



Digital Archives must reliably represent the physical archives, including accurate color matching between original and copy. Calibration of screen and digitization equipment is necessary to achieve correct digital coloring. The following document provides instruction for calibrating monitors using *Monaco EZcolor*. These procedures are implemented by **Purdue University Libraries Archives & Special Collections** in order to maintain the accuracy, quality, and overall integrity of the digital archives.

**Purdue University Libraries Archives & Special Collections**  
**Instructions for Calibrating Monitors**  
*using MonacoEZcolor*



<http://www.lib.purdue.edu/spcol>

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*Please follow the instructions very carefully.*  
**Digitization standards must be followed.**

## **BEFORE YOU CALIBRATE**

- The monitors should be up and running for at least 30 minutes.
- Make sure the room lighting matches the desired viewing condition.
- Familiarize yourself with the monitor's hardware settings (brightness, contrast, color).
- Make sure the display is set to 32 bit color quality.
- Set desktop to neutral gray.
- Attach the **colorimeter (Monaco OPTIX device)** to the front USB port. (*Ask the Digital Initiatives Librarian for the device.*)

## **MONITOR SETTINGS**

Your monitor's settings can be adjusted by clicking the buttons located on the front lower-right corner of your monitor.

Here you should see six buttons. The buttons you will use for calibration are buttons 3, 4, and 5. Buttons 4 and 5 (- and +) will advance you through the menus, and button 3 (←) will select an option.

### **Color Settings**

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The **Color Settings** are under the **Main Menu**. Press the third button (the **arrow ←** button) to open the **Main Menu**.

Use the button 4 (-) to scroll down the menu until you reach **Color Settings**. Click button 3 (←) to select this option.

Use button 4 (-) to move down the menu and click button 3 (←) to select the **User Preset** options. Use button 4 (-) or button 5 (+) to move up and down the list. Clicking button 3 (←) to select the **Red**, **Green**, or **Blue** color settings. Use button 4 (-) and 5 (+) to increase or decrease the color levels.

*Remember: The (←) button will select the item, the (-) and (+) buttons can be used to move the color saturation up (+) or down (-).*

### **Brightness and Contrast**

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The **Brightness** and **Contrast** control is button 4 (-); an image of a sun is located above it.

Use buttons 4 (-) and 5 (+) to move up and down the menus. Click button 3 (←) to select either **Brightness** or **Contrast**.

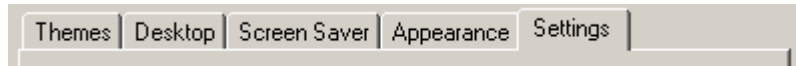
Buttons 4 (–) and 5 (+) will then allow you to adjust the degree of **Brightness** or **Contrast**, depending on which option is selected.

Use button 3 (←) to accept your changes and exit the menu.

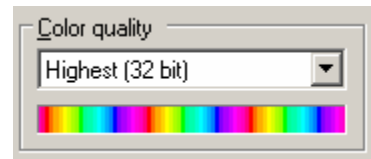
## COLOR QUALITY

Right click on the desktop and select **Properties** from the menu that appears. This will open the **Display Properties** window.

Click on the **Settings** tab



Make sure that the color quality for each monitor is set to **32 bit**.

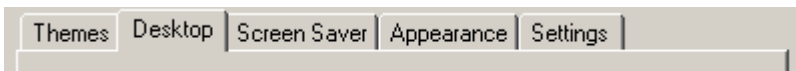


If necessary, change your color quality and click **Apply** or **OK** to make the change.

## SET DESKTOP TO NEUTRAL GRAY

Right click on the desktop and select **Properties** from the menu that appears. This will open the **Display Properties** window.

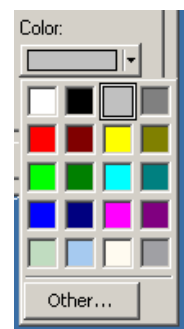
Click on the **Desktop** tab



Click on **Color**

Select **gray** (shown at right).

