UCJV300 / UCJV330 / UJ330H 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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Notations used in this document

- Items and buttons displayed in menus and on screens are marked with square brackets ([ ]) as in [File].
- RasterLink6Plus, RasterLink7 and RasterLink8 are referred to as RasterLink in together.

Screen image used in this document

The explanation is based on the screen image of RasterLink6Plus as an example.
(Some functions exclusive to RasterLink7 and RasterLink7 are described with RasterLink7 screen images.)

Symbols

Important!	• This symbol indicates important information for using this product.
	• This symbol indicates useful information.

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Applicable environment

● UCJV300

1. LUS-170, LUS-175

Mimaki Driver	When using RasterLink6Plus: The version compatible with the printer to be used. When using RasterLink7: Version 5.4.2 or later When using RasterLink8: Version 5.13.0 or later
RIP	RasterLink6Plus Version 1.1 or later RasterLink7 Version 1.3.2 or later RasterLink8 Version 1.0.0 or later

2. ELS-170, ELS-175

Mimaki Driver	When using RasterLink6Plus: The version compatible with the printer to be used. When using RasterLink7: Version 5.10.1 or later When using RasterLink8: Version 5.13.0 or later
RIP	RasterLink6Plus Version 2.22 or later RasterLink7 Version 3.3.4 or later RasterLink8 Version 1.0.0 or later

● UCJV330

• LUS-170, LUS-175

Mimaki Driver	When using RasterLink7: Version 5.8.0 or later When using RasterLink8: Version 5.13.0 or later
RIP	RasterLink7 Version 3.1.0 or later RasterLink8 Version 1.0.0 or later

• ELS-170, ELS-175

Mimaki Driver	When using RasterLink7: Version 5.12.3 or later When using RasterLink8: Version 5.13.0 or later
RIP	RasterLink7 Version 4.1.3 or later RasterLink8 Version 1.0.0 or later

● UJ330H

• ELS-170, ELS-175

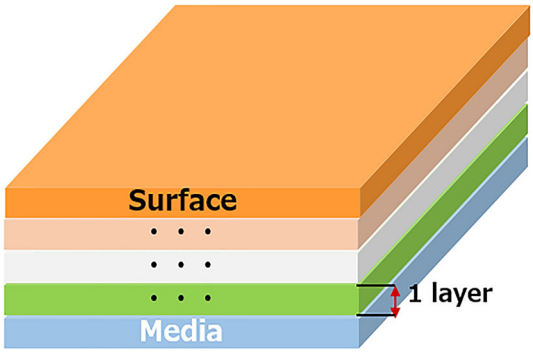
Mimaki Driver	When using RasterLink7: Version 5.12.0 or later When using RasterLink8: Version 5.13.0 or later
RIP	RasterLink7 Version 4.1.1 or later RasterLink8 Version 1.0.0 or later

• LUS-210

Mimaki Driver	When using RasterLink7: Version 5.12.4 or later When using RasterLink8: Version 5.13.0 or later
RIP	RasterLink7 Version 4.1.3 or later RasterLink8 Version 1.0.0 or later

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.

Multilayer printing applications and expressions

The following applications and methods of expression are possible, depending on the number of layers printed.

Two-layer

● Backing

When printing on non-white or transparent media, the colors can be made to stand out by layering white with the other printed colors.
With the RasterLink series, backing jobs can be created easily with the [Special Plate] function, which generates a white image based on a color image, and with the [Mono color replacement] function, which replaces one of the CMYK colors in a color image with white for printing.
By "compositing" this backing job with a color image job, white and color images can be printed on top of each other at the same time.
See the RasterLink Series Reference Guide for more information.

Required condition: Printer with white color feature

Three-layer

● Electric signs displaying the same density throughout the day (All Day)

When printed materials are backlit, such as on electric signs, the ink density is usually increased so that the colors do not fade when exposed to light at night. However, in daylight the high density of the ink could cause it to appear too dark.
White images can be printed between color images to make them easier to see in daylight.
See ☞ P. 7 for more information about how to create such images.

● Printing watermarks

It is possible to print a design that is visible through printed material when illuminated from behind.
Required condition: UCJV330, UJ330H printer with white color and clear ink features
For more information, see ☞ P. 18.

Four-layer

● Day & Night

The expression of printed material can be changed by turning the backlight on and off.
Required condition: Printer with white color feature
For more information, see ☞ P.7.

Five-layer

● Double-sided printing

By printing multiple layers between two different color images, different images can be printed on the front and back without bleeding through.
Required condition: Printer with white color feature
For more information, see ☞ P. 43.

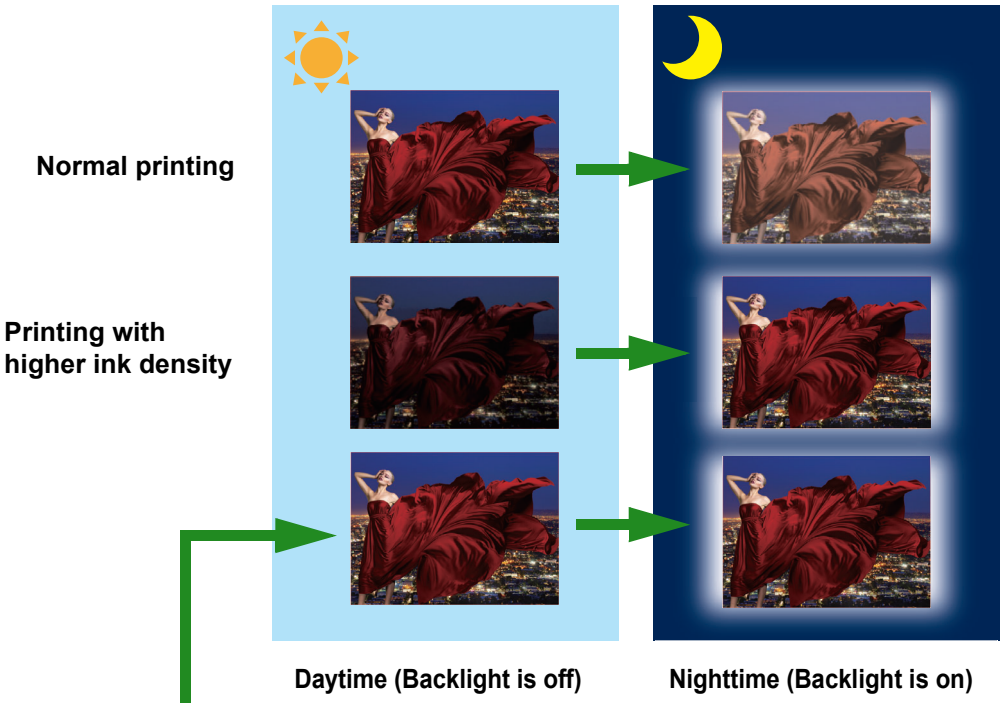
There are also other expressions that are possible with multilayer printing, including the following.

- Glossy/matte tone printing with clear ink
  Clear ink can be used to print the front with a glossy or matte tone.
  Required condition: Printer with clear ink feature
  See the "Clear Ink Print Guide" for more information.
- 2.5D printing (UCJV330, UJ330H only)
  This printing method uses multilayer printing technology to print uneven surfaces, creating a 3D effect.
  Required condition: UCJV330, UJ330H printer with clear ink feature
  See the "2.5D Texture Maker Guide" for more information.

Three-layer Printing

Electric signs displaying the same density throughout the day - All Day

When printed materials are backlit, such as on electric signs, the ink density is usually increased so that the colors do not fade when exposed to light at night. However, in daylight the ink could appear too dark. White images can be printed between color images to make them easier to see in daylight.



If the density of the original image remains the same, the image appears to fade when the backlight is on.

Trying to maintain the same density as the original image when the backlight is on makes the image too dark when the backlight is off.

When there is a white layer between the color layers, the image looks the same whether the backlight is on or off.

Insert a white layer between the color images.

Color (1st layer): Picture to prevent colors from fading when backlit
White (2nd layer): Shows the color on the front, blocking the 1st layer so that it does not become too dark during the day.
Color (3rd layer): Picture visible during the day

Software used

The following software is used.

Illustrator

- Creation of color images
  Used to create color images.

RasterLinkTools

- Automatic creation of white layer
  Automatically generate a white layer image to be placed between the color images.

RasterLink

- Create and print jobs with multiple composed layers.

- When using RasterLinkTools, load images into RasterLink from a hot folder. If you have not created a hot folder, please do so.
  See the Network Connection Guide for instructions on how to create a hot folder.

Creating and printing procedures of All Day data

With RasterLinkTools

The following describes how to create All Day data with RasterLinkTools.

1. [Illustrator] Creating color images (☞ P.10)

▼

2. [Illustrator] Creating data for RasterLinkTools (☞ P.10)

▼

3. [RasterLinkTools] Automatically generating a white layer (☞ P.10)

▼

4. [RasterLinkTools] Saving created data (☞ P.11)

▼

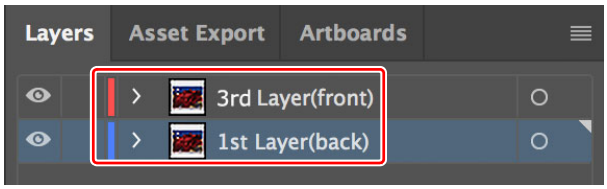
5. [RasterLink]Printing created data (☞ P.12)

1. [Illustrator] Creating color images

- Create the color images to be printed.

2. [Illustrator] Creating data for RasterLinkTools

(1) Open a new image and create two layers.
(2) Place the images created in step 1 on each layer.



Important!

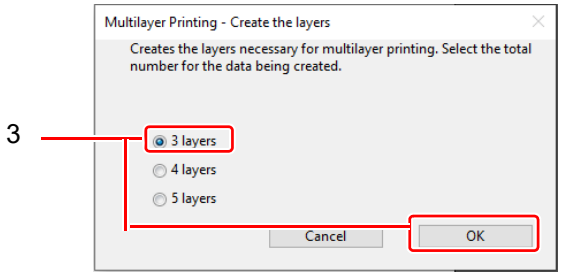
- Be sure to match the position and size of the two images. If the position and size are not correct, the images will be misaligned when printed and the expected result will not be achieved.
- There is no restriction on layer names.

3. [RasterLinkTools] Automatically generating a white layer

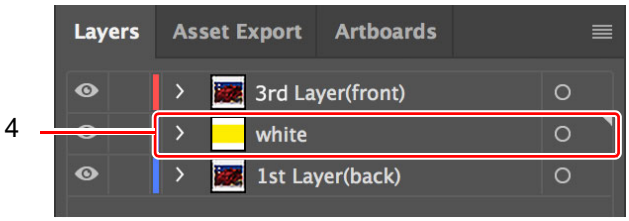
(1) Start RasterLinkTools.

(2) Click the [White & black layers auto-creation] icon .
The [Multilayer Printing] window is displayed.

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



(4) A white layer is generated between the two color image layers created in step 2.



