paint brush. We will explore all of these controls in the next few pages.

### The grid

This grid is a simple means for establishing the direction from which you want light to fall on the model; the grid does not actually exist on the stage. Light sources can be located at any grid intersection point, or at the tic marks on the lines at the top and bottom of the image. The top line is a front-of-house-cove angle, with box-boom-like positions on either side. The line below the cove line is a lower, balcony-rail-like frontlight angle. The line below the model is a footlight position.

## ***Lights***

Lights can be moved, dimmed, colored and can have templates. Other lights can be added, lights can be viewed individually or together, and overall light levels can be modified. Schematic light beams can be displayed, and information about the imaginary location of each light can be called up.

## ***Positioning a light***

When a Virtual Light Lab model is added to the stage, it is initially lighted by a single fixture. Click on the light and drag it to another intersection. The light will automatically refocus to the model.

## ***Dimming a light***

The white square around the light indicates that it is currently selected and therefore controllable from the panel in the lower part of the window. The intensity fader strip is at the right side of the control panel. Drag on the fader strip to adjust the intensity level. You can also click on the five intensity buttons to make major adjustments, or click on the fader strip to set a level to the nearest 10%. The percentage intensity is displayed next to the light, and the circle itself appears as a pie wedge showing at a glance how bright the light is.

You can also quickly toggle a light on or off by double-clicking the light itself. If a light is on, double-clicking will turn it off. Double-clicking again will turn it on at full brightness.

Intensity can be set from the keyboard by typing any single digit. To set a level of 50% type 5. To set 30% type 3. Type 0 (zero) for off, and F for full. To set more precise levels type = and then the two-digit level, for example =85, or =07.

At low levels lights become redder, as an incandescent lamp does.

## ***Color***

The main color palette contains over 700 industry standard color designations. The palette's top row includes pure primary and secondary colors useful for color theory demonstrations. Use the scroll bar at the right side of the palette to see more colors. At the end of the palette is a small selection from the range of colors available from a Wybron CXI color mixing system.

Frequently used colors can be dragged to the Quick Color palette for, well, quick access.

## ***Color filters***

Coloring a light is as easy as dragging a color filter from the color palette to the light. To remove the color from a light put the no-color (NC) clear filter into the light, or drag the light to the color palette.

The color of the "selected" lights can be changed by double-clicking on any color in the palette. The chosen color will immediately be placed in the currently selected lights.

You can also change the selected lights' colors by typing the color designation. Type L165 then press enter key and the selected lights will be changed to Lee 165. Type N and then the enter key for no color.

## ***Color mixes***

New technology allows lights to produce colors without using standard filters. LED-based fixtures use primary red-green-blue color mixing, while moving lights typically use subtractive cyan-magenta-yellow (sometimes called amber) color mixing. Virtual Light Lab provides over 1,300 of these color mixes through keyboard color selections.

Type RGB123 to select red 10%, green 20%, blue 30%. Type F for 100% and 0 for 0%. Thus pure red = red 100%, green 0%, blue 0% = RGBF00. A pale green is RGB7F7. A rich amber is RGBF60. Note that in additive colors RGB000 is black (no color on) and RGBFFF is white (all color on), while in subtractive colors CMY000 is white (no color subtracted) and CMYFFF is black (all color subtracted).

## ***Custom colors***

If 700 color filters and 1,300 mixes are not enough, you can create over 63,000 additional colors using the standard Macintosh or Windows color picker. Hold down the option key (Macintosh) or Alt key (Windows) while clicking a light to display the color picker. Create a color, click OK, and your new color will be put into the light. The word "CUST" next to a light indicates that it has a custom color which was created this way.

## ***Random colors***

When artistic inspiration fails, Virtual Light Lab can pick colors for you. Choose **Lights>Random Colors** to randomly select palette colors for all of the lights. After looking at a few sets of Virtual Light Lab's color choices, yours will probably begin to look much better. If they don't then it's a sign that you should come back to color choices at another time.

