



Application Notes

Contour Cutting with ErgoSoft RIPs



Contour Cutting with ErgoSoft RIPs

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Introduction

This document is meant to give you all needed information about the possibilities of the ErgoSoft Cut function. Please read this document carefully to make sure, that you can take the best possible benefit of using the ErgoSoft Cut function.

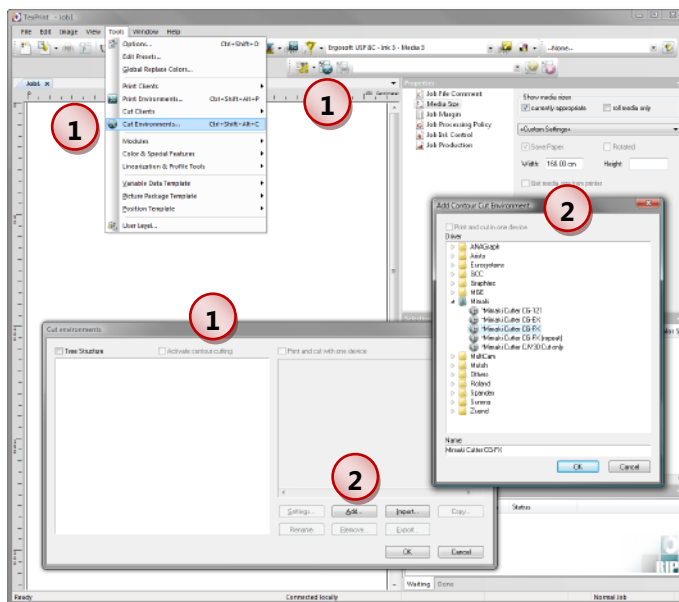
Creating/Importing Cut Environment

For easier access on the cutting functions we recommend to activate the **Cut Environment** tool bar via menu *View > Tools > Cut Environment*. Please note that you should save the workspace in order to restore the changes next time the workspace is loaded after starting the **ErgoSoft RIP** or having switched to another workspace.

Cut Environments Dialog

1 Open the **Cut environments** dialog by clicking on the *Cut Environments Icon* in the *Cut Environment* toolbar or by selecting menu *Tools > Cut Environments*.

2 Select **Add** to open the **Add Contour Cut Environment** dialog. The list shown here contains all manufacturers of which a cutting device is supported. To select a specific device driver, please click on the "+" in front of the particular manufacturer to display the list of the devices. Select the device driver you want to use and enter a **Name** for the cut environment. Confirm the driver selection by clicking the **OK** button.



If however the selected driver supports different sizes of the selected device, please specify the size in the appearing dialog and confirm your selection by clicking the **OK** button.

Cut Environments Settings

Now the **Quality** tab of the new cut environment is displayed. Please find a description of the available and required settings in the following.

Quality Tab

In the **Quality** tab you can set the **Speed**, **Pressure** and **Accuracy** for the cutter. If you uncheck the checkboxes for speed and pressure, these settings will be controlled by the device itself. The accuracy specifies the number of points a curve is build with. The higher the accuracy the more points and the smaller the steps will be with cost of speed; the lower the accuracy the less points and the longer the steps will be with cost of smoothness, curve may have unwanted edges.

Please note that all settings can be changed for each cut path in the cut path settings while just speed and pressure can be changed in the **Cut Client**.

Cutter Device Tab

The **Cutter Device** tab allows you to set up a configuration file which contains all the needed information to send data to your cutter. These settings can be loaded whenever you create a new cut environment for this cutter.

1 Create Cutter Configuration File

To specify the required information such as the port used as well as port settings, create a new configuration file by clicking the **New** button.

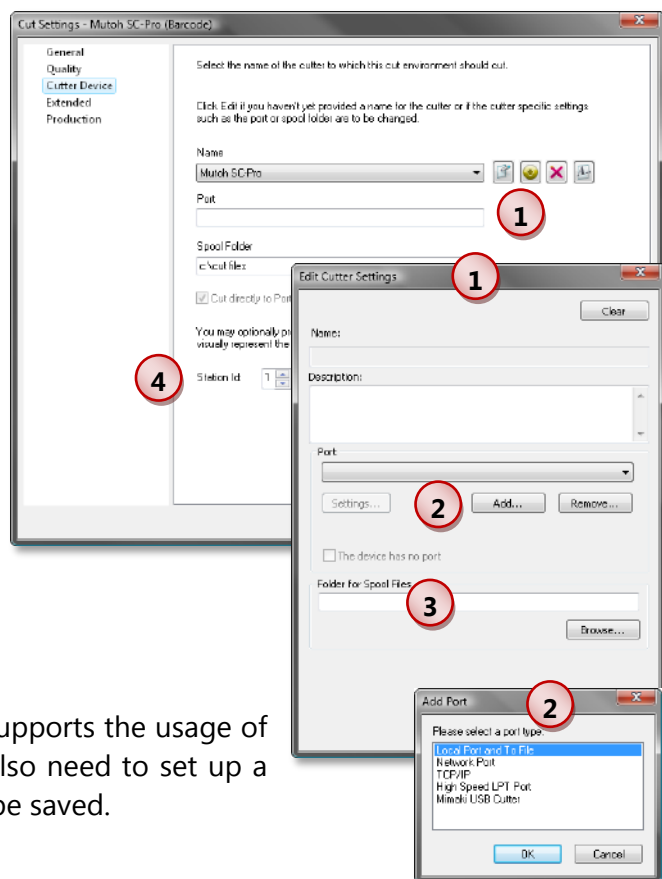
Once you have created a cut environment, you can edit, delete or rename the configuration file using the respective buttons.

2 Specify Cutter Port

Click on **Add** to specify the port of your cutter. Select or specify the required port in the **Add Port** dialog. The available port types depend on the cutter type.

3 Specify Folder for Spool Files

If your copy of the **ErgoSoft RIP** supports the usage of **Cut Clients** (spooling of cut jobs) you also need to set up a spool folder in which the spool files can be saved.



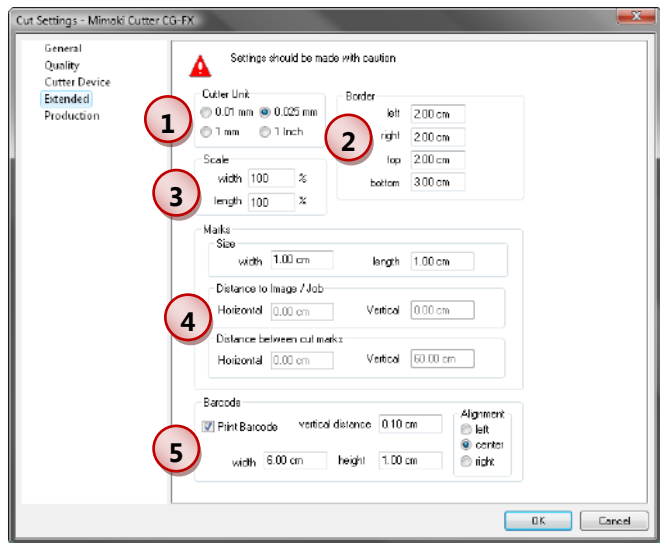
- 4 When having several systems to prepare cut files for the same cutter with automatic barcode support, assigning a different **StationId** to each system will prevent having accidentally printouts from 2 systems with the same barcode. Since the **StationId** is part of the barcode, barcodes from 2 systems with different **StationIds** will be different any time.

Extended Tab

The **Extended** tab allows you to control several settings for the cutting and cutting marks configuration. The drivers provided by ErgoSoft do already contain the correct settings for the selected devices. Therefore these settings should be handled with caution.