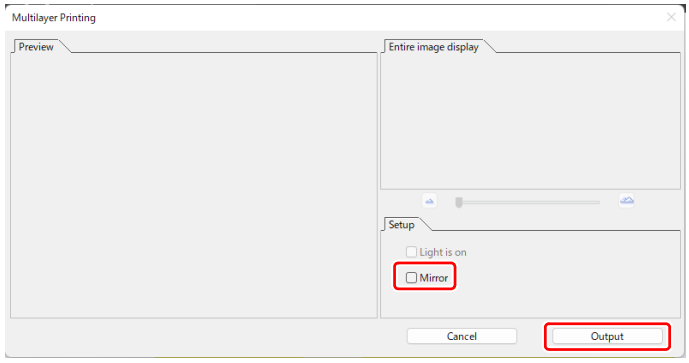
- The white layer is created with a solid fill of Yellow 100%.
  This layer is recognized as white during preview or when data is saved in a RasterLink hot folder.
- The image for the white layers is created as a solid rectangle that matches the position and size of the image for the 1st layer. If you want to create an image other than a solid color or rectangle, see P.13 "Without RasterLinkTools" for more information on how to do so manually.

4. [Illustrator] Saving the created data

(1) Click the [Multilayer Printing function] icon .

(2) Please uncheck the [Mirror] checkbox.

(3) Click the [Output] button.
A file saving screen will be displayed.



Important!

Select the RasterLink hot folder and save the data.
- A total of three files are saved, one for each layer.
- The data is automatically loaded into RasterLink, and a job with settings suitable for multilayer printing is created.
- A preview is not displayed for All Day.

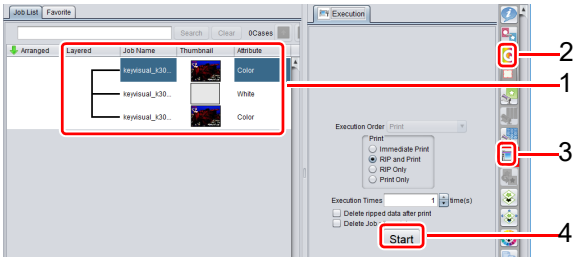
File names for saving
- The files are saved with the following file names.
  xxxxx_YYYYY.extension
  xxxxx_YYYYY.extension
  ...
  ...

  xxxxx: any file name specified by a user
  YYYYY: an identifier automatically added by RasterLinkTools (Do not change this identifier.)

Important!

When importing into RasterLink output that was created in a location other than the hot folder in RasterLink, use the hot folder.
- With the hot folder, a job is automatically composed.
- If the image is imported using [File]-[Open], it will not be automatically composited. Follow the procedure in P.13 "Without RasterLinkTools".

5. [RasterLink] Printing the created data



(1) Select the composited job.

(2) Click the [Print Conditions] icon to set the printing conditions.

- If the printing conditions of one job are changed, those changes will be reflected in the other composited jobs.

> Important!
>
> **Output resolution**
>
> - There are no dedicated profiles. We recommend you use a device profile for the media you wish to print that has (WonC) or (ConW) in the media name.
>
> WonC: A "white on color" profile.
> ConW: A "color on white" profile.

(3) Click the [Execute] icon .

(4) Click the [Start] button to start printing.

Without RasterLinkTools

This section describes the procedure without using RasterLinkTools.

1. Creating image data for the color layers and the white layer (☞ P.14)

▼

2. Loading the data (☞ P.14)

▼

3. Configuring settings for the white layer (☞ P.14)

▼

4. Composing the created job (☞ P.15)

▼

5. Setting printing conditions (☞ P.15)

▼

6. Printing the created data (☞ P.16)

1. Creating image data for the color layers and the white layer

Create images for the color layers and, if necessary, for the white layer.

- Creating an image for the white layer
  - In CMYK color mode, create an image with one of the CMYK colors.
  - The color value specified for the image is the density value of the white ink.
  - In this manual, the color yellow is used as an example.
    * The color value of the original image must be 100%.

> - For images of shapes that can be created with the RasterLink [Special Plate] function, it is not necessary to prepare an image for the white layer. See the RasterLink Reference Guide for more information.

2. Loading the data

Load the images that were created in step 1.

- Color layer images should be loaded twice to create two jobs.

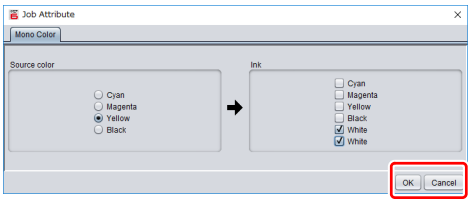
3. Configuring settings for the white layer

•When an image for the white layer is created in step 1

(1) Select the white layer job.

(2) Select [Mono Color] from the [Job Attribute] list on the [Properties] tab.
- The [Job Attribute] dialog box appears.

(3) Select an ink color.
- [Source color]: Select the color used in the image.
- [Ink]: Select [White]. (If multiple colors are displayed, select them all.)



Mono color replacement

•When an image for the white layer is created with [Special Plate]

(1) Select a job for the color layer.

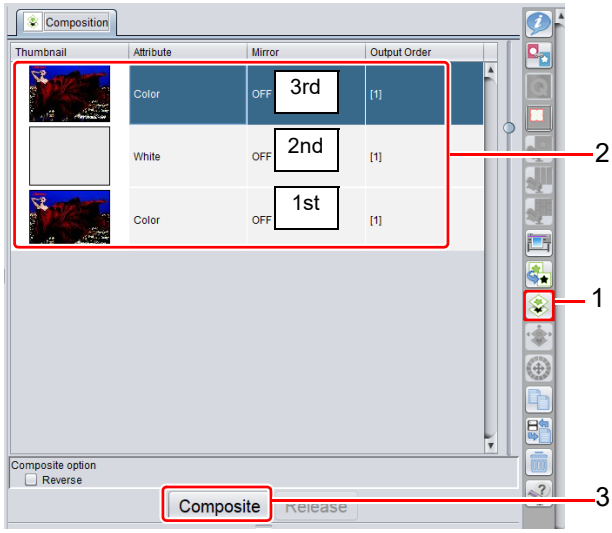
(2) On the [Special Plate] screen, create a white layer with the following settings.
Ink: White
Density: 100% (If more than one item is displayed, set this value for all of them.)
Special color area: Set as necessary.
Automatic composition after layer is created: Off

4. Composing the created job

(1) Select the three jobs loaded for four-layer printing, and then click the [Composition] icon .

(2) Drag and drop the composite list to set the composite (printing) order.

- The composite order is as follows, starting from the top of the list (3rd layer).
  3rd layer: Color
  2nd layer: White layer
  1st layer: Color



(3) Click the [Composite] button.

5. Setting printing conditions

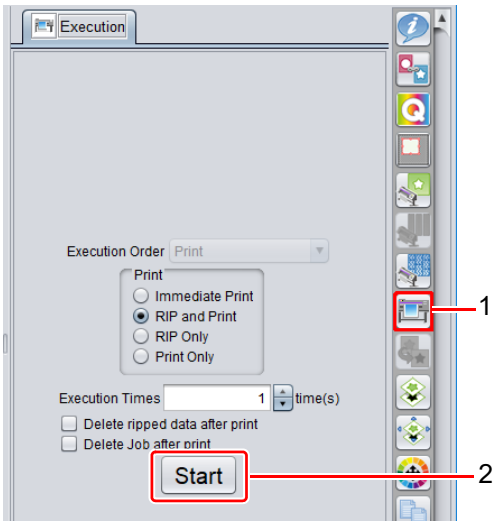
- Select the composited job.
- Click the [Print Conditions] icon to set the printing conditions.
  * If the printing conditions of one job are changed, those changes will be reflected in the other composited jobs.

> Important!
>
> **Output resolution**
>
> - There are no dedicated profiles. We recommend you use a device profile for the media you wish to print that has (WonC) or (ConW) in the media name.
>
> WonC: A "white on color" profile.
> ConW: A "color on white" profile.

6. Printing the created data

(1) Click the [Execute] icon .

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



Appears dark when lights are off

Check the following and print the image again.

1.If multiple types of white ink are used, make sure that they are all configured to be used in the settings.

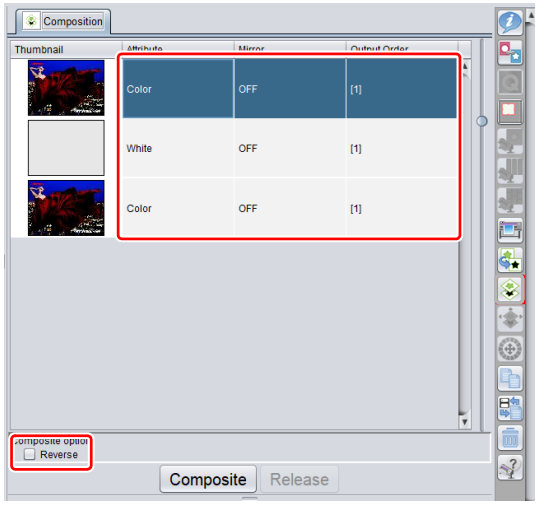
•Check the [Mono color replacement] setting for the white layer job. If multiple types of white ink are shown, turn them all on.

2.Check the density of the white layer.

•The white layer image should be created with one of the CMYK colors and with a color value of 100%.

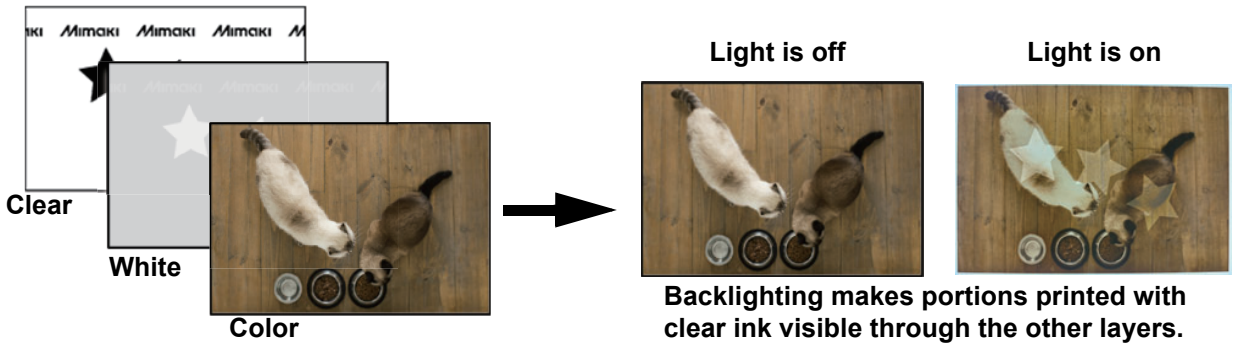
I want the media side facing out, not the printed side.

On the [Composite] screen, select all jobs and turn on the [Mirror] function.



