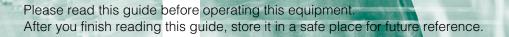


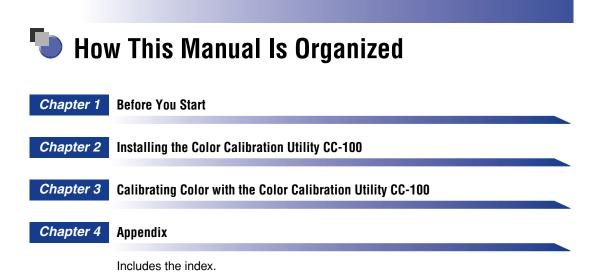
Color Calibration Utility

User's Guide





CC-100 Color Calibration Utility



Considerable effort has been made to ensure that this manual is free of inaccuracies and omissions. However, as we are constantly improving our products, if you need an exact specification, please contact Canon.

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Preface

Thank you for purchasing this Canon product. Please read this manual thoroughly before operating the product in order to familiarize yourself with its capabilities, and to make the most of its many functions. After reading this manual, store it in a safe place for future reference.

How to Use This Manual

Symbols Used in This Manual

The following symbols are used in this manual to explain procedures, restrictions, handling precautions, and instructions that should be observed for safety.

- IMPORTANT Indicates operational requirements and restrictions. Be sure to read these items carefully in order to operate the product correctly, and to avoid damage to the product.
- NOTE Indicates a clarification of an operation, or contains additional explanations for a procedure. Reading these notes is highly recommended.

Buttons Used in This Manual

The following button names are a few examples of how buttons to be clicked are expressed in this manual:

Buttons on Computer Operation Screens: [Button Name]

Examples:

[Yes]

[Next]

Displays Used in This Manual

Screen shots of computer operation screens used in this manual may differ from the ones you actually see, depending on the operating system and the model or options that come with your machine. (All screen shots in this manual were taken from Windows 2000.)

The buttons that you should click are marked with a _____, as shown below.

When multiple buttons can be clicked, they are highlighted and mentioned in the order in which they should be clicked.

Selecting an Installation Destination Setup installs CC-100 in the following folder. Click [Next] to install in this folder.		
Click [Next] to install in this folder.		
To install in a different folder, click [Browse] and select the folder.		
Click [Cancel] not to install CC-100 and terminate the Setup.		
Installation Destination Folder		
C:\Program Files\Canon\CC-100	Browse	
InstallShield		

Abbreviations Used in This Manual

In this manual, product names and model names are abbreviated as follows:

Microsoft [®] Windows [®] 98 operating system:	Windows 98
$Microsoft^{\texttt{R}}Windows^{\texttt{R}}MillenniumEdition$ operating system:	Windows Me
Microsoft [®] Windows [®] 2000 operating system:	Windows 2000
${\sf Microsoft}^{{\mathbb R}}{\sf Windows}^{{\mathbb R}}{\sf XP}$ operating system:	Windows XP

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Before You Start

This chapter outlines the features of the Color Calibration Utility CC-100 and describes the color calibration function.

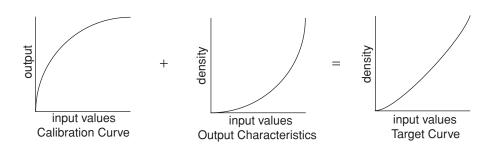
What Is Color Calibration?	
Color Chart	

What is Color Calibration?

A printer's output characteristics vary from those set at its design due to local conditions, including temperature, humidity, and other miscellaneous factors. The Color Calibration Utility CC-100 restores the printer's output characteristics to its original design specifications by adjusting the characteristics of each color (CMYK). These characteristics, which are defined as the relationship between input values and output densities, are reset according to a Target Curve. Color calibration is achieved by calculating the calibration data and applying the calibration data to the printer. Calibration data is composed of the calibration curves for each color (CMYK).

