CL Studio Live Version 1.0 – User Guide

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1 Introduction

1.1 Overview

CL Studio Live is a new way to create, share and interact with visual content. With numerous effects, extensions and camera components CL Studio Live provides endless combinations for real-time visual content manipulation. Our goal is to empower visual artists to manipulate media with simple and powerful solutions that deliver high performance and intuitive tools for capturing, filtering and media manipulation.

CL Studio Live provides a library of high performance and modern filtering techniques and powerful input, output, mixing and processing extensions. We leverage the latest Microsoft Technologies such as Windows 7's real time media threading, Media Foundation, DirectShow, DirectCompute and DirectX 10.1.

This documentation will help introduce you to the application and key components and areas of usage. We hope you enjoy using CL Studio Live as much as we enjoyed building it and look forward to the future of interactive media.

1.2 Features

- **Real-Time Visuals**
  Allows for mixing of cameras, videos and image sources.

- **Dynamic Cabling/Controls**
  Precisely route complex video paths with an intuitive visual editor.

- **Highly Extendable**
  With a growing library of modules, and over 45 modules available now.

- **Optimized for Performance**
  Built on the latest DirectX 10.1 GPU architecture.

- **Visual Projects Editor**
  Save, load and share your works with a standard file format.

- **Web Streaming**
  Web one-to-many live broadcasting to quickly publish media.

- **Getting Started Examples**
  With numerous samples and video tutorials to help get started.

- **MIDI Hardware Support**
  Allows for users to control module parameters with standard MIDI devices.

1.3 Usage Scenarios

- **Computer Vision**
  Optimized for human sensing offering a range of filtering and blending.

- **Live Performances**
  Adjustable controls and outputs, perfect for any life performer.

- **Video Compositing**
  Allows mixing of unlimited simultaneous signal sources.

1.4 Requirements

Hardware System Requirements

- Intel Core Duo 2.0+ GHz CPU (Intel i7 or comparable recommended)
- ATI or NVIDIA GPU with Pixel Shader Model 4.0+ and DirectX 10.1 support
- 512 MB+ Graphics Memory
- 1024 MB+ System Memory
- 500 MB Available Disk Space
- Internet Connection for Product Activation
- Windows Experience Index Rating of 5.0+

Software System Requirements

- Microsoft Vista/Windows 7 Operating System
- Microsoft .NET 4.0 Redistributable *
- Microsoft Visual Studio 2010 Redistributable *
- Apple Quicktime 7+
- Adobe Flash Player 9+
- Modern Web Browser (Google Chrome, Safari, Firefox, IE 7+, etc...)
- CL Eye Platform Driver (Use for PS3 Eye Camera Support)
- Microsoft DirectX (June 2010 Release or Newer) *

Note: Items noted with a * are included with the installer.

2 Installing & Activation

Installing consists of following steps

1) Get the latest CL Studio Live Installer at: http://codelaboratories.com/get/studio/

2) Acquire Software Key (Trial or Purchased) See: **2.2**

3) Activate CL Studio Live with a valid License Key

2.1 Installation
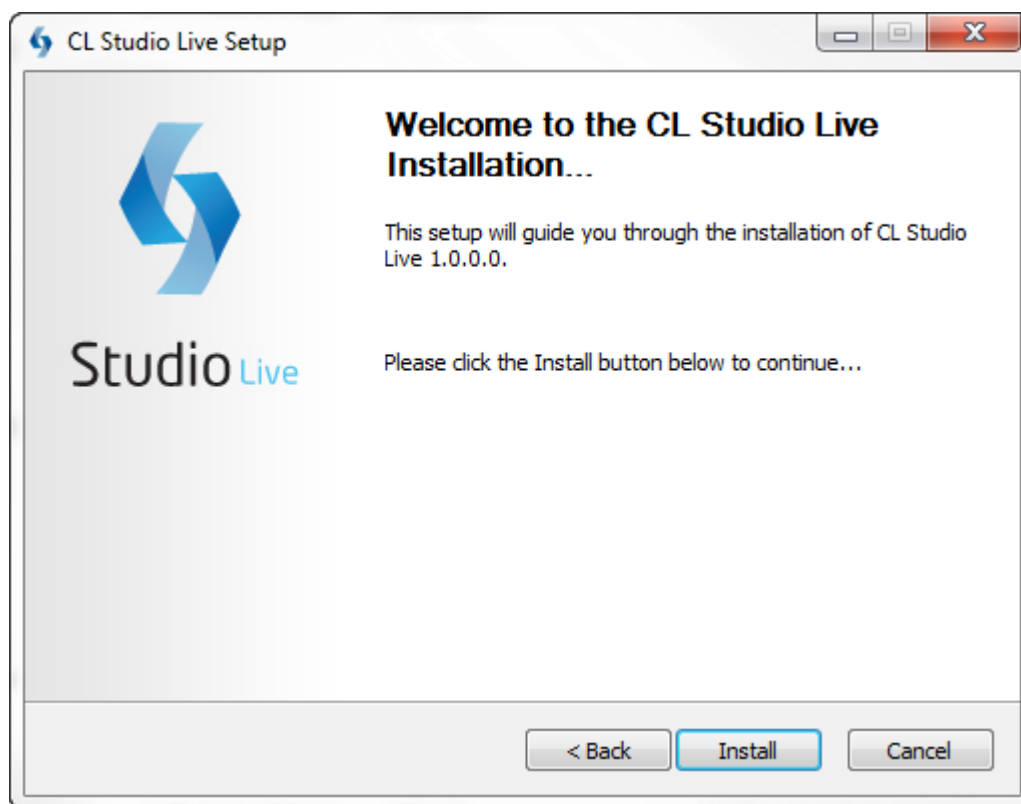
Note: You must agree to the license to install and use CL Studio Live.

2.2 Acquiring License Keys

There are currently three types of licenses available for CL Studio:

- **Trial - Lite - Live**

- You can acquire a key from: http://codelaboratories.com/studio/

- CL Studio Live License: http://codelaboratories.com/kb/CL-Studio-Live-License/

- See reference 8.9 for Licensing Comparison

- To get a Trial Key you must create CL Account and View your My Licenses page.

Note: A valid CL Membership is required to obtain product keys.

2.3 Activation the Software

To activate simply paste the key you received in the above step, after this your key will be verified and CL Studio Live will be ready to use.
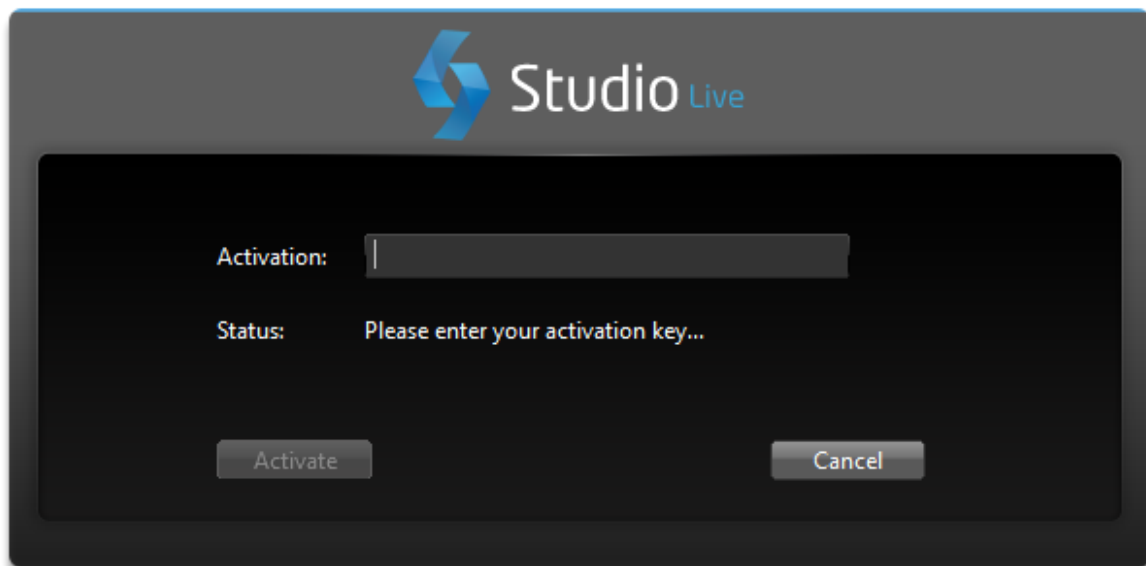
Your activation is complete once you receive a ✔ next to the input field.

