User's Manual

ColorEdge®
ColorNavigator™

Color Management Software

Ver. 6.4

Important

Please read this User's Manual carefully to familiarize yourself with safe and effective usage.

• **The latest software and User's Manual are available for download from our web site:**
  http://www.eizoglobal.com

EIZO®

About This Manual

This manual describes the features, installation, and usage of the Color Management Software "ColorNavigator".

This manual consists of the following four sections.

INSTALLATION	Describes software introductory information such as how to install it and how to connect with the measurement device and the monitor.	P.5
BASIC	Describes basic software operations necessary to adjust the monitor.	P.20
APPLICATION	Describes applicable operations such as manual adjustment and profile emulation. Advanced knowledge regarding color management and computers is required.	P.51
REFERENCE	Provides supplementary explanations and reference information such as SelfCalibration / SelfCorrection settings and troubleshooting.	P.84

CONTENTS

INSTALLATION

Chapter 1　Introduction

1-1.　About ColorNavigator

ColorNavigator is a color management software for graphics monitor. It allows you to easily perform accurate monitor adjustments.

*Please prepare the measurement device and the light booth separately as needed.

1-2.　About ColorNavigator License

For some types of monitors, the ColorNavigator license may need to be purchased and registered to the monitor for use of this software. If the license has not been registered, the software will not start.

For the purchase of the license, contact your local EIZO representative.

● How to Check License Registration

The license registration status can be checked using "Monitor Info" screen on the monitor. For details, see the User's Manual of the monitor.

If "ColorNavigator License" in the "Monitor Info" screen is "Not Registered", the ColorNavigator license must be purchased and registered to the monitor.

The software can be used without purchasing a license on monitors where "ColorNavigator License" is not displayed in the "Monitor Info" window.

1-3. Features

- Allows you to adjust the ColorEdge series monitor easily.
- Allows you to specify the target values for the brightness, white point, gamma, and black level of the monitor precisely.
- L* is available as the target of gamma.
- Displays the measurement result with CIE-chromaticity diagram.
- Generates ICC profiles of the monitor or tablet / display device based on the measurement result.
- Manual adjustment function (white point / brightness / black level / gamma / 6 colors)
- Allows you to create an adjustment target based on the paper white or other measurement results.[1]
    - [1] The function's availability depends on the measurement device or usage.
- Emulation of Monitor Display (not applicable to some monitor types)
    - Emulation based on the ICC profile
    - Emulation based on the characteristic file (3D-LUT file) of the motion picture film
- Supports built-in calibration sensor / built-in correction sensor[2]
    - Sets the target and schedule for SelfCalibration / SelfCorrection.
    - Correlates the measurement result from the built-in calibration sensor with the measurement results from other measurement devices.
    - [2] This function is available for monitors with a built-in calibration sensor / built-in correction sensor only. For details, see "Chapter 13 Making Use of the Built-in Calibration Sensor / Built-in Correction Sensor" (page 85).
- ICC profile validation
    - Validates with RGB / CMYK color patch.
    - Outputs validation results.
    - Reads RGB / CMYK color patch files.
- Switching monitor display
    - Switches monitor display based on the monitor adjustment result.
- Supporting monitor adjustment function with timer setting
- Supporting a multi monitor environment
- Showing test pattern
- Adjusting a light booth[3]
    - [3] About the supported models, see "9-6. Adjusting Light Booth" (page 65).
- System-resident function
    - Allows you easy access to frequently used functions.

1-4. Main Window

Select a function on the main window which is displayed when the software is started.
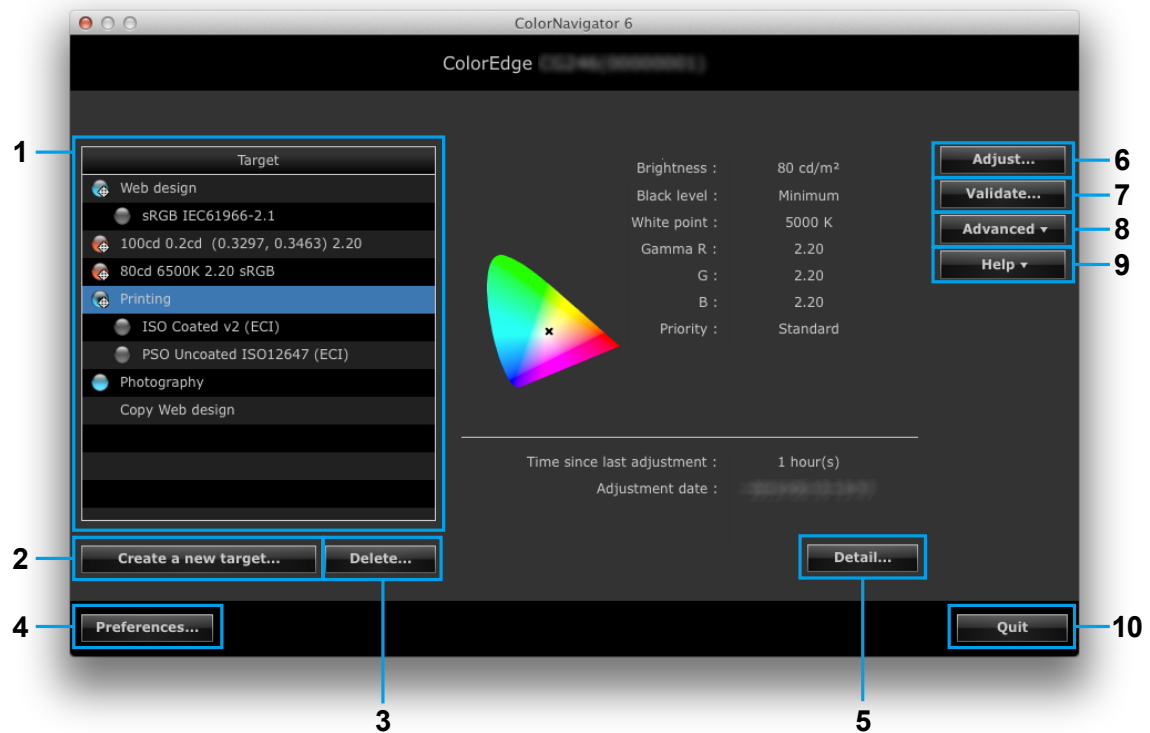
The selectable functions on the main window are as follows.

No	Menu	Overview	Sections	Reference
1	Target list	Lists the adjustment targets.		
2	"Create a new target" button	Allows you to create an adjustment target.	BASIC	"Chapter 5 Creating Adjustment Target" (page 32)
3	"Delete" button	Deletes an adjustment target.	REFERENCE	"14-4. Managing Adjusted Targets" (page 97)
4	"Preferences" button	Opens the "Preferences" dialog box.	BASIC	"6-1. Timer" (page 45)
			APPLICATION	"Chapter 8 Setting Monitor Validation" (page 52)
			REFERENCE	"14-6. Checking the Latest Software" (page 99)
5	"Detail" button	Shows the detailed information window of adjustment targets / results and validation records.	REFERENCE	"14-7. Displaying Detailed Information of Adjustment Target / Result and Validation Record" (page 99)
6	"Adjust" button	Allows you to start monitor adjustment.	BASIC	"Chapter 4 Adjusting Monitor" (page 24)
7	"Validate" button	Allows you to start monitor validation.	BASIC	"Chapter 7 Validating Adjustment Status of Monitor" (page 46)
8	"Advanced" button	Provides advanced functions.		
	Import target	Allows you to import the adjustment target.	APPLICATION	"9-1. Exporting and Importing the Adjustment Target" (page 55)
	Export target	Allows you to export the adjustment target.		
	Adjust manually	Allows you to adjust the monitor manually.	APPLICATION	"9-5. Manual Adjustment" (page 61)
	Create ICC profile for tablet/display device	Allows you to create the ICC profile of the tablet / display device.	APPLICATION	"Chapter 12 Creating ICC Profile of Tablet / Display Device" (page 73)
	Emulation	Allows you to create the emulation data.		
	ICC Profile	Allows you to create the emulation data of the device.	APPLICATION	"9-4. Creating Profile Emulation Data" (page 59)
	Log view LUT	Allows you to create the emulation data of the motion picture film.	APPLICATION	"Chapter 11 Creating Film Emulation Data" (page 72)
	Light booth adjustment	Allows you to adjust the light booth.	APPLICATION	"9-6. Adjusting Light Booth" (page 65)
	Test pattern	Shows the test pattern.	REFERENCE	"Displaying Test Patterns" (page 101)
	SelfCalibration / SelfCorrection settings	Allows you to set the SelfCalibration / SelfCorrection schedule.	REFERENCE	"13-3. Setting the SelfCalibration / SelfCorrection Schedule" (page 89)
	Sensor correlation	Allows you to correlate the built-in calibration sensor with the reference measurement device.	REFERENCE	"13-2. Correlate with the Reference Measurement Device" (page 85)
	Standard Mode calibration	Allows you to update the monitor gamut.	APPLICATION	"10-2. Standard Mode calibration" (page 71)
	Profile policy	Shows the policy for creating the profile of each adjustment target.		
9	Help	Provides the help information.		
	User's manual	Shows the User's Manual (this document).		
	Monitor information	Shows the monitor information.	REFERENCE	"Showing Monitor Information" (page 100)
	Quality Improvement Program	Shows the dialog box for participating in the Quality Improvement Program.	REFERENCE	"Participating in the Quality Improvement Program" (page 100)
	Version	Shows the version information.	BASIC	"3-2. Displaying Software Version" (page 22)
10	Quit	Closes the main window.		

● About Marks

The marks in the target list show the status of the target and emulation data.

Mark	Monitor Setting	Monitor Usage Time after Adjustment[*1]
(blue icon)	Indicates a target that is applied to the monitor display.	Within the set time or no setting is made
(red icon)	Indicates a target that is applied to the monitor display.	Has exceeded the set time
(blue sphere)	Indicates a target that is not applied to the monitor display.	Within the set time or no setting is made
(red sphere)	Indicates a target that is not applied to the monitor display.	Has exceeded the set time
(blue icon with cross)	Indicates a target that is applied to the monitor display. The target is set as a SelfCalibration / SelfCorrection target.[*2]	Within the set time or no setting is made
(red icon with cross)	Indicates a target that is applied to the monitor display. The target is set as a SelfCalibration / SelfCorrection target.[*2]	Has exceeded the set time
(blue sphere with cross)	Indicates a target that is not applied to the monitor display. The target is set as a SelfCalibration / SelfCorrection target.[*2]	Within the set time or no setting is made
(red sphere with cross)	Indicates a target that is not applied to the monitor display. The target is set as a SelfCalibration / SelfCorrection target.[*2]	Has exceeded the set time
(black icon)	Indicates emulation data that is applied to the monitor display.	-
(gray sphere)	Indicates emulation data that is not applied to the monitor display.	-
Blank	Unadjusted status.	-

*1 The monitor usage time after adjustment is set using the "Timer" (see "6-1. Timer" (page 45)).

*2 For the CG275W / CG245W, the adjustment target set for the monitor is specified as the SelfCalibration target. (icon) is not attached to the mark.
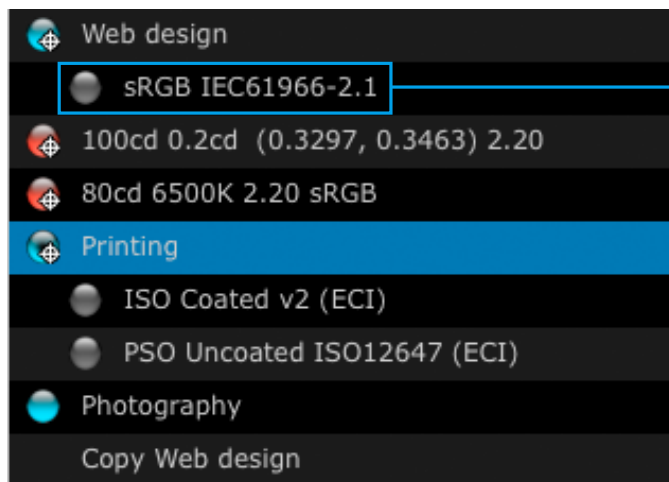
Emulation data is displayed. For details of the emulation data, see "9-4. Creating Profile Emulation Data" (page 59).

Chapter 2   Setting Up

2-1.   System Requirements

Computer

Common

- Mac or Windows system that satisfies the Adobe AIR 1.5 system requirements.
- Resolution: recommended resolution of the monitor*[1]
- USB port: at least 2 free ports required (at least 1 free port for monitors with built-in calibration sensor)*[2]

   *1   About the recommended resolution of the monitor, see the user's manual of the monitor.
   *2   An EIZO USB cable (MD-C93 or UU200SS) is required to connect the monitor to the computer.

Mac

- OS:
   - macOS Sierra (10.12)
   - OS X El Capitan (10.11)
   - OS X Yosemite (10.10)
   - OS X Mavericks (10.9)
   - OS X Mountain Lion (10.8)
- Mac that satisfies the OS requirement (except iMac (Power PC), iBook, iBook G4)
- Memory:
   - macOS Sierra (10.12): 2 GB or more
   - OS X El Capitan (10.11): 2 GB or more
   - OS X Yosemite (10.10): 2 GB or more
   - OS X Mavericks (10.9): 2 GB or more
   - OS X Mountain Lion (10.8): 2 GB or more
- 16.7 million or more colors

Windows

- OS:
   - Windows 10 (32 bit edition and 64 bit edition)
   - Windows 8.1 (32 bit edition and 64 bit edition)
   - Windows 7 Service Pack 1 (32 bit edition and 64 bit edition)
- Memory:
   - Windows 10 (64 bit edition): 2 GB or more
   - Windows 10 (32 bit edition): 1 GB or more
   - Windows 8.1 (64 bit edition): 2 GB or more
   - Windows 8.1 (32 bit edition): 1 GB or more
   - Windows 7 (64 bit edition): 2 GB or more
   - Windows 7 (32 bit edition): 1 GB or more
- Colors: 24 bit or more

Monitor

- EIZO ColorEdge CG series monitor (except CG18, CG19, CG21)
- EIZO ColorEdge CX / CS series monitor*[3]

   *3   For some types of monitors, the ColorNavigator license may need to be registered to the monitor. For details, see "1-2. About ColorNavigator License" (page 6)

Measurement device[4,5]

- X-Rite ColorMunki[6]
- X-Rite i1Display / ColorEdge CX1
- X-Rite i1Pro / Pro2 / Monitor[7]
- X-Rite i1Display 3 / Pro
- Datacolor Spyder3 / EX1
- Datacolor Spyder4 / EX2
- Datacolor Spyder5 / EX3
- basICColor DISCUS[8]
- Klein K-10[8]
- Photo Research PR-655 / PR-680[8]
- Konica Minolta CA-210 / CA-310[9,10]
- Konica Minolta CS-1000 / CS-1000A[10]
- Konica Minolta CS-2000 / CS-2000A[9,10]
- Konica Minolta CS-200[9,10]
- Colorimetry Research CR-100[8]
- Colorimetry Research CR-250[8]
- Built-in calibration sensor[11]

Light booth[4,5]

- JUST ColorCommunicator1
- JUST ColorCommunicator2

[4] This product does not contain measurement device or light booth. Please purchase these products separately as needed.

[5] For details of the system requirements and usage of the measurement device and light booth, see the user's manual supplied with the product.

[6] ColorMunki Display and ColorMunki Smile cannot be used.

[7] Whether or not to comply with XRGA can be selected. For details on XRGA, see "Chapter 16 Glossary" (page 113)

[8] When the "Display automatically detected device." check box is unchecked in the measurement device selection window (page 28), this is displayed in the list.

[9] Mac is not supported.

[10] The driver is not provided. Contact the manufacturer.

[11] Monitor validation cannot be performed using the built-in calibration sensor of CG2420 / CG2730.

Attention
- When the Windows display calibration function is enabled, disable it according to the following procedure.
   1. Select "Control Panel" - "Color Management" - "Advanced".
   2. Click "Change system defaults" and select the "Advanced" tab of the displayed dialog box.
   3. Uncheck "Use Windows display calibration" check box.
- USB hub may be required if adjusting several monitors in a multiple monitor environment. Also, USB cables are required for monitor adjustment.
- When multiple monitors are connected, each monitor should display an independent screen. Displaying the same screen on each monitor or across multiple monitors prevents adjustment using the ColorNavigator software. For details of how to change the settings, see the User's Manual of the graphics board.
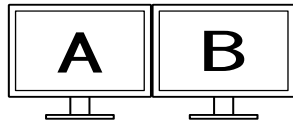
Independent screen on each monitor (OK)   Same screen on each monitor (NG)   A screen over the multiple monitors (NG)
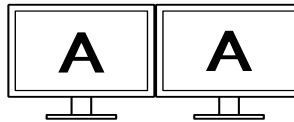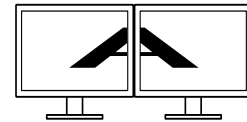
- When using ColorNavigator with a monitor and laptop PC connected, settings for mirroring / duplicating displays must be disabled in OS settings. Adjustment using ColorNavigator is not possible if identical screens are displayed on the monitor and laptop PC.

Independent screen on the monitor and laptop PC monitor (OK)

Same screen on the monitor and laptop PC monitor (NG)
(Mirroring / duplicating)

2-2. Installing Software

● **Mac**

To install the software from the CD-ROM

1. **Insert the "EIZO LCD Utility Disk" to the CD-ROM drive**

The "EIZO LCD Utility Disk" icon appears on the desktop. Double-click the icon to open the window.

2. **Double-click "ColorNavigator" folder on the window**
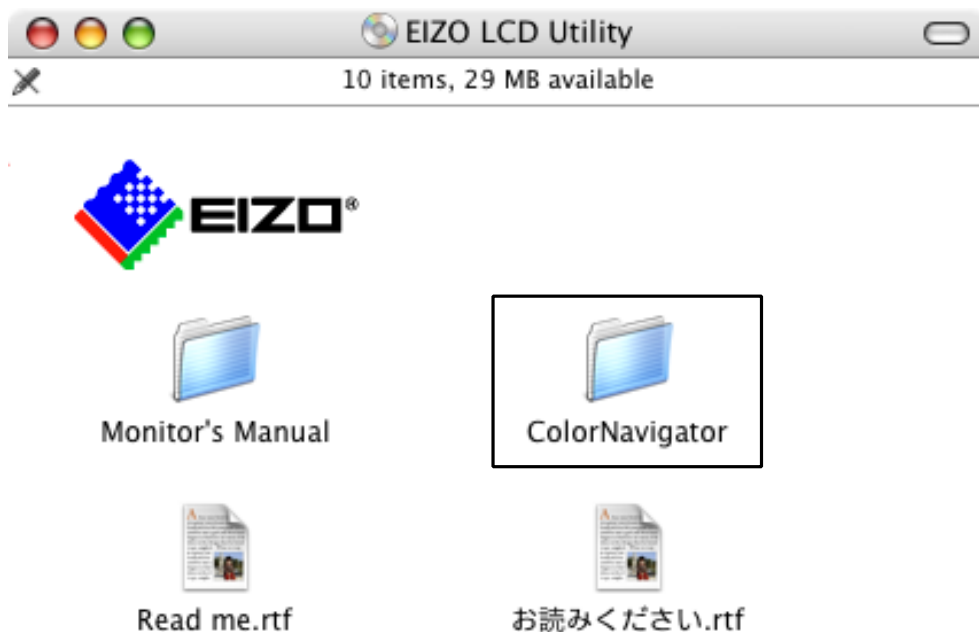
3. **Double-click "ColorNavigator 6.pkg" icon on the window**

The ColorNavigator installer starts up.
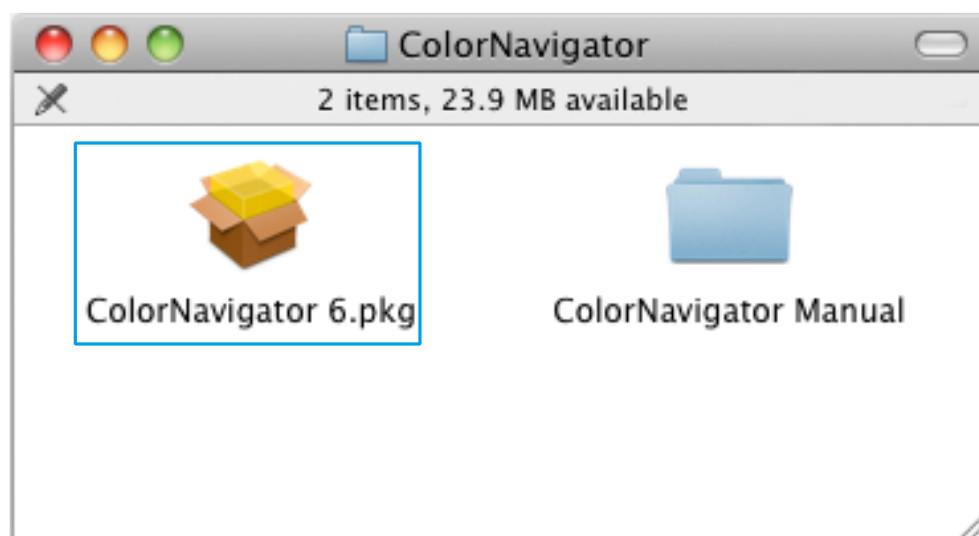
4. Install the software

Follow the instructions to install the software.

To download and install the software from our website

1. Double-click the downloaded file

The "ColorNavigator 6xx" icon appears on the desktop. Double-click the icon to open the window.

Note

• The "ColorNavigator" folder may open automatically depending on your system environment.

2. Double-click "ColorNavigator 6.pkg" icon on the window

The ColorNavigator installer starts up.

3. Install the software
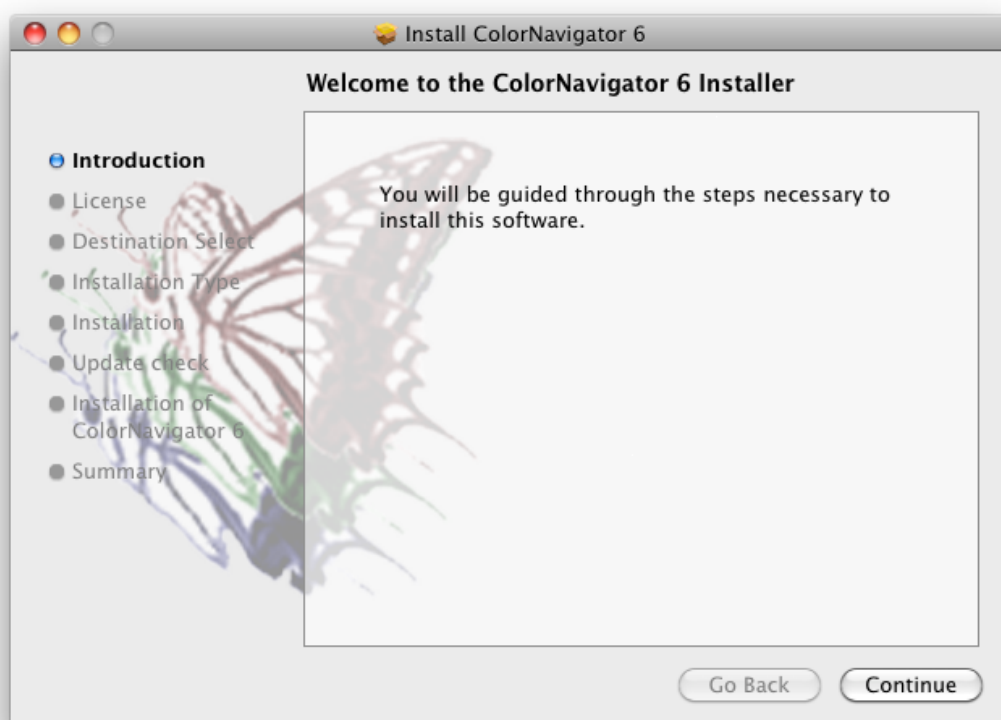
Follow the instructions to install the software.

● Windows

Attention
- A user account with the "Administrator" authority is required.
- Please consult your system administrator for your account.

To install the software from the CD-ROM

1. **Insert the "EIZO LCD Utility Disk" to the CD-ROM drive**

The menu opens. Click the "Software" tab.

Click "ColorNavigator" - "Install" on the start menu. The ColorNavigator installer starts up.
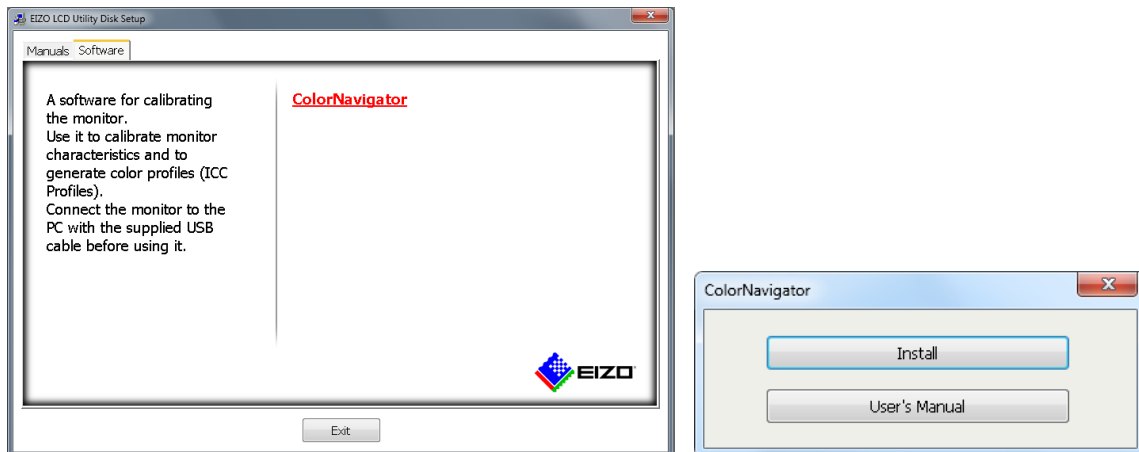
Note
- Double-click the "Launcher.exe" icon if the menu does not open automatically.
- The "User Account Control" dialog box may appear when you double-click "Launcher.exe". Click "Yes" to open the menu.
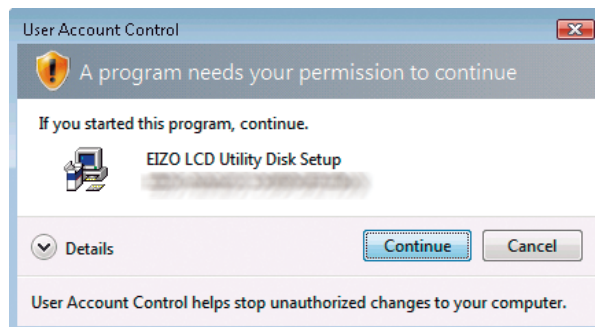
2. **Install the software**

Follow the instructions to install the software.

To download and install the software from our website

1. After unzip the downloaded file, click "setup.exe"

The ColorNavigator installer starts up.

2. Install the software

Follow the instructions to install the software.

Attention

• The "Windows Security" dialog box may appear several times when you install the software. If this dialog box is displayed, select "Install this driver software anyway", and proceed with the installation until the dialog box is no longer displayed.
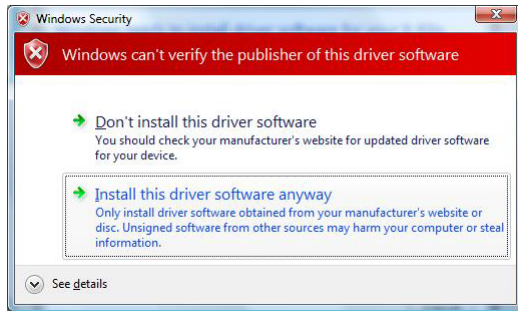
2-3. Connecting Monitor with Measurement Device

1. **Connect the USB upstream port of monitor and the USB downstream port of computer with the EIZO USB Cable (MD-C93 or UU200SS)**
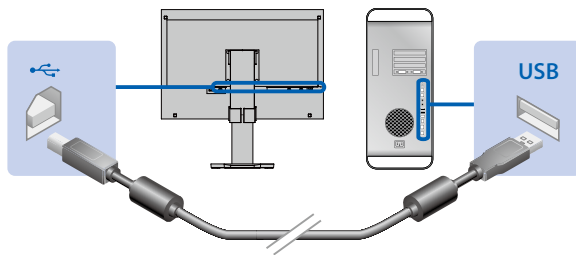
Attention
• When the monitor is equipped with multiple USB upstream ports, use the port that is associated with the input signal to be displayed. For details, refer to the monitor User's Manual.

2. **Connect the measurement device to the USB downstream port of the computer or the monitor**

Attention
• Some measurement devices may have restrictions on the USB port to connect. For details, see the user's manual of the measurement device.
• If the measurement device is connected after starting up ColorNavigator, it may not be detected. Be sure to connect the measurement device before starting up the ColorNavigator.

