cineSpace^{TM}v2.6 Quick Start Guide

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The cineSpace suite of software tools are created by Rising Sun Research (http://www.cinespace.risingsunresearch.com). For further information not contained in this document look in the cineSpace forums (http://cinespace.risingsunresearch.com/forum/).

Contents

1 The cineSpace suite **5**
- 1.1 What is cineSpace? . . . 5
- 1.2 Why is cineSpace needed? . . . 5
- 1.3 The cineSpace suite . . . 6

2 Setting up cineSpace **9**
- 2.1 Preparing ahead . . . 9
  - 2.1.1 Supported platforms . . . 9
  - 2.1.2 Hardware probes . . . 10
  - 2.1.3 How cineSpace is licensed . . . 11
- 2.2 The installation procedure . . . 11
  - 2.2.1 Quick Install (node-locked licenses) . . . 12
  - 2.2.2 Advanced Install (with license server) . . . 14
  - 2.2.3 Obtaining a license . . . 16
  - 2.2.4 Installing the RLM license server . . . 16
  - 2.2.5 Auto-starting your RLM server . . . 16
  - 2.2.6 Installing cineSpace . . . 16
  - 2.2.7 Setting Environment Variables . . . 17
  - 2.2.8 Copy license file . . . 17
  - 2.2.9 The rsr.conf file . . . 17
- 2.3 Windows (Platform Notes) . . . 17
  - 2.3.1 Obtaining a license . . . 17
  - 2.3.2 Installing the RLM license server . . . 18
  - 2.3.3 Auto-starting your RLM server . . . 18
  - 2.3.4 Installing cineSpace . . . 19
  - 2.3.5 Setting Environment Variables . . . 20
  - 2.3.6 Copy license file . . . 20
  - 2.3.7 The rsr.conf file . . . 20
- 2.4 Mac OSX (Platform Notes) . . . 20
  - 2.4.1 Obtaining a license . . . 20
  - 2.4.2 Installing the RLM license server . . . 21
  - 2.4.3 Auto-starting your RLM server . . . 22
  - 2.4.4 Installing cineSpace . . . 23
  - 2.4.5 Setting Environment Variables . . . 23
  - 2.4.6 Copy license file . . . 24
  - 2.4.7 The rsr.conf file . . . 24
- 2.5 Linux (Platform Notes) . . . 25
  - 2.5.1 Obtaining a license . . . 25
  - 2.5.2 Installing the RLM license server . . . 25
  - 2.5.3 Auto-starting your RLM server . . . 26
  - 2.5.4 Installing cineSpace . . . 26
  - 2.5.5 Setting Environment Variables . . . 27

2.5.6 Copy license file . . . 28
2.5.7 The rsr.conf file . . . 28
2.5.8 Set permissions for `monitor-profiles` directory . . . 28
2.6 Irix (Platform Notes) . . . 28
2.6.1 Obtaining a license . . . 28
2.6.2 Installing cineSpace . . . 29
2.6.3 Setting Environment Variables . . . 29
2.6.4 Copy license file . . . 29
2.6.5 The rsr.conf file . . . 29
2.7 Troubleshooting . . . 30

3 Installing the cinePlugins **31**
3.1 Preparing ahead . . . 31
3.1.1 Obtaining the cinePlugins . . . 31
3.1.2 Installing the cineSpace suite . . . 31
3.2 cineShake . . . 31
3.2.1 Linux . . . 31
3.2.2 Mac OS X . . . 32
3.3 cineFusion . . . 33
3.3.1 Windows . . . 33
3.4 cineNuke . . . 33
3.4.1 Windows . . . 33
3.4.2 Linux . . . 33
3.5 cineFilmMaster . . . 33
3.5.1 Windows . . . 34

Chapter 1

The cineSpace suite

1.1 What is cineSpace?

cineSpace is a digital colour management system (CMS) designed by Rising Sun Research (RSR). Using a hardware probe, cineSpace can accurately profile displays throughout a facility and then, using a simple application, the artist is able to

- match the display to any other display in the building
- match the display to any desired film output stock
- match the display to any video standard

Simple to use and built with film users in mind, cineSpace is designed to give you true "what you see is what you get" functionality on the computer screen without having to print to film – potentially saving thousands of dollars on every project.

Built on the basis of extensive experience in digital film, cineSpace draws upon this esoteric knowledge to make accurate calibration available to everyone, simplifying the colour pipeline process. Running on Linux, Windows 2000/XP, Mac OS X and Irix, with licenses that are both cross-platform and floating, the cineSpace colour management suite provides world class tools to artists however they need them.

1.2 Why is cineSpace needed?

Increasingly, companies working with digital film are experiencing the need to establish a consistent representation of their images across all displays in their facilities. This means having confidence that what an artist is seeing at their workstation is exactly the same as what a production manager sees on their monitor when reviewing the images. Furthermore, companies require that their monitors are calibrated to the optimum settings for viewing the types of images they are commonly working with so the best possible use is made of the hardware investment.

In addition to having matched monitors, artists require an accurate representation of how their images will look when sent to the final output, whether it be film, HD, Digital Cinema or some other media. They may also wish to compare between possible film output stocks to determine which provides the best colour response for the current project.

In the past, the only way to check the final output result was through the expensive film-out process. A colour grading expert would have spent hours making adjustments to the frames to obtain approximately the right colour balance before transferring them to film, where the final result could be checked. In even the best cases, this process may have been repeated several times, and in most cases it would take 15 to 20 attempts to get everything right. The result was many hours and thousands of dollars wasted.

With the advent of cineSpace, all artists involved in a project are able to have a consistent view of the images they are working with, and that view can provide an accurate representation of the final output. No longer is it necessary to produce numerous film-outs to check that the colours are right – the correct colours are displayed right from the start. On average, the number of film-outs per project can be reduced to only one or two, representing a significant cost savings. Many hours are saved by eliminating the need to go back and forth between artists, producers and colour experts before obtaining the desired result. There is no discrepancy between what each artist views at their workstation and what the producer sees on the preview screen.

cineSpace also makes a reality the concept of digital approvals, where VFX supervisors, producers and other key team members can sign off on shots viewed on a calibrated digital projection system. Once again, this streamlines the approval process and can eliminate the cost of having to go our to film time and time again.

1.3 The cineSpace suite

The cineSpace colour management suite consists of a number of applications that work together to deliver accurate calibration across multiple systems. By providing a combination of stand alone tools, plug-ins and other application support, cineSpace can be used very effectively in virtually any colour pipeline and with all display types, including CRTs, LCDs and digital projectors.