3 Getting Started

3.1 Application Overview

Application Components

- Rack Editor

- Modules (Effects/Extensions)

- Cabling/Ports

- Media (Images/Videos/Textures)

- Proxies (DirectShow Filters)

Application Views

- Rack Front & Back

- Main Menu

- Module Context Menu

- Rack Context Menu -

- Settings Window – Application personalization and setup.

- Load File Window – Used for loading file or URL assets.

Hardware Components

- Input Devices (CL Eye Supported Devices)

- Output Devices (Monitors/Projectors)

3.2 Creating a New Project

Creating a new project is simple; just select **File > New** and a new rack will be generated. Make sure you save your previous work as this does create a new empty rack.

3.3 Saving and Loading Projects

To save your projects choose the File > Save command from the Main Menu, Also keyboard shortcuts **(Ctrl+S, Ctrl+Shft+S)** are available to quickly save your files. Once a file is saved it can be opened for editing by using the Open or Open Last commands from the menu or keyboard **(Ctrl+O, Ctrl+L).**
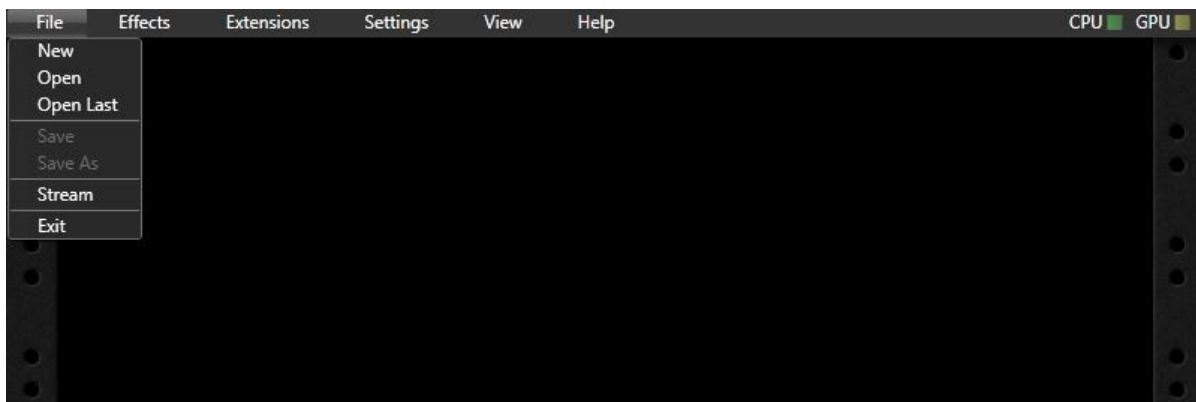
Main Menu with File Menu Shown - See Reference 8.1 + 8.2 for menu shortcuts.

Note: Projects are saved with the ***.RACK** file extension.

3.4 Adding Modules

With modules users can construct desired video transformations and filtering and much more.

To add a module you can **Right Click** anywhere on the Rack space or select a group for the Main Menu, this will show your active **Module Library**.
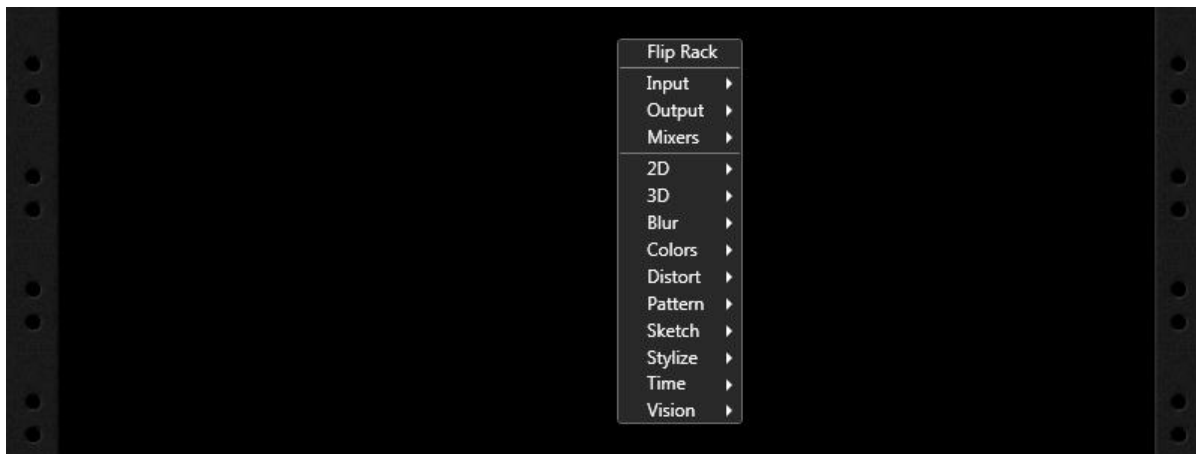
Rack Context Menu Shown – Lists available modules See: Reference **8.3**

CL Studio Live is built around a "virtual hardware" concept so users can interact with

Effect & Extension Modules that are loaded into **The Rack Editor** like shown below**.**

4 Components

4.1 Modules (Effects & Extensions)

Each module consists of 5 base elements

1. Power Buttons (Module Bypass)
2. Controls (Visual Interface of Parameters)
3. Parameters (Mapped to Controls underlying numerical values)
4. Ports (Used with cables to connect with other rack modules)
5. Visual Skins (Colors & Themes)

Modules are separated into two groups

- **Effects** – Manipulate signals based on parameter set. (Reference **8.3**)
- **Extensions** – Act as signal generators, mixers and input/output. (Reference **8.4**)

Below are some example modules one from each group:

Example Effect – The Blend Module allows for blending of two visual color modes.

Example Extension – The 6 Port Mixer Module allows for mixing of several signals.

4.2 Rack Editor

The Rack Editor is the main application in which you can manage all modules and their position in the visual graph editor pipeline. Here are some quick tips for getting started with the editor.

- **Change the Module Colors** by hitting the **C** Key while viewing the back of the editor.
- **Toggle the Main Menu** by hitting the **Spacebar** you can minimize the main menu.
- **Left Click** anywhere on Rack to Drag or use **Up/Down Scroll Wheel**. (Smooth Scrolling)
- **Right Click** anywhere on Rack to Show the Main Context Menu to **Add Modules**.

Note: You can quickly toggle in between the front and back view with the **TAB Key**.

4.3 Cabling & Ports

Cabling in CL Studio emulates a real world environment with each module having a number of I/O ports that can be connected to each other. This allows for a module to act as a source for multiple target modules as well as allows for complex **daisy chaining** of effects and extensions.