Three-layer printing with UCJV330, UJ330H - watermark printing

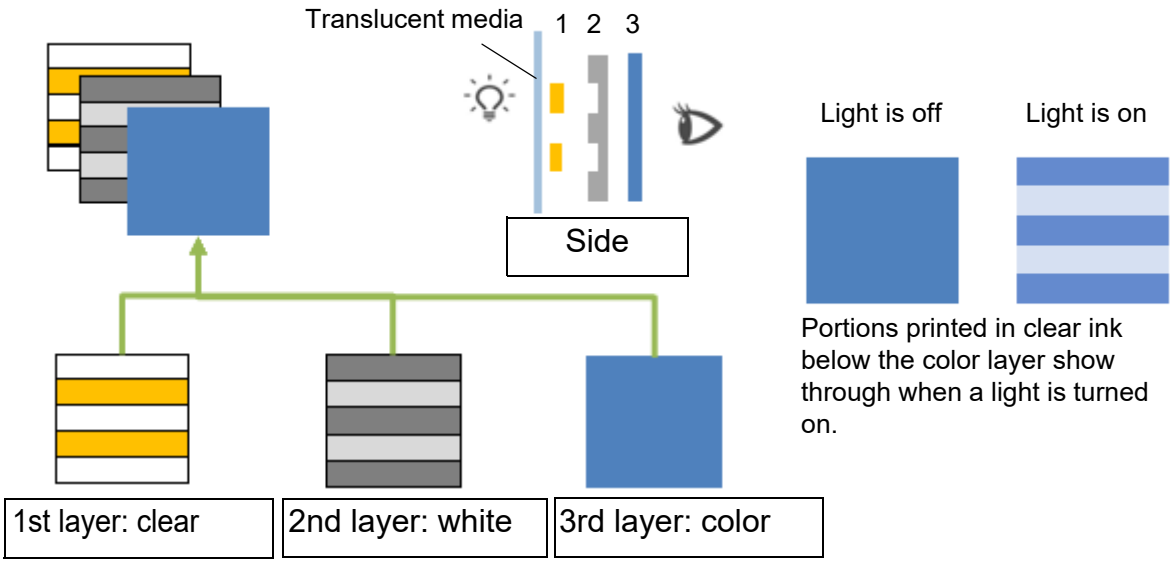
When three layers (color + white + clear ink) are overprinted with UCJV330, UJ330H, portions printed with clear ink will show through the other layers when the media is backlit. This is referred to as watermark printing.
Using this printing method can create pictures that give a different impression depending on whether they are backlit.



Clear: Clear ink is used to print images that will be visible through the upper layers when backlit.
White: White ink on this layer makes colors on the layer above it look vibrant. Areas where the lower layer should be visible through this layer are printed with reduced white density.
Color: Used to print the picture that is normally visible.

Three-layer printing (watermark) – structural description

The following describes the structure of three-layer printing (watermark).



Layer for printing pictures visible through the upper layers when backlit.
Not noticeable unless backlit.

Printed to make colors look vibrant. Portions through which the clear ink layer should be visible have a lower density (indicated by light gray in the figure).

Layer for printing pictures visible without backlighting.

Functions of software (watermark printing, three layers)

The following software products are used for watermark printing with three layers:

Illustrator

- Creation of color and clear layers
  Use to create the data for color layers (picture normally visible) and clear layers (which are visible through another layer).

RasterLinkTools

- Automatic creation of white layer
  Automatically create the white layer required for watermark printing.
- Preview
  Display the finished image of watermark printing data.

RasterLink

- Create and print jobs with multiple composed layers.

- When using RasterLinkTools, load images into RasterLink from a hot folder. If you have not created a hot folder, please do so.
  See the Network Connection Guide for instructions on how to create a hot folder.

Compatible environment

Model	UCJV330 （8Color）		UJ330H （8Color）	
Ink Type	LUS-170/LUS-175	ELS-170/ELS-175	ELS-170/ELS-175	LUS-210
Ink set	CMYK + ClClWW	CMYK + ClClWW	CMYK + ClClWW	CMYK + ClWW
RasterLink7/ Mimaki Driver	Ver.3.1.0 or later/ Ver.5.8.0 or later	Ver.4.1.3 or later/ Ver.5.12.3 or later	Ver.4.1.1 or later/ Ver.5.12.0 or later	Ver.4.1.3 or later/ Ver.5.12.4 or later
RasterLink8/ Mimaki Driver	Ver.1.0.0 or later/ Ver.5.13.0 or later	Ver.1.0.0 or later/ Ver.5.13.0 or later	Ver.1.0.0 or later/ Ver.5.13.0 or later	Ver.1.0.0 or later/ Ver.5.13.0 or later
RasterLinkTools	Ver.1.15 or later	Ver.1.15 or later	Ver.1.15 or later	Ver.1.15 or later

Important!

Output resolution

- The following output resolution standards are not supported.
  UCJV330 and UJ330H series: 600×600VD
- There are no dedicated profiles. We recommend you use a device profile for the media you wish to print that has (ConW) in the media name.

  ConW: A "color on white" profile.

Creating and printing procedures of three-layer data (watermark printing)

With RasterLinkTools

The following describes the procedure to configure settings required for three-layer printing (watermark printing) with RasterLinkTools.
The procedure from preparing to printing the data is described using a basic example.

1. [Illustrator]Creating color and clear layers (☞ P.21)

▼

2. [RasterLinkTools]Displaying a preview for confirmation (☞ P.23)

▼

3. [RasterLinkTools]Saving created data (☞ P.24)

▼

4. [RasterLinkTools]Printing created data (☞ P.25)

1. [Illustrator] Creating the color and clear layers

- In Illustrator, create a new file using the CMYK color mode.
  In the file, create one layer to use as the color layer and another to use as the clear layer, under the following conditions.

> Important!
> - Depending on the Illustrator template, the watermark printing function may not be executed. We recommend using a printable template.

Creating a color layer

- Either raster or vector data can be used.
- When using raster images, make sure the color mode is CMYK.

> - By setting the clipping mask to a grouping of color layers, you can create data for watermark printing based on the position and size of the clipping mask.

Creating a clear layer

Create the image that will be visible through other layers.
- Use vector data to create this layer.
- Set the object's line color to "None" and the fill color to CMYK=0% (white).

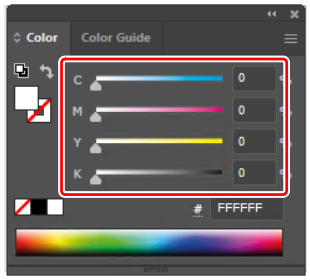
  Clear ink will be used to print areas where CMYK=0%.

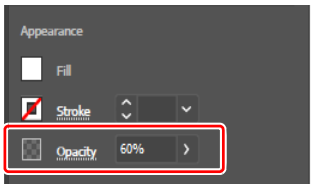
- Use the fill opacity to specify how visible this layer will be.

  The higher the opacity value, the more clearly this layer can be seen through the others.

  Opacity:100% → 0%
  Visibility through other layers:High → None

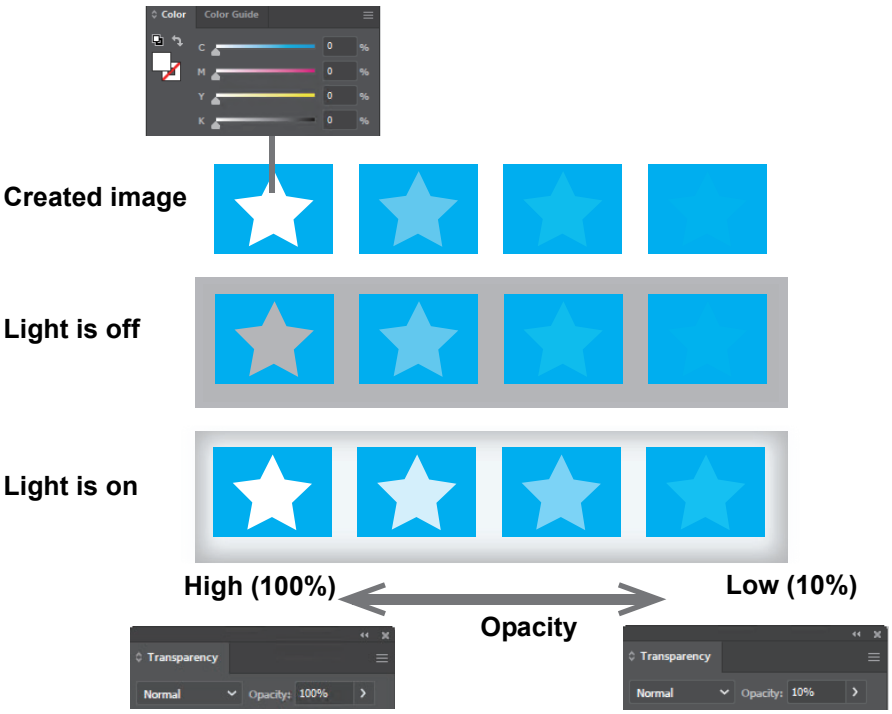
For convenience in this example, the image is filled in with gray, because white would not be visible.





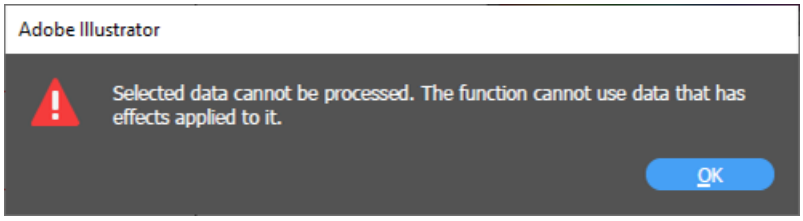
■Example: An object with CMYK=0% and modified opacity is placed on top of a rectangle of 100% cyan, and the image is printed on transparent media

- Areas of the object with CMYK=0% and 100% opacity will be printed with only clear ink, so those areas will be transparent.
- As opacity is reduced, the degree of transparency increases and the cyan color becomes more visible, making the object less noticeable.



Important!

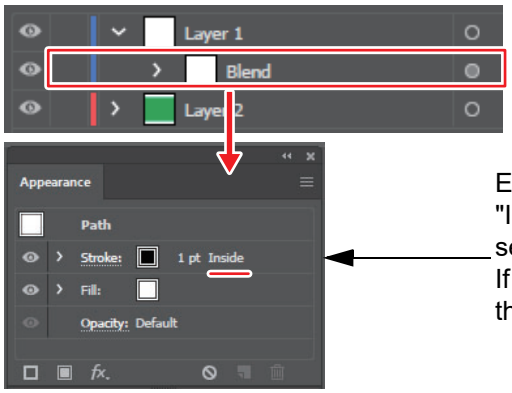
- Do not set an appearance other than "Opacity" for objects placed on the clear layer. If this setting is ON, the following message will appear when you click the "Watermark Print" icon in RasterLinkTools, and data for watermark printing will not be created.



If this message appears, please follow the steps below.

1. Open the [Layer] and [Appearance] panels.

2. Expand the clear layer in the [Layer] panel, select the object whose "Target Column" is indicated by a gray circle, and check in the [Appearance] panel to see if any effects other than opacity are applied.