The components of the cineSpace suite are

cineProfiler An application that utilises a hardware probe (such as a GretagMacbeth i1 Display or Pro, LaCie Blue Eye 2 or Konica Minolta CS-200) to *profile* the response of your display (CRT, LCD or digital projector). These profiles are stored as XML files that are used by the applications listed below to calibrate your display.

equalEyes This is a stand-alone tool that uses a monitor profile created by cineProfiler to match your monitor to another monitor, a video standard (like PAL, NTSC or HD) or to film. It works by modifying the gamma look-up table (LUT) of your graphics card.

cinePlugins A suite of plug-ins that provide the functionality of both equalEyes and cineCube within the parent application and also support multiple accelerated modes for dealing with 3D LUTs:

- **cineShake** (*Linux & OS X only*) The plug-in to Shake, which supports cineSpace as a node within a tree or as a viewer LUT. Currently cineShake supports Shake versions 3.5, 4.0 and 4.1.
- **cineFusion** (*Windows only*) The plug-in to Digital Fusion, which supports cineSpace as a node within Fusion. Currently cineFusion supports Fusion version 5.0.
- **cineNuke** (*Windows & Linux only*) The plug-in to Nuke, which supports cineSpace as a node within Nuke. Currently cineNuke supports Nuke versions 4.5 and 4.7.
- **cineFilmMaster** (*Windows*) The plug-in to Digital Vision (Nucoda) FilmMaster, which supports cineSpace as a colour management module within Film Master. Currently cineFilmMaster supports FilmMaster versions 3.0.2 and 3.5.

cineCube A command line tool for generating 3D colour 'cubes' (LUTs) that can be used by real-time playback products from a variety of vendors, including ...

- ASSIMILATE (Scratch),
- Autodesk (Lustre, Flame, Inferno & others),
- CHROME Imaging (Matrix Compositing),
- IRIDAS (the SpeedGrade and FrameCycler lines of products),
- Quantel (iQ & eQ),

- S.G.O. (Mistika),
- Apple (Color),
- The Pixel Farm (PFPlay, PFClean & PFClip)
- and many others.

These products use the 'cubes' to provide a cineSpace calibrated display within their own application.

probeServer A tool that allows a hardware probe to be installed and running on one computer and then used for profiling another computer's monitor. It is designed for using a single probe with a laptop to profile all monitors in a facility, or to profile a system where the workstation and display(s) are some distance apart.

Each of these individual applications that comprise the cineSpace suite will be covered in detail in the chapters to follow.

Chapter 2

Setting up cineSpace

2.1 Preparing ahead

The cineSpace colour management suite has been designed to be as flexible as possible, supporting a wide range of platforms, applications, displays and hardware probes. cineSpace has very low resource demands and will run on nearly all computers, requiring only a standard workstation or laptop with a USB port[1] and a modern graphics card. Before you begin, however, you should read through this chapter to ensure that you understand what you need in order to get up and running with cineSpace.

The main things you will need before starting out with cineSpace are:

- Computer workstation and display[2]
- cineSpace software package for your operating system
- Hardware probe
- cineSpace license

The supported platforms, probes and cineSpace licensing mechanisms are explained in further detail below.

2.1.1 Supported platforms

cineSpace will run on most common platforms (operating systems), including Windows, Mac OS X Linux and Irix, making it an ideal solution for mixed platform environments. The applications and interfaces are consistent across all platforms to simplify the user experience, although the installation process is slightly different in each case.

The following table details the specific platforms that it has been designed for and tested on:

Operating system	*Designed for*	*Tested on*
Windows	Windows XP SP2 32 bit Windows 2000	Windows XP SP2 32 bit Windows 2000
Mac OS X	OS X 10.4 (Tiger) OS X 10.3 (Panther)	OS X 10.4 (Tiger) OS X 10.3 (Panther)
Linux	Fedora Core 1, 2, 3 & 4 (32bit) Red Hat Enterprise Linux 3 (32bit) gcc 3.2.2, 3.3.1	Fedora Core 2, 3 & 4 32 bit gcc 3.2.2, 3.3.1
Irix	Irix (all versions)	Irix 6.5

[1] Systems without a USB port (e.g. Irix) can also be accommodated using a special utility packaged with the software.

[2] The display can be a CRT or LCD monitor, or a digital projector.

The cineSpace suite is known to run on a number of Linux distributions not mentioned in the table above, including Debian, Red Hat Enterprise Linux and Suse, and tested with both the GNOME and KDE graphical interfaces. Since, however, there can be differences in the way that they are configured for a particular site, please contact the RSR team to discuss any potential issues. Currently, we only support the 32 bit architecture on Linux. We have had success with some 64 bit Linux systems, but at the current time we will not be supporting them.

Obtaining the cineSpace software packages

The cineSpace software packages for all platforms are distributed via FTP server, which is located at the following web address:

`ftp://ftp.risingsunresearch.com`

You will need a username and password to access the FTP server – please contact RSR to obtain these details if you do not already have them.

2.1.2 Hardware probes

cineSpace uses a *hardware probe* to capture accurate colour measurements from your displays. A probe is a device – often categorised as either a *colorimeter* or a *spectrophotometer* – that is sensitive to the wavelengths of light that make up colours, enabling those colours to be represented as numerical values [3]. These values are then used within the cineSpace software suite to determine the adjustments required to achieve accurate calibration.

cineSpace does not ship with a hardware probe and you will need to source a device to use with the software. The type of probe that you need will depend on what display types you are wanting to calibrate. Although most probes will work for CRT monitors, some older models are not suitable for LCD panels. If you wish to calibrate digital projectors, you will need a more specialised – and more expensive – device that can take reflective readings from a screen.

We currently support the following hardware probes:

Manufacturer	*Model*	*Comments*
GretagMacbeth / X-Rite *Supported Platforms: Windows XP (32bit), OS X & Linux (32bit)*	Eye-One Display2	Accurate and affordable, our recommended monitor probe.
	Eye-One Display LT	Same hardware as the Display2, but sold in a different bundle.
	Eye-One Display	Replaced by the improved Display2, but still supported by the manufacturer.
	Eye-One Pro	Highly versatile, can profile reflected-light displays (e.g. projected images) in addition to monitors.
LaCie *Supported Platforms: Windows XP (32bit), OS X & Linux (32bit)*	blue eye 2	Same hardware as the Eye-One Display2 but re-badged with the LaCie branding.
Konica Minolta *Supported Platforms: Windows XP (32bit)*	CS-200	High-end spectrally based colorimeter.

There are only two probes supported for doing Output Independent profiling (OIP):

[3] The colour measurements are described by tristimulus values defined in the CIE XYZ colour space.

- GretagMacbeth/X-Rite **Eye-One Pro**
- Konica Minolta **CS-200**

For information on OIP see section **??**.

