



ETC Nomad with Pixel Mapping

By: Richard Cadena

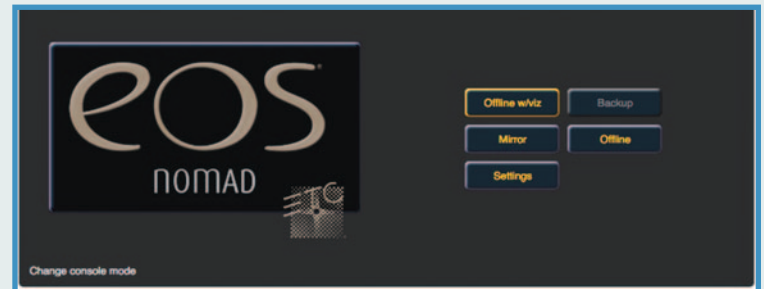
One of the first applications of video in theatre that I remember was in *Jersey Boys*. I vividly remember a scene where the boys were on stage, their backs to the real audience in the theatre, performing “live” to an imaginary audience of screaming girls in 1960s regalia depicted in black and white on the video backdrop.

In the book, *Staging the Screen: The Use of Film and Video in Theatre* (Palgrave Macmillan, 2007), Greg Giesekam says that the occasional use of film in video in live theatre dates back to over a hundred years ago. But, as he points out, video was rarely used in theatre until the early 2000s. In 2004, William Dudley designed the set for the Andrew Lloyd Webber musical *The Woman in White*, which made extensive use of eight video projectors to change locations. *Jersey Boys* went into production in 2004, and it made its Broadway debut in 2005. This period seems to be the leading edge of a surge in the use of video in live theatre.

By the time *Spider-Man: Turn Off the Dark* started previewing on Broadway in 2010, the use of media servers in live theatre was almost commonplace. Phil Gilbert programmed a PRG Mbox media server for that show, and several other shows used a variety of other media servers. Video continues to gain ground in live theatre today.

ETC has always been an important player in theatre. Besides Sensor dimming and Source Four luminaires, their Eos and Ion consoles have a strong foothold in live theatre and educational theatre. But they aren’t particularly well known for video. That might be changing.

Last month, I had the opportunity to peek in on a pixel mapping class taught by Matthew Ardine and David Kane in Hollywood, California, at the offices of ETC West. It was part of the IATSE Local 728 educational series of classes, which is among the best in the country. Besides being an ultra runner and triathlete, Matt is a member of and instructor for IATSE Local 728, and a freelance lighting designer who does a lot of work in commercials, music videos, movies,



ETC Nomad software can be used as an offline editor with or without a visualizer, a main controller, or a backup controller. It can also be operated as a virtual Eos console or an Element console. There is another version that emulates the Cobalt console.

and television. (See www.mattardine.com.) David Kane is an IATSE Local 728 freelance lighting console programmer and lighting director for film and television as well as a trainer for Local 728 and Electronic Theatre Controls (ETC). He has also worked as a director of photography on a number of films, music videos, and commercials. (See www.davidkane.com.)

The class covered the basics of pixel mapping, content, media servers, and projection, and served as an introduction to the ETC Virtual Media Server (VMS). VMS was added to the software of the Eos and Ion consoles starting with version 1.9.6., and, like the name suggests, it’s a virtual media server (meaning software, not hardware) and a pixel-mapping application within the lighting controller. It doesn’t output video per se, but it takes a video or still image and turns it into a DMX stream that can be mapped to an array of LEDs or any other color-changing device, like moving lights, without the use of a hardware media server. It can be used to quickly create special effects or to display low-resolution video.

Setting up the display to which the content will be mapped is quick and easy. Within a matter of a few key-

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strokes, you can have an array of pixels displayed graphically on the pixel map space showing the status of each pixel (whether they are assigned a device and whether they are patched or unpatched). A few keystrokes later and you will be patched and ready to add layers to the VMS and start mapping. It's a very intuitive indication of what's going on with the pixel map.