Note: A simplified graph equation with modules would look like: **Media > Transform > Display**
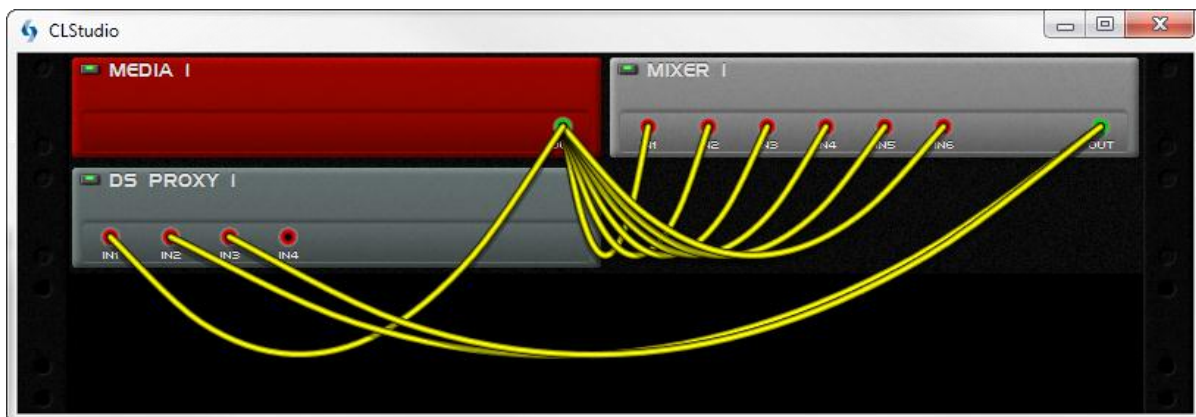
This cabling metaphor brings the ability to interconnect modules in a wide range of combinations to manage complex signal flows. When cabling, users create a **filter graph** which allows for very dynamic results. To reset modules connections use **View > Clear Cables** menu item from the Main Menu.

Note: When successfully connected, ports will highlight and the cable will turn solid yellow.

4.4 Cameras

CL Studio is capable of supporting up to 16 simultaneous camera devices. The **Camera Module** allows for management of individual cameras in your project, it also has controls for adjustment of exposure and gain as well as provides a thumbnail preview of the current video from camera devices. The **Camera Module** can be loaded from **Extensions > Input > Camera**

To use cameras in CL Studio they must be activated via the CL Eye Device Manager which is included in the CL Eye Driver installation. You can learn more here:

http://codelaboratories.com/eye/
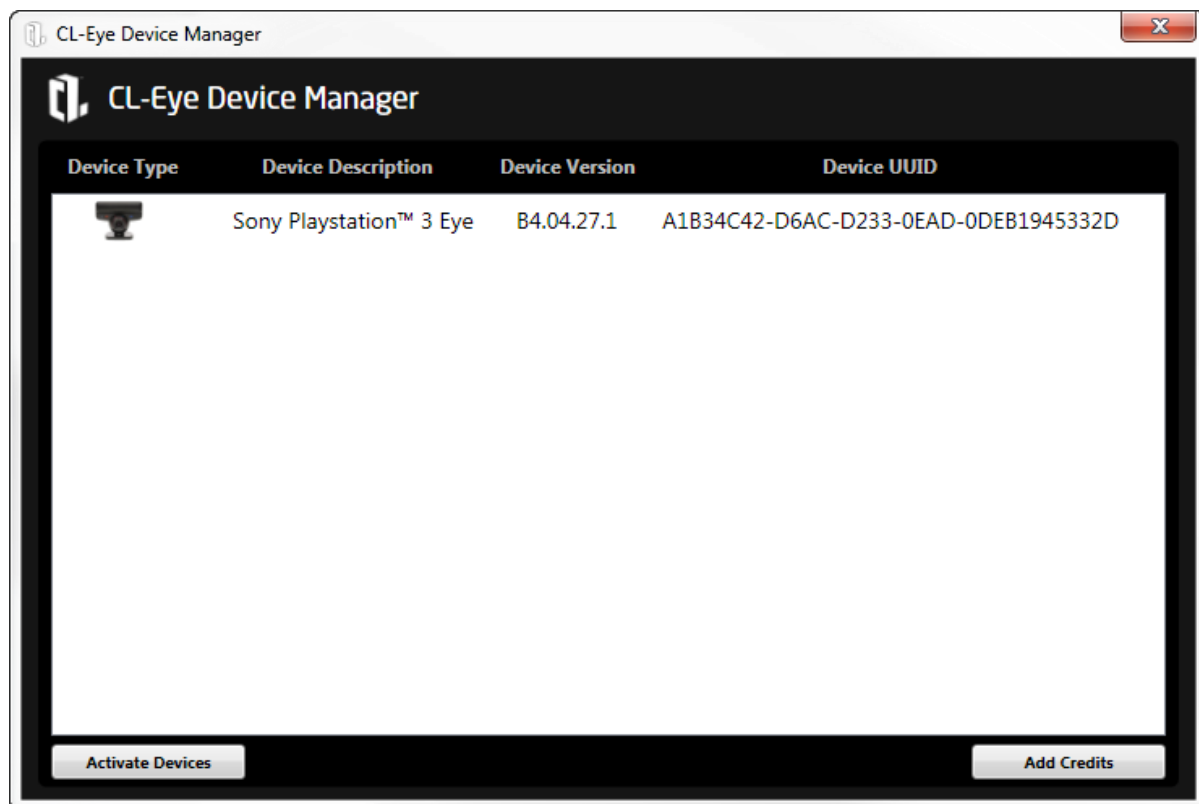
Note: You must have activated CL Eye Camera Devices to use it in the Camera Module.

4.5 Displays

Displays create virtual display windows which can be spread across physical displays, supporting both projection and flat panel technologies and provides accurate mapping of video overlays. The virtual display can be toggled on/off using the power button of their associated module. The **Display Module** can be loaded from **Extensions > Output > Display**
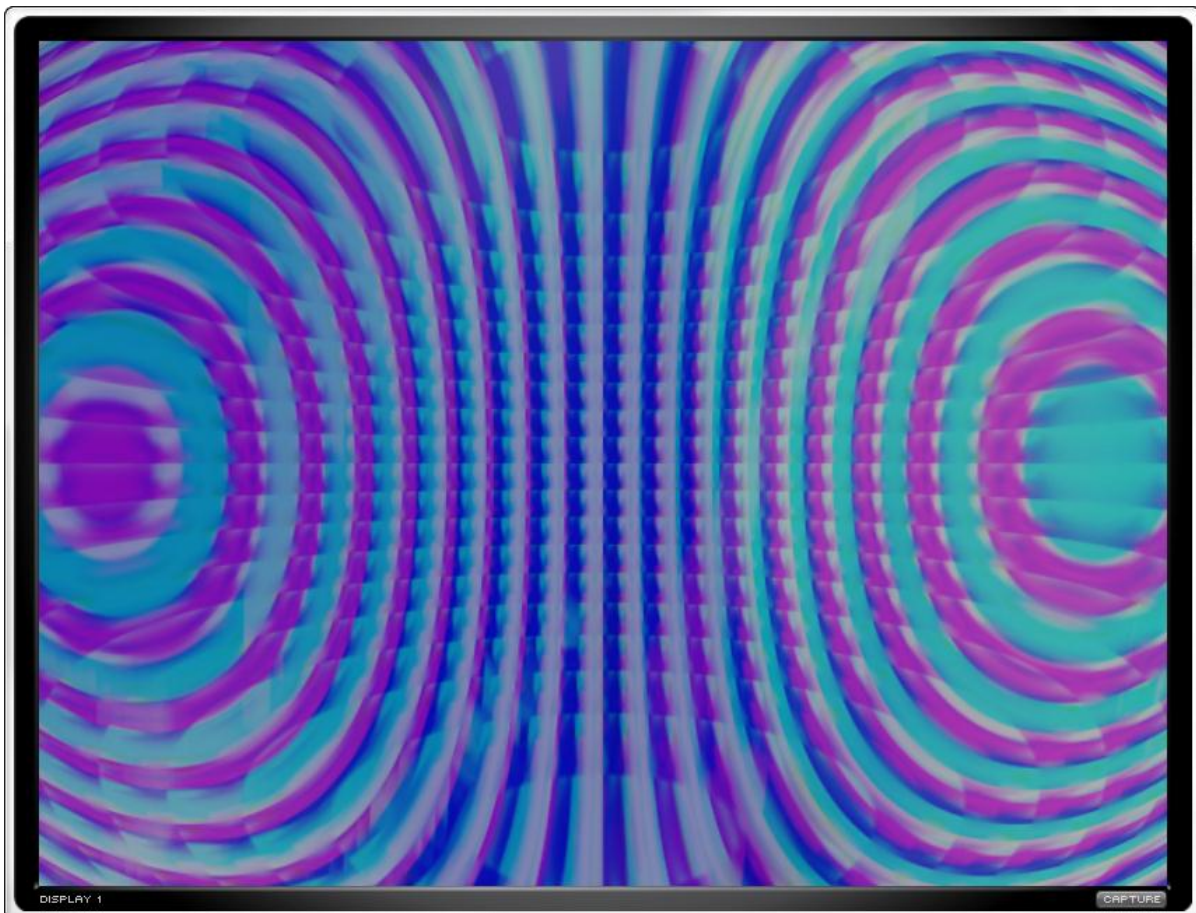
Note: Make sure to try the **Capture** button on right to quickly save images.

