DL.1 and Catalyst

- Catalyst Media Server
- Catalyst Media Content
- DL.1 Lighting Fixture
- 4500 ANSI lumens
- Full control Pan & Tilt
- Full control of Zoom
- Full Control of Focus
- 0-100% Dimmer
- 100v-120v and 200v-240v
- Optional Digital camera/Digital Eye Technology
- Flight Case included
- Mounting and Safety Hardware included

- Video Patch bay
- BNC with V and H hold
- SVGA input
- S-video in /out
- All Inputs switchable via DMX
- DMX in and out
Topics

System Overview
Media Server Components
Catalyst Application Features

Overview

• Catalyst is a Digital Media Server
  – Real Time DMX control of still images, movies and Live Video
  – Comes stocked with HES LithoPatterns and other image libraries
  – Accepts images, animations and QuickTime movies created in popular media and graphics applications such as Final Cut Pro, After Effects, Photoshop, etc

• Catalyst allows the Designer/Programmer the ability to create, manipulate and control a wide range of image effects in real time via any DMX lighting console
A Catalyst System consists of:

- A Macintosh G5 computer with Radeon 9800 Pro Graphics card
- Dual HD
  - One HD for Application Software, One HD for Content
  - This increases playback performance
- Software Dongle
- The Catalyst software application
- Catalyst Interface Box
- DV1 Distribution Amplifier (Pro v3.0 and v3.2)
- Video Capture Cards

Other requirements for Catalyst:

- Catalyst DL-1 or a single lens video projector/display
- A DMX lighting console
Computer Control Rack

- Rackmounted Apple Macintosh G5 with:
  - Dual 2GHz PowerMac G5 (Pro) Dual 1.8 GHz PowerMac G5 (DV)
  - 1GHz frontside bus
  - 512MB DDR400 128-bit SDRAM
  - Expandable to 8GB SDRAM
  - 147GB Serial ATA (Pro OS and software), 74GB Serial ATA (DV OS and software)
  - 10k RPM 147 GB SCSI drive (Pro content), 10k RPM 74 GB Serial ATA drive (DV content drive)
  - SuperDrive
  - ATI Radeon 9800 Pro
  - 128MB DDR video memory
  - Software:
    - Macintosh OS 10.3.3 or higher
    - Catalyst Software Application v3.2 (Pro, DV and Express on every server)
    - Quicktime 6.5 or higher

Dual HD

- Content Drive Specs:
  - Barracuda HD: Full 30fps(NTSC)/25fps(PAL) playback performance on 2 layers
  - Raptor HD: Full 30fps/25fps playback performance on 3 layers
  - 10k SCSI HD: Full 30fps/25fps playback performance on 4 layers
Catalyst Interface Box

- USB Connection to the G5
- USITT DMX-512 compatible control interface (DMX In & Thru ports)
- UXGA resolution output on 5 BNC connectors
- 5 BNC connectors are provided to send Output 2 to a projection device using high-quality 75-ohm video cable

DV1 Distribution Amplifier

- The DV1 boosts and distributes the signal to its video outputs
  - Allows for Local Monitor per each output in addition to the signal being sent to the Projection device
  - 270 MHz UXGA
  - 5 BNC video connectors are provided to send Output 1 to a projection device using high-quality 75-ohm video cable
  - Pro
    - 2 outputs
    - 2 Extron P2/DA2's
  - DV (does not ship with a DV1)
    - 1 output
    - 1 DA
Software Dongle

- USB device to prevent unauthorized copying of software
  - Factory configured media servers have a dongle internally installed
- When the USB dongle is not detected by the software, blue bars will appear at the top and bottom of both outputs; reconnecting the USB dongle will remove the blue bars

Catalyst OSX v3.0d56

- 4 layers of Video
- 30 fps playback frame rates
- Video Input via Firewire
- Full video input with additional video Card
- 54 Color Fx
- 38 Visual Fx
Catalyst OSX v3.0d56

- Full Synchronization between media servers
- Frame accuracy playback
- 2 video outputs with full control over 2 layers or 4 selectable
- .mov, .jpg, .tif file support

RS 232 control via Catalyst media server
- Audio input with spectrograph
- Midi timecode control
- Selectable video input
Catalyst OSX v3.0d56

