

Communicator

User Guide

PC version for DP2K and DP4K projectors

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1. INTRODUCTION

Overview

- General introduction
- About this manual

1.1 General introduction

Configuration tool

A uniquely powerful and easy to use configuration tool for the Barco cinema projector. This Communicator software for PC provides all the necessary tools and only those tool necessary for the connected projector to setup and control this projector. A comprehensive array of easy to access menu pages provide the projectors digital input, output and screen display via a combination of simple buttons and displays.

Quick and Easy configuration

Clearly indicated tab pages allow the control of Projector connection, configuration, test, color calibration and configuration with an existing automation system. All actions can be activated by a simple click.






Depending on the user level, functions are enabled or disabled in the software. The enabled functions are only accessible via a password entry and that prevents misalignment once everything is correctly aligned.

1.2 About this manual

Layout issues

This manual is designed to be a reference tool in your everyday work with the Communicator software.

The following icons are used in the manual :

	Caution
	Warning
	Info, term definition. General info about the term.
	Note, gives extra information about the described subject.
	Tip, gives extra advice about the described subject.

Images given in the manual are used as illustration. The content of the image can be slightly different with the real image on the screen, e.g. version numbers, projector name, installed modules, window position, etc. .

Typography:

- Menu items to click on or buttons are indicated in bold, e.g. **OK**
- Non clickable Menu items are indicated in italic.
- A dialog window is indicated in italic, e.g. *Make a new configuration*.
- Step related notes, tips, warnings or cautions are printed in italic.
- Procedure related notes, tips, warnings or cautions are printed in bold between 2 lines preceding by the corresponding icon.
- Image related indication which are repeated in the image and in a step are indicated between brackets, e.g. (1).

2. SOFTWARE INSTALLATION AND START UP

Overview

- General requirements
- Free download of Communicator
- Software installation
- Starting up
- About the main window
- Start up of the Communicator via a batch file
- Window manipulations
- Change user
- Change custom logo
- Ethernet connection with a projector
- Serial connection with a projector
- Disconnecting from a projector
- Status icon indications
- Projector power mode status
- Change main window header

2.1 General requirements

System requirements for Microsoft Windows

Minimum hardware specifications :

- PC Pentium III or equivalent, 1 GHz
- 512 MB RAM
- Free hard disk space: 200 MB
- XGA resolution (1024 x 768)
- Serial communication port and/or Ethernet connection

Software

- Windows 2000, Windows XP Home or Windows XP Professional, Windows Vista, Windows 7

Recommended hardware specifications :

- PC Pentium IV or equivalent, 2.4 GHz
- 512 MB RAM
- 400 MB hard disk free space
- SXGA resolution (1280 x 1024) with 32 MB video memory
- Serial communication port
- Ethernet connection

System requirements for Linux

Software

- Any Linux distribution (RedHat 9.0, SuSe 8.2, Debian/Ubuntu, Mandriva, ...)

Minimum hardware specifications

- PC Pentium III or equivalent, 1 GHz
- 512 Mb RAM
- Free hard disk space: 200 MB
- XGA resolution (1024 x 768)
- Ethernet connection (serial connection is not supported)

Recommended hardware specifications :

- PC Pentium IV or equivalent, 2.4 GHz
- 512 MB RAM
- 400 MB hard disk free space
- SXGA resolution (1280 x 1024) with 32 Mb video memory
- Ethernet connection

System requirements for MAC

Support for Intel based Macs (MacBook, MacBook Pro, iMac, Mac mini, Xserve)

No support for Power PC based Macs (G4 and G5 series)

2.2 Free download of Communicator

Overview

The program can be downloaded for free from Barco's website, (URL: <http://www.barco.com>). Click on *myBarco* and login to get access to secured information. Registration is necessary.

If you are not yet registered, click on *New to myBarco* and follow the instructions. With the created login and password, it is possible to login where you can download the Communicator software.

It is not necessary to install any other software.

2.3 Software installation

To install on Microsoft Windows

The process of installing your software involves the following steps:

1. Browse to the directory where the install program is downloaded.
2. Double click on *Communicator_Installer.exe* .

The installation starts. Depending on the local Internet Explorer settings, it is possible that a warning is displayed. Just click Run to start the installation.

3. Follow the instructions given in the different install windows.
4. Complete installation is automatic.

Note: A restart of the computer is necessary before the software can be used.

Barco → Communicator → Communicator item is added to the program list (unless otherwise selected during the installation).

To install on Linux

The process of installing your software involves the following steps:

1. Browse to the folder where the downloaded installer file (*Communicator_installer.run*) has been stored.
2. Check if the file is executable. This is done by right clicking on the file and selecting 'Properties' from the popup menu.
3. Select tab **Permissions** and check if *Is executable* is enabled.

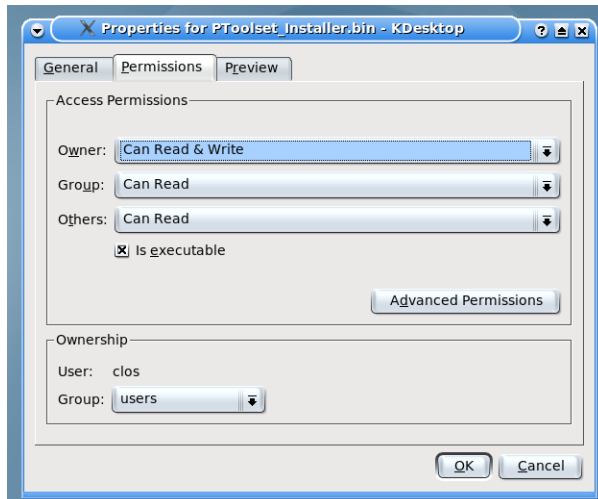


Image 2-1
File properties

4. Double click on the *Communicator_installer.run* to start the installation.
5. Follow the instructions given in the different install windows.
6. The complete installation is done automatically.

To install on MAC OS X

The process of installing your software involves the following steps:

1. Browse to the folder where the downloaded zip file is stored.
2. Double click on the zip file to unzip.
3. Double-click on the communicator application bundle to start communicator.

Software updates

For new version of the Communicator, download the installer file (Windows and Linux) or the zip file (MAC) and handle in the same way as for a first install. The new version will be installed on the same location and the files will be overwritten.

2.4 Starting up

How to start up

1. Double click on the Communicator icon on your desktop
Or,
click Start → All programs → Barco → Communicator → Communicator
The software starts up with the same look and feel as when it was closed before.
2. At a first start up, an Identification dialog window opens.
Enter your name and company and click **OK**.



The look and feel of the software can be different between a Windows installation or Linux installation. Therefore the screenshots in this manual are made on a Windows installation and can be used on all environments as a reference.

2.5 About the main window

Introduction

Once the software is started, it starts always with the default user

Window areas

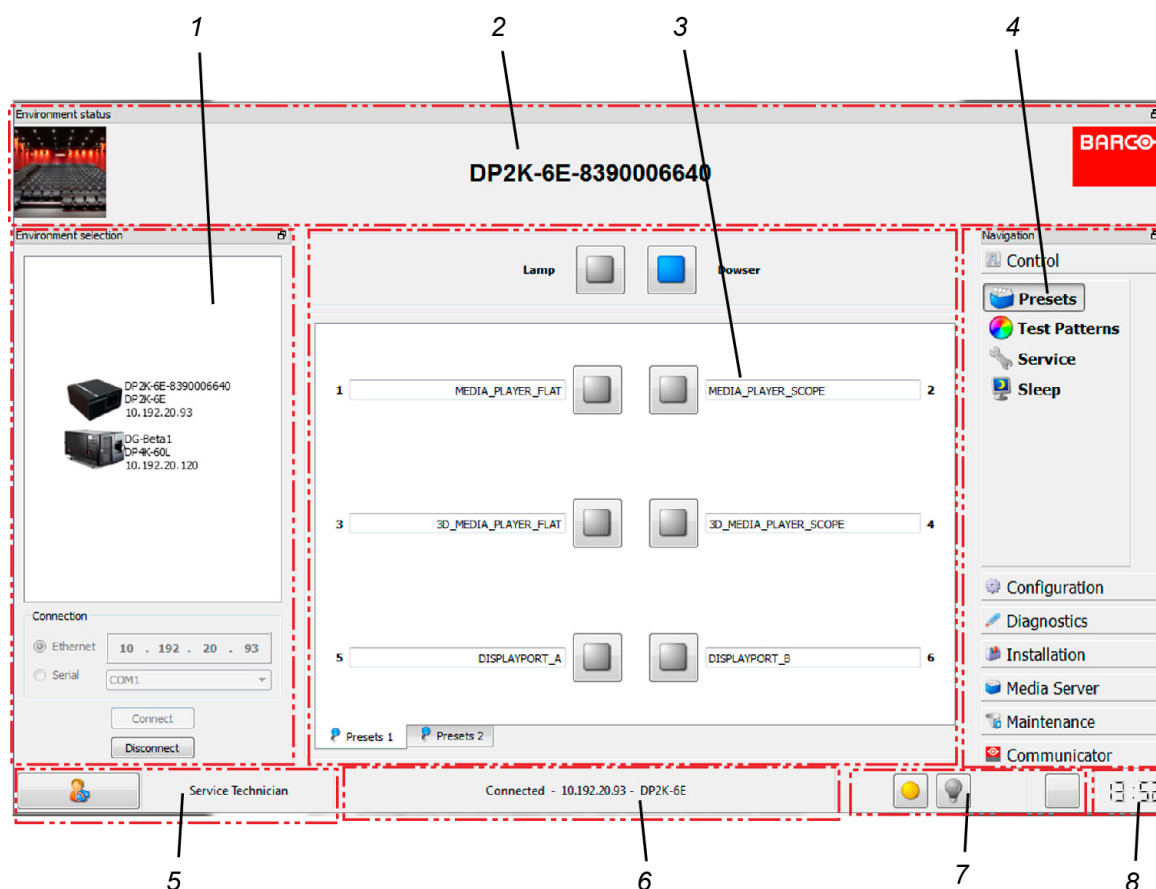


Image 2-2
Main window, overview

Indi-cation	Description
1	Environment selection, overview of available projectors on the network. Indication of connected IP address.
2	Environment status with projector name, status LEDs and custom logo (only changeable with Projector Toolset or Communicator Touch panel). Changeable to graphical visualization of the projector status.
3	Configuration and control pane, area to make selections and execute controls.
4	Navigation (selection) pane
5	User selection and current active user

Indication	Description
6	Active connection with projector and connected projector type
7	Different status icons
8	PC clock

2.6 Start up of the Communicator via a batch file

How to start up

1. Create a batch file to start up the Communicator software by entering the exe file in the batch file.
drive letter:\installation path\communicator.exe -arguments


The Communicator can be started with arguments.

Argument	Description
-path	Use the given application path.
-stylesheet	Start with a specific QT stylesheet. The look and feel can be adapted to a custom look and feel. For more information about QT stylesheets, consult http://doc.troll-tech.com/4.3/stylesheet.html
-notitlebar	Does not display an application titlebar
-fixedsize	Start with fixed size, non resizable window. The size should be formatted like 800*600.
-nodocking	Start without docking window features

Example: `communicator.exe -notitlebar -fixedsize 800*600 -nodocking -stylesheet style.qcss`

2.7 Window manipulations

What can be done

Some panes of the main window with a  in the title bar can be dragged outside the main window to create more space for the configuration and control pane. Once outside the main window, this window can be dragged back inside the main window.

How to split off a window

1. Click on the title bar of the window with  indication and hold down the mouse button (1).

2. Software installation and start up

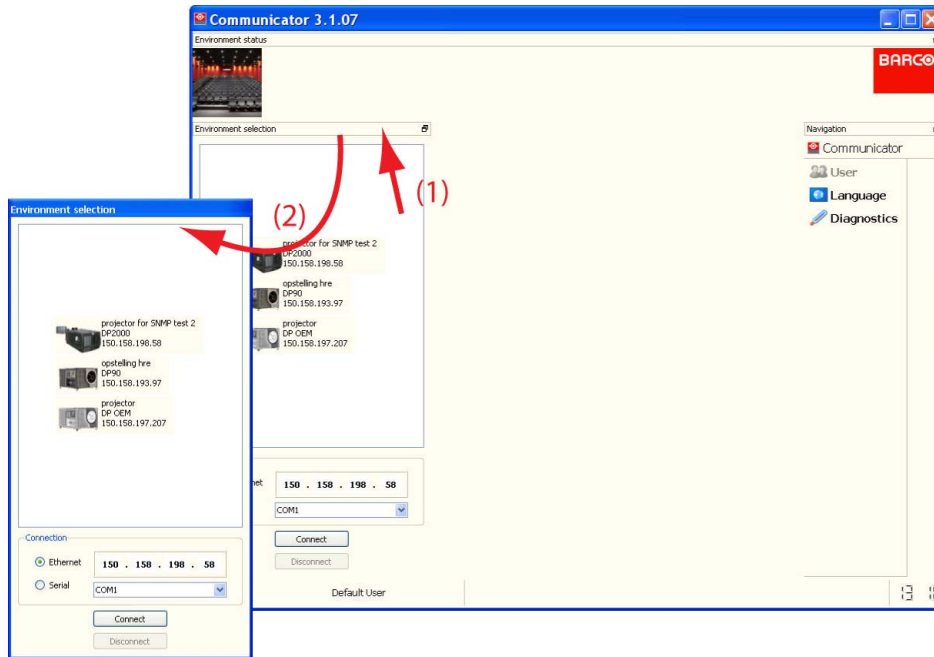



Image 2-3
Split off a window

2. Drag the window outside the main window (2).
A new window is created.
3. Release the mouse button to drop that window on that place.

Quick way to split off a window

1. Double click on the  of the window to be split off (1).

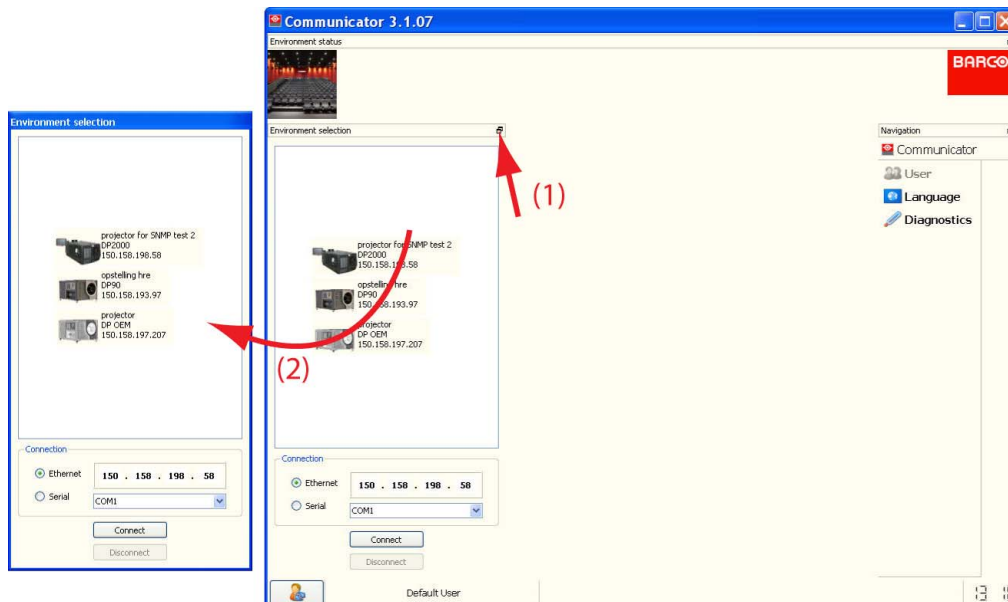


Image 2-4
Quick window split off

A new separate window is created outside the main window (2).

How to join a window with the main window

1. Click on the title bar of a separate window and hold down the mouse button (1).

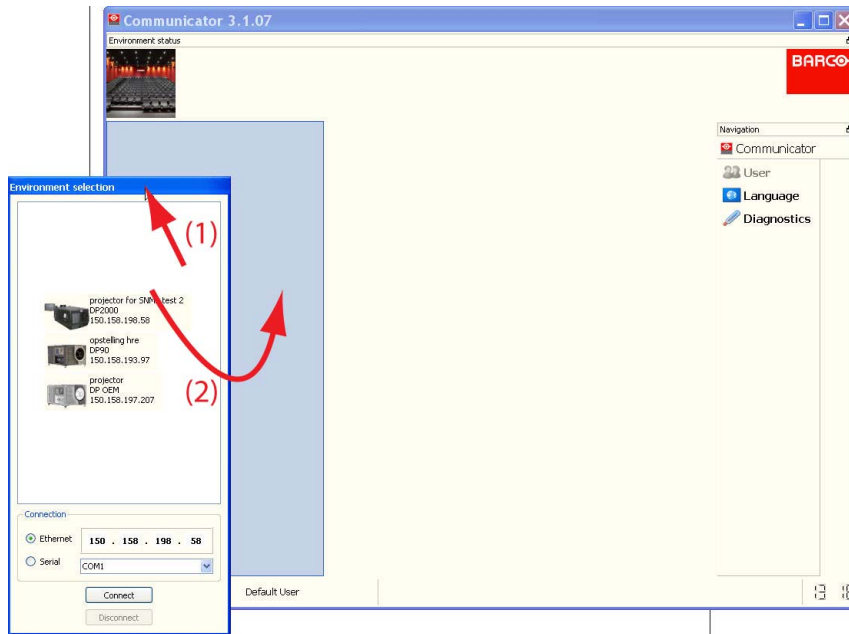


Image 2-5
Join windows

2. Drag the window slowly inside the main window in the area where you want to drop it (2).
A part of the main window becomes blue.
3. Release the mouse button.
The dragged window jumps inside the blue area and joins together with the main window.

2.8 Change user

How to change to another user

1. Click on the user button (1).

2. Software installation and start up

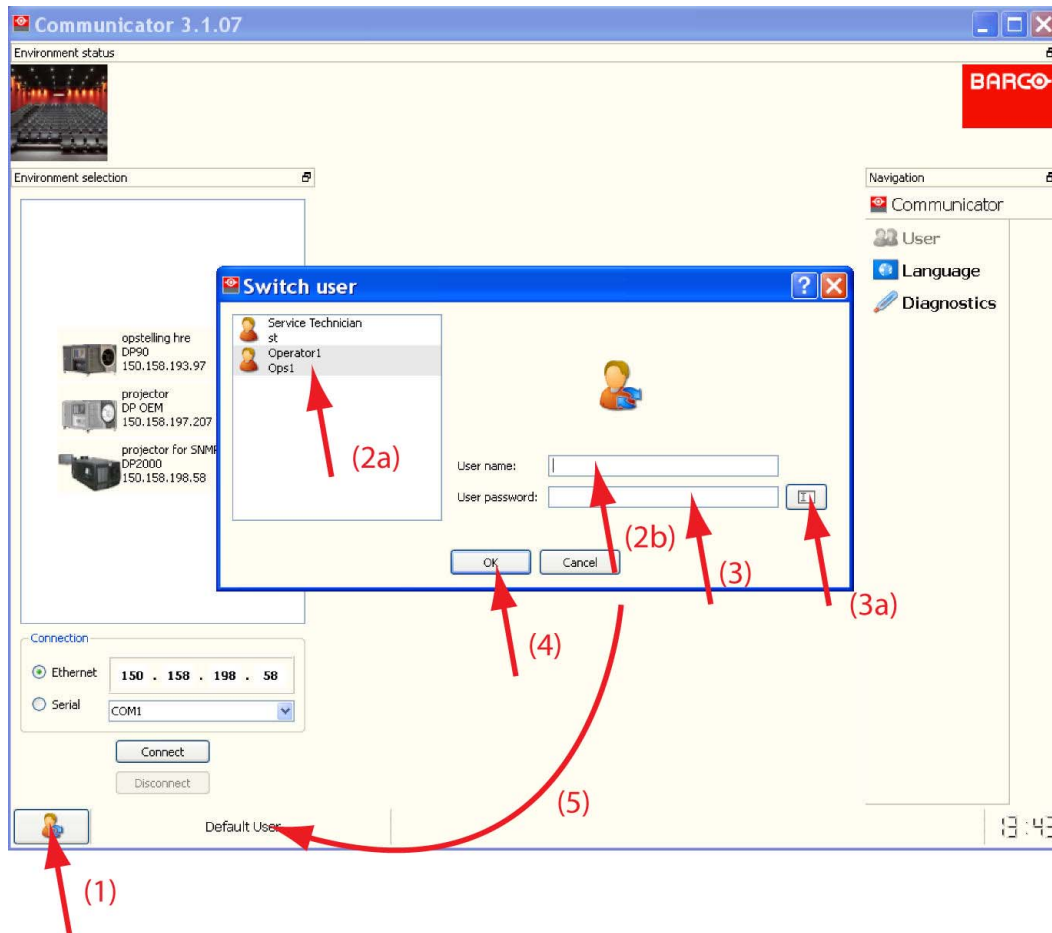


Image 2-6
Change user

The *Switch user* dialog opens.

2. Click on a user in the list (2a).

The short name of the selected user will be filled out next to User name

Or,

click in the input field next to User name and enter the short name for the user (2b).

3. Click in the *User password* input field and enter the password (3).

Note: Each character in the password is normally displayed as an asterisk. To display the real characters, click on the *Display password* button (3a).

4. Click **OK** (4).

The user name and password are checked. The user profile will be loaded. The name of the user is indicated next to the user button (5).

2.9 Change custom logo

What is possible ?

The custom logo in the left top corner can be changed by a user with service technician rights. The new logo can be browsed on the PC. The Communicator software provides an area of 90 x 90 pixels. Any image larger than 90 x 90 pixels will be proportionally scaled to match inside this area. The file must be a png format and smaller than 1 MB.

How to change

1. Click and hold down the mouse button for more than 2 seconds on the current logo (1) and then release the mouse button again.

Note: The user must have service technician rights to change the logo.

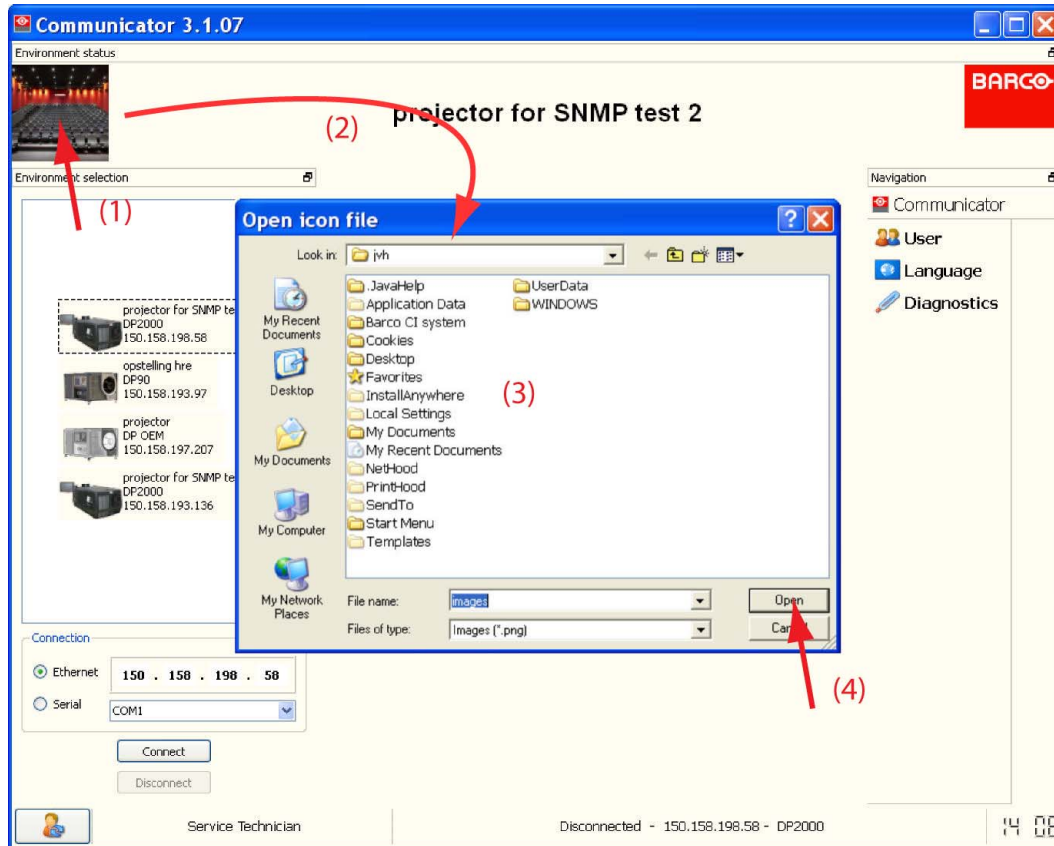


Image 2-7
Change logo

- A browser windows opens (2).
 2. Browse to the desired file, click on it to select (4).
 3. Click on **OK** (5).
- The new logo is loaded in the upper left corner of the Communicator software (6).

2.10 Ethernet connection with a projector

Introduction

All projectors in the same subnet as Communicator are automatically detected by the build in broadcast query of the Communicator software and displayed in the *Environment selection* pane. The available projectors are displayed with their IP address and projector type and the pictograph can be used as shortcut key to make the connection.

If a projector is not in the same subnet, it can be reached by entering its IP address.

How to connect

1. Select the radio button in front of *Ethernet connection* (1).

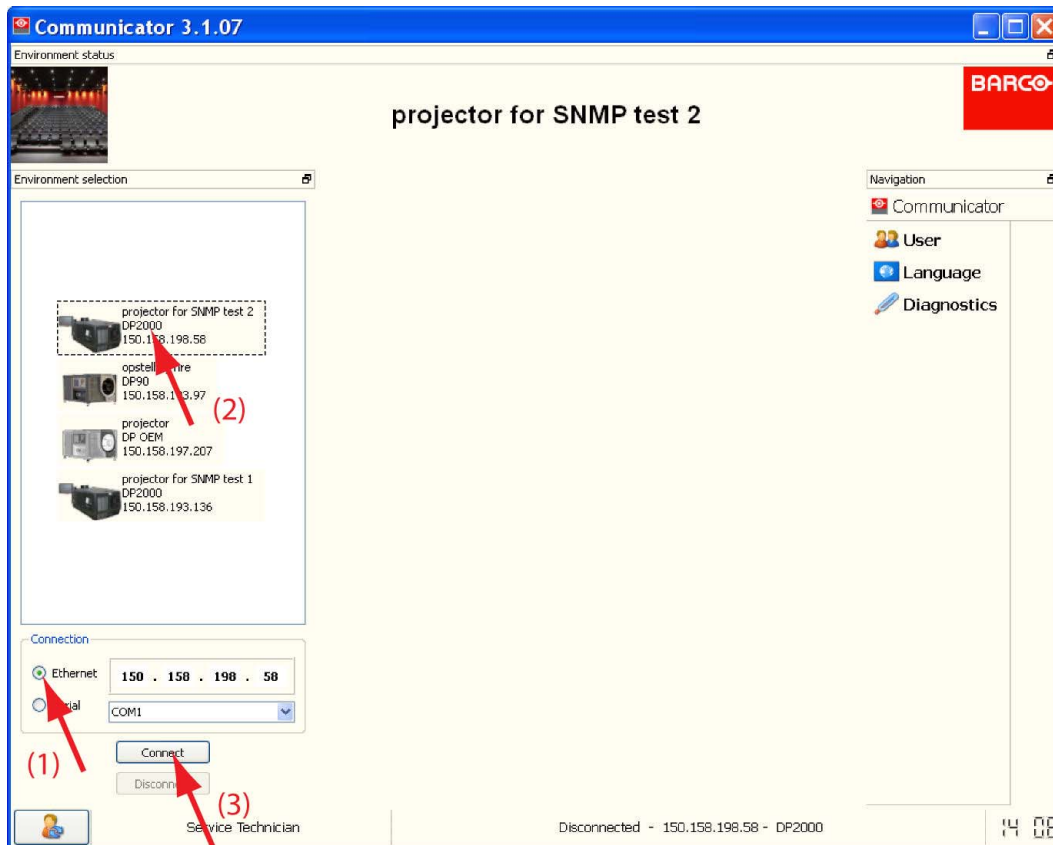


Image 2-8
Make Ethernet connection

2. Double click on a pictograph (2).

A connection is established and the corresponding controls are loaded in the Control and selection pane. The name of the projector is also loaded in the title bar.

Or,

click on a pictograph (2) to select and then click on **Connect** (3).

Or,

enter the IP address next to *Ethernet connection* and then click on **Connect** (3) or press **ENTER** on your keyboard.



When a connection is established, just double click on another pictograph to create a new connection or restart the connect procedure.

2.11 Serial connection with a projector

How to connect

1. Make the physical connection between the projector and the PC.
2. Select the radio button in front of Serial connection.

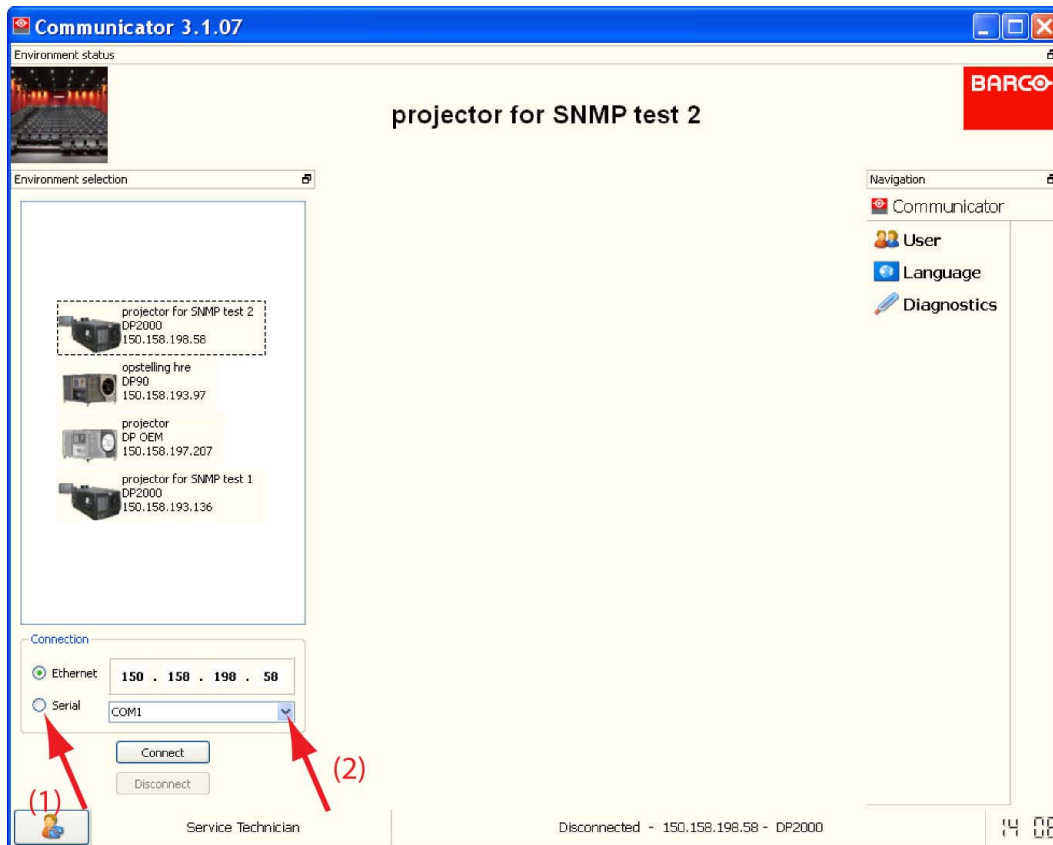


Image 2-9
Serial connection

3. If the PC has different serial ports, click on the drop down box and select the corresponding port.

2.12 Disconnecting from a projector

How to disconnect

1. While connected with a projector, click on **Disconnect**.
The connection with the projector will be broken.

2.13 Status icon indications

Error - Warning - Maintenance indication

When the projector has errors or warning an error or warning symbol is added on the right bottom corner of the main window, next to the clock.

That symbol can have 2 different states:

- blinking : a new error or warning has occurred and added to the projector error message list since it was last consulted
- not blinking : no new errors or warnings are added to the projector error message list.

When the projector has no errors or warning a green OK symbol is displayed.



no errors or warnings on the projector.

2. Software installation and start up



projectors has warnings, but no errors.



projector has errors.



projector needs maintenance.

Consulting the projector error message list

To consult the projector error message list, click on the warning icon (1), independent if it is blinking or not.

The projector error message list opens in a new window (2).

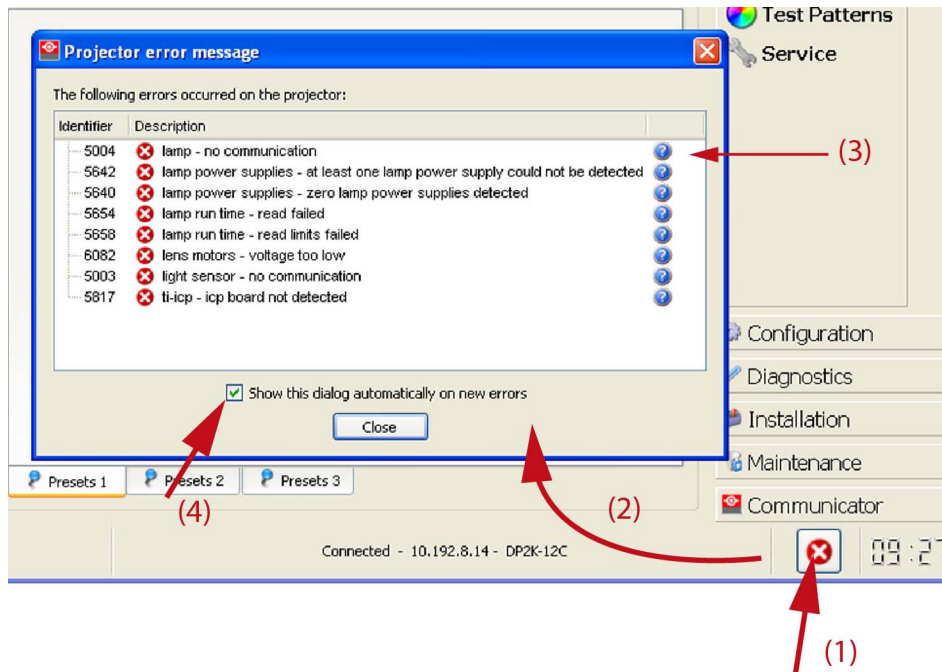


Image 2-10
Projector error message list

An overview of the current error and warnings is given in the list. Each error/warning has a number. A suggestion to solve the problem is given at the end of each line covered by the question mark symbol (3). Click that question mark to open the *Diagnostic companion*.

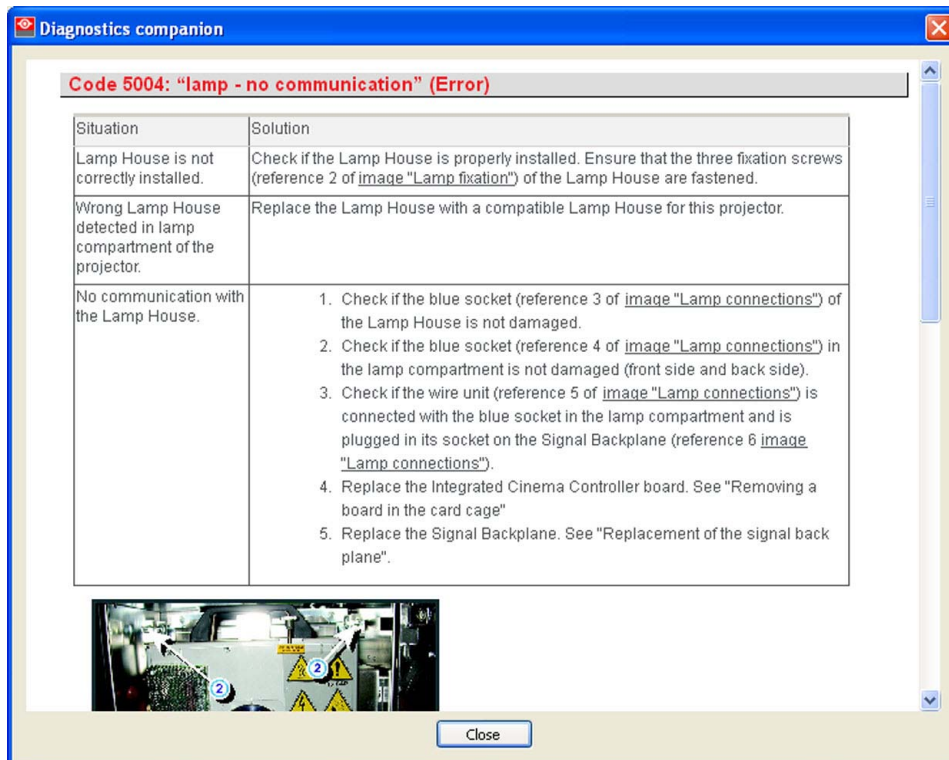



Image 2-11
Diagnostic companion

The Diagnostic companion gives for a given situation, one or more possible solutions.

If you want to pop-up the projector error message window every time an error or warning occurred, check the check box in front of *Show this dialog automatically on new errors* (4).

Lamp/laser mode indication

Indicates the current status of the lamp/lasers


 Gray indicates that the lamp/lasers is/are off.


Yellow lamp indicates that the lamp/lasers is/are on.


Power mode indication

Indicates the power mode of the projector.

 projector in power on/standby mode.

 projector in sleep mode.

 Projector powered on.

 Projector powered off.

Chiller mode indication

 Chiller is off.

Chiller is on.

2.14 Projector power mode status



Only for DP2K S- and E-series projector.

Indication

The power mode status is indicated right at the bottom of the window. It can have two states:



Power on, projector is in standby or projector is projecting



Sleep mode, projector is in sleep mode. Power consumption is less than 15 W. Only a few functions can be executed. For more information about the sleep mode, see "About power mode", page 42.

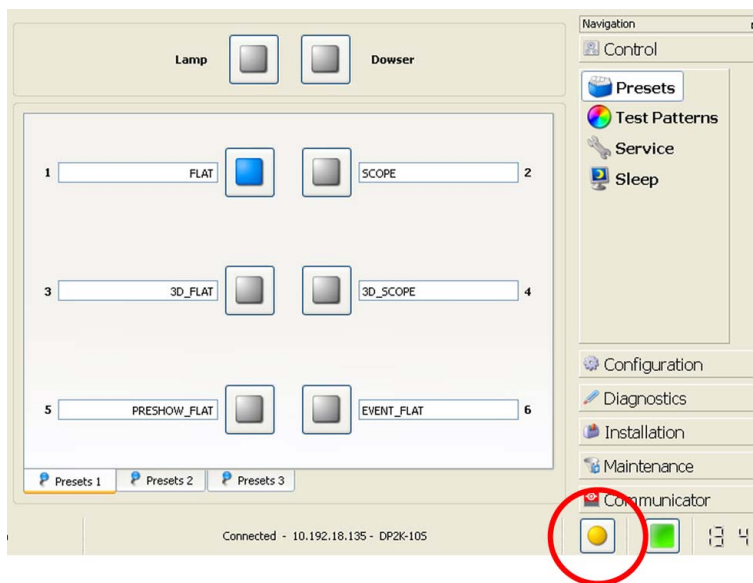


Image 2-12
Power mode indication

2.15 Change main window header

What is possible ?

The header of the touch panel can be changed from the default header containing the custom cinema logo at the left and the Barco logo at the right to a graphical projector control window.

How to change

1. Click on the Barco logo (1).

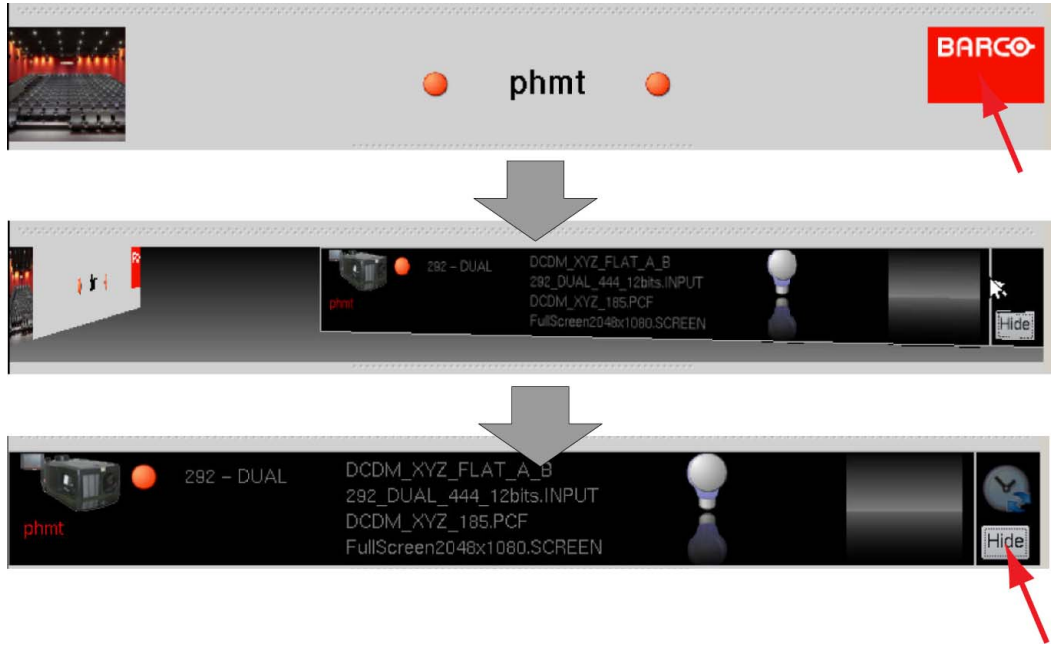


Image 2-13

The current header fade out and the graphical projector window fade in.

2. To return to the normal header, click on **hide**.

What is displayed ?



Image 2-14

Graphical user interface

1	Projector name
2	Projector status
3	Selected input
4	Active files
5	Lamp status
6	Dowser status, when open dowser is next to the lamp, when closed, dowser is on the lamp
7	Projected image, also holds if test pattern is displayed, yes or no.

3. CONTROLS

Overview

- Introduction to Controls
- Presets
- Test patterns
- Service
- Service (laser projectors)
- Sleep
- Standby

3.1 Introduction to Controls

About the menus

Depending if the connected projector is a lamp based or laser based projector, the menu items and the content of some items can or will be different. All items will be discussed in the next sub topics.

3.2 Presets

3.2.1 Introduction

Overview

Depending on the setup, the user interface can have 5 preset pages with each 6 presets. After the last preset is defined and there are still full blank preset pages, these pages will not be displayed in the user interface.

To each button, a macro can be associated. When a macro is associated to this button, the name of the associated macro is indicated in the input field next to the button. Advanced users can change the association to other macros and these users have also the possibility to edit macros and to create new macros.

Two permanent preset buttons are always on top of the preset pages. These permanent preset buttons are for :

- lamp or laser on/off. The indication next to the button will change depending on the connected projector.
- dowsers open/close.

3. Controls

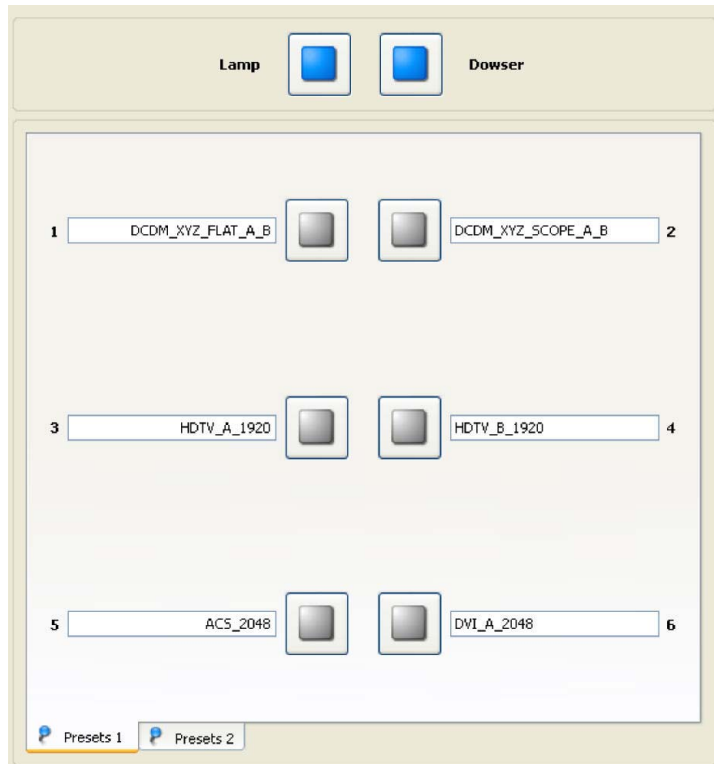


Image 3-1
Preset pane



Once the preset button is clicked, the preset tab page of the last selected button is displayed.

3.2.2 Activating a preset



When metadata control is enabled on this projector, the following message will be displayed when activating a preset:

Metadata is enabled, server is in control.

How to activate

1. Click on the button next to the desired description. To activate a preset on another preset page, tip first on that preset page and then on the desired button.

The macro behind the selected preset will be executed. A hourglass appears on the macro button.

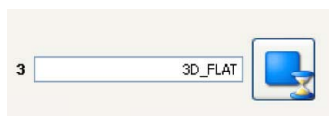


Image 3-2
Activation process is running

As an indication that the preset is activated, the button changes to blue.

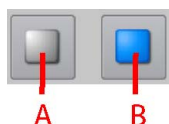


Image 3-3
Preset status

- A Not activated button
- B Activated button



When a preset is activated and a warning sign appears on the preset, that means that an error occurs while executing the command lines of the macro file.

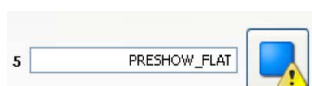


Image 3-4

When moving the cursor over the warning sign, a tool tip is displayed indicating which line in the macro file fails.

3.2.3 Lamp On/Off

What can be done?

The projection lamp can be switched ON and OFF using the toggle button on top of the preset pane.

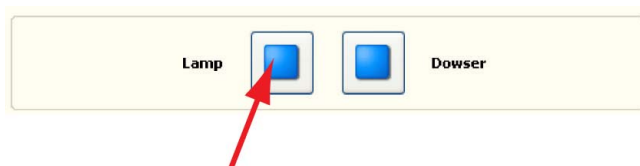


Image 3-5
Lamp on/off button



For DP2K S and E series: Lamp On/Off button cannot be pressed when the projector is in sleep mode.

Toggling the lamp status

1. When the button is in a **not pressed** status, click the button to switch the lamp ON.
2. When the lamp is ON, button indicates blue, click this button again to switch off the lamp.

3.2.4 Laser On/Off

What can be done?

The lasers can be switched ON and OFF using the toggle button on top of the preset pane.

3. Controls

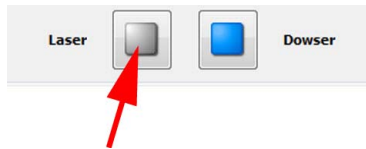


Image 3-6

toggling the laser status

1. When the button is in a **not pressed** status, click the button to switch the lasers ON.

The chiller icon and the lamp (laser) icon become green and start blinking. The projector goes from a preconditioned phase to a conditioned phase. When conditioned, the chiller icon stops blinking. The lasers start and the lamp (laser) icon stops blinking too. This process takes a few minutes.

2. When the lasers are ON, button indicates blue, click this button again to switch off the lasers.

For DP4K L-series projectors, the chiller icon and the lamp (laser) icon become gray and start blinking. The projector goes from a conditioned mode to the preconditioned state. This process takes a few minutes.

3.2.5 Dowser Open/Close

What can be done?

With this permanent preset you have full control over the dowser setting. With a tip it is possible to open or close the dowser.

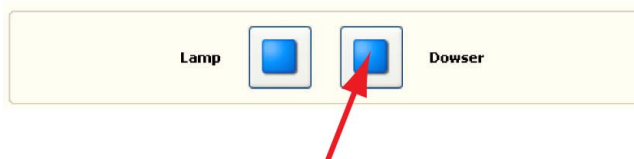


Image 3-7
Dowser open/close button

How to toggle the dowser

1. Click on the dowser button to open or close the dowser.

The status of the dowser is indicated by the button itself. When this button is blue, activated state, the dowser is closed. When the button is gray, the dowser is open.

3.3 Test patterns

Overview

- Changing a test pattern
- Clear the projected test pattern
- Pattern shortcuts



When connected to a 2K projector, test patterns behind the short cuts are 2K test patterns.

When connected to a 4K projector, test patterns behind the short cuts are 4K test patterns.

3.3.1 Changing a test pattern



The default test patterns are in the RGB color space. The color space option is by default RGB. If a test pattern with YCbCr color space is uploaded, select first YCbCr otherwise the pattern will be displayed in a wrong way.

How to change

1. Click on **Change pattern**.

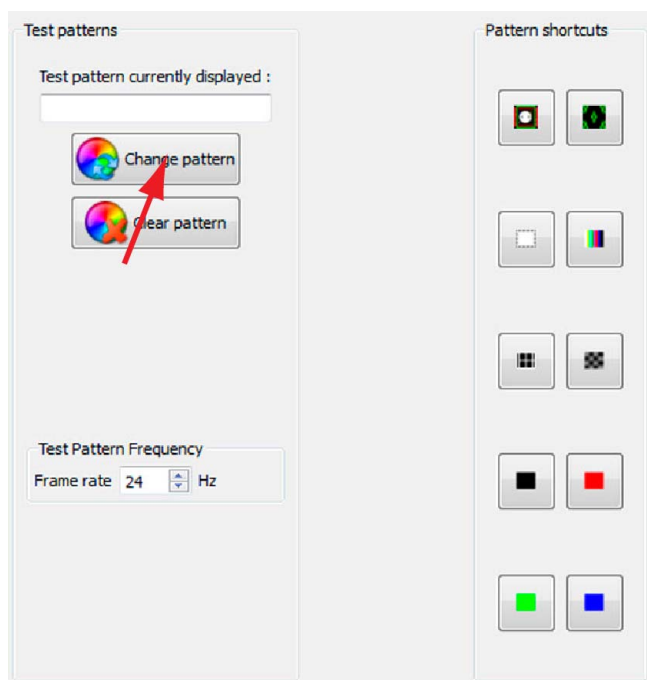


Image 3-8
Change test pattern

A retrieving window appears for a while until the list of patterns, available in the projector, is displayed.

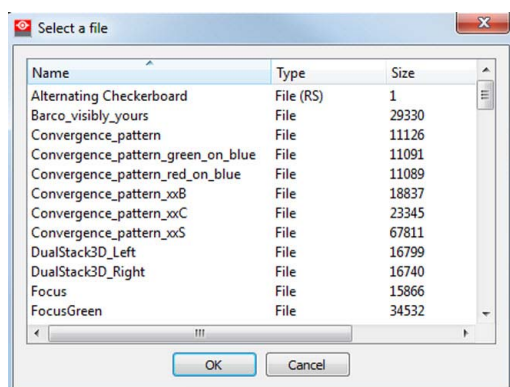


Image 3-9
List of test patterns

The list can be sorted on Name, Type, Size and Date/time just by clicking on the titles of the columns.

2. Select a test pattern out of the list.

List sorting is possible on any field, just by clicking on the title of the column.

3. Click **OK**.

3. Controls

A loading window appears and the test pattern will be displayed. The name of the pattern is filled out in *Test pattern currently displayed*.

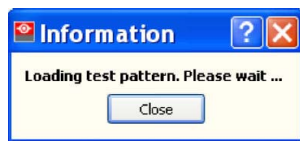


Image 3-10
Loading test pattern

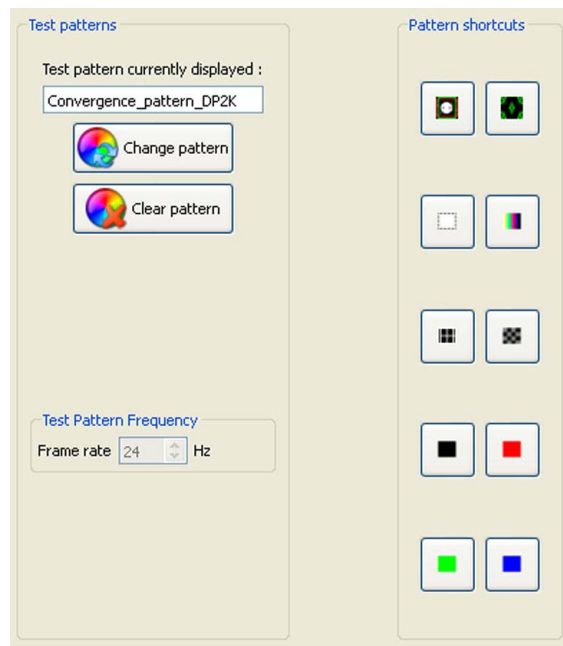


Image 3-11
Test pattern displayed

The test pattern frequency can be changed by clicking on the up down control until the desired frequency is reached.



When a convergence test pattern is on, color correction is bypassed.

3.3.2 Clear the projected test pattern

Clearing any selected pattern

1. Click on **Clear pattern**.

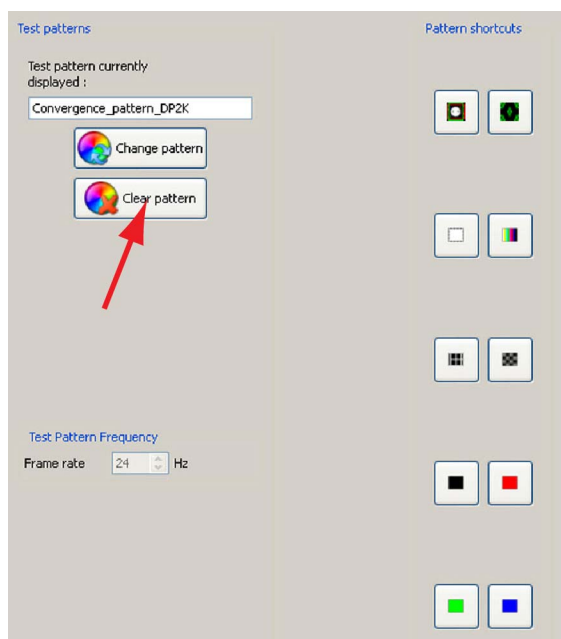


Image 3-12
Clear pattern

A warning message will be displayed to indicate that any projector configuration changes made while a pattern was enabled are not saved, and will be lost when clearing the pattern (except resizing and masking). Settings will be set back to the original settings as before the pattern was selected. Settings on resizing and masking will remain active. If you want to save these configuration settings save them first in a file (via the file manager).

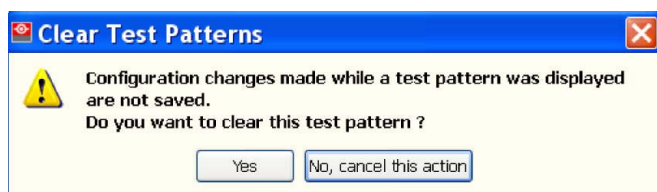


Image 3-13
Test pattern warning message

The pattern will be removed from the screen.

2. Do you want to save the settings ?

If yes, **Click No, cancel this action** and continue with saving procedure in File manager.

If no, click **Yes**.

A remove test pattern message will be displayed.

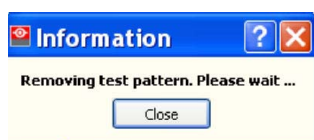


Image 3-14
Removing test pattern

3.3.3 Pattern shortcuts



The patterns behind the pattern shortcuts are always displayed in the RGB color space. When the projector is using a different color space at the moment the pattern is activated, it will switch to the RGB color space. When the pattern is cleared, everything will be set back to the original settings except masking, resizing and anamorphic lens factor.

How to select

10 predefined patterns can be quickly selected via the shortcuts.

1. Click on one of the 10 predefined pattern shortcuts.

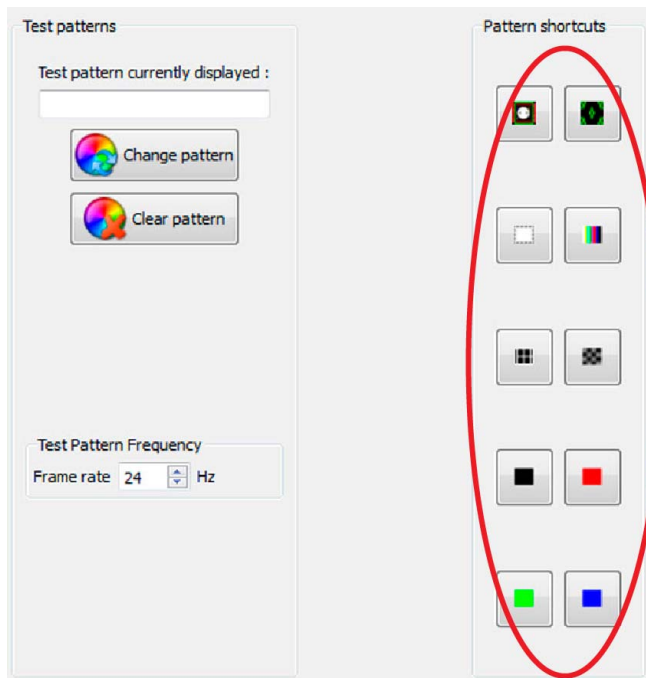


Image 3-15
Pattern shortcuts

The selected pattern will be displayed. The button becomes in the pressed state. The name of the pattern is filled out in *Test pattern currently displayed*.

The pattern is always displayed in the RGB color space even when the projector was using a different color space at the moment the pattern was activated.

2. To clear the pattern, click a second time on the pressed button
Or,
click on the **Clear pattern** button.

The currently displayed pattern is removed and the settings are set back to the previous setting with the exception of masking, resizing and anamorphic factor.

3.4 Service

Overview

- About the service settings
- Lamp and lamp information (Xenon lamp)
- Lamp and lamp information (UHP lamps)
- Light output mode

3.4.1 About the service settings

To open the service settings

Click on **Service** in the tab page pane.

The following items are available:

- The current light out
- Lamp current
- Lamp information
- Lamp output mode

3.4.2 Lamp and lamp information (Xenon lamp)

Current light output

The current light output is indicated in FootLambert.

The screenshot displays a software interface for projector service settings. It is divided into several sections:

- Current Light Output:** Shows 'Footlambert Measured: 21.02' in red text and 'Normal Mode' below it.
- Lamp information:** Contains two input fields: 'RunTime (Hours)' with the value '57' and 'Remaining RunTime (Hours)' with the value '943'.
- Lamp power:** A large black rectangular area with red text at the top reading 'Max: 4200 Watt', white text in the center reading 'Actual: 2554 Watt', and green text at the bottom reading 'Min: 2400 Watt'.
- Light output mode:** Features two radio buttons, 'Normal Mode' (which is selected) and 'CLO Mode'.
- Nominal Mode Parameters:** Includes a slider control for 'Lamp Dimming (255 = Maximum)'. The slider is positioned near the left, and a numerical value of '26' is displayed to its right.

Image 3-16
Lamp power and light output information

It indicates also in which mode the projector is working.



Current light output is only indicated when a CLO key is installed.

Lamp power

A histogram indicates the current value of the lamp power. The diagram indicates also the minimum and maximum limits for the lamp currently in use.

The color of that histogram changes from green when lamp power is minimum to red when lamp power is maximum.

Lamp information

The following information is given in a read only format:

- Run time: the time the lamp is used since it first start up.
- Remaining run time: remaining run time that the lamp can be used without risk of damaging the projector.

3.4.3 Lamp and lamp information (UHP lamps)

Current light output

The current light output is indicated in FootLambert.

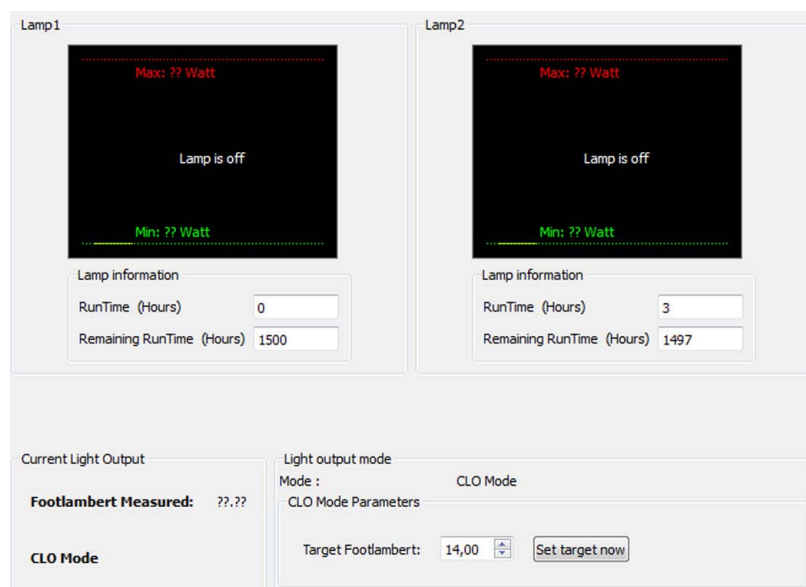


Image 3-17

It indicates also in which mode the projector is working.



Current light output is only indicated when a CLO key is installed.

Lamp power

Two histograms indicate the current value of the lamp power of each lamp. The diagrams indicate also the minimum and maximum limits for the lamps currently in use.

The color of that histogram changes from green when lamp power is minimum to red when lamp power is maximum.

Lamp information

The following information is given in a read only format for each lamp:

- Run time: the time the lamp is used since it first start up.
- Remaining run time: remaining run time that the lamp can be used without risk of damaging the projector.

3.4.4 Light output mode

3.4.4.1 Target set up for Normal mode



Mode selection must be done in Installation → Lamp.

How to setup

1. Adjust with the slide bar until the desired lamp power is obtained.

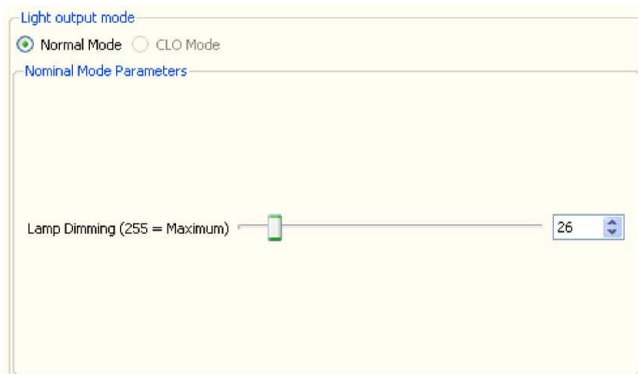


Image 3-18
Normal lamp output mode

Or,
click on the up down control of the spin box until the desired value is reached
Or,
click inside the text box and enter a new value with the keyboard.
The Current lamp output and Lamp power will change accordingly.

3.4.4.2 Target set up for CLO mode



Mode selection must be done in Installation → Lamp.



Target set up for CLO mode is lens dependent.



CLO mode is only available when a valid CLO key is installed.

How to setup

1. Click on the up down control of the spin box until the desired target value is reached.

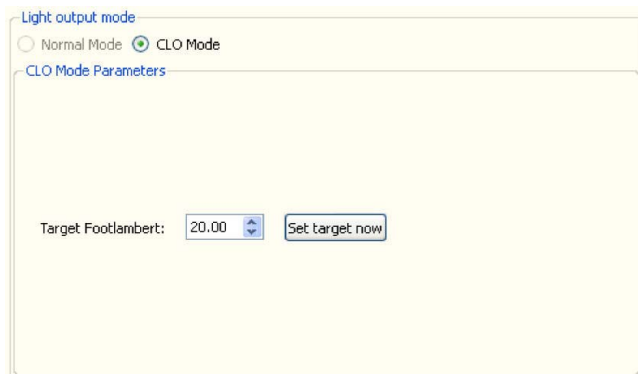


Image 3-19
CLO mode selected

2. Click on **Set target now**.

The lamp power will change accordingly between maximum and minimum until the entered light output is reached each time the lamp is switched off and is ignited again.

When the entered value is too high, the lamp power goes to its maximum. When the value is too low, the lamp power goes to its minimum.

3.5 Service (laser projectors)

Overview

- About the service settings
- Laser information
- Light output mode

3.5.1 About the service settings

To open the service settings

Click on **Service** in the tab page pane.

The following items are available:

- The current light out
- Laser information
- Light output mode

3.5.2 Laser information

Current light output

The current light output is indicated in FootLambert.

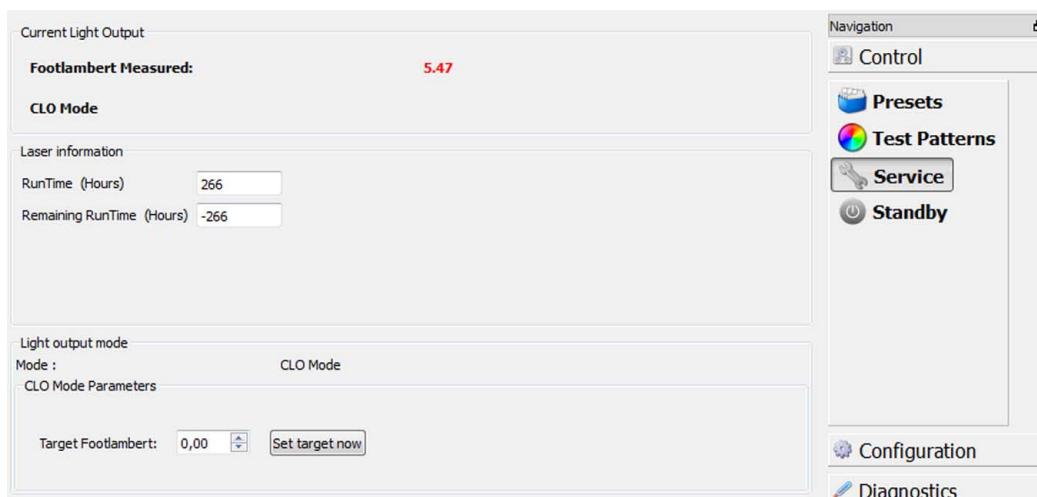


Image 3-20
Current light output

It indicates also in which mode the projector is working.



Current light output is only indicated when a CLO key is installed.

Laser information

The following information is given in a read only format:

- Run time: the time the lasers are used since it first start up.
- Remaining run time: remaining run time that the lasers can be used without risk of damaging the projector.

3.5.3 Light output mode

3.5.3.1 Target set up for Normal mode



Mode selection must be done in *Installation* → *Illumination*

How to setup

1. Adjust with the slide bar until the desired laser power is obtained.
Or,
click on the up down control of the spin box until the desired value is reached
Or,
click inside the text box and enter a new value with the keyboard.

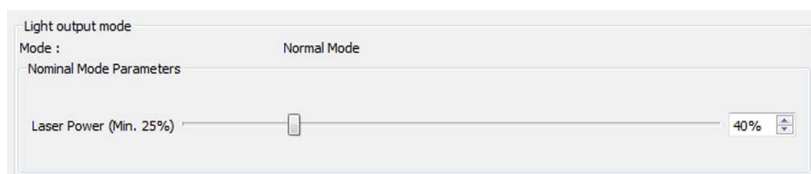


Image 3-21
Normal mode selected

The Current laser output will change accordingly.

3.5.3.2 Target set up for CLO mode



Mode selection must be done in Installation → Illumination.



Target set up for CLO mode is lens dependent.



CLO mode is only available when a valid CLO key is installed.

How to setup

1. Click on the up down control of the spin box until the desired target value is reached.

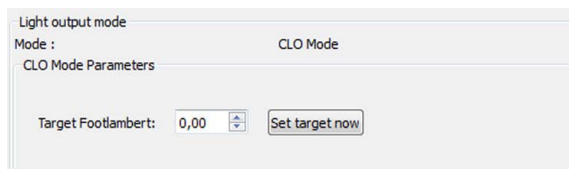


Image 3-22
CLO mode selected

2. Click on **Set target now**.

The lamp power will change accordingly between maximum and minimum until the entered light output is reached each time the lamp is switched off and is ignited again.

When the entered value is too high, the lamp power goes to its maximum. When the value is too low, the lamp power goes to its minimum.

3.6 Sleep



This function is only available for DP2K S- and E-series.

Overview

- About power mode
- From Power on to Sleep
- From Sleep to Power on

3.6.1 About power mode

Overview

The projector can be in 2 states, sleep mode or power mode.

Sleep mode means that the power consumption is less than 15W. No fans are turning and the Lamp Power Supply (LPS) is switched off completely. Only the following functionalities of the projector remain active:

- Cinema Controller
- Local Keypad
- Router and external switch fully functional
- USB IN port type “B” (Virtual comport RS232)
- USB OUT port type “A” (To power handheld devices [500mA MAX]. No other functionality supported)
- GPIO

Power on: means that projector is in standby or is fully operational. When in Power on mode, lamp can be switched on or off.

3.6.2 From Power on to Sleep

Switching from Power on to Sleep

1. While in *Control*, select **Sleep**.

The Power mode window opens.

2. Check the radio button to start up the sleep mode.

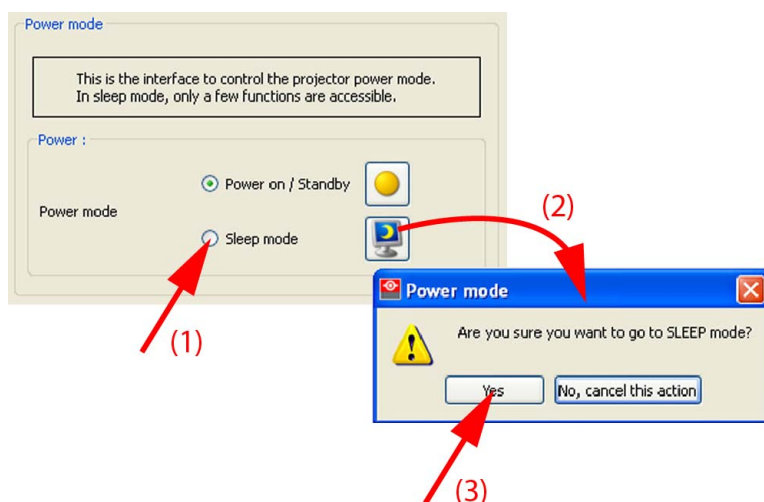


Image 3-23
From power to sleep

3. Controls

Depending on the current state of the projector, the following will happen:

- Projector is full powered and lamp is on: Going to sleep mode will fail. First, the lamp must be switched off and then you can continue to go into sleep mode.
- Projector is in standby. A confirmation message appears. Click **Yes** to continue the process. When the lamp is not yet fully cooled down, the cool down process will first be finished and then the projector will go into sleep mode.

The Control pane will only show the Sleep button. The Sleep icon will be displayed at the right bottom of the Communicator window.

The following items remain available in the other panes:

- Diagnostics : Actual, history and version info remain available.
- Installation: Only Communication is available. The IP address of the projector can be changed.
- Maintenance: Only Software upgrade is available. The projector software can be upgrade will in sleep mode.

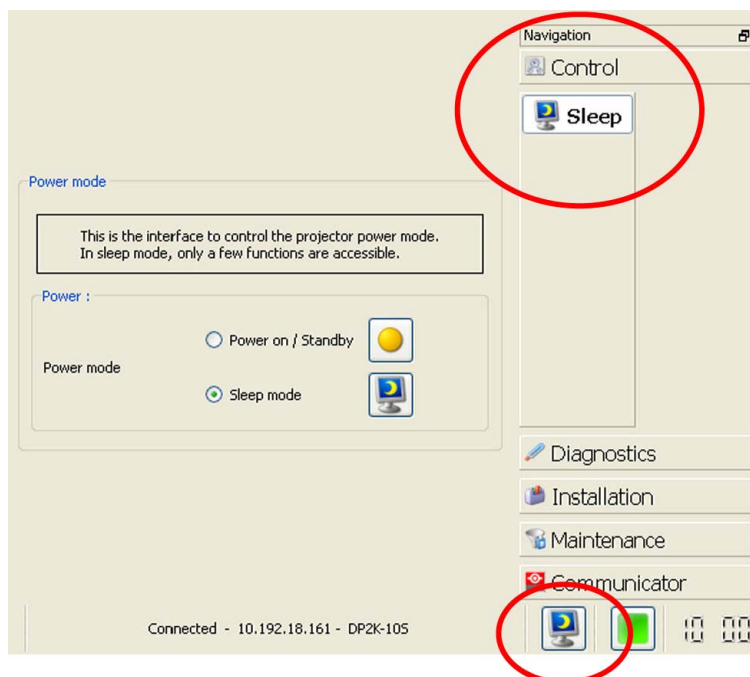


Image 3-24
Communicator, Sleep mode

3.6.3 From Sleep to Power on

Switching from Sleep to Power on

1. While in *Control*, only the **Sleep** function will be available. Click on **Sleep**.

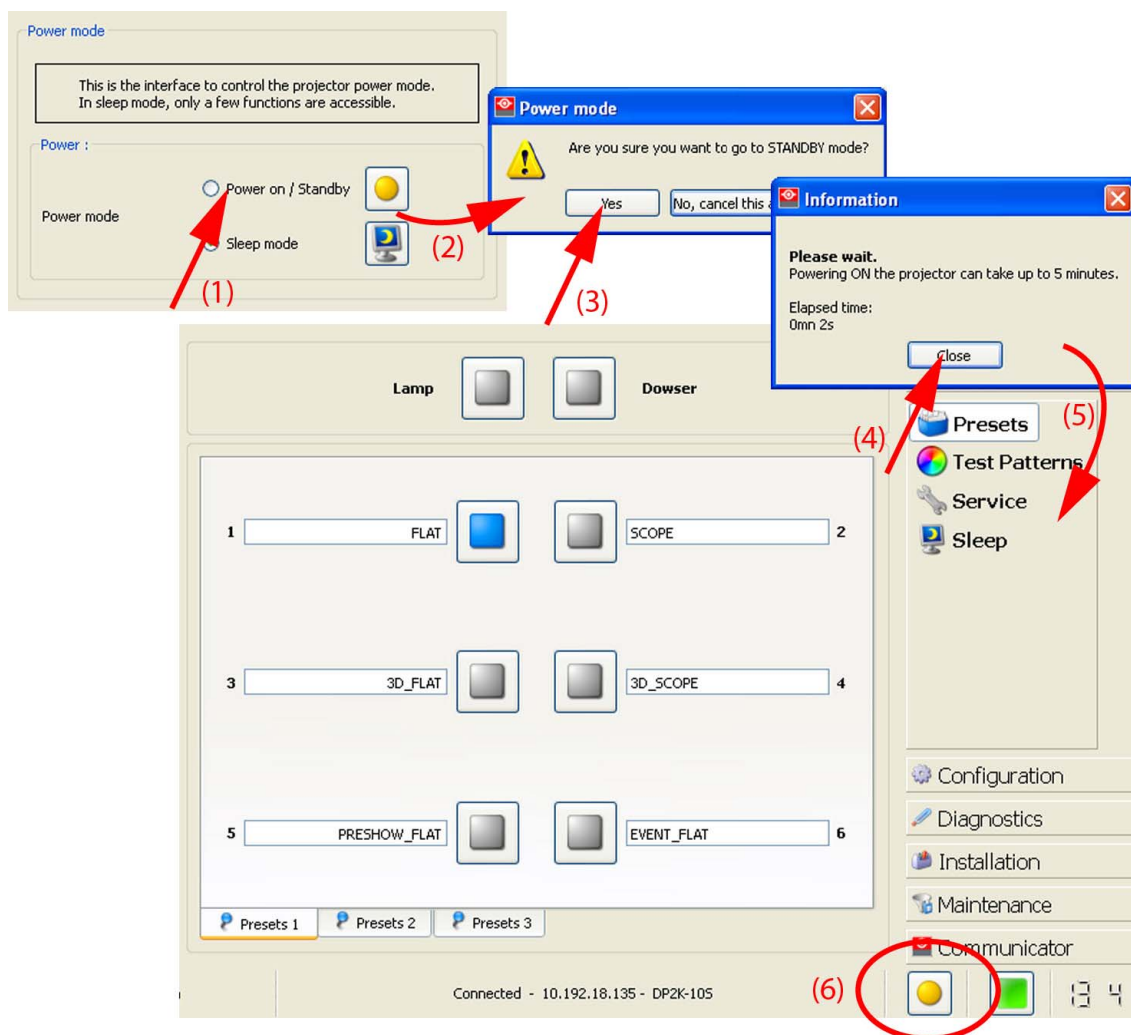


Image 3-25
From Sleep to Power on

2. Select *Power on/Standby*.

A confirmation question is displayed (2).

3. Click **Yes** to continue (3).

An information message is displayed. Powering up from sleep to standby can take about 5 minutes. Click **Close** to remove the message (4) and wait until the Communicator window changes to the *Preset* page (5). The power on icon is shown in the right bottom corner (6).

3.7 Standby



Only for DP4K L-series projectors.

Overview

- About power mode
- From power on to standby
- From standby to power on

3.7.1 About power mode

Overview

The projector can be in 2 states, standby mode or power mode.

Standby mode means that lasers are switched off and sealed compartments of the projector are in *deconditioning* state.

Power on: means that projector is fully operational. When in Power on mode, lasers can be switched on or off. The sealed compartments are in *conditioning* mode.

3.7.2 From power on to standby

Switching from Power on to standby

1. While in *Control*, select **Standby**.

The Power mode window opens.

2. Check the radio button to start up the standby mode.

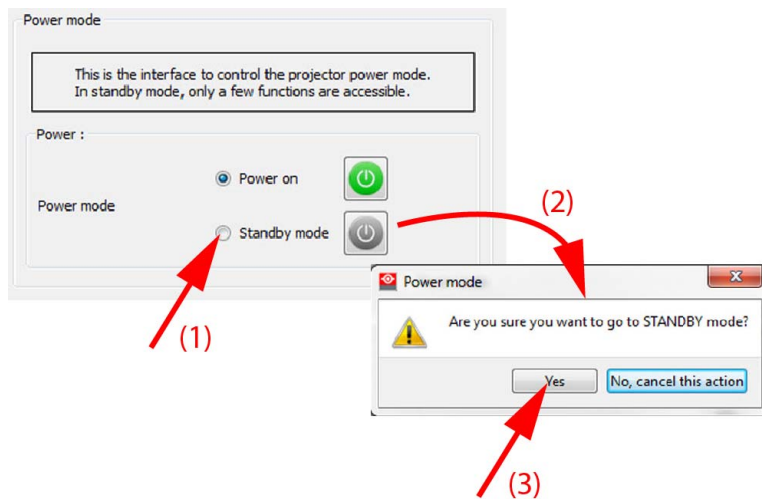


Image 3-26
From Power-on to Standby

Depending on the current state of the projector, the following will happen:

- Projector is full powered and lasers are on: the lasers will be deactivated. The lamp symbol and the chiller symbol switch to gray blinking for a while. During this phase the projector goes to ambient temperature, a deconditioning state.
- Projector fully power and lasers are off. The projector goes immediately in standby.

The Control pane will only show the Standby button.

The following items remain available in the other panes:

- Diagnostics : Actual, history, version info, Error lookup remain available.
- Installation: Only Communication is available. The IP address of the projector can be changed.
- Maintenance: Only Software upgrade is available. The projector software can be upgrade will in sleep mode.

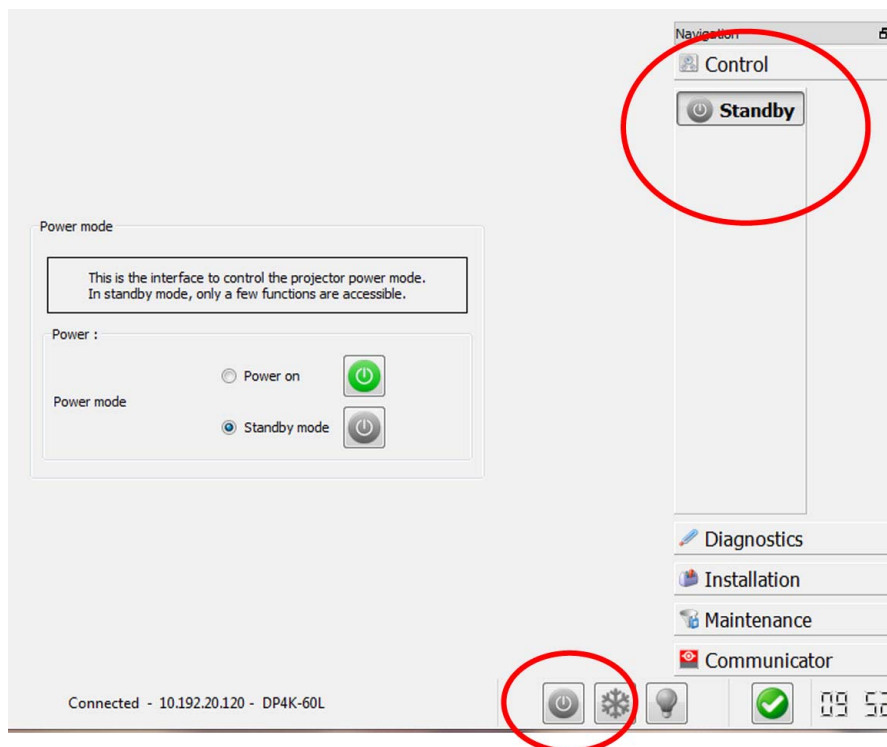


Image 3-27
Communicator, Standby mode

3.7.3 From standby to power on

Switching from standby to power on

1. While in *Control*, only the **Standby** function will be available. Click on **Standby**.

3. Controls

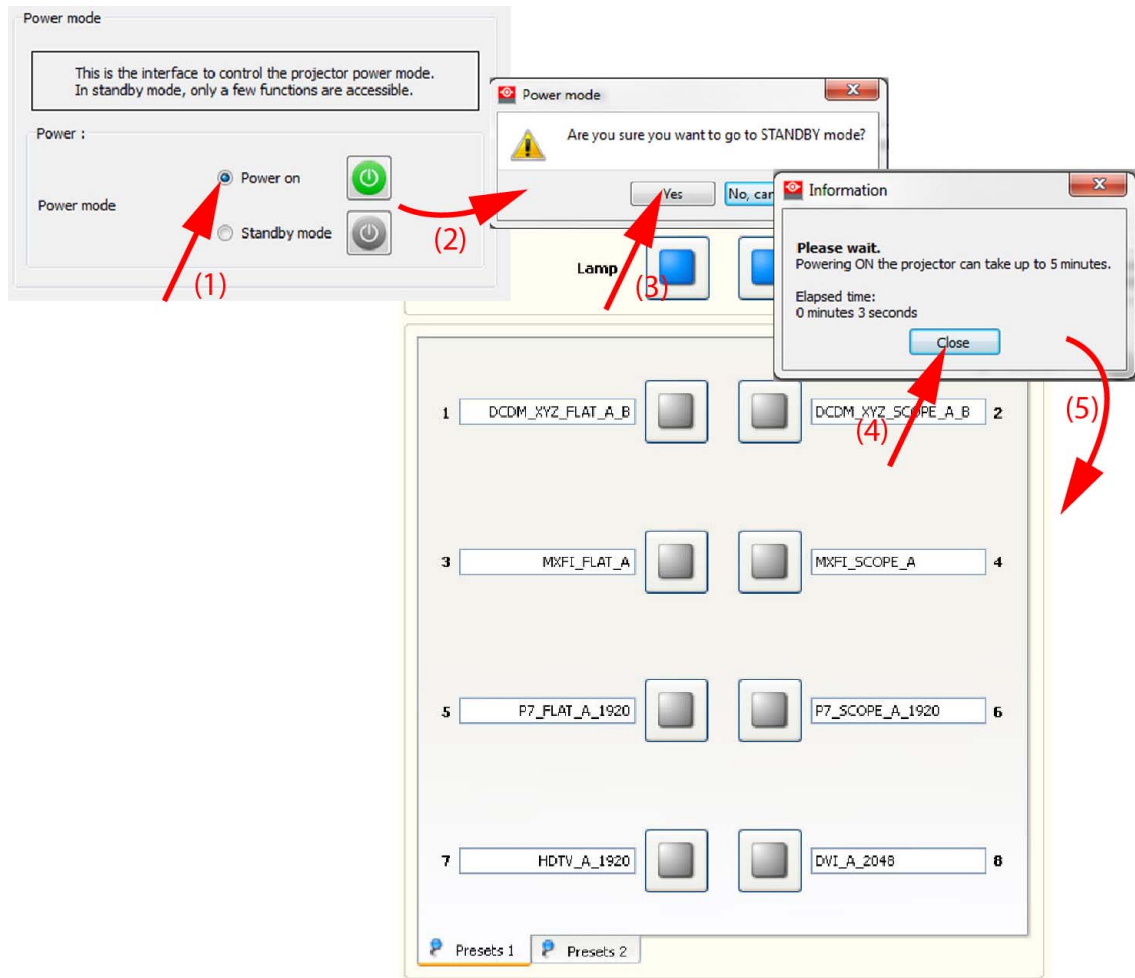


Image 3-28
Communicator, Power on mode

2. Select *Power on* (1).

A confirmation question is displayed (2).

3. Click **Yes** to continue (3).

An information message is displayed. Powering up from standby to power on can take about 5 minutes. Click **Close** to remove the message (4) and wait until the Communicator window changes to the *Preset* page (5).

4. CONFIGURATOR

Overview

- About Configuration
- Presets
- Macro
- Input
- PCF
- Screen
- 3D
- Lens
- Laser mode

4.1 About Configuration

Introduction

The configuration page can be used to create or edit macros and to associate existing macros on presets.

Next to that, the complete configuration from inputs over screen settings and lens adjustments can be set in the different configuration windows.

4.2 Presets

4.2.1 About the preset page

Overview

The preset page under Configuration shows all possible presets even when there are no macros assigned to a preset on that page. If you have the correct rights, presets can be managed. The association with a macro can be broken and new associations can be created. The current macro associated with a preset can be edited.

Each preset can be activated or deactivated without you have to go the *Control* pane.

4.2.2 Macro association

How to associate

1. Click on the association icon next to the button to which the macro must be associated (1).

Note: A macro can be associated to free button or to a button with an existing macro. In the latter, it will replace the macro.

4. Configurator

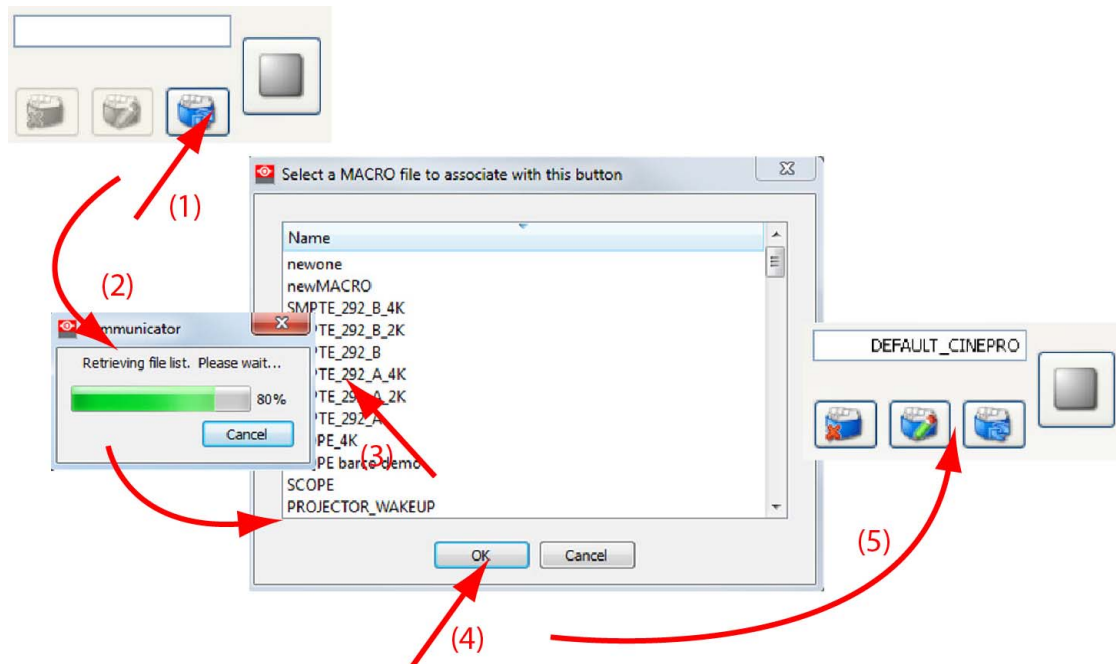


Image 4-1
Macro association

A retrieving window (2) appears for a while until the list of macro files, available in the projector, is displayed.

2. Click on a file to select (3) and then click **OK** (4).

The selected macro is associated with the button (5). The name of the macro file is added next to button.

4.2.3 Removing an association

How to remove

1. Go to the button where the association must be removed.
2. Click on the Remove icon.

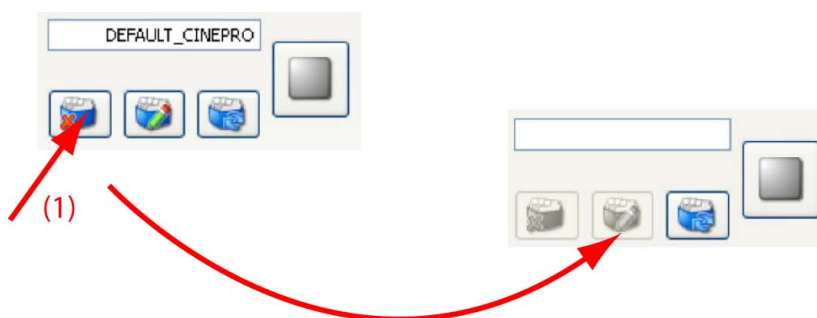


Image 4-2
Delete a macro association

The associated macro is removed from the button.

4.2.4 Edit a macro

How to edit

1. Go to the button for which the macro has to be edited.
2. Click on the Edit macro icon (1).

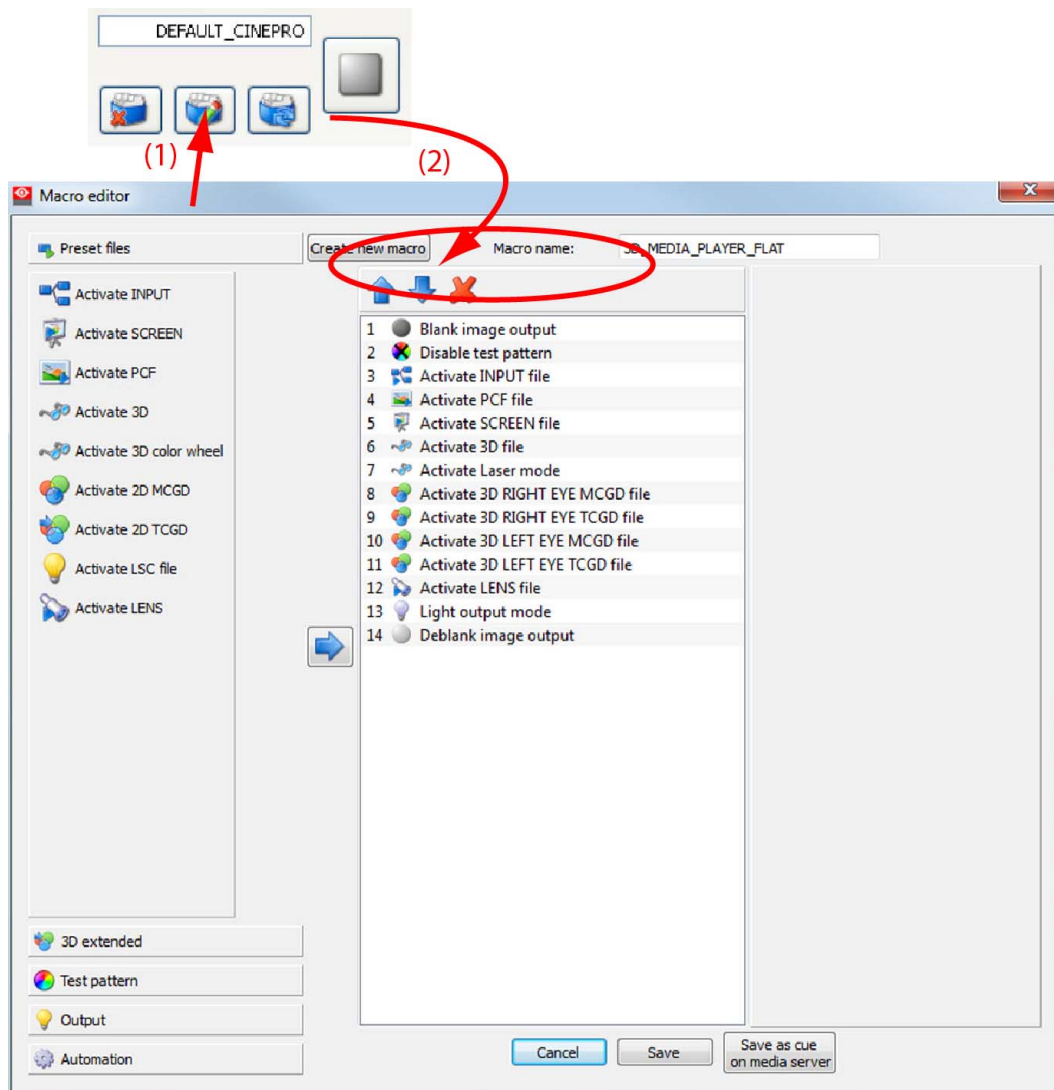


Image 4-3
Edit existing macro

The Macro editor starts and shows the content of the associated macro (2).

For more explanation about the Macro editor, see "Macro editor", page 405.

4.2.5 Activate or deactivate a preset

How to activate

1. To activate a button, just click on that button.
The color of the button changes to blue.
2. To deactivate a button, activate another button.
The blue button color changes to the standard gray color.

4.3 Macro

4.3.1 Activate Macro

What is possible

A macro can be activated via one of the preset buttons or directly via activate a macro. When a macro is activated via a preset button, the name of the active macro is filled out below the *Activate a macro file* button.

How to activate a macro

1. While in the Macro tab page, click on **Activate a macro file** (1).

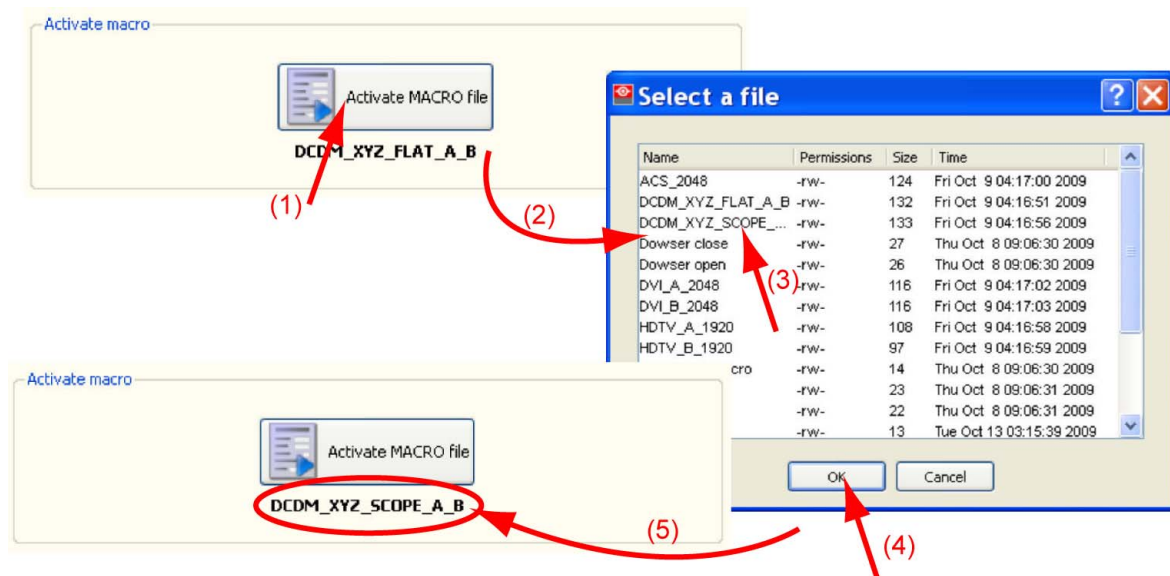


Image 4-4
Activate a macro

- The *Select a macro file* window opens (2).
2. Scroll to the desired file and click on that file to select (3).
3. Click **OK** to activate the macro file (4).

The macro file is activated and the name of the macro is indicated below the activation button (5).

When a command in the macro fails, the command number is indicated below the active macro.



Image 4-5

4.3.2 Edit macro

How to edit a macro

1. While in the Macro tab page, click on **Edit macro** (1).

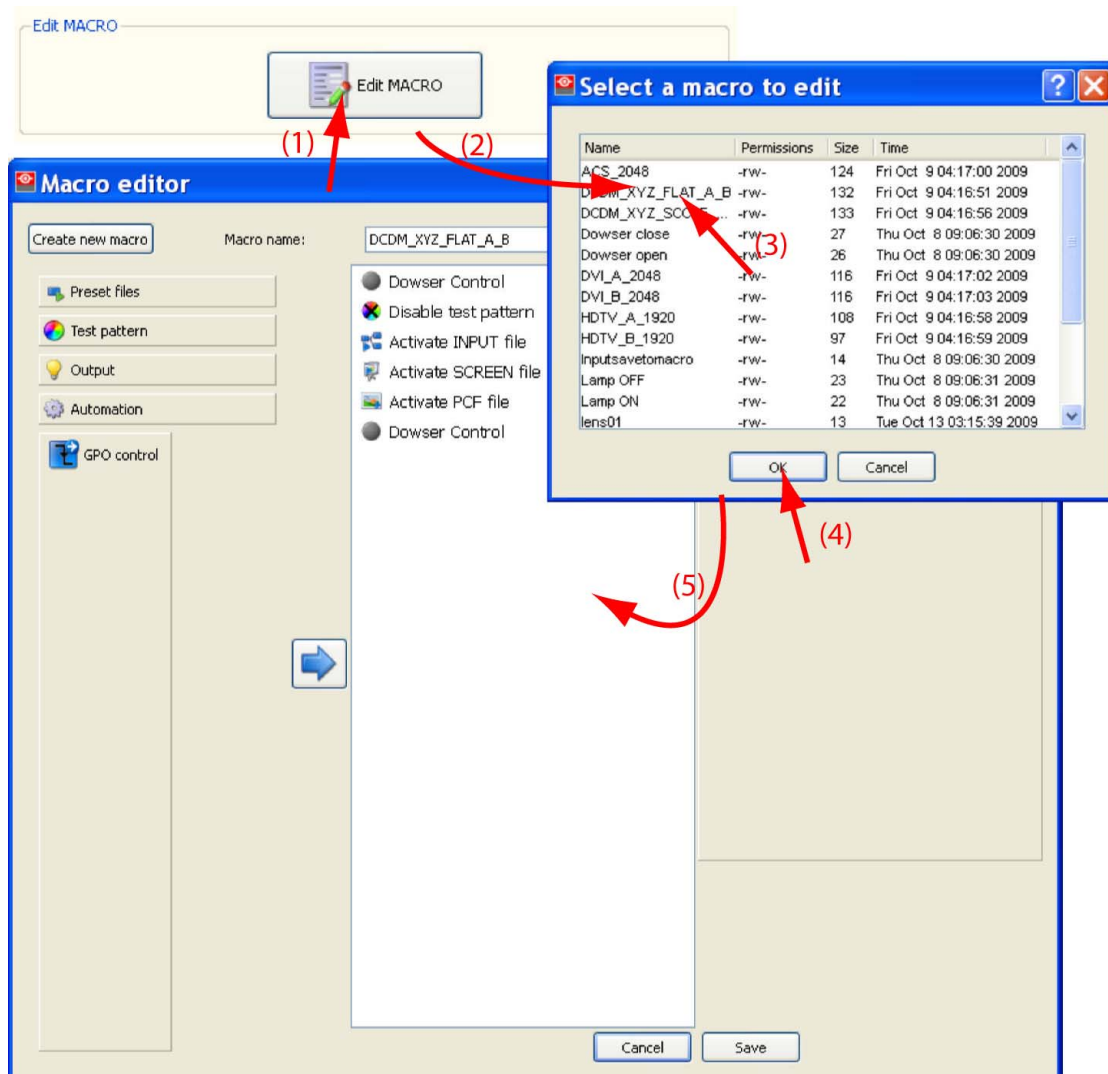


Image 4-6
Edit macro file

The *Select a file* window opens (2).

2. Browse to the macro file which must be edited and click on that file to select (3).

3. Click **OK** (4).

The macro editor window opens and the current content of the selected macro file is loaded (5).

For more information about the macro editor, see "Macro editor", page 405

4.3.3 Save to macro

What can be done?

The current projector settings can be completely or selectively converted into a new macro or can be used to override existing information in a macro.

The Save to macro procedure is a step by step procedure, guided by a wizard.

How to save to macro

1. While in the Macro tab page, click on **Save to macro** (1).

4. Configurator

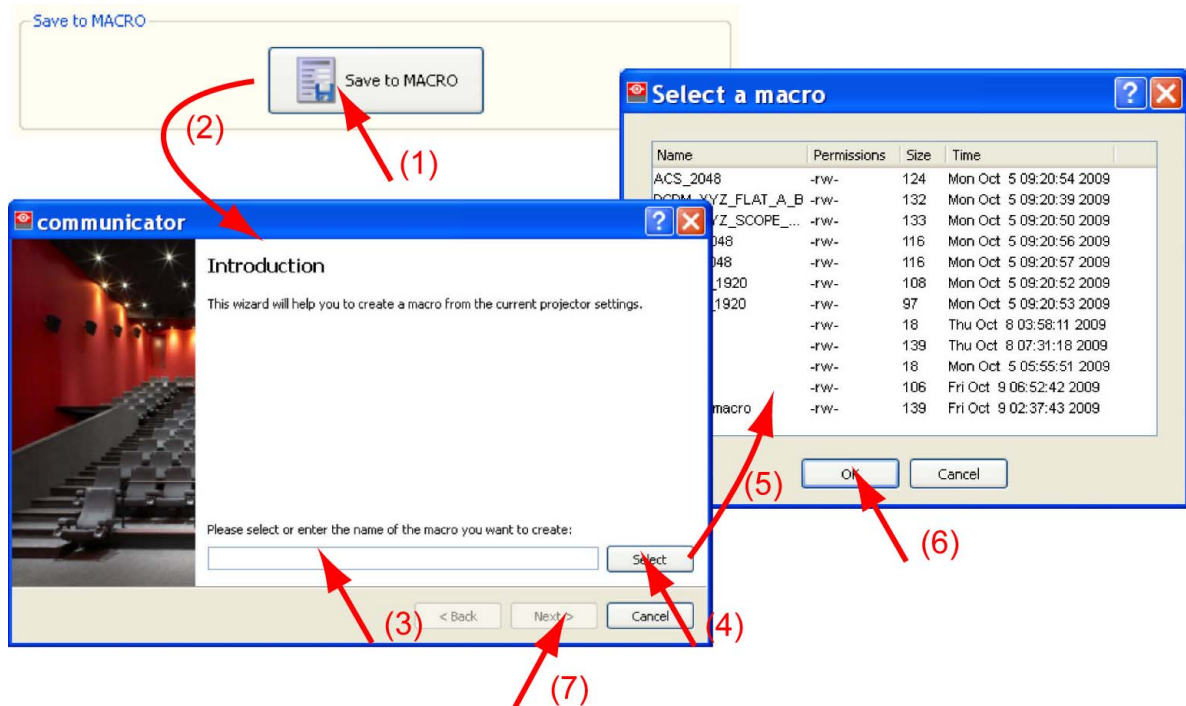


Image 4-7
Start up Save to macro wizard

- The save to macro wizard starts up (2).
- Fill out a name for the macro (3)
Or,
click on **Select** to open the file selection window (4).
Select a file (5) and click **OK** (6). The name of the selected macro will be filled out.
 - Click **Next** (7).
 - Select the items which must be included in the macro (8).

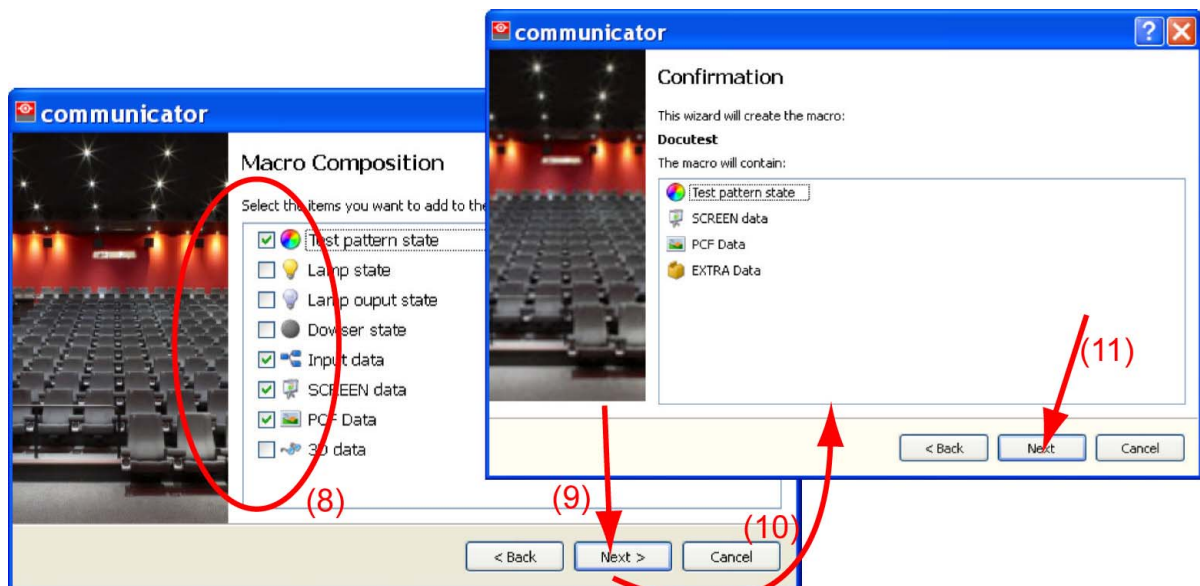


Image 4-8
Make macro composition

Note: If you overwrite an existing macro file, only the selected items will be overwritten. All other data remains in the file.

5. Click **Next** (9).

A Confirmation window with the selected items is displayed (10).

6. Click **Next** (11). If *Extra data* was selected within a new macro file, an Extra data input window opens. If *Screen data* was selected within a new macro file, a Screen data input window opens. If *PCF data* was selected within a new macro file, a PCF data input window opens.

A new name has to be entered for this extra data and then click **Apply**).

The new macro file is created and saved.

7. Click **Next** (14).

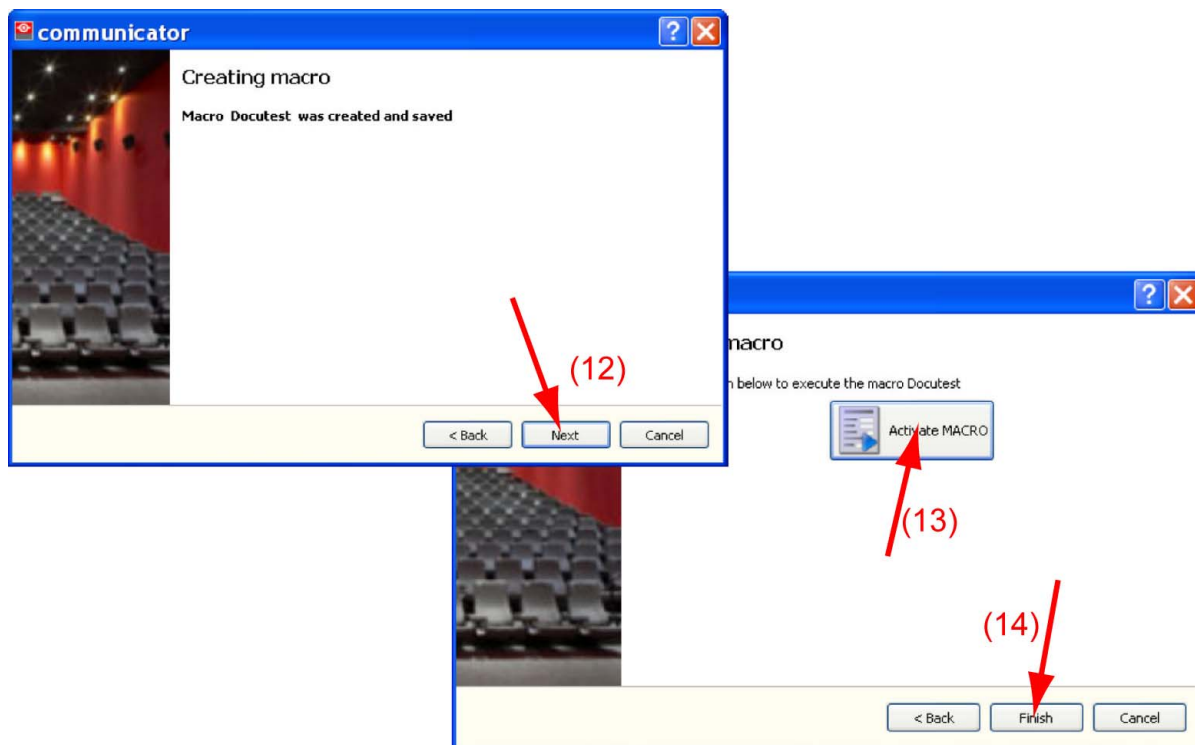


Image 4-9
Finish macro creation

The execute macro window opens.

If you want to run the macro immediately, click on **Activate macro** (15).

8. Click on **Finish** to terminate the creation procedure (16).

4.4 Input



List of supported sources is given in the appendix “List of Input formats”



No DVI input available on DP2K-S series !

4.4.1 Activate an Input file

What is possible ?

An input file can be activated via activate INPUT file. When an input file is activated, the name of the file is filled out below the *Activate INPUT file* button.

The specific settings of this file are loaded.

How to activate an input file

1. While in *Configuration*, click on **Input**.

The Input overview is displayed.

2. Click on **Activate INPUT file** (1).

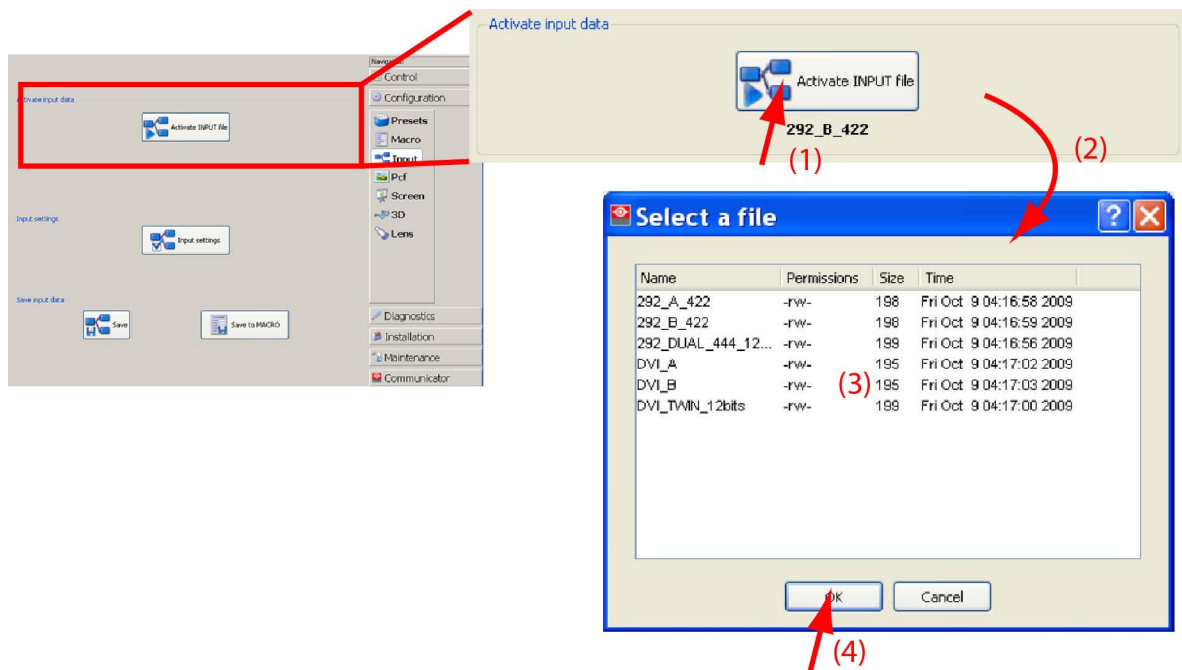


Image 4-10
Activate Input file

The *Select a file* window opens (2).

3. Browse to the desired input file and click on it to select (3).
4. Click on **OK** (4).

The selected input file is activated. The name of the file is indicated below the **Activate INPUT file** button.

4.4.2 Input settings, non ICMP projectors

4.4.2.1 Input settings, HD-SDI



4:2:2

A commonly used term for a component digital video format. A ratio of sampling frequencies used to digitize the luminance and color difference components (Y, R-Y, B-Y) of a video signal. It is generally used as shorthand for ITU-R 601. The term 4:2:2 describes that for every four samples of Y, there are two samples each of R-Y and B-Y, giving more chrominance bandwidth in relation to luminance compared to 4:1:1 sampling.

**4:4:4**

Similar to 4:2:2, except that for every four luminance samples, the color channels are also sampled four times.



The HD-SDI source and port selection windows changes depending the HD-SDI input board (board with 2 or 4 inputs)

What can be done?

For a HD-SDI source, the corresponding source type must be selected. The selected source can then be connected to corresponding port. General and advanced settings can be selected.

How to select

1. While in *Configurator*, click on **Input**.

The *Input* overview is displayed.

2. Click on **Input settings (1)**.

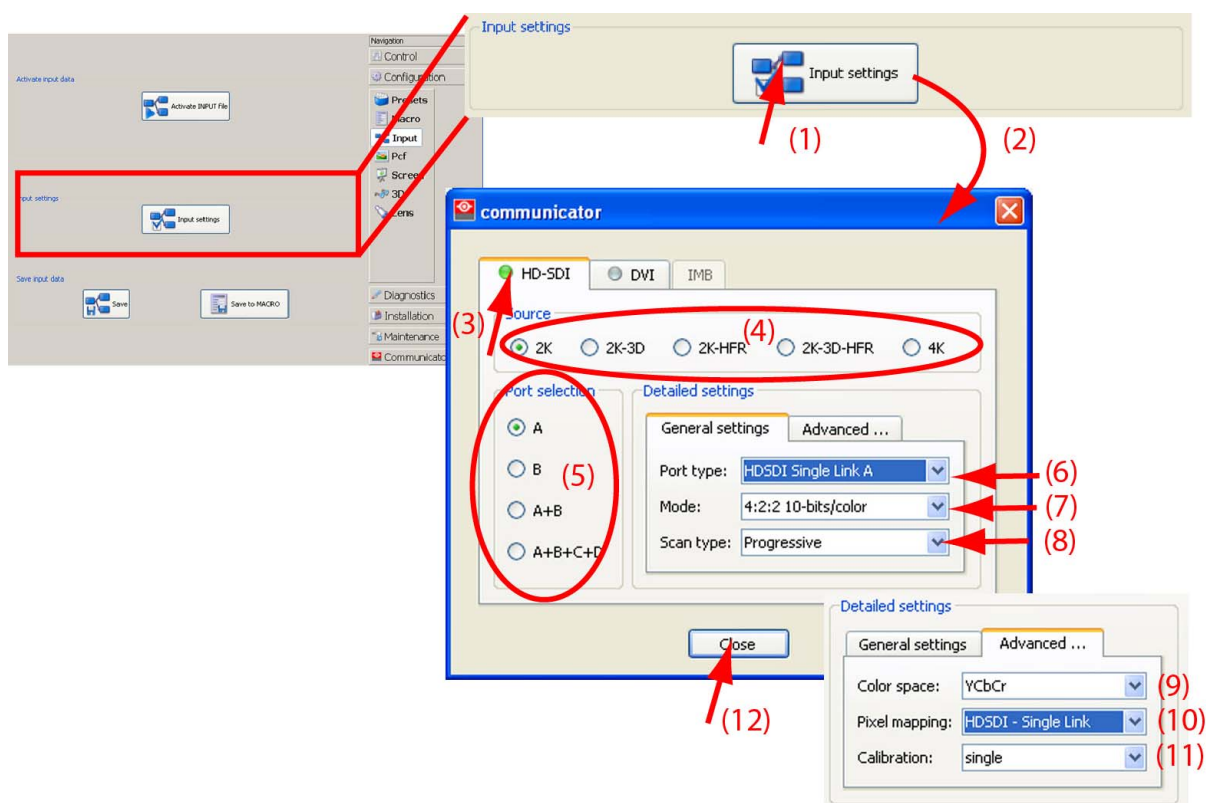


Image 4-11

3. Click on **HD-SDI** tab¹.
4. Select the source type

1. Default selected for DP2K-S series as there is no DVI tab available)

4. Configurator

The following sources are possible

Standard HD-SDI board	Quad-SDI board
2K	2K
2K-3D	2K-3D
2K-HFR	2K-HFR
4K	2K 3D-HFR
	4K

5. Select the port to which the source is selected.

The following ports are possible:

For a standard HD-SDI board : A, B, A+B

For a quad-SDI board: A, B, A+B, A+B+C+D

6. Set general parameters for the selected source and port. Click on the corresponding drop down and select the desired setting.
7. Click **Close** (12).

4.4.2.2 Input settings, DVI



Not for DP2K-S series.



DVI-EDID

Digital Visual Interface – Extended Display Identification Data

DVI sources that are reported to the projector via the VESA E-EDID standard. These will be autodetected and displayed at the source format size, using standard processing.

How to select

1. While in *Configurator*, click on **Input**.
The *Input* overview is displayed.
2. Click on **Input settings** (1).

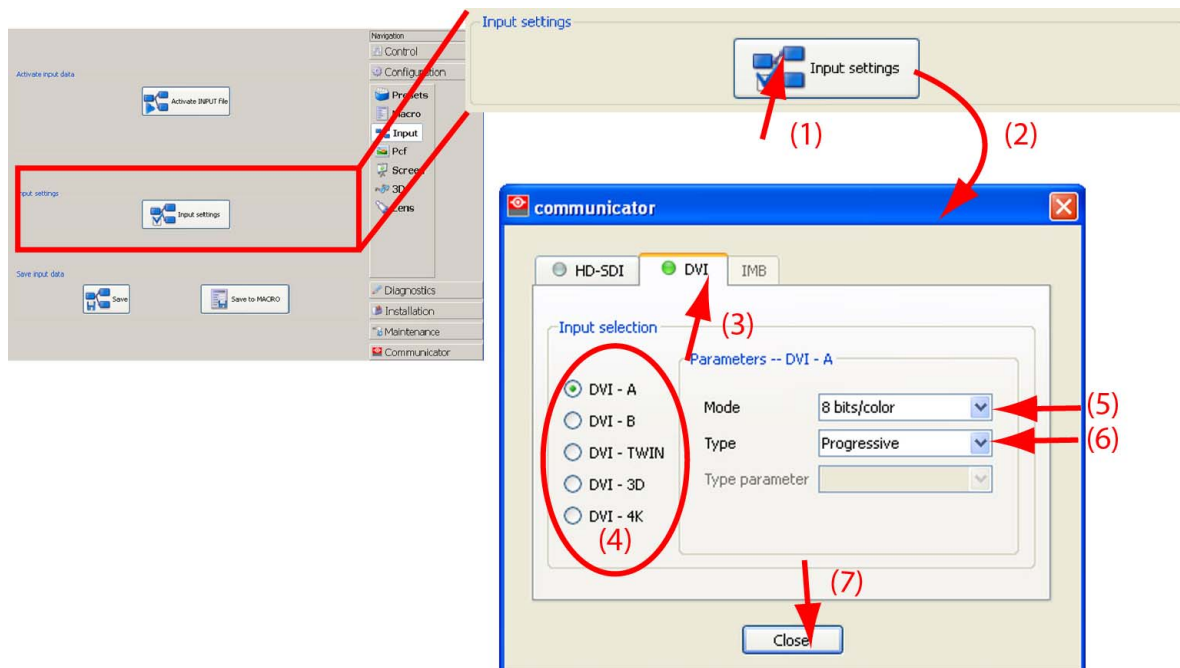


Image 4-12

3. Click on **DVI** tab.

4. Select the input and set the parameters

Overview table of sources and parameters can be found on page 445.

5. Click **Close** (7).

4.4.2.3 Input settings, Mediablock



Mediablock

A mediablock accepts encrypted files for a server and processes these files according the DCI-compliance rules for digital cinema so that the images can be displayed on the screen.

How to select

1. While in *Configurator*, click on **Input**.

The *Input* overview is displayed.

2. Click on **Input settings** (1).

4. Configurator

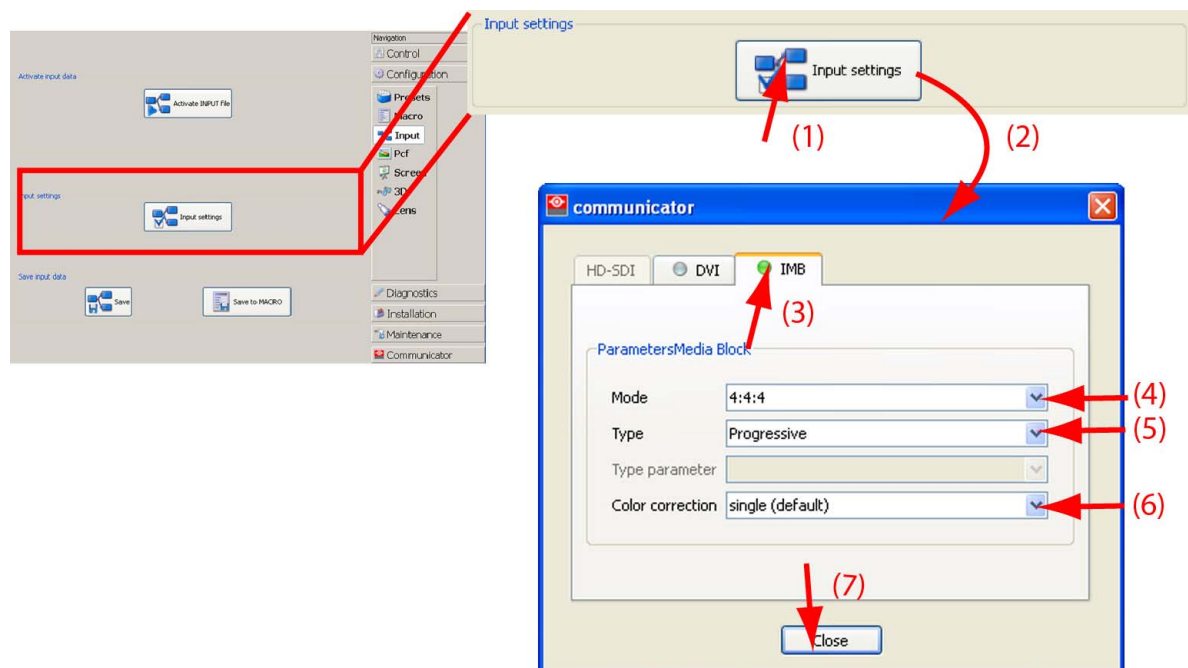


Image 4-13

3. Click on **MED** tab².
4. Select the correct parameters

Mode	Type	Type parameter	Color calibration
4:2:2	Progressive	-	Single (default)
			Dual (separate eye)
4:4:4	Progressive	-	Single (default)
			Dual (separate eye)

5. Click **Close** (7).

4.4.3 Input settings ICMP

For Media Player

1. While in *Configurator*, click on **Input**.
The *Input* overview is displayed.
2. Click on **Input settings** (1).

² Default selected for DP2K-S series as there is no DVI tab available)

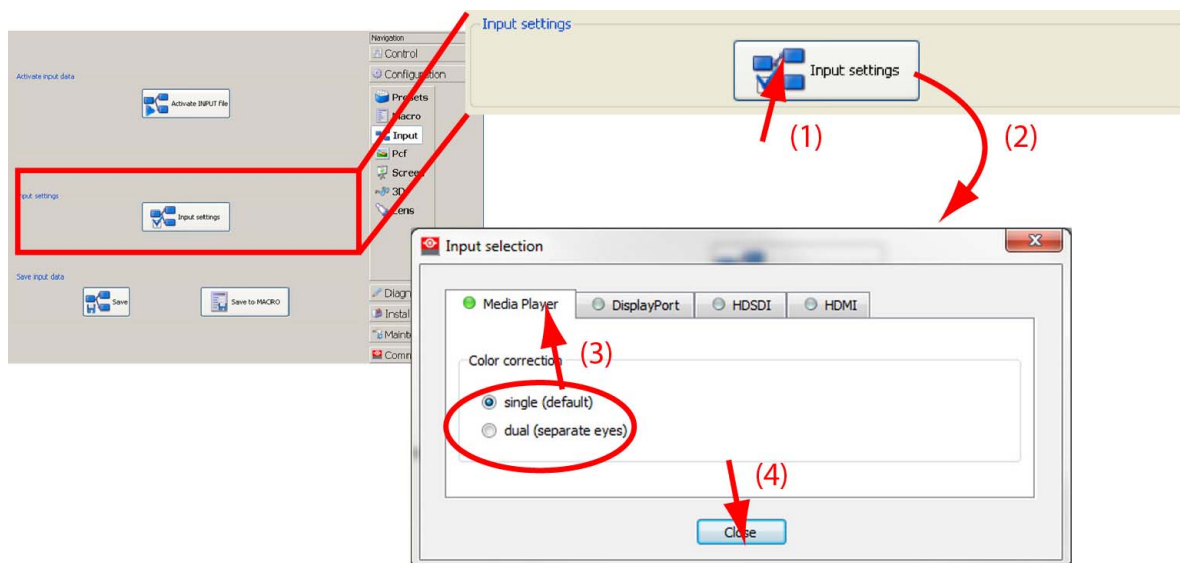


Image 4-14

Input settings, Media Player

3. Click on **Media Player** tab³.

4. Select the desired color correction.

The following corrections are possible:

- Single (default)
- Dual (separate eyes)

5. Click **Close** (4).

For DisplayPort

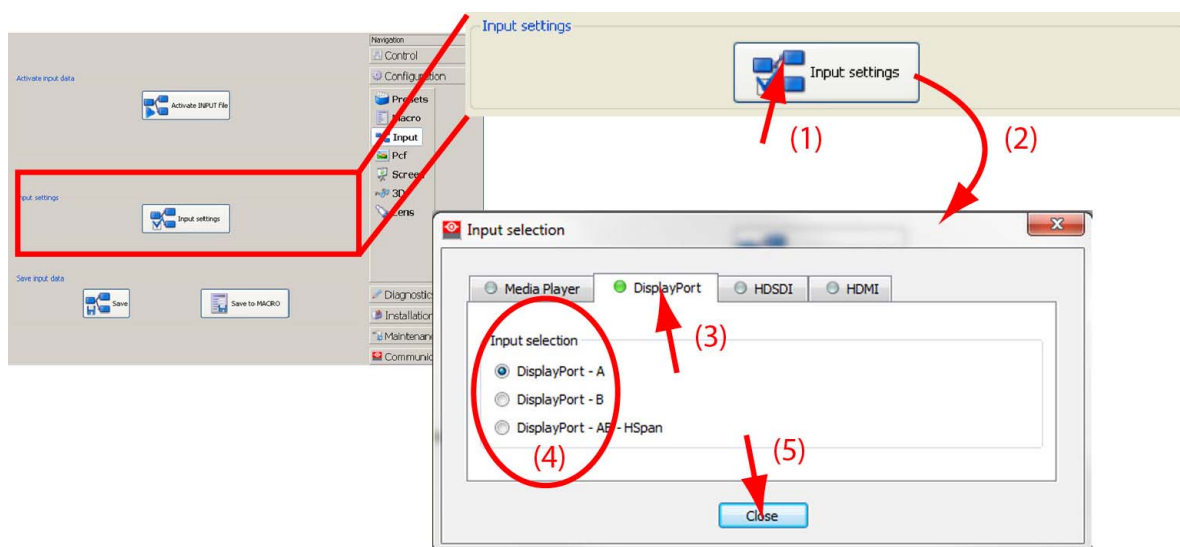
1. While in *Configurator*, click on **Input**.The *Input* overview is displayed.2. Click on **Input settings** (1).

Image 4-15

Input settings, DisplayPort

3. Click on **DisplayPort** tab (3).

4. Select the Input selection (4)

³ Default selected when an ICMP is available)

4. Configurator

The following input selections are possible:

- DisplayPort A (8/10/12 bits/color, progressive)
- DisplayPort B (8/10/12 bits/color, progressive)
- DisplayPort AB - HSpan (8bits/color, progressive)

5. Click **Close** (5).

For HDSDI (3G-SDI)

1. While in *Configurator*, click on **Input**.

The *Input* overview is displayed.

2. Click on **Input settings** (1).

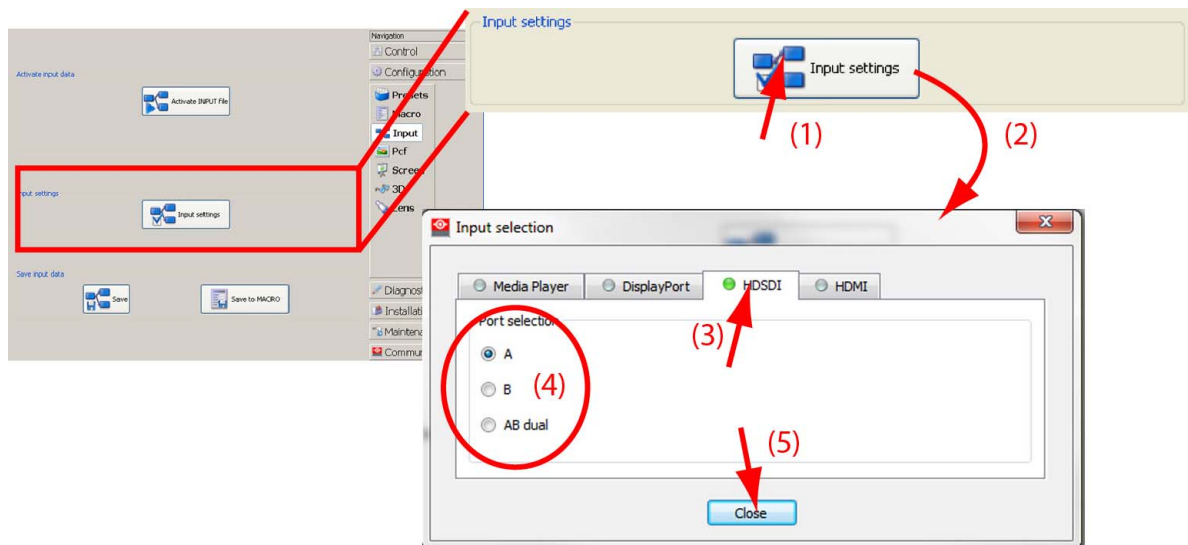


Image 4-16
Input settings, HDSDI

3. Click on **HDSDI** tab (3).

4. Select the port (4).

The following ports are available:

- A
- B
- AB dual

5. Click **Close** (5).

For HDMI 2.0

1. While in *Configurator*, click on **Input**.

The *Input* overview is displayed.

2. Click on **Input settings** (1).

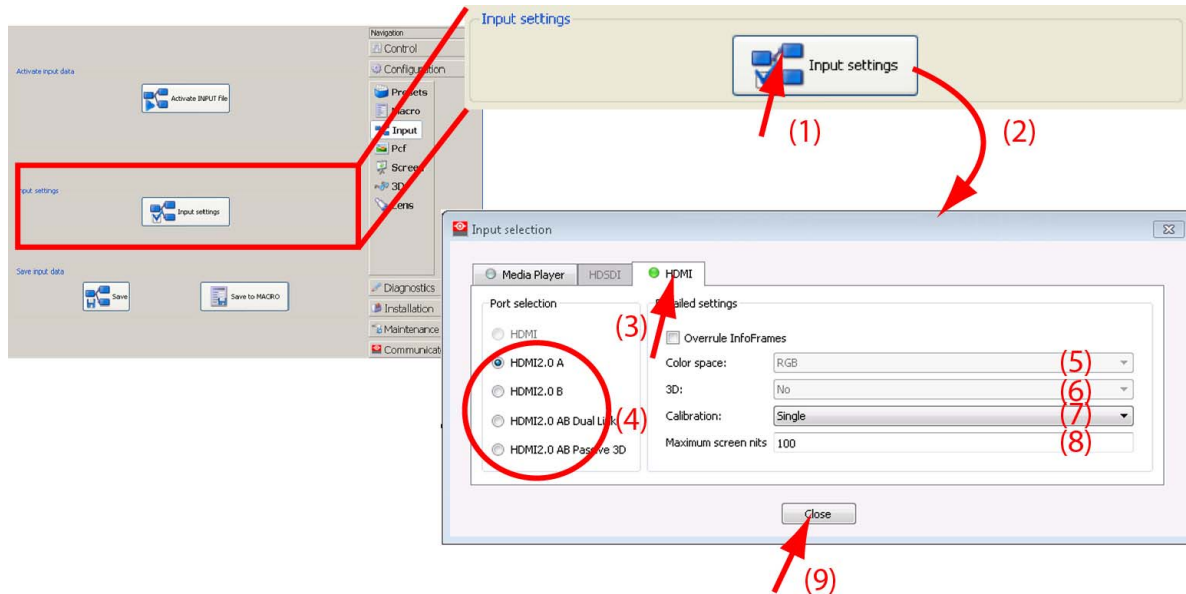


Image 4-17
Input settings, HDMI 2.0

3. Click on **HDMI** tab.

4. Select the port (4).

The following ports are available:

- HDMI 2.0 A
- HDMI 2.0 B
- HDMI 2.0 AB Dual Link
- HDMI 2.0 AB Passive 3D

Depending on your selection, detailed settings can be set.

When InfoFrames are not overruled (not checked), Color Space and 3D are automatically set with the info given in the Info Frames inside the HDMI signal.

- *Override InfoFrames*. Checked, InfoFrames info for color space and 3D can be manually selected.
- *Color space*: default set via the InfoFrames. When overruled, can be set between *RGB* or *YCbCr*.
- *3D*, yes or no
- *Calibration*: for 3D, it indicates if the right and left eye should be calibrated separately. Select *Single* to use the same calibration for left and right. Select *Dual (separate left/right eyes)* to calibrate separately left and right eye.
- *Maximum screen nits*: maximum luminance (full white) on the screen for the specific setup.

For HDMI

The HDMI input signal detection is automatic. No settings are required for this input.

Selection between 2D or 3D can be done by selecting the corresponding radio button.

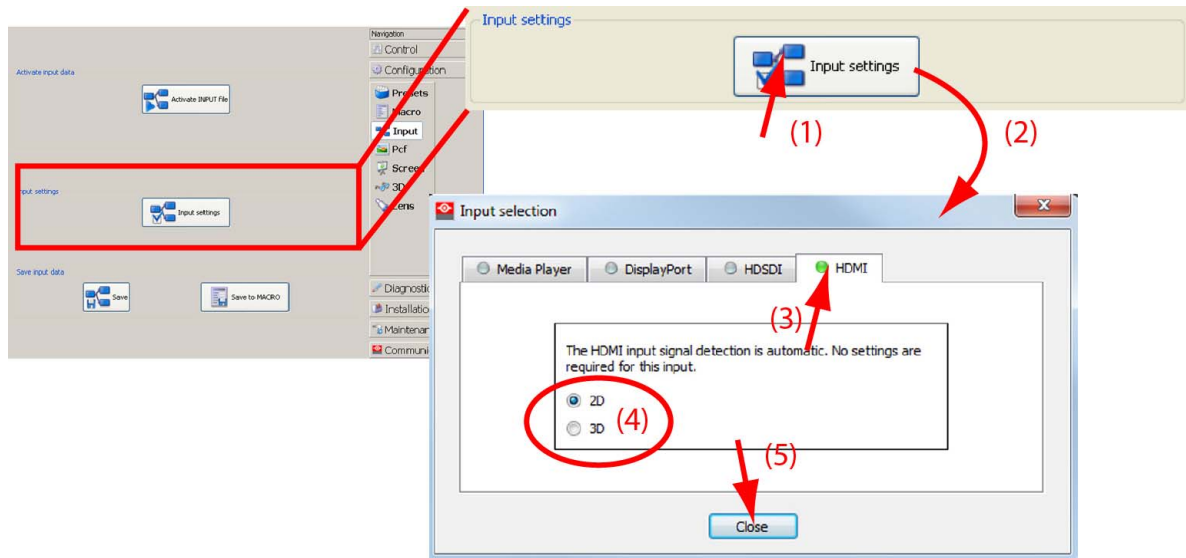


Image 4-18
Input settings, HDMI

4.4.4 Save to file

What can be done ?

The input settings can be saved to file. This file can be used to create or update macros.

How to save

1. While in *Configuration*, click on **Input**.
The *Input* overview is displayed.
2. Click **Save**.

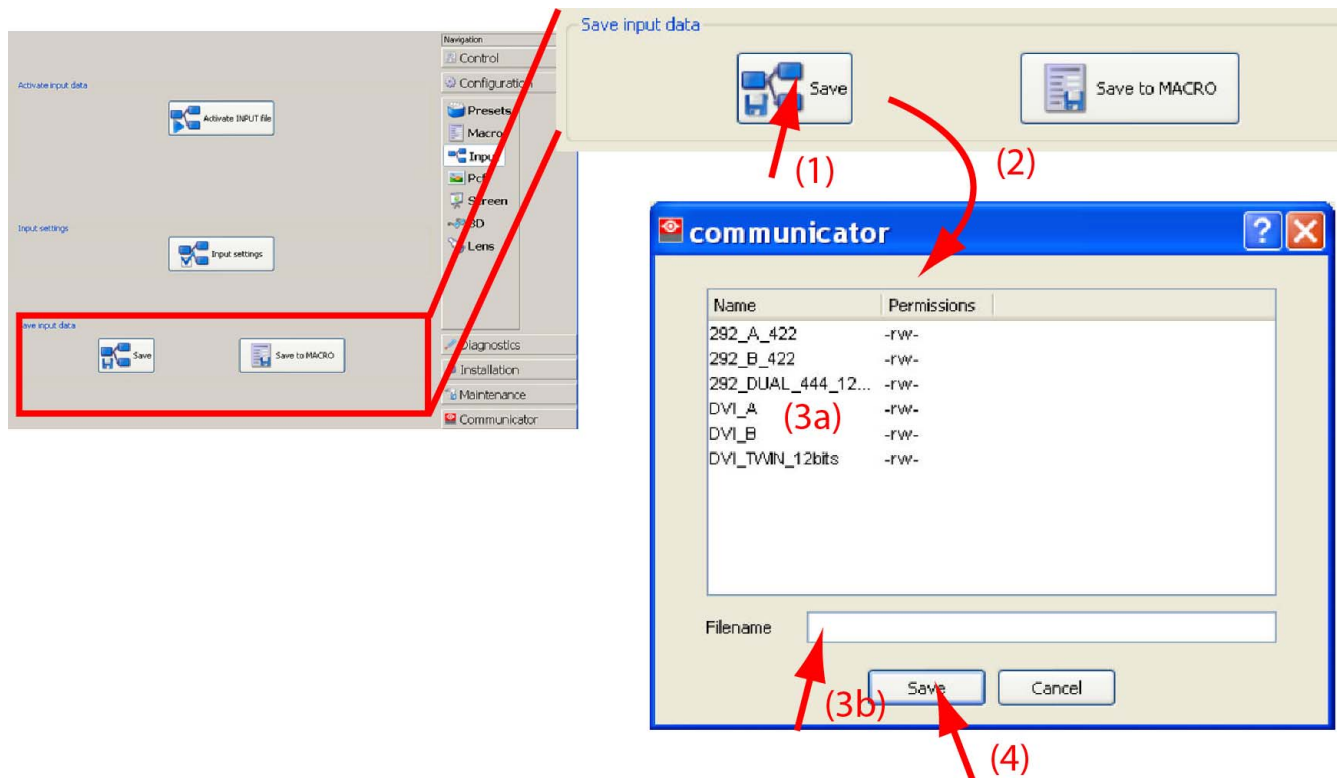


Image 4-19
Save input data to file

The Communicator file selection window opens.

3. Select a file to overwrite (3a) or click in the input field next to Filename and enter a name (3b).
4. Click **Save**.

4.4.5 Save to Macro

What can be done ?

The new input information can be saved in a new or existing macro file.

How to save

1. While in *Configuration*, click on **Input**.

The *Input* overview is displayed.

2. Click **Save to MACRO**.

4. Configurator

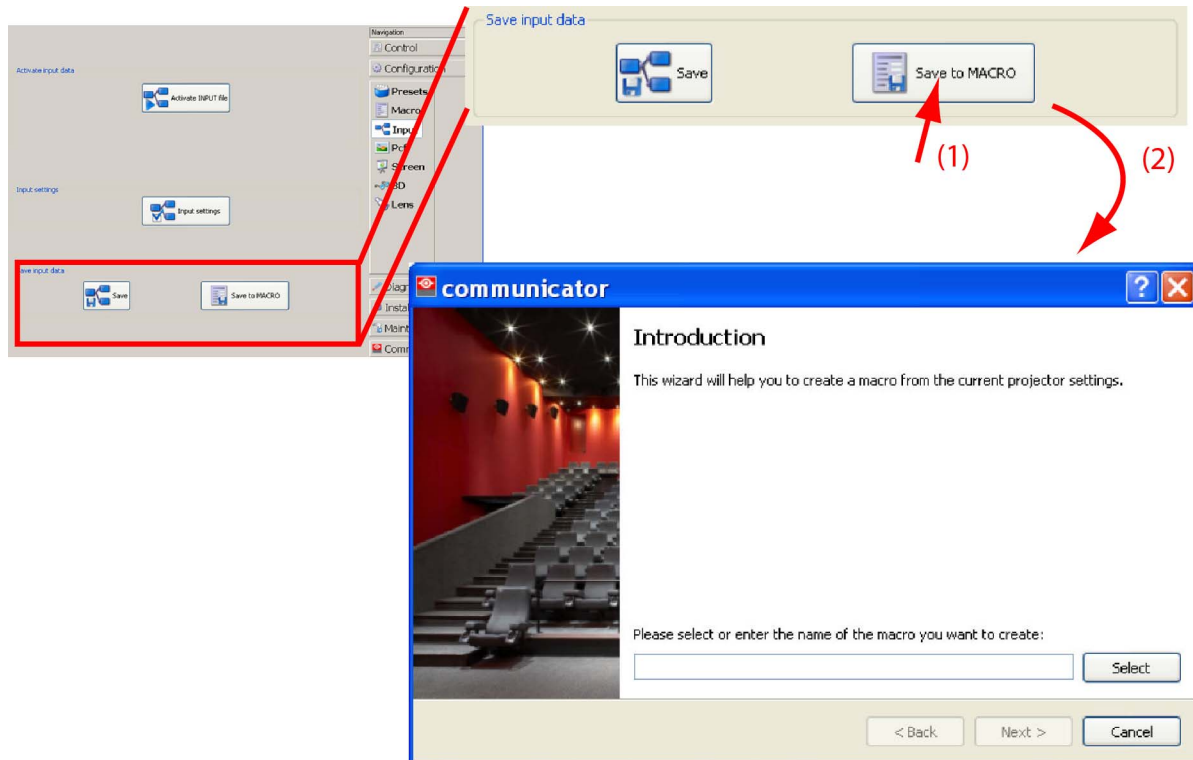


Image 4-20
Save input data to macro

The Save to macro wizard starts up.

For more information about save to macro, see "Macro editor", page 405.

4.5 PCF

Overview

- Activate a PCF file
- EOTF Curve settings
- Active area selection and Aspect ratio
- Save to file
- Save to Macro

4.5.1 Activate a PCF file



PCF File

Projector Configuration File. This file is a file that will be delivered with each movie. It contains all data needed to display a certain movie as it is defined by the movie distributor.

How to activate a PCF file

1. While in *Configuration*, click on **PCF**.
The *PCF* overview is displayed.
2. Click on **Activate a PCF file** (1).

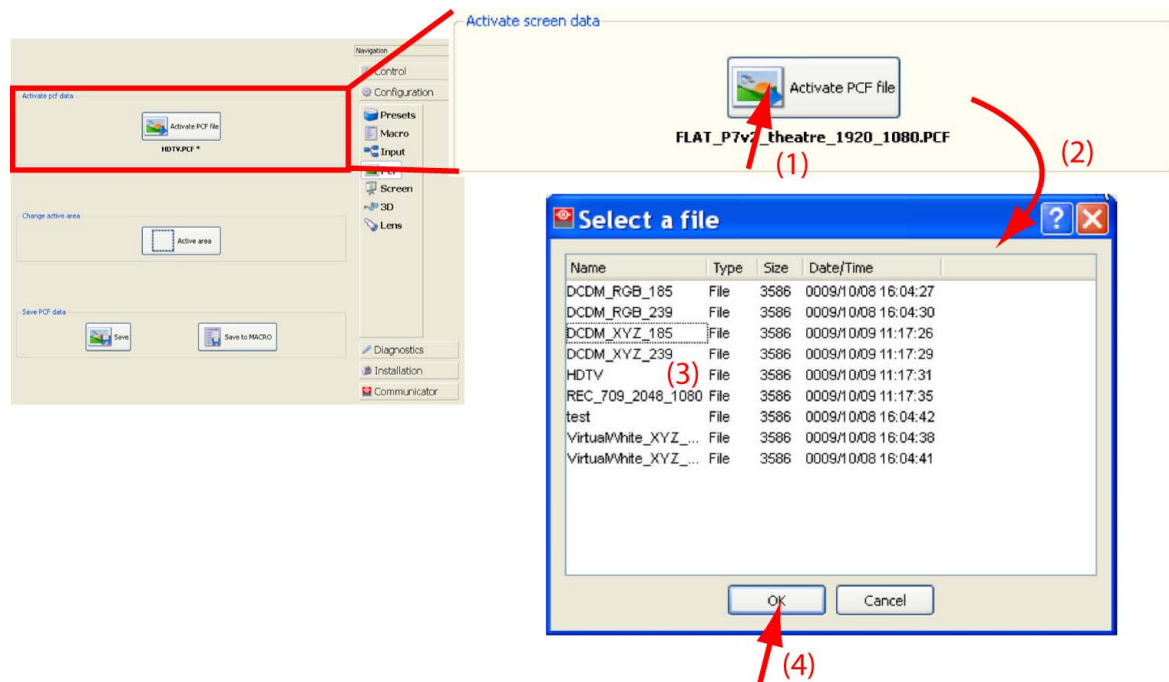


Image 4-21
Activate a PCF file

- The *Select a PCF file* window opens (2).
3. Browse to the desired PCF file and click on it to select (3).
 4. Click on **OK** (4).

The selected PCF file is activated. The name of the file is indicated below the **Activate a PCF file** button.

View active

1. Click on **View active** to display the current gamma setting and the active file.

4. Configurator

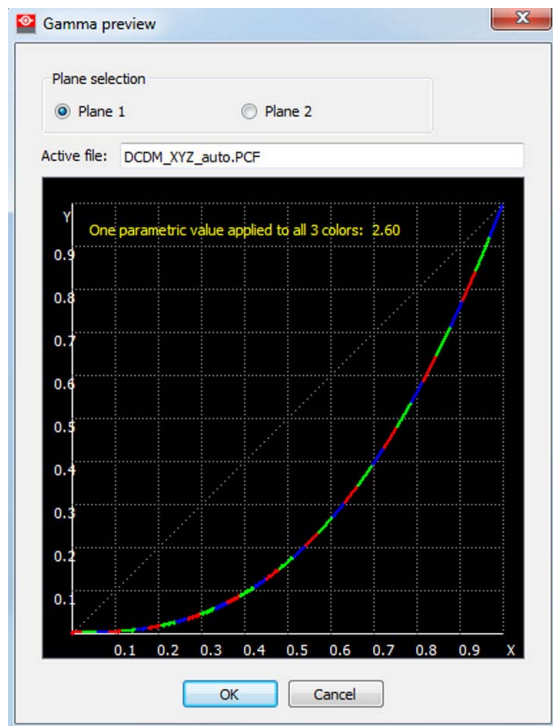


Image 4-22
View active

4.5.2 EOTF Curve settings



EOTF

Electro-Optical Transfer Function

How to set

1. While in *Configuration*, click on **PCF**.
The *PCF* overview is displayed.
2. Click on **EOTF curve settings (1)**.

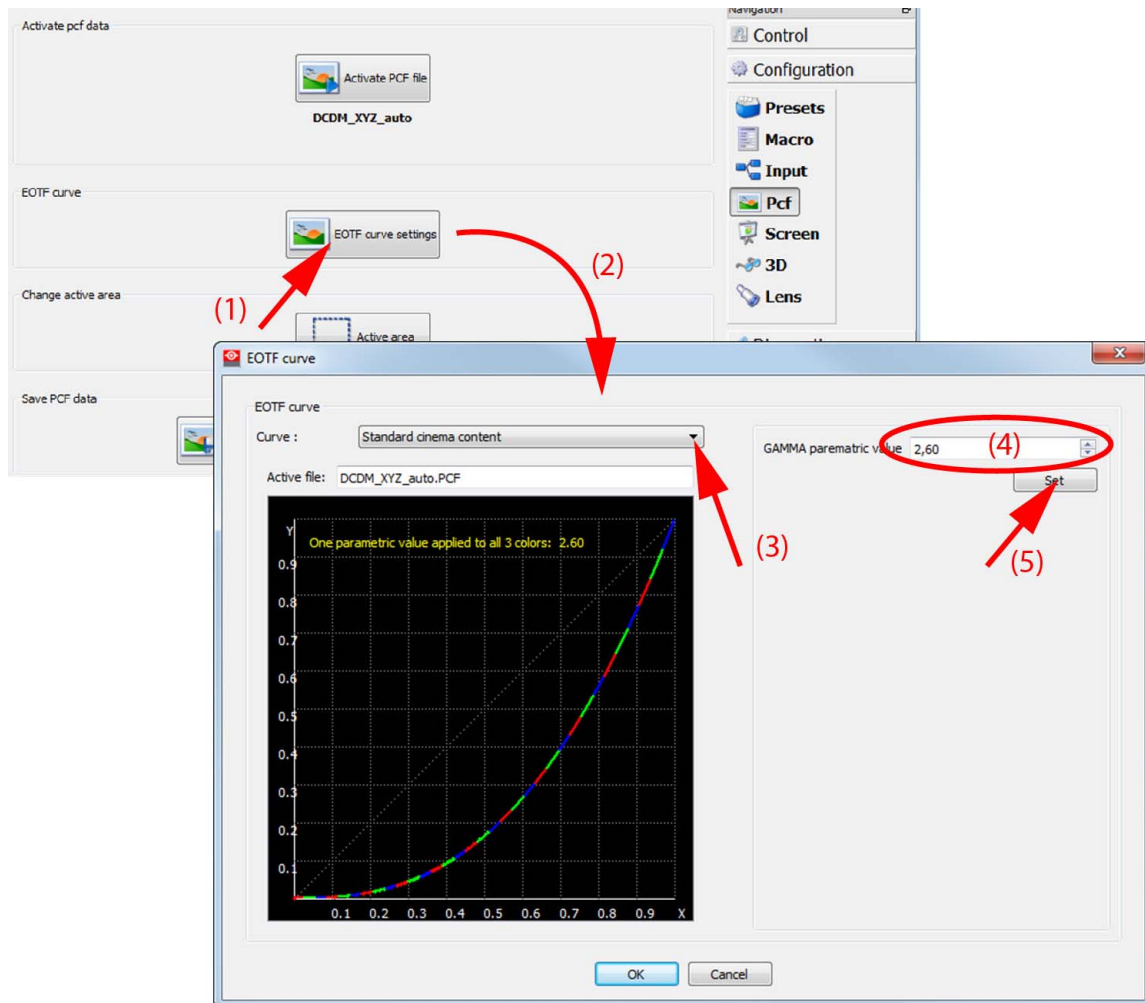


Image 4-23
EOTF curve

The *EOTF curve* will be displayed (2)

3. Select the desired curve. Click on the drop down box and select the desired curve (3).

The following curves are possible:

- Standard cinema content
- HDR content

Some remarks:

For standard cinema content (HDMI source on ICMP+) the curve is generated by the input file of HDMI A or HDMI B. Make sure that the input files are correctly configured with the maximum screen nits value otherwise the screen will be too dark or too bright (go to *Input* and select *Input settings*). When you make a macro with the HDMI input make sure that the PCF is selected before the HDMI input. The HDMI input overrides a small part of the PCF content, namely the EOTF curve (not the active area). Continue with step 4

For a DCP source (HDR content) mastered with PQ (e.g. Dolby Vision or HDR10), you can change the screen luminance value in the EOTF curve window to adapt to the provided content. Press **Set** when changed. Note: For optimal display of HDR content, this is just one value that will influence the projected image. When entering the desired screen luminance, take into account the distance of the projector to the screen and the quality of the screen used.

4. To change the parametric value, click on the up-down control until the desired value is reached (4).

5. Click **Set** (5) to activate the new value.

6. Click **OK**.

4.5.3 Active area selection and Aspect ratio

Active Area

The active area within a source frame equals the relevant movie information within the movie stream. E.g. : 1280 x 1024 movie can be mastered in a 1920 x 1080 stream.

Only the 1280 x 1024 frame contains the relevant movie information. In this case, the active area is 1280 x 1024.

Frequently used active areas or predefined behind shortcuts.

How to set up

1. While in *Configuration*, click on **Image (PCF)**.

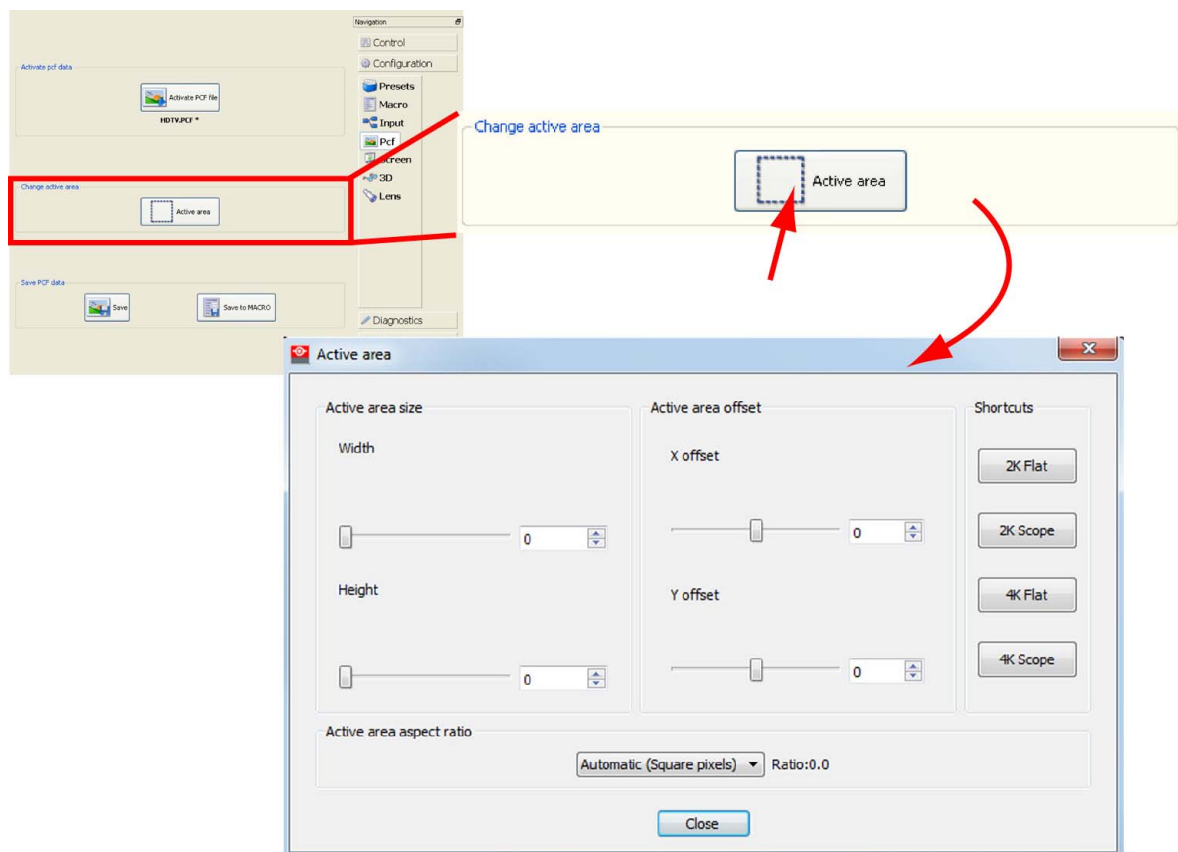


Image 4-24
Active area selection

The *Image* overview is displayed.

2. Click on **Active Area**.

The *Active Area* window opens.

3. If you need a predefined active area, click on a shortcut at the right hand of the window and click Close to return to the configuration window.
For a dedicated active area, continue with the next steps.
4. Click on the slider of *Width* and *Height* and drag to set up the active area
Or,
click on the up down control of the spin box of *Width* and *Height* to set up the active area
Or,
click in the input field of *Width* and *Height*, select the current value and enter a new value with the keyboard to set up the active area.
5. Click on the slider of *X-offset* and *Y-offset* and drag to set the offset.

Or,
click on the up down control of the spin box of *X-offset* and *Y-offset* to set the offset

Or,
click in the input field of *X-offset* and *Y-offset*, select the current value and enter a new value with the keyboard to set the offset.

The offset is referring to the center of the active area and to the center of the source frame.

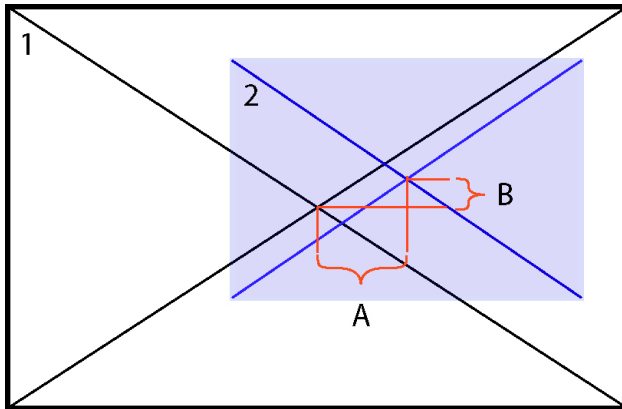


Image 4-25
Center offset indication

- 1 source frame
- 2 Active area on source frame
- A Horizontal offset
- B Vertical offset

6. Select the image aspect ratio by clicking in the drop down box and selecting an aspect ratio

When *Automatic* is selected, the system assumes square pixels and calculates the aspect ratio based on the Active Area Size.

When the image pixels are not squared, select one of the following aspect ratios:

- 1.25 [5:4]
- 1.33 [4:3]
- 1.77 [16:9 HDTV]
- 1.85 [Flat]
- 2.39 [Scope]

7. Click **Close** to return to the configuration window.

4.5.4 Save to file

What can be done?

The new PCF information can be save in a new or existing PCF file. This file can be used to create or update macros.

How to save

1. While in *Configuration*, click on **PCF**.

4. Configurator

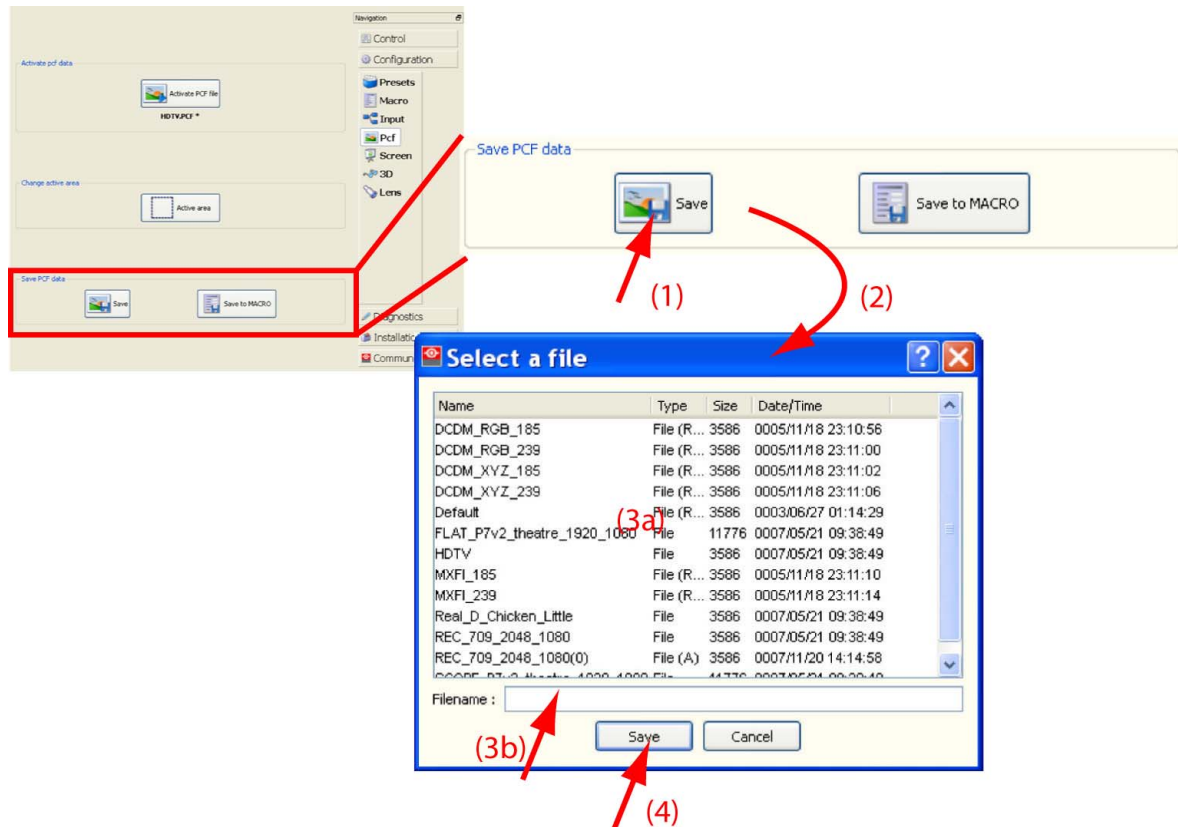


Image 4-26
Save to file

The *PCF* overview is displayed.

2. Click on **Save**.

The file selection window starts up.

3. Select an existing file to overwrite or click in the *filename* input field and enter a new file name.
4. Click **Save**.

4.5.5 Save to Macro

How to save

1. While in *Configuration*, click on **PCF**.

The *PCF* overview is displayed.