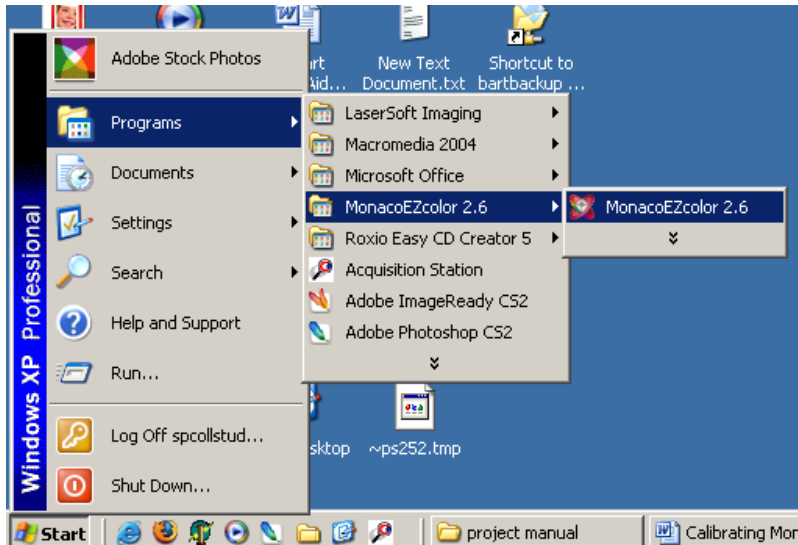
Click **Apply** or **Ok** to accept the change and close the **Display Properties** screen.



# CALIBRATING WITH MONACO EZCOLOR

## GETTING STARTED

To open *Monaco EZcolor*, click on **Start**, then **Programs**, then *Monaco EZcolor 2.6*, and again *Monaco EZcolor 2.6*



When the program opens, select **Create Monitor Profile**.



Follow the instructions on the 'Before You Begin' screen, which include moving the window to the monitor you wish to calibrate.

When ready click on the arrow at the lower right corner of the screen to continue.



## CALIBRATE & PROFILE

The next screen will ask you to select the **Measurement Options**.

Select **Calibrate & Profile** (workflow) And **LCD** (monitor type).

### Select Measurement Options

#### 1. Select your preferred workflow

- Calibrate & Profile  
Set up your display's contrast, brightness and white point before creating your profile.
- Profile Only  
Use your display's current contrast, brightness and white point settings to create your profile.

#### 2. Describe your hardware configuration

Monitor Type:

## COLORIMETER CALIBRATION

As instructed, **place the Monaco OPTIX on an opaque surface**, such as the desktop.

The colorimeter will calibrate automatically.



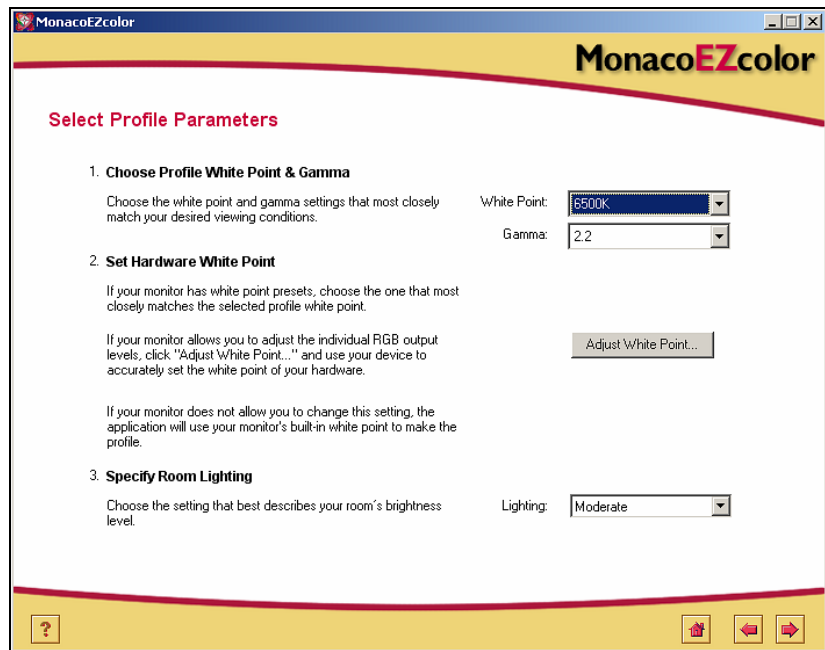
When finished, advance to the next screen.



## PROFILE PARAMETERS

Select the **Profile Parameters** to match the settings shown below:

White Point: **6500K**  
Gamma: **2.2**  
Lighting: **Moderate**.