Note
• If your OS is Windows, "Found New Hardware wizard" will appear when you connect the sensor. Please carry out the driver software installation in accordance with the displayed instructions.
• The measurement device driver is automatically installed with ColorNavigator. It is not necessary to install the measurement device supplied with the device. (For Windows only)

2-4. Uninstalling Software

● **Mac**

1. **Double-click the "/Library/Application Support/EIZO/ColorNavigator/ ColorNavigator 6 Uninstaller" icon.**

● **Windows**

Attention
• A user account with the "Administrator" authority is required.
• Please consult your system administrator for your account.

1. **Select "Control Panel" - "Uninstall a program"**

2. **Select "ColorNavigator 6" from the list and click "Uninstall"**

BASIC

Chapter 3   Starting Up and Quitting

Attention
- If the ColorNavigator license has not been registered to the monitor, the software will not start. The ColorNavigator license needs to be purchased and registered to the monitor. For details, see "1-2. About ColorNavigator License" (page 6).

3-1. Starting Up ColorNavigator

● Mac

1. Double-click the "ColorNavigator 6" icon in the "Application" folder

The "ColorNavigator" icon appears in the Dock and then the main window appears.

If the main window does not open, follow the steps below to open the main window.
1. Right-click the "ColorNavigator" icon in the Dock to open the menu.
2. Select "Start ColorNavigator".

● Windows 10

1. Click "Start" - "All Apps" - "EIZO" - "ColorNavigator 6"

The "ColorNavigator" icon appears in the notification area and then the main window appears.

If the main window does not open, follow the steps below to open the main window.
1. Right-click the "ColorNavigator" icon in the notification area to open the menu.
2. Select "Start ColorNavigator".

● Windows 8.1

1. click ⬇ on the "Start" screen and then click "ColorNavigator" on the "Apps" screen

The "ColorNavigator" icon appears in the notification area and then the main window appears.

If the main window does not open, follow the steps below to open the main window.
1. Right-click the "ColorNavigator" icon in the notification area to open the menu.
2. Select "Start ColorNavigator".

● Windows 7

1. Click "Start" – "All Programs" – "EIZO" – "ColorNavigator 6" – "ColorNavigator 6" (or double-click the "ColorNavigator 6" shortcut icon on the desktop)

The "ColorNavigator" icon appears in the notification area and then the main window appears.

If the main window does not open, follow the steps below to open the main window.
1. Right-click the "ColorNavigator" icon in the notification area to open the menu.
2. Select "Start ColorNavigator".

Attention
- Do not disconnect USB cables of the monitor or measurement device while running ColorNavigator. Doing so may result in system freeze or software malfunction.

Note
- At the initial startup of ColorNavigator, a dialog box asking for your participation in the "Quality Improvement Program" will be displayed. Select either "Yes, I want to participate in the program." or "No, I don't want to participate in the program." and then click "OK". For details, see "Participating in the Quality Improvement Program" (page 100).
- ColorNavigator is the resident software by default (ColorNavigator Agent function). For details of ColorNavigator Agent, see "14-3. Using ColorNavigator Agent" (page 94).
- When connecting multiple monitors that are adjustable with ColorNavigator, you should select the monitor to be adjusted. For details, see "14-1. Using ColorNavigator in Multiple Monitor Environment" (page 92).

3-2. Displaying Software Version

Display the main window, select "Help", and then click "Version".

Note
- You can update your software if the latest software is shown on the website. For details, see "14-6. Checking the Latest Software" (page 99).
- The PC you are using must be connected to the Internet to update the software.

3-3. Quitting ColorNavigator

● Mac

1. **Right-click the "ColorNavigator" icon in the Dock to open the menu**
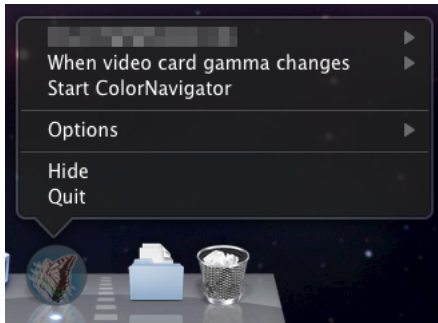
2. **Select "Quit"**

● Windows

1. **Right-click the "ColorNavigator" icon in the notification area to open the menu**

2. **Select "Quit"**
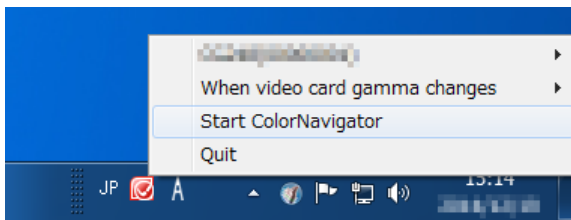
Note

• Do not quit ColorNavigator if you use the ColorNavigator Agent function (See "14-3. Using ColorNavigator Agent" (page 94)).

Chapter 4   Adjusting Monitor

This section describes adjustment procedures when one monitor is connected to computer. For details of the monitor adjustment in a multiple monitor environment, see "14-1. Using ColorNavigator in Multiple Monitor Environment" (page 92).

Attention
• If the monitor is CG232W, you can adjust the monitor only with the DVI or D-Sub input signal. The adjustment result of the DVI or D-Sub input signal can be applied to the SDI input signal.

4-1. Preparing Adjustment

1. Before performing monitor adjustment, turn on both the monitor and the computer (warming up)

Attention
• To perform SelfCorrection, a warming-up time for at least 60 minutes is required.

Note
• To obtain precise adjustment results, the monitor and computer must be sufficiently warmed-up.
• The warming-up time varies depending on the monitor being used. For details on the warming-up time, see the User's Manual of the monitor.

2. Disable the power managing function of the computer

Disable the power managing function of the computer so it does not enter power saving mode.

Attention
• If the computer goes into power saving mode, the monitor is in the same state as the power off state and therefore requires a while for the brightness and color conditions to re-stabilize once it comes out of power saving mode.

3. Set the display resolution and colors

We suggest using the monitor with the recommended resolution.

Set the monitor color at 16.7 million (24 bit) or more.

Note
• About the recommended resolution of the monitor, see the user's manual of the monitor.

4-2. Adjusting Monitor

Select an adjustment target that was set previously, and adjust the monitor to the target. Adjust the monitor according to the following procedures.

Attention

- When ColorNavigator is started, the monitor automatically switches to CAL mode or EMU mode (i.e. Calibration mode or Emulation mode). The monitor adjustment result is only registered in CAL mode or EMU mode. Use CAL mode or EMU mode for the monitor.
- If the monitor has two or more CAL modes, the monitor adjustment result is registered in the specified CAL mode.
- If the monitor has an EMU mode, the monitor adjustment result is registered in the EMU mode when color gamut calibration is performed, or in the CAL mode when color gamut calibration is not performed.
- If the monitor is CG232W, you can adjust the monitor only with the DVI or D-Sub input signal. The adjustment result of the DVI or D-Sub input signal can be applied to the SDI input signal.

Start up ColorNavigator	
Select a monitor	The message shows with multiple monitor environment.
Display main window	
Select targets	Select an adjustment target from the target list.
for Printing	
for Photo	
for Web design	
Select a measurement device	
Start the monitor adjustment	
Adjust the monitor ・Brightness ・Gain ・Gamma, Black Level ・Gamut*	The software adjusts the monitor automatically. * Adjustment is not available on CG210 and CG211.
Confirm the adjustment result	The result appears after the monitor adjustment is complete.
Create a profile	Save the monitor adjustment results and create a profile.
Quit ColorNavigator	
Adjust the monitor periodically	

1. Prepare the adjustment according to **"4-1. Preparing Adjustment" (page 24)**

2. Start up ColorNavigator (see **"3-1. Starting Up ColorNavigator" (page 21)**)

If you save an ICC profile into "User specified folder", change the saving destination before starting adjustment. For the procedure to change the destination to save the ICC profile, see "9-3. Setting Destination Folder for ICC Profile Saving" (page 57).

3. Select an adjustment target from the target list in the main window and click "Adjust"

Adjustment target values are as follows.

Item	Printing	Photography	Web design
Brightness	80 cd/m^2	100 cd/m^2	80 cd/m^2
White Point	5000K	5500K	6500K
Gamma	2.20	2.20	2.20
Black Level	Minimum	Minimum	Minimum
Color space	Monitor native	Monitor native	sRGB[*1]
Application	Standard setting for printing	Standard setting for viewing photographs	Standard setting for creating Web contents
File name[*2]	Printing.cntarget	Photography.cntarget	Webdesign.cntarget

*1 Wide gamut monitors only.

*2 An adjustment target file to be displayed in the default setting is stored in the following folder. If the file is deleted accidentally, it is still possible to retrieve it by importing. For details, see "9-1. Exporting and Importing the Adjustment Target" (page 55).

• Mac
/Library/Application Support/EIZO/ColorNavigator 6/targets/

• Windows
(System drive):\ProgramData\EIZO\ColorNavigator 6\targets
  - This is a hidden folder. In "Folder Options", set it to show hidden folders.
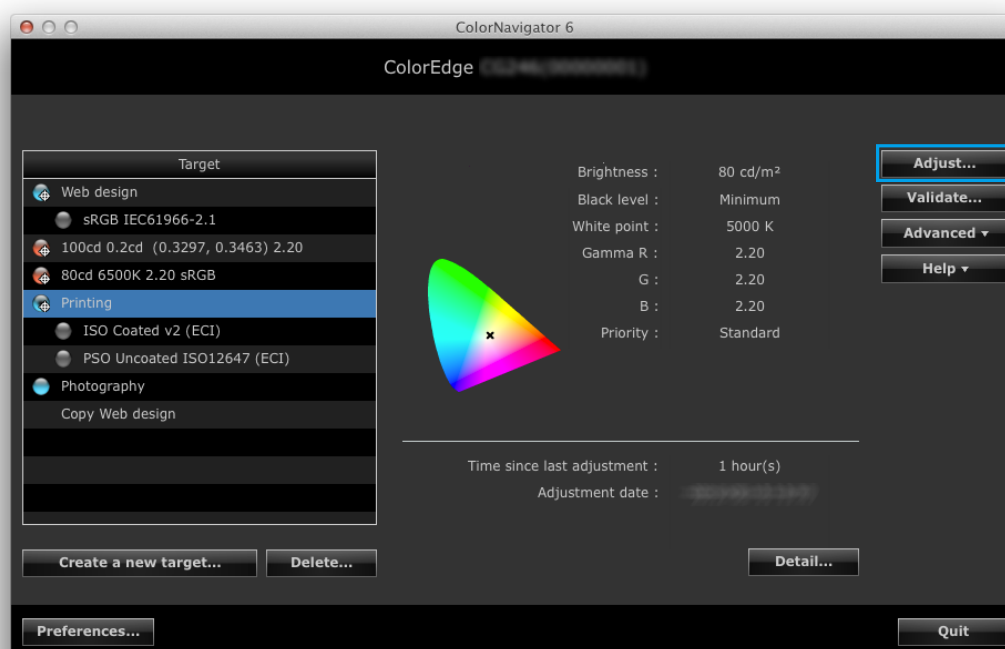
Note

- Right-click on the list and the menu appears. From the menu, you can perform tasks such as the setting of the SelfCalibration / SelfCorrection target, modification of the name, and export of the adjustment target.
- For some types of monitor, multiple SelfCalibration / SelfCorrection targets can be set.
- You can create a new adjustment target that does not exist on the list. For details, see "Chapter 5 Creating Adjustment Target" (page 32).

4. **When analog signals are input, execute an automatic adjustment for the monitor**

Follow the software instructions and click the "Auto adjust" button on the monitor.
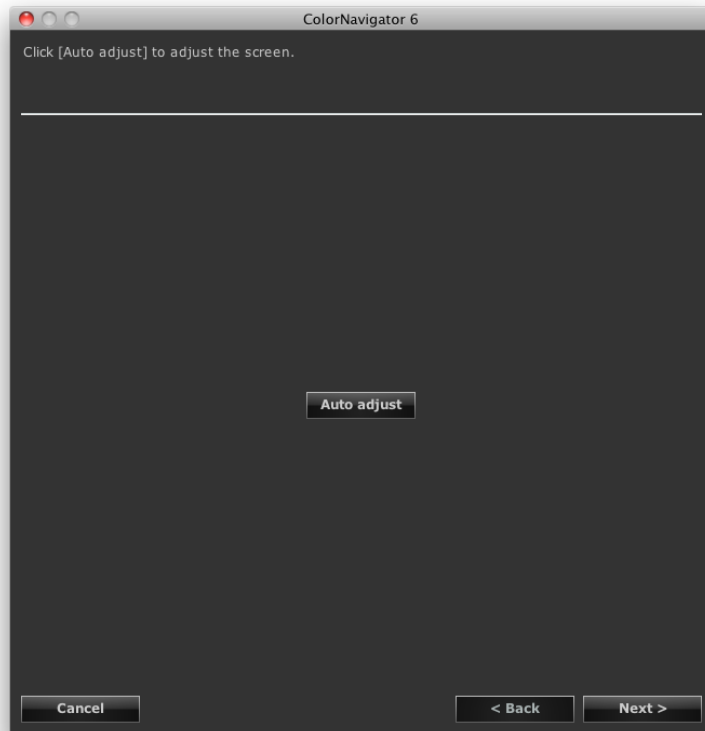
After automatic adjustment is completed, click "Next".

5. Select a measurement device

Follow the software instructions and select a measurement device. The operation method is displayed according to the measurement device for use.

Initialize the measurement device if necessary. Initialization takes a few seconds.
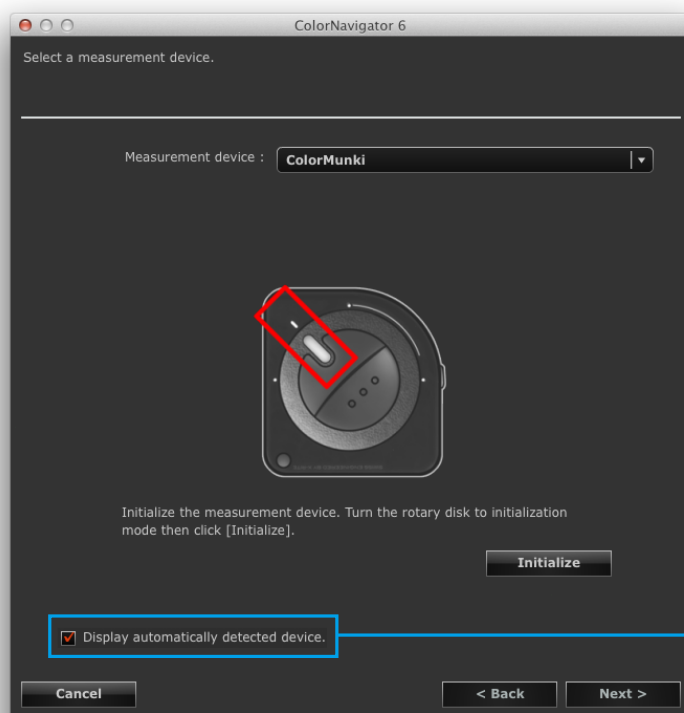
When the check box is unchecked, all the measurement devices listed in "2-1. System Requirements" (page 11) are displayed in the pull-down menu.

Attention
- Be sure that light does not seep through to the sensor of the measurement device during initialization. Precise adjustment results cannot be obtained if light is detected during the initialization process.
- To use basICColor DISCUS, Klein K-10, Photo Research PR-655 / PR-680, or Colorimetry Research CR-100 / CR-250, uncheck the "Display automatically detected device." check box.
- If using the Klein K-10, or Colorimetry Research CR-100 measurement device, the compensation function of the device can be used. Select "K-10" or "CR-100" to display the "Compensation function of the measurement device" menu. Then select the compensation table to use from the pull-down menu. Note that when Klein K-10 or Colorimetry Research CR-100 is used, the compensation table of ColorNavigator will be disabled.
- "Gray balance" and "Standard" cannot be adjusted with Spyder3, Spyder4, Spyder5, EX1, EX2, EX3 and the built-in calibration sensor of CG2420 / CG2730.

Note
- When X-Rite i1Pro / Pro2 / Monitor is used and it has been calibrated to comply with XRGA, select "i1Pro / Pro2 / Monitor (XRGA)".

After selecting the measurement device, click "Next".

6. Proceed monitor adjustment

The measurement window appears on the screen.

Tilt the LCD panel up slightly and attach the measurement device to the measurement window. (Refer to the user's manual of the measurement device for the attachment procedure.)

Follow the software instructions to start monitor adjustment. The operation method is displayed according to the measurement device for use.

When monitor adjustment is started, the measurement pattern is displayed and adjustment is automatically performed.

Attention

- The measurement window may not be displayed at the center of the screen depending on the monitor or OS settings. In this case, attach a measurement device around the center of the screen regardless of the position of the measurement window.
- When a built-in calibration sensor is used, the measurement result may be affected by ambient light entering the sensor part. Check the following points before beginning measurement.
  - Use a curtain or the like to block any windows so that natural (outside) light does not enter the room.
  - Ensure that the lighting in the room does not change during measurement.
  - It is recommended that the monitor hood be attached.
- When ColorNavigator is started, the monitor automatically switches to CAL mode or EMU mode (i.e. Calibration mode or Emulation mode).The monitor adjustment result is registered in CAL mode or EMU mode. Use CAL mode or EMU mode for the monitor.
- If the monitor has two or more CAL modes, the monitor adjustment result is registered in the specified CAL mode.
- The figure displayed in this window depends on the type of measurement device connected to the computer.

Note

- Monitors equipped with built-in correction sensor measure the white point using the built-in correction sensor after the monitor adjustment is performed by the measurement device. The measurement results are referred to for the SelfCorrection operation.

Progress bars are displayed on the right-bottom corner while adjustment is in progress.
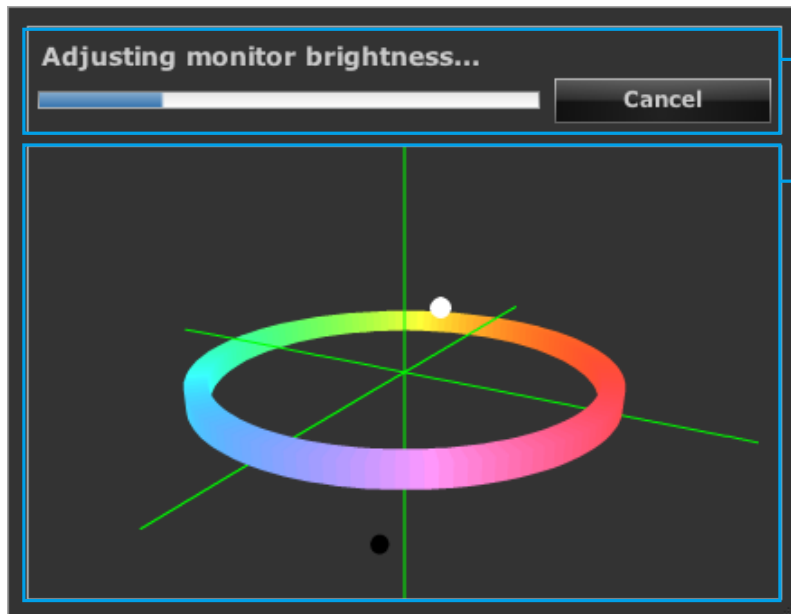
Message display area:
The current progress is displayed..

Adjustment status display area:
The present adjustment status is plotted in the chart. You can change the view using the mouse cursor.

7. Confirm the result

After completing the monitor adjustment, confirm the adjustment result displayed.
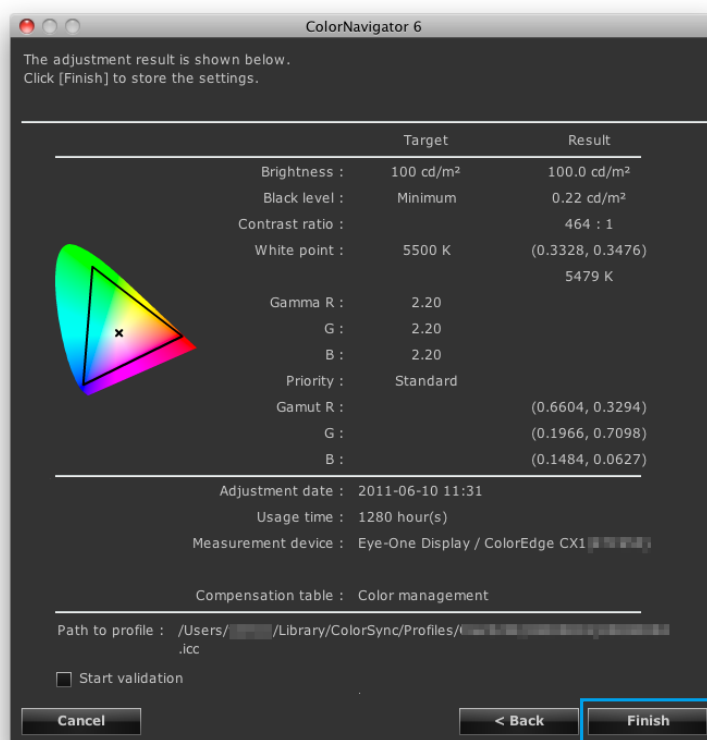
Saves the monitor adjustment result.

Attention

• An error message will be displayed if adjustment fails. Follow the indication displayed in the window and adjust the monitor from the beginning again. It's because the measurement device could not have been attached to the monitor closely or light could have seeped through to the sensor of the measurement device during initialization.

8. Click "Finish" to quit the adjustment

When you click "Finish" with the "Start validation" check box checked, monitor validation starts. For details of the monitor validation, see "Chapter 7 Validating Adjustment Status of Monitor" (page 46).

Attention

- When the monitor is CG232W, if you apply the adjustment result to the SDI input signal, click "Yes" in "Do you want to apply the adjustment result to the SDI input signal?".
- Once the monitor is adjusted by ColorNavigator, avoid adjusting the monitor image on no purpose. If the monitor is adjusted again, the previous adjustment result will be lost.
- After saving an ICC profile, do not select an ICC profile that is created using functions of your OS. Otherwise, correct color management will not be performed.
- To execute SelfCalibration when the monitor (with built-in calibration sensor) is adjusted using measurement device other than the built-in calibration sensor, it is necessary to correlate the measurement device used with the built-in calibration sensor. For details, see "13-2. Correlate with the Reference Measurement Device" (page 85).

Note

- The monitors that can set multiple SelfCalibration / SelfCorrection targets are able to set the adjusted targets to the monitor automatically. For details, see "13-3. Setting the SelfCalibration / SelfCorrection Schedule" (page 89).

Chapter 5   Creating Adjustment Target

You can create the new adjustment target by specifying each value of brightness, white point and gamma. The monitor can be adjusted from the created target.

Some measurement device can set the target by measuring ambient light, paper white, etc.

```
                        ( Main window )
                              │
                  ┌───────────────────────────┐
                  │ Create a new adjustment target │
                  └───────────────────────────┘
                              │
        ┌───────────────────────────────────────────────┐
        │        Select a target creation method         │
        └───────────────────────────────────────────────┘
           │               │              │              │
    ┌────────────┐  ┌────────────┐  ┌────────────┐  ┌──────────────────┐
    │Enter manually│  │Measure a target│  │Load a profile│  │Use an existing target│
    └────────────┘  └────────────┘  └────────────┘  └──────────────────┘
                          │              │              │
                   ┌────────────┐  ┌────────────┐  ┌────────────┐
                   │Target measurement│ │Profile selection│ │Target selection│
                   └────────────┘  └────────────┘  └────────────┘
                                         │              │
                              ┌─────────────────────────────┐
                              │     Customize the target      │
                              └─────────────────────────────┘
                                   │                    │
                            ┌────────────┐      ┌──────────────────┐
                            │To be performed│      │Not to be performed│
                            └────────────┘      └──────────────────┘
        ┌───────────────────────────────────────┐
        │                 Gamut                  │
        └───────────────────────────────────────┘
        ┌───────────────────────────────────────┐
        │         Brightness / White Point       │
        └───────────────────────────────────────┘
        ┌───────────────────────────────────────┐
        │               Black Level              │
        └───────────────────────────────────────┘
        ┌───────────────────────────────────────┐
        │                 Gamma                  │
        └───────────────────────────────────────┘
        ┌───────────────────────────────────────────────────┐
        │              Set the adjustment target             │
        └───────────────────────────────────────────────────┘
                              │
                  ┌───────────────────────┐
                  │    Creation completed   │
                  └───────────────────────┘
                     │                    │
              ┌────────────┐       ┌────────────┐
              │ Adjust later │       │  Adjust now  │
              └────────────┘       └────────────┘
                     │                    │
              ( Main window )      ┌─────────────────────┐
                                   │Select a measurement device│
                                   └─────────────────────┘
                                            │
                                   ┌─────────────────────┐
                                   │Start the monitor adjustment│
                                   └─────────────────────┘
                                            │
                                   ┌─────────────────────┐
                                   │Confirm the adjustment result│
                                   └─────────────────────┘
                                            │
                                   ┌─────────────────────┐
                                   │    Create a profile    │
                                   └─────────────────────┘
                                            │
                                   ( Adjustment completed )
```
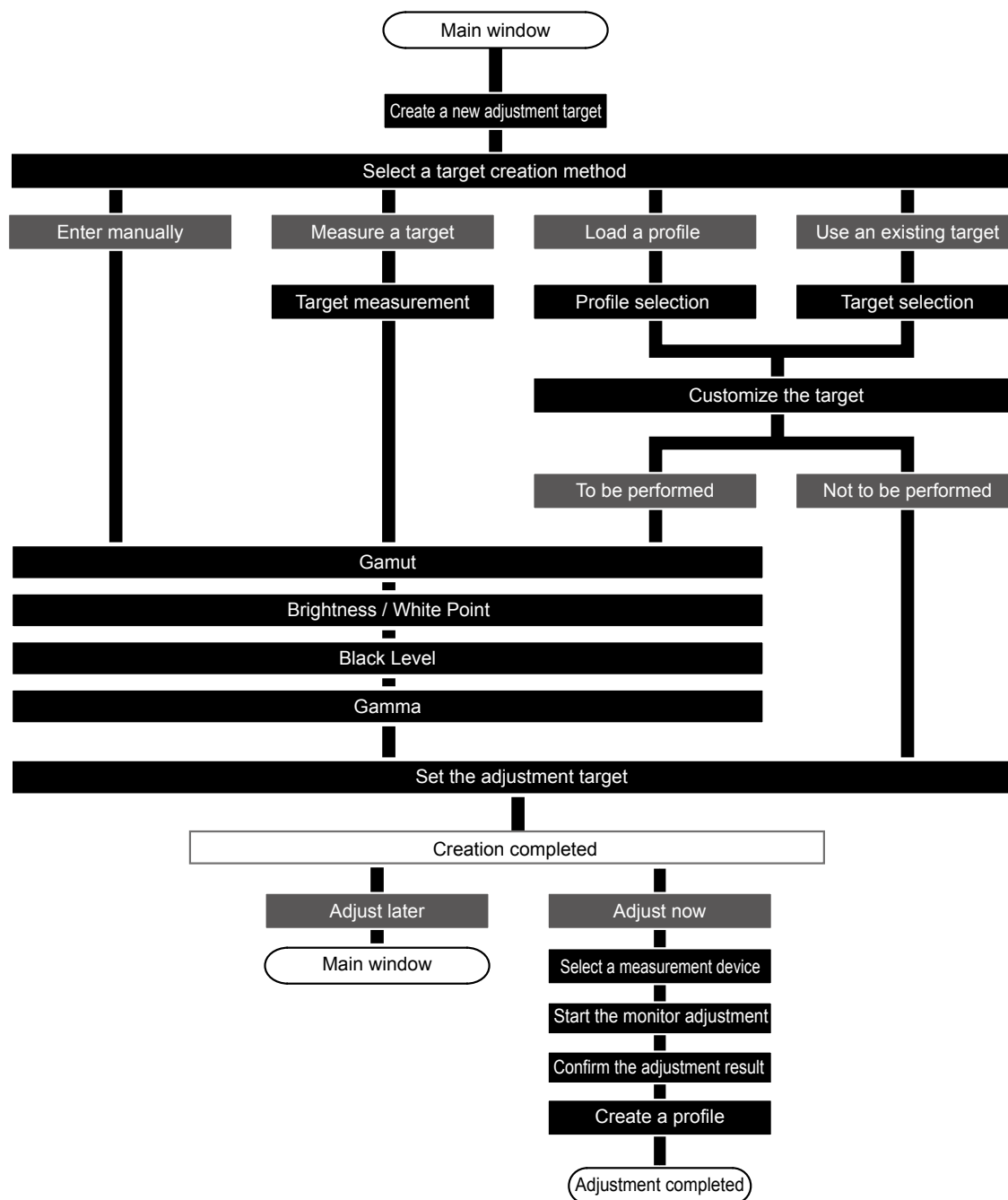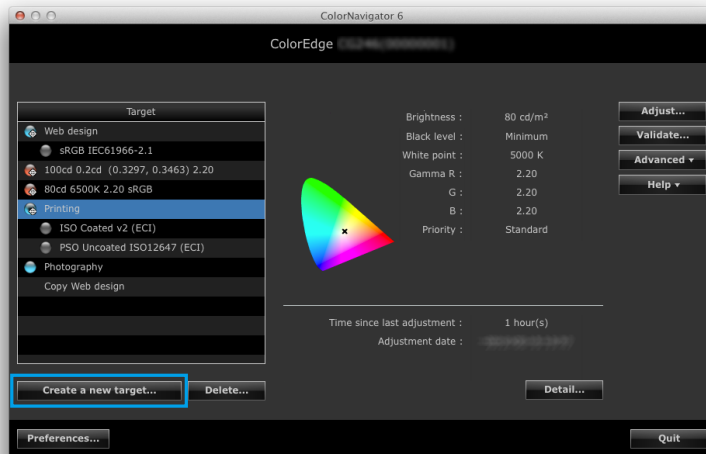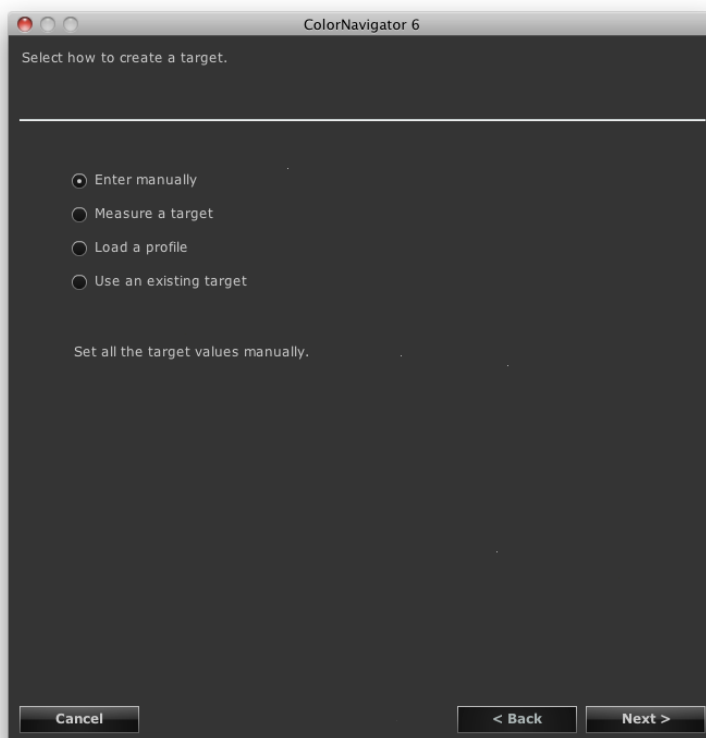
1. Click "Create a new target" in the main window

The window to select how to create a new adjustment target appears.

