UCJV300
Multilayer Printing Guide

This document describes Multilayer Printing, a function to print by overlaying multiple print layers, making use of the UV ink characteristics.
Read this document carefully before using your printer.

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What is Multilayer Printing?

Utilizing the features of UV ink, it is a function to print multiple printed layers.
New printing that cannot be expressed with only one layer becomes possible.
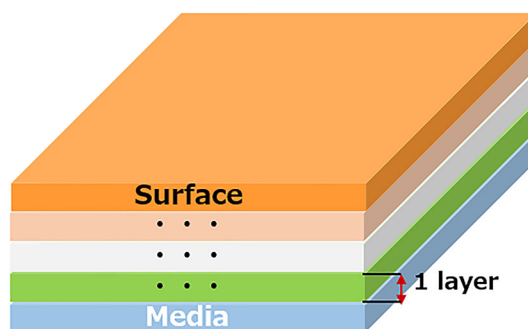

※ We support up to 5 layers.

> (Important!) • The target is the printers including a special color machine.

4 Layers Printing

4 layers printing - about Day & Night

By overprinting a total of 4 layers of front color + white + black (light shielding) + background color, the background picture will appear on the front through when light is applied from the back.
Making use of this effect can change the impression of the picture between when the light is on and off.

Light is off   **Light is on**

By lighting from the back side, the background picture will appear on the front through.
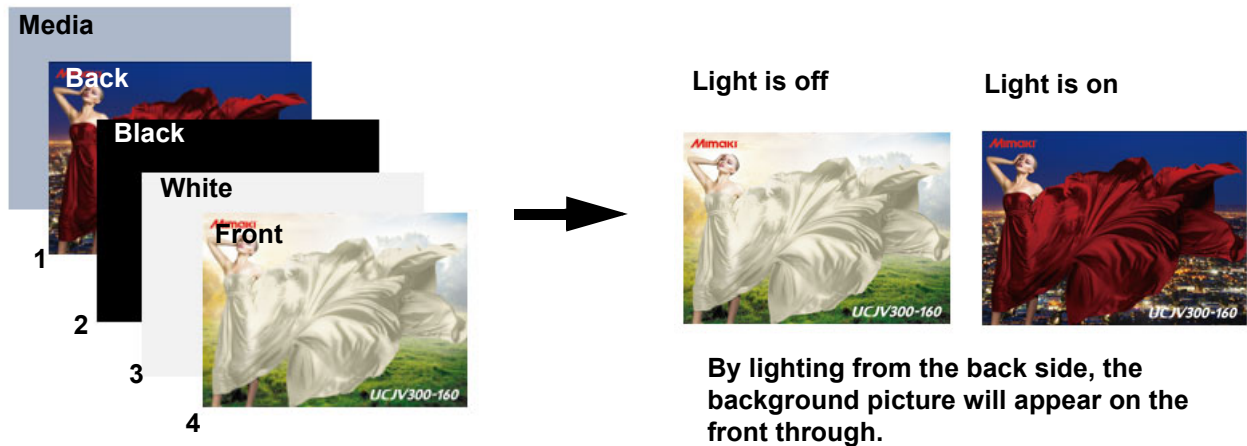
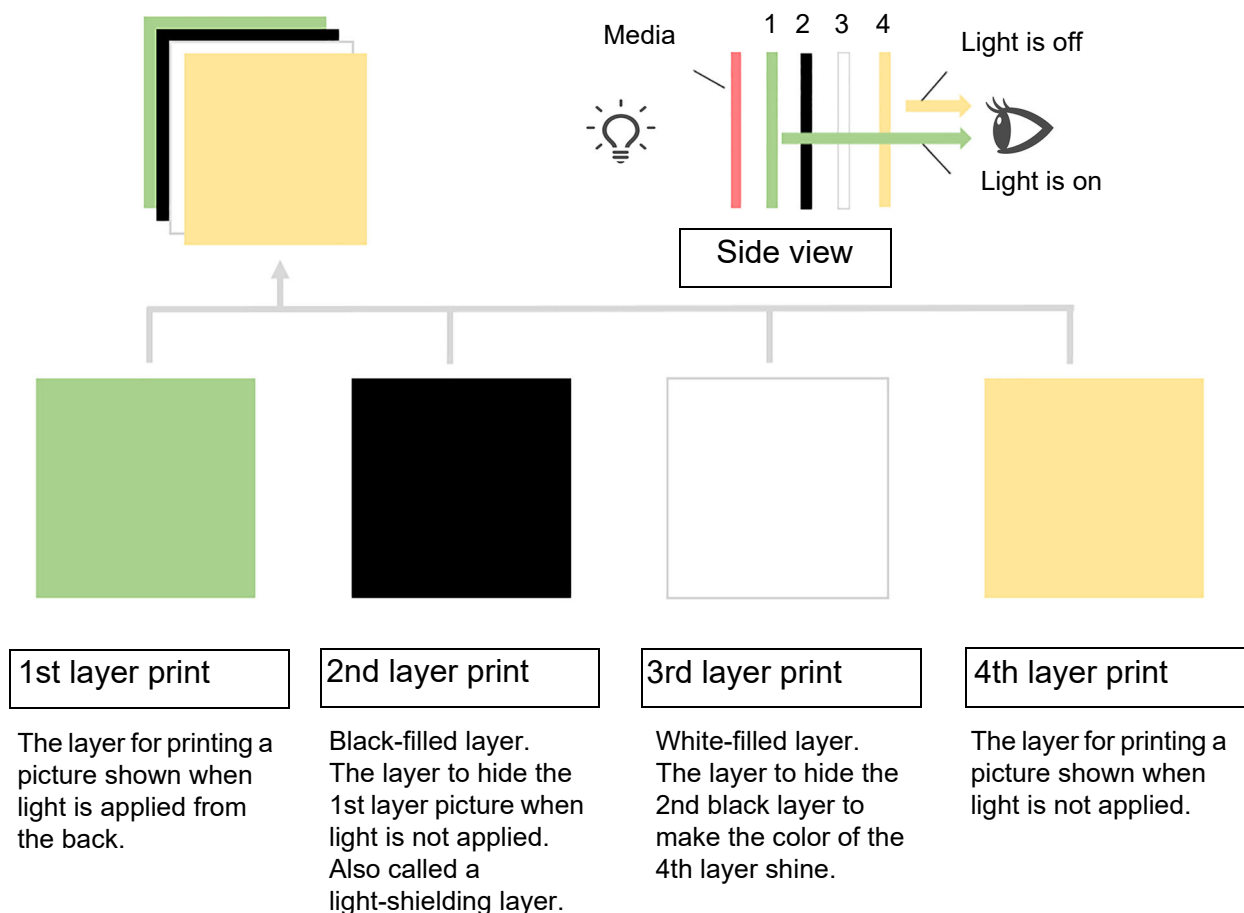Back (1st layer): a picture to show on the front when light is applied
Black (2nd layer): does not display the back picture when light is not applied
White (3rd layer): makes the front color shine, and hides the black layer
Front (4th layer): a picture usually shown

4 layers printing (Day & Night) – structural description

The following describes the structure of the 4 layers printing (Day & Night).

Side view

1st layer print	2nd layer print	3rd layer print	4th layer print
The layer for printing a picture shown when light is applied from the back.	Black-filled layer. The layer to hide the 1st layer picture when light is not applied. Also called a light-shielding layer.	White-filled layer. The layer to hide the 2nd black layer to make the color of the 4th layer shine.	The layer for printing a picture shown when light is not applied.

Functions of software (4 layers)

The following software products are used for 4 layers printing:

Illustrator

- Creation of front and back layers
  Use to create a front layer (a picture usually shown) and a back layer (a picture to show when light is applied).

RasterLinkTools

- Automatic creation of white and black layers
  Automatically create white and black layers required for 4 layers printing.
- Preview
  Display the finished image of 4 layers printing data.
  (Preview function is supported for only 4 layers printing.)

