FutureRIP® SE

with

ColorTUNE®

Sign Shop Edition V1.95

with USB Dongle

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1.0 Introduction

Thank you for purchasing FutureRIP SE the very latest in RIP, Print & Cut software. FutureRIP SE is a specialist printing and cutting software package primarily designed for those in the graphics/sign industry using large format digital printers. This manual provides you with an overview of every feature of the program, how to implement it and its location, along with handy hints and notes. Be sure to obtain the most recent update from www.FutureRIP.com

1.1 System Requirements

To install and use FutureRIP SE you must have 'as a minimum', the following computer hardware and software configuration:

Minimum Configuration
IBM - Compatible PC with a 400Mhz CPU,
500Mb of available Hard Disk Drive space,
128Mb of RAM,
4 x CDROM,
SVGA color monitor,
2Mb SVGA color video/graphics card,
2 Button Mouse,
Microsoft Windows 98, ME, 2000 or XP

Recommended Configuration
IBM - Compatible PC with a Pentium IV 1000+Mhz CPU,
5.0Gb of available Hard Disk Drive space,
512+Mb of RAM with 266Mhz Front Side Bus,
40 x CDROM,
19"+ SVGA color monitor, set to 1280 x 1024+
8Mb AGP SVGA color video/graphics card,
2 Button Scrolling Wheel Mouse, Sound & Speakers
Microsoft Windows 2000 or XP 'Professional Edition'
Adobe Acrobat 5.0+

1.2 Conventions Used in this Manual

This manual contains special symbols and/or words that refer to commands and instructions.

Click

Refers to the left mouse button and requires the user to depress their left mouse button once.

Keyboard

When a keyboard operation is required e.g. saving a Job, the instructions would be as follows: **Ctrl+S**
This refers to pressing the '**Control**' key while at the same time pressing the '**S**' key. The '**+**' key is not to be pressed.

Any other instructions such as, press 'Enter' on the keyboard, literally mean to press the Enter key on the keyboard.

1.3 Equivalent Terms

As FutureRIP is available worldwide several functions and items are referred to with particular names that may not be recognizable to you. The following is an equivalent list of these names:

Manual Definition	Equivalent Term	Description
Auto-Trace	Vectorize/ Digitize	To outline a bitmap using curves and lines (vectors)
Billboard Tiles	Tiles/ Tiling/ Cropping	Segments the Artwork down into smaller sections/areas
Bitmap	Picture/ Image/ Photo	An image made up of pixels (dots) that forms a picture
Capture/ Publish	Export/ Print/ Save	A method used to convert given artwork into a useable file format
Color Profiles	Profiles/ ICC	A standard color convention for accurate reproduction of colors
Contour Cut	Print & '**CUT**'/ Vectorize	A preset vector path that is followed by the printer's cutting knife
Crop Marks	Registration Marks	Printed shapes (cross-hair) around a Job to identify its edges
FutureRIP Layers	Artwork	A 'published to' or 'exported from' work from a 3rd party program
Gamut	Color Range	Complete range of colors related to a specific device
GCR	UCR/ Under Color Removal	The use of Black Ink in place of Colored Ink
Job	Artwork/ Image & Layers	The actual items being worked on 'The Artwork'
Module/ Screen	Window	Subprogram that loads in its own viewable Window

1.4 Technical Support

If you have an inquiry or question relating to FutureRIP or any one of its modules please look in this manual, read through the Quick Start and FAQ or click on the Help Topics scattered throughout the program, always remember to look under the contents and index. If you have purchased FutureCOVER (additional technical support), please use the special telephone number provided and have your Customer Number and Business Details handy for the operator. For your rights please read the End User License Agreement (EULA) on page 8 -1.

Fax Support: If you can not find the answer to your inquiry, please print out the 'Request for Help Sheet' from the 'Help' menu of the program, fill this in and fax it to your closest Future Corporation office, or your country's head office, which appears on the inside front cover of this manual, and your inquiry will be answered in turn, usually within 1- 24 hours.

Internet Support: Internet Support is the most reliable technical support offered by Future Corporation and is available 24 hours a day by E Mailing: Tech@FutureRIP.com Note, please keep any inquires concise and focus on the issue/s, listing each one separately. Please include your 16 digit Customer Number, business and contact name.

Telephone Support: Where available you may telephone Future Corp on your country's Technical or General Help Number, which if available appears on the inside front cover of this manual. Please note, this service is strictly limited and can only deal with general issues. It is not available as a training facility. You are encouraged to utilize Internet support, which is manned by our internal programmers. These people have an intimate knowledge of FutureRIP, the graphics & sign industry and most printers.

1.5 Extra Live Help (FutureCOVER)

If required (and where available), you may purchase additional live technical support 'FutureCOVER' at very reasonable rates. You will be provided with a special telephone number and will need to have your Customer Number and Business Details for the operator. Please e mail FutureCOVER@FutureRIP.com for the latest rates and availability in your area.

1.6 Registering (Unlocking) FutureRIP SE (NOW SUPERCEDED - SEE DONGLE SHEET)

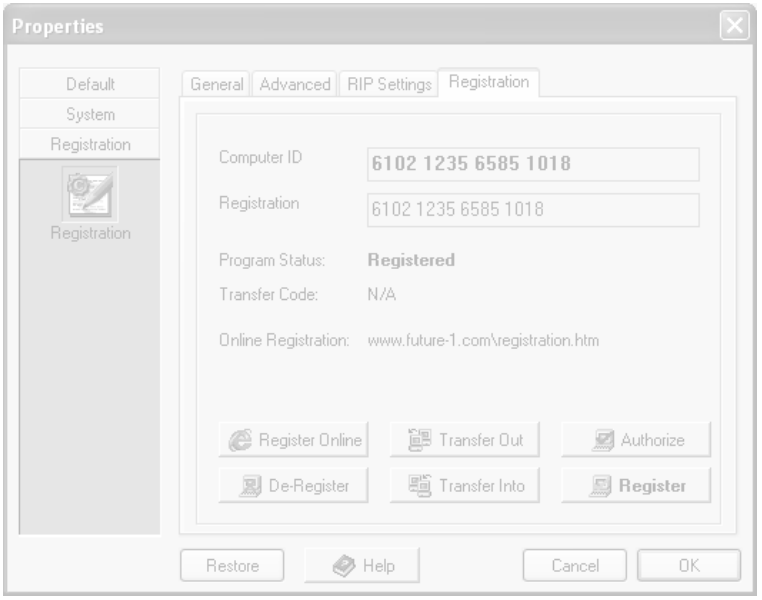
If you have purchased FutureRIP SE as a stand alone package you must first register the software on your computer with Future Corporation using a series of numbers. This procedure is very simple and can be entirely carried out at the Future Corporation web site: www.FutureRIP.com or via the registrations telephone number, as listed on the inside front cover of this manual. Please be aware that there are very specific registration rules when using FutureRIP SE, and you are strongly recommended to read through the FutureRIP SE End User License Agreement (E.U.L.A.) before continuing.

Note: If you have purchased and registered VinylMaster Pro, FutureRIP SE will automatically become registered and there is nothing further to be done.

1.7 Registration Procedure (NOW SUPERCEDED - SEE DONGLE SHEET)

To register FutureRIP SE you will need your Customer and Computer ID numbers (#) available. Your Customer # will be issued to you after you have paid for the software and is usually listed on your invoice or receipt. If you do not have a Customer # please contact the place of purchase and request one.

A Computer ID # is created by our software on your computer and is different on every PC. Note: This # is not related to any other company. Therefore you should select which computer you wish to register FutureRIP SE on before proceeding. Once decided you will find your Computer ID # listed in the 'Settings' Module of FutureRIP SE which can be located from the 'Help' menu of the program, as shown here.



Obtaining and Entering a Registration #: You can obtain your Registration # on-line at www.FutureRIP.com without any need to contact us. Alternatively you can telephone Registrations as listed on the inside front cover of this manual. At this time have all your numbers (#) available.

Once you have obtained your Registration #, click on the 'Help' menu in FutureRIP SE and go down and click on 'Registration' and the Registration window will open. Next click on 'Register' and type in your Registration # and click 'OK' and you will be presented with a congratulations window. Please read the information provided and then close out.

1.8 Registration (Program) Status (Unregistered/De-registered)

When first installed FutureRIP SE will have a 'Program Status' of 'Unregistered'. It will become 'De-registered' if its registration is transferred to another computer. However, if a computer with a registered copy of FutureRIP SE has its Hard Disk Drive reformatted and/or Windows is re-installed the program will become 'Unregistered' and the computer will need to be Re-Registered. If the computer has not had any physical changes made to it i.e. repairs or upgrades it can be 'Re-Registered' at the Future Corporation web site www.FutureRIP.com 24/7/365, without needing to speak with anyone.

To do this on-line have your 'New' Computer ID # available and select 'Re-Register Existing Computer'. If the request is denied, check the numbers and try again. If denied again your computer has been significantly changed and you will need to fill in a 'Request for a Replacement Registration #'. This can be requested at: requests@FutureRIP.com or by Ph. To Re-Register a 'De-Registered' computer simply transfer back the registration or purchase a Site License.

1.9 Obtaining and Registering a Site License

Site Licenses are available for exclusive use at the same premises as a Full License (less Books & CDs) and/or at the home of the owner. The registration procedure is much the same as registering a Full License. Except you must first purchase a 'Site License #' before being able to register a Site License from Future Corporation or its agents. To obtain a Site License Registration # on-line follow the same instructions as registering a Full License (see Topic 1.6) only adding the Site License # where indicated. The 'Registration Procedure' for FutureRIP SE is exactly the same as explained in Topic 1.6.

1.10 Transferring Registration from One Computer to Another

Because each copy of FutureRIP SE can only be registered on one computer. The user is given the option of being able to transfer their registered copy of the software onto another computer which deregisters the original computer, as follows:

Destination PC | Registered PC | Destination PC

Step 1. Authorize the destination computer and write down the 'Transfer Code'. See Authorization instructions below.

Step 2. On the registered computer Click on 'Transfer Out' and type in the 'Transfer Code' from the destination computer and write down the resultant number.

Step 3. On the destination computer Click on 'Transfer Into' and type in the 'Transfer Code' from the original computer and click 'OK' and the registration is transferred.

Authorization Procedure: You can obtain an Authorization # at www.FutureRIP.com or by telephone. You must have your Customer # and the Computer ID # of the system to be Authorized. To Authorize a Computer please follow the same instructions to Register a Computer as explained in Topic 1.6, except select Authorize in place of Register.

1.11 Duty of Disclosure to Future Corporation: There are very specific conditions associated with the licensed use of FutureRIP SE and all its sub-programs. These are listed in the 'End User License Agreement' (EULA) see Topic 8, this can also be found on the FutureRIP SE CD and when first registering FutureRIP SE. Not observing these rules MAY result in your loss of registration, any claim for re-registration and termination of any technical support and general assistance. Note, unawareness and/or ignorance of these conditions is no excuse for failing to acknowledge and adhere to them.

What you MUST know and advise Future Corporation of: Prior to reformatting the hard disk drive, selling, disposing of, sending away for repairs/upgrades, or making any hardware changes to any computer that contains a registered copy of FutureRIP SE, "Suspend" your registration first. To obtain a Suspend Number from a registered computer, go to the registration window of the software and click on "Suspend Registration" and after following the on-screen instructions a Suspend Number will be issued. Next go to the registration section of www.future-1.com and click on "Suspend", next type in your Customer and Suspend Number where indicated and click on "Submit Request", and your Customer Details will be updated with this information meaning you can register any computer you wish using your Customer Number. Once this is completed you may obtain a new Registration Number at any time for any computer you wish. Important: Future Corporation is under no obligation to reissue a Registration Number should your computer system fail, become lost, stolen, destroyed, or otherwise.

These circumstances are fully insurable and you are recommended to have the appropriate cover should something happen to your registered copy. However, under special circumstances where a Hard Disk Drive (only) has entirely failed and the remainder of the computer that VinylMaster Pro was registered on is still in tact and is accessible. Future Corporation may in its absolute discretion reissue a new Registration Number, but this is subject to the computer meeting its original specifications. This can be confirmed by Future Corporation once a new request for Registration form is requested from Future Corporation, filled in and returned to Future Corporation.

Note, the details of the original computer are still stored on the Hard Disk Drive, and it is pointless attempting to register a new copy of VinylMaster Pro on a secondary computer, as this can be assessed within seconds by Future Corporation. If you do require a second copy, these are available at a heavily discounted price and are referred to as Site Licenses. Please contact your closest office or representative for details.

2.0 RIP & Printing Fundamentals

2.1 RIP Printing Fundamentals

Large Format Digital Printing can be a highly rewarding, profitable and enjoyable business. It can also be frustrating, embarrassing and very costly! Which it doesn't need to be, if you take some time out to-learn-the-basics and obtain a good understanding of COLOR and how it works with varying printers, inks & media.

Whether you're new to this field, the industry, or have owned and operated a Large Format Digital Printer for years. You are strongly recommended to read this topic through carefully, to obtain a basic understanding of the elements at hand and how they affect FutureRIP. Which will greatly improve your capability in achieving professional results.

2.1.1 What is a RIP?

The expression R.I.P. is an acronym which stands for Raster Image Processor (RIP). Generally speaking, RIP software takes your artwork and tells the printer how and where to place each dot of ink onto the media. However this process only forms part of this software program so commonly referred to as a 'RIP' these days (though it is the core (engine) of the software). However, RIP software such as FutureRIP and others have a great deal more functionality and components to them than just their respective RIP engines.

Technically Speaking, RIP refers to the method FutureRIP loads in and examines any artwork and applies various processes and strategies using a range of settings that are specific to the output device (the printer). Which are in-turn expressed by the software as ink combinations in the output device's computer language (emulation). This information is then read in by the output device with the printout appearing the-way and in the colors, at the correct size and position 'the designer' of the artwork and 'the operator' of FutureRIP expected it to.

Sounds simple enough! and although there is a great deal of debate on the best methods to use and decades of color research and modeling. In reality, it's a difficult job to do correctly - let alone well! Though it's relatively quick and easy to develop a just tolerable RIP which many people basically put up with. However, it's very much another to develop a functional and color accurate RIP that is also easy to use such as: FutureRIP SE.

Important Note: FutureRIP is device specific software and you will need all the relevant plug-ins and drivers for your particular make and model of printer. These may not be available on the supplied CD because new printers are being continuously manufactured and we are always updating these components for our user's benefit. Therefore you may need to download or request these components from Future Corp or provide specific information about your printer.

2.1.2 Why can't I just use my Printer's: Printer Driver?

In most cases you can. But you will be disappointed with the output quality, loss of color information and the time it takes to print out your work. You'll also find, that you have very little or no control over color enhancement strategies (Gamut Mapping), the targeting of spot colors , tile, bleed and crop settings, rotation and mirroring and Contour Cutting etc. This is further complicated with the vast range of inks and media flooding onto the market. Therefore a standard 'Printer Driver' just isn't capable of doing the job well and that's why it's imperative to have professional RIP software - that is up-to-the-task.

2.1.3 So how do I use FutureRIP?

Generally speaking FutureRIP is used like the layout section of a graphics or CAD package. It has specialist tools and features for handling, positioning and printing very large artwork and most importantly deals with color reproduction (accuracy and consistency) on a much more sophisticated level than regular graphics software or printer drivers do.

Typically you publish your artwork to FutureRIP from a Window's based program, such as: Acrobat, CorelDRAW, Flexi Sign, Photoshop, Sign Lab or VinylMaster Pro etc. much the same as you'd send your artwork to print.

Except in this case the artwork loads directly into FutureRIP as an FutureRIP Layer. From where you can apply all your settings, position and add to your artwork then RIP & Print and/or Cut. You can also open FutureRIP as a stand alone program from where you can import various image formats and overlays (Layers) to form new artwork, which can then be laid out and processed for color accuracy and just as importantly color consistency by the RIP for printing and or print/cutting.

2.1.4 What's so important about Color Accuracy and Consistency?

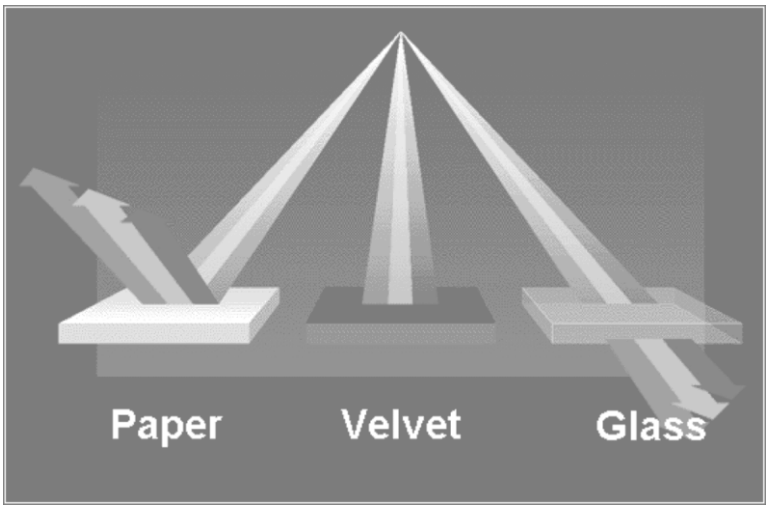
Everything! this is what it's all about. The more accurate and consistent the print out is and matches or improves the original artwork or logo the better. There are a lot of companies these days, that demand very accurate spot colors when it comes to reproducing their artwork and logos in print. Coca-Cola™, McDonalds™ and Ford™ are some well known examples. These guys expect nothing less than near perfect color accuracy, especially when it comes to their name 'up in lights' and the last thing you want to do is disappoint them on a big job!

This expectation has filtered right through to many small businesses and franchises that are big users of one-off and short-run printed posters and signs. So being complacent about color may not only cost you a job or two, but your customer's satisfaction and possible loyalty as well!

2.1.5 What is Color?

It's a simple enough question. But a lot of people really don't know what color actually is or how it works. Firstly you must know a little about light and how it affects everything we see to have a general understanding of what's going on.

Essentially light travels in very small waves (light-waves) which are measured in nanometers (nm) from a light-source e.g. the sun or a lamp. These light-waves come into contact with all objects in their path, with some of the light being absorbed by the object, some reflected and some actually bounce about inside the object and come out at other points! Of course this also depends on the composition of the object itself e.g. white paper will 'reflect' most light-waves, black velvet will 'absorb' them, while a pane of glass will allow most to pass straight on through and so on - as shown below:



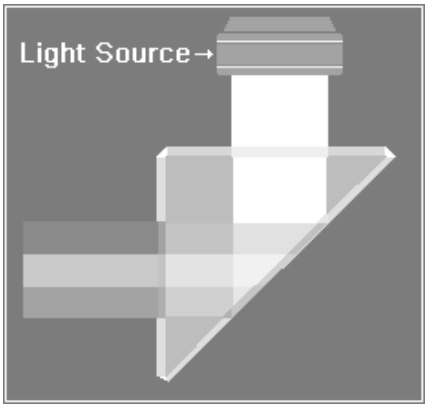
When this occurs around us (when the lights are on), everything comes into view and depending on how much light is present, will determine what color everything appears to us. However, the less light present, the more gray, brown or black everything will appear.

We (humans) can only see a section or band of all light which is commonly referred to as white-light. This narrow band of light is approx. 380nm through to 700nm.

Now this is where it becomes quite interesting and easily confusing! White-light is made up of the all light-waves that our eyes can actually see, but let's say you were only presented (or could only see) light-waves at 680nm what would this look like? If you answered 'red' you'd be spot on! So what this all means, is that various frequencies of light-waves appear as different colors to our eyes. So when light comes into contact with an object and particular bands of light-waves are absorbed by the object, our eyes will only see the reflected light-waves and this is what 'color' the object appears to be.

Take a red apple for example. The apple isn't really 'red' it only appears red, because its skin actually absorbs the green and blue light-waves, while the red light waves are reflected right off the apple's skin into our line of sight and so we see 'red'.

A well known example of this, is a beam of white light entering a prism with an array of colored lights appearing from another side, as shown on the left which looks similar to how a rainbow does, on a sunny day when it's raining. This array of colors is simply the varying bands of light-waves that make up white-light as we see it.



So that's 'generally' how we see colors around us. Though you should also be aware that different types of lighting e.g. a brightly sun-lit room versus a fluorescent or tungsten-lit room will effect the colors of the same objects within them to varying degrees. And also that our eyes well our 'brains' really, automatically adjust what our eyes see, so that contrasts between objects and images look more intense than they actually might be.

If you really are interested in learning more about color and how we perceive and see it, please visit www.FutureRIP.com, go to the links page and see the 'color' web-site links, you'll be quite amazed about how much information there is on the topic and how in-depth it quickly becomes.

2.1.6 So how is this all relevant to Large Format Printing?

Quite Simple! If you understand how 'color' really works and why. You can take steps to overcome foreseeable problems that you will encounter in the course of your day to day work. Or at the very least understand why your 'Printer's Ink Gamut' can't obtain the expected results from particular artwork and explain this to a demanding and or unrealistic customer.

2.2 What's Gamut?

Your printer's ink 'Gamut' is the full range of all printable colors using the available inks in your printer. You most likely know that when you mix Cyan (bright blue) with Yellow, you get Green and by varying the quantities of each ink you can obtain a darker or lighter green. These shades of Green can be further modified by adding a little Magenta or Black and or by leaving white space between the printed dots. All these combinations can be mapped onto a chart, which define your printers 'Gamut'. You should also be aware that different brands or types of ink i.e. indoor or outdoor ink will have varying Gamut's and can have quite an effect on how well or how poorly a job prints out.

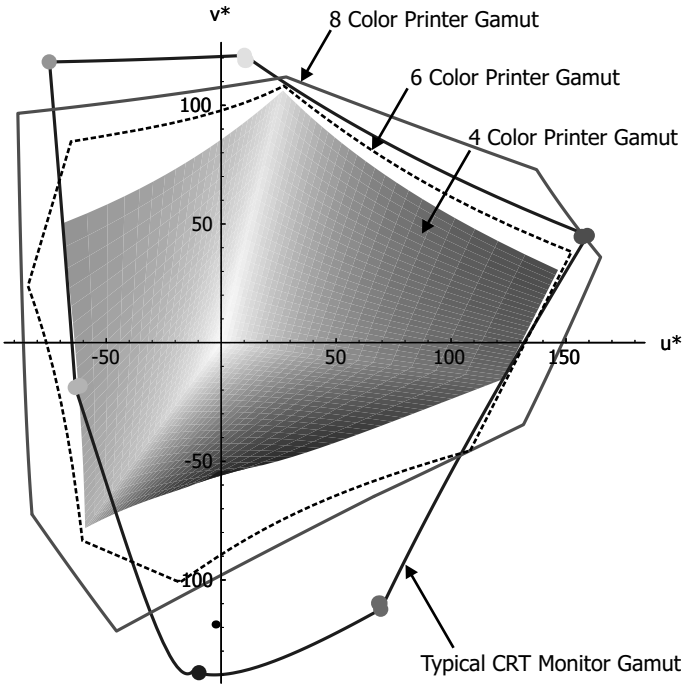
Your computer's monitor also has a Gamut based on its 'Red, Green and Blue' (RGB) glowing phosphors and as it's a light source itself (additive primaries) it has a significantly larger Gamut than your printer. Which is quite a problem, because many of the colors that you can see on your monitor, simply can not be printed with a 4 color (CMYK*) printer.

Even with the latest 6 and 8 color printers your monitor can still display colors they simply can't print out. Though this gap is narrower and the Gamut of these printers (using the right inks) is quite superior to the older 4 color printers, as shown in the general example on the right:

*C = Cyan M = Magenta Y = Yellow K = Black

6 color printers typically use CMYK + 50% Cyan and 50% Magenta or Orange and Green inks.

8 color printers typically use CMYK + 50% Cyan, 50% Magenta, Orange and Green inks, or two sets of CMYK for extra fast throughput. Some have Red and Blue Ink as well.



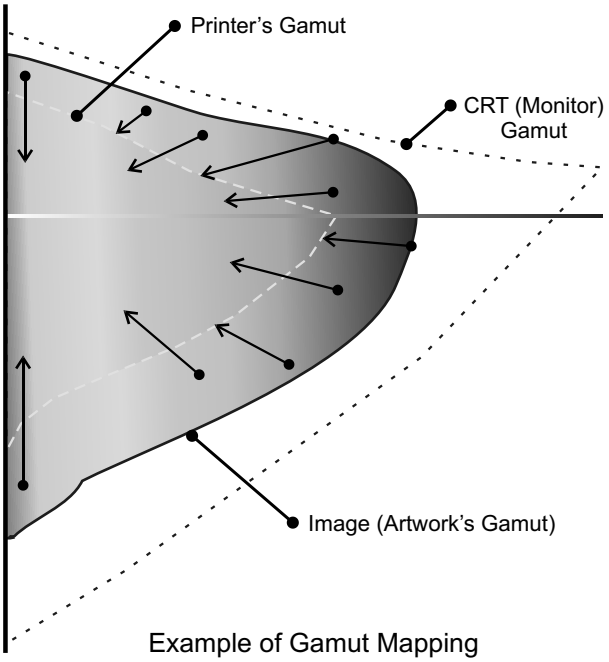
2.2.1 What's Gamut Mapping?

Essentially, Gamut mapping is the method of fitting colors that form part of any given artwork, that are outside the Printer's Ink Gamut to fit (map) back within the Printer's Ink Gamut and thus be printable, as show on the right:

This is how RIP software helps to overcome the limitations posed by printers having less Gamut (color range) than the artwork they are trying to print out has. There are various 'schools of thought' on this subject and a great deal of debate about which method is better than any other.

We have spent a great deal of time researching every method available and have considered them all. Mostly these methods have been developed over many years for typical process printing (plate to press) which has fundamental differences to large format 'digital' printing. Therefore and quite typically of Future Corporation, we have developed our own and unique Gamut Mapping Approaches.

This is further enhanced by using FutureRIP's proprietary 'Color Profiles' (FuturePROFILES) which provide you with much more specific control on your printed results.



Example of Gamut Mapping

2.3 What are Color Profiles?

Color Profiles are a grid of small colored squares printed from each make and model of printer using all brands of ink onto various types of media. Each colored square is made up from preset amounts of ink across all the printer's ink channels. These colors are then scanned in by Future Corporation using a spectrophotometer. This device measures each color in nanometers and is then recorded as the actual color which is made up by combining the particular inks used when printed by the given printer onto the given media.

This information is then used by FutureRIP to accurately predict a Job's colors when printing it out from the given printer/ink/media combination. There are 2 types of Color Profiles: Generic and Custom. Generic Profiles cover most printers and applications while Custom Profiles deal with a specific requirement, such as a 3rd party ink and or Speciality Media etc.

The reason why this must be one is because each make and model of printer will print entirely different colors when compared to another printer, even when using the same settings! This is because each make and model of Printer has a different ink delivery system (Printing Head) and may use a different type of colorant (inks, ribbons and toners) that it can print onto a vast range of different media from transparent to gloss vinyls, matte to high gloss papers, banner materials, and even textile cloth etc.

This immense range of possible combinations is a significant problem in the printing industry as each printer requires a different Color Profile for all combinations. FutureRIP tackles this problem head on by allowing you to produce Custom Color Profiles for any printer/ink/media combination that you may have or require at a later date.

2.3.1 Where do I get my Color Profiles?

FutureRIP comes bundled with a number of generic Color Profiles that cover most applications which is growing continuously and can be downloaded from www.FutureRIP.com. However if you require a Color Profile/s for a specific printer/ink/media combination that is not part of the Generic Profiles you can generate one or several from within FutureRIP directly and have this processed as a Custom Profile by Future Corporation at a modest cost. There is a specific help topic under 'Profiles' in the 'Printer's Settings' window, see Topic 4.4.

Essentially you create a color swatch/s that prints out at regular Letter Size (A4) onto your media, which is then sent to Future Corporation for processing. The Color Profile is then e mailed back to you or sent on floppy disk and must then be generated on your computer. This is done with a few mouse clicks and takes 1 to 10 minutes per Custom Color Profile.

2.4 Understanding your 'Artwork' and how to get the best from it…

2.4.1 Images (bitmaps)

An image can be a single picture or combination of pictures in the form of a bitmap. So what's a bitmap? A bitmap is a digital representation of a picture and/or text made up of a grid of square dots, that when viewed from a distance create the illusion of the picture and/or text - much the same as newspaper/magazine print or a digital photograph does.

As the amount of computer memory required to store a bitmap can be significant, there have been a number of compression formats devised to minimize a bitmap's size in memory. Some of the more well known image formats that use various compression routines are *.gif, *.jpg and *.tif

FutureRIP will allow you to open all of the popular formats, then RIP and Print these. However and depending on the compression technique used, these formats do away with certain information that is permanently lost e.g. the *.jpg format removes parts of the image that we can not see and *.gif only uses a maximum of 256 colors. Both these formats can cause problems when adjusting brightness and contrast etc. and are best used in the state they are presented in. *.tif however, loses very little if any image quality and is a highly compatible image format and therefore is usually the best format of choice. *.bmp files do not usually use compression and can be very large, but they do maintain full quality.

Bitmap Issues

It has become common place these days to see *.tif files as large as 250Mb so that the printed artwork looks well defined (sharp) when printed. This is usually done because text and drawn shapes (vectors) are included with a background picture and print out jagged, unless the entire image is rendered with many more pixels than would otherwise be required - thus increasing the artwork's size to mammoth proportions. This simply means that when the artwork is printed out all the extra pixels tend to smooth out any jagged areas. This is basically a work-around and does not adequately address the problem.

However a significant time and print quality advantage can be obtained using FutureRIP. This can be done by combining vectors and text as FutureRIP Layers over a background image (bitmap). This is because vectors take up far less memory and computer resources whilst maintaining super high quality at print time. The background image can be rendered with significantly less pixels (without any loss of quality) and when printed with the vector layers produces superior results than a *.tif file of the same artwork.