## ***Color accuracy***

It is important to note that a computer monitor cannot begin to display the wide range of colors we can see on the stage. Colors which are highly saturated are impossible to represent accurately on screen. We felt it valuable to include every standard filter number and assign to each the closest displayable color. The alternative would have been to leave out many popular colors which cannot be displayed accurately.

Each filter number calls up the closest displayable approximation of the filter color. Two filters which are in reality different colors may look the same in Virtual Light Lab because they are both undisplayable and are represented by the same "closest displayable color" on screen.

Since Virtual Light Lab uses the full color range of your computer's display hardware, you may find that increasing the brightness setting on your monitor will improve the visibility of shadow detail and deeper colors.

Always double-check filter colors using a manufacturer's swatch book before using them on the stage. There is no substitute for putting real filters in front of real lights when critical color choices must be made.

## ***Templates***

To add a pattern to any light, drag from the template icon, below the lights supply box, to a light. A general soft breakup texture is added to the light, and a "T" appears on the light to indicate that it has a template. You can put templates into all selected lights by double-clicking the template icon, or typing T for Template.

To remove a template, drag the light to the template icon. To remove templates from all selected lights type O for Open beam.

## ***Adding more lights***

To add a new light, simply drag one from the brown supply box and place it at any intersection on the grid. The new light will immediately be turned on and focused at the model. You can hang up to 70 lights, one at every grid position, if you desire. A short-cut to add a new light: hold down the control key then click on a grid intersection.

The currently selected light always has a white square around it. This is the light which is being addressed by the control panel. To select more than one light, hold down the shift key while clicking on each light, or drag a selection rectangle around the desired lights. When multiple lights are selected any intensity or color change will apply to the entire group.

## ***Removing a light***

To remove a light from the grid simply drag it back to the supply box. To remove multiple lights, hold down the shift key while clicking on each light, then drag any one of the selected lights to the supply box to remove them all.

## ***Dissecting the look***

Virtual Light Lab provides an easy way to observe what each individual light is doing in a lighting setup. Selecting the Solo command in the Lights menu causes all lights to go out except the currently selected light. While in solo mode, clicking on another light to select it causes the first light to be extinguished and only the new one to be seen. Select the Normal command in the Lights menu to view the combined effect of all lights again.

## ***Magnifying the view***

Select the Magnify command in the Windows menu to display an enlarged view of the model in the Magnify window. Click the Copy button in the magnify window to copy the image the clipboard for pasting into other applications.

## ***Seeing the light***

Select the Show Beams command from the Lights menu to display schematic light beams. This diagrammatic overlay makes clear which colors are illuminating the model from which directions. Select the Show Beams command again to turn off the beam display. A similar feature in the Stage window displays directional color keys for each model.

## ***Position information***

Click on a light, then choose Show Info from the Lights menu to display information about the light. Its scale location and incident angles are displayed.

## ***Backdrops***

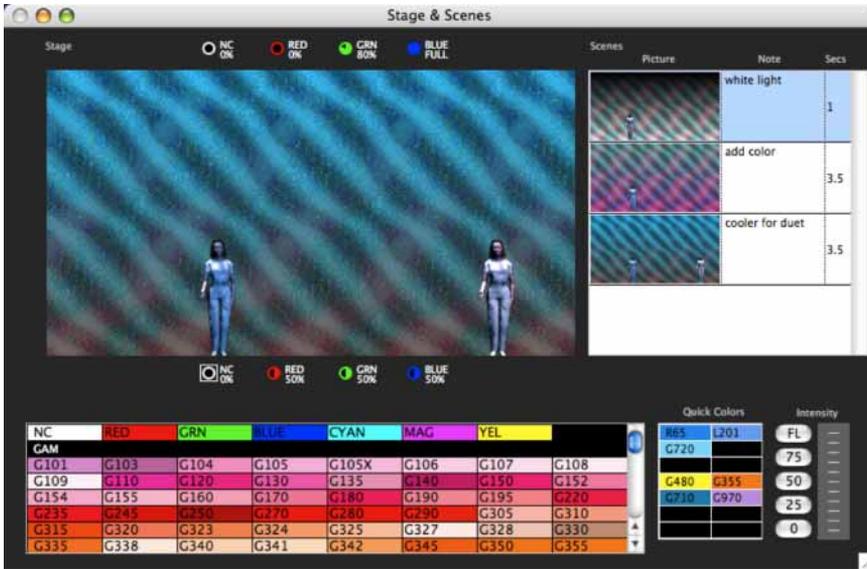
You can select backdrops and control backdrop worklight from the Backdrops menu. To change backdrop lighting, position, or size, or to import a new backdrop image, the Stage window must be front most.