Probes can be obtained through local resellers or ordered online at a number of different web sites. A good starting point is the GretagMacbeth online store, which contains information and details for the Eye-One series of devices:

http://www.gretagmacbethstore.com

One other device that is still used in some facilities, but no longer supported by the manufacturer, is the X-Rite DTP-92Q (available both in a serial and a USB version). Whilst this probe will generally work with cineSpace, it is not suitable for LCD monitors and is not listed as a supported device. Please consult the RSR team if you intend to use the DTP-92Q with cineSpace.

2.1.3 How cineSpace is licensed

cineSpace uses a standard *Reprise License Manager* (RLM) license architecture (v3.0 build:4 or higher). There are two primary ways in which the licensing may be handled:

1. Using a *node-locked* license file on each workstation running cineSpace applications; or
2. Using a *license server* that handles the license management for all workstations running cineSpace applications, allowing *floating* licenses to be used.

Node-locked licenses

Node-locked licenses bind the cineSpace software to a single workstation. They provide a way to run cineSpace where a machine will not always be connected to a network on which a license server resides, for example a laptop or stand-alone review station. This method of licensing is simpler to set up, since there is no need to install an RLM license server in addition to the cineSpace software. The limitation, however, is that the license cannot be shared (*floated*) across multiple machines, making it a less flexible option should your needs change.

License server

Floating licenses that run on the RLM server allow multiple users, across multiple workstations and platforms, to share access to the cineSpace software suite. The RLM server runs in the background on a computer on your network. Usage is restricted only by the number of concurrent seats allowed by the license file, making it the ideal option for facilities with a large number of users or changing production needs. Setting up a license server does, however, require an extra step during the cineSpace installation process.

For full details on license server concepts and running multiple applications under this architecture, please consult the RLM End User documentation:

http://cinespace.risingsunresearch.com/docs/RLM

2.2 The installation procedure

Whilst the installation procedure for cineSpace is fairly simple, there are a number of steps that you should follow to ensure that everything goes smoothly. This section outlines the major aspects of the procedure, with the subsequent sections providing platform-specific details.

There are two types of installation

- Quick - great for getting started quickly with a node-locked license.
- Advanced - for users who want to float licenses across multiple computers and operating systems. Involves installing a license server.

This section (2.2) gives a brief overview of the steps involved in installing cineSpace.
Not all steps are required for all installations; see the following sections on quick (2.2.1) and advanced (2.2.2) installs to find out which steps are needed to complete your cineSpace installation.
For details on how to actually do each step see the Platform specific sections.

- Windows - section 2.3
- OS X - section 2.4
- Linux - section 2.5
- Irix - section 2.6

Before you begin, however, you will need to ensure that you have the cineSpace software and RLM license server (if required) for the platforms you are running. The required software packages may be downloaded from the RSR FTP server:

`ftp://ftp.risingsunresearch.com`

You will need login details (username and password) to access the FTP server. Please contact Rising Sun Research if you do not already have the required login information.

2.2.1 Quick Install (node-locked licenses)

Users who are using a node-locked license do not require a license server and so can do a quick install. Please follow the following steps to do a "quick" cineSpace installation.

1. Obtain a license. Gather all the needed information and request a license from Rising Sun Research . See Section 2.2.3
2. Install cineSpace. See Section 2.2.6
3. Copy license file. Place the license file in the "licenses" directory inside the cineSpace applications directory. See Section 2.2.8

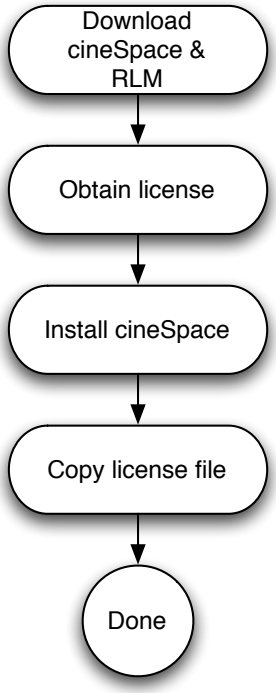

Figure 2.1: cineSpace quick install

2.2.2 Advanced Install (with license server)

For users who wish to use floating licenses an advanced install is required. Please follow the following steps to do an "advanced" cineSpace installation.

1. Obtain a license. Gather all the needed information and request a license from Rising Sun Research. See Section 2.2.3
2. Install the license server. See Section 2.2.4
3. Set license server to auto-start. See Section 2.2.5
4. Install cineSpace. See Section 2.2.6
5. Set environment variables. See Section 2.2.7
6. Edit cineSpace configuration file (rsr.conf). See Section 2.2.9

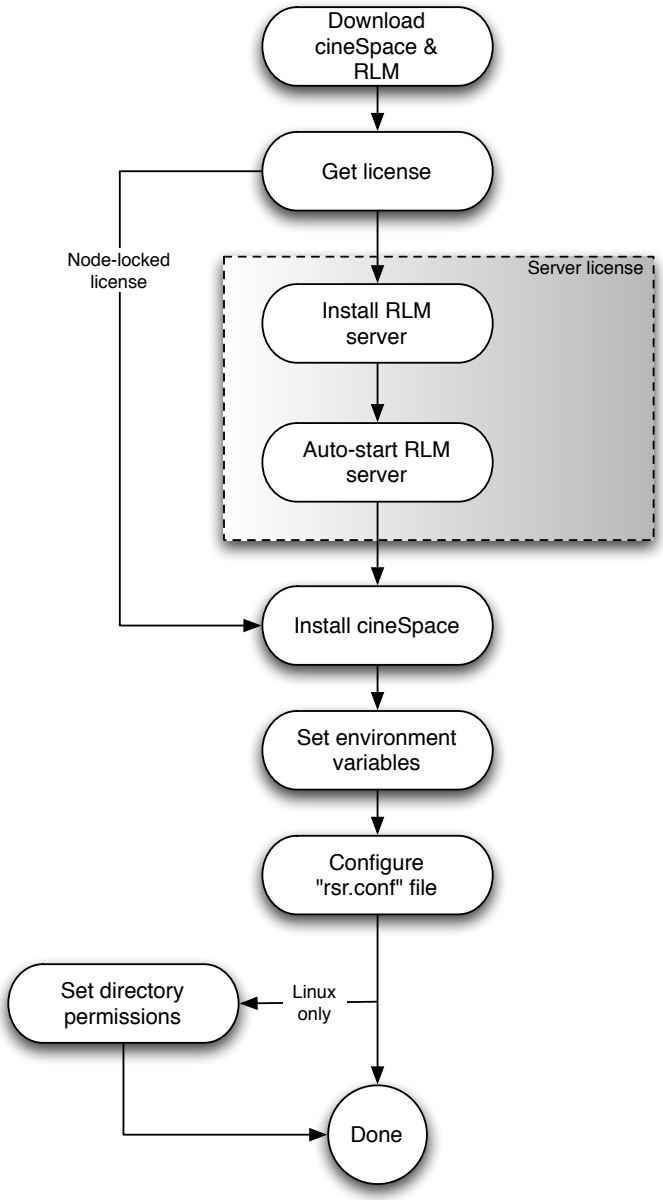

Figure 2.2: cineSpace advanced install

2.2.3 Obtaining a license

When requesting a license for cineSpace, you will need to provide the RSR team with some system information so that the correct license file can be generated:

- Your computer *hostname*
- Your computer *host ID*; and also
- Whether you require a *floating* or *node-locked* license

The *hostname* is the unique name which identifies your computer on your network and will be, in most cases, the same as the computer name. The *host ID* is a number that is unique to a specific computer, used to identify that machine for licensing purposes. In most cases, the host ID for your system will be the same as the *MAC address*[4] of your primary ethernet device (`en0`). The method for retrieving this information is dependent upon your operating system and the steps involved are described in the platform-specific sections that follow.

- If you will be using a node-locked license then the hostname and host ID should be obtained from all machines on which the cineSpace software will be running.
- If you are planning to use a license server, you should provide the hostname and host ID of the machine on which the RLM server will be installed - this does not necessarily have to be a computer that will be running cineSpace software.

2.2.4 Installing the RLM license server

Most cineSpace installations make use of the RLM server in order to utilise floating licenses across multiple machines (and platforms). If you will be using this sort of configuration, it is best to set up the license server prior to installing the cineSpace software package.

For details on how to set up the RLM server please see the relevant section in the platform specific notes; Windows (Sec.2.3.2), OS X (Sec.2.4.2), Linux (Sec.2.5.2).

For node-locked license configurations there is no need to install the RLM server.

2.2.5 Auto-starting your RLM server

In order to properly provide licenses, the RLM server needs to be running at all times. We recommend that you configure the RLM server to automatically start running when your computer boots up. This will ensure that if your license server machine is restarted, the cineSpace license server will also restart.

For details on how to configure the RLM server to start automatically see the relevant section in the platform specific notes; Windows (Sec.2.3.3), OS X (Sec.2.4.3), Linux (Sec.2.5.3).

2.2.6 Installing cineSpace

The main cineSpace installer package will install the following components of the cineSpace suite:

- cineProfiler
- equalEyes
- cineCube
- probeServer
- profileTools
- Configuration files and colour space profiles

[4]The Media Access Control (MAC) address is a unique identifier for most forms of networking equipment found in your computer.

In most cases, you will be able to simply run the installer package for your platform, which will place the required software components into their correct locations. For details on how to run the installers see the relevant section in the platform specific notes; Windows (Sec.2.3.4), OS X (Sec.2.4.4), Linux (Sec.2.5.4), Irix (Sec.2.6.2).

For information about installing each of the cinePlugins, please refer to Chapter 3 below.

Note: You must install the cineSpace package before installing any of the plug-ins.

2.2.7 Setting Environment Variables

Environment variables are dynamic, system-wide values that can affect the way that running processes behave. To complete an advanced cineSpace installation, you need to set an environment variable (`$RSR_APP_DIR`) so that the cineSpace application suite knows where to find its configuration files. The way in which you set this environment variable depends upon the platform that you are using.

For details on how to set environment variables please see the relevant section in the platform specific notes; Windows (Sec.2.3.5), OS X (Sec.2.4.5), Linux (Sec.2.5.5), Irix (Sec.2.6.3).

2.2.8 Copy license file

For node-locked licenses place the license file in the licenses directory within the cineSpace application directory. cineSpace will look in this directory for node-locked licenses.

For floating licenses placing a copy of the license file in the location above will tell cineSpace where to look for the license server.

2.2.9 The rsr.conf file

You can also specify the location of the license server in the rsr.conf. This is done by editing the rsr.conf configuration file within the cineSpace distribution. In addition to the license setting, the rsr.conf file contains default values for many of the cineSpace suite settings. These values can be overridden using environment variables, and other locations for the rsr.conf file can be specified using the `$RSR_APP_DIR` environment variable. This allows you to use a single configuration file for your network (to simplify installation at large facilities) or individual settings for each computer. Where each setting (and description) is preceded by '`#`', it will be treated as a comment and ignored. To use the setting in your configuration, remove the preceding '`#`' and enter the desired parameter value.

For details on how to set environment variables please see the relevant section in the platform specific notes; Windows (Sec.2.3.7), OS X (Sec.2.4.7), Linux (Sec.2.5.7), Irix (Sec.2.6.5).

2.3 Windows (Platform Notes)

2.3.1 Obtaining a license

To find your hostname and hostid, you will need to open a *command prompt* and enter some commands that will return information about your system. To do this, go to Start → Programs → Accessories → Command Prompt.

1. To find the hostname of your computer, type the command:
   `hostname`

2. To find the hostid of your computer take the Physical Address of the first Ethernet adapter listed from the following command:
   `ipconfig /all`

Please send an email to cinespace-support@risingsunresearch.com with all of the information generated from these commands.

2.3.2 Installing the RLM license server

For node-locked license configurations there is no need to install the RLM server.

For floating license configurations, the RLM server needs to be installed and started on the computer that you have nominated as the license server for your network. You can follow these steps to install and run the RLM server:

1. Unzip `RLM_v3.0BL4_win32.zip` to `C:\`. This creates the folders and files required for RLM to run.

2. Navigate to `C:\rlm\rsun\` and copy your license file into this folder.

3. Open a command prompt and navigate to `C:\rlm\rsun\` and run RLM with the full path to the license file and log file. The log file will be created when rlm is run.

   ```
   rlm.exe -c C:\rlm\rsun\rsr_license.lic
           -dlog C:\rlm\rsun\rsr_log.txt
   ```

   You should get a message indicating that the server has started.
   Also included in the message should be a line indicating that the RLM web service has started. For example:

   ```
   09/11 14:07 (rlm) Web server starting on port 9000
   ```

   To check on the server status open a web browser and enter the hostname and port number indicated. For example:

   ```
   http://localhost:9000
   ```

   This will open the Reprise License Server Administration web page.

You can then set the `RSR_LICENSE` variable as described below to complete the license configuration.

2.3.3 Auto-starting your RLM server

On Microsoft Windows servers, you may want to install and run the RLM server as a Windows service process. A service process can start automatically at boot time and remain running as long as the system is up, regardless of user logins and logouts.