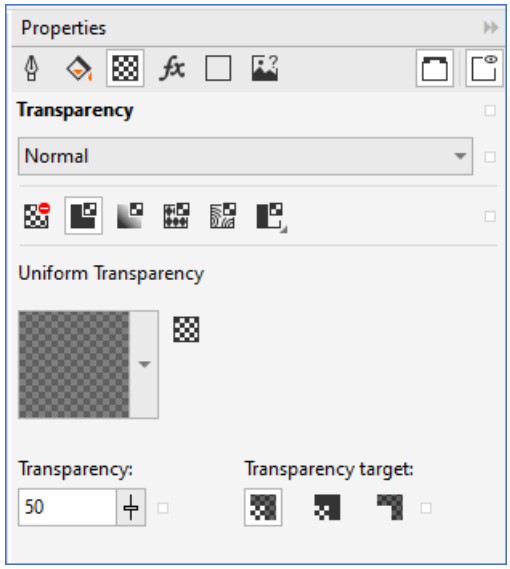


Example: If "Line Position" is set to "Inside", change it to "Center" in the line settings.
If any other effects are applied, remove them.

Note: When creating a new file, some templates may apply an appearance to objects by default. To create a new file, select the [Print] template.

•Watermark degree setting (CorelDRAW)
Specify "Transparency" of the fill for setting how visible this layer will be.
The lower value, the more clearly this layer can be seen through the others.

Transparency: 0→ 100
Visibility through other layers: High→ Not visible



Important!

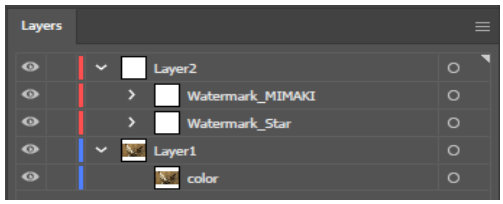
- Do not set "Bitmap Effects" for objects placed on the clear layer. If this setting is ON, a message will appear when the "Watermark Print" icon in RasterLinkTools is selected, and the data for watermark printing will not be created.
  If the message appears, check if "Bitmap Effects" is set in the Properties panel.

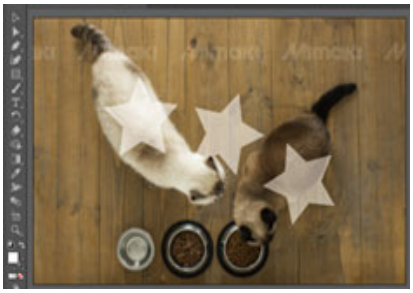
Layer order

Arrange the color layer and the clear layer in the following order.

Color layer: Bottom layer
Clear layer: Top layer

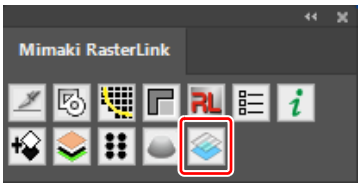
There is no restriction on layer names.





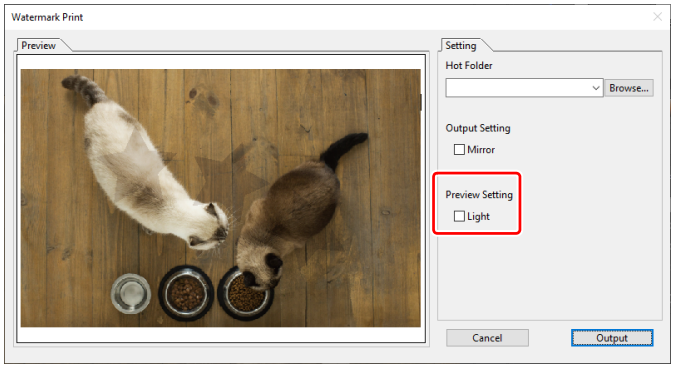
2. [RasterLinkTools] Displaying a preview for confirmation

- In RasterLinkTools, click the watermark printing icon.
  The watermark print preview window is displayed.



Use the [Light] check box in [Preview Setting] to check a preview simulating when a light is on and off.

- Previews are only intended as a general example of printing results.



Light is off

Light is on

3. [RasterLinkTools] Saving the created data

Specifying a hot folder

Click the [Browse] button by [Hot Folder] and select the hot folder for the printer model used with RasterLink.

Setting printing conditions

If the picture will be viewed from the unprinted side of the media, select [Mirror] of [Output Condition]. Opening the file in RasterLink automatically activates the mirror setting and arranges layers in the correct order.

Outputting the file

Click [Output].
Each layer is saved to the hot folder as a separate file (3 files in all).

File names for saving

Files are saved as PDFs with names in the following format.

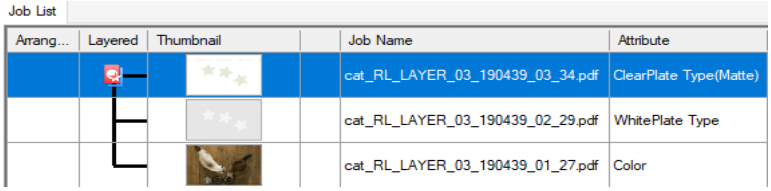
xxxxx_YYYYY.pdf
xxxxxx: Original file name
YYYYY: an identifier added by RasterLinkTools automatically
Note: Do not rename files if you will save them in a folder other than the hot folder and open them in RasterLink later.

Important!

- Be sure to use the hot folder when importing data into RasterLink.
  When using the hot folder, watermark printing is automatically set.
- Be sure to use the hot folder when importing into RasterLink outputs created in a location other than the hot folder in RasterLink.

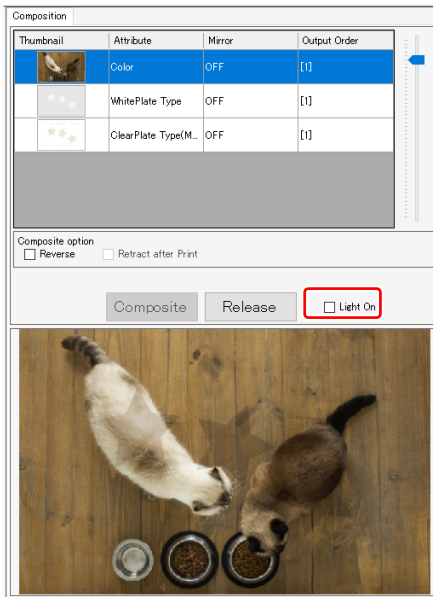
4. [RasterLink] Printing the created data

Any files saved in the hot folder are automatically opened in RasterLink7 and prepared as a composite job with settings configured for watermark printing.



Composite screen

You can check the following by selecting a created job and displaying the [Composite] screen.



• Composite order

Layers are arranged in order starting with the first layer (as viewed from the unprinted side) according to the following [Mirror] settings in RasterLinkTools.

Not selected: Clear → White → Color

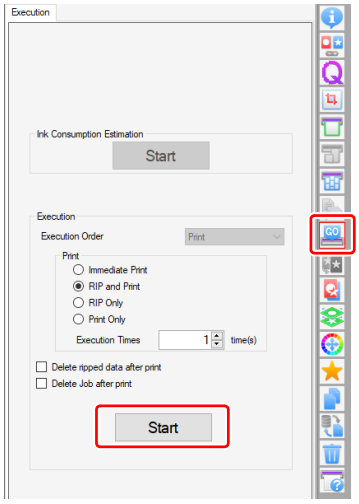
Selected: Color → White → Clear

• Output preview

When outputting directly to the hot folder from RasterLink-Tools, use the [Light on] check box in the preview window to check a preview simulating when a light is on and off.

Printing

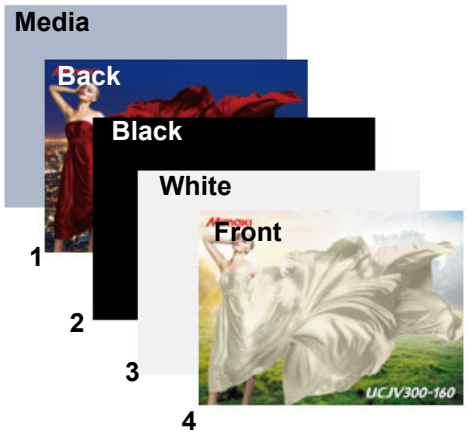
To start printing, display the [Execute] screen and click [Start].



Four-layer Printing

Using backlighting to create different expressions - Day & Night

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

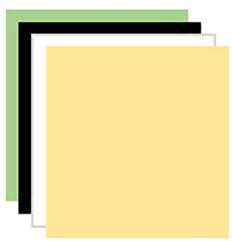


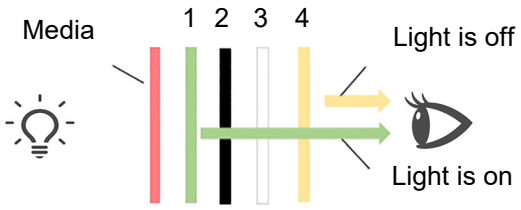
By lighting from the back side, the background picture will appear on the front through.

Back (1st layer): the 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): the picture usually shown

Day & Night – structural description

The following describes the structure of 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.	Layer for printing pictures visible without backlighting.

Software used

The following software is used.

Illustrator

- Creation of images to be used when the light is on and when the light is off
  Used to create images for when the light is on and images for when the light is off.

RasterLinkTools

- Automatic creation of white and black layers
  Automatically generate black and white layer images to be printed between images for when the light is on and off.
- Preview
  Display Day & Night images.

RasterLink

- Create and print jobs with multiple composed layers.

- When using RasterLinkTools, load images into RasterLink from a hot folder. If you have not created a hot folder, please do so.
  See the Network Connection Guide for instructions on how to create a hot folder.

Creating and printing procedures of Day & Night data

With RasterLinkTools

The following describes how to create Day & Night data with RasterLinkTools.

Solid white and black layers	
Light is off	Light is on

1. [Illustrator] Creating images to be used when the light is on and when the light is off (☞ P.30)

▼

2. [Illustrator] Combining images to be used when the light is on and when the light is off into a single file (☞ P.30)

▼

3. [RasterLinkTools] Automatically generating white and black layers (☞ P.30)

▼

4. [RasterLinkTools] Saving data as multilayer printing data (☞ P.31)

▼

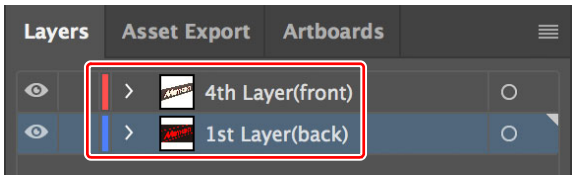
5. [RasterLink]Printing created data (☞ P.32)

1. [Illustrator] Creating images to be used when the light is on and when the light is off

- Create the images to be used when the light is on and when the light is off.