- 1 The **Step Size** defines the used scale unit for the sent commands. Most supported cutter drivers allow switching between "0.01 mm" and "0.025 mm" for the step size. Since "cm" and "inch" are supported by some certain cutters (e.g. MGE i-Cut) only we strongly recommend to ensure that it is supported by your cutter before selecting "cm" or "inch".

- 2 The **Border** settings define the size of the borders used for a job which should also be cut. The drivers provided by ErgoSoft do already contain the correct settings for the selected devices.



- 3 Section **Scale** allows you to do a manual distortion correction. This option is only available for cutters which do not have an automatic distortion correction.
- 4 Section **Marks** allows you to specify the size of the cut marks and the distance between the cut marks and the image or job (when your cutter supports this configuration). When your cutter offers the possibility to frequently print cut marks in order to increase cutting accuracy, you may also enter the distance between the cut marks.
- 5 Section **Barcode** allows you to activate printing a barcode with the job as well as to specify the dimension of the barcode area, the alignment of the barcode in this area, and the vertical distance of this area to the job.

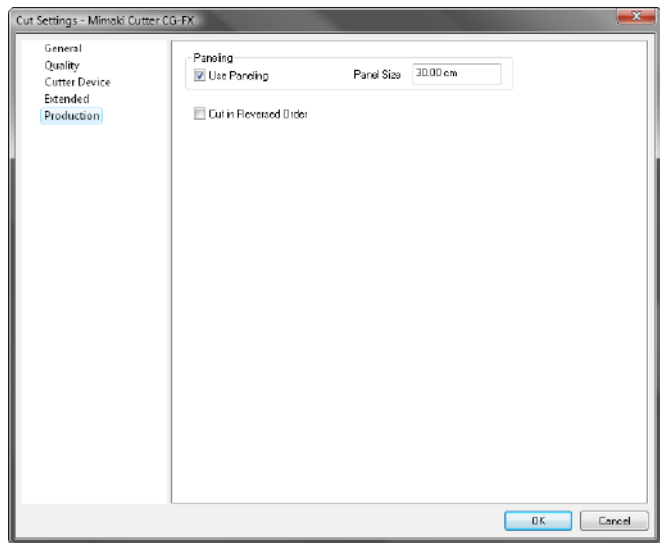
Production Tab

The **Production** tab allows some settings useful for the production itself.

By default, the cutter will cut the complete job in one step. This means that the media will be moved forwards and backwards over the complete job length. Checking **Use Paneling** and entering a **Panel Size** will split the job into panels so that the media must be moved forward and backward just over the panel size. When all lines in the first panel are cut, the media will be moved forward to cut the lines in the next panel.

Paneling can also be set (but not deactivated) for each cut paths. Thus, when needing some cut paths with and some without paneling, we recommend to specify the paneling in the cut path settings.

Check **Cut in Reversed Order** to start cutting at the end of a stack of printed jobs instead of at the beginning. This option might be useful for many jobs printed on media already rolled to avoid moving the media back at the beginning of the job (e.g. with Summa cutters supporting barcode).



Device Options Tab

Some cut drivers offer additional options which can be found in the **Device Options** tab.

General Tab

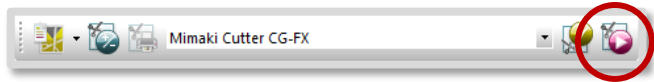
The **General** tab allows modifying the name or the description of the cut environment as well as the model if the cutter comes in several models. It also shows the basic cut driver the cut environment is based on.

Creating a Cut Job

Activating Contour Cutting



In order to create a cut job and to use the selected cut environment, you have to activate contour cutting. You can do that by clicking the *Contour Cut* icon in the *Cut Environment* toolbar.

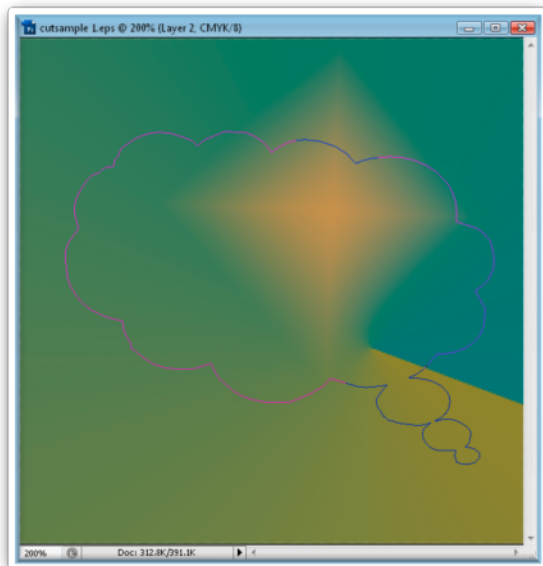


The required borders for the cut marks are automatically added to the media borders so that the available job width might be less. Please note that the job width will be limited to the smaller value of maximum job width supported by the printer and the maximum job width supported by the cutter.

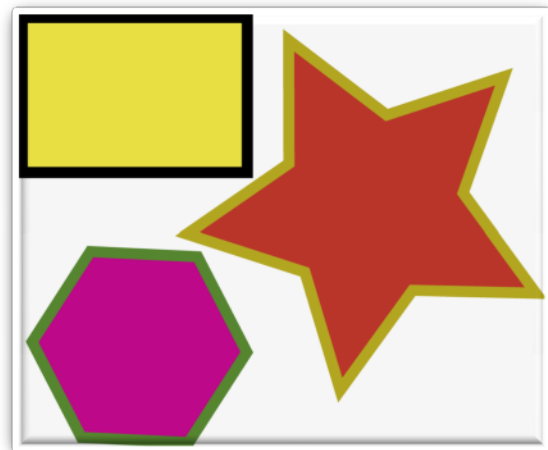
Importing Image

Preparing the Image in the Design Program

Use a suitable design program such as CorelDraw, Photoshop, Illustrator, or FreeHand to create the cutting paths in the original image, making sure the cutting curve will be able to cut the image later. You have several possibilities to define your cut path: Path in CMYK, Clipping Path, or Spot Color Path with the possibility to not print it. When designing a CMYK path please keep in mind that it will be also printed and thus, should have a color that is not visible in the printout.

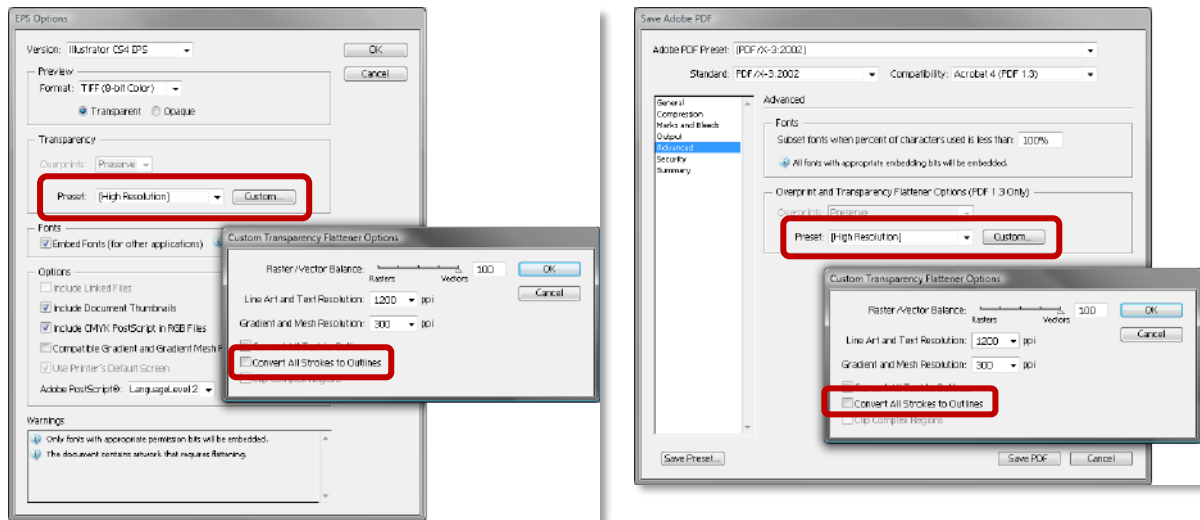


CutSample 1: Photoshop Clipping Path



CutSample 2:
rectangle with CMYK path in 100% black
star with Spot Color outline "Star"
polygon with Spot Color outline "Polygon"

