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Here is a list of the major topics in the 3Deep Help system. Choose any subject and click on it to jump to the appropriate help screen. Use the Search command to locate other topics.

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Disclaimer

For Help on Help, Press F1

Navigating 3Deep

Navigating through 3Deep is easy, especially if you use a mouse. If you don't have a mouse, use the Tab key to move forward and Shift+Tab to move backward to the button, listing, or color square you want. Once you've highlighted your choice, hit Enter.

How It Works

3Deep ensures that your monitor displays 3D games with accurate lighting and shading (gamma).   It delivers the exact game environment that the game developer intended you to experience. It will work with any display and any video card that is PC98 compliant or later.

Using 3Deep you make a series of choices about colors displayed on-screen, 3Deep then uses this information to characterize your monitor so that it knows what gamma adjustments are necessary during game time.

3Deep communicates with the game and sets a precise combination of red, green and blue (primary colors) gamma values as needed to display perfect 3D imagery.

Since the calibration choices you make are subjective judgments, 3Deep may not be as precise as the more expensive devices (colorimeters and densitometers) used by some graphics professionals. However, 3Deep is highly accurate and is able to communicate with 3D games making significant improvements in matching what you see on your monitor to what the game developer intended.

You should re-run 3Deep calibration whenever you change the settings on your display.

LCD AutoAngle

The Contrast and color of a Flat Panel Display can vary depending on the angle you view it. The LCD AutoAngle screen helps you adjust your Flat Panel Display to the optimum viewing angle for the most consistent color
Your display should look like this:
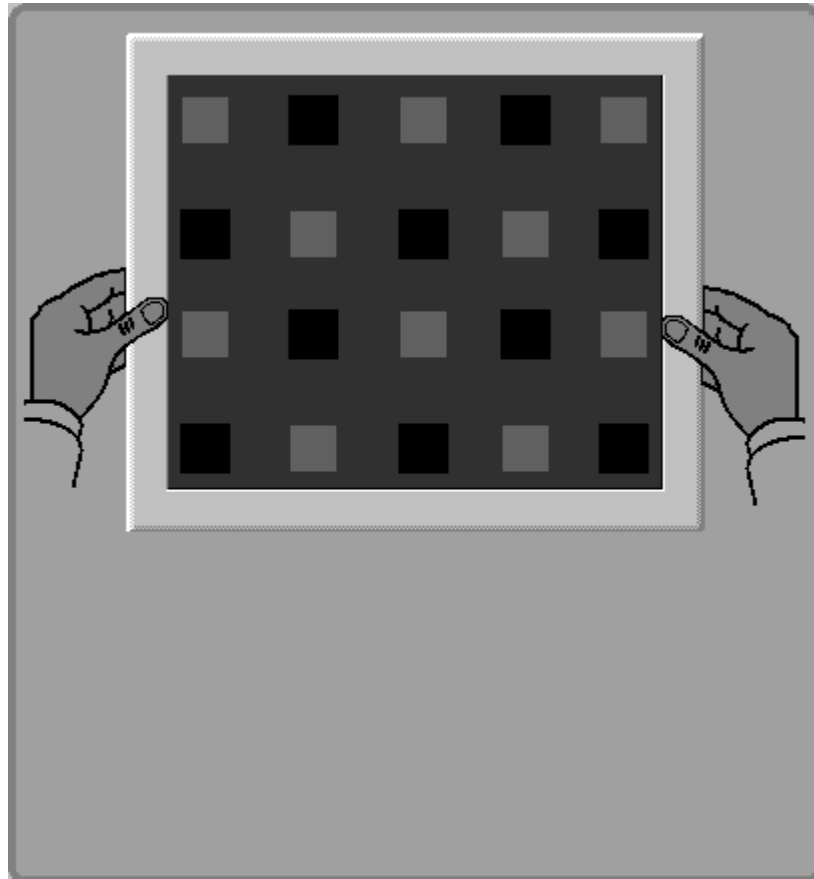
Angle the Flat Panel backward or forward until the black checkered pattern in the screen "disappears" into the black background. This pattern remains in the background of the Color Wizard for use during the rest of the calibration.
If you cannot see any black checkered pattern at all, regardless of the angle, the Brightness on your display may be set too low.
LCD AutoAngle is also available on the taskbar to help you set the optimum viewing angle of your Flat Panel anytime.

CRT Brightness Adjustment

The objective of this screen is to adjust the Brightness (☼) control on your monitor so that the furthest set of mountains disappears. Once set, don't change the setting.
Your display should look like this:

Please be careful to only adjust the Brightness   (☼) control. The Contrast (
◗) control should remain at its brightest setting for now.