RasterLink6Plus
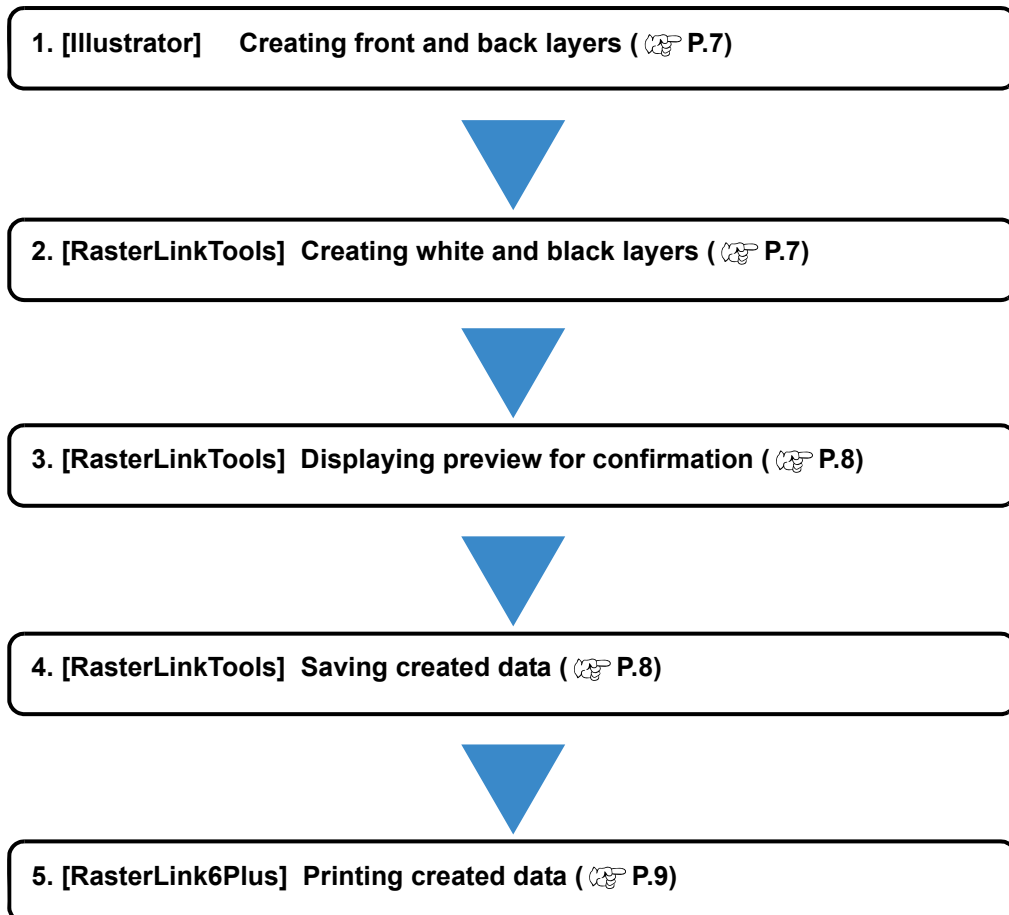
- Create a composition job of multi-layer and print it.

	• Print 4 layers at the same time.

Creating and printing procedures of 4 layers data

With RasterLinkTools

The following describes the procedure to configure settings required for 4 layers printing with RasterLinkTools. Use the simplest procedure of "solid white and black layers" for the steps from "data creation" to "print of created data".

Solid white and black layers	
Light is off	Light is on

1. [Illustrator]   Creating front and back layers (☞ P.7)

2. [RasterLinkTools] Creating white and black layers (☞ P.7)

3. [RasterLinkTools] Displaying preview for confirmation (☞ P.8)

4. [RasterLinkTools] Saving created data (☞ P.8)

5. [RasterLink6Plus] Printing created data (☞ P.9)

1. Create front and back layers. (Illustrator)

- Create single layer data for each of the front and back layers.
  Merge any multiple layers for each layer.
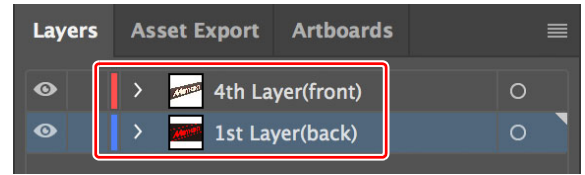

4th layer (front)   1st layer (back)

(Important!) • Make sure to arrange the pictures in the order shown in the figure above. (Otherwise, 4 layers printing does not function properly.)
• There is no restriction on layer names.

# 2. Create white and black layers automatically. (RasterLinkTools)

(1) Start RasterLinkTools.

(2) Select the [white & black layers auto-creation] icon   .

You are prompted to check the number of layers of data to create.

(3) Select 4 layers and press the [OK] button.
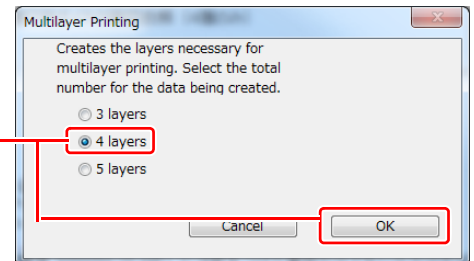
(4) The white and black layers required for 4 layers printing are created between the front and back layers created at step (1).
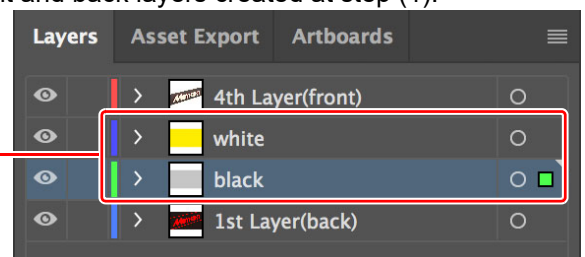

• The white layer is created with a solid fill of Yellow 100%.
  However, it is recognized as white during preview or when data is saved in a hot folder of RasterLink6Plus.
• The black layer is created with a solid fill of Black 30%. Change the density of Black as necessary.
• The white and black layers each have the same size as the picture on the 4th layer.

3. The preview is displayed. (RasterLinkTools)

- Select the [Multilayer Printing function] icon .

  Select and deselect the check box of [Light is on] in the preview window to confirm the resultant image when the light is applied and not applied.
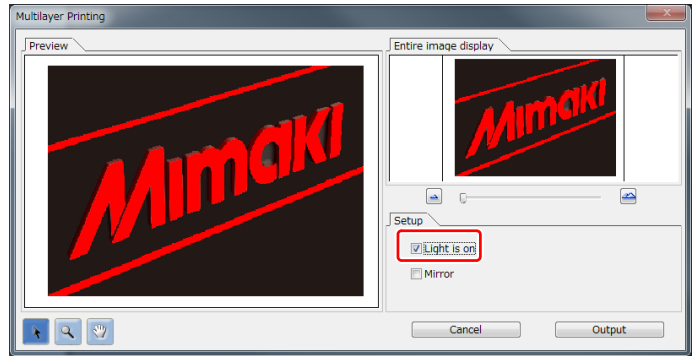
> ⚠ **Caution**
> - Note that the preview function cannot perfectly represent the actual print data.

> **(Important!)**
> - The preview function is supported for only 4 layers printing.

4. Save the created data. (RasterLinkTools)

- Press the [Output] button.
  A file saving screen will be displayed.
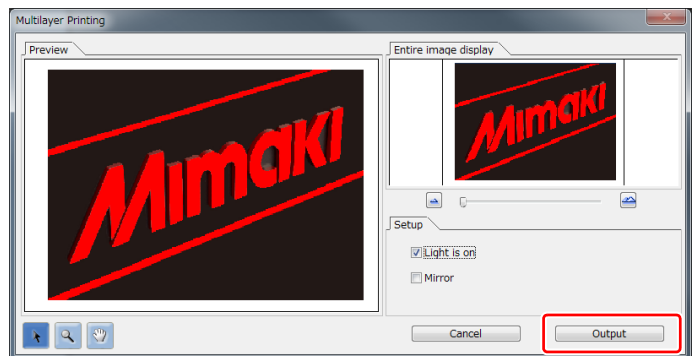
- Select a hot folder of RasterLink6Plus and save the file. A single file for a single layer, four files in total are saved in the hot folder.

> 💡 **File names for saving**
> - The files are saved with the following file names.
>   xxxxx_YYYYY.extension
>   xxxxx_YYYYY.extension
>   ...
>   ...
>
>   xxxxx: any file name specified by a user
>   YYYYY: an identifier added by RasterLinkTools automatically[*]
> *.Do not change the identifier.

5. Print the created data. (RasterLink6Plus)

(1) After saving the created 4 layers data files in the hot folder, a job is composed.

(2) Select the [Execute] icon .

(3) Press the [Start] button to start printing.

1

2

3
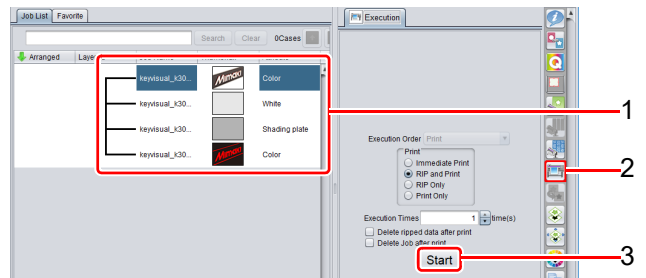
> • You can change the print setting of a composition job in 4 layers printing. However, you cannot specify individual print setting for each layer.

Without RasterLinkTools

The following describes the procedure to configure settings required for 4 layers printing with only RasterLink6Plus and without RasterLinkTools.