2. Click on **Save to Macro**.

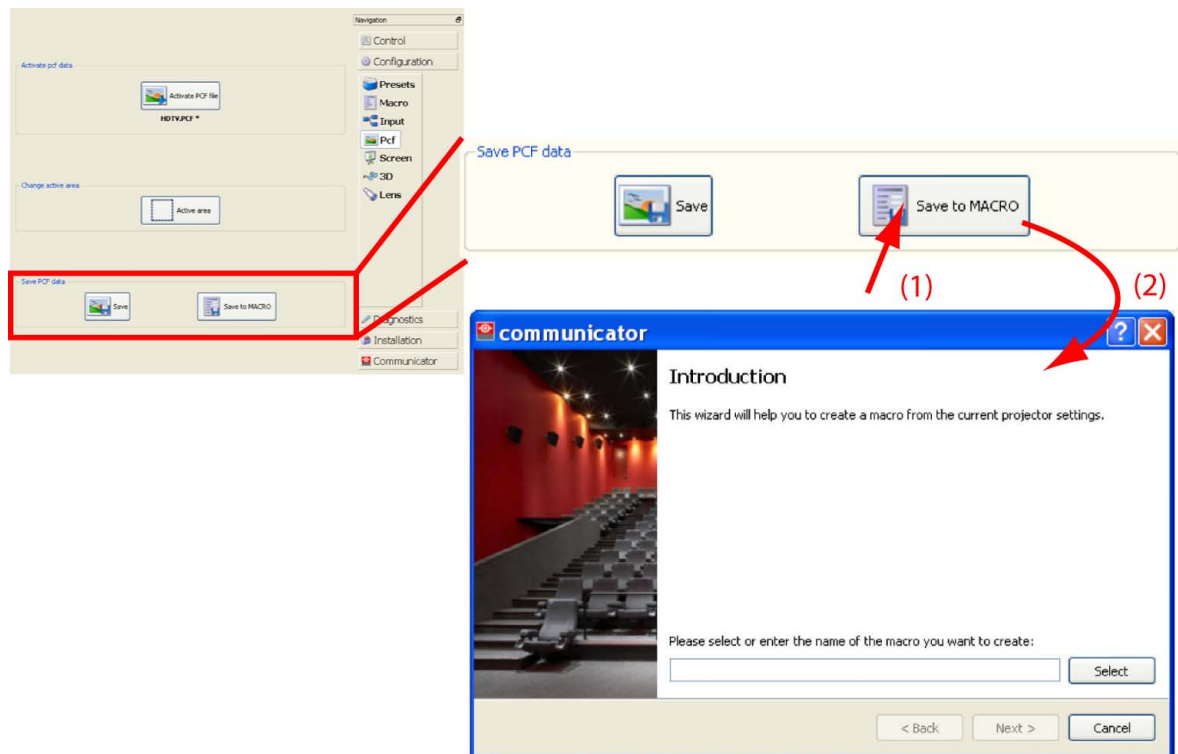


Image 4-27
Save to macro

The *Save to macro* wizard starts up.

For more information about save to macro, see "Macro editor", page 405.

4.6 Screen

Overview

- Activate a SCREEN file
- Resizing the image
- Masking the image
- Save to file
- Save to Macro

4.6.1 Activate a SCREEN file



Screen File

Screen presentation configuration file. This file contains information about resizing, letterboxing, masking and lens factor.

How to activate a SCREEN file

1. While in *Configuration*, click on **SCREEN**.

The *Screen* overview is displayed.

2. Click on **Activate a SCREEN file** (1).

4. Configurator

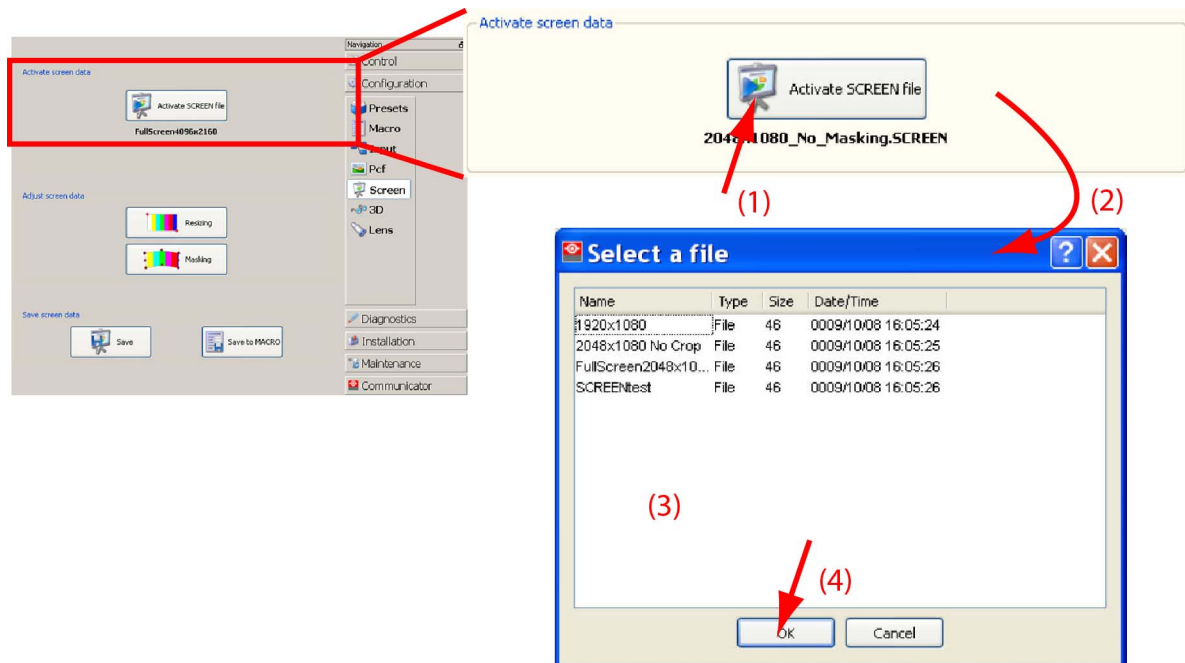


Image 4-28
Activate a SCREEN file

The *Select a SCREEN file* window opens (2).

3. Browse to the desired SCREEN file and click on it to select (3).

4. Click on **OK** (4).

The selected SCREEN file is activated. The name of the file is indicated below the **Activate a SCREEN file** button.

4.6.2 Resizing the image

Overview

- What is Resizing?
- Resizing with the arrow keys
- Resizing with direct user input
- Letterbox function

4.6.2.1 What is Resizing?

Definition

With the resizing tool it is possible to adapt the projected image on the screen size (defining the area available for image display). So, look always to the screen when resizing the image.

The projector will always attempt to keep the image centered within this defined area, and the correct aspect ratio of the image will always be preserved.

The key function that determines how the image will be displayed is the Letterbox function. For a more detailed explanation, see "Letterbox function", page 78.



As the projector project an image under an angle, the original image will be shown as trapezium.

The image will be squared with the masking function by masking the shaded areas.

4.6.2.2 Resizing with the arrow keys



Click on  to return to the initial values for the selected dots while resizing the image.



Before starting the resizing, it is preferable to select a test pattern.

How to resize?

1. While in *Configuration*, click on **SCREEN**.

The *Screen* overview is displayed.

2. Click on **Resizing**.

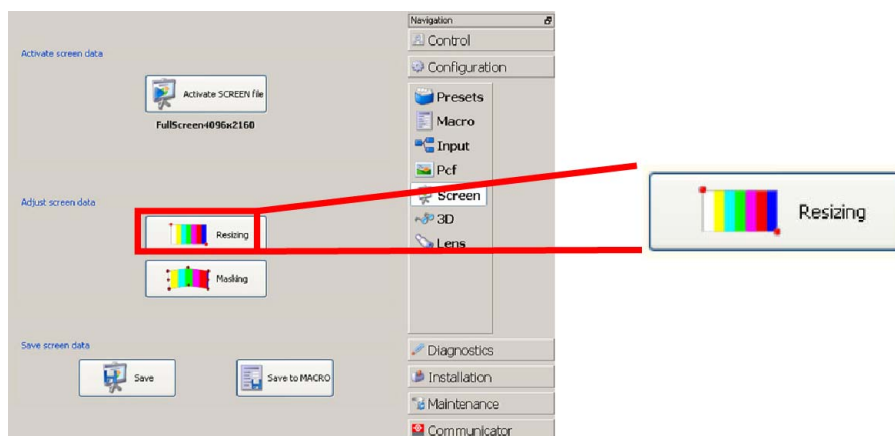


Image 4-29
Start resizing

The *Resizing* window opens.

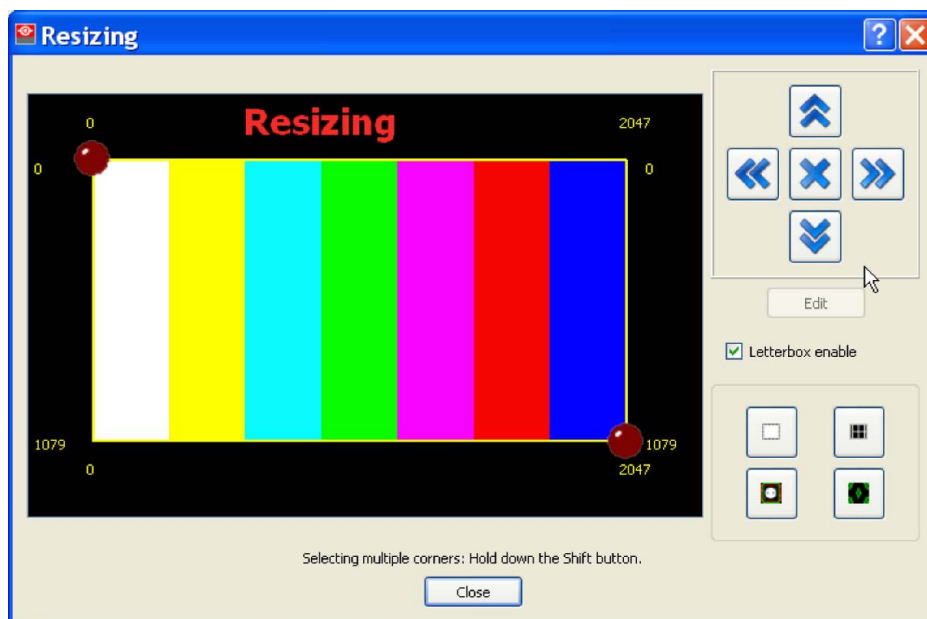


Image 4-30
Resizing window

4. Configurator

3. As it is preferable to resize on a test pattern rather than on the normal image, select a pattern by clicking on one of the pattern short cuts.

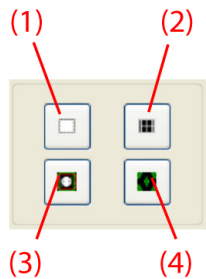


Image 4-31
Shortcuts to patterns

- (1) Full white pattern
- (2) RGB 12 bit alignment pattern
- (3) Framing_uncorrected pattern
- (4) Focus green pattern

The following patterns can be selected:

- full white
- RGB 12 bit alignment pattern
- Framing_uncorrected pattern
- Focus green pattern

4. Select a red button by clicking on it. To select both buttons together, click first on the shift key of the virtual keyboard and then select the second button.

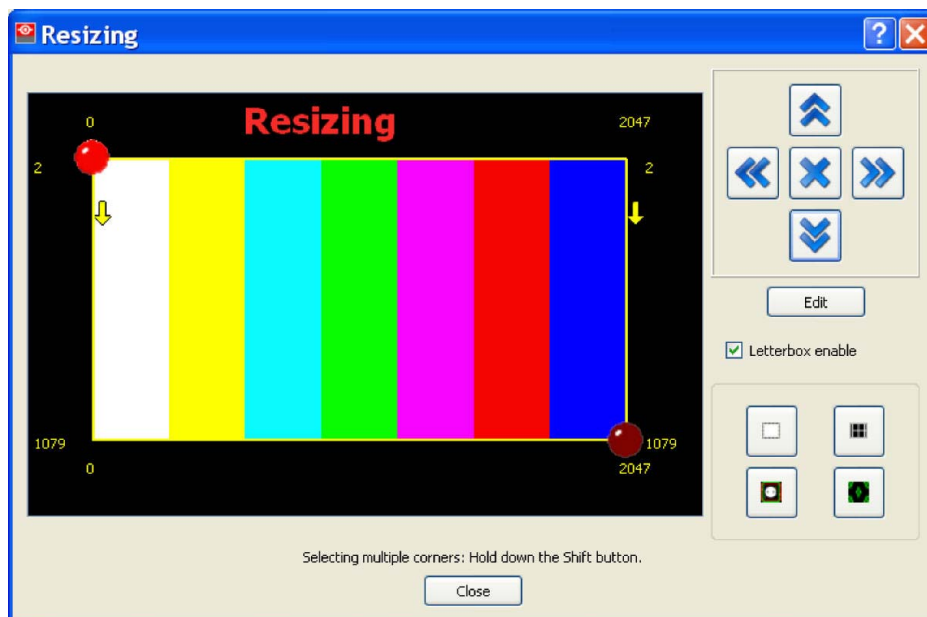


Image 4-32
Resizing indication

Note: Shift key remains pressed until it is tipped again.

A selected button becomes clear red.

5. Move the selected button by clicking on the arrow keys on the keypad interface.
Note: The representation on the interface is not an exact representation of the resizing on the screen. Therefore, always look to the screen to see the exact resizing.
6. When finished, click **Close** to return to the Screen overview menu.



When leaving the Resize window without switching off the test pattern, this pattern will still be available for masking.



As the resizing is best done on a test pattern, when finished, switch back to the normal image to check the resizing settings.

4.6.2.3 Resizing with direct user input

What can be done

With direct user input it is possible to enter the resizing values with the keyboard.

How to resize

1. While in *Configuration*, tip on **SCREEN**.

The *Screen* overview is displayed.

2. Click on **Resizing**.

The Resizing window opens.

3. As it is preferable to resize on a test pattern rather than on the normal image, select a pattern by clicking on one of the pattern short cuts.

The following patterns can be selected:

- full white
- RGB 12 bit alignment pattern
- Framing_uncorrected pattern
- Focus green pattern

4. Select a red button by clicking on it. To select both buttons together, tip first on the shift key of the virtual keyboard and then select the second button.

A selected button becomes clear red.

5. Click on **Edit** (1).



Image 4-33

- The coordinate window opens on the resize window (2).
6. Click in the input fields for X and Y and fill out the desired value (3).
 7. Click on **Apply** to activate the resizing (4).
 8. When finished, click **Close** to return to the *Screen overview* menu.



When leaving the Resize window without switching off the test pattern, this pattern will still be available for masking.



As the resizing is best done on a test pattern, when finished, switch back to the normal image to check the resizing settings.

4.6.2.4 Letterbox function

Function

The letterbox function determines how the image will be displayed.

If Letterbox enabled is checked, the system will show all of the original image data on the screen. This may require that the system letterbox the image, either on the top and bottom, or left and right side.

If Letterbox enabled is not checked, the system will fill all the screen with image data. This may require that the system discard image data, either from the top and bottom, or the left and right side.

The following two examples show what will be displayed based on the state of the letterbox function.

Letterbox enabled.

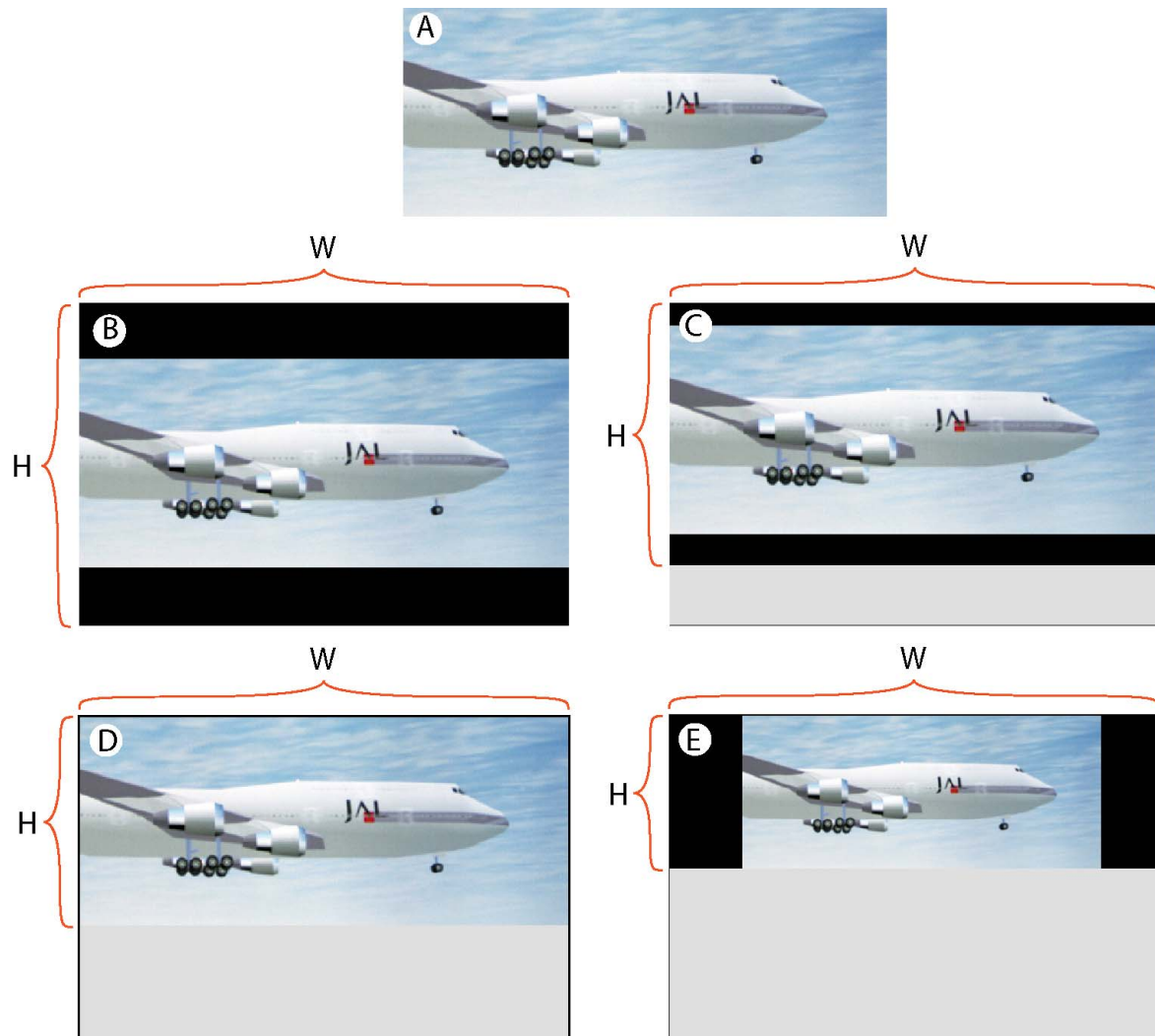


Image 4-34
Example letterboxing enabled

W and H are width and height of the resized area.

4. Configurator

- A : input source
- B :
 - Resized area equals the maximum DMD size
 - The input image has a different aspect ratio from the resized area.
 - Full image is letterboxed (top and bottom) and centered within the resized area.
- C :
 - The screen height is narrowed, bottom is moved upwards.
 - The input image has a different aspect ratio from the resized area.
 - Full image is letterboxed (top and bottom) and centered within the resized area.
- D :
 - Bottom of resized area is moved upward to where image fills this area.
 - The input image has now the same aspect ratio from the resized area.
 - Full input image centered within the resized area and letterboxing is not required.
- E :
 - Bottom of resized area has moved upward to where image at previous size cannot be fully displayed.
 - Resized area reduced in both directions (maintaining aspect ratio) so full scaled image can be displayed.
 - Image is letterboxed (right side and left side).

Letterbox disabled

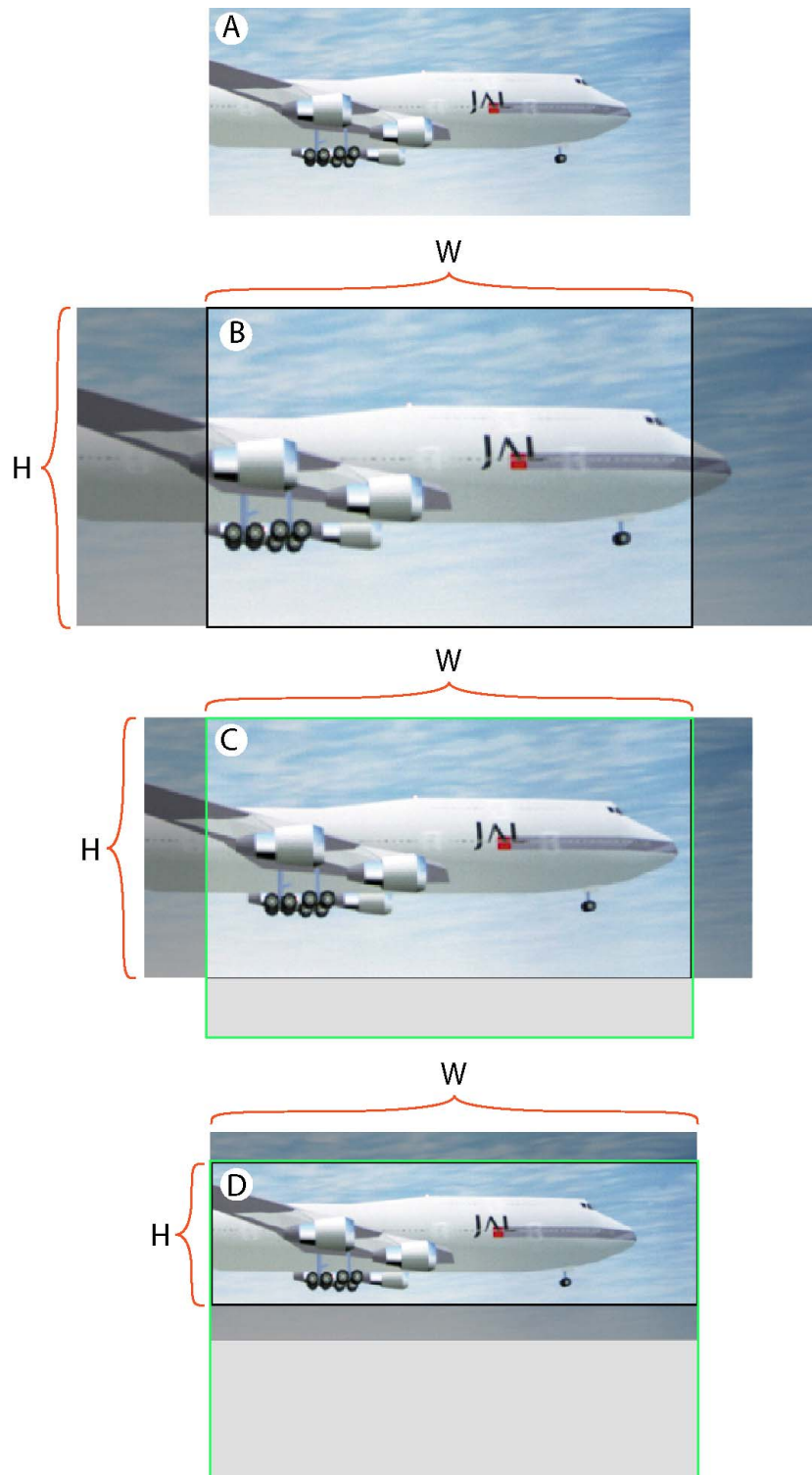


Image 4-35
Example letterboxing disabled

W and H are width and height of the resized area.

- A : input source
- B :
 - Resized area equals the maximum DMD size
 - The input image has a different aspect ratio from the resized area.
 - Image is scaled up to fill resized area, requiring that some input data be discarded because it falls outside the resized area (dark transparent areas left and right).
- C :
 - Bottom of resized area has moved upward.
 - The input image has a different aspect ratio from the resized area.
 - Image is scaled up to fill resized area, requiring that some input data be discarded because it falls outside the resized area (dark transparent areas left and right).
- D :
 - Bottom of resized area has moved upward so that the height is smaller than the image height.
 - The input image has a different aspect ratio from the resized area.
 - Input image is not scaled, however, data at the top of the image must be discarded because it falls outside of the resized area, and data at the bottom of the image must be discarded because it falls outside the resized area.

4.6.3 Masking the image

Overview

- What is masking
- Manual masking via the arrow keys
- Masking with direct user input
- PNG masking

4.6.3.1 What is masking

Definition

After resizing the image, it may be still need to mask away pixels on the screen due to keystone and/or bow distortion of the projected image. So look always at the screen while masking pixels.

How performing a masking

A masking can be done manually via the arrow keys or via uploading a masking image (PNG masking)



shaded areas will be masked.



Image 4-36
Masking indication

4.6.3.2 Manual masking via the arrow keys



Click on  to reset the masking for the selected button.



Before starting masking, it is preferable to select a test pattern.

How to mask?

1. While in *Configuration*, click on **SCREEN**.
The Screen overview is displayed.
2. Click on **Masking**.

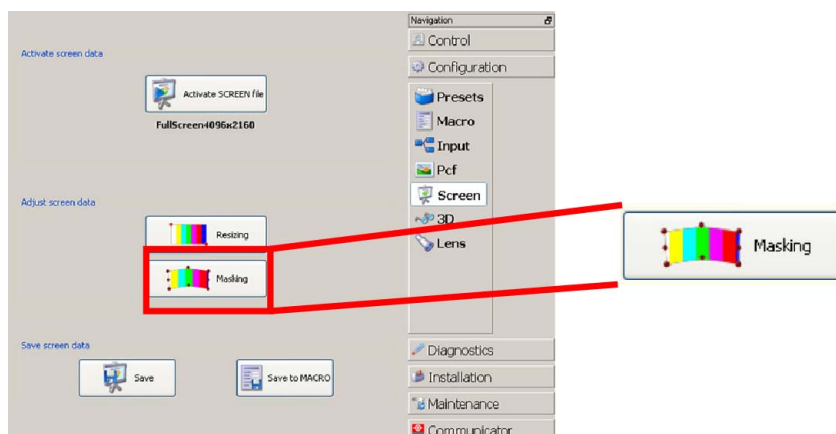


Image 4-37
Start up masking

4. Configurator

The masking window opens.

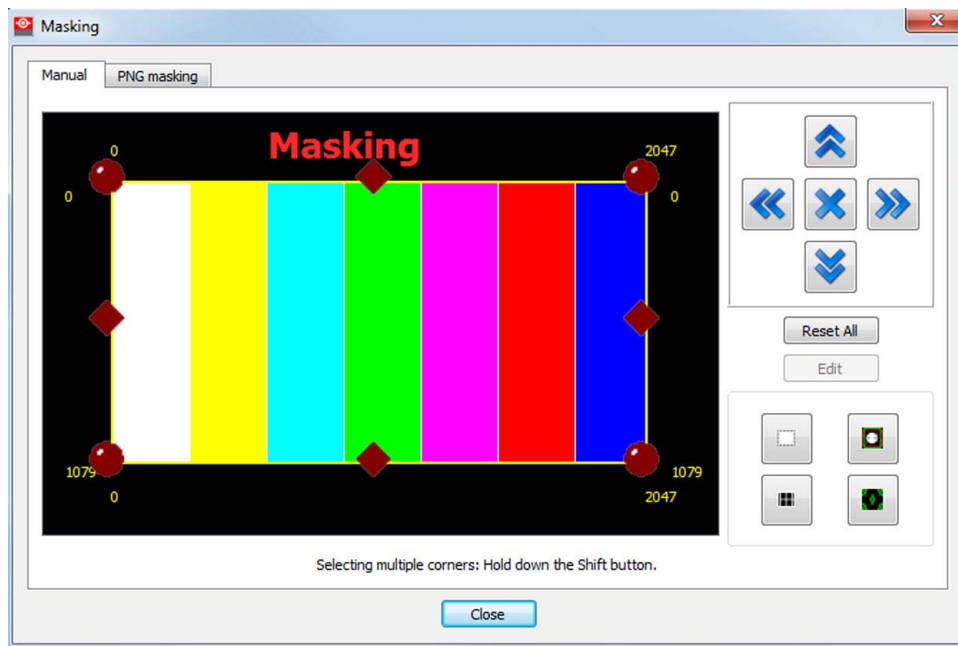


Image 4-38
Masking window

- In most cases, test pattern will be on. If not continue with step 4, otherwise with step 5.
3. If Manual tab is not selected yet, click on Manual.
In most cases, test pattern will be on. If not continue with step 4, otherwise with step 5.
 4. As it is preferable to resize on a test pattern rather than on the normal image, select a pattern by clicking on one of the pattern short cuts.
The following patterns can be selected:
 - full white
 - RGB 12 bit alignment pattern
 - Framing_uncorrected pattern
 - Focus green pattern
 5. Click on a red button in one of the corners. To select extra corner buttons together, click first the shift key and then select the another corner button.

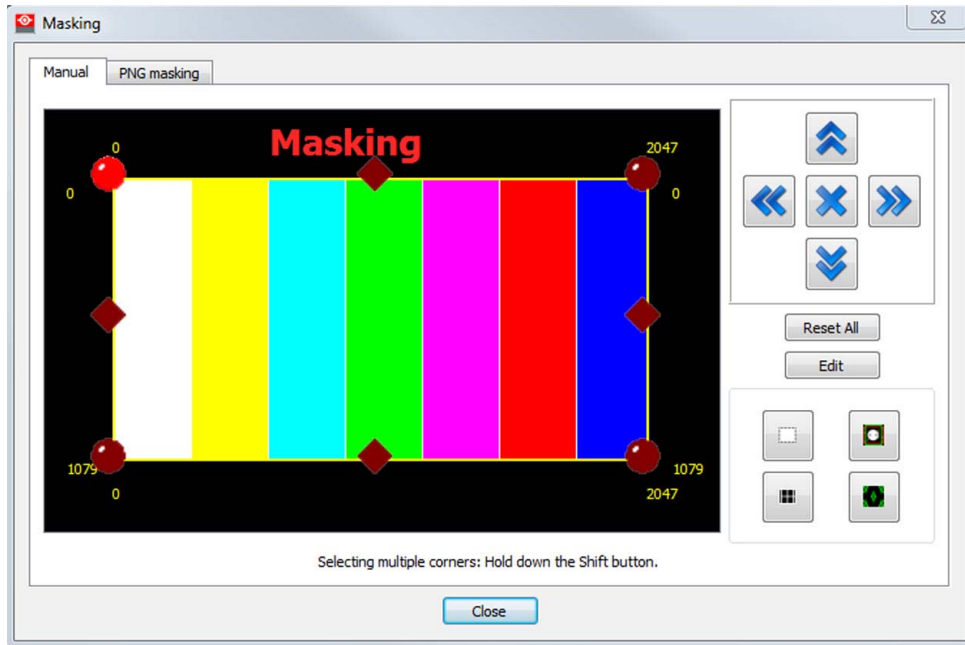


Image 4-39
Masking the corners

Note: Shift key remains pressed until it is clicked again.

A selected button becomes clear red.

6. Move the selected button by clicking on the arrow keys of the keypad.

The image will move in the direction of the clicked arrow. Yellow arrows on the interface image will indicate the direction. The values in the corner will change accordingly.

7. Click on a red square in the middle of a side.

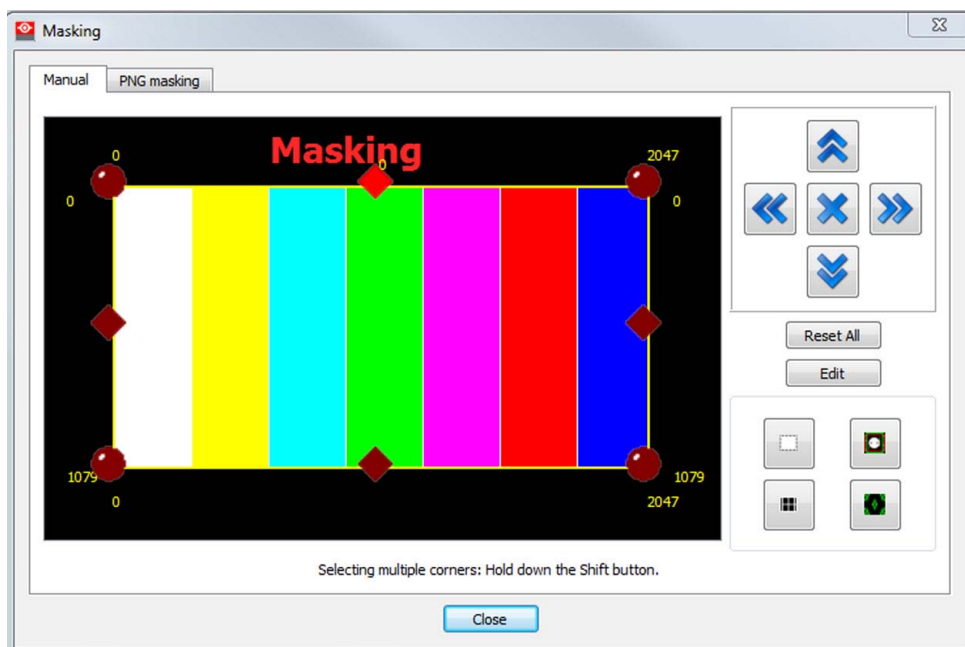


Image 4-40
Curve masking

Note: Only one square button can be selected at a time.

8. Move the selected square by clicking on the arrow keys of the keypad

4. Configurator

The moving will blind the side-curves. A yellow arrow with a curved yellow line will show the direction of the correction. The value will change accordingly.

9. Press **Close** to return to the *Screen menu*.



Press the Reset All button to reset the complete masking.



As the masking is best done on a test pattern, when finished, switch back to the normal image to check the masking settings



Do not forget to switch off the test patterns.

4.6.3.3 Masking with direct user input

What can be done

With direct user input it is possible to enter the masking values with the keyboard.



Before starting masking, it is preferable to select a test pattern.

How to mask

1. While in *Configuration*, click on **SCREEN**.

The *Screen* overview is displayed.

2. Click on **Masking**.

The masking window opens.

In most cases, test pattern will be on. If not continue with step 3, otherwise with step 4.

3. As it is preferable to resize on a test pattern rather than on the normal image, select a pattern by tipping on one of the pattern short cuts.

The following patterns can be selected:

- full white
- RGB 12 bit alignment pattern
- Framing_uncorrected pattern
- Focus green pattern

4. Click on a red button in one of the corners. To select extra corner buttons together, tip first the shift key and then select the another corner button.

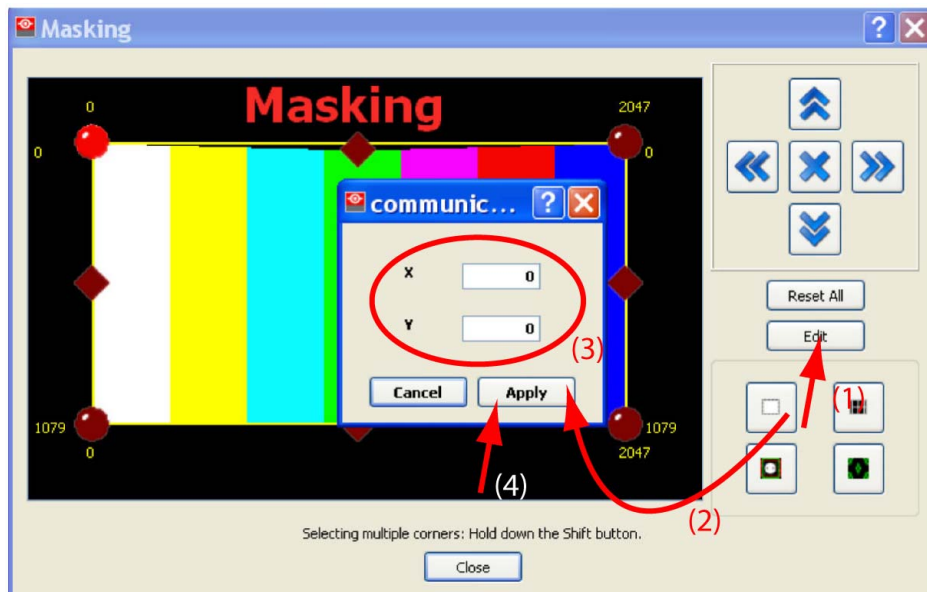


Image 4-41
Masking corners via direct input

A selected button becomes clear red.

5. Click on **Edit** (1).

The coordinate window opens on the masking window (2).

6. Click in the input fields for X and Y and fill out the desired value (3).

7. Click on **Apply** (4).

The corner masking is applied to the image on the screen.

8. Select a square button in the middle of a side and click on **Edit** (5).

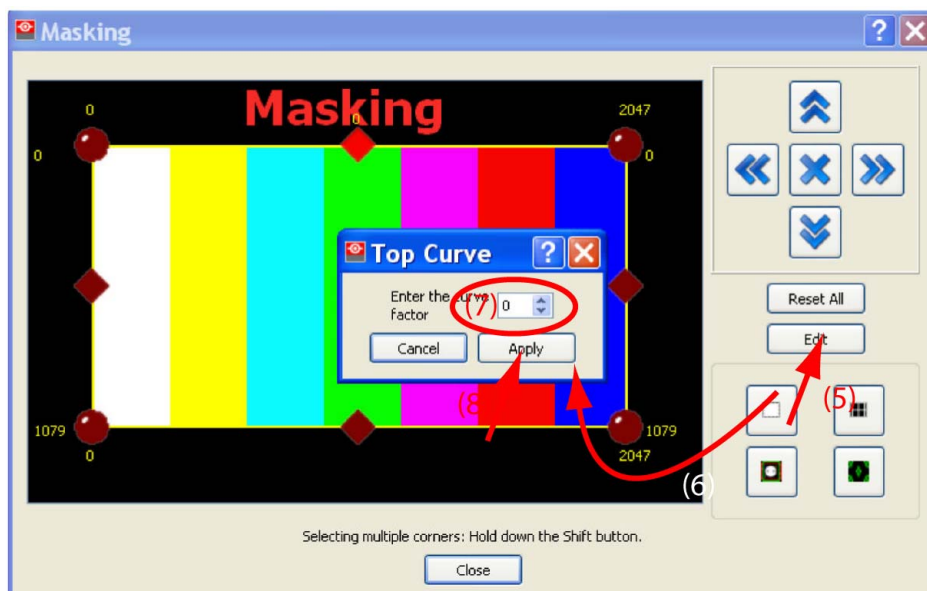


Image 4-42
Direct curve masking

The curve factor window opens on the masking window (6).

9. Click on the input field and enter the curve factor (7).

Or,

click on the up down control of spin box until the desired curve factor is obtained.

4. Configurator

10. Click on **Apply** (8).

The curve masking is applied to the image on the screen.

11. Press **Close** to return to the *Screen menu*.



Press the Reset All button to reset the complete masking.



As the masking is best done on a test pattern, when finished, switch back to the normal image to check the masking settings



Do not forget to switch off the test patterns.

4.6.3.4 PNG masking

About PNG masking

An image containing the masking layout necessary to correct the projected image can be uploaded on the projector.

This file must be a png image file build up with some restrictions.

Restrictions

File must have the exact resolution. 2K (2048x1080) for a 2K projector and 4K (4096x2160) for a 4K projector. Maximum file size is 65kB.

Within the RGB file, the green pixels are used as mask. 255 = image, 0 = masked, everything in between is dimmed.

Consult also the ICMP release notes for more information.

How upload and apply a masking

1. While in *Configuration*, click on **SCREEN**.

The *Screen* overview is displayed.

2. Click on **Masking**.

The masking window opens.

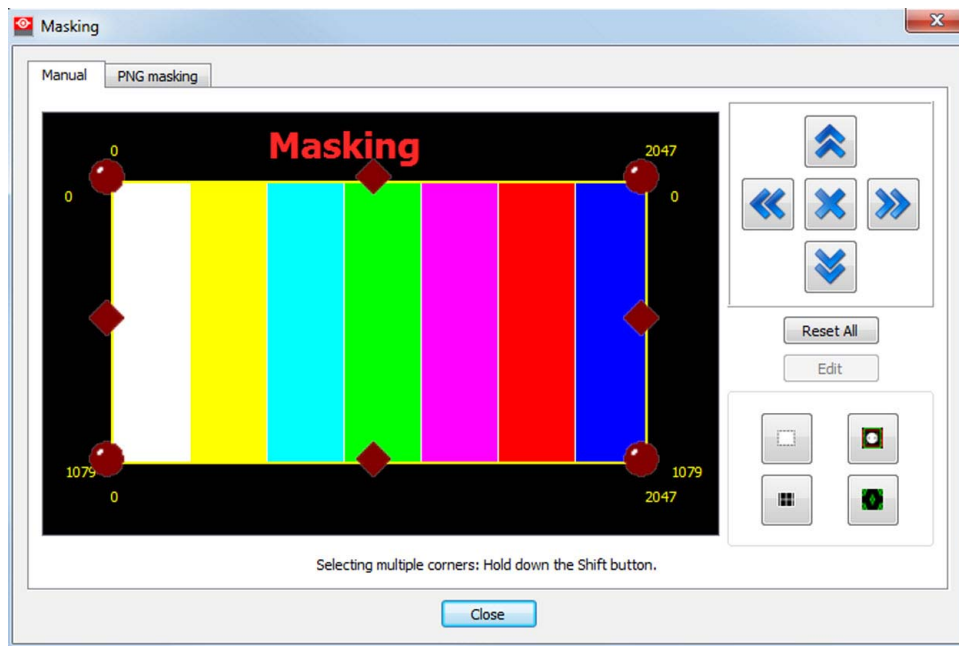


Image 4-43
Masking window

3. Click on **PNG masking** tab (1).

4. Configurator

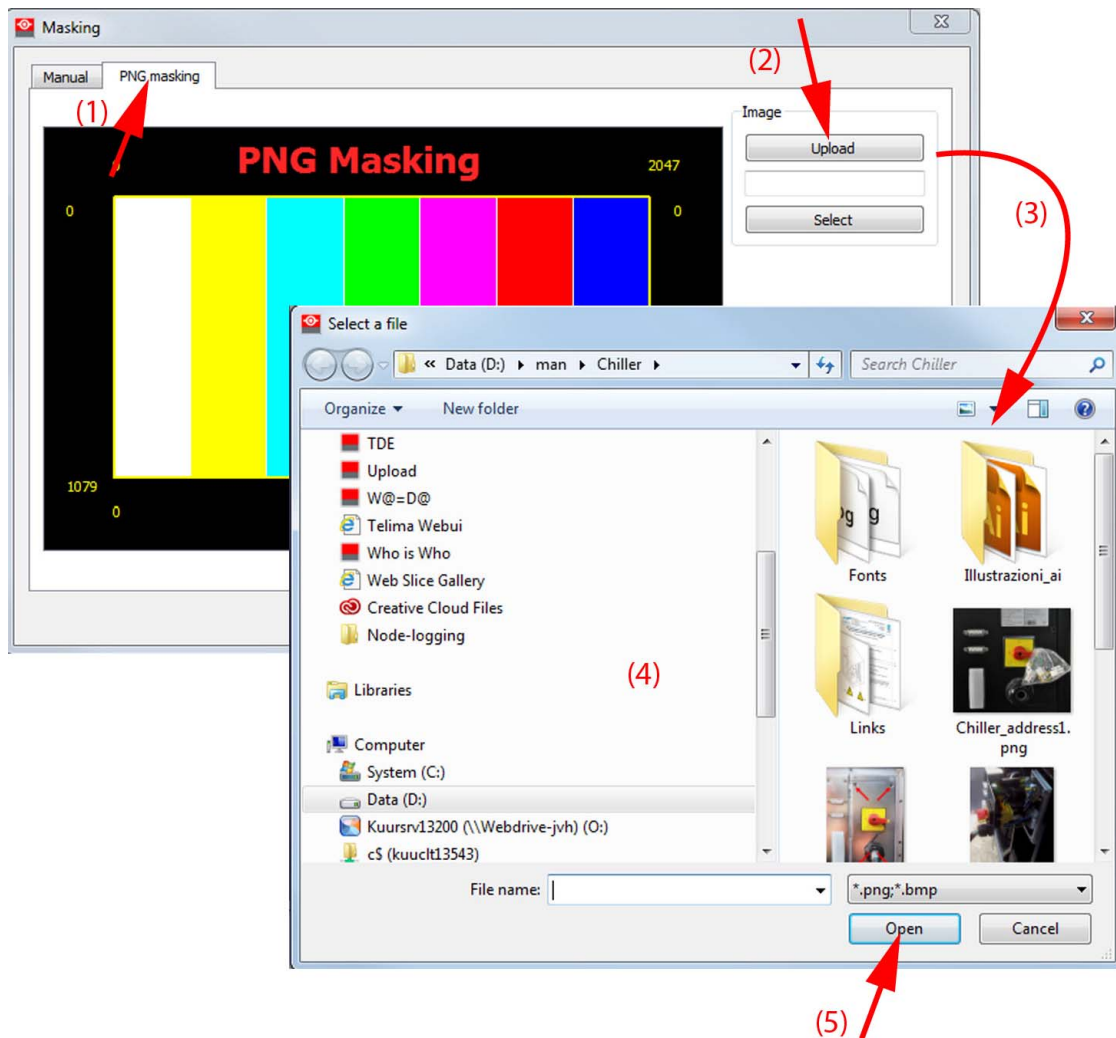


Image 4-44
Upload freestyle masking file

4. Click **Upload** (2) and select the desired masking file image (4).
Click **Open** (5).

The masking image is uploaded.

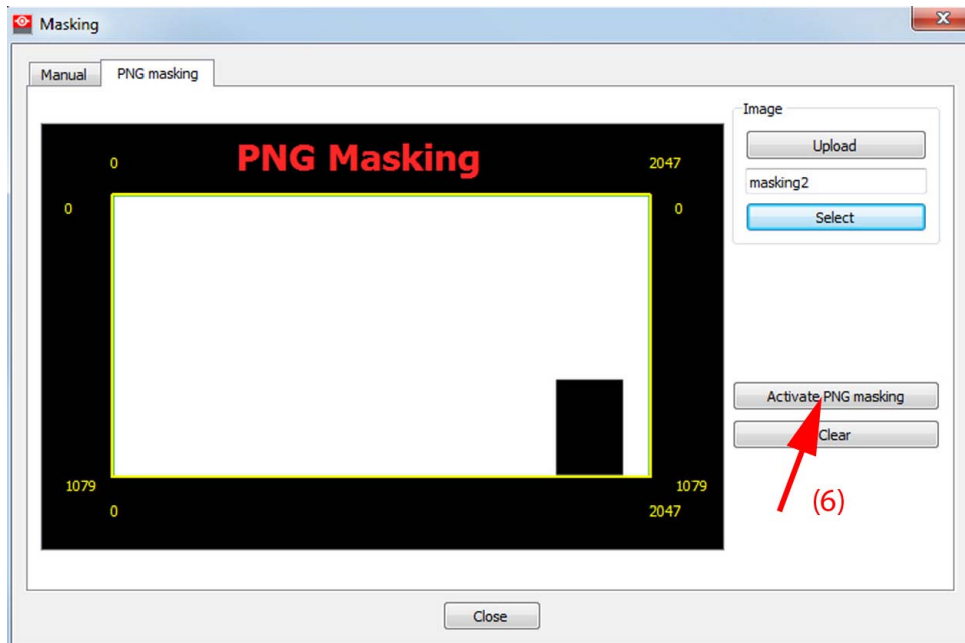


Image 4-45
PNG masking

White area is shown as image, black area is masked.

5. To activate the PNG masking, click on *Activate PNG masking* (6).

The masking layout as given in the image is executed.

Applying an existing masking file

1. While in *Configuration*, click on **SCREEN**.

The *Screen* overview is displayed.

2. Click on **Masking**.

4. Configurator

The masking window opens.

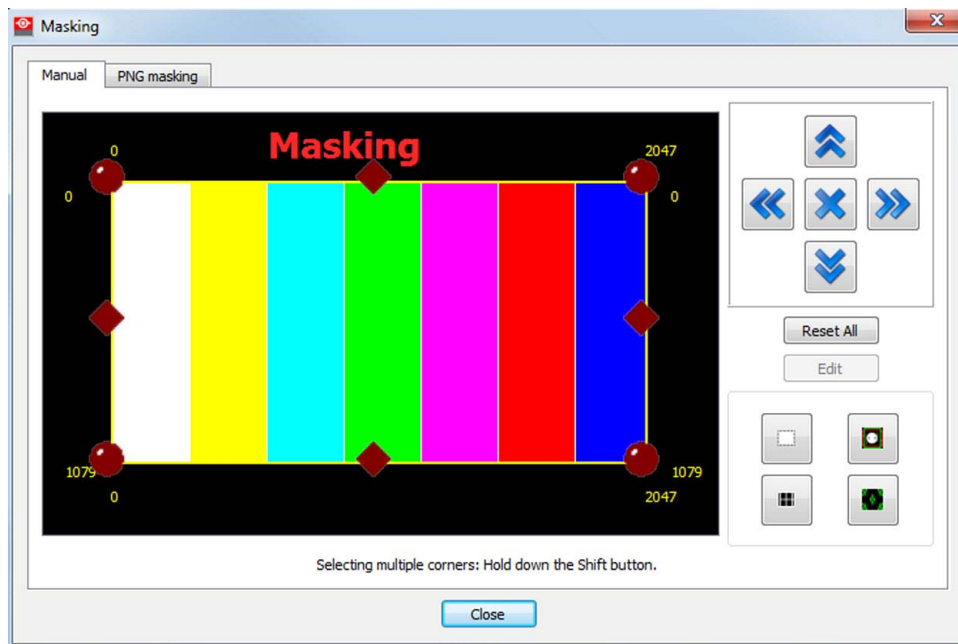


Image 4-46
Masking window

3. Click on **PNG masking**.

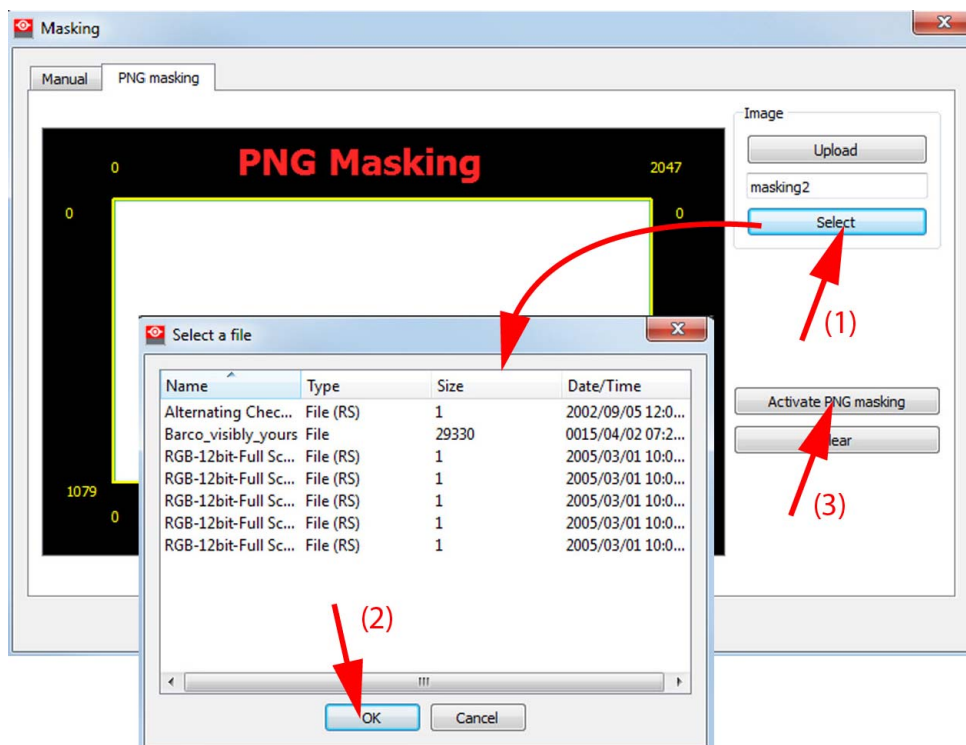


Image 4-47
Select masking file

4. Click on **Select** (1).

The selection window with the available masking files on the projector opens.

5. Select a file in the list and click **OK** (2).

6. Click **Activate PNG masking** to activate the selected file (3).

4.6.4 Save to file

What can be done?

The new Screen information can be save in a new or existing screen file. This file can be reused in different macros.

How to save

1. While in *Configuration*, click on **Screen**.

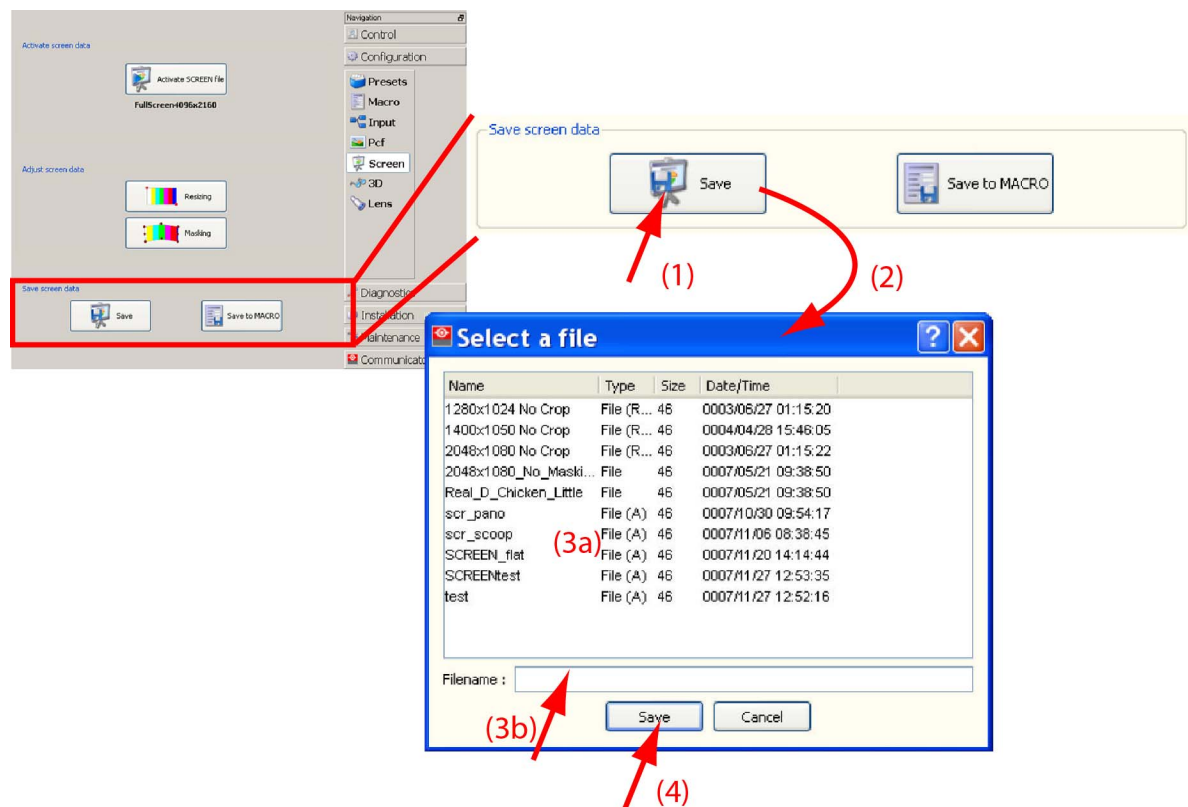


Image 4-48
Save Screen data to file

- The *Screen* overview is displayed.
2. Click on **Save** (1).
The file selection window starts up (2).
3. Select an existing file to overwrite (3a) or click in the filename input field and enter a new file name (3b).
4. Click **Save** (4).

4.6.5 Save to Macro

What can be done?

The new Screen information can be save in a new or existing macro file.

How to save

1. While in *Configuration*, click on **Screen**.
The *Screen* overview is displayed.
2. Click on **Save to Macro**.

4. Configurator

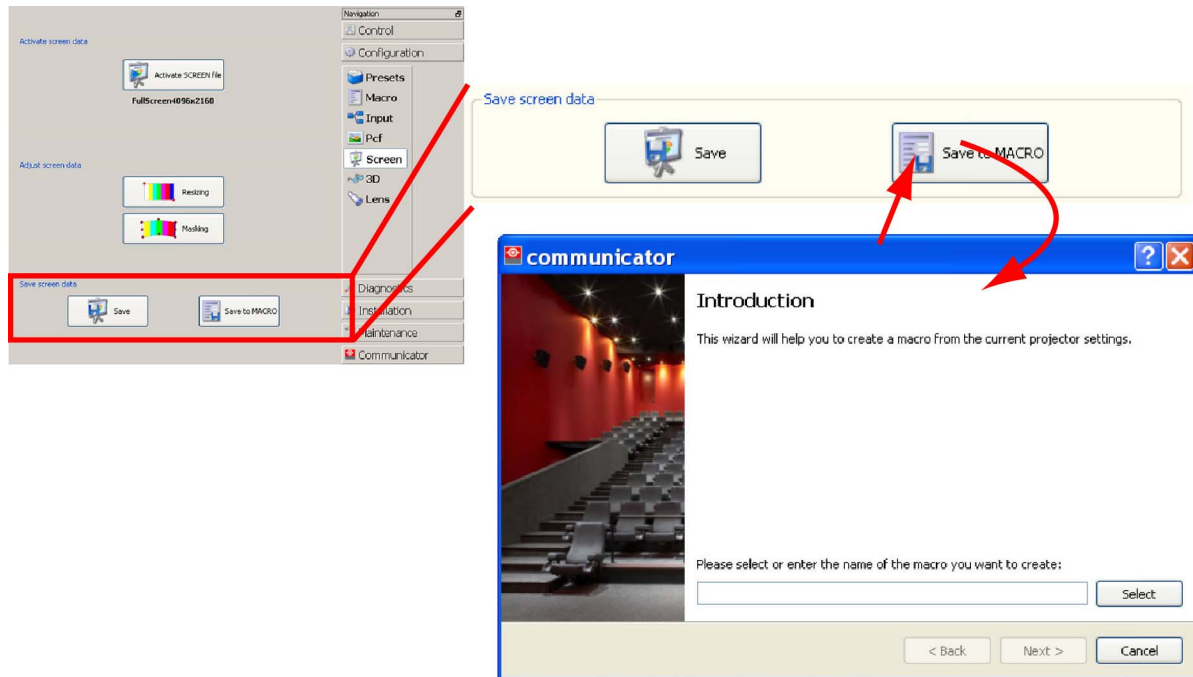


Image 4-49
Save Screen data to macro file

The *Save to macro* wizard starts up.

For more information about save to macro, see "Macro editor", page 405.

4.7 3D

Overview

- Activate 3D file
- 3D settings
- 3D settings, integrated color wheel
- Save to file
- Save to Macro

4.7.1 Activate 3D file

How to activate a 3D file

1. While in *Configuration*, click on **3D**.
The 3D overview is displayed.
2. Click on **Activate 3D file** (1).

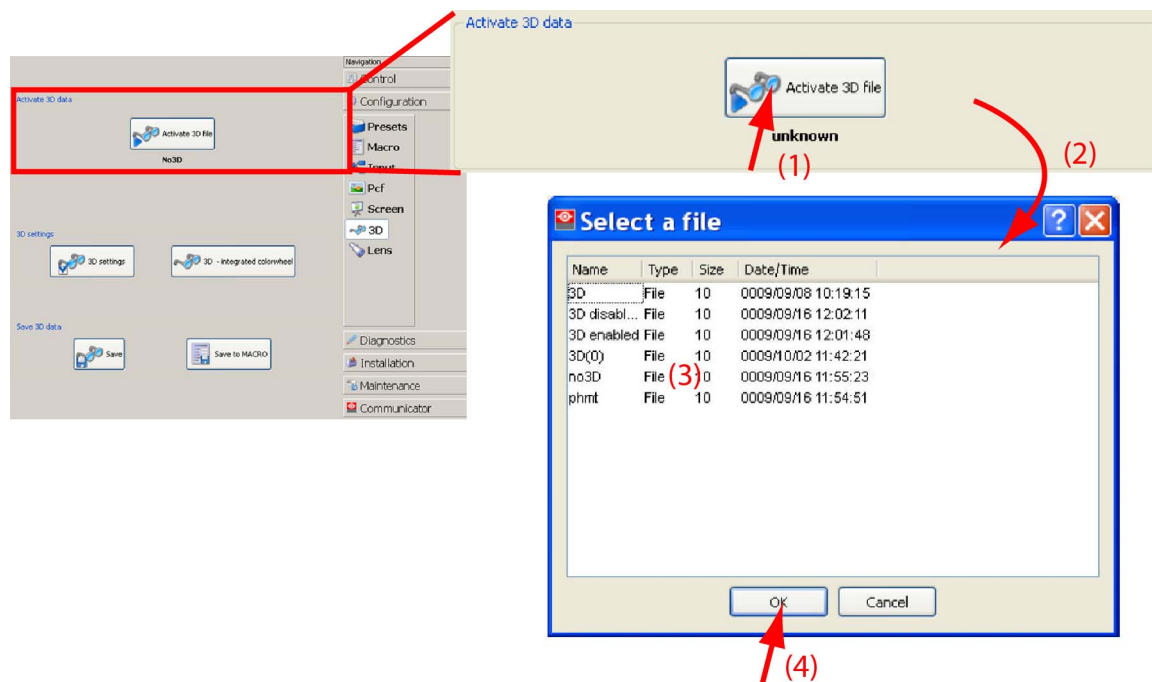


Image 4-50
Activate 3D file

The *Select a file* window opens (2).

3. Browse to the desired 3D file and click on it to select (3).

4. Click on **OK** (4).

The selected 3D file is activated. The name of the file is indicated below the **Activate 3D file** button.

4.7.2 3D settings

4.7.2.1 About 3D projection

Summary

Typical scenario for 3D projection:

The left eye image data comes in over a HD-SDI 24 p signal on port A on the projector.

The right eye image data comes in over a HD-SDI 24p signal on port B of the projector.

On the interface board both signals are combined to a 48 Hz signal. Left and right frames are combined. The signals are further up scaled to 96 Hz at the level of the Modular Formatter and DMD

The 48 Hz signals can be outputted to an external polarizer system, or active polarity glasses. They can be outputted through the GPO connection.

For 3D projection, with Dual link HD-SDI input where the input A represents the left eye stream, and input B represents the right eye stream, the following settings should be enabled.

Input selection	Source selection	292 3D
3D settings		
	Frame rate Multiplication	6:2
	L/R Input Reference	Use input reference - frame sequence mode

Set 3D Dark Time adjustment, 3D L/R Output Reference Delay and 3D L/R Output Polarity as needed.

4.7.2.2 Start up the 3D settings

How to start up

1. While in *Configuration*, click on **3D**.
The 3D overview is displayed.
2. Click on 3D settings.

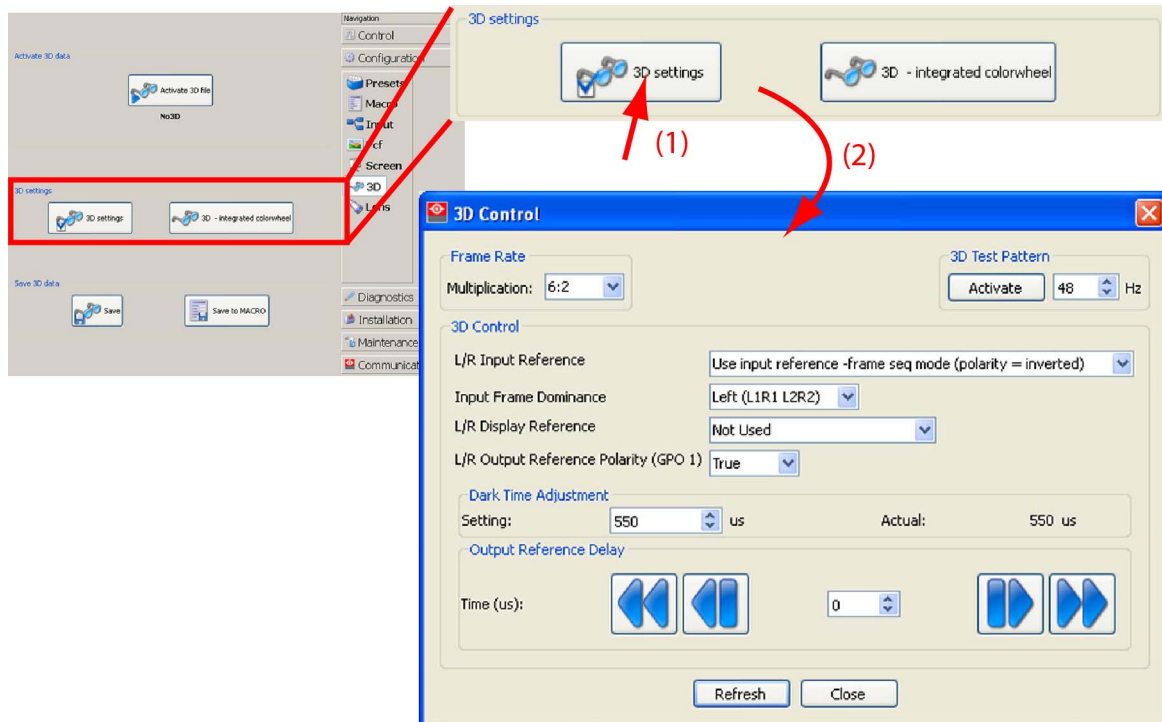


Image 4-51
3D controls

The 3D Control window opens.

4.7.2.3 Frame rate multiplication

Introduction

The system provides the capability to do frame rate multiplication based on an N/M system.

For this system, M and N are defined as follows:

- M is defined as the number of input frames of data (defined by input vertical sync) that are required to constitute a full frame of image data. This parameter is used to determine the “base” or “full” image frame rate for the input data, in the form: Base rate (Hz) = Input frame rate (Hz) / M.
- N is defined as the number of frames of data to be displayed during a base rate time. This parameter is used to determine the output vertical rate, in the form: Output rate (Hz) = Base rate (Hz) * N

The following are a few examples:

Example 1:

- Full frame of picture data input each vsync, therefore M = 1
- One frame of picture data output each base rate, therefore N = 1

E.g. 24 Hz input, 24 Hz output (Normal projector use)

Example 2:

- $\frac{1}{2}$ frame of picture data input each vsync, therefore $M = 2$
- frames of picture data output each base rate, therefore $N = 4$

E.g. LR data input at 48Hz, LRLR output at 96Hz (LRLR 3D)

6:2 is generally used for 3D.

Frame rate Setup

Tip on the combo box next to *Multiplication* and select the desired multiplication.

1:1 is normal projector use.

6:2 is generally used for 3D

others are used for experimental purposes.

4.7.2.4 3D Test pattern

What can be done?

With the 3D test pattern, it is possible to test the complete setup in combination with an external polarizer system, or active polarity glasses. The output frequency of the test pattern can be entered so that the simulation of the input signal is completely.

Entering the output frequency

1. Click in the input field next to *Activate*.

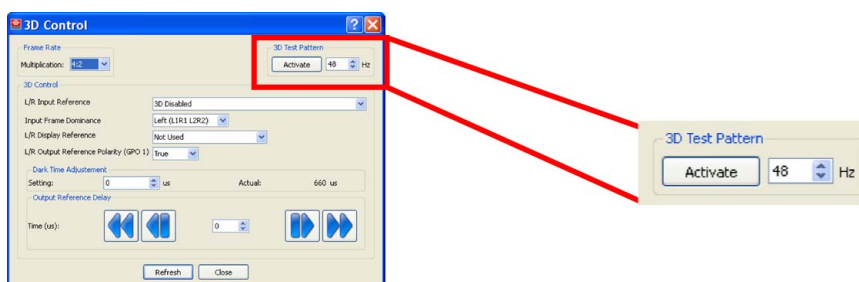


Image 4-52
3D test pattern setup

2. Enter the new frequency with the keyboard.
Or,
click on the up down control of the spin box until the desired frequency is reached.

How to check the complete setup

1. Click on **Activate** to run the test pattern.

A 3D test pattern generated on the interface board will be displayed. A blue square is displayed before Activate to indicate that the test pattern is activated.



Image 4-53
Test pattern activated

Alternating, the left and the right pattern will be displayed.

4. Configurator

For the best test pattern and to display the pattern for the left or the right eye:

- set the frequency on 48 Hz
- set frame rate multiplication on 4:2
- set 3D control, 3D L/R Input Reference on *White Line Code True* or *Blue Line Code True*.
- set 3D L/R Display Reference on *Use GPI 2(polarity = true)*
- set 3D Dark Time Adjustment, 3D L/R Output Reference Delay and 3D L/R Output Reference Polarity as needed.

Either the left or the right eye pattern will be displayed.

When e.g. the left pattern (indicated with L) is displayed, only the left eye may see this image. When it is not so, the setup is wrong and should be corrected.

2. Change the 3D setting L/R Display Reference to *Use GPI 2(polarity = inverted)*.

When the left patterns was displayed, now the right pattern will be displayed. Only the right eye may see this pattern. When it is not so, the setup is wrong and should be corrected.



When changes are made to *Dark Time* and *Output Reference Delay* while the test pattern was active, then these changes can be saved for the normal image when deactivating the test pattern. Click Yes to do so.

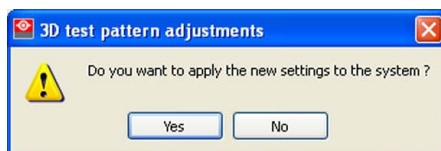


Image 4-54
Deactivation message

4.7.2.5 3D Controls

Overview

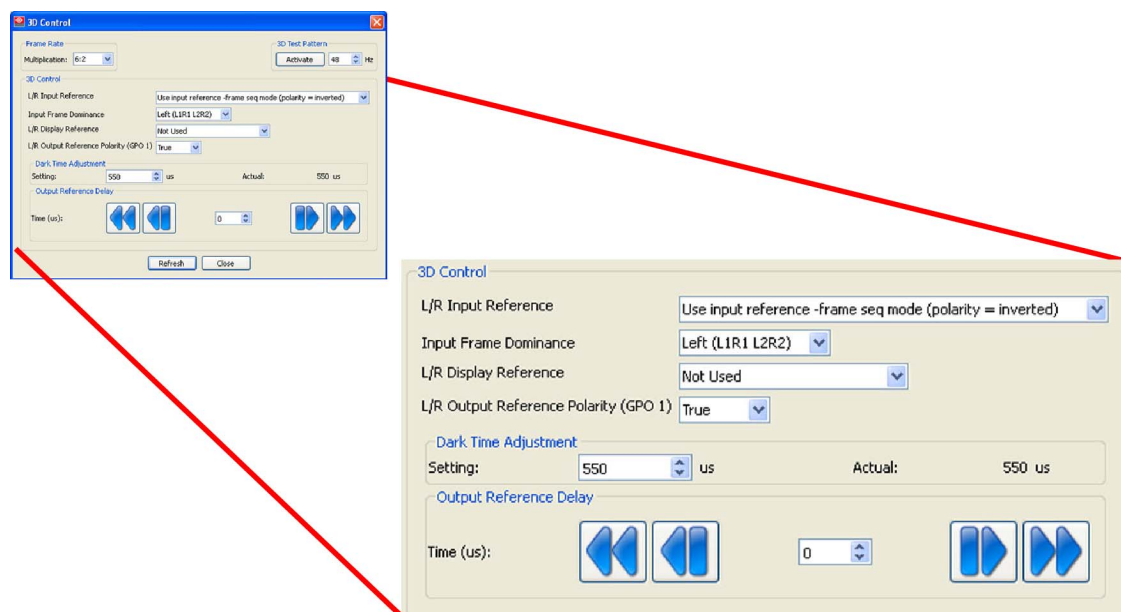


Image 4-55
3D controls

L/R Input Reference

The Input Reference indicates which frame is Right and which frame is Left.

The following choices are possible:

Setting	Description
3D disabled	no 3D images possible
None Provided	no 3D L/R input reference provided
Use GPI 2(polarity = true)	Can be used for single stream inputs High : Left is Active Low : Right is Active
Use GPI 2(polarity = false)	Can be used for single stream inputs High : Right is Active Low : Left is Active
Use input reference - frame sequence mode (polarity = true)	Use Active data port assignment (for dual port sources) to determine 3D L/R input reference.
Use input reference - frame sequence mode (polarity = inverted)	Use Active data port assignment (for dual port sources) to determine 3D L/R input reference
Use <White Line Code / Blue Line Code> (polarity = true)	Use "White Line Code / Blue Line Code" embedded in data stream as 3D L/R input reference.
Use <White Line Code / Blue Line Code> (polarity = inverted)	Use "White Line Code / Blue Line Code" embedded in data stream as 3D L/R input reference.
Use line interleave where first line = left, second line = right	

About <White Line Code> or <Blue Line Code>

The **White/Blue Line Code** is an embedded methodology for specifying whether a specific frame of input data has left or right eye data.

- The bottom pixel-row of the left-eye subfield should be pure white (blue) for the left-most 25% of the pixel-row, and pure black for the remainder of the row.
- The bottom pixel-row of the right-eye subfield should be pure white(blue) for the left most 75% of the pixel-row, and pure black for the remainder of the row.

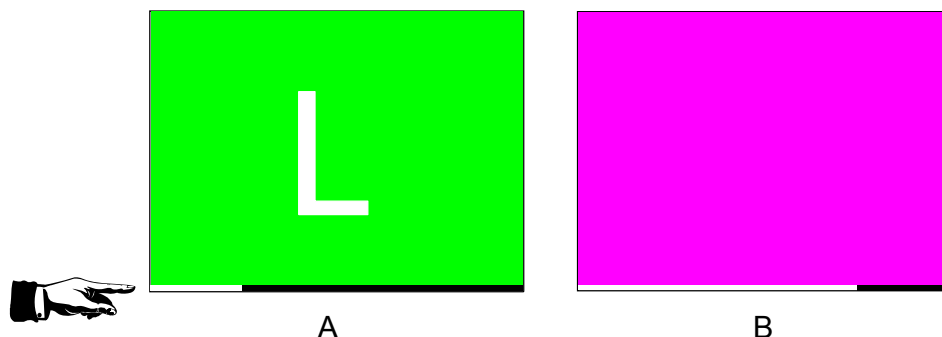


Image 4-56
White (Blue) line code

- A Green field with white L and last lines 25 % white, 75 % black
B Magenta field with last lines 75 % white, 25% black

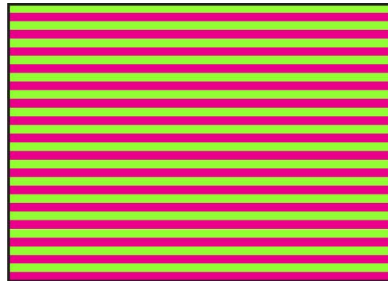
The system will only sample the blue channel, allowing the external user to use either White or Blue Line Code. The system will blank out the encoded line so that it is not displayed.

4. Configurator

This mechanism is only relevant when using a single stream input. The input reference is encoded in the content. (Information is on R, G and B channels).

This information can also be on blue channel only (Blue line bottom) Blue Line Code.

About Line interleave



(1)
(2)

Image 4-57
Line interleave

(1) Odd lines
(2) Even lines

The system alternates the lines between the left and the right eye. It starts with the first line containing the left eye information and the second line containing the right eye information. It continues in that way until a full frame is produced.

Input frame dominance

Only relevant for dual stream input.

The frames are arriving at the same time, but they will be inserted sequentially.

Insert order selection:

- Left (L1, R1, L2, R2 ...)
- Right (R1, L1, R2, L2 ...)

L/R Input Reference GPI

Only relevant if *L/R Input Reference* is set to *Use GPI 2*. Polarity can be true or inverted.

L/R Display Reference

The optional 3D L/R Display Reference signal is used to specify which frame of eye data is to be displayed during a specific display frame. This signal is referenced to the display frame rate which is specified by the Frame Rate Multiplication command. The system will sample this reference in the middle of each display frame, inverting the sample for use during the following display frame.

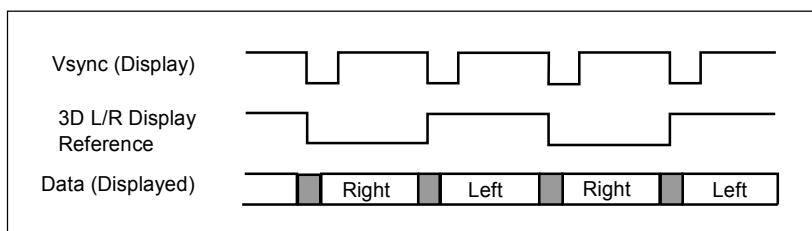


Image 4-58
Relationship of 3D L/R Display Reference and displayed data

L/R Output Reference Polarity

Indicates the polarity of the outgoing reference signal on GPO 1.

The L/R Output Reference signal provides an external reference to the start of dark time for each displayed frame, as well as specifying which frame of eye data (left or right) is being displayed.

It is used to synchronize external polarizer systems, or active polarity glasses.

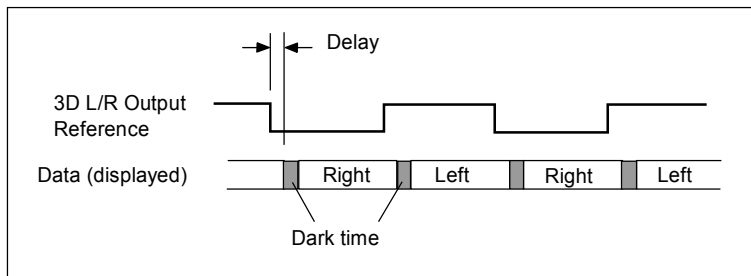


Image 4-59
Output reference - displayed data

Dark Time Adjustment

Between switching the frames the image needs to be black the same time the external devices need to switch (external devices can be 3D Glasses, or polarizing filter).

For 3D applications, systems typically need a period of time where the image projected on the screen is black. This black or “dark time” is used to switch the mechanism that controls what a viewers left eye and right eye sees. This software command is used to adjust the projector dark time to meet the requirements of whatever switching mechanism is being used.

3D dark time adjustment will be disabled (set to 0) whenever 3D is disabled. With 3D enabled and 3D dark time adjustment disabled, the projector will be set to its default dark time of approximately 388 μ s. There is no dark time when 3D is disabled.

The system will have a minimum and maximum dark time that can be achieved. If the specified value is smaller than the system can provide, the dark time will be set to the systems minimum value, which will be reported as the actual dark time value. If the specified value is larger than the system can provide, the dark time will be set to the systems maximum value, which will be reported as the actual dark time value.

For 3D applications, systems typically need a period of time where the image projected on the screen is black. This black or “dark time” is used to switch the mechanism that controls what a viewers left eye and right eye sees. For most 3D applications, the system will provide an output reference signal that indicates whether left or right eye data is being displayed, as well as the start of dark time. This signal is the 3D L/R Output Reference.

Output Reference Delay

Delay value from Delay – Time is added to the nominal timing between the displayed dark time and the 3D L/R Output Reference.

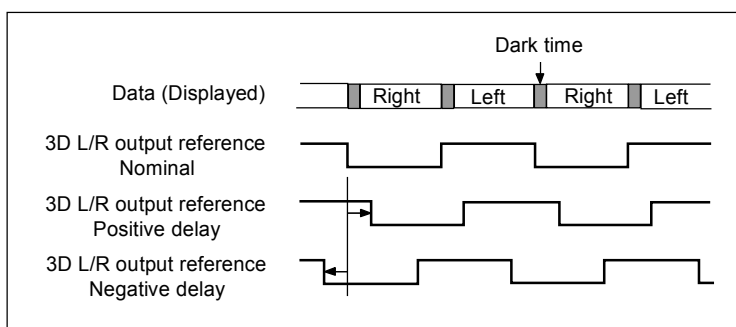


Image 4-60
Delay example for 3D L/R Output Reference

Click on the left or right coarse and fine buttons to adjust the delay.

4.7.3 3D settings, integrated color wheel

Overview

- Start up of the advanced Integrated 3D settings
- Integrated 3D settings (integrated color wheel)
- 3D control

4.7.3.1 Start up of the advanced Integrated 3D settings

How to start up

1. While in *Configuration*, click on **3D**.

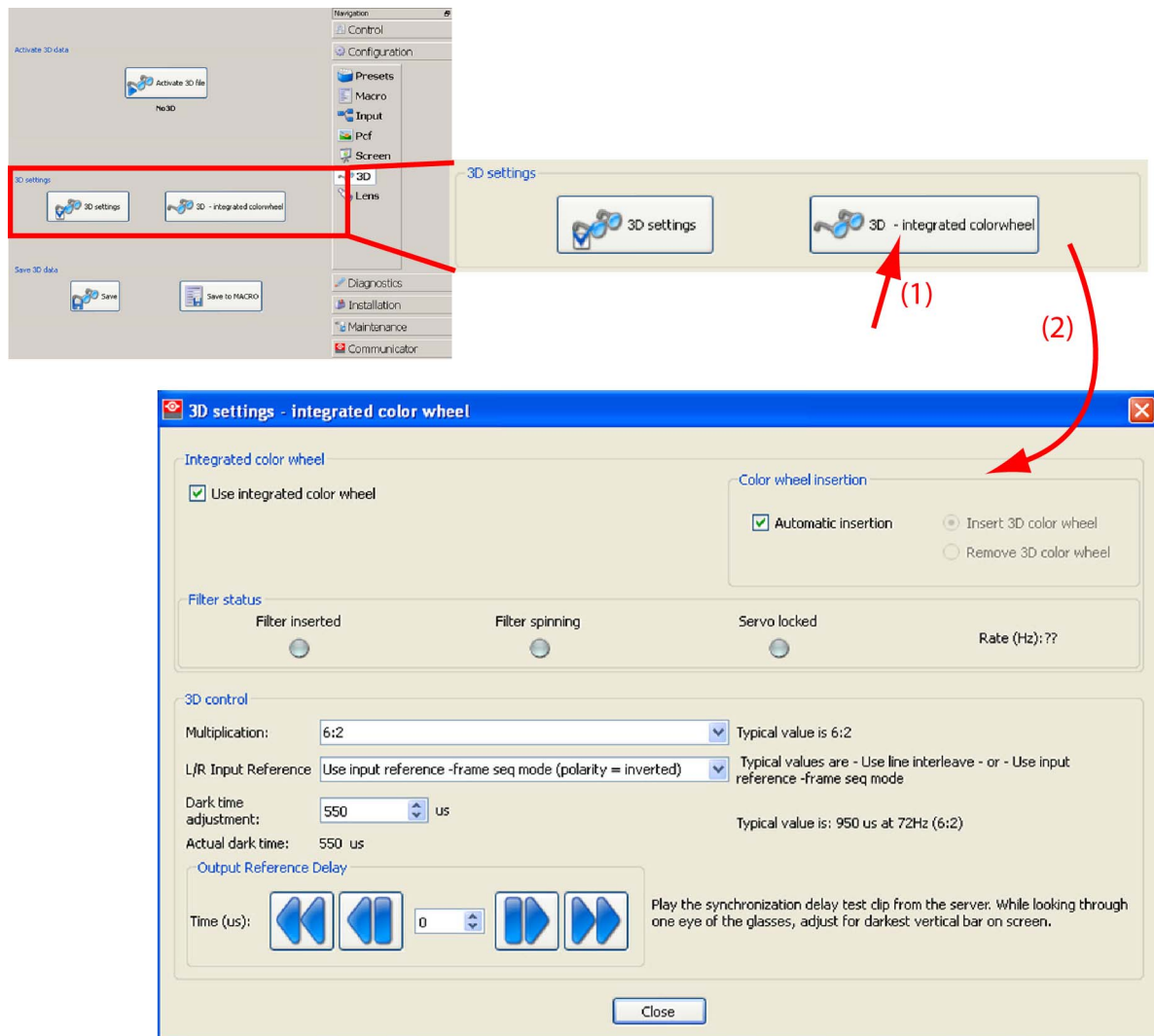


Image 4-61
3D settings with integrated color wheel

The 3D overview is displayed.

2. Click on **3D integrated color wheel** (1).

The 3D settings integrated color wheel opens (2).

4.7.3.2 Integrated 3D settings (integrated color wheel)

3D used/not used

The 3D system uses an integrated color wheel in the light path of the projector. Before that color wheel can be used, the projector has to know if the projector is equipped with such a color wheel or not.

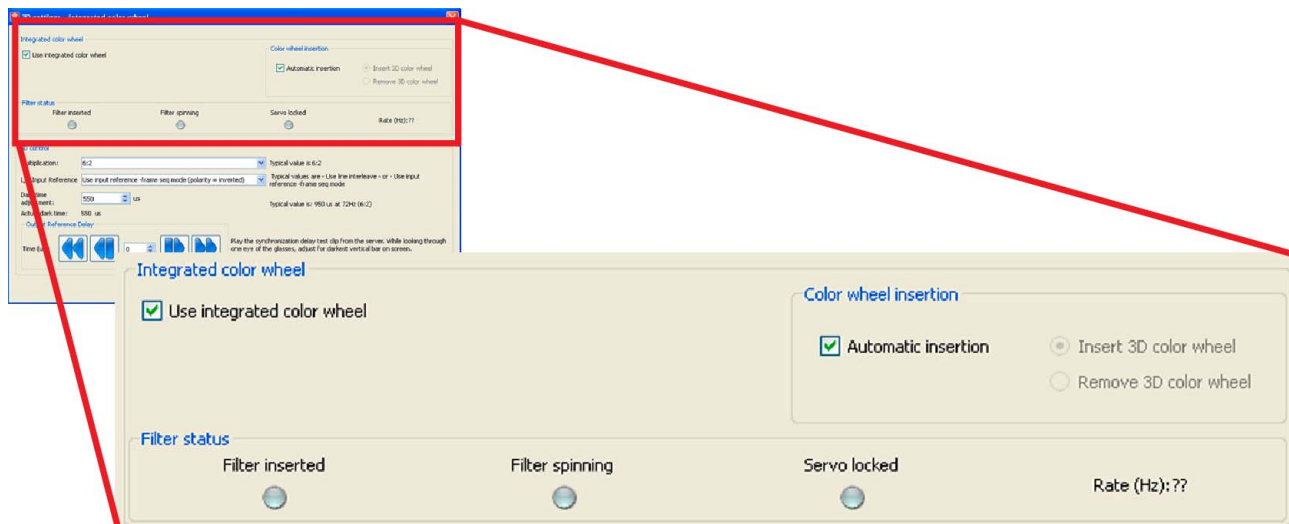


Image 4-62
Filter status

Check the check box in front of *Use the integrated color wheel* to indicate that an integrated color wheel is available. When checked when no such a color wheel is available, an error will be generated.

Color wheel insertion

The color wheel can be inserted automatically or manually.

When Automatically is selected, the color wheel will be inserted automatically when a L/R reference settings is selected different from *3Ddisabled*. When 3D disabled is selected, the color wheel is moved out from the light path.

When automatically insertion is not checked, use the radio buttons next to *Insert 3D color wheel* to insert the color wheel in the light path or *Remove 3D color wheel* to remove the color wheel from the light path.

Filter status

A LED indication show the status of the filter.

These are the possibilities:

Function	LED color	Description
Filter inserted	Gray	filter wheel not inserted in light path
	Green	filter wheel inserted in light path
	Red	integrated color wheel in a position in between. Check the hardware
Filter spinning	Gray	no spinning of the filter wheel
	Green	motor is spinning the filter wheel
Servo locked	Gray	filter wheel servo is not lock on the reference signal
	Green	filter wheel servo is lock on the reference signal

4. Configurator

4.7.3.3 3D control

Multiplication

The typical operating mode 6:2.

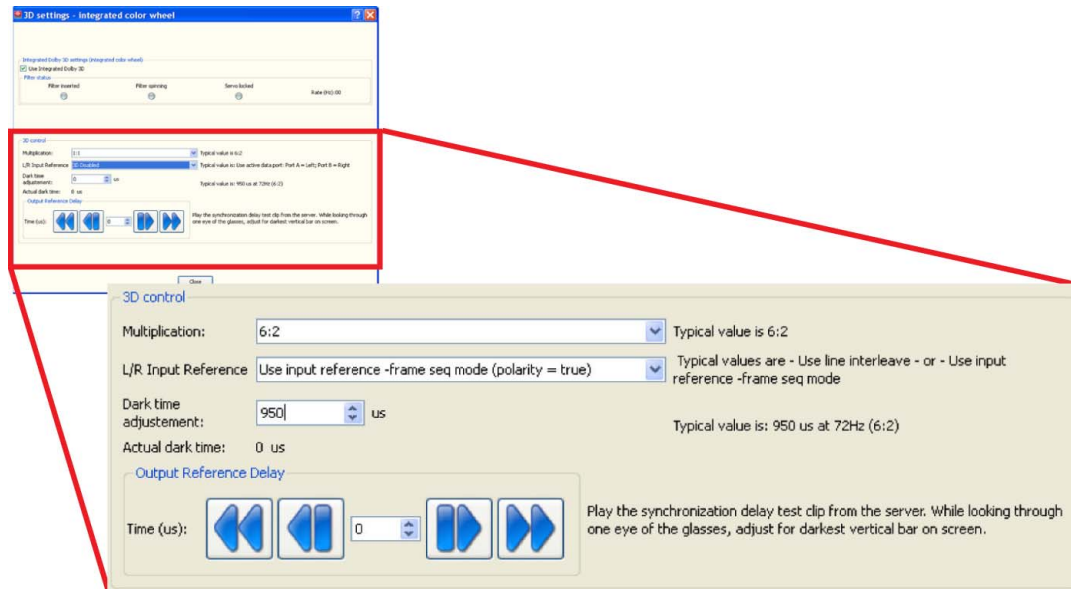


Image 4-63
3D controls

Other operating modes are available but are not used for the moment.

L/R input reference

The Input Reference indicates which frame is Right and which frame is Left

The following choices are possible:

Setting	Description
3D disabled	no 3D images possible
None Provided	no 3D L/R input reference provided
Use assigned GPI (polarity = true)	Can be used for single stream inputs High : Left is Active Low : Right is Active
Use assigned GPI (polarity = false)	Can be used for single stream inputs High : Right is Active Low : Left is Active
Use input reference - frame sequence mode	Use Active data port assignment (for dual port sources) to determine 3D L/R input reference.
Use input reference - frame sequence mode	Use Active data port assignment (for dual port sources) to determine 3D L/R input reference
Use <White Line Code> (polarity = true)	Use "White Line Code" embedded in data stream as 3D L/R input reference.
Use <White Line Code> (polarity = inverted)	Use "White Line Code" embedded in data stream as 3D L/R input reference.

Setting	Description
Use <Blue Line Code> (polarity = true)	Use “Blue Line Code” embedded in data stream as 3D L/R input reference.
Use <Blue Line Code> (polarity = inverted)	Use “Blue Line Code” embedded in data stream as 3D L/R input reference.

The color will be inserted into the light path as soon as the L/R input reference is not set to *3D Disabled*. If you want to control the insertion of the color wheel from a macro, you should use an extra file with the L/R input reference to a value that is not 3D disabled, typically use active data port: *Port A = Left, Port B = Right*

Dark Time Adjustment

Between switching the frames the image needs to be black.

For 3D applications, systems typically need a period of time where the image projected on the screen is black. This black or “dark time” is used to switch the mechanism that controls what a viewers left eye and right eye sees. This software command is used to adjust the projector dark time to meet the requirements of whatever switching mechanism is being used.

3D dark time adjustment will be disabled (set to 0) whenever 3D is disabled. With 3D enabled and 3D dark time adjustment disabled, the projector will be set to its default dark time of approximately 900 μ s. There is no dark time when 3D is disabled.

The system will have a minimum and maximum dark time that can be achieved. If the specified value is smaller than the system can provide, the dark time will be set to the systems minimum value, which will be reported as the actual dark time value. If the specified value is larger than the system can provide, the dark time will be set to the systems maximum value, which will be reported as the actual dark time value.

For 3D applications, systems typically need a period of time where the image projected on the screen is black. This black or “dark time” is used to switch the mechanism that controls what a viewers left eye and right eye sees. For most 3D applications, the system will provide an output reference signal that indicates whether left or right eye data is being displayed, as well as the start of dark time. This signal is the 3D L/R Output Reference.

Output Reference delay

The output reference delay shifts the output reference signal. That results in the best 3D viewing with the least possible crosstalk between eyes.



If you require corrective lenses to see a cinema screen clearly, be sure you have them available.

To adjust the reference delay, handle as follow:

1. Start the synchronization delay test clip on the server.
2. Put on the glasses and view the screen, covering or closing first one eye and then the other. Do not adjust the reference delay value with both eyes open.

4. Configurator

3. Start e.g. with the left eye, adjust the delay until the white stripes disappear in the black column. Continue with the right eye and adjust the delay again.

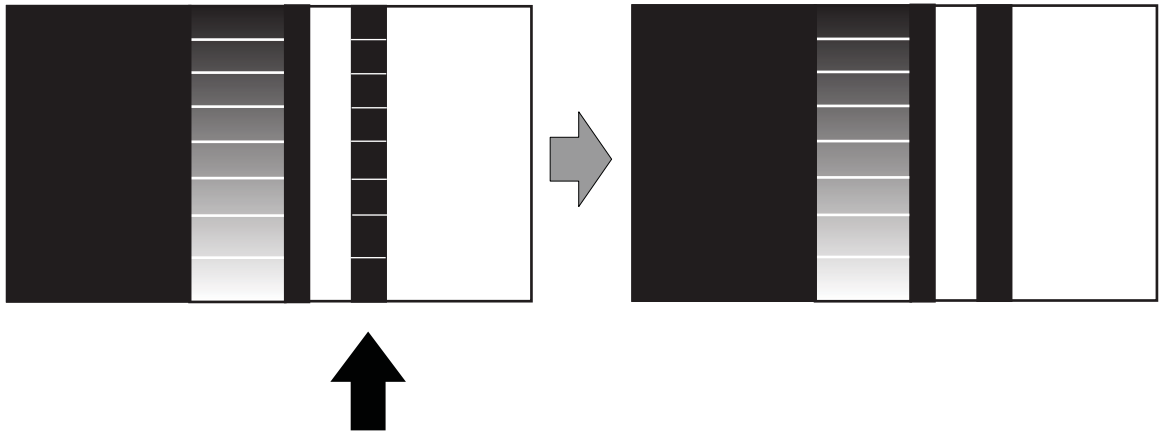


Image 4-64
Left eye delay test content

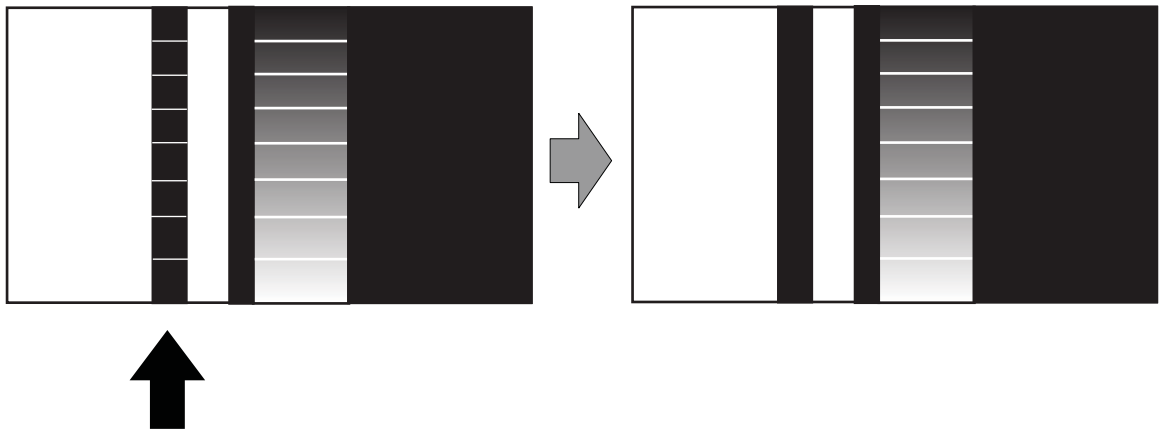


Image 4-65
Right eye delay test content

4. When the left and right eye image appear superimposed the Reference delay is not correctly optimized. Repeat the procedure.

4.7.4 Save to file

What can be done ?

The new 3D information can be saved in a new or existing file. This file can be used in different macros.

How to save

1. While in *Configuration*, click on **3D**.
The 3D overview is displayed.
2. Click on **Save (1)**.

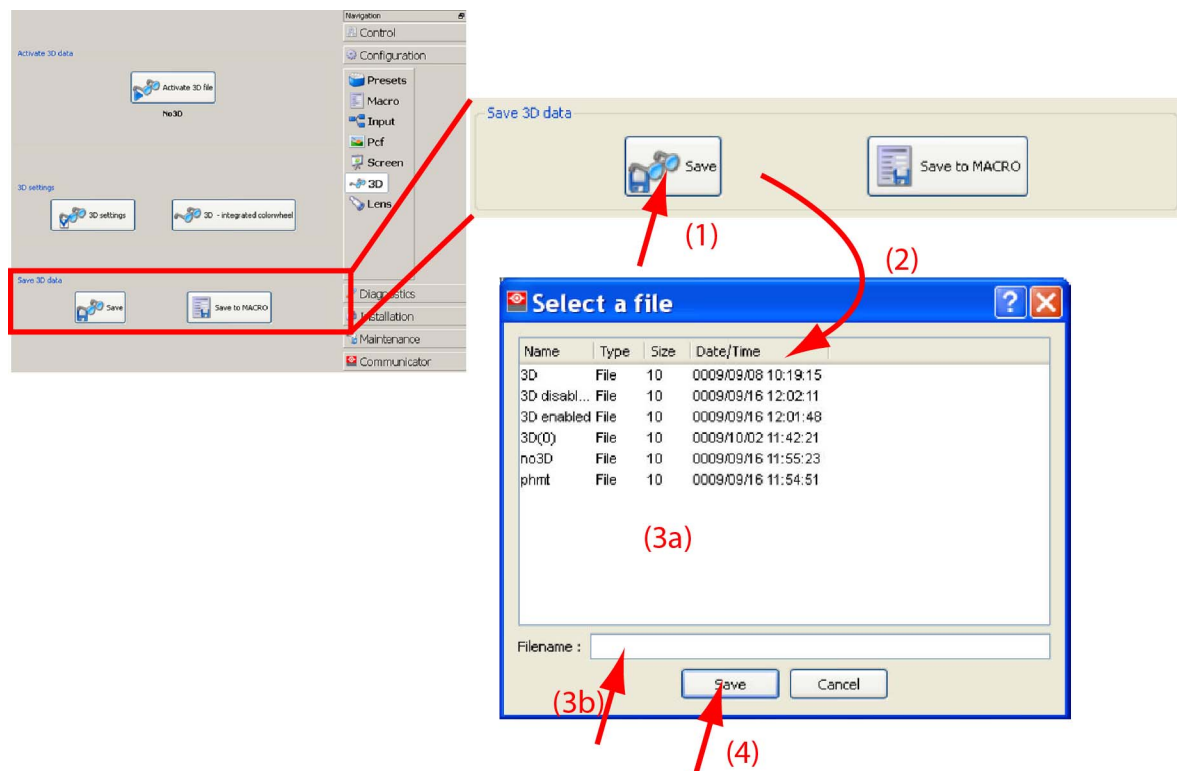


Image 4-66
Save 3D data to file

- The file selection window starts up (2).
- 3. Select an existing file to overwrite (3a) or click in the filename input field and enter a new file name (3b).
- 4. Click **Save** (4).

4.7.5 Save to Macro

What can be done?

The new 3D data can be saved in a new or existing macro file.

How to save

1. While in *Configuration*, click on **3D**.
The 3D overview is displayed.
2. Click on **Save to Macro**.

4. Configurator

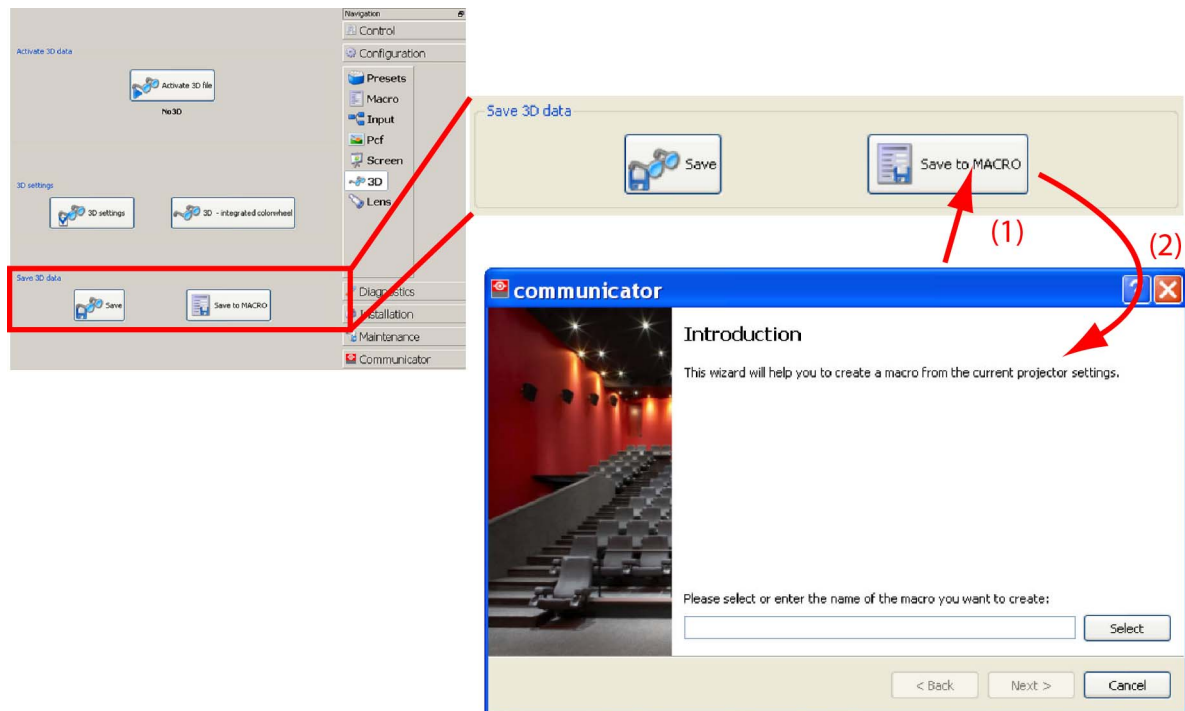


Image 4-67
Save to macro

The *Save to macro wizard* starts up.

For more information about save to macro, see "Macro editor", page 405.

4.8 Lens

Overview

- Current lens
- Activate Lens file
- Lens shift and focus
- Save to file
- Save to macro

4.8.1 Current lens

Overview

The current lens is indicated at the bottom of the lens overview pane. It is given with the article number and the full description of the lens.

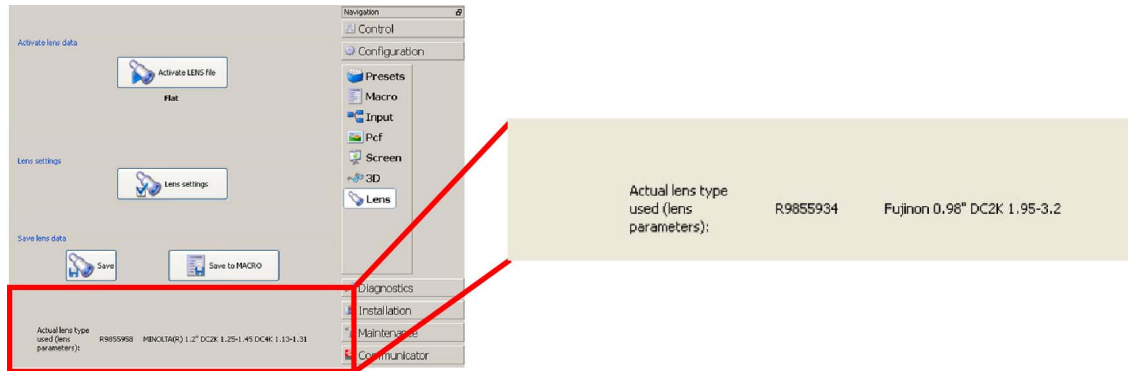


Image 4-68
Current lens

4.8.2 Activate Lens file



When the lens parameters are not selected, you will be prompted to select the correct lens that is used in conjunction with this projector. The lens parameters dialog box opens.

How to activate

1. While in *Configuration*, click on **Lens**.
The *Lens* overview is displayed.
2. Click on **Activate LENS file** (1).

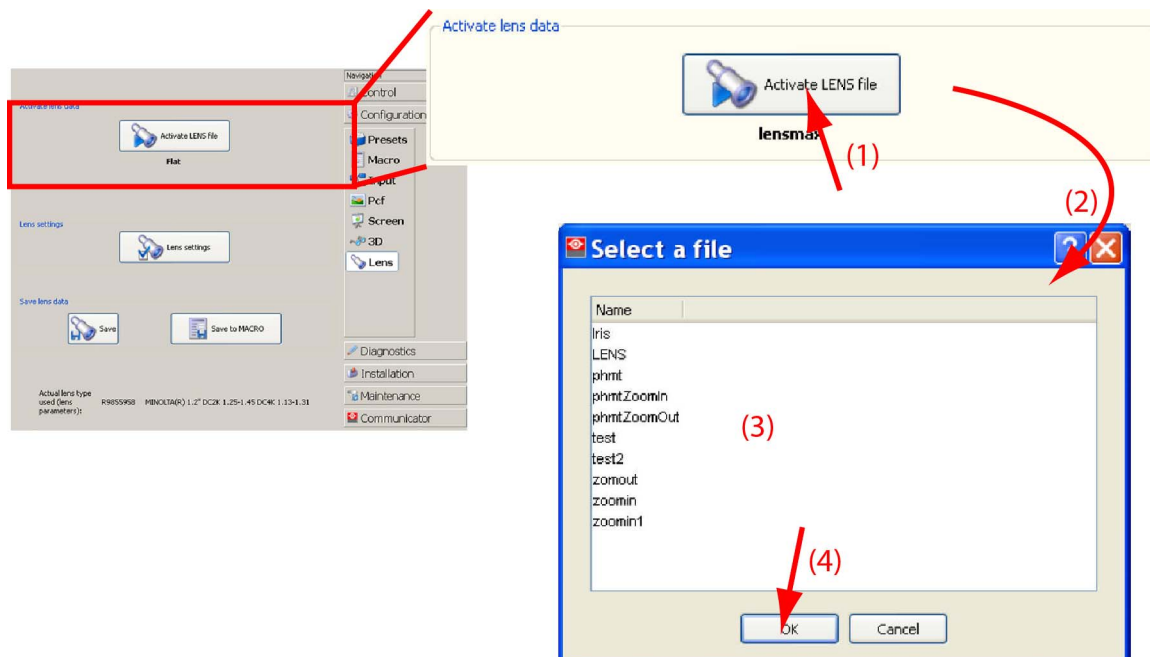


Image 4-69
Activate lens file

- The *Select a file* window opens (2).
3. Browse to the desired LENS file and click on it to select (3).
4. Click on **OK** (4).

The selected LENS file is activated. The name of the file is indicated below the **Activate LENS file** button.

4.8.3 Lens shift and focus



Only possible for projectors equipped with motorized lenses.

How to adjust the lens

1. While in *Configuration*, click on **Lens**.

The *Lens* overview is displayed.

2. Click on *Lens Settings*.

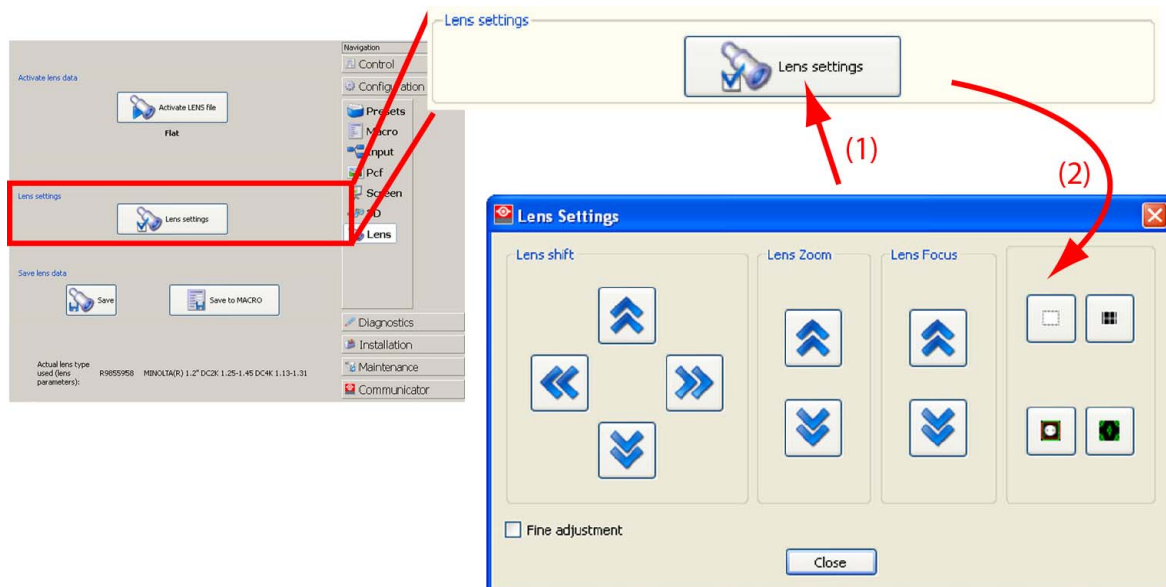


Image 4-70
Lens settings

The lens adjustment settings window is displayed.

3. To shift the image, click on the arrow buttons under *Lens shift*.

Note: Use the pattern short cut keys at the right side to activate or deactivate an test pattern.

Note: When pressing several times after each other on the same button, an acceleration of the movement starts.

The image can be moved left-right and up-down.

4. To zoom the image, click on the arrow buttons under *Lens zoom*.
5. To focus the image, click on the arrow buttons under *Lens focus*.



Check *Fine adjustment* to switch off the acceleration function of the buttons.

4.8.4 Save to file

What can be done?

The new Lens data can be saved in a new or existing file. This file can be used in different macros.



When the lens parameters are not selected, you will be prompted to select the correct lens that is used in conjunction with this projector. The lens parameters dialog box opens.

How to save

1. While in *Configuration*, click on **Lens**.

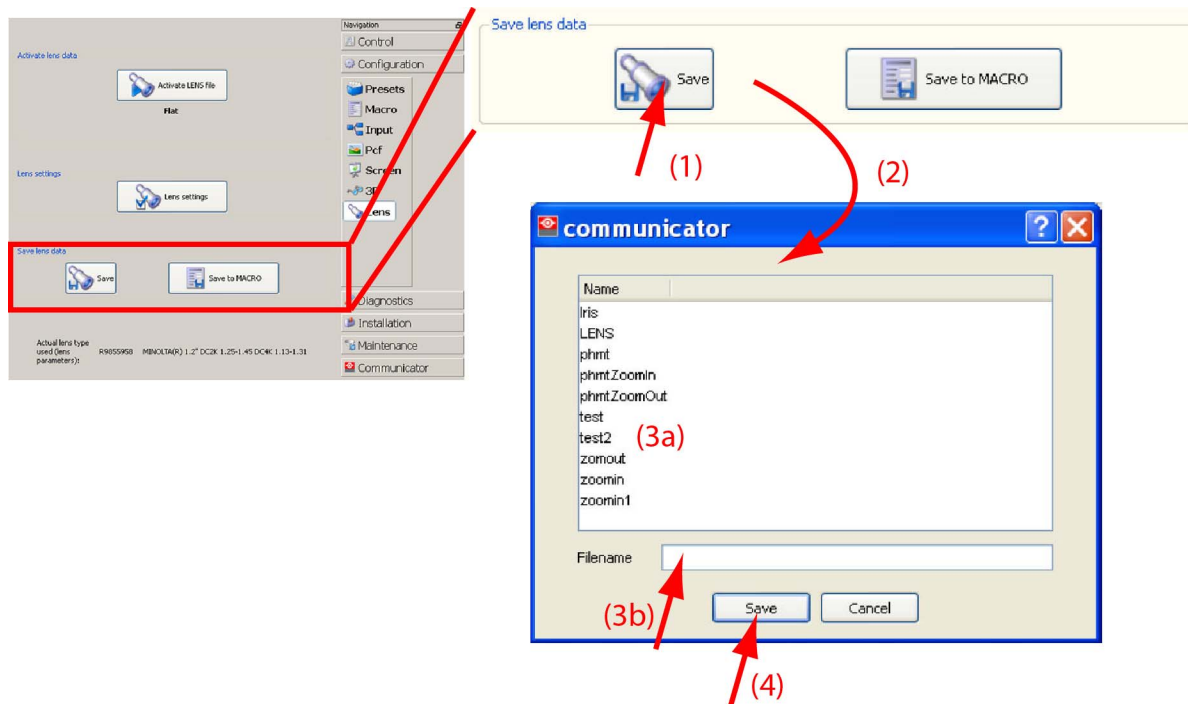


Image 4-71
Save lens data to file

The *Lens* overview is displayed.

2. Click on **Save** (1).

The file selection window starts up (2).

3. Select an existing file to overwrite (3a) or click in the filename input field and enter a new file name (3b).
4. Click **Save** (4).

4.8.5 Save to macro

What can be done?

The new Lens data can be saved in a new or existing macro file.

How to save

1. While in *Configuration*, click on **Lens**.

The *Lens* overview is displayed.

2. Click on **Save to Macro**.

4. Configurator

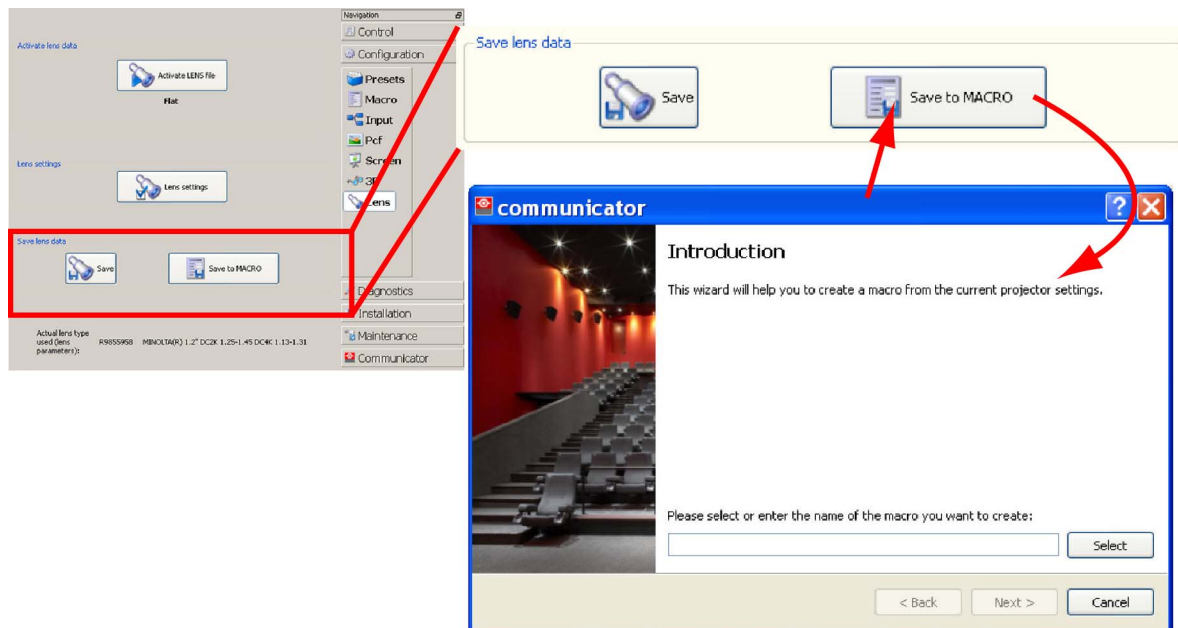


Image 4-72

The Save to macro wizard starts up.

For more information about save to macro, see "Macro editor", page 405.

4.9 Laser mode

Overview

- Laser mode selection

4.9.1 Laser mode selection

What can be done?

Depending on the projector type (L-series or CLP-series projector) the laser setup is different for each type of image, 2D, 3D external, 3D internal or passive 3D, requires another setup for the lasers.

How to select

1. While in *Configuration*, click on **Laser mode**.
2. Click on **Laser mode (1)**.

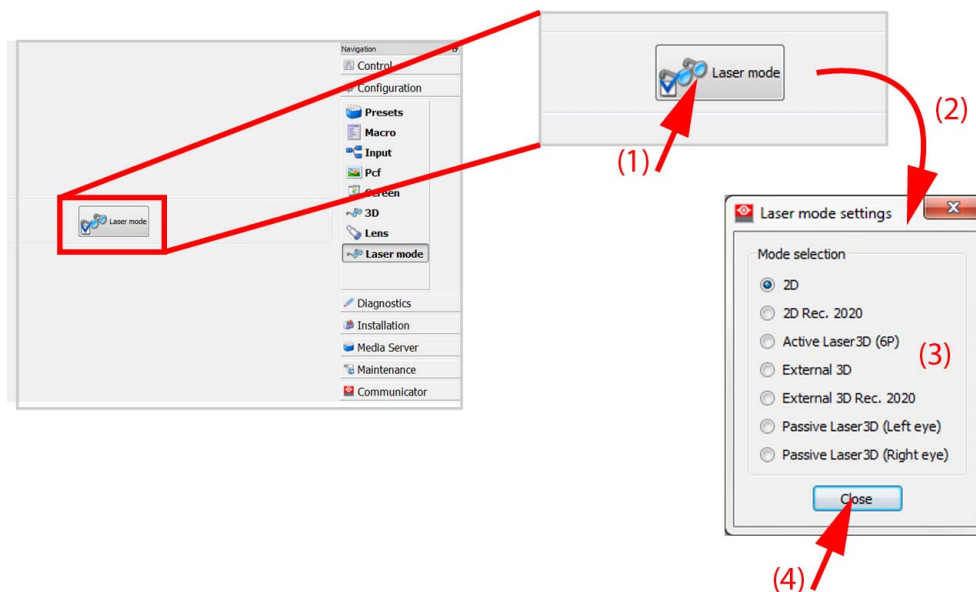


Image 4-73
Laser mode settings for L-series projector

The *Laser mode settings* window opens (2).

3. Check the radio button in front of the desired Laser mode (3).
The following laser modes are available for L-series projectors:

- 2D
- 2D Rec.2020
- Active Laser 3D (6P)
- External 3D
- External 3D Rec.2020
- Passive Laser 3D (Left eye)
- Passive Laser 3D (Right eye)

The following laser modes are available for CLP-series projectors:

- 2D
- External 3D

4. Click **Close** (4).

5. DIAGNOSTICS

Overview

- Actual diagnostics
- History, logging
- Version info
- Diagnostic package
- Tests
- Error lookup
- CineCanvas

5.1 Actual diagnostics

5.1.1 Error messages

Overview

The scroll list gives an overview of the current errors inside the projector. The errors are given with an identifier (error number) and a description.

Each error line ends on a question mark symbol. Click on that question mark symbol to see a *Diagnostic Companion* window.

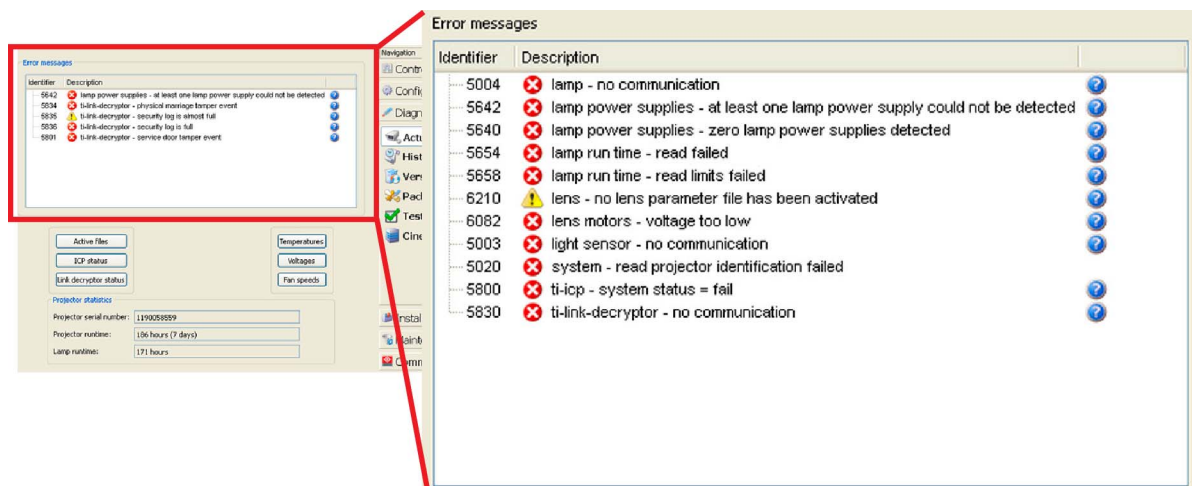


Image 5-1
Error messages

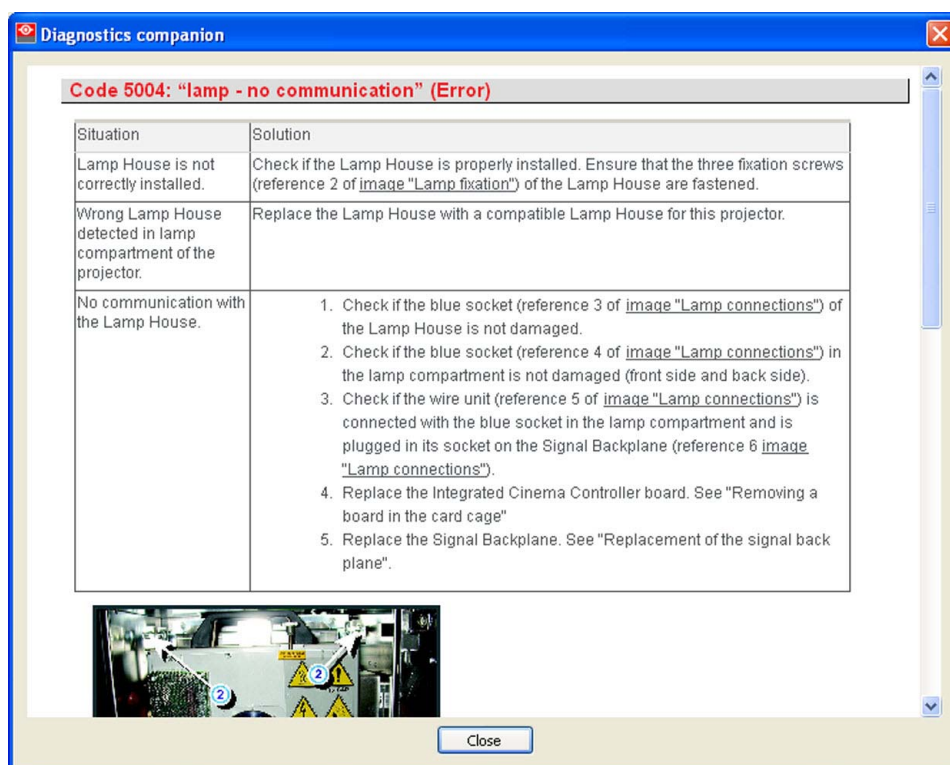


Image 5-2

This diagnostic companion window gives for a given situation a possible solution. For a certain error number, multiple situations and solutions are possible and are helpful to solve the error.

5.1.2 Integrated cinema controller



ICP

Integrated Cinema Processor



For projectors with integrated mediablock, only the ICP status button is available.

How to select

1. While in *Diagnostics*, click on **Actual**.
The *Actual* overview pane is displayed.
2. Click on **ICP status** (1).

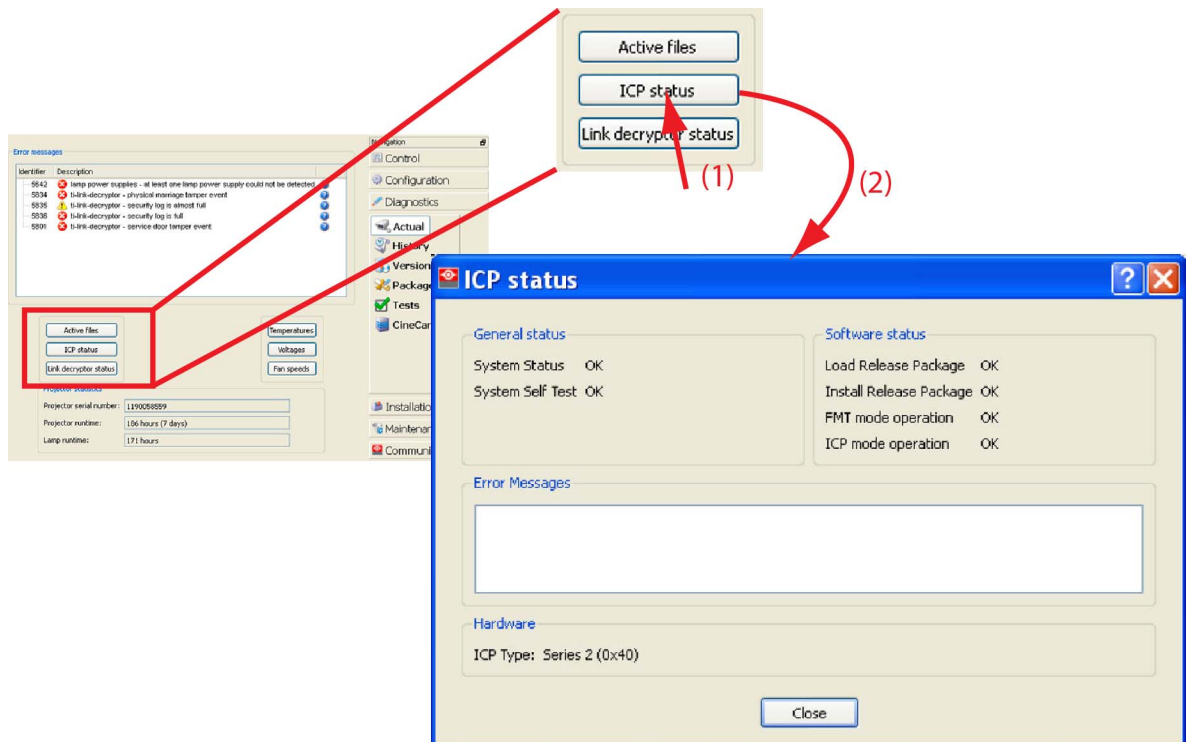


Image 5-3
ICP status

The integrated cinema processor status opens (2).
The following statuses are given:

- General status
 - System status
 - System self test
- Software status
 - Load release package
 - Install release package
 - FMT mode operation: OK = normal mode, otherwise it can be in boot mode.
 - ICP mode operation: OK = normal mode
- Error messages
- Hardware: installed ICP type

5.1.3 Link decryptor



Only for projectors without integrated mediablock.

What is done ?

Encrypted input signals are decrypted on the link decrypting unit which is protected with a security enclosure to avoid making illegal copies.

How to display the status

1. While in *Diagnostics*, click on **Actual**.
The *Actual* overview pane is displayed.
2. Click on **Link decryptor**.

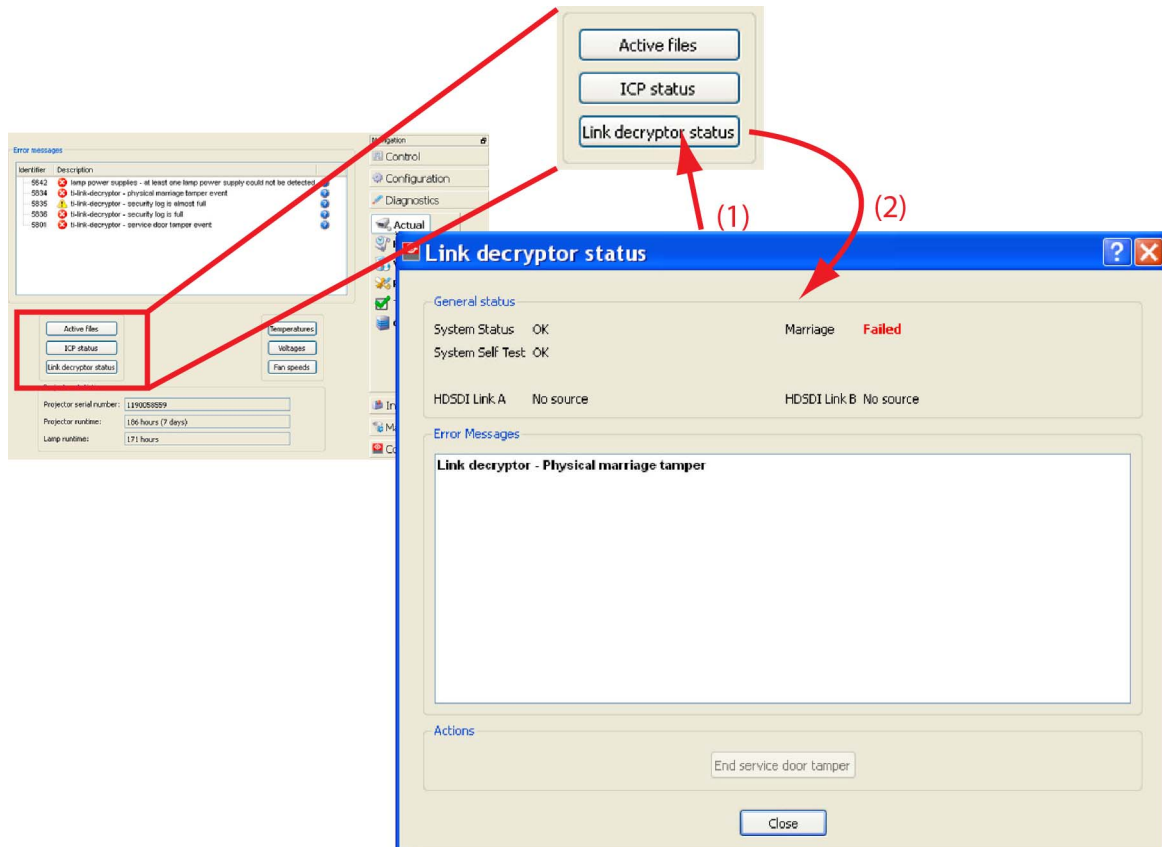


Image 5-4
Link decrypting status

The link decryptor status is displayed.
The following status are given:

- General status
 - System status
 - System self test
 - Marriage
 - HD-SDI Link A
 - HD-SDI Link B
- Error messages: overview of the error messages on the link decryptor unit.

About Marriage

The ICP board and HD-SDI input board are linked together. These board should always be replaced together. Replacing only one board will introduce Logical marriage tamper. The link decryptor will stop decrypting images with no image as result.

A marriage tamper can be cleared with the dallas key mechanism.

Actions

To clear a service door tamper only. Will only be accessible when the Service door tamper is active.
Click **Yes** to clear the tamper.

5.1.4 ICMP

How to display the status

1. While in *Diagnostics*, click on **Actual**.

The *Actual* overview pane is displayed.

2. Click on **ICMP**.

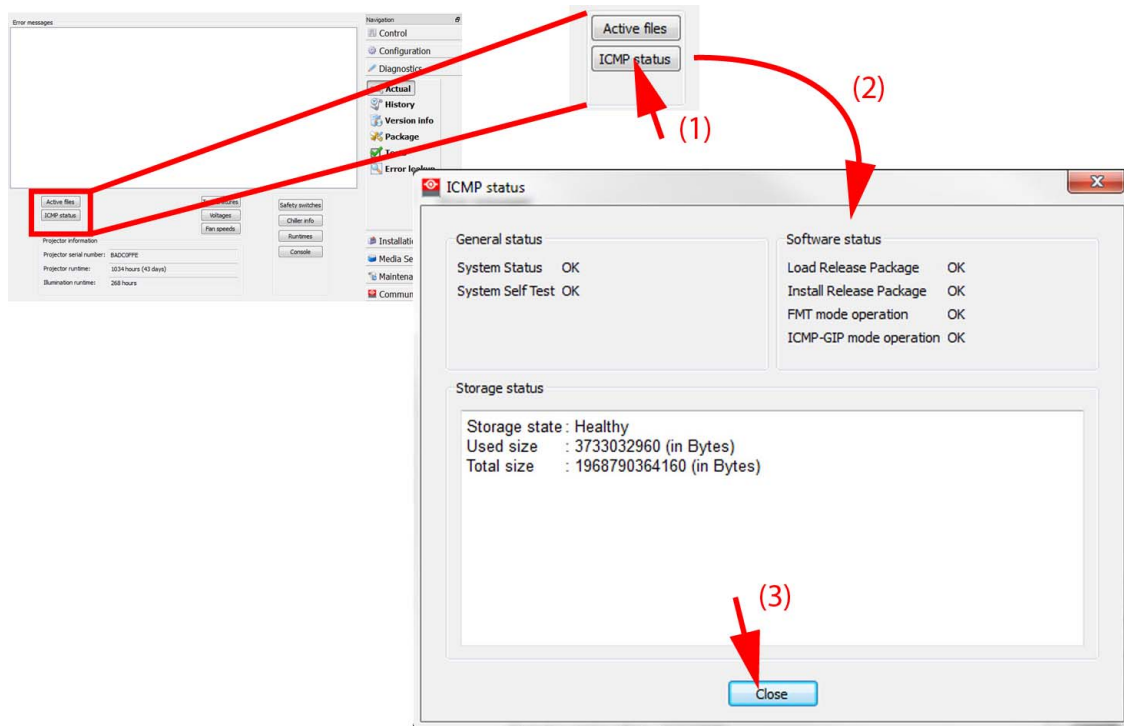


Image 5-5
ICMP status

The following status are given:

- General status
 - System status
 - System self test
- Software status
 - Load release package
 - Install release package
 - FMT mode operations
 - ICMP-GIP mode operation
- Storage status
 - Storage type
 - Used size
 - Total size

5.1.5 Active files

What is possible ?

All current active files in the projector can be listed in a separate window.

How to display

1. While in *Diagnostics*, click on **Actual**.

The *Actual* overview pane is displayed.

2. Click **Active files...** ..

5. Diagnostics

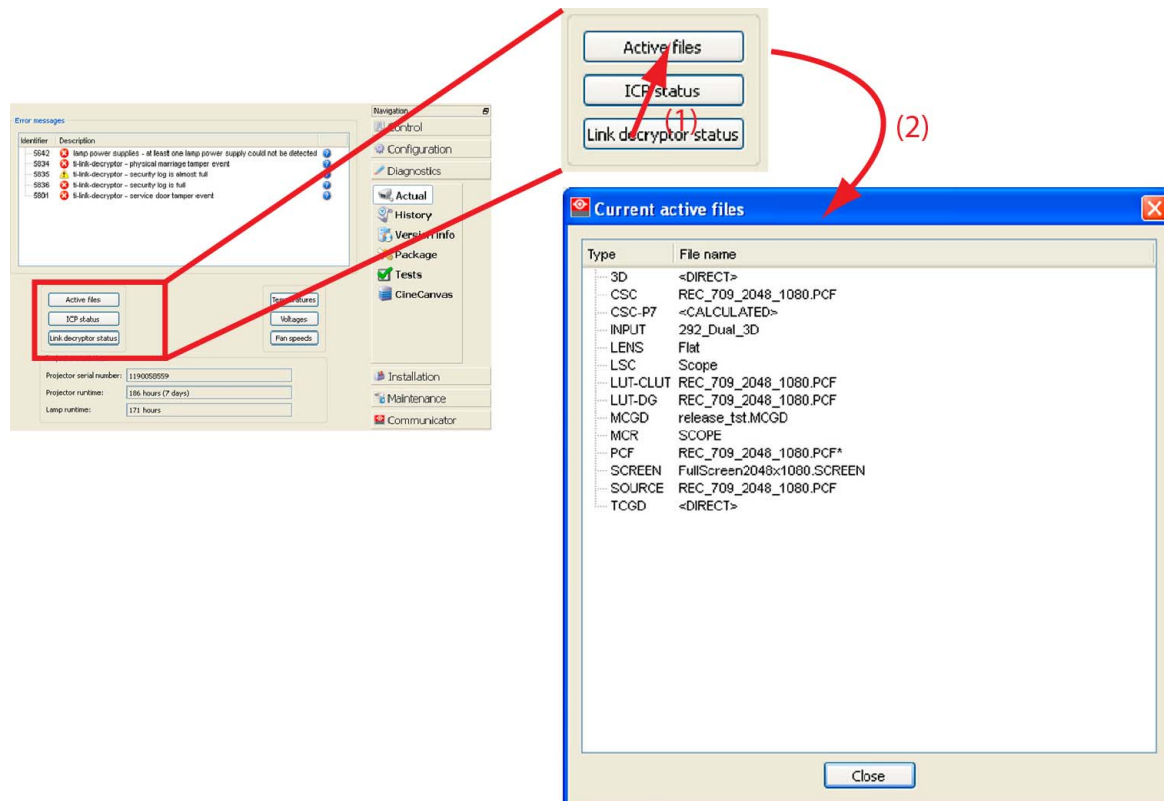


Image 5-6
Active files

A separate window opens with all active files.

Information about the response in the file name column:

- <DEFAULT> : Default data was used (typically when a PCF is loaded which does not specify some settings)
- <CALCULATED> : Typical return for CSC-P7 data, since this data is calculated each time new MCGD or TCGD data is entered
- <DIRECT> : Used when data are directly changed by the user, not with the means of a file (typically values in the PCF editor)
- <COLORS-MIXED> : Used for LUT-DG when actively updated with a file for only one color
- <TESTPATTERN> : Used when values have been modified for showing a test pattern (original values are restored after clearing the test pattern)

5.1.6 Diagnostics about other electronics

Temperatures

When one of the temperatures are out of specification, the indication will be in red.

To see the maximum allowed temperature and the maximum warning and minimum warning temperature, click on the '+' in front the item. The tree expands and shows for the selected item the 3 values.

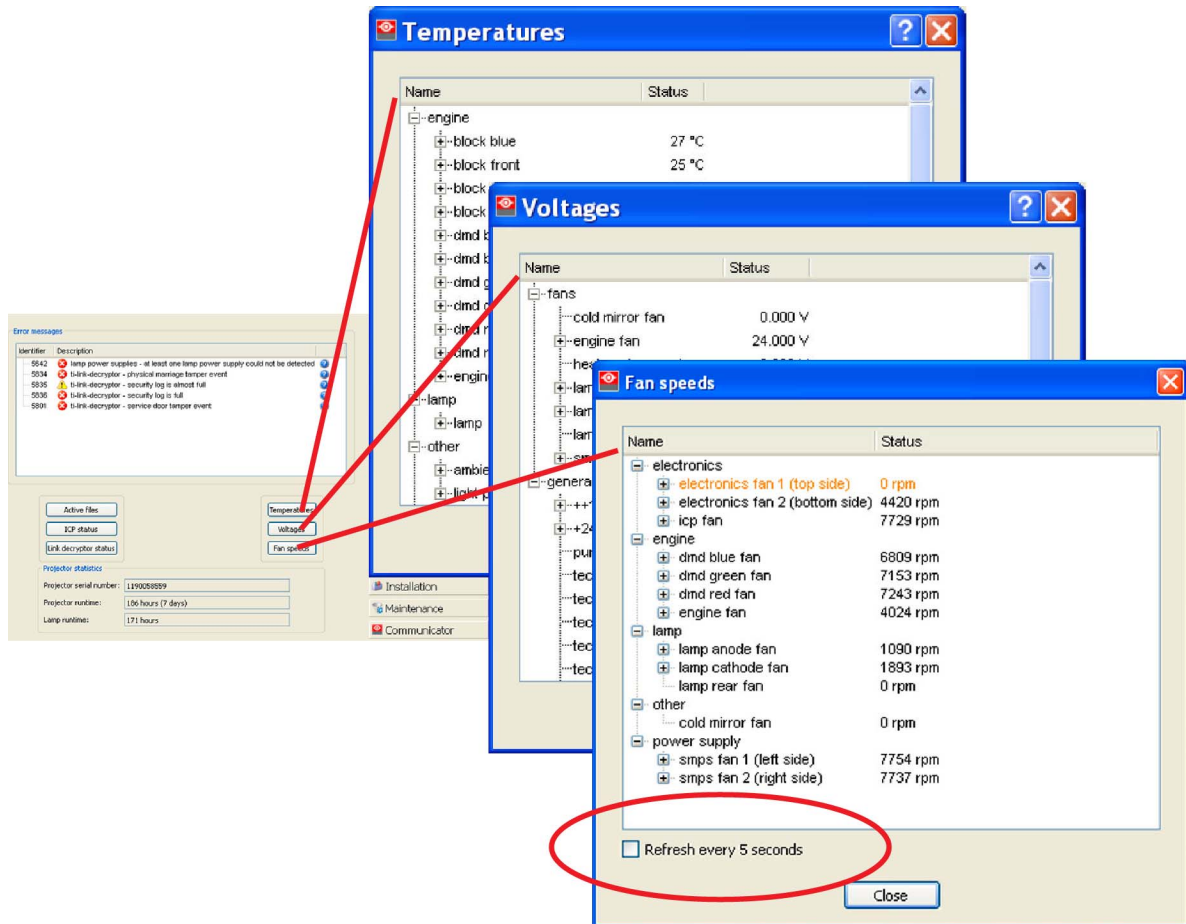


Image 5-7

Voltages

When one of the voltages are out of specification, the voltage indication will be in red.

To see the allowed limits and the warning limits, click on the '+' in front the item. The tree expands and shows for the selected item the values.

Fan speed

If one of the fans fail, the corresponding indication will be displayed in red.

To see the allowed limits and the warning limits, click on the '+' in front the item. The tree expands and shows for the selected item the values.



Automatic refresh is possible by checking the check box in front of *Refresh every 5 seconds*.

5.1.7 Projector information

Projector article number

The article number of the current connected projector.

5. Diagnostics

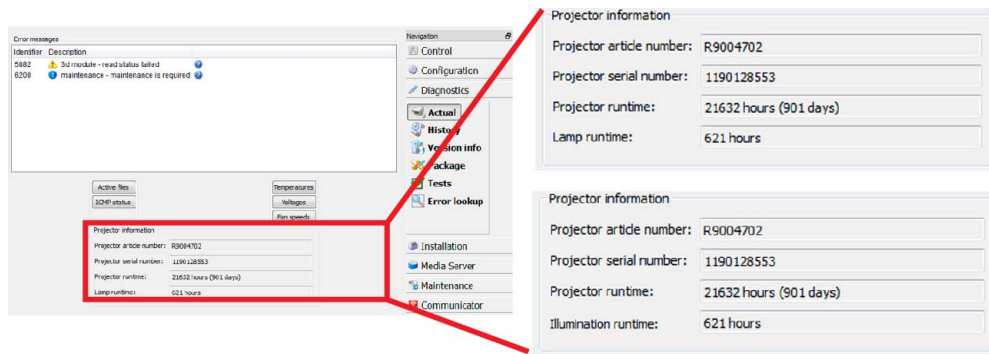


Image 5-8
Projector diagnostics

Projector serial number

Indicates the serial number of the projector.

Projector run time

Indicates the time the projector has run since it first start up. The indication is given in hours and in days.

Lamp run time or Illumination run time

Indicates the time the lamp or the lasers were on since it first start up.

5.1.8 Safety switches

What is possible?

The current status of the safety switches is indicated.

How to display

1. While in *Diagnostics*, click on **Actual**.
The *Actual* overview pane is displayed.
2. Click **Safety switches**.

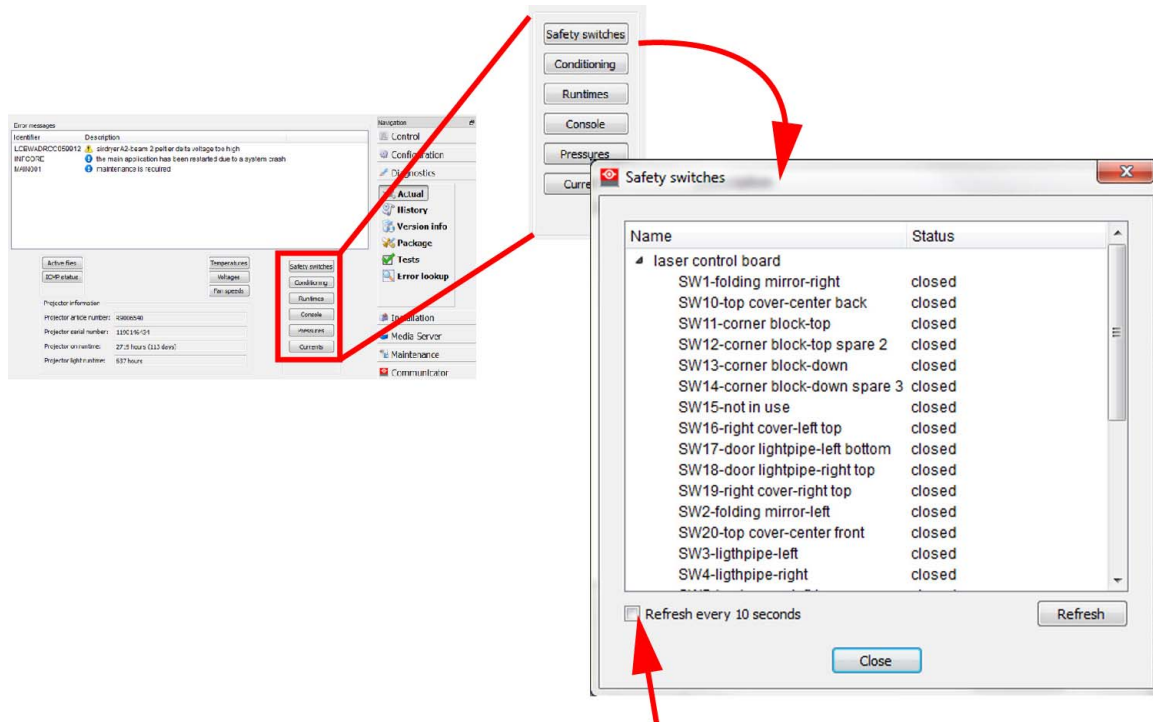


Image 5-9

The *Safety switches* window opens.

An overview is given with the status of all safety switches in a projector.



Automatic refresh is possible by checking the check box in front of *Refresh every 10 seconds*.

5.1.9 Conditioning info



Only for L-series projector.

What can be done?

The progress status of a chiller can be consulted together with the liquid temperatures and the liquid flow. On a next tab page, an overview of the ambient temperature, pressure, cooling power, pump speeds and again the liquid temperatures and liquid flow is displayed. A 3th tab displays info about the air dryers

How to display the info

1. While in *Diagnostics*, click on **Actual**.
The *Actual* overview pane is displayed.
2. Click **Conditioning**.

5. Diagnostics

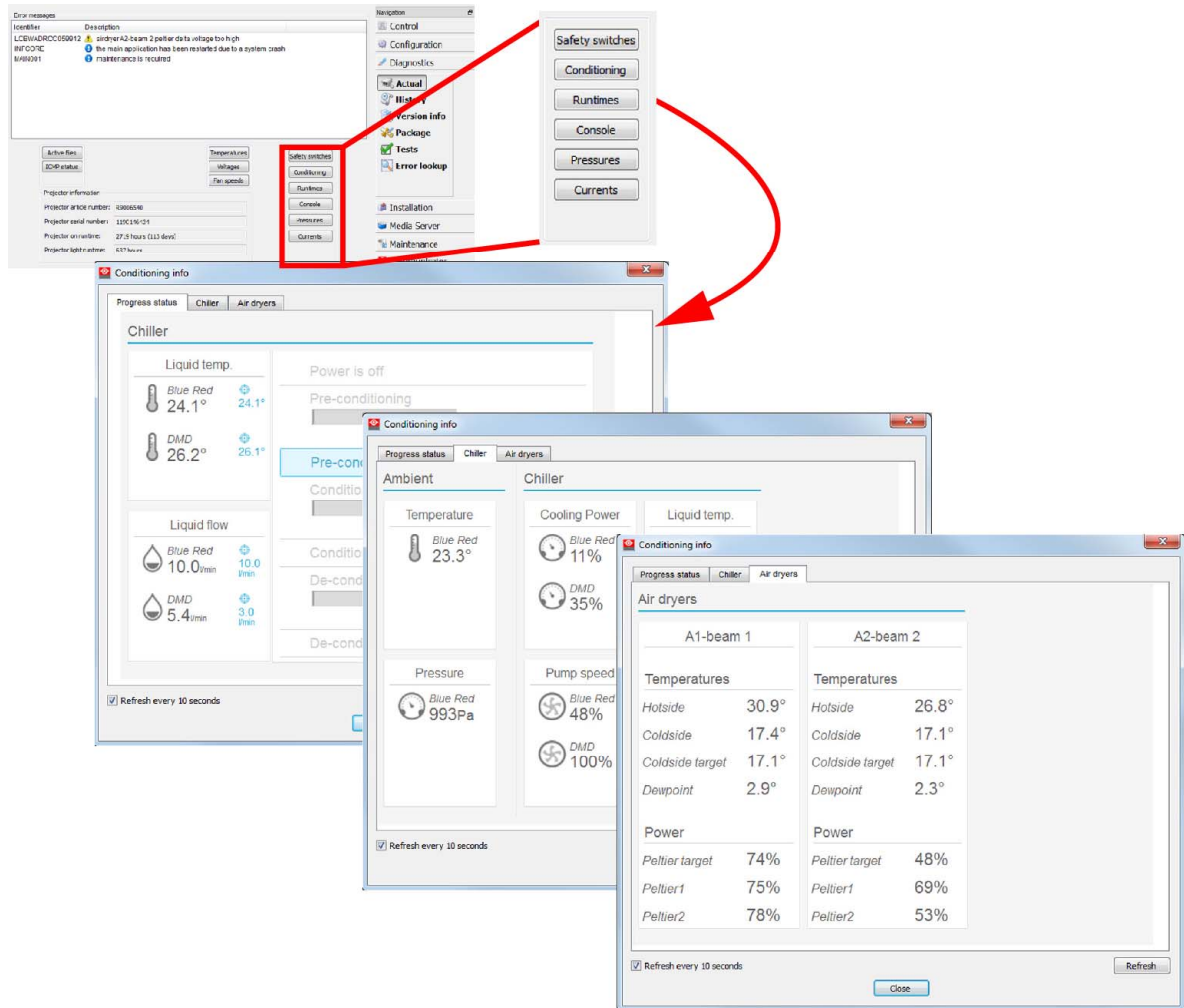


Image 5-10
Chiller info

The *Conditioning info* window opens with three tab pages.



Automatic refresh is possible by checking the check box in front of *Refresh every 10 seconds*.

5.1.10 Runtimes

What will be displayed?

An overview of the projector on time and light on, lasers and the chiller components runtimes for L-series projectors.

How to display

1. While in *Diagnostics*, click on **Actual**.
The *Actual* overview pane is displayed.
2. Click **Runtimes**.

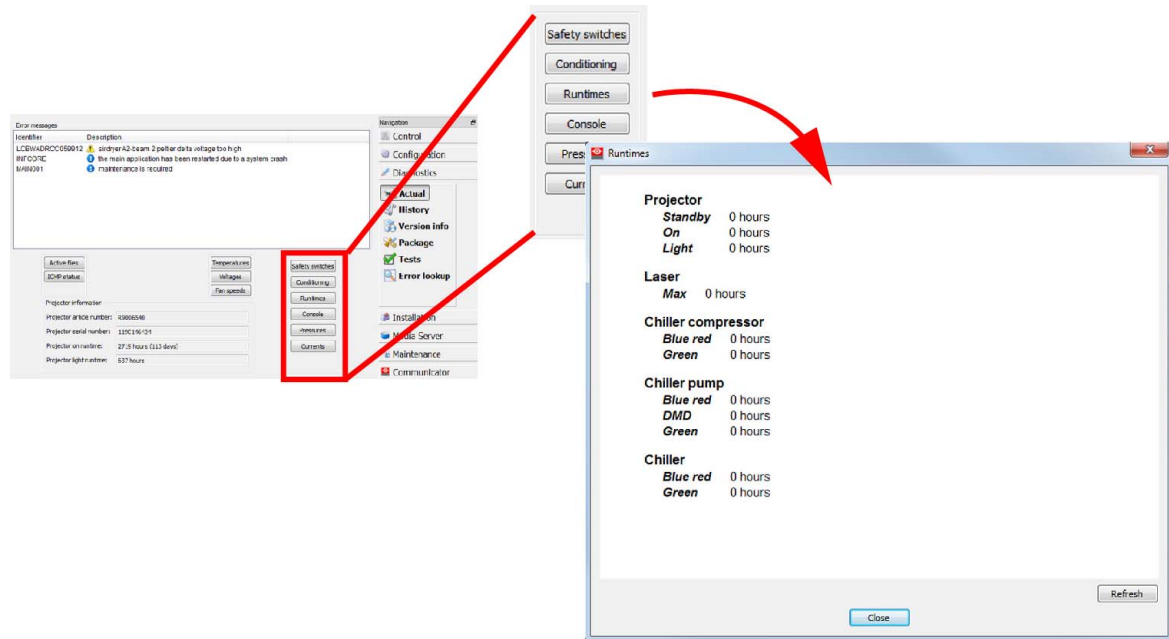


Image 5-11
Runtimes

The runtimes overview window is displayed.
The following information is displayed:

- Projector on time
- Time the projector is producing light
- Maximum hours of the lasers
- Chiller compressor on time
- Chiller main pump on time
- Chiller DMD pump on time

5.1.11 Pressures

What will be displayed?

The air pressure in the chillers (L-series projector) or cooler (CLP-series projector) are measured and displayed, together with the air pressure measured in the elca box.

How to display

1. While in *Diagnostics*, click on **Actual**.
The *Actual* overview pane is displayed.
2. Click **Pressures**.

5. Diagnostics

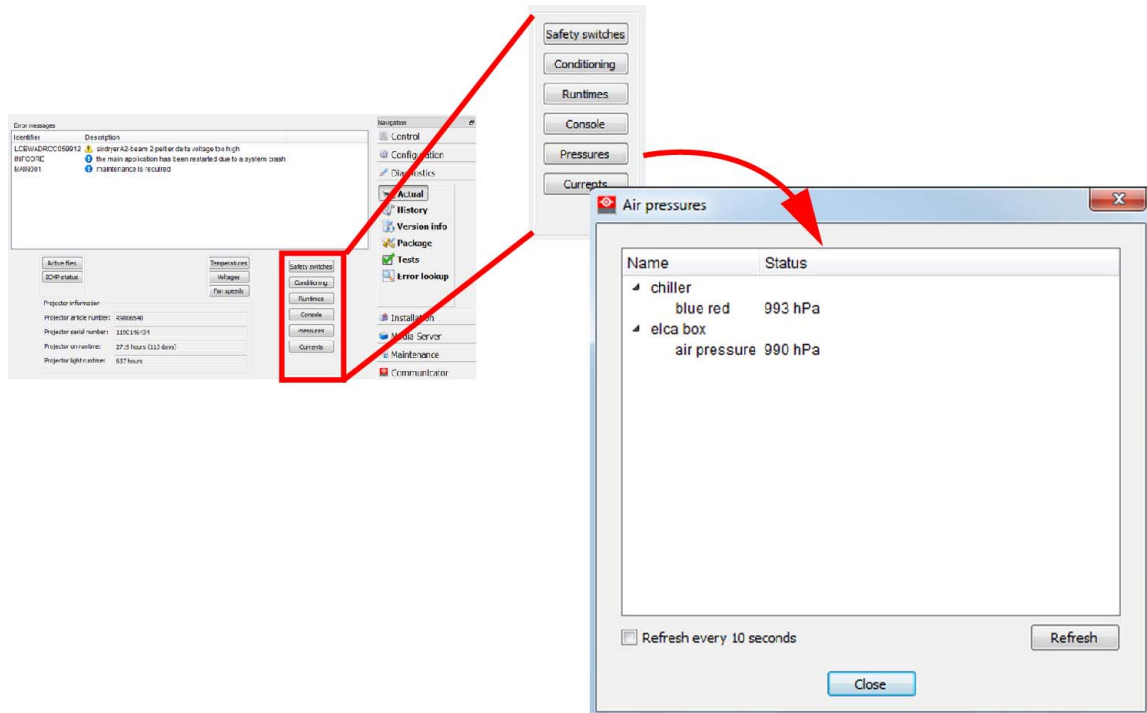


Image 5-12
Example of Pressures in L-series projector

The air pressure window opens.
The following items are measured:

- air pressure chiller
- air pressure elca box



Automatic refresh is possible by checking the check box in front of *Refresh every 10 seconds*.

5.1.12 Currents

What will be displayed?

The output current of the laser power supplies are measured.

How to display

1. While in *Diagnostics*, click on **Actual**.
The *Actual* overview pane is displayed.
2. Press **Currents**.

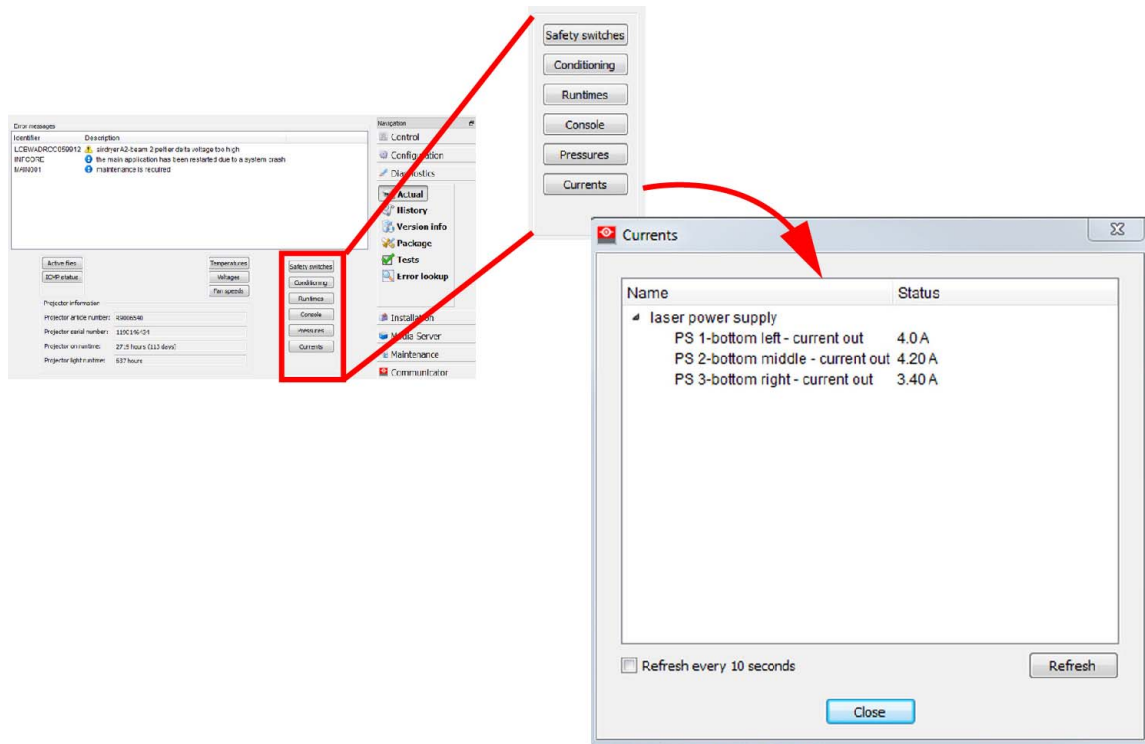


Image 5-13
Example of Currents L-series projector

The *Currents* window opens.



Automatic refresh is possible by checking the check box in front of *Refresh every 10 seconds*.

5.2 History, logging

Overview

- ICMP (Barco) history logging
- ICP (TI) history logging
- Projector (Barco) log file
- Projector lamp power supply

5.2.1 ICMP (Barco) history logging



Only for projectors equipped with Barco Alchemy technology (ICMP unit)

About the ICMP history log file

When something goes wrong on the ICMP unit, a logging of this failure is done in the ICMP history log file.

Get log file

1. While in *Diagnostics*, click on **History**.

5. Diagnostics

The *History log* selection menu is displayed.

- Click on **Read history log** file next to *ICMP (Barco)*.

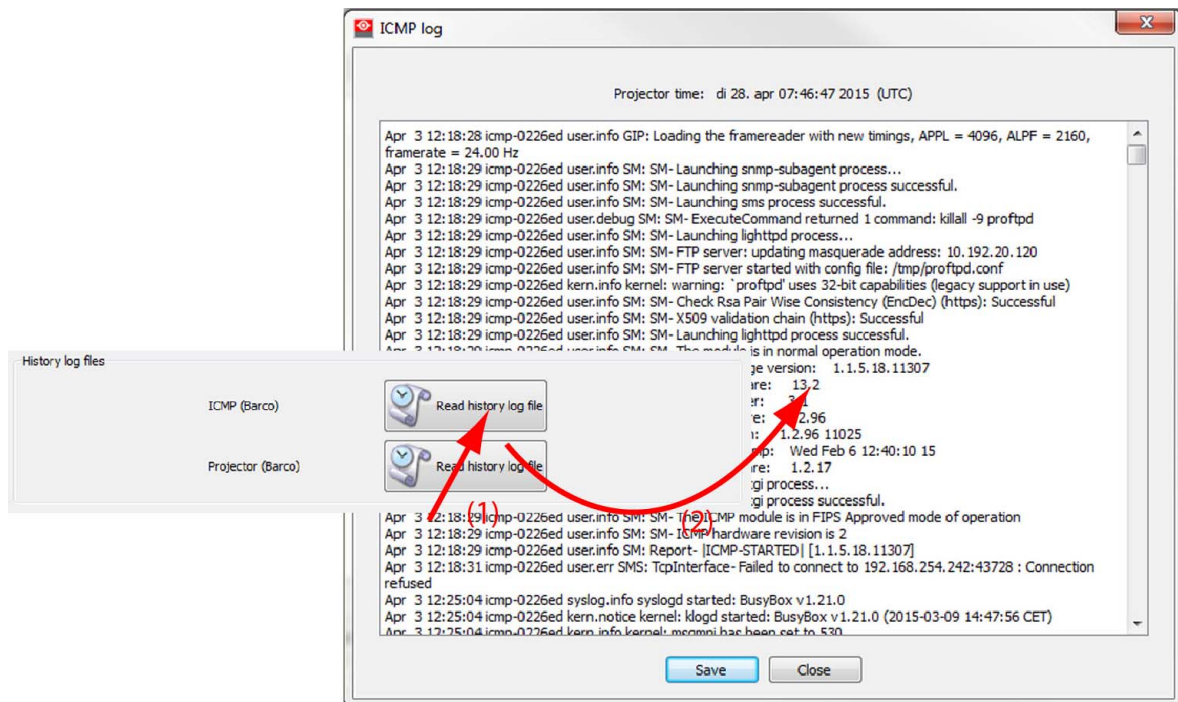


Image 5-14
ICMP log

The downloaded log file contains the information of the 27 days.

Save logging

- Click on **Save**.

A window browser opens.

- Browse to the desired location.
- If desired, change the proposed name.
- Click **Save**.

The log file is saved as a txt file.

5.2.2 ICP (TI) history logging

About the ICP history log file

When something goes wrong on the ICP board, a logging of this failure is done in the ICP history log file.

Get log file

- While in *Diagnostics*, click on **History**.

The *History log* selection menu is displayed.

- Click on **Read history log** file next to *ICP (TI)*.

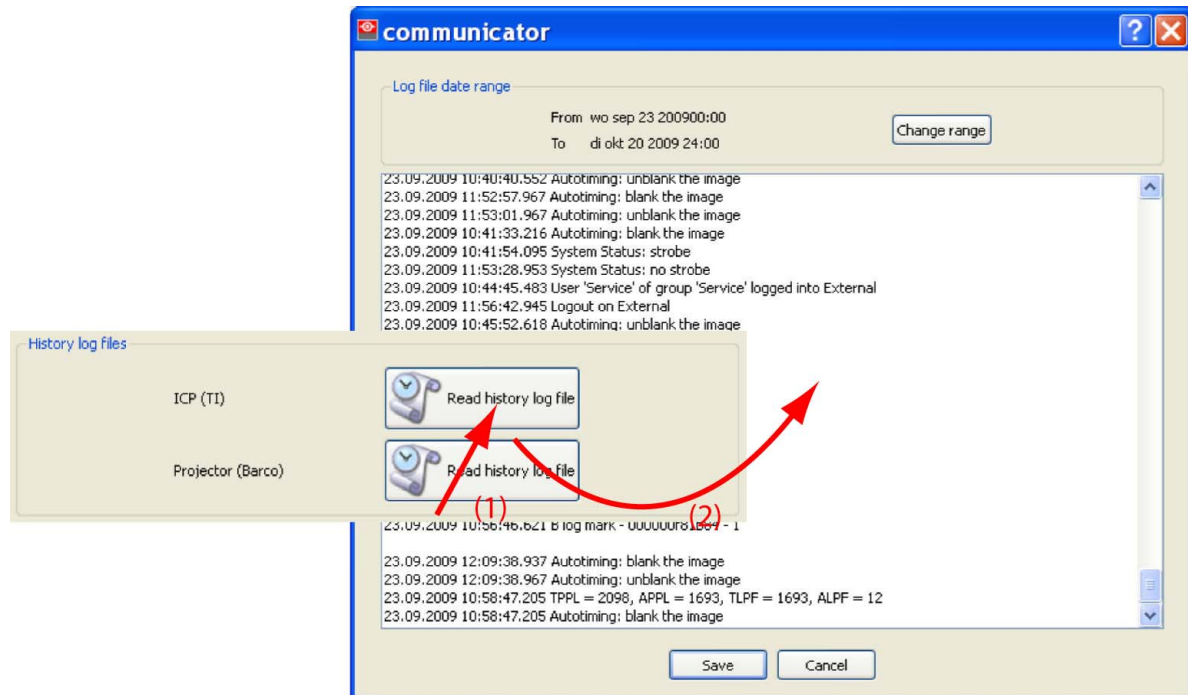


Image 5-15
ICP history log

The downloaded log file contains the information of the 27 days.

