**Color Sustainer**

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

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# 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" buttons under Monitor, Resolution, and Modes to respectively detect active displays, their respective resolutions, and their respective display modes.

If you have previously detected displays, resolutions, or modes, then pressing the "Detect" buttons again will respectively detect any additional monitors, resolutions, or modes and add them to the lists.

Example 1: You could have 3 displays on hand and only 2 are connected at a time. Press "Detect" under Monitors while two of these displays are connected and active, then substitute one of the displays for the third and press "Detect" again. You will then find the 3 displays listed.

Example 2: You have defined a new custom resolution for a previously detected monitor. While that monitor is selected, pressing “Detect” under Resolutions does the following:

* Deletes the resolutions that no longer exist and have no modes with associated color profiles
* Adds the newly defined custom resolution

Example 3: You have added a new refresh rate at the native resolution for a previously detected monitor. While that monitor is selected, pressing “Detect” under Modes does the following:

* Deletes the modes that no longer exist and have no associated color profiles
* Adds the newly defined refresh rate

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 display color profile association mode

Right-click a display in mode-specific mode (default) and click "Change to Global" to associate a single global color profile to the display. Right-click a display in global mode and click "Change to Mode-specific" to associate color profiles to specific display modes.

# **Settings**

## Color Profile Association Mode

* **Global:** Displays that are newly detected are automatically set to Global mode. One global color profile, independent of display mode, can now be associated with the display.
* **Mode-specific:** Displays that are newly detected are automatically set to Mode-specific mode. Color profiles specific to certain display modes of the display can now be associated.

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.

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.

Enable Tray Icon

Enables a tray icon so that closing the application closes it to tray.

## Check for Updates Periodically

Allows the application to check for software updates periodically, at launch and once every 24 hours.

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

## 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.