

DirectADVANTAGE & DirectADVANTAGE White Ink



FUELED BY
NATURA Link®

USER'S GUIDE

Version 2.1

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DIRECTADVANTAGE® Users Guide

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Important Notice: This manual covers two versions of the same DirectAdvantage printer, depending upon the type of ink it uses— (1) **Dual CMYK** or (2) **CMYK plus white Ink**. Most of the information being presented applies equally to both versions. Where the information differs, pertinent descriptions are provided. The hardware base can differ as well, although, from the user's perspective, these differences are not readily apparent and require no additional knowledge. Hardware **Version 2.0** incorporates the **Epson Model 4880** printer, whereas version **1.5** uses the **Epson Model 4800**. Since the software and firmware is common to all platforms, there are no discernible operational differences under a user's point of view. Therefore, from this point onward, the version employed in this manual for instruction and illustration purposes is version **2.0**. In addition, when describing the **AdvantageQueue Software**, the software version of some of the screen captures may not correspond to the actual version you have in your system. The screen information and prompts, however, remain the same.

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Made In **U.S.A.**

CAUTION:

- For best printing results, use the ink within six months of purchase. Please refer to the individual ink bag/cartridge for the specific ink expiration date.
- Keep out of reach of children.
- Do not expose ink to temperatures above **75° F** or below **50° F**.
- Keep ink out of direct sunshine.

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END-USER LICENSE AGREEMENT FOR SAWGRASS SOFTWARE — AdvantageQueue

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NOTES:

Introduction

The DirectAdvantage® (DA) direct-to-cotton and digital garment printer, fueled by NaturaLink® – a solution that meets the demand for a high quality direct-to-cotton system. The DirectAdvantage® printer is fueled by Sawgrass-patented NaturaLink® inks, using eight-color piezo heads to print customized images onto a wide range of garments, including 100 percent cotton and 50/50 blends. The system is driven by Sawgrass' industry-tested software, designed to achieve brilliant color output and image quality.

There has never been a better time to tap into the short-run, high profit business of direct-to-cotton and digital garment printing. As your total solution provider, Sawgrass Technologies has developed a complete digital garment and direct-to-cotton printing solution to complement traditional screen-printing.

DirectAdvantage® Printer Fueled by NaturaLink®

Advantages

Streamlined process

Cost-effective for short-run, multi-colored orders.

High resolution image output

Print photographic quality images directly onto cotton and cotton garments.

Clean technology

NaturaLink® direct-to-cotton inks are water-based and environmentally friendly.

Printer mobility

The DirectAdvantage's durable craftsmanship and quality construction allows you to take your business to your customers.

Adjustable platen for flexible garment printing

Print on a wide variety of fabric thicknesses, from T-shirts to sweatshirts.

NaturaLink® chemistry

Colors actually start bright, chemically bond to the fabric, and stay bright.

Sawgrass service after the sale

Sawgrass has a comprehensive support program dedicated to taking care of you and your business.

For additional information on the **DirectAdvantage® Printer**, **NaturaLink®** inks, or our other products, visit our web site at www.sawgrassink.com.

About this Document

This document contains descriptions and procedures for using the **DirectAdvantage® Printer** and **NaturaLink® Inks**. The information includes details for setting up your printer and for how to obtain the best results from use of this system. The documentation provided pertains only to the use of your **DirectAdvantage® Printer** and **NaturaLink®**.

To help point out important information, specific instructions, and helpful tips, look for the following symbols:



Danger

Indicates a hazard that could seriously compromise the use of the machine, and/or the safety of the operator.



Warning

Indicates “Must Do” items, significant warnings, and important guidelines. These warnings must be heeded to prevent damage to your printer.



Suggestion /Remark

Indicates suggestions to optimize the operation of your machine or the printing process.



Tip

Indicates the useful “Tips,” materials, practices, and/or observances that will impact beneficially your printing process.

Printer Overview

The instructions and information included in this manual will assist you in effectively operating this machine.

The machine and inks must be stored and operated in a temperature-controlled room, free from excessive temperature variations (under 50° F and over 75° F), and free from dust and vibrations, which may jeopardize the functionality of the machine.

It is critical before operating this machine and after changing garment materials that you carefully check the print head height. Any touching or scraping of any surface including the jig will damage the print head, and its repair or replacement will not be covered by warranty.

USE ONLY SAWGRASS SUPPLIED INKS! THE USE OF OTHER INKS WILL DAMAGE THE PRINTER, AND SAWGRASS WILL NOT BE LIABLE FOR ANY DAMAGES INCURRED, OR PRODUCTION LOST.

Printer Overview

Note: For more detailed instructions, please refer to the Video Installation Guide on the CD sent with your printer.

When your printer arrives, check for any visible damage to box or packaging. Check the shockwatch on the outside of the box to see if printer has been dropped. White means that the shockwatch has not been dropped, and red means it has been dropped. Also, check the shockwatch on the inside of the box located on the top of the printer.



Shockwatch White – Okay to Proceed



Shockwatch Red – Contact Sawgrass



If there is any damage to the printer packaging or it has been dropped, please notify the shipping company's delivery driver before he or she leaves your facility. Immediately contact Sawgrass Technologies.

1. If there are no damages, cut the packing straps, remove the jig box from the top, and set aside the box top.



Be careful not to drop the box top and set shockwatch to red while uncrating your Direct**ADVANTAGE** Printer.

Remember to save all packing materials for your printer including the palette, box top and all other packing materials. This is critical for future service or shipping requirements.

2. Place three styrofoam packing blocks aside with box top.
3. Remove printer from bag and place on sturdy table rated to hold up to at least 150 pounds (68 kg).



Check shockwatch on top of the printer to see if printer has been dropped.



4. On top of the printer platen, you should find a package with the USB cord, a power cord, and a foot pedal with a connector cord. Set these aside.
5. Open the other package that contains the LCD screen.
6. Remove the setscrew from the LCD bracket using a medium size Phillipshead screwdriver.



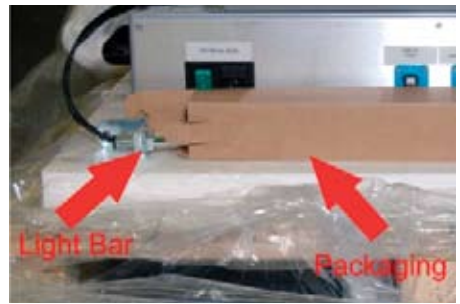
7. Attach the LCD to the printer by sliding it onto the bracket attached to the printer.



8. Reinsert the setscrew and tighten with a medium size Phillips-head screwdriver.



9. Remove the light bar from its packaging.



10. Located on the side of the printer are the mounting screws for the status light. Loosen and remove these screws with a 4-millimeter hex wrench.



11. Mount the light bar and tighten screws. Use the Velcro strap to stabilize the mid section of the light bar.





12. On the back of the machine, plug in the power cord, plug in the **USB** cord into the **USB** port marked “Main”, plug in the connector for the foot pedal, and screw fastener tight.



DO NOT connect the **Direct Advantage USB** cable to your computer until instructed to do so.

13. Open the cover on top of the printer. Remove the print head lock by loosening and removing the thumbscrews. Do not discard the headlock. Keep it with other packaging materials.



14. Pull the green unlock tab to release the print head.



PRINTING OPERATIONS

Starting the Machine



In case of frequent power surges or outages, use a UPS (uninterruptible power supply)

1. Plug the DirectAdvantage® printer into a standard grounded wall outlet.

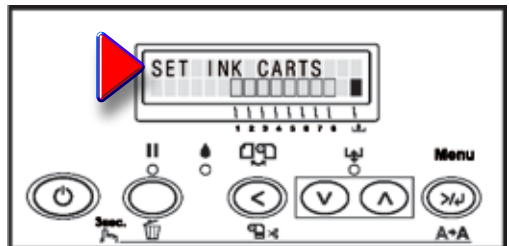


2. Pull the red **“Emergency Stop”** button out. On the back of the printer, press the green power button to the **“ON”** position to power up the printer. The power switch will light up green, and after a few seconds, the light bar will flash.

3. On the **“DirectAdvantage” Control Panel** at the front of the printer, press the **“ONLINE”** Button (see Illustration at right).

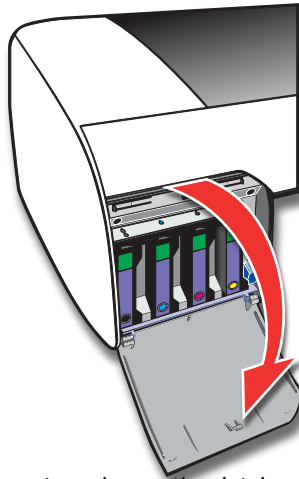
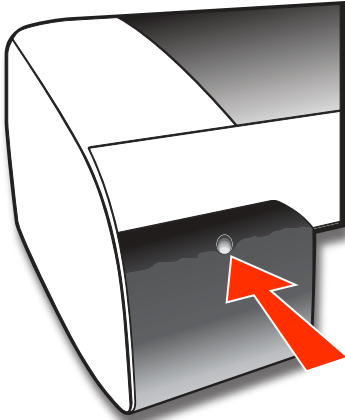


The smaller LCD screen above the **“Printer Control Panel”** on the printing unit will now read **“Set Ink Cartridges”** to indicate the printer is ready for you to install the ink.



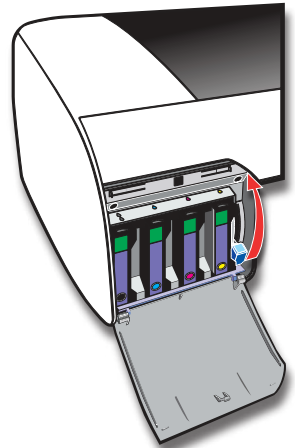
Epson Control Panel

Ink Loading



1. Press the ink compartment cover to release the latch and open the cover.

2. Raise the ink levers to the unlocked position. The ink levers are located to the right of each ink compartment.

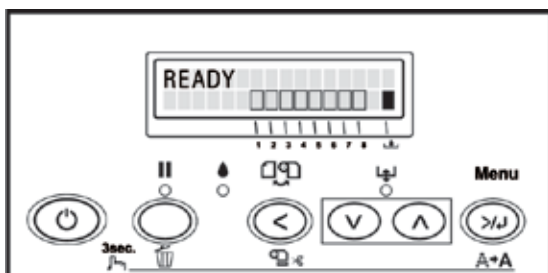


CMYK and White Ink Cartridges installed

3. Remove the ink cartridges from their packaging. Starting from the left side of the printer, install the cartridges in their proper position. Each cartridge has a number on it that corresponds to a numbered slot on the printer (see images above). This is where you need to insert them. (If you are installing white ink, these cartridges go in slots 5 – 8).



Dual CMYK Cartridges installed



Epson Control Panel



If a cartridge does not insert smoothly into its slot, double-check to make sure you have the correct cartridge installed in the correct slot. If the ink light (small **red LED) remains on after installing the cartridge, remove the cartridge and reinsert it to ensure it was fully placed in the slot.**

4. Watch the small LCD screen and follow the printer instructions, such as placing ink levers in the up and down position. Once the cartridges are installed, the printer will return to its READY state.
5. Close the ink compartment covers.

The printer and ink installation are now complete. The next section of the manual will outline how to install the software necessary for printing.

PowerRIP™ for NaturaLink®

POSTSCRIPT COMPATIBLE RIP

OPTIMIZED FOR THE

DIRECT ADVANTAGE®

AND DIRECT ADVANTAGE (WHITE)



AdvantageQUEUE™

Suite 2.1

FUELED BY
NATURA  **Link™**

And featuring:

 **iProof**
SYSTEMS™

For Distribution Only

NOT FOR RESALE

Revision 2.1

THE ADVANTAGEQUEUE AND POWERRIP DA SOFTWARE

Introduction

Obtaining the benefits of the PowerRIP DirectAdvantage (DA) and AdvantageQueue's color management is incredibly easy. Simply print from your design application by choosing the PowerRIP printer entity from the drop-down menu, select your printing options and click Print. Your files will route through the AdvantageQueue as you watch how the Queue magically makes the DirectAdvantage® colors picture-perfect!

The PowerRIP DA and AdvantageQueue deliver both convenience and the highest quality color management technology. The innovation demonstrated is the result of our dedication to you, our customers. At Sawgrass Technologies, we are focused on delivering the highest quality digital printing technology available. We fully expect that you will be impressed by the results you obtain with the DirectAdvantage® printer and the PowerRIP DA/AdvantageQueue.

The PowerRIP DA/AdvantageQueue combination runs under Windows 2000, Windows XP and Windows Vista.

System Requirements

Minimum Hardware:

- Pentium 4 – 2.5GHz Processor
- 1 GB System Memory
- 80 GB Hard Drive
- USB 2.0

Recommended Hardware:

- Pentium 4 – 3.0GHz Processor
- 2 GB System Memory
- 80 GB Hard Drive
- USB 2.0

SETUP INSTRUCTIONS – WINDOWS 2000 AND XP

Product Overview

This installation program will install the **Sawgrass AdvantageQueue** and printer software and **ColorSure Tools** and **Utilities**. In a few instances, the version numbers shown on the screen illustrations will differ from those on your system, as most of these images were captured during the final testing (beta) stages of the programs. The dialog, however, will be accurate.

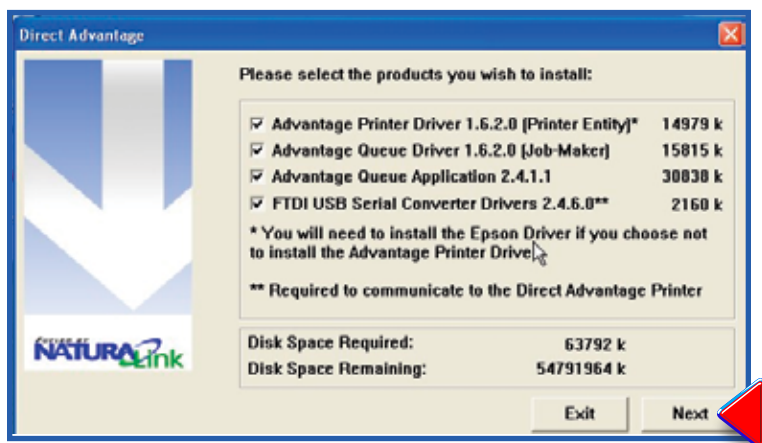
Step-by-Step Installation



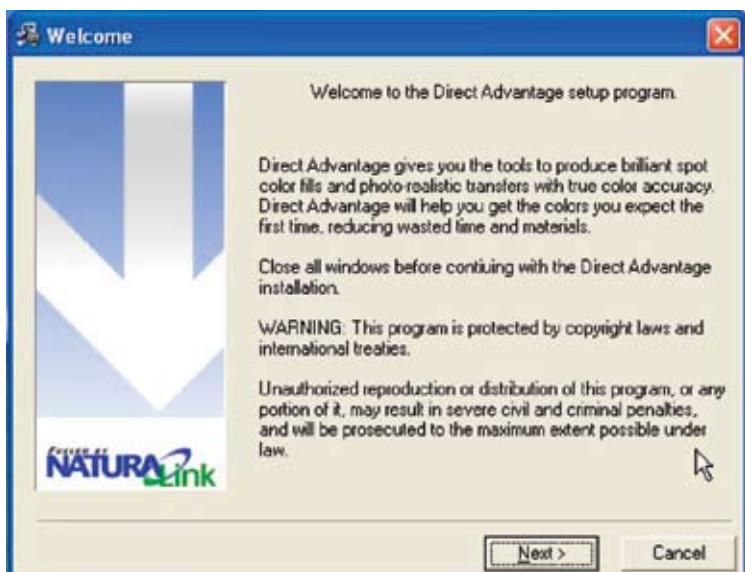
WARNING:

Before beginning, please make sure that the only USB device connected to your computer is the DirectAdvantage printer. All other USB devices, with the exception of the mouse and the keyboard, should be disconnected at this time! You may reconnect them after this installation.

1. Navigate to the Direct Advantage CD-ROM in your operating system. Double-click on the DirectAdvantage® Setup 2.xx.x.x icon (where x represents the latest software Revision, 2.10.0.0 at the time of this writing) to run the Setup.exe program and begin the software installation. The following screen will appear:



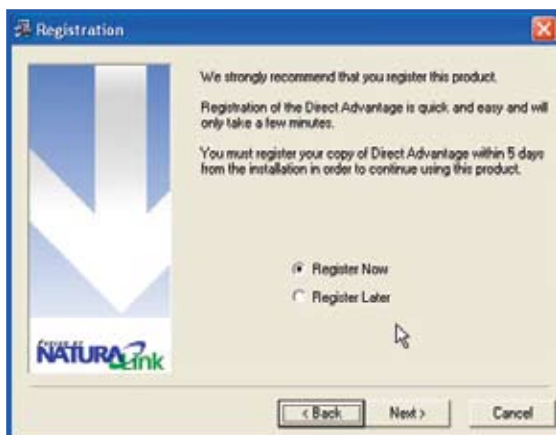
2. Click **Next** to proceed. A “Welcome” screen will pop up.



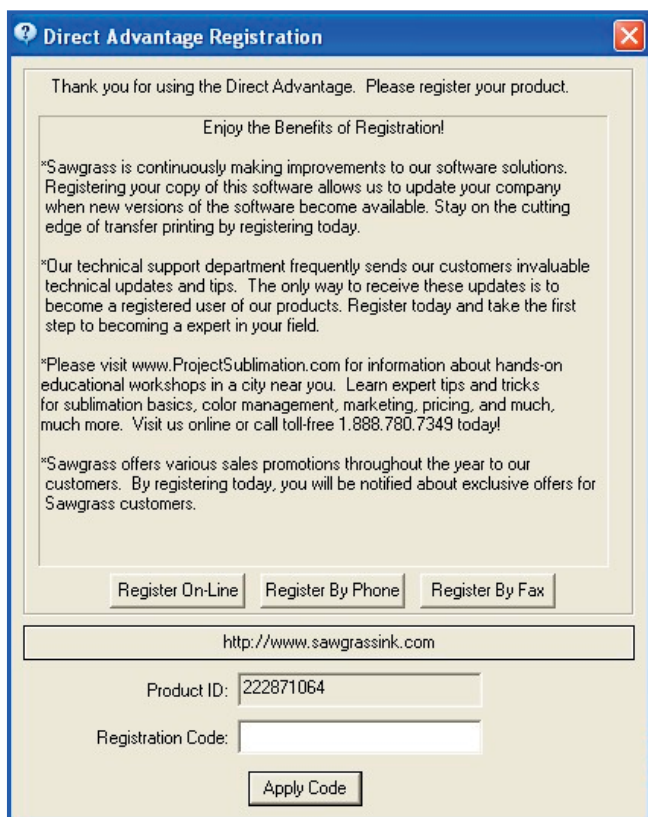
3. Click **Next** to advance to the license-agreement screen.



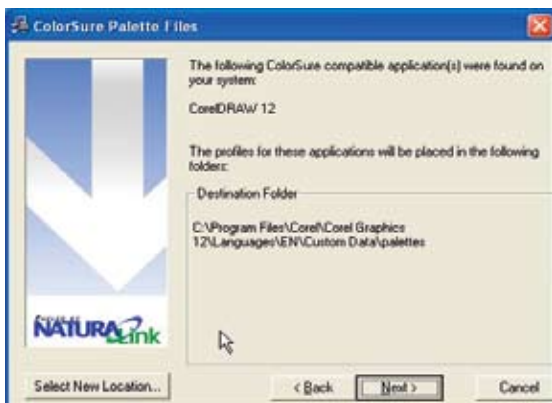
4. Click on the radio button beside **Accept License Agreement** and then click **Next**. This will take you to the first of the two registration screens as follows:



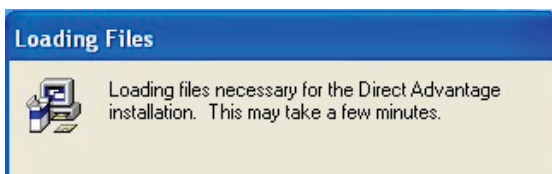
5. Click on **Register Now**. The following window will open:



6. Follow one of the registration procedures outlined in this screen—on-line, by phone or by fax—and obtain the applicable Registration Code. Enter this registration code in the block provided on this screen, then click on **Apply Code**. Your registration is now complete, and the following window will open:



7. The system will detect compatible graphics applications, such as CorelDRAW and Adobe Photoshop, that are installed in your system, and will suggest a destination folder for the program files you are about to install. Click on **Next** to proceed.



8. A screen will open up temporarily as files are being loaded. A subsequent screen will then instruct you to make sure that the DirectAdvantage printer is powered up and connected to the computer by way of a USB cable. Please verify that the DirectAdvantage printer is connected to your computer, and that no other USB devices (except the mouse and the keyboard) are connected to the computer. Click on **Next** to proceed.



9. The system will warn you that this software “has not passed Windows Logo testing...” You may safely disregard this warning and click on **Continue Anyway** to proceed.



10. A *copying files...* window will open up temporarily as files are being copied, followed by a window advising you that the Direct Advantage printer queue will be installed next. Click on **Next** to proceed.

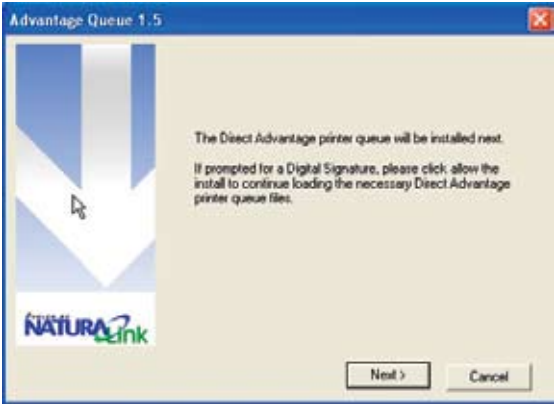


11. Once again, the system warns you that this software “has not passed Windows Logo testing...” You may disregard this warning and click on **Continue Anyway** to proceed.