Installing RLM as a service is done in a command window. Once installed as a service, it remains installed until it is explicitly deleted as a service. Installing RLM as a service does not start RLM; services are started via the Windows Services control panel, and at boot time. RLM is installed using the rlm.exe program itself, with special arguments:

```
rlm.exe -install_service -dlog [+]logfile
       [-service_name sname] <rlm runtime args>
```

where:

- *logfile* is the pathname for the server debug log. This parameter is required. If preceded by the '+' character, the logfile will be appended, rather than created.
- *sname* is an optional name for the installed service. If not specified, *sname* defaults to "rlm". If sname contains embedded whitespace, it must be enclosed in double quotes.
- <rlm runtime args> are any other command line arguments to be passed to rlm when it is started.

Example:

```
rlm.exe -install_service -service_name rlm-rsr
        -dlog c:\rlm\rsun\rsr_log.txt
        -c c:\rlm\rsun\rsr_license.lic
```

This installs RLM as a service under the name "rlm-rsr". When started via the Services control panel or at boot time, rlm.exe will be passed the " `-c c:\rlm\rsun\rsr_license.lic`" args, and it will write its debuglog information to the file `c:\rlm\rsun\rsr_log.txt`

Installed RLM services are also deleted with the rlm.exe program. Services must be stopped via the service control panel before they can be deleted. Note that deleting a service deletes it from the Windows service database; it does not delete the rlm.exe or associated license file(s):

```
rlm.exe -delete_service [-service_name sname]
```

where:

- *sname* is an optional name for the installed service. If not specified, service_name defaults to "rlm". If service_name contains embedded whitespace, it must be enclosed in double quotes.

Notes:

- You should use the -c <license file> command line argument with RLM when installed as a service.
- Because the Service Controller on Windows invokes services under a special user account in a special default directory, it is necessary to use full paths:
  - for the -c <license file> argument on the rlm command line
  - for the -dlog debug_log argument on the command line

2.3.4 Installing cineSpace

Running the installer (.exe file) will install the cineSpace suite into a user specified directory and place shortcut icons in the appropriate places. The installer will also setup the required environment (registry) variables for you.

2.3.5 Setting Environment Variables

The cineSpace installation package for Windows will set your environment variables automatically. If you wish to manually perform this task, please follow these steps:

1. Open the *System* Control Panel in Windows. This can be done by selecting *Start* → *Control Panel* → *System*.
2. Select the *Advanced* tab.
3. Click on the *Environment Variables* button.
4. Inspect the *System Variables* list and see whether *RSR_APP_DIR* exists. If it does not, then:
   - Under *System Variables* click the *New* button
   - For the Variable Name, enter *RSR_APP_DIR*
   - For the Variable Value, enter the location of the cineSpace installation, e.g. `C:/Program Files/RisingSunResearch/cineSpace`
   - Click *OK*, and then *OK* again
5. Click *OK* to complete the process.

2.3.6 Copy license file

For node-locked licenses place the license file in the licenses directory within the cineSpace application directory. The cineSpace will look in this directory for node-locked licenses. For example:

```
C:\Program Files\RisingSunResearch\cineSpace\licenses\rsr_license.lic
```

For floating licenses placing a copy of the license file in the location above will tell cineSpace where to look for the license server.

2.3.7 The rsr.conf file

You can also specify the location of the license server in the rsr.conf. This is useful when administering large network based installations of cineSpace. You will find the rsr.conf file within the base directory of your cineSpace installation. You can also locate it via *Start* → *Program Files* → *cineSpace* → rsr.conf file. Open this file and scroll down to *Section 1: License Settings*. Un-comment the line (remove the preceding '`#`') and enter the port and path to your license server, e.g. `RSR_LICENSE = 2764@rlm_server.company.com`

When entering path names, an absolute path works best since relative paths are relative to the directory that the application was run from, not the directory where the application is located.

2.4 Mac OSX (Platform Notes)

2.4.1 Obtaining a license

To find your hostname and hostid, you will need to open a *Terminal* window and enter some commands that will return information about your system. To do this, open Finder and go to Applications → Utilities → Terminal.

1. To find the hostname of your computer, type the command:
   `hostname`

2. To find the hostid of your computer

   - Take the string to the right of the HWadd, and remove the colons from the output of the following command:
     `/sbin/ifconfig en0 | grep -i ether`

     or

   - Take the string under the Address, and remove the colons from the output of the following command:
     `netstat -I en0`

     or

   - Open the System Profiler application in `/Applications/Utilities`. Look in the Network overview of the System Profile, selecting *Built-in Ethernet* to find your system's MAC address.

Please send an email to cinespace-support@risingsunresearch.com with all of the information generated from these commands.

2.4.2 Installing the RLM license server

For node-locked license configurations there is no need to install the RLM server.

For floating license configurations, the RLM server needs to be installed and started on the computer that you have nominated as the license server for your network. You can follow these steps to install and run RLM:

1. Unpack the rsunServer archive for your platform and place the files in an appropriate location (e.g. `/usr/local/`). This creates the folders and files required for RLM to run.

2. Navigate to `/usr/local/rlm/rsun/` and copy your license file into this folder.

3. Open a Terminal window (`Applications` → `Utilities` → `Terminal`). From inside the Terminal navigate to `/usr/local/rlm/rsun/` and run RLM with the full path to the license file and log file. The log file will be created when rlm is run.

   ```
   rlm -c /usr/local/rlm/rsun/rsr_license.lic
       -dlog /usr/local/rlm/rsun/rsun_log.txt
   ```

   You should get a message indicating that the server has started.
   Also included in the message should be a line indicating that the RLM web service has started. For example:

   ```
   09/11 14:07 (rlm) Web server starting on port 9000
   ```

   To check on the server status open a web browser and enter the hostname and port number indicated. For example:

```
http://localhost:9000
```

This will open the Reprise License Server Administration web page.

You can then set the `RSR_LICENSE` variable as described below to complete the license configuration.

