Nucoda

Phoenix

2014

Installation Manual

DigitalVision

IM-2014_1-1.0

Nucoda and Phoenix 2014 Install Manual

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Contents

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Support

You can contact our Support Department using the telephone numbers shown on the Contacts page. You can also email us :

`support@digitalvision.se`

Drivers, BIOS and system updates, technical notes and other support resources can be downloaded from our FTP site :

`ftp://dvsupport:5u660RTH@ftp.imagesystems.se/`

Licensing

For licensing requests or problems, please call us or email our License Department :

`licensing@digitalvision.se`

User Forum

The *Digital Vision* web forum is an important site for all users of our products and contains a wealth of information. Please join :

`http://forum.digitalvision.se`

Registration is quick and simple and allows full access to the forums. New released versions and important information will always be announced on the forum.

note You can also subscribe to the forums and receive email notifications on new forum posts. This is especially useful for the *announcements* forums.

On the Net

Please join us on the social networks :

Facebook

Nucoda :

`http://www.facebook.com/pages/Nucoda/262219073813219`

Phoenix :

http://www.facebook.com/pages/Phoenix/163127040447052

YouTube

Nucoda :

http://www.youtube.com/user/NucodaTV

Phoenix :

http://www.youtube.com/user/PhoenixRestoreTV

Twitter

http://twitter.com/_digitalvision_

Before You Begin

Upgrading

Backup

If you are upgrading your software from a previous major version, make a **backup** copy of important files and folders. This should include any *project* folders and *preference* files.

alert! Do not upgrade in the middle of a job unless you have a specific reason to do so or are instructed to do so by the Digital Vision Support Department.

Preference Files

Preference files are stored under the ROOT folder. See the ROOT Folder chapter.

Preference files are stored per user and for all users in the *Users* folder under ROOT. See the User Login and Preferences chapter.

Projects

Projects are stored in a location set in the *general.prefs* preference file by the parameter `projectRootDir`. See the section Software Preferences on page 37.

Compatibility

A best effort is made to preserve project and note compatibility between each consecutive *major* release (e.g. 2013.1 to 2013.2).

Parallel Installs

You can install a new major release in *parallel* with the previous without affecting your current installation.

System Requirements

Digital Vision 2014 applications are supported on the following workstations :

- Hewlett Packard **Z800 / Z820**
- Dell Precision **T3500 / T5500 / T7500 / T7600**

For a list of supported storage units, graphics cards, video cards and operating systems for this release, please see the application *Release Notes* and the *Support*[1] area of the Digital Vision web site.

1 http://www.digitalvision.tv/support/

Software Installation

To start the installation, double click an installer program :

install_nucoda-2014.1.nnn.exe

install_phoenix-2014.1.nnn.exe

note We will use the Nucoda platform as our referenced application throughout this guide. Installation and setup for the Phoenix platform is equivalent unless stated otherwise. In most cases, simply replace the name Nucoda with the name Phoenix.

Install Process

Complete each step, pressing the *Next* button to continue.

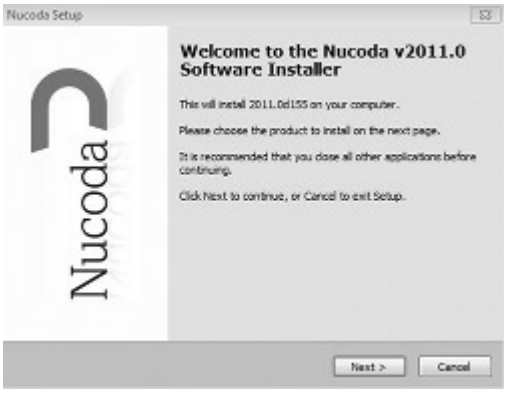


Figure 1 : Installer starts

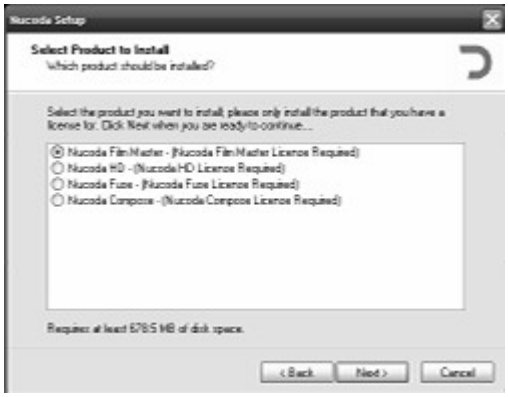


Figure 2 : Choose product

You can only choose to install a single product at a time.

note The available options depend on the selected product e.g. the *Valhall* panel install option will not be available for the *Nucoda Compose* product. See the Install Options section on page 12.

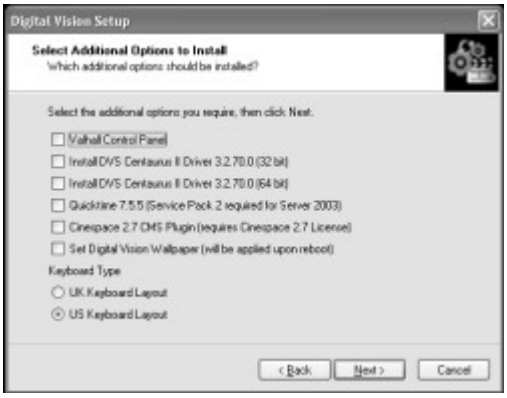


Figure 3 : Choose options

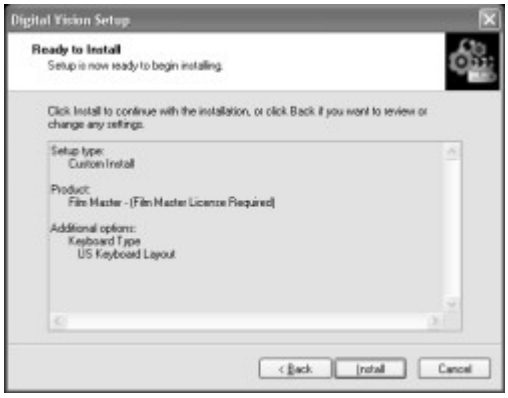


Figure 4 : Review choices

Tick the required options and then press the *Next* button to continue and review the choices made made.

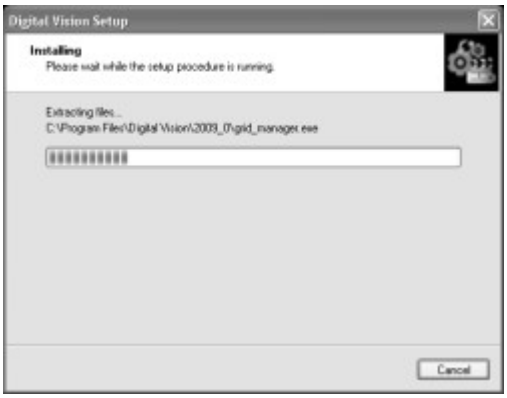


Figure 5 : Install proceeds

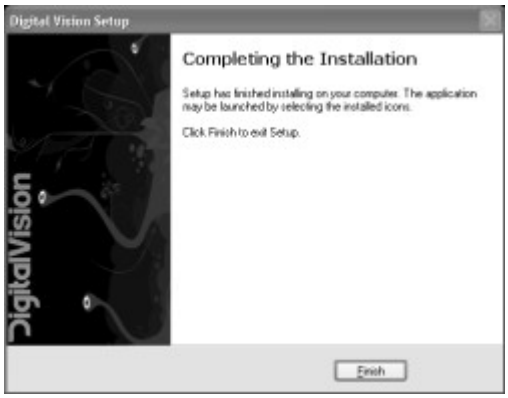


Figure 6 : Install completes

The install proceeds and completes.

If additional options are installed (e.g. *Quicktime*, *DVS drivers*), these are installed as part of the install process and may require user input.

note

Microsoft Visual C++ 2008

You may be prompted to *Repair* or *Uninstall* Microsoft Visual C++ 2008 Redistributable. **Select to *Repair*** :

note

Some options will require a system **reboot**.

Install Locations

Application **executables** and **libraries** are installed in folder :

```
C:\Program Files\Nucoda\2014_1\
```

and a (basic) application **configuration setup** is installed into folders :

```
C:\Nucoda\

C:\Nucoda\2014_1\

C:\Nucoda\2014_1\root\
```

Environment Variables

A number of environment variables are setup as part of the installation process. These configure the location of the preference file, panel IP addresses etc.

note For **Phoenix** installs, replace the string *Nucoda* with *Phoenix* (uppercase for the environment variables).

Environment Variable	Description
`NUCODA_LICENSE_DIR`	Set to the folder containing the product license file e.g. `C:\Nucoda\License`
`NUCODA_ROOT_V2014_1`	Set to the "root" folder i.e. the folder containing the main preference file general.prefs e.g. `C:\Nucoda\2014_1\root`
`NUCODA_VALHALLPANEL`	The IP address by the Valhall panel e.g. `192.168.64.2`
`NUCODA_PRECISIONPANEL`	The IP addresses used by the three Precision panels (comma separated) e.g. `192.168.21.1,2,3`
`NUCODA_PRECISIONCOLOUR`	The IP address used by the Precision Colour panel (for Nucoda Fuse use) e.g. `192.168.21.1`
`NUCODA_KEYBOARD`	Set to the selected keyboard type e.g. `US`

note The installation process will never touch your application configuration, projects or preferences. It will only install or update program executables and libraries. The installer can be safely re-run any time.

Install Options

The installation options are presented in a scrollable list.

Tick the checkbox to the left of the option name to schedule it for installation. Available options will vary across products (7 below shows every possible option and may differ to those you see).

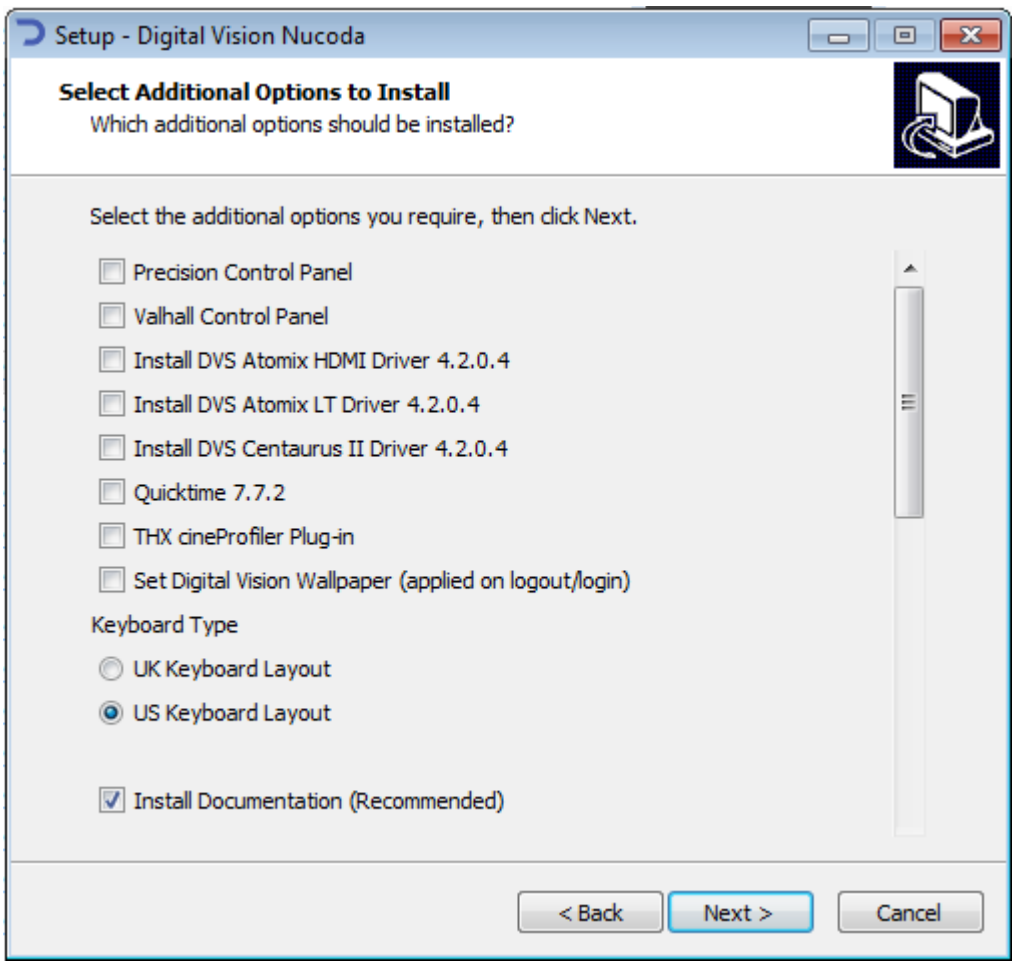


Figure 7 : All available install options

Precision Control Panel

see Control Panel section

This option is available for *Nucoda Film Master* and *Nucoda Fuse*[2]. Enabling this option will set up the correct environment for a *Precision Control Panel*.

Valhall Control Panel

see Control Panel section

This option is available for *Nucoda Film Master, Nucoda HD, Nucoda Fuse*[3] *and Phoenix Finish*[4]. Enabling this option will set up the correct environment for a *Valhall Control Panel*.

DVS Atomix HDMI Driver

Select this option if you are using a *DVS Atomix HDMI* video board.

2 *Nucoda Fuse* supports the *Precision Colour* Panel only.
3 *Nucoda Fuse* supports the *Valhall Colour* panel only for full scene master layer grading.
4 *Phoenix Finish* supports the *Valhall Colour* panel only.

DVS Atomix LT Driver

Select this option if you are using a *DVS Atomix LT* video board.

DVS Centaurus II Driver

see DVS Centaurus II Video section

Select this option if you are using a *DVS Centaurus2* video board.

note The 32 bit Windows version should be use on systems running *Windows Server 2003 32 bit*.

Quicktime

Select this to install a version of *Quicktime* tested by Digital Vision.

note Do **not** install the packaged version of *Quicktime* if you are using *Windows Server 2003*. Also note that Windows Server 2003 should be on service pack 2 or later.

THX CineProfiler Plug-in

Select this to install the THX CineProfiler integration support.

see THX Cinespace section

Digital Vision Wallpaper

This sets the desktop wall-paper for the current user to a Digital Vision design.

Keyboard Type

This sets the keyboard layout for the application. You can choose a UK or US layout.

Install Documentation

Documentation is included in the installer. De-selecting this option will *skip* installing it.

Completion

Once complete, you will have a new set of icons on your desktop :

note The installer itself is copied to the folder :
`C:\Nucoda\Releases\`

Please take time to read the application release notes and any important information provided with the install.

A web browser will open at the end of installation process and display the documentation index page. Double-click the desktop *Nucoda 2014* short-cut at any time to access the documentation.

Run Application

To run the application, double-click its desktop short-cut icon e.g. *Nucoda Film Master 2014.1.*

You will be prompted to accept a license agreement on first run.

note If you get a *License Failure* error, you need to request or install a Digital Vision license. See Licensing on page 27.

