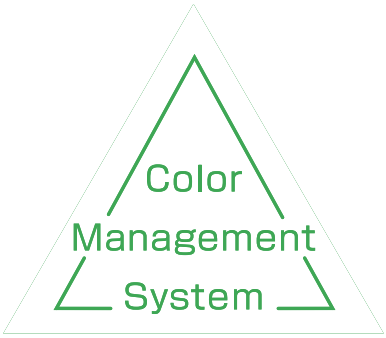
Creating profiles application software



MPM3
Mimaki Profile Master

Reference Guide

MIMAKI ENGINEERING CO., LTD.
https://mimaki.com/
D203040-19

Table of Contents

Chapter 23 Connecting to colorimeter

Notice

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About this guide

This document explains how to operate Mimaki Profile Master 3.

Notations used in this document

Items appearing on the menu are enclosed in [ ]. For example: [creation].
Buttons appearing in the dialogs are enclosed in [ ]. For example: [OK].

Symbols

This symbol indicates important information that requires attention during the operation of this product.

This symbol indicates useful information.

Mimaki Profile Master 3

The features of MPM3 are described below.

● Creating device profiles

MPM3 can create device profile version 3.5 or later for the RasterLink series.
Device profile version 3.5 can be installed in RasterLink version 4.11 or later.
MPM3 cannot create device profiles older than version 3.0.

● Editing device profiles

MPM3 can edit profiles that have already been created.
MPM3 can edit device profile version 3.5 or later.
MPM3 cannot edit device profiles older than version 3.0.
→ Refer to "Chapter 3 Editing a device profile" (P. 37).

● Reducing changes in printer colors

Changing a printer head, media, or ink can cause a change in print colors.
MPM3 can reduce such changes in color by calibrating the device profile.
→ Refer to "Chapter 4 Suspending the creation of a device profile" (P. 41).

● Reducing color difference between printers

Even printers of the same model will have color differences, due to the use of different print heads, media feeding mechanisms, and other printer features.
MPM3 can reduce such color differences between printers by adjusting the device profiles.
→ Refer to "Chapter 7 Color-matching of the multiple printers of the same model (Equalization)" (P. 67).

● Emulating the color of a target printer

MPM3 can emulate the color of a target printer.
→ Refer to "Chapter 8 Color-matching multiple printers of different models (Emulation)" (P. 83).

● Registering profiles in RasterLink

You can use this software to register profiles in RasterLink.

● Operation wizard

The operation of creating device profile is rather complex, which requires printing with a printer or measuring the color with a colorimeter.
MPM3 uses an operation wizard to guide the user through the process.

Profiles created by MPM3

Device profile

An output profile used in the RasterLink series is called a “device profile”.
The file extension for a device profile is “icc”. Although device profiles comply with the ICC format, they are extended to include original information from Mimaki. When a device profile is installed in RasterLink, RasterLink can print images using the quality set in the device profile.

CMYK profile

An input profile used in the RasterLink series. It expresses the color of CMYK input data.

RGB profile

An input profile used in the RasterLink series. It expresses the color of RGB input data.

Monitor profile

A profile to express the color displayed by the monitor. This profile is used in the application software.

Restrictions of MPM3 trial version

The trial version of MPM3 has the following restrictions.

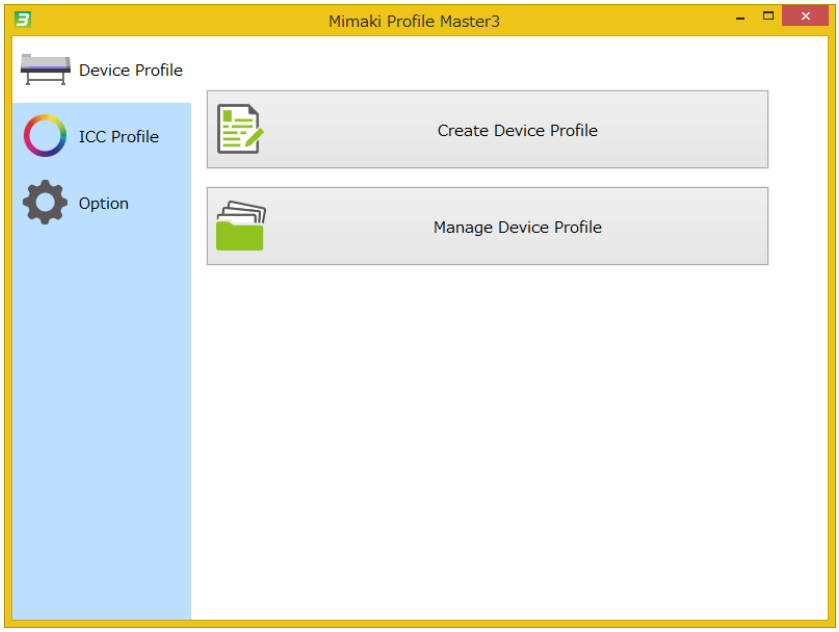
- 60-day trial period.
- Cannot add new media.
- Cannot create an ICC profile (CMYK / RGB / monitor profile).
- Cannot use the emulation function.

Chapter 1
Before creating a device profile

Starting MPM3

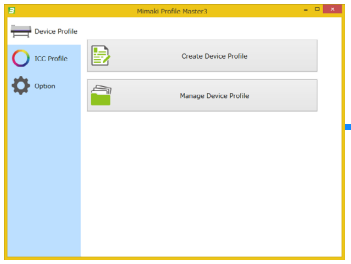
1 Double-click the MPM3 icon.

• MPM3 starts, and the main menu is displayed.

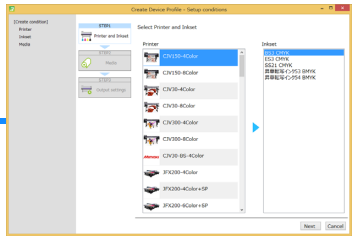


Operation menu tree

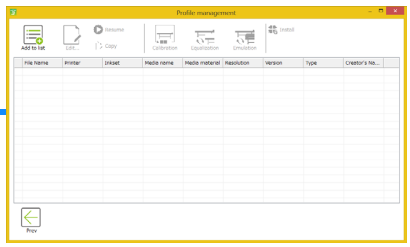
Device Profile



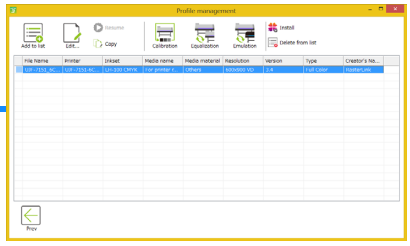
Creating Device Profile



Editing profiles

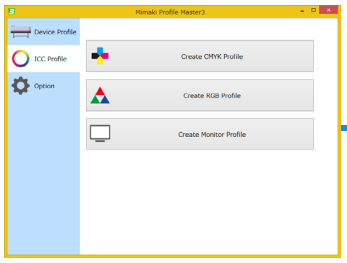


Edit
Resume
Calibration
Equalization
Emulation
Copy
Install

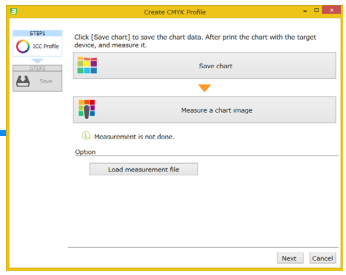


Edit
Resume
Daily Confirm
Readjustment
Color Matching
Copy
Install

[ICC Profile]

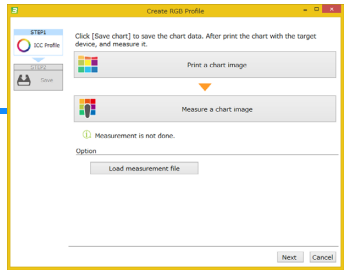


Create CMYK Profile



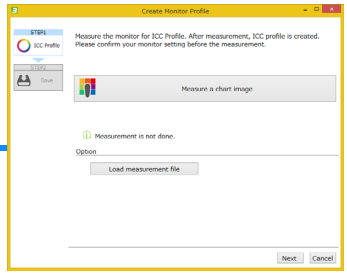
Create CMYK Profile wizard

Create RGB Profile



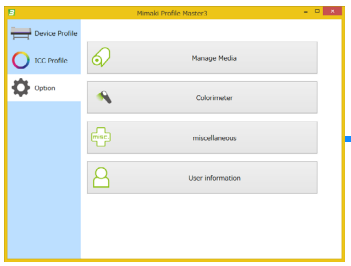
Create RGB Profile wizard

Create Monitor Profile

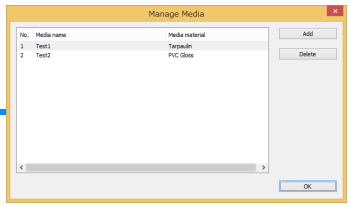


Create Monitor Profile wizard

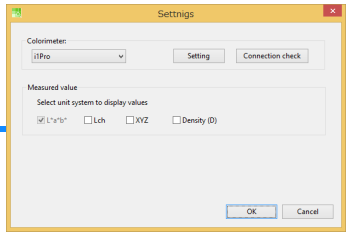
Option



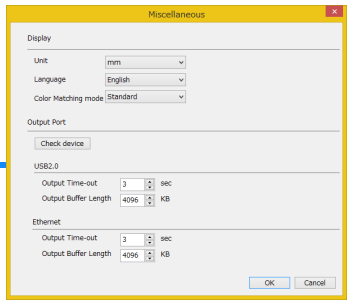
Manage Media



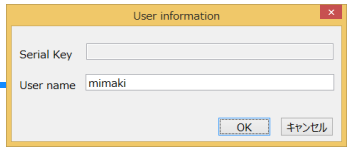
Colorimeter



Miscellaneous



User Information

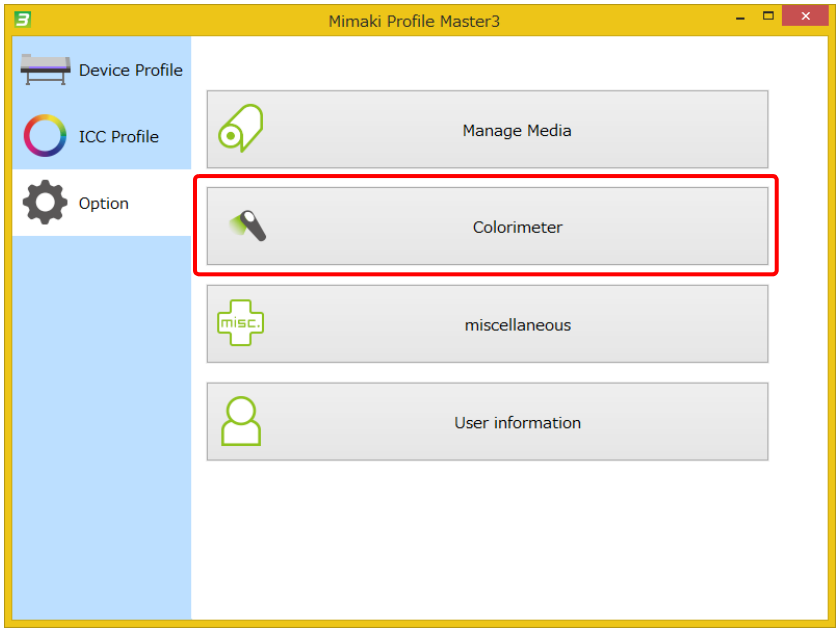


Selecting a colorimeter

A colorimeter must be selected before creating a device profile. Colorimeter settings are saved, and therefore you do not need to select a colorimeter again unless you change the colorimeter.

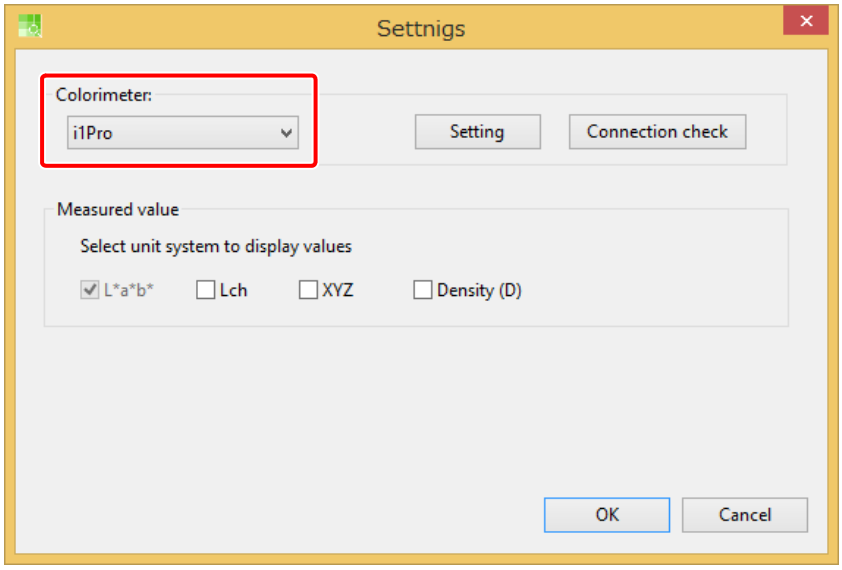
1 Click [Colorimeter].

• The Set Colorimeter dialog appears.



2 Select a colorimeter model.

• Refer to "Chapter 18 Setting the colorimeter" (P. 193) for details.



Chapter 2
Creating a device profile

Workflow for creating a device profile

The steps described below show the workflow for creating a device profile.

Start the wizard.

Refer to "Starting the wizard" (P. 19).

Set the conditions of the device profile.

Refer to "Setting the device profile conditions" (P. 20).

- STEP1: Select a printer and ink set
- STEP2: Select media
- STEP3: Set the printing conditions

Create a device profile.

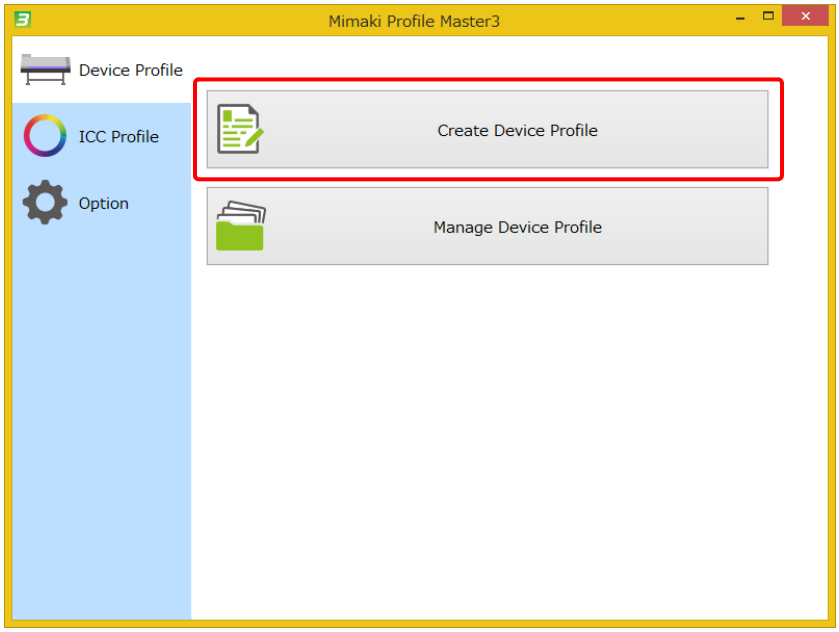
Refer to "Creating a device profile" (P. 23).

- STEP1: Set unique printer parameters
- STEP2: Setting variable dots
- STEP3: Limit ink to a primary color and 2 mixed colors
- STEP4: Setting Light ink
- STEP5: Set linearization
- STEP6: Limit ink to 3 mixed colors
- STEP7: Set the gray balance
- STEP8: Create an ICC profile
- STEP9: Save the ICC profile

Creating a device profile

Starting the wizard

1 **Click [Create Device Profile] to start the wizard for creating the device profile.**

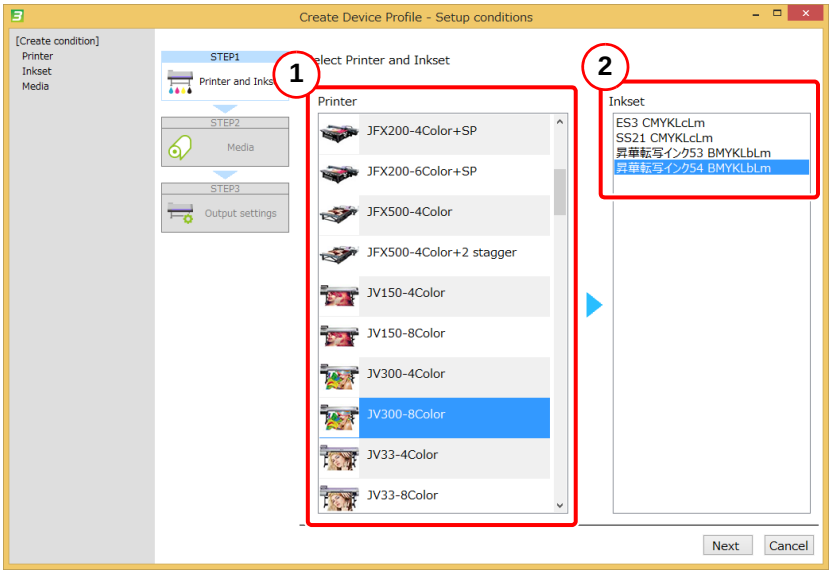


Setting the device profile conditions

STEP1: Select a printer and ink set

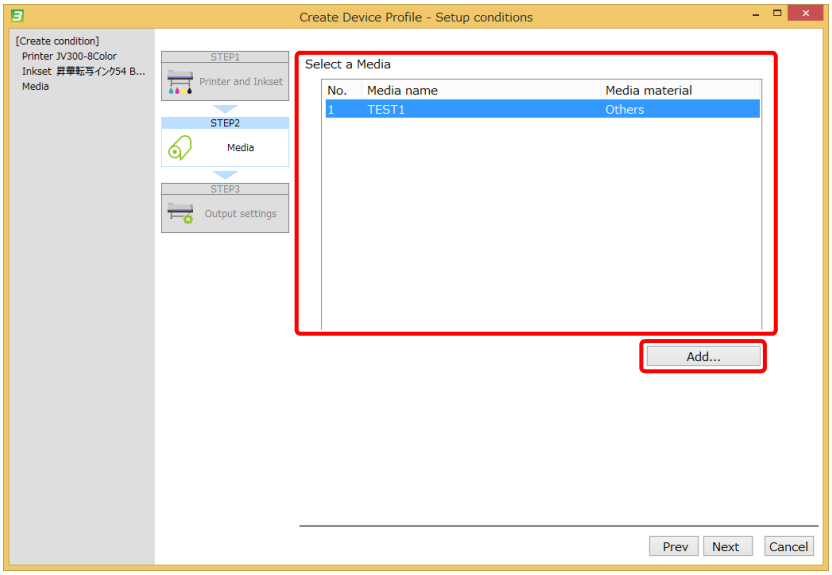
1 Select the target printer from the printer list.

2 Select the target ink set from the ink set list.

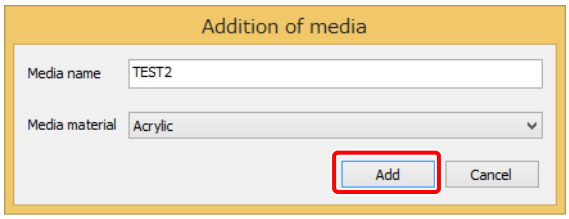


STEP2: Select media

1 Select the target media from the media list.



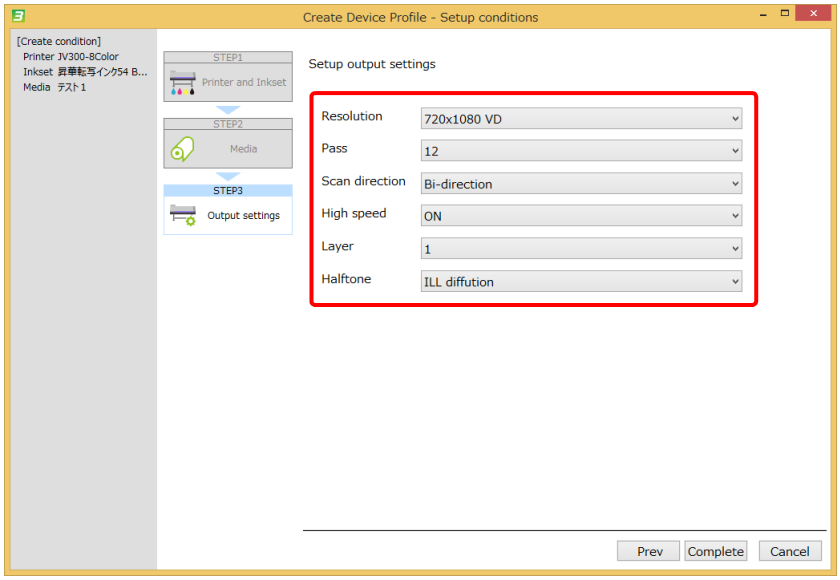
- To add new media, click [Add].



Enter the name of the media and select the media material from the drop down list.

STEP3: Set the printing conditions

Set the parameters of the printing conditions.



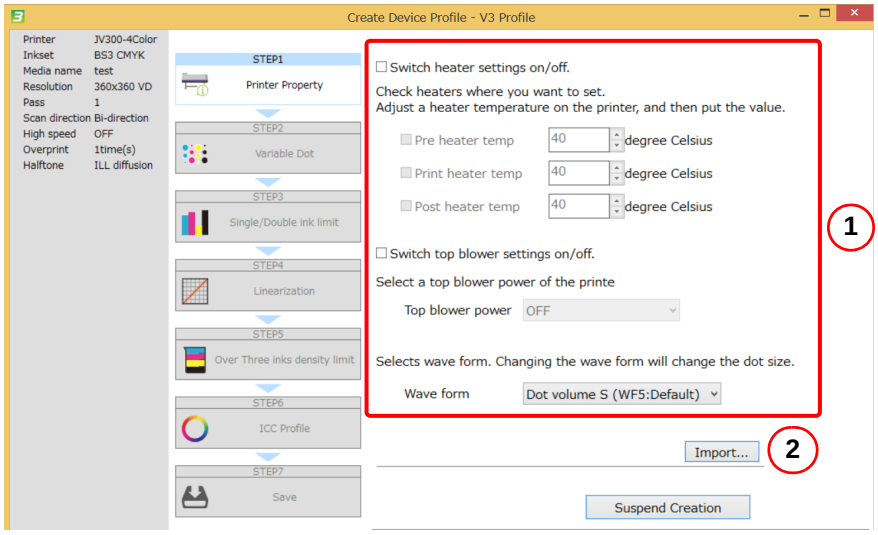
Print resolution	Scan resolution x feed resolution VD/ND (VD: Variable Dots　ND: Normal Dots).
Pass	Scan count needed to complete 1 scan line
Scan direction	Printing with uni-direction or bi-direction
High speed	High speed scan or normal speed scan
Layer	Overprint count
Halftone	Halftone method (ILL Diffusion: Diffused dither pattern MFD1: Error diffusion)

Creating a device profile

STEP1: Set unique printer parameters

Set the unique printer parameters that might effect the print quality.
The unique parameter functions and content are different for each printer. Specify the values you want to set on the printer. These unique parameters are included in a device profile, and RasterLink uses them automatically without the need for additional settings by the operator.

1 Set the unique parameters of the printer.



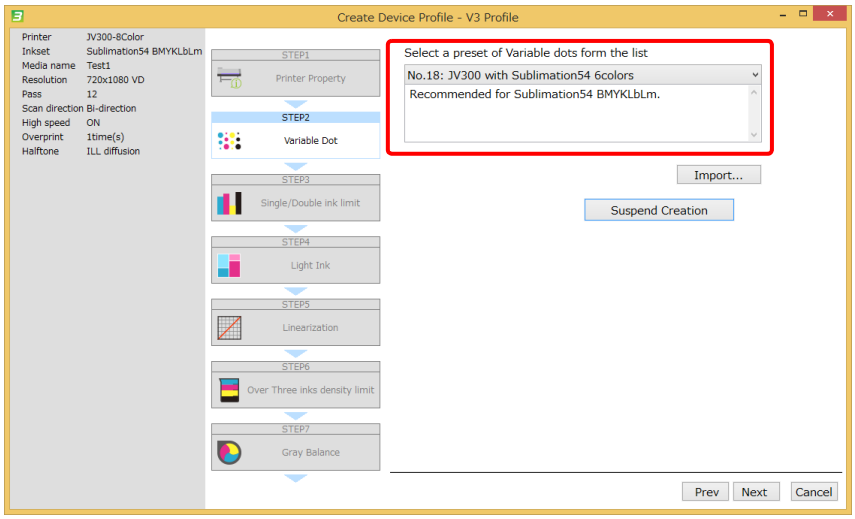
1	**Unique parameters of the printer**	Set the unique parameters of the printer.
2	**Import**	Load parameters from the specified device profile.

STEP2: Setting variable dots

This step appears when Variable Dots is selected.
Set the mixture rate for large dots, medium dots, and small dots.

1 Select a preset from the list of presets already installed in MPM3.

- The mixture rate for variable dots cannot be modified manually.

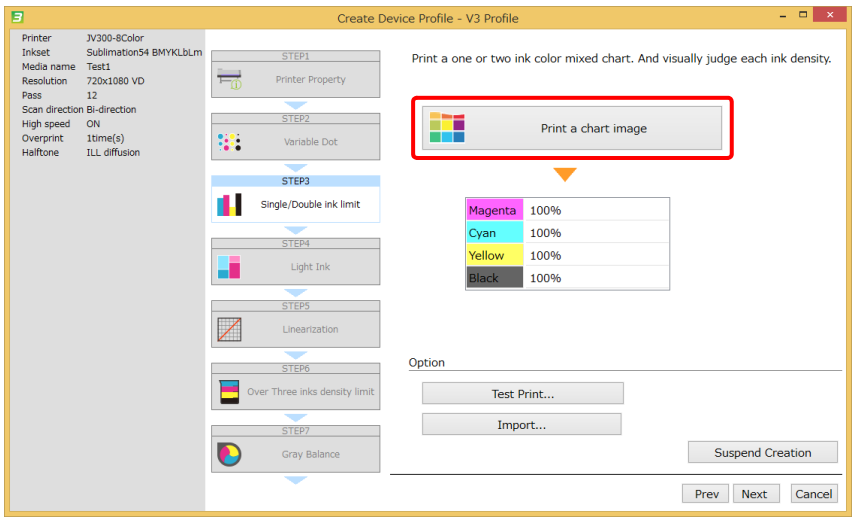


- Click [Import] to load parameters from the specified device profile.

STEP3: Limit ink to a primary color and 2 mixed colors

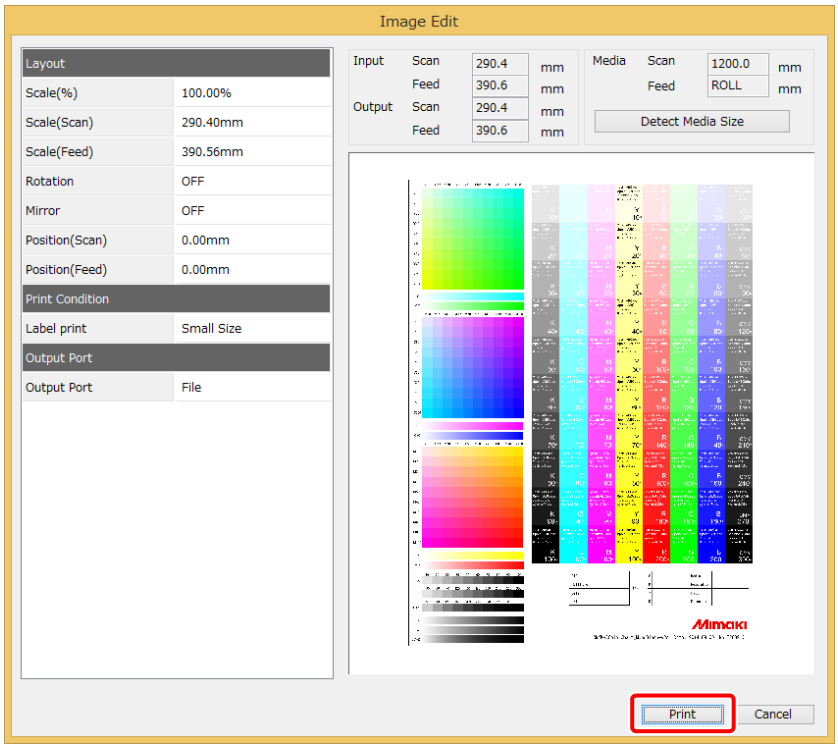
Set the ink limit for the primary color and 2 mixed colors.
Print the ink limit chart. Make a visual determination of the maximum ink points.
For light ink, the combination of dark ink and light ink is assumed as a primary color.

1 Click [Print a chart image].



2 Click [Print].

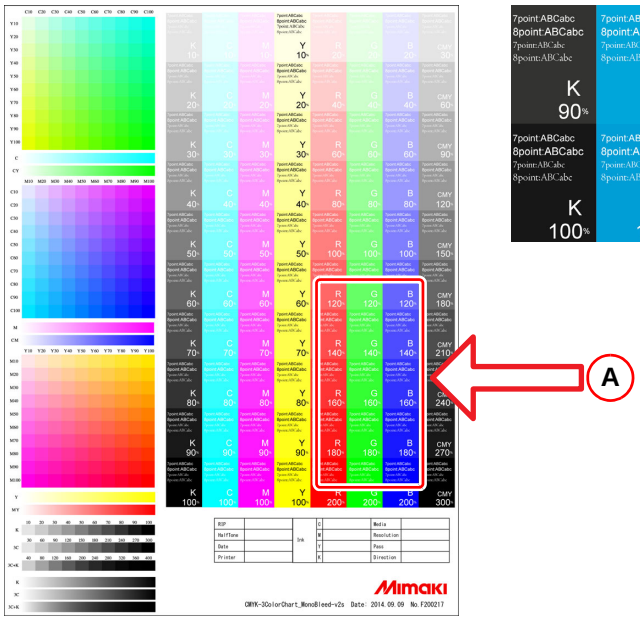
- The ink limit chart is printed with no ink limit.
- Refer to "Chapter 12 How to print charts" (P. 159) for detailed settings for printing charts.

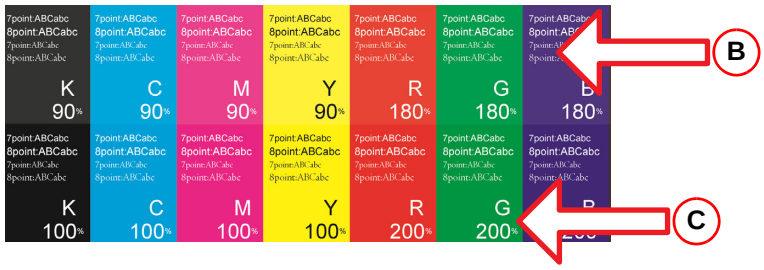


3 Set the ink limit.

- Check the ink limit of the 2 mixed colors, as described below.

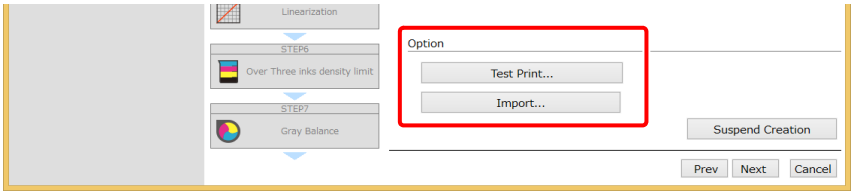
A : Do gradient patches maintain differences in color?
B : Are small characters clear?
C : Are patch boundaries clear?





- The following description shows how to determine the ink limit of a primary color by 2 mixed colors. For explanation, we take a sample in which R=140% G=120% B=100%.
  (1) Get ink limit of primary color r / g / b from 2 mixed color R / G / B respectively.
  r = R(140%) / 2 = 70% g = G(120%) / 2 = 60% b = B(100%) / 2 = 50%
  (2) Calculate ink limit of C / M / Y / K.
  - For K, use the determined value on the chart.
  - C = (g(60%) + b(50%))/2 = 55% M= (r(70%) + b(50%))/2 = 60% Y= (r(70%) + g(60%)) / 2 =65%

4 Set the “Option”.



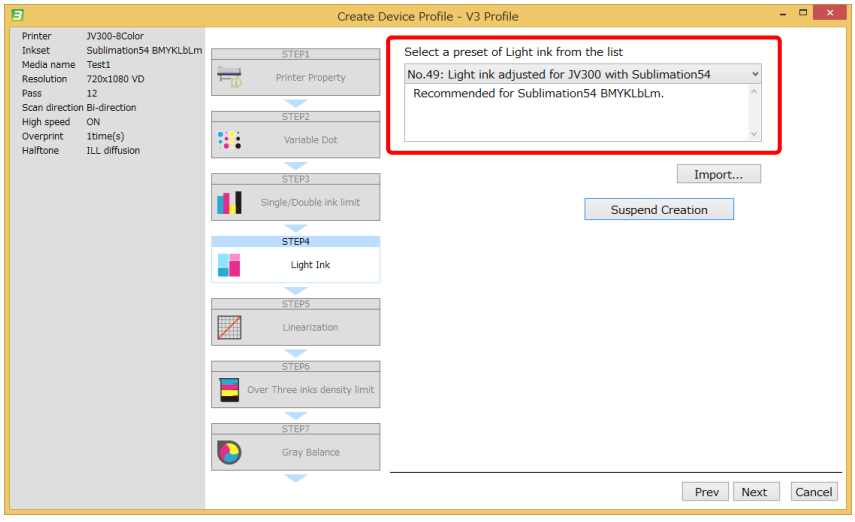
Test Print You can print your test image. (Ink limit parameters are reflected here.)
Refer to "Chapter 12 How to print charts" (P. 159) for details.
Import You can load parameters from the specified device profile.

STEP4: Setting Light ink

This step appears when light ink is selected.
Select the mixture rate for light ink and dark ink.

1 Select a preset from the list of presets already installed in MPM3.

- The mixture rate for light ink and dark ink cannot be modified manually.

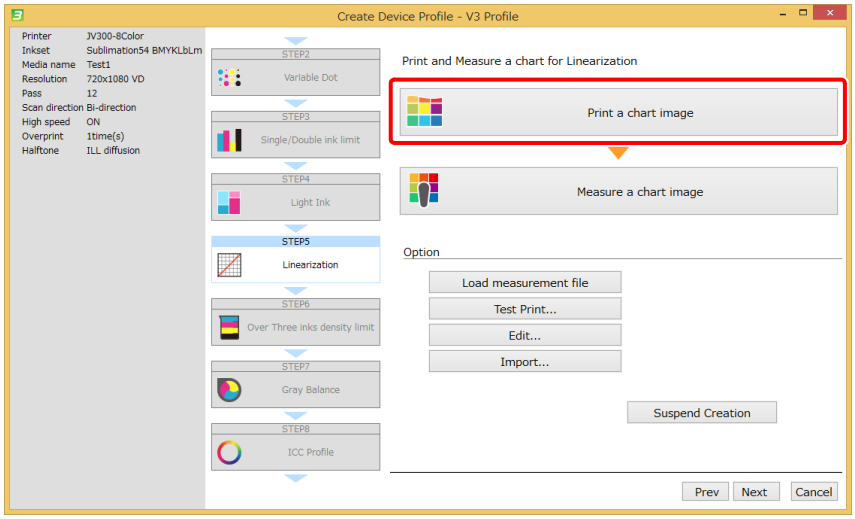


- Click [Import] to load parameters from the specified device profile.

STEP5: Set linearization

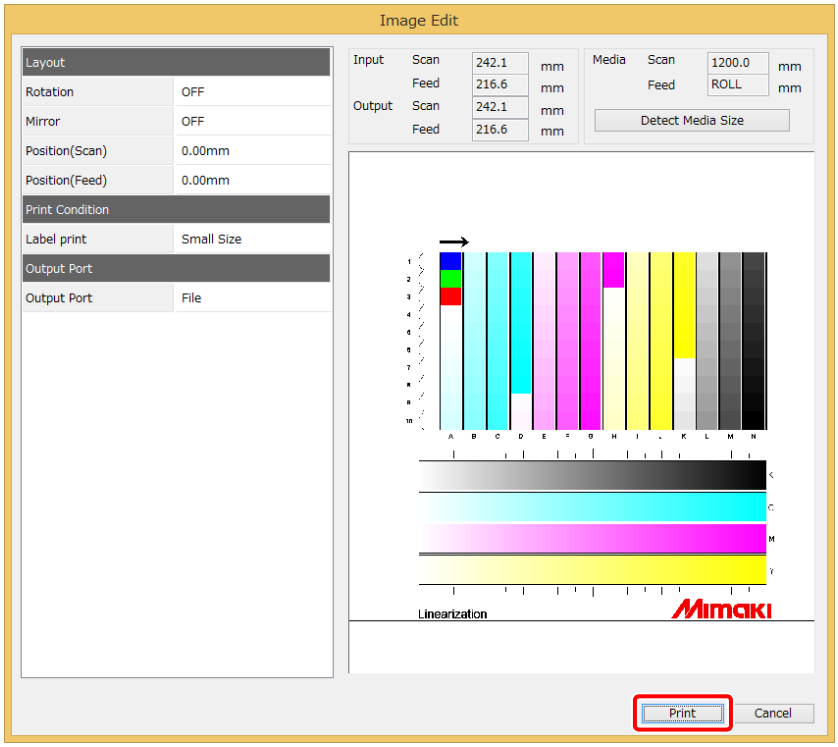
Adjust the gradient from a density of 0% to 100% so that primary colors appear smooth and the gradient increases continuously. When light ink is used, primary colors consist of a mixture of light ink and dark ink. Print the linearization chart, and then use a colorimeter to measure the printed chart. Then linearization is automatically adjusted.

1 Click [Print a chart image].



2 Click [Print].

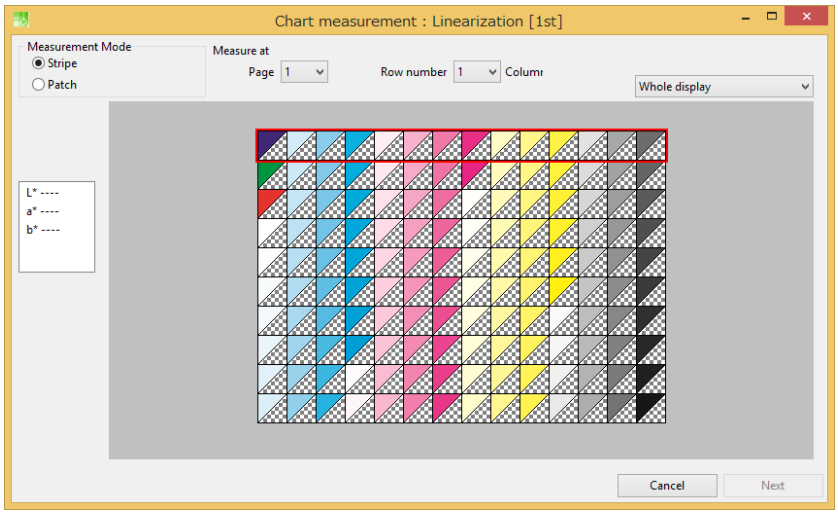
- Print the linearization chart. This job is printed without linearization.
- Refer to "Chapter 12 How to print charts" (P. 159) for details.



The figure indicates the conditions when i1Pro is selected.

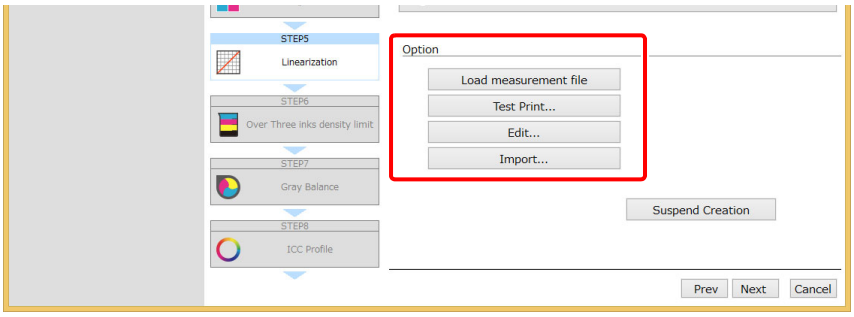
3 Measure the chart image.

- Measure the color of patches on the linearization chart.
- Refer to "Chapter 13 How to measure color with a colorimeter" (P. 163) for details.



The figure indicates the conditions when i1Pro is selected.

4 Set the “Option”.

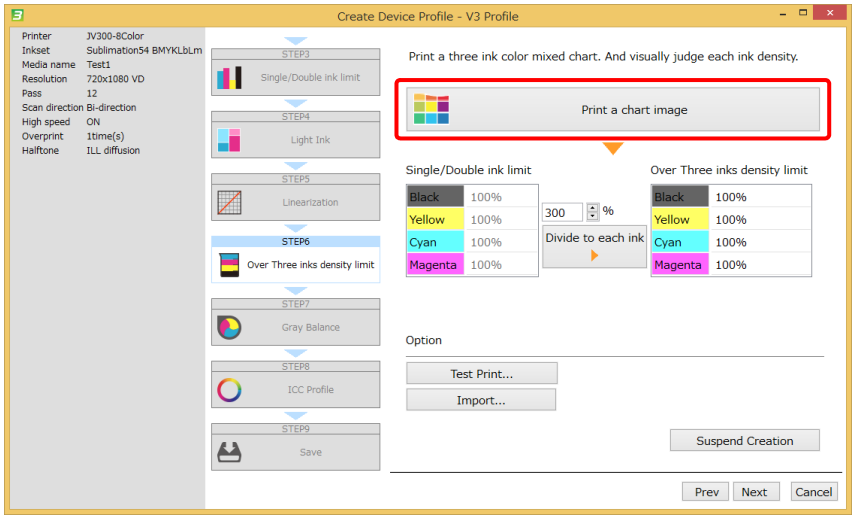


Load measurement file	You can use the measured values of linearization you have saved before.
Test Print	You can print your test image. (Linearization parameters are reflected here.) Refer to "Chapter 12 How to print charts" (P. 159) for details.
Edit	You can edit linearization parameters manually by modifying the color curve of the primary color. Refer to "Chapter 14 How to edit color curves" (P. 181) for details.
Import	You can load parameters from the specified device profile.

STEP6: Limit ink to 3 mixed colors

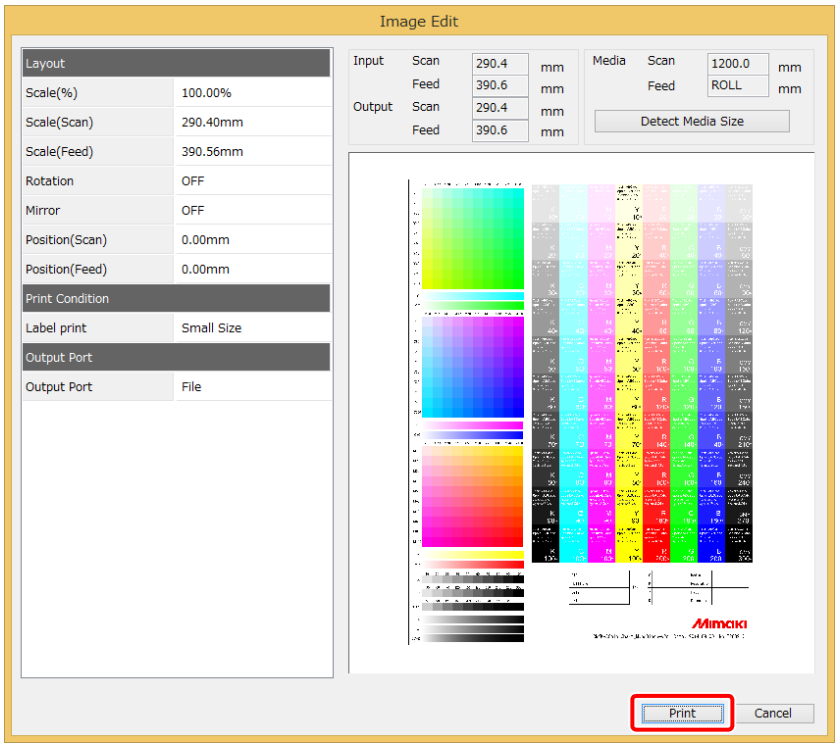
Set the ink limit for 3 mixed colors or more.
Print the ink limit chart. Make a visual determination of the maximum ink points.
The ink limit for 3 mixed colors does not affect the ink limit for the primary color or 2 mixed colors.

1 Click [Print a chart image].



2 Click [Print].

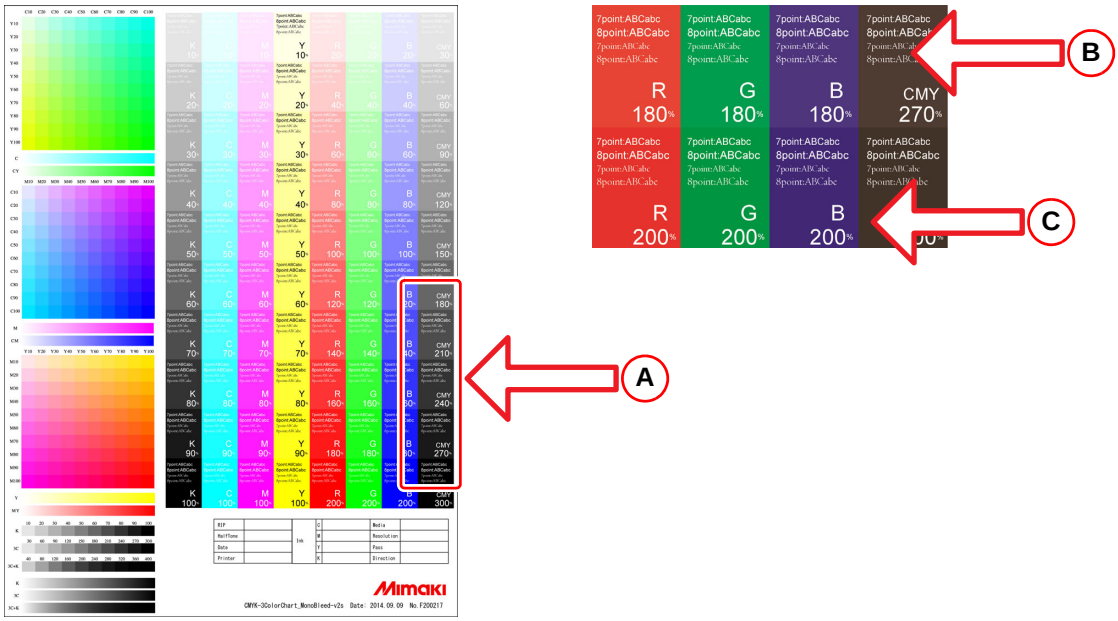
- Print the ink limit chart.
- Print the ink limit chart. The ink limit for the primary color and 2 mixed colors is applied.
- Refer to "Chapter 12 How to print charts" (P. 159) for details.



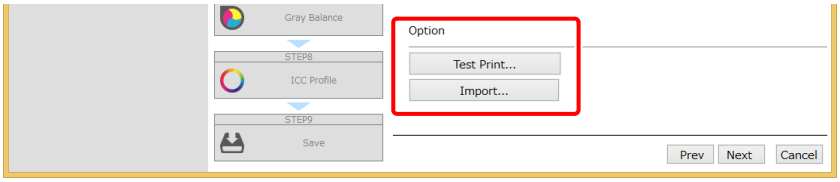
3 Set the ink limit for 3 mixed colors.

• Determine the total ink volume, and then click [Apply]. Determine the ink limit for 2 mixed colors and 3 mixed colors as described below.

A : Do gradient patches maintain different colors?
B : Are small characters clear?
C : Are patch boundaries clear?



4 Set the “Option”.



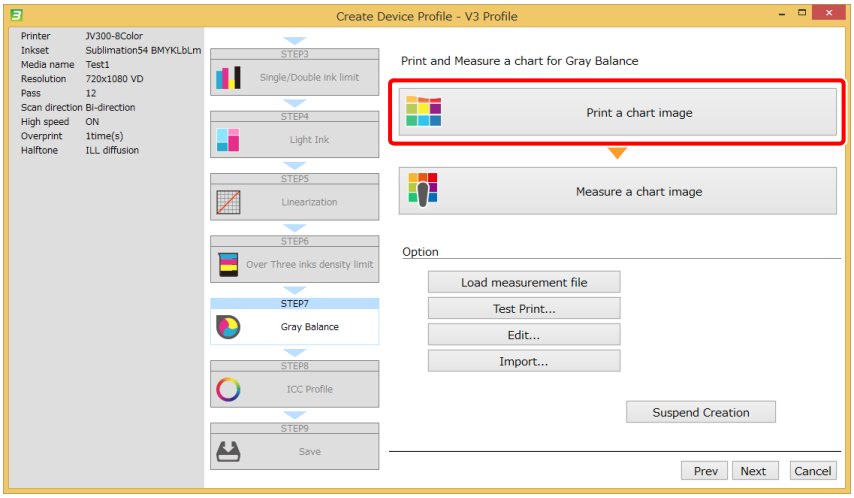
Test Print You can print your test image. (Ink limit parameters are reflected here.) Refer to "Chapter 12 How to print charts" (P. 159) for details.

Import You can load parameters from the specified device profile.

STEP7: Set the gray balance

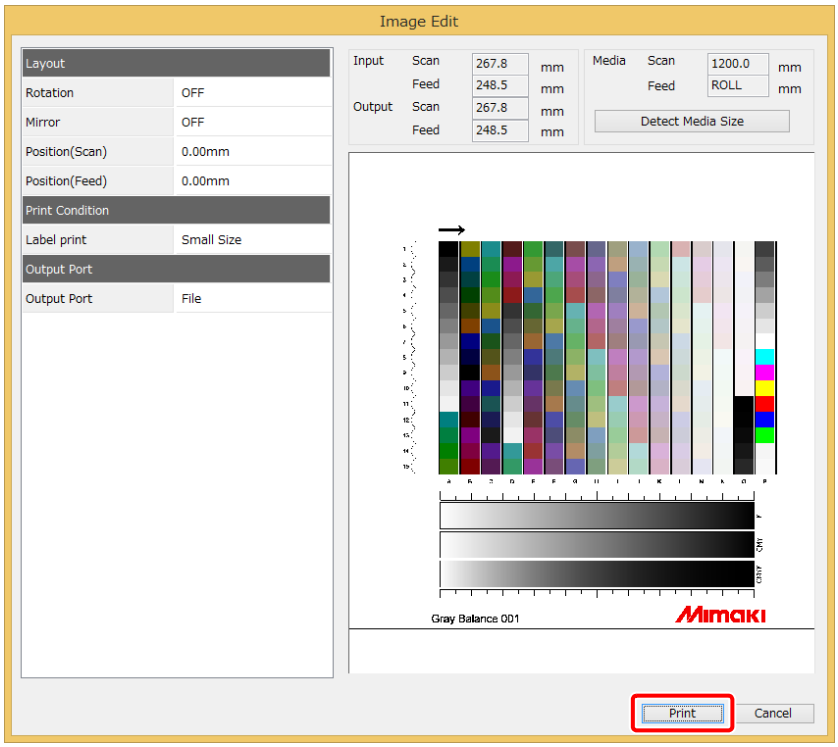
This step appears when dye-sublimation ink is selected.
Adjust the mixture rate for C, M, and Y to produce gray.
Print the gray balance chart, and then measure color of patches on the gray balance chart.
The gray balance is then adjusted automatically.

1 Click [Print a chart image].



2 Click [Print].

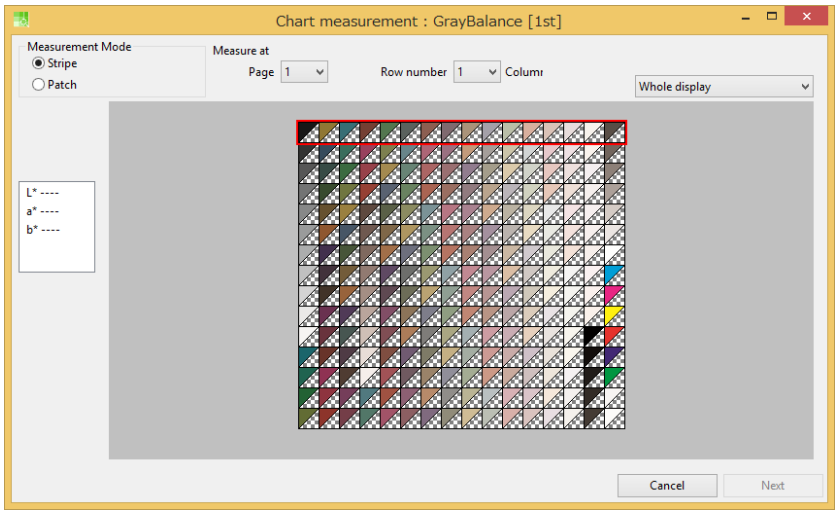
- Print the gray balance chart.
- Refer to "Chapter 12 How to print charts" (P. 159) for details.



The figure indicates the conditions when i1Pro is selected.

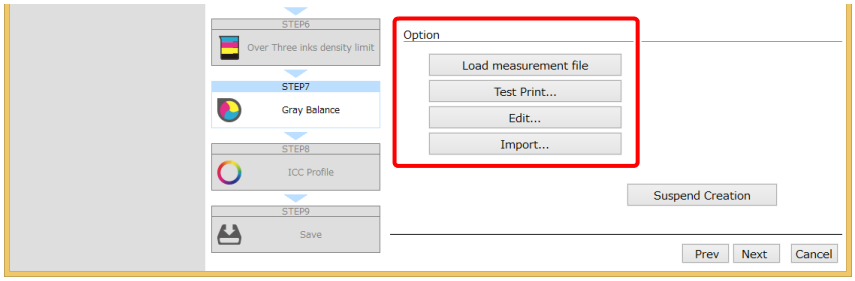
3 Measure the chart image.