2. Select a method to create an adjustment target in the target creation method selection window

● When "Enter manually" is selected

Set all target values manually.

Go to "7. Set the gamut" (page 39).

● When "Measure a target" is selected

Measure a measurement target (e.g., paper white) and the adjustment targets are set according to the result. When the target to be measured is a monitor, you can also measure the color gamut of RGB and set the result as a target "Color Gamut".

Go to "3. Select a measurement device and a measurement target" (page 35).

● When "Load a profile" is selected

The values specified in the ICC profile are set as the adjustment targets.

Go to "5. Select an ICC profile." (page 37).

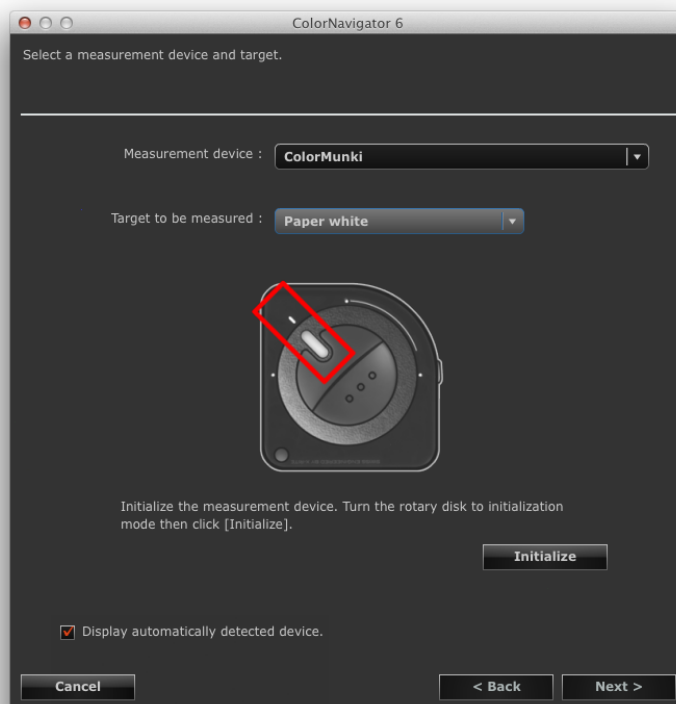### ● When "Use an existing target" is selected

Go to "6. Select an adjustment target to be copied" (page 38).

After selecting the target creation method, click "Next".

3. Select a measurement device and a measurement target

Select a measurement device and target from their respective pull-down menus.

Items that can be set as adjustment targets vary according to the measurement target.

Measurement target	Brightness	White Point	Color Gamut
Paper White	√	√	-
Ambient Light	-	√	-
LCD monitor (RGBW)	√	√	√
LCD monitor (W)	√	√	-
CRT monitor (RGBW)	√	√	√
CRT monitor (W)	√	√	-
Light booth (Luminance)	√	√	-
Light booth (Illuminance)	-	√ *1	-

*1 When the basICColor DISCUS is used, the measurement value becomes smaller than that for other measurement devices.

Attention

- When initialization of the measurement device is necessary, click "Initialize".
- The built-in calibration sensor / built-in correction sensor cannot be selected.
- The selectable measurement targets vary depending on the type of measurement device.
- Select the same measurement device that is used for the actual measurement in order to maintain the adjustment accuracy.
- If you use the built-in calibration sensor for monitor adjustment, use the measurement device correlated with the built-in calibration sensor. For details, see "13-2. Correlate with the Reference Measurement Device" (page 85).
- For the monitors that can set multiple SelfCalibration targets, the adjustment targets to be set to SelfCalibration need to be measured using the same measurement device.

After selecting a measurement device and target, click "Next" and proceed to .

4. Place the measurement device and perform measurement

Place the measurement device according to the software instructions and then click "Measure".
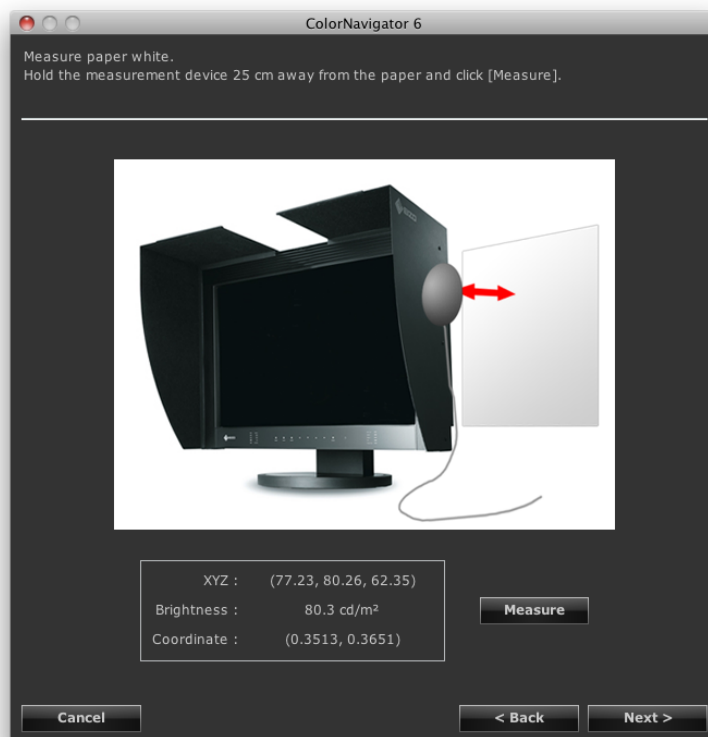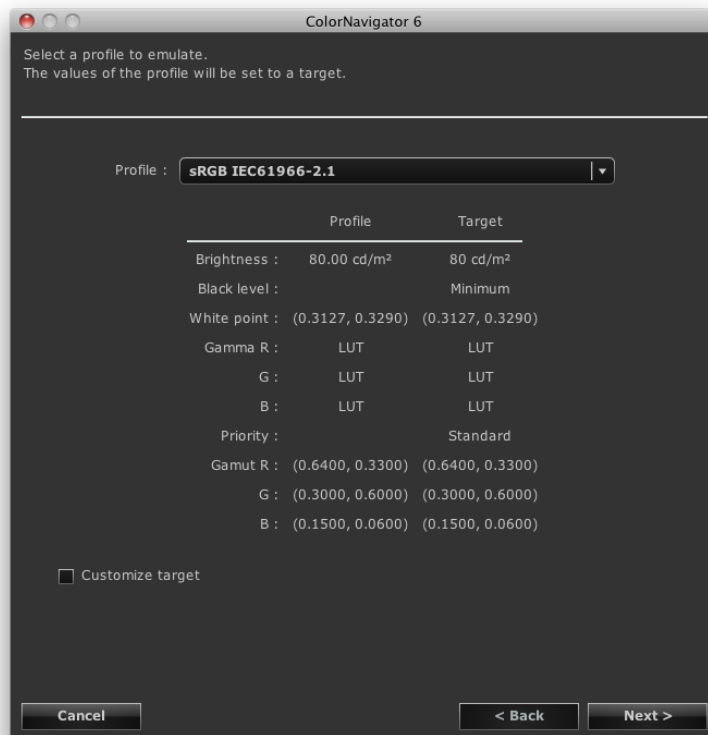

After measurement is completed, click "Next" and proceed to "7. Set the gamut" (page 39).

Note

• If you select "LCD monitor (RGBW)" or "CRT monitor (RGBW)", the measurement window is displayed until the completion of all RGBW-color measurements.

---

5. Select an ICC profile.

Select the target ICC profile from the pull-down menu.

Attention

- By default, only the ICC profiles registered with the system are displayed in the list.
- When emulating the color gamut of sRGB, select the following ICC profile from the pull-down menu.
  - sRGB IEC61966-2.1
- For some types of monitors, the color gamut is not adjusted.
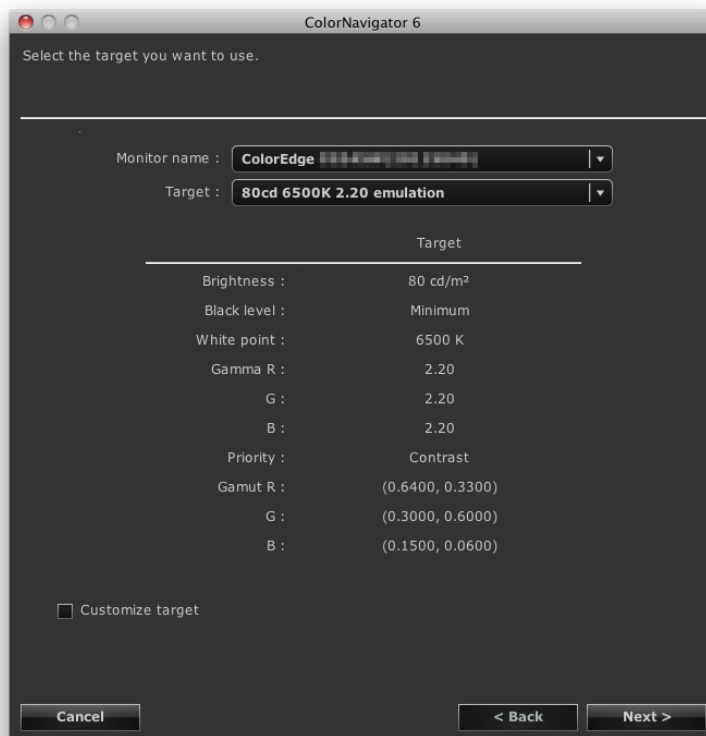

After completing the selection, click "Next".

When the "Customize target" check box is checked, go to "7. Set the gamut" (page 39).

When the "Customize target" check box is not checked, go to "11. Set an adjustment target name" (page 44).

6. Select an adjustment target to be copied

Select the monitor that has the adjustment target to be copied from the "Monitor name" pull-down menu.

Select an adjustment target to be copied from the "Target" pull-down menu.

After completing the selection, click "Next".

When the "Customize target" check box is checked, go to "7. Set the gamut" (page 39).

When the "Customize target" check box is not checked, go to "11. Set an adjustment target name" (page 44).

7. Set the gamut
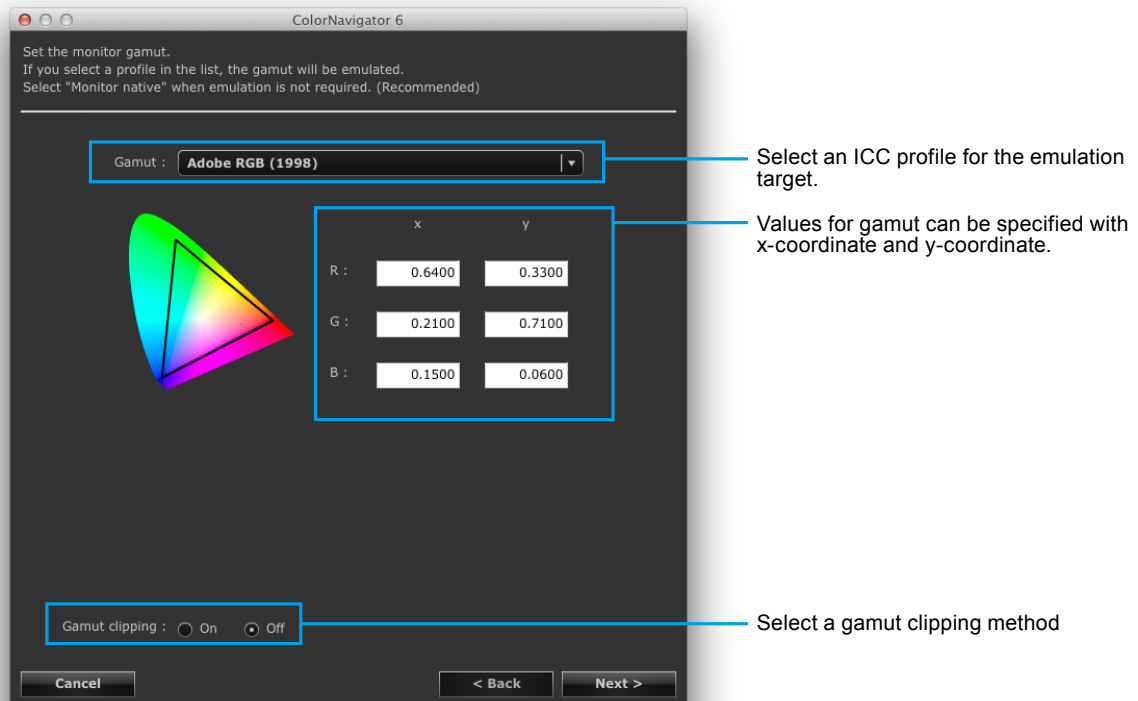
Recommended: "Monitor native" (default setting)

Select the ICC profile to use when emulating the gamut of the monitor from the pull-down menu.
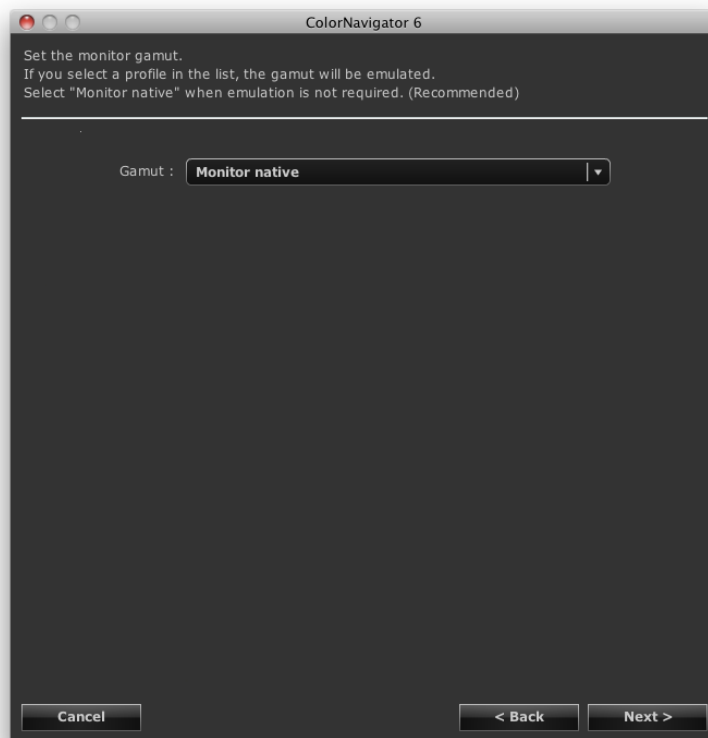
Attention
- The gamut is fixed to "Monitor native" for some types of monitor.

When an ICC profile is selected from the pull-down menu, the gamut in the selected ICC profile is displayed.

Select an ICC profile for the emulation target.

Values for gamut can be specified with x-coordinate and y-coordinate.

Select a gamut clipping method

Attention

- When the target RGB gamut has been changed, the "Gamut" option changes to "Enter manually".
- By default, only the ICC profiles registered with the system are displayed in the list.
- When emulating the color gamut of sRGB, select the following ICC profile from the list.
  - sRGB IEC61966-2.1

Note: About Clipping

- The method of displaying colors outside the monitor's displayable range within the color gamut can be set.

- On

  The range of colors that are displayable on the monitor will be accurately displayed in accordance with the standard. Colors outside the displayable range will be saturated.
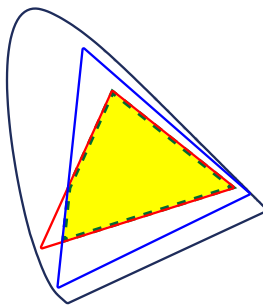
- Off

  Displays colors with priority on the color gradation rather than the color accuracy. The vertices of the color gamut defined in the standard move to a range that can be displayed by the monitor. This allows the closest colors displayable by the monitor to be displayed.
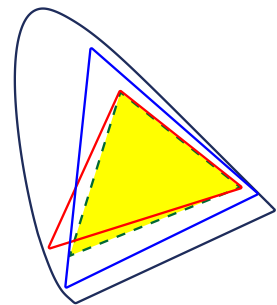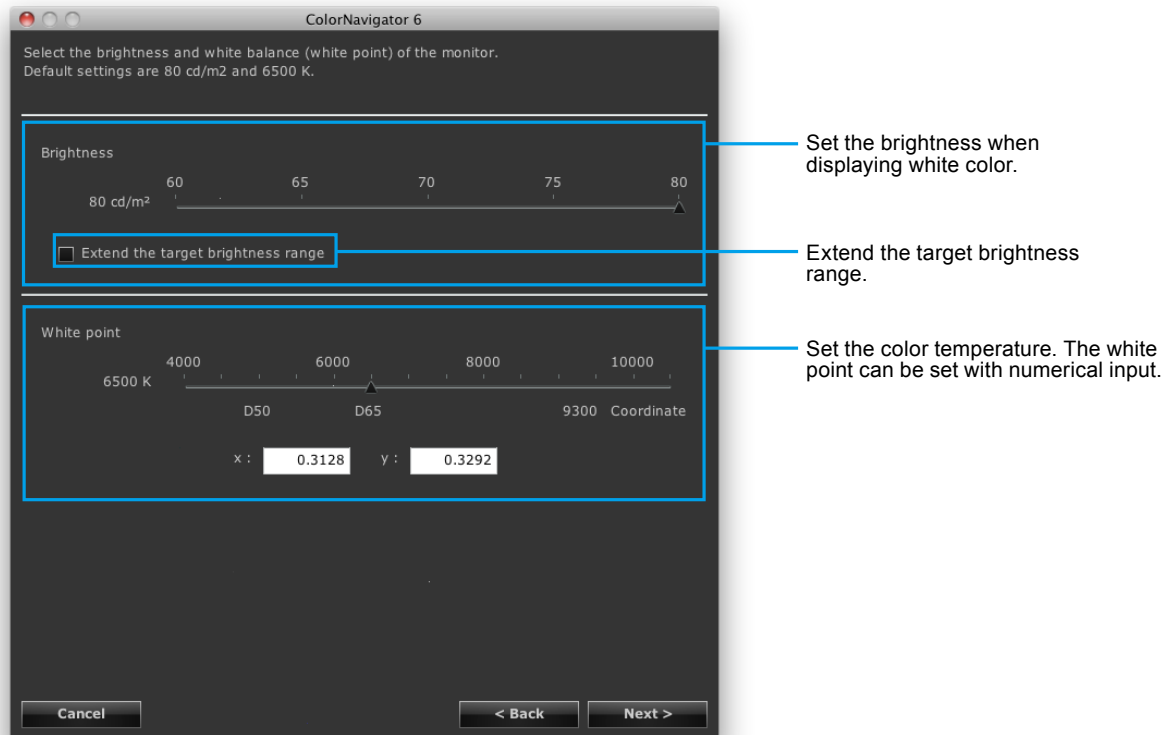

——— Color gamut of monitor
——— Color gamut defined by standard
Color gamut displayed on screen

* This is a conceptual diagram, and does not display the actual color gamut of the monitor.

- This setting will be disabled if "Monitor native" is selected at "Gamut".

After completing the setting, click "Next".

8. Set the brightness and white balance (white point) for the monitor

Set the brightness when displaying white color.

Extend the target brightness range.

Set the color temperature. The white point can be set with numerical input.

Attention

• When you set the target white point by color coordinates, assign the target between 0.24 and 0.45 for x-coordinate and y-coordinate.
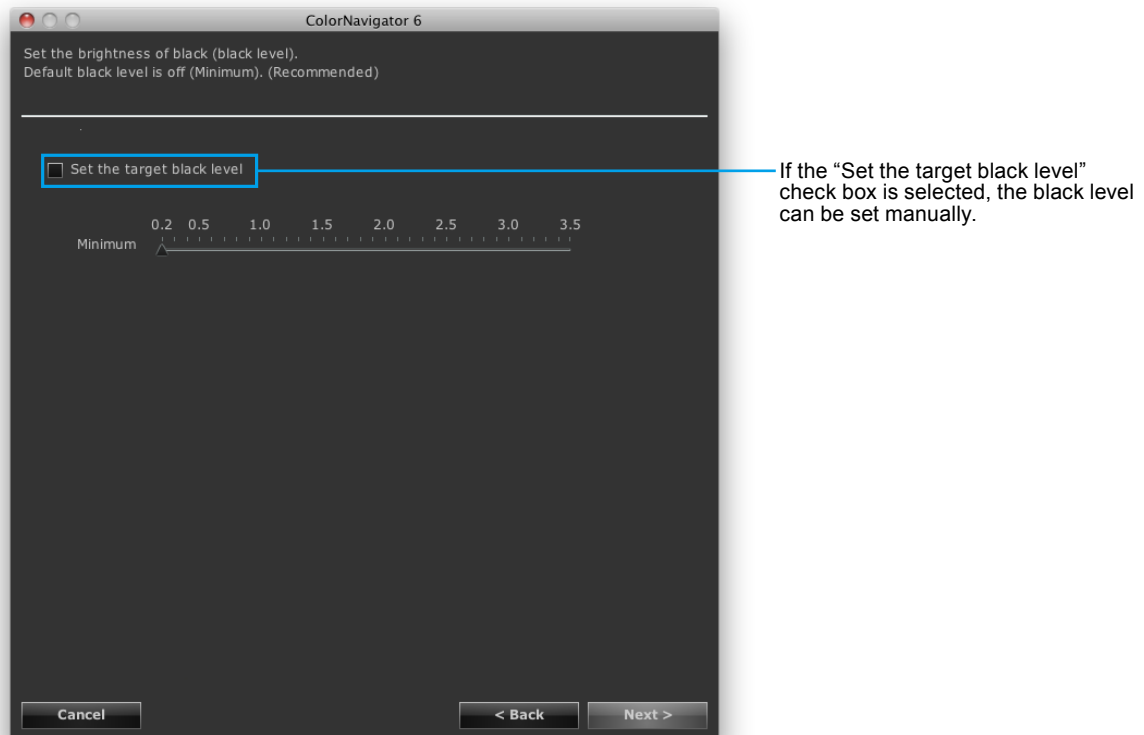
After completing the setting, click "Next".

9. Set the brightness of black (black level) for the monitor

Recommended: OFF "Minimum" (default setting)

By raising the black level, dark parts of images displayed on the monitor can be made brighter.

Raising the black level is effective when the contrast appears to be too high.

If the "Set the target black level" check box is selected, the black level can be set manually.

After completing the setting, click "Next".

10. Set the gamma

Recommended: Gamma 2.20, Priority: Standard (default setting)

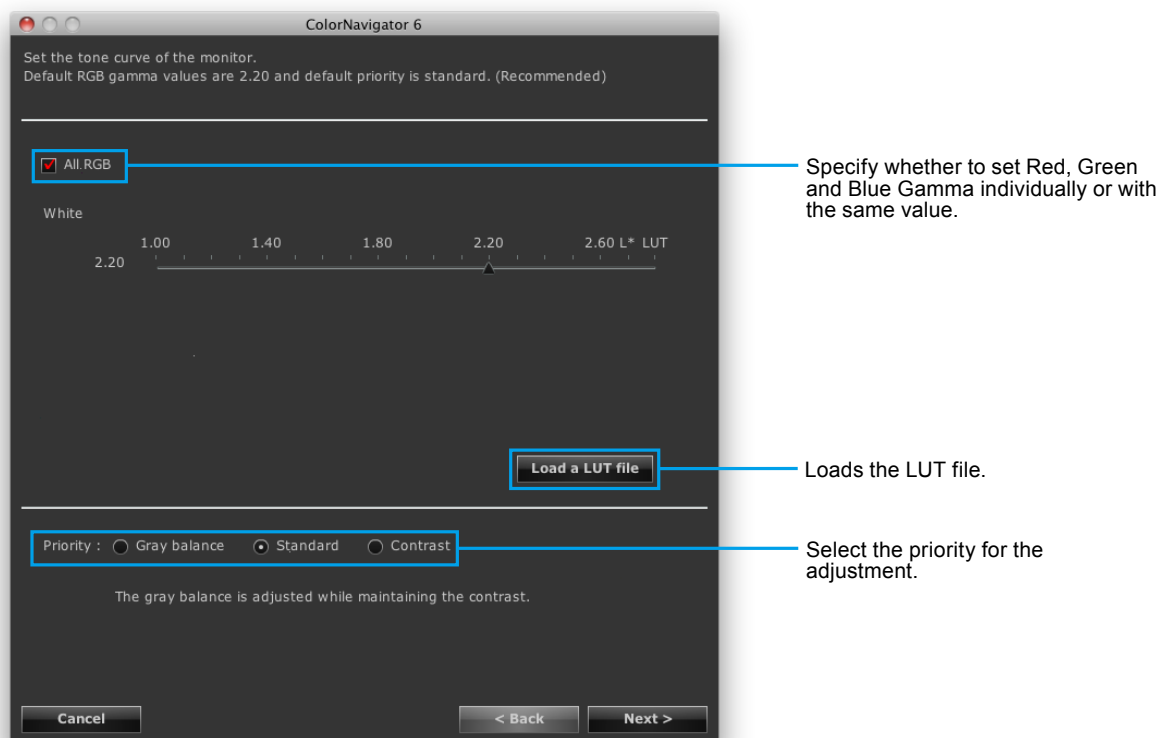Set the gamma value. For "L*", see "Chapter 16 Glossary" (page 113).

Specify whether to put the priority on Gray balance in "Priority".

When loading the LUT file

It is necessary to prepare a CSV file in which 256 numeric values are recorded (1 value per line). For details of the file, see "14-9. File Format" (page 102).

Priority

• Gray balance: The monitor is adjusted so that the chromaticity of the middle tone area equals the white point.

• Standard: The gray balance is adjusted while maintaining the contrast.

• Contrast: Monitor is adjusted so that the contrast is set to maximum.

Specify whether to set Red, Green and Blue Gamma individually or with the same value.

Loads the LUT file.

Select the priority for the adjustment.

Attention

• When "Priority" is set to "Gray balance", all points on the grayscale are adjusted toward the target white point. Select this when correcting with priority on the whiteness in the middle tone area. However, the following limitations apply when "Gray balance" is selected.

  - The contrast might decrease.

  - The gamut is narrower compared to when "Contrast" is selected.

  - When the "Priority" for gamma adjustment has been set to "Gray balance" or "Standard", you cannot adjust the black level or gamma manually.

