Virtual Magic Sheet™

User's Guide

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Blue Blue Blue
183 182 181

Blue Blue
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Red Red Red
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Red Red
190 189

cool Wh cool Wh cool Wh
193 192 191

cool Wh
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Detail of Beverly Emmons' layout for the Martha Graham Dance Company.

Introduction

Virtual Magic Sheet displays lighting control levels in a format that follows the visual layout of your magic sheet, light plot, or any other organization you design. Channels do not need to be viewed in rigid rows and columns, but can be placed anywhere on the screen.

Objects
The basic visual display element is called an object. There are many types of objects. Channel objects show channel number and level, but they can also have names, colored backgrounds, and graphic visual representations of their levels.

Other display objects show color scrollers and additive or subtractive color mixing devices. Others show moving yoke or scanner mirror position. Still others can display control values such as non-dim states or gobo wheel positions.

VMS also offers a set of standard graphic elements for organizing and labeling the display, and a means to add background plans or drawings. The result is a magic sheet display designed to suit your own needs, filled with live data from the lighting console.

Live data
Virtual Magic Sheet can read certain lighting control networks directly to monitor level information. Through an optional DMX-USB adapter it can monitor any DMX control console. Multiple computers on a local network can run VMS concurrently, each displaying a different layout, but sharing the monitored control levels.

VMS uses patch information to associate each object with the correct data in the DMX stream. Objects can be patched using channels, fixtures, or absolute DMX addresses.

Modes

VMS operates in two modes: "Offline" and "Live". The Offline mode is used for designing and editing display layouts. The Live mode displays real-time DMX data in the layout. Use the **Live** and **Offline** commands in the **Control** menu to switch modes.

In Offline mode VMS can be used to create, edit and test layouts. To work in Live mode, VMS needs access to the DMX control data-stream. Currently VMS supports direct monitoring of DMX data through a USB adapter, and monitoring of Art-Net data through wired or wireless Ethernet. Devices are available to convert multiple universes of DMX to Art-Net for network distribution.

This Guide

The **Object Overview** provides an introduction to all of the VMS object types. **Object Properties** looks at the mechanism for setting each object's characteristics. The **Channel Patch**, **Fixture Patch** and **Object Patch** sections explain the details of how objects are connected to the control console data.

Color Tricks describes means to make objects change color automatically. The **Object Reference** explains all of the display and patch properties for each object, and offers additional notes about their usage. The **Layouts** section explains the working space where all of those objects are displayed. At the end of the guide you'll find **Tips and Tricks**, **Magnified View, Multiple Universes, Menu Shortcut Keys**, **Installation, VMS Editions, Registration & Authorization, Help & Support,** and **Credits**.

All features of the Mac and Windows versions of VMS, which are nearly identical, are addressed. Many pop-up contextual menu commands are available, which are accessed by right-clicking in Windows, or by ctrl-clicking on a Mac. This guide will designate these as right/ctrl-clicks.

Built-in Help

VMS contains an extensive built-in help system which reflects much of the material in this guide. Use the **Help > VMS Help** command to access it.

Object Overview

There are eight types of live objects which respond to DMX level data:

> _Channel_
> _Scroller_
> _RGB_
> _CMY_
> _Yoke_
> _Scanner_
> _Command_
> _DMX Level_

There are also six graphic objects:

> _Line_
> _Arrow_
> _Rectangle_
> _Oval_
> _Text_
> _Picture_

In the next few pages we'll take a quick look at the features of each type of object. The Object Reference section contains more details about how to operate those features.

Channel object

The Channel object shows the channel number and percentage level, as you would expect. It also has several additional display options.

Channel objects can show a short label and the filter number above the channel. The background color of the object approximates the filter color.

The channel object can have up/down arrows showing the direction of the most recent change in level.

The channel level can be displayed as a percentage, or as full-range DMX in decimal (000-255) or hexadecimal (x00-xFF), and the level can be displayed in larger text.

A bar graph, circular gauge, or fading color field can also be enabled, showing at a glance the relative levels of a group of channels.
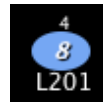

bar

circle

fade

Scroller object

The scroller object displays the current color selection of a color scroller or a moving light's color wheel, as well as the current frame number, and the color filter number.

The scroller object has a "frame list" property containing the list of colors. A color is automatically selected from the list based on the control channel level. Levels can be assigned to each color to fine-tune the tracking of physical scroller positions.

Yoke and Scanner objects
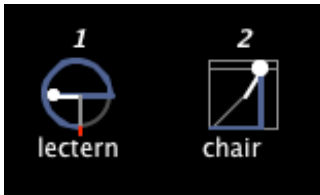
The Yoke and Scanner objects graphically display the pan and tilt values of a moving light fixture, and can maintain a list of named preset focus points.

The Yoke object, on the left, shows the pan (arc) and tilt (line through the center) and the resulting focus direction (dot), all in a circular diagram. The vertical white line is the zero pan position, and the red mark shows the pan limit, in this case 400 degrees.

The Scanner object, on the right in the picture, shows the result of pan and tilt in a square diagram. The diagonal line marks the corner where pan and tilt are both zero.

Both types of objects can be rotated to match the actual hanging orientation. Additionally, pan and/or tilt axis data can be inverted, and the two axes can be swapped.

Each object can have an ID, which can be any name or number and is not related to the channel patch. The words below the objects are names of the pan/tilt positions matching the current dmx data. To record a position (in live mode) simply right/ctrl-click on the object, select **Record Point**, and type a name. Whenever the pan and tilt match the recorded position, the position name will be displayed.

DMX Level object

The DMX Level object simply displays a control level. It can show either a single 8-bit DMX level, or a 16-bit level from two DMX slots. It can display the level as a percentage (0-FL) or full-range (000-255 or 00000-65535) or hexadecimal (x00-xFF

or x0000-xFFFF). It can have a color and an ID label.

RGB object

The RGB object displays a mix of red, green, and blue primary colors, which might be produced by an LED fixture, for example. Red, green, and blue bars show the levels of each color component, and a larger color swatch shows the resulting mix.