- Measure the color of patches on the gray balance chart.
- Refer to "Chapter 13 How to measure color with a colorimeter" (P. 163) for details.



The figure indicates the conditions when i1Pro is selected.

4 Set the “Option”.

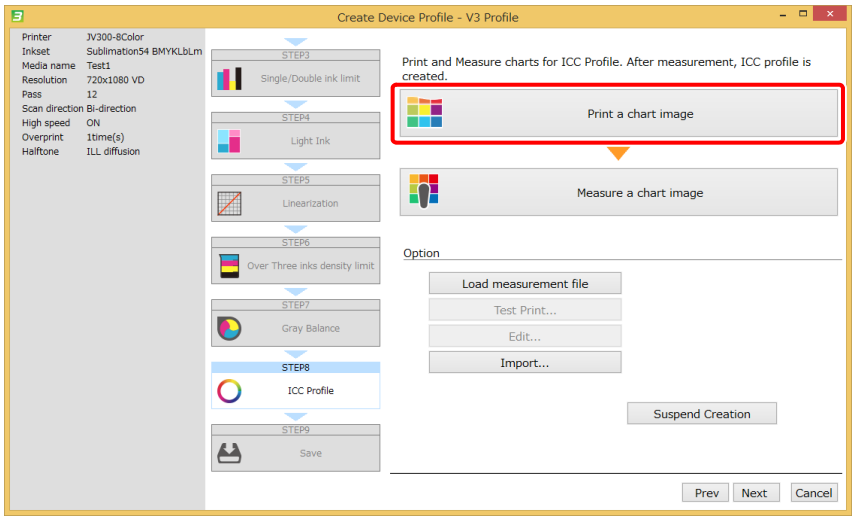


Load measurement file	You can use the measured values of a gray balance chart that you have saved before.
Test Print	You can print your test image. (Gray balance parameters are reflected here.) Refer to "Chapter 12 How to print charts" (P. 159) details.
Edit	You can edit gray balance parameters manually by modifying the color curve of the primary color. Refer to "Chapter 14 How to edit color curves" (P. 181) for details.
Import	You can load parameters from the specified device profile.

STEP8: Create an ICC profile

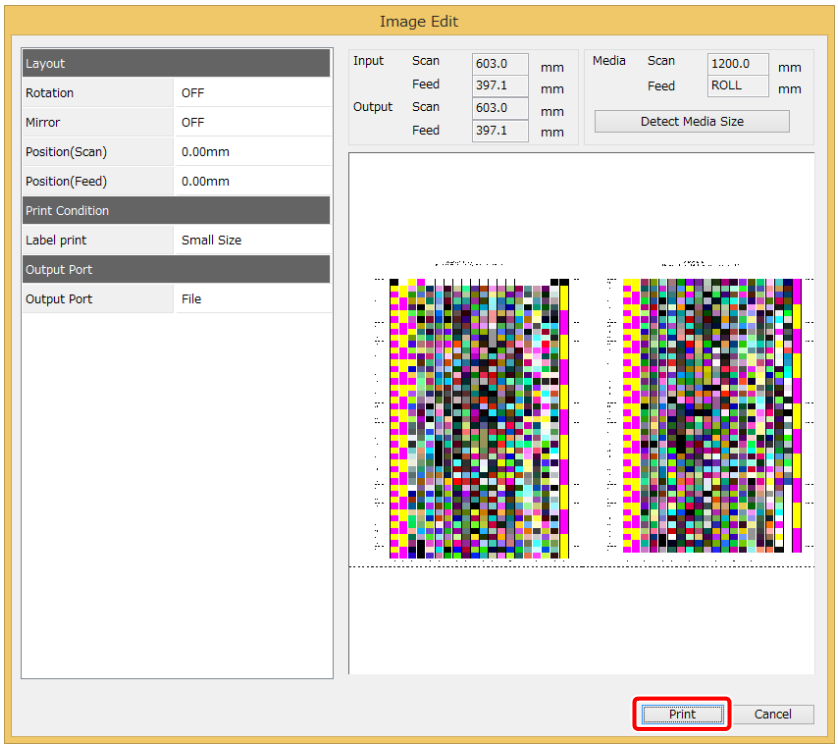
Print the chart of the ICC profile, and measure the color of the patches on the chart.
After measurement, the operation proceeds to the “Edit ICC profile settings” step.

1 Click [Print a chart image].



2 Click [Print].

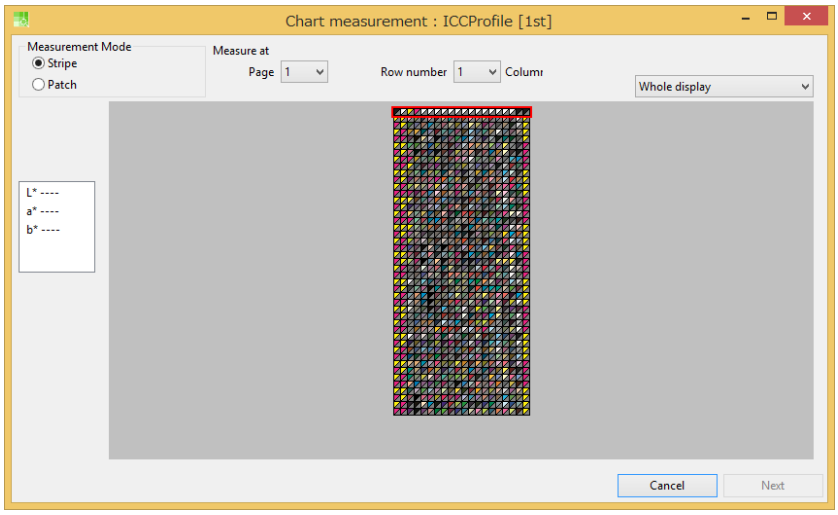
- Print the ICC profile chart.
- Refer to "Chapter 12 How to print charts" (P. 159) for details.



The figure indicates the conditions when i1Pro is selected.

3 Measure the chart image.

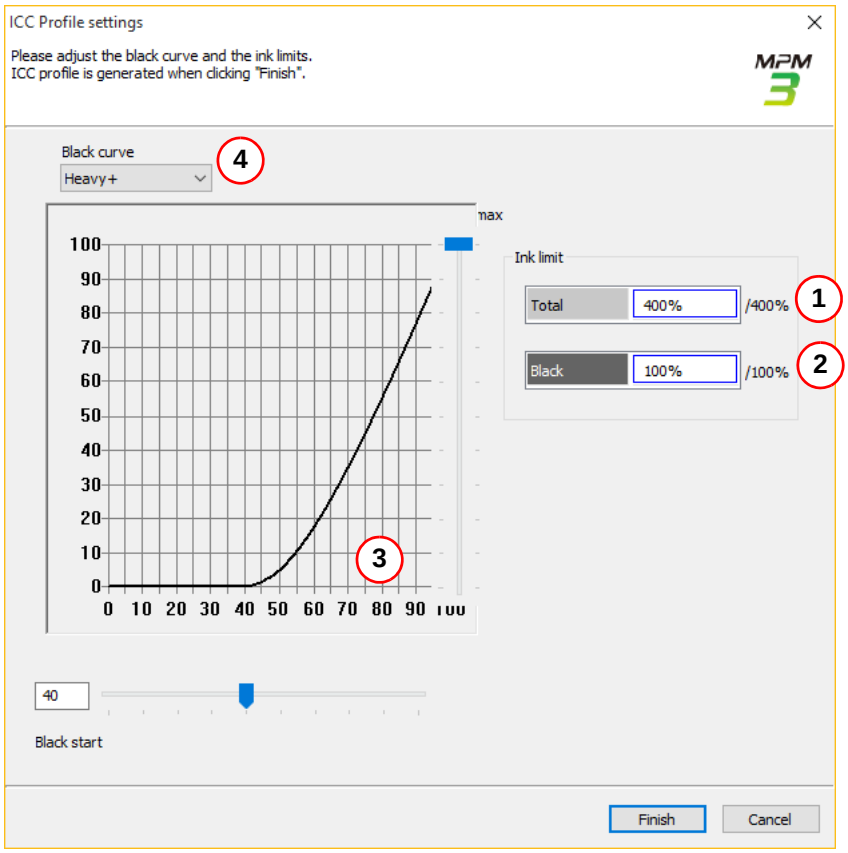
- Measure the color of the patches on the chart for the ICC profile.
- Refer to "Chapter 13 How to measure color with a colorimeter" (P. 163) for details.



The figure indicates the conditions when i1Pro is selected.

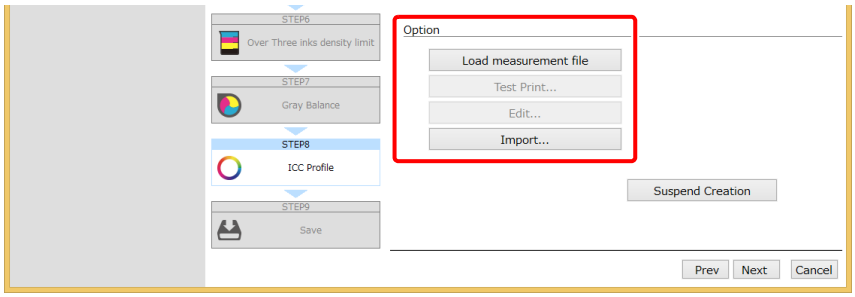
4 Edit the ICC profile settings.

- This function modifies the parameters for Grey Component Replacement (GCR).



1	**Maximum ink volume (Total)**	Set the maximum total for C, M, Y, and K ink at the darkest part.
2	**Maximum ink volume (Black)**	Set the maximum amount of K ink.
3	**Black ink starting point**	Set the starting point for black ink. To decrease the granularity of black dots, set the starting point in the range from 40 to 60.
4	**Black ink curve**	Select the shape of the black ink curve. You can select a “shape” from small to big. A bigger shape uses more black ink.

5 Set the “Option”.



Load measurement file You can use the measured values of an ICC chart that you have saved before.

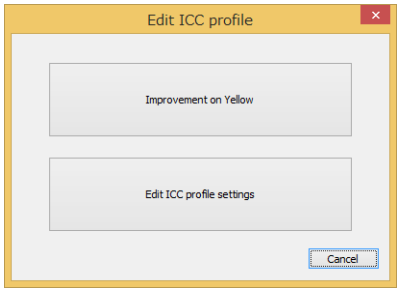
Edit The following dialog window appears.

Edit ICC profile settings

This function controls a kind of Gray Component Replacement (GCR).

Improvement on Yellow

This function removes cyan ink from areas that consist of pure yellow in the image data. It also adjusts yellow gradients to maintain the hue and a continuous tone. Use this function after the “Edit ICC profile setting” step.



Test Print You can print your test image. (The ICC profile that is created is reflected here.) Refer to "Chapter 12 How to print charts" (P. 159) for details.

Import You can load parameters from the specified device profile.

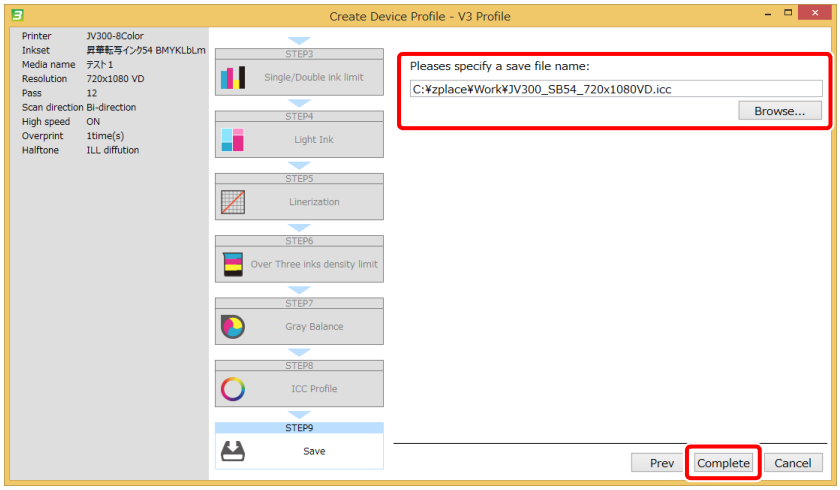
STEP9: Save the ICC profile

Save the ICC profile and complete the operation for creating a device profile.

1 Specify the file name for the ICC profile.

2 Click [Complete].

- The ICC profile is saved and the creation of the device profile is completed.



Important!

- RasterLink distinguishes device profiles by those parameters; printer, ink set, printing resolution, media. If RasterLink has a device profile which parameters are same as you want to install, the device profile RasterLink has is overwritten by the device profile you install even which has another file name.
- If you install multiple device profiles which have same those parameters, the uncertain device profile is installed finally.

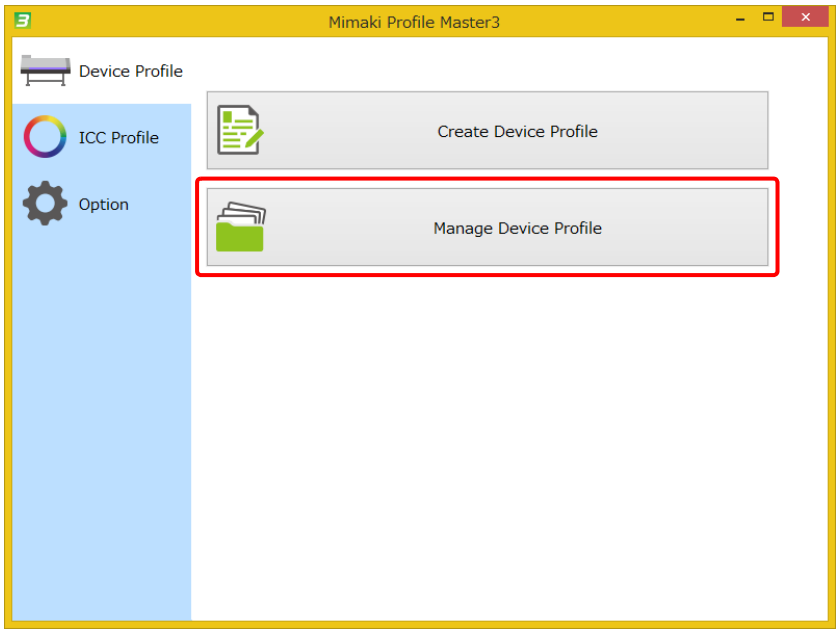
Chapter 3
Editing a device profile

Starting to edit a device profile

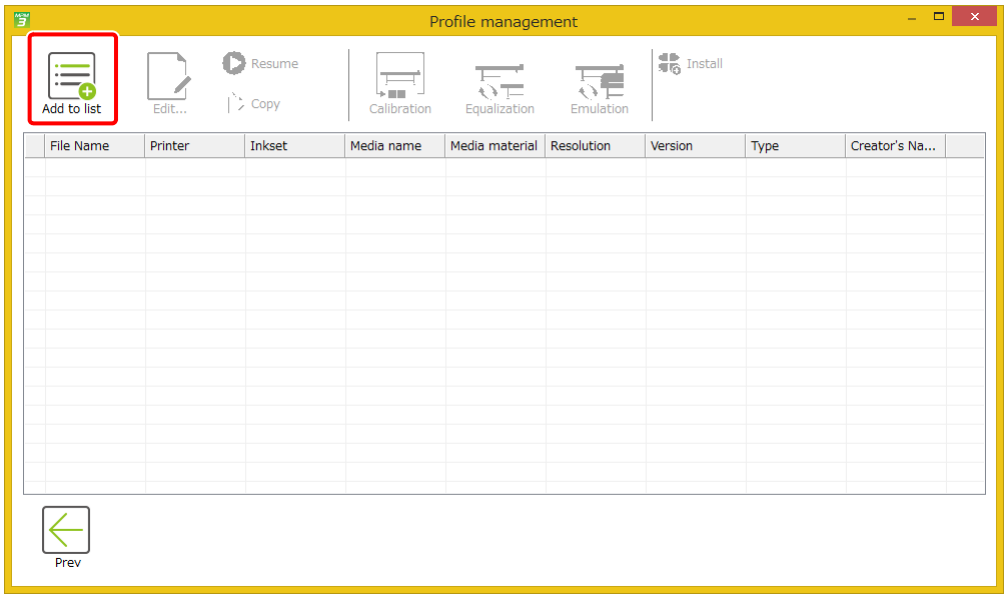
Selecting a device profile to edit

A device profile that has already been created can be edited.

1 Click [Manage Device Profile].



2 Load the device profile to be edited.



Editing a device profile

You can use the functions described below to edit a device profile.

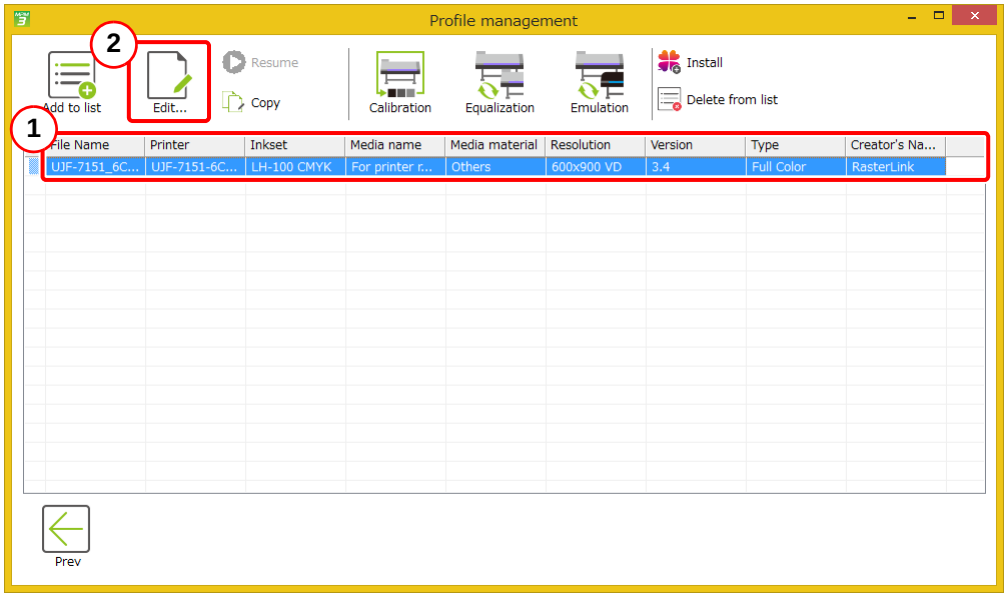
- Selection of preset for mixture rate for large dots, medium dots, and small dots
- Selection of preset for mixture rate for light ink and dark ink
- Linearization for primary color
- Ink limit for 3 mixed colors
- Gray balance for CMY color
- Function for “Improvement on Yellow” and “Edit ICC profile setting”

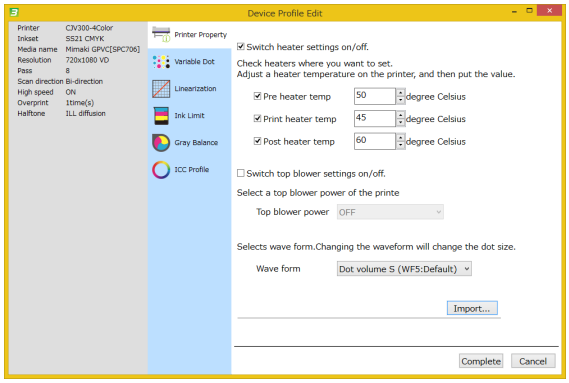
1 Start to edit a device profile.

(1) Select a device profile.

(2) Click [Edit...].

- The Edit dialog appears.
- Refer to "Chapter 2 Creating a device profile" (P. 17) for details.





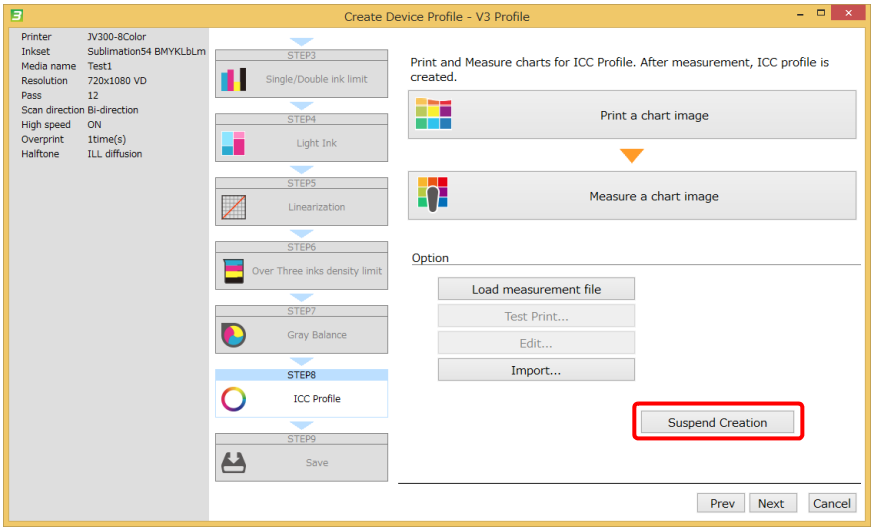
Chapter 4
Suspending the creation of a device profile

Suspending the creation of a device profile

You can suspend the process of creating a device profile, and resume it later.
The creation process can be suspended in operation steps where the [Suspend Creation] button appears in the device profile creation wizard.
The example below illustrates how to suspend the process in operation step 8 “Create an ICC profile”.

1 Click [Suspend Creation].

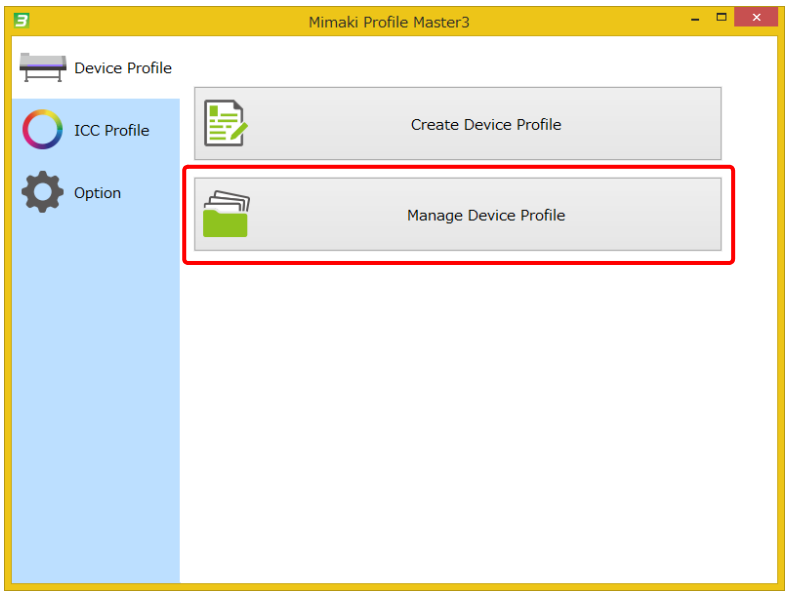
• Use the pop-up dialog box to save a working data file with the data of the work in progress.



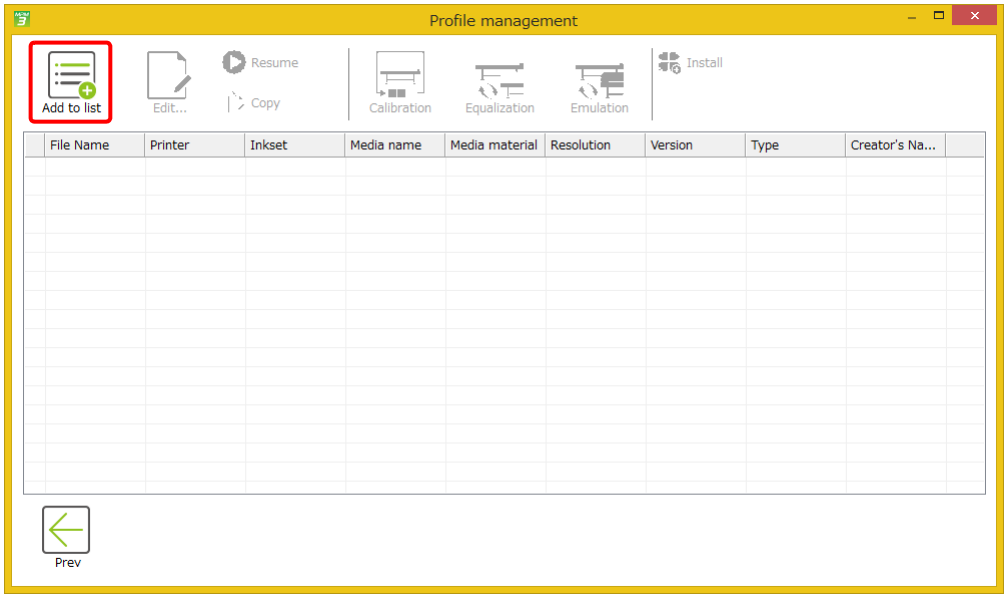
Resuming the creation of a device profile

Load the working data file you saved when you suspended the creation process, and resume the device profile creation process from the step during which the process was suspended.

1 Click [Manage Device Profile].



2 Select a working data file, and add it to the list.

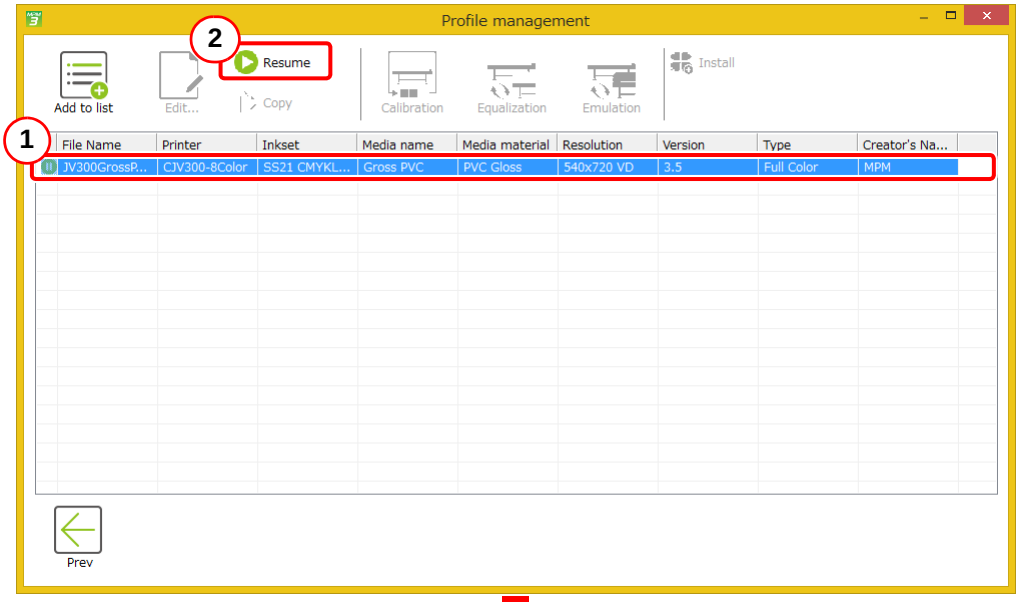


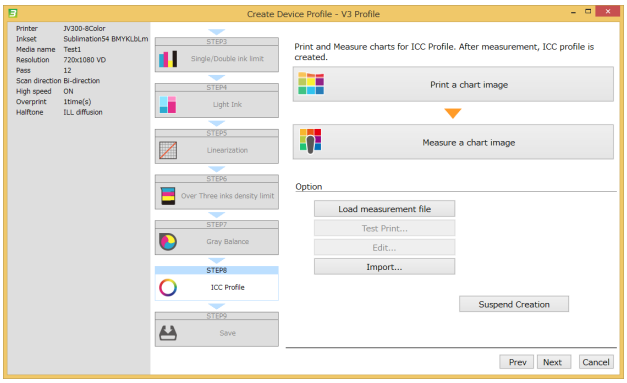
3 Resuming the creation process

(1) Select a working data file.

(2) Click [Resume].

- The operation step during which the process was suspended is displayed.





Chapter 5
Color Matching

Color matching

You may want to match printer color in the following cases.

- Match new color with previous one.
  Return change in color to the original one; change due to the replacement of ink jet head, temporal change of nozzle, or environmental change.
- Match color with that of another printer of the same model.
  Color is not the same among multiple printers of the same model.
- Match color with that of a target printer.
  Set a target printer, and match color with that of the target printer.

How to match color

MPM3 has two color matching modes as described below.

Classic

Execute a function for each color matching target.

- **Calibration** (Refer to Chapter 6) Function to match new color with previous one.
- **Equalization** (Refer to Chapter 7) Function to match color with that of another printer of the same model.
- **Emulation** (Refer to Chapter 8) Function to match color with that of a target printer.

Standard

Execute a function for each operation. (Refer to Chapter 9)

- **Daily Confirm** Confirm the temporal change of printer.
- **Readjustment** Use this function to readjust color, after performing color matching or defining a reference color.
- **Color Matching** Match color with a target environment.

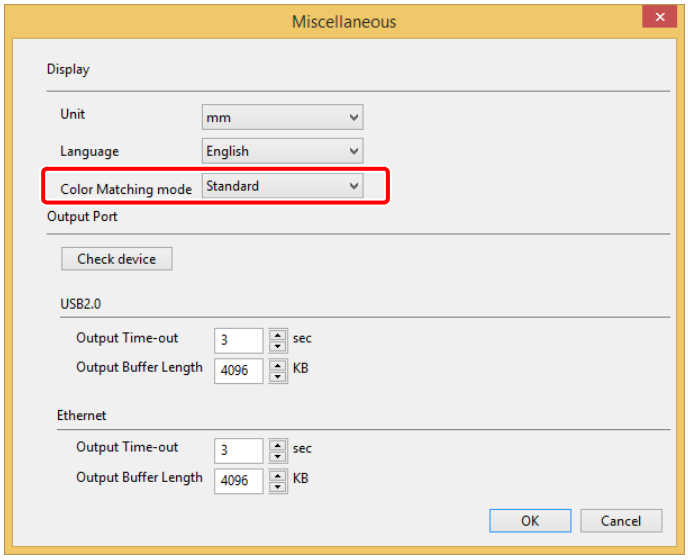
Switching color matching mode

Switch [Color Matching mode].

1 Select [Option] - [Miscellaneous] from the main window.

2 In [Option] window, switch [Color Matching mode].

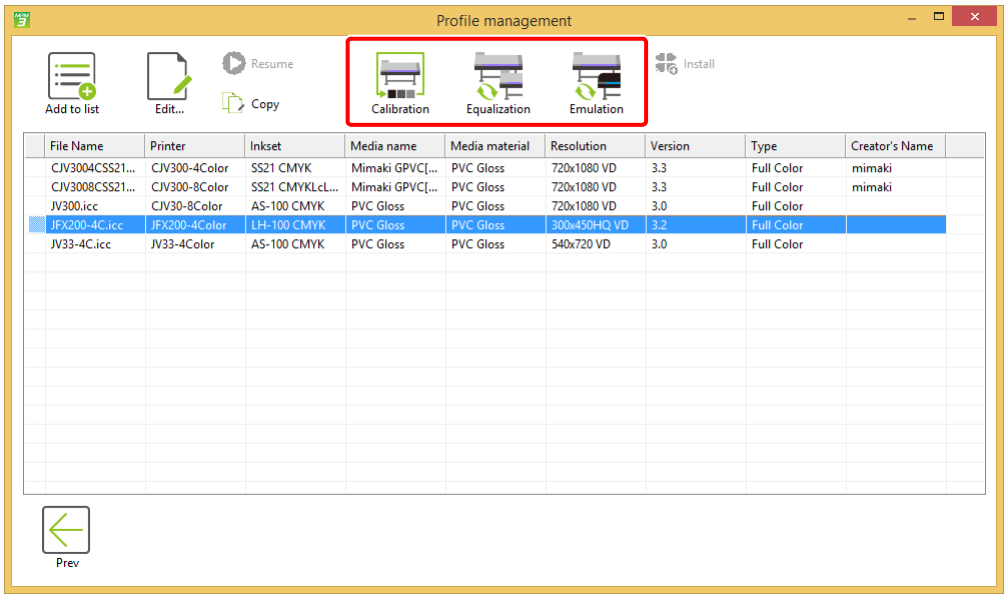
• Select either "Standard" or "Classic" for [Color Matching mode].



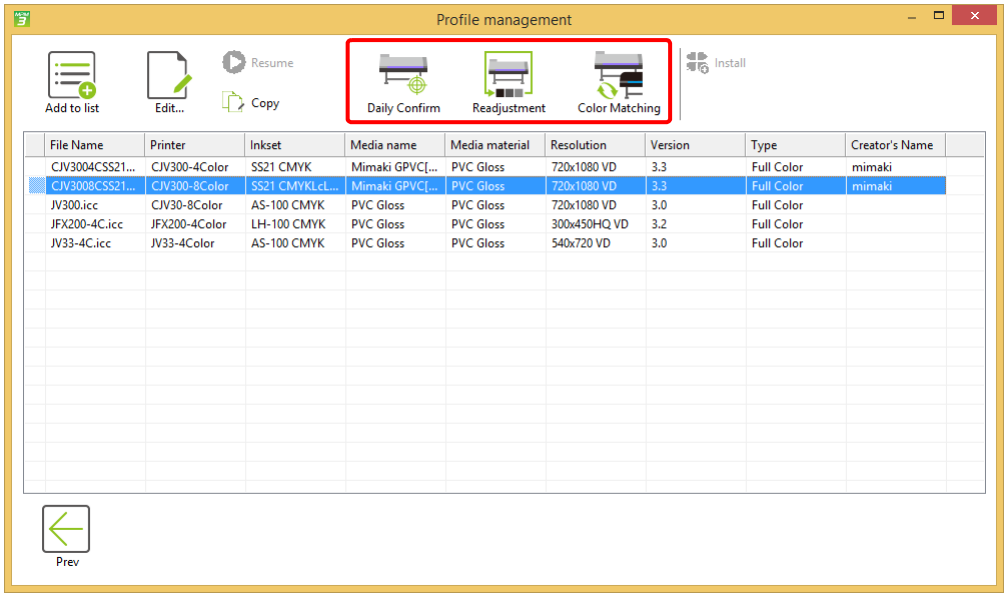
3 Select [Device Profile] - [Manage Device Profile] from the main window.

The tool bar switches in the [Profile Management] window.

• Classic



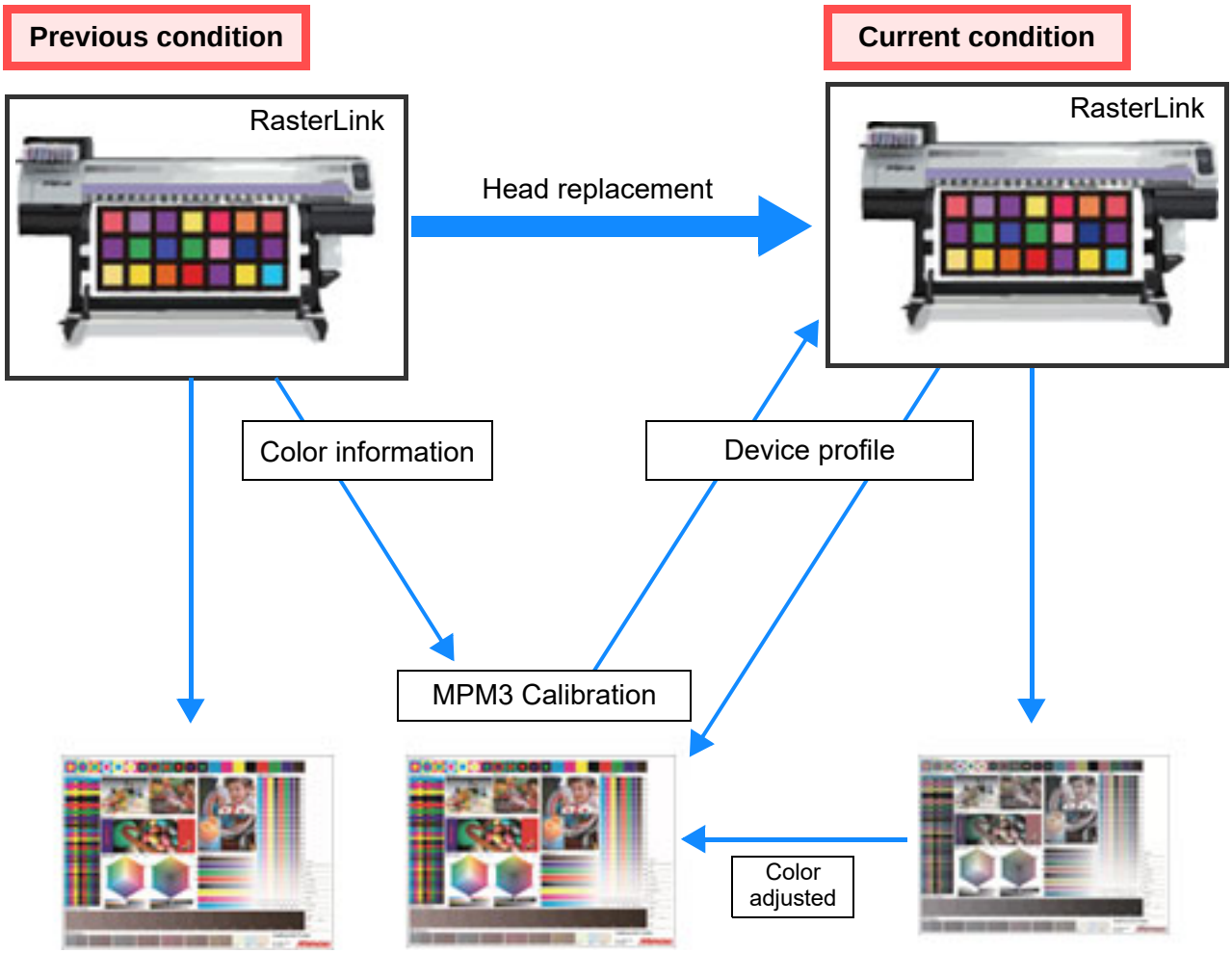
• Standard



Chapter 6
Maintaining color of output of the printer (Calibration)

Calibration

There are usually changes in the colors that are printed by an inkjet printer based on inkjet head replacement, differing inkjet nozzle conditions due to daily use, and changes in the environment where the printer located. The calibration process adjusts the currently printed color to the color that was printed previously, before such changes or alternations were made.
MPM3 calibration makes adjustments to the device profile for this purpose.



Important!

- The use of a D50 light source is assumed when calculating color differences. The same results cannot be obtained when using the light sources in your environment.
  Note that the actual appearance will differ from the calculated values.

Calibration workflow

The workflow for calibration is described below.

Set the printer's reference color for calibration.

Refer to "Setting the calibration reference color" (P. 54).

If the difference between the latest printed color and the reference color for calibration is within the required range, no calibration is required before printing.

Refer to "Workflow for printing without calibration" (P. 57).

If the color difference is not within the required range, make adjustments to the device profile for calibration.

Refer to "Setting calibration" (P. 59).

If the difference between the latest printed color and the calibrated color is within the required range, use the calibrated device profile for printing.

Refer to "Workflow for printing with calibration" (P. 65).

If the color difference falls outside of the required range, make additional adjustments to the device profile for calibration.

Refer to "Setting calibration" (P. 59).

Setting the calibration reference color

Before calibration, take the latest color sample of the printer and record the color values as the calibration reference color.
The calibration reference color is set at beginning of calibration and it can be updated afterward.

The operation flow of setting the calibration reference color is described below.

Start the calibration wizard.

Refer to "Starting the calibration" (P. 53).

↓

Print the Calibration chart.

Refer to "Printing and measuring colors on a calibration chart" (P. 54).

↓

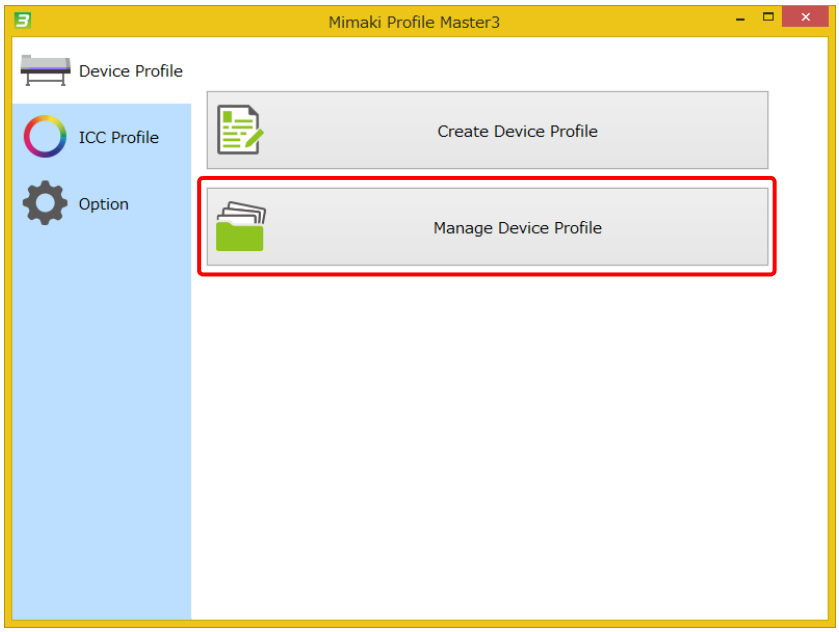
Measure the color of patches on the chart.

Refer to "Printing and measuring colors on a calibration chart" (P. 54).

Starting the calibration

Open “Manage Device Profile”, and select the device profile to be calibrated.

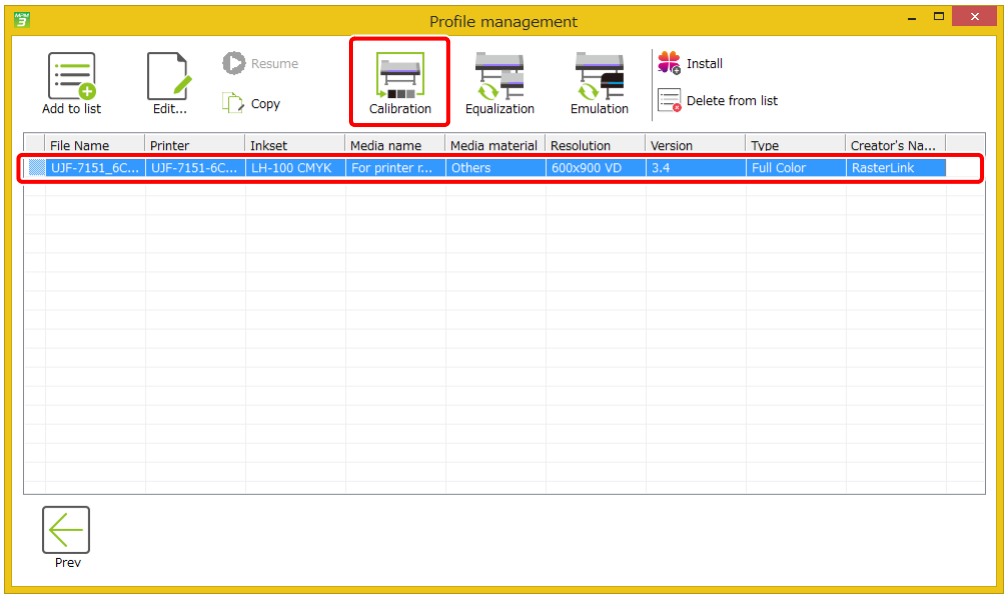
1 Click [Manage Device Profile].



2 Load the device profile to the list table.

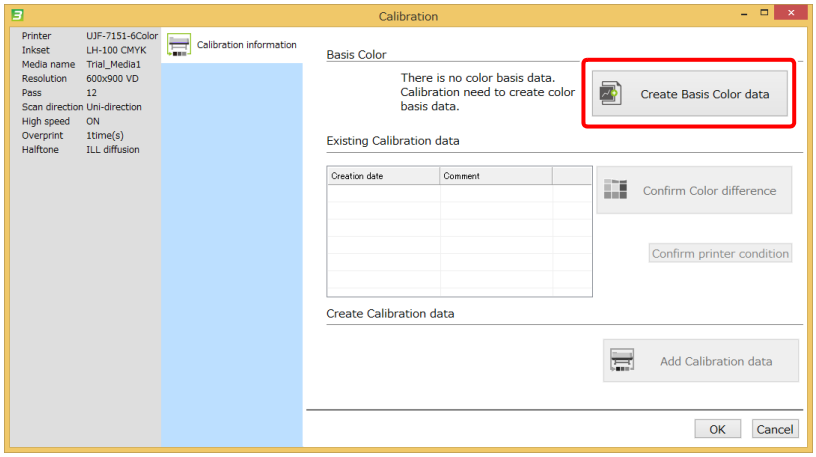
3 Select the device profile to be calibrated.

4 Click [Calibration].



Setting the calibration reference color

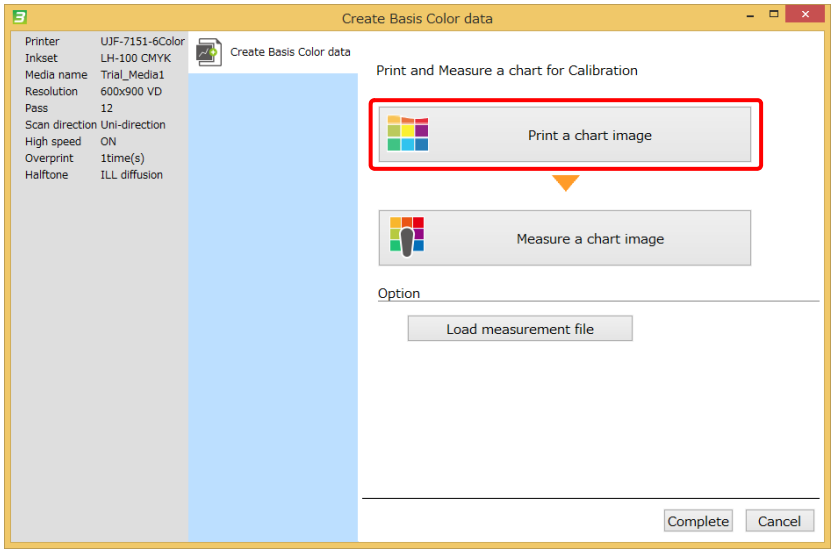
1 Click [Create Base Color data].



Printing and measuring colors on a calibration chart

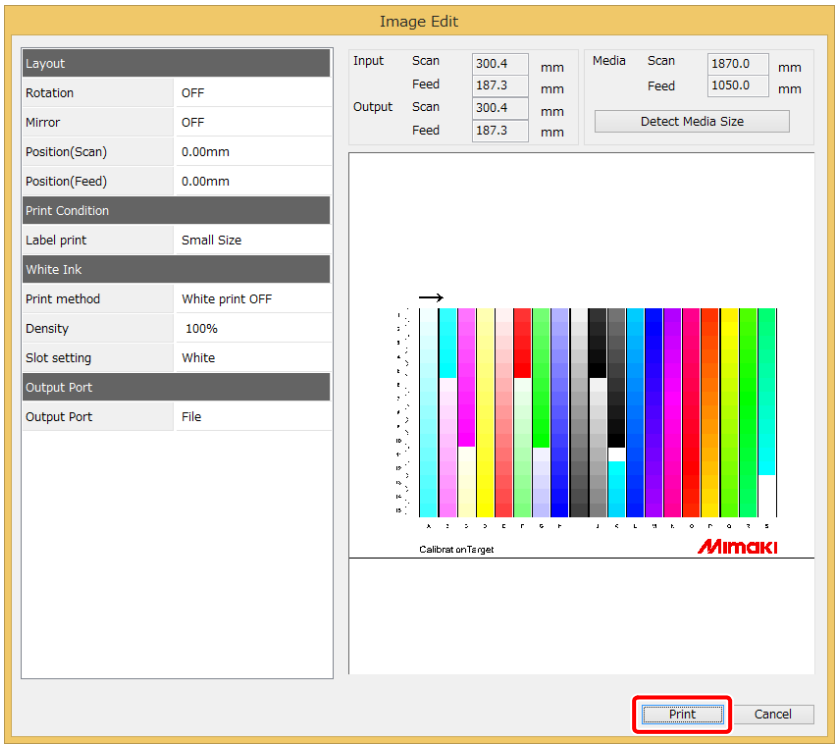
Calibration requires the measurement of the printed color to study the current status or the result of calibration. For this purpose, the same chart is often used. This chart is called the Calibration chart. The Calibration chart is also used for equalization and emulation.

1 Click [Print a chart image].



2 Click [Print].

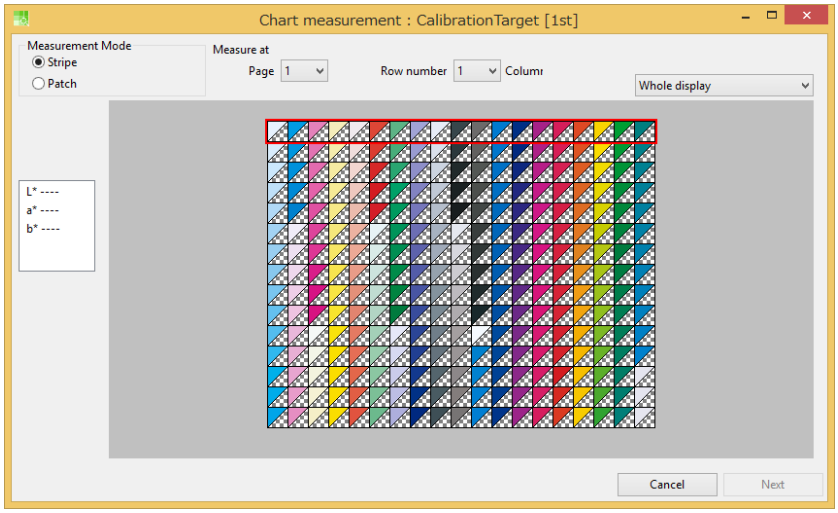
- Print the calibration chart.
- Refer to "Chapter 12 How to print charts" (P. 159) for details.



The figure indicates the conditions when i1Pro is selected.

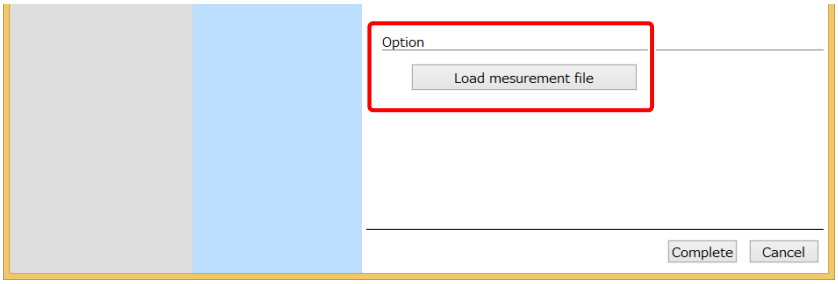
3 Click [Measure the chart image].

- Refer to "Chapter 13 How to measure color with a colorimeter" (P. 163) for details.



The figure indicates the conditions when i1Pro is selected.

4 Set the “Option”.



Load measurement file You can use the measured values of a Calibration chart you have saved before.

Workflow for printing without calibration

Usually, calibration is not required shortly after the calibration reference color is set. Periodically measure the current printed color to find the difference between the current printed color and the calibration reference color, and then check if this color difference is within the required range.

The operation for checking the color difference is described below.

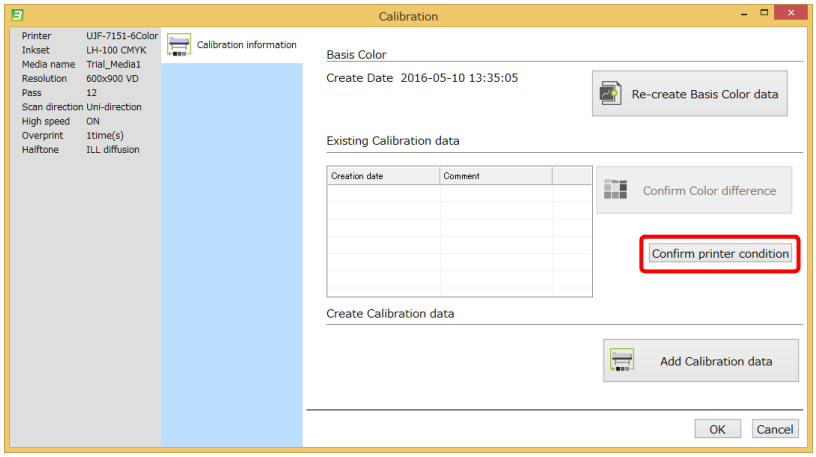
Checking the status of the printer, and measuring the colors on a calibration chart

STEP 1 : Check the color difference

STEP 1 : Check the color difference

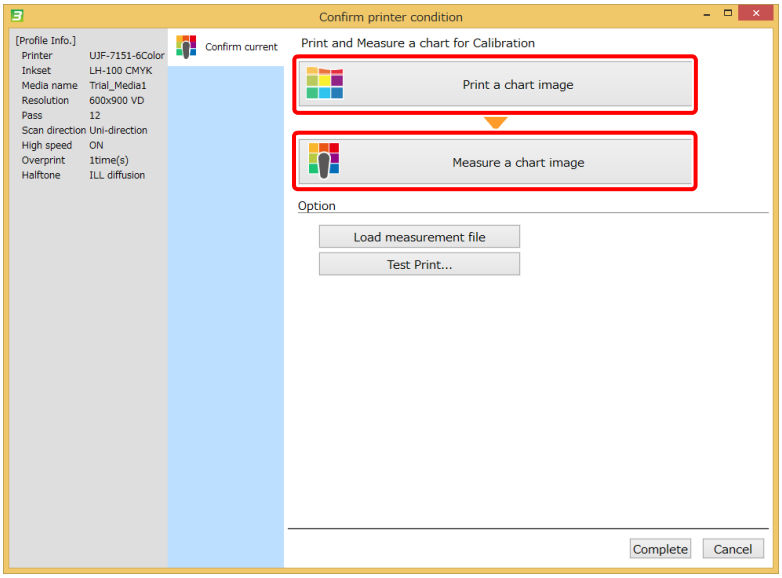
Check the color difference between the current printed color without and the calibration reference color.