When saving the file as EPS or PDF you have to take care that the cutting paths are not converted. The following example shows the settings for Illustrator CS3/CS4 when saving as EPS or PDF file. The relevant setting is hidden in the “Transparency” section of the EPS saving options as well as in the “Advanced” tab of the PDF (1.3) saving options:



Take care that “Convert All Strokes to Outlines” is not checked to prevent the contours being converted into fill paths.

Importing Image

You can import the image to be cut as all other images.

Editing Job

You can edit your images in the job as usual. You can rotate, tile, crop, duplicate, mirror etc. in the same way as for none cut jobs.

Printing a Cut Job

Once you have finished the layout of your job, you can print the job on your printer. But before you print your job it is necessary to decide how the cutting of the job should be processed.

There are basically two different ways to cut a cut job: Cut directly to a port or cut using a **Cut Client**. If the usage of the **Cut Client** is licensed, you can switch between these two options by activating or deactivating the **Cut directly to Port (no spooling)** option in the **Cutter Device** tab of the active cut environment.

Cutting Directly to the Port (no Spooling)

For cutting directly to the port, the cut process must be launched manually in the **JobComposer** after having fed the printed job into the cutter.



Launch cutting by clicking the **Cut** icon in the *Standard* toolbar or by selecting menu *File > Cut*.



In the appearing dialog you can specify which paths should be used as cut path.

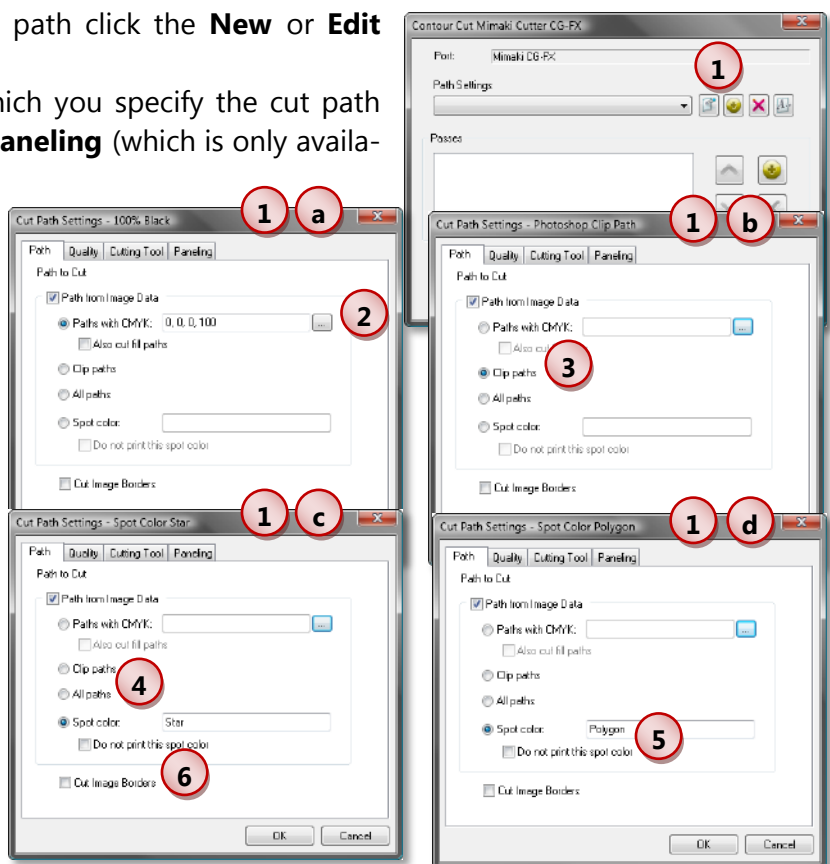
Specifying the Cut Paths

- 1 To set up the desired path click the **New** or **Edit** button.

This opens the dialog in which you specify the cut path settings. Tabs **Quality** and **Paneling** (which is only available when paneling is not activated in the cut environment) allow overwriting the settings of the cut environment for the current cut path so that e.g. one cut path can be configured with paneling while all other cut paths do not use paneling. The device-dependent tab **Cutting Tool** allows selecting the cutting tool for the path. The path settings for the samples shown above are as follows:

- (a) CMYK path named "100% Black"
- (b) Clip path named "Photoshop Clip Path"
- (c) Spot color path named "Star"
- (d) Spot color path named "Polygon"

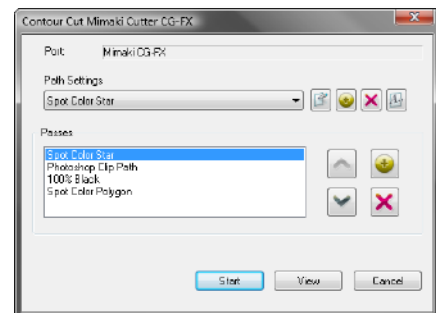
- 2 The color for the **CMYK path** can be selected using the color selection window opening when clicking the button at the right side. Checking **Also cut fill paths** will not only cut stroke paths with the specified color but also fill paths. To avoid problems this option should be checked (or unchecked) when the visual path check does not show the correct preview.



- 3 When having defined a clipping path (e.g. Photoshop Clipping Path) in your image, you have to select **Clip paths**.
- 4 When selecting **All paths**, all paths which can be found in the image will be cut. This option is meant to be used for finding out whether the **ErgoSoft RIP** can find any cut path in the image when the wanted path is not cut.
- 5 When having defined a cut path using a spot color, select **Spot Color** and enter the name of the spot color. Spot color paths is the only colored path type that must not be printed.
- 6 Activating **Cut Image Borders** will cut the image borders. This option is also available without any other cut path selection.

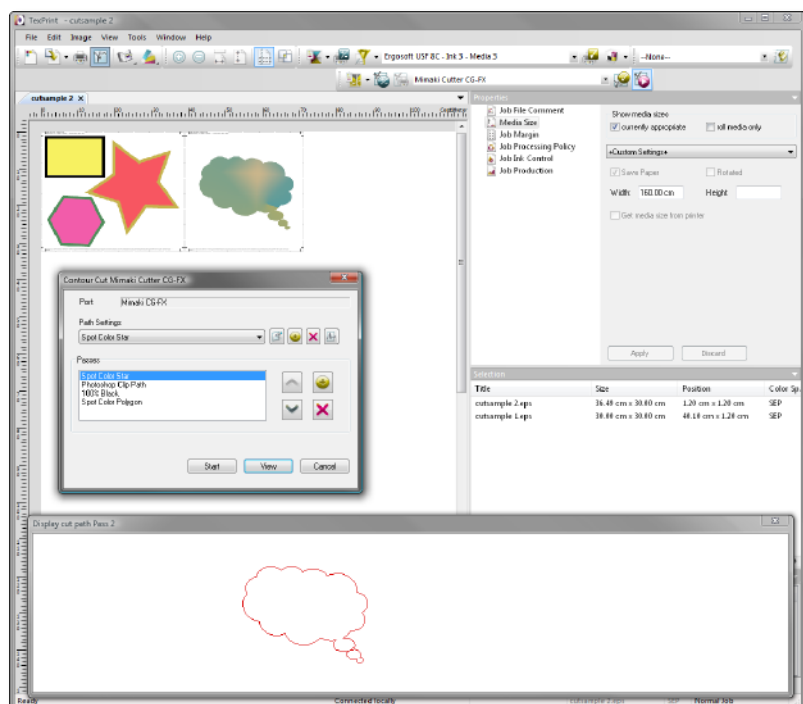
Selecting the Cut Paths

After having specified the cut paths the paths to be actually cut must be selected. Paths can be added to the list and removed from the list. Use the arrow buttons to change the order in which the paths are cut.



