**Color Sustainer**

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[**Guru3D page**](http://forums.guru3d.com/showthread.php?p=4758590)

Contents

[**Introduction** 2](#_Toc379229175)

[**Features** 2](#_Toc379229176)

[Detect 2](#_Toc379229177)

[Associate color profiles 2](#_Toc379229178)

[Change active display mode 2](#_Toc379229179)

[**Settings** 3](#_Toc379229180)

[Load Linear Curve By Default 3](#_Toc379229181)

[Load Linear Curve On Exit 3](#_Toc379229182)

[Lock Loaded Profiles 3](#_Toc379229183)

[Polling period 3](#_Toc379229184)

[Run on Startup 3](#_Toc379229185)

[Enable Tray Icon 3](#_Toc379229186)

[LUT Bit Depth 3](#_Toc379229187)

[Detection and Color Profile Application 4](#_Toc379229188)

[**Command-line arguments** 4](#_Toc379229189)

[**Additional Notes** 4](#_Toc379229190)

# Introduction

Color Sustainer is an application that allows you to associate color profiles with particular display modes. These profiles are loaded automatically for their respective modes as you:

* switch displays on and off
* add and remove displays
* change display modes - from Windows, games, media players, this application, or any other application
* load up full-screen applications (e.g. games) that reset and override (but not ignore) set color profiles.

# Features

## Detect

Press the big "Detect" button to detect active displays, their respective resolutions, and their respective display modes.

If you have previously detected displays, then pressing the "Detect" button again will detect any additional monitors and add them to the list.

This way, you could have 3 displays on hand and only 2 are connected at a time. Press "Detect" for two of these displays, then substitute one of the displays for the third and press "Detect" again. You will then find the 3 displays listed.

Associate color profiles

Click on a display, then a resolution, then a display mode and associate a color profile or a pre-defined keyword / tint of your choice. Tints are used to check if:

* color profiles are loaded for their respective display modes
* if an application is resetting, overriding, or ignoring color profiles

**Pre-defined keywords are:**

-**LINEAR**: forces a linear curve regardless of the "Load Linear Curve By Default" option (see below).

-**NULL**: forces the application to ignore the display mode regardless of the "Load Linear Curve By Default" option (see below).

-**Pre-defined color tints**: RED, GREEN, BLUE, YELLOW, CYAN, MAGENTA. These are the strongest tints that Windows allows to be loaded.

Change active display mode

Right-click an inactive display mode for an active display and click "Change To Mode" to change the display's active display mode to that mode.

# Settings

Load Linear Curve By Default

Display modes that are active but have no associated color profiles will have a linear curve loaded, meaning they will be set back to default colors (no color profile).

Load Linear Curve On Exit

As the application exits, linear curves are loaded for all displays that have been detected and listed in the application.

Lock Loaded Profiles

Preserves color profiles that have been associated and loaded for their respective display modes, given that an application resets or overrides the color profile(s).

Polling period

The interval for which the application will check for any changes in active displays and display modes, then apply the associated color profiles for their respective display modes.

Run on Startup

If either setting is / both settings are checked within "Run on Startup", the application will run on startup. If both settings are not checked, the application will not run on startup.

* **Start Automatically**: Starts the process of detection and color profile application (mentioned below) automatically with the application on startup
* **Minimize to Tray**: Keeps the application minimized to tray on startup

Enable Tray Icon

Enables a tray icon so that minimizing the application minimizes it to tray.

LUT Bit Depth [TECHNICAL]

This [forum post](http://forums.guru3d.com/showpost.php?p=4740861&postcount=599) goes into LUT bit depth in part. Basically, Nvidia uses 8-bit LUTs on its GeForce cards, AMD uses 10-bit LUTs on its Radeon cards. Nvidia GeForce supports 8-bit (per color channel) displays, while AMD Radeon supports 8- and 10-bit (per color channel) displays. On 8-bit displays, AMD cards still use a 10-bit LUT and employ dithering to lessen (~eliminate) gradient banding. Nvidia GeForce cards do not do so.

**Result**:

* AMD Radeon + 8-bit display + color profile = ~no gradient banding
* Nvidia GeForce + 8-bit display + color profile = gradient banding

This feature allows you to truncate additional bits from the default 16-bit values that are read from the color profile so that the loaded values become 8-bit or 10-bit. This allows the simulation of an 8-bit LUT on AMD Radeon cards, and the option to view the differences between 8-bit and 10-bit values on Nvidia GeForce cards to verify if Nvidia will have supported using 10-bit LUTs for 8-bit displays and employing dithering to ~eliminate gradient banding.

## Detection and Color Profile Application

Press **File-->Start** to start the process of detecting changes in displays and display modes and applying the associated color profiles for their respective display modes.

# Command-line arguments

\* **-start**: loads the application and starts the process of detection and color profile application

\* **-hide**: loads the application minimized to tray

\* Use both arguments together to start the application minimized to tray and start the process of detection and color profile application automatically.

# Additional Notes

This application requires the **Microsoft Visual C++ 2010 redistributable** to be installed.

The application loads all the color profiles, parses them, and holds the color profile information (gamma ramps) in memory just after it is launched. Hard drives that had been spun down are woken up on launch. If a profile had been previously accepted as valid by the application but fails to be found or loaded after the application is closed then launched again later on, it is marked in red when you switch to its respective display mode. The display mode is considered to have no associated profile and is treated as such.