> (Important!) • If you created data with any method other than P.6 "With RasterLinkTools", you have to configure the settings manually because the settings required for 4 layers printing are not made automatically.
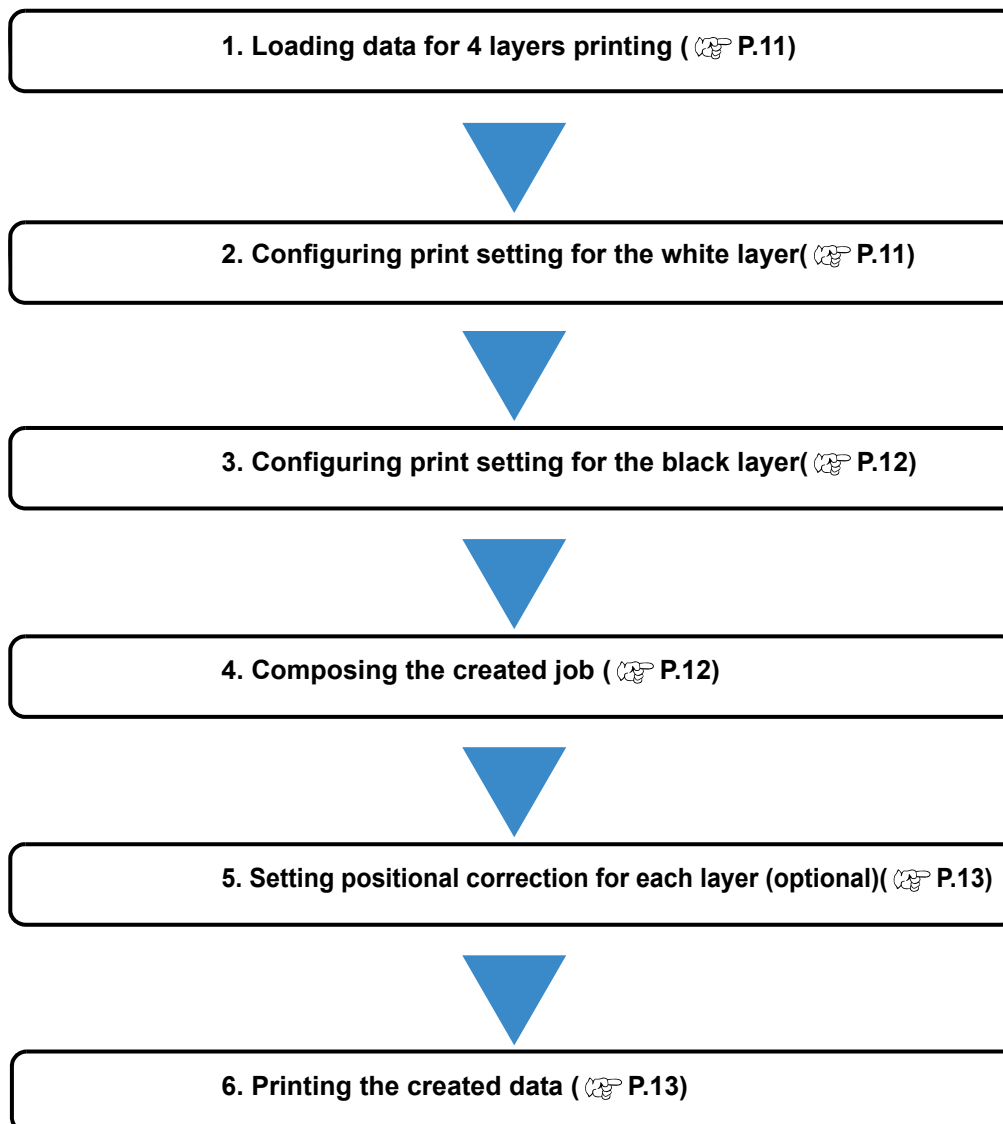
```
┌────────────────────────────────────────────────────┐
│   1. Loading data for 4 layers printing ( ☞ P.11)   │
└────────────────────────────────────────────────────┘
                          ▼
┌────────────────────────────────────────────────────┐
│ 2. Configuring print setting for the white layer( ☞ P.11) │
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│ 3. Configuring print setting for the black layer( ☞ P.12) │
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│      4. Composing the created job ( ☞ P.12)          │
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                          ▼
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│ 5. Setting positional correction for each layer (optional)( ☞ P.13) │
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                          ▼
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│      6. Printing the created data ( ☞ P.13)          │
└────────────────────────────────────────────────────┘
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1. Load the 4 layers printing data into RasterLink6Plus.

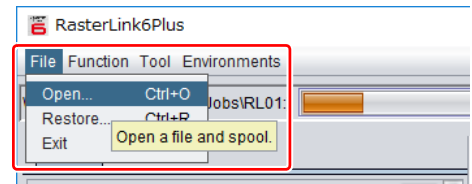You can use one of the following two procedures for loading data:

(1) Loading from the hot folder
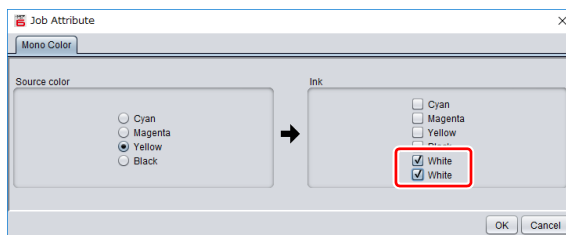   - Save the created 4 layers data files together in the hot folder.

Hot folder

(2) Loading from the [File] menu
   - From the top left menu in RasterLink6Plus, select [File] - [Open] to load the created 4 layers data file one by one, four times in total.
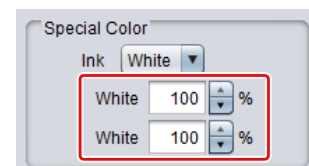

2. Configure the print setting for the white layer.

   - On RasterLink6Plus, select "Mono color replacement" or "White layer creation".

Mono color replacement
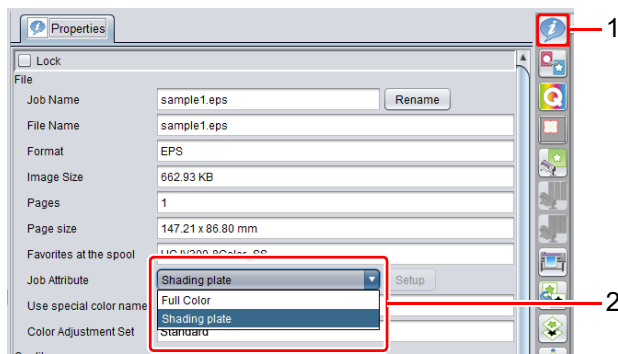

White layer creation

- In RasterLinkTools, if you created the white layer by using the automatic creation function of white and black layers, the white layer is created in yellow. Select Yellow into White in "Mono color replacement " as shown in the image above to print the white layer.
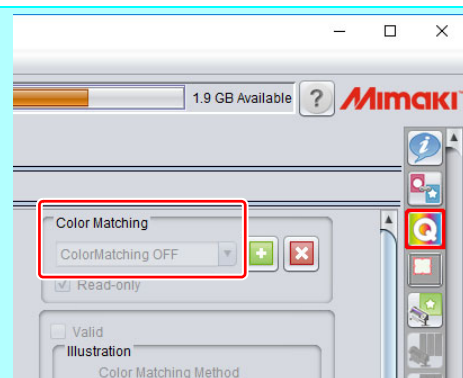

Caution
- If you create the white layer by using "Color replacement ", only "Mono color -> White" is possible.
  Note that "Multiple colors -> White" in "Color replacement " is impossible only for Multilayer Printing.

3. Configure the print setting for the black layer.

(1) Select the [Properties] icon 💬 .

(2) Set the job attribute to
[Light-shielding layer].
(This option is available for only jobs
with color attribute.)

1

2

💡 • This procedure sets the [Color Matching] setting to
[ColorMatching OFF], located in [Print Conditions
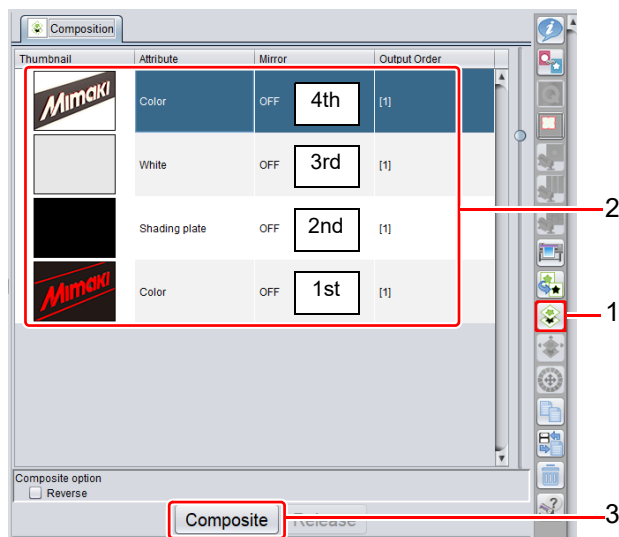🔴] - [Print Quality] tab.

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4. Compose the jobs in the created layers.

(1) Select the [composition] icon 🔷 .

(2) Set the composition (print) order of the 4 layers data.

(3) Click the [Composite] button.

■ 4th layer
**Farthest layer
from the media**

■ 1st layer
**Nearest layer
from the media**

2

1

3

💡 • You cannot specify individual print setting for each layer. (ex. changing the resolution on the
white layer only is impossible)
• The print settings (profile, resolution, etc.) on the top job are also used on other jobs being