2.4.3 Auto-starting your RLM server

1. Open a Terminal Window, and become root
   `sudo su -`
2. Create a rlm folder in the StartupItems Directory
   `mkdir -p /Library/StartupItems/rlm`
3. In this folder, create a new script file called `rlm`. Copy the following into the script.

```
#!/bin/sh
. /etc/rc.common

RLM_PATH=/usr/local/rlm
LICENSEFILE=rsr_license.lic
LOGFILE=rsun_log.txt

run=(${RLM_PATH}/rsun/rlm -c ${RLM_PATH}/rsun/${LICENSEFILE} \
    -dlog ${RLM_PATH}/rsun/${LOGFILE})
stop=(${RLM_PATH}/rsun/rlmdown -c ${RLM_PATH}/rsun/licenses/${LICENSEFILE} -q)


StartService ()
{
  ConsoleMessage "Starting rlm Server"
  if ! ps axco command | grep -q "rlm"
  then
    ${run[@]} &
  fi
}

StopService()
{
  ConsoleMessage "Stopping rlm Server"
  ${stop[@]} > /dev/null &
}

RestartService ()
{
  ConsoleMessage "Restarting rlm Server"
  ${stop[@]} > /dev/null
  ${run[@]} &
}

RunService "$1"
```

4. Change the following variables in the script
   - `RLM_PATH` to be the location of your RLM base directory.
   - `LICENSEFILE` is the name of your license file
   - `LOGFILE` is the name of your log file
5. Make this script executable
   `chmod 755 /Library/StartupItems/rlm/rlm`
6. In this same folder, create a file called *StartupParameters.plist*. Copy the following in to this file.

```
{
  Description       = "cineSpace License Server";
  Provides          = ("rlm");
  Requires          = ("Network");
  Uses              = ("Network");
  OrderPreference   = "None";
}
```

The cineSpace RLM Server will start automatically next time you reboot. If you wish to test this setup, you can run the startup script with in the Terminal window:
`/Library/StartupItems/rlm/rlm start`

2.4.4 Installing cineSpace

The Mac OS X version of cineSpace comes as a disk image containing an installer. Open the disk image (.dmg file) and run the cineSpace installer (.pkg file) – it will be the only file in the disk image.

Running the installer and following the on-screen directions will install the cineSpace programs into the directory of your choice. The default directory is `/Applications/cineSpace`.

2.4.5 Setting Environment Variables

If you prefer to use a GUI (Graphical User Interface) to setup your environment variables, you may try using this program:
http://www.apple.com/downloads/macosx/development_tools/plisteditpro.html

To make environment variables available to Mac OS X GUI applications, these variables must be defined per user in their `~/.MacOSX/environment.plist`. Sometimes it is necessary to create the file named `~/.MacOSX/environment.plist` or, if the file already exists, you should just add the key/string lines to the 'dict' section.

The environment.plist is a hidden file that can only be seen from the command line in a "Terminal" window. To create/edit the environment.plist file please follow the following procedure:

1. Open a Terminal window (Applications → Utilities → Terminal)
2. Check to see if the directory .MacOSX exists. To do this copy and paste the following line to the Terminal window and press enter ...

   ls -la

   This will list all the folders contained in your home directory. If you can see a folder named .MacOSX then it already exists. If not then we need to create it. To do this copy

and paste the following line to the Terminal window and press enter ...

mkdir .MacOSX

3. Next we need to open / create the environment.plist using TextEdit. To do this copy and paste the following line to the Terminal window and press enter ...

   **/Applications/TextEdit.app/Contents/MacOS/TextEdit **
   ./.MacOSX/environment.plist

   This will either open the environment.plist file if it exists or start a new file if it doesn't exist.

4. Copy and paste the following into TextEdit ...

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE plist PUBLIC
"-//Apple Computer//DTD PLIST 1.0//EN"
"http://www.apple.com/DTDs/PropertyList-1.0.dtd">
<plist version="1.0">
<dict>
<key>RSR_APP_DIR</key>
<string>/Applications/cineSpace</string>
</dict>
</plist>
```

   If the file already exists just add the key/string lines to the 'dict' section.

5. Close TextEdit. TextEdit will ask whether you want to save the file. Choose 'Save'. TextEdit will then save the file as "environment.plist" in your .MacOSX directory and exit.

6. Close the Terminal window.

Now your environment.plist file should be set up correctly.

2.4.6 Copy license file

For node-locked licenses place the license file in the licenses directory within the cineSpace application directory. The cineSpace will look in this directory for node-locked licenses. For example:

```
/Applications/cineSpace/licenses/rsr_license.lic
```

For floating licenses placing a copy of the license file in the location above will tell cineSpace where to look for the license server.

2.4.7 The rsr.conf file

You can also specify the location of the license server in the rsr.conf file. This is useful when administering large network based installations of cineSpace. You will find the rsr.conf file within the base directory of your cineSpace installation. The default location for the file is `/Applications/cineSpace/rsr.conf`. Open this file and scroll down to *Section 1: License Settings*. Un-comment the line (remove the preceding '`#`') and enter the port and path to your license server, e.g. `RSR_LICENSE = 2764@rlm_server.company.com`

When entering path names, an absolute path works best since relative paths are relative to the directory that the application was run from, not the directory where the application is located.

2.5 Linux (Platform Notes)

2.5.1 Obtaining a license

To find your hostname and hostid, you will need to open a *Terminal* window and enter some commands that will return information about your system.

1. To find the hostname of your computer, type the command:
   `hostname`
2. To find the hostid of your computer
   - Take the string to the right of the HWadd, and remove the colons from the output of following command:
     `/sbin/ifconfig eth0 | grep -i hwadd`

Please send an email to cinespace-support@risingsunresearch.com with all of the information generated from these commands.

2.5.2 Installing the RLM license server

For node-locked license configurations there is no need to install the RLM server - please skip ahead to Section 2.5.4.

For floating license configurations, the RLM server needs to be installed and started on the computer that you have nominated as the license server for your network. You can follow these steps to install and run RLM:

1. Unpack the rsunServer archive for your platform and place the files in an appropriate location (e.g. `/usr/local/`).
2. Copy the license file into the `rlm/rsun/` directory.
3. The server program is called `rlm` and should be located in the `/usr/local/rlm/rsun/` directory. Run this program with the full path to the license file and the log file. The log file will be created when rlm is run.

   ```
   rlm -c /usr/local/rlm/rsun/rsr_license.lic
       -dlog /usr/local/rlm/rsun/rsun_log.txt
   ```

   You should get a message indicating that the server has started.
   Also included in the message should be a line indicating that the RLM web service has started. For example:

   `9/11 14:7` (rlm) Web server starting on port 9000

   To check on the server status open a web browser and enter the hostname and port number indicated. For example:

   `http://localhost:9000`

This will open the Reprise License Server Administration web page.

You can then set the `RSR_LICENSE` variable as described below to complete the license configuration.

2.5.3 Auto-starting your RLM server

There are some different ways to start the RLM automatically, depending on what flavour of Linux you are running. The main boot scripts to look at are:
`/etc/rc.boot, /etc/rc.local, /etc/rc2.d/Sxxx, /sbin/rc2.d/Sxxx, etc.`
For this example, we will edit the file `rc.local` - this can be found in `/etc` or `/etc/rc.d`

1. Add the following line to this file (Note: you will need to have root access to be able to do this):