2. [Illustrator] Combining images to be used when the light is on and when the light is off into a single file

(1) Open a new image and create two layers.
(2) Place the image to be used when the light is on on the bottom layer.
(3) Place the image to be used when the light is off on the top layer.



4th layer (Light is off)

1st layer (Light is on)

Important!

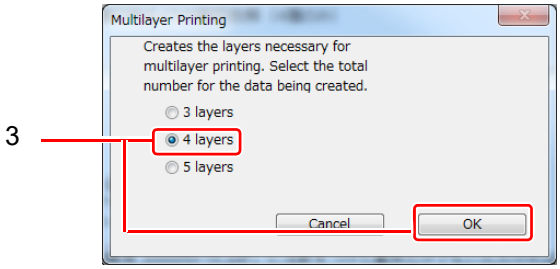
- Be sure to match the position and size of the images to be used when the light is on and when the light is off. If the position and size are not correct, the images will be misaligned when printed and the expected result will not be achieved.
- There is no restriction on layer names.

3. [RasterLinkTools] Automatically generating white and black layers

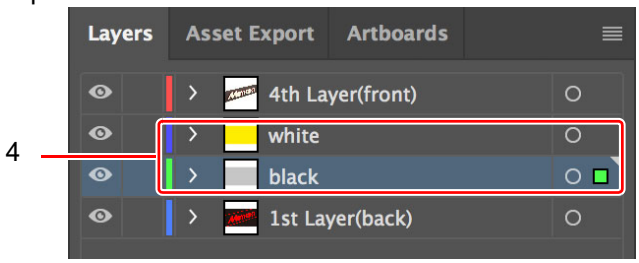
(1) Start RasterLinkTools.

(2) Click the [White & black layers auto-creation] icon .
The [Multilayer Printing] window is displayed.

(3) Select [4 layers] and click the [OK] button.



(4) A white layer and a black layer are generated between the image layers for when the light is on and when the light is off created in step 2.

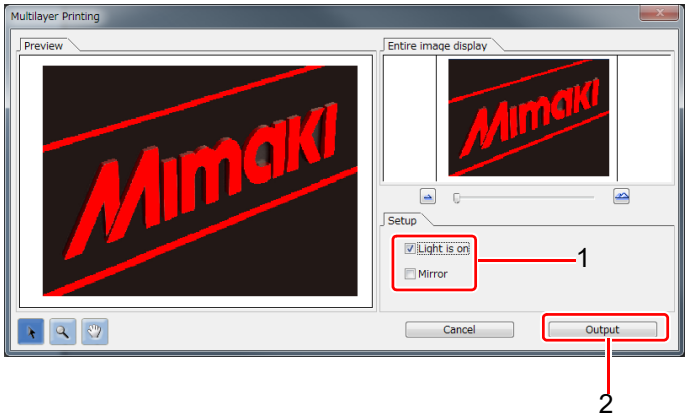


- The white layer is created with a solid fill of Yellow 100%.
  This layer is recognized as white during preview or when data is saved in a RasterLink hot folder.
- The black layer is created with a solid fill of Black 30%. Day & Night might not be expressed well in some environments. If this is the case, refer to P.37 "Troubleshooting" to adjust the K density.
- The white and black layers each have the same size as the picture on the 4th layer.

4. [RasterLinkTools] Saving data as multilayer printing data

(1) Click the [Multilayer Printing function] icon .

- Select and deselect the [Light is on] check box in the preview window to confirm the resultant image when the light is applied and not applied.
- To have the media side facing out (light from the print side) instead of the printed side, turn on [Mirror].
  For more information, see P.38 "I want to install transparent media with the media side facing out, not the printed side.".



- Note that the preview function cannot perfectly represent the actual print data.

If preview does not appear, or the preview display is wrong

- Starting from the top layer, make sure that the layer order is [Image used when the light is off] → [white] → [black] → [Image used when the light is on]. If the layers are in a different order or there are layers other than these, no preview will be shown.
- If the data has a complex structure, the preview might not display properly. In that case, it might still print correctly, so check it with RasterLink.

(2) Click the [Output] button.
A file saving screen will be displayed.

Important!

Select the RasterLink hot folder and save the data.

- The data is automatically loaded into RasterLink, and a job with settings suitable for multilayer printing is created.

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 automatically added by RasterLinkTools (Do not change this identifier.)

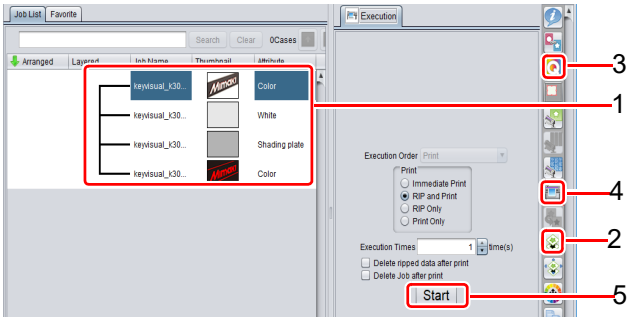
Important!

When importing into RasterLink output that was created in a location other than the hot folder in RasterLink, use the hot folder.

- With the hot folder, a job is automatically composed.
- If the image is imported using [File]-[Open], it will not be automatically composited. Follow the procedure in P.33 "Without RasterLinkTools".

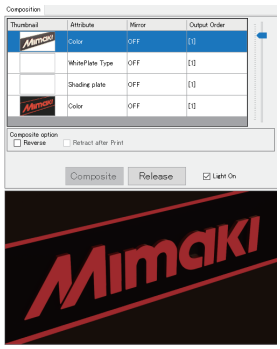
5. [RasterLink] Printing the created data

(1) When data is saved in a hot folder, four jobs are created and automatically composited.

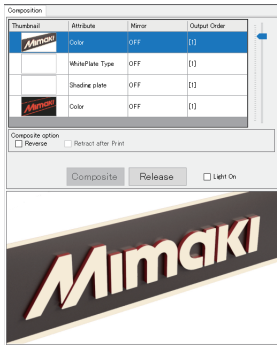


(2) Select the composited job and click on the [Composition] icon .

- For UCJV330 and UJ330H, previews for when the light is on and when the light is off can be checked on the [Composite] screen.



When the light is on



When the light is off

(3) Select the composited job and click the [Print Conditions] icon to set the printing conditions.

- If the printing conditions of one job are changed, those changes will be reflected in the other composited jobs.

Important!

Output resolution

- The following output resolution standards are not supported.
  UCJV300 series: 300×600VD
  UCJV330 and UJ330H series: 600×600VD
- There are no dedicated profiles. We recommend you use a device profile for the media you wish to print that has (WonC) or (ConW) in the media name.

  WonC: A "white on color" profile.
  ConW: A "color on white" profile.

(4) Click the [Execute] icon .

(5) Click the [Start] button to start printing.

Without RasterLinkTools

This section describes the procedure without using RasterLinkTools.

1. Creating image data for four layers (☞ P.34)

▼

2. Loading data for four-layer printing into RasterLink (☞ P.34)

▼

3. Configuring settings for the white layer (☞ P.34)

▼

4. Configuring settings for the black layer (☞ P.35)

▼

5. Composing the created job (☞ P.35)

▼

6. Setting printing conditions (☞ P.36)

▼

7. Printing the created data (☞ P.36)

1. Creating image data for four layers

Create the following four images.

(a) Image to be used when the light is off
(b) Image to be used when the light is on
(c) Image for white layer
- In CMYK color mode, create an image with one of the CMYK colors.
- The color value specified for the image is the density value of the white ink. The recommended value is 100%.
- In this manual, the color yellow is used as an example.

(d) Image for black layer
- In CMYK color mode, create an image with black only.
- The color value specified for the image is the density value of the black ink. The recommended value is 30%. However, adjustments might need to be made depending on the environment. For more information, see P.37 "Troubleshooting".

Important!
- Before saving, align the size and printing position for all images.

- By partially changing the data on the black layer, a portion of the image can be rendered more vividly when the light is on. For more information, see P.38 "I want to make one area brighter than the others when the light is on.".

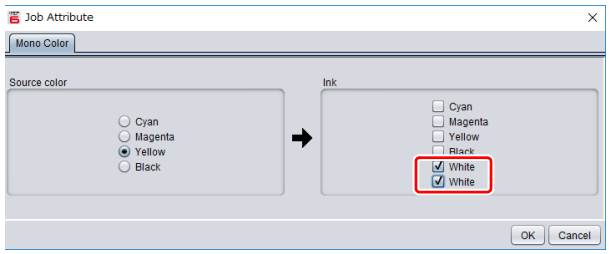
2. Loading data for four-layer printing into RasterLink

Load the four images created in step 1.

3. Configuring settings for the white layer

(1) Select the white layer job.
(2) Select [Mono Color] from the [Job Attribute] list on the [Properties] tab.
- The [Job Attribute] dialog box appears.

(3) Select an ink color.
- [Source color]: Select the color used in the image.
- [Ink]: Select [White]. (If multiple colors are displayed, select them all.)



Mono color replacement

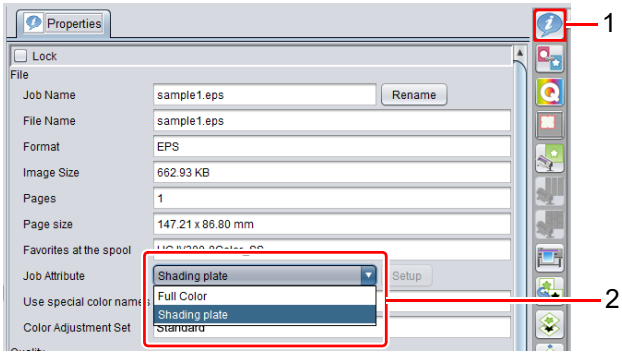
- In RasterLinkTools, if you created the white layer by using the automatic creation function of white and black layers, the white layer is created in yellow. Select [Yellow] under [Source color].

4. Configuring settings for the black layer

(1) Select the black layer job.

(2) Click the [Properties] icon .

(3) Set the job attribute to [Light-shielding layer].



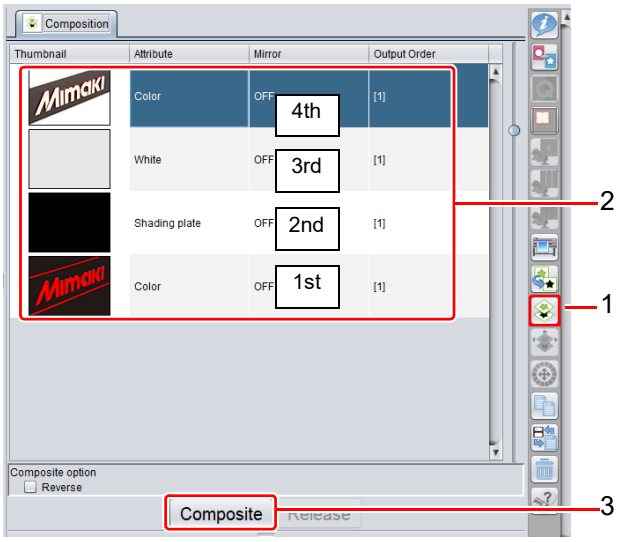
> **Important!**
> • If a black layer job is set to anything other than [Light-shielding layer], it will not be printed with four layers. Be sure to select [Light-shielding layer].