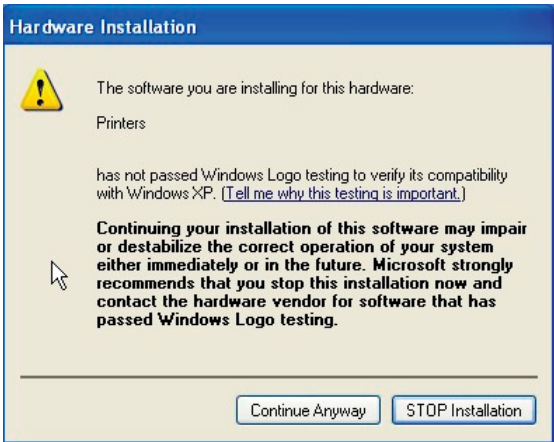
12. The system will begin copying the necessary files, after which the following window will open:



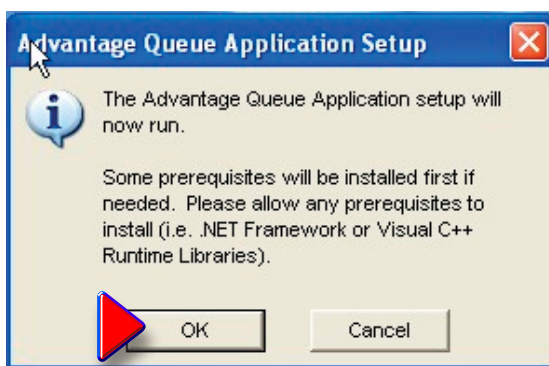
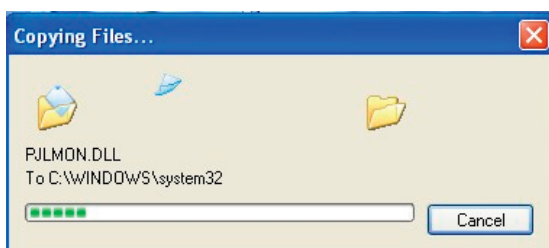
13. Click on **Continue** to proceed (but keep in mind that, when you are ready to print from the DirectAdvantage Queue, you must disable color management in your application—CorelDRAW, Photoshop, or other). The following window will open:



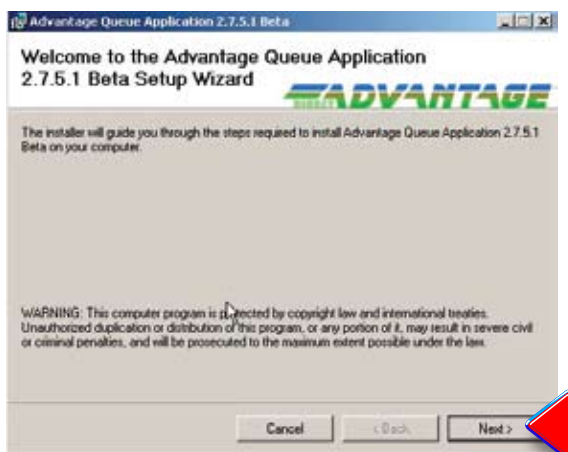
14. Click on **Next** to begin Installation of the DA Queue. The following warning will be displayed:



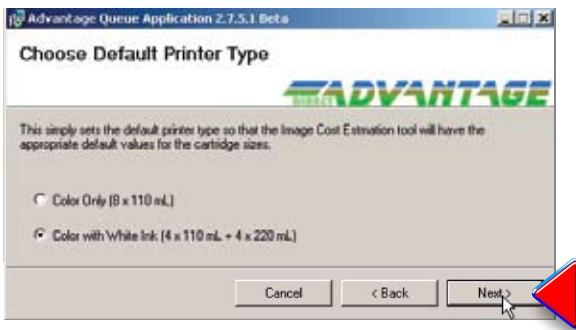
15. As before, you can safely ignore this warning and click on **Continue Anyway** to proceed with the DA Queue installation. A “copying files...” window will open up temporarily as files are being copied, followed by a window advising you that the DA Queue setup will begin.



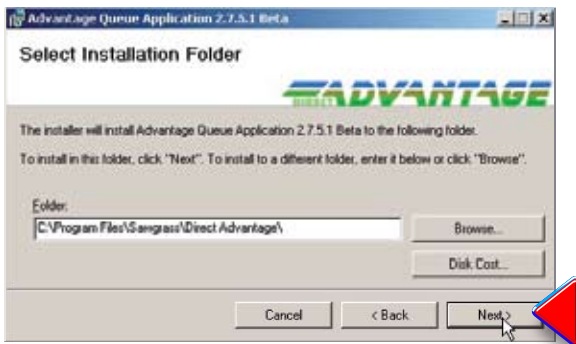
16. Click **OK** to begin installation of the Advantage Queue application. The following window will open (your version will be final, and not beta, so the number will be different):



17. Click on **Next** to proceed. Now the system will ask you what type of DirectAdvantage are you installing—Double Color or CMYK with white ink.



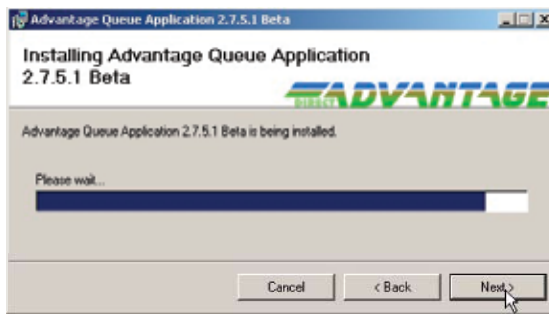
18. Click on the radio button to select the option appropriate to your situation. Click on the **Color Only** radio button if yours is a dual CMYK printer. Otherwise, click on **Color with White Ink** (the example above shows *Color with White Ink (4x110 mL + 4x220 mL)*). Click **Next** to go on to the next window, which will enable you to select the file folder where the Queue program will be installed.



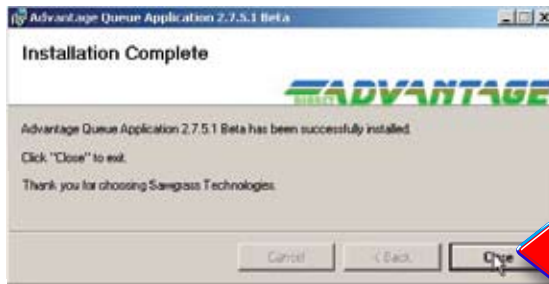
19. Accept the default folder listed (unless you prefer some other location you created) and click **Next** to advance to the next screen and confirm the installation.



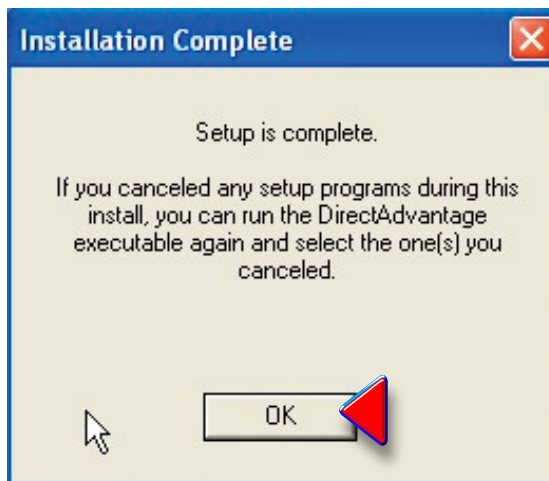
20. Click **Next** to begin program installation. A window titled **Installing AdvantageQueue Application 2.xx.x.x** will open, and you will see the installation progress bar.



21. When the installation completes successfully, you will be presented with the following screen:



22. Click on **Close** to conclude the installation. You will see the following, and final, screen:



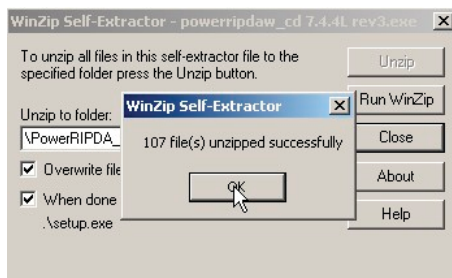
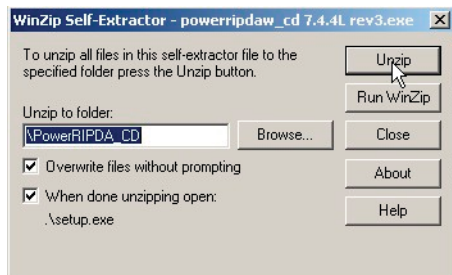
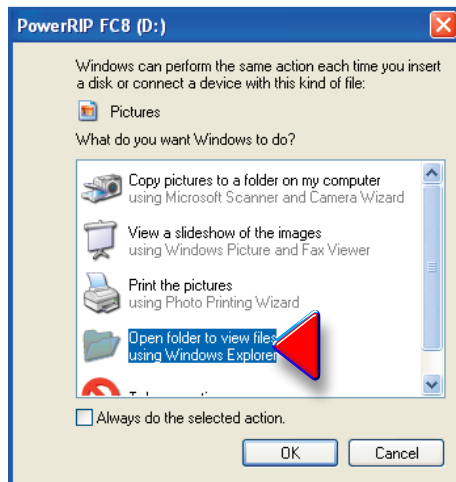
23. Click **OK** to exit the installation and close the application. Your new Advantage Queue is now ready for use.

NOTES:

INSTALLING THE POWERRIP DA SOFTWARE

The PowerRIP DA contains color management software. It is designed to work with the DirectAdvantage® printer and Sawgrass Naturalink® inks in order to optimize your color output. Follow these instructions to install this software on your computer.

1. Insert the PowerRIP DA CD into your computer CD drive. Select **Open folder to view files using Windows Explorer** (see illustration below left) and double-click on the **PowerRIPDAW_CD_FCxx** application file, where 'xx' is the version build of your program. A WinZip Self-Extractor window will open up and display the folder to which the PowerRIP files will be extracted (see illustration below right).

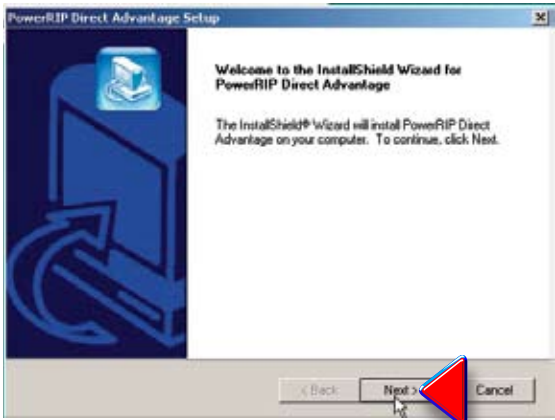


2. Click on **Browse** in the WinZip Extractor window and select **'C:'** as the destination drive for the PowerRIP program folder, which will be **C:\PowerRIPDA_CD**. Otherwise, the program will attempt to create this folder on the CD drive itself and result in an error.
3. Leave the check boxes labeled, "Overwrite files..." and "When done unzipping open..." checked and click on **Unzip** to unzip the files and begin the program installation wizard.

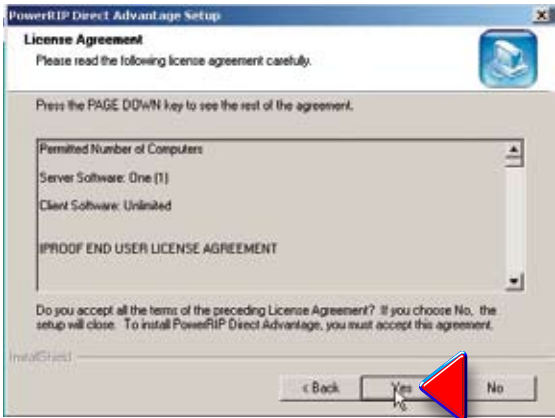
4. On the Installation Options window that opens up, select **Install/Remove/Repair PowerRIP DA** (see illustration below).



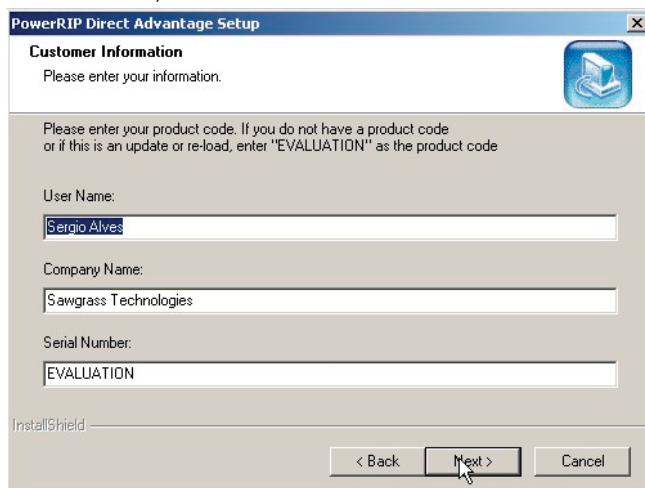
5. On the next window--the PowerRIP Direct Advantage Set-up window--select **Next**.



6. Click on **Yes** on the next screen to accept the license agreement.

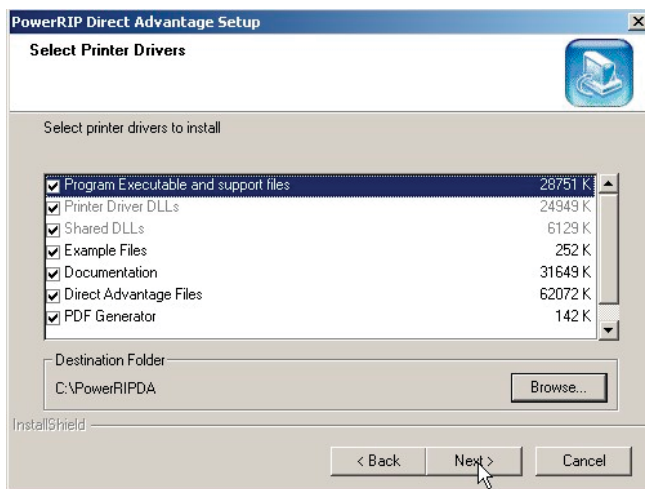


7. Fill in the customer information (User Name, Company Name) in the fields provided on the next screen. You may leave the default EVALUATION value on the **Serial Number** field. You will be entering the required, appropriate information during program registration. Then click on **Next** to advance to the next screen (**Select Printer Drivers**).



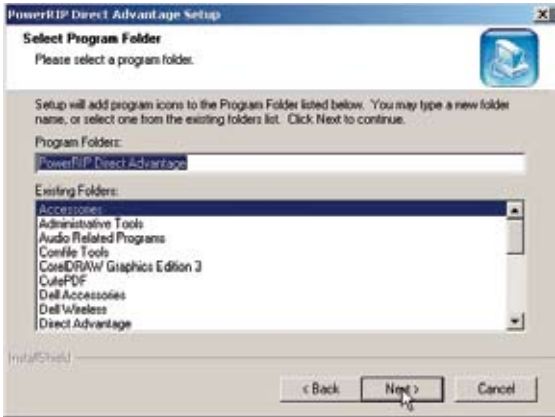
The screenshot shows the 'Customer Information' window of the 'PowerRIP Direct Advantage Setup' application. The window has a title bar with the application name and a close button. Below the title bar is a sub-header 'Customer Information' and a prompt 'Please enter your information.' with a printer icon. The main area contains three text input fields: 'User Name' with the text 'Sergio Alves', 'Company Name' with 'Sawgrass Technologies', and 'Serial Number' with 'EVALUATION'. At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'. A mouse cursor is pointing at the 'Next >' button. The 'InstallShield' logo is visible in the bottom left corner.

8. On the **Select Printer Drivers** screen, leave all of the selections checked, unless you have reasons no to install specific drivers, in which case you uncheck the drivers you do not want installed (see illustration below). It is best to leave ALL of the options checked, as this list contains not only the printer driver files but also the executable program and support files! Then click **Next**.

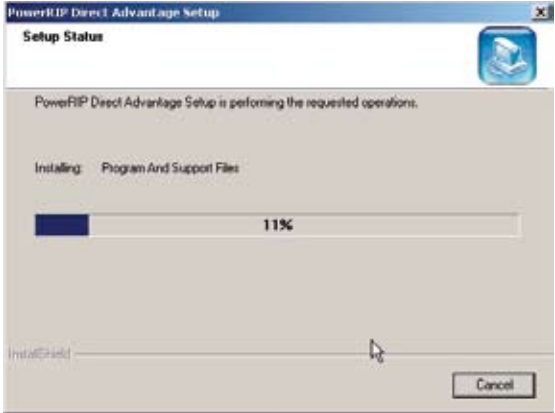


The screenshot shows the 'Select Printer Drivers' window of the 'PowerRIP Direct Advantage Setup' application. The window has a title bar with the application name and a close button. Below the title bar is a sub-header 'Select Printer Drivers' and a prompt 'Select printer drivers to install' with a printer icon. The main area contains a list of items with checkboxes, all of which are checked. The items and their sizes are: 'Program Executable and support files' (28751 K), 'Printer Driver DLLs' (24949 K), 'Shared DLLs' (6129 K), 'Example Files' (252 K), 'Documentation' (31649 K), 'Direct Advantage Files' (62072 K), and 'PDF Generator' (142 K). Below the list is a 'Destination Folder' field with the text 'C:\PowerRIPDA' and a 'Browse...' button. At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'. A mouse cursor is pointing at the 'Next >' button. The 'InstallShield' logo is visible in the bottom left corner.

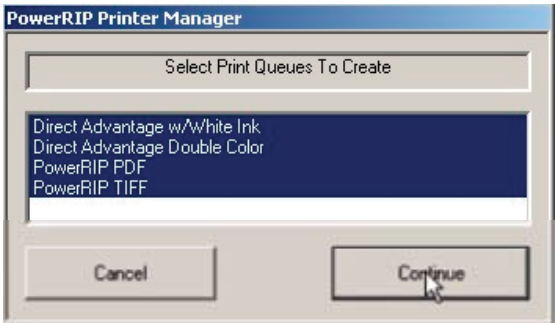
9. On the **Select Program Folder** window, accept the default folder, which is **PowerRIP DirectAdvantage**, and which the program will create, and then click on **Next**.



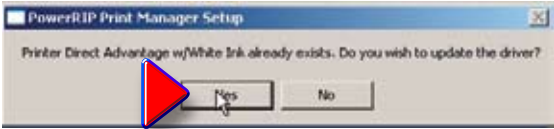
The program begins the installation as denoted by the progress bar. (See illustration below.)



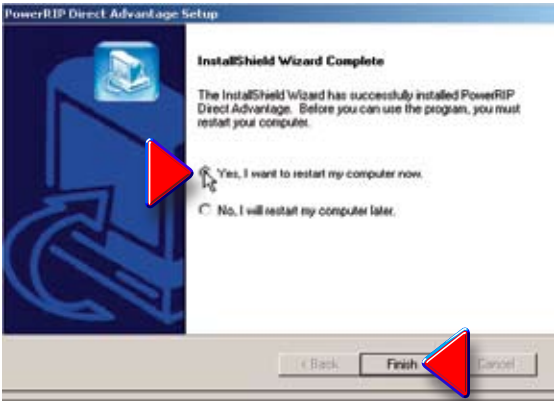
10. On the **Select Print Queues to Create** window, you will see four drivers highlighted—**DirectAdvantage w/White Ink; DirectAdvantage Double Color; PowerRIP PDF; PowerRIP TIFF**. Leave all four choices highlighted and click on **Continue** to advance to the next screen.



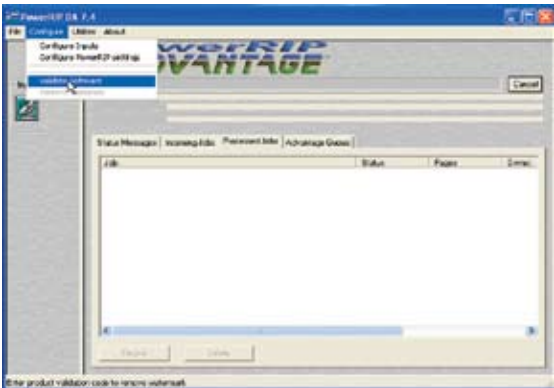
11. As the queues are being installed, the program will notify you of the completion of each individual installation. Click **OK** on each of these four windows to advance to the next stage. Also, if a driver already exists in your system, the program will detect it and ask if you want to update it (see illustration page 30). Click **Yes**.

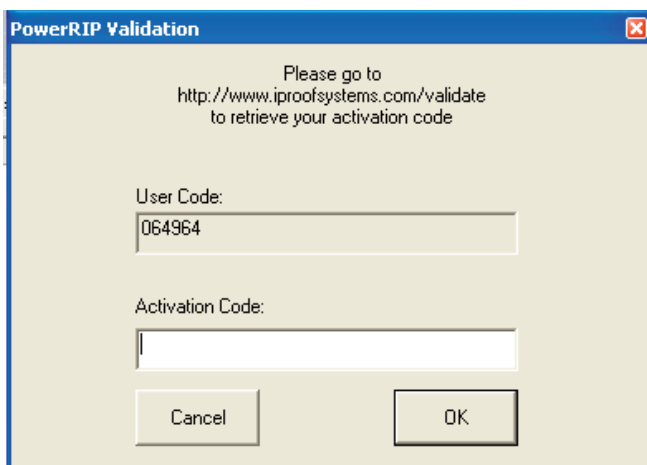


12. When the installation is complete, the system will ask you if you want to restart the computer. Select **Yes**, I want to restart my computer now and then click on **Finish**.



13. After a full restart of the computer, be sure to print the User's Guide by following this step sequence from the **Windows Start** menu: **Start>All Programs >PowerRIP DirectAdvantage>Documentation>PowerRIP DA Manual**.
14. You must now validate your software package in order to eliminate the watermark that will otherwise appear on all of your prints. To validate the software you just installed, run the PowerRIP program (double-click on the **PowerRIP** icon on your desktop), click on the **Configure** menu, and select **Validate Software**. (See illustration below.)





15. A PowerRIP Validation window will open up (see illustration above). Consult your PowerRIP Direct Advantage User's Guide and follow the steps located on the section titled "*Validating PowerRIP Direct Advantage*" to validate your software.



IT IS STRONGLY RECOMMENDED THAT YOU READ THE ENTIRE PowerRIP DA USER'S GUIDE BEFORE PROCEEDING TO THE PRINTING PROCEDURES THAT FOLLOW.



Appendix F describes common techniques for obtaining the best results when using PowerRIP. For full instructions on how to use the AdvantageQueue, please refer to the pertinent section on this Guide.

PRINTING PROCEDURES

Install the shirt jig on the platen by sliding it onto the track and pushing it forward (i.e., toward the rear of the printer) until it clicks.

NOTE: Some jig models are already secured in place to the bottom driving plate and are thus not moveable.

1. To load a shirt, press LOAD on the front panel to bring the shirt jig forward, towards you, and remove the hoop. If the front panel is locked, press the UP and DOWN buttons simultaneously to unlock the panel, then press LOAD.
2. Dress the garment into the jig such that the printing side is flat and evenly spread on the jig. The collar, or the top, of the garment should be at the outside end of the jig.
3. Place the hoop over the garment so that it fits tightly against the base. When placing the hoop, make sure that the thinner side of the white L-shaped bezel is at the front (closest to you), and the wider side of the bezel is to your right. Ensure also that the garment is pulled tight to avoid wrinkles that could interfere with the print head and, as a result, stain your garment and/or even damage the print head.
4. Tuck any sleeves or excess fabric under the base so that the fabric does not get caught as it passes through the printer.
5. Once the shirt is loaded, slide the jig back onto the platen (if your jig is one of the moveable types).