CMY object

The CMY object displays a mix of cyan, magenta, and yellow secondary colors, which might be produced by a moving light fixture, for example. Cyan, magenta, and yellow bars show the levels of each color component, and a larger swatch shows the resulting mix.

Command object

The command object is used to display a text label reflecting the state of a command channel. The text displayed is automatically selected based on the channel's level.

The command object can also optionally show a text label, the control

channel number, and the raw DMX level (000-255).
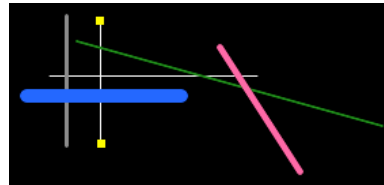
Line object

The Line object can be used to separate, structure, and organize sections of the layout. It can be drawn at any angle, and can have any color and line width. When selected, the line can be manipulated by dragging the square handles at each endpoint.

Arrow object
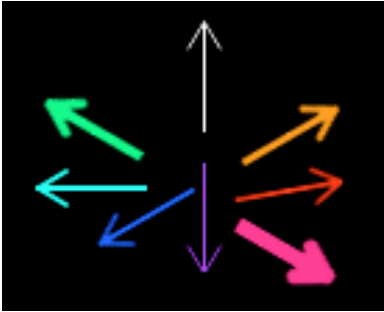
The arrow object can be used to show lighting direction or to highlight important items on a layout. The arrow's color and line width can be changed.

Rectangle object

The rectangle object can be used to add visual organization and structure to the layout. When selected, it can be resized using the square handles at its corners.

Oval object

The oval object can be used as another visual aid on the layout. When selected, an oval can be resized using the square handles at the corners of the selection rectangle.

Text object

The Text object is used to add text labels to the layout. The color, size, and style (bold, italic, underline) of the text can easily be changed.

Picture object
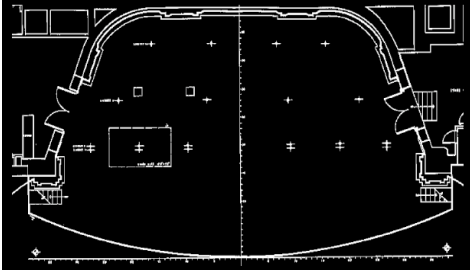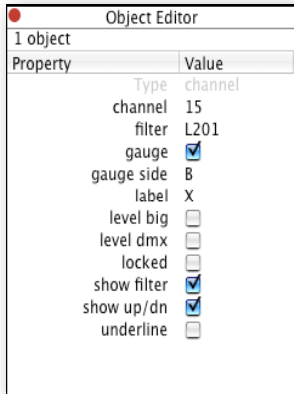
The picture object can provide an overall background or add a graphic detail to a layout.
An image with a white background can be shown in negative, as seen in the example above, and the overall brightness of a picture can be adjusted for best integration into the VMS layout design.

Object Properties

Properties of objects, for example channel and filter number of a channel object, or line weight and color of a graphic object, can be changed in the Object Editor. The Object Editor is opened by the **Edit > Show Editor** command, or by right/ctrl-clicking an object and selecting **Edit** from the contextual menu.

The Object Editor lists all properties for the currently selected objects. Clicking on a property in the Object Editor allows editing of that property for all selected objects.
Right/ctrl-clicking an object displays a menu of object-related commands.
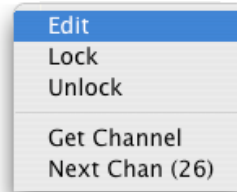
Edit will open the Object Editor. **Lock** will prevent an object from being selected or moved. The **Unlock** command unlocks it.

To quickly assign a series of channel numbers to a series of objects, select the lowest numbered channel object and set its channel number, then right/ctrl-click the object and choose the **Get Channel** command. This will use the object's channel number as the base for the series.

Right/ctrl-click the object needing the next highest channel number and choose **Next Chan** to assign it. Repeat the **Next Chan** command on each object in the sequence. The channel number that will be assigned is shown in parentheses.

Channel Patch

VMS uses the channel patch to associate DMX slots (addresses) with channel numbers so that it can send the correct DMX level data to objects patched as channels.

The **Patch > Show Channel Patch** command opens the patch window where the channel patch information can be entered.
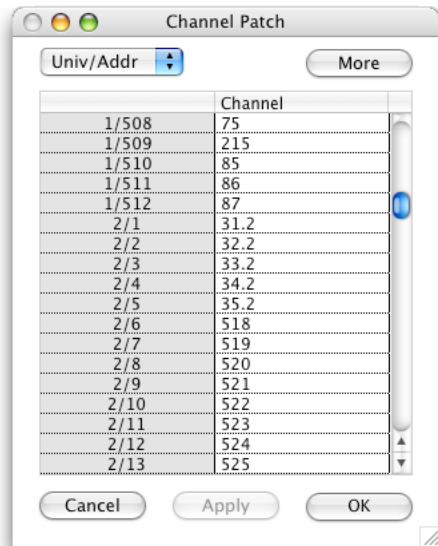
Each row in the window represents one DMX slot. Use the pop-up menu to choose **Dimmer** or **Univ/Addr** display. Channel numbers or other identifying designators can be entered for each DMX slot, as shown in the screen-shot. Channel designations on this list are matched to objects and the DMX level from the associated slot is sent to the object.

The entire patch list can be sorted by clicking on any column heading. To sort by channel, click on **Chan**. To sort by dimmer or universe/address, click on the blank heading below the pop-up menu. Clicking a second time will reverse the sort order.

The **Patch > Clear Channel Patch** menu command clears all channel assignments. The **Patch > Set Patch 1:1** command sets all channel numbers equal to dimmer numbers.
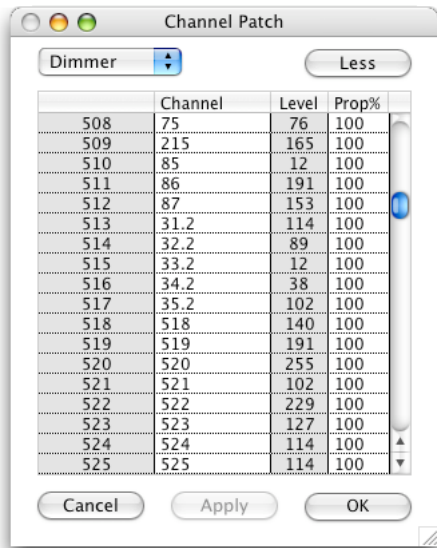
Pressing the **More** button reveals two additional columns showing current live DMX level (0-255) and optional proportional percentage (1-100).

