



NAVIGATOR

PLUG-IN MANUAL

**UNIVERSAL PRINTER
PLUG-IN**

VERSION 5.0.1.1
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OVERVIEW

Xitron's Navigator PostScript RIP relies on software modules called plug-ins to communicate with imaging devices. In many cases they work in tandem with an interface card, while in others it is simply a conversion to a bitmap file in a compatible format. The Universal Printer Plug-in (gdiproof) works directly with the Windows Printer System so it can support almost any printer installed on a PC.

This plug-in acts as a device driver and controls most actions of the Windows printer. These actions may include checking device status, device setup, and advancing and cutting material. In addition, the plug-in relays all the physical characteristics of an engine such as supported resolutions and imageable area.

During the launch sequence of the RIP, Navigator scans a specific directory for plug-ins. The software loads each plug-in it finds, and then queries them for a description of the capabilities of the supported devices. In this manner the plug-in configures the RIP to output a bitmap to these devices.

Each plug-in typically controls a particular family of recorders and is able to understand most messages and errors communicated by the output device. However, in this particular case, the plug-in deals only with errors that may be reported by Windows since it does not communicate directly with printers.

When a page is sent to a printer for imaging, the RIP software loads the plug-in and begins a series of steps prior to output. The plug-in first initializes the Windows printer device and checks that it is ready. After receiving the proper signal, the plug-in will begin reading bitmap data from the platform's hard drive into a "printer buffer." Once the printer buffer is full, the plug-in will start communicating the data to the output device. As the output device consumes the data, the plug-in relays this information to the software, which then refills the buffer. This continues until all of the data has been communicated to the output device. The plug-in tells the software the job is complete and waits for an indicator that the printer has finished. This process is repeated for each page being output.

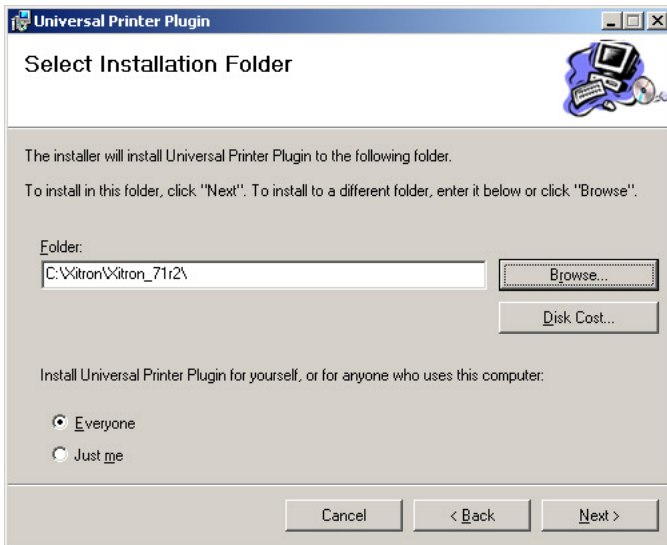
INSTALLING THE UNIVERSAL PRINTER PLUG-IN

The Universal Printer Plug-in requires Microsoft's .NET Framework be installed on the platform. The Microsoft .NET Framework version 2.0 redistributable package installs the .NET Framework runtime and associated files and is available for download from the Microsoft website.

Xitron supplies the Universal Printer Plug-in installer in a single file in the Windows installer format. The file is called SetupUniversalPrinter.msi. If you have obtained the plug-in via a download it may be compressed into a zip file; UniversalPrinter.zip. If so, you must un-ZIP the file to obtain the installer. To launch the installer after decompressing, simply double-click the icon. Click *Next* at the introductory

dialog and the Folder Selection dialog will appear as shown in Figure 1.

FIGURE 1: INSTALLATION FOLDER DIALOG



Use the **Browse** button to locate the folder containing the Navigator RIP application labeled Xitron.exe. Clicking the **Disk Cost** button displays information about available and required disk space for the installation. Select the button labeled **Everyone** to enable all users access to the plug-in. When the settings are correct for the installation, click **Next** for the Confirmation dialog and **Next** again to complete the installation process. Any errors posted at this time indicate either a disk problem, a corrupted file or a bad RIP installation.