Flat Panel Contrast Adjustment

This screen is used while running the Color Wizard on Flat Panel Displays. If your display has a Contrast (◗) control, adjust the Contrast (
◗) control down all the way. Then adjust the Contrast (
◗) control up on your display until the furthest set of mountains disappears completely.
Your display should look like this:

Please be careful to only adjust the Contrast (◗) control. The Brightness (
☼) control should remain at a setting that is comfortable for you.

Shadows and Highlights

Pick the square on each color strip that appears to blend into the background. You can choose a spot halfway between two squares if that seems more precise.
If this choice is difficult to make, blur your vision slightly by squinting or removing your glasses, if you wear them, to sense an overall tone and *not notice the colored stripes.*
You'll be asked to perform this task twice for different variations of the pattern.
Your display should look like this:
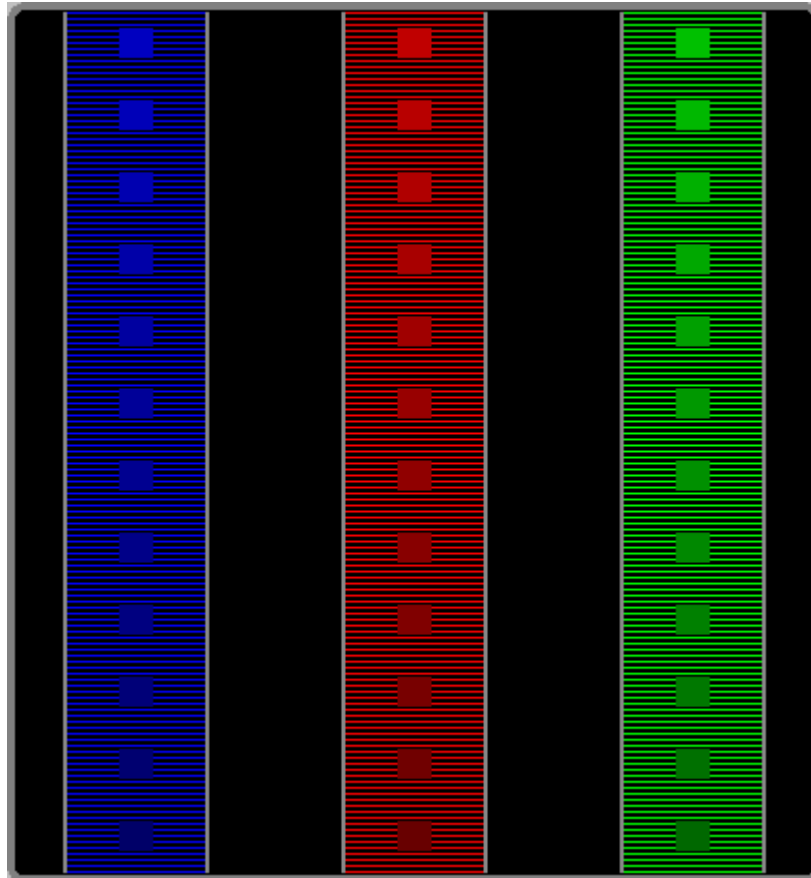
3Deep uses the information from this screen to help set the monitor's gamma for each primary color. Gamma is a measure of the relationship between the Brightness of the color you see on your screen and the amount of voltage the system is feeding to the monitor.

Flat Panel Display Red, Green and Blue

Adjust each slider under each square until the stripe blends into the background.
If this choice is difficult to make, blur your vision slightly by squinting or removing your glasses, if you wear them, to sense an overall tone and *not notice the colored stripes.*
You'll be asked to perform this task once for each color.
Your display should look like this:

3Deep uses the information from this screen to help set the Flat Panel Display's gamma for each primary color. Gamma is a measure of the relationship between the Brightness of the color you see on your screen and the amount of voltage the system is feeding to the display.
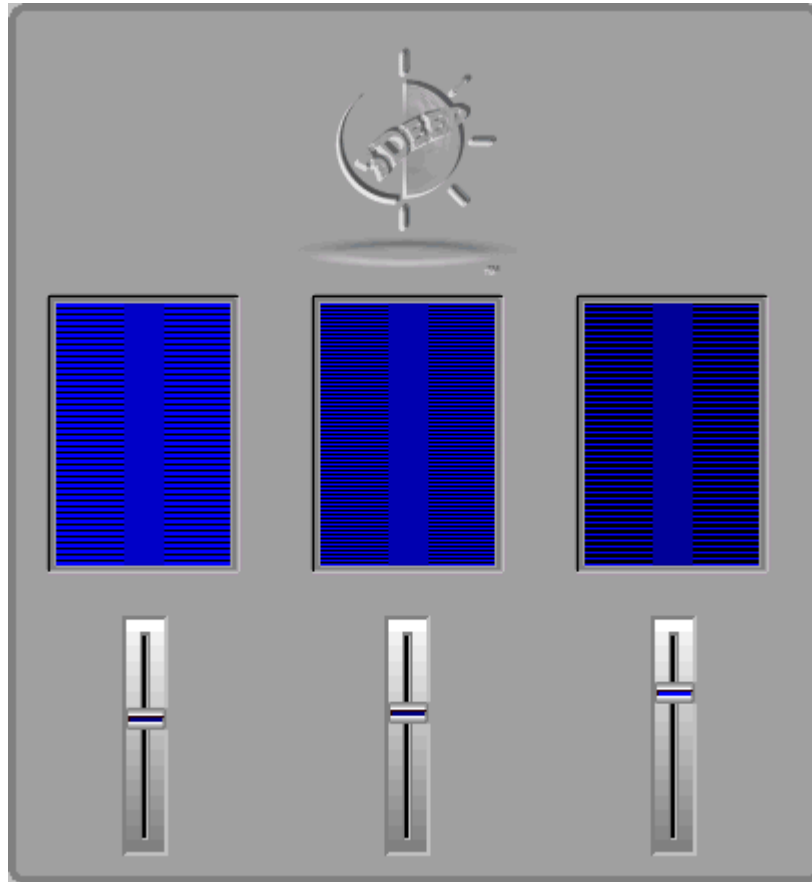
CRT Black Point Measurement

Pick the rectangle on each color strip where you see just a hint of color. You must choose a specific spot unlike the shadows/highlights screen, there is no in-between.

Your display should look like this:
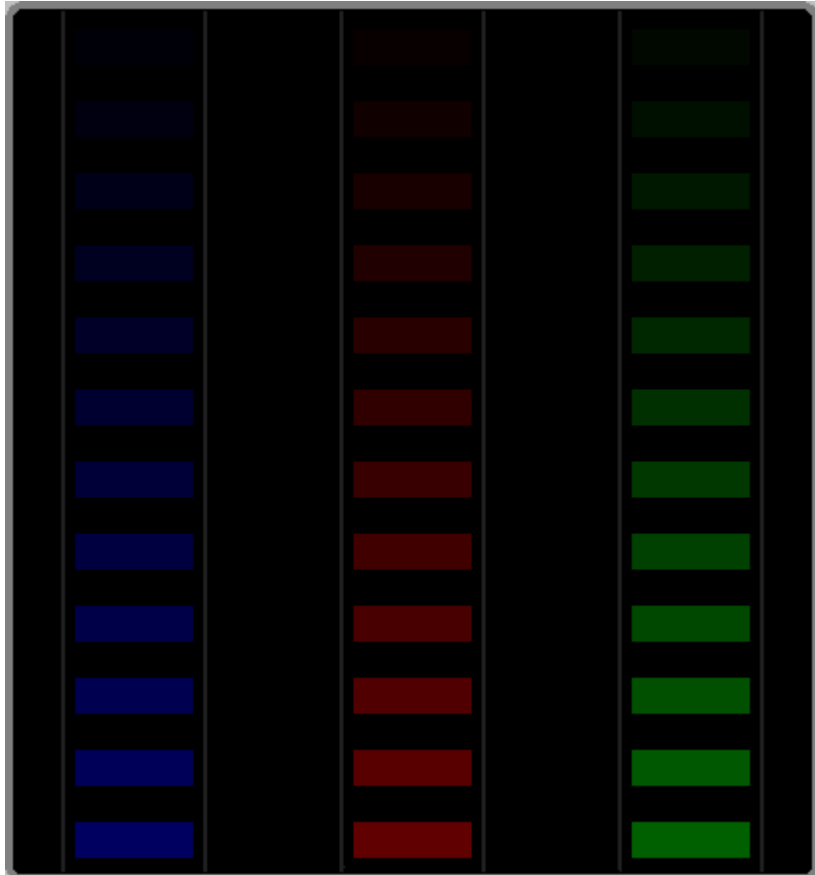
3Deep needs the information from this screen to determine the monitor's black point cut-off value for each primary color.

Lighting Type and Color Key (or Color Card)

Turn on your room lights as brightly as possible for the next two steps of 3Deep Color Wizard. After the process is complete, you can return your lighting to its normal state.