Save logging

1. Click on **Save** (1).

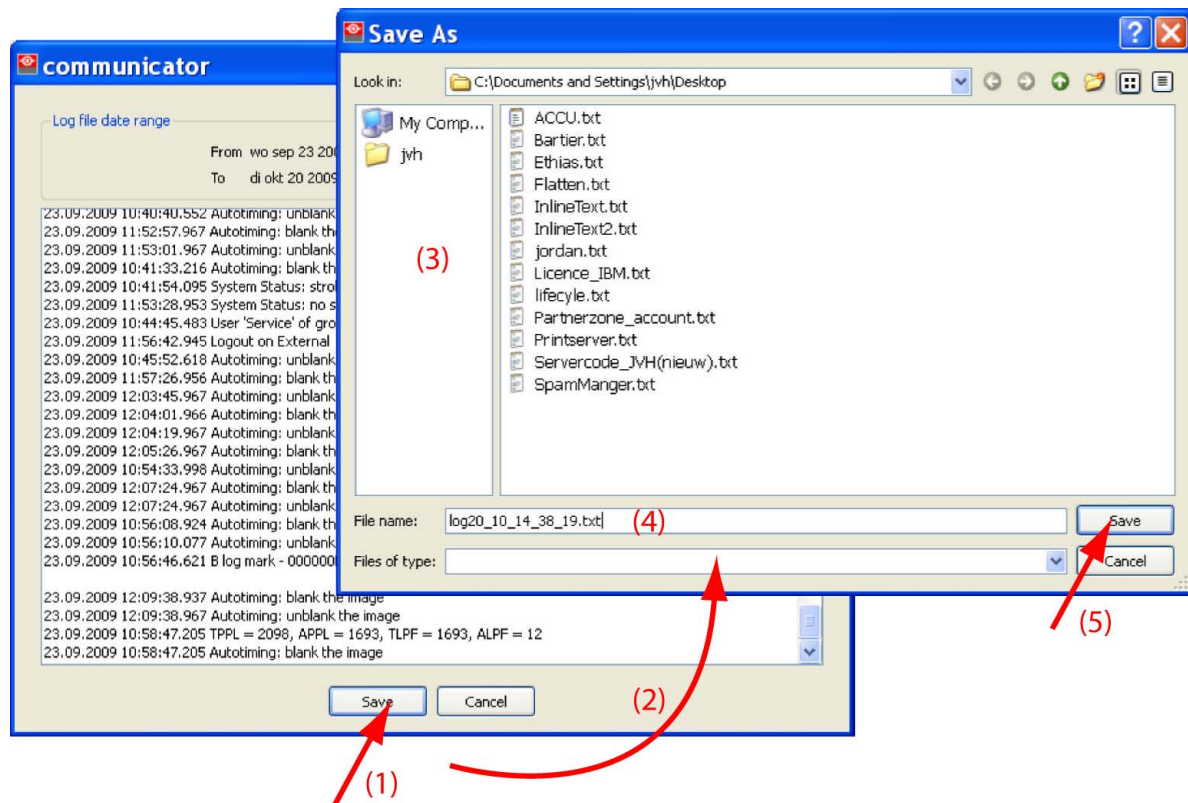


Image 5-16

A window browser opens (2).

5. Diagnostics

2. Browse to the desired location (3).
3. If desired, change the proposed name (4)
4. Click **Save** (5)

The log file is saved as a txt file.

5.2.3 Projector (Barco) log file

About projector history log file

When something goes wrong inside the projector, a logging of the failure is done in the projector history log file.

Get log file

1. While in *Diagnostics*, click on **History**.
The *History log* selection menu is displayed.
2. Click on **Read history log file** next to *Projector (Barco)*.

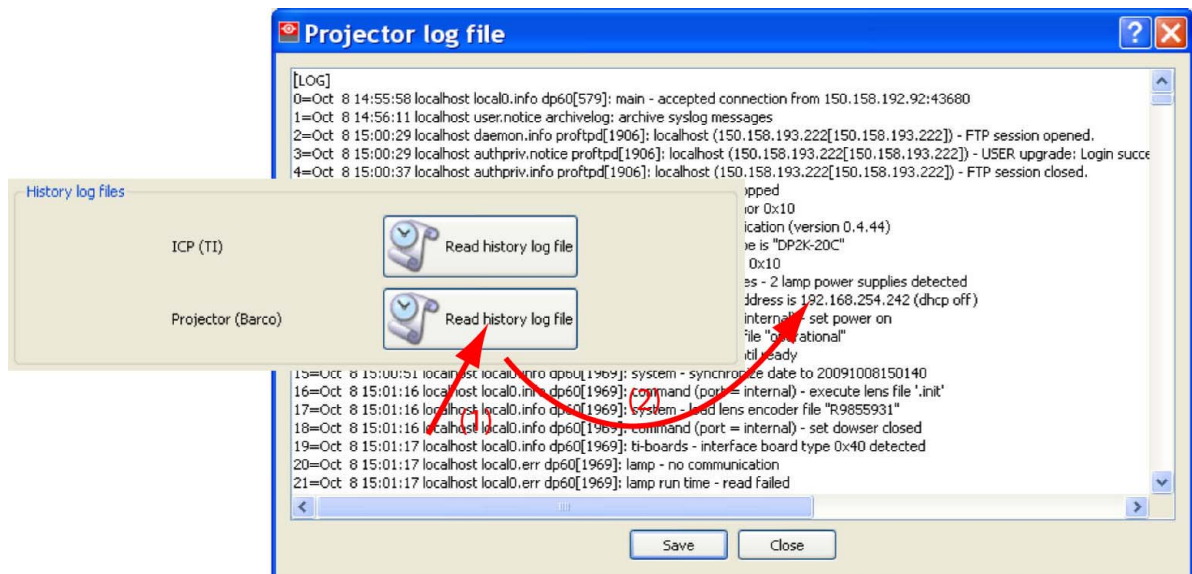


Image 5-17
Projector log file

The log file is downloaded via an FTP connection.

Save logging

1. Click on **Save** (1).

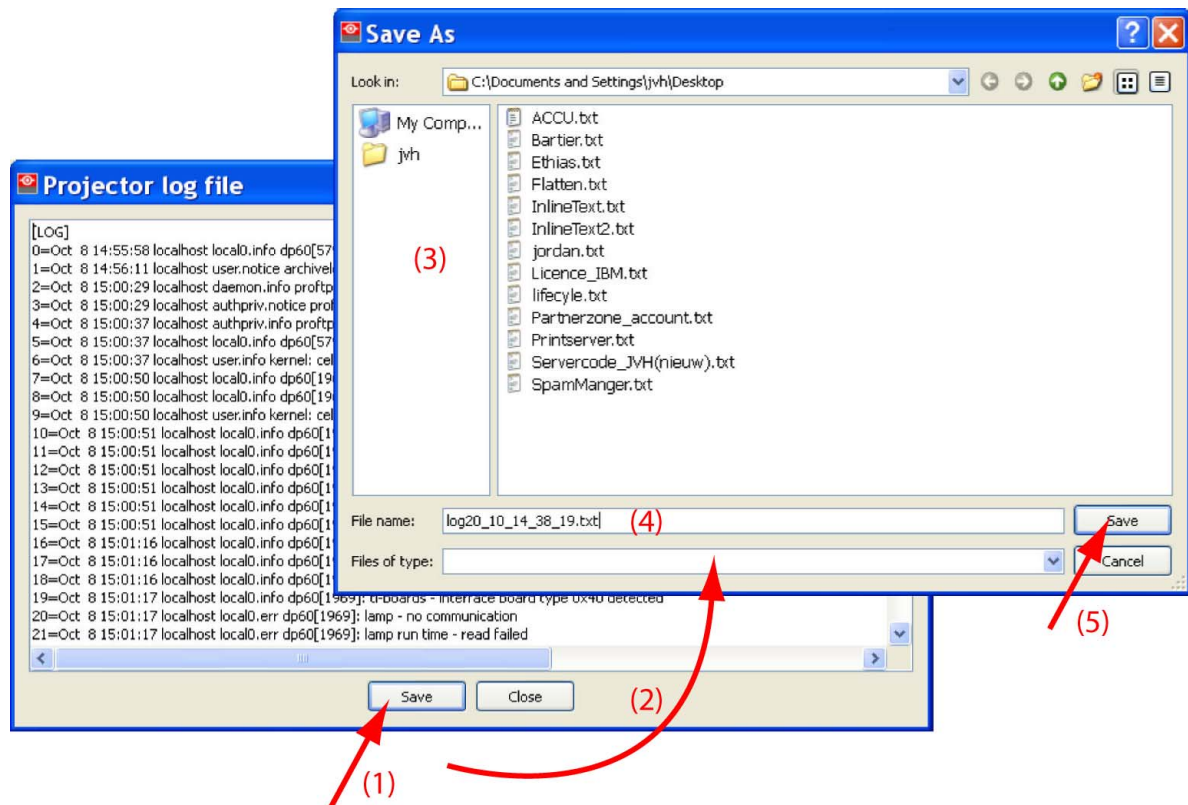


Image 5-18
Save projector log file

- A window browser opens (2).
2. Browse to the desired location (3).
3. If desired, change the proposed name (4)
4. Click **Save** (5)

The log file is saved as a txt file.

5.2.4 Projector lamp power supply

Get log file

1. While in *Diagnostics*, click on **History**.
The *History log* selection menu is displayed.
2. Click on **Read history log file**.
The log file is downloaded.

5.3 Version info

Get version info

While in *Diagnostics*, click on **Version info** to get an overview of the software. Click on the '+' before an item to see more in detail the current software version. An asterisk is added next to the item which is different in the installed software and the package version.

Version info is split up in different parts when available.

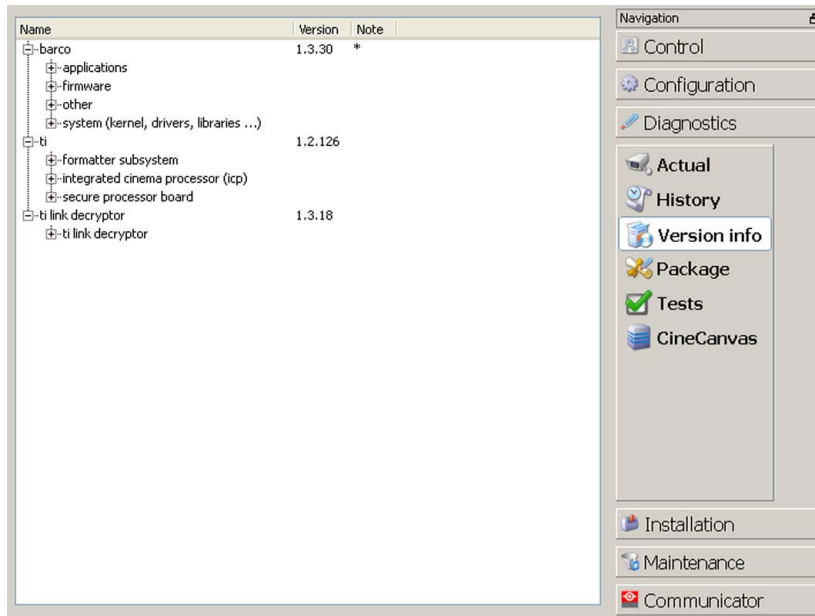


Image 5-19
Version info

5.4 Diagnostic package

About a diagnostic package

A zip file with all diagnostic files and relevant projector properties inside is created and can be sent to the service technician for further analyze. Or this diagnostic package can be opened with the diagnostic package reader included in the PC version of the Communicator software.

How to create

1. While the *Diagnostic* tab is open, click on **Package** (1).

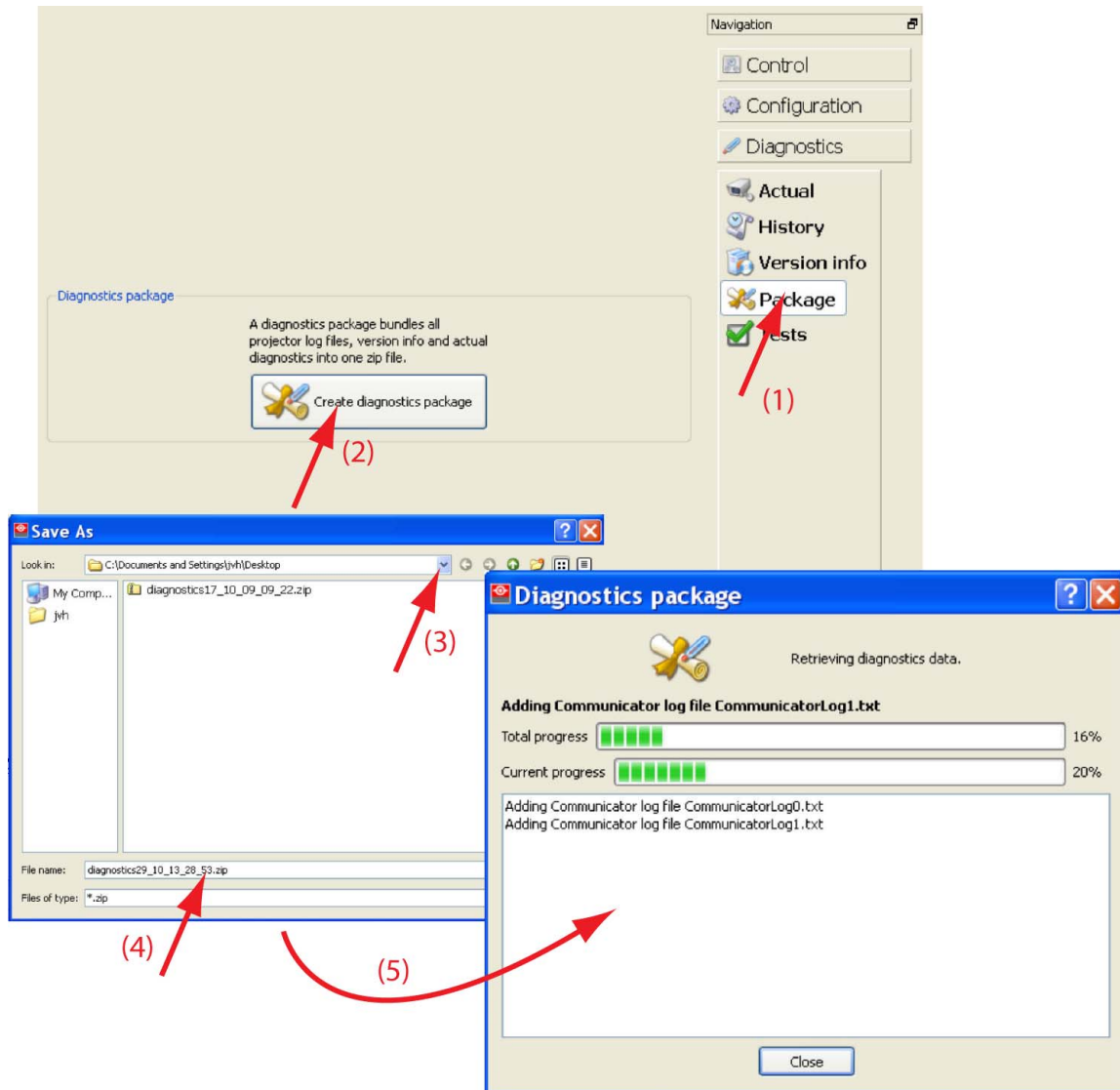


Image 5-20
Diagnostic package

- The package pane opens.
2. Click on **Create diagnostics package** (2).
- A Save window opens.
3. Browse to the storage location (3).
 4. If the proposed file name is not OK, change this file name (4) and click **Save**.
- The diagnostics package creation starts (5).

5.5 Tests

5.5.1 Tests, Video path



Test patterns used in the video path are adapted according the connected projector. 4K projector will use 4K test patterns, 2K projector will use 2K test patterns.

5.5.1.1 Diagnostic companion, Video path start up

How to start up

1. While in *Diagnostics*, click on **Tests**
The *Tests* overview page is displayed.
2. Click on **Video path**.

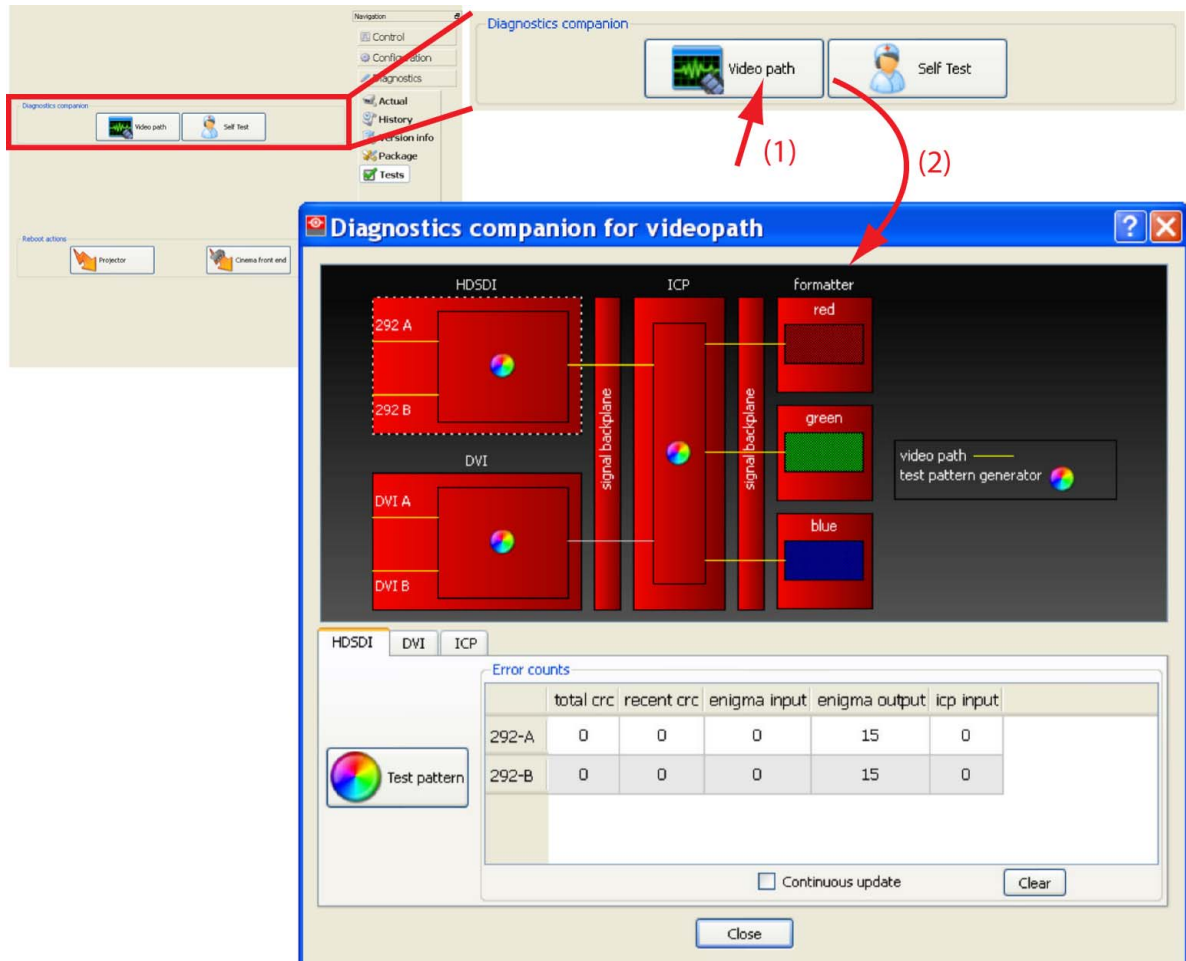


Image 5-21
Diagnostic companion window for videopath ,DPxK B & C-series (no-ICMP)

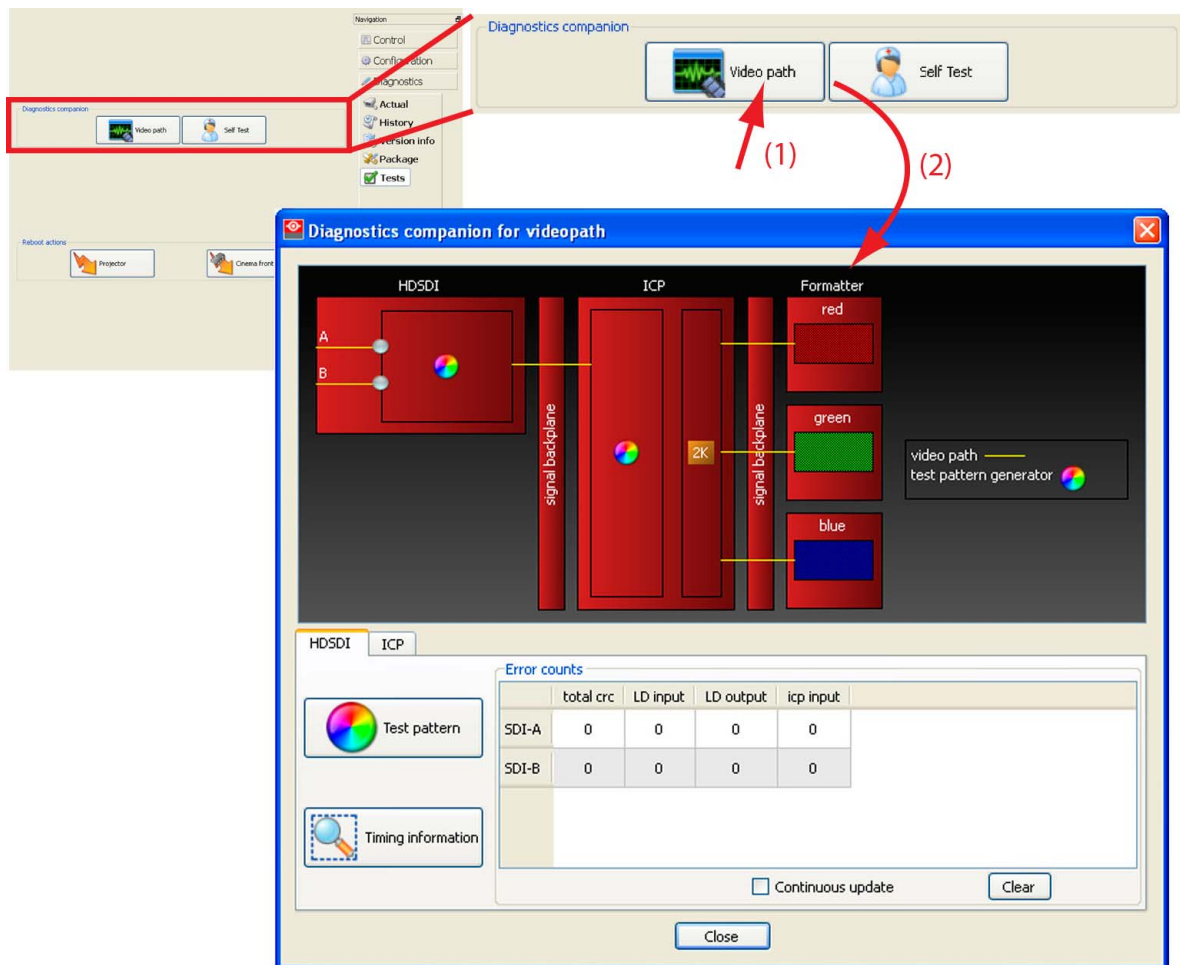


Image 5-22
Diagnostic companion window for videopath, DP2K S-series (no-ICMP)

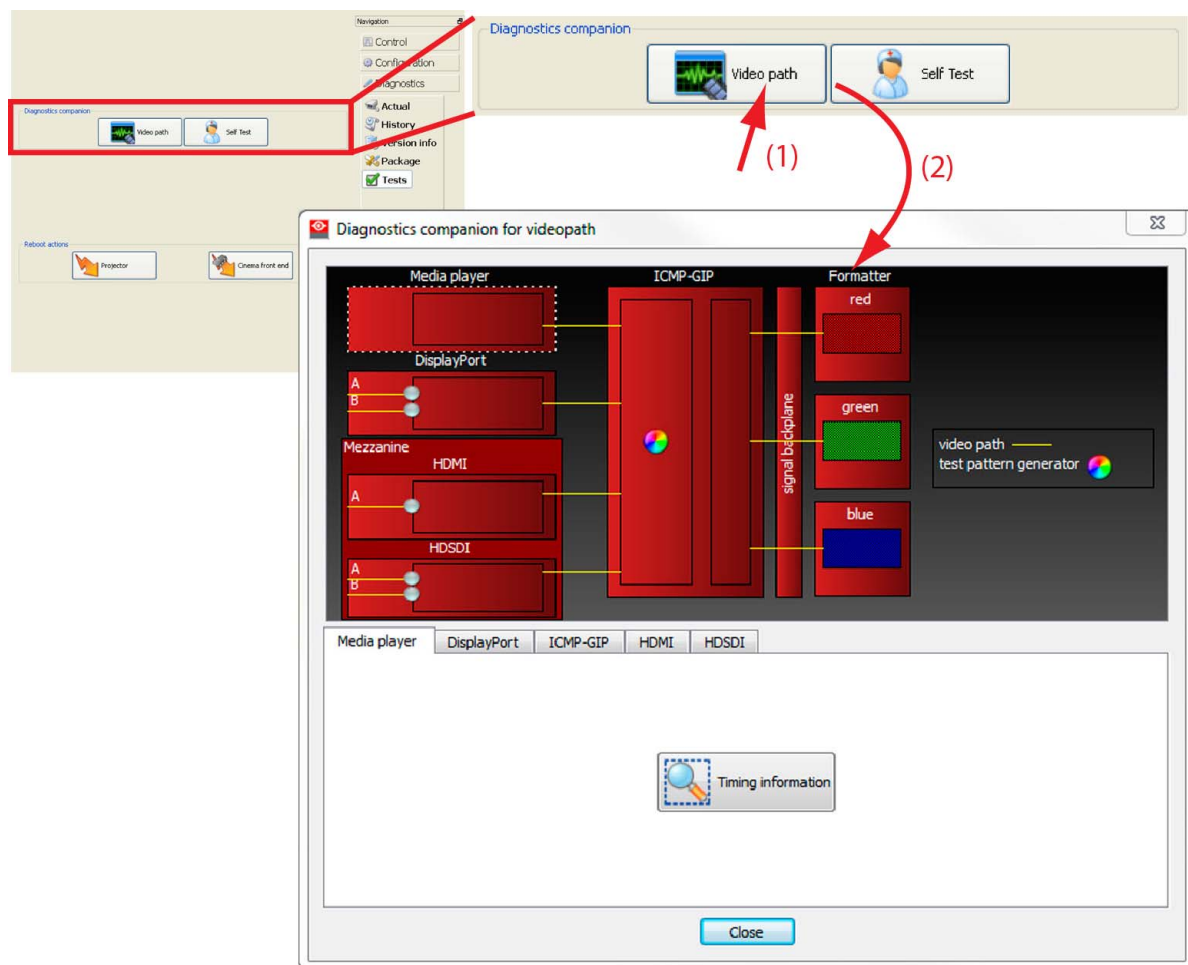


Image 5-23
Diagnostic companion window for videopath, ICMP equipped projectors

The *Diagnostic companion* window opens. The window layout and the number of tabs depend on the connected projector type (projector with or without ICMP).

5.5.1.2 Display a HD-SDI test pattern (Non ICMP)

How to display

1. Click on the tab page **HD-SDI** (1).

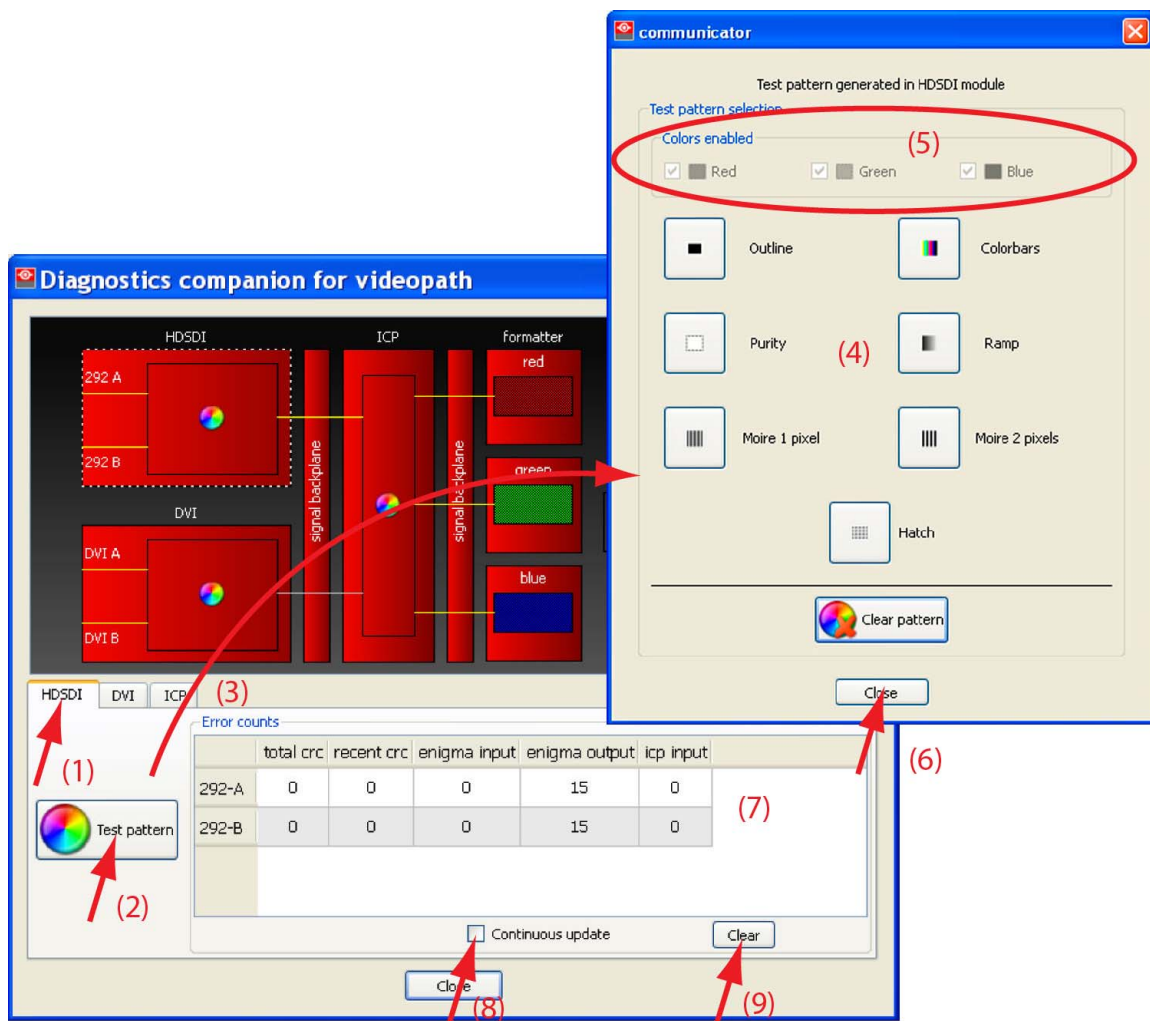


Image 5-24
HD-SDI video path test, for DPxK- C&B-series

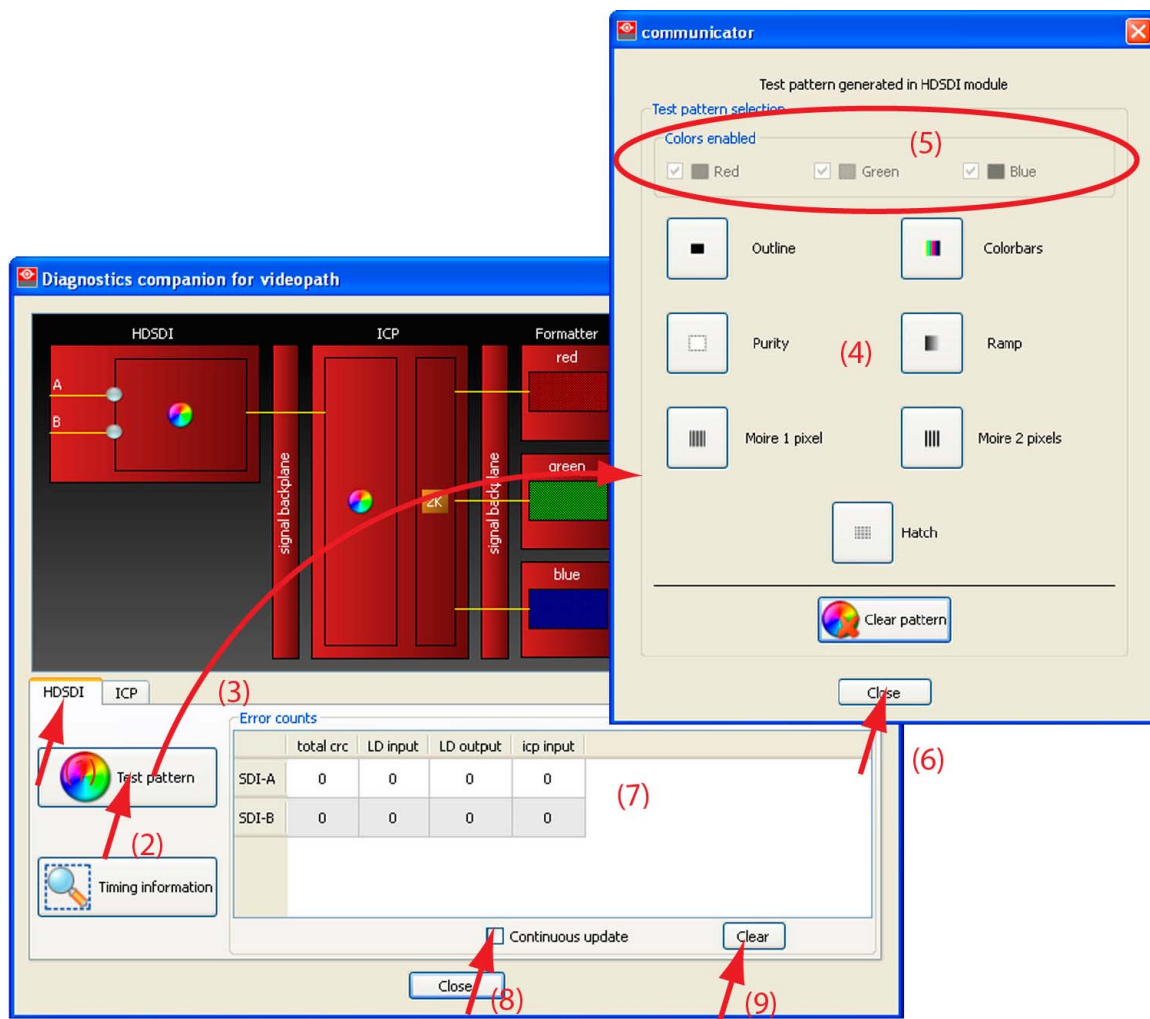


Image 5-25
HD-SDI video path test, for DPxK- S-series

- Click on **Test pattern** (2).

The test pattern window opens (3).

- Select a test pattern by clicking on one of the short cut keys (4).

- Enable the desired colors by checking the corresponding check box (5).

Click **Clear pattern** to clear the test pattern.

- Click **Close** (6).

The selected test pattern is started on the HD-SDI board and the video path can be tested. The number of error counts since the last clear action are indicated in the table (7). This table is not updated if continuous update is not checked.

For a continuous update of this table, check the checkbox in front of *Continuous update* (8).

To clear (reset) the error counters, click on **Clear** (9).

5.5.1.3 HD-SDI timing information (Non-ICMP)

How to display

- Click on the tab page **HD-SDI** (1).

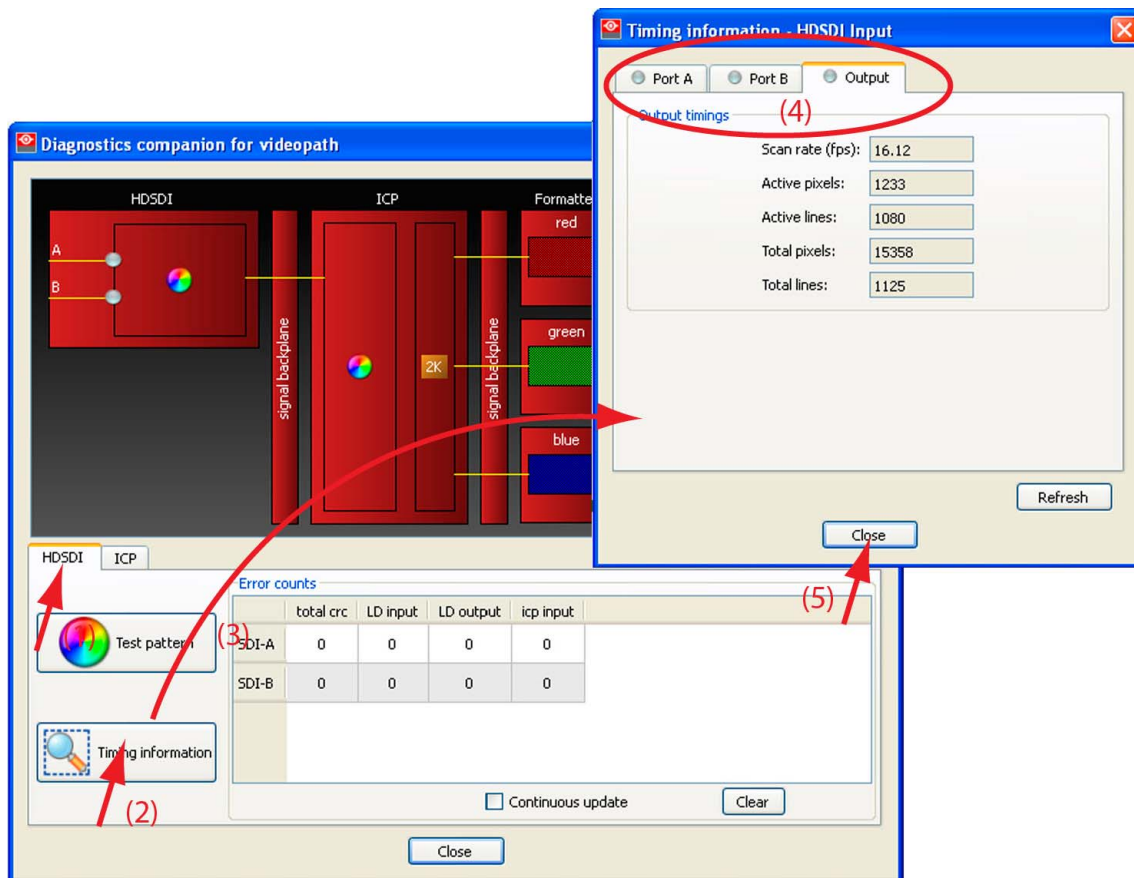


Image 5-26

- Click on **Timing information** (2).

The Timing information window opens. 3 tab pages show information about the inputs and the output. For the inputs, the detected timings, VPID info and status is given. For the output, output timings are given.

- Click on the desired tab to show the information (4).

5.5.1.4 Display a DVI test pattern



Not for DP2K S-series.

How to display

- Click on the tab page **DVI** (1).

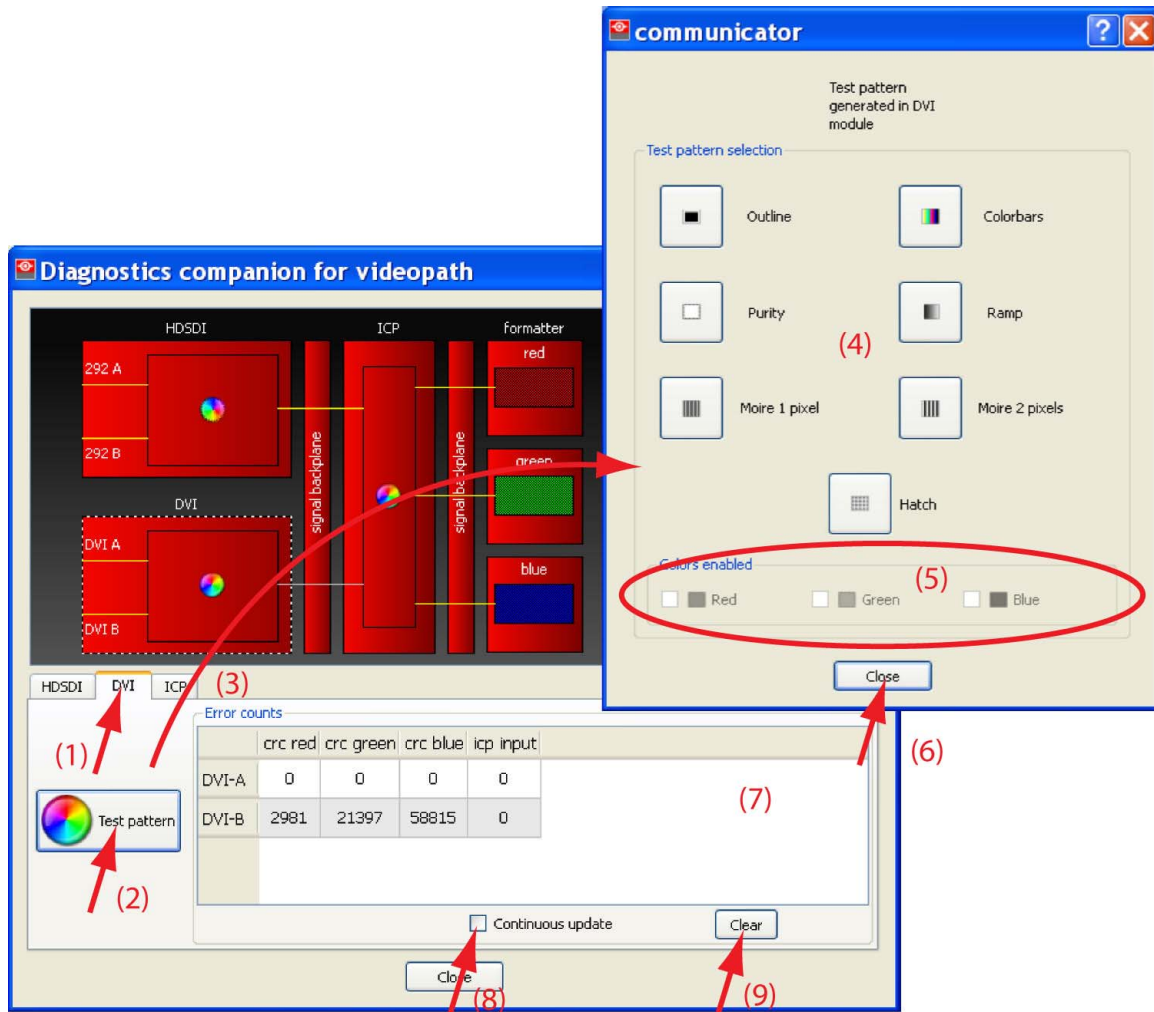


Image 5-27
DVI video path test

2. Click on **Test pattern** (2).

The test pattern window opens (3).

3. Select a test pattern by clicking on one of the short cut keys (4).

4. Enable the desired colors by checking the corresponding check box (5).

5. Click **Close** (6).

The selected test pattern is started on the DVI board and the video path can be tested. The number of error counts since the last clear action are indicated in the table (7). This table is not updated if continuous update is not checked.

For a continuous update of this table, check the checkbox in front of *Continuous update* (8).

To clear (reset) the error counters, click on **Clear**.

5.5.1.5 MediaPlayer timing information (ICMP)

How to display

1. Click on the tab page **MediaPlayer** (1).

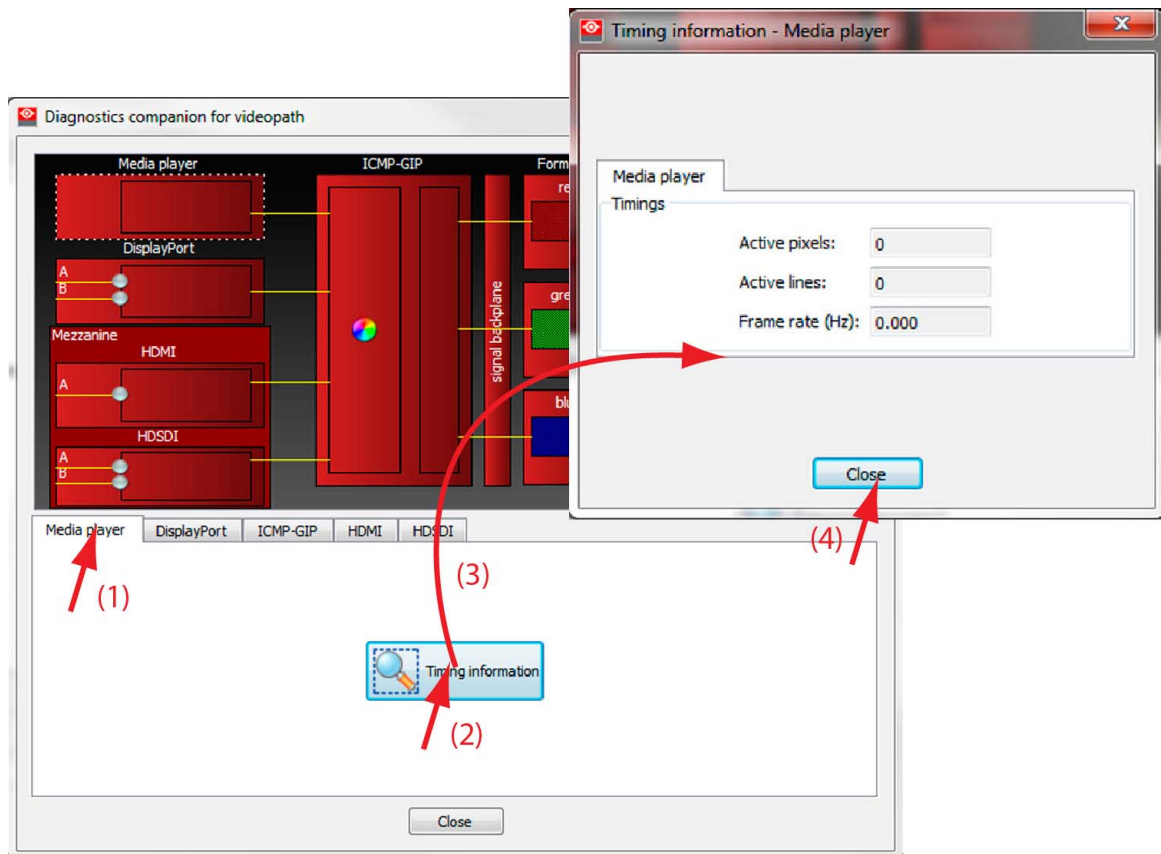


Image 5-28
ICMP-DP timing information

2. Click on **Timing information** (2).

The Timing information window opens. 3 tab pages show information about the inputs. Active pixels, active lines and frame rate

5.5.1.6 DisplayPort timing information (ICMP)

How to display

1. Click on the tab page **DisplayPort** (1).

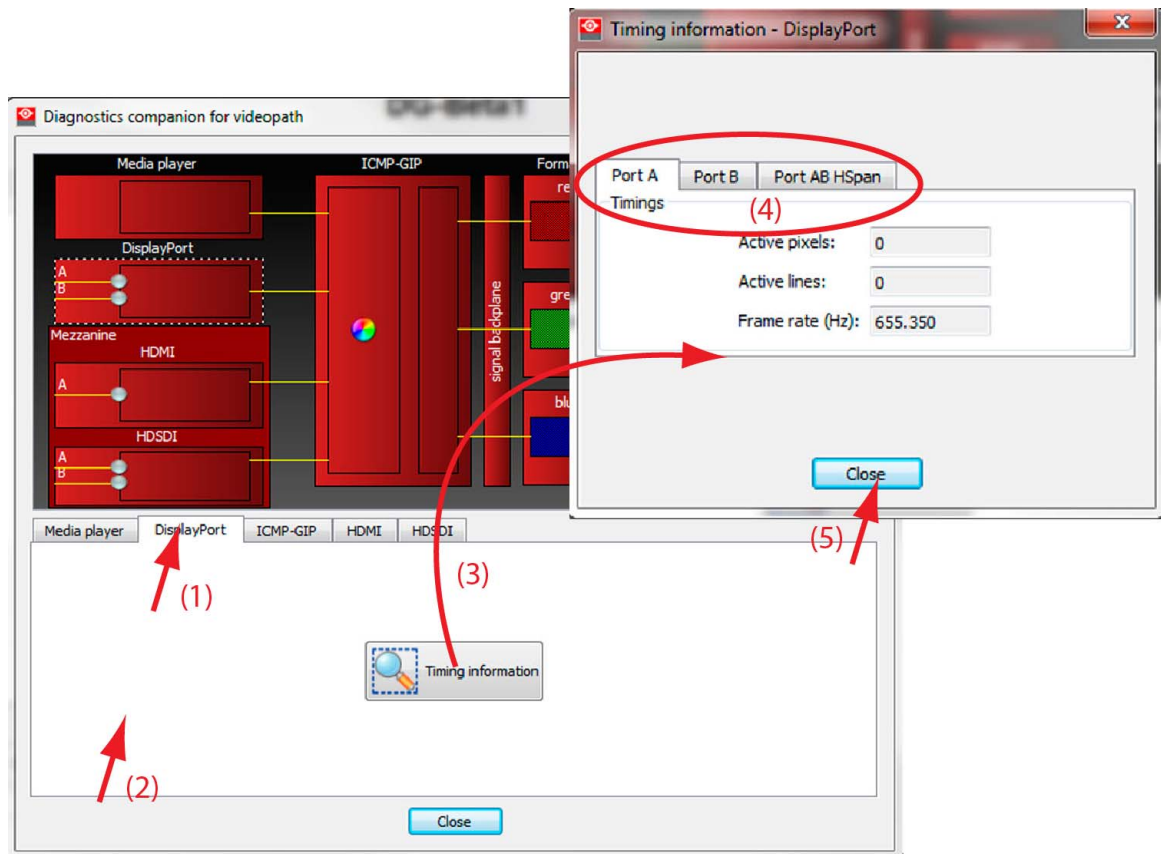


Image 5-29
ICMP-DP timing information

2. Click on **Timing information** (2).

The Timing information window opens. 3 tab pages show information about the inputs. Active pixels, active lines and frame rate

3. Click on the desired tab to show the information (4).

5.5.1.7 Display an ICMP-GIP test pattern

How to display

1. Click on the tab page **ICMP-GIP** (1).

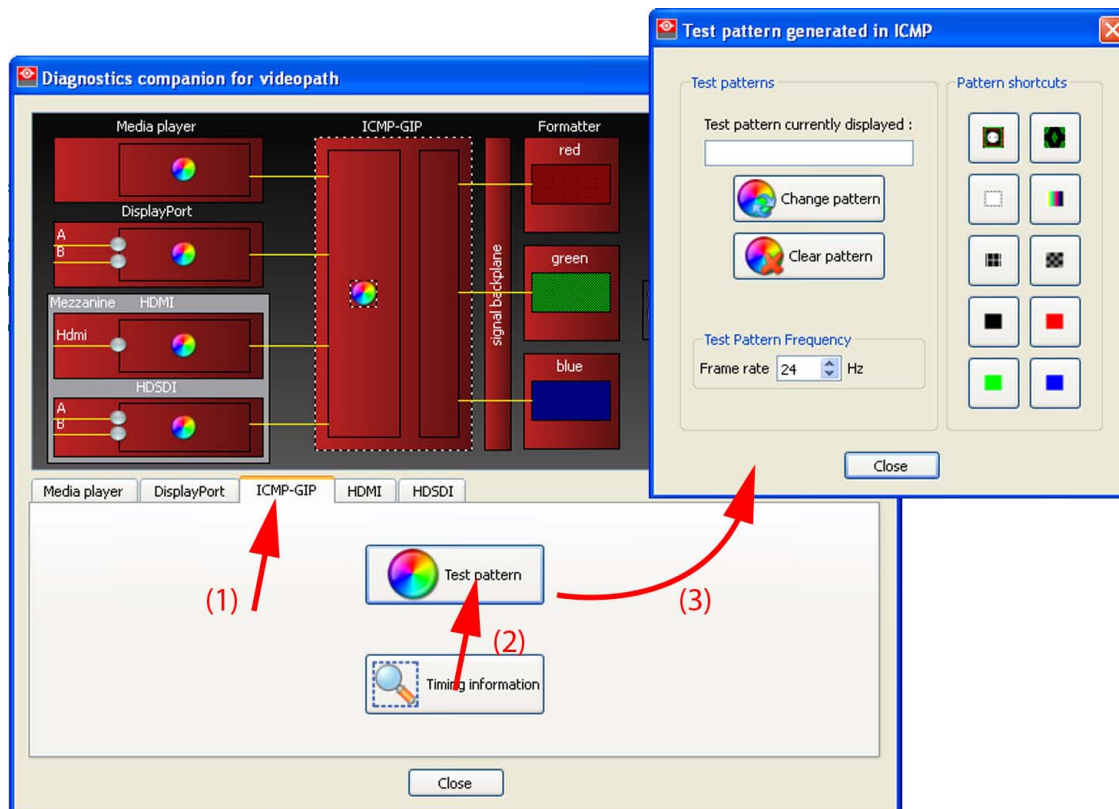


Image 5-30
ICMP video test

- Click on **Test pattern** (2).

The test pattern window opens (3). The same functions are available as in Control → Test patterns.

5.5.1.8 ICMP-GIP Timing information

How to display

- Click on the tab page **ICMP-GIP** (1).

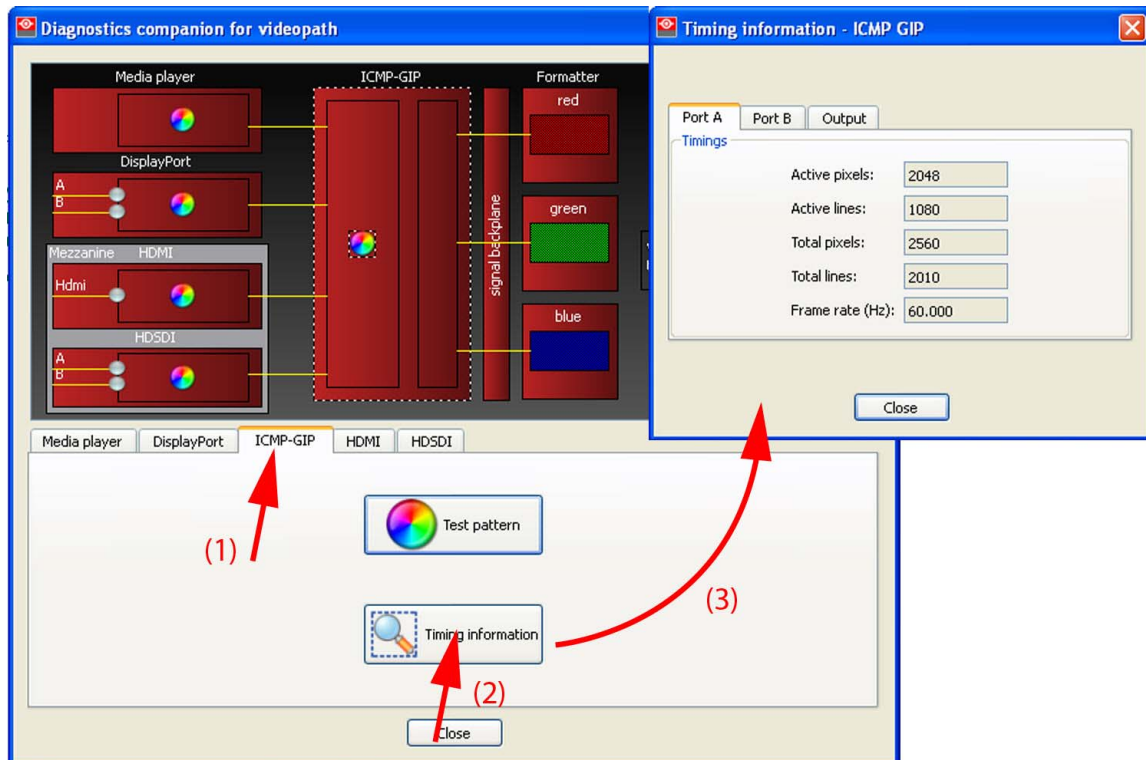


Image 5-31
ICMP, timings

2. Click on **Timing information** (2).

The Timing information window opens. 3 tab pages show information about the inputs and the output.

For the inputs, the detected timings in pixels are given. For the output, output timings are given.

3. Click on the desired tab to show the information (4).

5.5.1.9 HDMI timing information (ICMP)

How to display

1. Click on the tab page **HDMI** (1).

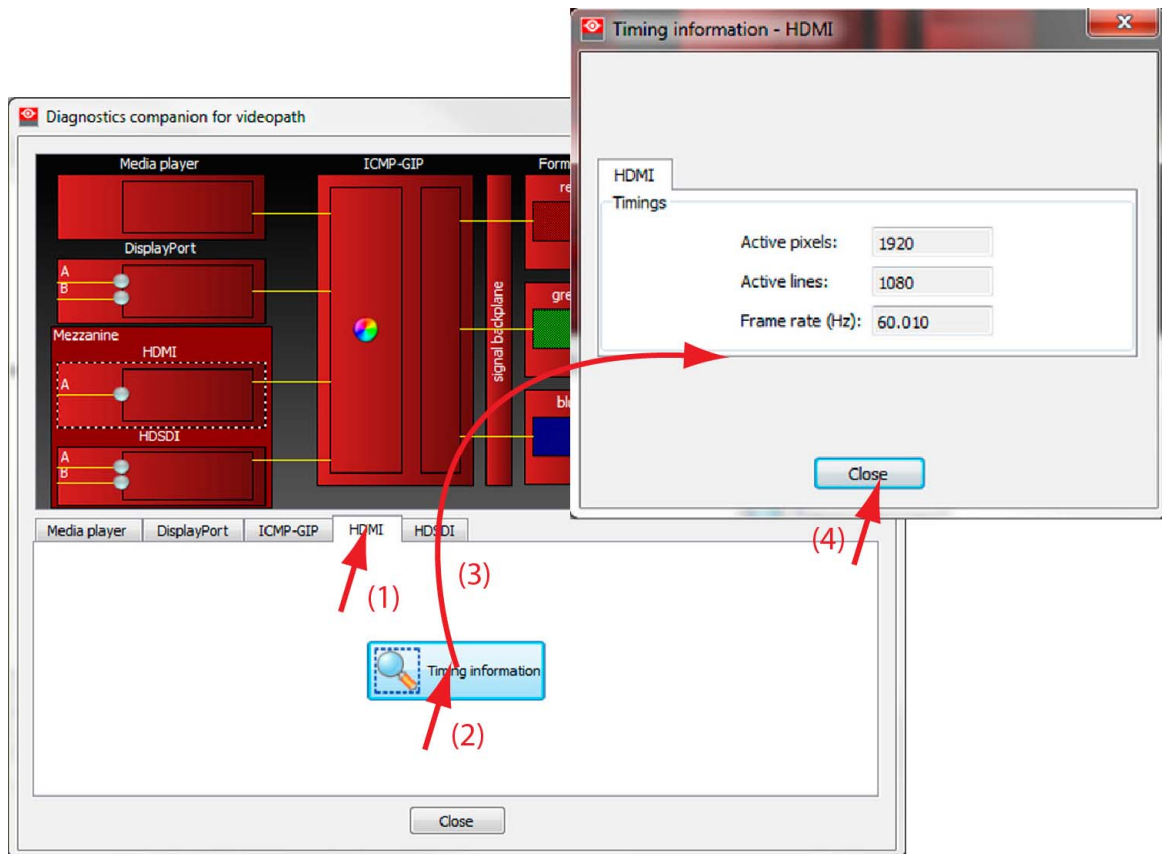


Image 5-32
ICMP-HDMI timing information

2. Click on **Timing information** (2).

The Timing information window opens and shows the Active pixels, active lines and frame rate

5.5.1.10 HD-SDI timing information (ICMP)

How to display

1. Click on the tab page **HDMI** (1).

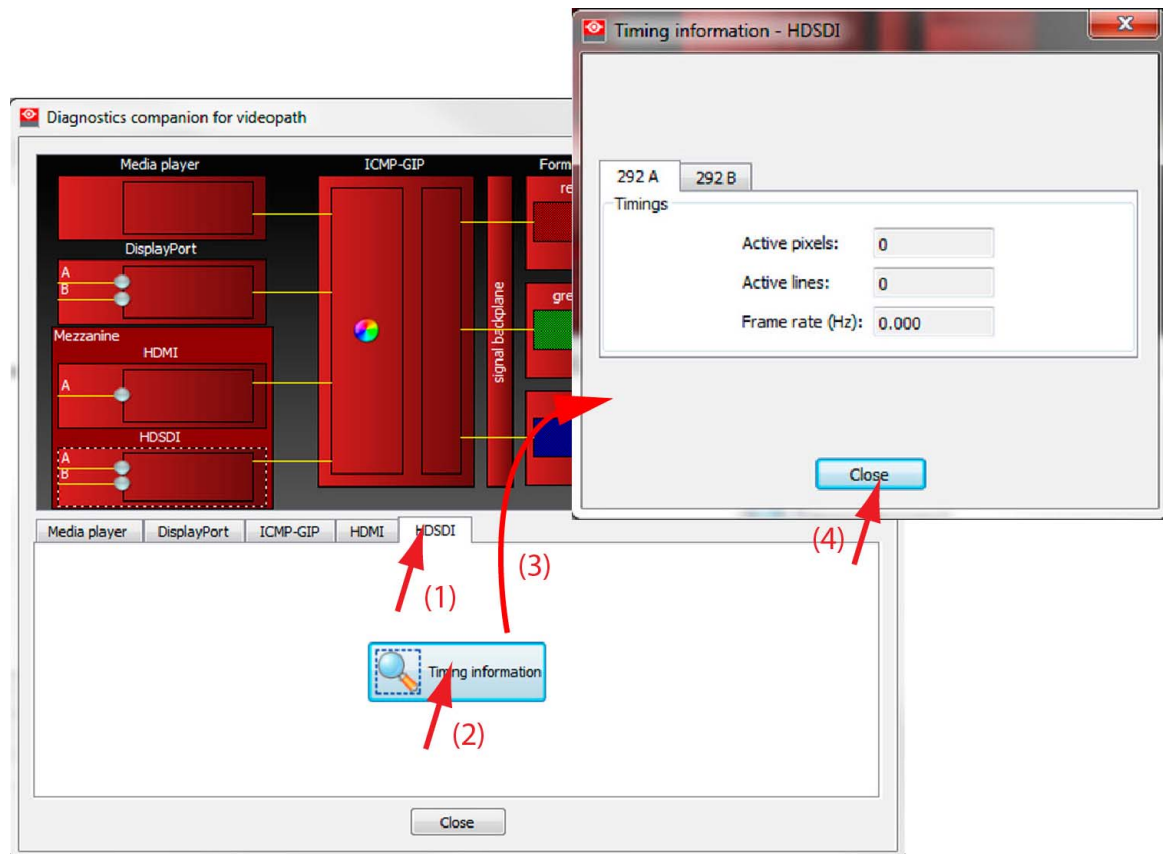


Image 5-33
ICMP-HDSI timing information

2. Click on **Timing information** (2).

The Timing information window opens and shows the Active pixels, active lines and frame rate for each port.

5.5.2 Tests, Self tests

5.5.2.1 Self test, activation

How to activate

1. While in *Diagnostics*, click on **Tests**
The *Tests* overview page is displayed.
2. Click on **Self Test** (1).

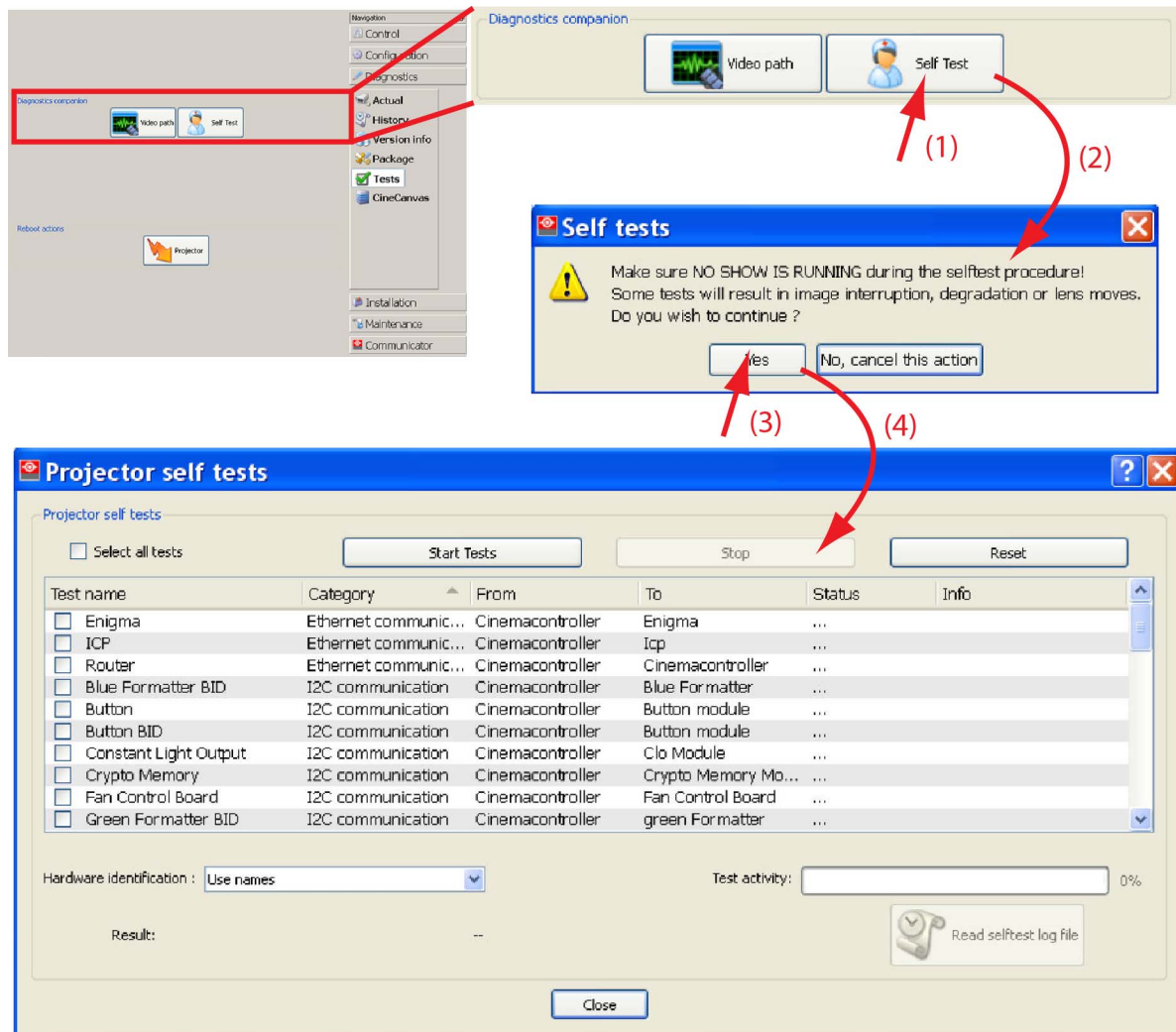


Image 5-34
Start self test

A self test message appears (2) to make sure that no show is running while starting up the self test procedure. Some tests result in image interruption, degradation or lens move.

3. Click **Yes** to continue (3).

The self test selection window opens (4).

Name view - article number view

The self test window can contain module names or module article numbers. To switch from one to the other, click on the drop down menu next to *Hardware identification* and select the desired view.

5. Diagnostics

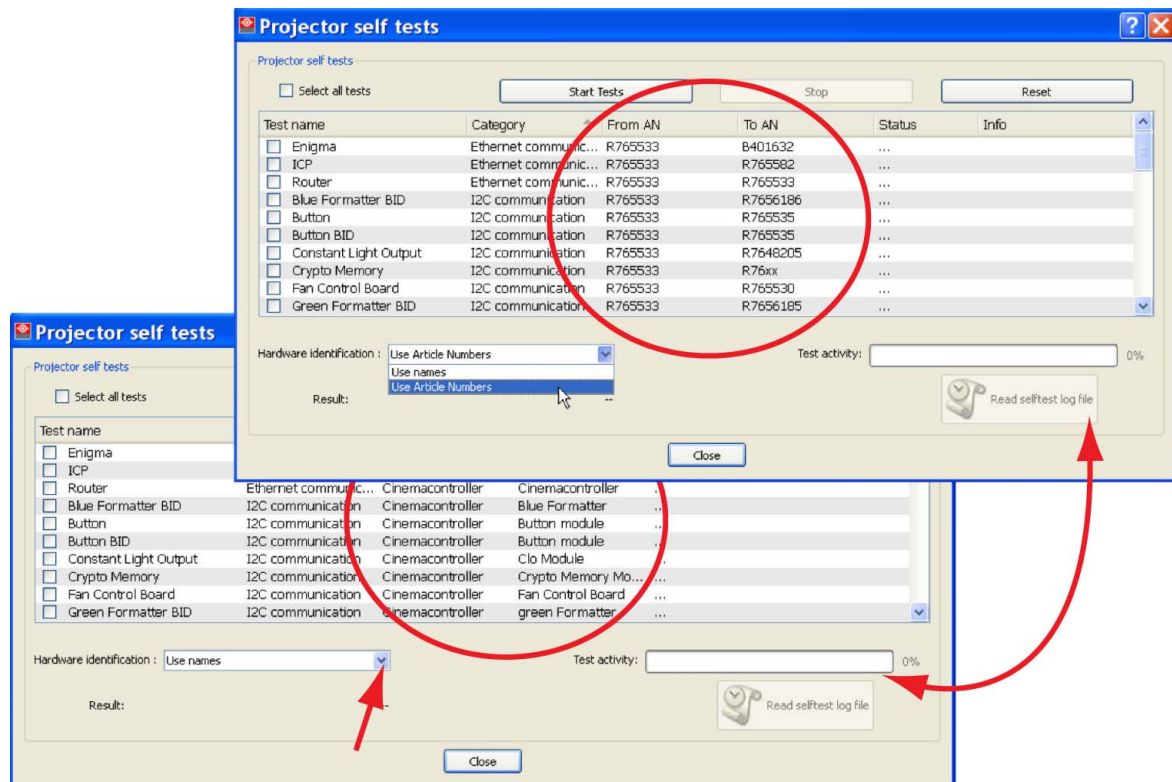


Image 5-35
Self test window, view

5.5.2.2 Start self test

About self tests

It is possible to select one or more individual tests or to select all tests at once. The status column indicates the status of the test. The result, number of fails and passes, is indicated next to *Result*.

How to start

1. Check the check box in front of one or more individual tests (1a)
Or,
check the check box in front of *Select all tests* (1b)

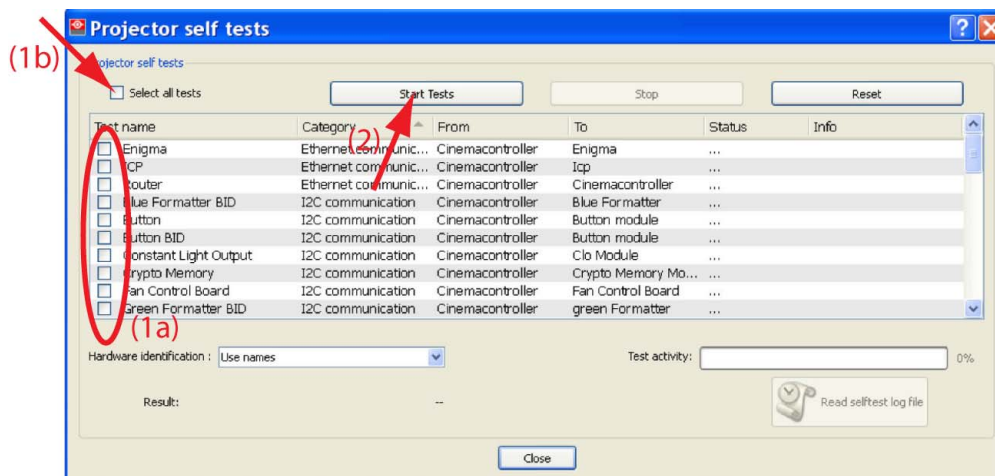


Image 5-36
Self test selection

2. Click **Start tests** (2).

A test activity bar shows the progress of the tests (3).

When finished, a result window is displayed.

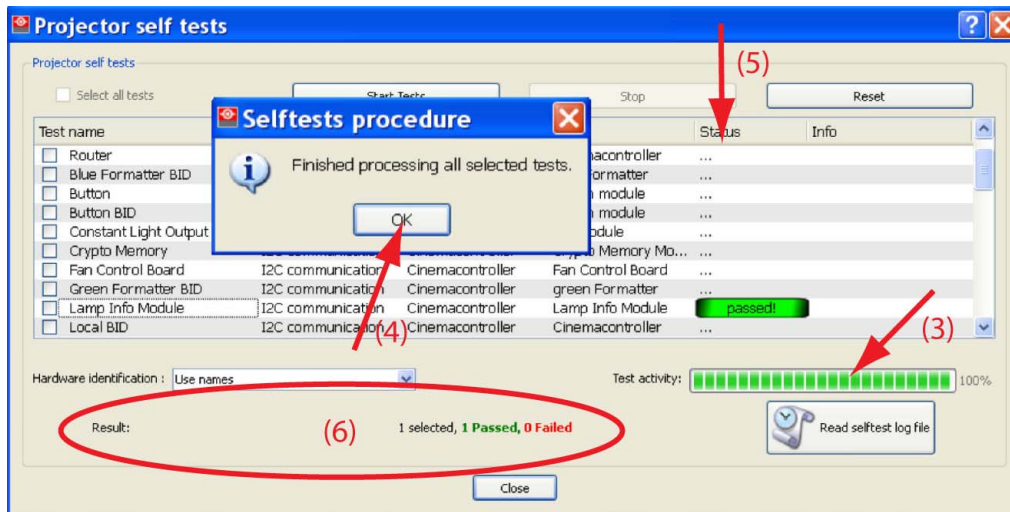


Image 5-37
Self test result

3. Click **OK** to continue (4).

The status for each test is indicated next to the test (5).

The overall result is indicated next to *Result* (6).



To restart the self test, click on **Reset**.

5.5.2.3 Read and Save log file

What can be done ?

The results of the tests are written in a log file. This log file can be consulted and saved.

How to read and save the log file

1. Click on **Read self test log file**.

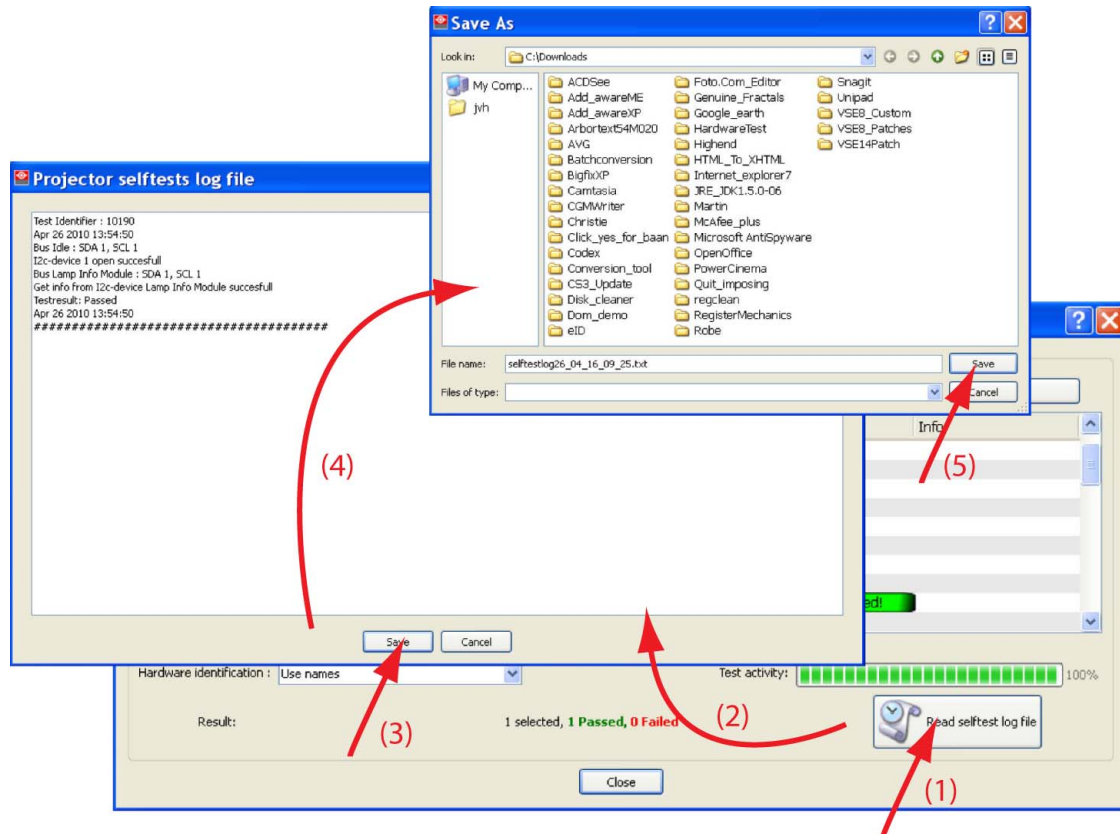


Image 5-38

The *Projectors self tests log file* window opens.

2. To save the log file, click on **Save**.

A browser window opens. A file name is already filled out.

3. Browse to the desired location, change the name if necessary and click **Save**.

The log file is locally saved.

5.5.3 Reboot actions, projector

What can be done?

The complete projector can be rebooted. While rebooting, the image will be lost and the connection with the projector is broken.

How to reboot

1. While in *Tests*, click **Reboot actions, Projector** (1).

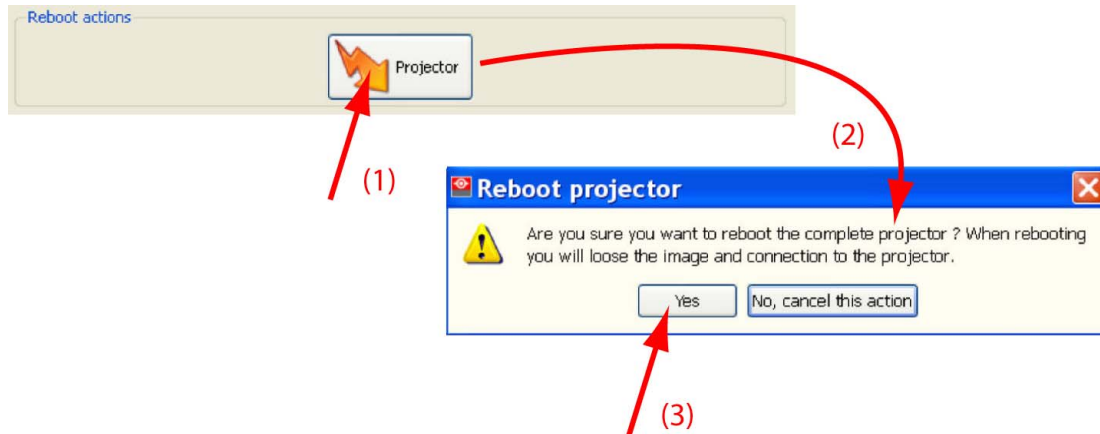


Image 5-39
Projector reboot

A projector reboot question window opens (2).

2. Click **Yes** to continue with the reboot of the complete projector (3).

5.6 Error lookup

What can be done?

For a certain projector type, an error code can be entered and a corresponding description will be displayed.

How to look up an error code

1. While *Diagnostics*, click on **Error lookup** (1).

5. Diagnostics

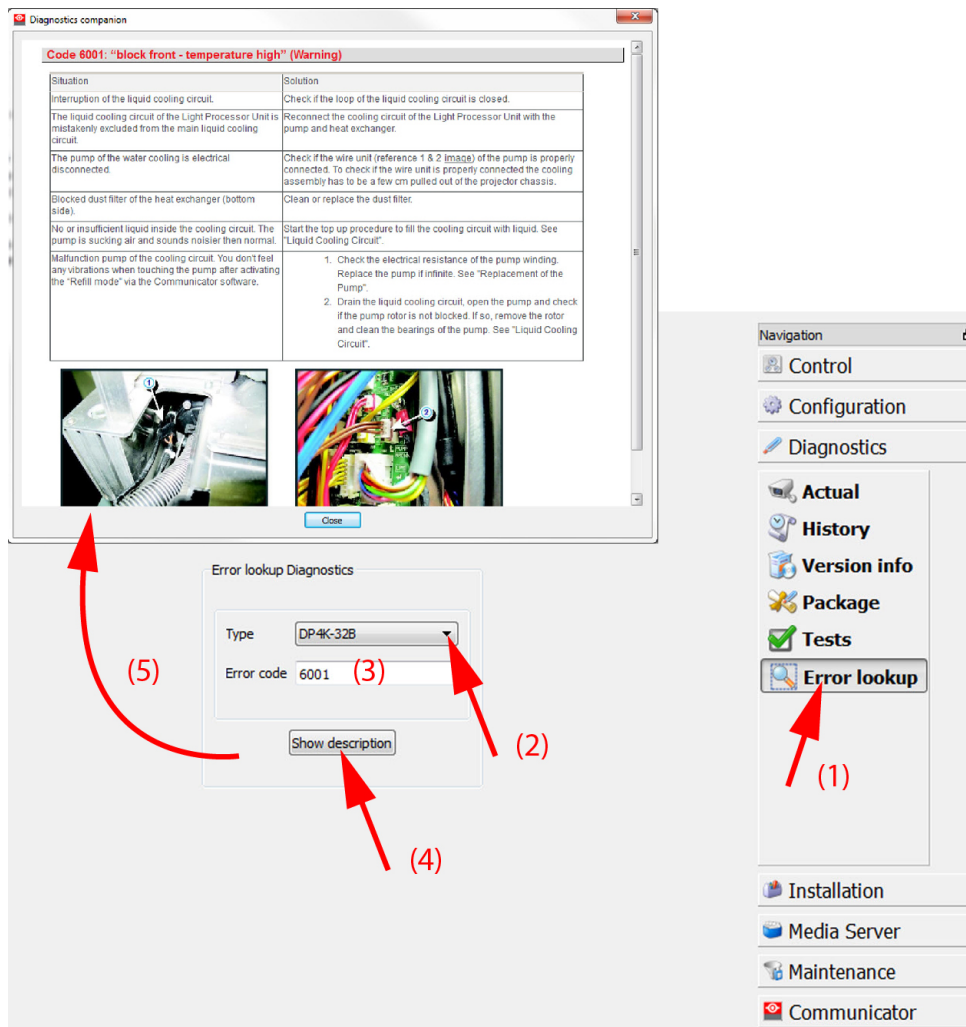


Image 5-40
Error lookup

2. Select the projector type, click on the drop down box and select the desired type (2).
The projector type of the connected projector is selected by default.
3. Click in the *Error code* input field and enter the error code with the keyboard (3).
4. Click on **Show description** (4).
A description window opens.

5.7 CineCanvas

Overview

- Introduction
- Server overview interface
- Timeline control
- Subtitle Control
- Metadata Control

5.7.1 Introduction

Overview

The projectors are equipped with the possibility to process Subtitle and metadata information coming from a server.

Principal diagram :

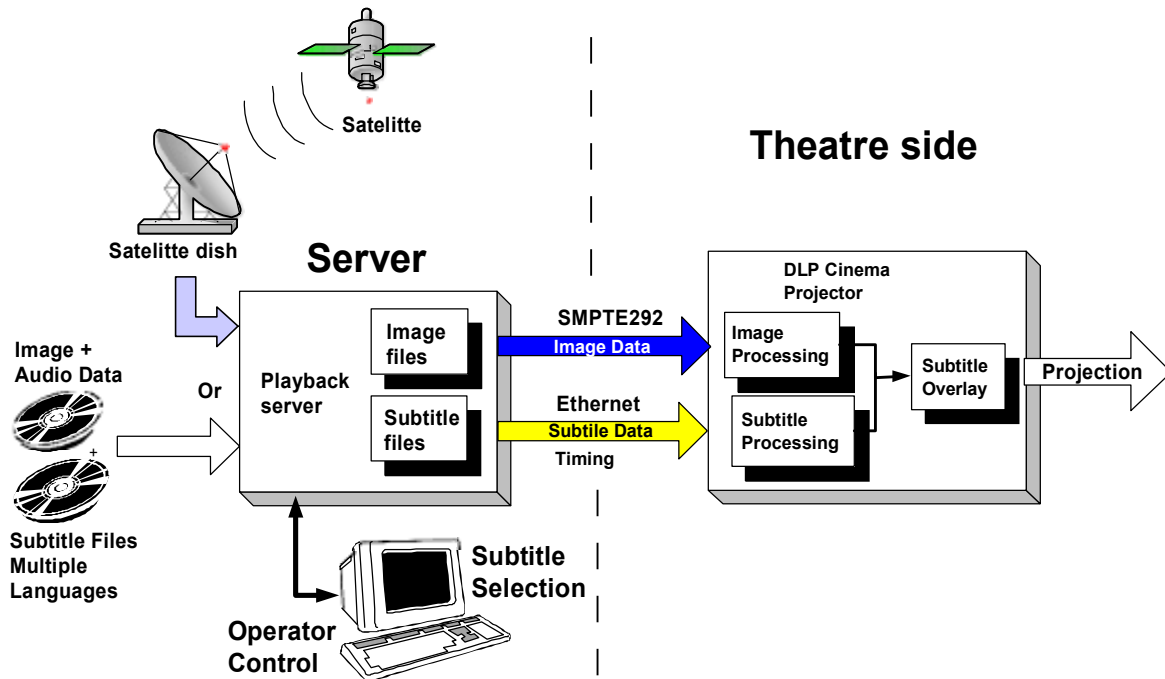


Image 5-41
Principal diagram subtitling

The following process happens :

Image information together with audio data enters the server. Next to it, separate subtitle files in multiple languages are stored on the same server as well as metadata files.

The operator of the Cinema theatre selects the film and the additional subtitling on the server.

The image data will be sent over the SMPTE292 line to the projector. When the subtitling mechanism is activated inside the projector, this projector will process subtitle data and timings which are sent over a Ethernet network to the projector. The projector will render the subtitling in overlay to the image.

5.7.2 Server overview interface

Overview of the layout

In order to simulate a server triggering the projector's subtitling mechanism, or to check if a server is configured as it should be, Barco provides an interface as shown above.

5. Diagnostics

The following is visualized from left to right and from top to bottom :

- time code, internal or external
- time code itself
- Status, running or not running
- Subtitle status, enables or disabled
- Subtitle file location
- Subtitle 'time to live' (TTL)
- Metadata status, enabled or disabled
- Metadata file location
- Metadata 'time to live' (TTL)

5.7.3 Timeline control

Overview

- Time source
- Input frequency
- Timeline stamp
- Timeline adjustment
- Control

5.7.3.1 Time source

Why used

The selected time source will be used to synchronize the subtitling and metadata information with the image stream.

How to select

1. Click on one of the radio buttons in the *Time source* field.

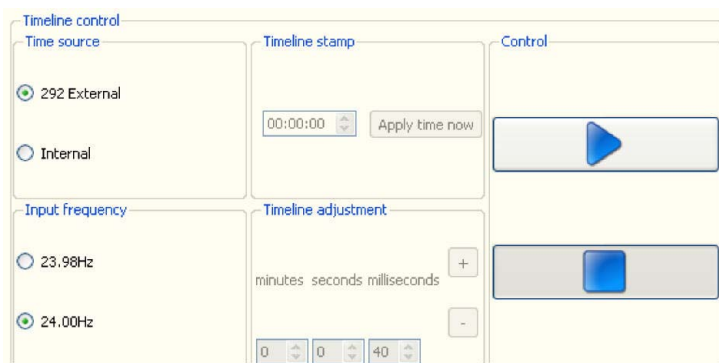


Image 5-42
Time source selection

- | | |
|--------------|--|
| 292 External | The projector will take the time code that is inserted in the SMPTE292 stream for subtitle synchronization |
| Internal | The projector will take the time code from its internal time code generator. |



When 292 External is selected, the Timeline stamp and Timeline adjustment are grayed out.

5.7.3.2 Input frequency

Why necessary

The projector needs to know the frequency of the input signal presented to the projector so that it can calculate internal synchronization parameters.

How to select

1. Tip on one of the radio buttons in the *Input frequency* field.

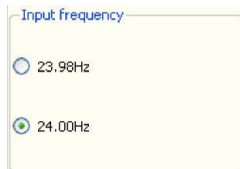


Image 5-43
Input frequency selection

Possible choices :

- 23.98 Hz
- 24.00 Hz

5.7.3.3 Timeline stamp



Only available for an internal time source.

What is the purpose

The internal time code will be set to the value of the timeline stamp. The image displayed will be the image with eventually the subtitling overlay at the time of the timeline stamp. When the play button is pressed, the time code starts running from the value in the timeline stamp.

How to enter a timeline stamp

1. Click on the hours, minutes or seconds value and enter the new value with the digit keys of the keyboard
Or,
click on the hours, minutes or seconds value and click then on the up down control of the spin box to change the value to the desired one.

Tip: Use the bottom right button to display or hide the keyboard.



Image 5-44
Set up timeline stamp

2. Click on **Apply time now** to apply the new time to the time code.

5.7.3.4 Timeline adjustment



Only available for an internal time source.

What is the purpose

While the time code is running, the timeline can be adjusted by adding time to current time or by subtracting time from the current time. With these small corrections, it is possible to adjust small misalignments between the spoken text and the subtitling.

How to add a correction

1. Click into the minutes, seconds or milliseconds field and select the actual value. Change that value by entering the new value with the digit keys of the keyboard
Or,
click on the up down control of the spin box next to the minutes, seconds or milliseconds input field to change the value to the desired one.

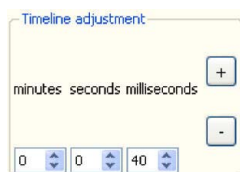


Image 5-45
Timeline adjustment

40 milliseconds corresponds with 1 frame for an input frequency of 24 Hz.

2. Click on + or - button to activate the correction.
 - + Entered correction will be added to the current time
 - Entered correction will be subtracted from the current time

5.7.3.5 Control



Only available for an internal time source.

How to control

1. Click on the Start button () to start the internal time code.
2. Click on Stop button () to stop the internal time code.

5.7.4 Subtitle Control

Overview

- Steps to be taken for subtitle control
- Access to the subtitle control
- Subtitle file
- Time to live (TTL)
- Subtitle Control activation



When the projector is reset or power-cycled, the subtitling function will be disabled.

5.7.4.1 Steps to be taken for subtitle control

Overview

1. With Subtitle enable not checked, fill out first the subtitle server address.
2. Set up the subtitle file.
3. Set up the “time to live”.
4. Activate the subtitling

5.7.4.2 Access to the subtitle control

How to get access

1. Go to **Diagnostics** and click on **CineCanvas**.
2. Then click on **Subtitle Control** (1).

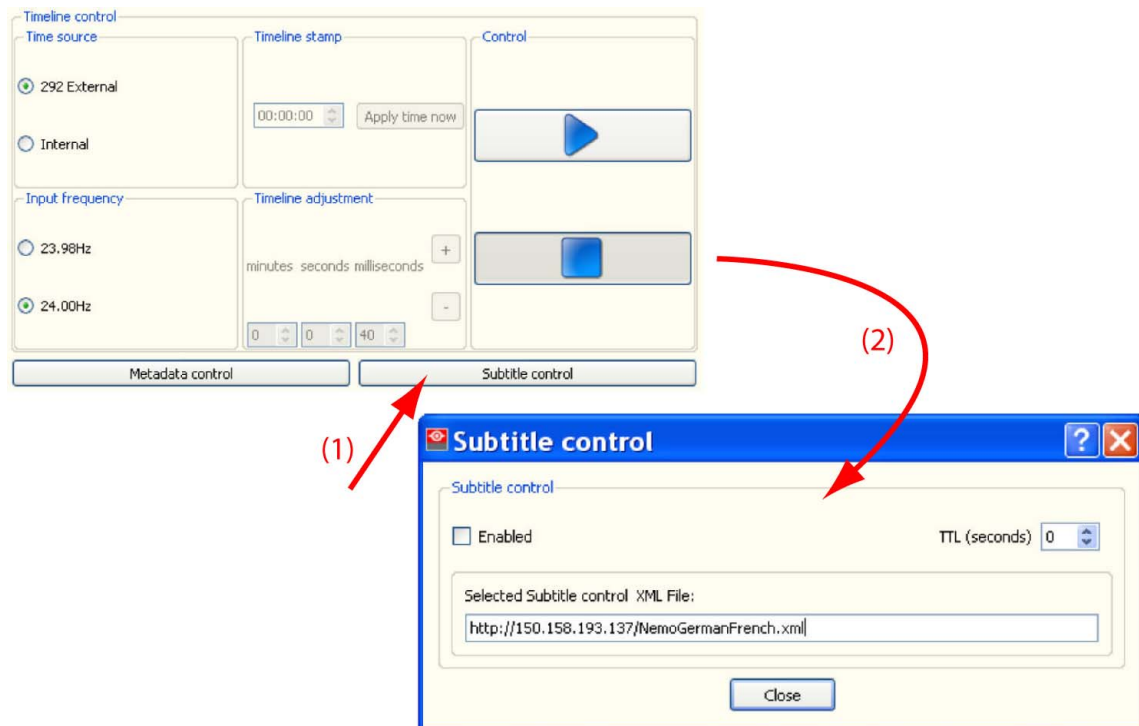


Image 5-46
Subtitle control

The *Subtitle control* window opens (2).

5.7.4.3 Subtitle file

How to select

1. Click in the input field below *Selected Subtitle control XML file*.

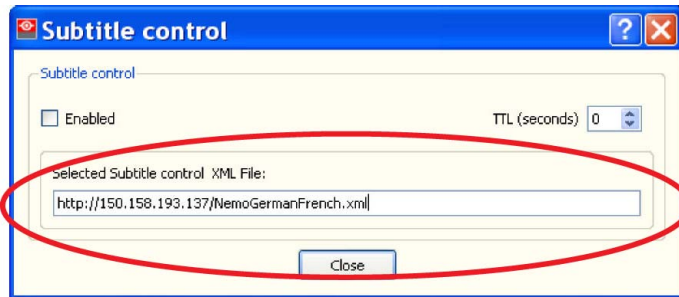


Image 5-47
Subtitle file input

2. Enter the IP address of the server followed by a slash (/) and the name of the XML file.
input mask : `http:// IP address / filename.xml`

5.7.4.4 Time to live (TTL)

Why used

The TTL (Time to live) is a countdown time-out used to prevent subtitles from being left on the screen through loss of communication.

The server or touch panel will continuously ask for the subtitle status. As long as the 'time to live' counter has not been expired and the subtitle status command is executed, this TTL value will be reset to its original value set in the TTL interface.

If the TTL value reaches '0', the system will disable the subtitle function and the subtitling will be removed from the screen.

How to set up

1. Click into the TTL input field and select the current value. Change that value by entering the new value with the digit keys on the keyboard (the value must be in seconds)
Or,
click on the up down control of the spin box next to the TTL input field to change the value to the desired one.

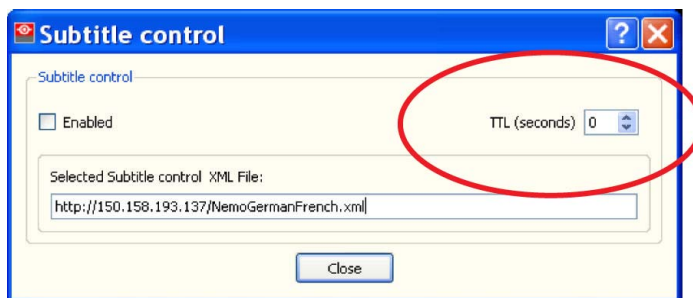


Image 5-48
Time to live setting subtitling

5.7.4.5 Subtitle Control activation

How to activate

1. Check the check box in front of *Subtitle enabled*.

Note: This is only possible when a correct path (server address + filename) to the subtitle file are filled out.

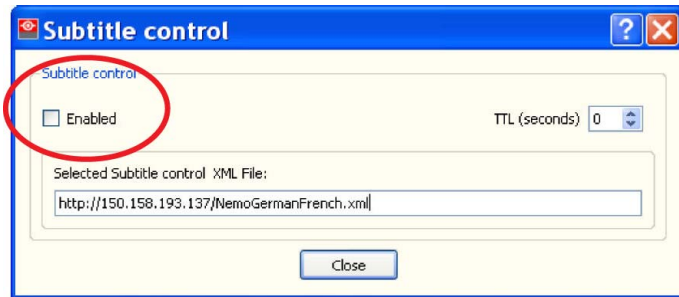


Image 5-49
Activating subtitling

5.7.5 Metadata Control



Metadata

Generally referred to as "data about data" or "data describing other data". More specifically, information that is considered ancillary to or otherwise directly complementary to the essence. Any information that a content provider considers useful or of value when associated with the essence being provided.

Overview

- Introduction
- Steps to be taken for metadata control
- Access to the metadata control
- Metadata file
- Time to live (TTL)
- Metadata Control activation

5.7.5.1 Introduction

Overview

In case of a digital Cinema projector, Metadata contains all the data the projector needs, to be able to display a certain content as it should be. Typically the Metadata is the data that we find in PCF files.

Metadata mode means that the server has control over the projector's active PCF Data. Accessing the Active PCF data of a projector in Metadata mode from the touch panel will fail. Metadata Control needs to be disabled first.

Content of the metadata info

Metadata Control from a server:

- Provides projector setup instructions without operator action
- Contains instructions provided by content creator (PostProduction)
- Information sent from server to projector at start of the movie
- Setup parameters include:
 - Target color space (7-point) (TCGD)
 - Color space conversion parameters (CSC)
 - Gamma (LUT-DG)
 - Incoming image size (SOURCE)
 - Projector Lookup tables (LUT-AL, LUT-CLUT)

5.7.5.2 Steps to be taken for metadata control

Overview

1. With *Metadata enable* not checked, fill out first the metadata server address together with the metadata file.
2. Set up the “time to live”.
3. Activate the metadata

5.7.5.3 Access to the metadata control

How to get access

1. Go to **Diagnostics** and click on **CineCanvas**.
2. Then click on **Metadata Control** (1).

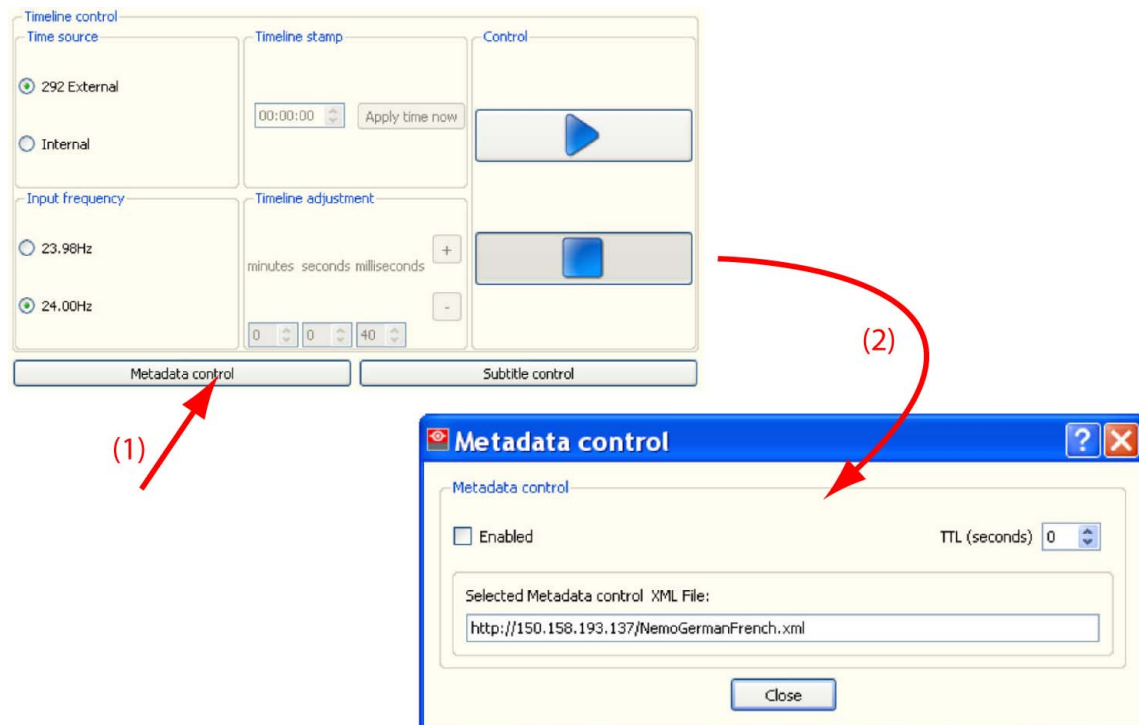


Image 5-50
Startup metadata control

The *Metadata control* window opens (2).

5.7.5.4 Metadata file

How to select

1. Click in the input field below *Selected Metadata control XML file*.

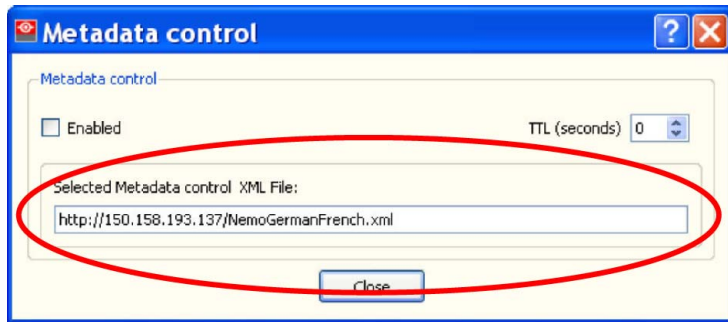


Image 5-51
Metadata server and file setup

2. Enter the IP address of the server followed by a slash (/) and the name of the XML file.
input mask : `http:// IP address / filename.xml`

5.7.5.5 Time to live (TTL)

Why used

The TTL (Time to live) is a countdown time-out used to prevent the use of metadata information through loss of communication.

The server or touch panel will continuously ask for the metadata status. As long as the 'time to live' counter has not been expired and the metadata status command is executed, this TTL value will be reset to its original value set in the TTL interface.

If the TTL value reaches '0', the system will enable the metadata function.

How to set up

1. Click into the TTL input field and select the current value. Change that value by entering the new value with the digit keys on the keyboard (the value must be in seconds)
Or,
click on the up down of the spin box next to the TTL input field to change the value to the desired one.

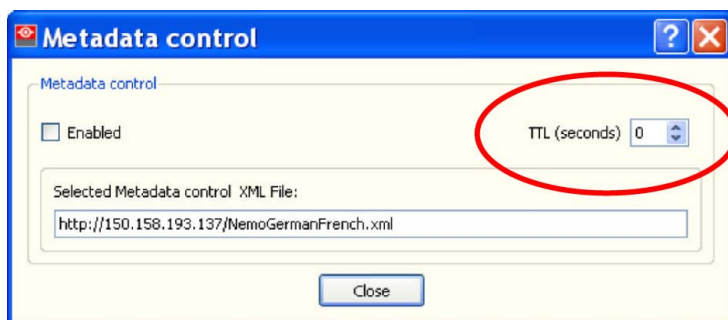


Image 5-52
Time to live

5.7.5.6 Metadata Control activation

How to activate

1. Click the check box in front of *Metadata enabled*.
Note: This is only possible when the path (server address + filename) to the metadata file are filled out.
Note: An indication in the Setup Control interface will be added.

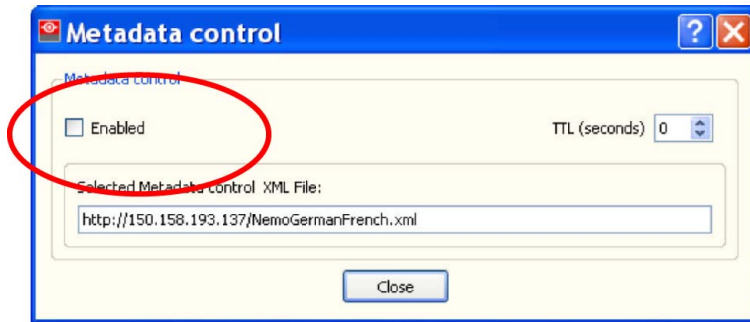


Image 5-53
Enable Metadata



CAUTION: When metadata control is enabled, the following functions are not possible : execution of macros, applying a PCF file (e.g. on Setup page, when connecting), changing the Active Area and using the PCF editor.

6. INSTALLATION

Overview

- Communication
- Lamp and Lamp parameters
- Illumination
- Linked lamp output
- Color calibration for RGB laser projectors
- Color calibration for Laser Phosphor based projectors
- Color calibration for lamp based projectors
- Spatial Color Calibration
- Luminance compensation
- 3D Dual calibration with Macros
- Automation
- Advanced settings
- Functionality keys
- SNMP configuration
- Security
- Security
- Certificate

6.1 Communication

Overview

- Ethernet Connections
- Get overview current Ethernet addresses
- Hostname of projector used as projector name
- Assign an Ethernet address via DHCP
- Manually assign an Ethernet address



Before adding a IP address to the projector, read first "IP configuration - remarks", page 457.

6.1.1 Ethernet Connections



A new projector is delivered with a default IP address : 192.168.100.2



IP

Internet Protocol. The network layer of TCP/IP. Required for communication with the internet.

Overview

In the user interface the IP address can be changed

When the projector is set up in a network configuration, this Ethernet address should be applied to the projector.



After changing any Ethernet configuration setting, it is NECESSARY to reset/restart the projector's electronics



Subnet mask

A number that is used to identify a subnetwork so that IP addresses can be shared on a local area network.



Default Gateway

A router that serves as an entry point into and exit point out of a network. For example, a local network (LAN) may need a gateway to connect it to a wide area network (WAN) or to the Internet.



DNS server

Computers, Projectors, Touch panels connected to a network are referenced by their IP address. The only problem is that remembering IP addresses is not easy. If you need to use hundreds of addresses then it will become impossible to remember them. This is why domain names are created. Internet names (domain and host names) are just aliases to these IP addresses. When you use an Internet address it is automatically translated to an IP address. In fact a program or device that translates those Internet names to IP addresses is called a DNS Server.



Host name

This is the name that will be returned, along with the IP address in response to the UDP broadcast query for projectors/touch panels.



DHCP

Dynamic host configuration protocol. DHCP is a communications protocol that lets network administrators manage centrally and automate the assignment of IP addresses in an organization's network. Using the Internet Protocol, each machine that can connect to the Internet needs a unique IP address. When an organization sets up its computer users with a connection to the Internet, an IP address must be assigned to each machine. Without DHCP, the IP address must be entered manually at each computer and, if computers move to another location in another part of the network, a new IP address must be entered. DHCP lets a network administrator supervise and distribute IP addresses from a central point and automatically sends a new IP address when a computer is plugged into a different place in the network.



UDP

User Datagram Protocol

What should be set up for the Ethernet address

2 ways can be used to assign addresses:

- use the DHCP setting so that a automatic address will be assigned.
- Assign manually an IP address, Subnet-mask, default gateway and DNS server address.
 - Set the IP-Address field to the desired value. This must NOT be 0.0.0.0 for static IP-Address assignment. The IP address identifies a projector's location on the network in the same way a street address identifies a house on a city block. Just as a street address must identify a unique residence, an IP address must be globally unique and have a uniform format.
 - Set the Subnet-Mask as appropriate for the local subnet.
 - Set the Default-Gateway to the IP-Address of the local router (MUST be on the local subnet!) on the same network as this projector that is used to forward traffic to destinations beyond the local network. This must not be 0.0.0.0. If there is no router on the projector's local subnet then just set this field to any IP-Address on the subnet.
 - Set the DNS server address to the IP address if the DNS server obtained from your network administrator or Internet Service Provider. That address can be any address.

6.1.2 Get overview current Ethernet addresses

How to get an overview

1. First click **Installation** and then **Communication**.

An overview of the current IP addresses is displayed.

6.1.3 Hostname of projector used as projector name

Use as Projector name

The hostname of the projector is also used as projector name in the title of the touch panel window.



An empty hostname is not allowed.

Restrictions for the hostname

- Valid characters are a to z, A to Z, 0 to 9 and dash.
- First character can be a letter or a digit.
- Starting or ending with a dash is not allowed.
- Hostname with all digits is not allowed.
- Maximum 32 characters.

How to set up

1. While in *Communication*, click **Edit (1)** button under *Projector IP address*.

6. Installation

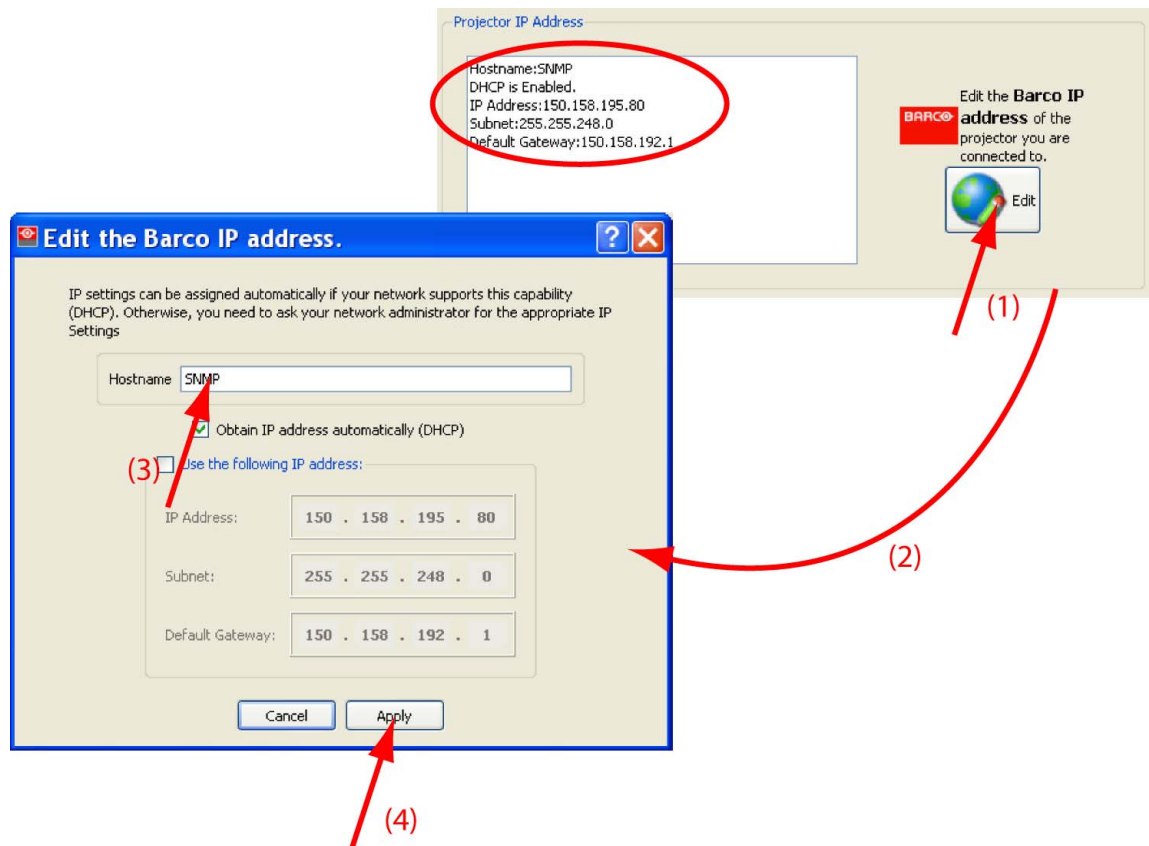


Image 6-1
Assign a hostname

The *Edit the Barco IP address* window opens (2).

2. Click in the *hostname* input field and enter the desired name (3).
3. Click on **Apply** to activate (4).

6.1.4 Assign an Ethernet address via DHCP

How to set up

1. While in *Communication*, click **Edit** (1) button under *Projector IP address*.

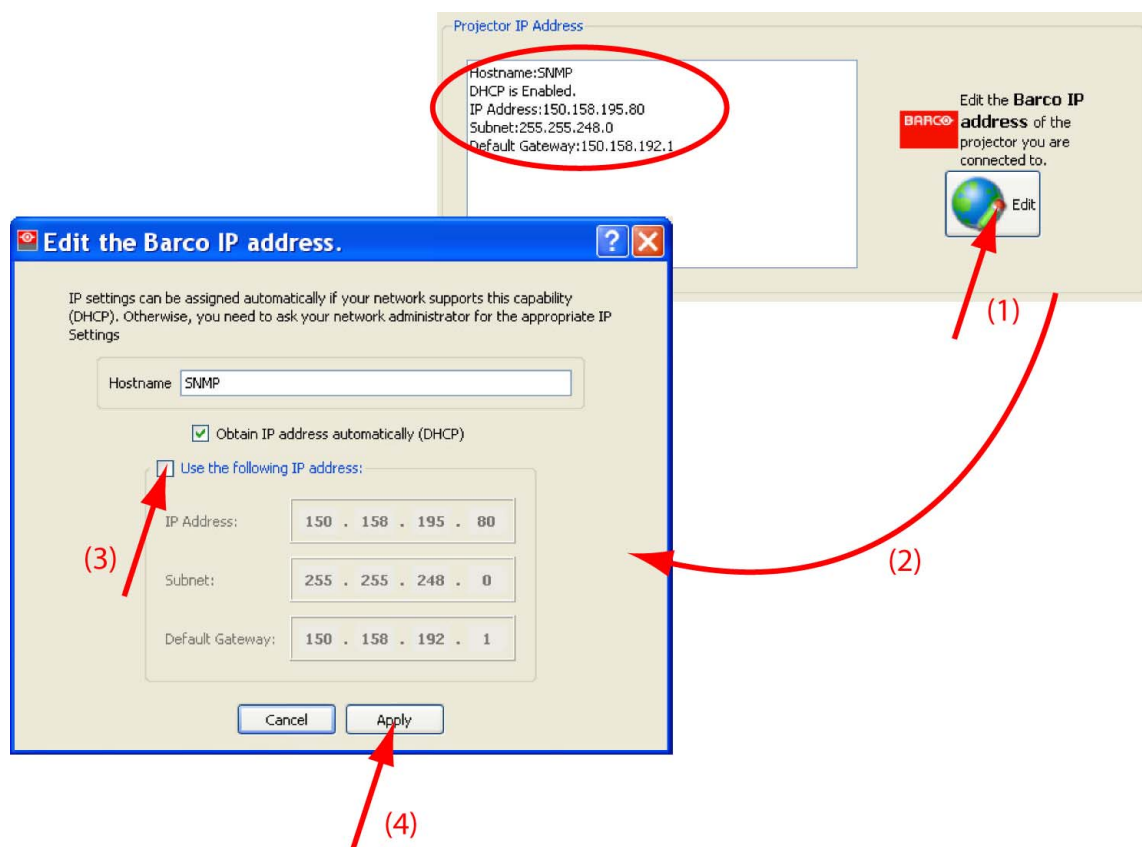


Image 6-2
Assign IP address via DHCP

- The *Edit the Barco IP address* window opens (2).
2. Check the check box next to *Obtain an IP address automatically (DHCP)* (3).
This selection will become active. Other selections are grayed out.
3. Click on **Apply** to activate (4).



When DHCP is enabled and the projector does not find a DHCP server on the network, or the projector is not connected to a network, than the projector will be in a fail state. The hardware Fail LED on the interface board will be on. The status (Status tab) will indicate 'Ethernet Not OK'

6.1.5 Manually assign an Ethernet address

How to set up

1. While in *Communication*, click **Edit** (1) button under *Projector IP address*.

6. Installation

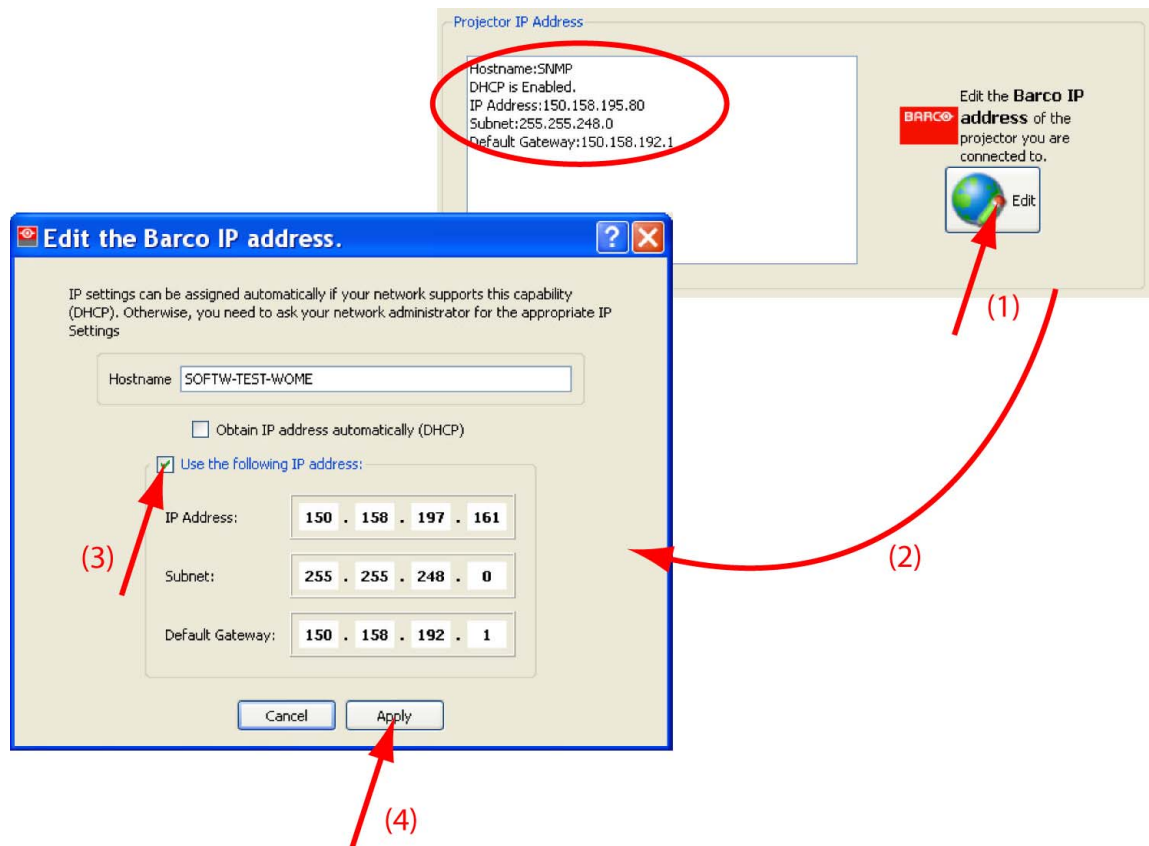


Image 6-3
Projector IP address, manually assign

- The *Edit the Barco IP address* window opens (2).
2. Check the check box next to *Use the following IP address* (3).
3. Click in the input field of the *IP address* and fill out the 4 fields.
Note: An address contains 4 octets with a maximum value of 255.
This must NOT be 0.0.0.0 for static IP-Address assignment
4. Click in the *Subnet mask* input fields and fill out the 4 fields as appropriate for the local subnet.
5. Click in the *Default Gateway* input fields and fill out the 4 fields. Set the Default-Gateway to the IP-Address of the router (MUST be on the local subnet!).
Note: This must NOT be 0.0.0.0.
If there is no router on the projector's local subnet then just set this field to any IP-Address on the subnet.
6. Click **Apply** to activate (4).



The projector's IP address must be different from 192.168.254.x .



The Touch panel's IP Address MUST be within the same subnet as the projector's IP Address in order for communication to be possible. This requires checking the Touch panel's and projector's Subnet-Mask settings

IP address examples

First example

- Touch panel IP Address : 192.168.100.5
- Touch panel Subnet Mask : 255.255.255.0
- Projector IP Address : 192.168.100.2
- Projector Subnet Mask: 255.255.255.0

Result : Communication possible. Touch panel address is in the subnet range of the projector's IP address.

Second example

- Touch panel IP Address : 10.16.236.100
- Touch panel Subnet Mask : 255.255.255.0
- Projector IP Address : 192.168.100.2
- Projector Subnet Mask: 255.255.255.0

Result : No communication possible. Touch panel address is not in the subnet range of the projector's IP address.

Third example

- Touch panel IP Address : 192.168.200.1
- Touch panel Subnet Mask : 255.255.255.0
- Projector IP Address : 192.168.100.2
- Projector Subnet Mask: 255.255.255.0

Result : No communication possible. Touch panel address is not in the subnet range of the projector's IP address. The third group in the Touch panel IP address and Projector IP address must be the same.

Fourth example

- Touch panel IP Address : 192.168.200.1
- Touch panel Subnet Mask : 255.255.0.0
- Projector IP Address : 192.168.100.2
- Projector Subnet Mask: 255.255.0.0

Remark : Communication possible. Touch panel address is in the subnet range of the projector's IP address. The third group in the IP addresses can be any value as the third group in the subnet mask is 0.

6.2 Lamp and Lamp parameters

Overview

- Light output and calibration
- Lamp alignment
- Lamp information (Xenon lamp)
- Lamp information (UHP lamps)
- Lamp recovery

6.2.1 Light output and calibration

6.2.1.1 Start up light output

Get overview and setup window

1. While in *Installation*, click **Lamp** and then click **Light output** button.

6. Installation

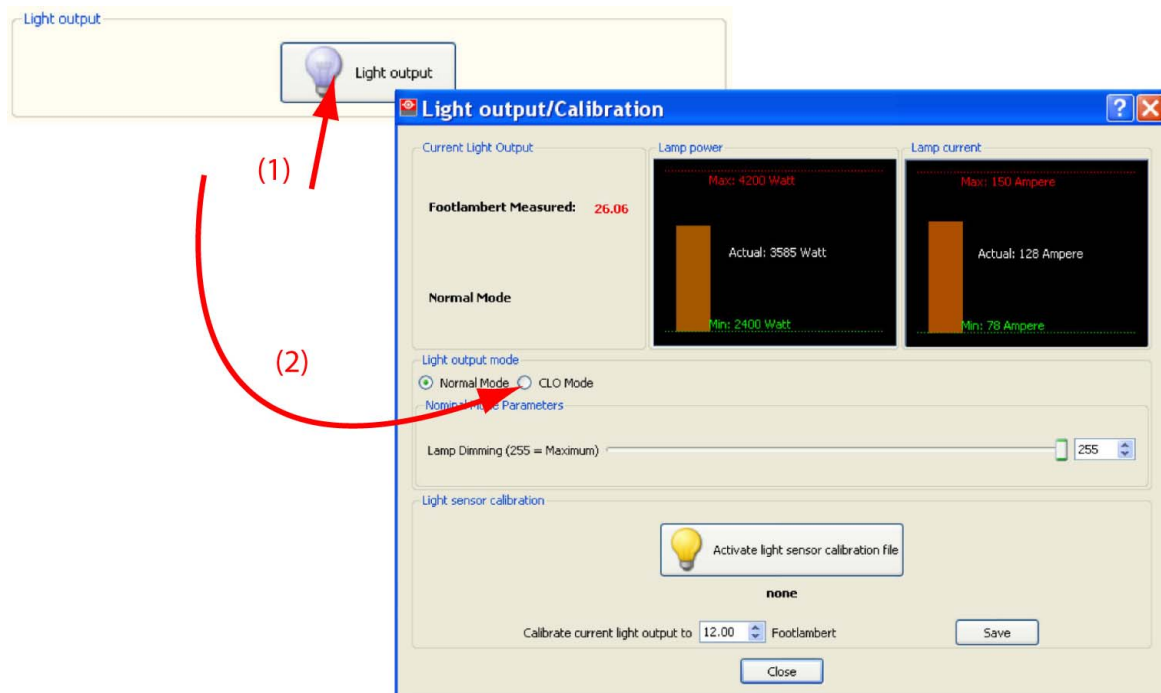


Image 6-4
Start up light output/calibration window

The *light output/Calibration* window opens.

6.2.1.2 Lamp and lamp information

Current light output

The current light output is indicated in FootLambert.

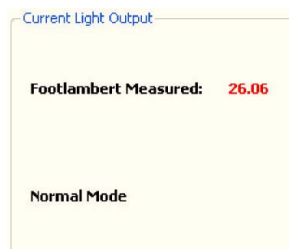


Image 6-5
Current light output

It indicates also in which mode the projector is working.

Lamp power/current

A histogram indicates the power value / current value of the lamp. The diagram indicates also the minimum and maximum limits for the lamp currently in use.

The color of that histogram changes from green when lamp power is minimum to red when lamp power is maximum.

6.2.1.3 Light sensor calibration

What should be done ?

The built in light sensor of the projector should be calibrated before the measured light output is the correct value. The calibration depends on the screen type and the projected image format (flat or scope). So at least 2 files should be created, one for flat and one for scope, before the measured light out is correct.

Actions to be taken before starting calibration

- Setup the ambient light conditions as it should be during the play out of the movie (e.g. only the stairs and emergency exit lighting is switched on).
- Project a full white test pattern with the desired aspect ratio (flat or scope).
- Position a spectroradiometer perpendicular to the screen in the auditorium sweet spot to measure the reflected light of the center of the screen.

Create new calibration file

1. Switch the projector to normal mode (1).

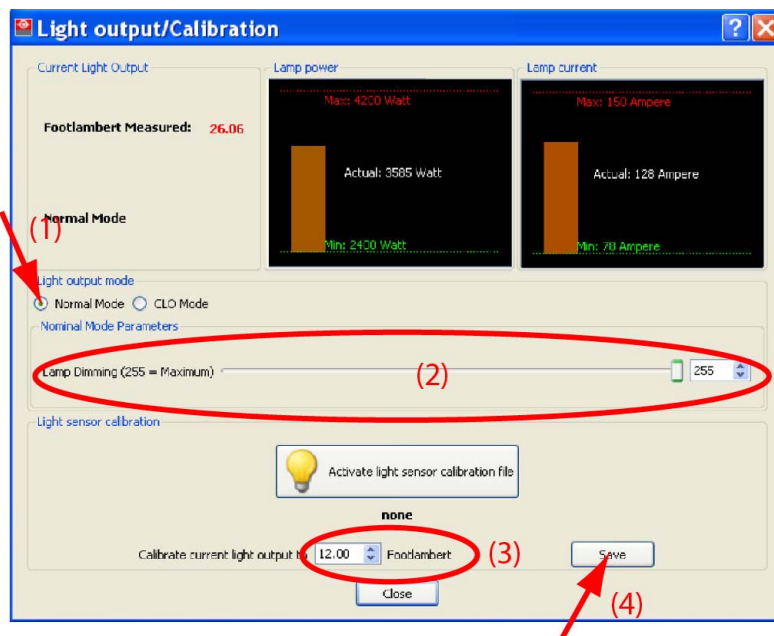


Image 6-6

2. Adjust the slider below *Normal mode* until the spectroradiometer measure 14 ftL. Several iterations will be necessary (2).

6. Installation

If you have to drag the slider too much to the right you will see that the laser histogram will become red. That means that the correction margin is very small. When using CLO it can be possible that during the aging process the desired 14 FtL cannot be reached.

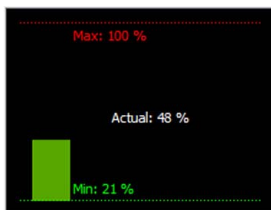


Image 6-7

The histogram color changes from green to light green, orange and to red.

When the color is green or light green that means that the adjustment margin is still large enough. When it becomes orange, there is still some margin but it becomes more critical. When it is in the red area, it is possible that there is no margin to adjust and that the light output target cannot be reached.

3. Enter the measured value (14 FtL) next to *Calibrate current light output to* (3) and click on **Save** (4).

A browser window opens. Enter a file name and click **Save**.

The new file is ready to be used as LSC file.

4. If you started for aspect ratio flat, repeat the procedure for scope and save it in a new file.

How to activate a light sensor calibration file

1. Click on **Activate light sensor calibration file** to select the light sensor calibration file (1).

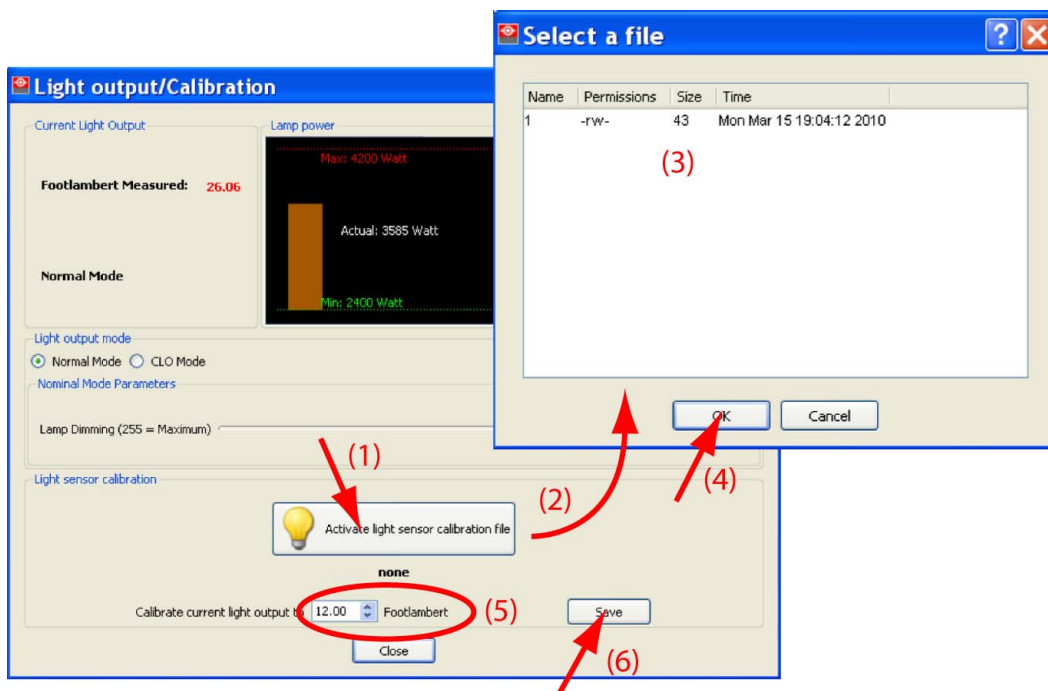


Image 6-8

Light sensor calibration

A file selection window opens (2).

2. Select a file out of the list (3) and click **OK** (4).

The selected file is loaded and will be used to calibrate the light output



It only makes sense to create a LSC file when the lamp is on !



A LSC file can be recalled from a macro.

6.2.1.4 Lamp output mode



Mode selection can be added to a macro.

6.2.1.4.1 Selecting Normal mode

How to setup

1. Click on the radio button next to *Normal Mode*.

The mode selection pane changes to the Normal mode parameters



Image 6-9
Light output, normal mode

6.2.1.4.2 Selecting CLO mode



Target set up for CLO mode is lens dependent.



CLO mode is only available when a valid CLO key is installed.

How to setup

1. Click on the radio button next to *CLO Mode*.



Image 6-10
Light output, CLO mode

The mode selection pane changes to the CLO mode parameters.

6.2.2 Lamp alignment

Overview

- About lamp alignment
- Lamp light output history
- Automatic lamp alignment motorized lamp house
- Manual lamp alignment for motorized lamp house



For motorized lamp houses, lamp alignment can be added as a function in a macro.

6.2.2.1 About lamp alignment

Overview

Due to ageing of the lamp, the light output will be reduced if no corrective actions are taken. To bring the light output again on its normal level, lamp alignment should be performed on a regular time. Also when the lamp is replaced physically the alignment procedure has to be done. Normal Z-axis alignment is enough to bring the light output again on its normal level. But sometimes, alignment of the other axes are also necessary to reach the maximum light output. Depending on the used lamp house, these alignments can be done manually on the lamp house itself or motorized by tipping on the motor keys in the lamp alignment menu.

6.2.2.2 Lamp light output history

Visual presentation

The current measured value is indicated on top of the window together with the minimum and maximum values.

The graph gives an overview of the measured values in the time.

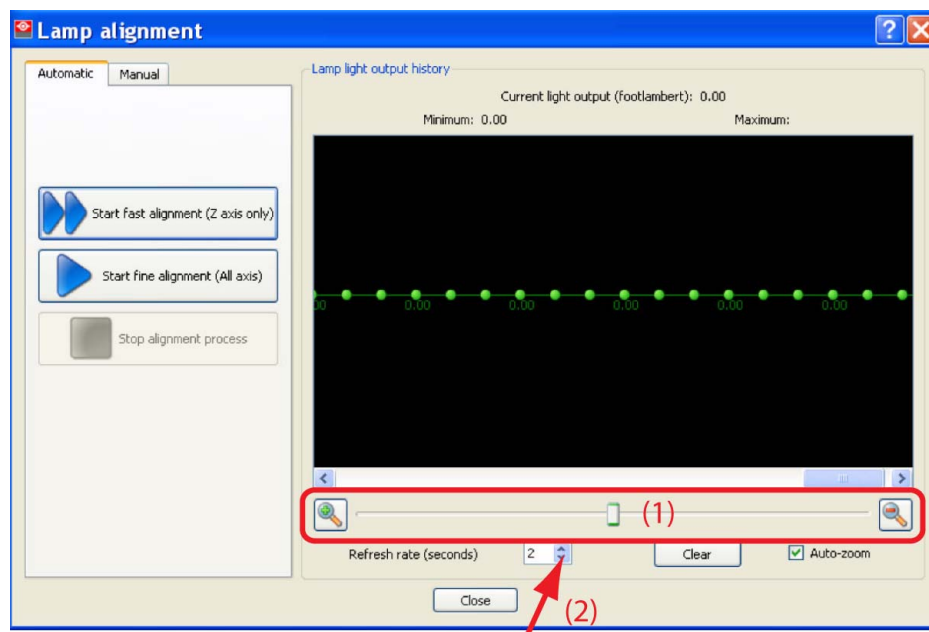


Image 6-11
Lamp light output history

Zoom in / zoom out

A zoom in or zoom out (1) on the graphic preview is possible via:

- the zoom in or zoom out buttons.
- the slide between both zoom buttons. Move the slider to left or to the right to zoom in or out.

Refresh rate

The refresh rate (2) is the time between to updates of the preview (2 measurements). To change this refresh rate, click inside the input box next to *Refresh rate* and enter the desired value with the keyboard or click on the up down control of the spin box until the desired value is reached.

Clear graphic

The current preview of the graphic can be cleared.

Click on **Clear**.

6.2.2.3 Automatic lamp alignment motorized lamp house

What can be done?

Both automatic lamp alignment functions adjust the lamp in either the Z-axis or in all axis to obtain the maximum light output. Wait until the process stops or interrupt the processes by stopping it manually.

How to fast align?

1. While the automatic *Lamp alignment* is selected and the *Lamp alignment* window is open, click on **Automatic** tab.
2. Click on **Start Fast alignment (Z-axis only)**.

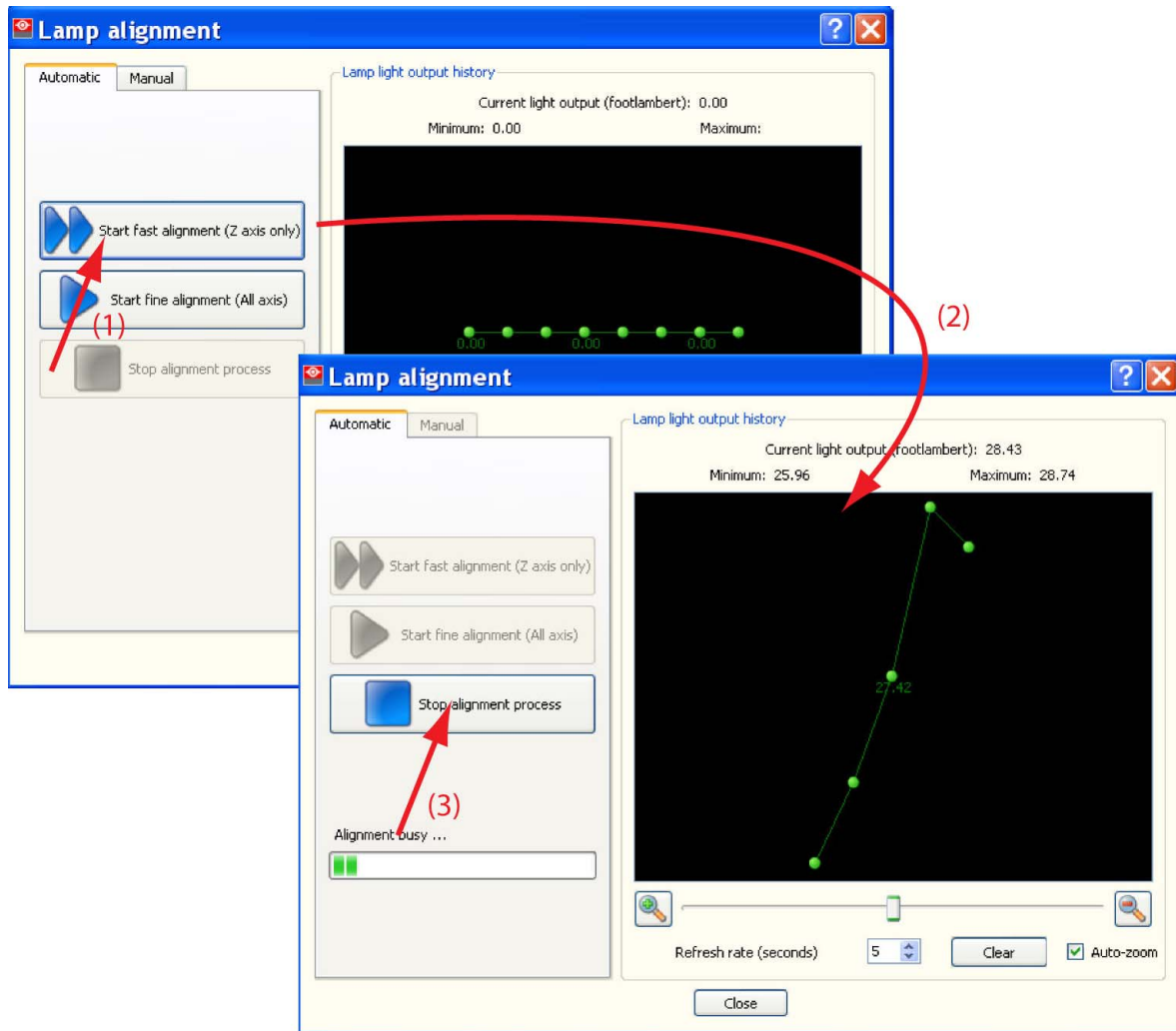


Image 6-12
Lamp alignment, Z-axis

The software starts with the alignment. The intermediate light output results can be followed on the preview graph.

Once the light output reaches its maximum value the process stops automatically.

3. To interrupt the alignment procedure, click on **Stop Alignment process**.

How to fine align?

1. While the automatic *Lamp alignment* is selected and the *Lamp alignment* window is open, click on **Automatic** tab.
2. Click on **Start fine alignment (all axis)**.

The software starts with the alignment. The intermediate light output results can be followed on the preview graph.

The alignment can take a while. Once the light output reaches its maximum value the process stops automatically.

3. To interrupt the alignment procedure, click on **Stop Alignment process**.

6.2.2.4 Manual lamp alignment for motorized lamp house

What can be done?

The light output of the lamp can be adjusted manually using the motor functions on the lamp house or by turning manually on the adjustment knobs on the lamp house. In both cases a preview is given in the *Lamp light output history*.

Z-axis alignment is the fast alignment to improve the light output. While the X and Y axis alignment is fine alignment to further improve the light output.

How to align?

1. For the Z-axis alignment, click on left or right arrow keys below *Z alignment*.

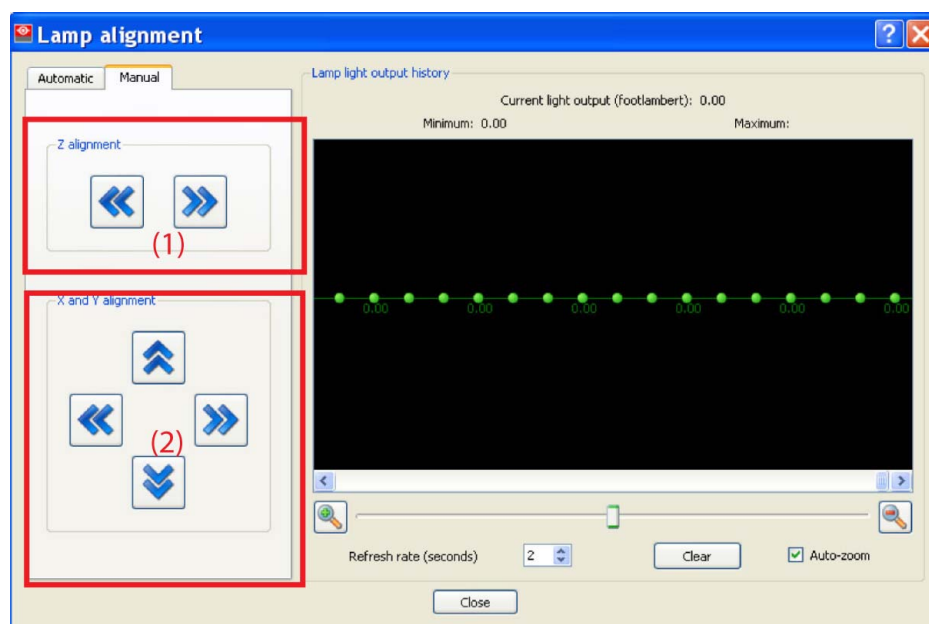


Image 6-13

Click first in one direction and look to the preview to see if there is an improvement. If there is an improvement, continue in the same direction. If not, click in the other direction until the maximum light output is obtained.

2. For a fine adjustment, adjust the X and Y axis. Click on the corresponding buttons.

Adjust the X-axis (left - right keys) and the Y-axis (up down keys) for maximum current light output (Footlambert Measured). Carefully adjust for maximum light output. Once over the maximum, click slightly in opposite direction to reach the maximum light output again.

Do this for each direction and minimum repeat this adjustment cycle twice.

6.2.3 Lamp information (Xenon lamp)

About the information

The lamp information window displays read only information about:

Run time in hours	Run time since first start up of the lamp or since the last reset.
Remaining run time in hours	Remaining run time that the lamp can be used without risk of damaging the projector.
Strikes	Number of strikes since the first start up of the lamp or since the last reset.
Article number	Article number of spare lamp which must be used in this projector.
Serial number	Serial number of current installed lamp inside the projector.

When using the reset button

This reset button has to be used:

- when installing a new lamp, to set the value for run time and the number of strikes back to zero and to reset the remaining run time.
- when reinstalling a used lamp, to set back the values for the run time and the number of strikes and to adapt those values to new values.

How to display the lamp information

1. While within *Installation*, click on **Lamp** and then click on **Lamp information** (1).

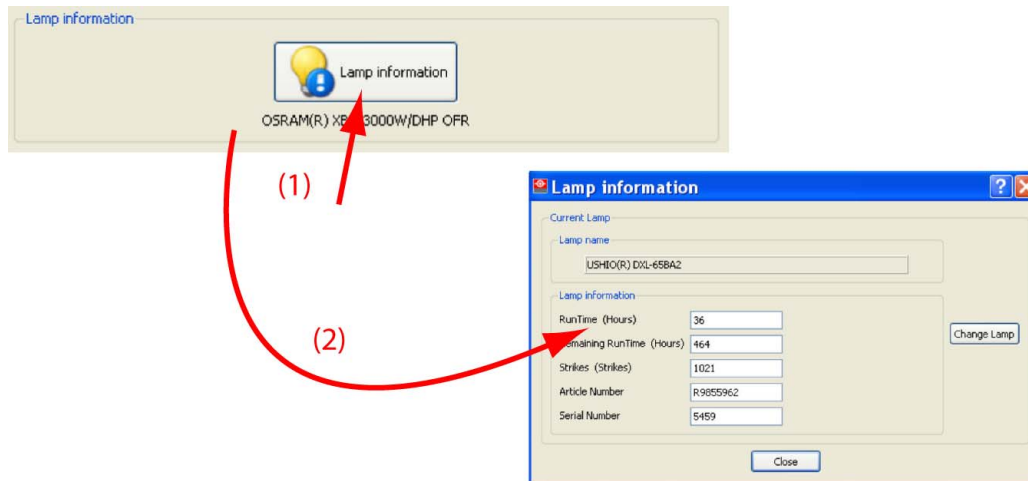


Image 6-14
Lamp info

The *Lamp information* window opens (2).

For a new lamp, how to reset the values?

1. While the *Lamp information* window is displayed, click on **Change lamp** (1).

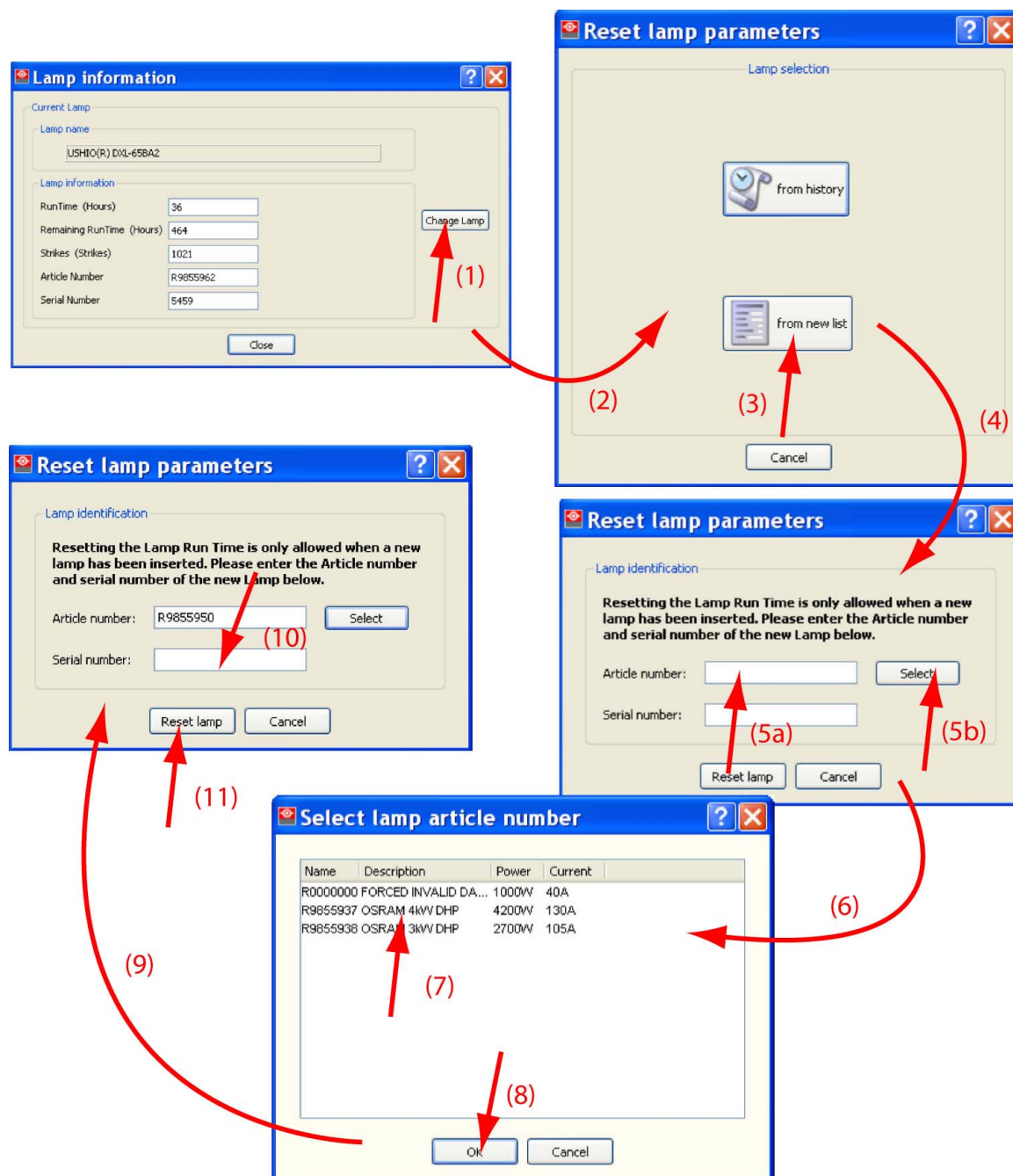


Image 6-15
Reset lamp info, new lamp

- A Reset lamp parameters selection window opens (2).
2. To get new lamps, click on **From new list** (3).
The lamp article and serial number opens (4).
3. Fill out the article number of the new lamp (5a)
Or,
click on **Select** (5b) to display a list of possible article numbers (6). Select a article number (7) and click **OK** (8).
The software will check if the entered article number is a valid number (9).
4. Fill out the serial number of the lamp (10).
5. Click **Reset** (11).

For a used lamp, how to set back the original values?

1. While the *Lamp information* window is displayed, click on **Change lamp** (1).

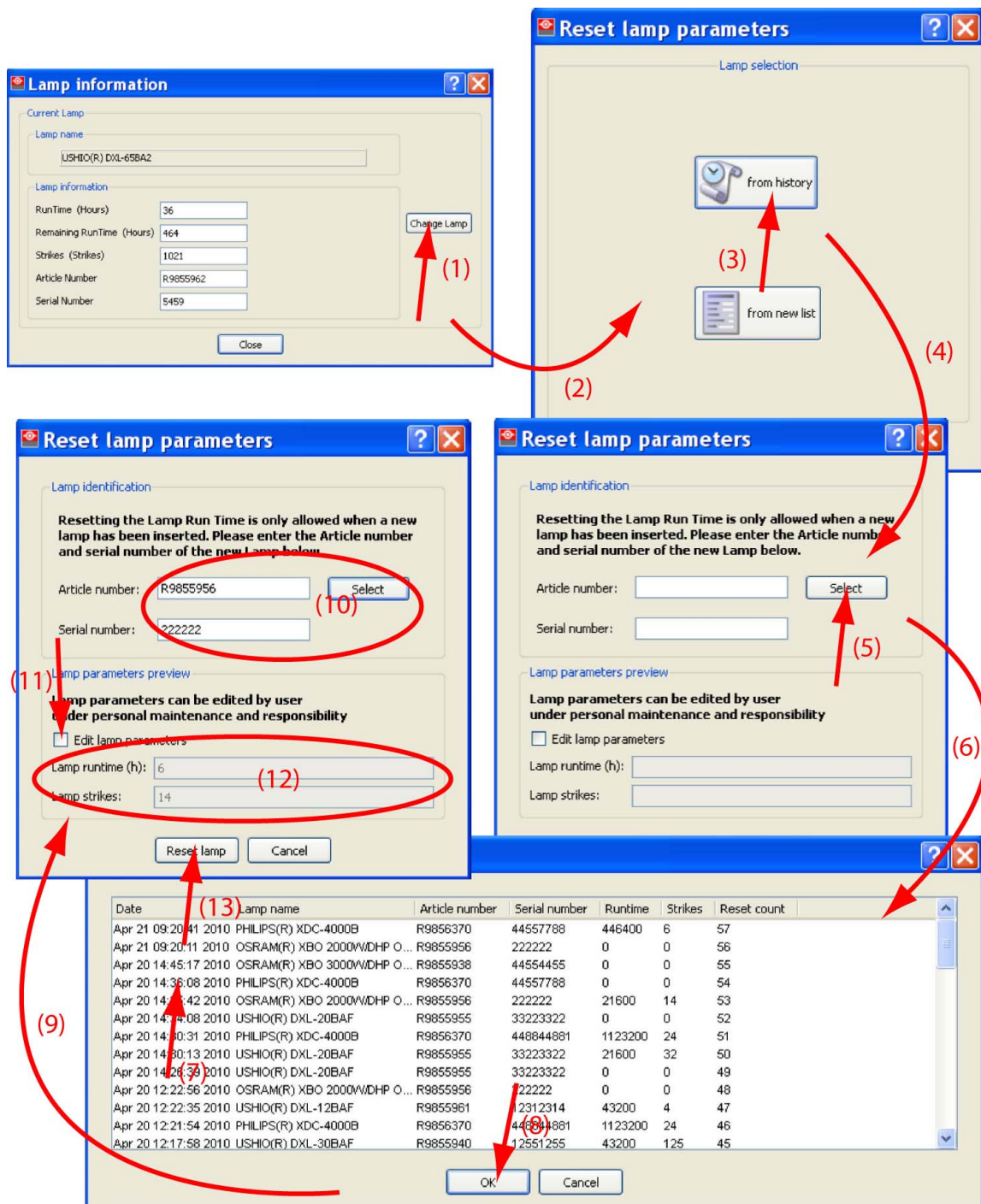


Image 6-16
Reset lamp info, used lamp

- A *Reset lamp parameters* window opens (2).
- To get history of the used lamps, click **from history** (3).
- The *Reset lamp history* selection window opens (4).
- Click on **Select** (5) to display a list of possible lamps (6).
- Select the desired lamp (7) and click **OK** (8).

The article number and serial number of the selected lamp is added to the *Reset lamp parameters* window (10). The lamp run time and number of strikes of this lamp are added in *Lamp parameter preview* (12).

- The lamp parameters can be edited by the user under personnel maintenance and responsibility. If you want to change these parameters, check the check box in front of *Edit lamp parameters* (11).

The current parameter fields become active (12).

- Click in an input field and change to the desired value.

- Click **Reset lamp** (13).

6.2.4 Lamp information (UHP lamps)

About the information

The lamp information window displays read only information about:

Run time in hours	Run time since first start up of the lamp or since the last reset.
Remaining run time in hours	Remaining run time that the lamp can be used without risk of damaging the projector.
Strikes	Number of strikes since the first start up of the lamp or since the last reset.
Article number	Article number of spare lamp which must be used in this projector.
Serial number	Serial number of current installed lamp inside the projector.

When using the reset button

This reset button has to be used:

- when installing a new lamp house (a new UHP lamp is always mounted in a new lamp house and must be replaced as one part), to set the value for run time and the number of strikes back to zero and to reset the remaining run time.

How to display the lamp information

- While within *Installation*, click on **Lamp** and then click on **Lamp information** (1).

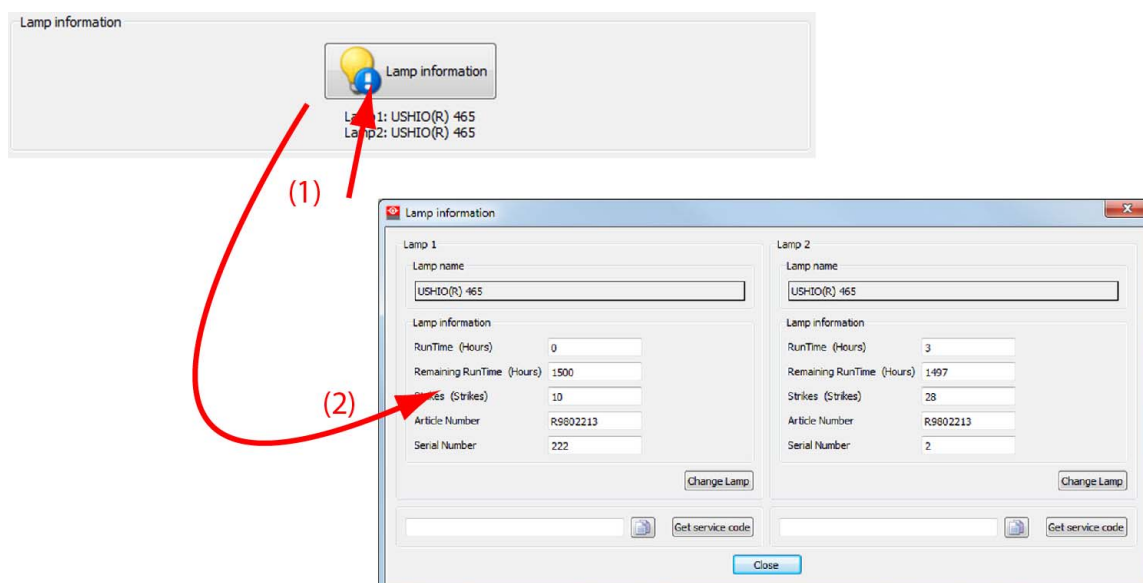


Image 6-17

The *Lamp information* window opens (2).

For a new lamp house, how to reset the values

1. While the *Lamp information* window is displayed, click on **Change lamp** (1) of the corresponding lamp (house) position.

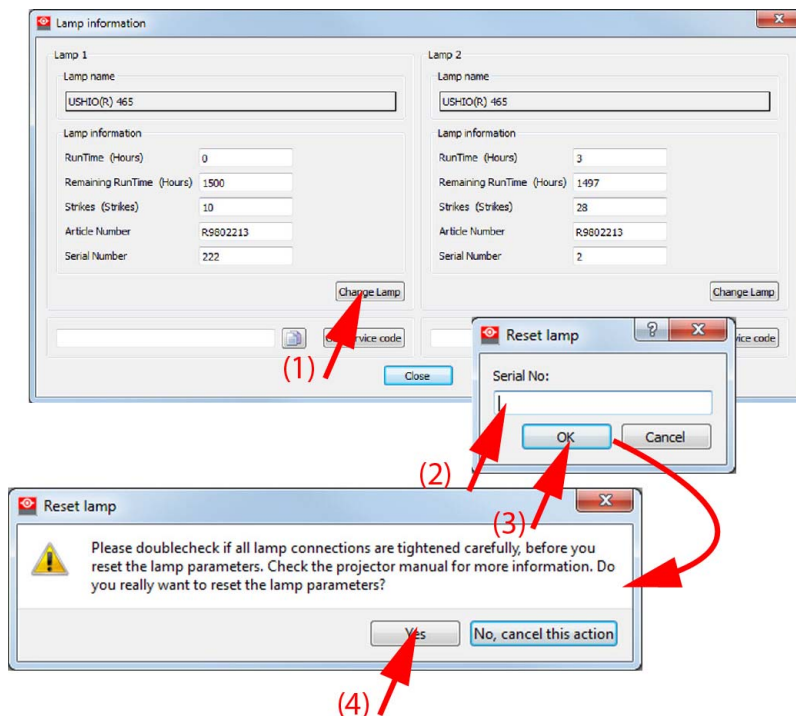


Image 6-18

The *Reset lamp* window opens.

2. Enter the serial number of the new lamp (house) (2) and click **OK** (3).

A confirmation window opens.

3. If the cabling is OK, Click **Yes** to continue (4).

Get service code

1. When replacing the lamp house a service code can be generated which can be used when sending back the lamp house to your supplier.

While the *Lamp information* window is displayed, click on **Get service code** of the corresponding lamp (house).

A service code is filled out.

6.2.5 Lamp recovery



Only for DP2K-C series and DPxK-B series.

About lamp recovery

When there was an external power failure and the power is coming up again, the projector lamp starts up again in the same state as before the power failure.

The projector software has to know if the projector must remember its recovery settings.

About the use of an UPS system

When the projector is connected to an UPS system the electronics remains powered during an external power failure. The lamp power supply is down and the lamp is out. When the external power is coming up again, the lamp power supply starts again and the lamp starts in the same state as before the power failure.

This UPS system reduces the restart of the complete system significantly.

As the projector software has to know if an UPS system is connected or not, a check box must be checked in the lamp recovery window.

How to setup

1. While in *Installation*, click **Lamp** and then click **Lamp recovery** button (1).

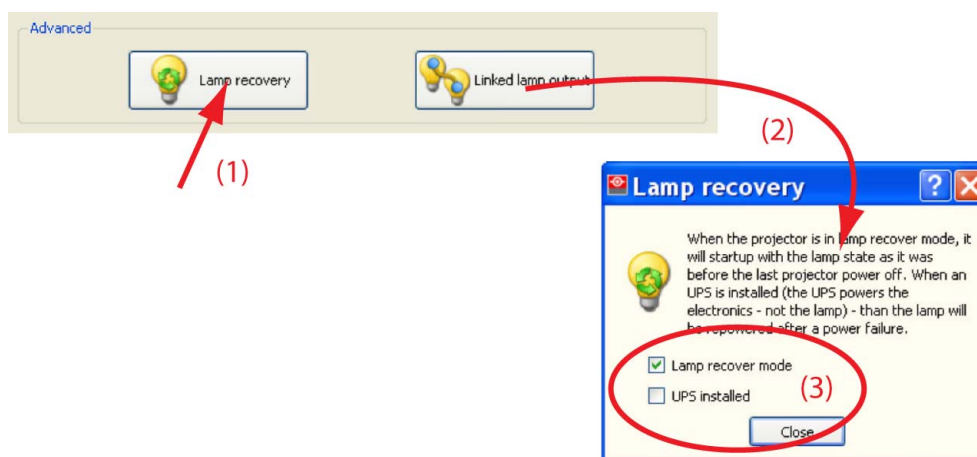


Image 6-19
Lamp recovery

The *Lamp recovery* window opens (2).

2. To activate the lamp recovery mode, check the check box next to *Lamp recover mode*.
3. When the projector is connected to an UPS system, check the check box next to UPS installed.