4.6 MIDI

CL Studio supports all MIDI input devices that send standard **control change** (CC) messages. Flexible **learn** mode allows for quick MIDI control mapping to any module knob/button. Mapping of the physical MIDI controls to the virtual ones is as simple as double clicking on the module control you want to map and then move the slider or knob on your MIDI control device. The on-screen control will glow for 1 second to indicate that the learning mode is activated.

Note: An example of supported nanoKontrol MIDI controller from Korg's hardware series.
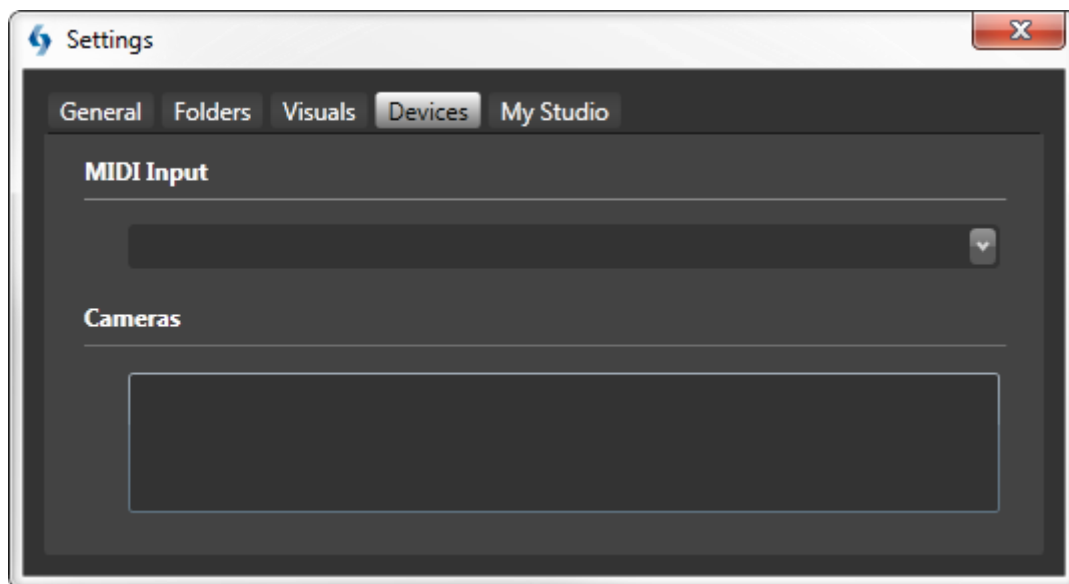
Note: You can set your active MIDI controller from the **Settings >Devices** window.

5 Media Import/Export & Streaming

CL Studio is capable of handling media in several ways:

- **Media Import –** Media Module - See below for supported media formats.
- **Image Export –** Display Module – JPG with "Capture" Button
- **Video Export –** DS Proxy Module
    - Adobe Flash Platform
    - Microsoft .NET Framework
    - See Reference **8.5** for Supported DirectShow Applications
    - Full Apple Quicktime Support
- **Live Streams –** DS Proxy to CL Streaming Services

5.1 Supported Formats

Image Import

.BMP;.DIB;*.FPX;*.GIF;*.JPE;*.JPEG;*.JPG;*.MAC;*.PNG;*.PNTG;*.PSD;*.QIF;*.QTI;*.QTIF;*.SGI;*.TGA;*.TIF;*.TIFF

Video Import

.MOV;.3DM;*.3DMF;*.3G2;*.3GP;*.3GP2;*.3GPP;*.AMC;*.AVI;*.CEL;*.DIF;*.DV;*.FLC;*.FLI;*.GIF;*.M3U;*.MJ2;*.MP4;*.PICS;*.PLS;*.QHT;*.QHTM;*.QTPF;*.RTSP;*.SDP;*.SDV;*.SKIN;*.SMI;*.SMIL;*.SML;*.SWF;*.VFW;*.PLS

MPEG Import

.M1S;.MPEG;*.MPG;*.MPM;*.M15;*.M1V;*.M75;*.MPV;*.M2P;*.M2S;*.VOB;*.VRO;*.M2V

5.2 Media Import

Media loading support comes via the **Media Module**. This module is capable of loading any supported image or video file located on the local computer or internet. You can control several aspects of video playback such as "rate", looping, horizontal and vertical flipping.

The Media Module is similar to the Camera Module in that it can act as a video signal source to be used in your mixes. To load a file click either the Image or Video button which will show you a file dialog window, from this select a supported file format you want to load into your module.

It is also possible to load media assets from network and web locations, to do this simply paste your file URL in the File Selection Dialog Window. The URL path must be valid and properly formatted and is limited to a maximum of 260 characters in length.

Note: Default Image and Video folder paths can be set in the Folder Settings.

5.3 Image Export

Each Display module window has a button labeled **Capture** which you can use to quickly save a displayed image in a JPG format to your default Captures Folder (See reference **6** for Application Settings).

5.4 Video Export

Any application supporting Microsoft DirectShow API will support receiving video streams from CL Studio. This brings the ability to export video to various applications such as Adobe Flash, AIM, Skype, Silverlight and many more.
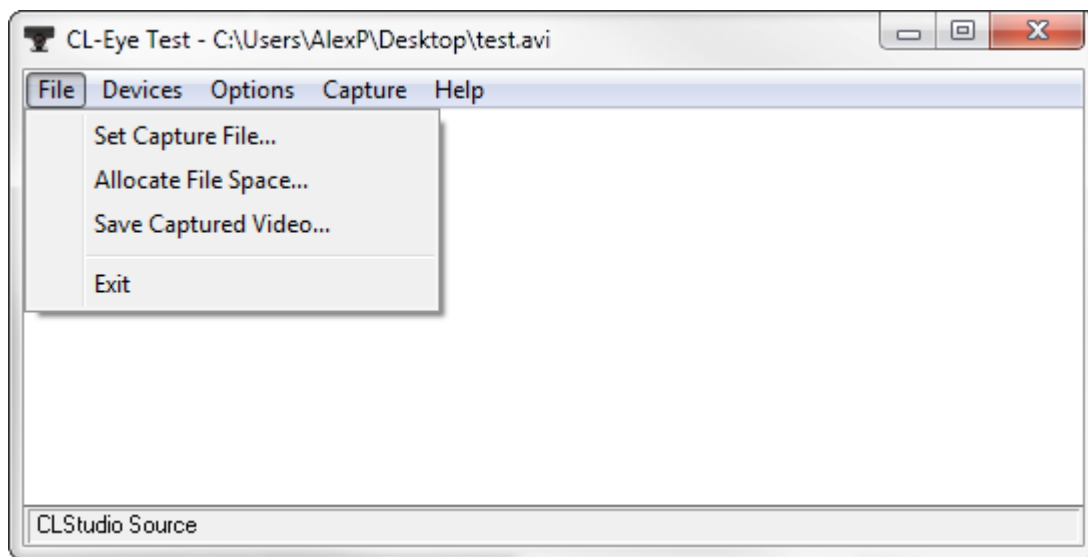
You can use CL Eye Test Application to Save Video to AVI Format or use any of the DirectShow Applications noted in Reference **8.5**

Note: CL Studio must be running first before you launch the receiving application.