composited.

5. Set the positional correction of data after composition. (optional)

- If any positional correction is required, select the [layer setting] icon ⬙ .
  The positional correction for each layer is now configurable. Make settings as necessary.
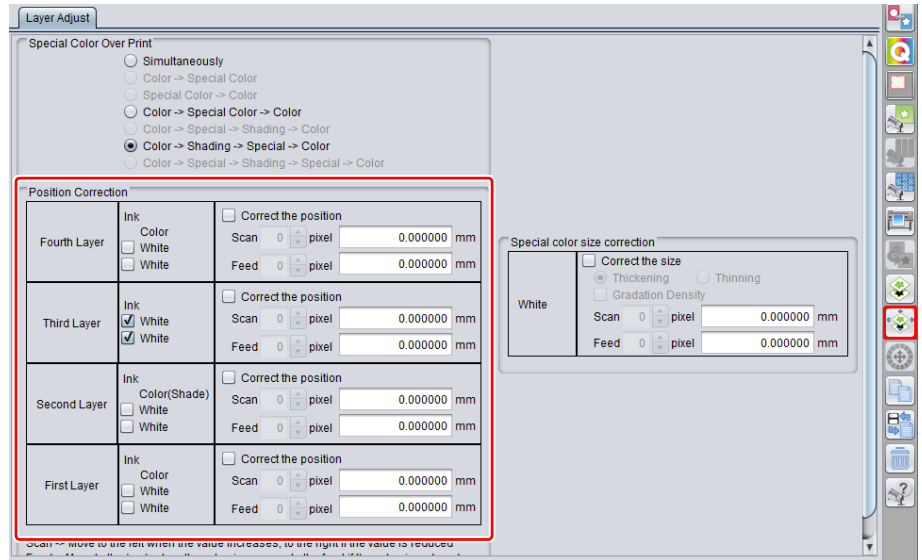
6. Print the created data.

(1) Select the [Execute] icon 🖼 .

(2) Press the [Start] button to start printing.
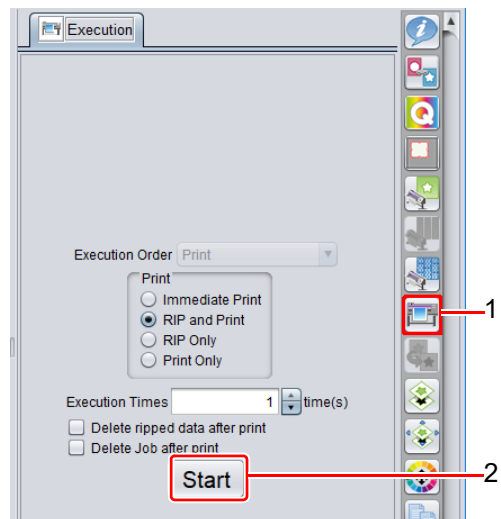
💡 • You can change the print setting of a composition job in 4 layers printing. However, you cannot specify individual print setting for each layer.

Troubleshooting (4 layers)

The following describes additional information for creating 4 layers data.

RasterLinkTools

● Preview does not appear, or the preview display is wrong.

Check the order and numbers of layers.

> ☀ • Preview display is supported for only 4 layers.

● The order and numbers of layers are correct, but the preview display is wrong.

For complicated pictures, the preview may not function correctly. However, a print can succeed. Try a test print.

● You want to create white and black layers without a solid fill.

The automatic creation function of white and black layers in RasterLinkTools is used to automatically create white and black layers with a solid fill.
Create white and black layers without a solid fill manually if you need them.

● Why is the density for the automatically created black layer set to Black 30%?

According to our test results, the optimal density of Black was 30%, so it is set for the automatically created black layer. However, the optimal density may change depending on the environment. Try to change the density as necessary.

RasterLink6Plus

● The 1st layer picture appears on the 4th layer through.

First, increase the density of white to the limit.* 1
Increasing the density of black prevents the picture from appearing on the front through. However, this may give the overall picture a dark atmosphere when light is applied.

*1. The special color machine is designed to use two units of white as standard. So when you print, use the two units of white if possible. The auto setting is configured to use the two units of white.

● Is the profile exclusive for 4 layers printing necessary?

You do not have to prepare the profile exclusive for 4 layers printing.
Use the profile of WhiteOnColor or ColorOnWhite for the media to be printed.

● What is the layer combination supported for 4 layers printing?

The following combination is supported for 4 layers printing.
- color + light-shielding (color) + special color (white) + color
- color + special color (white) + light-shielding (color) + color

● 4 layers are composed, but they cannot be printed correctly.

In the layer setting window, check if either one of the last two options is selected in [Special Color Over Print] as shown below.
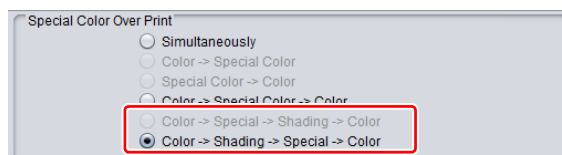
● The part of the picture you want to enhance is not highlighted when light is applied from back.

The simplest structure is the solid black layer for 4 layers printing(Day & Night). However, different expression is achieved than a solid fill by adding more steps on the black layer data.
The following describes an example in which a part of the black layer is cut out to show the target part vivid and highlighted.

> 💡 • Printing procedure is the same as the usual one.

Example to highlight the part of the picture you want to enhance

Light is off

The daylight landscape printed on the top layer is shown when light is not applied.