1 Click [Confirm printer condition].



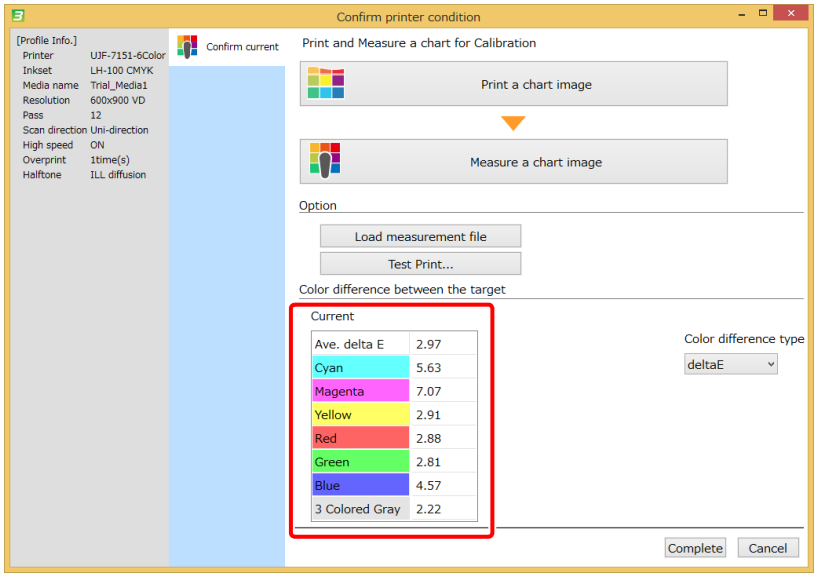
2 Print a Calibration chart and measure the color of the patches on it.

• A chart is printed without calibration here.
For operation procedure, refer to "Printing and measuring colors on a calibration chart" (P. 54).



3 Check the color difference.

• The color difference between the current printing color and the calibration reference color are shown.
Check if the color difference is within the required range.



Setting calibration

Set calibration when the color difference between the current printed color and the calibration reference color is not within the required range.
Calibration data is created and added to the selected device profile.

Setting calibration parameters

The operation flow for setting calibration is described below.

STEP1: Adjust ink limit.

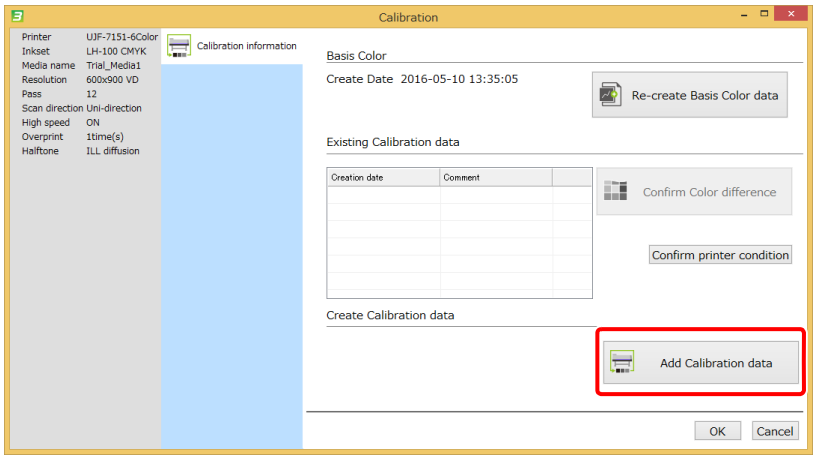
STEP2: Adjust linearization

STEP3: Adjust the gray balance

STEP4: Check the color difference

STEP5: Add the calibration data to the device profile

First, click [Add Calibration data]

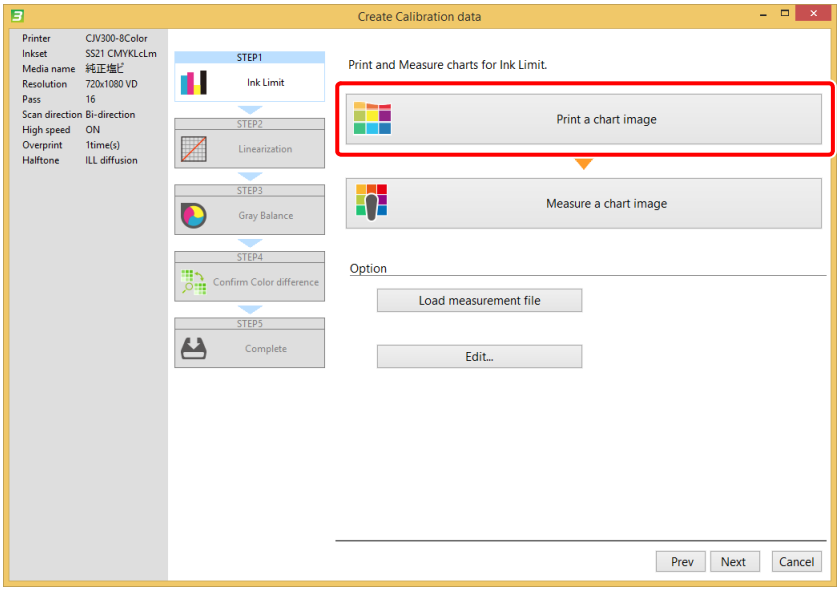


STEP1: Adjust ink limit.

Printing and measuring a chart can automatically match print density to that of the reference color.

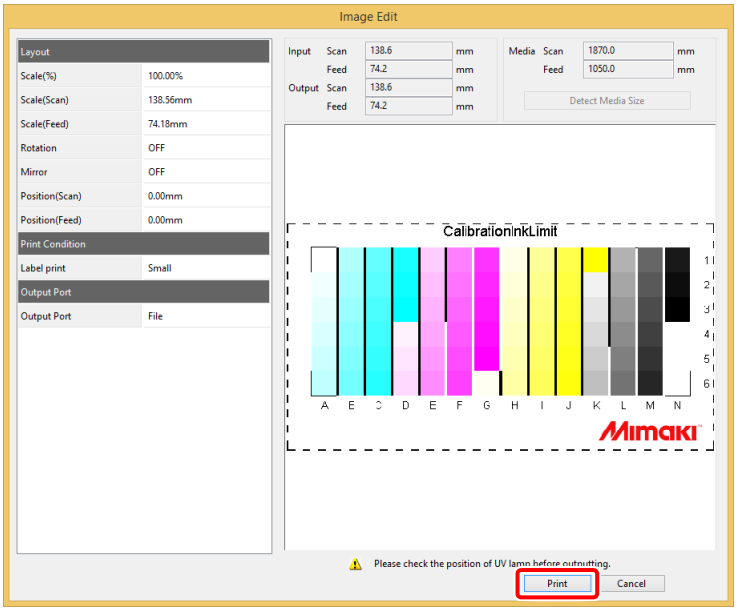
- If the reference color is set in MPM3.1.8 or earlier, a chart can not be printed or measured.

1 Click [Print a chart image].



2 Click [Print].

- Print the ink limit measuring chart.
- For operation procedure, refer to "Chapter 12 How to print charts" (P. 159).

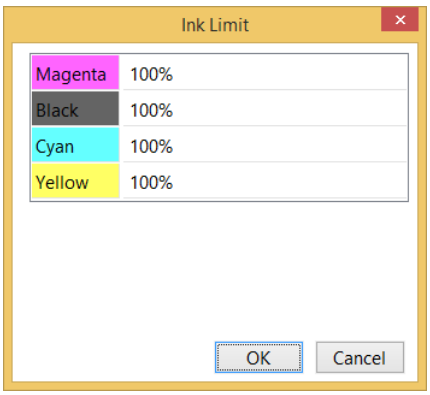


3 Measure the chart image.

- Measure the chart according to the display.
- For operation procedure, refer to "Chapter 13 How to measure color with a colorimeter" (P. 163). Display the measurement window by connecting to the colorimeter.

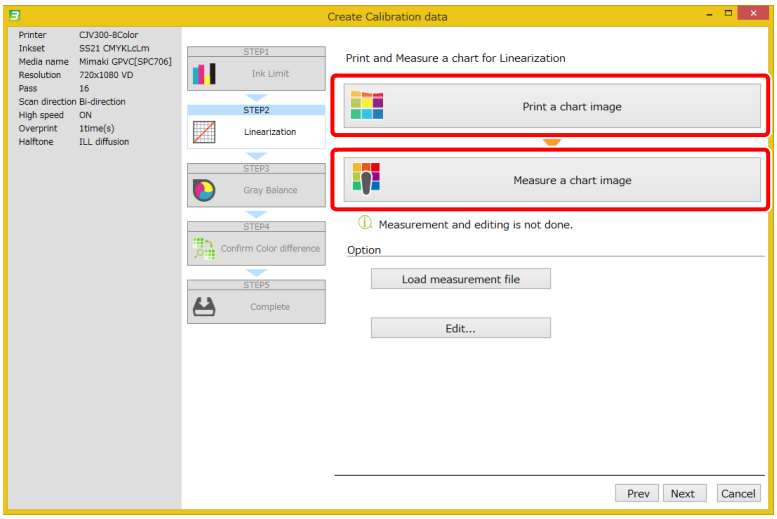
4 Set options.

- **Load measurement file** You can use the measured values you have saved before.
- **Edit** The ink limit window appears to edit ink density.



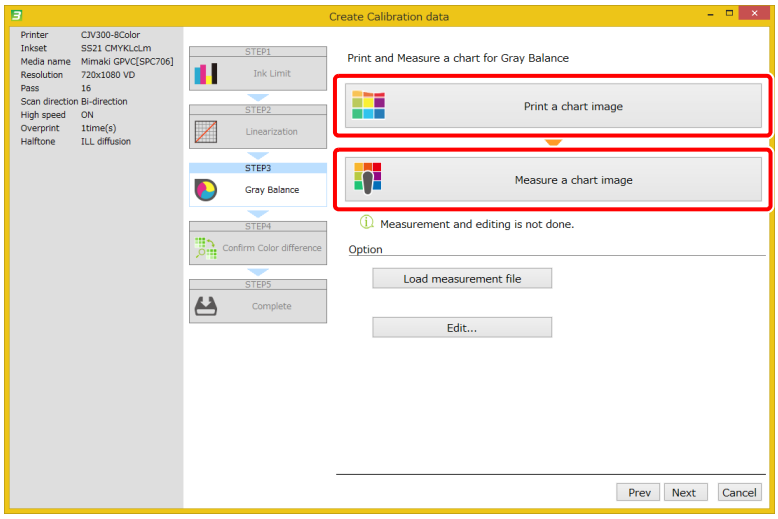
STEP2: Adjust linearization

Adjust the linearization parameters.
For operation procedure, refer to "STEP5: Set linearization" (P. 27) in "Chapter 2 Creating a device profile" (P. 17).



STEP3: Adjust the gray balance

Adjust the gray balance parameters.
For operation procedure, refer to "STEP7: Set the gray balance" (P. 31) in "Chapter 2 Creating a device profile" (P. 17).

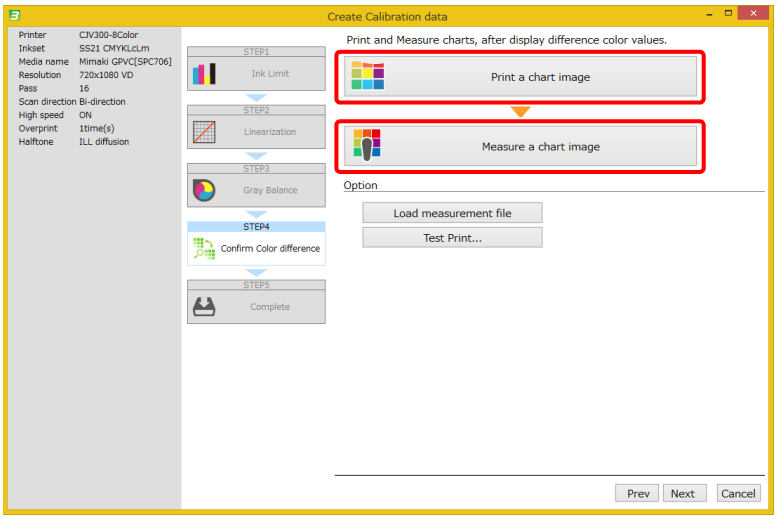


STEP4: Check the color difference

Print the Calibration chart with calibration, and measure the color of the patches on it. Then, check the color difference between the calibrated color and the calibration reference color.

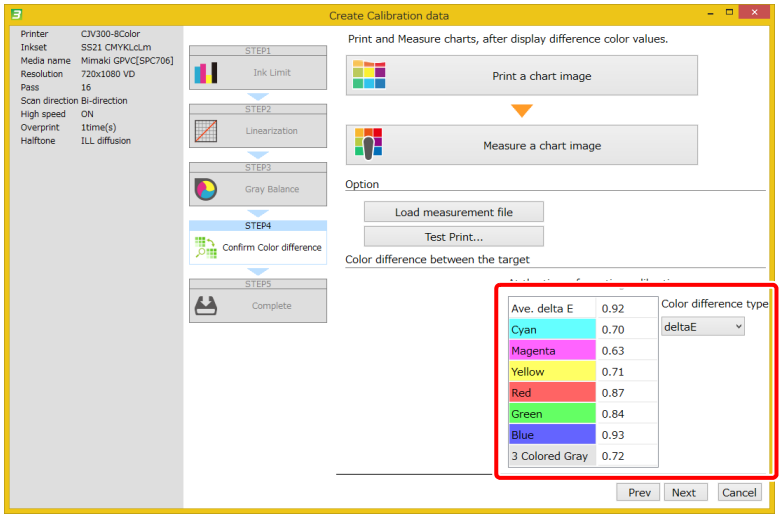
1 Print a Calibration chart and measure the color of the patches on it.

- For operation procedure, refer to "Printing and measuring colors on a calibration chart" (P. 54).



2 Check the color difference.

- After the color is measured, the color difference values are shown.
- The color difference between the calibrated color and the calibration reference color is shown. Check if the color difference is within the required range.

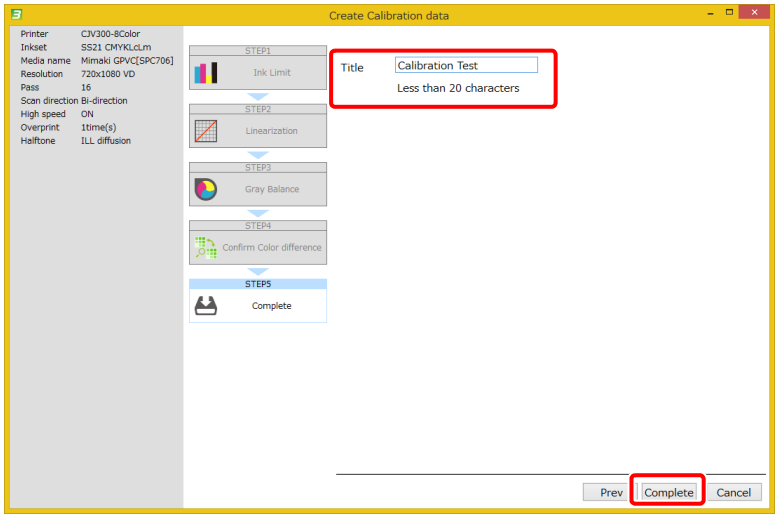


STEP5: Add the calibration data to the device profile

Add the calibration data to the selected device profile.

1 Specify the name of the calibration data added to the selected device profile, and click [Complete].

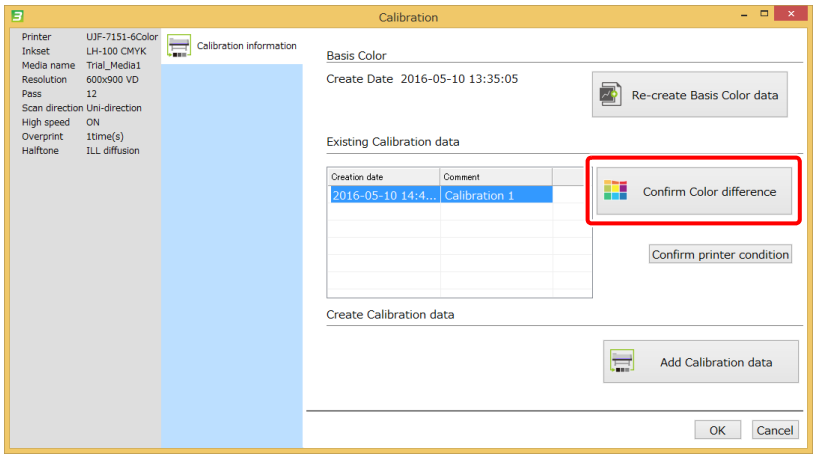
• Specify the name of the device profile to be saved, and then install this device profile in RasterLink.



Workflow for printing with calibration

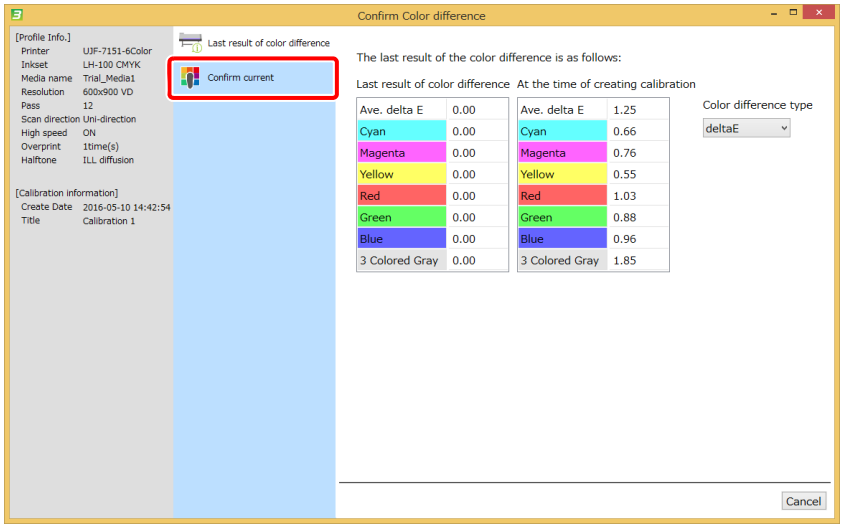
Measure the current calibrated printed color, and periodically find the difference between the current calibrated color and the calibration reference color. Check if the color difference is within the required range. If the color difference is out of the required range, re-adjust the calibration data.

1 Click [Confirm Color difference].



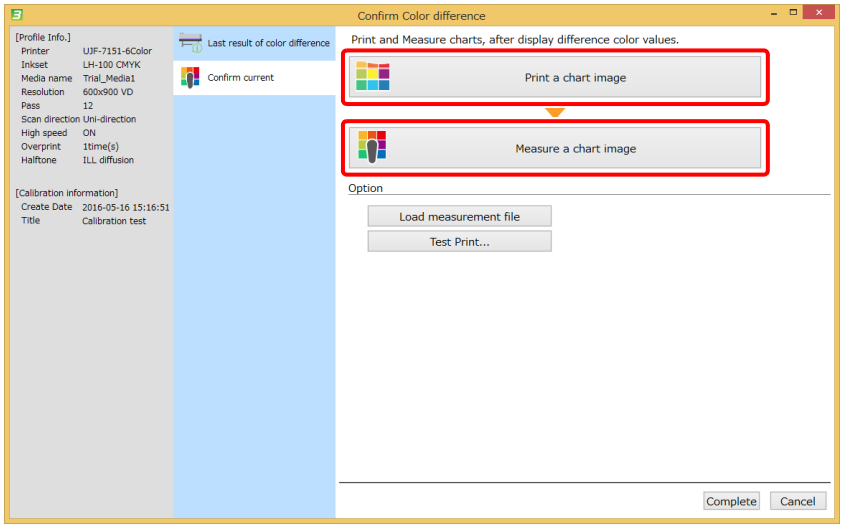
2 Click “Confirm current” tab.

- The color difference measured previously is shown.
  (If this is the first operation after calibration, the color difference values are all 0s.)
- If you want to measure the color difference in the current state, click the [Confirm current] tab.



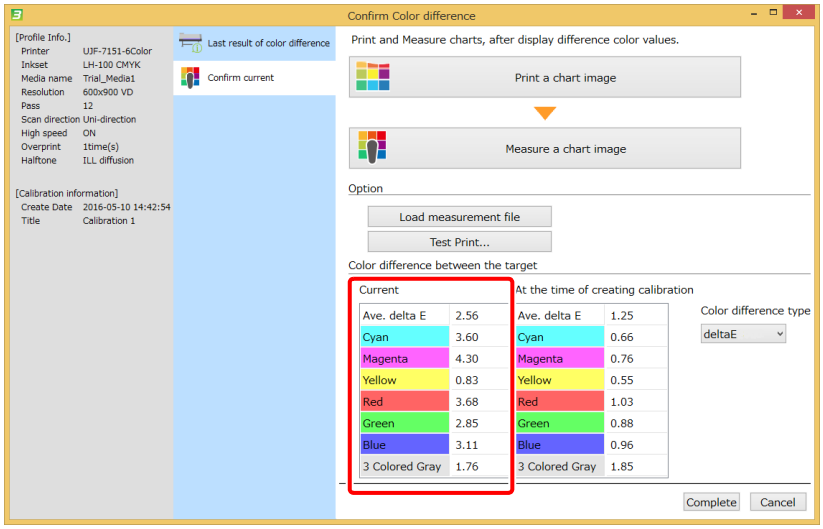
3 Print the calibration chart and measure the color of the patches on it.

- A chart is printed with calibration here.
  For operation procedure, refer to "Printing and measuring colors on a calibration chart" (P. 54).



4 Check the color difference.

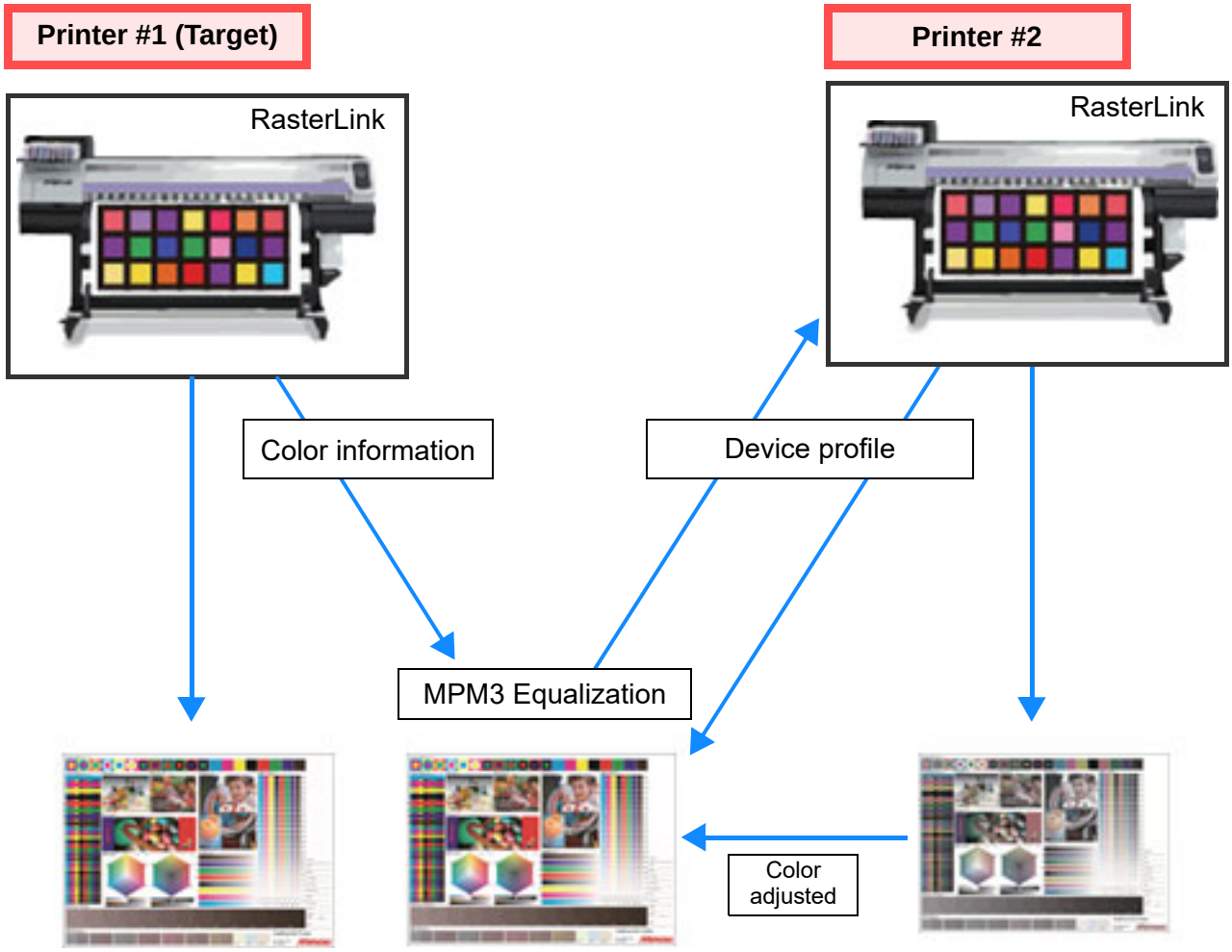
- After the colors are measured, the color difference values are shown.
- The color difference between the current calibrated printed color and the calibration reference color is shown. Check if the color difference is within the required range.When the color difference is outside its permissible range, the calibration settings need to be reconfigured.
- Click [Complete], the pop-up window of saving ICC profile.
  Specify the name of ICC profile. Then the result of measurement is saved to ICC profile.



Chapter 7
Color-matching of the multiple printers of the same model (Equalization)

Equalization

There are often differences in the colors printed by inkjet printers, even if the model and ink set are the same. Equalization brings the colors printed by a printer closer to those of the printer selected as the target. This is achieved through equalization of MPM3 to adjust the device profile.



Important!

- The use of a D50 light source is assumed when calculating color differences. The same results cannot be obtained when using the light sources in your environment.
  Note that the actual appearance will differ from the calculated values.

Equalization workflow

The equalization workflow is described below.

Select the reference printer (target printer).

Refer to "Selecting the reference printer" (P. 70).

Set equalization.

Refer to "Setting equalization" (P. 71).

Print with equalization while the color difference between the latest printed color and the target reference color is within the required range.

Refer to "Workflow for printing with equalization" (P. 81).

Adjust the device profile for equalization when the color difference falls outside of the required range.

Refer to "Setting equalization" (P. 71).

Re-set equalization if the color of the target printer changes.

Refer to "Setting equalization" (P. 71).

Selecting the reference printer

Select the reference printer. Measure the color of the target printer and set the target reference color. This target reference color is the goal of equalization.

The target reference color is set with the following procedure.

Select the print conditions for the target printer.

Refer to "STEP1 : Select the target device profile" (P. 74).

Print the Calibration chart with the target printer, measure the color of the patches on it, and record the color values as the target reference color.

Refer to "STEP2 : Measure the target reference color" (P. 75).

Print the Calibration chart with the printer to be equalized, and measure the color of the patches on it.

Refer to "STEP3 : Confirm the color difference" (P. 76).

Check the color difference between the color of the printer to be equalized and the target reference color.

Setting equalization

Check the color difference between the color of the printer to be equalized and the target reference color.
If the color difference is out of the required range, create the equalization data for the printer to be equalized.

Adjust the linearization parameters.

Refer to "STEP1 : Select the target device profile" (P. 74).

Adjust the gray balance parameters.

Refer to "STEP2 : Measure the target reference color" (P. 75).

Print the Calibration chart with the printer to be equalized, and measure the color of the patches on it.

Refer to "STEP3 : Confirm the color difference" (P. 76).

Add equalization data to the selected device profile.

Refer to "STEP5: Add equalization data to the device profile" (P. 80).

- Multiple sets of equalization data can be added to the device profile.
- RasterLink can select the equalization data when printing.
- If multiple sets of equalization data for multiple printers are set in the device profile, RasterLink can support multiple printers with a single device profile.

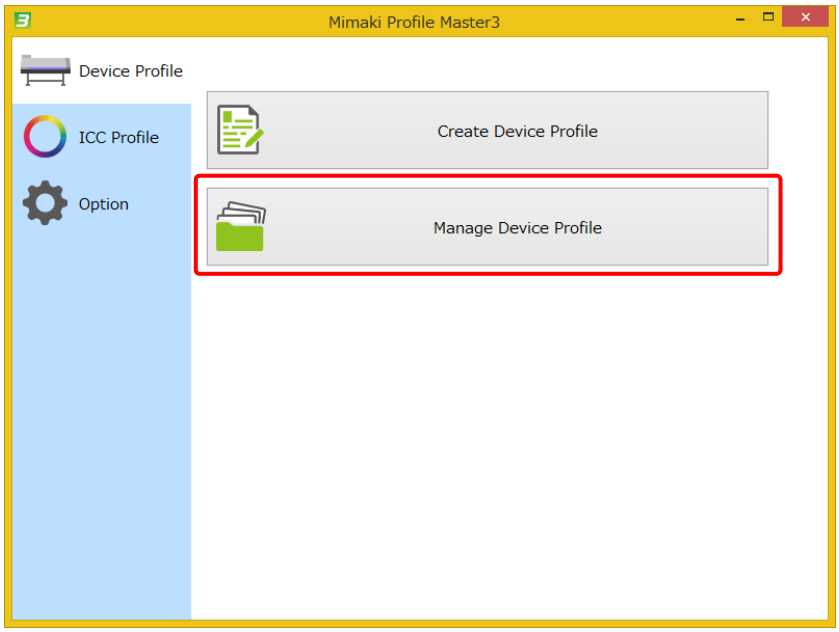
Important!

- Equalization will be insufficient if the print conditions differ between the reference printer and the printer to be equalized.

Starting the equalization

Open “Manage Device Profile” and select the device profile to be equalized.

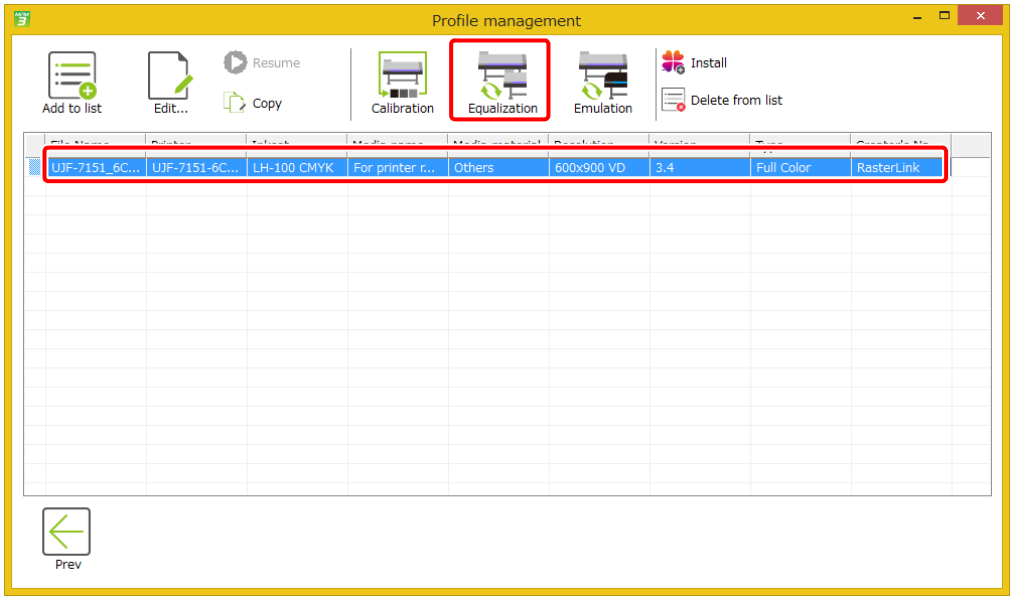
1 Click [Manage Device Profile].



2 Load the device profile onto the list table.

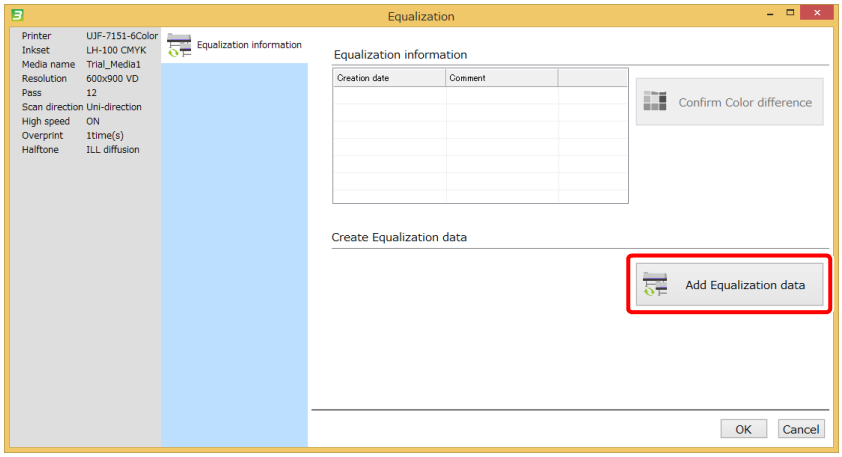
3 Select the device profile to be equalized.

4 Click [Equalization].



Starting the equalization wizard

1 **Click [Add Equalization data].**



Setting the target reference color

Setting the target reference color for equalization

STEP1 : Select the target device profile

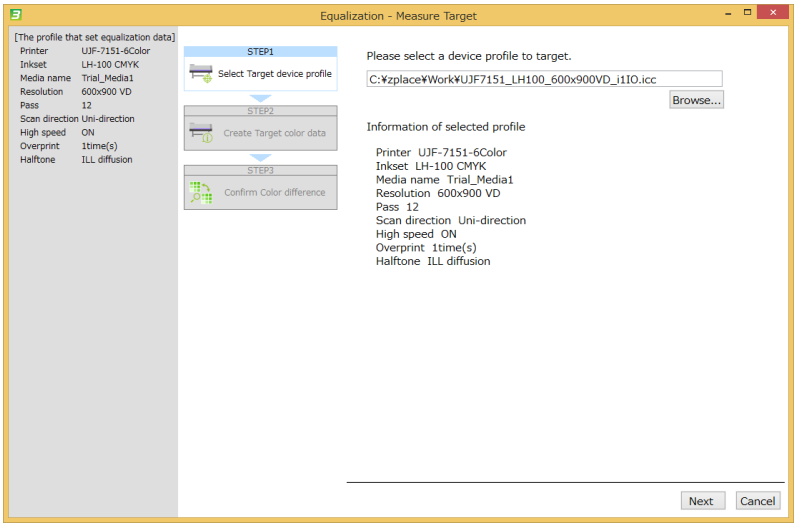
STEP2 : Measure the target reference color

STEP3 : Confirm the color difference

STEP1 : Select the target device profile

Select the print conditions for the reference printer.

1 Click [Browse...], and select the device profile for the reference printer.



Important!

- The selected device profile is used to study the color of the reference printer.
  This profile is not edited by equalization. However, the profile will be edited if the same profile was selected on the table on the Manage Device Profile screen when starting equalization.

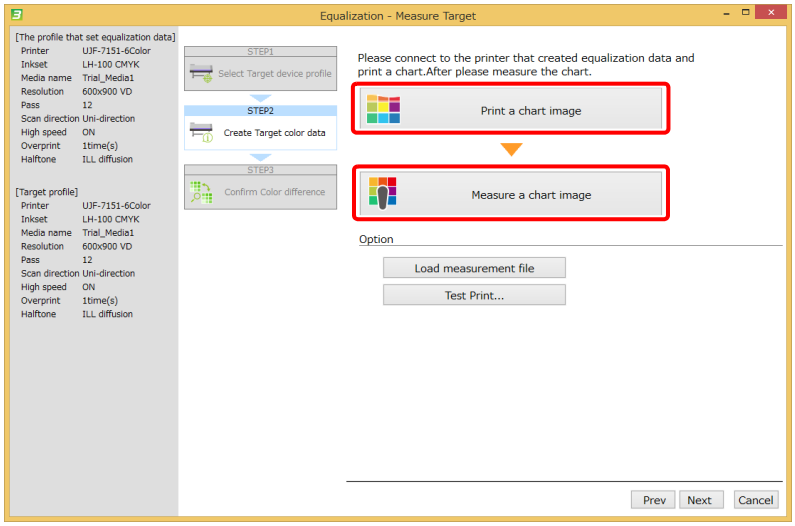
STEP2 : Measure the target reference color

To get the color values for the reference, print the Calibration chart with the reference printer and measure the color of the patches on it.
This sets the target reference color.

1 Connect PC and the target printer.

2 Print a Calibration chart and measure the color of the patches on it.

• For operation procedure, refer to "Printing and measuring colors on a calibration chart" (P. 54).



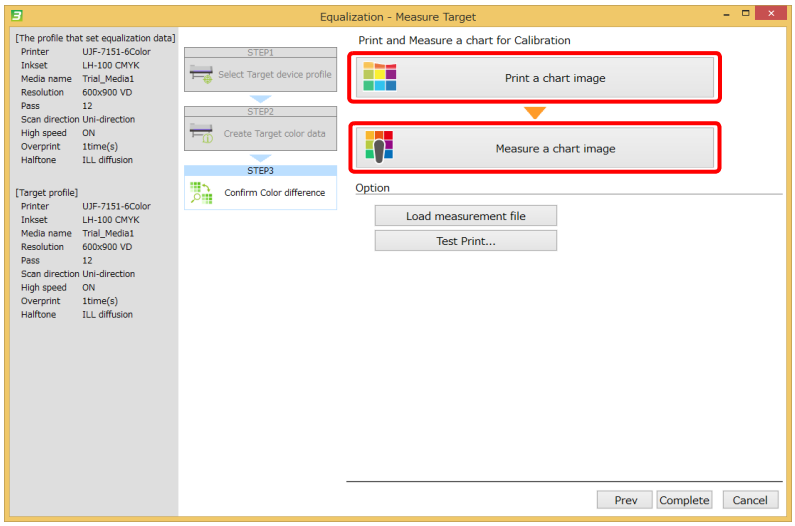
STEP3 : Confirm the color difference

Print the Calibration chart with the printer to be equalized and measure the color of the patches on it.

1 Connect PC and the printer to be equalized.

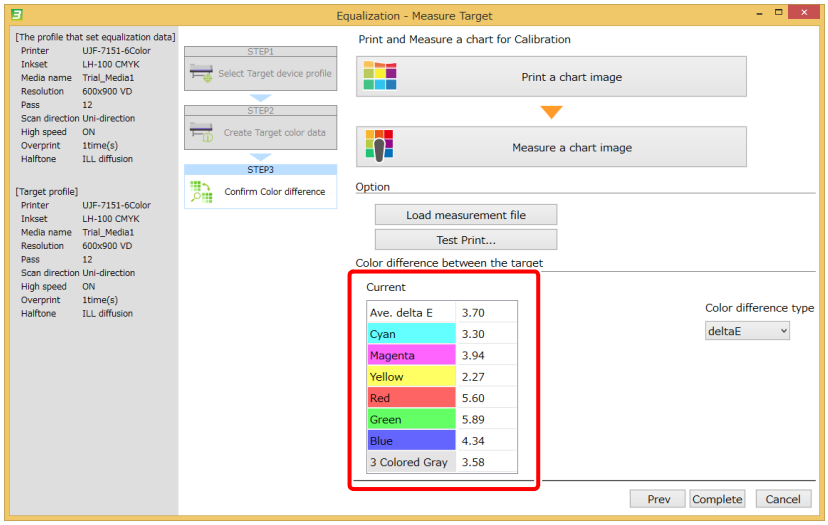
2 Print a Calibration chart and measure the color of the patches on it.

- For operation procedure, refer to "Printing and measuring colors on a calibration chart" (P. 54).



3 Check the color difference.

- The color difference between the current printed color of the printer to be equalized and the target reference color is shown. Check if the color difference is within the required range. If there is no problem with the color difference, click [Cancel] to exit equalization.



Adding equalization data

Use the following method to add equalization data.

Adding equalization data

STEP1: Adjust ink limit.

STEP2: Adjust linearization

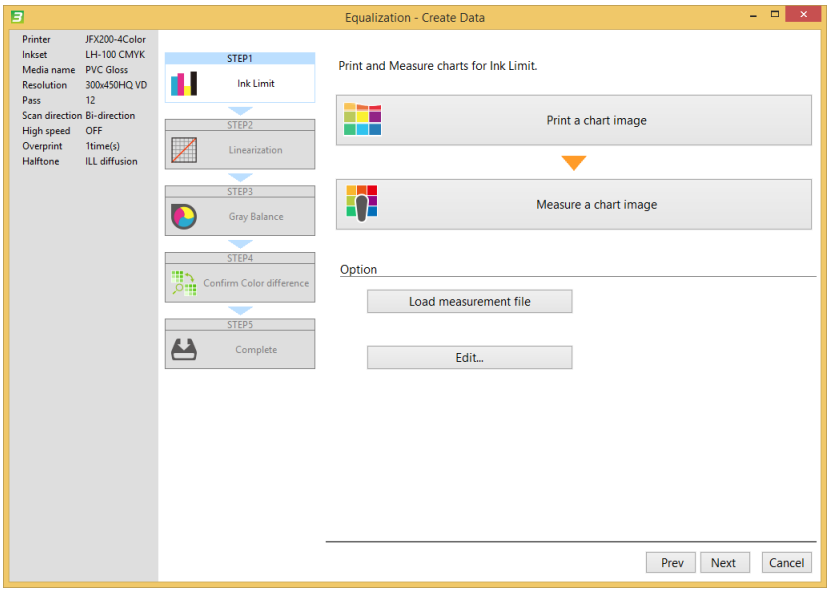
STEP3: Adjust the gray balance

STEP4: Check the color difference

STEP5: Add equalization data to the device profile

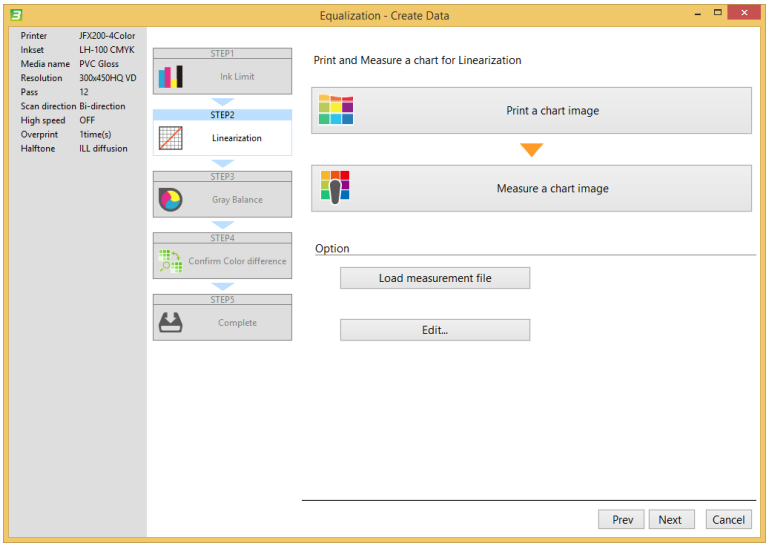
STEP1: Adjust ink limit.

Printing and measuring a chart can match print density to that of target.
For operation procedure, refer to "STEP1: Adjust ink limit." (P. 60) in "Chapter 6 Maintaining color of output of the printer (Calibration)" (P. 49).



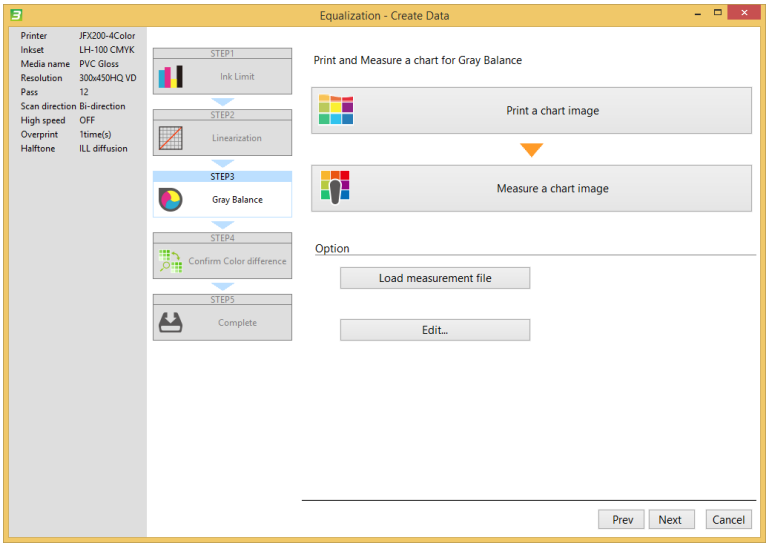
STEP2: Adjust linearization

Adjust the linearization parameters.
For operation procedure, refer to "STEP5: Set linearization" (P. 27) in "Chapter 2 Creating a device profile" (P. 17).



STEP3: Adjust the gray balance

Adjust the gray balance parameters.
For operation procedure, refer to "STEP7: Set the gray balance" (P. 31) in "Chapter 2 Creating a device profile" (P. 17).

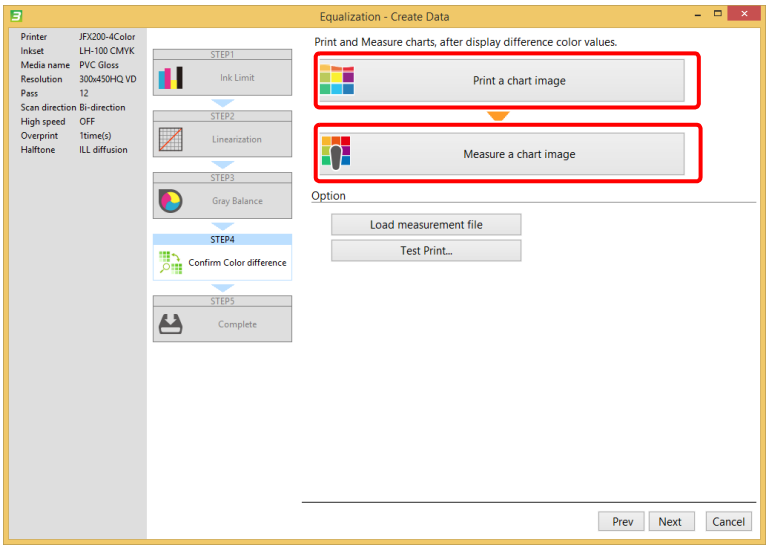


STEP4: Check the color difference

Print the Calibration chart with calibration and measure the color of the patches on it. Check the color difference between the equalized color and the equalization reference color.

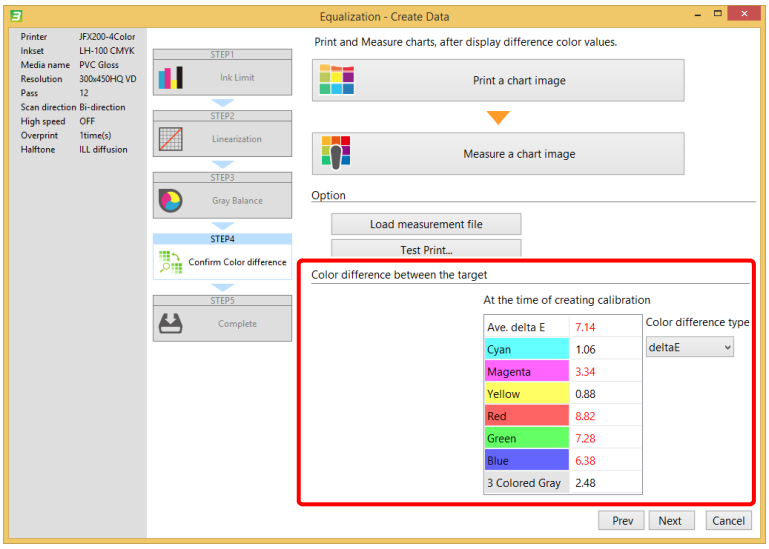
1 Print a Calibration chart and measure the color of the patches on it.

• For operation procedure, refer to "Printing and measuring colors on a calibration chart" (P. 54).



2 Check the color difference.

• The color difference between the equalized color and the target reference color is shown. Check if the color difference is within the required range.

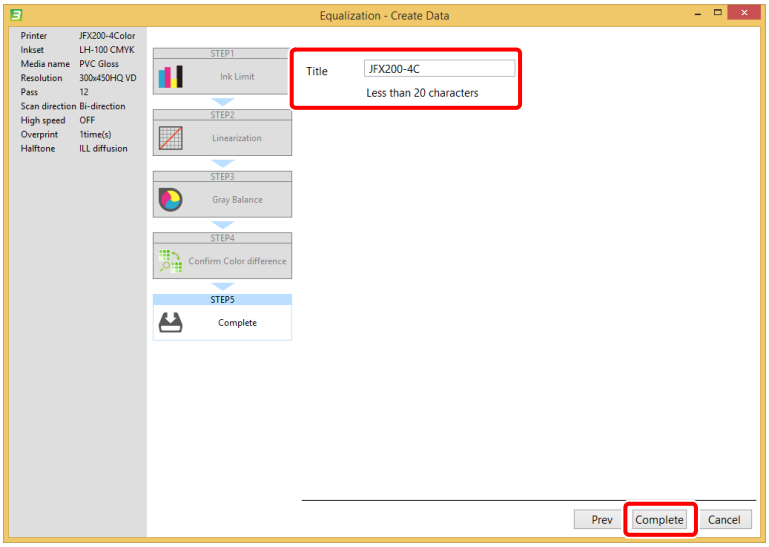


STEP5: Add equalization data to the device profile

Add equalization data to the selected device profile.

1 Specify the name of the equalization data added to the selected device profile, and click [Complete].

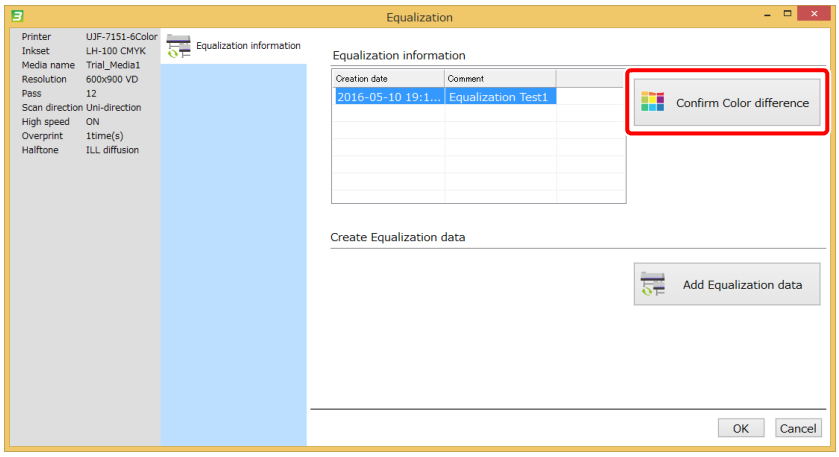
- The pop-up window of saving ICC profile, specify the name of ICC profile.
- Install this device profile in RasterLink.



Workflow for printing with equalization

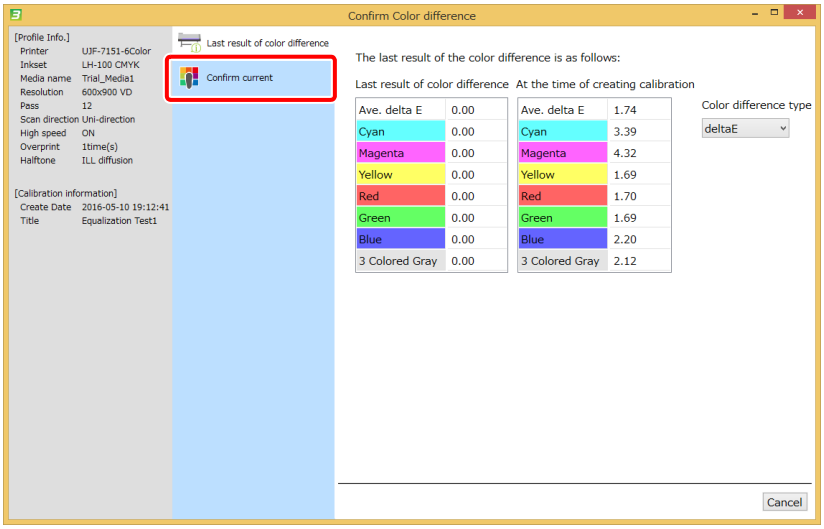
Measure the current color of equalized printer and periodically find the difference between the current equalized color and the target reference color. Check if the color difference is within the required range. If the color difference is outside of the required range, re-adjust the equalization data.

1 Click [Confirm Color difference].



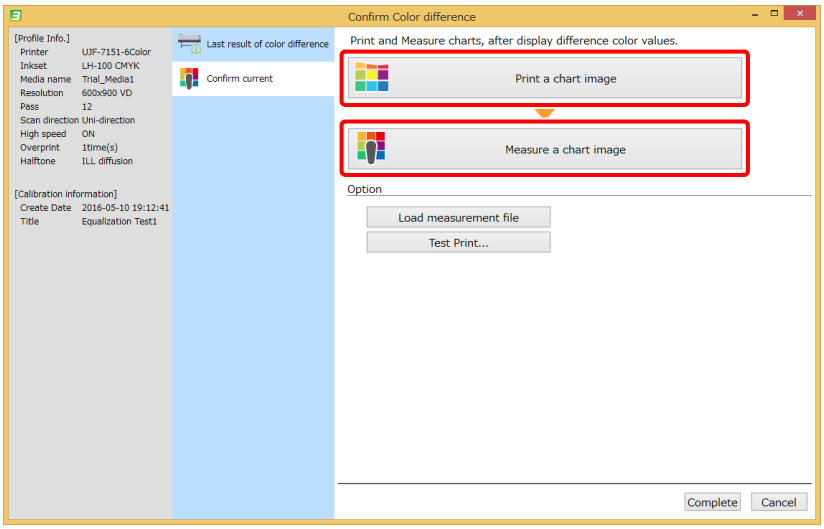
2 Click “Confirm current”.