Some rooms have mixed lighting or varying amounts of sunshine during the day. A single type of bright illumination will yield best results, so adjust your ambient lighting accordingly. Due to variations in daylight over the course of the day, it is best not to use natural light, even if that is the light you normally work under. Close your window shades, if possible, and bring an extra lamp of the appropriate type to your workspace. You can return to your normal lighting after this step.

Select the primary type of lighting in your workspace. Using only the selected light source, make your work area as bright as possible (Its is OK if you don't normally work under such bright lights. You can restore your normal lighting after running the Color Wizard).

If you have a CRT monitor : You should now remove the Color Key(TM) (or Color Card) from its white cardboard backing and adhere it to the face of your monitor in the space indicated.

If you have a Flat Panel Display or Notebook : You should now place the Color Key at the base of your screen so it rests against the display panel. **Please note :** Do not remove the white cardboard backing.

Spectral Code : The Spectral Code identifies your Color Key (or Color Card) to 3Deep. Make sure that the Spectral Code that appears on this screen matches the Spectral Code on your Color Key (or serial number on the back of your Color Card).

If it does not you can click on the Spectral Code number and type in the correct Spectral Code (or serial number).
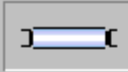
Fluorescent   Incandescent   Halogen   Daylight

Place

Color Key

Here

D12-345-678

Matching the Color Key (or Color Card)

Adjust the slider on the screen all the way down, then slowly up. Find a setting where the Brightness of the Color Key (or Color Card) and the screen seem about the same. (Try to match *Brightness*, not color). It might help to squint slightly to relax your vision. There is no right answer; just do your best. If the card is too dark to match the monitor, bring a lamp of the appropriate type closer to the face of the monitor.
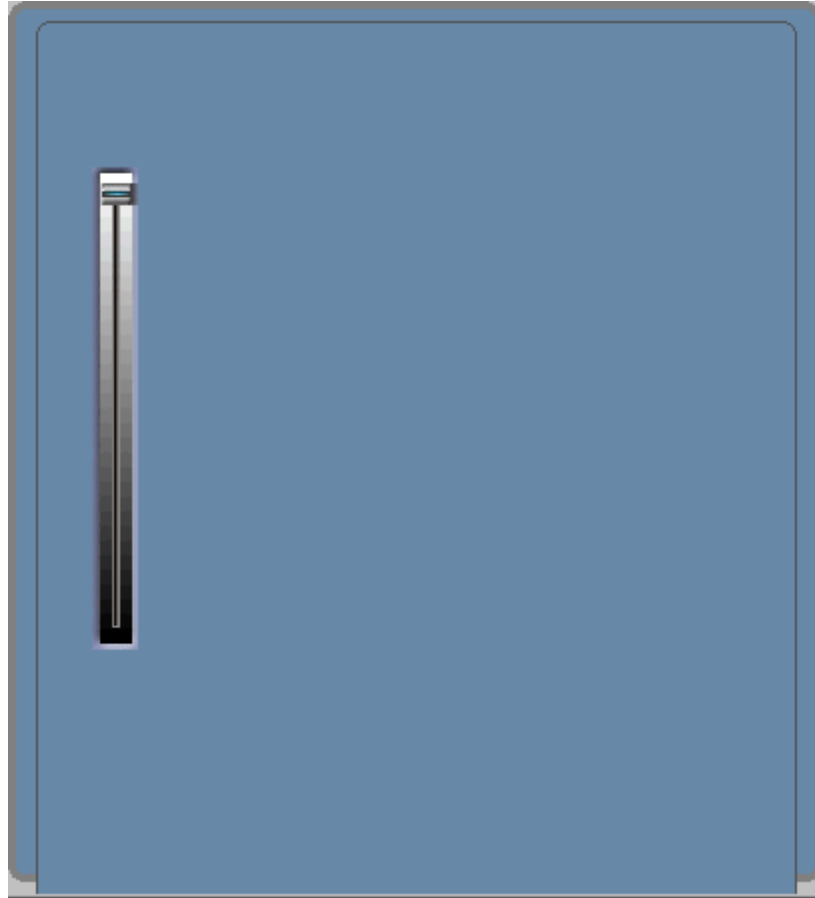
Leave the Color Key (or Color Card) on your screen and click Next.

Then, adjust the slider on the screen until the Color Key (or Color Card) matches the display around the Color Key. Focus on both edges of the card simultaneously.

Try to consider only color (hue), not Brightness or saturation. If the Color Key does not match the display around the Color Key, go back to the Luminance screen and adjust that slider or bring a lamp of the appropriate type closer to your workspace and make sure the Color Key is brightly illuminated.