The proportional percentage is used to undo any proportional level reduction set on a dimmer and display the proper channel intensity based on the reduced DMX level. Proportional intensity entered here should match the proportional intensity set for the dimmer at the control console.

Patch information can be imported directly from a Lightwright 4 file. Use the **Patch > Load Lightwright 4 Patch…** command. A USITT ASCII text format patch, exported from Lightwright, Expression Offline or Showport, for example, can be loaded by using the **Patch > Load ASCII Patch…** command.

VMS Objects which are patched as fixtures or dmx devices do not use the channel information from this patch. The objects' levels do, however, reflect any proportional percentage assigned in the Channel Patch window.

There is no provision at this time for non-sequential dimmer numbering. The first slot in universe 2 is always dimmer 513, the first slot in universe 3 is always 1025, etc. There is no direct support for ETC Dimmer Doubling, however the arithmetic is simple: add 256 to the "A" dimmer number to find its "B" dimmer address. For example, dimmer 1B is 1 + 256 = DMX address 257.

Fixture Patch

VMS uses the fixture patch to associate DMX addresses with fixture designations so that it can send the correct DMX level data to objects patched as fixtures. The **Patch > Show Fixture Patch** command opens the fixture patch window where the fixture patch information can be entered.

Click **New** to create a new fixture line. Enter the Fixture number, or other designation, that you will use when associating an object with this fixture. Enter the DMX universe and start address of the fixture. Click **New** again to create another fixture. Click **Apply** to immediately apply a change to the layout, or **OK** to close the window and apply any changes.

Fixture	Universe	Address
1	3	1
2	3	21
3	3	41
A	4	1
B	4	7

New

Cancel   Apply   OK

Fixture patching example

DMX universe 1

...	
401	
402	
403	
404	
405	
406	
407	
408	
409	
410	
411	
412	
413	
414	
415	
416	
417	
418	
419	
420	
421	
...	

Fixture 5

dmx seq	function
1	intensity
2	pan
3	tilt
4	shutter
5	cyan
6	magenta
7	yellow
8	gobo
9	iris
10	zoom

Fixture Patch

New

Fixture	Universe	Address
5	1	405
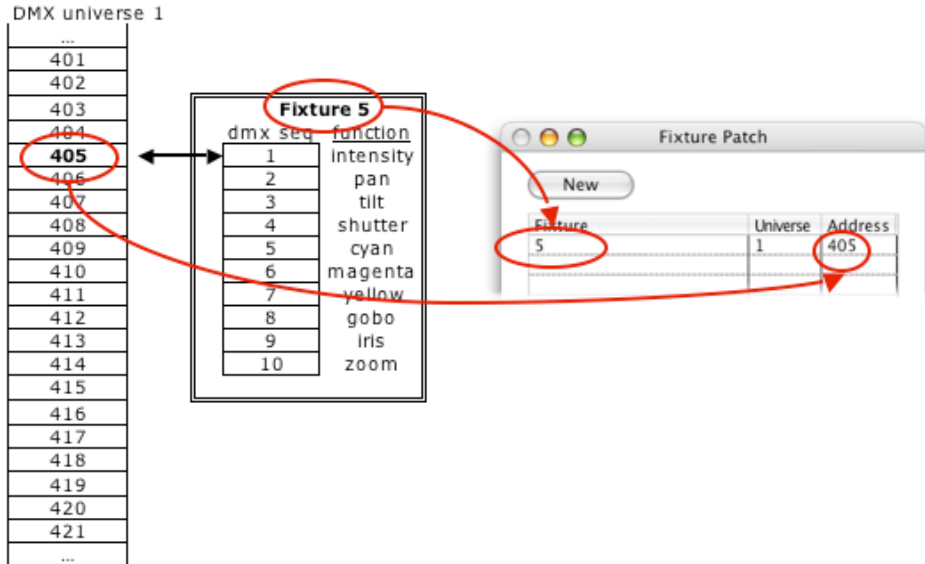
Fixture 5 is a moving light having 10 dmx slots for its attributes. The fixture is plugged into DMX universe 1, and addressed at 405.

In the **Fixture Patch** window:
Create a **New** fixture.
Set its **fixture** designation to 5.
Set its **universe** to 1.
Set its **address** to 405.

Now we can create objects to display attributes of this fixture and patch them to "fixture 5". If the fixture's patch is ever changed, all objects will automatically be updated with the new universe and address information.

Object patch

Live objects display DMX level information. An object can be patched to the desired data in one of three ways.

1 - As a channel, in which case it receives its data from a source listed in the Channel Patch window.

2 - As a fixture component, in which case it uses the base address listed for the fixture in the Fixture Patch window, combined with the dmx seq value which specifies which dmx data slot(s) within the fixture the object is to monitor.

3 - As a generic DMX Device component, in which case the DMX universe, start address, and dmx seq value are specified as properties of the object.

The following data patching properties are available for scroller, yoke, scanner, command, DMX level, RGB and CMY objects.

Channel objects can be patched only as channels.

Object patch property summary

ID	identifying label, could be channel or fixture designation
patched as	choice of: channel, fixture, or dmx device

when patched as a channel:

channel	control channel, can be number or any text, from channel patch

when patched as a fixture:

fixture	fixture, can be number or any text, from fixture patch
dmx seq	dmx slot within fixture (1-512)

when patched as a DMX device:

universe	universe number of dmx device (1-8 in current version of VMS)
start addr	start address of dmx device (1-512)
dmx seq	dmx slot within dmx device (1-512)

Yoke patching example

Create a Yoke object. In the **Object Editor**:

    Select **patched as** and set to **fixture**.
    Select **fixture** and set to 5.
    Select **dmx seq pan** and set to 2, which is the dmx sequence number within
    the fixture of the pan attribute.
    Select **dmx seq tilt** and set to 3.