- The color difference measured previously is shown.
  (If this is the first operation after calibration, the color difference values are all 0s.)
- If you want to measure the color difference in the current state, click the [Confirm current] tab.



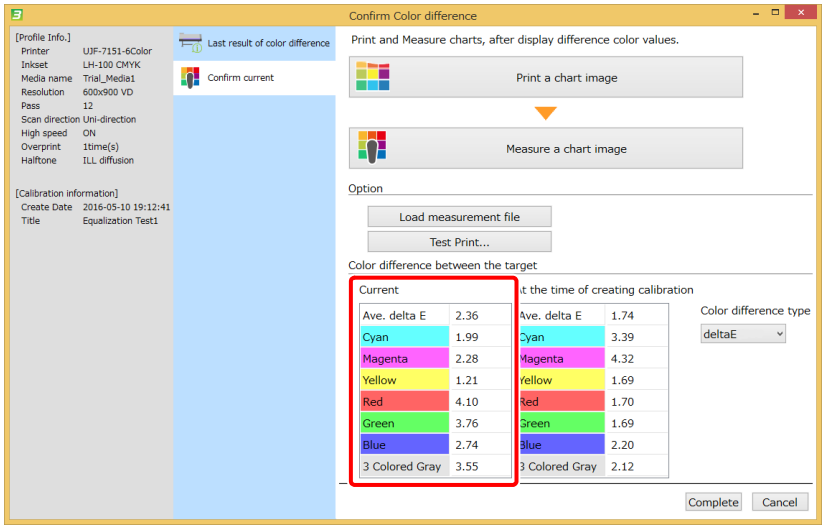
3 Print a Calibration chart and measure the color of the patches on it.

- For operation procedure, refer to "Printing and measuring colors on a calibration chart" (P. 54).



4 Check the color difference.

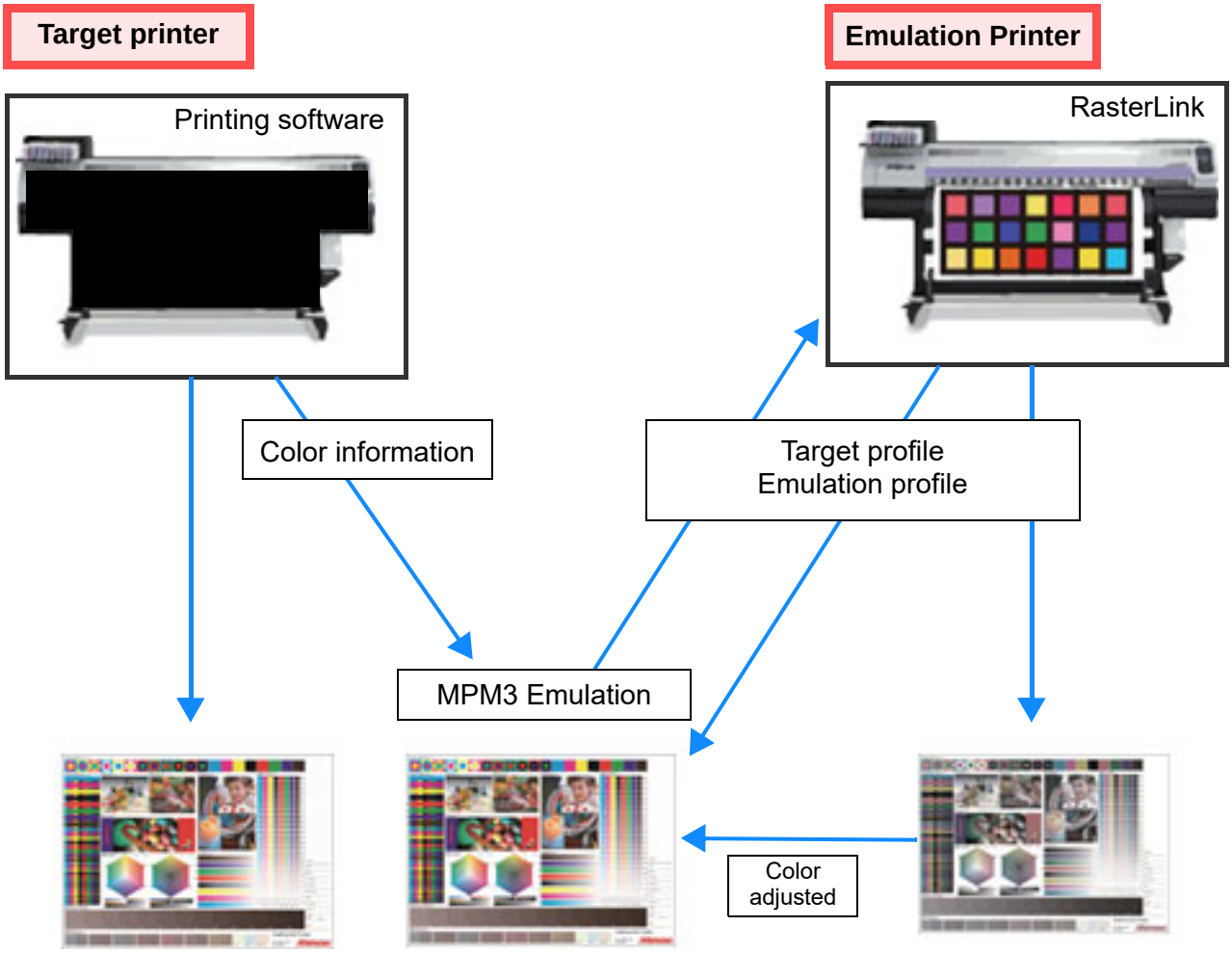
- After the colors are measured, the color difference values are shown.
- The color difference between the current equalized printed color and the target reference color is shown. Check if the color difference is within the required range.When the color difference is outside its permissible range, the equalization settings need to be reconfigured.



Chapter 8
Color-matching multiple printers of different models (Emulation)

Emulation

Emulation sets the printing color of the printer on hand (emulation printer) close to the printing color of the other printer (target printer). The other printer has it's own printing software.
MPM3 emulation creates both a target profile and an emulation profile.



Important!

- The use of a D50 light source is assumed when calculating color differences. The same results cannot be obtained when using the light sources in your environment.
  Note that the actual appearance will differ from the calculated values.

Flow of creating profiles for emulation

The operation flow of creating profiles for emulation is described below.

Select a print condition to emulate.

Refer to "Preparing the target printer" (P. 86).

Select the device profile as the base profile.

Refer to "Selecting the base device profile" (P. 87).

Print charts with the target printer.

Refer to "STEP1: Create a Target Profile" (P. 89).

Measure charts and create the target profile.

Refer to "STEP1: Create a Target Profile" (P. 89).

Adjust the ink limit with the emulation printer.

Refer to "STEP3: Create an Emulation Profile" (P. 92).

Print an emulation profile chart using the emulation printer.

Refer to "STEP3: Create an Emulation Profile" (P. 92).

Measure charts and create an emulation profile.

Refer to "STEP3: Create an Emulation Profile" (P. 92).

Check the color difference between the emulation and target.

Refer to "STEP4: Accuracy Improvement" (P. 94).

Adjust the emulation profile to get better accuracy if the emulation quality is not sufficient.

Refer to "STEP4: Accuracy Improvement" (P. 94).

Install the target profile and the emulation profile in RasterLink.

Refer to "Printing with RasterLink" (P. 97).

Creating profiles for emulation

Preparing the target printer

1 Prepare the target printer.

(1) Confirm the minimum size of the charts to measure.

- The minimum size of the charts to measure is shown in the table below. If the target printer cannot print the following chart sizes, emulation profiles can not be created.

	Colorimeter			
Mode	i1Pro/i1Pro2	i1IO/i1IO2	i1isis	Barbieri
Standard mode	300 x 210 mm	288 x 184 mm	Not supported	297 x 210 mm
Expanded color mode (Or+Gr)	293 x 216 mm	319 x 226 mm		
Precise mode	293 x 253 mm	294 x 205 mm		

(2) Select a printing condition.

No.	Condition
1	Printer model
2	Ink
3	Configuration of ink set
4	Media
5	Printing resolution

Preparing the emulation printer

1 Prepare the emulation printer.

(1) Select a printing condition.

- Select a printing condition close to the target's. If there is a big difference in the printing condition between the target printer and the emulation printer, there could be a drop in the accuracy of the emulation.

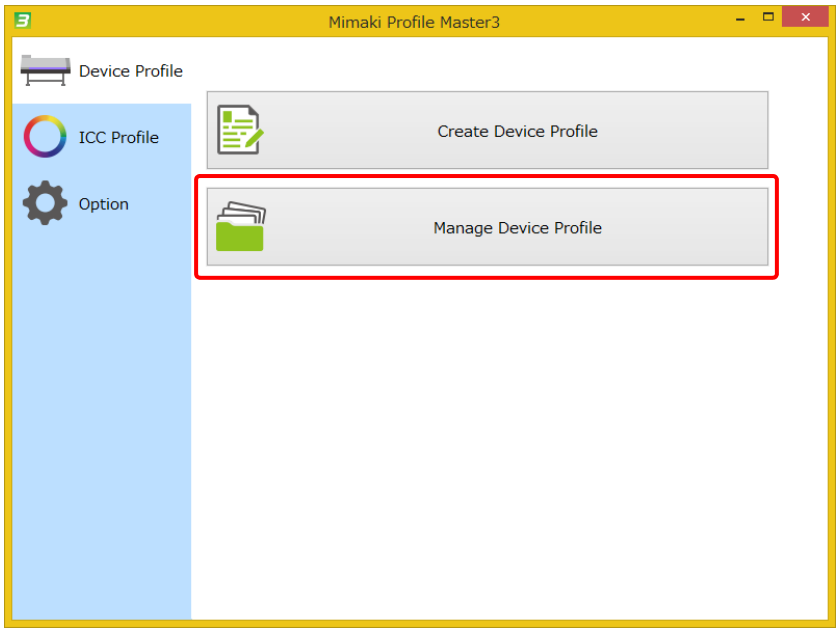
(2) Prepare the device profile as the base profile.

- Prepare the device profile of the emulation printer. This device profile is referred as the base device profile.

Selecting the base device profile

Select the device profile for the base device profile.

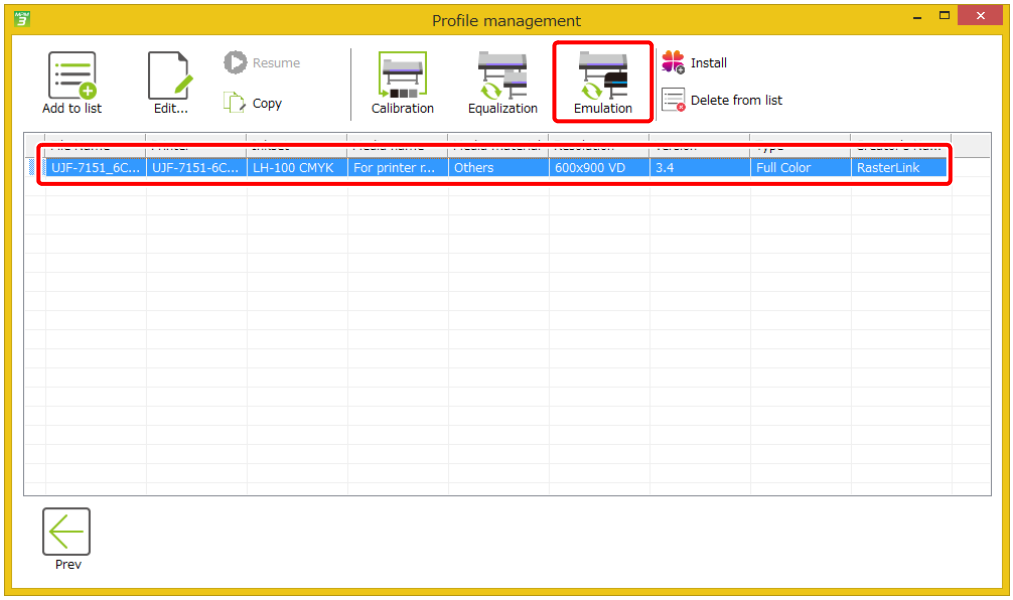
1 Click [Manage Device Profile].



2 Load the device profile onto the list table.

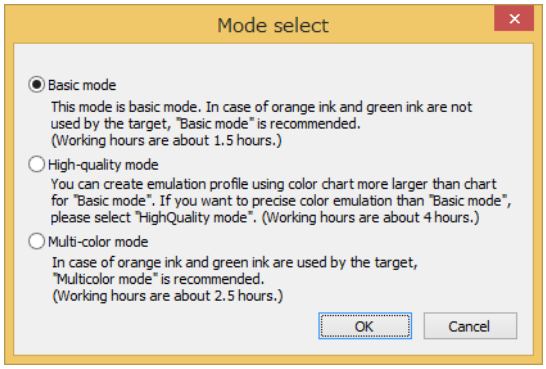
3 Select the device profile as the base device profile.

4 Click [Emulation].



Selecting the quality of the emulation

Select a mode in the pop-up dialog.



Creating profiles for emulation

Setting steps to create profiles for emulation

STEP1: Create a Target Profile

STEP2: Set the Ink Density for the Emulation Profile

STEP3: Create an Emulation Profile

STEP4: Accuracy Improvement

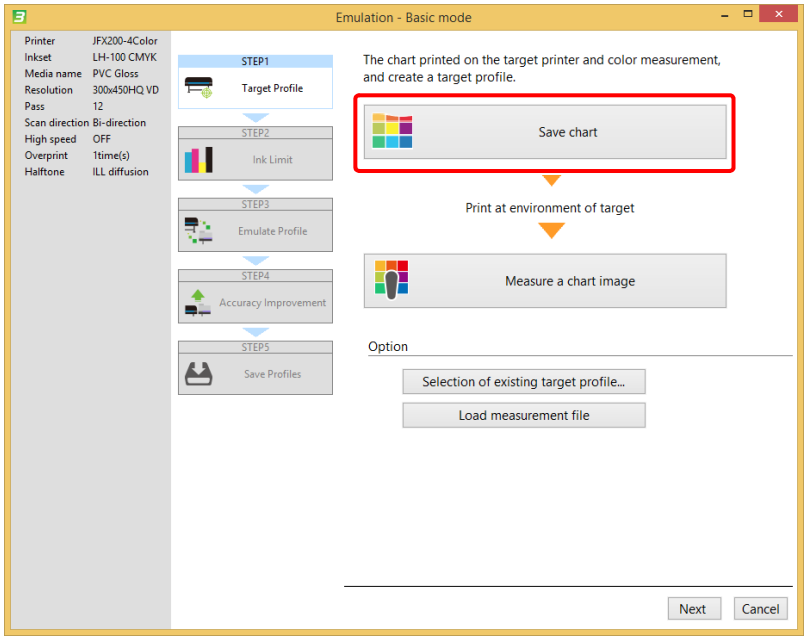
STEP5: Save the Profile

STEP1: Create a Target Profile

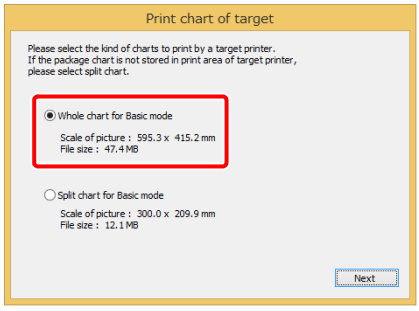
Print a chart with the target printer, measure the color of patches on the chart and create the target profile. The chart that is printed with the target printer is saved as an image file. Print the image file with the target printer.

1 Click [Save chart].

• Save the chart to print with the target printer.

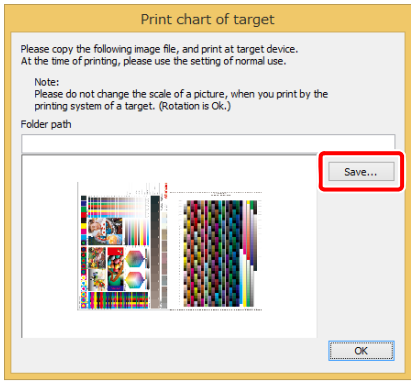


(1) Select a chart size.



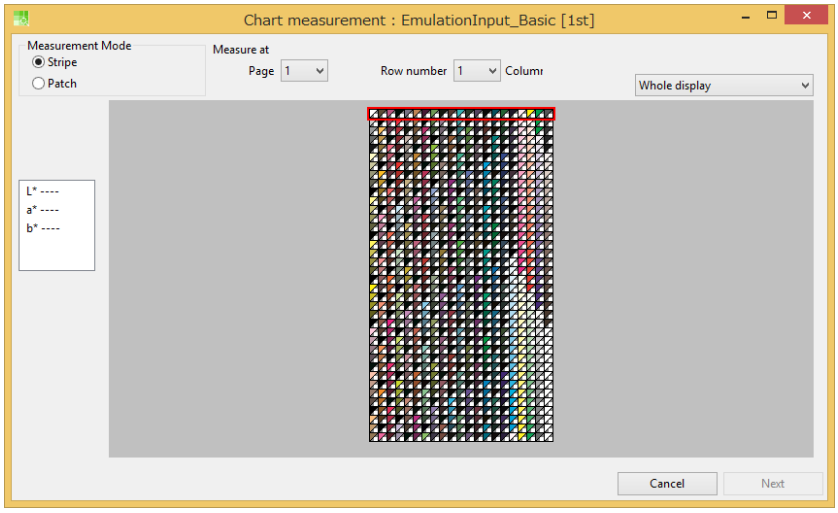
(2) Save the printing data as an image file.

• Specify the folder path only. An image file like “EmulationInput_Basic_00x.tif” is saved in the folder. Print the file with the the target printer.



2 Measure the chart image.

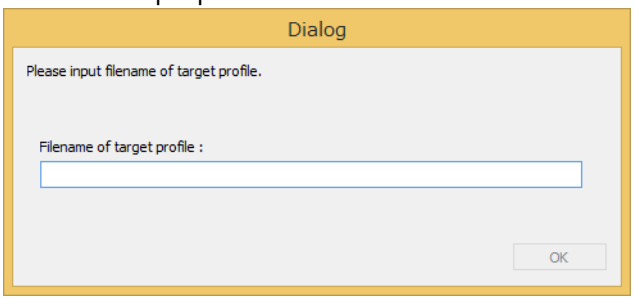
- Measure the color of patches on the chart that was printed with the target printer.
- Refer to "Chapter 13 How to measure color with a colorimeter" (P. 163) for details.
- After the color is measured, the target profile is created automatically.
- After the target profile is created, a dialog window pops. Specify the filename of the target profile.



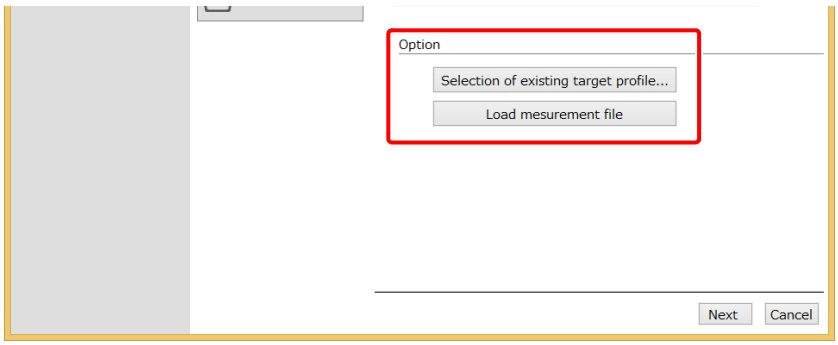
This figure shows the conditions when i1Pro is selected.

3 Input the “Filename of target profile”.

- The target profile will be the input profile in RasterLink.



4 Set the “Option”.



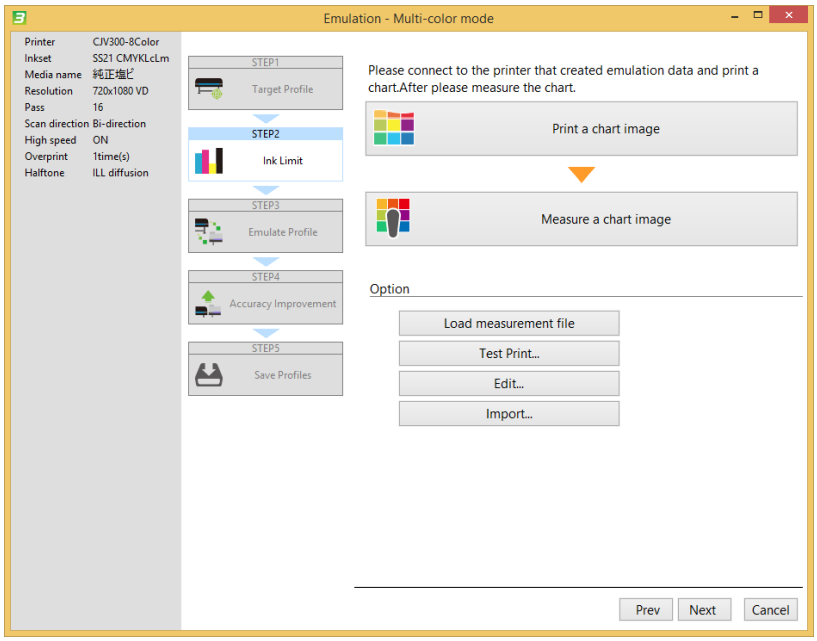
Selection of existing target profile You can select a target profile that has already been created.

Load measurement file You can use measured values for the target chart that you have saved before.

STEP2: Set the Ink Density for the Emulation Profile

Printing and measuring a chart through the emulation printer can automatically match the print density to that of target.
For operation procedure, refer to "STEP1: Adjust ink limit." (P. 60) in “Chapter 6 Maintaining color of output of the printer (Calibration)”.

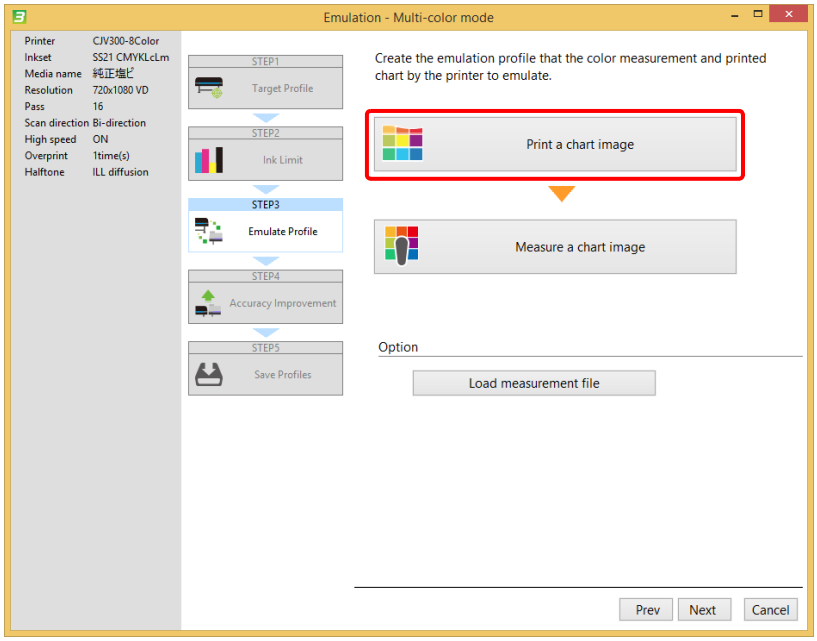
- You can not print the chart or measure the chart if you create a target profile by importing a target profile that already exists, or if you create a target profile using the measured values measured in MPM 3.1.8 or earlier version.



STEP3: Create an Emulation Profile

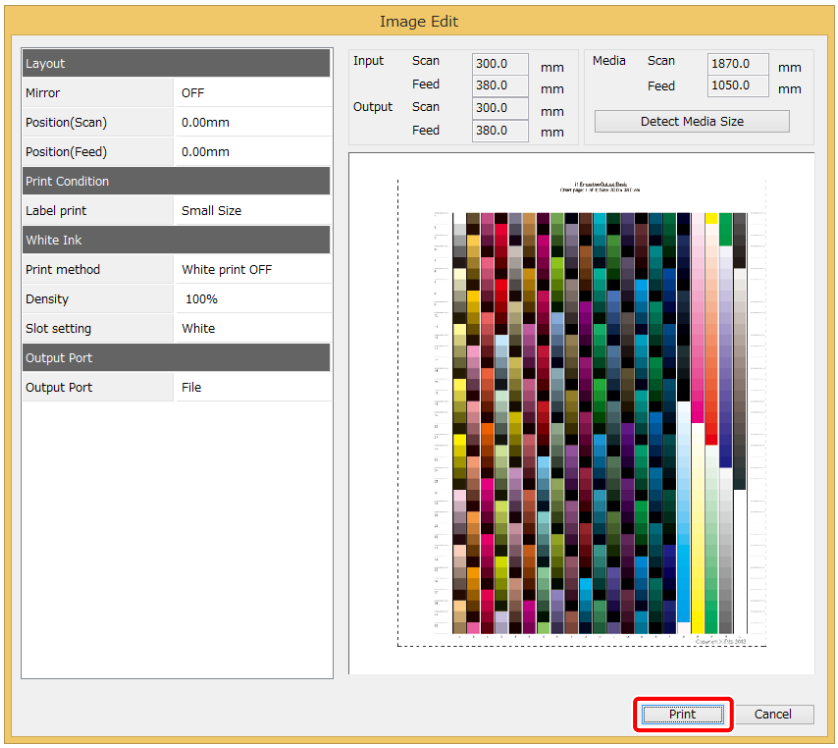
Print a chart with the emulation printer, measure the color of patches on the chart and create the emulation profile.

1 Click [Print a chart image].



2 Click [Print] to print the chart.

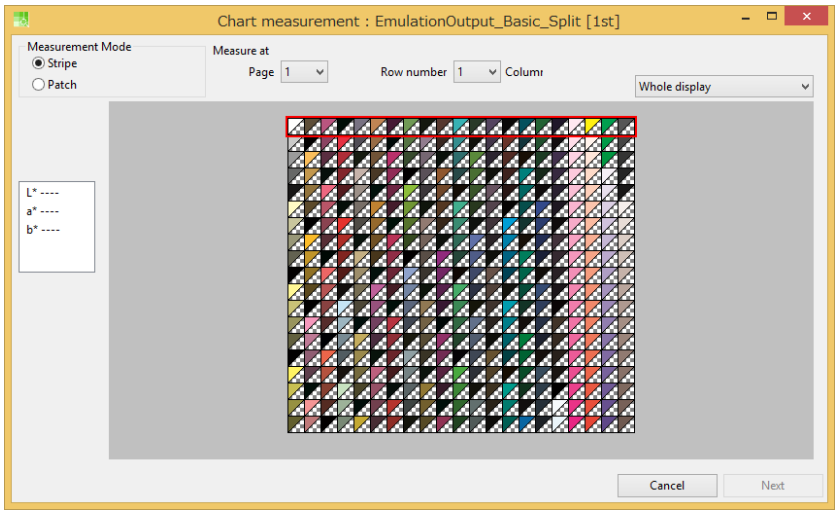
- Print the chart with the emulation printer.
- Refer to "Chapter 12 How to print charts" (P. 159) for details.



This figure shows the conditions when i1Pro is selected.

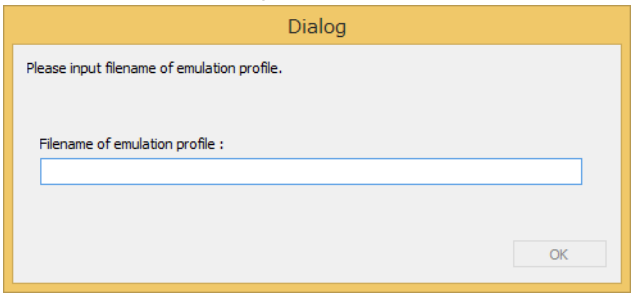
3 Measure the chart image.

- Measure the color of patches on the chart that was printed with the emulation printer.
- Refer to "Chapter 13 How to measure color with a colorimeter" (P. 163) for details.
- After the color is measured, the emulation profile is created automatically.
- After the emulation profile is created, a dialog window pops. Specify the filename of the emulation profile.



4 Input the “Filename of emulation profile”.

- The emulation profile will be the device profile in RasterLink.

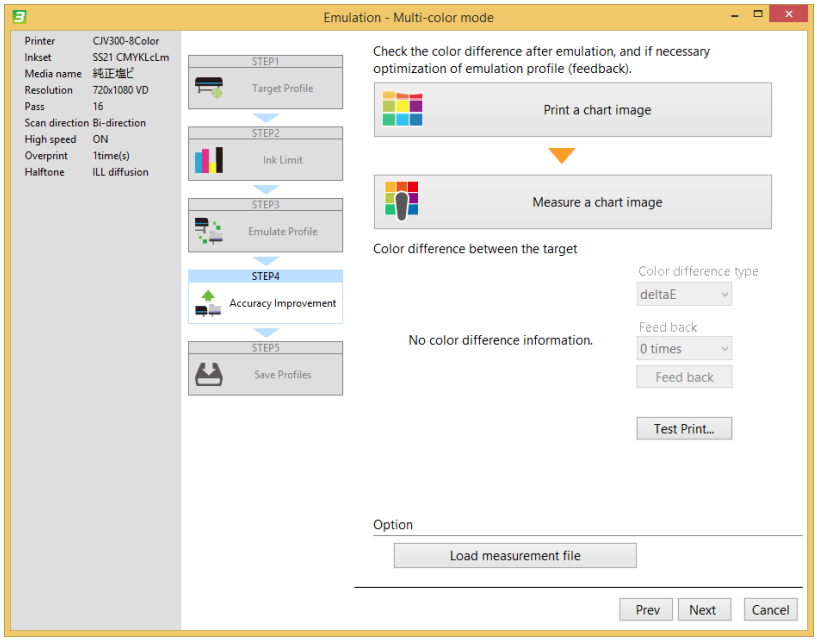


STEP4: Accuracy Improvement

Print a chart with the emualtion profile and the emulation printer.
Measure the color of patches on the emulated chart, and check the color difference between the color values on the target chart and those on the emulated chart.

1 Print a chart with the emulation printer and measure the chart.

- By printing a chart with the emulation printer and measuring the chart, color difference between the color values on the target chart and those on the emulated chart is displayed.
- For the operation, refer to "STEP3: Create an Emulation Profile" (P. 92).



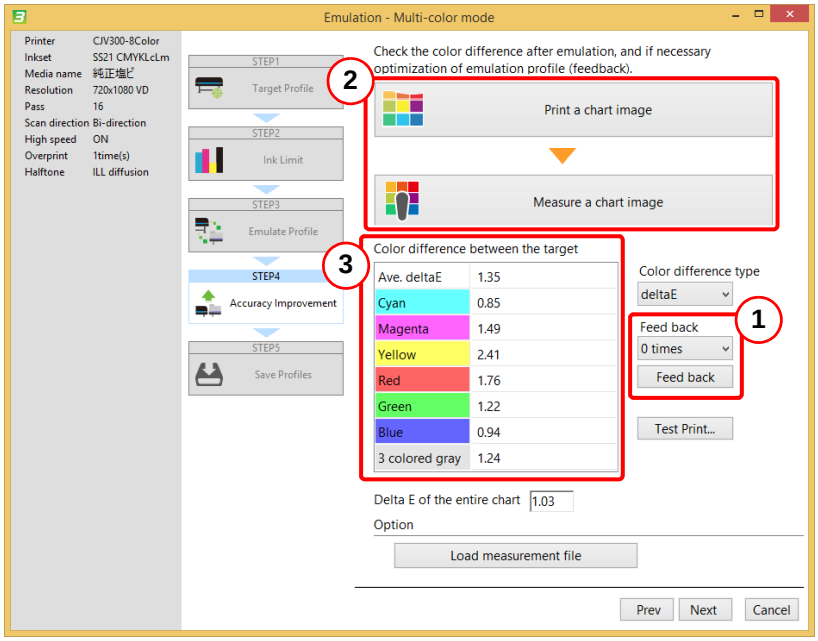
2 Use the Feedback function to optimize the emulation profile.

- The Feedback function optimizes the emulation profile by using the measured values of the chart printed with the last emulation profile.

(1) Click [Feedback] to optimize the emulation profile.

(2) Print a chart image and measure the color of patches on it again.

- The color difference is updated.
- If there is no change in the color difference when using the Feedback function, the limit of optimization has been reached.

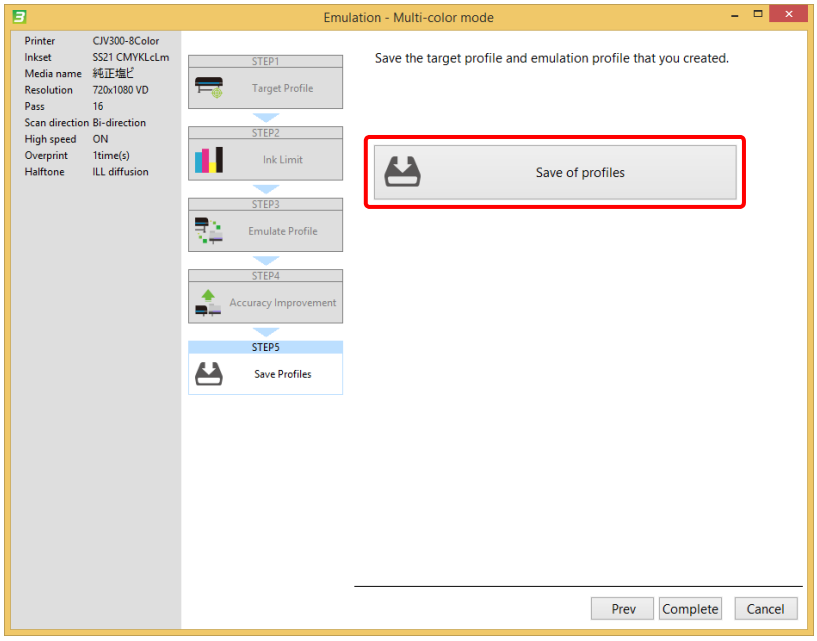


STEP5: Save the Profile

Specify a folder for saving the target profile and the emulation profile.

1 Specify a folder as described in the pop-up dialog window.

- A new folder (EmulationYYYYMMDD_HHMMSS) is in under the folder you specify.
  The target profile and the emulation profile are saved in this folder.
- Import those profiles into RasterLink by using Profile Manager.
  Target profile → Input profile
  Emulation profile → device profile



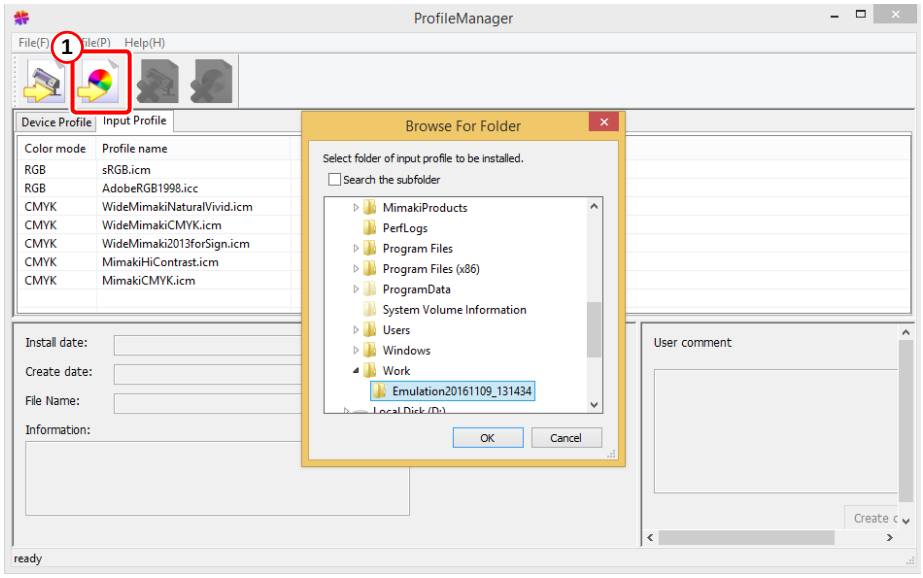
Printing with RasterLink

Install the saved target profile and emulation profile to RasterLink.
Select the target profile and emulation profile when setting the printing conditions.

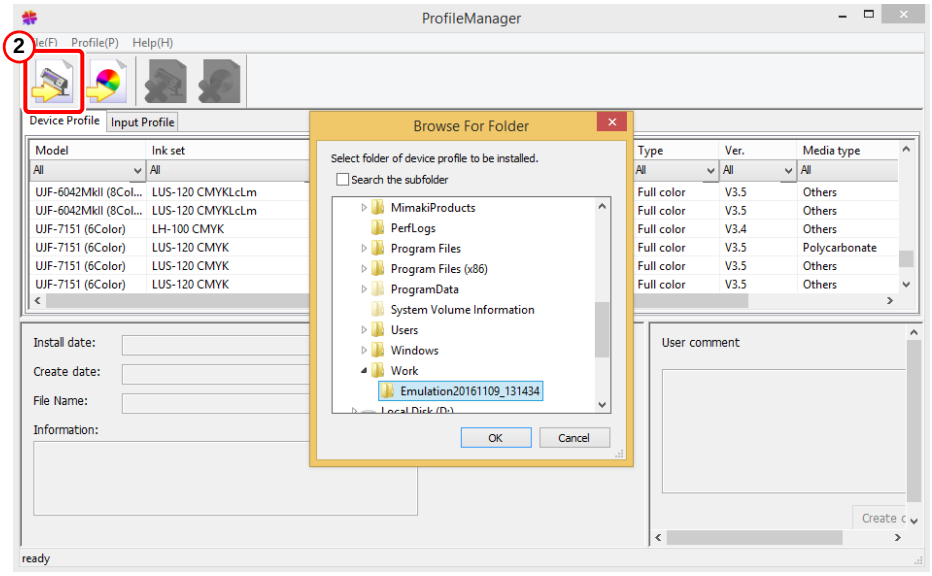
1 Install the target profile and emulation profile to RasterLink.

Start Profile Manager of RasterLink.

(1) Click [InputProfile] and select the folder “EmulationYYYYMMDD_HHMMSS”.
Select a target profile on the displayed list and install it.



(2) Click [DeviceProfile] and select the folder “EmulationYYYYMMDD_HHMMSS”.
Select an emulation profile on the displayed list and install it.



2 Set the printing conditions of RasterLink.

Import the image file to be printed.

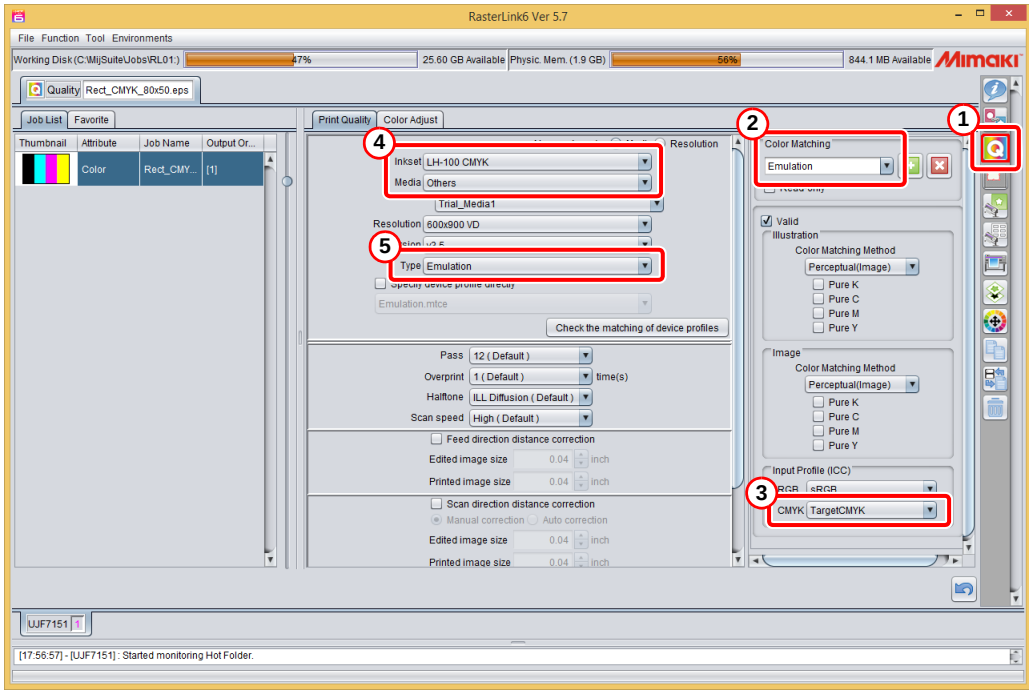
(1) Click [Quality].

(2) Input the name of the new color matching set and click [Add].

(3) Select the target profile in the Input profile CMYK column.

(4) Select the ink set and media for the emulation profile.

(5) The emulation profile is selected and “Emulation” is displayed in the Type column.



Chapter 9
How to match new color

New color matching

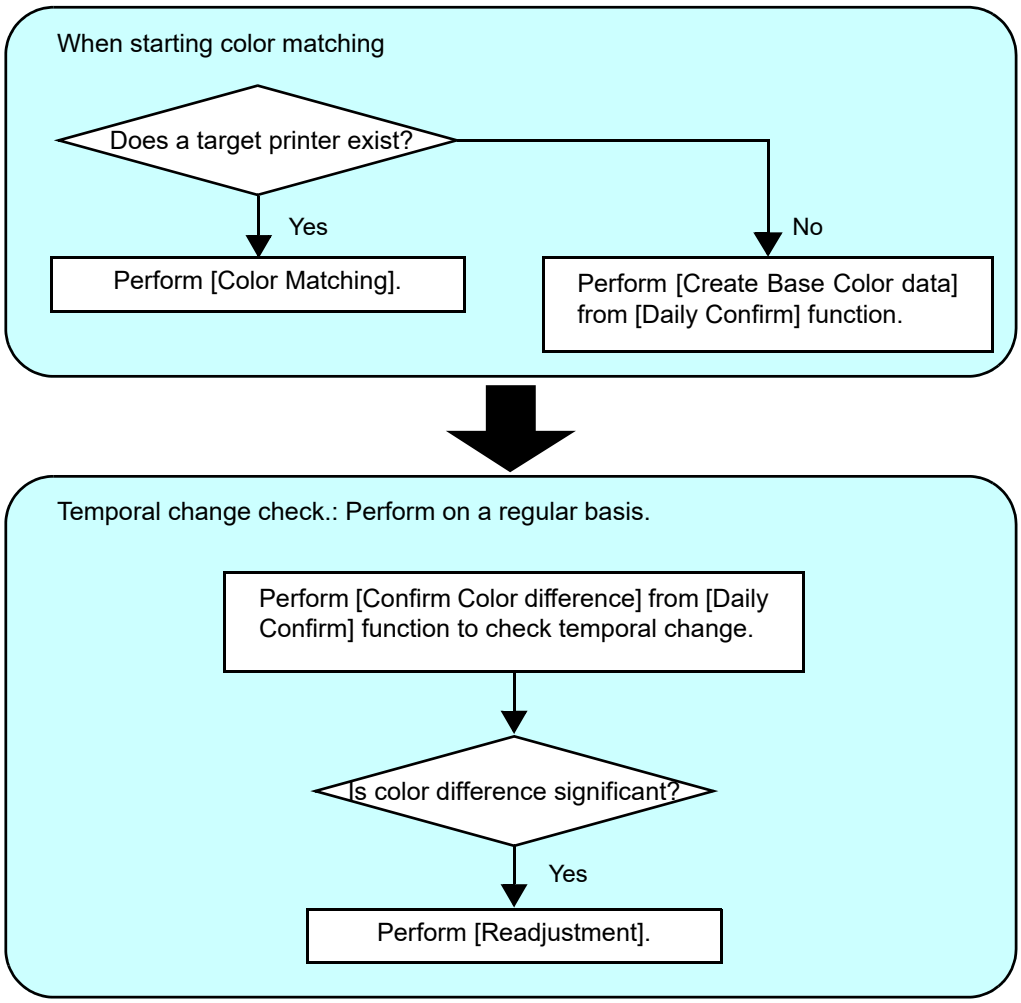
Previously, there were three color-matching functions for each target of color matching.([Calibration], [Equalization], [Emulation])
They have been combined into a single function called [Color Matching].And daily color management can be performed by two independent functions: [Daily Confirm] and [Readjustment].

Important!

- The use of a D50 light source is assumed when calculating color differences. The same results may not be obtained when using other light sources in your environment. Note that the actual appearance may differ from the calculated values.

Performing each function

Follow the steps below to perform each function: [Color Matching], [Daily Confirm] and [Readjustment].

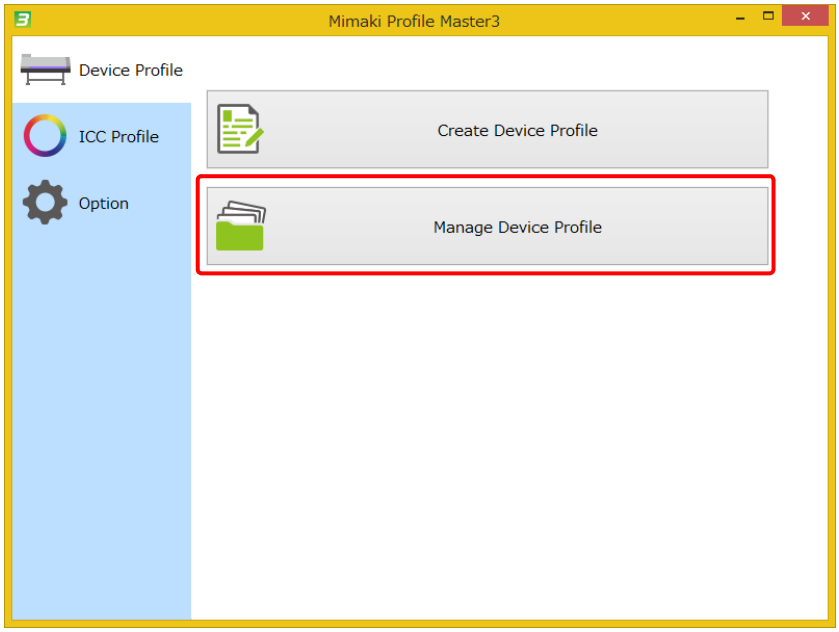


[Color Matching] function

When a target printer exists, perform [Color Matching] function.

Starting [Color Matching] function.

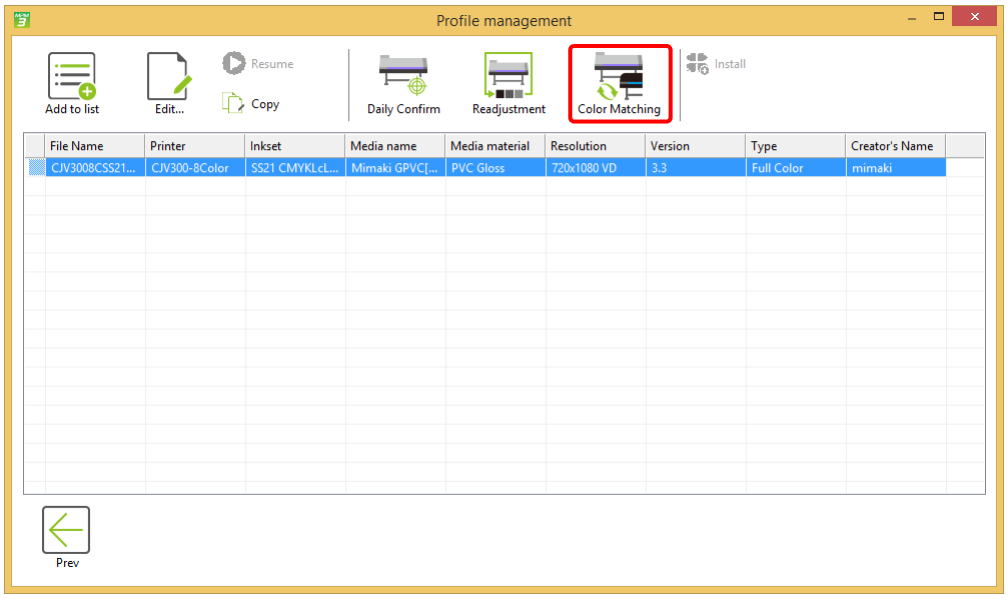
1 Click [Manage Device Profile].



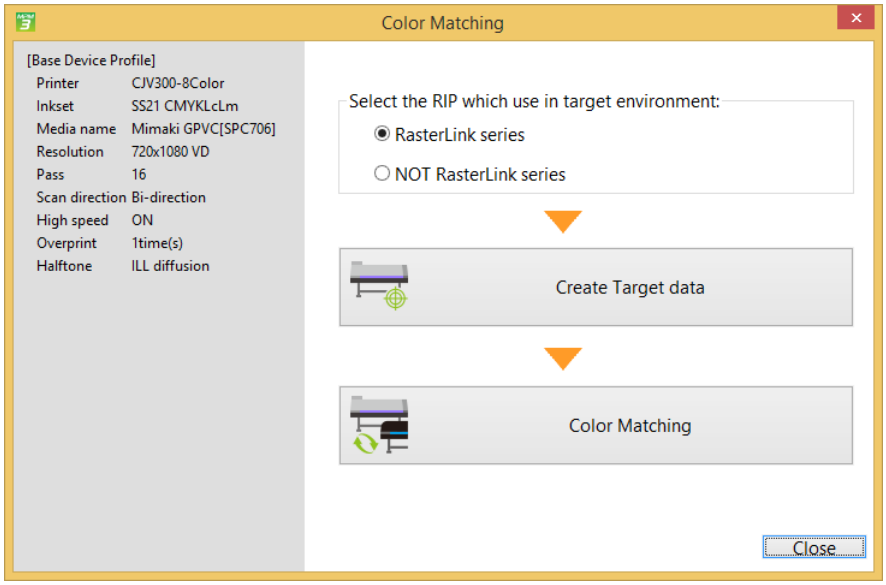
2 Load a device profile.

3 Select a device profile for color matching.

4 Click [Color Matching].



5 The [Color Matching] window appears.



Color matching flow

Color matching flow may vary depending on RIP software used by target printers as described below.

When a target environment uses RasterLink series as RIP software

STEP1: Create information for target environment

- "Print charts in the target environment." (P. 106)
- "Load a device profile used in the target environment." (P. 107)
- "Measure the target chart." (P. 108)
- "Save information in a file." (P. 109)

STEP2: Perform Equalization

- "Adjust ink limit." (P. 110)
- "Adjust the linearization parameters." (P. 111)
- "Adjust the gray balance parameters." (P. 111)
- "Print a chart for which Equalization has been carried out, and check the color difference with the target environment." (P. 112)

Check color difference, and go to STEP4 if it is satisfactory, otherwise go to STEP3.

STEP3: Perform Emulation

- "Create a Target Profile." (P. 113)
- "Create an Emulation Profile." (P. 113)
- "Accuracy Improvement" (P. 114)

STEP4: Save the Profile

- "Select media" (P. 115)
- "Save the profile." (P. 115)

When a target environment uses other than RasterLink series as RIP software

STEP1: Create information for target environment.

- "Print charts in the target environment." (P. 117)
- "Measure the target chart." (P. 117)
- "Save information in a file." (P. 118)

STEP2: Perform Emulation

- "Create a Target Profile." (P. 119)
- "Adjust ink limit." (P. 120)
- "Create an Emulation Profile." (P. 120)
- "Accuracy Improvement" (P. 121)

STEP3: Save the Profile

- "Select media." (P. 122)
- "Save the file." (P. 122)

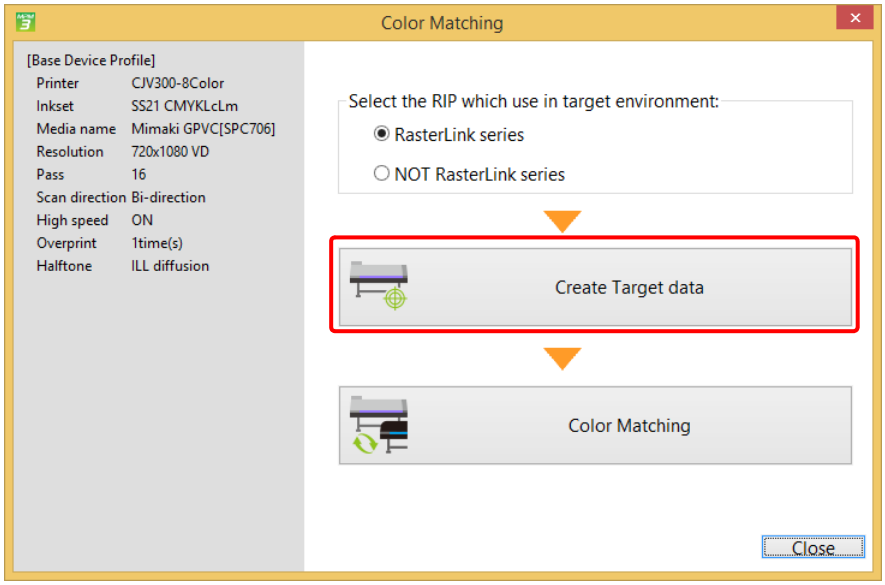
How to match color

Color matching for cases where a target environment uses RasterLink series as RIP software

Start

1 Select "RasterLink series" in the [Color Matching] window.

2 Click [Create Target data].



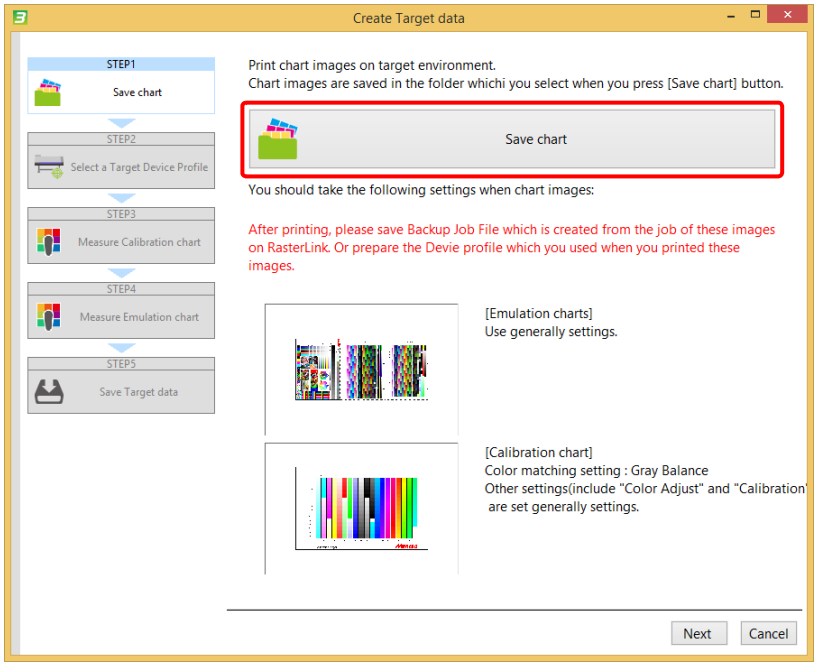
3 The [Create Target data] window appears.