System Configuration

By default, the application uses certain drives and folders (e.g. C:, D: and S:) for configuration and preference information. If these are not present, you will get a warning and you will not be able to proceed until your preferences have been configured for your system.

See the Software Preferences section on page 37.

Control Panels

Precision

Precision is composed of three panels and is supported by Nucoda Film Master, Nucoda HD and Nucoda Fuse[5] *:*

- *Precision Colour*
- *Precision Transport*
- *Precision Touch*

Cabling

Each panel has :

- A separate power supply (12V, 4 pin DIN style connector)
- An ethernet network port

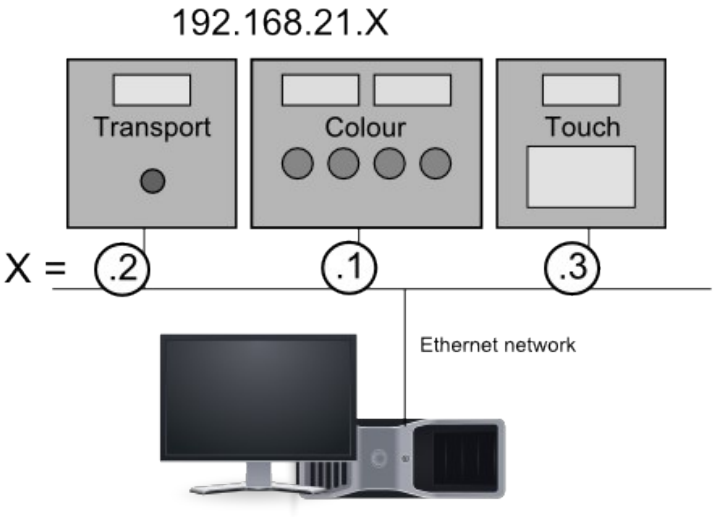


Figure 8 : Precision Control Panel connections and IP addresses

Power

Connect each panel to a power source using the supplied power cables. See 9 below.

5 Nucoda Fuse supports the *Precision Colour* panel only.

Network

Ethernet Port

Each panel has *two* ethernet ports. **Use the top one** :

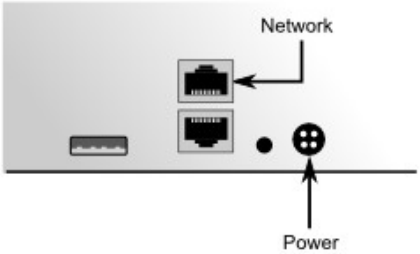


Figure 9 : Precision Control Panel ethernet and power connections

Panel IP Addresses

The Precision panels have the following TCP/IP network addresses y default :

Precision Panel	IP Address
Colour	192.168.21.1
Transport	192.168.21.2
Touch	192.168.21.3

note If you need to change the *Precision* panel default IP address, see page 18 below.

Environment

If you tick the *Precision Control Panel* option during software installation, an *environment* variable is created and lists the default IP addresses of all Precision panels, comma separated.

Variable	Value
`NUCODA_PRECISIONPANEL`	192.168.21.1,2,3

note For ***Nucoda Fuse***, this environment variable will be : `NUCODA_PRECISIONCOLOUR`

Host IP Address and Settings

By default, the **host** computer network port connected to the panels is set to :

IP address :	192.168.21.4
Subnet mask :	255.255.255.0

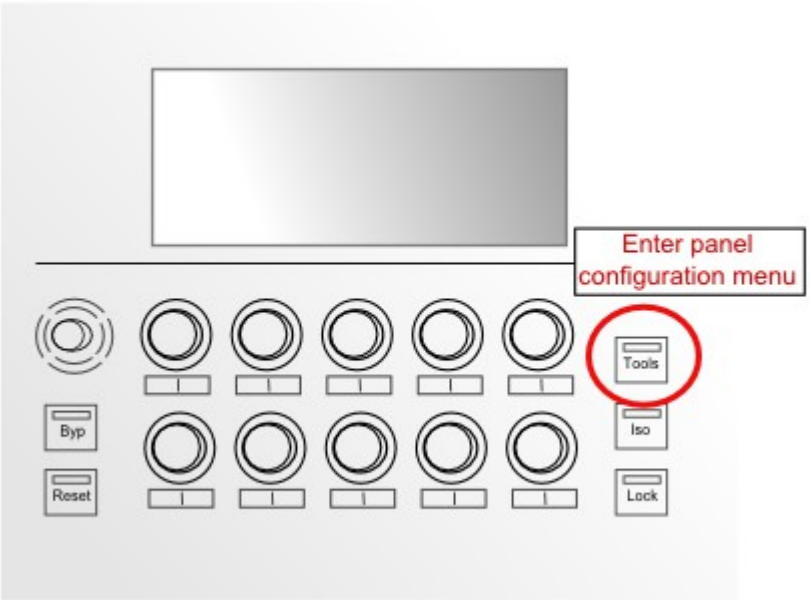
No other settings are required (*gateway*, DNS etc.).

note If you need to *change* the **host** computer IP address, see the *appendix* Setting Host IP Address on page 74. If you change this, you will also need to set the appropriate panel IP addresses as well (see below).

Setting the Precision IP Addresses

To change the Precision panel IP addresses, enter the panel **configuration menu**.

1. Enter the *configuration* menu by holding the *Tools* button on the panel when powering it up (the **left** *Tools* button on the *Precision Colour* panel) :



2. Once powered up, the panel configuration screen will be shown.
3. Use the left *joystick* to navigate the menus :
   - up /down options
   - press to select
4. Select :

   IP Configuration>

   The IP Configuration screen will display the current IP address settings and let you change them.

note The currently selected option will be highlighted in red.

5. **Press** the joystick button to select and enter the *IP Configuration* menu.

   The *IP Configuration* menu will look similar to the following (example only) :

Current Address eth0:	192.168.21.1 (00:50:c2:xx:xx:xx)
Current Address eth1:	(00:50:c2:xx:xx:xx)
Mask:	255.255.255.0
Server Address:	192.168.21.100
Use DHCP:	NO
< Exit	

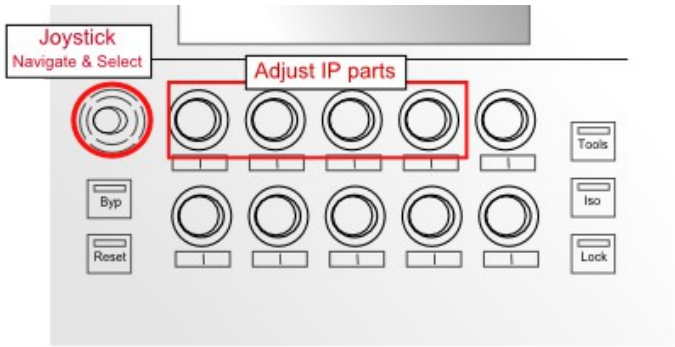


Figure 10 : Joystick navigation and adjustment knobs.

6. The ethernet port used is listed at the top :

   Current Address eth0 :

7. **Set the eth0 address**

   With *Current Address eth0:* selected (and highlighted in red), use the **four knobs** below the display (as shown in 10 above) to adjust the IP address components.

8. **Set the Server Address**

   Now use the joystick to select the *Server Address* option. Then use the **four knobs** below the display to set this to the IP address of the *host* computer system.

note The *host computer* is a system on your local network, probably one running the Digital Vision application. You only need to configure the *Server Address* to enable a firmware update from the host computer with the specified IP address.

9. Once done, use the joystick to select :

   Reboot

note Remember that each panel has a *separate* ethernet port and TCP/IP address. Each is configured using the same process as described above.

alert! If you change the IP address of any of the Precision panels, you will also need to update the environment variable e.g. `NUCODA_PRECISIONPANEL` or `NUCODA_PRECISIONCOLOUR` (for Nucoda Fuse).

Precision Firmware Update

This section describes how to update the Precision panel *firmware*.

note Firmware can add new functionality, or modify existing functionality and may be required occasionally. Digital Vision will communicate this requirement to you.

To update the Precision firmware, you will need :

- The new firmware files.

  There may be up to 8 files called (e.g. fw1.pkg,..,fw8.pkg). Some might be 0 (zero) bytes in size and wll be skipped automatically.
- A TFTP (*Trivial FTP*) server program.

The TFTP program is used to transfer (push) the firmware files to each panel.

Firmware Files

Firmware files are included in the installer and placed in folder :

`C:\Nucoda\2014_1\root\Panel\Precision\Firmware`

Firmware Version

Before doing the firmware update, you should note the **current firmware version** installed. This will be a **date and time**, displayed via the *configuration menu* on panel boot. **Do this for each panel**.

As described above, to enter the *configuration menu*, hold down the *Tools* button on panel boot and select :

Show version >

The firmware version is displayed as the ***Panelapp*** date and time :

```
....
....
Panelapp: panelapp 05/10/2011 10:25:18 AM
....
```

Downloading TFTPD32

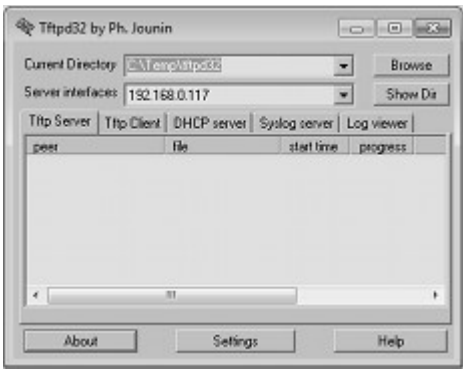
We will use a TFTP program tftpd32.

note This is included in the installer and placed in folder :

`C:\Nucoda\utilities\tftpd`

Installing the Firmware

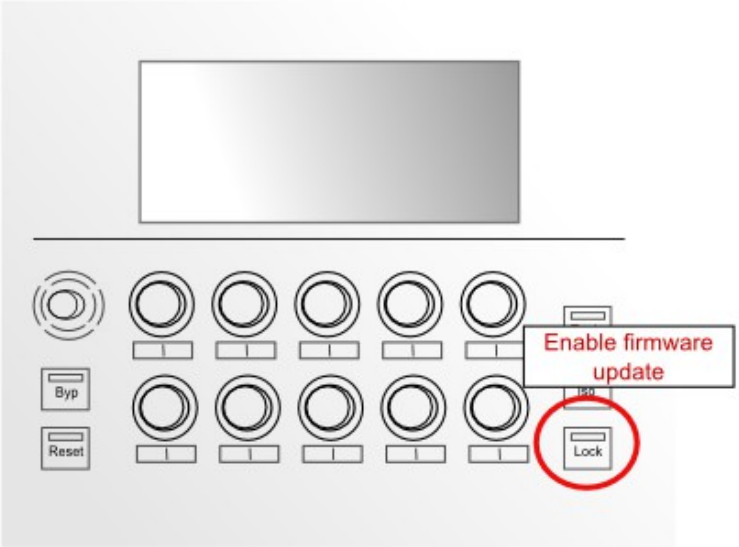
1. Double click *tftpd32.exe* to start it.



2. Set the *Current Directory* to the folder containing the firmware files (use the *Browse* button to set this)
3. The *Server Interface* shown should be the IP address of the host computer network port which is connected to the *Precision* panel.

note The Server Interface address shown should **match** the IP address used to set the *Server Address* in the Precision panel *IP Configuration* steps as described above.

4. **Power cycle** each panel in turn, while holding down the *Lock* button on each (the left *Lock* button on *Precision Colour*) (see below)



The *firmware* files will be sent from the host computer to each panel by *tftpd32*.

On completion, each panel will **reboot automatically**.

5. On restart, **check the firmware version** and make sure the update was successful.
6. Repeat this procedure for each panel in turn.

Troubleshooting the Firmware Update Process

If you have problems with the firmware update, check the following points :

1. Check that each panel has the expected IP address configuration.
2. Make sure that the host computer network port connected to the panels is

configured to be on the same TCP/IP subnet as the panel network.

3. Make sure you can *ping* each panel from the host computer.
4. Disable any Windows *firewall* on the host computer network port connected to the panels.

Precision Emulator

A *Precision Panel* software emulator program is included with the application. This is a fully emulated version of the *Precision Panel* and behaves in the same way as the actual hardware. You can use the emulated panel controls and interact with a running Nucoda application as if you had a real panel.

note The *Precision Emulator* works with *Nucoda Film Master* and *Nucoda Fuse*. The *Nucoda Fuse* version emulates the *Precision Colour* panel only.

Starting the Emulator

The emulator is started via a BATCH file. This is linked on your desktop after install and also located under the application folder :

- `Desktop\Precision Emulator 2014.1`
- `C:\Nucoda\Precision - Emulator\Precision Emulator 2014.1.bat`

To start the emulator :

- Double-click a batch (.bat) file e.g.

  `Desktop\Precision Emulator 2014.1`

The batch file :

- Sets up the *Precision Panel* environment
- Starts the emulator (*Precision.exe)*
- Starts the Nucoda application

Once the Nucoda application initialises the emulated panel, the panel displays its welcome screens as usual :

Valhall

Valhall Control Panels consist of four user panels and a *Power and Communications Unit* (PCU)[6] :

- *Media, Image, Colour* and *Scribe* (tablet) panels
- *PCU* power/communications

Cabling

The panels connect to the PCU using special cables and the PCU connects to the host computer via a *cross-over* ethernet cable. This is shown in 11 below.

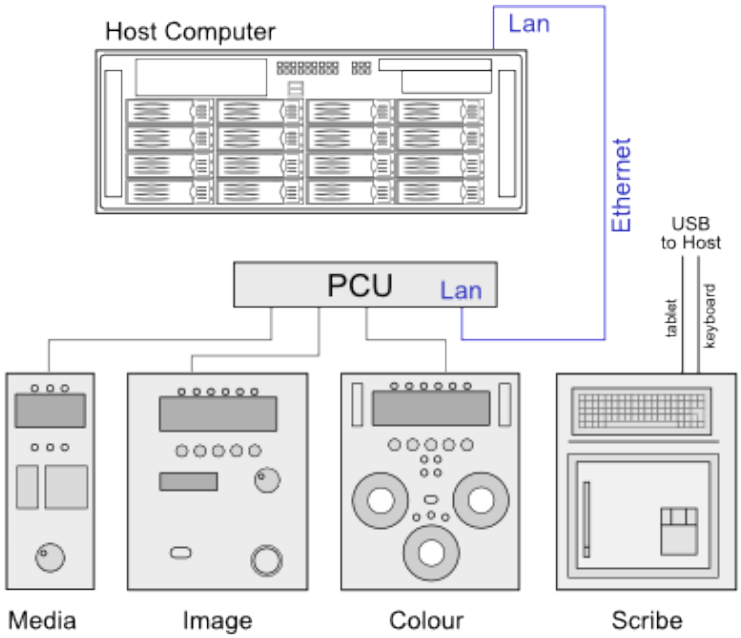


Figure 11 : Valhall Control Panel connections

Ethernet Setup

Host IP Address

By default, the host computer network port is set to :

IP address :	192.168.64.1
Subnet mask :	255.255.255.0

No other settings are required (*gateway*, DNS etc.).

note If you need to *change* the *host* computer IP address, see the appendix Setting Host IP Address on page 74. If you change this, you will also need to set the appropriate panel IP addresses as well (see below).