CMY patching example
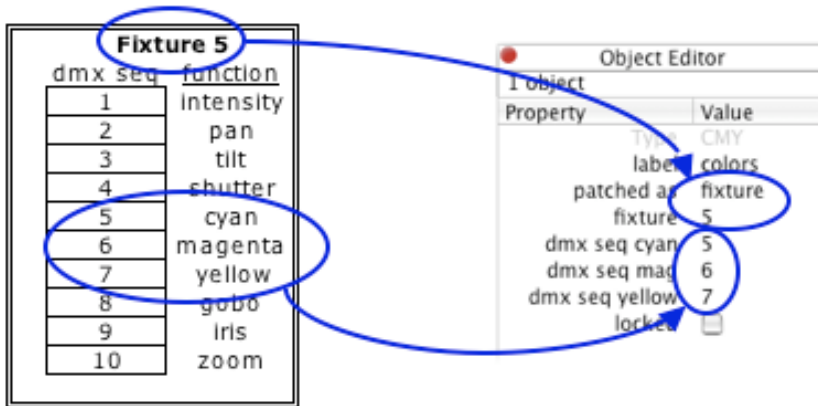
Create a CMY object. In the **Object Editor:**

      Select **patched as** and set to **fixture**.

      Select **fixture** and set to 5.

      Select **dmx seq cyan** and set to 5, which is the dmx sequence number within
      the fixture of the cyan attribute.

      Select **dmx seq mag** and set to 6.

      Select **dmx seq yellow** and set to 7.

Color Tricks

Color Linking

Scroller, RGB and CMY objects can be assigned as color sources for other objects by establishing a color link between a source and receiver object. When the source object's color changes due to a control level change the receiver objects will also take on the new color.

For example, a scroller might be linked to a channel so that the channel object is drawn in the currently selected scroller color. A CMY object might be linked to a yoke so that the yoke's focus dot is drawn using the current CMY color mix.

A link is created by first selecting the color source object (scroller, RGB, CMY) and choosing **Edit > Copy Color**. Next, select one or more receiver objects and choose **Edit > Paste Color/Link**. The receivers will now always be drawn in the source object's color.

To break a link, select the receiver object and assign it a specific color, or in the case of a channel, assign it a filter or "NC".

Any of the following objects can be color receivers: Channel, Yoke, Scanner, Command, Line, Arrow, Rect, Oval, Text, DMX Level. Any of them can be linked to a Scroller, RGB or CMY color source.

The color property of a selected channel can be copied by using the **Edit > Copy Color** command, and then be pasted onto any other selection of channels by using the **Edit > Paste Color** command.

Manual Color Changes

If a fixture's color is changed manually during a performance, VMS provides a means to assign multiple colors to a fixture, identify each one with a "color setup" and easily switch between setups when colors are changed..

A list of all of the filters used in a channel may be entered in the color property and each filter can be associated with a color setup name, which might be the name of the act or the dance piece when the color is used.

For example, if a dance sidelight channel is normally no color, but is manually changed to R25 for "Rondo" and R80 for "Windsail", the channel object's color property would look like this:

   NC, R25 @ Rondo, R80 @ Windsail

Use the **Display > Color Setups** menu to select a setup. All channels having a filter assigned to that setup will change to the filter assigned for that setup. any channel not having a filter assigned to the selected setup will be unaffected. Selecting the color setup "Windsail" will change the example channel to R80. Selecting "default" will change it to no color.

For automated color changes, use the scroller object.

Object Reference

The following pages contain a detailed look at all of the properties for each object type.

Channel object

Properties:

channel	*channel number (which does not need to be an actual "number")*
filter	*color filter identifier, or list of color changes*
gauge	*enable analog gauge display*
gauge side	*B, T, L or R to signify from which side of the object the bar gauge grows*
level big	*use larger type size for level*
level dmx	*display level as DMX 000-255*
level hex	*display DMX level as hexadecimal x00-xFF*
locked	*enable selection lockout*
label	*text label for channel*
show filter	*enable color number display*
show up/dn	*enable up/down direction display*
underline	*underline the channel number*

Notes:

The color of the up/down indicators can be set in the preferences window to match control console display coloring.

A channel object can be a color receiver. For example, its color can be controlled by a scroller object. In this case the filter property is ignored.

DMX Level object

Properties:

dmx 16-bit	*enable 16-bit level display*
dmx seq coarse	*DMX sequence number relative to the channel, fixture or device start address, of the high-order half of the level value*
dmx seq fine	*DMX sequence number of the low-order half of the level value*
color	*drawing color **
gauge	*enable analog gauge display*
gauge side	*B, T, L or R to signify from which side of object the bar gauge grows*
level big	*use larger type size for level*
level dmx	*display level as DMX 000-255 (or 00000-65535 if 16-bit)*
level hex	*display DMX level as hexadecimal x00-xFF (or x0000-xFFFF if 16-bit)*
locked	*enable selection lockout*
show up/dn	*enable up/down direction display*

Notes:

* A DMX Level object can be a color receiver.

A DMX Level object can be patched as a channel, fixture, or dmx device.

Scroller object

Properties:

frame 0	*label the first frame number as 0, instead of 1*
frame list	*list of colors, separated by commas, for example:*
	NC, R01, L105, G315, L132, R80 …
	Or with levels:
	NC@0, R01@3, L105@7, G315@11, L132@14, R80@18 …
locked	*enable selection lockout*
show ID	*enable display of ID in center of scroller*

Notes:

A scroller can be a color source for other objects.

A scroller can be patched as a channel, fixture, or dmx device.

RGB object

Properties:

dmx seq red	*dmx address of the red component, where 1 signifies that red is at the start DMX address of the specified channel, fixture, or device*
dmx seq green	*dmx address of the green component*
dmx seq blue	*dmx address of the blue component*
locked	*enable selection lockout*

Notes:

An RGB object can be a color source for other objects.

An RGB object can be patched as a channel, fixture, or dmx device.