Light is on

By lighting from the back side, the different dress color and background printed on the bottom layer will appear.
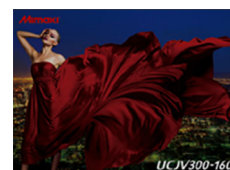

In this sample, the part of the woman and dress is cut out on the black layer.
The light passes through the cut out part well, so the cut out part is shown highlighted compared to other parts.

Comparison image

"With" cutout   "Without" cutout

● You want to print on transparent media (mirror output).

When printing on transparent media, set the media on the position nearest to the point of view, and print on the back side of the media. This makes the order of layers inverted from the usual one.

Printing on standard media

Media

1st layer (back)   4th layer (front)

Side view

Printing on transparent media (mirror output)

Transparent media

4th layer (back)   1st layer (front)

Side view

See the picture through the media
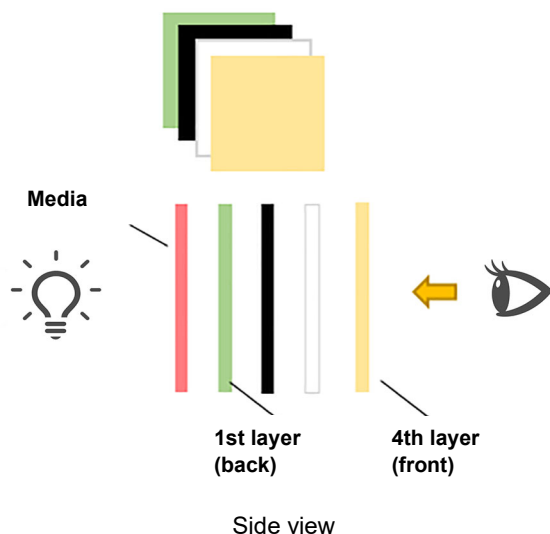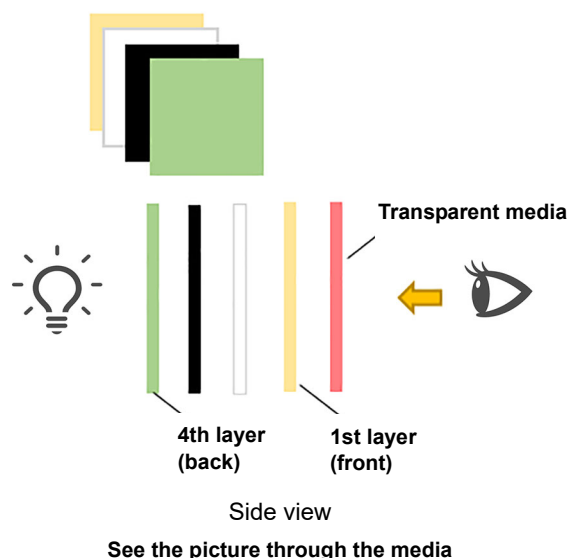
About mirror output procedure

You can use one of the following two procedures to make the picture inverted for mirror output.
1. Inverting with RasterLinkTools
2. Inverting with RasterLink6Plus

1. Inverting with RasterLinkTools

- In the Multilayer Printing preview window, select the [Mirror] check box.
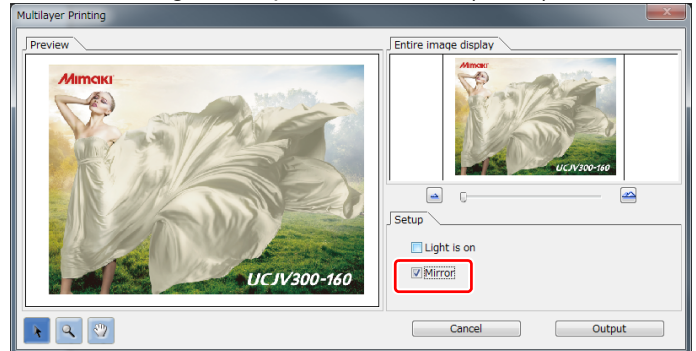 After selecting this option and saving the data, save the data to the hot folder in Raster-Link6Plus. The picture is composed with the settings to be printed in Mirror (invert).

💡 • You do not have to change the order of the layers manually.

⚠️ **Caution** • This function is valid only when the file is saved in RasterLinkTools and saved to the hot folder in RasterLink6Plus.

2. Inverting with RasterLink6Plus

(Important!) • Follow this procedure before composing jobs.

(1) Select the [composition] icon ⬙ .

(2) Change the order of layers in the 4 layers data to the mirror output order (in inverse order of usual one) manually.

(3) Select entire 4 layers data.

(4) Select the [Mirror] check box in the Composite option. The picture is inverted.

(5) Click the [Composite] button.

■ 4th layer
Farthest layer from the media

■ 1st layer
Nearest layer from the media

- 16 -
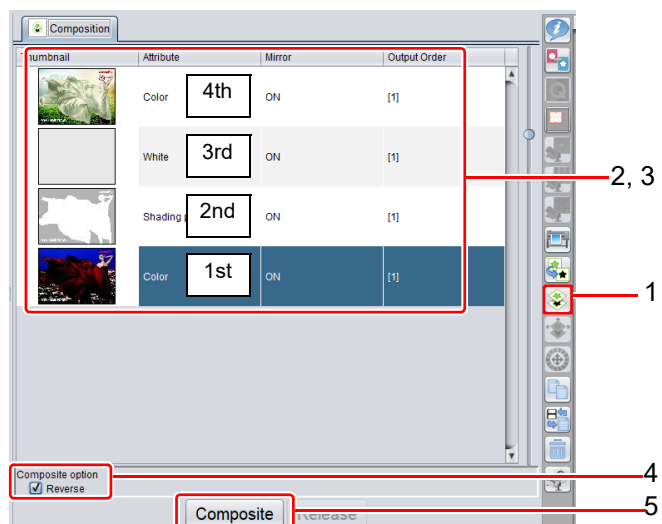
● What is the condition for automatically making settings required for 4 layers printing?

Start operation

<< 4 layers data creation >>
You have used RasterLink-Tools

NO

YES

<< Saving method >>
You have used the saving function for Multilayer Printing in RasterLinkTools

NO

YES

<< Loading file >>
You have saved the data you had saved above to the hot folder of RasterLink6Plus.

NO

YES

Automatically set

You have to set manually
Refer to P.10 "Without Ras-terLinkTools".
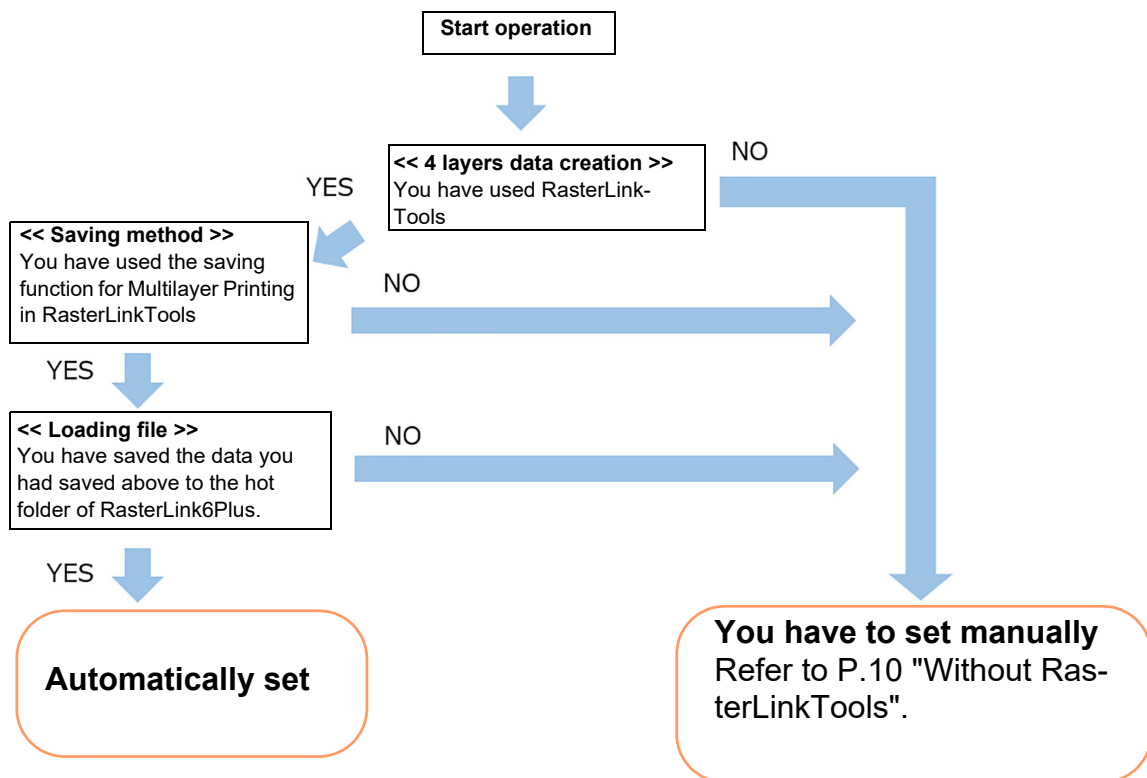
5 Layers Printing

About 5 layers printing

By overprinting a total of 5 layers of "color (front) + white + color (light-shielding) + white + color (back)", different pictures can be shown on the front and back on a sheet of media.

Different pictures shown on the front and back
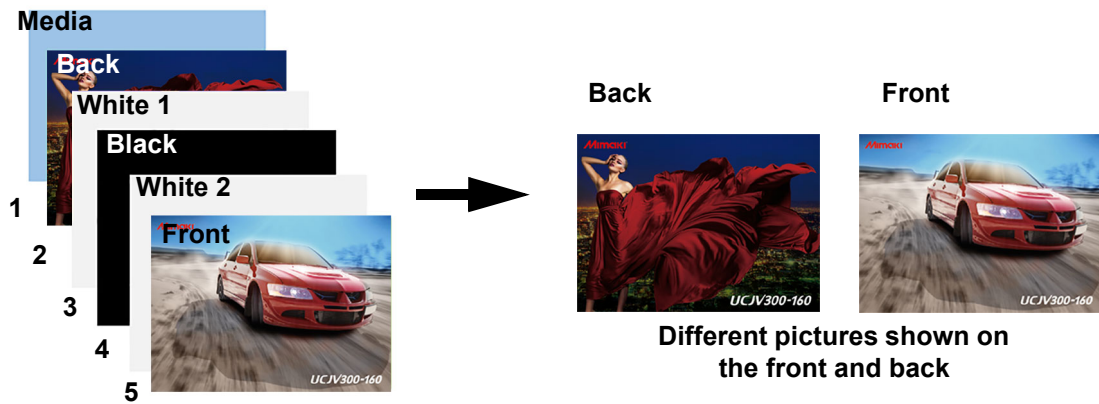
Back　(1st layer): a picture seen through the media
White 1 (2nd layer): hides the black layer and makes the back color shine
Black　(3rd layer): the layer for light-shielding the front and back pictures
White 2 (4th layer): the layer to hide the black layer and make the front color shine
Front　(5th layer): a picture seen from the media

5 layers printing – structural description