6 Newer *Mark 2* Valhall panels use a PCU. Older *Mark 1* Valhall panels have the PCU integrated inside the *Image* panel.

Valhall Panel IP Addresses

By default, the Valhall panel network port is set to :

IP address :	192.168.64.2
Subnet mask :	255.255.255.0

note If you need to change the Valhall panel default IP address, see Changing Valhall IP Address below.

Environment

An *environment* variable is created during application installation (if Valhall checkbox is ticked) and set to the default IP address of the panel.

Variable	Value
`DV_VALHALL_PANEL`	192.168.64.2

Changing Valhall IP Address

By default, the Valhall panel has an IP address of **192.168.64.2**.

To change this press and hold the *Event* and *Enter* keys on the *Image Panel* when powering it up. After the panel initialisation, instructions for changing the panel IP address will appear in the LED display as shown in 12 below.

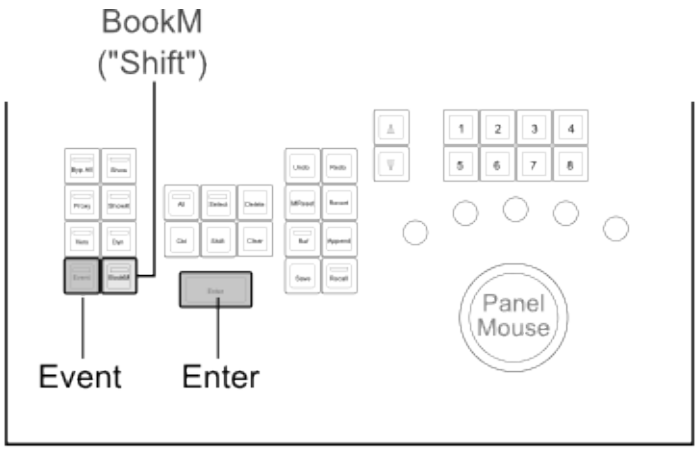


*Figure 12 : Image Panel - Press **Event + Enter** keys on power-up.*

Instructions will appear in the large LED panel at the top of the Image panel.

Use the four knobs below the LED display to change the IP address. Once complete, **save** the new address by pressing the *BookM* and *Enter* keys.

note The LED instructions tell you to use the *Shift* key. However, keys have been moved and for the *Nucoda* products, the *Shift* key referred to is now *BookM*.

For 2014 application use, you will also need to :

- Edit the **`DV_VALHALL_PANEL`** environment variable via *My Computer / Properties / Advanced* tab
- Modify the IP address for the host **LAN port** connected to the Valhall.

alert! The panel mouse driver uses the *Windows Registry* to determine the panel IP address. If you change the panel IP address from the default, you need to modify the registry. See the section Valhall Mouse Driver below.

Valhall Mouse Driver

The *Image Panel* includes a trackball and buttons. This works as a mouse with the Digital Vision *Mouse Driver* installed. The driver is installed automatically if you select to install the *Valhall Panel* when installing the main software application.

note The mouse driver is installed as a Windows *service* and can be managed in the normal way via *Control Panel / Administrative Tools / Services*. The service is called *DvMouseDriver*.

When running, an icon will be present in your Windows *system tray* :

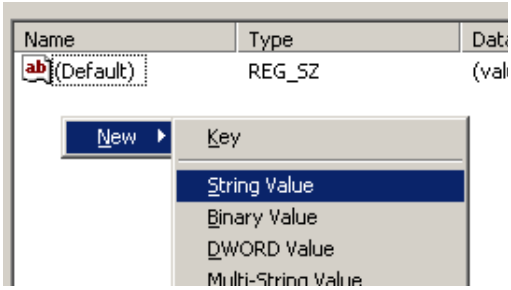
Figure 13 : Valhall connected (top) and disconnected (bottom) system tray icons

Valhall Panel IP Change

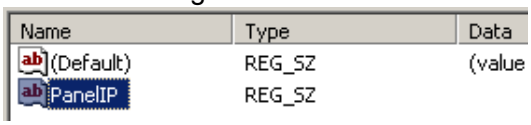
If you change the Valhall panel IP address (see page 24), you will need to modify the Windows *Registry* to ensure the panel mouse continues working :

- Start / Run : *regedit*
- Navigate to :
  `HKEY_LOCAL_MACHINE /`
  `Software /` **`Digital Vision / Valhall / RTC`**

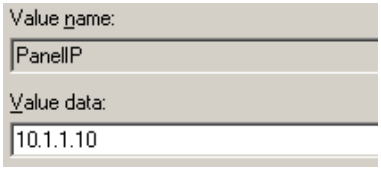
- Right-click in the right-hand pane and select *New / String Value* :



- Name this string value : `PanelIP`



- Then double-click it and enter the **new** panel IP address as its value :



- **Reboot the system** to ensure the *DvMouseDriver* service picks up the registry value for the new IP address.

Licensing

A license is required to run the application. You can request this by sending an email to the Digital Vision licensing department :

`licensing@digitalvision.se`

Include the following information :

- System MAC address (see below)
- Company name
- Application to license

When received, the license string should be placed in the following file :

Product	License File
Nucoda :	`C:\Nucoda\license\license.flic`
Phoenix :	`C:\Phoenix\license\license.flic`

Each license string should be placed on a *single* line in the license file and you should only have a *single* active license file with a .flic extension in this folder.

Environment

An environment variable is set to refer to the folder containing the license file *license.flic.* By default this is set to as shown below (for each application installed) :

Variable	Value
`NUCODA_LICENSE_DIR`	`C:\Nucoda\license\`
`PHOENIX_LICENSE_DIR`	`C:\Phoenix\license\`

System MAC Address

To find your system MAC address :

- Install the software
- Open a *CMD* window :

  Start/Run - cmd
- Change to the folder (depending on installed product) :

  `cd C:\Nucoda\utilities\machine_id\` or

  `cd C:\Phoenix\utilities\machine_id\`
- Run the *machine_id* program by typing :

  `machine_id`

Your system identification will be printed to the *CMD* window e.g.

```
System ID: 00-1e-c9-81-cf-0b
```

note

The `machine_id` program has the following options :

`--verbose`	Display all known system MAC information
`--list`	Display a list of possible (and *acceptable*) MAC addresses
`--help / -h`	Display help

Troubleshooting License Problems

If you encounter a licensing error, follow the steps below to troubleshoot.

1. The license file is located in the directory given by the environment variable :

   `NUCODA_LICENSE_DIR` (Nucoda) or

   `PHOENIX_LICENSE_DIR` (Phoenix)

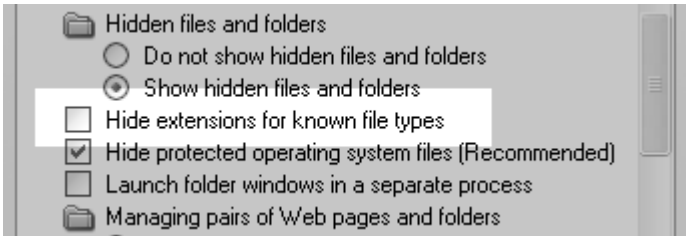
2. Make sure that the environment variable value has no extra *spaces* (at the start or end). Inserting quotes to show the extra spurious end space e.g.

`NUCODA_LICENSE_FILE`	"C:\Nucoda`\License\license.flic` "

3. The license file is called `license.flic`.

   If you are using Windows, make sure that the file has **no hidden extension** (e.g. .txt). Check via the Windows file browser menu :

   Tools / Folder Options/ View tab



   Disable *Hide extensions for known file types*

4. Make the `license.flic` file is the **only** file with a .flic extension in the folder. We will load the first .flic file we find.
5. Make sure the date and time is **correct** on your computer.

alert!

It is very important that the computer clock is not *reset backwards* in time (changing *timezone* should be safe however). Clock adjustment may cause license failures and so prevent the application running.

6. Make sure that the **MAC** address in the license string (third field e.g. `003048671219`) is correct for your system.

See page 27 for locating your system MAC address.

7. The LAN MAC used must be on an **active** network interface. It must not be *disabled*.
8. Make sure that the license string in the `license.flic` file is on **one** line only Do not split license strings over more than one line.
9. Make sure that the version of software you are running matches the version in the license (second field e.g. 2014.1)
10. Make sure you are running the correct application as per the license file.
11. The license is read from top to bottom. Make sure new and current licenses are first in the file.
12. The *date* in the license string is the date the license was **created**. This is followed by a *duration* number (in **days**). Make sure that the DATE and DURATION is within the active license period.
13. Some virtualisation products (e.g VMWare) interfere with the network devices we try and attach to. If you have such software installed, try disabling or uninstalling it.

ROOT Folder

Documentation and configuration files for the 2014.1 release are installed in the **base** folder :

Product	Base Folder
Nucoda :	`C:\Nucoda`
Phoenix :	`C:\Phoenix`

The **ROOT** folder is exists inside this base folder within a version specific folder.

Product	Root Folder
Nucoda :	`C:\Nucoda\2014_1\root`
Phoenix :	`C:\Phoenix\2014_1\root`

note This means multiple versions can co-exist side by side.

ROOT Environment

The **ROOT folder** location is specified by the *environment* variable :

Variable	Product	Value
`NUCODA_ROOT_V2014_1`	Nucoda	`C:\Nucoda\2014_1\root\`
`PHOENIX_ROOT_V2014_1`	Phoenix	`C:\Phoenix\2014_1\root\`

The ROOT folder specified as above is the primary folder location for application configuration settings and preferences[7].

note The ROOT environment is used as the base location for locating preference files. See the User Login and Preferences chapter.

7 Although a preference file may define folder locations on any drive or filesystem.

User Login and Preferences

You can create one or more *users* to run the application. A user named *Default* is used if no specific user is created. User accounts have the following benefits :

- Each user can have separate configuration settings specific to themselves
- Configuration settings can configured to be shared between all users
- User settings can be more easily persisted when the application is upgraded

note The *User Login* function will not isolate all application settings and preferences. **Projects remain *global* and shared by all users.**

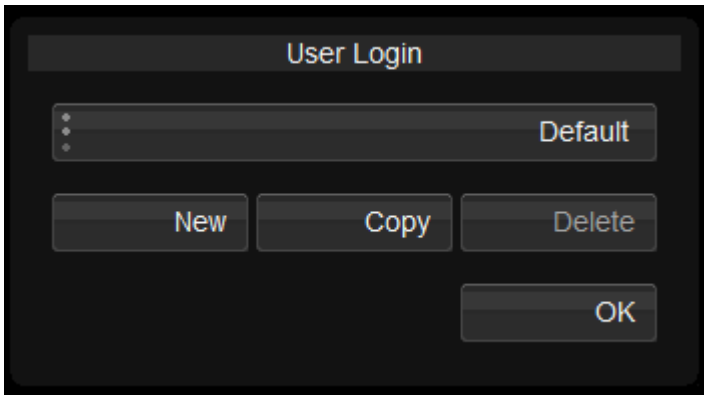
alert! It is always a good idea to take regular **backups** of any preference files you create or modify.

First Run

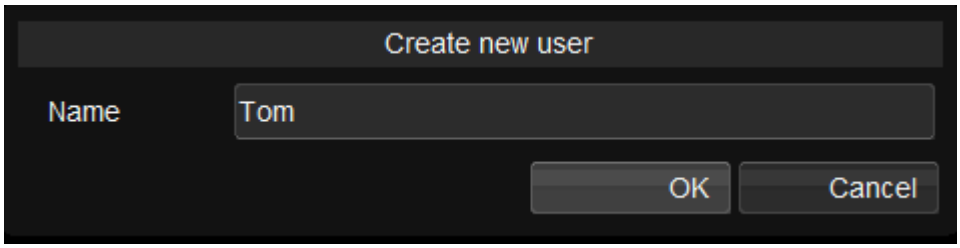
When the application is run for the first time, you are prompted to choose or create a user.

On first run, a single user *Default* will be visible.

To use the *Default* user, press the OK button (or hit the ENTER key) :



To create a new user, press the *New* button. A dialog will open prompting for a user name. Type in a user name and press the OK button.



The new user added is selected in the drop-down list. Press OK to login using this user.

User Management

The *User Login* dialog has the following functionality.

New

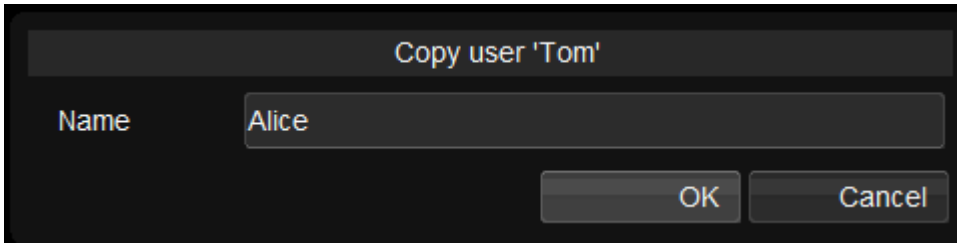
This creates a new user.

The new user will start fresh with some basic minimal settings defined.

alert! User names must be **unique**.

Copy

This operation will copy the selected user (e.g. our user *Tom*) to a new user we name (e.g. *Alice*).



All the preference files for the selected user will be copied to the new user.

Delete

This deletes the selected user and clears their preference files.

note You cannot delete user *Default*.

alert! Deleting a user cannot be undone. If you think this might happen accidently (or if it does), make sure you have backups.

Preference Basics

note Unless you need to specify preferences that have no GUI equivalent, or need finer control over them, you will not need to view or edit the preference files themselves.

Preferences are stored within *sub-folders* inside the ROOT folder.

There are preference files shared between all users and separate individual preference files per user.

All modifications made to the preferences in the application GUI will be saved to preference files stored inside the preference folder for the logged in user.

The folders created are shown below.

On a fresh install, only the *Presets* folder exists :

Folders Used :

```
ROOT/
 |-- Presets
 |      |
 |      |-- System/
 |      |-- Users/
```

After user "Tom" is created and we run the application :

```
ROOT/
 |
 |-- System/
 |-- Users/
        |
        |-- AllUsers/
        |-- Default/
        |-- Tom/
```

note For more detail of folders and preference files created, see the appendix Preference Files.

These folders are described below.

Presets/

```
ROOT/
 |-- Presets
 |      |
 |      |-- System/
 |      |-- Users/
```

The *Presets* folder contains preference files **shipped** with the product. These files are used as a base level configuration.

alert! *Presets* settings should **never be modified** and are over-written as part of the application upgrade process.

Only preferences inside the *Presets* folder get replaced when the application is upgraded.