5.5 Live Streams

CL Studio supports live web broadcasting with the use of Adobe Flash Platform. With this we provide multiple real-time multicast streaming channels to all CL Studio licensed customers. You can launch and start streaming at any time directly from CL Studio with the **File > Stream** menu item. (Please note Live Streams are for non-trial users only until we are out of beta)
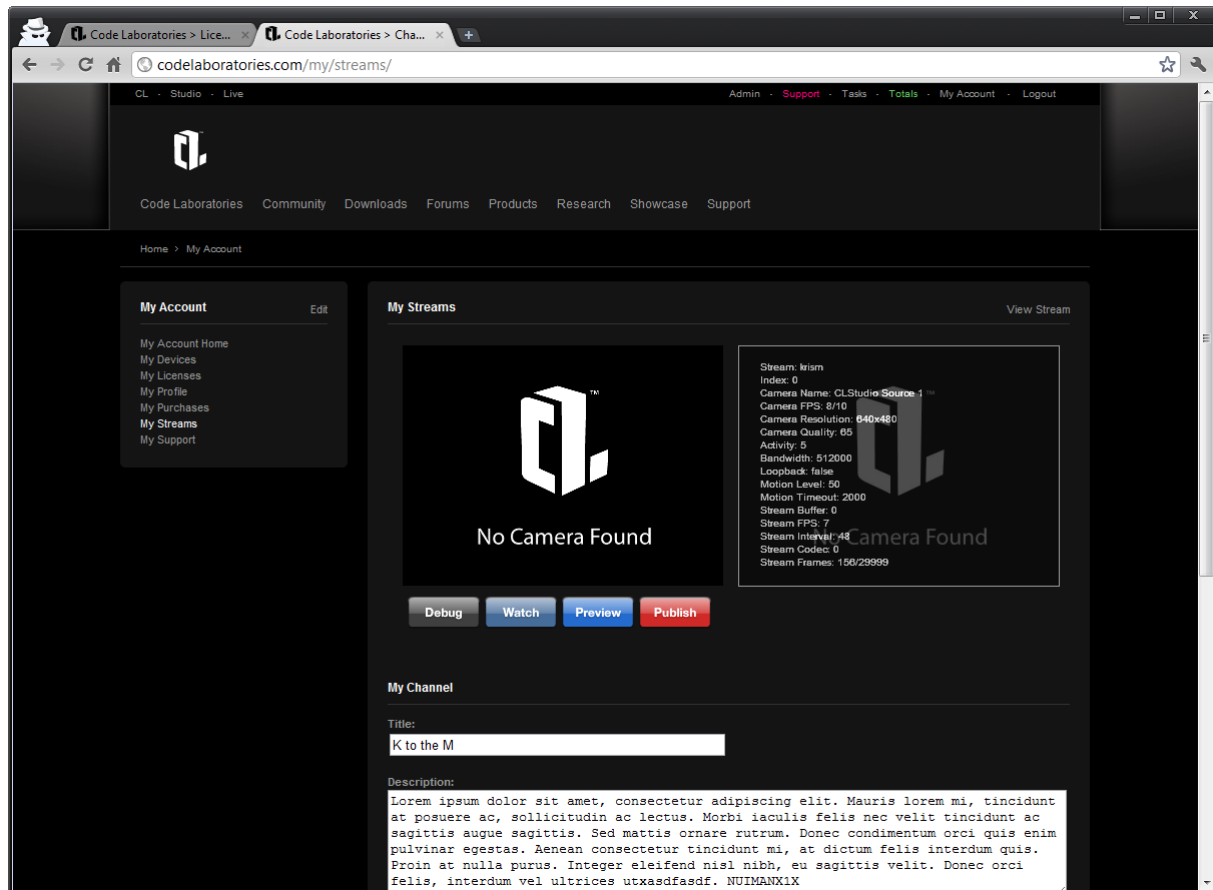
You can adjust several aspects of your Live Stream Page to personalize it:

- Channel Title/Description
- Background Image
- Thumbnail Image
- Social Links (Blog, Facebook, Twitter etc...)

You can also login from any browser to begin publishing to your live stream:

http://codelaboratories.com/studio/stream/

5.6 Sharing Live Streams
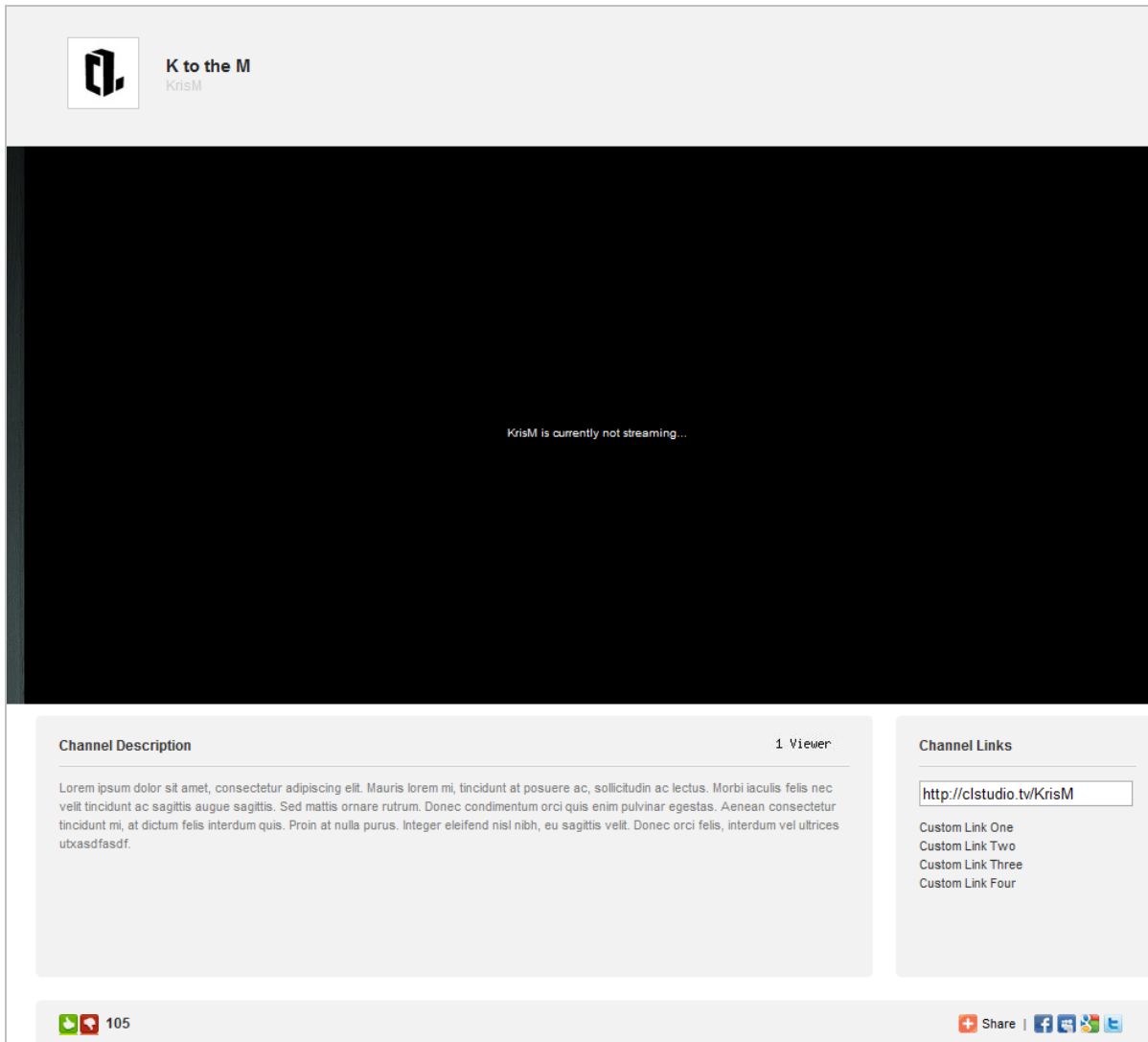
You can view your stream by visiting: http://codelaboratories.com/live/ + your CL Username.