- Visual FX
- Framing Shutters
- Video correction patterns

- Full CYM control over each video layer
- Full contrast and brightest control over DMX Color FX
version 3.x Features
- Multiple Image Layers
- Video Montage
- Crossfading
- Preview
- Masking
- Digital Framing Shutters
- 3D effects
- Heads Up Displays

Catalyst Version 3.x

Catalyst Version 3.x software utilizes a new approach for creating DMX-controlled multi-layer video effects.
- DV v1.0 (v3.2 software) 3 layer single output
- Pro v3.2 6 layer dual output (4 movie layers, 2 masking layers)

Using layer one as the base layer, you can stack up to 5 additional layers of content, independently controlling the rotation, scale, color and visual effects for each layer and then simultaneously playback all layers as a composite.

Patching each layer into a DMX lighting console as an individual 40-channel fixture lets you dedicate only the number of channels you need for your application.

New in this version is Deck control and added serial control capabilities
V3.x Software Features

Some of the best features of Version 1.2 remain but have been expanded and are easier to use. Now you can apply image control effects to each layer and output them simultaneously as a multi-layer composite image/movie.

- Playback options
- Rotate around x y and z axes in any combination
- Position along x and y axis
- Scale +/- 8x
- Aspect Ratio control
- Precise keystone control

Features for Catalyst v3.2

- Independent Control of up to 6 separate image layers
Features for Catalyst v3.x

**Cross fading** (video dissolves) between layers is a fundamental video technique used by the video industry. v3.x has the capability to cross fade between all layers using the intensity channel.

Features for Catalyst v3.x

**Preview** lets you view content locally on a monitor before sending it to a DL1 fixture or other video output device. You can view each layer or stacked layers with or without effects.
**Features for Catalyst v3.x**

*Video Montage* describes the combination of different content layers to create a new movie. You can scale, position, rotate, adjust intensity, apply color and visual effects to layers and then stack them to create virtual scenery or a montage.

- **Masking** allows you to take a movie or still image, apply the masking function and use it as an alpha channel effect on the image layer below it. In video terms, this is called keying. Catalyst Version 3 software keys (makes transparent) certain parts of the content. Keying is related to Black and White in the content. This is a feature expanded from the gobo layer function in Catalyst Version 1.2 software. Now you can make virtually any content a mask.
Features for Catalyst v3.x

• **Framing** gives you control over a variety of multi-sided theatrical framing shutters and round iris effects. This goes far beyond the more limited masking available in Catalyst Version 1.2 software.

![Framing Examples](image1.jpg)

Features for Catalyst v3.x

• **3 Dimensional Effects** lets you wrap content on different 3-dimensional shapes like a sphere or cube and rotate these objects around all three axes.
  – 3D FX include Spheres, Discs, Lantern, Cubes, Teapot

![3D Examples](image2.jpg)
Features for Catalyst v3.x

• Catalyst Version 3 software continues to offer precise keystone control and expands **Color and Visual** effects. And the new Catalyst User Interface lets you preview all the effects applied to your content in real time to help your selection.

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**Color Effects**
- Subtractive Color Mixing
- Multiple Options for Contrast Level adjustments
- Image Transparencies
- Image Invert
- Masking
- Alpha
- Black and White
- Greyscale
- Gamma Control
- YUV
- Multiple Saturation adjustments
- Tint
Visual Effects
- Keystone Correction
- Kaleidoscope
- 3D effects including 4 & 6 Sided Cubes
- Tiling
- Theatrical Framing 'Shutters'
- Panorama Slices

Application Basics
- Launching the Application
- Interface Windows
- Assigning DMX Start Channels for Layers
- Library Files
- Heads Up Displays
- Exiting Catalyst Software
- Shutting down the Macintosh
Application Basics

Launching the Application

– After booting up the system, move the mouse pointer to the bottom of the screen to reveal the ‘Dock’
– Click on the Catalyst icon on the Dock to launch the application

Interface Windows
Catalyst Control Window

- The Catalyst software is designed to be controlled with a DMX desk like the WholeHog III or Artnet Protocol
- **The Catalyst Control window lets you**
  - View DMX Input settings
  - Select how you want to preview content in output screens
  - Preview in real-time the playback mode, position, scale, color and visual effects applied to each layer's content
  - Set DMX start channel for each layer

Configuring Output Displays

- The Catalyst Control Window contains the Output panels; each panel can be activated with the ON/OFF button in the top right corner of the panel
Display Resolution