Displaying the Cut Paths

Before you send the cut command you can display the cut path. Therefore click on the **View** button in the **Contour Cut** dialog. In the appearing **Display cut path** dialog you can see the paths which will be used as cut paths. When having selected several cut paths clicking the **View** button while the preview window is open will scroll through the paths displaying the previews of the paths one after the other.



Starting the Contour Cutting

To start the cut process and send the cut command, click the **Start** button. Your job will now be cut according to the defined settings.

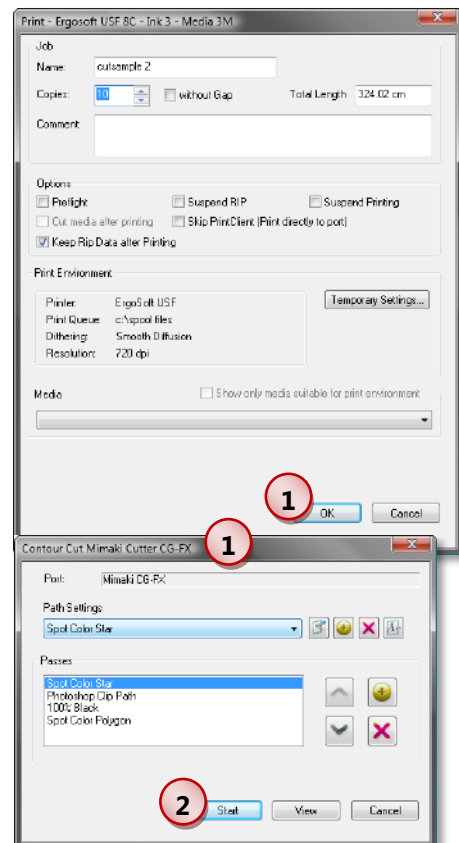
Cutting a Cut Job using the Cut Client

Starting the Printing and Contour Cutting

If you would like to cut a cut job using a **Cut Client**, you have to make sure that the usage of **Cut Clients** is licensed. Additionally you should assure that you have specified the usage of the **Cut Client** in the cut environment by un-checking **Cut directly to Port (no spooling)** on the **Cutter Device** tab.

The procedure basically stays the same. Just the order of the steps is a bit different: The cutting command is not launched separately but combined with the printing command. This means that the cutting command itself is disabled.

When launching the **Print** command, first the dialog for printing is displayed. After having adjusted all settings and sent the print command by clicking the **OK** button, the **Contour Cut** dialog is displayed for adjusting the cut settings. After having closed this dialog by clicking the **Start** button, ripping and printing is started. The complete printing and cutting command can be discarded by clicking the **Cancel** button in any dialog.

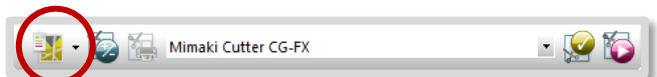


For a description of the cut path settings and selection please refer to chapter “Cutting Directly to the Port (no Spooling)” above.

Starting the Cut Client



The **Cut Client** is automatically generated using the information from the cutter device tab



of the cut environment. To start a **Cut Client** click the arrow at the right side of this icon in the **Cut Environment** toolbar and select the **Cut Client** from the list.

Selecting and Starting a Cut Job

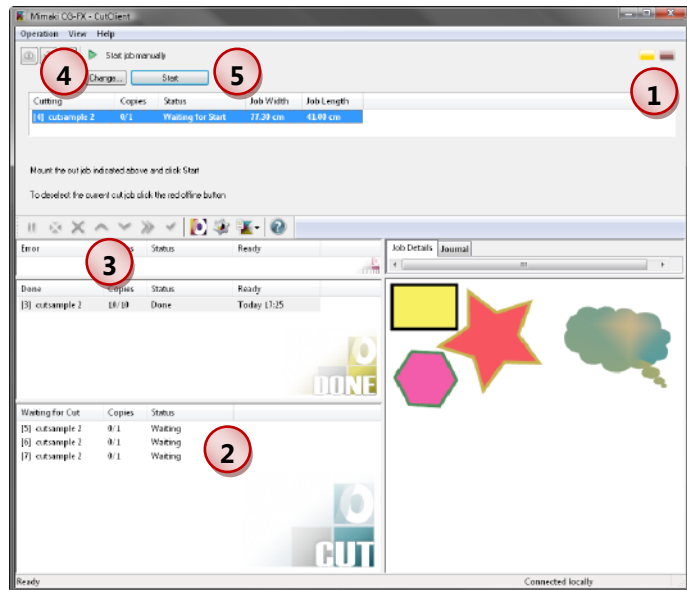
1 To start a cut job you have to set the **Cut Client** from **offline** to **start job manually**.

2 The **Cut Client** will automatically select the first job in the queue window.

3 You can adjust the order by increasing or decreasing the priority of each job.

4 Speed and pressure can be changed for each cutting path in the job currently loaded.

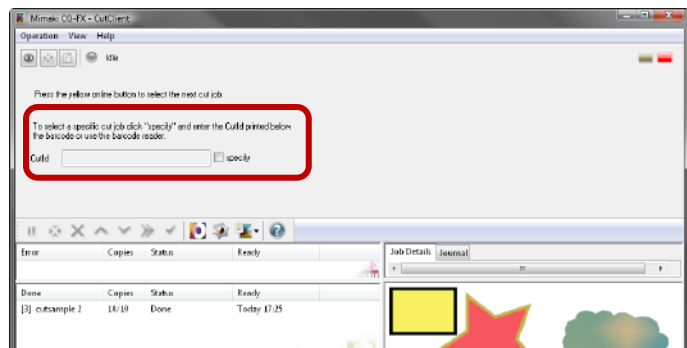
5 If you would like to start the cut job, click the **Start** button in the **Cut Client** window.



Using Barcodes to Select a Cut Job

When having activated the usage of barcodes in the **Extended** tab of your cut environment, you can identify a cut job by reading its barcode with a barcode reader.

To select a specific cut job check **specify** and enter the **CutId** printed below the barcode or use the barcode reader. The **Cut Client** will automatically select the correct cut job in the cut queue.



Using Print & Cut Devices

Basics

As it is mentioned in the name of these devices, they are able to perform both the printing and the cutting processes. For each of these processes, a device environment must be specified in the **ErgoSoft RIP**; a print environment handling the printing process, and a cut environment handling the cutting process.