CMY object

Properties:

dmx seq cyan	*dmx address of the cyan component, where 1 signifies that cyan is at the start DMX address of the specified channel, fixture, or device*
dmx seq mag	*dmx address of the magenta component*
dmx seq yellow	*dmx address of the yellow component*
locked	*enable selection lockout*

Notes:

A CMY object can be a color source for other objects.

A CMY object can be patched as a channel, fixture, or dmx device.

Yoke and Scanner objects

Properties:

dmx seq pan	*dmx address of pan attribute within device, where 1 signifies that pan is at the start DMX address of the specified channel, fixture, or device*
dmx seq tilt	*dmx address of tilt attribute within device*
dot color	*color of focus indicator dot **
double size	*causes object to be drawn at twice the normal size*
invert pan	*causes pan data to be inverted, useful when fixture has this option enabled*
invert tilt	*causes tilt data to be inverted*
locked	*enable selection lockout*
max pan	*(Yoke object only) maximum pan travel in degrees*
orientation	*angular orientation in degrees clockwise from normal*
swap pan/tilt	*exchange the pan and tilt data*

Notes:

* A Yoke or Scanner can be a color receiver.

A Yoke or Scanner can be patched as a channel, fixture, or dmx device.

Command object

Properties:

states	*state/level list as described below*
color	*text color for all data **
locked	*enable selection lockout*
show chan	*enables control channel number display*
show level	*enables DMX level display*
size	*text size, in points, for all data*
style bold	*enables bold style*
style italic	*enables italic style*
underline	*enables underline style*

Notes:

A command object might be used for a simple non-dim channel, displaying ON or OFF. It might be used for an automated fixture's reset channel, displaying NORMAL or RESET. For a gobo selector channel it might show OPEN, DOTS, RAYS, LINE, CIRCLE, SPIN.

The states property is a list of commands and their associated control levels. A non-dim channel might have a list like this:

OFF@0, ON@50

The reset channel for a fixture which resets only at DMX level 250 would look like this:

NORMAL@0, RESET@250d, NORMAL@251d

where the "d" designates a DMX, rather than percentage, control level.

Note that only the lowest level in each state is listed. In the reset example, NORMAL would be displayed for every DMX level from 0 through 249. At DMX 250 the display would show RESET. At DMX 251 and higher it would again show NORMAL.

* A Command object can be a color receiver.

A Command object can be patched as a channel, fixture, or dmx device.

Line object

Properties:

line color   *drawing color for line **

line width   *pen width, in pixels, for line*

locked   *enable selection lockout*

Notes:
* A Line can be a color receiver.

Arrow object

Properties:

direction   *orientation, as noted below*

line color   *drawing color for arrow **

line width   *pen width, in pixels, of arrow*

locked   *enable selection lockout*

Notes:
An arrow's orientation can be specified by compass direction (*N, S, E, W, NE, SE, SW, NW*) or by clock direction (*1 – 12*) or by degrees clockwise from up (example: *25d*).

* An Arrow can be a color receiver.

Rectangle object

Properties:

filled	enables solid rectangle
line color	drawing color for rectangle *
line width	pen width, in pixels, of rectangle outline
locked	enable selection lockout

Notes:
* A Rectangle can be a color receiver.

Oval object

Properties:

filled	enables solid oval
line color	drawing color for oval *
line width	pen width, in pixels, of oval outline
locked	enable selection lockout

Notes:
* An Oval can be a color receiver.

Text object

Properties:

text	*the text label to be displayed*
color	*the drawing color for the label **
locked	*enable selection lockout*
size	*point size of the label*
style bold	*enables bold text style*
style italic	*enables italic text style*
underline	*enables underline text style*

Notes:

* A Text object can be a color receiver.

Picture object

Properties:

brightness	*overall brightness 0-100 for image display*
locked	*enable selection lockout*
negative	*show picture as negative*
print neg.	*enable print picture as negative*

Notes:

Create a picture object by copying a picture and pasting it onto the layout. (On a Mac you may also drag and drop a picture or picture file.) The picture object can then be moved and resized as needed.

A scanned stage plan, light plot or channel list can provide a background for other objects. When a picture object is used as a background it is best to move it to the back and lock it so that it will not be selected when trying to drag-select multiple objects that are in front of it.

Kendall Smith's layout for "The Daughter of the Regiment" at Michigan Opera.

Layouts

The VMS window has a scrolling layout area with a tool bar above it. New objects are created by dragging an object name from the tool bar into the layout area.

Objects can also be created by right/ctrl-clicking in a blank area of the layout. A pop-up menu allows you to choose the type of object to add at that location. An invisible grid keeps objects in neat alignment. (This grid snap feature can be turned off from the **Align** menu.)

Selecting Objects

An object can be selected by clicking on it. A yellow border indicates a selected object. Shift-click to select additional objects, or to deselect an object.

Click down on the background and drag to create a rectangle which will select all of the objects it encloses. Again, shift will select the enclosed objects, or will deselect enclosed objects which are already selected, without changing the selection state of other objects. Hold the alt/option key while dragging to include any objects touched by the rectangle.

Moving and Aligning Objects

Drag a selected object, or use the arrow keys, to move all currently selected objects.

A group of objects can be aligned to each other by commands in the **Arrange** menu. You can align the objects' tops, bottoms, right sides, left sides, horizontal centers, or vertical centers. The **Flip Left/Right** and **Flip Up/Down** commands flip the selected object grouping.

Resizing and Stacking Objects

Some graphic objects are resizable. When selected, a resizable object has square "handles" at the corners, which may be dragged to change the object's size. Holding the *shift* key while resizing preserves the object's original shape.

Objects have an inherent stacking order. New objects appear in front of older

objects when they overlap. The front-to-back stacking order of objects can be changed by selecting an object and using the **Move To Front** and **Move To Back** commands in the **Arrange** menu.

Locking Objects and Layouts

Objects can be locked. A locked object cannot be accidentally selected or moved. To unlock an object right/ctrl-click on the object and select **Unlock**.