2.4.2 Vectors

A vector path or vectors are curves and lines (paths) that follow through control points i.e. Curves, Lines and Text. Vectors are constructed mathematically and can therefore be resized without losing their shape, accuracy or smoothness, much unlike bitmap images which lose quality when resized. They also require significantly less computer memory to render.

Vectors are loaded in as FutureRIP Layers in FutureRIP and play a significant role in its high quality output, because they retain their high resolution no matter what dpi the job is being printed at (see dpi below).

2.4.3 DPI or dpi (dots per inch)

This subject can easily create confusion because it sounds simple enough! but it can become quite confusing when you start talking about dpi and printing. The first thing to understand is that an image (bitmap) is made up of a grid of small dots (as explained above) and that this grid has 'no physical size' until it's either rendered onto your monitor from a program or printed out.

For example: If you had a photographic image e.g. a digital camera shot that was say: 1500 x 1500 dots and loaded it into a graphics program and set its size to 30" x 30" (762 x 762mm). The image would need to fit its 1500 dots over the 30" which when calculated (1500 ÷ 30 = 50) works out to 50 dots per inch.

Now when sending this image to a printer at the same size of 30" x 30" there are still only 1500 dots to work with so the image would therefore print 50 dots per inch.

Now this is where it can become confusing! because the printer can be set to a range of dpi settings such as 300, 600, 720, 1440 or even 2880dpi etc. depending on the make and model? So how does a printer take 1500 dots, print them over 30" at 600dpi for example? well what it would do in the case of 600dpi would be to print 12 small dots to make up every 1 full dot of the image. So in other words it would use 18,000 very small dots to print 1500 larger dots over 30". By doing this the image appears to be much smoother and well defined, especially along sharp edges like text, see example below.

So why not print everything at the highest possible dpi of the printer? There are several reasons as follows:

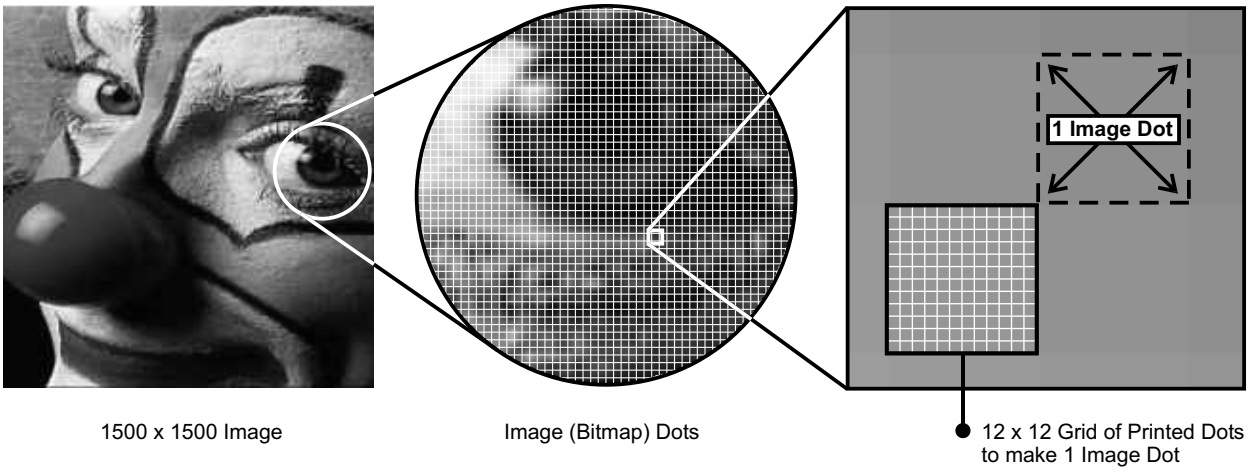
1. There becomes a point at which printed dpi is unnoticeable at a given viewing distance e.g. a billboard printed at 300dpi would look just the same as if it was printed at 10,000dpi from the highway driving past at 60mph. In fact billboards are usually printed at between 25 and 100dpi (depending on size and location).

2. The time it takes to print each square inch is greatly increased when printing a higher dpi.

3. As the dpi is increased so is the amount of ink used to print the job. In fact this can up to a lot more than you may think! This all combined significantly increases the costs.

However and in the reverse, reproduced 'Fine Art' displayed in a gallery needs to be printed out at much higher printer dpi, because the audience can look very closely at the image and see the resolution.

So as a general rule of thumb, design and print large scale works that are viewed from a long distance at a lower dpi (design with 1500-3000 pixels across and print at 100-200dpi) and for small scale works that are viewed from a short distance design and print your artwork with a higher dpi (design with 1500-3500 pixels across and print at 600+dpi). Note: These figures are a very general guide only.



Example of 1500 x 1500 Bitmap printed 30" x 30" at 600dpi

2.4.4 FutureRIP and dpi

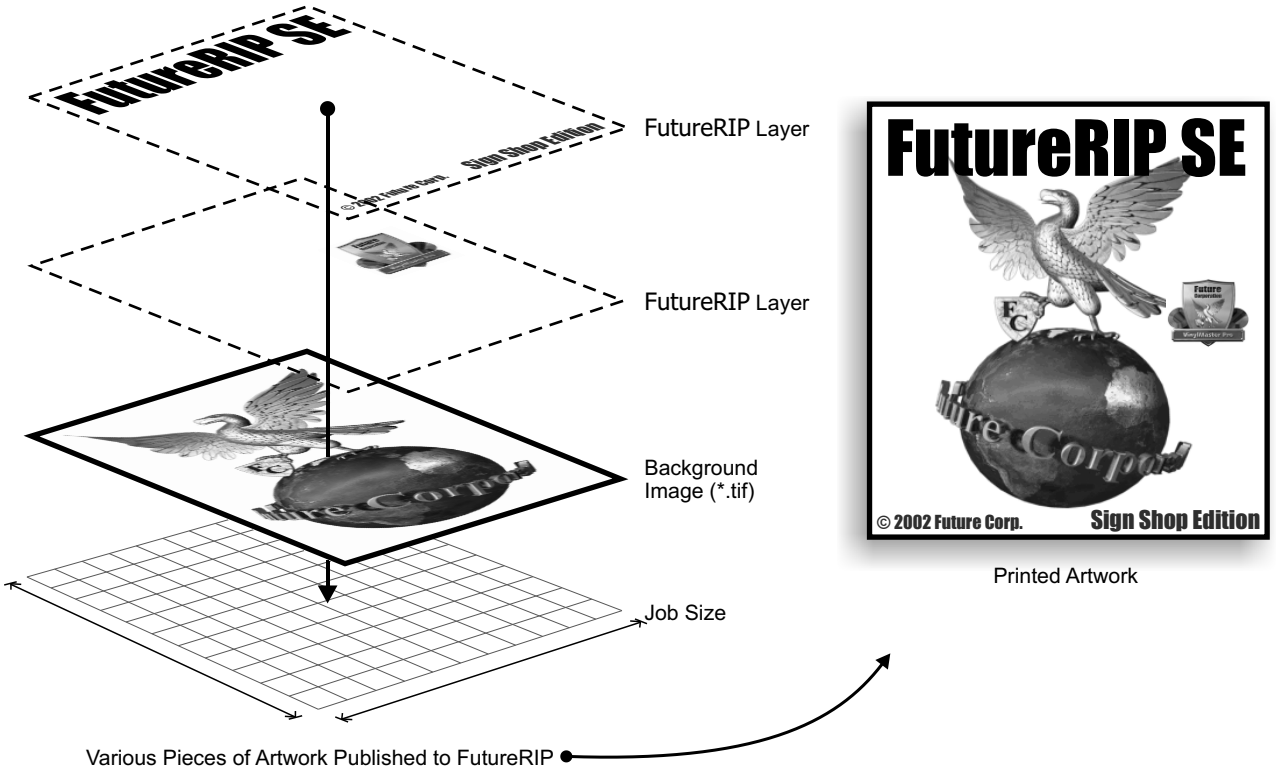
To help compensate for images that may not have enough dots and or are to be stretched and printed onto a large area, FutureRIP has some specialist settings: Render dpi and Bitmap Interpolation.

Render dpi: Increases the number of dots within the image using the software (similar in concept to how the printer does) and Bitmap Interpolation: blends the dots together using an algorithm which gives the effect of smoothing the image. Both of these settings are set using sliders or a preset quantity and the effect each has on the image can be viewed in real time in the 'Preview' window of FutureRIP. These settings significantly improve the printed output and are easily implemented.

They work together by displaying a small area of the image approx. 1-2″ square (25-50mm) roughly as it will be printed out. This is very helpful because you can get an idea what the image will print out like in this small area. But remember your viewing the image right up close and if it's a poster that people are going to view from several feet if not tens of feet away (meters) you should stand right back from your monitor to get a better idea of what the image will look like when printed out.

Recommendation: For small scale works up to approx. 10′ x 10′ (3.0 x 3.0M) set Render dpi to 'Best' and Bitmap Interpolation to 100% as it greatly increases output quality without taking up all computer's resources. However for larger scale works both these settings are better set mid-range as Windows imposes certain limitations that may not allow you to use the higher settings. PLUS any extra quality will not be appreciated due to the long viewing distance.

2.4.5 FutureRIP SE Layers

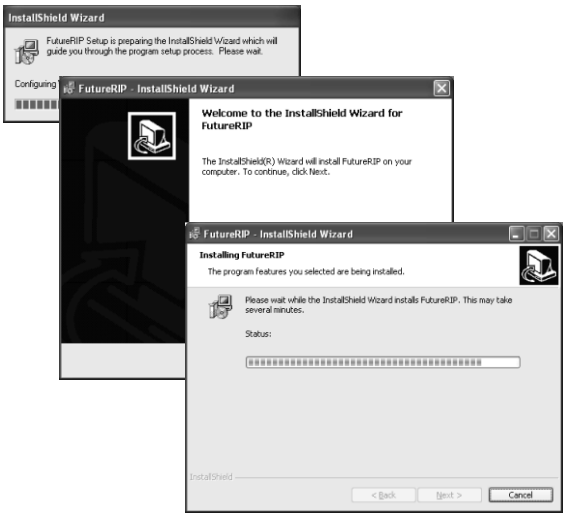


FutureRIP and EMF Layers (Enhanced Metafile) are both native to Windows. FutureRIP incorporates these Layers as part of the final artwork for printing.

The advantage with this method is it allows artwork to be laid layer upon layer to create the finished work ready to be printed. These FutureRIP Layers are created when publishing to FutureRIP from a Windows based program e.g. from applications such as CorelDRAW™, Flexi Sign™, Photoshop™, Sign Lab™ or VinylMaster Pro® etc. The main advantage with FutureRIP Layers is that any vector components such as Text and Shapes made from curves (paths) will maintain their sharpness when printed regardless of the Job Size. Plus they require very little computer resources as compared to image (bitmap) artwork that is usually created with lots of extra dots to compensate for text and shapes rendered as part of the bitmap. This is completely overcome when publishing text and shapes to FutureRIP.

Note: Some graphics programs can export artwork in the EMF format. But be aware that most DO NOT create the artwork or allow you to create the artwork at the finished size, rather just using the screen resolution of 72/96dpi which in most cases produces very poor results when printed. Therefore it is recommended to Publish your artwork into FutureRIP.

3.0 Installing and Setting Up FutureRIP SE



3.1 Installing FutureRIP SE

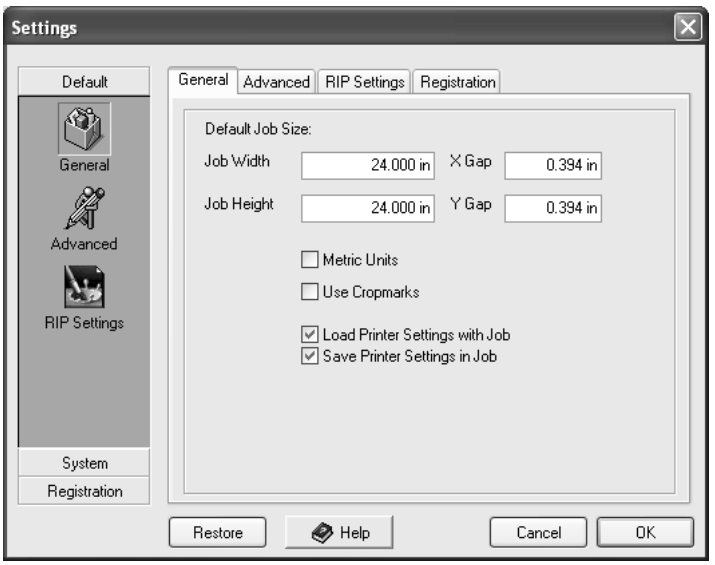
To install FutureRIP SE insert the CD and wait for the Installation menu to display and click on Install to proceed. Note: If you have Auto-Run turned off open Window's Explorer and navigate your way to the FutureRIP SE CD, open it and click on setup.exe. Once running 'Setup' will guide you through to install and setup FutureRIP SE on your computer. You will be presented with an option to run a Typical, Minimal or Custom setup. For a standard setup select 'Typical', if you wish to install specific components select 'Custom' and nominate the components and files you wish to install and click on 'Next'.

3.1.1 Installing FutureRIP SE Drivers

Each type of Printer (Printing Head) requires a driver to operate it using FutureRIP SE. As most users only have 1 or 2 Printers they will only need to install 1 or 2 FutureRIP SE Drivers to suit their equipment. These Drivers can be found on the root directory of the CD in the Driver Folder. To install a Driver simply double click or run it and it will automatically install onto your system. To uninstall a Driver go to the 'Printers' menu of FutureRIP SE and click on 'Uninstall'. Note: If your Printer's Drives are not available please log onto www.FutureRIP.com and search for your Printer's Drivers and/or contact Future Corporation for instructions on how to obtain Printer Drivers for your particular Printer.

3.2 Settings

The FutureRIP SE Settings can be found under the 'Options' menu of the program. These are set according to the users individual requirements, as follows:



3.2.1 General Settings

The General Settings are set to suit the type of work you generally do, whether you like to work in Imperial or Metric and how you would like your printer's settings to be implemented.

Job Width & Height: Are set at the size you prefer to work with, for each time you start a new Job. These sizes are usually based on your Printer's Width, while the Height (or Length) is usually set to the same measurement for convenience. However this will depend on the type of work you do.

Gap: Is the default area left between multiple copies of the Job and should be set to allow enough room for trimming your work.

Metric Units: When checked places FutureRIP in metric mode and all measurements will be in mm.

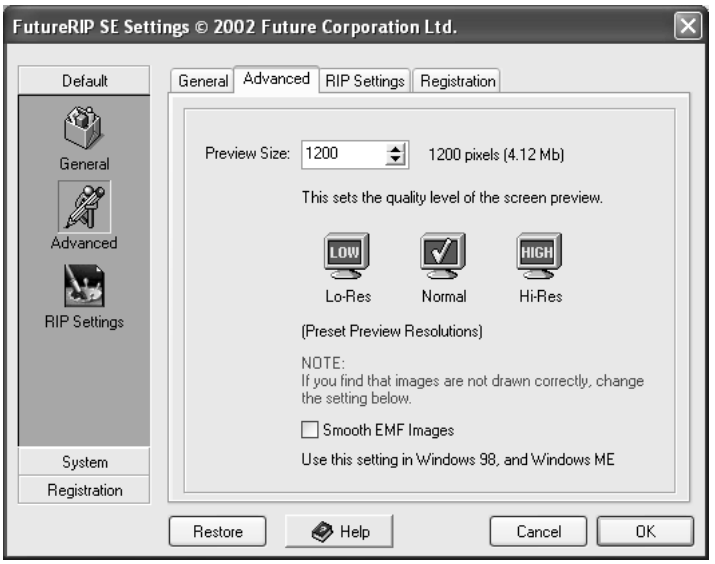
Use Crop Marks: When checked will allow for Crop Marks to be included with the Job size, whether they are used on each Job or not, see Topic 6.7.3 for more information about how this may effect your output.

Load Printer Settings with Job: When checked means that your default printer settings as set in the Printer Properties will be loaded automatically with the Job. This is recommended for those using one printer that rarely change their Printer's Properties.

Save Printer Settings in Job: When checked means that any specific Printer Properties that you have set with the Job are saved along with it, so that when you open it at a later time all those settings are restored for the Job. This is very helpful when printing out the same Job using the same ink and media combination at different intervals when output quality needs to remain the same.

3.2.2 Advanced Settings

The Advanced Settings are set to allow for slower computers while allowing faster computers to take advantage of their speed. Along with Window's 98 and ME display issues not present in 2000 and XP.



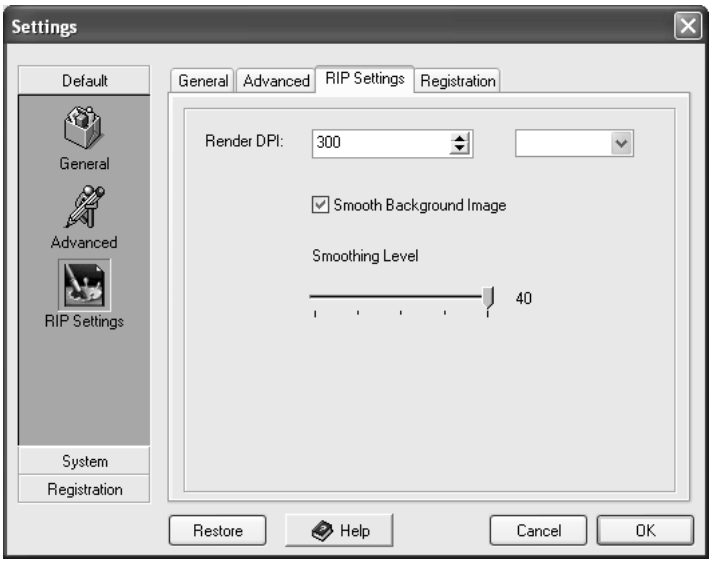
Preview Size: Sets the number of pixels (along both axis) used to display the Job in FutureRIP. Increasing this setting will enhance the display preview at the expense of your computer's resources and in particularly the computer's RAM.

Note: The amount of memory used to complete this process is listed at the right of this setting and should not exceed 10% of the computer's RAM i.e. 12.8Mb should be the maximum set for a computer with 128Mb of RAM.

Smooth FutureRIP and EMF Images: When checked renders published artwork that contains bitmap images smoother. It is recommended to be checked for those using Window's 98/ME.

3.2.3 RIP Settings

The RIP Settings are set at the default output quality you require and are best matched to the type of work you generally do.



Render dpi: This setting is used to set the specific quality the program applies to the Job for printing. This is done as a Render Setting in 'dots per inch' (Render dpi). This setting is unrelated and should not be confused with the Printer's dpi which is discussed in Topic 4.2 and you are encouraged to read Topic 2.4.3 'Understanding dpi' prior to changing this setting. Note: Other than very large work (Billboards) it is recommended to leave this setting to 360dpi.

Smooth Background Image: When checked is used to smooth (blend) together pixels of bitmap images to remove unwanted pixelization, see Topic 6.7.2 for more information about this settings effect.

4.0 Printer Settings

4.1 Printer Setup Overview

FutureRIP has been designed to operate 'Printer Specific'. What this means is that its functionality, operation and output quality are greatly effected by the Printer which is selected and the Printer's Properties set, which this Topic discusses. It is therefore paramount to correctly set the printer and its properties to obtain the best possible results using FutureRIP.

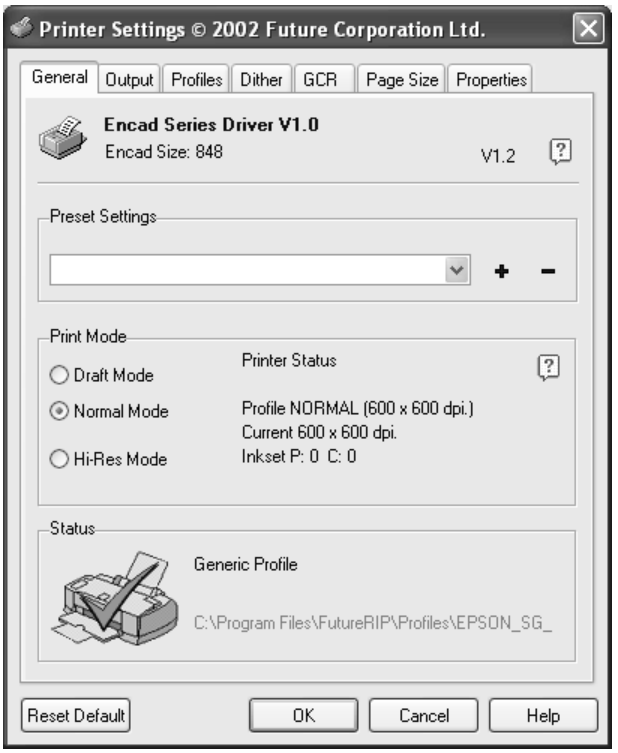
Generally speaking and unless you have more than one 'large format printer' these settings should only need be set up once or on the odd occasion when you might change your ink and/or media combination, as the settings are remembered for future use. You can also save your settings as a 'Preset' which is very helpful when toggling between different types of work.

Using the Printer Settings Module
The Printer Settings module is presented as a series of tabbed windows, each of which relating to a specific topic. Although some settings can be left at the default setting. It is recommended to at least understand them, so that you may adjust them to suit particular Jobs.

Important To Note
Each Printer has it own driver written specifically by Future Corporation for use in FutureRIP. What this means is some settings within the Printer Settings will be different than others. However they have been designed to a particular theme and will be similar in context but not necessarily content. Therefore should the illustrations displayed throughout this manual be slightly different to that of your Printer and its Printer Driver you needn't be concerned as the principles remain the same.

4.2 General

The General section is where the Printer's make and model is listed along with setting its printing mode.



Printer Settings Module

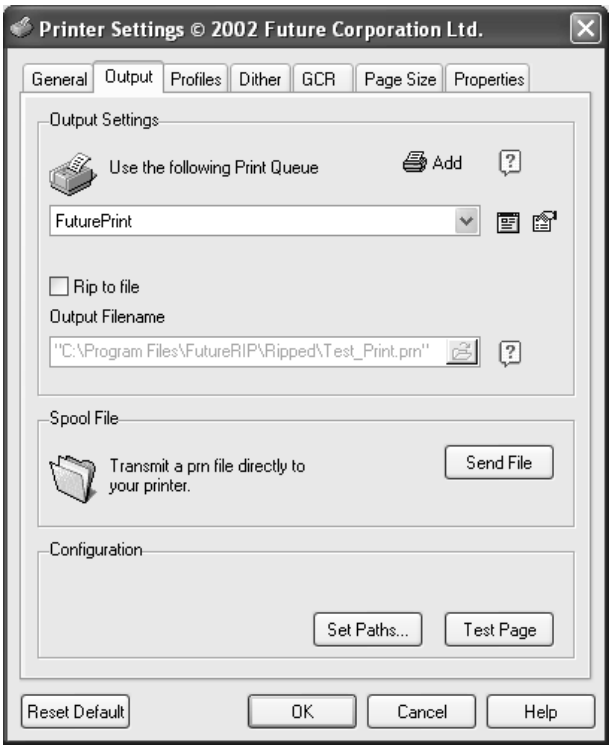
Preset Settings
Records by name any changes you make to the 'Default Settings' set by Future Corporation. To apply a Preset Setting click on the '+' button and you will be promoted to type in a name. It is recommended to use descriptive names for your custom settings so that you can easily identify them for future use.

Print Mode
This section allows you to quickly specify the requested printing mode from low to high quality. All of the required settings to achieve this purpose will be set automatically and it is recommended to set your Printer's Resolution here to avoid setup conflicts elsewhere.

Note
Hi-Res Mode (depending on your printer) you may require a larger Ink Set and/or other settings to be altered on the printer itself. The print speed may also be significantly changed.

Status
Reports whether or not the settings throughout the entire module are compatible with each other and the printer itself. In the case of correct or useable settings a 'Green Tick' will be displayed. In the case of incorrect settings a 'Yellow' warning symbol will be displayed with an error message advising known problems - so you can correct them.

4.3 Output



The Output section is where the Printer's Queue is set along with setting a file location for processing RIP files.

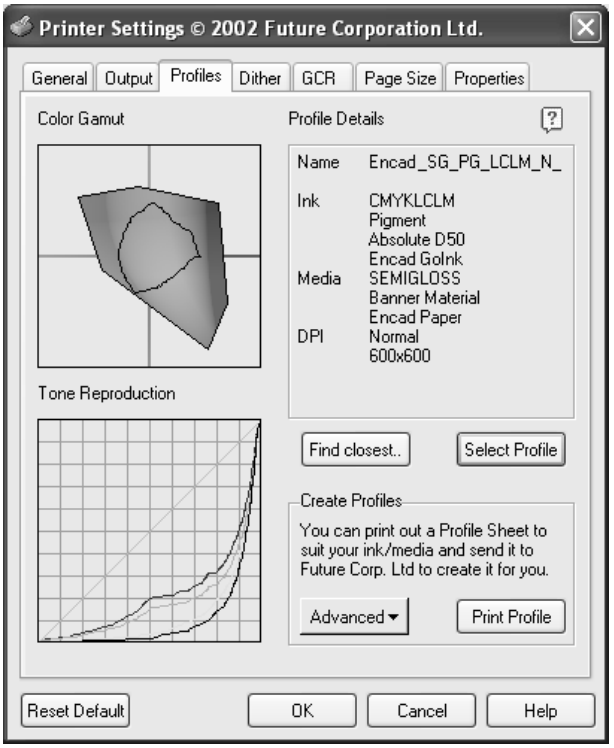
Print Queue
Windows has a built in print spooler that is designed for sending printer data to the printer itself. FutureRIP is designed to utilize this technology ensuring forward compatibility with future Windows operating systems. In order to RIP a job, an installed Window's Printer Driver must be selected as the vehicle to transmit the data to the printer. The printer in question has absolutely nothing to do with the printing process, other than sending the data to the correct port.

If you do not have a printer driver linked to the correct port (where your printer is located), click on the 'Add' button to install a 'Generic Text Only' Printer Driver for that purpose.

Rather than sending a print job directly to the printer you may choose to RIP it - to a file. You can then print the RIP file at a later time by clicking on the 'Send File' button. This can be useful if you need to Print the same file many times.

Note: You can also prepare RIP files and send them to someone with the same printer. They will be able to print the file, even without FutureRIP.

4.4 Color Profiles (Profiles)



This section is used to select and compile Color Profiles, which are used by FutureRIP to accurately reproduce the colors within your artwork from your printer. For more information about Color Profiles please see Topic 2.3.

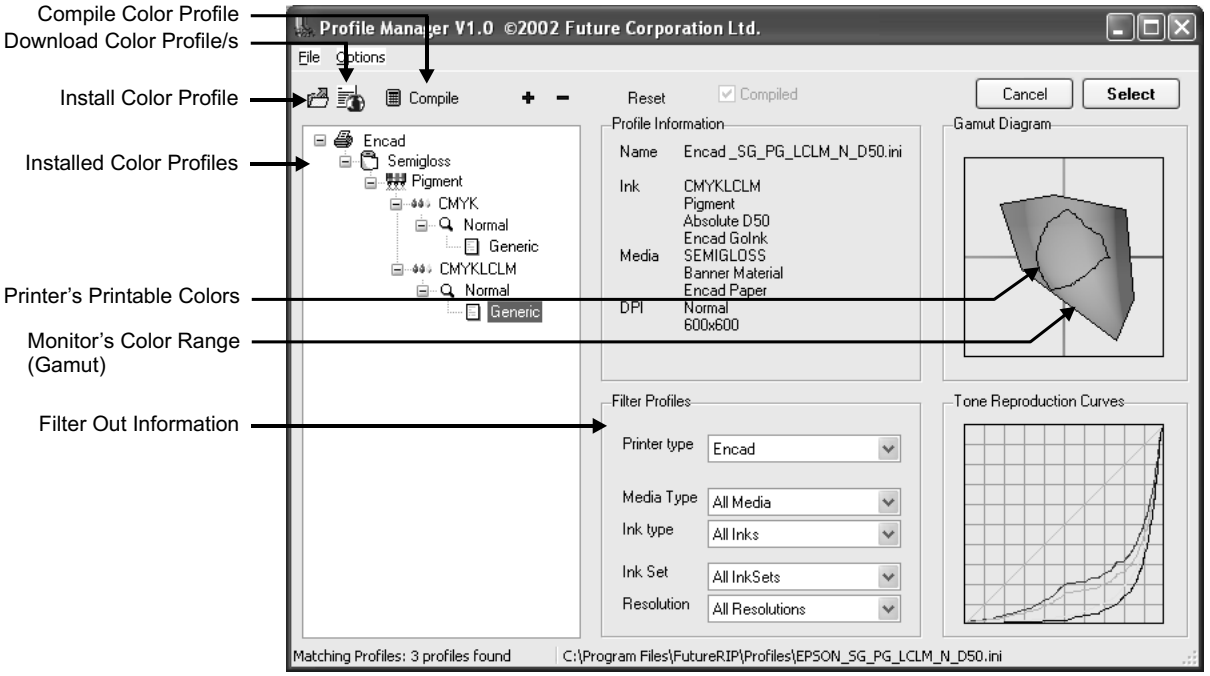
Generic Profiles
FutureRIP comes bundled with a range of Generic Color Profiles which can be immediately used with their relevant printer. However if you have a Printer/ Ink/ Media combination that is not present amongst the Generic Profiles you may have to create a Custom Color Profile, see Topic 4.4.9.

Important Note: If you do not select the correct Color Profile you will have unpredictable results.

Profile Details
displays the currently selected Color Profile which will be used by FutureRIP when printing out your work.

Find Closest
when clicked sends FutureRIP looking for the closest matching Color Profile in your Profiles Folder, usually found in C:\Program Files\FutureRIP\Profiles. Once the program locates the closest match it will set this as the current Profile.