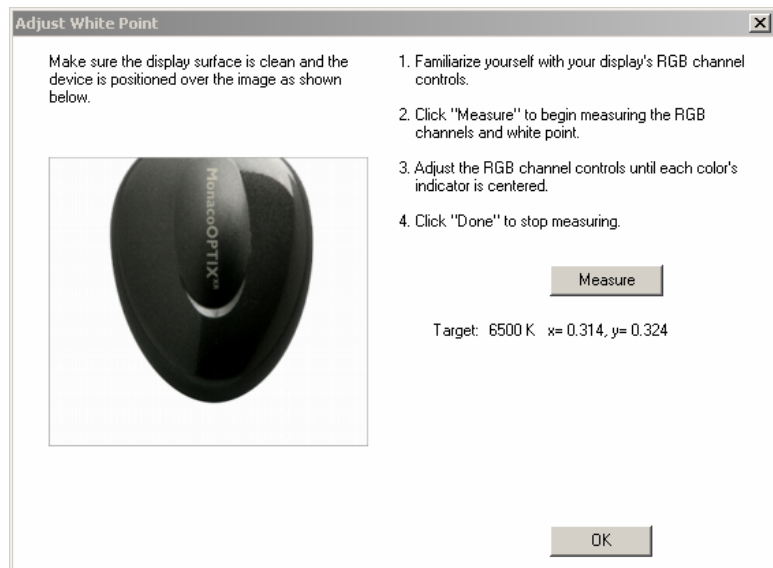


Now click the **Adjust White Point...** button to use the *Monaco OPTIX* device to set the monitor's white point.

## ADJUST WHITE POINT

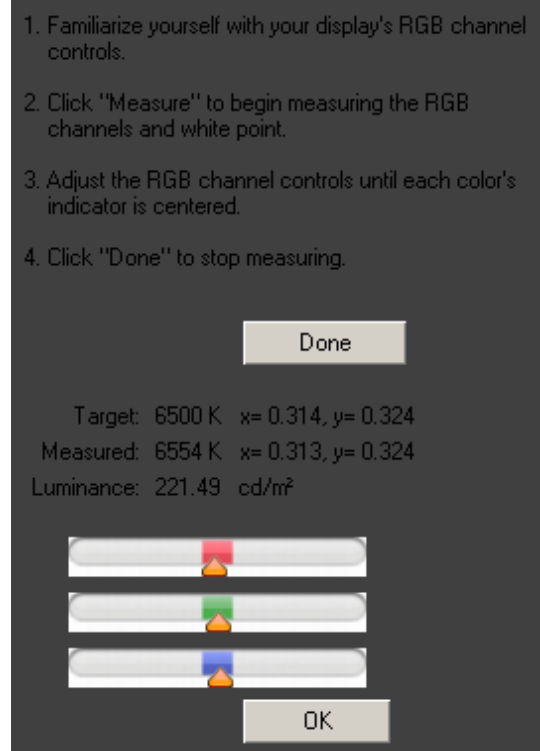
You will be instructed to place the *Monaco OPTIX* device on the monitor screen in the position indicated.

Click **Measure**, and the program will display the RGB levels in the lower right corner of the screen.



**At this point, you need to use your computer monitor's color settings** (accessible from the buttons located on the front of your monitor, see instructions above).

**Adjust the monitor's RGB channel controls until all yellow markers are centered within the color bars, as pictured here.**



Once you have finished adjusting the color settings, press **Done** and then **Ok**.

You can then proceed to the next screen by pressing the arrow button.



## **MAXIMUM CONTRAST**

Follow the onscreen guide and set the monitor's **Contrast** to **100%** and the **Brightness** to **0%** (see instructions above).

After making these adjustments, click **Measure**.

You can then proceed to the next screen by pressing the arrow button.



## **SET CONTRAST**

**On this screen, adjust the Contrast level until the marker settles within the Good range.**

Once the contrast is set to the proper level, you can proceed to the next screen by pressing the arrow button.




## MAXIMUM BRIGHTNESS

Follow the instructions and set your **Brightness** setting to **100%** (see instructions above).

Click the **Measure** button, adjusting the monitor's **Brightness** control until it falls and remains within the appropriate **Good** range.

1. Click "Measure" to begin reading the brightness
2. Adjust the brightness until the indicator falls within the "Good" range.
3. Once the indicator remains within the "Good" range for a few measurements, click "Done".



 Measurement complete. Do not remove the device. Click the right arrow to continue.

Click **Done**.

Go on to the next screen.



## SET BRIGHTNESS

Set the **Brightness** level for the specific room lighting, adjusting the **Brightness** control until the marker settles within the moderate (**Mod**) range.

Click **Done**.

Advance to the next screen.



## COLOR PATCHES

Leave the device in place and click **Measure**. Wait while the program runs through a series of color patches.