5. Composing the created job

(1) Select the four jobs loaded for four-layer printing, and then click the [Composition] icon .

(2) Drag and drop the composite list to set the composite (printing) order.

- The composite order is as follows, starting from the top of the list (4th layer).
  4th layer: Image used when the light is off
  3rd layer: White layer
  2nd layer: Black layer (light-shielding layer)
  1st layer: Image used when the light is on



(3) Click the [Composite] button.

6. Setting printing conditions

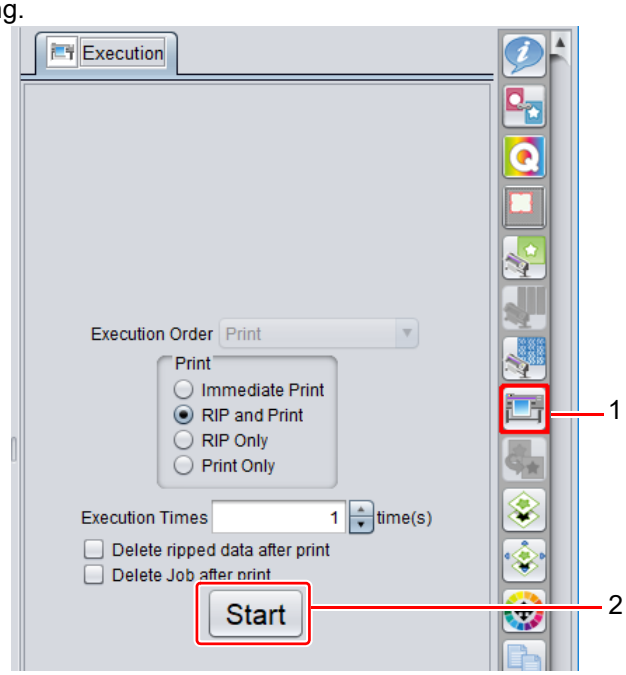
- Select the composited job.
- Click the [Print Conditions] icon to set the printing conditions.

> Important!
>
> **Output resolution**
> - The following output resolution standards are not supported.
> UCJV300 series: 300×600VD
> UCJV330 and UJ330H series: 600×600VD
> - There are no dedicated profiles. We recommend you use a device profile for the media you wish to print that has (WonC) or (ConW) in the media name.
>
> WonC: A "white on color" profile.
> ConW: A "color on white" profile.

7. Printing the created data

(1) Click the [Execute] icon .

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



When the light is off, the image used when the light is on bleeds through.

Check the following and print the image again.

1.If multiple types of white ink are used, make sure that they are all configured to be used in the settings.

•Check the [Mono color replacement] setting for the white layer job. If multiple types of white ink are shown, turn them all on.

2.Check the density of the white layer.

•If you manually created the image for the white layer, the image for the white layer should be a single CMYK color with a color value of 100%.

3.Increase the density of the black layer.

•Increasing the black density of the image on the black layer makes it less transparent. However, when the light is turned on, the overall image becomes darker.

The print positions on each layer are misaligned.

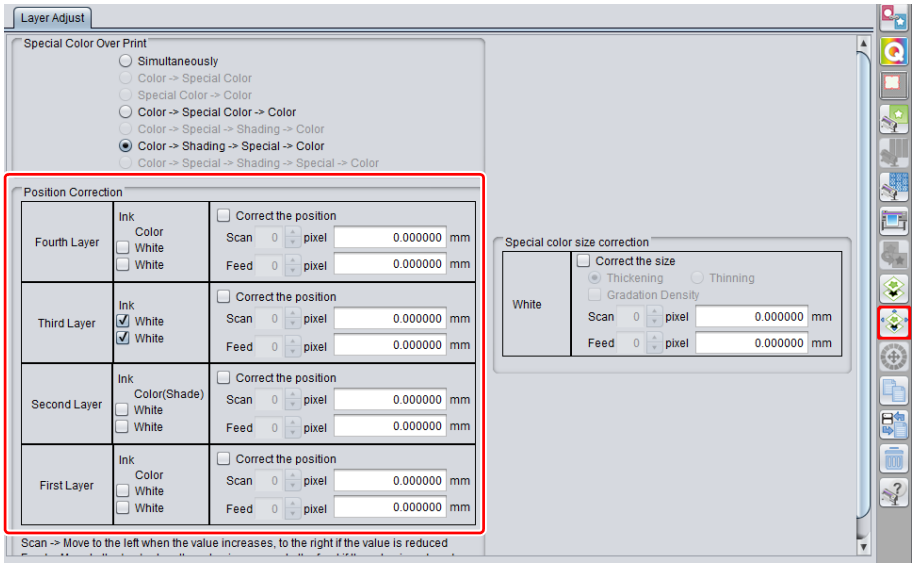
1.Check the image size and position.

•Make sure that the size and position of the original image is the same on all layers.

2.Correct the position of the special color in the layer settings.

•If all of the layers in 1 are the same but there are minute discrepancies, correct the position in the RasterLink layer settings.

(1) Click the [layer setting] icon .
The positional correction for each layer is now configurable. Make settings as necessary.
See the RasterLink Reference Guide for more information on [layer setting].



I want to make one area brighter than the others when the light is on.

When creating image data for the black layer (light-shielding layer) without using RasterLinkTools, you can make some areas stand out by making the black areas denser. When the light is turned on, the less dense areas will be brighter than the other areas.

The following describes an example in which a part of the black layer is cut out to show the target part vivid and highlighted.

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 high-lighted compared to other parts.

Comparison image

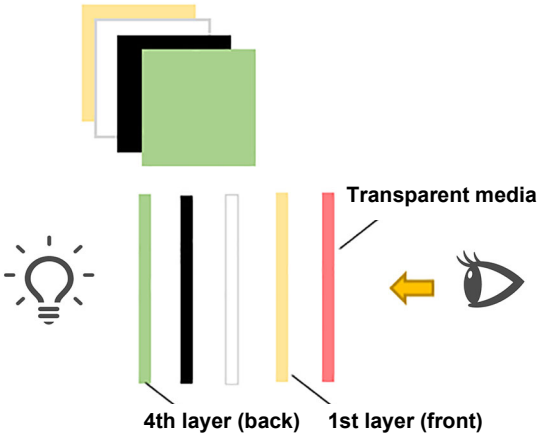
"With" cutout

"Without" cutout

I want to install transparent media with the media side facing out, not the printed side.

If you want to print on transparent media so that the printed images are visible from the media side, use a mirror output of the image.

Printing on transparent media (mirror output)



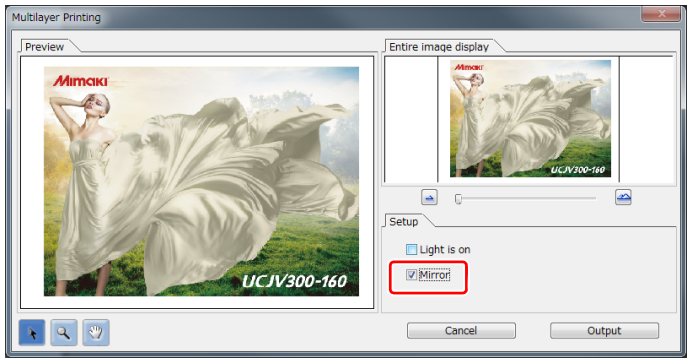
Side view

See the picture through the media

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

Method 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 RasterLink.
  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 in Illustrator.

Important!

- This function is valid only when the file is saved in RasterLinkTools and loaded with the hot folder in RasterLink.

Method 2: Inverting with RasterLink

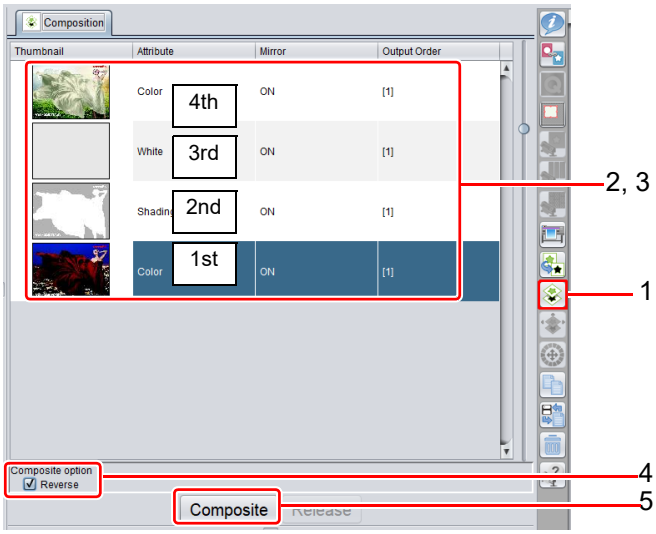
(1) Click the [Composition] icon .

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

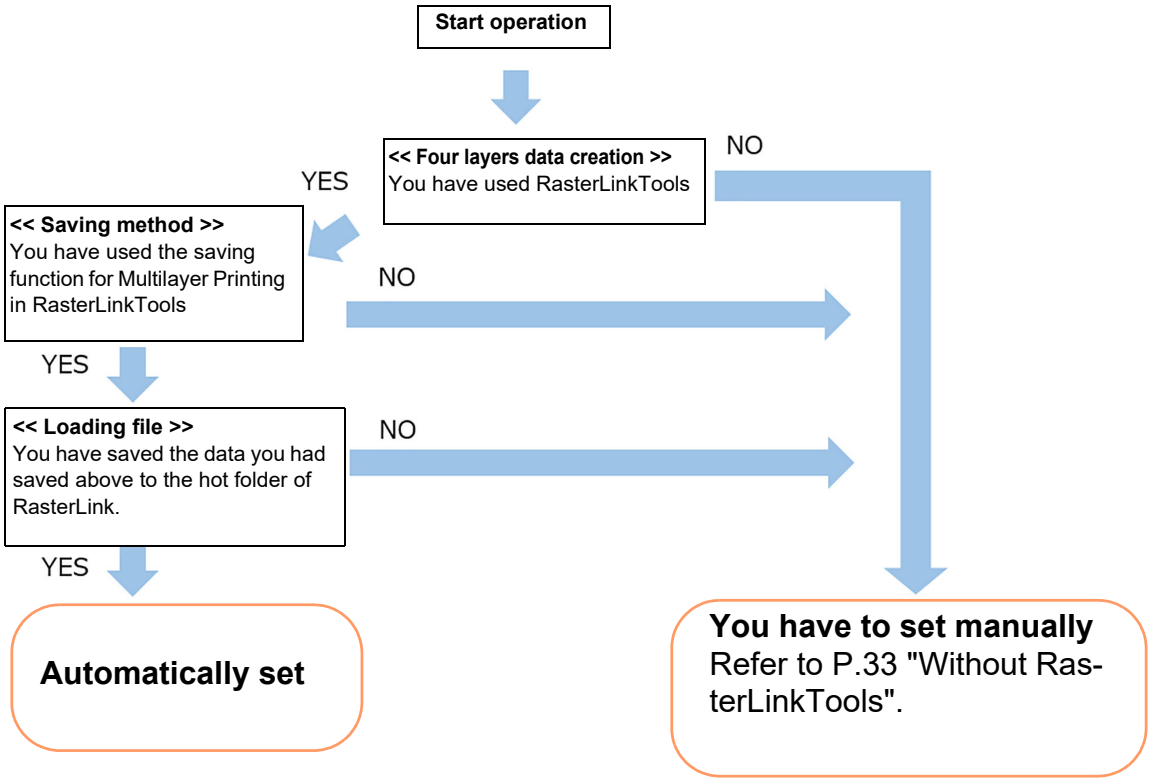
(3) Select entire 4 layers data.