4.4.1 Select Profile/Profile Manager



The Profile Manager is used to manage and when required compile Generic and Custom Color Profiles . This module is opened by clicking on 'Select Profile' as shown on the previous page. This Profile Manager is used to locate a particular Generic Color Profile for use in the program with the current Printer/Ink/Media combination. It is also used to compile Custom Color Profiles which is discussed in the next Topic.

How Color Profiles are Sorted
Each Color Profile is unique and is listed in the following order: 1. Make and model of Printer (Printing Head), 2. The type of Media being printed onto, 3. The type of colorant (ink, ribbon or toner), 4. The colorant channels to be used (ink set e.g. CMYK+Or+Gr), and 5. The printing resolution in dpi to be used. With a specific combination making a Color Profile.

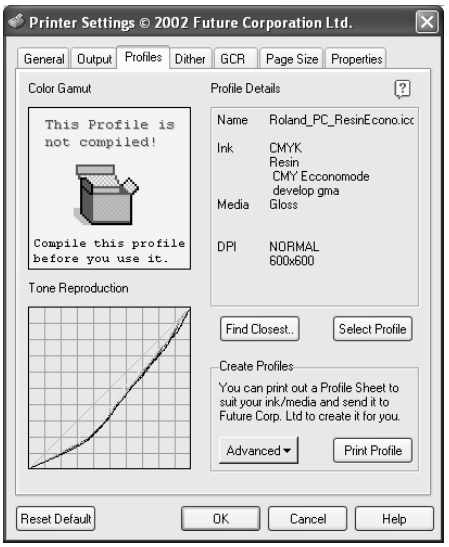
Note: Several Printers share the same type of Printing Head with the only difference between them being printable width. The width has no bearing on the Color Profile being used, therefore a model range of Printer's can usually share the same Color Profile cutting down on the number of Color Profiles. A common example of this is the Roland range of 'Hi-Fi JET Pro' Printers which use a particular type of printing head that is common to the entire range. Therefore the same Generic Color Profiles can be used for all these particular models, rather than having a separate Generic Color Profile for each individual model (width). However the previous FJ Model range, uses a different Printing Head and therefore has its own Generic Color Profiles for the entire range and so on.

Locating a Color Profile
Each 'Installed' Generic Color Profile on your system will appear in the Profile List based on the location (Path) that has been set on your system, usually C:\Program Files\FutureRIP\Profiles. Normally you will only have those Color Profiles installed for your Printer/s to avoid having to many Profiles in the list.

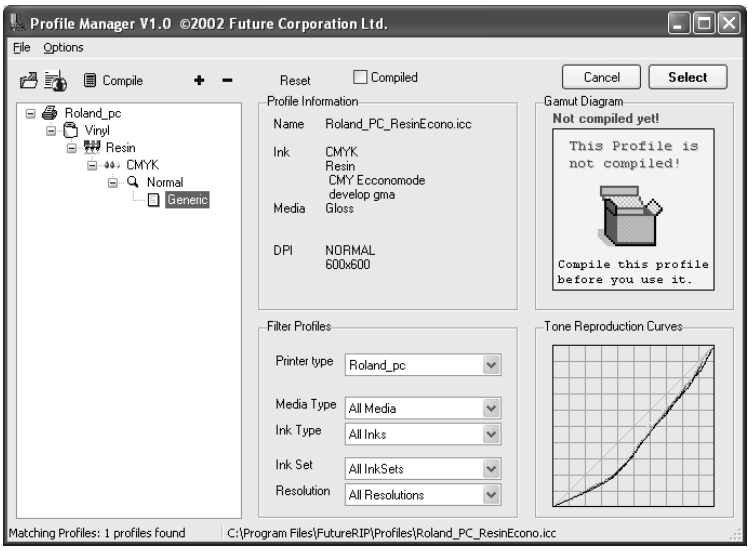
To select a Color Profile, click on the expanding '+' boxes of the required Printer make and model, the Media and Ink type you wish to use along with the Ink Set and Printer Resolution and if you have a Color Profile that matches your requirement you will see either 'Generic' or 'Custom' at the end of the list. Click on this to open the Color Profile and you will see its information come up in the 'Profile Information' section. Next click on Select to load the Color Profile for use in FutureRIP. Note: If the Color Profile you have selected says 'Not Compiled Yet' you will need to compile the Profile, which is discussed in the next Topic.

4.4.1.1 Compiling Color Profiles

FutureRIP SE Color Profiles must be compiled before you can use them. This allows very accurate Profiles to be created, without the need for downloading large profiles from the Internet. Another advantage of this method is that you can incorporate advanced features, such as ink-limits into the Profiles lookup table.



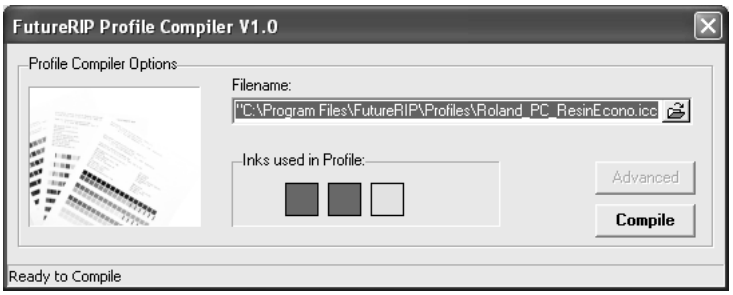
Printer Settings

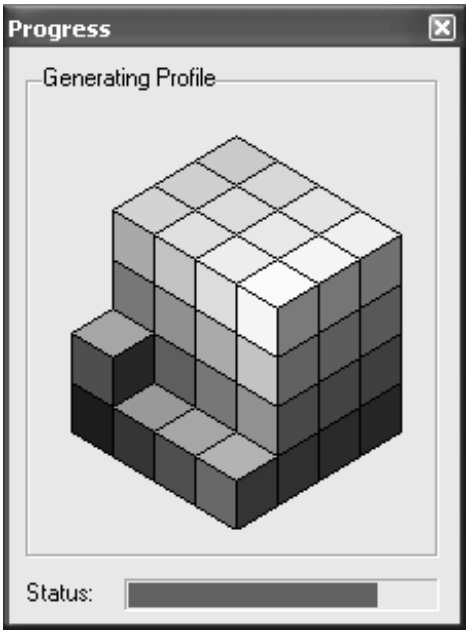


Compile Profile Window

When you see that a Profile has not been compiled, click on the Select Profile button to activate the Profile Manager.

With the profile selected, when you attempt to select this profile, you will be asked if you want to compile the profile. Follow the prompts and you will be guided through the steps to compile a Profile.





How to compile a Profile:

1. From the Start menu, click on Compile Profile
2. Click on the 'Open' button and select the desired Profile
3. Click on Compile
4. After a few moments, the profile will be compiled
5. Return to FutureRIP SE ready to use this compiled Color Profile

4.4.2 Creating Color Profiles from Scratch

FutureRIP is supplied with a range of Generic Color Profiles which can be immediately used with the Printer they are written for. These Generic Profiles come as part of FutureRIP and are designed to suit most applications for most printers. However if there isn't a Color Profile that matches your particular Printer/Ink/Media combination you may have to create a Generic or Custom Color Profile.

What's the difference between Generic & Custom Profiles?
Price and Accuracy. Generic Profiles are processed and then supplied by Future Corporation on the FutureRIP CD and as new Generic Profiles are released at www.FutureRIP.com free of charge. These 'Generic' Profiles are designed to cover most applications for main stream printers; and are provided by Future Corporation based on a set of general criteria as listed below.

Custom Profiles are all those Profiles that are not covered by Generic Profiles and are usually required for a specific brand of ink and/or media for a given printer. These Custom Profiles are also broken into Standard and Advanced categories depending on how far the user wants to take their printable accuracy to. As these Custom Profiles are time consuming to process Future Corporation charges a modest fee to produce Custom Color Profiles. The details of these fees and conditions can be found at www.FutureRIP.com or by contacting your local Future Corporation Office.

Do I have to pay for Generic Profiles?
For those users that do not have a Color Profile to suit their particular printer that do fall within the Generic Profile criteria as listed below Future Corporation will process your Color Profiles at no charge and will make this Generic Profile available for download. The only cost to the user will be time, ink and media to print out up to 6 Letter Size (A4) sheets onto their media and post (mail) this to Future Corporation's processing division. Note: 6 and 8 Color Printers may need up to 12 Letter Size (A4) sheets printed onto their media and in some unusual cases more.

Generic Color Profile 'General Criteria' List
As there are an ever growing range of new printers, inks and media being manufactured the Generic Profile list is designed to be reasonably flexible and to allow for new technologies as they are released. However it only covers main stream printers with up to a maximum 8 color channels. For unlisted printers please write to Printers@FutureRIP.com.

Each item within the listed categories requires 1 (one) Generic Profile for a given make and model of printer except for 'Resolution' which only requires 1 (one) extra Generic Profile for each Resolution. Therefore and for example the maximum number of Generic Profiles any one printer could have is 48 Generic Profiles.

Printer Types	Ink Sets	Ink/Colorant Types	Media	Resolution
Ink Jet	CMYK	Dye	Matte	Draft
Laser	CMYK+Lc+Lm	Pigment	Semi-Gloss	Normal
Thermal	CMYK+Or+Gr	Solvent	High-Gloss	High-Res
Width 12" to 200"	CMYK+Lc+Lm+Or+Gr	Resin	*Guide only, Media types vary significantly between printers	
HP RTL or Hybrid	CMYK+Bl+Rd+Or+Gr	Wax		
		Toner		

Note:
1. Ink Sets, Types and Ribbons are based on manufacturer's own brand or to specification only. Aftermarket inks, ribbons and types will be considered for use in a 'Custom Profile' only;
2. Media is based on one brand or type for each reflective medium to a maximum 3 (three) per printer make & model. Specialist and particular brands and types of Media will be considered for use in a 'Custom Profile' only;
3. Printer Types are only those where the manufacturer makes available their printer's emulation codes to Future Corporation and/or which are HP RTL or a HP RTL Hybrid.

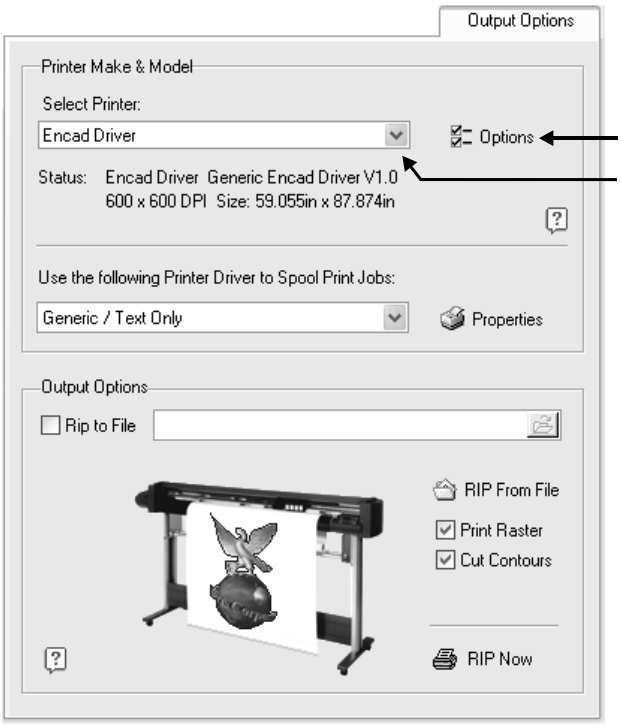
An example of a Printer's Generic Color Profiles for say a Roland DG: PC-600 24" Thermal Printer is as follows:

Printer Type	Ink Sets	Ink/Colorant Types	Media	Resolution
Thermal	CMYK	Resin	Standard Vinyl	Normal (600dpi)
Width 24"	CMYK+Or+Gr	Wax		High-Res (1200dpi)
RD RTL	CMYK+Bl+Rd+Or+Gr			

4.4.3 Creating a Generic Profile

Important Note: Because Generic Profiles require 'Tone Reproduction Curves' to be present before printing out the various color swatches the Generic Profile creation is split into 2 (two) parts, each requiring a Print Out to be sent to Future Corporation's Processing Division.

There isn't a Generic Profile that covers my Printer/Ink/Media combination, what do I do?
The first step is to load FutureRIP and select the correct Plug-In driver from the 'Output Options' window, in most cases this is the 'Multi-Driver' which allows settings to be altered that would normally be hidden.



Notes

If you do not see the Plug-In Driver in the list, you may need to update your plugin list.

To do this, firstly ensure that the driver has been copied to the 'FutureRIP\data' folder, next: from the 'Options' menu in FutureRIP, click on 'Set Paths' and ensure that the 'data' directory is set to the same location.

From the 'Printer' menu in FutureRIP, click on 'Update Plugins' to refresh the list of detected plugin drivers.

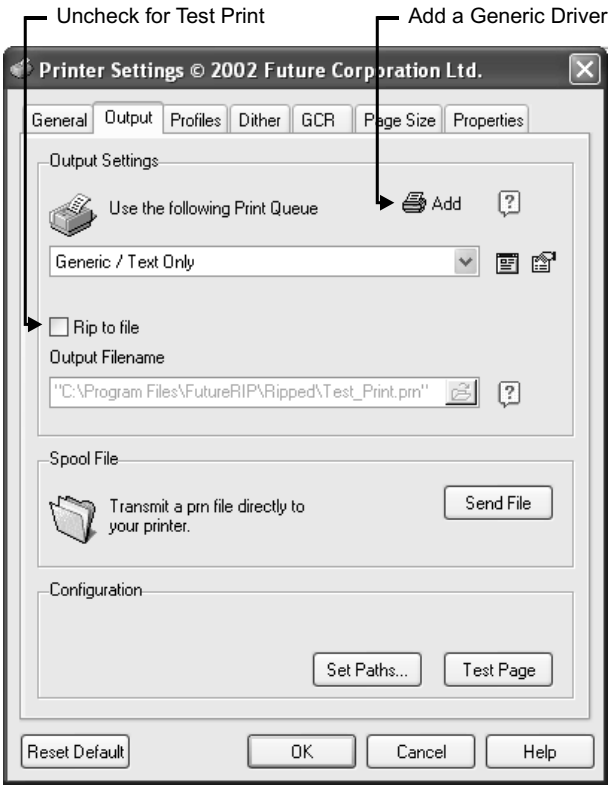
Setting the correct Print Queue

Before you can print with the selected driver, you will need to select a windows printer to serve as a handle between FutureRIP and the physical port that the printer is connected to. This printer does not need to have anything to do with the output printer, and if you do not have a driver installed for the output device, you can simply install a Generic/Text Only Printer Driver for this purpose.

Testing the connection to the Printer

To confirm that the Window's printer is set correctly to the output device, you can perform a test print, by clicking on the 'Test Page' button.

This will attempt to print a small swatch of color bars. Before you perform this test, ensure that the 'Rip to File' setting above is not selected.



Selecting the Correct Settings

Before attempting to print out a Generic Profile, you will need to decide on the most suitable settings on which to base the Profile.

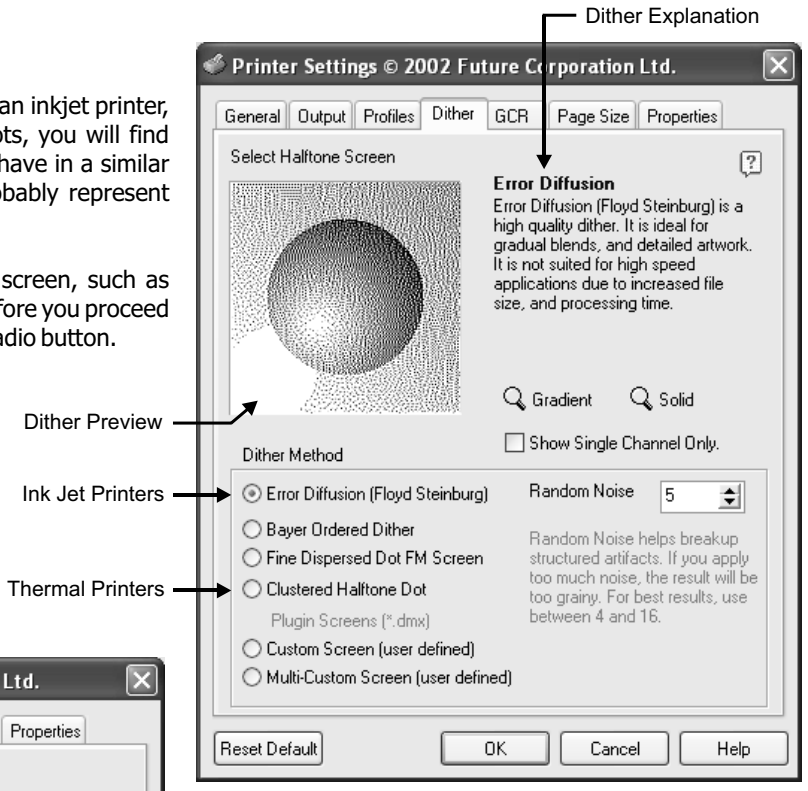
This is quite important as it will determine what settings will be set when using this Profile in the future. Your own experience should be used here and you should also find your Printer's recommended settings in its manual or from your current RIP (Printing) software.

4.4.4 Dither Method

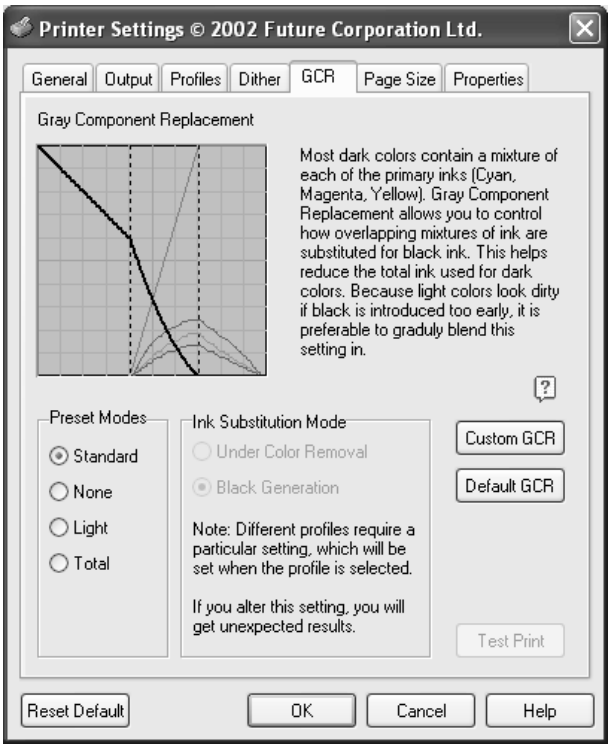
If you are attempting to print a profile for an inkjet printer, that is capable of printing fine (small) dots, you will find that all of the dot-diffusion dithers will behave in a similar fashion, therefore Error diffusion will probably represent the best choice.

For printers that require a clustered dot screen, such as Thermal Printers this will need to be set before you proceed by clicking in the 'Clustered Halftone Dot' radio button.

See also Topic 4.6 on Dither.



4.4.5 Setting GCR/UCR



GCR stands for: Gray Component Replacement
UCR stands for: Under Color Removal

Gray Component Replacement (GCR) which is commonly referred to Under Color Removal (UCR) is a method used to replace or enhance very dark almost black areas of an image that is made up with overlapping Cyan, Magenta or Yellow ink with Black ink.

This feature not only improves the definition of some images it also reduces ink pooling which can result in poor output results and it also saves the overuse of CMY Inks - effectively saving you money.

It is important to note that Color Profiles are designed to hard-code this setting as part of the Profile itself. Therefore it is advised to adjust any changes here rather than as an after thought during the printing process, as it may have an unwanted effect. For more information see Topic 4.7

4.4.6 Printer Properties

This section contains various settings that allow advanced options to be selected which will be incorporated into the Profile.

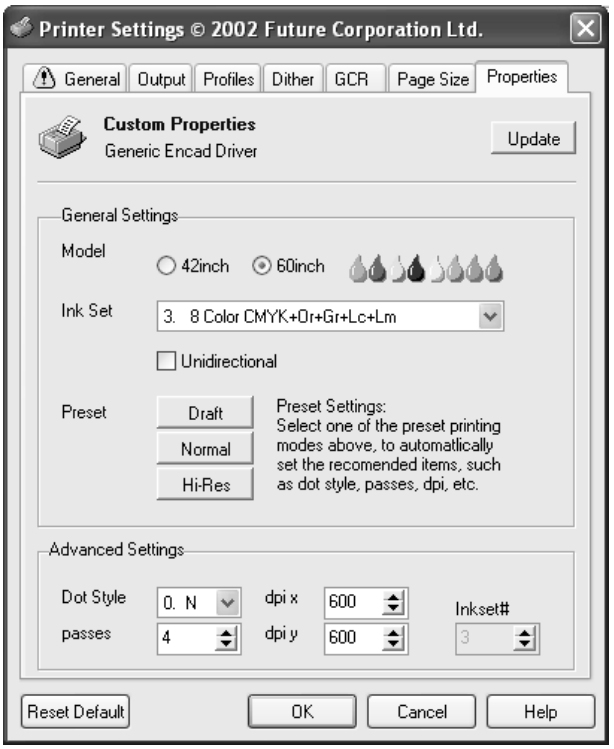
The following describes each setting that needs to be set in the desired order.

1. Emulation
Set this to match the printer you are printing to e.g. For a Roland Printer select: 2. RD RTL (Roland) , and so on.

2. Ink Set
Some printers contain additional inks such as Orange, Green, Light Cyan & Magenta etc. If these are to be included in the profile they must be selected as the Profile Ink Set.

3. Preset Mode
The Resolution, Dot Style and Passes etc. have been rolled up and packaged into Standard Preset modes. For a standard Profile, click on 'Normal' to select the correct settings. If unsure please e mail: Profiles@FutureRIP.com

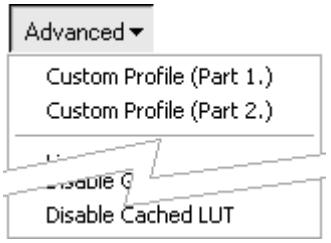
4. Click on 'Set' to update these settings.
After inspecting the current settings, click on the 'Set' button at the top.



4.4.7 Printing the First Half of the Profile

Once the correct settings have been set, you are ready to print out the first part of the profile. Before you proceed you will need to know the following information:

- The Name and Brand of the Media.
- The Name and Brand of the Ink.
- The Ink and Media Categories.



From the Profiles tab, click on the 'Advanced' button, and select 'Custom Profile (Part 1.)'

At this point, the Profile Maker Wizard will appear guiding you through the data collection steps for this profile. Information such as your details will be automatically saved ready for the next profile. Follow through each screen, completing all of the requested information, as without it, the profile will not contain the correct information about the ink and media.

Once you are satisfied with the information, and have at least a Letter Size (A4) piece of Media in your Printer you can proceed to the next step by clicking on the 'Finish' button.

Once this wizard is completed you will be asked to make sure that your printer is ready for the first Profile Sheet to be printed out, click on 'Yes' to Proceed.

Cut out this sheet and send it to Future Corporation to the address printed on the Profile Sheet. From here we will scan in your sample using a spectrophotometer and create a small 'reply' file that we send back to you (usually via e mail).

Once you receive this reply file from Future Corporation save it to a known location on your computer's hard drive before proceeding. At this stage you are ready to complete the second part of the Profile Generation. This is done from the 'Advanced' button in the 'Profiles' tab as shown on the previous page. Next click on 'Custom Profile (Part 2.)' and a dialog window will appear asking you to select the location of the reply file. Select the 'Reply' file which you previously saved or from the Floppy Disk provided by us and click on 'OK'.

Next, you will be prompted to print out a second page of Color Swatches usually at Letter Size (A4). Upon the completion of this page another window will appear asking you to specify a location to save a 'Printer Information File', that must be sent to Future Corporation along with the second Printout. You will have the option to automatically send this file via e mail. If you do not take up this option you will be asked to forward this via post with the Color Swatches.

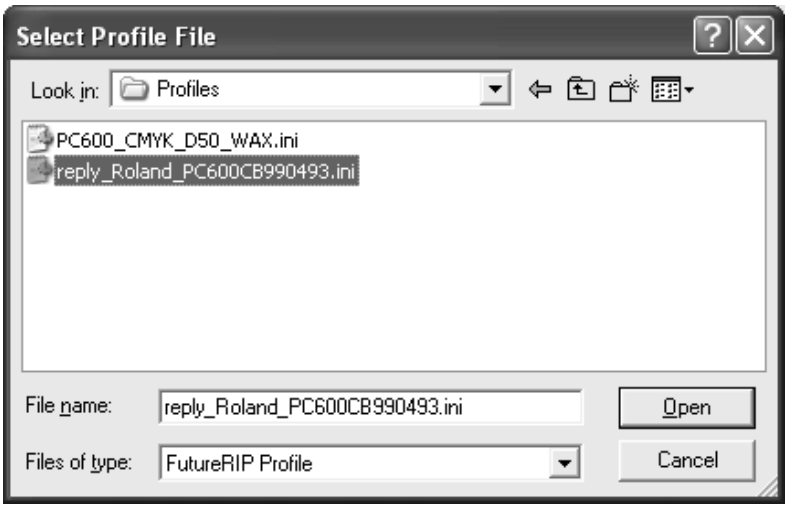
Once Future Corporation receives both the second Printout and the 'Printer Information File', we can get to work on creating the final Color Profile. The next Topic explains how to install a Profile, once you receive the finished Profile from Future Corporation.

4.4.8 Installing a New Profile

Once you receive a completed Profile from Future Corporation, you will need to install it. It is assumed that you would have received the file via e mail. Firstly copy the file to a location on your Hard Disk Drive that you will remember. Note: Create a folder for downloaded Profiles.

You will then need to Generate (Compile) the Profile, ready for use.

To do this run the program entitled 'CompileProfile.exe' that is located in the 'Profiles' folder. Next select the Profile to be compiled, by clicking on the folder button next to the 'Profile Name' section. Then click on 'Generate', see Topic 4.4.1.1



Depending upon the profile in question, the program will take between 1 and 10 minutes to fully unpack the Profile. Upon completion close down this program and then load FutureRIP.

Next, click on the 'Printer Options' for the selected Driver and go to the 'Profiles' tab. and click on the 'Select Profile' button. This will launch the 'Profile Manager' window. Select the desired Profile from the list of available Profiles and then click on 'Load'. You should see the information relating to this Profile appear in the Profile window. The Profile is now selected, ready for use.

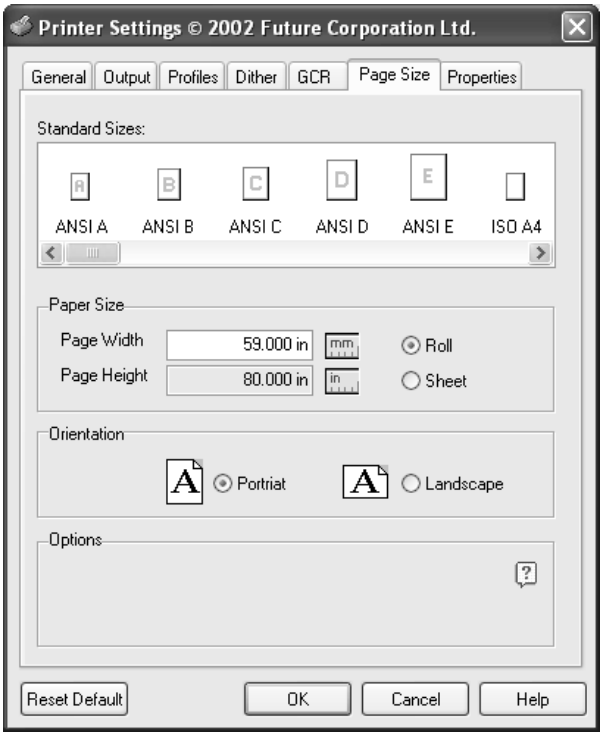
Important Note
Do not select the profile in the plugin driver until you have Generated (Compiled) it.

4.4.9 Creating a Custom Profile

Custom Profiles are usually created from an existing Generic Profile and are created from Part 2. of the Advanced section in the 'Profiles' window of the 'Printer's Settings' as explained from Topic 4.4. Should there be no Generic Profile for your Printer/Ink/Media combination please follow the same steps as listed here for a Generic Profile, starting from Topic 4.4.3.

4.5 Page Size

This section sets the 'Default' size of the Roll or Sheet that fits within the selected printer's width and in some cases height or length. Note: These measurements can be different for varying makes and models of printers and will vary depending on what printer is selected.



Page Width: Refers to the measurement that may be printed within the left and right side of the printer and is therefore limited to the printer's width (girth). To set the Width click in the 'Width' field and type in the required measurement.

Page Height: Refers to the measurement that passes through the printer as the Job is being printed out and is usually only limited to the Media's (Roll/Sheet) length or the printer's maximum print length. To set the Height click in the 'Height' field and type in the required measurement.

Roll: When checked sets the Page Width and ignores the Page Height (Length).

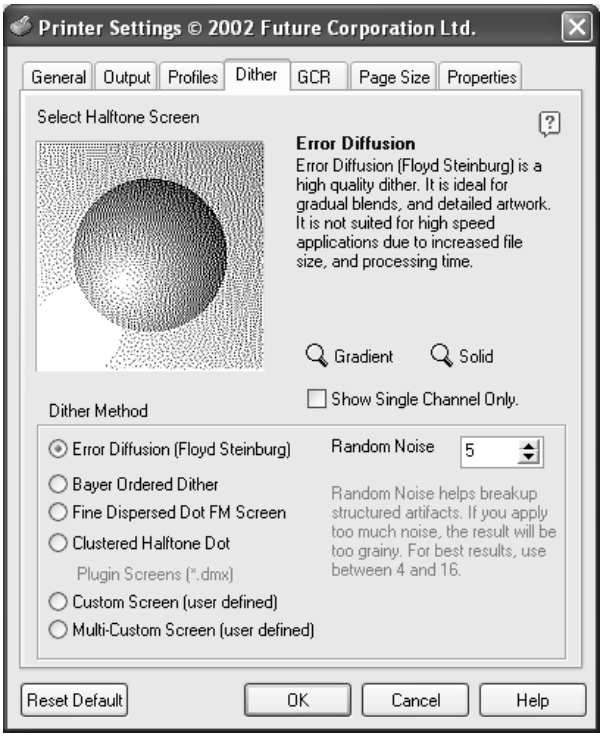
Sheet: When checked allows the user to set both the Page Width and Page Height.