It's OK if the color match isn't exact.

This measurement helps 3Deep determine the white point of your monitor, that state in which the three primary colors are balanced to produce a neutral white.).
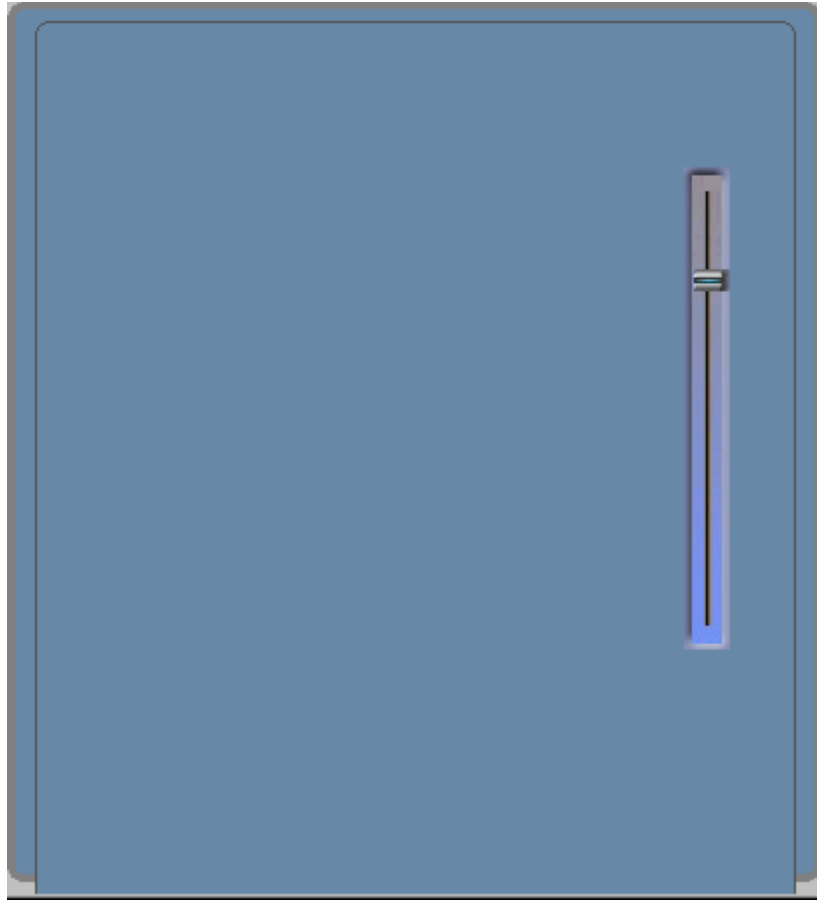
Warning: Be careful not to change the setting of the Brightness (☼) control. If you do so accidentally, you will need to re-run the Color Wizard from the beginning.

Done!

The 3Deep Color Wizard will create the characterization profile for your display after you click on the Finish button on the last screen.. Remove the Color Key (or Color Card) from your screen. At this time you can also return your room lighting to its usual state, if necessary.

Warning:

If you are using a CRT monitor Do not change your Brightness (☼) control again.

If you are using a Flat Panel Display or a notebook Do not change your Contrast (◗) control again. If you do, your color matching will be inaccurate.

Please note: If you do not have a system that provides support for gamma ramps, you will be given the following message : "You're done! The Color Wizard has fully characterized the colors of your display." For more information on gamma ramp support, see Optimizing Your Display's Color Balance in Windows

High Black Point Value

You have chosen a value that is very high. This may mean that your Brightness (☼) control is set too low. If you do not increase it, the number of colors your monitor can display (its dynamic range) will be reduced. For the best viewing results with your monitor, choose the Reset button in this warning dialog box to return to the Brightness Adjustment screen. Increase the Brightness setting of your monitor so that you can see all of the circles. Then proceed with Color Wizard.

Exit Warning

If this warning appears, you have tried to leave the 3Deep Color Wizard before the calibration has been completed. If you quit now, all the data gathered will be thrown away, and you will have to start over.

Disclaimer

This software is provided as a service. **E-Color, Inc. makes no warranty or representation, either express or implied, with respect to this software and its quality, performance, merchantability, or fitness for a particular purpose. E-Color, Inc. makes no warranty or representation, either express or implied, with respect to the media upon which the software resides. In no event will E-Color, Inc. be liable for direct, indirect, special, incidental, or consequential damages resulting from any defect in the software or its documentation.** No person is authorized to make any warranty on this software. 3Deep cannot be sold in its current or any modified form. 3Deep is the property of its owners as stated in its copyright notice.