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

(5) Click the [Composite] button.



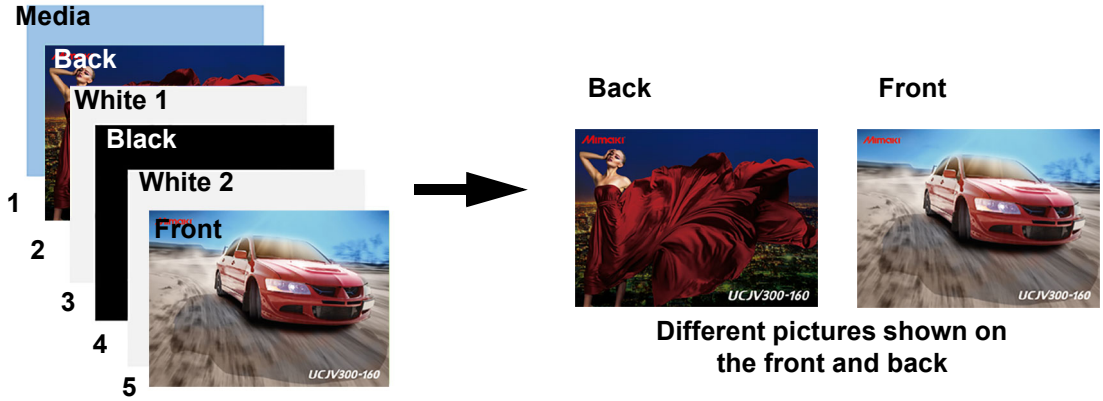
● What are the conditions for automatically making the settings required for four-layer printing?



Five-layer Printing

Printing the front and back at the same time

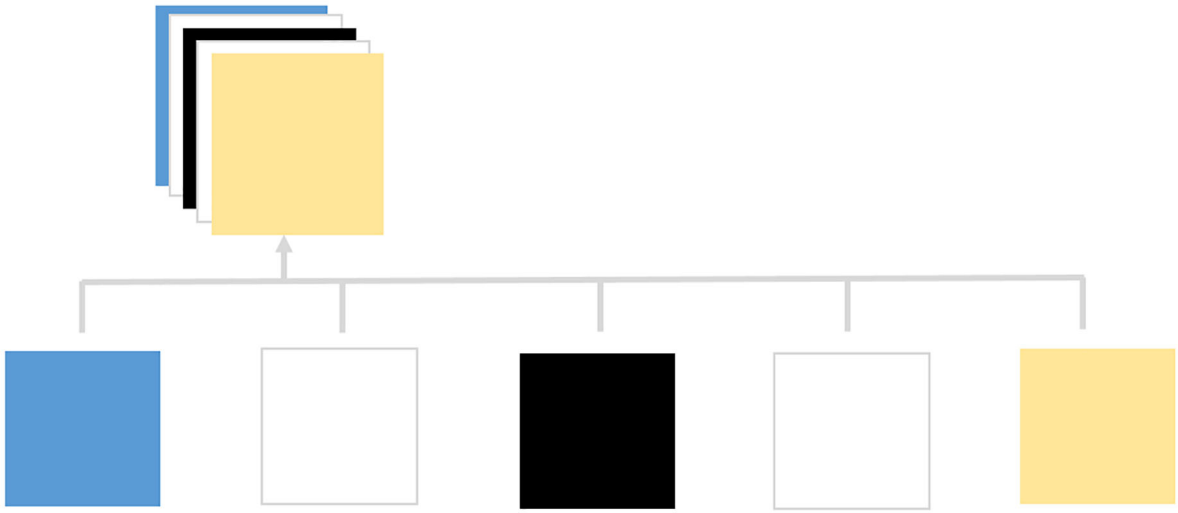
By overprinting a total of five layers of "color (front) + white + color (light-shielding) + white + color (back)" on transparent media, different pictures can be shown on the front and back of a sheet of media.



Back	(1st layer):	Picture seen from the media side
White 1	(2nd layer):	Hides the black layer and makes the back color shine
Black	(3rd layer):	Layer for light-shielding the front and back pictures
White 2	(4th layer):	Hides the black layer and makes the front color shine
Front	(5th layer):	Picture seen from the printed side

Five-layer 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 layer. The layer to hide the 3rd black layer to make the color of the 1st layer shine.	Black layer. The layer to prevent the pictures on the 1st and 5th layers from being seen through. Also called a light-shielding layer.	White 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 (five layers)

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

- The target is the printers with a white color feature.
- Print 5 layers at the same time.

Illustrator

- Creation of front and back layers
  Used to create the front and back images.

RasterLinkTools

- Automatic creation of white and black layers
  Automatically generate black and white layer images to be printed between the front and back images.

RasterLink

- Create and print jobs with multiple composed layers.

- When using RasterLinkTools, load images into RasterLink from a hot folder. If you have not created a hot folder, please do so.
  See the Network Connection Guide for instructions on how to create a hot folder.

Creating and printing procedures of five-layer data

With RasterLinkTools

The following describes the procedure to configure the settings required for five-layer printing with RasterLink-Tools.

1. [Illustrator] Creating front and back images (☞ P.46)

▼

2. [Illustrator] Compositing front and back images into a single file (☞ P.46)

▼

3. [RasterLinkTools] Creating white, black, and white layers (☞ P.46)

▼

4. [RasterLinkTools] Saving created data (☞ P.47)

▼

5. [RasterLink]Printing created data (☞ P.47)

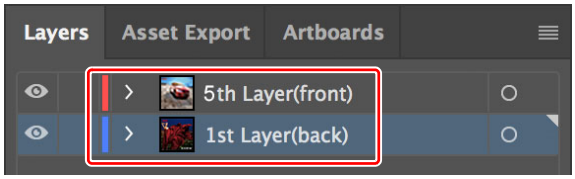
1. [Illustrator] Creating front and back images

2. [Illustrator] Compositing front and back images into a single file

(1) Open a new image and create two layers.

(2) Place the image to be seen from the back on the bottom layer.

- Arrange the image as it should be when seen from the back. (It does not need to be mirrored.)



(3) Place the image to be seen from the front on the top layer.

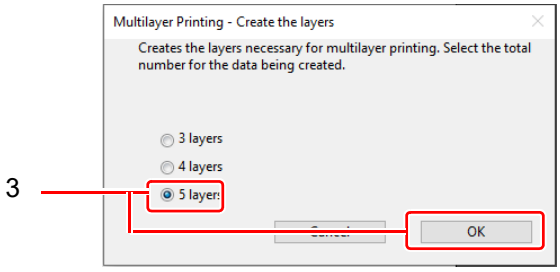
> **Important!**
> - Be sure to match the position and size of the images on the front and back. If the position and size are not correct, the images will be misaligned when printed and the expected result will not be achieved.
> - There is no restriction on layer names.

3. [RasterLinkTools] Creating white, black, and white layers

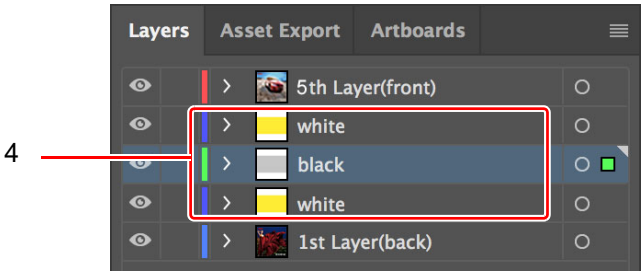
(1) Start RasterLinkTools.

(2) Click the [White & black layers auto-creation] icon .
The [Multilayer Printing] window is displayed.

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



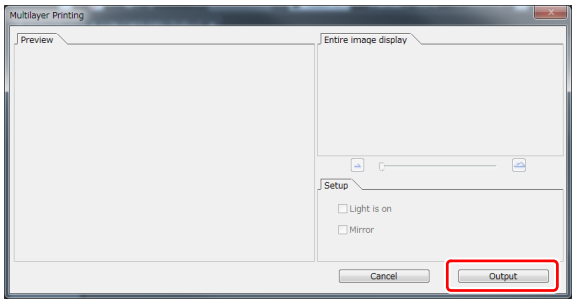
(4) The white, black, and white layers are created between the front and back layers created in step 2.



> - The white layer is created with a solid fill of Yellow 100%.
> This layer is recognized as white when data is saved in a RasterLink hot folder.
> - The black layer is created with a solid fill of Black 100%.
> - The images for the black and white layers are created as solid rectangles that match the position and size of the image for the 5th (front) layer.

4. [RasterLinkTools] Saving the created data

- Click the [Multilayer Printing function] icon .
- Click the [Output] button to save the 5 layers data.



Important!

- Select the RasterLink hot folder and save the data. A single file for a single layer, five files in total are saved.
- A preview is not displayed for five-layer 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 automatically added by RasterLinkTools (Do not change this identifier.)

Important!

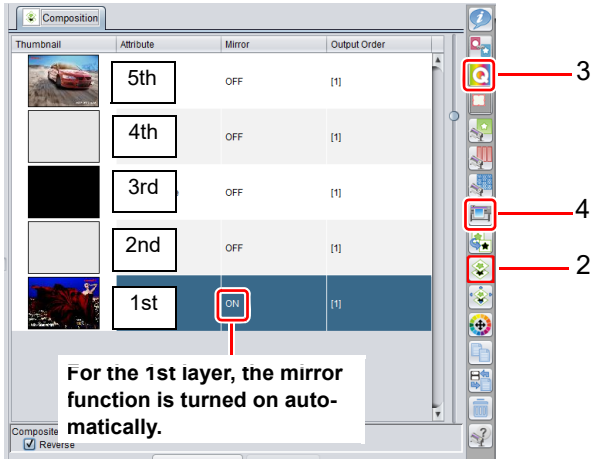
When importing into RasterLink output that was created in a location other than the hot folder in RasterLink, use the hot folder.

- With the hot folder, a job is automatically composed.
- If the image is imported using [File]-[Open], it will not be automatically composited. Follow the procedure in P.49 "Without RasterLinkTools".