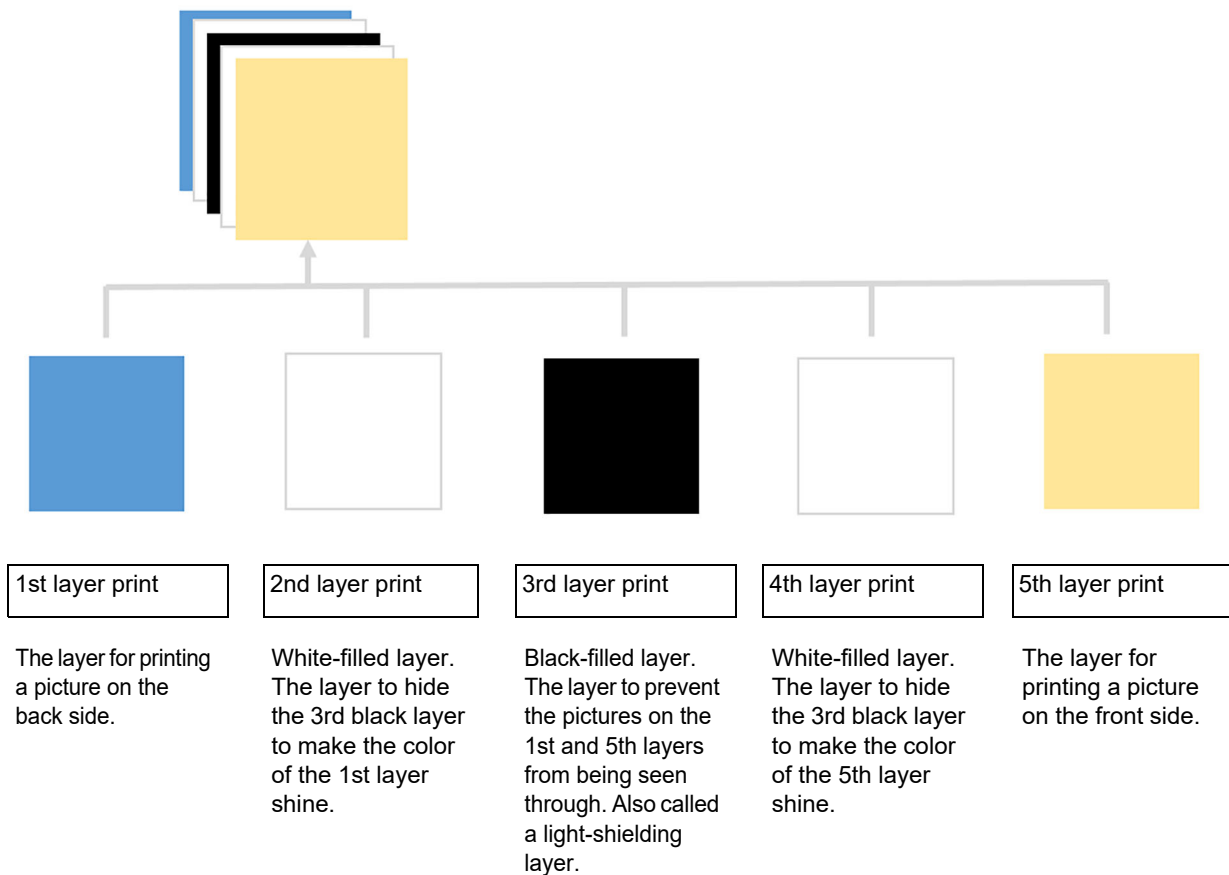
The following describes the structure of the 5 layers printing.

1st layer print	2nd layer print	3rd layer print	4th layer print	5th layer print
The layer for printing a picture on the back side.	White-filled layer. The layer to hide the 3rd black layer to make the color of the 1st layer shine.	Black-filled layer. The layer to prevent the pictures on the 1st and 5th layers from being seen through. Also called a light-shielding layer.	White-filled layer. The layer to hide the 3rd black layer to make the color of the 5th layer shine.	The layer for printing a picture on the front side.

Functions of software (5 layers)

The following software products are used for 5 layers printing for the steps from "data creation" to "print of created data".

Illustrator

• Creation of front and back layers
Use to create a front layer (a picture seen from the media) and a back layer (a picture seen through the media).

RasterLinkTools

• Automatic creation of white and black layers
Automatically create white and black layers required for 5 layers.

RasterLink6Plus

• Create a composition job of Multi-layer and print it.
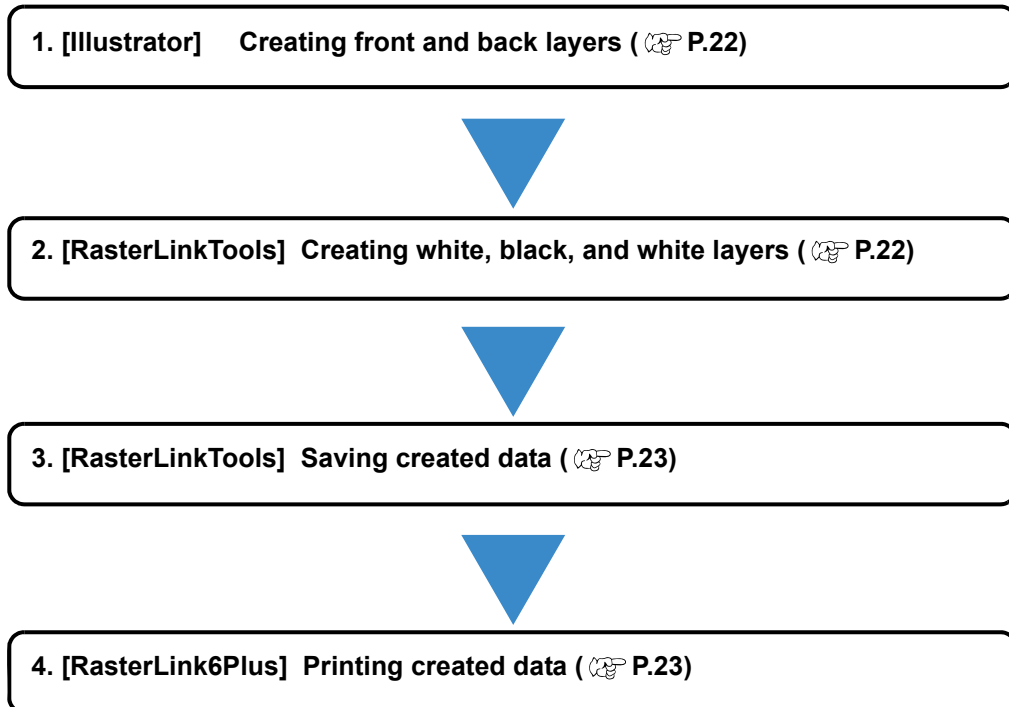
> • The target is the printers with a white color feature.
> • Print 5 layers at the same time.

Creating and printing procedures of 5 layers data

With RasterLinkTools

The following describes the procedure to configure settings required for 5 layers printing with RasterLinkTools.

1. [Illustrator]   Creating front and back layers (☞ P.22)

2. [RasterLinkTools] Creating white, black, and white layers (☞ P.22)

3. [RasterLinkTools] Saving created data (☞ P.23)

4. [RasterLink6Plus] Printing created data (☞ P.23)

1. Create front and back layers. (Illustrator)

- Create single layer data for each of the front and back layers.
  Merge any multiple layers for each layer.

Layers	Asset Export	Artboards	☰
👁	❘ > 🖼 5th Layer(front)		○
👁	❘ > 🖼 1st Layer(back)		○
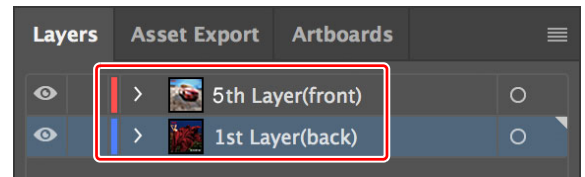
(Important!)
- Make sure to arrange the pictures in the order shown in the figure above. (Otherwise, 5 layers printing does not function properly.)
- Place the picture printed on the media side on the 1st layer.
- You do not have to create an inverted picture on the 1st layer (through media).
- There is no restriction on layer names.

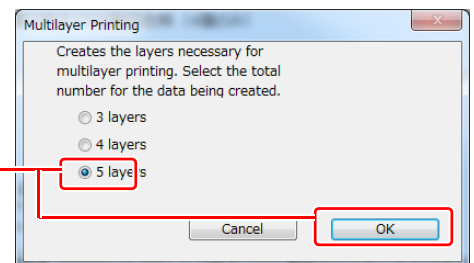# 2. Create white, black, and white layers automatically. (RasterLinkTools)

(1) Start RasterLinkTools.

(2) Select the [white & black layers auto-creation] icon 🔶 .

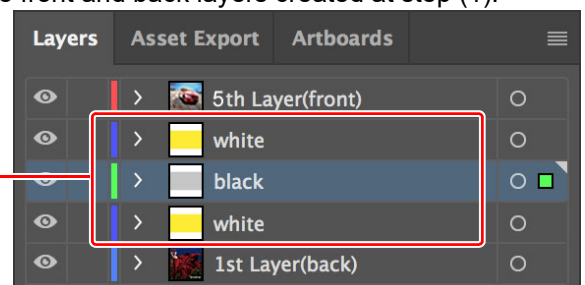You are prompted to check the number of layers of data to create.

(3) Select 5 layers and press the [OK] button.

Multilayer Printing

Creates the layers necessary for multilayer printing. Select the total number for the data being created.

- ○ 3 layers
- ○ 4 layers
- 3 —— ● 5 layers

Cancel   OK

(4) The white, black, and white layers required for 5 layers printing are created between the front and back layers created at step (1).

| Layers	Asset Export	Artboards	☰
👁	❘ > 🖼 5th Layer(front)		○
👁	❘ > 🟨 white		○
4 ——	❘ > ⬜ black		○ 🟩
👁	❘ > 🟨 white		○
👁	❘ > 🖼 1st Layer(back)		○

💡
- The white layer is created with a solid fill of Yellow 100%.
  However, it is recognized as white when data is saved in a hot folder of RasterLink6Plus.
- The black layer is created with a solid fill of Black 30%. Change the density of Black as necessary.
- The white and black layers each have the same size as the picture on the 5th layer.