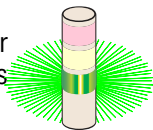
With moveable jigs, failure to slide the jig back onto the platen will result in your image printing lower than expected on your garment, or cause a media detection error.

6. Press the **AUTO** button on the front panel of the printer to set the printer to the optimum height for the shirt that is loaded in the machine. The jig will move back towards the middle, and the auto-height operation will get under way. Auto-height is finished when the printer stops moving up and down. At this point, the jig will briefly advance forward and then move back to the ready-to-print position at the rear of the chassis. As the jig is moving, the yellow status light on the machine will flash.

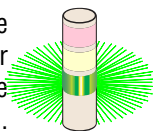


Failure to press the AUTO button will result in incorrect positioning of the print head, causing light prints or head strikes.

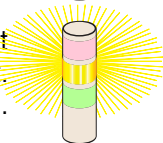
7. The printer will enter **Alignment Mode** (for **25 - 30** seconds), after which the status light will turn **GREEN** signaling that the printer is ready to receive a print job.



8. Send the print job to the printer via the PowerRIP DA and the AdvantageQueue. For instructions on the settings to use for printing, consult the **PowerRIP DA Manual**. As the printer is printing, the status light will flash **GREEN** until the image is completely printed.



9. Once printing is finished, the jig will automatically move forward so that you can check the printed results and remove the garment. The status light will flash **YELLOW** indicating the job is completed.



10. Wait for the jig to come to a complete stop and remove the hoop.
11. Carefully remove the garment without touching the image, since it will still be wet from printing.
12. Heat-press the garment according to the following specifications:

White ink: 340° F (171° C) @ 10 - 12 psi (69 - 83 kPa) for 140 Seconds.

Dual CMYK: 375° F (191° C) @ 40 psi (276 kPa) for 25 Seconds.



Place a fresh sheet of parchment (>10% silicone-impregnated) paper over the garment to prevent ink transfer onto the heat platen.



In the event of light prints or head strikes on the printed garment, the print head height can be manually adjusted to eliminate this issue. See the section on the next page titled, "Adjusting the print head."

13. Put a new garment on the holder and repeat from **Step 3**.



If multiple copies of a job were sent to the printer, the LCD screen will display the number of copies printed, and the printer will continue with that job until all copies are completed.

Lay your dark cotton T-shirt on a work surface and smooth all wrinkles. The work surface to use for this procedure can be the platen on your heat press--a practical and time-saving solution--a job-preparation table, or even the DirectAdvantage platten.

1. Lightly apply the pre-treatment solution to the shirt using the roller provided. Make sure that the print area becomes visibly damp, but not overly saturated. As long as total coverage is achieved, less pre-treatment is better for wash fastness and color vibrancy than too much pre-treatment.

NOTE: The pretreatment is a water-based, low-viscosity solution, which is quickly absorbed by the garment, sometimes seeping through to the work surface underneath it. To prevent contamination of the work surface, you can either place a waterproof sheet of silicone between the garment and the work surface, or use a damp cloth to wipe the pretreatment off the surface afterwards.

2. While the garment is on the work surface, roll pretreatment onto the print area of the shirt as follows:
 - a. Using light, top-to-bottom strokes in one direction only, begin applying parallel layers of pre-treatment from left to right, or vice-versa.
 - b. Once the print area is covered, straighten out any wrinkles in the garment that may have developed during the pre-treatment process, and touch up any noticeable spots on the shirt to make sure that there are no voids (i.e., untreated spots).
3. When you finish pre-treating the garment, place it on the heat press (unless you have already pre-treated it there), place a sheet of parchment paper, containing at least 10% silicone, over the garment, set the press temperature to 340° F, and dry the garment for 45 seconds at a low pressure (10 - 12 psi).

NOTE: For uninterrupted printing and curing of jobs, you can apply pretreatment and dry a number of garments beforehand, so they will be ready to print when you need to expedite production. If you batch-process shirts and leave them in storage for later use, it is recommended that you press the shirts at 340° F for 5 – 10 seconds before printing.

Pre-pressing the shirts will:

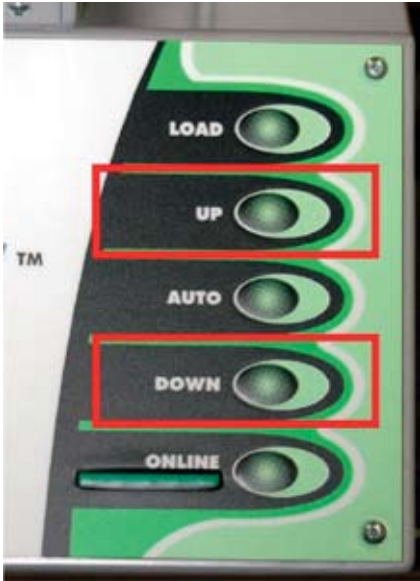
- Matte down any shirt fibers that have lifted over time.
- Smooth out wrings that have formed.
- Eliminate image printing variability.
- Improve wash fastness.

Adjusting the print head

The auto-adjust feature on the printer allows for automatically adjusting of the height of the print head with the garment in the jig. There might be times, however, when a manual adjustment is necessary to compensate for such things as pockets and raised collars.

To manually adjust the space between the garment and the print head, proceed as follows:

1. Load the shirt onto the jig as shown in steps 1-6 in the printing procedures.
2. Manually move the printer by using the UP or DOWN buttons on the front panel (highlighted on the image at right).
3. Use the UP button to raise the printer and put more space between the garment and the print head.



NOTE: Moving the print head too far away from the garment will cause light prints and ink over-spray.

4. Use the DOWN button to lower the printer and put less space between the garment and the print head.



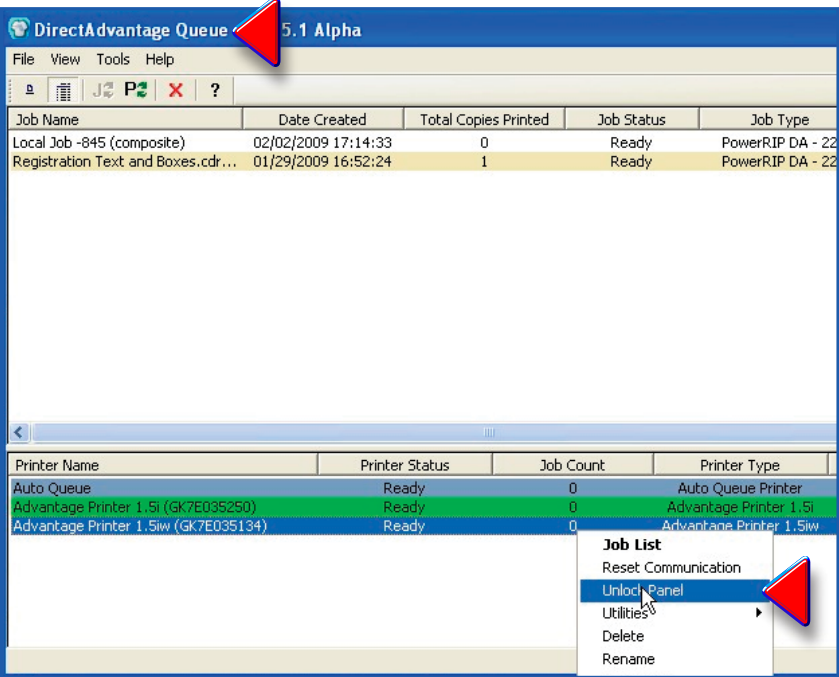
NOTE: Moving the print head too close to the garment will cause head strikes and could damage your printer or require printhead replacement.

Unlocking the Control Panel

When printing requires more than one pass, such as when printing with white ink where the white layer is printed first, followed by the color layer, the printer is set to operate in precision mode. In this mode, the Epson printer is set to roll and cut mode, and the paper margin is set to 3 mm, which is denoted on the LCD by an open/closed parenthesis symbol (see image above). In precision mode, the DA control (front) panel locks automatically during printing to prevent accidental operator interference that could result in mis-registered or otherwise damaged prints. When you must perform maintenance or other critical functions, you can unlock the control panel by way of a reset operation or from the AdvantageQueue.



Perform a reset operation by pressing the UP and DOWN buttons on the control panel simultaneously. From the Queue, right-click on the printer name and then click on **Unlock Panel** (see illustration below) to unlock the panel.



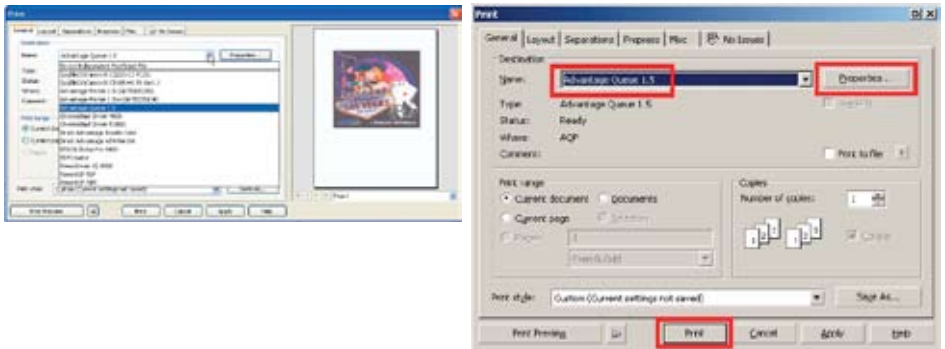
NOTES:


THE ADVANTAGEQUEUE APPLICATION

If you are printing through the PowerRIP DA software, such as when you are printing with white ink, the AdvantageQueue settings are controlled by PowerRIP. If you are printing **solely on white garments**, you can print your image directly from your computer to your garment with ease, thanks to the DirectAdvantage® Software Suite. An important component of this package is the AdvantageQueue, which provides for increased manageability of each individual print job, while fully exploiting the capabilities of the DirectAdvantage® Printer.

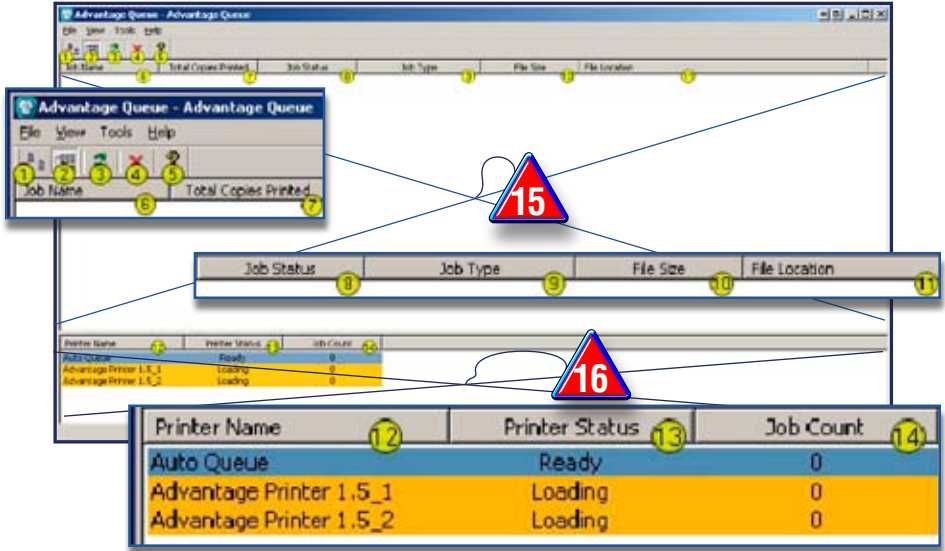
Step-by-step printing with the AdvantageQueue

1. Print from your preferred design application (the example below is from CorelDRAW) and select the **AdvantageQueue** from your list of available printers.



2. Select **Properties** in the “AdvantageQueue Document Properties” window and choose your desired print settings (See the “The AdvantageQueue Properties” section, beginning on page 43, for details on the various print settings).
3. Click **OK**, and then click **Print**.
4. Your system is now spooling your job to the AdvantageQueue application. Depending on job file size and your system resources, this may take anywhere from one to five minutes or longer.
5. Open the DirectAdvantage Queue program under the DirectAdvantage folder in the Windows *Start > All Programs > Direct Advantage* menu. 
6. In the *Job View Area* under *Job Name*, you will see the filename of the job you just spooled.

Main AdvantageQueue Window: (Enlargements for Clarity)



1. **Change:** To large icon view
2. **Change:** To detailed view
3. **Refresh:** The job view and update the job information
4. **Delete:** Selected job(s)
5. **About:** Information about the program version and build
6. **Job Name:** Name of the job file
7. **Total Copies Printed:** The total number of times that particular job has been sent to the printer since the job has been created.
8. **Job Status:** *Creating* – File is being created in the queue.
Ready – File has been created and it is ready to be sent to the printer.
9. **Job Type:** The type of job in the queue - a DA Queue job or a PowerRIP DA job
10. **File Size:** The size of the created job file
11. **File Location:** The actual file location of the job
12. **Printer Name:** Lists the different DirectAdvantage® printers available to print, as well as the Auto Queue (if more than one printer are installed)
13. **Printer Status:** Displays the current condition of each printer
14. **Job Count:** The number of jobs in the printer's job view area
15. **Job View Area:** The upper area of the window that lies above the *Printer Name/Printer Status/Job Count* divider and where all the jobs are listed.
16. **Printer View Area:** The lower area of the window that lies below the *Printer Name/Printer Status/Job Count* divider and where all the printers are listed.

- Under the *Job Status* column, you will see the job status change from *Creating* to *Ready*. This signals your job is ready to be sent to the printer.
- Print the job following one of the methods outlined next.



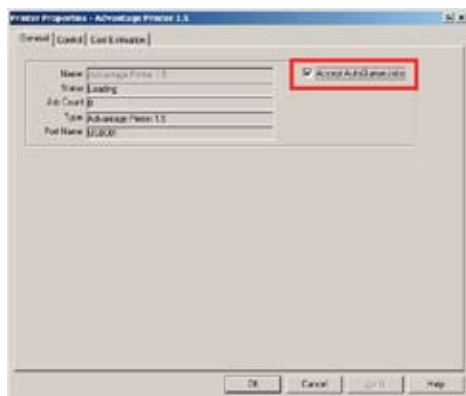
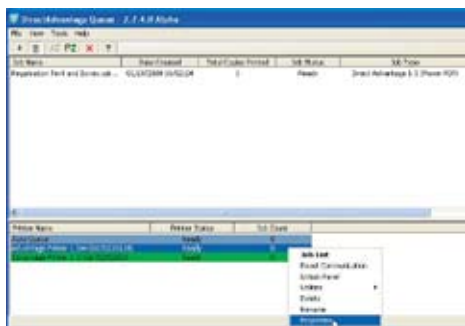
NOTE: If you accidentally hit or bump the jig, the LCD screen will read, Wait for printer to display “Ready” - then press LOAD. Press LOAD and wait for the jig to move forward (towards you), then press LOAD again to move the jig back to the ready-to-print position at the rear of the chassis.

Printing to One Printer

- Right-click on the job file and select *Send to>* to send it to the desired printer, or simply drag the job file down into the desired printer listed in the *Printer View Area*.
- Enter the number of copies of the selected job you want to send to the printer. Since you are sending the job to only one printer, multiple copies will be queued up and printed sequentially to that specific printer only.

Printing to Multiple Printers

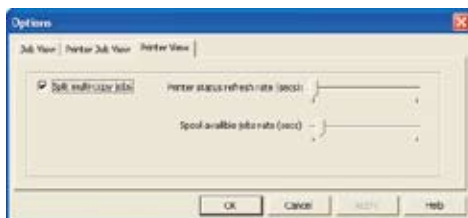
- Right-click on one of the printers listed by the Auto Queue* selection in the Printer View area, and select *Properties* to open the *Printer Properties* window. Under the General tab, check the box labeled *Accept AutoQueue Jobs* and click *OK*. (This only needs to be done once. These settings will be retained henceforth.)



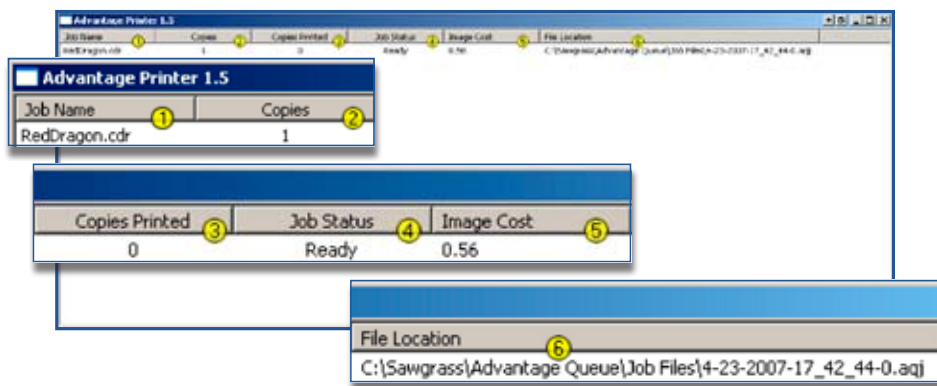
- Next, right-click on the job file and send it to the AutoQueue, or simply drag the job file down into the AutoQueue located in the Printer View Area.
- Enter the number of copies of the selected job you want to send to the AutoQueue. The AutoQueue will now recognize how many DirectAdvantage® printers you have authorized to accept AutoQueue jobs. It will then assign the print jobs to any authorized printer that is in the Ready status until all printed copies are complete.

***NOTE:** The option AutoQueue will not be displayed, unless you have more than one DirectAdvantage printer active on your system.

- To split the job between multiple printers, select **Options** under the **Tools** menu and click on the **Printer Options** tab. Check the **Split multi-copy jobs** option and click **OK**.



The job is now being printed. You can double-click on the **Printer Name** to which the job was sent and see more details in the printer queue (see the following window):



- Job Name:** Name of the job file.
- Copies:** Number of total copies to be printed.
- Copies Printed:** Number of copies that have been sent to the printer.
- Job Status:**
 - Ready** The printer is ready to print the selected job
 - Printing** The printer is currently printing that specific job
 - Spooled** All copies have been printed
 - Paused** The job will be ignored when the queue searches for jobs to print
 - Error** Error printing the job



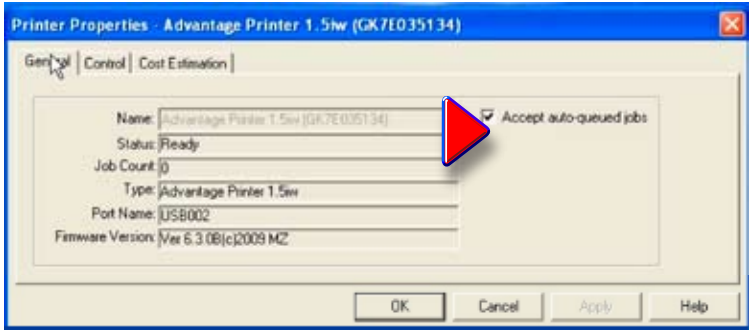
NOTE: You may always increase the desired copy count by double-clicking on the specific job from within the printer window. This will bring up the Job Properties window, where you may enter your new preferred amount of copies to be printed.

- Image Cost:** This number is the estimated cost of ink to be consumed for this particular image. It displays the estimated cost for each print and the cost for the total copies to be printed.
- File Location:** This is where job file is stored.

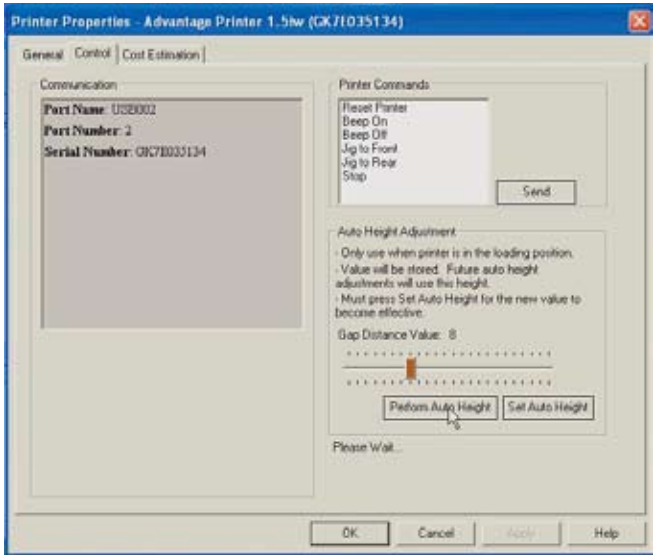
Printer Properties

To access these options, right-click on the desired printer in the **Printer View Area** and select **Properties**.

- The **General** tab in the **Printer Properties** window displays general details regarding the selected printer. This is also where you authorize the use of the printer to handle AutoQueue jobs.



- The **Control Tab** is where the communications (COM) port for the printer will be selected during installation. The **Printer Commands** window displays several commands that allow the user to control the mechanics of the printer from a desktop setting.



NOTE: Do Not Use The Auto Height Adjustment Feature, Unless Instructed By Technical Support.

- In the **Cost Estimation** tab, you will enter the size of ink cartridges in use (110 or 220 ml) on the left, and the amount paid for each individual cartridge on the right.

Channel	Volume (mL)	Cartridge Cost
Channel 1:	110	100
Channel 2:	110	100
Channel 3:	110	100
Channel 4:	110	100
Channel 5:	220	115
Channel 6:	220	115
Channel 7:	220	115
Channel 8:	220	115

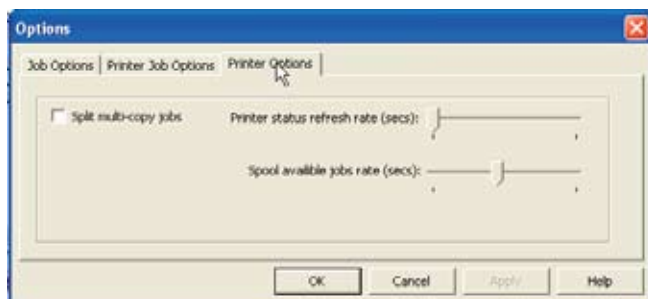
Tools/Options

This menu (Tools) and submenu (Options) set enables you to adjust refresh rates, auto-queue jobs, split multi-copy jobs and establish a default number of copies.