Users/

Preferences for users are stored in the *Users* folder :

```
ROOT/
 |
 |-- System/
 |-- Users/
       |
       |-- AllUsers/       -  settings inherited by all users
       |-- Default/        -  settings for user Default
       |-- Tom/            -  settings for user Tom
```

- Each user created has a <*User*> folder created here to store their individual preference settings (e.g. user *Tom* above)
- The *Default* user folder always exists but may be empty if this user is not used.
- The *AllUsers* folder contains preferences **shared** by all users.

A user (or their administrator) can edit (or copy) files in their own folder to affect a **single** user, or edit (or copy) files in the *AllUsers* folder to affect **all** users.

note Preference files inside the *Users* folder are **not touched** by an upgrade or install.

On first run of the application, some default preference files are copied from the *Presets\Users* folder to the *AllUsers* and any <*User*> folder created (or *Default* if used).

Note that some preference files are created by the application on first run.

note Any changes made by a user in the application preference GUI are saved in the Users \ <User> preference folder.

note A **complete** *general.prefs* file is created in the *AllUsers* folder. Preference files created in the <User> folder might be empty or minimal, ready for customisation.

System

The System folder contains preferences that are not user specific.

```
ROOT/
 |
 |-- System/
 |-- Users/
```

Files in this folder include project properties, keycode map file and various administrative files.

A user or administrator can edit these files to configure system level settings for all users on the system.

A set of default system preference files are copied here from the *Presets* \ *System* folder on first run.

note Preference files inside the *System* folder are **not touched** by an upgrade or install.

note For more detail of folders and preference files created, see the appendix Preference Files.

Preference Load Order

Preference files are loaded in an order such that later ones (if they exist) will **override** earlier ones. The load order is as follows :

For *System* settings :

1. Presets \ System \
2. System \

For *Users* settings :

1. Presets \ Users \
2. Users \ AllUsers \
3. Users \ <username> \

Presets are always loaded first, followed by any global or shared settings (e.g. AllUsers) and then the specific preferences set, if they exist (e.g. for user "Tom"). The specific overrides the global or shared.

This mechanism allows easier customisation while using a known *base* configuration.

Customisation

A user or administrator can customise application preferences in various ways.

alert! Never modify *Presets* preference settings. These are installed and overwritten on a software update.

Global System Level

To modify system (machine) level preferences, modify files in the *ROOT* \ *System* folder.

Users

To change the settings shared by **all users**, modify the preference files in the *ROOT* \ *AllUsers* folder.

To change the settings for a specific user, modify the preference files in their specific user folder *ROOT* \ *<User>*.

On first run, an initial set of user preference files is placed in the *<User>* folder. These are not complete preference files but *fragments* : a few basic minimal settings only.

Using Preference Files

As stated above, on first run, an initial set of user preference files is placed in the *<User>* folder but these start as *fragment* preference files i.e. a basic minimal set of preferences only.

As an example, the *AllUsers general.prefs* file (read before a <User> *general.prefs* file) is complete but the <User> *general.prefs* file may contain only 6 or 7 settings that override the *AllUsers* settings loaded.

note If desired, you can replace the initial <User> "*fragment" general.prefs* file with the full version from *AllUsers* and adjust it as required.

Any preference changes made by a user in the application GUI will be saved to files in their logged in user <User> folder.

Manual Editing

You can manually edit the <User> preference files and copy any desired preference settings, adjusting as desired.

The *general.prefs* file is **hierarchical** and has various sections inside other sections. This format is also shared by some other preference files.

In the *general.prefs*, the top-level is called *general*, a sub-level is *panel*, a sub-sub-level *brightness* (within sub-level *precision*) containing a setting *touch* etc. Each level is delimited by curly-braces "{" and "}" e.g.

```
general
{
    ..
    trackballStyle "Vector"
    ..
    precision
    {
        brightness
        {
            touch 0.780000
            ..
        }
        ..
    }
    ..
}
```

You should keep this hierarchy in your <User> general.prefs.

note You can use the *AllUsers \ general.prefs* as a guide.

alert! If you manually edit a <User> *general.prefs* file and place a setting at the **wrong level** (e.g. putting "touch" inside the *general* section), it will be silently *discarded*.

Software Preferences

The layout and organisation of the application preferences are discussed in the User Login and Preferences chapter.

The main application preference file is called *general.prefs* and it is located inside the ROOT \ Users folder as :

- AllUsers \ *general.prefs*
- *<User>* \ *general.prefs*

The *<User>* version may be a minimal number of settings while the *AllUsers* version might be complete. See the User Login and Preferences chapter for a discussion.

In addition to the *general.prefs* preference file, there are some others that are also used to store application settings.

note Understand that references to the preference file *general.prefs* below might be to the *<User>* folder specific version or that stored in the *AllUsers* folder.

Overview

The main areas requiring configuration are :

- Default folder for projects
- Various media folders (e.g. caches, proxies etc.)
- Rendering threads to use
- MXF media search paths

note Any folder paths you specify in the *general.prefs* file can be *relative* or *absolute* (full path). A *relative* path in this file will be relative to the folder containing the *general.prefs* file itself (i.e. the root folder).

alert! Any folder paths you specify in the *general.prefs* file *must* include a ***trailing slash*** character. Use S:`\CacheFolder\` and **not** S:`\CacheFolder`.

Folder Locations

Paths for important folders are set in the *general.prefs* file.

The following sections include some default and recommended folders to use for application metadata (e.g. projects) and generated media (e.g. renders, captures).

Default Volumes

Drive	Description
C:\	Operating system. RAID 1 (mirror). Application install but no application metadata or media.
D:\	**Digital Vision data** RAID 1 (mirror, usually internal disks) Application *metadata* (e.g. projects) and some media (e.g. thumbnails, audio captures etc.). Not main renders/caches. **Example :** `D:\Nucoda\2014_1\projects\` **Example :** `D:\Nucoda\media\2014_1\thumb\`
S:\	**Digital Vision media** RAID 5 (real-time volume, usually external RAID storage). Renders/caches and video captures. **Example :** `S:\Nucoda\media\2014_1\cache\`

Options

Option	Description	Location
`projectRootDir`	This setting specifies the default folder for new projects.	D:\
	`D:\Nucoda\2014_1\projects\`	
`notesRootDir`	This setting specifies the default folder for saving application notes.	D:\
	`D:\Nucoda\2009_0\notes\`	
`CompositionNotesRootDir`	This setting specifies the default folder for saving application composition notes.	D:\
	`D:\Nucoda\2009_0\compositionNotes\`	
`cacheRootDir`	This specifies the folder under which we write cache renders. The caches are separated automatically into folders on a project basis.	S:\
	`S:\Nucoda\media\2009_0\cache\`	
`proxyRootDir`	This specifies the folder to save generated proxy files (if defined for the project). The proxies are separated automatically into folders on a project basis.	S:\
	`S:\Nucoda\media\2009_0\proxy\`	

`thumbRootDir`	This specifies the folder to save thumbnail files. The thumbnails are separated automatically into folders on a project basis.	D:\
	`D:\Nucoda\media\2009_0\thumb\`	
`captureRootDir`	This specifies the folder to save VTR video capture sequences. The captured sequences are separated automatically into folders on a project basis.	S:\
	`S:\Nucoda\media\2009_0\capture\`	
`audioRootDir`	This specifies the folder to save VTR audio capture sequences. The captured audio sequences are separated automatically into folders on a project basis.	D:\
	`D:\Nucoda\media\2009_0\audio\`	

alert!

For performance reasons, it is recommended to keep :

- Captured audio and video on separate drive volumes
- Thumbnails on a separate volume to caches and captured video

Thread Settings

The thread settings control the degree of parallelism used when rendering sequences and hence the overall *rendering* performance.

These are set via the GUI or by editing the *general.prefs* file.

GUI

Main Screen / Preferences / Rendering

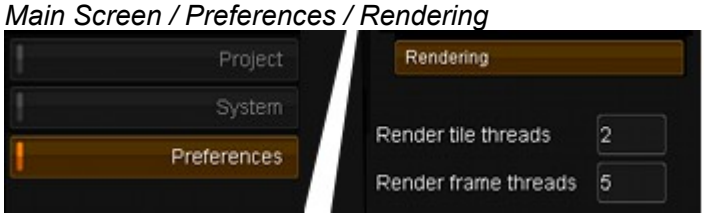


Figure 14 : Setting threads in the GUI Preferences screen

Preference File

name	Description	Setting
`renderTileThreads`	How each frame is split (tiled) for rendering in parallel.	1
`renderFrameThreads`	How many frames are rendered in parallel	Total number of CPU Cores

note The application will set the thread settings *automatically* when first installed (and no preference file exists). The optimal values for the thread settings are dependent on many factors and these settings are a guide only. **For best performance on any particular workflow, you should undertake your own benchmarks**.

MXF Section

name	Description
`avidDirectory`	This is the default folder list searched for MXF media linked to AAF files.
Default :	`S:\Avid MediaFiles\`

The MXF media file structure needs to be placed under one of the folders specified by the *avidDirectory* setting.

You can specify multiple search folders e.g.

```
avidDirectory "S:\Avid MediaFiles\" "H:\Avid MediaFiles\"
```

note The application allows the specification of up to **three** folders to search through the GUI. More can be defined via the preference file (but the GUI will show the first three only). See the *Avid Integration* chapter in the *User Guide*.

Image Memory

The *Image Memory* is a pool of system memory reserved by the application and used for storing images (both processed and unprocessed).

This includes sources, renders and intermediate results. This will be memory unavailable to other applications or third-party libraries in use on the system.

GUI

Configure *Image Memory* in the *Main Screen / Preferences / Rendering* tab :

Figure 15 : Image Memory preference

Preference File

Name	Description	Default
`memoryImagePoolMaxMB`	Set size of Image Memory (MB)	RAM / 2

Recommendations

A 64 bit application can make use of a great deal of system memory and you can set *Image Memory* to a high value e.g. **RAM - 4096 MB**. This is your total RAM minus 4 GB for OS/system reserved use.

Examples :

System RAM (GB)	Image Memory
64	60000
16	12000
8	4096
4	2048

Colour Scaling

Each project includes a configuration option that defines the project *colour scaling*.

Colour scaling modes affect :

- **SDI Monitoring** and whether this SDI signal is *scaled* or *unscaled* (untouched).
- **Video I/O** and whether the SDI signal is *scaled* or *unscaled* (untouched).
- **Black and white levels** to use for timeline filler, transitions, pan/scan blanking, fade to colour
- **Colour Tool behaviour** and what black and white levels they pivot around
- **Algorithm** effectiveness for *scene detection* and *DVO* tools

alert! The scaling behaviour can include scaling and clipping of your output display and so it is essential to understand and test this behaviour carefully, then configure for your own workflow requirements.

Recommendations

The following colour scaling modes are recommended. A more detailed description is given in subsequent pages and the appendix SMPTE / CGR Scaling on page 71.

Video/Linear Work

Use : **Linear (SMPTE)**
Video I/O will capture and lay-off the whole 0-1023 10 bit signal with no scaling or clipping. The signal is untouched (in/out).
SDI monitoring will be unscaled and untouched, displaying all 0-1023 values.
Generated black and white levels inside your project (e.g. blanking, filler etc.) will be *SMPTE* levels 64 and 940
By default, colour tools will pivot around 1023.

Film/Log Work

Use : **Film Log**
As above, video IO and monitoring will be unscaled and untouched 0-1023.
Generated black and white levels inside your project (e.g. blanking, filler etc.() will be *Cineon* levels 95 and 685.
By default, colour tools will pivot around1023.

note See *colourPivotPoints* section in the preference file general.prefs (see the Software Preferences chapter).

Definitions

We use terms SMPTE and CGR and we define these as :

SMPTE : Refers to the standard legal video signal 0-100%
10 bit Range : **64 - 940**
Values can exist *outside* of the 64-940 range (super-blacks and whites)

CGR : Refers to a *Computer Generated Render* mode
10 bit Range : **0 - 1023**
Note that this is *not* a legal SDI video range

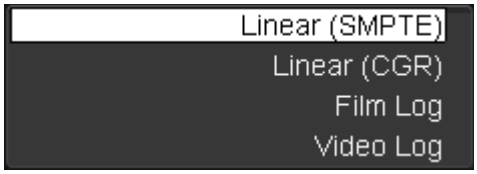
Project Configuration

Select the scaling mode to use on a per-project basis on the main project screen.

Figure 16 : Project colour scaling menu

note Note that individual *colour adaptive* tools allow you to set an independent scaling mode inside the tool.

Scaling Modes



The scaling modes are *Linear (SMPTE)*, *Linear (CGR)*, *Film Log* and *Video Log* and have the following behaviours.

Linear (SMPTE)

Unscaled SDI
The SDI signal is **not touched** (assumed SMPTE already). The full SDI range is

captured (0-1023) and output/monitored (0-1023) *as is*.
Colour tools pivot around the SMPTE values 64 and 940.

Linear (CGR)

Scaled SDI
The SDI signal is **scaled** on both capture and output (monitoring and I/O). On capture, we scale the 64-940 to 0-1023 and thus lose the any super blacks and whites. On layoff (and monitoring), we scale the 0-1023 back to 64-940.

alert! *Linear (CGR)* mode will limit your output to SMPTE levels (e.g. 64-940).

Colour tools pivot around the CGR values 0 and 1023.

note In RGB 4:4:4 mode, CGR mode will *not scale* the SDI video signal[8]

Film Log

Unscaled SDI
Logarithmic data.
Colour tools pivot around the LOG values 95 and 685

Video Log

Unscaled SDI
Logarithmic data.
Colour tools pivot around the SMPTE values 64 and 940.

note See appendix SMPTE / CGR Scaling on page 71 for more detailed diagrams showing the signal path for *Linear (SMPTE)* and *Linear (CGR)* modes.

Colour Tools

The colour adaptive tools have their own independent scaling mode option with the default taken from the main project setting. The scaling mode will affect the black and white points used and the way the tool pivots around them when adjusting parameters.

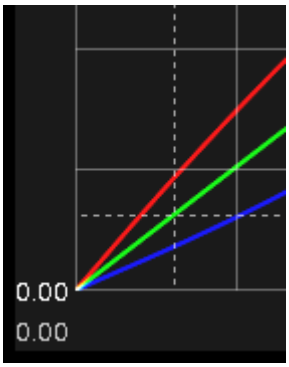


Figure 17 : Linear (CGR)
Pivot around 0.
Video level graticule.

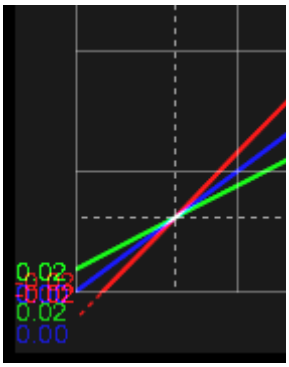


Figure 18 : Linear (SMPTE)
Pivot around 64.
Video level graticule.