In general, there are 2 basic workflows for print&cut devices:

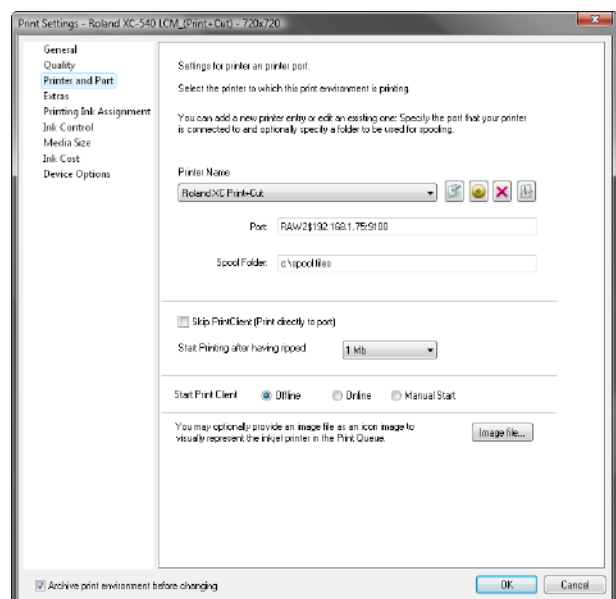
- 1) The media will be cut immediately before or after printing without having to be removed for drying, laminating, or other.
- 2) The media must be removed from the device after printing for another process such as several hours drying, laminating, etc. Cutting will be done any time later.

The print environment is the same for both workflows. But the cut environment must be different.

Creating the Print Environment

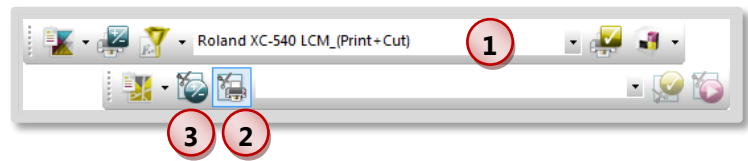
Create the print environment as usual. Make sure that a print&cut driver is selected. Define a printer in the **Printer and Port** tab. You can specify the port and the spool folder for the print files there.

Please note that you have to create a print&cut print environment before you can create the related cut environment.



Creating the Cut Environment

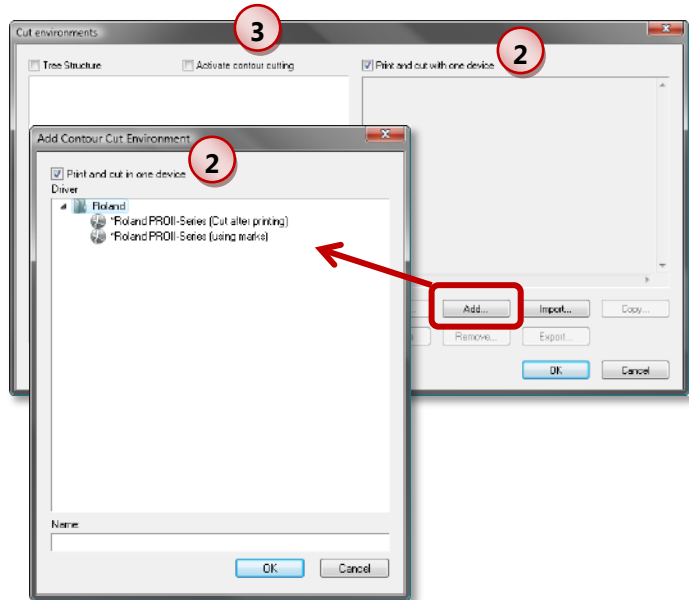
1 Make sure that your print&cut print environment is selected as current print environment in the *Print Environment* toolbar.



2 Click the **Print and cut in one device** icon in the *Cut Environment* toolbar to limit the available cutter drivers to the ones suitable to the selected print driver.

3 Open the Cut Environments manager by clicking the **Cut Environments** icon in the *Cut Environment* toolbar. Click the **Add** button to add the cut environment.

The box **Print and cut in one device** should be checked in the cut environments list as well as the **Add Contour Cut Environment** dialog.

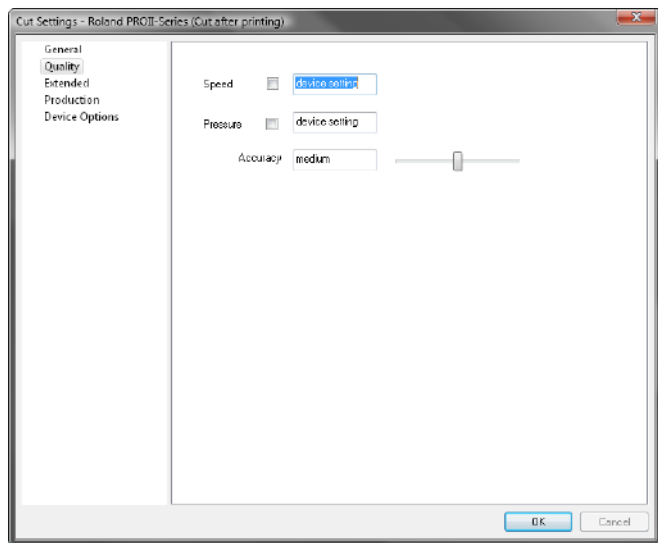


Select the appropriate cut driver and click the **OK** button.

The "Cut after printing" and "Cut before printing" drivers are designed for a workflow in which the job is printed and cut in succession without any user intervention. The "using marks" drivers are designed for a workflow in which the media is removed after printing and cutting is started later manually.

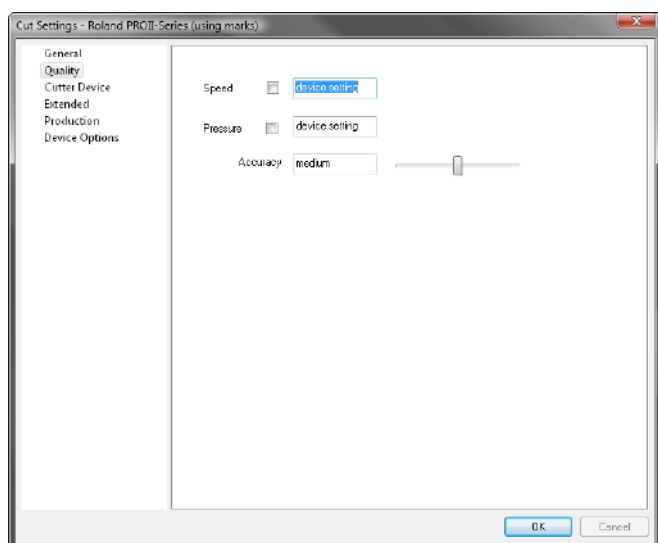
Configuring a “Cut after Printing” or “Cut before Printing” Driver

This type of cut environment does not contain any Cutter Device information like port or the spool folder since the print and cut information is sent at the same time using the device specifications of the active print environment. When selecting the “Cut after printing” or “Cut before printing” driver, no cut marks will be printed. The job will be cut automatically directly before printing or after the print job is finished.



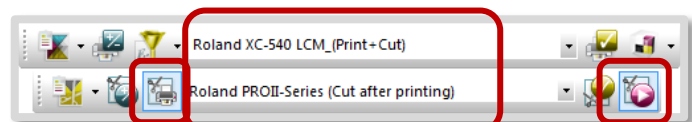
Configuring a “Using Marks” Driver

This type of cut environment needs Cutter Device information like port or the spool folder since printing and cutting are two independent steps. When selecting the “Using marks” driver, cut marks will be printed. The cut job must be started manually in the same way as for cut-only devices.