3. Save the created data. (RasterLinkTools)

- Select the [Multilayer Printing function] icon .
- Press the [Output] button to save the 5 layers data.
  A single file for a single layer, five files in total are saved.
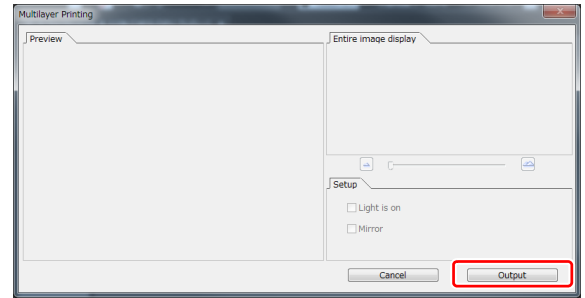
(Important!) • The preview function is not supported for 5 layers printing.

💡 **File names for saving**
- The files are saved with the following file names.
  xxxxx_YYYYY.extension
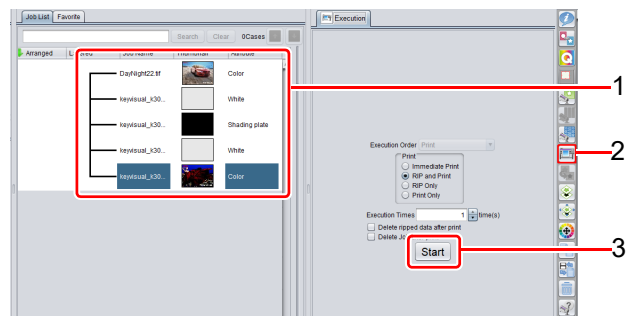 xxxxx_YYYYY.extension
  ...
  ...

  xxxxx: any file name specified by a user
  YYYYY: an identifier added by RasterLinkTools automatically[*]
*.Do not change the identifier.

---

4. Print the created data. (RasterLink6Plus)

(1) After saving the created 5 layers data files in the hot folder, a job is composed.

(2) Select the [Execute] icon .

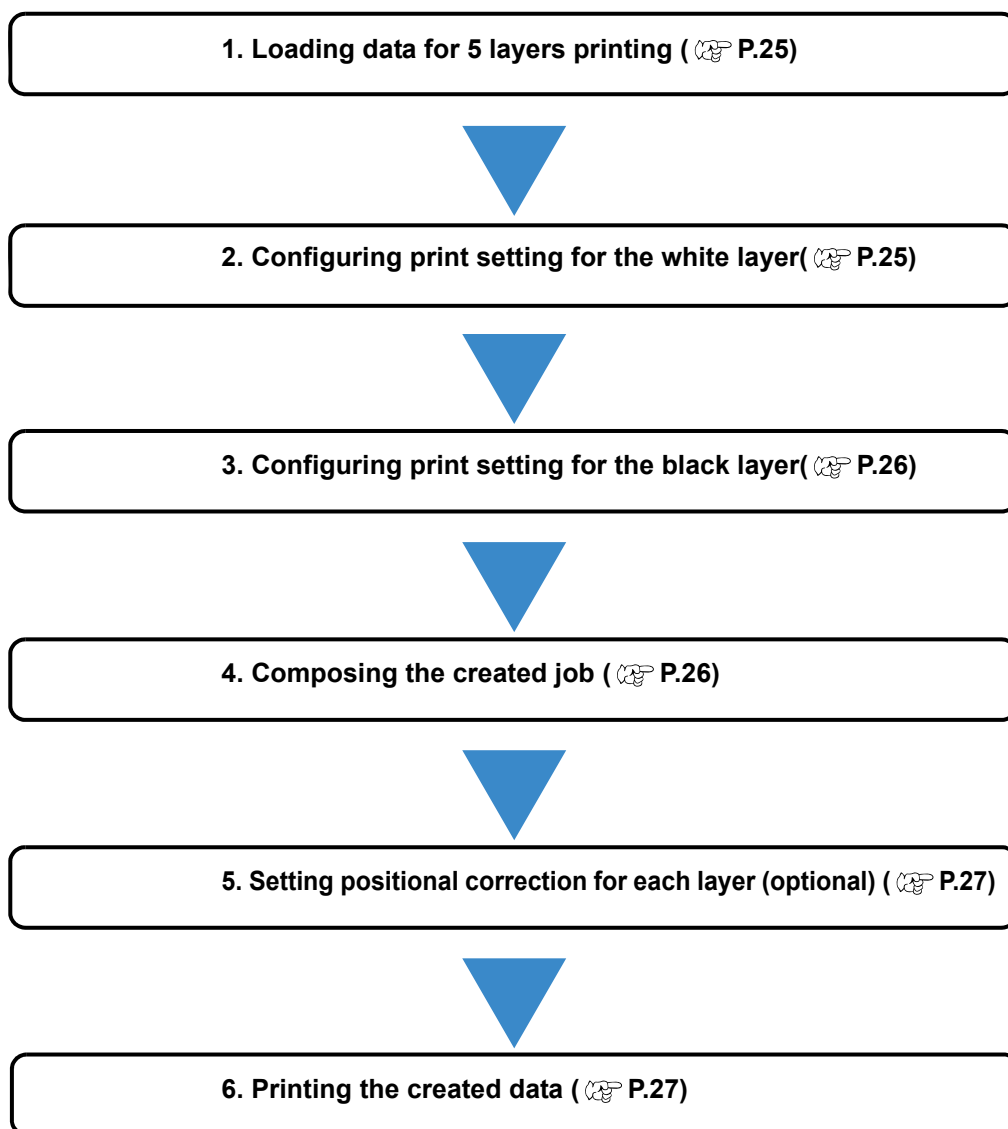**(3)** Press the [Start] button to start printing.

💡 • You can change the print setting of a composition job in 5 layers printing. However, you cannot specify individual print setting for each layer.

Without RasterLinkTools

The following describes the procedure to configure settings required for 5 layers printing with only Raster-Link6Plus and without RasterLinkTools.

(Important!) • If you created data with any method other than P.21 "With RasterLinkTools", you have to configure the settings manually because the settings required for 5 layers printing are not made automatically.

1. Loading data for 5 layers printing (☞ P.25)

2. Configuring print setting for the white layer(☞ P.25)

3. Configuring print setting for the black layer(☞ P.26)

4. Composing the created job (☞ P.26)

5. Setting positional correction for each layer (optional) (☞ P.27)

6. Printing the created data (☞ P.27)

1. Load the 5 layers printing data into RasterLink6Plus. (RasterLink6Plus)

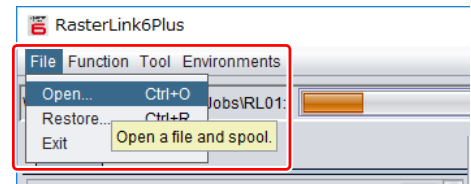You can use one of the following two procedures for loading data:

(1) Loading from the hot folder
- Copy the created 5 layers data files together in the hot folder.

Hot folder

(2) Loading from the [File] menu
- From the top left menu in RasterLink6Plus, select [File] - [Open] to load the created 5 layers data file one by one, five times in total.

RasterLink6Plus

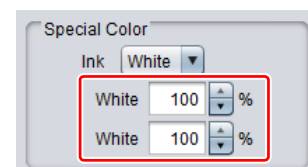| File | Function | Tool | Environments |
Open...	Ctrl+O	Jobs\RL01:
Restore...	Ctrl+R
Exit	Open a file and spool.

2. Configure the print setting for the white layer.

- On RasterLink6Plus, select "Mono color replacement" or "White layer creation".
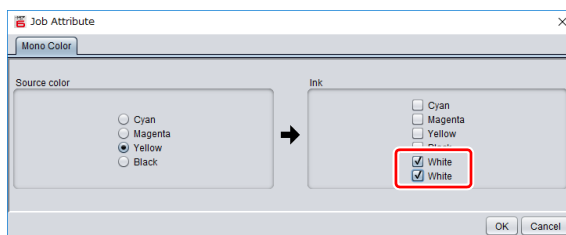
Mono color replacement

White layer creation

- For 5 layers printing, we recommend that the white layer is printed with the 200% setting (two units of white). Make the setting same as the image above.
  Making the setting to white 200% can increase the degree of light-shielding (preventing the picture from being seen through) without increasing the density of black.
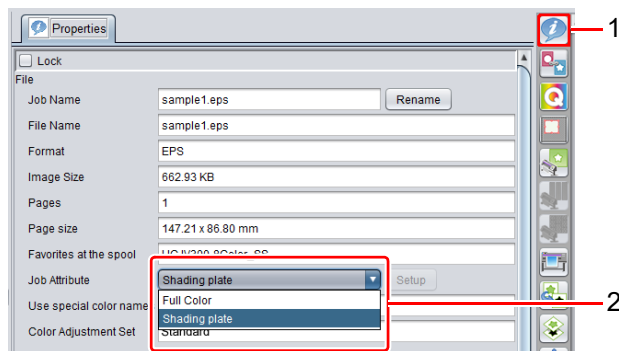
- In RasterLinkTools, if you created the white layer by using the automatic creation function of white and black layers, the white layer is created in yellow. Select Yellow into White in "Mono color replacement " as shown in the image above to print the white layer.
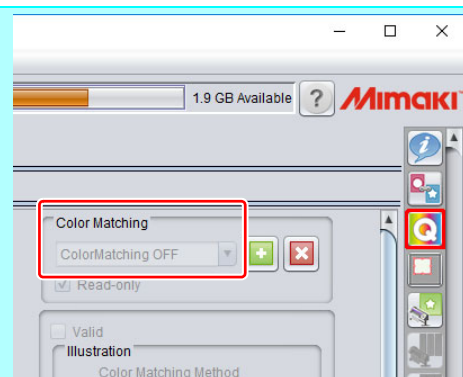
- If you create the white layer by using "Color replacement ", only "Mono color -> White" is possible.
  Note that "Multiple colors -> White" in "Color replacement " is impossible only for Multilayer Printing.