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For Best Results

Here is a collection of tips and warnings that will help 3Deep give you the best color on
your monitor and the best printed output.

If you are using an **Flat Panel Display**, make sure you are viewing it in **Normal** Resolution, not
Expanded Mode. You can usually check this through the on-screen display controls fo your Flat
Panel Display.

Let your monitor **warm up** for at least 30 minutes before beginning the calibration. This process
allows the colors to stabilize.

Before you begin **critical color work**, recalibrate your system with 3Deep. Run the 3Deep Color
Wizard at least twice a year for best results.

If your monitor has some type of color adjustment controls, adjust them to your liking first, **before
running 3Deep.**

If your monitor has a **degauss button** press it before you calibrate. If you don't have one, then
your monitor has an automatic degauss cycle that works when you turn your monitor off and then
on again, even if there is no outward indication of it.

Some work environments have **more than one type of light**. A single type of light
will yield the best results, especially during the last two steps of the 3Deep Color
Wizard, in which you use the Color Key (or Color Card) on the screen. At these
steps, adjust your room lighting as described in the linked Help topic to get the
best results. After completing all of 3Deep's color choices, you can return to
normal room lighting.

White Point Measurement

Adjust the slider on the screen until theColor Key (or Color Card) matches the display around the Color Key. Focus on both edges of the card simultaneously.

Try to consider only color (hue), not Brightness or saturation. If the Color Key does not match the display around the Color Key, go back to the Luminance screen and adjust that slider or bring a lamp of the appropriate type closer to your workspace and make sure the Color Key is brightly illuminated.

It's OK if the color match isn't exact.

This measurement helps 3Deep determine the white point of your monitor, that state in which the three primary colors are balanced to produce a neutral white.

What is True Internet Color®?

3Deep works in conjunction with browsers and tools to provide accurate color when you view or create Web sites. True Internet Color has two parts—the first part lets a designer create color-correctable Web pages, the second part, the True Internet Color Icon, identifies color safe websites and lets consumers view those pages as the web developer intended.

Web Viewing

With True Internet Color, web surfers can see color on a web site as it was intended to be seen. When 3Deep enables True Internet Color on your PC, it displays an icon on the taskbar and momentarily changes your cursor to show if the web page you are viewing is color corrected. Just like the "lock and key" icon that tells you that you are on a secure site, the True Internet Color icon tells you that what you are seeing on the web page are the colors the web author wanted you to see.

Learn more about True Internet Color at http://www.trueinternetcolor.com

Additive Color

The method used by your monitor to form colors is called the "additive method." Additive color is the addition (sum) of red, green and blue "lights." On the screen of the monitor you will find either microscopic dots or rectangles of red, green, and blue phosphors. (Phosphors convert the stream of electrons aimed at the screen to red, green, or blue light.) At a distance, your eye adds the light from the little red, green, and blue dots into colors depending on the intensity of the individual red, green, and blue phosphors.

For the skeptic: take a magnifying glass and look at the various colors on your monitor. You will notice that all colors are combinations of red, green, and blue light.

Answers - Right and Wrong

3Deep assumes that you read and follow the instructions on screen. Assuming you do your best and perform the tasks on <u>every screen</u>, there are no wrong answers.

The 3Deep Color Wizard measures the color on-screen as you see it. This will always be "right" by definition if you perform every task requested to the best of your ability.

Black Point Cutoff

The black point cutoff of your display is the amount of video signal just before you begin to see color on screen. By telling 3Deep the faintest color patch you see on-screen, you will determine the amount of video signal which looks black versus that amount of video signal where the color is visible.

The black point cutoff changes when you change your Brightness (☼)control. So once you set this control with the 3Deep Color Wizard, don't change it again without recalibrating your monitor with 3Deep.

Color Gamut

The term *color gamut* denotes the range of colors that can be reproduced by a device. If you plotted the color gamuts of monitors and printers on a graph, you would see that they are quite different in shape and size. In general, monitors can display many more colors than printers can reproduce. A consequence of this difference is that each monitor and printer combination have some colors in common, but not all. The colors that are not common are said to be "out of gamut." Out of gamut is a relative idea. For example, if the printer gamut is the reference, then some colors displayed on the monitor may be "out of the gamut of the printer." The reverse can also be true, particularly with the blue-green (cyan) colors.