STEP1: Create information for target environment

1 Print charts in the target environment.

• Save an image to be printed in the target environment.

(1) Click [Save chart].
Refer to "Click [Save chart]." (P. 89) for details.



(2) Print the saved image file using RasterLink series in the target environment under the following conditions.

Important!

- **[Emulation chart]**
  Color matching setting: Generally used settings.
  Other settings (include Device profile, Color Matching, pass, print direction, and color adjustment set) should be printed with generally used settings.
- **[Calibration chart]**
  Color matching setting: Gray Balance
  Other settingsv(include Device profile, Color Matching, pass, print direction, and color adjustment set) should be printed with generally used settings.

(3) After printing, obtain any of the following files from RasterLink.
- Backup job file of printed chart.
- Device profile used in printing.

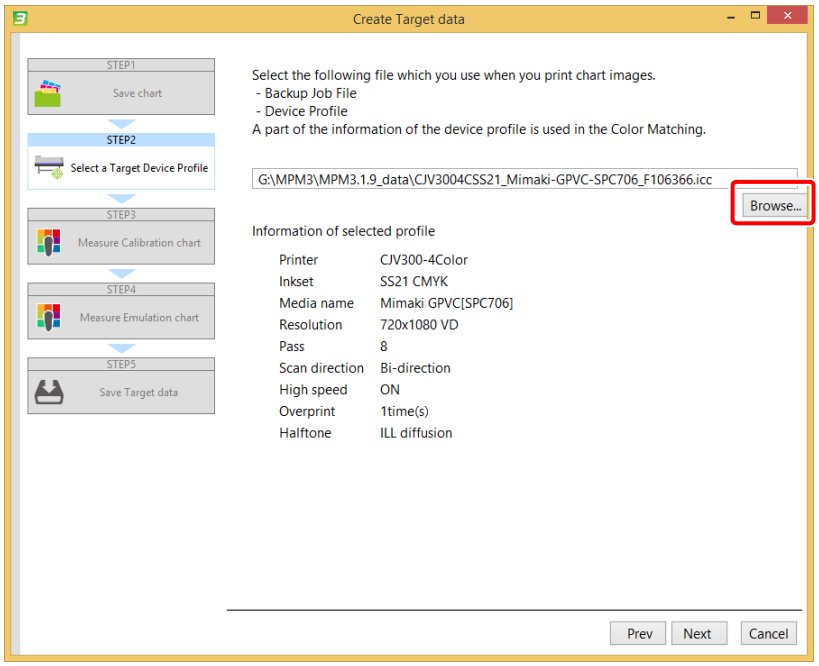
(4) Click [Next].

2 Load a device profile used in the target environment.

Load any of the following files used in printing charts in the target environment.

- Backup job file of printed chart.
- Device profile used in printing.

(1) Click [Browse...] to select the file above.

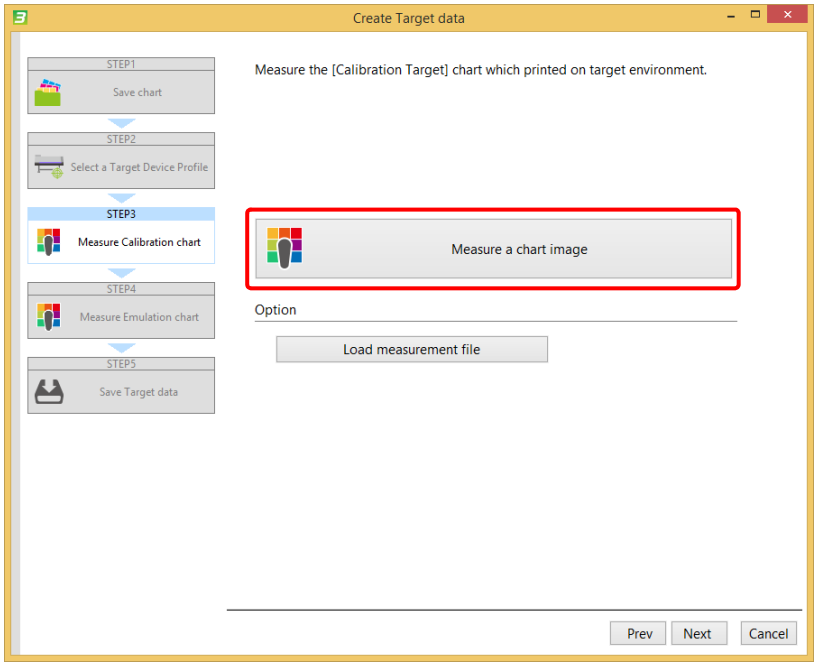


(2) Click [Next].

3 Measure the target chart.

• Measure the calibration target chart printed in the target environment.

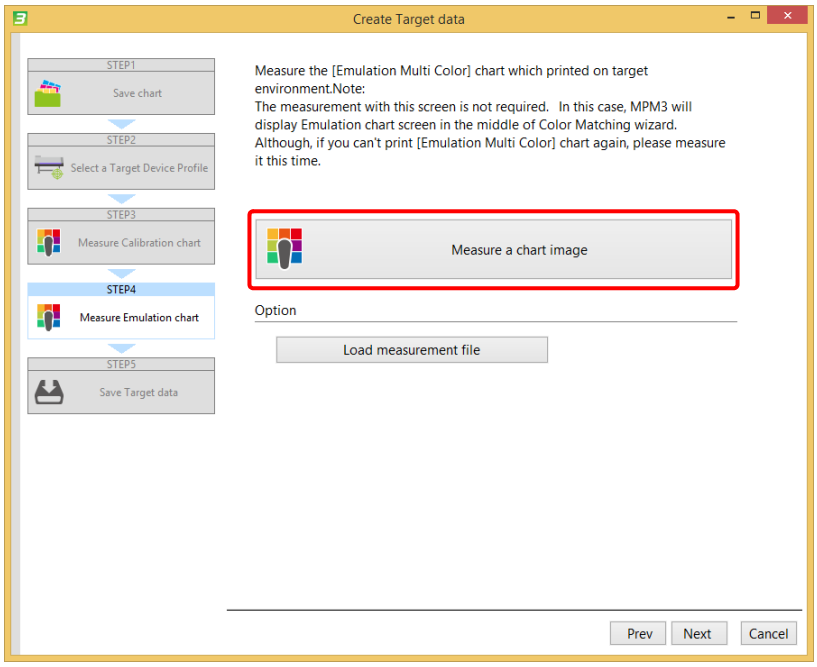
(1) Click [Measure a chart image].



(2) Click [Next].

(3) Measure the emulation chart printed in the target environment.
For operation procedure, refer to "Chapter 13 How to measure color with a colorimeter" (P. 163).

• You may choose not to measure color in this page. If that is the case, the color measurement window for emulation chart appears in a later process, as necessary. However, we recommend you measure the chart in this step, whenever it seems difficult to do so once again in the target environment.

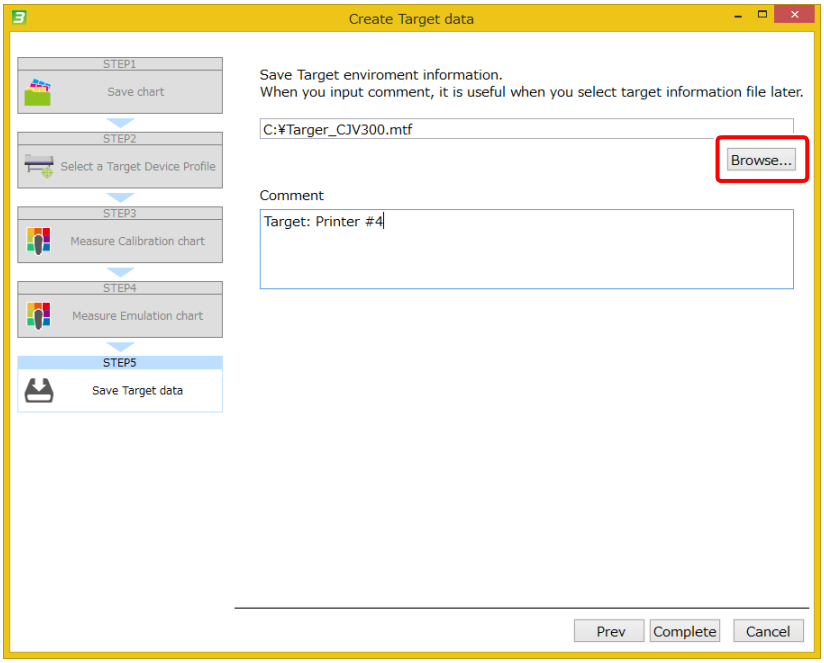


(4) Click [Next].

4 Save information in a file.

• Save the target information file (mtf file).

(1) Click [Browse...] to specify a destination to save.

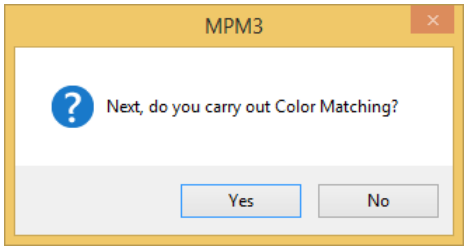


(2) Click [Complete].

• The target information file is saved in the specified destination.

(3) The message window below appears.

- **To continue color matching** Click [Yes].
- **To quit after creating target information** Click [No].
  The [Color Matching] main window reappears.

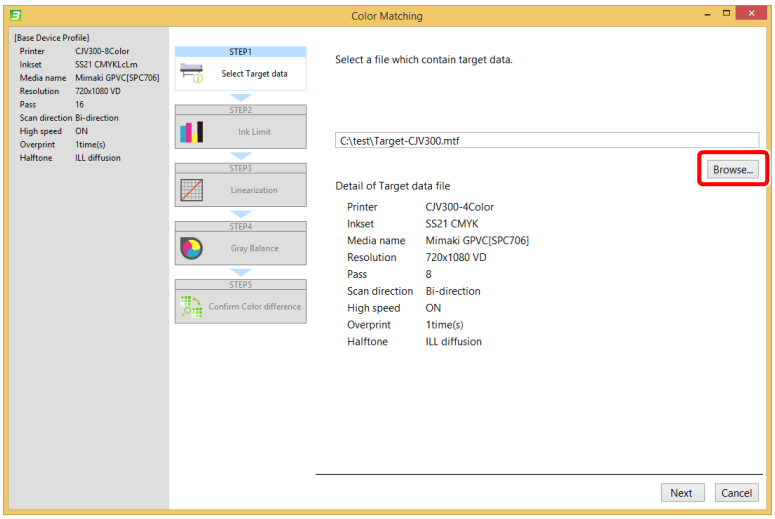


STEP2: Perform Equalization

1 Specify target information file.

- If you have continued from STEP1, go to 2.

(1) Click [Browse...] to select a file.
- Information is displayed for the device profile used in the target.

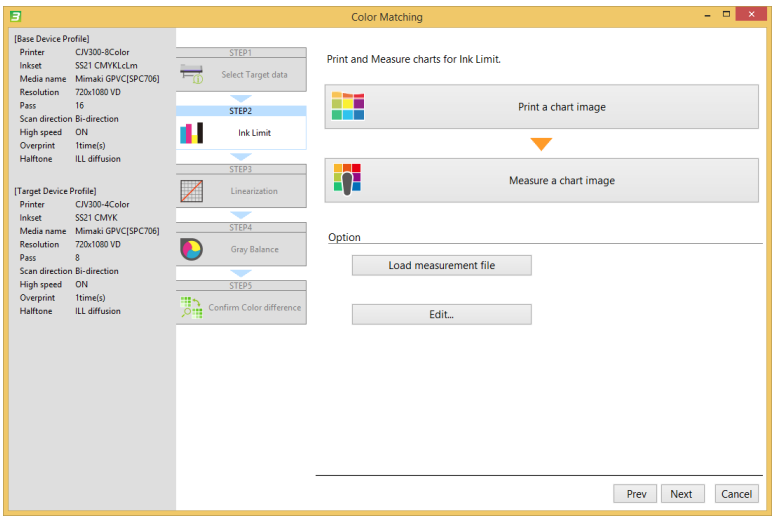


(2) Click [Next].

2 Adjust ink limit.

(1) Connect to a printer with which color matching should be performed, and print a calibration ink limit chart.

(2) Measure the printed chart.
For operation procedure, refer to "Chapter 13 How to measure color with a colorimeter" (P. 163).

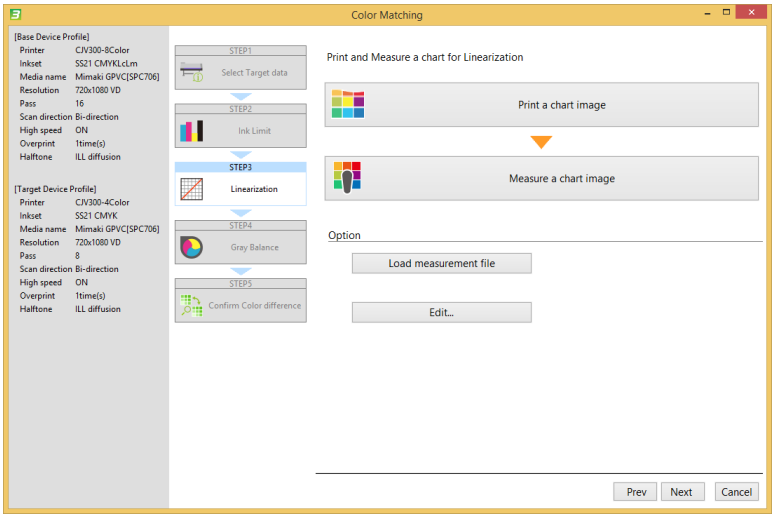


(3) Click [Next].

3 Adjust the linearization parameters.

(1) Connect to a printer with which color matching should be performed, and print a linearization chart.

(2) Measure the printed chart.
For operation procedure, refer to "Chapter 13 How to measure color with a colorimeter" (P. 163).

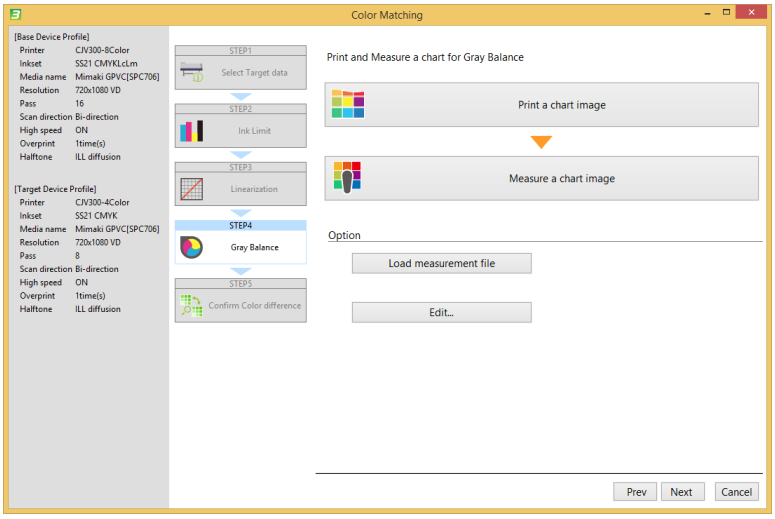


(3) Click [Next].

4 Adjust the gray balance parameters.

(1) Connect to a printer with which color matching should be performed, and print a gray balance chart.

(2) Measure the printed chart.
For operation procedure, refer to "Chapter 13 How to measure color with a colorimeter" (P. 163).



(3) Click [Next].

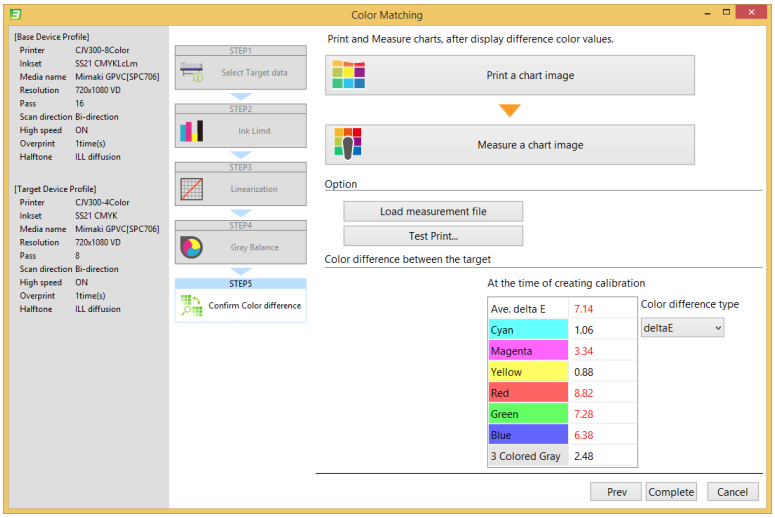
5 Print a chart for which Equalization has been carried out, and check the color difference with the target environment.

(1) Connect to a printer with which color matching should be performed, and print a calibration chart.

(2) Measure the printed chart.

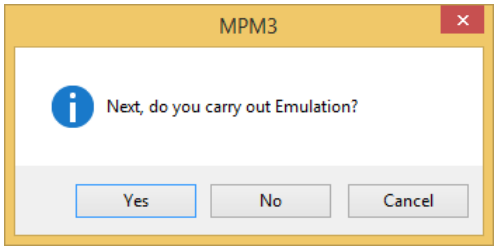
(3) Color difference with the target is given.

(4) Check if the color difference is acceptable.



(5) Click [Complete] to display the following message.

- **Color difference is not acceptable** Click [Yes] to carry out Emulation.(To next page.)
- **Color difference is acceptable** Click [NO].
  The file saving window appears.
  (To "Save information in a file." (P. 109))

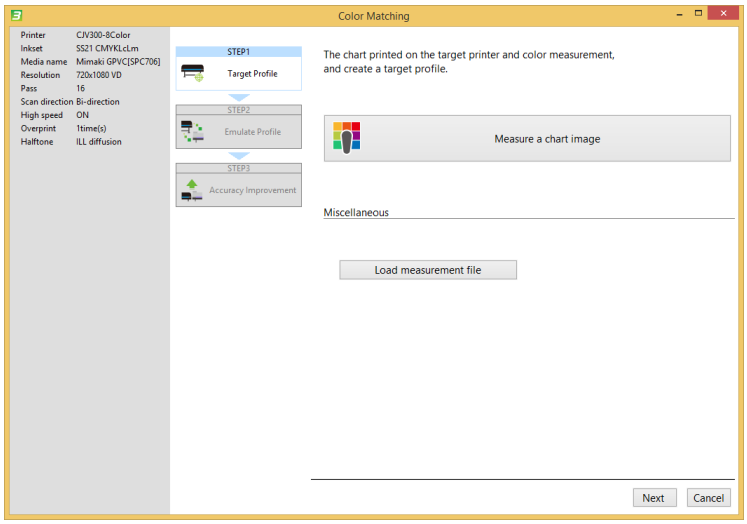


STEP3: Perform Emulation

1 Create a Target Profile.

(1) Different buttons are displayed according to whether an Emulation chart was measured when creating target information.

- **When not measured** [Measure the chart by clicking the [Measure a chart image] that appears.
- **When measured** [Create the Emulation profile] appears as describe in 2 below. Click [Print a chart image] to create a profile based on the color measurement data.



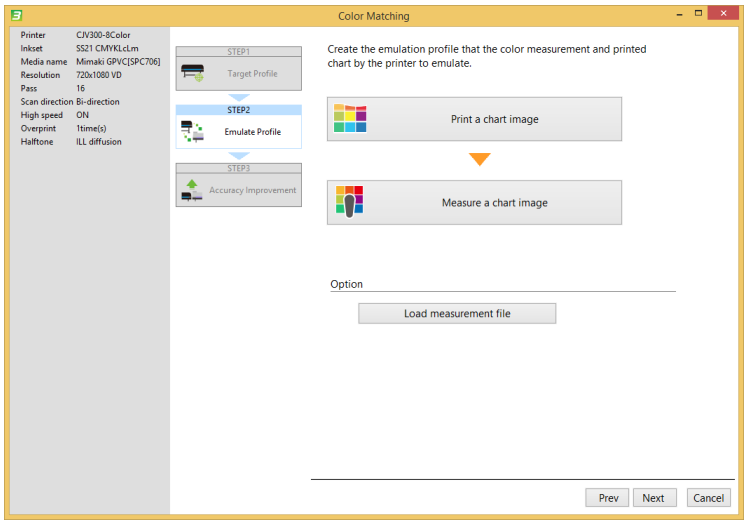
(2) After a profile has been created, the file input window appears.

- Enter a file name.

(3) Click [Next].

2 Create an Emulation Profile.

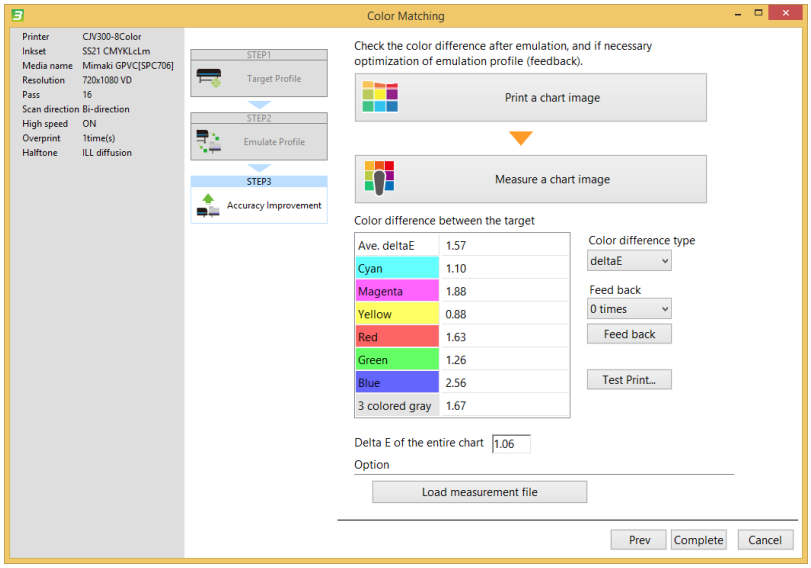
(1) Create an Emulation Profile.
For operation procedure, refer to "STEP3: Create an Emulation Profile" (P. 92).



(2) Click [Next].

3 Accuracy Improvement

(1) Accuracy Improvement.
For operation procedure, refer to "STEP4: Accuracy Improvement" (P. 94).

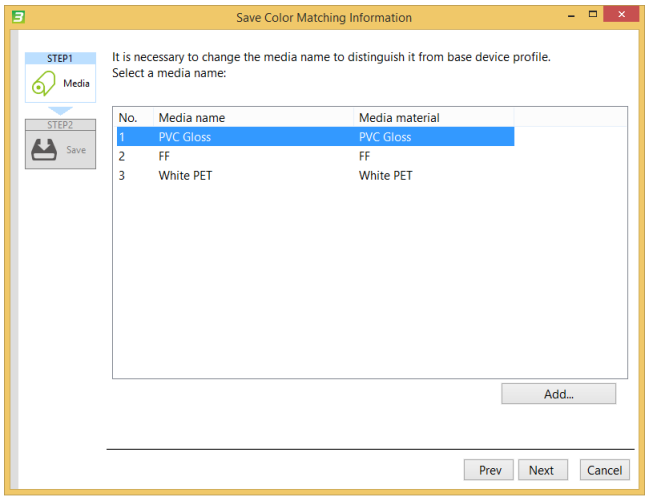


(2) Click [Complete].

STEP4: Save the Profile

1 Select media

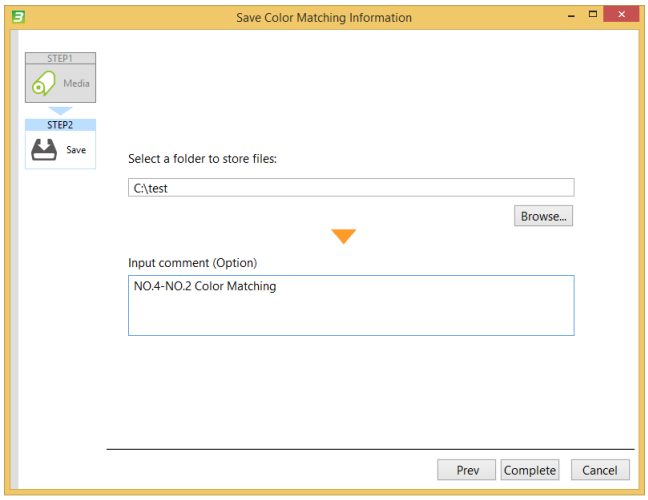
(1) Select the target media.
The created device profile is saved as a different file with changed media name in order to distinguish from the base device profile.



(2) Click [Next].

2 Save the profile.

(1) **When Equalization was performed** Specify a device profile name and a destination folder to save.
When Emulation was performed Specify only a destination folder to save.



(2) Click [Complete].
- The file is saved.

About a file to be saved:
When Equalization was performed, the following files are saved.
- •Device profile*.icc: Target information is saved as a reference color.
- •Text file containing color matching information
- •File containing measured color values

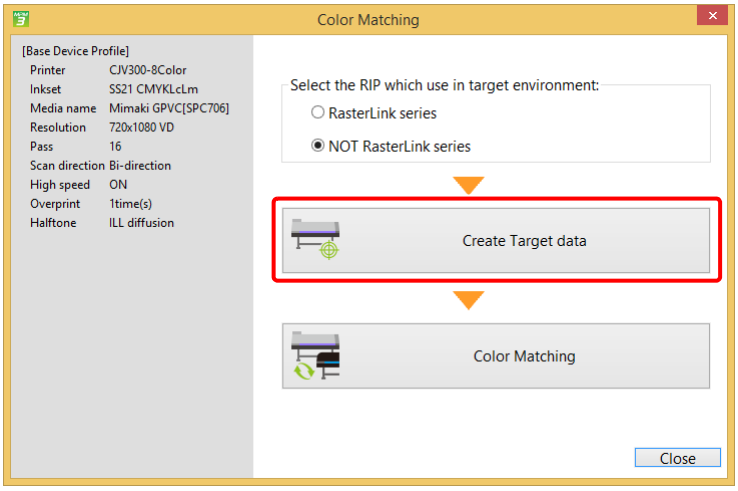
When Emulation was performed, the following files are saved.
- •Target profile(*.icm)
- •Emulation profile(*.mtce): Target information is saved as a reference color.
- •Text file containing color matching information
- •File containing measured color values

Color matching for cases where a target environment uses other than RasterLink series as RIP software

Start

1 Select "NOT RasterLink series" in the [Color Matching] window.

2 Click [Create Target data].



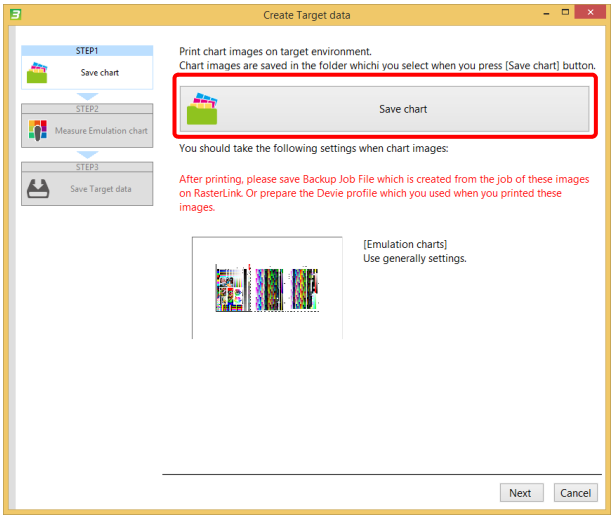
3 The [Create Target data] window appears.

STEP1: Create information for target environment.

1 Print charts in the target environment.

• Save an image to be printed in the target environment.

(1) Click [Save chart].
Refer to "Click [Save chart]." (P. 89) for details.



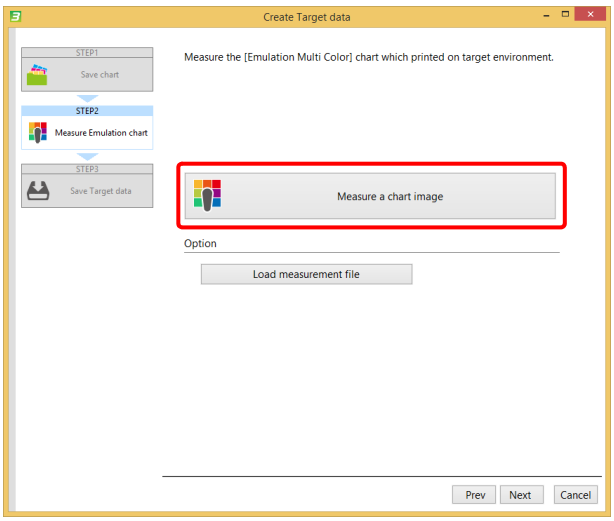
(2) Print the saved image file with generally used settings (include Profile, Color Matching, print conditions, color adjustment) in the target environment.

(3) Click [Next].

2 Measure the target chart.

• Measure the emulation chart printed in the target environment.

(1) Click [Measure a chart image].
For operation procedure, refer to "Chapter 13 How to measure color with a colorimeter" (P. 163).

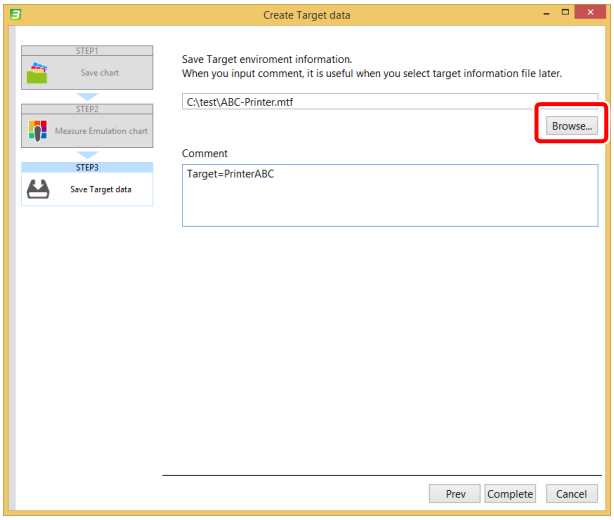


(2) Click [Next].

3 Save information in a file.

• Save the target information file (mtf file).

(1) Click [Browse...] to specify a destination to save.

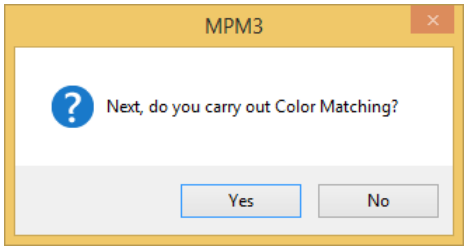


(2) Click [Complete].

- The target information file is saved in the specified destination.

(3) The message window below appears.

- **To continue color matching** Click [Yes].
- **To quit after creating target information** Click [No].
  The [Color Matching] main window reappears.

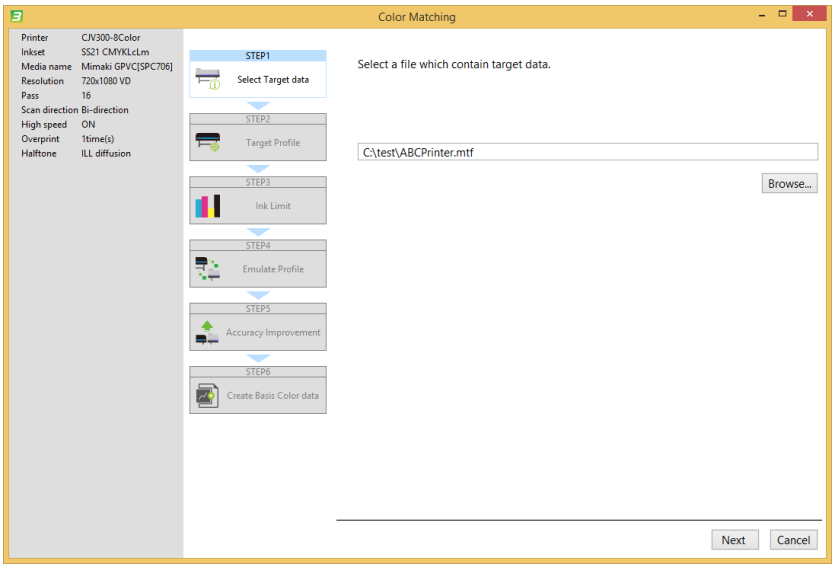


STEP2: Perform Emulation

1 Specify target information file.

- If you have continued from STEP1, go to 2.

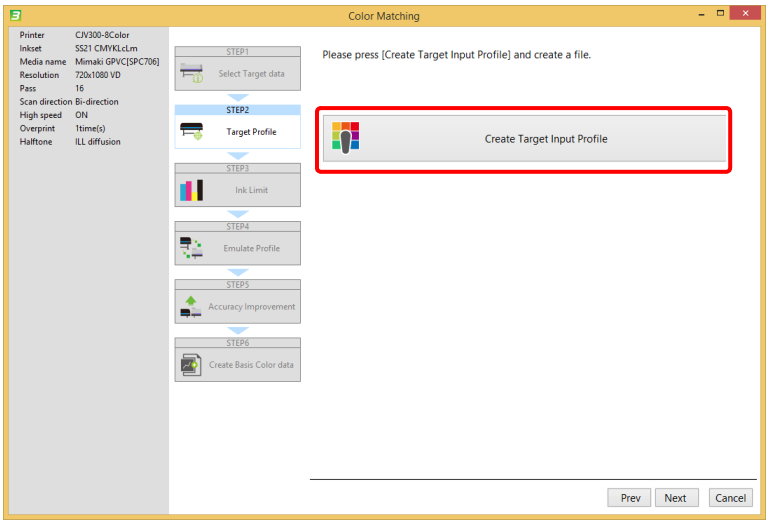
(1) Click [Browse...] to select a file.



(2) Click [Next].

2 Create a Target Profile.

(1) Click [Create Target Input Profile] to create a profile based on the color measurement data.



(2) After a profile has been created, the file input window appears.

- Enter a file name.

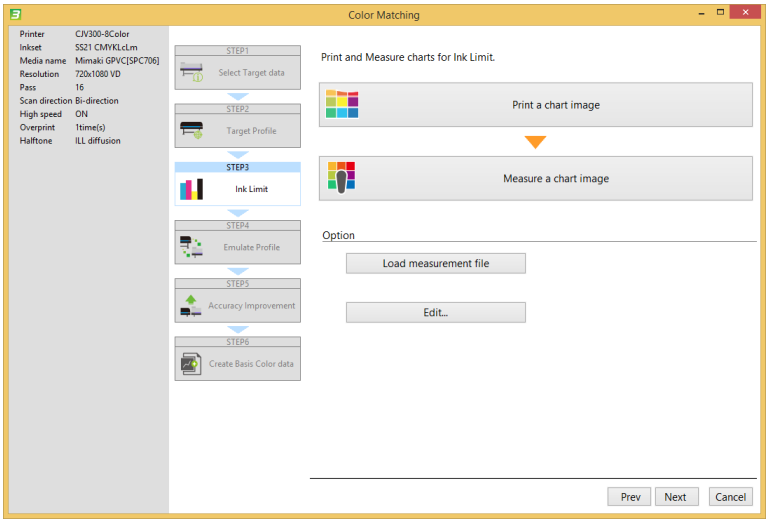
(3) Click [Next].

3 Adjust ink limit.

• Set an ink limit in the emulation environment.

(1) Connect to a printer with which color matching should be performed, and print a calibration ink limit chart.

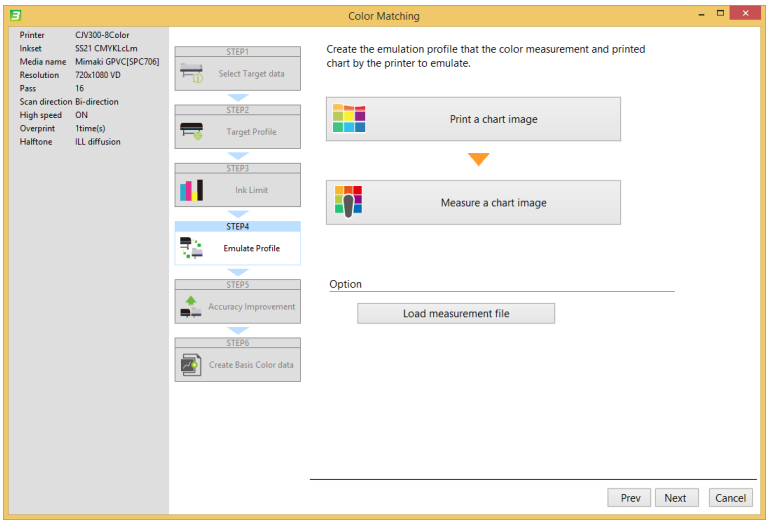
(2) Measure the printed chart.
For operation procedure, refer to "Chapter 13 How to measure color with a colorimeter" (P. 163).



(3) Click [Next].

4 Create an Emulation Profile.

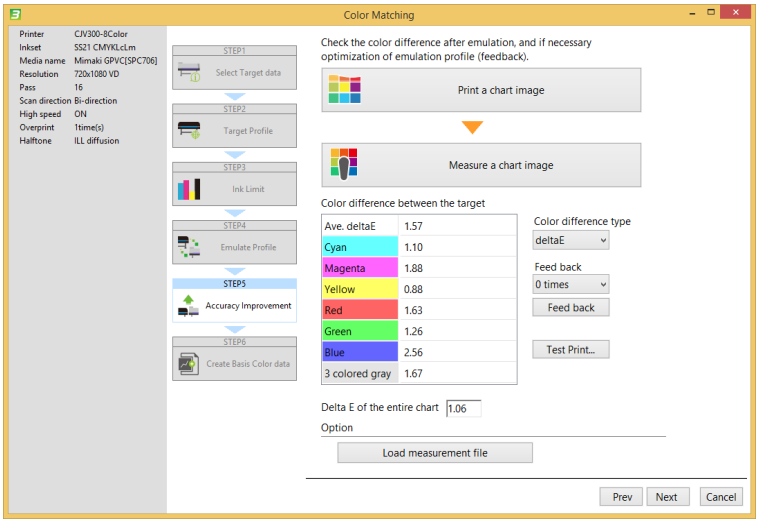
(1) Create an Emulation Profile.
For operation procedure, refer to "STEP3: Create an Emulation Profile" (P. 92).



(2) Click [Next].

5 Accuracy Improvement

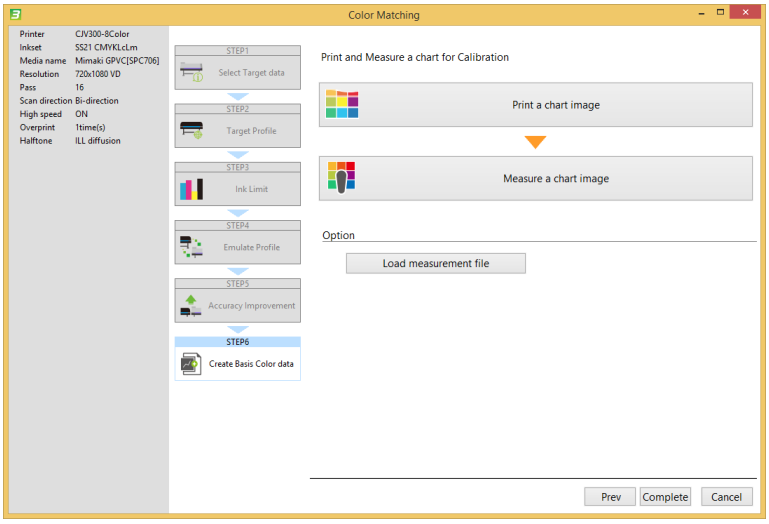
(1) Improve accuracy.
For operation procedure, refer to "STEP4: Accuracy Improvement" (P. 94).



(2) Click [Next].

6 Create Base Color data

(1) Save the current color as a reference color to facilitate subsequent color matching operations.
For operation procedure, refer to "Click [Create Base Color data]." (P. 54).



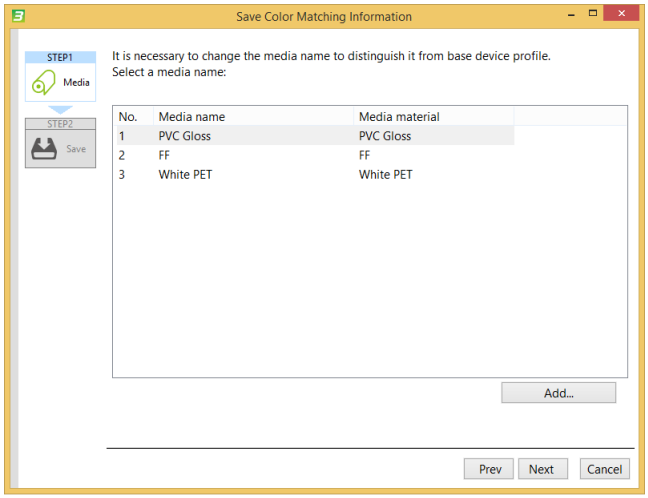
(2) Click [Complete].

STEP3: Save the Profile

1 Select media.

• The created device profile is saved as a different file with changed media name in order to distinguish from the base device profile.

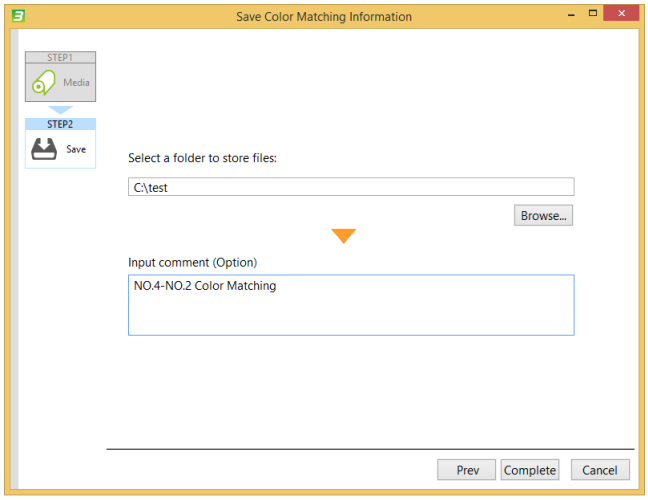
(1) Select the target media from the media list.



(2) Click [Next].

2 Save the file.

(1) Specify a destination folder to save.



(2) Click [Complete].

• The file is saved.

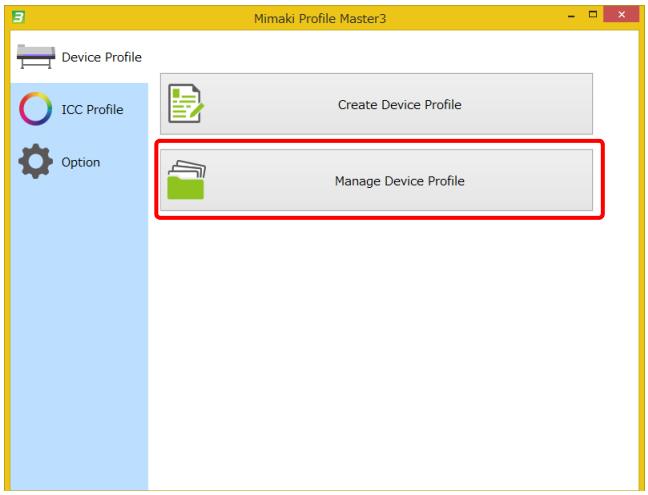
About a file to be saved:
The following files are saved.
•Target profile (*.icm)
•Emulation profile (*.mtce): The data created in "Create Base Color data" (P. 121) is saved as the reference color.
•Text file containing color matching information
•File containing measured color values

Daily Confirm

You can check temporal change based on the reference colors contained in the device profile or the emulation profile.

Starting the [Daily Confirm] function

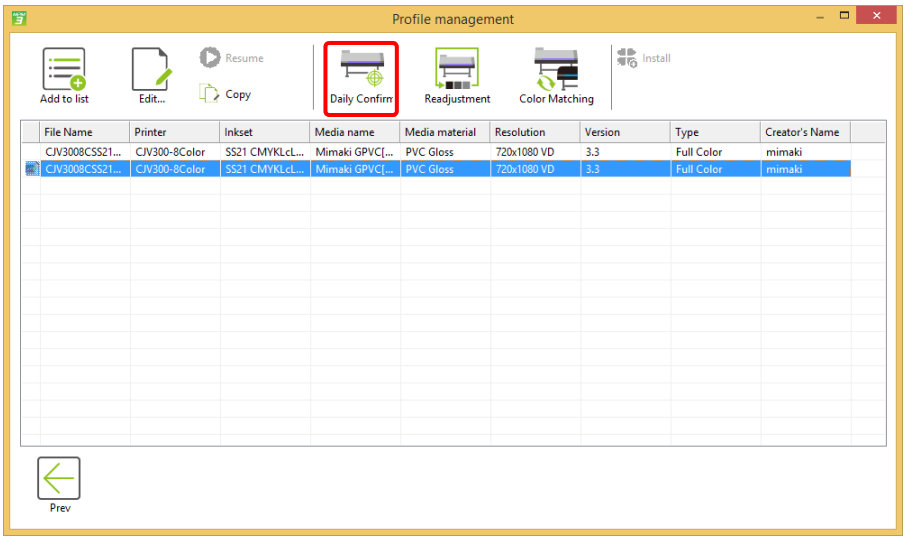
1 Click [Manage Device Profile].



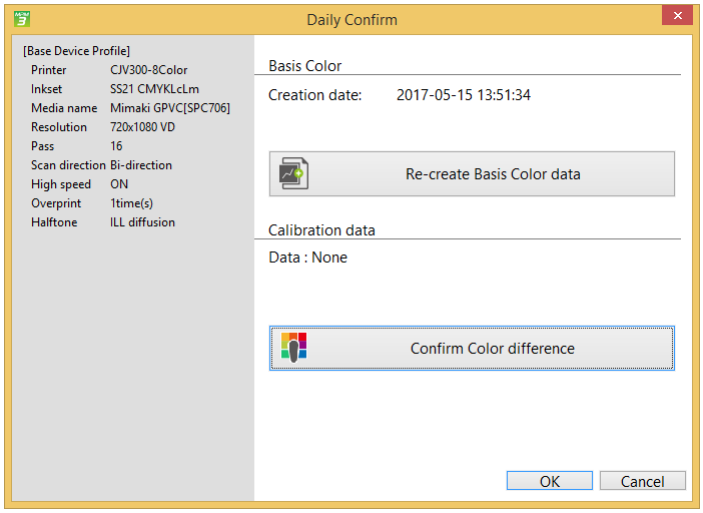
2 Load a device profile.

3 Select a device profile to perform [Daily Confirm].

4 Click [Daily Confirm].

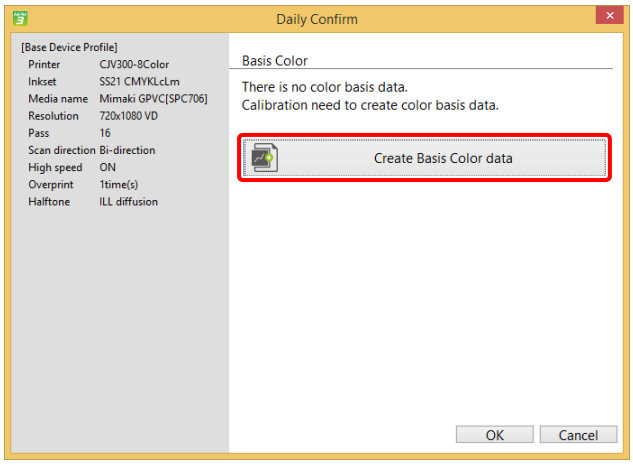


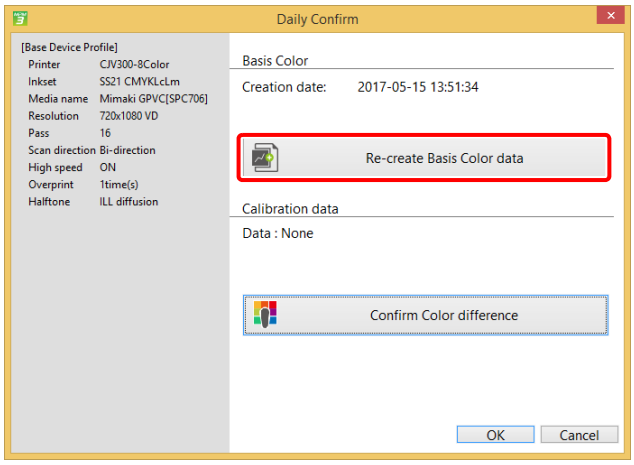
5 The [Daily Confirm] window appears.



Creating/re-creating a reference color

When a reference color is not defined, the current printer's color is saved as such in the device profile.
You can redefine the reference color.
To create or re-create a reference color, click [Create Basis Color data] or [Re-create Basis Color data], respectively.
For operation procedure, refer to "Setting the calibration reference color" (P. 54).





Confirm Color difference

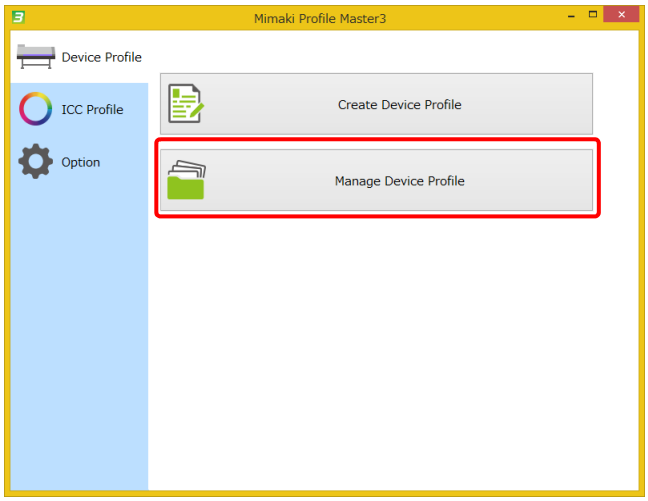
Perform daily confirm for color difference.
Refer to "Workflow for printing with calibration" (P. 65) for details.
If color difference is unacceptable, perform [Readjustment] as described at next page.

Readjustment

[Color difference is regarded unacceptable according to [Daily Confirm], perform [Readjustment].

Starting the [Readjustment] function

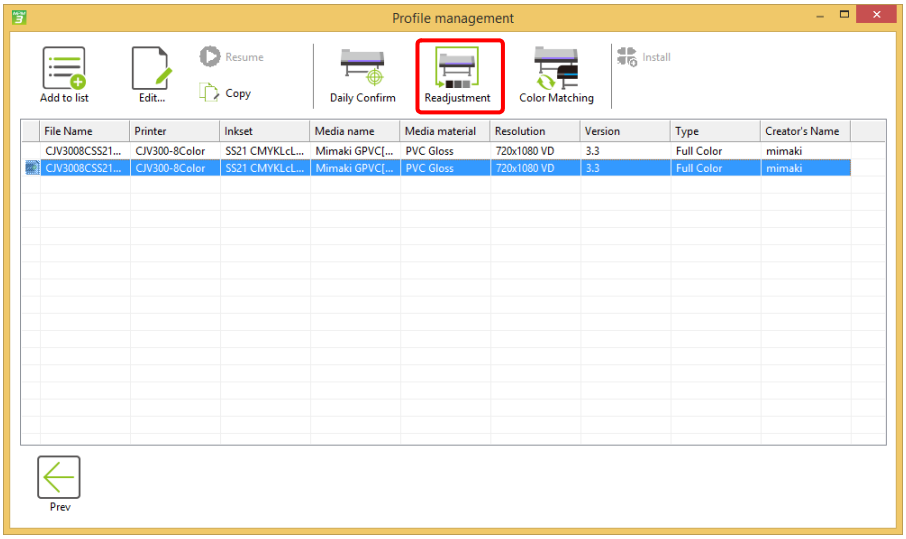
1 Click [Manage Device Profile].