6.3 Illumination

Overview

- Light output and calibration
- Light sensor calibration
- Light output mode
- Laser information
- Linked laser output
- Laser recovery

6.3.1 Light output and calibration

6.3.1.1 Start up light output

Get overview and setup window

1. While in *Installation*, click **Illumination** and then click **Light output** button.

6. Installation

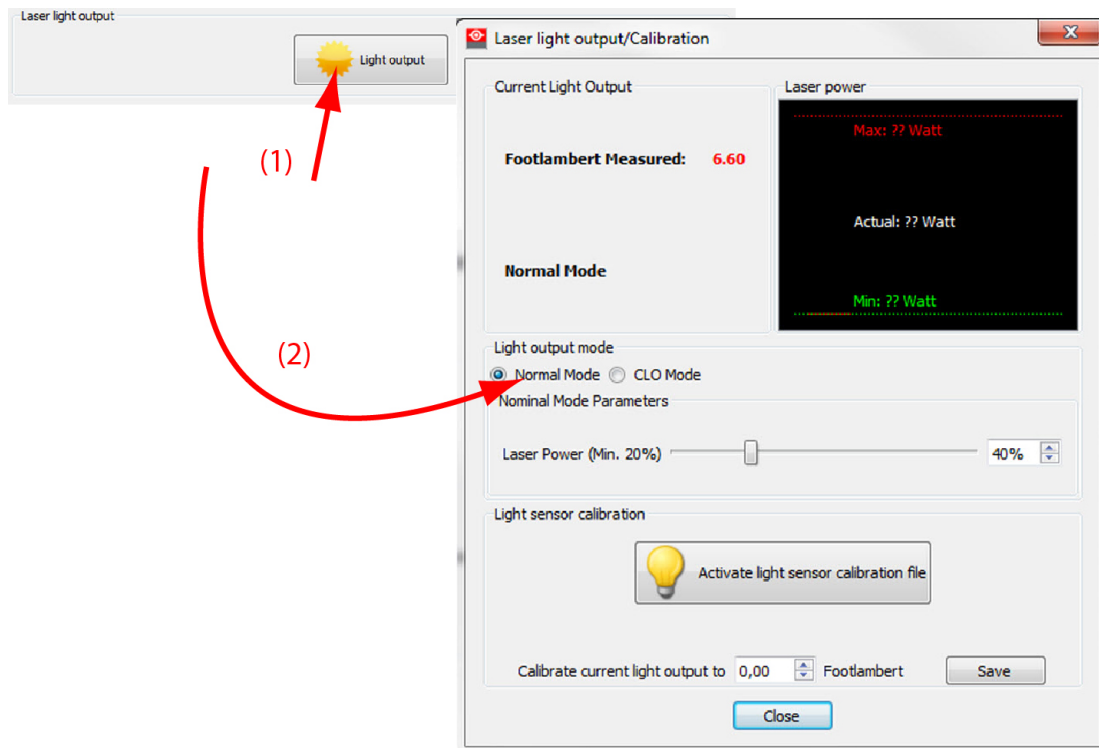


Image 6-20

The *Laser light output/Calibration* window opens.

6.3.1.2 Current light output

Current light output

The current light output is indicated in FootLambert.

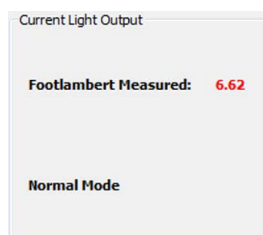


Image 6-21

It indicates also in which mode the projector is working.

6.3.2 Light sensor calibration

What should be done ?

The build in light sensor of the projector should be calibrated before the measured light output is the correct value. The calibration depends on the screen type and the projected image format (flat or scope). So at least 2 files should be created, one for flat and one for scope, before the measured light out is correct.

Actions to be taken before starting calibration

- Setup the ambient light conditions as it should be during the play out of the movie (e.g. only the stairs and emergency exit lighting is switched on).
- Project a full white test pattern with the desired aspect ratio (flat or scope).
- Position a spectroradiometer perpendicular to the screen in the auditorium sweet spot to measure the reflected light of the center of the screen.

Necessary tools

Spectroradiometer

Create new calibration file

1. Switch the projector to normal mode (1).

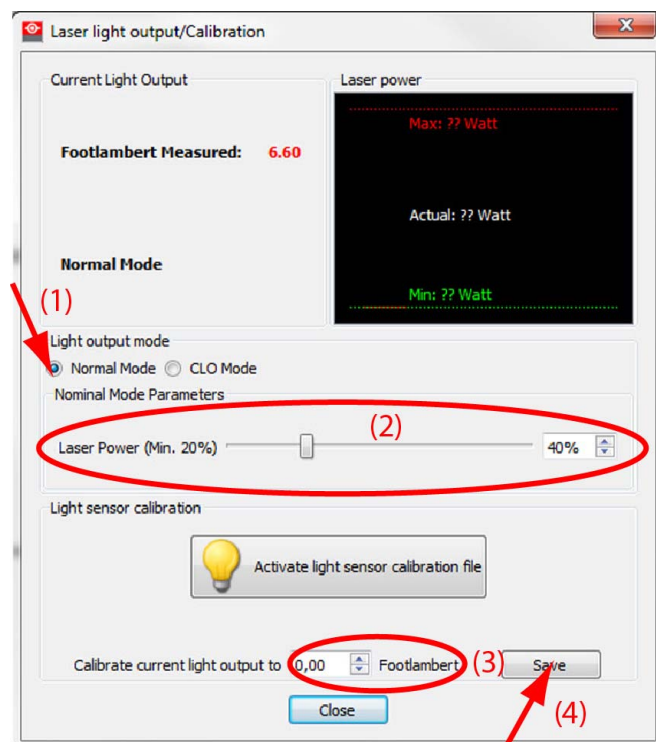


Image 6-22

2. Measure the current light output with the spectroradiometer. The goal is 14ft-L.
3. Adjust the slider below *Normal mode* until the spectroradiometer measure 14 ftL. Several iterations will be necessary (2).

6. Installation

If you have to drag the slider too much to the right you will see that the laser histogram will become red. That means that the correction margin is very small. When using CLO it can be possible that during the aging process the desired 14 FtL cannot be reached.

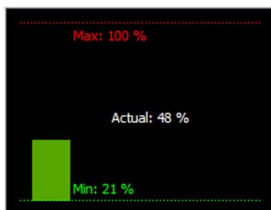


Image 6-23

The histogram color changes from green to light green, orange and to red.

When the color is green or light green that means that the adjustment margin is still large enough. When it becomes orange, there is still some margin but it becomes more critical. When it is in the red area, it is possible that there is no margin to adjust and that the light output target cannot be reached.

4. Enter the measured value (14 FtL) next to *Calibrate current light output to* (3) and click on **Save** (4).

A browser window opens. Enter a file name and click **Save**.

The new file is ready to be used as LSC file.

5. If you started for aspect ratio flat, repeat the procedure for scope and save it in a new file.

How to activate a light sensor calibration file

1. Click on **Activate light sensor calibration file**.

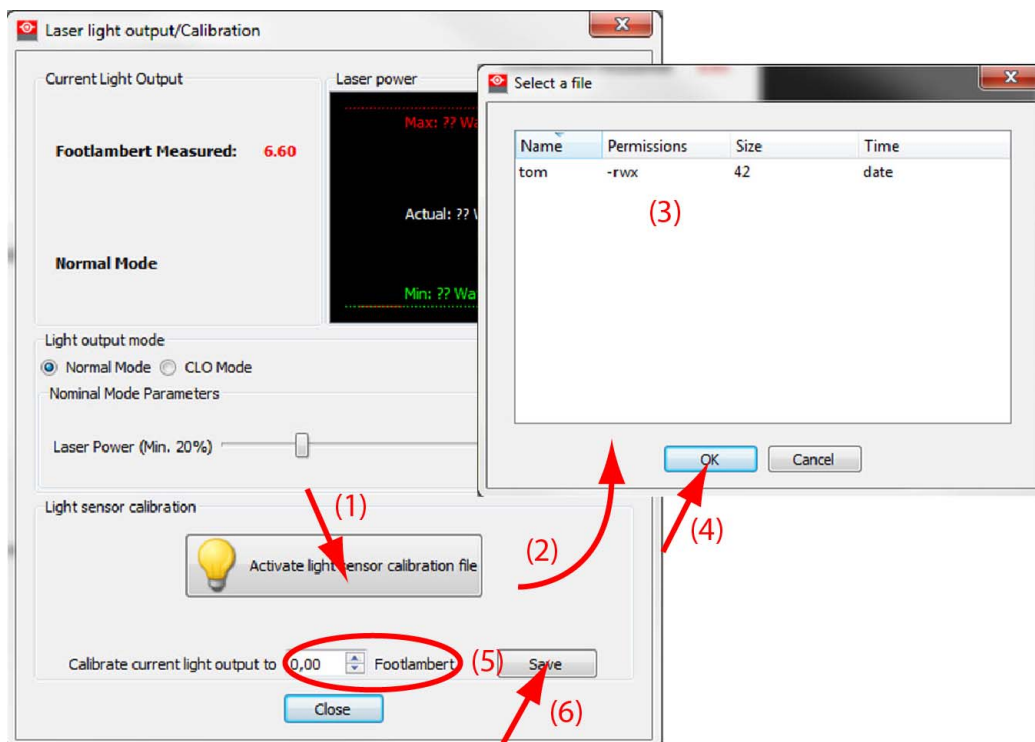


Image 6-24

A file selection window opens (2).

2. Select the file corresponding your aspect ration out of the list (3) and click **OK** (4).

The selected file is loaded and will be used to calibrate the light output.



It only makes sense to create a LSC file when the lasers are on !



A LSC file can be recalled from a macro.

6.3.3 Light output mode



Mode selection can be added to a macro.

6.3.3.1 Selecting Normal mode

How to select

1. Click on the radio button next to *Normal Mode*.

The mode selection pane changes to the Normal mode parameters

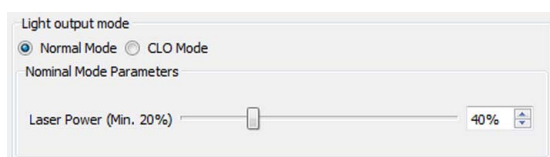


Image 6-25

6.3.3.2 Selecting CLO mode



Target set up for CLO mode is lens dependent.

How to select

1. Click on the radio button next to *CLO Mode*.

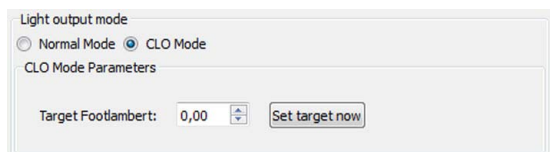


Image 6-26

The mode selection pane changes to the CLO mode parameters.

6.3.4 Laser information

Overview

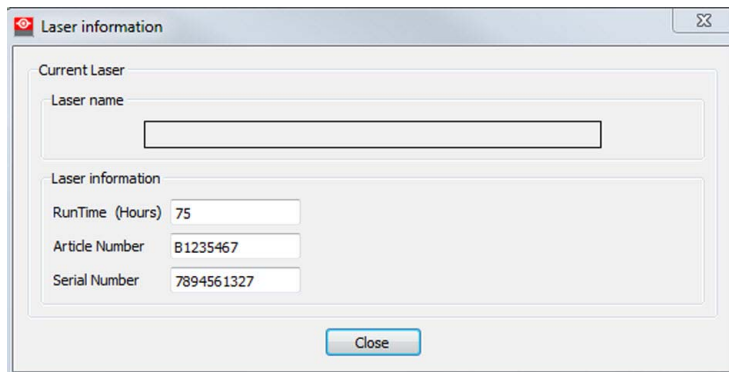


Image 6-27

The following information is given:

- Laser run time in hours
- Article number of the laser unit
- Serial number of the laser unit

6.3.5 Linked laser output

6.3.5.1 About linked lamp output

Goal

When projectors are projecting one image, then it necessary that both projectors are using the same light output, otherwise a difference in brightness will be visible between both images.

To obtain this goal, one projector will be set as master and this master will manipulate the target CLO value of the slave so that the laser output will be aligned between both projectors. When the laser output of the master changes, then the laser output of the slave will follow.

6.3.5.2 Set up of the master projector

How to setup

1. Click on **Linked lamp output** (1).

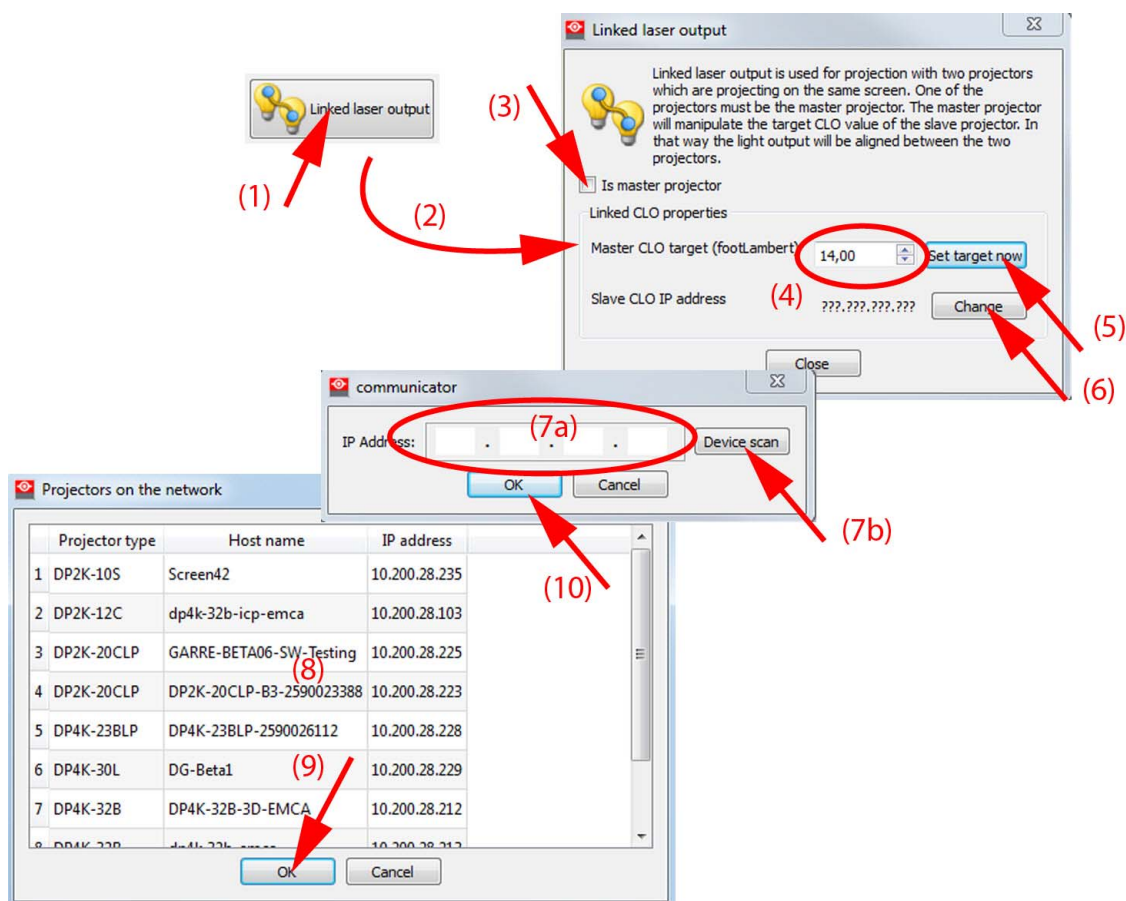


Image 6-28
Linked laser output

- The *Linked Laser output* window opens (2).
- To set the projector as master, check the check box in front of *Is master projector* (3).
- Click on the up down control (4) next to *Master CLO target* until the desired value is reached and click then on **Set target now** (5).
- To set the slave CLO IP address, click on **Change**. (6)
- The Slave IP address window opens.
- Fill out the IP address (7a) and click **OK** (10) or click on **Device scan** (7b).
- When Device scan is used, all projectors on the network are displayed in Projector on Network window.
- Click on the IP address of the slave projector (8) and click **OK** (9).
- The IP address will be filled out as slave IP address.
- Click **OK** on the Slave IP address window (10).

6.3.6 Laser recovery



Only for DP2K-CLP series and DPxK-B series.

About laser recovery

When there was an external power failure and the power is coming up again, the projector laser starts up again in the same state as before the power failure.

The projector software has to know if the projector must remember its recovery settings.

About the use of an UPS system

When the projector is connected to an UPS system the electronics remains powered during an external power failure. The laser power supply is down and the laser is out. When the external power is coming up again, the laser power supply starts again and the laser starts in the same state as before the power failure.

This UPS system reduces the restart of the complete system significantly.

As the projector software has to know if an UPS system is connected or not, a check box must be checked in the laser recovery window.

How to setup

1. While in *Installation*, click **Illumination** and then click **Laser recovery** button (1).

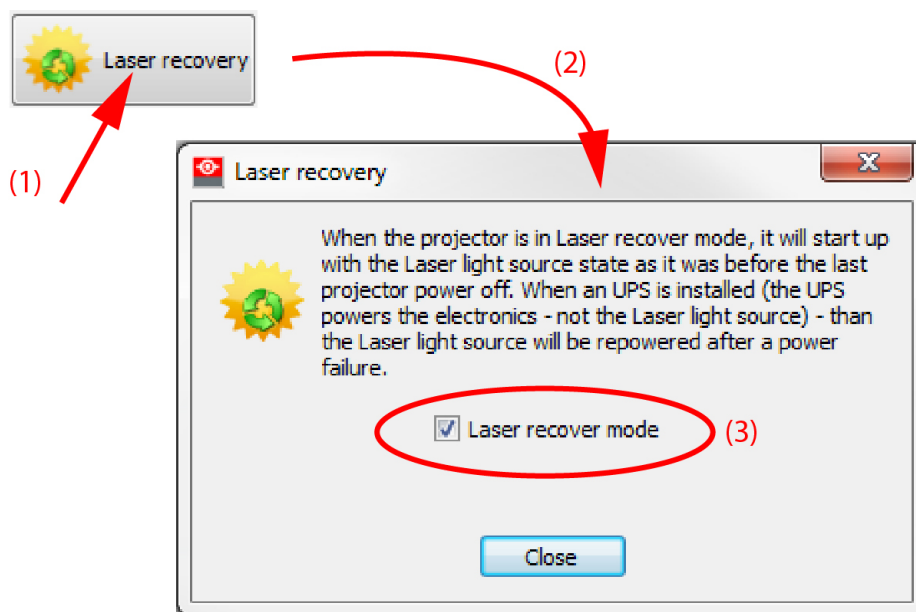


Image 6-29
Laser recovery

The *Laser recovery* window opens (2).

2. To activate the laser recovery mode, check the check box next to *Laser recover mode*.
3. When the projector is connected to an UPS system, check the check box next to UPS installed.

6.4 Linked lamp output

6.4.1 About linked lamp output

Goal

When 2 projectors are projecting on the same screen, e.g. for projecting 3D images, then it necessary that both projectors are using the same light output, otherwise a difference in brightness will be visible between both images.

To obtain this goal, one projector will be set as master and this master will manipulate the target CLO value of the slave so that the lamp output will be aligned between both projectors. When the lamp output of the master changes, then the lamp output of the slave will follow.

6.4.2 Set up of the master projector

How to setup

1. Click on **Linked lamp output** (1).

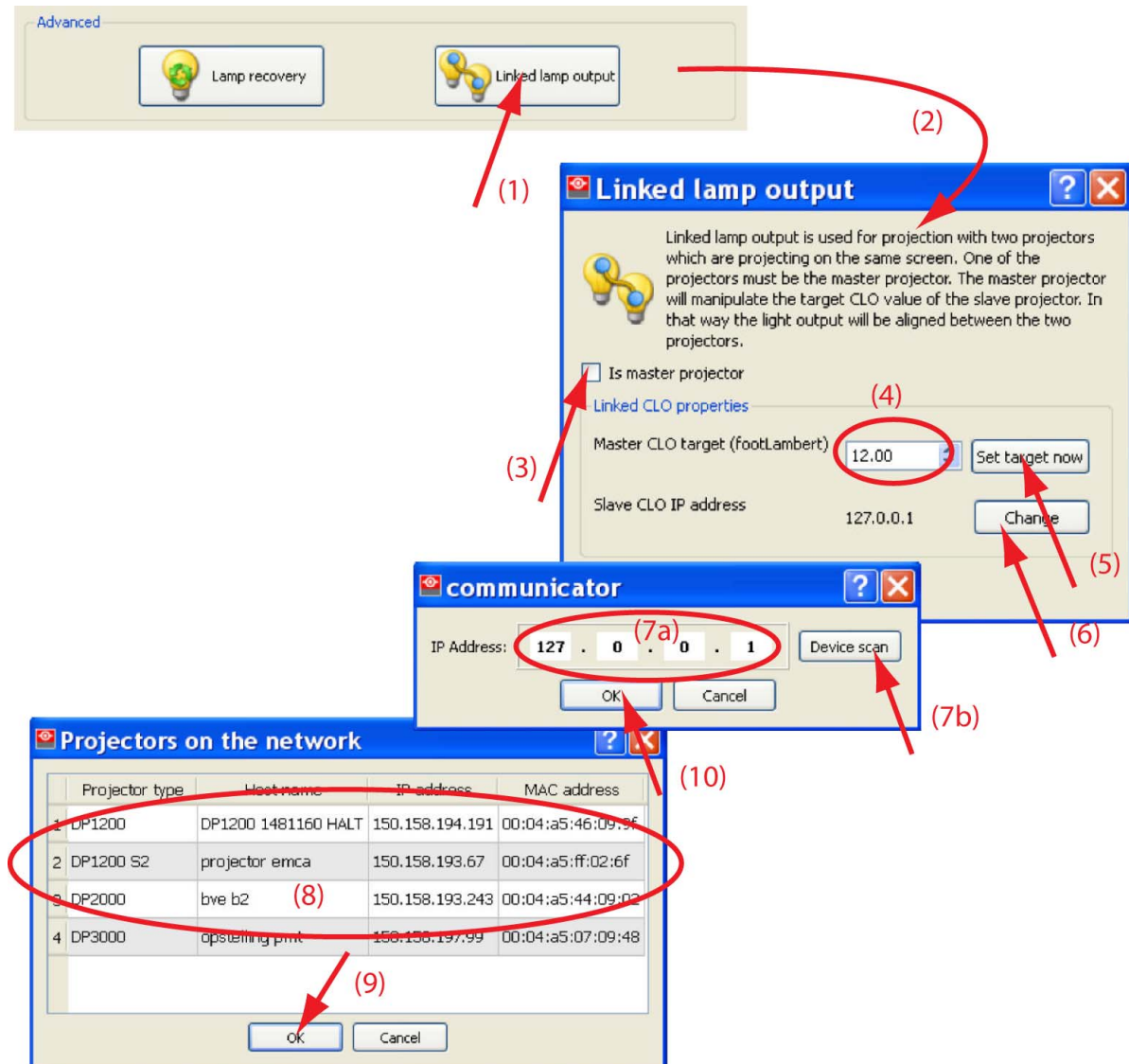


Image 6-30
Linked lamp output

- The *Linked Lamp output* window opens (2).
- To set the projector as master, check the check box in front of *Is master projector* (3).
- Click on the up down control (4) next to *Master CLO target* until the desired value is reached and click then on **Set target now** (5).
- To set the slave CLO IP address, click on **Change**. (6)
The Slave IP address window opens.
- Fill out the IP address (7a) and click **OK** (10) or click on **Device scan** (7b).
When Device scan is used, all projectors on the network are displayed in Projector on Network window.
- Click on the IP address of the slave projector (8) and click **OK** (9).
The IP address will be filled out as slave IP address.

- Click **OK** on the Slave IP address window (10).

6.5 Color calibration for RGB laser projectors

Overview

- Introduction
- Laser white calibration
- 2D color calibration
- Single 3D color calibration (non-colorwheel)
- 3D dual color calibration

6.5.1 Introduction

Overview

Color calibration has to be done for each projector laser mode and aspect ratio and starts with the white point calibration. During this white point calibration, the color coordinates are measured and uploaded. At the same time the option exists to save these coordinates can be saved in an MCGD file. When saving the coordinates in an MCGD file, the color gamut calibration can be skipped. When the coordinates are not saved, the you have to proceed with color gamut calibration. These procedures for 2D and 3D are equal for all projectors.

6.5.2 Laser white calibration

About white point calibration

The projector uncorrected white point (W_n) has to be shifted towards the DCI white point (W_t). The coordinates of the DCI white point ($x_w=0.314$; $y_w=0.351$) are embedded in the projector software and cannot be changed. The coordinates of the projector uncorrected white point has to be measured and entered.

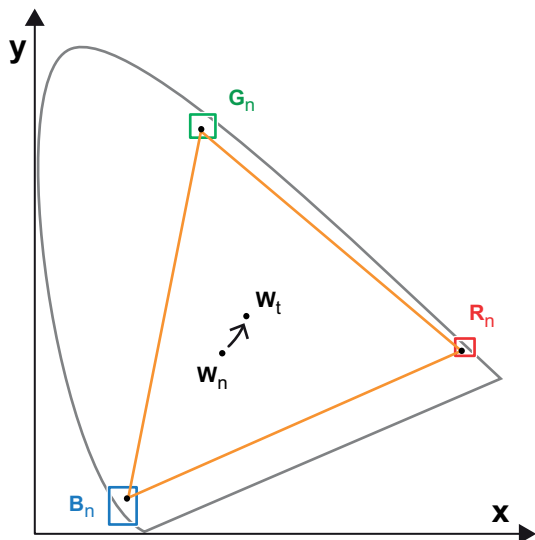


Image 6-31
Shifting projector 'white point' towards desired white point (laser power calibration)

The projector uncorrected white point can be defined by measuring the xy coordinates of the uncorrected primary colors (red, green, blue) and uncorrected full white separately.

The initial set of xy values stored in the projector for the uncorrected white point are the same as for DCI white point. After white point calibration, the initial values are overwritten with the measured values.

Based on the measured values the projector can balance the power of the lasers for Red Green and Blue to move the projector uncorrected white point towards the desired white point. This adjustment is called 'Laser RGB correction' or 'Laser power calibration'.

The projector uncorrected white point is different for 2D projection, Laser3D projection and External 3D projection. Therefore, the projector uncorrected white point has to be measured and entered for each projection mode separately. Per projection mode one set of measured values are stored. Depending on the projection mode, the corresponding set is used for white point correction.

In case of 3D projection, the xy coordinates of uncorrected white has to be measured twice. Once through the left eye glass of the 3D goggles and once through the right eye glass.

Preparations

1. **Setup the ambient light conditions** as it should be during the play out of the movie. (e.g. only the stairs and emergency exit lighting is switched on).

Note: *In an optimal setup less than 1% of light from any other source than the light from the projector should illuminate the screen.*

2. Configure the desired aspect ratio: e.g. FLAT or SCOPE (use most common aspect ratio). Do this by activating the correct LENS file.
3. Position the spectrometer perpendicular to the screen and measure in the center of the screen.
4. Project an uncorrected full white test pattern and measure the reflected light.
5. Adjust the light output of the projector slightly above the desired screen brightness (screen brightness will slightly drop after calibration). Go therefore to *Installation* → *Illumination* → *Light output*.



Calibration procedure must be executed for each laser mode.

Overview calibration status per laser mode

To get an overview of the calibration status per laser mode, click on Laser White to open the Laser white calibration window.

Per laser mode, the calibration status is given. When calibrated, the measurement details can be displayed by clicking on Detail next to the calibration status.

6. Installation

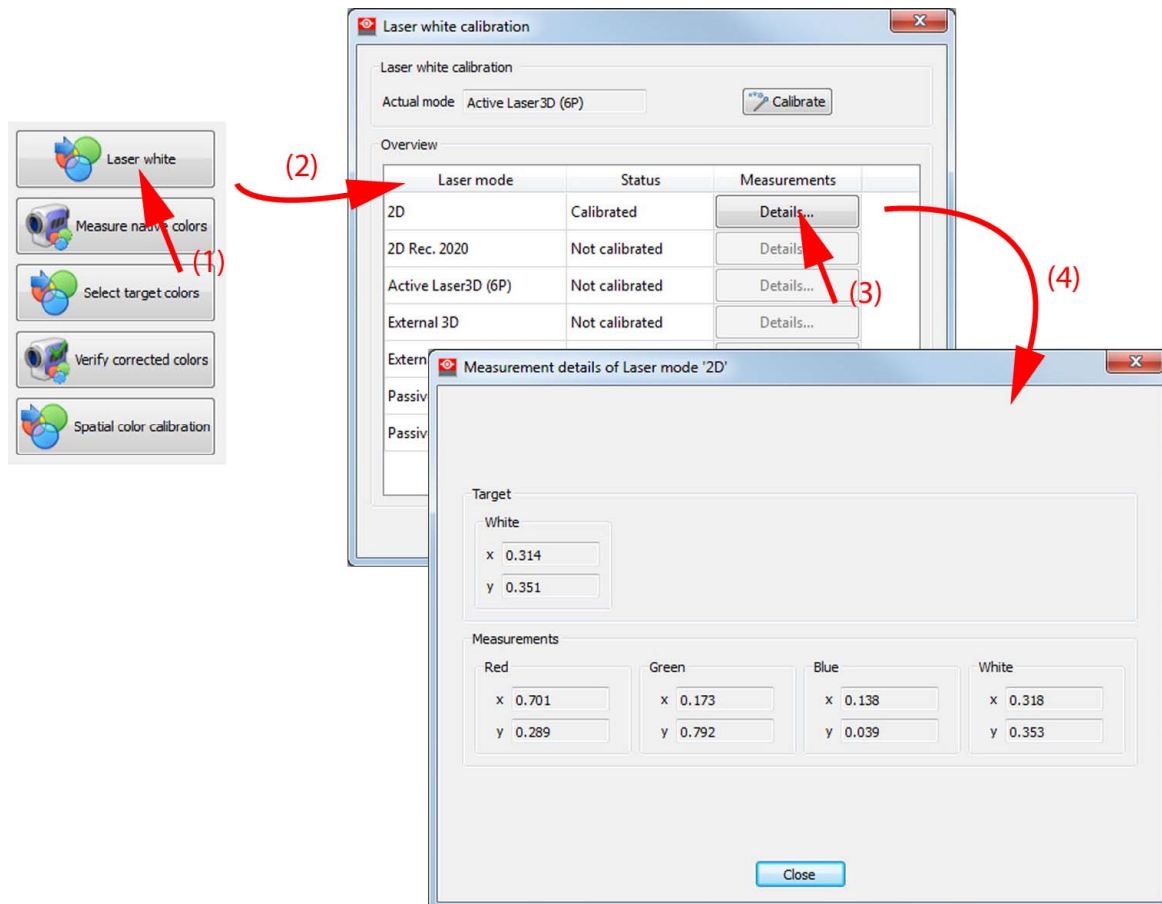


Image 6-32
Calibration details

How to calibrate

1. While in *Installation*, click on **Color Calibration**.
2. Click *Laser white* (1).

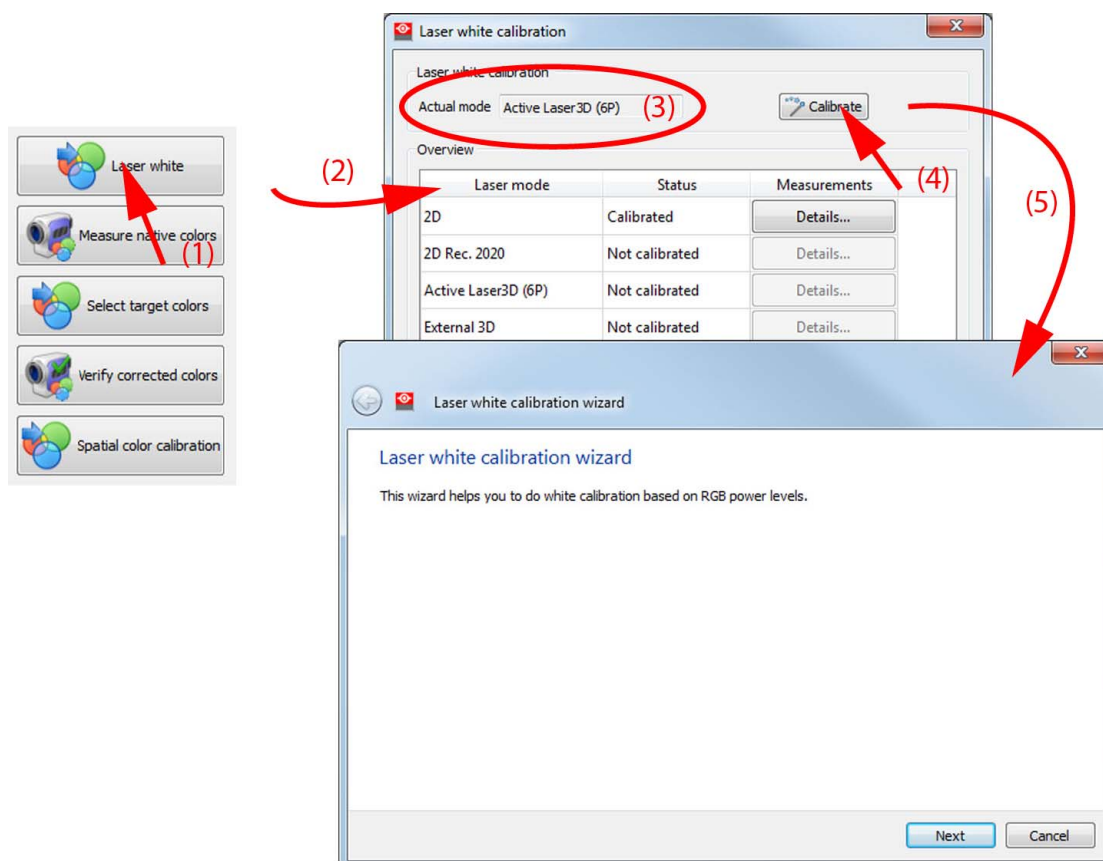


Image 6-33
Start up calibration wizard

The *Laser white calibration* window opens (2).

The actual mode is indicated (3)

3. Click **Calibrate** to start the laser white calibration wizard.

4. Click **Next** to continue.

The laser mode selection window opens with the current active mode selected.

5. To change the current mode, check the desired radio button and click **Next** to continue.

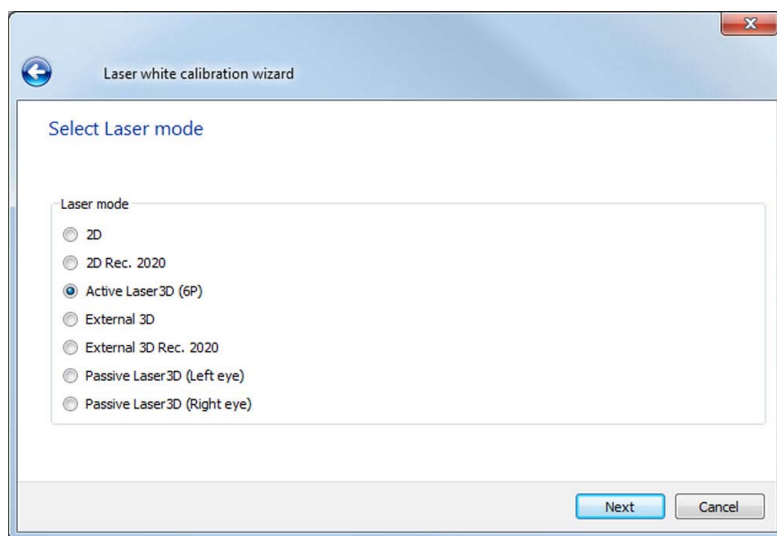


Image 6-34
Laser mode selection

6. Installation

If a 3D mode is selected, continue with the next step.

For a 2D mode, continue with step 7

6. Enter a 3D file or click on **Select 3D file** and browse to the desired 3D file.
Click **Next** to continue.

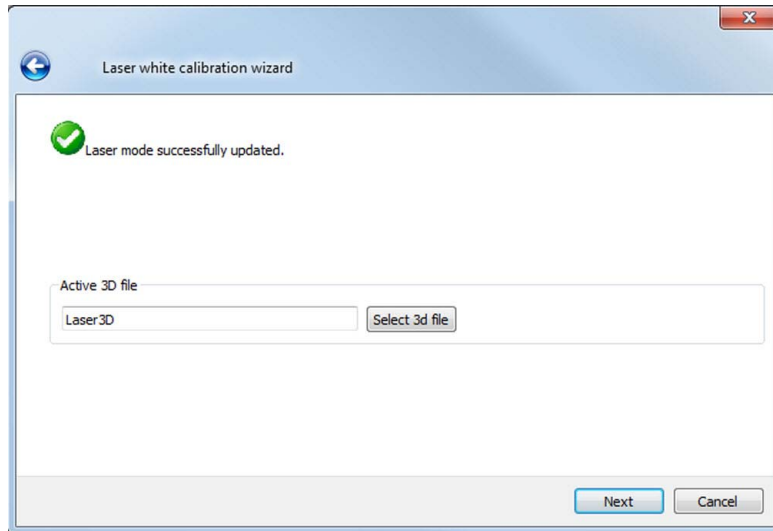


Image 6-35
Activate 3D file

7. Set White target point.

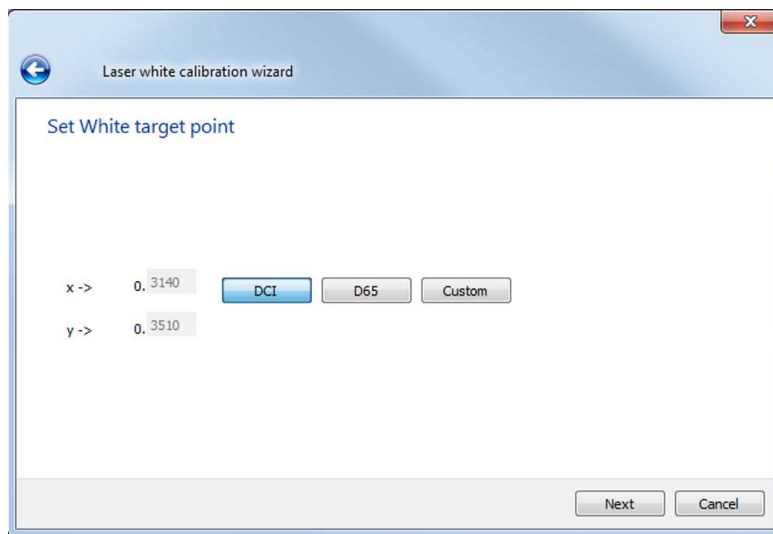


Image 6-36
Target white point selection

Make the selection between DCI, D65 and Custom.

DCI white point is specification issued by Digital Cinema Initiatives and has the following coordinates :
 $x=0.3140$ and $y=0.3510$.

D65 white point is a commonly used standard illuminant defined by the International Commission on Illumination and has the following coordinates: $x=0.3127$ and $y=0.3290$.

Custom can has any desired white point. Enter the coordinates for x and y.

8. Click **Next** to continue.
9. Start measuring the coordinates.
Click on **Red** to display a red test pattern.
Measure the x and y coordinate and fill them out.

Click on **Red** to switch off the red pattern.

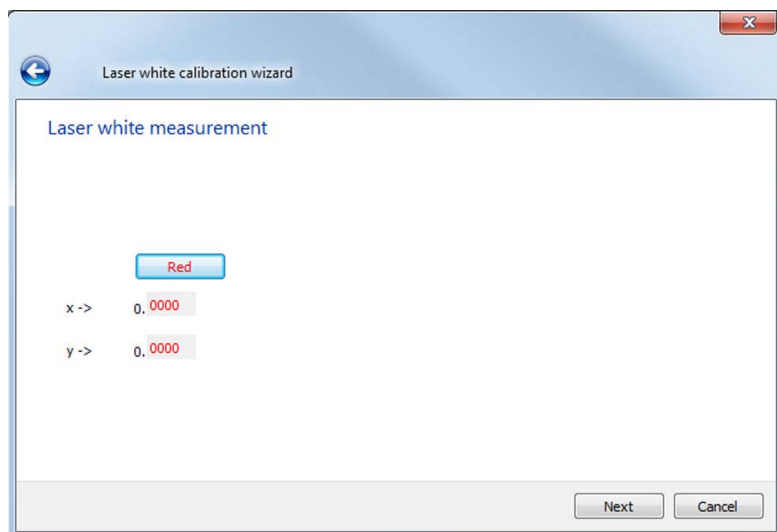


Image 6-37
Measure coordinates

10. Click **Next** to continue with Green, Blue and White. Handle in the same way as for red. When finished, click **Next**.

11. Click **Finish** to leave the wizard.

Continue now with the color gamut calibration for 2D ("2D Color calibration", page 216) and 3D ("Single 3D color calibration (non-colorwheel)", page 200 or "3D dual color calibration", page 202).

6.5.3 2D color calibration

6.5.3.1 Color measuring

How to measure

1. Click on **Measure Native Colors** (1).

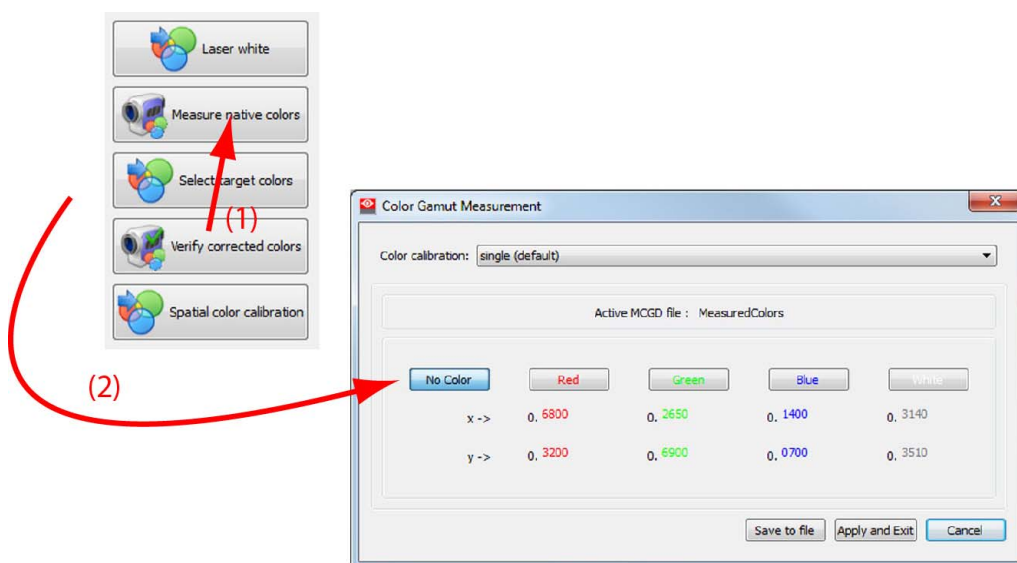


Image 6-38
Startup color gamut measurement

The *Color Gamut Measurement* window is displayed showing the current color values (2).

2. If not yet correctly set, set the *Color path selection*. Click on the drop down box and select *Single*.

6. Installation

3. Select a color by clicking on the color name (3).

A loading color test pattern message will be displayed. After a while, the selected color will be projected **without any color correction** on the screen.

The selected input fields of that specific color becomes white.

4. Measure the color coordinates for that specific color.

When single was selected, measure the x and y coordinate and enter in the white input field.

Note: Enter just the digits of the decimal value.

5. Repeat this procedure for the other colors and for white by starting at step 3.

6. Do you want to use the color calibration values in a macro file?

If yes, press **Save to file** (5).

The *Save Color Gamut measurement* window opens (6).

Enter a name in the *Filename* input field (7) and press **Save** (8).

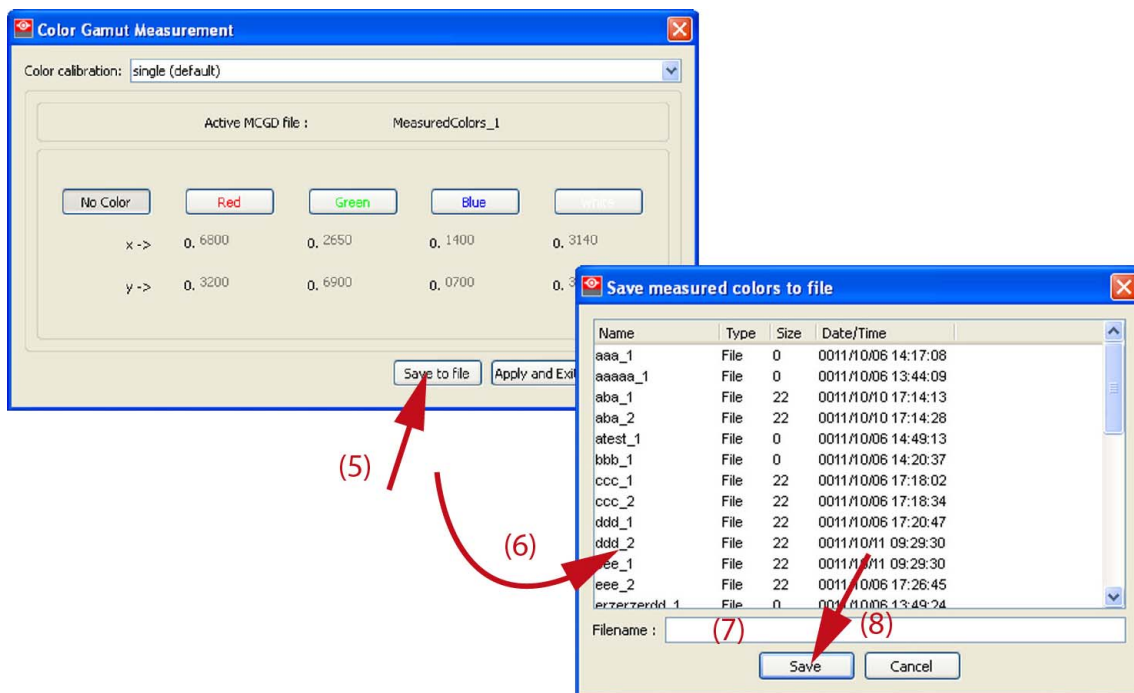


Image 6-39
Save coordinates to file

If no, continue with step 7.

7. To use the measured values immediately, press now **Apply and Exit**.

Note: It is still possible to return to the previous coordinates by clicking **Cancel**.

The measured values are written to file and become active.

8. Go to *Installation* → *Color calibration* and click on **Select target colors**.

The *Target Color Gamut* window opens. The current active TCGD file is indicated.

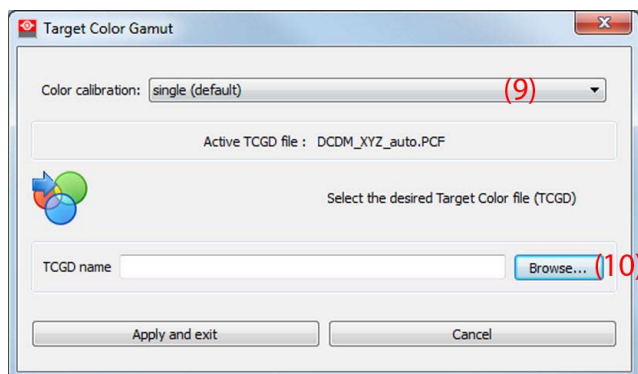


Image 6-40

9. Set the *Color path selection* if not done automatically. Click on the drop down box and select Single (default) (9).
10. To change the TCGD file, click Browse to open a browser window (10). Select the desired file and click open.
11. Click **Apply and Exit**.

6.5.3.2 Verifying the colors after correction



This part of the color correction procedure is optional.

How to verify

1. Click on **Verify Corrected Colors** (1).

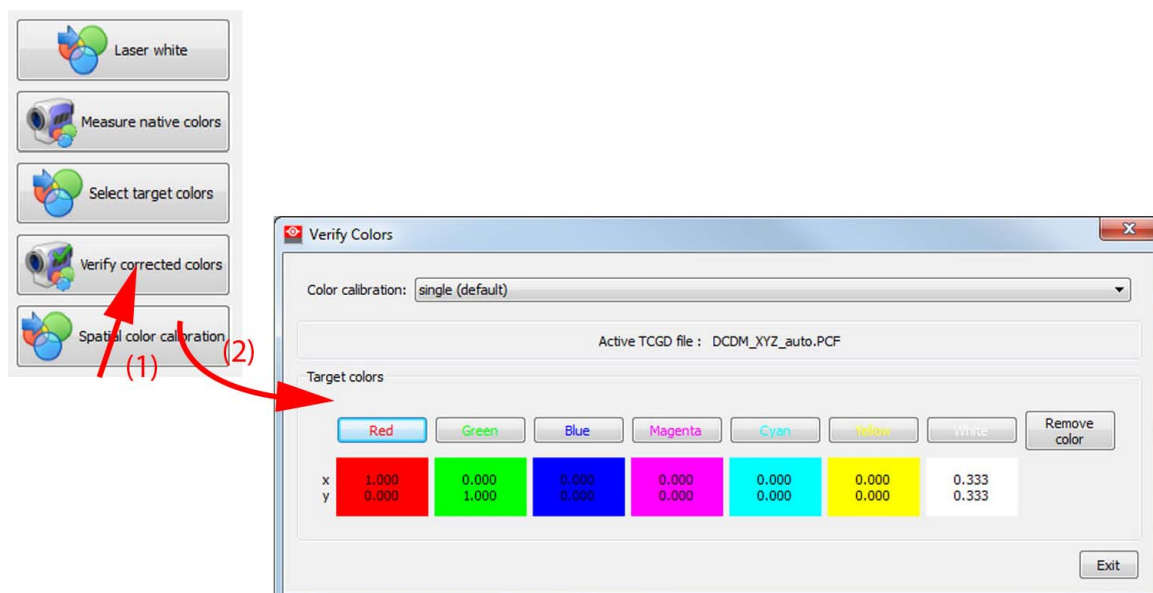


Image 6-41
Verify colors

The verify colors window opens (2)).

2. Set *Color path selection* by selection *Single (default)*.
3. Select a color button.

6. Installation

A loading message will be displayed.

The selected color is displayed on the screen **with color correction**.

4. Measure the coordinates with a colorimeter on the screen and check with the values below the color button.

Note: This only allow to verify TCGDs that differ only with gain adjustments with the same color targets.

5. Repeat this procedure for other colors, starting by step 3.
6. When finished, click on **Remove Color**.

A remove color pattern message will be displayed.

The color pattern is removed.

6.5.4 Single 3D color calibration (non-colorwheel)

6.5.4.1 Measure colors (single 3D)

How to measure

1. Click on **Measure Native Colors** (1).

The *Color Gamut Measurement* window is displayed showing the current color values.

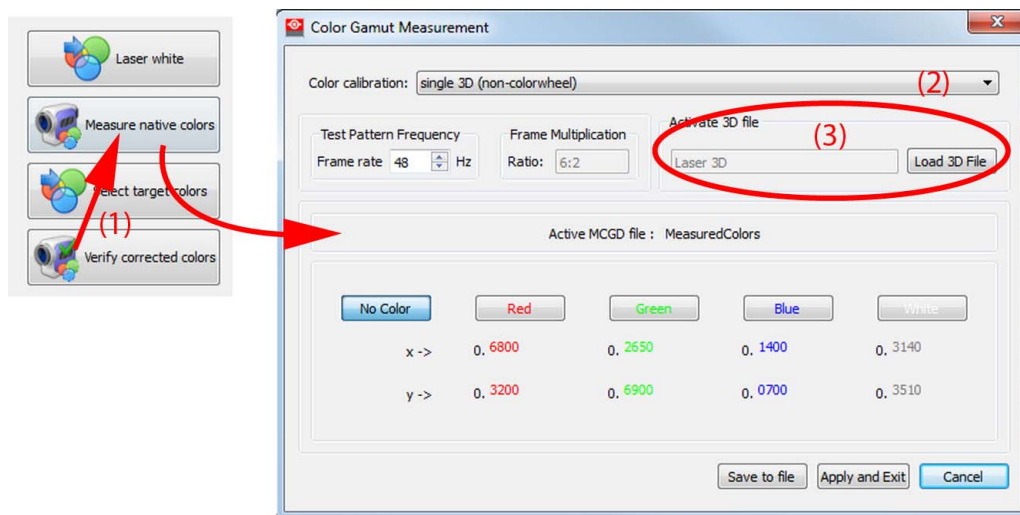


Image 6-42
Color gamut, measure colors

2. If the color path selection is not correct, set the *Color path selection*. Click on the drop down box and select *Single 3D (non-colorwheel)* (2).

The Color Gamut Measurement window changes. 3D file activation becomes available. If an 3D file is already selected, the file name will be filled out next to Load 3D file.

3. To change the selected 3D file, click on **Load a 3D file** (3). A browser window opens. Browse to the desired file location and select the file. Click **Open**.

Selected 3D file is activated.

4. Verify frame multiplication ratio and modify when necessary the test pattern frequency.
5. Select a color by clicking on the color name.

A loading color test pattern message will be displayed. When loading a test pattern it will automatically load the 3D file that was selected, activating 3D output. After a while, the selected color will be projected **without any color correction** on the screen.

The selected input fields of that specific color becomes white.

6. Measure the color coordinates for that specific color.
When single was selected, measure the x and y coordinate and enter in the white input field.
Note: Enter just the digits of the decimal value.
7. Repeat this procedure for the other colors and for white by starting at step 5.
8. Click **Apply and Exit** to automatically apply the values.
Click **Save to file** to save into any desired file. A browser window opens where you can enter the file name. Click **Save**.
9. Go to *Installation* → *Color calibration* and click on **Select target colors**.
The *Target Color Gamut* window opens. The current active TCGD file is indicated.
10. Set the *Color path selection* if not done automatically. Click on the drop down box and select Single 3D (non-colorwheel).

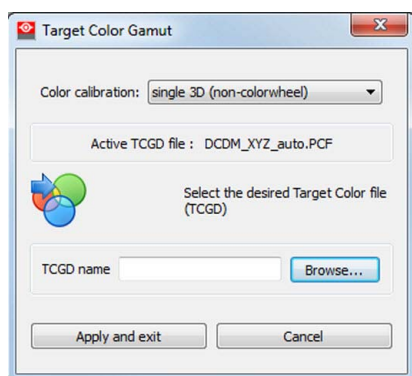


Image 6-43

11. To change the TCGD file, click **Browse** to open a browser window. Select the desired file and click open.
12. Click **Apply and Exit**.

6.5.4.2 Verifying the colors after correction



This part of the color correction procedure is optional.

How to verify

1. Click on **Verify Corrected Colors (1)**.

6. Installation

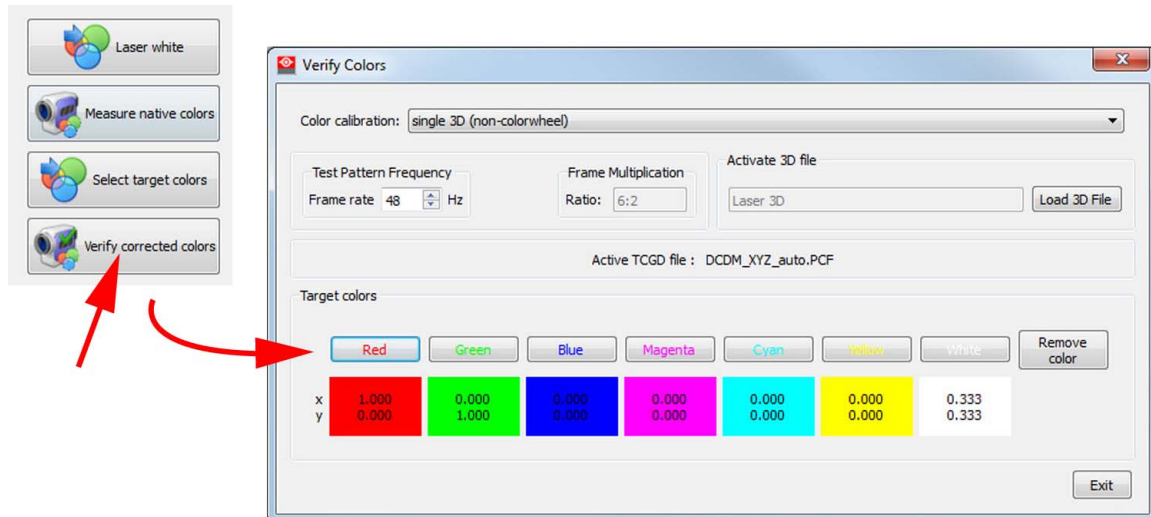


Image 6-44
Verify colors

The verify colors window opens (2)).

2. Set *Color path selection* by selection *Single (default)*.

3. Select a color button.

A loading message will be displayed.

The selected color is displayed on the screen **with color correction**.

4. Measure the coordinates with a colorimeter on the screen and check with the values below the color button.

Note: This only allow to verify TCGDs that differ only with gain adjustments with the same color targets.

5. Repeat this procedure for other colors, starting by step 3.

6. When finished, click on **Remove Color**.

A remove color pattern message will be displayed.

The color pattern is removed.

6.5.5 3D dual color calibration

6.5.5.1 Measured colors (dual calibration)



Take your regular 3D system file as reference. This file already contains the settings relevant for your system.

Measuring

1. Click on **Measure Native Colors**.

The *Color Gamut Measurement* window is displayed showing the current color values.

2. Set the *Color path selection* if not done automatically. Click on the drop down box and select *dual (separate left/right eyes)* (1).

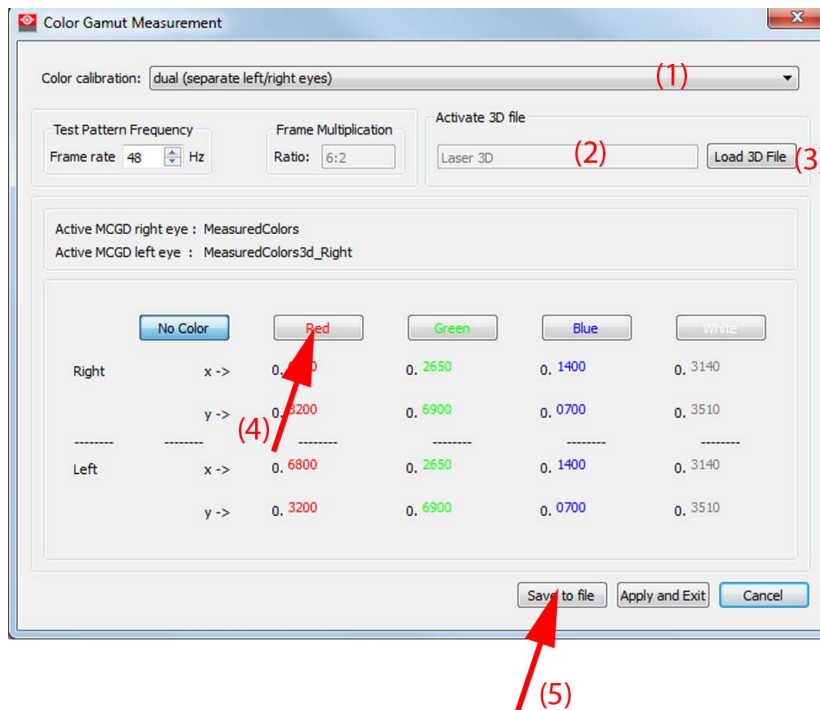


Image 6-45

The Color Gamut Measurement window changes. 3D file activation becomes available. If already a 3D file is selected, this files will be filled out next to *Load 3D file* (2).

3. If no file is selected or the wrong one is selected, click on **Load 3D file** button to open a browser window (3). Browse to the desired file location and select the file. Click **Open**.

Selected 3D file is activated.

4. Verify frame multiplication ratio and modify when necessary the test pattern frequency.
5. Select a color by clicking on the color name (4).

A loading color test pattern message will be displayed. When loading a test pattern it will automatically load the 3D file that was selected, activating 3D output. After a while, the selected color will be projected **without any color correction** on the screen.

The selected input fields for right and left eye of that specific color becomes white.

6. Measure the color coordinates for that specific color through the right eye glass and enter the values in the *Right* input fields.
Measure the color coordinates for that specific color through the left eye glass and enter the values in the *Left* input fields.
7. Repeat this procedure for other colors, starting by step 5.
8. Save the measured values to files. Click on **Save to file** (5).
9. Enter a file name (6).

6. Installation

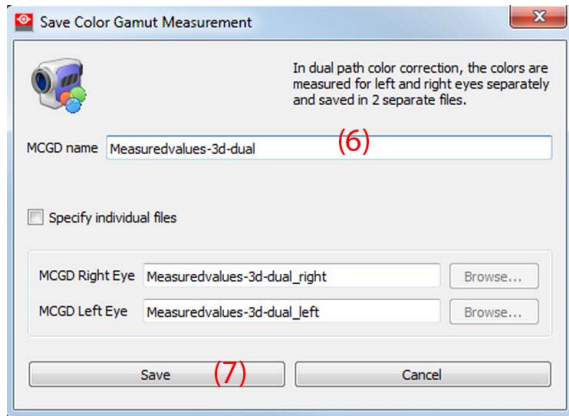


Image 6-46

This file name will be used for the separate files for the right and left eye.

10. Click **Save** to save both files (7).

11. Go to *Installation* → *Color calibration* and click on **Select target colors**.

12. If the color calibration type is not correctly filled out, select *dual (separate left/right eyes)* (8).

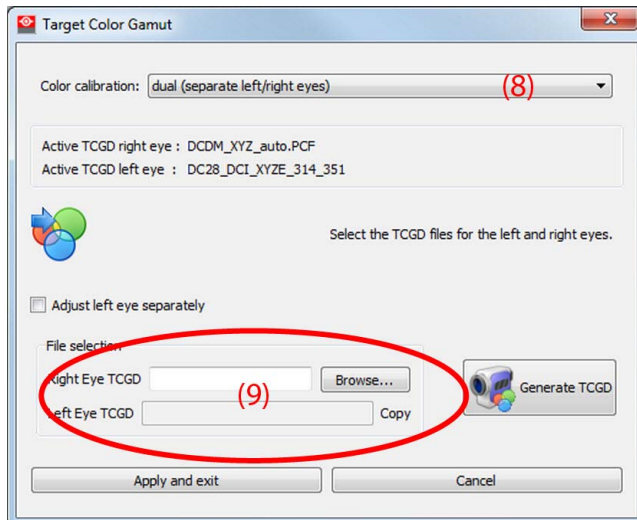


Image 6-47

13. Select the TCGD file(s) (9).

DC28_DCI_Xenon.TCGD

When using different files for right and left, make sure that the color space is the same.

14. Click **Apply and exit**.

6.5.5.2 Color verification

How to verify

1. Go to *Installation* → *Color calibration* and click on **Color verification**.

2. For *Color calibration type*, select *dual (separate left/right eyes)* (1).

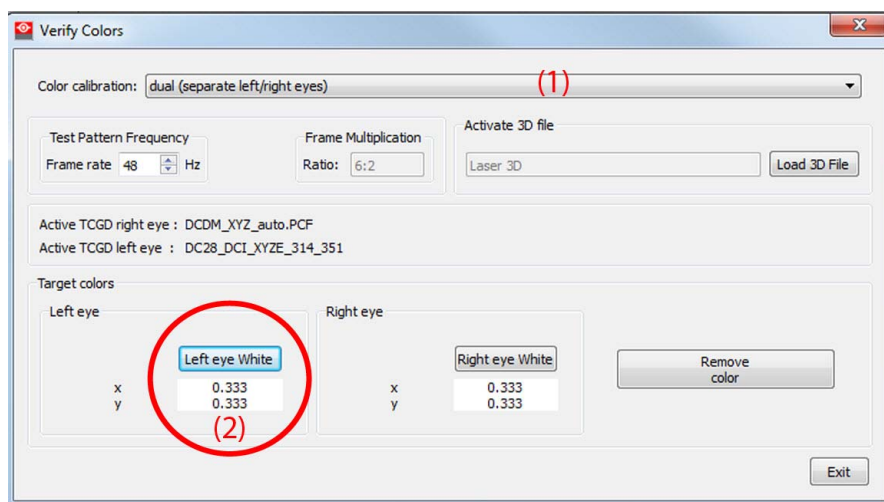


Image 6-48

3. Click on a test pattern, e.g. **Left eye White** (2).
4. Measure the white point coordinates through left glass eye.
Measure the luminance through the left glass eye and save for later use. If you want to compensate for brightness, see "Luminance compensation", page 232
5. Click on test pattern **Right eye White**.
6. Measure the white point coordinates through right glass eye.
Measure the luminance through the right glass eye and save for later use. If you want to compensate for brightness, see "Luminance compensation", page 232
7. Compare left and right measurements to TCGD targets.

6.6 Color calibration for Laser Phosphor based projectors



Color calibration should be performed after installation of the projector and also after some service actions as mentioned in the service manual.

6.6.1 Introduction

Overview

Color calibration starts with the white point calibration. After white point calibration, proceed with color gamut calibration.

Color gamut calibration is done by electronic correction. The electronic correction adapt the native color gamut towards the desired (target) color gamut (e.g. DC28_DCI_Xenon.TCGD). This correction is introduced by the DMD drivers and is also called 'P7 correction'. The electronic correction takes place once the MCGD file of the projector is mapped with the TCGD file of the film.

Influence of aspect ratio

The aspect ratio of the projected image could have a small influence upon the measured xy coordinates. Therefore, it's recommended to save the xy coordinates per aspect ratio in separate MCGD files.

6.6.2 White point calibration

About white point calibration

White point calibration should be executed to correct a color shift during dimming. The white point will be stabilized over the full dimming range.

Necessary tools

- Spectroradiometer.
- Communicator software.

Preparations

1. **Setup the ambient light conditions** as it should be during the play out of the movie. (e.g. only the stairs and emergency exit lighting is switched on).

Note: *In an optimal setup less than 1% of light from any other source than the light from the projector should illuminate the screen.*

2. Configure the desired aspect ratio: e.g. FLAT or SCOPE (use most common aspect ratio). Do this by activating the correct LENS file.
3. Position the spectrometer perpendicular to the screen and measure in the center of the screen.
4. Start up Communicator and follow the laser white point calibration wizard.

How to calibrate

1. While in *Installation*, click on **Color Calibration**.
2. Click *Laser white point calibration* (1).

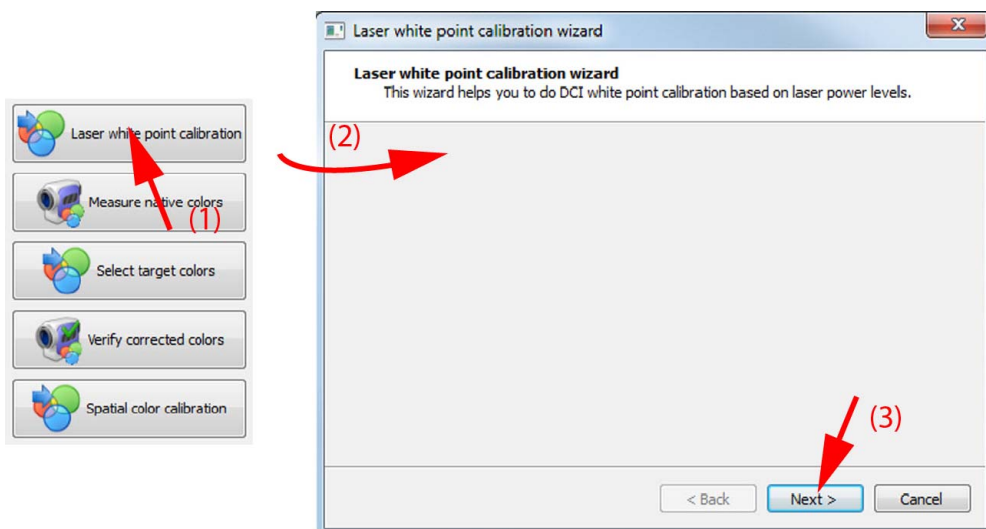


Image 6-49
Start up white point calibration

The *Laser white point calibration wizard* opens (2).

3. Click **Next** to continue.

When the laser is off, a message is displayed to turn on laser power. Click **ON**. When laser is on.

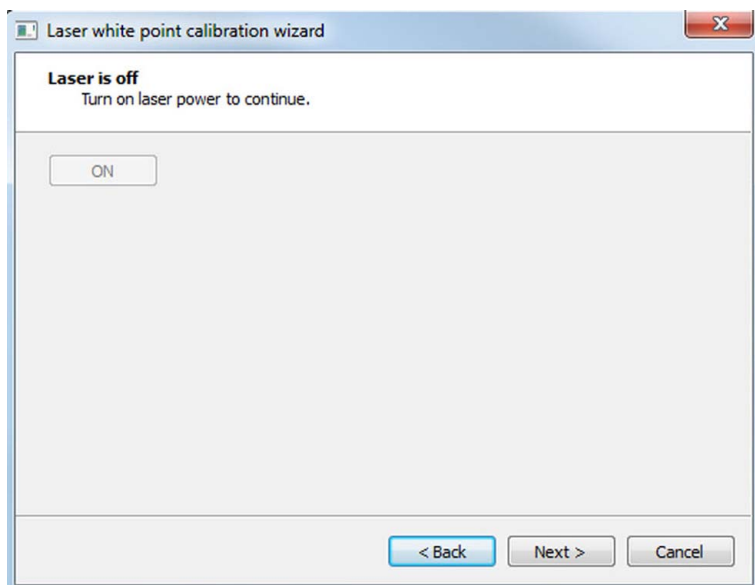


Image 6-50

4. Click **Next** to continue.

The default settings are programmed. The laser white point calibration is reset. When finished, laser white point calibration has been reset to default, click **Next** to continue.

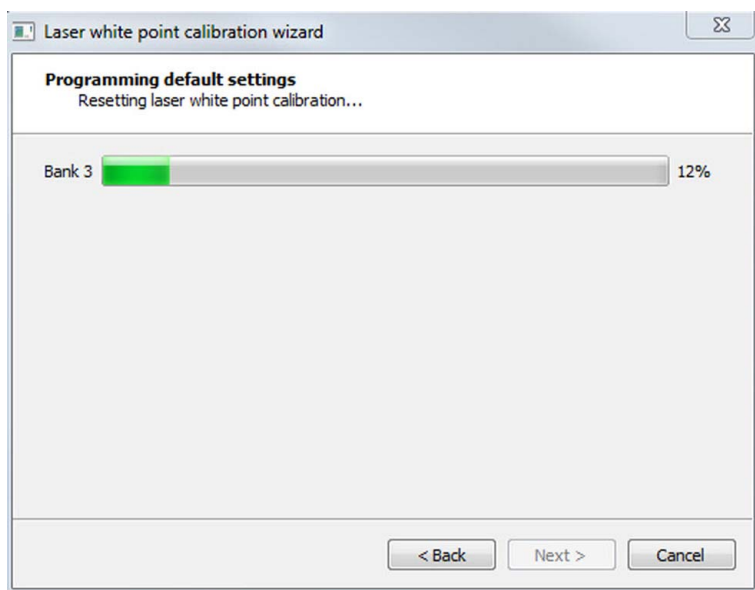


Image 6-51

5. Click **Next** to continue.

6. Installation

The first step is executed, laser stabilization takes place. This can take a while.

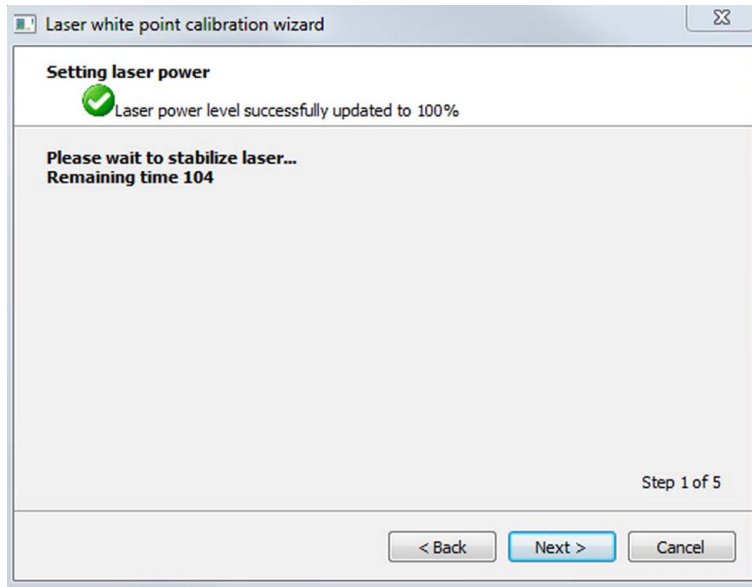


Image 6-52

6. Measure the white coordinates (x, y) and brightness (Y) and enter in the wizard. Click **Next** to continue.

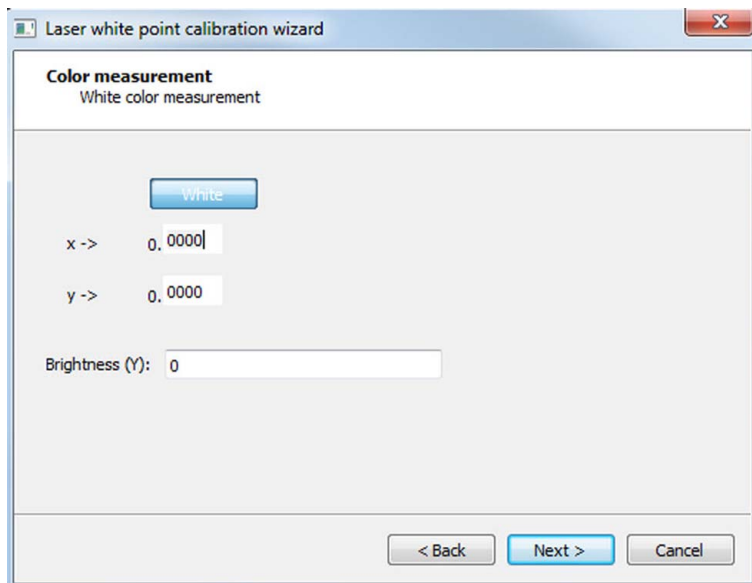


Image 6-53

7. Measure the blue coordinates and brightness and enter in the wizard. Click **Next** to continue.

A laser stabilization takes place.

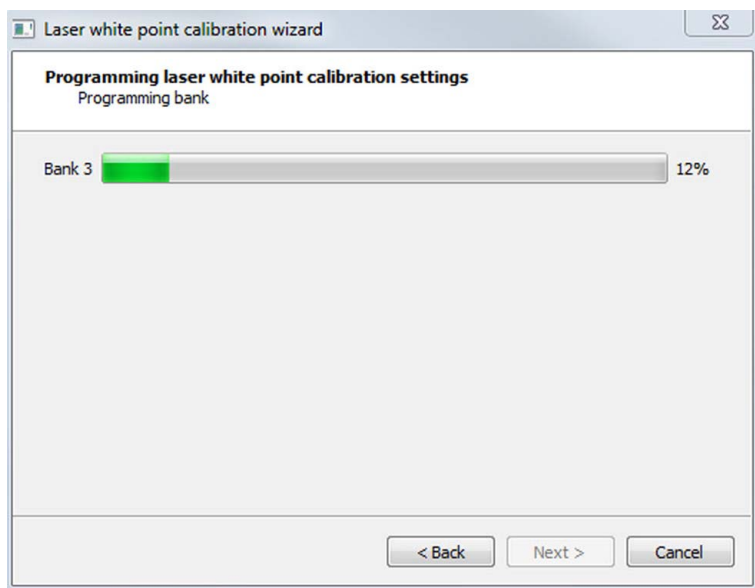


Image 6-54

8. Repeat 4 times from step 6.

The programming of the laser white point calibration settings starts. When finished, click **Next** to continue.

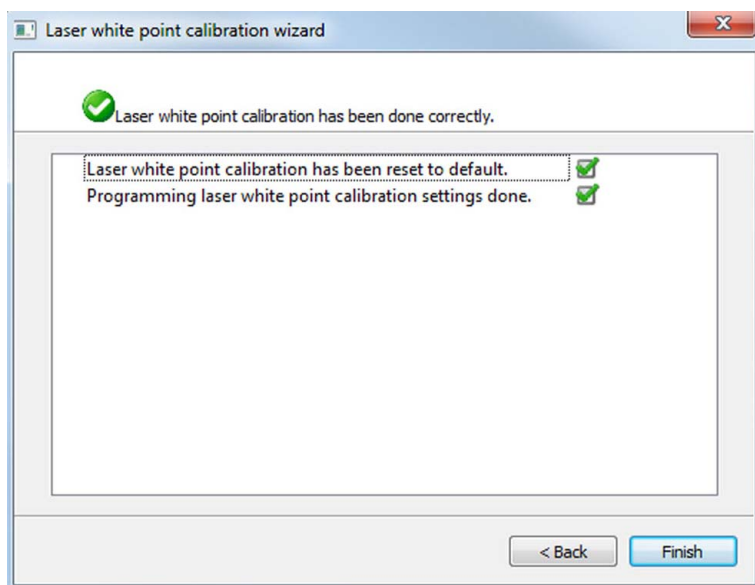


Image 6-55

9. Click **Finish** to leave the wizard.

Continue now with the color gamut calibration for 2D ("2D Color calibration", page 210) and 3D ("Single 3D color calibration (non-colorwheel)", page 212 or "3D dual calibration", page 214).



After white point calibration proceed immediately with color gamut calibration.

6.6.3 2D Color calibration

Overview

- Color measuring

6.6.3.1 Color measuring

How to measure

1. Click on **Measure Native Colors** (1).

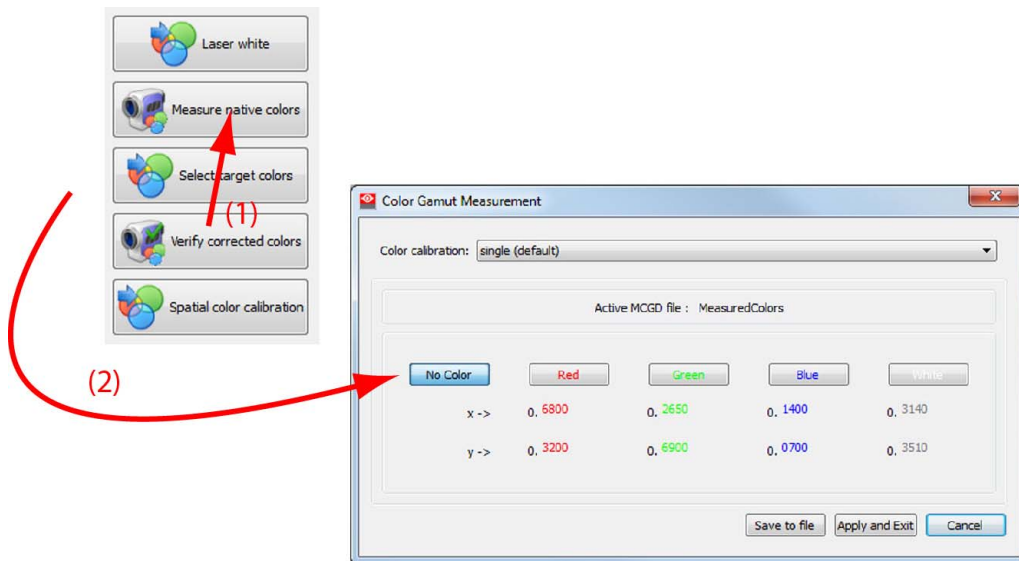


Image 6-56
Startup color gamut measurement

The *Color Gamut Measurement* window is displayed showing the current color values (2).

2. If not yet correctly set, set the *Color path selection*. Click on the drop down box and select *Single*.
3. Select a color by clicking on the color name (3).

A loading color test pattern message will be displayed. After a while, the selected color will be projected **without any color correction** on the screen.

The selected input fields of that specific color becomes white.

4. Measure the color coordinates for that specific color.
When single was selected, measure the x and y coordinate and enter in the white input field.

Note: Enter just the digits of the decimal value.

5. Repeat this procedure for the other colors and for white by starting at step 3.
6. Do you want to use the color calibration values in a macro file?
If yes, press **Save to file** (5).

The *Save Color Gamut measurement* window opens (6).

Enter a name in the *Filename* input field (7) and press **Save** (8).

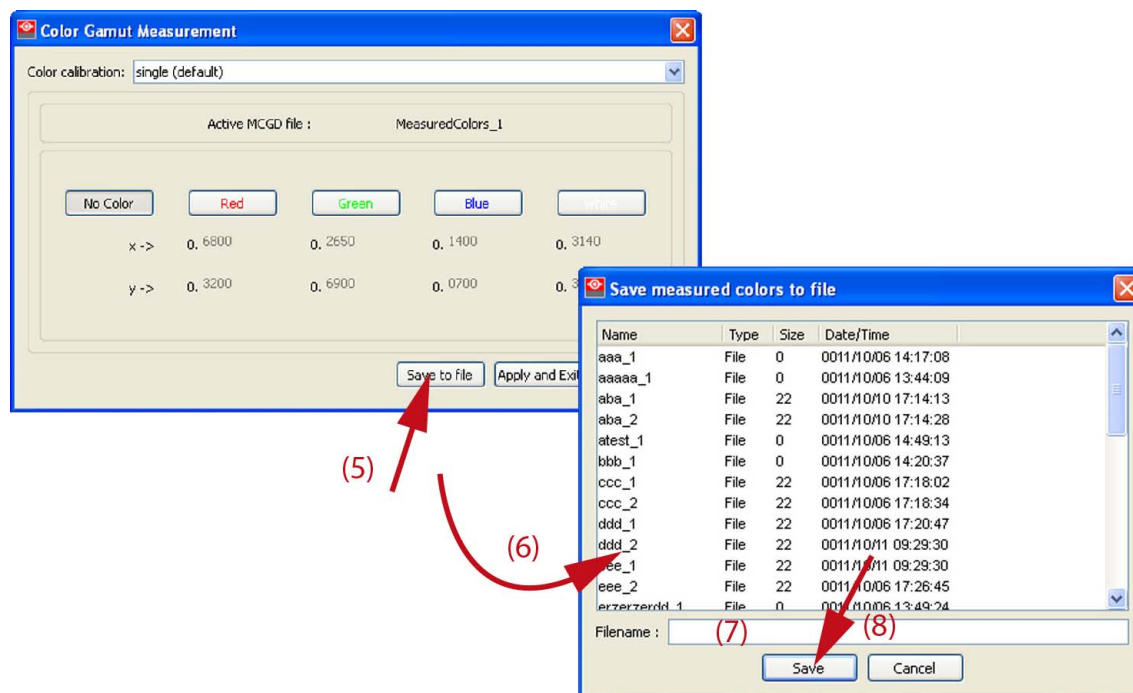


Image 6-57

Save coordinates to file

If no, continue with step 7.

7. To use the measured values immediately, press now **Apply and Exit**.

Note: It is still possible to return to the previous coordinates by clicking **Cancel**.

The measured values are written to file and become active.

8. Go to *Installation* → *Color calibration* and click on **Select target colors**.

The *Target Color Gamut* window opens. The current active TCGD file is indicated.

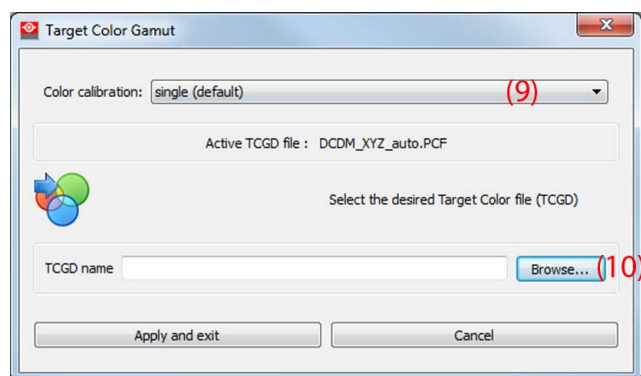


Image 6-58

9. Set the *Color path selection* if not done automatically. Click on the drop down box and select Single (default) (9).

10. To change the TCGD file, click Browse to open a browser window (10). Select the desired file and click open.

11. Click **Apply and Exit**.

6.6.4 Single 3D color calibration (non-colorwheel)

6.6.4.1 Measure colors (single 3D)

How to measure

1. Click on **Measure Native Colors** (1).

The *Color Gamut Measurement* window is displayed showing the current color values.

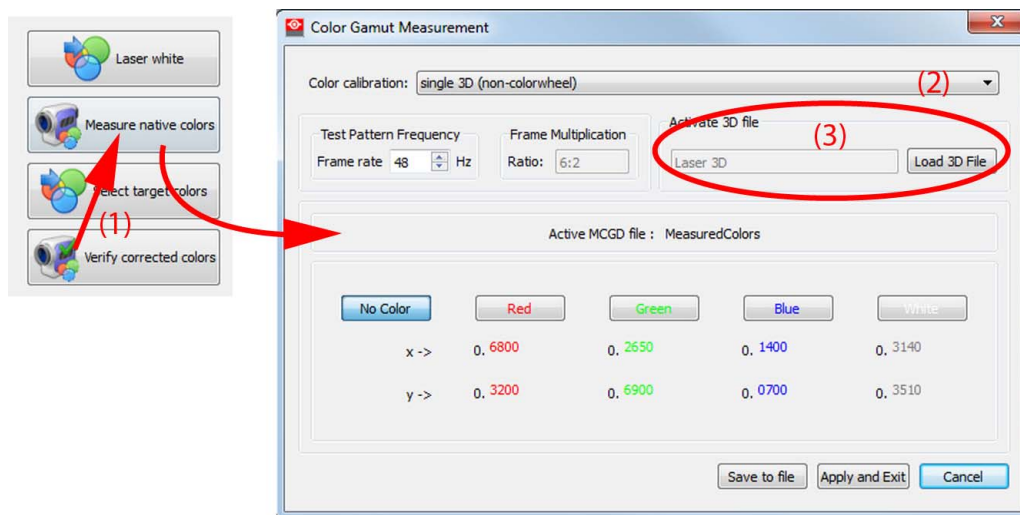


Image 6-59
Color gamut, measure colors

2. If the color path selection is not correct, set the *Color path selection*. Click on the drop down box and select *Single 3D (non-colorwheel)* (2).

The Color Gamut Measurement window changes. 3D file activation becomes available. If an 3D file is already selected, the file name will be filled out next to Load 3D file.

3. To change the selected 3D file, click on **Load a 3D file** (3). A browser window opens. Browse to the desired file location and select the file. Click **Open**.

Selected 3D file is activated.

4. Verify frame multiplication ratio and modify when necessary the test pattern frequency.
5. Select a color by clicking on the color name.

A loading color test pattern message will be displayed. When loading a test pattern it will automatically load the 3D file that was selected, activating 3D output. After a while, the selected color will be projected **without any color correction** on the screen.

The selected input fields of that specific color becomes white.

6. Measure the color coordinates for that specific color.

When single was selected, measure the x and y coordinate and enter in the white input field.

Note: Enter just the digits of the decimal value.

7. Repeat this procedure for the other colors and for white by starting at step 5.
8. Click **Apply and Exit** to automatically apply the values.
Click **Save to file** to save into any desired file. A browser window opens where you can enter the file name. Click **Save**.

9. Go to *Installation* → *Color calibration* and click on **Select target colors**.

The *Target Color Gamut* window opens. The current active TCGD file is indicated.

10. Set the *Color path selection* if not done automatically. Click on the drop down box and select *Single 3D (non-colorwheel)*.

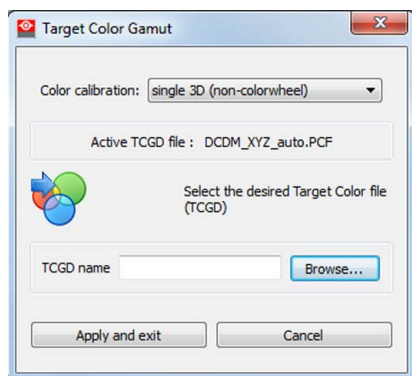


Image 6-60

11. To change the TCGD file, click **Browse** to open a browser window. Select the desired file and click open.
12. Click **Apply and Exit**.

6.6.4.2 Verifying the colors after correction



This part of the color correction procedure is optional.

How to verify

1. Click on **Verify Corrected Colors (1)**.

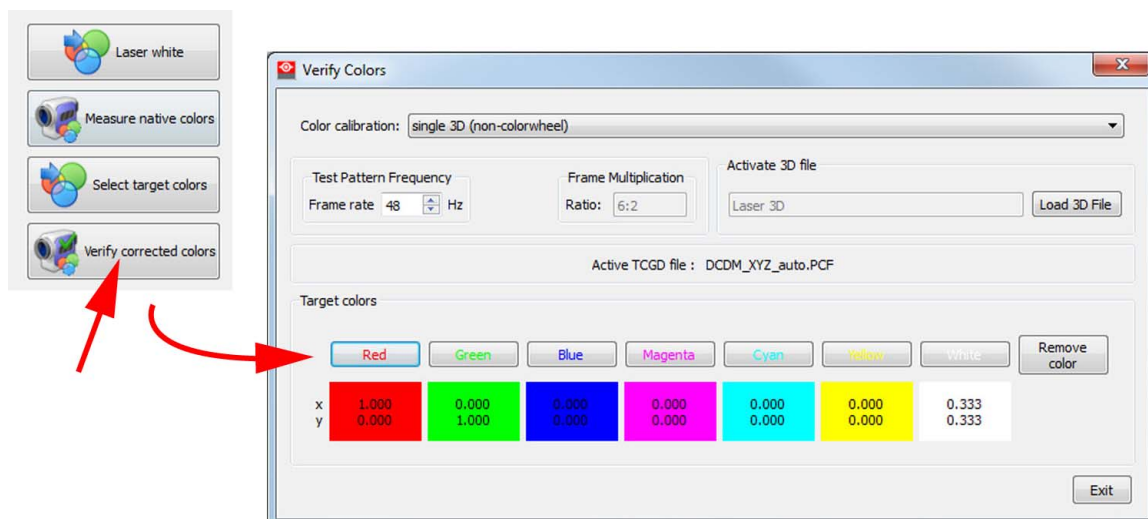


Image 6-61
Verify colors

- The verify colors window opens (2)).
2. Set *Color path selection* by selection *Single (default)*.
3. Select a color button.
A loading message will be displayed.
The selected color is displayed on the screen **with color correction**.
4. Measure the coordinates with a colorimeter on the screen and check with the values below the color button.
Note: This only allow to verify TCGDs that differ only with gain adjustments with the same color targets.

6. Installation

5. Repeat this procedure for other colors, starting by step 3.
6. When finished, click on **Remove Color**.

A remove color pattern message will be displayed.

The color pattern is removed.

6.6.5 3D dual calibration

6.6.5.1 Measured colors (dual calibration)



Take your regular 3D system file as reference. This file already contains the settings relevant for your system.

Measuring

1. Click on **Measure Native Colors**.

The *Color Gamut Measurement* window is displayed showing the current color values.

2. Set the *Color path selection* if not done automatically. Click on the drop down box and select *dual (separate left/right eyes)* (1).

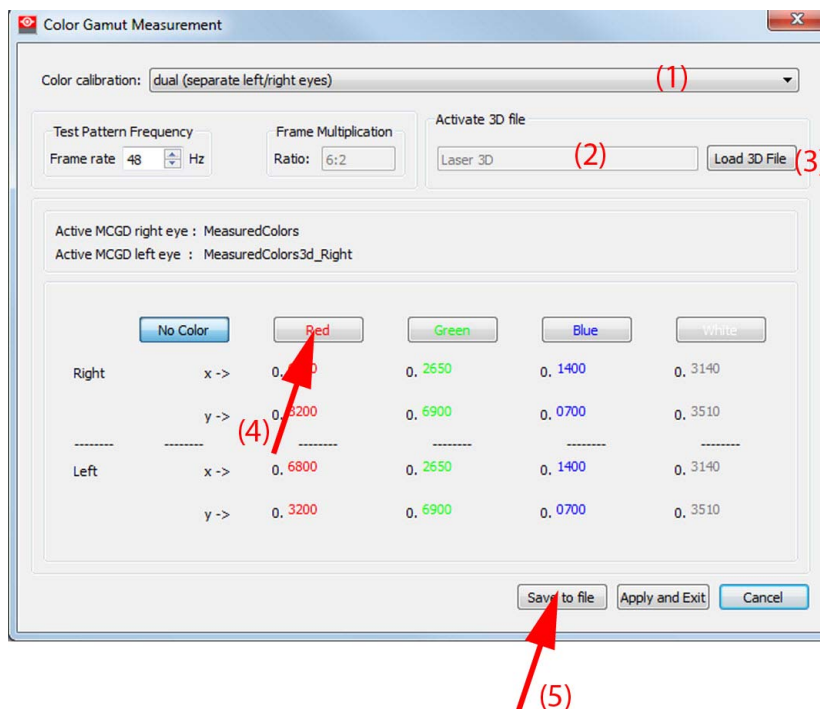


Image 6-62

The Color Gamut Measurement window changes. 3D file activation becomes available. If already a 3D file is selected, this files will be filled out next to *Load 3D file* (2).

3. If no file is selected or the wrong one is selected, click on **Load 3D file** button to open a browser window (3). Browse to the desired file location and select the file. Click **Open**.

Selected 3D file is activated.

4. Verify frame multiplication ratio and modify when necessary the test pattern frequency.
5. Select a color by clicking on the color name (4).

A loading color test pattern message will be displayed. When loading a test pattern it will automatically load the 3D file that was selected, activating 3D output. After a while, the selected color will be projected **without any color correction** on the screen.

The selected input fields for right and left eye of that specific color becomes white.

6. Measure the color coordinates for that specific color through the right eye glass and enter the values in the *Right* input fields.
Measure the color coordinates for that specific color through the left eye glass and enter the values in the *Left* input fields.
7. Repeat this procedure for other colors, starting by step 5.
8. Save the measured values to files. Click on **Save to file** (5).
9. Enter a file name (6).

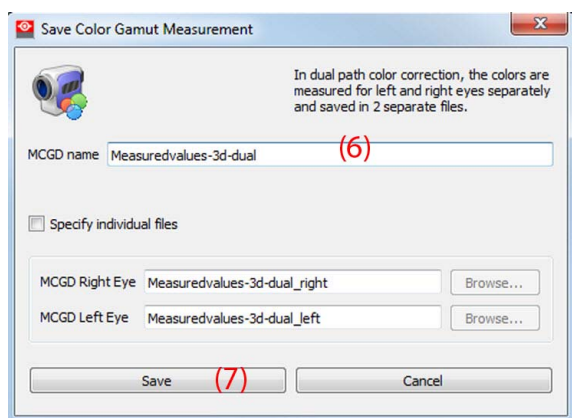


Image 6-63

This file name will be used for the separate files for the right and left eye.

10. Click **Save** to save both files (7).
11. Go to *Installation* → *Color calibration* and click on **Select target colors**.
12. If the color calibration type is not correctly filled out, select *dual (separate left/right eyes)* (8).

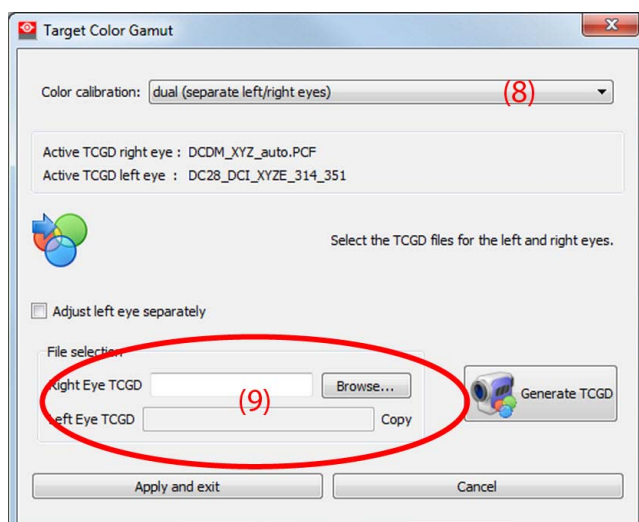


Image 6-64

13. Select the TCGD file(s) (9).

DC28_DCI_Xenon.TCGD

When using different files for right and left, make sure that the color space is the same.

14. Click **Apply and exit**.

6.6.5.2 Color verification

How to verify

1. Go to *Installation* → *Color calibration* and click on **Color verification**.
2. For *Color calibration type*, select *dual (separate left/right eyes)* (1).

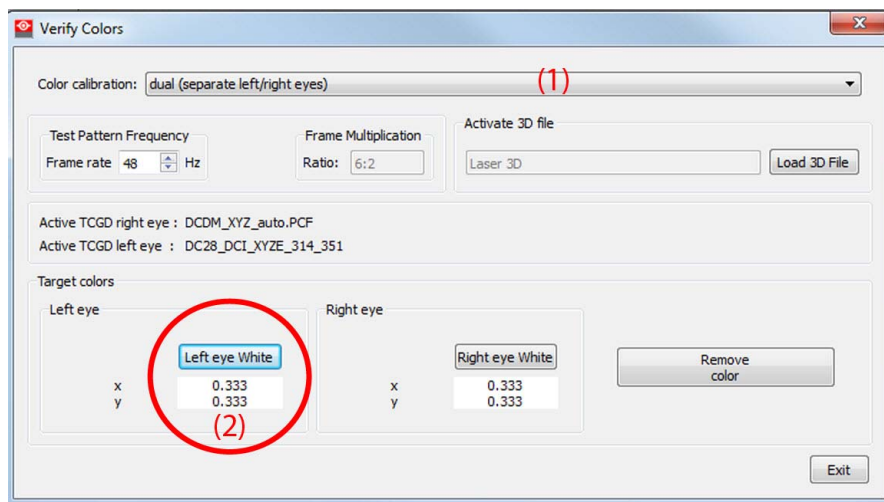


Image 6-65

3. Click on a test pattern, e.g. **Left eye White** (2).
4. Measure the white point coordinates through left glass eye.
Measure the luminance through the left glass eye and save for later use. If you want to compensate for brightness, see "Luminance compensation", page 232
5. Click on test pattern **Right eye White**.
6. Measure the white point coordinates through right glass eye.
Measure the luminance through the right glass eye and save for later use. If you want to compensate for brightness, see "Luminance compensation", page 232
7. Compare left and right measurements to TCGD targets.

6.7 Color calibration for lamp based projectors

6.7.1 2D Color calibration

Overview

- Introduction to Color Calibration
- Color path selection
- Color Correction Process
- Color Measuring
- Verifying the colors after correction

6.7.1.1 Introduction to Color Calibration

Overview

The color coordinates for the projected primary colors must be measured on the screen. The values can be different than those originally inside the projector due to reflection on the screen or due to the influence

of the glass between the projection booth and the theatre and even the projected colors are different from setup to setup.

These measured color coordinates are references for the projector and will be entered so that the projector knows how its colors are projected on the screen.

This reference measuring, together with the delivered gamut file of the film will introduce a color correction so that the film will be projected with the correct color settings.

6.7.1.2 Color path selection

Overview

For color calibration of a 2D file, select *single (default)*.

6.7.1.3 Color Correction Process

Step to be taken

1. Measuring of the color gamut of the projector.
2. Select a target color gamut file or upload a target color gamut file.
3. Verify the colors on screen after correction (optional step).



While executing step 2, the previous color corrections on the projector will be removed. 3D—LUT tables are bypassed.



When standard processing is selected the cinema color correction is not valid. The active TCGD data is not taken into account.

6.7.1.4 Color Measuring



CAUTION: Set anamorphic lens factor to 1.0 before starting the color measuring.

How to measure

1. Click on **Measure Native Colors** (1).

6. Installation

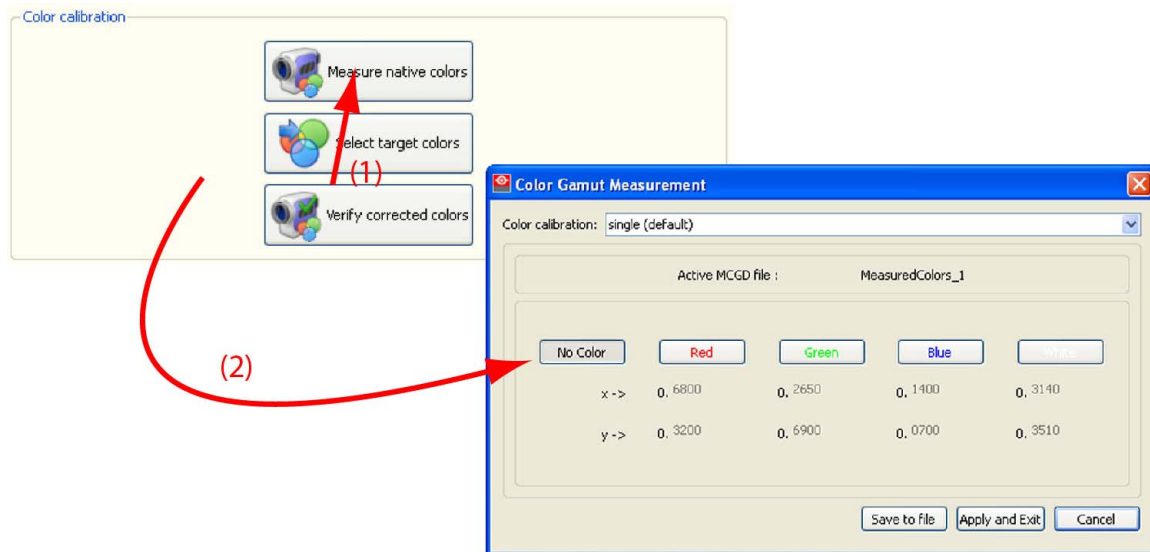


Image 6-66
Startup color gamut measurement

The *Color Gamut Measurement* window is displayed showing the current color values (2).

2. Set the Color path selection. Click on the drop down box and select *Single*.
3. Select a color by clicking on the color name (3).

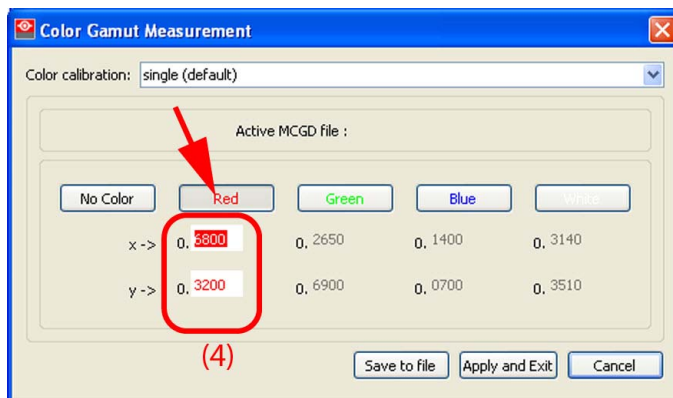


Image 6-67
Measure coordinates

A loading color test pattern message will be displayed. After a while, the selected color will be projected **without any color correction** on the screen.

The selected input fields of that specific color becomes white (4).

4. Measure the color coordinates for that specific color.
When single was selected, measure the x and y coordinate and enter in the white input field.
Note: Enter just the digits of the decimal value.
5. Repeat this procedure for the other colors and for white by starting at step 3.
6. Do you want to use the color calibration values in a macro file?
If yes, press **Save to file** (5).

The *Save Color Gamut measurement* window opens (6).

Enter a name in the *Filename* input field (7) and press **Save** (8).

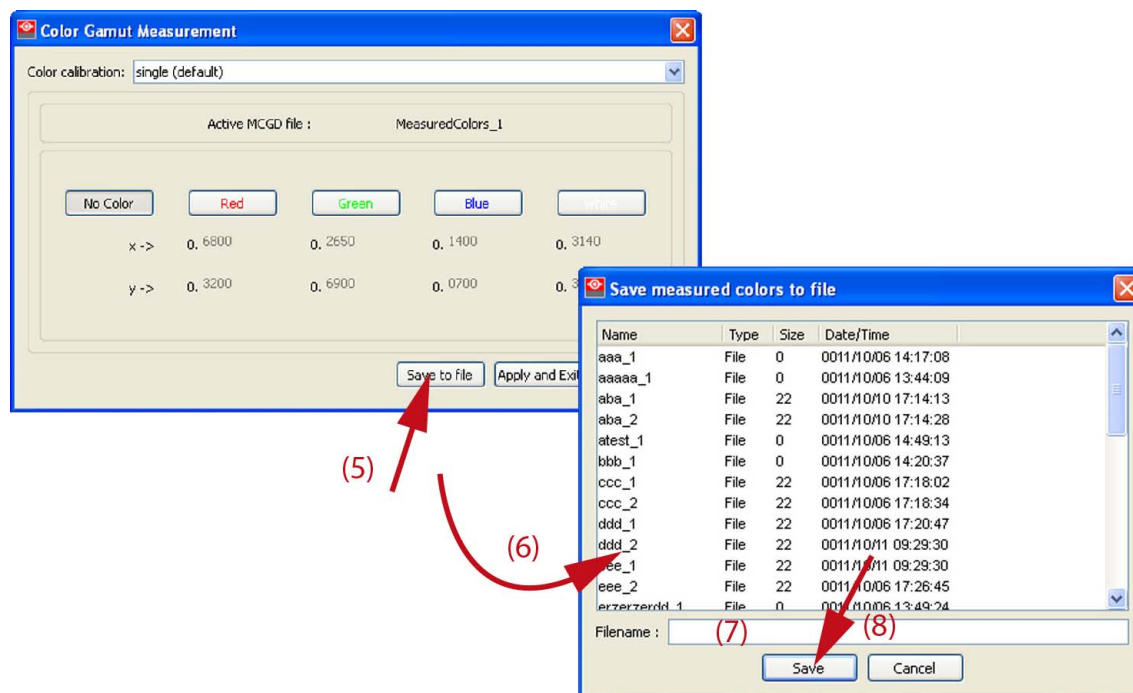


Image 6-68

Save coordinates to file

If no, continue with step 7.

7. To use the measured values immediately, press now **Apply and Exit**.

Note: It is still possible to return to the previous coordinates by clicking **Cancel**.

The measured values are written to file and become active.

8. Set the anamorphic lens factor back to its original value.

6.7.1.5 Verifying the colors after correction



CAUTION: Set anamorphic factor to 1.0 before verifying the colors after correction.

Overview

The color coordinates of the projected image after correction can be verified by measuring the coordinates on the screen again. The measured values should be the values as indicated on the interface.



This part of the color correction procedure is optional.

How to verify

1. Click on **Verify Corrected Colors** (1).

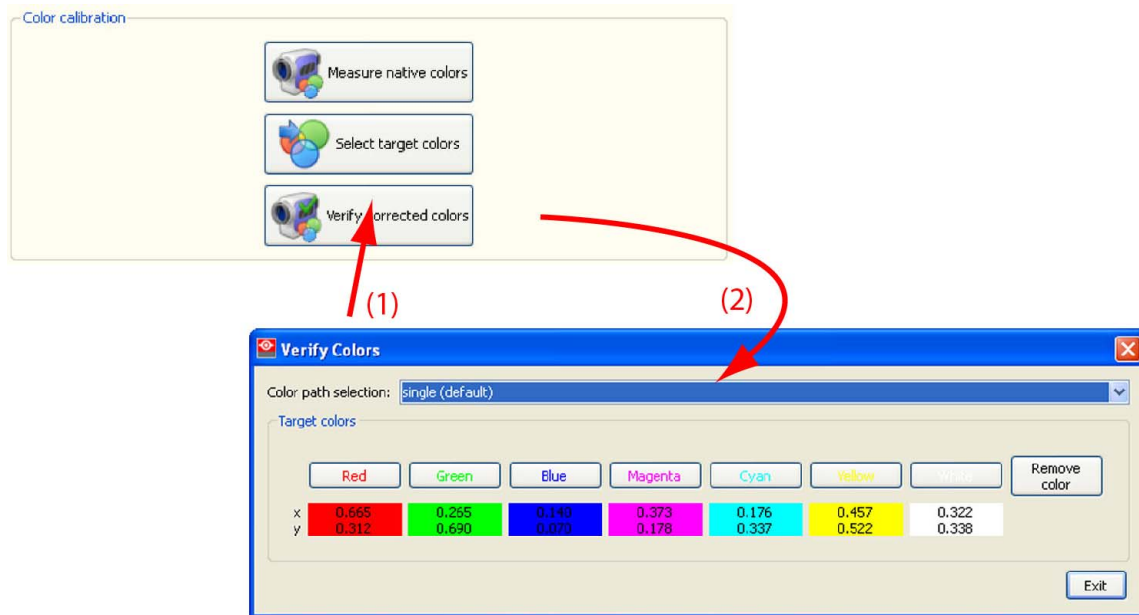


Image 6-69
Verify colors

- The verify colors window opens (2)).
2. Set *Color path selection* by selection *Single (default)*.
 3. Select a color button.
A loading message will be displayed.
The selected color is displayed on the screen **with color correction**.
 4. Measure the coordinates with a colorimeter on the screen and check with the values below the color button.
Note: *This only allow to verify TCGDs that differ only with gain adjustments with the same color targets.*
 5. Repeat this procedure for other colors, starting by step 3.
 6. When finished, click on **Remove Color**.
A remove color pattern message will be displayed.
The color pattern is removed.
 7. Set the anamorphic lens factor back to its original value.

6.7.2 3D Color calibration (single calibration)

About single calibration

Single calibration is used when the same color calibration file will be used for the left and the right eye.



If the 3D color calibration with a color-wheel system is handled by the server (typically Dolby3D calibration) then the projector should use the normal 2D calibration (nominal). If the 3D color calibration is handled by the projector, then you should use this procedure with “dual calibration”

6.7.2.1 Measured colors single 3D mode

How to measure

1. Click on **Measure Native Colors** (1).

The *Color Gamut Measurement* window is displayed showing the current color values.

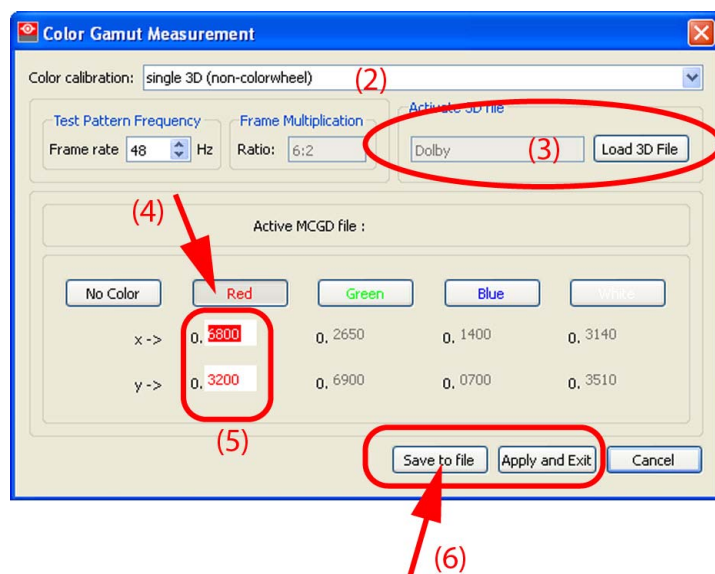


Image 6-70
Color gamut, measure colors

2. Set the *Color path selection*. Click on the drop down box and select *Single 3D (non-colorwheel)* (2).
The Color Gamut Measurement window changes. 3D file activation becomes available.
3. Load a 3D file (3). Click on **Load 3D file** button to open a browser window. Browse to the desired file location and select the file. Click **Open**.
Selected 3D file is activated.
4. Verify frame multiplication ratio and modify when necessary the test pattern frequency.
5. Select a color by clicking on the color name (4).
A loading color test pattern message will be displayed. When loading a test pattern it will automatically load the 3D file that was selected, activating 3D output. After a while, the selected color will be projected **without any color correction** on the screen.
The selected input fields of that specific color becomes white (4).
6. Measure the color coordinates for that specific color (5).
When single was selected, measure the x and y coordinate and enter in the white input field.
Note: Enter just the digits of the decimal value.
7. Repeat this procedure for the other colors and for white by starting at step 5.
8. Click **Apply and Exit** to automatically apply the values.
Click **Save to file** to save into any desired file. A browser window opens where you can enter the file name. Click **Save**.
9. Go to Installation → Color calibration and click on **Select target colors**.
10. For *Color calibration type*, select *single (dual calibration)*
11. Select the TCGD file(s)
DC28_DCI_Xenon.TCGD
12. Click **Apply and exit**.

6.7.2.2 Verifying the colors after correction



CAUTION: Set anamorphic factor to 1.0 before verifying the colors after correction.

Overview

The color coordinates of the projected image after correction can be verified by measuring the coordinates on the screen again. The measured values should be the values as indicated on the interface.



This part of the color correction procedure is optional.

How to verify

1. Click on **Verify Corrected Colors** (1).

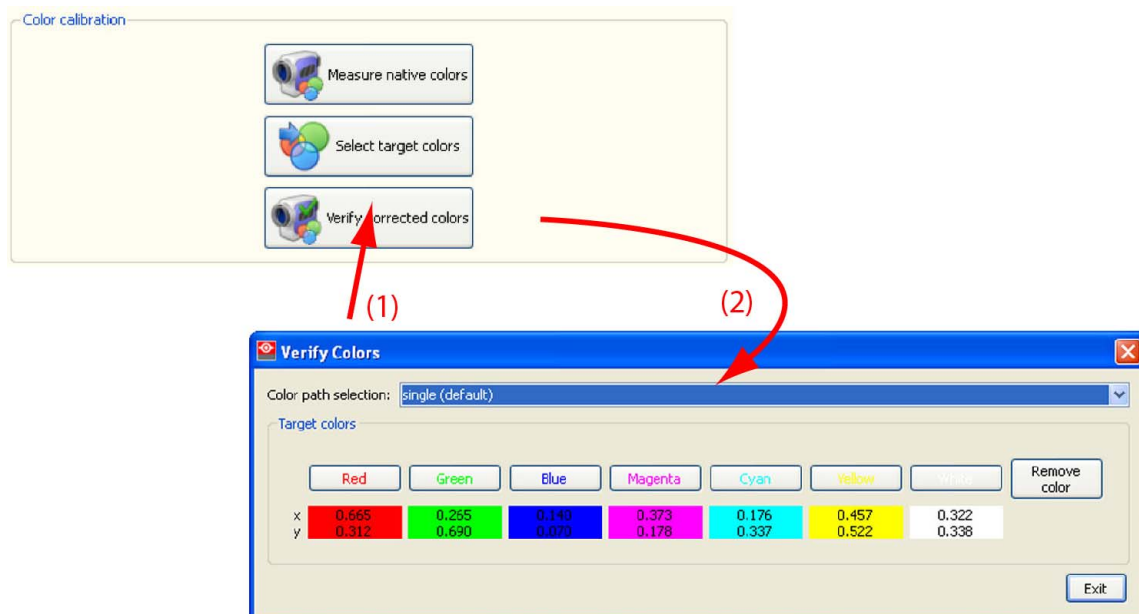


Image 6-71
Verify colors

The verify colors window opens (2)).



Image 6-72
Verify corrected color

2. Set *Color path selection* by selection *Single 3D (non-colorwheel)*.
3. Load a 3D file. Click on **Load 3D File** button to open a browser window. Browse to the desired file location and select the file. Click **Open**.
Selected 3D file is activated.
4. Select a color button.
A loading message will be displayed.
The selected color is displayed on the screen **with color correction**.
5. Measure the coordinates with a colorimeter pointing to the screen through the glasses and check with the values below the color button.
Note: *This only allow to verify TCGDs that differ only with gain adjustments with the same color targets.*
6. Repeat this procedure for other colors, starting by step 4.
7. When finished, click on **Remove Color**.
A remove color pattern message will be displayed.
The color pattern is removed.

6.7.3 3D color calibration with color wheel (dual calibration)

6.7.3.1 Introduction

Overview

3D color correction is used to calibrate 3D systems based on color-3D (typically Dolby3D). The correction depends on the color space the movie is playing in. It is important to know the different configurations.

3D can be played from:

- HDSI using the YCbCr color space
- IMB/IMS, ICMP using the XYZ color space



Projector internal test patterns are using RGB color space.

To perform the 3D color calibration in the projector, and not in the server, we need to be able to calibrate each eye separately. Therefore 2 sets of P7 coefficients must be provided, one for plane 1 (right eye) and one for plane 2 (left eye)

Principle

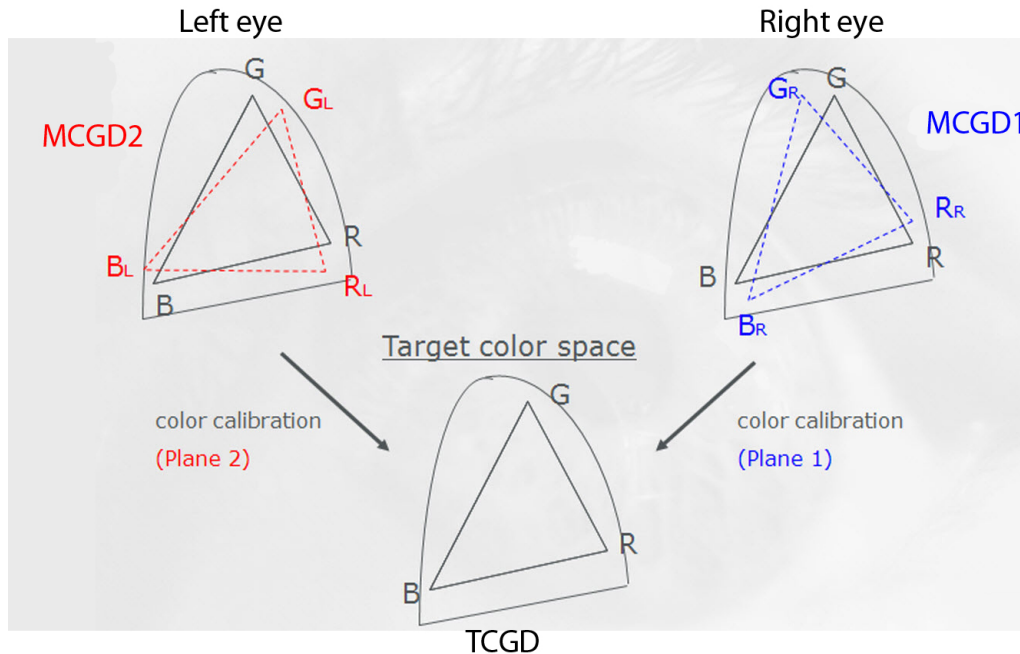


Image 6-73

Measure for each color MCGD values for the left and the right eye through the respective left and right eye glasses (use uncorrected colors).

Continue verifying calibration for the left eye and for the right eye. Use the test pattern with corrections.

6.7.3.2 Measured colors dual calibration



Take your regular 3D system file as reference. This file already contains the settings relevant for your system.

Preparations

1. Activate your system's 3D file. Go to *Configuration* → *3D* and click on **Activate 3D file**. Select the corresponding file to activate.
2. Go to *Configuration* → *3D* and click on **3D settings**. Change *L/R input Reference* to *None provided* (1).

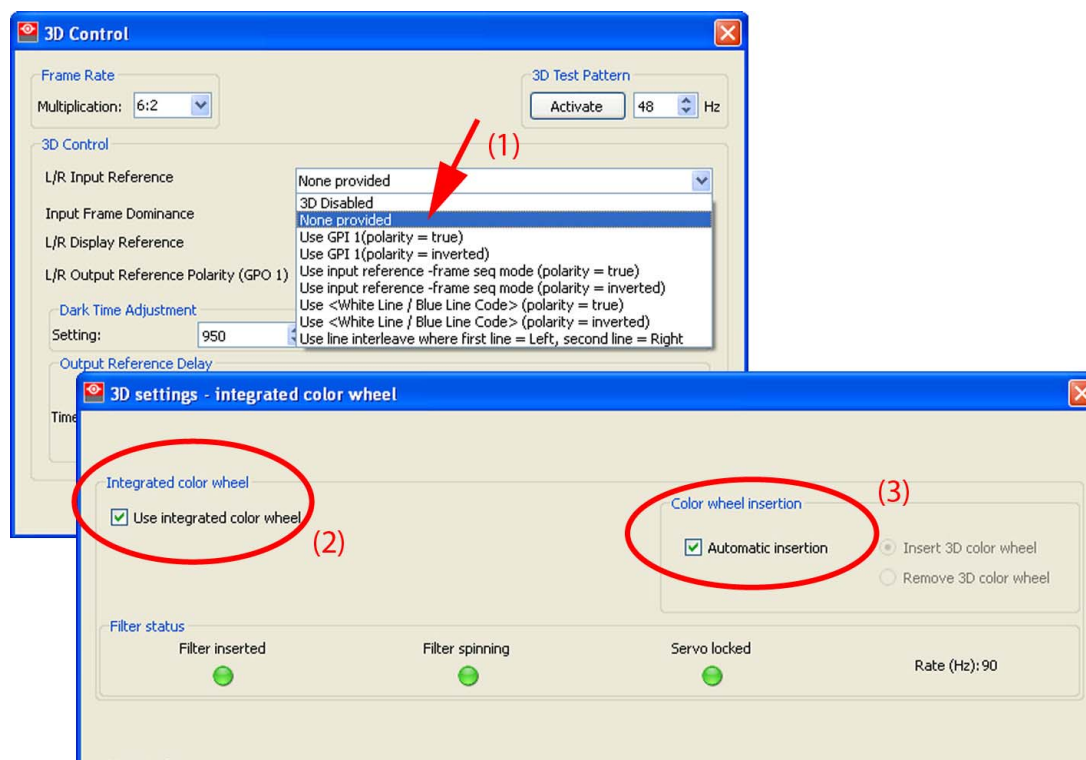


Image 6-74
3D settings

3. Go to *Configuration* → *3D* and click on **Save**.
Save the settings to a new file, *DualCalibration.3D*.
4. Go to *Configuration* → *3D* and click **Activate 3D file**.
Select the new created file and click **OK** to activate.
5. If an integrated color wheel is used, go to *Configuration* → *3D* and click on **3D - integrated colorwheel**, check *Use integrated color wheel* (2) and check for *Color wheel insertion Automatic insertion* (3).

Measuring

1. Click on **Measure Native Colors**.

The *Color Gamut Measurement* window is displayed showing the current color values.

2. Set the *Color path selection*. Click on the drop down box and select *dual (separate left/right eyes)* (1).

6. Installation

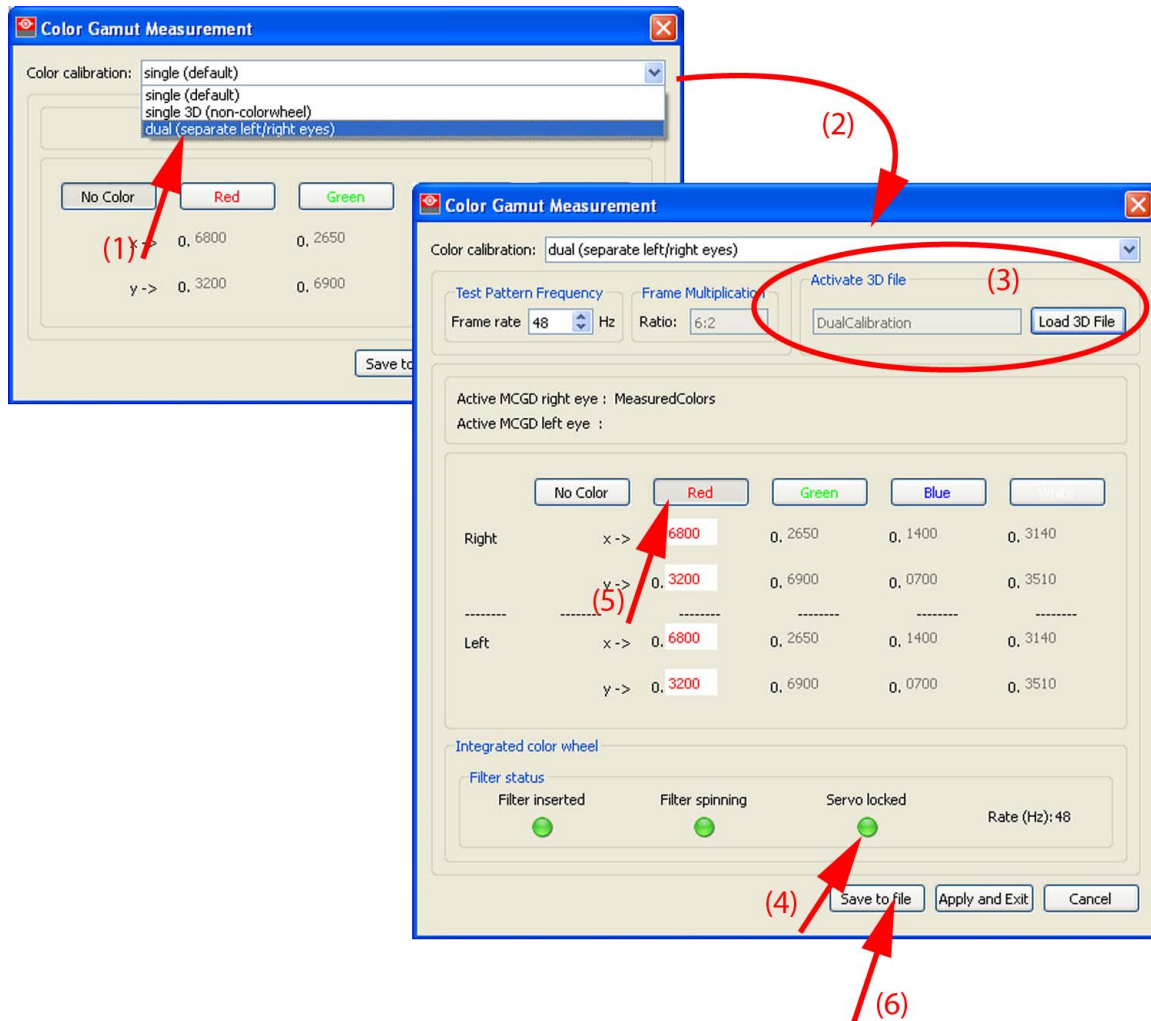


Image 6-75
Measure colors

The Color Gamut Measurement window changes. 3D file activation becomes available (2).

3. The calibration 3D file just created should be loaded. If the 3D file is not yet loaded, load a 3D file (3). Click on **Load 3D file** button to open a browser window. Browse to the desired file location and select the file. Click **Open**.

Selected 3D file is activated.

4. Verify frame multiplication ratio and modify when necessary the test pattern frequency. Check also the integrated color wheel filter status. Wait until *Servo locked* is green (4).
5. Select a color by clicking on the color name (5).

A loading color test pattern message will be displayed. When loading a test pattern it will automatically load the 3D file that was selected, activating 3D output. After a while, the selected color will be projected **without any color correction** on the screen.

The selected input fields for right and left eye of that specific color becomes white.

6. Measure the color coordinates for that specific color through the right eye glass and enter the values in the *Right* input fields.
Measure the color coordinates for that specific color through the left eye glass and enter the values in the *Left* input fields.
7. Repeat this procedure for other colors, starting by step 5.
8. Save the measured values to files. Click on **Save to file** (6).
9. Enter a file name.

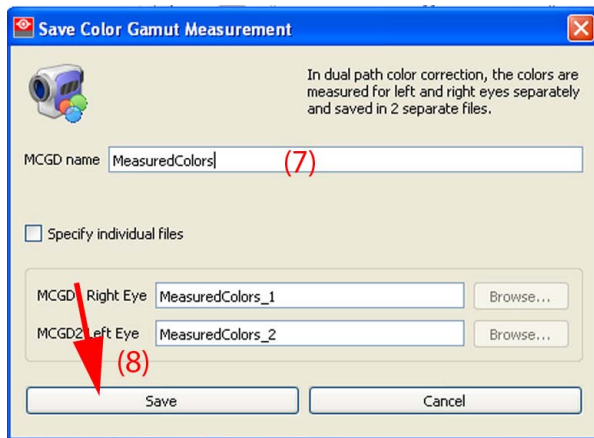


Image 6-76
Save measured colors to files

This file name will be used for the separate files for the right and left eye.

10. Click **Save** to save both files.

11. Go to Installation → Color calibration and click on **Select target colors**.

12. For *Color calibration type*, select *dual (separate left/right eyes)* (9).

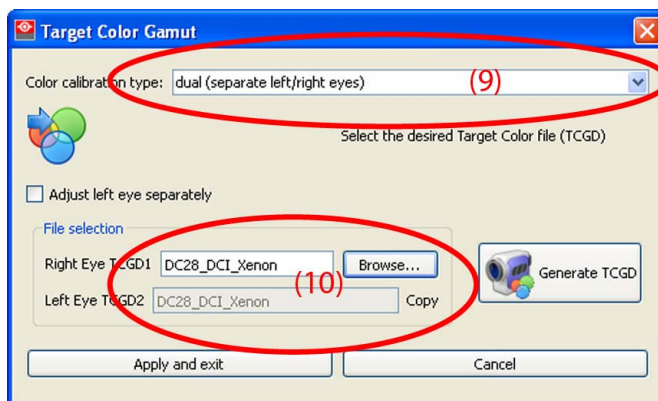


Image 6-77
Select TCGD files

13. Select the TCGD file(s) (10).

DC28_DCI_Xenon.TCGD

When using different files for right and left, make sure that the color space is the same.

14. Click **Apply and exit**.

6.7.3.3 Color verification

How to verify

1. Go to Installation → Color calibration and click on Color verification.
2. For *Color calibration type*, select *dual (separate left/right eyes)* (1).

6. Installation

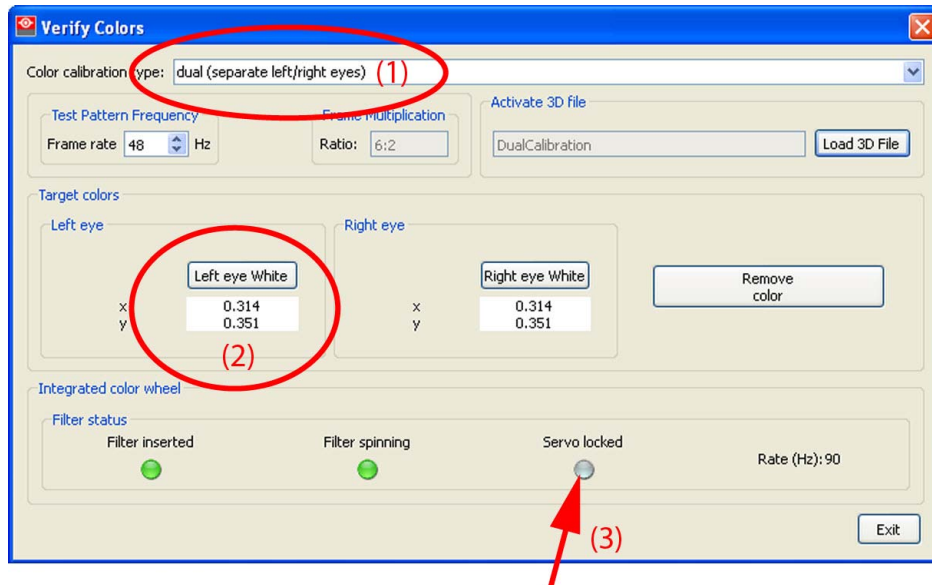


Image 6-78

3. Click on a test pattern, e.g. **Left eye White** (2) and wait for the color wheel to be locked.
The Servo locked indication becomes green (3).
4. Measure the white point coordinates through left glass eye.
Measure the luminance through the left glass eye and save for later use. If you want to compensate for brightness, see "Luminance compensation", page 232
5. Click on test pattern **Right eye White**.
6. Measure the white point coordinates through right glass eye.
Measure the luminance through the right glass eye and save for later use. If you want to compensate for brightness, see "Luminance compensation", page 232
7. Compare left and right measurements to TCGD targets.

6.8 Spatial Color Calibration

Introduction

The spatial color calibration can be used to compensate for white point variations over the width of the screen. This is done by using an algorithm that can compensate for these white point variations by adjusting the red, green and blue contributions to the white point across the width of the screen. Therefore several color points all over the screen should be measured and the values should be entered to calculate the correct compensation.

The wizard starts with measuring the primary colors. This helps to calculate the relative contribution of the primary colors to the color points measuring on the different points on the screen.



A Spatial Color Calibration (SCC) has to be execute in case of a first install or in case a High Brightness lens is swapped with a High Contrast lens or vice versa.

Primary color Measuring

1. While in *Color Calibration*, click on **Spatial color calibration** (1).

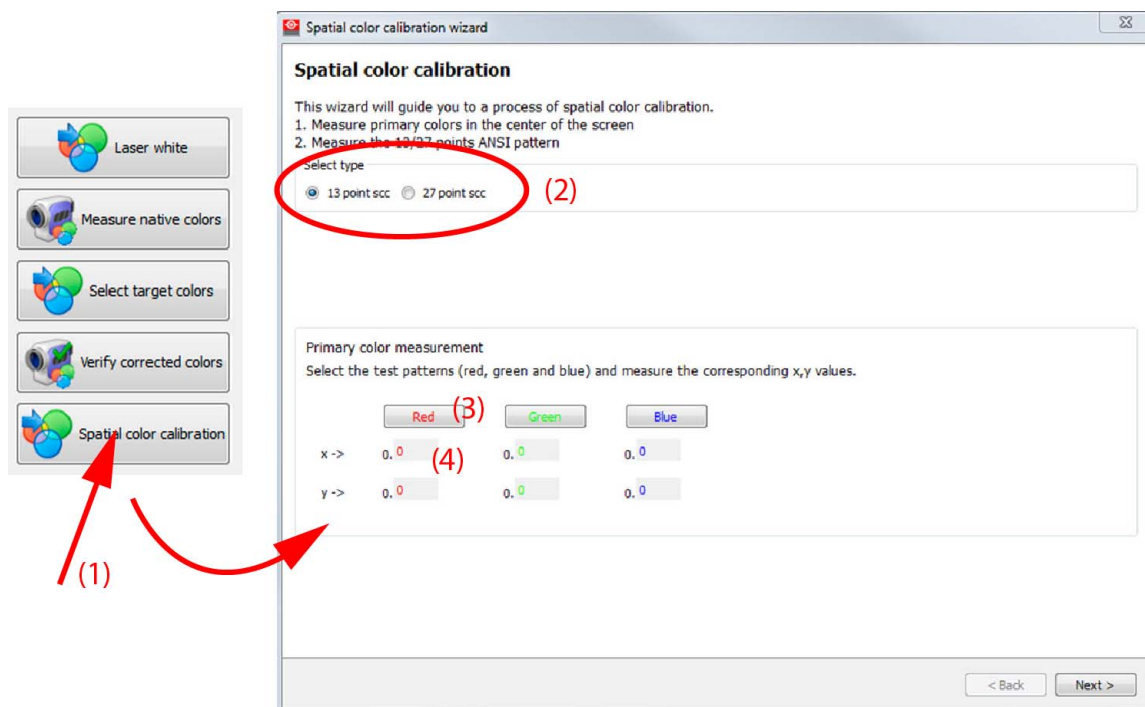


Image 6-79
Primary color measuring

The wizard starts up.

Measure the primary colors in the center of the screen.

2. Select the type of spatial color calibration (2) by checking the desired radio button.

Note: For DP4K LHC series, select always 27 points scc.

The following choices are possible:

- 13 points scc
- 27 points scc

3. Click on **Red** to display a red test pattern (2).

4. Measure the x and y coordinate and enter the values in the correct input field (3).

5. Repeat for *Green* and *Blue*.

6. Click **Next** to continue with the 13/27 point calibration.

13 point calibration

1. Click **SCC_13 points** button to activate 13–point ANSI calibration pattern (4).

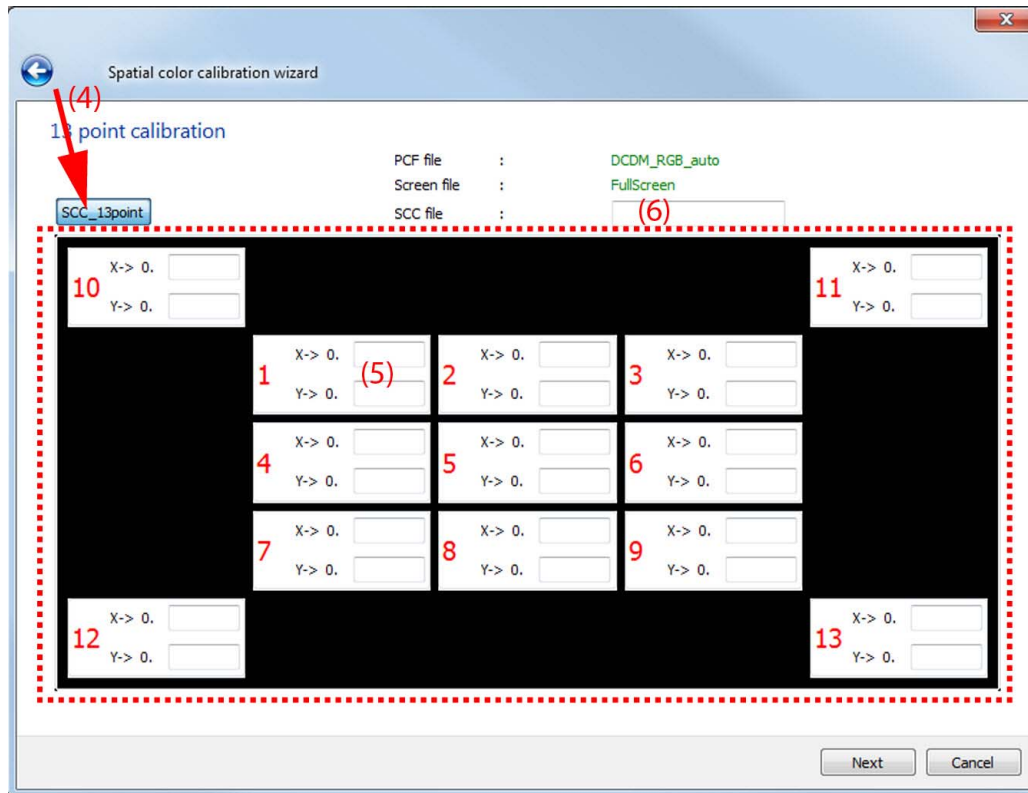


Image 6-80
13 point calibration

The entry fields become active.

2. Measure for each area the x and y coordinate and enter the value in the correct input field (5).
Note: Do not mix up entries of different ANSI points as it will result in a wrong SCC file calculation.
3. Enter a name for the SCC-file. Click in the input field next to SCC file and enter a name (6).
4. Click **Next** to continue.

The creation of the SCC file starts. The process is finished when *SCC file uploaded* is displayed in the SCC file progress pane.

5. The current created SCC file can be activated in the wizard. Check the check box in front of *Activate SCC file*.

27 point calibration

1. Click **SCC_27 points** button to activate 27-point ANSI calibration pattern (4).

Image 6-81
27 points calibration

The entry fields become active.

2. Measure for each area the x and y coordinate and enter the value in the correct input field (5).

Note: Do not mix up entries of different ANSI points as it will result in a wrong SCC file calculation.

3. Enter a name for the SCC-file. Click in the input field next to SCC file and enter a name (6).
4. Click **Next** to continue.

The creation of the SCC file starts. The process is finished when *SCC file uploaded* is displayed in the SCC file progress pane.

5. The current created SCC file can be activated in the wizard. Check the check box in front of *Activate SCC file*.

Activating already present SCC files

While in *Installation*, go to *Advanced* and click on **File manager**.

Select LUT-SCC files in the drop down in the projector pane of the window (1-2). All available SCC files are listed (3).

Select the desired file (4) and click on **Select active** (5). By activating the selected file, all previous uploaded SCC information is overwritten.

Default SCC files:

- for 4K: Ones4K_LE
- for 2K: Ones2K_LE

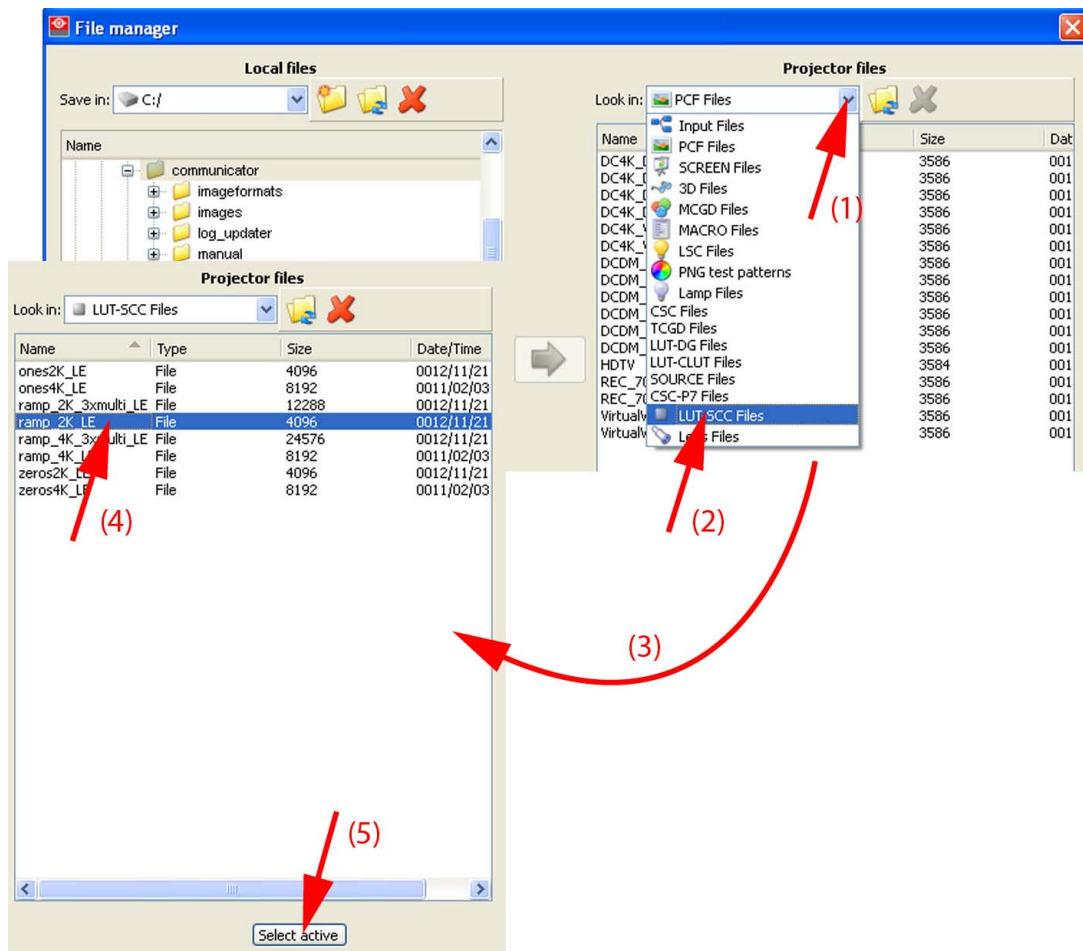


Image 6-82
Activate LUT-SCC file

6.9 Luminance compensation

About

Depending on the 3D system, the luminance between each eye can vary by up to 20%. Luminance compensation will be needed.

To compensate the luminance between the left and right eye, 2 TCGD files will be used.



Note execute the procedure once for creating files for internal test pattern verification using the DC28_DCI_Xenon.TCGD file and once for creating files for normal operation mode using file DC28_XYZE_314_351.TCGD file.

Start with the internal test pattern verification and then continue creating the files for normal operation.

How to compensate

1. The operator should first do a normal 3D dual calibration to know how much luminance difference there is (comparing luminance between left and right eye when verifying on the white test pattern, see "Color verification", page 227, step 4 and 6).
2. Go to *Installation* → *Color calibration* and click on **Select target colors**.
3. For *Color calibration* type, select *dual (separate left/right eyes)* (1).

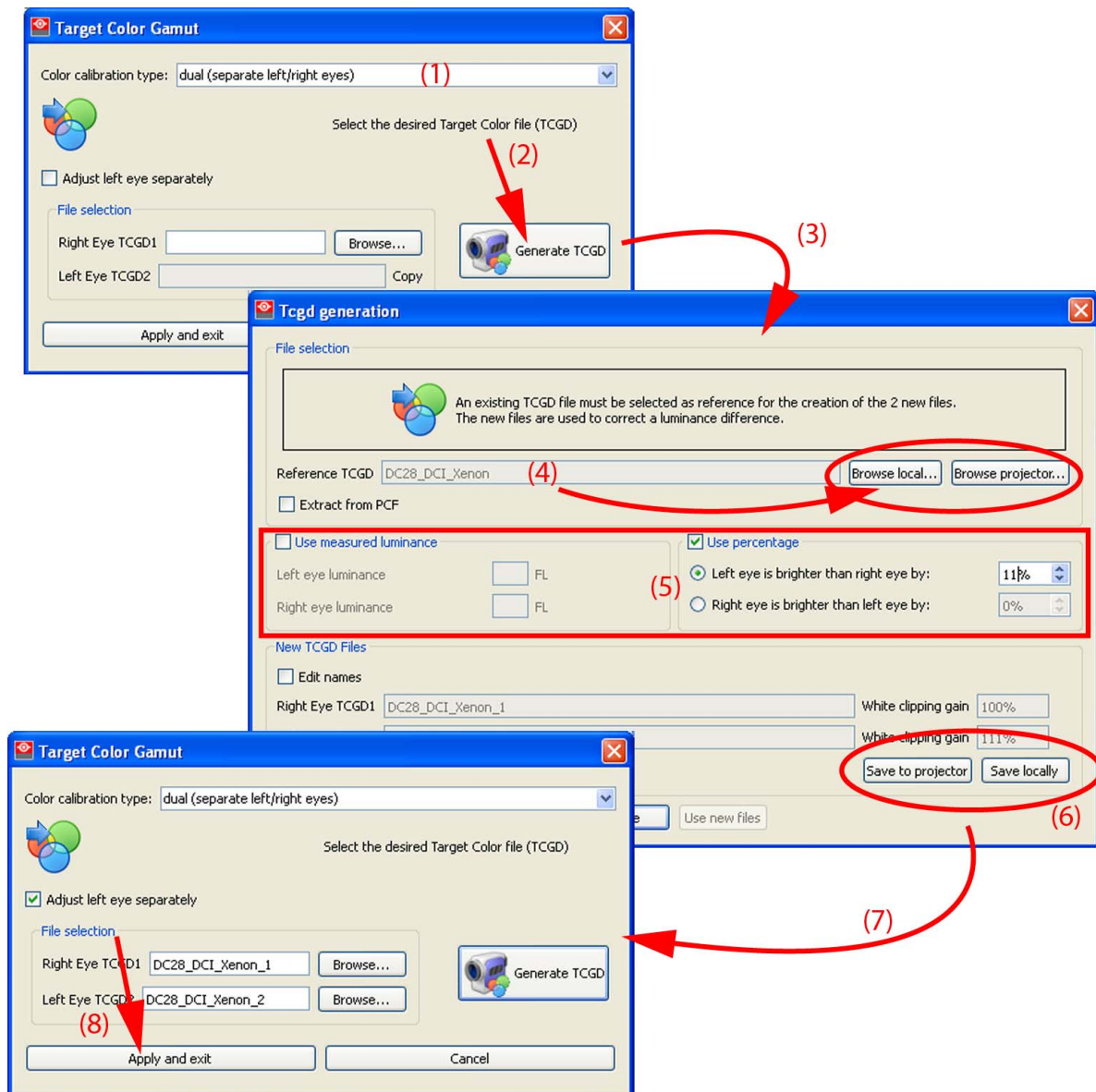
4. Click on **Generate TCGD** (2).

Image 6-83

The TCGD generation window opens (3).

5. Select the reference TCGD file from the local PC (use Browse local) or from the projector (use Browse projector) (4).

Use DC28_DCI_Xenon.TCGD for projector test pattern verification (RGB).

Use DC28_XYZE_314_351.TCGD for server test pattern verification and for Normal operation (XYZ).

6. Enter the luminance difference via absolute values or via percentage (5). Check the corresponding check box and fill out the values.
7. Create new TCGD files. The filename can be edited. Therefore, check the check box before *Edit names* and edit the file names.
Click **Save to projector** to save the files on the projector or **Save locally** to save the files on the local PC (6).
8. Click **Use new files** to activate both files (7).

The luminance difference is compensated by using both different TCGD files.

For the projector test pattern verification, continue with the next procedure.

Internal test pattern verification

1. The Set target colors window is filled out with the new created files.
2. Click **Apply and exit** (9).
3. Go to *Verify Corrected colors*.
The *Verify Colors* window opens.
4. Activate the correct 3D file. Wait until the Integrated color wheel filter status is Servo locked.
5. Click on a test pattern, e.g. **Left eye White** and wait for the color wheel to be locked.
6. Measure the white point coordinates through left glass eye.
7. Click on test pattern **Right eye White**.
8. Measure the white point coordinates through right glass eye.



The left eye and right eye luminance should be equal !

6.10 3D Dual calibration with Macros

How to do

1. Open a macro for edit or create a new one.
2. Select the *3D extended* pane (1).

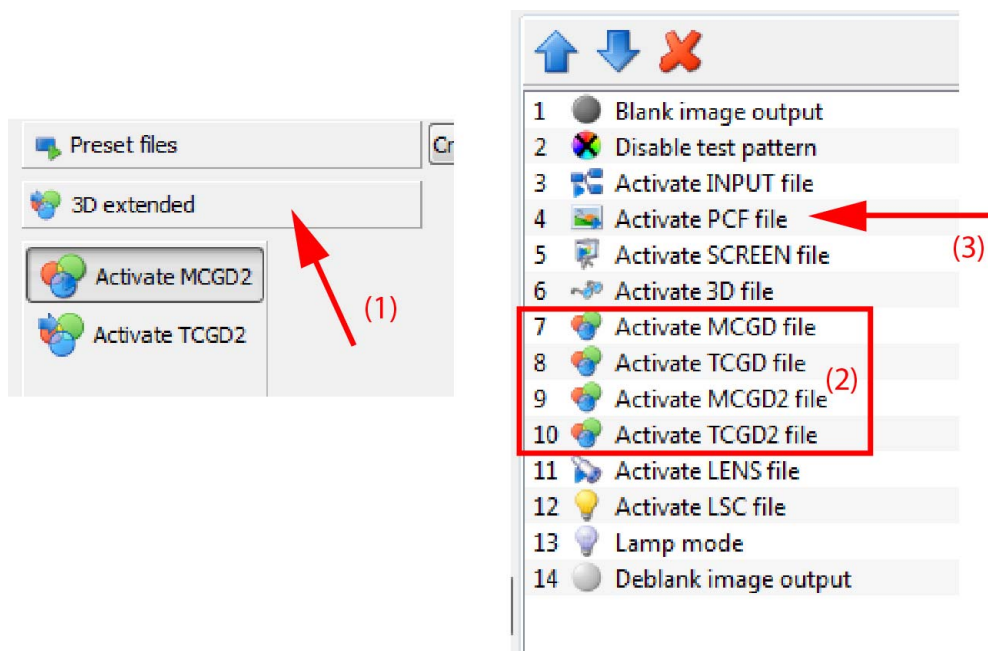


Image 6-84

3. Next to MCGD and TCGD (for right eye), activate MCGD2 and TCGD2 and add the files for the left eye (2).
4. Position the 4 files after the PCF file (3).

PCF file contains already plane 1 information. The MCGD and TCGD file will overwrite the info from PCF file.



Use the XYZ created TCGD files for normal movie operation from the IMB/IMS or ICMP.

6.11 Automation

6.11.1 General purpose inputs configuration

What is possible

This interface enables the user to configure the automation system that is present inside the projector (standard GPI configuration). The touch panel enables the user to couple a macro file to a rising edge or falling edge on one of the inputs of the GPI connector (DB37).



GPI 1 and GPI 2 are reserved for 3D purposes and cannot be changed by the user.

GPI 1 : rising edge triggers the 3D L/R input reference. This reference indicates which frame is Right and which frame is Left depending and the used polarity. For more info, see 3D settings.

GPI 2 : rising edge triggers the 3D L/R display reference. It is used to specify which frame of eye data is to be displayed during a specific display frame.

How to associate a macro

1. While in *Installation*, click on **Automation**.
The automation overview window is displayed.
2. Click on tab **GPI configuration** (1).

6. Installation

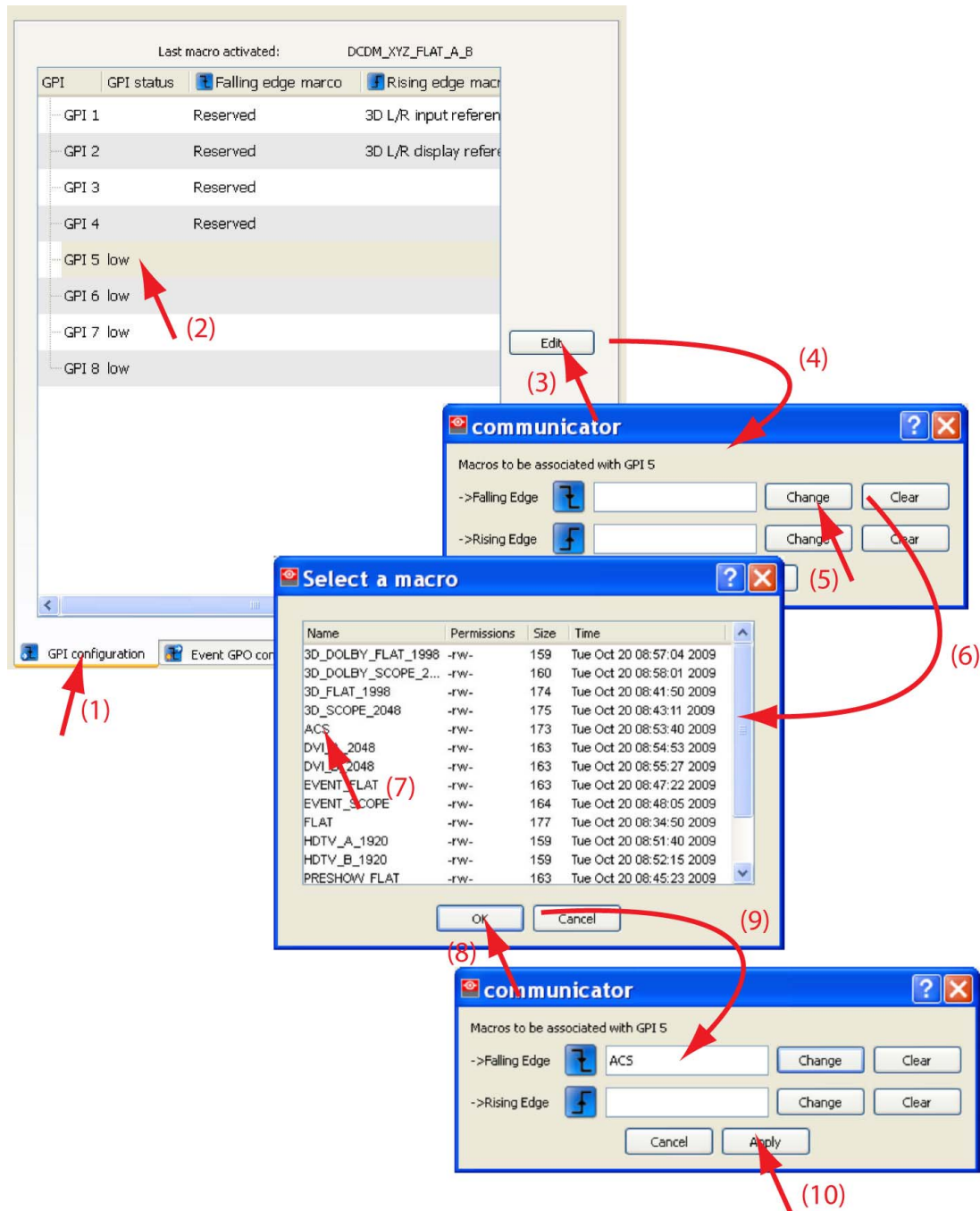


Image 6-85

3. Select the desired GPI to update the falling edge macro and/or the rising edge macro (2) and click on **Edit** (3).

The macro association window opens (4).

4. Click **Change** next to falling or rising edge (5).

The select a macro window opens (6).

5. Select the desired macro file (7) and click **OK** (8).

The selected macro is added in the macro association window (9).

6. If necessary, repeat for the other edge and finally click **Apply** (10).

The associations are filled out in the automaton window.

6.11.2 Event GPO configuration

What can be done ?

When an event happens, e.g. lamp power on, a GPO can be set in certain state. The output of this GPO can be used to trigger processes in the theatre or control room.

How to set up

1. While in *Installation*, click on **Automation**.

The automation overview window is displayed.

2. Click on tab **Event GPO configuration** (1).

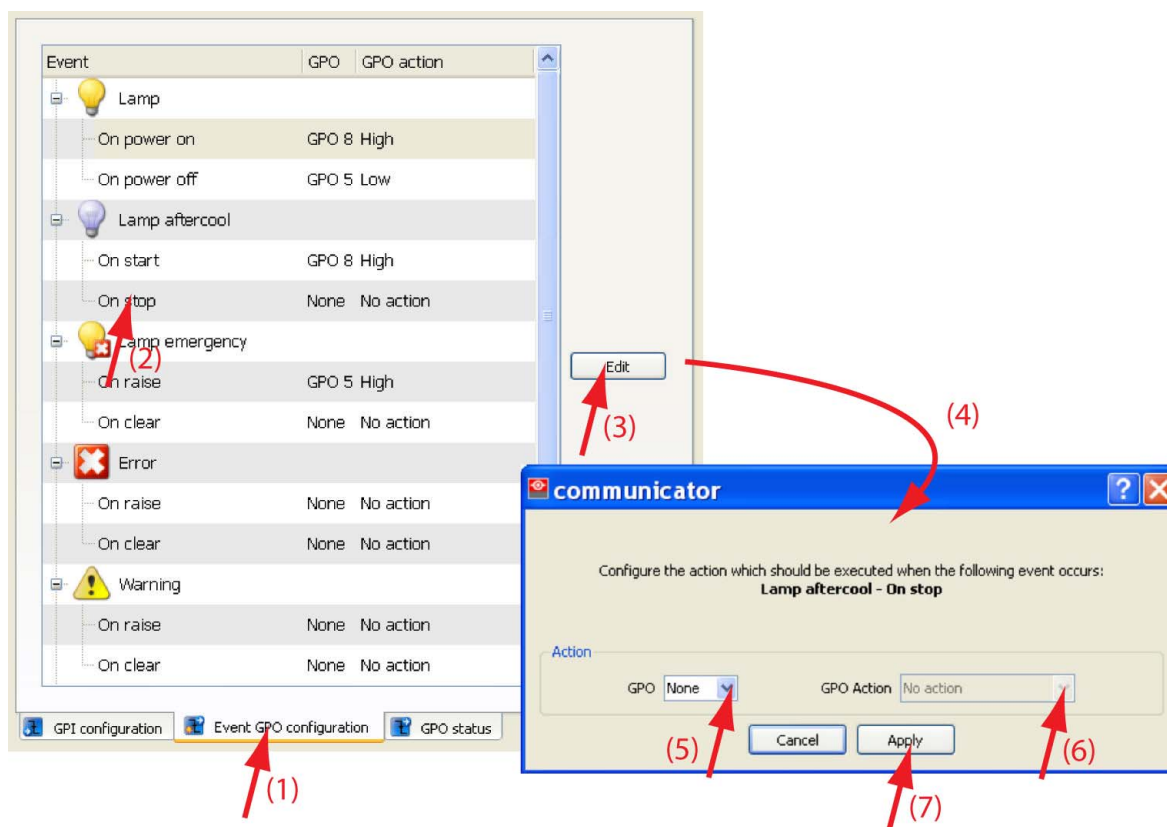


Image 6-86

3. Select the desired event (2) and click **Edit** (3).

The GPO association window opens (4).

4. Click on the drop down box next to *GPO* and select the desired GPO (5).
5. Click on the drop down box next to *GPO action* and select the desired action (6).

The selected action is the action the GPO will take when the associated event happens.

6. Click **Apply** to make the association (7).

The GPO name and GPO action are added on the event line.

Events overview

Lamp	On power on: GPO signal can be set to specific state.
	On power off : Same GPO signal can be switched to a different state.
Lamp aftercool	On start : GPO state can be switched at the start of the after cooling period.
	On stop : Same GPO state can be switched to a different state when the after cooling period is finished.

Lamp emergency	On raise :GPO state can be set to a specific state when a lamp emergency happens. On clear : Same GPO state can be reset to a specific state when the lamp emergency is cleared.
Error	On raise : GPO state can be set to a specific state when an error happens. On clear: Same GPO state can be reset to a specific state when the error is cleared.
Warning	On raise : GPO state can be set to a specific state when a warning happens. On clear : Same GPO state can be reset to a specific state when the warning is cleared.
Notification	On raise : GPO state can be set to a specific state when a notification happens. On clear : Same GPO state can be reset to a specific state when the notification is cleared.

About :

Error : a show stopping event happens on the projector.

Warning : show can continue but a technical intervention will be necessary to prevent an error.

Notification : no show stopping event, but a maintenance of the projector will be necessary in the very near future.

6.11.3 GPO status

What can be done ?

With the GPO status tab, the automation systems triggered by a GPO can be tested. The state of the selected GPO can manually be changed between high, low or continuous toggle.



GPO 1, GPO 2 and GPO 3 are reserved and cannot be toggled by the user.

How to change the status

1. While in *Installation*, click on **Automation**.

The automation overview window is displayed.

2. Click on tab GPO status

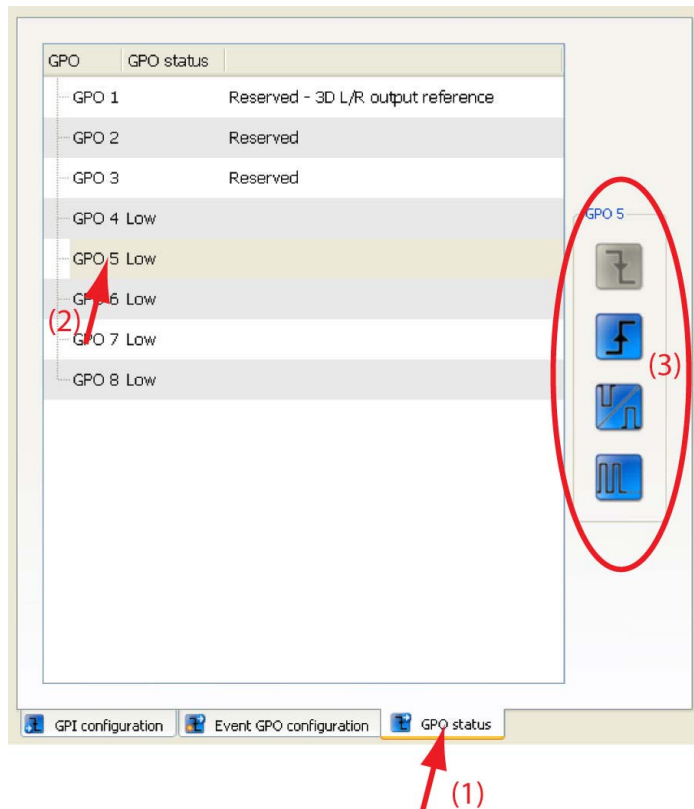


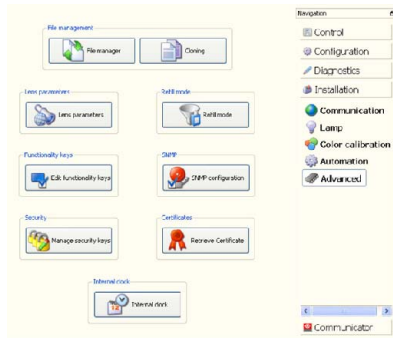
Image 6-87
GPO status

6.12 Advanced settings

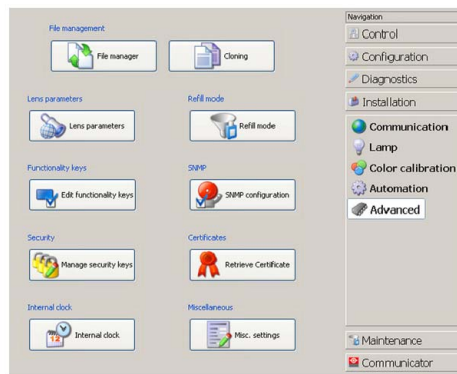
About the Advanced settings window

The Advanced settings window for DP2K-xxB and DP4K-xxB projectors contains an extra Miscellaneous button. The window for DP2K-xxS has no Refill mode and no Functionality keys.

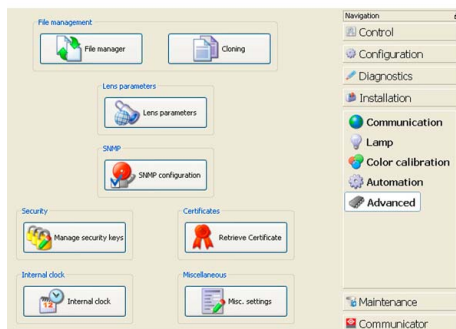
6. Installation



DP2K-xxC



DP2K-xxB, DP4K-xxB



DP2K-xxS

Image 6-88

Overview

- Set up of the ICP clock
- Set up of the Link Decryptor Clock
- Setup of the Server Secure clock
- File manager
- File management, cloning
- Restoring a clone file
- Lens selection (parameters)
- Lens homing and return
- Laser services, Optical alignment
- Laser services, Dowser mode
- Laser services, Maintenance
- Laser services, Max dimming
- Laser services, Cooler fan speed
- Green Laser Services
- Altitude
- Light lease settings
- Refill mode
- External exhaust fan selection
- Image orientation
- Web application credentials

6.12.1 Set up of the ICP clock

About the ICP clock

This clock can be set to:

- Current PC time
- User defined time
- UTC/GMT time calculated from current PC time
- UTC/GMT time using NTP (time based on a server time)

Most of the logging is done by the ICP board and uses the internal clock of that board.