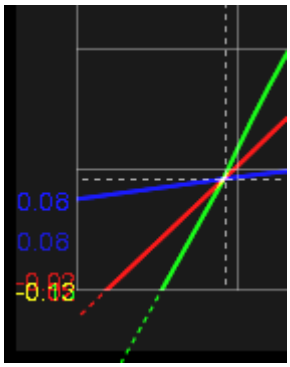


Figure 19 : Film Log
Pivot around 95.
Log/Cineon level graticule.

8 Unless the *general.prefs* option `scale444` is set to true.

note You can modify the black, mid and white points of the scaling modes via the `colourPivotPoints` section of the *general.prefs* file.

NVIDIA Graphics

The NVIDIA graphics card acts as a display device and a *Graphics Processing Unit*.

note **The recommended SDI monitoring solution is via an installed DVS video board.**

NVIDIA Driver

See the Digital Vision web site[9] for the latest driver recommendations.

Installing/Upgrading Driver

If you need to install or upgrade an NVIDIA graphics driver, follow these instructions. For an upgrade, it is best to completely *uninstall* the driver first, reboot the system and then install the new driver.

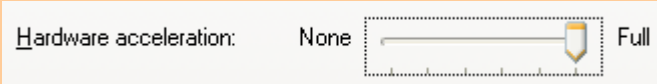
Before installing or upgrading to a new NVIDIA driver, **uninstall** any current driver. See below for instructions on how to completely uninstall the driver.

Your NVIDIA driver will be packaged as an *installer* you can double-click. If it is already unpacked, you should have a *setup.exe* installer program to double-click :

note Previously installed NVIDIA drivers are usually placed in a folder C:\NVIDIA.

alert! After install, if you experience slow graphics update or issues, make sure the display driver *Hardware Acceleration* is set to ***Full***. Do this via :

Display Properties / Settings / Advanced / Troubleshoot



Driver Uninstall

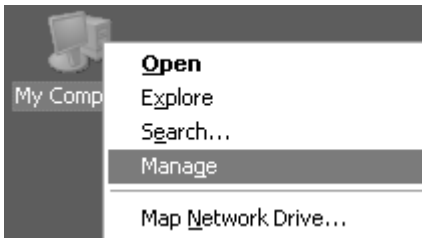
Use the *Control Panel* and *Add or Remove Programs* to remove the NVIDIA display drivers from your system :

9 http://www.digitalvision.tv/support/

alert!

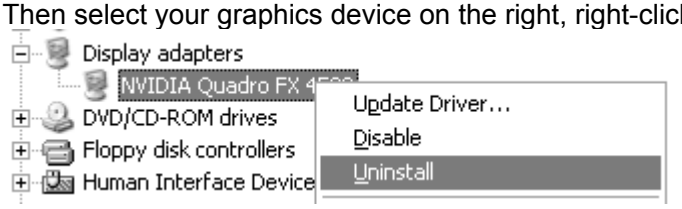
You may be prompted to choose other NVIDIA components to remove. Be careful to only choose the ***display/graphics component***.

Do not reboot the system at the end when prompted by pressing the *Cancel* button.
Before rebooting, also uninstall the driver via the *Device Manager* :
My Computer / Manage



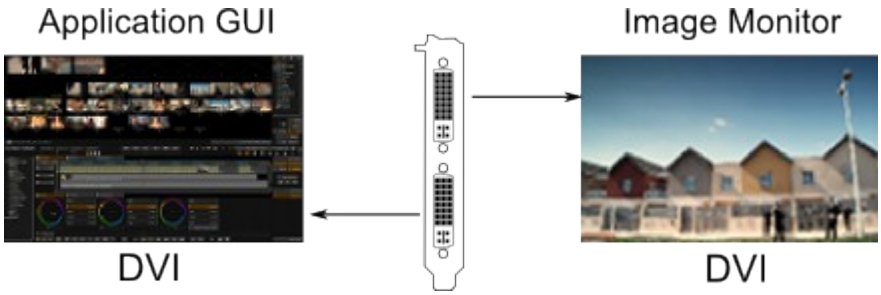
Select *Device Manager* :

Then select your graphics device on the right, right-click and *Uninstall* :



Then **reboot**.

NVIDIA Dual-DVI



Dual display mode using the Dual-DVI ports on the NVIDIA FX4600 graphics card allows you to connect two displays, including projectors, LCD panels or CRT's. Each DVI-I connector is dual-link capable.

This hardware configuration is set up in *Extended Desktop DVI* mode.

Components

The NVIDIA FX graphics card :

NVIDIA FX Graphics board PCI-Express x16 slot. DVI and DisplayPort Power connector.	

Setup

To set up dual-display mode with a dual-DVI card :

Right-Click on your desktop and select : *NVIDIA Control Panel*

From the list on the left, select the option : *Display / Setup multiple displays*

and then on the right, we can set the mode to use.

Set *Dualview* :

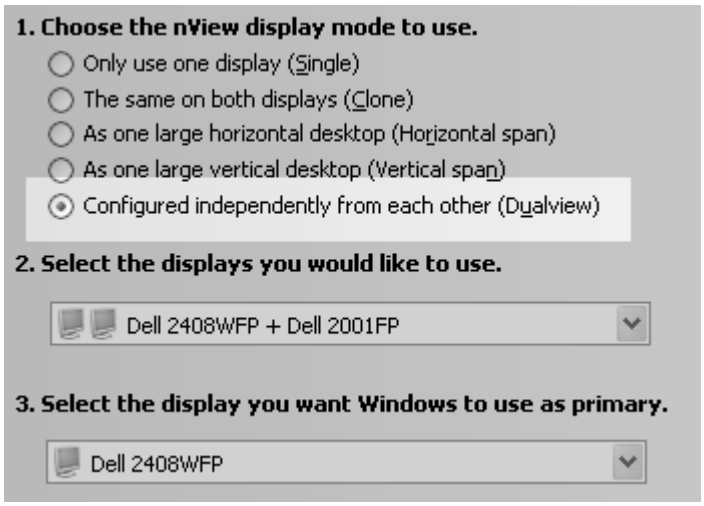


Figure 20 : Choosing Dualview mode and display orientation and type

You can then set the orientation of your monitors and choose the primary display.

note The *primary* display is the display on which your Windows *task bar* appears.

Application Configuration

Start the Digital Vision 2014.1 application and on the main screen, select the *Preferences/Monitoring* tab :

Figure 21 : Monitoring preferences

Then enable the *Dual Display* tick box :

This ensures the application is aware of both display screens and orientates itself.

note Note that many of the *Monitoring/Video IO* settings require an application **restart**. You can configure more than one setting at a time by pressing *Cancel* when prompted to restart and proceeding to the next configuration option. Restart once all done.

alert! Do not enable the *NVIDIA SDI direct output*.

We can *orientate* the display the application expects on each of the two outputs i.e. which display for GUI and which for Monitor :

Figure 22 : Dual Display DVI order and Monitor Anchor

Monitor Anchor

If our displayed image size is different to the resolution of our monitor (e.g. displaying PAL frames on an HD resolution display), then *Monitor Anchor* defines how our image is re-positioned and placed inside this display.

note This is mainly used when the second monitor resolution is different from the primary (GUI) display resolution.

We re-position and re-fit the image using the panel buttons *fit* and *1:1* (keyboard short cut keys ***f*** and ***g*** respectively).
Set the *Monitor Anchor* dependent on how the second display is positioned in respect to the first on the desktop *Display Properties* window :

Figure 23 : Orientation for setting Top Left.

Figure 24 : Orientation for setting Centre.

NVIDIA DVI Stereo

The Digital Vision 2014 release includes support for *Stereo Mode* monitoring using the NVIDIA DVI output.

This stereo mode treats the left and right stereo channel as a separate *field* which is interlaced to a frame for display through DVI.

note This stereo mode requires *monitor* support (e.g. Zalman ZM-M220W).

Enabling Stereo Mode

There are two configuration options for stereo mode. One option sets enables stereo globally and one sets which device we use.

note For *Centaurus II* SDI stereo, see page 55

Project Global Level

This turns stereo mode on for the project globally and is a tickbox on the main project screen.

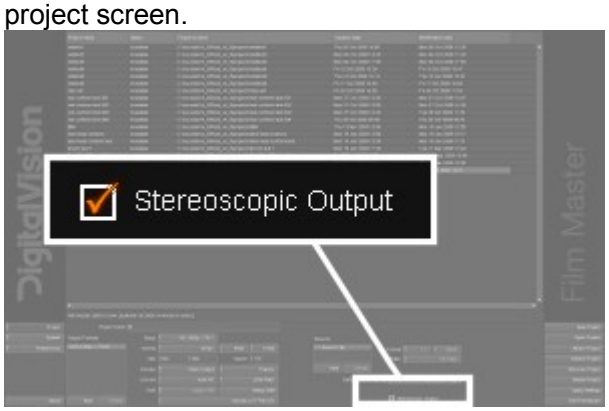


Figure 25 : Project level stereo mode enable button

Device Level

The device level setting enables stereo output for the NVIDIA DVI output. This setting is inside the *stereo* section of the main preference file *general.prefs :*

Option	Values	Description
`interlaceDVIOutput`	true | false	Send stereo output through NVIDIA DVI connector, each stereo channel as a separate field.

DVS Centaurus II Video

Digital Vision 2014 applications support the *DVS Centaurus II* and *Centaurus II LT* video cards. These can be used for video I/O (capture/layoff), audio ingest (embedded/AES), VTR machine control and monitoring.

Hardware

Our workstation solutions incorporate the main Centaurus II board for the SDI A channels, alongside a slot used for the SDI B channels[10] and the RS422 remote connector (using a breakout cable).

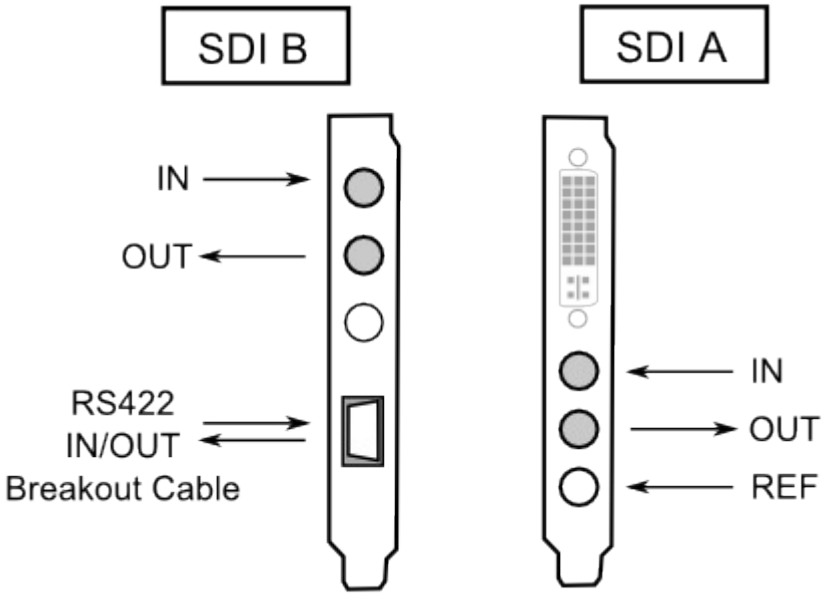


Figure 26 : *Centaurus II PCI video board alongside the SDI B channel board.*

Audio

You can use *embedded audio* or AES via the AES connector /breakout cable[11].

To monitor audio using the *Centaurus II* video board, start the Digital Vision 2014.1 application and on the main screen, select the *Preferences/Monitoring* tab and enable the *Use Video IO card as audio monitor* tick box :

Driver Installation

If you have a *DVS Centaurus II* video board, you should install a driver as part of the main application install by ticking the *Install DVS Centaurus II driver* box (see Install

10 No electrical connection is required for the SDI B card.
11 The AES option panel may not be installed inside your system.

Options on page 12).

- On 32 bit Windows, install the 32 bit driver
- On 64 bit Windows, install the 64 bit driver

Centaurus Firmware

During the driver install, a CMD window will open and prompt you to update the card firmware. If you enter **Y** when prompted and press the <ENTER> key, the firmware will be flashed. You only need to do this once.

note After driver installation, you will need to **reboot**.

DVS Utility Programs

We install a selection of DVS utility programs that help configure the video board, retrieve card information and perform some basic trouble-shooting.

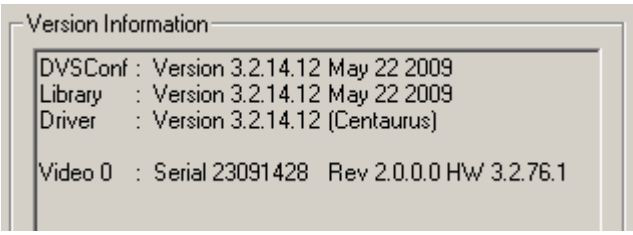
The programs are installed in folder :

```
C:\Program Files\Digital Vision\2014_1\DVS_2014_1\
```

dvsconf

The *dvsconf* program displays card information, such as driver/firmware levels and licensed options. It also allows you to run various tests and diagnostics on the hardware.

Driver and Firmware Revisions



The *firmware* revision is shown after the **HW** label.

Licensed Options

To see a list of licensed options installed on the card, on the *Card 0* tab, press the *Setup* button and choose *Info License* (see 27 below).

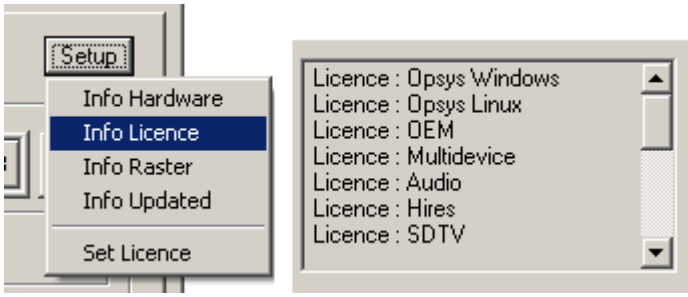


Figure 27 : Centaurus installed license information.

VTR RS422 Control

To use the *Centaurus II RS422* port (instead of the PC COM port), set the following environment variable :

My Computer / Properties / Advanced tab / Environment Variables

Variable	Value
USE_DVS_VTR_IF	1

Centaurus II Enhanced Monitoring

Version 2014 enhances the SDI monitoring capability of the *DVS Centaurus II* video board. The *Centaurus II* SDI output now supports the real-time display of the NVIDIA OpenGL (GPU) output, including grading, histograms, graphs and shapes.

This is called **OpenGL** or **GPU read-back**.

Enabling Monitoring Enhancements

To enable the monitoring enhancements, enable the global option :

Preference File

In the *general.prefs IOCard* section :

```
enableReadback true
```

GUI

In the main *Preferences/Monitoring* tab, enable the *OpenGL readback to Video* option :

note

When enabled, you will have an extra button below the *Library* button, indicating the status of *GPU read-back* :

Toggle *GPU read-back* **on/off** by clicking this button.