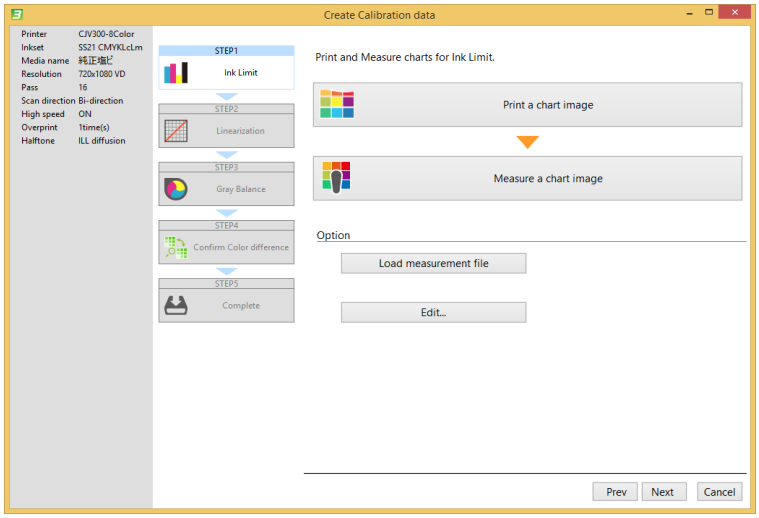
2 Load a device profile.

3 Select a device profile to perform [Readjustment].

4 Click [Readjustment].



5 The [Readjustment] window appears.



Readjustment procedure

For the procedure, refer to "STEP1: Adjust ink limit." (P. 60)~ in Setting calibration.

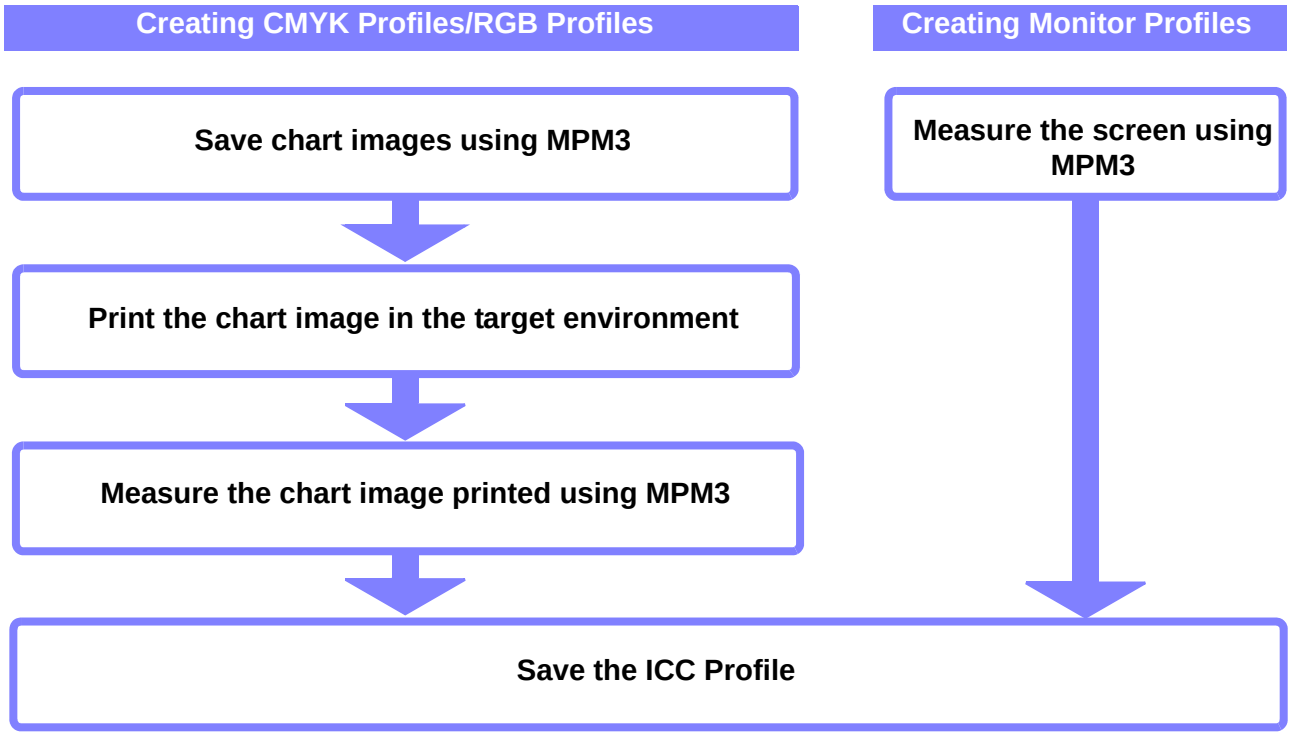
Chapter 10
Creating an ICC Profile

Available ICC Profiles

You can create the following three types of profiles in MPM3.

Types of profile	Details
CMYK profile	• Profile for displaying CMYK color images on monitors with a color simulation function "Creating a CMYK Profile" (P. 130) • Output profile for third-party RIP applications that support to ICC profiles
RGB profile	• Profile for displaying RGB color images on monitors with a color simulation function "Creating an RGB Profile" (P. 134) • Output profile for the calibration printer using the printer driver
Monitor profile	• Profile for reproducing color on monitors "Creating a Monitor Profile" (P. 137)

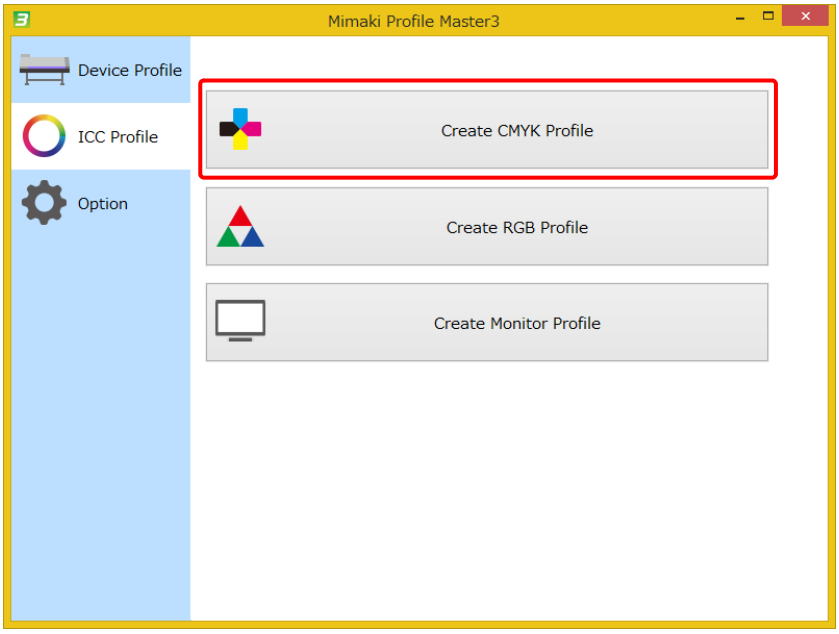
Work Flow for Creating an ICC Profile



Creating a CMYK Profile

Starting the Create CMYK Profile Wizard

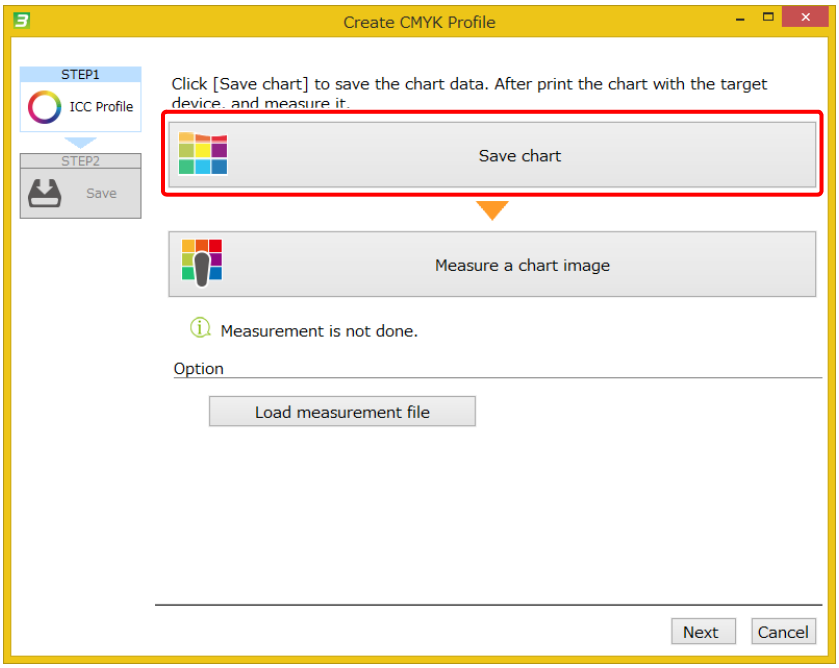
1 **Select [ICC Profile] - [Create CMYK Profile] from the main screen.**



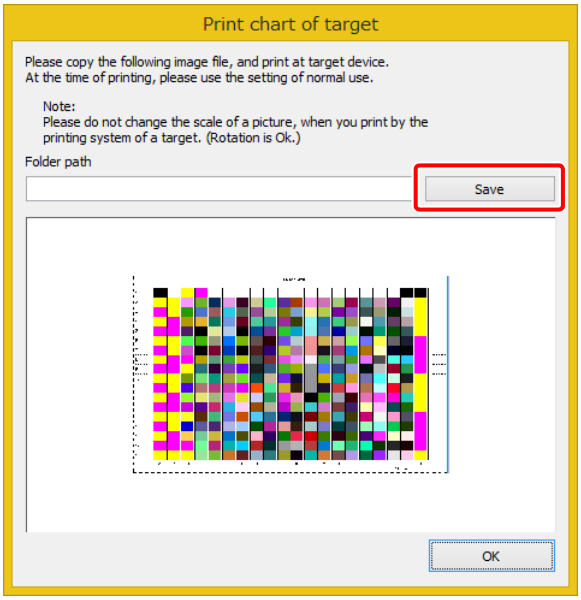
Creating a CMYK Profile

1 Click [Save chart].

- Save the chart image as a file to print on the target printer.



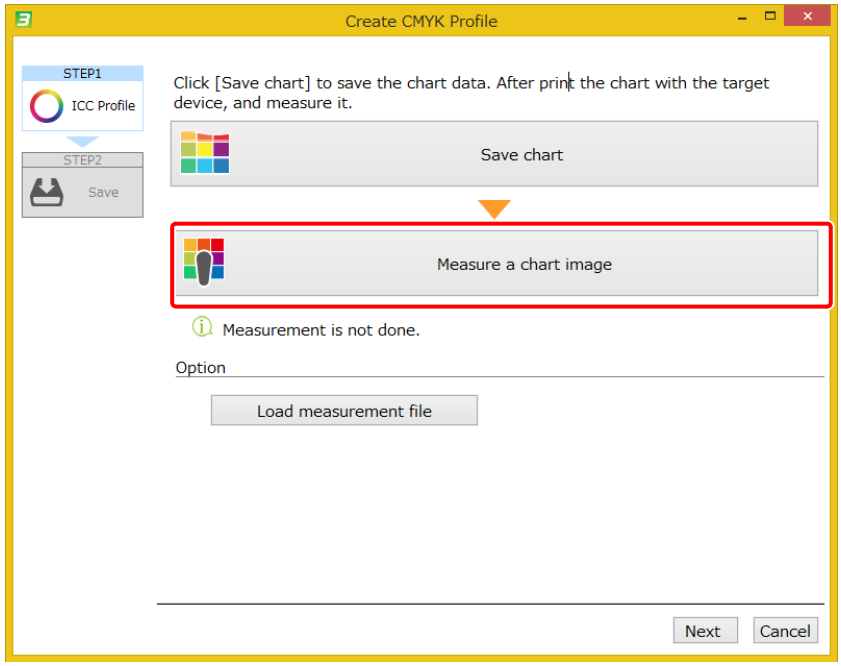
- Specify the folder in which you want to save the file on the Save screen displayed.



2 Print the chart image saved in the target printer.

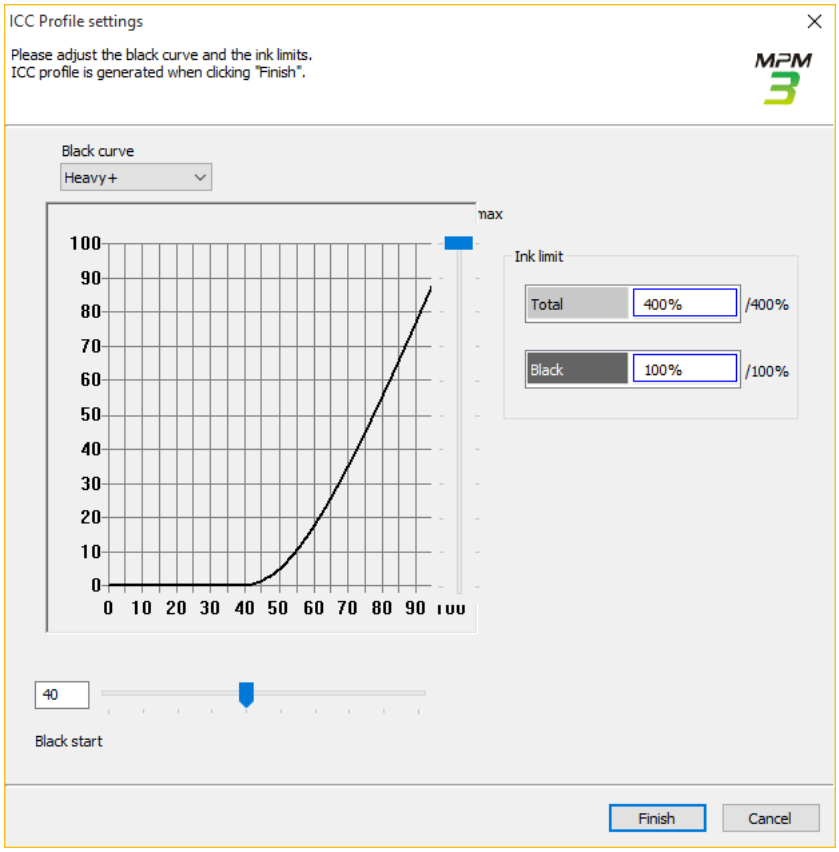
- Load the chart image to RIP, software, and so on, for the target environment, and then print.

3 Click [Measure a chart image].



(1) Measure the chart image that was printed with the target printer.
- Refer to "Chapter 13 How to measure color with a colorimeter" (P. 163) for details.

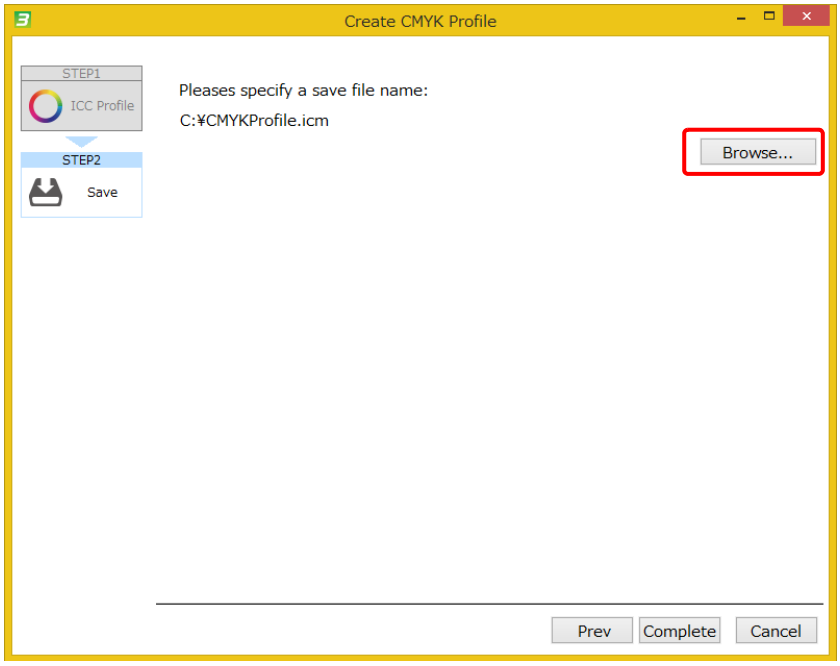
(2) After color chart measuring is complete, the Black curve settings screen for the ICC Profile is displayed.
- Refer to "Edit the ICC profile settings." (P. 34)for details on making settings.
- When you have finished making settings, click [Finish].



- When you are returned to the Create CMYK Profile screen, click [Next].

4 Input the save file name.

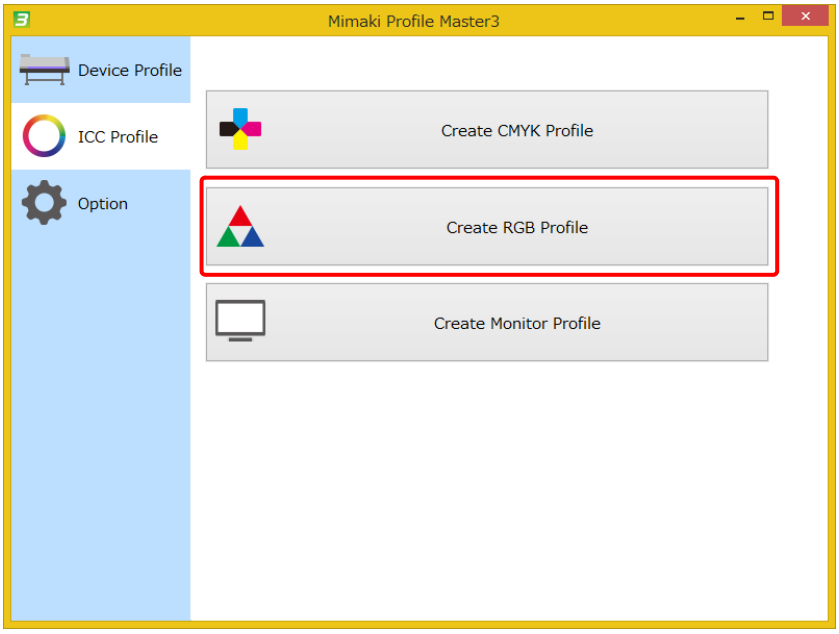
- Click [Browse...] to specify the destination in which you want to save the file.
- After making specifications, click [Complete] to save the file and exit.



Creating an RGB Profile

Starting the Create RGB Profile Wizard

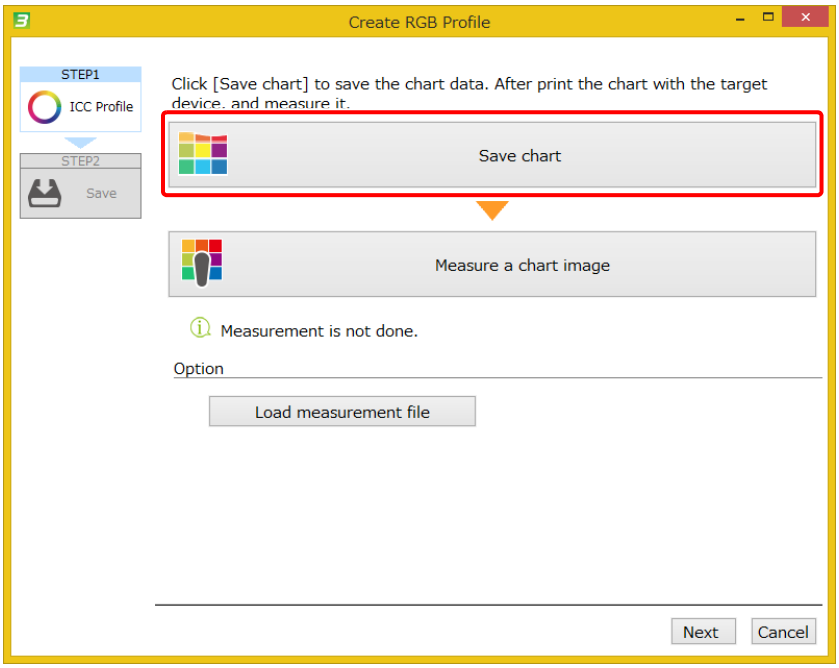
1 **Select [ICC Profile] - [Create RGB Profile] from the main screen.**



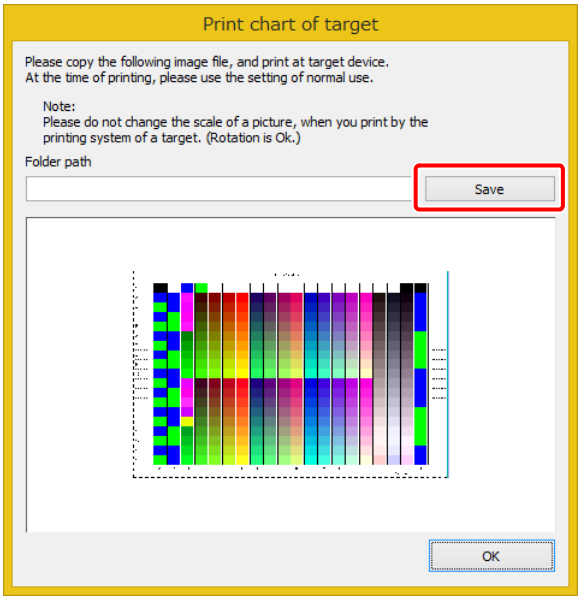
Creating an RGB Profile

1 Click [Save chart].

- Save the chart image as a file to print on the target printer.



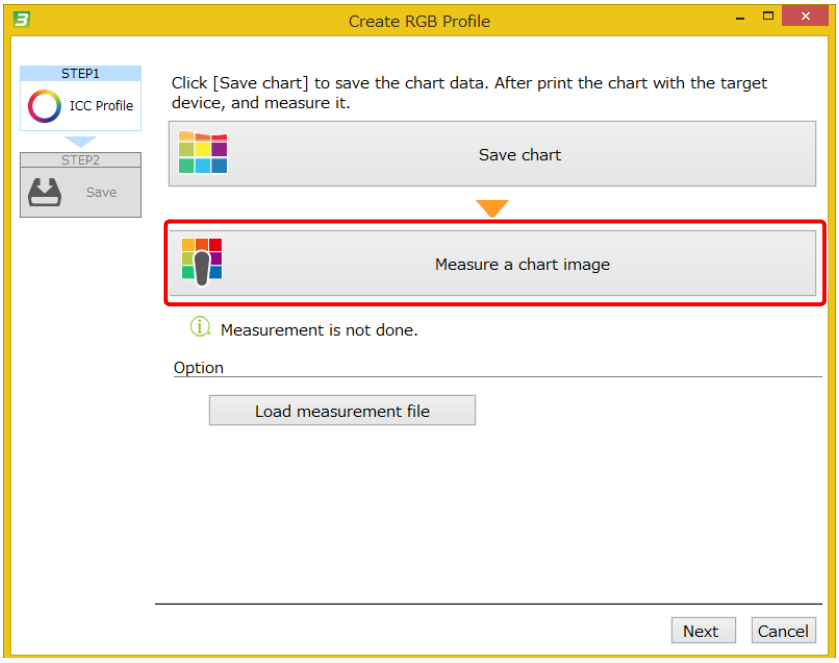
- Specify the folder in which you want to save the file on the Save screen displayed.



2 Print the chart image saved in the target printer.

- Load the chart image to RIP, software, and so on, for the target environment, and then print.

3 Click [Measure a chart image].

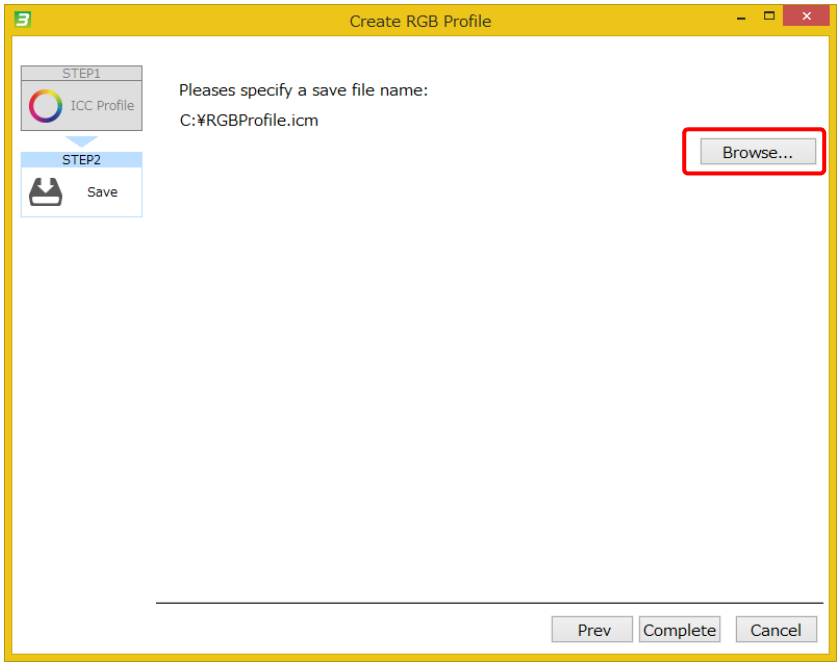


(1) Measure the chart image that was printed with the target printer.
- Refer to "Chapter 13 How to measure color with a colorimeter" (P. 163) for details.

(2) After color chart measuring is complete, the profile is created automatically.
- When you are returned to the Create RGB Profile screen, click [Next].

4 Input the save file name.

- Click [Browse...] to specify the destination in which you want to save the file.
- After making specifications, click [Complete] to save the file and exit.



Creating a Monitor Profile

Important!

- Only the following colorimeter devices are supported for creating monitor profiles. This function is not available when any other colorimeter device is selected.
  [Supported Colorimeters]
  i1Pro

Preparing the Monitor

Change the monitor's settings. Make the following settings according to the monitor being used.

When the monitor has a "Color Temperature" setting.

Set the color temperature according to the environment (viewing environment) for checking printed materials. The following are frequently used for printing.

5000K	Fluorescent lamp equivalent to daylight white, standard in the printing field
6500K	Fluorescent lights: equivalent to daylight brightness (brightness during daytime cloudy weather)

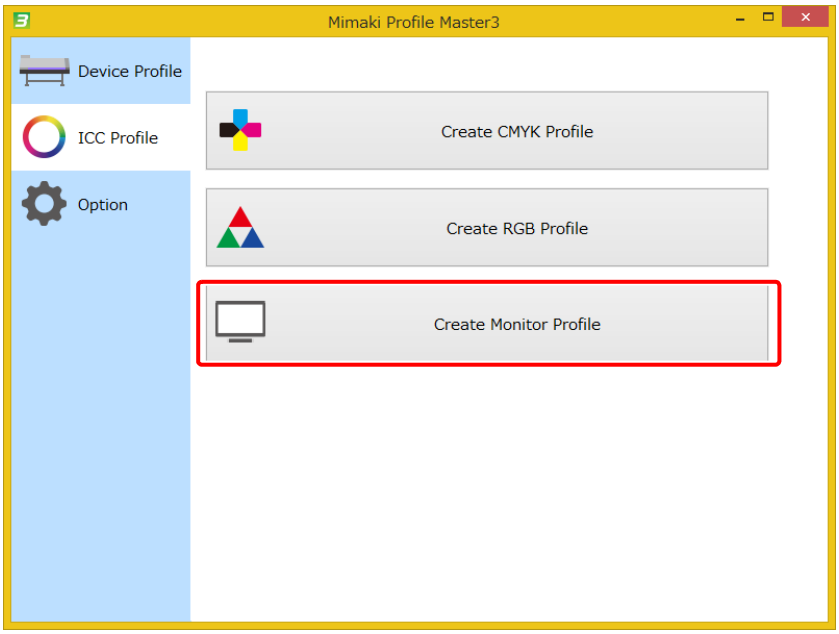
When the monitor does not have a "Color Temperature" setting.

Return to the default factory settings.

For details on making monitor settings, refer to the user's guide supplied with your monitor.

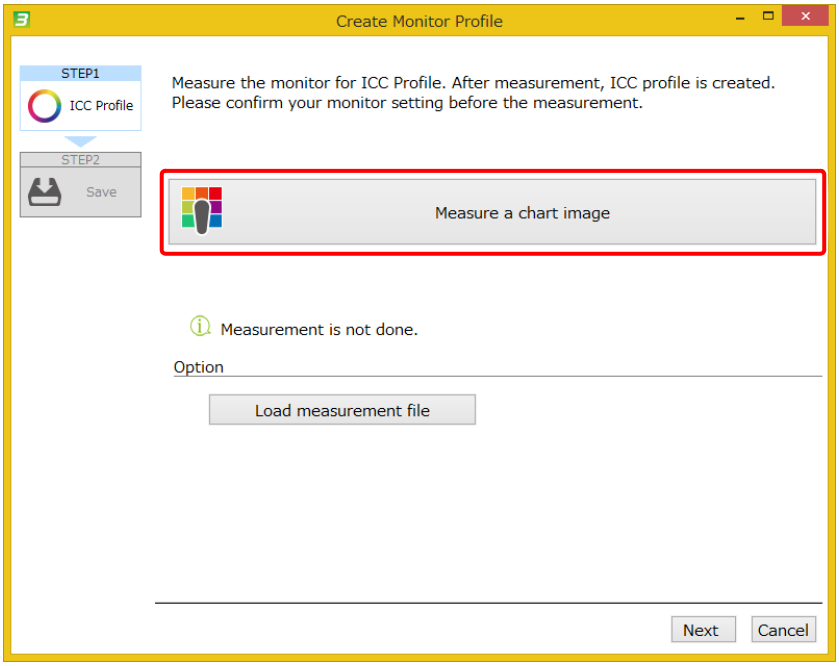
Starting the Create Monitor Profile Wizard

1 Select [ICC Profile] - [Create Monitor Profile] from the main screen.



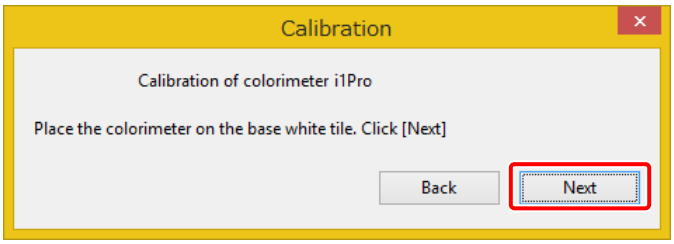
Creating a Monitor Profile

1 Click [Measure a chart image].



2 Attach the colorimeter

• Place the i1Pro on the white tile, and then press [Next].

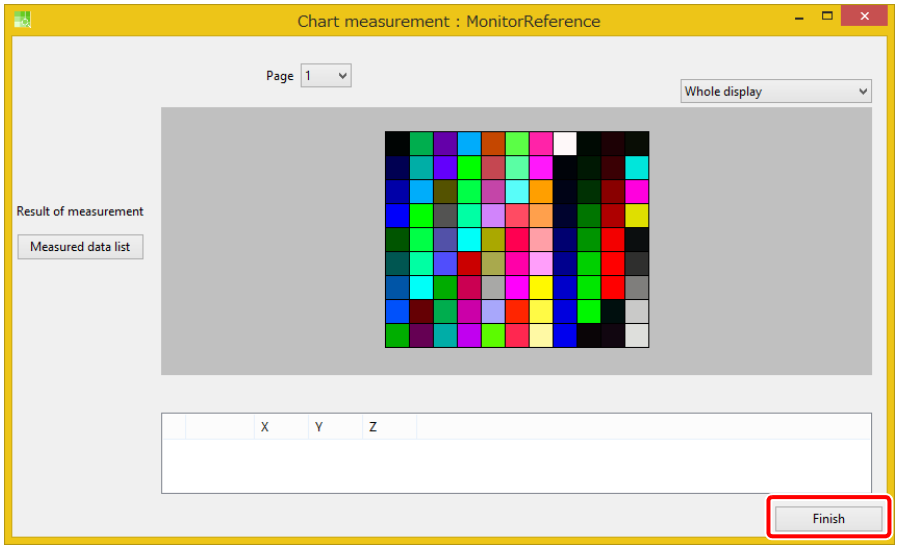


• The screen background turns black, and the "Mesuring Monitor" screen is displayed in the center of the display.
• When multiple monitors are connected, you can measure the color of the monitors by moving the "Mesuring Monitor" screen to the monitor that is being used to create the profile.
• Move the screen so that the center of the measuring area on the left of the "Mesuring Monitor" screen is at the center of the monitor.
• Attach the monitor measuring device to the i1Pro, and then attach it to the monitor. In this situation, place the light receiver in the center of the measuring area of the "Mesuring Monitor" screen.

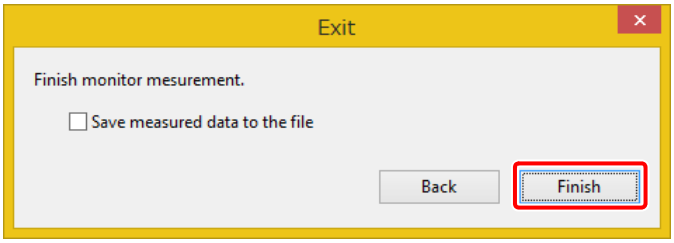
• After installing the colorimeter, click "Start".

3 Check the measurement results.

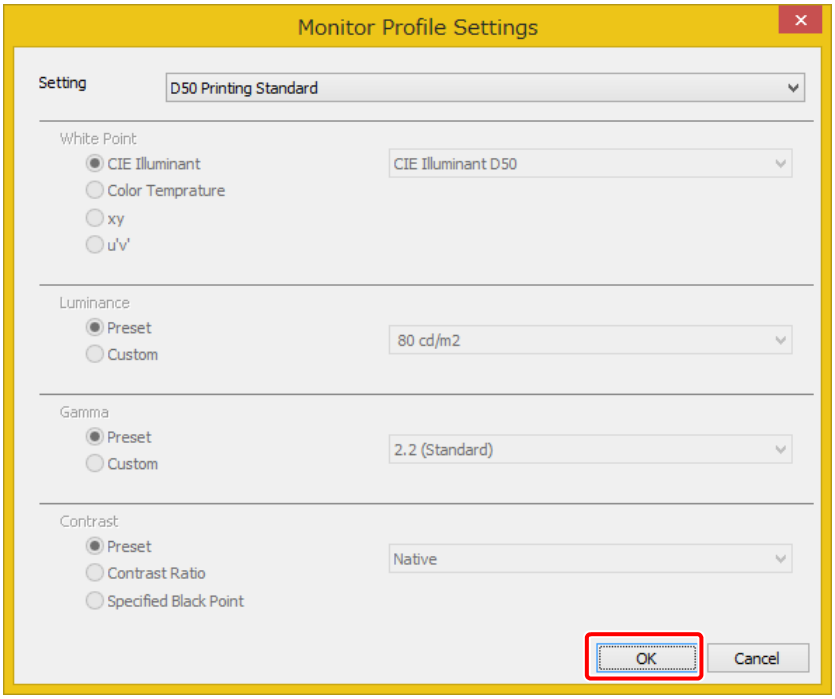
• After checking the measurement results, click [Finish].



• To save the measurement values, set "Save measured data to the file" to ON on the following screen. Click [Finish].



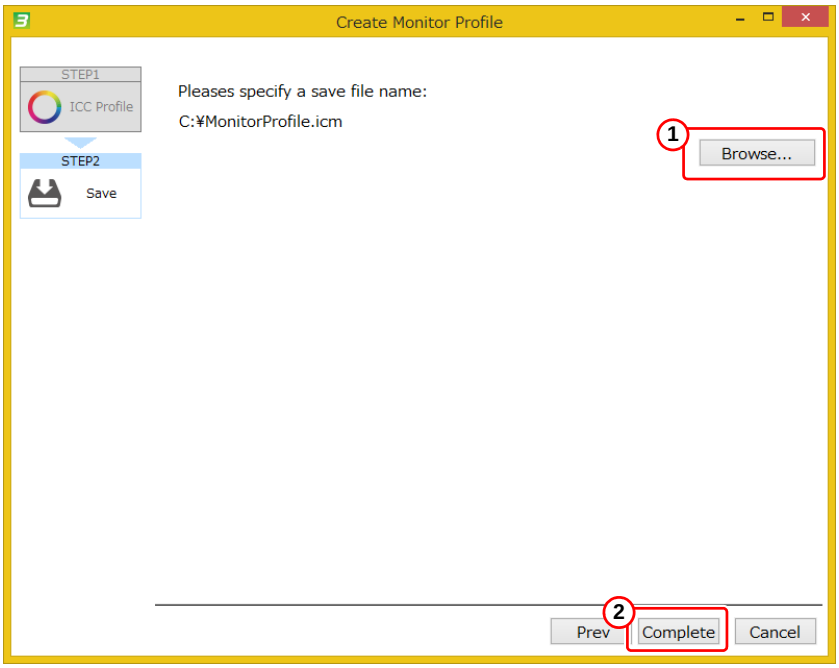
4 Set the [Monitor Profile Settings].



• After making settings, click [OK].

5 Input the save file name.

- Click [Browse...] to specify the destination in which you want to save the file.
- After making specifications, click [Complete] to save the file and exit.



Using a Monitor Profile

Set the monitor profile in your operating system.

Windows

1 Right-click on the monitor profile you created.

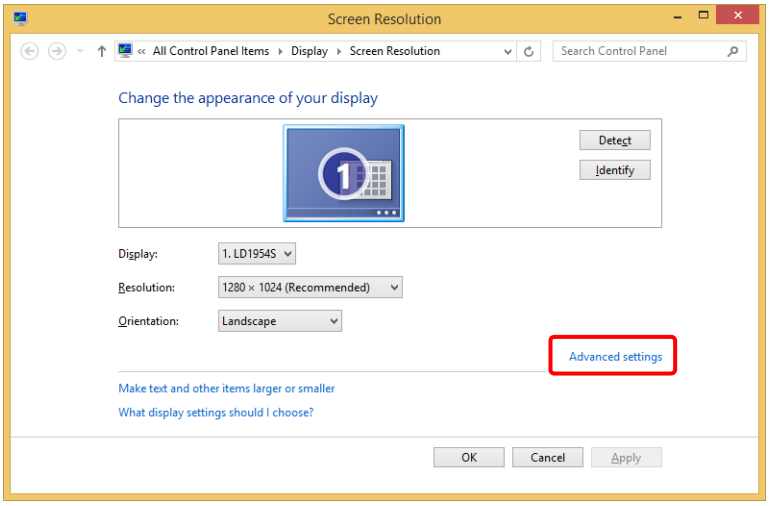
- Select "Install Profile" from the menu displayed.

2 Open the control panel and select [Customize Desktop] - [Adjust Resolution].

- The [Screen Resolution] screen is displayed.

3 Click “Advanced settings”.

• The monitor properties screen is displayed.

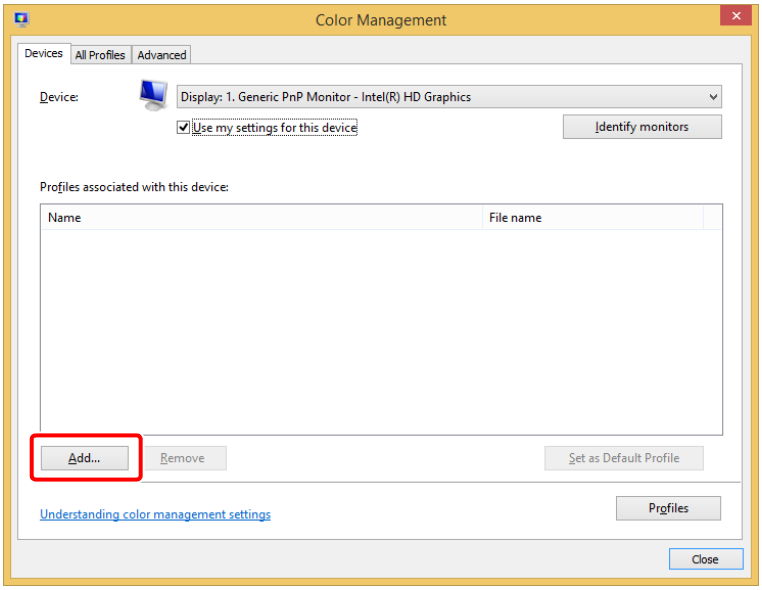


4 Click [Color Management...] from the “Color Management” tab.

• The [Color Management] screen is displayed.

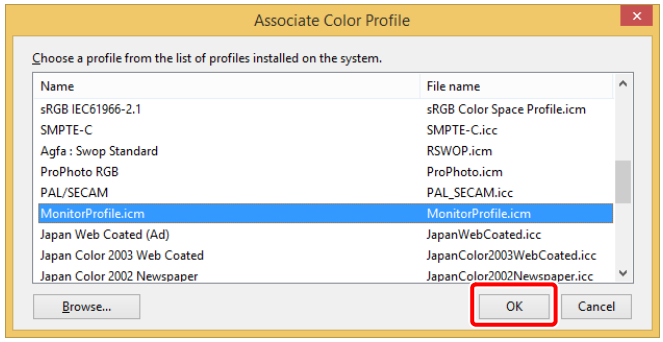
5 Click [Add...].

• The “Associated Color Profile” screen is displayed.

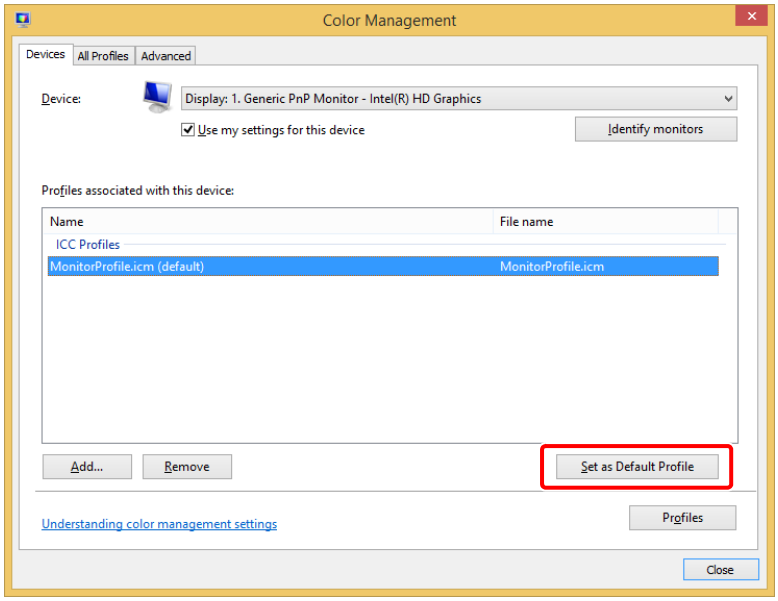


6 Select the monitor profile you installed, and then click [OK].

• You are returned to the “Color Management” screen.



7 Select the profile specified in step 6, and then click [Set as Default Profile].



8 Click [Close].

Macintosh

1 Copy the monitor profile you created to the following folder.

• User/login name/Library/ColorSync/Profiles/Displays/

2 Click [Display] from [System Preferences].

• The [Colors] screen is displayed.

3 Select the monitor profile you created from the list.

4 Close the screen.

Chapter 11
Monitor Simulation

What is Monitor Simulation?

You can reproduce (or "simulate") the color of printed material on a monitor by using a monitor configured correctly and a simulation profile that represents the color gamut of the printed material.
This chapter describes how to create an environment to simulate the results of outputting to a Mimaki printer using the RasterLink series.

Important! **Note that you may not be able to simulate the colors of the monitor and print accurately for the following reasons.**

- If the color gamut of the monitor and the printed material are different, colors beyond the color gamut range cannot be reproduced.
- If there are differences in the monitor or printer characteristics, or due to individual differences.
- The way that colors in the printed material look changes depending on the lights being used in the surrounding environment.

Environment necessary for monitor simulation

You need the following devices and software when performing monitor simulation.

Devices/Software	Summary
MPM3	• Create a monitor profile and a simulation profile.
RasterLink Series	• Output a chart to create a simulation profile.
Colorimeter	• Used for measuring monitors and printed charts. For MPM3, monitor measuring is only supported for the XRite i1Pro/i1Pro2.
Design software that supports color management using ICC profiles	• This is used to display simulation results or color adjustments. • This section uses Adobe Photoshop/Illustrator.
Monitor	• The monitor used on a PC on which design software is installed. Refer to "Adjusting the Monitor" for detailed specifications.
Viewing environment	• The environment for viewing printed material. Refer to "Preparing the Viewing Environment" for details.

Work flow for preparing the environment

Step1: Prepare the Viewing Environment

Step 2: Adjust the Monitor

STEP 3: Create a Simulation Profile

STEP 4: Set the simulation profile in Photoshop/Illustrator.

Step 5: Compare Printed Material and the Monitor

Step1: Prepare the Viewing Environment

Colors appear different depending on the environment in which the printed material is viewed, this is especially influenced by the color of the nearest light source and surroundings. It is therefore important to be have a constant view of the environment for the printed material.

We recommend the following viewing environment for the MPM3.

Standard lighting	CIE daylight color D50
Luminance	2000 ±500 [lx]

Creating the viewing environment

There are several ways of creating a suitable viewing environment.

- Case 1:
  Prepare a commercially available color viewing booth
  When you need precise color reproduction, we recommend using a commercially available color viewing booth.
- Case 2:
  Use a light source specifically for color evaluation
  For this method, you need to replace indoor lights and desk lights with commercially available fluorescent lights and so on that are specifically for color evaluation. This method is cheaper than using a color viewing booth.
  We recommend that not only the color of the light source, but also the color of the walls, the desk, and so on should be neutral (neutral gray).

Step 2: Adjust the Monitor

Adjust the monitor to match the monitor's viewing environment.

Regarding Monitors used in Monitor Simulation

[Minimum Monitor Specs]

sRGB cover ratio	90 %
Adobe RGB cover ratio	90%

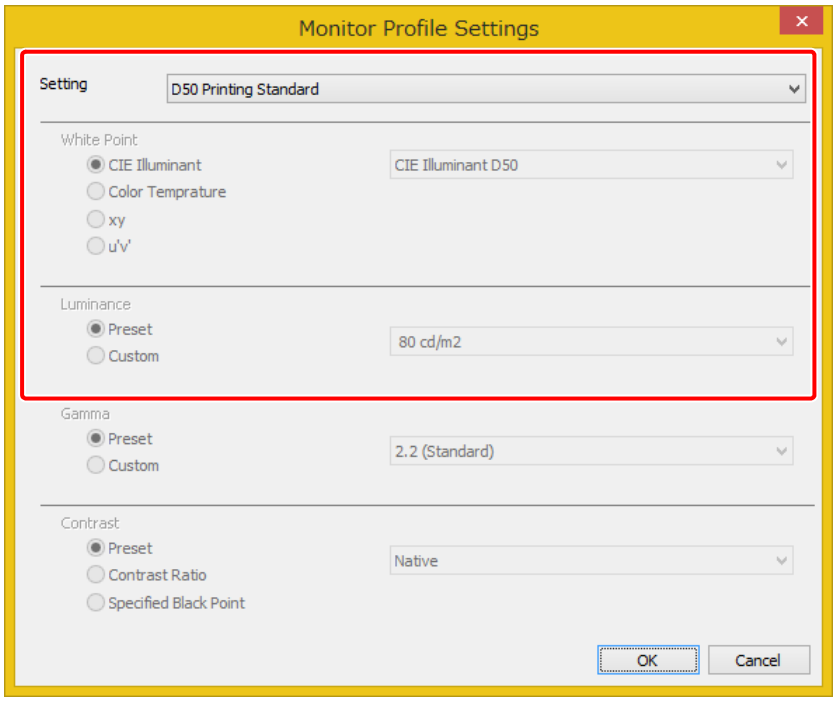
• For the sRGB/Adobe RGB cover ratio, refer to the catalogs and user's guides for each monitor.

Adjusting the Monitor

Perform the following adjustments according to the monitor.

When you have a monitor that supports hardware calibration and calibration software	Perform hardware calibration. Refer to the user's guide of the monitor or calibration software for details.
Except for the above	Create a monitor profile using MPM3, and then adjust the monitor by installing it on your operating system. Refer to 「Creating a Monitor Profile」(P. 138) for details on creating and installing the profile.

- When adjusting the monitor, adjust the white point and brightness settings to match the light source of the viewing environment.
- When creating a monitor profile in mpm3, set the whiteness and brightness to match your viewing environment.



STEP 3: Create a Simulation Profile

Create a simulation profile to reproduce the print results.
Create two types of CMYK and RGB profiles according to the color mode in the image.

Creating a CMYK Simulation Profile

Use the Create CMYK Profile feature. For more information, refer to 「Creating a CMYK Profile」（P. 131）.

1 **Select [ICC Profile] - [Create CMYK Profile] from the main screen.**

- The [Create CMYK Profile] screen opens.

2 **Click [Save chart] to save the chart image.**

3 **Print the chart image using the RasterLink series.**

[Printing Using RasterLink6]

(1) Load the chart image you saved in RasterLink.
(2) Select the chart image job, display the [Quality] screen, and check that the settings you normally use are displayed.
- When using normal settings, make sure you set the color adjustment and calibration.
- If different values have been set for "Illustration" and "Image" in color matching and color adjustment, the "Image" setting is applied to the chart image.
- When using white ink as the backing, specify "Entire Image" in plate generation.

(3) Print the job.

4 **Return to MPM 3 and click [Measure a chart image] to measure the printed chart.**

- After measuring is complete, the “ICC Profile Settings” screen is displayed.
- Do not change the default settings.

5 **Save the ICC Profile.**

Create an RGB Simulation Profile.

Use the Create RGB Profile feature. Refer to 「Creating an RGB Profile」（P. 135）for details.

1 **Select [ICC Profile] - [Create RGB Profile] from the main screen.**

- The [Create RGB Profile] screen opens.

2 **Click [Save chart] to save the chart image.**

3 Print the chart image using the RasterLink series.

[Printing Using RasterLink6]

(1) Load the chart image you saved in RasterLink.

(2) Select the chart image job, display the [Quality] screen, and check that the settings you normally use are displayed.

- When using normal settings, make sure you set the color adjustment and calibration.
- If different values have been set for "Illustration" and "Image" in color matching and color adjustment, the "Image" setting is applied to the chart image.
- When using white ink as the backing, specify "Entire Image" in tile generation.

(3) Print the job.

4 Return to MPM 3 and click [Measure a chart image] to measure the printed chart.

- ICC profile creation starts after measuring.

5 Saving the ICC Profile

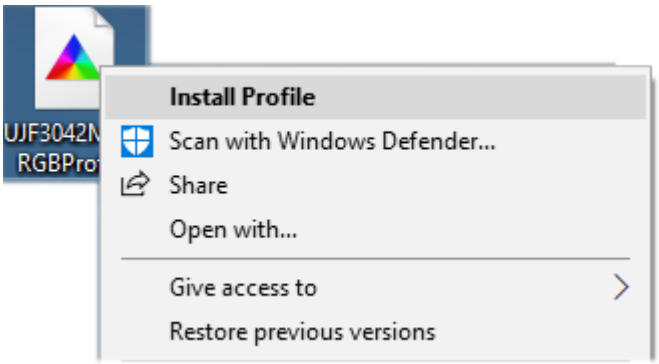
STEP 4: Set the simulation profile in Photoshop/Illustrator.

Set the simulation profile you created in Photoshop/Illustrator.

Install the profile on your operating system.

When using simulation profiles created in Photoshop/Illustrator, you need to install them in your operating system.

[Windows]
Select the simulation profile you created in Windows Explorer, right-click it and select [Install Profile] from the menu displayed.



[Macintosh]
Copy the simulation profile you created to the following folder.
User/login name/Library/ColorSync/Profiles/

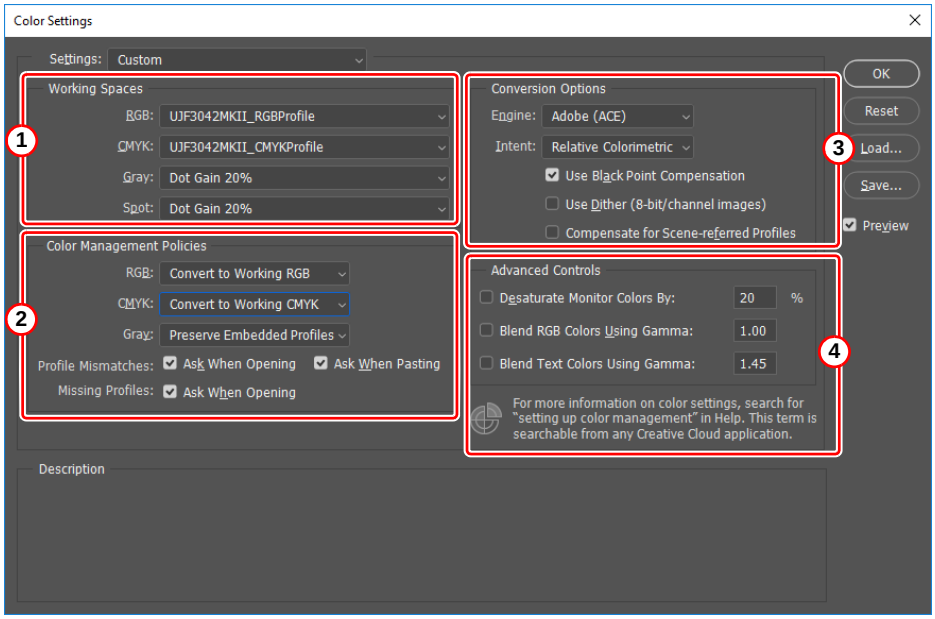
Setting Photoshop

The explanations in this section use PhotoshopCC2017 as an example.

1 Start Photoshop.

2 Select [Edit] - [Color Settings...] from the menu.

• When the [Color Settings] screen is displayed, make the following settings.



1. Work Spaces

RGB	The created RGB Simulation Profile.
CMYK	The created CMYK Simulation Profile.
Gray	As it is
Spot	As it is

2. Color Management Policies

RGB	Convert to Working RGB
CMYK	Convert to Working CMYK
Gray	Preserve Embedded Profiles
Profiles Mismatches	Set "Ask When Opening" and "Ask When Pasting" to On.
Missing Profiles	Set "Ask When Opening" to On.