Print & Cut a Job on a Print & Cut Device

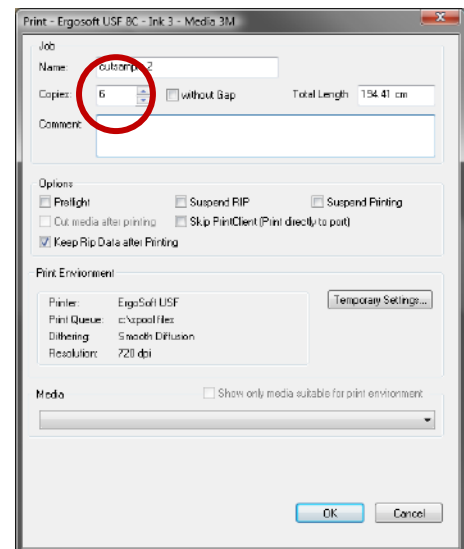
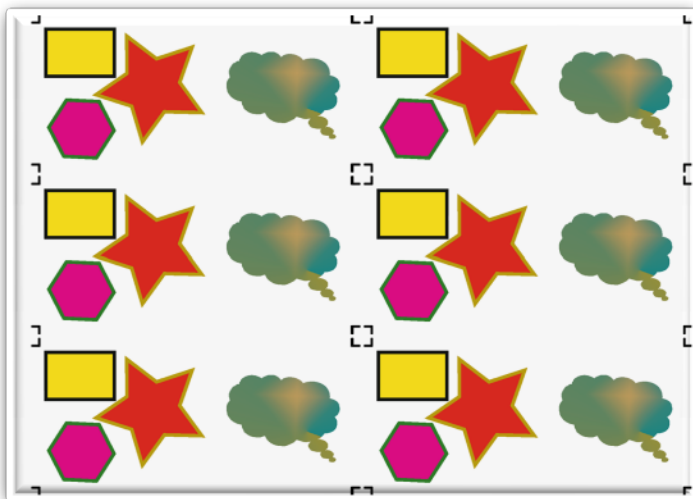
To print and cut a job on a print&cut devices you simply have to make sure that the correct print environment as well as the correct cut environment is selected.



Special Cutting Drivers and Functions

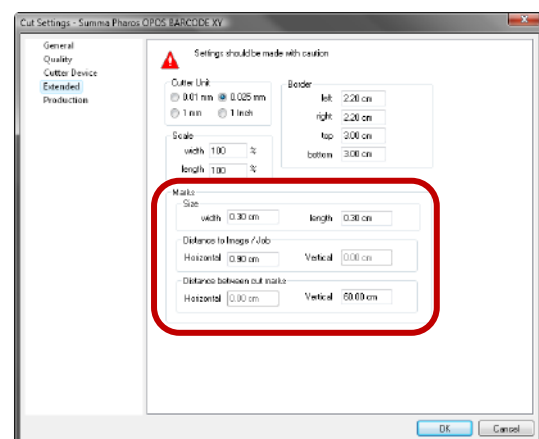
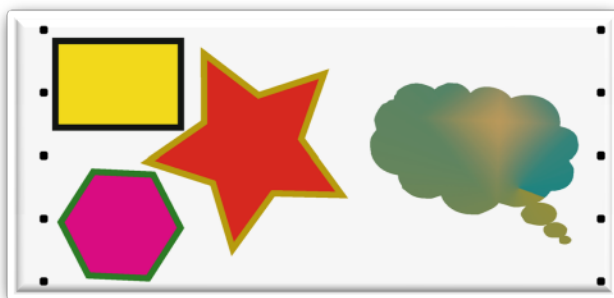
Mimaki “repeat” / Graphtec “repeat”

When having selected a Mimaki or Graphtec “repeat” driver printing several copies of a job works as follows: All copies of the job are combined in a huge job by duplicating the job including the cut marks horizontally and vertically. The result is not treated as a job with e.g. 6 copies of the jobs but as one job with 6 images. Thus, the number of copies cannot be changed in the **Print Client** or **Cut Client**.



Summa Pharos and S-Class with OPOS

These cutter drivers allow configuring cut marks along the job length. The additional cut marks are also automatically detected by the device when reading the marks.



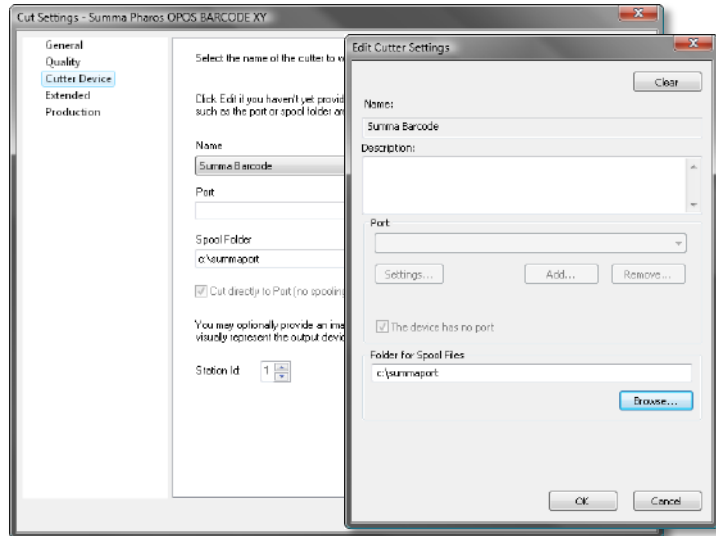
Summa Pharos and S-Class with Barcode

This type of cutter drivers does not use a port. This means that in the cut environment configuration, a physical port cannot be set but just a spool folder.

The **ErgoSoft RIP** just create the plot data. Then, the CutServer provided by the cutter manufacturer must fetch the file and send it to the cutter.

Since these cutters may roll the printed media and find the correct cut job using the barcode, checking the option **Cut in Reversed Order**

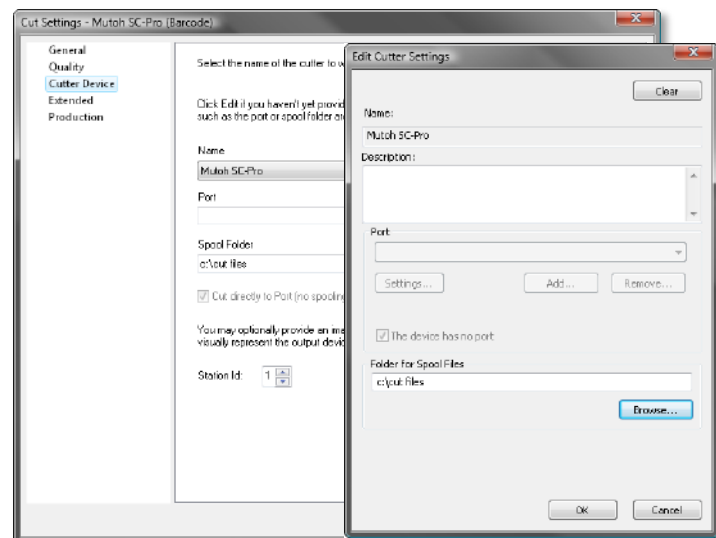
on the **Production** tab is recommended when you want to cut the roll beginning with the last printed job and starting to cut from the bottom of the job to the top.



Mutoh Ultima, SC-Pro, Kona with Barcode

All Mutoh "barcode" cutter drivers do not use a port. This means that in the cut environment configuration, a physical port cannot be set but just a spool folder.

