



# ControlCenter Resampler

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Bitmap resolution change and fan-out scaling

User Manual

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*ControlCenter Resampler User Guide*

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# 1 Introduction

CCresampler is a stand-alone hot-folder based high performance bitmap resample engine. CCresampler is capable of changing resolution and scaling 1-bit ripped bitmaps (TIFF).

The re-sampling engine uses moiré suppressing methods to kill artifacts usually generated by standard re-sampling (e.g. as in PhotoShop).

CCresampler also allows anamorphic scaling of existing bitmap (X/Y direction independently scaled). Combined with the color name detection, CCresampler can be used as a 'brute-force' fan-out compensator applying different scaling in one direction for each color.

Color name can be detected from the file name or from the *Imagedescription* TIFF tag (written by ControlCenter applications),

Because positions of visual bender marks are usually critical, CCresampler can keep areas unchanged when scaling for fan-out compensation.



*Example of configuration for normalizing resolution of incoming bitmaps. CCresampler is capable of changing resolution up or down.*



*Example of configuration for fan-out compensation using Ccresampler as anamorphic scaling engine*

CCresampler will auto-start its folder scans upon loading so that the application can be put in the Startup folder for automatic launch.

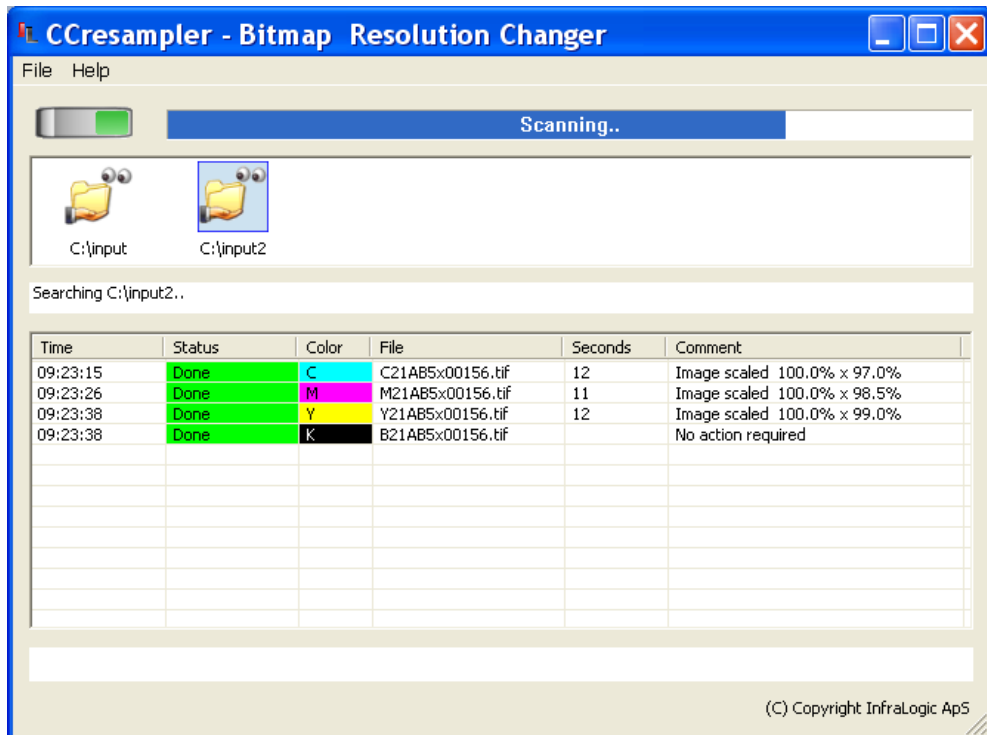
**IMPORTANT NOTE:** CCresampler utilizes the Pentium 4 SIMD2 (also called SSE2) instruction set. Older Pentiums (older than year 2001) may not have this instruction set.