How to set the clock to user defined time

While in the Advanced tab page:

1. Click on **Internal clock** (1).

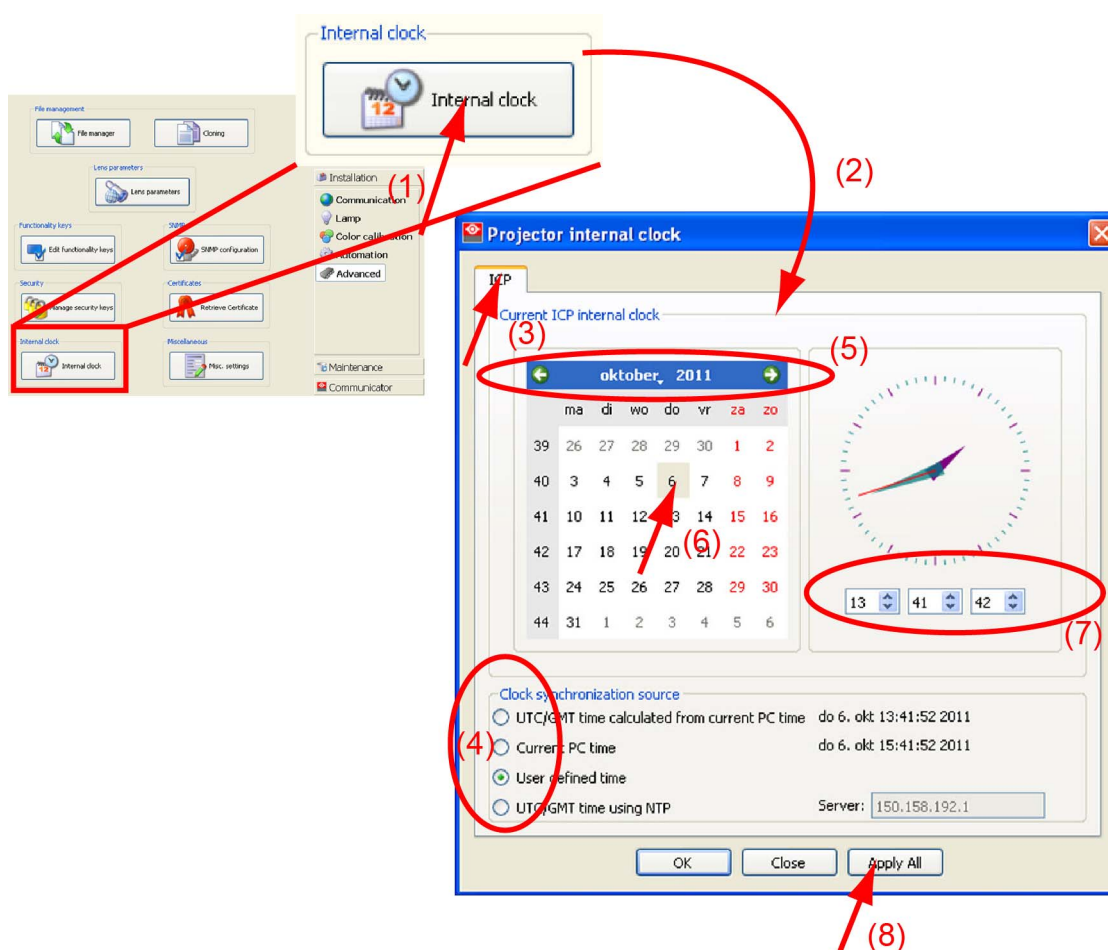


Image 6-89
Internal clock ICP

The *Projector internal clock* window opens.

2. **ICP** tab is open by default.

3. Select the clock synchronization source. Click on the radio button of your source.
Select *User defined time* (4).

4. To change the month, click on the left or right arrow button next to the current month indication (5).

5. To select the day, click on a day in the calendar view (6).

The background of the selected day changes to dark blue.

6. Installation

6. To set the time, hour, minutes and seconds, click on the up down control of the corresponding spin box until the correct value is displayed (7)
Or,
click in the input field, select the current value and enter the new value with the keyboard.

7. Click on **Apply all** to set the new time as current time (8).
Click on **OK** to set the new time as current time and to close the system clock window at the same time.

To set the clock to the PC clock or the UTC/GMT time based on the PC time

1. Click on **Internal clock** (1).

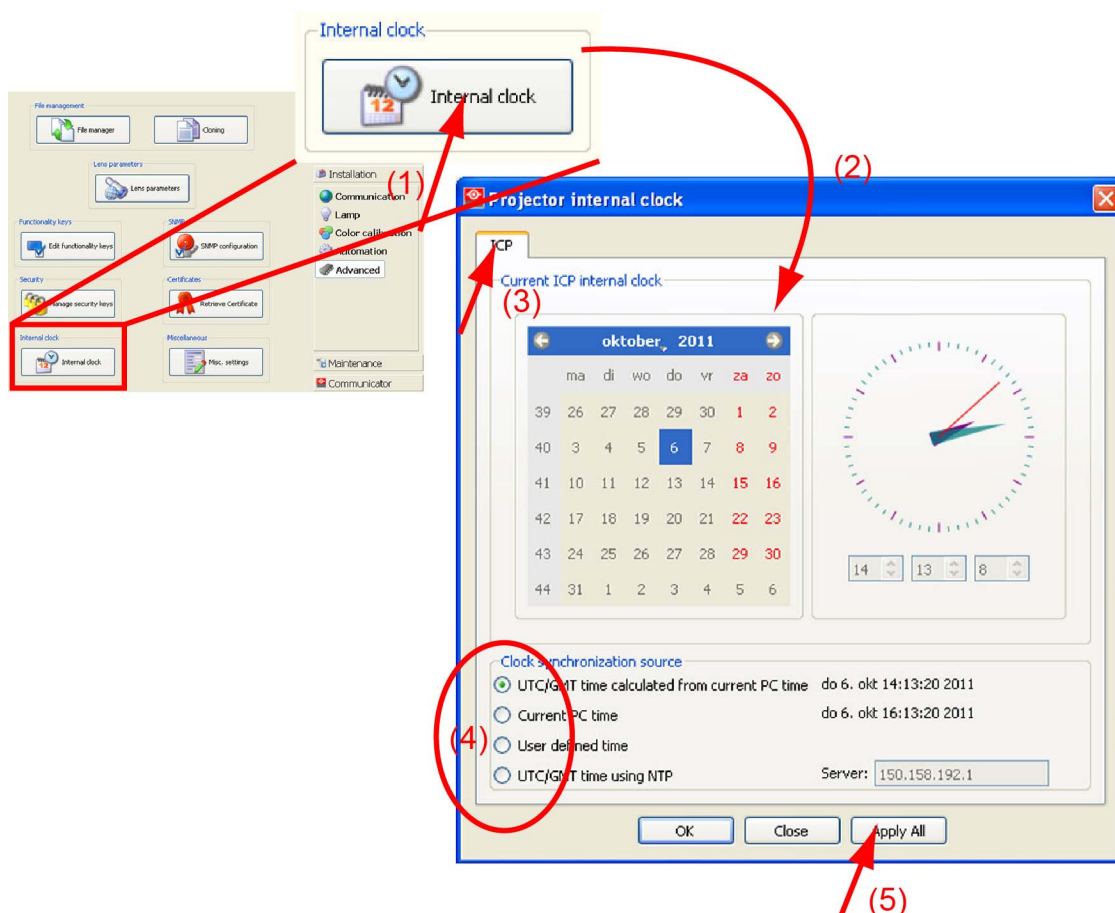


Image 6-90
ICP clock via a PC time

2. **ICP** tab is opened by default.
3. Select the clock synchronization source. Click on the radio button of your source (4).
Select *Current PC time* (4) to set to the Internal clock of the PC
Select *UTC/GMT time calculated from current PC time* (4) to set the clock to the UTC/GMT time but based on the current PC time.

The clock selection functions are grayed out.

The ICP clock is set to the selected source.

4. Click **Apply All** (5).
Click on **OK** to set the new time as current time and to close the system clock window at the same time.

To set the clock to UTC/GMT time using NTP

1. Click on **Internal clock** (1).

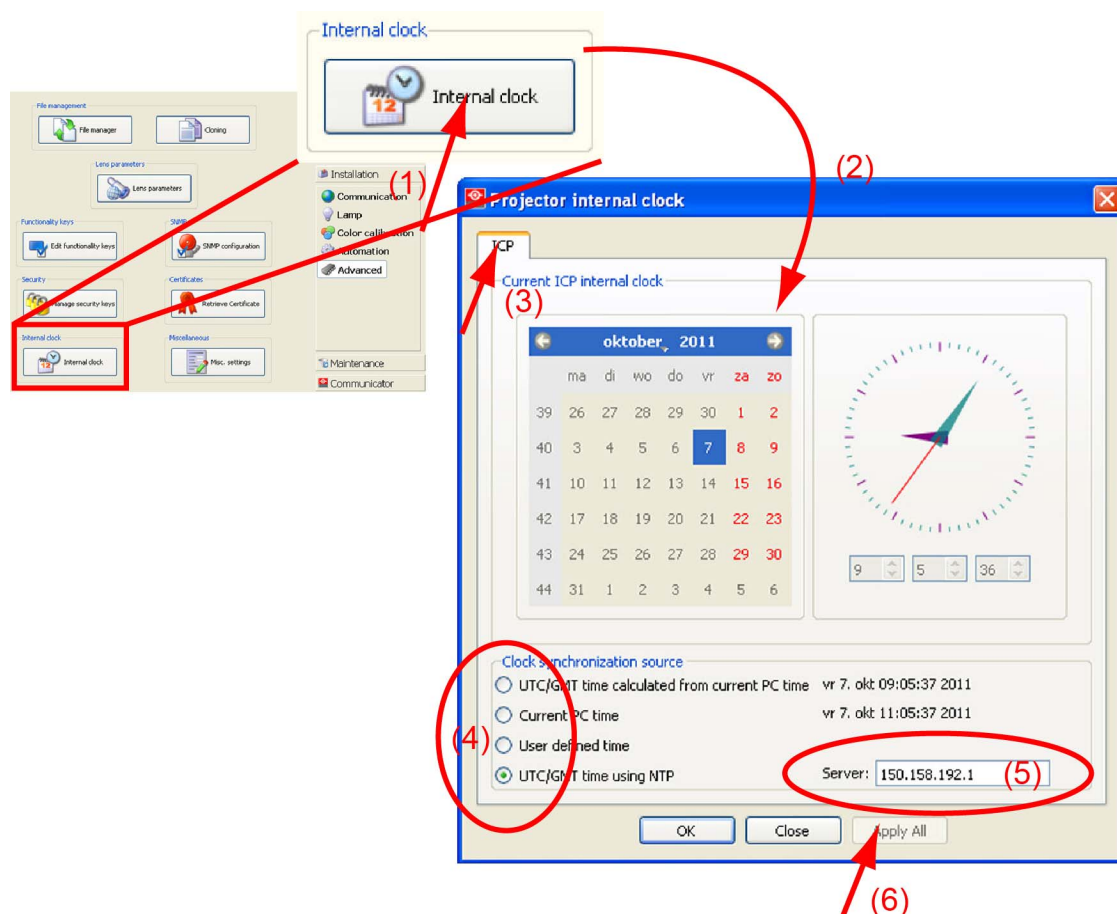


Image 6-91

ICP clock using UTC/GMT based on NTP

2. ICP tab is opened by default.

3. Click on the radio button before UTC/GMT using NTP (4)

4. Fill out the server IP address (5).

Note: An address contains 4 octets with a maximum value of 255.5. Click **Apply All** (6).Click on **OK** to set the new time as current time and to close the system clock window at the same time.

6.12.2 Set up of the Link Decryptor Clock

**CAUTION:** This clock must always be set to UDC GMT.**Maximum allowed deviation per year is 15 minutes.**

What can be done ?

The link decryptor clock can be set to UTC/GMT time or to a user defined time. But the user define time must be the UTC/GMT time with a deviation of maximum 15 minutes

Logging is using internal clock but to make it easy readable for the different time zones, an offset can be added to the UTC/GMT time. This new time will then be used as logging time.

How to set the clock

While in the Advanced tab page:

1. Click on **Internal clock** (1).

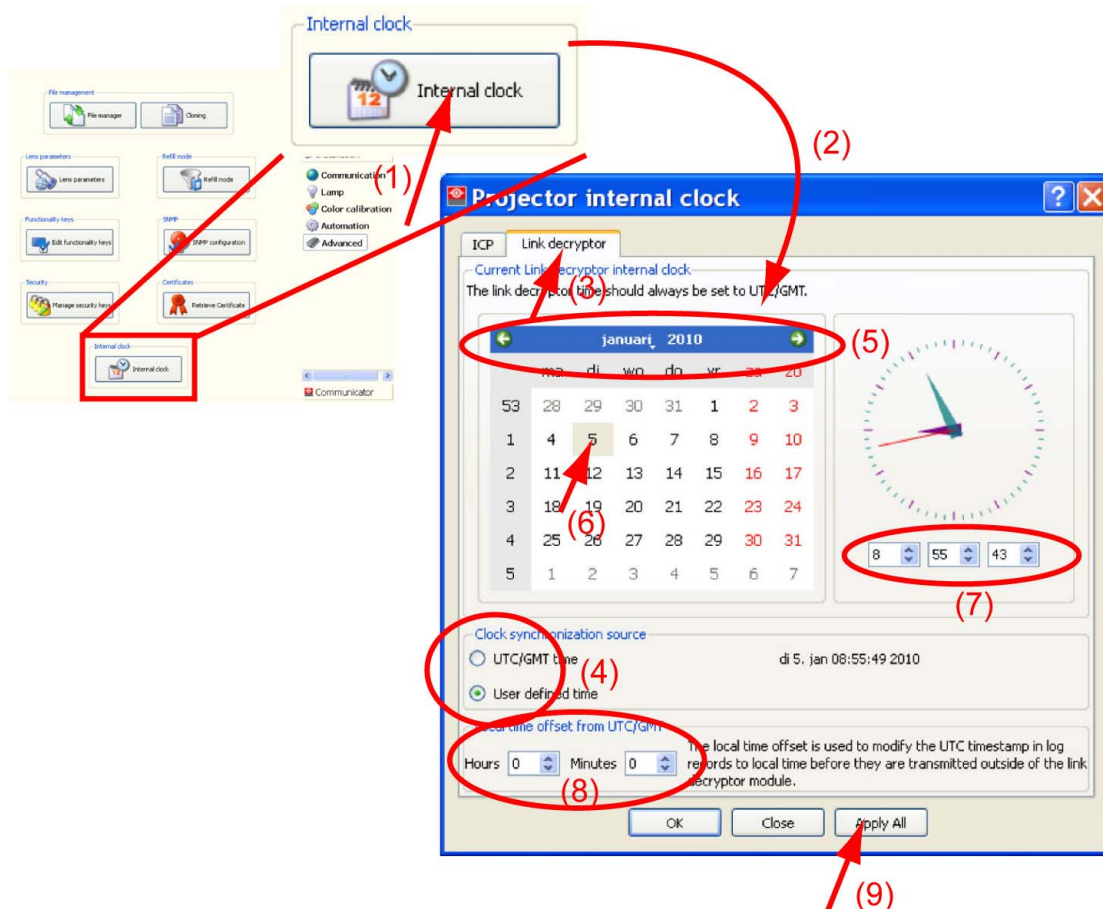


Image 6-92
Internal clock, link decryptor

The *Projector internal clock* window opens (2).

2. Click on **Link decryptor** tab (3).
3. Make your choice about the clock synchronization source (4)
Select *UTC/GMT* time to synchronize with the internal PC GMT time. No other set up is necessary except an offset.
Select *User defined* time and set up the clock.
4. To change the month, click on the left or right arrow button next to the current month indication (5).
5. To select the day, click on a day in the calendar view (6).
The background of the selected day changes to dark blue.
6. To set the time, hour, minutes and seconds, click on the up down control of the corresponding spin box until the correct value is displayed (7)
Or,
click in the input field, select the current value and enter the new value with the keyboard.
7. To enter an offset, click on the up down control of the corresponding spin box until the desired offset is displayed (8)
Or,
click in the input field, select the current value and enter the new value with the keyboard.
8. Click on **Apply all** to set the new time as current time (9).
Click on **OK** to set the new time as current time and to close the system clock window at the same time.

6.12.3 Setup of the Server Secure clock



Only available when the projector is equipped with an ICMP.

About the displayed times

The clock indication next to *local time* indicates the local time as set by selecting the local time zone.

To limit a clock deviation, the local time can be synchronized. Depending on the synchronization source, automatic (NTP) or manual (secure clock), the deviation is limited within certain limits.

When using automatic (NTP), the clock is continuously synchronized with an external time server and the deviation is the order of milliseconds.

When using manual, an offset of maximum 6 minutes per calendar year can be added to align the local time with the 'real' UTC time.

How to set the clock

1. Click on **Internal clock** (1).

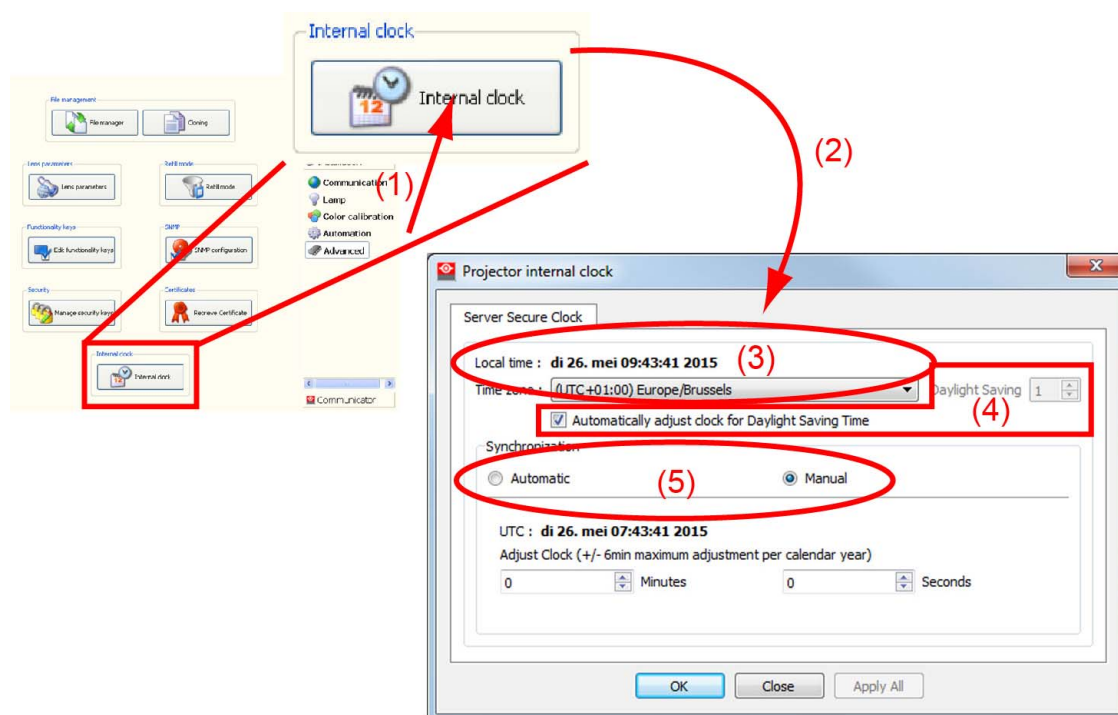


Image 6-93

Internal clock, server secure clock

The *Projector internal clock* window opens (2).

2. Set your local Time zone (3). Click on the drop down box and select the corresponding time zone.
3. Automatic Daylight saving time is by default automatically applied. The check box in front of *Automatic DST* (4) is checked.
This automatic mechanism can be disabled, so that the daylight saving time can be adjusted manually (not recommended). To disable that mechanism and to set daylight saving time manually, uncheck the check box in front of *Automatic DST* and select the corresponding value for *Current DST*.
4. Select the synchronization source (5).
The following sources are possible:
 - Automatic
 - Manual

6. Installation

5. Continue with the offset or with NTP setup.

6. Click on **Apply all** to set the new time as current time (6).

Click on **OK** to set the new time as current time and to close the system clock window at the same time.

Server secure clock offset (manual)

If there is a small difference between the real UTC time and the displayed UTC time an offset (positive or negative) can be added to align the displayed UTC time with the real UTC time. The offset can be maximum ± 6 minutes.

To setup an offset, click on the drop down box next to *Minutes* and/or *Seconds* and select the desired value.



When user is adjusting secure clock of the ICMP in Communicator, if the shift is bigger than 5 minutes (300s) in the future, the WebCommander or Commander will be disconnected, and the user will have to login again. This is due to a connection time-out that is expired.



NTP

Network time protocol

NTP setup

1. Click on **Add** (1).

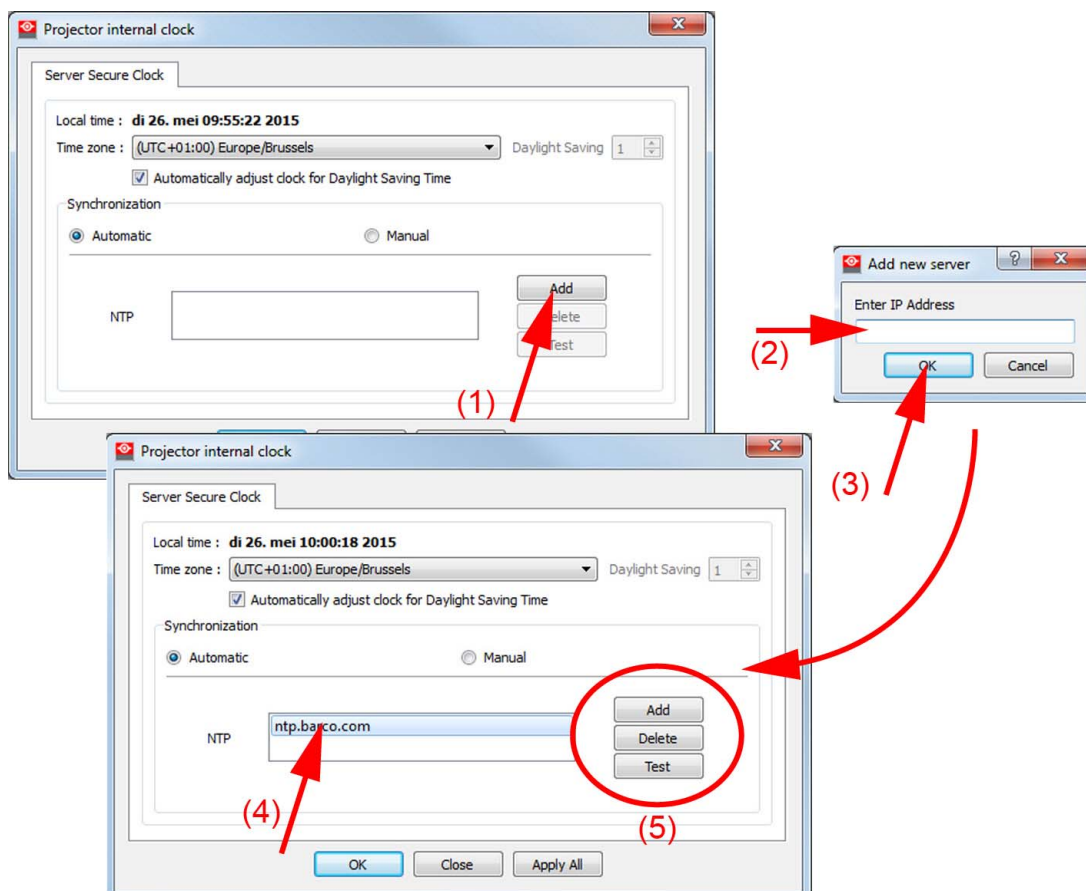


Image 6-94
NTP setup

The *Add new server* window opens.

2. Enter the IP address or server name (2) and click **OK** (3).

Note: *The server can be an internal or an external server but must be accessible via the network.*

The NTP server will be added in the list.

3. To test the connection, select the server (4) and click on **Test** (5).
4. To delete a server out of the list, select the server (4) and click on **Delete** (5).

6.12.4 File manager

Overview

- Introduction
- Activating the file manager
- Changing the view
- Create new local folder
- Refresh folder
- Delete a file or folder
- File upload
- File download
- Activate Spatial Color Calibration file

6.12.4.1 Introduction

Overview

The file manager allows to copy files from a local computer to the projector file system or from the projector file system to a local computer.

6.12.4.2 Activating the file manager

How to activate the file manager

1. While in *Installation*, click on **Advanced**.
The Advanced overview menu is displayed.
2. Click on **File manager**.

6. Installation

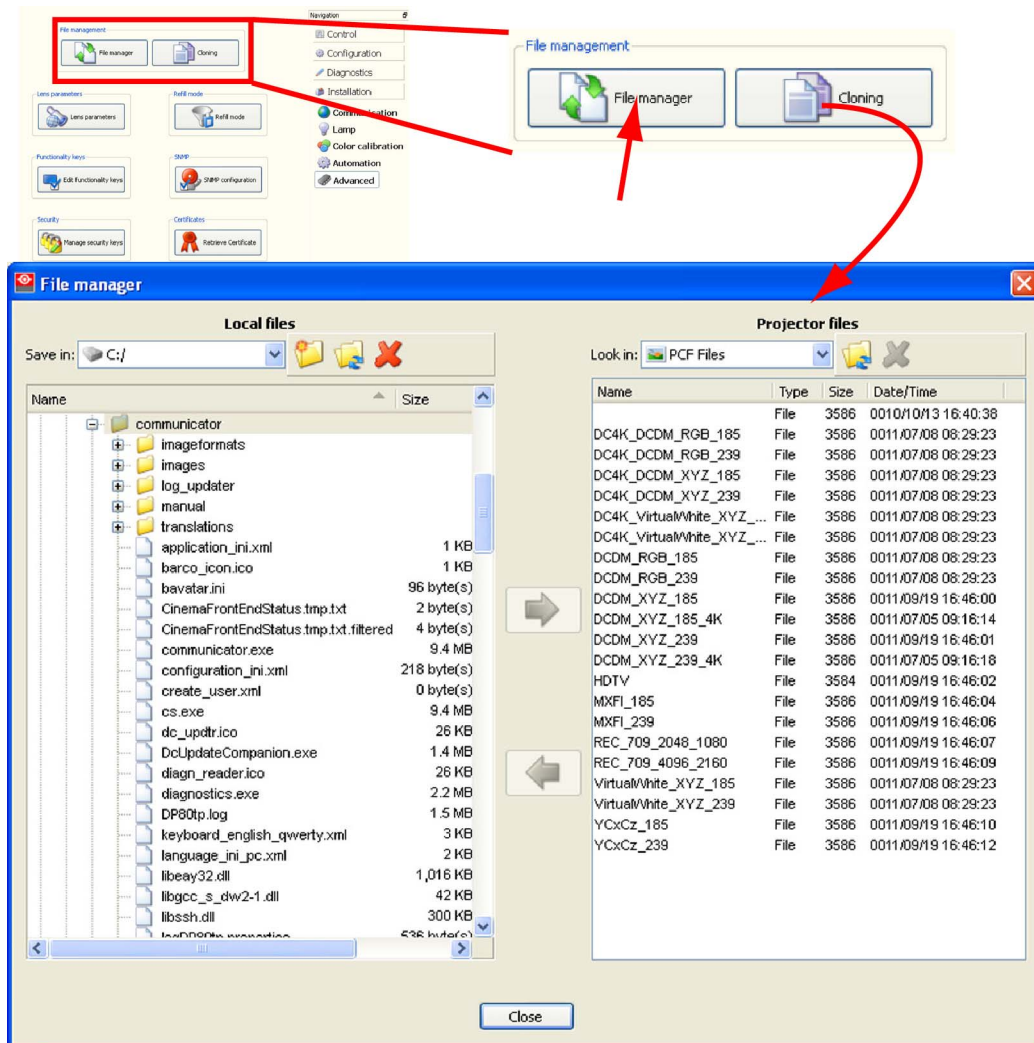


Image 6-95
File manager startup

The *File manager* window opens.

6.12.4.3 Changing the view

How to change the view for Projector files

1. Click on the drop down box just below *Projector files* and select the file type to be displayed.

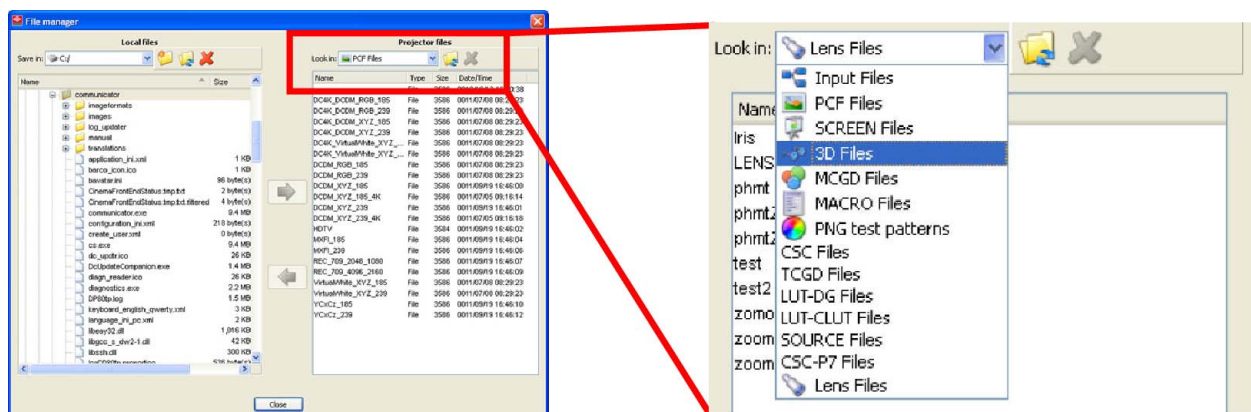


Image 6-96
File selection

The content of the list changes to the selected file type.

The following file types are possible:

Mode	Explanation
CSC	Color Space Converter Defines the Color Space to be used. It can be RGB or YcbCr.
TCGD	Target Color Gamut Data These files defines the Target Color Gamut. For each movie, it is possible to select a 'Target' Color Gamut File, which defines the color gamut values for that specific movie. Together with the measured color coordinates of the projector, the corrections for the projector are calculated so that the color gamut of the movie is reached.
LUT-DG	De-Gamma Lookup table.
LUT-CLUT	Complex LUT lookup table.
PCF	Projector Configuration File. This file is a file that will be delivered with each movie. It contains all data needed to display a certain movie as it is defined by the movie distributor. This file includes : <ul style="list-style-type: none"> • LUT-CLUT data • LUT-DG data • Color Space Converter data • Target Color Gamut data • Input data
MCGD	Measured color Gamut Data This file contains the measured color gamut data (color reference values) for a specific projector installation. This type of file can be created with the 'measure color gamut' function in the color gamut tab.
CSC-P7	Color Space Converter – P7 Normal projector use has the CSC-P7 values calculated based on MCGD and TCGD parameters. Therefore, downloading CSC-P7 values is typically done for debug purposes, rather than normal operation.
INPUT	Input files contain information about the input: Source selection <ul style="list-style-type: none"> • Port 292-A Source Type and Packing • Port 292-B Source Type and Packing • Port 292-Dual Source Type and Packing • Port DVI-A Source Type and Packing • Port DVI-B Source Type and Packing • Port DVI-Dual/Twin Source Type and Packing Color spacing Field bid and field dominance info LUT-CLUT and LUT-DG information
3D	3D settings <ul style="list-style-type: none"> • Frame Rate Multiplication • 3D Control commands (All)

Mode	Explanation
SCREEN	Screen presentation configuration These type of files include: <ul style="list-style-type: none">• Resizing information• Letterboxing information• Masking information• Anamorphic factor of projector lens information All information in the SCREEN file can be set with the Resizing, Masking and Lens Type interface.
MACRO	Macro files Macro files contain a sequence of commands that need to be executed when executing the macro file.
PNG	Portable Network Graphics files These files are typically used as test patterns.
LENS	Lens data file. Stores information about the lens adjustment in a typical setup.
LSC	Light sensor calibration file Stores information about the calibration setting according the light output for a certain type of screen.
LUT-SCC	Spatial color calibration lookup table (For all Digital Cinema projectors, safe C-Series projectors) Stores information about color uniformity of the image. The factory measured values are stored in a default LUT-SCC files and uploaded on the file system of the projector. This file will be activated. LUT-SCC files can only be activated via the file manager and cannot be part of a macro.

6.12.4.4 Create new local folder

How to create

1. Click on the drop down box, select the drive and browse to the desired location (1).

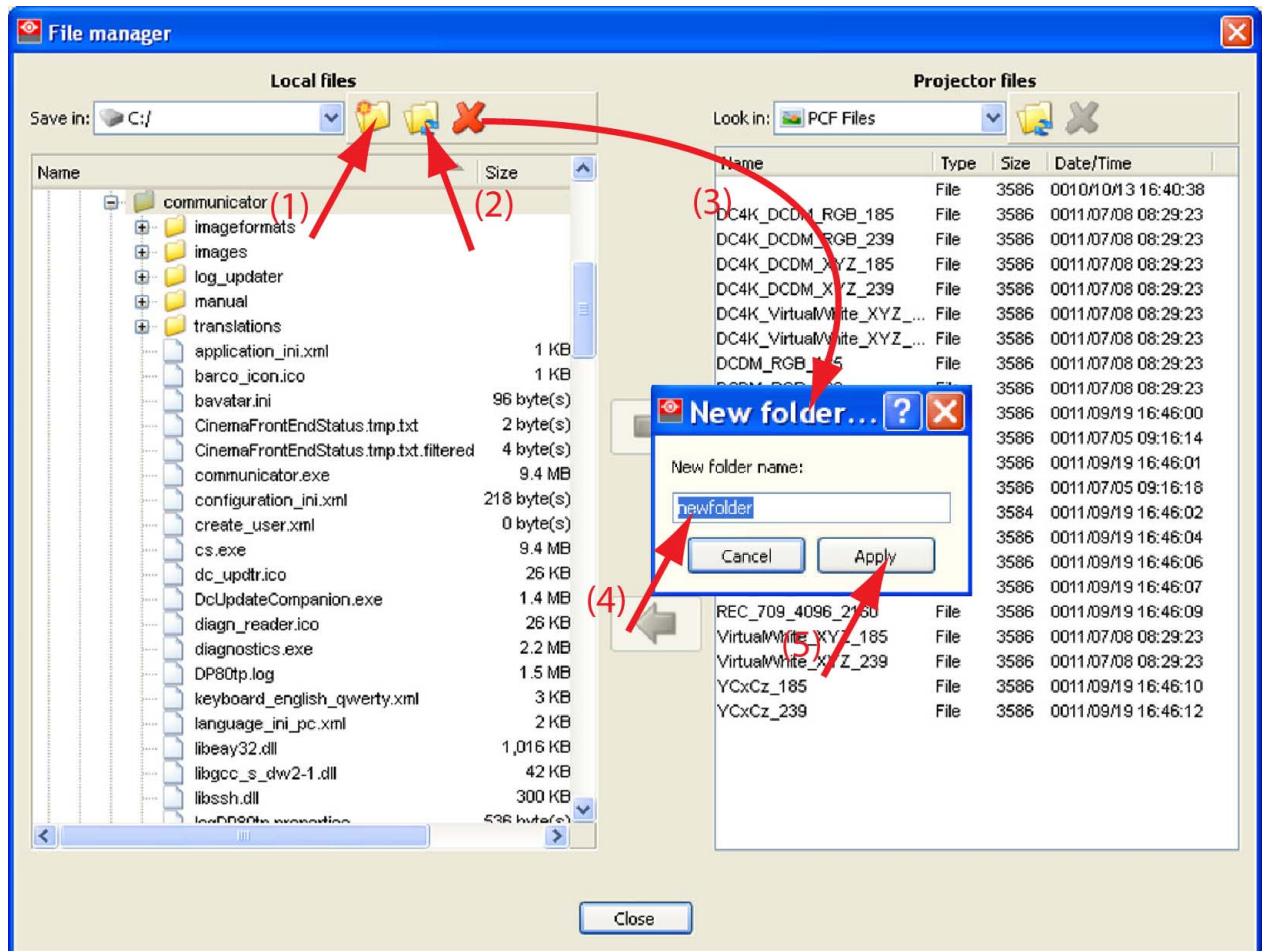


Image 6-97
Create new folder

2. Click on the new folder icon (2).
A *New folder name* window opens (3).
3. Enter a new name for the folder (4).
4. Click on **Apply** (5).
The new folder is created.

6.12.4.5 Refresh folder

How to refresh

Click on the refresh icon (🔄) on the *local* side or on the *Projector* side to refresh the current folder.

6.12.4.6 Delete a file or folder

How to delete

1. Click on a file or folder to select.
2. Click on the delete icon.
A confirmation message opens.
3. Click **Yes** to really delete the selected file or folder.

6.12.4.7 File upload

What can be done?

A file on the computer can be uploaded to the projector. Only the file type which is selected in Projector files can be uploaded. E.g. if you have to upload a PCF file, then select first PCF files in Projector files.

How to upload a file

1. While the File manager window is open, click on the drop down box (1) and browse to the file to be uploaded (2).

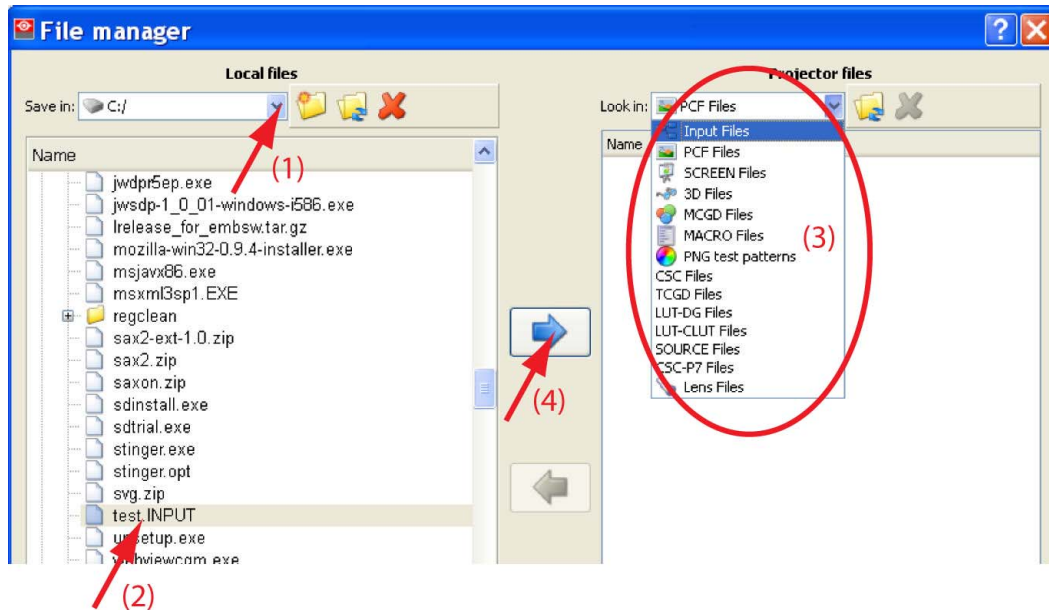


Image 6-98
File upload

2. Click on the drop down box in *Projector files* and select the corresponding file type (3).
3. Click on the arrow pointing to the right (4).

The file is uploaded from its original location to the projector file system.

6.12.4.8 File download

What can be done?

A typical file on the projector file system can be downloaded to the computer.

How to download

1. While the *File manager* window is open, click on the drop down box below projector to select the desired file type (1).

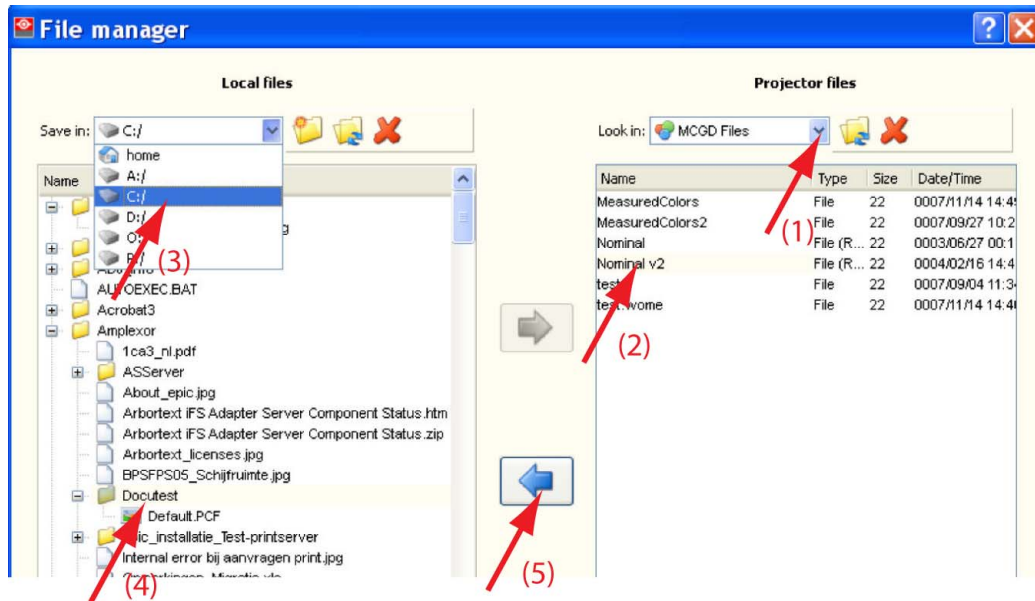


Image 6-99
Download a file

The list of possible files opens.

2. Select the file you want to download (2).
3. On the local side, click on the drop down box below *Local files* and select the location to store the file (3).
4. Once a location is selected, browse to the desired folder (4).
5. Click on the arrow pointing to the left.

The projector file is downloaded on the selected medium.

6.12.4.9 Activate Spatial Color Calibration file

About LUT-SCC file

The LUT-SCC file contains information to improve the color uniformity from the left to the right of the image. The uniformity is measured at the factory and stored in a LUT-SCC file on the ICP board. This LUT-SCC file is activated on the projector. As this file is Light Processor specific, when replacing the **Light Processor** of the projector a **new LUT-SCC file** should be uploaded and set as active file. When replacing the Integrated Cinema Processor (ICP) board the **backed up LUT-SCC file** should be uploaded and activated. Extra LUT-SCC files can be uploaded on the file system of the projector and set as active. Activating a LUT-SCC file is only possible via the File manager of the Communicator and not via a macro.

Where to find the specific LUT-SCC file?

As the LUT-SCC file is a light processor specific file, it can be downloaded from Barco's web site using the serial number of the light processor.

For projectors where the serial number is stored inside the projector, handle as follow:

- Create a diagnostic package.
- Open that diagnostic package with the Diagnostic package reader.
- Browse to the section Hardware info and search for the serial number of the light processor.

6. Installation

When the serial number is not yet available in the diagnostic package, then handle as follow:

- Remove the lens from the projector.
- Write down the Serial Number of the Light Processor. The label with Serial Number of the Light Processor is visible through the Lens Holder opening. The label is located at the front base of the Light Processor.

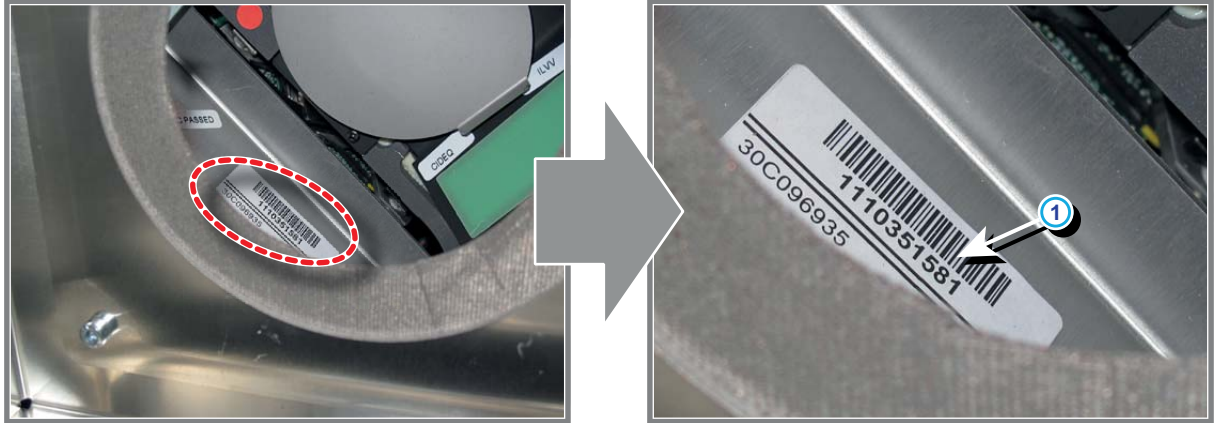


Image 6-100

Location label with Serial Number of the Light Processor of a DP4K-P projector.



The position of the label with Serial Number of the Light Processor may be slightly different. However, it will always be located at the front base of the Light Processor.

How to download the LUT-SCC file

1. Go to Barco's web site and click on myBarco.
2. Login and click on the **Support** tab.
3. Click on **Download LUT-SCC**.
4. Fill out the light processor's serial number and press **Submit**.

If a LUT-SCC file is found a download link will appear. Click on **here** to download the file.

If no LUT-SCC file is found, the procedure ends here. The default file must be used.

How to activate the LUT-SCC file

1. While *File manager* is selected, click on the drop down box (1) next to *Look in* and select *LUT-SCC files* (2).

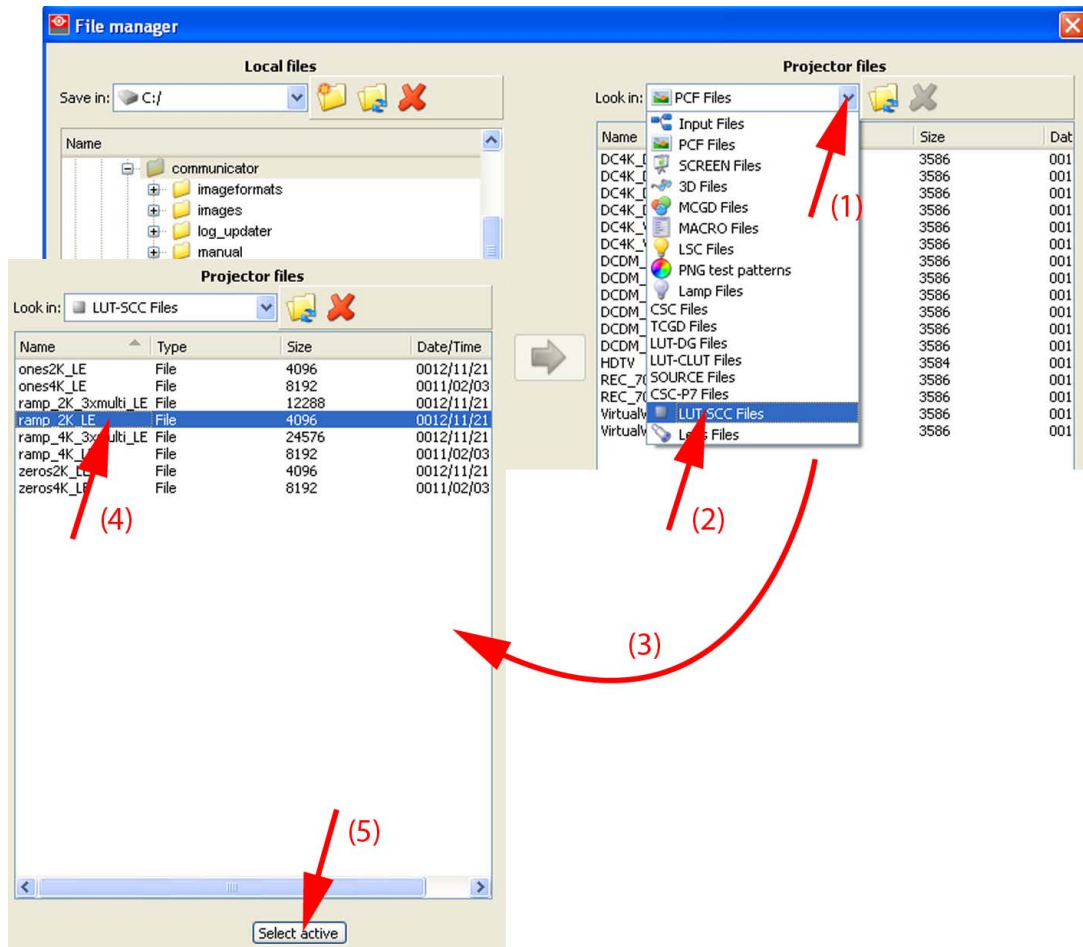


Image 6-101
Activate LUT-SCC file

2. Select the desired file (4).
3. Click **Select active** (5).

6.12.5 File management, cloning

Overview

- Introduction
- Start up the cloning
- Create a Basic clone file
- Create an individual preset clone
- Create a clone for a typical file type
- Full backup clone
- Backup clone TI board only
- Backup clone Barco controller only

6.12.5.1 Introduction

Overview

Users with multiple installations want to setup these installation in the same way. The same macros linked with the same buttons, etc. Therefore it is handy to setup one system and then to make a copy of the created macro files with all its links. This is called cloning.

6. Installation

Also, before changing the Input and Communication interface, make a clone of the specific settings so that these settings can be restored in a new unit.

A clone file can be restored on identical projectors.

Different options are available to create a clone file:

- Basic cloning with a preset clone mode: all presets (macros) that are linked to a button and the files the presets are pointing to, including the position on the touch panel and local keypad are zipped in the clone file. Setup specific files are normally not included in the zip file.
- Advanced cloning, individual preset clone: only one specific preset (macro) and the files the preset is pointing to is included in the zip file.
- Advanced cloning, specific file type: clones all files of a specific file type. E.g. clone of all PCF files.
- Advanced cloning, individual files: clones specific files of different types you want to clone.
- Full backup clone, clones every setting and file of the projector.
- Full backup, backup clone TI board only.
- Full backup, backup clone Barco controller only.

6.12.5.2 Start up the cloning

How to start up

1. While in *Installation*, click on **Advanced**.
2. Click on **Cloning**.

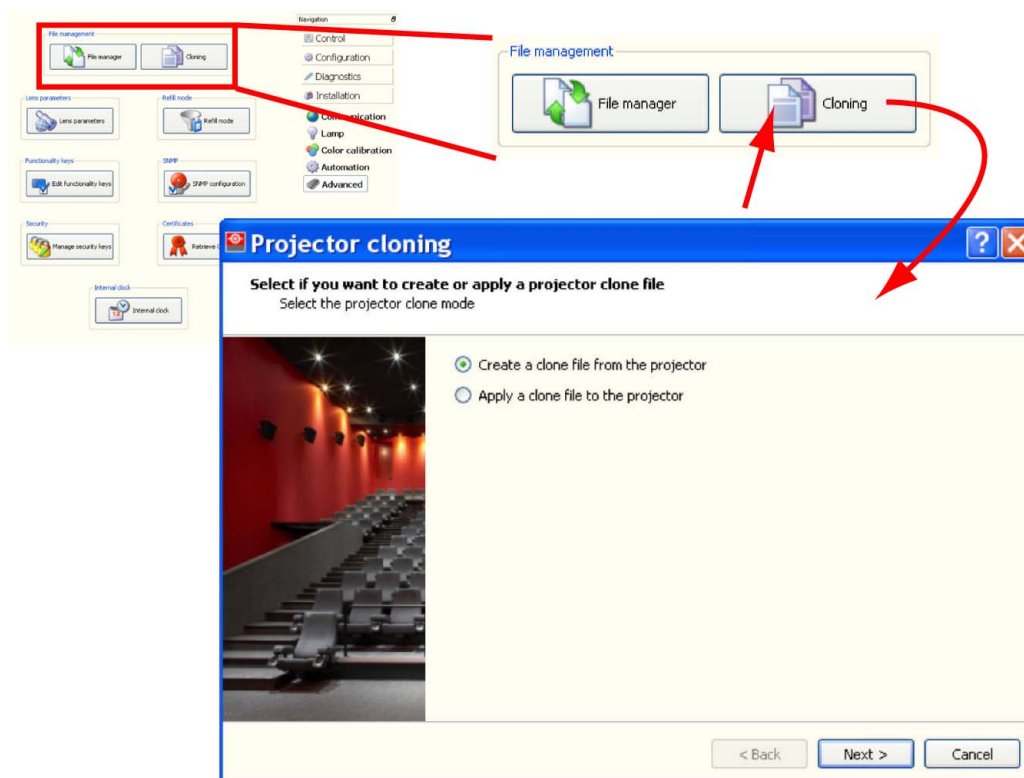


Image 6-102
Startup file cloning

The *Projector cloning* window opens.

6.12.5.3 Create a Basic clone file

What can be done ?

All presets (macros) that are linked to a button and the files these presets are pointing to, together with its position on the keypad and/or touch panel are copied in a zip file. By default, projector specific files are not included in the zip file. These files can be included if desired so that a restore on the same projector is possible.

How to make a basic clone

1. Check the radio button next to *Create a clone file from the projector* and click on **Next>**.

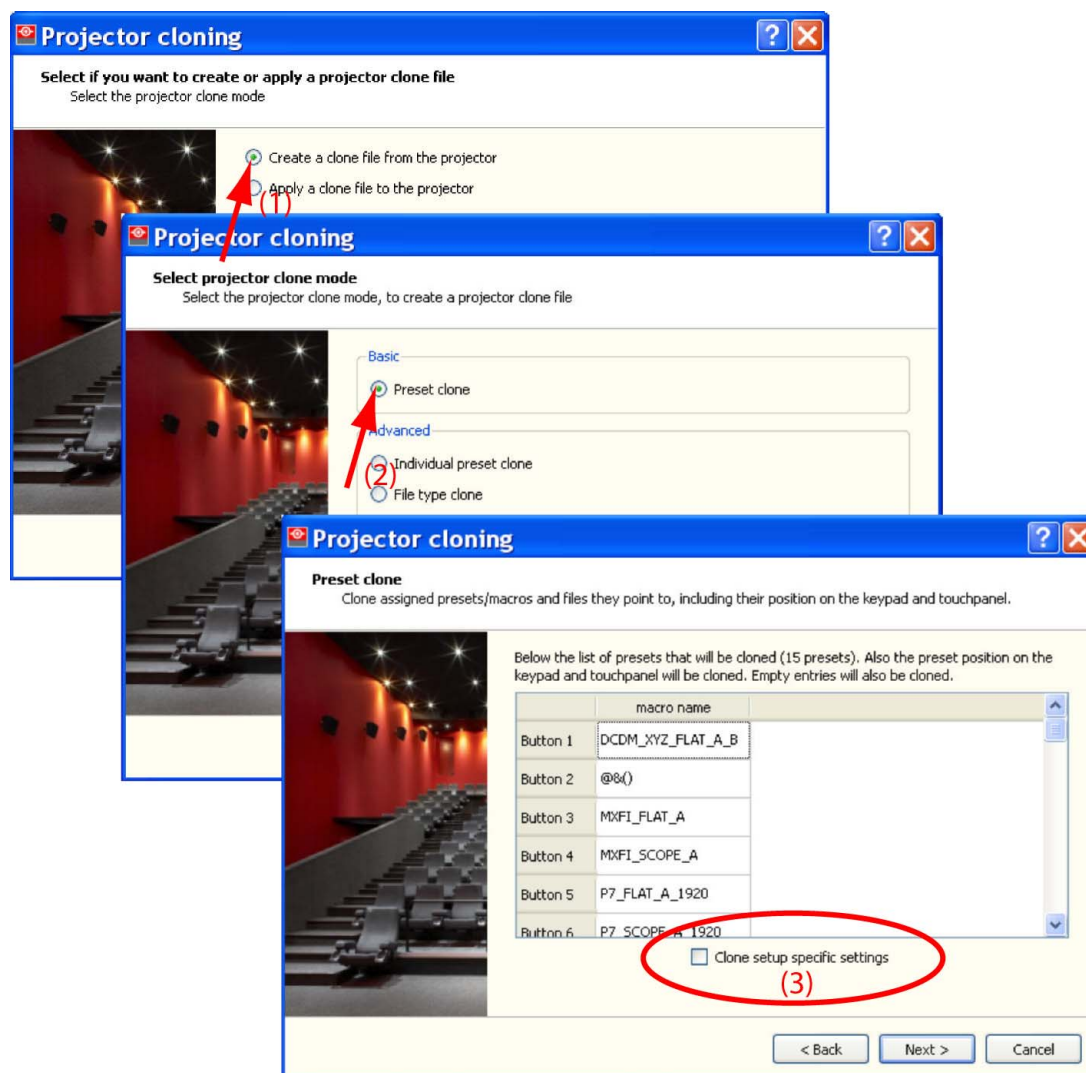


Image 6-103
Basic cloning

2. Check the radio button next to *Preset clone* and click on **Next>**.

The software gathers all presets, the pointed files and the locations and display it for confirmation.

By default, setup specific files will not be included in the clone file.

3. Do you want to include setup specific files?

If yes, Check the check box in front of *Clone setup specific settings* and click then on **Next>**.

6. Installation

A message is displayed. Sharing MCGD and SCREEN data is not recommended. Use it only for backup purposes.

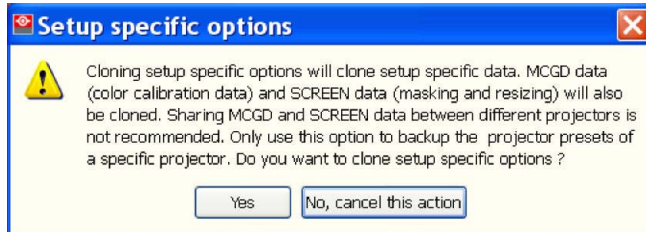


Image 6-104

If no, click immediately on **Next>** without checking the check box.

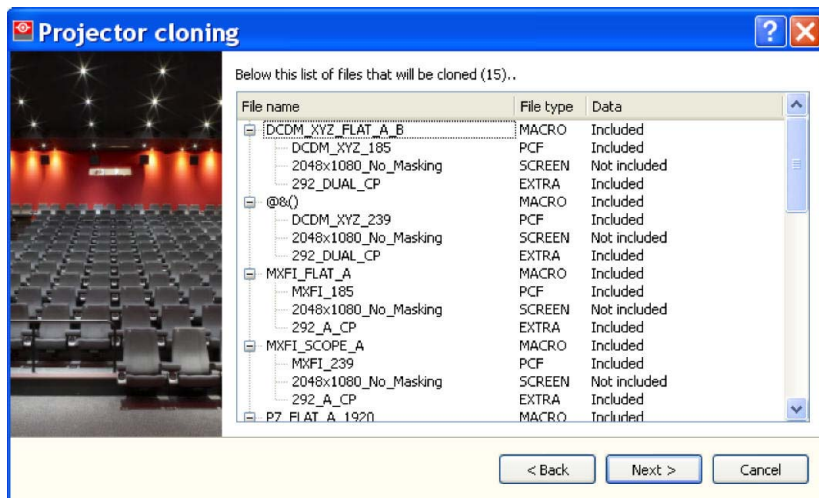


Image 6-105

In both cases, data will be retrieved and an overview is given from what is included.

The state:

- included : data is include in the clone file.
- not included : a pointer to the file is included but no data.

4. A default file name is given. To change this name, click **Change** (4).

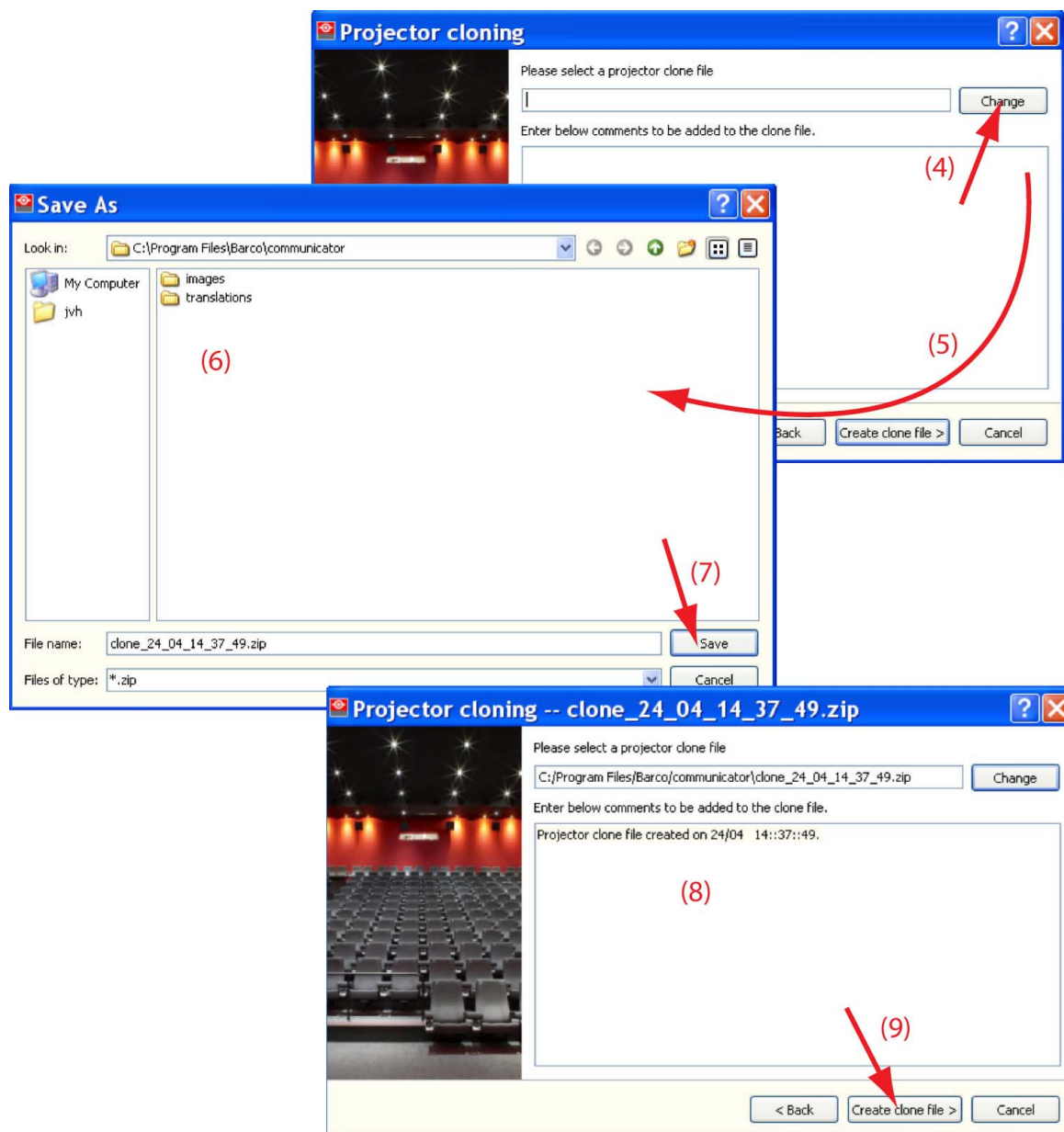


Image 6-106
Create clone file

- A browser window opens. A default file name is already filled out (5).
5. Browse to the desired location (6)
6. If you want to change the file name, click on it, select the file name and enter a new name with the keyboard.
7. Click **Save** to accept the selected location and file name (7).
8. If you want to enter extra command, click in the command field and enter the command with the keyboard (8).
9. Click **Create clone file >** (9).

The clone file is created and stored on the selected location.

6.12.5.4 Create an individual preset clone

What can be done ?

An individual preset (macro) and the files it points to can be cloned in a single clone file. Projector specific data is not included in the clone file.

How to make an individual preset clone

1. Check the radio button next to *Create a clone file from the projector* and click on **Next>** (1).

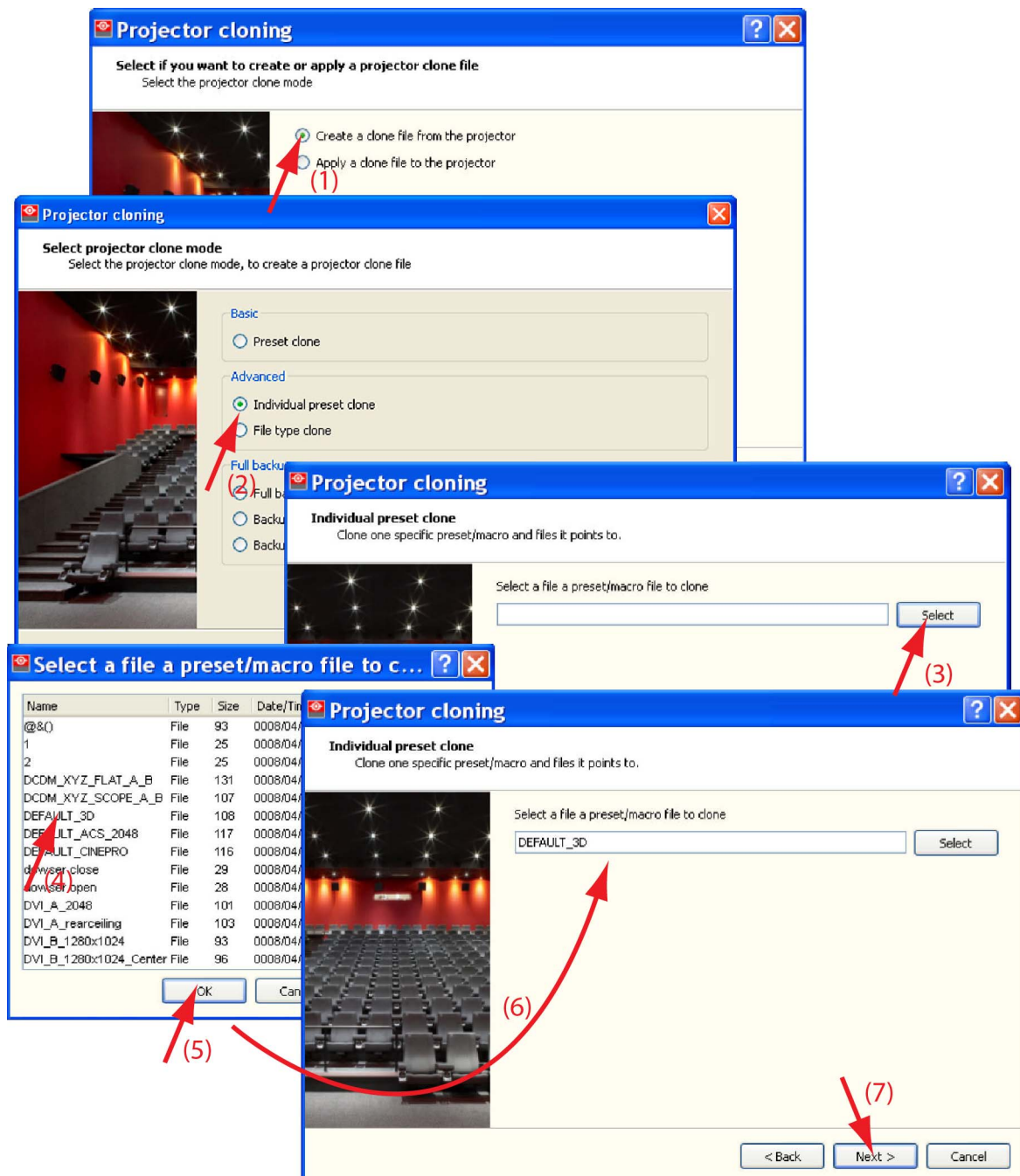


Image 6-107
Clone individual preset

2. Check the radio button next to *Individual preset clone* (2).

The individual preset clone window opens.

3. Click on **Select** (3).

The file selection window opens.

4. Select the desired macro file out of the list (5) and click on **OK** (6).

The selected file is filled out in the selection window (6). Click **Next>** to display an overview of the pointed files (7).

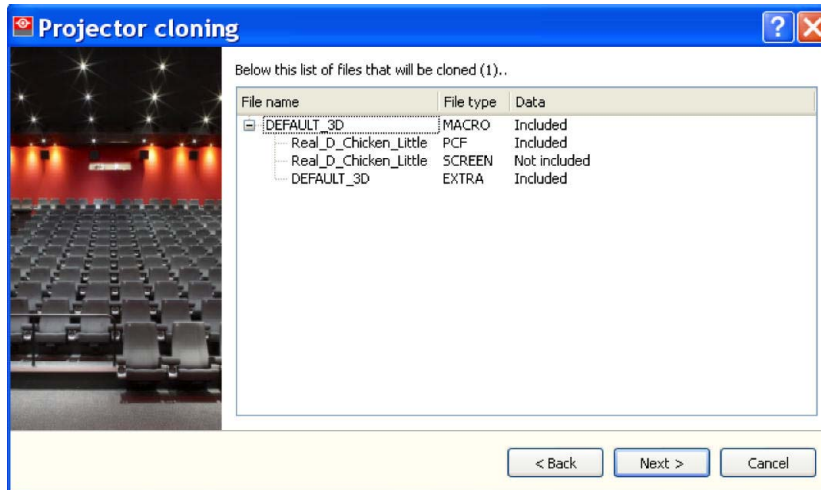


Image 6-108

5. Click **Next>** to start the clone file selection

6. A default file name is filled out. To change this file name, click **Change** (9).

6. Installation

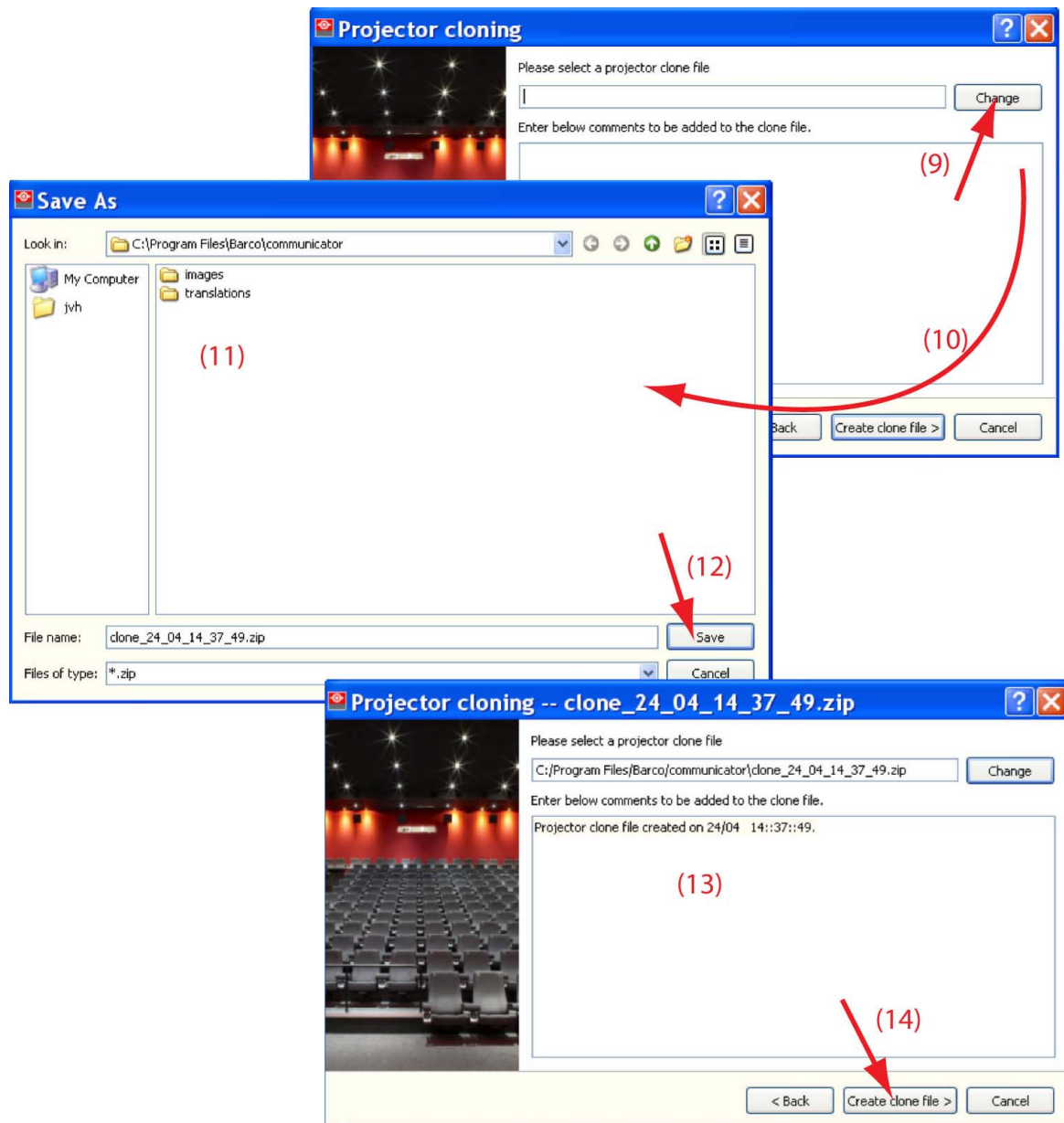


Image 6-109
Create individual clone file

A browser window opens. A default file name is already filled out (10).

7. Browse to the desired location (11)

8. If you want to change the file name, click on it, select the file name and enter a new name with the keyboard.

9. Click **OK** to accept the selected location and file name (12).

10. If you want to enter extra command, click in the command field and enter the command with the keyboard (13).

11. Click **Create clone file >** (14).

The clone file is created and stored on the selected location.

6.12.5.5 Create a clone for a typical file type

What can be done ?

All files with a specific extension can be cloned in a clone file. For projector specific files, it is recommended to restore these files only on the same projector.

How to make clone file

1. Check the radio button next to *Create a clone file from the projector* and click on **Next>** (1).

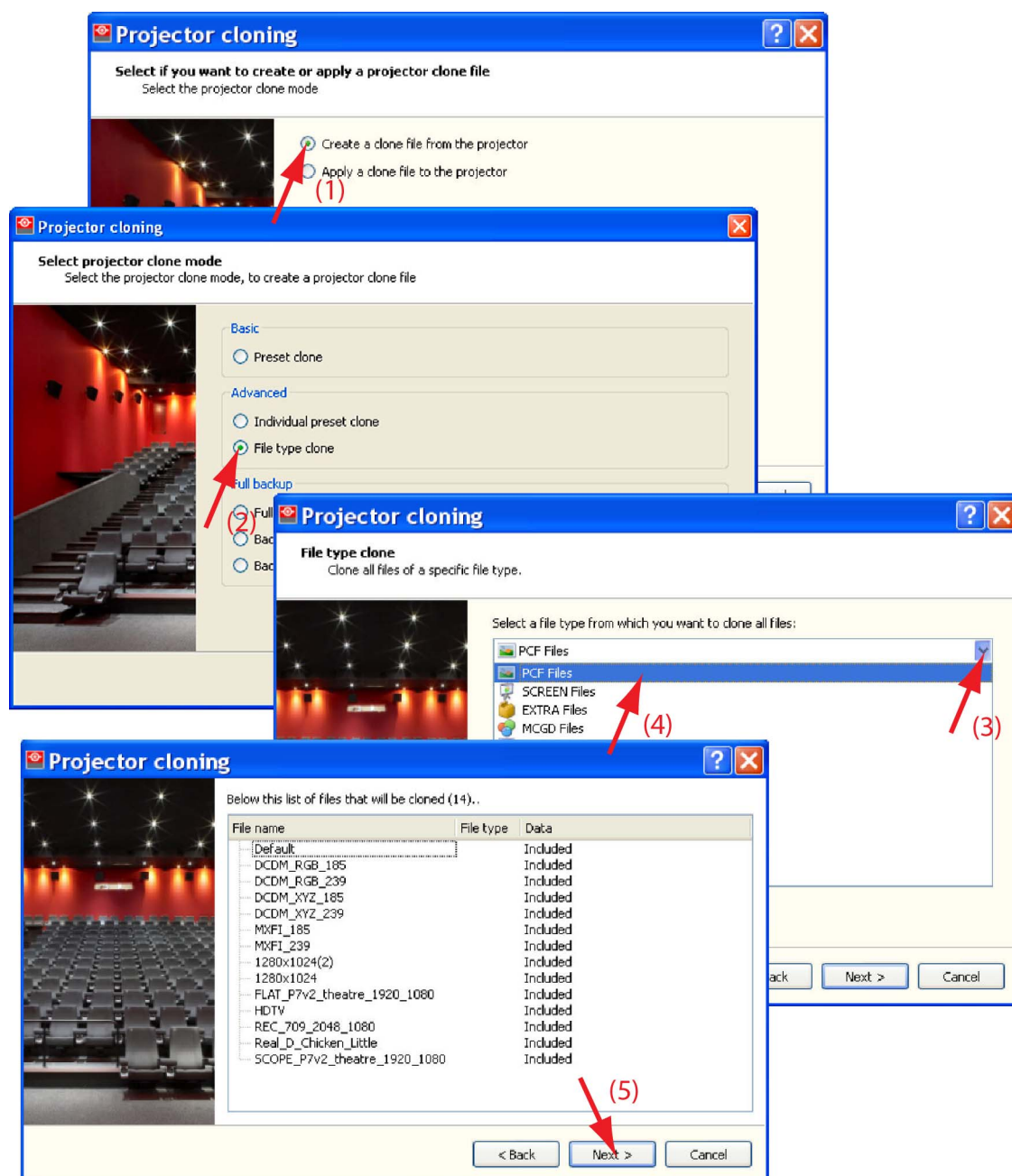


Image 6-110
Clone typical file type

2. Check the radio button next to *File type clone* (2).
The file type selection window opens.
3. Click on the drop down box (3) and select the desired file type out of the list (4).
An overview of the files is displayed.

6. Installation

4. Click **Next>** to start the clone file selection (5).
5. Click **Change** (6).

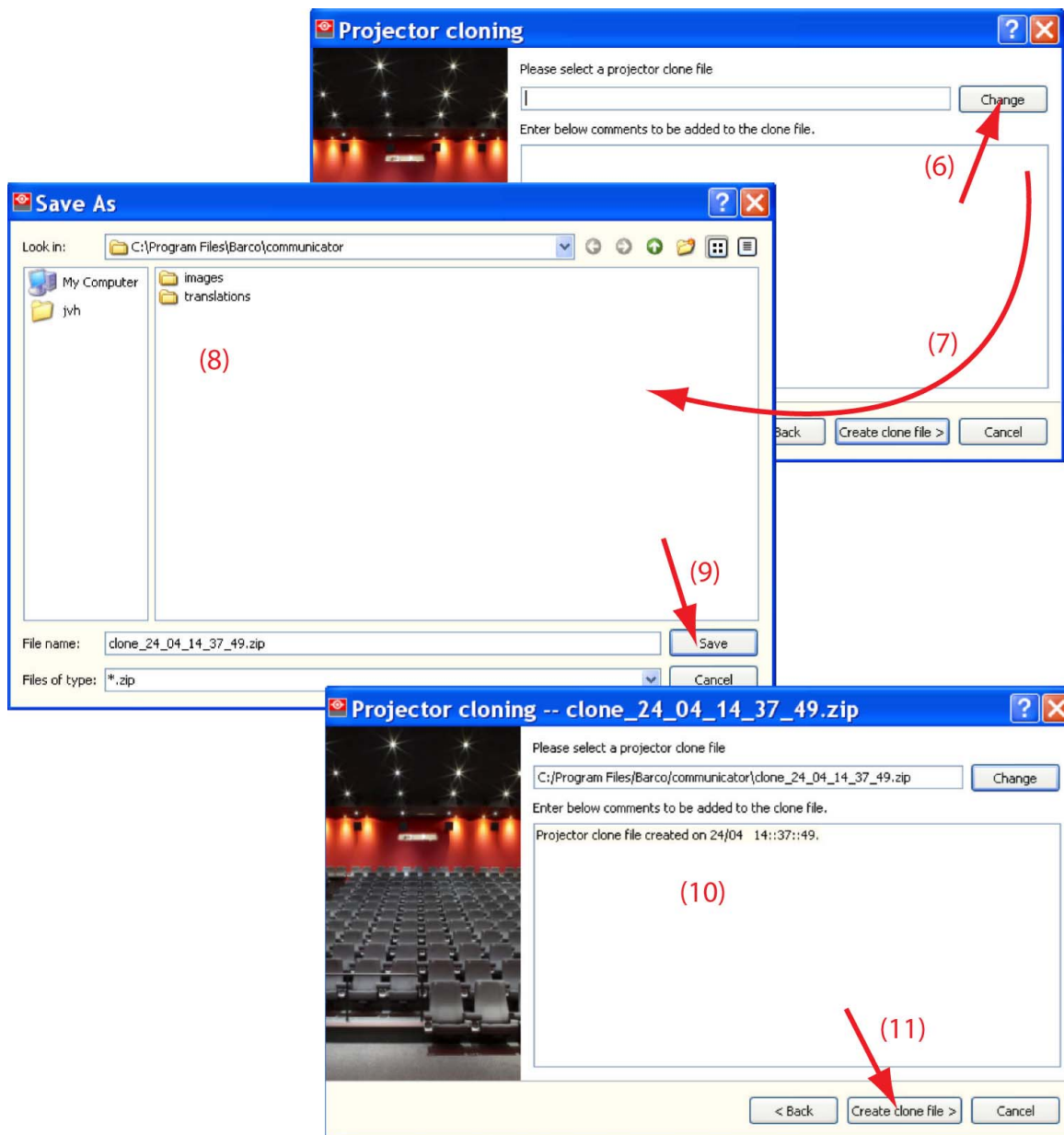


Image 6-111
File name selection

- A browser window opens. A default file name is already filled out (7).
6. Browse to the desired location (8)
7. If you want to change the file name, click on it, select the file name and enter a new name with the keyboard.
8. Click **OK** to accept the selected location and file name (9).
9. If you want to enter extra command, click in the command field and enter the command with the keyboard (11).
10. Click **Create clone file >** (12).

The clone file is created and stored on the selected location.

6.12.5.6 Full backup clone

What can be done ?

All settings and files in the projector are included in the full backup clone. This full backup clone can be restored on the same projector after a service action.

How to make a backup clone

1. Check the radio button next to *Create a clone file from the projector* and click on **Next>** (1).
2. Check the radio button next to *Full backup clone* and click on **Next>** (2).

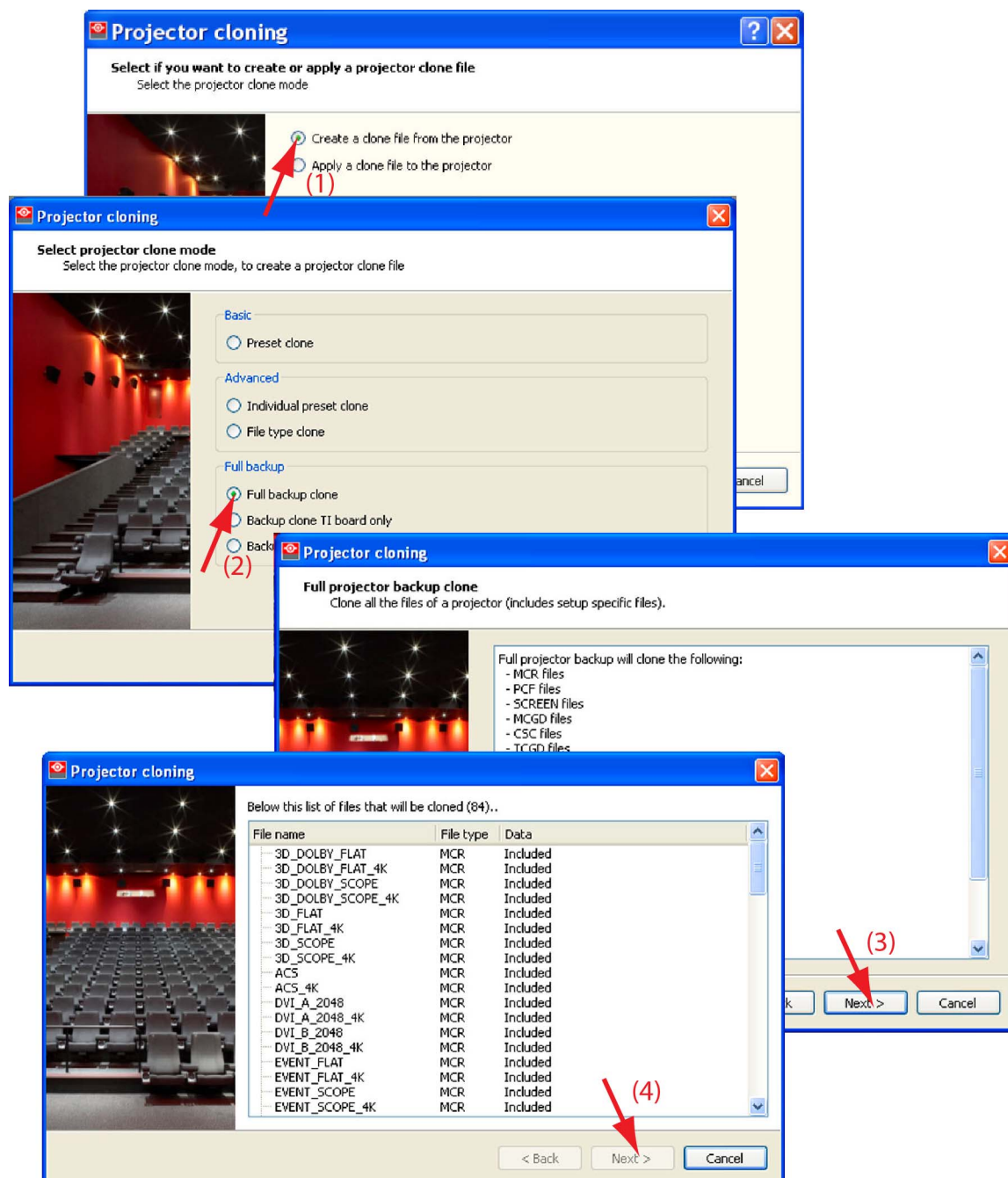


Image 6-112
Full backup clone

List of all files and setup specific files is given.

3. Click Next (3)

6. Installation

The files are retrieved.

4. Click **Next** (4)

The file location window opens. A file name is already proposed.

5. If the location is not the desired one, click **Browse** (5).

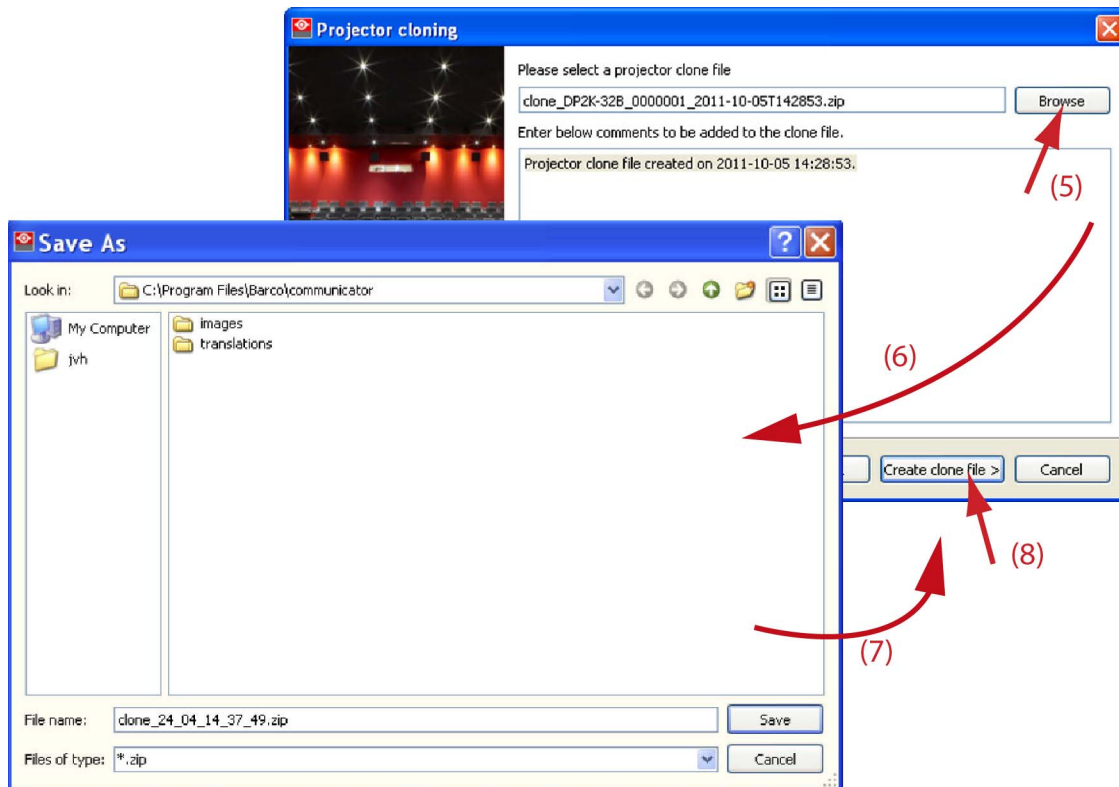


Image 6-113
File location selection

A **Save as** window opens (6). Select the desired location and change the name. Click **Save**.

6. Click **Create clone file** (8).

The clone file is created and stored on the selected location.

7. Click **Finish** to terminate the backup procedure.

6.12.5.7 Backup clone TI board only

What can be done ?

All files and settings stored on the TI board are added in this specific backup. These files can be restored when the TI board is replaced during a service intervention.

How to clone a TI board

1. Check the radio button next to *Create a clone file from the projector* and click on **Next>** (1).

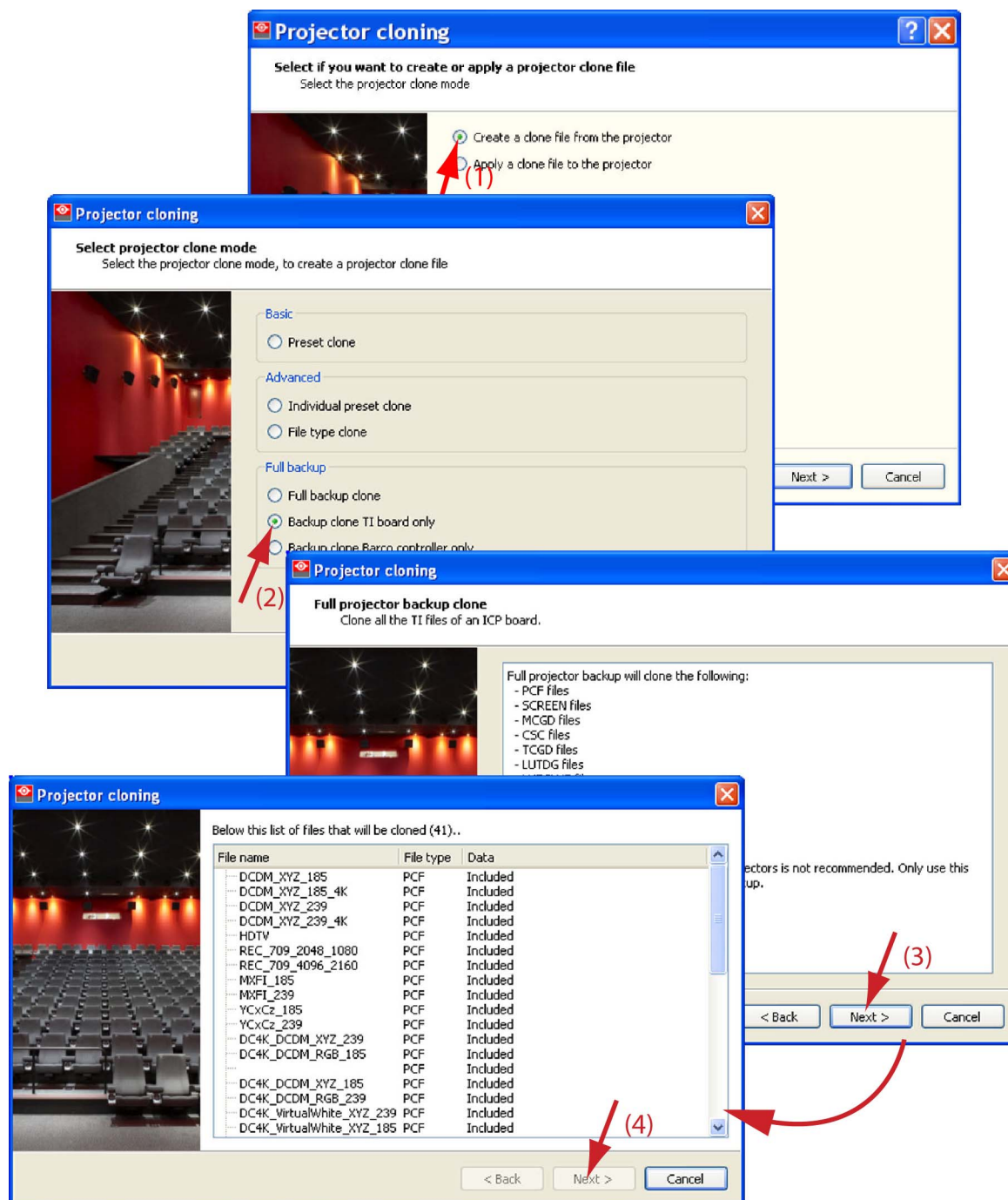


Image 6-114
Cloning TI board

2. Check the radio button next to *Backup clone TI board only* and click on **Next>** (2).
List of all files and setup specific files is given.
3. Click **Next** (3).
The information is gathered
4. Click **Next** to open the file location window (4).
A file name is already proposed.
5. If the location is not the desired one, click **Browse** (5).

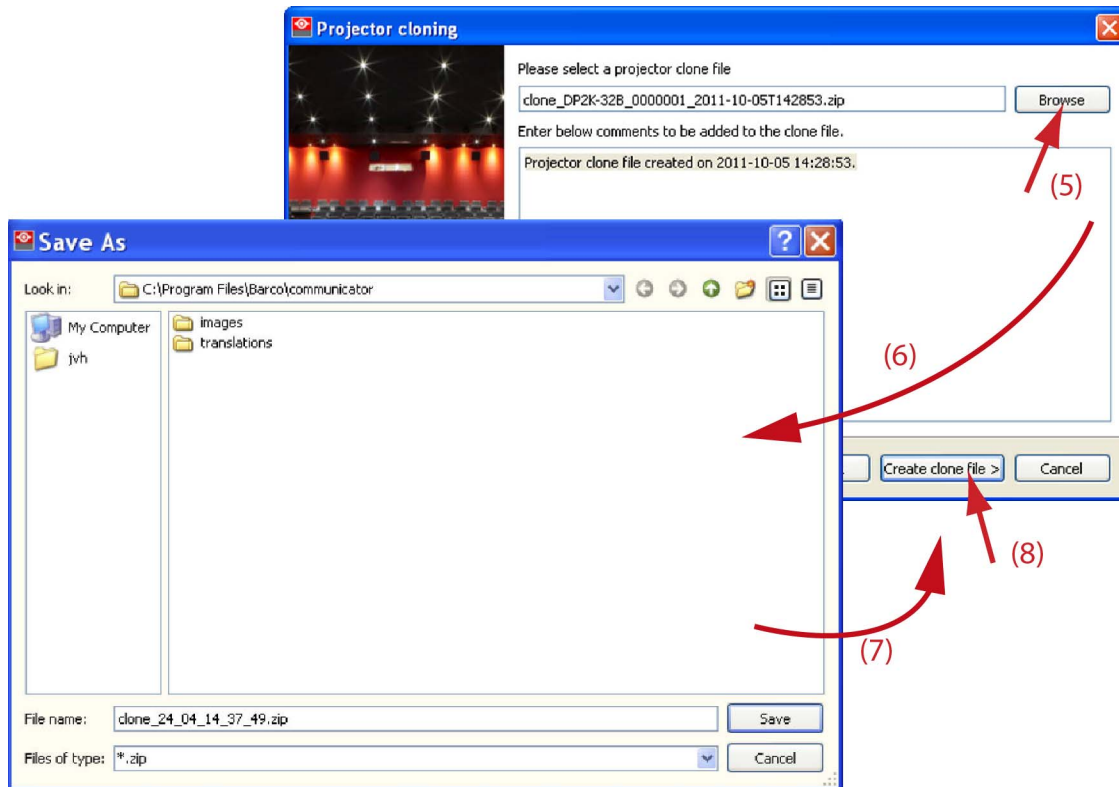


Image 6-115
File location selection

A **Save as** window opens (6). Select the desired location and change the name. Click **Save**.

6. Click **Create clone file** (8).

The clone file is created and stored on the selected location.

7. Click **Finish** to terminate the backup procedure.

6.12.5.8 Backup clone Barco controller only

What can be done ?

All files on the Barco controller board are included in the backup.

How to clone the Barco controller

1. Check the radio button next to *Create a clone file from the projector* and click on **Next>** (1).

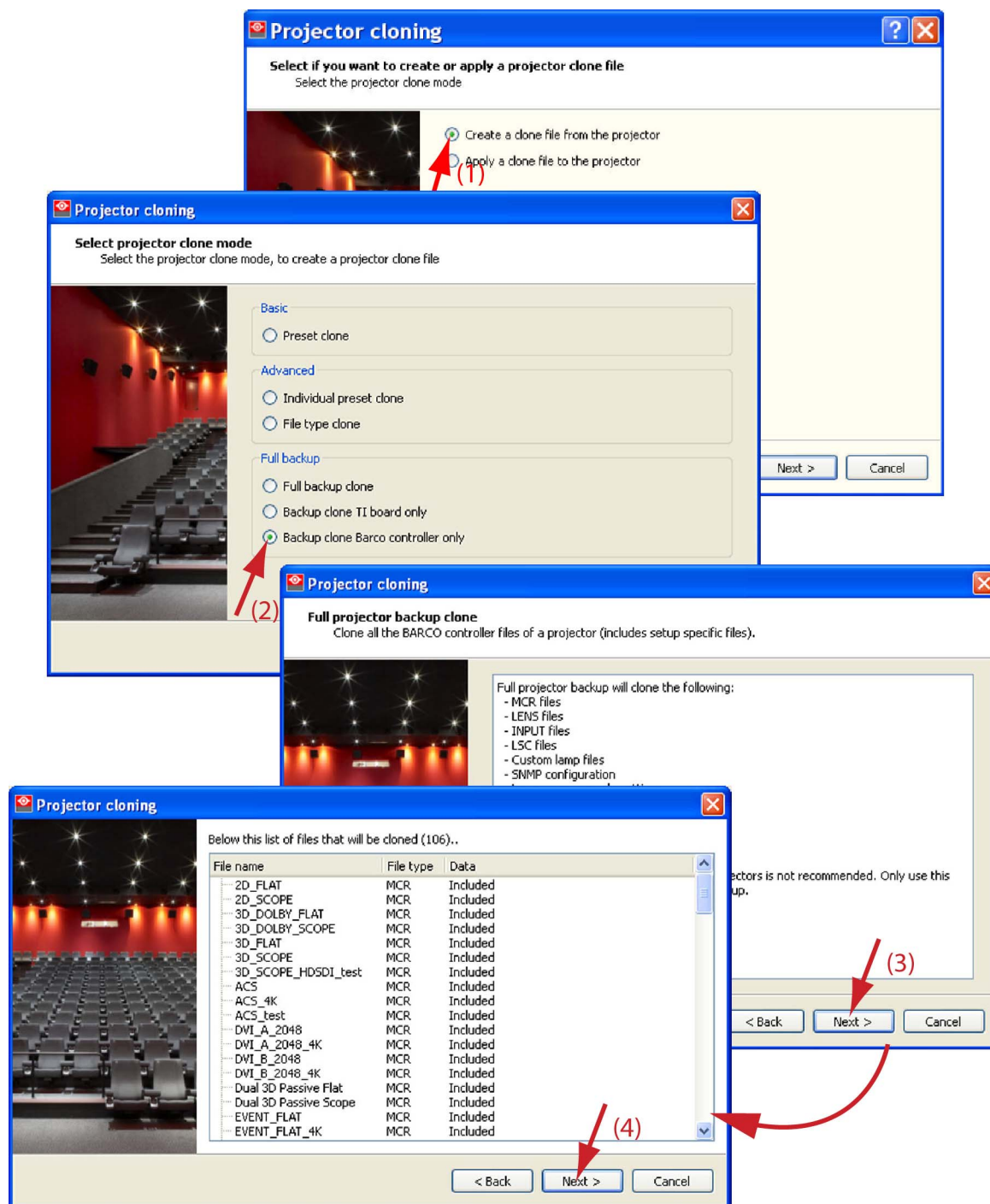


Image 6-116

Cloning Barco controller files

2. Check the radio button next to *Backup clone Barco board only* and click on **Next>** (2).

List of all files and setup specific files is given.

3. Click **Next** (3).

The information is gathered

4. Click **Next** to open the file location window (4).

A file name is already proposed.

5. If the location is not the desired one, click **Browse** (5).

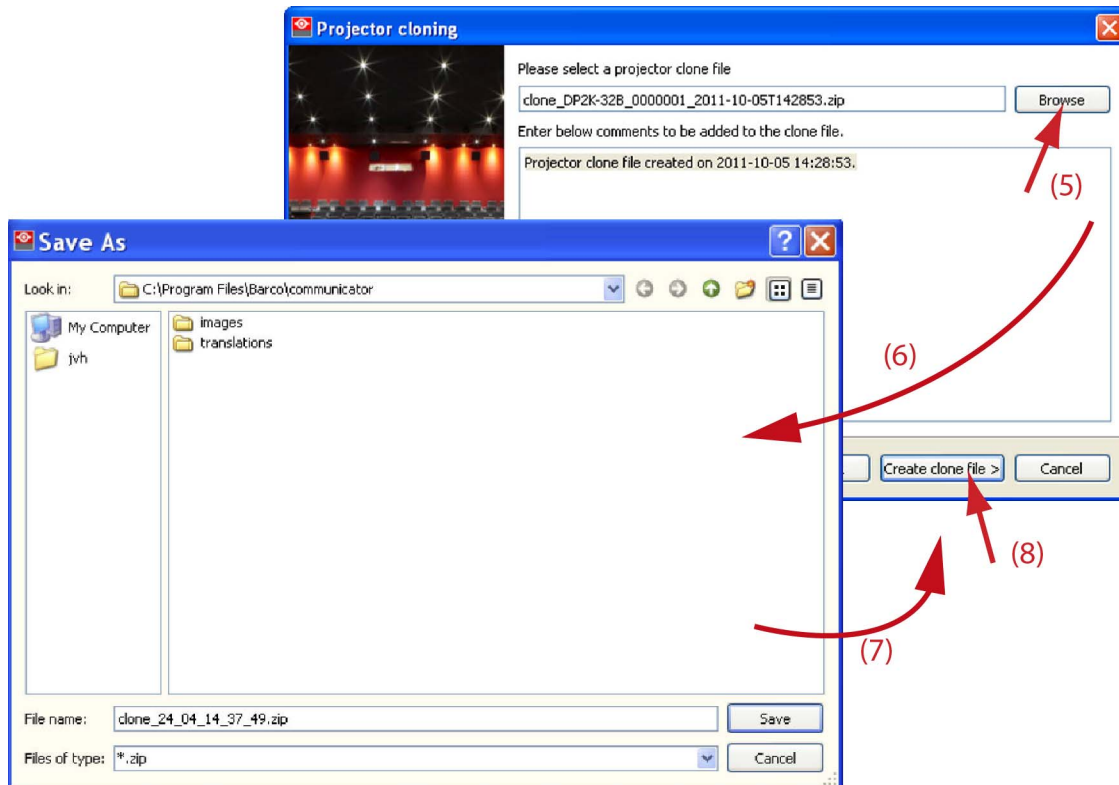


Image 6-117
File location selection

A **Save as** window opens (6). Select the desired location and change the name. Click **Save**.

6. Click **Create clone file** (8).

The clone file is created and stored on the selected location.

7. Click **Finish** to terminate the backup procedure.

6.12.6 Restoring a clone file

What can be done ?

A clone file can be restored on the same projector or on a projector of the same type. If some components in the clone file already exist on the projector, then the software will ask to overwrite the existing file.

How to restore

1. While in *Installation*, click on **Advanced** and then click on **Cloning**.
2. Check the radio button next to *Apply a clone file to the projector* (1) and click on **Next>**.

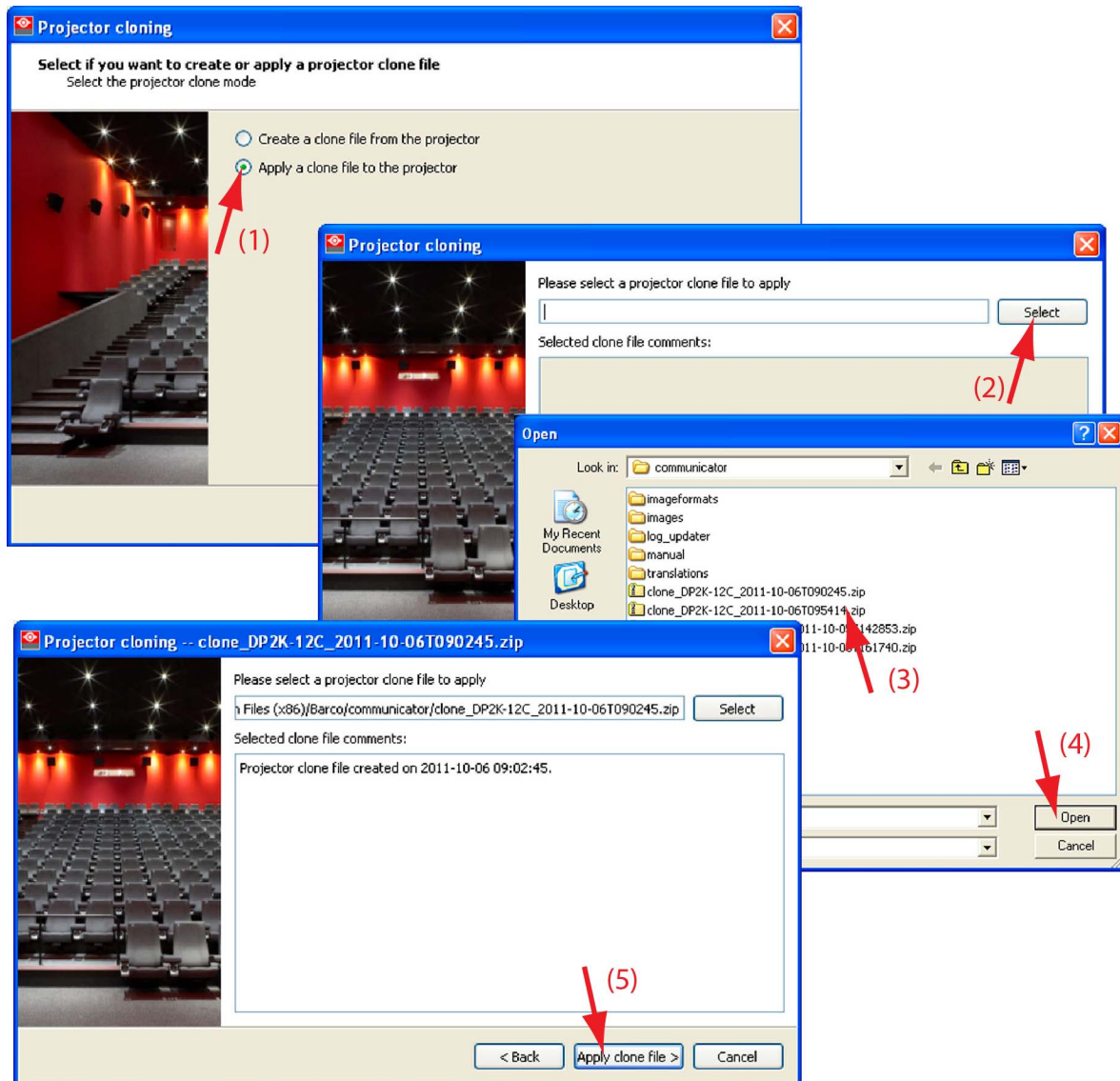


Image 6-118
Restore clone file

The file selection window opens.

3. Click on **Select** (2).

A browser window opens.

4. Browse to the file location and click on the desired file (3). click **Open** (4).

The file is loaded and the and the file comment is visible.

5. Click on **Apply clone file>** (5).

An overview of all files in the clone file is displayed.

6. Click **Next>**.

The restore starts. Each time it finds a file which is already on the projector, it asks to overwrite or not.

- Yes : projector file will be overwritten with the clone file.
- No : projector file remains on the projector, clone file will be ignored.

7. Click **Finish** to terminate the restore process.

6.12.7 Lens selection (parameters)

What must be done?

The software must know the article number of the used lens in the current installation so that it can enter the correct lens parameters.

How to enter the lens

1. While in the *Advanced* tab page, click on **Lens parameters** (1).

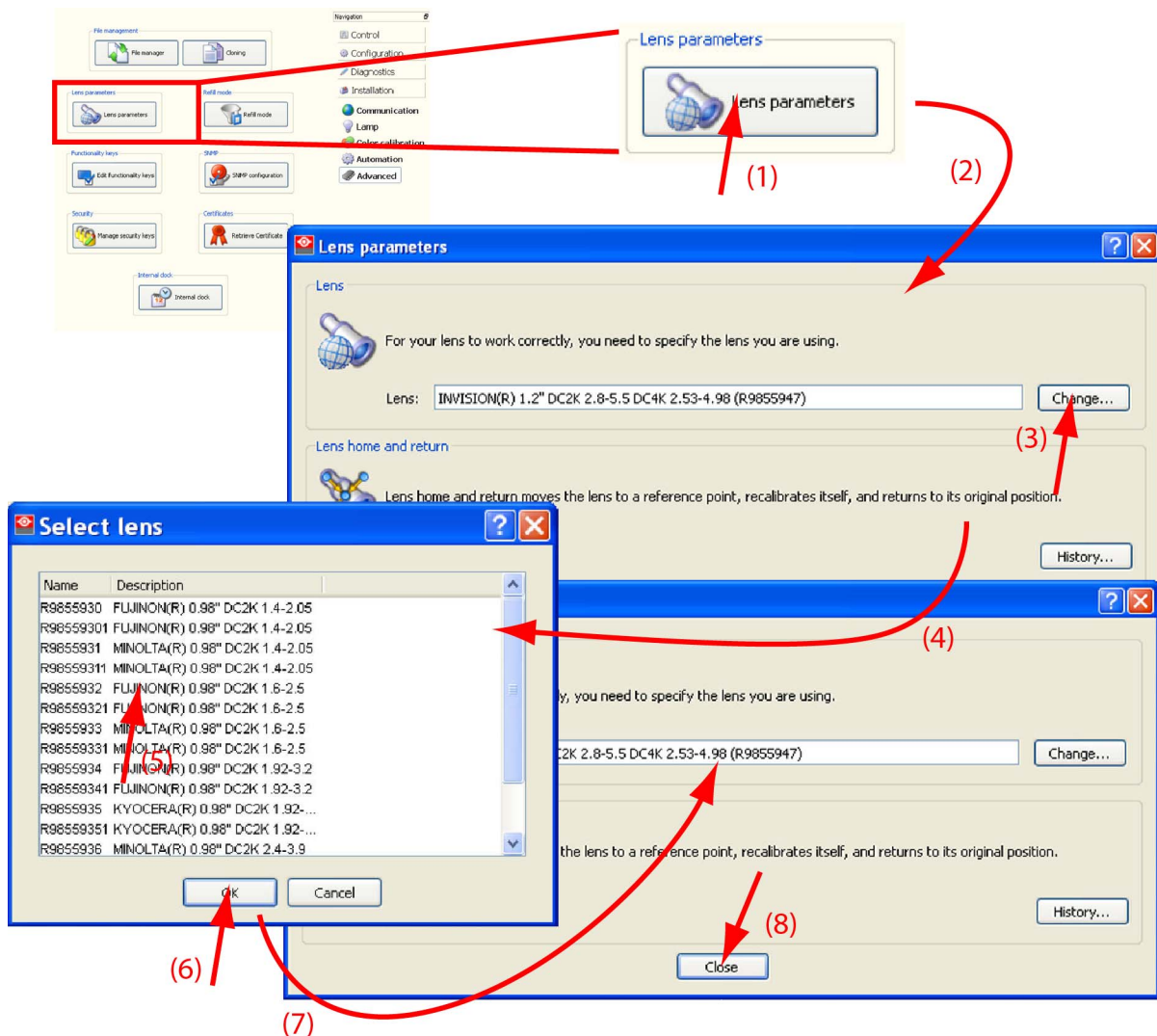


Image 6-119
Lens selection

- The *Lens parameters* window opens (2).
- Click on **Change** (3).
The *Lens selection* window opens (4).
- Click on the article number (5) of the current installed lens and click **OK** (6).
The *Lens parameters* window returns with the selected lens information filled out (7).
- Click **Close** to enter the lens parameters (8).

6.12.8 Lens homing and return

About lens homing

Homing the lens and return at any time is possible.

To access the homing function, select **Lens parameters** (1) to open the *Lens parameters* window (2).

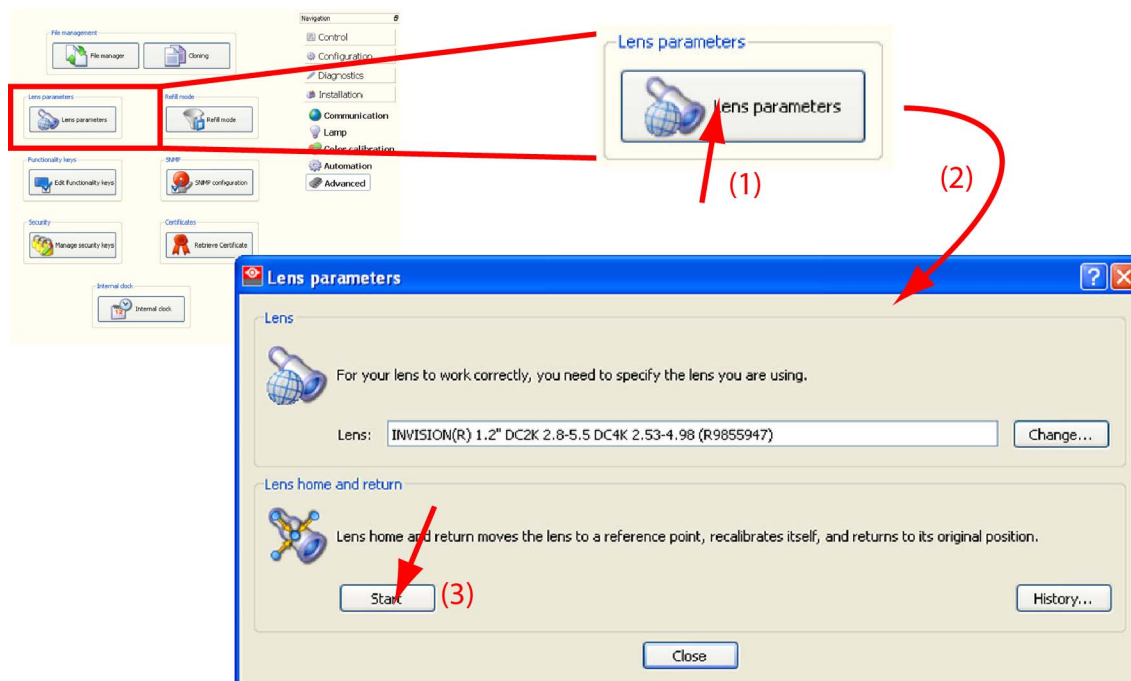


Image 6-120
Lens homing

To home the lens at anytime, click on **Start** (3).

Each time a lens is manipulated e.g. removed and inserted in a projector, or a new one is inserted, it needs to be homed and returned.

The home and return function homes the lens to a reference point and then returns it to its original position.

The projector will home and return automatically, at boot time, when it has lost its reference point.

Lens home history

To view the last performed action, click on **History** (1).

The *Lens home and return history* window opens and indicates the lens, time and date of last execution and the status of that execution.

6. Installation

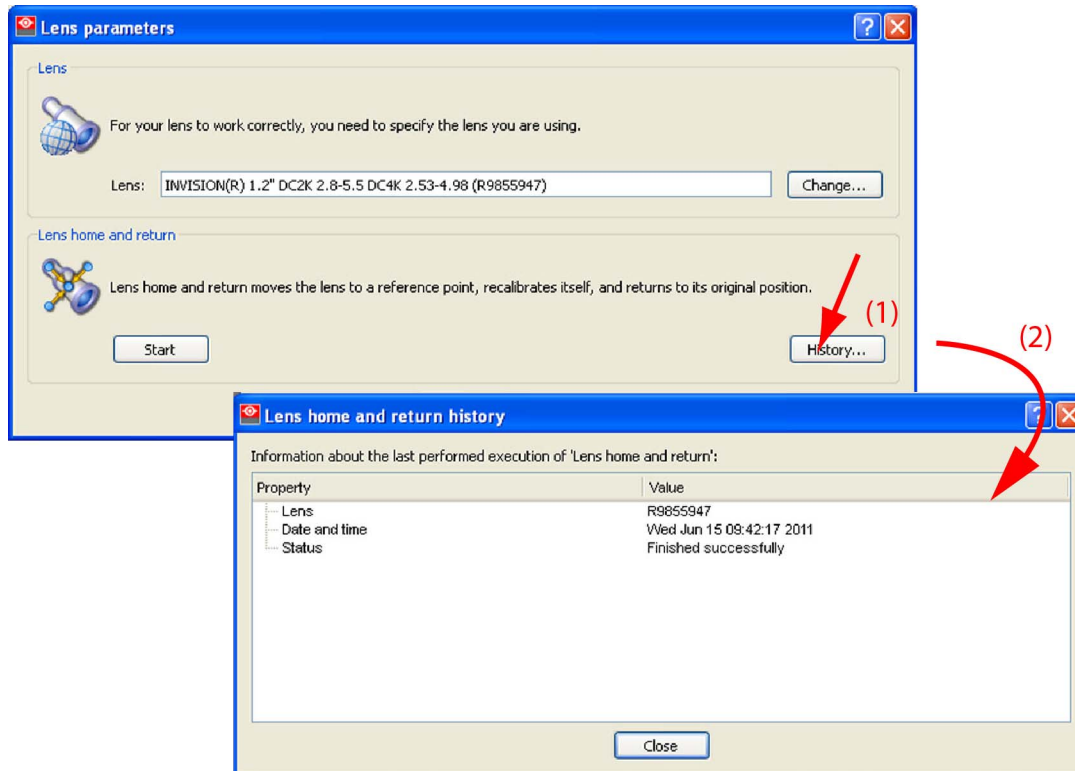


Image 6-121
Lens homing, last performed action

6.12.9 Laser services, Optical alignment

About laser services

Laser services are created to safely adjust and service the projector. The lasers or projector will be turned on at reduced power to allow for optical alignment.

Optical alignment, service mode activation

1. While in *Installation*, click *Advanced* and select **Laser services** (1).

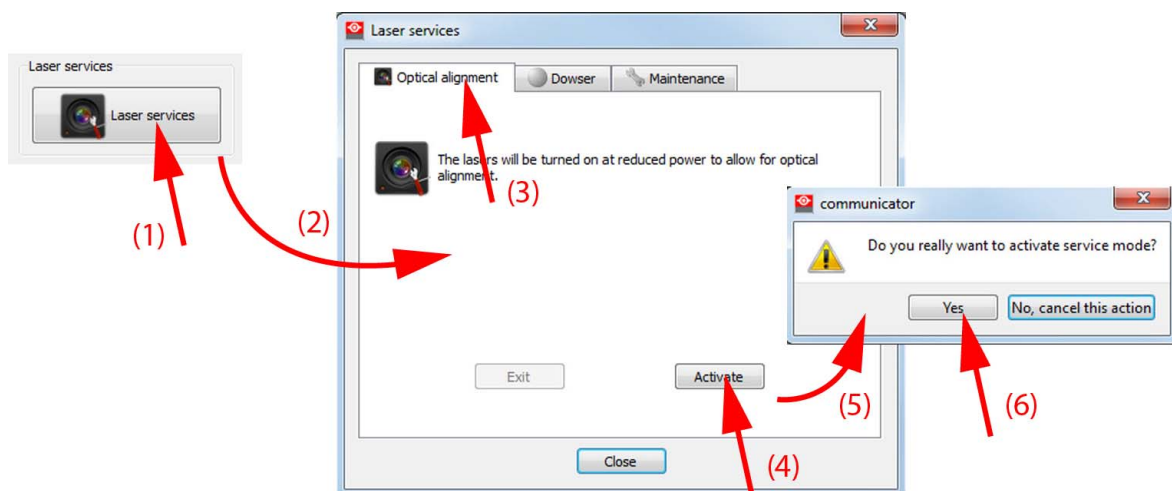


Image 6-122
Example Optical alignment mode for L-series projector

The Laser services window opens (2).

2. Select **Optical alignment** tab (3).

- Click **Activate** to turn on the lasers at reduced power (4).

A confirmation window is displayed (5).

- Click **Yes** to confirm (6).

The lasers will be switched to minimum power and will stay in this state until Exit is clicked or until the lasers (projector) have been switched off and on again.

Optical alignment, remove service mode

While optical alignment tab is selected, click on **Exit** to remove the service mode.

6.12.10 Laser services, Dowser mode

About the dowser mode

For L-series projectors, the dowser will be closed while the lasers are off or in (pre)conditioning mode even while the dowser button is green. This to avoid light is shining on the screen during (pre)conditioning mode. This automatic function can be disabled with the dowser service mode.

For CLP-series projector, the dowser will be closed during start up and shut down of the projector to avoid light is shining on the screen.

Dowser service mode activation

- While in *Installation*, click *Advanced* and select **Laser services** (1).

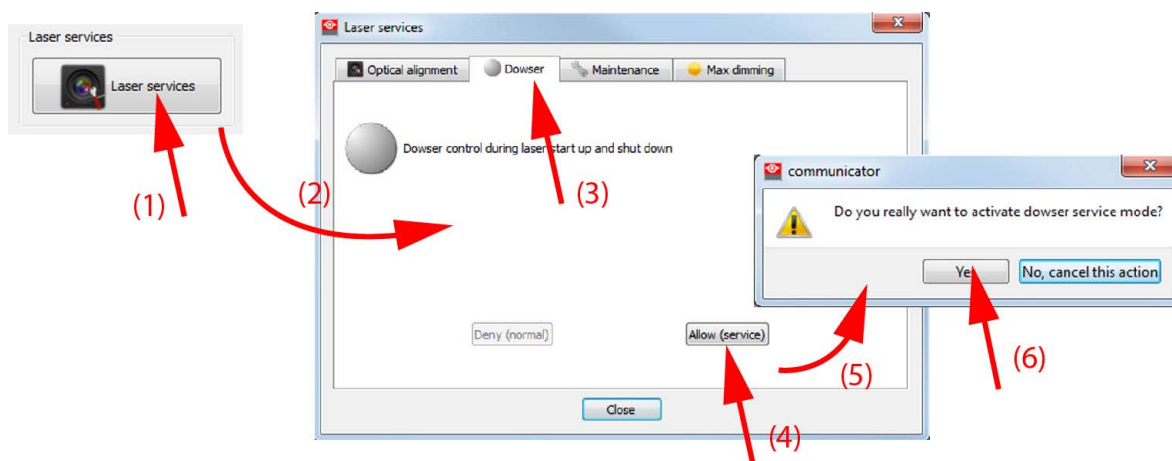


Image 6-123

Example Dowser service mode for L-series projector

The *Laser services* window opens (2).

- Select **Dowser** tab (3)

- Click **Allow (service)** to turn on the dowser service mode (4).

A confirmation window is displayed (5).

- Click **Yes** to confirm (6).

Dowser service mode, remove

While Dowser tab is selected, click on Deny (normal) to remove the dowser service mode. A confirmation is displayed and click yes to confirm.

6.12.11 Laser services, Maintenance

Maintenance

- While in *Installation*, click *Advanced* and select **Laser services** (1).

6. Installation

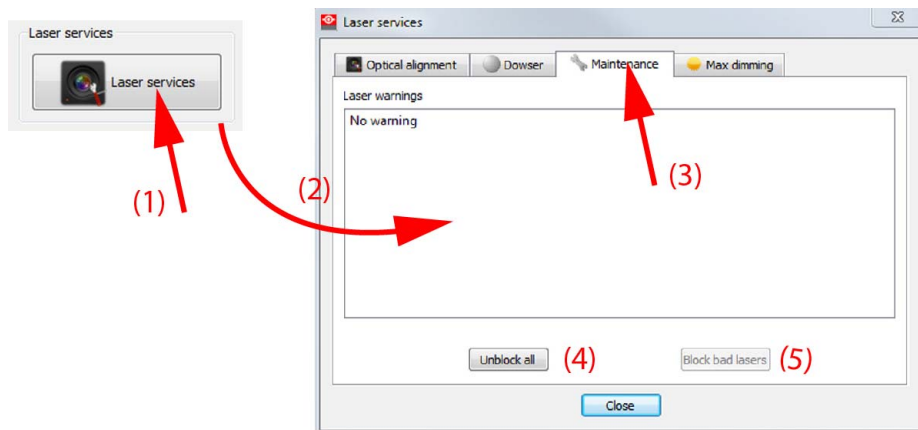


Image 6-124
Laser service, maintenance

- The *Laser services* window opens (2).
2. Select **Maintenance** tab (3)
An overview of warnings is displayed.
 3. To unblock all warnings, click on **Unblock all** (4).
To block bad lasers, click on **Block bad lasers** (5).

6.12.12 Laser services, Max dimming



Only for L-series projectors

How to set

1. While in *Installation*, click *Advanced* and select **Laser services** (1).

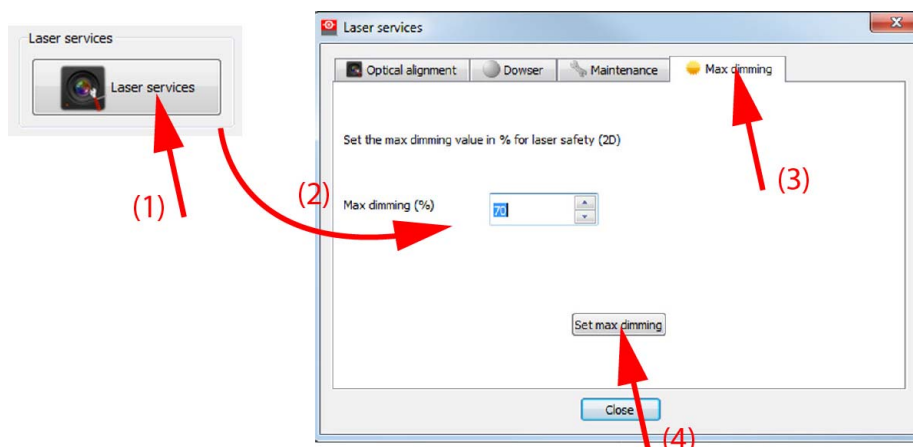


Image 6-125
Laser services, max dimming

- The *Laser services* window opens (2)
2. Select the **Max dimming** tab (3).
An overview is displayed.
 3. Click on the up down control until the desired value is reached or enter the value manually.
 4. Click **Set max dimming**.

The maximum allowed dimming is set on the projector.

6.12.13 Laser services, Cooler fan speed



Only for CLP-series projector.

How to set

1. While in *Installation*, click *Advanced* and select **Laser services** (1).

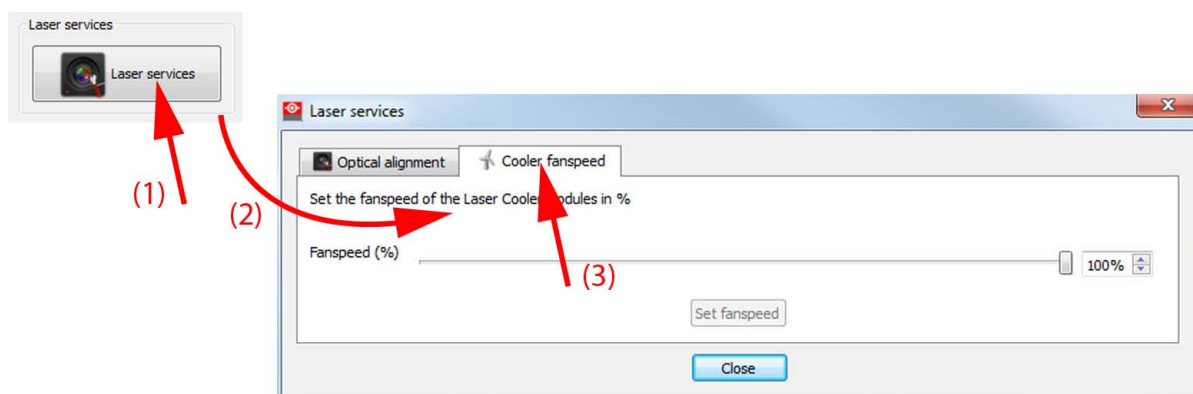


Image 6-126
Cooler fan speed

- The *Laser services* window opens (2).
2. Select the **Cooler fan speed** tab (3).
3. Click on the up down control next to Fan speed (%) until the desired value is reached.
Or,
Click and drag the slider until the desired value is reached.
4. Click **Set fan speed**.
The new fan speed is set.

6.12.14 Green Laser Services



Only for DP4K L-series projector.

6.12.14.1 About green laser services

Introduction

The green lasers used in Barco's L-series projectors are high power lasers suitable for projection of more than 50.000 lumens. Unlike red and blue laser diodes, the green lasers are more complex, and need careful tuning in the factory to provide maximum brightness outputs. However over time and usage, this optimum laser settings might shift, which might result in a reduced brightness output.

Barco has implemented a procedure to optimize the light output of the green lasers.

The green laser optimization will switch on the green lasers one by one, and for each laser look for the optimal internal working point (current/voltages) that maximizes the brightness output. As there are many such lasers per projector, and each laser is optimized in an iterative way, this procedure can easily take several hours to complete. After the procedure is done, the software will compare with the previous state,

and indicate whether the brightness of the projector has improved or not. This procedure can be done for two laser modes: The '6P 3D' mode (Barco Laser3D) where the green lasers are used in a pulsed mode in order to provide color-separated 3D, and in the '2D' mode (lasers always on) that by the way might also be used in combination with external 3D systems (but this makes no difference to the lasers).

In addition, Barco has also implemented a 'green laser linearization' procedure that has three benefits:

- the projector brightness output is becoming much more linear with the user '% dimming' selection from the user interface (so e.g. 50% dimming setting should result in about 50% of the maximum light output).
- the white point shift when dimming the projector is reduced;
- it becomes possible to dim the projector further down, which facilitates correct brightness settings in both 2D and 3D projection on the same screen.

At the end of each optimization procedure, the green lasers will also be linearized automatically as the last step. The linearization procedure is much shorter and can be called up separately.

When starting a Green laser optimization + power linearization, no green laser power linearization only should be executed.

When the optimization and/of linearization is finished, the result is written in the service settings and not immediately applied. Within the Managing window you can decide to copy the new service settings into optimized settings or you can leave it as it is for a while so that you can still use the previous optimized settings.

Within the same Manage window, It is still always possible to make the selection between the factory settings and the optimized settings.

6.12.14.2 Green laser optimization + power linearization

How to handle

1. While in *Installation*, click *Advanced* and select **Laser services** (1).

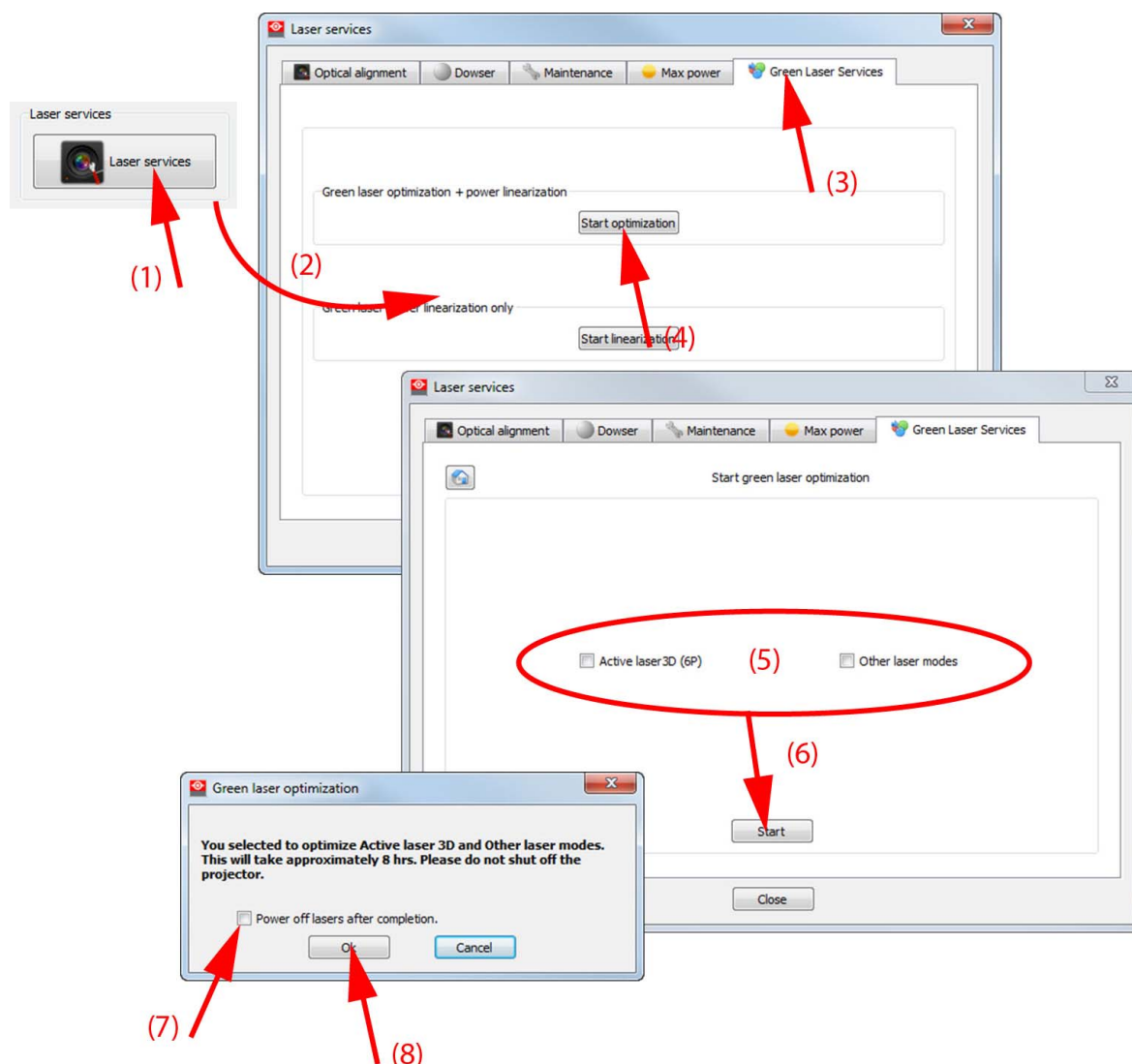


Image 6-127

Green laser optimization, power linearization

- The *Laser services* window opens (2).
2. Click on **Green Laser Service** tab (3).
3. To start the green laser optimization and power linearity, click on **Start optimization** (4).

The *Start green laser optimization* window opens.

The window shows 2 check boxes:

- Active laser 3D (6P)
- Other laser modes (2D)

When using the projector in 2D and in active laser 3D, both check boxes should be checked. When using the projector only in 2D (or external 3D) just select *Other laser modes*.

4. Click **Start** (6).

If no mode is selected, a message to select a mode is displayed. Otherwise a confirmation message with the note that it will take approximately 8 hours is displayed.

5. If the lasers are already on and you want to switch off the lasers after completion, check the check box *Power off lasers after completion* (7).
6. Click **Ok** to start (8).

6. Installation

A progress window is displayed.

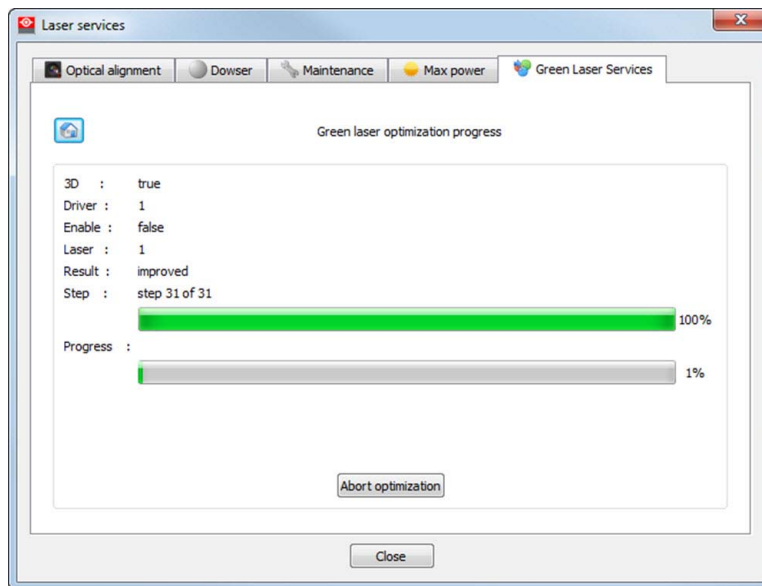


Image 6-128
Linearization, optimization progress

The content of the window can be the content of a previous run and will be updated when the run starts. A progress bar shows the activity during the run. The process bar will restart several times as the run is done in multiple steps. When the run starts, the value next to *Enable* will change from *false* to *true*.

The progress window can be closed. When recalling the *Green Laser Services* window, it will show the status at that moment.

When the run is finished the progress window is closed.



The procedure *Green laser power linearization* can be skipped. Continue with "Manage green laser optimization and linearization", page 282.

Abort optimization

A service run can be aborted by clicking on **Abort optimization**. All optimizations done until the button is pressed will be lost.

Some cases to use the Abort optimization button:

- when you need the projector to play a film before the optimization process is finished.
- when an error occurred on the projector before the optimization process is finished. The process remains open and should be closed by clicking on Abort optimization.

6.12.14.3 Green laser power linearization

How to handle

1. While in *Installation*, click *Advanced* and select **Laser services** (1).

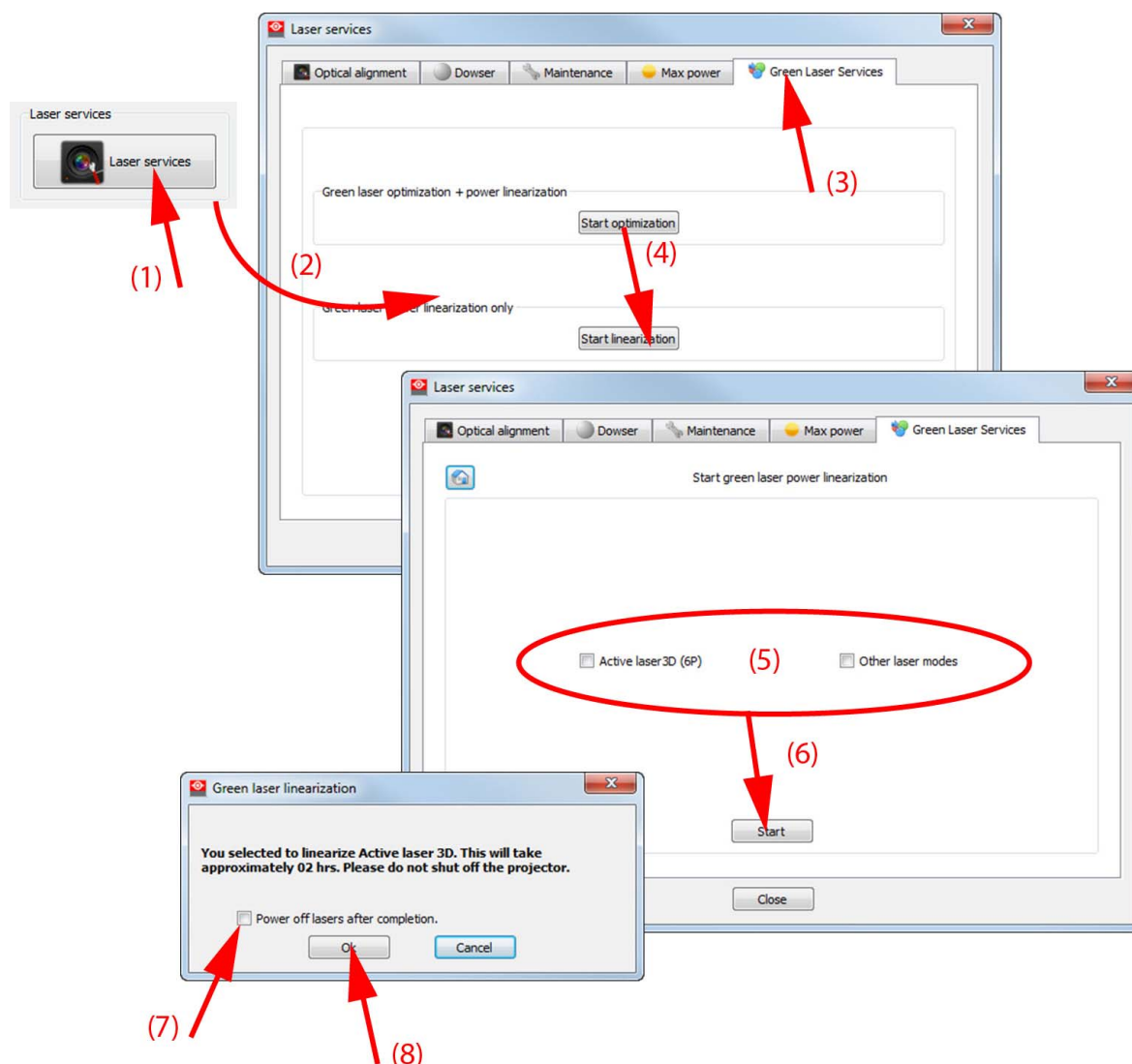


Image 6-129
Green laser power linearization

1. The *Laser services* window opens (2).
2. Click on **Green Laser Service** tab (3).
3. To start the green laser power linearization, click on **Start linearization** (4).

The *Start green laser optimization* window opens.

The window shows 2 check boxes:

- Active laser 3D (6P)
- Other laser modes (2D)

When using the projector in 2D and in active laser 3D, both check boxes should be checked. When using the projector only in 2D (or external 3D) just select *Other laser modes*.

4. Click **Start** (6).

If no mode is selected, a message to select a mode is displayed. Otherwise a confirmation message with the note that it will take approximately 2 hours is displayed.

5. If the lasers are already on and you want to switch off the lasers after completion, check the check box *Power off lasers after completion* (7).
6. Click **Ok** to start (8).

A progress window is displayed.

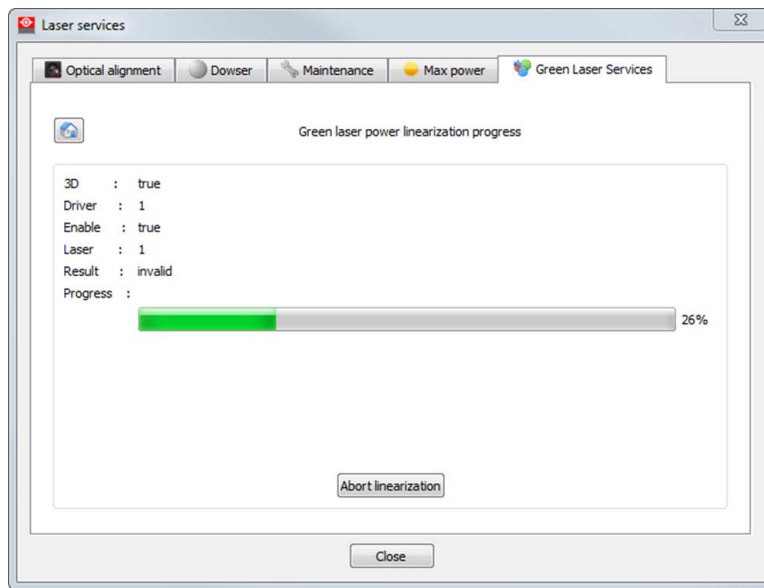


Image 6-130
Linearization progress

The content of the window can be the content of a previous run and will be updated when the run starts. A progress bar shows the activity during the run. The process bar will restart several times as the run is done in multiple steps. When the run starts, the value next to *Enable* will change from *false* to *true*.

The progress window can be closed. When recalling the *Green Laser Services* window, it will show the status at that moment.

When the run is finished the progress window is closed.

Abort optimization

A service run can be aborted by clicking on **Abort optimization**. All optimizations done until the button is pressed will be lost.

Some cases to use the Abort optimization button:

- when you need the projector to play a film before the optimization process is finished.
- when an error occurred on the projector before the optimization process is finished. The process remains open and should be closed by clicking on Abort optimization.

6.12.14.4 Manage green laser optimization and linearization

About managing the optimization and linearization

With the manage function 2 different activities can be done:

- Activate selected setting
- Copy the service settings created after an optimization and/or linearization run into the optimized settings location.

About activate selected setting

For the current laser mode, it allows the user to select between:

- *Factory default*: settings during the production of the projector
- *Service*: measured settings during the last service run.
- *Optimized*: copied service settings from previous service run stored as optimized settings.

How to activate

1. While in *Installation*, click *Advanced* and select **Laser services** (1).

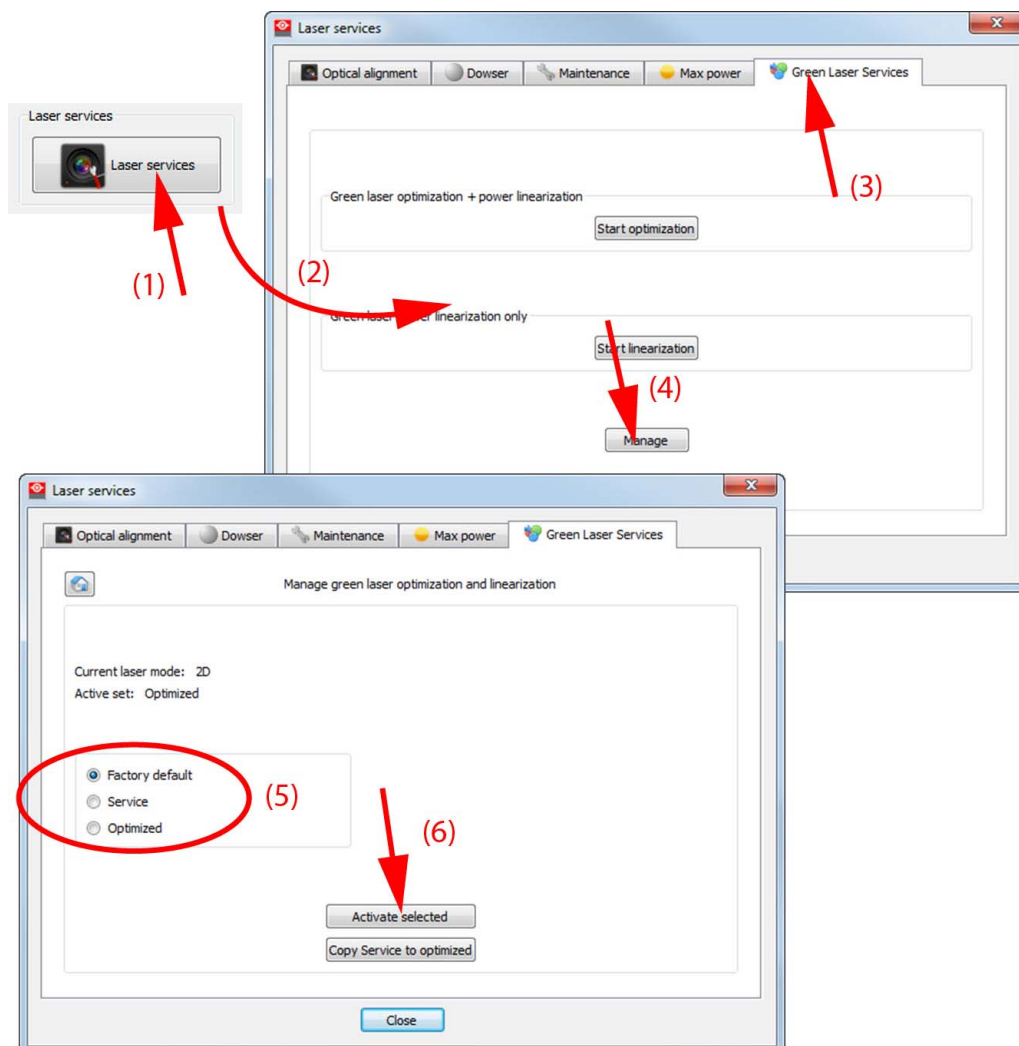


Image 6-131
Activate selected

- The *Laser services* window opens (2).
- Click on **Green Laser Service** tab (3).
- Click **Manage** (4).
- The *Manage green laser optimization and linearization* window opens.
- Click on the radio button of your choice (5).
- Click **Activate selected** to activate your selection.

About Service and Optimized

When an optimization and/or linearization run is finished the new settings are stored in *Service*. When the result indicates *better*, than these settings can be copied to the *Optimized* location. As these new settings can have an influence on the color temperature of the projected image, it is better to check first the color calibration before copying the settings.

Therefore, first activate the service settings and check the color calibration. Adjust when necessary. When the color calibration is executed, then copy the service settings to *Optimized*.

How to copy Service to Optimized

1. While in *Installation*, click *Advanced* and select **Laser services** (1).

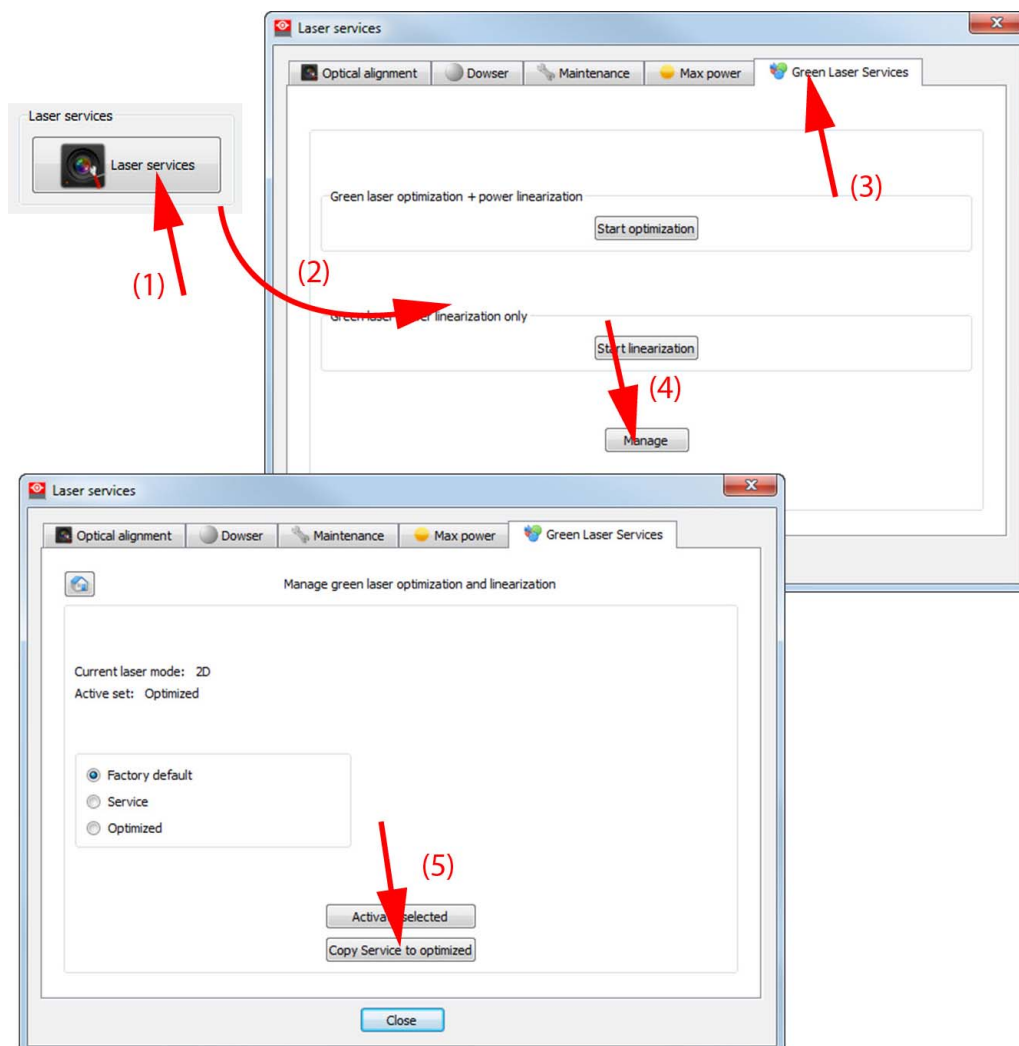


Image 6-132
Copy Service to Optimized

- The *Laser services* window opens (2).
- Click on **Green Laser Service** tab (3).
- Click **Manage** (4).
The *Manage green laser optimization and linearization* window opens.
- Click **Copy Service to optimized** (5).
A confirmation message is displayed. Click **Ok** to continue.
The current Service settings are copied into the Optimized location.

6.12.15 Altitude



Only for Barco DP2K-6E projectors !

About altitude

Depending on the location where the projector is used an altitude setting determines the speed of the cooling fans.

How to set

1. While in *Installation*, click *Advanced* and select **Altitude** (1).

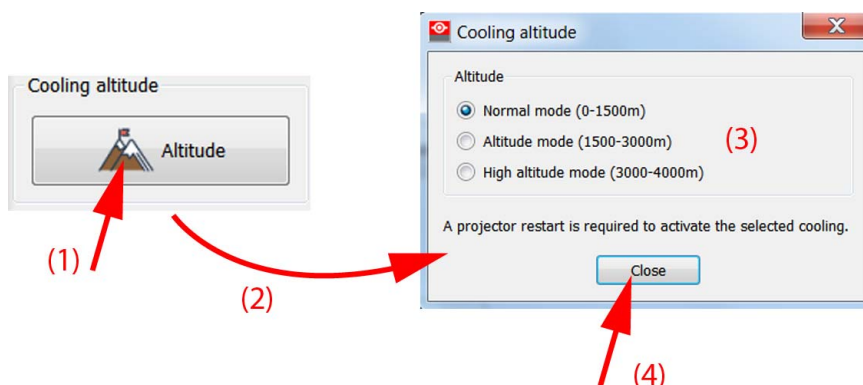


Image 6-133

The altitude selection window opens (2).

2. Select the radio button in front of the range corresponding with the location of the projector (3).

The higher the altitude setting the more the fans will flow.

3. Click Close and restart the projector to activate the selected cooling.

6.12.16 Light lease settings

What can be done?

The light in the projector can be leased for certain period in time. When that period is past, certain actions will be taken automatically with the light source. That can go from switching off to dimming.

How to set the parameter

1. While in *Installation*, click *Advanced* and select **Light lease settings** (1).

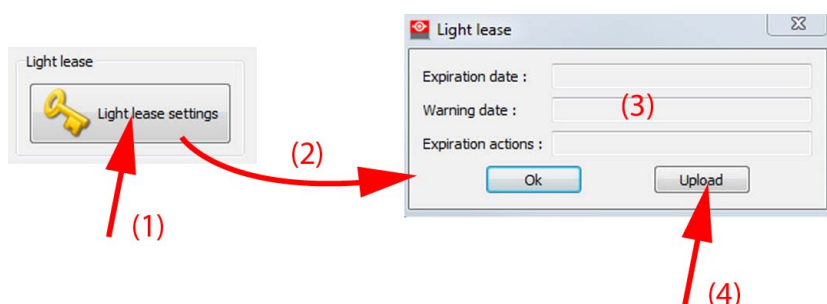


Image 6-134

The *Light lease* window opens (2).

2. Fill out the Expiration date, warning date and expiration actions (3).

Expiration date : date when an actions will take place on the light source.

Warning date: date to display a warning for the user that the expiration date is coming soon.

Expiration actions : actions that will take place once the expiration date is reached.

3. Click on **Upload** to upload the settings (4).

6.12.17 Refill mode



Not for DP2K-12C DP2K S-series, DP2K E-series and DP4K L-series projectors.

What can be done ?

When the cooling liquid has to be refreshed, the refill mode must be used to activate only the cooling pump. The rest of the projector is deactivated. When the refreshing is done, the projector can be set back in normal operation mode.



Before starting the refill mode, the lamp must be off and cooled down.

How to handle

1. While in the Advanced tab page, click on **Refill mode** (1).

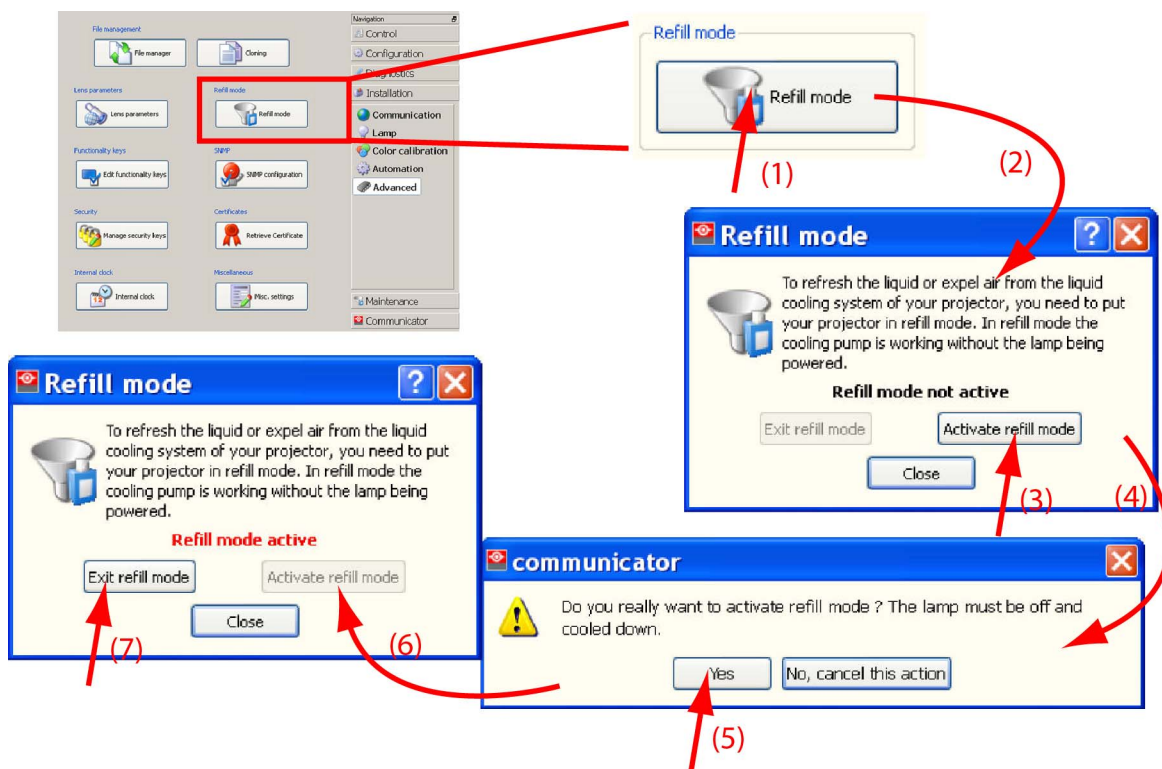


Image 6-135
Refill mode

The Refill mode window opens with the message that this mode must be used for refreshing the cooling liquid (2).

2. Click on **Activate the refill mode** (3).

A question window opens (4). Before continuing, the lamp must be off and cooled down.

3. When all previous conditions are OK, click **Yes** to start the refill mode (5).

The *Refill mode* window opens again with the indication *Refill mode active* in red (6).

4. When cooling liquid refreshing is finished, click on **Exit refill mode** (7).

Projector returns to its normal operating conditions.

6.12.18 External exhaust fan selection

What is possible ?

The power to the external exhaust fan can be interrupted so that the fan is not in use.



Only for DP2K-xxB and DP4K-xxB series

How to make the selection

1. While in the Advanced tab page, click on **Miscellaneous** (1).

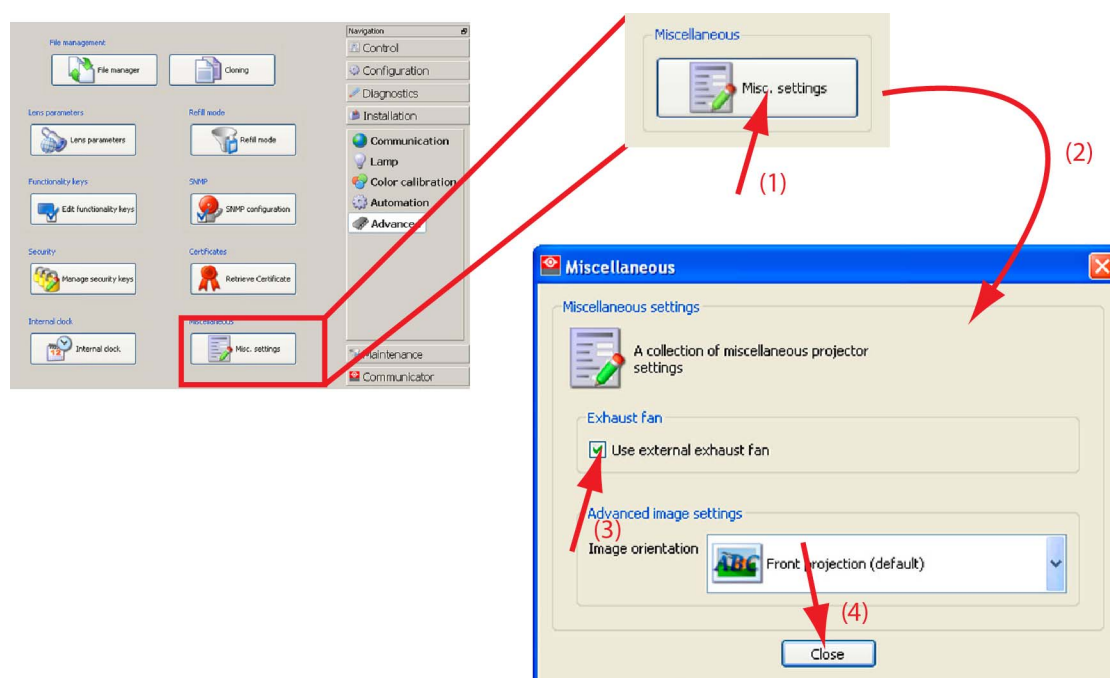


Image 6-136
External exhaust fan selection

The *Miscellaneous* window opens.

2. To use an external exhaust fan via the exhaust outlet, check the check box in front of *Use external exhaust fan*.

6.12.19 Image orientation

What is possible ?

The image orientation can be changed from front projection (default) to rear projection and from a normal image to an upside down image.