The entire layout can also be locked to prevent any changes. Use the **Edit > Lock Layout** menu command.
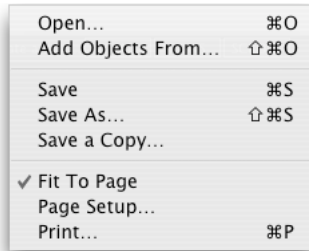
Rows of Channels

Multiple channels can be created at once by dragging the **Rows** tool to the layout, or by right/ctrl-clicking on the layout background and selecting **New Rows**. In the entry box that appears enter the first channel number, then "-" for "through", then the last channel number. For example *1-10* creates channels 1 through 10. For multiple rows add an "*x*" and number of channels per row. Enter *1-80x20* ("1 through 80 by 20") to make 80 channels in rows of 20. The upper left channel will be placed at the mouse click or drop location on the layout.

If the "first" channel number is higher than the "last" channel number, the objects will be numbered in descending order from left to right. If no row size is entered, all channels will be in one row. To make a column, specify a row size of 1. Under the **New Objects** tab in the **Preferences** window you can specify that space be added between channels and between rows.

Layout Files

The **File** menu provides commands for opening and saving layouts. When saving a layout, VMS creates a folder containing both the VMS file and a folder of miscellaneous support files. When opening a saved file, open the VMS file inside the enclosing folder.

File > Open… opens a previously saved layout. The current objects and patch are replaced by the contents of the layout file.

File > Add Objects From… opens a previously saved layout and adds its objects to the current layout.

File > Save re-saves the current layout file with any changes.

File > Save As… saves the current layout with a new name. Future saves will go to this new file.

File > Save a Copy saves a copy of the current layout with a new name. Future saves will go to the original file, not this new copy.

File > Fit To Page enables automatic sizing so that the layout will fit on one printed page.

File > Page Setup… opens the standard printer setup dialog.

File > Print… prints a modified version of the layout. In the printed version the black background is replaced with white, and the solid channel colors are replaced with colored outlines. These changes save printer ink and produce a page with free space to write notes. Any white text or objects are printed as black on the white background. The printed layout shows no level information.

VMS Tips and Tricks

Useful when Offline:

Arrow keys move the selected object(s).

The *delete* or *backspace* key will delete the selected objects.

The **Edit > Lock Layout** command locks and unlocks the entire layout. When the layout is locked, no objects can be selected, whether or not they are individually locked.

Hold *shift* while resizing an object to preserve its original shape.

If parts of your layout mirror left and right, make the objects for one side, select them, **Edit > Copy**, **Edit > Paste**, **Arrange > Flip Left/Right**, and then drag the flipped objects to the proper location. You can also mirror up and down with **Arrange > Flip Up/Down.**

The **Preferences** command opens a window where you may set general VMS preferences. Under the **Chans** tab are color selectors for the up/down indicator colors, a checkbox for italicized channel numbers, and a level gauge style selection. Under the **New Objects** tab you may choose whether new channel objects will initially have the gauge display enabled, whether you will be queried for basic information (for example ID or channel number) when creating a new object, and whether new rows of channels will have space between objects.

VMS recognizes several designations for white: R00, NC, N/C, OW, O/W and CLR. Capitalization is not required.

To preview your layout in Offline mode, use the **Control > Faders** menu command to open a small fader control which sends levels to the first ten dmx slots of each universe, or to all slots. You can also use the **Control > Demo Levels** command to send random level to all slots. **Control > To Zero** will clear the test levels.

The **Display > Full Screen** command hides the menu bar and places VMS in full-screen mode. Use the menu shortcut *ctrl/cmd-shift-F*, or move the cursor to the top of the screen, to restore the menu bar.

Display > Clock enables display of the current time in the upper right corner (Mac) or lower right corner (Windows) of the VMS window. This display is useful in Full Screen mode when the system clock is hidden.

The **Display > Black** command blacks out the display – handy during very dark moments in a rehearsal when a screen display would be distracting. A message reminds you to press any letter key to restore the VMS display.

Display > Clear Up/Down clears all channel direction arrows. A new arrow will appear on a channel when the channel's level next changes. Arrows are automatically cleared at the first level change following 5 or more seconds of inactivity.

Hold the *alt/option* key and press any arrow key to scroll the layout.

Use the **Edit > Find** command to highlight objects having a specific channel or label.

Magnified View

The **Windows > Magnify** command opens a 2x magnification window which can be resized and positioned anywhere on the screen. Click anywhere on the layout to choose the center point of the magnified area.
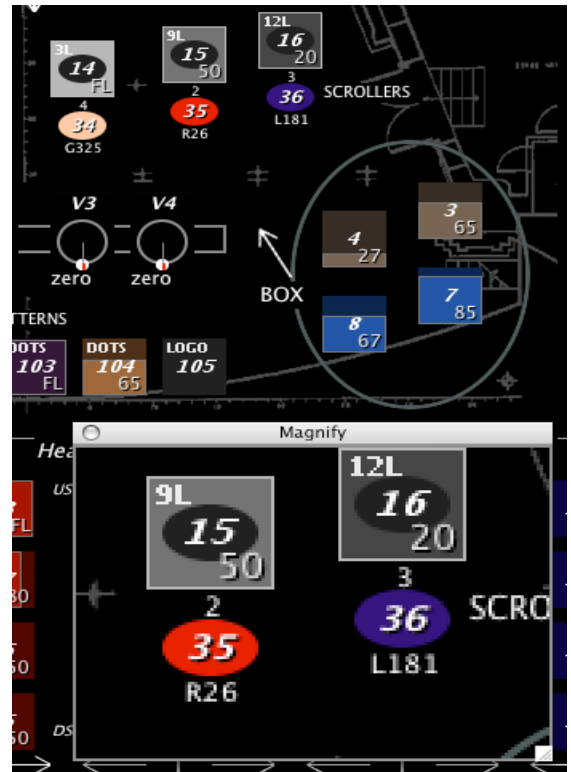
Note that this screenshot shows the following objects: channels, scrollers, yokes, text objects, an arrow, a rectangle, an oval, and a picture as a background.

Multiple Universes

Multiple DMX-USB adapters may be used to monitor multiple DMX universes. Use the **Control > Show USB Adapters** command to see which adapter is assigned to each universe. At this time there is not a means to change the automatic universe assignments.