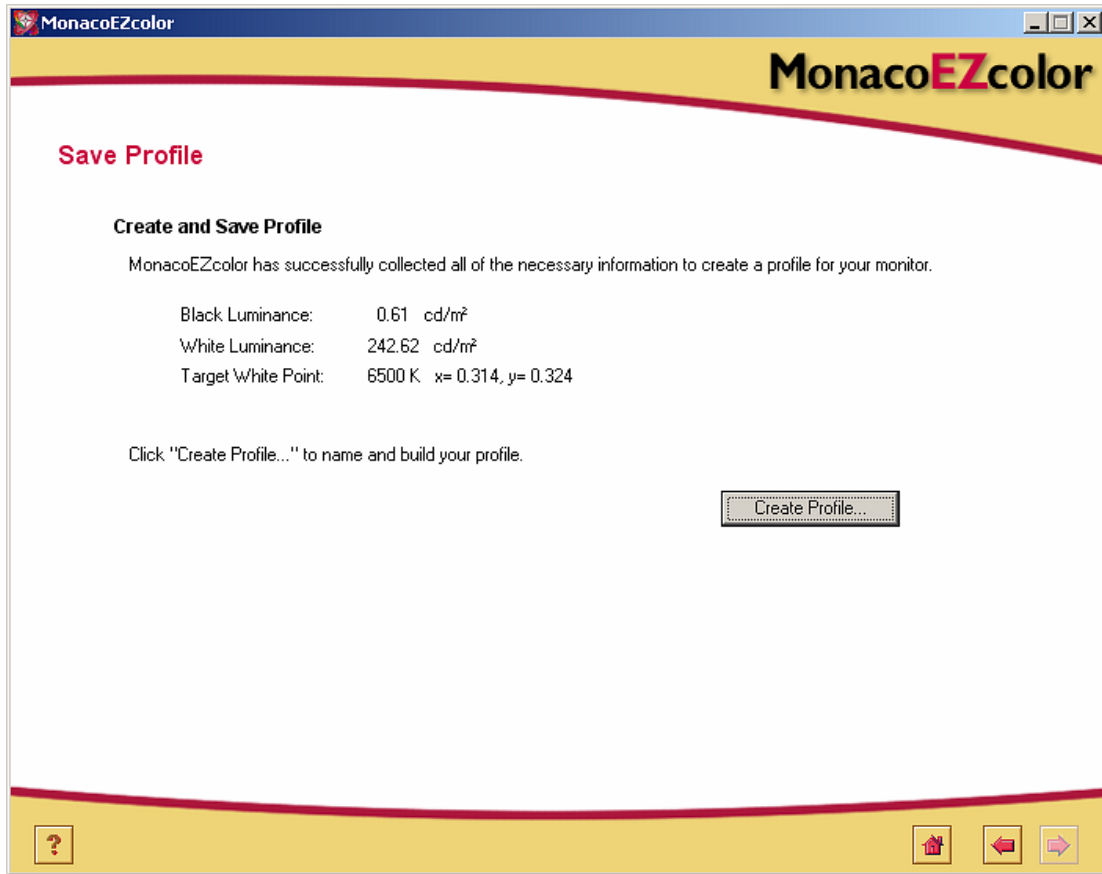
Once the program has finished with the color patches, move on to the next screen.



## SAVE PROFILE

The program has completed gathering information and is ready for you to create the monitor's profile.

Click **Create Profile**.



## PROFILE NAME

A windows dialog box will now open for you to save the profile file.

Name the profile according to the following convention:

Example: **dellmonA(20050904).icm**

- The first 4 letters are for Dell
- The next 3 letters (mon) stand for monitor
- The next letter (A) means the left hand screen (use B for the right hand monitor)
- The numbers in parenthesis represent the current date 2005-09-04 in yyyyymmdd format.
- Always end in .icm

## SECOND MONITOR

Repeat the above procedures for the second monitor (right): monitor B

## PROFILE COMPLETE

When you are finished creating and saving profiles for both monitors, reset the desktop to blue.

*Remember to remove and store the **Monaco OPTIX** device, and close the door on the front of the computer.*

## SET MONITOR PROFILE

Now set your monitor to the profile you have created. To do this, follow the steps below:

1. Right click on the desktop and select **Properties**.
2. Select the **Settings** tab.
3. Click the **Advanced** button.
4. Select the **Color Management** tab.
5. Select the color profile you have just created for monitor A (or whichever monitor you will primarily use during scanning).
6. Click Ok to apply the selection and close the window.