How to change the orientation

1. While you are in *Advanced* mode, click on **Misc. settings** (1).

6. Installation

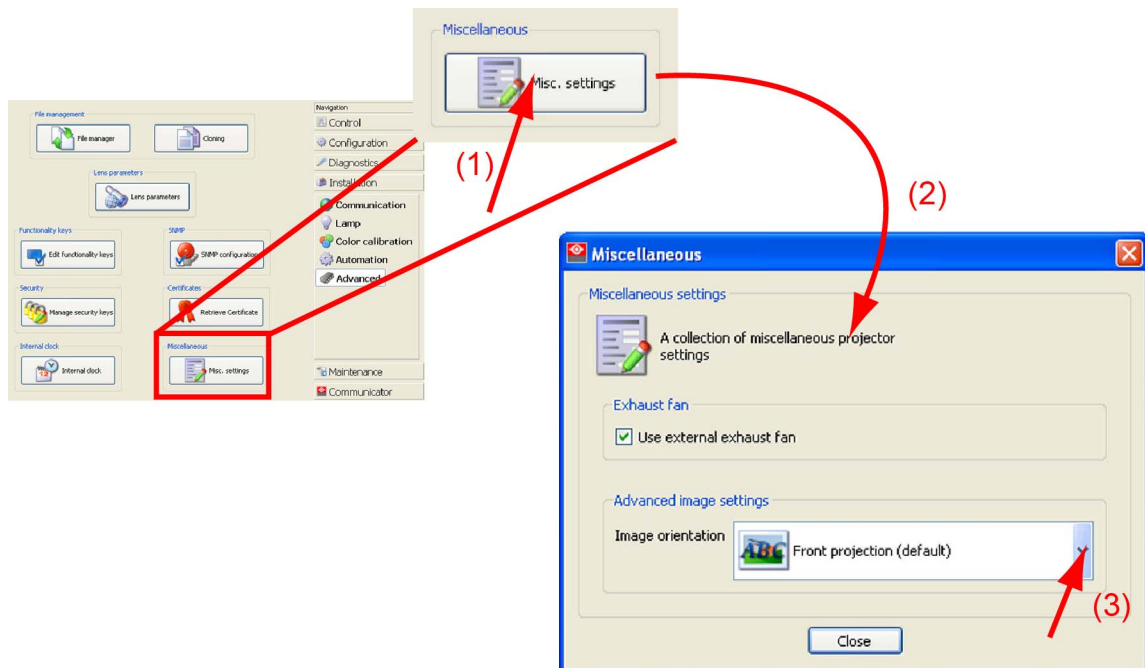


Image 6-137

The *Miscellaneous* window opens (2).

2. Click on the drop down box and select the desired image orientation (3).

6.12.20 Web application credentials

About the user and password

To use the web application Communicator Lite you have to login with default as user name and the password set with the full Communicator.

The default user name is: projectionist

The default password is: default

Edit the default password

1. While in the Advanced tab page, click on **Miscellaneous**.

The *Miscellaneous* window opens.

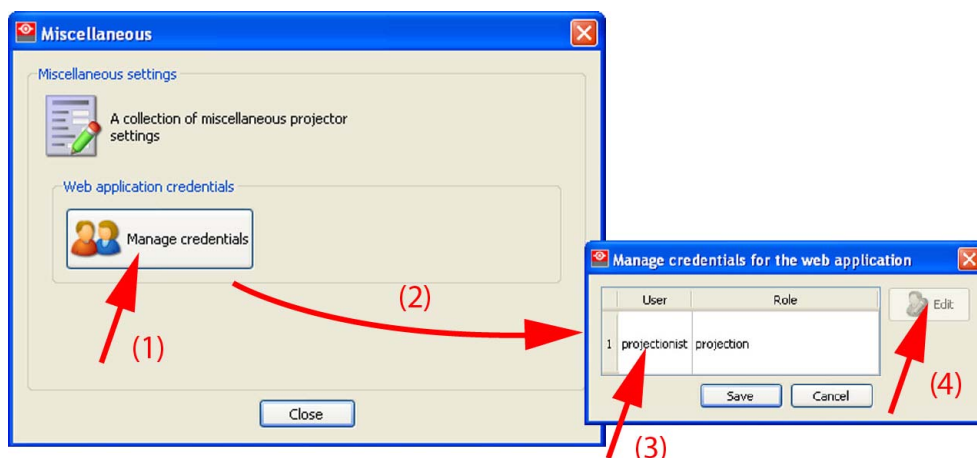


Image 6-138

Change password web application

2. Click **Manage credentials** (1) to start up the *Manage credentials for the web application* window.

3. Click on the default user (3) and click **Edit** (4) to open the *Edit user credentials* window.

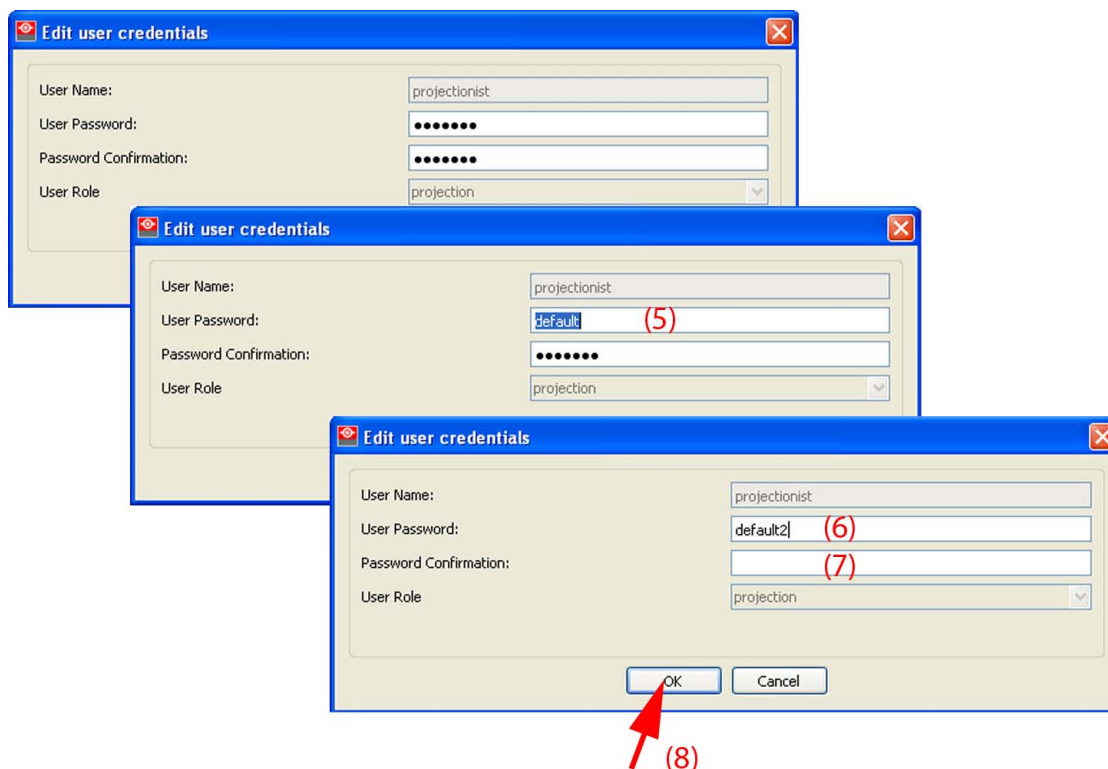


Image 6-139
Create new password

The current password is blinded with asterisks.

4. Select the current password field (5).

The asterisks change to readable characters.

5. Enter the new password (6).

At that moment, the *Password Confirmation* field will be cleared (7).

6. Click in the *Password Confirmation* field and re-enter the new password.

7. Click **OK** (8).

6.13 Functionality keys



No functionality keys necessary for DP2K S-series, DP2K E-series and DP4K L-series.

6.13.1 Enter a single key



SNMP

Simple Network Management Protocol is the protocol governing network management and the monitoring of network devices and their functions.

What can be done?

Depending whether the option has been ordered, it is necessary to enter the key that has been delivered with the projector. When the key is correctly entered, the option will be enabled. The following options need a key : SNMP, CLO and Lens.

For the SNMP option, from the moment the key is entered the SNMP mechanism is enabled and an agent will send alarms to a specific person when something goes wrong with the projector.

How to enter a key

1. While in the *Advanced* tab page, click on **Edit functionality keys** (1).

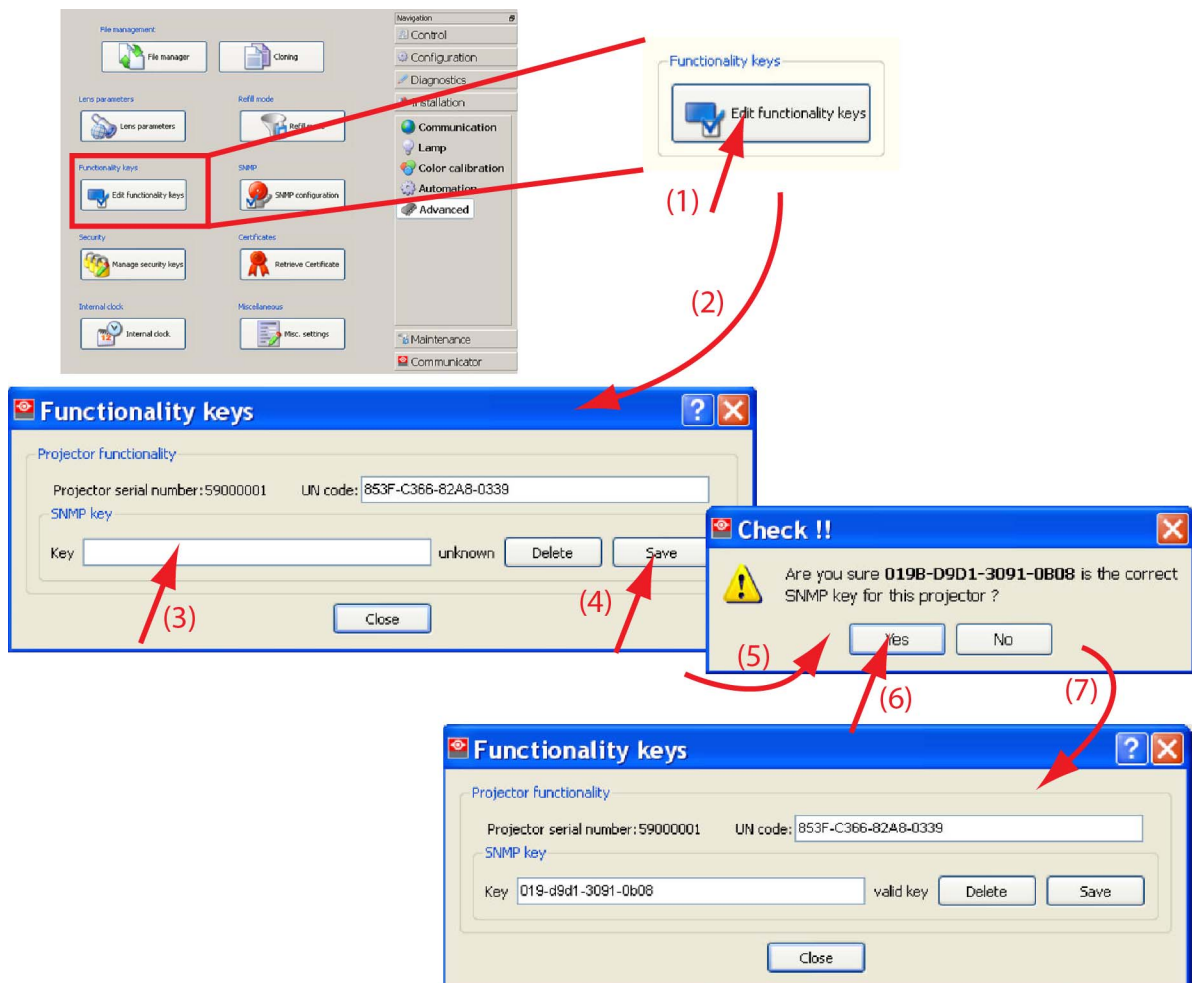


Image 6-140
Enter a single key

- The functionality keys window opens with the current active keys (2).
2. Click in the corresponding key input field and select the current setting (3).
3. Enter the key exactly as indicated on your registration card.
Note: *Input is not case sensitive.*
4. Click on **Save** (4).
- A check window appears to confirm your key entry (5).
5. When OK, click **Yes** (6).
- The option becomes available. *Valid key* is indicated next to the option (7).

Delete a single key

1. While in the *Advanced* tab page, click on **Edit functionality keys** (1).

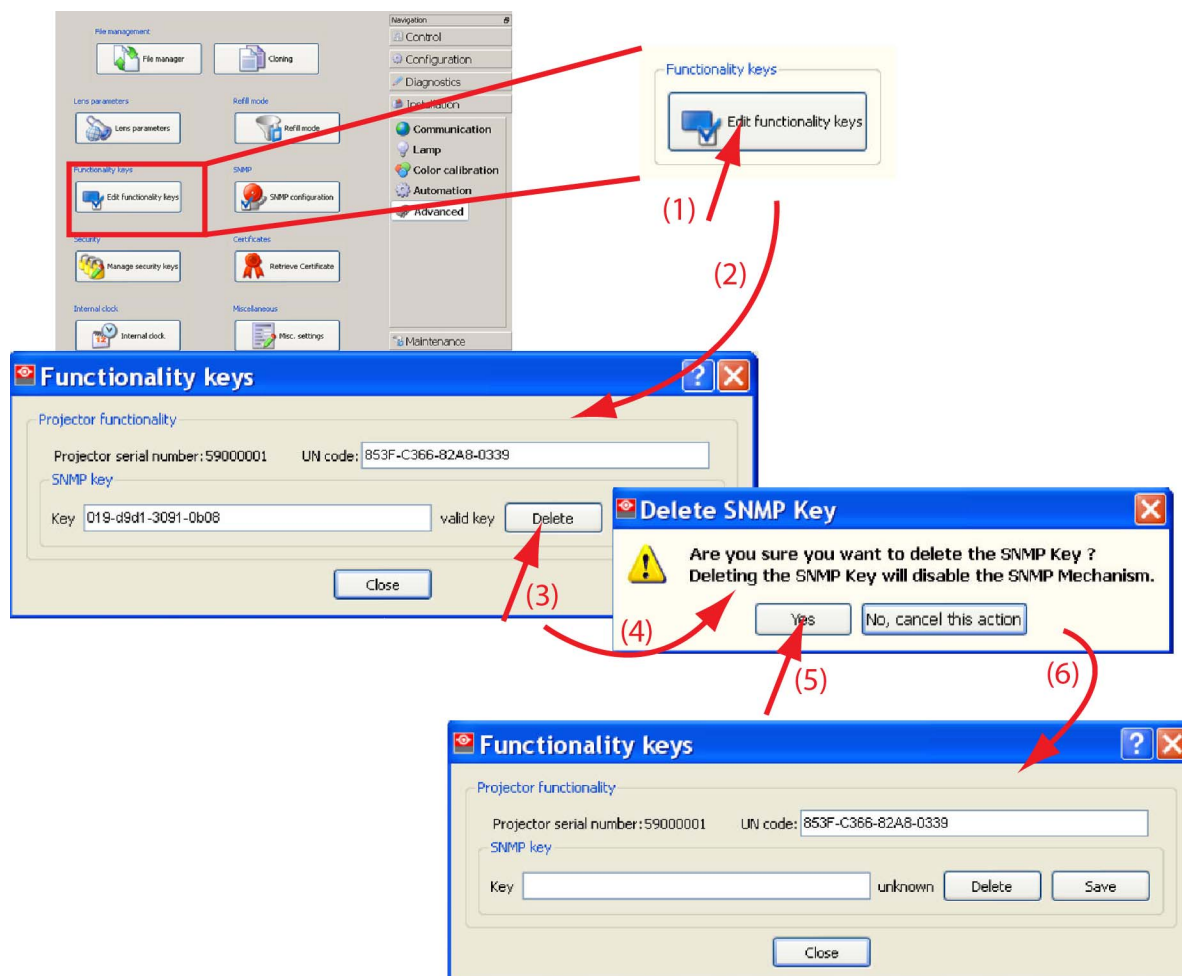


Image 6-141
Delete a single key

- The *Functionality keys* window opens with the current active keys (2).
- Click on **Delete** next to the key which must be removed (3).
- A question message is displayed to ask if you are sure to delete (4).
- Click **Yes** to delete the key (5).
Click **No, cancel this action** if you want to keep the key installed.
- When Yes is clicked, the key will be removed and all values are set to zero (6).

6.13.2 Request for new keys

What can be done ?

When changing the Input & communication unit, a code must be entered before you can continue using your projector. This code contains the run time and the different keys necessary for your projector. This unique code can only be generated by Barco. Therefore, copy the UN code and send it to Barco.

How to enter a new PM code

1. While in the *Advanced* tab page, click on **Edit functionality keys** (1).

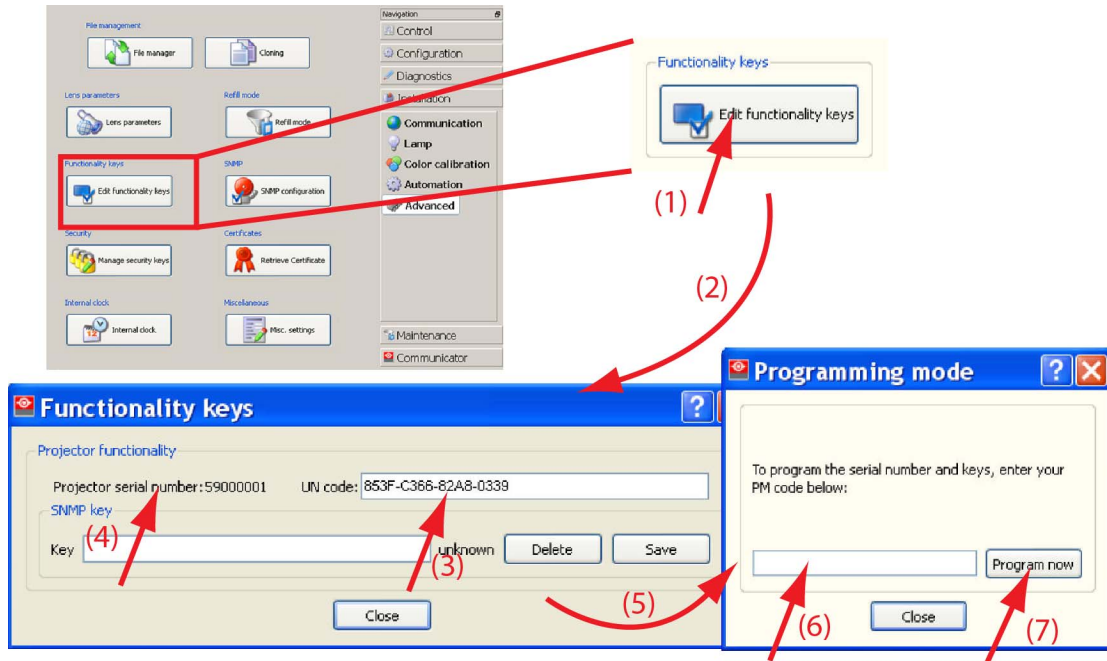


Image 6-142
Entering the PM code

- The functionality keys window opens with the current active keys (2).
- Copy the unique UM code and send this code to Barco (3).
This code contains the serial number and the installed keys. A new code will be generated by Barco.
 - When the new code is arrived, go back to the *Functionality keys* window. Click first the Shift button and then double click on the word *serial number*.(4)
The programming mode window opens (5).
 - Enter the new code exactly as you received it (6) and click **Program now** (7).
The new serial number and keys are activated.

6.14 SNMP configuration

SNMP configuration start up

- While in the Advanced tab page, click on **SNMP configuration**.

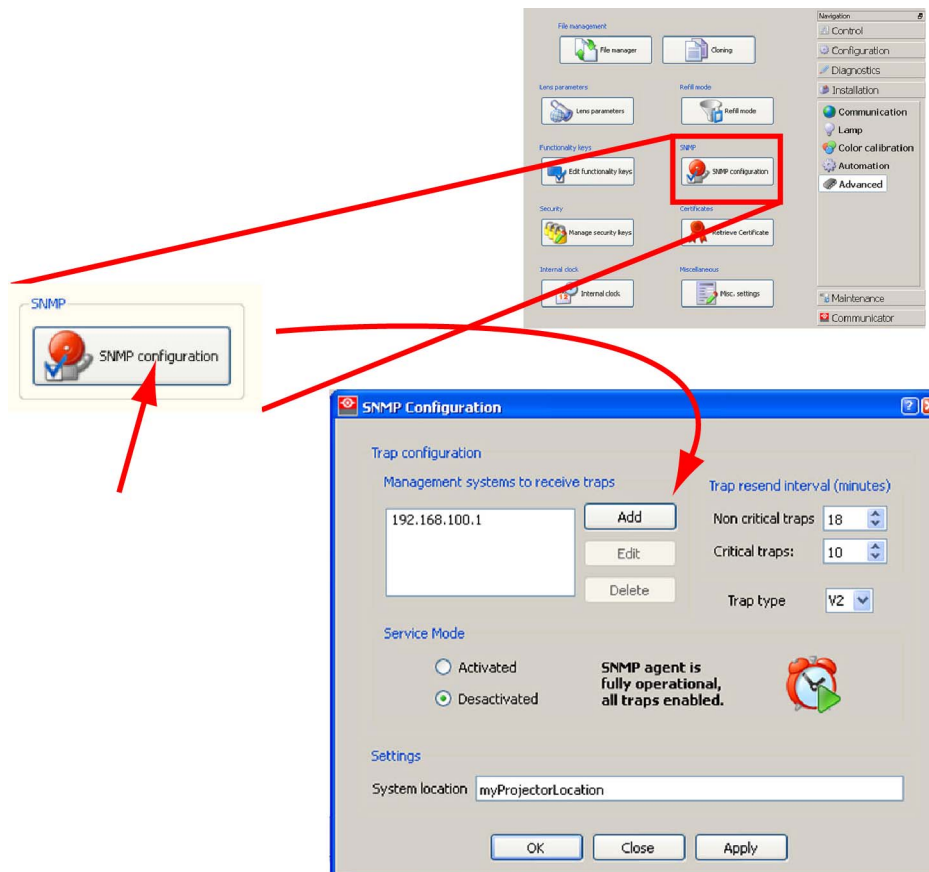


Image 6-143
SNMP configuration

The *SNMP configuration* window opens.

Management System address to receive traps, add address

1. Click on Add

The IP address input window opens.

2. Enter the IP address of the management server.
3. Click on **OK** to activate.

The new server is added to the list of management servers.

Trap resend interval

Time between two traps to be send to the management servers. This time is set in minutes and can be different for Non critical trap and Critical traps.

To change the time, click on the up down control of the spin box of the corresponding trap type until the desired interval is reached.

Trap type

SNMP exists in different versions. You have SNMP V1 and SNMP V2. The difference is basically the format of the SNMP messages. Some management systems will support V1, others will support V2. Depending on the management system used one should select V1 or V2 traps to be sent out to the management system.

To change the trap type, click on the combo box next to Trap type and select the corresponding type.

Service mode

When service action should be done on the projector while the projector is running, check the radio button before *Activated*. SNMP alarms generated during the servicing time will be blocked so that no unnecessary SMS or E-mails are sent to the control room.

Once the servicing action is finished, check *deactivated* again. SNMP alarms can be sent out again.

If the services is not disabled again within 6 hours, the SNMP agent will automatically disable this function so that SNMP alerts can be sent out.

System location

To add the location of the system, click in the input field next to *System location* and enter a location with the keyboard.

6.15 Security



For DP2K C-series and DPxK B-series.

Overview

- Overview list of keys as root user
- Overview list of keys as default user
- Add extra key to the list
- Change PIN code of an existing key

6.15.1 Overview list of keys as root user

How to get an overview list

1. While in the Advanced tab page, click on **Manage Security Keys (1)**.

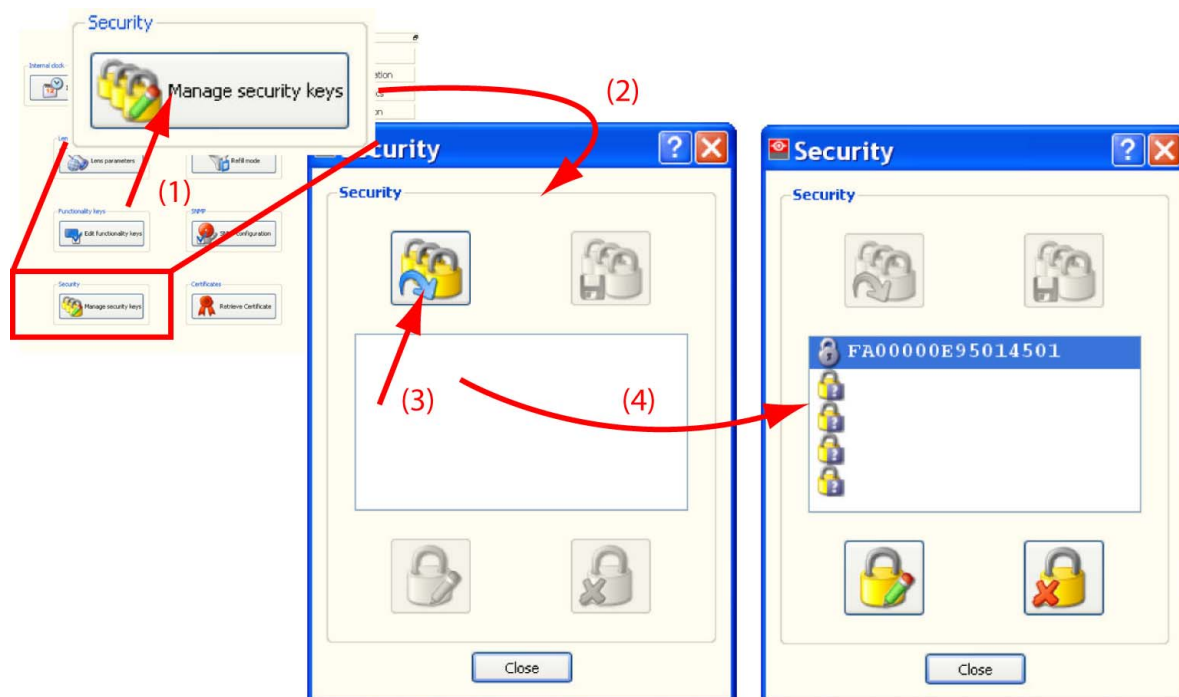


Image 6-144
Key list as root user.

The security window opens (2).

2. Click on the show key list button (3).

An overview of the available keys is displayed (4).

6.15.2 Overview list of keys as default user

How to get an overview list

1. While in the Advanced tab page, click on **Manage Security Keys** (1).

6. Installation

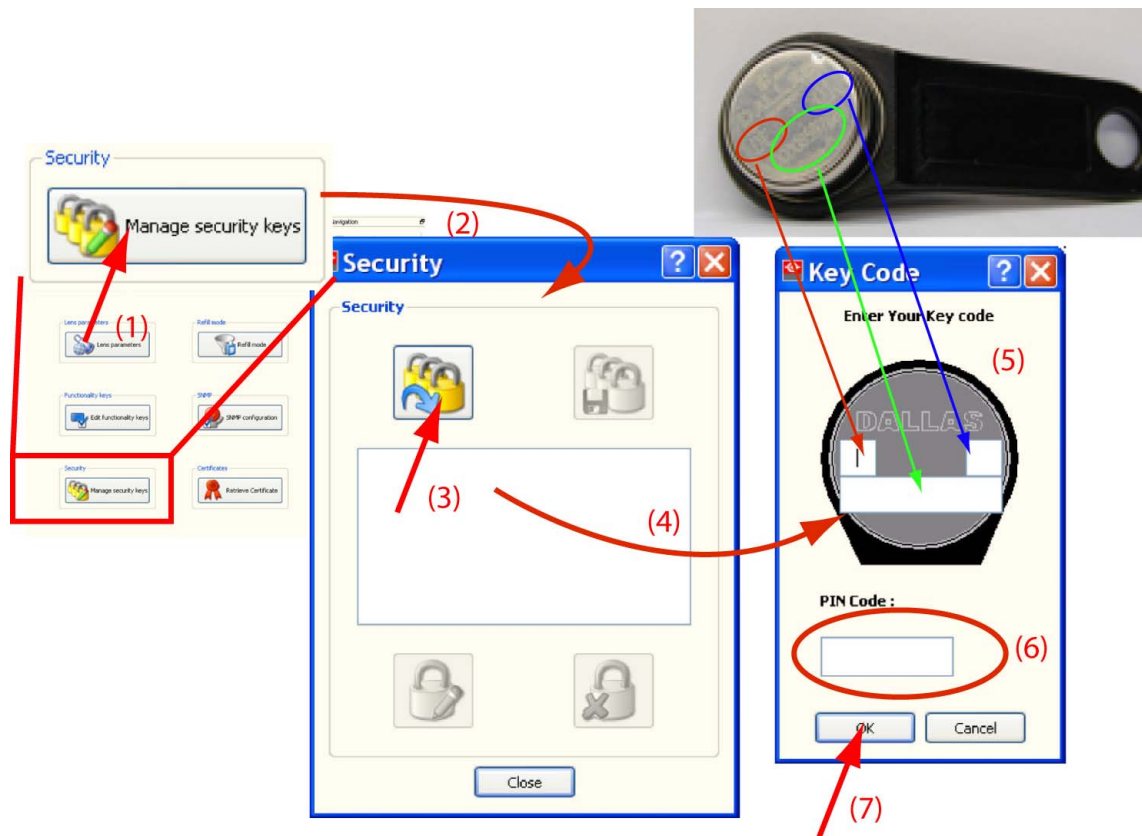


Image 6-145
Entering access key

- The security window opens (2).
2. Click on the show key list button (3).
The key code window opens (4).
3. Enter the key code of the original dallas iButton® (master key) (5).
4. Enter the corresponding pin code (6) and click **OK** (7).

An overview of the available keys is displayed.

When the entered key code was the master key, the list will show also the master key.



Image 6-146
List of available keys

When the entered key was another key out of the available keys, the list will show *No access* on the place of the master key.



Image 6-147
List without master key

6.15.3 Add extra key to the list



Only root users are user holding the master key can add extra keys.

How to add an extra key

1. Display first a list of all available keys.
2. Click on a free key location (1).

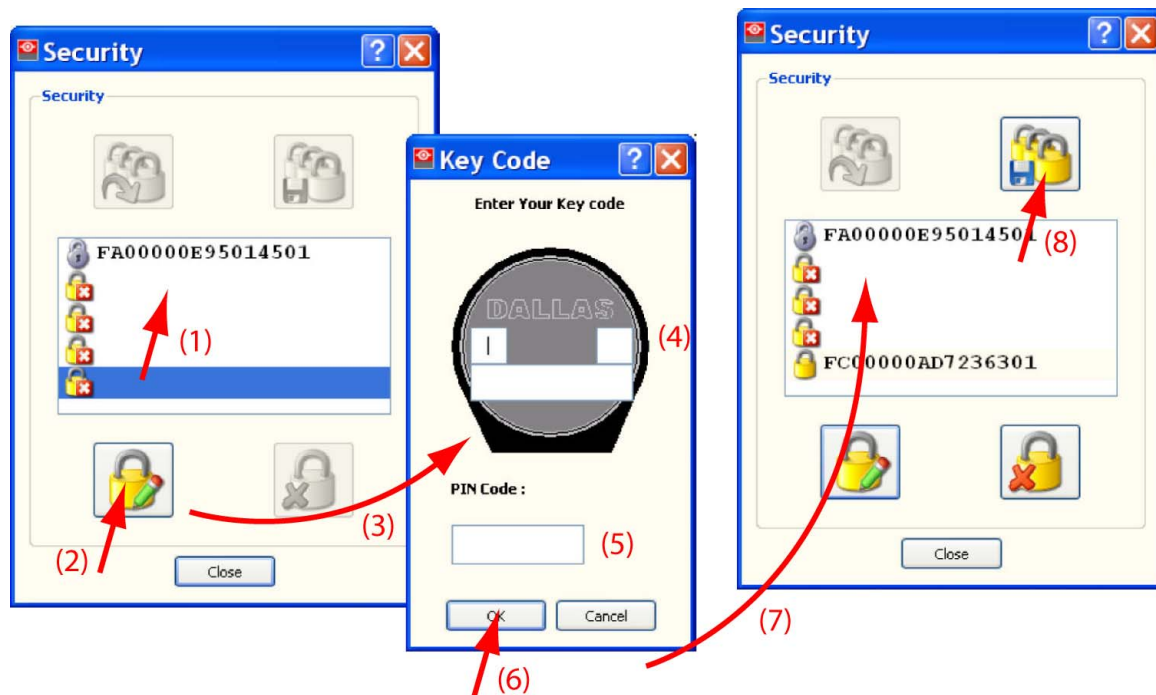


Image 6-148
Add new key to key list

The background changes.

3. Click on the **Add key** icon (2).

The key code window opens (3).

4. Enter the key code of the dallas iButton® (4).

5. Enter a pin code for this key (5) and click **OK** (6).

The new key is added to the key list (7).

6. Click on **Save key list** icon to make the changes active (8).

6.15.4 Change PIN code of an existing key



Can only be done as root user or when enter the security via the master key.

How to change

1. Display first a list of all available keys.
2. Click the key to change the pin code (1).

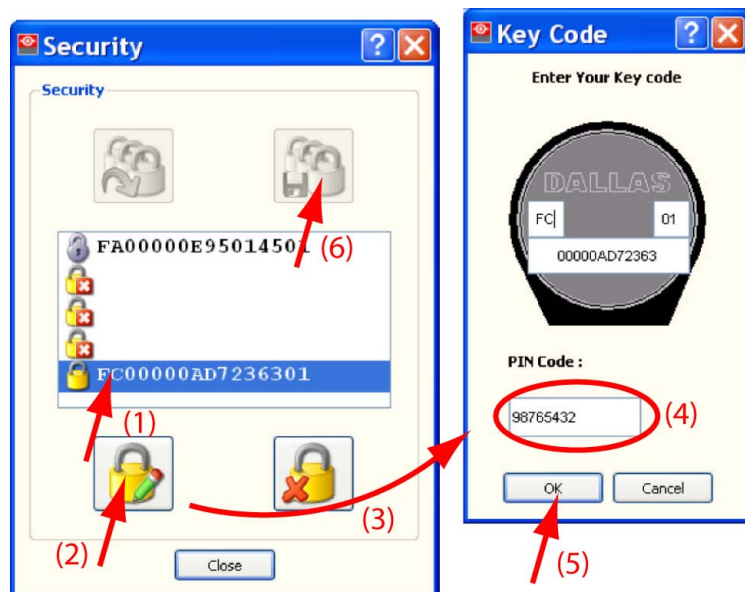


Image 6-149
Change pin code

3. Click on the Add key button (2).

The key code window opens with the current values filled out (3).

4. Enter a new pin code (4) and click **OK** (5).

5. Click on **Save key list** icon to make the changes active (6).

6.16 Security



For DP2K S-series, DP2K E-series and DP4K L-series

Overview

- Overview list of security PIN codes
- Add extra PIN code
- Change existing PIN code
- Delete a PIN code

6.16.1 Overview list of security PIN codes

How to get an overview list

1. While in the Advanced tab page, click on **Manage Security Keys** (1).

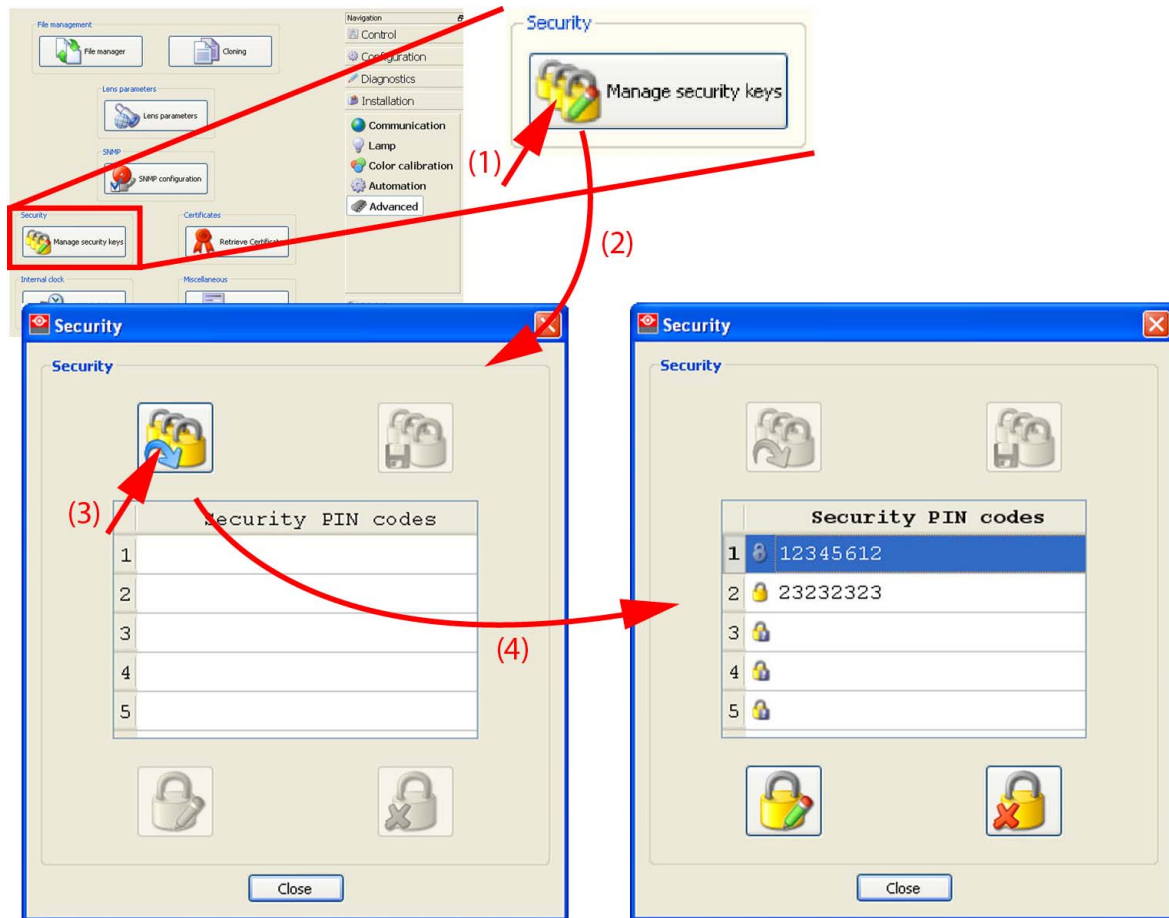


Image 6-150
PIN code list

The *Security* window opens (2).

2. Click on the show PIN list button (3).

An overview of the available PIN codes is displayed (4).

About the PIN code

A PIN code must contain 8 digits. These 8 digits can be any combination of the digits 1 to 6. The first 3 digits are a public user identifier and these 3 leading digits of the PIN code are used to identify a user in the log files.

6.16.2 Add extra PIN code

How to add an extra PIN code

1. While in the Advanced tab page, click on **Manage Security Keys**.

The *Security* window opens.

2. Click on the show PIN list button to display the available PINs.

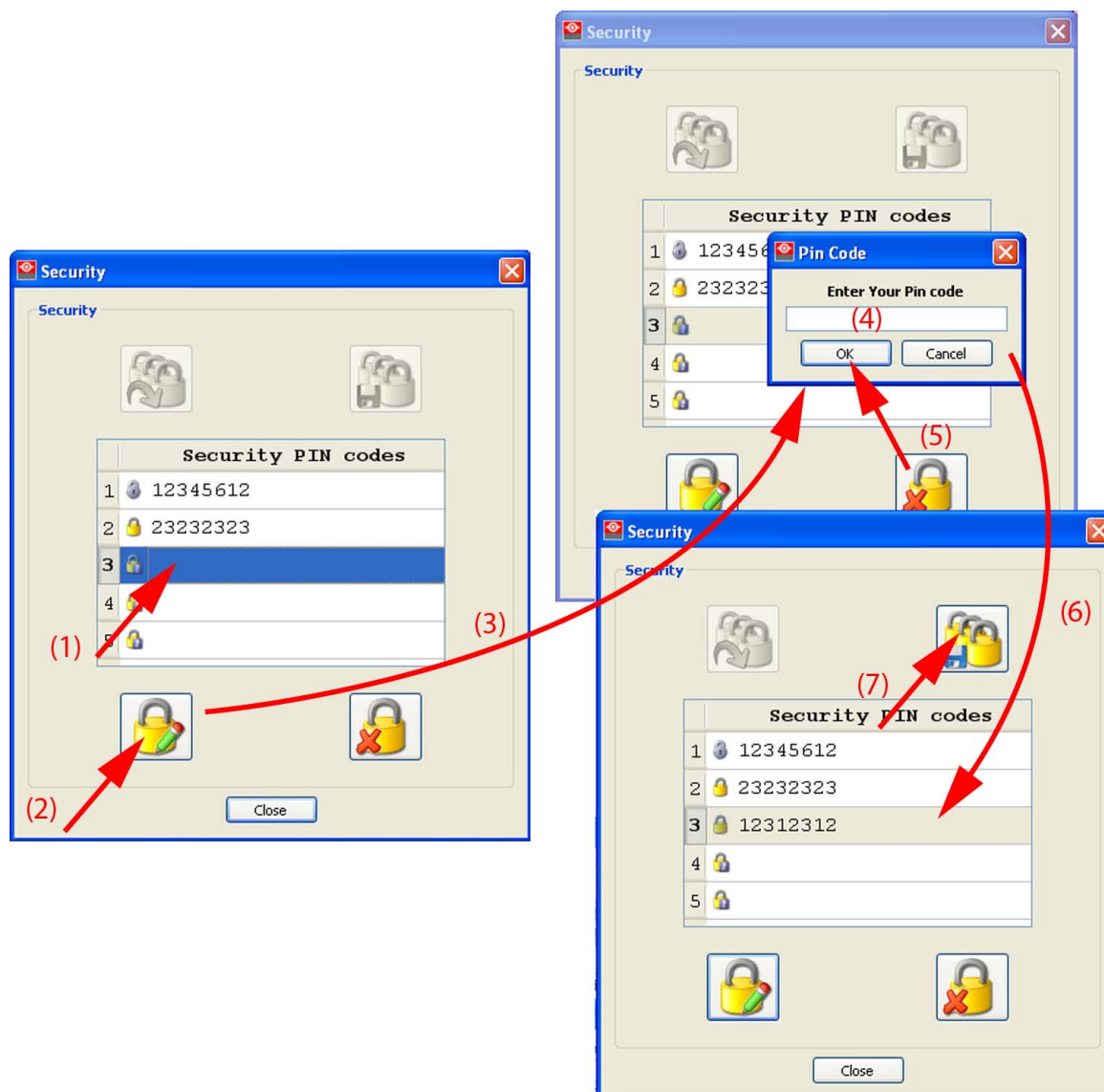


Image 6-151
Add new PIN code

3. Select a free location in the list (1).
4. Click on the Add new PIN button (2).
The PIN code entry window opens (3)
5. Click in the input field and enter an eight digit PIN code with the numeric keys. Use only digits 1 to 6 (4).
6. Click **OK** to add the new PIN code to the list (5, 6)
7. Click Save button to save the list (7).

6.16.3 Change existing PIN code

How to change a PIN code

1. While in the Advanced tab page, click on **Manage Security Keys**.
The *Security* window opens.
2. Click on the show PIN list button to display the available PINs.

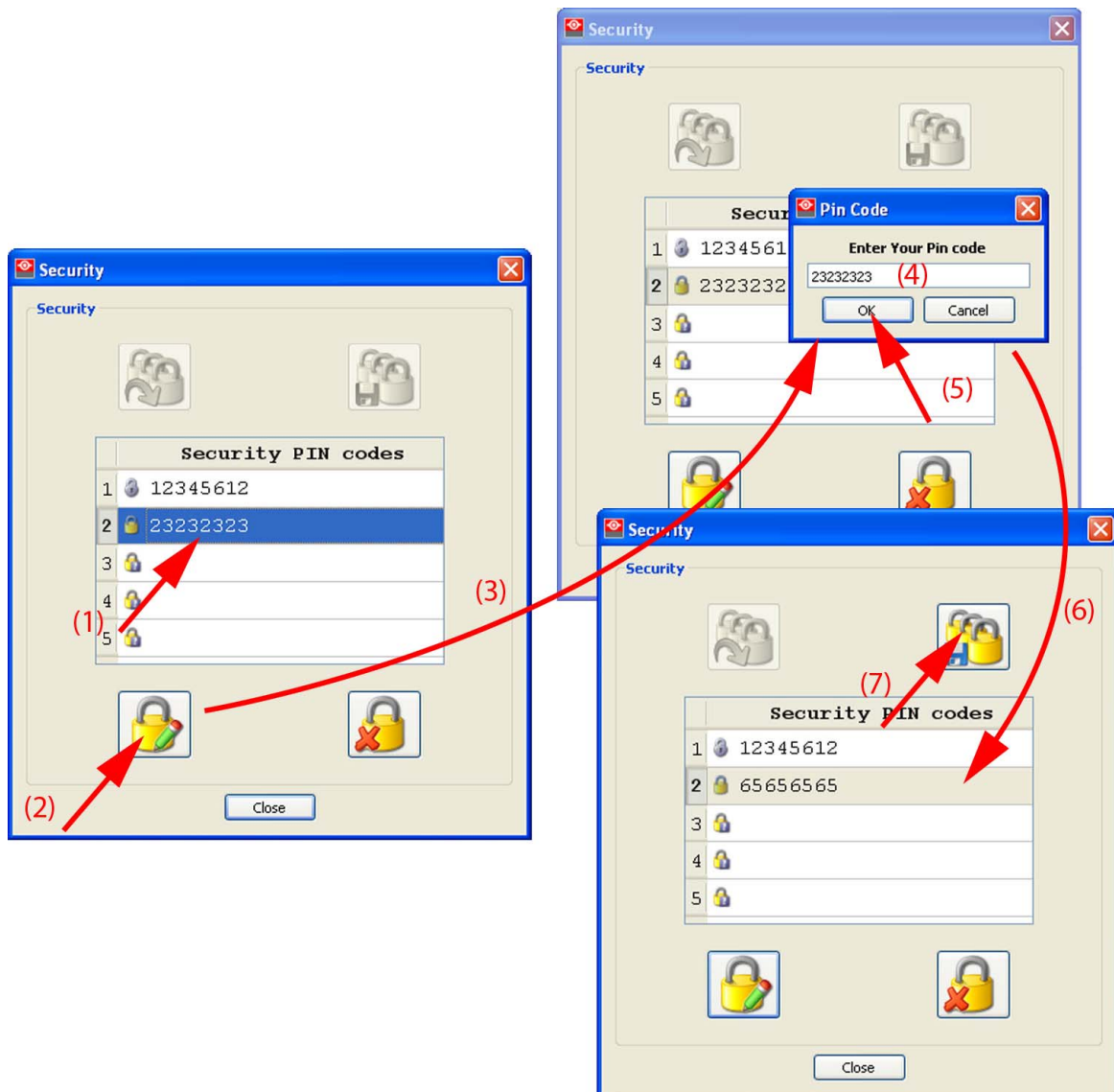


Image 6-152
Change PIN code

3. Select the PIN code to change (1).
4. Click on the new PIN code button (2).
The PIN code input window opens (3).
5. Select the current displayed PIN code and enter a new PIN code with the digit buttons (4). Only digits 1 to 6 are allowed.
6. Click **OK** to add the new pin code to the list (5, 6).
7. Click **Save** button to save the updated list (7).

6.16.4 Delete a PIN code

How to delete PIN code

1. While in the Advanced tab page, click on **Manage Security Keys**.
The *Security* window opens.
2. Click on the show PIN list button to display the available PINs.

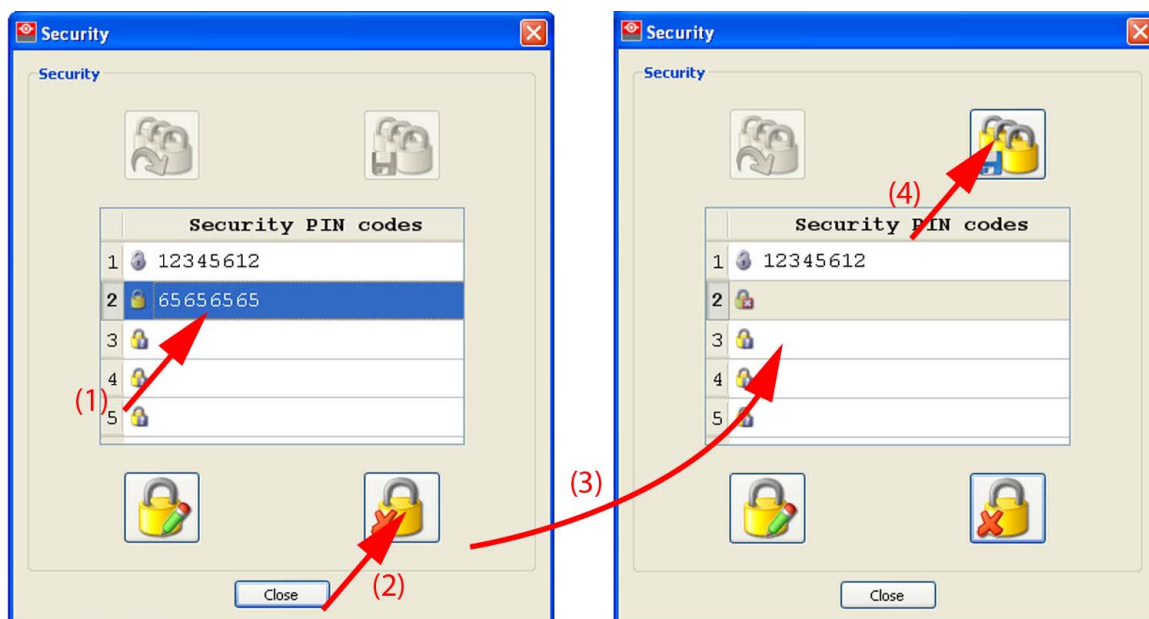


Image 6-153
Delete PIN code

3. Select the PIN code to delete (1).
4. Click Delete button (2).
The selected PIN code is removed from the list (3).
5. Click Save button to save the new security settings (4).

6.17 Certificate

About certificates

Before some productions are authorized to be displayed with a certain projector, the film distributor must distribute a key to the theatre owners. This key is associated with the projector certificate. The film content (digital cinema package - DCP) together with the key (KDM) is delivered to the cinema administrator. This key must be uploaded as license before a movie can be played.



Key Delivery Message (KDM)

The security key for each movie is delivered in a unique KDM for each digital cinema server. The security key is encrypted within the KDM, which means that the delivery of a KDM to the wrong server or wrong location will not work, and thus such errors cannot compromise the security of the movie. The KDM is a small file, and is typically emailed to the exhibitor. To create the correct set of KDMs for a site requires knowledge of the digital certificate in the projection system's media block.



*.pem

Privacy-enhanced Electronic Mail. File format used to distribute digital signed certificates. Base64 encoded DER certificate, enclosed between "-----BEGIN CERTIFICATE-----" and "-----END CERTIFICATE-----"



Digital Cinema Package (DCP)

A Digital Cinema Package (DCP) is a collection of digital files used to store and convey Digital Cinema (DC) audio, image, and data streams. The term has been defined by Digital Cinema Initiatives (DCI). General practice adopts a file structure that is organized into a number of usually multi-gigabyte size Material eXchange Format (MXF) files, which are separately used to store audio and video streams, and auxiliary index files in XML format. The MXF files contain streams that are compressed, encoded, and encrypted, in order to reduce the huge amount of required storage and to protect from unauthorized use. The image part is JPEG 2000 compressed, whereas the audio part is linear PCM. The adopted (optional) encryption standard is AES 128 bit in CBC mode. The newer SMPTE standards are used to conform the recommendations among different tool vendors and producers. Interop, the legacy DCP standard, is still required to be supported by DCP players.

How to get the certificates for ICP or IMP

1. While in the *Advanced* tab page, click on **Retrieve Certificate** (1).

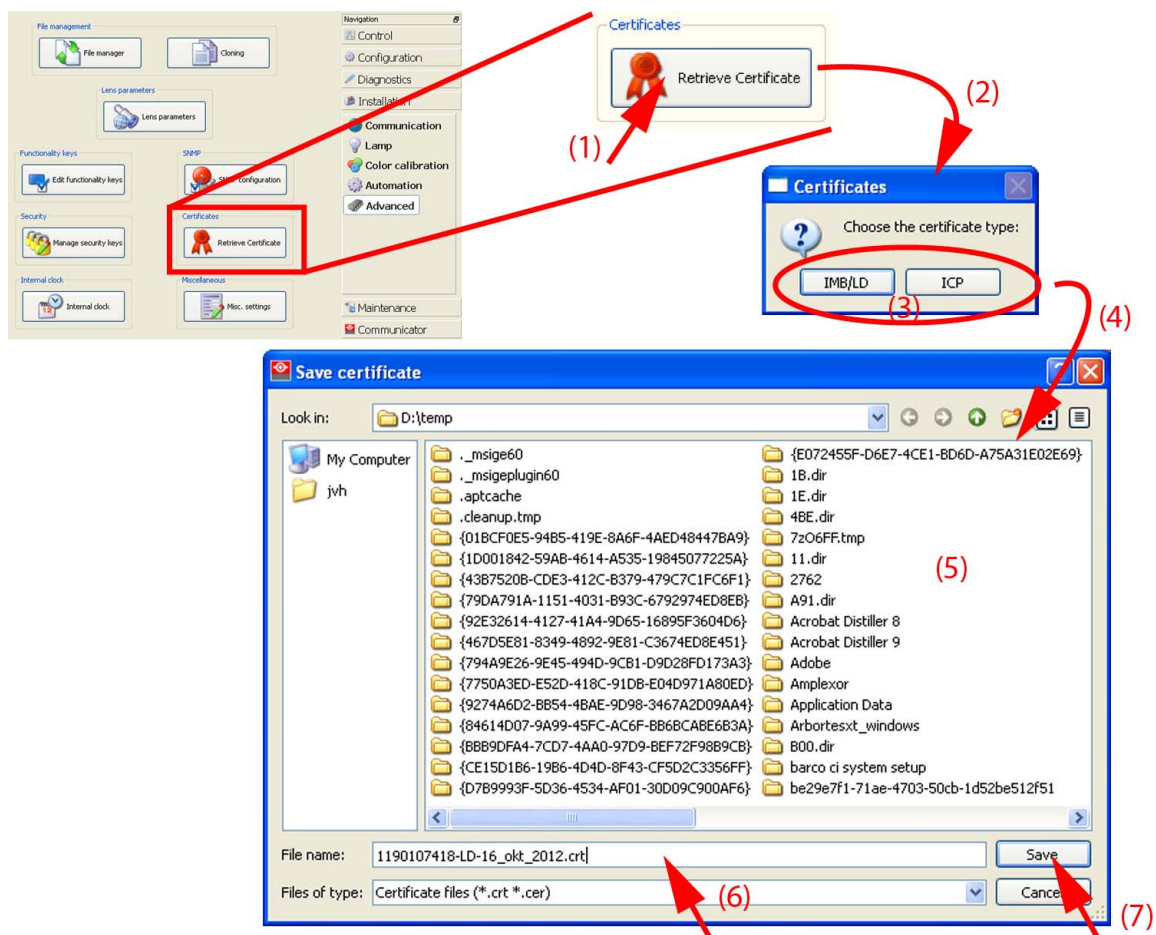


Image 6-154
Certificate

A certificate selection window opens.

There is a choice to download an IMB/LD certificate or an ICP certificate.

2. Select the certificate to download.

The *Save certificate* window opens and a suggested file name is filled out.

3. Browse to the desired storage location (3).

4. If you want to change the proposed file name, click on it (4), select the file name and enter a new name (5).
5. Click on **Save** (6).
- The file will be saved as an .crt file.
6. Repeat for the second certificate.

How to get the certificate for ICMP

1. While in the *Advanced* tab page, click on **Retrieve Certificate** (1).

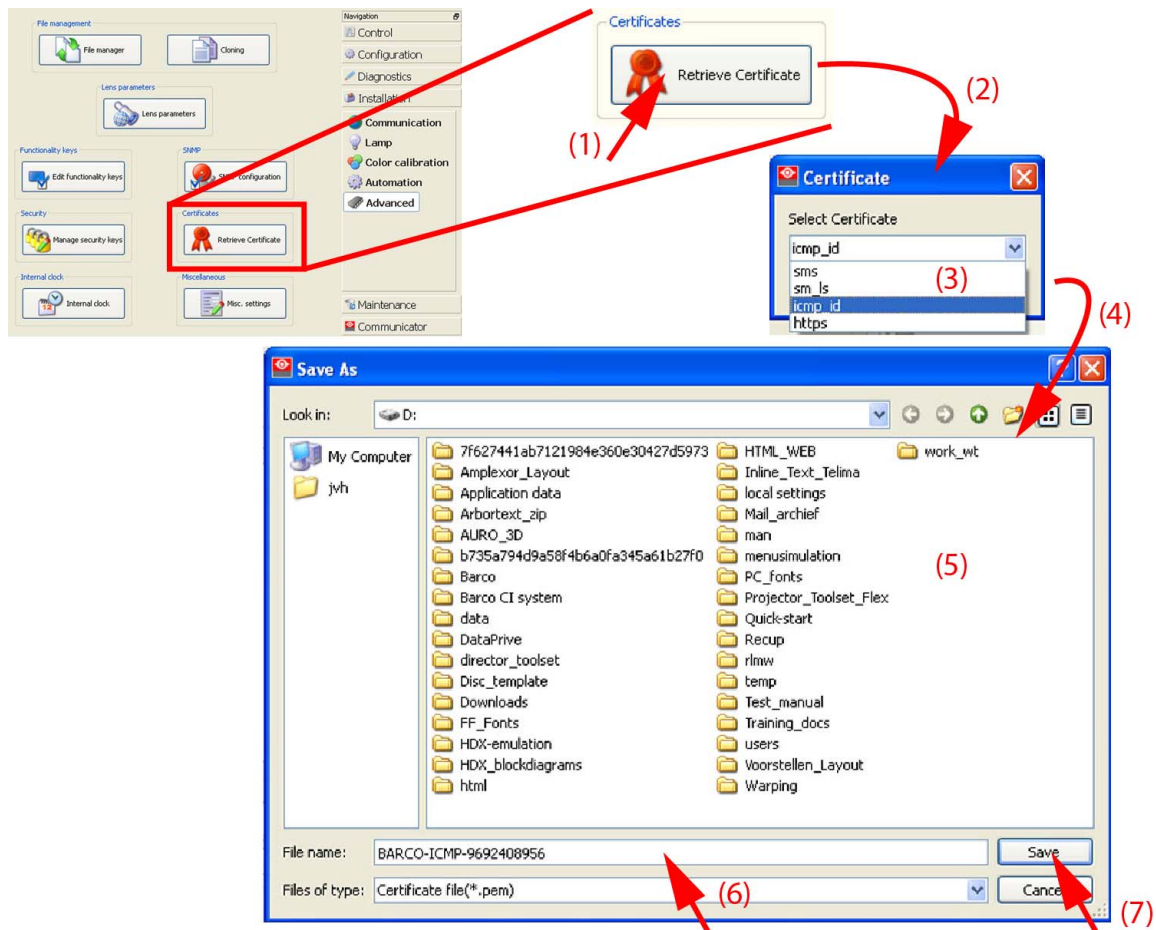


Image 6-155
ICMP certificate

A certificate selection window opens (2).

2. Click on the drop down box and select *icmp_id* (3).
Click **OK**.

icmp_id	This is the digital identity certificate necessary to request KDM's to the content supplier. The created file is .pem file.
sms	Internally used.
sm_ls	This is used by the Media Server to sign the secure logs during exportation in a file.
https	This is used to secure the HTTP communication (web service)

The *Save certificate* window opens (4) and a default file name is filled out. That filename contains BARCO_ICMP_XXXXXXXXX.pem (6) Where XXXXXXXXXXXX is unique 10 digit code associated with the ICMP.

3. Browse to the desired storage location (6).

6. *Installation*

4. Click **Save** (7).

The file will be saved as pem file.

7. MEDIA SERVER

Overview

- About Media Server
- Installation
- Player
- Automation
- Maintenance
- Control
- About

7.1 About Media Server

Introduction

Barco Communicator's Media Server pages can be used to set all parameters of the ICMP (Integrated Cinema Media Processor) Media Server during installation or maintenance stages.

The *Player* pages are used to set the player, audio and scheduler settings.

On the *Automation* pages, automation devices and automation cues can be configured.

7.2 Installation

Overview

- Global settings, auditorium name
- Global settings, host name
- Global settings, Board IP address 1 and 2
- User settings, add user
- User settings, edit user
- User settings, delete user
- User settings, UI settings
- Server settings, overview
- Server settings, add device
- Server settings, modify device
- Server settings, delete device
- Server settings, test device
- Content Ingest from one ICMP to another
- DCP publishing
- License settings, overview
- License settings, add license
- License settings, view license
- License settings, delete license
- Multi projectors settings, master-slave setting
- Multi projectors settings, add slave
- Multi projectors settings, edit slave
- Multi projectors settings, delete slave

7. Media server

- Multi projectors settings, Slave view disabling
- Immersive sound settings

7.2.1 Global settings, auditorium name

About the auditorium name

The name of the auditorium as it will be displayed in user interface (Web Commander and Commander app)

How to add or modify the name

1. While in *Installation*, click on **Global setting**.

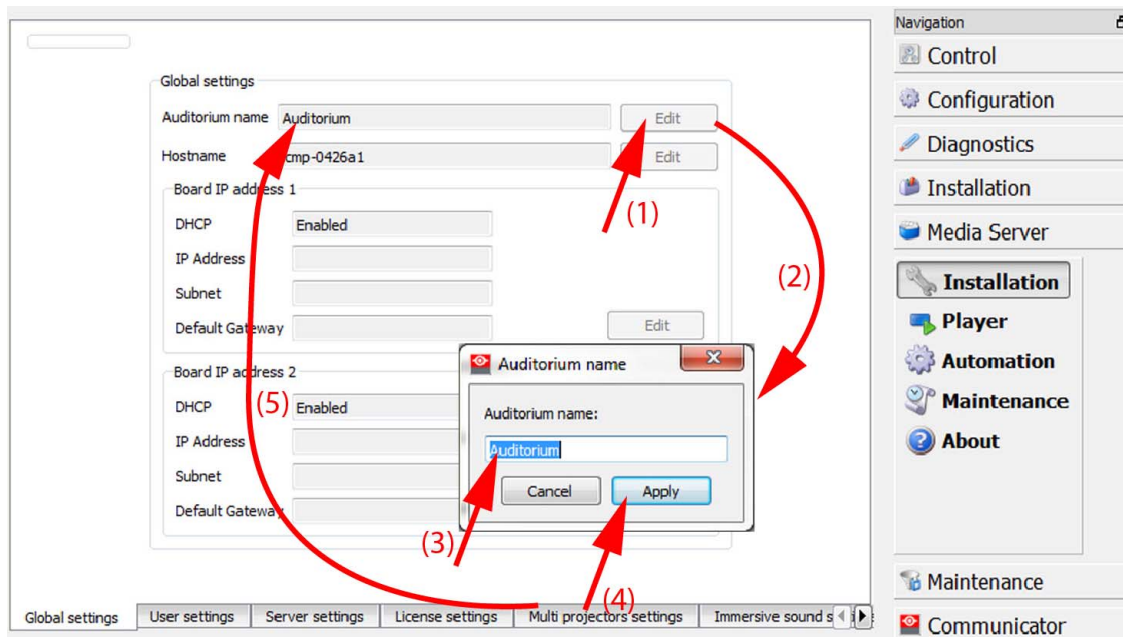


Image 7-1
Auditorium name

2. Click **Edit** button next to the *Auditorium name* field (1).

The *Auditorium name* edit box appears (2). If there is already a name, this name is filled out and selected.

3. Enter a new auditorium name (3).

4. Click **Apply** (4).

The new entered name will be displayed in the *Auditorium name* field (5).

7.2.2 Global settings, host name

About the host name

The host name is the name assigned to the ICMP to identify the device in the theater network.



Do not use the same host name for multiple devices.

How to add or modify the host name

1. While in *Installation*, click on **Global setting**.

- Click **Edit** button next to the *Host name* field.

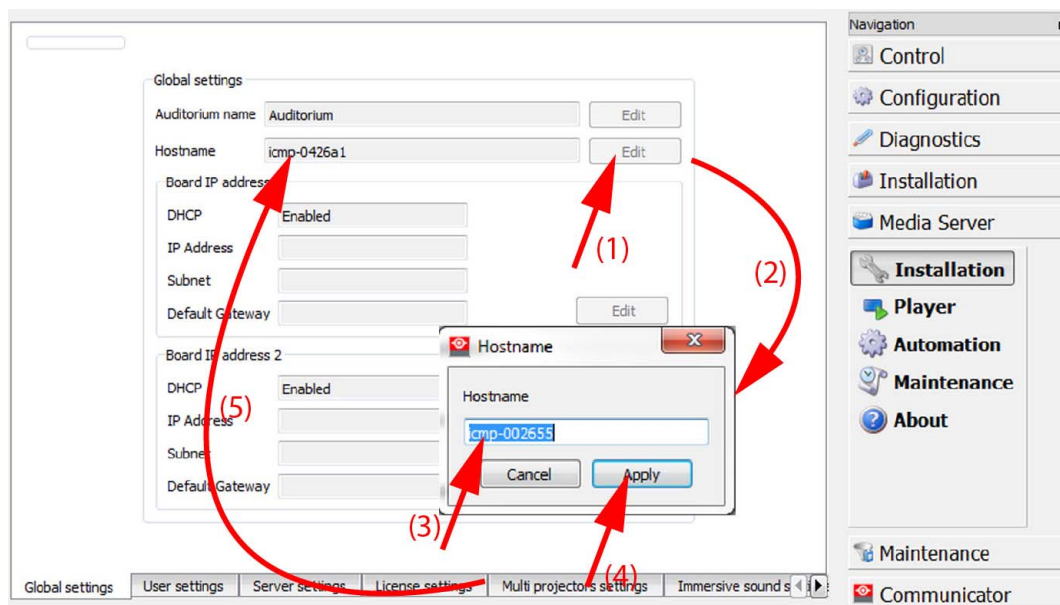


Image 7-2
Host name

The *Host name* edit box appears. If there is already a name, this name is filled out.

- Select the name and enter a new host name.

- Click **Apply**.

The new entered name will be displayed in the *Host name* field.

7.2.3 Global settings, Board IP address 1 and 2



Before entering an IP address, read first "IP configuration - remarks", page 457.

About Board IP address

The ICMP has 2 TCP/IP based network interfaces which can be used for communication with all equipment in the booth for automation, content ingest, closed captioning devices, immersive sound renderer, etc... but it needs to be on different IP scheme.

Note on Closed Captioning Devices: The Alchemy media server supports all devices which are capable of using the standardized synchronization protocol (SMPTE 430-10).

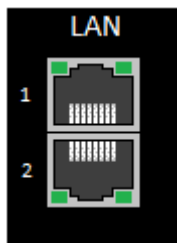


Image 7-3

Each of them can use an automatic generated IP address or a fixed IP address.

7. Media server

The following settings can be made:

- **DHCP** : can be activated to automatically obtain an IP address. Or it can be deactivated to set up an manual IP address.
- **IP address** : assigned IP address to identify the network interface in the theatre network.
- **Subnet mask** : logical subdivision of the TCP/IP network.



As the ICMP is inserted in the card cage, it shares the same IP address as the projector via the connector at the back of the card. The current practice is to use that projector address.

How to set an IP address

1. While in *Installation*, click on **Global settings**.
2. Click on the corresponding **Edit** button in Board IP address 1 or 2 (1).

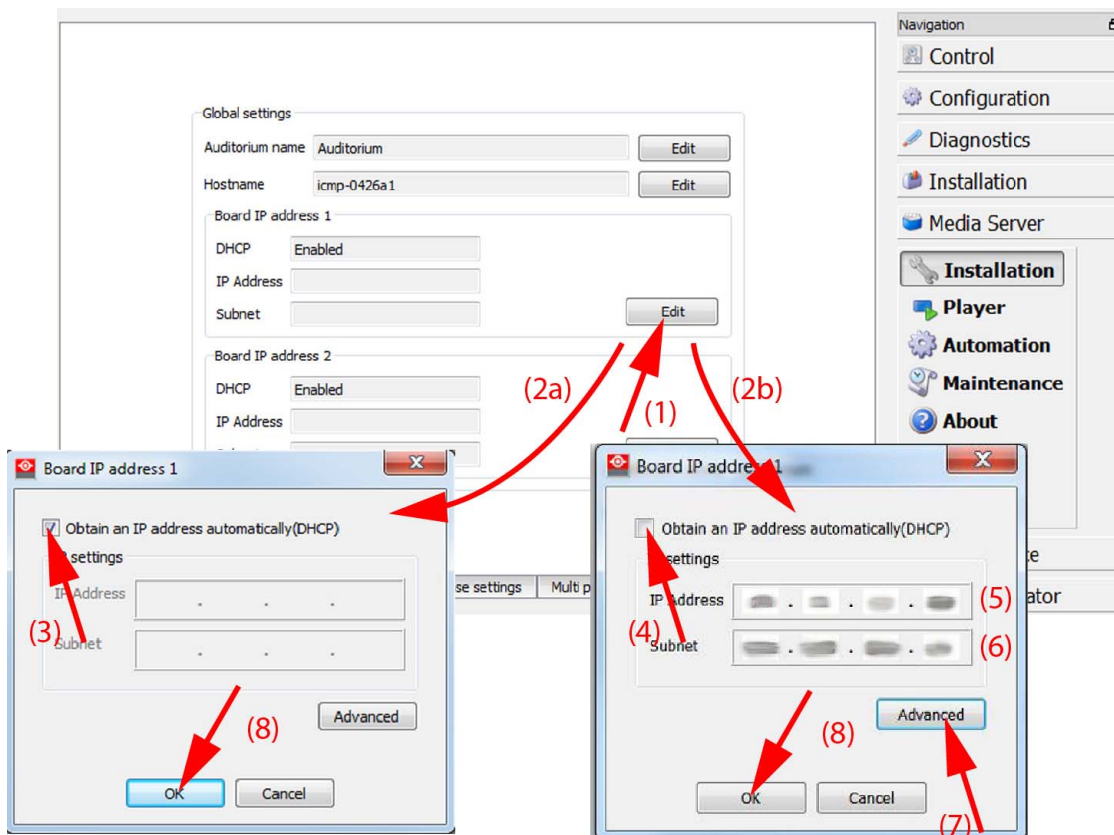


Image 7-4

The Board IP address window opens with its current settings (2a or 2b).

3. Do you want to use an automatically created IP address ?
If yes, check the check box next to *Obtain an IP address automatically (DHCP)* (3) and click **OK** (8).
If no, uncheck the check box next to *Obtain an IP address automatically (DHCP)* (4) and continue with the next step.
4. Click in the input field of the *IP address* and fill out the 4 fields (5).
Note: An address contains 4 octets with a maximum value of 255.
This must NOT be 0.0.0.0 for static IP-Address assignment
5. Click in the *Subnet mask* input fields and fill out the 4 fields as appropriate for the local subnet (6).
6. Click **OK** (8).

7.2.4 User settings, add user

About users

Different users with different access levels to the ICMP functionality can be created.

The following levels can be configured:

- **Monitoring:** limited access, only for monitoring, consulting access.
- **Projectionist:** access to projection control in addition to the monitoring.
- **Show Manager:** defines shows and schedules.
- **Administrator:** full access to the screen management system configuration.



A good practice is never erase the default users and immediately add users that will be used locally during operation.



A limitation: The system will not save the changes if there is not at least one "Admin" user type and a "Show Manager" user type in the pool of users.

Default users

3 default users with a default password are defined in the system. It is recommended to change the default logins.

Login	Password
admin	Admin1234
proj	Proj1234
show	Show1234

How to add a user

1. While in *Installation*, click on **User settings**.
2. Click on **Add** (1).

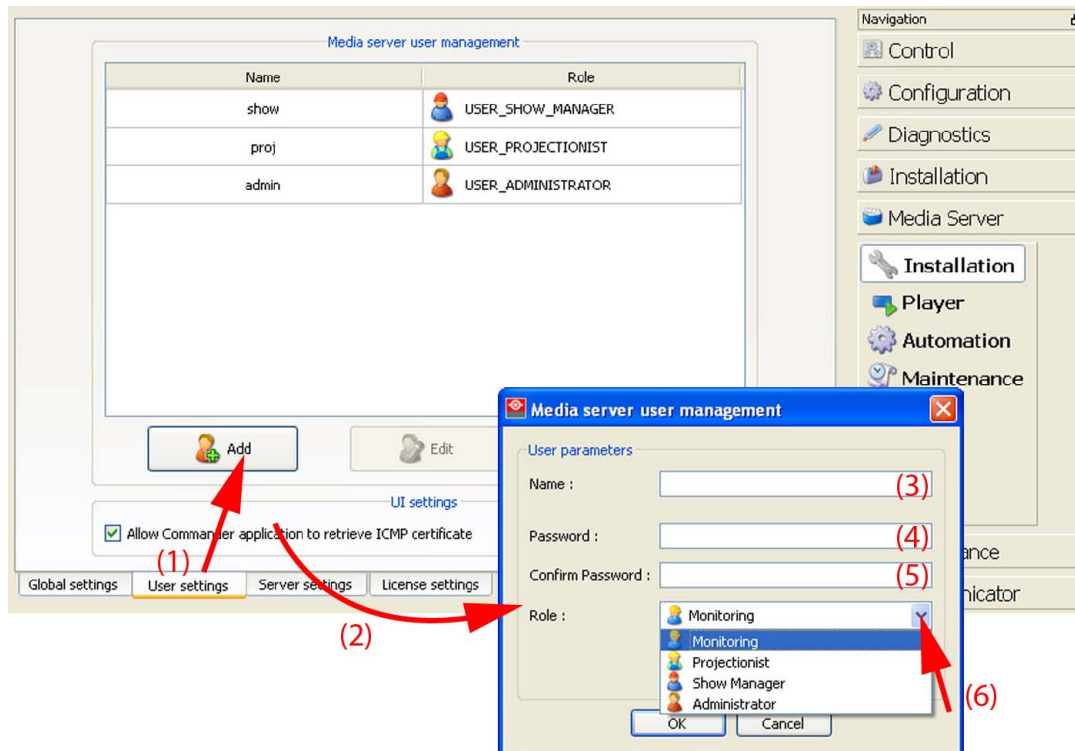


Image 7-5
Add user

The *Media server user management* window opens (2).

3. Enter a Name (3).

4. Add a role for the new user. Click on the drop down box and select the corresponding role (4).
The following roles are possible:

- Monitoring
- Projectionist
- Show Manager
- Administrator

5. Enter a password (5) and confirm the previous entered password (6).

Note: A password must contain at least 8 characters.

6. Click **OK** to add (7).

7.2.5 User settings, edit user

What can be done?

All user parameter (password and role) can be changed.

How to edit user settings

1. While in *Installation*, click on **User settings**.
2. Select the user to edit (1).
3. Click on **Edit** (2).

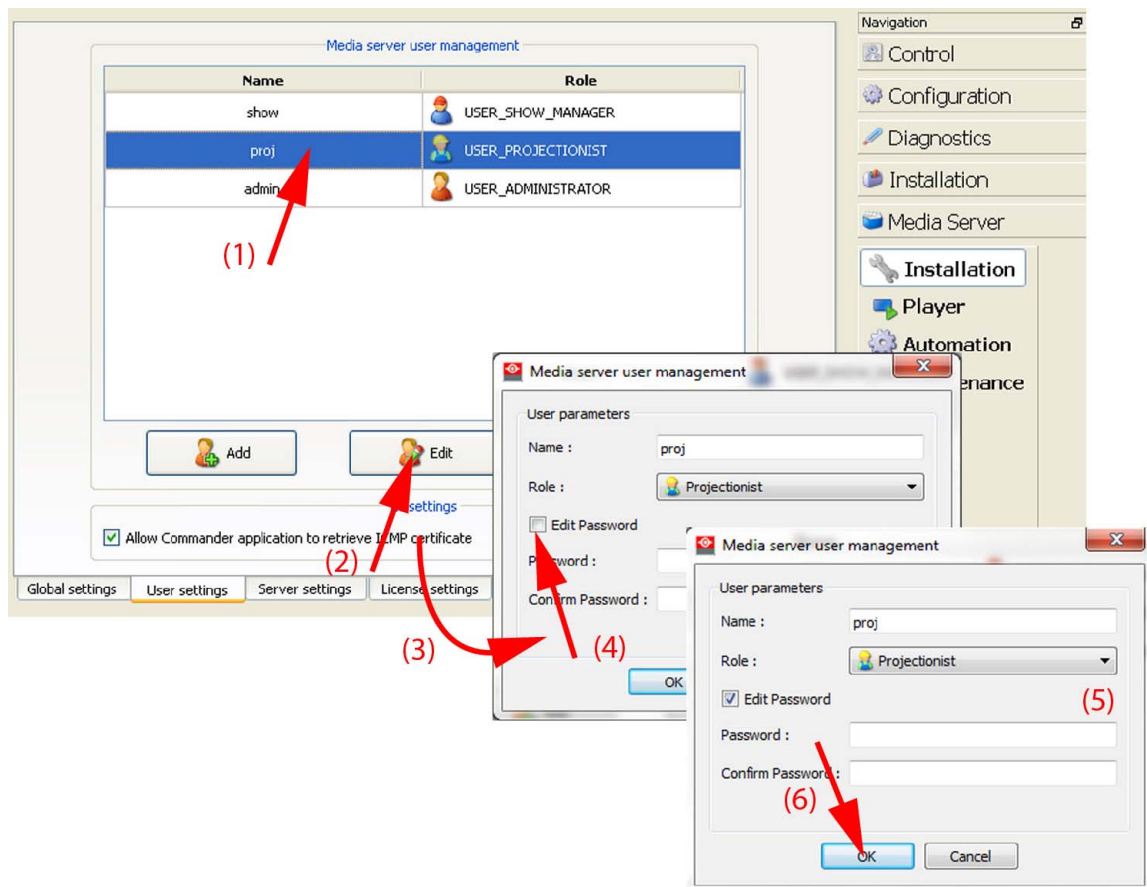


Image 7-6
Edit user settings

The *Media server user management* window opens (3). By default, the user name and the role can be changed.

4. If you want to change the password, check the check box in front of *Edit Password* (4).

The *Password* and *Confirm password* fields become active.

5. Enter a new password and confirm this new password (5).
Change the role if necessary.
6. Click **OK** to confirm the changes (6).

7.2.6 User settings, delete user

How to delete

1. While in *Installation*, click on **User settings**.
2. Select the user to delete (1).
3. Click on **Delete** (2)

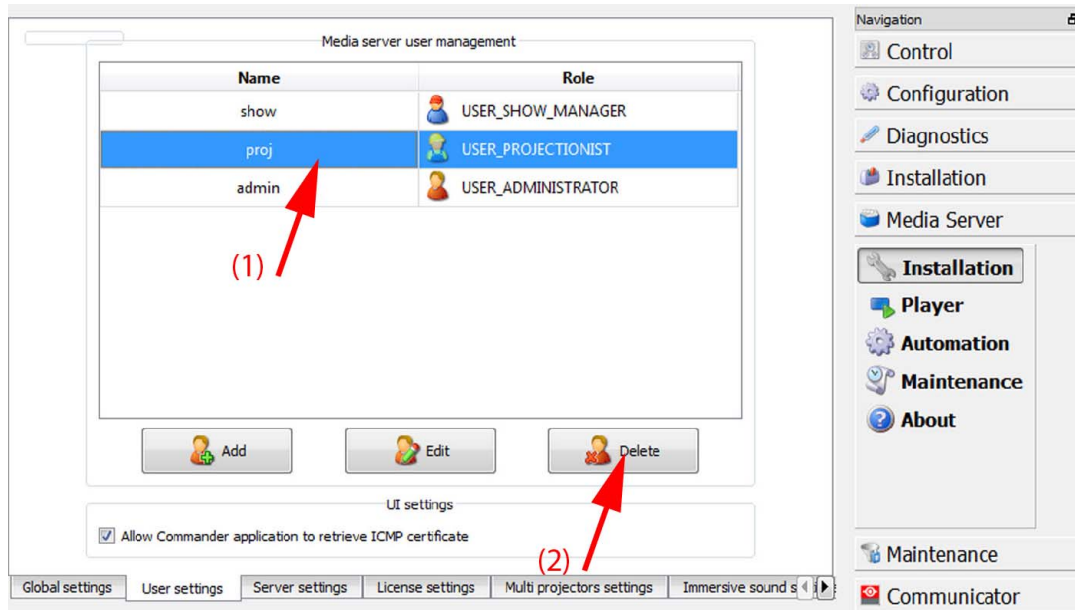


Image 7-7
Delete user

The selected user is removed from the user list.

7.2.7 User settings, UI settings

What can be done?

Communicator can block or allow downloading the ICMP certificate via Commander

How to block or allow

1. While in *Installation*, click on **User settings**.
2. Check or uncheck the check box before *Allow Commander application to retrieve ICMP certificate* (1).

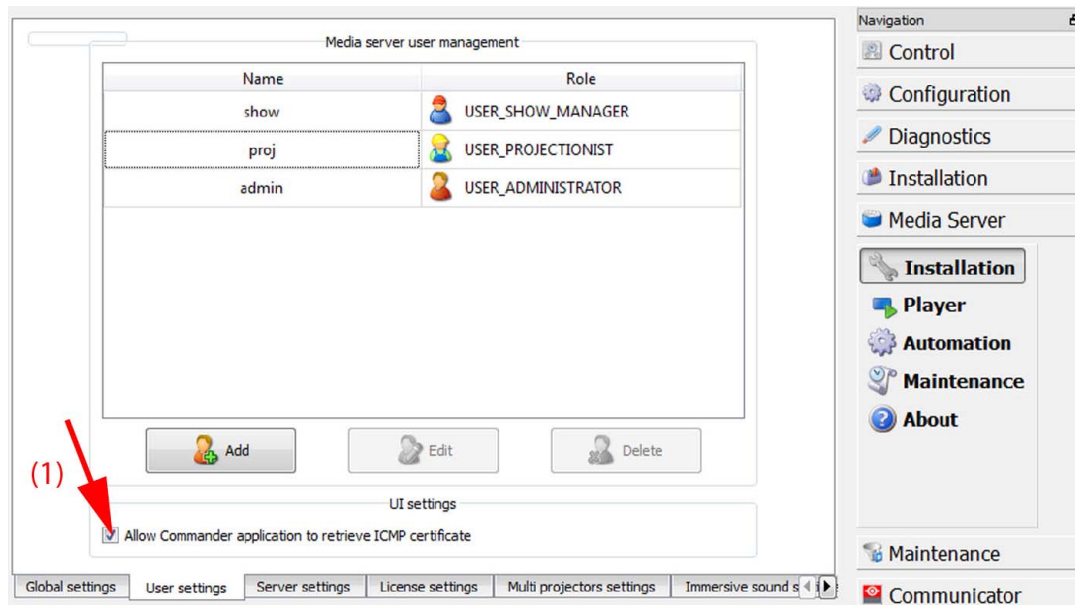


Image 7-8

Checked : Commander application is allowed to retrieve the ICMP certificate.

Not checked : Commander application is not allowed to retrieve the ICMP certificate.

7.2.8 Server settings, overview

Overview

The server settings window allows to configure the list of servers, remote directories and libraries where the content is stored. All these assets will be called 'devices'.

Terms used in the server list.

De-vice/Server name	Readable name of the remote device/server.
Type/Protocol	Protocol used for communication and transfer with the remote device / server: <ul style="list-style-type: none">• FTP: File Transfer Protocol• NFS: Network File System (for Unix like systems)• SMB: Server Message Block (for Windows and Unix like systems using Samba)
IP/Hostname	IP address of the remote device/server in the theater network.
Path/Remote path	Path where the contents are stored on the remote device/server.
Login	Login used by the ICMP to establish communication with the remote device.
Password	Password used by the ICMP to establish communication with the remote device.
Parameters	Parameters used by the ICMP to establish communication with the remote device.

7.2.9 Server settings, add device

How to add

1. While in *Installation*, click on **Server settings**.
2. Click on **Add device** (1).

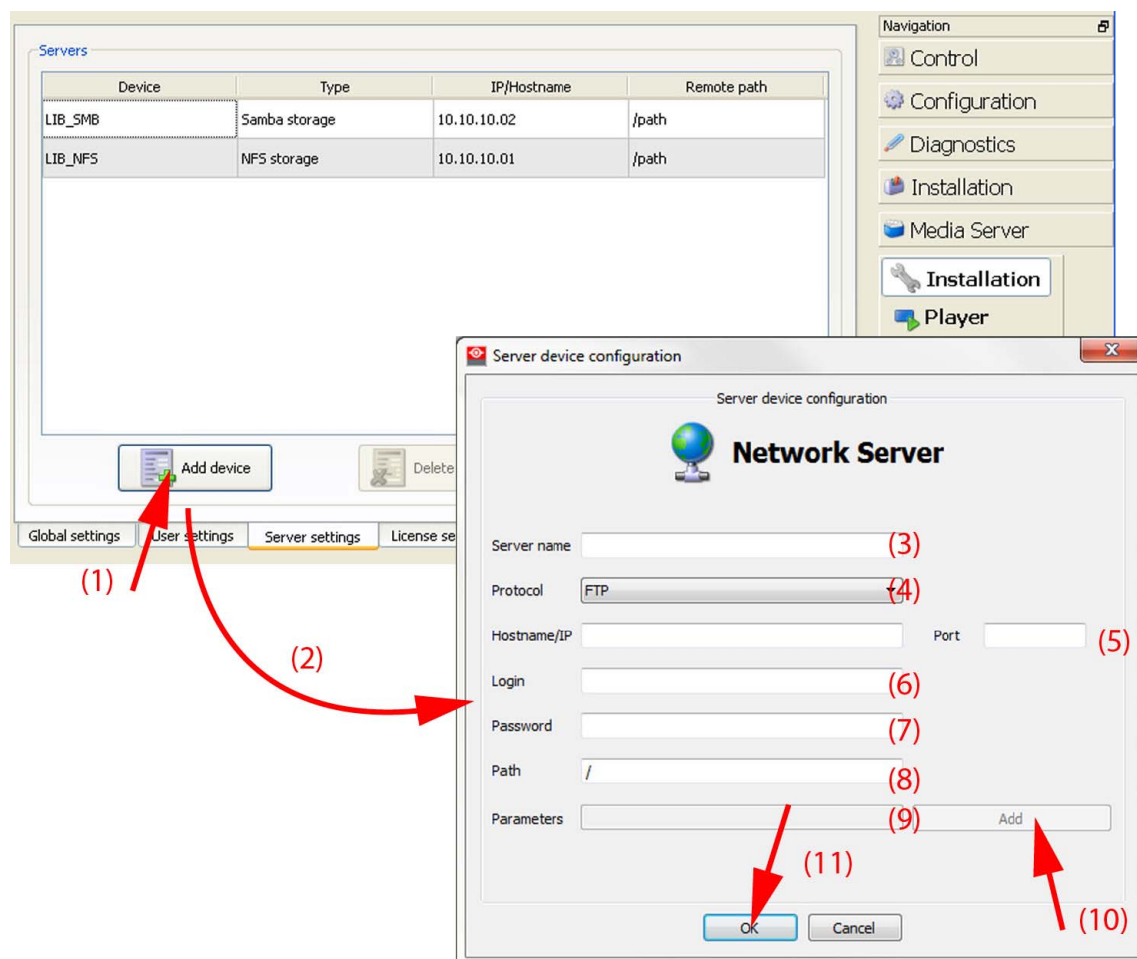


Image 7-9
Add device

The *Server device configuration* window opens (2).

3. Enter a device name (3), select a protocol by clicking on the drop down box (4), enter the hostname or IP address and port number (5), provide the login (6) and password (7).

Note: Do not use one of the following characters in the login and password: /, : or @.

4. Enter the path to the device (8).
5. Enter the necessary parameters (9). When entering multiple parameters, separate each parameter with ';'. Press Add (10).
6. Click **OK** to add (11).

7.2.10 Server settings, modify device

How to modify

1. While in *Installation*, click on **Server settings**.
2. Select a device in the device list.

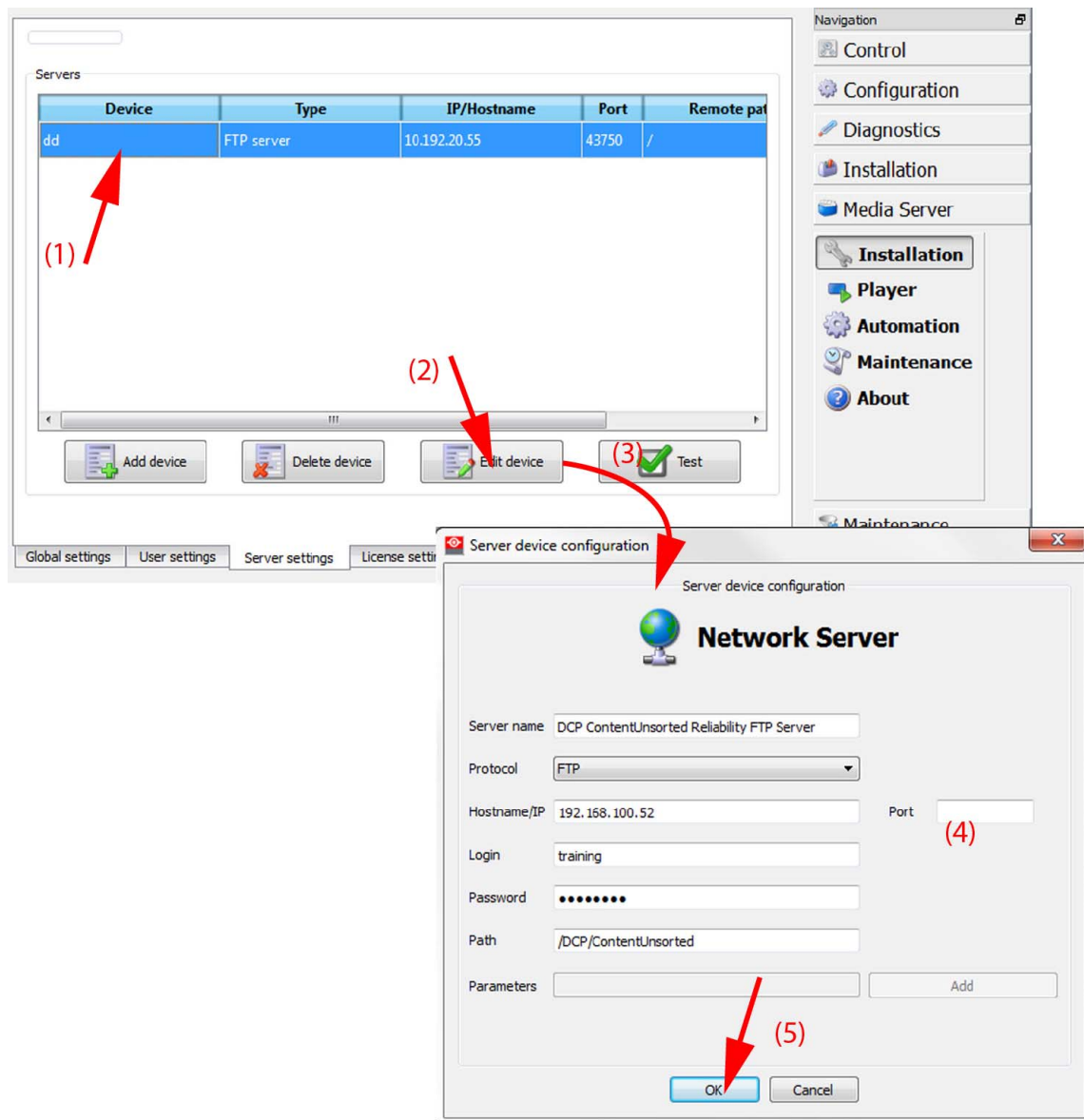


Image 7-10
Edit device

3. Click **Edit device**.

The *Server device configuration* window opens (2). The fields are all filled out.

4. Modify the necessary fields.

5. Click **OK** to update the modification in the server list.

7.2.11 Server settings, delete device

How to delete

1. While in *Installation*, click on **Server settings**.
2. Select the device to delete in the server list (1).

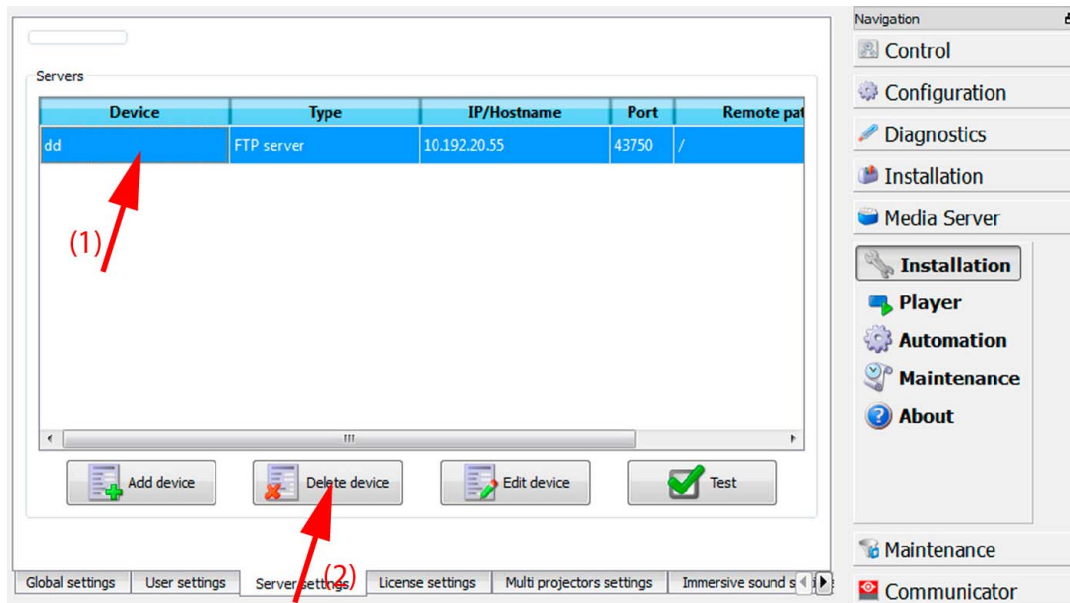


Image 7-11
Delete device

3. Click **Delete device** (2).

The selected device is removed from the list.

7.2.12 Server settings, test device

How to test

1. While in *Installation*, click on **Server settings**.
2. Select the device to test in the server list (1).

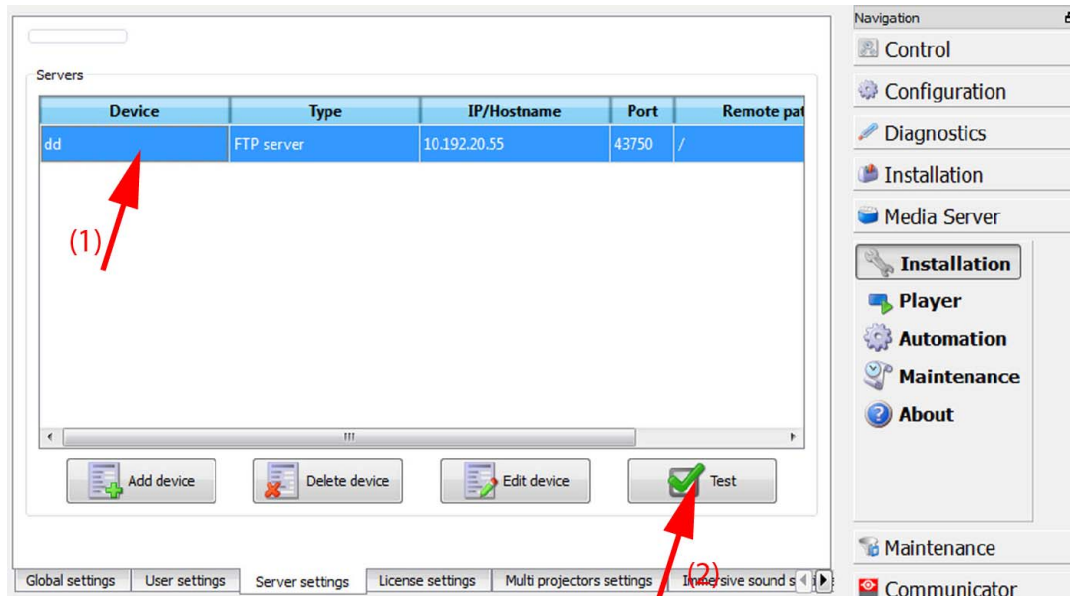


Image 7-12
Test device

3. Click **Test**.

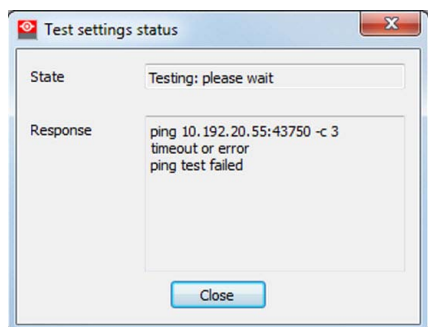


Image 7-13
Test status window

A test overview window is displayed, indicating the status and the response.

7.2.13 Content Ingest from one ICMP to another

Overview

The content ingest from an ICMP to another ICMP is based on an FTP protocol via a network. Normally there is an FTP server available in all ICMPs with:

- login : ftpcontent
- password : icmp
- port : 43750 or 21

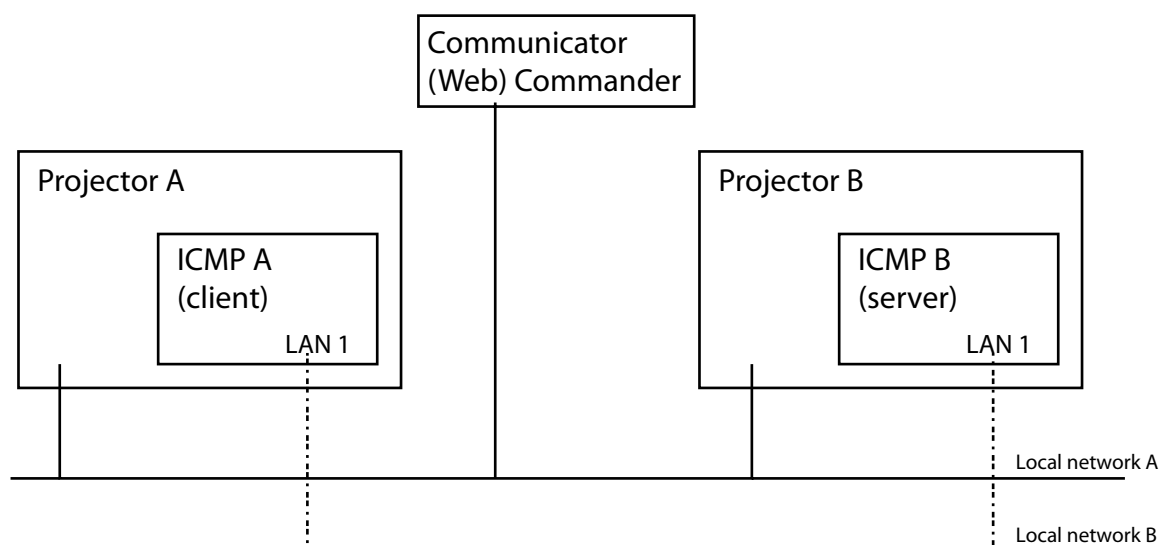


Image 7-14

It is possible to use the IP address of the projector to transfer data but it is recommended to use a dedicated network (data) in order to have a better bandwidth.

The following steps must be taken:

on the server (ICMP B)

1. Use Communicator to set a new IP address (see "Global settings, Board IP address 1 and 2", page 309)

on the client (ICMP A)

1. Use Communicator to set a new IP address (see "Global settings, Board IP address 1 and 2", page 309)
2. Use Communicator to add a new device (see "Server settings, add device", page 315)

7. Media server

- Server name: give a name that will be used by the user to identify the source of the content in the ingest module in (Web)Commander.
 - Protocol: FTP
 - Hostname/IP: give the IP address of the ICMP B (server)
 - Port: 43750 (use port 21 to ingest with a better bandwidth)
 - Login: ftpcontent
 - Password: icmp
 - Path: /
3. Use Web Commander or Commander to ingest content via Ingest module. See Web Commander's or Commander's user guide for more information.

7.2.14 DCP publishing

About DCP publishing

Content stored on the ICMP can be copied to a third party media server using the FTP protocol. The content can then be played back on that server.

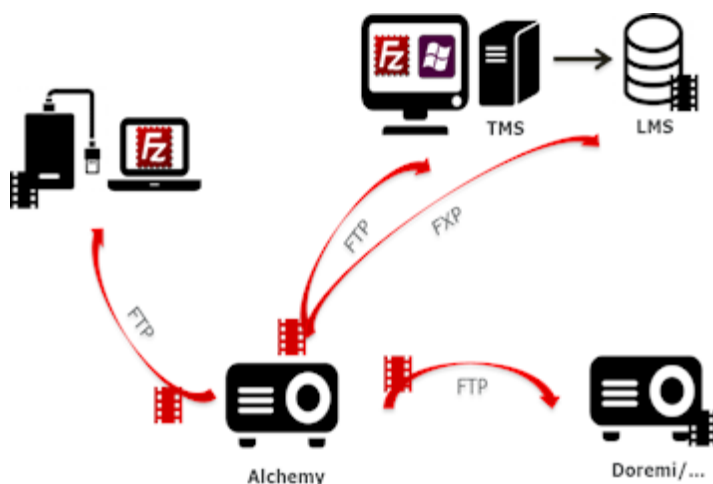


Image 7-15

When the content is incomplete or corrupt on the ICMP then the exposed data will also be incomplete or corrupted. We can have incomplete content because the ingest failed or because the ICMP only ingested the tracks it is intended to play (Atmos is not recognized in ICMP version < 1.2.3, Escape content is always ingested partially)

How to use DCP publishing

1. Lookup the IP address of the ICMP (Board IP address 1 or 2).
2. Make an FTP connection from the 3rd party media server, TMS or laptop with the ICMP. Use LAN connection 1 or 2 to make the connection.
3. Copy the desired folder containing the content from the ICMP to the 3rd party media server.

Each movie is stored in folders. The folders have the same name as the movie UID.

7.2.15 License settings, overview

Overview

License files are sometimes necessary to playback content on the player. These files can limit the playback period and device.

Terms used in the license list:

License	License name
Annotation text	
Validity window	Validate from to
Status	status of the license

7.2.16 License settings, add license

How to add

1. While in *Installation*, click on **License settings**.
2. Click **Add license**.

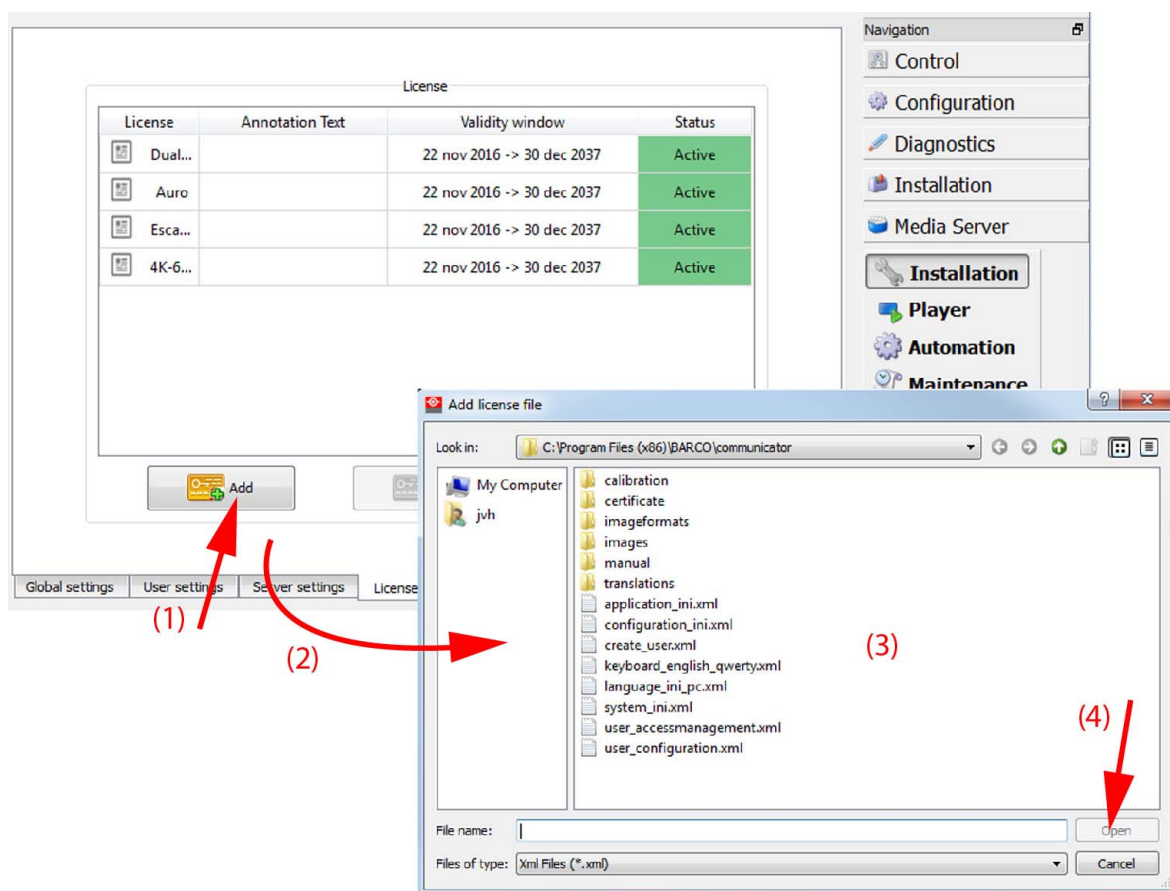


Image 7-16
Add license

A browser window opens.

3. Browse to the license file and click **Open**.

The file is uploaded. A message is displayed.

7.2.17 License settings, view license

How to view

1. While in *Installation*, click on **License settings**.
2. Select a license (1).

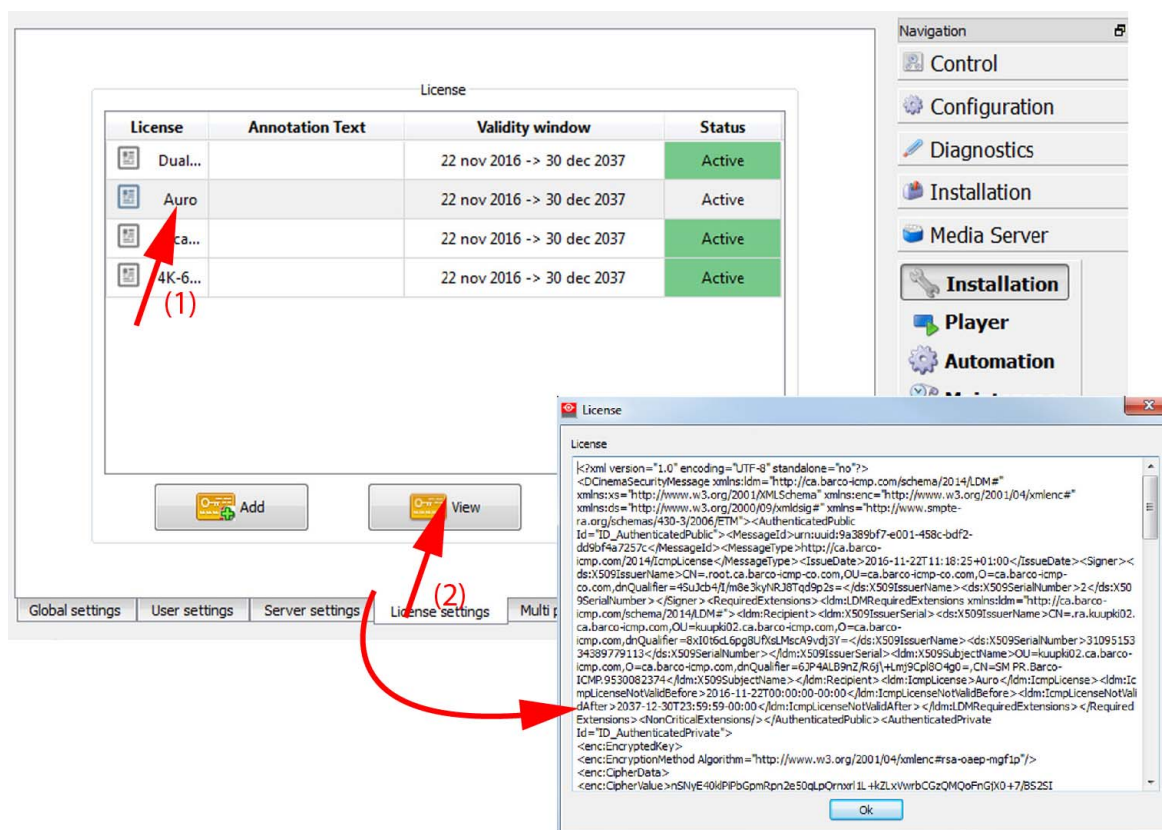


Image 7-17

View license

3. Click on **View** (2).

The license content is displayed.

7.2.18 License settings, delete license

How to delete

1. While in *Installation*, click on **License settings**.
2. Select a license file to delete (1).

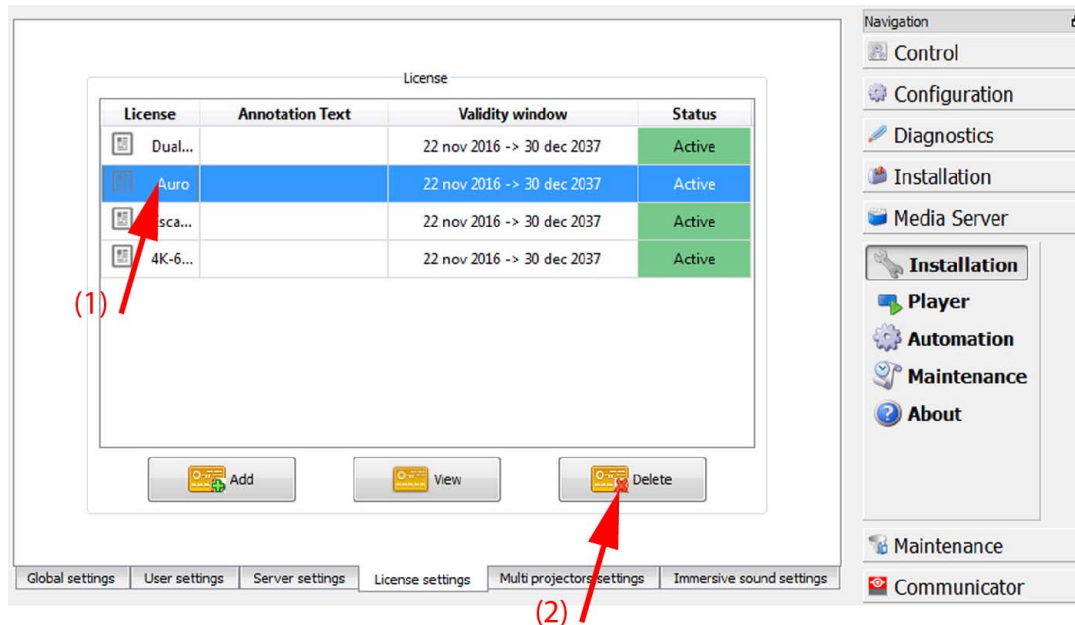


Image 7-18
Delete license

- Click **Delete license** (2).

The license is removed from the list. A message will be displayed.

7.2.19 Multi projectors settings, master-slave setting

About multi projector setup

A multi projector setup is used in e.g. a 3D setup where the first projector projects the left image and the second projector the right image.

One projector must be set as master and the others as slave. The slave projectors must be known by the master.



Use a 50 Ohm coaxial cable to connect the sync signal from projector to projector.

How to set

- While in *Installation*, click on **Multi projectors settings** (1).

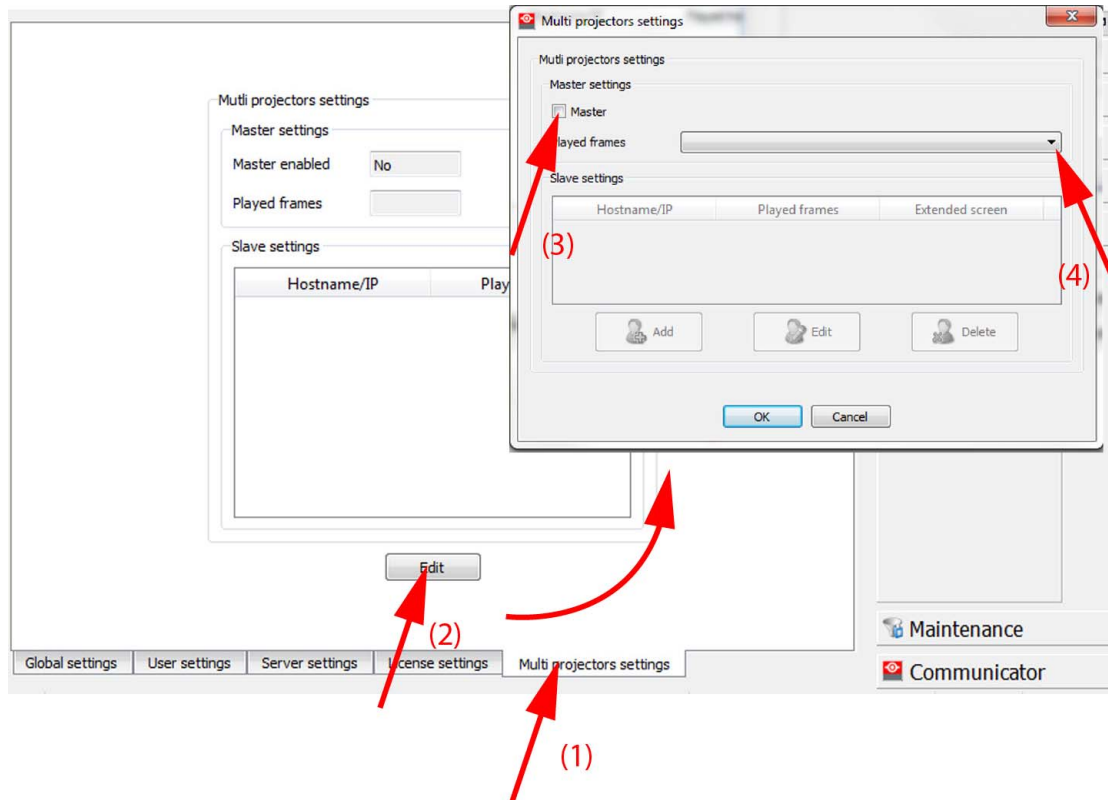


Image 7-19
Master-slave setting

2. Click **Edit** (2) to open the *Multi projectors settings* window.
3. To switch the projector from standalone to master or vice versa, check or uncheck the check box next to *Master* (3).

checked: projector is set as master. The Played frames should be filled out. The Add, Edit and Delete button become available.

Not-checked: projector is set as standalone.
4. For a master projector, select the Played frames. Click on the drop down box and select the corresponding frame (Left, Right, Both) (4).
Note: For dual active features, select *Both*.
For dual passive 3D, select left or right
For Escape, select Both.

7.2.20 Multi projectors settings, add slave

About adding a slave

Before a master-slave combination can be used, the slave projector(s) must be declared inside the master projector.

Make sure nothing is selected (clip/show) in the player before adding a slave projector.

How to add

1. While in *Installation*, open the **Multi projectors settings** tab and click on **Edit** (1).

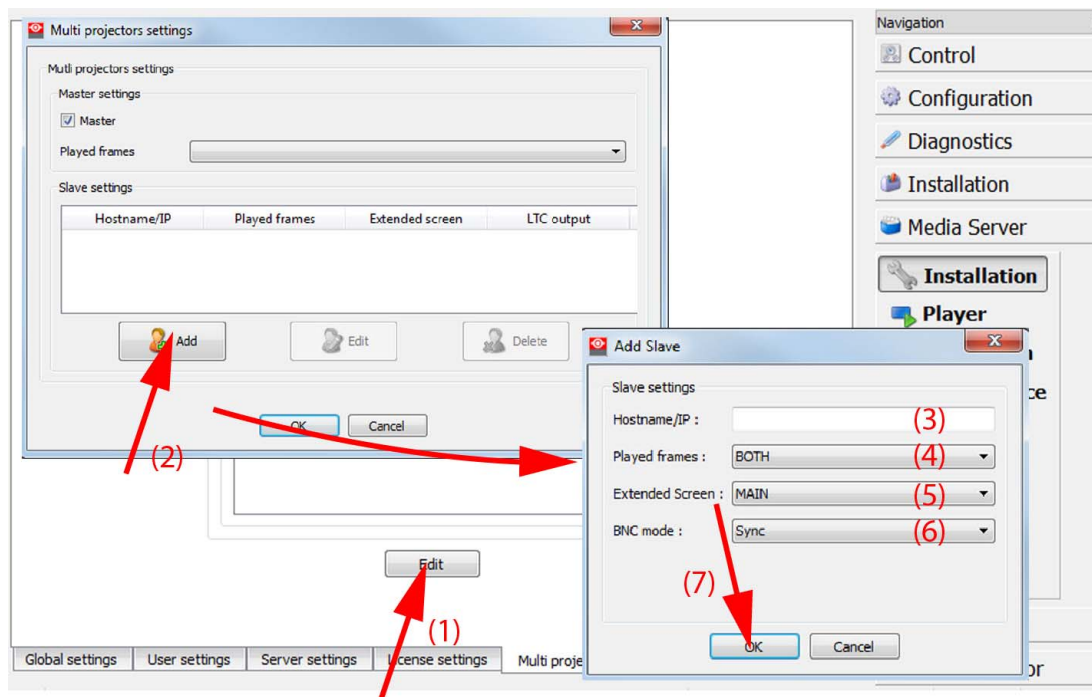


Image 7-20
Add slave address

- The Multi projectors settings window opens.
2. Click **Add** (2) to open the *Add Slave* window.
3. Click in the *Hostname/IP* input field and enter IP address of the slave projector (3).
4. Select the *Played frames*. Click on the drop down box and select the corresponding played frames (4). By default the first one in the list is filled out.
Note: For dual active features, select *Both*
 For dual passive 3D, select *Left or Right*
 For Escape, select *Both*
5. Select the Extended Screen. Click on the drop down box and select the corresponding screen position (5).
 The following positions are possible: MAIN, LEFT, RIGHT, TOP and BOTTOM.
6. Select the BNC mode.
 The following functions for the BNC connector are possible:
 - Sync : default sync signal
 - LTC : encoding of SMPTE timecode data in an audio signal according the SMPTE12M-1 specification.
 The default value is LTC.
 This setting must be set to *Sync* (false) if the slave is not the last one in the chain (e.g. Escape configuration). The last one must be set to *LTC* (true).
Note: in a multi projector configuration, the device that reads LTC signals must be plugged in the last slave of the chain and the BNC mode of this slave must be set to *LTC* (true)
7. Click **OK** to return to the Multi projectors settings window (the new slave will be added) and again on **OK**.



For an Escape setup, two slaves must be added (playing both frames and having Extended screen parameter set accordingly).

7.2.21 Multi projectors settings, edit slave

How to edit

1. While in *Installation*, open the **Multi projectors settings** tab and click on Edit.

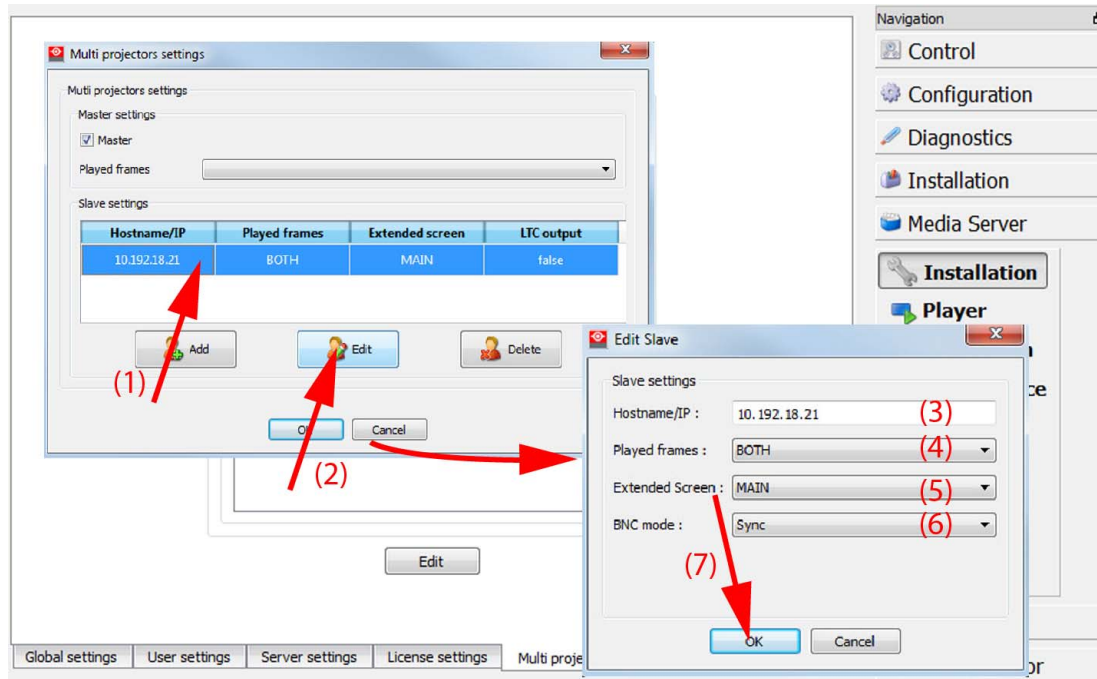


Image 7-21
Edit slave

2. Select the *Hostname/IP* to be edited (1) and click **Edit** (2).
The *Edit Slave* window opens.
3. Edit the hostname/IP (3) and/or make a new selection for *Played frames* (4), change the *Extended Screen* (5) or the *BNC mode* (6).
4. Click **OK** to apply the changes (7).

7.2.22 Multi projectors settings, delete slave

How to delete from the master view

1. While in *Installation*, open the **Multi projectors settings** tab and click on Edit.
2. Select the *Hostname/IP* to be edited (1) and click **Delete** (2).

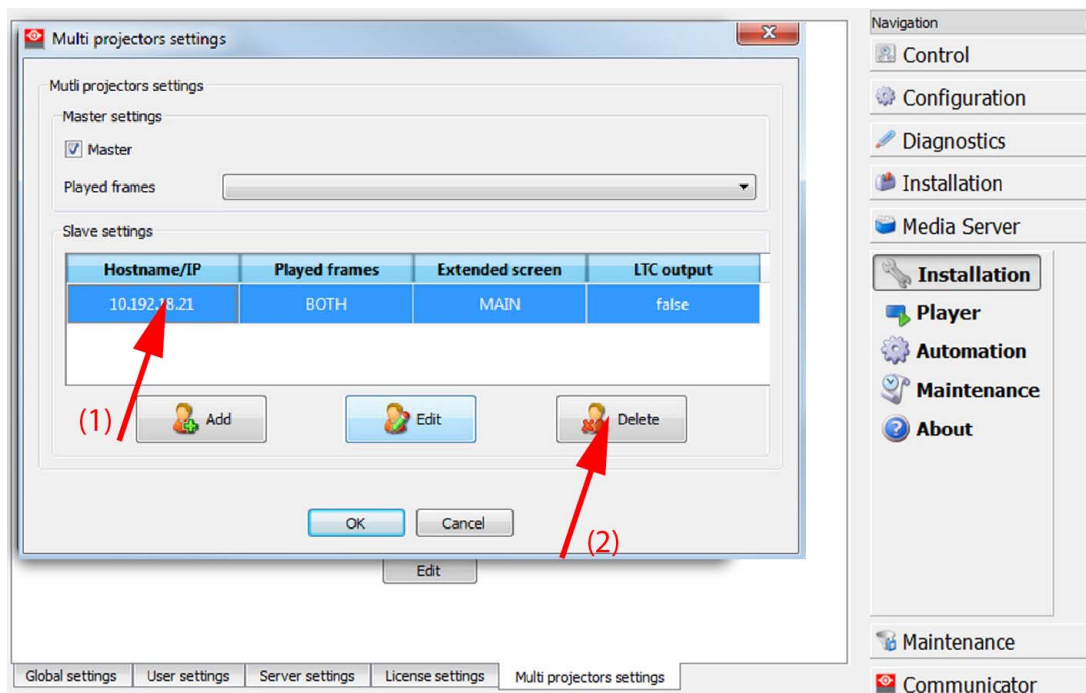


Image 7-22
Delete slave

The selected slave address is removed from the list.

7.2.23 Multi projectors settings, Slave view disabling

Disabling the slave

1. While in *Installation*, open the **Multi projectors settings** tab.

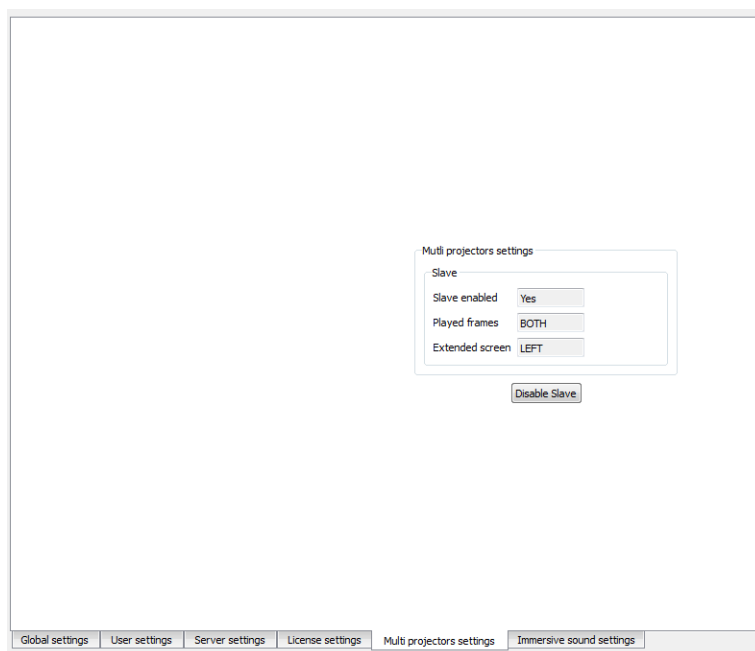


Image 7-23
Slave view

The *Played frames* and *Extended screen* parameter cannot be changed from this slave panel as all settings are done on the Master projector.

2. Click on **Disable Slave** to break the link between the master and the slave.

The slave projector will go back to standalone mode.

7.2.24 Immersive sound settings

What should be done?

As there are different audio processors in the market, some typical configurations must be done.

The audio processor should be configured by adding its IP address and activating the function in Communicator. The protocol for the audio processor should be selected. Once all these actions are done, the audio processor can be used in Commander or Web Commander.

How to setup and activate

1. While in *Installation*, open the **Immersive sound settings** tab and click on **Edit** (1).
2. Enter the IP address/hostname of the immersive sound input of the audio processor (2).

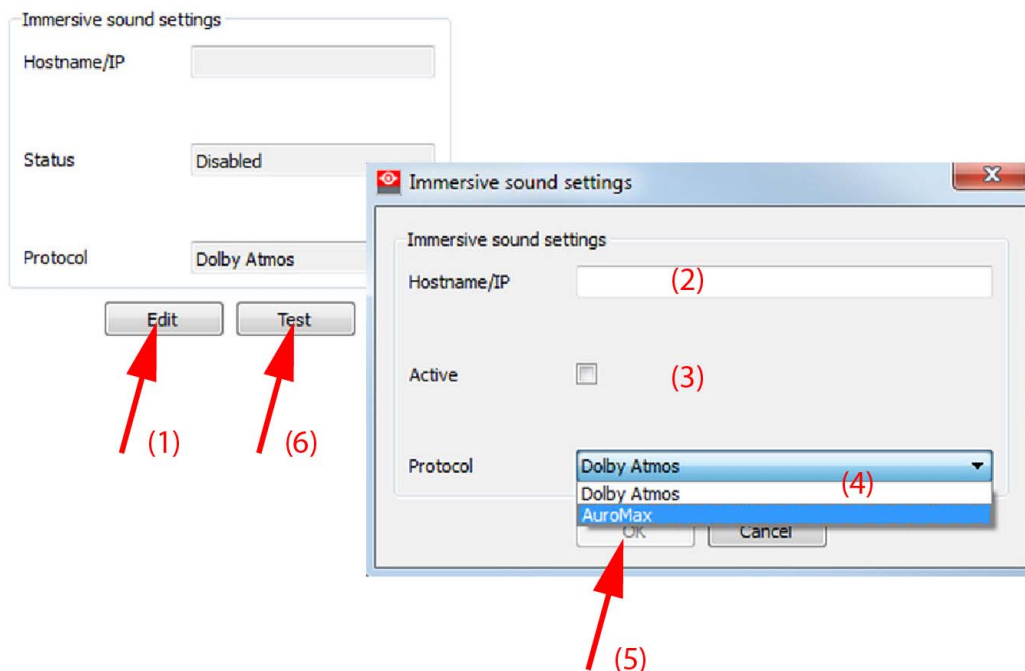


Image 7-24

3. To activate, check the check box next to *Active* (3).
Checked: activated.
Unchecked: deactivated.
4. Select the audio processor protocol (4)
When an APX AuroMax® processor is used, select the *AuroMax* protocol.
When an Dolby Atmos processor is used, select the *Dolby Atmos* protocol.
5. Click **OK** (5).
6. Click on **Test** to test connection (6).
The test status should be *Test successful*.

7.3 Player

Overview

- Player settings
- Player Audio channel, edit
- Player, activate a configuration
- Player, scheduler settings

7.3.1 Player settings

About the audio settings

Audio delay (ms)	Audio delay is used to correct the synchronization between sound and picture. This delay can be positive or negative.
Audio output frequency (kHz)	Allows to set the sound frequency (48 KHz- 96 KHz) for the audio output. The default value is 48 KHz
SMPTE Sync delay	<p>The <i>SMPTE Sync delay (ms)</i> (used for APX, but also 4D) is grayed out when SMPTE sync is not mapped to an AES output.</p> <p>this SMPTE sync delay setting goes hand in hand with the AES output configuration (where you assign the SMPTE sync signal to a AES channel)</p> <p>The “audio delay” and “SMPTE sync delay” are combined in the backend to an added-up value. When using both, the user should take care that the sum is correct (equal to the intended external value)</p> <p>The input field accept values so that:</p> <ul style="list-style-type: none"> • sum of both delay values (audio delay and SMPTE sync delay) ≥ -500 ms and ≤ 200 ms • SMPTE delay settings ≤ 0

How to modify

1. While in *Player*, click on **Player settings**.
2. Click on **Edit** (1).

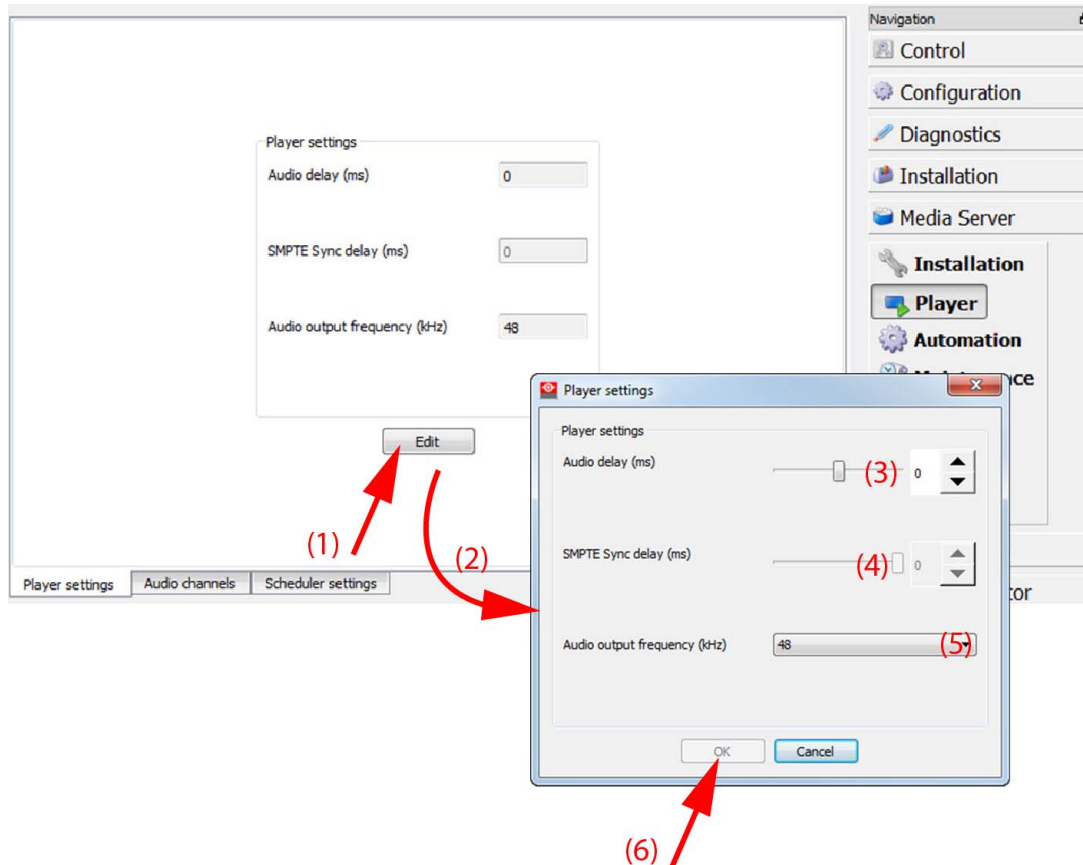


Image 7-25

The *Player settings* edit window opens (2).

3. To modify the *Audio delay*, click on the slider and move the slider to the desired position (3).
Or,
click on the input field next to *Audio delay* and enter the desired delay.
Or,
click on the up down control until the desired delay is obtained.
4. To modify the *SMPTE Sync delay*, click on the slider and move the slider to the desired position (4)
Or,
click on the input field next to *SMPTE Sync delay* and enter the desired delay.
Or,
click on the up down control until the desired delay is obtained.
5. Select the *Audio output frequency* by clicking on the drop down box and selecting the desired value (5).
6. Click **OK** to activate the new settings (6).

7.3.2 Player Audio channel, edit

About audio channel

The audio content in digital cinema is a multichannel sound system which can produce spatial sound signals to reproduce a sense of realism. Each channel is dedicated to a specific speaker.

The audio channel page allows to map the audio channels (content) on the audio output (AES outputs of the ICMP).

Within the content, audio channels are identified by labels (e.g. L, R, C...) according to predetermined standards (SMPTE 5.1, SMPTE 6.1 ...), or by default labels (CH01, CH02 ...). To assign an audio channel to an AES audio output, the desired label must be added to the output channel. Several input labels can be assigned to an AES audio output because a different source refers to different labels for input channels (e.g. "L", "CH01"). This will not lead to any conflict where two or more input channels from one source are

assigned to the same output. Also note that an input channel could be assigned to several outputs if the user wants to clone that channel.

The ICMP has 16 AES audio output channels but all outputs must be activated. An optional attribute is used to indicate whether the AES output channel is physically connected or not. This is currently mainly informative for technicians.

Several standards are available by default including Auro and AuroMax.



The units are leaving the factory preset for *Standard* channel mapping. These mapping is only changed in rare occasions or for troubleshooting reasons.



Note on closed captioning devices: If the sound processor has no dedicated audio input for the HI (Hearing Impaired) – VI (Visually Impaired) channels you better adapt the channels to the range from 9 – 16 so you can use an extra cable from Alchemy to Sound processor.

How to modify Audio Channel parameters

1. While in *Player*, click on **Audio channels**.
2. Click **Edit** (1).

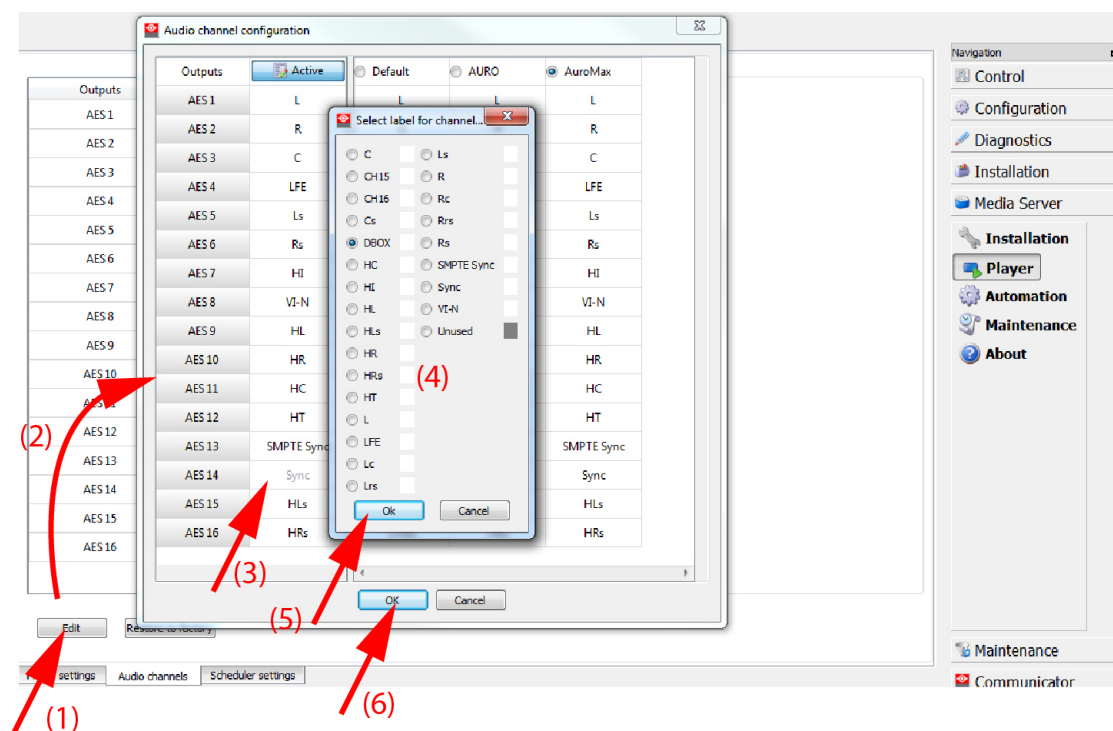


Image 7-26
Audio channels

The *Audio channel configuration* box appears (2).

3. Click in the Active column on the setting to be changed (e.g. Sync next to AES14) (3).

The *Select label for channel* window appears.

4. Check the radio button next to setting to be associated with previous selected AES output (4).
5. Click **OK** to activate the selection (5).
6. To edit other outputs, repeat from step 3.

7. Media server

7. Once configuration is finished, click **OK** to activate (6).

The modified configuration is displayed in the *Audio channel* page.



To return to the factory settings, click on **Restore to factory**.

7.3.3 Player, activate a configuration

How to activate

1. While in *Player*, click on **Audio channels**.
2. Click on **Edit** (1).

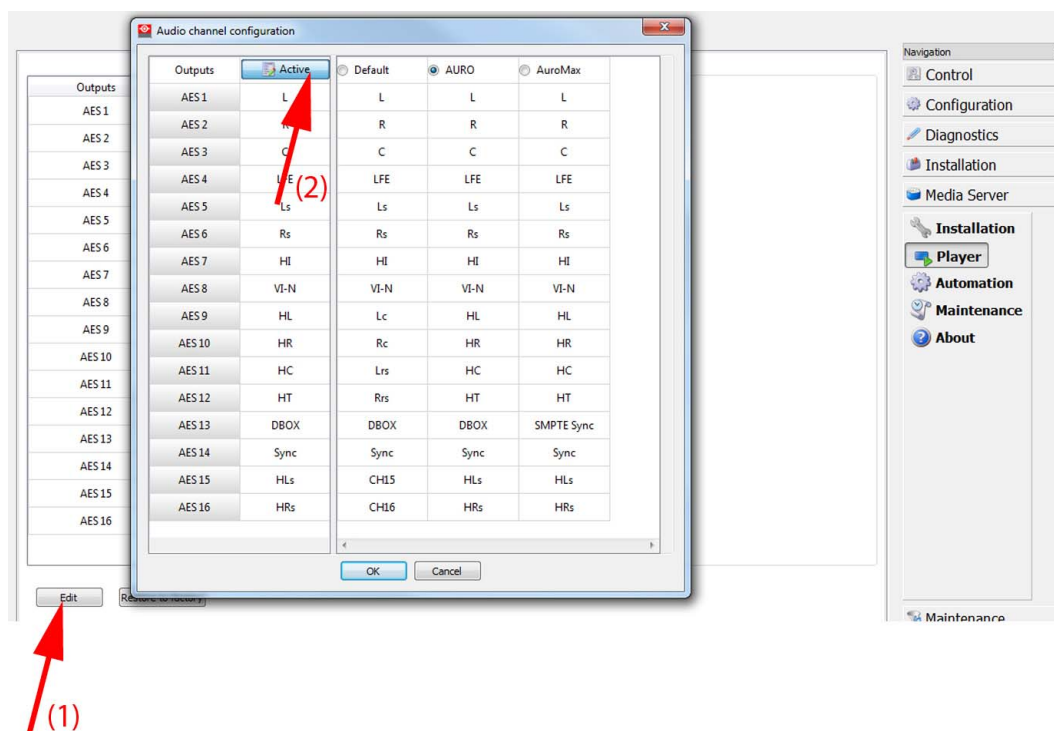


Image 7-27
Select configuration

The Edit window opens. The current active configuration is displayed.

3. Click on **Active** to display extra configurations (2).
4. Check the radio button next to the desired configuration.
The selected configuration becomes the active.
5. Click **OK**.

7.3.4 Player, scheduler settings

About scheduler settings

Scheduler at startup	<p>The state of the scheduler when starting the projector.</p> <ul style="list-style-type: none"> • Enabled : the player is controlled by the scheduler → Scheduler mode • Disabled : the player is manually controlled → Manual mode <p>Default value : Enable</p>
Maximum delay allowed (in mins)	<p>Maximum delay allowed for which the ICMP will attempt to start a scheduled show from its scheduled start time. This will be used in case the content player is busy and cannot start the show at the scheduled time.</p> <p>Default value : 10 minutes.</p>
Preselection delay (in mins)	<p>Based on this value, the ICMP will attempt to select a scheduled show in advance for the given values. If the Player is busy, the ICMP shall retry the show selection every minute from then.</p> <p>Default value : 30 minutes</p>
History length (in days)	<p>Length of the schedule history. Scheduled shows older than that value are automatically deleted.</p> <p>Default value : 30 days</p>
Maximum play trigger delay (in seconds)	<p>Allow to delay the start of a scheduled show.</p> <p>Default value: 0 seconds</p>
Dark screen detection delay (in seconds)	<p>Delay between the dark screen detection and the start of the actions to be done when a dark screen is detected.</p>

How to modify scheduler parameters

1. While in *Player*, click on **Scheduler settings**.
2. Click **Edit** (1).

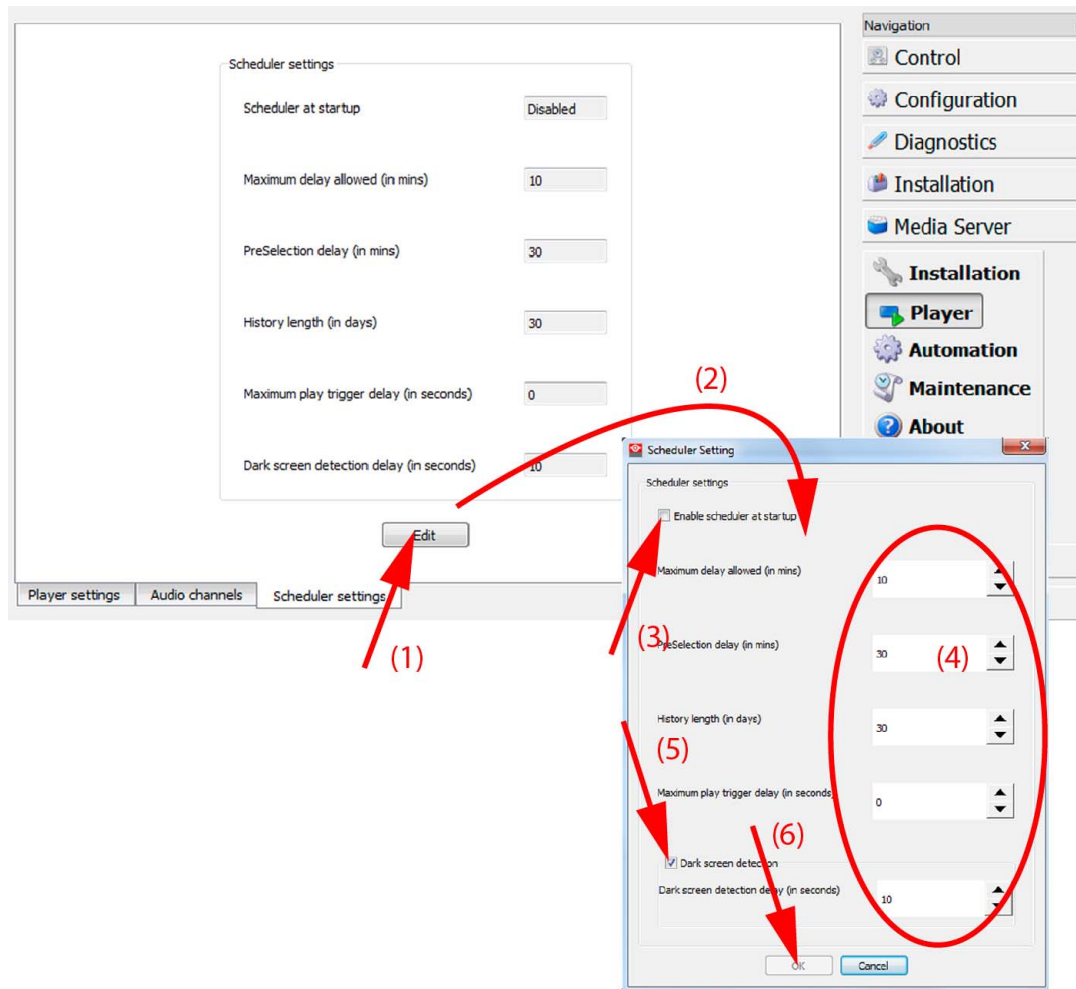


Image 7-28
Scheduler settings

The *Scheduler settings* window opens (2).

3. To enable the scheduler at startup, check the check box in front of *Enable scheduler at startup* (3).
4. To change any delay setting, click on the up down control until the desired value is displayed (4)
Or,
click in the input field and enter the desired value.
5. To activate the Dark Screen detection, check the check box in front of *Dark Screen detection* (5).
Change the delay setting, using the up down control or enter a new value in the input field.
6. Click **OK** to activate the settings (6).

The modified parameters are shown in *Scheduler settings*.

About the Dark screen detection

When a dark screen is detected, scheduled actions can be started after a certain delay time.

The dark screen error is reported in the logging with the following message : "unexpected behavior : no image"

The dark screen detection applies to any input that is currently selected and playing (in or out of a show).

The error is reported when the following conditions are combined :

- The player is in scheduled mode
- The dark screen trigger is active in the scheduler settings
- A CPL (composition playlist) is playing (or paused) OR an alternative input is selected
- The ICMP output remains black for at least the amount of seconds configured in the Schedule settings

The error is not reported :

- when playing a black clip from ICMP special clips.
- on a slave projector except if that slave is playing in standalone mode.
- when a delay is automatically added to sync a 3D system.

7.4 Automation

About Automation

The automation page contains 4 main parts defining all automation related settings:

- Automation Cues : event cues that are triggered from different sources. Assigned actions to the automation cues can be executed by the automation engine.
- Devices : communication ports settings, to access external devices controlled by the automation.
- Import : imports automation settings from file.
- Export : exports automation settings to file for backup or for use in another identical system.

Overview

- Automation, Add device
- Automation, Delete device
- Automation Cues, about
- Creating a new group of User Cues
- Changing the Group order in User Cues
- Deleting a Group
- Creating a User Cue in a group
- Removing a User Cue from a group
- Modifying a User Cue in a group
- Creating a new Input Cue
- Removing an Input Cue
- Modifying an Input Cue
- Creating a new System Cue
- Removing a System Cue
- Modifying a System Cue
- Adding a command to a cue
- Editing a command associated to a Cue
- Removing a command from a Cue
- Testing a command in a Cue
- Practical example, Intermission via Insert Show
- Export automation settings
- Import automation settings

7.4.1 Automation, Add device

About devices

Devices that could be used for automatic actions can be configured during adding a device. Multiple devices of the same type can be added to the ICMP by using a different device name. This device name will be used to identify the port.

The following devices are available:

- **JNIOR** : Ethernet I/O controller Device. This device provides a full suit of solutions (additional GPIO) to make digital cinema automation easier. It makes it possible to control e.g. the theater infrastructure such as lights, sound, etc. .
- **TCP** : all devices that use the TCP protocol. Transmission Control Protocol is an Ethernet connection to send simple user messages.
- **UDP** : all devices that use the UDP protocol. User Datagram Protocol is an Ethernet connection to send user messages in quick way but without guaranty that the message is received.

When adding a device, the following must be configured before the device can be used:

- **Device name**: a unique readable name of the device.
- **Hostname/IP**: IP address of the device in the theater network.
- **Port**: IP port number associated with the device.
- **Login**: used by the ICMP, in combination with the password, to establish communication with the remote device.
- **Password**: used by the ICMP, in combination with the login, to establish communication with the remote device.



Ports, logins and passwords must be retrieved from the unit manufacturer and are not provided by Barco.

How to add a device

1. While in *Automation*, click on **Devices**.

The *Device configuration* window opens.

2. Click **Add device** (1).

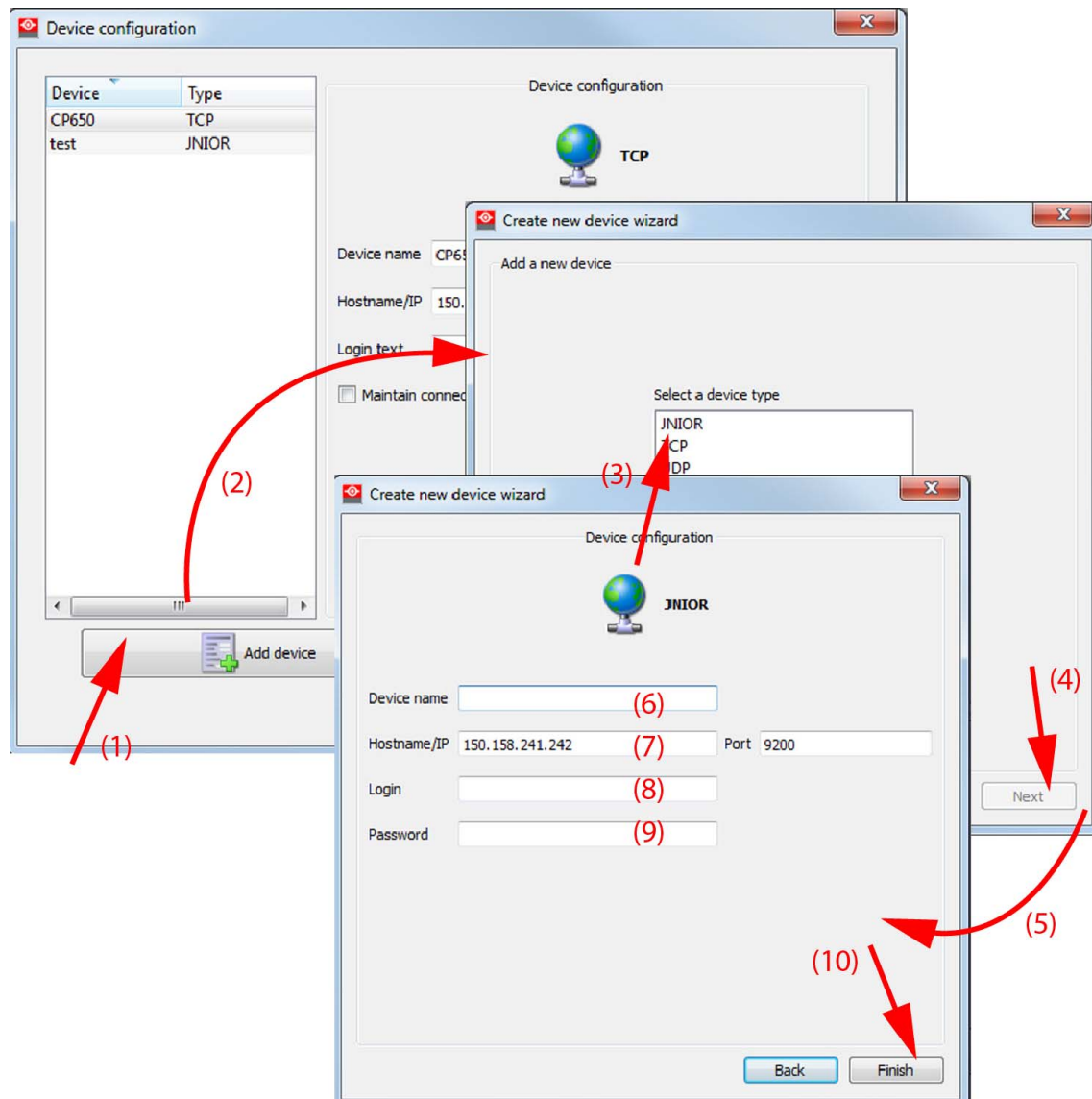


Image 7-29
Add device

- The *Create new device wizard* opens with the *Add a new device* page (2).
3. Select a device type (3) and click **Next** (4).
- The *Create new device wizard* opens with the *Device configuration* page (5).
- This page is different for TCP devices.
4. Enter a unique device name (6).
5. Enter the hostname or IP address and the port number (7).
6. Enter the login (8) and password (9) to be used by ICMP to establish communication with the device.
7. For TCP devices, if you want to maintain the connection, check the check box in front of *Maintain connection* (11).

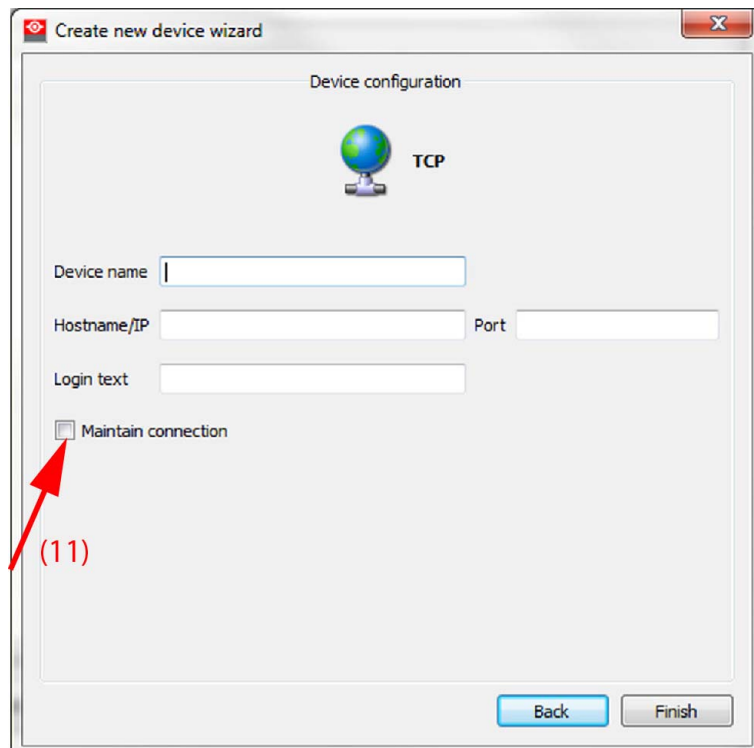


Image 7-30

8. Click **Finish** (10)

The device is added to the list of devices.

7.4.2 Automation, Delete device

How to delete

1. While in *Automation*, click on **Devices**.

The *Device configuration* window opens.

2. Select a device in the device list.

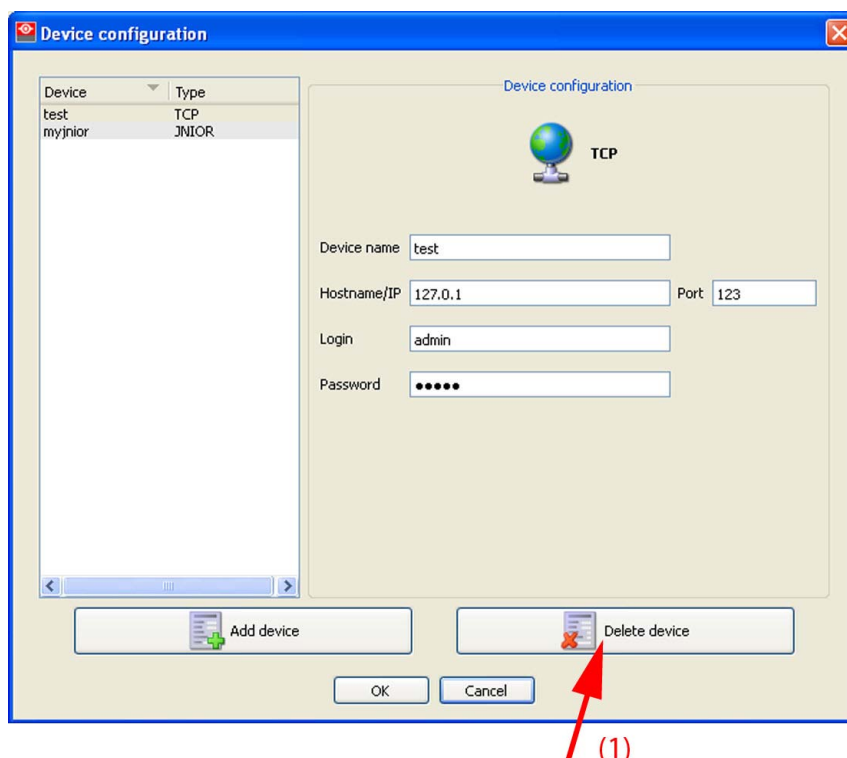


Image 7-31
Delete device

3. Click **Delete device**.

A confirmation window is displayed.

4. Click **OK**.

The selected device is removed from the list.

7.4.3 Automation Cues, about

Overview

Automation Cues are automatic events that are triggered from different sources. Activation of a cue can trigger actions (commands) that will be executed by the automation engine.

There are 3 automation cues types available:

- **User Cues** (output cues): cues that are configured on the ICMP and can be executed by the end user manually or can be executed by the Player during the projection of a show playlist (cues inserted inside the SPL).
- **Input Cues**: predefined cues that are triggered on the detection of an input by modules (e.g. GPIO events).
- **System Cues**: predefined cues that are triggered by software modules when detecting a new condition (e.g. Player events).

Command: when an event cue is triggered, the ICMP automation engine will execute all actions (commands) that are configured for the event cue. The Commands must have a target device (module that will implement the action), a Command Name to identify the command and some Parameters and an optional delay.



SPL

Show play list

User Cues

A user cue type must be defined in a group of cues (e.g. Light, Projection lamp, etc.) in order to present the cues to end users with additional settings.

Group Name	Name of the group in the Web Commander or Commander app application
Can be triggered manually	"Checked" means the end user can trigger the manually. "Unchecked" means that the cue only can be triggered via a SPL.
Can be inserted in SPL	"Checked" means the end user can use (insert) the cues of this group in a Show play list via Web Commander or Commander app. "Unchecked" means the end user cannot use the cues of this group in a Show play list via Web Commander or Commander app.

Input Cues

Input Cues are predefined cues that are triggered on the detection of an input by modules. Events list already available:

Device type	Events List
GPIO (General Purpose Input/Output)	Events that will be sent from the ICMP General Purpose Input: <ul style="list-style-type: none">On Input 1 Up. The Cue will be activated when changing the status of input channel from 0 to 1...//..

System Cues

System Cues are predefined cues that are triggered by software modules when detecting a new condition. Events list already available:

Software Device type	Events List
PLAYER	Events that will be sent from the ICMP Player: <ul style="list-style-type: none">On Play ActionOn Stop ActionOn Pause ActionOn Resume ActionOn Player PlayingOn Player PausedOn Player ErrorOn Show StartOn Show EndOn Feature StartOn Emergency StopOn Play stopped on error

Predefined automation devices and actions

A list of devices and actions are predefined by the first use.

Device name	Description	Actions
GPIO	GPIO commands	Set Outputs
		Pulse Up
		Pulse Down
		Set Up
		Set Down
PLAYER	Player commands	Play
		Stop
		Pause
		Pause (seconds)
		Resume
		Enable Schedule
		Disable Schedule
		Emergency Stop
		Rewind (seconds)
		Play Scheduled Show
PROJECTOR	Projector commands	Insert Show
		Close Dowser
		Open Dowser
		Turn Lamp On
		Turn Lamp Off
		Execute Macro

7.4.4 Creating a new group of User Cues



SPL

Show playlist

How to create

1. While in *Automation*, click on **Automation Cues**.
The *Cue editor* window opens.
2. Click **User Cues** to get an overview of the existing groups (1).

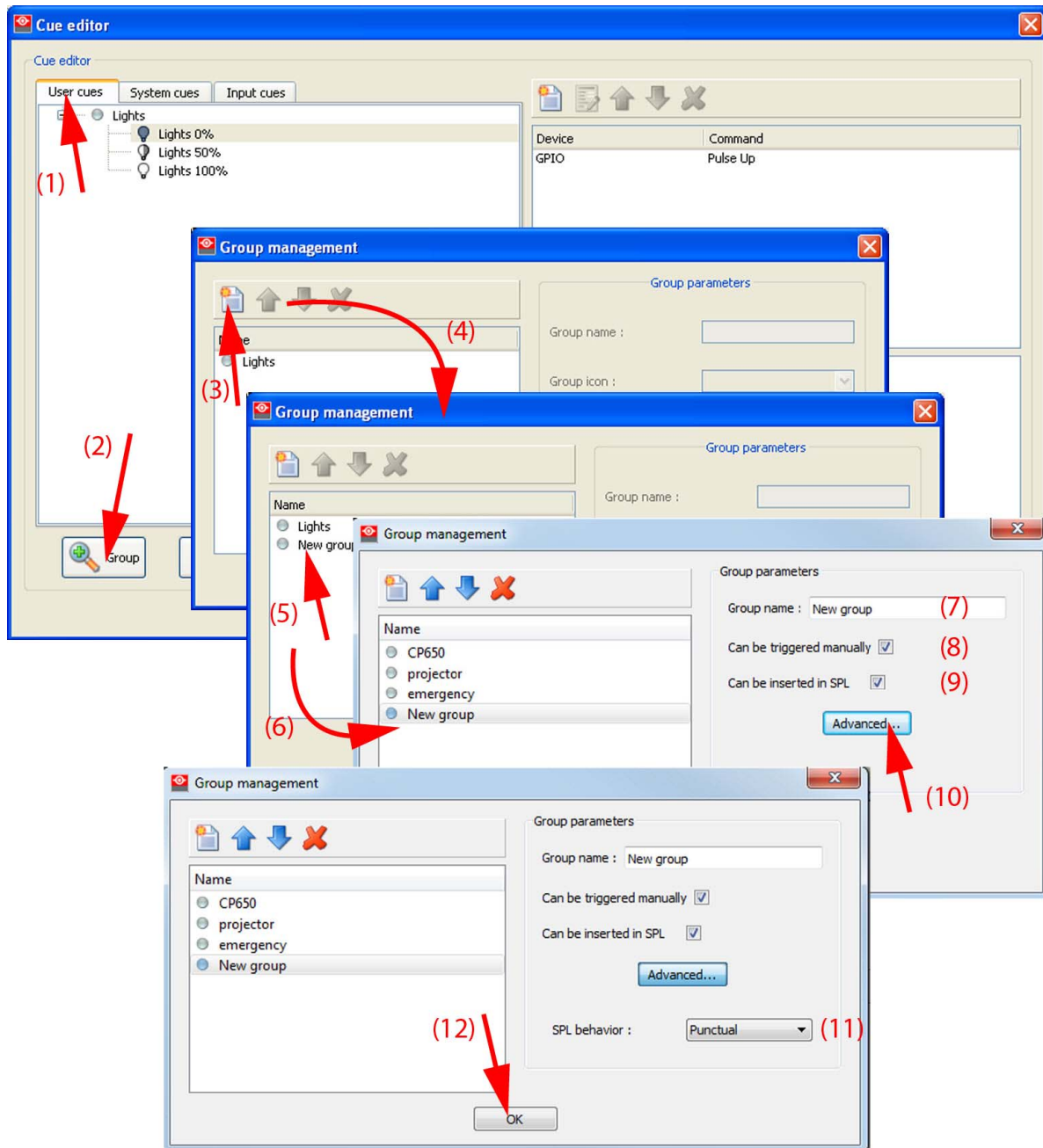


Image 7-32

3. Click **Group** (2).

The Group management window opens.