SETTING THE PASSWORD

After installation, launch the RIP and confirm that the plug-in initializes. The RIP Monitor will post a message similar to this:

```
GDIProof Plug-in Version 5.00r  
Copyright © 1999-2006 Xitron Inc., all  
rights reserved.
```

There will be other lines of information also, including a warning that the RIP does not have a password to enable the use of the plug-in. To install the password, examine the top Menu bar shown in Figure 2.

The third item is named for an installed Device. By default it is usually "Preview." Highlight the selection as shown in Figure 2.

FIGURE 2: DEVICE MENU



Click *Select Device* and choose one of the GDI devices from the list. (It doesn't matter which one, as they all belong to the

Universal Printer Plug-in.) The menu will now display *Enter a Password* as shown in Figure 3.

FIGURE 3: GDI DEVICE MENU



Highlight *Enter a Password*. The password dialog box shown in Figure 4 will appear.

FIGURE 4: ENTER PASSWORD



The password is a 20-character string and is unique to the dongle (security key) packaged with the Navigator RIP. (The password in this example is not valid and is only shown as an

example.) Copy the password exactly as noted in the enclosed paperwork and check it carefully before clicking **OK**. The RIP Monitor will report that the RIP has saved the password after correct entry of the character string. If at any time during output you see the message; “Specified driver is Unlicensed,” this indicates a problem with the password. Check and re-enter the password if necessary. The plug-in will not output without the correct password installed.

CONFIGURING DEVICES

Each plug-in typically includes a number of pre-loaded “devices.” These may be different physical devices, such as different film recorder models, or different functional devices, such as Monochrome and CMYK devices for a color printer.

To view these devices click on the Device Manager icon, shown in Figure 5.

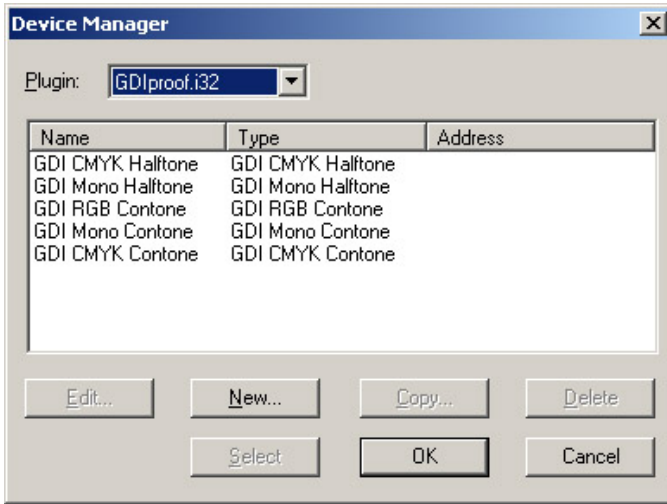
FIGURE 5: DEVICE MANAGER ICON



The Device Manager dialog (Figure 6) will appear. Check that the correct plug-in is shown in the listbox at the top of the dialog. It should be “GDIproof.i32” If this plug-in does not appear in the list, the plug-in did not install properly – see

“Installing the Universal Printer Plug-in” for details of the installation procedure. If the correct plug-in appears, the available devices list should resemble those shown in Figure 6.

FIGURE 6: DEVICE MANAGER



The GDI plug-in includes the following five devices:

- a) GDI RGB Contone. This is the normal device used for creating color images on most color Windows printers. The RIP creates a continuous tone RGB raster which is sent to the selected Windows Printer Driver for output.
- b) GDI Mono Contone. This device is similar to the RGB Contone device but it processes all images as monochrome. Use this device when outputting to a monochrome printer.
- c) GDI CMYK Contone. This device operates similarly to the RGB device (images are, in fact, converted to RGB at

output time). However, the use of CMYK separations as an intermediate step allows the creation of single separations or progressive proofs.

- d) GDI Mono Halftone. This device creates screened (halftone) output in composite monochrome or separated CMYK. With a suitable output device it can be used to create separated films or plates.
- e) GDI CMYK Halftone. This is a halftone version of the CMYK Contone device.

Each device within the plug-in has a generic name with which it is associated as noted above. These names appear in the Page Setup dialog box when a user clicks the drop down list labeled "Device." If these names are acceptably descriptive for their use, no further configuration is necessary. However, if there are multiple printers with varied functionality being driven from a single RIP, it may be advisable to change the name to something familiar to all users.