## ***Information Overload?***

Virtual Light Lab allows you to concentrate on visual design concepts before addressing the physical implementation of the design. It allows you to think about color and direction and relative intensities, without the distractions of wattages and beam sizes and throw distances.

Those details are important, but are better addressed with other tools after the design vocabulary is developed in Virtual Light Lab. For that reason there is no specific fixture, wattage and lens information in Virtual Light Lab. The distance and directional angle information will provide a basis for you to scale the model's lighting for your own stage.

# Stage Window



The stage window is where models are arranged on the stage, where all backdrop adjustments and lighting are done, and where stage setups are then stored as scenes.

## Backdrop lighting

In the stage window four-circuit color mixing is provided for backdrop lighting. The four lights above the stage image represent the circuits lighting the top of the drop, the four lights below the stage represent the circuits lighting the bottom of the drop. They behave just like the lights in the lighting windows except that they are permanently installed; you cannot move or remove them.

Initially they are colored white, red, green and blue. The colors can be mixed by selecting each circuit in turn and adjusting its level from the control panel. You can replace the colors by dragging other colors from the palette to each light.

## ***Selecting a backdrop***

In the Backdrop menu you can choose from six different backdrops:

**White** is a plain white field.

**Blue** is a field approximately the color of sky blue cyc cloth.

**Black** is a completely black background.

**Grey** is a 50% grey field.

**Colors** is a pattern of color samples. The colors on the backdrop will appear as they would under the mix of colors from the cyc lights. View the drop under white light to see the actual colors.

**Image** displays an image you have imported, as described below.

## ***Images***

You can also use any image as a Virtual Light Lab backdrop. Copy an image from a paint program, clipart collection, photo library, etc. Return to the Virtual Light Lab Stage window and choose **Edit>Paste**. The image will be installed as the backdrop. To import an image from a file, use the **Backdrop>Import Image** command.

Like the Colors drop, colored background images will react correctly to backdrop lighting colors. With a scanner or digital camera you could capture an image of a scenic elevation, paste it into Virtual Light Lab, add some models, and light it all to create a sense of how the actual scene might look under stage lighting.

The backdrop can be positioned and sized after being installed. Drag the backdrop image to position it. Hold the option key (Macintosh) or alt key (Windows) then drag up or down to change the image size. If you want to scale the size of the drop more accurately to the figure models choose the **Backdrop>Grid** command to display an alignment grid. The lines on the grid are 5 feet apart.

When you are happy with the image size and position you can lock it with the **Backdrop>Lock** command. Clicks on the background will not move the backdrop while it is locked.

To aid in positioning a backdrop, the backdrop worklights can be turned on. Use the **Backdrop>Worklight** command to turn them off and on. When the worklight is off, the backdrop will only be visible after you turn on the top or bottom backdrop lights.

## ***Models***

Models are added from the **Model>Add** sub menu. The models listed are those found in the Models folder. If the message "Could not find models folder" appears in the Add sub menu, check that the Models folder is in the same folder as the Virtual Light Lab application, and that you are not actually using a copy of the application that is somewhere else.

Additional models will be available. Virtual Light Lab models can be installed by dropping them into the Models folder.

## ***Model color***

Models can be painted. To paint a color onto a model, choose **Model>Paint Model**, or click on the paint brush icon in the Lighting window. The standard color picker window will appear. Select a color and click OK. The model will now be painted this color and its appearance under colored lights will change accordingly. The color of the paint brush icon always indicates the model's color under white light.

