

# RIP Software for Solvent & UV



## Caldera RIP Software



Caldera booth, at FESPA, Amsterdam 2010.

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Your only assurance that you have a complete and authentic evaluation which describes all aspects of the product under consideration, benefits as well as deficiencies, is to obtain these reports directly from FLAAR, via [www.wide-format-printers.NET](http://www.wide-format-printers.NET)

## Contents

Who and What is the RIP company?	4
RIP and its versions	6
Platforms	6
File Types	6
Supported Interfaces	7
Printer Support	7
Printer Support	7
RIP Imaging Effects	10
RIP Color Management Options	11
RIPing and Print Features	11
RIP Documentation	16
Technical Support	18
Ease of Use	19
Evaluation of Advertising Claims	19
End User Questions	19
Is Workflow Software also offered by same company?	21
Supported Contour Cutters?	21
General Observations on RIPs	21
Comments on PostScript	21
Ink Usage	21
RIPs for Speed, Proofing, and Photo-Realistic Quality	23
RIPs for Speed	23
RIPs for Proofing	23
RIPs for Photo-Realistic Quality	23
Closing Notes	23



Caldera booth, at ISA Orlando 2010.

## Introduction

Raster Image Processor (RIP) software is the brains which brings out all the capabilities of your wide format inkjet printer. More than 70 different RIP software products have been offered to the public in the last ten years. How in the world is a normal person supposed to figure out which RIP software is best for their needs? Actually, it is a challenge for a first-time user to fully understand what a RIP is anyway, much less why they should even consider using one. In order to assist the general public, FLAAR has taken on a leadership role of assisting individuals and companies in the decision process of deciding what RIP, raster image processor, to purchase.

FLAAR stepped in to assist because not only are there no industry standards for judging the technology or capabilities of RIPs, there are also no industry wide standards for documenting fairness and truth in advertising of RIPs. It would seem that the industry itself might welcome a more realistic manner of evaluating RIPs than accolade by PR, but that has not been the case.

The interest of FLAAR is to assist consumers in selecting the appropriate printer, RIP, media, and ink, which implies public education for both the buyer and the RIP manufacturer. FLAAR is equally interested in helping manufacturers develop improve beta products, as we are interested in assisting people who are in the middle of their decision making process.

FLAAR is deluged with tragic stories of people who have bought the wrong equipment, either due to consumer neglect or lack of training and experience. Buying the inappropriate brand or model is usually a result of a consumer neglecting to do adequate homework, coupled with the innocent belief in the alluring and sometimes exaggerated ads. On the other hand, it may be that the RIP works fine and that the fault may be the lack of training, understanding, and experience of the end user. Hence the public education programs provided by FLAAR, most notably our popular "FLAAR Reports," can serve to assist both the buyer, so they will know what to buy, and can help the seller, since now they have a contented customer.

Due to the fact that there are dozens of RIPs on the market and new versions appearing every season, we have not previously had sufficient funding to handle formal establishment of standards and even less funds to launch an exhaustive analysis of every RIP. We have used a combination of common sense and our experience to establish standards for testing, evaluation, and review of RIPs.

For the last several years FLAAR reviews have been based upon:

- Evaluations undertaken by FLAAR staff in our facilities at Bowling Green State University, Ohio, and Francisco Marroquin University.



- Review of RIPs at leading trade shows in Germany, England, and the USA.
- E-mails received from end users. We have received over fifty thousand e-mails from end users ranging from questions to end-user evaluations. Some of these end-user reports discuss every detail of what the equipment does well, as well as glitches. This means we have end-user reports from photographers, architects, quick print shops, sign shops, pre-press, in-house corporate reprographic facilities, and fine art studios.
- Public and private surveys of end-users. These surveys are distributed to learn what features users like and dislike about specific items of consumables.
- Correspondence in Europe and Asia, in addition to the USA, to obtain worldwide information. We attend leading industry conferences and interview both sides of the spectrum to learn about which products are the best.

Few end-users have the resources the size of that working to research the necessary information, thus end-users should conclude that it makes sense to peruse FLAAR reports before making the decision of which RIP to purchase.

Our logic in setting standards is dedicated to having a consumer be able to utilize the product to achieve stated goals. Thus our list of applicable standards has its foundations in questions that a typical end-user should ask before buying a RIP, while at the same time being realistic about the limitations of technology and price. Standards should be independent of the manufacturer, visible, neutral, and fair to both the end user and the manufacturer. Ease of use, RIP evaluation documentation, and evaluation of advertising claims is to some degree deliberately subjective and largely depends on experience level of the RIP operator and what the end needs of the work environment are. Just realize that each RIP has many good features but also a few issues.

This report in the FLAAR series on RIP evaluation standards is an extension of our consumer-oriented publication, Questions to Ask Before you Buy your next Wide Format Printer, RIP, or Ink, which is considered an introduction to our "Survival Series." This report consists of questions to ask yourself, ask of the advertising claims, ask of the sales rep, and ask other end users before you buy a RIP.



*Printing sample of a FLAAR photography, rasterized with CALDERA RIP.*



Caldera staff member, explaining the RIP applications to a customer.



Caldera booth, at ISA 2010



Caldera booth, at FESPA Digital, Amsterdam 2009.



## **Questions to Ask When Buying a RIP**

### **Who and What is the RIP company?**

I once visited a RIP company that had been in business for many years. Their office rooms were empty; room after room. Empty. They had only two or three employees remaining.

A year before they probably had a dozen employees.

Do you want to buy a RIP from this company and expect to receive tech support? (Actually this RIP company went out of business a few months later).

I have visited Caldera world headquarters outside Strasbourg and Wasatch world headquarters in Salt Lake City. Each is approximately the same size physical space and roughly a comparable number of employees. Each is growing.

So common sense is helpful when deciding on which RIP is one you should consider. FLAAR has also developed the following questions to help you judge a RIP company. It does not make as much difference whether they have 5 employees or 50 employees. What counts is whether they are shrinking or growing.

#### **1. What is nature of the RIP company? Where is their office?**

Caldera owns their own building of adequate and actually considerable size in an industrial park area outside Strasbourg, France.

#### **2. How many employees at main location?**

About 24 employees at this main location.

#### **3. Is the company growing, shrinking, or relatively constant?**

Caldera is growing; not shrinking. Seven years ago there were about 70 RIP companies; probably half are now either no longer in existence, or barely surviving. There are perhaps four or five proofing RIPs (GMG, Perfect Proof, etc) and perhaps four or five world-class signage printing RIPs (Onyx, Wasatch, Caldera, Ergo Soft, etc). So I, and most people in the industry, recognize Caldera as having reached in the last several years definitely the Top 10 in the wide-format inkjet printing industry.

#### **4. Was there a significant number of employees let go within the last three years? Have a comparable number been rehired recently to replace them?**

Caldera has had no melt-down; no lay-off, no comparable issues that I am aware of.

Many other RIP companies have had massive lay-offs in recent years. EFI seems to need to lay off some people every time the stock market situation needs adjustment for their listing. I know one other RIP company that had perhaps a dozen employees seven years ago and I believe they are down to one or two employees. Another larger RIP company had a booth at major trade shows every year in the years 2001-2005; now, since 2007, they have not had a booth any more and they lost (already two or three years ago) most of their managers and personnel. This is unfortunate (because both were hard working owners and managers) but this is evolution: the strong survive (and grow) and the others become smaller.

Caldera, Wasatch, ErgoSoft and Onyx seem to be the main RIP companies that are stable (in the sense of not having significant downsizing in the last five years).

#### **5. How much work is done off-shore? Where? By whom?**

Several RIP companies have their code written off-shore, often in Asia. I would estimate that Caldera writes most of their own code in France, but I will check on this.



*Caldera RIP software.*

**6. Is there a US office? Who is there? What is this person's background?**

The US office of Caldera is in Minneapolis, in part because the support person is a former ColorSpan person from Holland. He is the representative resident in the US for Caldera.

**7. What are hours of Tech Support in Europe?**

For EMEA (Europe, the Middle East and Africa):

Monday - Friday  
 9:00 a.m. - 12.45 p.m.  
 2:00 p.m. - 6:00 p.m.  
 (Central Europe Time)

**8. What are hours of Tech Support for US, Canada, and Latin America?**

For USA :

Monday - Friday  
 9:00 a.m. - 12.45 p.m.  
 2:00 p.m. - 6:00 p.m.  
 (USA Central Time)



*Dr. Nicholas Hellmuth, at Caldera booth. SGIA '09.*



## RIP and its versions

### 9. What is the name of the main RIP? How many other RIP projects are offered?

The RIP that was evaluated was Caldera VisualRip+. Caldera has various levels of RIP such as

- CopyRip
- VisualRip
- VisualRip+
- GrandRip+

## Platforms

### 10. What platform(s) is the RIP software available in?

Caldera works on Mac OSX and on Linux. But not any Linux; you need to obtain the specific brand of Linux that your version of Caldera is written for.

Using Linux has many advantages, so you should not be upset just because you are a dedicated Mac or PC user and have never experienced Linux before. Millions of people use Linux and you will learn the basics quickly.

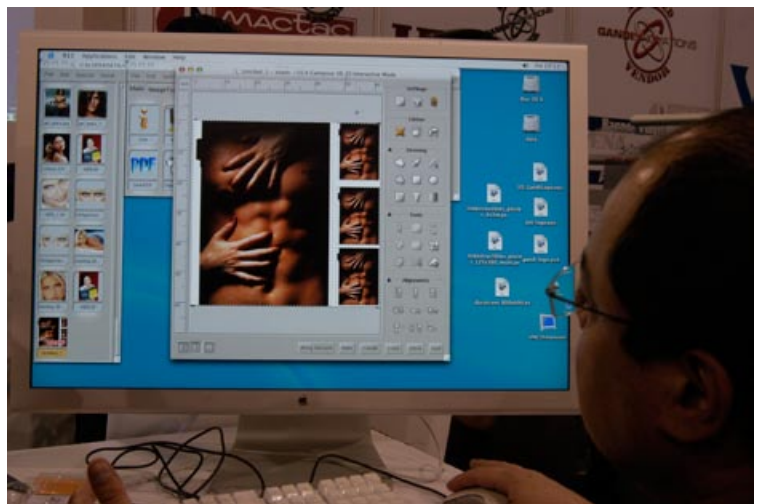
### 11. What platforms can the RIP interface with?

The Caldera Graphics solutions runs under Mac OS X Panther/Tiger/Leopard, Linux Kubuntu 7.04 and Unix.

## File Types

### 12. What file types does the RIP support?

TIFF	TGA	SOFTIMAGE	PHOTOSHOP
JPEG	RnM	ALIAS	GEOIMAGE
GIF	XWD	EPS	SCITEX
GALIRAY	PCX	BMP	POSTSCRIPT
SUN	PERICOLOR	PNG	PDF
SILYCON	POT	REPRINT	HPGL



Caldera's RIP can support almost any file type.



**Supported Interfaces**

**13. What interfaces are supported by the RIP?**

Parallel	Serial
Eathernet	TCP/IP
ECP	USB
FIREWIRE	TWAIN
Remote acces via internet	
Other	

**Printer Suport**

**14. Can the RIP run additional printers? How many printers is the RIP capable of running?**

The Caldera special applications is to have a network of work stations not only for one printer, because one computer is too slow for ripping four jobs at the same time; the concept is that you have one master server and have different client computers which are driving other machines.

**15. Are additional printers an extra cost or are they included in the initial cost of the RIP?**

When you have a lot of printers handled with the RIP, you just have to pay for only one licence and then when you have another work station you just have to buy the visual user instead of paying for another licence.

**Printer Suport**

**16. Are zoom capabilities available?**

Yes, the software has zoom tools and menus that allow the user zooming in or zooming out.