Portrait: When checked sets the Page Width to run parallel with the Printer's Width.

Landscape: When checked sets the Page Width to run perpendicular with the Printer's Width.

4.6 Dither

To understand Dither you must first understand a fundamental design issue with Ink Jet, Laser and Thermal printers. The problem lies with the printers ink delivery system onto the Media. Essentially these printers fire each ink channel (color) onto the media in the form of very small dots that when combined give the illusion of an image. The problem with this is a dot is either printed or it's not! there's no in between.



Therefore to get say 25% coverage of a given color the program has to decide how to spread dots apart with the whitish shade of the Media that when viewed from a distance looks like 25% of the color. This is because the printer can't print 25% of the ink's color. Plus it must do this to look as smooth (acceptable) as possible by carefully positioning each dot.

Dither refers to the method used to position each and every dot onto the Media. So that when these dots are combined with neighboring and different colored dots they give the illusion (from a distance) of an image. Different Dithers give different effects and also effect the color graduations from one color to the next.

Plus certain Dithers work better with certain printer types. Ink Jets are better suited to fine Dithers such as Error Diffusion while Thermal Printers are better suited to Clustered Dot Dithers. Therefore selecting the correct Dither method will have a significant effect on the printed output. Each method has several strengths and weaknesses, with a brief description of each appearing when you select it.

For threshold based algorithms (all except Error Diffusion) each color plane can be rotated to any selected angle. But unless you have good reason to change the angle you should use the Default option. For previewing purposes you can click on either Gradient, or Solid to view the current Dither Method in action.

Profile Dither Method
If you are attempting to print a Profile for an Ink Jet Printer, that is capable of small dots, you will find that all of the dot-diffusion dithers will behave in a similar fashion, so Error diffusion will probably represent the best choice. If you are attempting to print a Profile for a Thermal Printer, that is not capable of printing small dots, you will find that all of Clustered Halftone Dot will probably represent the best choice.

4.7 GCR/UCR

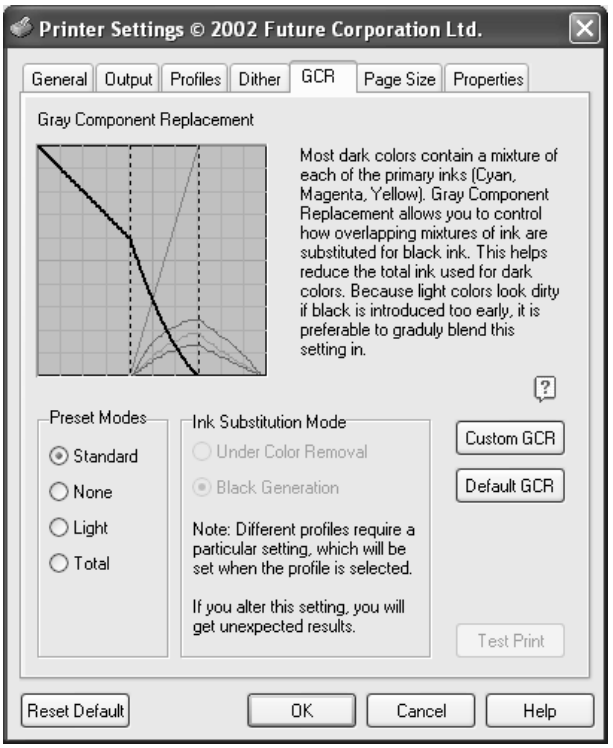
GCR: Gray Component Replacement
UCR: Under Color Removal

Gray Component Replacement (GCR) which is commonly referred to Under Color Removal (UCR) is a method used to replace or enhance very dark almost black areas of an image that is made up with overlapping Cyan, Magenta or Yellow ink with Black ink.

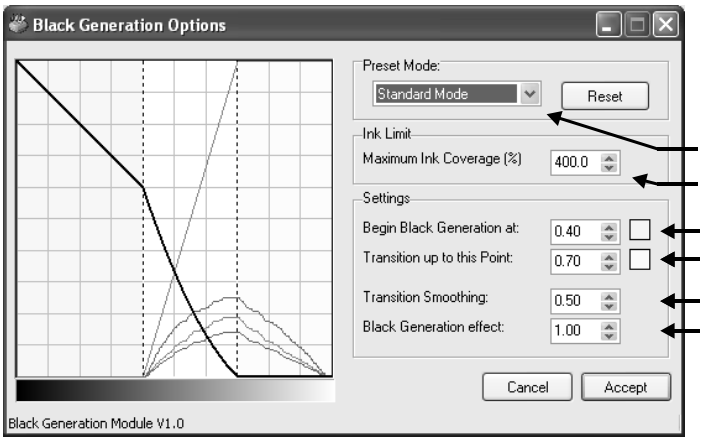
This feature not only improves the definition of some images it also reduces ink pooling which can result in poor output results and it also saves the overuse of CMY Inks - effectively saving you money.

It is important to note that the FutureRIP Color Profiles are designed by Future Corporation to incorporate GCR as standard and by adjusting the GCR to an extreme will effect the color accuracy of the print out. Therefore it is generally best using the default GCR in most circumstances.

For Ink Jet, Laser and Thermal printers the use of Black Ink plays an important role in the final output result. If GCR is introduced too quickly sudden black specs will appear in the output that may be visually unacceptable.



If you wish to adjust GCR/UCR be aware that these settings may greatly effect your printed output and should only be set for the creation of a Custom Color Profile, see Topic 2.6. Note: Black Generation is the opposite of GCR where CMY inks are used to create black. This setting is only used when a Color Profile has been created using this setting.

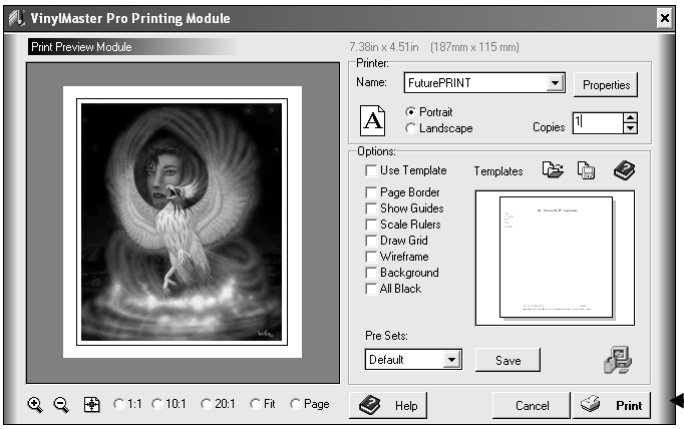


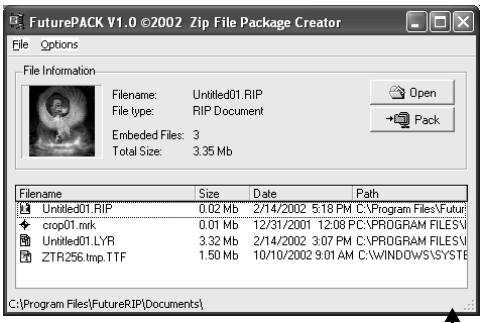
Legend

Light Blue area = Black ink
Yellow area = CMY ink
White area = Transition between CMY and Black inks

Preset Modes (use these in most cases)
Sets the maximum amount of Ink Coverage
Sets where Black ink will be used in place of CMY ink
Sets where CMY ink will be used in place of Black ink
Sets how sharply Black ink replaces CMY ink
Sets the maximum level of Black generation from 0% thru 100%

5.0 Publishing to FutureRIP





FuturePACK utility for transporting *.RIP files between computers and/or over networks

Print window of program with original artwork

FutureRIP Capture Utility

5.1 Publishing Overview

To avoid the complications and problems associated with exporting your artwork, then importing it back into FutureRIP. The program comes with a specialist Capture Utility which allows you to Print (Publish) your Artwork from most Window's Applications and capture it along the way for use in FutureRIP. You can also pack and save the artwork as a *.rip file for use on another computer. The advantage with this is that you can get your artwork into FutureRIP from other programs without the usual export/import problems.

We have also taken this one step further and have made the FutureRIP Capture Utility 'publically available' for anyone to use whether they have FutureRIP or not. This means that your client's or their clients can publish their artwork for you at their own convenience. You can then load their artwork directly into FutureRIP and process it without any problems.

The great thing about this is the FutureRIP Capture Utility is a free download from www.FutureRIP.com and can even be saved to a floppy disk from the FutureRIP SE CD from your own computer.

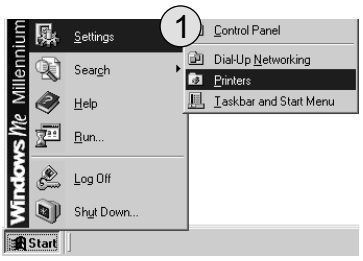
Important Note: Due to the large variations of artwork FutureRIP can load and process, plus the hundreds if not thousands of possible applications (programs) that can Publish to FutureRIP. You are recommended to read through the special help file that is accessed from within the FutureRIP Capture Utility, as shown above. This help file outlines the best way to use this utility along with the do's and don'ts.

5.1.1 Before using the FutureRIP Capture Utility

Prior to using the Capture Utility for the first time, you must install the FutureRIP Printer Driver 'FuturePRINT' which is explained in the next Topic. This printer driver allows you to publish artwork to the FutureRIP Capture Utility using the 'Print' window of the program that contains the original artwork, such as from CorelDRAW™ or Photo Shop™ etc. Note: The FuturePRINT driver is usually installed at the same time as the FutureRIP SE installation, see Topic 3.0

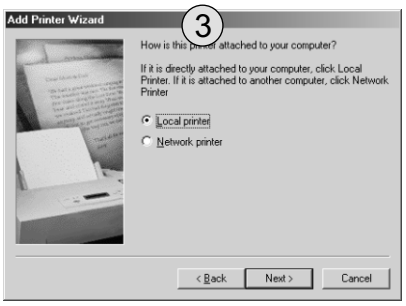
5.2 Installing/Configuring the FuturePRINT Printer (Capture) Driver in Windows 98/Windows ME

The FuturePRINT Capture Driver must be installed then configured prior to being able to publish any artwork from another program to the FutureRIP Capture Utility. This is generally a one time installation and is a similar procedure to installing any Windows Printer Driver in a step by step procedure, as follows:

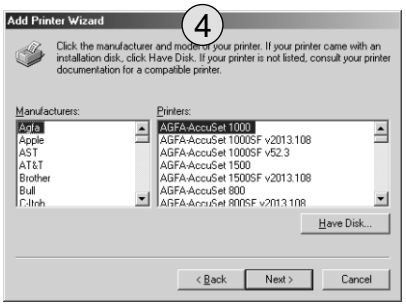


1. Open the Printers window;

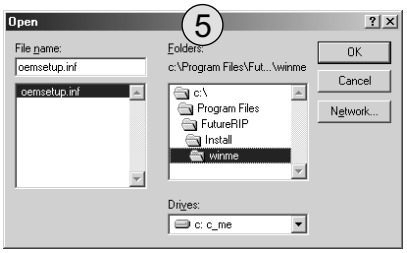
Activate the 'Add Printer' Wizard by clicking on 'Add Printer' then click 'Next';



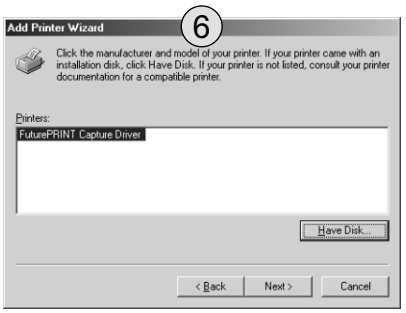
3. Click 'Local Printer';



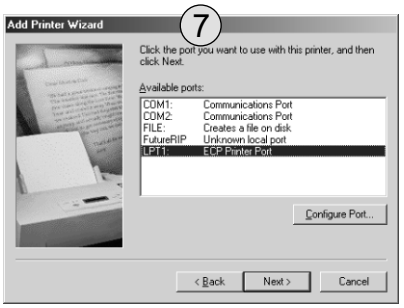
4. Click on 'Have Disk';



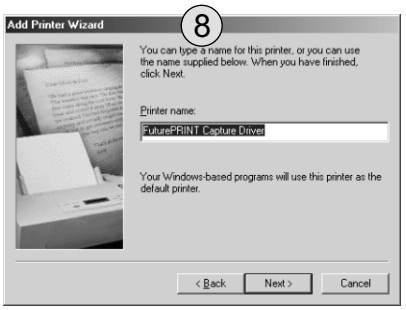
5. Navigate to the location that you have installed FutureRIP to (usually in C:\Program Files\FutureRIP). Next go to the 'Install' folder, and choose the folder that matches your version of Windows;



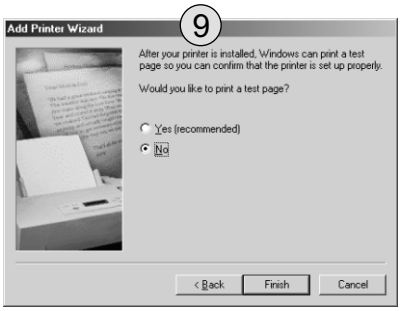
6. Select 'FuturePRINT Capture Driver';



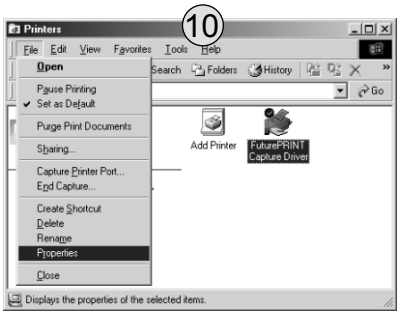
7. Select 'LPT1:' as the Port;



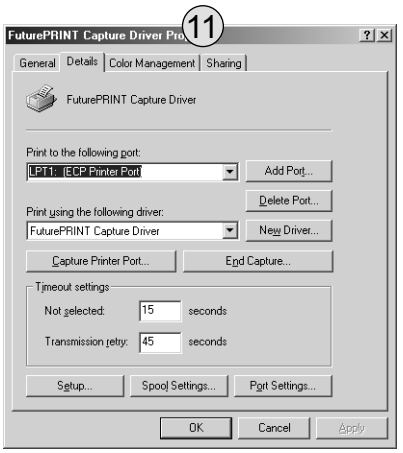
8. You can rename the Printer here if you wish, but it is not recommended;



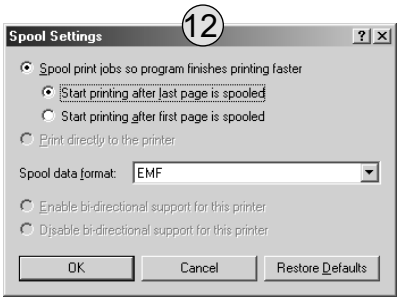
9. Select 'NO' to print a test page. Note: After clicking 'Finish', you may be prompted to insert your Windows CD. If this occurs, follow the prompts.



10. After installing the FuturePRINT Capture Driver you must go back to the Printers window as shown in Step # 1. to configure FuturePRINT to work correctly on your system. To do this click the FuturePRINT Driver and select 'Properties' from the menu.



11. From 'Details', click on 'Spool Settings'

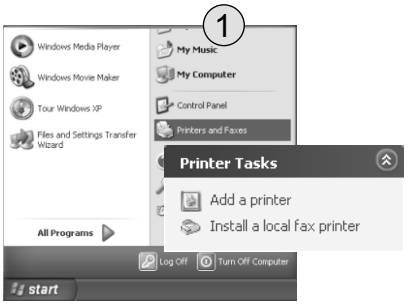


12. Click on 'Start Printing after last page is spooled' and select 'EMF' from the 'Spool data format', then click 'OK' and close out.

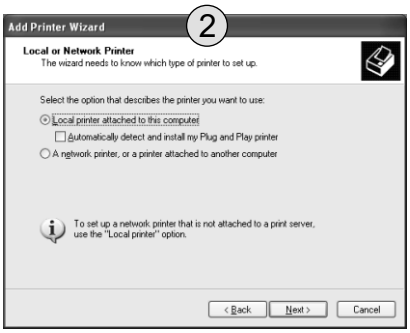
For information about how to use the Capture Driver, refer to the documentation, located via the 'FutureRIP' program folder in the start menu.

5.2.1 Installing/Configuring the FuturePRINT Printer (Capture) Driver in Windows 2000 and XP

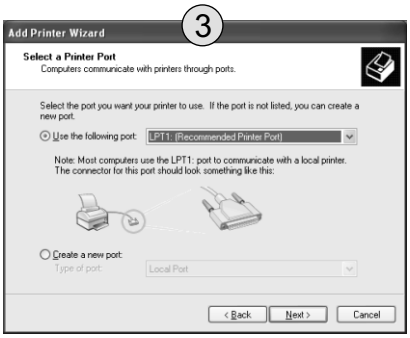
The FuturePRINT Capture Driver must be installed then configured prior to being able to publish any artwork from another program to the FutureRIP Capture Utility. This is generally a one time installation and is a similar procedure to installing any Windows Printer Driver in a step by step procedure, as follows:



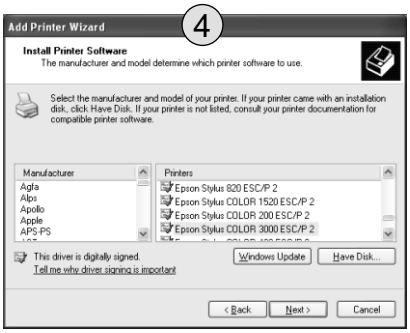
1. Open the Printers window then activate the 'Add Printer' Wizard by clicking on 'Add Printer' then click 'Next';



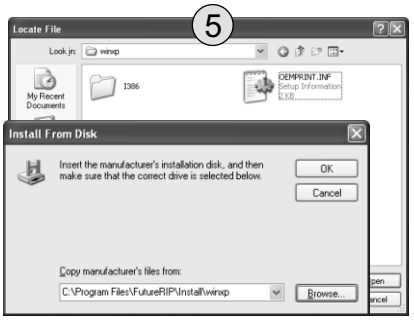
2. Select 'Local Printer' (Don't Detect Plug & Play);



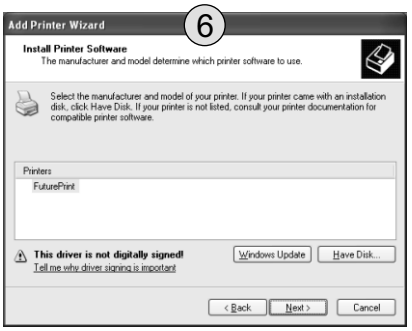
3. Leave the default Port setting at this point;



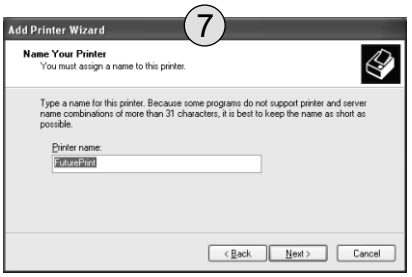
4. Click on 'Have Disk';



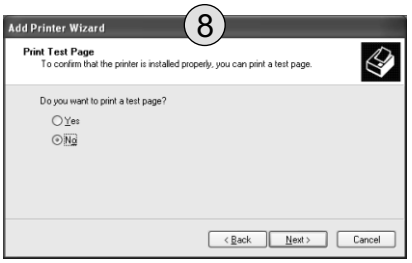
5. Navigate to the location that you have installed FutureRIP to (usually in C:\Program Files\FutureRIP). Next go to the 'Install' folder, and choose the folder that matches your version of Windows;



6. Select 'FuturePRINT' from the list;

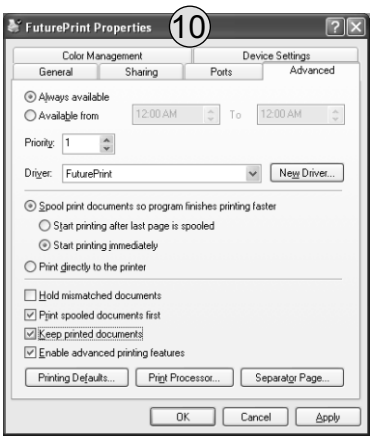


7. You can rename the printer if you wish;

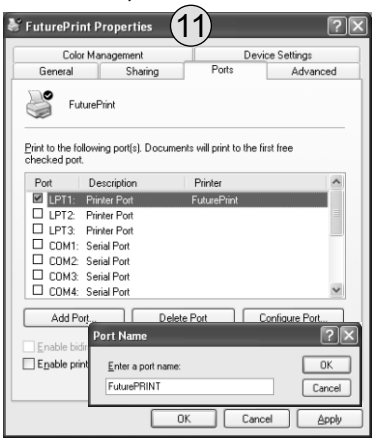


8. Select 'NO' to print a test page. Note: After completing the options, you may be asked about installing an 'Unsigned Driver' Select 'Yes' to continue the operation;

9. After installing the FuturePRINT Capture Driver you must go back to the Printers window as shown in Step # 1. to configure FuturePRINT to work correctly on your system. To do this click the FuturePRINT Driver and select 'Properties' from the menu;



10. In 'Advanced' check '**Keep printed documents**';



11. In 'Ports' click on 'Add Port' choose a 'Local Port' and then enter the name 'FuturePRINT' and click 'OK'. Then click on 'Apply' to update these changes, and then close out to start using FuturePRINT.

5.2.2 FuturePRINT Installation - Trouble Shooting

1. I Can't find 'Unidrv.dll' on Windows CD? Answer: Select the 'FutureRIP\Install\Archive' folder, in place of the Windows CD.
2. My Printer Properties do not display correctly? Answer: Delete the Printer, and Re-start your computer. Next, Install a 'Generic Text-Only' printer driver and then install the FuturePRINT driver.

5.3 Using the FuturePRINT Capture Driver

Note: Before you can Publish (Print) any artwork for the FutureRIP Capture Utility you must install and configure the FuturePRINT Capture Driver, see Topics 5.2/5.3. Once this is completed you can then proceed with this Topic.

5.3.1 What exactly does the Capture Driver do?

The aim of the Capture Driver is to intercept artwork being printed from a host program (such as CorelDRAW , Photo Shop or VinylMaster Pro etc). Once captured the file can than be printed using FutureRIP at the best quality level.

5.3.2 What's so important about all of this?

Transferring artwork between a design application and a RIP program such as FutureRIP requires a general understanding of various factors which directly impact on the final result. If you do not understand these issues, you may fail to obtain the best results possible and/or greatly increase the file size for no additional gain in quality.

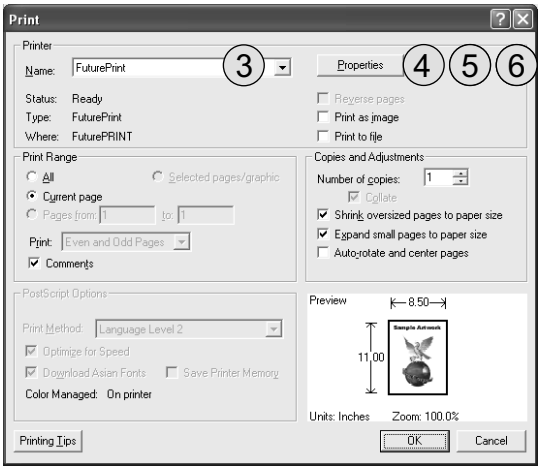
5.3.3 How do I capture artwork from a host program?

This will depend on the application to more or less some degree. Recently Adobe Acrobat and Reader have become very popular document formats and as they are very reliable and in wide use, we have modeled the following example to capture artwork from Adobe Acrobat and/or Reader (PDF). While most of the following steps apply to most other programs, there will be slight differences at the printing stage.

Note: Generally, it is recommended that you obtain your artwork in *.pdf format and then Publish to FuturePRINT using Adobe Acrobat Reader.

1. Load the Artwork into Host Program;
2. Select the 'PRINT' option. (usually available from the 'File' menu);
3. In the Host Program's Print window (screen) select 'FuturePRINT' as the current printer driver;
4. Select the desired 'Paper Size'. You may need to click on 'Properties or Options' to access this feature. If you need to print a custom size, you will find additional information on how to do this in the following Topic;
5. Set Resolution. This step is very important, as it will influence how the artwork is captured. While most of the captured artwork will be vector based, such as fonts, which are not greatly affected by this setting, some of the artwork may be rasterized to this resolution. This means that if this setting is too high, the resulting file will be far to large (100+Mb!), or conversely the artwork may be too poor quality;

Host Program e.g. Adobe Acrobat Reader



Host Program's Print window (screen)

The following guide can be used to quickly calculate the size of a file in Mb based on the paper size and the dpi set to print it out at.

Imperial (Inches):

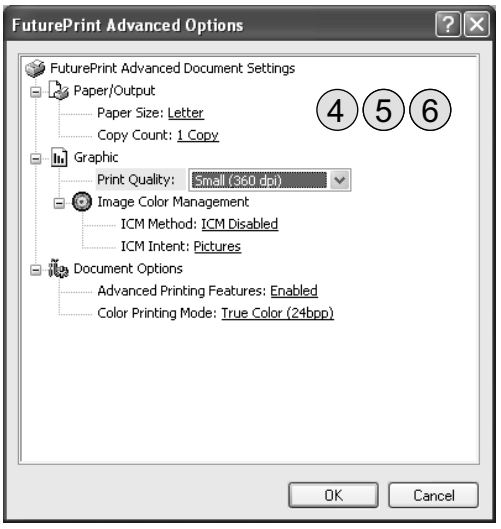
(a) Calculate the area in square inches e.g. 8.5" x 11.0" = 93.5 sq inches
(b) Depending on the resolution you set in dpi, divide the area as follows:

90 dpi ÷ by 50 180 dpi ÷ by 10 360 dpi ÷ by 3

Example: Area = 93.5 sq. inches, Resolution = 360 dpi
Therefore the File Size = 93.5 ÷ 3 = 31.2 Mb (Acceptable)

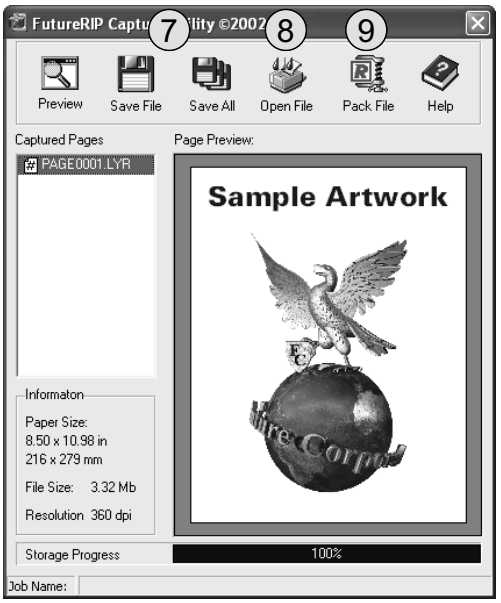
For Metric: Simply convert the area in sq mm to sq inches, by dividing by a factor of 645 e.g. 210 x 297mm = 62,370 sq mm ÷ by 645 = 96.7 sq inches. Next apply the equivalent sq inches into the Imperial Formula above
Note: It is recommended to keep a file's size below 50Mb.

As a general guide, any artwork that is smaller than 1 square foot, such as standard letter and A4 sizes, should set to 360 dpi. If you select a size larger than 12" x 12", use the previous formula as a guide to keep the file size at a reasonable level (normally you should keep the file smaller than 50Mb where possible).



6. Set printing options - If your document contains multiple pages, select the desired page range. Also, different programs provide different printing options. Once you have set the required options, print the artwork as if you where printing to a normal printer.

7. Saving Captured Pages - After a brief pause the FutureRIP Capture Utility will appear, containing a list of available pages. Click on the desired page and then click on 'Save' and the 'Save' window will come up, next type in a file name that you will remember and click on 'Save' and the captured artwork will be saved into the 'FutureRIP\Documents' folder unless another location is set. Clicking on 'Save All' will behave in the same way except it will save each page as a separate *.RIP file into the 'FutureRIP\Documents' folder. Any pages that aren't saved are lost when the program exits.



8. Loading the Artwork into FutureRIP - At this stage you can load the saved artwork directly into FutureRIP by clicking on 'Open File' which will take the currently selected page and open FutureRIP with the artwork in it ready for processing.

9. Moving Artwork - If you wish to move the captured artwork to a different computer you can take advantage of the FuturePACK utility. This program collects all embedded resources and compresses them into a single zip file for easy and reliable transport. For more information about this program refer to its help file, see Topic 5.5.