Color Temperature

Color temperature is a shorthand notation to specify a property of light sources, for example, light bulbs and monitors. It is based on the idea of the visual equivalence between the source and the temperature of a so-called "blackbody." A blackbody has the property that the amount of red, green, and blue light emitted is completely specified by its temperature. A common example is an electrical heating element. At room temperature the element appears black. As the temperature increases the element appears a deep red color. At higher temperatures it becomes yellow. If the heating element temperature could be increased further, without burning up, it would look white then bluish white.

At each stage we can take the temperature of the element using the Kelvin (absolute) temperature scale and associate the color appearance with the temperature. As an experiment, we can set up our monitor in a white screen and place it next to a heating element. As the temperature of the heating element increases it will approach the color of the monitor's white screen. At the point where they match, the temperature of the heating element, as measured in Kelvin, is the white point color temperature of your screen. The appearance of the monitor white is correlated to the temperature of the heating element.

A 5000K white point is considered the standard viewing condition for color evaluation of printed material. Many software packages call a 5000K white point "Paper White." Most monitors, on the other hand, have a default setting of 9300K, a bluer tone than 5000K.

Related Topics

Optimizing Your Display's Color Balance in Windows

Color Space

Color spaces are defined by a set of three axes, forming a three-dimensional space. Individual colors are defined by coordinates (three numbers) that correspond to its relative position on the three axes. The color space is designed to represent the nature of the human perception of color. There are several CIE color "spaces" or coordinate systems: XYZ; L*A*B*; L*U*V* and RGB.

White Point

The color displayed on the monitor with equal amounts of red, green, and blue light is called the "white point." In actuality, monitor "white" is not white at all; it varies from yellow to blue. In the real world you are not aware of the "color" of white because your visual system constantly adapts.

However, for color specification some absolute reference point is needed and it is common to specify the white point as a correlated color temperature in Kelvin.

Gamma

Gamma is a measure of the relationship between the Brightness of the color you see on your screen and the amount of voltage the computer is feeding to the monitor.

Copyrights

3Deep Software:

Technical Support

Please refer to the Troubleshooting sections of your manual and this Help file, or click on the Search button in these Help screens, to find answers to common questions. There are also Help screens offering instructions for configuring 3Deep to work with specific graphics applications.

For other questions, contact E-Color via telephone, fax, or internet:

Internet: http://www.ecolor.com/tech_support
Voice only: (415) 957-0152
Fax: (415) 777-1230
E-mail: info@ecolor.com

"Read Me" Contains Latest Prerelease Information

During installation, 3Deep installs a Read Me file in your 3Deep program group or folder. (The file can also be found under the name "readme.txt" in your c:\Program Files\EColor\3Deep subdirectory.) The Read Me file contains information about the latest features and incompatibility reports for 3Deep.

Uninstalling 3Deep

To uninstall 3Deep, click the Windows' Start button and choose <u>S</u>ettings/<u>C</u>ontrol Panel. When the Control Panel window opens, double-click on Add/Remove Programs. Highlight 3Deep in the list of programs, then click the Add/<u>R</u>emove button.

Degauss Button

To degauss means to demagnetize.

The color purity of your monitor can be affected by magnetic fields in your work environment. By degaussing, you negate these effects and restore the color balance of your monitor. Many monitors do not have a degauss option because they degauss automatically each time they are turned on.

An interesting fact for trivia fans: When many monitors are color balanced in the factory, they are done so with the monitor facing east.

Resolution Too High for Monitor

3Deep displays carefully calculated test patterns based on the size of your display and the resolution selected by your Windows video driver.

Each monitor is designed with a certain dot spacing, called the monitor "dot pitch." Often the dot pitch of a monitor is .31mm, .28mm, or even as small as .26mm. Smaller is not necessarily better for all applications.

If the resolution selected by your Windows video driver is so high that your video card might be trying to draw dots that are smaller than the dot pitch of the monitor, then the 3Deep Color Wizard will display a warning.

If you choose to ignore this warning, you may find that 3Deep's test patterns on screen are incorrect. This will mean that 3Deep will not work properly. We suggest that you quit the 3Deep Color Wizard, choose a lower resolution for your video card, and recalibrate. Then, if you desire, you can change back to the higher resolution. 3Deep will remain on, unless you turn it off.

By the way, choosing a lower resolution may also improve the focus of your monitor for all applications, not just 3Deep. If your video driver is trying to address more dots than actually exist on screen, image quality is less than the best your monitor can provide.

Color Controls on the Display

Some displays have color controls on their control panels. If you like to use these controls, then you must do the following:

- Use the color controls **before running 3Deep.**

Following this procedure lets you adjust your display to your preferred color bias,
and it lets 3Deep measure this bias and perform color matching at print time.