**17. Is the output freely definable in terms of height, width, and scaling?**

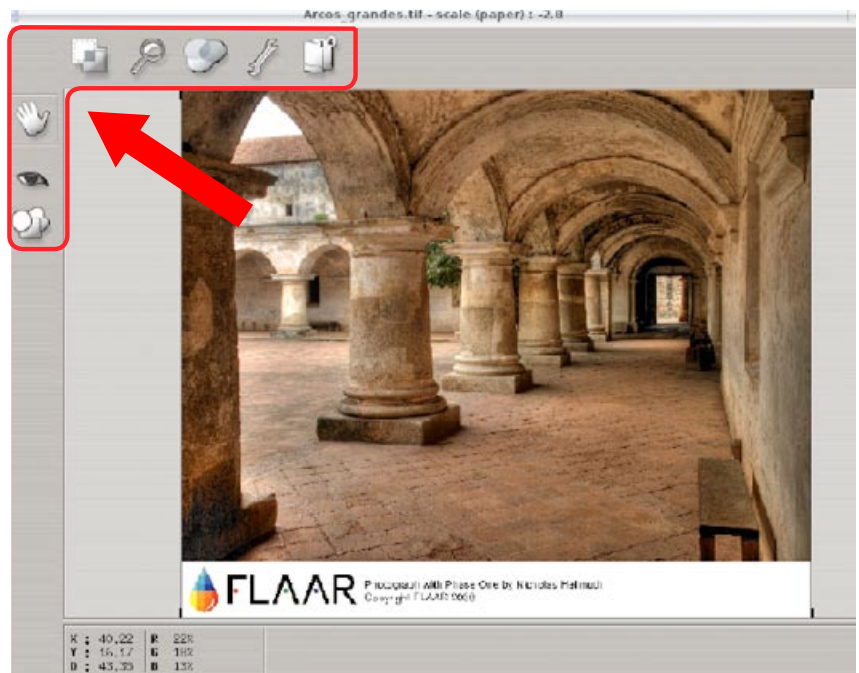
There is an option in the Geometry module, in which you can resize the image height and width, even it is possible to change the resolution of an image without changing its real size in pixels, or its paper size.

**18. Does the RIP function with file drag and drop capabilities?**

If you want to open an existing image of your library, save an image, get some info about it, or simply delete the file, you can click on it, use the menus bars or just drag and drop the image in the file manager icon.

**19. Does the RIP have a crop tool? If so, what are the options?**

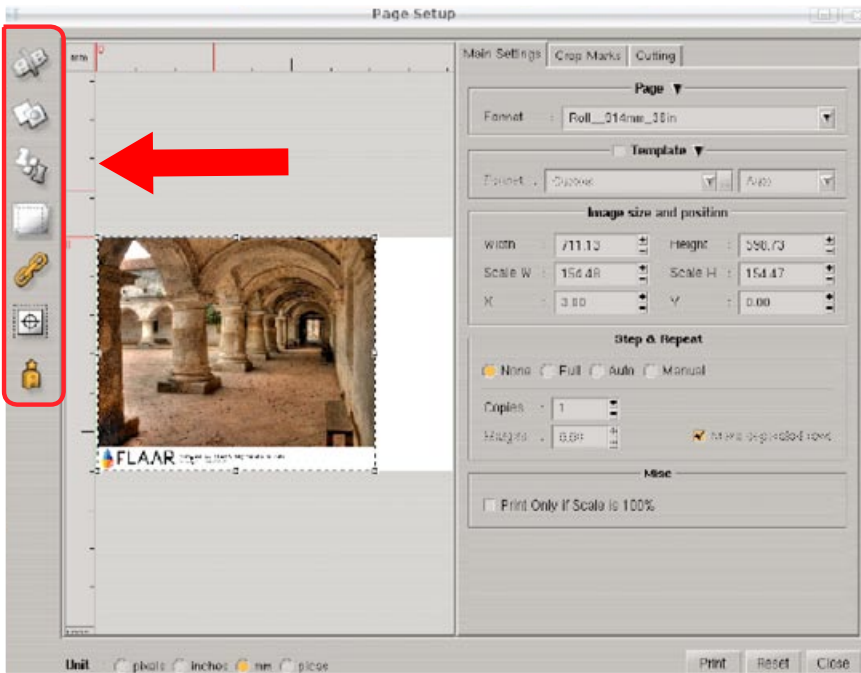
The Auto Crop option at the filemanager adjusts the image size to its real contents, also when you are working; also in the compose module, there is the Image template tool that allows to create templates in which you can drop an image. It can be cropped or resized.



The software has a lot of tools that will help you in the RIP process.

**20. Does the RIP have the ability to output with crop and registration marks?**

You can set crop marks for your printing; the Standard, Frame, Corner, Tombo and Targets around the image.



**21. Does the RIP have mirroring options?**

In the copyshop option there is a tool that when this mode is activated, the image is printed with symmetry around a vertical axis, as if it was its reflection in a mirror.

**22. Does the RIP have the ability to rotate in 90-degree steps?**

There is an option in which you can rotate the image angle via direct text field, use the slider or the adjustment buttons. This rotation is expressed in degrees, and ranges from -360 to +360°.

**23. Does the RIP have an auto-rotate feature for efficient use of paper?**

There is an option named Autonest, that rotates the images by 90°, is used to contribute to optimizing the placing on the media.

**24. Does the RIP have the ability to rotate any file type?**

Yes, you can rotate any file type.

**25. Does the RIP have nesting features?**

Yes, there is an option named Nest-o-Matik, that is used to automatically place the documents sent to the printer, so that the less media possible is used.

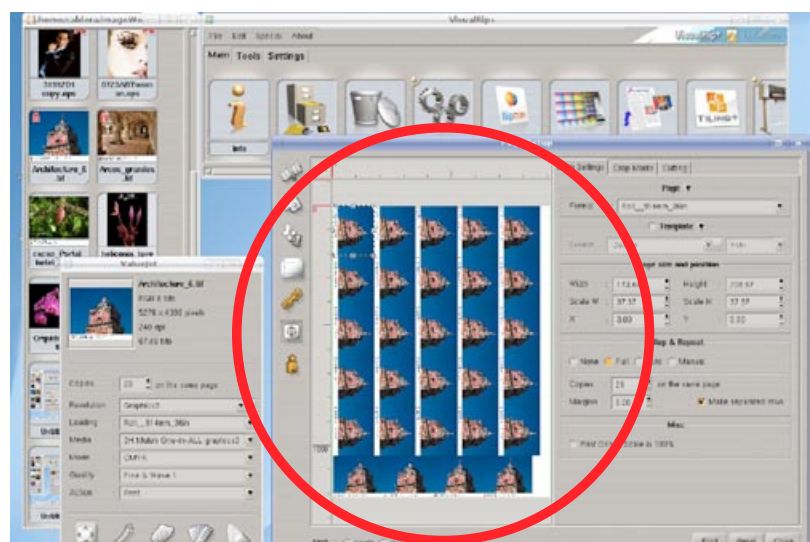
**26. Does the RIP have the ability to auto-nesting? If so, what are the auto-nesting features available?**

The Nest-o-Matik has three nest options:

- Disable Nest-O-Matik: Deactivates the automatic nesting on this server.
- Enable Nest-O-Matik: Activates the automatic nesting. If they wish to do so, the users can send jobs in auto-nesting, as well as regular print jobs. This function is selected by default.
- Force Nest-O-Matik: This forces the use of the automatic nesting. All jobs received by the server are then processed by Nest-O-Matik.

**27. Can the RIP perform nesting of various sized files across the full width of the media?**

Yes, the RIP nesting can reorganize files of different sizes across the full width to optimize the media.



There is an option named Nest-o-Matik, that is used to automatically place the documents sent to the printer, so that the less media possible is used.



**28. Can the RIP create custom borders?**

When you are going to print, you can use the Borderless option, that allows you to print without borders.

**29. Does the RIP have the ability to tile images? If so, what are the options?**

At the top menu you can find a tiling option that allows to create tiling jobs. The Rip has two tiling options, you can create the poster by defining its size or create the poster by choosing its number of tiles.

**30. Does the RIP have auto-tiling features?**

Yes, you just have to choose between defining the tile size or creating the poster by choosing its number of tiles.

**31. Are there variable or irregular tiling sizes for a single large image?**

You can set various personal dimensions for tiles or In function of dimension of the document when creating the poster tiles.

**32. Can you make changes in tiling without re-ripping the file?**

Yes, you are able to modify the size of the tiles in the tile editor window.

**33. Does the RIP have tile overlap option? It is manual or automatic?**

At the tiling setup you can modify the overlapping size, according to the way you will paste your tiles.

**34. Does the RIP have a grid option with snap point alignment capabilities?**

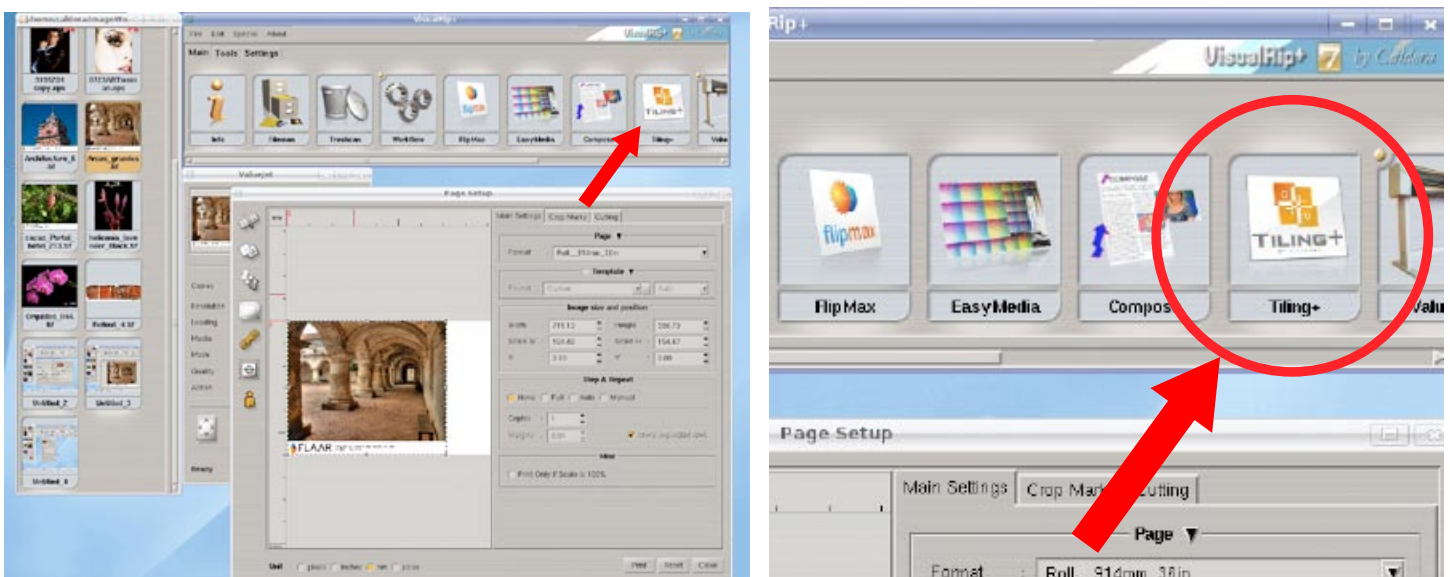
Click in the Tiling window with the right mouse button, You will then be able to access the Display Grid option that displays the grids or the Magnet Grid option, that snap the object to the grid.

**35. Does the RIP have measurement tools? If so, is there an option to change the units?**

The software allows you to choose whether the units should be expressed in inches, millimeters or pixels.