  - "Gray balance" and "Standard" cannot be adjusted with Spyder3, Spyder4, Spyder5, EX1, EX2, EX3 and the built-in calibration sensor of CG2420 / CG2730. Even if "Gray balance" or "Standard" is selected, an adjustment is made with "Contrast".

After completing the setting, click "Next".

11. Set an adjustment target name
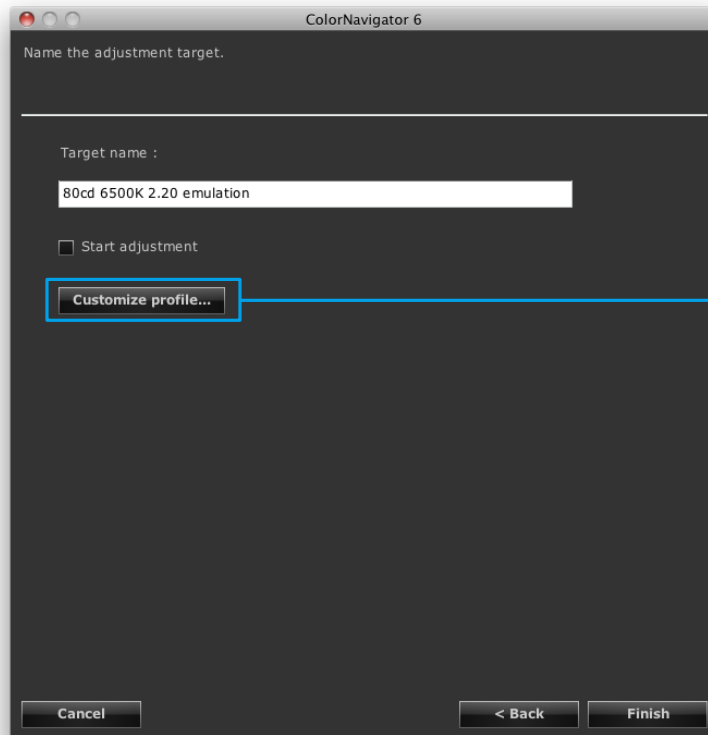
Click "Customize profile", and you can set the profile policy.
For details of the profile policy, see "9-2. Setting a Profile Policy" (page 56) in the Application Edition.

Note

- Set the target name within 128 characters.
- Target name cannot contain any of the following characters: \/:*?"'<>|

After completing the setting, click "Finish".

When you click "Finish" with the "Start adjustment" check box checked, the monitor adjustment starts.

When the check box is not checked, creation of a new target is finished.

The created adjustment target is added to the target list in the main window.

Chapter 6 Periodic Adjustment

The monitor brightness and gamut gradually alter over time. Therefore periodical adjustment is recommended.

To compensate for changes, adjusting once a month or once every two months is recommended.

The monitor should be adjusted regardless of the periodic adjustment after any of the following cases arises.

- Changing the computer or graphics board
- Changing the connector on the monitor (ex. from SIGNAL1 to SIGNAL2) to the computer or graphics board
- Changing the monitor resolution or color
- Adjusting the monitor screen (clock, phase, position, and other adjustments) by analog signal input
- Changing DUE Priority

Note

- The ColorNavigator Agent function allows you to set the warning for the usage timer. For details, see "14-3. Using ColorNavigator Agent" (page 94).
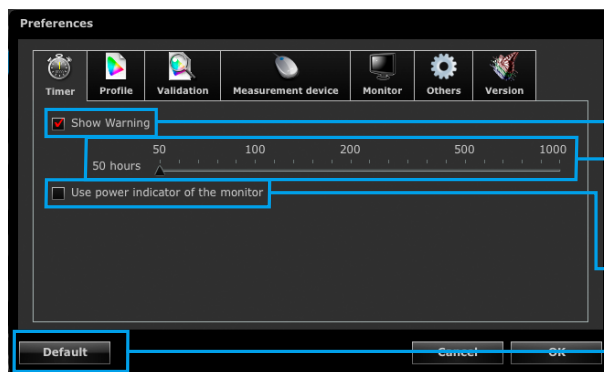
6-1. Timer

Setting a timer displays messages on the screen when the specified monitor usage time has elapsed after the monitor adjustment.

1. Open the main window

2. Click "Preferences"

The "Preferences" dialog box appears.

3. Click "Timer" in the toolbar

Check the check box to activate timer.

Specify the time to use the monitor.

Check the check box to enable the LED warning of the monitor.

Check the "Show Warning" check box, uncheck the "Use power indicator of the monitor" check box, and set the timer to 200 hours. Also, return the ICC profile and other settings to the defaults.

The timer can be set between 50 and 1000 hours. After completing the setting, click "OK".

Note

- If the timer is set at a value larger than that specified in the steps of Setting the SelfCalibration / SelfCorrection Schedule (page 89), SelfCalibration / SelfCorrection will work before the timer. In this case, the message by the timer is not displayed.
- Some types of monitors do not have an LED warning function.

6-2. About SelfCalibration / SelfCorrection

For monitors with built-in calibration sensor / built-in correction sensor, the monitor can be adjusted regularly using the SelfCalibration / SelfCorrection function. For details, see the User's Manual of the monitor and "Chapter 13 Making Use of the Built-in Calibration Sensor / Built-in Correction Sensor" (page 85).

Chapter 7　Validating Adjustment Status of Monitor

This chapter describes how to validate the monitor adjustment status with respect to the adjustment target of the monitor.

Validating the monitor verifies the degree to which the state of the adjusted monitor matches the adjustment target. To do this, the monitor with the color patch to be used for the validation displayed is measured and then the resulting value is compared to the logical value to check the degree of matching.

The combination of the color patches (validation target) can be specified as either the RGB type or CMYK type.

1. In the main window, select an adjustment target and click "Validate"
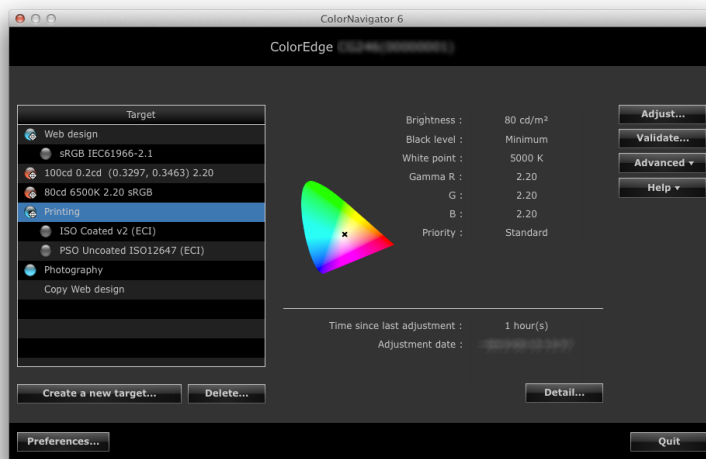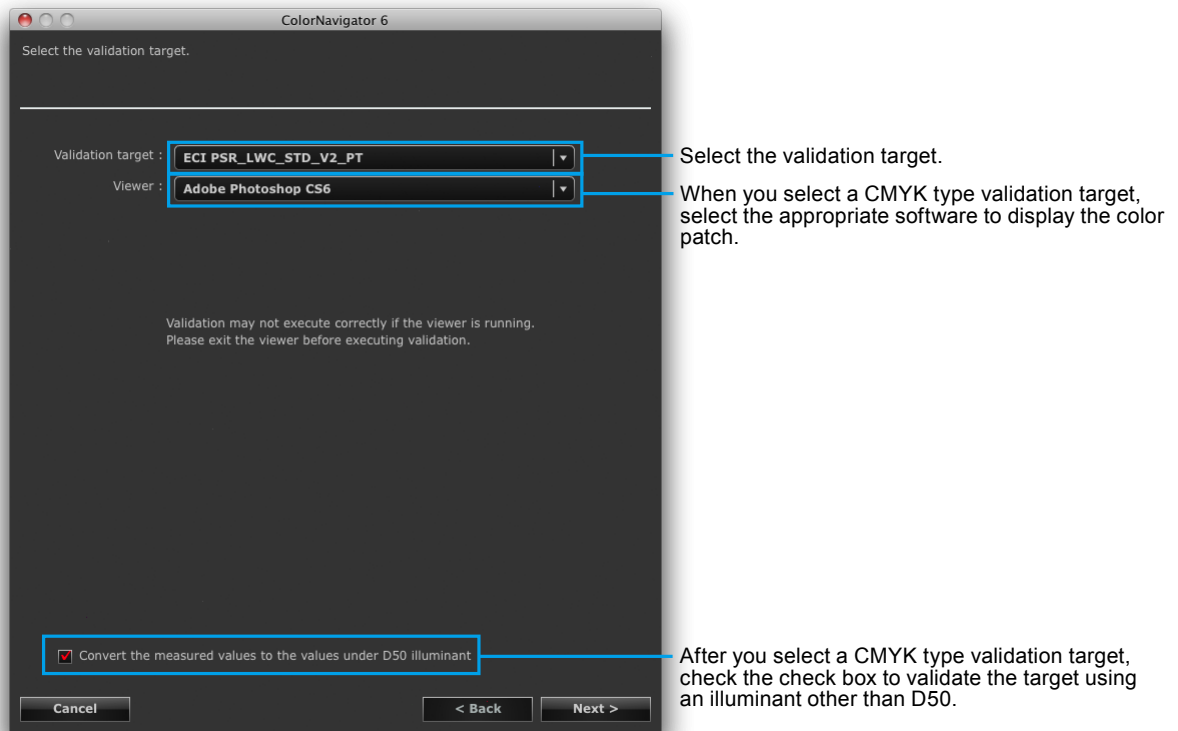

Attention

- Monitor validation cannot be performed using the built-in calibration sensor of CG2420 / CG2730.
- When using the built-in calibration sensor to perform CMYK validation, depending on the system environment or software, the tool bar, menu bar, Dock, or task bar may be detected by the sensor and result in incorrect CMYK validation. Move the window by following the message instructions so that a color patch is displayed on the sensor.
- The ColorEdge CS / CX series supports only RGB type validation.

Note

- Validation can be performed in the adjustment result window.
- When you use a CMYK type validation target, you need to prepare software to display the color patch. The software used for displaying the color patch is as follows:
  - Adobe Photoshop CC2017 / CC2015.5 / CC2015 / CC 2014 / CC / CS6 / CS5.1 / CS5 / CS4
  - Adobe Acrobat XI Pro / X Pro / 9 Pro / 8 Professional
  - Adobe Acrobat 7 Professional (Windows only)
  - Adobe Acrobat Pro DC
- For details about the support policies and supporting operating systems of software products that can be used to display the color patch, refer to the support information about the relevant product.
- When you validate the monitor in a Mac environment, it is recommended that Adobe Photoshop or Adobe Acrobat Pro DC be used in order to obtain the correct validation results.
- When the CMYK type of monitor validation is performed in the multiple monitor configuration, the ICC profile of the main monitor (primary monitor) may be applied depending on the software used to display the color patch. If the main monitor is not set as the validation target, the validation may finish with a worse result than the actual one. Set the validation target as the main monitor, then perform validation again.

---

2. Select the target (validation target) to be used from the pull-down menu

When you select a CMYK type validation target, the "Viewer" pull-down menu to select the software to display the color patch appears. Select the appropriate software.
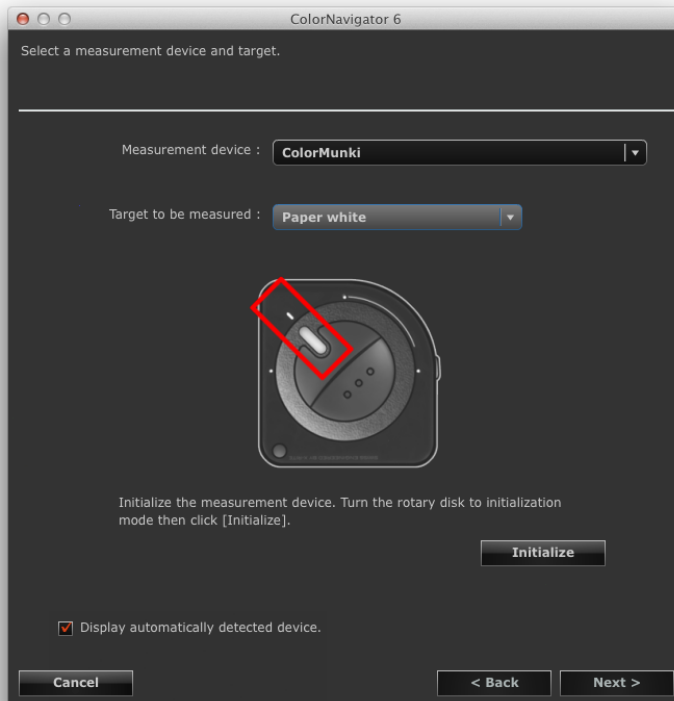

Select the validation target.

When you select a CMYK type validation target, select the appropriate software to display the color patch.

After you select a CMYK type validation target, check the check box to validate the target using an illuminant other than D50.

After completing the selection, click "Next".

3. Select a measurement device

Select a measurement device from the pull-down menu.

Initialize the measurement device if necessary.

After completing the selection, click "Next".

When you select a CMYK type validation target, the message to set the software to display the color patch appears. Make the software setting in accordance with the message instructions.
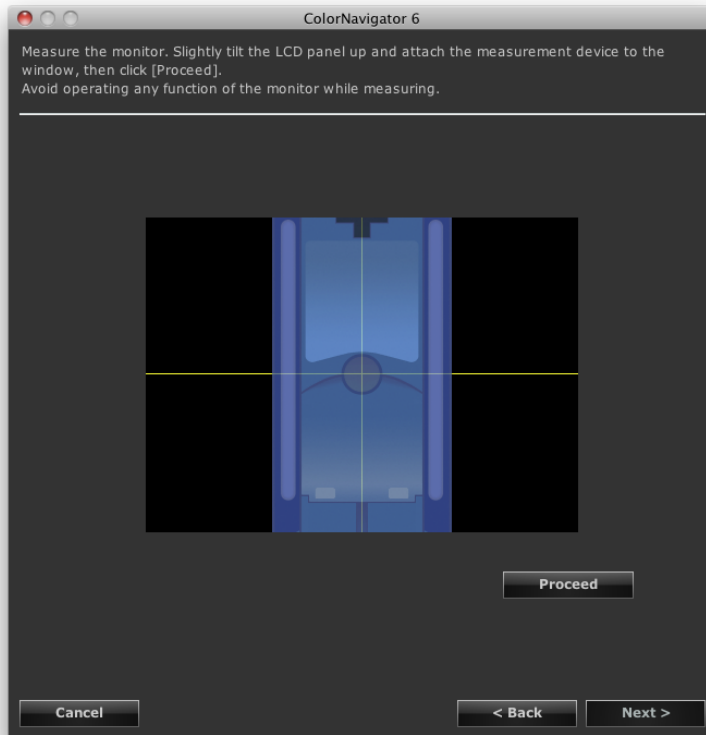
4. Proceed monitor validation

The measurement window appears on the screen.

Tilt the LCD panel up slightly and attach the measurement device to the measurement window. (Refer to the user's manual of the measurement device for the attachment procedure.)

Follow the window instructions to validate the monitor. The operation method is displayed according to the measurement device for use.

When monitor validation is started, the measurement pattern is displayed and validation is automatically performed. Validation time varies depending on the number of color patches.


Attention
- The measurement window may not be displayed at the center of the screen depending on the monitor or OS settings.
  In this case, attach a measurement device around the center of the screen regardless of the position of the measurement window.
- When a built-in calibration sensor is used, the measurement result may be affected by ambient light entering the sensor part. Check the following points before beginning measurement.
  - Use a curtain or the like to block any windows so that natural (outside) light does not enter the room.
  - Ensure that the lighting in the room does not change during measurement.
  - It is recommended that the monitor hood be attached.
- The figure displayed in this window depends on the type of measurement device connected to the computer.

When the monitor validation has completed, the completion window appears.

5. Click "Finish" to quit the validation
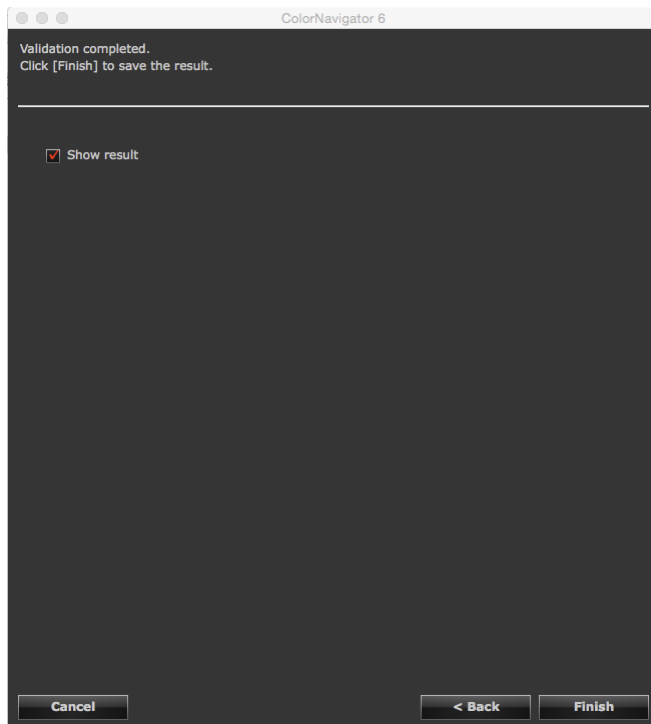
When you click "Finish" with the "Show result" check box checked, the validation results are displayed.

Select the target validation to display in the list of validation results.
Select the delta-E to display in the list of validation results.

Deletes the selected validation result.
Shows the delta-E graph of the selected validation result.
Shows the validation results as a list.

Outputs the report of the selected validation result.
Shows the details of the selected validation result.

APPLICATION

Chapter 8   Setting Monitor Validation

8-1.   Importing the Validation Target

Separately created validation target can be used for monitor validation by reading into ColorNavigator.

How to Import

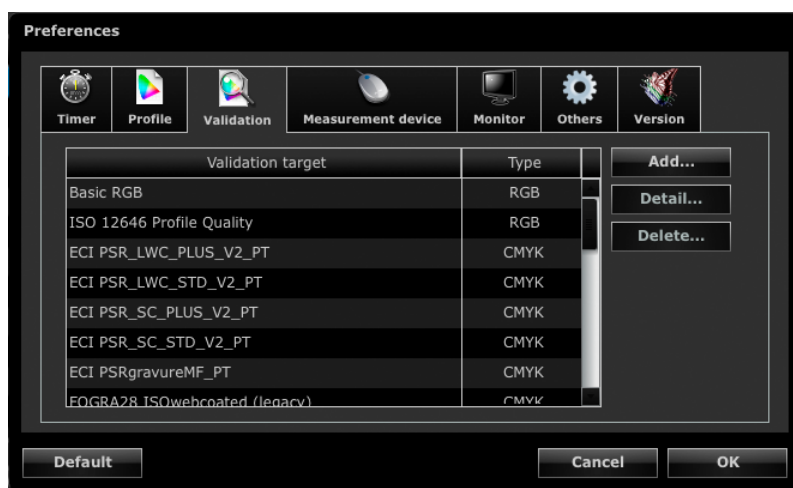**1.** **Open the main window**

2. **Click "Preferences"**

The "Preferences" dialog box appears.

3. **Click "Validation" in the toolbar**

Note

• The ColorEdge CS / CX series displays only the RGB type validation target.

Note

• The following color patches are recorded by default.

Validation target	Type
Simple RGB	RGB
ISO 12646 Profile Quality	RGB
FOGRA28 ISOwebcoated (legacy)	CMYK
FOGRA29 ISOuncoated (legacy)	CMYK
FOGRA30 ISOuncoatedyellowish	CMYK
FOGRA39 ISOcoated_v2_300_eci	CMYK
FOGRA39 ISOcoated_v2_eci	CMYK
FOGRA40 SC_paper_eci	CMYK
FOGRA41 PSO_MFC_Paper_eci	CMYK
FOGRA42 PSO_SNP_Paper_eci	CMYK
FOGRA43 PSO_Coated_300_NPscreen_ISO12647_eci	CMYK
FOGRA43 PSO_Coated_NPscreen_ISO12647_eci	CMYK
FOGRA44 PSO_Uncoated_NPscreen_ISO12647_eci	CMYK
FOGRA45 PSO_LWC_Improved_eci	CMYK
FOGRA46 PSO_LWC_Standard_eci	CMYK
FOGRA47 PSO_Uncoated_ISO12647_eci	CMYK
FOGRA51 PSOcoated_v3	CMYK
FOGRA52 PSOuncoated_v3_FOGRA52	CMYK
ECI PSR_LWC_PLUS_V2_PT	CMYK
ECI PSR_LWC_STD_V2_PT	CMYK
ECI PSR_ST_PLUS_V2_PT	CMYK
ECI PSR_ST_STD_V2_PT	CMYK
ECI PSRgravureMF_PT	CMYK
IDEAlliance GRACoL2006_Coated1v2	CMYK
IDEAlliance SWOP2006_Coated3v2	CMYK
IDEAlliance SWOP2006_Coated5v2	CMYK
IFRA26 ISOnewspaper26v4	CMYK

4. Click "Add"

For details of the color patch formats that can be imported, see "14-9. File Format" (page 102).

5. Select a file to be added and click "OK"

The name of the validation target file that has been imported is displayed in the validation target list. To check whether the file is imported correctly, click "Detail" and check the contents of the validation target.
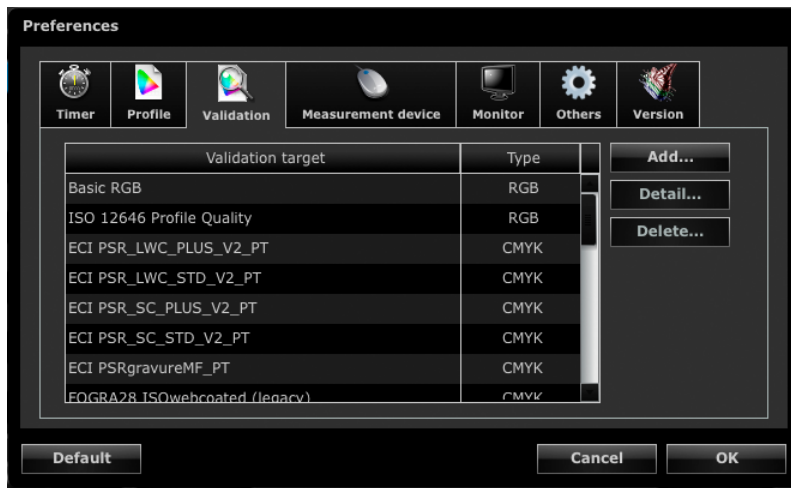
8-2. Deleting Validation Target

Delete a validation target as follows.

1. Open the main window

2. Click "Preferences"

The "Preferences" dialog box appears.

3. Click "Validation" in the toolbar

4. Select a validation target to be deleted and click "Delete"

The selected validation target is deleted.

Attention

- You cannot delete a validation target prepared using ColorNavigator.
- To restore the deleted validation target to the list, import it again.

Chapter 9 Customizing Adjustment Target

9-1. Exporting and Importing the Adjustment Target

Adjustment target can be exported and used for other system.

Attention
• One adjustment target can be exported or imported at a time.

Note
• The exported and imported data can be used on any OS.
• It is also possible to import an adjustment target exported from a previous version of ColorNavigator.

How to Export

1. Open the main window

2. Select the adjustment target to be exported from the target list

3. Select "Export target" from "Advanced"

The file save dialog box appears.

Note
• The same operation can be performed by right-clicking on the target list to open the menu and selecting "Export target".

4. Set the file name and click "Save"

How to Import

1. Open the main window

2. Select "Import target" from "Advanced"

The file selection dialog box appears.

3. Select a file and click "Open"

The file is imported and the adjustment target is shown in the target list.

Note
• An adjustment target file to be displayed in the default setting is stored in the following folder. If the file is deleted accidentally, it is still possible to retrieve it by importing. For details of the adjustment target file, see the list (page 26).
    • Mac
    /Library/Application Support/EIZO/ColorNavigator 6/targets/
    • Windows
    (System drive):\ProgramData\EIZO\ColorNavigator 6\targets
      - This is a hidden folder. In "Folder Options", set it to show hidden folders.

9-2. Setting a Profile Policy

Once you have set a profile policy, you can customize the timing to create an ICC profile and the contents to be recorded in the ICC profile.

How to Set

1. Open the window to create the adjustment target name

This window appears after the adjustment target has been created in the adjustment target creation process (page 44). This window appears after the manual adjustment target has been created in the manual adjustment process (page 65).

2. Click "Customize profile"

The window to edit the profile policy appears.

3. Set the profile policy
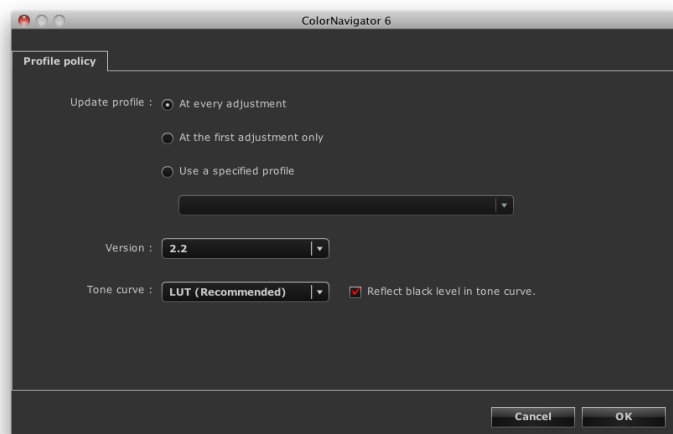
● **Update profile**

- At every adjustment
  An ICC profile is updated each time the monitor is adjusted using the created adjustment target.

- At the first adjustment only
  An ICC profile is created when the monitor is adjusted for the first time. The ICC profile is not updated for the next and subsequent adjustments.

- Use a specified profile
  Specifies the existing ICC profile in the system. After the monitor adjustment, the specified ICC profile is linked to the monitor.

● **Version**

Allows you to select the ICC profile version. Select "2.2" normally.

● **Tone curve**

- Recording method of the tone curve
  Select "LUT (Recommended)" normally.

- Reflect black level in tone curve
  Uncheck the check box normally. If the tone curve is not displayed correctly, try unchecking the check box. When this check box is checked, the black level value is reflected to the tone curve for the profile. When validating the monitor display using the ICC profile validation tool, etc., check the check box.

9-3. Setting Destination Folder for ICC Profile Saving

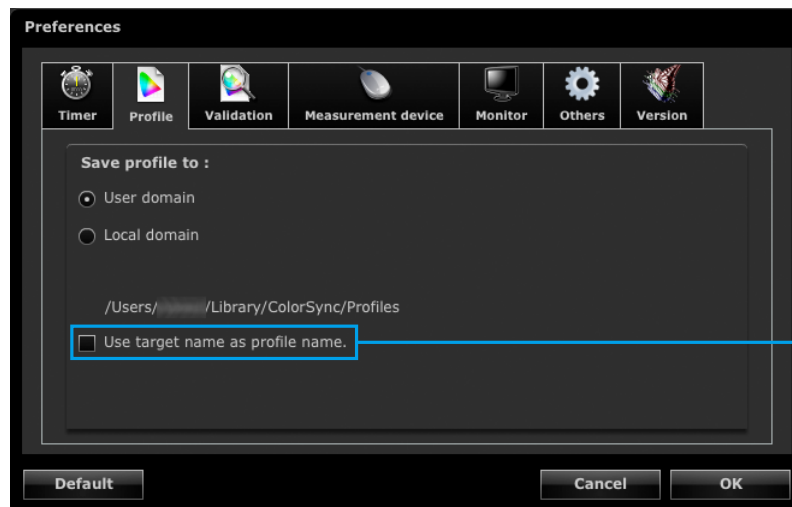Destination folder for an ICC profile can be set. Set the method in Preferences.

How to Set

1. Open the main window

2. Click "Preferences"

The "Preferences" dialog box appears.

3. Click "Profile" in the toolbar

When this check box is checked, the target name is set as an ICC profile file name.

The window in which the destination folder for an ICC profile is set appears. The setting method differs depending on the OS.

Mac

Specify a folder with the attribute to save an ICC profile.

• User domain

   User's personal folder

• Local domain

   Usable folders for all accounts which are registered in PC. Administrator authority is required.

Windows

Select a folder to save an ICC profile (destination folder).

• System profile folder (Recommended)

   Usable folders for all accounts which are registered in PC. Administrator authority is required

• User specified folder

   Folder specified by user.

Attention

• When you select "User specified folder"
  - The ICC profile needs to be set to the system manually. For the setting method, see "Reference: How to Set ICC Profile in Windows" (page 58).
  - If you have no access right to the folder, an error message will appear.