```
    sudo -u <username> <full path & name to rlm server> \
         -c <full path & name to license file> \
         -dlog <full path & name to log file> &

e.g.\\
\begin{verbatim}
    sudo -u rlmuser /usr/local/rlm/rsun/rlm \
         -c /usr/local/rlm/rsun/rsr_license.lic \
         -dlog /usr/local/rlm/rsun/rsun_log.txt &
```

   - It is important to note that you run this command under a *sudo* user. This sudo user (rlmuser in this example) is set up to have limited access to the system. This is to keep your system secure, as it is a security hazard to run the RLM server with root user privileges.

2. Now restart your machine. When Linux boots up it will now automatically run the RLM server. To check to see whether RLM has started up correctly, run the command:

   `ps -eouser,fname | grep rlm`

   This should return the result:

   `rlmuser rlm`

   This means that the RLM server is running correctly with the permissions of an rlmuser.

3. To check on the server status open a web browser and enter the hostname and port number. The port number should be indicated in the rsun_log.txt. For example:

   `http://localhost:9000`

   This will open the Reprise License Server Administration web page.

2.5.4 Installing cineSpace

The Linux cineSpace suite is packaged as a tarball archive. When you have downloaded this archive, you will need to 'untar' this package:

i.e. `tar xzvf [file_name]`

e.g. `tar xzvf cineSpace_v2.6.tgz`

This will generate a new directory called 'cineSpaceInstaller'. Within this directory are the setup files for the cineSpace suite. Run the installer script (setup.sh file):

```
cd cineSpaceInstaller
./setup.sh
```

This will install the cineSpace suite into a user specified directory and place shortcut icons in the appropriate places.

2.5.5 Setting Environment Variables

The way to set your environment variables is dependent upon the underlying shell on which your Linux system is based. The find out your shell, type the command:

```
echo $SHELL
```

This will return either

```
/bin/tcsh
```
or
```
/bin/bash
```

Please consult the relevant section below.

tsch shell

You may either set the environment variable for all users or just a single user. The process is the same - the only difference is the file you need to edit.

Type	Files
Global	`/etc/csh.cshrc` or `/etc/csh.login`
Single User	`~/.tcshrc` or `~/.cshrc`

Add the following line to the file of your choice:
`setenv RSR_APP_DIR <cineSpace Location>`

where `<cineSpace Location>` is the base directory of your cineSpace installation, e.g.
`setenv RSR_APP_DIR /usr/local/cineSpace`

bash shell

You may either set the environment variable for all users or just a single user. The process is the same - the only difference is the file you need to edit.

Type	Files
Global	`/etc/bashrc`
Single User	`~/.bashrc`

Add the following line to the file of your choice:
`export RSR_APP_DIR=<cineSpace Location>`

where `<cineSpace Location>` is the base directory of your cineSpace installation, e.g.
`export RSR_APP_DIR=/usr/local/cineSpace`

2.5.6 Copy license file

For node-locked licenses place the license file in the licenses directory within the cineSpace application directory. The cineSpace will look in this directory for node-locked licenses. For example:

```
/usr/local/cineSpace/licenses/rsr_license.lic
```

For floating licenses placing a copy of the license file in the location above will tell cineSpace where to look for the license server.

2.5.7 The rsr.conf file

You can also specify the location of the license server in the rsr.conf file. This is useful when administering large network based installations of cineSpace. You will find the rsr.conf file within the base directory of your cineSpace installation. Open this file and scroll down to *Section 1: License Settings*. Un-comment the line (remove the preceding '`#`') and enter the port and full path to your license server, e.g. `RSR_LICENSE = 2764@rlm_server.company.com`

When entering path names, an absolute path works best since relative paths are relative to the directory that the application was run from, not the directory where the application is located.

2.5.8 Set permissions for `monitor-profiles` directory

By default, the permissions on the `monitor-profiles` directory are set so that only the root user can write to this directory. If you wish, you may need to change the permissions on this directory so that all users who run cineProfiler will have write access to this directory.

For example, if you wish all users to have access to this directory, and you have installed cineSpace into `/usr/local/cineSpace`, then you should run:

```
chmod a+w /usr/local/cineSpace/monitor-profiles
```

2.6 Irix (Platform Notes)

2.6.1 Obtaining a license

To find your hostname and hostid, you will need to open a *Terminal* window and enter some commands that will return information about your system.

1. To find the hostname of your computer, type the command:
   `hostname`

2. To find the hostid of your computer, type the command:
   `hostid`

Please send an email to cinespace-support@risingsunresearch.com with all of the information generated from these commands.

2.6.2 Installing cineSpace

Installation

The Irix cineSpace suite is packaged as a tarball archive. When you have downloaded this archive, you will need to 'untar' this package:

i.e. `tar xzvf [file_name]`
e.g. `tar xzvf cineSpace_v2_6.tgz`

Copy the RisingSunResearch directory to the desired location (e.g. `/usr/local` for a stand-alone machine). Inside the directory are the cineSpace applications, plug-ins, profiles and an rsr.conf file. All that remains to be done is to set the `$RSR_APP_DIR` environment variable to the installation directory and to ensure that the applications are accessible from your `PATH` [5].

2.6.3 Setting Environment Variables

You may either set the environment variable for all users or just a single user. The process is the same - the only difference is the file you need to edit.

Type	Files
Global	`/etc/bashrc`
Single User	`~/.bashrc`

Add the following line to the file of your choice:
`export RSR_APP_DIR=<cineSpace Location>`

where `<cineSpace Location>` is the base directory of your cineSpace Installation, e.g.
`export RSR_APP_DIR=/usr/local/cineSpace`

2.6.4 Copy license file

Place the license file in the licenses directory within the cineSpace application directory. cineSpace will look in this directory for licenses. For example:

```
/usr/local/cineSpace/licenses/rsr_license.lic
```

2.6.5 The rsr.conf file

You can also specify the location of the license file in the rsr.conf file. This is useful when administering large network based installations of cineSpace. You will find the rsr.conf file within the base directory of your cineSpace installation. Open this file and scroll down to *Section 1: License Settings*. Un-comment the line (remove the preceding '`#`') and enter the path to your license file, e.g. `RSR_LICENSE =/usr/local/cineSpace/rsr_license.lic`

When entering path names, an absolute path works best since relative paths are relative to the directory that the application was run from, not the directory where the application is located.

[5] This can be done either by copying or linking the executables to an existing executable directory, or appending the installation directory to your `PATH` variable.

2.7 Troubleshooting

The most common issues regarding licensing relate to the `RSR_LICENSE` setting in the rsr.conf file. If you are getting license errors then first check that you have the appropriate `RSR_LICENSE` setting for your configuration, i.e. the license server name is correct.

Depending on how your network is set up, you may need to specify the full machine path on the network (e.g. 'server.company.com') instead of just the computer name (e.g. 'server'). You may even need to specify an IP address if your network is having DNS resolution problems.

Check that the license server is running and that it is pointing to the correct license file. To check on the server status open a web browser and enter the hostname and port number. The port number can be found in the rlm server log. For example:

```
http://localhost:9000
```

This will open the Reprise License Server Administration web page.
For node-locked licenses running on stand-alone machines, check that you have typed the license file path correctly and that it is specified in absolute, rather than relative, terms. You can also check that you have the correct license type for your set-up by opening the license (`.lic` or `.dat`) file in a text editor. If the term `USE_SERVER` appears in the file then it must be used with a license server. In this case, either alter your set-up to use a server or request a different license for that particular computer.

A great site for learning about and troubleshooting your cineSpace suite is the cineSpace forum. We encourage all to sign up and participate on this online site, which can be found at:

http://cinespace.risingsunresearch.com/forum

If you are unable to find a solution in the forum, please contact the cineSpace support team at:

```
cineSpace-support@risingsunresearch.com
```

Chapter 3

Installing the cinePlugins

3.1 Preparing ahead

3.1.1 Obtaining the cinePlugins

You can obtain the cinePlugins for all platforms from the same RSR FTP server on which the main cineSpace software distributions are located:

ftp://ftp.risingsunresearch.com/

You will need login details (username and password) to access the FTP server. Please contact the RSR team if you do not already have the required login information.

3.1.2 Installing the cineSpace suite

Please ensure that you have installed the cineSpace suite prior to installing any of the cinePlugins (see Chapter 2 for more information). This will ensure that your system environment is correctly configured and licensed before you attempt to install the plug-in(s).

3.2 cineShake

cineShake is a plug-in to Shake that provides the functionality of both equalEyes and full 3D colour transforms as a node within Shake. cineShake will work under Mac OS X, and Linux Fedora Core (and presumably other glibc 2.3 based systems) with Shake 3.5, 4.0 and 4.1.

Please note that we do not currently support cineShake for the Intel Mac OS X architecture.

3.2.1 Linux

The Linux distribution of cineShake is provided in two formats:

1. A *GUI installer package* containing all versions of the plug-in; and
2. Individual *tarball distributions* for each version of Shake.

In most situations, the GUI installer package is the recommended method for installing cineShake. If problems occur using the GUI installer, you may need to manually install cineShake using the appropriate tarball distribution.

GUI installer package

The Linux cineShake plug-in GUI installer package is distributed within a tarball archive. When you have downloaded this archive, you will need to 'untar' this package using the following command:

```
tar xzvf cineShakeInstaller_v2_5rc_Linux.tgz
```

This will generate a new directory called 'cineShakeInstaller'. Within this directory are the setup files for the cineShake plug-in. Run the setup script (setup.sh file), which will install the cineShake plug-in:

```
cd cineShakeInstaller
./setup.sh
```

Tarball distribution

The Linux cineShake plug-in is packaged as a tarball archive. Select the correct archive from the FTP point, depending upon which installation of Shake you are running. When you have downloaded this archive, you will need to copy this to your `/nreal` directory and 'untar' it using the following command:

```
cp cineShake_v2_5_shake40_Linux.tgz ~/nreal/.
cd ~/nreal
tar xzvf cineShake_v2_5_shake40_Linux.tgz
```

The cineShake plug-in installation is then complete.

3.2.2 Mac OS X

The Mac OS X cineShake plug-in *GUI installer package* is distributed as a `.tgz` archive. When you have downloaded this archive, you will need to 'unzip' this package using Finder, and run the installer. To do this:

- In Finder, double-click on the downloaded archive. This will create a new application in the same directory called *CineShakeInstaller*.
- Double-click on the *CineShakeInstaller* application.

This will open the cineShake installer GUI, which will allow you to install cineShake for Shake v3.5, v4.0 or v4.1 [1]. The installer will prompt you to choose the version you wish to install, and next to each version will be a drop-down box with the following options:

Option	Explanation
Current User	Only the current user installing the plug-in can run cineShake
All Users	Anyone that uses this Shake application will be able to run cineShake
None	Will not install this version of cineShake

The cineShake installer will attempt to identify the correct install location for the cineShake plug-in. If you wish to override the default path, click the *Choose* button and select your desired location.

Press the *Install* button to install the cineShake plug-in. A window will pop up showing the progress of the installation. When the installation is complete, a green *OK* will be displayed

[1] Please note that you can only have one version installed at any one time

next to the installed cineShake plug-in name. Close this window and the original cineShake installer window to finish.

3.3 cineFusion

cineFusion is a plug-in to Digital Fusion that provides the functionality of both equalEyes and full 3D colour transforms as a node within Fusion.

cineFusion requires Digital Fusion version 4 or higher, and is only available on the Windows platform.

3.3.1 Windows

To install this plug-in, simply double-click on the cineFusion installer file – this will open a wizard that will guide you through the installation. It will prompt you to enter the path to the location of your Fusion installation and then complete the cineFusion installation set-up.

3.4 cineNuke

cineNuke is a plug-in to Nuke that provides the functionality of both equalEyes and full 3D colour transforms as a node within Nuke.

There are versions of cineNuke available to support Nuke v4.3 and higher, for both Linux and Windows.

3.4.1 Windows

To install this plug-in, first identify what version of Nuke you are currently using and then download the corresponding cineNuke installer package from the RSR FTP server. Double-click on the cineNuke installer file – this will open a wizard which will guide you through the installation process. It will prompt you to enter the path to the location of your Nuke installation and then complete the cineNuke installation set-up.

3.4.2 Linux

The Linux cineNuke plug-in is packaged as a tarball archive. When you have downloaded this archive, you will need to 'untar' this package:

i.e. `tar xzvf [file_name]`
e.g. `tar xzvf cineNuke_v2.6_Linux.tgz`

This will generate a new directory called 'cineNukeInstaller_VERSION_Linux_REVISION_DATE'. Within this directory are the setup files for the cineNuke plug-in. Run the installer script (setup.sh):

```
cd cineNukeInstaller
./setup.sh
```

Select the version of Nuke you are using. This will install the cineNuke plug-in into a user specified directory.

3.5 cineFilmMaster

cineFilmMaster is a plug-in to Digital Vision (Nucoda) Film Master that provides the functionality of both equalEyes and full 3D colour transforms as a CMS object within Film Master.

cineFilmMaster requires FilmMaster 3.02 or 3.5, and is only available on the Windows platform.

The cineFilmMaster plug-in uses the OpenFX (OFX) framework, with custom libraries provided by Digital Vision that extend the OpenFX API. This allows the interpolation of LUT data, which is rendered on the GPU in real time during playback.

3.5.1 Windows

To install this plug-in, simply double-click on the cineFilmMaster installer file – this will open a wizard that will guide you through the installation.