- In the **Job Options** tab, you can adjust the refresh rates of *Job list* and *Job monitor*, as well as auto-queue new jobs. The default settings are ideal for most system configurations. If you wish to tweak these settings, do so in small increments.

- The **Printer Job Options** tab allows you to change the printer job list refresh rate. As mentioned earlier, the default setting is ideal for most system configurations. If you wish to tweak these settings, do so in small increments.

- The **Printer Options** tab allows you to change the *Printer status refresh rate* and the *Spool available jobs rate*, as well as split multi-copy jobs. As mentioned earlier, the default settings are ideal for most system configurations. If you wish to tweak these settings, do so in small increments.



Applications

T-shirts--both long and short sleeve--Sweatshirts and Terry towels.

- Adjustable platen accommodates a range of product widths

Apparel Specifications

The printer currently works with white, pastel, and dark shirts, which represent 100% of the T-shirt market.

- Works with 100% cotton and cotton blends.

ADVANTAGEQUEUE IN WINDOWS 2000 OR WINDOWS XP



NOTE: You can print directly to the AdvantageQueue when printing on white shirts only.

Quick Start Example (using CorelDRAW)

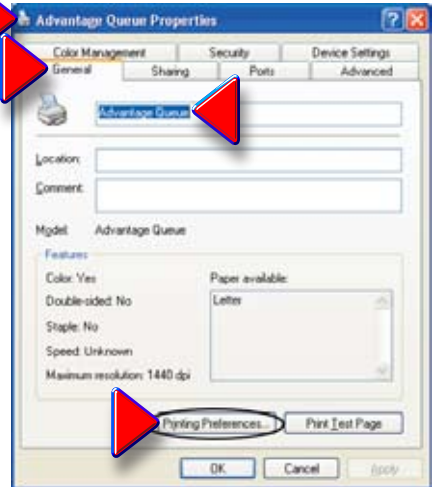
1. Open/Create an image in CorelDRAW.
2. Select **Print** from the File menu.
3. Select the **AdvantageQueue** printer.
4. Use the **Properties** Button under the **General** Tab Options to access and set the **Detail Level**, **Speed** and **Color Profile Selector** options.
5. Click **Print**.

Setting the AdvantageQueue Printer Properties

To configure the **AdvantageQueue** for the correct settings, you must display its printer properties. There are two ways to display the printer properties:

From the Windows XP Desktop

1. Click on **Start > Printers & Faxes**.
2. Right-click on your **AdvantageQueue** printer driver.
3. Select **Properties** from the pop-up menu.
4. Select the **Printing Preferences** button.



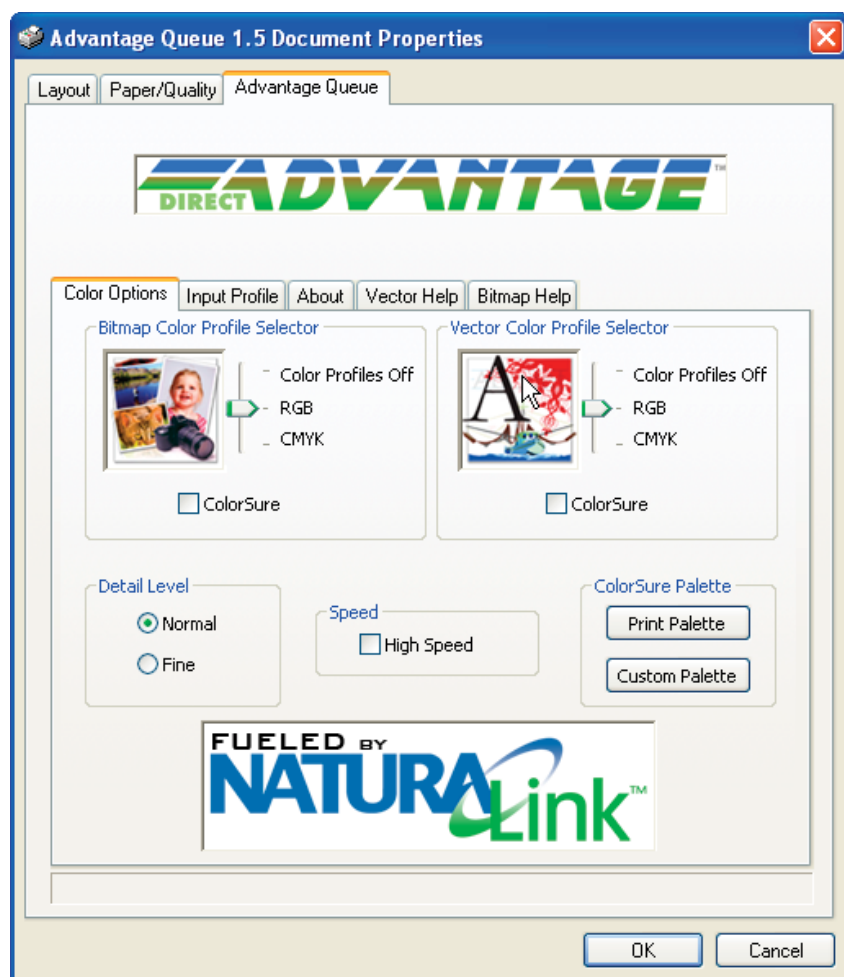
From an Application

1. Select **File > Print Setup**.
2. Choose the AdvantageQueue from the list of printers.
3. Click the **Properties** button.



THE ADVANTAGEQUEUE PROPERTIES

The following figure shows the printer properties for the **AdvantageQueue**. The main window tab displays the various color options.



Advantagequeue Color Options

Overview

The **Color Options** tab in the Advantage Queue **Properties** window, which is accessible through the **Print** command in your application (select **AdvantageQueue** as the printer of choice), gives you access to all of the color management controls available in AdvantageQueue. Color correction allows you to create apparel from all kinds of images, from photorealistic images to spot color logos. For maximum flexibility, the AdvantageQueue lets you color-correct bitmap and vector elements differently, even if they are in the same graphics file. For example, if you scan a photograph and import it into CorelDRAW, The AdvantageQueue will use the color management settings that have been selected for Bitmap. If you then add text on top of the bitmap image, The AdvantageQueue will use the color management settings that have been selected for Vector. The photograph and the text will be color corrected differently! You can now print images with realistic photographic backgrounds that have vivid spot color text.

Color Options

This tab provides access to a variety of color controls, including selected profiles and palettes.

Vector and Bitmap Explanation

Bitmaps are a grid of pixels. Bitmaps come from digital cameras, scanners, and photo CDs. Bitmaps can also be created in applications like Corel PhotoPaint or Adobe PhotoShop. Bitmaps have file extensions like GIF, JPG, BMP, and TIF. Vector components consist of shapes, curves, lines, and text. They are created in programs such as CorelDraw and Adobe Illustrator. Higher end programs such as CorelDraw can combine vector and bitmap files into a single image. As a rule of thumb, if the object in your image is made of curves, text, shapes, or fills, it will be color-corrected using the AdvantageQueue Vector settings. All other image types will be color-corrected based on the AdvantageQueue Bitmap setting.

Bitmap and Vector Color Profile Selector

- Color Profiles: Off** . In some vector artwork, this setting, which bypasses color management, will produce more accurate color reproduction, closely matching the original artwork.
- RGB**..... This setting will produce the most photo-realistic results for RGB bitmap images, adding warmth to photo images. This setting will also produce the most accurate colors for vector artwork.
- CMYK**..... This setting will produce more vivid reds and blues on vector artwork.
- Detail Level** Normal — This high-speed setting prints at 360 dpi
Fine — This high quality setting prints at 720 dpi
- Speed**..... High Speed On/Off – This toggles the printer between unidirectional printing and bi-directional printing. With the *High Speed* box checked, the printer will print bi-directionally, almost twice the speed as it would in the unchecked, unidirectional setting.

ColorSure Palette

ColorSure Enhancement – Checking this box will enable this feature. ColorSure enhancement is used to replace specific colors in your image with a spot color chosen from the ColorSure palette. This resulting spot color enhancement is not affected by color setting. A ColorSure spot color will ALWAYS print the same. See Appendix B for an overview of ColorSure.

Print Palette button – Prints the ColorSure palette. ColorSure is a method for reproducing exact spot colors. The two main components are: 1) the printed palette and 2) the CorelDRAW, Corel PhotoPaint, and Adobe swatches. For a complete description on how to use ColorSure to obtain perfect spot colors, see appendix B.

Input Profile

Clicking on this tab, provides access to options that will enable you to specify an input profile that the driver will use when color-correcting your image. If you are printing scanned artwork and your scanner manufacturer provided ICC profiles for your scanner model, select the profile here. In order to select a profile, IT MUST BE INSTALLED ON YOUR MACHINE. To install a profile on your machine, right-click on the profile file name and select “Install”.

About

Clicking on this tab, will display the version number of the AdvantageQueue, as well as a link to the Sawgrass Technologies website. Click the Register button for instructions on how to register the product. Registration must take place within five days of the initial installation. Failure to register within the five-day period will result in the loss of most of the AdvantageQueue functionality—utilities such as color settings, head cleaning, and nozzle check, to name a few.

NOTES:

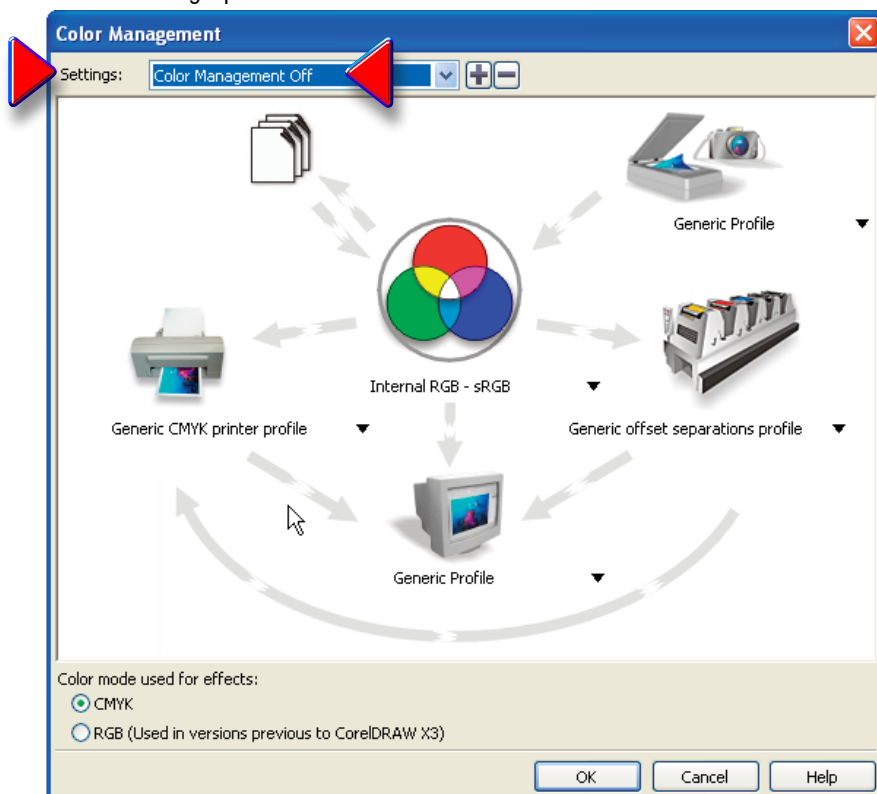
APPENDIX A:

Defeating Application Color Management

The AdvantageQueue provides a complete color management solution for your NaturaLink® printing. **It is extremely important that you turn off any color-matching features associated with your design software.** An explanation of how to disable print-time color management in several popular design packages follows:

CorelDraw™ version X4

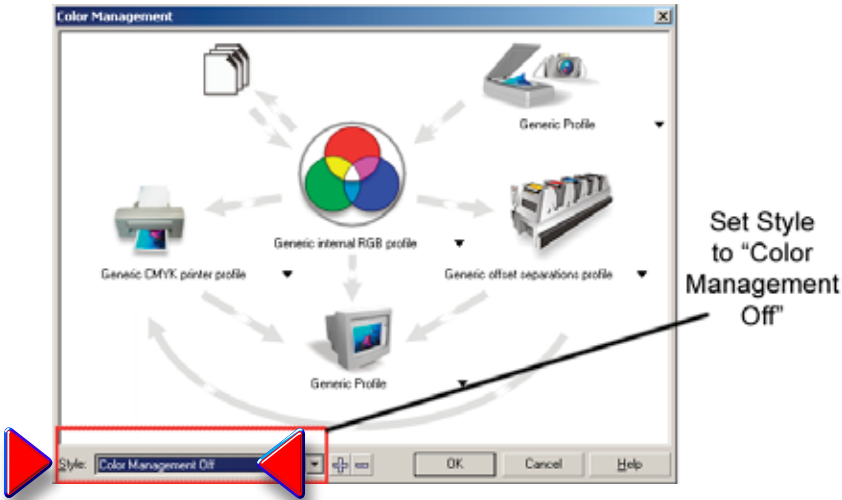
Create a new graphic.



From the main menu, choose **Tools > Color Management**. In the Color Management window (see figure below), set the Style option to **Color Management Off**.

CorelDraw™ versions X3, 12, 11 and 10

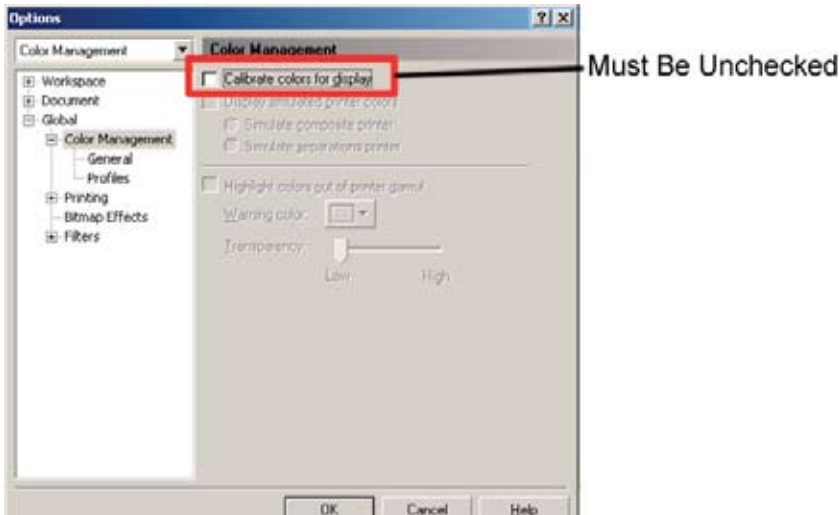
Create a new graphic.



From the main menu, choose **Tools > Color Management**. In the Color Management window (see figure above), set the Style option to **Color Management Off**.

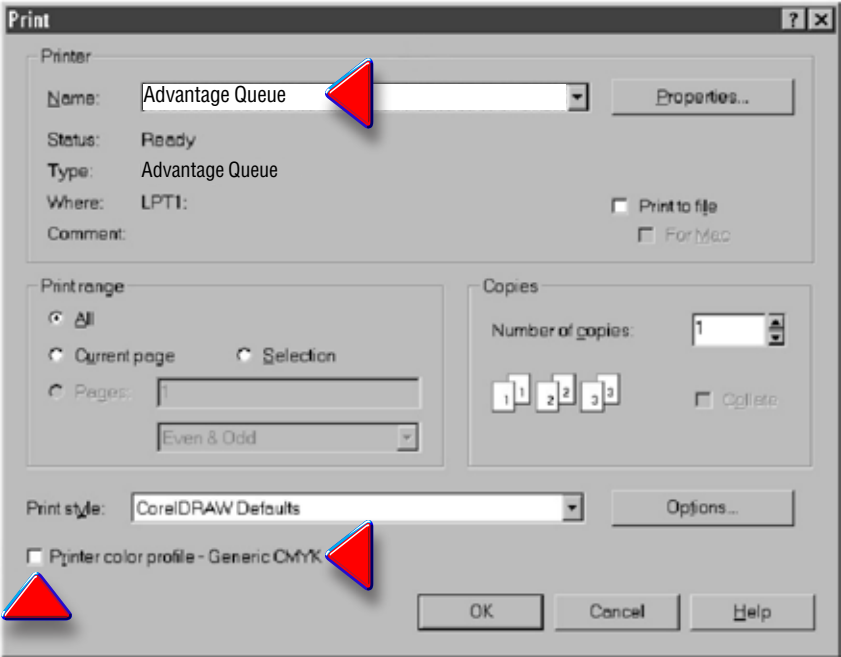
CorelDRAW™ versions 9 and 8

Create a new graphic.



From the main menu, choose **Tools > Color Management**. The Color Management dialog box is displayed. In the Color Management window (see figure above), UNCHECK the **Calibrate colors for display** box.

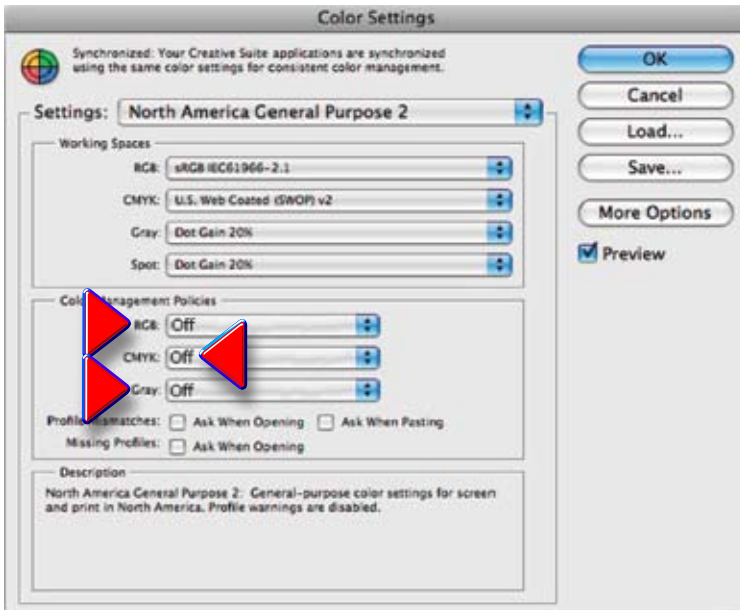
CorelDRAW™ (version 7, 6, or 5)



If you are using version 5, 6, or 7 of CorelDRAW, ensure that you have the **Printer Color Profile** check box **unchecked**. This setting is found in the lower left of the Print dialog window. See figure above.

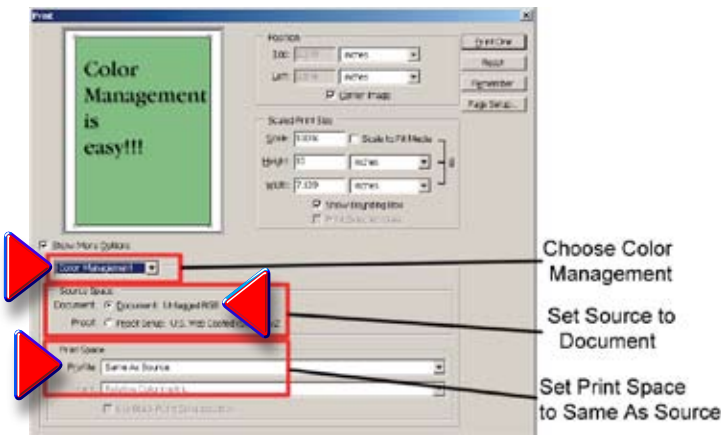
Adobe Photoshop CS4, CS3, CS2, CS, & Photoshop 7

Color Setup



From the main menu, choose **Edit > Color Settings**. On the **Color Settings** dialog box, turn all **Color Management Policies** off. Turn off **Profile Mismatches**.

To Print

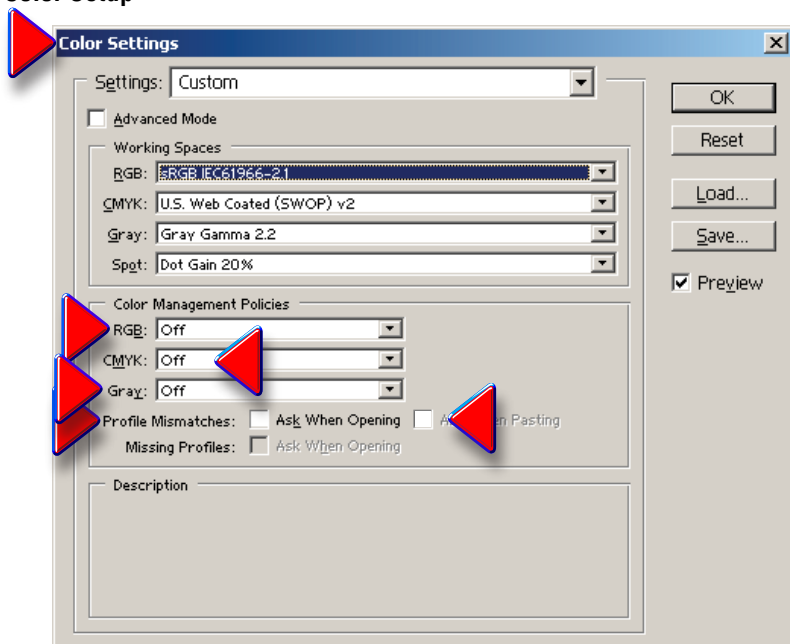


Always select **File > Print with Preview**. On the print dialog page, set the options as described below:

- Check **Show More Options**
- Choose **Color Management**
- Choose **Document as Source Space**
- Choose **Same as Source** for **Print Space**

From the **Color Management** drop option list, make sure that **Source** is set to "Document," and **Print Space** is set to "Same as Source".