Reference: How to Set ICC Profile in Windows

1. Open "Control Panel".
2. Click "Appearance and Personalization".
3. Click "Display".
4. Click "Adjust resolution" and then click "Advanced settings" of "Change the appearance of your displays".
5. Select "Color Management" tab and click "Color Management".
6. Check the "Use my settings for this device" check box and click "Add".
7. Click "Browse" and specify the folder where the ICC profile is saved (the CD-ROM drive or the folder where the downloaded file is saved) in the "Look in:" section.
8. Select a suitable ICC profile from the list then click "Add".
9. Select a suitable ICC profile from the list in the "Profiles associated with this device:" and click "Set as Default Profile".
10. Click "Close" to close a menu.

9-4. Creating Profile Emulation Data

The emulation data can be created from the ICC profiles for devices, such as printers, tablet devices, display devices, using the profile emulation function.

Attention

• This function is not available in CG210, CG211, CG220, CG221, CG241W, CG301W, CG303W, CG2420, CG2730, or ColorEdge CS / CX series monitor.

How to Create

1. Open the main window

2. Select an emulation data associated target from the target list

Attention

• The brightness and white point values are the values for the associated target.

3. Select "Emulation" - "ICC Profile…" from "Advanced"

The window to create the profile emulation data appears.

4. Make the emulation procedure settings

Select the emulation ICC profile, CMM (color management module), and rendering intent from their respective pull-down menus.


Note

- To perform emulation faithfully, set the "Preserve RGB Numbers" check box as follows.
  - When selecting an ICC profile for a tablet / display device
    Recommended "On" (default setting):   Color is directly transformed into the color space for emulation.
  - When selecting an ICC profile other than for a tablet / display device
    Recommended "Off" (default setting):   After being transformed into the color space for the monitoring, the color is transformed into the color space for emulation.

To create the associated target, select "Create a new target".

When "Create a new target" is selected and the "Customize target" check box is selected, you can change "Brightness, White point", "Black level", and "Gamma".

After completing the setting, click "Next".

5. Set the emulation data name
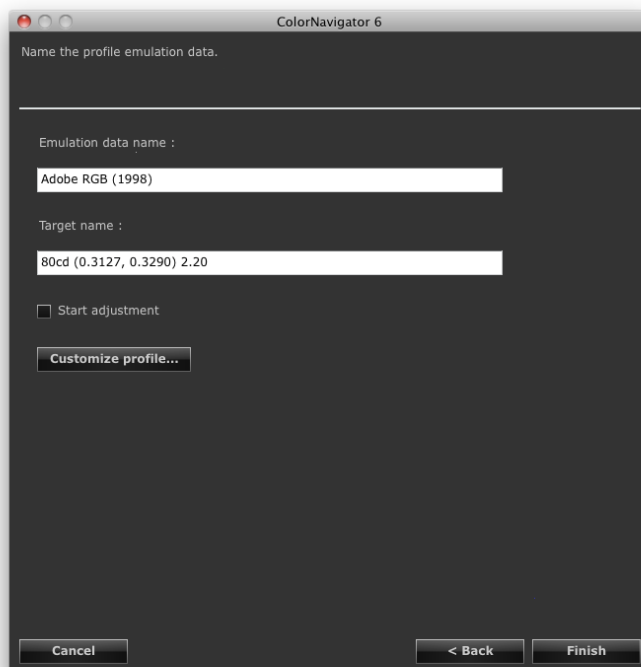
When "Create a new target" is selected for the associated target, the following can be set.
- Adjustment target name
- When you click "Finish" with the "Start adjustment" check box checked, monitor adjustment can be started.
- Click "Customize profile", and you can set the profile policy. For details of the profile policy, see "9-2. Setting a Profile Policy" (page 56) in the Application Edition.

After completing the setting, click "Finish".

When a new associated target is created, the created adjustment target is added to the target list in the main window.

9-5. Manual Adjustment

After completing adjustment, the white point, brightness, gamma, the hue and saturation of those 6 colors (red, green, blue, cyan, magenta, and yellow) can be adjusted manually.

Attention

- Note the following when adjusting the 6 Colors.
  - The 6 colors adjustment is aimed at correcting subtle differences in color between the monitor images and prints or device images. The color management settings of each device or software program may not be appropriate when the color of the monitor images is noticeably different from that of the prints or device images.
  - The results of any adjustment to the 6 Colors will be saved in the ColorNavigator as adjustment data. The result of the 6 colors adjustment does not reflect the ICC profile made after adjustment.
- When the "Priority" for gamma adjustment has been set to "Gray balance" or "Standard", you cannot adjust the black level or gamma manually.
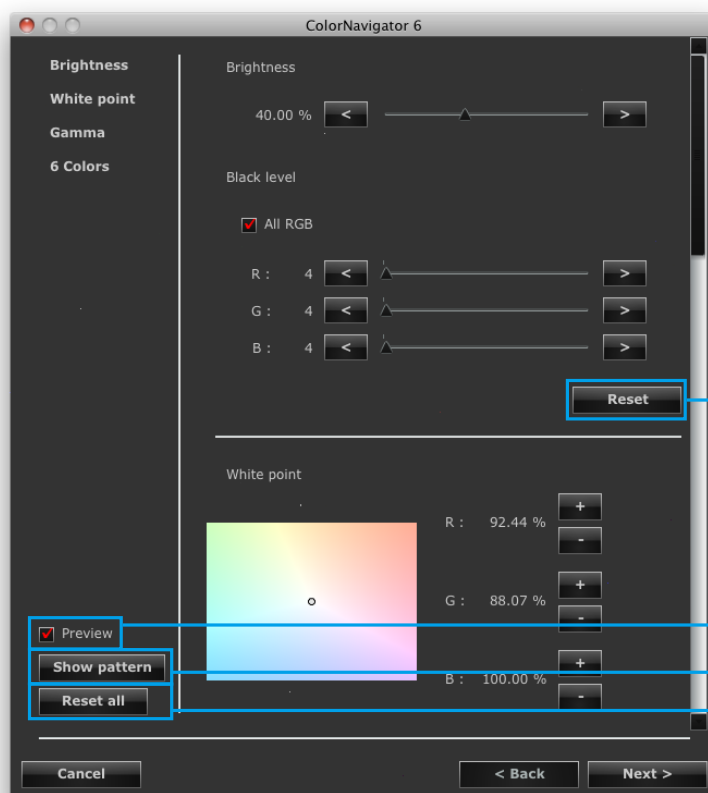
How to Adjust

1. Open the main window

2. Select "Adjust manually" from "Advanced"

The manual adjustment window appears.

3. Configure each adjustment setting

Restores the setting for each adjustment item (white point, brightness, black level, gamma, and 6 colors) to that before the manual adjustment.

If the box is unchecked, the status before it was adjusted manually is displayed.
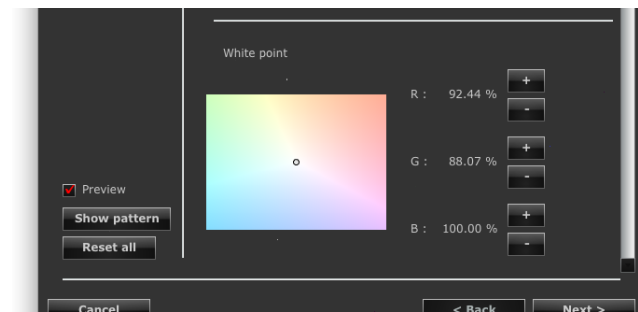
Shows the pattern display screen.

Restores all settings to those before the manual adjustment.

● Brightness

Correct the brightness and black level.
This item is not displayed for some monitor models.

● White Point

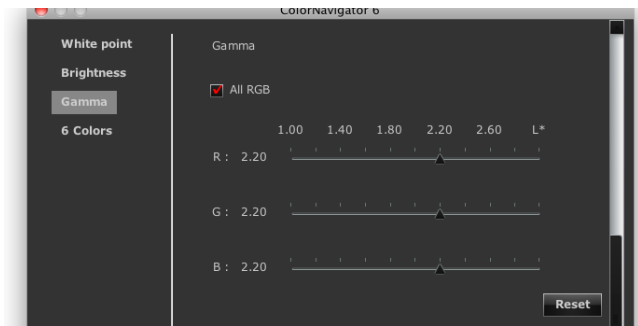Adjust the gain of red (R) / green (G) / blue (B) to adjust the white balance.

+/- button:
Click the button to either increase or decrease each gain.
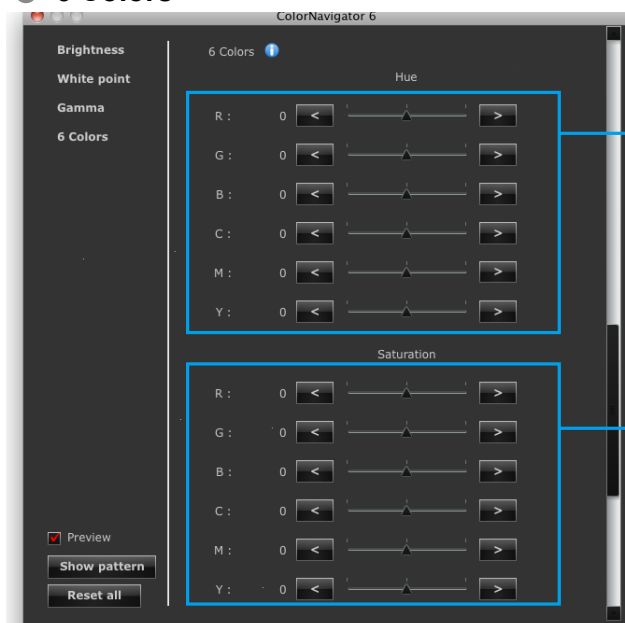**Coordinate specification:**
Specify the coordinate by dragging the "O" mark that indicates the current white point, and each gain will be calculated.

● Gamma

Set the monitor gamma. For the adjustment value "L*", see "Chapter 16 Glossary" (page 113).
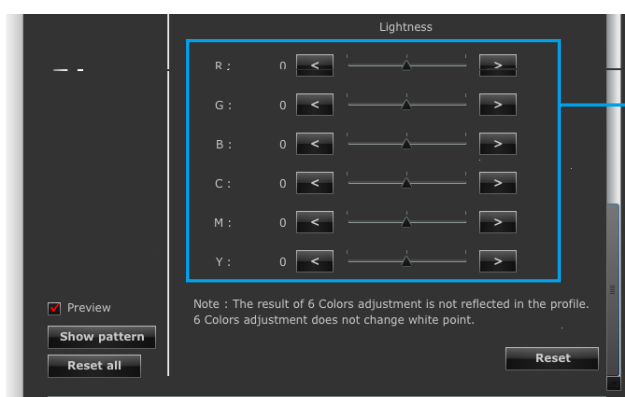
● 6 Colors

Hue slide bar:
Adjust the hue of red (R) / green (G) / blue (B) / cyan (C) / magenta (M) / yellow (Y). The hue changes as the slide bar moves.

Saturation slide bar:
Adjust the saturation of red (R) / green (G) / blue (B) / cyan (C) / magenta (M) / yellow (Y). As the slide bar moves to the left, the saturation goes low. As the slide bar moves to the right, the saturation goes high.

Lightness slide bar:
Adjust the lightness of red (R) / green (G) / blue (B) / cyan (C) / magenta (M) / yellow (Y). As the slide bar moves to the left, the lightness gets lower (blacker). As the slide bar moves to the right, the lightness gets higher (whiter).

Color	Slide bar to the left	Slide bar to the right
R	to magenta	to yellow
G	to yellow	to cyan
B	to cyan	to magenta
C	to green	to blue
M	to blue	to red
Y	to red	to green

Attention

• When the "Priority" for gamma adjustment has been set to "Gray balance" or "Standard", you cannot adjust the black level or gamma manually.

Note

• The manual adjustment window can be moved. You can adjust values while checking the displayed image.
• The values displayed on the left of the functions, such as white point, brightness, black level, 6 colors adjustment are reference values.

After completing the setting, click "Next".

4. Select a measurement device

Initialize the measurement device if necessary.

After completing the selection, click "Next".
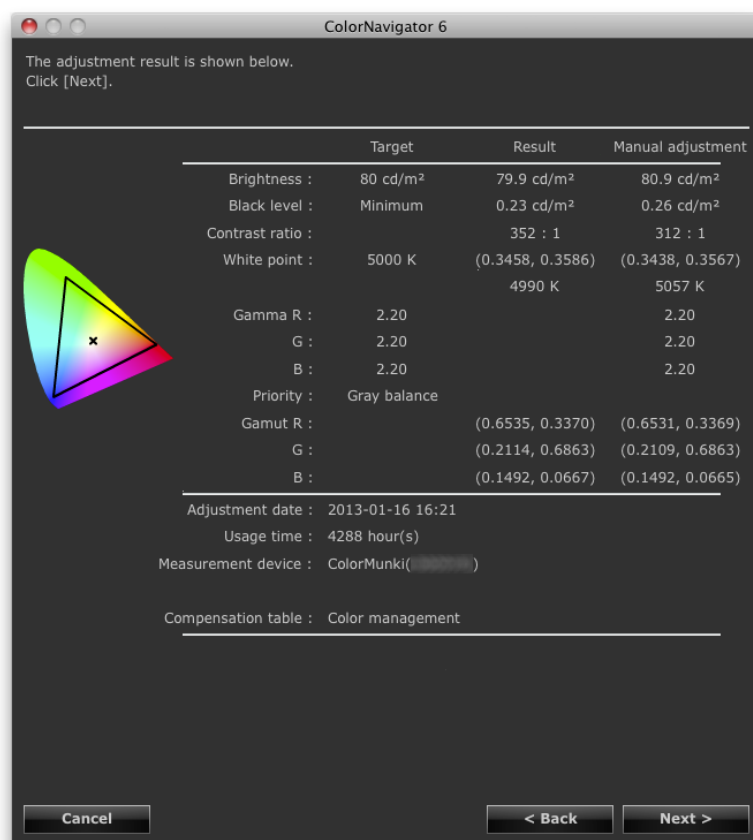
5. Measure the monitor

Follow the window instructions to measure the monitor.

Attention

- The measurement window may not be displayed at the center of the screen depending on the monitor or OS settings. In this case, attach a measurement device around the center of the screen regardless of the position of the measurement window.
- When a built-in calibration sensor is used, the measurement result may be affected by ambient light entering the sensor part. Check the following points before beginning measurement.
  - Use a curtain or the like to block any windows so that natural (outside) light does not enter the room.
  - Ensure that the lighting in the room does not change during measurement.
  - It is recommended that the monitor hood be attached.

6. Confirm the measurement result

When the measurement has completed, the measurement result is displayed.

Confirm the measurement result and click "Next".

Attention

- If the black level became to minus value and the adjustment failed, an error message is displayed. Follow the indication displayed in the window and measure the monitor from the beginning again. It's because the measurement device could not have been attached to the monitor closely or light could have seeped through to the sensor of the measurement device during initialization.

Note

- When your OS is Windows and "User specified folder" has been set for the destination to save the ICC profile, the window to select a destination to save the ICC profile will appear after the adjustment. Select a destination to save the profile and click "Next".

7. **Set an adjustment target name**

ICC profile can be edited.
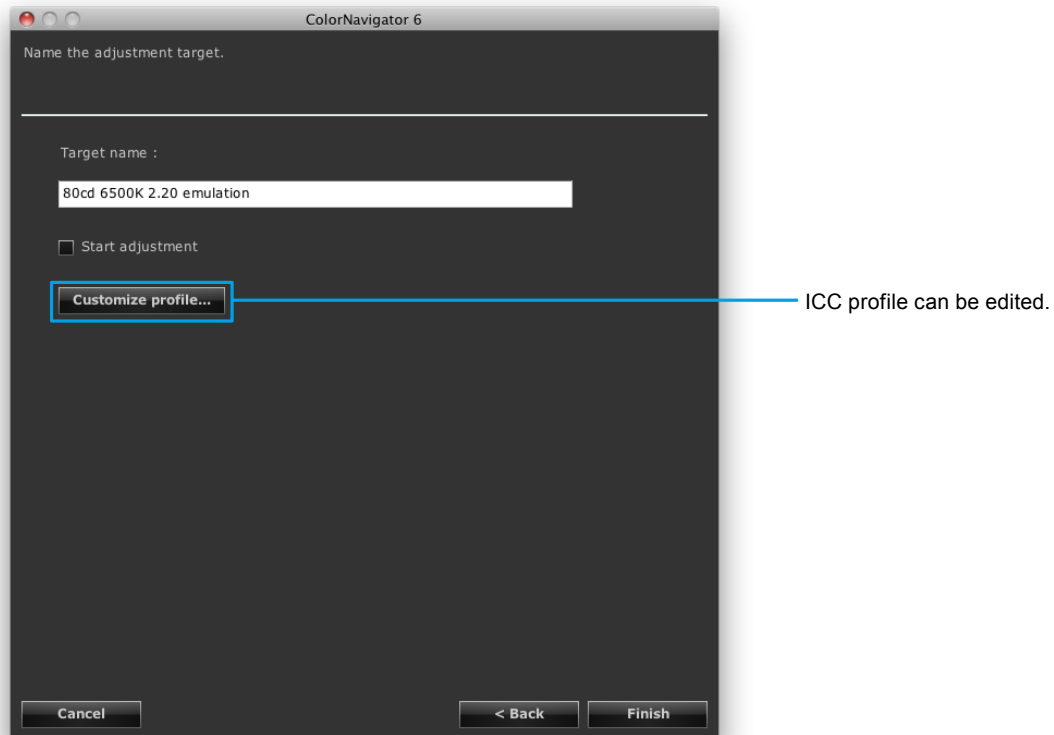
After completing the setting, click "Finish".

The created adjustment target is added to the target list in the main window.

9-6. Adjusting Light Booth

The brightness or illuminance of the light booth can be adjusted.

Attention
- Before adjustment, a light booth need to be connected to the computer with USB cable.
- For details of the adjustable light booth, see "2-1. System Requirements" (page 11).
- For details, see the user's manual of the light booth.
- The following measurement devices can be adjusted in term of illuminance.
  - X-Rite i1Pro / Pro 2
  - X-Rite i1Display 2
  - X-Rite i1Display 3 / Pro
  - X-Rite ColorMunki
  - basICColor DISCUS
- The built-in calibration sensor cannot be used to adjust the light booth.

Note
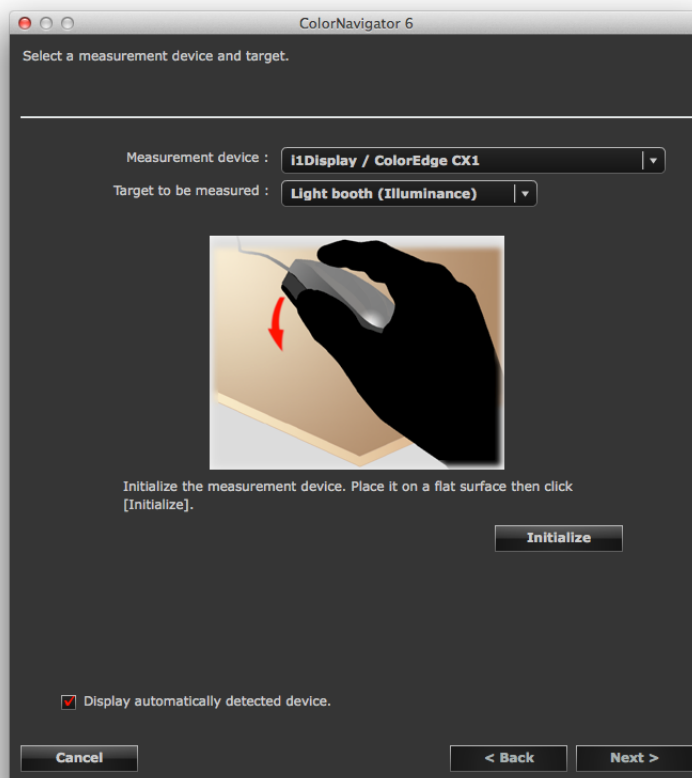- The adjustment target can be created from the adjustment result.

How to Adjust

1. Open the main window

2. Select "Light booth adjustment" from "Advanced"

The measurement device selection window appears.
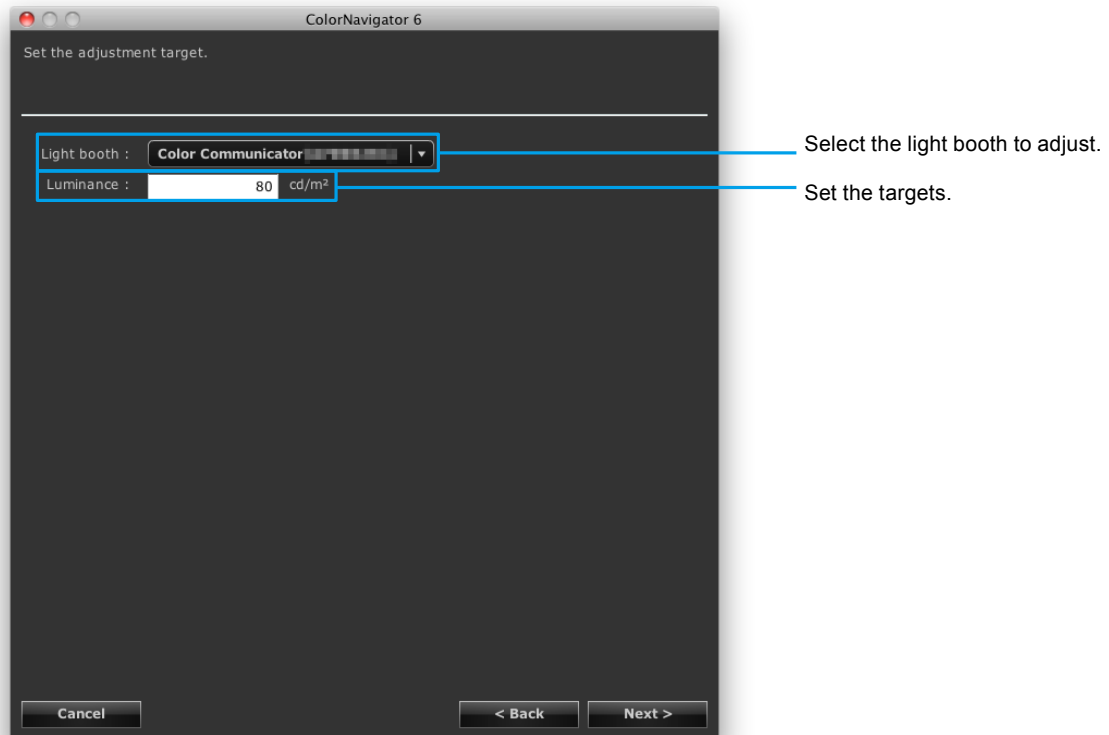
3. Select a measurement device

1. Select a measurement device from the "Measurement device" pull-down menu.

   Note

   • When X-Rite i1Pro / Pro2 / Monitor is used and it has been calibrated to comply with XRGA, select "i1Pro / Pro2 / Monitor (XRGA)".

2. Select a measurement target from the "Target to be measured:" pull-down menu.

   When adjusting the monitor in term of brightness (cd/m^2), select "Light booth (Luminance)".

   When adjusting the monitor in term of illuminance (lx), select "Light booth (Illuminance)".

3. Initialize the measurement device if necessary.

   Initialization takes a few seconds.

   When the initialization has completed, the light booth adjustment dialog box appears.

After completing the selection, click "Next".

4. Select the light booth to adjust from the pull-down menu and set the target

Select the light booth to adjust.

Set the targets.

Attention

- Changing the standard for adjustment requires the initialization of the measurement device. Follow the instructions to initialize the measurement device.
- When adjusting the monitor in term of illuminance, attach the ambient light head to the measurement device. About attaching, see the user's manual of the measurement device. The operation method is displayed according to the measurement device for use. Follow the instructions to operate the device.

After completing the setting, click "Next".

5. Put a measurement device

Put the measurement device according to the illustration displayed in the dialog box.
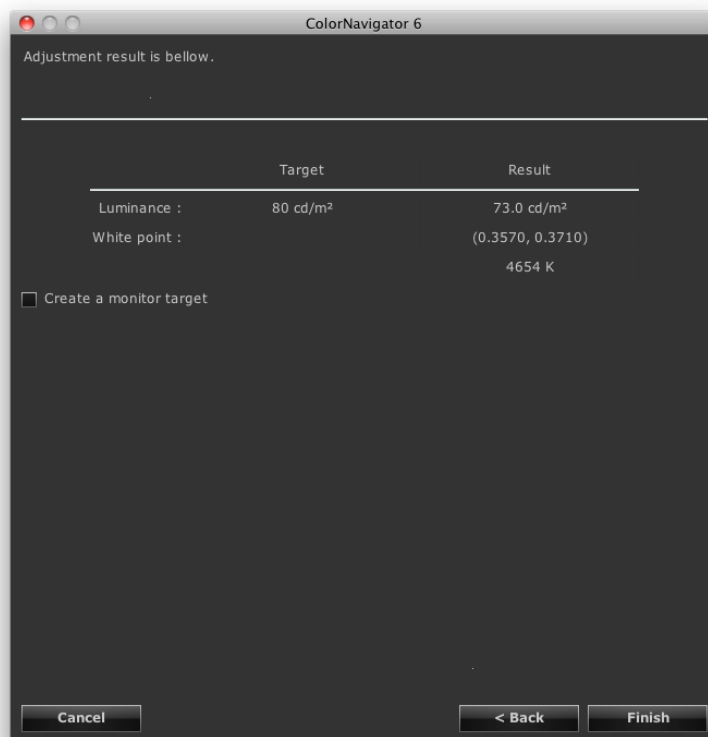

6. Click "Proceed"

The adjustment starts.

7. Confirm the result

When the adjustment has completed, the adjustment result is displayed.

Confirm the adjustment result and click "Finish".

When you check the "Create a monitor target" check box and then click "Finish", the gamut setting window of the adjustment target creation window, which is opened using the "Create a new target" button, appears, allowing you to create a new adjustment target. Create a new adjustment target with reference to "7. Set the gamut" (page 39).

Note

• When the light booth is adjusted on a brightness basis, brightness and white point are set to the target.
• When the light booth is adjusted on an illuminance basis, brightness is set to the target.

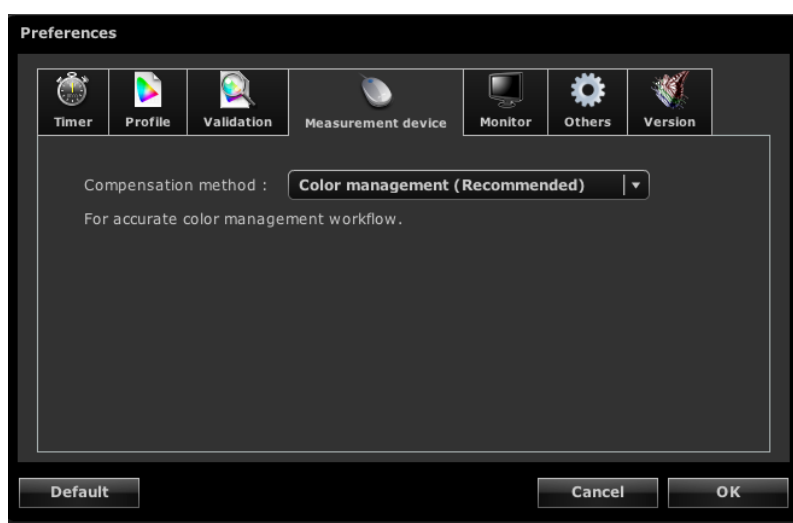# Chapter 10 Customizing Monitor Adjustment

10-1. Setting Measurement Device

The compensation method for the measurement device can be set. Set the method in Preferences.

1. **Open the main window**

2. **Click "Preferences"**

The "Preferences" dialog box appears.

3. **Click "Measurement Device" in the toolbar**

4. **Select a compensation method for the measurement device from the pull-down menu**

The following shows the options.

Color management (Recommended)	For accurate color management workflow. Suitable for single monitor using.
Multiple monitor matching	For color matching among various monitors.
No compensation	For other company's monitor validation tool. The sensor measurement value is used as it is. Wide gamut monitors may not be measured correctly depending on your measurement device.

Attention

• Be careful of the following points when using the built-in calibration sensor.
  - To select the method for compensating the measurement value, correlation with the reference measurement device is necessary. For more information, see "13-2. Correlate with the Reference Measurement Device" (page 85).
  - When correlation with the measurement device is not performed, the compensation method is fixed at "Color management (Recommended)" despite the results of the compensation method selected.

10-2. Standard Mode calibration

The white point, gamut and brightness for Standard Mode (for FineContrast Mode or Color Mode, excluding CAL and EMU modes) can be adjusted. The monitor brightness and gamut gradually alter over time. Make adjustments as needed.

This function measures the monitor's color characteristic and then sets the measurement result to the monitor. By this, the following corrections are made.
- The white point in Standard Mode is adjusted so that it is as close as possible to the specified value.
- In modes that adjust the color gamut, such as an sRGB, the gamut values are adjusted so that they are close to each specified value.
- In the monitors that adjust the brightness in units of cd/m^2 by operating buttons on the monitor, the brightness information is also updated during execution of this function.