**36. Does the RIP have the ability to perform font substitution? Can the RIP be set to substitute certain fonts with others or does the substitution have to be done manually?**

No, you have to make the font substitution manually.



The Rip has two tiling options, you can create the poster by defining its size or create the poster by choosing its number of tiles.

## RIP Imaging Effects

### 37. Does the RIP have brightness and contrast controls?

The ColorEdit module, you can apply color corrections to your images.

### 38. Does the RIP have hue control?

At the ColorEdit menu you find the Replace Hue option , that allows to modify the hue of your image in a relative or absolute way.

### 39. Does the RIP have mixing or color change capabilities?

At the ColorEdit main window is Replace Color option, that allows you to set the source color you wish to change. You can do this directly in the wheel or in the processed image.

### 40. Does the RIP have the ability to add digital noise?

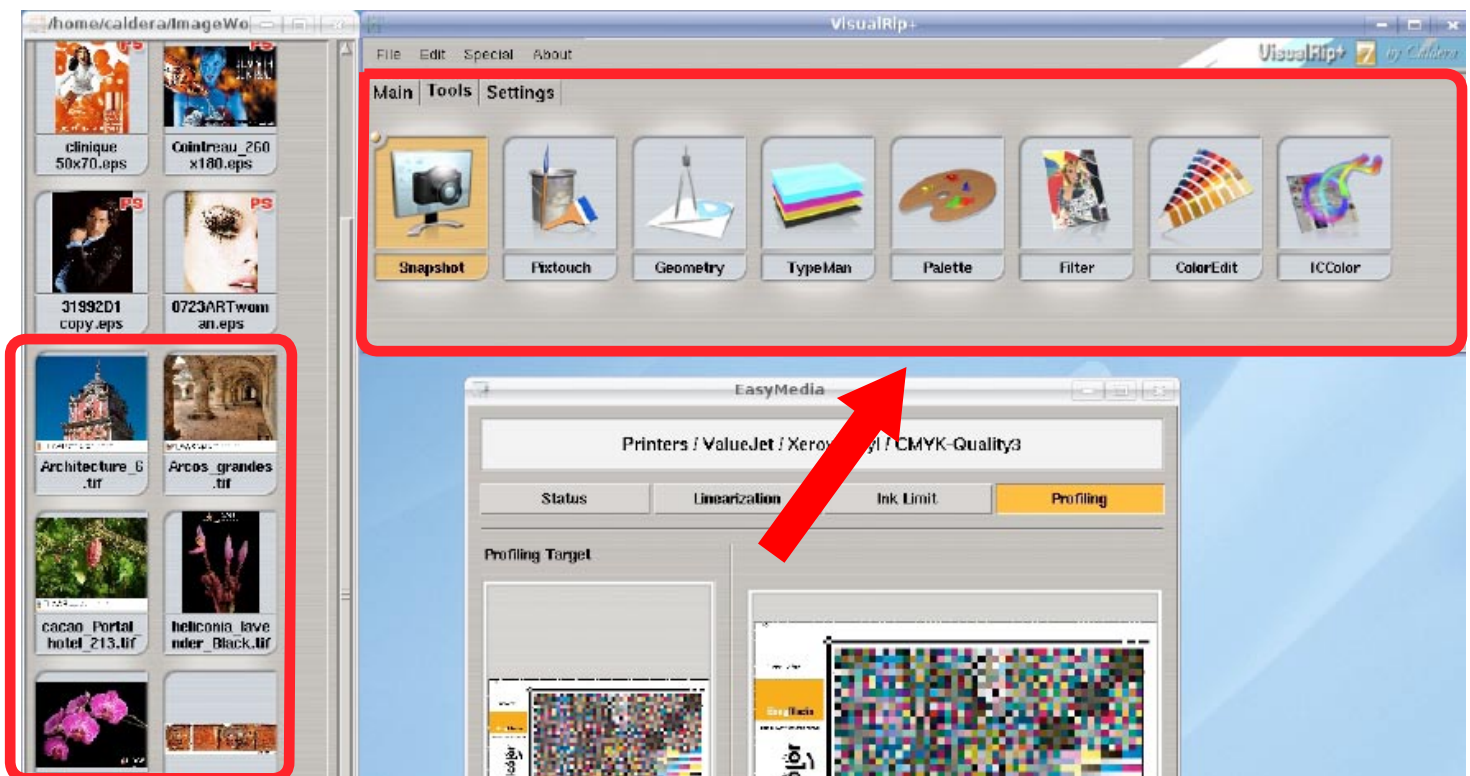
At the ReproShop suite of Caldera Graphics included in the Rip Software, you find the SeisTans application. At the image tab menu there is a smoothing option, that applies smoothing to the image with the aim of reducing noise. The effect of the different values are:

- VisualUser Null (no smoothing)
- VisualUser Low (only isolated pixels are smoothed out)
- VisualUser Medium (the pixels surrounded by a majority of pixels of an opposite colour are smoothed out; smooth standard rayon 1)
- VisualUser High (the same as above, but using 25 adjacent record count, with a smooth standard rayon of 2)

### 41. Does the RIP have average filtering?

The software have a filter module that gives access to numerous filters and convolutions.

Some of them are used to enhance the image quality, others are used to create special effects. You can apply a filter on all the planes or only on a specific one.



Images from FLAAR photo archive used during evaluation.

At the tool main window menu, you can find some options, that allows you make some changes and effects to the RIP file.





## RIP Color Management Options

### **42. What basic color management options are associated with the RIP?**

There are Three options:

- Color Man.: The kind of color management you want to use. The most common management is the one that uses ICC profiles. The other options are like RGB, like CMYK, or None.
- Profile: The ICC profile that is to be applied to the image. Click More to locate a profile.
- Rendering: These are the available rendering options (Perceptual, Colorimetric, Saturation, Absolute...).

### **43. Does the RIP package include canned ICC color profiles?**

The ICC color calibration high-end tool that allows you to perform various kinds of operations that cannot be done automatically.

### **44. Does the RIP have the ability to make black from CMY?**

The software gives the option to handle the black color as Pure (black color will be printed in K black) or Composite (black color will be printed with CMY inks).

### **45. Can the RIP make black from K only?**

The software gives the option to handle the black color as Pure; black color will be printed in K black.

### **46. Does the user have the option to select which kind of black to print?**

The software gives the option of handle the black color as Pure or Composite.

### **47. Does the RIP have the ability to print any combination of C, M, Y, K?**

Yes, you can make any C, M, Y, K combination.

### **48. Does the RIP have the ability to complete spot color simulation?**

The Caldera Graphics software can process spot colors embedded in PostScript and EPS files.

## RIPing and Print Features

### **49. What job accounting features does the RIP have in terms of RIP and print queues?**

Print Spooler option opens the module managing the printing queues.

### **50. What options are available for checking status of job(s) in both the RIP and print queues?**

When you open the WorkFlow Reports window, in the Applications menu. This window allows you to check the status of the running jobs, and even to stop them and to consult the error or success messages of every finished job.

### **51. What information is contained within the RIP and print queues?**

You can get information about:

- Which printer is working/destination
- After Print (hold job, delet, etc)
- Input File,
- Type ( reprinting, raster, composite etc)
- Job size
- Owner
- Sent from (which computer of the work flow)
- How long has been working
- How many copies of the file
- If the work is complete
- Progress/status
- Work that have been made
- If the print job after prints should go to a cutter and which cutter



Caldera booth at ISA, Las Vegas 2009.



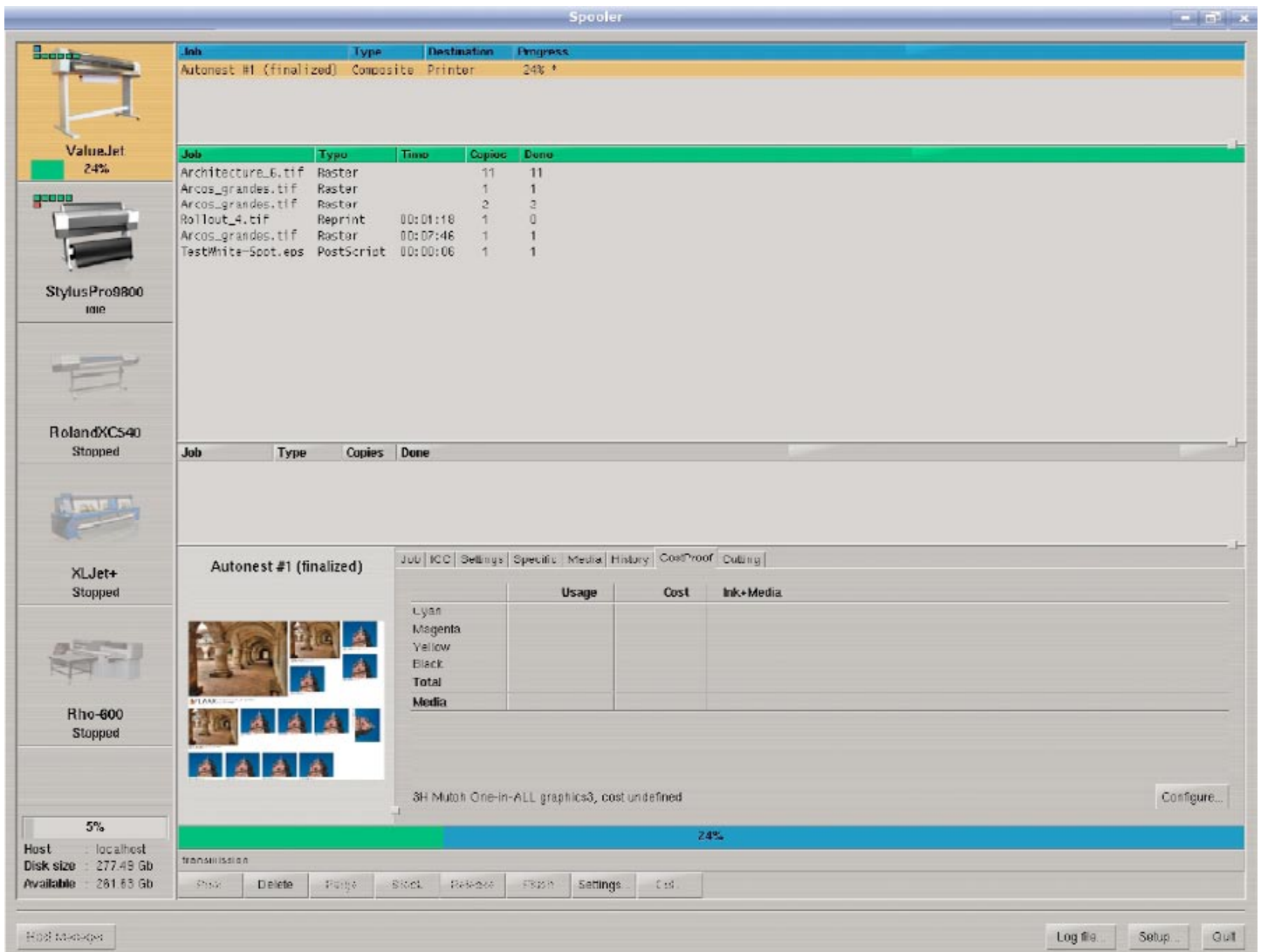
- ICC profile
- Settings
- Specific
- Media
- History
- CostProof
- Cutting

**52. Does the RIP user have the option to control print order in the print queue?**

Yes, the WorkFlow Reports, in the Applications menu allows you to check the status of the running jobs, and even to stop them and control the printer order.

**53. Does the RIP have the ability to RIP once output many times (ROOM)?**

When you are printing there is couple of options: the Print & Compute Reprint: The job is printed once; after this, the computed data is kept, so that it can be printed again quickly as many times as needed. And the Compute Reprint then Print: The job is entirely prepared for the printing, then printed. The computed data is kept for further reprints.