3. Conversion Options

Engine	Adobe (ACE)
Intent	Relative Colorimetric
Use Black Point Compensation	ON
Use Dither	OFF
Compensate for Scene-referred Profile	OFF

4. Advanced controls

Set them all to Off.

3 When you have finished making settings, click [Save...] to save the settings.

4 Click [OK].

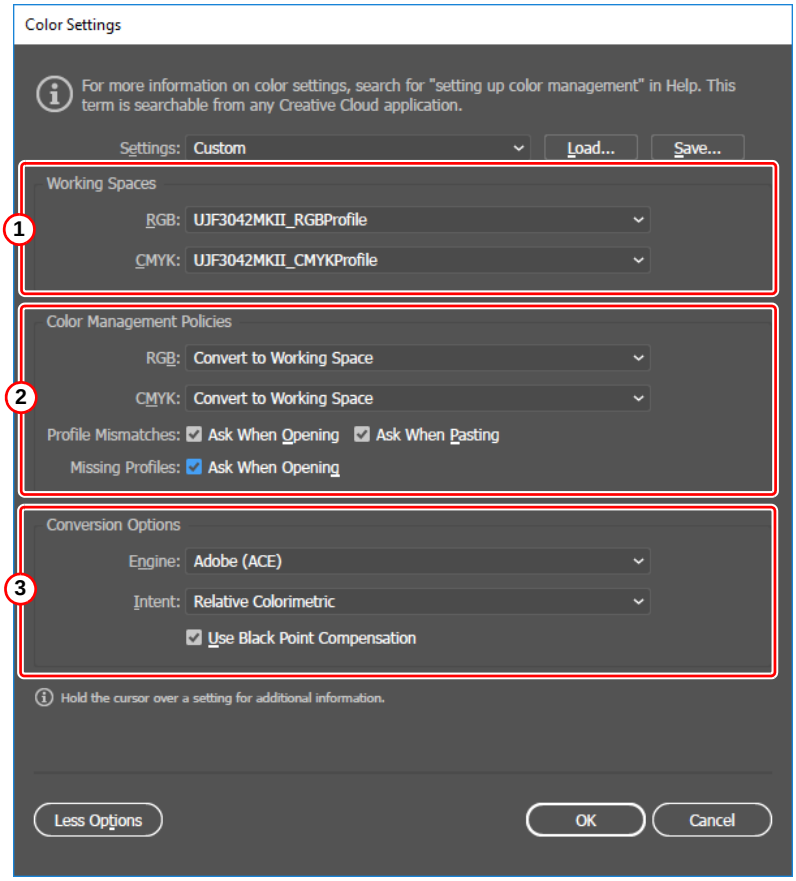
Setting Illustrator

The explanations in this section use Illustrator CC2017 as an example.

1 Starting Illustrator

2 Select [Edit] - [Color Settings...] from the menu.

• When the [Color Settings] screen is displayed, make the following settings.



1. Work Space

RGB	The created RGB Simulation Profile.
CMYK	The created CMYK Simulation Profile.

2. Color Management Policies

RGB	Convert to Working Space
CMYK	Convert to Working Space
Profiles Mismatches	Set "Ask When Opening" and "Ask When Pasting" to On.
Missing Profiles	Set "Ask When Opening" to On.

3. Conversion Options

Engine	Adobe(ACE)
Intent	Relative Colorimetric
Use Black Point Compensation	ON

3 When you have finished making settings, click [Save...] to save the settings.

4 Click [OK].

Step 5: Compare Printed Material and the Monitor

Check how close the colors in the printed material are to the colors on the monitor.

Preparing the printed material

Print comparative images using RasterLink6. At this time you need to output using the same settings as when outputting the chart for the simulation profile.

Positioning the monitor near the viewing environment

Place the monitor as close as possible to the viewing environment to make comparisons easier.

Display the image on the monitor

Display an image on the monitor using Photoshop/Illustrator.

Important!
- Check that “Color Settings” have been set and saved in 「Chapter 11 Monitor Simulation」（P. 145）before opening.

Monitor Simulation Operations

The following shows the work flow from adjusting the image color using color matching to printing.

Step 1: Import Image into Photoshop/Illustrator

Step 2: Proof Setup

Step 3: Adjust the color

Step 4: Save

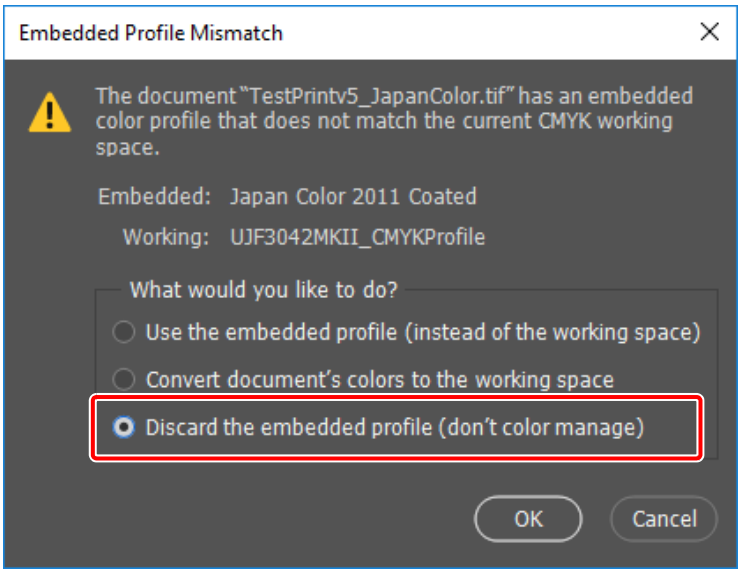
Step 5: Print

Step 1: Import Image into Photoshop/Illustrator

Display an image on the monitor using Photoshop/Illustrator.

Important!

- Check that “Color Settings” have been set and saved in 「Chapter 11 Monitor Simulation」(P. 145) before opening.
- The following screen may be displayed when you open an image. If this happens, select "Discard the embedded profile (don’t color manage)".



Step 2: Proof Setup

Set Photoshop/Illustrator to display in monitor simulation mode.

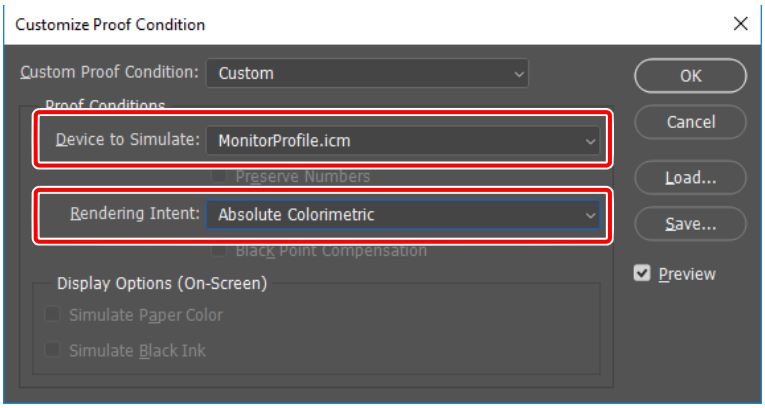
[Photoshop]

1 **Select [View] - [Proof Setup] - [Custom...] from the menu.**

- The [Customize Proof Condition] screen is displayed.

2 **Making [Customize Proof Condition] Settings**

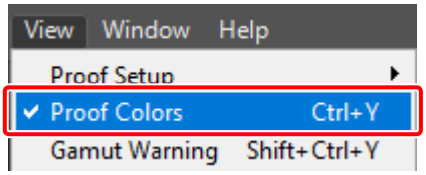
- Make the following settings.
  Device to Simulate: Specify the monitor profile you are currently using
  Rendering Intent: Absolute Colorimetric



3 **Click [Save] to save the settings.**

- After saving, click [OK] to close the screen.

4 **Select [View] - [Proof Colors] from the menu.**



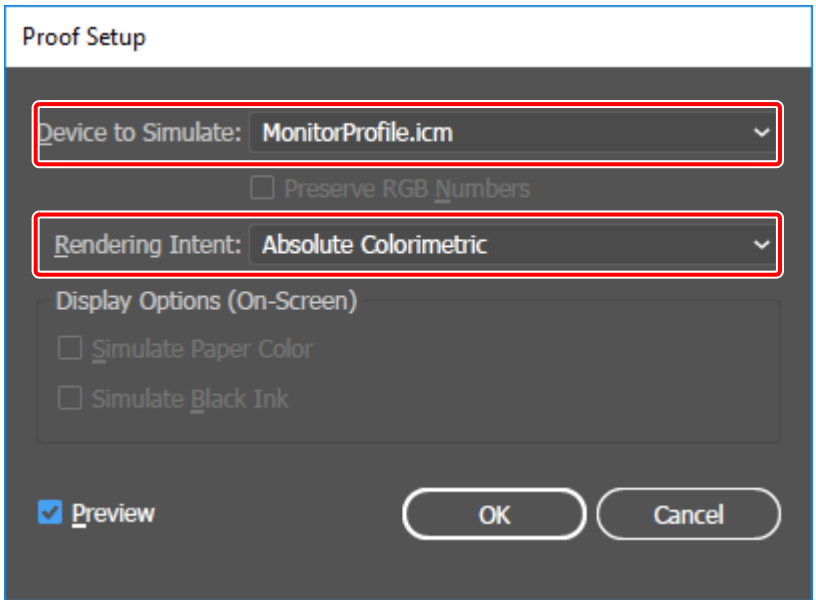
[Illustrator]

1 Select [View] - [Proof Setup] - [Customize...] from the menu.

• The [Proof Setup] screen is displayed.

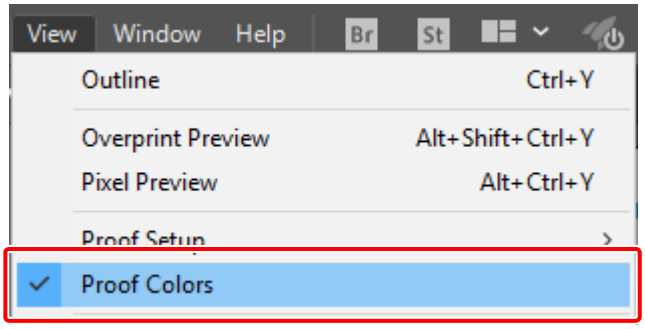
2 Making [Proof Setup] Settings

• Make the following settings.
Device to Simulate: Specify the monitor profile you are currently using
Rendering Intent: Absolute Colorimetric



3 Click [OK] to close the screen.

4 Select [View] - [Proof Colors] from the menu.



Step 3: Adjust the color

Perform color adjustment in Photoshop/Illustrator.

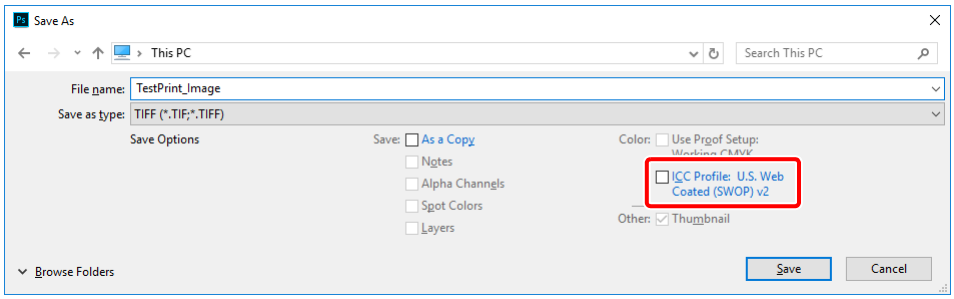
Step 4: Save

Save the image.

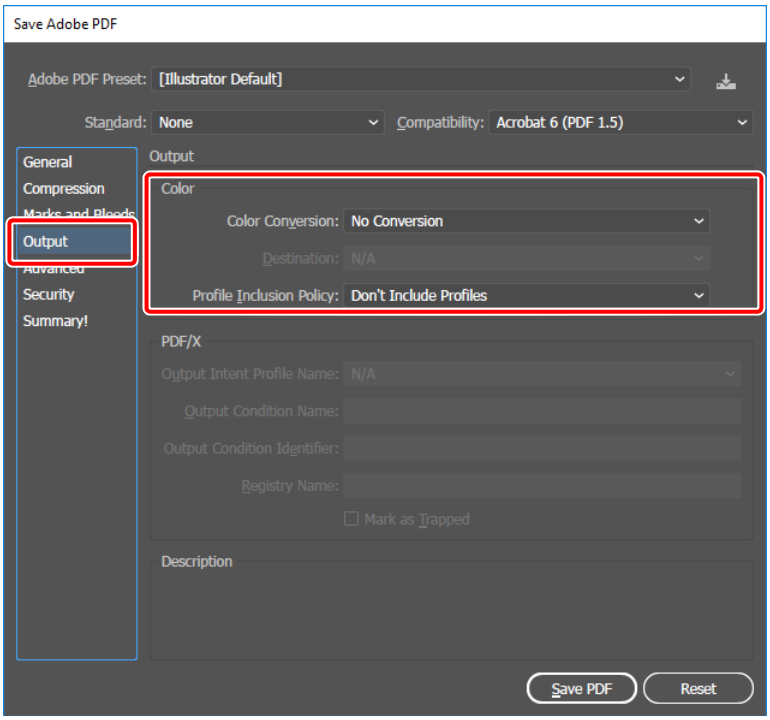
Important!

- Do not embed profile information or perform color conversion when saving images.

Photoshop



IllustratorPDF save



Step 5: Print

Print using RasterLink6.

Important!

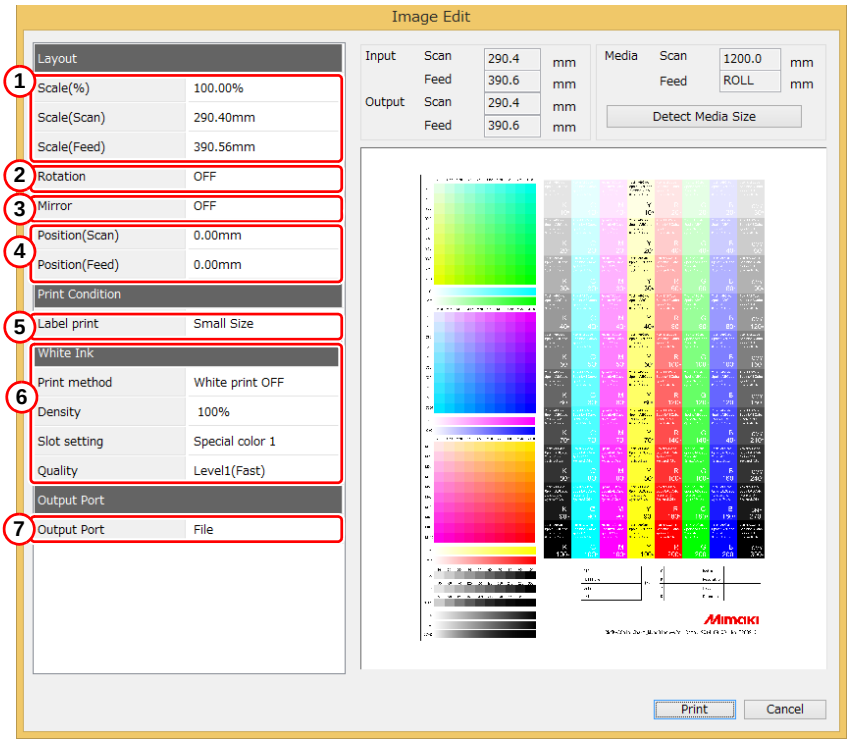
- You need to print using the same settings as when outputting the chart for the simulation profile.
- Do not install the simulation profile in RasterLink 6.

Chapter 12
How to print charts

Printing a measurement charts

Parameters for printing a measurement chart

Specify the parameters for printing a chart as described below.



1	**Scale**	Images can be scaled, but measurement charts cannot be scaled.
2	**Rotation**	Print images can be rotated. You can select 90, 180, 270 and 0 degrees of rotation.
3	**Mirror**	Mirror images can be printed.
4	**Move**	The print position on the media can be changed.
5	**Label print**	Print conditions can be printed. You can select the size of the characters (large, medium, small). The following items are printed. (1) Device profile name, image file name / chart name (2) Printing condition (pass count, count for overprint, scan direction, high speed mode, halftone) (3) Adjustment value for media correction, inklimit, preset for variable dot, preset for light ink, file name of import (4) Print parameters for test print
6	**White ink**	Print white ink to make an under-color for transparency media. Print method:Select the method for printing white ink. Density : Set the density of the white ink. Slot setting : Select a slot for white ink. Specify special #1 or special #2 as the slot number. Quality : For solvent ink, sometimes dry-time is needed for every scan. You can select the printing speed from low, medium and fast.
7	**Output port**	The information for the connected printer is displayed.

Test print

MPM3 can print a specified image file to check the color and the measurement charts.
The images that can be printed vary depending on the MPM3 operation step.

- Supported image formats are TIFF and BMP.

Format	ColorSpace	MPM3 operation step
TIFF	CMYK	Inklimit, Linearization, Gray balance, ICCprofile Calibration, Equalization, Emulation
	RGB	ICCprofile Calibration, Equalization, Emulation
BMP	RGB Indexed color	ICCprofile Calibration, Equalization, Emulation

Important!

- If the ink set is CMYKOrGr, Test Print is available only at the ICCprofile step.
- LZW compression is not supported for TIFF.

Chapter 13
How to measure color with a colorimeter

Measurement function

Measuring the same chart two times

MPM3 has a function for measuring the same chart two times to achieve better accuracy.
Re-measuring is optional. You can select it after finishing the first measurement.
The measured value is processed as described below.

1 **The average of the measured values for the first time and second time is recorded.**

2 **If the color difference between the measured values for the first time and second time is bigger than the specified value, the corresponding patch is highlighted as a warning.**

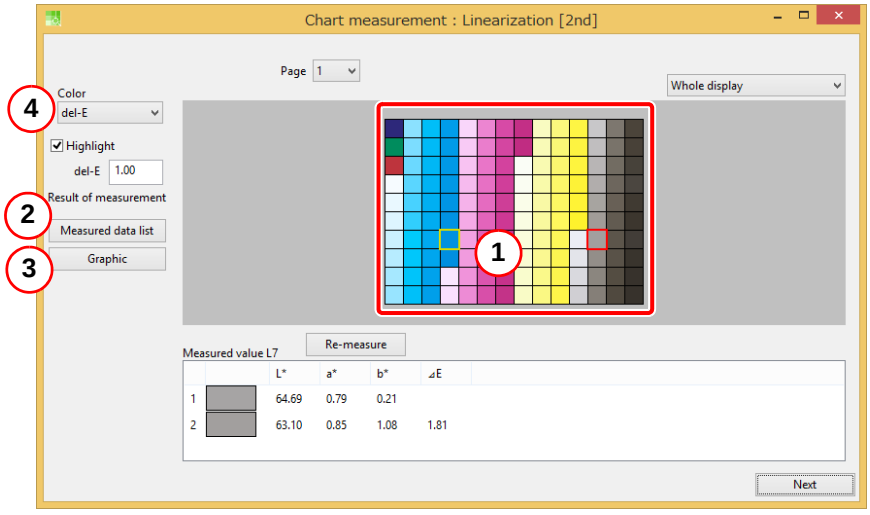
3 **You can re-measure patches where warnings appear.**

Important!

- For re-measurement, the entire row of the target patch is re-measured. For i1Sis, the entire chart is re-measured.
- MPM3 calculates the average of the two closest measurement values. This process is applied whenever re-measurement is performed, even for patches where no warning appeared.

Displaying measurement results

You can confirm the values for measured colors in several ways in the dialog window that is displayed after measurement. The color difference between the first measurement and the second measurement can be displayed after the second measurement.

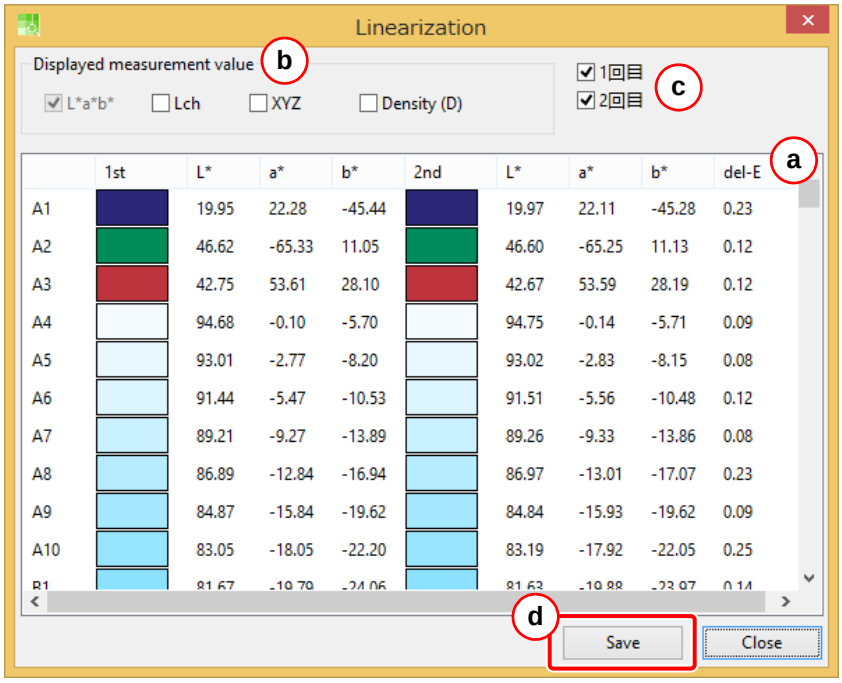


(1) Click the patch on the display.

Click the patch on the display. The patch is highlighted with a red rectangle, and the measured values and the value of the color difference are displayed.

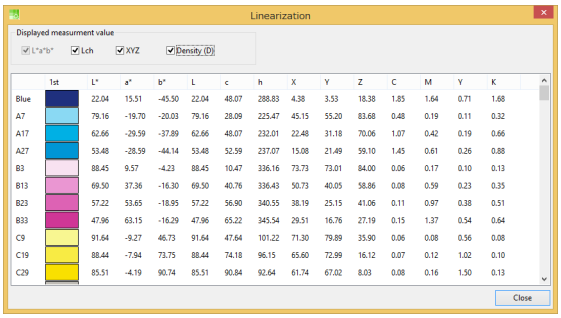
(2) Display the measured data list.

The measurement results are displayed in the pop-up table.



[a] When [delta-E] is clicked, measurement values are sorted with decreasing order of values of delta-E. Each row is related with the patch displayed in the dialog window. It is easier to select a patch by clicking the row on this list table after sorting by delta-E, when you want to pick a small patch on the chart like the ICC profile.

[b] The unit system of the measurement value can be changed.



[c] The measurement values of the first measurement or second can be selected and displayed.
After re-measurement, MPM3 picks the two nearest values from the first measurement, second measurement, and re-measurement. The value that is not picked is overwritten with the re-measurement value. For example, if the re-measurement value and the second measurement value are nearest, then the first-measurement value is replaced by re-measurement value.

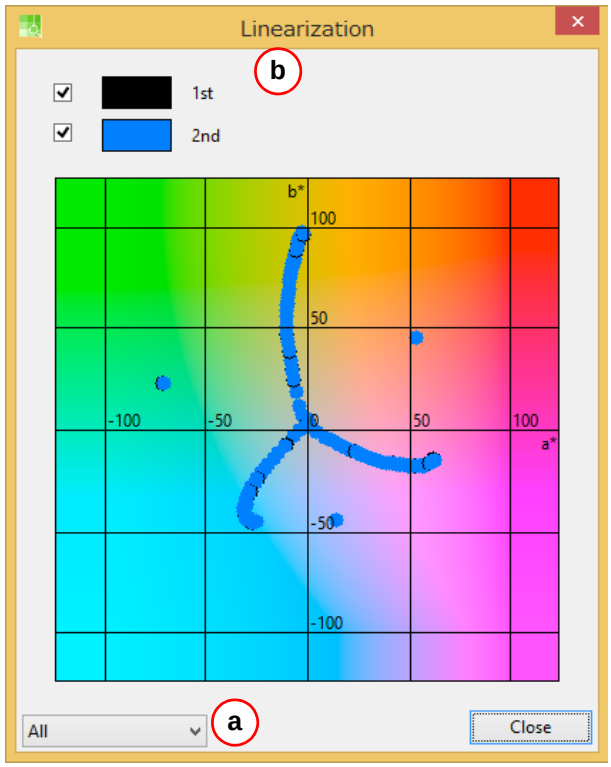
[d] The displayed measurement values and color difference values can be saved to a file with CSV format.

(3) Graphic display

“Graphic” shows the measured values plotted on the L*a*b* coordinates space.

[a] Select the area of the L* axis in increments of 10%.

[b] Select the color of plotted points.



(4) Color difference

This is displayed after the second measurement.
Select one of the following methods of displaying color differences:

delta-E
delta-E2000

(5) Highlight

Patches with a greater color difference than the specified value are highlighted with a yellow rectangle.

i1Pro, i1Pro2, i1Pro3, i1Pro3 PLUS

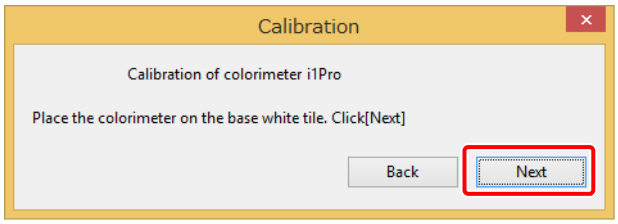
The basic operation for measurement is shown below.

(1) Calibrate the colorimeter.
(2) Select stripe mode for the measurement mode.
(3) Slide the colorimeter along the row of patches.
(4) “Row Number” information indicates which row should be scanned.
(5) After measuring the last row, the “Finish” and “2nd measurement” buttons are highlighted.
(6) You can select second measurement.
(7) After the second measurement is finished, patches that have a big color difference between the first measurement and the second measurement are highlighted with a yellow triangle.
(8) You can re-measure the patches where a warning appears.
(9) You can save measurement values as a file.

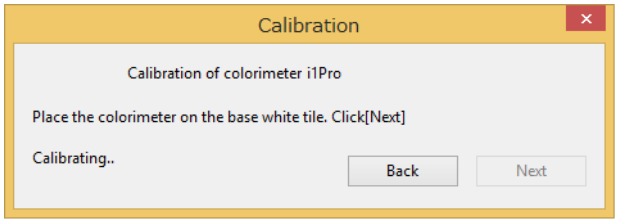
Calibrating the colorimeter

Calibrate the colorimeter.

1 Place the colorimeter on the white tile, and click [Next].



2 Calibration is performed.

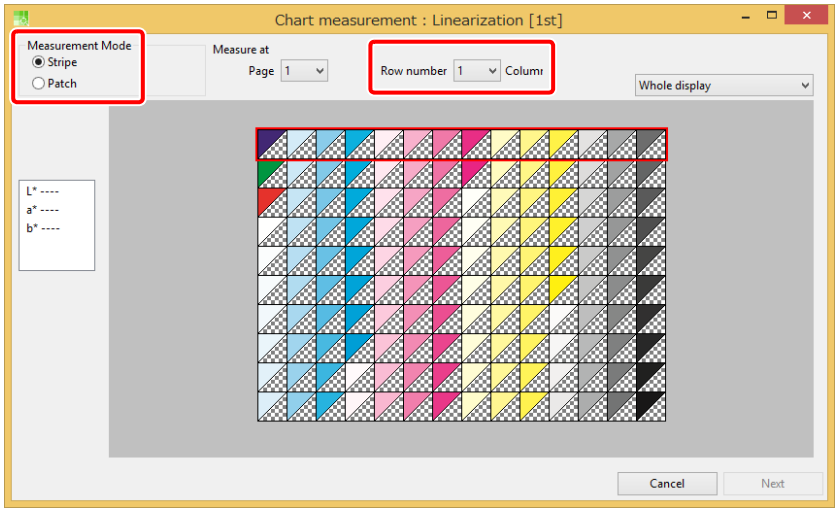


Measuring the chart

Measure the colors in the measurement chart.

1 Select “Stripe” as the Measurement mode.

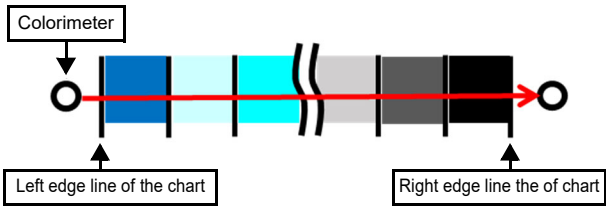
• Confirm the row number to be scanned.



2 Slide the colorimeter from left to right.

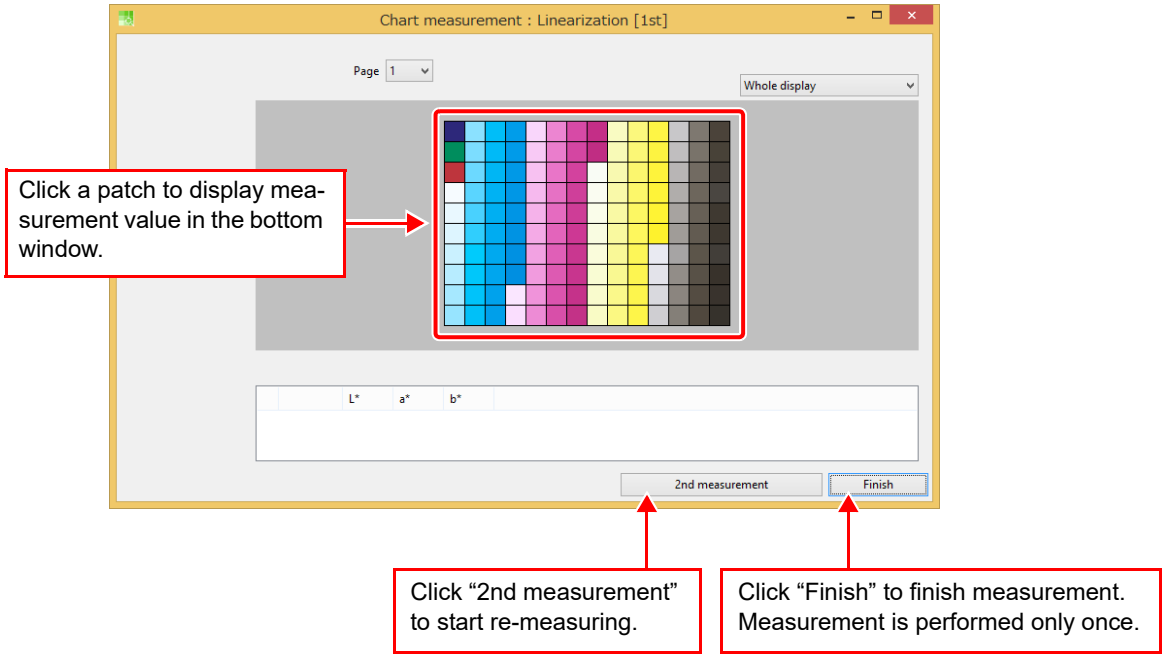
• Slide the colorimeter so it passes through the left edge line and the right edge line.

• Push the measure button and then slide the colorimeter so it passes through the left edge line and the right edge line.



Completing the first measurement

After the first measurement, a dialog window for confirming the measurement values is displayed. A second measurement is available to achieve better accuracy. Click the patch on the screen to display the measurement value in the bottom window.

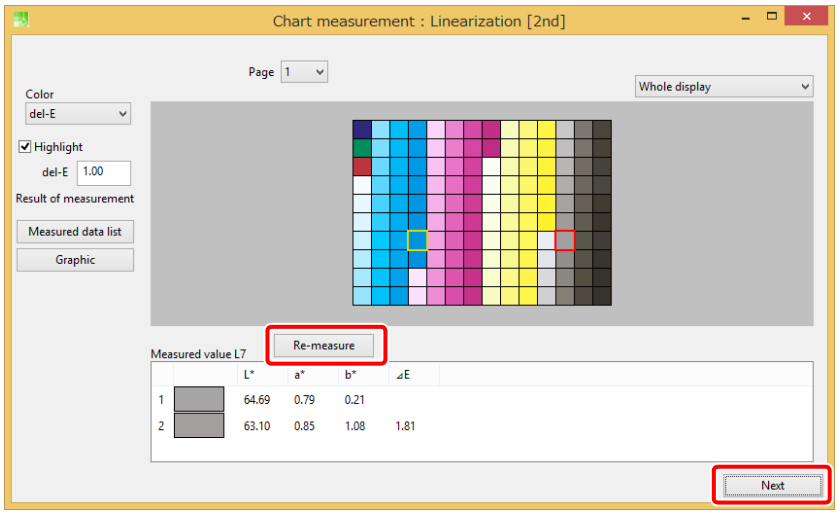


Completing the second measurement

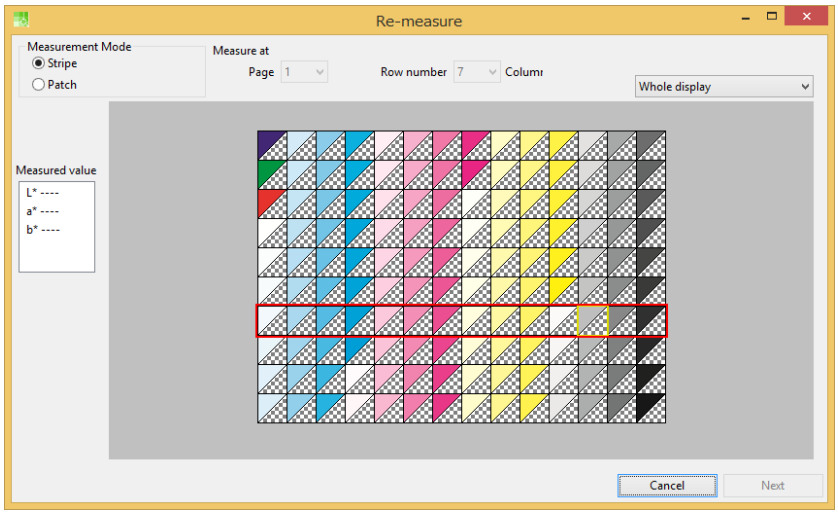
You can check the color difference between the first measurement and the second measurement.
You can also re-measure patches that have a big color difference.

1 Click [Re-measure], and click [Next] to finish measurement.

- Select a patch that has a big color difference and click [Re-measure].
- To finish measurement, click [Next].

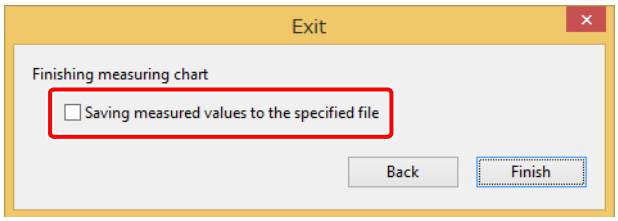


2 Re-measure the row that includes the target patch.



3 Check “Saving measured values to the specified file” to save measured values as a file.

• This file is useful for recreating the device profile.



i1iO, i1iO2, i1iO3

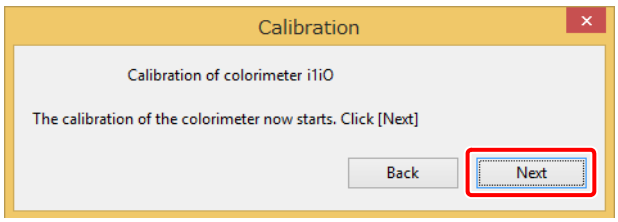
The basic operation for measurement is shown below.

(1) Calibrate the colorimeter.
(2) Put the colorimeter on three points on the edge of the chart to study the positions.
(3) Start the measurement in stripe mode.
(4) After measurement is finished, the “Finish” and “2nd measurement” buttons are highlighted.
(5) You can select second measurement.
(6) After the second measurement is finished, patches that have a big color difference between the first measurement and the second measurement are highlighted with a yellow rectangle.
(7) You can re-measure patches where warnings appear.
(8) You can save measured values as a file.

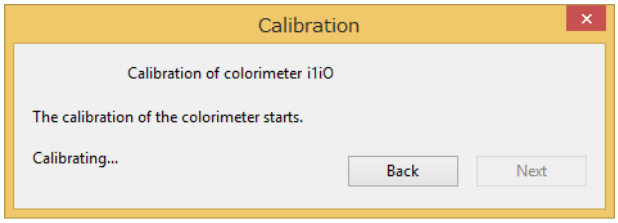
Calibrating the colorimeter

Calibrate the colorimeter.

1 Click [Next], and the calibration starts automatically.



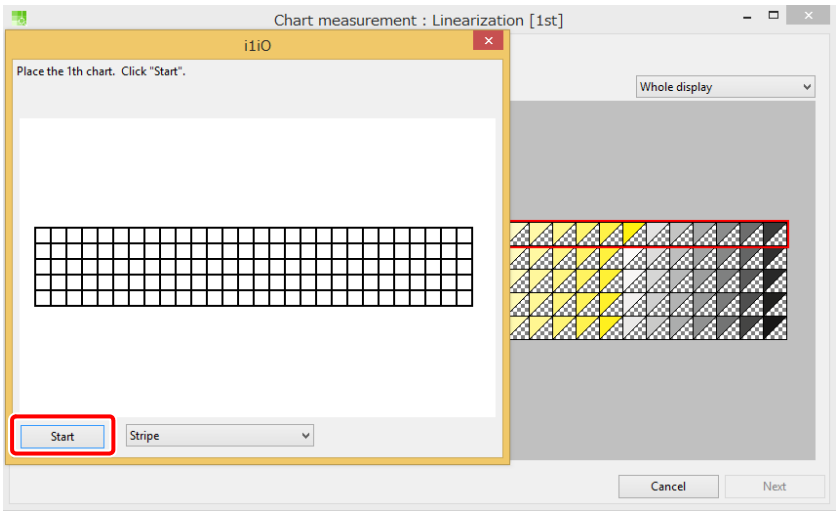
2 Calibration is performed.



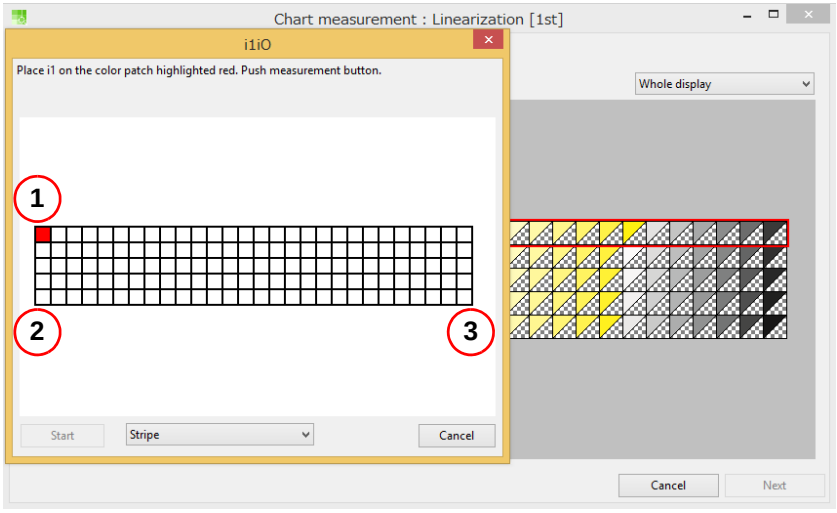
Setting the position of the chart

Follow the instructions in the wizard to measure three points in the corners of the chart.

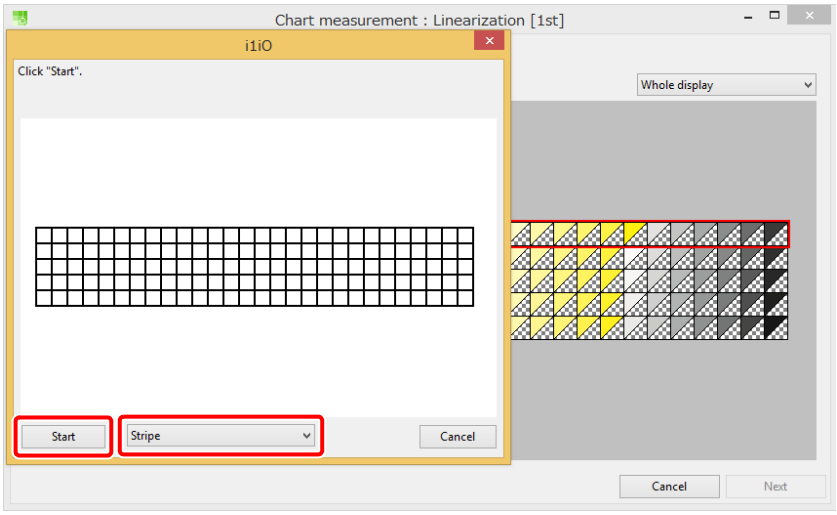
1 Click [Start] to set the position of the chart.



2 Place the colorimeter in three corners of chart. Push the measurement button on the colorimeter in each corner.

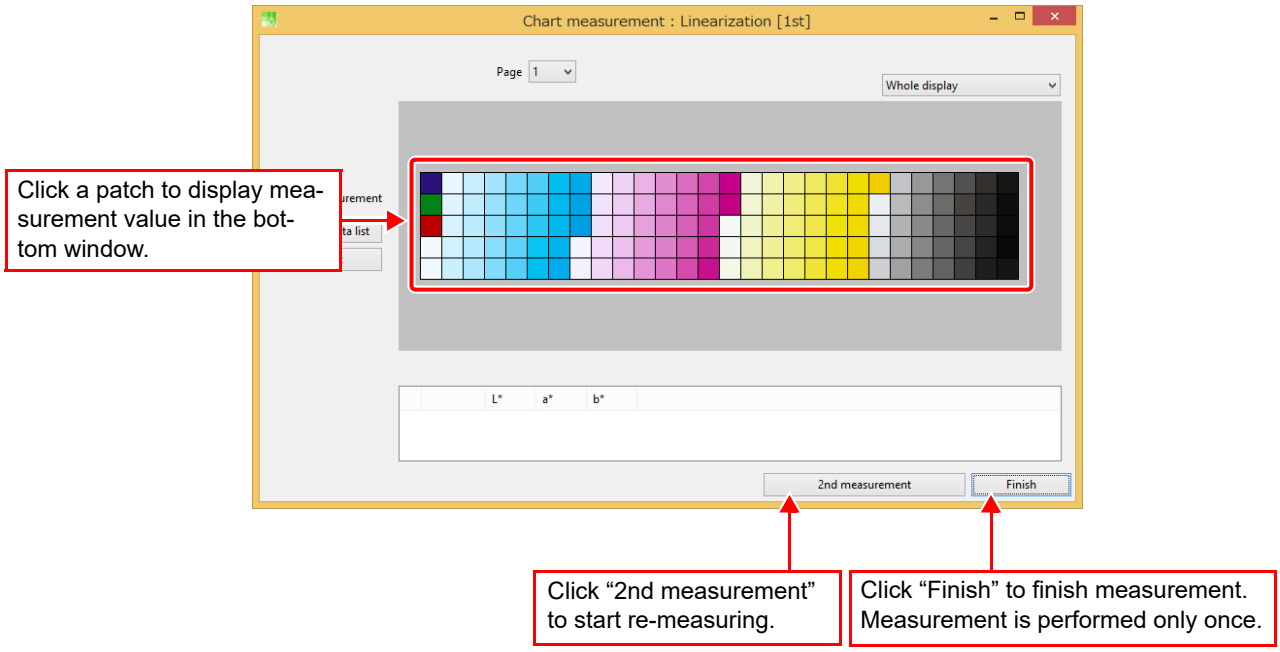


3 Click [Start] in Stripe mode.



Completing the first measurement

After the first measurement, a dialog window for confirming the measurement values is displayed. A second measurement is available to achieve better accuracy. Click the patch on the screen to display the measurement value in the bottom window.

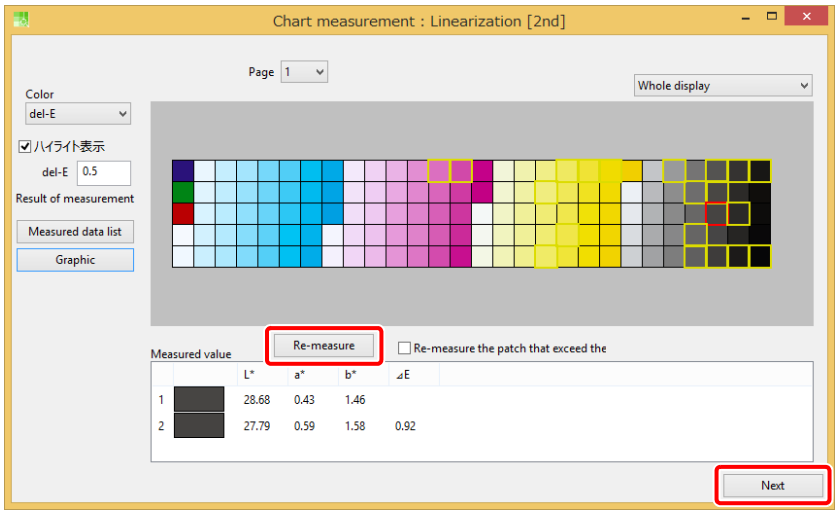


Completing the second measurement

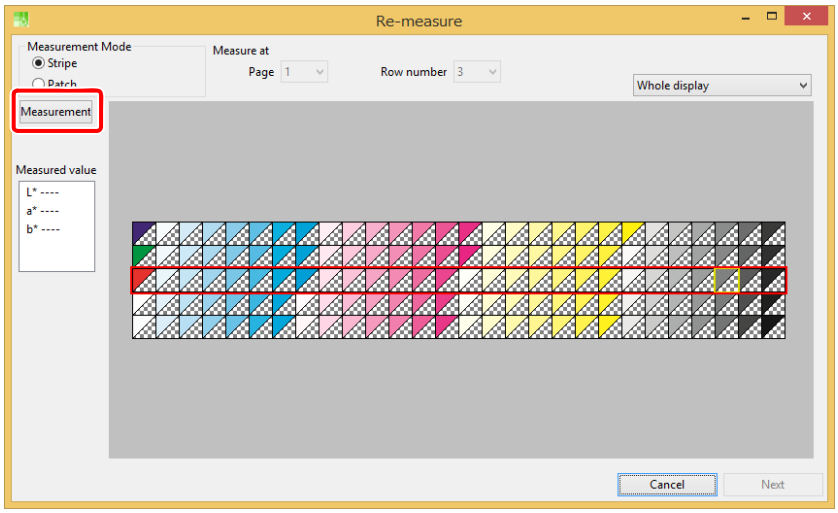
You can check the color difference between the first measurement and the second measurement.
You can also re-measure patches that have a big color difference.

1 Click [Re-measure], and click [Next] to finish measurement.

- Select a patch that has a big color difference and click [Re-measure].
- When “Re-measure the patches exceed the specified del-E value” checked, only row which include those patches are re-measured automatically.
- To finish measurement, click [Next].

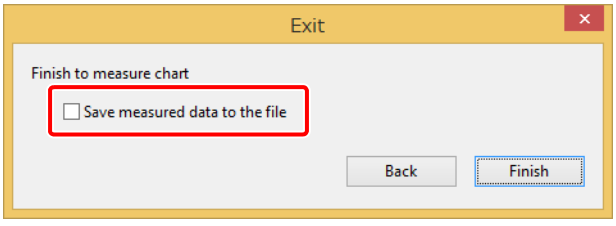


2 Click [Measurement] to re-measure the row that includes the target patch.



3 Check “Save measured data to the file” to save measured values as a file.

- This file is useful for recreating the device profile.



i1isis

The basic operation for measurement is shown below.

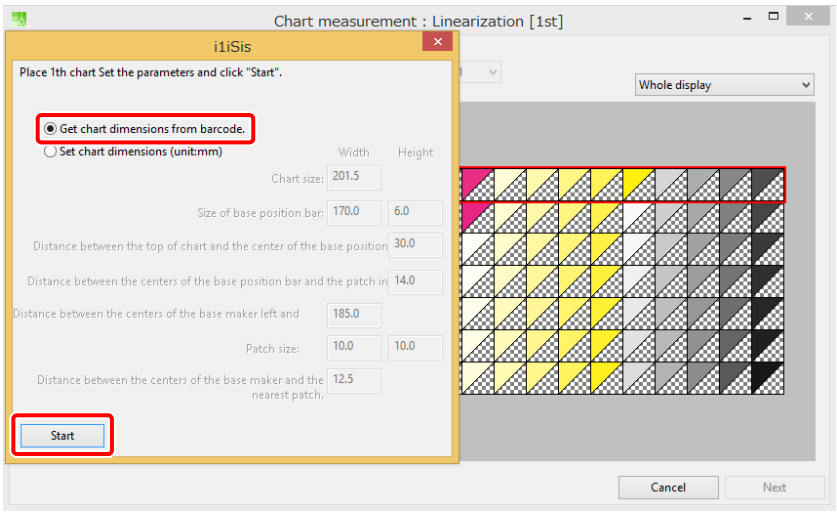
(1) Place the chart on i1iSis.
(2) Start measurement in bar-code mode.
(3) After measurement is finished, the “Finish” and “2nd measurement” buttons are highlighted.
(4) You can select second measurement.
(5) After the second measurement is finished, patches that have a big color difference between the first measurement and the second measurement are highlighted with a yellow rectangle.
(6) You can re-measure the patches where a warning appears.
(7) You can save measured values as a file.

Starting measurement

1 Check “Get chart dimensions from barcode”.

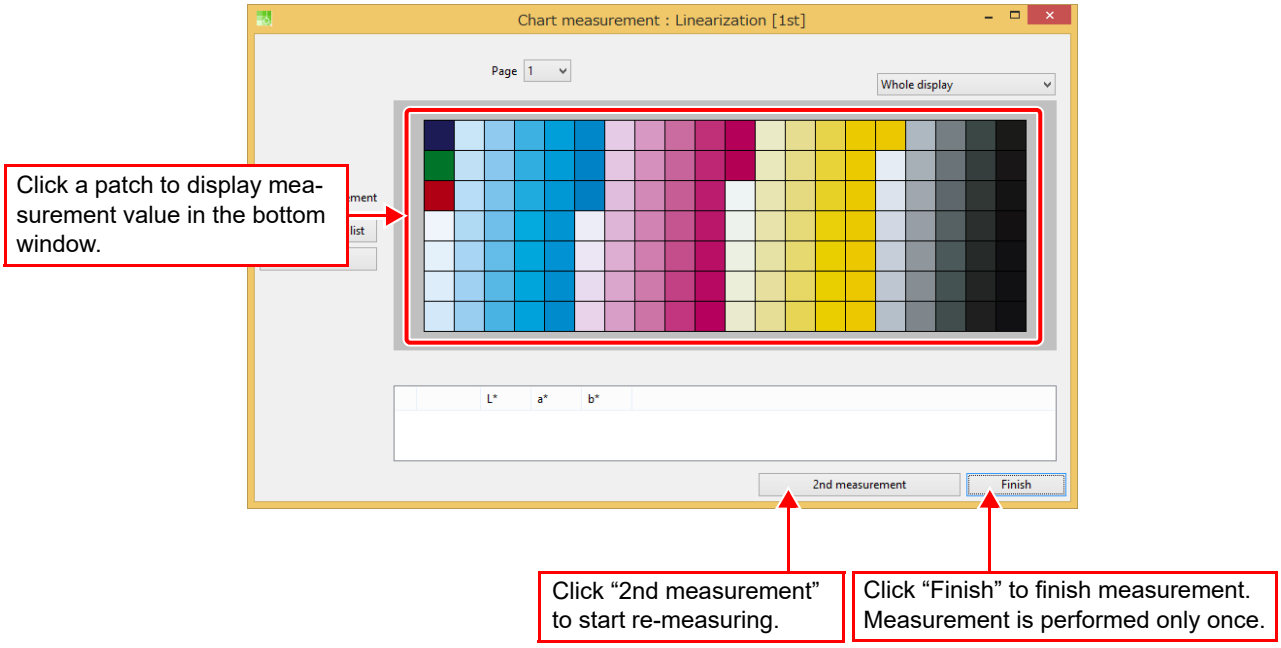
• The charts that MPM3 prints have barcodes for chart information.

2 Click [Start] to start measurement.



Completing the first measurement

After the first measurement, a dialog window for confirming the measurement values is displayed. A second measurement is available to achieve better accuracy. Click the patch on the screen to display the measurement value in the bottom window.

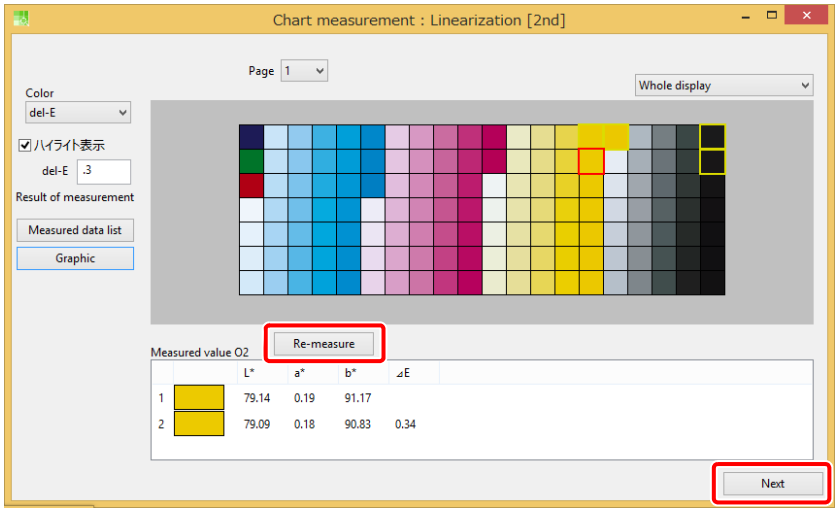


Completing the second measurement

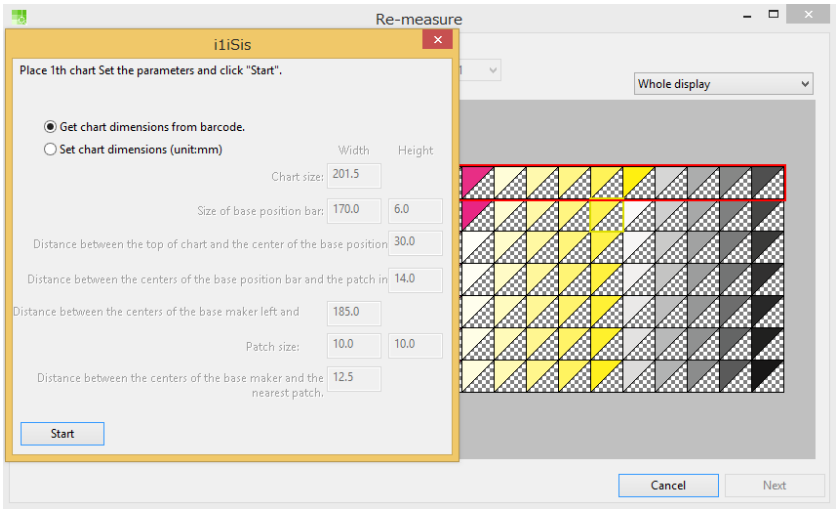
You can check the color difference between the first measurement and the second measurement.
You can also re-measure patches that have a big color difference.