Note, that when GPU read-back is *disabled* in the *Preferences*, you will only have *Mon* and *Vid* icons :

DVS SDI Stereo

The Digital Vision 2014 release includes support for *Stereo Mode* monitoring using the DVS video board.

note You will need the *Multidevice* license option installed on your DVS video card. To find installed options, use the *dvsconf* program (see page 53).

Enabling this mode will output video tracks 1 and 2 to the two stereo channels via SDI A and B. Both SDI channels with be in 4:2:2 mode.

Stereo Outputs

Video Track	SDI Output	Channel
1	A	Left
2	B	Right

Enabling Stereo Mode

There are two configuration options for stereo mode :

Project Global Level

This is a tickbox on the main project screen :

Device Level

The device level setting enables stereo output for the DVS Centaurus II video card. These settings are inside the *IOCard* section of the main preference file *general.prefs :*

Name	Description	Default
`dualDVSOutput`	Enable or disable stereo output through SDI A and B channels.	false
`reverseStereoOutput`	Switch the left/right stereo channel between SDI A and B.	false

VTR Remote Mode

VTR Remote Mode configures the Digital Vision application to respond as if it was a VTR device under RS422 remote control.

We can control the Digital Vision application from a VTR device (stop, play, rewind, jog) via the RS422 control cable.

note *VTR Remote Mode* is supported with **Centaurus2 video boards**.

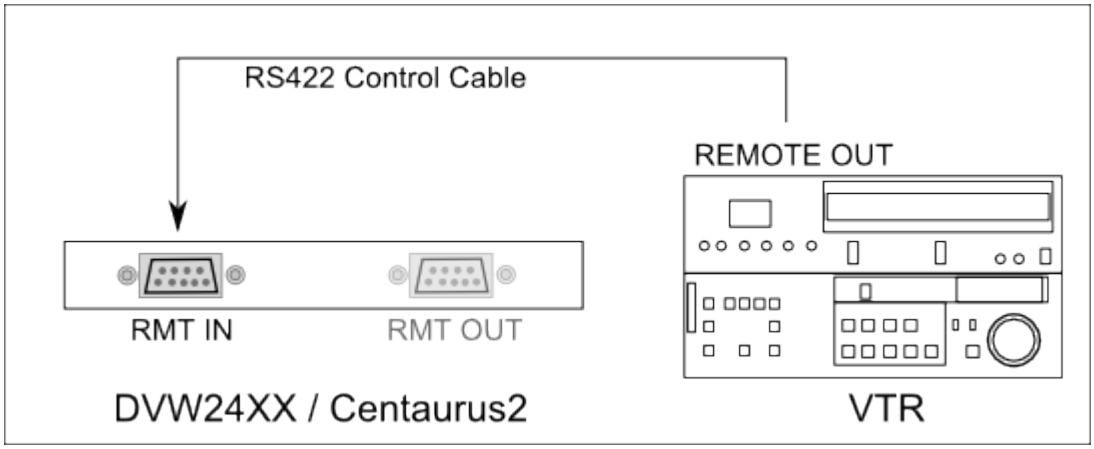


Figure 28 RS422 connection for VTR Remote mode

Note that the RS422 cable is connected in the opposite orientation compared to that used for normal VTR control from the Digital Vision application.

Application Configuration

Enable *VTR Remote Mode* inside the Digital Vision application by pressing the Remote button to the left of the play controls :

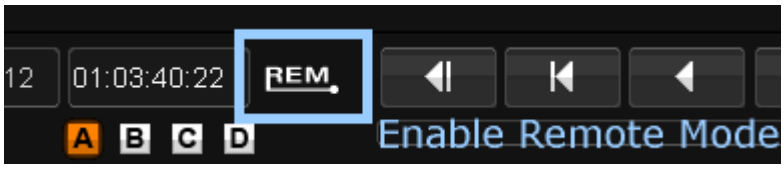


Figure 29 Remote button

Once enabled, the button turns orange : 

and a locator window opens displaying your current timeline position.

alert! The timeline should be **fully rendered** for *VTR Remote Mode* to work correctly.

Shuttle Pro

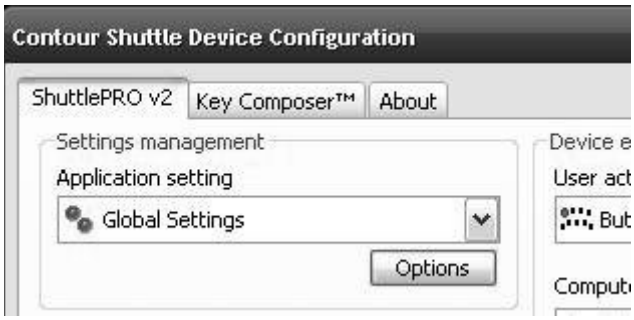
If you have a *Contour ShuttlePRO,* we supply a preference file you can use.

Configuration

Each Digital Vision application has a specific *ShuttlePRO* preference defined for use with the application. To use the right preference, follow these steps :

- Right-click on the *ShuttlePRO 2* icon in your system tray and select *Open Control Panel*

- In the *Control Panel*, click on the *Options* button



- Then *Import Settings*.
- Browse to (depending on product) :

  `C:\Nucoda\ShuttlePRO` or

  `C:\Phoenix\ShuttlePro`
- Select the relevant Digital Vision application preference file and *Open*.
- Press *Apply* on the *Control Panel*

The *ShuttlePRO* should now work with the Digital Vision application.

note The key mapping on the *ShuttlePRO* device for the Digital Vision application can be modified. See the *ShuttlePRO* manual for help with this.

ShuttlePRO Layout

The ShuttlePRO button layout is shown in 30 below.

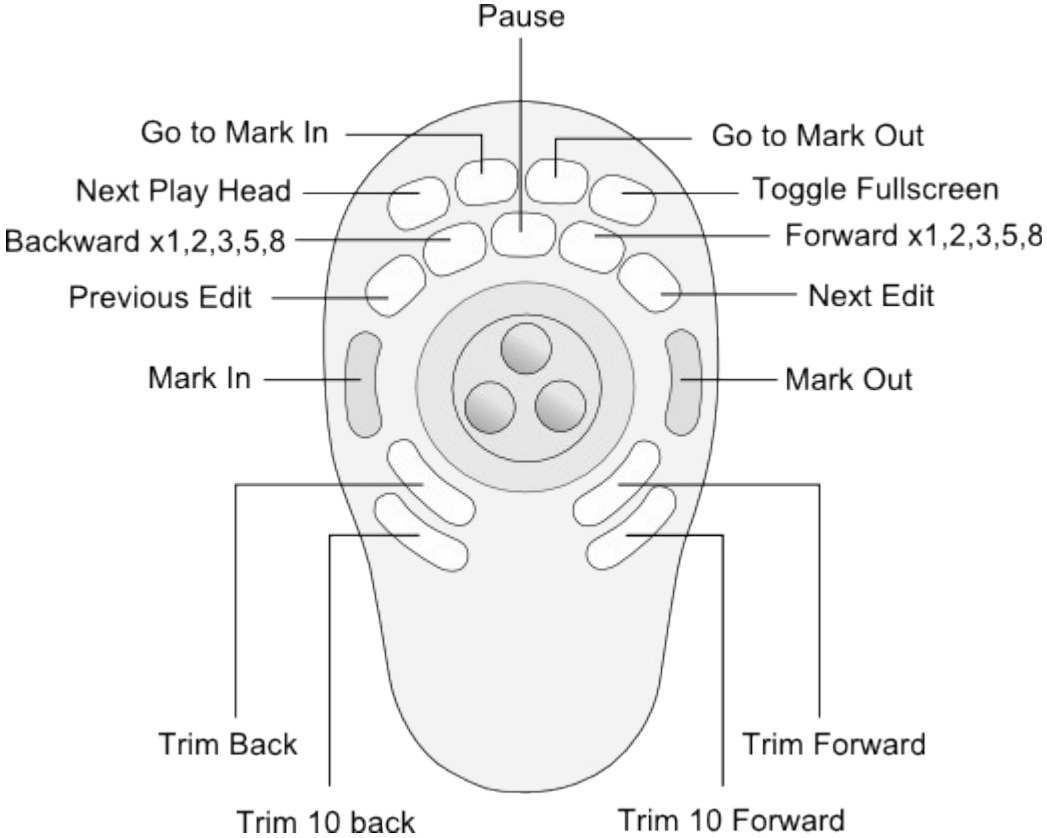
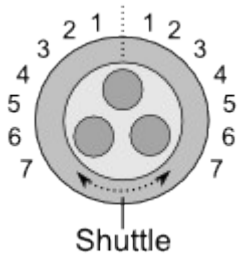


Figure 30 : *ShuttlePRO v2 Button Layout*

Shuttle Wheel Positions



Position	Left Side	Right Side
1	Backward 5fps	Forward 5fps
2	Backward 10fps	Forward 10fps
3	Backward x1	Forward x1
4	Backward x2	Forward x2
5	Backward x3	Forward x3
6	Backward x5	Forward x5
7	Backward x8	Forward x8

THX Cinespace

Digital Vision applications support the *THX cineSpace* software suite. This includes integration with the *THX cineProfiler* application allowing easy monitor profiling and calibration via the Digital Vision application. The *cineProfiler* integration has to be selected for installation as part of the main application installation process (see page 10).

note You will need a *Cinespace* license to use these features.

To use Cinespace with Digital Vision 2014.1 :

- Install the *THX cineSpace* software suite (v2.9)
- If you want to integrate the Nucoda or Phoenix application with THX cineProfiler then select *THX cineProfiler Plug-in* when installing Digital Vision v2014.

License

Cinespace v2.9 node-locked licenses are placed in a text file :

```
C:\Program Files (x86)\THX\cineSpace\licenses\license.lic
```

note Note the license extension for Cinespace is .lic (not .flic)

Profiling and Calibration

The Digital Vision v2014 applications can profile and calibrate your monitor in cooperation with the THX *cineProfiler* application.

note You will need to use a recent version of *THX Cinespace* e.g. v2.9 or later.

How it Works

The *cineProfiler* application includes a Digital Vision plugin that communicates with our application via TCP/IP (local or remote). This mechanism means that *cineProfiler* can direct us to display the colour patches on our output device and still control the profiling process.

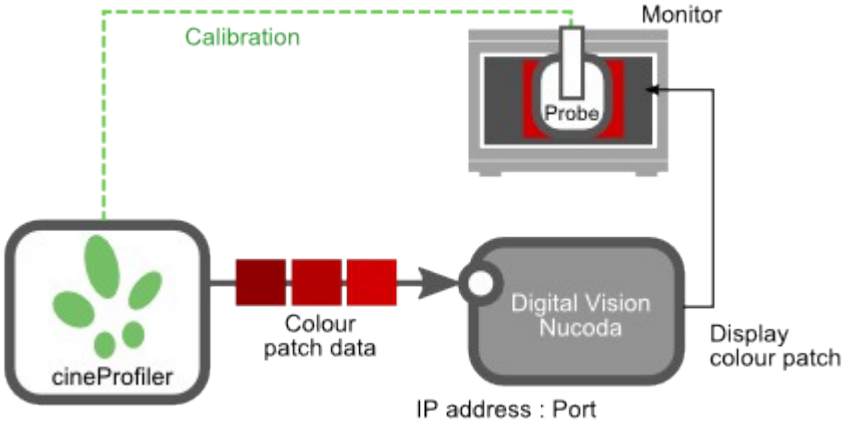


Figure 31: Profiling using the Nucoda plug-in to cineProfiler

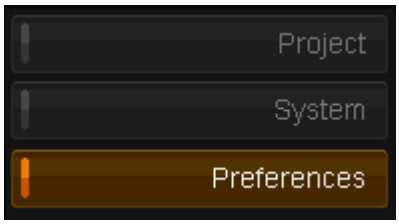
Procedure

We need to configure the Digital Vision application and *cineProfiler* application separately.

Digital Vision Application

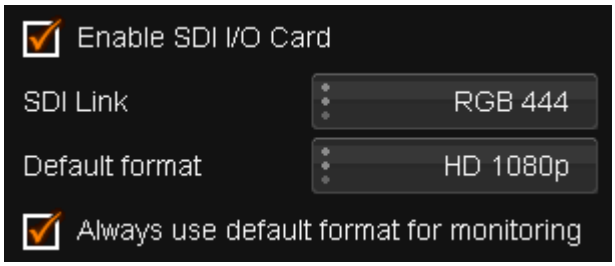
Start the software and ensure we are monitoring through the correct device. In general, this will be via the **video I/O device** (e.g. *DVS Atomix LT*).

- On the main project screen, switch to the *Preferences* screen



- Then the *Monitoring/Video IO* tab

- Check that *Enable SDI IO Card* is **on**



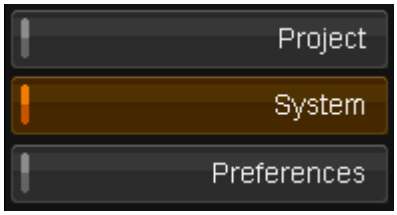
Also set the desired SDI Link and format and **enable** :

Always use default format for monitoring

- Switch to the *Colour* tab

- Choose *Linear (SMPTE)* as the colour scaling mode

- Switch to the *System* screen



- Press the *Listen to cineProfiler* button

When enabled, the application prints :

Listening for cineProfiler plugin events …

note

Our application listens on a TCP/IP port for communication from the *cineProfiler* application. By default, this port is **9988** but you can set this in the general.prefs file (see page 37) *CineProfilerServer* section :

```
CineProfilerServer
{
    port 9988
}
```

cineprofiler

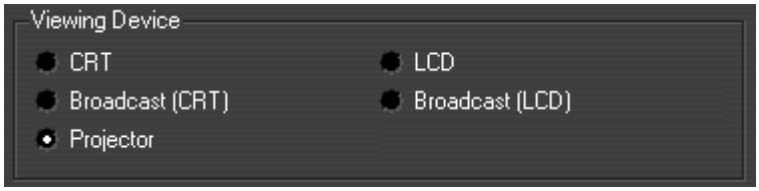
Attach the calibration probe to the system.

note

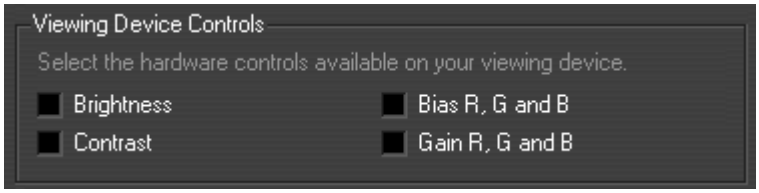
The probe can be directly attached to the system running *cineProfiler* or on a different system by using the THX *probeServer* application.