5.4 Creating Custom Page Sizes - Troubleshooting

Custom Page Size issues affecting Windows 98 and ME - Some programs under Windows 98 and ME will not activate the Custom Page Size dialog box. If you find that you are not able to enter the desired custom page size dimensions at the point of printing, do the following:

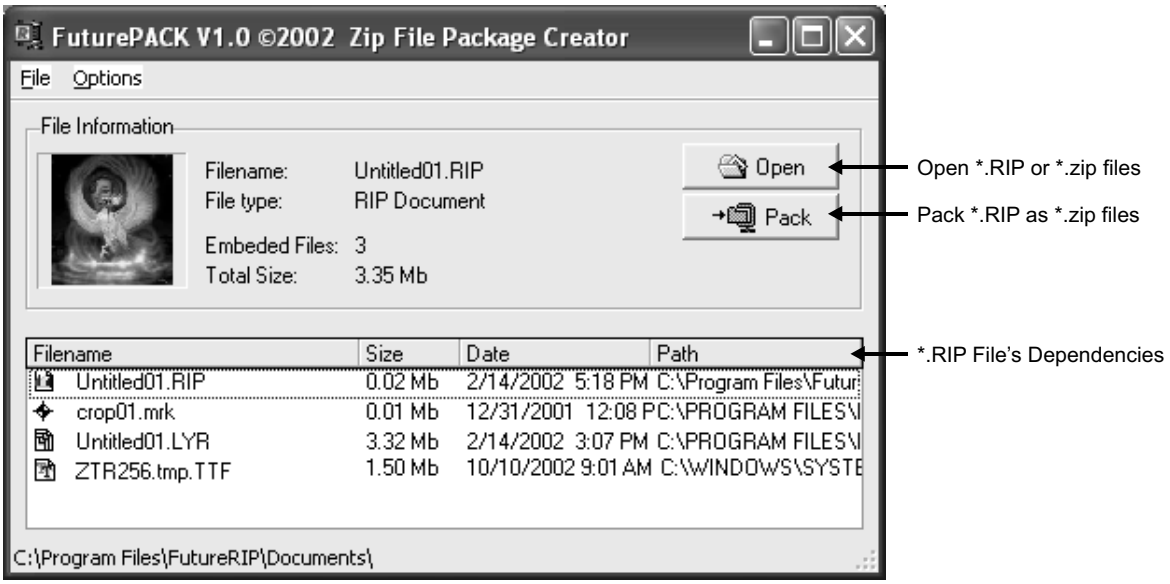
Close down the printer screen, go to the printers folder (Click Start->Settings->Printers) and right click on the FuturePRINT capture Driver go down and click on 'Properties'. Next click on the Paper tab and then on Custom and enter the desired Page Size and then click on 'Apply'.

When you select the 'Custom' page size, the size that you have entered will be used.

Custom Page Size issues affecting Windows 2000 and XP - Under the Windows 2000 and XP operating systems, custom pages are treated differently. Instead of setting a custom page size at the point of printing, you create what is called a 'form' which adds the custom page size to the current list of documents. This new size will remain, even after restarting the computer. If you do not wish to clutter up the list of page sizes, create one custom size, and keep changing it when required.

To create a new form, go to the Printer Folder (Click Start->Control Panel->Printers and Faxes), from the 'File' menu, click on 'Server properties', and go to the 'Forms' tab, next click on 'Create new form' and fill in the required information, then click on 'UPDATE'. This page size should now appear in the FuturePRINT capture driver, when you are ready to print.

5.5 Transporting RIP Files between Computers



FutureRIP comes with a specialist module 'FuturePACK' which takes captured artwork saved as a *.RIP file and compresses it into a smaller file size and then saves it as a *.zip file. Which can then be sent over a network, over the Internet or saved onto a regular Floppy, Zip or Compact Disk etc. This module can also pack and compress *.RIP files directly from within FutureRIP.

This module was created because *.RIP files contain dependencies that are located throughout a computer that may not be present on the destination computer, such as fonts and bitmaps. The FuturePACK Module locates all these dependent files, compresses them and then saves them as the nominated file name with a *.zip file extension.

Note: These *.zip files should not be extracted using Win Zip as they will not be extracted correctly.

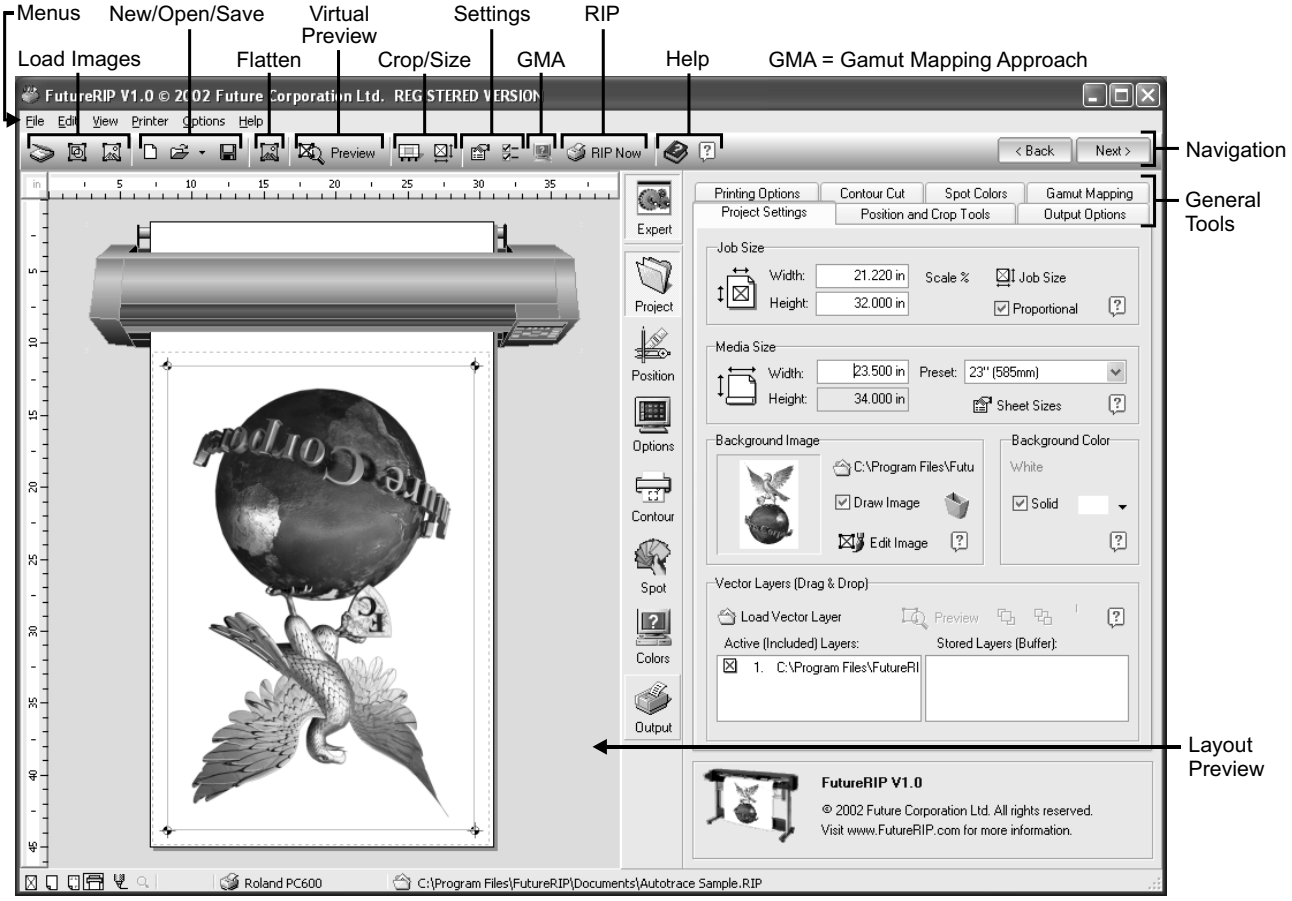
Launching FuturePACK: FuturePACK can be launched from the FutureRIP Capture Utility by clicking on the 'Pack File' button, as shown on Page 5-1 or from the 'File' menu within FutureRIP. Note: The 'Pack File' button only becomes highlighted when a captured *.LYR file has been saved from within the FutureRIP Capture Utility as a *.RIP file, see Item # 7 on the previous page .

Packing Files: Once FuturePACK is open you are presented with the options to either 'Open or Pack' a file. To Pack a file for use on another computer click on 'Pack' and the 'Save Zip Package' window will come up, next type in the file name and set the location where to save the file to and click on 'Save'. FuturePACK will then locate all the listed dependencies, compress then save these to the location set.

Unpacking *.zip Files: Once FuturePACK is open you are presented with the options to either 'Open or Pack' a file. To Open a file for use on the current computer click on 'Open' and the 'Open Zip Package' window will come up, next set the 'Files of Type' to (*.zip) and then locate the saved *.zip file and click on 'Open'. FuturePACK will then un-compress the file and save all the listed dependencies to the correct location on the current computer and open the file in FutureRIP as a *.RIP file.

Exclude Fonts: To save on resources and to avoid accidentally overwriting another computer's fonts you can choose not to include fonts as apart of the *.zip and resultant *.RIP file. To do this click on the FuturePACK menu 'Options' go down and click on 'Exclude' fonts and the 'Exclude Fonts' window will come up. Next drag and drop the fonts you DO NOT wish to be embedded in any *.zip files and then click on 'Update' and the selected fonts will not be embedded with any *.zip files. **Note:** It is recommended not to embed fonts such as Arial, Courier and Times New Roman as they are present on most systems.

6.0 Using FutureRIP SE



6.1 Using FutureRIP Overview

FutureRIP is presented in a simple step by step layout of tabbed-windows, each with a compliment of related tools. These are activated by clicking on their respective tabs or by clicking 'Back' or 'Next' which opens the next window in line. This layout allows you to quickly navigate your way through in a relatively logical order and apply those tools relevant to the Job at hand and ignore those tools which are not required.

There is also a Standard Mode where most of the advanced tools are hidden away to present a less cluttered environment.

Along the top edge of the program's window you will find the program's menus which set various options and open several of the program's modules. Below these menus are a range of the most commonly used tools that allow you to quickly navigate your way through the program to RIP, Print & Cut your Artwork out.

Tools/Settings Quick Reference Diagram:

Printer Properties	→ Project Settings	→ Position & Crop Tools	→ Printing Options	→ Contour Cutting	→ Spot Colors	→ Gamut Mapping	→ Output Options
- Set Printer Properties - Color Profiles - Dither - GCR/UCR - Ink set - Printer Queue	- Open Project Or - Set Job Size - Media Size - Load Image - Load Layers	- Set Quantity of Copies to Print - Position Job on Media - Mirror and Rotate - Set Crop Position - Apply Billboard Tiles	- Set Render dpi - Set Bitmap Interpolation - Preview Job Quality - Set Crop Marks	- Select Contour Cut curves - Open Auto-Trace - Send Contour Cut Line/s to Vinyl Spooler	- Select Colors for printing as a Spot Color/s	- Apply GMA Strategies To the Job	- Adjust Printer Properties - Set Print Location - **RIP Job**

6.2 Using FutureRIP for the first time

Before you commence using FutureRIP you must set the following items and occasionally reset them as required:

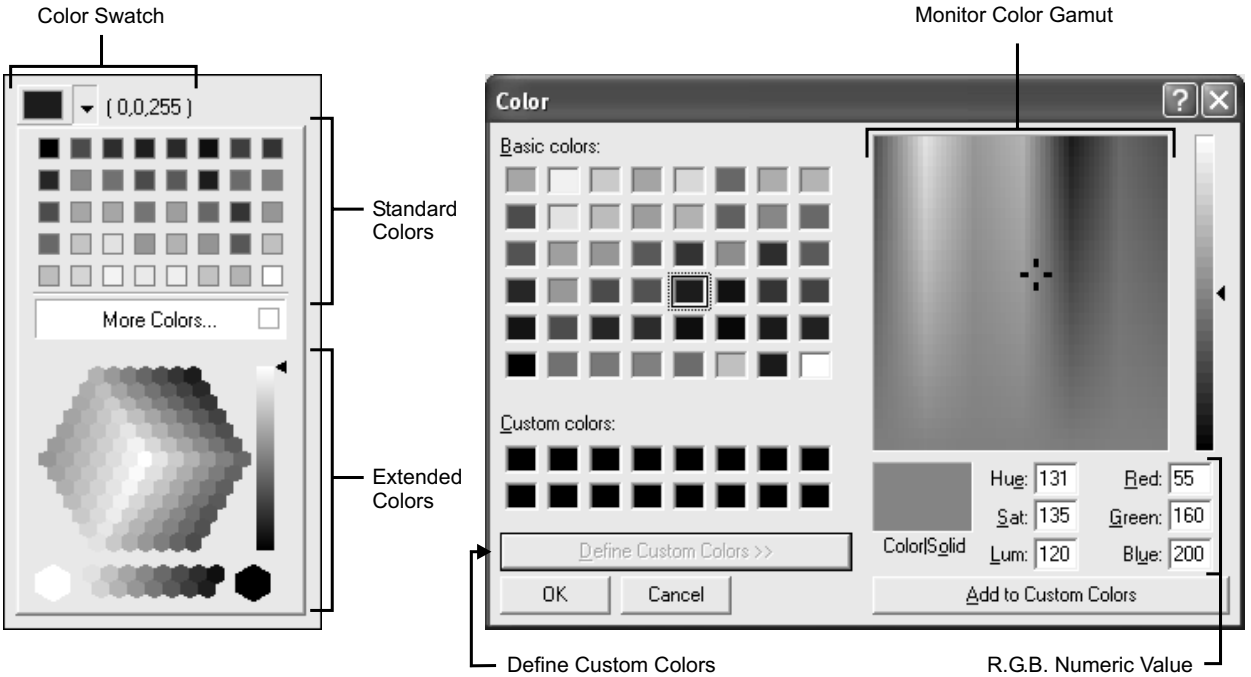
Printer's Make and Model: Prior to opening an existing or laying out a new Job you are recommended to set the Printer's make and model and Color Profile for the ink/media combination you intend printing to as several issues relate to your printer's specifications, such as the printable width i.e. it would be pointless setting the Job Size to 60" (1.5 meters) wide if you only have a 24" wide printer, or roll of media. Note: In most cases the last settings used will often be correct because most users only have the one printer and often use the same ink and media combination. The advantage with FutureRIP is that it remembers your last settings. However if you wish to use a different printer/ink/media combination you will need to adjust your settings accordingly, see Topic 4.0 for Printer Settings and Options.

Set Paths: Paths let FutureRIP know where to find all the dependencies that make up a RIP file along with the location of Drivers and Color Profiles and where to send particular data like Cutfiles for the Vinyl Spooler etc. and are set by clicking on the 'Options' menu, going down and clicking on 'Set Paths'. It is important to have your Paths set to match your work flow and to know the location of everything related to FutureRIP. It is recommended to install FutureRIP onto C:\ Drive into the 'Program Files' directory (folder) and then Set Paths to 'Default'.

Update Plugins: Plugins are special Printer Drivers for your make and model of Printer, that appear in the Output Options and must be clicked from within the 'Printers' menu of FutureRIP every time you install a new Driver.

6.3 Working With Color Fly Outs in FutureRIP

Throughout the program there are Color Fly Out buttons as shown here: these are used to select a standard color or a specific color by R.G.B. (Red, Green and Blue) value.



To Select a:

Standard or Extended Color

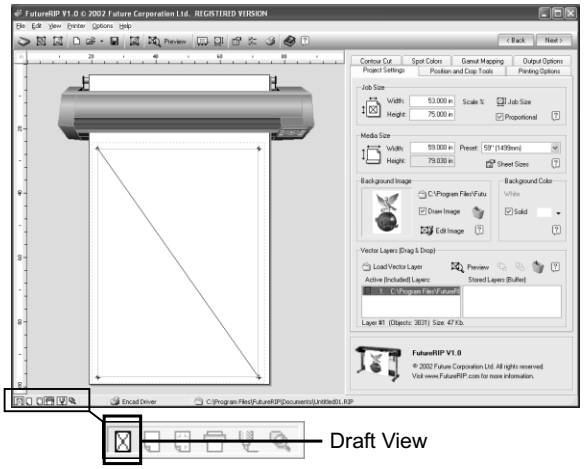
Click on the 'Color Fly Out' button and select a standard or extended (preset) color from the list, as shown above.

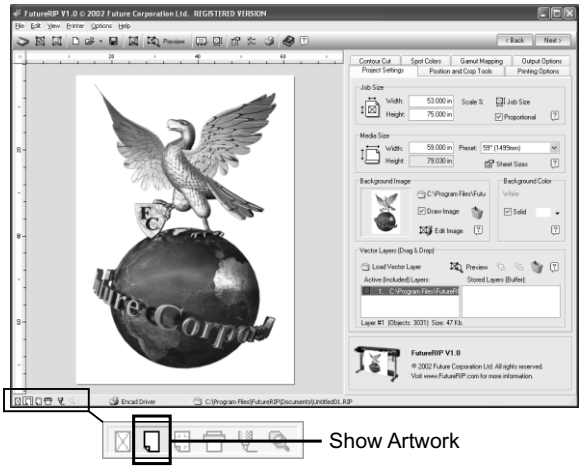
R.G.B. (Red, Green and Blue)

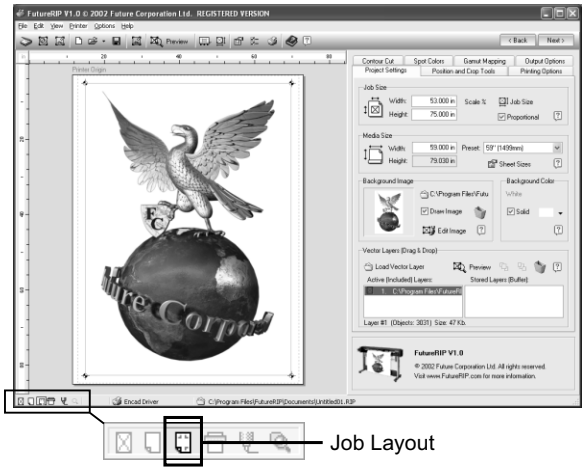
To select a color by R.G.B. value click on the Fly Out's: 'Color Swatch' and then on Define Custom Colors, next type in a specific Red, Green and then Blue numeric value then click on 'OK', and the selected RGB Color will be returned into the Color Swatch.

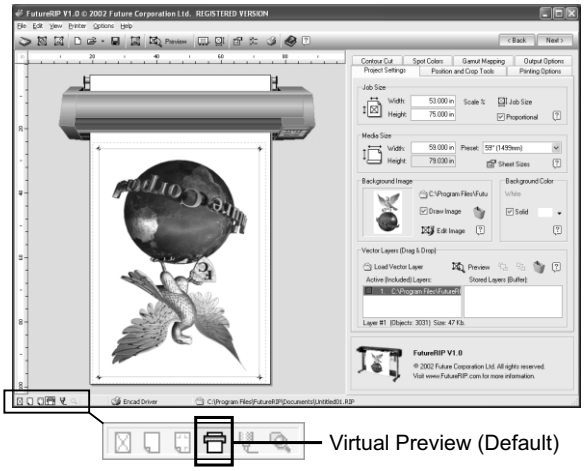
6.4 Using the Layout Previews

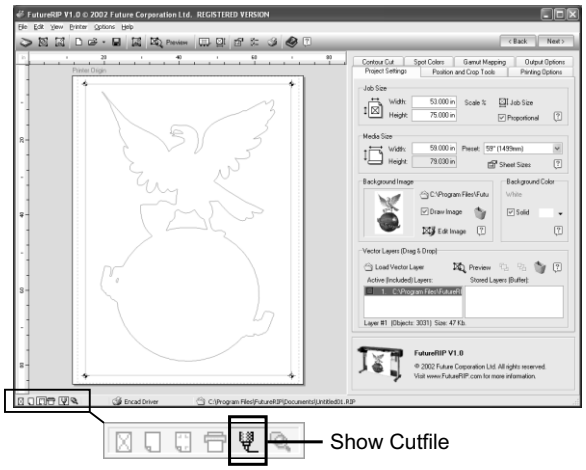
FutureRIP has several layout previews which are helpful to view the various stages of laying out a Job. There are six(6) primary views, each of which are activated by the buttons located in the bottom left hand corner of the FutureRIP window. To activate any particular view click on the required 'View' button. Note: Some views work simultaneously.

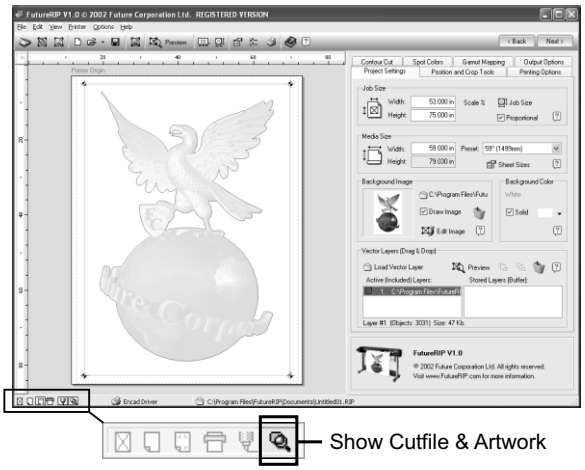












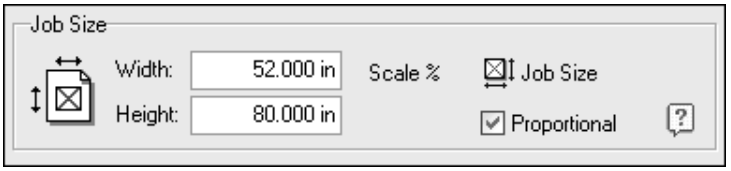
6.5 Project Settings

Once you have set your Printer's make and model and have set the Color Profile you are ready to start work. This begins from the 'Project Settings' window. In this window the Job and Media Size is set along with any background image/color and overlays (layers) that are to be used to construct the final Job. This feature is a major advantage of FutureRIP as it allows you to build a Job from several sources rather than just bringing in an image file and just processing it as a single file with limited control. This is also the location where any artwork that has been 'Published' to FutureRIP is loaded in as an FutureRIP Layer, see Topics 2.4.5 and 5.0 for more information on FutureRIP Layers.

Flatten Image: If required a background image along with any layers can be flattened to a single bitmap or *.jpg by clicking on 'Save as a Flattened Bitmap' from the top row of tools of FutureRIP, see page 6-1. When opened click on 'Create' to bring in all the current Layers and any Background Image and adjust the settings to suit and click on 'Accept'.

6.5.1 Job Size

This section sets the size of the Job (Artwork) itself, which is referred to as the Job Size and is not to be confused with the Media (Roll/Sheet) size. e.g. a Job may only be 5" x 5" (127 x 127mm) but maybe printed onto a 24" (610mm) roll of media. Therefore the Job Size would be set to have a 5" Width and 5" Height.



Width: Refers to the measurement that may be printed within the left and right side of the printer and is therefore limited to the printer's width (girth). To set the width click in the 'Width' field and type in the required measurement.

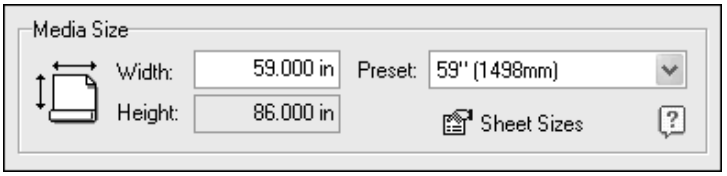
Height: Refers to the measurement that passes through the printer as the Job is being printed out and is usually only limited to the Media's (Roll/Sheet) length or the printer's maximum print length. To set the Height click in the 'Height' field and type in the required measurement.

Scale: Refers to the Width and Height measurements reset as a percentage (%) of the original measurement and when clicked opens the Scale window.

Proportional: (when checked) maintains the ratio between the Width and Height measurements as they are individually altered. For example: a Job with a Width of 1" and a Height of 2" (25.4 x 50.8mm) when altered to a Width of 2" would automatically have its Height altered to 4" (50.8 x 101.6mm) which maintains the ratio of 2:1.

6.5.2 Media Size

This section sets the size of the Roll or Sheet that fits within the selected printer's width and in some cases height or length. Media Size is not to be confused with the Job Size as the Job itself or cropped section of the Job must fit within the Media's Width and Height measurements for printing to take place.



Note: The Media Size is automatically set to printer's Media (Paper) Size that is currently selected and unless necessary should be left at the default size.

Sheet Size: (when clicked) opens the Printer Options window where the Media Size can be set, and is limited to the output size of the printer that is currently selected. Therefore these measurements can be different for varying makes and models of printers and will vary depending on what printer is selected.

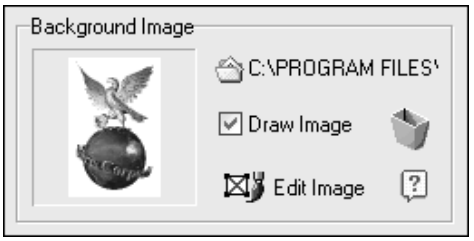
Preset: Refers to the 'Printable' Roll Width and is applicable for those printers that print onto Roll Media. This width is the printable width and should not be confused with the Media's physical width unless the printer is capable of printing to the very edge of the Media.

Note: In most cases select a measurement of 1" (25mm) less than the Media's physical width to allow for the printer's rollers and any unexpected skew during printing.

Width: Refers to the measurement that may be printed within the left and right side of the printer and is therefore limited to the printer's width (girth). To set the Width click in the 'Width' field and type in the required measurement.

Height: Refers to the measurement that passes through the printer as the Job is being printed out and is usually only limited to the Media's (Roll/Sheet) length or the printer's maximum print length. To set the Height click in the 'Height' field and type in the required measurement.

6.5.3 Background Image



This section is used to select and place an image (bitmap/picture) into the current Job. The image is set as a background to allow any FutureRIP Layers such as text and shapes over the image. The image is automatically stretched to fit within the Job Size as set in Topic 6.4.1 and will continue to automatically resize if the Job Size is altered at any time.

FutureRIP allows you to load a wide range of image formats including *.bmp *.emf *.gif *.jpg *.psd *.tif *.tga *.wmf and many more.

For more information of issues that relate to bitmap images please see Topic 2.4.1. Note: It is not mandatory to include a background image when laying out a Job in FutureRIP - this is an option.

To select an image:

1. Click on the yellow Open Folder and click on 'Load Image' to open the Load Image window, alternatively you can select a previously loaded image from the drop down list;
2. Select the required image and click 'Load' and the image will be made available for use in your project.

Draw Image: When checked displays the image in the preview window and will be stretched to fit within the currently set Job Size.

Edit Image: Opens FuturePAINT where the image can have various convulsions applied to it for special effects along with general bitmap editing, see Topic 7.0.

6.5.4 Background Color

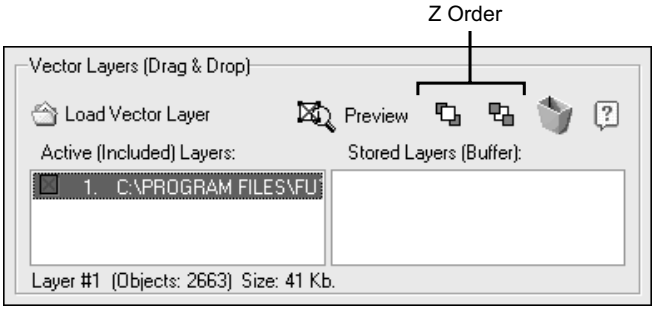
This section is used to select and place a background color into the current job. It is automatically stretched to fit within the Job Size as set in Topic 6.4.1 and will continue to automatically resize if the Job Size is altered at any time.

To select a standard color click on the Color Fly Out button and select a standard (preset) color from the list. For a list of more colors to select from or to set a specific R.G.B. color see Working With Color Fly Outs below.

To render the color in the Job, click in the 'Solid' check box and the color will appear in the preview window and will be stretched to fit within the currently set Job Size.

Note: A background image is always placed above a background color. For masking and special effects please see FutureRIP PE (Production Edition) at www.FutureRIP.com

6.5.5 Vector (FutureRIP) Layers



This section is used to select and render additional layers that can be placed one a top the other. These layers are stored as FutureRIP Layers or in a format known as an Enhanced Metafile (*.emf) and allow you to combine text, vectors and bitmaps. These layers are automatically stretched to fit within the Job Size as set in Topic 5.4.1 and will continue to automatically resize if the Job Size is altered at any time.

To create these layers from another application (software program) you can either Publish your work to FutureRIP see Topic 4.0 or export the original artwork as an *emf file.

The advantage with these layers is that they allow unused (empty) areas of the original artwork to be transparent, so that a compilation of various layers can be used to create a final piece (Job).

Note: For those graphics programs that can export artwork in the EMF format, be aware that most DO NOT create the artwork or allow you to create the artwork at the finished size, rather just using the screen resolution of 72/96dpi which in most cases produces very poor results when printed.

To select and render a layer in the Job:

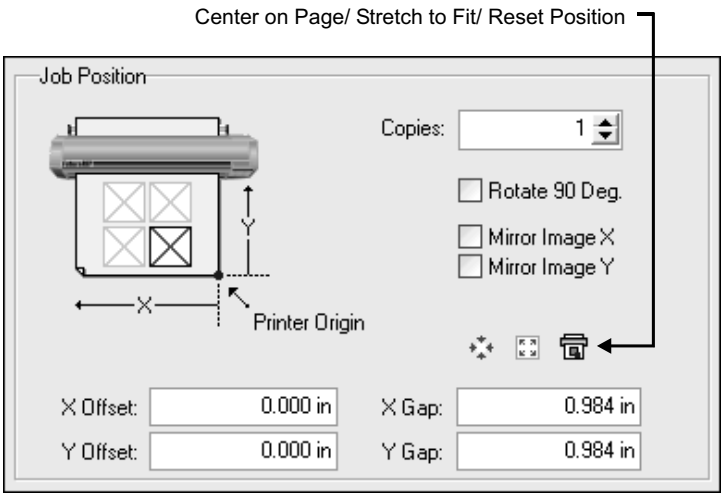
1. Click on the yellow 'Open Folder' and click on 'FutureRIP Layer' to open the Load Layer window, alternatively you can select a previously loaded layer from the drop down list;
2. Select the required layer and click 'Load' and the layer will be rendered directly into your project.

Stored Layers (Buffer): Is used to place (store) additional layers for convenience while a Job is being laid out. To move layers from the Active window to the Buffer window, click on and hold down the left mouse button, then drag the selected layer over to the opposing window and let go of the mouse button.