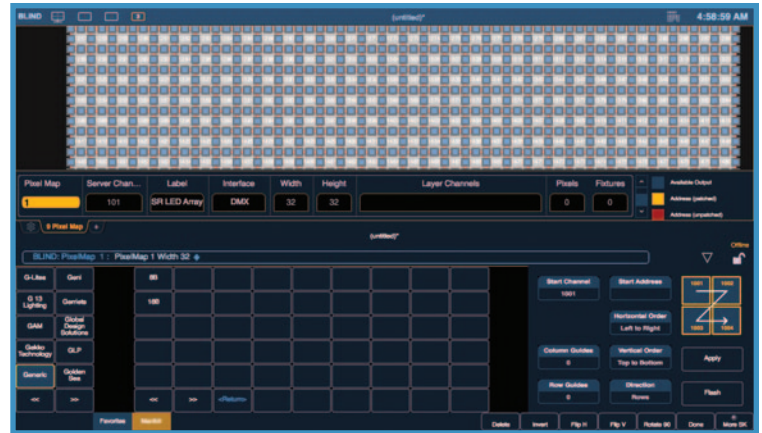
In addition to media layers, there are also virtual effect layers, which allow you to create unique content quickly and easily. You start with a pattern or gradient and vary parameters like color, speed, noise, etc., to create color chases or fades, intensity chases, and more. You can have up to 12 media layers and effect layers for each virtual server, and you can patch 10 virtual servers per show file with 10 independent pixel maps. That's a total of 120 possible layers across 10 maps per show file.

Within the layers, you have the ability to select content and manipulate it as you would with any other media server. You can select the starting and ending frames, define looping, playback speed, change the color, contrast, brightness, scale, aspect ratio, and more. You can also pan and tilt the content on the display (move it side to side or up and down), rotate it in three dimensions, and change the perspective.

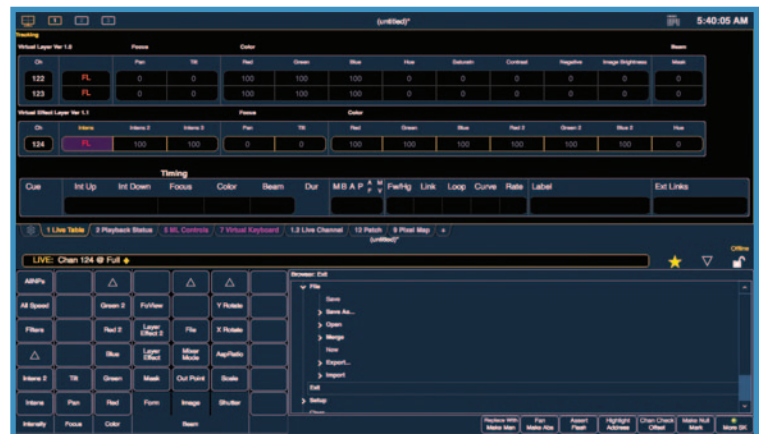
If you're familiar with media servers in general, then you will have no trouble figuring out how VMS works. The great news, whether you're new to media servers and pixel mapping or an experienced professional, is that you can download the Eos Nomad software free of charge and practice or program to your heart's content. Nomad is a full-featured application that runs Eos, Element, or (in a different version) Cobalt on a PC running Windows 7 or 8, or a Mac running OS X Mavericks (10.9) or higher. You can use it as an offline editor with a visualizer but no control output, or you can buy a Nomad dongle to use it as a controller, as a backup for your console, or as a client to monitor the main console.

A Nomad dongle with 256 outputs costs around \$600; they are available with up to 2,048 channels for a higher cost. You can also upgrade your dongle by purchasing additional outputs. The dongle outputs a signal to the USB port, but you still need an interface to output DMX. You can use any interface, such as the Enttec DMX USB Pro (about \$160), or the ETC Gadget (\$250). I've been running it on my MacBook Pro Retina, running Yosemite, and also on my PC, running Windows 7 Home Edition with a Dell 21.5" touchscreen monitor. Either way, it works really well. It can also work with fader wings, X-keys (xkeys.com), and MIDI panels.

There is also a hardware platform, the Nomad Puck,



The Virtual Media Server in Nomad allows you to map content to an array of pixels using the pixel-mapping feature.



Nomad software emulates the Eos or Element console, including moving light controls and every other feature of the actual consoles.

which is a very small and portable mini-computer that measures 4.4" x 4.6" x 1.6" (112mm x 117mm x 39mm). It can be purchased with outputs of 256, 512, 1,024, 1,536, or 2,048, and prices start at \$2,500. It has two HDMI ports, three USB ports, and an Ethernet port. It can also run the Cobalt Nomad software as well as Element software.

There's a great YouTube video at <http://youtu.be/2qe56LXI9Ls> with more information.

Video isn't always the right tool for live theatre, but when it's right, it can be a powerful part of the production. If you want to broaden your experience and increase your chances of getting work in the theatre, it helps to familiarize yourself with pixel mapping. Nomad is a great place to start and if you have a chance to take a class from David and/or Matt, all the better. 🌐