To edit the name, select the device you wish to edit from the list in Figure 6, and click the *Edit* button. The dialog box shown in Figure 7 will appear. In this example, the user has changed the name of the GDI RGB Contone device to "Epson in Sales," describing a printer in a company's sales department.

Alternatively, instead of physically changing the name in Device Manager, highlight the device and click *Copy*. This will allow you to create meaningful names for several "like" devices, perhaps eliminating confusion.

Any name of up to 32 characters is valid. (Note: the operator must still configure this device in the Page Setup dialog box prior to attempting output. Instructions for this step begin in the next section.

FIGURE 7: EDIT NAME IN DEVICE MANAGER



PAGE SETUP

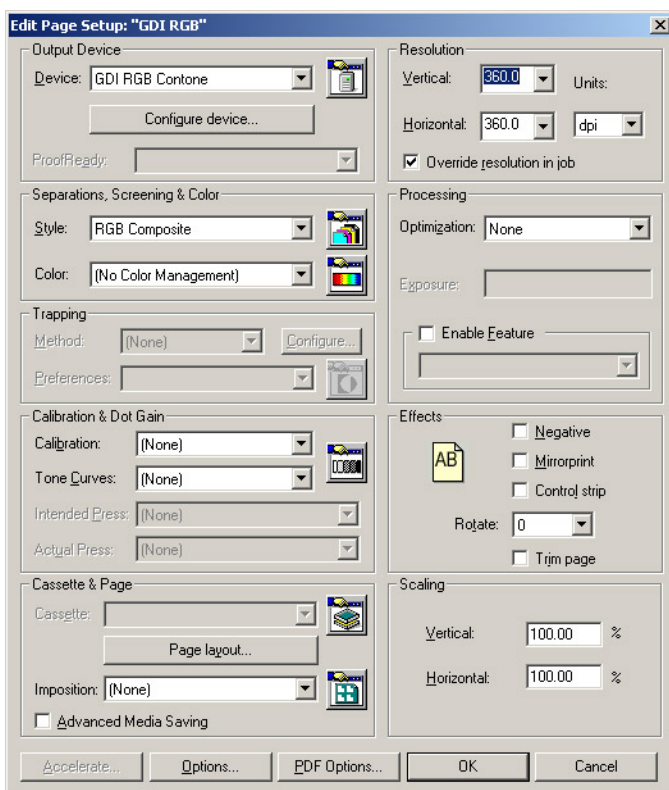
The Page Setup dialog box contains most of the remaining settings necessary for configuring output devices. To access the Page Setup dialog, click the Page Setup Icon shown in Figure 8.

FIGURE 8: PAGE SETUP MANAGER ICON



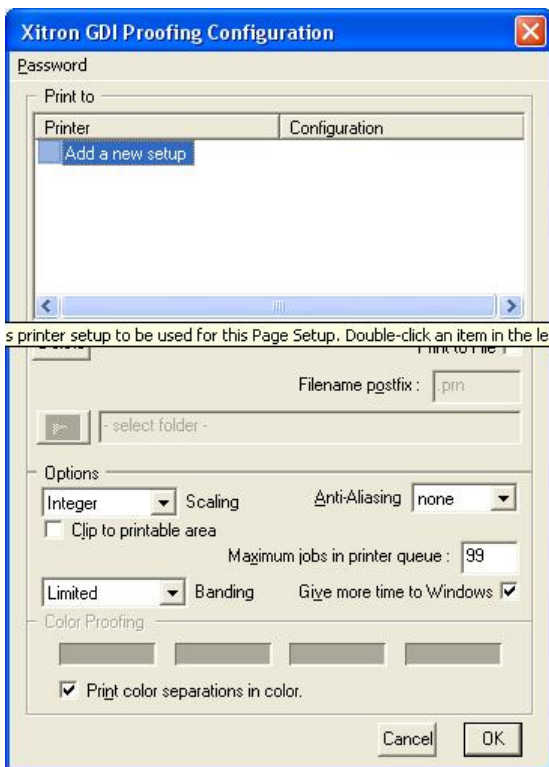
The Page Setup Manager dialog will appear. Click *New* to begin configuring a page setup from the beginning. Select an existing page setup and click *Copy* to make subtle changes to a pre-configured setup. A dialog box similar to that shown in Figure 9 will appear.