Preview: Opens the selected layer in the preview window where the background color can be altered and the layer can be enlarged for greater detail.

To set the 'Z' order of a particular layer highlight it and click on either the 'Send to Back' or 'Bring to Front' buttons as required.

6.6 Position & Crop Tools



Job Position: This section is used to accurately position the Job on the media and set the amount of copies to be printed.

Copies: To set the quantity of copies to be printed click the 'Up' arrow on the 'Spin Box' to increase the quantity of copies and the 'Down' arrow to decrease the amount of copies or type in a specific quantity.

Rotate 90 Deg: When checked rotates the Job 90 degrees anticlockwise.

Mirror X and Y: When checked flips the Job across the X and/or Y axis.

Center on Page: When clicked sets the Job to the center of the page. Note: For Roll Media this tool relates to the X axis. For Sheet Media this tool relates to both the X and Y axis.

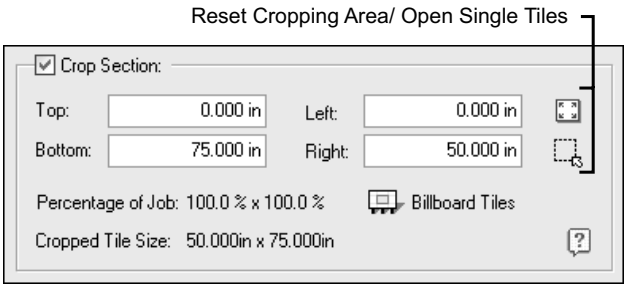
Stretch to Fit: When clicked stretches the Job proportionally to the width of the Roll or in the case of a Sheet printer to the first edge of the Sheet which is encountered first (fits the Job as big as it can within the given media).

Reset Position: When clicked sets the X and Y Offset back to 0.000

X and Y Offset: Sets the distance the Job is positioned along either axis away from the Printer's Origin (the distance the Job is set away from the edge of the media).

X and Y Gap: Sets the distance the Job is positioned away from any other copies of it, along either axis away from the first copy (the gap set between copies).

6.6.1 Crop Tools



This section is used to print out a specific section of a Job (crop) when the Job is usually too big for the Media, or would be too difficult to handle if printed out as one piece. To activate the Crop Tools click in the 'Crop Section' check box and the Crop Tools will become activated.

The 'Top', 'Bottom', 'Left' and 'Right' fields are used to nominate the distance between the edge of the Media and the edge of the Job to be cropped.

Note: To avoid confusion when typing in the cropping distance, place the Job in 'Job Layout View' which is activated by clicking on the 'Job Layout' button in the bottom left hand corner of the FutureRIP window see Topic 6.4.

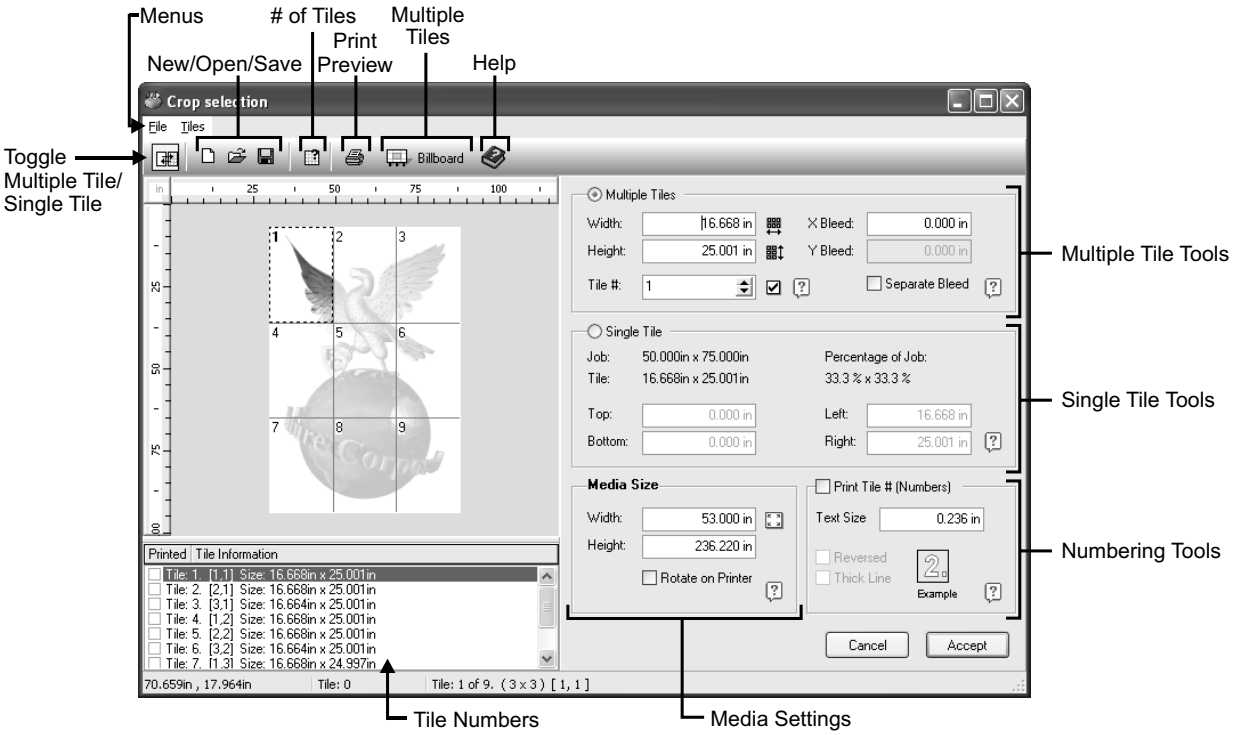
To adjust the crop distance type in the required measurement in the appropriate field and press 'Enter or Tab' and the specified area will be cropped from the Job, and immediately re-displayed in the preview layout window, less the area that has been cropped. To see a marquee of the cropped area click on 'Show Artwork' in the bottom left hand corner of the FutureRIP window see Topic 6.4.

Note: The 'Bottom and Right' fields are measured from the 'Printer's Origin' as shown in the 'Job Position' illustration on the previous page. Therefore a measurement of 0.000 would mean no part of the image would be visible or printable.

Reset Cropping Area: Resets the image back to its original state and is similar to an 'Undo' button.

It is important to note that what is displayed in the preview window when in 'Virtual Preview' (activated in the bottom left hand corner of the FutureRIP window) is what will be printed out see Topic 6.4. Therefore any cropping that is applied to a Job is how it will be printed out as shown in the preview layout window.

6.6.2 Billboard Tiles



Opens the 'Billboard' (multiple tile) window where a Job can be cropped (tiled) in multiple sections for large scale works. This is very helpful when an image greatly exceeds the printable size of the printer, that is being used to print out the Job.

Once completed each tile is treated as a separate Job and is listed as a Tile # with its dimensions in the Tile List. As each Tile is printed it is displayed with a X (cross) and becomes checked to avoid re-printing it.

To activate the Billboard feature click in the 'Multiple Tiles' check box and the 'Tile Properties' will become activated.

The 'Width' and 'Height' fields are used to nominate the tile dimensions that you require each tile to be. These measurements will depend on the size of the Printer, the Media, the Job and its Crop Marks and offsets. Some care should be taken to allow for the practical limits of your equipment and fitting the work on site etc.

To set the Tile Size type in the required measurement in the appropriate field and press 'Enter or Tab' and the specified size will be applied to all Tiles, and will be rendered as a set of marquees over the Job in the preview window. The Bottom and Right tiles will automatically resize to match any area not covered by the specified tiles that begin from the Top and Left origin of the Job.

Equally Distribute: Is used to reset either or both the horizontal and vertical tiles to take up equal distance over the Job and is based upon the number of tiles presently in use i.e. if there are 3 tiles across or down the program will set 3 tiles equally across or down, if there are 4 tiles then it will set 4 tiles equally across or down and so on.

Mark as Printed: Is used to nominate tiles that have already been printed for convenience. This is helpful when ever coming back to the job as you can instantly see what tiles are still remaining to be printed. Note: The program automatically updates this list as it prints out the tiles.

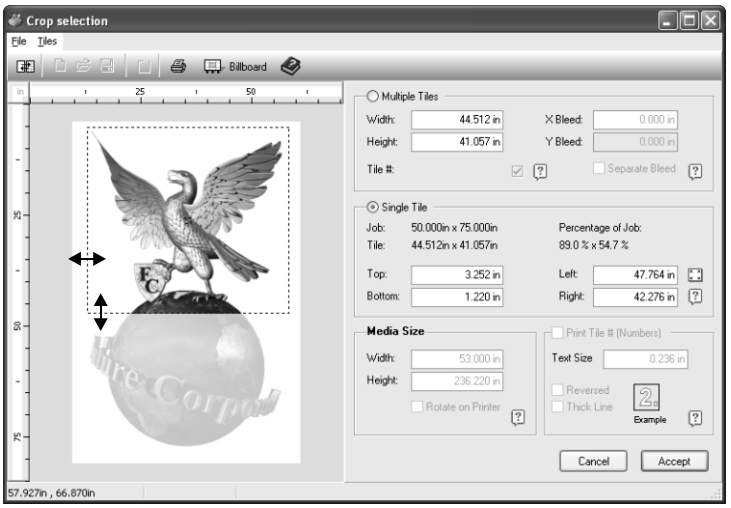
X and Y Bleed: Sets an overprinted area (bleed) when using Multiple Tiles. This is helpful when you intend to overlap tiles of the Job onto the substrate of your work and need room for error etc. It is also helpful when used in conjunction with crop marks when you wish to trim tiles for nice and sharp edges.

The 'X Bleed' field is used to nominate the bleed distance past the edge of the Job in both the X and Y coordinates. To set the X and Y Bleed Size proportionally type in the required measurement in the 'X Bleed' field and pres 'Enter or Tab' and the specified size will be applied to all Tiles, and will be rendered as a marquee over the selected tile on the Job in the preview window.

'Separate Bleed' is used to nominate the 'Y Bleed' when it its required to be different than that of the 'X Bleed' and is activated by clicking in the 'Separate Bleed' check box and 'typing' in the required value in the 'Y Bleed' field.

Specify Number of Tiles: is found along the tope edge of tools and allows the user to specify the quantity of tiles required rather than setting a specific tile size. To use this tool click on the 'Specify Number of Tiles' button and the 'Tile #' window will open. Next type in the number of 'Horizontal' tiles required and click on 'OK' and the window will reopen, next type in the number of 'Vertical' tiles required and click on 'OK' and the settings will be applied to the Job.

Note: To avoid allocating too many tiles by mistake the program defaults to a maximum of 20 tiles. However this can be set higher by clicking on the 'Tiles' menu and resetting the 'Maximum Tiles'.



Single Tiles: Has the same functionality as 'Crop Tools' discussed on the previous page except when the specified area is cropped from the Job it is immediately re-displayed in the preview window as a masked (frosted) area. This can also be done visually with a mouse by clicking on and holding down the left mouse button on any section the marquee and dragging it to the required area and letting go of the mouse button.

Note: The 'Bottom and Right' fields are measured from the 'Printer's Origin' as shown in th 'Job Position' illustration see page 6-6. Therefore a measurement of 0.0 would mean no part of the image would be visible or printable.

Reset Cropping Area: Resets the image back to its original state and is similar to an 'Undo' button.

Media Size: This section reports the current Media Size as set in the 'Project Settings' window. However it is important to note that the program automatically allows for the size of crop marks even though they may not be currently set in the 'Printing Options' window (which is the next window in line).

The reason for this, is so that 'if' any standard crop marks are used they automatically fit around the Job and on the Media for printing. If you have no intention of using crop marks and wish to use the maximum printable width of your media. Go to the 'Printing Options' window and check 'Crop Marks' and 'Include in Size' to 'off' (no tick) and return to this window and you will find the Media Size will match the maximum Media Size as set in the 'Printing Options' window (which is the previous window in line).

Rotate on Printer: When checked rotates the Job 90 degrees in an anti-clockwise direction and is often helpful to fit tile/s on the Media.

Reset Media Size: Resets the cropped area/s and is similar to an 'Undo' button.

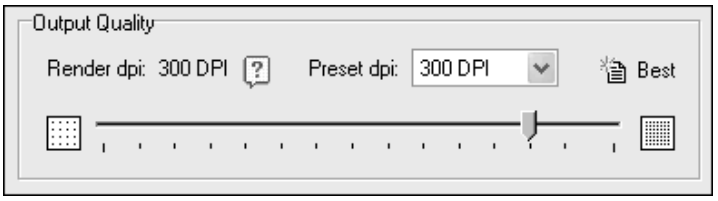
Tile #: Inserts a consecutive Tile # (Number) in the bottom right hand corner of each tile. When used in conjunction with the programs overprinting feature sorting and laying out your work can be made remarkably easier and accurate. Note: If no 'Bleed' is set and the Tile # feature is activated a Tile # will be printed onto each Tile in its bottom right hand corner.

To activate Tile #'s click in the 'Tile #' check box, next set the Height of each Tile # by typing in a numeric value in the 'Text Size' field, next check either or both the 'Reversed' and 'Thick Line' options to enhance the contrast of the Tile # over the Job when printed. Note: When setting the Tile # size allow for it to fit within the currently set bleed (if any).

6.7 Printing Options

FutureRIP allows the user to apply specialist quality settings to the background image, as follows:

6.7.1 Render dpi: This section is used to set the specific quality the program applies to the Job for printing. This is done as a Render Setting in 'dots per inch' (Render dpi). This setting is unrelated and should not be confused with the Printer's dpi which is discussed in Topic 4.2 and you are encouraged to read Topic 2.4.3 'dpi'.



Generally speaking the greater the 'Render dpi' is set, the better the Job's texture appears i.e. colors appear smoother and more accurate and small text and vector objects are sharper. This comes at the expense of processor and throughput time. For example: the greatest Render dpi setting will take approximately 15% longer to RIP than a low setting of say 50 dpi. In most circumstances it is better to set the 'Render dpi' to 'Best' as the program will use the highest quality settings available. This is done by clicking on the 'Best' button. However where high quality is not as important as throughput speed the Render dpi can be set to a lower setting. Also and depending of what version of Windows you are using there are some limitations on how large a Job can actually be in dot size. If you exceed this limit you will be advised in 'Preflight' just prior to proceeding to RIP in the 'Output Options' window, and may have to reset your Render dpi marginally lower.

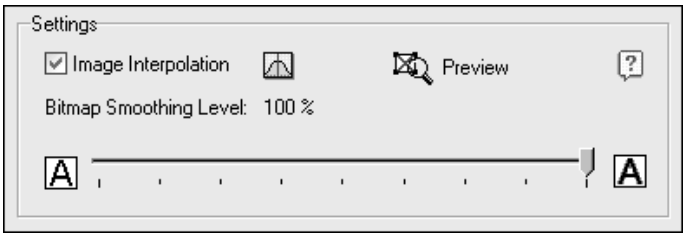
There is no substitute for experimentation with the 'Render dpi' setting, the type of work you do and the printer you use when it comes to obtaining good to excellent results. Not only in output quality but the balance between acceptable results and acceptable throughput (output time).

It is also important to note: That the original artwork used in the Job and more specifically any bitmap images used regardless of their original format such as *.bmp *.jpg *.tif or *.tga etc. are better designed/created with more pixels than less pixels (but not too many). A good rule of thumb for general posters etc. is to have bitmaps designed/created at between 1250 to 2000 pixels across.

Any less compromises quality while any more is a waste of HDD space in normal circumstances. However for 'Fine Art' more pixels can be used but will compromise output speed and may require a very powerful computer and FutureRIP PE.

6.7.2 Bitmap Interpolation (Smoothing)

This section is used to smooth (blend) together pixels of bitmap images to remove unwanted pixelization. This is usually a problem with bitmaps made up of fewer than 1250 pixels across that are to be printed quite large (over 3.0′ x 3.0′ (1.0 x 1.0M)) and viewed quite close e.g. posters in an exhibition that are hung at eye level and that can be viewed up close i.e. a few feet away (1 meter).



This problem can often be corrected at design/creation time and as a rule of thumb bitmaps that are to printed as general posters etc. should be made up of between 1250 to 2000 pixels across.

To activate Image Interpolation:

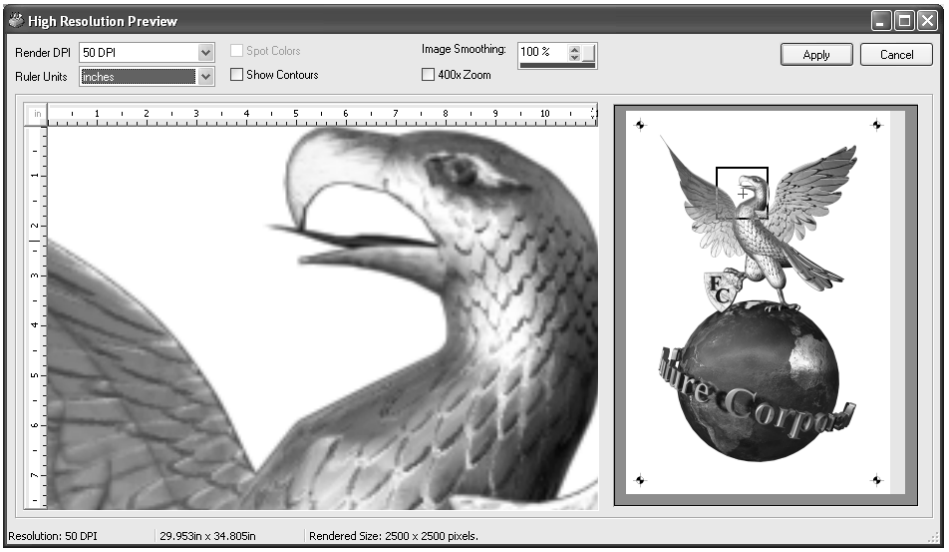
1. Click in the ‘Image Interpolation’ check box;
2. Click on the ‘Bitmap Smoothing Level’ slider and drag it right to increase the level of smoothing or left to decrease the level of smoothing.

Wherever the slider is placed is the level of smoothing that will be applied.

Bitmap Interpolation Settings: When clicked opens a special module with a more visual method to see how smoothing effects bitmaps generally. This window has 4 examples of small to very small bitmaps and what happens to them as you slide the ‘Gaussian Blend’ slider from left to right. Any changes you make in this window will be updated in the main window.

Note: The correct smoothing level will depend on the type of artwork used, its pixel size and its end application. Generally speaking the smaller the bitmap and the larger it needs to be printed the more smoothing it will need.

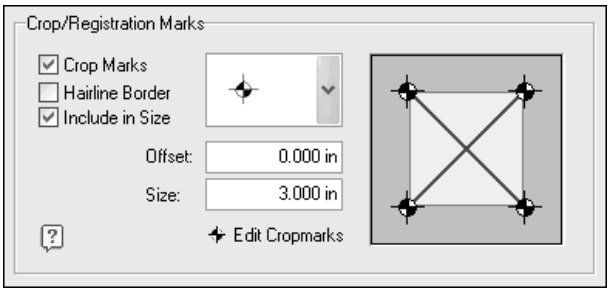
High Resolution Preview: When clicked opens a special ‘Virtual Printout’ window that allows you to view how the Job will print out at a distance of approx. 1-2″ (25 to 50mm) as indicated by the on-board rulers.



This window also has the ‘Render dpi’ and ‘Bitmap Smoothing’ sliders on board for a real time preview of the current Job. This is very helpful because you can get an idea what the image will print out like in this small area. But remember your viewing the image right up close and if it’s a poster that people are going to view from several away (meters) you should stand right back from your monitor to get a better idea of what the image will look like when printed out.

Recommendation: For small scale works up to approx. 10′ x 10′ (3 x 3M) set Render dpi to ‘Best’ and Bitmap Interpolation to 100% as it greatly increases output quality without taking up all computer’s resources. However for larger scale works both these settings are better set mid-range as Windows imposes certain limitations that may not allow you to use the higher settings. PLUS any extra quality will not be appreciated due to the long viewing distance.

6.7.3 Crop Marks



This section is used to place Crop/Registration Marks at each corner of the Job. Which greatly assists the user to line up and trim the Job once printed.

To activate Crop Marks click in the 'Crop Marks' check box and select the type of Crop Mark suitable for the current Job from the drop down list. To set the 'Size' of the selected Crop Mark click in the 'Size' field and type in the required size and press 'Enter or Tab.'

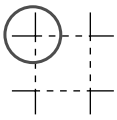
To activate a Hairline Border click in the 'Hairline Border' check box. Note: a Hairline Border will render to the very edges of the Job. If an Offset is applied the Hairline Border will resize to fit to the very edge of the given Offset.

Offset: Refers to the distance the Crop Marks and/or the Hairline Border is set away from the edge of the Job. To set the size of the 'Offset' click in the 'Offset' field and 'type' in the required size and press 'Enter or Tab' on the keyboard.

Include in Size: When checked automatically resets the Job and Media to allow for the Crop Marks and Offset that are set. Therefore when using Crop Marks and/or an Offset you must allow for the additional area required to include them in the overall print size. For example: a Job that is 20" x 20" with 0.375" Crop Marks (510 x 510 x 10mm) would require a minimum (printable) Media size of 20.375" x 20.375" (520 x 520mm) and so on.

Edit Crop Marks: Is available for use in FutureRIP Production Edition (PE).

Standard Crop Mark Types: Although several of the standard FutureRIP Crop Marks look the same, they are in fact slightly different. This is to allow for varying printers and printing circumstances. These differences are applied in the same fashion to those Crop Marks that look similar, as follows:

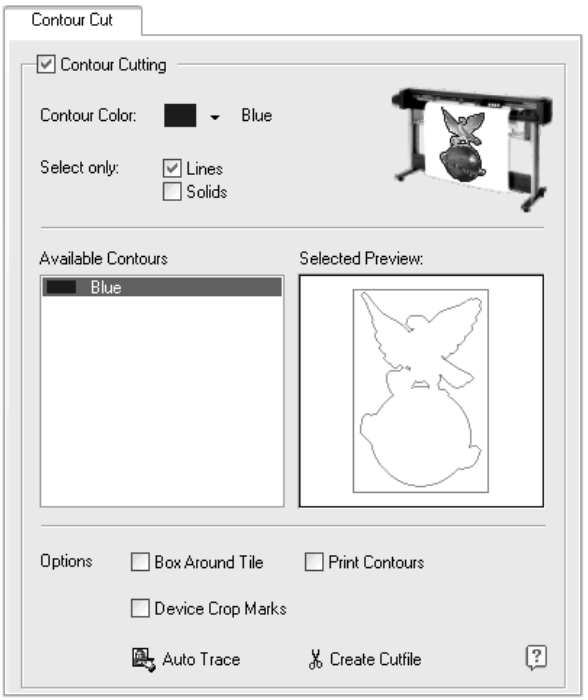


Type 1. Hairline (1 pixel)

Type 2. Borderline

Type 3. Whiteline

6.8 Contour Cutting (RIP & Cut)



This section is used to set the color of vectors (curves and lines) that are contained within any layers of the Job to be cut out by a Print & Cut machine and or Vinyl Cutting Plotter. FutureRIP also comes with an advanced Auto Trace tool that allows the user to set a contour cut line with an offset and smoothing etc.

Note: It is recommended to consider how a Job will be contour cut at design time by making the appropriate provisions in the layers. Rather than attempting to manipulate the Job at this stage of the given work.

Contour Color: Is the currently selected color that will be used as the cut path when proceeding with Printing then Cutting the Job. To select a 'Vector' by a color value click on the 'Color' fly out and select a color from the selection window that is also present as a vector in the current Job's layers.

Lines and Solids: When checked independently or together display all those vectors contained within all the Job's layers that are either an outline or a filled section of a vector object; and are displayed as a list in the 'Available Colors' list box. Note: Any color that is selected from the 'Available Colors' list box will become the selected color and cuttable contour.

Selected Preview: Displays all those vectors that have been selected by specific color that form a part of any layers of the Job. Note: Whenever a vector object contains a fill color different to its line color and the line color is selected from the 'Available Colors' the entire shape is selected as a whole and vice-versa.

Print Contours: When checked prints the selected vectors along with everything else in the Job and will also display the complete Job in the layout preview window. Note: When unchecked the selected vectors for cutting will be removed from the view modes of the program unless 'Show Cut File' is clicked (see bottom left hand corner of the FutureRIP window). To see both the Cut File and Printable sections of the Job together click on the 'Show Print & Cut' button also in the bottom left hand corner of the FutureRIP window. This view mode displays the Cut File as solid 'Black' and the Print File as faded.

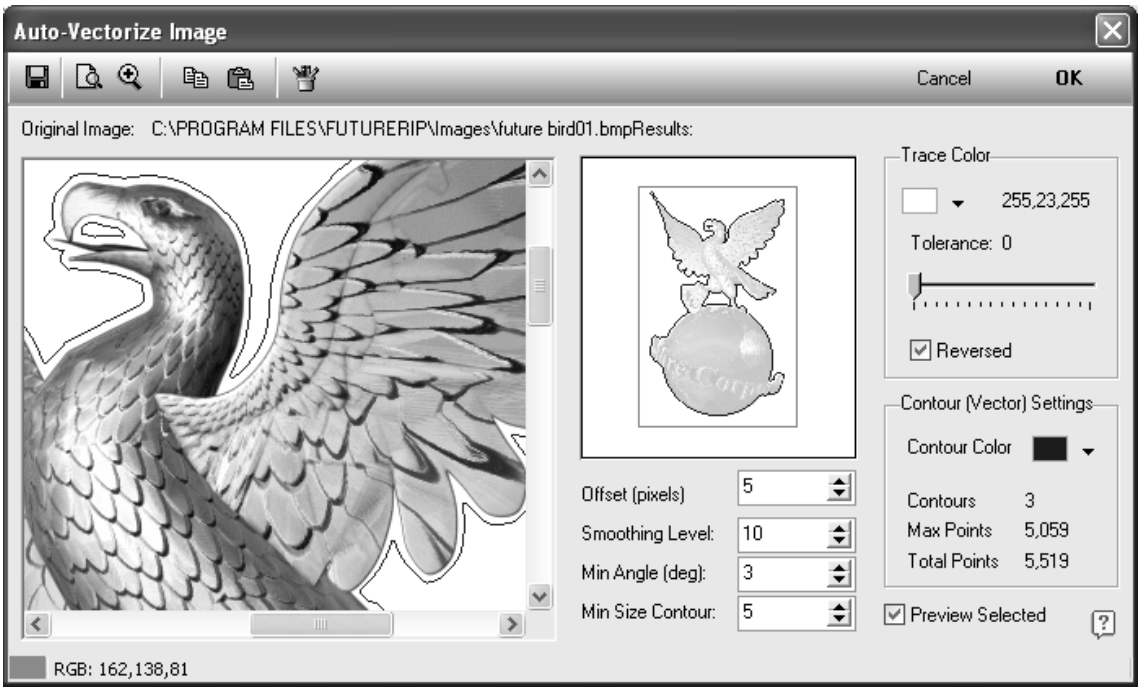
Box Around Tile: When checked applies a line around the entire edge of the Job as a cut line (similar to a weed box) and is very helpful when doing large runs of decals/stickers.

Device Crop Marks: When checked applies the Printer's onboard Crop Marks to the Job and will vary from printer to printer. Note: Most printers do not have this feature. For those that do please refer to your Printer"s Manual for further settings and applications.

Send to Cut File
When clicked automatically sends the selected vector color as a Cut File to VinylMaster Pro's 'Vinyl Spooler' ready for cutting. If 'Box Around Tile' is checked this will also be sent as a part of the Cut File. Note: This feature when used with the Vinyl Spooler's: 'Manual Reposition' module is ideal for printing the Job on one machine and cutting it on another. See Topic 31.12 of VinylMaster Pro PDF manual for more information on how to use this very helpful feature.

Note: In this version of FutureRIP only one color can be selected as the contour color and cuttable path.

6.8.1 Auto-Trace



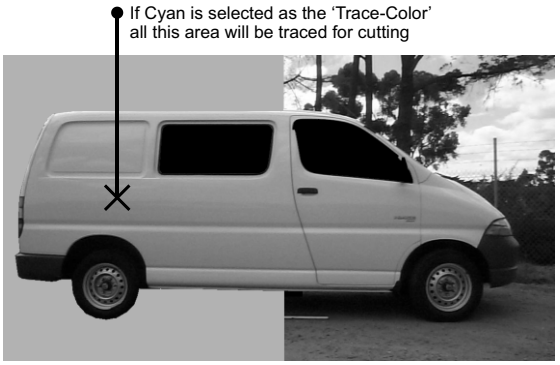
This section is used to fit a smooth outline around all or parts of a 'Background Image', otherwise known as tracing, which is then used as a 'Contour Cut' line that can be cut out on a Print & Cut Machine or Vinyl Cutting Plotter.

This is done by selecting a color which is NOT to be outlined (traced), usually the background color. For example: If you had the oval-shaped 'Ford' emblem or the McDonald's 'Golden Arches' on a white background, you would select the 'White' background as the 'Trace' color because everything except for 'White' would be outlined (traced). With the end result being a die cut decal of the logo.

Preparing the Image
For best results it is often necessary to prepare the image prior to applying an outline (trace). FutureRIP allows you to edit the image directly by clicking on 'Edit in Paint' which is found in the top row of buttons. In the 'Paint' program it is recommended to recolor (flood-fill) the background color of the image to a color which is not present in the image e.g. use cyan. This means that if cyan is selected as the 'Trace Color' everything else will be traced.

Once the modifications are complete in the 'Paint Program' click on the 'File' menu and go down and click on 'Exit and Return to FutureRIP' and then on 'Apply' in the preview window.

Note: Any editing is temporary only and does not effect the final Job.