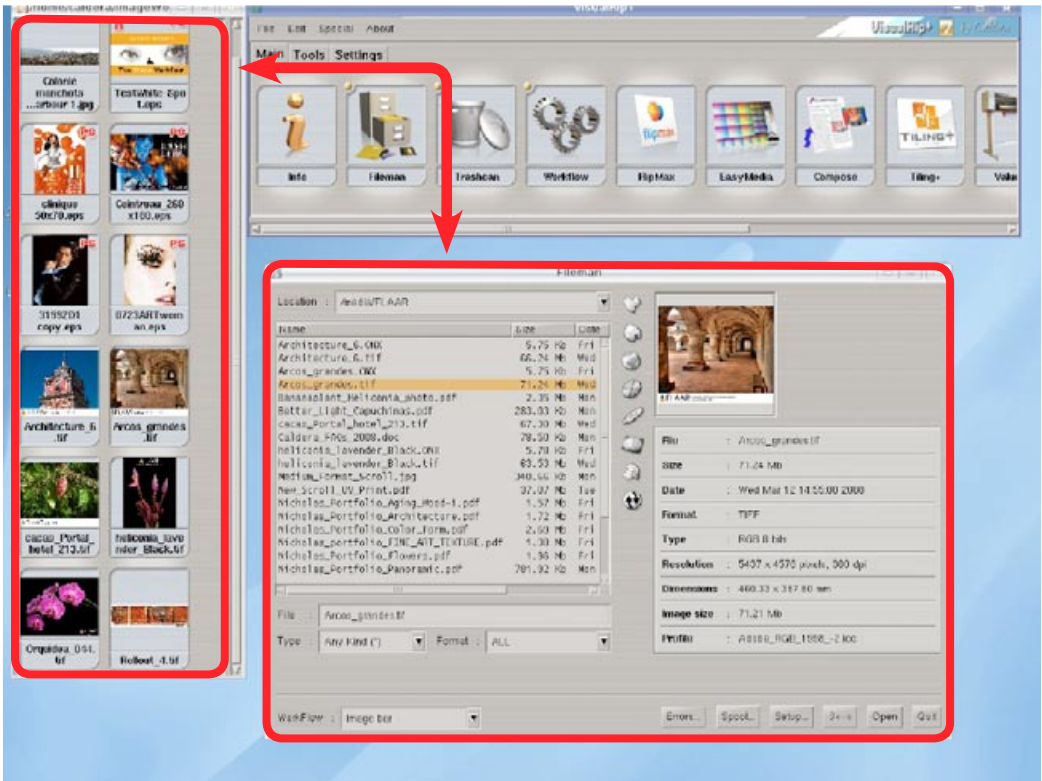
The WorkFlow Reports, in the Applications menu allows you to check the status of the running jobs, and even to stop them and control the printer order.

**54. Does the RIP have the ability to multi-task - printing, ripping, editing at same time?**

The function RIP While RIP allows to simultaneously process direct prints (Print) and computations Compute Reprint) by dividing them in two distinct waiting queues. Reducing the printer's inactivity delays as much as possible. It can also RIP and directly print a file.

**55. Does the RIP have the capability to archive files?**

When you are working at Caldera RIP you can save your work at any time and keep it at the library. You also have an option that when you are printing, you can select the option Print & Compute Reprint: The job is printed once; after this, the computed data is kept, so that it can be printed again quickly as many times as needed. And the Compute Reprint then Print: The job is entirely prepared for the printing, then printed. The computed data is kept for further reprints..



**56. Does the RIP have annotation capabilities? If so, what are the capabilities?**

Yes, at the printing menu, you can activate the cartouche info option, that display all information available at the bottom of the print (job, image and setting), also you can add a logo.

**57. Does the RIP have Hot Folder options?**

Yes, A specific directory needs to be defined as a HotFolder. It will detect each file dropped into it, and process it.

They can be activated within specific hours; they can also detect files with certain extensions and send them into a pre-defined Workflow or into the software's image bar.

**58. Does the RIP have the ability to show a print preview?**

The spooler window displays the image that is going to be printed. This image can be viewed in local mode only; if you are working on a distant computer, you will not see the image being displayed.

**59. What screening options does the RIP offer?**

Digital Mezzotint	Dispersed
Stochastic Screening	Error Diffusion
Halftone Screening	Floyd-Steinberg
Proprietary	No Ink Below x%
Blend Optimizing	Dot Size Control
PostScript Screening with 16 Spot Functions	



*Processing FLAAR files in Caldera RIP software.*



*Rasterizing FLAAR photography, with Caldera RIP software.*





## RIP Documentation

### **60. How many manuals are available?**

The main Reference Manual is an impressive 584 pages long (full-color PDF).

In addition you get:

- An Installation Manual, a pdf of 114 pages.
- "Nest-O-Ba" (27 pages), to prepare images to cut on Fotoba compliant cutters.

As addendums to the Reference Manual there is special additional documentation on

- Tiling+ (26 pages)
- Color Management (60 pages)
- FlipMax, 15 pages for basic lenticular.
- GrandWhite, User Guide: How to print white with Caldera, (26 pages)

You can also obtain PDFs on

- "How to – Add page sizes and print resolutions"
- "How to – Caldera Quick Start"
- "How to – Change the number of copies in the Spooler"
- "How to – Configure Linux"
- "How to – Create a new Copy Mode in CopyShop"
- "How to – Crop an image before printing"
- "How to – Manage and input ICC profiles"
- "How to – Print and Cut"
- "How to – Set up automatic print processes"
- "How to – Set up Hotfolders and Workflows"
- "How to – Tile jobs before printing"
- "How to – Use templates in Compose"
- "How to – Use the backup procedures"
- "How to – Use the nesting functions in CopyShop"

You can also obtain a 32-page document on the original CopyShop software (CopyShop User Guide)

### **61. What topics are covered in the documentation?**

The list of documentation titles reveals that there is abundant material for all major aspects of the RIP. Linearization and setting the ink limit are crucial, but a sophisticated user would understand this already. A beginner might appreciate a special PDF on these aspects that have to be done before you start to do your ICC color profiles.

### **62. Is there a glossary in the provided documentation?**

Yes, at the end of the manual there is a complete glossary.

### **63. Is the glossary illustrated?**

No, the glossary is not illustrated.

### **64. Is a thorough index present in the documentation?**

Yes, at the beginning of the manual there is a complete content index.

### **65. What material is available to help you to understand how to print white? What about helping your graphic designer prepare a file to handle white to begin with?**

As addendums to the Reference Manual there is special additional documentation on GrandWhite, User Guide: How to print white with Caldera.



Printing ICC Profiles Spectro.



ICC Profiles Spectro



Calibrating the RIP with the spectro profile.

## Technical Support

### **66. Is there toll free phone support? In what countries?**

They didn't have a toll free phone, but Caldera has a hotline for technical support in EMEA (Europe, the Middle East and Africa), USA and Asia.

### **67. What are the hours for phone support?**

EMEA (Europe, the Middle East and Africa):

Monday - Friday  
9:00 a.m. - 12.45 p.m.  
2:00 p.m. - 6:00 p.m.

USA:

Monday - Friday  
9:00 a.m. - 12.45 p.m.  
2:00 p.m. - 6:00 p.m.

ASIA:

Monday - Friday  
9:00 a.m. - 12.45 p.m.  
2:00 p.m. - 6:00 p.m.

### **68. Are tech support phones manned by technicians or just operators who will re-direct calls when necessary?**

The technical support is manned by training specialists.

### **69. Is there Internet based support?**

For support on technical questions you can contact Caldera staff by e-mail or directly on the website by filling a contact form.

### **70. What languages are available for technical support?**

English, French, German, Spanish, Italian, Chinese, Malaysian and Vietnamese



Caldera booth at SGIA '09.





## Ease of Use

### **71. What is the ease of use level for the person with prior experience in printing or digital imaging?**

The software is very easy to use, its graphic interface makes it easier working and navigate on it .

### **72. Is there a high, medium or low level of simplicity?**

The software has a high level of simplicity

### **73. Is the RIP dongle protected? If so, what kinds of dongle are used?**

Most RIP software is dongle protected. In the past people have commented that a pain a dongle is, but for an X-thousand dollar item of software, a dongle is what is expected. Another word is "key" when the protection is in code within the software and not an actual physical dongle.

### **74. What is the ease level of installation of the RIP software?**

The instalation of the RIP software is very easy, the software has an auto-run mode that begins when you insert the CD, even if the autorun doesn't work, just klik on the caldera software icon.

### **75. Is the user interface easy to use? Are options under menus where you would expect them to be?**

The software interface is very easy too use, the graphic buttons helps you to understan the function.

## Evaluation of Advertising Claims

### **76. How often is the RIP software updated?**

Caldera has a team of software engineers and is constantly listening to their users to ascertain what additional features should be added. This is not a static RIP.

Some other RIP companies have shrunk so much in size in recent years that they don't have their own in-house software development teams. But Caldera is in a growth mode, so very much has it's own in-house software development staff.

### **77. What strong points does this RIP have?**

This RIP company is strongest in Europe, both in terms of their office, and in terms of being at all the major European shows. Plus French is a major language within Europe.

The printer selection icons are the best I have seen on any RIP interface, by far. The printer selection icons show a clear ¾ view photograph of the actual printer model in addition to the name of the printer.

### **78. What weak points does this RIP have?**

Coverage in the US is based on a single person, rather than an entire team. But the key members of the Caldera team are at most major US trade shows, including ISA, SGIA and even Graphics of the Americas.

### **79. What features does the RIP not provide that other RIPs provide?**

There is no 3D graphic representation of the color gamut. Serious end-users would consider a 3D representation as more a decoration than a necessity, so lack of 3D graphic representation is not a serious minus point.

## End User Questions

### **80.80. Does use of the RIP require training?**

Yes, require training.

### **81. Is the RIP documentation helpful?**

This RIP has abundant documentation, and all in understandable and correct English.



*Printing some FLAAR photographs, rasterized with Caldera RIP software.*



*Dr. Nicholas Hellmuth, testing Caldera RIP printing a rollout photography.*



## Is Workflow Software also offered by same company?

### **82. Is Workflow Software also offered by same company?**

The software includes the WorkFlows mode options that allow you to automate most of the basic functions of the Caldera Graphics software.

These WorkFlows can be used in several ways:

Automation of a “standard” Caldera software: This implies that images are sent into the WorkFlows from modules such as Scan and Snapshot and that repetitive tasks are automated.

Automation of jobs for a network: If your network is a heterogenous one (including Mac or Windows systems), you can use these WorkFlows linked to HotFolders to make your workstation become a Server.

Fully automatic jobs (without graphic interface): You can link icons in your desktop environment with WorkFlows.

## Supported Contour Cutters?

### **83. Which contour cutters are supported?**

Caldera allows you to prepare your image in either Adobe Illustrator or CorelDraw.

## General Observations on RIPs

More and more a RIP is turning into a package or bundle. You get a PostScript emulator, layout features and filters very similar to what you can find in Adobe Photoshop. Indeed there is a RIP from France that I saw a demo for at Seybold San Francisco 2001; that had so many digital imaging features that I never fully understood whether it was a replacement for Photoshop or a RIP or both.

Features are the area where you have to be careful with “objective” standards. Objectively, most Americans would associate tons of features with a better, but what about the learning curve? You already know Photoshop and your layout software, Quark, InDesign or PageMaker, so do you really need to pay for, or wade through all those similar features?

For subjective features, we prefer to interview end users. Some users go brain dead when faced with excess features, yet others would enjoy every hour that it takes them to drill deeper into the software.