For example: http://codelaboratories.com/live/**username**

Once streaming you will be able to send your URL to anyone or share it with the social toolbar on the bottom right. You can determine how many viewers are currently watching your channel by the view counter below your main video. You can also view other member's stream channels by clicking on the **Live** link on the top left of menu bar.

6 Settings

You can access the CL Studio settings by clicking on **Settings** in the main menu. From there you can control several aspects of the application's behavior, such as UI animation, keyboard mappings, default folders and more.

The main settings are divided into the following sections:

- **General** – Keyboard and Framerate
- **Folders** – Default Folder Paths
- **Visuals** – Animation and Toggles
- **Devices** – MIDI and compatible camera devices
- **My Studio** – Manage your Studio account and activate the product
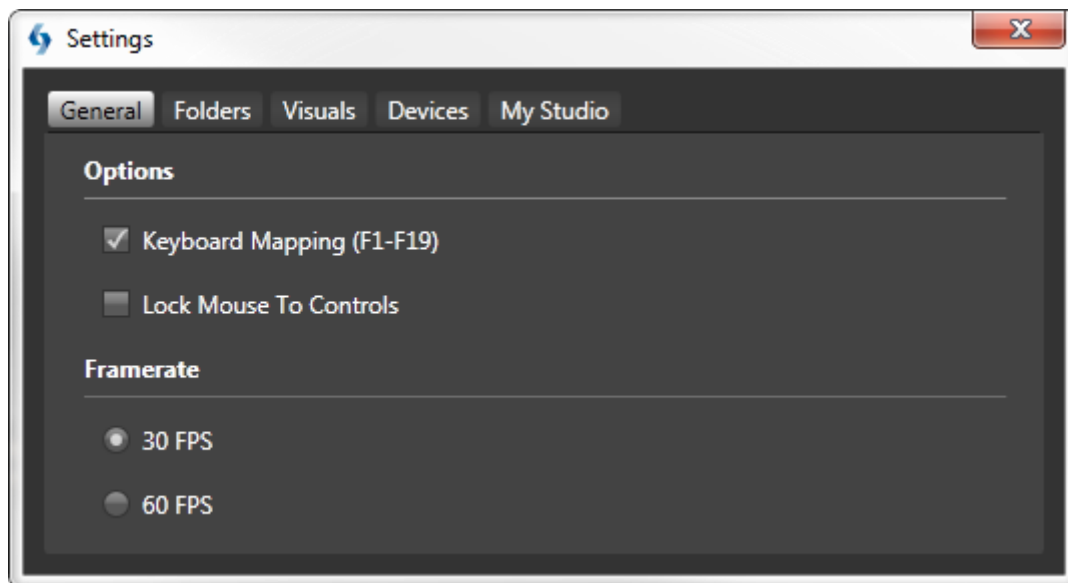
1) **Keyboard Mapping** – Maps (F1-F19) Keys to modules in the rack (based on module position)
2) **Lock Mouse to Controls** – Hides mouse while interacting with controls
3) **Framerate** – Toggles between 30 and 60 frames per second (FPS)
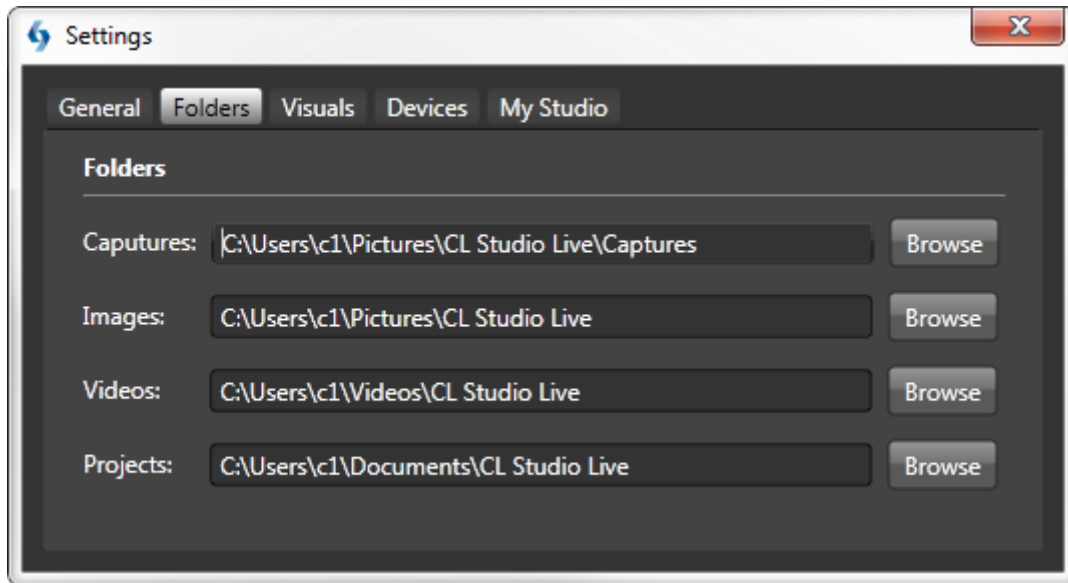
1) **Captures Folder** – Default folder for Image Export (Capturing from the Display Module)

2) **Images Folder** – Default folder for Image Import (JPG, PNG etc…)

3) **Videos Folder** – Default folder for Video Import (AVI, MOV, etc…)

4) **Projects Folder** – Default folder for Saved Rack Projects (*.RACK)
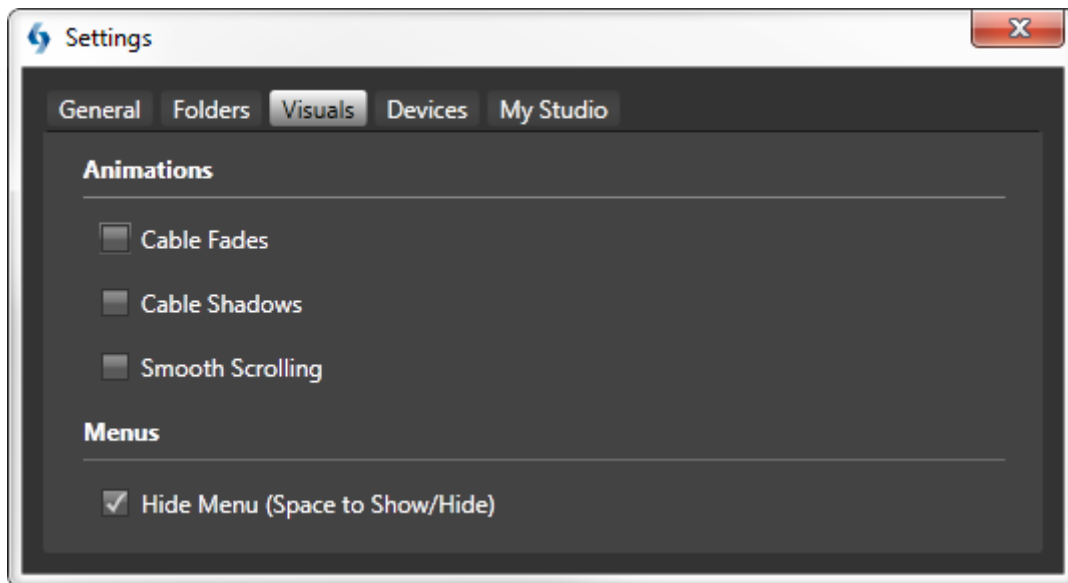
1) **Cable Fades** – Animated fading of cables on interaction/update