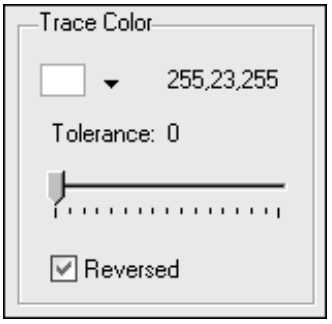
Edit in Paint to set Auto-Trace area by temporarily removing the background, then Flood Fill background with color not present in the image. Note: The final image is unaffected by these changes

6.8.2 Setting the Trace Color

Trace Color: Is set by selecting a color within the image from the 'Trace Color' fly out or by placing the mouse pointer and clicking on the 'Color' in the 'Preview' window.

Tolerance: When slid to the right gradually selects similar colors around the selected 'Trace Color'. This is helpful to pick up and include pixels when there are anti-aliased (blended pixels) around objects that form part of the object.

Reversed: When unchecked will outline the selected color itself. This is helpful when the part of the image that requires a 'Contour Cut' line is not a part of the background area of the image. Alternatively and depending on the image itself, 'Reversed' can be left unchecked to effectively inline a part of the image for a particular effect.



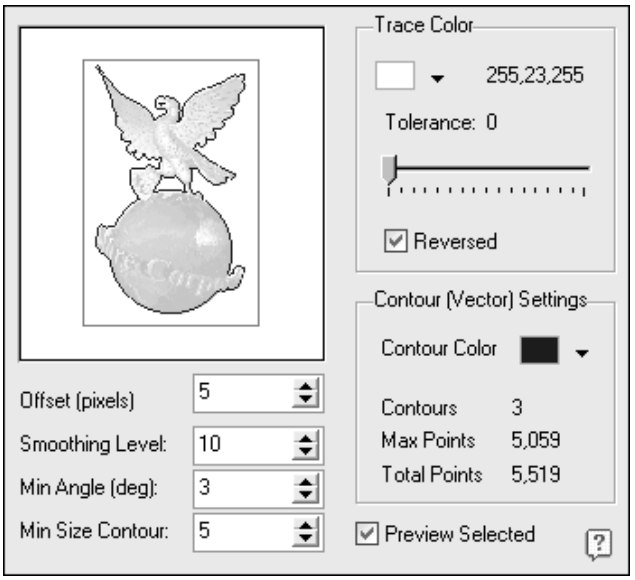
6.8.3 Setting the Contour for Cutting

Contour Color: Is set by selecting a color from the 'Contour Color' fly out and is generally set as the inverse color of the image being outlined, so it can be readily seen.

Offset (pixels): Is set to a default of 0 (zero) which means that the outline will just touch the outer edge of the bitmap being traced. By increasing this value the outline will be set at a distance away from the edge of the bitmap being traced. This effectively will give a border/bleed between the bitmap image and the contour cut line.

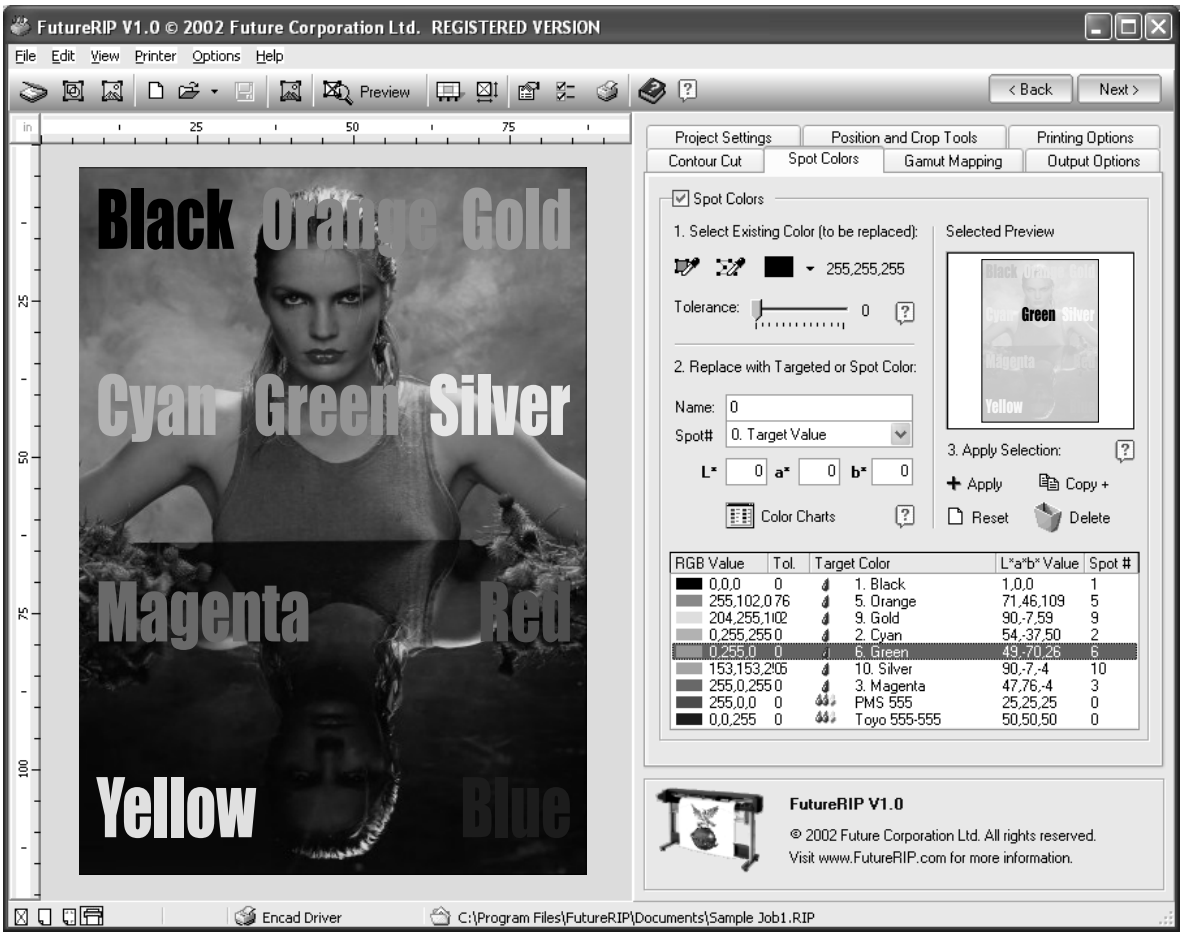
Smoothing Level: Is the number of times the program redraws the 'Contour' around the image, with each time removing sharp edges to the point of rounding everything off. Note: The more smoothing passes the longer it takes to create the contour line. A maximum of 50 passes is recommended for very smooth results.

Min Angle (deg): Is the point at which two lines intersecting at the given angle become one line. Therefore the greater the angle set the less lines will be used to represent the contour line (node reduction).



Min Size Contour: Sets the minimum size that any contour will be used as a 'Contour Cut' line. This is very helpful to eliminate unwanted outlines that are created from areas of the image that are the same color as the 'Trace Color' but are not supposed to be cut out.

6.9 Spot Colors

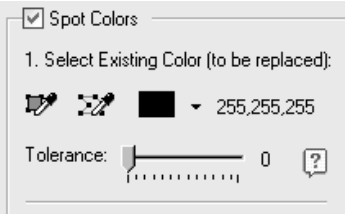


6.9.1 Spot Colors Overview

FutureRIP allows the user to set existing colors to be printed out as Specific Spot Colors. Plus it also allows the user to print with a pure ink or ribbon.

6.9.2 Select Existing Colors

This section is used to select specific colors within the Job, which are in turn to be printed out as other colors specified by the user (Spot Colors). This is very helpful when a particular part or all of a Job requires to be a specific color e.g. the blue color of the Ford emblem or the red color of the Coca Cola Logo. These colors are often specified as a Pantone*, Trumatch*, Focoltone* or Toyo* color, or listed as a CMYK, RGB or XYZ color space. All of which can be specified by the universal format 'Lab' which FutureRIP incorporates as its color reference table.



Tolerance: When slid to the right gradually selects similar colors around the selected 'Existing Color'. This is helpful to pick up and include pixels, when there are anti-aliased pixels around objects, that would normally be ignored and cause unwanted fringing around the object - especially when it is printed as a different color than the original 'Existing Color'. By increasing the tolerance these blended pixels can be picked up without interfering in other parts of the work.

Note: When designing a Job that is to have colors within it printed as Spot Colors later on in FutureRIP and when the artwork will be saved/exported as a bitmap image (not published to FutureRIP) i.e. a *.bmp *.jpg or *.tif etc. set these known colors within a small margin of each other; especially if they overlap.

* is a trademark of their respective owners.

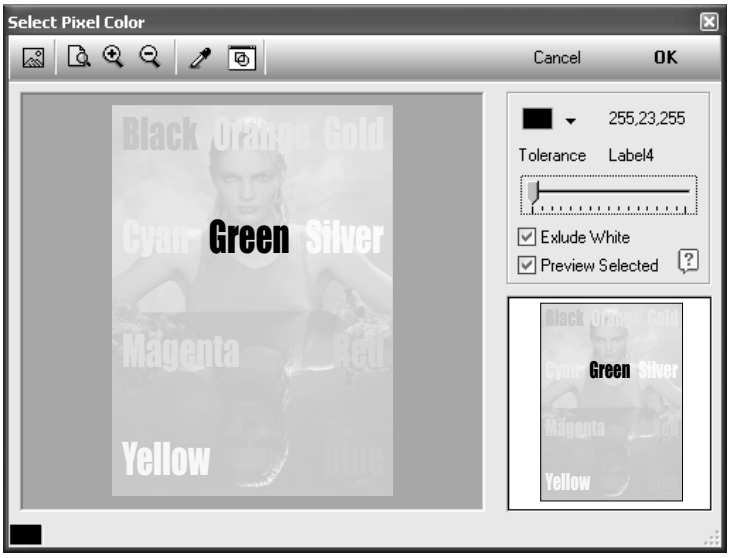
For Example: If 3 objects are going to be printed as Spot Colors, as say: PMS 533, 227 and 886 set object 1. at 255,0,0 object 2. at 245,0,0 and object 3. at 240,0,0 in RGB color space or similar. The actual figures and color space used are only an example but quite useable in a real Job. This will mean that any anti-aliasing done by the host program, will have far less effect around the edges of each object within the Job, when they are all printed out as completely different PMS Spot Colors.

Special Notes: It is important to understand that a significant proportion of colors CAN NOT be printed by standard 4 color (CMYK) printers, simply because the available color range from the inks (Ink Gamut) is less than what a color (RGB) monitor using the full range of Lab colors can display (Monitor Gamut) see Topic 2.2. With the advent of 6 and 8 color printers the printable color range (Printer's Gamut) has increased but still falls short of the entire range of Lab colors. FutureRIP does use the most saturated colors available from your printer and will attempt to print those colors as accurately as is possible, that fall outside any Lab Spot Colors that you've specified.

The good news is this can be further enhanced by using 'Custom Color Profiles' which are specialist Color Profiles based on the actual Ink and Media combination of your specific printer and are available by contacting ccp@futurecorp.net or by telephoning your closest Future Corporation office.

6.9.3 Select Color by Pixel

Selects color by 'Pixel' for use back in the 'Spot Colors' window as an 'Existing Color'. The 'Existing Color' is set by selecting a color within the image from the 'Color' fly out or by placing the mouse pointer and clicking on the 'Color' in the 'Preview' window.



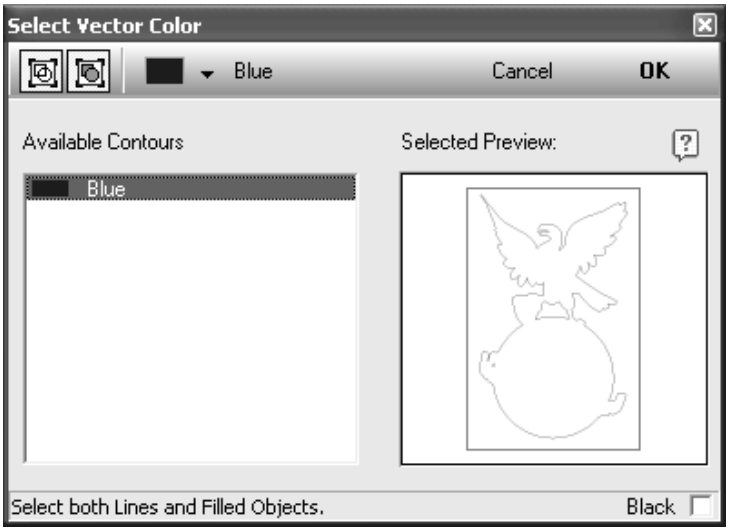
Exclude White: When checked disallows any 'White' areas (RGB 255, 255, 255) to be selected in the image. To select a 'White' area uncheck 'Exclude White'.

Preview Selected: When checked displays the 'Selected Color/s' with the remainder of the image in the preview window displayed as masked (near opaque).

Tolerance: when slid to the right gradually selects similar colors around the selected 'Existing Color'. This is helpful to pick up and include pixels, when there are anti-aliased (blended pixels) around objects, that would normally be ignored and cause unwanted fringing around the object.

6.9.4 Select Color by Vector

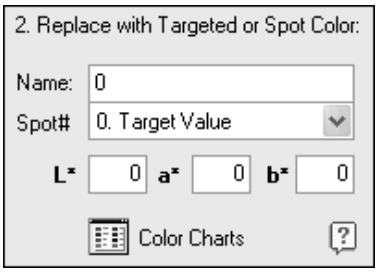
Selects color by 'Vectors' for use back in the 'Spot Colors' window as an 'Existing Color'. The 'Existing Color' is set by selecting a color within the image from the 'Color' fly out or by placing the mouse pointer and clicking on the 'Color' in the 'Available Colors' window.



Black: When checked displays the 'Selected Color' in the 'Preview Window' in 'Black' rather than its actual color.

Using The Selection Made: To proceed with your selection click on the 'OK' button...

6.9.5 Select Targeted/Spot Colors

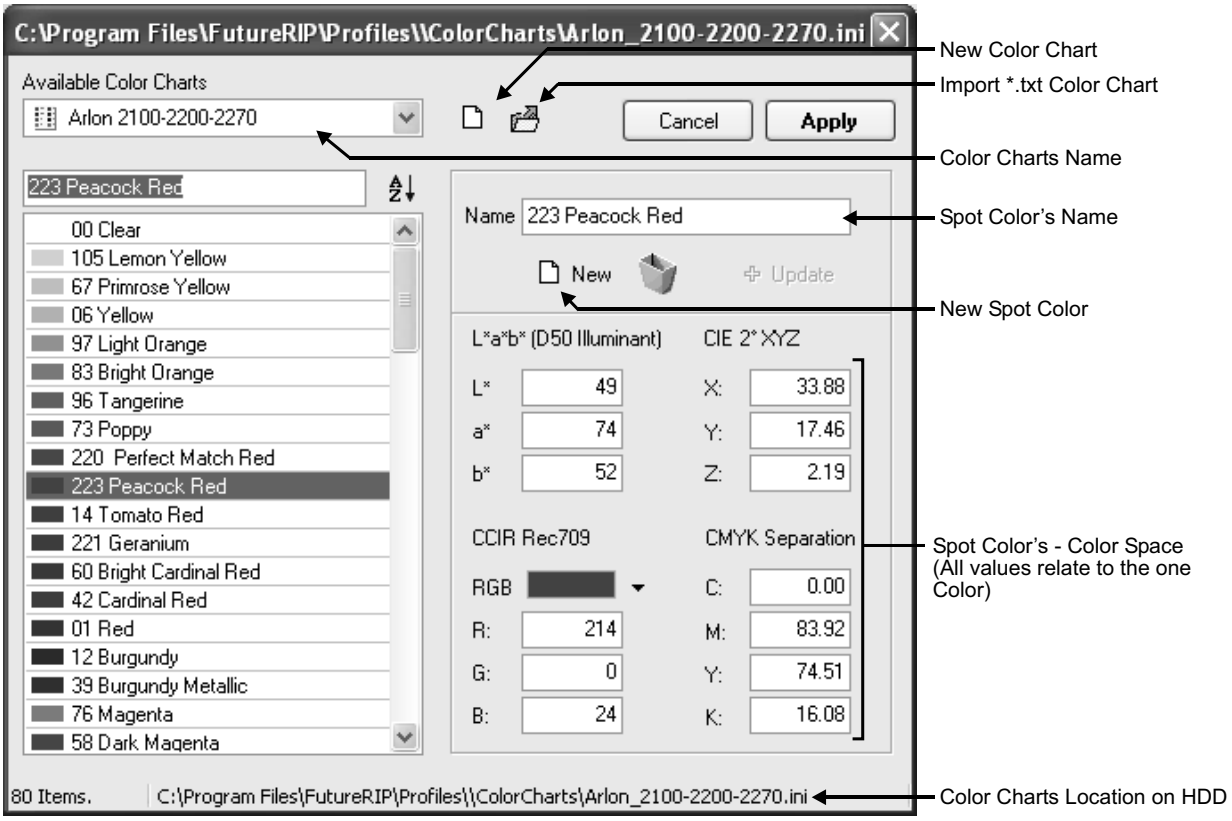


This section is used to set an 'Existing Color' that has been selected from the previous section to be printed as a Spot Color in 'Lab Value' or as an 'Actual Ink Color'. This Lab value or Ink color is the color that will actually be printed out onto the media in place of the Existing (Original) color.

Setting Spot Colors in 'Lab Value' (Targeted Spot Color): To begin with you must have an 'Existing Color' selected from within the Job, from the section above which will be displayed in the 'Selected Preview' window.

Applying a known Lab Value: If you already know the Lab Value for the Spot Color type in a Lab value in the L* a* b* fields. You can also assign a 'Name' to the color by typing this in the 'Name' field. To apply the new values click on '+ Apply' and the new values will be listed with relevant information. If you are unsure of the Lab value the Color Charts Module may assist.

Color Charts: The Color Charts Module is used to store Spot Colors by name and in Lab, RGB, XYZ and CMYK Color Space for instant use in the Spot Color's window.



This module allows you to enter in as many new Color Charts as you wish with up to around 2000 colors per chart. It is also the place where Specific Colors are created from the ColorTUNE Module based on your Printer/Ink/Media combinations. The Color Charts are stored as a *.txt format which means they can easily be appended to and shared amongst all FutureRIP users and are easily e mailed and or downloaded. For those with a spectrophotometer you can create as many 'highly accurate' Color Charts as you need based on any Color Model or existing charts. These devices can be purchased at **www.future-1.com** from Future Corp.

This module also comes pre-loaded with the Vinyl Color Charts from VinylMaster Pro for your convenience. Note: These colors are based on screen colors only and are therefore only approximate.

Using the Color Charts Module
To locate an existing color: click on the 'Available Color Charts' drop down list and select the Color Chart and then click on the required color from the list below and click on Apply.

To modify an existing color: select it then make the changes where required and click on 'Update'.

To create a new Color: select the 'Color Chart' you wish to place it in, next click on 'New' and then type the Color's Name in the 'Name' field, next set the colors value in any one of the 'Color Space' fields and press 'Enter' then click 'Add' ('Update' changes to 'Add' when used in this context) and the new color will be created.

To create a new Color Chart: click on 'New Color Chart' and a window will come up, next type in the name of the new Color Chart and click on 'OK' and a new Color Chart will be created.

To Import a *.txt Color Chart: Firstly create a new and empty Color Chart, next click on 'Import Colors from Text File' and the 'Select File To Import' window will come up, next navigate to the file's location and select it and click 'Open' and the colors will be loaded into the new Color Chart.

Color Chart *.txt format: The method used to record color charts is simple and can be created by anyone who has the raw Lab information available for each color, as follows: (This information is usually derived from a spectrophotometer)

In a word processor type in: **Colors name,L*,a*,b*** for example: **Olympic Blue,48,-10,-49**

Each entry must be on its own line and each value must be separated by a comma (,) and then saved as a *.txt file.

If you require consistent accuracy and need a reliable solution you should invest in a spectrophotometer. This device measures light waves from a given sample e.g. a Pantone Color Chart and reports the samples color back in Lab Value. This information is then typed directly into the L* a* b* fields and Updated and is by far the most accurate way to reproduce printable Spot Colors. Future Corporation supplies these devices and has a new hand-held model which is amazingly accurate, easy to use and very affordable. For pricing and availability please contact sales@futurecorp.net

Spot Colors in 'Ink Value' (Ink Channel Spot Color)
To begin with you must have an 'Existing Color' selected from within the Job, from the section above which will be displayed in the 'Selected Preview' window. The next stage is to click on 'Spot #' and select an existing Ink or Ribbon Channel that exists in your printer e.g. Orange. To apply this value click on '+ Apply' and the value will be listed with relevant information.

Note: At print time the nominated Ink Channel will be used exclusively as the Spot Color which can be very useful for printing out text as a pure ink color. A good example of this is the introduction of Gold and Silver Ribbons in Roland DG's PC Thermal Printer range.

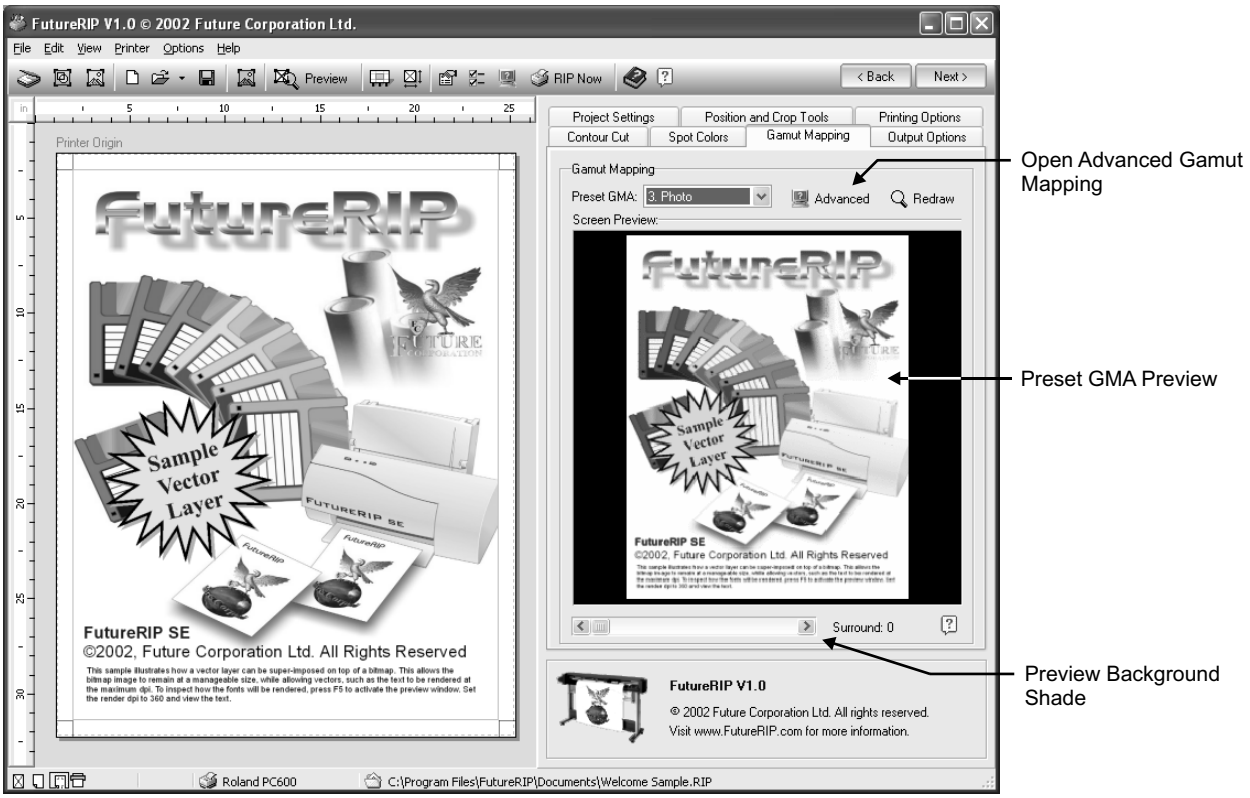
Unlisted Ink or Ribbon Channels are set as 'Custom-#' and will only be available for those printers with Ink and/or Ribbon Channels not in the 'Spot #' list. To use these unlisted channels see the 'Info' window of your 'Printer's Properties' which can be accessed under 'Output Options' window.

6.9.6 Apply Changes

This section Updates, Copies or Deletes those settings made in the Existing and Spot Color sections of this window.

New: When clicked places the program into ready mode for an 'Existing Color' to be selected.
+ Apply: When clicked sets the specified 'Spot Color''to be printed in place of the specified 'Existing Color'.
Copy +: Is used to copy a specified 'Spot Color' already set for an 'Existing Color' to another 'Existing Color'. To do this select the required 'Existing and Spot Color' from the bottom of the Spot Color window and select another 'Existing Color' and click on 'Copy +' and the newly selected 'Existing Color' will also placed into the list with the 'Spot Color' automatically allocated. This means that both Existing Colors will be printed as the one (same) Spot Color.
Delete: When clicked will remove any selected 'Existing and Spot Color' from the list.

6.10 Gamut Mapping (ColorTUNE)



Gamut means 'Complete Range' and in the case of printing refers to Color Range. Your printer has a color gamut based on the inks/ribbons/toner it uses, as does your monitor based on its glowing phosphors. Unfortunately printers (especially 4 color) have far less color gamut than a regular color monitor does, and although 6 and 8 color machines do significantly improve a printer's color gamut it is still less than the color gamut of a regular color monitor. See 'Special Notes' below.

This means that artwork on your monitor will look more colorful than what your printer is physically capable of printing. But don't be concerned because that's what FutureRIP with Gamut Mapping is all about: Improving and enhancing your printed artwork.

Preset GMA: Is a standard range of general 'Gamut Mapping Approaches' and in most cases is suitable for good to excellent results. To implement any one of the 'Presets' click on a GMA and the selection will be displayed in the 'Preview'.

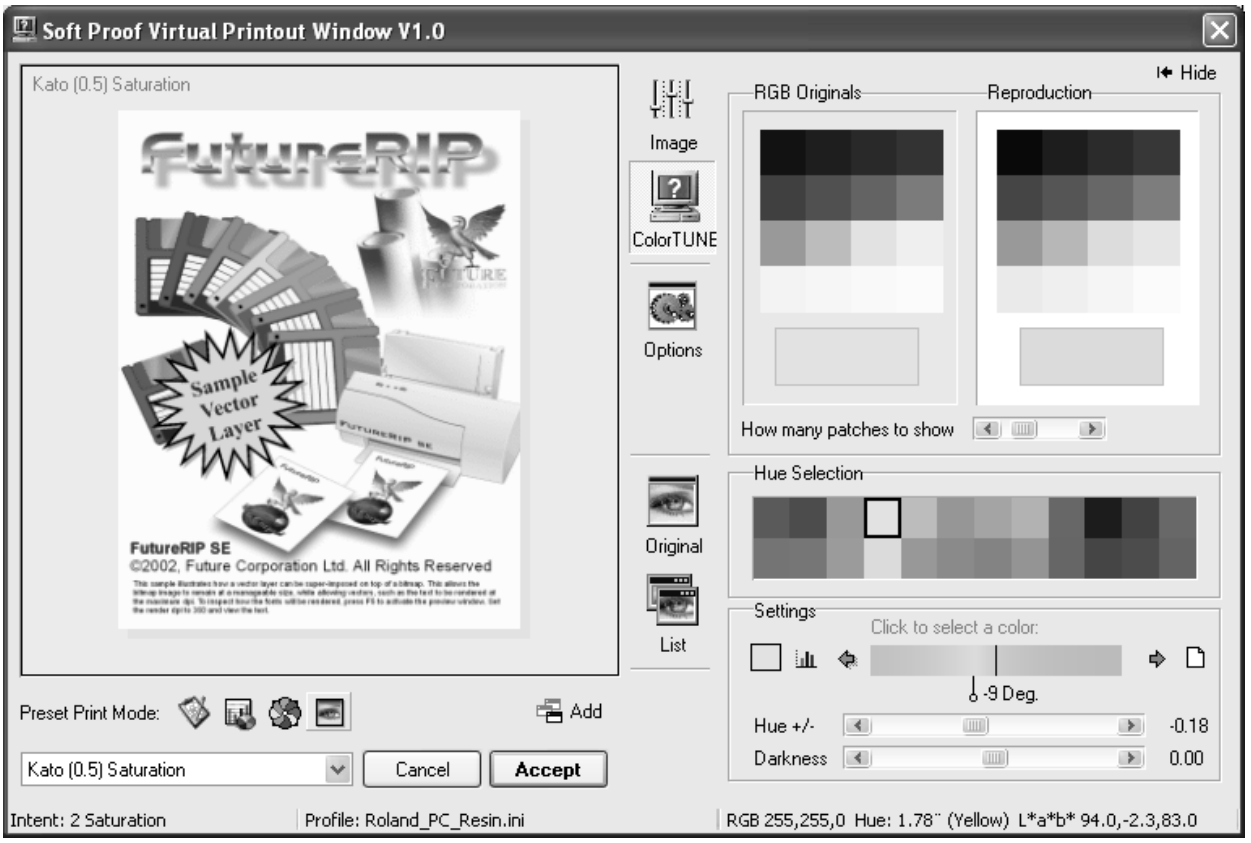
Note: If you are using or have selected a 4 Color Printer with a Matt Media, the 'Screen Preview' will look somewhat to a little duller than the Job Preview will. This is because the 'Screen Preview' is using a color appearance model to simulate what the Print Out will actually look like, rather than what it looks like on a color monitor. For those using 6 and especially 8 Color Printers with very white Media the results will be far closer to that of the Job's preview, because of those machines increased color gamut.

Surround: When slid either left or right adjusts the background color around the Job between black and white. This is helpful to see how the Job contrasts with a given background shade.