## Comments on PostScript

The PostScript may be from Adobe but more likely is an emulator such as Harlequin or Jaws from Global Graphics, but there are others, all of which are industry standards. I don't know the others quite as well, but have not heard specific complaints.

## Ink Usage

From time to time, especially at tradeshows, you pick up a tidbit of information such as “X-RIP” is set to use massive amounts of ink. Indeed even setting ink usage to the lowest possible point allowed you still get excessive ink usage. I do not have documentation as to the veracity of this rumor; so it will be left unsubstantiated at this point. A corollary of this is the propensity of some printers to deliberately shoot out excessive media upon start up or between images. Can't help but correlate that with the profit margin on inks and media.

Thus I don't know why the printer and/or RIP companies would risk something like this. If any RIP did indeed foster unneeded ink usage, and if that was planned together with the printer manufacturer for which that RIP was made, it would not be a happy day when this is brought under the loupe. FLAAR itself, however, is not specifically dedicated to prying into such intimate details because there are more than enough other issues that need to be addressed.

The advantage of a professional RIP such as Caldera is that you can use this RIP to set the ink limit yourself (rather than having the printer try to use excess ink). Two of us from FLAAR visited the largest printshop in Maribor, Slovenia. They had just switched to BARBIERI electronic color management system (and its corresponding RIP, which is usually Caldera). They said they saved over 25% of their ink costs. Indeed they said they saved enough money on ink to pay for the entire BARBIERI color management system.





Dr. Nicholas Hellmuth evaluating Caldera RIP at Caldera world headquarters in Strasbourg France.



## RIPs for Speed, Proofing, and Photo-Realistic Quality

Ads for RIPs are generally not as misleading as ads for wide format printers. So far FLAAR reviews have been based primarily on general consensus from tradeshow visits, select evaluation by FLAAR staff, and end-user reports. This is largely because physical testing and comparison of all RIPs would be a cost that not even a commercial company would wish to tackle; for a non-profit institution such a study would be financially unrealistic.

Since there are dozens of RIPs it is useful to classify them into groups. This classification is open and flexible and will be refined as time goes on. Tentatively we have classifications of:

- RIPs for speed
- RIPs for proofing
- RIPs for photo-realistic quality

### RIPs for Speed

A good example of a RIP for speed would be PosterJet.

### RIPs for Proofing

For proofing you have everything from BlackMagic, Compose, O.R.I.S., BEST, and many others.

### RIPs for Photo-Realistic Quality

RIPs for photo-realistic quality are the toughest to define. If a RIP is capable of accomplishing additional printhead passes and/or if a RIP offers outstanding dithering patterns, those would be candidates for a photo-realistic quality designation. We have been told of at least one RIP that seems to deserve inclusion in this category, but since we have not yet used this RIP ourselves, we do not yet name it. Here is a good example of the need for objective testing, though of course "photo quality" is often in the eye of the beholder. Most solvent printers (in past years) are definitely of photo quality for billboards but clearly not truly photo-realistic in any other normal sense. Xerox's definition of photo quality for oil-based prints is also a subject of debate. Compare a print from any oil-based printer and any Roland, Epson 10000, Mimaki JV-4 or HP 5000 and at close viewing distance the oil-based printer is a public embarrassment. So clearly standards are much needed in all of this.

The other reason for singling out RIPs for photo-realistic quality is the comment that floats around tradeshow that "an Epson printer with no RIP has a nicer dithering pattern than an Epson with a RIP" I doubt if anyone has tested this assumption; the costs of such tests mount up rather quickly. But FLAAR at BGSU is indeed interested to evaluating whether or not a particular RIP allows you to improve the quality of an image, or merely facilitates fixing jaggies on text.

### Closing Notes

If you are a software engineer or other individual who works for any of the RIP manufacturers or resellers and feel that there is a feature that should be in this list, please let us know.

If you are president, product manager, or comparable officer of a RIP company and feel that your product has specific features or advantages you would like discussed in a FLAAR Report, our evaluation team is available for a project to review your RIP. Our RIP evaluation team, which includes Nicholas Hellmuth and Technical Writer Pablo Martinez are available to undertake evaluations. Pablo has experience in a large printshop. An evaluation requires a visit to the main demo room of the manufacturer and also requires a visit to at least one neutral end-user (an actual printshop).

FLAAR receives questions from our readers about older RIPs for used printers. In an ideal world it would be nice if we could review the absolute latest version of each RIP. But that is not feasible until we expand even further. Thus we handle each RIP based on what we are able to learn from diverse sources. We are rather adept at learning. But on the subject of older RIPs, there are thousands upon thousands of old Encads with their EFI Fiery RIPs. It is thus reasonable that people who are considering buying such a printer-RIP combination should also have information available. Anytime a company wishes us to discuss their new improved RIPs, they can easily enough send us what is necessary in those instances where we have the appropriate printers to test it with.

**Most recently updated May 2010.**

First issued June 2009. Updated August 2009.



## Reality Check

Being a university professor for many years does not mean we know everything. But intellectual curiosity often leads us to enter areas that are new to us. So we do not shirk from entering areas where we are obviously not yet expert. In your years of wide format printing experience have encountered results different than ours, please let us know at [ReaderService@FLAAR.org](mailto:ReaderService@FLAAR.org). We do not mind eating crow, though so far it is primarily a different philosophy we practice, because since we are not dependent on sales commissions we can openly list the glitches and defects of those printers that have an occasional problem.

FLAAR and most universities have corporate sponsors but FLAAR web sites do not accept advertising, so we don't have to kowtow to resellers or manufacturers. We respect their experience and opinion, but we prefer to utilize our own common sense, our in-house experiences, the results from site-visit case studies, and comments from the more than 53,000 of our many readers who have shared their experiences with us via e-mail (the Survey Forms).

## Licensing Information

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## Update Policy

Starting in 2008, updates on UV-curable wide-format inkjet printers are available for all individuals and companies which have a subscription, or to companies who are research project sponsors. If you are a Subscriber or manager in a company that is a research sponsor, you can obtain the next update by writing [ReaderService@FLAAR.org](mailto:ReaderService@FLAAR.org). If you are neither a Subscriber or a research sponsor, simply order the newest version via the e-commerce system on [www.wide-format-printers.NET](http://www.wide-format-printers.NET). Please realize that because we have so many publications and many are updated so frequently that we have no realistic way to notify any reader of when just one particular report is actually updated.

There is a free PDF that describes the UV-curable inkjet printer Subscription system. Subscriptions are available only for UV-related wide-format printer publications.

FLAAR Reports on UV-curable roll-to-roll, flatbed, hybrid, and combo printers are updated when new information is available. We tend to update the reports on new printers, on printers that readers ask about the most, and on printers where access is facilitated (such as factory visits, demo-room visits, etc).

Reports on obsolete printers, discontinued printers, or printers that not enough people ask about, tend not to be updated.

FLAAR still publishes individual reports on solvent printers, and on giclee printers, but subscriptions on these are not yet available; these FLAAR Reports on solvent, eco-solvent, and water-based wide-format printers have to be purchased one by one.

## Please Note

This report has not been licensed to any printer manufacturer, distributor, dealer, sales rep, RIP company, media, or ink company to distribute. So, **if you obtained this from any company, you have a pirated copy.**

**If you have received a translation, this translation is not authorized unless posted on a FLAAR web site, and may be in violation of copyright (plus if we have not approved the translation it may make claims that were not our intention).**

Also, since this report is frequently updated, if you got your version from somewhere else, it may be an obsolete edition. FLAAR reports are being updated all year long, and our comment on that product may have been revised positively or negatively as we learned more about the product from end users.

If you receive any FLAAR Report from a sales rep, in addition to being violation of copyright, it is useful to know if there is a more recent version on the FLAAR web site, because every month new UV printers are being launched. So what was good technology one month, may be replaced by a much better printer elsewhere the next month.

To obtain a legitimate copy, which you know is the complete report with nothing erased or changed, and hence a report with all the original description of pros and cons, please obtain your original and full report straight from [www.FLAAR.org](http://www.FLAAR.org).

**Your only assurance that you have a complete and authentic evaluation which describes all aspects of the product under consideration, benefits as well as deficiencies, is to obtain these reports directly from FLAAR, via [www.wide-format-printers.NET](http://www.wide-format-printers.NET).**

## Citing and Crediting

A license from FLAAR is required to use any material whatsoever from our reports in any commercial advertisement or PR Release.

If you intend to quote any portion of a FLAAR review in a PowerPoint presentation, if this is in reference to any product that your company sells or promotes, then it would be appropriate to ask us first. FLAAR reports are being updated every month sometimes, and our comment on that product may have been revised as we learned more about the product from end users. Also, we noticed that one company cited the single favorable comment we made on one nice aspect of their printer, but neglected to cite the rest of the review which pointed out the features of the printer which did not do so well. For them to correct this error after the fact is rather embarrassing. So it is safer to ask-before-you-quote a FLAAR review on your product.

The material in this report is not only copyright, it is also based on years of research. Therefore if you cite or quote a pertinent section, please provide a proper credit, which would be minimally "Nicholas





Hellmuth, year, [www.FLAAR.org](http://www.FLAAR.org).” If the quote is more than a few words then academic tradition would expect that a footnote or entry in your bibliography would reference the complete title. Publisher would be [www.FLAAR.org](http://www.FLAAR.org).

If you intend to quote any portion of a FLAAR review in a PowerPoint presentation, if this is in reference to any product that your company sells or promotes, then it would be appropriate to license the report or otherwise notify us in advance. FLAAR reports are being updated every week sometimes, and our comment on that product may have been revised as we learned more about the product from end users. Also, we noticed that one company cited the single favorable comment we made on one nice aspect of their printer, but neglected to cite the rest of the review which pointed out the features of the printer which did not do so well. For them to correct this error after the fact is rather embarrassing. So it is safer to ask-before-you-quote a FLAAR review on your product.

### Legal notice

Inclusion in this study by itself in no way endorses any printer, media, ink, RIP or other digital imaging hardware or software. Equally, exclusion from this study in no way is intended to discredit any printer.

### Advisory

We do our best to obtain information which we consider reliable. But with hundreds of makes and models of printers, and sometimes when information about them is sparse, or conflicting, we can only work with what we have available. Thus you should be sure to rely also on your own research, especially asking around. Find another trustworthy end-user of the same make and model you need to know about. Do not make a decision solely on the basis of a FLAAR report because your situation may be totally different than ours. Or we may not have known about, and hence not written about, one aspect or another which is crucial before you reach your decision.

The sources and resources we may list are those we happen to have read. There may be other web pages or resources that we missed. For those pages we do list, we have no realistic way to verify the veracity of all their content. Use your own common sense plus a grain of salt for those pages which are really just PR releases or outright ads.

We are quite content with the majority of the specific printers, RIPs, media, and inks we have in the FLAAR facilities. We would obviously never ask for hardware, software, or consumables that we knew in advance would not be good. However even for us, a product which looks good at a trade show, sounds good in the ad literature, and works fine for the first few weeks, may subsequently turn out to be a lemon.

Or the product may indeed have a glitch but one that is so benign for us, or maybe we have long ago gotten used to it and have a work-around. And not all glitches manifest themselves in all situations, so our evaluator may not have been sufficiently affected that he or she made an issue of any particular situation. Yet such a glitch that we don't emphasize may turn out to be adverse for your different or special application needs.

Equally often, what at first might be blamed on a bad product, often turns out to be a need of more operator experience and training. More often than not, after learning more about the product it becomes possible to produce what it was intended to produce. For this reason it is crucial for the FLAAR team and their university colleagues to interact

with the manufacturer's training center and technicians, so we know more about a hardware or software. Our evaluations go through a process of acquiring documentation from a wide range of resources and these naturally include the manufacturer itself. Obviously we take their viewpoints with a grain of salt but often we learn tips that are worthy of being passed along.