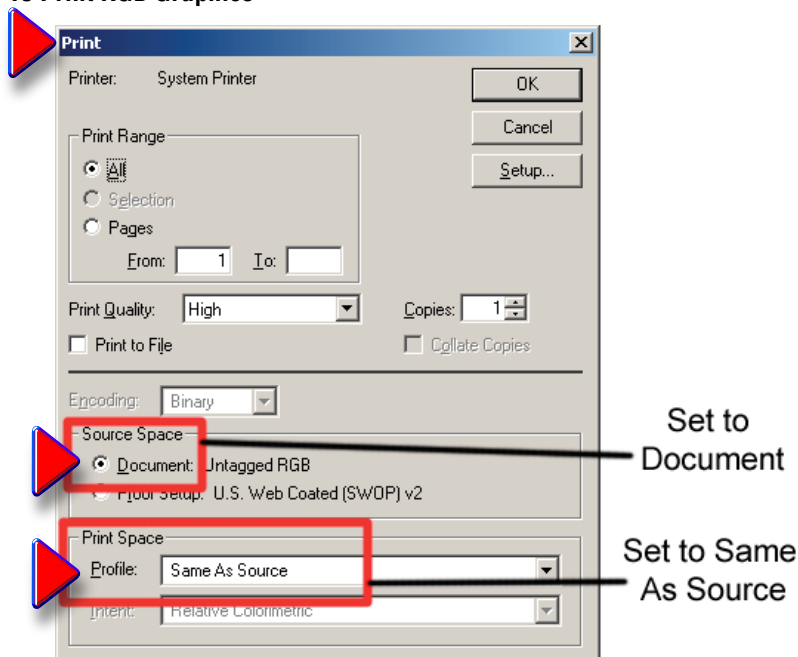
Color Setup



From the main menu, choose **Edit > Color Settings**. On the **Color Settings** dialog box:

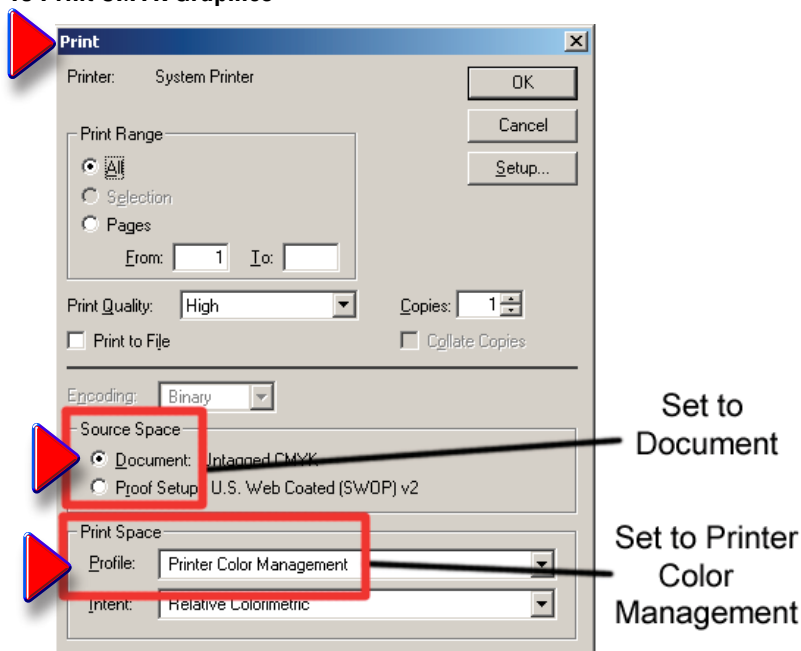
- Set all **Color Management Policies** (RGB, CMYK, Gray) to **Off**
- Uncheck **Profile Mismatches**
- Uncheck **Ask When Opening**

To Print RGB Graphics



Choose **File > Print**, and set the options as illustrated above.

To Print CMYK Graphics



Choose **File > Print**, and set the options as illustrated above.

APPENDIX B:

Using Colorsure™ & Custom Palette

Introduction

ColorSure is a method for reproducing exact spot colors. There are four main components of the ColorSure System: 1) the printed palette; 2) Color Finder; 3) Custom Palette; and 4) the CorelDRAW and Adobe application palettes/swatches.

1. **ColorSure Palette:** This is your main color palette and includes a wide variety of 152 commonly used colors.
2. **Color Finder:** If a color you need is not on the ColorSure palette, the Color Finder tool allows you to locate the exact custom color you are seeking.
3. **Custom Palette:** With the Custom Palette feature, you can add new custom colors to the existing ColorSure Palette mentioned in step 1.
4. **Application Palettes:** You can add your Color Finder colors to an existing application palette, or you can add multiple custom colors to new, custom palette files (*.cpl, *.acl).

Printing the ColorSure Palette

The first thing you will want to do is to print your ColorSure palette to the shirt you will be using. Most likely, you will have customers who desire precise colors. Having your ColorSure palette available, allows customers to choose the color from the palette that is the closest match to what they want, and this gives you a starting point for finding the exact custom color that will match your customer's needs.

TO PRINT THE COLORSURE PALETTE, FOLLOW THESE STEPS:

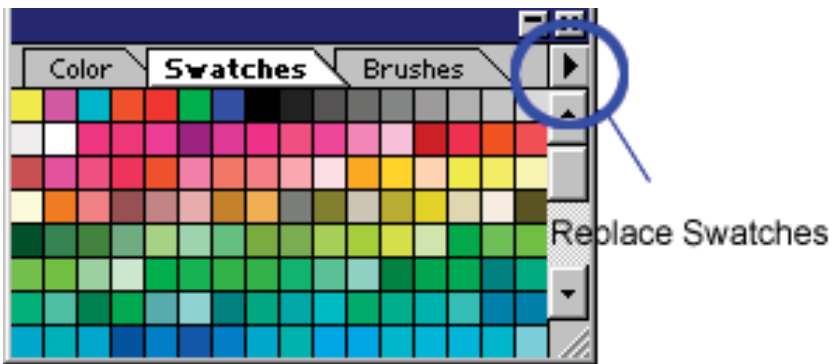
1. Click **Start** and navigate to the **Printers and Faxes** folder. Right-click on your Advantage Printer and select **Printing Preferences** from the menu. You may also open the Advantage Printer from within an Adobe or CorelDRAW program by going to **File > Print**, and choosing the Advantage Printer from the pull-down menu. Click **Properties** to open the Advantage Printer Document **Properties**.
2. Select the **color options, detail level** (normal or fine) and the **speed** that you wish to print the palette, and click the box **Print Palette**. (When using the slider in Color Options to adjust the color intensity level of your bitmap or vector image output, the higher you move the slider, the more intensive your output will be.)

You now have a visual representation of how the ColorSure palette colors will appear on that particular substrate.

Designing Your Artwork

By picking colors from the ColorSure palette, you will be able to consistently reproduce colors in a reliable manner. To assist you in designing your artwork, AdvantageQueue installs three palettes: two for Adobe products and one for Corel products. These colors match the palette that is printed from within AdvantageQueue.

1. To open the ColorSure Palette in CorelDRAW 10, 11, and 12, choose **Window > Color Palettes > Open Palette**. Select the file “ColorSure Palette Corel v5.”
2. To open the ColorSure Palette in Illustrator, choose **Window > Swatch Libraries > Other Library**. Navigate to the folder where this library was installed when you installed the AdvantageQueue Driver (C:\ProgramFiles\Adobe\Adobe Illustrator Presets\Color Swatches) and select **Open**. For easier access to the Palette file, copy it from this [above] path to **Illustrator10\Presets\Swatches**, and the palettes will show up in your pull-down list directly under the **Swatch Libraries** menu. Other versions of Illustrator will have similar steps.
3. To open the ColorSure Palette in Adobe PhotoShop, choose the **Swatches Palette**, click the option arrow on the palette, choose **Replace Swatches** and pick the “**ColorSure PDIQ v6**” file.



HINT: After you have the ColorSure palette loaded into CorelDRAW or Adobe, move the cursor over each color. As the cursor hovers over each different color, the ColorSure name is temporarily displayed in the area directly below the cursor.

Using Color Finder

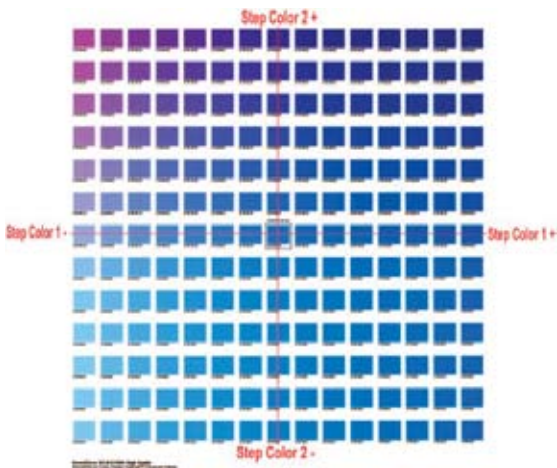
After printing the ColorSure Palette, you will see that you have an array of colors to work with. There will be times, however, when the color you need is not included in the ColorSure Palette. This is a common example of when you will launch the AdvantageQueue Custom Palette Utility.

Within the **Custom Palette Utility** is the **Color Finder** tool. This tool enables you to start with a specific color (e. g., navy blue) and find similar colors in the same family by adding or subtracting up to three colors (CMYK) called “Step Colors.” For example, starting with navy blue with a CMYK value of 60, 60, 0, 40 and choosing two step colors (e. g., cyan and magenta), would expand the original navy blue in four directions (more cyan, less cyan, more magenta, and less magenta). This expanded color chart is output directly to your DirectAdvantage® printer.

1. First, open DirectAdvantage® Printing Preferences window as instructed on the section titled, “Setting the AdvantageQueue Printer Properties.”
2. In the middle right of the window, click the **Custom Palette Utility** button; this will open the **Advantage Custom Palette Utility** window.
3. Select the appropriate settings for **Printer**, **Substrate**, and **Print Quality**. Then click the **Start Color Chooser** button and select your desired starting color from the basic colors or from the color matrix. To use the color matrix, click anywhere in the matrix window. You can use the slider at the right of the matrix to adjust luminosity. Clicking ‘OK’ will automatically fill the CMYK boxes with the corresponding values. If you do not wish to use Color Chooser, you also have the option to manually enter the **Start Color** values in the CMYK boxes.



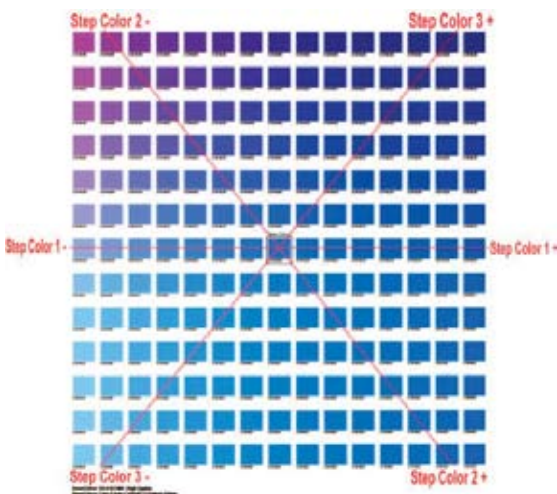
Sawgrass Technologies, Inc. ~ DirectAdvantage® ~ AdvantageQueue® ~ NaturaLink® ~ User's Guide



Color Finder Palette with two Step Colors

4. You may alter the chosen start color's CMYK value by selecting two or three Step Colors. Using multiple step colors will present you with a greater range and variety of colors from which to choose.

For instance, if you choose to modify your Start Color with two steps, then ***Step Color 1*** will change its values on the X (horizontal) axis, and ***Step Color 2*** will change its values on the Y (vertical) axis.



Color Finder Palette with three Step Colors

If you modify your Start Color with three steps, ***Step Color 1*** will remain the same. However, ***Step Color 2*** and ***Step Color 3*** will form an imaginary 'X', and their values will change on opposing diagonal Y-axes.

5. Next, determine what **Step Size** you want to apply to the Color Finder palette. This is simply a question of how much you want your Start Color to fluctuate. If your Start Color is close to the color you are looking for, use a low Step Size (i. e., 5 - 10). However, if your start color is not close to what you are looking for, use a higher Step Size. You can enter any Step Size value between 1 and 40.

As an example, let us say your Start Color is C:20, M:100, Y:150, K:0, and you select Cyan and Magenta to be your Step Colors. You also enter a Step Size of 10. When the "**Print Similar Colors Chart**" button is clicked, your Start Color will be in the middle of the **Similar Colors Chart**, and from there, each color will vary the Cyan and Magenta values by 10.

6. When you are finished selecting the Start Color, Step Colors, and the Step Size, click on the **Print Similar Colors Chart** button. This will print your custom Similar Colors Chart directly to the DirectAdvantage® Printer.
7. After printing the Color Chart, try to match your desired color to one that is on the palette. If you find a suitable match, you are finished using the Color Finder tool. Move on to **Section V, The Custom Palette**.
8. If you could not find an accurate match on the first printed Similar Colors Chart, do not worry. Follow the easy steps below, and you will find a more suitable custom color.
 - a) First, try to locate a new Start Color from the chart that is closer than the original color.
 - b) Next, after finding a more suitable Start Color, write down that color's CMYK value. Here is how to obtain this value. There are numbers under each color that are dependent upon which Step Colors you chose. For example, the numbers might be C:70, M:120. Take note of these values. Then, at the bottom left of the Color Finder palette, you will see a full set of CMYK values. The new Start Color's CMYK value would be C:70, M:120, and whatever the YK values are from the full set.
 - c) Lastly, plug the CMYK values for the new Start Color into the boxes in Color Finder, choose your Step Size, and click on Print Similar Colors once again. Continue with steps a - c until you find your desired color.

The Custom Palette

Let us assume that you have found the exact color you need using the Color Finder tool. What you will want to do next is apply these custom color values to either an existing palette, or to create a new custom palette altogether. This allows you access to this color again, should the same job arise.

How to Use the Custom Palette

1. First, you need to assign the CMYK values of the matched color from the Similar Colors Chart to the Output Color CMYK fields in the Custom Palette section.
2. Give your new custom color a descriptive Name in its designated field (e.g., IBM Blue).
3. Next, assign an RGB Input Color value. There are two methods for establishing this value.
 - a) If you have the original file, sample the color that was matched in your graphic design application with the eyedropper tool. This will give you the RGB value of that color. Input this value into the RGB Input Color fields of the Custom Palette section, and click 'OK.'
 - b) If you do not have the original file, or the artwork has not yet been designed, simply click on the Input Color Chooser button, and then click anywhere in the color spectrum. Move the slider bar up or down to refine your color choice, or click on the palette to the left to pick a color that closely resembles the color that you are adding to the custom palette. Click 'OK,' and the RGB Input Color values will be automatically entered. Please make note of these RGB values for later use in your design applications.
4. Click the Add Color button. A window will pop up asking you whether you want to add the color to the palette for all substrates, or just the current substrate. Click 'YES' here, unless you have the same custom color saved on palettes for other substrates. Another window will then ask you if you want to save the custom color for all resolutions or just the current one. Click 'YES' here, unless you have the same custom color saved on palettes for other resolutions.
5. Lastly, click the Save Palette button. When finished, simply exit out of the window.



Note: The Import Palette and Export Palette buttons are convenient to have in the event you need to transfer palettes to and from different computers.

Adding Swatches to your Application Palette

It is possible to add your custom color(s) swatch to an application palette as well. You will need to take note of the Input Color RGB value that you assigned in the previous step in order to create the new swatch. Refer to your specific design application software manual for instructions on this.



APPENDIX C: Tips for Successful Printing

Printer

- Make sure the print head is adjusted properly, or striking will occur on the garment if the garment is too high, and the image will look faded if the garment is too low.
- If you are using precision mode, as you should when printing with white ink, make sure the printer is set to roll paper and cut mode as indicated in the image below (□). If you are using a dual CMYK printer, be sure to cancel the **cut** and the **3 mm** options, the latter option denoted by the open-closed parenthesis symbol in the illustration (○).



Printing

- Make sure that the garment is placed flat on the jig, and all of the wrinkles are smoothed out. Not smoothing out wrinkles, will result in white areas in the image, and head strikes that can ruin a print head.
- Be sure that the hoop fits tightly over the jig, with the larger white border to your right--as you face the printer--and the narrow white border nearest you (on dual CMYK printers, the hoop may not have the white borders, so its orientation is not relevant).
- Failure to slide the jig back onto the platen will result in your image printing lower on your garment than expected.
- DO NOT touch the final printed image, as it is not dry until heat-pressed.
- In the Advanced section of the Print dialog for the Direct Advantage w/White Ink Document Properties, make sure that the page size is set to 17" x 18.5". For other printing tips, refer to the PowerRIP DA Manual.

Curing the Image

- To eliminate ink on the heat platen, make sure that a sheet of parchment paper, containing at least 10% silicone, is used over the image when curing it.
- Gently place the sheet of parchment paper over the image – DO NOT pat or rub the sheet across the image, or the paper will smear the image.
- Set the pressure on the heat press to light (10 - 12 psi, or 69 – 83 kPa) and cure the image at 340° F (171° C) for 140 seconds, for white-ink-based images. If curing CMYK (color only) images, set the pressure to medium (40 psi, or 276 kPa), the temperature at 375° F (191° C), and the dwell time at 25 seconds.

APPENDIX D:

Troubleshooting Image Quality Issues

The colors in my printed image are incorrect

- Ensure that you used the correct PowerRIP DA settings. Please see your PowerRIP DA Manual.
- Ensure that you heat-treated the item at the recommended time, temperature, and pressure. For guidelines, see the section titled ***Printing Procedures***.
- Verify that all of the print heads and all of the nozzles are firing. Run the ***Nozzle Check*** utility and clean the print heads as needed.

Before or after pressing, there are streaks of ink showing in non-printed areas.

- Verify that the print head is not touching the garment during printing. See the section titled ***Printing Procedures***.
- Ensure that the wet image did not rub against the garment when removing the garment from the printer or during pressing.
- Ensure that you are using silicone-curing paper when pressing the garment. When placing curing paper on the image for pressing, ensure that it is not smearing the image.

My image looks good but it washes out

- Ensure that you are heat-treating the item at the recommended time, temperature, and pressure. If so, try pressing longer to ensure that the dyes are penetrating the fibers sufficiently. For guidelines, see the section titled ***Printing Procedures***.

Colors are light and splotchy, or the image looks blurred

- Ensure that you are pressing the item with the proper time, temperature, and pressure. For guidelines, see the section titled ***Printing Procedures***.
- Verify that your printer driver settings are correct. Please refer to your PowerRIP DA Manual for additional information.

My image has gaps or bands present

- Perform a ***Nozzle Check*** and ensure that all of the printer's nozzles are firing properly. If one or more of the nozzles fail to print, perform a print head cleaning (***Clean Heads***). You can execute these functions from either the utility tab in the AdvantageQueue or the Epson menu.
- Make sure that the garment is placed flat on the holder, and that all wrinkles are smoothed out prior to printing.

APPENDIX E:

Printer Troubleshooting & Maintenance

Routine Maintenance

Following these simple steps daily, will help ensure that your printer lasts longer, and you achieve optimal performance with little-to-no down time.

1. Maintain proper humidity and temperature conditions

For optimal printing, the relative humidity in the work place should be kept at 35%~60%, with a temperature around 73° F (22° C).

2. Use textile substrates appropriate for the application

Not all cotton substrates are the same. For better opacity with NaturaLink, Sawgrass recommends 100% cotton Hanes Beefy T-shirts.

3. Clean the capping station and wiper blade

Take a foam swab moist with cleaning solution and clean around the capping station and wiper blade daily to remove any ink build up that may be deposited onto the print head. Removing ink build-up will help ensure smooth, uninterrupted printing.

4. Clean the encoder strip

Moisten a swab with isopropyl alcohol or cleaning solution and gently wipe the encoder strip to remove any ink residue. Please refer to the section in the Preventive Maintenance CD for proper cleaning instructions.

5. Extended idling

If you are not going to use your Direct Advantage White printer for two weeks or longer, it is recommended that you discharge the ink and fill the ink-delivery system with cleaning solution. This will prevent the solid particles in the ink from falling out of suspension and settle in the dampers or the print head, where irreparable damaged may occur as a result. When you are ready to use your printer again, be sure to discharge the cleaning solution and refill the system with new ink. Sometimes, you might have to follow the initial ink refill with a power cleaning to eliminate any traces of the cleaning solution.

Printing a Nozzle Check

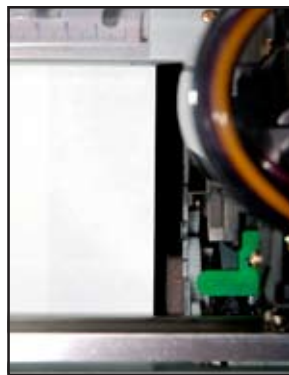
Printing a nozzle check requires the use of an 8 ½" x 11" (A4) sheet of white copy paper on a jig. You can print a nozzle check from the Epson printer control panel (method 1) or from the Direct Advantage Queue (method 2).

Method 1

To print a nozzle check from the Epson control panel when the Direct Advantage printer is in precision mode, proceed as follows:



1. Press the **LOAD** button to move the jig to the ready-to-print position at the rear and wait for the alignment sequence to finish.
2. Place an 8 ½" x 11" (A4) or larger piece of white paper on the jig so that the outside edge of the paper hangs over the jig slightly (¼ inch or less) and aligns with the driving (bottom) plate.
3. If you open the top cover of the printer and look down to the paper, the paper should be in the position shown in the illustration at right.



NOTE: This view is from the front of the printer, looking down into the head area.

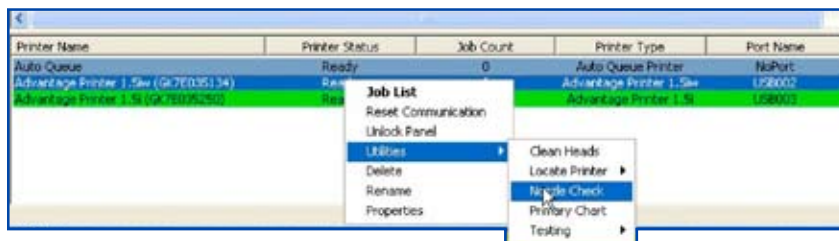
Because the jig is already in position to print, you will find it easier to feed the paper from the front. Make sure that the paper is straight and does not touch the printhead.

NOTE: If your Direct Advantage printer is operating in non-precision mode, you should load the paper while the jig is at the load position (up front), since there is no alignment sequence that takes place when the jig moves to the ready-to-print position at the rear. Therefore, this step sequence is altered such that steps 2 and 3 come before step 1, and step 1 becomes step 3.

4. At the Epson control panel, perform the following step sequence:
 - a. Press the **Menu** button
 - b. Press the down arrow (▼) once to **TEST PRINT**
 - c. Press **Menu** again to **NOZZLE CHECK**
 - d. Press **Menu** again to **NOZZLE CHECK - PRINT**
 - e. Press **Menu** once more to execute the procedure.
 - f. If the printer is set to precision mode, the jig will remain in place, and the Epson will enter a PAPER NOT CUT error. Press **LOAD** on the Direct Advantage control (front) panel to advance the jig so that you can remove the paper and check the results. Once you press **LOAD** again in preparation for a new print, the Epson will clear the **Paper not Cut** error and resume normal operation.
5. If the pattern has gaps between the tick marks (each tick mark, or line, represents one nozzle), press and hold the **Menu** button on the Epson printer for three seconds to perform a normal head-clean operation.
6. After cleaning, run the nozzle check again. If no gaps appear, you are ready to print. If gaps continue to appear, perform another head cleaning.