Special Notes: With the advent of 6 and 8 Color Printers which are generally: CMYK + Light Cyan + Light Magenta + Orange + Green, printable color gamut has improved significantly over standard 4 Color Printers (CMYK) and in some areas of the gamut match/exceed that of the monitors. But still fall short of the monitor's 'Overall' color gamut. However, FutureRIP takes this one step further with certain machines which also have additional Spot Colors such as Red and Blue. It does this by being able to incorporate these colors within the process colors of the print out, rather than just as

individual Spot Colors printed as a single channel. What this means is that the color gamut of those machines incorporating more Spot Colors as process colors, have the greatest color gamut and can obtain stunning results which can only be achieved using this advanced technology and FutureRIP's GMA. To obtain further information on this subject please read Topic 2.2. and visit www.FutureRIP.com

6.10.1 ColorTUNE



6.10.2 ColorTUNE Overview

FutureRIP offers more GMA Approaches by clicking on the 'Advanced' button, which opens the specialist ColorTUNE module. This module has been designed to let you easily adjust the colors, lightness, darkness, contrast and saturation etc. within the image to better suit the color gamut of your printer thus producing more pleasing and/or accurate results.

All the Preset GMAs are also present from a drop down list in the ColorTUNE Module plus any others which may be applicable to the Color Profile and Driver you have selected. These presets often represent the best range of choices for most artwork. You can see the full range of presets lined up one against the other for your artwork by clicking on 'Add All' from the 'Options' window of ColorTUNE, see Topic 6.10.5

The most significant feature of ColorTUNE is its ability to allow the user to individually adjust colors within the artwork to other colors. For example, you may want a pale yellow lemon to be a more golden yellow color etc. without effecting all the other colors within the artwork, which you can now do using ColorTUNE. This is done by simply adjusting 2 sliders. One for the Hue (shade of color) and the other for the hue's darkness and lightness, as shown above.

6.10.3 Adjusting a given Color to another Color

To adjust a color within artwork, click on the 'ColorTUNE' button, as shown above and the window will expand out. Next click on the color you wish to adjust in the preview window and it will appear under 'RGB Original' and 'Reproduction'.

RGB Original is the color as it appears on your monitor, with Reproduction how the color will approx. print out given the Color Profile and Driver you have selected for your Printer/Ink/Media combination.

Using the correct Profile and Driver is a critically important point, because it will greatly effect the color reproduction preview both on your screen and what's printed from your printer. You must use the correct or closest Profile and Driver for your current Printer/Ink/Media combination should you wish to obtain the best possible results from FutureRIP and your machine, see Topic 2.3 for information about Color Profiles.

The next step is to adjust the Hue and Darkness Sliders to left or right which in turn will adjust the color displayed under 'Reproduction'. Exactly how much these sliders are adjusted will depend on whether you are attempting to obtain the most pleasing or the most accurate results.

There is often a difference between accurate and pleasing results and this is by far and large based on the type of artwork being printed out. For example, a photographic image quite often requires a more accurate Gamut Mapping Approach (GMA) as compared to a Business Graphic (logo) where the image may only have a few colors or shades of a given color etc.

In this case you may wish to print a particular color within the artwork - let's say 'red' the most saturated 'red' from the printer. Even though the artwork itself may have duller shades of red within it. You or your client may just want the most saturated red t9o be printed out for the given artwork, rather than just the closest match.

It's also important to note that some printed colors are no where near as saturated when compared to your monitor's colors and the difference on-screen is very noticeable. With this difference most noticeable with 4 color printers, which is compounded when the printer has dull inks being printed onto a matte or not greyish media.

In reality your printer can only print a certain range of colors. The good news is that you can obtain the best possible colors from your printer using ColorTUNE; even from the most dull 4 color inks and media.

Note: Adjusting the darkness to extremes may create discontinuities between gradient fills and/or gradual changes of color of the given hue being adjusted, which means a gradual change may not be so gradual in places. This may also occur when adjusting a given hue to an extreme. Therefore it is best to only adjust the darkness and hue marginally.

6.10.4 Overall Image Adjustment

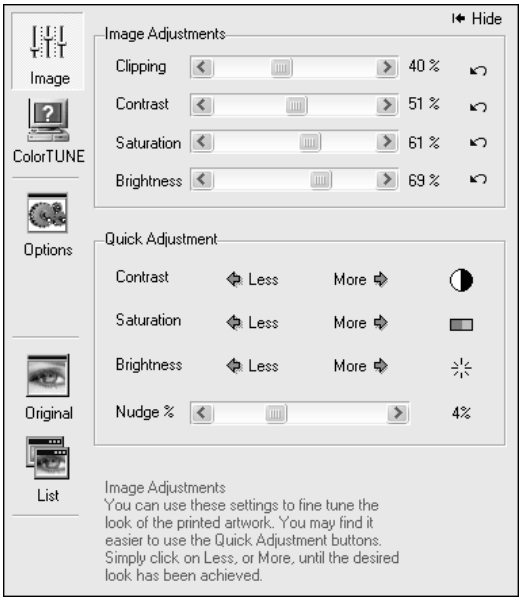
This section is used to adjust the image as a whole rather than by an individual hue (color). These adjustments are changed by using the sliders as shown on the right with any changes instantly reflected in the Preview window.

It is a simple case of 'what you see is what you get' when you adjust the image to your requirements and then print it out.

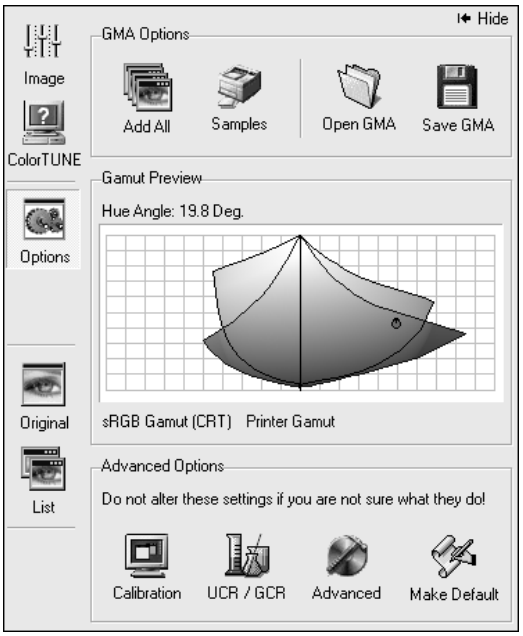
It's important to note however, that how the image appears in the preview will depend entirely on the Color Profile and Driver you have selected for your Printer/Ink/Media combination.

Using the correct Profile and Driver is a critically important point, because it will greatly effect the preview both on your screen and what's printed from your printer.

You must use the correct or closest Profile and Driver for your current Printer/Ink/Media combination should you wish to obtain the best possible results from FutureRIP and your printer, see Topic 2.3 for information about Color Profiles.



6.10.5 ColorTUNE Options



ColorTUNE comes with some very practical and helpful options to assist you in deciding what the best Gamut Mapping Approach (GMA) for your artwork is, as listed below:

Add All: Takes the full set of Preset GMAs and places these into the GMA Window List, as shown below. This window allows you to quickly view the differences between varying GMAs. You can add and remove GMAs as you wish by either clicking on 'Edit' or 'Delete' from within the GMA Window List'. You can also include the RGB Original (Monitor Version) of the artwork by clicking on the 'Original' button, as shown on the left. The GMA Window List also has a range of positing tools which are indicated by their respective hints.

To save all the GMAs you've created in the GMA Window List click on the 'Save' button along the top row of tools and save the file by any given name to a know location (we have provided a folder entitled 'GMA' in the FutureRIP directory for you) Note: the file extension for GMA Windows is *.gmw. The GMAs can then be reapplied to any artwork at a later date when loaded into the GMA Window List, by clicking on the 'Open' button and selecting the appropriate *.gmw file.

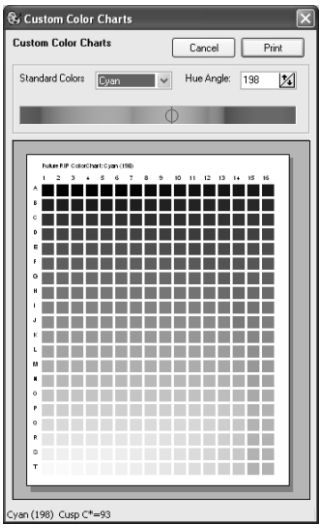
Samples: Allows the user to print out the GMA samples as thumbnails onto a Letter Size (A4) sheet for pre-press approval of the most suitable GMA selected. This feature can save a great deal of ink, media and time as you and your client will know exactly what to expect long before printing any large scale works.

To print the GMA samples click on the Samples' button, shown above and all the Preset GMAs will be automatically loaded into to GMA Window List or from within the List click on the 'File' menu, go down and click on 'Print Samples' and the Print GMA Samples wizard will come up.

This step-through-wizard quickly guides you through to printing out a 'Sample Proof Sheet'. Note: Make sure you have set your printer's properties before attempting to print out any samples.

Example of Print-Out Proof Sheets.

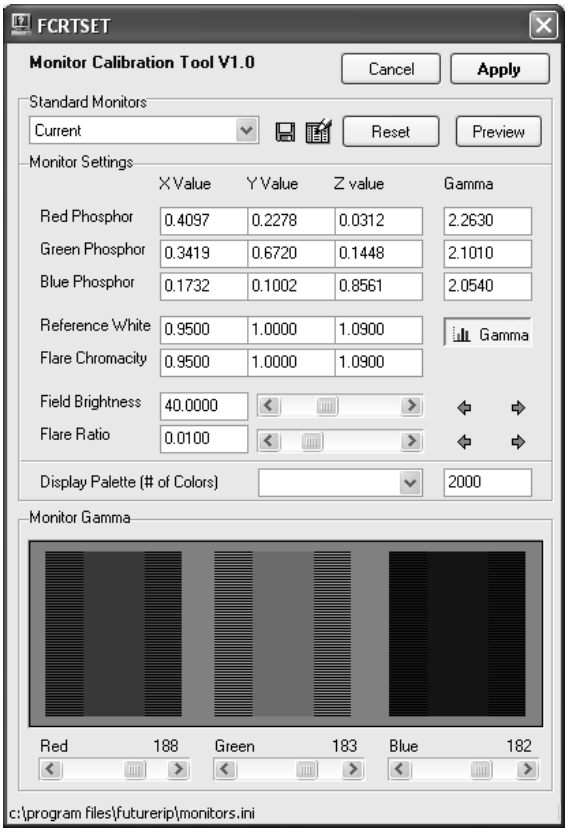
Note: This wizard is also the location from which you can print Color Charts to suit your particular Printer/Ink/Media combination that can in turn be used as a Spot Color chart which you know will always print out 100% accurately, see next Topic.



Create Color Charts: This feature lets you print out your own custom color charts, for any shade of color using your Printer, Ink and Media combinations. It then allows you to easily match the color of say: a customers logo etc. by simply finding the closest swatch on the color chart that matches the required color and typing in its reference number into the Spot Color Chart, see Topic 6.95 for more information about setting Spot Colors.

The color will then be printed exactly as you have selected because it is based on what your printer is capable of printing using the ink and media you use with your machine. To print a color chart run the Print GMA Samples wizard and click on Color Charts. then follow the on-screen instructions. To run the Print GMA Samples wizard, see the previous Topic.

Save/Open GMA: To save any changes you've made to the image in the Preview window click on the 'Save GMA' button as shown on the previous page and save the file by to a know location (we have provided a folder entitled 'GMA' in the FutureRIP directory for you) Note: the file extension for a GMA is *.gma. The GMA can then be reapplied to any artwork at a later date when loaded into ColorTUNE, by clicking on the 'Open' button and selecting the appropriate *.gma file.



Monitor Calibration: To have the most accurate artwork preview using FutureRIP we have provided a Monitor Calibration Tool. This tool will enable you to adjust your monitor based on a sample print out from your printer.

To do this print out the test sheet entitled 'Monitor Test Print' from the FutureRIP CD using your Printer/Ink/Media Color Profile, see Topic 2.6 for mor information on Color Profiles and then open the Calibration window from within ColorTUNE with the Monitor Test Print displayed in the preview and select your monitor from the Standard Monitors drop down list. If it is not listed select 'Current'.

Next with the Monitor Test Print being held next to your monitor adjust the Monitor Gamma Sliders (Red, Green, Blue) and at the same time watch the preview until the monitor's preview is a close as possible to the physical print out.

Next, by sliding the 'Field Brightness' and 'Flare Ratio' you can apply finite adjustment until you are satisfied that you have the closest match on-screen to your physical print out.

The next stage is to save your settings based on your Monitor and Color Profile. To do this click on 'Save' and type in a name you will remember then click on 'OK'. You can then retrieve your settings by selecting your saved monitor settings from the drop down list.

Note: Do not adjust any other settings unless instructed to do so.

UCR/GCR: See Topic 4.7 for more information about the use of Gray Component Replacement.

Advanced: The advanced section is for Beta Testers only and should not be altered.

Default: When clicked sets any changes made to the GMA settings as the Default settings for ColorTUNE thereafter. If you wish to go back to the Factory Default - click on Factory Default from the Preset Drop down list and set this as the Default.

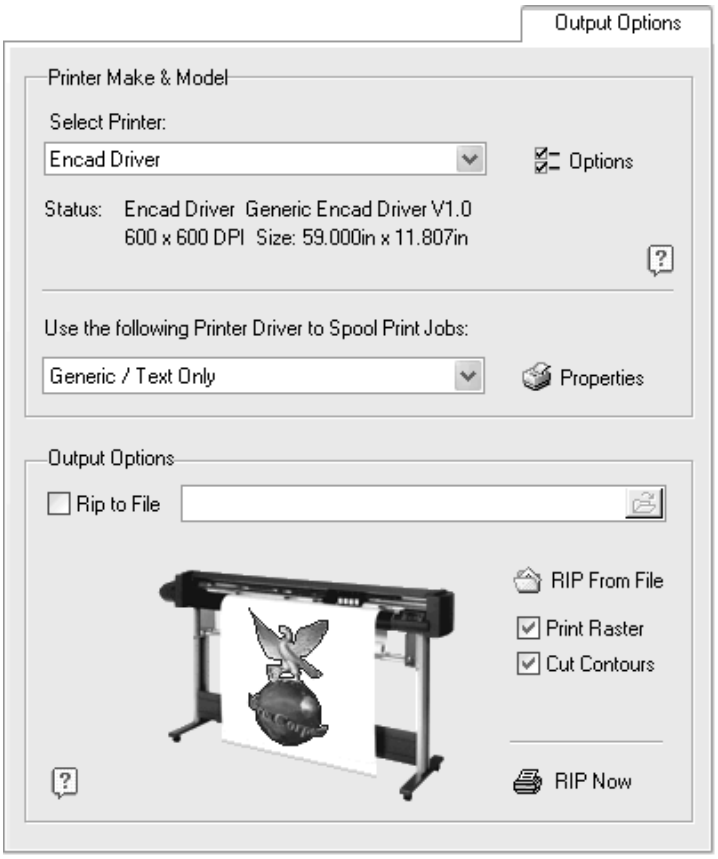
6.11 Output Options

FutureRIP has been designed to operate 'Printer Specific'. What this means is that its functionality, operation and output quality are greatly affected by the Printer which is selected and the Printer's Properties set.

Essentially several features are related to the Printer itself.

For example: the media size is relevant to the printer's size. Contour Cutting only works with Print & Cut machines. The Gamut Mapping is directly related to the ink set used and type of printer i.e. Inkjet, Laser, Thermal, Electrostatic etc. and the list goes on.

Therefore it is paramount to correctly set the printer and its properties to obtain the best possible results using FutureRIP.



6.11.1 Printer Make & Model

This section sets the Printer to be used and the options specific to its make and model. Note: Several settings must be set in the 'Options' window for FutureRIP to function correctly with your Printer, see Topic 4.3. To set the make and model of your Printer select it from the 'Select Printer' drop down list.

Printer Driver (Queue): Windows has a built in print spooler that is designed for sending printer data to the printer itself. FutureRIP is designed to utilize this technology ensuring forward compatibility with future Window's operating systems. In order to RIP a job, an installed Window's Printer Driver must be selected as the vehicle to transmit the data to the printer. The printer in question has absolutely nothing to do with the printing process, other than sending the data to the correct port.

If you do not have a printer driver linked to the correct port (where your printer is located), click on the 'Add' button to install a 'Generic Text Only' Printer Driver for that purpose. Rather than sending a print job directly to the printer you may choose to RIP it - to a file. You can then print the RIP file at a later time by clicking on the 'Send File' button. This can be useful if you need to Print the same file many times.

6.11.2 RIP Options

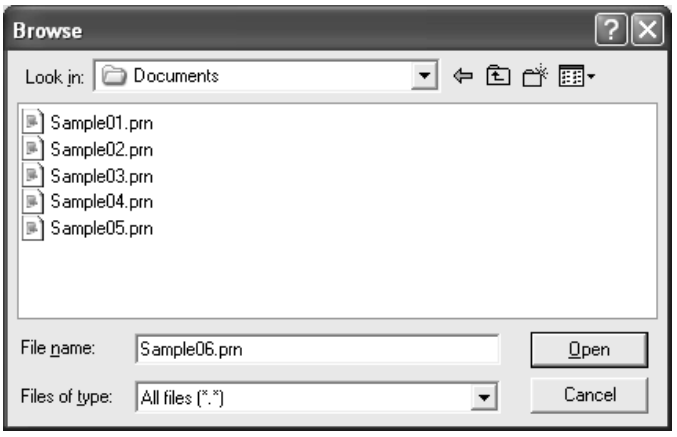
FutureRIP gives you the option of saving your Job as a *.prn file to be printed at a later time or to print the Job immediately. It also provides a summary (Preflight) of the Job and the settings used as a last minute check before proceeding to RIP the Job for printing.

Note: The larger a Job is in physical size and Printed Resolution the longer it will take to print. Depending on these and several other factors there may be a short delay between sending a Job to be printed and when the Printer commences actually printing. In these cases it may be more appropriate to RIP to File first.

Important Note: To print out all parts of the Job and cut any Contour Cut lines at the same time 'check' both the 'RIP Image' and 'Cut Contours' check boxes prior to clicking on 'RIP Now'.

RIP to File: When checked places the program into 'RIP to file' mode. A file name in (*.prn) and location must be set by clicking on the 'Browse' button alongside the File Name and Location field. This information will then be used by the program as the File Name and Location for the current Job when clicking on 'RIP Now'.

RIP from File: When clicked opens the 'Open' window where a previously saved file can be located and selected to be processed and printed by the program when clicking on 'RIP Now'.



RIP Image: When checked includes the 'Background Image' and any Layers (*.emf) that form part of the Job BUT it does not include any 'Contour Cut' lines that have been created in the 'Contour Cut' window.

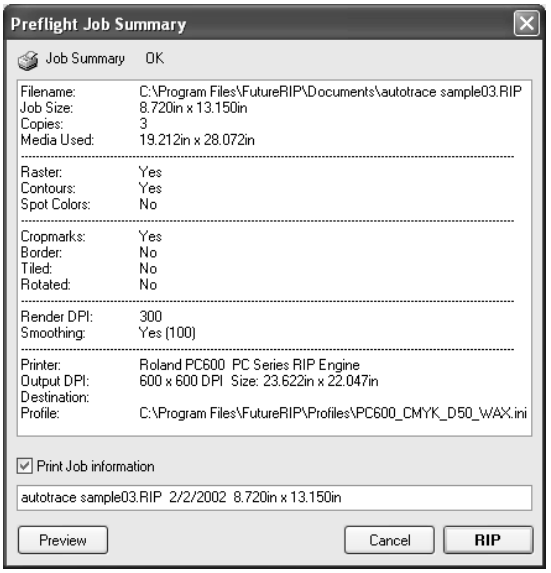
Note: If 'RIP Image' remains unchecked when 'RIP Now' is clicked the 'Background Image' and any Layers (*.emf) that form part of the Job will not be included in the final Print Out. Therefore 'RIP Image' would remain unchecked with 'Cut Contours' checked only when any 'Contour Cut Lines' need to be cut out.

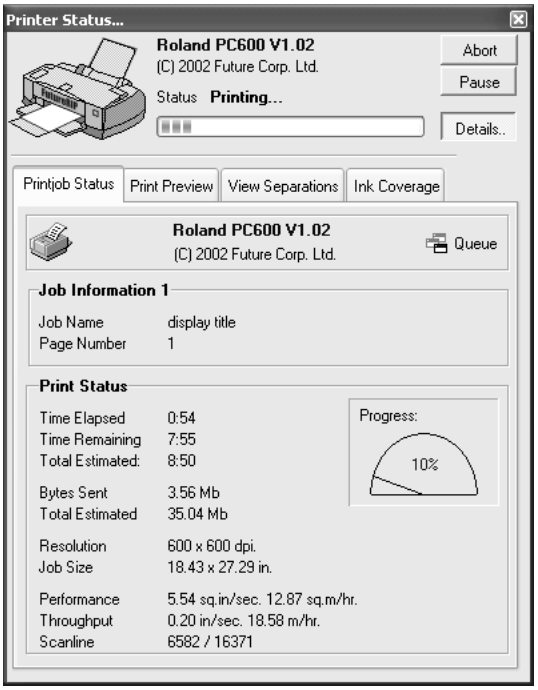
Cut Contours: When checked includes any 'Contour Cut' lines that have been created in the 'Contour Cut' window BUT it does not include the 'Background Image' or any Layers (*.emf) that form part of the Job.

Note: If 'Cut Contours' remains unchecked when 'RIP Now' is clicked any 'Contour Cut' lines that have been created in the 'Contour Cut' window will not be included in the final Print/Cut Out. Therefore 'Cut Contours' would remain unchecked with 'RIP Image' checked when only printing is required.

RIP Now: When clicked loads the 'ColorTUNE' module to adjust the artwork's colors ready to be processed by the RIP Engine. In most cases select an appropriate Preset to suit the type of artwork you're printing, see Topic 6.10 for more information.

Once set and you're ready to print a 'Preflight' window will load where you can do a last minute check of your settings and if required go back and make adjustments. If there are any obvious problems you will be advised under 'Job Summary'.





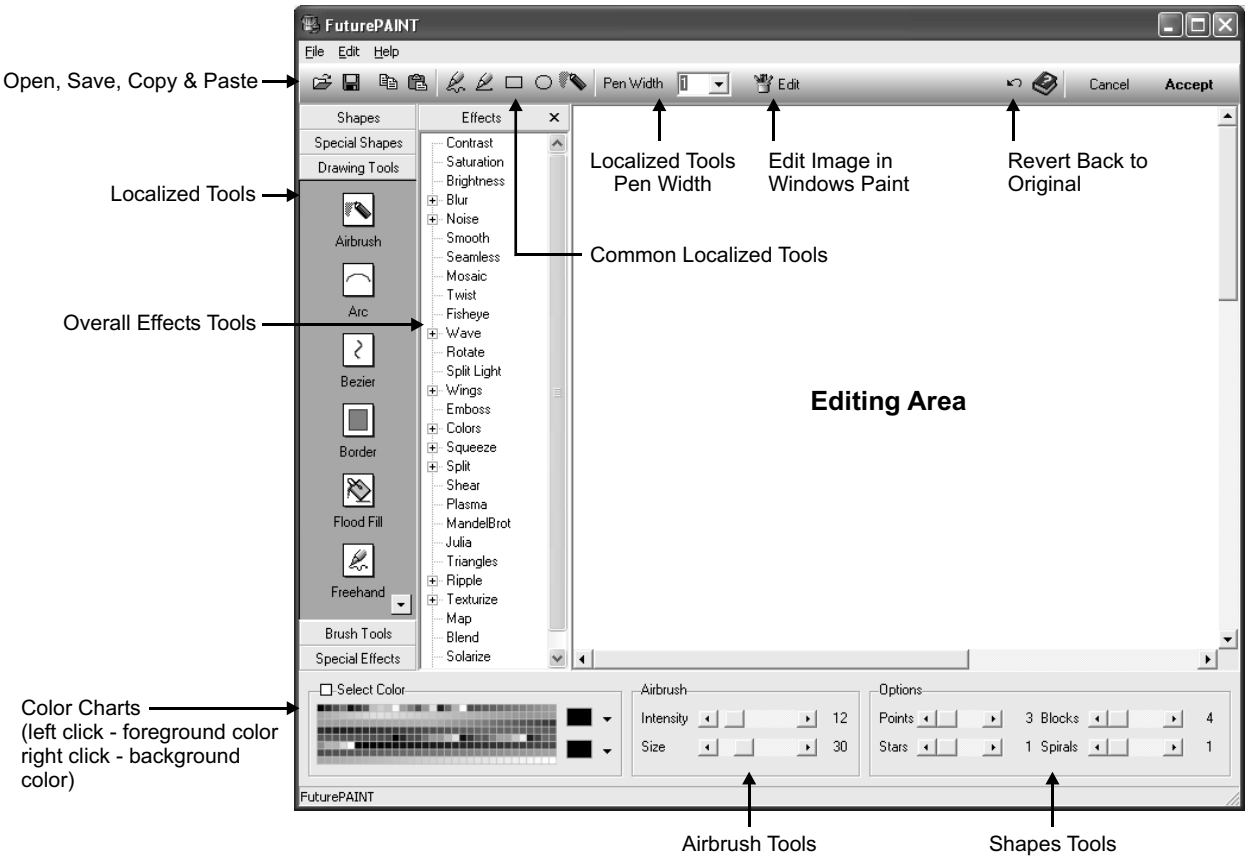
You can also print the Job Information out with Job Itself and alter the text as required.

RIP: When clicked will proceed to printing the Job as specified and will bring up the 'Printer Status' window, where the program reports its progress throughout the duration of the operation along with additional information.

This additional information includes a Preview of the Job as it's being processed, the various Ink Channel's by separation and the Ink Coverage.

This window can also be minimized by clicking on Details.

7.0 FuturePAINT



7.1 FuturePAINT Overview

FuturePAINT is a specialist bitmap editing program which is used to edit and or apply special effects to the image (bitmap) loaded as 'Background Image' in FutureRIP.

7.2 Using FuturePAINT

FuturePAINT is opened by clicking 'Edit Image' in the 'Project Settings' window. Where an image has been previously loaded as a 'Background Image'. See Topic 6.5.3. This image (bitmap) is also loaded with FuturePAINT ready for editing and or the application of special effects.

The program is laid out with the most common tools along the top toolbar, with specialist (localized) tools in the far left column and a special effects list in the column next to it. A color chart with tool options are available in the base toolbar. Once an image has been satisfactorily modified click on 'Accept' to reload it back into FutureRIP.

7.2.1 Effects Tools

These tools effect the image as a whole. These effects range from the very subtle all the way to the image being completely unrecognizable from the original.

To apply any one of these tools, click on the name of effect in the 'Effects' column and a 'Preview' window will appear with the image and adjustment sliders. These sliders when moved left or right will greatly effect the application of the effect on the image. Once satisfied with the changes click on 'Accept' and the image with changes will become available for further use in FuturePAINT and or can be reloaded into FutureRIP by clicking on 'Accept' again..

7.2.2 Localized Tools

These tools only effect those areas they are applied to rather than effecting the image as a whole. The tools themselves are well described by name and in most cases are easily implemented by 'Selecting' the tool and 'Clicking' on the image, while holding down the 'Left Mouse' button and dragging the 'Mouse Cursor' and then 'Letting Go'.

However some tools are unusual and may take some getting used to, as described below. You are encouraged to experiment with these tools by opening a sample image provided with FutureRIP and applying these tools to observe how they effect an image.

Implementing more complex tools:

Shape Tools

Pie: click on Pie and draw out a marquee (top left to bottom right) to the required diameter and a circle shape will appear. To create a Pie shape you must click at any point around the circle shape 'twice' allowing the height of the pie shape between each click. If you get a 'Pac-Man' shape redraw the Circle but click in the opposite sequence to obtain a 'Pie' shape.

Spiral: set the quantity of required spirals in the 'Options' area (bottom right-hand corner and click on Spiral and draw out a line to the required diameter and a Spiral Shape will be drawn on the Image.

Triangle: click on Triangle and draw out a line to the required width of the Triangle. Next click while holding down the left mouse button and drag to the required point of the Triangle and let go of the mouse button.

Note: Blocks and Stars are also affected by their 'Options'.

Special Shape Tools

Chord: click on Chord and draw out a marquee (top left to bottom right) to the required diameter and a circle shape will appear. To create a Chord shape you must click at any point around the circle shape 'twice' allowing the depth of the Chord shape between each click.

Cube: click on Cube and draw out a marquee (top left to bottom right) to the required square shape (face of Cube). Next click while holding down the left mouse button and drag to the required depth and angle of the Cube and let go of the mouse button.

Rising and Lowering Sphere: click on either tool and drag out a wide but narrow (in height) marquee and the selected type of spheres will be drawn.

Drawing Tools

Arc: click on Arc and draw out a marquee (top left to bottom right) to the required diameter and a circle shape will appear. To create an Arc shape you must click at any point around the circle shape 'twice' allowing the depth of the Arc between each click.

Bezier: click on Bezier and click while holding down the left mouse button and drag to the required length of the curve shape and let go of the mouse button. Next click at any point and adjust the offset of the line, click once again to adjust any required curvature.

Flood Fill: click on Flood Fill and then select the Flood Fill color by right-clicking on the required color from the Color Chart (bottom left-hand corner) Next left click in the area to be Flood Filled and the selected color will fill the area to all closed boundaries.

7.2.3 Localized Tools Options

These tools are further influenced and affected by their options. These are:

Pen Width: Sets the line thickness of most tools as they are drawn over the image.

Color: Sets the color of certain shapes, drawings and brushes. Note: Left clicking on a color sets the foreground color, Right clicking on a color sets the background color.

Airbrush Options: Sets the size in diameter of the Airbrush and the Intensity (how opaque the Airbrush is)

Options: Sets the size of Blocks, the Qty. of Star Points and Spirals.

To set these options adjust the relevant slider either left or right to the required quantity.

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