The Color Calibration Utility CC-100 first prints the color chart from the printer. Then the current output density of each color in each grade is measured as the scanner scans the printed chart. In this way, the calibration curves for each color are calculated from the measured characteristics of the current printer and the target curves for the printer. Upon being sent to the printer, a print job's printing image data is transformed using the calibration curves for each color (CMYK). The resulting output density in an ideal setting is thus a combination of the calibration curve and the current unadjusted characteristics curve. By matching these calculated output densities to the target curves, the original printer characteristics are restored.

Calibration Process Model



1



- It is recommended that you perform color calibration on the printer every day before the first printing.
- Technical terms used in this guide and their explanations are listed below:
 - Calibration Data: This data is composed of the calibration curves for each color (CMYK).
 - Calibration Curve: This curve has a function which is used to transform the gradation of each color (CMYK).
 - Printer's Characteristics of Density: This is a function which shows the relationship between input value and output density of the printer for each color (CMYK). Upon application of the calibration data to the printer, the printer's characteristics of density become a combination of the calibration curve and the current, unadjusted characteristics curve.
 - Target Curve: This curve has the original characteristics of density for your printer for each color (CMYK).

Color Chart

Color charts are output from the printer you want to calibrate, and used to measure the densities of each color (CMYK). The printer's output characteristics of each color (CMYK) can be calculated by measuring the densities of colors actually printed by the printer against the color values sent to the printer.



Example of a Color Chart

Installing the Color Calibration Utility CC-100

2 CHAPTER

This chapter describes how to install and uninstall the Color Calibration Utility CC-100.

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System Requirements

The Color Calibration Utility CC-100 has been designed to work with the following system environments:

Computer

- OS
 - Microsoft Windows 98/Me
 - Microsoft Windows 2000 Server/Professional
 - Microsoft Windows XP Professional/Home Edition
- CPU
 - Intel Pentium CPU 100 MHz or higher
- Memory
 - 32 MB or higher
- Hard Disk Drive
 - At least 10 MB free space (while operating)

Printer

- Compatible Printers
 - Color imageRUNNER C3220 Base Printer model
 - Color imageRUNNER C3200 Base Printer model
- Interface
 - Ethernet

Scanner

- Compatible Scanners
 - CanoScan 3200F
 - CanoScan 3000F
- CanoScan LiDE60
- CanoScan LiDE35
- Scanner Drivers
 - TWAIN-compatible drivers, and WIA drivers with a TWAIN compatible mode



- The Color Calibration Utility CC-100 supports the Color imageRUNNER series Base Printer model only. If you are using the Color imageRUNNER series Copier model, please use the printer's color calibration (Automatic Gradation Adjustment) function.
- The Color imageRUNNER series requires an Ethernet interface and cannot accept a USB connection for the Color Calibration Utility CC-100.
- You should use only the scanner listed above. If you use other scanners, you may not be able to perform color calibration correctly.

Installing the Color Calibration Utility CC-100

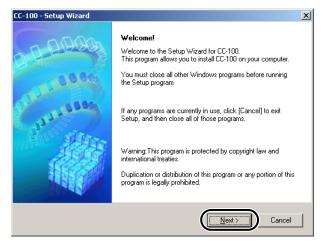
To install the Color Calibration Utility CC-100, follow the procedure below.

- For Windows 2000/XP, log on as Administrator when you start your computer.
- · Before installation, close all applications.

1 Double-click [Setup.exe].

The installation wizard starts and the Welcome screen is displayed.