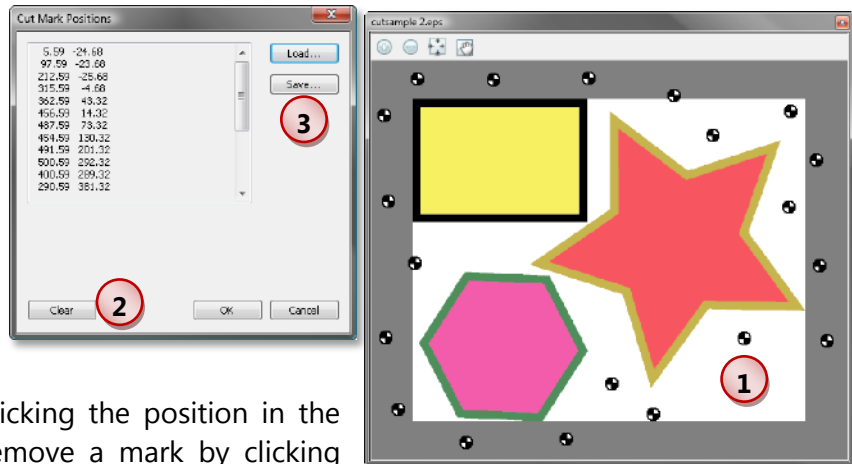
The **ErgoSoft RIP** just create the plot data. Then, the CutServer provided by the cutter manufacturer must fetch the file and send it to the cutter.



Eurosystems OptiSCOUT / Zuend Touch and Cut

Eurosystems OptiSCOUT and Zuend Touch and Cut cutters allow setting the cut marks manually. The **ErgoSoft RIP** offer this manual cut mark positioning as an option – in addition to automatic positioning of cut marks which is included in the basic cut option.

Manual cut mark positioning can be done for the selected image by selecting **Cut Mark Position** from the image context menu that is displayed when you click the right mouse button on the image.



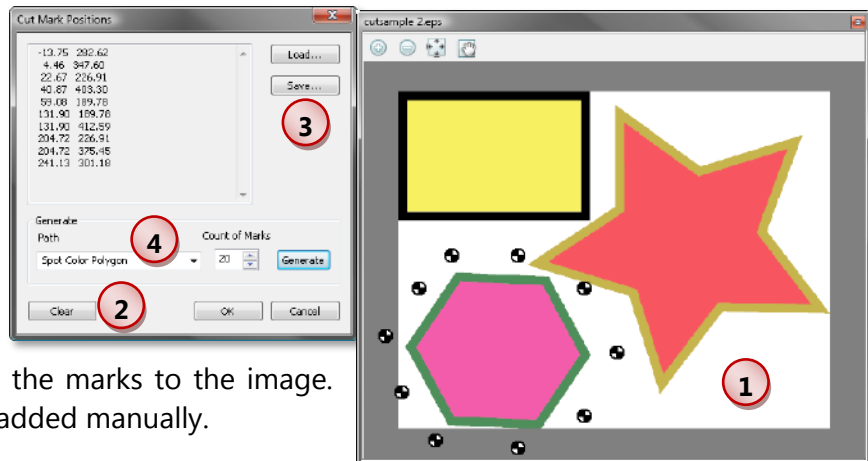
- 1 Set the marks by clicking the position in the preview window. Remove a mark by clicking on it in the preview window.
- 2 To remove all cut marks you can click the **Clear** button instead of removing each mark manually.
- 3 The complete list of marks can be saved and loaded for another image needing the same marks.

Please note that defining the marks manually for one image in a job will discard automatic mark creation during printing; you have to set the marks manually for all other images in the job, too.

MGE i-Cut

MGE i-Cut cutters allow setting the cut marks manually. The **ErgoSoft RIP** offer this manual cut mark positioning as an option – in addition to automatic positioning of cut marks which is included in the basic cut option. It offers all functions described for OptiSCOUT and Zuend Touch and Cut above.

4 The MGE i-Cut driver allows setting the marks automatically related to a cut path. Therefore you have to define the number of marks to be set and the path to be used. Then, click the **Generate** button to add the marks to the image. Additional marks can be added manually.



Cutting Stickers

Some cutters from Summa, Mutoh, and Mimaki offer the possibility to produce stickers very easily. They come with a cutting tool that does not cut the complete line but let some small parts non-cut so that the parts still stick together but can easily be separated.

Preparing the Image

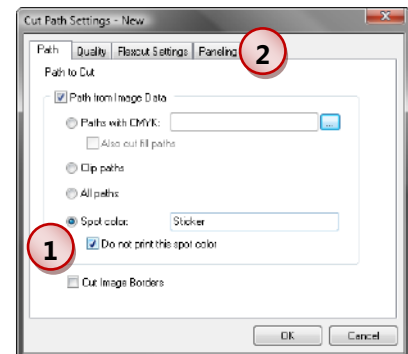
In order to cut the sticker itself as well as to perforate the sticker page you need to create 2 cut paths of different type: One for the sticker itself and the second where the perforation has to go. Since the **ErgoSoft RIP** offers the possibility to cut the image border, you might not need the second "perforation" cut path when you can use the image border instead.

As long as the sticker itself does not have a printed border you can use a cut path we recommend to create a **Spot Color** cut path around the sticker (in the following named **Sticker Cut Path** colored with spot color **Sticker**) that is not printed. For the "perforation" cut path we recommend to either create another **Spot Color** cut path using a different spot color (in the following named **Perforation Cut Path** colored with spot color **Perforation**) or to use the image border a automatically created cut path.

Configuring the Cut Paths

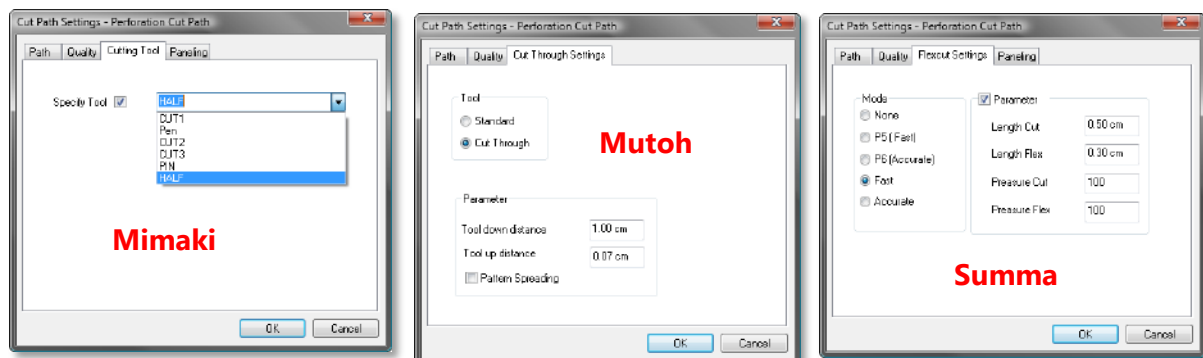
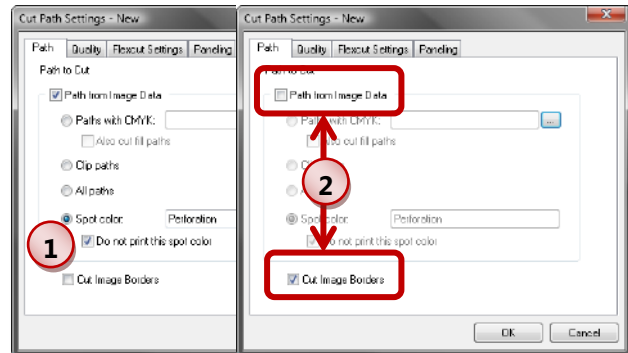
Sticker Cut Path

- 1 The **Spot Color** cut path is designed as usual. Take care that **Do not print the spot color** is checked when you do not want to print the border around the sticker itself.
- 2 Since stickers easily peel off when moving the media forward and backward during cutting, we strongly recommend activating the **paneling** for the sticker cut path. The other settings can be done as usual.