FLAAR has no way of testing 400+ specifications of any printer, much less the over 101 different UV printers from more than 46 manufacturers. Same with hundreds of solvent printers and dozens of water-based printers. We observe as best we can, but we cannot take each printer apart to inspect each feature. And for UV printers, these are too expensive to move into our own facilities for long-range testing, so we do as best as is possible under the circumstances. And when a deficiency does become apparent, usually from word-of-mouth or from an end-user, it may take time to get this written up and issued in a new release.

Another reason why it is essential for you to ask other printshop owners and printer operators about how Brand X and Y function in the real world is that issues may exist but it may take months for these issues to be well enough known for us to know the details. Although often we know of the issues early, and work to get this information into the PDFs, access to information varies depending on brand and model. Plus with over 300 publications, the waiting time to update a specific report may be several months. Plus, once a printer is considered obsolete, it is not realistic to update it due to the costs involved.

For these reasons, every FLAAR Report tries to have its publication date on the front outside cover (if we updated everything instantly the cost would be at commercial rates and it would not be possible to cover these expenses). At the end of most FLAAR Reports there is additionally a list of how many times that report has been updated. A report with lots of updates means that we are updating that subject based on availability of new information. If there is no update that is a pretty good indication that report has not been updated! With 101 models of UV printers, several hundred solvent printers, and scores of water-based printers, we tend to give priority to getting new reports out on printers about which not much info at all is available elsewhere. So we are pretty good about reporting on advances in LED curing. But glitches in a common water-based printer will take longer to work its way through our system into an update, especially if the glitch occurs only in certain circumstances, for example, on one type of media. With several hundred media types, we may not yet have utilized the problem media. While on the subject of doing your own research, be sure to ask both the printer operator and printshop owner or manager: you will generally get two slightly different stories. A printer operator may be aware of more glitches of the printer than the owner.

If a printer is no longer a prime model then there is less interest in that printer, so unless a special budget were available to update old reports, it is not realistic to update old reports. As always, it is essential for you to visit printshops that have the printers on your short-list and see how they function in the real world.

But even when we like a product and recommend it, we still can't guarantee or certify any make or model nor its profitability in use because we don't know the conditions under which a printer system might be utilized in someone else's facility. For ink and media, especially after-market third-party ink and media, it is essential that you test it first, under your conditions. We have no way to assure that any ink or media will be acceptable for your specific needs in your specific print shop. As a result, products are described "as is" and without warranties as to performance or merchantability, or of fitness



for a particular purpose. Any such statements in our reports or on our web sites or in discussions do not constitute warranties and shall not be relied on by the buyer in deciding whether to purchase and/or use products we discuss because of the diversity of conditions, materials and/or equipment under which these products may be used. Thus please recognize that no warranty of fitness or profitability for a particular purpose is offered.

The user is advised to test products thoroughly before relying on them. We do not have any special means of analyzing chemical contents or flammability of inks, media, or laminates, nor how these need to be controlled by local laws in your community. There may well be hazardous chemicals, or outgassing that we are not aware of. Be aware that some inks have severe health hazards associated with them. Some are hazardous to breathe; others are hazardous if you get them on your skin. For example, some chemicals such as cyclohexanone do not sound like chemicals you want to breathe every day. Be sure to obtain, read, and understand the MSDS sheets for the inks, media, and laminates that you intend to use. Both solvent, eco-solvent, and UV-curable inks are substances whose full range of health and environmental hazards are not yet fully revealed. It is essential you use common sense and in general be realistic about the hazards involved, especially those which are not listed or which have not yet been described. FLAAR is not able to list all hazards since we are not necessarily aware of the chemical components of the products we discuss. Our reports are on usability, not on health hazards.

Most inks are clearly not intended to be consumed. Obviously these tend to be solvent inks and UV-curable inks. Yet other inks are edible, seriously, they are printed on birthday cakes. Indeed Sensient is a leader in a new era of edible inks. Therefore the user must assume the entire risk of ascertaining information on the chemical contents and flammability regulations relative to inks, media or laminates as well as using any described hardware, software, accessory, service, technique or products.

We have no idea of your client's expectations. What students on our campus will accept may not be the same as your Fortune 500 clients. In many cases we have not ourselves used the products but are basing our discussion on having seen them at a trade show, during visiting a print shop, or having been informed about a product via e-mail or other communication.

### Results you see at trade shows may not be realistic

Be aware that trade show results may not be realistic. Trade shows are idealized situations, with full-time tech support to keep things running. The images at a trade show may be tweaked. Other images may be "faked" in the sense of slyly putting on primer without telling the people who inspect the prints. Most UV inks don't stick to all materials; many materials need to be treated.

Or the UV prints may be top-coated so that you can't do a realistic scratch test.

Both personnel have many standard tricks that they use to make their output look gorgeous. In about half the cases you will not likely obtain these results in real life: in most cases they are printing uni-directional, which may be twice as slow as bi-directional.

Trade show examples tend to be on the absolutely best media. When you attempt to save money and use economy media you will quickly notice that you do not get anywhere near the same results as you saw in the manufacturer's trade show booth, or pictured in their

glossy advertisement. Five years ago we noticed Epson was laminating prints to show glossy output because their pigmented inks could not print on actual glossy media. The same equipment, inks, media, and software may not work as well in your facility as we, or you, see it at a trade show. All the more reason to test before you buy; and keep testing before you make your final payment. Your ultimate protection is to use a gold American Express credit card so you can have leverage when you ask for your money back if the product fails.

Images printed at trade show may be in uni-directional mode: so you may not realize the printer has bi-directional (curing) banding defects until you unpack it in your printshop. Bi-directional curing banding is also known as the lawnmower effect. Many printers have this defect; sometimes certain modes can get rid of it, but are so slow that they are not productive.

You absolutely need to do print samples with your own images and the kind provided by your clients. Do not rely on the stock photos provided by the printer, ink, media, or RIP manufacturer or reseller. They may be using special images which they know in advance will look fabulous on their printer. Equally well, if you send your sample images to the dealer, don't be surprised if they come back looking awful. That is because many dealers won't make a serious effort to tweak their machine for your kind of image. They may use fast speed just to get the job done (this will result in low quality). Check with other people in your area, or in the same kind of print business that you do. Don't rely on references from the reseller or manufacturer (you will get their pet locations which may be unrealistically gushy): find someone on your own.

### Factors influencing output

Heat, humidity, static, dust, experience level of your workers (whether they are new or have prior years experience): these are all factors that will differ in your place of business as compared with test results or demo room results.

Actually you may have people with even more experience than we do, since we deliberately use students to approximate newbies. FLAAR is devoted to assisting newcomers learn about digital imaging hardware and software. This is why Nicholas Hellmuth is considered the "Johnny Appleseed" of wide format inkjet printers.

Therefore this report does not warranty any product for any quality, performance or fitness for any specific task, since we do not know the situation in which you intend to use the hardware or software. Nor is there any warranty or guarantee that the output of these products will produce salable goods, since we do not know what kind of ink or media you intend to use, nor the needs of your clients. A further reason that no one can realistically speak for all aspects of any one hardware or software is that each of these products may require additional hardware or software to reach its full potential.

For example, you will most likely need a color management system which implies color measurement tools and software. To handle ICC color profiles, you may need ICC color profile generation software and a spectrophotometer since often the stock pre-packaged ICC color profiles which come with the ink, media, printers and/or RIPs may not work in your situation. Not all RIPs handle color management equally, or may work better for some printer-ink-media combinations than for others.

Be aware that some RIPs can only accept ICC color profiles: you quickly find out the hard way that you can't tweak these profiles nor



generate new ones. So be sure to get a RIP which can handle all aspects of color management. Many RIPs come in different levels. You may buy one level and be disappointed that the RIP won't do everything. That's because those features you may be lacking are available only in the next level higher of that RIP, often at considerable extra cost. Same thing in the progression of Chevy through Pontiac to Cadillac, or the new Suburbans. A Chevy Suburban simply does not have all the bells and whistles of the Cadillac Escalade version of this SUV.

Don't blame us... besides, that's why we are warning you. This is why we have a Survey Form, so we can learn when you find products that are inadequate. We let the manufacturers know when end users complain about their products so that the manufacturers can resolve the situation when they next redesign the system.

Most newer printer models tend to overcome deficiencies of earlier models. It is possible that our comparative comments point out a glitch in a particular printer that has been taken care of through an improvement in firmware or even an entirely new printer model. So if we point out a deficiency in a particular printer brand, the model you may buy may not exhibit this headache, or your kind of printing may not trigger the problem. Or you may find a work-around.

Just remember that every machine has quirks, even the ones we like. It is possible that the particular kind of images, resolution, inks, media, or other factors in your facility are sufficiently different than in ours that a printer which works just fine for us may be totally unsatisfactory for you and your clients. However it may be that the specific kind of printing you need to do may never occasion that shortcoming. Or, it may be that your printer was manufactured on a Monday and has defects that are atypical, show up more in the kind of media you use which we may not use as often or at all during our evaluations. Equally possibly a printer that was a disaster for someone else may work flawlessly for you and be a real money maker for your company.

So if we inspect a printer in a printshop (a site-visit case study), and that owner/operator is content with their printer and we mention this; don't expect that you will automatically get the same results in your own printshop.

In some cases a product may work better on a Macintosh than on a PC. RIP software may function well with one operating system yet have bugs and crash on the same platform but with a different operating system. Thus be sure to test a printer under your own specific work conditions before you buy.

And if a printer, RIP, media, or ink does not function, return it with no ands, ifs or buts. Your best defense is to show an advertising claim that the printer simply can't achieve. Such advertising claims are in violation of federal regulations, and the printer companies know they are liable for misleading the public.

But before you make a federal case, just be sure that many of the issues are not user error or unfamiliarity. It may be that training or an additional accessory can make the printer do what you need it to accomplish. Of course if the printer ads did not warn you that you had to purchase the additional pricey accessory, that is a whole other issue. Our reviews do not cover accessories since they are endless, as is the range of training, or lack thereof, among users.

The major causes of printer breakdown and failure is lack of maintenance, poor maintenance, spotty maintenance, or trying to jerry-rig some part of the printer. The equally common cause of printer breakdown is improper use, generally due from lack of training or experience. Another factor is whether you utilize your printer all day

every day. Most solvent and UV printers work best if used frequently. If you are not going to use your printer for two or three days, you have to put flush into the system and prepare it for hibernation (even if for only four or five days). Then you have to flush the ink system all over again.

Also realize that the surface of inkjet prints are fragile and generally require lamination to survive much usage. Lamination comes in many kinds, and it is worth finding a reliable lamination company and receiving training on their products.

Also realize that no hybrid or combo UV printer can feed all kinds of rigid materials precisely. Some materials feed well; others feed poorly; others will skew.

Although we have found several makes and models to work very well in our facilities, how well they work in your facilities may also depend on your local dealer. Some dealers are excellent; others just sell you a box and can't provide much service after the sale. Indeed some low-bid internet sales sources may have no technical backup whatsoever. If you pay low-bid price, you can't realistically expect special maintenance services or tech support later on from any other dealer (they will tell you to return to where you paid for the product). This is why we make an effort to find out which dealers are recommendable. Obviously there are many other dealers who are also good, but we do not always know them. To protect yourself further, always pay with a level of credit card which allows you to refuse payment if you have end up with a lemon. A Gold American Express card allows you to refuse payment even months after the sale. This card may also extend your warranty agreement in some cases (check first).

Most of the readers of the FLAAR Reports look to see what printers we use in our own facilities. Readers realize that we will have selected the printers that we like based on years of experience and research. Indeed we have met people at trade shows who told us they use the FLAAR web site reports as the shopping list for their corporate purchases.

