

Federation of South London Photographic Societies

Setting Up Your Projector and Laptop for PDI Competitions

Calibration and Profiling Overview

- A projector *profile* provides tables so that the colours projected match those of the image as closely as possible. Although our images are in the sRGB colour space, many projectors will not be able to faithfully project the whole sRGB gamut. Profiles aim to provide a close fit between the projector's capabilities and the sRGB gamut.
- A *colorimeter* (Spyder, etc.) or *spectrophotometer* (i1, ColorMunki, etc.) and associated software is used to produce the profile. Spectrophotometers are generally better, but modern colorimeters are cheaper and very good.
- Display and projector profiles contain two main tables: a *calibration table* and the *profile proper*. The calibration table gets loaded into the display adaptor when *DiCentra* starts up and the profile table is used to get the best colours from your image data when an image is projected. Both tables are produced during the profiling process.

Making Your Profile

- If at all possible, your profile should be made in the hall and with the computer you will be using for competitions. This way, reflections from walls, ceiling and floors that might produce a colour cast will be compensated for. The room should also be as dark as possible, to get greatest measurement accuracy and best shadow detail.
- Switch on the projector lamp as soon as you can before it is needed for the competition or profiling. Being in standby doesn't count! Measurements show that colour is still changing (slightly) after the lamp has been on for 30 minutes, but try to allow at least 15 minutes.
- Projectors usually have several standard settings, e.g. *Photo*, *Movie*, *sRGB*, *Computer*, *Saturated*. Changing these adjusts the colours, contrast and illumination. *Photo* and *sRGB* are usually good settings. Newer projectors may not have these so look for a setting that does not do content-aware adjustment (see below). Settings such as *Natural* and *Reference* may be what you need.
- (*Content-aware*: Projectors for the home theatre market have "smart" features which may brighten dark scenes automatically in their Cinema and related modes. Avoid these modes. Examples we have seen can brighten a low-key image by 1-2 stops, destroying the photographer's intended image.)
- It is not usually worth adjusting the R, G and B sliders or Brightness and Contrast. However, if you do, this must be done before you make your profile, and these exact same settings must be used whenever the profile is used.
- Although *sRGB*, *Photo*, *Reference* and *Natural* modes may reduce the output of your projector, it may still be a little bright. Using a lamp setting of *Economy* or *Low Fan Speed* will produce a less bright image, extending the life of the lamp and reducing the fan noise. Again, set it before making the profile and when you use the profile.
- If you are given a choice in the calibration software, set the gamma to 2.2, and the colour temperature to 6500K.
- Measurement devices have poor accuracy when measuring darker colours. It is therefore worth making two or three profiles at the same time and after viewing a set of test images with each of them, choosing the best profile. (For example, use

DiCentra and the *FSLPS projector samples 1400 x 1050* or ones that may be provided with the profile software to assess the profile.)

- On Windows your profile will be installed in:
C:\Windows\System32\spool\Drivers\Color
and the unsuitable profiles can be deleted from there.
- In rare circumstances, where all profiles produce a slight cast, it may be that using the *sRGB Color Space* profile in *DiCentra* will produce the most acceptable result.

On Competition Night

It is important to do the following when setting up the projector and laptop for the competition:

1. Switch on the projector lamp as soon as you can before it is needed for the competition or profiling. Being in standby doesn't count! Try to allow at least 15 minutes.
2. Ensure that the projector is being used at its *native resolution*. This will require the laptop and projector to be set up appropriately. If not, images are likely to appear slightly soft and in some extreme cases unwanted artefacts may appear.
3. It is possible that you may need to adjust the refresh rate of your PC's adaptor card to avoid "tearing" of fine detail in the image.

In Windows 7/8:

- Right-click on a plain area of the desktop and click on *Screen Resolution*.
- Click on *Advanced Settings*.
- Select the *Monitor* tab and adjust the *Screen Refresh Rate*. A setting can usually be found where tearing is minimised.

In Windows 10:

- Right-click on a plain area of the desktop and click on *Display Settings*.
 - Click on *Advanced Display Settings* then *Display adapter properties*.
 - Select the *Graphics Control Panel* tab and adjust the *Refresh Rate*. A setting can usually be found where tearing is minimised.
4. Start *DiCentra* and ensure that the correct profile is selected in *DiCentra*. If not, the colours will be inaccurate.
 5. Start the *FSLPS Samples 'competition'*. If you get a message indicating that the screen is too small for the competition:
 - Check that the screen dimensions are actually what you expect, e.g. 1400 x 1050 px or 1920 x 1080 px, by right-clicking on a blank area of the projector screen and selecting *Display Settings*, and then click on *Advanced Display Settings*.
 - Click on the relevant screen icon in the form that is displayed (1 or 2). If the resolution is incorrect, adjust it, otherwise go to the next step.
 - The problem is likely to be that your screen font size is set to something other than 100%. To fix it, go back to the *Display Settings* screen and adjust the *'... size of text, apps ...'* to 100% and click *Apply*.
 6. Use the first image of the *FSLPS projector samples 1400 x 1050* (or the 2nd image in *DiCentra's Competitions > Projector Setup*) to check:
 - the focus of the projector.

- that the red border is projected all the way round the image. If not, some pixels in the image will not be displayed.
- That the 1-pixel bars are not blurred.

Note: DiCentra does not use the area outside the red border so on a widescreen projector you may wish to zoom in so that this fills the screen.

7. Show the judge the *FSLPS projector samples 1400 x 1050* so that he/she is aware of the projector capabilities.

For further details on the above, see notes below.

In More Detail

Native Resolution

- **DiCentra 4.5 or earlier:**

In some cases for a 1400 x 1050 px projector, the screen format will be distorted to match that of the laptop screen. In such cases you will need to just use the projector screen, i.e. turn the laptop screen off (see below).

If you have a widescreen projector you must project at the projector's native resolution, e.g. 1920 x 1080 px or 1920 x 1200 px. Again, you will need to just use the projector screen.

Note: For a 1400 x 1050 px competition, DiCentra will add a black border in any unused areas.

Many laptops have a utility to select just the projector, or *Fn + F4* or *Fn + F8* may cycle round the various combinations of laptop screen and projector or *Window-P* will show you the options.

If not, **for Windows 7/8:**

1. Start up the PC and projector and right-click on a blank area of the Windows desktop. Click on *Personalize*.
2. Click on *Display* (bottom left) and then on *Adjust Resolution* (top left).
3. Under *Multiple Displays*, select *Show Desktop only on 2*. You will then need to click *Apply* and the desktop will now only be shown on the projector.
4. Under *Resolution*, set the display to the projector's native size - 1400 x 1050 px, 1920 x 1080 px etc.
5. If necessary, use the projector's menu to set the same resolution.

For Windows 10:

1. Start up the PC and projector and right-click on a blank area of the Windows desktop. Click on *Display Settings*.
2. Under *Multiple Displays*, select *Show only on 2*. You will then need to click *Apply* and the desktop will now only be shown on the projector.
3. Click on *Advanced Display Settings* and under *Resolution*, set the display to the projector's native size - 1400 x 1050 px, 1920 x 1080 px etc.
4. If necessary, use the projector's menu to set the same resolution.

- **DiCentra 4.6 and later:**

DiCentra version 4.6 and later supports dual screen working, where the competition images are shown on one screen (projector) and operator messages are shown on

the other (desktop). In this case the Windows Multiple Display setting needs to be *Extend these displays*. See below.

After you have done this, when you start DiCentra you will be asked to identify which screen is the projector and which is the desktop. Drag the dialogues to the appropriate screen. Once set up in this way you should not be asked again unless you change the projector resolution.

To extend displays for Windows 7/8:

1. Start up the PC and projector and right-click on a blank area of the Windows desktop. Click on *Personalize*.
2. Click on *Display* (bottom left) and then on *Adjust Resolution* (top left).
3. Under *Multiple Displays*, select *Extend these displays*. You will then need to click *Apply* and the desktop will now only be shown on the projector.
4. Under *Resolution*, set the display to the projector's native size - 1400 x 1050 px, 1920 x 1080 px etc.
5. If necessary, use the projector's menu to set the same resolution.

To extend displays for Windows 10:

1. Start up the PC and projector and right-click on a blank area of the Windows desktop. Click on *Display Settings*.
2. Under *Multiple Displays*, select *Extend these displays*. You will then need to click *Apply* and the desktop will now be extended to include the projector.
3. Click on *Advanced Display Settings* and under *Resolution*, set the display to the projector's native size - 1400 x 1050 px, 1920 x 1080 px etc.
4. If necessary, use the projector's menu to set the same resolution.

When you start DiCentra you will be asked to identify which screen is the projector and which is the desktop. Drag the dialogues to the appropriate screen. Once set up in this way you should not be asked again unless you change the projector resolution.

Projector Profile

- Start *DiCentra* and select your preferred profile from the drop-down at the top right of the window.
- Note: You will need to do this each time you restart *DiCentra*.

Projector Samples:

- In *DiCentra*, select and run the *FSLPS Projector Samples 1400 x 1050* competition.
- Check the first image to ensure that there is a red line visible around each outside edge of the image. If any red line is missing, use the projector's menu to shift the image horizontally or vertically.
- Check that the one pixel bars in the first image are not blurred. If they are, set the projector's keystone control to 0.
- Run through the *FSLPS Projector Samples 1400 x 1050* competition so that the judge can assess the capabilities of the projector.