2) **Cable Shadows** – Drop shadows and lighting effects

3) **Smooth Scrolling** – Enable animated scrolling of rack

4) **Hide Menu** – Show/Hide Main menu with the keyboard

7 Help & Support

7.1 Loading the Examples

CL Studio comes with several examples in order to help you get started. To load these simply click the **Help > Examples** menu item and then select the example you would like to load.
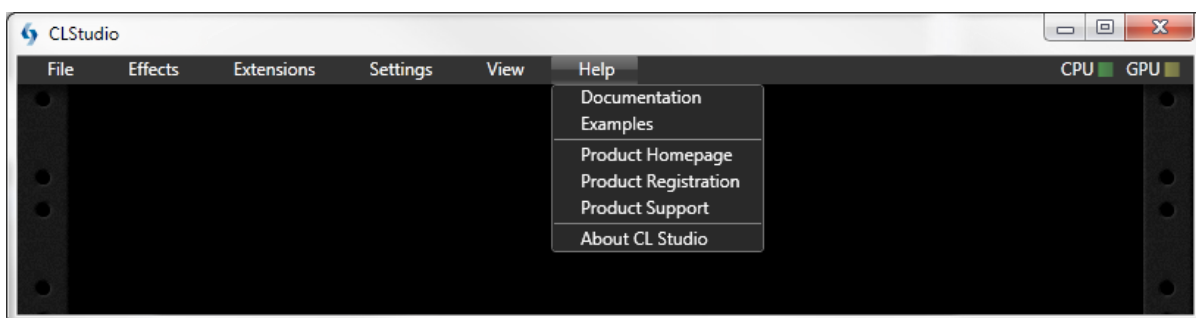
Here are some simple graph ideas to experiment with:

- Loading of Media (**Media > Display** - Add a Media Module and Link to a Display)
- Basic Capture (**Camera > Display** - Add a Camera Module and Link to a Display)
- Basic Effect (**Camera > Transform > Display** - Add Camera, Transform and Display)
- Basic Export Stream (**Camera > DS Proxy** – Add a Camera and a DS Proxy Module, open a web browser and test the output stream)

7.2 Frequently Asked Questions (FAQ)

You can find the latest FAQ at: http://codelaboratories.com/studio/faq

7.3 Community Support

Community Support: http://codelaboratories.com/forums/

7.4 Commercial Support

Commercial Support: http://codelaboratories.com/commercial-forums/ (Login Required)

7.5 Troubleshooting

To begin troubleshooting we included a diagnostic utility which you can launch from the **Start Menu** under **CL Studio Live > Tools > CL Studio Diagnostics Utility**. This tool will perform some simple tests and gauge the experience rating of your hardware. The produced index rating reflects your computers overall performance.

Here are some general troubleshooting tips:

Confirm that your computer meets the following minimum requirements:

- A Windows Experience Rating above 5.0
- DirectX 10.1 – Full Hardware Acceleration
- Properly installed Quicktime

If you are experiencing issues with the software, try and lower some of your visual settings:

- Disable Cable Fades/Shadows and Smooth Scrolling (**Settings > Visual**)
- Lower the frame rate from **60 to 30 FPS** (**Settings > General**)
- Disable Windows Aero and Theming Effects from the Windows control panel

If problems persist, please try re-installing the application and post any errors you receive via the support contact form: http://codelaboratories.com/support/

8 References

8.1 Main Menu

Menu Item	Description	Keyboard
File	General Application Commands (Open, Save, Publish)	Alt+F
Effects	Effect Module Listing (For manipulating signal)	Alt+E
Extensions	Extension Module Listing (For signal input/output)	Alt+X
Settings	Application preferences and configurations (See: Application Settings **6**)	Alt+S
View	Toggle editor view states and clearing of cables	Alt+V
Help	Examples, product details, support and documentation	Alt+H

8.2 Keyboard Shortcuts

Action	Description	Keyboard
Save	Save the current project	Ctrl+S
Save As	Save the current project as a new file	Ctrl+Shift+S
New	Create a new rack project	Ctrl+N
Open	Open an existing project from disk	Ctrl+O
Open Last	Open the most recently used project	Ctrl+L
Flip Rack	Change the view of the rack	Tab
Toggle Colors	Show/Hide individual module color pickers	C
Exit	Exit the application	Alt+F4
Module Toggle	Optional mapping of modules on/off parameter.	F1-F19

8.3 Effects Library

Module	Description	I/O Ports	Controls	Parameters	Group
Cubic	Applies cubic transformations on signal.	1/1	5	Scale Distortion Cubic Chromatic Invert	2D
Transform	Applies linear transformations on signal.	1/1	4	Pan Zoom Rotate Skew	2D
Water	Creates waves dependent on motion detected in input video.	2/1	3	Attack Decay Strength	2D
Flat Tunnel	Maps input texture to 2 flat walls and animates forward motion.	1/1	2	Speed Fade	3D
Light Pulse	Applies a 3D lighting and distortion to input.	1/1	1	Speed	3D
Relief Tunnel	Creates a round tunnel with 3D texture mapping	1/1	2	Speed Fade	3D
Tunnel	Creates a round 3D tunnel.	1/1	2	Speed Fade	3D
Z-Invert	Flips signal on Z axis.	1/1	2	Speed Fade	3D
Light Sphere	Maps input texture to 3D sphere.	1/1	1	Speed	3D
Blur Rotate	3D Blur transformation on X axis.	1/1	2	Center Offset	Blur
Blur Zoom	3D Blur transformation on Z axis.	1/1	2	Center Scale	Blur
Blend	Apply color transformations to multiple signals (such as burn, dodge, etc.) see Reference **8.8**	2/1	3	Mode Gain 1 Gain 2	Color
Brightness	Adjust Brightness/Contrast	1/1	2	Brightness Contrast	Color

Module	Description	I/O Ports	Controls	Parameters	Group
Color Tone	Changes color key of signal.	1/1	1	Color	Color
Grayscale	Converts the image to black and white.	1/1	0	-	Color
Invert	Inverts the image color.	1/1	0	-	Color
Frosted Glass	Creates foggy glass-like effect.	1/1	1	Strength	Distort
Texturize	Overlaps input textures.	2/1	1	Strength	Distort
Twist	Warps the signal on polar axis.	1/1	1	Size	Distort
Wave	Creates liquid-like distortions such as ripple, warp, swirls etc... Wave Modes 1-4	1/1	4	Mode Amplitude Frequency Rate	Distort
Checkers	Creates a checkerboard pattern with a controllable tile count.	0/1	1	Count	Pattern
Circles	Segments video signal into 2D circles with adjustable size and count.	1/1	4	Count Size Strength Smooth	Pattern
Kaleidoscope	Pattern replicating and repositioning.	1/1	1	Speed	Pattern
Lines	Creates linear shapes spanning the full width of the image.	1/1	1	Size	Pattern
Pixelate	Changes the individual pixel size of the image.	1/1	1	Pixel Size	Pattern
Shades	Creates linear shaded strips with drop shadows.	1/1	2	Count Intensity	Pattern
Spheres	Similar to Circles but with 3D shading.	1/1	3	Size Strength Smooth	Pattern
Star	Transforms input into a 5 point animated polygon.	1/1	1	Speed	Pattern
Granite	Creates a rock-like textures.	1/1	1	Size	Sketch