When using Art-Net, VMS monitors subnet 0, universes 1 through 8.
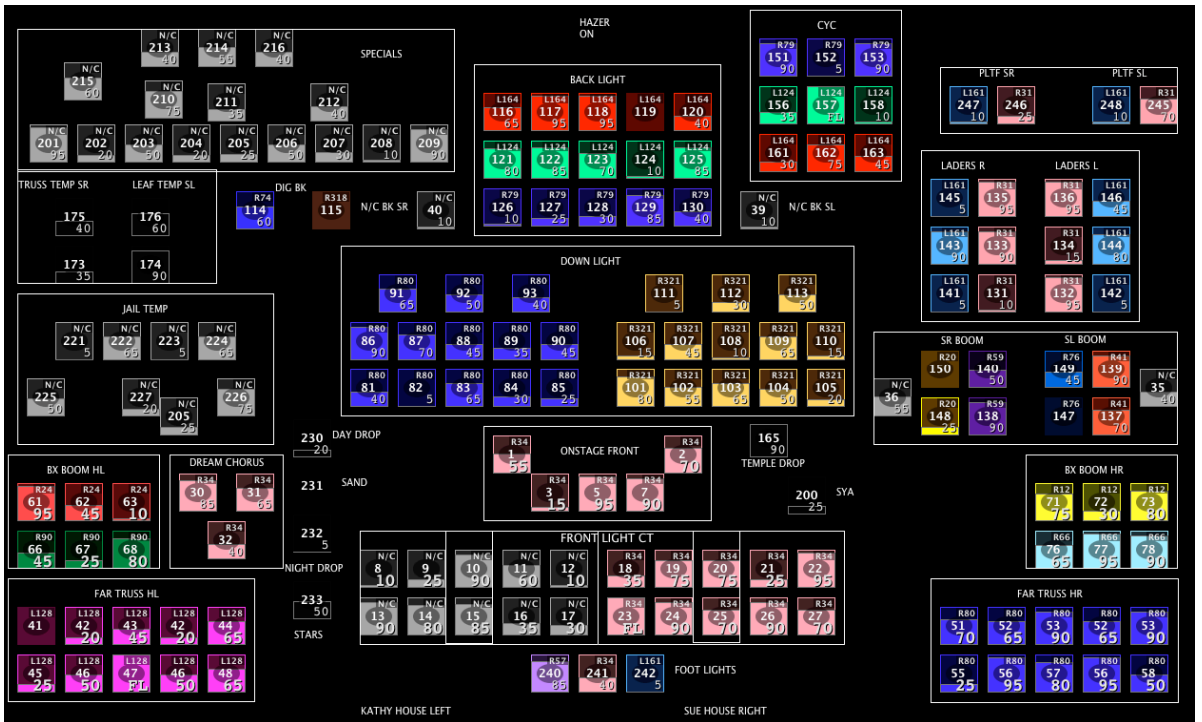
Dan Rousseau's layout for "Joseph and the Amazing Technicolor Dreamcoat".

Menu Shortcut Keys

Use with *ctrl* key (Windows) or *cmd/apple/fan* key (Mac)

,(comma) **Apple > Preferences** (Mac) or
         Display > Preferences (Windows)

O   **File > Open**
shift-O   **File > Add Objects From**
S   **File > Save**
shift-S   **File > Save As**
P   **File > Print**

Z   **Edit > Undo/Redo**
F   **Edit > Find**
X   **Edit > Cut**
C   **Edit > Copy**
shift-C   **Edit > Copy Color**
V   **Edit > Paste**
shift-V   **Edit > Paste Color (/Link)**
E   **Edit > Show Object Editor**
A   **Edit > Select All Not Locked**
alt/opt-A **Edit > Select All**

alt/opt-T **Arrange > Align Tops**
alt/opt-B **Arrange > Align Bottoms**
alt/opt-L **Arrange > Align Lefts**
alt/opt-R **Arrange > Align Rights**
>   **Arrange > Move To Front**
<   **Arrange > Move To Back**

shift-F	**Display > Full Screen**
B	**Display > Black**
U	**Display > Clear Up/Down**
W	**Window > Close**
M	**Window > Magnify**
L	**Control > Test Levels**
0(zero)	**Control > To Zero**
?	**Help > VMS Help**

Computer Requirements

Windows XP with Service Pack 2 / Macintosh OS X (10.2 or later)
800x600 minimum display resolution
Optional USB-DMX adapter requires powered USB port or hub
Optional network operation requires Ethernet network interface connection (wired or wireless)

Windows XP Installation

The VMS distribution CD contains a PDF version of this User's Guide, and folders for the Mac OS X and Windows XP installations. Inside each of these folders is a VMS folder, and USB driver information. Drag the VMS Win folder to your desktop, or wherever you like. It contains the application itself and the Help file, which must always be in the same folder as the application. See the directions below for DMX-USB driver installation if you are using that option.

Driver Installation

You may use the driver provided on the VMS CD, or to ensure that you have the latest driver, visit www.ftdichip.com . On that web page click on the Drivers link. You'll then need to choose the FT245BM

driver, VCP type, and Windows XP. Download the driver, extract the files from the zip archive, and follow the FTDI installation instructions, summarized below. You will need to restart your computer after the installation. These instructions are included in the **Help** function within VMS.

1. Plug the DMX-USB adapter into your computer. The **Found New Hardware Wizard** will open. If it does not, follow the Driver Removal instructions below.

2. Select **No, not at this time** and click **Next**.

3. Select **Install from a list or specific location** and click **Next**.

4. Select "Search for the best driver...".

5. Check "Include this location in search".

6. Click **Browse**.

7. Navigate to the folder that you downloaded above, or to the driver folder on the CD.

8. Click **OK**.

9. Click **Next**. One driver file will be installed.

10. Click **Finish**. The **Found New Hardware Wizard** will open again.

11. Select **No, not at this time** and click **Next**.

12. Select **Install from a list or specific location** and click **Next**.

13. Click **Next**. Second driver file will be installed.

14. Tool tray message will pop up saying that new hardware was installed. Restart your computer.

Driver Removal

1. Unplug the DMX-USB Adapter from the computer

2. Select **Control Panel** from the **Start** menu.

3. Select **Add or Remove Programs** (single or double-click to open, depending on your control panel mode.)

4. Select **FTDI USB Serial Converter** and click **Change/Remove**

5. In new window click **Continue**.

6. Click **Finish**.

7. Close the **Add or Remove Program**" window.

Now proceed with Driver Installation instructions step 1.