Choose the following settings :

- Viewing Device : *Projector*



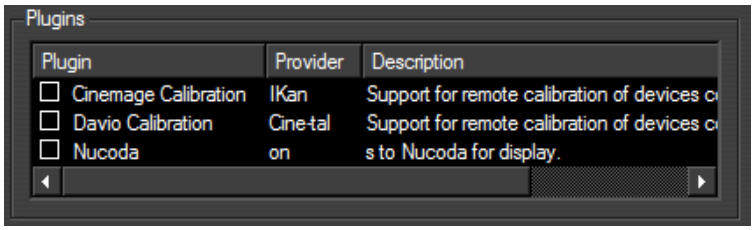
- Viewing Device Controls : disable (un-tick) *brightness* and *contrast*



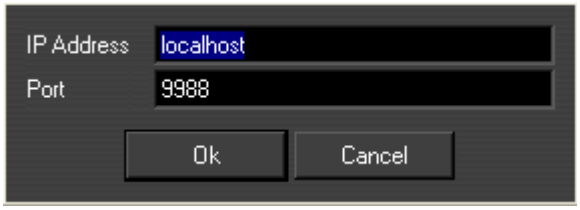
- Profile Type : *Quick Cube* or *Normal Cube*

note A *Quick Cube* uses 1000 colour patches. A *Normal Cube* uses 8000 patches (and so takes more time).

- Plugin : *Nucoda*



- A window opens and prompts for an *IP address* and *port* to use for the Digital Vision application (see below).



If we are running *cineProfiler* on the same system as the Digital Vision application, you can leave the IP address as the default, *localhost*.

Once complete, follow the usual *cineProfiler* instructions to perform the actual profiling.

Enabling Cinespace

To enable *THX cineSpace* for a project output format, select the *THX CineFilmMaster* CMS mode on the **project** screen :

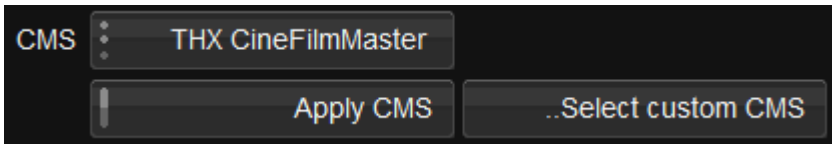


Figure 32 : Select *THX CineFilmMaster* CMS mode

You can then use the *..Select custom CMS* dialog to choose your *monitor* and *target* profiles and configure *Cinespace*.

Burnt in CMS

You can burn a selected CMS profile into an output format by enabling the *Apply CMS* button :

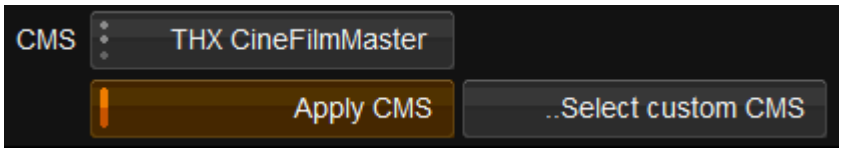


Figure 33 : Enabling a burnt in CMS using Apply CMS

note You can only burn-in a CMS to a *secondary* output format.

View CMS

Use the selected CMS profile as a *viewing* LUT only by enabling the *View CMS* button inside the project.

Figure 34 : CMS toggle button inside project.

A viewing LUT is not rendered or burnt into the output.

References

THX CineSpace is installed with online documentation. Use your web browser and open the following file :

```
C:\Program Files (x86)\THX\cineSpace\docs\cineSpace.html
```

Red Rocket Install

The *Red Rocket* card is a hardware accelerator for *decoding* and *debayering* 4K R3D files in realtime.

The hardware consists of :

- Single slot / Full-length PCI-Express card
- x16 physical **[see below]**

alert!

A x16 PCI-Express slot is required - **physical and electrical**. This is due to the power requirements of the card.

The card is supported in the **HP Z800 and Dell T7500/T7600 workstations only**.

Driver and Firmware

Download[12] the *driver* and *firmware* bundle to your local disk and unzip.

The package includes :

- A Microsoft Windows device driver
- Firmware update
- **Red Rocket Installation Guide (PDF)**

12 See the application *Release Notes* for details

Installation

alert!

When working inside your computer workstation with the *Red Rocket* card, ensure you read and follow the **safety instructions** detailed in the *Red Rocket Installation Guide*.

note

Always read the application *Release Notes* before installation.

If you are requested to update the Red Rocket driver and firmware and the hardware is **already installed**, you should *uninstall* the driver before doing the update i.e.

My Computer / Manage / Device Manager - open *Sound, video and game controllers*, right-click *Red Rocket* and select *Uninstall* :

Once the uninstall is complete, **reboot**. Then update driver and firmware as described below.

1. **Install Red Rocket card :**

   a. Shutdown your workstation, unplug power and open case
   b. Install the *Red Rocket* card in a spare x16 PCI-Express slot **[page 67 below]**
   c. Close case and return cabling and power.
   d. Start workstation.

2. **Install Windows *driver* :**

   a. Windows will notice new hardware and open the *Found New Hardware* wizard
   b. Select : *Install from a list or specific location*
   c. Navigate to the folder containing the Windows driver files and proceed to install.

      Continue through any Windows warning dialog window.

3. **Reboot workstation**

4. **Install Red Rocket *firmware* :**

   a. Navigate to folder containing *Red Rocket* firmware files
   b. Double-click batch file : `Install_Firmware.bat`
   c. Confirm upgrade by pressing : Y

   The update process may take some time. **Wait for completion**.

5. **Shutdown the workstation**

6. **Wait for one minute**

7. **Start workstation.**

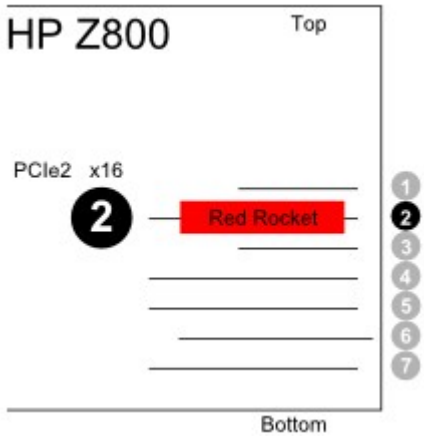
8. **Validate driver and firmware install :**

   a. Right-click *My Computer* and select *Manage*
   b. Select : *Device Manager*
   c. Expand section : *Sound, video and game controller*
   d. Check that the *Red Rocket* device is present

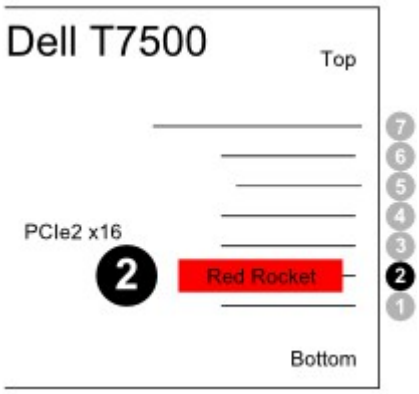
PCI Slot Recommendation

The slot recommendations below assume standard HP Z800 and Dell T7500 configurations.

HP Z800 - Slot 2
Second from top



Dell T7500 - Slot 2
Second from bottom



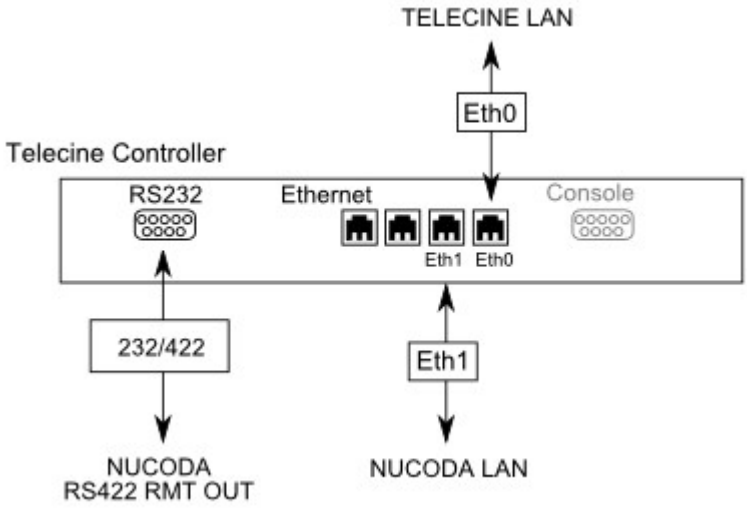
Telecine Control

Digital Vision applications support a *Spirit Classic Telecine Controller*. This allows us to interface to *Spirit* and *Shadow* telecine devices. We support both *transport* and *picture* control (grades).

note The *Telecine Picture* control (grading etc.) requires a license option.

Connections

The *Telecine Controller* connections are as follows :



- **RS422** - to the *Nucoda* system

  This provides the *transport* control (play, rewind etc.)
- **Ethernet** - to the *Telecine* unit itself (Eth0)
- **Ethernet** - to the *Nucoda* system (Eth1)

  This connection is used if you have the *Telecine Picture Control* option licensed.

note An RS232/422 converter is included with the package.

Configuration

Ethernet LAN

By default, the ethernet LAN ports are configured as follows :

Port (Internal Name)	IP Address	Use
Eth0 (vrr0)	10.1.3.251	**To Telecine** Do not change this [13] See note below.
Eth1 (vrr1)	192.168.25.1	**To Nucoda** A dedicated link is preferred.

Changing Nucoda LAN Address

alert! This procedure is for **advanced users only!**

If you need to change the default IP address Nucoda LAN port (Eth1), follow these instructions :

- Connect a *cross-over* ethernet cable to Eth1
- Use an *SSH client*[14] to connect via SSH to the *Telecine* unit

user	astec
pass	astec
port	22

- Switch to *superuser* :

```
su <enter>
```

pass	astec

- Edit the file[15] : `/etc/rc.local`

- Change the **vrr1** line to reflect your desired IP address e.g.

```
ifconfig vrr1 <New IP> netmask 0xffffff00
```

13 The Eth0 ethernet connection does not use TCP/IP for communications to the *Spirit Classic* or *Shadow* Telecine. As such, the IP address is not used and does not need configuration.
14 On Windows, you can use a free SSH client such as *PuTTY* available from : http://www.chiark.greenend.org.uk/~sgtatham/putty/
15 You will need to use the vi editor.

```
e.g.

ifconfig vrrl 192.168.80.55 netmask 0xffffff00
```

- Save the file and **reboot** the unit.
- Test you can access the device on the new address (e.g. *ping*)

Preference File

Software preferences are stored in the file :

`C:\Nucoda2014_1\root\`**`general.prefs`**

The `telecineControl` section specifies the IP address assigned to Eth1 (Nucoda LAN) e.g.

```
telecineControl
{
    address "192.168.25.1"
    port "420"
}
```

note The *address* option is the IP address of the Eth1 port (Nucoda LAN). You should not change this unless you also change the *Telecine Controller* IP address (see page 69).

Use

Telecine transport controls are available in the *List Capture/VTR Capture* screen.

In addition, the optional *Picture Control* functionality is available via the tab *Telecine Settings* inside the *VTR Capture* window.

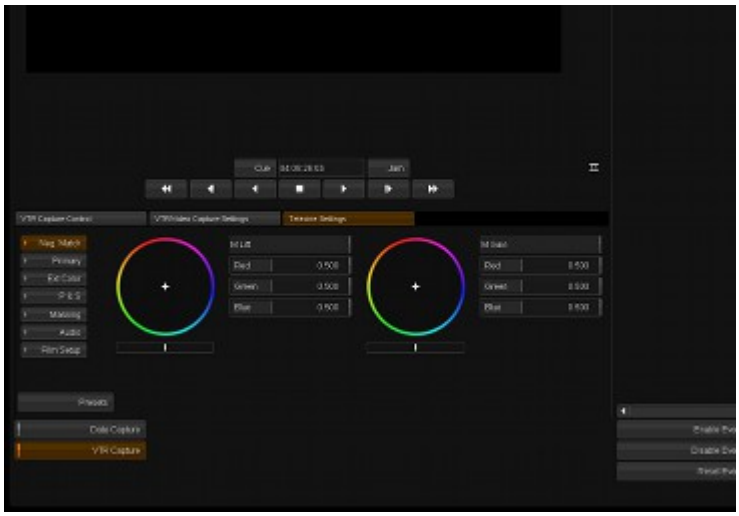
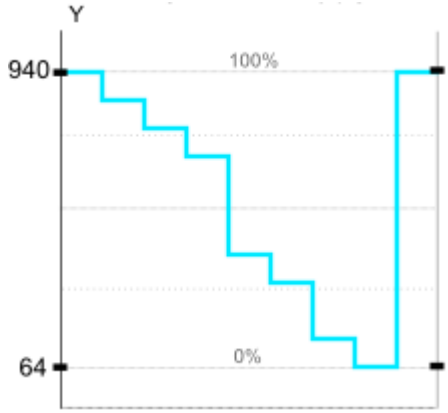


Figure 35 : Telecine Settings menu inside VTR Capture window.

Appendices

SMPTE / CGR Scaling

Using SMPTE video bars (64-940 or 0-100%), we will consider the SDI signal as it passes through the system when using the two modes *Linear (SMPTE)* and *Linear (CGR)*.

Input	Scope
	
SMPTE video bars 0-100% Data 64-940	

note

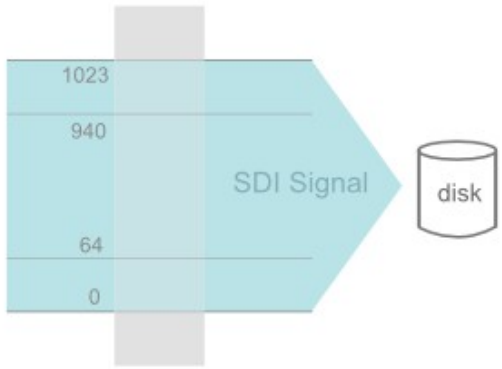
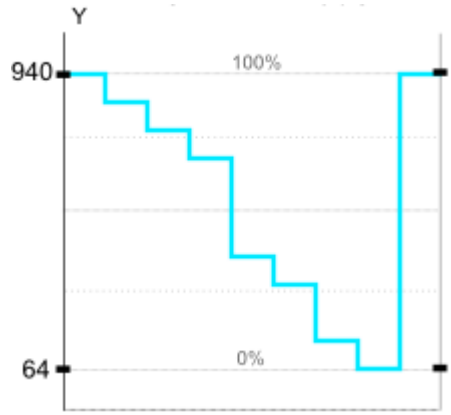
These examples will use **YC_rC_b 4:2:2** SDI signals.