Remove Color Key

You should now remove the 3Deep Color Key (or Color Card) from your screen. Choose "Next" to start building your monitor profile.

Store it for future Color Wizard sessions. The cardboard backing protects the card so that it will adhere to your screen easily. If it becomes dirty and will not adhere to your CRT monitor, clean the back of the card according to your CRT monitor manufacturers instructions.

At this time you can also return your room lighting to its usual state, if necessary. However, DO NOT change the display's Brightness or Contrast controls. If you do, color matching will become less accurate.

Sixteen Color Notice

Windows was intended to be run in 256 color mode on your PC, not 16 color VGA mode.

3Deep cannot run in 16-color mode. To change to a different color mode, click on Windows's Start button and choose Settings/Control Panel. When the Control Panel window opens, double-click on the Display icon. Click on the Settings tab and choose 256 colors (or higher) from the Color Palette list. 3Deep will then run fine, and your monitor will display a richer set of colors.

Control Panel for 3Deep

The Control Panel for 3Deep enables you to adjust your screen for how you use your computer, or to match your screen to your printer.

The 3Deep Control Panel also contains a "Run Color Wizard" button to start the 3Deep Color Wizard process if you want to tune-up your system.

The "Help" button within the Control Panel is a handy way to access 3Deep Help screens.

To access the 3Deep Control Panel, choose 3Deep Control Panel from the 3Deep program group in Windows' Start menu, or double click the 3Deep icon in your Control Panel.

Gamma Ramp Notice

Windows includes a feature called DDIGammaRamp. Many video cards support this feature of Windows. If your video card and driver *do* support it, then 3Deep can provide you with the ability to change the white point and Gamma of your monitor to optimize it for various   tasks.   If you do not have this functionality, then your currently installed video card or it's driver does *not* support this feature.

Contact your video card manufacturer and request their updated video driver. Often the newer drivers support this feature.

See Also:

Contact Your Video Card Manufacturer

Contact Your Video Card Manufacturer

If you receive a warning message about your video card not supporting "DDIGammaRamp" make sure you have the latest video card driver.

Many video card makers and computer makers have websites, from which the latest video card drivers can be downloaded. If you do not have internet access, check the manual that came with your video card or system for driver update information.

Troubleshooting

Troubleshooting tips can be found at www.ecolor.com/tech_support. Please use that web site before contacting [E-Color Technical Support](#).

Unusually Low Gamma Warning

Your task at this screen is to pick the colored square that disappears into the background. If you receive this warning message, it means that the gamma your monitor is displaying is very low relative to its factory settings.

The usual cause for this problem is a setting in the video driver. Many video card control programs have a selection called "Gamma." This gamma selection lets you select the gamma curve to use for your display. (Or, some video cards have hardware-based colorimeters which automatically set the gamma for your display.)

If you receive this warning message, your video card has set the gamma to an unusually low level. Use your video card control software and find the "Gamma Control." **After selecting that control, reset your gamma to 1.8.** See the manual accompanying your video card for instructions about how to do this.

If your video card does not have some way to reset the gamma, then you should select the "Continue" button in this warning box. 3Deep will try to color match between screen and printer as best it can given the unusually low gamma in your computer's video subsystem.

Unusually High Gamma Warning

Your task at this screen is to pick the colored square that disappears into the background. If you receive this warning message, it means that the gamma your monitor is displaying is very high relative to its factory settings.

The usual cause for this problem is a setting in the video driver. Many video card control programs have a selection called "Gamma." This gamma selection lets you select the gamma curve to use for your display. (Or, some video cards have hardware-based colorimeters which automatically set the gamma for your display.)

If you receive this warning message, your video card has set the gamma to an unusually high level. Use your video card control software and find the "Gamma Control." **After selecting that control, reset your gamma to 1.8.** See the manual accompanying your video card for instructions about how to do this.

If your video card does not have some way to reset the gamma, then you should select the "Continue" button in this warning box. 3Deep will try to color match between screen and printer as best it can given the unusually low gamma in your computer's video subsystem.

Luminance Too Low Warning

This warning appears when the slider on the Luminance page has been moved to a very dim setting. It is difficult to get an accurate color match with a dim setting.

For a more accurate measurement, temporarily shine more light on the display. A bright key will permit a more precise measurement, even if you normally don't work under these conditions.
If you cannot shine more light on the display, try adjusting the slider on the screen to the maximum, then using the Contrast control (or Brightness control if you are using a Flat Panel Display) to dim the screen until it matches the brightness of the key.