Method 2

1. To perform a nozzle check from the DirectAdvantage Queue, begin with steps 1 – 3 from **Method 1**.
2. Right-click on the DirectAdvantage printer listed on the **Printer View** area and select **Nozzle Check** from the drop-down Utilities menu (see screen below).



3. If your Direct Advantage printer is set to normal mode (as opposed to precision mode), once the printing is finished, the printer will automatically bring the jig forward so that you can check the printed results.
4. If the printer is set to precision mode, the jig will remain in place, and the Epson will enter a PAPER NOT CUT error. In this situation, press UP and DOWN simultaneously on the Direct Advantage control (front) panel to unlock the panel and advance the jig so that you can remove the paper and check the results. Once you press **LOAD** again in preparation for a new print, the Epson will clear the **Paper not Cut** error and resume normal operation.
5. If the pattern has gaps between the tick marks (each tick mark, or line, represents one nozzle), right-click on the DirectAdvantage printer listed on the **Printer View** area in the Queue to access the drop-down **Utilities** menu, and then select **Clean Heads**.
6. After cleaning, run the nozzle check again. If no gaps appear, you are ready to print. If gaps continue to appear, perform another head cleaning.

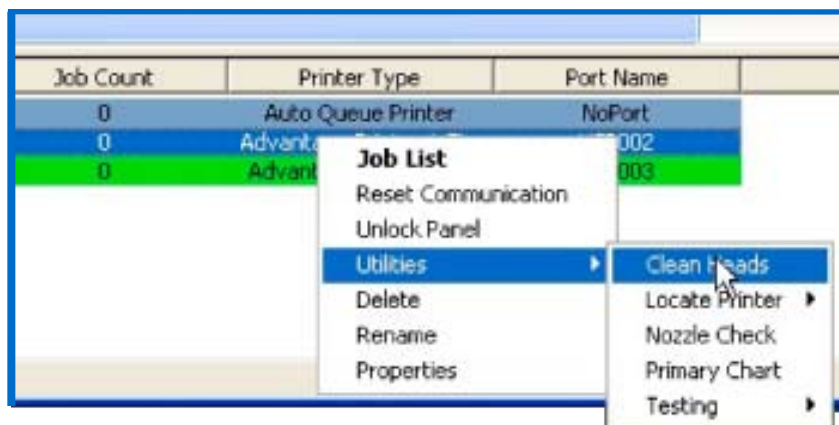
NOTE: Do not perform a normal clean more than two or three times. If you have not recovered all of the nozzles after three normal cleanings, perform a power cleaning (see the **Power Cleaning** procedure below).

Head Cleaning

Because of residues or impurities, it is possible that the printing heads will work incorrectly in a way that you will observe such abnormalities as bending, color lack, tonality variations, etc., in your printed image. In this case, it is possible to clean the print heads through a menu selection available from the AdvantageQueue. To perform a normal head cleaning operation from the AdvantageQueue, proceed as follows:

1. Right-click on the name of the printer in the printer view area of the AdvantageQueue to access the **Utilities** menu.

2. Select **Clean Heads** from the drop-down **Utilities** menu (see illustration below). The printer will go through the cleaning cycle, a process that takes approximately two minutes.



3. Perform a nozzle check to verify that all nozzles are present (see **Printing a Nozzle Check** procedure above)
4. If you still find nozzles missing, repeat steps **1 – 3**.

If you still find nozzles missing after repeating this normal cleaning procedure, please perform a **Power Cleaning**.

Power Cleaning

If the normal cleaning process is not sufficient to recover all the print head nozzles, a Power Clean may be necessary. This procedure consumes a noticeable amount of ink. Therefore, it should be run only when all other troubleshooting methods have been unsuccessful.

To perform a Power Clean, proceed as follows:

1. Press the **Menu** button on the printing unit.
2. Press the down-arrow button (▼) until you see **MAINTENANCE**, then press the **Menu** button again.
3. Press the down-arrow button (▼) until you see **PWR CLEANING**, then press the **Menu** button again.
4. Follow the instructions on the Epson LCD screen to raise or lower the ink levers at regular intervals.
5. Once the cleaning is completed, the pause light will stop flashing.
6. Print a nozzle check to see if the cleaning was successful.

Waste Ink Tank

The waste ink tank, with two tubes extending from it, is located in the lower right side of the printing unit and collects the ink that is not actually being used for printing. Even though this is waste ink, the printer still records the amount of ink that is being deposited. A small chip on the waste ink tank counts these ink droplets. Over time, the waste-ink tank chip will read full, and the tank will need to be replaced or emptied out. If the tank is emptied out, the chip needs to be reset. Follow the instructions on the Maintenance CD included with the printer on how to reset the chip in the waste ink tank.



Supplies & Equipment

The DirectAdvantage® fueled by NaturaLink®, is sold through a network of Authorized Channel Partners. A full listing of authorized resellers is available on Sawgrass' web site at www.sawgrassink.com.

Operating Conditions

For optimum performance of NaturaLink®, you should adhere to the following environmental conditions, including temperature and relative humidity:

- Operating conditions are 73° F (23° C) with 35~60% relative humidity.
- Optimum operating conditions are 73°F (23° C) with 35~60% relative humidity.

Storage

- NaturaLink® products should be stored in an environmentally controlled room with a temperature range of 50 ~ 75° F (10 – 24° C).
- Do not expose NaturaLink® cartridges directly to light, especially sunlight, for extended periods.
- For best results, install your NaturaLink® cartridges by the date on the cartridge. Please refer to the individual ink bag/cartridge for the specific ink expiration date.

APPENDIX F:

Creating And Ripping a Job With PowerRIP

Introduction

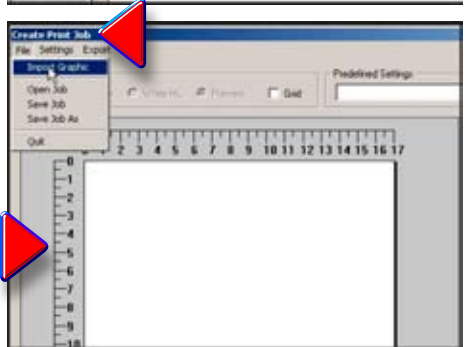
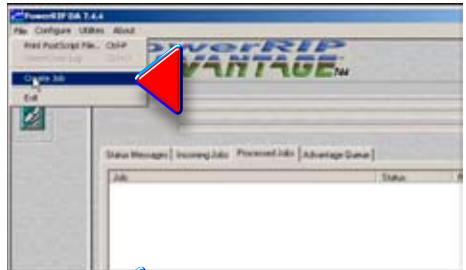
When printing with white ink, there are several techniques you can use to rip an image and print it on a cotton garment so that the final output conforms to your specifications. The quickest way is to use the **Create Job** feature in PowerRIP for Direct Advantage. Unless you need to modify the artwork (such as when you need to remove a background or edit a bitmap), you do not have to use such applications as CorelDRAW and Adobe Photoshop. If you have a jpeg, tiff, gif or psd file that you need to rip for printing on your Direct Advantage printer, you can open the file directly in PowerRIP, rip it, and send it to the Advantage Queue for printing.

The first section of this Quick Guide describes the procedure for bringing an image directly into PowerRIP, ripping it and sending it to the Direct Advantage (DA) Queue for printing. Subsequent sections cover the preparation of an image in a separate application, such as CorelDRAW and Adobe Photoshop, ripping it and sending it to the DA printer for final output. This document is designed to be a quick and easy guide to these procedures. For more detailed information on editing and ripping unusual or complex images, please refer to the user manuals for the specific applications.

Section 1 - Create and Rip an Image File with *Create Job*

To open and rip an image file using PowerRIP, proceed as follows:

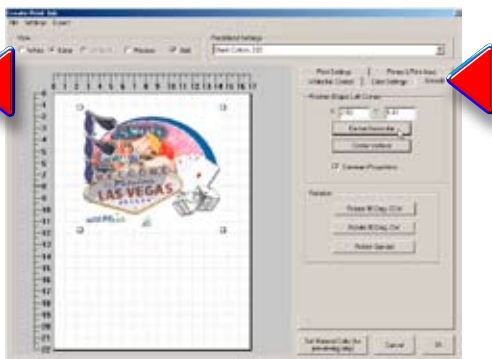
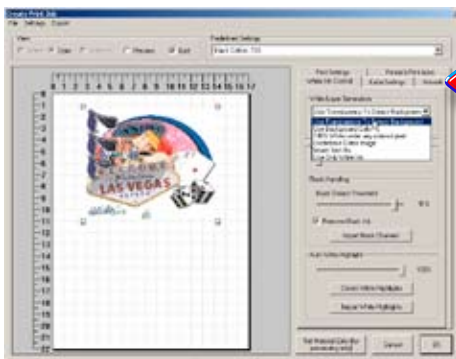
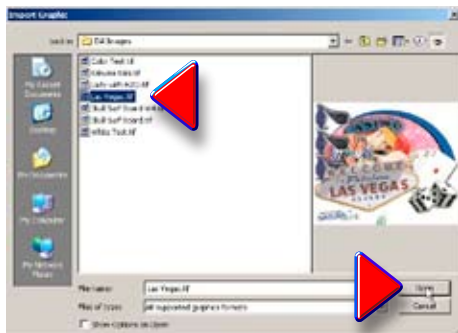
1. From the PowerRIP main window, click on the **File** menu and select **Create Job** (see illustration at right). The **Create Print Job** window will open up.
2. In the **Create Print Job** window, click on **File** and select **Import Graphic** (see illustration below right). Navigate to the folder where you have stored your image file and select it (see the first illustration on the next page).



Create Print Job window in the RIP

Alternately, you may click on the chosen job in the folder and simply drag and drop it into the image area of the “Create Print Job” window.

3. Wait for the image to arrive at the RIP and position it at your will. At this point, you can also resize the image to fit your desired output size. To move the image, simply click anywhere inside the image area and drag it. To resize it, click on the “handles” (small squares) at the corners of the image area and extend or contract the image. You have the option of centering the image on the screen, horizontally, vertically or both. These choices are accessible from the **Artwork** tab (see illustrations below).



4. Select your printing parameters—print quality (resolution), media (white or color cotton, or paper), print direction (uni- or bi- directional printing), density (for the white layer) and number of passes for each layer (color and white). Of course, if you will be printing in color only, such as when you are printing on a white T-shirt, you need not concern yourself with white-ink settings. You can set the printing parameters in one of two ways (see illustrations A and B, Page 72):

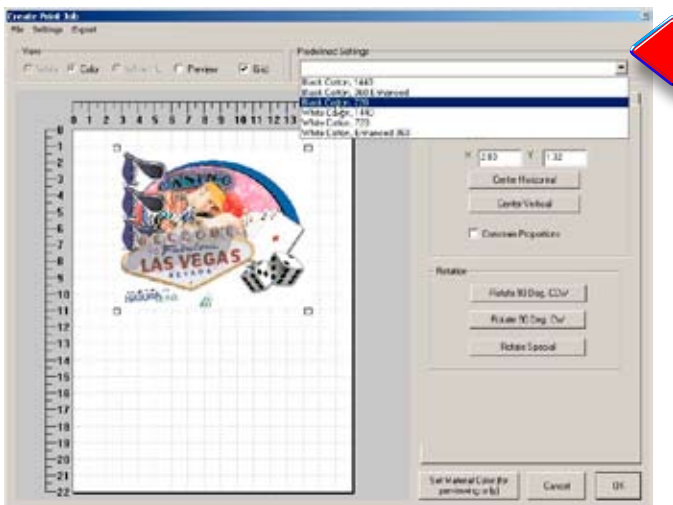


Fig. A: Pre-defined printing parameters

- a. Select predefined parameters. Click on the ***Pre-defined Settings*** drop-down menu arrow at the top right of the screen to make your choice (see illustration A above). The most common one is **Black Cotton, 720** or **White Cotton, 720**, depending on whether you will be printing on black or white cotton, respectively.

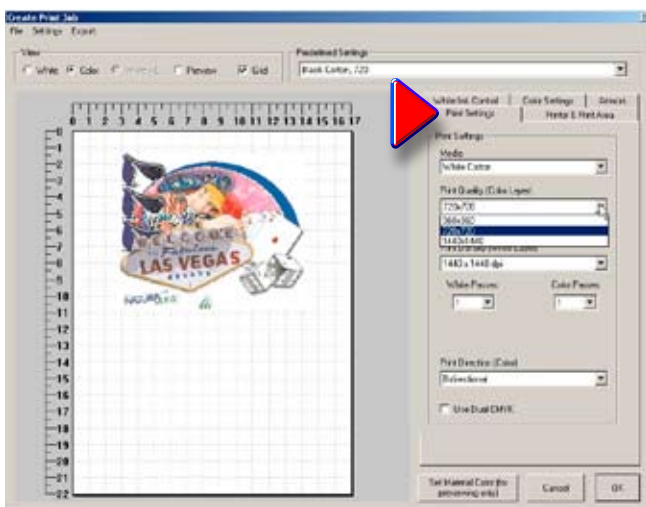
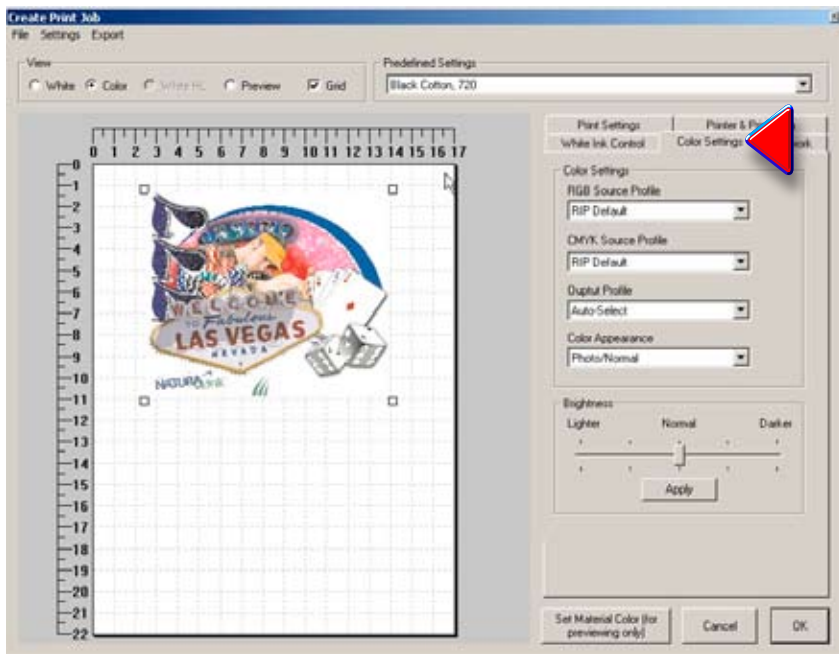


Fig. B: Defining parameters manually

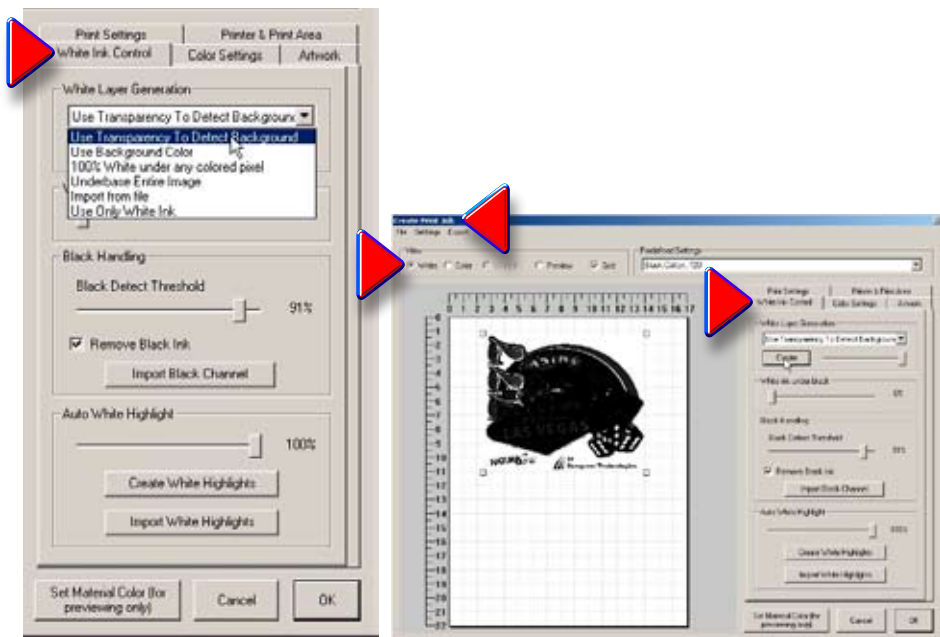
- b. Define the parameters, one by one, manually. Click on the ***Print Settings*** tab to display all of these choices (see illustration B above). When you define your printing parameters this way, you can save them for later use, in which case you can recall them from the “Pre-defined Settings” field.

The most common settings are as follows:

- Media: black (or white) cotton
- Print Quality (Color Layer): 720 x 720 (dpi)
- Print Density (White Layer): 1440 x 1440 (dpi)
- White Passes: 1
- Color Passes: 1
- Print Direction (Color): Bidirectional
- Use Dual CMYK: Check this box only if your Direct Advantage printer is not using white ink and, instead, has two sets of color inks installed—one on each side.

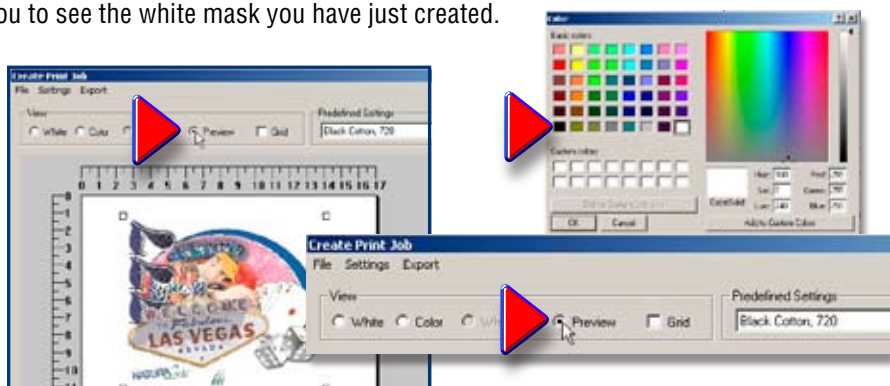


- Click on the **Color Settings** tab and select your color settings (see illustration above). For most applications, the best all-around color settings to use are these:
 - RGB source Profile: RIP Default (this is the sRGB Profile)
 - CMYK Source Profile: RIP Default (this equates to “None,” or no profile applied)
 - Output Profile: Auto-Select
 - Color Appearance: Photo Normal (for photographic images) or Vivid/Darker (for text and vector images, or if you prefer higher color saturation).

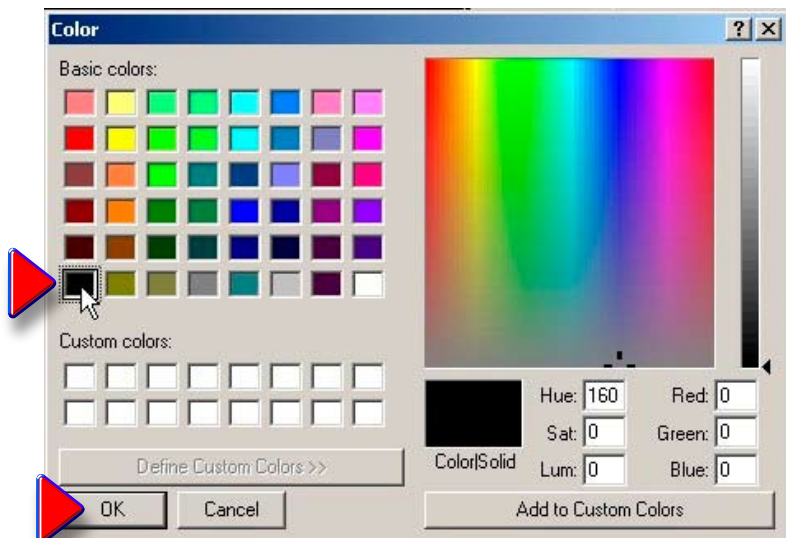


6. If you are printing with white ink, you are now ready to generate the white layer (underbase, or mask). Be sure that the image is selected (if not, simply click on it to select it) and click on the **White Ink Control** tab. Begin by selecting what you want the RIP to use to generate the underbase—the background color, 100% white under any color pixel, underbase entire image, etc. In the example shown, the option **Use Transparency to Detect Background** was chosen because the original image was created with a transparent background. Click on **Create** to begin generating the white layer (see the first two illustrations above).

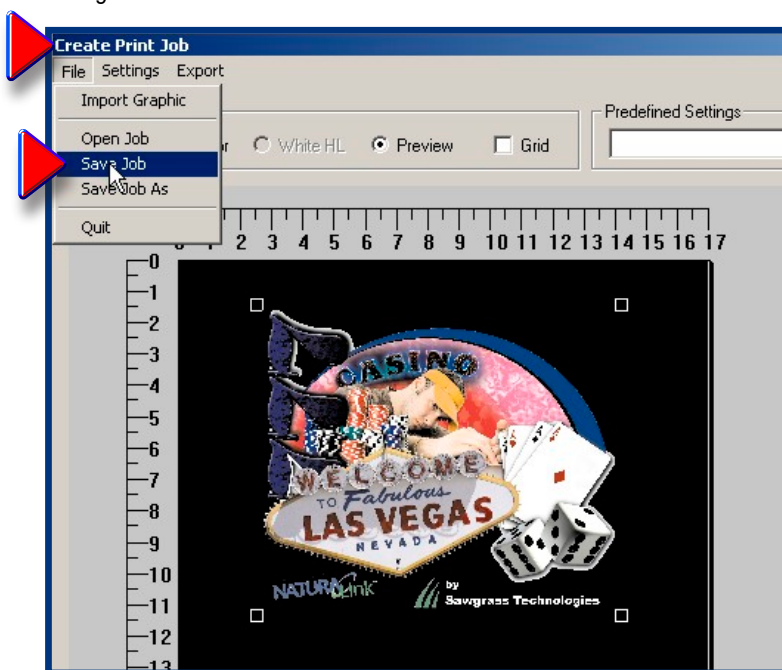
Clicking on the **White** radio button at the top left of the **Create Print Job** screen, enables you to see the white mask you have just created.