Attention
- This function is not available in CG210, CG211, CG220, CG221, CG222W, CG241W, CG301W, or CG303W.
- To reset the monitor gamut and brightness to the default setting, select "Standard Mode calibration" - "Reset to default" from "Advanced" in the main window. Over-time changes of the monitor are not put into account.

1. Open the main window

2. Select "Standard Mode calibration" - "Calibrate" from "Advanced"

3. When analog signals are input, execute an automatic adjustment for the monitor

4. Select a measurement device

Follow the software instructions and select a measurement device. The operation method is displayed according to the measurement device for use.

Initialize the measurement device if necessary.

After completing the selection, click "Next".

5. Measure the monitor

Follow the window instructions to measure the monitor. The measurement is performed automatically.

When the measurement has completed, a message appears.

Chapter 11 Creating Film Emulation Data

The emulation data can be created from the characteristic file (3D-LUT file) of the motion picture film provided for the color grading system.

> **Attention**
> • This function is not available in CG210, CG211, CG220, CG221, CG241W, CG301W, CG303W, CG2420, CG2730, or ColorEdge CS / CX series monitor.
> • The extensions of the 3D-LUT file that can be read are as follows.
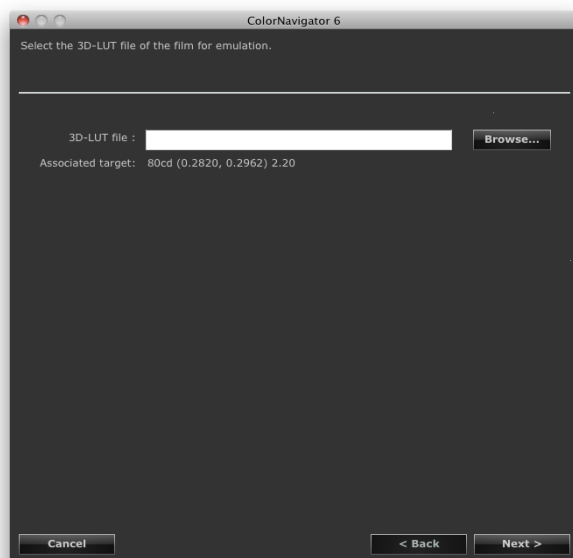>   *.3dl, *.cub

How to Create

1. Select an emulation data associated target from the adjustment targets in the main window

2. Select "Emulation" - "Log view LUT" from "Advanced"

The 3D-LUT file selection screen appears.

3. Select the 3D-LUT file to emulate

Click "Browse…" and then select the 3D-LUT file to emulate.

After completing the selection, click "Next".

The emulation data creation starts.

4. Set the emulation data name

> **Note**
> • Set the emulation data name within 128 characters.
> • Emulation data name cannot contain any of the following characters: \/:*?"'<>|

After completing the setting, click "Finish".

> **Note**
> • If the selected adjustment target is unadjusted, the emulation data to be created is unadjusted.

Chapter 12 Creating ICC Profile of Tablet / Display Device

The ICC profile can be created by measuring the tablet / display device (device) that can display a network connection and a Web browser. The emulation can be performed using the created ICC profile.
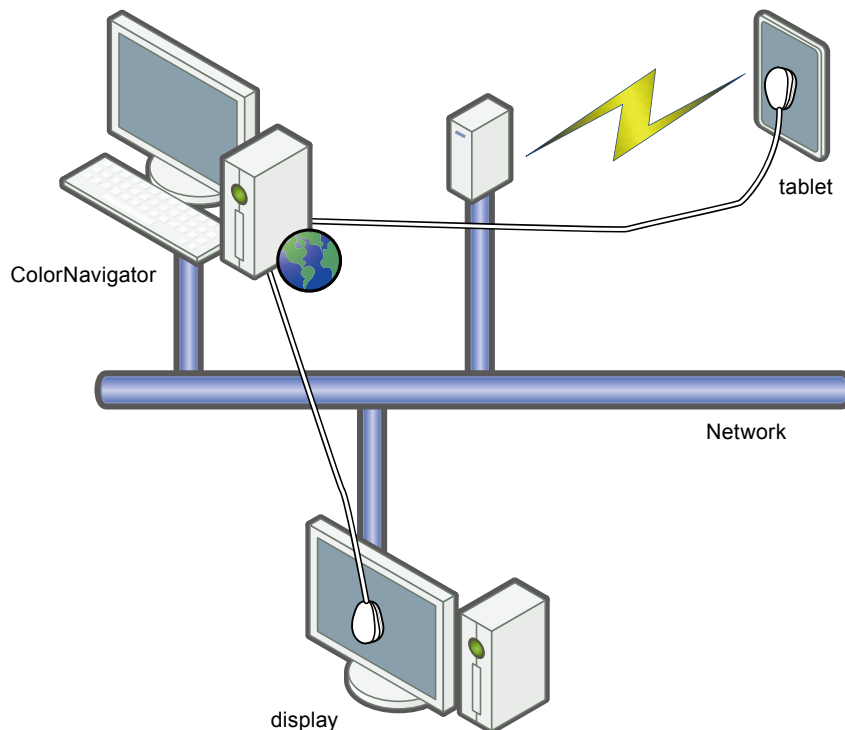

Attention

• This function is available for devices that satisfy the following requirements.
  - Devices that can display a Web browser, such as a tablet device.
  - Display device (monitor) whose network is connected to the computer on which ColorNavigator is installed.

12-1. Creating ICC Profile of Tablet / Display Device to be Emulated

The tablet / display device is measured to create an ICC profile.
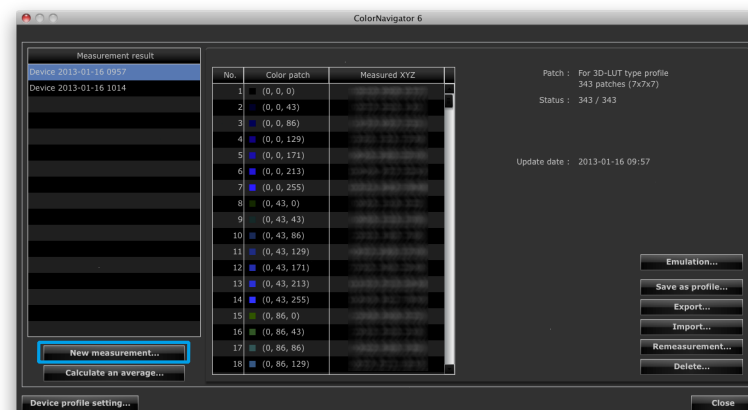
How to Create

1. **Select "Create ICC profile for tablet / display device" from "Advanced" in the main window**
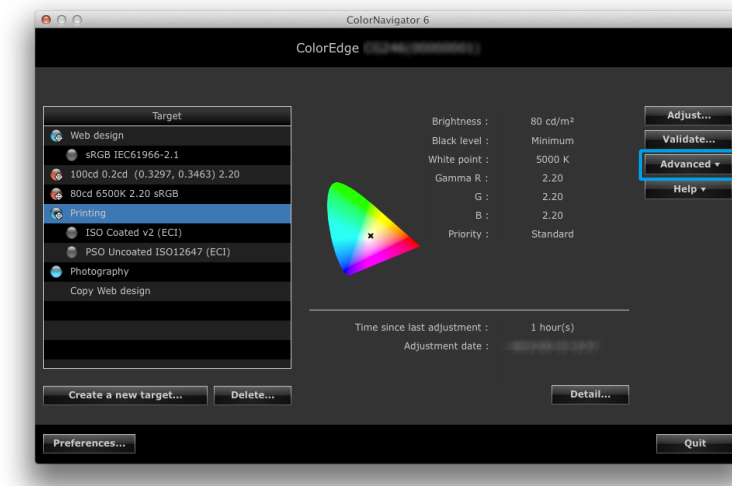
The wizard to measure the tablet / display device starts.

First, the following device profiler window appears.

2. **Click "New measurement"**

3. Set the measurement patch and communication port number on the measurement setting page

Select the measurement patch to use for the ICC profile to be created from the pull-down menu.

The initial settings are as follows:

Automatic selection	Selected to enable automatic selection of an appropriate measurement patch.
For 3D-LUT type profile	Selected for measuring the device whose characteristic is unknown.
	343 patches (7x7x7) - Low accuracy When NxNxNx is selected: N : 7
For matrix type profile	Selected for measuring the device with good additive color mixture such as iPad.
	26 patches (Gamma for individual RGB)

Set the device to measure and communication port number.

Default setting : 8080

If there is gradient banding or highlight saturation of the device, check the check box to reflect the gradient banding and highlight saturation in the tone curve of the ICC profile.

After completing the setting, click "Next".

4. Select a measurement device

Follow the software instructions and select a measurement device.

Initialize the measurement device if necessary.
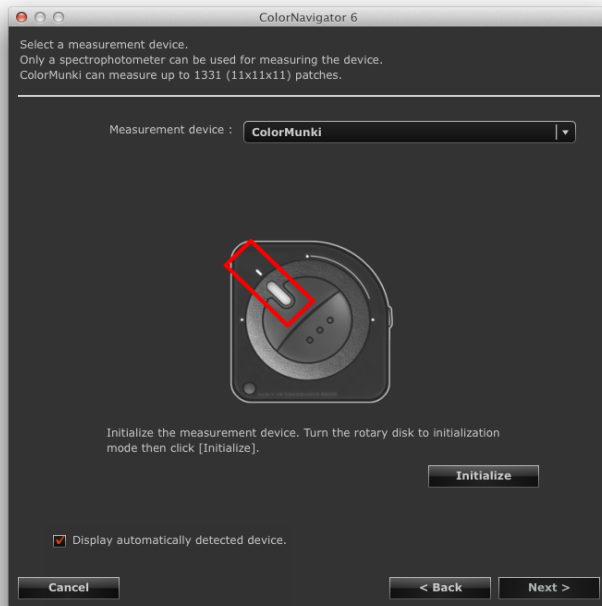
Attention

- The measurement device that can be used for device measurement is the spectrophotometer (X-Rite i1Pro / Pro2 / Monitor, X-Rite ColorMunki, Klein K-10, Photo Research PR-655 / PR-680, Konica Minolta CS-1000 / CS-1000A / CS-2000 / CS-2000A, Colorimetry Research CR-250) only.
- If using the Klein K-10 or Colorimetry Research CR-250 measurement device, the compensation function of the device can be used. Select "K-10" or "CR-250" to display the "Compensation function of the measurement device" menu. Then select the compensation table to use from the pull-down menu. Note that when Klein K-10 or Colorimetry Research CR-250 is used, the compensation table of ColorNavigator will be disabled.
- When X-Rite i1Pro / Pro2 / Monitor is used and it has been calibrated to comply with XRGA, select "i1Pro / Pro2 / Monitor (XRGA)".
- Be sure that light does not seep through to the sensor of the measurement device during initialization. Precise adjustment results cannot be obtained if light is detected during the initialization process.
- ColorMunki and i1Pro / Pro 2 / Monitor(XRGA) can measure up to 1331 (11x11x11) patches.

After completing the selection, click "Next".

5. Prepare the device measurement

Start up the browser of the device to be measured, and enter the URL that is displayed in the window. The measurement page appears on the device. Put the measurement device.
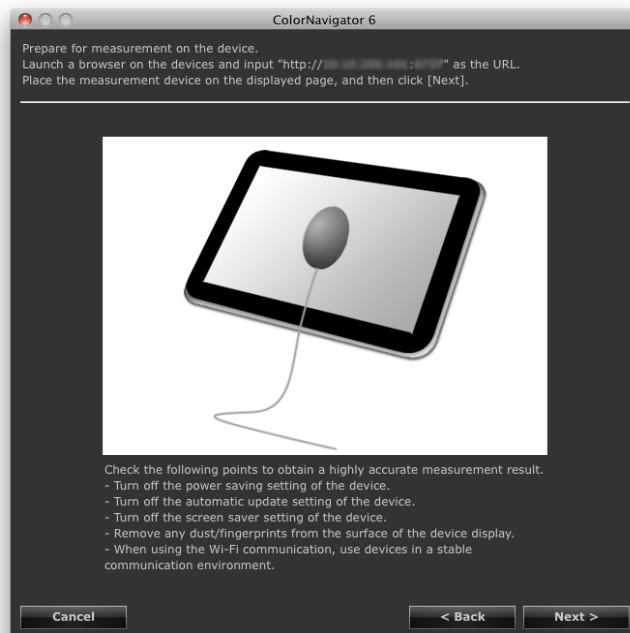
__Attention__

- To perform communication correctly, stop the software for proxy setting, fire walls, etc.
- Check the following points to obtain a highly accurate measurement result.
    - Turn off the power saving setting of the device.
    - Turn off the automatic update setting of the device.
    - Turn off the screen saver setting of the device.
    - Remove any marks from the surface of the device display.
    - When using the Wi-Fi communication, use devices in a stable communication environment.
- Configure the settings to prevent functions that affect the measurement from working.
- If a warning message is displayed, perform troubleshooting based on the details of the message.
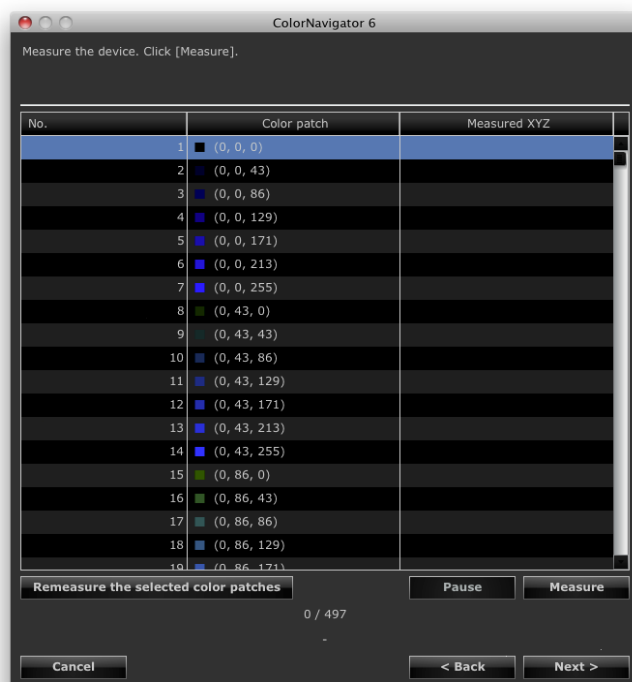
__Note__

- The URL appears as follows.
  ex. http://0.0.0.0 : 8080

Click "Next".

6. Measure the device

Click "Measure".

To stop the measurement, click "Pause".

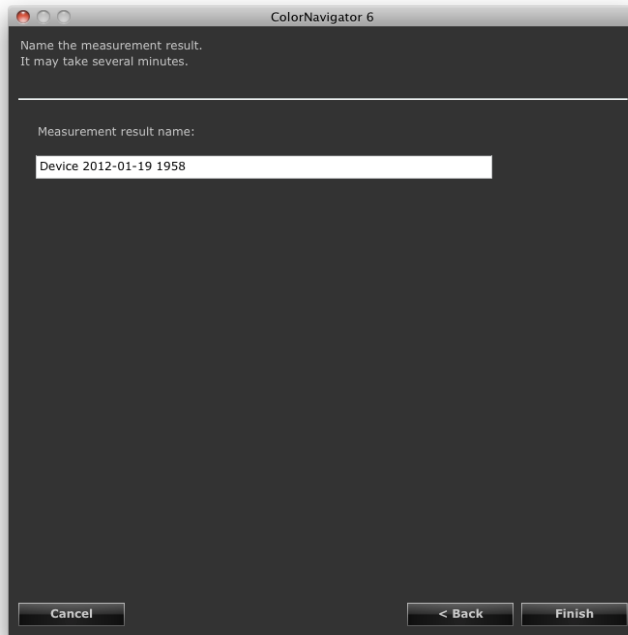To restart the measurement, click "Measure".

To measure the measured patch again, select the patch to measure, and then click "Remeasure the selected color patches".

| Note |

• The approximate time required for measurement appears on the screen.

After measurement is completed, click "Next".

7. Set a Measurement result name

After completing the setting, click "Finish". The measurement result is saved.

To perform emulation continuously after the measurement result, click "Emulation" on the device profiler window. The emulation data creation screen appears. See "9-4. Creating Profile Emulation Data" (page 59) for the emulation.

12-2. Saving ICC Profile

The ICC profile is created from the measurement result, and then saved.

Attention
- Select the completed measurement result.

1. Select "Create ICC profile for tablet / display device" from "Advanced" in the main window

The device profiler window appears.

2. Select the measurement result to be saved from the measurement result list

3. Select "Save as profile..."

The ICC profile save dialog box appears.

Note
- The ICC profiles are saved into the following folder.
    - Mac : Folder for which "Local domain" is specified as the destination from the "Profile" tab in the configuration window
    - Windows : System ICC profile folder
- See "9-3. Setting Destination Folder for ICC Profile Saving" (page 57) for setting of the destination folder of the ICC profile.
- See "12-5. Setting ICC Profile Creation Procedure" (page 83) for creation of the ICC profile.

12-3. Exporting and Importing the Measurement Result

Measurement result can be exported and used for other ColorNavigator.

Attention
• One measurement result can be exported or imported at a time.

Note
• The exported and imported data can be used on any OS.

How to Export

1. **Select "Create ICC profile for tablet / display device" from "Advanced" in the main window**

The device profiler window appears.

2. **Select the measurement result to be exported from the measurement result list**

3. **Select "Export..."**

The file save dialog box appears.

4. **Set the file name and click "Save"**

How to Import

1. **Select "Create ICC profile for tablet / display device" from "Advanced" in the main window**

The device profiler window appears.

2. **Select "Import..."**

The file save dialog box appears.

3. **Select a file and click "Open"**

The file is imported and the measurement result is shown in the result list.

12-4. Creating Average Value from Measurement Result

Average value data can be created from multiple measurement results.

Attention
• Select the measurement results of the same color patches.
• Select the completed measurement result.

How to Create

1. Select "Create ICC profile for tablet / display device" from "Advanced" in the main window

The device profiler window appears.

2. Select multiple measurement results for average value calculation from the measurement result list

3. Click "Calculate an average..."

The measurement result dialog box appears.

4. Set the measurement result name

The name is added on to the measurement result list.

Note
• Set the measurement result name within 128 characters.
• Measurement result name cannot contain any of the following characters: \/:*?"'<>|

12-5. Setting ICC Profile Creation Procedure

The creation procedure of the ICC profile can be set.

> **Attention**
> - See "12-2. Saving ICC Profile" (page 80) for saving of the ICC profile.
> - A table that shows display properties of the tablet / display device is recorded in the ICC profile. In "Device profile setting", specify the number of steps (Grid point number) in the table.

How to Set

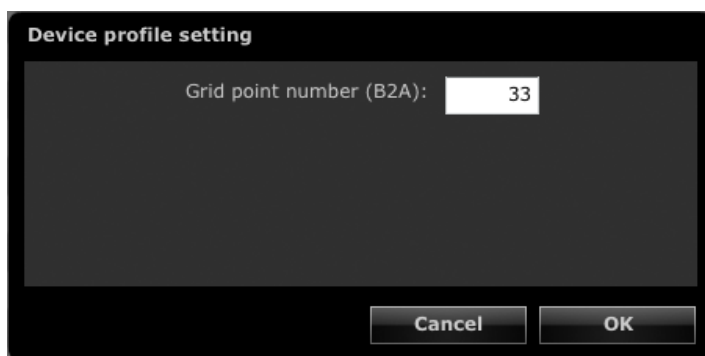**1.** **Select "Create ICC profile for tablet / display device" from "Advanced" in the main window**

The device profiler window appears.

2. **Click "Device profile setting..."**

The device profile setting screen appears.

3. **Specify the grid point number**

Default setting : 33

After completing the setting, click "OK".

12-6. Deleting Measurement Result

Unnecessary measurement result can be deleted.

> **Note**
> - Deleted measurement result cannot be restored.

1. **Select "Create ICC profile for tablet / display device" from "Advanced" in the main window**

The device profiler window appears.

2. **Select the measurement result to be deleted from the measurement result list**

3. **Select "Delete"**

The measurement result is deleted.

REFERENCE

Chapter 13 Making Use of the Built-in Calibration Sensor / Built-in Correction Sensor

13-1. About Built-in Calibration Sensor / Built-in Correction Sensor

The following ColorNavigator functions uses the built-in calibration sensor.
- Monitor adjustment
- Monitor validation
- Correlation of the built-in calibration sensor (See page 85)
- SelfCalibration settings

The following ColorNavigator functions uses the built-in correction sensor.
- SelfCorrection settings

The schedule for performing SelfCalibration and SelfCorrection can be set with ColorNavigator (See page 89).

Attention
- Monitor validation cannot be performed using the built-in calibration sensor of CG2420 / CG2730.
- The following functions are not supported by the built-in calibration sensor.
  - Paper white measurement and ambient light measurement
  - Adjusting Light Booth
  - Adjusting and measuring another monitor
- The target gamma value for SelfCalibration is set to "Fixed" and cannot be adjusted.
- To perform SelfCorrection, a warming-up time for at least 60 minutes is required.

Note
- When ColorNavigator is started, it automatically adjusts the time and date of the monitors with the built-in calibration sensor to the time and date of the PC.
- When the monitor with built-in calibration sensor / built-in correction sensor is adjusted using ColorNavigator, the adjustment target of SelfCalibration / SelfCorrection for the adjusted CAL mode is set automatically.

13-2. Correlate with the Reference Measurement Device

Correlation of the measurement results between the reference measurement device and the built-in calibration sensor can be performed.

Attention
- When the USB of the monitor comes loose during software operation, turn off the main power of the monitor and then turn the power back on.
- "Correlation Utility", a correlation tool provided with the previous version, is now integrated within ColorNavigator. It is not possible to use Correlation Utility with this version of ColorNavigator.
- Correlation is not supported by the built-in correction sensor.

Note
- Correlation can be performed per each type of measurement device.

How to Correlate
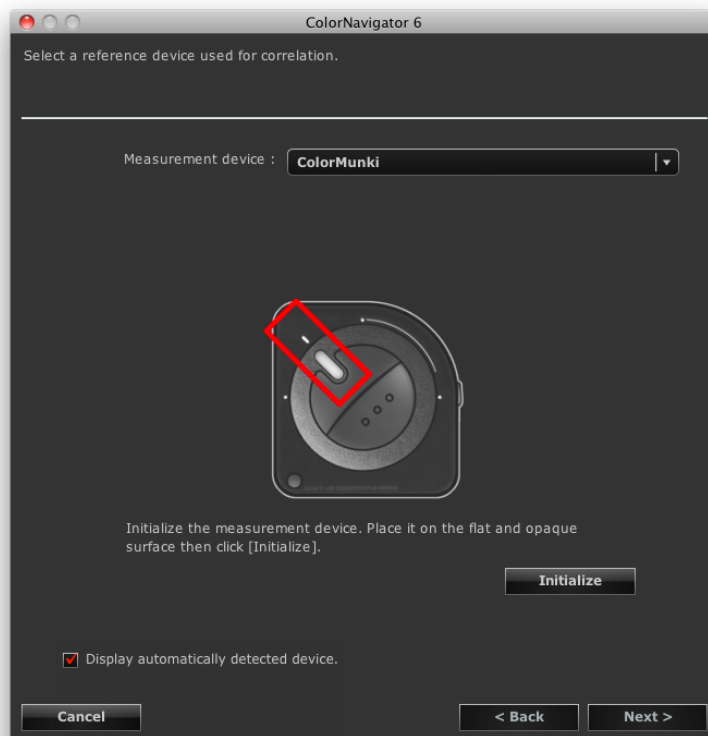
1. Open the main window

2. Select "Sensor correlation" from "Advanced"

The measurement device selection window appears.

3. Select a measurement device

Select the measurement device to set as the reference from the pull-down menu.

Initialize the measurement device if necessary.

Attention

- Be sure that light does not seep through to the sensor of the measurement device during initialization. Precise adjustment results cannot be obtained if light is detected during the initialization process.

After completing the selection, click "Next".

4. Proceed correlation

The measurement window appears on the screen.

Tilt the LCD panel up slightly and attach the reference measurement device to the measurement window. (Refer to the user's manual of the measurement device for the attachment procedure.)

Follow the software instructions to start correlation. The operation method is displayed according to the measurement device for use.

When correlation is started, the measurement pattern is displayed and correlation is automatically performed.
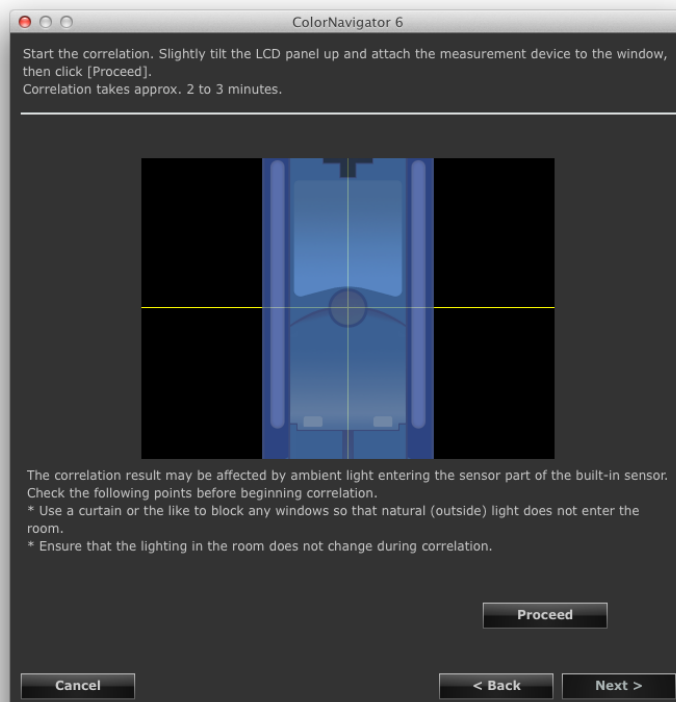

Attention

- The measurement window may not be displayed at the center of the screen depending on the monitor or OS settings. In this case, attach a measurement device around the center of the screen regardless of the position of the measurement window.
- The correlation result may be affected by ambient light entering the sensor part of the built-in calibration sensor. Check the following points before beginning correlation.
  - Use a curtain or the like to block any windows so that natural (outside) light does not enter the room.
  - Ensure that the lighting in the room does not change during correlation.
  - It is recommended that the monitor hood be attached.
- The figure displayed in this window depends on the type of measurement device connected to the computer.

Note

- When X-Rite i1Pro / Pro2 / Monitor is used and it has been calibrated to comply with XRGA, select "i1Pro / Pro2 / Monitor (XRGA)".

5. Confirm the result

After completing the correlation, the RGB value of the measured color patch and the measurement results of the reference measurement device and the correlated measurement device are displayed.
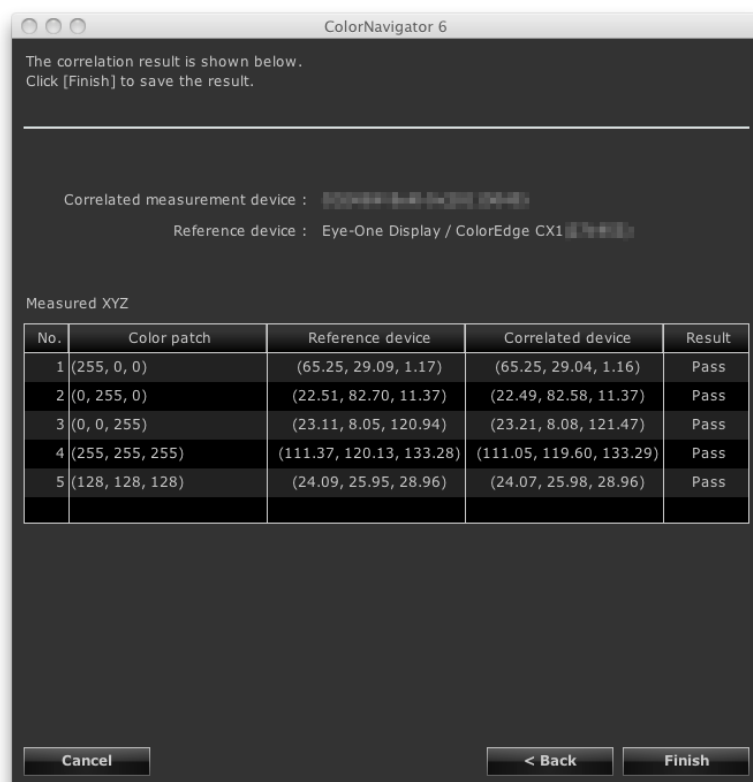
- When using another measurement device as a reference for correlation, or when performing the correlation again, click "Back" to display setting window.

Confirm the correlation result and click "Finish".

The correlation of the built-in calibration sensor is completed.