4. Click *Add new group* icon (3).

A new group is added to the list (4).

5. Select the new created group (5).

6. Change the name (e.g. GPIO) (7).

7. To allow manual triggering of the user cues in this group, check the check box next to *Can be triggered manually* (8).

8. To allow inserting user cues of this group in SPL, check the check box next to *Can be inserted in SPL*. (9).

9. To select a SPL behavior, click **Advanced...** (10).

The SPL behavior option appears.

10. Select the SPL behavior (11).

This advanced option affects the behavior of Cues during positioning in a show:

- **State based:** When starting from any position in the SPL, from all cues previous to that position, only the last one of the group is executed. This would commonly be used to restart with the expected state at the position in the playlist.
- **Punctual:** When starting from any position, any cue previous to that position is ignored. This can be used to trigger some notifications for instance or for pause and Intermission Cues.
- **Cumulative:** When starting from any position, any cue previous to that position is executed. This can be used when using some pulse based external automation device that counts the number of pulses since the beginning of the show. A reset action should be foreseen.

Default value : Punctual

11. Click **OK** (12).

The new group is displayed in the *Cue editor* with its new name.

7.4.5 Changing the Group order in User Cues

How to change the order

1. While in *Automation*, click on **Automation Cues**.

The *Cue editor* window opens.

2. Click **User Cues** to get an overview of the existing groups (1).

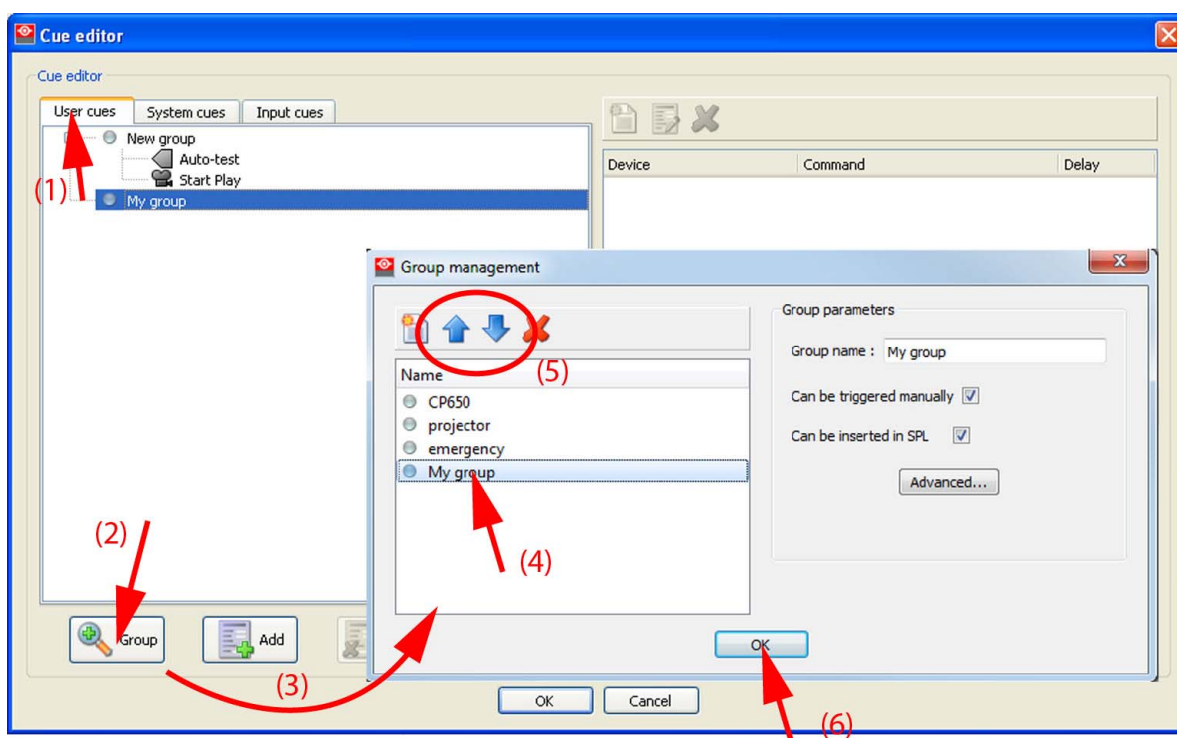


Image 7-33

Change queue order

3. Click **Group** (2).

The Group management window opens (3).

4. Select the group you want to move (4).

5. Click on the up down keys until the desired is reached (5).

6. Click **OK** (6).

7.4.6 Deleting a Group

What can be done?

A group with or without user cues can be deleted. All user cues in the group are deleted at the same time.

How to delete

1. While in *Automation*, click on **Automation Cues**.
The *Cue editor* window opens.
2. Click **User Cues** to get an overview of the existing groups (1).

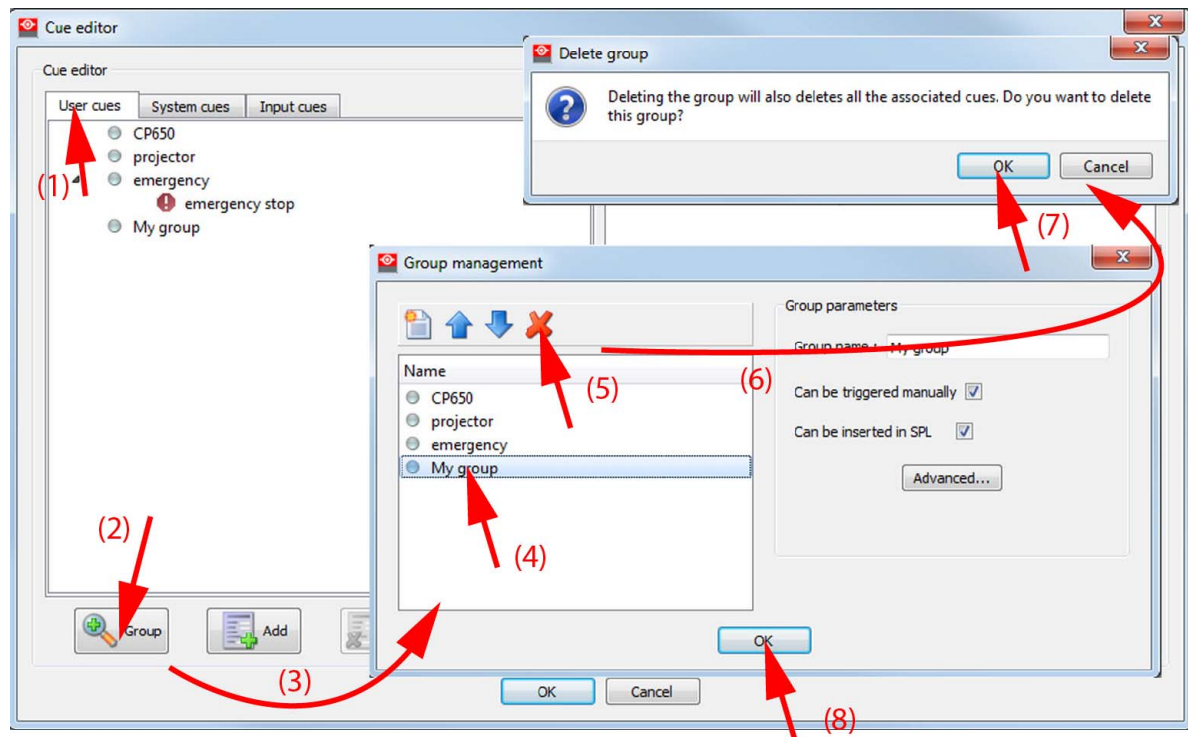


Image 7-34
Delete group

3. Click **Group** (2).
The Group management window opens (3).
4. Select the group to delete (4).
5. Click on the delete icon (5).
A confirmation message with the message that all cues in the group will be deleted at the same time (6).
6. Click **OK** (7).
The selected group is deleted.
7. Click **OK** to return to the *Cue editor* (8).

7.4.7 Creating a User Cue in a group

How to add

1. While in *Automation*, click on **Automation Cues**.
The *Cue editor* window opens.
2. Select **User cues** tab (1).

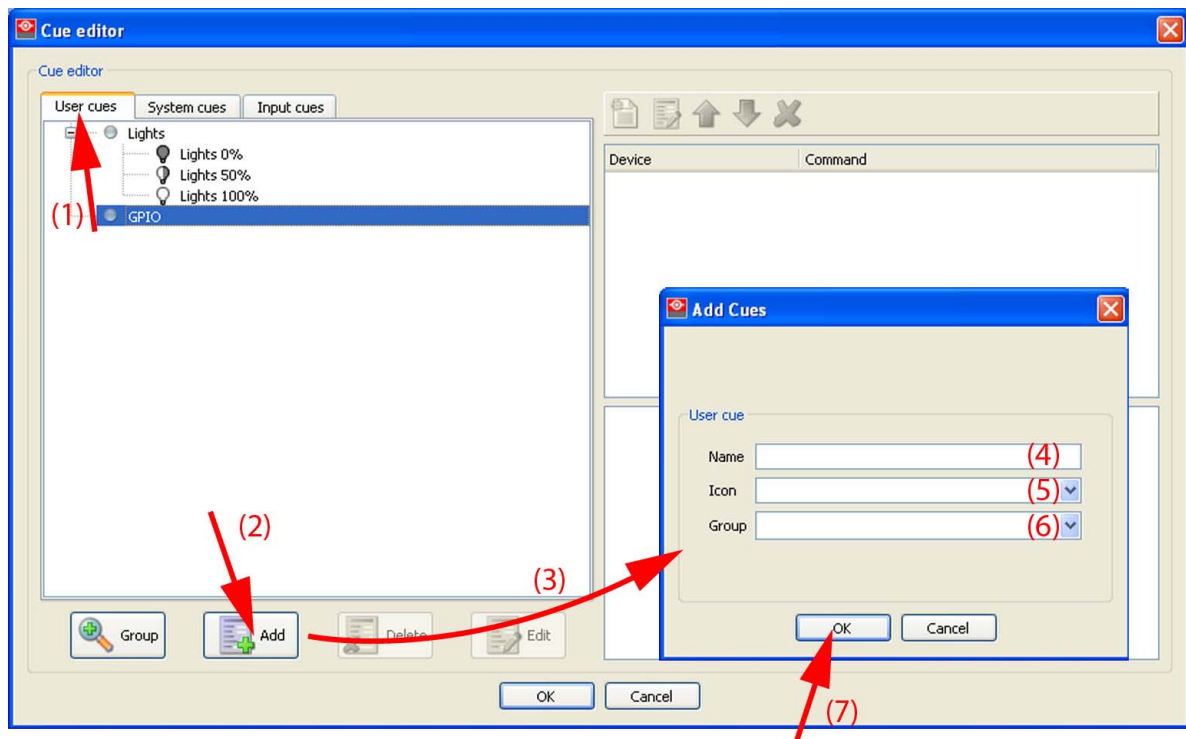


Image 7-35
Add cues

3. Click **Add** (2).

The *Add cues* window appears (3).

4. Enter a name for the new cue (4).

5. Click on the drop down box next to *Icon* and select the desired icon (5). Selecting an icon is optional as an icon is not used in the end user application.

6. Click on the drop down box next to *Group* and select the group to add the new cue (6).

7. Click **OK** (7).

The new cue is displayed in the cue editor and in the selected group.

7.4.8 Removing a User Cue from a group

How to remove

1. While in *Automation*, click on **Automation Cues**.

The *Cue editor* window opens.

2. Select **User cues** tab (1).

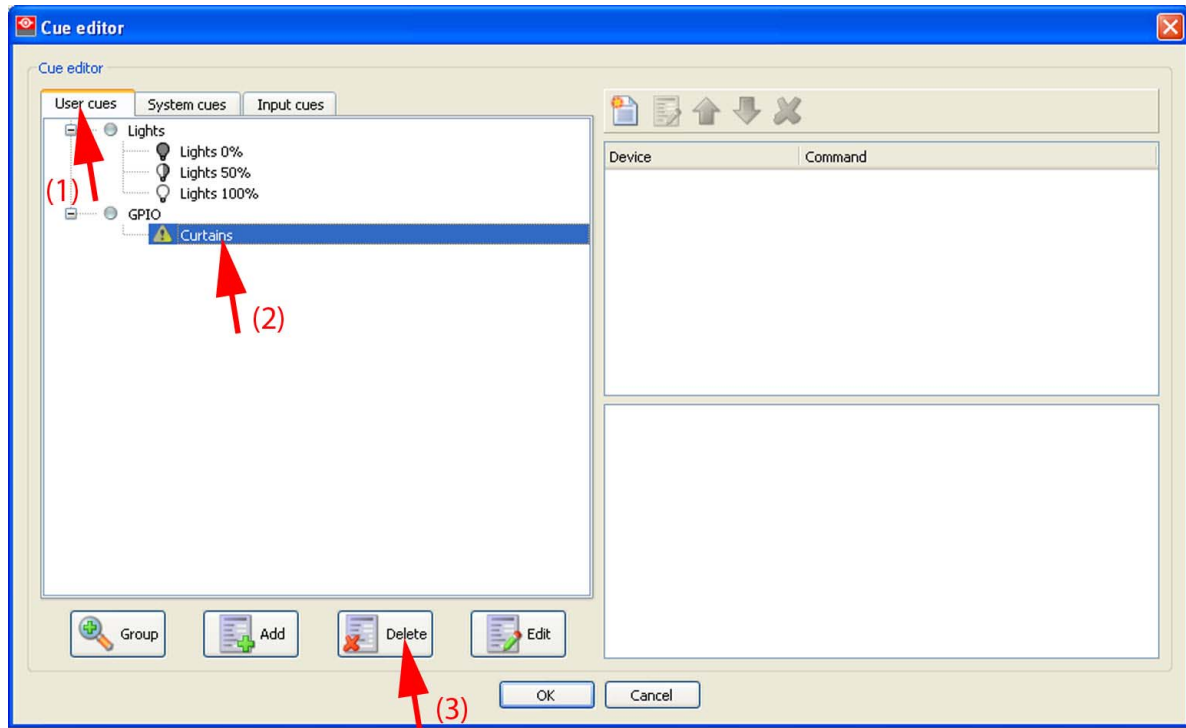


Image 7-36
Delete cue

3. Select the group where to remove a user cue and select the cue to remove (2)
4. Click **Delete** (3).

The user cue is removed on longer displayed in the group in the Cue editor.

7.4.9 Modifying a User Cue in a group

How to modify

1. While in *Automation*, click on **Automation Cues**.
The *Cue editor* window opens.
2. Select **User cues** tab (1).

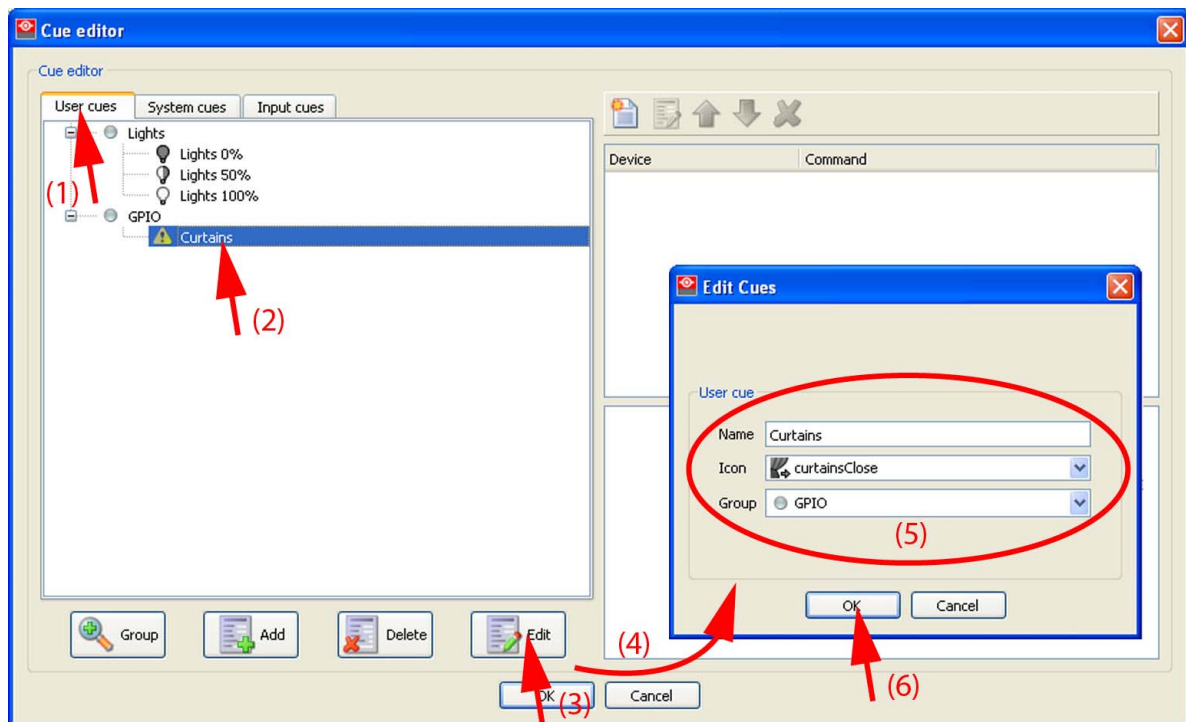


Image 7-37
Modify cues

3. Select a Cue in a group of cues (2). To open a group of cues, click on the “+” in front of the cue name.
4. Click **Edit** (3).

The *Edit cues* window appears (4).

5. Modify the parameters (name, icon, group) (5)
6. Click **OK** (6).

The selected cue is updated in the *Cue editor*.

7.4.10 Creating a new Input Cue

How to create

1. While in *Automation*, click on **Automation Cues**.
The *Cue editor* window opens.
2. Select **Input cues** tab (1).

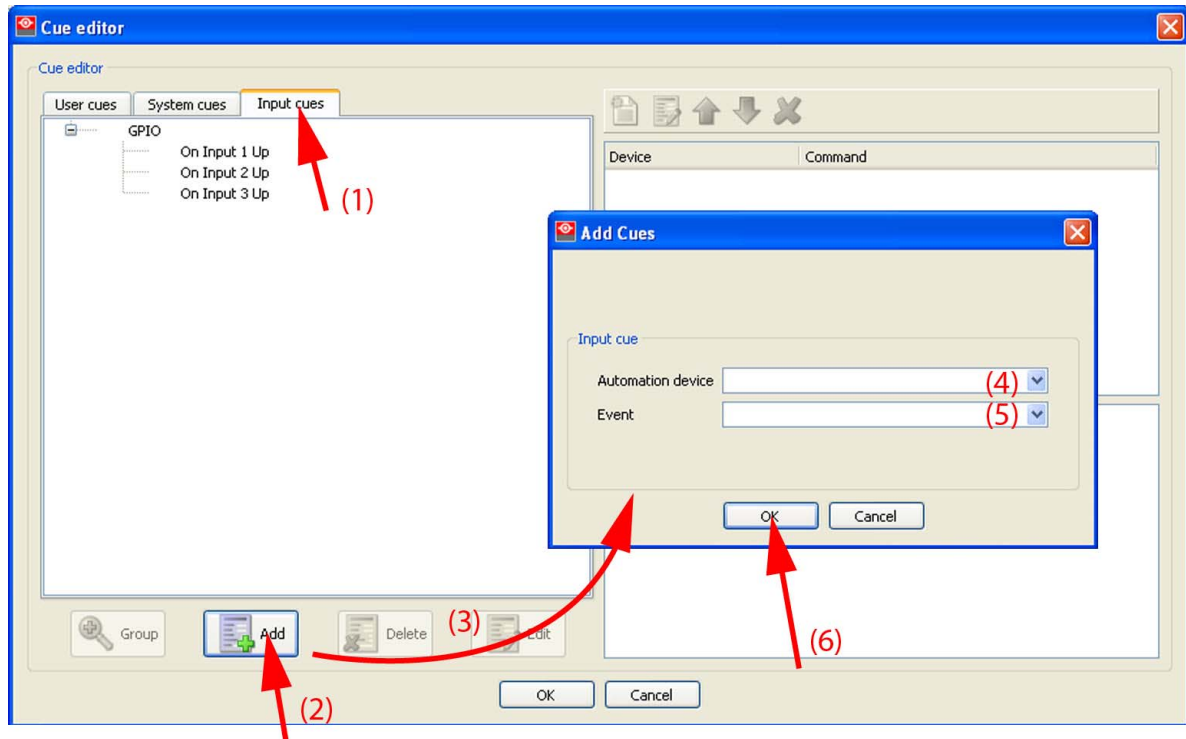


Image 7-38

3. Click **Add** (2).

The *Add Cues* window opens (3).

4. Click on the *Automation device* drop down box and select a device (4).
5. Click on the *Event* drop down box and select an event (5).

The event list changes depending on the selected automation device.

6. Click **OK** (6).

The new created input cue is added in the *Cue editor*.

7.4.11 Removing an Input Cue

How to remove

1. While in *Automation*, click on **Automation Cues**.

The *Cue editor* window opens.

2. Select **Input cues** tab.
3. Select a Cue to delete.
4. Click **Delete**.

The selected cue is removed from the list.

7.4.12 Modifying an Input Cue

How to modify

1. While in *Automation*, click on **Automation Cues**.

The *Cue editor* window opens.

2. Select **Input cues** tab (1).

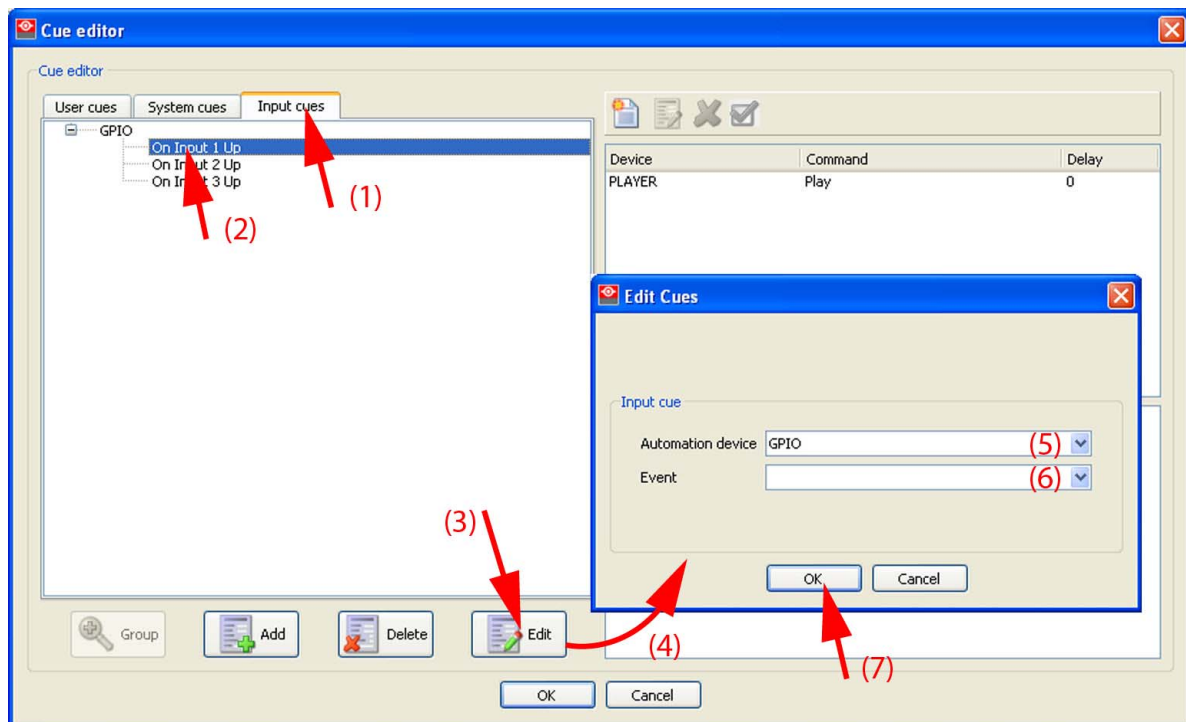


Image 7-39

3. Select a Cue to modify (2).

4. Click **Edit** (3).

The Edit cues window opens (4).

5. Click on the drop down box to select a new *Automation device* (5) and *Event* (6).

6. Click **OK** to activate the changes (7).

7.4.13 Creating a new System Cue

How to create

1. While in *Automation*, click on **Automation Cues**.

The *Cue editor* window opens.

2. Select **System cues** tab (1).

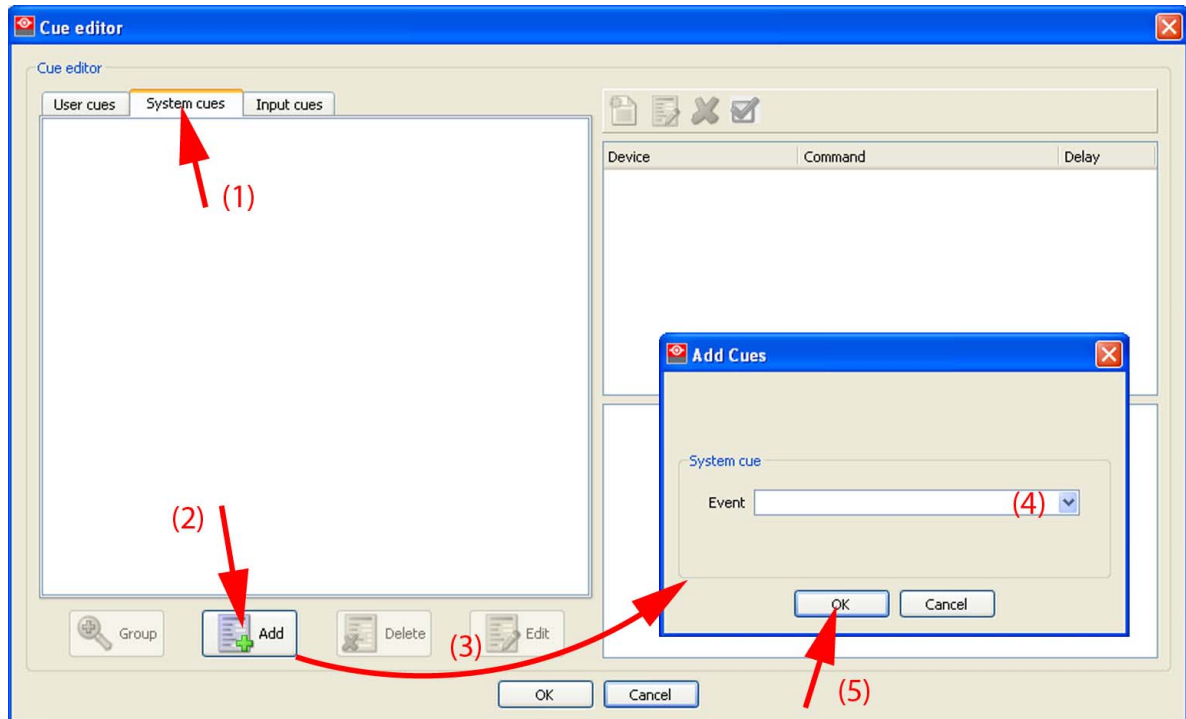


Image 7-40
Add system cue

3. Click **Add** (2).

The *Add Cues* window opens (3).

4. Click on the drop down box next to *Event* (4) and select the desired event out of the list.

5. Click **OK** to activate (5).

7.4.14 Removing a System Cue

How to remove

1. While in *Automation*, click on **Automation Cues**.

The *Cue editor* window opens.

2. Select **System cues** tab.

3. Select a Cue to delete.

4. Click **Delete**.

The selected cue is removed from the list.

7.4.15 Modifying a System Cue

How to modify

1. While in *Automation*, click on **Automation Cues**.

The *Cue editor* window opens.

2. Select **System cues** tab (1).

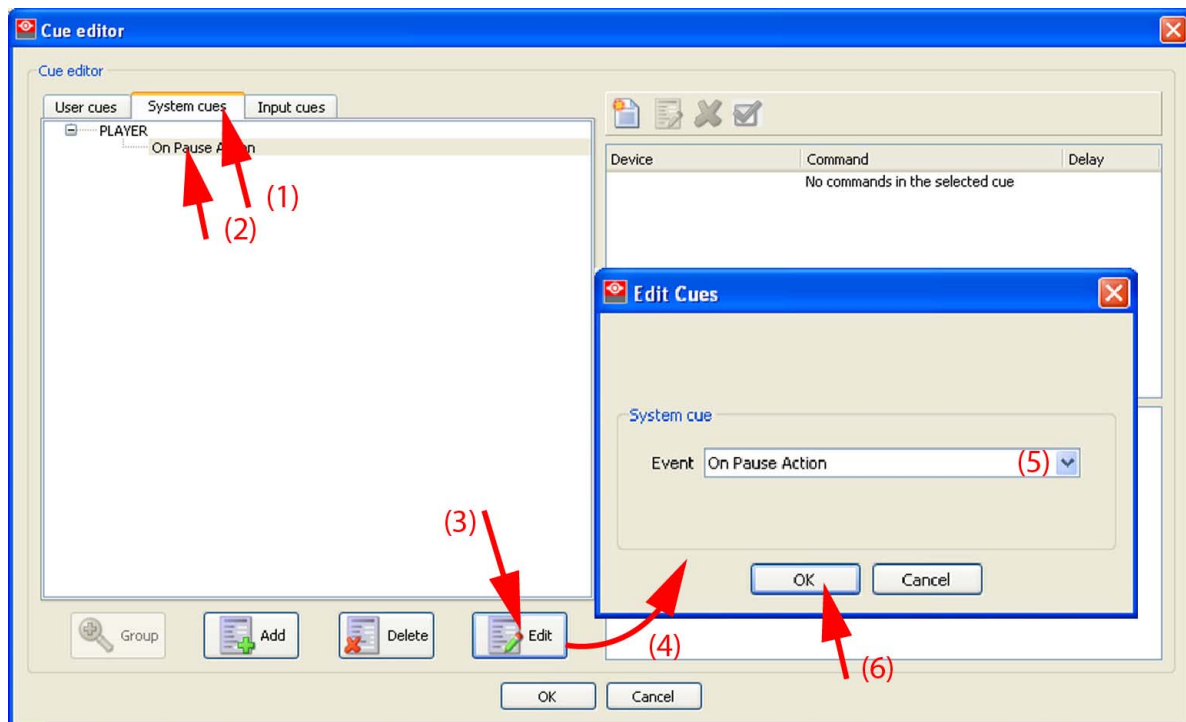


Image 7-41

3. Select a Cue to modify (2).

4. Click **Edit** (3).

The Edit cues window opens (4).

5. Click on the drop down box to select a new *Automation device* and *Event* (5).

6. Click **OK** to activate the changes (6).

7.4.16 Adding a command to a cue

What can be done?

A command can be added to a User Cue, System Cue or Input Cue. The way to add a cue is for the 3 cue types equal.

How to add

1. While in *Automation*, click on **Automation Cues**.

The *Cue editor* window opens.

2. Select a cue, user, input or system cue to add a command (1, 2).

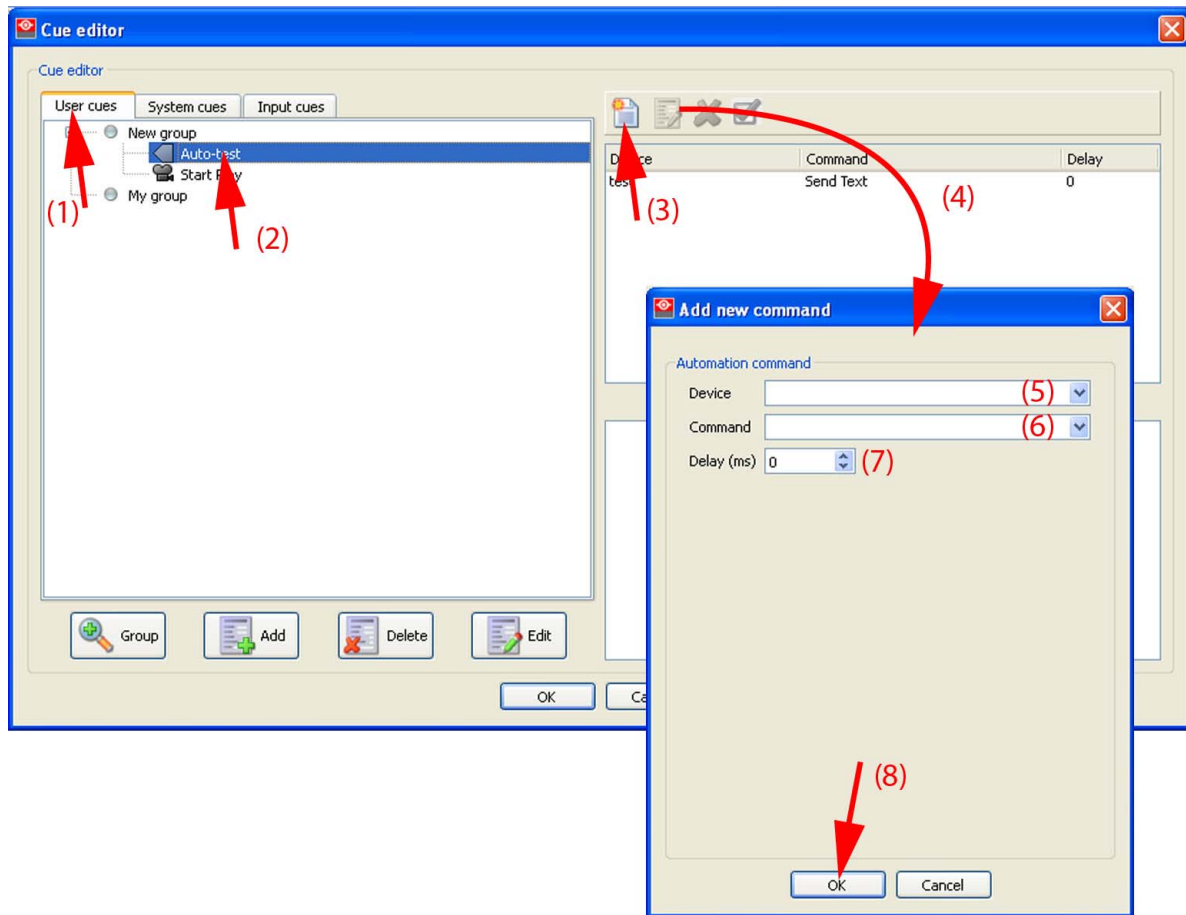


Image 7-42
Add command to cue

3. Click on the **Add command** icon (3).

The *Add new command* window appears (4).

4. Click on the drop down box next to *Device* and select an existing device that will execute the action (5).
By default there are three types of devices able to execute an action:
 - GPIO (General Purpose Input/Output) : this device allows to interact with the 8 GPO outputs of the ICMP.
 - PLAYER: Allows to access a set of commands tat will be sent to the ICMP Player.
 - PROJECTOR: Allows to access the available projector macros.

Other devices could be added via the devices configuration page.

5. Click on the drop down box next to *Command* and select the command out of the available commands.
The command list changes depending on the selected device.

Device type Commands List

GPIO

- Set output: to set one or more outputs to the desired value (0 or 1).
- Pulse up: to realize a rapid change of amplitude of the output (0 to 1).
- Pulse Down: to realize a rapid change of amplitude of the output (1 to 0).
- Set Up: to set output to 1.
- Set Down: to set output to 0.

Device type Commands List

PLAYER	<ul style="list-style-type: none"> • Play: to start or resume the playback • Stop: to stop the playback • Pause: to pause the playback. The last played image remains on the screen. If the 'Duration in minutes' parameter is different than 0, the playback will automatically resume after the given amount of time. • Pause (seconds): pause is defined in seconds • Resume: to resume a paused playback. • Enable Schedule: to enable the scheduled mode. • Disable Schedule: to disable the scheduled mode. • Emergency Stop: to disable the scheduled mode, stop the playback and trigger the "On Emergency Stop" event. • Insert Show: to dynamically insert a show inside another main show in which the cue was inserted. The insertion is done at selection time. Note that other actions in the cue will be ignored. • Rewind (seconds): to rewind the defined time. • Play Scheduled Show: to start the playback of a scheduled show between scheduled time and maximum delay.
Projector	<ul style="list-style-type: none"> • Close Dowser: to close the dowser of the projector. • Open Dowser: to open the dowser of the projector. • Turn Lamp On: to turn the projector lamp on. • Turn Lamp Off: to turn the projector lamp off. • Execute Macro: to request macro execution by the projector. Macro selection from macro list is necessary.
TCP (device)	<ul style="list-style-type: none"> • Send Text: to send a text command to the device. Special characters or delimiters have to be replaced by the "\ " character followed by the corresponding hexadecimal value on two digits. For instance, the command can send the text "mute=0\0D\0A", where "\0D" replaces the carriage return ("\r") and "\0A" replaces the new line ("\n"). • Send Hex: to send a hex value to the device. • Send Binary: to send a binary value to the device.
JNIOR	<ul style="list-style-type: none"> • Set outputs: to set one or more outputs to the desired value (0 or 1). • Pulse up: to realize a rapid change of amplitude of the output (0 to 1). • Pulse Down: to realize a rapid change of amplitude of the output (1 to 0). • Set Up: to set output to 1. • Set Down: to set output to 0. • Clear input counters: to clear counters for the given JNIOR input. • Clear input usage meter: to clear the usage meter for the given JNIOR input. • Clear output usage meter: to clear the usage meter for the given JNIOR output. • Reset input latch: to reset the given JNIOR input latch. • Execute Macro: to request a macro execution by the JNIOR. The macro name should match the name of an existing macro on the JNIOR.

Some commands require additional parameters such as channel number or pulse duration for GPIO, the name of the macro to be executed by the projector. In all these cases, extra fields are displayed in the *Add command* window.

6. Enter a delay before a command is executed (7).

7. Click **OK** (8).

The command is added in the right pane of the *Cue editor*.



A System Cue remains red until an action is added to it.

7.4.17 Editing a command associated to a Cue

How to edit

1. While in *Automation*, click on **Automation Cues**.
The *Cue editor* window opens.
2. Select a cue, user, input or system cue to modify a command (1, 2).

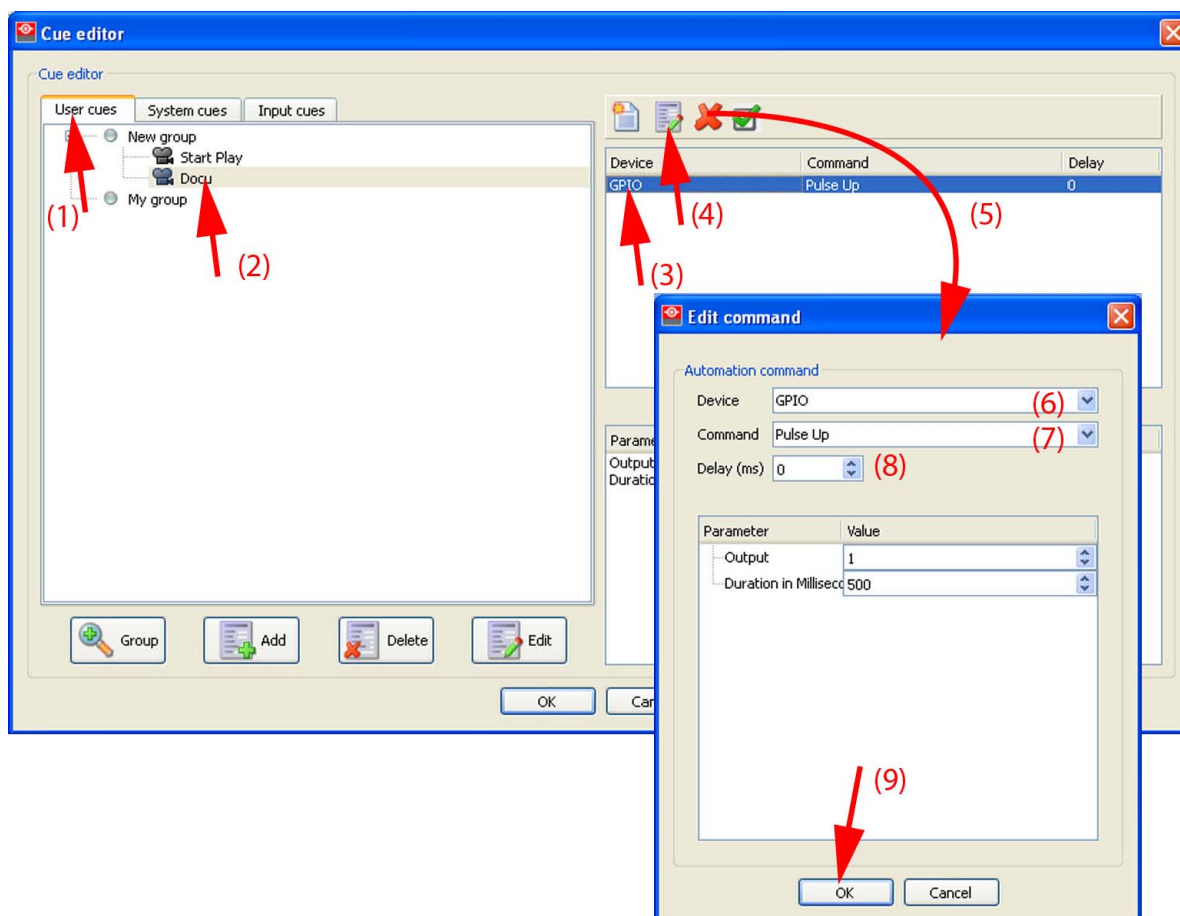


Image 7-43
Edit a command

The right pane shows the command list.

3. Select the command to modify (3) and click on the **Edit** icon (4).
The *Edit command* window opens (5).
4. Modify the parameters such as *device*, *command type*, *delay*, etc of the selected command (6, 7, 8).
5. Click **OK** to activate the changes (9).

7.4.18 Removing a command from a Cue

How to remove

1. While in *Automation*, click on **Automation Cues**.

The *Cue editor* window opens.

2. Select a cue, user, input or system cue to remove a command (1, 2).

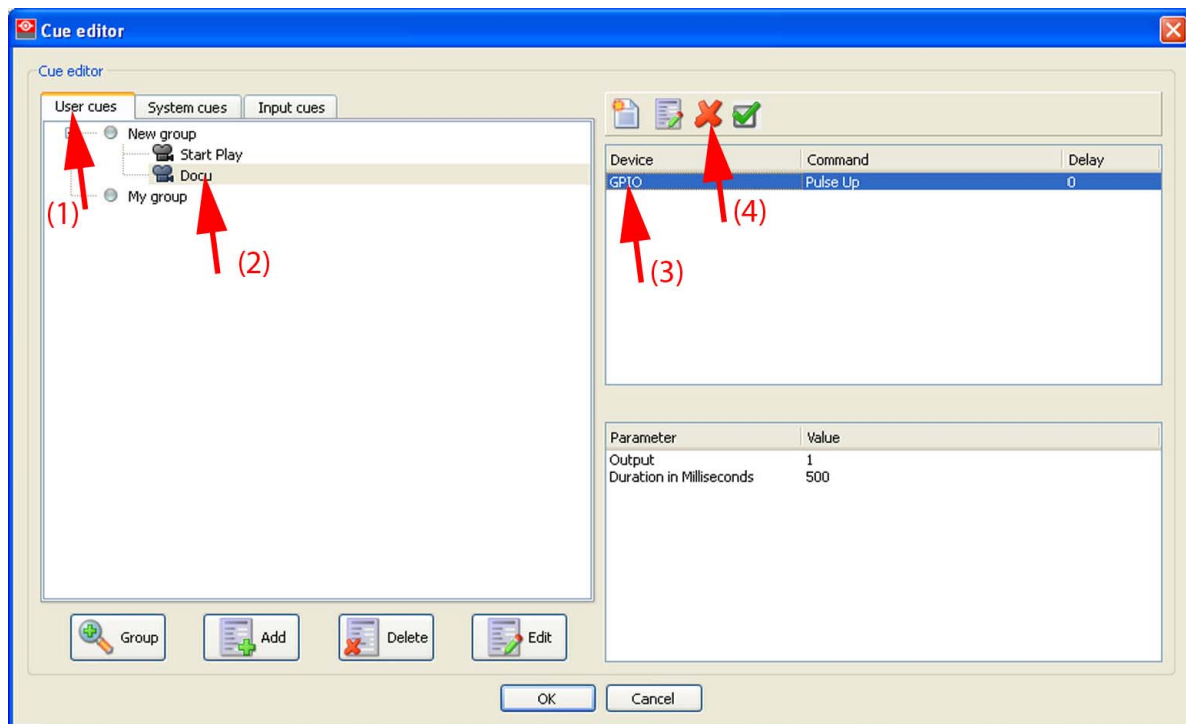


Image 7-44
Delete a command

The right pane shows the command list.

3. Select the command to delete (3) and click on the **Delete command** icon (red cross) (4).

The selected command is removed from the cue.

7.4.19 Testing a command in a Cue

How to test

1. While in *Automation*, click on **Automation Cues**.

The *Cue editor* window opens.

2. Select a cue, user, input or system cue to test a command (1, 2).

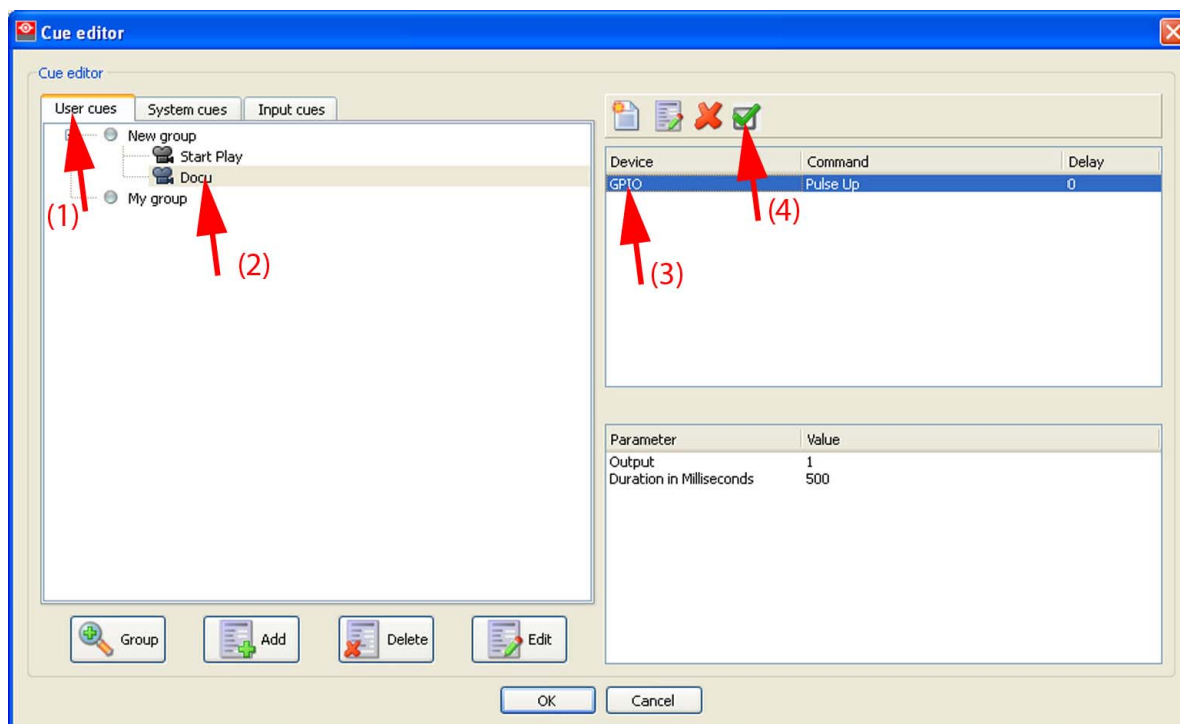


Image 7-45
Test a command

The right pane shows the command list.

3. Select the command to test (3) and click on the **Test command** icon (green V) (4).

The selected command is executed.

7.4.20 Practical example, Intermission via Insert Show

Description

A DCP intermission in a show can be created by using the **Insert Show** action in a command of a user cue.

The resulting Insert Show cue should be created inside a group that allows placement in the playlist but does not allow manual trigger of the cue (that means that the cue is not seen in the control panel of the Commander application).



The Insert Show command must be alone in the cue (no other action before or after the Insert Show action).

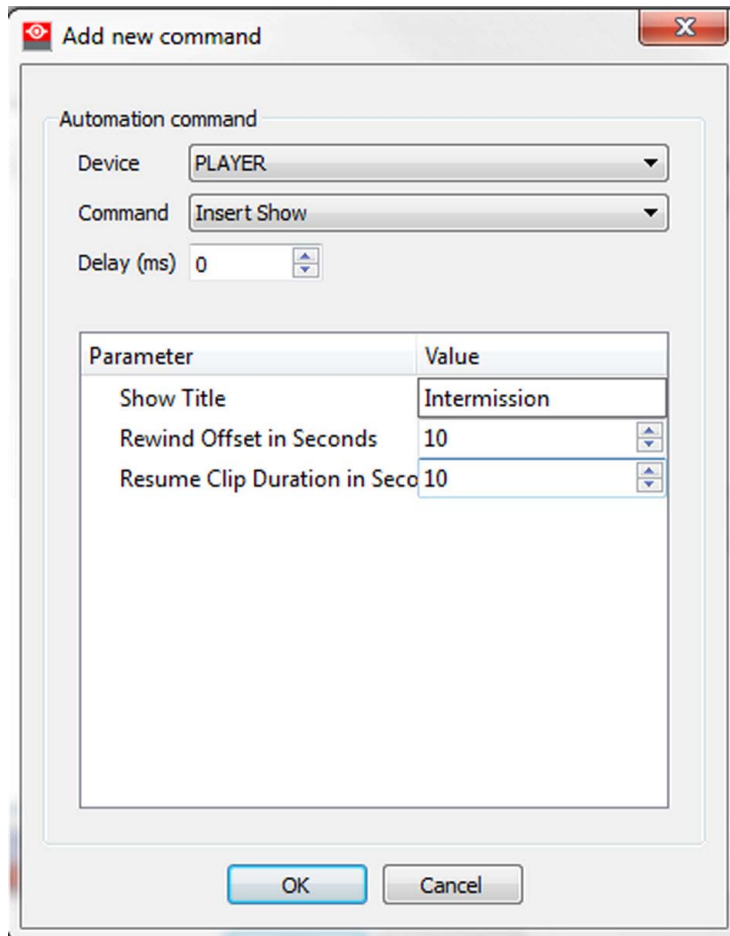


Image 7-46
Intermission cue

Necessary parameters

Show title	Type in the exact title of the show to insert in the main show. This show can be created and changed later on. The player will search for that show the moment the Insert Show cue is executed. If it is not found the player will ignore the cue.
Rewind offset in seconds	This parameter allows to restart the next part of the main show x seconds before it was interrupted. The content of previous main part will be repeated during x seconds.
Resume clip duration in seconds	If this parameter is greater than 0, the player will insert a black clip of the given duration just after the intermission in order to restore the correct status before resuming the next main show. Therefore, the player will add cues which it can find in the playlist to restore the correct status. If this parameter is 0, nothing is inserted by the player after the intermission. The user has to insert the necessary cues himself.

Format management

The inserted show can run in a different format or automation status than the main show. For instance the 3D movie can be interrupted by a 2D intermission. The user has to insert the cues at the beginning of the intermission to switch to 2D. At the end of the intermission the user can insert cues to switch back to 3D to continue the movie.

The Resume Clip parameter of the Insert Show action can be used to let the Player decide what cues have to be executed after the intermission.

Intermission usage

The Insert Show cue will be placed at the desired offset in the main movie and is seen by the user as any other cue. Once the main show is selected, the player will create a playlist where the main movies are divided in two parts and will insert the intermission show in between. For more information, consult the Commander's user guide.

7.4.21 Export automation settings

How to export

1. While in *Automation*, click on **Export** (1).

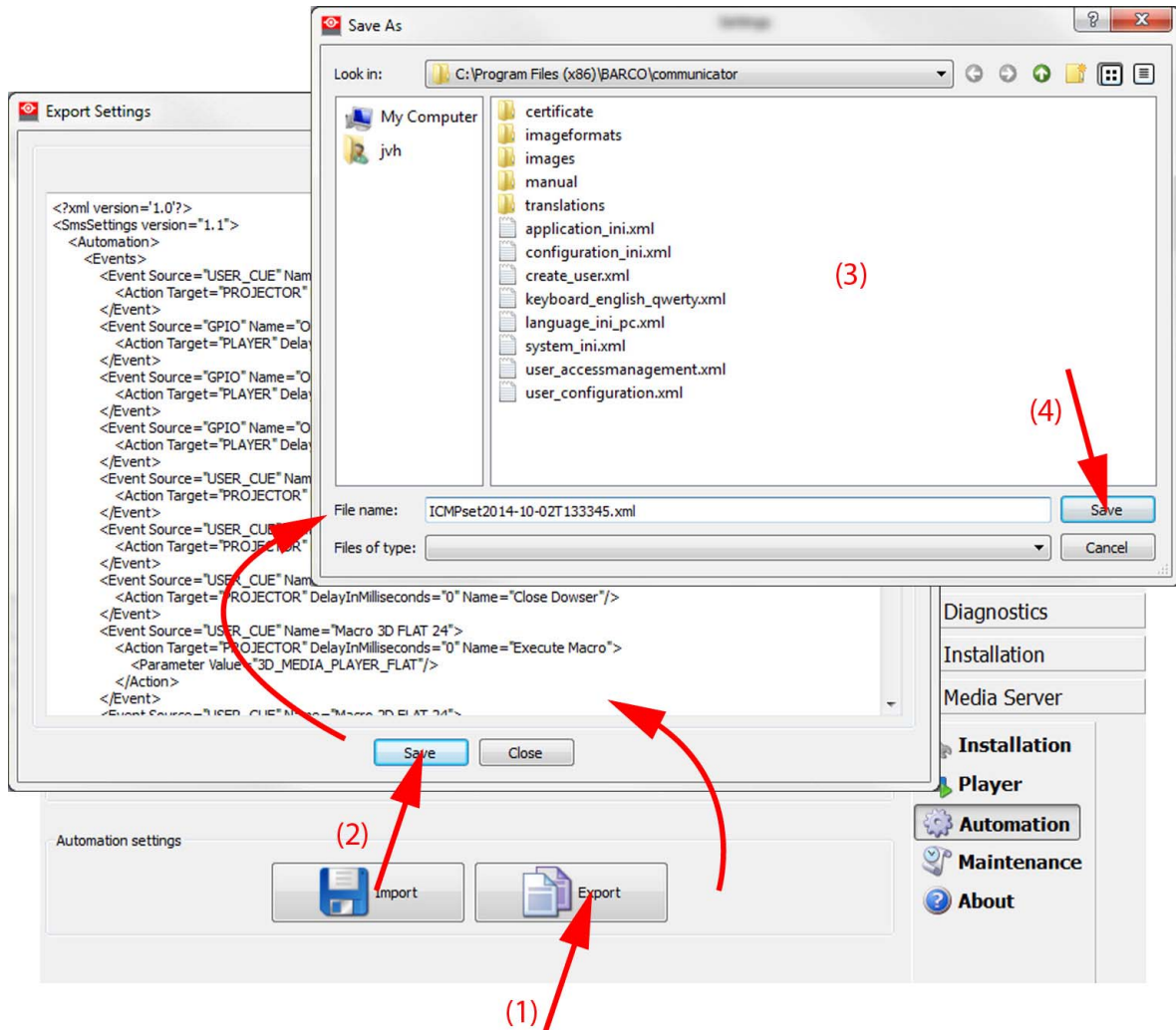


Image 7-47
Export settings

An *Export Settings* window is displayed with an xml file.

2. Click **Save** (2).

A *Save as* window opens. An automatically generated file name is filled out.

3. Browse to the location to save the file, change if desired the file name and click **Save** (4).

7.4.22 Import automation settings

What can be done?

Previously exported settings can be imported for reuse. The imported settings can be merged with the current settings or they can override the current settings.

How to import

1. While in *Automation*, click on **Import** (1).

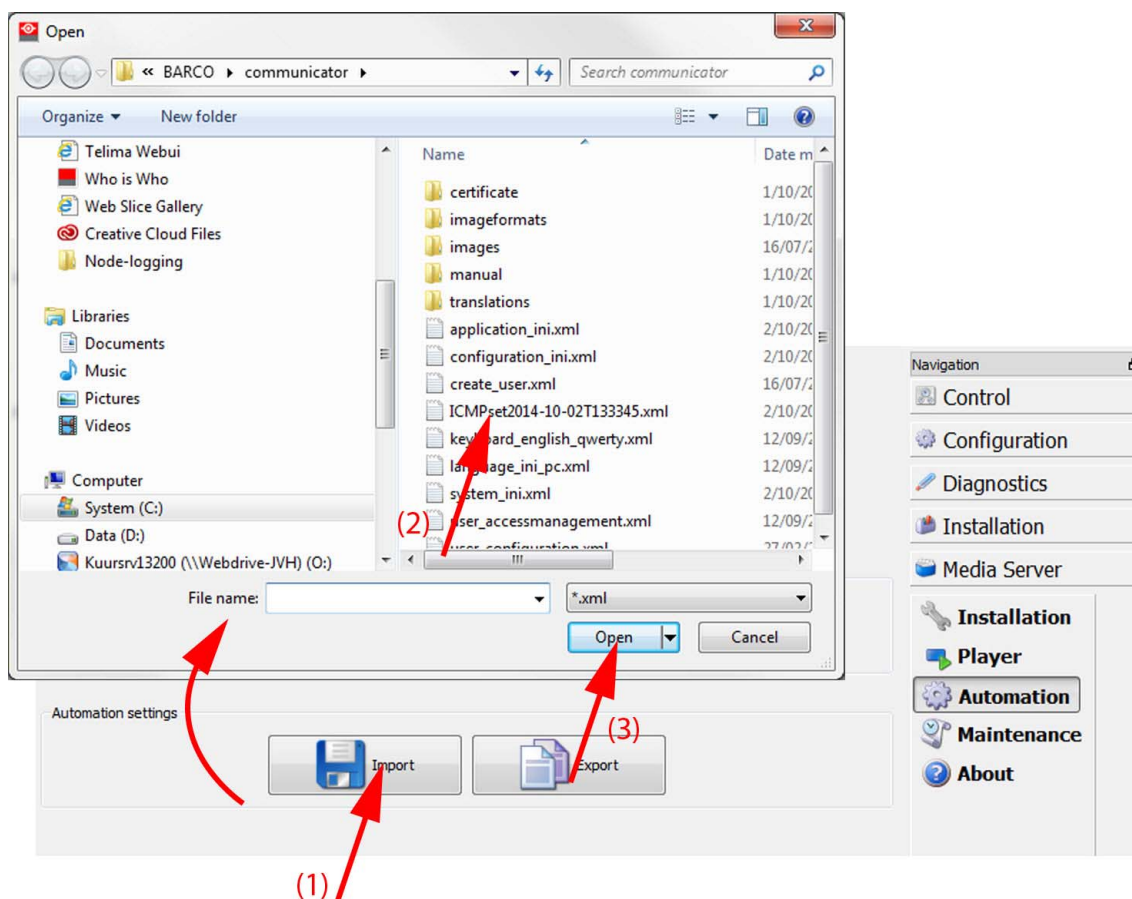


Image 7-48
Import settings

A browser window opens

2. Browse to the location of the automation settings file, select the file (2) and click **Open** (3).

The file will be verified with the current automation settings. It indicates if some settings are new, if they exist or if there is conflict. By default only the new settings are selected.

3. Select the settings to use by checking the check box in front of each setting.
 - To select all settings, use the **Select all** button.
 - To deselect all settings, use the **Deselect all** button.

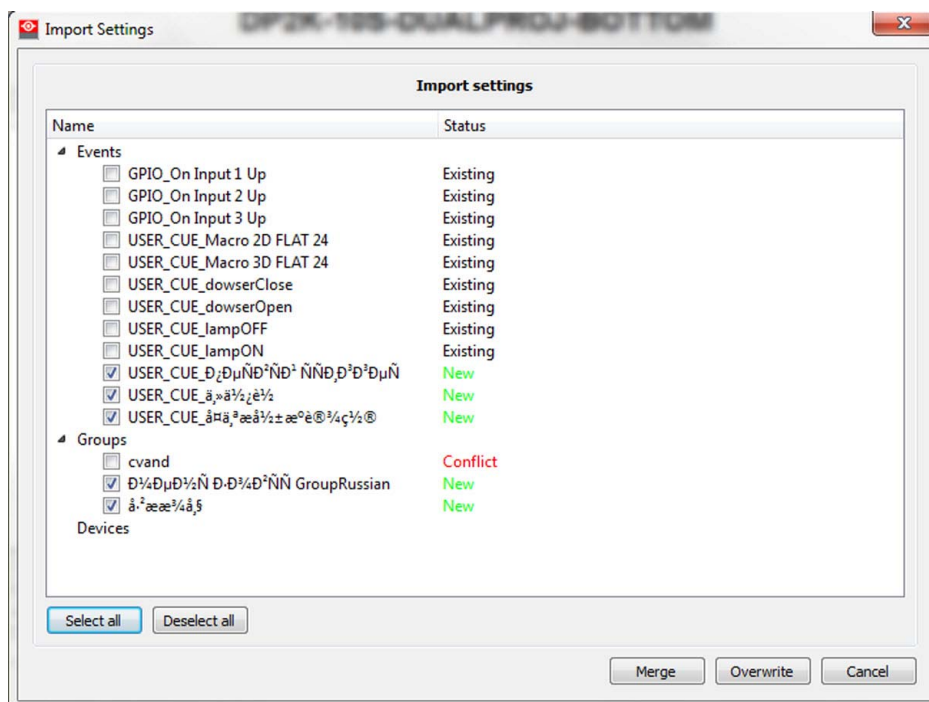


Image 7-49
Verify import

- To merge the imported settings with the current settings, click on **Merge**.
To override the current settings with the imported settings, click on **Override**.

7.5 Maintenance

About Maintenance

The maintenance pane contains 3 parts:

- Media server secure log: export all or part of secure logs
- Media server settings: import/export of ICMP settings
- Default factory settings: reinstallation of default settings

Overview

- Export Media server secure log
- Media server RAID status
- Media server RAID initialization
- Media server, file system check status
- Export of the ICMP settings
- Import of the ICMP settings
- Restore the ICMP factory settings
- Restore the web app factory settings
- Restore Image processing files
- Reboot Media server

7.5.1 Export Media server secure log

Overview

Exporting the complete secure logs or a part of them to a file. The secure logs allow accurate monitoring of encrypted content playback and content validation on the ICMP. Logs exportation is an operation which can be performed at any time. There are no constraints concerning the projector or the player during export. Playback is not disturbed by logs export. The export duration depends of the number of logs in the specified export period.

How export

1. While in *Maintenance*, click on **Retrieve file** (1).

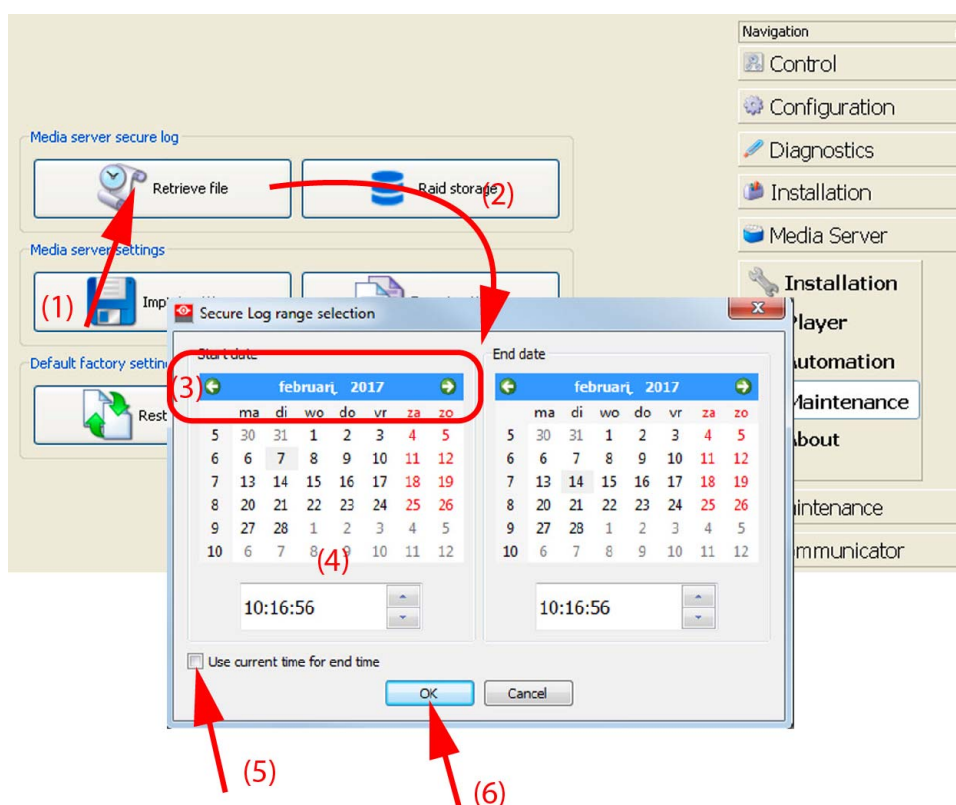


Image 7-50

The *Secure log range selection* window opens (2).

2. Select the start date and time.
 - Click on the left of right green icon to change the month (3).
 - Click on a date to select a day (4).
 - Click on the up down control until the desired start hour is reached (4).
3. Select the end date and time in the same way as the start date and time.
Or,
to use the current date and time, check the check box in front of *Use current time for end time* (5).
4. Click **OK** (6).

7. Media server

The data download starts. A progress bar shows the progress.

When downloaded, the logs file is displayed in the *Media Server secure log file* window.

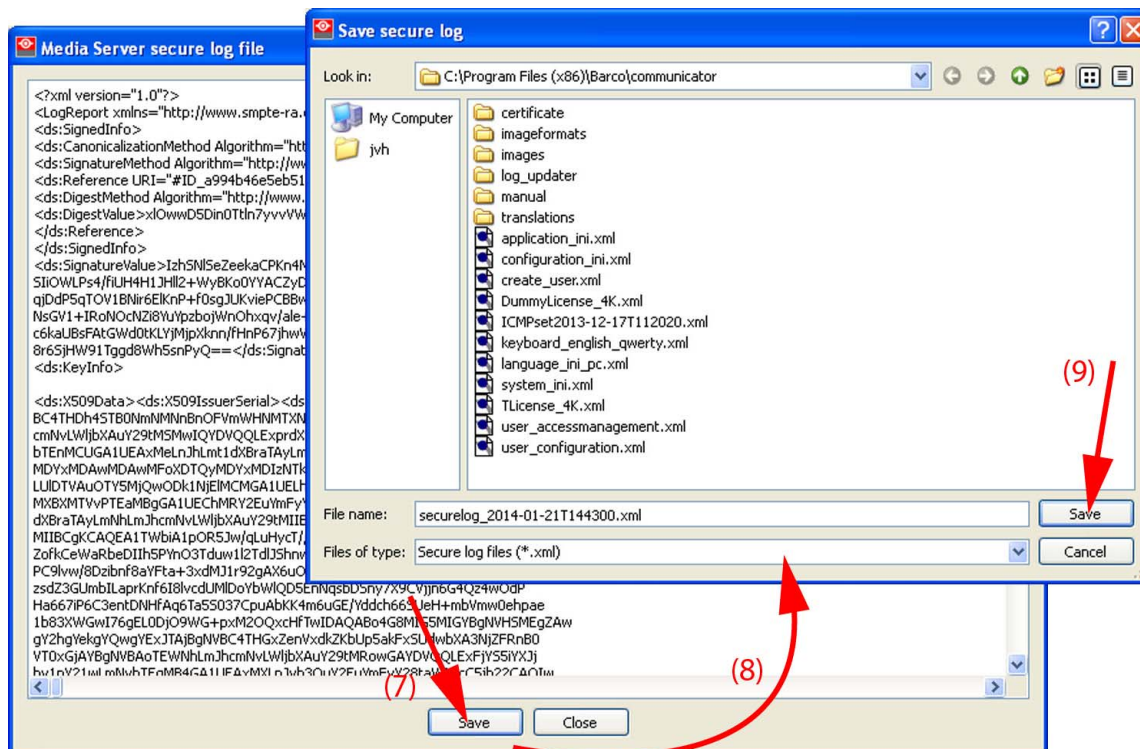


Image 7-51

Save secure log

5. Click **Save** to save the file (7).

The *Save secure log* window opens (8).

6. Browse to a location and click **Save** (9).

A confirmation message is displayed.

7. Click **OK** on that message.

7.5.2 Media server RAID status

How to display the status

1. While in *Maintenance*, click on **Raid storage** (1).

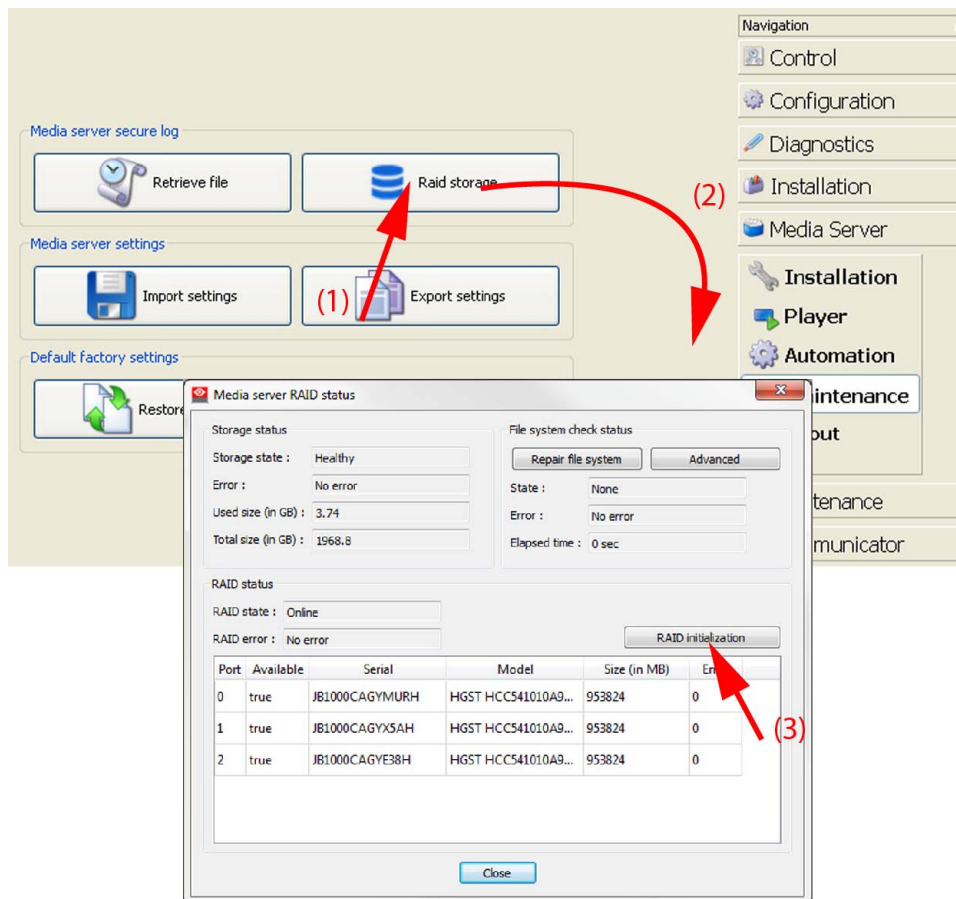


Image 7-52
Raid status

The Media server raid status window opens.
The following information is given:

- Storage status
 - Storage state
 - Errors
 - Used size in GB
 - Total storage size in GB.
- RAID status
 - RAID state
 - RAID error
 - Overview table disks with port indication, availability, serial number, model, size and number of errors.

7.5.3 Media server RAID initialization



Inserting a 1TB hard disk in a 2TB system will result in a degraded condition. The 1TB drive will not be adopted in the raid. Only 2 of the 3 drives are active and there is no raid protection in case one of the drives fails. The system will work without redundancy.

Inserting a 2TB hard disk in a 1TB system triggers a rebuild and the 2TB drive is adopted in the raid as a 1TB drive.

RAID initialization

1. While in *Maintenance*, click on **Raid storage** (1).

7. Media server

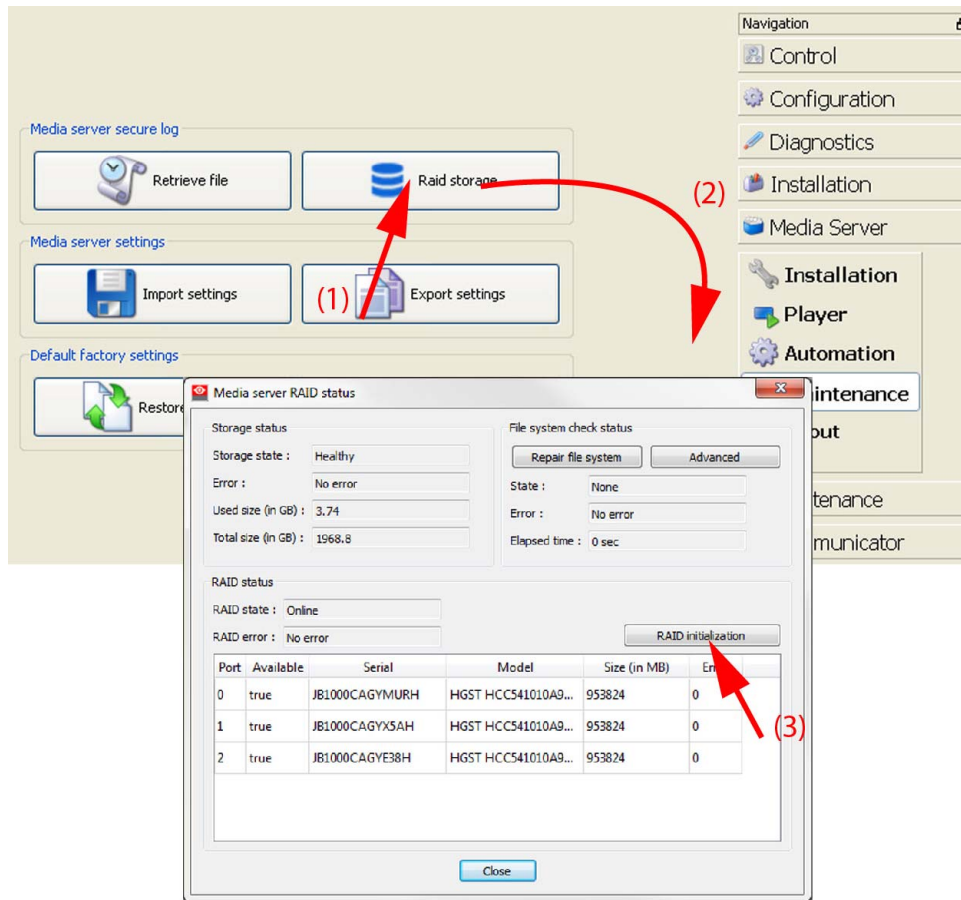


Image 7-53

The Media server raid status window opens (2).

2. Click on **RAID initialization** (3) to initialize a new empty RAID storage.

The system will restart and configure a new empty RAID storage. This operation will erase any content already present on the local storage. This operation cannot be aborted nor reverted.

You will see the 3 HDD activity LED's (reference 4 image 7-54) blinking continuously. This means that the file system is being initialized and can take up to 30 minutes! **It is strongly recommended NOT to power down, reset, upgrade or ingest during that period.**

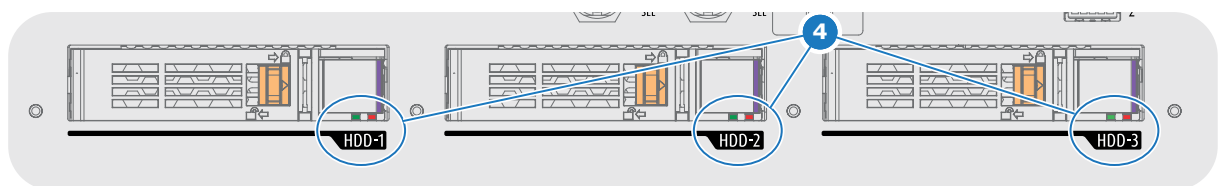


Image 7-54

The file system is completely initialized when the 3 HDD activity LED's are off.



When mixing 1TB and 2TB drives, error messages will be displayed in the error column of the disk table (HDD mismatch, ...)

7.5.4 Media server, file system check status

About file system check

The system runs automatically a file system check, reports the errors but does not repair. It is up to the customer to start a manual repair file system to restore the disks.

An automatic check is done every month during the next reboot or wake up of the projector. Or if more than 35 reboots are counted within 1 month. When errors are discovered, a warning is generated which can only disappear after running a *Repair file system*.

How to check

1. While in *Maintenance*, click on **Raid storage** (1).

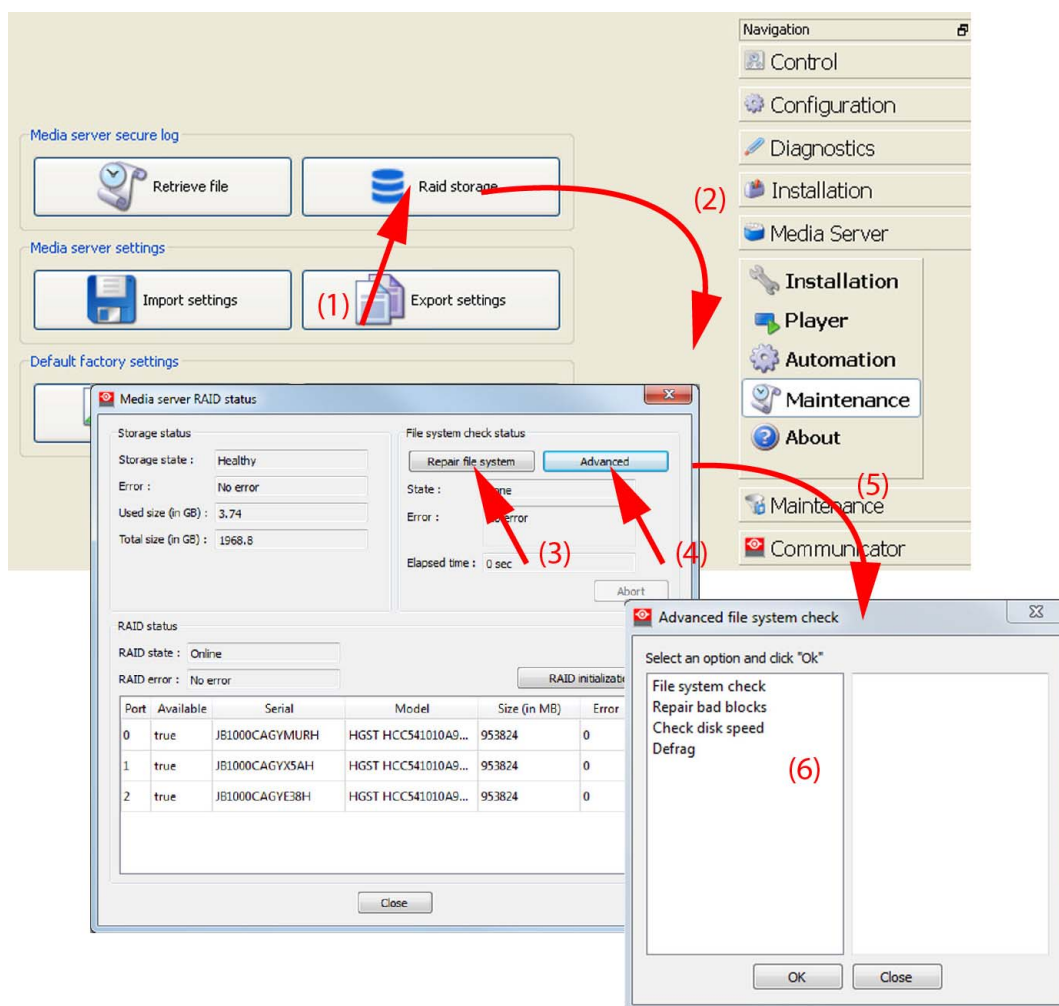


Image 7-55
File system check

The *Media server raid status* window opens (2).

2. To repair the file system, click on **Repair file system** (3).

This will start a manual complete file system check even if the file system seems clean. This can take a while as it depends on the file sizes, the number of files, the total storage, etc. During the file system check, the user can continue working in Communicator.

When the file system check is finished, the results will be indicated in *State*, *Error* and *Elapsed time*.

3. To start more advanced checks, click on **Advanced** (4).

The *Advanced file system check* window opens (5).

The following checks are possible:

- File system check : Complete check of the file system even if the file system seems clean (and repair is if needed).
- RAID information : Provide detailed information from the RAID controller
- Check disk speed : Benchmarks about the speed of reading
- Defrag : Reduce fragmentation of extent based file.

4. Select the check to be used for a file system check (6).

5. Click on **OK** to start the operation.

The check starts and at the end, the State, Errors and Elapsed time is filled out.

7.5.5 Export of the ICMP settings

About export settings

Export of the ICMP settings allows saving all ICMP settings in a file. It is recommended to make a backup of your configuration in order to recover a stable situation when the ICMP encounters future problems.

How to export

1. While in *Maintenance*, click on **Export settings** (1).

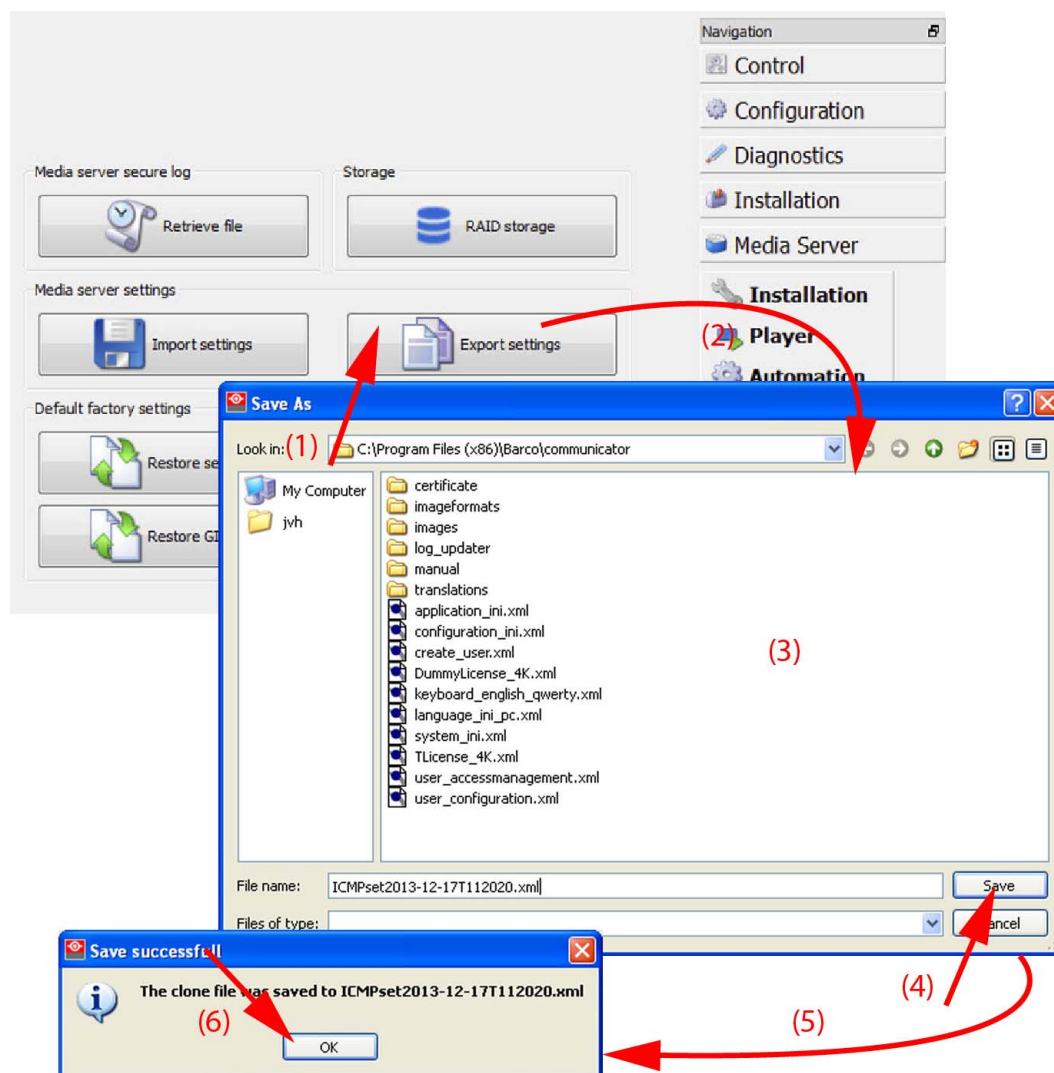


Image 7-56
Export settings

- The **Save as** window opens (2).
2. Browse to a location (3) to save the backup file (XML file format) and click **Save** (4).
- A confirmation message is displayed (5).
3. Click **OK** (6).
- The backup file is saved on the selected location.

7.5.6 Import of the ICMP settings

About import settings

Import of the ICMP settings allows loading all ICMP settings from file, necessary to operate the ICMP. Import of parameters is very useful to reload an existing configuration during a server exchange or when installing a multiplex with multiple identical installations.

How to import

1. While in *Maintenance*, click on **Import settings** (1).

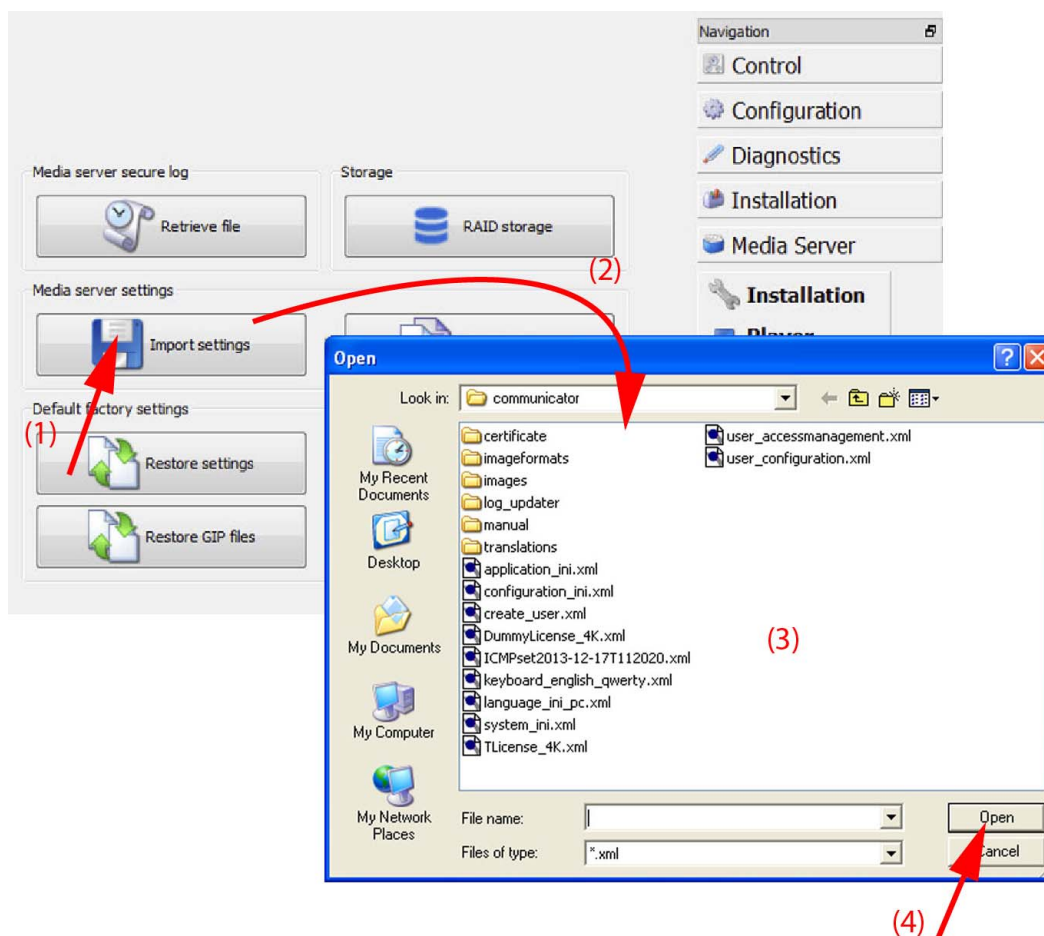


Image 7-57
Import settings

The *Open* window opens (2).

2. Browse to the location of the configuration file (XML format) (3).

3. Click **Open** (4).

The new settings are loaded and applied on the ICMP.

7.5.7 Restore the ICMP factory settings

About restoring ICMP factory settings

The restore settings feature allows to replace the current settings on the ICMP with the default factory values.

Overview of the settings:

Global setting	Description	Default value
Auditorium name	Name of the auditorium displayed on the user interface (front end application)	Auditorium
Host name	Name assigned to the ICMP to identify the device in the theater network	Not deleted nor modified when restoring settings

Global setting	Description	Default value
Board IP address 1	Parameters that define the first network interface	The network parameters are not deleted after restoring settings but the DHCP parameter is enabled.
Board IP address 2	Parameters that define the second network interface	The network parameters are not deleted after restoring settings but the DHCP parameter is enabled.

User setting	Description	Default value
User list	The list of users and their access levels to the ICMP functionalities	Admin → USER_ADMINISTRATOR proj → USER_PROJECTIONIST show → USER_SHOW_MANAGER

Server setting	Description	Default value
Server list	The list of servers, remote directories and libraries where the contents are stored	Set to blank (empty)

Player setting	Description	Default value
Audio delay (ms)	Audio delay is used to correct the synchronization between sound and picture	0
Audio output frequency (kHz)	Allows set the sound for the audio output	48000
Video output resolution	Allows set the video resolution of the ICMP (2K or 4K)	Auto

Audio setting	Description	Default value of audio channel label
AES1	AES output 1	CH01, L
AES2	AES output 2	CH02, R
AES3	AES output 3	CH03, C
AES4	AES output 4	CH04, LFE
AES5	AES output 5	CH05, Ls
AES6	AES output 6	CH06, Rs
AES7	AES output 7	CH07, HI
AES8	AES output 8	CH08, VI-N
AES9	AES output 9	CH09, Lc
AES10	AES output 10	CH10, Rc
AES11	AES output 11	CH11, Lrs
AES12	AES output 12	CH12, Rrs
AES13	AES output 13	CH13, DBOX
AES14	AES output 14	CH14, Sync
AES15	AES output 15	CH15
AES16	AES output 16	CH16

Scheduler setting	Description	Default value
Scheduler at startup	Default state of the scheduler at the ICMP startup	The scheduler value doesn't change after restore factory settings

Scheduler setting	Description	Default value
Maximum delay allowed (in mins)	Maximum delay allowed for which the ICMP will attempt to start a scheduled show from its scheduled start time.	10
Preselect ion Delay (in mins)	Based on this value, the ICMP will attempt to select a scheduled show in advanced for the given values.	30
History length (in days)	Length of the schedule history.	30
Maximum play trigger delay (in seconds)		0

Automation setting	Description	Default value
Automation Cues	Event cues triggered from different sources which can be assigned to actions	Set to blank (empty)
Automation devices	External devices controlled by the automation	Set to blank (empty)

How to restore

1. While in *Maintenance*, click on **Settings** (1).

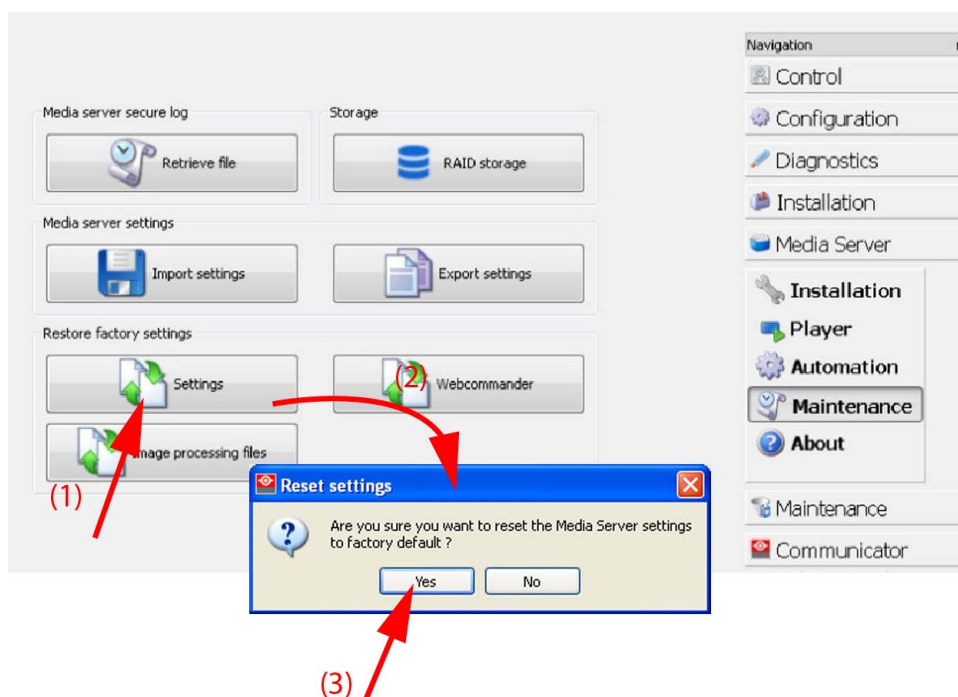


Image 7-58
Restore factory settings

- The *Reset settings* window opens (2).
 2. If you are sure to restore the Media server settings, click **Yes** (3).
- The ICMP is reset to the factory settings.

7.5.8 Restore the web app factory settings

About restoring webapp

The restore web app settings feature allows to replace the current settings on the user interface (web app) with the default factory values.

General setting	Description	Default value
Language	Language of GUI	English
Theme	Appearance (Theme) of the GUI: <ul style="list-style-type: none"> Light theme Dark theme 	Light theme
Autolock timeout	The interface is locked automatically after the time specified in this parameter	10 min

Scheduler setting	Description	Default value
Arrow navigation function	Behavior of the scheduler's navigation arrows	Skip one week at time
Week starts on	This parameter allows you to choose the first day of the week in the scheduler view	Wednesday

How to restore

1. While in *Maintenance*, click on **Webcommander** (1).

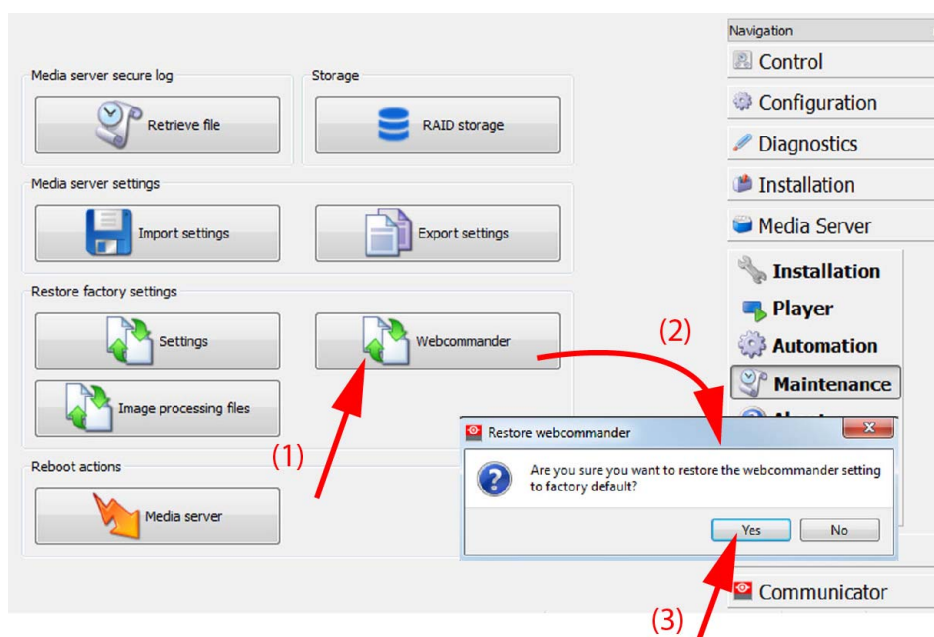


Image 7-59
Restore web app settings

The *Reset factory webapp* window opens (2).

2. If you are sure to restore the webapp settings, click **Yes** (3).

The web app values are reset to the factory settings.

7.5.9 Restore Image processing files

About Image processing files or GIP files

GIP files are image processing files created by a first startup of the ICMP. These files can be customized during the use of the projector. When you do a Restore Image Processing files then the image processing files are copying from the Read only directory back to the user directory, only overwriting the files with the same name. So the Image processing files restore will not remove or delete the user created files.

How to restore

1. While in *Maintenance*, click on **Image processing files** (1).

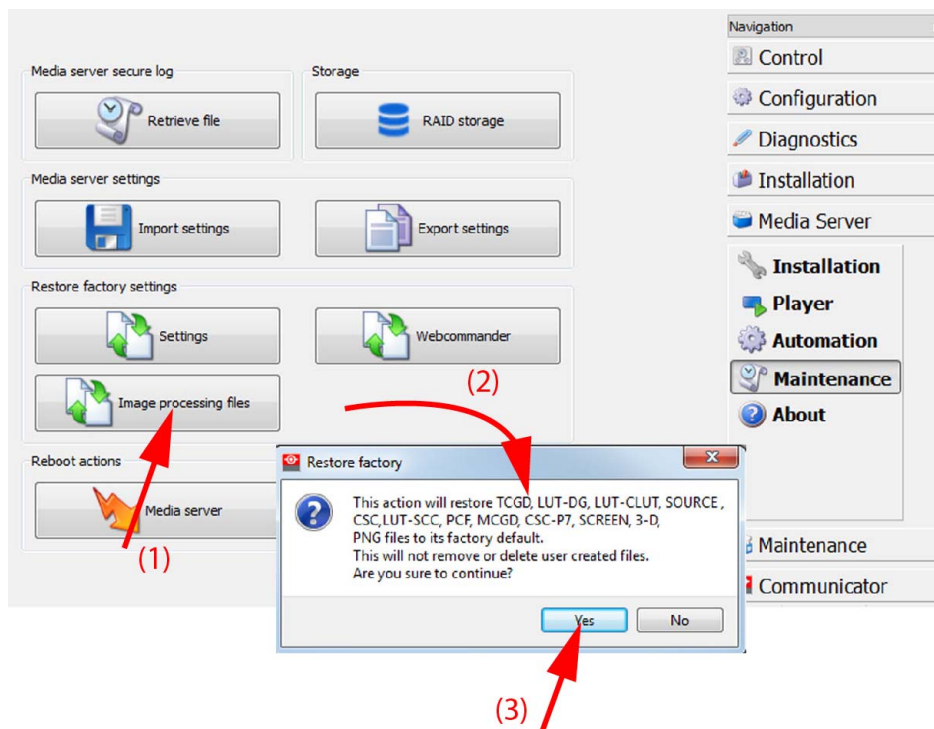


Image 7-60

- A restore factory window opens (2).
2. If you are sure to restore the factory defaults, click **Yes** (3).
- The Image processing files are reset to the factory defaults.

7.5.10 Reboot Media server

How to reboot

1. While in *Maintenance*, click on **Media server** (1).

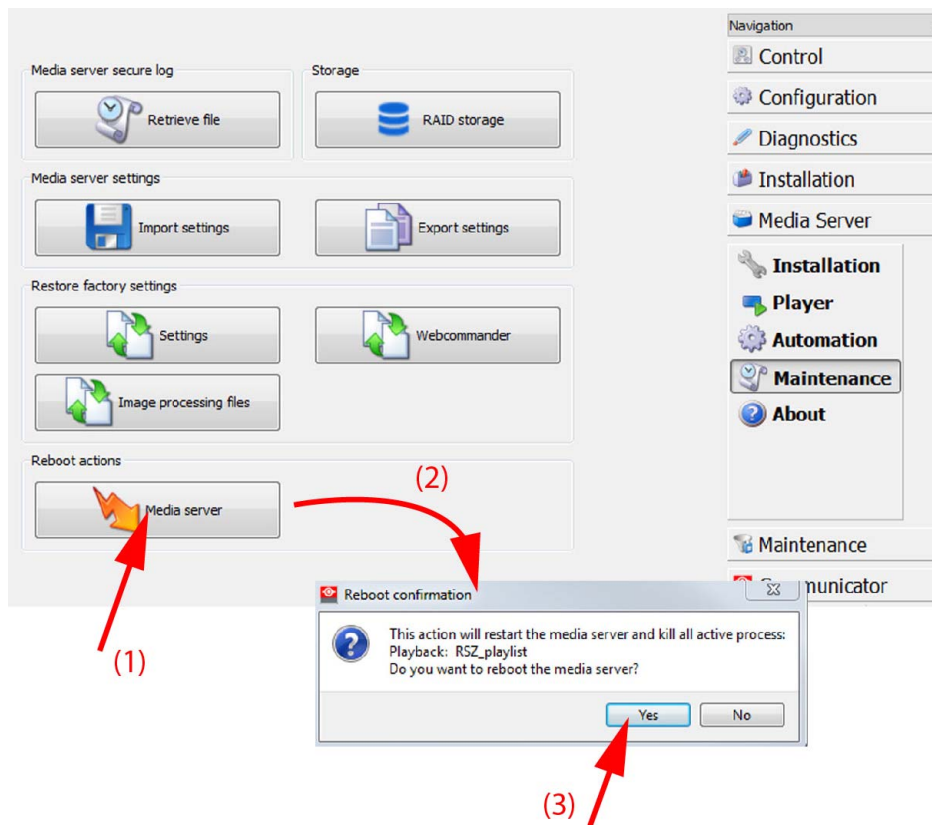


Image 7-61
Media server reboot

A Reboot confirmation window opens.

2. Click **Yes** to start the reboot.

7.6 Control

What can be done?

The Media server frontend application can be launched via the touch panel.

How to launch

1. While in *Media Server*, tap on **Control**.

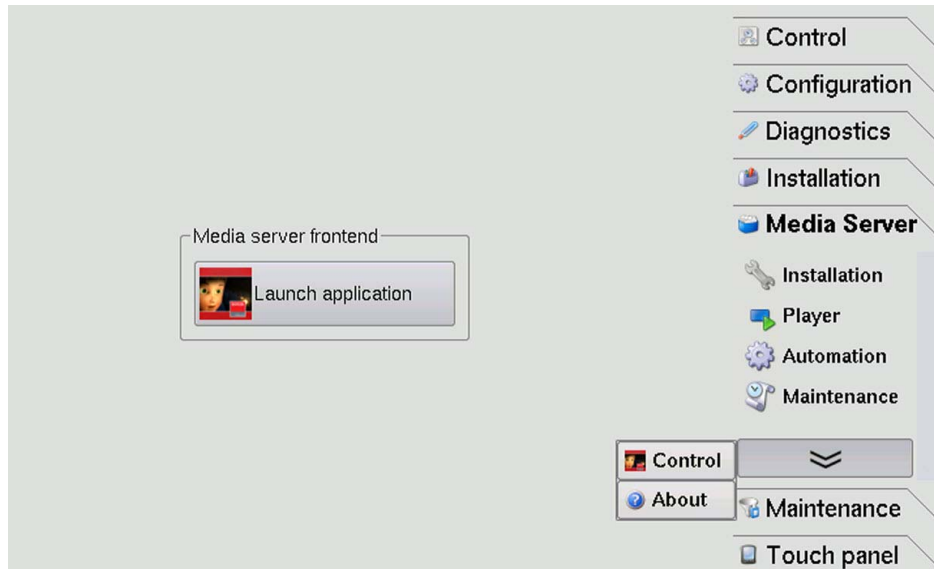


Image 7-62
Frontend application

The Media server frontend page opens.

2. Click on **Launch application**.

The Commander starts up.

7.7 About

Overview

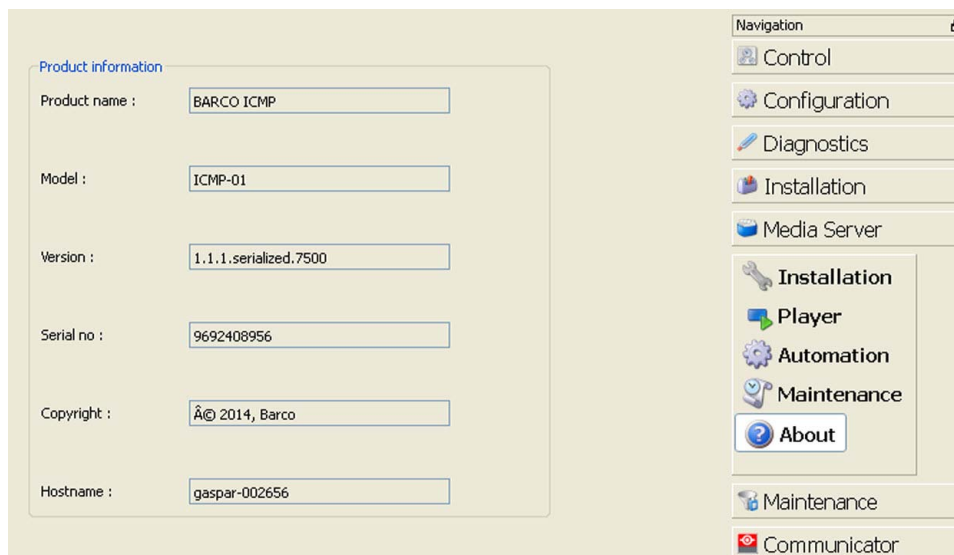


Image 7-63
About page

The About page gives information about the ICMP such as:

- Product name
- Model
- Version
- Serial number
- Copyright
- Hostname

8. MAINTENANCE

Overview

- About smart maintenance
- Maintenance info for specific maintenance type
- Software upgrade, launch DC update companion
- Software upgrade, projector, ICMP or touch panel
- ICP software upgrade
- Link decryptor software update
- Update logging

8.1 About smart maintenance

Overview

Error messages with identifier 620x, displayed during start up or when consulting the Diagnostic window are maintenance notifications. That means that a maintenance action on the projector is necessary as soon as possible.

When a maintenance action is pending, the tail light of the projector will turn blue.

Besides, preventive maintenance actions can also be performed on the projector even if the remaining time is still positive.

Go to *Maintenance* → *Smart maintenance*.

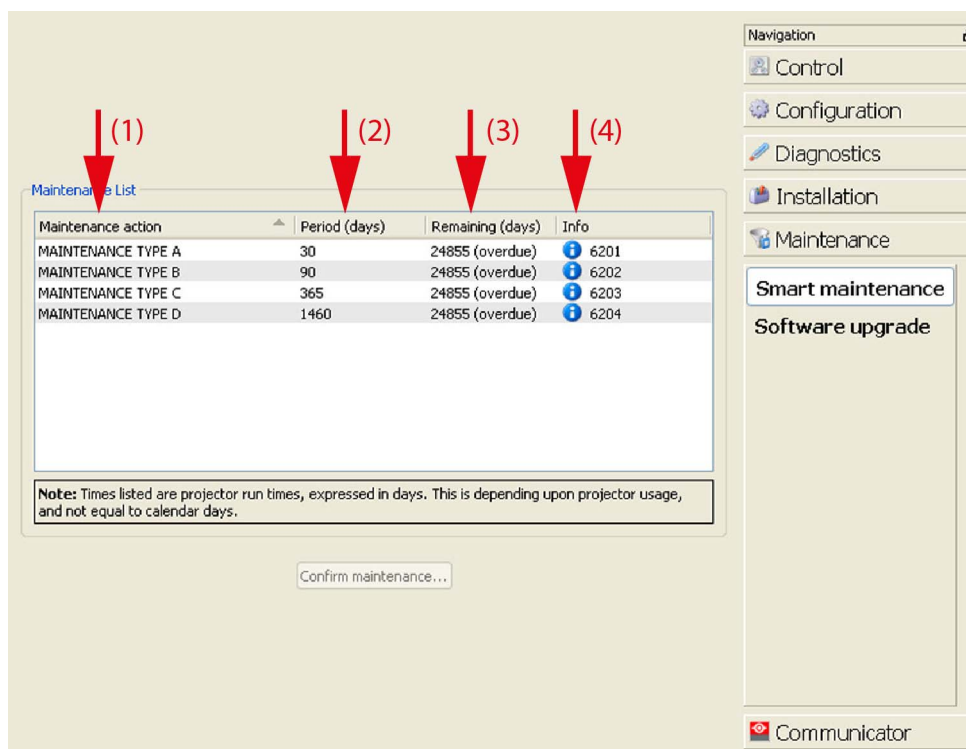


Image 8-1
Smart maintenance

The *Smart maintenance* window displays the four types of maintenance foreseen for a Cinema projector (1). For each type, the maintenance interval period (2) is indicated.

The remaining period (3) indicates the time left before a new maintenance has to be done. When this value is negative, that means that the maintenance action is 'overdue' and should be done immediately. The info button (4) displays an overview of the maintenance actions for that typical type of maintenance.

The following maintenances are possible:

- Maintenance type A : interval 30 days (cleaning filters, check porthole for dust, dust on lens, etc.)
- Maintenance type B : interval 90 days (clean air grids, check cooling liquid level, etc)
- Maintenance type C : interval 1 year (check for dust inside projector, software upgrade, check complete cooling circuit, electrical connections, lamp module, lens holder, 3D color wheel, etc.)
- Maintenance type D : interval 4 years (replace cooling pump, check fans, etc)



All indicated times in the maintenance window are expressed in days. Only projector run time hours are taken in account to calculate the remaining time.

8.2 Maintenance info for specific maintenance type

How to display

1. While in the *Maintenance* tab page, click on **Smart maintenance**.
2. Click on the “i” symbol next to the maintenance type you want to open (1).

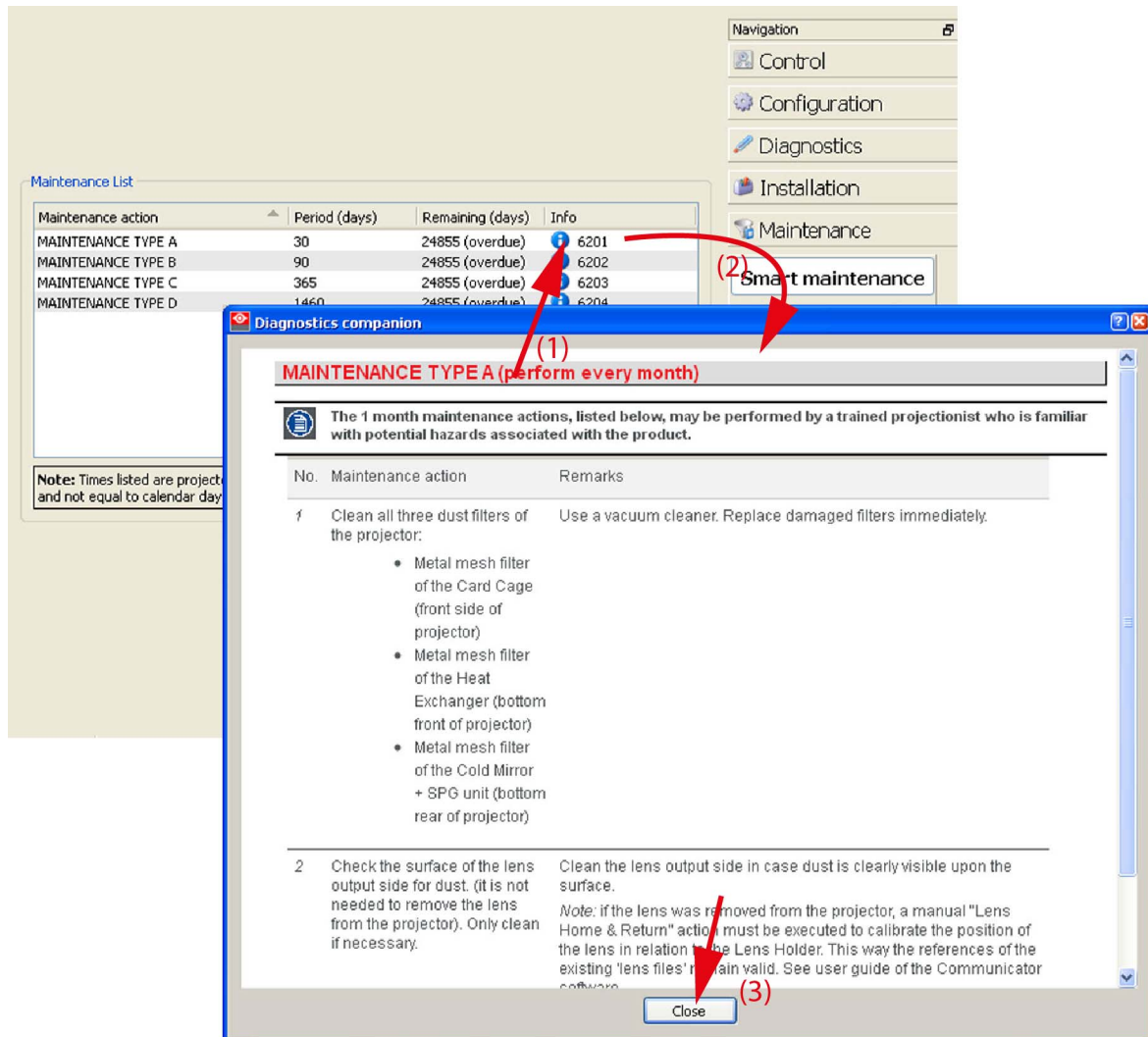


Image 8-2
Maintenance info

- The *Diagnostics companion* opens with an overview of the maintenance actions for the selected type (2).
- Click **Close** to close the *Diagnostic companion* (3).
 - Once the maintenance actions are executed for that specific type, click on the maintenance action in the list (4).

8. Maintenance

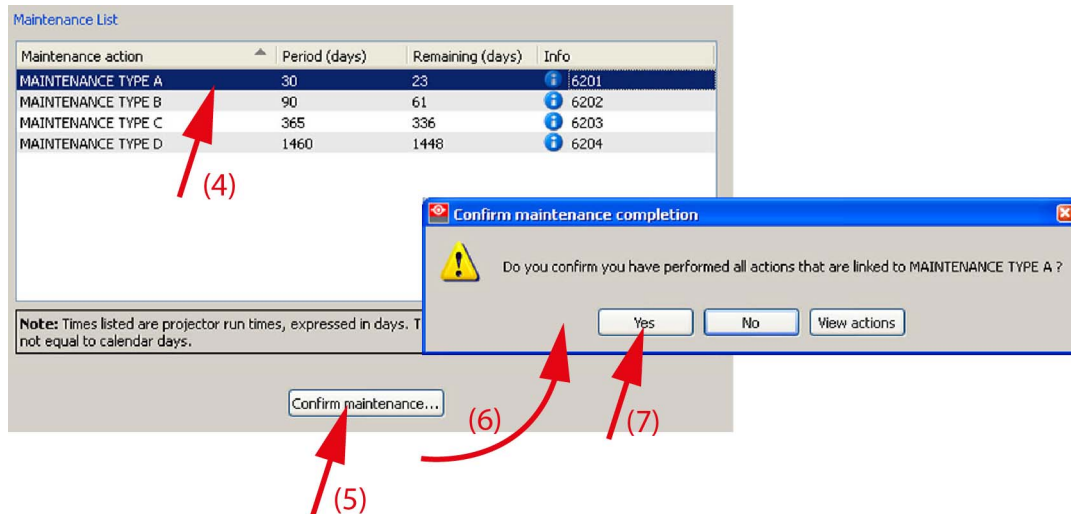


Image 8-3
Maintenance clearing

The full row is selected.

5. Click on **Confirm maintenance ...** to reset the remaining days (5).

Note: When a preventive maintenance is performed before the remaining time is zero or negative, then it is also possible to reset the remaining days.

A confirmation window opens (6).

6. Click **Yes** to reset the remaining days (7).

The blue tail light will be turned off.

8.3 Software upgrade, launch DC update companion

What can now be done ?

The following updates of the software are possible with Communicator (DC update companion)

- Barco DC package update:
 - Projector software
 - Touch panel software
- Enigma link decryptor software
- Integrated Cinema Processor (ICP) software
- ICMP software

Download the corresponding update package from Barco's web site, <http://www.barco.com> on your PC. Select via the product name.

For Enigma link decryptor and ICP update package, unzip the package file into a new directory.

For the projector software, ICMP and the touch panel software package, unzipping is not possible. the file can be used as is.

The ICP and Linkdecryptor package file contains at least

- a zipped version of the update program which contains a *setup.exe* file to install the program. Can also be unzipped.
- a release file with the new software.
- a release note (pdf document)
- a Software Manifest for ICP Production Release (pdf document)

Name	Size	Type	Date Modified
icp_enigma_control_program.zip	15,192 KB	Compressed (zip...)	17/05/2010 14:04
Install.msi	837 KB	Windows Install...	6/05/2010 16:31
InstMsiA.Exe	1,668 KB	Application	25/09/2001 14:05
InstMsiW.Exe	1,779 KB	Application	11/09/2001 17:04
Prod1.4.131.release	10,983 KB	RELEASE File	10/05/2010 8:45
R33023401_01_V01_04_flash.zip	26,208 KB	Compressed (zip...)	8/07/2010 10:33
ReleaseNotesProd1_4.pdf	21 KB	Adobe Acrobat D...	6/05/2010 10:30
Setup.Exe	108 KB	Application	19/03/2003 0:03
Setup.Ini	1 KB	Configuration Se...	6/05/2010 16:31
SoftwareManifest1.4.pdf	41 KB	Adobe Acrobat D...	28/04/2010 17:42

Image 8-4
Content ICP update package



DC Update Companion can also be started as a separate application. The start up button is located next to the Communicator start button in the start programs tree.

How to launch

1. While in the *Maintenance* tab page, click on **Software update** (1).

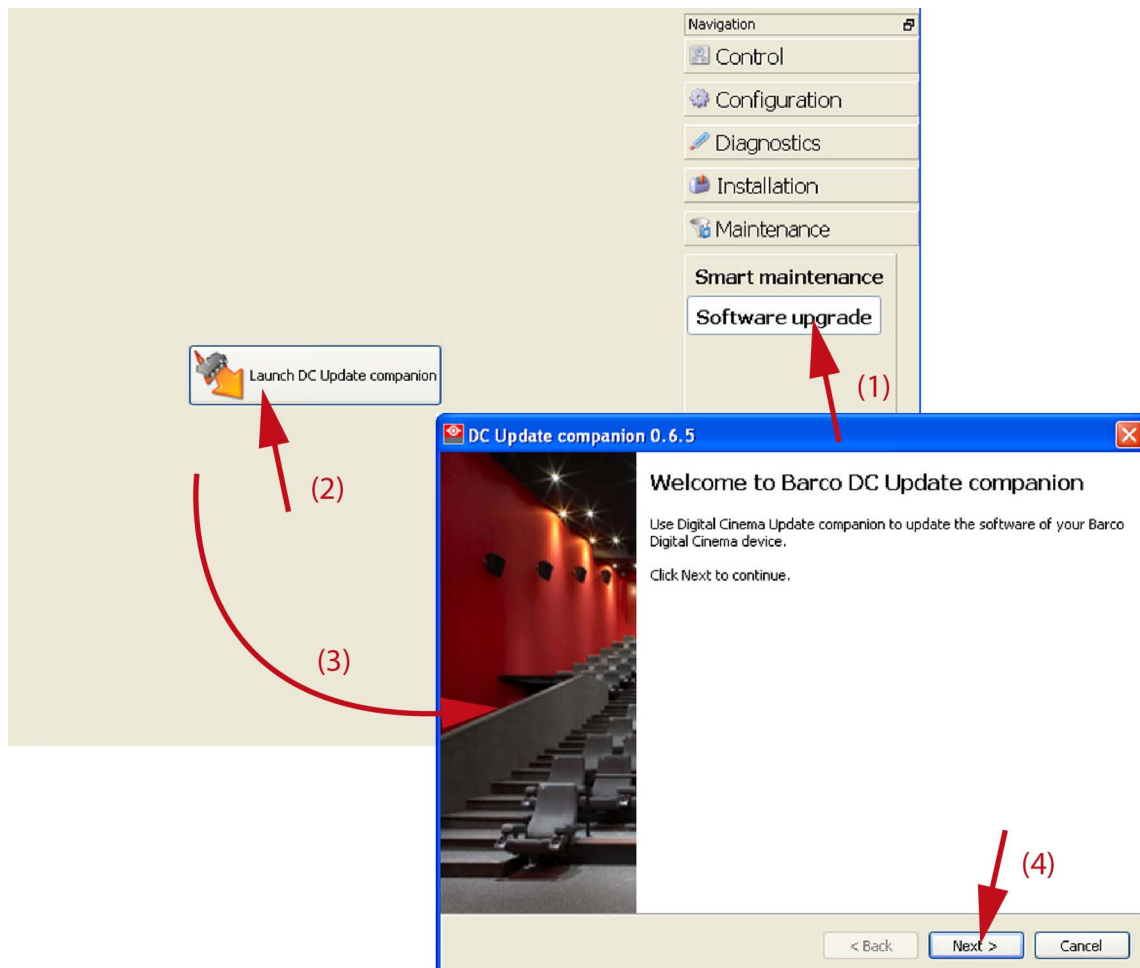


Image 8-5
Launch DC update companion

2. Click on **Launch DC update companion** (2).
The *DC update companion* window starts up (3).
3. Click **Next** to continue (4).

4. Read the licence agreement and check accept. Click **Next** to continue.

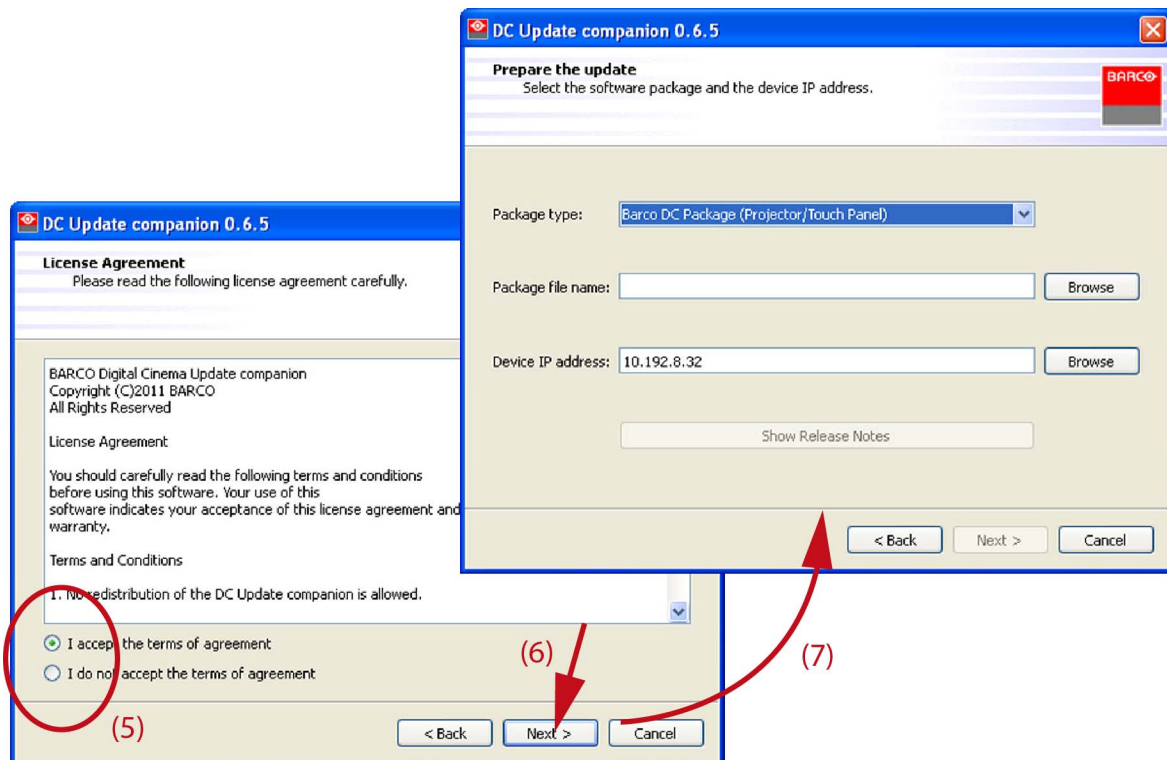


Image 8-6
Start up selection window

5. Continue with the specific procedure for each type of package.

8.4 Software upgrade, projector, ICMP or touch panel

How to update

1. Launch the *DC Update Companion* as described in "Software upgrade, launch DC update companion", page 380.
2. Select package type. Click on the drop down box (1) and select Barco DC Package (for projector or touch panel update) or ICMP package (for ICMP update).

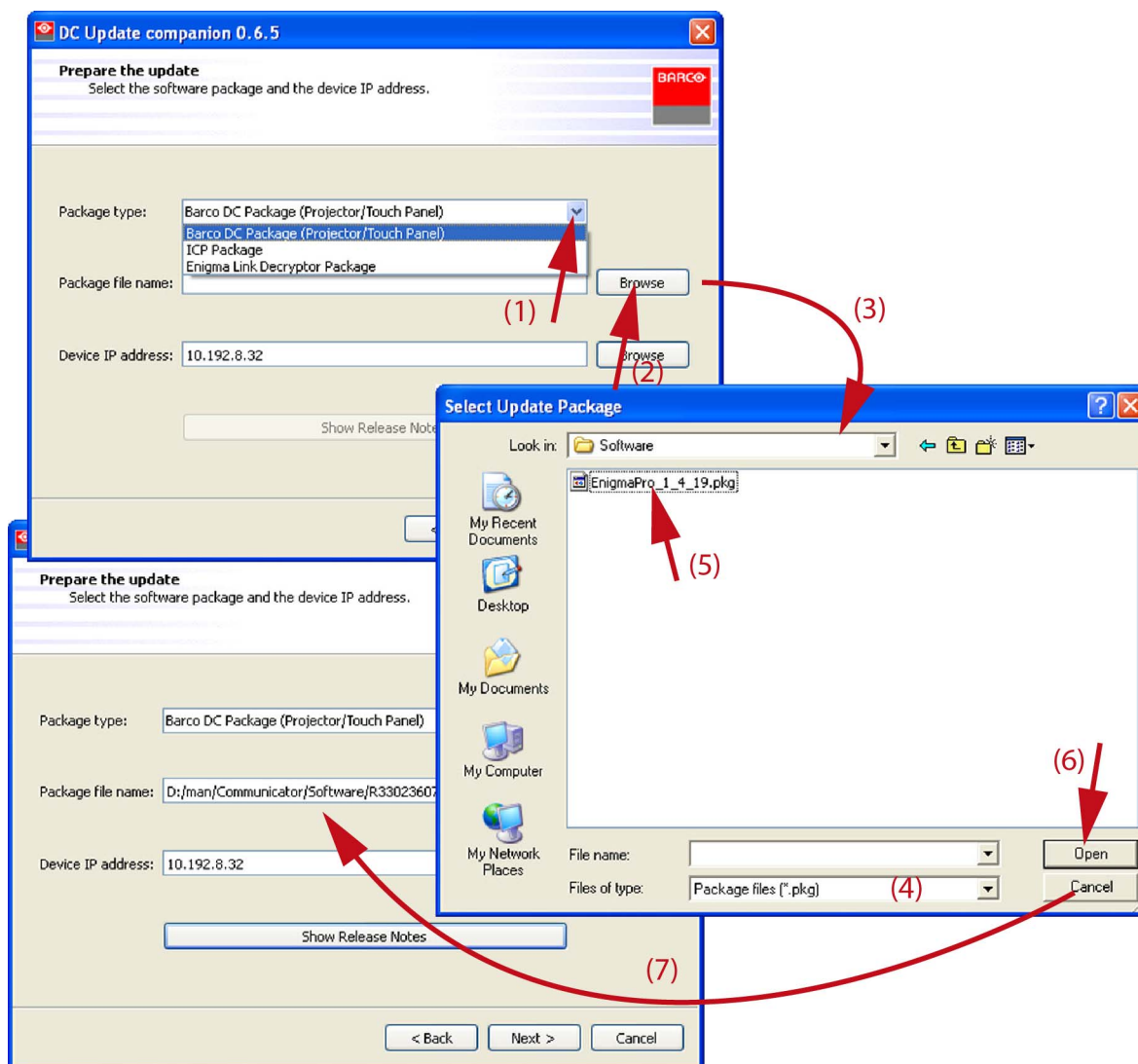


Image 8-7
Package file selection

3. Browse the package file name. Click on **Browse** (2) to open the Browser window (3).
The correct file type is already filled out (4).
4. Browse for the desired file (5), select the file and click on **Open** (6).
The Package file name line is filled out (7).
5. To read the release notes, click on **Show Release Notes** (8).

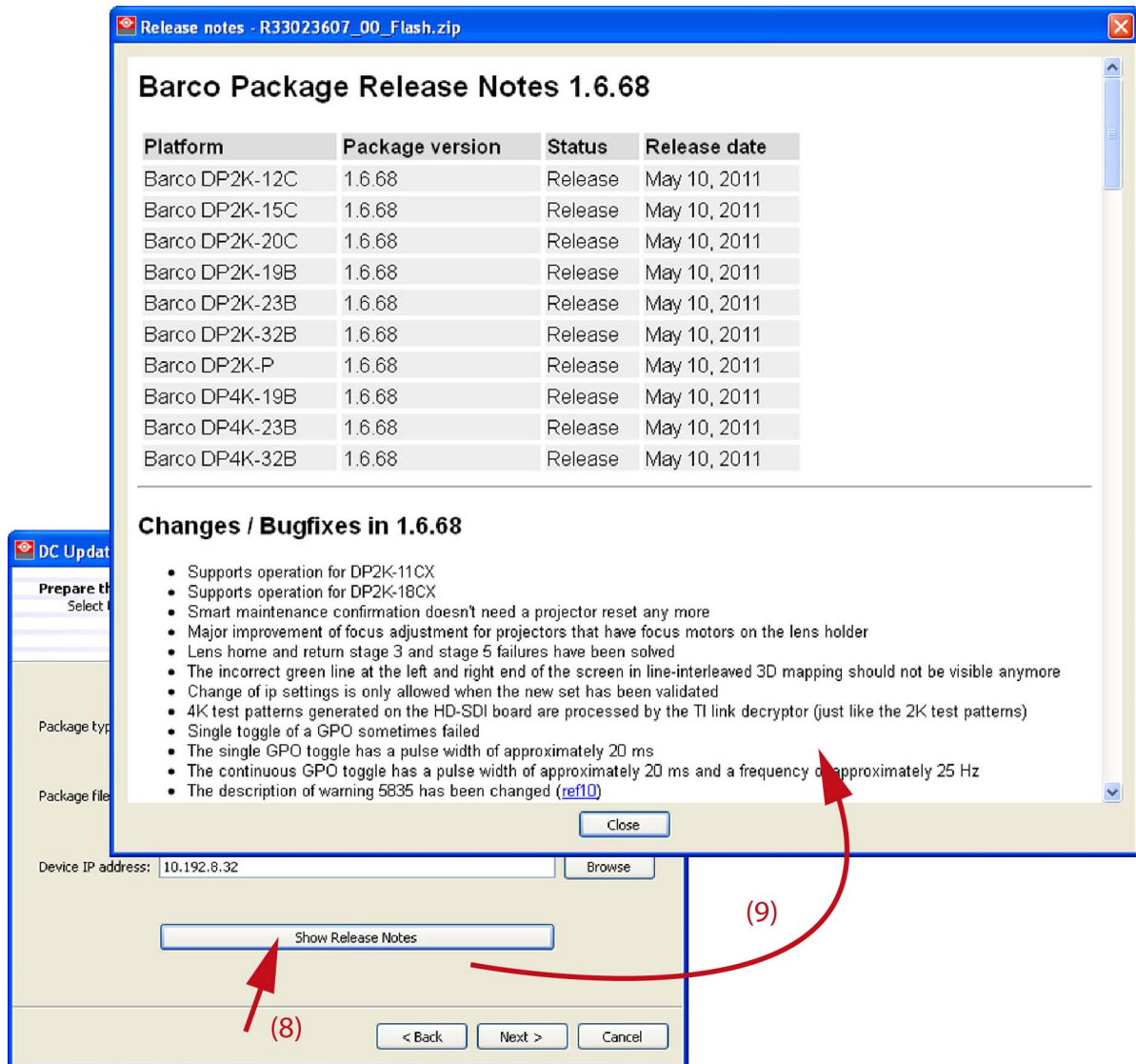


Image 8-8
Barco release notes

- Enter the device IP address (10) or click on **Browse** to open a device selection window (11).
Note: The IP of the connected projector is already filled out. When using the DC Update Companion as stand alone program, then this field is blank.

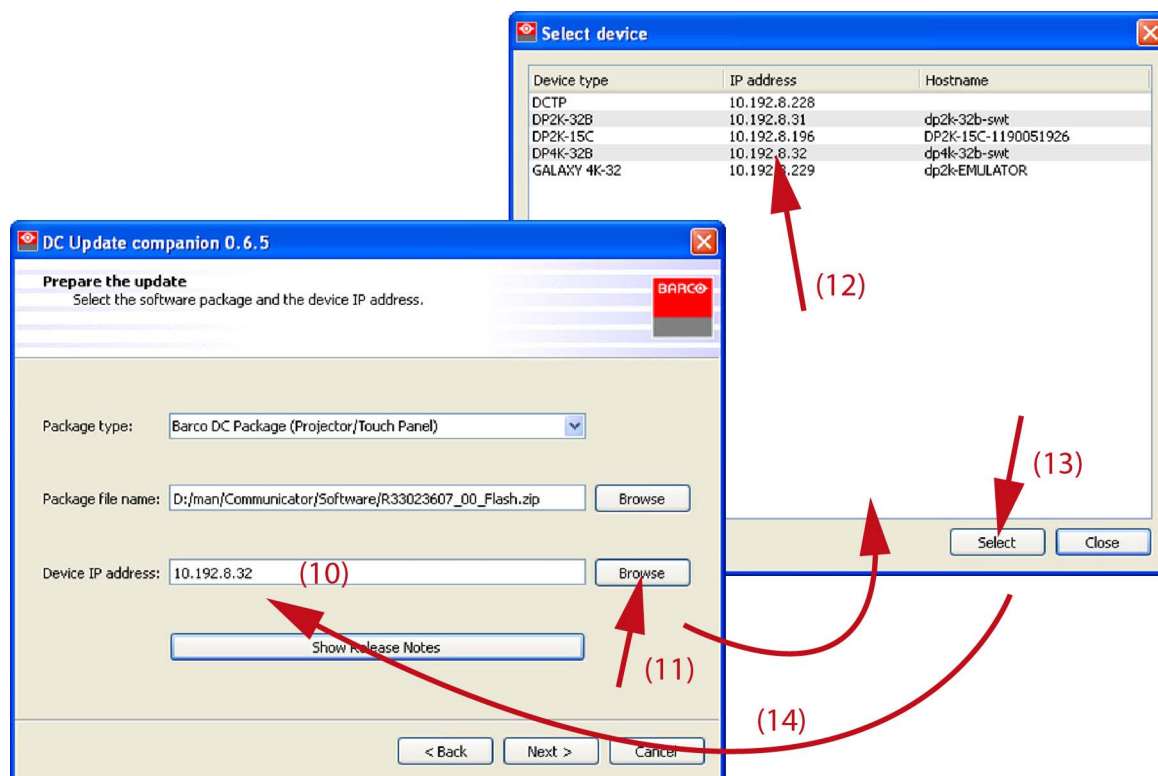


Image 8-9
IP selection

7. Select the desired IP address (12) and click **Select** (13).

The selected IP address is filled out next to *Device IP address*.

8. Click **Next** to continue.

The necessary information is gathered.

The current installed version is shown next to the package version (15).

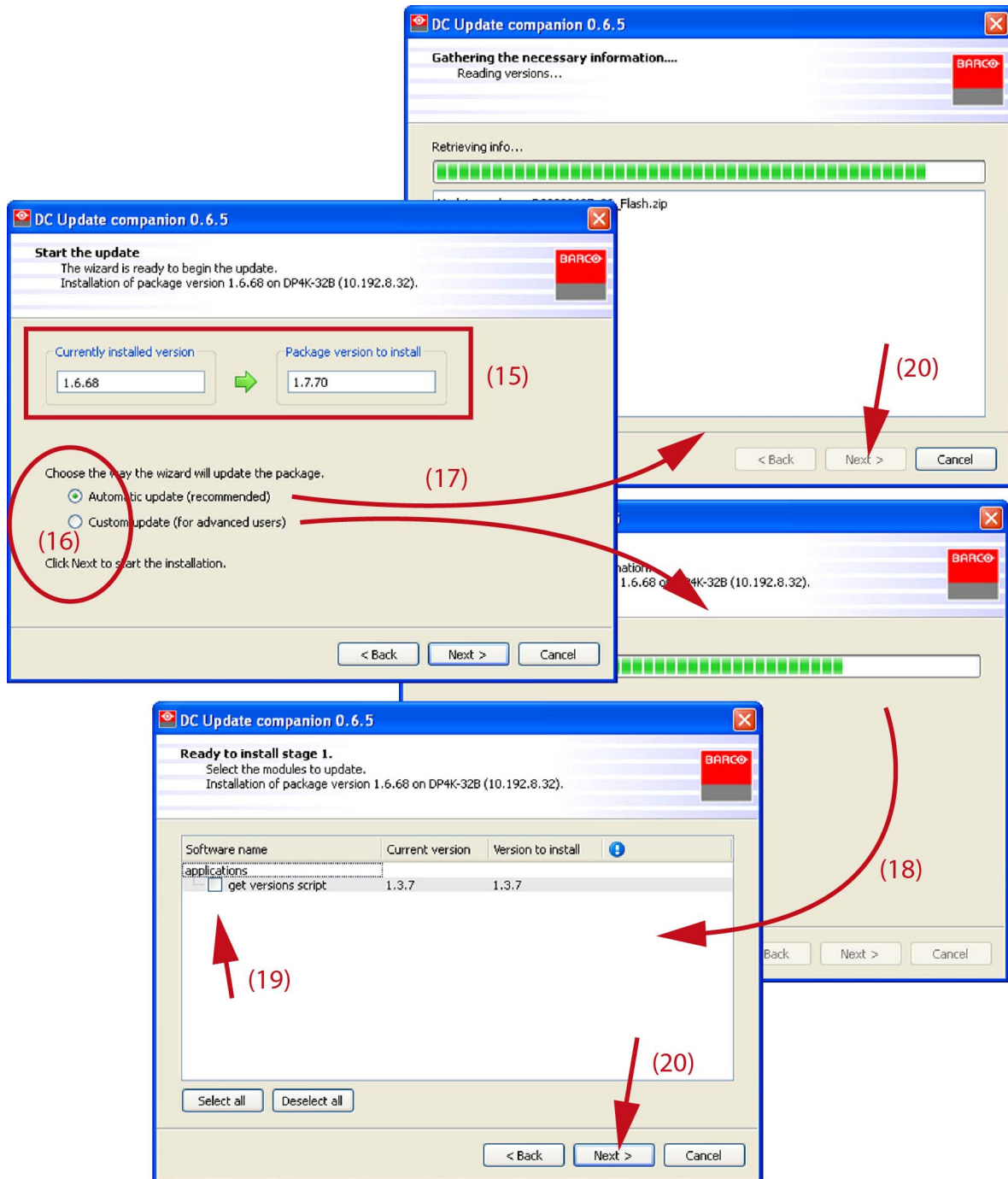


Image 8-10
Projector software update

9. Select the way the wizard will update the package. Check the desired radio button (16).
10. If automatically is selected the wizard gathered the information (17). Then click **Next** to start the update (20).
If custom update (for advanced users) is selected, the wizard starts collecting the information (17) of the different software modules.
11. Select the modules to update (19) and click **Next** to start the update (20).



The update can take a lot of time. Make sure not to interrupt the power during the update process. At the end, an update status will be displayed.

8.5 ICP software upgrade

About updating ICP board

The ICP board contains 2 slots to store software before this software can be installed. Therefore it is recommended to store the previous version of the software in a location and the current version in the other. When an new update becomes available, overwrite always the oldest version.

These 2 loaded versions make it possible to switch on an easy way between the current version and the previous one.

How to upgrade

1. Launch the *DC Update Companion* as described in "Software upgrade, launch DC update companion", page 380.
2. Select package type. Click on the drop down box (1) and select *ICP Package*.

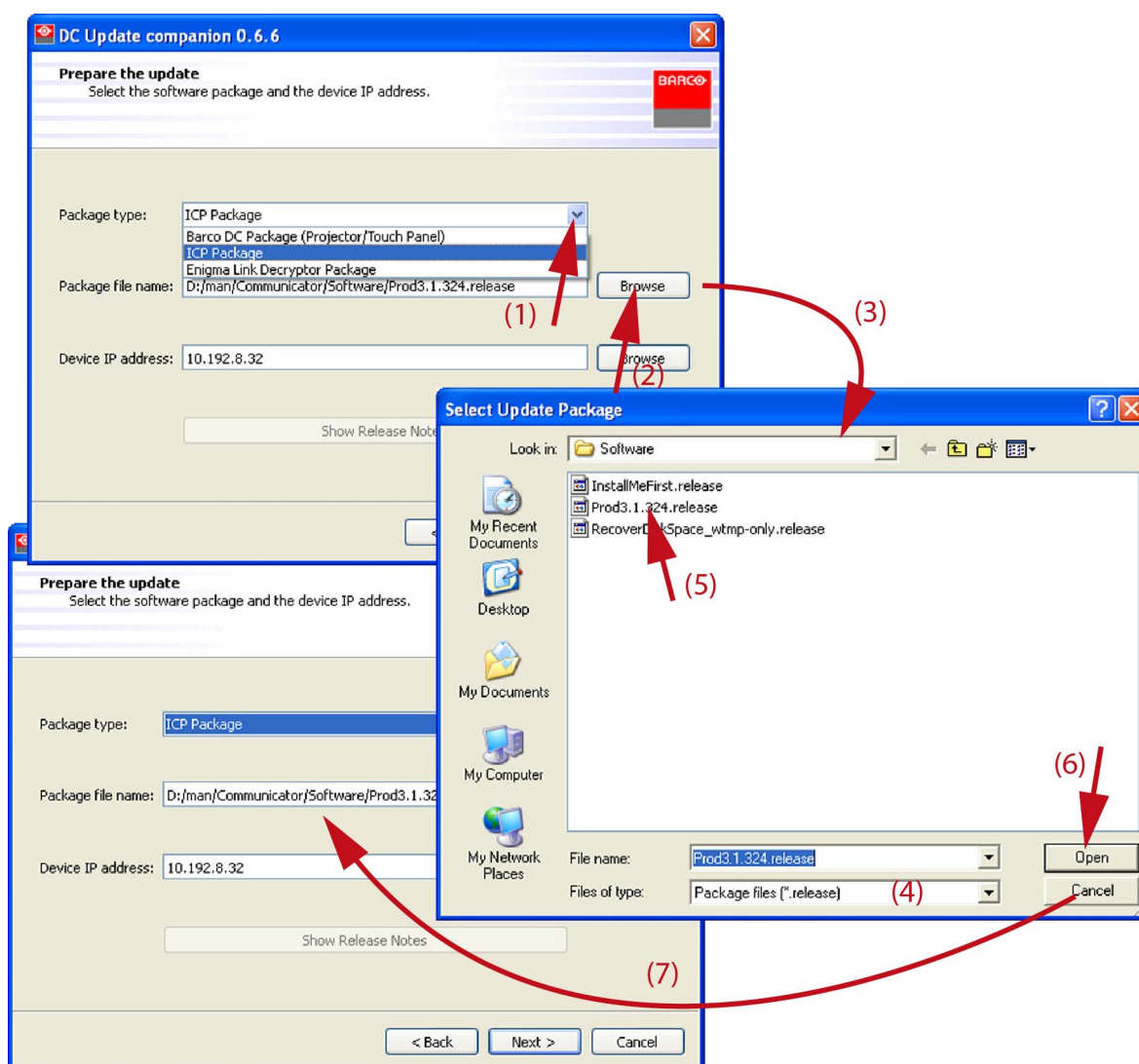


Image 8-11

3. Browse the package file name. Click on **Browse** (2) to open the Browser window (3).
Note: File has extension *release*.

The correct file type is already filled out (4).

4. Browse for the desired file (5), select the file and click on **Open** (6).

The Package file name line is filled out (7).

8. Maintenance

5. Enter the device IP address (10) or click on **Browse** to open a device selection window (11).

Note: The IP of the connected projector is already filled out. When using the DC Update Companion as stand alone program, then this field is blank.

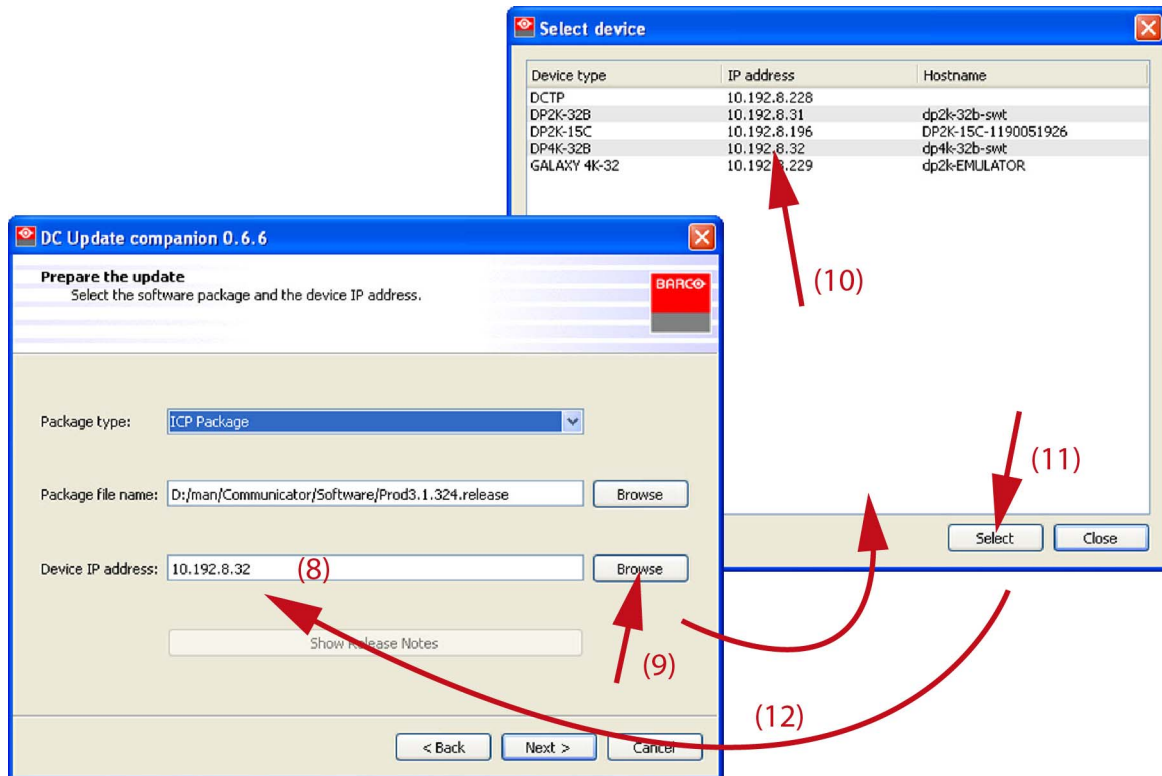


Image 8-12
IP selection

6. Click **Next** to continue.

The necessary information is gathered.

The current installed version is shown next to the package version (13).

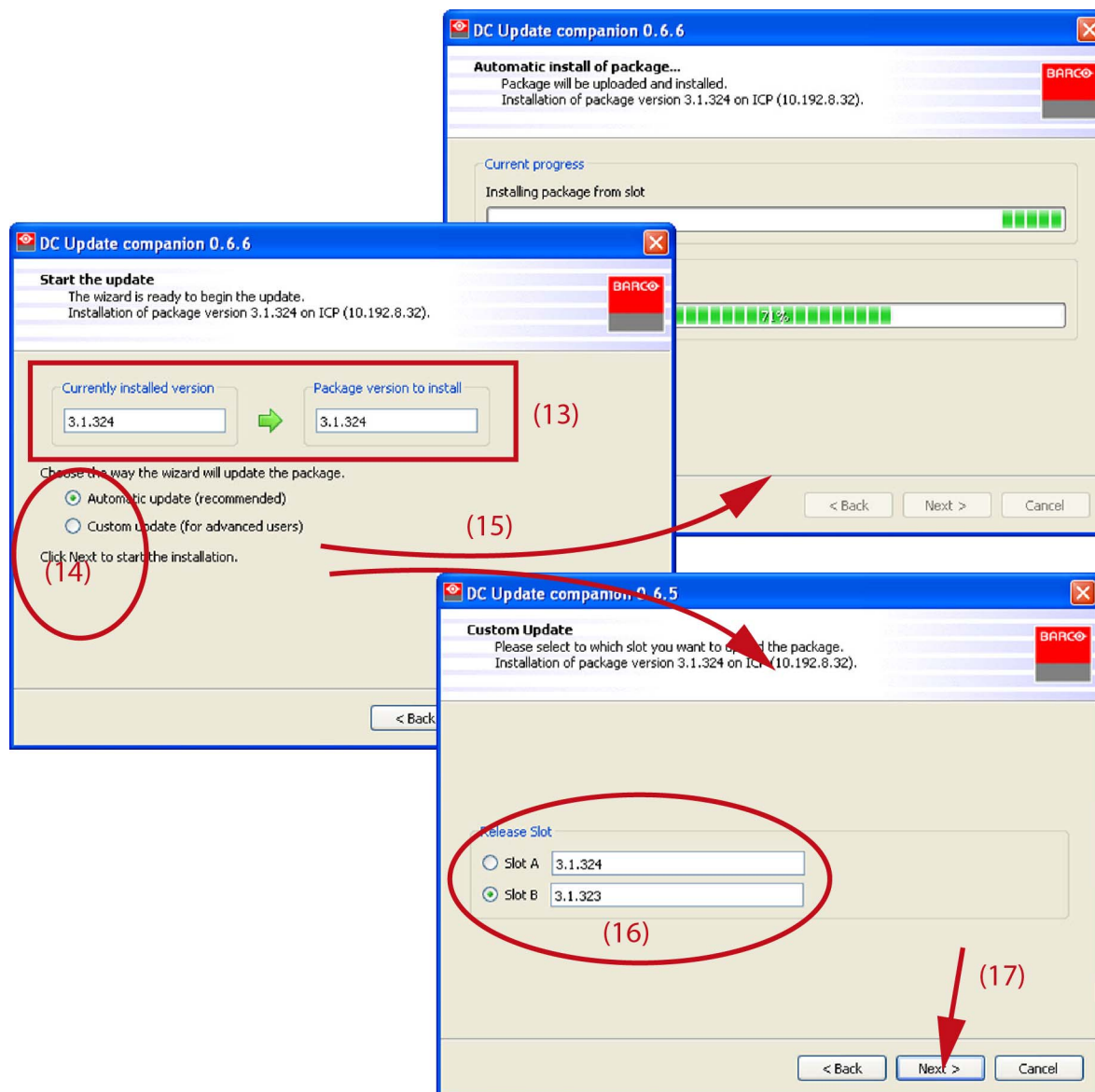


Image 8-13
Load and install software

7. Select the way the wizard will update the package. Check the desired radio button (14).
8. If automatically is selected the wizard will load the software in the oldest slot and install the software immediately (15).
If custom update (for advanced users) is selected, the wizard displays the selection for slot A or slot B (16). Check the radio button of your choice and press **Next** (17).
The software will be loaded to the selected slot and will be installed immediately
When the update is finished, an status window is displayed.

8.6 Link decryptor software update

How to update

1. Launch the *DC Update Companion* as described in "Software upgrade, launch DC update companion", page 380.
2. Select package type. Click on the drop down box (1) and select *Enigma Link Decryptor Package*.

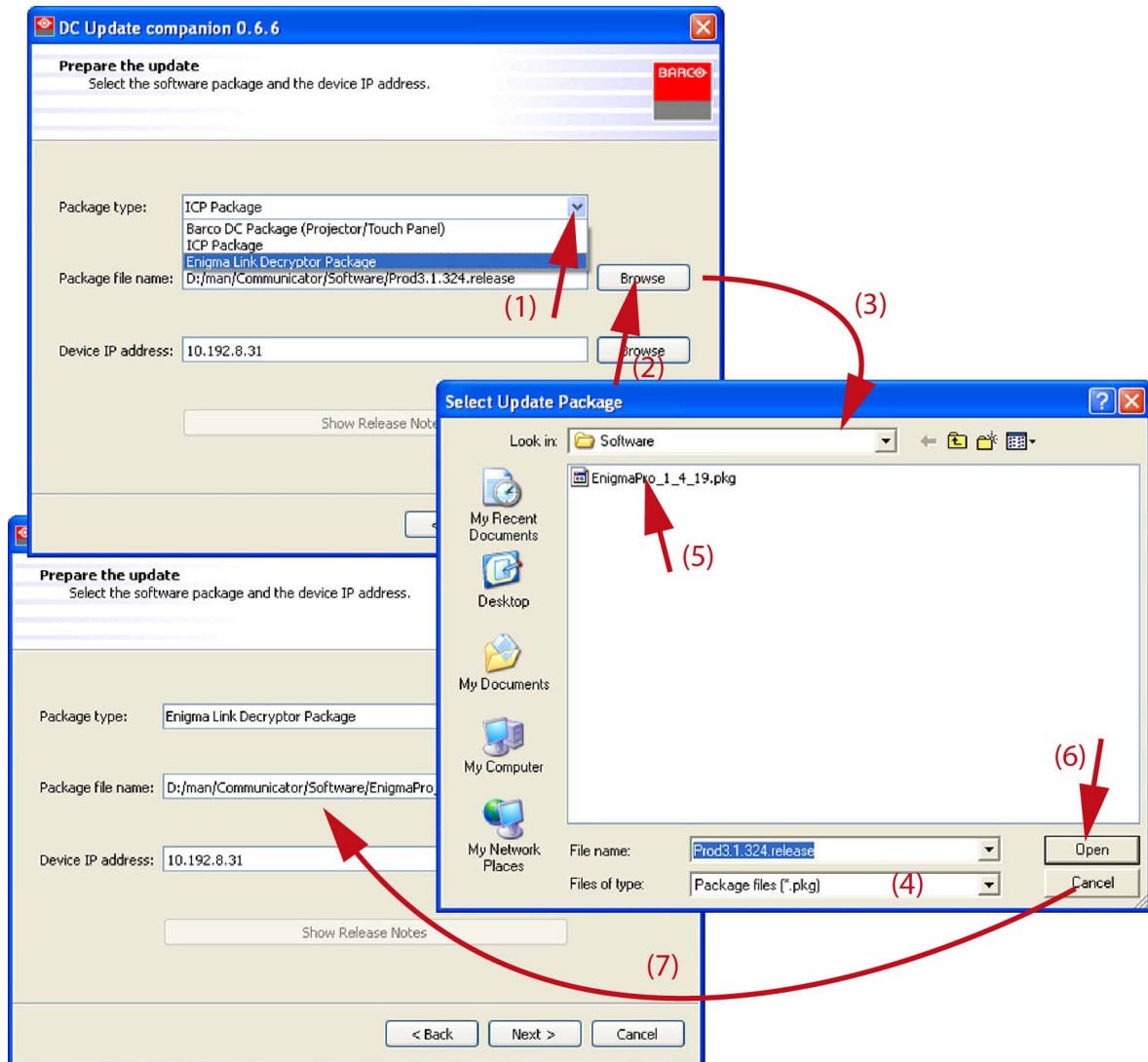


Image 8-14

3. Browse the package file name. Click on **Browse** (2) to open the Browser window (3).
The correct file type is already filled out (4).
4. Browse for the desired file (5), select the file and click on **Open** (6).
Note: File has extension *pkg*.
The Package file name line is filled out (7).
5. Enter the device IP address (10) or click on **Browse** to open a device selection window (11).
Note: The IP of the connected projector is already filled out. When using the DC Update Companion as stand alone program, then this field is blank.

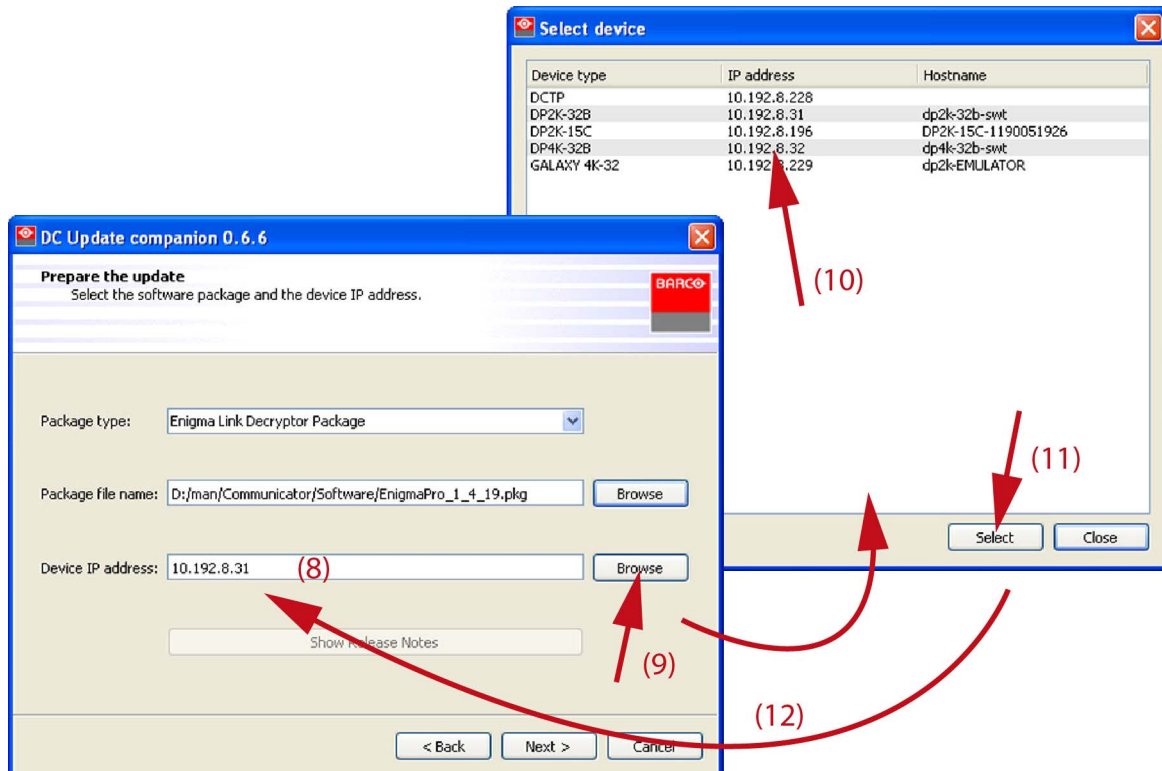


Image 8-15
IP selection

6. Click **Next** to continue.

The necessary information is gathered.

The current installed version is shown next to the package version (13).

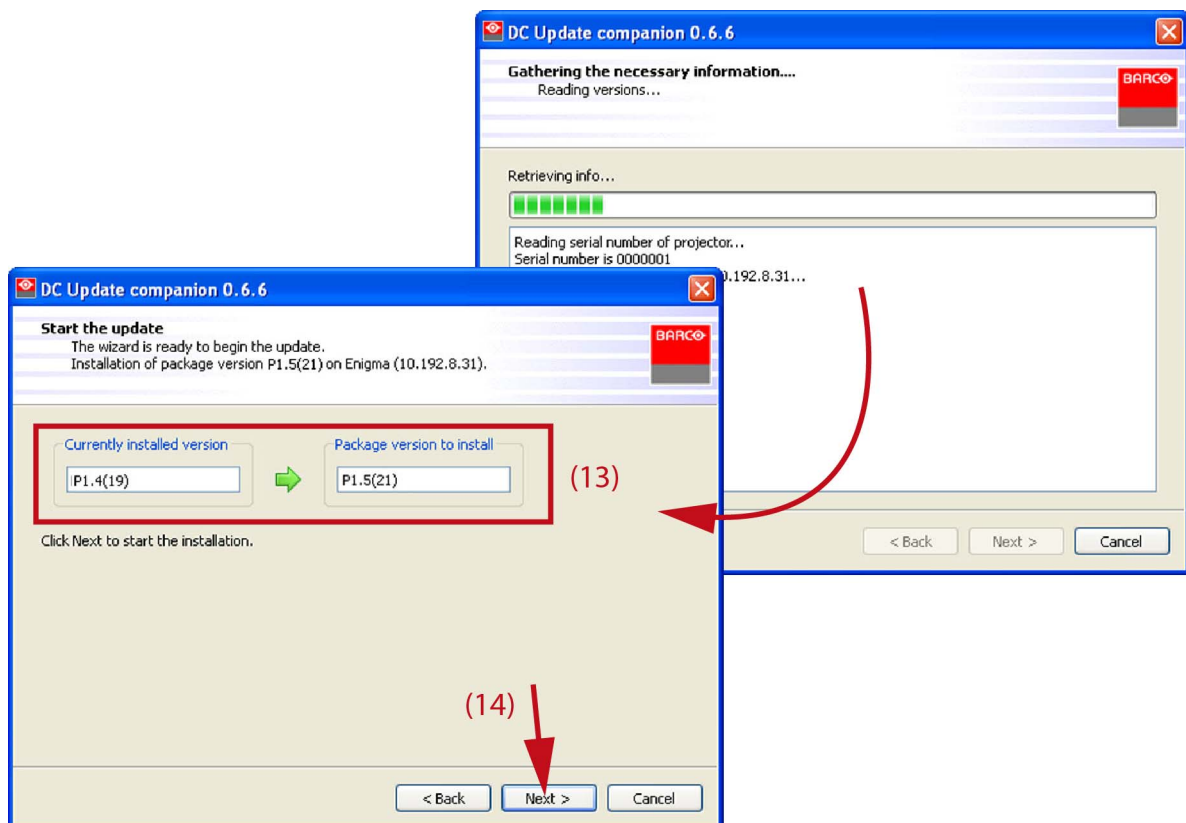


Image 8-16

7. Click **Next** to start the software update (14).

When the update is finished, an status window is displayed.

8.7 Update logging

Installation logging

When the software update is finished, a status window is displayed. This window is almost equal for all possible updates.