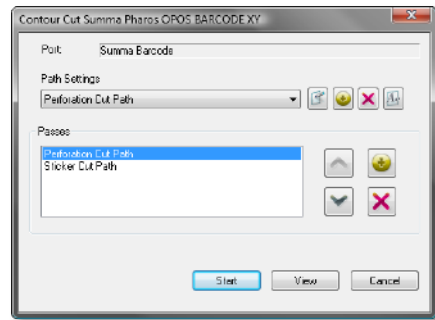
Perforation Cut Path

- 1 When the perforation cut path is designed in the image as a spot color path, the cut path must be configured as a spot color cut path as described above.
- 2 When you want to use the image border for the perforation cut path, make sure to uncheck **Path from Image Data** and to check **Cut Image Border** to just create a cut path from the image border information in the file (e.g. Bounding Box in EPS files).
- 3 The configuration of the special tool for creating the perforation depends on the used cutter type:



Cutting the Stickers

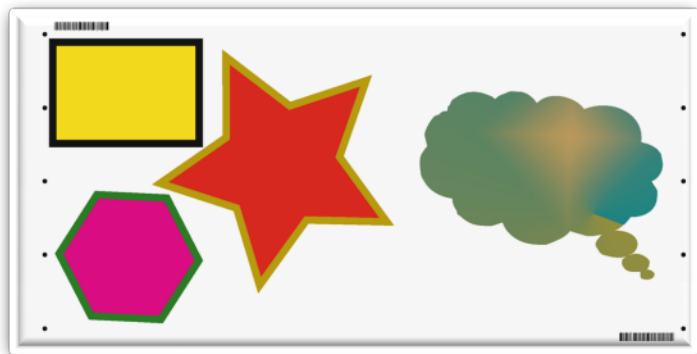
When cutting the stickers we recommend to first cut the perforation cut path and then the sticker cut path.



Special Automatic Cut Marks

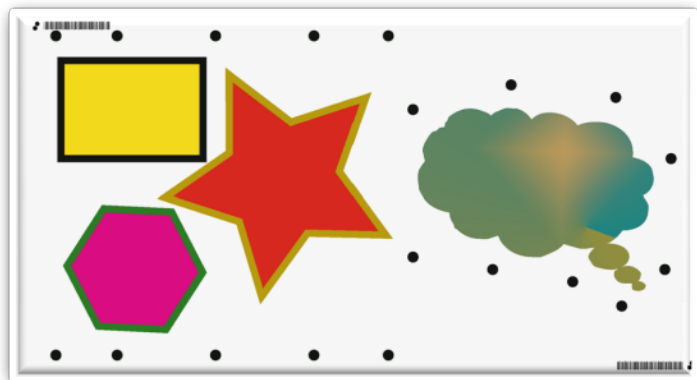
Eurosystems OptiSCOUT / Zuend Touch and Cut

The dimension of the barcode can be configured on the **Device Options** tab in the cut environment. The automatic cut marks are configured on the **Extended** tab.



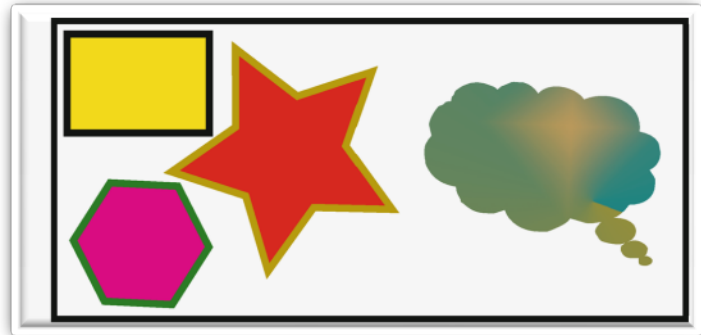
MGE i-Cut Barcode

The dimension of the barcode as well as the number of the automatic cut marks can be configured on the **Device Options** tab in the cut environment.



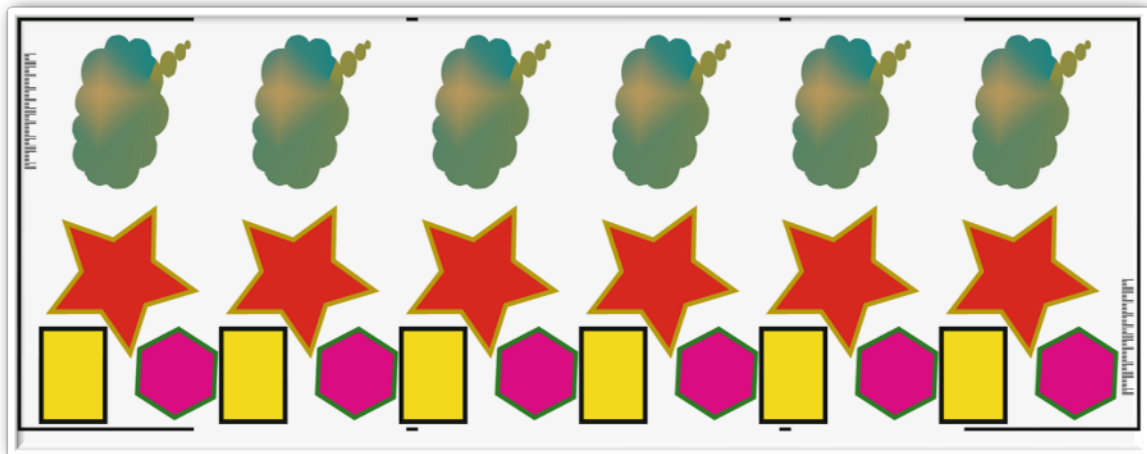
Mutoh AL3

There is no additional configuration to the standard cut mark configuration on the **Extended** tab in the cut environment available.



Mutoh Barcode AL5/MF

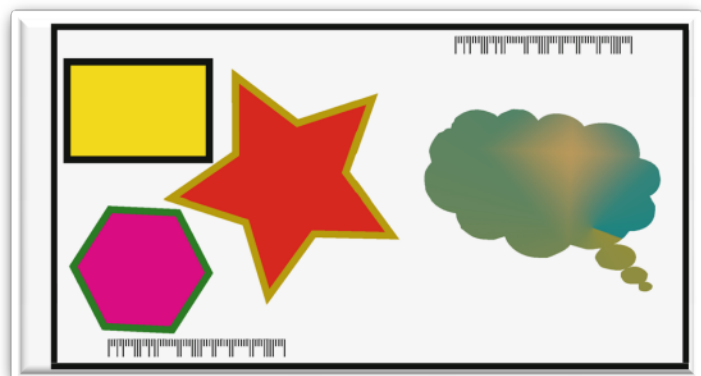
There is no additional configuration to the standard cut mark configuration on the **Extended** tab in the cut environment available.



Please note that the sample above is rotated by 90°.

Mutoh Barcode

There is no additional configuration to the standard cut mark configuration on the **Extended** tab in the cut environment available.



Summa OPOS XY

There is no additional configuration to the standard cut mark configuration on the **Extended** tab in the cut environment available.

The line at the top of the job is meant to help adjusting the cutting when the media is distorted after printing.



Summa OPOS Barcode / Summa OPOS Barcode XY

There is no additional configuration to the standard cut mark configuration on the **Extended** tab in the cut environment available.

The line at the top of the job is needed for finding the barcode. The "XY" driver will also use it as help to adjust the cutting when the media is distorted after printing.