2 Click [Next].

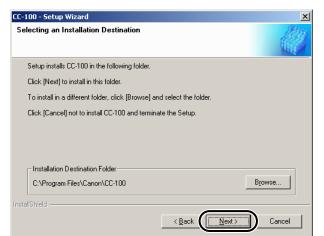


3 Read the agreement \rightarrow click [Yes].

CC-100 - Setup Wizard	×
Software License Agreement	
Please read the following Software License Agreement. To read the rest of the agreement, press the Page Down key.	
CANON SOFTWARE LICENSE AGREEMENT	_
IMPORTANT!	
This is a legal agreement ("Agreement") between you and Canon Inc. ("Canon") and governing your use of Canon's software programs including the related manuals or any printed material thereof (the "Software") for certain Canon's copying machines, printers and multifunctional peripherals (the "Products").	
READ CAREFULLY AND UNDERSTAND ALL OF THE RIGHTS AND	-
Do you accept all of the terms and conditions in the agreement described above? Select [No] to discontinue the Setup. You must accept the agreement to install CC-100.	
InstaliShield	No

4 Read the Readme file \rightarrow click [Next].

CC-100 - Setup Wizard	×
Information	
Please read the following text.	
Canon Color Calibration Utility CC-100 Version xxxUS Supplemental Inform	ation
1. Introduction 2. Frademarks and Abbreviations 3. System Requirements 4. Caution	
1.Introduction	▼
InstallShield	Cancel



Installation starts.

CC-100 - Setup Wizard

Ø NOTE

To specify a different folder for installing, click [Browse] \rightarrow specify the folder.

6 When the message <Setup Complete> is displayed, click [Exit].

Setup completed installing CC-100 in your computer.

Exit

Setup Complete

Click Exit to quit the Setup.



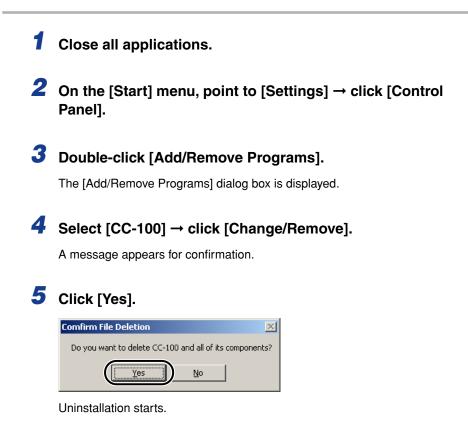
Installation is complete.

Uninstalling the Color Calibration Utility CC-100

To uninstall the Color Calibration Utility CC-100, follow the procedure below.

NOTE

The button names and procedure may differ depending on the operating system you are using.



6 When the message <Uninstallation is completed.> is displayed, click [Exit].



Calibrating Color with the Color Calibration Utility CC-100

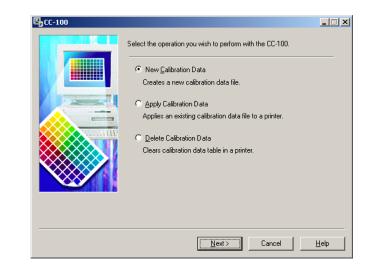


This chapter describes how to perform color calibration operations, including creating, applying, and deleting calibration data.

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Color Calibration Operations

The Color Calibration Utility CC-100 enables you to perform the following three operations. In general, you should select [New Calibration Data] to perform calibration. It is recommended that you perform color calibration on the printer every day before the first printing.



New Calibration Data: Performs color calibration by sending data to the printer, which the printer outputs as a color chart. The user then scans the color chart output from the printer using the scanner, and the Color Calibration Utility CC-100 calculates the correction values for the output characteristics. The target printer and scanner must therefore be set up for use before performing this operation. Apply Calibration Data: If the output characteristics data has been saved after performing the New Calibration Data operation, this operation sends the saved output characteristics data to the printer. Perform this operation if you want to restore the previous calibration setting. A scanner is not necessary to apply the saved output characteristics data to the printer. Delete Calibration Data: Deletes calibration data sent to the printer by the New Calibration Data or Apply Calibration Data operations. Perform this operation if you want to delete corrections made during calibration. Whenever you import new calibration data, the old calibration data is automatically deleted. Therefore this operation is not normally required.



If you are performing large print runs, printed colors may gradually change. If changes in printed colors are found, recalibration is required. Colors should maintain their accuracy for up to 500 sheets (LTR or A4) before requiring recalibration with the Color Calibration Utility CC-100.