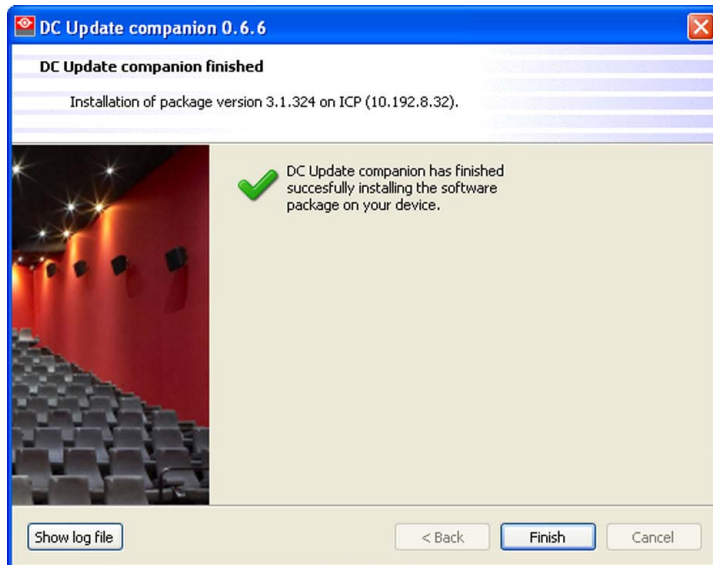


Image 8-17
Status window.

To show the log file, click on **Show log file**.

All information about the update process is logged in this log file.

9. COMMUNICATOR

Overview

- User management
- User access settings
- Change Language
- Edit units
- Communicator Diagnostics

9.1 User management

Overview

- Add new user
- Edit user properties
- Delete a user

9.1.1 Add new user

What is possible?

Depending on the role of the user, this user can add extra users with the same properties as the creating user or with lower properties.

New created user→ User role ↓	Default	Theatre technician	Service technician
Default	-	-	-
Theatre technician	x	x	-
Service technician	x	x	x

How to add a user

1. While in *Communicator*, click on **Users**.

The user overview pane is displayed.

2. Click on **Add (1)**.

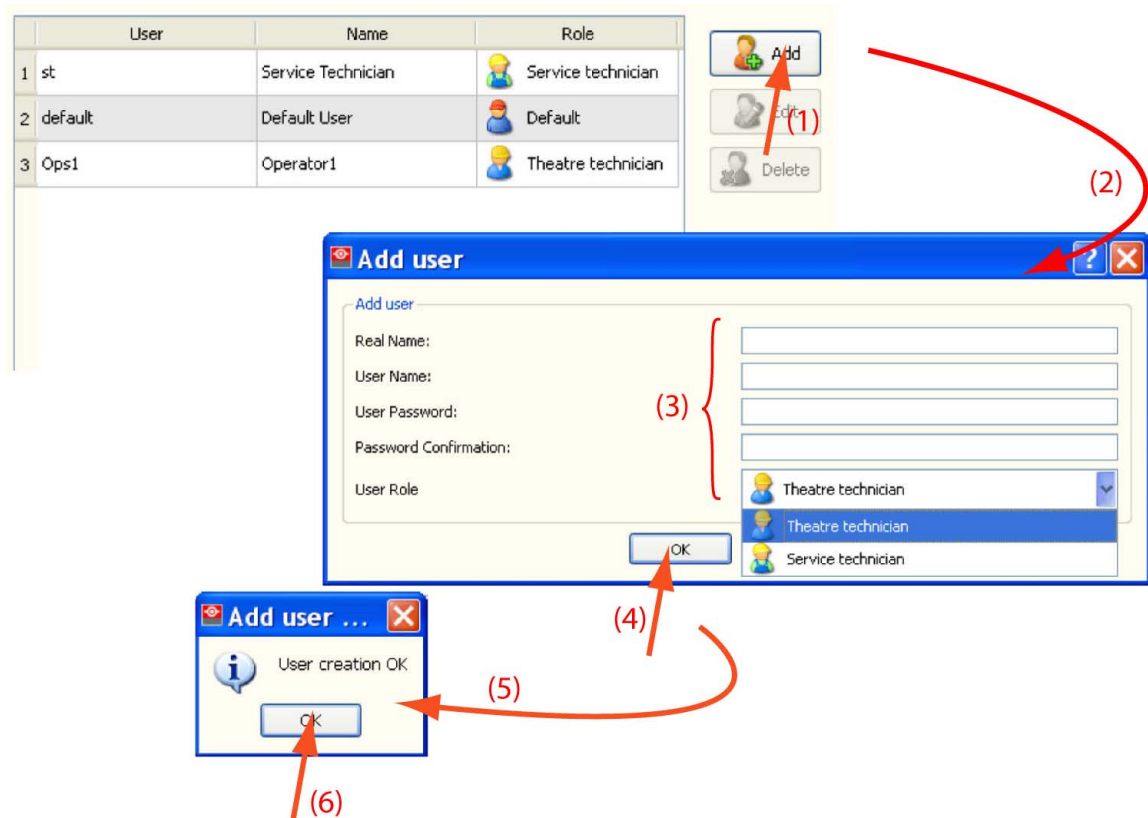


Image 9-1
Add new user

The *Add users* window opens (2).

3. Click in the input field and fill out the necessary data (3).

Real name	Full name of the user.
User name	Abbreviated name, used to login.
Password	PIN code associated with the user name to login in the system.
Password confirmation	Confirmation of the PIN code.
User role	Defines what the user can do once he is logged in. The following roles are available: <ul style="list-style-type: none"> • Theatre technician : Can operate projector, can create presets and macros and can install a new lamp, can change the configuration. • Service technician : Can do everything necessary to service the projector.

4. Click **OK** (4).

The *User created* window opens (5).

5. Click **OK** to finalize the creation (6).



Temporary root users can be created with the Projector Toolset software.

9.1.2 Edit user properties

What is possible?

A theatre technician or a service technician can change the password of his own login. He is not allowed to change the role of a user. A root user can change anything for a user with lower priorities.

How to edit the properties

1. While in the *Touch panel* tab page, click on **Users**.

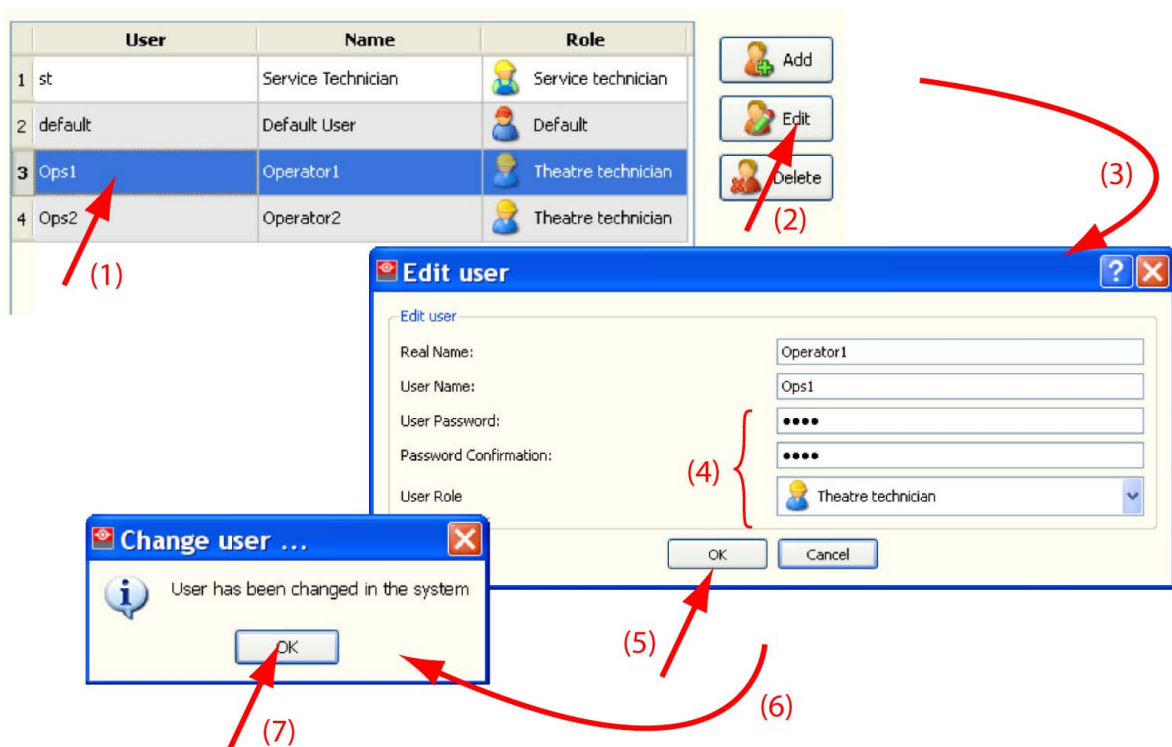


Image 9-2
Edit user

- The user overview pane is displayed.
2. Click on your user name when not a root or when a root user, tip on any non root user (1).
3. Click **Edit** (2).
The *Edit user* window opens (3).
4. Change the desired properties (4).
5. Click **OK** (5).
A Change user result window opens (6).
6. Click **OK** to finalize the edit (7).

9.1.3 Delete a user

What is possible?

A user with higher priorities can delete a user with lower priorities.

How to delete a user

1. While in the *Touch panel* tab page, click on **Users**.
The user overview pane is displayed.

9. Communicator

2. Click on the user to be deleted (1).

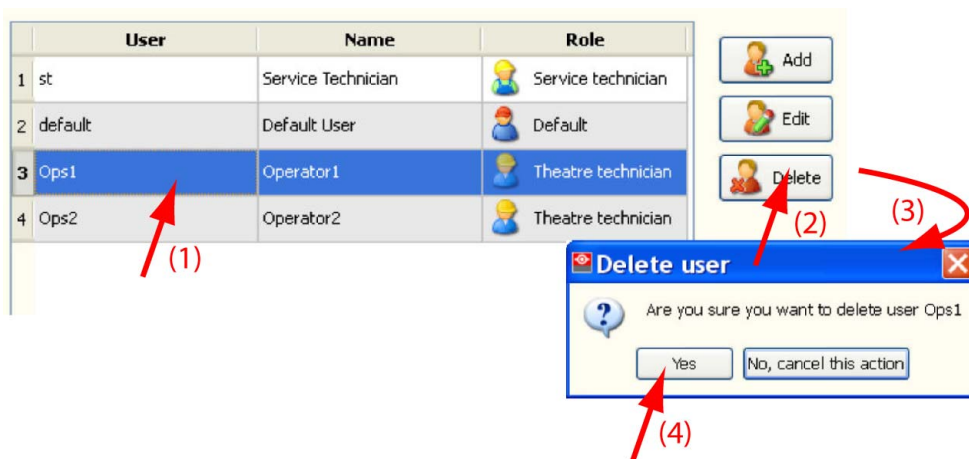


Image 9-3
Delete user

If you have enough rights to delete this user, the delete button becomes active.

3. Click on **Delete** (2).
A delete confirmation window opens (3).
4. Click **OK** to delete the selected user (4).
Click **No, cancel this action** to interrupt the deletion.

9.2 User access settings

9.2.1 Reset default settings

What is possible ?

When the access settings were changed, it is possible to return to the default settings by tipping on **Reset to default settings**.

How to reset

1. While **Shift** key is pressed, double click in the gray area next to *User*.

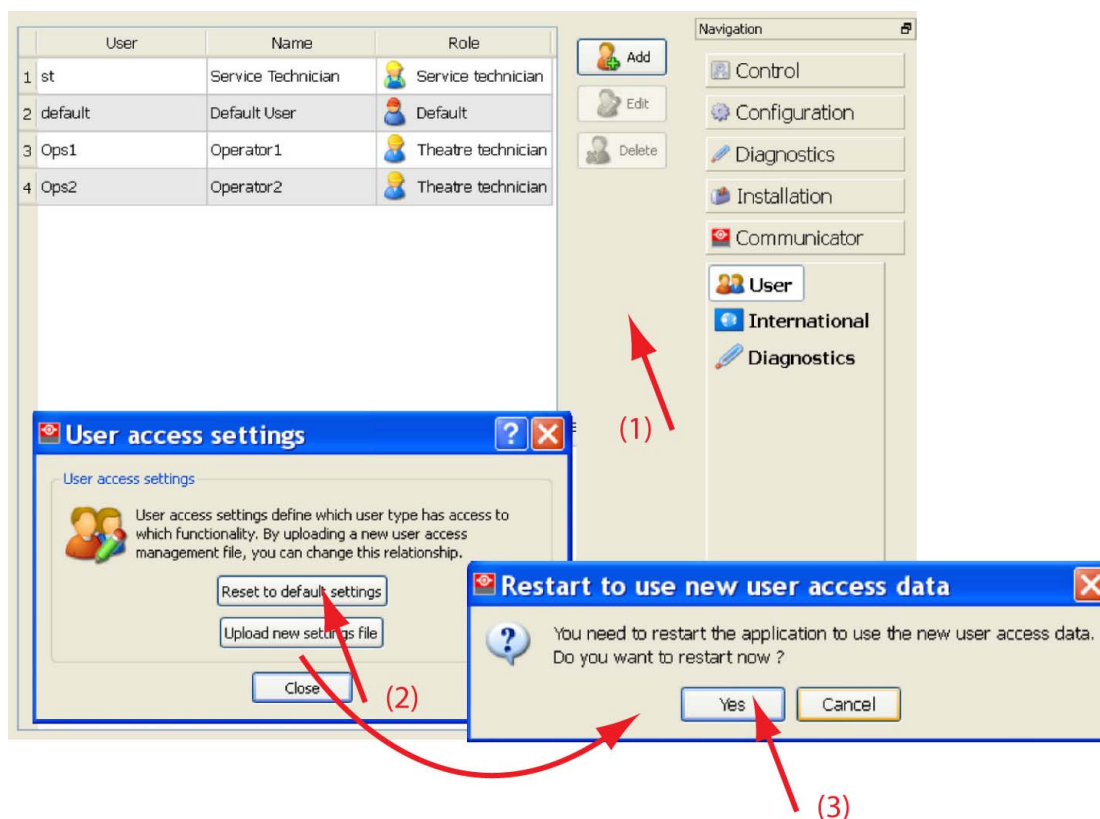


Image 9-4
Reset to default user settings

The *User Access settings* window opens.

- Click on **Reset to default settings**.

A restart message opens. Before the default user settings are applied, the application should be restarted.

- To restart the application, click **Yes**.

9.2.2 About custom settings

Overview

It is possible to define what each type of user can do with the touch panel application. A difference can be set for users and service technicians.

The setup is done in an user management xml file which can be edited externally and then uploaded via Load custom settings.

Each item can have a *Read* attribute or a *ReadWrite* attribute or both. This attribute can be 50, 100 or 150. The attribute value defines what is accessible for certain user profile.

50	default user access level
100	theatre technician access level
150	service technician access level

When an attribute is set to 50, then the default user, theatre technician and service technician have access. When set to 150, only the service technician has access. So, the higher the value, the less people with access rights.

The default access file is given below.

This file can be used as starting point to create your own file. Copy and paste the file below in an XML editor or notepad and edit the file. Only the lines which are different to the current setting should be

included in the file. When finished, save the file on a USB stick or upload it on the touch panel so that it can be loaded as new settings.

Default user access file

This file contains all available items which are possible on the touch panel. This file is not multilingual.

```
<UserAccess>
<!--=====-->
<!-- Control related -->
<!--=====-->
<presets.lampControl Read="50" ReadWrite="50"/>
<presets.dowserControl Read="50" ReadWrite="50"/>
<presets.presetControl Read="50" ReadWrite="50"/>
<testpatterns.patternControl Read="50" ReadWrite="50"/>
<testpatterns.otherPatternControl Read="50" ReadWrite="50"/>
<service.lampControl Read="50" ReadWrite="50"/>
<server.connection.properties ReadWrite="150"/>

<!--=====-->
<!-- Configuration related -->
<!--=====-->
<presets.configuration Read="50" ReadWrite="100"/>
<macro.readActiveMacroFile Read="50"/>
<macro.activateMacroFile ReadWrite="50"/>
<macro.saveToMacroFile ReadWrite="100"/>
<macro.editMacroFile ReadWrite="100"/>
<image.readActivePcfFile Read="50"/>
<image.activatePcfFile ReadWrite="50"/>
<image.changeActiveArea Read="50" ReadWrite="100"/>
<image.saveToMacroFile ReadWrite="100"/>
<image.save ReadWrite="100"/>
<screen.readActiveScreenFile Read="50"/>
<screen.activateScreenFile ReadWrite="100"/>
<screen.anamorphicFactor Read="50" ReadWrite="100"/>
<screen.resizing Read="50" ReadWrite="100"/>
<screen.masking Read="50" ReadWrite="100"/>
<screen.saveToMacroFile ReadWrite="100"/>
<screen.save ReadWrite="100"/>
<lens.readActiveLensFile Read="50" ReadWrite="100"/>
<lens.activateLensFile ReadWrite="100"/>
<lens.control Read="50" ReadWrite="100"/>
<lens.anamorphic.control Read="50" ReadWrite="100"/>
<lens.saveToMacroFile ReadWrite="100"/>
<lens.save ReadWrite="100"/>
<other.readActiveExtraFile Read="50"/>
<other.activateExtraFile ReadWrite="50"/>
<other.changeInputSelection Read="50" ReadWrite="100"/>
<other.changeInputPacking Read="50" ReadWrite="100"/>
<other.changeProcessingPath Read="50" ReadWrite="100"/>
<other.editChange3DSettings ReadWrite="100"/>
<other.GPIConfiguration Read="50" ReadWrite="100"/>
<other.editAdvancedSourceSettings Read="50" ReadWrite="100"/>
<other.saveToMacroFile ReadWrite="100"/>
<other.save ReadWrite="100"/>
<!--=====-->
<!-- Diagnostics related -->
<!--=====-->
<actual.diagnostics Read="50"/>
<history.projector Read="50"/>
<history.security Read="50"/>
<tests.testPattern ReadWrite="100"/>
<tests.imageFreeze ReadWrite="100"/>
<tests.selfTests ReadWrite="100"/>
<tests.port292ErrorCounts Read="50" ReadWrite="100"/>
<tests.generalPurposeOutputs Read="50" ReadWrite="100"/>
<tests.reboot.projector Read="50" ReadWrite="100"/>
<tests.reboot.ti Read="50" ReadWrite="100"/>
```



```

<serversettings.graphicalOverview Read="50"/>
<serversettings.timelineControl Read="50" ReadWrite="100"/>
<serversettings.subtitleControl Read="50" ReadWrite="100"/>
<serversettings.metadataControl Read="50" ReadWrite="100"/>
<cinopro.setup Read="50"/>
<versioninfo.versionInfo Read="50"/>
<!--=====-->
<!-- Installation related -->
<!--=====-->
<communication.networkProperties Read="50" ReadWrite="100"/>
<communication.cinoproProperties Read="50" ReadWrite="100"/>
<lamp.currentLightOutput Read="50"/>
<lamp.modeSelection Read="50" ReadWrite="150"/>
<lamp.lightOutputCalibration Read="50" ReadWrite="150"/>
<lamp.CLOKey Read="50" ReadWrite="150"/>
<lamp.autoLampAlignment ReadWrite="100"/>
<lamp.advanced ReadWrite="150"/>
<lamp.lampSettings Read="50" ReadWrite="50"/>
<lamp.reset ReadWrite="50"/>
<colorcalibration.measureNativeColorGamut Read="50" ReadWrite="150"/>
<colorcalibration.selectTCGDFFile ReadWrite="150"/>
<colorcalibration.verifyCorrectedColorGamut Read="50" ReadWrite="150"/>
<automation.GPIConfiguration Read="50" ReadWrite="100"/>
<automation.exceptionMacro Read="50" ReadWrite="100"/>
<advanced.SNMP Read="50" ReadWrite="150"/>
<advanced.internalCheck Read="50" ReadWrite="100"/>
<advanced.filemanager ReadWrite="100"/>
<advanced.lens.parameters ReadWrite="150"/>
<advanced.functionality.key ReadWrite="150"/>
<!-- <filemanager.verifyCorrectedColorGamut Read="50" ReadWrite="100"/> Not available -->
<keymanager.securityKeyManager Read="50" ReadWrite="50"/>
<keymanager.securityKeyManager.masterkey ReadWrite="150"/>
<certificate.retrieval ReadWrite="150"/>
<!--=====-->
<!-- Touchpanel related -->
<!--=====-->
<communication.touchpanelIpAddress Read="50" ReadWrite="100"/>
<communication.primaryProjectorIpAddress Read="50" ReadWrite="100"/>
<communication.secondaryProjectorIpAddress Read="50" ReadWrite="100"/>
<user.management Read="100"/>
<user.createUser ReadWrite="150"/>
<user.changeUser ReadWrite="100"/>
<user.deleteUser ReadWrite="150"/>
<display.navigationMenuPosition Read="50" ReadWrite="100"/>
<display.touchpanelBrightness Read="50" ReadWrite="100"/>
<display.touchpanelSound Read="50" ReadWrite="100"/>
<display.screensaver Read="50" ReadWrite="100"/>
<display.orientation Read="50" ReadWrite="100"/>
<display.color.palette Read="50" ReadWrite="100"/>
<display.calibrate Read="50" ReadWrite="100"/>
<display.icon ReadWrite="50"/>
<language.language Read="50" ReadWrite="100"/>
<diagnostics.versionInfo Read="50"/>
<diagnostics.touchpanelId Read="50"/>
<diagnostics.touchpanelLogfile Read="50"/>
<diagnostics.loglevel ReadWrite="100"/>
<systemclock.set Read="50" ReadWrite="150"/>
</UserAccess >

```

Example of custom access level file

```

<UserAccess>
<!--=====-->
<!-- This is a user access file, to override definitions which -->
<!-- user type had access to which functionality. -->
<!--=====-->
<!--=====-->
<!-- This example file gives the "user type Default user" -->

```

```
<!-- additional access to                                -->
<!--                                                    Screen masking          -->
<!--                                                    Input/Packing Selection    -->
<!--=====-->
<!--=====-->
<!-- 50 = Default user access level                      -->
<!-- 100 = Theatre technician access level              -->
<!-- 150 = Service technician access level              -->
<!--=====-->
  <screen.masking    ReadWrite="50"/>
  <other.changeInputSelection  ReadWrite="50"/>
  <other.changeInputPacking  ReadWrite="50"/>
</UserAccess >
```

This file gives the Default user additional access to Screen masking and Input/Packing selection. All other settings remain the same.

9.2.3 Load custom settings

What can be done ?

The externally created user access definition file can be loaded as new settings.

How to load

1. While **Shift** key is pressed, double click in the gray area next to *User (1)*.

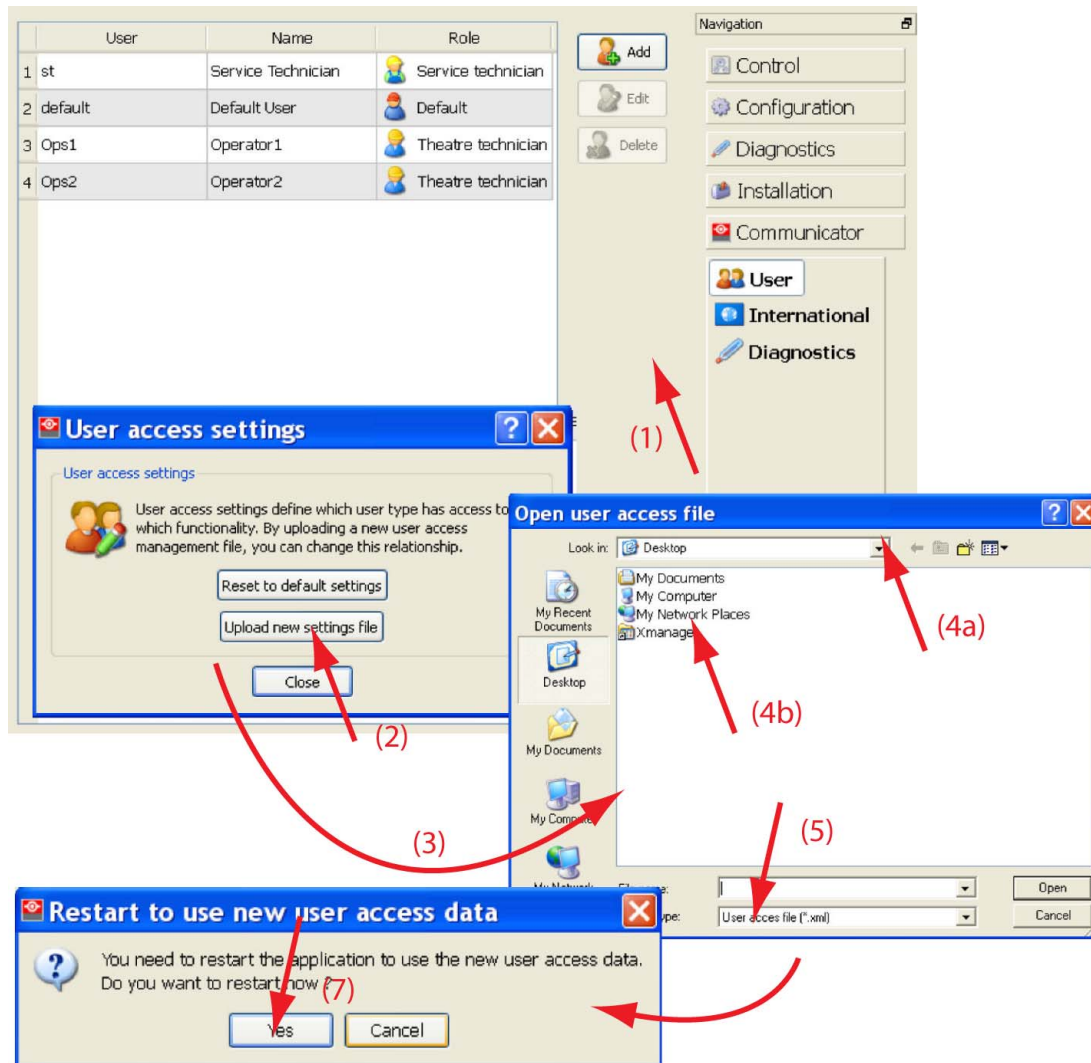


Image 9-5
Load custom access settings

- The *User Access settings* window opens.
2. Click on **Upload new setting file** (2).
The *Open user access file* window opens (3).
3. Browse to the storage location (4a)
4. Select the desired file (4b).
5. Click on **Open** (5).
A restart message opens. Before the new user settings are applied, the application should be restarted.
6. Click **Yes** to restart the application (7).

9.3 Change Language

About language selection

The touch panel menus can be displayed in different languages. When a new language is selected, a restart of the touch panel is necessary.

How to change

1. While in the *Communicator* tab page, click on **International**.

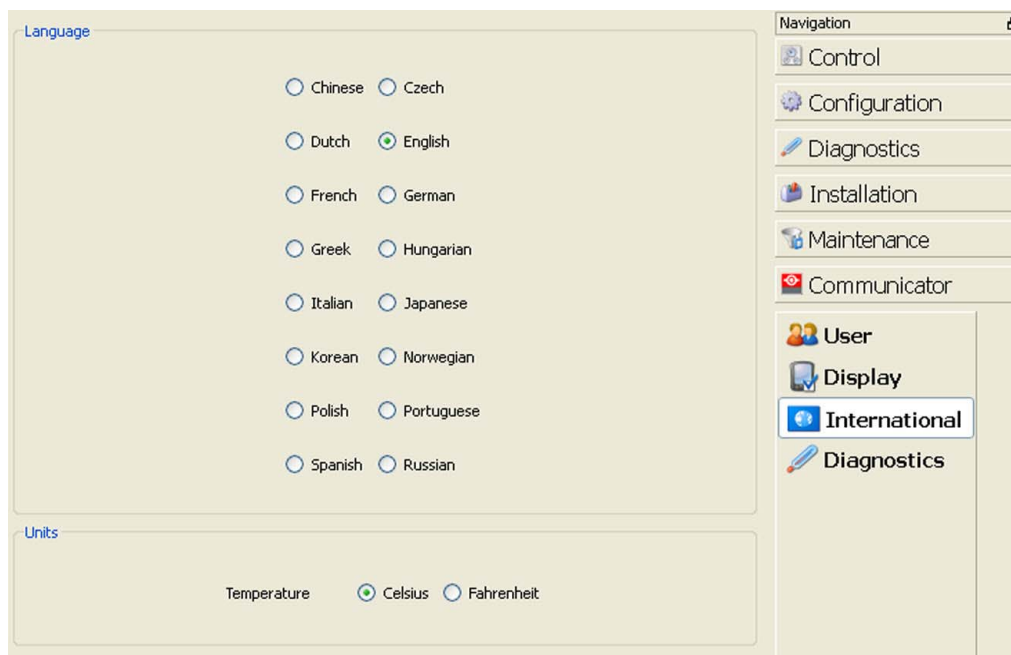


Image 9-6
Change language

The possible languages are displayed in the overview pane.

2. Click on the desired language.

A restart message is displayed.

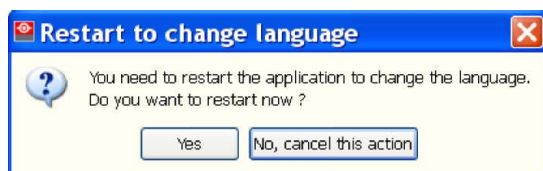


Image 9-7

3. If one agree to restart immediately, click **Yes**.

The application restarts in the selected language.

9.4 Edit units

Temperature units

The temperature can be displayed in °C or in °F. While in the *Communicator* tab page, click on **International**. Then, click on the radio button before Celsius or Fahrenheit.

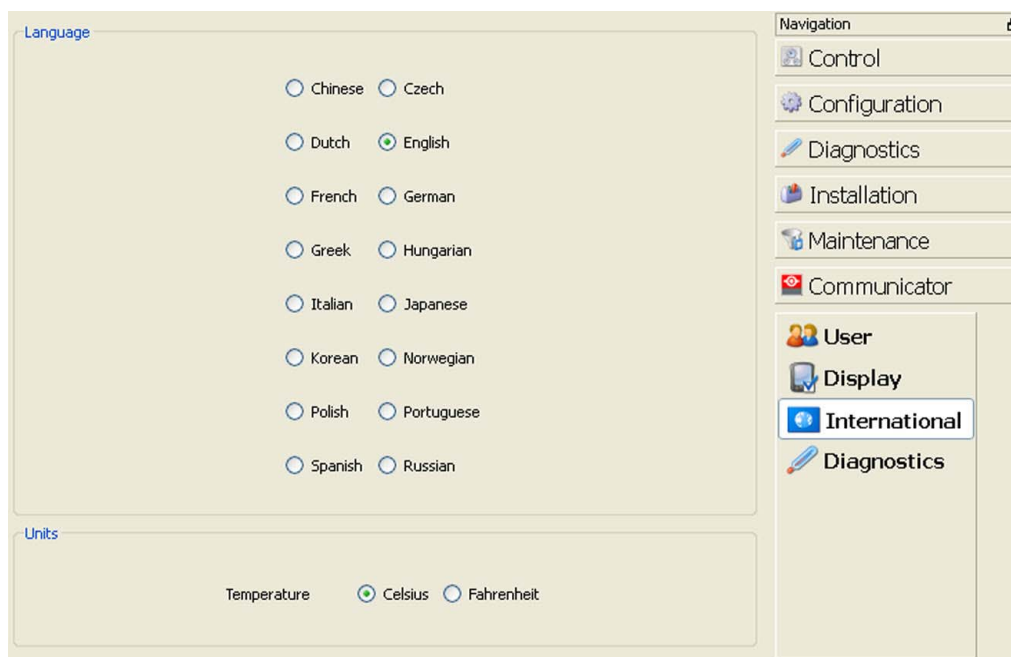


Image 9-8
Edit temperature units

9.5 Communicator Diagnostics

Version info

Version info gives information about the software version. This is interesting information when calling for technical support.

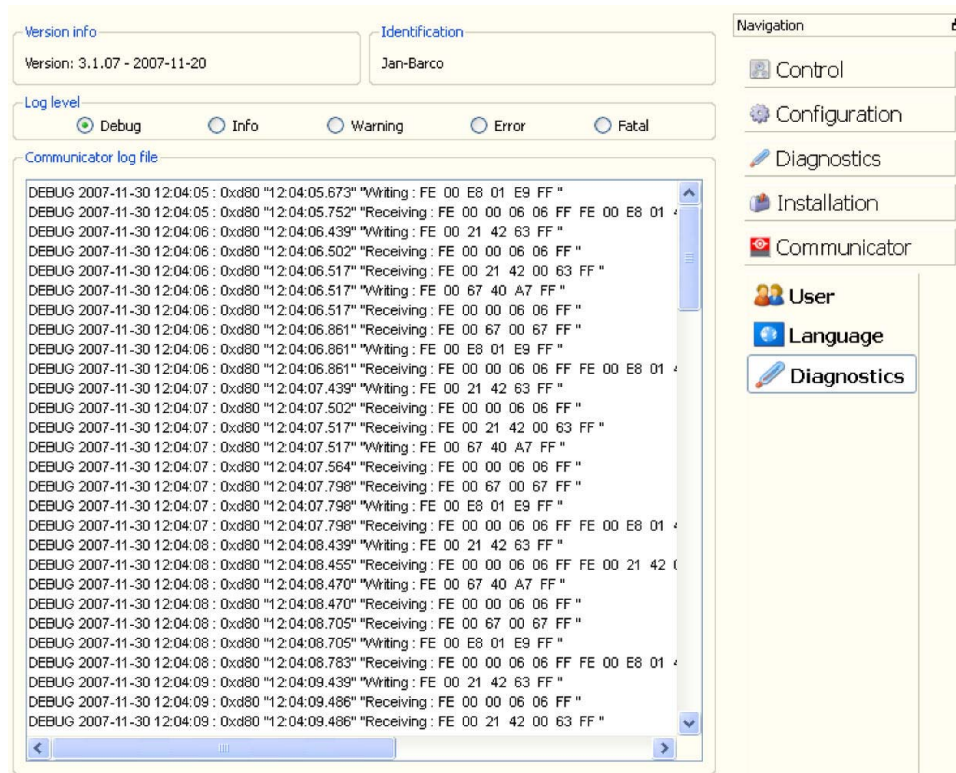


Image 9-9
Touch panel diagnostics

Identification

Gives the identification of the theatre as entered during the installation of this application.

Communicator log level

Log level can be set for the logging in *Communicator log file*.

Just click on the desired radio button next to the desired level. The list in *Communicator log file* changes accordingly.

10. MACRO EDITOR

Overview

- Create a new Macro
- Save a Macro
- Save a macro as cue on media server
- Edit a macro
- Edit the attributes (values) of the items

10.1 Create a new Macro

How to create

1. Click on **Create new macro**.

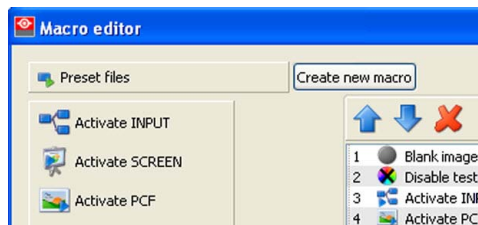


Image 10-1
Create new macro

A message is displayed.

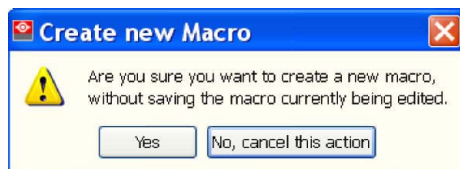


Image 10-2
Create new macro message

2. Click **Yes** to create a new macro.

The current settings are not saved.

A new macro file is created. The macro editor is displayed without any command filled out.

3. Insert the desired commands.
4. Enter a new name for the macro.
5. Click on **Save/Exit** to save your new created macro.

The macro is added to the list of macro files.

10.2 Save a Macro

Save macro with same name

1. When a macro has already a name, just click on **Save**.

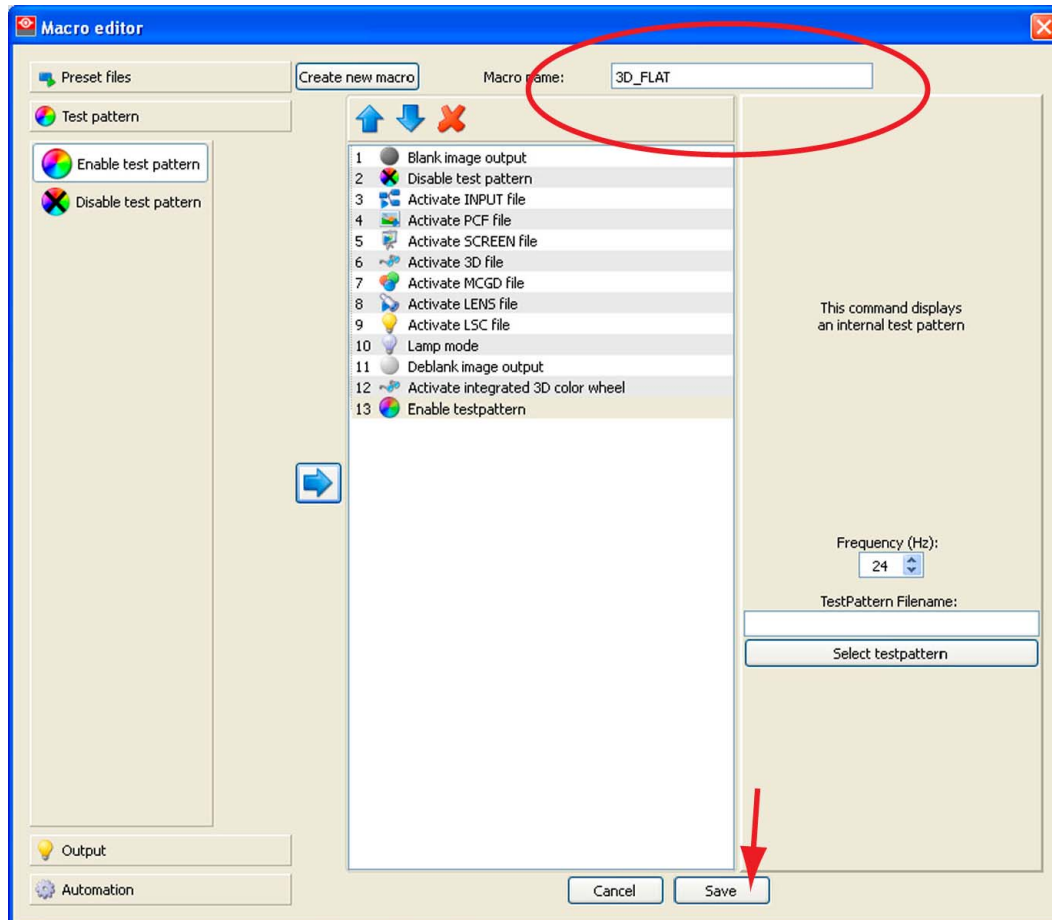


Image 10-3
Save a macro

The macro is saved and the macro editor is closed.

Save macro on a different name

1. Click in the *Macro name* input field.
2. Delete the actual indicate name and enter a new name with your keyboard.
3. Click on **Save**.

When the save operation is successfully, a message is displayed.

4. Click on **OK** to continue.

10.3 Save a macro as cue on media server

What can be done?

A macro can be saved as a cue on the media server. The cue will be automatically created on the ICMP under a group called *Projector*.

How to save as cue

1. Click in the Macro name input field and enter a name with your keyboard.

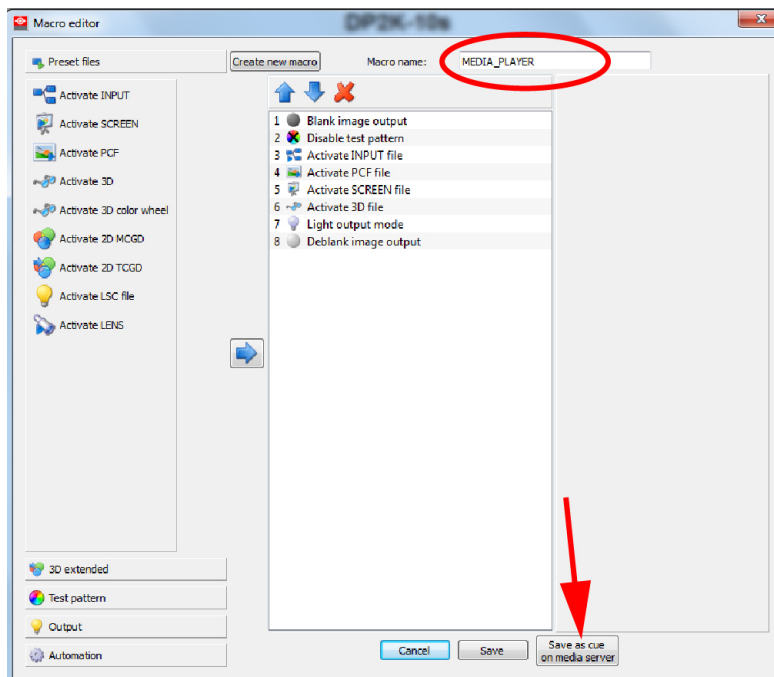


Image 10-4
Save as cue

2. Click on **Save as cue on media server**.

A cue is created on the ICMP as a user cue under the group *Projector* with the same name as the macro name.

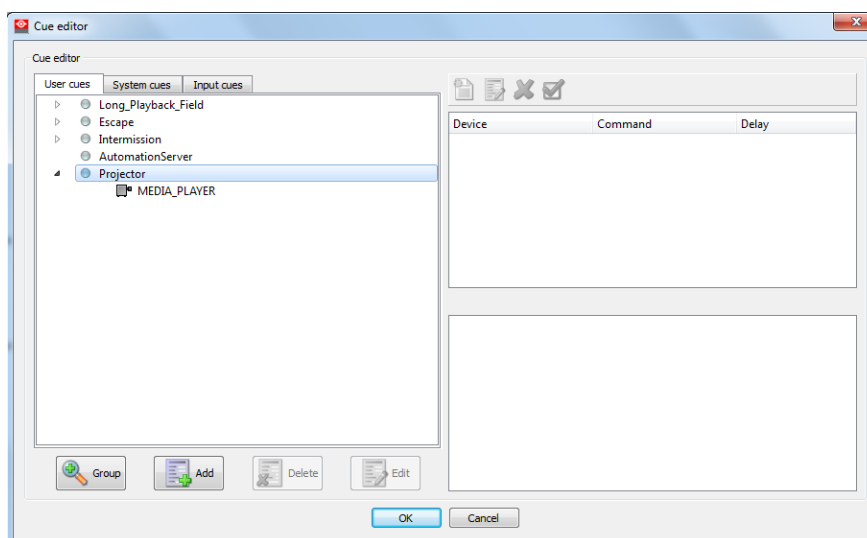


Image 10-5

10.4 Edit a macro

Overview

- Selecting a Macro file
- Delete a command out of a macro file
- Add commands to a macro file
- Change the order of the Macro commands

10.4.1 Selecting a Macro file

How to select

The macro editor can be activated from different start points:

- When in *Configuration, Presets*, go to the desired preset button and click on the edit macro button.
- When in *Configuration, Macro*, click on **Edit macro** and select the macro file to edit.

10.4.2 Delete a command out of a macro file

How to delete

1. Click on the item to delete (1)

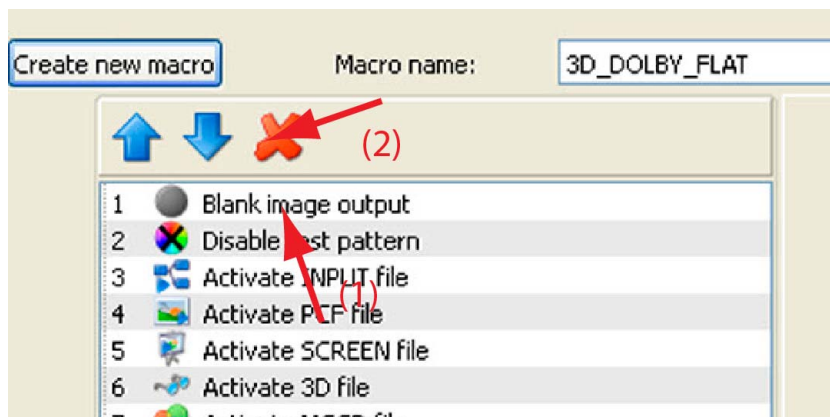


Image 10-6
Delete command

The background color changes to dark.

2. Click on the delete icon (2).

10.4.3 Add commands to a macro file

How to add

1. To insert an item, click first on a command set tab which contains that item.
The following commands tabs are available:

- Preset files
- Test pattern
- Output
- Automation

The selected tab opens and the commands become available. If the command list is larger than the available space, it will show a double arrow facing downwards, then click on this arrow to expand the command list.

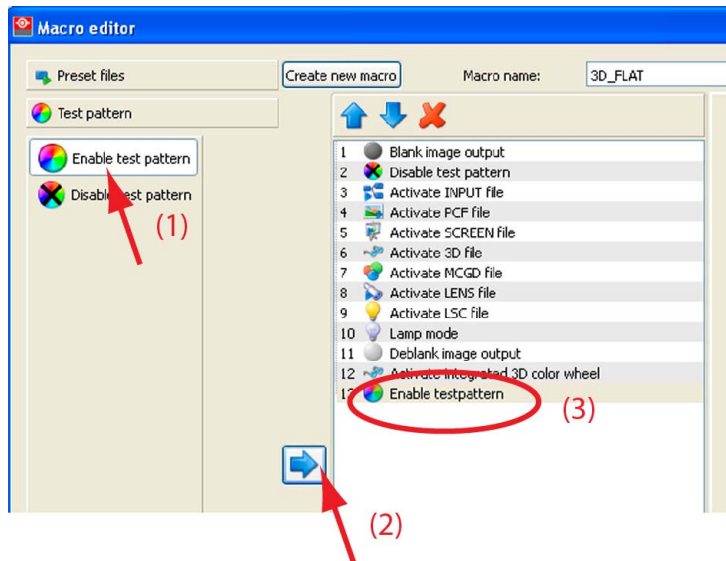


Image 10-7
Add command

2. Select a command (1) and click → (2).

The selected command is added as last one in the list (3).

10.4.4 Change the order of the Macro commands

How to change

1. Click on an item in the list of added commands (1).

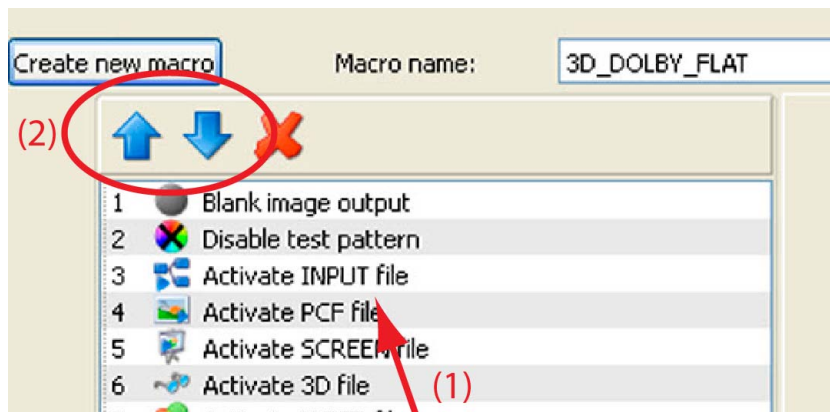


Image 10-8
Change macro file list

2. Click on the up or down button to move the command in the list (2).

10.5 Edit the attributes (values) of the items

Overview

- Preset files
- 3D extended
- Test pattern
- Output
- Automation

10.5.1 Preset files

10.5.1.1 Activate Input File

What can be done ?

The active INPUT file (contains information about the input configuration) can be installed in the projector via the Activate Input file command.

How to select a file

1. Click on *Activate Input File*.

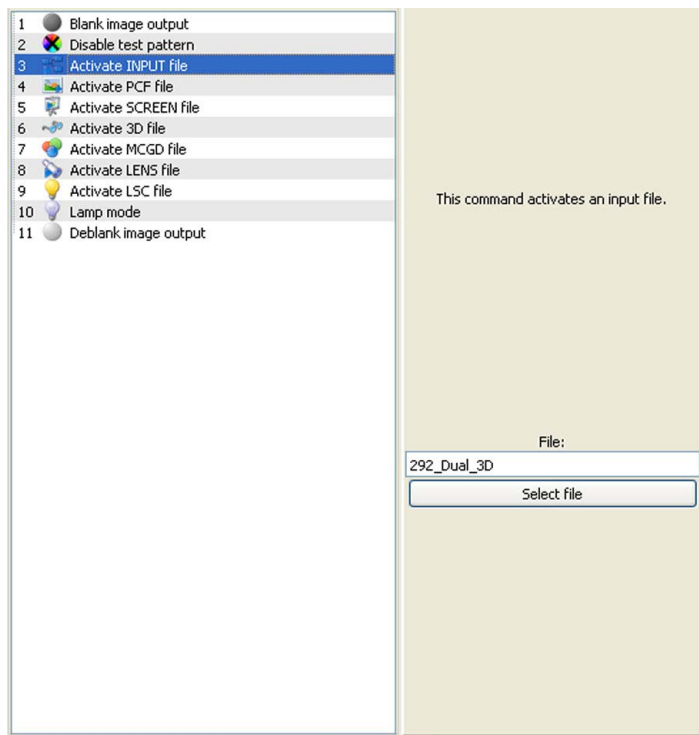


Image 10-9
Activate Input file

The right pane shows the current selected file.

2. Click on **Select file**.

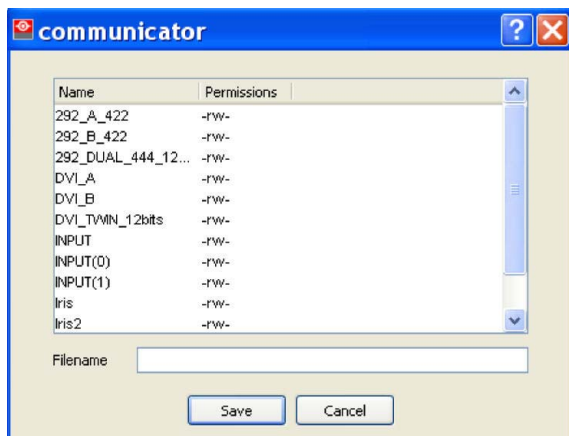


Image 10-10
Select input file

A files overview window is displayed.

3. Select the desired file out of the list and click **Save**.

Or,

double click on the desired file.

The selected file name appears next to *Filename*.

10.5.1.2 Activate SCREEN file

What can be done ?

The active SCREEN file (contains information about the screen configuration) can be installed in the projector via the Activate SCREEN file command.

How to select a file

1. Click on *Activate SCREEN file*.

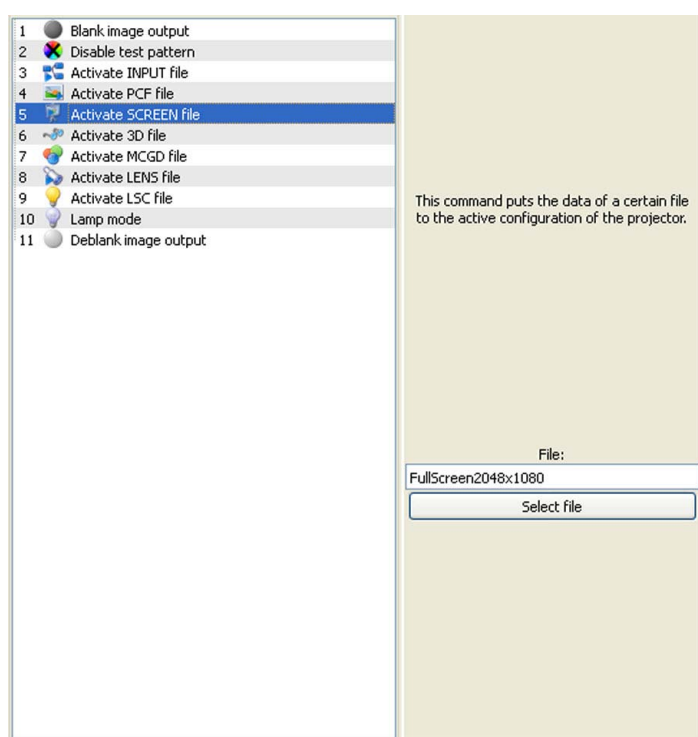


Image 10-11
Active SCREEN file command

The right pane shows the current selected file.

2. Click on **Select file**.

A files overview window is displayed.

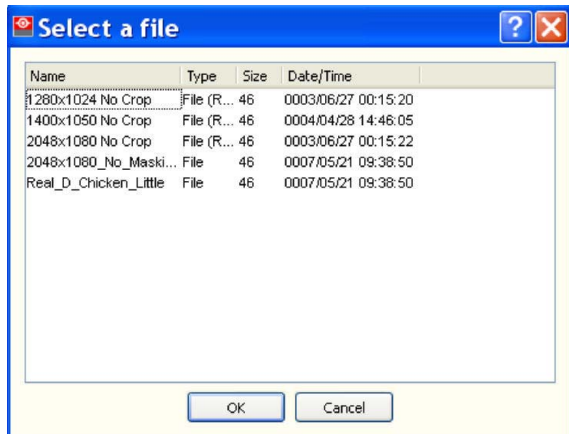


Image 10-12
Select SCREEN file

3. Select the desired file out of the list and click **OK**.
Or,
double click on the desired file.

The selected file name appears next to *Filename*.

10.5.1.3 Activate PCF file

What can be done ?

The active PCF file can be installed in the projector via the Activate PCF file command.

How to select a file

1. Click on *Activate PCF file*.

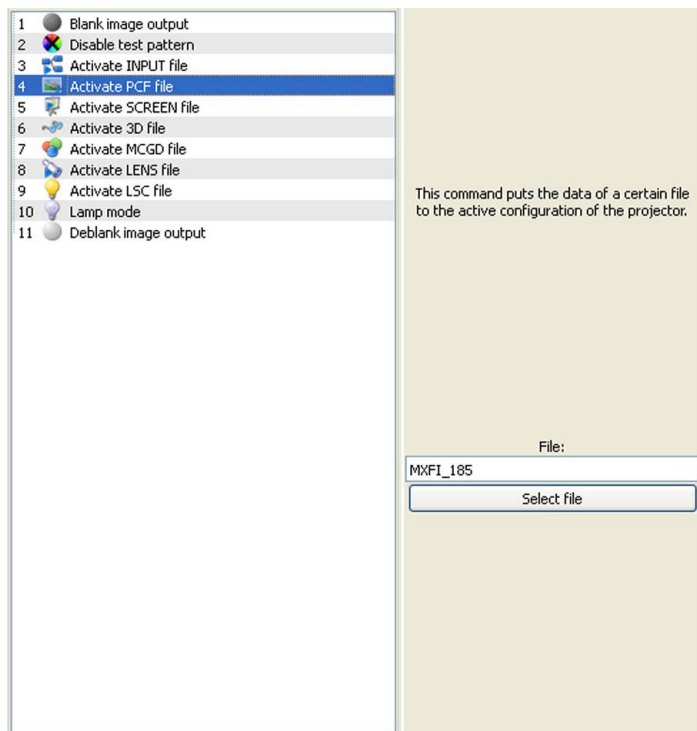


Image 10-13
Active PCF file command

The right pane shows the current selected file.

2. Click on **Select file**.

A files overview window is displayed.

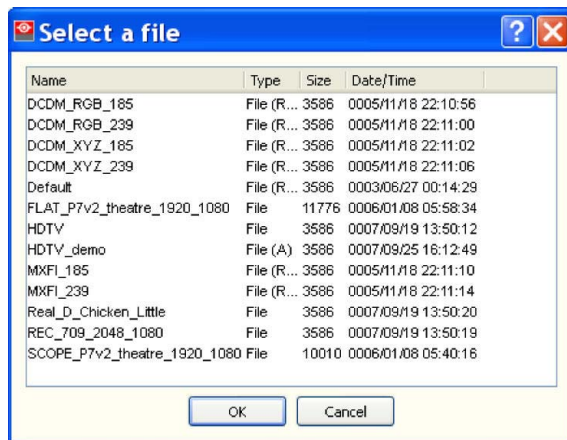


Image 10-14
Select PCF file

3. Select the desired file out of the list and click **OK**.
Or,
double click on the desired file.

The selected file name appears next to *Filename*.

10.5.1.4 Activate 3D file

What can be done ?

The active 3D file (containing the 3D settings for the selected source) can be installed in the projector via the Activate PCF file command.

Always insert the *Active 3D* command before the *Active MCGD* and *Active TCGD* command. The value of Active 3D file will determine how Active MCGD and Active TCGD will be displayed in the UI when the macro is saved.

How to select a file

1. Click on *Activate 3D file*.

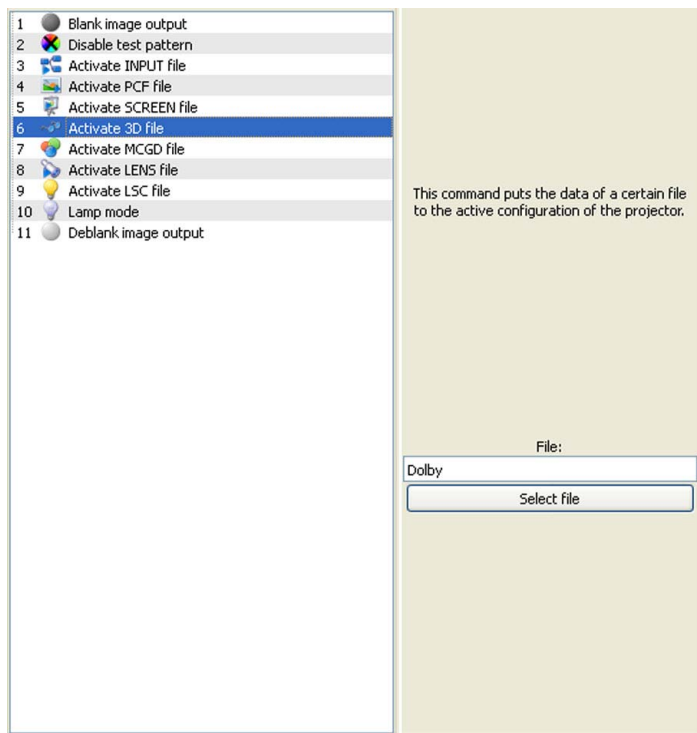


Image 10-15
Activate 3D file

The right pane shows the current selected file.

2. Click on **Select file**.

A files overview window is displayed.

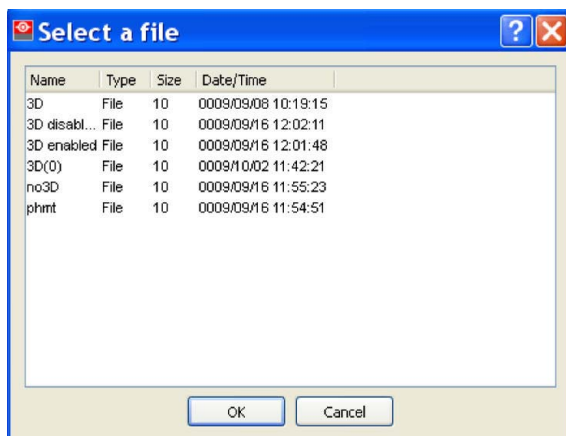


Image 10-16
Select a file

3. Select the desired file out of the list and click **OK**.

Or,
double click on the desired file.

The selected file name appears next to *Filename*.

10.5.1.5 Activate 3D color wheel

What can be done ?

The 3D color wheel can be inserted or removed from the light path.

How to activate or de-activate

1. Click on *Activate 3D color wheel*

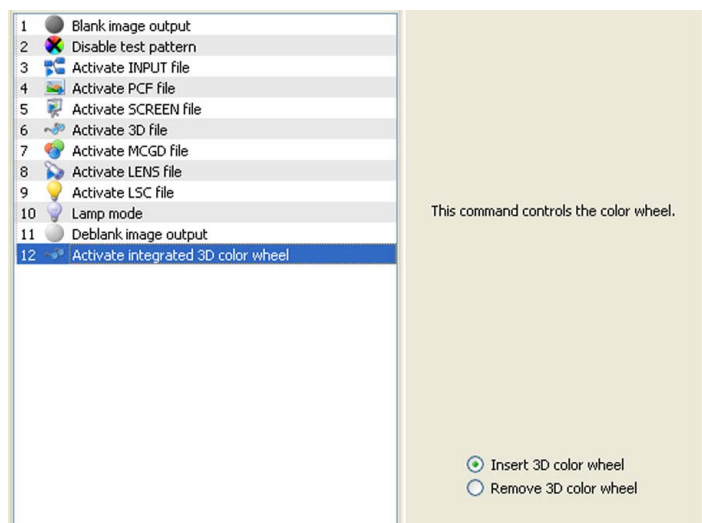


Image 10-17
Insert or remove color wheel

The right pane shows the possible selections.

2. Check the corresponding radio button.
 - Insert color wheel
 - Remove color wheel



Note that if automatic color wheel insertion is active on the projector (see "Integrated 3D settings (integrated color wheel)", page 103) this command is not needed as the 3D command will trigger an automatic insertion of the color wheel. If the automatic insertion setting is not active, it is necessary to add this command to the macro

10.5.1.6 Activate Laser mode

What can be done?

The laser mode can be set.

How to select

1. Click on *Activate Laser mode*

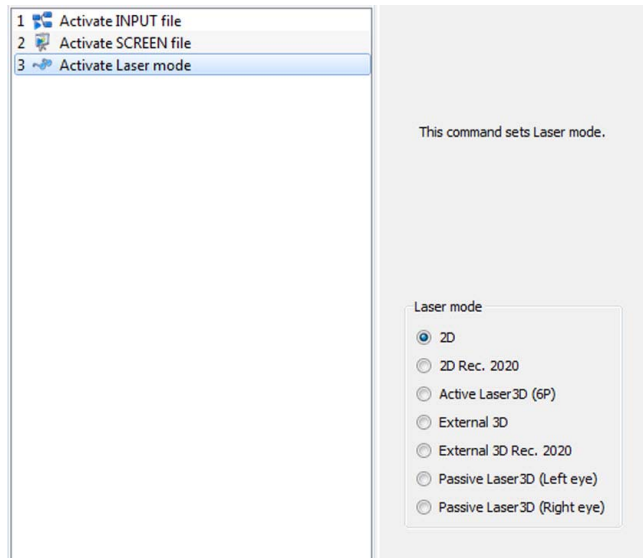


Image 10-18
Select Laser mode

The right pane shows the possible selections.

2. Check the corresponding radio button.

- 2D
- 2D Rec 2020
- Active Laser 3D (6P)
- External 3D
- External 3D Rec 2020
- Passive Laser 3D (Left eye)
- Passive Laser 3D (Right eye)

10.5.1.7 Activate 2D MCGD file

What can be done ?

The active 2D MCGD file (contains color calibration information) can be installed in the projector via the Activate 2D MCGD file command. Always enter *Active 2D MCGD* command below *Active 3D* command in the cue.

When the user creates a macro for a 2D system, he will select the *Active 2D MCGD* command and fill out a valid 2D MCGD file.

When the user creates a macro for a 3D system, he should use normally the *3D extended* commands and selecting *Active 3D RIGHT EYE MCGD*. But, he can also use the *Active 2D MCGD* command and fill out a valid 3D MCGD file for the right eye. Once the macro is saved the system will update the indication *Active 2D MCGD file* in the GUI to *Active 3D RIGHT EYE MCGD* file.

How to select a file

1. Click on *Activate 2D MCGD file*.

The right pane shows the current selected file.

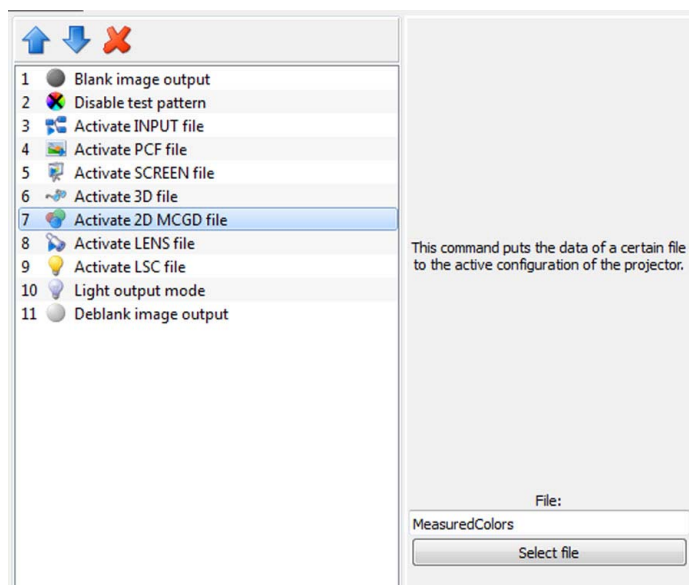


Image 10-19
Activate 2D MCGD file command

2. Click on **Select file**.

A files overview window is displayed.

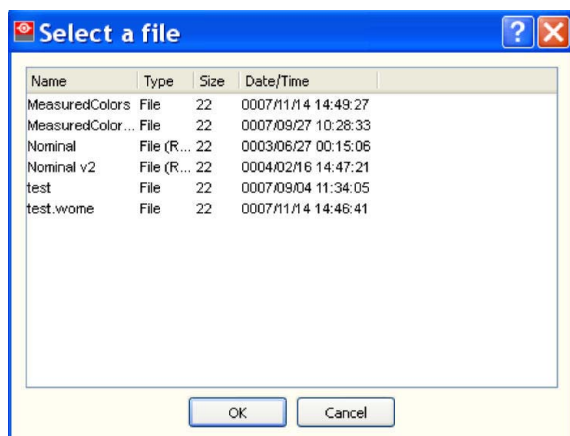


Image 10-20
Select 2D MCGD file

3. Select the desired file out of the list and click **OK**.

Or,
double click on the desired file.

The selected file name appears next to *Filename*.

10.5.1.8 Activate 2D TCGD file

What can be done ?

The active 2D TCGD file (color target information) can be installed in the projector via the Activate 2D TCGD file command. Always enter *Active 2D TCGD* command below *Active 3D* command in the cue.

When the user creates a macro for a 2D system, he will select the *Active 2D TCGD* command and fill out a valid 2D TCGD file.

When the user creates a macro for a 3D system, he should use normally the *3D extended* commands and selecting *Active 3D RIGHT EYE TCGD*. But, he can also use the *Active 2D TCGD* command and fill out a

valid 3D TCGD file for the right eye. Once the macro is saved the system will update the indication *Active 2D TCGD file* in the GUI to *Active 3D RIGHT EYE TCGD file*.

How to select a file

1. Click on *Activate 2D TCGD file*.

The right pane shows the current selected file.

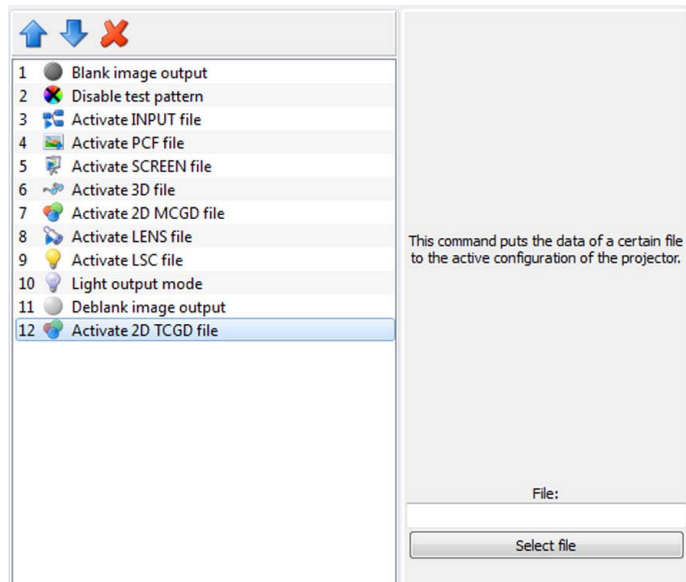


Image 10-21
Activate 2D TCGD file command

2. Click on **Select file**.

A files overview window is displayed.

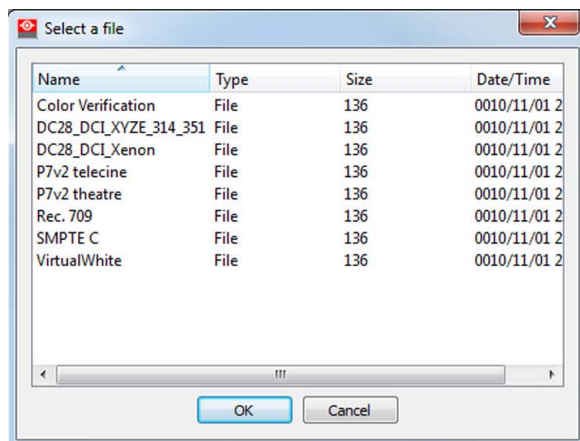


Image 10-22
Select 2D TCGD file

3. Select the desired file out of the list and click **OK**.
Or,
double click on the desired file.

The selected file name appears next to *Filename*.

10.5.1.9 Activate LSC file

What can be done ?

The light sensor calibration file, which takes in account the image aspect ratio, can be installed in the projector via the Activate LSC file command.

How to select a file

1. Click on *Activate LSC file*.

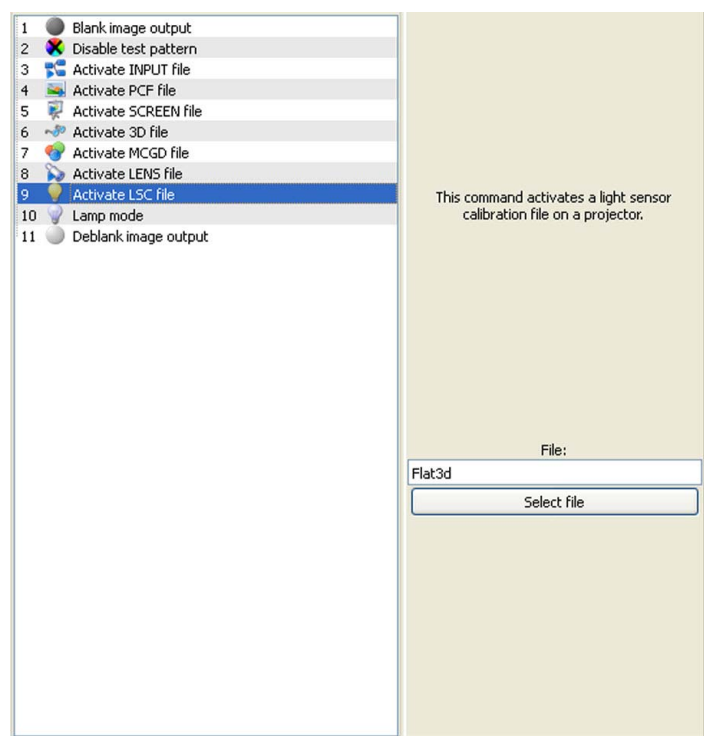


Image 10-23
Activate LSC file

The right pane shows the current selected file.

2. Click on **Select file**.

A files overview window is displayed.

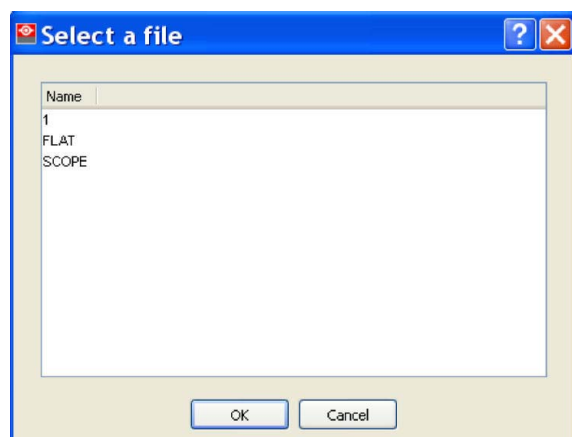


Image 10-24
Select a LSC file

3. Select the desired file out of the list and click **OK**.

Or,
double click on the desired file.

The selected file name appears next to *Filename*.

10.5.1.10 Activate lens file

What can be done ?

The active lens file (contains zoom, shift and focus information) can be installed in the projector via the Activate lens file command.

How to select a file

1. Click on *Activate Lens file*.

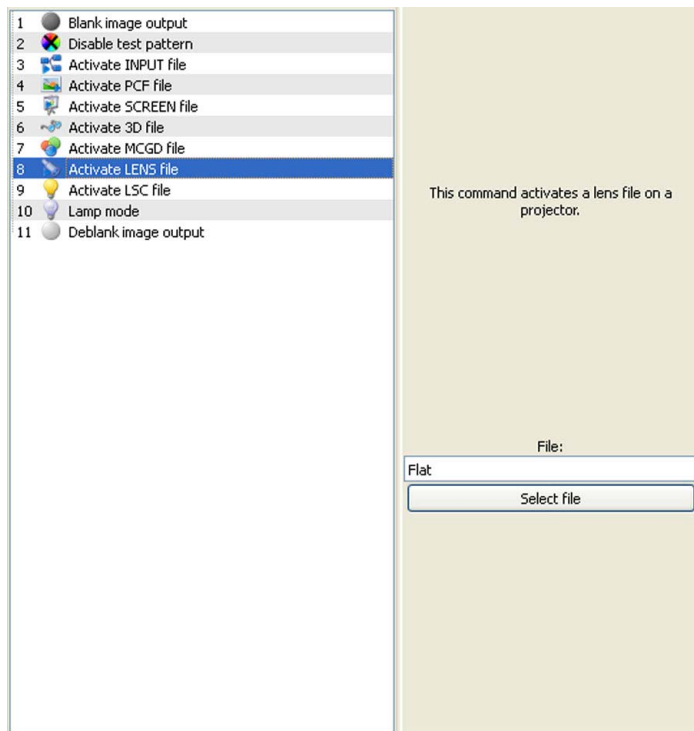


Image 10-25
Activate lens file

The right pane shows the current selected file.

2. Click on **Select file**.

A files overview window is displayed.

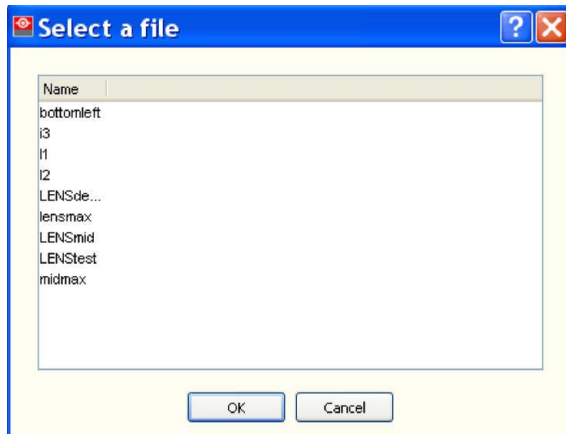


Image 10-26
Select a lens file

3. Select the desired file out of the list and click **OK**.

Or,
double click on the desired file.

The selected file name appears next to *Filename*.

10.5.2 3D extended

10.5.2.1 Activate 3D RIGHT EYE MCGD

What can be done ?

When the color path selection is set to dual (left and right eye separately), the measured color information for the right eye must be added via a macro.

When the user creates a macro for a 3D system, he should use normally the *3D extended* commands and selecting *Active 3D RIGHT EYE MCGD* to enter the measured color information. But, he can also use the *Active 2D MCGD* command and fill out a valid 3D MCGD file for the right eye. Once the macro is saved the system will update the indication *Active 2D MCGD file* in the GUI to *Active 3D RIGHT EYE MCGD file*.

How to select

1. Click on *Activate 3D RIGHT EYE MCGD file*.

The right pane shows the current selected file.

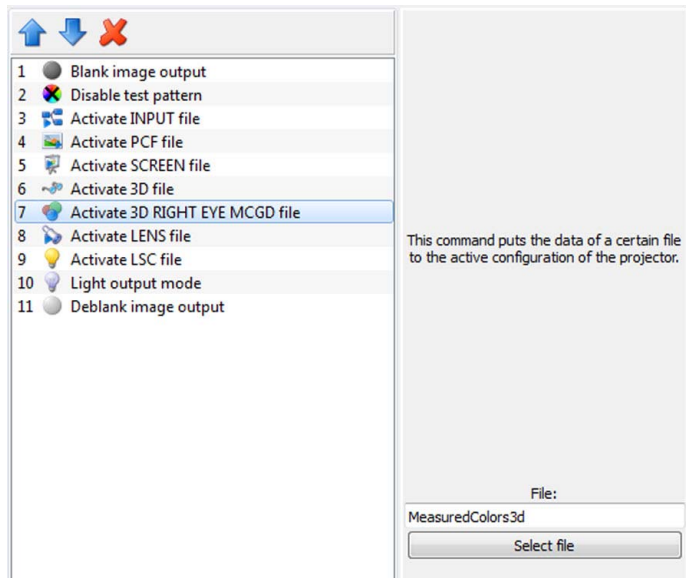


Image 10-27
Activate 3D right eye MCGD file

2. Click on **Select file**.

A files overview window is displayed.

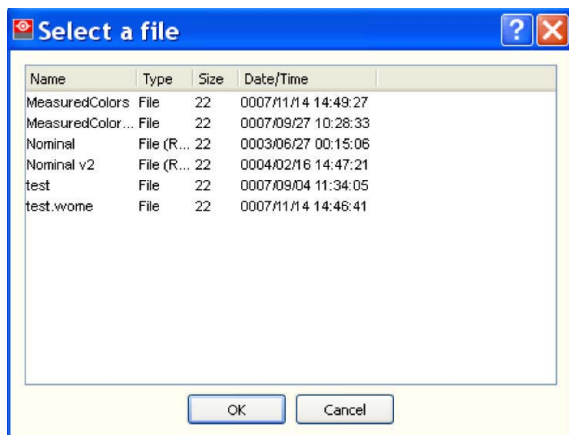


Image 10-28
Select 3D right eye MCGD file

3. Select the desired file out of the list and click **OK**.
Or,
double click on the desired file.

The selected file name appears next to *Filename*.

10.5.2.2 Activate 3D LEFT EYE MCGD

What can be done ?

When the color path selection is set to dual (left and right eye separately), the measured color information for the left eye must be added via a macro.

How to select

1. Click on *Activate 3D LEFT EYE MCGD file*.

The right pane shows the current selected file.

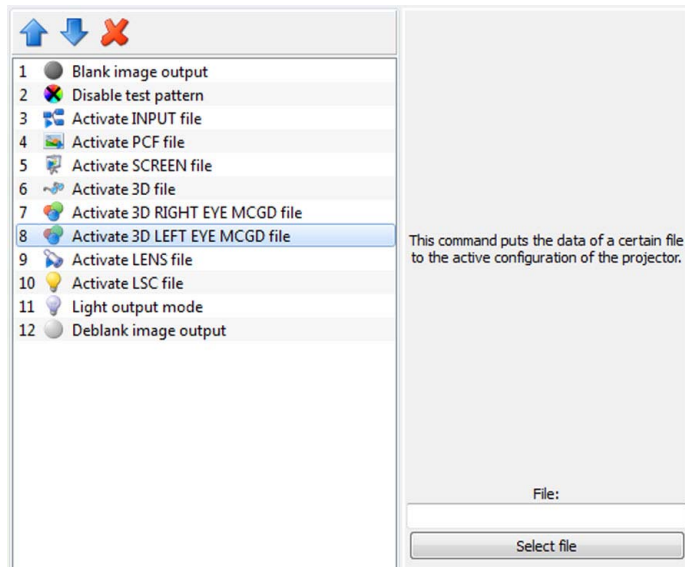


Image 10-29
Activate 3D left eye MCGD file

2. Click on **Select file**.

A files overview window is displayed.

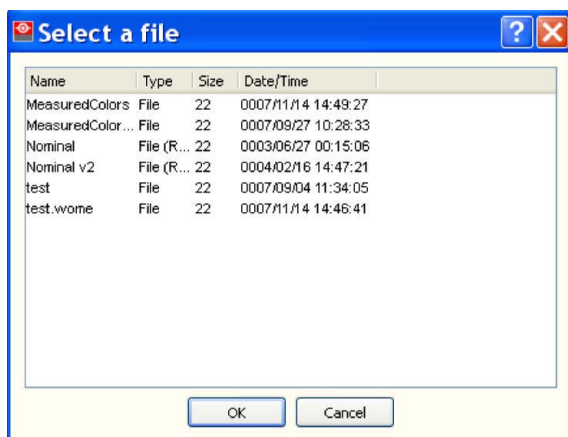


Image 10-30
Select 3D left eye MCGD file

3. Select the desired file out of the list and click **OK**.

Or,
double click on the desired file.

The selected file name appears next to *Filename*.

10.5.2.3 Activate 3D RIGHT EYE TCGD

What can be done ?

When the color path selection is set to dual (left and right eye separately), the target color information for the right eye must be added via a macro.

When the user creates a macro for a 3D system, he should use normally the *3D extended* commands and selecting *Active 3D RIGHT EYE TCGD*. But, he can also use the *Active 2D MCGD* command and fill out a valid 3D TCGD file for the right eye. Once the macro is saved the system will update the indication *Active 2D TCGD file* in the GUI to *Active 3D RIGHT EYE TCGD file*.

How to select

1. Click on *Activate 3D RIGHT EYE TCGD file*.

The right pane shows the current selected file.

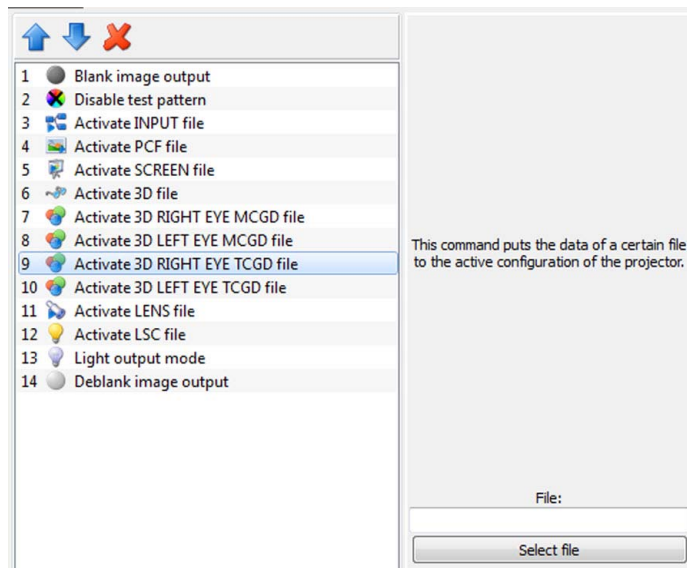


Image 10-31
Activate 3D RIGHT EYE TCGD file

2. Click on **Select file**.

A files overview window is displayed.

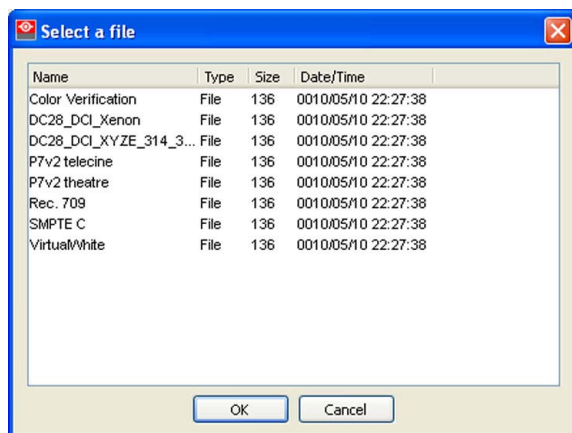


Image 10-32
Select 3D RIGHT EYE TCGD file

3. Select the desired file out of the list and click **OK**.
Or,
double click on the desired file.

The selected file name appears next to *Filename*.

10.5.2.4 Activate 3D LEFT EYE TCGD

What can be done ?

When the color path selection is set to dual (left and right eye separately), the target color information for the left eye must be added via a macro.

How to select

1. Click on *Activate 3D LEFT EYE TCGD file*.

The right pane shows the current selected file.

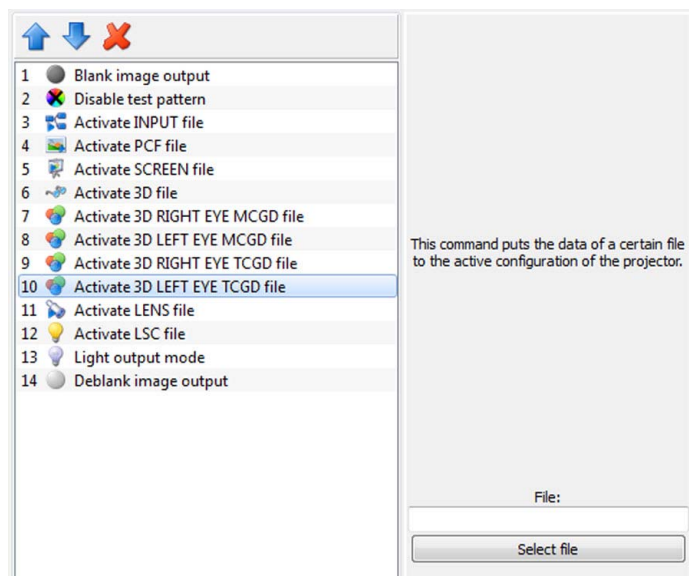


Image 10-33

Activate 3D LEFT EYE TCGD file

2. Click on **Select file**.

A files overview window is displayed.

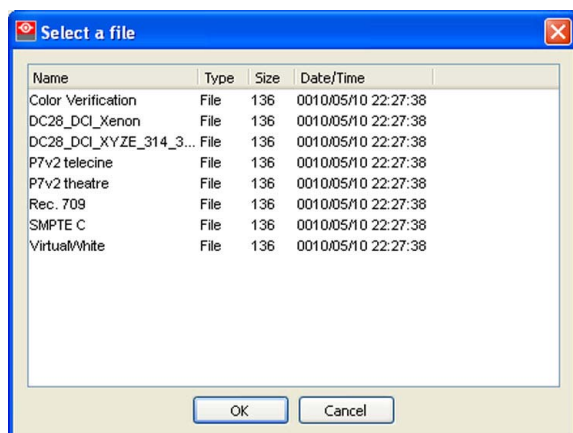


Image 10-34

Select 3D LEFT EYE TCGD file

3. Select the desired file out of the list and click **OK**.

Or,
double click on the desired file.

The selected file name appears next to *Filename*.

10.5.3 Test pattern

10.5.3.1 Enable test pattern

What can be done ?

A test pattern which is stored in a file can be enabled.

How to select a test pattern

1. Click on *Enable test pattern*.

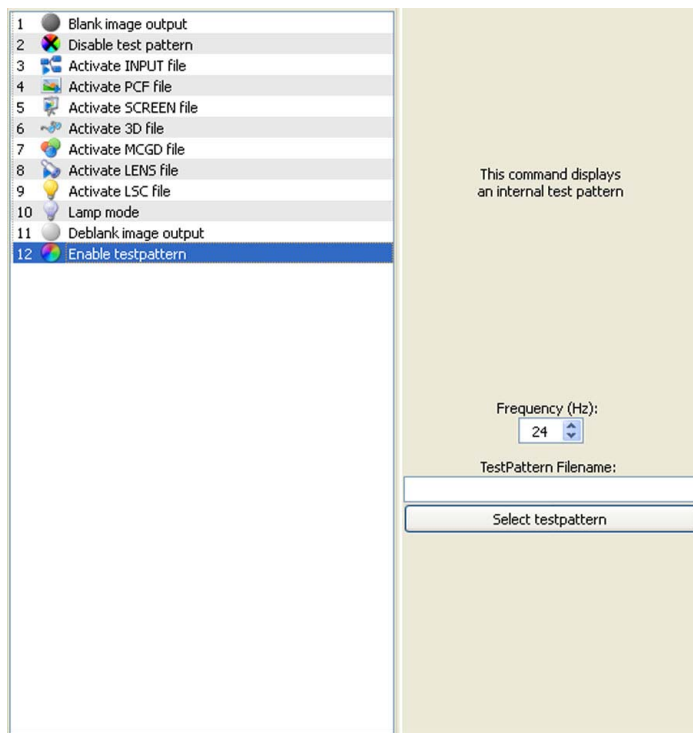


Image 10-35
Enable test pattern file

The right pane shows the current selected test pattern file.

2. Click on **Select testpattern**.

The test pattern selection window opens.

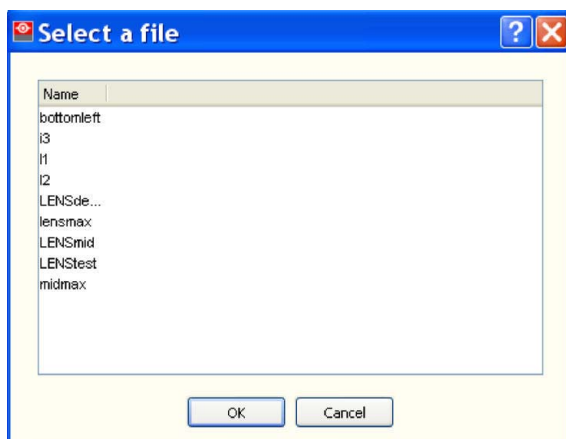


Image 10-36
Select test pattern

3. Select a file and click **OK**.

The selected file will be filled out in the *Testpattern Filename* field.

10.5.3.2 Disable test pattern

How to disable

1. Insert the command Disable test pattern in the macro list.

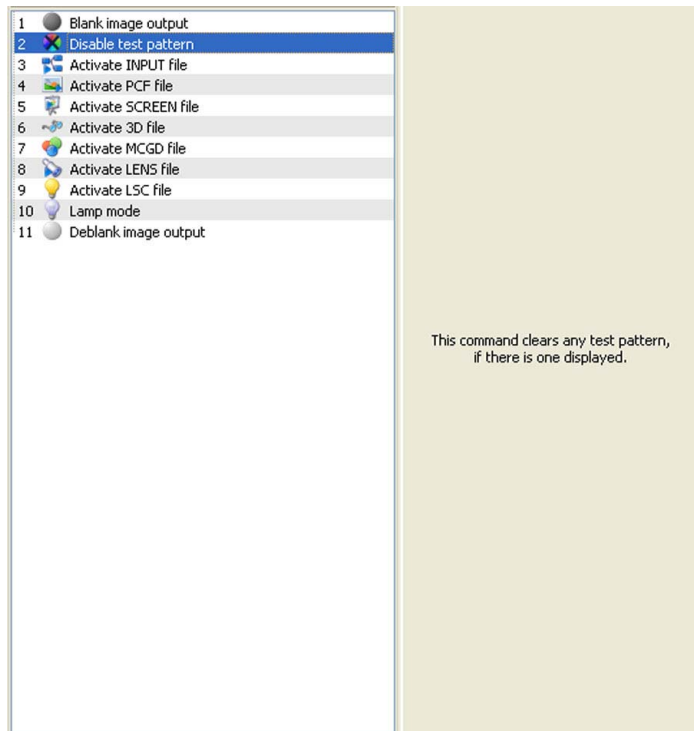


Image 10-37
Disable test pattern

All current test patterns will be disabled when running this macro.

10.5.4 Output

10.5.4.1 Lamp control

What can be done ?

The lamp can be switched on or off via this macro command.

How to switch the lamp

1. Click on *Lamp control*.

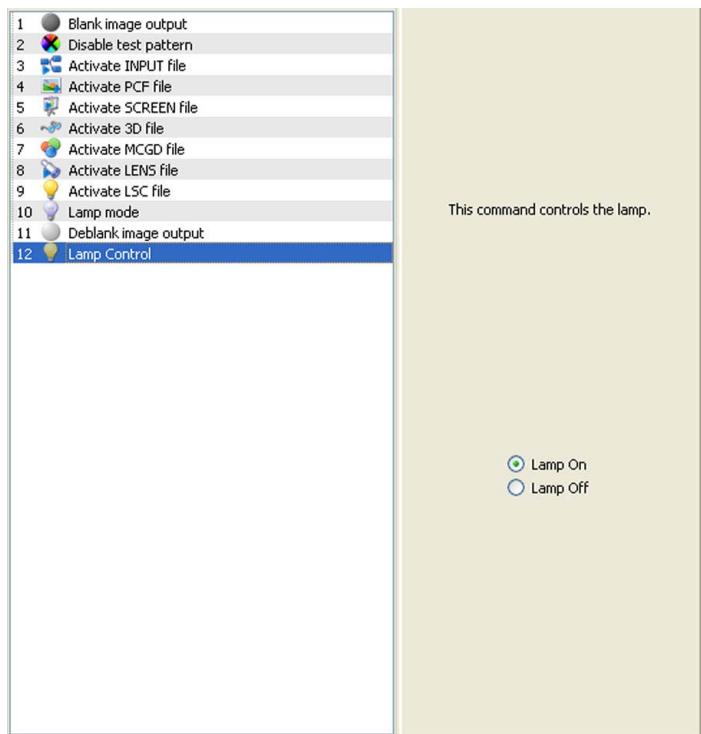


Image 10-38
Lamp control command

The right pane shows the selection buttons.

2. Select the radio button of your choice.

lamp on	lamp will be switched on
lamp off	lamp will be switched off

10.5.4.2 Lamp mode

What can be done ?

The light output mode can be set between Normal mode and CLO mode. For each mode, the necessary parameters can be added.

How to select

1. Click on *Lamp mode*.

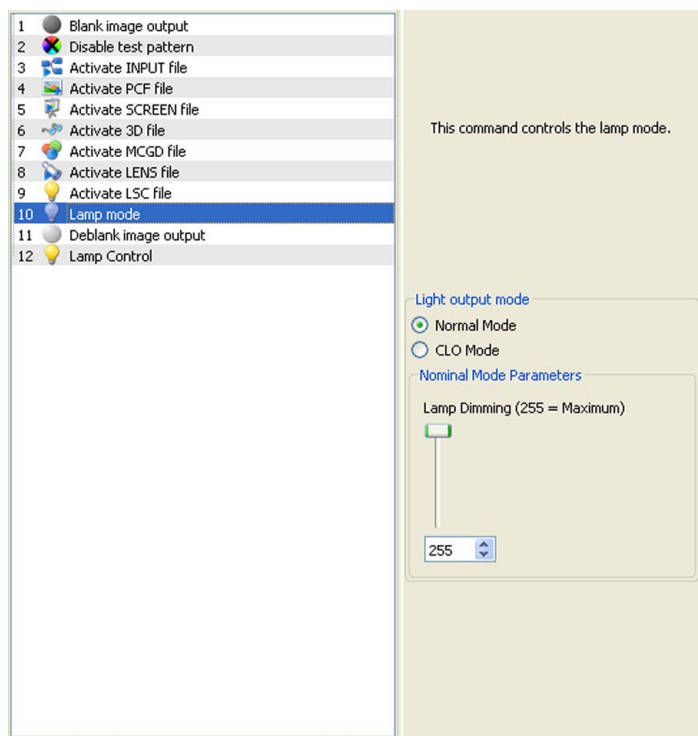


Image 10-39
Lamp mode command

2. Select the radio button of your choice.

Normal mode: a lamp dimming value can be set with the slider or directly in the input box.

CLO mode: a target footlambert value can be entered in the input box.

10.5.4.3 Dowser control

What can be done ?

The dowser can be closed or opened via this macro command.



DP2K-S series projector has no dowser build in, but for compatibility reasons with existing macros, the dowser control function in a macro is implemented as the blanking and/or the deblanking function.

How to change the status

1. Click on *Dowser control*.

10. Macro editor

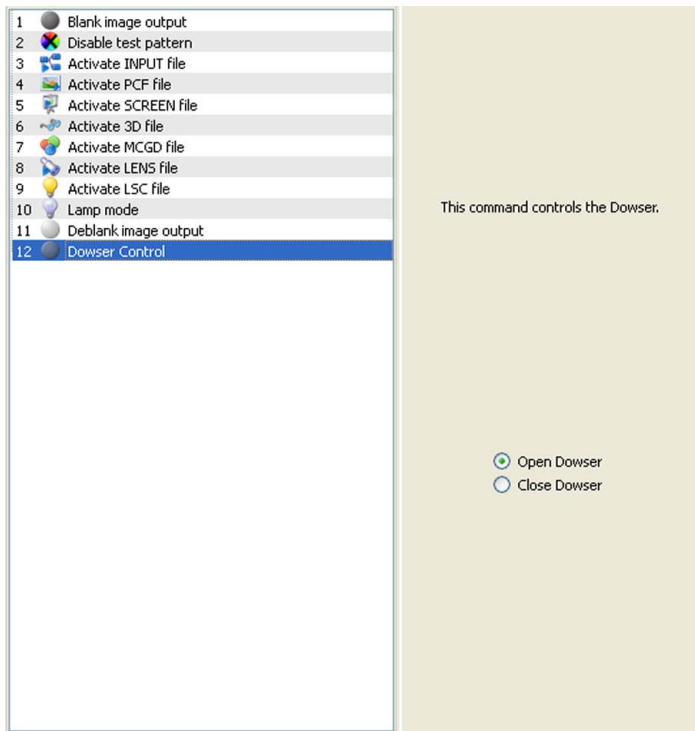


Image 10-40
Dowser control

2. Select the radio button of your choice.

Dowser open : image projection is not blocked.

Dowser closed : image projection is blocked.

10.5.4.4 Lamp alignment



Only for motorized lamp houses

What can be done ?

The X-Y-Z axis can be adjusted for optimal alignment in the reflector to produce its maximum light output.

How to set

1. Click on *Lamp alignment*.

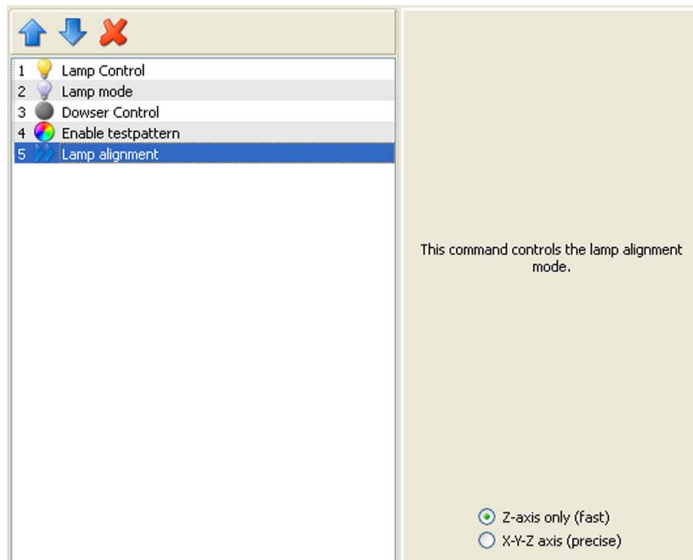


Image 10-41
Lamp alignment

The right pane shows the possible adjustments.

2. Select the radio button of your choice.

Z-axis only for a fast adjustment.

X-Y-Z axis for a fine adjustment

10.5.4.5 Execution delay for a 'blank image'

What can be done ?

The image can be blanked electronically after a certain delay time.

How to set

1. Click on *Blank Image Output*.

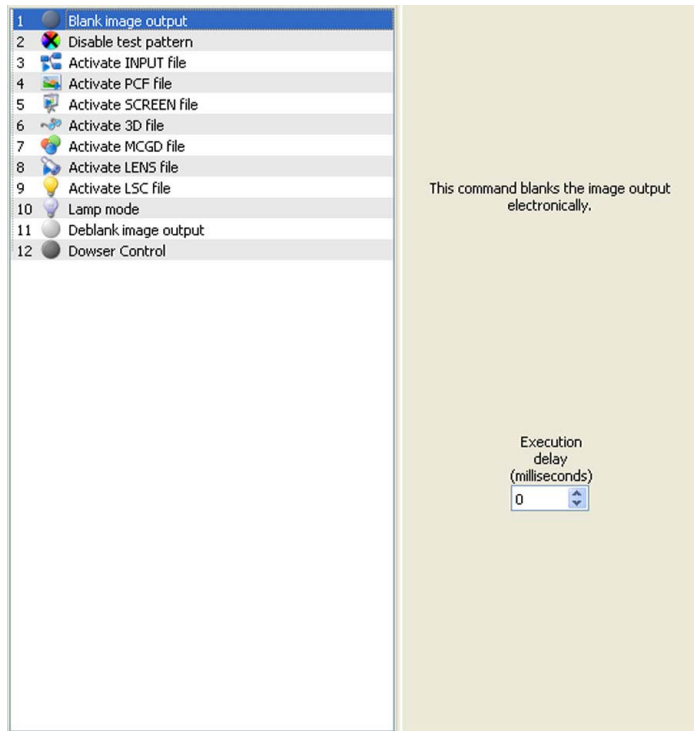


Image 10-42
Execution delay

The right pane shows the execution delay input field. The value is expressed in milliseconds.

2. Click on the up down control of the spin box to change the value. The value change in steps of 10.
Or,
click in the input field and enter the desired value with the keyboard.

10.5.4.6 Execution delay for a 'deblank image output'

How to set

1. Click on *Deblank Image Output*.

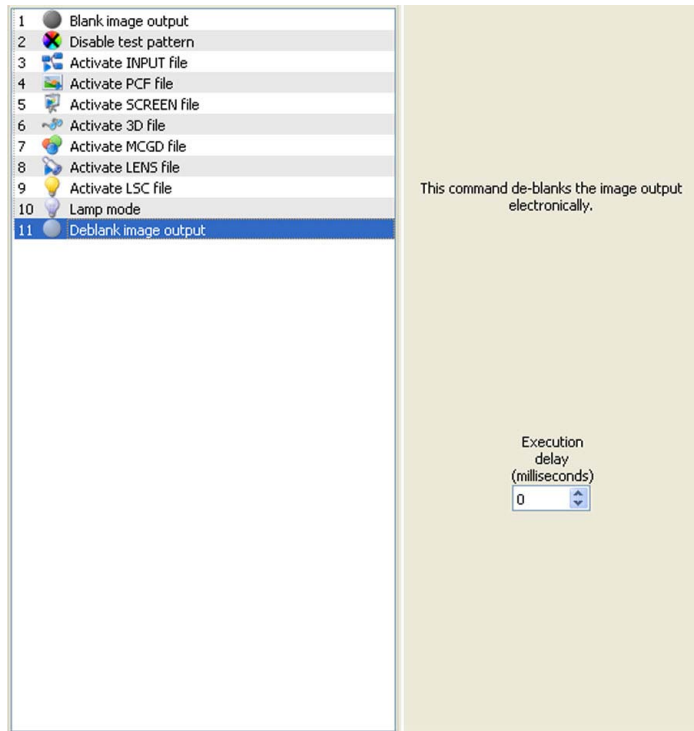


Image 10-43
Deblank image command

The right pane shows the execution delay input field. The value is expressed in milliseconds.

2. Click on the up down control of the spin box to change the value. The value change in steps of 10.
Or,
click in the input field and enter the desired value with the keyboard.

10.5.4.7 Lamp link mode

What can be done

The projector can be set as master and the target CLO value for the slaves can be selected.

How to set up

1. Click on *Lamp link mode*.

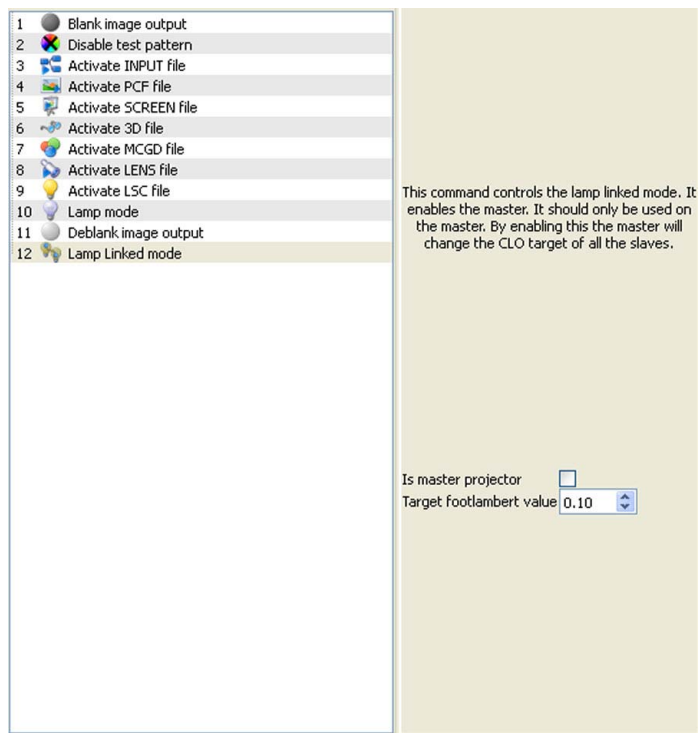


Image 10-44
Link mode setup

2. To set the projector as master, check the check box next to *Is master projector*.
3. To set the Target footlambert value, click on the up down control of the spin box until the desired value is obtained
Or,
click inside the input box and enter a new value with keyboard.

10.5.5 Automation

10.5.5.1 GPO control

What can be done ?

A function can be associated to a general purpose output.

How to add a function

1. Click on *GPO Control*.

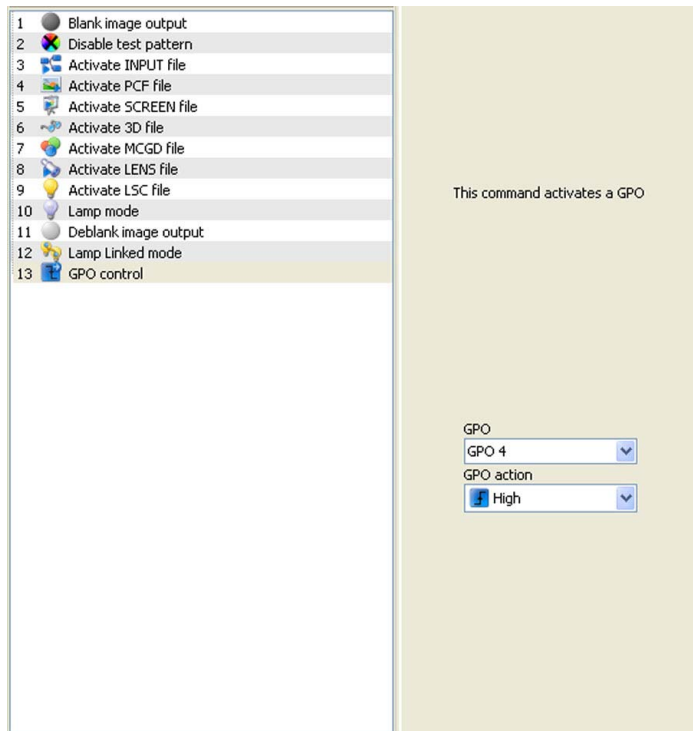


Image 10-45
GPO control command

The right pane shows a GPO selection box and function box.

2. Click on the drop down box next to *Output*.
3. Select a GPO out of the list.
4. Click on the drop down box next to *Function* to associate a function to the selected Output.
Possible functions:
 - Set low
 - Set high
 - Toggle
 - Continuous toggle

11. DIAGNOSTIC PACKAGE READER

Overview

- About the diagnostic package reader
- Open a diagnostic package file

11.1 About the diagnostic package reader

About

Diagnostic package files generated on the touch panel of the projector or via the Communicator are compressed files. These files contain a lot of valuable information about the status of the projector. The Diagnostic Package reader opens these files and split up the information in different tab pages.

The Diagnostic Package reader is distributed together with Communicator software and is automatically installed when installing the Communicator software.

Start up

Diagnostic Package reader is installed with the same install path as the Communicator software.

To start up, click Start → All programs → Barco → Communicator → Diagnostic package reader.

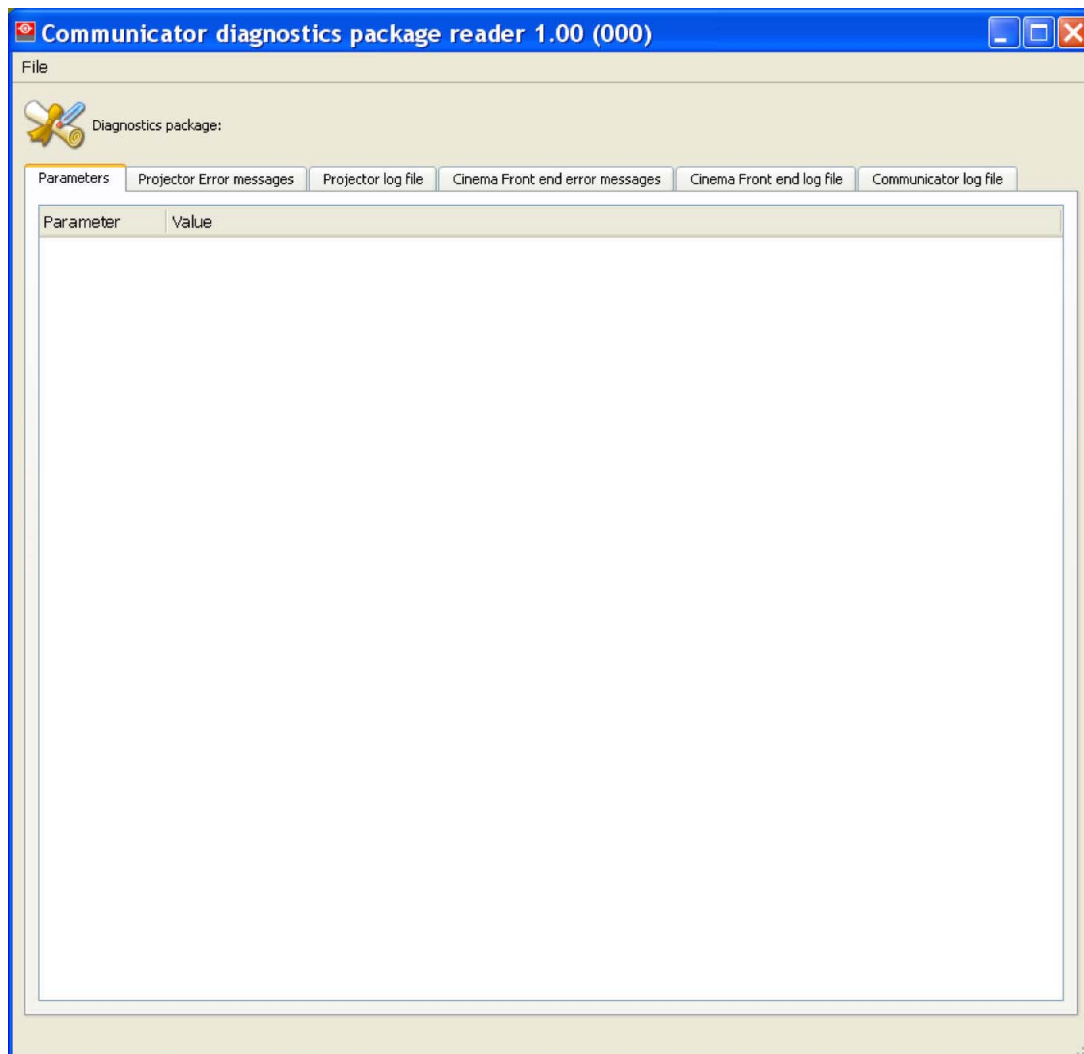


Image 11-1
Start window

11.2 Open a diagnostic package file

How to open

1. Click on **File** and select *Open* (1).

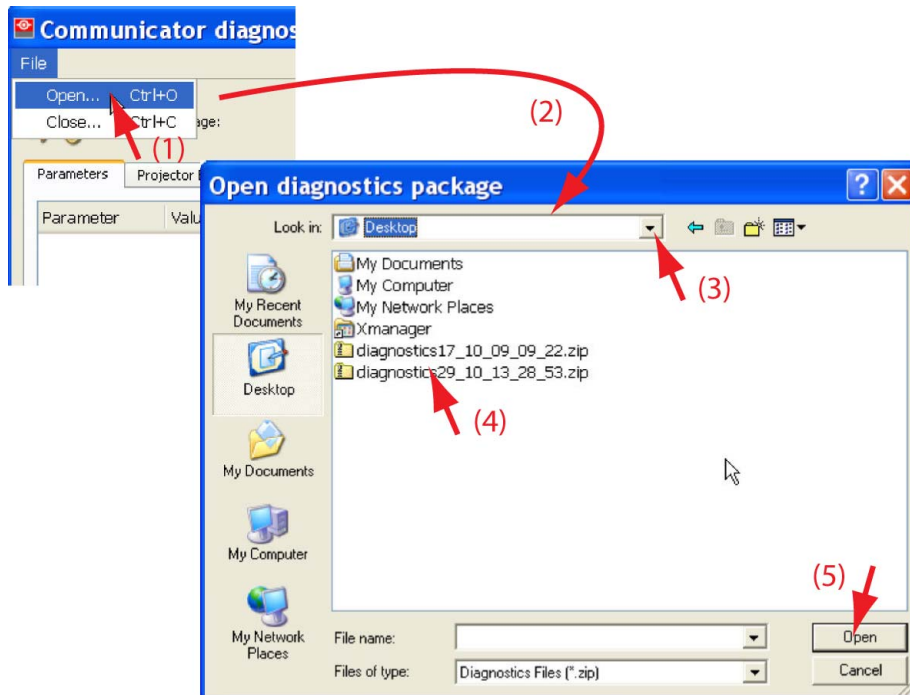


Image 11-2

A browse window opens (2).

2. Browse to the location of a diagnostic package file (3).

3. Select the file (4) and click **Open** (5).

The file is loaded in the diagnostic package reader and all information is split in the different tab pages.

Click on a tab to open specific information.

12. DC UPDATE COMPANION - COMMAND LINE INTERFACE

12.1 Introduction

Overview

It is possible to use the “DC Update companion” software through a Shell using the command line interface. The commands are supported on Windows, Linux and Mac OS X platform.

12.2 Using the command line interface

Getting started

First you will need to install the *Communicator* on you computer.

The DcUpdateCompanion application resides in the root folder of the installed *Communicator* application software.

- **On Windows :**
Open the command prompt by starting “cmd.exe” and change directory to the directory where resides the DcUpdateCompanion.exe binary.
- **On Linux/Mac OS X:**
Open a shell (terminal window) and change directory to the directory where resides the DcUpdate-Companion binary.

Help information

Use the “-h” argument.

- **On Windows :**
`DcUpdateCompanion.exe -h`
- **On Linux/Mac OS X:**
`./DcUpdateCompanion -h`

Version of the application

Use the “-v” argument.

- **On Windows :**
`DcUpdateCompanion.exe -v`
- **On Linux/Mac OS X:**
`./DcUpdateCompanion -v`

Starting an upgrade

Use the “-silent” argument in order to use the command line mode.

Extra arguments or needed in order to specify the update type.

12. DC Update companion - Command line interface

Arguments to use when executing an upgrade:

Argument	Description
-type	The upgrade package type. The supported types are: <ul style="list-style-type: none">• “barco” : Barco DCTP (touch panel) or DP2K- or DP4K-series projector.• “icp” : TI ICP device• “enigma” : the Enigma Link Decryptor• “barco_icmp” : ICMP device
-f	The URL of the package file. This can be an absolute or relative path.
-ip	The IP address of the projector
-verbose	(optional) Use this option to get extra progress information during the update.

Examples :

Example 1 : Upgrade of package version 1.6.68 on Projector with IP address 10.192.32.68

```
DcUpdateCompanion.exe -silent -verbose -ip 10.192.32.68 -f  
R33023607_R_1_6_68.zip -type barco
```

Example 2 : Upgrade of package version 4.3.13 on DC Touch Panel with IP address 10.192.8.207

```
DcUpdateCompanion.exe -silent -verbose -ip 10.192.8.207 -f DCTPUP-  
DATEPKG_D_4_3_13.zip -type barco
```

Example 3 : Upgrade of package version 2.2.291 on ICP device of Projector with IP address 10.192.32.68

```
DcUpdateCompanion.exe -silent -verbose -ip 10.192.32.68 -f Prod2.2.291.re-  
lease -type icp
```

Return values

The application will return an error code when it has finished. In order to check if the upgrade has been done successfully, you can check on the resulted error code.

Arguments to use when executing an upgrade:

Error code	Description
0	The application returns 0 when no error has occurred
-1	The application returns -1 when an error occurred. When upgrade failure occurred, you should consider to check the log in the created log file.

Log files

Log files are being created in the subfolder “log_updater” (created relatively from where you start the commands).

All log files contain the serial number of the projector in the filename. When an upgrade has failed, the filename starts with the “failed_” prefix.

12.3 Troubleshooting

Error: SSH Connection failed



Only for B/C/CLP/BLP series projector

Solution

Remove the file 'known_hosts' on the PC/laptop you are running Communicator or DcUpdateCompanion from.

Typical location of the file on Windows: C:\Users\[Username]\.ssh\known_hosts
Typical location of the file on Windows: C:\Users\[Username]\.ssh\known_hosts

Cause

Security protocol 'ecdsa-sha2-nistp256' is not supported.

Typical conditions, use case:

This can happen if a E/L/S series projector is replaced by a B/C/CLP projector and the same IP address is used for the replacement. E/L/S series projectors use 'ecdsa-sha2-nistp256' as a security protocol for updating and when updating the entry 'ecdsa-sha2-nistp256' together with the IP address will be added in the 'known_hosts' file stored locally on your PC/laptop.

This protocol is not supported by B/C/CLP projectors, the protocol 'ssh-rsa' is required but the update will start with the security protocol listed in the 'known_hosts' file if it is defined there for that IP address.

This will be the case if one first updates an E/L/S series projector and then later on updates a B/C/CLP projector with the same IP address from the same PC/laptop (timespan in-between is of no matter).

A. SOURCE SETTINGS

A.1 Input settings

HDSDI settings

Source: 2K							
	General settings			Advanced settings			
Port	Port type	Mode	Scan type	Color space	Pixel mapping	Calibration	
A or B	HDSDI Single link	4:2:2 10 bits/color	Progressive	YCbCr	HDSDI-Single link	Single	
			Progressive - field bit normal				
			Progressive - field bit inverted				
			Progressive SF - 2nd field dominant				
			Progressive SF - 1st field dominant				
	3GSDI link	4:2:2 12 bits/color	Progressive	YCbCr	3G-level A-Single link	Single	
					3G-level B-Dual link		
		4:4:4 10 bits/color	Progressive	RGB	3G-level A-Single link		
					3G-level B-Dual link		
		4:4:4 12 bits/color	Progressive	XYZ/RGB	3G-level A-Single link		
					3G-level B-Dual link		
A+B		HDSDI Duallink AB	4:4:4 10 bits/color	Progressive	RGB	HDSDI-Dual link	Single
				Progressive - field bit normal			
				Progressive - field bit inverted			
	Progressive SF - 2nd field dominant						
	Progressive SF- 1st field dominant						
	4:4:4 12 bits/color		Progressive	XYZ/RGB			
			Progressive - field bit normal				
			Progressive - field bit inverted				
			Progressive SF- 2nd field dominant				

A. Source settings

Source: 2K						
	General settings			Advanced settings		
Port	Port type	Mode	Scan type	Color space	Pixel mapping	Calibration
			Progressive SF-1st field dominant			

Source: 2K-3D						
	General settings			Advanced settings		
Port	Port type	Mode	Scan type	Color space	Pixel mapping	Calibration
A or B	3GSDI link - 3D	4:2:2 10 bits/color	Progressive	YCbCr	3G - Level B - Dual stream	Single
						Dual (separate left / right eye)
			Progressive SF-1st field dominant	YCbCr	3G - Level B - Dual stream	Single
						Dual (separate left / right eye)
			Progressive SF - 2nd field dominant	YCbCr	3G - Level B - Dual stream	Single
						Dual (separate left / right eye)
A+B	HDSDI 3D	4:2:2 10 bits/color	Progressive	YCbCr	HDSDI - Interleaved	Single
						Dual (separate left / right eye)
			Progressive SF-1st field dominant	YCbCr	HDSDI - Interleaved	Single
						Dual (separate left / right eye)
			Progressive SF - 2nd field dominant	YCbCr	HDSDI - Interleaved	Single
						Dual (separate left / right eye)
	3GSDI 3D	4:2:2 12 bits/color	Progressive	YCbCr	3G - Level A - Interleaved	Single
						Dual (separate left / right eye)
					3G - Level B - Interleaved	Single

Source: 2K-3D						
	General settings			Advanced settings		
Port	Port type	Mode	Scan type	Color space	Pixel mapping	Calibration
		4:4:4 10 bits/color	Progressive	RGB	3G - Level A - Interleaved	Dual (separate left / right eye)
						Single
					3G - Level B - Interleaved	Dual (separate left / right eye)
						Single
		4:4:4 12 bits/color	Progressive	XYR/RGB	3G - Level A - Interleaved	Dual (separate left / right eye)
						Single

Source: 2K-HFR						
	General settings			Advanced settings		
Port	Port type	Mode	Scan type	Color space	Pixel mapping	Calibration
A or B	3GSDI link - HFR	4:2:2 10 bits/color	Progressive	YCbCr	3G - Level B - Dual stream	Single
					3G - Level B - Single link	
A+B	HDSDI HFR	4:2:2 10 bits/color	Progressive	YCbCr	HDSDI - Interleaved	Single
			Progressive SF-1st field dominant			
			Progressive SF - 2nd field dominant			
	3GSDI HFR	4:2:2 12 bits/color	Progressive	YCbCr	3G - Level A - Interleaved	Single
					3G - Level B - Interleaved	
		4:4:4 10 bits/color	Progressive	RGB	3G - Level A - Interleaved	Single

A. Source settings

Source: 2K-HFR						
	General settings			Advanced settings		
Port	Port type	Mode	Scan type	Color space	Pixel mapping	Calibration
		4:4:4 12 bits/color	Progressive	XYZ/RGB	3G - Level A - Interleaved	Single
					3G - Level B - Interleaved	

Source: 3D-HFR						
	General settings			Advanced settings		
Port	Port type	Mode	Scan type	Color space	Pixel mapping	Calibration
A+B	3GSDI 3D HFR	4:2:2 10 bits/color	Progressive	YCbCr	3G - Level A - Interleaved	Single
						Dual (separate left / right eye)
			Progressive SF- 1st field dominant	YCbCr	3G - Level A - Interleaved	Single
						Dual (separate left / right eye)
			Progressive SF- 2nd field dominant	YCbCr	3G - Level A - Interleaved	Single
						Dual (separate left / right eye)

Source: 4K						
	General settings			Advanced settings		
Port	Port type	Mode	Scan type	Color space	Pixel mapping	Calibration
A+B	3GSDI HS-4K	4:2:2 10 bits/color	Progressive	YCbCr	3G - Level A - Single Link	Single
			Progressive - field bit normal			
			Progressive - field bit inverted			
			Progressive SF - 2nd field dominant			
			Progressive SF - 1st field dominant			

Source: 4K						
Port	General settings			Advanced settings		
	Port type	Mode	Scan type	Color space	Pixel mapping	Calibration
A + B + C + D	3GSDI 4K	4:2:2 10 bits/color	Progressive	XYZ/RGB	3G - Level A - Quad Link	Single
					3G - Level B - Quad Link	
			Progressive SF - 1st field dominant	YCbCr	3G - Level A - Quad Link	Single
					3G - Level B - Quad Link	
			Progressive SF - 2nd field dominant	YCbCr	3G - Level A - Quad Link	Single
					3G - Level B - Quad Link	
		4:4:4 10 bits/color	Progressive	RGB	3G - Level A - Quad Link	Single
					3G - Level B - Quad Link	
			Progressive SF - 1st field dominant	RGB	3G - Level A - Quad Link	Single
					3G - Level B - Quad Link	
			Progressive SF - 1st field dominant	RGB	3G - Level A - Quad Link	Single
					3G - Level B - Quad Link	
		4:4:4 12 bits/color	Progressive	XYZ/RGB	3G - Level A - Quad Link	Single
					3G - Level B - Quad Link	
			Progressive SF - 1st field dominant	XYZ/RGB	3G - Level A - Quad Link	Single
					3G - Level B - Quad Link	
			Progressive SF - 2nd field dominant	XYZ/RGB	3G - Level A - Quad Link	Single
					3G - Level B - Quad Link	
	HDSDI - 4K	4:2:2 10 bits/color	Progressive	YCbCr	HDSDI - Quad Link	Single
			Progressive SF - 1st field dominant	YCbCr	HDSDI - Quad Link	Single
			Progressive SF - 2nd field dominant	YCbCr	HDSDI - Quad Link	Single

DVI settings

Input selection	Port	Parameters			
		Mode	type	Type parameter	Color correction
DVI - A	A	8 bits/color	Progressive	-	-
			Interlaced	Field bit normal (default)	-
				Field bit inverted	-
DVI - B	B	8 bits/color	Progressive	-	-
			Interlaced	Field bit normal (default)	-
				Field bit inverted	-
DVI - TWIN	A+B	10 bits/color 12 bits/color	Progressive	-	-
DVI - 3D	A+B	8 bits/color	Progressive	-	single (default) dual (separate eyes)
DVI - 4K Horizontal spanning	A+B	8 bits/color	Progressive	-	-

Mediablock settings

Mode	Type	Type parameter	Color calibration
4:2:2	Progressive	-	Single (default)
			Dual (separate eye)
4:4:4	Progressive	-	Single (default)
			Dual (separate eye)

A.2 ICMP input settings**DisplayPort specifications**

Supported Modes:

- DP1.1a, 4-lanes RBR/HBR
- Audio : yes
- Content Protection : HDCP1.4
- Color Depth : 8 bit/component and 10 bit/component.
- 3D-stereo mode : frame sequential (embedded stereosync on DP required from the source)

DisplayPort A and DisplayPort B accept the following video-timings:

2D Formats / Single DP	Color depth	Port	Display Mode
640 x 480 @ 60 fps	8 bpc, 10 bpc	Single	2D
800 x 600 @ 60 fps	8 bpc, 10 bpc	Single	2D
1600 x 1200 @ 60 fps	8 bpc, 10 bpc	Single	2D
1280 x 800 @ 60 fps	8 bpc, 10 bpc	Single	2D
1280 x 720 @ 60 fps	8 bpc, 10 bpc	Single	2D
1680 x 1050 @ 60 fps	8 bpc, 10 bpc	Single	2D

2D Formats / Single DP	Color depth	Port	Display Mode
1920 x 1080 @ 60 fps	8 bpc, 10 bpc	Single	2D
1920 x 1200 @ 60 fps	8 bpc, 10 bpc	Single	2D
2048 x 1080 @ 48, 60 fps	8 bpc, 10 bpc	Single	2D
2048 x 1536 @ 60 fps	8 bpc, 10 bpc	Single	2D
2048 x 2160 @ 30, 48, 50, 60 fps	8 bpc, 10 bpc	Single	2D
3840 x 2160 @ 24 fps	8 bpc, 10 bpc	Single	2D

3D Formats / Single DP	Color depth	Port	Display Mode
1920 x 1080 @ 60 fps	8 bpc, 10 bpc	Single	3D
2048 x 1080 @ 60 fps	8 bpc, 10 bpc	Single	3D

4K Horizontal SPAN 2D - Full	Color depth	Port	Display Mode
2048 x 2160 @ 30, 48, 50, 60 fps	8 bpc, 10 bpc	A+B span	2D

4K Horizontal SPAN 2D - Flat	Color depth	Port	Display Mode
1920 x 2160 @ 30, 48, 50, 60 fps	8 bpc, 10 bpc	A+B span	2D

4K Horizontal SPAN 3D	Color depth	Port	Display Mode
2048 x 2160 @ 60 fps	8 bpc, 10 bpc	A+B span	3D

Audio formats

- 2 channels / LPCM / 16 bits / 32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz
- 5.1 format / LPCM / 24 bits / 48 kHz
- 7.1 format / LPCM / 20 bits / 48 kHz

Notes:

- DisplayMode = Single : is applicable to both DisplayPort A, and DisplayPort B input, separately.
- DisplayMode = A+B : inputs DisplayPort A and DisplayPort B are combined to 1 larger image; in this case the 2 DisplayPort links need to be genlocked (= synchronous and in phase).
- In all cases :
 - Color Space - Color Sampling:
 - YCbCr - 4:4:4
 - YCbCr - 4:2:2
 - RGB - 4:4:4
 - Scan Type = progressive.
- Both Nvidia and AMD GPU's will not support color depths of 10 bits/color while in 3D-stereo mode.
- Some Graphical Cards may not permit 10 bits/color at all video timings, because of bandwidth restrictions.
- DisplayPort A and DisplayPort B automatically detect:
 - Active Pixels, and Active Lines
 - Vertical Refresh
 - 8 bits/color - 10 bits/color
 - Frame locked
- All input resolutions are scaled towards the desired resolution specified in the screen presentation file.
- Fractional frame rates = (Hz*1000)/1001

HDMI 1.4 specifications

HDMI1.4a, including HDCP1.4

2K Video-timings:

- 640 x 480p @ 60 fps
- 720 x 480p @ 60 fps
- 720 x 576 @ 50 fps
- 800 x 600p @ 60 fps
- 1024 x 768p @ 60 fps
- 1280 x 720p @ 50, 60 fps
- 1280 x 960p @ 60 fps
- 1280 x 1024p @ 60 fps
- 1400 x 1050p @ 60 fps
- 1920 x 1080 @ 24, 25, 30, 50, 60 fps
- 1920 x 1080i @ 50, 60 fields/second

4K Video timings (ICMP 1.2.0)

- 3840 x 2160 @ 24, 25, 30 fps
- 4096 x 2160 @ 24, 25, 30 fps

3D Video timings (ICMP 1.2.2)

- Frame packing:
 - 1920 x 1080p @ 23.98 / 24 fps
 - 1280 x 720p @ 50 fps
 - 1280 x 720p @ 59.94 / 60 fps
- Top/Bottom:
 - 1920 x 1080p @ 23.98 / 24 fps
 - 1280 x 720p @ 50 fps
 - 1280 x 720p @ 59.94 / 60 fps
- Side by side (SbS)
 - Side by side : Half (same formats as for Top/Bottom encoding)

Color Space - Color Sampling:

- YCbCr - 4:4:4
- YCbCr - 4:2:2
- RGB - 4:4:4
- Color depth: supports 24, 30 and 36 bpp (8, 10 and 12 bpc).
 - Exception: in case of HDMI UHD / full 4K only 24 bpp (8 bpc) is supported.

Audio formats:

- 2 channels / LPCM / 16 bits / 32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz
- 5.1 format / LPCM / 24 bits / 48 kHz
- 7.1 format / LPCM / 20 bits / 48 kHz

Notes:

- Includes refresh rate = (Hz*1000)/1001
- All input resolutions are scaled towards the desired resolution specified in the screen presentation file.

HDMI 2.0 specifications

Both HDMI 2.0 inputs are fully compliant with the HDMI 1.4, 1.4a, 1.4b, 2.0 and 2.0a revisions of the HDMI specification.

Full Range and Limited Range Quantization are supported for all specified formats.

BT.709 and DCI-P3 are supported for all formats. For HDR content (UHD and 4K only) the BT.2020 color coding is supported.

All video streams should have a progressive scan order, with the exception of 1920x1080i 60 fps (interlaced scan).

HDCP

Both HDMI 2.0 inputs are HDCP 1.4 & HDCP 2.2 compliant.

HDR (SMPTE ST 2084)

HDR (High Dynamic Range) is supported on all UHD and 4K formats.

This includes SMPTE ST 2084 (static metadata) and BT.2020 color coding. Requires a license!

HDMI 2.0 Cable requirements

All HDMI cables should work with HDMI 2.0 receivers. There is no such thing as a “4K HDMI cable” even though this is sometimes sold this way. But of course there are quality differences. The “high-speed” cables would be preferred over the “standard-speed” cables. They usually work at higher cable lengths than the standard-speed ones.



The “Premium Certified HDMI” cables are tested to work with high bandwidth as is the case with 4K HDR content. These can be more expensive though. When using active and/or optical cables you should verify if the integrated receiver and sender are HDMI certified to guarantee to work compliant with the HDMI protocol. You can request the HDMI certificate to the manufacturer of the cable.

HDMI 2.0 Supported 2D Formats

Format	Frame Rate	Color coding	Bit depth
1280x720	23.976, 24, 25, 29.97, 30, 50, 59.94, 60	RGB YCbCr 4:4:4 YCbCr 4:2:2	8 10 12
1280x720	100, 119.88, 120	RGB YCbCr 4:4:4 YCbCr 4:2:2	8
1920x1080 2048x1080	23.976, 24, 25, 29.97, 30, 50, 59.94, 60	RGB YCbCr 4:4:4 YCbCr 4:2:2	8 10 12
1920x1080 2048x1080	100, 119.88, 120	RGB YCbCr 4:4:4 YCbCr 4:2:2	8
3840x2160 4096x2160	23.976, 24, 25, 29.97, 30	RGB YCbCr 4:4:4 YCbCr 4:2:2	8 10 12
3840x2160 4096x2160	50, 59.94, 60	RGB YCbCr 4:4:4 YCbCr 4:2:2	8

HDMI 2.0 Supported 3D (Frame Packing) Formats

A. Source settings

Format	Frame Rate	Color coding	Bit depth
1920x1080	23.976, 24, 25, 29.97, 30	RGB	8
2048x1080		YCbCr 4:4:4	10
		YCbCr 4:2:2	12
1920x1080	50, 59.94, 60	RGB	8
2048x1080		YCbCr 4:4:4	
		YCbCr 4:2:2	
3840x2160	23.976, 24, 25, 29.97, 30	RGB	8
4096x2160		YCbCr 4:4:4	10
		YCbCr 4:2:2	12
3840x2160	50, 59.94, 60	RGB	8
4096x2160		YCbCr 4:4:4	
		YCbCr 4:2:2	

HDMI 2.0 Supported Audio Formats

Format	Sample Rate	Sample coding	Bit depth
2.0	32	L-PCM	16
2.1	44.1		20
5.1	48		24
7.1	88.2		
	96		

HDMI 2.0 Supported Dual (Twin) Link Formats (2D formats only)

Format	Frame Rate	Color coding	Bit depth
1920x1080	23.976, 24, 25, 29.97, 30, 50, 59.94, 60	RGB	8
2048x1080		YCbCr 4:4:4	
		YCbCr 4:2:2	
3840x2160	23.976, 24, 25, 29.97, 30, 50, 59.94, 60	RGB	8
4096x2160		YCbCr 4:4:4	
		YCbCr 4:2:2	



In Dual (Twin) Link both HDMI2 inputs (port A & port B) should have to same Format, Frame Rate and Color coding.



Port A should contain the 8 most significant bits of the pixel data, where port B should contain the 8 least significant bits of the pixel data. The pixel data will be reconstructed using the all 8 bits of port A and using the 4 most significant bits of port B.

HDMI 2.0 Supported Passive 3D Formats (3D formats only)

Format	Frame Rate	Color coding	Bit depth
1920x1080	24, 30	RGB	8
2048x1080		YCbCr 4:4:4	10
		YCbCr 4:2:2	12

Format	Frame Rate	Color coding	Bit depth
1920x1080	60	RGB	8
2048x1080		YCbCr 4:4:4	
		YCbCr 4:2:2	
3840x2160	24, 30	RGB	8
4096x2160		YCbCr 4:4:4	
		YCbCr 4:2:2	



In Passive 3D HDMI2 input port A should contain the pixel data of Left Eye and HDMI2 input port B should contain the pixel data for Right Eye.

SMPTE 292M STANDARD 1.485 Gb/s HD-SDI SIGNALS

Standard HD-SDI (SMPTE 292M) formats

SMPTE Standard	Source Resolution	Frame Rate	Display Rate	Scan Type
SMPTE 296M	1280 x 720	23.976	23.976	Progressive Y Cb Cr 4:2:2 10-Bit
		24	24	
		25	25	
		29.970	29.970	
		30	30	
		50	50	
		59.940	59.940	
		60	60	
SMPTE 274M SMPTE 428-8	1920 x 1080 2048 x 1080	23.976	23.976	Progressive Y Cb Cr 4:2:2 10-Bit
		24	24	
		25	25	
		29.97	29.97	
		30	30	
SMPTE 274M SMPTE 428-9 (SMPTE RP211)	1920 x 1080 2048 x 1080	23.976	23.976	Segmented frame Y Cb Cr 4:2:2 10-Bit
		24	24	
		25	25	
		29.97	29.97	
		30	30	
SMPTE 274M	1920 x 1080	25	50	Interlaced Y Cb Cr 4:2:2 10-Bit
		29.970	59.940	
		30	60	

Dual-Link HD-SDI (SMPTE 372M) formats

SMPTE Standard	Source Resolution	Frame Rate	Display Rate	Scan Type
SMPTE 274M	1920 x 1080	23.976	23.976	Progressive
SMPTE 428-8	2048 x 1080	24	24	Y Cb Cr 4:2:2 12-Bit only
		25	25	Y Cb Cr 4:4:4 10 or 12-Bit
		29.970	29.970	RGB (XYZ) 4:4:4 10 or 12-Bit
		30	30	
SMPTE 274M	1920 x 1080	23.976	23.976	Segmented frame
SMPTE 428-9	2048 x 1080	24	24	Y Cb Cr 4:2:2 12-Bit only
(SMPTE RP211)		25	25	Y Cb Cr 4:4:4 10 or 12-Bit
		29.970	29.970	RGB (XYZ) 4:4:4 10 or 12-Bit
		30	30	
SMPTE 274M	1920 x 1080	25	50	Interlaced
		29.970	59.940	Y Cb Cr 4:2:2 12-Bit only
		30	60	Y Cb Cr 4:4:4 10 or 12-Bit
				RGB (XYZ) 4:4:4 10 or 12-Bit

Standard HD-SDI (2 × SMPTE 292M) formats⁴

SMPTE Standard	Source Resolution	Frame Rate	Display Rate	Scan Type
SMPTE 292M	1920 x 1080	23.976	47.952	Progressive
SMPTE 428-8	2048 x 1080	24	48	Y Cb Cr 4:2:2 10-Bit
		25	50	
		29.97	59.940	
		30	60	
SMPTE 292M	1920 x 1080	23.976	47.952	Segmented frame
SMPTE 428-9	2048 x 1080	24	48	Y Cb Cr 4:2:2 10-Bit
(SMPTE RP211)		25	50	
		29.97	59.940	
		30	60	

The standard HD-SDI interfaces support the Y Cb Cr colorspace (both legal and full range) using 4:2:2 color subsampling.

The Dual-Link HD-SDI interface can be used to carry a single 4:4:4 image, having a color depth of 10 or 12 bit per component. Both RGB (XYZ) and Y Cb Cr color spaces are supported.

4. mainly used to carry stereoscopic images.

B. IP CONFIGURATION - REMARKS

About the IP configuration on the same network

The configuration of the IP ports of the projector (cinema controller and ICMP ports) depend on the installed ICMP software. The following topics are trying to explain the different situations by using an example.

Overview

- IP configuration with ICMP software version lower than 1.2.5.2
- IP configuration with ICMP software version 1.2.5.2 or higher

B.1 IP configuration with ICMP software version lower than 1.2.5.2

Overview, same IP range LAN ports

Take a normal setup, projector with ICMP, TMS system and Library on the same network.

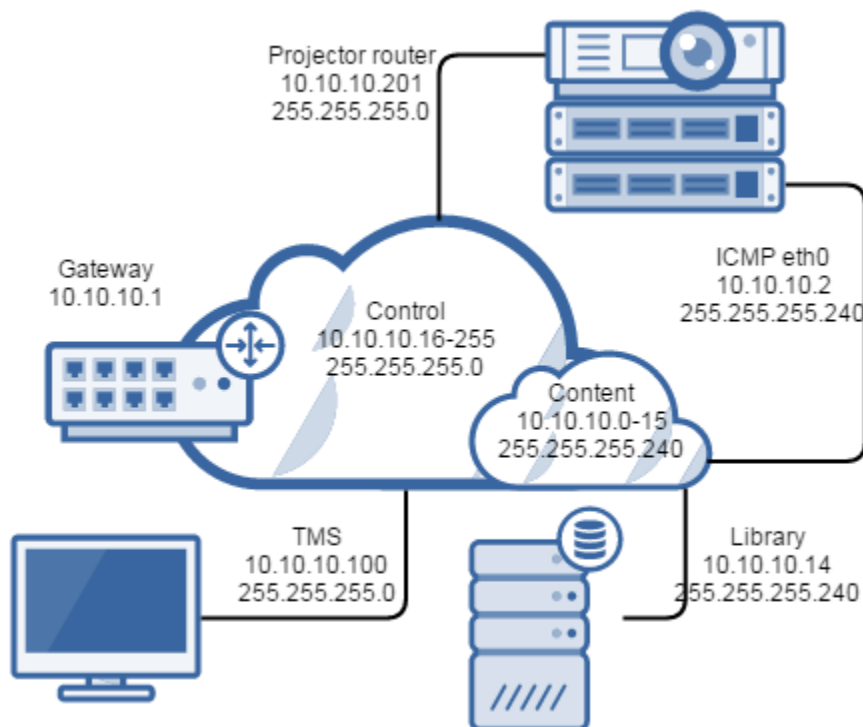


Image B-1

The projector Ethernet port (cinema controller, router) and the external ports of the ICMP (eth 0 and eth 1) are not allowed to be on the same subnet range.

If the projector has subnet 255.255.255.0 then the external LAN ports of the ICMP has to be a smaller subnet mask for the same network so that the ICMP can know to which port it has to be communicated.

If there is a Library connected in the network, it should be on the same subnet range as the external LANs of the ICMP. The communication will be through the external LAN and not via the projector Ethernet port (cinema controller). So, the data network (fast ingest) could only be in the same network range of the projector if the subnet mask is different with the projector Ethernet port.

The TMS must be in the network range of the projector but not in the range of the external LANs of the ICMP. If they are in the same range, the TMS will ask the projector status via the projector Ethernet port and the ICMP will answer via the external LAN. This situation will not work.

So the limitation are:

- Projector Ethernet port (cinema controller) and external LANs of ICMP could not be on the same network range with same subnet mask.
- TMS and Library could not be the same system as they cannot have the same IP address.
- The external LANs or the ICMP cannot be configured in the same network as the internal LAN of the projector, 192.168.254.x .

Overview, configuration via DHCP

When external LANs of the ICMP are configured from DHCP and the DHCP settings are different than the projector Ethernet port (cinema controller).

Example:

The projector Ethernet port is configured via DHCP and has address 192.168.10.10, the external LANs of the ICMP are 10.200.28.xx. The gateway address offered by DHCP server towards the external LANs of the ICMP is ignored. The default gateway for both ports of the ICMP is always the internal cinema control board router 192.168.254.241.

B.2 IP configuration with ICMP software version 1.2.5.2 or higher



The setups described in "IP configuration with ICMP software version lower than 1.2.5.2", page 457 are still valid for software 1.2.5.2 or higher.

Overview, same IP range LAN ports same subnet mask

Take a normal setup, projector with ICMP, TMS system and Library on the same network.

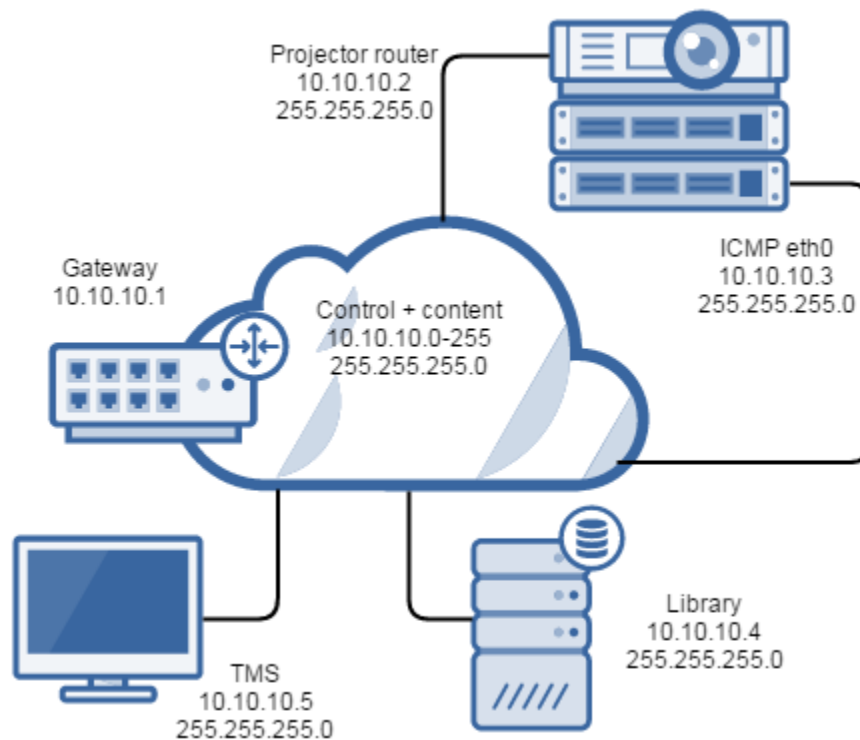


Image B-2

All subnet masks can be the same for all the devices.

The TMS can communicate with the projector, directly with the external LANs of the ICMP and with the Library. If the TMS asks for the projector status, the projector will answer via the projector Ethernet port (cinema controller) to the TMS. An ingest will be done via external LAN ports of the ICMP.

Now it is also possible to configure the external LAN ports in the same network range as the internal network connections, 192.168.254.x. With the exception for x from 241 to 249 as these are used internally.

C. COMMUNICATOR SILENT, COMMAND LINE INTERFACE

Overview

- Introduction
- Getting started
- Arguments
- Creating a diagnostics package
- Creating a clone package
- Applying a clone package
- Applying NTP settings
- Applying Lens home and return
- Applying Maintenance confirmation
- Sending Projector Command
- Rebooting the Projector
- Retrieve certificates
- Retrieve secure log
- Upload file
- Return values
- Log files

C.1 Introduction

Overview

The Communicator Silent is built as a separate program called “cs”. It is a command line program used to create diagnostics packages and to create or apply clone packages to Barco digital cinema projectors.

It is part of the Communicator software.

C.2 Getting started

What to do

First you will need to install Communicator (or Communicator post-production) on your computer.

The Communicator Silent (CS) application resides in the root folder of the installed Communicator application software.

On Windows

1. Open the command prompt by starting `cmd.exe`.
2. Change the directory to the root folder of the installed Communicator application software.
3. Starts `cs.exe`.

On Linux/Mac OS X

1. Open a shell (terminal window).
2. Change the directory to the root folder of the installed Communicator application software.
3. Starts `cs` binary.

C.3 Arguments

Help information

Use the “-h” (or --help) argument.

Example:

(Windows) `cs.exe -h`

(Linux/Mac) `./cs -h`

Version of the application

Use the “-V” or “--version” argument.

Verbose option

Use the “-v” or “--verbose” option to have detailed information output to the console during execution of a command.

Quiet option

Use the “-q” or “--quiet” option to display no output, except for errors.

Port option

Use the “-p” or “--port” option to have a view on the TCP/IP port used on connection.

C.4 Creating a diagnostics package

Command

```
cs [options] create diagnostics-package
```

Options

Options to use when creating a diagnostics package:

Option	Description
-f, --file	(optional) The package file name. The file name should have the .zip extension. When this option is not set, it will create a default file name.
-of, --outputfolder	Specify the output folder in which the diagnostics package file will be created.
-pf, --prefix	Specify the prefix name which is prefixed in default diagnostics package name.

Example:

Create a Diagnostics package of projector with IP address 10.20.30.40

Write the following command : `cs create diagnostics-package 10.20.30.40`

C.5 Creating a clone package

Command

```
cs [options] create clone-package [host]
```

Options

Options to use when creating a diagnostics package:

Option	Description
-f, --file	(optional) The package file name. The file name should have the .zip extension. When this option is not set, it will create a default file name.
-m, --mode	The mode on how the clone package should be created. <ul style="list-style-type: none"> all : full backup clone barco : clone all Barco files macros : clone all macro files macros-setup : clone all macro files together with setup specific files. barco : clone all Barco files ti : clone all TI files type=? : clone all files of the specified type. The supported types vary depending on Series 1 or Series 2 projector. extended-barco : clone all Barco files and extended settings (projector IP, lens settings, 3D settings).
-etp, --excludetest-patterns	Exclude test pattern files while creating clone package.

Examples:

First example : Create a full clone package of Projector with IP address 10.20.30.40, using package file name full_backup.zip .

Write the following command : `cs -m all -f full_backup.zip create clone-package 10.20.30.40`

Second example : Create a clone package containing all Macro files of Projector with IP address 10.20.30.40

Write the following command : `cs -m macros create clone-package 10.20.30.40`

Third example : Create a clone package containing only the PCF files of Projector with IP address 10.20.30.40

Write the following command : `cs -m type=pcf create clone-package 10.20.30.40`

C.6 Applying a clone package

Command

`cs [options] apply clone-package`

Options

Options to use when applying a clone package:

Option	Description
-f, --file	The package file name. The file name should have the .zip extension.
-o, --overwrite	Overwrite the existing files when applying a clone package
-r, --reboot	Reboot projector after clone package upload (required for some settings to take effect)

Examples :

First example : Apply the clone package clone_dp2k.zip to Projector with IP address 10.20.30.40

Write the following command : `cs -f clone_dp2k.zip apply clone-package 10.20.30.40`

Second example : Apply the clone package `full.zip` to Projector with IP address 10.20.30.40, with overwrite option enabled (existing files will be overwritten).

Write the following command: `cs -o -f full.zip apply clone-package 10.20.30.40`

C.7 Applying NTP settings

Command

`cs [options] apply ntp [host]`

Options

Options to use when applying NTP settings:

Option	Description
-s, --status	Status of the NTP: "enabled" or "disabled"
-u, --url	URL or server name of the NTP server
-r, --reboot	Reboot projector after apply NTP enabled (required for the NTP settings to take effect)

Example:

(do not use the values in this example in a real situation as the Barco NTP server is not accessible from outside Barco, replace with your own values)

Enable NTP and set the NTP server 'ntp.barco.com' on the Projector with IP address 10.192.32.68

Write the following command: `cs -s enabled -u ntp.barco.com apply ntp 10.192.32.68`

C.8 Applying Lens home and return

Command

`cs apply lens-home-return [host]`

Options

No options for this command.

Example :

Execute a lens home and return on Projector with IP address 10.192.32.68

Write the following command: `cs apply lens-home-return 10.192.32.68`

C.9 Applying Maintenance confirmation

Command

`cs [options] apply maintenance-confirm [host]`

Options

Options to use when applying Maintenance confirmation:

Option	Description
-r, -type	The type of maintenance: A, B, C or D

C.10 Sending Projector Command

Command

cs [options] projectorcommand [host]

Option	Description
-c, --command	Command string containing the command bytes. Put "0x" in front of each byte to use hex format. Separate each command byte with a comma.
-f, --file	File containing the command bytes. Note: when using a file, the option '-c' becomes obsolete.
-t, --timeout	Timeout value in milliseconds for receiving the answer from the projector.

Examples:

- Read serial number (command: '61' hex) of projector with IP address 10.192.10.10
`cs projectorcommand 10.192.10.10 -c 0x61`
- Read lamp article number (command: '76 84' hex) of Projector with IP address 10.192.8.33, using time out value of 2 seconds.
`cs projectorcommand 10.192.8.33 -c 0x76,0x84 -t 2000`
- Send command to Projector with IP address 10.192.8.33, using an external file:
`cs projectorcommand 10.192.8.33 -f command.txt`

C.11 Rebooting the Projector

Command

cs reboot [host]

Options

No options for this command.

Example :

Reboot Projector with IP address 10.192.32.68

Write the following command: `cs reboot 10.192.32.68`

C.12 Retrieve certificates

Command

cs [options] retrieve certificates

Option	Description
-f, --file	Specify an arbitrary file name for the certificate package.

Option	Description
-of, --outputfolder	Specify the output folder in which the certificates package file will be created.
-pf, --prefix	Specify the prefix name which is prefixed in default certificates package name.

Example :

Retrieve certificates in file Certificates.zip

Write the following command: `cs retrieve certificates -f Certificates.zip`

C.13 Retrieve secure log

Command

`cs [options] retrieve secure-log`

Option	Description
-f, --file	Specify an arbitrary file name for the secure log.
-of, --outputfolder	Specify the output folder in which the secure log files will be created.
-st, --starttime	[optional] Specify the start time to export secure log. Default value is 7 days prior to end time. The start time must be in YYYY-MM-DDTHH:MM:SS format.
-et, --endtime	[optional] Specify the end time to export secure log. Default value is the current time of system. The end time must be in YYYY-MM-DDTHH:MM:SS format.

Example :

Retrieve secure log in file Logs.txt with starting time July, 1st 2015 at 14.00 hours

Write the following command: `cs retrieve secure-log -f Logs.txt -st 2015-07-01T14:00:00`

C.14 Upload file

Command

`cs [options] upload file`

Option	Description
-f, --file	File to be uploaded.
-o, --overwrite	Overwrite the file when already existing.

Example :

Upload file lens.lsc

Write the following command: `cs upload file -f lens.lsc`

C.15 Return values

Overview

The application will return an error code when it exits.

In order to check if the command has been done successfully, check the returned error code.

On normal operation it returns the value zero. On error it returns a positive value.

Possible return values

Error code	Description
0	No errors occurred
1	Argument not valid
2	Invalid IP address
3	Invalid file name
4	Invalid command
5	Invalid action
6	Action not supported
7	Action failed
8	Connection error
9	Connection time out
10	Device not supported

C.16 Log files

Where to find

Log files are being created in the subfolder "cs_log". The files are created relatively from where you start the commands. A log file name is composed of the serial number and the device name of the Projector.

D. ENABLING HSPAN IN 4K PROJECTORS

D.1 Workaround to activate

Situation

Projecting 4K HFR images in Span mode is disabled by default.

Enabling the 4K HFR in Span mode

ICMP software version 1.2.0 or higher is required together with the Communicator software.

1. Connect to the 4K projector.
2. Go to *Media Server > Maintenance*.
3. Within *Media server settings*, click on **Export settings**.

Save the settings on your local PC as an XML file.

4. Edit the XML file with an xml-editor.
 - a) Search for the tag <DisplayPorts>
 - b) Each time the tag is found, add the line <EDIDType Value="4k others"/>
Example :

```
<DisplayPorts>
<IRQ2UnplugMode Value="Auto"/>
<EDIDType Value="4k others"/>
</DisplayPorts>
```
 - c) Save the file.

5. Go back to Communicator and click within *Media server settings* on **Import Settings**.

Import the updated XML file.

6. Restart the projector.

After a restart of the projector, it is possible to project image in 4K HFR in Span mode.

E. AUTOMATION OVER IP PROTOCOL

Overview

The current set of commands allows triggering the following:

- Actions: an action is a single command with user-defined parameters targeting a single automation device.
- Protocol control: commands that control the behavior of the protocol (e.g. turn on/off acknowledgment).

E.1 Command syntax

Action command

The following nomenclature is defined for action commands:

```
TARGET.ACTION [ , P1 , P2... ] ;
```

Target and action names are mandatory. Action parameters are action-specific and may be optional.

Protocol control command

```
CONTROL [ , P1 , P2... ] ;
```

The control name is mandatory. Control parameters are control-specific and may be optional.

Multiple commands

It is allowed to send multiple commands at the same time, the semicolon command separator. The below example is valid:

```
ACK,1;GPIO.Pulse Up,5,10;
```

E.2 Specifications

Reserved characters

Some characters are reserved for the protocol:

- The dot ('.') character is reserved for splitting a command (not relevant for control).
- The comma (',') character is reserved for separating command parameters.
- The semicolon (';') character is reserved for separating commands.
- The quotation mark ('"') is reserved for quoted strings.
- The backslash ('\') escape character.

Command identifiers

Command identifiers (TARGET, ACTION, and CONTROL) are defined as printable strings and the following constraints are defined:

- It shall only contain single byte characters from the printable ASCII character set. Range is from 0x20 to 0x7e.
- It shall not contain any reserved character unless it is escaped.
- Command identifiers are case-sensitive.

Parameter types, integer values

Integer values may be signed or unsigned. Bounding will be performed by the server counterpart.

Integer values are defined as decimal, hexadecimal, octal or binary strings.

The optional formatting character hash ('#'), following by the format character, allows to specify the integer representation. Default formatting is signed decimal value.

The format may be specified as follows:

- none: signed decimal integer (e.g. 10 or -10)
- '#u': unsigned decimal integer (e.g. #u65535)
- '#x': hexadecimal integer (e.g. #xffffff)
- '#o': octal integer (e.g. #o2507)
- '#b': binary integer (e.g. #b11111111)

A negative integer can only be represented by a decimal value, i.e. the minus ('-') character is illicit when formatting is present.

Parameter types, real number values

Real number values may be signed or unsigned. Bounding will be performed by the server counterpart.

Real number are defined as floating point strings with an optional dot ('.') character as the radix point position.

Parameter types, string values

String values are defined as quoted strings. The quoted string is delimited by starting and ending quotation mark characters.

Some characters within the quoted string shall be escaped:

- The escape character
- The quotation mark character

Un-escaping is the only processing that should be performed by the server counterpart. The quoted string is forwarded to be sent "as is" to the target.



The content of the string is not checked when receiving such command. An ACK may be returned even if the string content is not properly formatted.

Parameter types, others

Enumeration values are represented with integers.

No array parameters are defined, though they can easily be mimicked.

E.3 Action commands



The list of actions available via this protocol will be extended as new automation actions will be added in new software releases.

System automation devices

The list of available pre-defined automation device is static. The list of available actions for each device is summarized in "Automation Cues, about", page 339, *Predefined automation devices and actions*.

For example the below commands are valid:

```
PLAYER.Pause (seconds) , 10 ;  
PROJECTOR.Execute Macro , "2D_FLAT" ;
```

For GPIO actions, see "GPIO device actions reference", page 474.

For PLAYER actions, see "PLAYER device actions reference", page 475.

For PROJECTOR actions, see "PROJECTOR device actions reference", page 476.

User-defined automation devices

The list of available user devices depends on the settings of the target system. The devices can be found in the relevant Barco Communicator panel.

Devices can only be created from a list of pre-defined device types. The list of available device types and related actions is summarized in the below table.

Device type	Description	Actions
TCP UDP	Generic TCP or UDP automation device.	Send Text Send Hex Send Binary
JNIOR	Jnior TCP automation device.	Set Outputs Pulse Up Pulse Down Set Up Set Down Clear Input Counters Clear Input Usage Meter Clear Output Usage Meter Reset Input Latch Execute Macro

For TCP/UDP actions, see "TCP/UDP device actions reference", page 476.

For JNIOR actions, see "JNIOR device actions reference", page 477.

E.4 Control commands

Overview

The list of currently available control commands is summarized in the below table.

Command	Description
ACK	Enable/disable acknowledgement

For control commands, see "CONTROL commands reference", page 478.

Acknowledgment

Acknowledgment is turned on by the following command:

ACK, 1 ;

Acknowledgment is turned off by the following command:

ACK, 0 ;

Acknowledgement can be switched at any time. Once enable the server will acknowledge (or not) whether a command was fully received and parsed.



This is only a syntactic acknowledgment: a positive response does no guarantee that the command was actually send and/or received by the target device.

It is the only command that will trigger an answer from the server counterpart.

E.5 GPIO device actions reference



The range for the output index parameter starts at 1. The maximum value is 8 for the GPIO device.

The same commands are available for the JNIOR device for which the maximum value could be different depending on the hardware device.

Set Outputs

Description: Set GPIO output states.

Parameters:

Parameter	Type	Description
output mask	string	List the modified outputs and their assigned state in the following format: <output-index>=Up/Down To change multiple outputs, list them with a comma separator. The complete list must be inside quotation mark. Example: <code>GPIO.Set Outputs, "1=Up, 2=Down, 3=Down"</code> ;

Pulse Up

Description: Set pulse state up on a specific output.

Parameters:

Parameter	Type	Description
output index	unsigned integer	8 bits output index
duration	unsigned integer	Pulse duration in milliseconds

Pulse Down

Description: Set pulse state down on a specific output.

Parameters:

Parameter	Type	Description
output index	unsigned integer	8 bits output index
duration	unsigned integer	Pulse duration in milliseconds

Set Up

Description: Enable a specific output.

Parameters:

Parameter	Type	Description
output index	unsigned integer	8 bits output index

Set Down

Description: Disable a specific output.

Parameters:

Parameter	Type	Description
output index	unsigned integer	8 bits output index

E.6 PLAYER device actions reference

Play

Description: Start the playback of the currently selected content.

Parameters: none.

Stop

Description: Stop the playback of the currently selected content.

Parameters: none.

Pause

Description: Pause the current playback.

Parameters: none.

Pause (seconds)

Description: Pause the current playback for a specific duration then resume.

Parameters:

Parameter	Type	Description
duration	unsigned integer	Pause duration in seconds

Resume

Description: Resume the current playback.

Parameters: none.

Enable Schedule

Description: Set the schedule mode on

Parameters: none.

Disable Schedule

Description: Set the schedule mode off

Parameters: none.

Emergency Stop

Description: sets an error, forces the manual mode, stops the player and triggers automation events

Parameters: none.

Rewind (seconds)

Description: rewind the stream from n seconds.

Parameters:

Parameter	Type	Description
Offset	unsigned integer	Rewind Offset in seconds

Play Schedule Show

Description: Start the playback of the scheduled show when the scheduler is configured to wait for this trigger.

Parameters: none.

E.7 PROJECTOR device actions reference

Close Dowser

Description: Close the projector dowser.

Parameters: none.

Open Dowser

Description: Open the projector dowser.

Parameters: none.

Turn Lamp On

Description: Turn the projector lamp on.

Parameters: none.

Turn Lamp Off

Description: Turn the projector lamp off.

Parameters: none.

Execute Macro

Description: Execute the specified macro on the projector.

Parameters:

Parameter	Type	Description
macro	string	The name of the macro

E.8 TCP/UDP device actions reference

Send Text

Description: Send a device specific text command to the target device.

The content and meaning of the command is outside the scope of this document. The only requirement is that the string is escaped as defined in "Specifications", page 471.

Parameters:

Parameter	Type	Description
text	string	Text string

Send Hex

Description: Send a device specific hexadecimal string command to the target device.

The content and meaning of the command is outside the scope of this document. The only requirement is that the string is escaped as defined in "Specifications", page 471.

Parameters:

Parameter	Type	Description
hexadecimal text	string	Text string

Send Binary

Description: Send a device binary string command to the target device.

The content and meaning of the command is outside the scope of this document. The only requirement is that the string is escaped as defined in "Specifications", page 471.

Parameters:

Parameter	Type	Description
binary text	string	Text string

E.9 JNIOR device actions reference



The JNIOR device supports the same commands than the GPIO device. It also supports the following commands.

Clear input counters

Description: Allows to clear counters for a given input.

Parameters:

Parameter	Type	Description
Input index	unsigned int	8 bits output index

Clear input usage meter

Description: Allows to clear the usage meter for a given input.

Parameters:

Parameter	Type	Description
Input index	unsigned int	8 bits output index

Clear output usage meter

Description: Allows to clear the usage meter for a given output.

Parameters:

Parameter	Type	Description
Output index	unsigned int	8 bits output index

Reset input latch

Description: Allows to reset the latch corresponding to the supplied input index.

Parameters:

Parameter	Type	Description
Input index	unsigned int	8 bits output index

Execute Macro

Description: Allows to execute a specific macro on the Jnior.

Parameters:

Parameter	Type	Description
macro	String	The name of the macro

E.10 CONTROL commands reference

ACK

Description: Enable/disable the acknowledgment mechanism.

The mechanism is disabled by default. Note that the server may switch back to default when the TCP connection is lost or reset.

Parameters:

Parameter	Type	Description
onoff	integer	Acknowledgment status: 0=OFF, 1=ON.

Output parameters: N/A if acknowledgment is disabled.

Parameter	Type	Description
ack	string	Command acknowledgment: <ul style="list-style-type: none">- "ACK": command acknowledged- "NACK" : command not acknowledged

See Acknowledgment section in "Control commands", page 473 for further information.

E.11 Examples

Dolby CP850 Fader High

```
CP850.Send Text,"sys.fader=75\\0D\\0A";
```

The "CP850" device must exist.

The command string is escaped.

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Revision Sheet

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Please correct the following points in this documentation (**R59770483/21**):

page	wrong	correct