Mac OS X Installation

The VMS distribution CD contains a PDF version of this User's Guide, and folders for the Mac OS X and Windows XP installations. Inside each of these folders is a VMS folder, and USB driver information. Drag the VMS Mac folder to your desktop, Applications folder, or wherever you like. It contains the application itself and the Help file, which must always be in the same folder as the application. If you are using the DMX-USB adapter, see the directions below for driver installation.

Driver Installation

You may use the driver installer on the VMS CD starting with step 2 below, or to ensure that you have the latest driver, visit www.ftdichip.com . On that web page click on the Drivers link. You'll then need to choose the FT245BM driver, VCP type,

and your specific operating system, Mac OS X. Download the driver and follow the FTDI installation instructions, summarized below. You will need to restart your computer after the installation. The instructions below are also included in the **Help** function within VMS

1. Double-click the downloaded package to unstuff the installer.

2. Double-click the installer.

3. Follow the installation prompts. You will be asked to provide an Administrator account password during the installation.

4. When the installation is complete, click the **Restart** button on the installer window to restart your computer.

VMS Editions

VMS is available in four editions which differ in the number of live objects supported. The free VMS-demo edition supports 10 live objects. Purchased editions support 250, 500 or 1,000 live objects.

Any edition, including the demo, can edit any size layout in offline mode; the restriction only affects the number of objects which will respond to control information in live mode.

The number of live objects authorized for an edition of VMS and the number of unused objects remaining are displayed at the bottom of the "About" window. Use the **About Virtual Magic Sheet...** command.

When a layout uses more live objects than are supported, some objects will appear as below in live mode.

Networking

Multiple copies of VMS running on the same local network can share one authorization. As long as the authorized copy is running, other copies including free VMS-demo copies will temporarily support the number of objects authorized for the "host" copy of VMS.

DMX data monitored by a USB adapter can also be shared. An authorized copy of VMS will broadcast data from one or two USB-DMX adapters onto the local network for other copies of VMS to use.

Network control data, for example Art-Net data, is by its nature available to all copies of VMS running on the local network.

Registration & Authoriztion

Each copy of VMS is initially locked in demo mode. To unlock it you will need to purchase a serial number, which is combined with a registered user name and unique authorization code to enable the number of live objects supported by the edition purchased.

You may easily request an authorization code by e-mail if you have an e-mail application installed on the VMS computer.

1. Start VMS and select the **Help > Request Authorization Code** command.
2. In the registration window enter your desired registration name, the requested contact information for support, and your VMS serial number.
3. Click the e-mail button to activate your e-mail application and cause the information to be written into a message.
4. Send the e-mail.

If you do not have an e-mail application installed on the VMS computer, send an e-mail containing all of the requested information to:
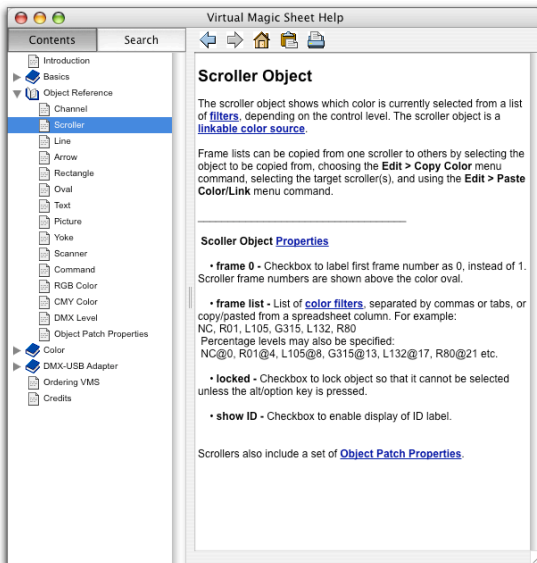*sales@goddarddesign.com* .

When you receive your authorization code by reply e-mail, choose the VMS **Help > Enter Authorization Code** command. The serial number and registration name should already be filled in. Copy the registration code from the reply e-mail, paste it into the registration window, and click the **Authorize** button.

If you do not receive your e-mail on the VMS computer you will need to type the serial number, registration name, and authorization code into the window.

Help & Support

Help is always only a click away within VMS. The **Help > VMS Help** menu command opens the built-in help system. It contains much of the information in this guide. It is searchable and you can copy or print individual pages.

If you have questions about purchasing or installing *Virtual Magic Sheet*, contact the distributor, Goddard Design Company:

for sales questions:
sales@goddarddesign.com

for support questions:
goddard@goddarddesign.net

or phone +1-718-599-0170

If you have esoteric questions or ideas about the use or design of VMS itself, write to the developer, Eric Cornwell, at West Side Systems:

eric@westsidesystems.com

Credits

Virtual Magic Sheet software was conceived and developed by Eric Cornwell.

This User Guide and the VMS built-in help content was written by Eric Cornwell, with input from Amy Schott, Bob Goddard, and Rosemary Heath. Cover artwork is based on Kenton Yeager's VMS layout for *Stones in His Pockets*.

The following people supported VMS during its development period, variously as users, facilitators, evangelists, or combinations of all three: Beverly Emmons, Richard Pilbrow, Kenton Yeager, John Horner, Bob Goddard, Ken Smith, Rob Halliday, Eric Schultz, Jay Hilton, BD White, David Horn, Dusty Ray, Paul Jones and Judith Daitsman. Many thanks to all of them.

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Eric Cornwell has designed and supervised lighting for hundreds of productions from Broadway to Beijing, and written software for nearly four decades. He founded West Side Systems in 1995 with the launch of *Virtual Light Lab*, which is used by thousands of students and professionals world-wide. When not doing product development or concert touring, he teaches lighting design at Southern Connecticut State University.

Richard Pilbrow and Dawn Chiang's layout for "The Boyfriend" at Goodspeed Musicals.