If you are not sure which CPU the PC is running execute the CPUID.exe program from a command prompt. The output should state YES to the feature `_CPU_FEATURE_SSE2`

```
C:\WINDOWS\system32\cmd.exe
C:\Public\InputCenter_Enterprise\NOSIMD2>cpuid
v_name: GenuineIntel
model: Unknown
family: 6
model: 13
stepping: 8
feature: 00000007
_CPU_FEATURE_MMX yes
_CPU_FEATURE_SSE yes
_CPU_FEATURE_SSE2 yes
_CPU_FEATURE_3DNOW no
os_support: 00000007
_CPU_FEATURE_MMX yes
_CPU_FEATURE_SSE yes
_CPU_FEATURE_SSE2 yes
_CPU_FEATURE_3DNOW no
checks: 0000000f
C:\Public\InputCenter_Enterprise\NOSIMD2>_
```

## 2 Operation

CCResampler is extremely simple to operate. Simply launch the program and flip the start-button. CCResampler will scan enabled folders in a round-robin fashion. To exclude a folder from search click the folder when the folder scan is stopped. A red stop sign will be shown



*Ccresampler main interface shows progress of file processing*

on the disabled folder(s).

### Performance notes

High quality bitmap scaling is a very demanding process. On a high performance PC expect a standard broadsheet plate file to resample is 20-30 sec. Performance is mainly dependent on memory speed and CPU speed. For highest throughput, choose the fastest memory bus available and choose latest CPU model (memory bus speed is the most important criteria).

## 3 Configuration

CCresampler is easily installed using the install program CCresamplerSetup.exe found on the installation CD.

### Folder configuration

The configuration dialogs are accessed via **the File->Configuration..** menu

The Folder configuration dialog lists the currently defined folders in the list at the top. The current version of CCresampler allows 20 queues (hot-folders) to be defined.

To change a current setup, highlight it in the list and press the **Edit..** button (it will change to

On	Inputfolder	Outputfolder	Fanout
Yes	C:\input	C:\output	Yes

Enable  
 Input folder: C:\input  
 Output folder: C:\output  
 Move original file to archive folder  
 Archive folder:

Keep resolution  
 Output Resolution X: 1270, Resolution Y: 1270

Enable color specific scaling

Cyan	Scaling X	99.902	Scaling Y	100
Magenta	Scaling X	99.937	Scaling Y	100
Yellow	Scaling X	99.987	Scaling Y	100
Black	Scaling X	100	Scaling Y	100

Keep total image size (may be cropped)  
 Do not scale plate margins (Margins in mm)

Top margin	0	Bottom margin	0
Left margin	0	Right margin	0

Color detection: Detect color name in incoming filename  
 File name def: %?-?%C Define colorname in filename. Example:%?-?-%C.tif Use '%C' for color, '%?' for don't care

Use regular expression  
 Match expression: ([a-zA-Z0-9]+)[.][a-zA-Z].\*  
 Format expression: \$1-\$2

Merge background file after processing  
 Merge file:

*CCresampler (in setup Edit mode) is configured to do re-sampling and/or image scaling. In this example color specific scaling is performed in the x-direction.*

**Apply** when in edit-mode). To confirm changes press the Apply button.  
To add a new setup press the **New..** button and confirm with **Apply**.

Note that no data is saved until the **OK** button is pressed. Any changes will be most if the **Cancel** button is clicked.

Click the **Enable** checkbox to use a specific hot-folder and enter input folder and output folder name.

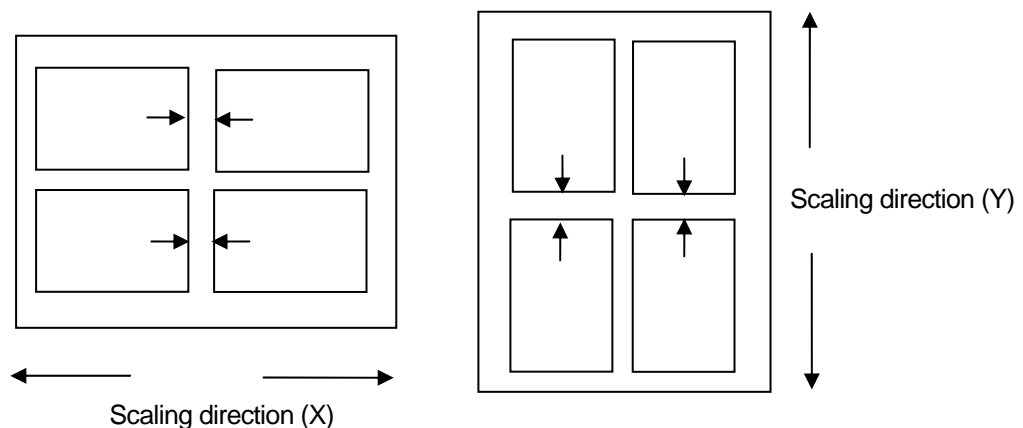
Check the archiving option if required. Note that files are deleted from the input folder.