1 Click [Re-measure], and click [Next] to finish measurement.

- Select a patch that has a big color difference and click [Re-measure].
- To finish measurement, click [Next].

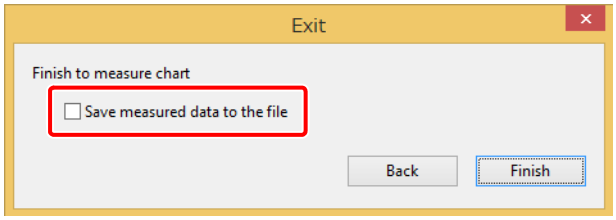


2 Re-measure the whole chart.



3 Check “Save measured data to the file” to save measured values as a file.

- This file is useful for recreating the device profile.

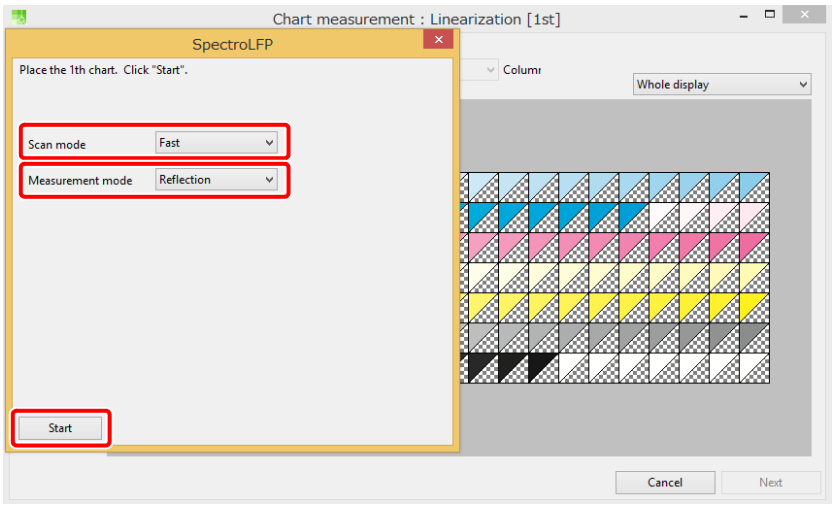


SpectroLFP

The basic measurement procedure is described below.
(1) Place the chart on SpectroLFP.
(2) Start measuring after setting the measurement mode.
(3) After the measurement is finished, the “Finish” and “2nd measurement” buttons appear.
(4) You can select the option for a second measurement.
(5) After the second measurement is finished, the patches with a significant color difference between the first measurement and the second measurement are highlighted with a yellow rectangle.
(6) You can re-measure the patches where a warning appears.
(7) You can save the measured values to a file.

Starting measurement

1 Set the parameters for the scan mode and measurement mode.

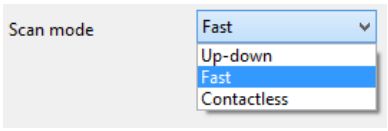


• Scan mode

Up-down The measurement head lifts and moves to the measurement point. When measuring, the head drops and makes contact with the media. This mode takes longer, but it works well with uneven media with a cloth-like surface.

Fast The measurement head moves to the measurement point, while slightly touching the media. This mode is fast and works well only with flat and smooth media.

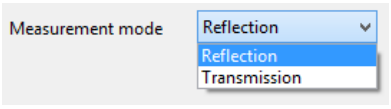
Contactless The measurement head skims over the media to the measurement point. The head does not make contact with the media when measuring. This mode works with various types of surfaces, but its measurement accuracy is low.



• Measurement mode

Reflection Patches are printed on the light surface.

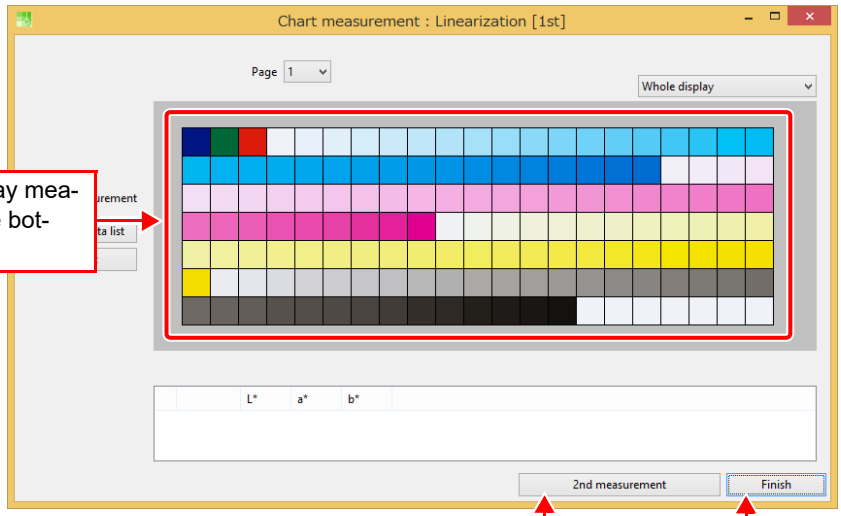
Transmission Patches are printed on the transparency media lit from behind.



2 Click [Start] to start measuring.

Completing the first measurement

After the first measurement, a dialog window for confirming the measurement values is displayed. You can carry out a second measurement to achieve better accuracy. Click a patch on the screen to display the measurement value in the bottom window.



Click a patch to display measurement value in the bottom window.

Click “2nd measurement” to start re-measuring.

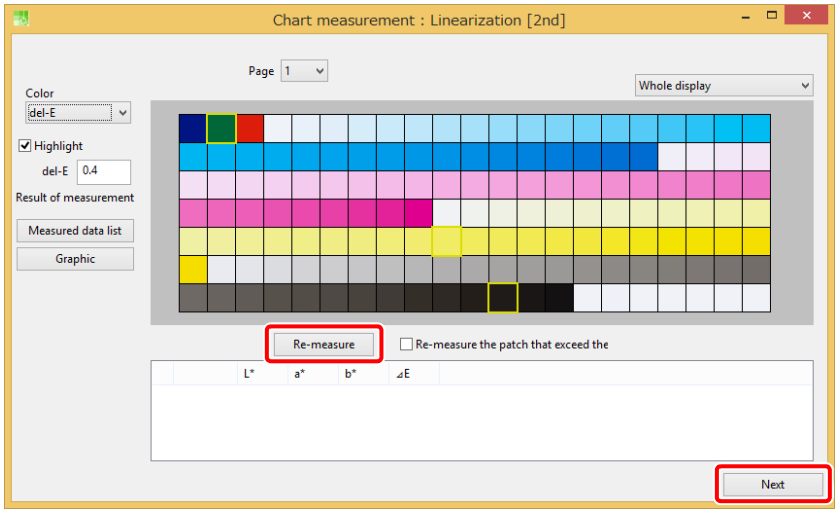
Click “Finish” to finish measurement. Measurement is performed only once.

Completing the second measurement

You can check the color difference between the first measurement and the second measurement.
You can also re-measure patches with a significant color difference.

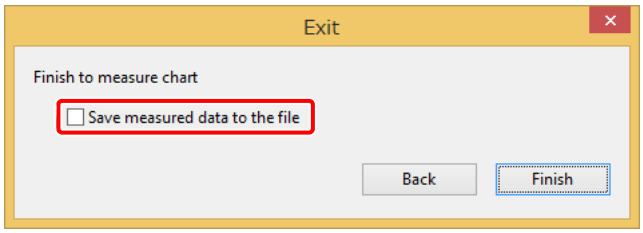
1 Click [Re-measure], and click [Next] to finish measuring.

- Click [Re-measure] to re-measure all the patches in the chart.
- When “Re-measure the patches exceed the specified del-E value” is checked, only the rows which include those patches are re-measured automatically.
- To finish measuring, click [Next].



2 Check “Save measured data to the file” to save the measured values to a file.

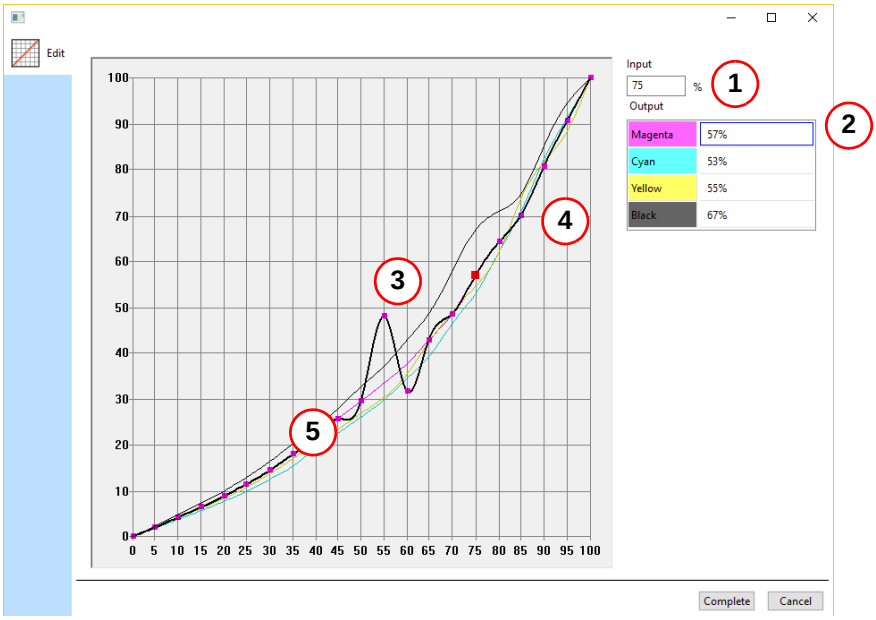
- This file can be used for recreating the device profile.



Chapter 14
How to edit color curves

How to use color curves

Color curve editing is available for linearization, gray balance, and editing ICC profile parameters.



1	Input value	The input value of the control point is the value on the X-axis. Input value is specified in increments of 5%.
2	Output value	The output value of the control point is the value on the Y-axis. The output value is fixed to 0 when the input value is 0. The output value is fixed to 100 when the input value is 100.
3	Changing output value	The control point can be moved in the vertical direction. You can change only the output value by moving control point.
4	Removing control point	To remove a control point, double click it with the left button on your mouse. Control points on both sides of the removed point are connected with a straight line. To once again display a control point that has been removed, click the point where the vertical line and the curved line intersect.
5	To display the sub-menu, click anywhere on the graph with the right button on your mouse.	
	Identity	Set the curved line to a diagonal line.
	Gamma	Modify the curved line to a kind of gamma-curved line.
	Minimum	Modify the curved line to a line whose output values are all 0s.

Chapter 15
Copying a device profile

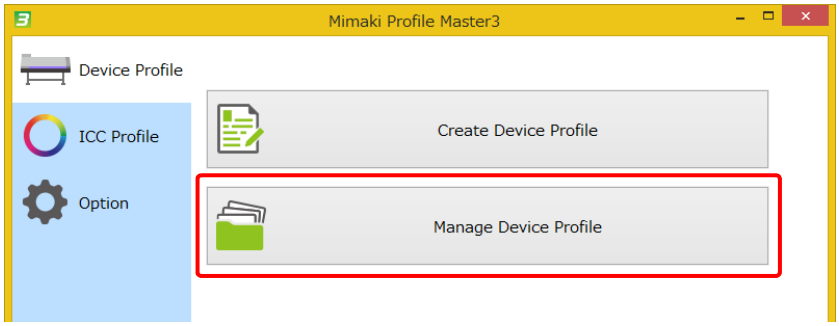
Copying a device profile

A device profile is bound to a printer model, ink set, and media. Basically these parameters are specified in turn to make a device profile. But some printer models have similar specifications.
Therefore, it can be easier to modify a similar device profile rather than to create a new profile from the start.
This function copies a device profile in order to create another device profile.

Selecting the original device profile

Select the device profile to copy.

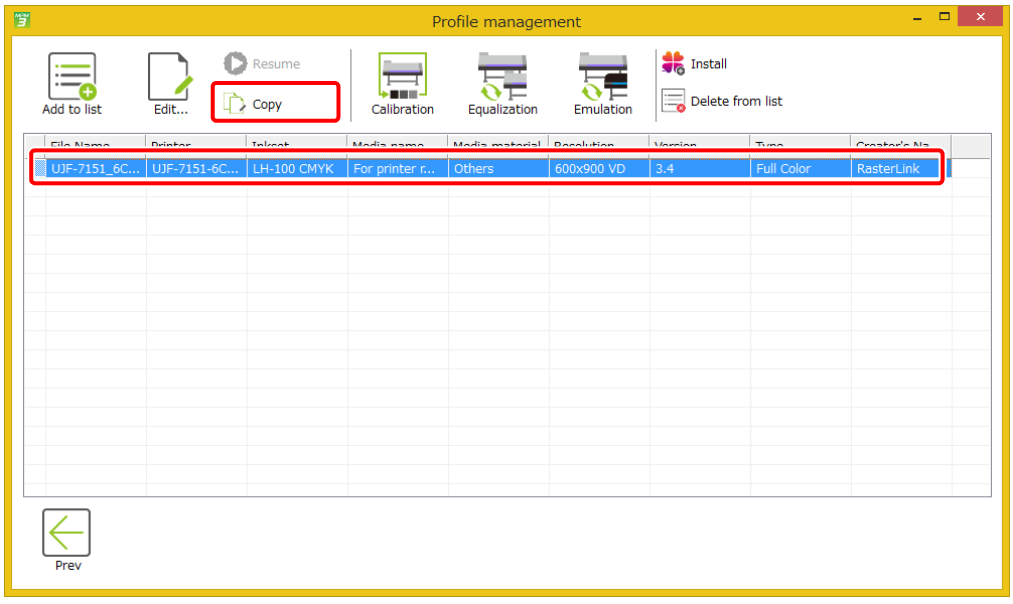
1 Click [Manage Device Profile].



2 Load the device profile onto the list table.

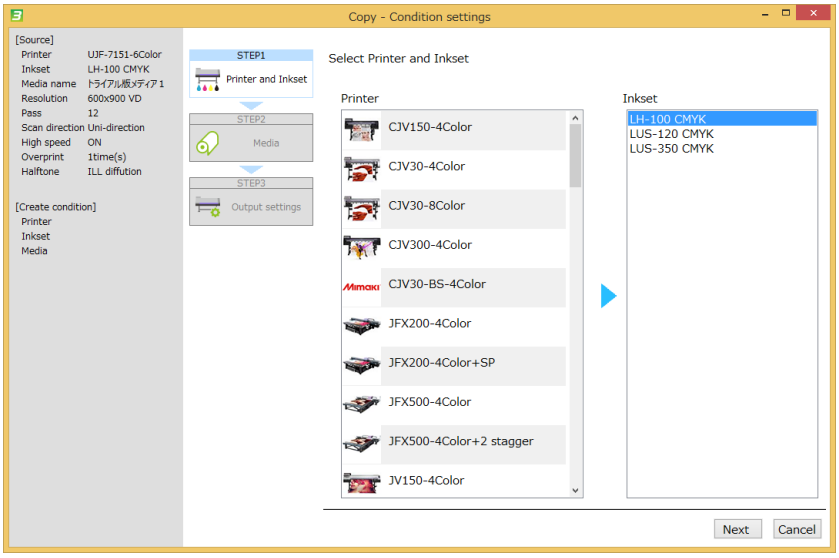
3 Select the device profile as a base device profile.

4 Click [Copy].



Editing the copied device profile

Use the operation wizard to edit the copied device profile.
The items for the printer, ink set, media and print condition can be modified.
Refer to "Chapter 2 Creating a device profile" (P. 17), "Setting the device profile conditions" (P. 20) for details.

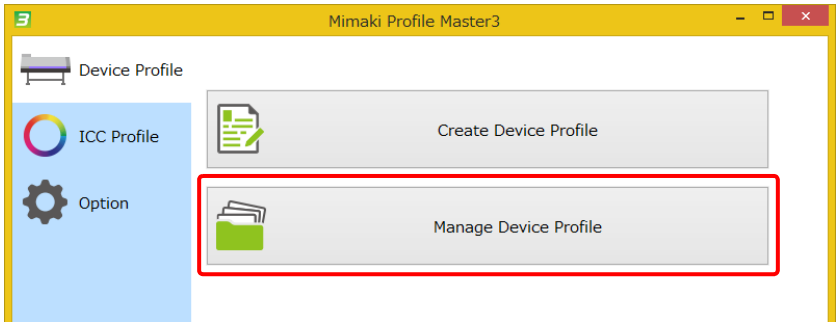


Chapter 16
Installing device profiles

Installing device profiles

MPM3 installs device profiles to RasterLink directly. Therefore, you are not required to operate RasterLink in order to install device profiles. RasterLink must be installed on the same PC as MPM3.

1 Click [Manage Device Profile].

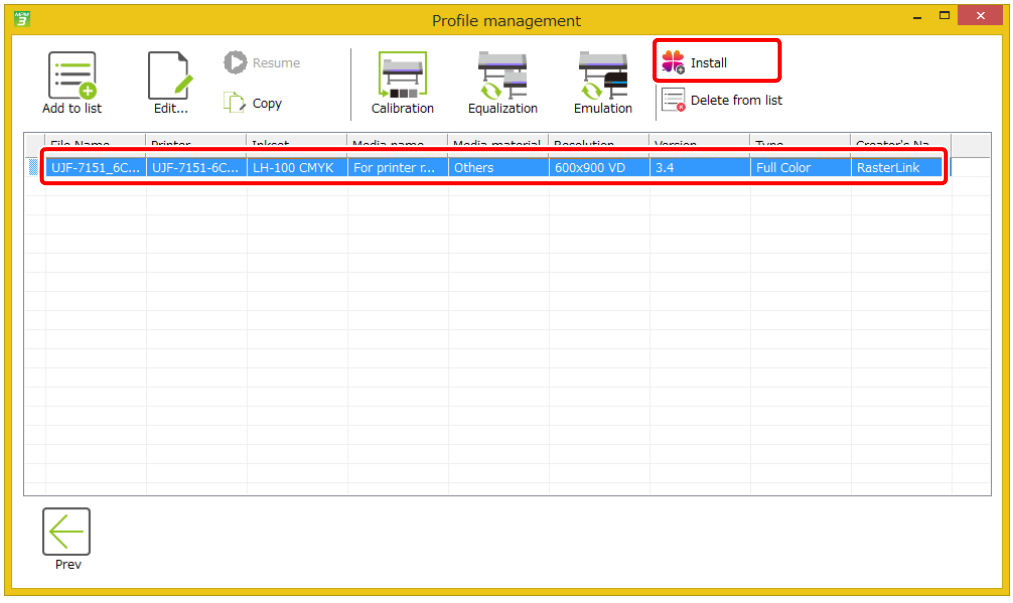


2 Load the device profile onto the list table.

3 Select the device profile as a base device profile.

- Multiple profiles can be selected.

4 Click [Install].

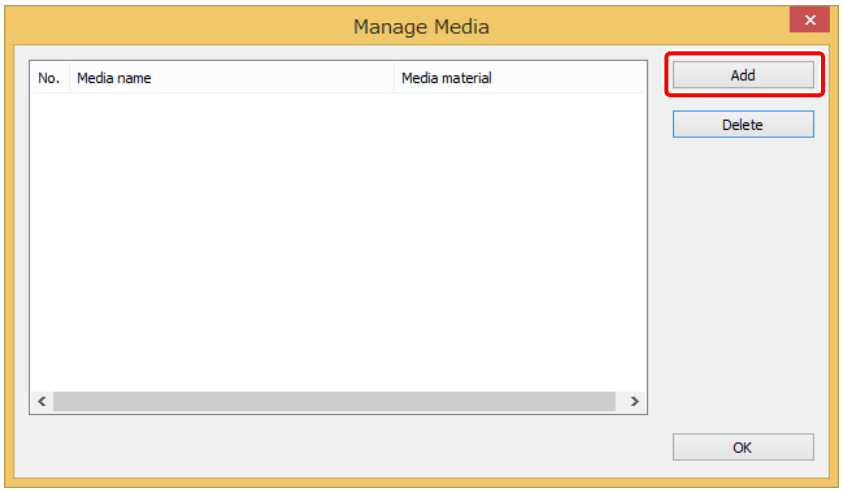


Chapter 17
Managing media

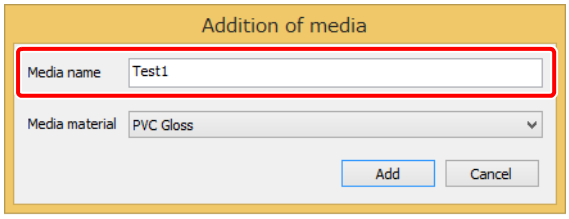
Adding media

1 Click [Add].

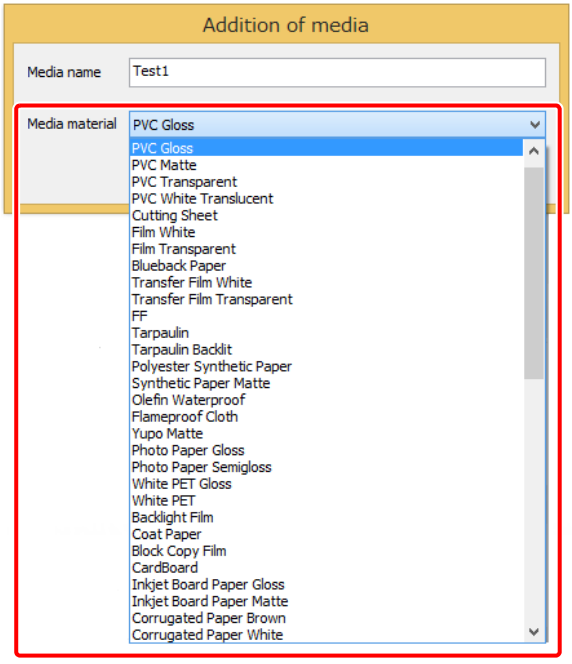
• The dialog window for adding media pops up.



2 Enter a media name.

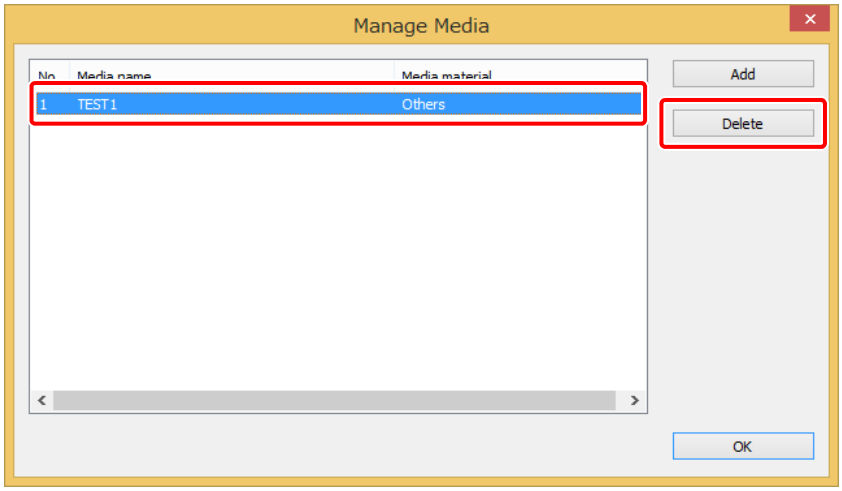


3 Click media material, and then select the material from the drop- down list.



Deleting media

1 **Select the media to be deleted, and then click [Delete].**



Chapter 18
Setting the colorimeter

Setting the colorimeter

1 Select the model of the colorimeter.

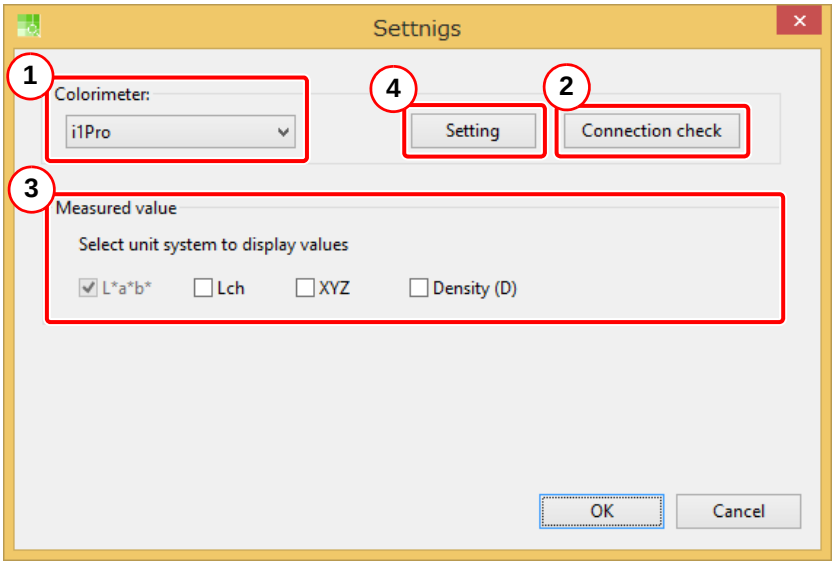
Name displayed	Corresponding product(s)	Manufacturer
i1Pro	i1Pro	X-Rite
	i1Pro2	X-Rite
i1Pro3	i1Pro3	X-Rite
i1Pro3 PLUS	i1Pro3 PLUS	X-Rite
i1iO	i1iO	X-Rite
	i1iO2	X-Rite
i1iO3 with i1Pro3	i1iO3(with i1Pro3 mounted)	X-Rite
i1iO3 with i1Pro3 PLUS	i1iO3(with i1Pro3 PLUS mounted)	X-Rite
i1iSis	i1iSis	X-Rite
SpectroLFP	SpectroLFP	Barbieri

2 Click [Connection check].

• Check the connection between the PC and the colorimeter.

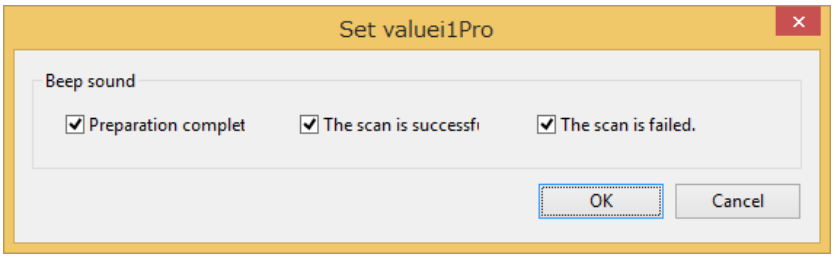
3 Select the unit system for the measured values.

• The measured values will be displayed in the selected unit system.



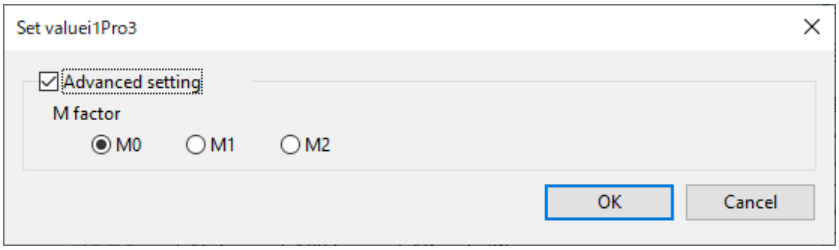
4 Configure the colorimeter settings.

i1Pro



i1iSis

The M factor can be set with the following colorimeters:
i1Pro3, i1Pro3 PLUS, i1iO3 with i1Pro3, i1iO3 with i1Pro3 PLUS



- [M factor] will be selected as "M0" if [Advanced setting] is not checked.
- Checking [Advanced setting] allows [M factor] to be set to other than "M0".
- i1Pro3 PLUS and i1iO3 with i1Pro3 PLUS allows "M3" to be selected.If "M3" is selected, the polarization filter provided with the colorimeter should be mounted.

Important!

■ **[Advanced setting] should not be checked in the following cases:**
- When i1Pro2 or earlier is used and no problems occur.
- When color replacement is performed using a color collection or colorimeter with the RasterLink series.

■ **Do not select "M3" if measuring the color of cloth using i1iO3 with i1Pro3 PLUS.**

■ **Do not alter the M factor while creating a device profile or while color matching.**

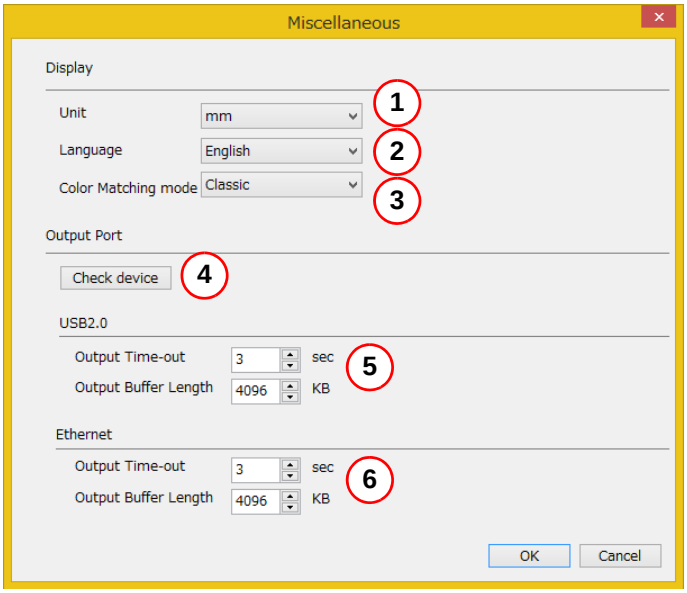
■ **For calibration and daily management, do not change the M factor used when measuring the standard color to calibrate and readjust.**

About M factor
- M factor refers to the lighting conditions used when measuring color.Selecting the appropriate conditions minimizes the effects primarily of fluorescent brightener in the media on the color measurement results.

Chapter 19
Miscellaneous settings

Miscellaneous settings

The following parameters can be modified.

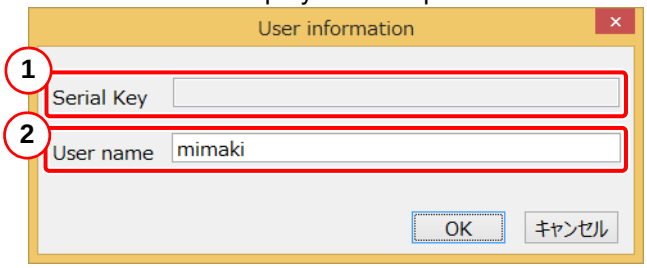


1	Display unit	You can switch the units between millimeters and inches.
2	Display language	Select the display language. MPM3 must be restarted for the change to take effect.
3	Color Matching mode	Change the color matching method. Refer to "Chapter 5 Color Matching" (P. 45) for details.
4	Connection Confirm	You can check whether it is connected properly with the printer.
5	USB parameters	These settings are for troubleshooting. Do not change these values.
6	Ethernet parameters	These settings are for troubleshooting. Do not change these values.

Chapter 20
User information

User information

Register a user name. The user name will be displayed in the profile as the creator's name.



1	Serial Key	Serial Key of the installed MPM3.
2	User name	Set the user name for MPM3. The name is embedded in the device profile and displayed as “Creator's name”.

Chapter 21
Making backups and restoring

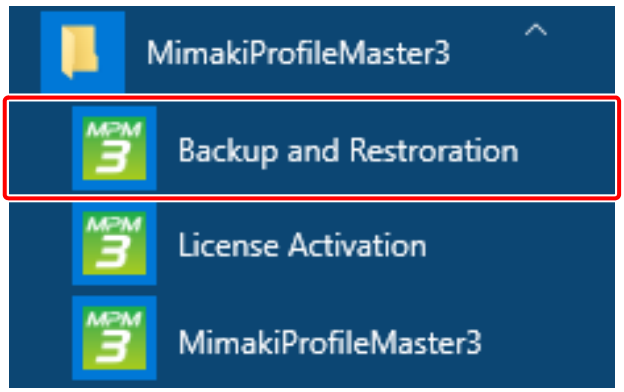
Making backups and restoring

If MPM3 is re-installed, the information in the registered media and working files is removed. This function makes backups of such information in a different location, and restores it when MPM3 is re-installed.
Backup and restoration are performed with the MPM3 utility software.

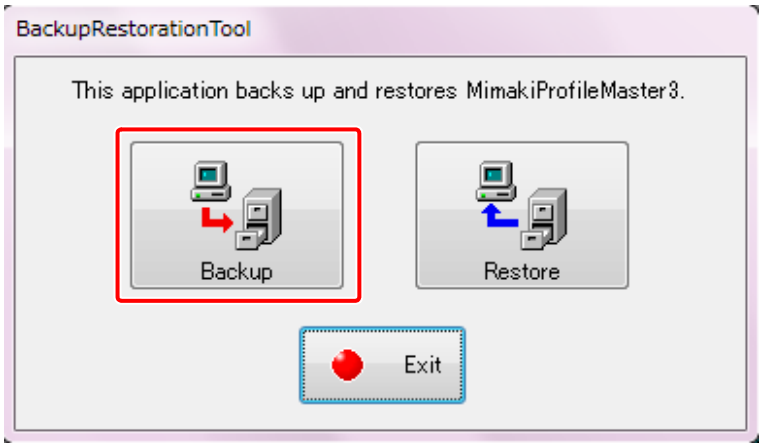
Making backups

This operation must be performed before MPM3 is uninstalled.

1 Start “Backup and Restoration” in Windows.



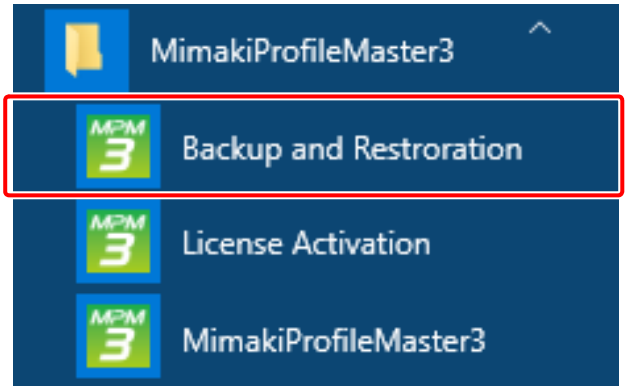
2 Click [Backup], and follow the on-screen instructions to specify a backup folder.



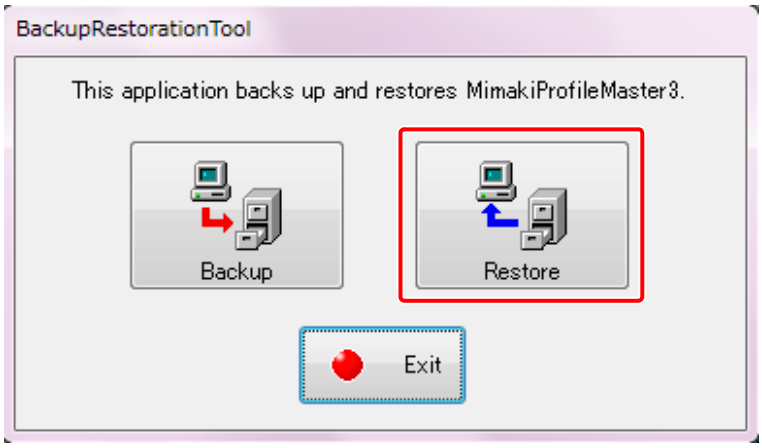
Restoring a backup

This operation should be performed after MPM3 is installed.

1 Start “Backup and Restoration” in Windows.



2 Click [Restore], and then follow the on-screen instructions to specify a backup folder.



Chapter 22
Error message guide

Error messages

Error messages and the solutions for the issues are described below.

Error message	Indication condition	Solutions
License re-activation is needed.	At the time of license activation	Activate your license again.
The PC configuration was changed after the activation of your license.	At the time of license activation	(1) Restore the following two items to the state in which the license was activated. - Network connection method (LAN cable or WIFI connection) - The PC motherboard (2) Deactivate license. (3) Update the network connection method or PC motherboard information, and deactivate your license. If you cannot restore the PC, execute the steps described in “Deactivation when PC broke down”. Refer to the installation guide of MPM3 for details.
Error occurred during activation.	At the time of license activation	Connect with an Ethernet adapter for license activation when using a PPP connection network adapter, or a USB connection network adapter.
This serial key is already used on another PC.	At the time of license activation	Deactivate the license on the PC where you last activated your license, and activate the license on the new PC. If the license cannot be deactivated on the PC where you last activated your license due to a PC malfunction or for a similar reason, execute the steps of “Deactivation when PC broke down”. Refer to the installation guide of MPM3 for details.
Failed to initialize the application.	On startup	The MPM3 system file is broken. Please reinstall MPM3.
Cannot continue this process. There is no MimakiProfileMaster3 installation folder.		
Create or import an ICC profile.	Device profile creation wizard	Creation of device profile requires an ICC profile. Create an ICC profile or import an ICC profile.
Creating ICC Profile failed.	At the time of creating ICC profile	A colorimetry error may have occurred. Confirm there is no uneven density on the printed chart, and repeat the color measuring process once again.
Failed improvement of impure yellow.	At the time of editing ICC profile	You are using an ICC profile created by MPMII or another application for creating ICC profiles. Since it is impossible to edit or adjust that profile with MPM3, make the adjustments with the application used for creating that ICC profile.
Cannot edit parameter because the ICC profile is not created by MPM3.		

Error message	Indication condition	Solutions
Cannot find valid import data in the loaded file.	Import	• Make sure that you have not designated a file other than the device profile. • Confirm that the ink set of the profile you are currently editing and the ink set of the selected profile are the same. • When profiles with variable settings have been made, select a profile with variable settings.
The specified file is not a profile.	Loading file	Make sure that you have not designated a file other than the device profile.
The specified file is not a V3 Device Profile.	Loading file	Make sure that you have not designated a file other than the V3 device profile.
The process did not end successfully.	During various operations	A colorimetry error may have occurred. Confirm there is no uneven density on the printed chart and repeat the color measuring process.
The format is not supported.	Test print	Only CMYK tiff images can be output during profile creation. Please select a CMYK tiff file.
Eye-One Pro [Eye-One IO, Eye-One iSis] cannot be connected.	Measuring	The colorimeter is not connected. Refer to "Chapter 23 Connecting to colorimeter" (P. 209).
Cannot read the measurement result file.	When loading the color measurement file	The specified file with color measurements cannot be read because the file was created by an application other than MPM3.
Failed to import the file.	Emulation Target profile import	A file other than the target profile was specified. Specify the target profile.
The selected file is not a Target profile for xx mode.	Emulation Target profile import	Specify a target profile created in the same mode as the one selected in MPM3 (Basic/Multicolor/ High Quality Mode).
The selected file is not a color measurement file for xx mode.	Emulation Loading color measurement file	Specify a color measurement file created in the same mode as the one selected in MPM3 (Basic/Multicolor/ High Quality Mode).
This color measurement file is not for calibration.	Calibration Loading color measurement file	Check whether the file you are using is for color measurements of different elements.
Profile installation failed.	During device profile installation	The device profile you are trying to install is not supported by RasterLink6 on the PC. Update RasterLink6 to the latest version.

Chapter 23
Connecting to colorimeter

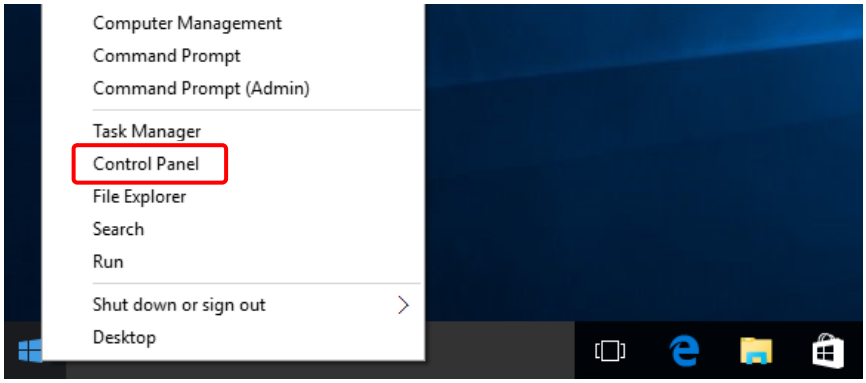
Connecting to colorimeters made by X-Rite

The installation or re-installation of the device driver for a colorimeter is required when the colorimeter is connected to the PC for the first time, or when the colorimeter is replaced. Otherwise, you may not be able to connect the colorimeter to MPM3.
The following section uses an example of the Eye-One Pro2 device driver installation in Windows 10 to explain how to install the device driver for a colorimeter.
The names of device driver differ between each colorimeters of X-Rite, but operations of installing device drivers are same.

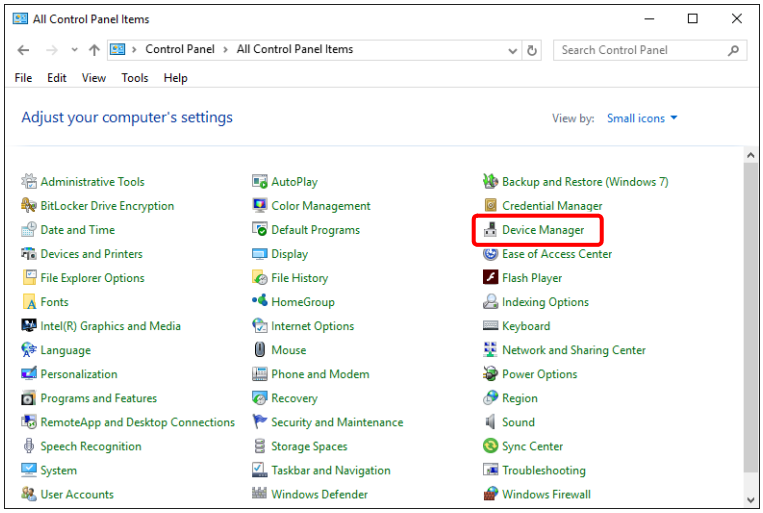
Check the colorimeter device driver in device manager

1 Connect the colorimeter to the PC.

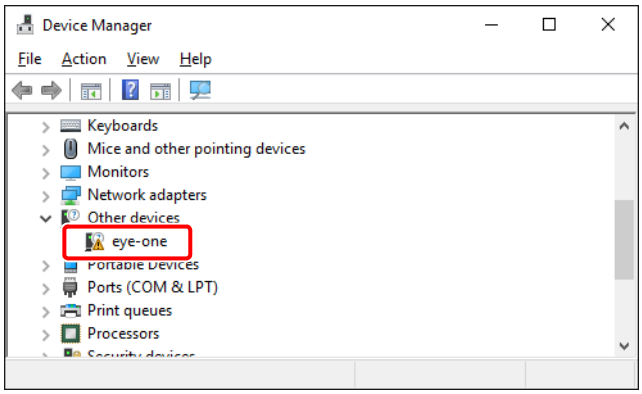
2 Open Windows Control Panel.



3 Open Device Manager.



4 Check the “eye-one” status.



- When following caution mark is displayed next to eye-one, you need to install the eye-one device driver.

- If the caution mark is not displayed, the installation of the device driver is not required.
- When you connect Eye-One IO or Eye-One iSis, “Eye-One IO” or “Eye-One iSis” appears.
- For Eye-One IO, “eye-one” and “Eye-One IO” may be displayed. In that case, the device drivers for both Eye One and Eye One IO are to be installed.

Install the device driver

1 **Access the X-Rite website (https://www.xrite.com/).**

2 **Use the website search function to search for [i1Diagnostics].**

3 **Use the search results to access the [i1Diagnostics] page.**

4 **Click the [Training and Support] tab next to the [Overview] tab.**

- If the [Training and Support] tab is not visible, select [English] in the language selection at the bottom of the page.Repeat from Step 2 once the X-Rite homepage appears.

5 **Click [i1Diagnostics].**

6 **Follow the instructions on the screen to download and install [i1Diagnostics].**

7 **Start MPM3, and check the colorimeter connection.**

Connecting to SpectroLFP

Before connecting to SpectroLFP, install the USB driver to your PC. The following section uses an example of the SpectroLFP USB driver installation in Windows 10 to explain how to install the USB driver.
The logged-in user must be the Administrator.

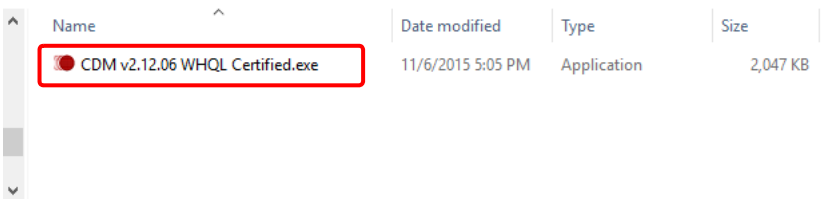
Insert the USB memory drive accompanying SpectroLFP

Do not connect SpectroLFP to your PC.
Insert the USB memory drive accompanying SpectroLFP into your PC.

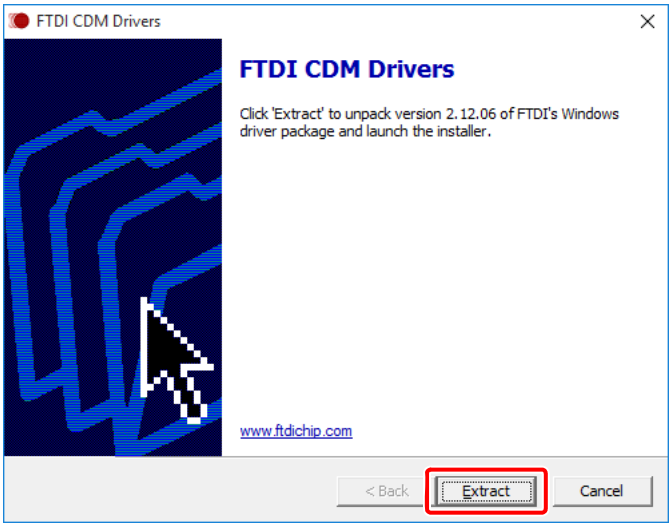
Install the USB driver

1 Start the USB driver installer.

- Open the WindowsPC > USB DriverPC folder on the USB memory drive.
- Double-click “CDM v2.12.06 WHQL Certifed.exe” in the folder.

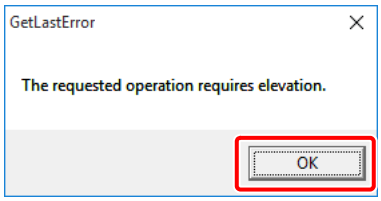


2 Click [Extract] to extract the driver installer.

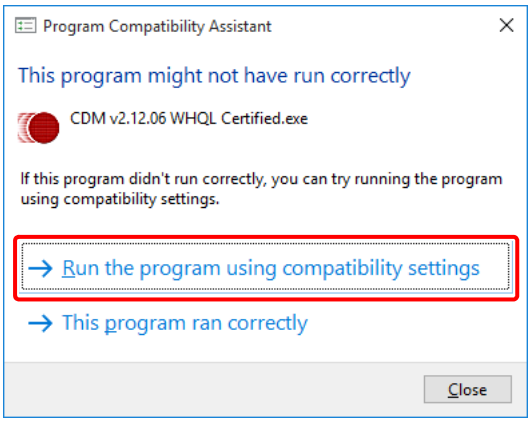


3 After confirming that the account type of the logged-in user is Administrator, click [OK].

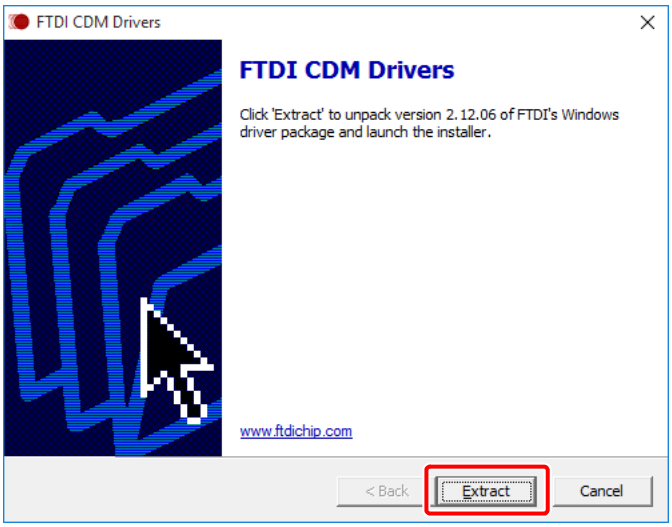
- If the account type of the logged-in user is not Administrator, terminate the installation and log in again as the Administrator.



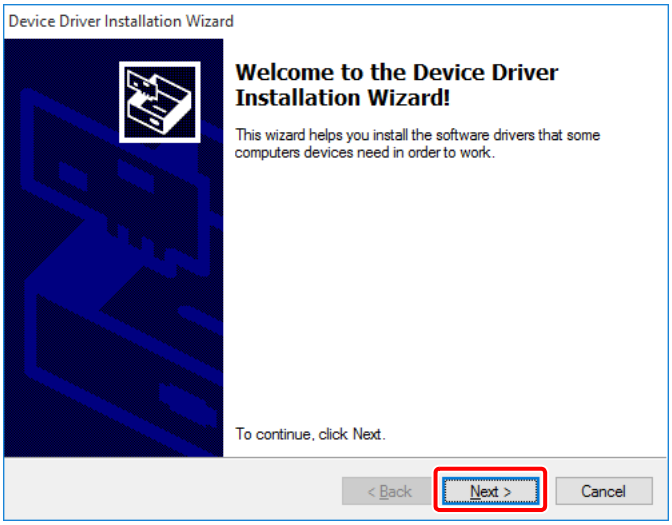
4 Click “Run the program using compatibility settings”.



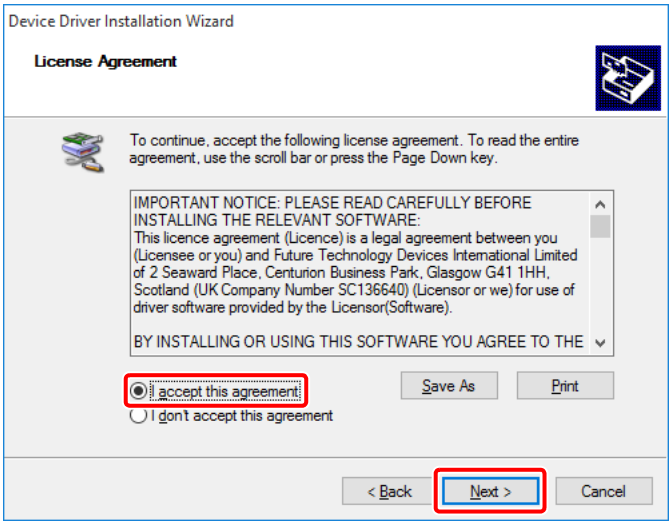
5 Click [Extract] to extract the driver software.



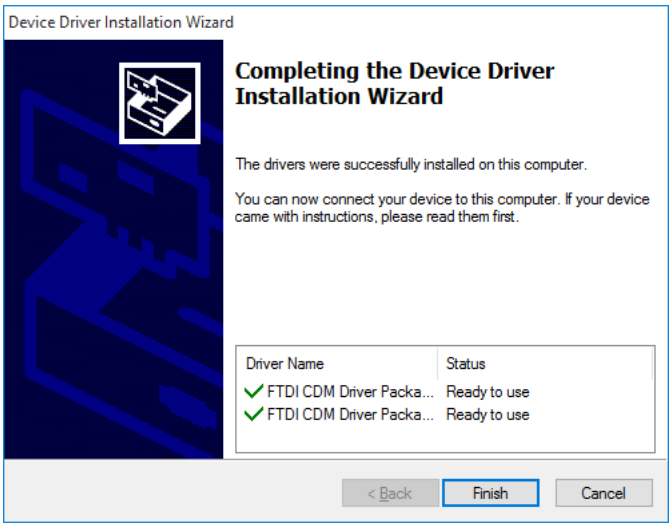
6 Click [Next] to start the installation.



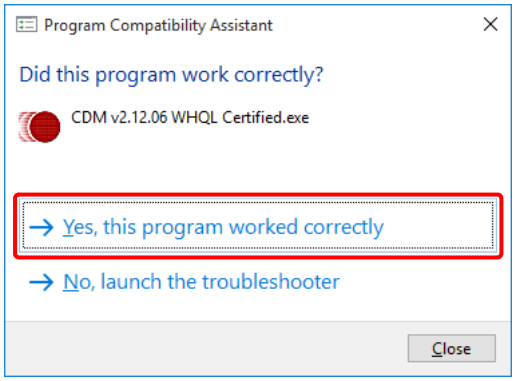
7 Check “I accept this agreement” and click [Next].



8 Click [Finish].



9 Click “Yes, this program worked correctly”.



10 Connect SpectroLFP to your PC, start MPM3, and check the connection.

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SW:3.2.14