FIGURE 9: PAGE SETUP DIALOG



Set the output *Device* to the Universal Printer Device you wish to use. Figure 9 shows GDI RGB Contone as an example. Set the Separation *Style* to RGB Composite. Click *Configure Device* to access the final, device-specific Configuration dialog shown in Figure 10.

FIGURE 10: DEVICE CONFIGURATION DIALOG



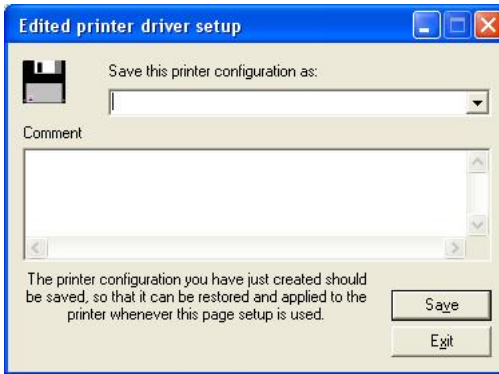
s printer setup to be used for this Page Setup. Double-click an item in the left

CHOOSING THE OUTPUT PRINTER

The list at the top of the dialog box in Figure 10 shows all available Printer Setups available for output. If no outputs have been created, the only option displayed is *“Add a new setup.”*

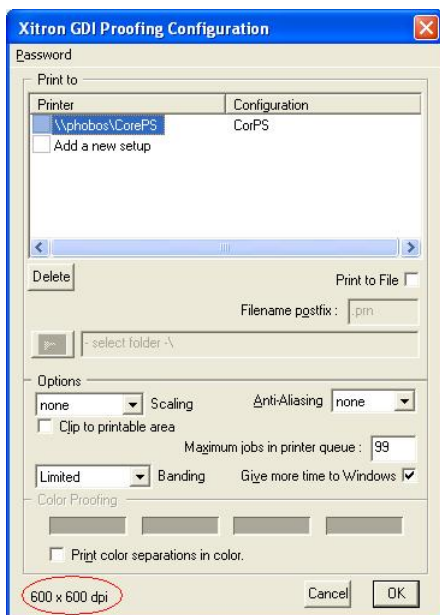
Double-click this option to begin the configuration process. Using standard Windows controls you can now choose a printer from those installed on the RIP PC, and make selections regarding media source and size, orientation, quality etc. The specific options will vary from printer to printer. After specifying the required parameters, click **Print**, and enter a name for the new setup as shown in Figure 11.

FIGURE 11: NEW PRINTER SETUP



Type any necessary notes about this configuration into the Comment field, then click **Save**. In the main Configuration dialog window, take note of the printer driver's contone resolution (which may differ from the output resolution you have selected.) This value appears in the lower left corner of the dialog as shown in Figure 12. In this example it is 600 by 600 dpi. This is the resolution value required for use in the Page Setup dialog if the desired result is un-scaled (size – for – size) output.

FIGURE 12: CONTONE RESOLUTION



Enabling the **Print to File** tick box will tell the system to save the data to a file instead of sending it to the printer. To change the location of the saved file, click the **Select Folder** icon and set the desired location. The created files will have extensions based on characters entered in the **Filename Postfix** box. The system saves these files in a format appropriate to the chosen output printer, which can be output to that printer by software external to the Navigator RIP when required.

OPTIONS

The Universal Printer Plug-in can be used in many different situations with many different printers. These can range from small, inexpensive sheet-fed printers to large, expensive roll-fed devices. While the design of this plug-in anticipates this wide range of situations, it is not possible to test or guarantee each and every possible combination of feature and printer. Some of the following options may not work with all printers, or may only work at relatively low resolution. See the “Notes on Usage” section for a few suggested combinations.

SCALING

In addition to these settings noted below, the system will scale images if the resolution set in Page Setup is not equal to the printer driver resolution shown in the Device Configuration window. For example with an Epson printer, the normal printer driver resolution is 360 dpi. If the resolution in Page Setup is set to 180 dpi, images will be half size and the Scaling Options will only have effect if this smaller image is still too large to fit the media.

Select one of the three options:

None – If the image is too large for the output media, the RIP will not scale the image. The result may be clipped, or it may not output at all.

Integer – The RIP will scale the image equally in both directions using a ratio such as 2:1 or 3:1, and it will center the image on the media. This scaling is fast and uses minimal system memory.

Best Fit – The RIP will scale the image in the horizontal and vertical directions to fit the output media. **However, it may use one scaling ratio for the vertical direction and a different ratio for the horizontal.** While this selection provides the largest image compatible with the media, it also requires the greatest use of memory.

CLIP

This control determines whether the system will clip an image or scale it before output. Its purpose is to remove typical white space from the edges of print jobs so that, un-scaled, they will fit within the printable area of the media and if scaled they will not be made smaller than necessary.

ANTI-ALIASING

Anti-aliasing can improve the quality of text and fine details when using a low resolution printer driver. A setting of 3x3 or 4x4 is usually most effective without forcing a negative impact on performance.

MAXIMUM JOBS IN PRINTER QUEUE

This value limits the number of pages pre-sent by the RIP to the Windows printer driver. Use this control to limit the number of jobs and the amount of data created in the Windows Printer System. Proper use of this setting may help prevent unexpected out-of-memory or insufficient disk space problems when too many large jobs are spooled at once.

BANDING

This control affects how the individual pages of a job are split into bands for output. Selection of a Scaling option may automatically pre-set a Banding option. If this occurs, the

system has detected an incompatibility between the Banding option and other Scaling options. The Banding options are:

Limited – Data is sent to the Windows printer driver in blocks of 64 kb. Some older Windows drivers are limited to this figure and will not accept larger data transfers. Use *Limited* Banding with Scaling set to *Integer* or *None*.

RIP Band – Data is sent to the Windows printer driver in blocks equal to the size of the RIP Band (set in Configure RIP > Options). This is usually significantly larger than 64k, and is more efficient - provided the Windows Driver will accept it. If errors occur when using *RIP Band*, select *Limited* Banding instead. Use *RIP Band* with *None* and *Integer* Scaling.

Whole Page – Data is sent to the Windows printer driver in one single block for the entire page. This banding method requires a large amount of free memory in the PC (not used by the RIP.) For example a “2-up” page at 360 dpi requires about 100 M Bytes. Whole Page banding can only be used, and is required by, *Best Fit* scaling.

COLOR PROOFING OPTIONS (ONLY AVAILABLE WITH THE SPECIFIED DEVICES)

Progressive Proof – (CMYK Devices) Using the four buttons located in the Color Proofing section of the Configuration Dialog, it’s possible to create a representation of a progressive proof. For example, by clicking on the Cyan and Black buttons, turning those colors off, the system will print a proof in only Magenta and Yellow.

Print Separations In Color – (Mono devices) The Mono devices may be used (with a CMYK Separation Style selected in Page Setup) to print individual separations. Normally these separations are printed in black. However checking this box instructs the system to print the separations in their individual colors. This is useful for printing on transparency material to create overlay proofs. A RIP configured to create spot color separations will use its internal database of known colors to create “colored separations” that resemble the intended spot color.

OTHER PAGE SETUP SETTINGS

ORIENTATION

It is often useful to change the orientation of jobs to best fit the media. The page feature *AllPortrait* can do this. If selected in Page Setup it will rotate any landscape job to portrait orientation so that it can be best-fit on a portrait orientation printer. (If the printer is landscape orientation, use the same page feature, but apply 90 degrees rotation in Page Setup.)

PAGE LAYOUT

Set the Media Size in Page Layout to match the media for output. Check the boxes to enable horizontal and vertical centering.

RESOLUTION

Resolution is probably the most important setting for good results with this plug-in. If in doubt, use a **lower** resolution.

There is no point in ever using a resolution higher than the Windows Driver resolution shown in the Configure Device dialog. If printing large jobs on a small printer, reduce the resolution in proportion. For example, for 2-up jobs on letter size or A4 paper, try 150 or 180 dpi for typical printers. For 8-up jobs on letter size paper, a figure of 30 dpi will be adequate.