Module	Description	I/O Ports	Controls	Parameters	Group
Tiles	Allows for a video signal to be cloned, tiled and repositioned on the X/Y axis.	1/1	4	H Count V Count H Offset V Offset	Pattern
Stroke	Artistic pen/pencil effect.	1/1	1	Strength	Sketch
Contours	Creates an outline of the signal dependent on the Size/Strength.	1/1	2	Size Strength	Stylize
Edge	Enhances the edges of the image.	1/1	4	Threshold Sobel 1 Sobel 2 Soble 3	Stylize
Emboss	Enhances highlight and shadow, depending on light/dark boundaries.	1/1	2	Amount Width	Stylize
Sharpen	Creates or refines sharp edges.	1/1	2	Amount Width	Stylize
Threshold	Cuts anything below the set limit of at pixel level.	1/1	1	Threshold	Stylize
Vectorize	Creates outline vectors based on color threshold adjustment.	1/1	1	Threshold	Stylize
Bullet	Time delay **Matrix** effect of the visual signal.	1/1	1	Mix	Time
Delay	Time Delay with 1, 2, 3 and 4 image frame delayed outputs.	1/4	0	-	Time
Echo	Time shift with the following modes: First, Last, Add, Max, Min, Blend, Inverse Blend.	1/1	1	Mode	Time
SlitScan	Time shift based on history and direction.	1/1	2	Mode Depth	Time
Optical Flow	Outputs directional vectors based on the motion of a scene.	1/1	1	Gain	Vision

8.4 Extensions Library

Module	Description	I/O Ports	Controls	Parameters	Group
Media	Media import from file sources (See Supported Formats 5.1)	0/1	4	File Playback Rate Loop Horizontal Flip Vertical Flip	Input
Display	Virtual video display window.	4/0	6	Mix 1 Mix 2 Mix 3 Mix 4	Output
Fractal	A Mandelbrot or Julia fractal generator with zoom and pan.	0/1	4	Mode Zoom Pan	Generator
Camera	Allows for CL/PS3 Eye Camera devices to be used as a video source.	0/1	3	Exposure Gain	Input
DS Proxy	Allows for CL Studio to broadcast as a Microsoft DirectShow video source device (See: Supported Applications 8.5)	4/0	6	Mix 1 Mix 2 Mix 3 Mix 4 Horizontal Flip Vertical Flip	Output
Mixer	A Six Port mixing module for merging/managing video signals.	6/1	6	Mix 1 Mix 2 Mix 3 Mix 4 Mix 5 Mix 6	Mix

8.5 Supported Applications

Application	Status	Version	Mode
Adobe Flash Player	Supported	9-10+	DirectShow
Skype	Supported	4+	DirectShow
AIM	Supported	-	DirectShow
Yahoo	Supported	-	DirectShow
CL Eye Test	Supported	-	DirectShow

See: http://codelaboratories.com/eye/apps/ for supported DirectShow applications.

8.6 Controls Library

Control	Description
Knob	Radial adjustments of values (bipolar or unipolar modes).
Toggle	On/Off button.
X/Y Pad	Two-dimensional adjustments along the X and Y coordinates.
Port	Input or Output Signal Endpoints.
Color Picker	Red, Blue, Green Color Picker.
Cables	Visual connections between modules.

8.7 Terms & Definitions

Term	Description
DirectShow	A Microsoft developed framework for multi-media management.
GPU	Graphics Processing Unit – used for rendering graphics in a modern computer.
Rack	Main application space used to manage modules.
Module	Used within a rack to create projects.
Media	Graphical and signal assets loaded from files or other device sources.
DS Proxy	Virtual Camera Source Component for use with target DirectShow Applications.

8.8 Blend Mode Reference

Mode	Description
Normal	This is the standard blend mode which simply takes each pixel from the top layer if present. Otherwise the bottom layer is used.
Brighten	This blend mode simply adds pixel values of one layer with the other. In case of values above 255 (in the case of RGB), white is displayed.
Color Burn	This darkens the top layer increasing the contrast to reflect the color of the bottom layer. The darker the bottom layer, the more its color is used. Blending with white produces no difference.
Color Dodge	This decreases the contrast to make the bottom layer reflect the top layer: the brighter the top layer, the more its color affects the bottom layer. Blending with white gives white. Blending with black does not change the image.
Color Darken	Darken takes the darkest value for each pixel from each layer.
Color Difference	Difference subtracts the top layer from the bottom layer or the other way round; to always get a positive value. Blending with black produces no change, as values for all colors is 0.
Exclusion	Exclusion blending mode works very much like Difference but the contrast is lower. When white is the blend color, the base image is inverted. When black is the blend color, there is no change.

Glow	Works similar to Vivid Light with focus on light pixels.
Hard Light	Hard Light combines Multiply and Screen blend modes.
Hard Mix	This blend mode combines Color Dodge and Color Burn. Dodge applies to values greater than 128 dodge and burn to values less than 128.
Lighten	Lighten takes the lightest pixel from each layer.
Linear Burn	This darkens the top layer decreasing the brightness (not touching the contrast) to reflect the color of the bottom layer. The darker the bottom layer, the more its color is used. Blending with white produces no difference.
Linear Dodge	This increases the brightness (but does not change the contrast) to make the bottom layer reflect the top layer: the brighter the top layer, the more its color affects the bottom layer. Blending with white gives white.
Linear Light	Linear Light works almost exactly like Vivid Light except that it lightens or darkens by increasing or decreasing brightness instead of contrast.
Multiply	Multiply blend mode multiplies the numbers for each pixel of the top layer with the corresponding pixel for the bottom layer.
Negation	This blend inverts both layers, divides them, and then the result is inverted again.
Overlay	Overlay combines Multiply and Screen blend modes. Light parts of the picture become lighter and dark parts become darker. An overlay with the same picture looks like an S-curve.
Pin Light	Pin Light blending mode replaces colors depending on the brightness of the blend color. If the blend color is more than 50% brightness and the base color is darker than the blend color, then the base color is replaced with the blend color.
Reflect	Similar to Linear Dodge with darker pixels take focus.
Screen	With Screen blend mode the values of the pixels in the two layers are inverted, multiplied, and then inverted again. This is in some way the opposite of multiply.
Soft Light	This is a softer version of Overlay. Applying pure black or white does not result in pure black or white.
Vivid Light	Burns or dodges the colors by increasing or decreasing the contrast, depending on the blend color.

8.9 **Licensing Comparison Reference**

Feature	Trial	Lite	Live	Ultimate
Audience	Provides users a demonstration of core functionality.	Researchers and hobbyist using web cameras.	Creative professionals, live visual artists.	Production and design houses.
Modules	10	20	45+	60+
Cameras	2	4	8	Unlimited
Media	2	4	8	Unlimited
Displays	2	4	8	Unlimited
Streams	0	1	2	Unlimited
Rack Units	3	6	12	Unlimited
Proxies	2	2	2	Unlimited
Offline Mode	No	Yes	Yes	Yes
License	**Free 30 Day**	**Personal**	**Commercial**	-
Updates	No	6 Months	6 Months	-
Support	Community	Commercial	Commercial	-
Availability	10/10/10	10/10/10	10/10/10	2011

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