## ***Upstage/Downstage***

Each model exists in its own upstage/downstage plane. To change the upstage/downstage order of models, select a model and use these Model menu commands:

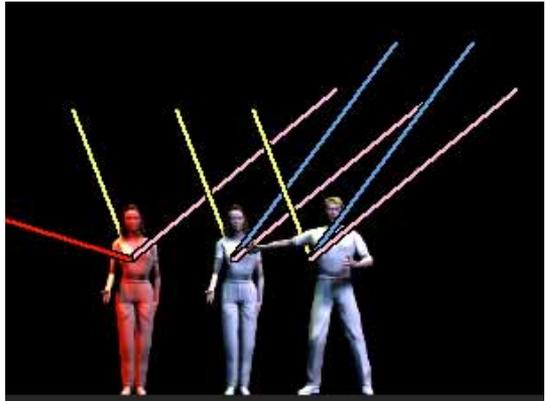
<b>Move Forward</b>	moves model downstage
<b>Move Back</b>	moves model upstage
<b>Move To Front</b>	moves model fully downstage
<b>Move To Back</b>	moves model fully upstage

## ***Color keys***

To see what general lighting systems and colors are being used you can turn on a color key diagram for any or all models. Select a model and choose **Model>Show Color Key**. Lines indicating lighting color and direction are shown behind the model. When you move a model its color key and its lighting move with it.



It is important to understand that the fundamental design element in Virtual Light Lab is the lighted model. Placing lighted models together on the stage and looking at the color keys begins to reveal the types of lighting systems that will be required to create the lighting for the scene.



## ***Scene list***

To save a stage setup as a scene, choose **Scene>Record**. A thumbnail picture of the scene will be added to the scene list. Click on the space next to the thumbnail picture to type a note if you like. At the right side of the scene list is the timing used to fade into the scene when viewing it in the Slideshow window. Click the number to edit it.

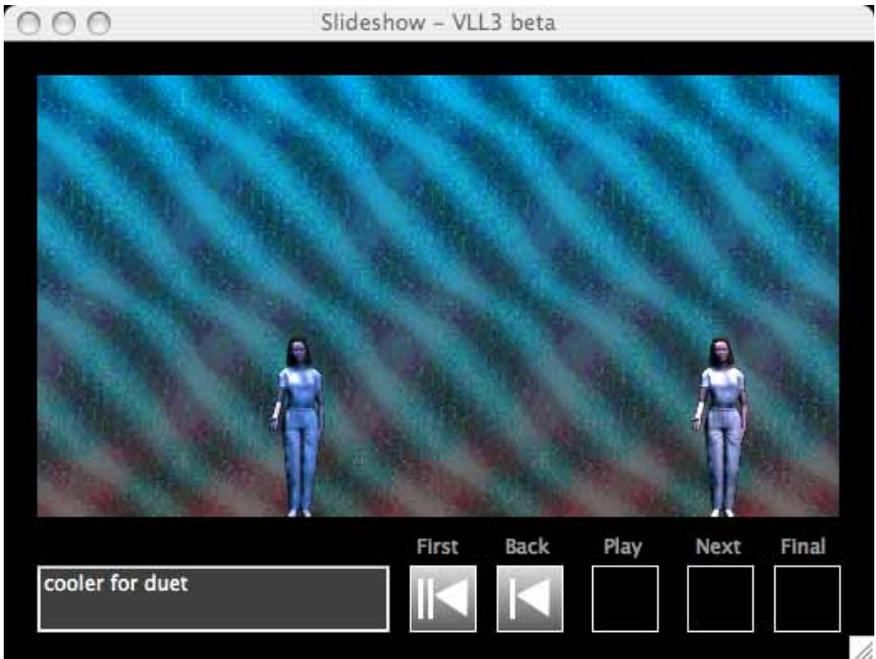
To reload a scene onto the stage, click on the thumbnail picture and then choose **Scene>Load**. Wait a few moments while Virtual Light Lab restores the backdrop and models. Now you can continue working on the scene exactly as it was in when you recorded it.