- If there is any problem with the correlation results, an error message is displayed. Follow the message to perform the correlation again.
- When adjusting a monitor using a built-in calibration sensor with the correlation result applied, select the name of the measurement device from "Reference device" in the measurement device selection window when performing adjustment.

- The correlation result is added to the measurement results of the built-in calibration sensor. Therefore, adjustment of the monitor after the correlation is recommended.

13-3. Setting the SelfCalibration / SelfCorrection Schedule

The SelfCalibration / SelfCorrection schedule can be set for the monitors with the built-in calibration sensor / built-in correction sensor.

Attention

• To perform SelfCorrection, a warming-up time for at least 60 minutes is required.

1. Adjust the monitor

Adjust the monitor according to the steps of "Chapter 4 Adjusting Monitor" (page 24). Create the adjustment target as needed.

Attention

• If a measurement device other than the built-in calibration sensor is used to adjust the monitor, it is necessary to correlate the device with the built-in calibration sensor by referring to "13-2. Correlate with the Reference Measurement Device" (page 85).

Note

• Up to four targets can be specified for SelfCalibration / SelfCorrection. For CG275W / CG245W however, the currently selected adjustment target will be the target for SelfCalibration.
• When there are multiple adjustment targets, the SelfCalibration / SelfCorrection target can be changed by the following procedure.
  - Mac: On the target list in the main window, right-click a target while pressing the "control" key on the keyboard, and click "Set as SelfCalibration / SelfCorrection target" on the displayed menu.
  - Windows: On the target list in the main window, right-click a target, and click "Set as SelfCalibration / SelfCorrection target" on the displayed menu.
• To cancel a target, click "Unset as SelfCalibration / SelfCorrection target" on the menu.
• Targets which are set as adjustment targets for SelfCalibration / SelfCorrection are displayed with a ⊕ mark. (Excluding CG245W / CG275W. See "About Marks" (page 10).)
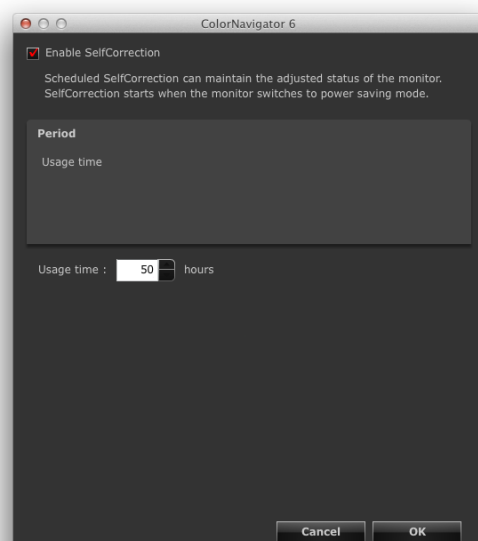
2. Open the main window

3. Select "SelfCalibration settings" / "SelfCorrection settings" from "Advanced"

The SelfCalibration / SelfCorrection schedule setting window appears.
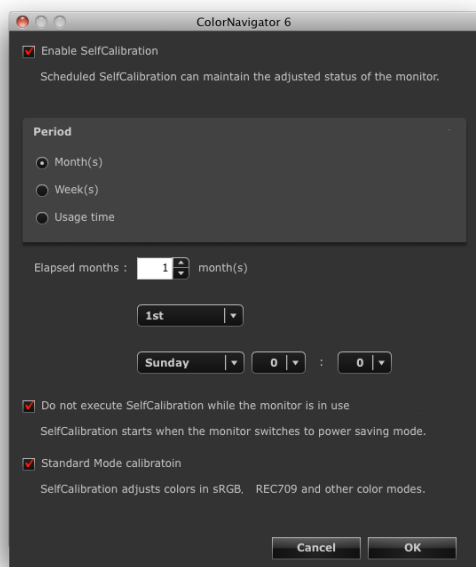
SelfCalibration schedule setting window   SelfCorrection schedule setting window
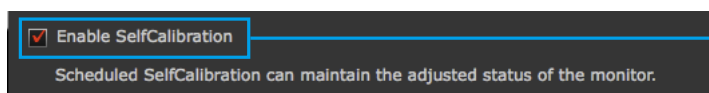
Attention

• Content displayed may differ depending on the type of monitor used.

4. Set the schedule

Set the schedule and timing at which SelfCalibration / SelfCorrection is executed.

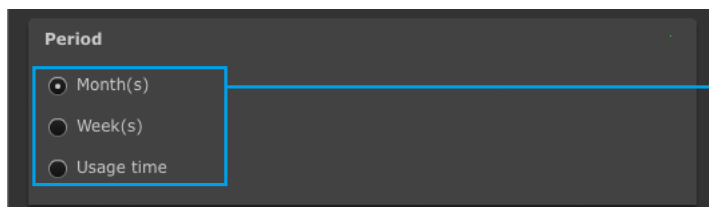## ● SelfCalibration

1. Enable the SelfCalibration function.

 ☑ Enable SelfCalibration — Check the check box.
Scheduled SelfCalibration can maintain the adjusted status of the monitor.
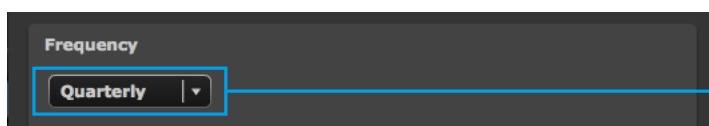
2. Set the "Period" / "Frequency" at which SelfCalibration is executed.

Attention

• Available settings vary depending on the model of the monitor used.

Period
- ⦿ Month(s)
- ◯ Week(s)
- ◯ Usage time

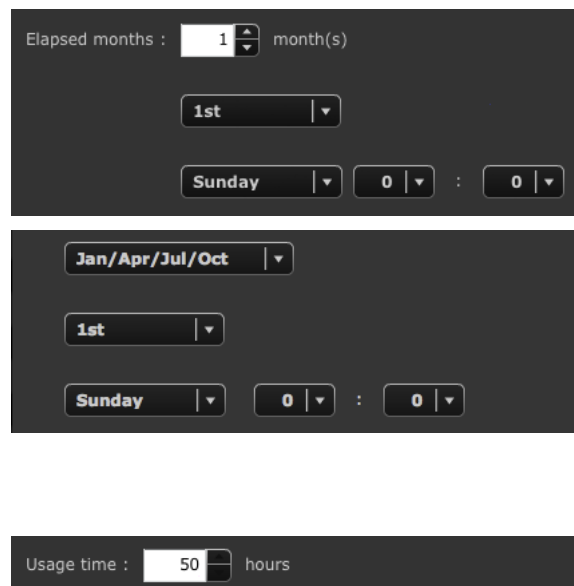Select from "Month(s)", "Week(s)" or "Usage time".

Frequency
Quarterly

Select from "Quarterly", "Biannually", "Annually", "Monthly", "Weekly", "Daily" or "Usage Time".

3. Set the interval between the completed SelfCalibration and the next execution or the time for executing.

Attention

• The setting details differ depending on the setting made for "Period" / "Frequency" in step 2.
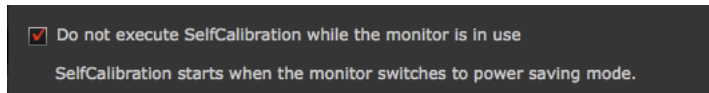

Elapsed months : 1 month(s)
1st
Sunday 0 : 0

Period	Setting Details
Month(s)	Set the interval, week, day of the week, and time for executing.
Week(s)	Set the interval, day of the week, and time for executing.

Jan/Apr/Jul/Oct
1st
Sunday 0 : 0

| Frequency	Setting Details
Quarterly, Biannually, Annually	Set the month, week, day of the week, and time for executing.
Monthly	Set the week, day of the week, and time for executing.
Weekly	Set the day of the week and time for executing.
Daily	Set the time for executing.

Usage time : 50 hours

Period / Frequency	Setting Details
Usage Time / Frequency	Set the monitor usage time until the next execution.

4. Set the execution timing for SelfCalibration.

☑ Do not execute SelfCalibration while the monitor is in use

    SelfCalibration starts when the monitor switches to power saving mode.

- Check the check box to execute SelfCalibration when the monitor enters power saving mode or when the monitor is turned off.
- Uncheck the check box to execute SelfCalibration according to the set schedule regardless of the current usage state of the monitor.
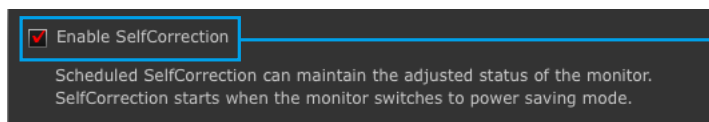
5. Set whether or not to execute Standard Mode calibration when SelfCalibration is executed.

☑ Standard Mode calibration

    SelfCalibration adjusts colors in sRGB, AdobeRGB and other color modes.
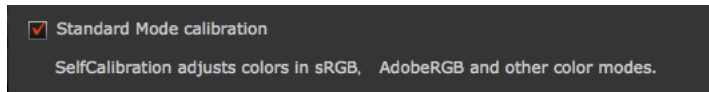
- Check the check box to execute Standard Mode calibration (page 71) when SelfCalibration is executed.

● SelfCorrection

1. Enable the SelfCorrection function.

☑ Enable SelfCorrection ──────────── Check the check box.

    Scheduled SelfCorrection can maintain the adjusted status of the monitor.
    SelfCorrection starts when the monitor switches to power saving mode.

2. Set the interval between the completed SelfCorrection and the next execution.

Usage time : [50] hours ──────────── Specify the time to use the monitor.

Only "Usage time" can be set as the "Period" / "Frequency" for executing SelfCorrection. In addition, the execution timing of SelfCorrection is when the monitor enters power saving mode or when the monitor is turned off.

3. Set whether or not to execute Standard Mode calibration when SelfCorrection is executed.

Attention

- This setting is not displayed for monitors that do not support "Standard Mode calibration".

☑ Standard Mode calibration

    SelfCalibration adjusts colors in sRGB, AdobeRGB and other color modes.
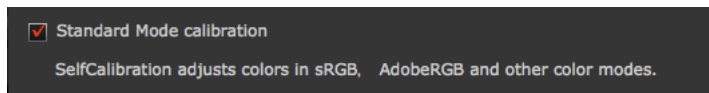
- Check the check box to execute Standard Mode calibration (page 71) when SelfCorrection is executed.

Attention

- Use SelfCalibration / SelfCorrection in order to sustain ColorNavigator adjustments.
- The ICC profile of the system is not updated when SelfCalibration / SelfCorrection is executed. When the ICC profile needs to be updated, use ColorNavigator to make the adjustments.
- The timer (page 45) operation is unaffected by SelfCalibration / SelfCorrection schedule.

Chapter 14 Reference

14-1. Using ColorNavigator in Multiple Monitor Environment

If you use ColorNavigator in a multiple adjustable monitor environment, select a monitor to run ColorNavigator.

Attention
- The built-in calibration sensor can be used to adjust and validate the monitors with built-in calibration sensor.
- When several same type monitors with built-in calibration sensor are connected, select the monitor and built-in calibration sensor using the serial number of the monitor.

Note
- In order to match the colors on multiple monitors, the measurement device compensation method needs to be set. For details, see "10-1. Setting Measurement Device" (page 70).
- When the CMYK type of monitor validation (page 46) is performed in the multiple monitor configuration, the ICC profile of the main monitor (primary monitor) may be applied depending on the software used to display the color patch. If the main monitor is not set as the validation target, the validation may finish with a worse result than the actual one. Set the validation target as the main monitor, then perform validation again.

How to Use

1. Select a monitor

The software shows the following window after starting ColorNavigator. Move the software window to the screen of the monitor you want to adjust and click "OK".
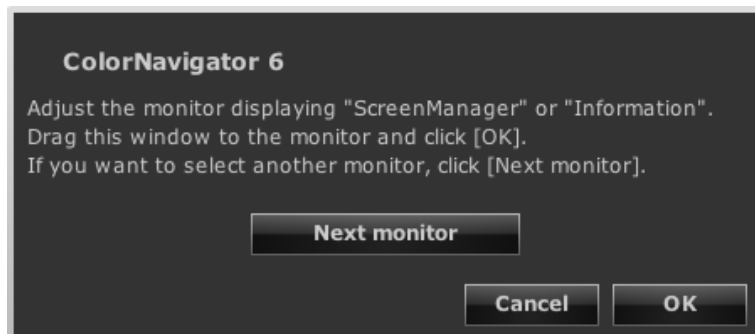
The main window is displayed.

2. Select a function

The process for each function is the same as that in a single monitor environment.

When the selected function is completed, the main window is displayed.

3. Run ColorNavigator on the second monitor

When running ColorNavigator on the second monitor and after, click "Select another monitor" and repeat steps 1 and 2.

14-2. Adjusting Monitor with Multiple PCs Connected

This section describes the procedure of the adjustment when one monitor is connected to two computers (referred to as PC1, PC2).

Note
• In monitors with two built-in USB upstream ports, the USB upstream port can be switched automatically depending on the input signal. For details on the number of USB upstream ports and the setting method, see the User's Manual of the monitor.

1. Adjust PC1
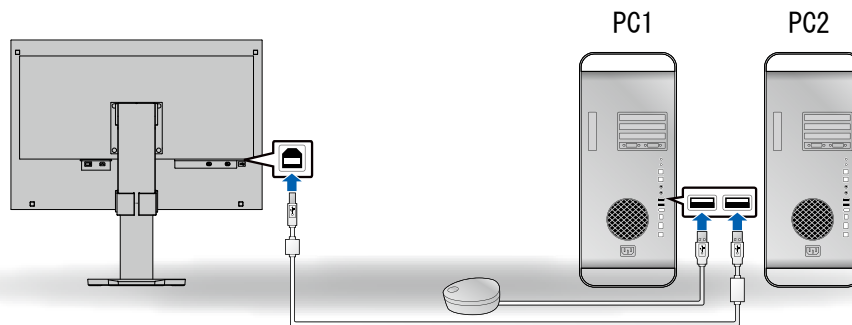
1. Switch the signal of the monitor to the one of PC1.
2. Connect PC1 and the monitor with USB cable.
3. Connect PC1 and a measurement device with USB cable.
4. Adjust the monitor with ColorNavigator installed to PC1.
5. When adjustment is completed, quit ColorNavigator.

2. Adjust PC2
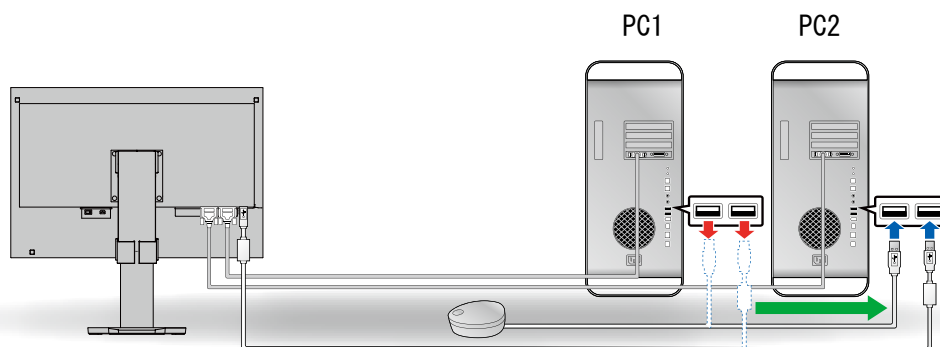
1. Switch the signal of the monitor to the one of PC2.
2. Connect PC2 and the monitor with USB cable.
3. Connect PC2 and a measurement device with USB cable.
4. Adjust the monitor with ColorNavigator installed to PC2.
5. When adjustment is completed, quit ColorNavigator.

3. Adjustments of PC1 and PC2 are completed

When PC1 or PC2 needs to be adjusted again, adjust the PC using step 1 and then 2 above.

Note
• Do not switch the monitor during while running ColorNavigator. The adjustment result will not be saved.

14-3. Using ColorNavigator Agent

ColorNavigator Agent is a resident function within the system that allows you to use the ColorNavigator functions without displaying the main window.

● Available Functions

- Changing adjusted target
- Displaying warning for timer
  A message is displayed when the operating time of the monitor specified in the timer (page 45) has elapsed.

- Displays warning for resolution (page 108) when system starts up
- Displaying main window
- Monitoring video card gamma

● Active Icon

The icon is displayed in the dock (Mac) or in the notification area (Windows) while ColorNavigator Agent is in active.

The color of the icon changes according to the operating status.

| Normal		• ColorNavigator Agent is running normally.
		  - ColorNavigator can be started up.
		  - Adjusted target can be changed.

Warning		• The operating time of the monitor after adjustment exceeds the timer threshold.
		  - ColorNavigator needs to be start up and readjusted.
		• The ICC profile associated with the adjustment target by using ColorNavigator or ColorNavigator Agent is not associated with the current system.
		  - The monitor needs to be readjusted with starting ColorNavigator, or be changed to the adjusted target.

Quiescent		• ColorNavigator is running. - ColorNavigator Agent cannot be operated until quitting ColorNavigator.

● Preventing ColorNavigator to reside

By default, when the system starts up, ColorNavigator Agent also starts running as resident software. To prevent it from residing, take the following steps..

1. Open the main window

2. Click "Preferences"

The "Preferences" dialog box appears.

3. Click "Others" in the toolbar
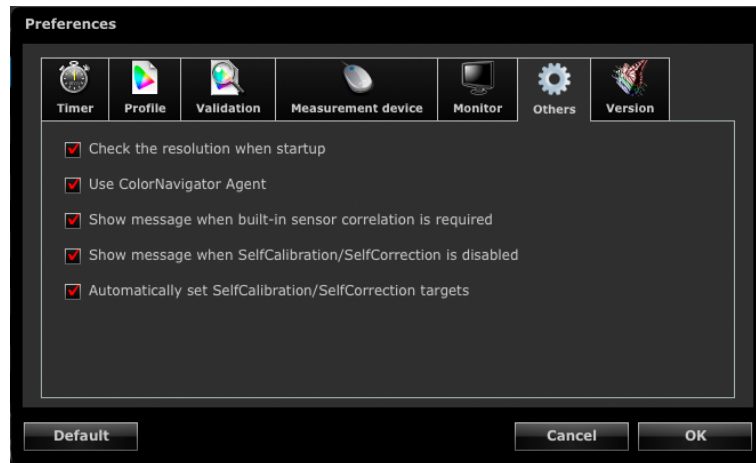
4. Uncheck the "Use ColorNavigator Agent" check box

● Changing Adjusted Target

By changing adjusted targets you can change the setting of the monitor and register the profile to the system easily.

1. Open the setting menu

Mac

Right- click ColorNavigator icon on Dock.

Windows

Right- click ColorNavigator icon in the notification area.

2. Select the adjusted target to be set

When connecting multiple monitors that are adjustable, select the monitor of which adjusted target to be changed and then select the adjusted target.

Selecting an adjusted target automatically changes the setting of the monitor and registers an ICC profile to the system.

Attention
- Unadjusted target is not shown.
- Start ColorNavigator to perform readjustment or validation.
- When the monitor is CG232W, if you apply the adjustment result to the SDI input signal, click "Yes" in "Do you want to apply the adjustment result to the SDI input signal?".

● Starting ColorNavigator

ColorNavigator can be started from ColorNavigator Agent.

1. Open the setting menu

Mac

Right- click ColorNavigator icon on Dock.

Windows

Right- click ColorNavigator icon in the notification area.

2. Select "Start ColorNavigator"

ColorNavigator starts up.

Attention

• ColorNavigator Agent cannot be operated while running ColorNavigator.

● Monitoring Video Card Gamma

The video card gamma may be changed due to other software or drivers. When ColorNavigator Agent is activated, it is possible to make settings for monitoring the status of the video card gamma and also for the operation to be performed when any change is detected. For details of the video card gamma, see "Chapter 16 Glossary" (page 113).

Set Operation for Detected Change

1. When the status of the video card gamma is changed, the setting window appears

2. Select an operation

Item	Setting
Reset to default	Returns the status of video card gamma to the previous one. (Recommended)
Show message	Displays message when the video card gamma is changed.
Ignore	Holds the video card gamma as changed status.

Attention

• Depending on the types of graphics boards, the status of the video card gamma may not be monitored.
• To change the operation to perform when the video card gamma is changed, right-click the ColorNavigatorAgent icon in the Dock for a Mac or the task tray for Windows, and click "When video card gamma changes".

14-4.Managing Adjusted Targets

● Specifying the SelfCalibration / SelfCorrection target

Some models of the monitor can save multiple SelfCalibration / SelfCorrection targets.

● Applying Adjusted Target to Monitor

Adjustment targets with blue or red marks in the main window and emulation data with gray marks indicate the target that has been adjusted once. When selecting one of these adjusted targets from the list, the adjustment target is switched.

Note

• When the monitor is CG232W, if you apply the adjustment result to the SDI input signal, click "Yes" in "Do you want to apply the adjustment result to the SDI input signal?".
• For the mark colors, see "About Marks" (page 10).
• When ColorNavigator Agent is resident, the adjusted target can be applied to the monitor without displaying the main window. For details, see "14-3. Using ColorNavigator Agent" (page 94).

● Changing Name of Adjustment Target

The name of adjustment target can be changed by double-clicking the adjustment target.

● Deleting Adjustment Target

Unnecessary adjustment target can be deleted.

Note

• If an adjustment target is deleted, all related validation result is also deleted.
• Deleted adjustment target cannot be restored.
• An adjustment target file to be displayed in the default setting is stored in the following folder. If the file is deleted accidentally, it is still possible to retrieve it by importing. For details of the adjustment target file, see the list (page 26).
  • Windows
    (System drive):\ProgramData\EIZO\ColorNavigator 6\targets
    - This is a hidden folder. In "Folder Options", set it to show hidden folders.
  • Mac
    /Library/Application Support/EIZO/ColorNavigator 6/targets/

1. Select an adjustment target to be deleted

2. Select "Delete"

The adjustment target is deleted.

14-5. Setting SelfCalibration / SelfCorrection Target Automatically

After the completion of monitor adjustment, an already adjusted target can automatically be set as the SelfCalibration / SelfCorrection target.
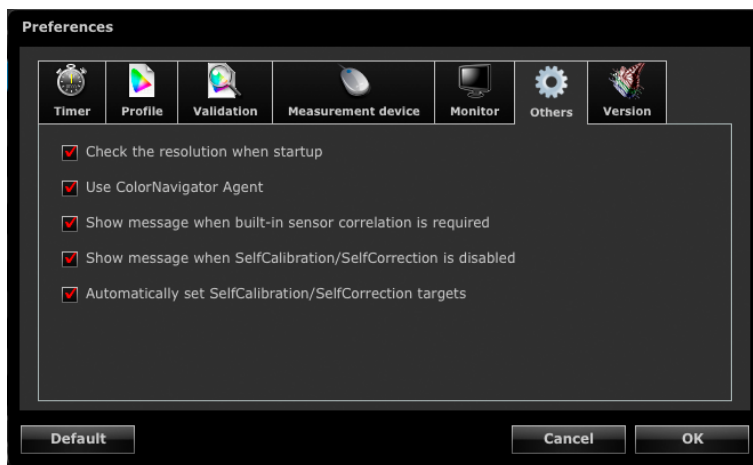
Attention
• Warming-up is required to automatically set the adjustment target of SelfCalibration / SelfCorrection. For details, see "4-1. Preparing Adjustment" (page 24).

1. Open the main window

2. Click "Preferences"

The "Preferences" dialog box appears.

3. Click "Others" in the toolbar

4. Check the "Automatically set SelfCalibration / SelfCorrection targets" check box
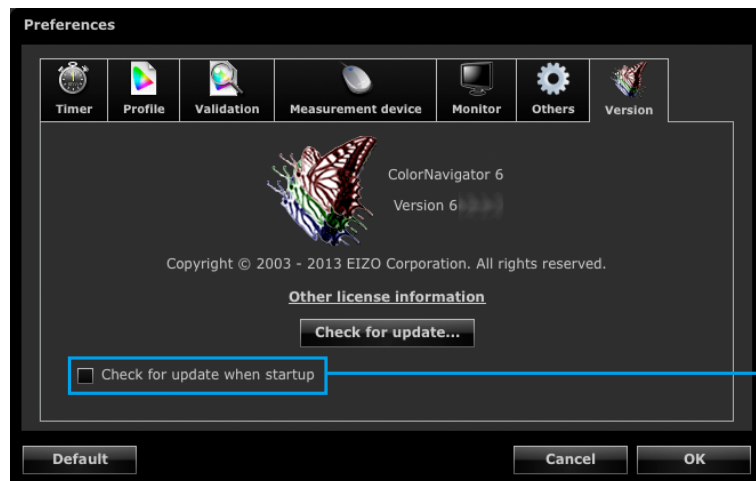
14-6. Checking the Latest Software

1. Open the main window

2. Click "Preferences"

The "Preferences" dialog box appears.

3. Click "Version" in the toolbar

When the box is checked, the availability of an update is checked during ColorNavigator startup.
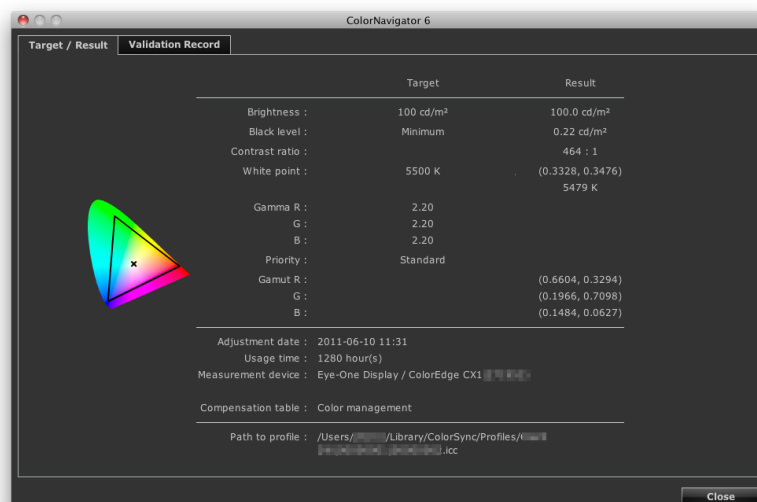
4. Click "Check for update"

When an update is available, a notification window appears.

14-7. Displaying Detailed Information of Adjustment Target / Result and Validation Record

1. Open the main window
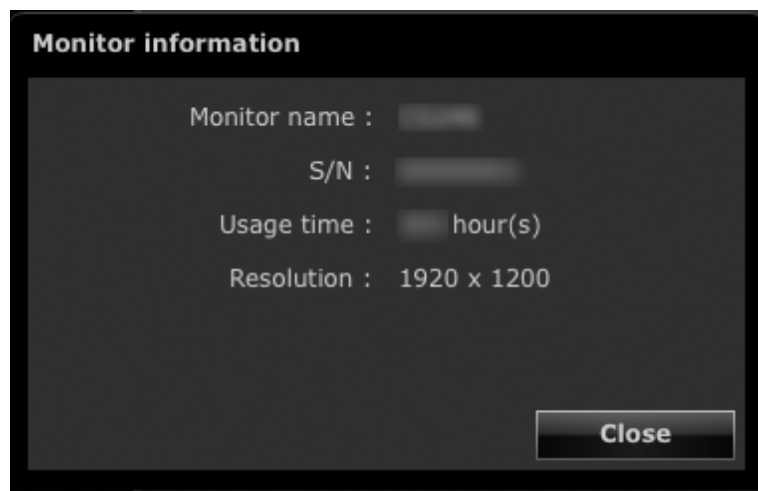
2. Click "Detail"

Detailed information of the adjustment target / result and validation records is displayed.

14-8. Other Functions

● Showing Monitor Information

Information related to the monitor that displays the main window can be displayed. Select "Monitor information" from "Help" in the main window to display it.

● Participating in the Quality Improvement Program

We would appreciate your understanding and participation in the Quality Improvement Program to improve the ColorNavigator software. The program participation dialog box can be displayed by selecting "Quality Improvement Program" from "Help" in the main window.

If you participate, the program will automatically collect information about how you use the product. The collected data is anonymous and will not include any information that may lead to your identification.
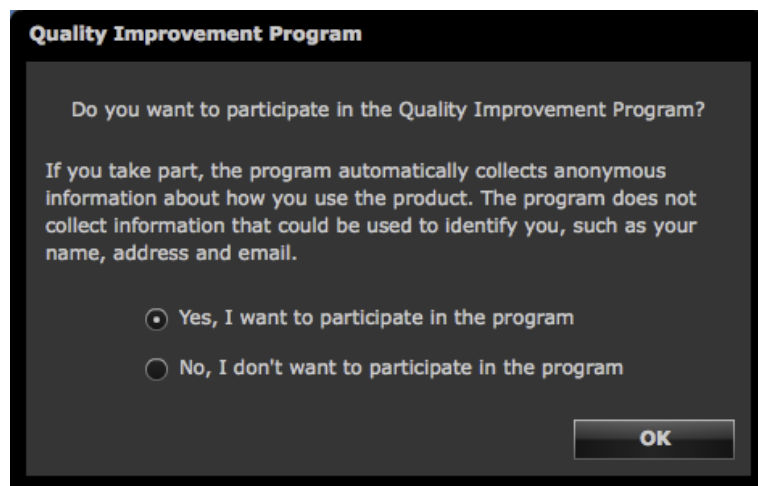
● Displaying Test Patterns

The test pattern to visually check the adjustment status can be displayed. It allows you to check that grayscale images do not contain any color as well as that the tone curve is displayed correctly.