3. Configure the print setting for the black layer.

(1) Select the [Properties] icon ⓘ .

(2) Set the job attribute to [Light-shield-ing layer].
(This option is available for only jobs with color attribute.)

Properties	1
Lock	
File	
Job Name	sample1.eps	Rename
File Name	sample1.eps
Format	EPS
Image Size	662.93 KB
Pages	1
Page size	147.21 x 86.80 mm
Favorites at the spool	UC-IV300 8Color SS
Job Attribute	Shading plate ▼	Setup	2
	Full Color
Use special color name	Shading plate
Color Adjustment Set	Standard

💡 • This procedure sets the [Color Matching] setting to [ColorMatching OFF], located in [Print Conditions 🅠] - [Print Quality] tab.

1.9 GB Available ? **Mimaki**

Color Matching
ColorMatching OFF ▼

☑ Read-only

☐ Valid
Illustration
Color Matching Method

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4. Compose the jobs in the created layers.

(1) Select the [composition] icon ◈ .

(2) Set the composition (print) order of the 5 layers data.

• If the picture on the media side needs to be inverted, follow the steps (3) and (4).
(3) Select the 1st layer data.
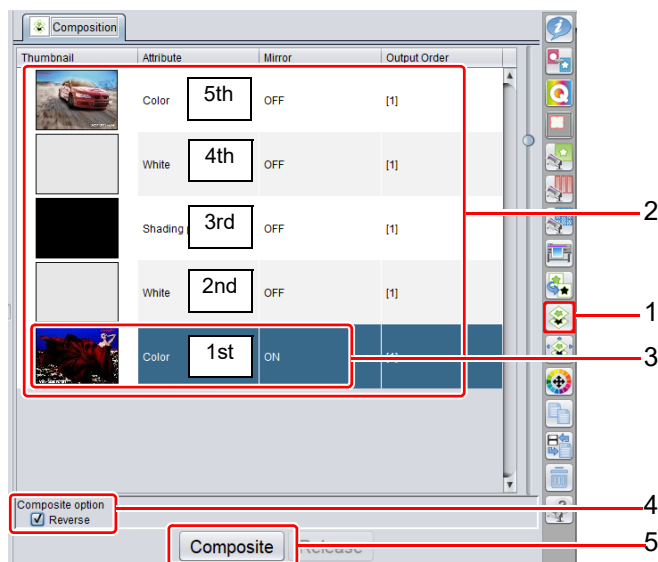**(4)** Select the [Mirror] check box in the Composite option. The picture on the 1st layer is inverted.

💡 • Inverted is the normal state for the picture on the 1st layer data.
• If the picture has been already inverted when created, now you do not have to select the check box.

(5) Click the [Composite] button.

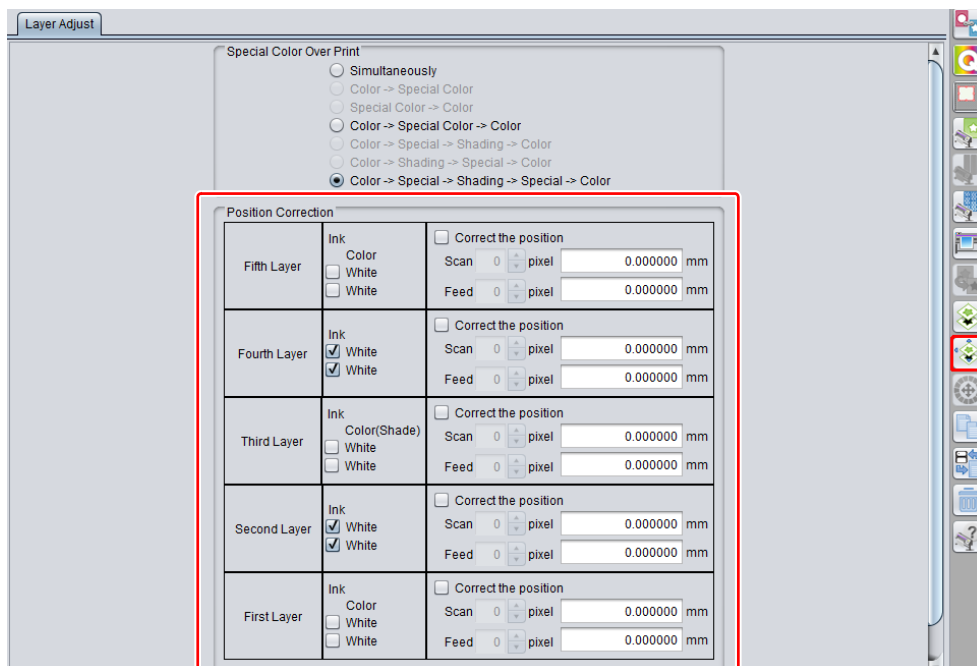■ 5th layer
Farthest layer from the media

■ 1st layer
Nearest layer from the media

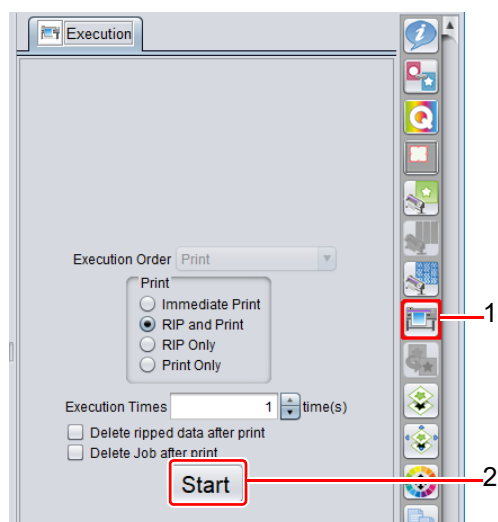| Thumbnail	Attribute	Mirror	Output Order	
	Color	5th	OFF	[1]
	White	4th	OFF	[1]	2
	Shading	3rd	OFF	[1]
	White	2nd	OFF	[1]	1
	Color	1st	ON		3

Composite option
☑ Reverse — 4

Composite — 5

- 26 -

5. Set the positional correction of data after composition. (optional)

- If any positional correction is required, select the [layer setting] icon .
  The positional correction for each layer is now configurable. Make settings as necessary.

6. Print the created data.

(1) Select the [Execute] icon .

(2) Press the [Start] button to start printing.

💡 • You can change the print setting of a composition job in 5 layers printing. However, you cannot specify individual print setting for each layer.

Troubleshooting (5 layers)

The following describes additional information for creating 5 layers data.

RasterLinkTools

● Preview does not appear

Preview display is supported for only 4 layers.

● You want to create white and black layers without a solid fill.

The automatic creation function of white and black layers in RasterLinkTools is used to automatically create white and black layers with a solid fill.
Create white and black layers without a solid fill manually if you need them.

● Why is the density for the automatically created black layer set to Black 100%?

The density for the black layer is set to Black 100%, the highest degree of light-shielding, so that the back and front pictures do not seen through to each other.

RasterLink6Plus

● Is the profile exclusive for 5 layers printing necessary?

You do not have to prepare the profile exclusive for 5 layers printing.
Use the profile of WhiteOnColor for the media to be printed.

● What is the layer combination supported for 5 layers printing?

The following combination is supported for 5 layers printing.
- color + special color (white) + light-shielding (color) + special color (white) + color

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