Virtual Light Lab does not open Lighting windows for models in recorded scenes until you choose to change the lighting of a model by double-clicking the model or selecting **Model>Light Model**.

The revised scene can be recorded as a new scene using **Scene>Record**, or you can click on a thumbnail picture to choose a scene to be replaced, then use **Scene>Update**.

The order of scenes can be changed by dragging the scene thumbnail pictures up or down the list. To view the recorded scene sequence, open the Slideshow window by using **Windows>Slideshow**.

## Slideshow window



The slideshow window lets you display the scenes at a larger size (full-screen size if you maximize/zoom the window) and provides controls for stepping through the sequence. The five button controls work as follows:

- First** jumps to the first recorded scene
- Back** jumps back one scene
- Play** fades to the next scene in the number of seconds specified in the scene list
- Next** jumps to the next scene
- Final** jumps to the final recorded scene

The scene's caption is displayed to the left of the control buttons, and can be edited there as well.

## ***Files***

A Virtual Light Lab scene list can be saved as a file for later use. **Choose File>Save As...** enter a name in the dialog box, and click the Save button. Virtual Light Lab will create a folder with the specified name and place in it a file named VLL3show.vll and another folder containing all of the images it needs (scene thumbnails, backdrop image, and other elements). If you need to copy a Virtual Light Lab show, you must copy the entire show folder.

Use the **File>Open...** command from the file menu to open a saved show. Navigate to the VLL3show.vll file within the show folder and click Open.

You can add a saved show to a current show by using **File>Add Show**. The new show's scenes will follow the current show's scenes in the scene list. If the added show has a backdrop image, it will replace the backdrop image used in the current show. A future update to Virtual Light Lab will allow multiple backdrop images in one show.

Virtual Light Lab show folders are completely interchangeable between Macintosh and Windows systems.

## ***Printing***

Virtual Light Lab can print Lighting windows, Stage setups, or Scene lists.

**File>Print Lighting** prints the lighting setup in the front Lighting window. The lighting grid showing all lights with their colors and intensities, the paintbrush icon showing the model paint color, and the image of the lighted model are printed on one page.

**File>Print Stage** shows the Stage & Scenes window stage image as it appears on the screen, including model color keys and backdrop worklight and alignment grid if selected.

**File>Print Scenes** shows eight (or nine in landscape orientation) thumbnail scene pictures with captions per page.

## **Summary**

That's all there is to it. With the tools we have discussed here you can create literally billions of scenes. We hope you enjoy using Virtual Light Lab for many years to come. It will always be ready to answer a quick question, try a new idea or just play around with lights.

## **Contacts**

### **Future Light**

Please direct any questions or problems to Future Light, Inc., the distributor of Virtual Light Lab.

email: [info@future-light.com](mailto:info@future-light.com)

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### **West Side Systems**

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## **Appendix 1: Shortcuts**

**Position a light** Click on a light and drag to intersection  
**Add a light** [CONTROL] + click on intersection  
**Select multiple lights** [SHIFT] + click on each light

### **Intensity**

**Toggle Light ON & OFF** Double click on a light  
**10% increments** Single digit : 0 thru 9 , F  
**Exact percentage** =##, Equal + 2 digits

### **Color**

**No color** N+[ENTER]  
**GAM color** G + color number  
**Lee color** L + color number  
**Rosco color** R + color number  
**RGB color** RGB###, # is each color's intensity  
**CMY color** CMY###, # is each color's intensity  
**Custom color** Select light while holding  
[OPTION] - Macintosh  
[ALT] - Windows  
**Random color** Menu: Lights>Random Color

**Template/Gobo - add** Select light + T  
**Template/Gobo - remove** Select light + O

### **Custom backdrop**

**Reposition** Click on backdrop and drag  
**Resize** [OPTION] + click on backdrop for Macintosh  
[ALT] + click on backdrop for Windows

### **Model**

**Paint** Click on paintbrush