Attention
- The gamma confirmation can be executed during the operation at the recommended resolution of the monitor. About the recommended resolution of the monitor, see the user's manual of the monitor.
- Depending on monitor and OS settings, test patterns may be displayed on only the right or left side of the screen. This will not affect adjustment or validation of the monitor.

1. Open the main window

2. Select "Test pattern" from "Advanced"

The test pattern appears. When you click on the test pattern, it closes.

14-9. File Format

ColorNavigator can load the following text file formats.

● LUT File for Gamma Adjustment Target

- The file extension is CSV.
- Records one numeric value per line.
- Records 256 numeric values.
- Records real numbers greater than "0".
- The 256th value should be the highest in the record.

● Validation Target for RGB Type

- Comma-delimited text file with extension (csv)
- Records the red, green, and blue values in order from the left in each line.
- The range of the value for red, green and blue are integral number between 0 - 255. Any decimal number is rounded down.
- Sample of validation target file

```
0,0,0
0,0,255
0,255,0
0,255,255
255,0,0
255,0,255
255,255,0
255,255,255
```

● Validation Target for CMYK Type

- A text file delimited by spaces or tabs with extension (TXT)
- Sample of validation target file

```
BEGIN_DATA_FORMAT
CMYK_C CMYK_M CMYK_Y CMYK_K LAB_L LAB_A LAB_B
END_DATA_FORMAT
BEGIN_DATA
0   0   0   0 100.00  0.00  0.00
0   0   0 100  16.91  0.04  0.53
0   0 100   0  93.70 -5.22 98.22
0   0 100 100  17.18 -3.88 10.17
0 100   0   0  50.84 77.40 -1.91
0 100   0 100  12.43 13.45  2.80
0 100 100   0  50.03 71.21 51.21
0 100 100 100  13.29  6.35  6.29
100   0   0   0  58.18 -38.73 -50.39
100   0   0 100  11.94  -7.07  -9.99
100   0 100   0  53.04 -69.67 28.11
100   0 100 100  13.22 -12.75  3.02
100 100   0   0  25.87 20.55 -46.91
100 100   0 100   9.49  6.30  -4.03
100 100 100   0  24.76  0.10  0.61
100 100 100 100  10.80  -0.61  1.91
END_DATA
```

- Place this part above the lines from "BEGIN_DATA" to "END_DATA".
- This part describes the order of CMYK and L*a*b* components.

CMYK_C	Cyan
CMYK_M	Magenta
CMYK_Y	Yellow
CMYK_K	Black (Key)
LAB_L	L*
LAB_A	a*
LAB_B	b*

- This part describes the color patch values.
- Use a numeric value ranging from 0 to 100 to express CMYK and L*.

Chapter 15 Troubleshooting

15-1. Problems and Remedies

If a problem still remains after applying the suggested remedies, contact your local EIZO representative.

| Problem	Possible cause and remedy
1. **Software cannot be installed.**	• Check the system requirements of ColorNavigator. • Check whether the system meets the requirements for operation described in "2-1. System Requirements" (page 11).
2. **Neither gamma nor black level can be adjusted manually.**	• When the "Priority" for gamma adjustment has been set to "Gray balance" or "Standard", you cannot adjust the black level or gamma manually.
3. **The LUT gamma file or the color patch file cannot be loaded.**	• Check whether the file to be loaded meets the format specified in "14-9. File Format" (page 102).
4. **The monitor is not recognized as an adjustment capable monitor. / The software cannot be started up.**	• Check whether the monitor meets the requirements for operation described in "2-1. System Requirements" (page 11). • If you use a ColorEdge series monitor that does not meet the requirements for operation, use the previous version of ColorNavigator. • Make sure that the USB cable is connected properly. • Check whether the ColorNavigator license is registered to your monitor (see "1-2. About ColorNavigator License" (page 6)).
5. **The measurement page is not displayed on the tablet / display device..**	• Check whether the computer on which ColorNavigator is installed and the tablet / display device are connected through the network. • Check the communication setting of the tablet / display device. • Stop the software for proxy setting, fire walls, virus check, etc. • Check whether the communication environment is stable.
6. **The measurement window is not displayed at the center of the screen.**	• The measurement window may not be displayed at the center of the screen depending on the monitor or OS settings. In this case, attach a measurement device around the center of the screen regardless of the position of the measurement window. (When using Mac) • The measurement window can be displayed at the center of the screen by the following procedure. - Uncheck "Displays have separate Spaces" on "Mission Control" of the "System Preferences".
7. **The tone curve is not displayed correctly.**	• Uncheck the "Reflect black level in tone curve" check box of "Tone curve" by referring to "9-2. Setting a Profile Policy" (page 56).
8. **Validation has finished with an unsatisfactory result.**	• Perform adjustment again. • When the CMYK type of monitor validation is performed in the multiple monitor configuration, the ICC profile of the main monitor (primary monitor) may be applied depending on the software used to display the color patch. If the main monitor is not set as the validation target, the validation may finish with a worse result than the actual one. Set the validation target as the main monitor, then perform validation again.

15-2. Error Messages

Find the following description if a message appears while running ColorNavigator.

Messages	Points to check / Description
Initialization Error:	
• Failed to start software.	• Try starting ColorNavigator again.
• Cannot control the monitor.	• The monitor is being controlled by another application. Exit other applications and start ColorNavigator again. • Reboot the PC.
• Set monitor color to 16.7 million colors or more to start up ColorNavigator.	• Check the system requirements of ColorNavigator. • Check whether the system meets the requirements for operation described in "2-1. System Requirements" (page 11).
• The adjustment capable monitor cannot be found.	• Check that the monitor and PC are connected with a USB cable. • Check the USB connection of the monitor. • Check whether the ColorEdge series monitor is connected. • Check whether the monitor meets the requirements for operation described in "2-1. System Requirements" (page 11). • Confirm that all the devices, that are necessary to start up ColorNavigator, are detected by System Profiler (Mac) or Device Manager (Windows). • If the monitor is CG232W, check whether the DVI or D-SUB input signal is displayed.
• Failed to detect measurement device	• Check that the measurement device is connected to the PC. • Check whether the measurement device used satisfy the system requirements described in "2-1. System Requirements" (page 11). • When there is an error in detecting the built-in calibration sensor, turn off the main power of the monitor with the built-in calibration sensor and wait for a few minutes before turning the power back on. • Uncheck the "Display automatically detected device." check box, and select the measurement device (see "5. Select a measurement device" (page 28)). • To use basICColor DISCUS, Klein K-10, Photo Research PR-655 / PR-680, or Colorimetry Research CR-250, uncheck the "Display automatically detected device." check box. • To use i1Display 3 / Pro, exit i1 Profiler Tray. (When using Mac) • To use ColorMunki, uncheck "ColorMunki" on "X-Rite Devices" of the "System Preferences". (When using Windows) • When using i1 Profiler, select "Control Panel", "Administrative Tools", "Services", and stop "X-Rite Device Services Manager". • When using ColorMunki Design / Photo, uncheck "ColorMunki" on "X-Rite Device Services" dialog box.

Messages	Points to check / Description

• Windows display calibration is enabled.	• Uncheck the "Use Windows display calibration" check box by the following procedure. Otherwise ColorNavigator cannot perform adjustment properly. (Administrator privileges are required for this setting.)
	  1. In the "Color Management" window, select the "Advanced" tab and click "Change system defaults".
	  2. On the "Advanced" tab, uncheck the "Use Windows display calibration" check box.

• Set "Video Mirroring" function to disable before starting up ColorNavigator.	• Check the setting of the video mirroring function of your OS. If the mirroring function is enabled, adjustment using ColorNavigator is not possible.
• Check the measurement device is placed on the white ceramic tile of base plate firmly then click "Initialize". • Check the measurement device is placed on the flat and opaque surface then click "Initialize". • Turn the rotary disk to initialization position then click "Initialize".	• Check whether the measurement device is placed on the base plate. • Check whether the measurement device is placed preventing light from steeping through the sensor. • The operation method is displayed according to the measurement device for use. Follow the instructions to operate the device.
Measurement Error / Adjustment Error / File Error:	
• Select another white point, or retry "Proceed".	• Check whether the target of white point is set between 0.24 and 0.45 for x-coordinate and y-coordinate.
• Check the measurement device firmly attached to the measurement window, then click "Proceed".	• Attach the measurement device to the measurement window firmly.
• Avoid operating any function of the monitor while running ColorNavigator.	• If the monitor is operated while ColorNavigator is in active, the software operation may end in failure.
• Failed to generate a profile. Retry "Save".	• Rename and retry save.
• Failed to apply the profile to the operating system. • A profile is not applied to your operating system.	• Failed to apply ICC profile. Either perform adjustment again or set the adjustment target again. Also check the ICC profile settings of your OS.
• Failed to load validation target.	• Check whether the readable validation target file is selected. (See "14-9. File Format" (page 102).)
• Failed to save the adjustment target. Retry "Export".	• Rename the file to be saved, or change the destination folder or drive.

• The profile cannot be saved for one of the following reasons.
  - You may not be allowed to access the specified folder. Select another folder.
  - The adjustment may have failed. Retry adjustment.
	• Check your access privileges to the specified folder.
	• *Adjustment may have failed. Perform adjustment again.

• The selected file does not contain valid adjustment target.	• Check whether the selected file contains the correct adjustment target.
• Failed to save the adjustment data. Check whether you have the write permission by referring to the information of XXX folder.	• Set your access permission to "Read & Write" in the information window of the folder.
• XX hours have passed since this monitor was adjusted. Readjust the monitor.	• This message is displayed when the time set at "6-1. Timer" (page 45) has elapsed from when the monitor was adjusted. Readjust the monitor.
• This target was adjusted when XX minutes passed since the monitor had been turned on. - To obtain an accurate SelfCorrection result, you need to wait for XX minutes before you adjust a target using ColorNavigator. Do you want to set it?	• This message is displayed when a target that was adjusted within 60 minutes after the monitor was turned on is set as a target for SelfCorrection. Adjust the monitor after the time specified in the message elapses and then set as the SelfCorrection target.

Messages	Points to check / Description
Communication Error:	
• Restart the software and retry operation.	• Check whether the USB cable of the monitor and measurement device is connected. Avoid disconnecting the USB cable while adjusting the monitor.
• Failed to start communication. Check a setting of a port.	• Set the communication for ColorNavigator again. • Check the communication setting of the target device.
Other Errors:	
• The rotary disk mode is wrong.	• Check the rotary disk position of X-Rite ColorMunki.
• Failed to adjust the monitor. Close the message, then click "Cancel" and readjust the monitor. • Failed to measure the target. Close the message, then click "Back" and readjust the monitor. • Failed to validate the profile. Close the message, then retry validation.	• The initialization of the measurement device may be failed. Initialize the measurement device again, and retry operation.
• Failed to detect a measurement device. Check your measurement device is connected to the computer.	• The measurement device may not be connected or not selected correctly.
• Failed to open the measurement device. - Check your measurement device is connected to the computer. - Restart the software.	• Turn off the monitor and turn it back on.
• This target cannot be set as a SelfCorrection target.	• The built-in correction sensor may have failed in monitor measurement. Perform measurement again. • The targeted brightness may be too low. Check the target settings.
• Supported light booth was not found. Operation is canceled.	• Check whether the light booth and computer are correctly connected with USB cable.
• Quit ColorNavigator.	• Reboot the PC.
• The measurement window cannot be displayed in the center of the screen. Please attach a measurement device around the center of the monitor.	• The measurement window may not be displayed at the center of the screen depending on the monitor or OS settings. In this case, attach a measurement device around the center of the screen regardless of the position of the measurement window. (When using Mac) • The measurement window can be displayed at the center of the screen by the following procedure. - Uncheck "Displays have separate Spaces" on "Mission Control" of the "System Preferences".
Universal Access Warning (Mac Only):	
• Contrast is customized. • Color is reversed. • Grayscale is used.	• See "15-3. Universal Access Warning (Mac Only)" (page 107).
Resolution Warning:	
• Current resolution is not recommended.	• See "15-4. Resolution Warning" (page 108).
Correlation Warning	
• Correlate built-in sensor.	• See "15-5. Correlation Warning" (page 110).

15-3. Universal Access Warning (Mac Only)
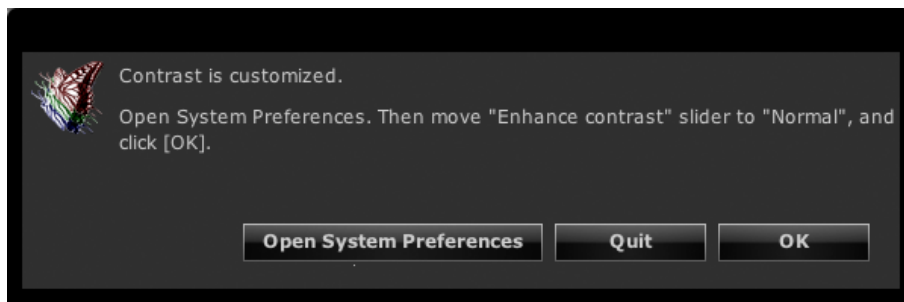
When the part of the universal access function is enabled, the function required to be disabled because the monitor cannot be adjusted correctly.

How to Disable Universal Access

Disable the function as follows:

1. Click "Open System Preferences"

Note

• System Preferences can be open by selecting "System Preferences" from Apple menu. Click "Universal Access" or "Accessibility" to open the Universal Access window.

2. Confirm the universal access function is disabled

The types of operations available depend on the type of OS being used.

1. Select "Black on white" or uncheck the "Invert colors" check box.
2. Uncheck the "Use grayscale" check box.
3. Move the slider of "Enhance contrast" to "Normal" with mouse dragging.

Attention

• To disable the enhance function of the contrast, move the slider of "Enhance contrast" to "Normal" with mouse dragging. The slider may not be moved completely to "Normal" with keyboard.
• When using zoom function, the measurement pattern may not be shown in the sensor section of the measurement device even though ColorNavigator runs. Quit the zoom function before performing adjustment or validation.

15-4. Resolution Warning

When checking the resolution of the monitor at ColorNavigator startup, and if the resolution is not recommended one, the warning message appears.

● About Warning Message

Click "Continue" to use ColorNavigator without changing the resolution.
When using ColorNavigator after changing the resolution, click "Quit" and change the resolution, then restart ColorNavigator.
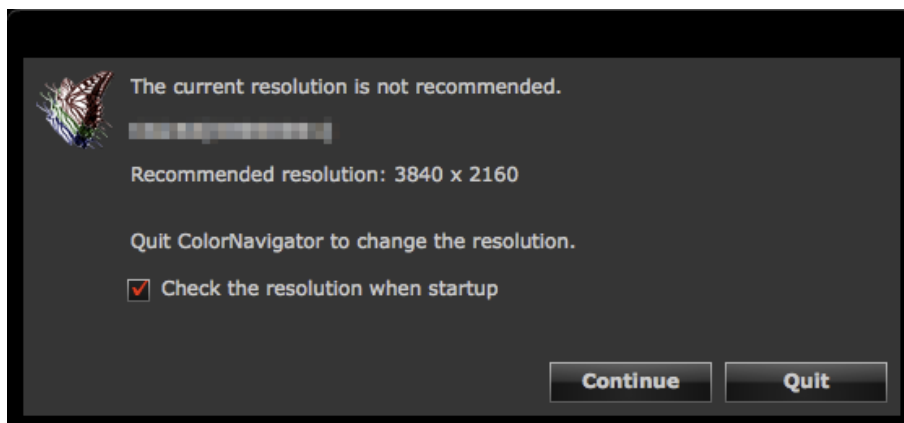
Attention

• When changing the resolution without quitting ColorNavigator, it may cause the malfunction of ColorNavigator.

Note

• When the resolution differ from the recommended one, characters and lines may be blurred but there is no problem for the operation of ColorNavigator.
• When the DPI setting has been modified on the PC, the message may appear.
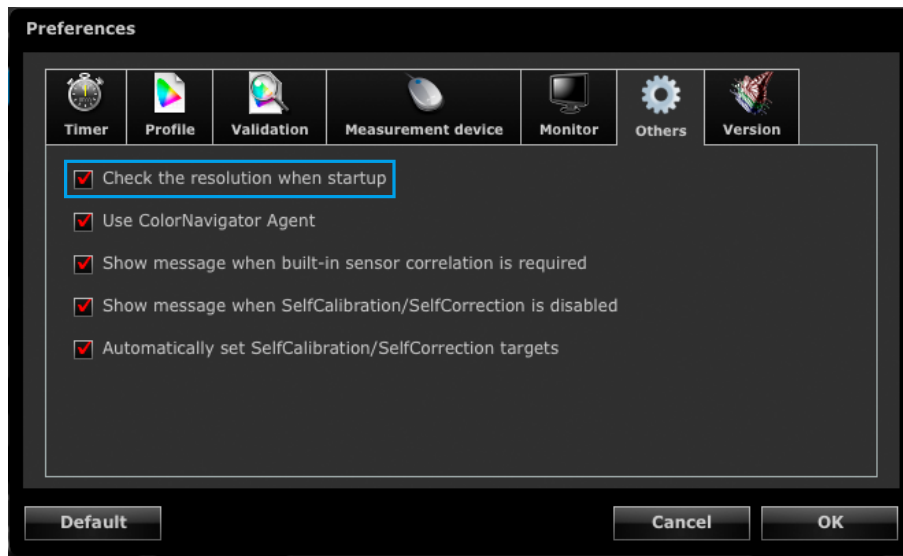
● Setting How to Display Resolution Warning at ColorNavigator Startup

1. Open the main window

2. Click "Preferences"

The "Preferences" dialog box appears.

3. Click "Others" in the toolbar

4. Check the "Check monitor resolution when starting" check box to check the resolution of the monitor at the system startup

The check box is checked by default.

Note

• By using the resident software ColorNavigator Agent, the resolution of the monitor can be checked at the system startup. For details, see "14-3. Using ColorNavigator Agent" (page 94).

15-5. Correlation Warning

Check the status of the correlation of the built-in calibration sensor when closing the main window.

The warning message can be displayed when the measurement results between the reference measurement device and the built-in calibration sensor are not correlated.
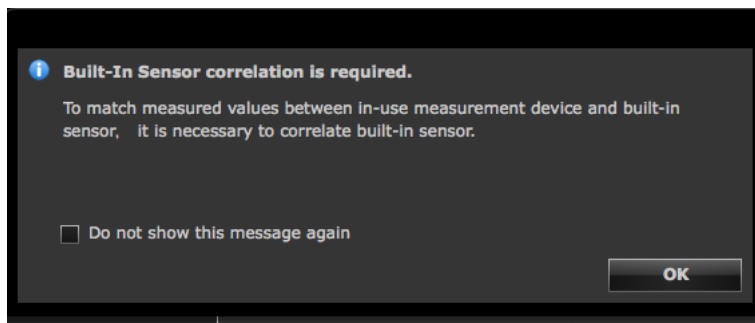
Attention

• This function is available for monitors with built-in calibration sensor.

Note

• See "13-2. Correlate with the Reference Measurement Device" (page 85) for the correlation for the built-in calibration sensor..

● Setting How to Display Correlation Warning at Main Window Closure

1. Open the main window

2. Click "Preferences"

The "Preferences" dialog box appears.

3. Click "Others" in the toolbar

4. When the "Show message when built-in sensor correlation is required" check box is selected, the correlation status of the built-in calibration sensor is checked at the main window closure

The check box is checked by default.

15-6. SelfCalibration / SelfCorrection Warning

Check the SelfCalibration / SelfCorrection setting when closing the main window.

The warning message can be displayed when SelfCalibration / SelfCorrection is disabled.

Attention

• This function is available for monitors with built-in calibration sensor / built-in correction sensor.
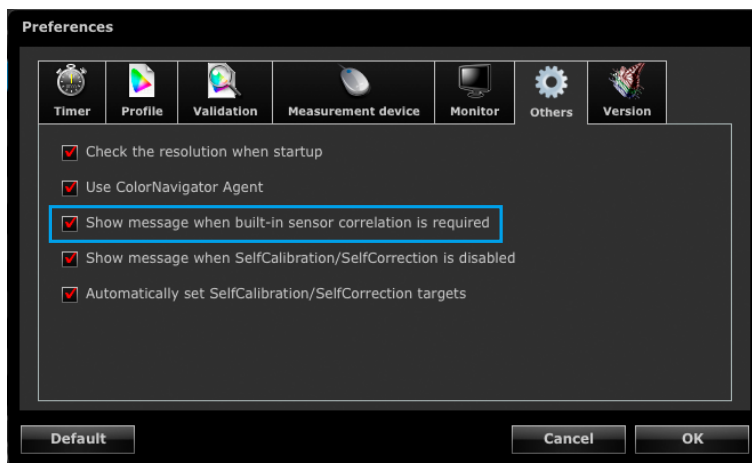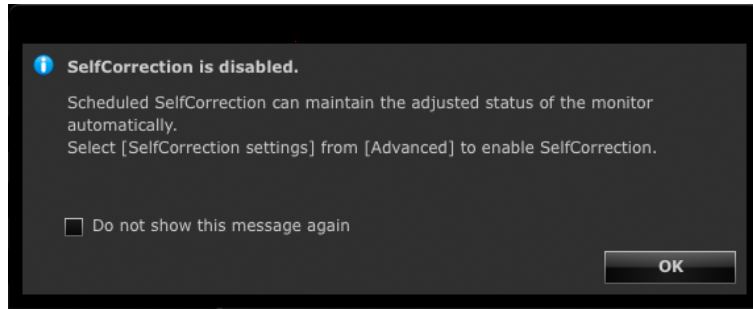
● Setting Whether to Display Message SelfCalibration / SelfCorrection Warning at Main Window Closure

1. Open the main window

2. Click "Preferences"

The "Preferences" dialog box appears.

3. Click "Others" in the toolbar
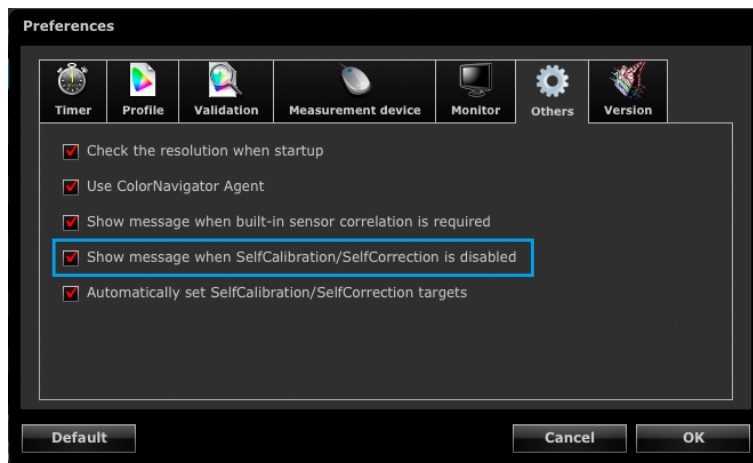
4. When the "Show message when SelfCalibration / SelfCorrection is disabled" check box is selected, the status of the SelfCalibration / SelfCorrection setting is checked during closure of the main window

The check box is checked by default.

15-7. Changing the Settings of the Currently Used Monitor

The settings of the currently being used monitor can be changed from ColorNavigator.

1. Open the main window

2. Click "Preferences"

The "Preferences" dialog box appears.

3. Click "Monitor" in the toolbar

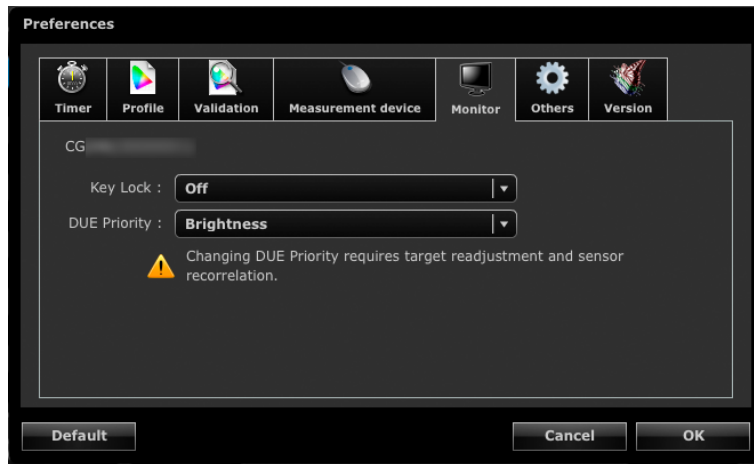## 4. Set each function

• Key lock: The control buttons of the monitor can be locked / unlocked.

setting	Buttons that can be locked
Menu	ENTER button
ALL	All buttons excluding ⏻
Off	None (All buttons are enabled)

• DUE Priority: The DUE settings of the monitor can be changed.

setting	function
Uniformity (Recommended)	Makes the brightness and color of the whole screen uniform. The brightness of a high graduation area is also corrected so it is uniform.
Brightness	Correct with priority on the maximum brightness and contrast ratio.

Attention

• After changing a setting of DUE Priority, set the adjustment target and execute sensor correlation again.
• Only functions supported by your monitor can be set. If a function is not supported, "Not supported" is displayed.

Chapter 16 Glossary

6 Colors

The saturation and hue of the three primary colors (Red, Green, Blue) and the additive colors (Yellow, Cyan, Magenta) of the monitor can be adjusted separately. This produces an effect when you want to adjust only particular color and suit the view to the printing one without changing whole color of the image.

Fogra

An organization of Germany that performs researches, developments and validations related to printing. They have provided various standards for printing.

Gain Adjustment

Adjusts each color parameter for red, green and blue. An LCD monitor displays the color by the light passing through the panel color filter. Red, green and blue are the three primary colors. The colors on the monitor are displayed by combining these three colors. The color tone can be changed by adjusting the light intensity (volume) passing through each color's filter.

Gamma

Generally, the relationship that the light intensity values of a monitor change nonlinearly to the input signal level is called "Gamma Characteristic". When the gamma value is low, the middle tone area is displayed brighter, and darker when high. Changes to the gamma value will not affect contrast. A gamma value appropriate for the display content should be selected.

GRACoL (General Requirements for Applications in Commercial Offset Lithography)

The standard of digital color proof for commercial sheet fed offset printing provided by IDEAlliance.

IDEAlliance (International Digital Enterprise Alliance)

IDEAlliance is a nonprofit membership organization of U.S.A. that promotes the efficiency of business with advanced technology in the area of media, publishing and content.

L*

L* is a lightness value based on the CIELUV and CIELAB color spaces. CIELUV and CIELAB are color spaces that describe the relationship between color and human vision, in which L* corresponds to perceived brightness.

LUT (Look up Table)

The gamma characteristic may be represented numerically for example as "Gamma = 2.2". However, a table is used whenever the characteristic cannot be represented in this way. This table is called LUT (Look up Table). In ICC profiles, the gamma characteristic may be represented either numerically or as an LUT. When creating an adjustment target using ColorNavigator, an ICC profile can be loaded. If the selected profile indicates the gamma characteristic as an LUT, "LUT" is displayed.

Resolution

A measurement that defines the clarity with which an image can be represented. It is defined by the number of pixels which can be displayed per line multiplied by the number of lines on the screen such as "1024 × 768". The more number of pixels, the more information the image has.

sRGB (Standard RGB)

"International Standard for Red, Green, and Blue color space". A color space was defined with the aim of the color matching between applications and hardware devices, such as monitors, scanners, printers and digital cameras. As a standard default space, sRGB allows Internet users to closely match colors.

SWOP (Specifications Web Offset Publications)

The standard for commercial web offset printing provided by IDEAlliance.

Temperature

Color Temperature is a method to measure the white color tone, generally indicated in degrees Kelvin. At high temperatures the white tone appears somewhat blue, while at lower temperatures it appears somewhat red. Computer monitors generally give best performance at high temperature settings.
5000 K: Slightly reddish white (usually used in print industry)
6500 K: White called daylight color (suited for displaying photos and web browsing)
9300 K: Slightly bluish white (usually used for television)

Video Card Gamma

The data used to correct the signal output from the computer. Software calibration corrects the monitor by using the video card gamma. Because ColorNavigator does not use video card gamma, if the video card gamma has been changed by other software, the adjustment result may not be reflected correctly.

XRGA (X-Rite Standards for Graphic Arts)

The calibration standard specified by X-Rite and used for X-Rite's measurement devices. X-Rite i1Pro 2 has been calibrated to comply with XRGA. X-Rite i1Pro / Monitor has not been calibrated to comply with XRGA by default. Ask X-Rite for calibration so that they can calibrate the device to comply with XRGA.

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