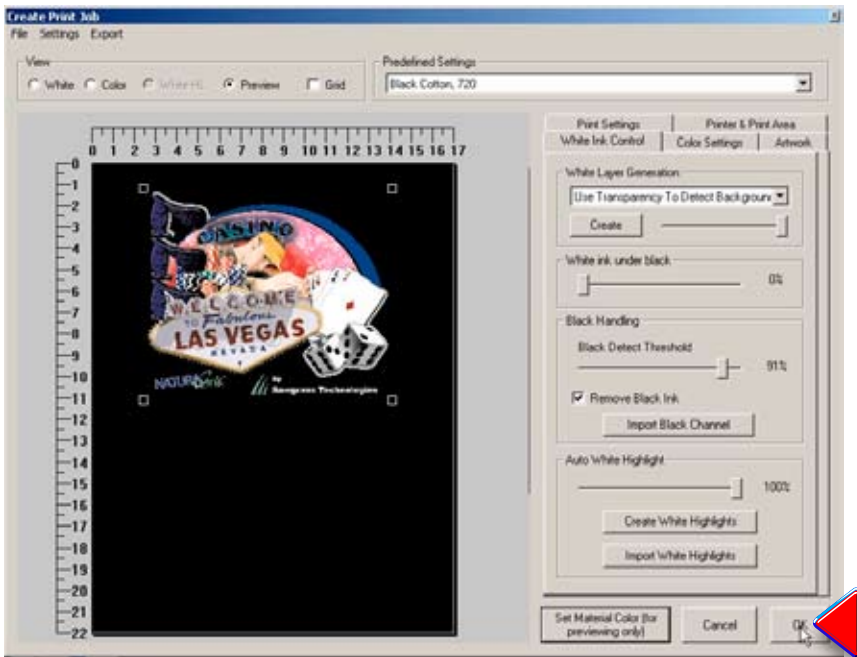
7. Click on the **Preview** radio button at the top of the screen to view the completed image, and click on the **Set Material Color** (for previewing only) to generate a preview of your composite image as it would look on the selected background (black cotton, in this example. See the illustrations above).



8. Click on the square that represents the color of your garment (black in this example), and then click OK (see illustration above). Your preview will now be generated, and you will see the composite image set against the selected background.

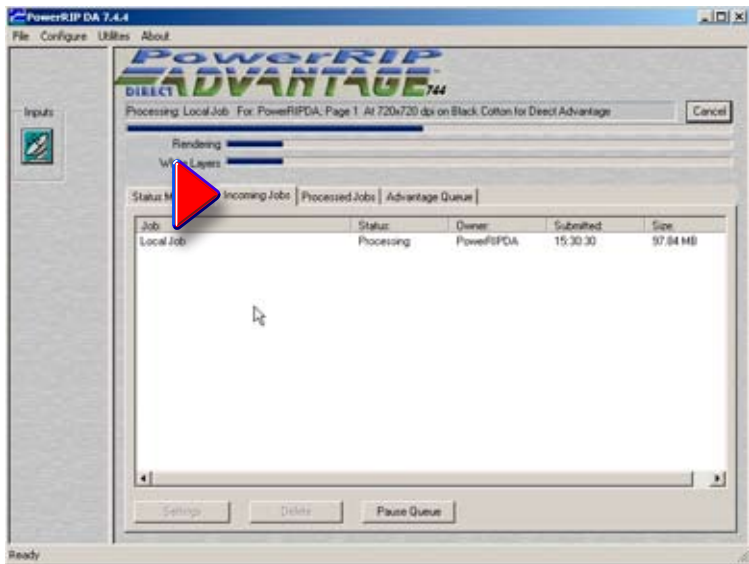


9. **Save your job** before proceeding, as you might need to rework the image and re-rip it before printing. To save the job, select **File** from the main menu and then select **Save Job** (see illustration above). Select the folder where you want the job to be saved and give the file a name.

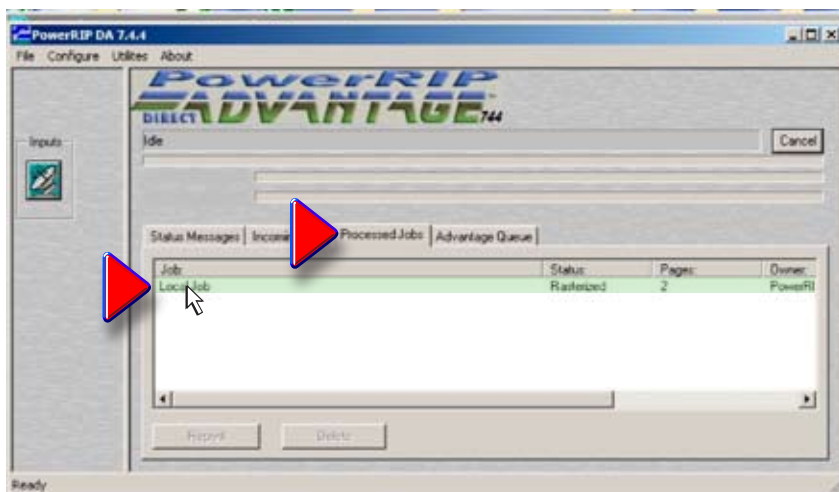


10. Now, click **OK** to instruct PowerRIP to proceed with the ripping of this image (see illustration above).

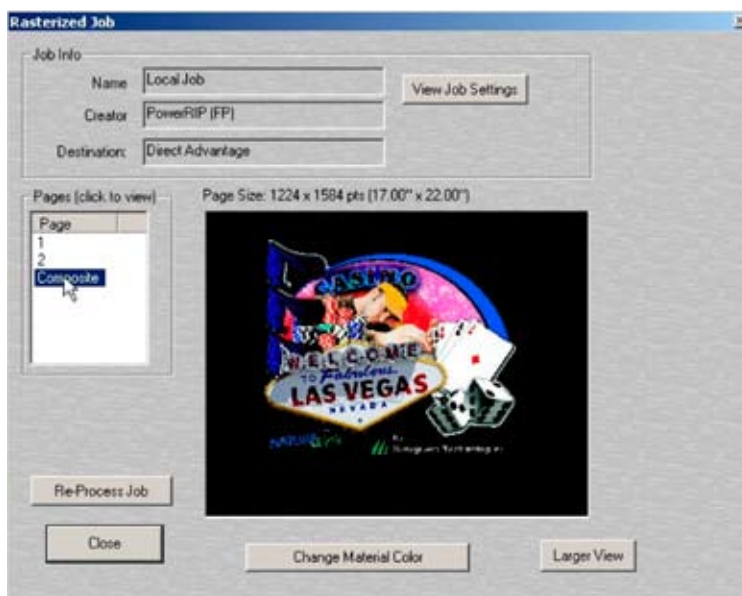
This window will close, and ripping ensues. The main RIP window will open, and the name of the file being ripped will appear in the **Incoming Jobs** screen.



Once ripping is completed, the file will automatically transfer to the **Processed Jobs** window (see illustrations below) and, from there, immediately to the Direct Advantage Queue.



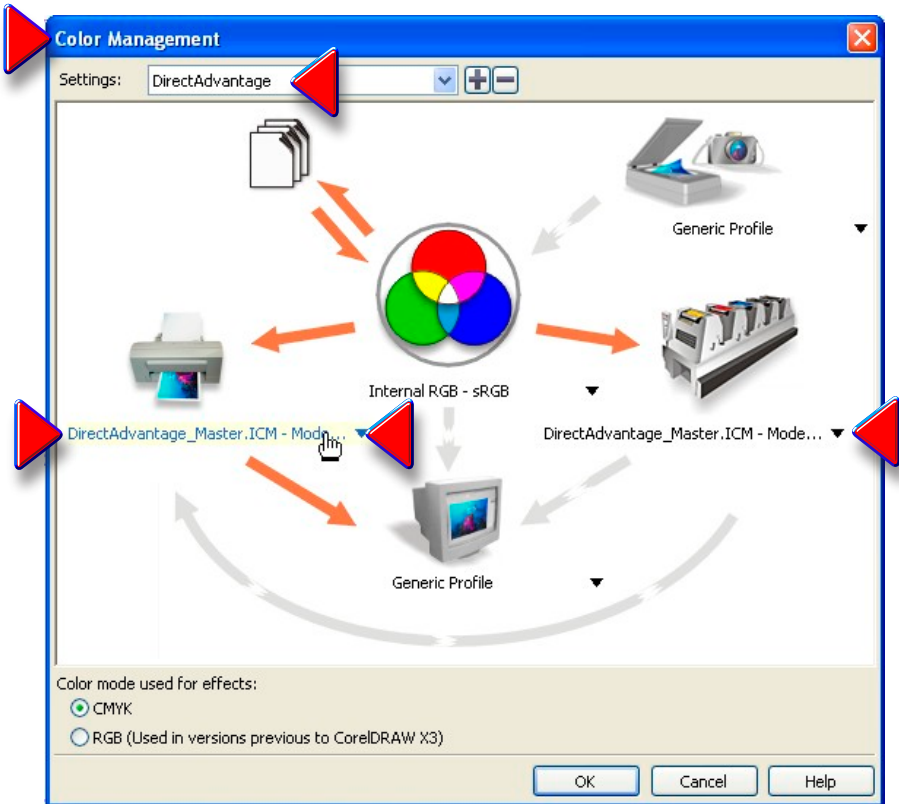
11. Click on the **Processed Jobs** tab and double-click on the name of the file to see a preview of the ripped job. A preview window will open showing the image as it will look in its final form when printed (see illustration below). In this window, you can selectively view the white layer (mask), the color layer, or the composite image against your selected fabric color. If the ripped image does not conform to your requirements, you can edit it in your preferred application and re-rip it before printing it.



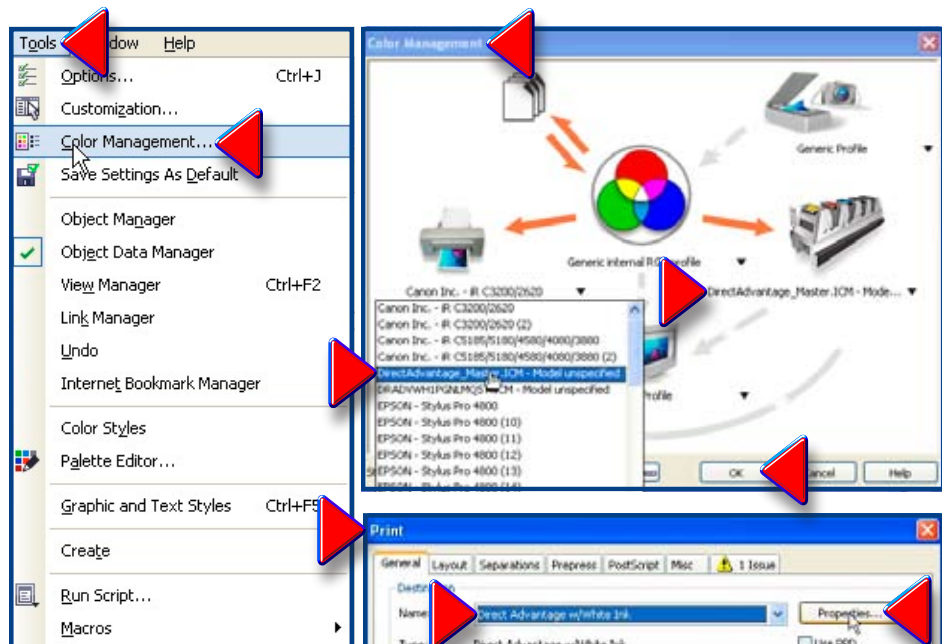
Section 5 describes a common procedure for editing the white mask of an image.

Section 2 – Ripping and Printing an Image File from CorelDRAW

This section describes the most common procedure for ripping and printing a job onto a black garment using CorelDRAW version 12, 13 or X4. To achieve the desired results when following this auto-masking procedure, it is imperative that your artwork be laid on a black background. This procedure assumes that the DirectAdvantage printer is in the precision mode.

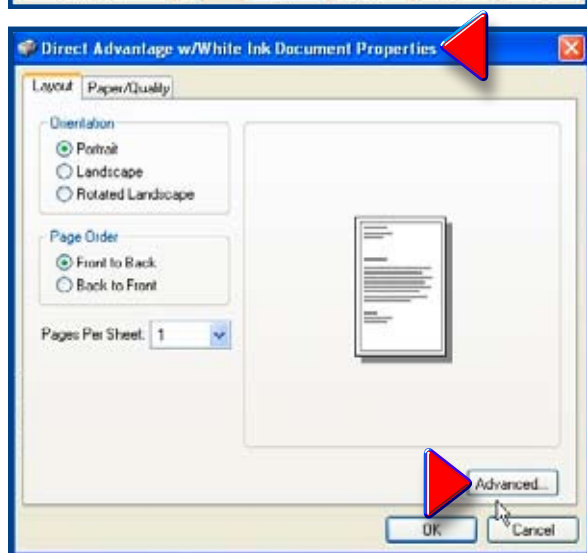
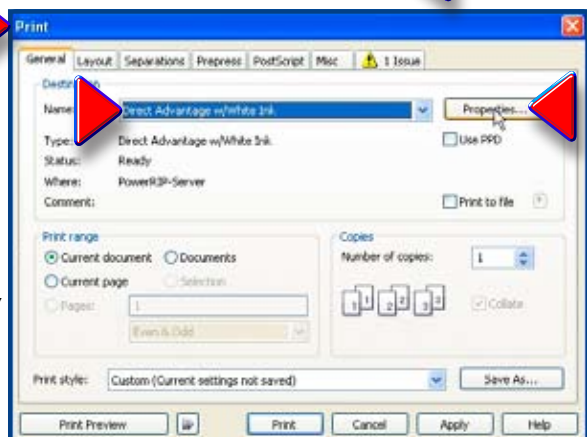


1. In CorelDRAW, select **Color Management** from the **Tools** menu and verify that this function is active, i.e., the arrows are orange. If not, click on the arrows, and they will turn orange. Verify also that you have the correct profile being applied. If not, click on the small down arrows below the desktop printer and web offset press icons and select the **DirectAdvantage_Master.ICM** profile from the drop-down list (see illustrations above and on the next page for reference).



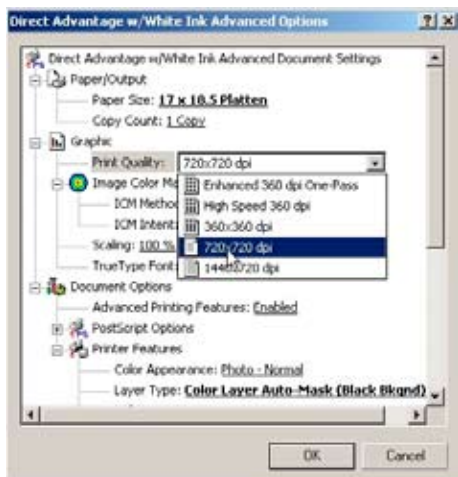
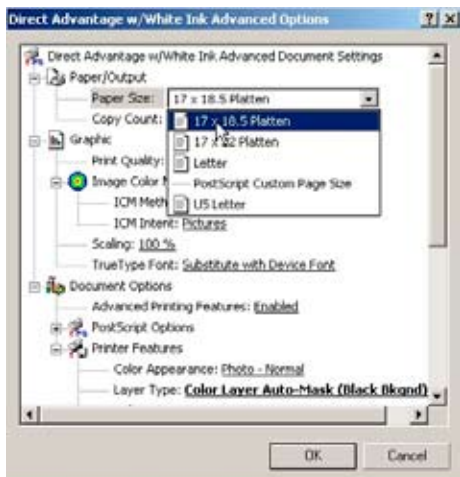
2. Now select **File > Print** and select **Direct Advantage w/ White Ink** as the printer of choice (see illustration at right). If you get a warning about non-matching “printer paper orientation,” click “No” (so as not to choose automatic adjustment by the system).

3. Click on the **Properties** button, then click on the **Advanced** button (refer to the illustrations at right).

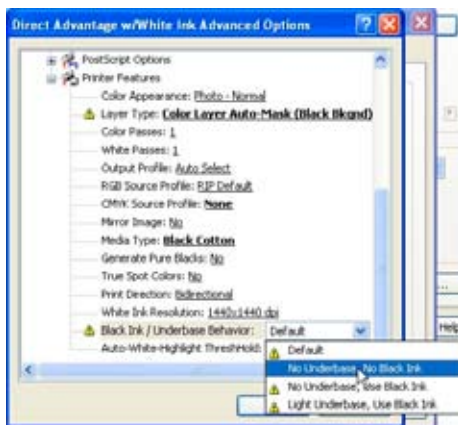
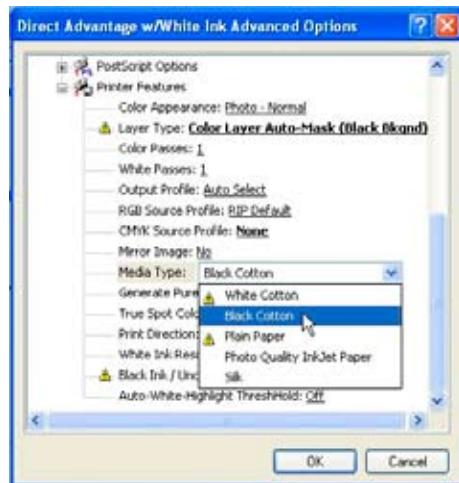
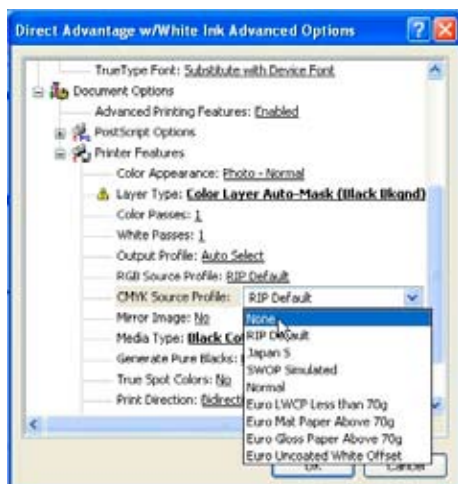


4. Change the following RIP settings to the values shown below (refer to the screen images below). Leave all of the other settings not listed here at their default values:

- Paper Size: **17 x 18.5 Platten**.
- Print Quality: **720 x 720**. This setting specifies the color printing resolution in dpi.
- Color Appearance: **Photo-Normal**. This setting instructs the RIP how much color ink to lay down and it normally yields the best results with raster (photo) images. Select “Vivid-Darker” for vector and text artwork, or if you want more color intensity (although you might sacrifice color accuracy).
- Layer Type*: **Color Layer Auto-Mask (Black Bkgd)**. This setting instructs the RIP to use the black background in place of black ink where this ink is called for, and thus not to lay white ink on those areas. This option works only on pure black fabric. With other colors, use Auto-Mask in conjunction with Capture Black.
- Media Type: **Black Cotton**. Always use this setting when printing on a black or dark- color fabric.
- White Ink Resolution: **1440 x 720**. This setting determines the resolution of the white ink in dpi. The higher this number, the tighter the coverage (and the more intense the white). You want the tightest white coverage to be sure that the layered colors are reproduced with maximum fidelity.
- Black Ink/Underbase Behavior*: **No Underbase, No Black Ink**. This is the only setting allowed when you select “Color Layer Auto-Mask (Black Bkgd)” as the layer type. The setting instructs the RIP not to lay down white ink in the black areas of the image and not to lay down black ink either in those areas. The black color of the fabric is used in place of black ink.

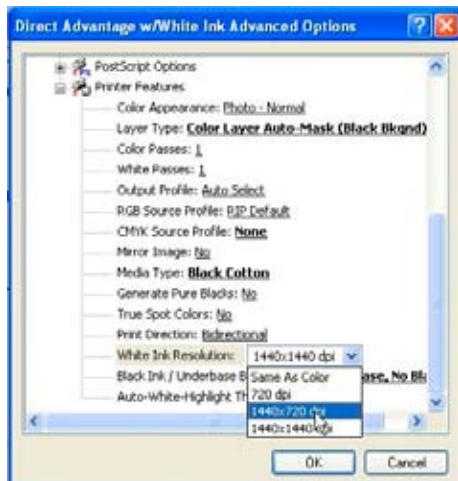


***Note:** Whenever a selection is in conflict with another (e.g., you selected an 8.5” x 11” print area, but you have a 10” x 16” image), a warning icon (a small yellow triangle) will appear next to the conflicting options. Do not print until all conflicts are resolved. See additional information on layer types and resulting conflicts in **Section 4** of this document.



5. Click **“OK”** twice to conclude this dialog and then click **“Print.”**

At this time, the image is sent to the RIP. It will take a few minutes to process the image. Take this time to mount the T-shirt on the platen. Once the image is ripped, PowerRIP will automatically transfer it to the Direct Advantage Queue.



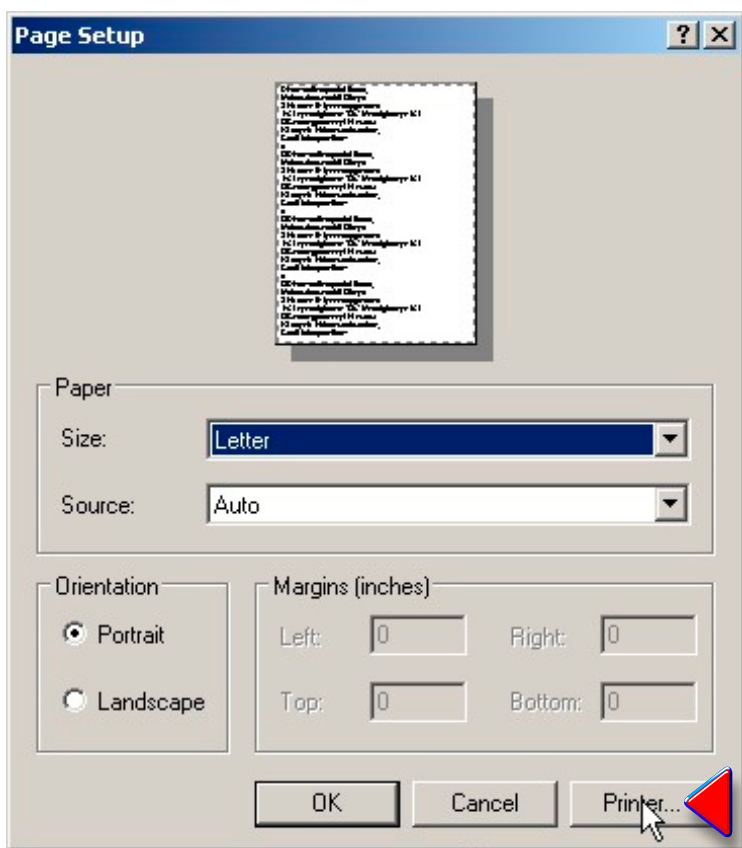
- Click on the name of the file in the Advantage Queue job view area (the upper window) and drag it into the printer in the printer view area (the lower window).
- Once the image is printed, carefully remove the garment from the platen and cure it on a heat press set at 340° F, for 2 min 20 sec at very low pressure (10 - 12 psi).