Yes, it is rather self-evident that we would never ask a manufacturer to send a product which we knew in advance from our studies was no good. But there are a few other printers which are great but we simply do not have them in our facilities yet.

So if a printer is not made available by its manufacturer, then there is no way we can afford to have all these makes and models in our facility. Thus to learn about models which we do not feature, be sure to ask around in other print shops, with IT people in other corporations, at your local university or community college. Go to trade shows... but don't use only the booth...ask questions of people in the elevator, in line at the restaurant, anywhere to escape the smothering hype you get in the booth.

Realize that a FLAAR Report on a printer is not by itself a recommendation of that printer. In your local temperature, in your local humidity, with the dust that is in your local air, with your local operator, and with disorientation of the insides of a printer during rough shipment and installation, we have no knowledge of what conditions you will face in your own printshop. We tend to inspect a printer first in the manufacturing plant demo room: no disjointed parts from any shipment since this printer has not been lifted by cranes and run over a rough pot-holed highway or kept in smelting heat or freezing cold during shipment.

Taking into consideration we do not know the conditions in which you may be using your hardware, software, or consumables, neither the author nor FLAAR nor either university is liable for liability, loss or dam-





age caused either directly or indirectly by the suggestions in this report nor by hardware, software, or techniques described herein because.

#### **Availability of spare parts may be a significant issue**

Chinese printers tend to switch suppliers for spare parts every month or so. So getting spare parts for a Chinese printer will be a challenge even if the distributor or manufacturer actually respond to your e-mails at all. Fortunately some companies do have a fair record of response; Teckwin is one (based on a case of two problematical hybrid UV printers in Guatemala). The distributor said that Teckwin sent a second printer at their own expense and sent tech support personnel at their expense also. But unfortunately both the hybrid UV printers are still abandoned in the warehouse of the distributor; they were still there in January 2009. But Teckwin has the highest rating of any Chinese company for interest in quality control and realization that it is not good PR to abandon a client or reseller or distributor all together.

Recently we have heard many reports of issues of getting parts from manufacturers in other countries (not Asia). So just because your printer is made in an industrialized country, if you are in the US and the manufacturer is X-thousand kilometers or miles away, the wait may be many days, or weeks.

#### **Lack of Tech Support Personnel is increasing**

The recession resulted in tech support issues: some manufacturers may need to skimp on quality control during a recession, or switch to cheaper parts suppliers. Plus they are not hiring enough tech support during a recession. So the bigger and more successful the company, in some cases the worse these particular problems may be.

#### **Any new compiled printer may take a few months to break in**

Any new printer, no matter who the manufacturer, or how good is the engineering and electronics, will tend to have teething issues. Until the firmware is updated, you may be a beta tester. This does not mean the printer should be avoided, just realize that you may have some downtime and a few headaches. Of course the worst case scenario for this was the half-million dollar Lüscher JetPrint: so being "Made in Switzerland" was not much help.

#### **Counterfeit parts are a problem with many printers made in China**

Several years ago many UV printers made in China and some made elsewhere in Asia had counterfeit parts. No evaluation has the funding available to check parts inside any printer to see if they are from the European, Japanese, or American manufacturer, or if they are a clever counterfeits.

#### **Be realistic and aware that not all materials can be printed on equally well**

Many materials don't feed well through hybrid (pinch roller on grit roller systems) or combo UV systems (with transport belts). Banding, both from poor feeding, and from bi-directional (lawnmower effect) are common on many UV-curable inkjet printers.

It is typical for some enthusiastic vendors to claim verbally that their printer can print on anything and everything. But once you unpack the printer and set it up, you find that it requires primer on some materials; on other materials it adheres for a few weeks but then falls off.

And on most hybrid and many combo printers, some heavy, thick, or smooth-surfaced materials skew badly. Since the claim that the printer will print on everything is usually verbal, it is tough to prove this aspect of misleading advertising to a jury.

Not all inks can print on all materials. And at a trade show, many of the materials you see so nicely printed on, the manufacturer may be adding a primer at night or early in the morning: before you see the machine printing on this material.

We feel that the pros and cons of each product speak more than adequately for themselves. Just position the ad claims on the left: put the actual performance results on the right. The unscrupulous hype for some printers is fairly evident rather quickly.

#### **Be sure to check all FLAAR resources**

Please realize that with over 200 different FLAAR Reports on UV printers, you need to be sure to check the more obscure ones too. If a printer has a printhead issue, the nitty gritty of this may be in the FLAAR Report on printheads. The report on the model is a general introduction; if we discussed the intimate details of printheads then some readers might fall asleep. And obviously do not limit yourself to the free reports. The technical details may be in the reports that have a price to them. Our readers have said they prefer to have the general basics, and to park the real technical material in other reports that people can buy if they really want that level of information.

So it may be best to ask for personal consulting. The details of the problems with the ColorSpan 5400uv series are rather complex: namely the center row of the Ricoh printheads. This would require an expensive graphic designer and consultants to show the details. And the design of the printhead would probably be altered by the time we did any of this anyway. So it is essential to talk with people: with other end-users, and with FLAAR in person on a consulting basis.

#### **Acknowledgements**

With 19 employees the funding has to come from somewhere, so we do welcome project sponsorship, research grants, contributions that facilitate our educational programs, scholarships for co-op interns and graduate students, and comparable project-oriented funding from manufacturers. The benefit for the end-user is a principle called academic freedom, in this case,

- The freedom of a professor or student to speak out relative to the pros and cons of any equipment brought to them to benchmark.
- The freedom to design the research project without outside meddling from the manufacturer.

Fortunately, our budget is lean and cost effective as you would expect for a non-profit research institute. As long as we are not desperate for money we can avoid the temptation to accept payment for reprinting corporate PR hype. So the funding is used for practical research. We do not accept (nor believe) and certainly do not regurgitate corporate PR. For example, how many manufacturer's PR photos of their products have you seen in our reports or on our web sites?

Besides, it does not take any money to see which printers and RIPs function as advertised and which don't. We saw one hyped printer grind to a halt, malfunction, or otherwise publicly display its incapacibilities at several trade shows in a row. At each of those same trade shows another brand had over 30 of their printers in booths in virtually every hall, each one producing museum quality exhibits. Not our fault when we report what we see over and over and over again. One of our readers wrote us recently, "Nicholas, last month you recom-

mended the ..... as one of several possible printers for our needs; we bought this. It was the best capital expenditure we have made in the last several years. Just wanted to tell you how much we appreciate your evaluations....”

FLAAR is a non-profit educational and research organization dedicated for over 36 years to professional photography in the arts, tropical flora and fauna, architectural history, and landscape panorama photography.

Our digital imaging phase is a result of substantial funding in 1996 from the Japanese Ministry of Public Education for a study of scanning and digital image storage options. This grant was via Japan's National Museum of Ethnology, Osaka, Japan. That same year FLAAR also received a grant of \$100,000 from an American foundation to do a feasibility study of digital imaging in general and the scanning of photograph archives in particular.

The FLAAR web sites began initially as the report on the results of these studies of scanners. Once we had the digital images we began to experiment with digital printers. People began to comment that our reports were unique and very helpful. So by 1999 we had entire sections on large format printers.

FLAAR has existed since 1969, long before inkjet printers existed. Indeed we were writing about digital imaging before HP even had a color inkjet system available. In 2000 FLAAR received an educational grant from Hewlett-Packard large format division, Barcelona, Spain, for training, for equipment, and to improve the design and navigation on the main web sites of the FLAAR Network. This grant ran its natural course, and like all grants, reached its finishing point, in this case late 2005.

In some cases the sponsorship process begins when we hear end-users talking about a product they have found to be better than other brands. We keep our ears open, and when we spot an especially good product, this is the company we seek sponsorship from. It would not be wise of us to seek sponsorship from a company with a sub-standard or otherwise potentially defective printer. So we usually know which printers are considered by end-users to be among the better brands before we seek sponsorship. After all, out of the by now one million readers, we have heard plenty about every single printer out there.

We thank MacDermid ColorSpan (now part of HP), Hewlett-Packard, Parrot Digigraphic, Color DNA, Canon, Gandinnovations, and other companies for providing funding for technology training for the FLAAR staff and our colleagues at Bowling Green State University in past years and for funds to allow us to attend all major international trade shows, which are ideal locations for us to gather information. We thank Caldera, EskoArtwork, EFI Rastek, EFI and VUTEK, OTF (Obeikan), Drytac DigiFab, Barbieri electronic, Seiko II, Parrot Digigraphic, AT Inks, Sepiax inks, Sam-Ink, Dilli, Grapo, and WP Digital for providing funds so that we can make more of our publications free to end-users. During 2000-2001 we had grants to cover all the costs of our publications, and all FLAAR Reports were free in those early years. As that early grant naturally expired after a few years, we had to begin charging for some of our reports to cover costs. Now (in 2010), we are seeking corporate sponsorship so we can gradually make another 20% of our publications free to our readers.

Since 2006 we do a major part of our evaluations at a factory and headquarters demo room. Since the university does not fund any of these trips, it is traditional for the manufacturer to fund a research sponsorship. In the US this is how most university projects are initiated for decades now, and it is increasing. In fact there is a university in Austria that is not an “edu” but is a “GmbH”, funded by the chamber of commerce of that part of Austria. In other words, a university

as an educational institution, but functioning in the real world as an actual business. This is a sensible model, especially when FLAAR staff need to be on the road over a quarter of a million miles per year (roughly over 400,000 km per year total for the staff). Obviously this travel is hosted since unless money falls from heaven there most realistic way to obtain funding to get to the demo rooms for training is direct from the source.

It has been helpful when companies make it possible for us to fly to their headquarters so we can inspect their manufacturing facilities, demo rooms, and especially when the companies make their research, engineering and ink chemistry staff available for discussions. When I received my education at Harvard I was taught to have a desire to learn new things. This has guided my entire life and is what led me into wide-format digital imaging technology: it is constantly getting better and there is a lot to learn every month. Thus I actively seek access to improving my understanding of wide format printer technology so that we can better provide information to the approximately quarter-million+ readers of our solvent and UV printer web site ([www.large-format-printers.org](http://www.large-format-printers.org)) and the over half a million who read either our wide-format-printers.org site or our roughly half million combined who read our digital-photography.org and [www.FineArtGicleePrinters.org](http://www.FineArtGicleePrinters.org) sites.

Barbieri electronic (color management), Caldera (RIP), ColorSpan, DEC, Durst, EFI, EskoArtwork, Gerber, Grapo, IP&I, Mimaki USA, Mutoh, Obeikan, Dilli, Drytac, GCC, NUR, Oce, Shiraz (RIP), Sky AirShip, Sun, Teckwin, VUTEK, WP Digital, Xerox, Yuhan-Kimberly, Zund have each brought FLAAR staff to their headquarters and printer factories. AT Inks, Bordeaux, InkWin, Sepiax, Sam-Ink, and Sunflower ink have brought us to inspect their ink manufacturing facilities and demo rooms. Notice that we interact with a wide range of companies: it is more helpful to our readers when we interact with many different companies rather than just one.

We have visited the world headquarters and demo rooms of HP in Barcelona and received informative and helpful technology briefings from HP about every two years. We are under NDA as to the subjects discussed but it is important that we be open where we have visited. Mimaki Europe has had FLAAR as their guest in Europe to introduce their flatbed UV printer, as have other UV-curable manufacturers, again, under NDA as to the details since often we are present at meetings where unreleased products are discussed. Xaar has hosted an informative visit to their world headquarters in the UK. You don't get this level of access from a trade magazine writer, and I can assure you, we are provided much more detailed information and documentation in our visits than would be provided to a magazine author or editor. Companies have learned that it's a lot better to let us know up front and in advance the issues and glitches with their printers, since they now know we will find out sooner or later on our own. They actually tell us they realize we will find out on our own anyway.