NOTES ON USAGE

This plug-in can be used in a wide variety of situations, and some of these require different configurations to be most effective. For example, printing an 8-up flat on 8.5" x 11" paper for a rough visual will create 300 M Bytes of image data. Windows will then have to shrink that image to approximately 30 M Bytes for the final print. This will stress the Windows printer system, which may fail or run out of memory. At best it will be slow. Setting the RIP resolution to something in the range of 25 dpi will work much better and the output quality will be just as high once the system scales an 8-up flat to letter size.

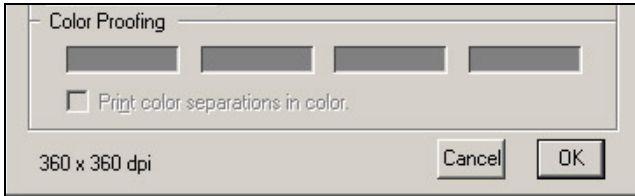
Here are some typical scenarios and suggested start points for settings:

“AT SIZE” FINAL OUTPUT OR PROOF

In this scenario the aim is best quality output at the correct size. The job must be smaller than or equal to the printer media size. Resolution should be set to match the Windows

Driver input resolution in the Configuration Dialog shown in Figure 12.

FIGURE 12: PRINTER DRIVER RESOLUTION



If the job is the same size as the media, for example letter size pages printing on letter size media, check the box labeled, “Clip.” This clips the margins off the original page before allowing for the non-printable area on the output.

Set the scaling to “None.” Configure the printer driver for the correct media, ink, paper tray and any other settings provided by the manufacturer.

VISUAL PROOF - CORRECTLY PROPORTIONED

In this scenario the goal is a visual proof for identification and positioning purposes. It’s alright for the system to scale the output but the proportions must be correct.

Begin by setting the scaling to “Integer.” Choose a resolution that will minimize the scaling required by the plug-in. For example, if the job is 2-up, the printer has a resolution of 600 dpi, and is using letter size paper, RIPing the job at 300 dpi

will shrink a 12" x 20" plate to 6" x 10" and it will print without further scaling.

Configure the printer driver for the correct media, ink, paper tray and any other settings provided by the manufacturer.

UNIVERSAL VISUAL PROOF

In this scenario, the only objective is to produce an image that fits the output media. This may be the case where multiple sizes of jobs are encountered and the proof is required for identification purposes, or as confirmation that the job has been received intact.

Set the scaling to Best Fit. Set the Rip resolution to the printer driver resolution divided by the largest expected job size ratio. For example if the largest expected job is 8-up (perhaps 24 by 40 inches), and the output is to letter size paper, the job size ratio is approximately 4 (40 divided by 11). Therefore, if the printer driver resolution is 360 dpi as in most Epsoms, the RIP resolution should be set to no more than 90 dpi (360 divided by 4).

The exact value is not critical, but if jobs are too large and the resolution is too high, the spooled print job may be too large for Windows to handle. Therefore it is best to err on the low side. The only reason to set a higher resolution is if there are also smaller jobs to process using the same RIP Page Setup.

RIPing a letter size job at 90 dpi will produce relatively poor results while a 24" job scaled to fit a letter sheet at 90 dpi will appear to be higher quality.

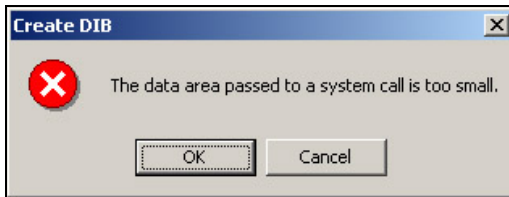
For speed and reliability use a low resolution, for highest quality **with small jobs** use a relatively high resolution.

PROBLEM RESOLUTION

Most problems will be traceable to the plug-in and Windows printer systems encountering image sizes or scaling commands that are too large. Explicit limits aren't available since this depends on resolution, the particular Windows printer driver in use, and the platform, operating system, memory and disk space available.

Typically, if the plug-in cannot output an image it will display a message similar to that shown in Figure 13.

FIGURE 13: OUTPUT ERROR MESSAGE



This message means that the paper area is too small for the size of the image. The most likely reason and easiest fix for this is to reduce the RIP resolution. Remember, if scaling an image down for printing, 100 dpi is often adequate for the RIP resolution. Even if there is no scaling, 200 or 300 dpi will create output as good as your printer is likely able to image.

If reducing resolution does not work, try using Integer Scaling instead of Best Fit scaling.