Section 3 – Ripping and Printing an Image File from Adobe Photoshop

This section describes the most common procedure for ripping and printing a job onto a black garment using Adobe Photoshop version 8 (CS). To achieve the desired results when following this auto-masking procedure, it is imperative that your artwork is laid out on a black background.

I. ADOBE PHOTOSHOP CS

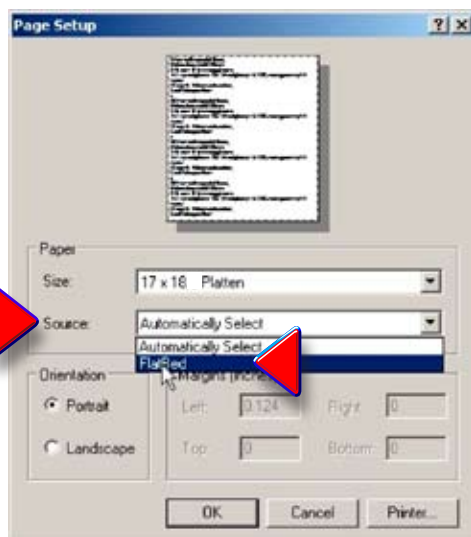
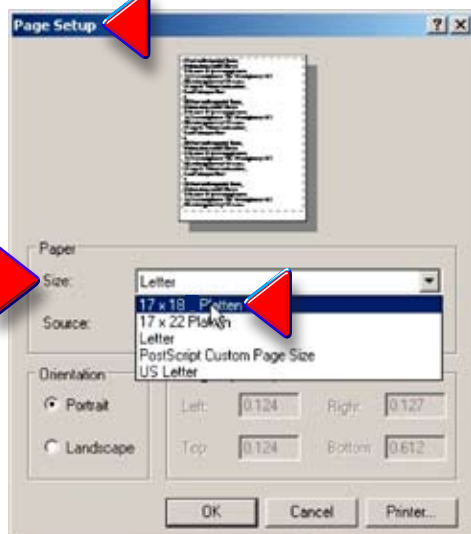
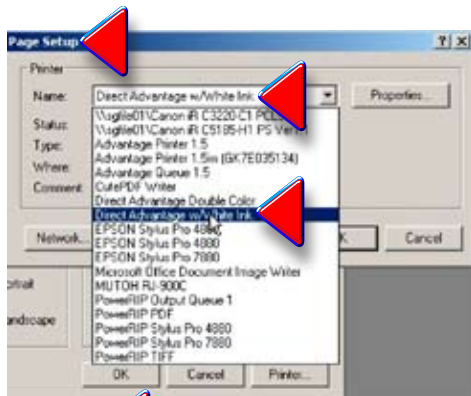
- Select **File > Page Setup** from the main menu (see illustration below).

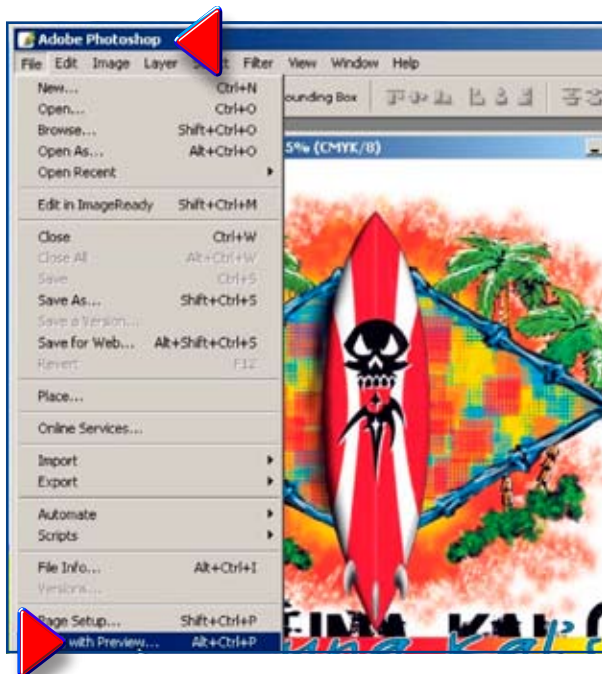


- On the “**Page Setup**” window that opens up, click on **Printer** (see illustration above), select the “**Direct Advantage w/White Ink**” printer, and click **OK** to conclude this selection (see illustrations next page).

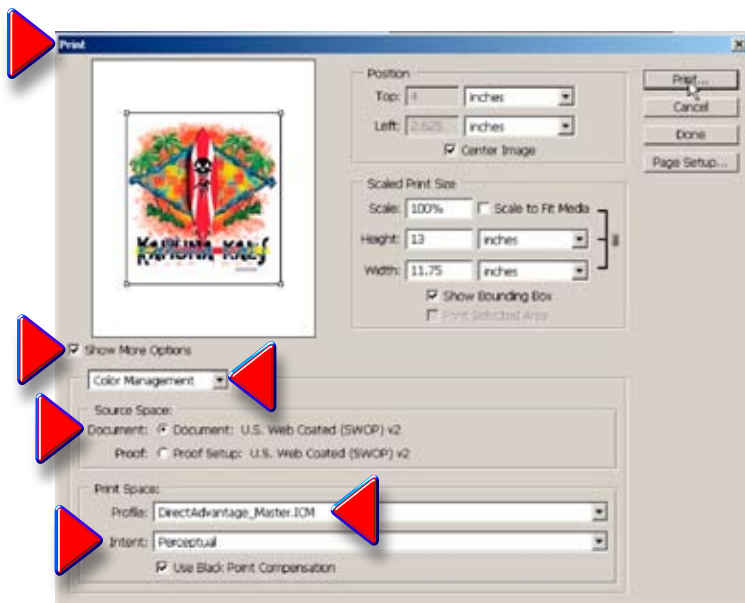


3. On the Size drop-down menu, select **"17 x 18 platen,"** and select **"Flatbed"** from the **Source** drop-down menu.



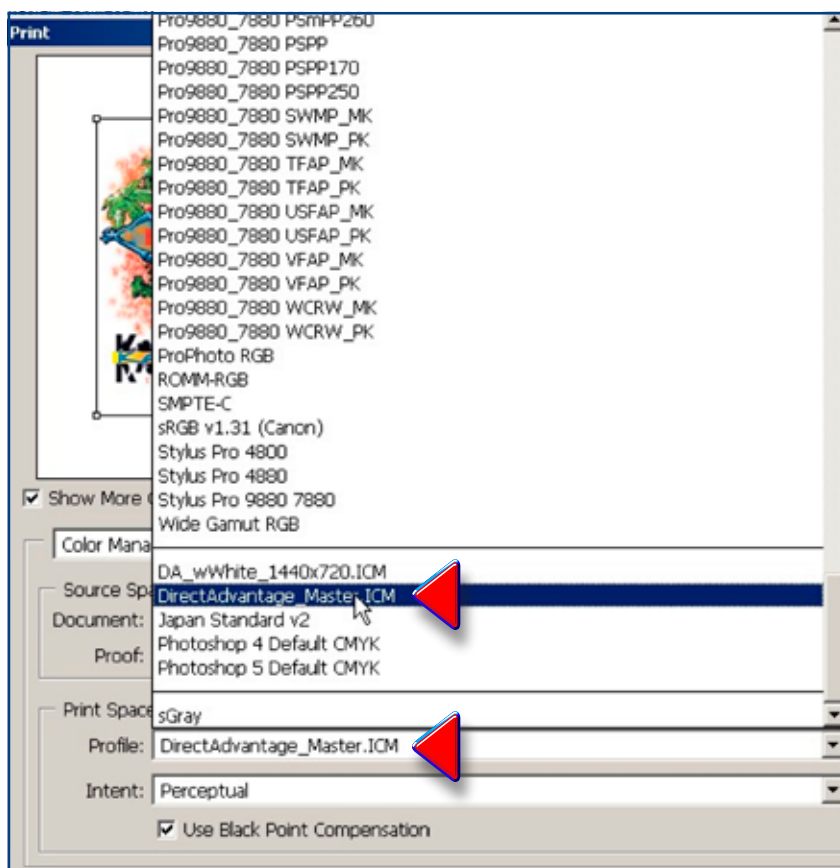


4. Go back to the **File** menu and select the **Print with Preview** option. In the “Print” dialog window that opens up, make sure that the checkbox beside **Show More Options** is checked. If not, check it.



5. Select **Color Management** from the drop-down menu, and check the radio button beside **Document** in the **Source Space** submenu.

6. Still in the **Color Management** menu, in the **Print Space** submenu, click on the down arrow (▼) in the **Profile** selection field and select the **DirectAdvantage_Master.ICM** profile from the pull-down menu that appears. The selection on the **Intent** field should be **Perceptual**. If not, click on the down arrow (▼) in this field and select **Perceptual** from the drop-down list (see illustration on the previous page).



7. Click on **Print** and select the **Direct Advantage w/White Ink** as the printer of choice.
8. Repeat steps 3 through 7 in the CorelDRAW procedure described before. There is an exception to step 5 where, in Adobe Photoshop, you click OK three times (instead of twice), and the selection Print does not appear at the end of the dialog (essentially, the third OK substitutes for Print).

Section 4 – Automatic Layer Types, Ink Density and Choking

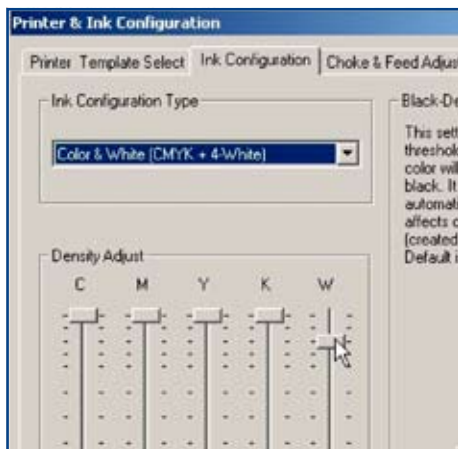
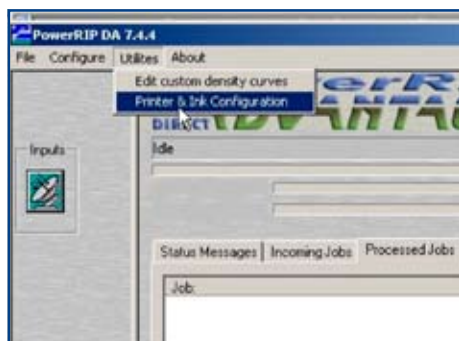
PowerRIP Direct Advantage offers two auto-masking layer types for printing with white ink--**Color Layer Auto-Mask (Black Bkgnd)** and **Color Layer Auto-Mask**. If you are printing on a white garment, ignore all other layer types and simply select **Color Layer**. In addition, you can also choke the white underbase if there is a chance that the white will “peek” from the color layer, especially at the edge of an object. Choking will enable you to instruct the RIP not to lay white ink on an outer row or column of pixels by a pre-established amount. The information in this section applies only when you are using white ink, as is the case when you print on black or dark-color garments.

- ☉ **Color Layer Auto-Mask (Black Bkgnd)**. Be sure to select the option **No Underbase/ No Black Ink** when using this type of automatic layer. If you print an image that has a black background and you select the **Light Underbase, Use Black Ink** option, the entire black background will print, thus leaving a black box on your garment!
- ☉ **Color Layer Auto-Mask**. If there are no pure (100%) white areas in the image, and you are printing on a colored garment, choose the **Color Layer Auto-Mask** layer type and do not create a black background around the image. This selection instructs the RIP to treat all 100% areas as a physical white background, and therefore not to print anywhere there is 100% white. As a result, the printer will not print on any 100% white areas in the image--but it will print process white--and the color of the garment replaces the pure (100%) white (which is the background) in the image.
- ☉ **Capture Black**. Use this feature in conjunction with **Color Layer Auto-Mask (Black Bkgnd)** whenever black ink must be used. This is the case when you are printing on a colored shirt, and the image has black areas. This layer type causes the RIP to capture and store the black channel (either pure black or composite) so it can be superimposed on the next color layer.
- ☉ When you print white at 1440 x 1440 dpi, you might want to reduce the amount of white ink being laid to prevent bleeding. A common setting is 90, but use the value that results in the most white ink being laid down without bleeding. On the other hand, if you are using a 720 x 1440 resolution, leave the white (W) density value at 100. You make this adjustment in the following “PowerRIP Advantage” menu/submenu tree: **Utilities > Printer & Ink Configuration > Ink Configuration** In the **Ink Configuration Type** window, slide the **W** bar to a value of **90** (see illustrations next page).

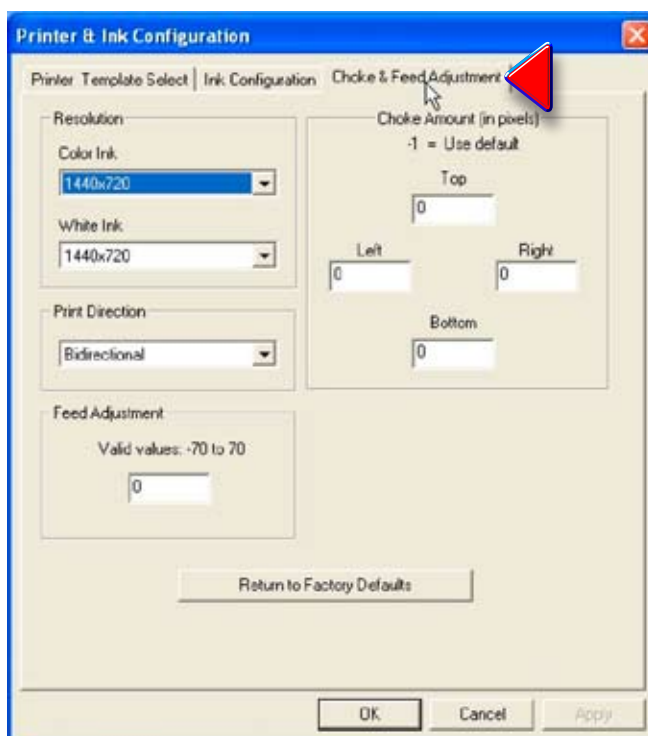
Choke Values and Fine Traces

In the RIP, there is an option that enables you to choke the white underbase in cases where you find the need to eliminate the possibility of the white layer “peeking out” from under the color layer. This phenomenon often results when you print the two layers--white and color--at different resolutions (1140 x 1440 dpi for white, 720 x 720 for color, as an example). By default, the choke value is set at minus one (-1), which causes the RIP to choke the underbase by one pixel width in all four directions. If you are printing small text (< 24 pt) or fine lines, it is recommended that you remove choking altogether by setting the values to zero. Otherwise, these small traces may

not be visible in the final print. This is because, in these situations, choking the underbase will essentially remove the white layer in these areas, rendering the color layer nearly invisible on a black T-shirt.



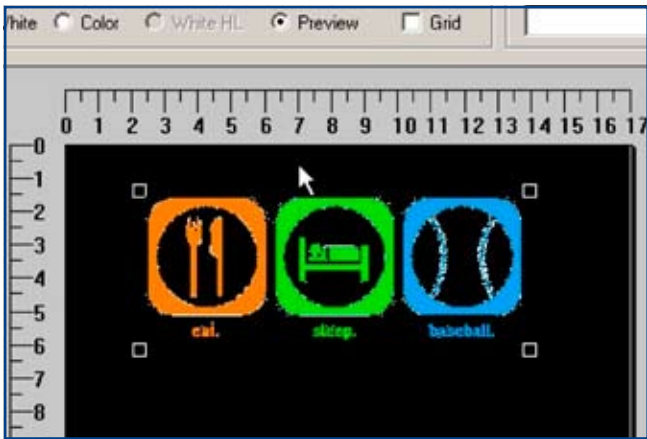
The choking option is accessible from the **Utilities > Printer & Ink Configuration > Choke & Feed Adjustment** menu tree in the RIP. To remove choking, change the four (Top, Left, Bottom and Right) choke values from -1 to zero (see illustration below).



Section 5 – Exporting a White Mask for Editing



Sometimes, the choices available for white ink control in **Create Job** within PowerRIP are not sufficient to produce a final image without either undesirable, or improperly rendered, white areas. Such is the case when your image has a white background (standard photographs are one example). If you select the **Use Background Color** to generate the white layer, PowerRIP will generate a white square underlying the entire image (see image below). The same outcome will result if you choose the **Underbase Entire Image** option. This might not be what you want your final image to look like.

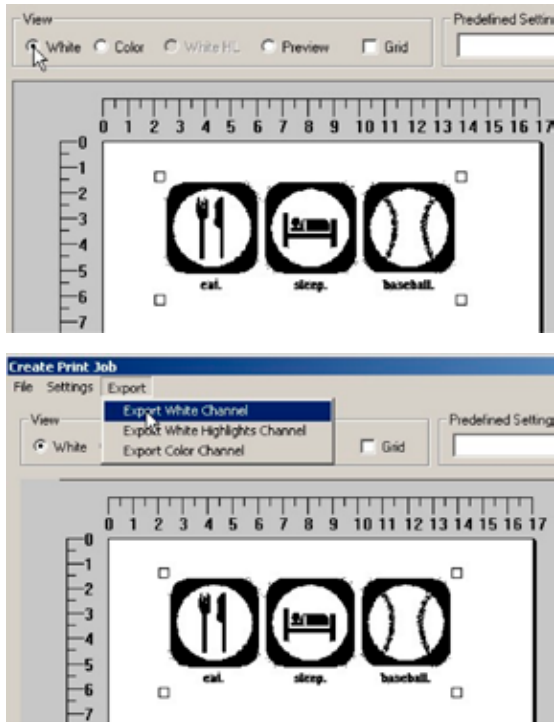


On the other hand, if you select the **100% White under Any Colored Pixel** option, the circular area inside the signs will receive no white ink (there are no color pixels there), and the color of the shirt will show through (see image above). Again, this might not be the optimum or desired outcome for this type of image.

One way to get around this issue is to fill the image mask (the white layer) with color—black in this case. The Rip, however, provides no means to accomplish this task, so you will have to use an outside application, such as Corel Photo-Paint, to edit the white layer.

To edit the white layer so PowerRIP can use it in its new form, you will need to export it, edit it in the application, and then import the edited version into PowerRIP. Different images will require different editing. Some images are best processed if you remove the background entirely; others rip and print well if you apply a transparent background, and still others, such as the example being used here, require other minor editing. In this example, the procedure is as follows:

1. Generate the white layer using the **100% White under Any Pixel** option. When you view the resulting white layer (mask), you will notice that the mask is white where there will be no white ink laid down, and it appears black where there is color and, therefore, white will be printed (see the image at right).

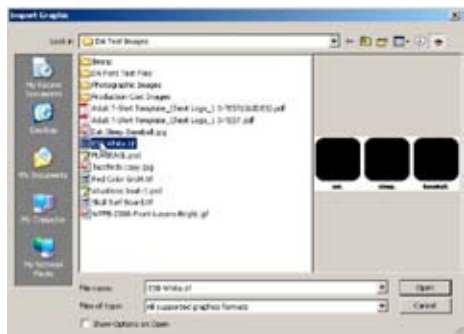
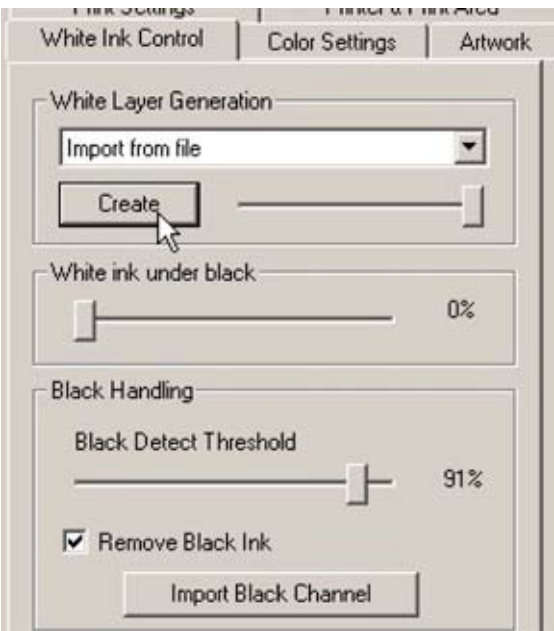


2. Select **Export White Channel** from the **Export** menu in PowerRIP (see illustration at right), and save the image with a file name of your choice. The resulting file will be a TIF file.

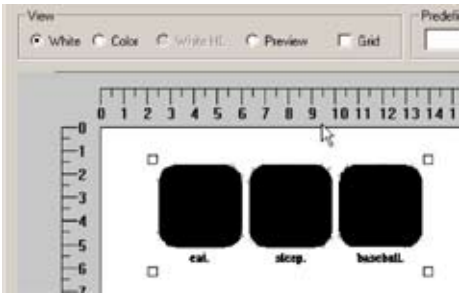


3. Edit the image in your favorite application by filling the circular area inside the signs completely with black (see image below), and save the file (you will be overwriting the original white mask).

- In the PowerRIP **White Layer Generation** tab, select the **Import from File** option to create the new white layer and click **Create** (see image at right).



- Select the edited file from the folder where you saved it (see illustration above).



PowerRIP will now use this edited image to re-create the white mask. Once finished, the white layer will look like the image above right-exactly like the image you edited in, and just saved from, Corel Photo-Paint.

- The final output will now look like this (illustration at right):



WARRANTY AND TECHNICAL SUPPORT

If you are having difficulties achieving good results from your DirectAdvantage® or NaturaLink® inks, please contact your authorized DirectAdvantage® or NaturaLink® reseller during their normal hours of operation for assistance. A full listing of authorized DirectAdvantage® Resellers is available on Sawgrass web site at www.sawgrassink.com.

Standard Warranty:

- 🔗 One-year warranty★ on the dual CMYK Direct Advantage printer parts and labor, including print heads.
- 🔗 One-year warranty★ on the Direct Advantage w/White Ink printer parts and labor, excluding the ink-delivery system and print heads. Thirty-day (30) warranty on the ink-delivery system, including the print heads.
- 🔗 Dedicated Service Center for Levels 1 and 2 telephone support.

Depot service:

- 🔗 Equipment returned to Sawgrass for repairs.
- 🔗 Seven-to-ten-day turnaround service (from the day the printer is received at Sawgrass). Shipping costs are borne by Sawgrass Technologies.

★ The one-year warranty applies only to new printers. The warranty on refurbished or reconditioned printers is six months. The warranty period begins at the time of shipment.

NOTES: