iOne Display Calibration Questions and Answers

From x-rite site

Adobe Gamma Loader - How do I Disable this Program?

Adobe Gamma is a free, visually-based monitor calibration program that is installed automatically when Photoshop is installed on Windows computers. Adobe Gamma can interfere with monitor calibration software.

When you use an X-Rite (Monaco or Gretag included) application for creating display profiles, you should remove the Adobe Gamma Loader shortcut from the Startup program group on your system.

Proceed as follows:

- Click on "**Start**".
- Hover over "**Programs**" and then over "**Startup**".
- Right-click on the ***Adobe Gamma Loader*** and choose "**Delete**" from the dialog box.

This does not remove the Adobe Gamma Loader program or the Adobe Gamma Control Panel and is quite safe. When you create a display profile with your Monaco software, a shortcut to **MonacoGamma.exe** will be placed in the "**Startup**" program group so your profile will load properly.

Warning: Do not resave a display profile created by Monaco software with the ***Adobe Gamma Control Panel***. The Adobe Gamma Control Panel can alter your display profile if you load and save the profile within it. If your display profile is listed as the default under "**Display Properties**" - "**Settings**" - "**Advanced**" - "**Color Management**" and (if it) is being loaded by ***Monaco Gamma*** at startup, Adobe applications will recognize and use your display profile correctly.

Ambient Light measurement is not necessary when profiling your monitor

When using an i1Display2 or i1Spectrophotometer, i1Match will give you the option to take a measurement of ambient light conditions. While this is useful information to know, it is not necessary to do when profiling your monitor, and the results will not affect the monitor profile you create.

Ambient light (or the light conditions in the room around the monitor) can vary considerably in terms of color of the light and the intensity of the light. In a perfect world, we would either eliminate all room light or make sure that the room light was set to a known standard (we recommend 5000K as this standard light condition).

However, this is not always possible or convenient, due to room lighting conditions and types of lamps used in the average work area. Unless you have a really unusual lighting condition, or have a direct shadow or beam of light hitting the monitor and causing glare, you need not perform this measurement.

If you do choose to run the ambient light measurement, you may find that your work area has a color temperature other than 5000K, the only way to change this would be to buy different lights for your room lighting fixtures.

Ambient light temperature is very important when judging a print result however, and this is why professionals use a light booth set to 5000K, or walk to a window to judge a print result for accurate color.

Bad Calibration on Monitors with MacOS X

Q - The gamma curves in the feedback window of Eye-One Match have strange spikes after calibration and the monitor looks 'over-contrasted'. What could be the reason?

A - Your monitor was probably set to an unusual contrast behavior before you calibrated with Eye-One Match. To correct this, go to the MacOS X menu "Apple/System Preferences/Universal Access." Select the "Seeing" tab and make sure that the Contrast slider is set to "Normal." Repeat the monitor calibration with Eye-One Match.

Calibrate Multiple Monitors To The Same Color Appearance

Q - When I calibrate all of my monitors to the same white point and gamma, they seem to differ in their color appearance. Why is this?

A - Besides calibrating multiple monitors in a mixed Mac, Windows, LCD and CRT environment to the same white point, gamma, brightness and contrast, it is also very important to calibrate them to the same luminance value.

For instance, use a value of 100 cd/m2 if you want to match an LCD and CRT monitor. If a monitor is somewhat older and does not allow you to adjust it to 100 cd/m2, then use the highest possible value. This value should then be used as the target value for all other monitors. If a monitor is not able to deliver a minimum luminance of roughly 80 cd/m2, then this monitor is perhaps too old or out of factory luminance specifications.

Calibrating and profilng your glossy display

LCD displays with a glossy membrane can be profiled like any other display. Your measurement instrument should be flush against the display, which will eliminate glare from the display from affecting the calibration results.

If you experience a great deal of glare on your screen, you may want to lower your ambient lighting if at all possible. This will improve the accuracy of your color vision and in most cases will be more comfortable for your eyes.

CRTs and LCDs - Some Technical Background

CRTs are analog devices controlled by the varying voltages in the signal. There are also two controls for each of the three "beams" coming off the electron gun: bias and gain. When the three bias controls and gain controls are lumped together, you have contrast and brightness. All of these together control the floor and ceiling of the amplification (black and white luminance) as well as how quickly the luminance of the display increases from black to white. These are the controls most users know.

LCDs are digital devices and are a completely different animal. When run digitally, there is no bias or gain or contrast adjustment. The only variation is the intensity of the backlight. This is how LCDs connected to a computer through a DVI or ADC cable will operate. Unfortunately, digital interfaces for displays did not exist when LCDs were first introduced, so manufacturers tried to graft on analog controls since an analog signal was being used. This has caused mixed results. In most cases, setting brightness and/or contrast too high on an LCD with an analog connection will introduce clipping of the lighter tones.

Our goal is to achieve the highest contrast ratio and luminance without introducing clipping. We are measuring the luminance of a white patch and a very light gray patch and checking to see if there is an appropriate difference between them. We have found that some displays (usually laptops) will not produce a large enough luminance difference between the two patches regardless of the contrast setting. You can do this test visually. The alternating patches will be displayed continuously. If you can see them change with contrast all the way up, you can proceed. If not, turn the contrast down until you can see the difference and then proceed.

LCDs respond rather slowly to contrast and brightness adjustments and may take some time to stabilize. Since they change over time, this can cause the luminance of two sequential measurements to be greater or smaller, thus causing the indicator to move. That's why we recommend waiting for the indicator to stabilize. When the indicator stabilizes, the display probably has as well.

Desired Luminance Cannot be Reached on my Monitor

There are several reasons why your monitor may not reach your target luminance.

- Your monitor is several years old. The native luminance of an older monitor will be lower than a brand new monitor. To check the current maximum luminance, please set the color temperature to its highest value and then measure the luminance within Eye-One Match. This is the maximum cd/m2 that your monitor can output.
- Your color temperature target is 5000K or less. When you move the color temperature away from the monitor's native white point, the luminance will also be reduced. If you want to check the maximum possible luminance related to your desired color temperature, adjust the monitor's white point to the target temperature and then measure the maximum luminance with Eye-One Match.
- One of the RGB channels has been greatly reduced. Several combinations of R,G,B percentages can lead to the same color temperature. For example: 30% Blue, 70% Green, 80% Red or 50% Blue, 65% Green and 70% Red. For the first example, the desired luminance may not be achieved, because the Blue channel

delivers only 30% power. Try to find a combination for the desired color temperature where the RGB percentages are close together.

Dual Monitors on Windows Platforms

The Windows operating system is not able to set an individual ICC monitor profile for each of your dual monitors. This is something that is handled by the operating system and will occur in all Windows platforms including XP and Vista. This is a known issue with the operating system and only some video card models include a separate calibration curve loader.

To calibrate and profile dual monitors on Windows based system, your video card (driver) should provide the following features:

- Support for individual Video LUTs (lookup tables) for both monitors (support of two graphic chips)
- Support for handling individual ICC profiles for both monitors

If your video card does not support the handling of two ICC profiles, Microsoft provides a utility called Microsoft Color Control Panel Applet that allows to define individual ICC profiles for all of your connected hardware devices (monitor, printer, scanner, etc). This utility will run on Windows XP only. At the present time there is no work around for the Vista platform of this nature. If you are interested in further research on this applet you may locate the download and further documentation here.
X-Rite's Technical Support and Software Development teams have done extensive research using dual displays and the use of ICC profiles in these environments. We would like you to keep in mind that the most ideal way to run a dual display setup from one operating system is to have the ICC profiles applied from 2 separate video cards. This truly is the best way to ensure that the profiles are both generated and being applied correctly as so many cards do not allow the option utilize separate LUTs from one card. If you are creating and using 2 profiles on one card and are having issues with color, contrast, brightness or others, you may want to disconnect the secondary monitor and then try reprofiling the primary display to verify the accuracy. Researching the video card through the manufacturer is also a great place to start to verify what the specifications of your particular card can handle.

LCD Calibration Settings in i1Match

LCD displays only provide control over brightness. There is no bias or gain or contrast adjustment. The only variation is the intensity of the backlight.

There are two approaches to profiling your LCD display. The first is to select Advanced mode in i1Match, and then simply skip all of the adjustments except for the brightness settings. The second approach is to adjust the brightness to a level that is comfortable for your viewing environment, and then select Easy mode in i1Match to skip directly to the profiling step.

It is the profile that allows graphic packages like Photoshop to display accurate color on screen. The calibration portion helps your monitor behave in a consistent manner over time. Since these variables are unchangeable on an LCD, the concern over controlling them is moot. You will also find that LCD displays do not drift as rapidly as do CRT's. Because of this, control over bias, gain, and contrast are much less relevant on LCD's.

Monitor Profile Doesn't Load Automatically on my PC

Microsoft has published a hotfix for the problem of the calibration curves unloading when the secure desktop launches in Vista. The fix is included in security update MS08-025. The calibration fix is only installed on Vista SP1 and later. If MS08-025 is installed on a non-SP1 system, the calibration fix is not installed.

If this fix fails to correct the problem, Windows Defender could be the culprit. Try shutting off Windows Defender by following these steps:

1. Navigate to Control Panel and then double click on "Windows Defender" to open it.
2. Select "Tools" and then "Options".
3. Scroll to the bottom of the page of options and **uncheck the "Use Windows Defender" check box** in the "Administrator options" section.
4. Click on "Save" and then "Close" in the resulting Windows Defender information window.

5. Restart the the computer to turn off Windows Defender and check to see if the monitor profile loads automatically.

The Windows Firewall could also be causing the OS to lose the profile. Use the following instructions to set exceptions to "CalibrationLoader.exe" in i1Match 3:

1. Navigate to Control Panel and then double click on "Windows Firewall" to open it.
2. If the firewall is on, select "change settings" and then click on the "Exceptions" tab.
3. Select "Add Program" and then "Browse".
4. Click on "Computer" and then navigate to the "CalibrationLoader.exe" at: C:\Program Files (will be "Program Files (x86)" on 64-bit Vista)\GretagMacbeth\i1\Eye-One Match 3\Calibration Loader
5. Select the "CalibrationLoader.exe" > "Open" > "OK" > and "OK" to set the exception to the firewall.
6. Restart the PC to allow exceptions to start properly.

Also with i1Match3 users, check to see if "Logo Calibration Loader" is in the Startup menu (Windows Start > All Programs > Startup). If not, save a shortcut on the desktop to the "CalibrationLoader.exe" at: C:\Program Files (will be "Program Files (x86)" on 64-bit Vista)\GretagMacbeth\i1\Eye-One Match 3\Calibration Loader. Drag the shortcut to the Startup menu.

Finally, if all else fails, you can manually re-launch your calibration curve by going to Start > Startup and double-clicking the correct calibration loader for your profling application.

Placement of your i1Display2

When i1Match software asks you to place the i1Display2 or i1 on the screen, many people place the measurement device in the middle of the monitor, thinking that is the only place it can be used. We usually recommend that you first check to see if you have the ability on your computer monitor to move where the On Screen Display (OSD) is shown.

Most monitors bring the OSD up in the exact middle of the monitor, and normally you will need to view these settings while building an Advanced mode profile. The OSD needs to be seen by you, and to not interfere with the color patches our software will display.

If you are using an LCD monitor, most modern LCD's are very consistent across the surface of the monitor, so placing the i1Display2 slightly off-center, so you can read the OSD, without having to move our device. Most people find it easier to move the i1Display2, than change the OSD.

If you do have the ability on your monitor to change the location of the OSD, so that you can place the i1Display2 in the middle of the monitor, you certainly can do so.

Why Gamma 2.2 for Apple Monitors?

We almost always recommend selecting a target gamma of 2.2 when your profile your display. Most monitors have a native gamma that is close to 2.2, so by using the 2.2 setting you will get a more linear and consistent result in your soft proofing.

Apple monitors at one time standarized on a gamma of 1.8 because it produced a closer preview to the Apple Laser Writers. However, Apple now recommends a gamma of 2.2 for their LCD displays.

You can always test the optimum setting for your soft proofing workflow by creating monitor profiles with target gammas of 1.8 and 2.2. Compare to see which setting gives you the best results for your workflow.

Greenish or Pinkish Color Shift on Calibrated LCD Monitor

The color cast (if it is only a slight cast, e.g. to greenish) may be caused by the fact that the color management software creates gamma curves with an individual gamma value for each RGB channel. They normally differ only very slightly, e.g. RGB = 2.18, 2.24, 2.21. In most cases, the individual gammas deliver best neutral results. For some cases, this may cause a slightly color shift. If this happens, please try the 'Laptop' mode for your LCD display. The 'Laptop' mode creates gamma curves with the same gamma value for all three RGB channels.

My iMac luminance value in i1Match is too high!

Many owners of iMac computers, particularly the aluminum fronted Intel models, have found that their monitor will not dim down sufficiently to reach the recommended LCD luminance value of 120 cd/m2. The design of the Apple iMac is such that there is no immediately apparent way to change this.

Some people will then explore in their System Preferences to see if they can find some "hidden" buttons to further lower the monitor's brightness. This will often cause image quality problems. We are not aware of any correct method of making the iMac monitor dimmer, once you have the brightness slider all the way to the left (minimum).

We are aware of some third party utility programs that claim to lower the brightness of the monitor even further than Apple's own controls. They do an effective job of reducing screen brightness, but at the expense of color temperature accuracy. X-Rite cannot recommend the use of any of these program, and cannot troubleshoot the color issues that they might introduce.

The design strategy of Apple monitors in general is to be minimal in the number of controls that are available to the end user. This doesn't mean that the monitor is any less capable of excellent color reproduction on screen. The lack of adjustment range in brightness is more often found on iMacs, rather than on Apple Cinema monitors.

Color Cast on laptop displays

Color casts on laptop displays can be the result of the white point selected. Very often the native white point on these displays is lower than the white point selected. When this is the case, the software based calibration uses curves to raise the color temperature. Driving the monitor to the higher color temperature can lead to a magenta cast.

Example: If the native white point on your monitor is 6200K, but 6500K is selected as the desired white point, a magenta cast could be the result.

The proper strategy here is to select "monitor native" as the white point.