Linear (CGR) mode does not scale RGB 4:4:4 signals unless you set the *general.prefs* option :

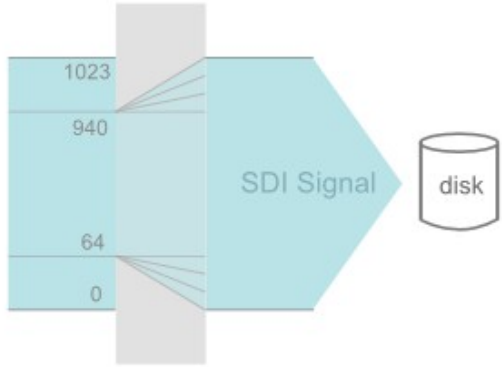
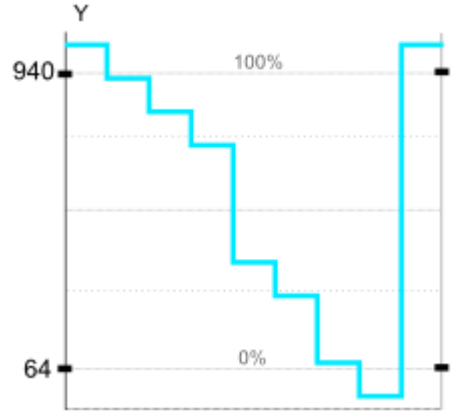
```
scale444 true
```

Capture

Linear (SMPTE) Mode

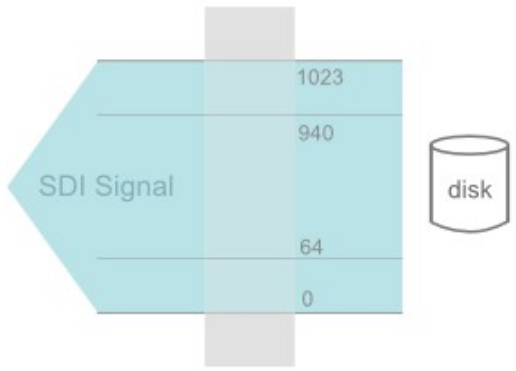
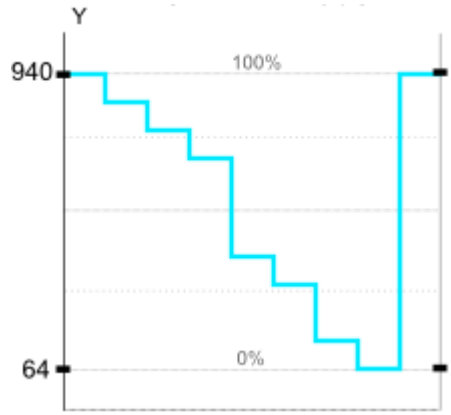
	
Capture video bars to disk.	Complete signal captured. Signal unscaled and untouched.

Linear (CGR) Mode

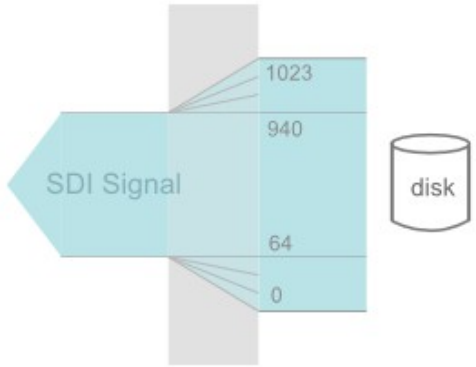
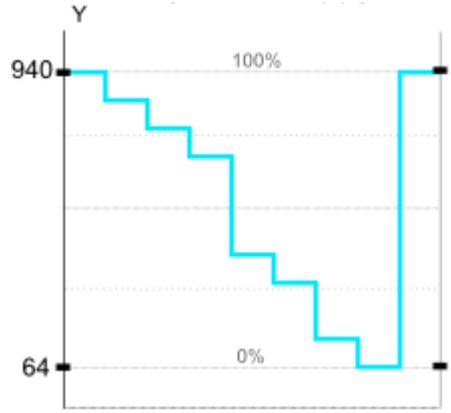
	
Capture video bars to disk. CGR mode takes 64-940 signal only and scales this to 0-1023. Clipping any low and high data values.	Input signal is scaled.

Monitoring / Layoff

Linear (SMPTE) Mode

	
Output/View complete SDI signal. Signal untouched.	Signal untouched.

Linear (CGR) Mode

	
Output/View scaled SDI signal. In CGR mode signal is scaled 0-1023 to 64-940.	Signal scaled back to 64-940.

Setting Host IP Address

This section describes the basic process for setting the TCP/IP address for a network port on Windows. This is for a *manual* setting and not using DHCP.

For this *example* only, we will use the following TCP/IP addresses :

IP address :	192.168.8.100
Subnet mask :	255.255.255.0
Default gateway :	192.168.8.1
Preferred DNS server :	192.168.21.10

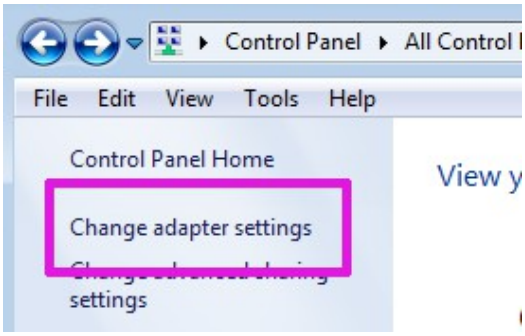
note

You should replace the above example values with the ones you need (and as directed).

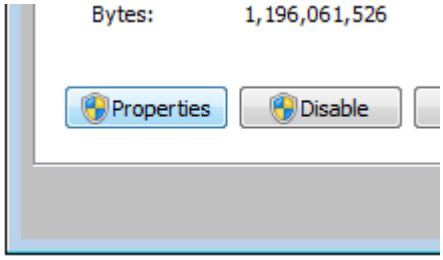
A network port attached to a **control panel** (i.e. *Precision* or *Valhall*) requires only the *IP address* and the *Subnet mask* set.

Windows 7

- Open the *Control Panel* (*Start / Control Panel*)
- Select : *Network and Sharing Center*
- On the left-hand side, choose : *Change adapter settings*

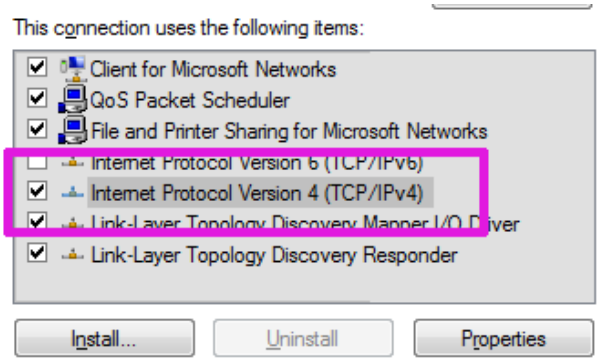


- In the list of adapters shown, *double-click* the one you want to change
- In the new dialog that opens, click the *Properties* button :



- In the dialog that opens, *double-click* the item :

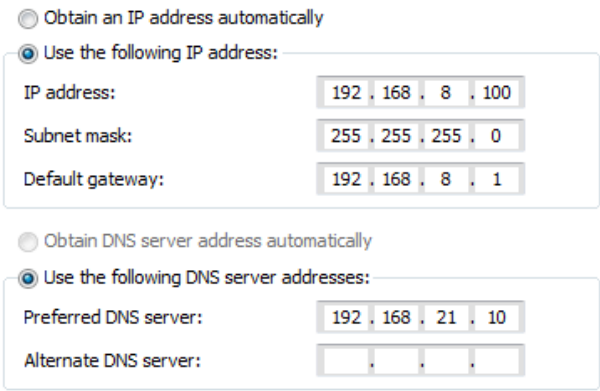
  Internet Protocol Version 4 (TCP/IPv4)



- In the new dialog that opens, make sure you select :

  Use the following IP address

  Set the IP address and Subnet mask to the desired values e.g.



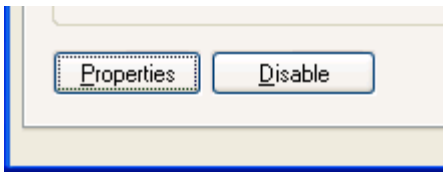
Replace the above example settings with those you require (as directed).

note A network port attached to a **control panel** requires only the *IP address* and the *Subnet mask* set.

- Press *OK* until we exit all the dialogs and then exit the *Control Center*.

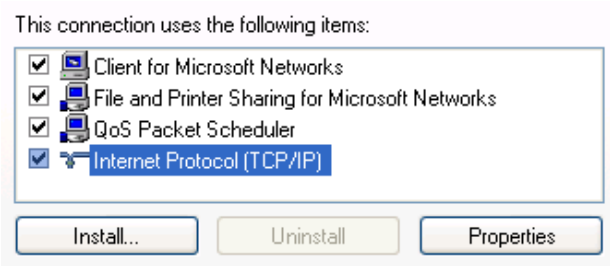
Windows XP

- Open the *Control Panel* (*Start / Control Panel*)
- Double-click *Network Connections*
- In the list of adapters shown, *double-click* the one you want to change
- Click the *Properties* button



- In the dialog that opens, *double-click* the item :

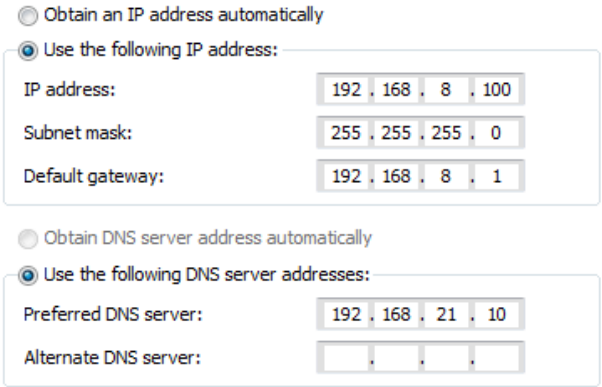
Internet Protocol (TCP/IPv4)



- In the new dialog that opens, make sure you select :

  Use the following IP address

  Set the IP address and Subnet mask to the desired values e.g.



Replace the above settings with those you require (as directed).

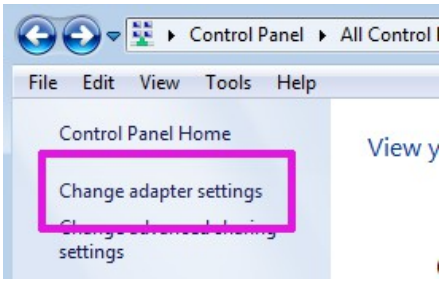
note A network port attached to a **control panel** requires only the *IP address* and the *Subnet mask* set.

- Press *OK* until we exit all the dialogs and then exit the *Control Center*.

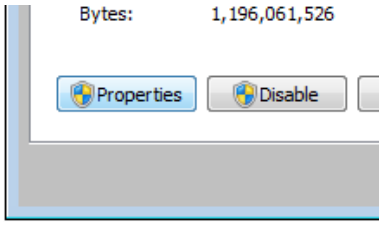
Control Panel Specific Settings

If you are setting up the network port attached to a *control panel*, you should also **disable** any TCP/IP *checksum offload* feature. This setting is found in the *Adapter* dialog via the *Configure...* button.

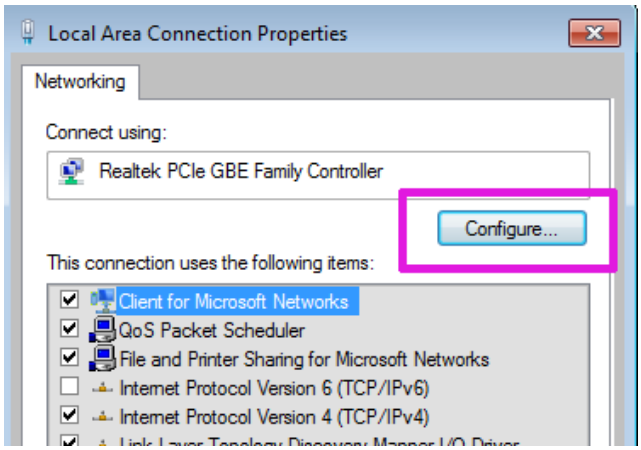
- Open the *Control Panel* (*Start / Control Panel*)
- Select : *Network and Sharing Center*
- On the left-hand side, choose : *Change adapter settings*



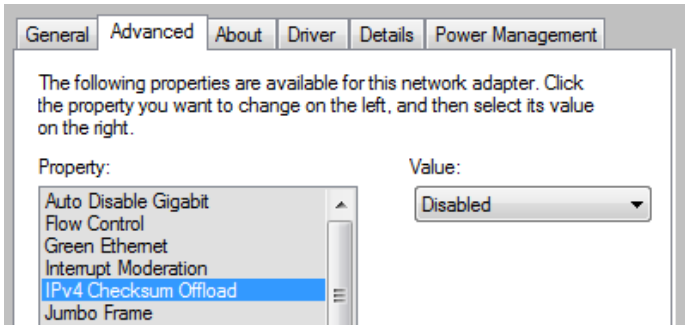
- In the list of adapters shown, *double-click* the one you want to change
- In the new dialog that opens, click the *Properties* button :



- In the dialog that opens, select the *Configure...* button :



- Switch to the *Advanced* tab
- Locate the *IPv4 Checksum Offload* item
- Set ***Disabled*** :



note This field depends on your *ethernet* hardware and driver and may have a slightly different name and be in a different location or menu.

Preference Files

To use the application, you are required to login (to the application) as a particular user.

- The default login is a user named *Default*
- Other users can be created via the *User Login* dialog (see page 31)

Presets

The application is shipped and installed with some *preset* preference files. Some are global and system specific, others will be used as a base for user settings :

Preset folders created :

System : `ROOT \ Presets \ System`

User : `ROOT \ Presets \ Users`

After application installation but before first use, the *Presets* folders contain :

After Installation (before application use) :

```
ROOT/
 |
 |-- Presets
 |     |
 |     |---------- System/
 |     |            - UIResources.prefs
 |     |            - defaultEffectList.prefs
 |     |            - defaultOutputFormats.prefs
 |     |            - keycode.map
 |     |            - logger.conf
 |     |
 |     |---------- Users/
 |                  - AAFMetadataMap.prefs
 |                  - CMSPresets.prefs
 |                  - HotKeys.prefs
 |                  - ParamPresets.prefs
 |                  - colour.prefs
 |                  - paramLayout.configs
 |                  - valhall.conf
 |
```

System and User Settings

After First Run and Create of First User (Tom)
We **add** the following in ROOT :

```
ROOT/
 |
 +
 |
 |
 |-- System/
 |       - minidumps/
 |       - keycode.map
 |       - lockfile
 |       - lockfile.owner
 |       - projects.properties
 |       - user.config
 |
 |-- Users/
        |
        |-- AllUsers/
        |     - CMSPresets.prefs
        |     - Clip.prefs
        |     - HotKeys.prefs
        |     - colour.prefs
        |     - general.prefs
        |     - paramLayout.configs
        |
        |-- Default/
        |
        |-- Tom/
              - Clip.prefs
              - ExportFolder.prefs
              - ExportLUTFolder.prefs
              - exportMedia.prefs
              - general.prefs
```

On **First Run :**

Users \ *AllUsers* folder :

- A set of default preference files are **copied** from *Presets* \ *Users*
- A **complete** *general.prefs* file is created

Users \ *<User>* folder :

- Some preference files are created here. These files may be empty or incomplete but are ready for customisation as required.