



Windows[®] Driver User Guide

Windows 2000 / XP

Table A: Drivers to be used with Printrex Products:

Base Model	Chassis Configuration	In Production	Driver Model Name	Driver Version
IK60	Open Frame	✓	Printrex K60	R1
K100	Open Frame	✓	Printrex K100	R4
420	Desktop		Printrex 420	R4
	Panel Mount			
420S	Panel Mount			
422	-DT (Desktop)	✓	Printrex 422	R4
	-PM (Panel Mount)	✓		
810	-DT (Desktop)	✓	Printrex 810	R2
	-RM (Rack Mount)	✓		
	-DT (Desktop)	✓	Printrex 810M	R2
	-ML (Mobile (Horizontal))	✓		
	-MV (Mobile (Vertical))	✓		
820	Desktop		Printrex 820	R4
	Rack Mount			
820DL	Desktop		Printrex 820DL	R8
	Rack Mount			
820DL/G	-DT (Desktop)	✓	Printrex 820DL/G	R2
	-PM (Panel Mount)	✓		
	-QF (Quad Feed)	✓		
	-RM (Rack Mount)	✓		
820G	-DT (Desktop)	✓	Printrex 820G	R2
	-PM (Panel Mount)	✓		
	-RM (Rack Mount)	✓		
840	Rack Mount		Printrex 840DL	R8
840DL	Desktop			
	Rack Mount			
840DL/G	-DT (Desktop)	✓	Printrex 840DL/G	R17
	-QF (Quad Feed)	✓		
	-RM (Rack Mount)	✓		
1200DL	Desktop or Rack Mount	✓	Printrex 1200DL	R8

This Document applies to these driver versions, which are distributed in package file PRXWXP_REL54.ZIP.

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A. Introduction: Accessing the settings:

This guide describes the function of each of the settings that can be adjusted in the drivers, and how to choose the best selections for the type of printing you are doing.

The set of printer settings that are in place when you start a program is defined by the Printing Preferences dialog in the printer context menu. That is, if you open the Printers folder, and right-click on the printer icon, select 'Printing Preferences' from the menu. (Note that this is different from the procedure in Windows 95/98/ME.)

If you select 'Properties' in the context menu, you are accessing the lower-level controls related to printer configuration, such as port connection, print spooling, and other system control features. On the 'General' tab of this dialog, clicking the 'Printing Preferences' button is another way to bring up the desired dialog, which appears in Figure 1 (Model Printrex 840DL/G shown here, for example):

B. Layout Tab:

This is the first dialog that appears. All Printrex printer models have this tab, with these three controls:

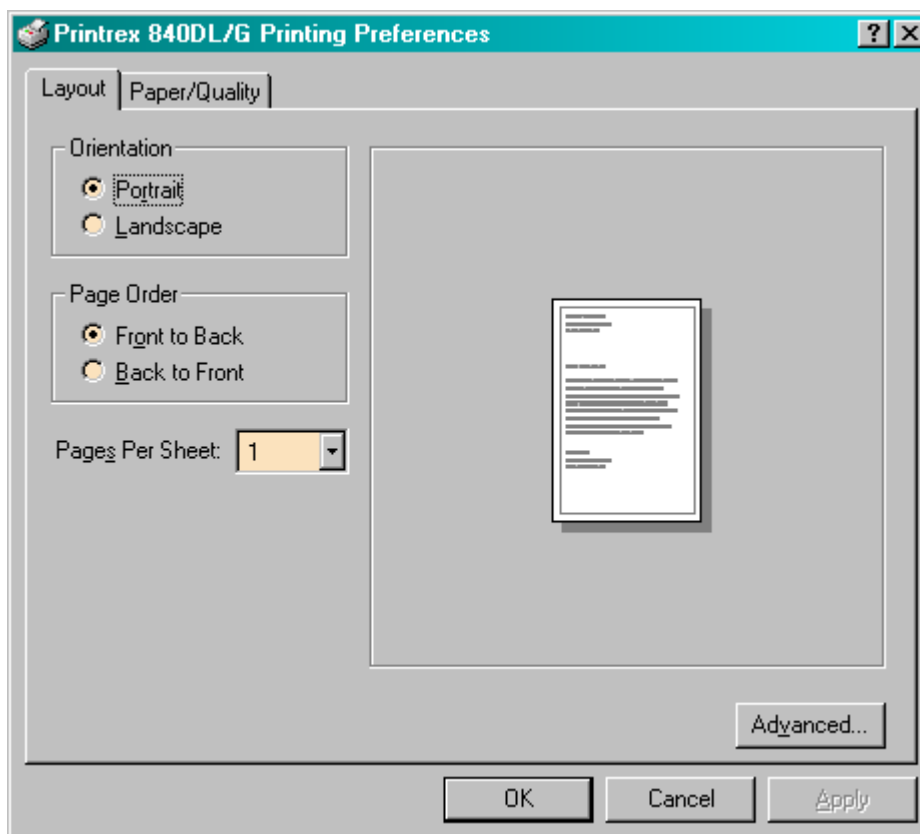


Figure 1:
Layout Tab

1. Orientation:

Portrait: Top of page is printed first.

Landscape: Page is rotated counter-clockwise 90 degrees (top of page is on left side.)

2. Page Order:

Windows will print the beginning of a document first, in 'Front to Back' mode, or will print the last page first, in 'Back to Front' mode. Note that this does not make the pages print upside-down.

3. Pages Per Sheet:

Windows can render a multiple- page print job in proof-sheet form (Figure 2): This can be useful for previewing documents or log plots to verify formatting settings, before running a large print job.

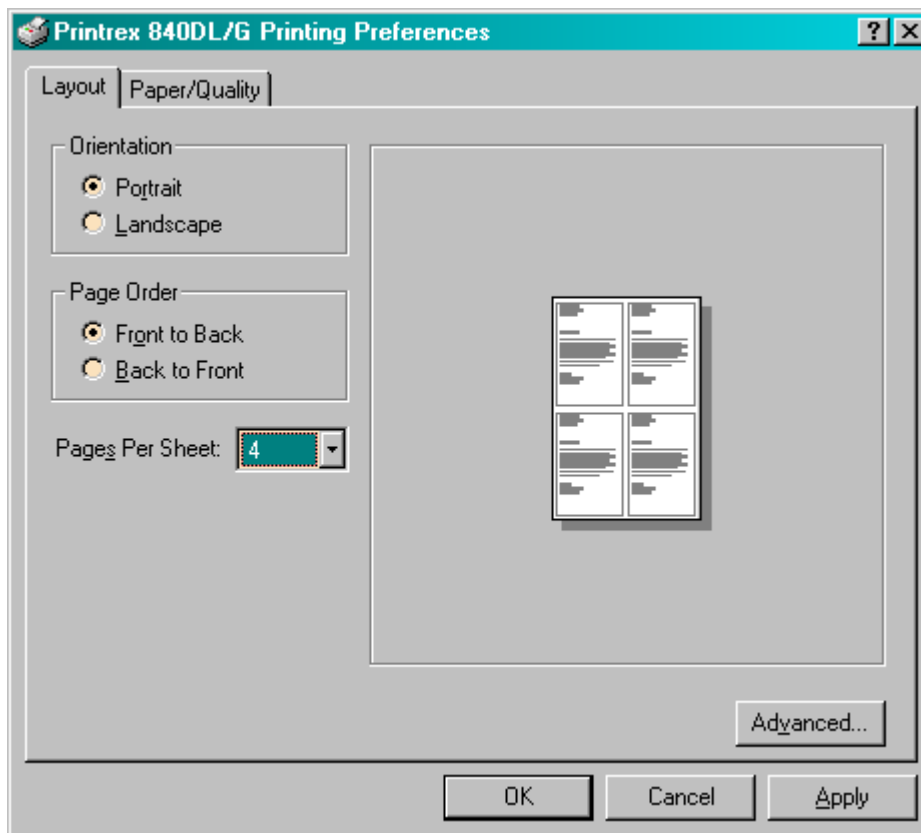


Figure 2
Multiple Pages
per Sheet

C. Paper/Quality Tab:

Clicking on this tab, one control is available (Figure 3):

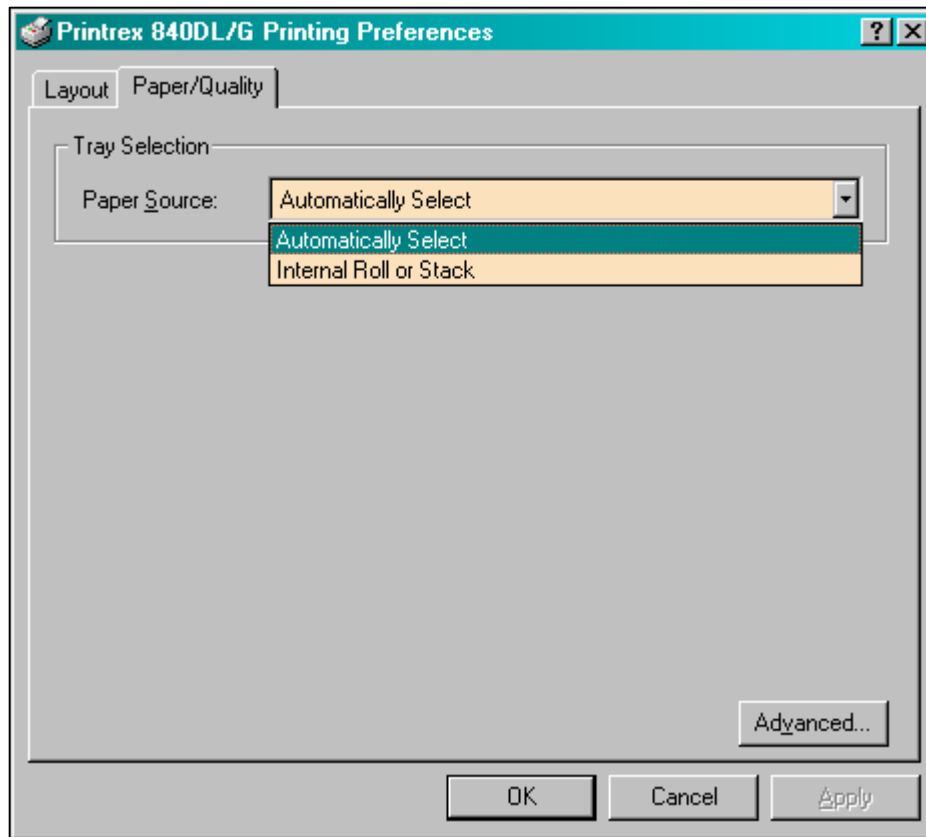


Figure 3:
Paper Source
Control

... changing this has no effect: there is only one option for Windows to 'Automatically Select' from: the paper source is always 'Internal Roll or Stack'.

D. 'Advanced Options' Page:

Clicking on the 'Advanced...' button from either the 'Layout' tab or the 'Paper Quality' tab brings up the 'Advanced Options' dialog. This dialog page contains the main controls needed to set up the printers. Some settings may not apply to all printer models, so this section will be divided into four subsections, so that the descriptions and illustrations will match most closely to what you will see in the dialog:

Section D.1: [Models 840DL/G, 820DL/G, 820G, 810M, 810](#)

Section D.2: [Models 1200DL, 840DL, 820DL, 820](#)
(Including "... (201 Y DPI)" Models)

Section D.3: [Models 422, 420](#)

Section D.4: [Models K100, K60](#)

1. Models 840DL/G, 820DL/G, 820/G, 810M, and 810:

Figure 4 shows the first display of the dialog. Note that a scroll bar on the right side allows access to the last items in the dialog. Figure 5 shows the dialog after scrolling down. Each control will be described in detail following this illustration...

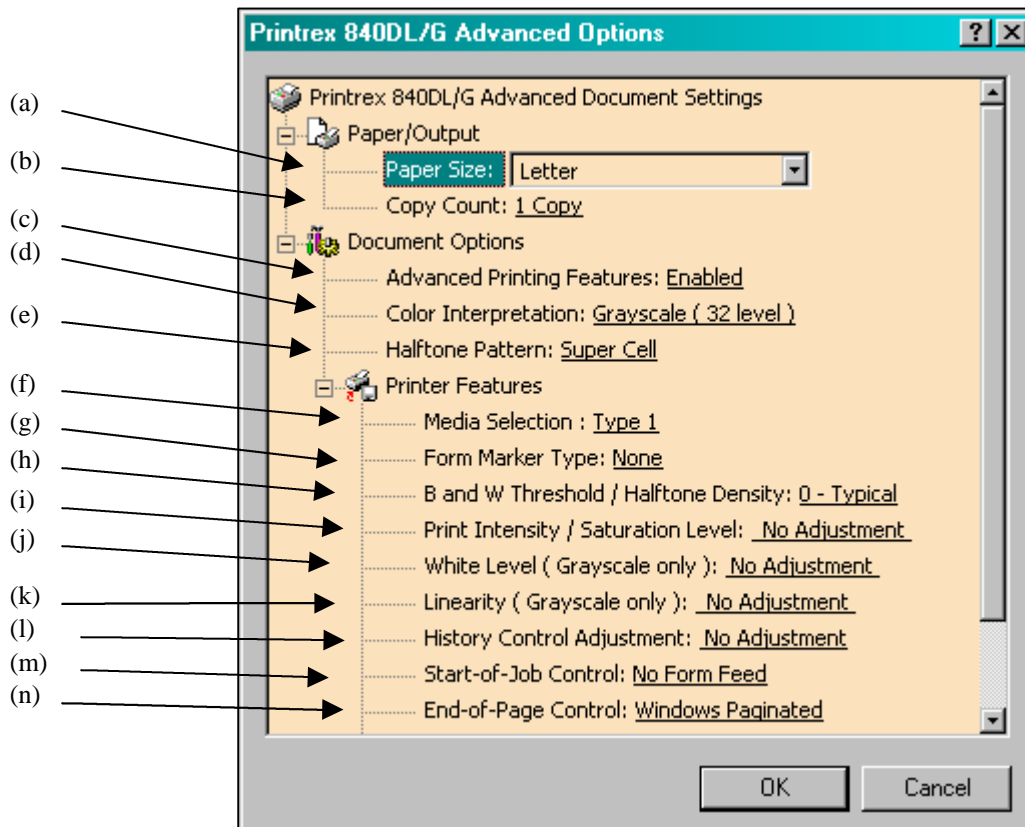


Figure 4:
Initial View
of Advanced
Options

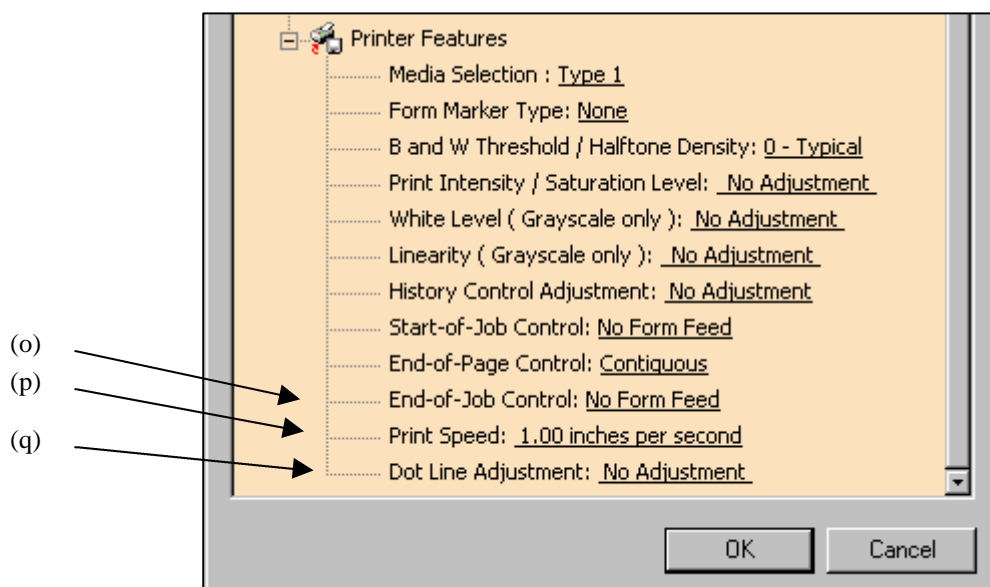


Figure 5:
Scrolled-down
View

(a) Paper Size

Scroll up or down in the list to see all possible selections.
(Figures 6, 7).

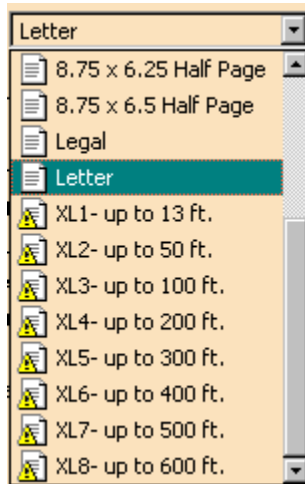


Figure 6
(Bottom of list)

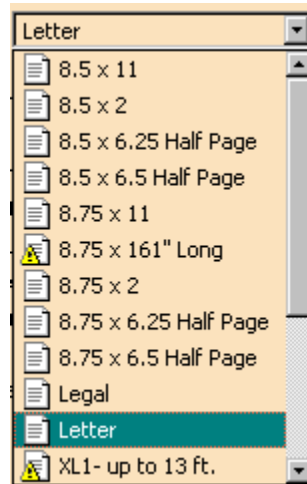


Figure 7
(Top of List)

Some options are marked with a warning sign: if these pages are selected, a conflict will arise with another setting in the driver (Figure 8).

Clear the warning flag by changing one of the controls to a non- conflicting option (Figure 9).

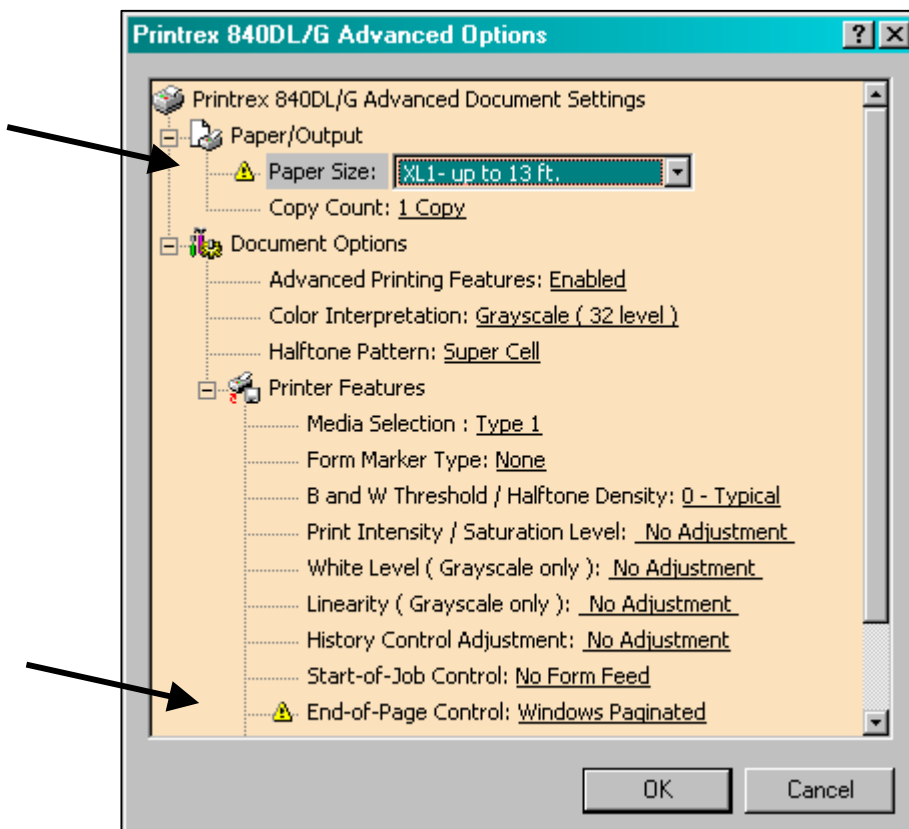


Figure 8:
Conflicting
Option
Selections

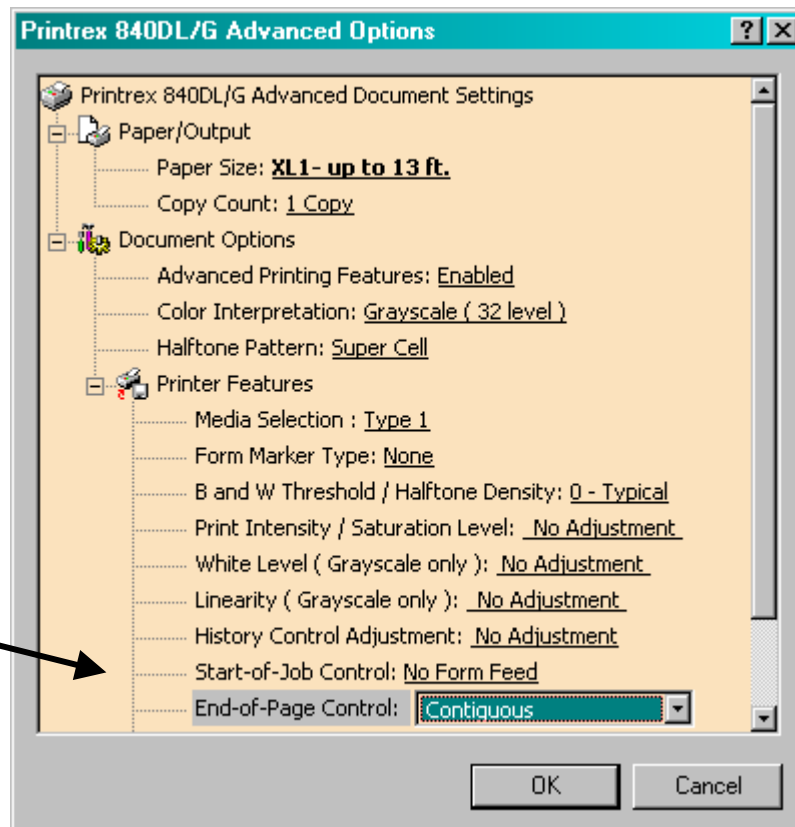


Figure 9:
Conflicting
Options Resolved

Important Note: when the long page sizes are selected, an application *may* or *may not* recognize the large page area. One significant example: Imaging, the Windows 2000 applet for viewing TIFF files, will print an image 20 feet long, but fail to print an image 40 feet long. Large variations in the programming techniques used in various applications make it difficult to predict which applications can use these pages correctly.

(b) Copy Count:

This setting allows you to run multiple copies of a print job. The 'Collated' checkbox (Figure 10) determines how the pages are ordered:

- If checked, the second print job starts after all pages of the first have finished printing.
- If unchecked, all the copies of Page 1 will print, followed by all copies of Page 2, etc.

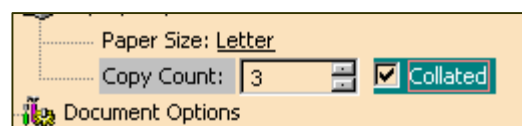


Figure 10:
Copy Count

(c) Advanced Printing Features:

When 'Enabled' is selected (Figure 11), the 'Copy Count' and 'Pages per Sheet' controls are enabled. When 'Disabled' is selected, 'Copy Count' is reset to '1', and 'Pages per Sheet' is reset to '1'.

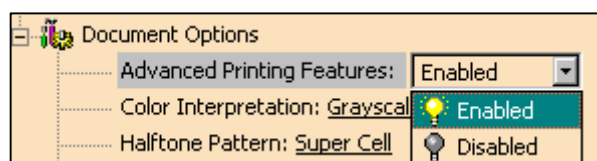


Figure 11:
Advanced Printing
Features

(d) Color Interpretation:

This control determines how colored areas are translated to the printed output (Figure 12).

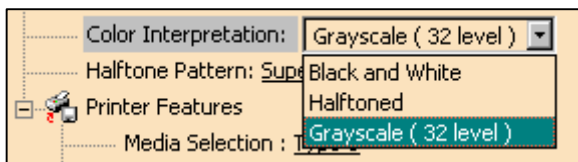


Figure 12:
Color Interpretation

- **'Black and White':**

Colors that are brighter than the threshold point are printed as white, those that are darker than the threshold print as solid black. The threshold point is determined by the '*B & W Threshold / Halftone Density*' control (Section (h)). For log plotting, this setting is helpful if light-colored traces are used.

- **'Halftoned':**

Colors are represented as patterns of dots, with a greater or lesser density of dots, depending on brightness of the color being printed. This is also known as 'dithering'. The density of the dot pattern can be adjusted, using the '*B & W Threshold / Halftone Density*' control (Section (h)).

- **'Grayscale (32 Level)'**

[Models 840DL/G, 820DL/G, 820G only]:

Colors are converted to one of 32 levels of gray when printed. The translation is weighted to visually match a computer display and human visual sensitivity: Green brightness is most heavily weighted, then red, then blue. The brightness and contrast of the printed image is controlled by the '*Media Setting*', '*Print Intensity / Saturation Level*', '*White Level (Grayscale Only)*', and '*Linearity (Grayscale Only)*' controls ((f), (i), (j), (k)).

(e) Halftone Pattern:

When the 'Halftoned' selection of the '*Color Interpretation*' control is set, this control determines the pattern of dots that is used for color translation (Figure 13).

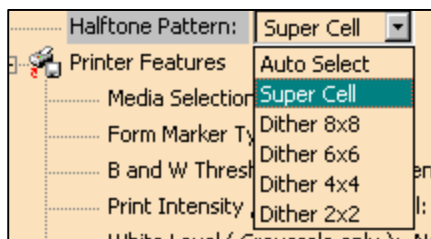


Figure 13:
Halftone Pattern

- **'Dither 2x2' through 'Dither 8x8':**

These selections split the image into squares, of 4 pixels through 64 pixels, respectively. Each of these squares will have a number of dots 'turned on' proportional to the 'darkness' of the area inside the square. The larger the square, of course, the more jagged a curved line will appear. The sequence of 'turning on' dots is fixed: that is, for a solid color area that prints 14 out of 64 dots, the same 14 dots will be printed in each 8-by-8 square.

- **‘Super Cell’:**

This selection reduces the jagged-edge artifacts by randomly distributing the ‘turned-on’ dots, eliminating the sharp edges of the dithering squares. For continuous-tone photographs, this leads to superior printed output. For log plotting, filled areas between traces or gridlines often look better when this selection is used.

‘Auto Select’:

This item lets Windows determine which of the ‘Dither n x n’ patterns to use; in most cases, the coarsest (8x8) pattern is used; this is less desirable for most printing.

(f) Media Selection:

These models support precise matching of printing profile to the media installed in the printer. Thermal media manufacturers today offer products with a wide range of sensitivities and surface coatings; Printrex analyzes the characteristics of various media and provides direct support for optimal printing in this control. It is generally not necessary to change other settings from the driver defaults if the correct ‘Media Selection’ option is chosen (Figure 14).

To find the correct selection, see the ‘Media Selection Table’, and find your media manufacturer and part number.

This is available online, at <http://www.printrex.com/drivers>.

(Is your media absent from the media selection table? Contact Printrex to discuss adding it.)

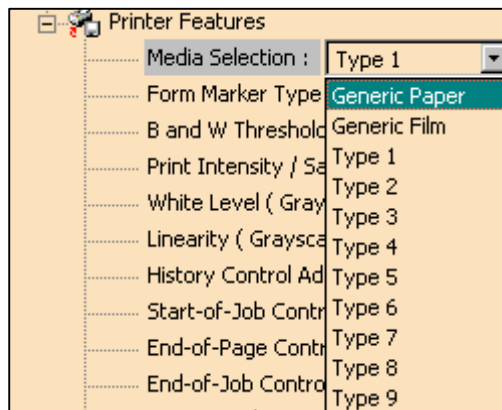


Figure 14:
Media Selection

(g) Form Marker Type:

Customers deploying Printrex products may already have a supply of fanfold paper on hand, intended for use in other manufacturers’ plotters. This control allows the printer to align to top-of-form using paper designed for any of the major plotter vendors (Figure 15).

To find the correct selection, see the ‘Media Selection Table’, available online at <http://www.printrex.com/drivers>, and find your media manufacturer and part number.

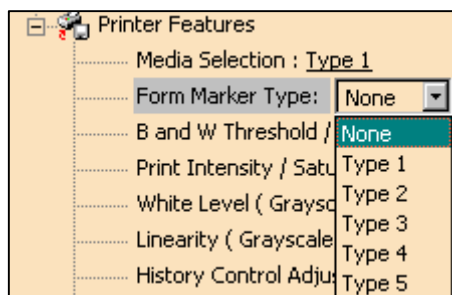


Figure 15:
Form Marker Type

(h) B and W Threshold / Halftone Density:

When the 'Halftoned' selection of the 'Color Interpretation' control is set, this control determines the density of dots that are printed for a given color.

When the 'Black and White' selection of the 'Color Interpretation' control is set, this setting determines the brightness level dividing line: above this point, colors are printed as white, below this point, colors are printed as solid black.

When the image to be printed is shaded darker or lighter than desired, this control (Figure 16) can be used to make corrections in the printed output.

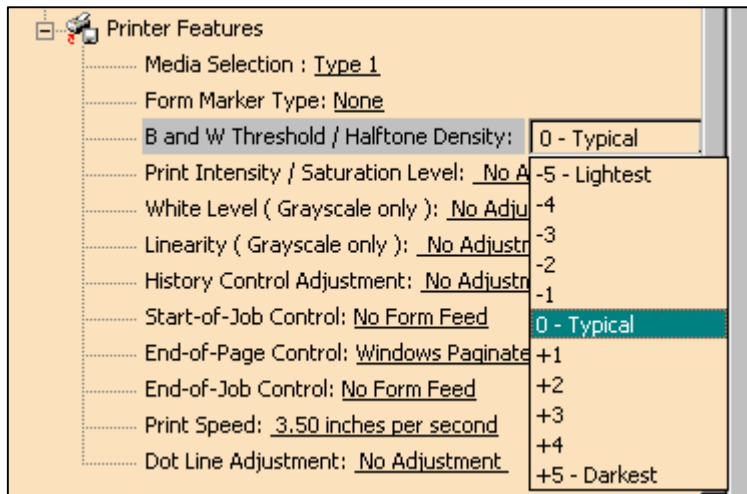


Figure 16:
Threshold / Density

(i) Print Intensity / Saturation Level:

This control allows fine- tuning of the printer dot-burning intensity, if the default setting is not acceptable, or if media is loaded that is **not** supported in the 'Media Selection' control. The control determines how much energy is used to put a black dot on the paper: heavy, top-coated archival paper typically requires more energy than lightweight uncoated draft paper.

A range of +25% to -25% is available (Figure 17). Note that you may have to scroll up or down in the control to see the complete range of adjustment.

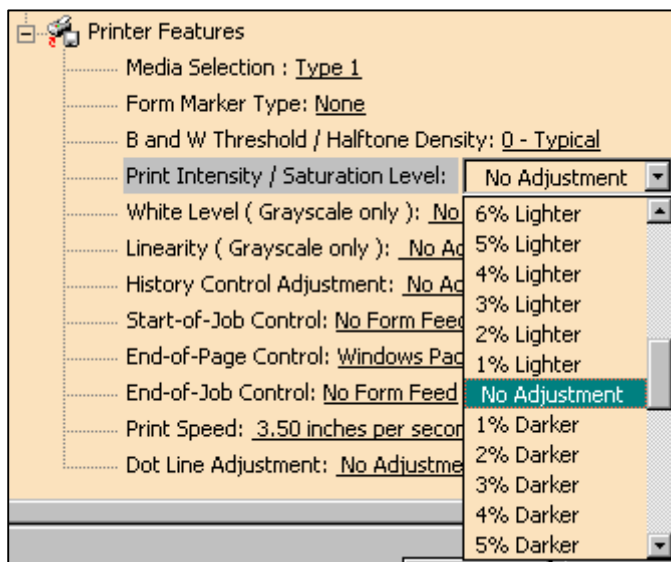


Figure 17:
Intensity / Saturation

(j) **white Level (Grayscale only):**

[Models 840DL/G, 820DL/G, 820G only]:

When these models are configured with the 'Color Interpretation' control set to 'Grayscale (32 Level)', this control determines how much energy is put into a "white" dot.

This in turn determines the point at which the lightest shades of gray. Figure 18 illustrates the concept...

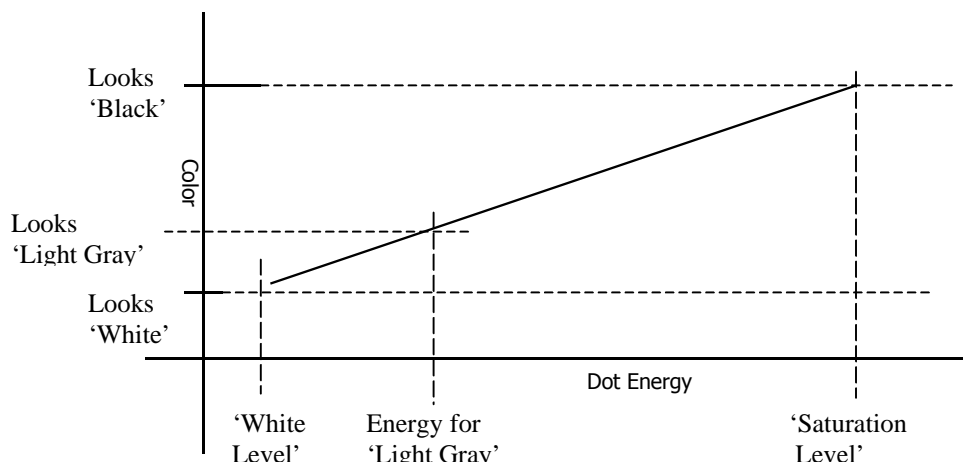


Figure 18:
Grayscale
conversion

This control provides a range of adjustment of +/- 100% (scroll up or down to see full range) (Figure 19). Note that if the correct *Media Selection* is made, it is generally not necessary to adjust this control.

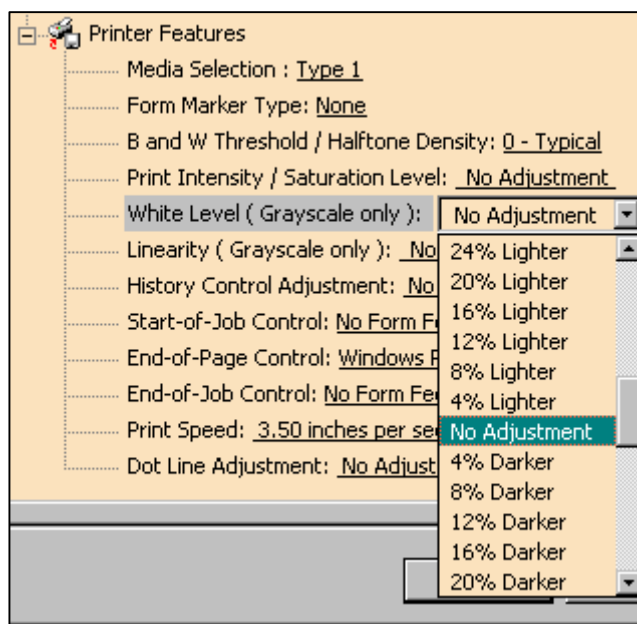


Figure 19:
white Level

(k) Linearity (Grayscale only):

[Models 840DL/G, 820DL/G, 820G only]:

When these models are configured with the '*Color Interpretation*' control set to 'Grayscale (32 Level)', this setting affects the way the diagonal line in Figure 18 is drawn from the 'White' to 'Black' points. Thermal coatings don't follow a straight line between the points; this control makes a visually linear gray gradient *look* like a straight line between white and black.

The range of adjustment is +/- 50%; scroll up or down to see all values (Figure 20).

Note that if the correct *Media Selection* is made, it is generally not necessary to adjust this control.

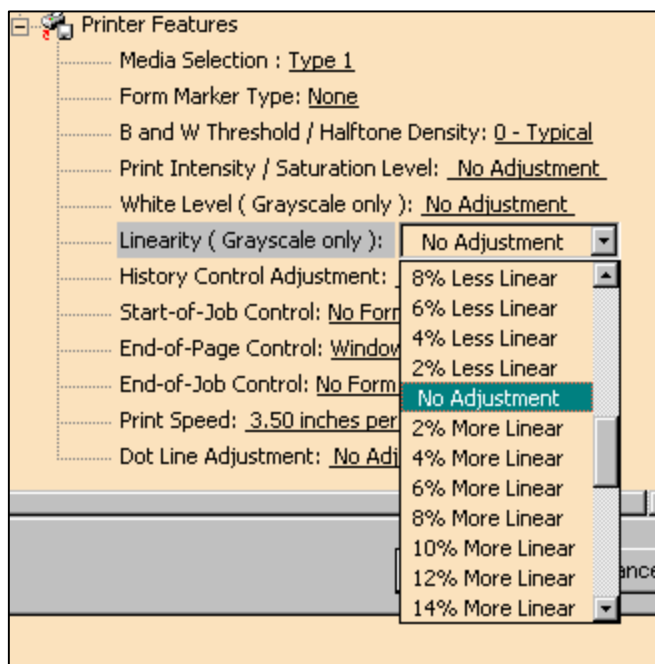


Figure 20:
Linearity

(l) History Control Adjustment:

These models include thermal history control as part of the '*Media Selection*' parameters. It is not recommended that you make drastic changes in this setting. If you are making adjustments to use an unsupported medium, make small changes, and observe single-pixel horizontal lines compared to solid black regions to evaluate the results of your changes.

The range of adjustment is +/- 25% (Figure 21).

Note that if the correct *Media Selection* is made, it is generally not necessary to adjust this control.

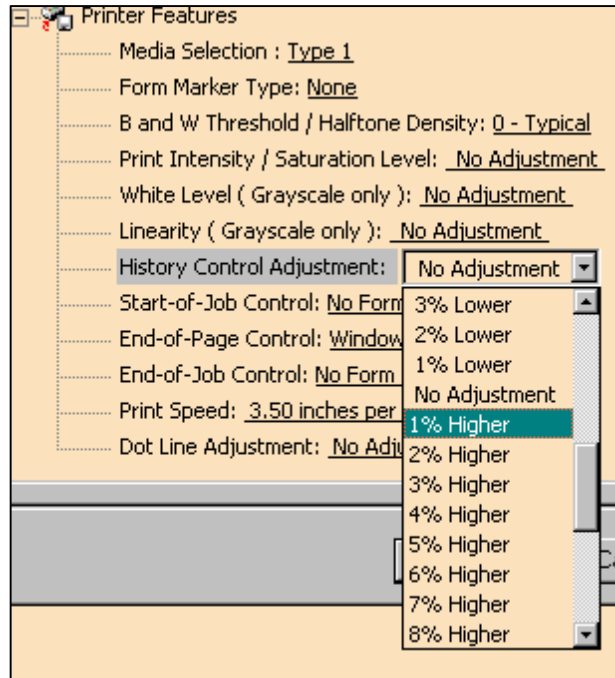


Figure 21:
History Control

(m) Start-of-Job Control:

This setting determines the alignment of installed paper at the start of a print job. Figure 22 illustrates the possible selections:

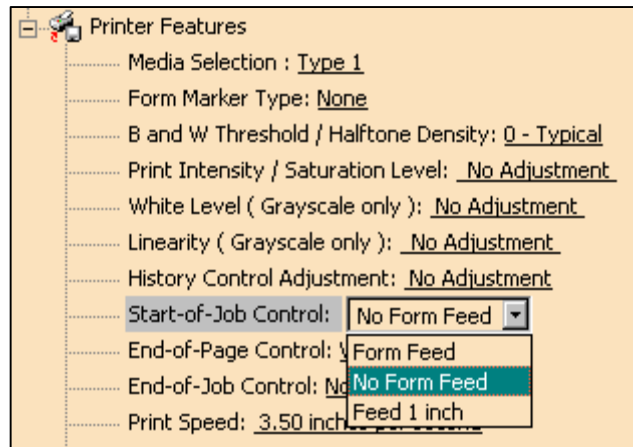


Figure 22:
Start-of-Job Control

- **Form Feed:**

Before any printing occurs, the printer will feed paper to the top of form. If fanfold paper with form markers is installed, the printer will stop at the position defined by the selected 'Form Marker Type' control (item (g)). If no markers are on the paper, paper will feed one page, as determined by the 'Paper Size' selection. (Note that the "XL" pages will feed the equivalent of one fanfold sheet, 12.5 inches.)

- **No Form Feed:**

Printing begins immediately, from current paper position.

- **Feed 1 inch:**

Paper advances one inch, then printing begins.

(n) End-of-Page Control:

Applications, particularly geotechnical logging applications, process print jobs in several different ways: some try to draw all data onto a single page, clipping off any that exceeds the page boundaries; others contain code that checks current page size, then draws data onto as many pages as necessary to finish the print job. Some even print individual pages as separate complete print jobs.

This control addresses these differences, and allows proper pagination for all scenarios (Figure 23):

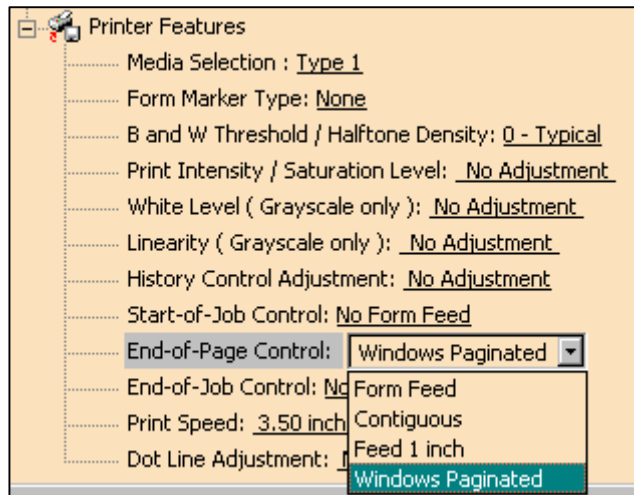


Figure 23:
End-of-Page Control

- **Form Feed:**

After the last data on a page is printed, paper advances to the next top-of-form position, as defined by form markers on the paper and the 'Form Marker Type' control (item (g)), or the next "logical" top of page, as expected by the 'Paper Size' control. This setting is most suited to printing paged, formatted text documents onto paper with form markers.

- **Contiguous:**

Printing stops after the last line of printable data is printed. Bottom-margin white areas are not printed. This setting is intended for use with the 'XL' page sizes, particularly for use with TIFF log viewers that try to print all of the image onto a single page. This way, if a 200-foot long page size is selected, and the log is 50 feet long, the printer will **not** feed 150 feet of blank paper.

- **Feed 1 inch:**

Some applications have historically not provided users with a bottom-margin setting to separate formatted pages of tables; this allow the printer to separate each rendered page by an inch of white space.

- **Windows Paginated:**

With this setting, each page is printed exactly as drawn by the application, without attempting to align paper with markers, or any other paper manipulation. All blank space on a page will be “printed” on the paper: for this reason, this selection is blocked when any of the ‘XL’ pages are selected. Otherwise, if a 300-foot page were selected, a 20-foot long log would be printed, followed by 280 feet of blank paper.

For log applications **other** than single-page log printing, this is the recommended setting.

(o) End-of-Job Control:

Users have many different requirements for handling the end of a print job, which may all be addressed by this control (Figure 24):

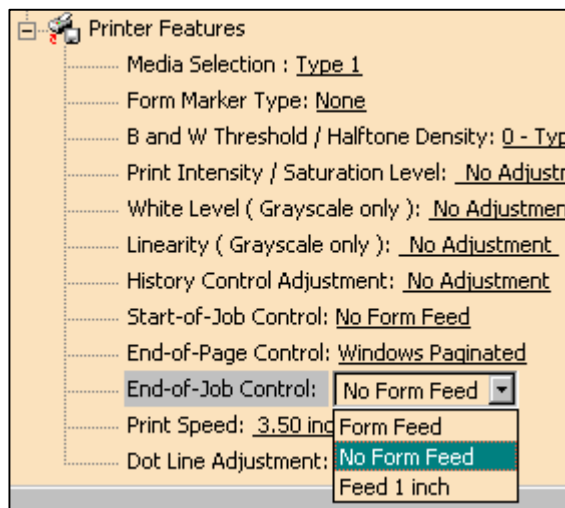


Figure 24:
End-of-Job Control

- **Form Feed:**

As described in item (n), paper advances either to the next top-of-form position, as defined by printed markers on the paper and the ‘*Form Marker Type*’ control, or to the next ‘logical’ top of page, based on the current ‘*Paper Size*’ setting. (Note that ‘XL’ pages have a printer ‘logical’ page size of 12.5 inches). This control or the ‘*Start-of-Job Control*’ setting are suited for batch-print log jobs. Some instances may require **both** controls to be set to ‘Form Feed’.

- **No Form Feed:**

Paper is left in the last printed position. Applications that print logs as a series of independent print jobs should use this selection.

- **Feed 1 inch:**

Paper advances 1 inch from the end of printing, allowing the bottom of the last page to clear the tear-off line. Recommended for all applications using roll paper without form markers, where individual jobs will be torn off.

(p) Print Speed:

Under certain circumstances, it is desirable to run the printer at less than full speed:

[Models 840DL/G, 820DL/G, 820G only]

- When printing in grayscale mode, the full range of 32 levels is possible only at 1 inch per second or less. At full speed, you may observe only 3 or 4 separate levels of gray.

- When the data bandwidth to the printer results in buffer underrun. If the printer is not supplied data fast enough, printing will start and stop repeatedly. Choosing a lower print speed will allow the printer to operate continuously, reducing the possibility of creating visible artifacts at the stop/start point.

- When operating the printer in a low-rate data acquisition scenario. If the application sends individual lines of data, at a rate below 50 lines per second, 'Plot Mode' directs the printer to smoothly print one line at a time (Figure 26).

Figures 25 and 26 show the Model 840DL/G selections; other printer models will have lower maximum speeds:

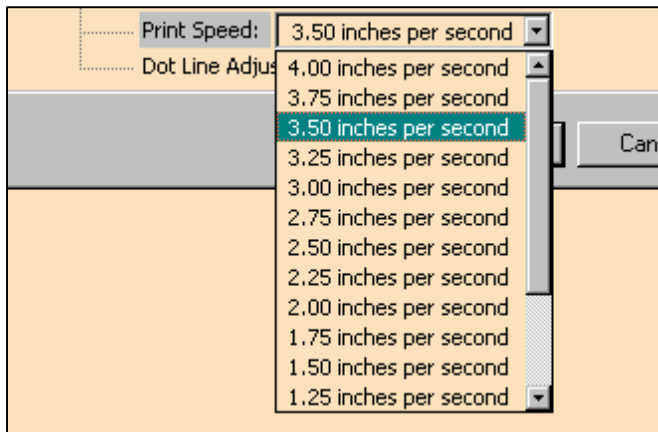


Figure 25:
Model 840DL/G,
top of Print Speed selection
list

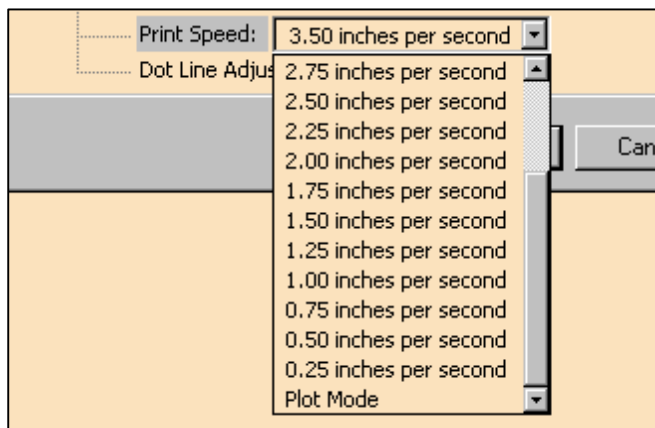


Figure 26:
Model 840DL/G,
bottom of Print Speed
selection list

(q) Dot Line Adjustment:

To compensate for slight inaccuracies in printed output length, this control allows the printed length to be stretched or shrunk as needed. Media thickness, surface coating finish, printer temperature, and other conditions can introduce small variations in absolute printed distance. Figures 27 and 28 illustrate the maximum and minimum settings available.

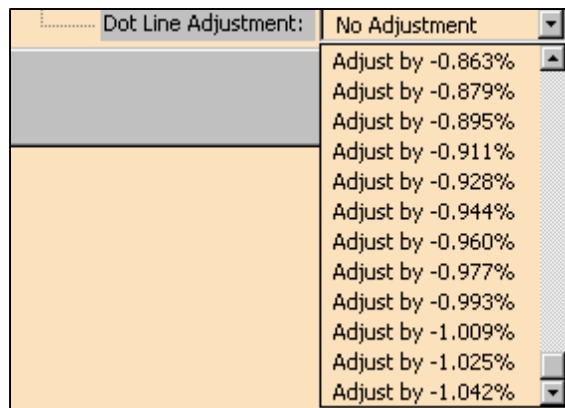


Figure 27
DLA: Maximum Shrink

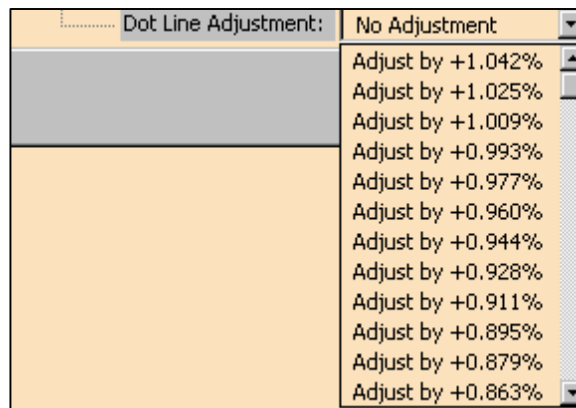


Figure 28
DLA: Maximum Stretch

2. Models 820, 820DL, 840DL, 1200DL (including 201 Y DPI):

These products support the majority of the capabilities of the newer family of printers, described in the previous section. However, 'Dot Line Adjustment' is not supported, and most other controls have a more limited range of adjustment or a coarser increment of adjustment.

The 'Advanced' page for the 820DL will be used for illustration (Figure 29), with control descriptions to follow.

Where a control's operation is identical to that in a newer product family, the description here will refer to the earlier section.

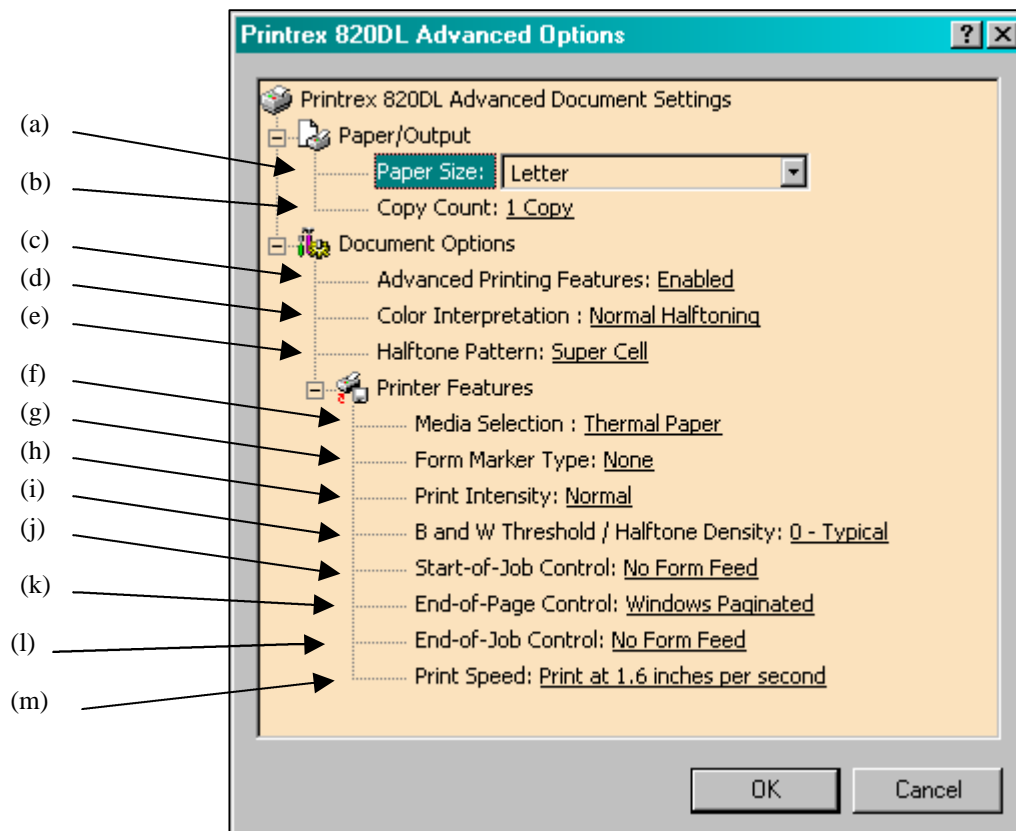


Figure 29:
Advanced
Options

(a) Paper Size:

[Models 820, 820DL, 840DL (Including 201 Y DPI)]:

See [Section D.1.\(a\)](#).

[Models 1200DL, 1200DL (201 Y DPI)]:

The page sizes shown in Figures 30 and 31 are available:

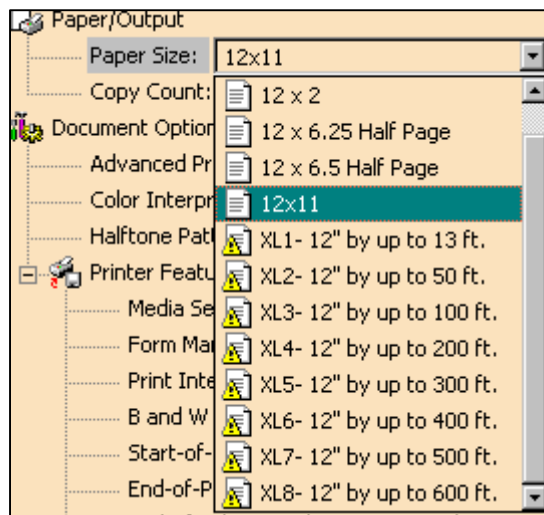


Figure 30
1200DL, scrolled to bottom of list

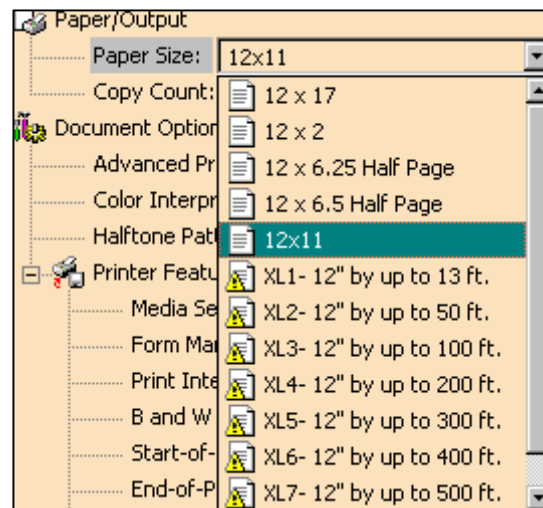


Figure 31
1200DL, scrolled to top of list

Note that some selections are marked with a warning icon: this indicates a conflict with another control selection in the driver. This is due to the 'End-of-Page Control' (Item (k)) being set to 'Windows Paged'. Changing this control to a different selection ('Contiguous', for example) will clear the warning icons. See [Section D.1.\(a\)](#) for further information.

(b) Copy Count:

See [Section D.1.\(b\)](#).

(c) Advanced Printing Features:

See [Section D.1.\(c\)](#).

(d) Color Interpretation:

Figure 32 shows the two choices, 'Halftoned' and 'Black and White'.

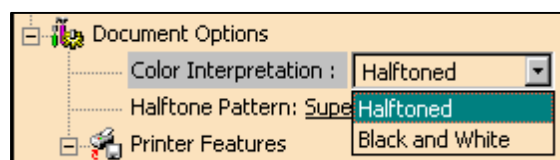


Figure 32:
Color Interpretation

Each of these options causes the printer to represent color in a different way:

- **'Black and White':**

Colors that are brighter than the threshold point are printed as white, those that are darker than the threshold print as solid black. The threshold point is determined by the '*B & W Threshold / Halftone Density*' control (section (h)).
Note: For log plots that use yellow traces, this control can be used to force the light yellow color to be printed as a solid black trace.

- **'Halftoned':**

Colors are represented as patterns of dots, with a greater or lesser density of dots, depending on brightness of the color being printed. This is also known as 'dithering'. The density of the dot pattern can be adjusted, using the '*B & W Threshold / Halftone Density*' control (h).

(e) Halftone Pattern:

See [Section D.1.\(e\)](#).

(f) Media Selection:

[Not supported in Model 820]

This control provides two options (Figure 33):

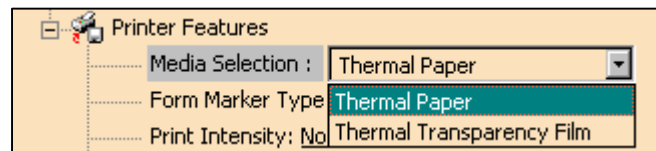


Figure 33:
Media Selection

Printing dynamics are adjusted for improved output to film when 'Thermal Transparency Film' is selected.

(g) Form Marker Type:

[Not supported in Model 820]

See [Section D.1.\(g\)](#) for discussion and explanation.

(h) Print Intensity:

The energy used to print a black area is adjusted with this control. Three settings (Figure 34) allow more- and less-sensitive media to be used:

[Not supported in Models 820, 820 (201 Y DPI)]

[Models 820DL, 1200DL (Including 201 Y DPI)]:

Three levels of intensity are possible:

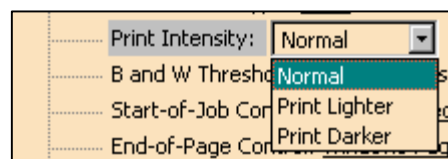


Figure 34:
Print Intensity
(Models 820DL, 1200DL)

[Models 840DL, 840DL (201 Y DPI)]:

This control has a wider range of adjustment (Figure 35):

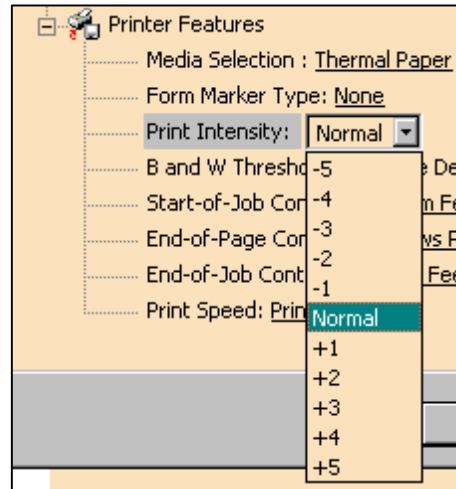


Figure 35:
Print Intensity
(Model 840DL)

These settings, in combination with the 'Media Selection' control setting, provide for clear printing on a wide range of media.

(i) B and w Threshold / Halftone Density:

When "Black and White" is selected in the 'Color Interpretation' control (Item (d) above), this setting determines the boundary of brightness, above which colors will be printed as white, below which colors will print as black. When "Halftoned" is selected for 'Color Interpretation', this control sets the density of the dot patterns used to represent a given shade of color. See [Section D.1.\(h\)](#).

(j) start-of-Job Control:

This control determines paper positioning before a print job (Figure 36). See [Section D.1.\(m\)](#) for more information.

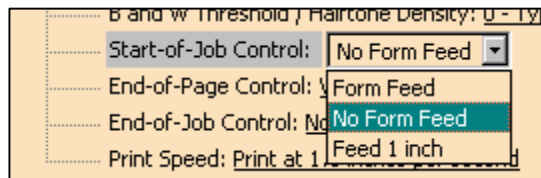


Figure 36:
Start-of-Job Control

(k) End-of-Page Control:

This control determines paper positioning at the end of each page of a print job (Figure 37). See [Section D.1.\(n\)](#) for detailed information.

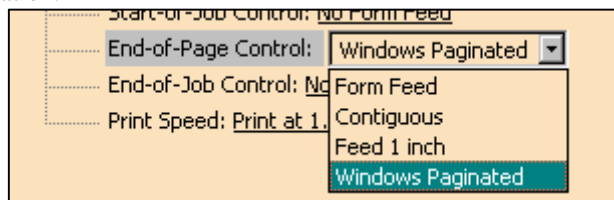


Figure 37:
End-of-Page Control

(l) End-of-Job Control:

The end of each print job can be followed by three different paper positioning choices, as shown in Figure 38:

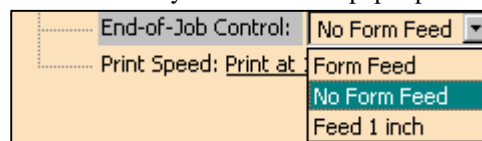


Figure 38:
End-of-Job Control

See [Section D.1.\(o\)](#) for detailed information.

(m) Print Speed:

Each printer model presents speed choices as follows:

[Models 820, 820 (201 Y DPI)]: (Figure 39)

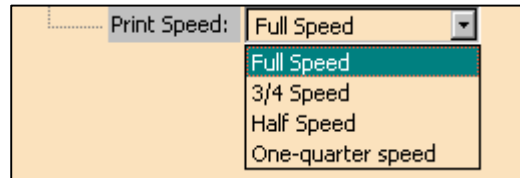


Figure 39:
Print Speed
(Model 820)

[Models 820DL, 820DL (201 Y DPI)]: (Figure 40)

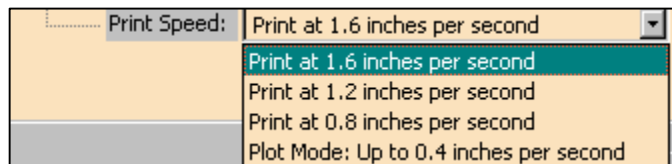


Figure 40:
Print Speed
(Model 820DL)

[Models 840DL, 840DL (201 Y DPI)]: (Figure 41)

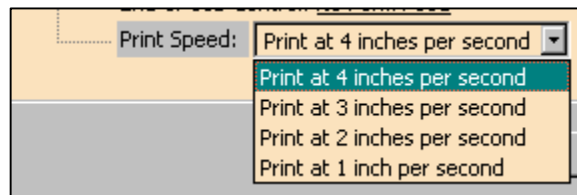


Figure 41:
Print Speed
(Model 840DL)

[Models 1200DL, 1200DL (201 Y DPI)]: (Figure 42)

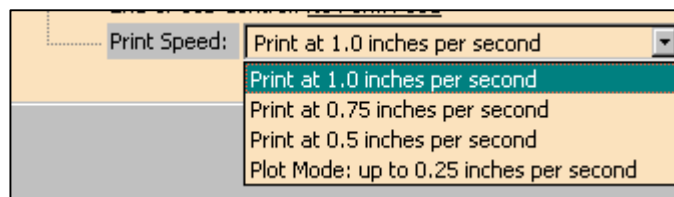


Figure 42:
Print Speed
(Model 1200DL)

Models 820DL and 1200DL support 'Plot Mode': This selection is suited to low-speed data acquisition applications, where a single step of a chart is plotted at a time, up to about 50 lines per second.

Besides these kinds of applications, another circumstance that would call for printing at less than the maximum speed is where the data bandwidth to the printer is less than that needed to print without stopping, resulting in data underrun.

If the printer is not supplied data fast enough, printing will start and stop repeatedly. Choosing a lower print speed will allow the printer to operate continuously, reducing the possibility of creating visible artifacts at the stop/start point.

3. Models 422, 420:

These models are of a family separate from the previous two groups, and their controls (figure 43) will be fully described in this section:

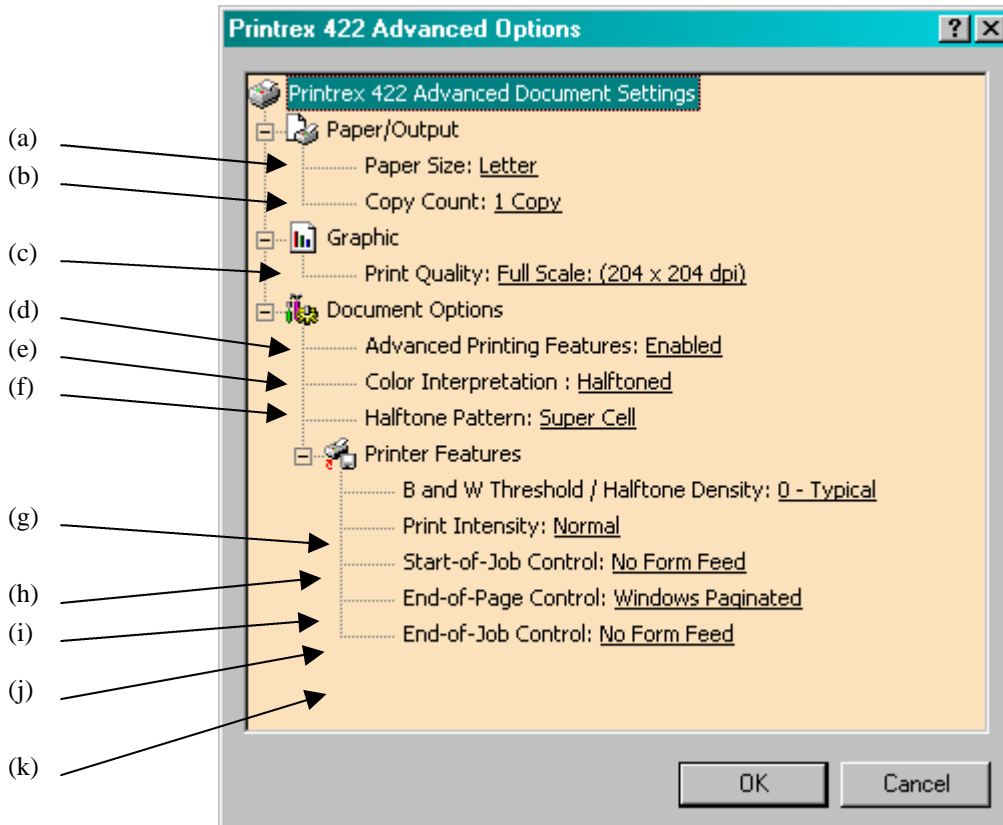


Figure 43:
Advanced Options

(a) Paper Size:

Figure 44 shows the bottom of the paper selection list, Figure 45 shows the top of the list. Many of the selections will have a warning icon present: this indicates that these page sizes conflict with other control settings, and that if such a page is selected, you will need to adjust other settings to clear the warning icon. The controls that conflict are:

- **‘Print Quality’:**

This is a setting that determines the scaling of the printed image. If ‘Half Scale’ is chosen, then only the (roughly) 8 inch wide pages will be available; if ‘Full Scale’ is chosen, only the 4 inch wide pages will be available; if ‘2/3 scale’ is chosen, only 6 inch wide pages will be available. (Note that ‘Letter’ is available in both ‘Full Scale’ and ‘Half Scale’.)

- **‘End-of-Page Control’:**

when this control is set to ‘Windows Paginated’, the very long page sizes, at any of the three scalings, will not be available.

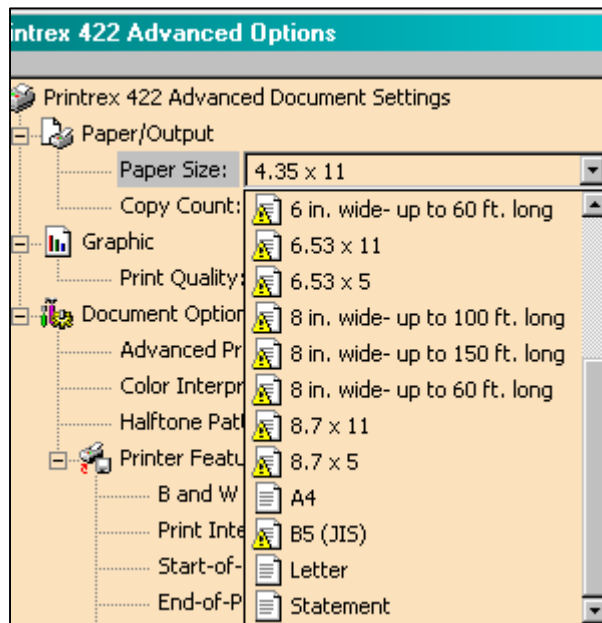


Figure 44
End of Paper Size List

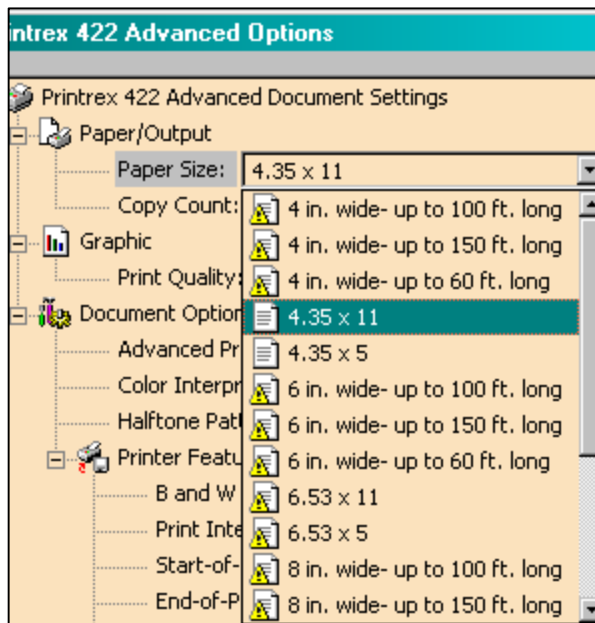


Figure 45
Top of Paper Size List

Important Note: when the long page sizes are selected, an application may or may not recognize the large page area. One significant example: Imaging, the Windows 2000 applet for viewing TIFF files, will print an image 20 feet long, but fail to print an image 40 feet long. Large variations in the programming techniques used in various applications make it difficult to predict which applications can use these pages correctly.

(b) Copy Count:

Figure 46 shows the control: From 1 to 9999 copies of a print job may be specified in the driver. The ‘Collated’ box determines whether all pages of Copy #1 are printed before Copy #2 starts printing (box checked), or all copies of Page 1 are printed before Page 2 starts printing (box unchecked).

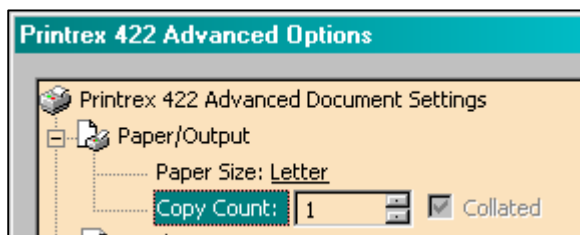


Figure 46:
Copy Count

(c) Print Quality:

This control (Figure 47) sets the scaling used for the printed image:

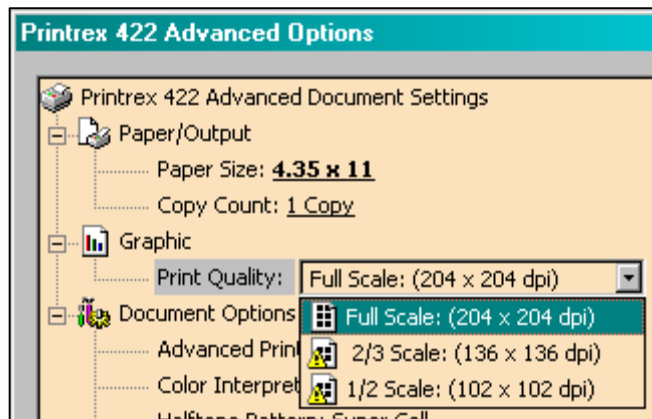


Figure 47:
Scaling Control
(Print Quality)

Note that with the '4.35 x 11' Paper Size selected, only 'Full Scale' is permitted. If '2/3 Scale' is selected here, we must then return to the Paper Size control, and change selections (Figure 48, Figure 49):

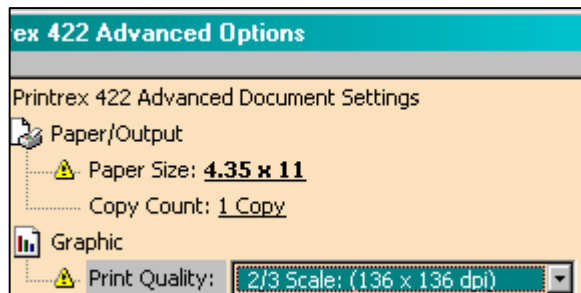


Figure 48
Conflicting Scale and Paper Size

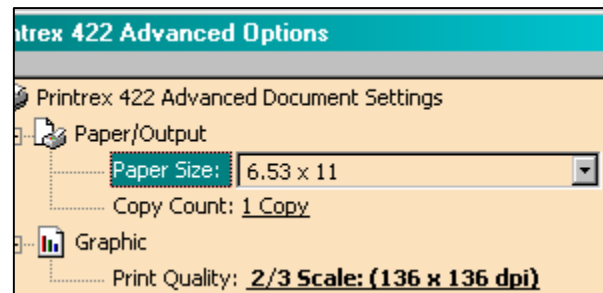


Figure 49
Conflict Resolved

(d) Advanced Printing Features:

This control, when 'Enabled' is selected (Figure 50), allows printing of multiple copies, and of multiple pages per sheet.

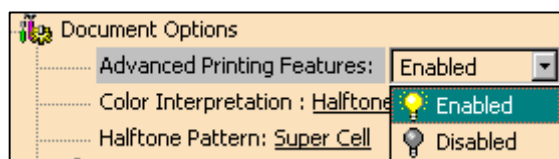


Figure 50:
Advanced Printing Features

(e) Color Interpretation:

When printing a color or grayscale image, this control (Figure 51) determines the way colors translate to the printed page.

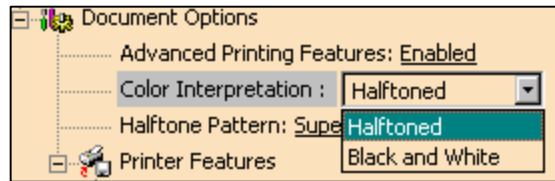


Figure 52:
Color Interpretation

- **'Black and White':**

Colors that are brighter than the threshold level are printed as white, those that are darker than the threshold level print as solid black. This threshold level is determined by the '*B & W Threshold / Halftone Density*' control (Section (g)). For log plotting, this setting is helpful if light-colored traces are used.

- **'Halftoned':**

Colors are represented as patterns of dots, with a greater or lesser density of dots, depending on brightness of the color being printed (also known as 'dithering'). The density of the dot pattern can be adjusted, using the '*B & W Threshold / Halftone Density*' control (Section (g)).

(f) Halftone Pattern:

If the 'Halftoned' option is selected in the above control, this setting determines the pattern of dots used to represent colors of varying brightness (Figure 53).

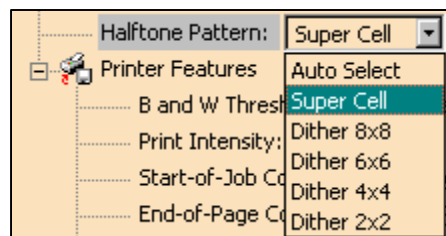


Figure 53:
Halftone Pattern

- **The 'Dither' selections:**

The pattern of dots is a square, that gets increasingly filled in as the color gets darker. The larger the square, the more levels of brightness that can be presented (8 x 8 dots = 64 levels of brightness, 2 x 2 dots = 4 levels). However, the larger squares will cause curved lines and contours to have a more jagged border than the smaller squares produce.

- **'Auto Select'**

This option allows Windows to choose the pattern; it appears that this generally ends up being 'Dither 8x8'.

- **'Super Cell'**

This setting distributes the 'dithering' area more evenly and randomly than the fixed square patterns in the other selections. This results in much improved appearance when printing photographs or other continuous-tone images.

(g) B and W Threshold / Halftone Density:

The default settings in the driver result in printed output that closely matches the brightness of an image on the display. If this does not result in the desired printed image, this control provides a wide range of correction (Figure 54).

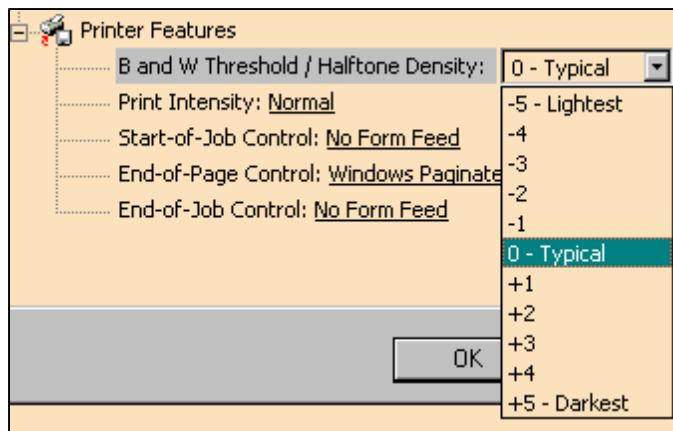


Figure 54:
Threshold / Density

When 'Color Interpretation' is set to 'Black and White', this setting determines the brightness level at which colors will print as solid black versus white.

When 'Color Interpretation' is set to 'Halftoned', this setting determines the number of 'filled-in' dots within the pattern for a given brightness of color. For printing photos, this provides some correction for overexposed or underexposed images.

(h) Print Intensity:

Different papers will need different amounts of energy to print a clear black dot: this control provides an adjustment to accommodate more- or less- sensitive media (Figure 55).

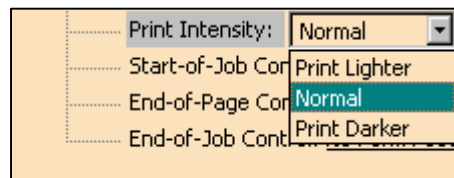


Figure 55:
Print Intensity

Note that each of these settings changes the energy put into each dot, rather changing the pattern of dots to be printed.

(i) start-of-Job Control:

This setting defines the paper movement before printing begins (Figure 56).

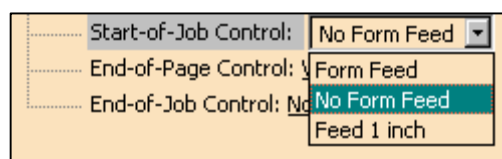


Figure 56:
Start-of-Job Control

- **'No Form Feed':**

Leaves the paper at the current position.

- **'Feed 1 inch' :**

Advances the paper 1 inch before starting the print job.

- **'Form Feed':**

[Model 422:]

For plain roll paper, 'Form feed' causes the paper to advance to the top of the next "logical page", as defined by the 'Paper Size' control. If the paper has alignment markers printed on the back side, right-hand edge, the printer will stop 0.75" past the middle of the marker.

[Model 420:]

Selecting 'Form Feed' causes the printer to feed 11 inches before printing starts.

(j) End-of-Page Control:

Each page rendered by Windows can be followed by three different printer actions (Figure 57):

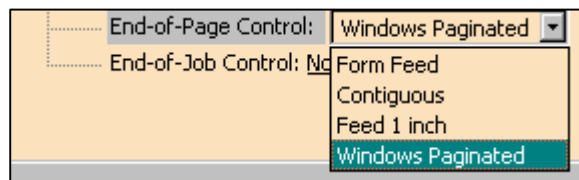


Figure 57:
End-of-Page Control

- **'Windows Paginated':**

Directs the printer to print each page bitmap exactly as Windows presents it, with any margins that the application adds to the image. Because the very long pages will most likely have large bottom margins, and unintended feed of blank paper will result, this selection is designed to conflict with the long-page 'Paper Size' selections.

- **'Contiguous':**

Directs the printer to stop printing on the last printable line on the page. Any bottom margin will be clipped off. This setting is intended for single-page TIFF viewer applications, in combination with the 60-foot, 100-foot, and 150-foot pages. If an image is only 30 feet long, for example, and a 100-foot long page is selected, this setting prevents 70 feet of blank page from being fed out.

- **'Feed 1 inch':**

Functions similarly to 'Contiguous', but adds a one-inch space following the last printed data; this may be useful in separating blocks of tables printed from applications that supply no bottom margin to a page.

- **'Form Feed':**

[Model 422:]

Following the last printed data, the printer advances paper to 0.75" past the center of the page marker, if present. If unmarked paper is used, paper advances to the next top of 'logical' page, as defined by the 'Paper Size' setting.

[Model 420:]

Paper advances 11 inches from the last printed data on the page.

(k) End-of-Job Control:

When a print job is finished, different uses of the printer call for different paper handling (Figure 58).

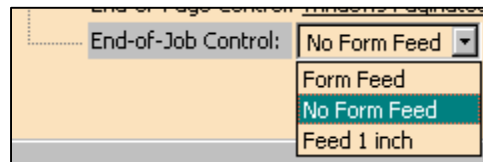


Figure 58:
End-of-Job Control

- **'No Form Feed' option:**

Leaves the paper at the last printed position, for printing applications that call for each separate print job to be adjacent, with no margin at top or bottom.

- **'Feed 1 inch':**

Moves the last printed position just past the edge of the printer door, allowing printout to be torn off without manually advancing the paper.

- **'Form Feed':**

[Model 422:]

Following the last printed data, the printer advances paper to 0.75" past the center of the page marker, if present. If unmarked paper is used, paper advances to the next top of 'logical' page, as defined by the '*Paper Size*' setting.

[Model 420:]

Paper advances 11 inches from the last printed data on the page.

4. Models K100, K60:

These kiosk-application printers support a more limited range of controls, due to their specialized usage. The 'Advanced' options of the K100 are shown in the following illustrations, beginning with the overview of Figure 59. The K60 options are identical, except for paper size (which will be presented separately).

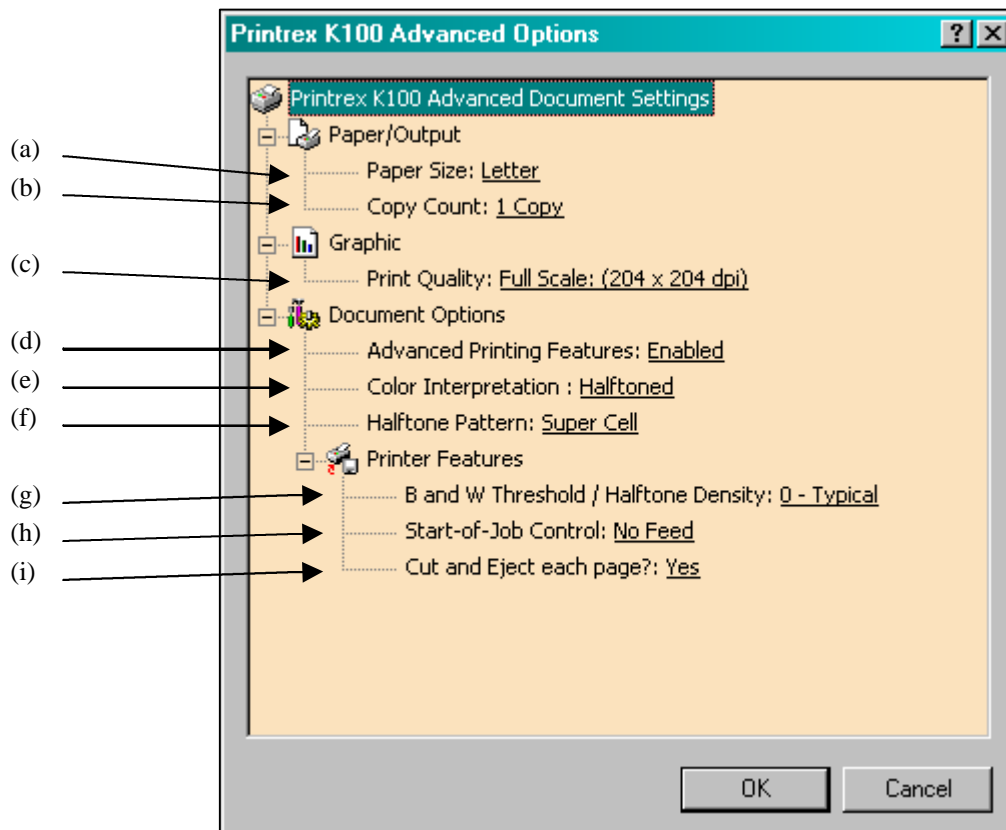


Figure 59:
Advanced
Options

(a) Paper Size:

[Model K100:]

Figure 60 shows the selections available at the bottom of the list; Figure 61 shows those at the top:

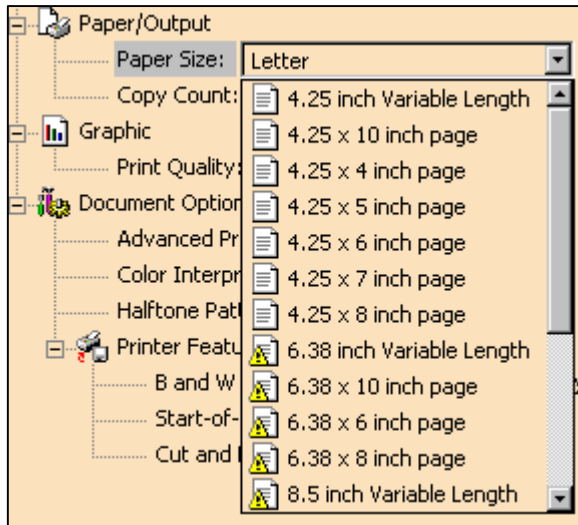


Figure 60:
K100: Top of Paper Size List

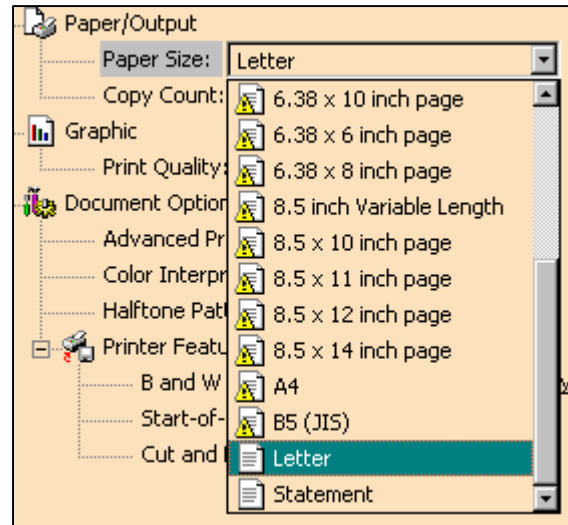


Figure 61:
K100: Bottom of Paper Size List

[Model K60:]

Figure 62 shows the selections available for the K60:

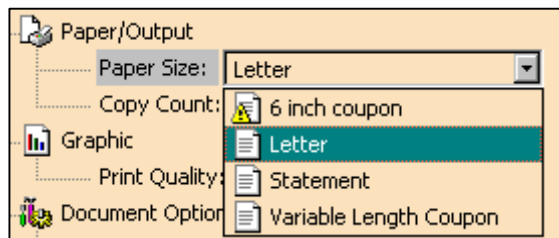


Figure 62:
K60 Paper Sizes

Note that each of these figures contains Paper Size selections with a warning icon: this indicates that use of that selection conflicts with the 'Print Quality' scaling setting. If a conflicting paper size is selected, you must then change the scaling setting to a non-conflicting option.

Both models support a "Variable Length" paper size: if these pages are selected, the printer allows Windows to create an image between 2 inches and 161 inches long on the printer page. Any bottom margin will be clipped to 1/4 inch when the image is printed.

(b) Copy Count:

This setting directs the driver to produce multiple copies of a print job. If the 'Collated' box is checked, each copy of a print job will print from start to end before the following copy starts (Figure 63). If 'Collated' is not checked, all copies of Page 1 will print, followed by all copies of Page 2, etc.

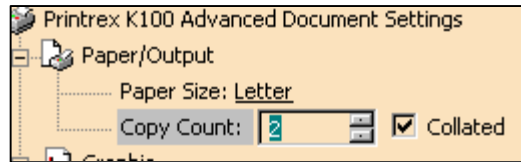


Figure 64:
Copy Count

(c) Print Quality:

[Model K100:]

The printed image can be scaled down from the displayed image, which allows 8.5 x 11 -size pages to print onto the K100 without disturbing the formatting of text and tables (Figure 65). Some applications that print Web pages from the kiosk have found that the '2/3 Scale' selection provides the best fit, when used with the '6.38 inch' wide pages.

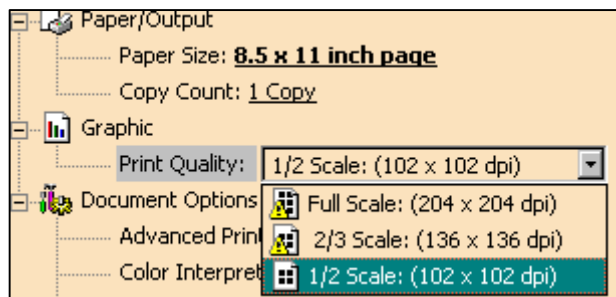


Figure 65:
Scaling Control
(Print Quality)
(K100)

[Model K60:]

This model can't fit all of a scaled-down 8.5" x 11" page into its printable width (54 mm), but it does support a 1/2 - scale reduction (Figure 66). This allows the Windows Test Page to print successfully (Note, however, that the graphic header in the test page will be distorted: this is because the Test Page routine in Windows expects all printers to contain 8.5" wide paper.)

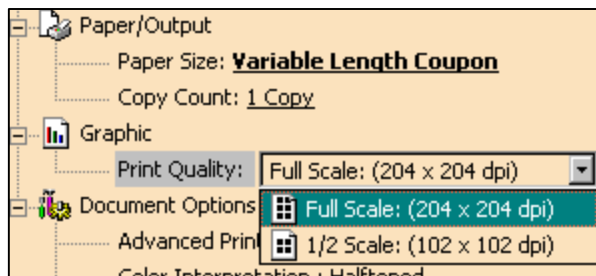


Figure 66:
Scaling Control
(Print Quality)
(K60)

(d) Advanced Printing Features:

This control, when 'Enabled' is selected (Figure 67), allows printing of multiple copies, and of multiple pages per sheet.

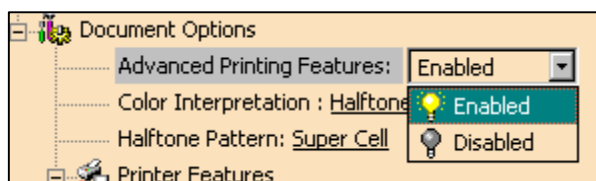


Figure 67:
Advanced Printing Features

(e) Color Interpretation:

When printing a color or grayscale image, this control (Figure 68) determines the way colors translate to the printed page.

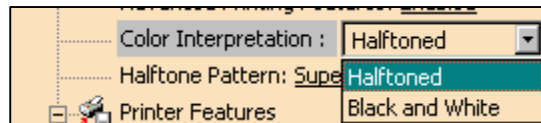


Figure 68:
Color Interpretation

- **'Black and White':**

Colors that are brighter than the threshold level are printed as white, those that are darker than the threshold level print as solid black. This threshold level is determined by the *'B & W Threshold / Halftone Density'* control (Section (g)).

- **'Halftoned':**

Colors are represented as patterns of dots, with a greater or lesser density of dots, depending on brightness of the color being printed (also known as 'dithering'). The density of the dot pattern can be adjusted, using the *'B & W Threshold / Halftone Density'* control (Section (g)).

(f) Halftone Pattern:

If the 'Halftoned' option is selected in the above control, this setting determines the pattern of dots used to represent colors of varying brightness (Figure 69).

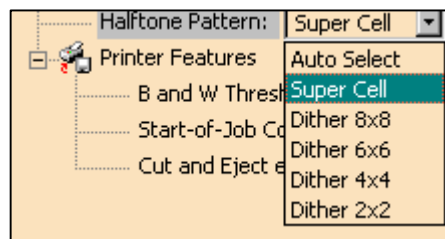


Figure 69:
Halftone Pattern

- **The 'Dither' selections:**

The pattern of dots is a square, that gets increasingly filled in as the color gets darker. The larger the square, the more levels of brightness that can be presented (8 x 8 dots = 64 levels of brightness, 2 x 2 dots = 4 levels). However, the larger squares will cause curved lines and contours to have a more jagged border than the smaller squares produce.

- **'Auto Select':**

Allows Windows to choose the pattern; it appears that this typically ends up being 'Dither 8x8'.

- **‘Super Cell’:**

Distributes the ‘dithering’ area more evenly and randomly than the fixed square patterns in the other selections. This results in much improved appearance when printing photographs or other continuous-tone images.

(g) B and W Threshold / Halftone Density:

The default settings in the driver result in printed output that closely matches the brightness of an image on the display. If this does not result in the desired printed image, this control provides a wide range of correction (Figure 70).

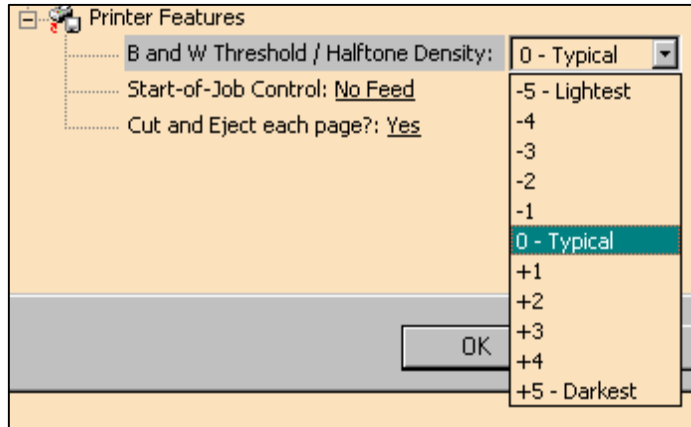


Figure 70:
Threshold / Density

When ‘Color Interpretation’ is set to ‘Black and White’, this setting determines the brightness level at which colors will print as solid black versus white.

When ‘Color Interpretation’ is set to ‘Halftoned’, this setting determines the number of ‘filled-in’ dots within the pattern for a given brightness of color. For printing photos, this provides some correction for overexposed or underexposed images.

(h) Start-of-Job Control:

Some applications might find it useful to add a 1 inch top margin to a pages; Figure 71 shows the option for this.

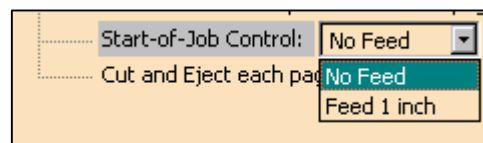


Figure 71:
Start-of-Job Control

(i) Cut and Eject Each Page?

Kiosk applications can either cut off each page when a print job consists of multiple pages, or the pages can remain connected and the paper is cut after the last page is printed (Figure 72).

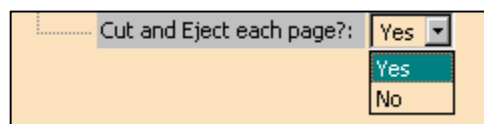


Figure 72:
Cut / Eject Page

E. Document Revision History:

Version	Date	Change Description
R1	3/20/03	Initial Release
R2	3/14	Updated logo & contact information

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