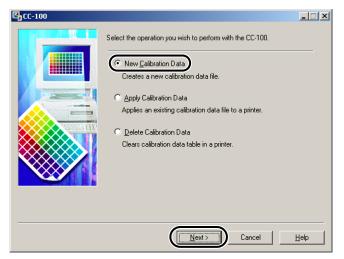
Creating Calibration Data

You can create new calibration data by following the procedure below.

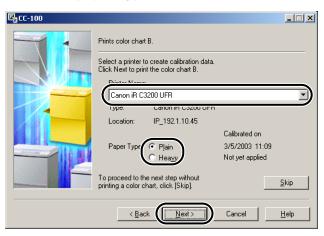
1 On the [Start] menu, point to [Programs] → [Canon CC-100] → click [CC-100].

If an error message is displayed, color calibration cannot be performed. Check that the printer and scanner are turned ON and confirm that all the required drivers are installed, then perform step 1 again.

2 Select [New Calibration Data] → click [Next].



3 Select the printer that you want to apply calibration to \rightarrow select the paper type \rightarrow click [Next].



Three color charts are printed out.

NOTE

Printer names of printer drivers previously installed appear automatically in the Printer Name drop-down list box. If the printer name does not appear, check the connection to the printer, and also check that the printer driver is installed.

4 Select the scanner name \rightarrow click [Next].

🛂 CC-100		_ 🗆 X
	Selects a scanner.	
	<back< td=""><td><u>H</u>elp</td></back<>	<u>H</u> elp

NOTE

Scanner names of scanner drivers previously installed appear automatically in the Scanner Name drop-down list box. If the scanner name does not appear, check the connection to the scanner, and also check that the scanner driver is installed.

5 Place the first color chart printed out in step 3 on the scanner → click [Next].



6 Follow the instructions displayed on the scanner driver screen to scan.

Display [Advanced Mode] to make the settings as below on the scanner driver screen and then click [Scan].

- Color Mode:Color• Output Resolution:150dpi• Paper Size:A4 or Letter
- Unsharp Mask: OFF
- Preferences
 Color Settings:
 None (Color Matching OFF)
- Monitor Gamma: 2.20 (CanoScan LiDE60 only) - Preview
 - Cropping: None or OFF
- Scan
 - Remove the white borders: OFF (for CanoScan 3200F, 3000F, LiDE35)

IMPORTANT

Before scanning the first color chart, perform calibration on the scanner.

🧷 NOTE

For instructions on how to scan, refer to the instruction manual supplied with your scanner.

7 For scanning the second and third color charts, repeat steps 5 and 6 with each chart.

8 Click [Next].

🛂 CC-100		
	Applies calibr	
	<i>⊷</i> ∕	Saves measured output characteristics data. <u>D</u> etails Displays and sets measured output characteristics.
	Click [Next] to	apply. Back (Next>) Cancel Help

The calibration data is transferred and applied to the printer.

Ø NOTE

- You can save the output characteristics data file on the computer by clicking [Save]. The saved file can be reapplied to the printer by selecting [Apply Calibration Data]. For details, see "Applying Calibration Data," on p. 3-7.
- · You can view the output characteristics data in detail by clicking [Details].

9 When the process result screen is displayed, click [Exit].

🛂 CC-100		x
	1/17/2003 10:30 Not yet applied	
	<u>C</u> ontinue	
		_

The Color Calibration Utility CC-100 closes and the color calibration process is complete.

NOTE

To return to the initial screen, click [Continue].

Applying Calibration Data

If output characteristics data has been saved after performing the New Calibration Data operation, this mode enables you to apply the saved output characteristics data to the printer.

Ø NOTE

The color balance of the printer may be affected by environmental factors, such as temperature and humidity, at the time of turning ON the printer. Therefore, it is recommended that you perform color calibration with [New Calibration Data] every time the printer is turned ON.

On the [Start] menu, point to [Programs] → [Canon CC-100] → click [CC-100].