- Click on the monitor icon to select the desired resolution for the display device

Refresh Rates

- If content is rendered in PAL (25 fps), set acceleration mode to 25 Hz, then set display refresh rate to 75 HZ (multiples of 25)
- NTSC (30 fps) acceleration mode =30 Hz, display refresh rate=60 Hz (multiples of 30)
- Without setting the refresh rates correctly, video playback may appear to ‘stutter’
- These settings apply to digital cameras as well
Playback Performance Rates

- Rates are affected by
  - Drive system
  - Resolution of content
  - Data rates of Files (CODECs)

Playback Speed

- Slower frame rates don't drop frames, they slow down the speed of the playback of the frames in the movie
- In a server with an inferior drive system (i.e. 2 Barracuda drives) if the playback of a piece of content appears to stutter, lower the rate from 30fps (25fps for PAL) until you find the right playback frame rate for playback to appear smooth
Setting Output Options

- Layers can be routed to either of the Monitor outputs (Pro) and layers can be stacked or separated by output (Pro, DV)

Output Windows

- (Pro) Output windows 1 and 2 let you view content locally on a monitor before sending it to a DL1 fixture or other video output device
- The Output screen displays the information from the designated layers
Device Control Window

- Widescreen format is available on all versions too, to enable a single piece of content to be displayed across all outputs (Layer priority determines which layer will be displayed across both outputs-output from all layers is combined, divided and displayed across all outputs).

Catalyst and DMX Control

*Up to 6 Image Layers, each with 40 Channels:*

- Intensity
- Library
- File
- Media speed
- Image Speed
- Aspect Ratio
- In/Out Frame
- Play Mode/Speed
- Color FX
- X/Y/Z Axis Rotate
- Scale
- X/Y Position
- CMY
- Graduated RGB
- Visual Effects
- Visual Effects Parameters 1 & 2
- Strobe
Assigning DMX Start Channels

- In the Catalyst Control Window, scroll down until the first DMX In panel is visible
- Turn on the DMX In panel by clicking the ON button on the left side of the panel; Assign function and choose between CIB and Artnet
- Click on the 3 digit number in the center and type in the DMX start channel
- Repeat for additional layers

Images

- HES Litho Patterns
- High Resolution Images
  - Up to 2048x2048
- Movies
  - QuickTime Movie files (*.mov)
  - Aerial Effects to create a multi-light experience that can be output to a single DL1™ digital video engine.
- Digital Video Input
  - DV offers S-Video and Composite inputs
  - Pro offers SDi, Component and Composite with the Decklink card
Library Files Folder
- Inside the Library Files Folder are 256 Libraries; 253 of these libraries can contain 256 Files
- These files are the Images (stills, animations or QT movies) that are accessed when programming the Catalyst from a DMX desk

Using Additional Content
- Allows content from 8 different library folders either on the local harddrive or other source to be referenced
Assigning Libraries within Catalyst

- Designate the location of the library folder to be used.

Features

- DMX Control Channels
- Images
Application Basics

Hot Keys
- You can use hotkeys to access a full screen view of output and other programming parameters including realtime previews of your selected content with each color and geometric effect applied. This lets you select the effect you want with unparalleled ease.

Keyboard Hot Keys
- Screen 1
  - 'A' 'S' full screen on and off.
  - 'Q' 'W' heads up display on/off
  - 'E' 'R' scrolls through hud info
  - 'T' 'Y' scrolls through hud sub-pages.
- Screen 2
  - 'D' 'F' full screen on and off.
  - 'Z' 'X' heads up display on/off
  - 'C' 'V' scrolls through hud info
  - 'B' 'N' scrolls through hud sub-pages.

Geometry (Visual) FX Tab
- Displays each Visual effect as well as explaining what control, if any, each Parameter (FX) wheel will have
Using Full Screen

- Select from the Full Screen options On/Off for playback or to access the onscreen interface windows
- Select the option ‘Goto Full Screen at startup’ to launch the output into Full Screen mode upon starting Catalyst

Application Basics

Exiting the Catalyst Application
- Within Preview mode, select ‘Quit’ from the ‘File’ menu, or;
- Press Apple Command + Q to quit program

Shutting Down the Macintosh
- Select ‘Shut Down’ from ‘Apple’ menu