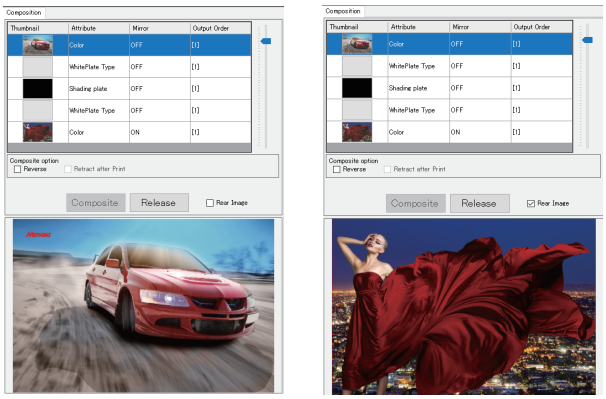
5. [RasterLink] Printing the created data

(1) When data is saved in a hot folder, five jobs are created and automatically composited.

(2) Select the composited job and click on the [Composition] icon .
The composite order is as follows, starting from the top of the list (5th layer).
5th layer: Front
4th layer: White layer
3rd layer: Black layer (light-shielding layer)
2nd layer: White layer
1st layer: Back*
* The mirroring function is set automatically.



- For UCJV330 and UJ330H, previews for the front and the back can be checked on the [Composite] screen.



Front Back

(3) Select the composited job and click the [Print Conditions] icon to set the printing conditions.

- If the printing conditions of one job are changed, those changes will be reflected in the other composited jobs.

Important!

Output resolution

- The following output resolution standards are not supported.
  UCJV300 series: 300×600VD
  UCJV330 and UJ330H series: 600×600VD
- There are no dedicated profiles. We recommend you use a device profile for the media you wish to print that has (WonC) or (ConW) in the media name.

  WonC: A "white on color" profile.
  ConW: A "color on white" profile.

(4) Click the [Execute] icon .

(5) Click the [Start] button to start printing.

Without RasterLinkTools

This section describes the procedure without using RasterLinkTools.

1. Creating image data for five layers (☞ P.50)

▼

2. Loading data for five-layer printing into RasterLink (☞ P.50)

▼

3. Configuring print setting for the white layer(☞ P.50)

▼

4. Configuring print setting for the black layer(☞ P.51)

▼

5. Composing the created job (☞ P.51)

▼

6. Setting printing conditions (☞ P.52)

▼

7. Printing the created data (☞ P.52)

1. Creating image data for five layers

Create the following four images.

(a) Image for front
(b) Image for back
(c) Image for white layer
- In CMYK color mode, create an image with one of the CMYK colors.
- The color value specified for the image is the density value of the white ink.
- In this manual, the color yellow is used as an example.

> Important!
> - The color value of the original image must be 100%.

- Although two white layers are printed in five-layer printing, only one original image is required.

(d) Image for black layer
- In CMYK color mode, create an image with black only.
- The color value specified for the image is the density value of the black ink. Be sure to set it to 100%.

> Important!
> - Before saving, align the size and printing position for all images.

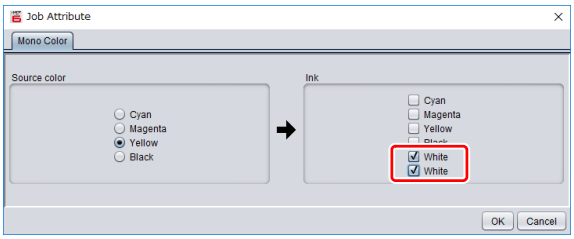
2. Loading data for five-layer printing into RasterLink

Load the four images created in step 1.
- The image for the white layer should be loaded twice to create two jobs.

3. Configuring settings for the white layer

(1) Select the white layer job.
(2) Select [Mono Color] from the [Job Attribute] list on the [Properties] tab.
- The [Job Attribute] dialog box appears.

(3) Select an ink color.
- [Source color]: Select the color used in the image.
- [Ink]: Select [White]. (If multiple colors are displayed, select them all.)



Mono color replacement

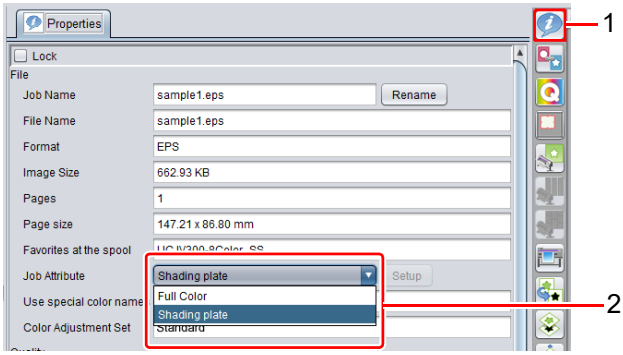
> - In RasterLinkTools, if you created the white layer by using the automatic creation function of white and black layers, the white layer is created in yellow. Select [Yellow] under [Source color].

4. Configuring settings for the black layer

(1) Select the black layer job.

(2) Click the [Properties] icon .

(3) Set the job attribute to [Light-shielding layer].

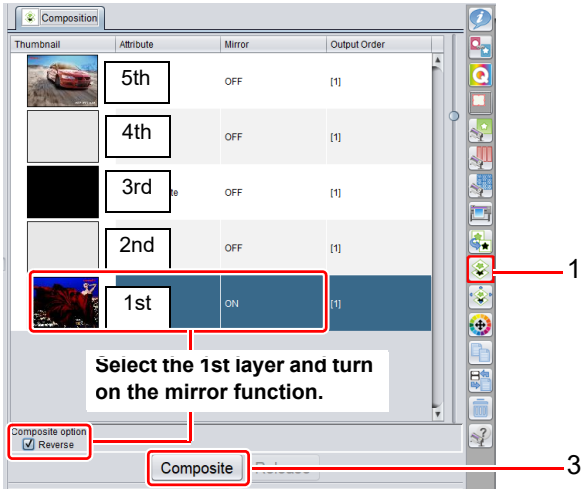


5. Composing the created job

(1) Select the five jobs loaded for five-layer printing, and then click the [Composition] icon .

(2) Drag and drop the composite list to set the composite (printing) order.

- The composite order is as follows, starting from the top of the list (5th layer).
  5th layer: Front
  4th layer: White layer
  3rd layer: Black layer (light-shielding layer)
  2nd layer: White layer
  1st layer: Back*
  * The back must be printed using the mirroring function. In the composite list, select the job for the back and turn on [Mirror].



(3) Click the [Composite] button.

6. Setting printing conditions

- Select the composited job.
- Click the [Print Conditions] icon to set the printing conditions.

Important!

Output resolution

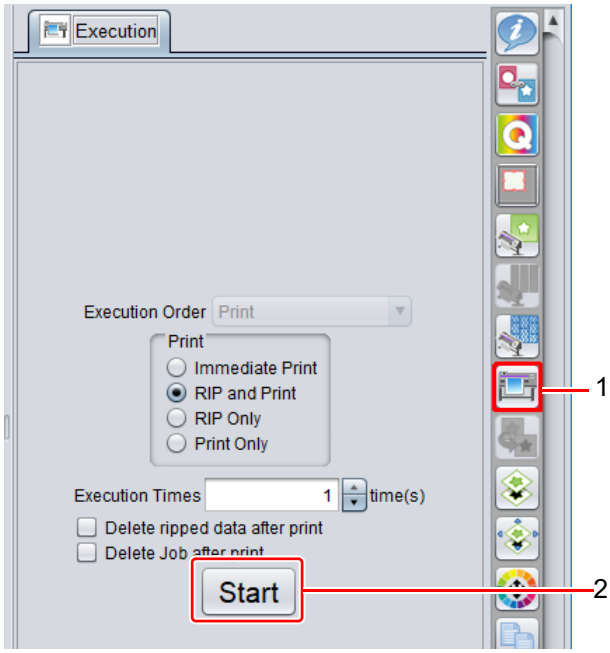
- The following output resolution standards are not supported.
  UCJV300 series: 300×600VD
  UCJV330 and UJ330H series: 600×600VD
- There are no dedicated profiles. We recommend you use a device profile for the media you wish to print that has (WonC) or (ConW) in the media name.

  WonC: A "white on color" profile.
  ConW: A "color on white" profile.

7. Printing the created data

(1) Click the [Execute] icon .

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



The background of the color image appears more grayish.

The white layer is not dense enough to cover the black layer. Check the items in steps 1 through 3 below (in order) and then try printing again.

1.If multiple types of white ink are used, make sure that they are all configured to be used in the settings.

•Check the [Mono color replacement] setting for the white layer job. If multiple types of white ink are shown, turn them all on.

2.Check the density of the white layer.

•When manually creating the image for the white layer, the image for the white layer should be a single CMYK color with a color value of 100%.

3.Increase the output resolution.

•If the output resolution is too low, the density of the white layer might not be high enough to mask the black layer. In that case, increase the output resolution.

The print positions on each layer are misaligned.

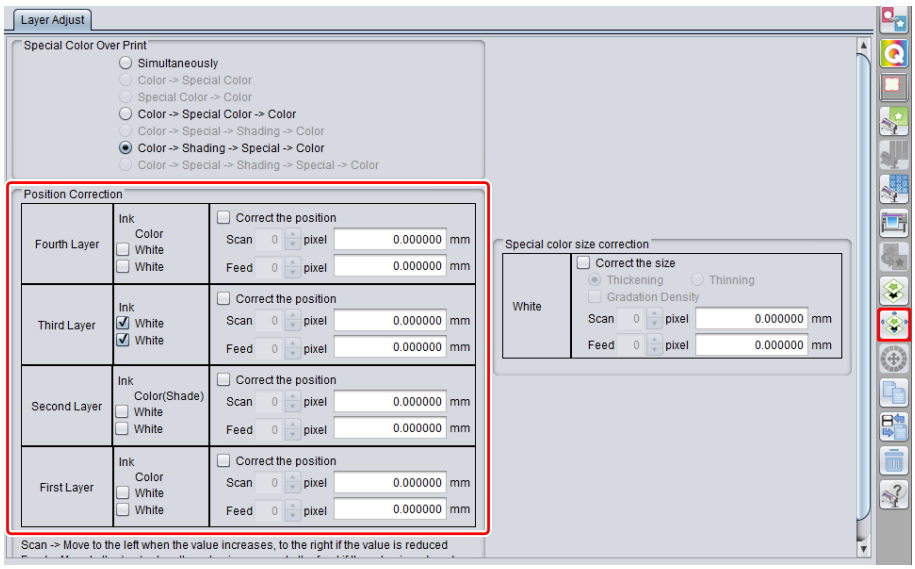
1.Check the image size and position.

•Make sure that the size and position of the original image is the same on all layers.

2.Correct the position of the special color in the layer settings.

•If all of the layers in 1 are the same but there are minute discrepancies, correct the position in the RasterLink layer settings.

(1) Click the [layer setting] icon .
The positional correction for each layer is now configurable. Make settings as necessary. See the RasterLink Reference Guide for more information on [layer setting].



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