Ø NOTE

Previously saved output characteristics data can be applied to the printer even if the scanner is not available. Therefore, if a message concerning scanner connection or a scanner driver error is displayed, you can continue this operation by clicking [OK].

2 Select [Apply Calibration Data] → click [Next].

🛂 CC-100		_ 🗆 🗡
Pgcc-100	Select the operation you wish to perform with the CC-100. New Calibration Data Creates a new calibration data file. Apply Calibration Data Applies an existing calibration data file to a printer. C Delete Calibration Data	×
	Clears calibration data table in a printer.	Help

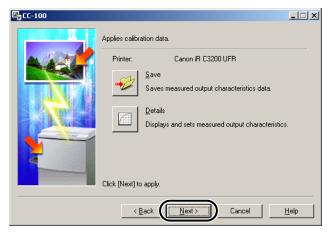
3 Select the printer that you want to apply calibration data to → select the output characteristics data file → click [Next].

🛂 CC-100		
	Opens an existing output characteristics of Select output characteristics data and a p Click [Next] to open the output characterist Printer Name	rinter.
	Canon iR C3200 UFR Type. Canon III C3200 OF II Location: IP_192.1.10.45	
	Calibrated on Plain Paper: Heavy Paper:	1/17/2003 10:30 Not yet applied
	File Name:	a Browse
	< Back	Cancel <u>H</u> elp

NOTE

Printer names of printer drivers previously installed appear automatically in the Printer Name drop-down list box. If the printer name does not appear, check the connection to the printer, and also check that the printer driver is installed.

4 Click [Next].



The calibration data is transferred and applied to the printer.

NOTE

You can view the output characteristics data in detail by clicking [Details].

5 When the process result screen is displayed, click [Exit].



The Color Calibration Utility CC-100 closes and the color calibration process is complete.

NOTE

To return to the initial screen, click [Continue].

Deleting Calibration Data

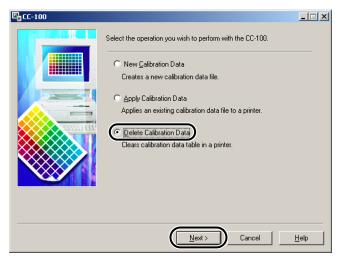
You can delete the calibration data after it has been applied to the printer, thus removing the color calibration settings from the printer.

1 On the [Start] menu, point to [Programs] → [Canon CC-100] → click [CC-100].

NOTE

You can delete calibration data after its application to the printer, even if the scanner is not available. Therefore, if a message concerning scanner connection or a scanner driver error is displayed, you can continue this operation by clicking [OK].

2 Select [Delete Calibration Data] \rightarrow click [Next].



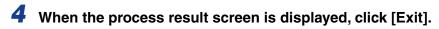
3 Select the printer that you want to remove the calibration data from \rightarrow click [Next].

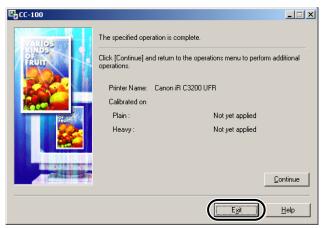
Eg CC-100			<u>- ×</u>
	Deletes calibrati	on data that was applied to a printer.	
		eletion cannot be canceled.	
12	Printer Name	22	
	<u> </u>		
	Type:	Canon iR C3200 UFR	
	Location:	IP_192.1.10.45	
	Calibrated or	i.	
	Plain :	3/5/2003 11:17	
	Heavy :	Not yet applied	
	1. 		
	< <u>B</u> ac	ck (<u>N</u> ext > Cancel	Help

The color calibration data is deleted from the printer.

NOTE

Printer names of printer drivers previously installed appear automatically in the Printer Name drop-down list box. If the printer name does not appear, check the connection to the printer, and also check that the printer driver is installed.





The Color Calibration Utility CC-100 closes.



To return to the initial screen, click [Continue].



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