### Scaling parameters

In case of fan-out scaling enable the Color Specific scaling option and enter the scaling values. Take care to enter the scaling in the right direction. Usually if scaling is applied on a panorama plate file in 'landscape mode', the scaling must be in the X-direction. If the plate file comes in rotated with respect to the orientation on the press, apply the scaling in the Y-direction (see illustration)

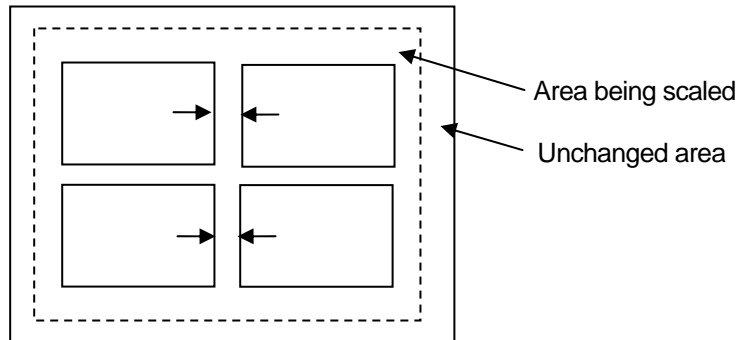
In order to ensure file size (pixels in X and Y direction) is maintained through the scaling process, enable the **Keep total image size** option. The resulting file will always have same dimensions as the incoming file. Any image area exceeding this size due to up-scaling will be cropped (centred crop). For downscaling additional margin will be applied (while centring the scaling image).

Usually one color is a 'reference-color' not needing scaling. (x=100% y=100%) This will lift the overall performance because this color will just be passed through CCresampler unchanged.



*Typical scaling direction depends on the orientation of the incoming file. Files sent to portrait imaging device must usually be scaling in the Y-direction to obtain fan-out compensation.*

Check the option **Do not scale plate margins** to avoid scaling of plate marks in the edges e.g. visual bending target marks and barcodes. This ensures registration between colors through the plate bending phase.



*Ccresampler can keep plate marks unaffected of the scaling operation by specifying 'margins' to ignore.*

Note that Ccresampler may modify the margin settings internally to center the scaled image on the plate.

### **Getting scaling parameters from ControlCenter**

CCResampler can be given scaling parameters from ControlCenter so that fan-out can be set on a per-tower basis.

**Configure press tower names**

Press

Tower	FanoutC	FanoutM	FanoutY	FanoutK	FanoutS
Twr1	101.120,100.000	100.760,100.000	100.540,100.000	100.000,100.000	100.000,100.0
Twr2	101.330,100.000	100.810,100.000	100.440,100.000	100.000,100.000	100.000,100.0
Twr3	102.020,100.000	101.760,100.000	101.020,100.000	100.000,100.000	100.000,100.0

Tower name:

**Fanout settings for tower**

Cyan image scaling w:  h:

Magenta image scaling w:  h:

Yellow image scaling w:  h:

Black image scaling w:  h:

Spot color image scaling w:  h:

**Offset settings for tower**

Cyan imaging offset x:  y:

Magenta imaging offset x:  y:

Yellow imaging offset x:  y:

Black imaging offset x:  y:

Spot color imaging offset x:  y:

**Direct litho (mirrored colors)**

Flip cyan image  
 Flip magenta image  
 Flip yellow image  
 Flip black image  
 Flip spot color image

**Optional information for post processing control**

Optional information C:

Optional information M:

Optional information Y:

Optional information K:

Optional information S:

Scaling values are sent from OutputCenter (in TIFF tag), allowing fan-out values to be set linked to press towers. The scaling values are configured in the **Press Definition** dialog in ControlCenter

## Color detection

Color name is required for color specific scaling (e.g. for fan-out compensation). The name of the color can be detected in three ways:

- The actual scaling values can be extracted from a TIFF tag written by the OutputCenter application. This is the recommended way for ControlCenter integration. Scaling values are set in OutputCenter press definitions on a per-tower basis.
- Colors are put in individual subfolders under the input folder. Subfolders must be named \C, \M, \Y, \K (example: c:\Input\C for cyan files)
- Color can be extracted from the file name as a C,M,Y or K letter. To detect color from the file name, use a %C in the file name definition. See hint notes in the user interface.

Example: %?-%?-%C-%?.%? will match input file name SomeName-5-C-1.TIF (Cyan color)

In order to detect the color ID in more complicated cases an internal *regular expression* can be applied on the incoming filename. This can transform the name internally so a naming convention (described above) will match. Note that the file itself is not renamed – only the internal reference. For information about regular expressions see Appendix A of the ControlCenter User's Manual.

- Colors can be detected as a C,M,Y or K letter in the ImageDescription TIFF tag (tag number 270). Many RIPs and other TIFF generators use this tag for color information.
- Scaling can be detected in the TIFF tag (tag number 270). If ControlCenter OutputCenter has generated the file, this mode is default for the resampler.
- Scaling can be detected in INF job description files send along with the TIF file. The INF file is a small text file generated by Esko-Graphics FlowDrive RIPs, EskoNet and some Agfa Arkitex/NewsDrive systems.

### Merging with a background file

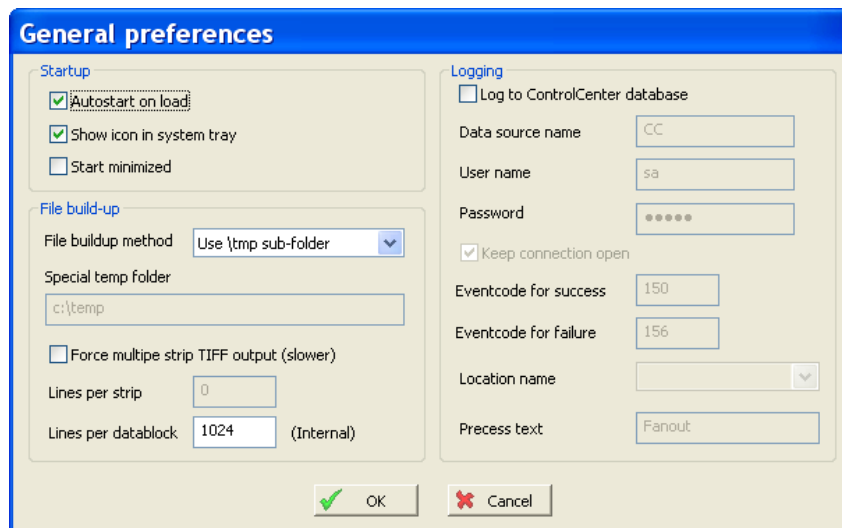
After scaling has been performed, CCRresampler can merge in a background layer on the resulting bitmap image. The background file may hold plate register marks and other static information. For background file must be a 1-bit TIFF file (all baseline specification compressions are supported)

### General preferences

A number of general settings can be adjusted in **File->Preferences..**

It is advisable to set the option 'AutoStart on load'. Placing CCresampler in the Windows Startup folder will then enable automatic start upon machine restarts.

The final TIFF file is created step-wise which may cause problems for the target system if created directly in the output folder. The default behaviour for CCresampler is to build up the file in a temporary folder (\tmp) as a sub-folder to the target folder.



### Logging

CCresampler is prepared to report activity to the ControlCenter system so that errors can be observed from the centralized MonitorCenter application.

Key in the ODBC parameters (make sure one is present for the machine running CCresampler) and eventcodes to be reported to the ControlCenter database.