Contributions, grant, sponsorships, and project funds from these companies are also used to improve the design and appearance of the web sites of the FLAAR Information Network. We thank Canon, ColorSpan, HP, ITNH, and Mimaki for providing wide format printers, inks, and media to the universities where FLAAR does research on wide format digital imaging. We thank Epson America for providing an Epson 7500 printer many years ago, and Parrot Digigraphic for providing access to their digital equipment, also for providing three different models of Epson inkjet printers to our facilities on loan at BGSU (5500, 7600, 7800). We thank Mimaki USA for providing a JV4 and then a Mimaki TX-1600s textile printer and Improved Technologies (ITNH) providing their Ixia model of the Iris 3047 giclee printer.

We thank 3P Inkjet Textiles and HP for providing inkjet textiles so we could learn about the different results on the various textiles. IJ Technologies, 3P Inkjet Textiles, ColorSpan, Encad, HP, Nan Ya Pepa,



Oracal, Tara and other companies have provided inkjet media so we can try it out and see how it works (or not as the case may be; several inkjet media failed miserably, one from Taiwan, the other evidently from Germany!). We thank Aurelon, Canon, ColorGate, ColorSpan, ErgoSoft, HP, PerfectProof, PosterJet, Onyx, Ilford, CSE ColorBurst, ScanvecAmiable, Wasatch and many other RIP companies for providing their hardware and software RIPs.

We thank Dell Computers for providing awesome workstations for testing RIP software and content creation with Adobe Photoshop and other programs. We also appreciate the substantial amount of software provided by Adobe. As with other product loaned or provided courtesy of ProVar LLC (especially the 23" monitors which makes it so much easier to work on multiple documents side by side).

We thank Betterlight, Calumet Photographic, Global Graphics, Westcott, Global Imaging Inc. Phase One, and Bogen Imaging for helping to equip our archaeological photo studios at the university and its archaeology museum in Guatemala. Heidelberg, Scitex, CreoScitex (now Kodak) and Cruse, both in Germany, have kindly provided scanners for our staff to evaluate.

We really liked some of the results whereas some of the other products were a bit disappointing. Providing samples does not influence the evaluations because the evaluators are students, professors, and staff of Bowling Green State University. These personnel are not hired by any inkjet printer company; they were universities employees (as was also true for Nicholas Hellmuth). The testing person for the HP ColorPro (desktop printer) said he frankly preferred his Epson printer. When we saw the rest results we did not include this Hewlett-Packard ColorPro printer on our list of recommended printers, but we love our HP DesignJet 5000ps so much we now have two of them, one at each university.

Sometimes we hear horror stories about a printer. The only way we can tell whether this is the fault of the printer design, or lack of training of the operator, is to have the printer ourselves in-house. Of course some printer manufacturers don't understand the reasons we need to have each make and model; they are used to loaning their demo units for a week or so. That is obviously inadequate for a serious review.

Some of the media provided to us failed miserably. Three printers failed to meet common sense usability and printability standards as well (HP 1055, one older desktop model (HP Color Pro GA), and one Epson). Yet we know other users who had better results; maybe ours came down the assembly line on a Monday or Friday afternoon, when workers were not attentive. One costly color management software package was judged "incapable" by two reviewers (one from the university; second was an outside user who had made the mistake of buying this package).

So it's obvious that providing products or even a grant is no shield from having your products fail a FLAAR evaluation. The reason is clear: the end user is our judge. The entire FLAAR service program is to assist the people who need to use digital imaging hardware and software. If a product functions we find out and promulgate the good news. If a product is a failure, or more likely, needs some improvement in the next generation, we let people know. If a product is hyped by what an informed user would recognize as potentially false and misleading nonsense, then we point out the pathetic discrepancies very clearly.

This is what you should expect from an institute which is headed by a professor.

Actually, most of our reviews are based on comments by end users. We use their tips to check out pros and cons of virtually every product we discuss. You can't fool a print shop owner whose printer simply fails to function as advertised. And equally, a sign shop owner who earns a million dollars a year from a single printer brand makes an impact on us as well. We have multiple owners of ColorSpan printers tell us that this printer is their real money earner for example. We know other print shops where their primary income is from Encad printers. Kinkos has settled on the HP 5000 as its main money maker production machine, and so on.

Yet we have documentation of several print shop companies whose business was ruined by specific brands that failed repeatedly. It is noteworthy that it is always the same brand or printer at both locations: one due to banding and printheads then simply no longer printing one color; the other brand due to pokiness of the printer simply not being competitively fast enough. Same with RIPs, we have consistent statements of people using one RIP, and only realizing how weak it was when they tried another brand which they found substantially better. Thus we note that companies which experiment with more than one brand of product tend to realize more quickly which brand is best. This is where FLAAR is in an ideal situation: we have nine RIPs and 25 printers. Hence it is logical that we have figured out which are best for our situation.

Grant funding, sponsorship, demonstration equipment, and training are supplied from all sides of the spectrum of printer equipment and software engineering companies. Thus, there is no incentive to favor one faction over another. We receive support from three manufacturers of thermal printheads (Canon, ColorSpan and HP) and also have multiple printers from three manufacturers of piezo printers (Epson, Seiko, Mutoh, and Mimaki). This is because piezo has definite advantage for some applications; thermal printheads have advantages in different applications. Our reviews have universal appeal precisely because we feature all competing printhead technologies. Every printer, RIPs, inks, or media we have reviewed have good points in addition to weaknesses. Both X-Rite and competitor GretagMacbeth provided spectrophotometers. Again, when all sides assist this program there is no incentive to favor one by trashing the other. Printer manufacturer ad campaigns are their own worst enemy. If a printer did not make false and misleading claims, then we would have nothing to fill our reviews with refuting the utter nonsense that is foisted on the buying public.

It is not our fault if some printers are more user friendly, print on more media than other brands. It is not our fault that the competing printers are ink guzzlers, are slow beyond belief, and tend to band or drop out colors all together. We don't need to be paid by the printer companies whose products work so nicely in both our universities on a daily basis. The printers which failed did so in front of our own eyes and in the print shops of people we check with. And actually we do try to find some redeeming feature in the slow, ink gulping brands: they do have a better dithering pattern; they can take thick media that absolutely won't feed through an HP. So we do work hard at finding the beneficial features even of printers are otherwise get the most critique from our readers. Over one million people will read the FLAAR Information Network in the next 12 months; 480,000 people will be exposed to our reports on wide format printers from combined total of our three sites on these themes. You can be assured that we hear plenty of comments from our readers about which printers function, and which printers fail to achieve what their advertising hype so loudly claims.

An evaluation is a professional service, and at FLAAR is based on more than 11 years of experience. An evaluation of a printer, an ink,





a software, laminator, cutter or whatever part of the digital printing workflow is intended to provide feedback to all sides. The manufacturers appreciate learning from FLAAR what features of their printers need improvement. In probably half the manufacturers FLAAR has dealt with, people inside the company did not, themselves, want to tell their boss that their pet printer was a dog. So printer, software, and component manufacturers have learned that investing in a FLAAR evaluation of their product provides them with useful return on investment. Of course if a printer manufacturer wants only a slick Success Story, or what we call a "suck up review" that simply panders to the manufacturer, obviously FLAAR is not a good place to dare to ask for such a review. In several instances it was FLAAR Reports that allowed a company to either improve their printer, or drop it and start from scratch and design a new and better one.

And naturally end-users like the opportunity to learn about various printers from a single source that covers the entire range from UV through latex through all flavors of solvent.

We have also learned that distributors often prefer to accept for distribution a printer or other product on which a FLAAR Report already exists.

We turn down offers of funding every year. These offers come from PO Box enterprises or products with no clearly visible point of manufacture. Usually the company making the offer presumes they can buy advertising space just by paying money. But that is not what our readers want, so we politely do not accept such offers of money.

Contributions, grants, sponsorships, and funding for surveys, studies and research is, however, open to a company who has an accepted standing in the industry. It is helpful if the company has a visible presence at leading trade shows and can provide references from both end users and from within the industry. Where possible we prefer to visit the company in person or at least check them out at a trade show. Obviously the product needs to have a proven track record too. Competing companies are equally encouraged to support the FLAAR system. We feel that readers deserve to have access to competing information. Competition is the cornerstone of American individualism and technological advancement.

FLAAR also covers its costs of maintaining the immense system of 8 web sites in three languages and its facilities in part by serving as a consultant such as assisting inkjet manufacturers learn more about the pros and cons of their own printers as well as how to improve their next generation of printers. It is especially useful to all concerned when manufacturers learn of trends (what applications are popular and for what reasons). For example, manufacturers need to know whether to continue designing software for Mac users, or concentrate software for PC users. So the survey form that you fill out is helpful to gather statistics. You benefit from this in two ways: first, you get the FLAAR reports in exchange for your survey form. Second, your comments bring (hopefully) change and improvement in the next generation of printers. When we do survey statistics, then the names, addresses, and telephone numbers are removed completely. A survey wants only aggregate numbers, not individuals. However, if you ask about a specific brand of printer, and do not opt out, we forward your request to a pertinent sponsor so you can obtain follow-up from that brand, since we ourselves do not have enough personnel to respond to each reader by telephone. But we do not provide your personal information to outsiders and our survey form has an opt out check-off box which we honor.

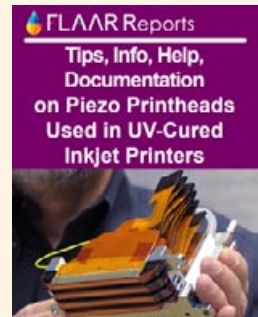
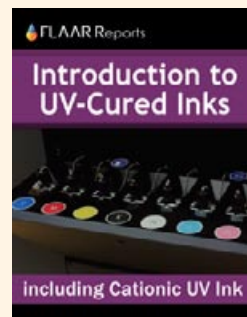
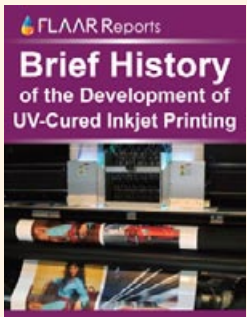
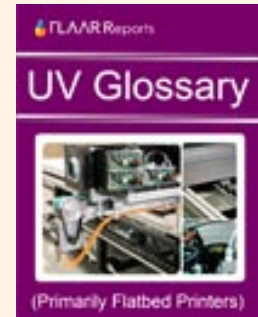
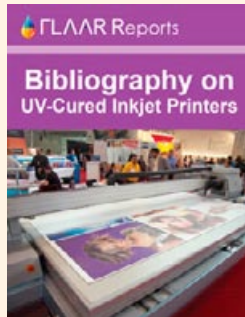
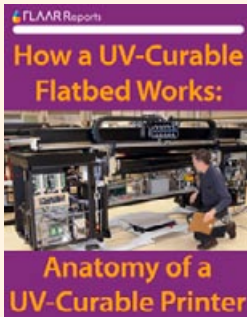
FLAAR also serves as consultants to Fortune 500 companies as well as smaller companies and individuals who seek help on which printers to consider when they need digital imaging hardware and software.

A modest portion of our income comes from our readers who purchase the FLAAR series. All income helps continue our tradition of independent evaluations and reviews of inkjet printers, RIPs, media, and inks.

These are some of the most  
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You can find these and more reports at: [www.wide-format-printers.NET](http://www.wide-format-printers.NET)

Introduction to UV Curable Inkjet Flatbed Printers



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Comments on UV Inkjet Printers at Major Trade Shows 2007-2009



UV Printers Manufactured in China, Korea and Taiwan

