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Introduction

This document describes how to use the WRFView utility to view, print and convert Winlog Raster Files into other formats.

What are Winlog Raster Files?

Winlog Raster Files are compressed, rasterised (bitmapped) images of logs and charts produced using Winlog[®].

What is the WRFView Utility?

The WRFView utility program (WRFView.Exe) is a 32 bit Windows utility for viewing and printing Winlog Raster Files (*.WRF). It runs under Windows 9x, Windows NT 4, Windows 2000 and Windows XP. The utility also supports .GRS raster files produced by GeoLogic version 4.2.

WRFView allows the user to both view and print Winlog Raster Files. When viewing images, the user can zoom in and out of the image and can even split the screen and scroll different parts of the image independently. Printing to Windows compatible printers in the normal manner is fully supported and even has a 'fit to page' option for scaling images to conform to the current paper width.

Two special functions can be used to bypass the Windows printing system and print directly to HP Designjet series plotters and Epson ESC/P2 printers. Both support colour, lightness/darkness control and image scaling. These two functions can be used to circumvent the problems which often arise because of the lack of long-axis (i.e. continuous paper) support in the drivers supplied by the manufacturers.

Additional functionality also allows users to convert (export) images or partial images in a variety of file formats and to generate web pages containing log images. These features, together with the ability to print a selected part of a log image, are new to WRFView version 2.

The WRFView Utility is NOT copy protected. Bona fide Winlog[®] users (i.e. rental users, open licensing users and conventional licensing users) are free to distribute it free of charge to others (e.g. partners) in order that they can view and print logs generated using Winlog[®]. Support for WRFView is, however, limited to registered users of Winlog[®] (see the Conditions of Use at the beginning of this document).

Why use Winlog Raster Files?

The primary advantage of Winlog Raster files is their small size. HRH have developed their own compression algorithms which have been specially tailored to make full

advantage of the general style and form of geological logs. The result is a remarkable degree of compression.

The following table illustrates the file sizes for 200 dpi images of the Winlog Tutorials composite log. This is included with the installation as the file Lesson12_200.wrf and is a full colour log 10" wide and 45" long .

File Type	File Size (Kb)
.WRF (max compression)	239
.WRF (normal compression)	281
.PDF	500
.PNG	1,080
.PCX (256 colour)	1,675
.JPG (moderate quality)	2,604
.TIF	4,482
.JPG (max quality)	6,446
.BMP (8 bit, 256 colour)	17,315
.BMP (24 bit)	51,940
.CGM	12,689

This log image would require 51,940Kb to store the data in uncompressed, 24 bit colour format but the equivalent WRF image requires only 239Kb – less than 0.5% of the uncompressed size, less than 1/4 of the size of a portable network graphics file and less than 1/2 the size of a PDF file.

The advantage of this degree of compression is obvious in terms of both the disk space required to store the images and the costs associated with transmitting them via e-mail, the internet or other techniques.

In addition, most of the recognised image file formats (JPG, TIFF, BMP, PNG etc.) require that the whole of the image must be read and decompressed into memory before it can be viewed or printed (51Mb in the case of the example log). Dealing with very large images associated with geological logs and charts using conventional image formats can therefore lead to a significant degradation of performance or even 'Out of Memory' error messages. By contrast, WRF files have an internal block structure and do not need to be fully decompressed in memory in order to be able to view and print them, so there is far less demand upon your system resources.

What is in this Manual?

This manual outlines the basic functionality of WRFView organised by function. It is complementary to the on-line help system supplied with WRFView, which can be accessed either by pressing F1 or by selecting **Help > WRFView Help**.

The WRFView Utility

Installation

The WRFView set up program will install WRFView version 2 on your hard disk using a conventional Windows installation procedure. This was constructed using Installshield Developer v7 and supports the Windows Installer Service native to Windows 2000, Windows Me and Windows XP. This service can also run on Windows 9x and Windows NT4. If your system does not have the Windows Installer present the set up program will install it for you.

To install WRFView2, place the CD in your CD-ROM drive. The set up program should start automatically. If it does not, run the program setup.exe on the CD. Follow the on-screen instructions. Three set up types are provided, Typical, Compact and Custom. Typical installs all of the executables, manual and example files and requires approximately 4.5Mb of disk space. Compact installs only the executables (3.9Mb) and Custom allows you to choose which features you wish to install.

You can also install WRFView2 manually. To do so, simply copy the contents of the program files\winlog\wrfview2 folder on the CD to a suitable location on your hard disk. We recommend C:\Program Files\Winlog\WRFView2, but this is not compulsory. To set up a shortcut icon on your desktop, right click on the desktop and select, **New > Shortcut**. In the Create Shortcut wizard, click on **Browse** and locate the WRFView.exe file. Name the shortcut WRFView and click on **Finish**. Please note that if you perform a manual installation you must read the license agreement in the Help, About box and agree to it before HRH are willing to grant you a license to use WRFView.

When you run WRFView2 for the first time the program will auto-register the .WRF extension with the WRFView application. Thereafter, you can double click on the icon for any .WRF file in order to open it using WRFView.

Notes for existing WRFView 1.4 users:

1. Installing WRFView 2 will not remove any existing copy of WRFView 1.4 or earlier from your computer.
2. WRFView version 2 and WRFView 1.4 can co-exist on your computer without causing any conflict – simply make sure that each is located in a separate folder.
3. When you first run WRFView2 the .wrf extension will become associated with WRFView2. If you have both WRFView 1.4 and WRFView 2 installed, the .wrf extension will be associated with the version that you used last.

The File menu

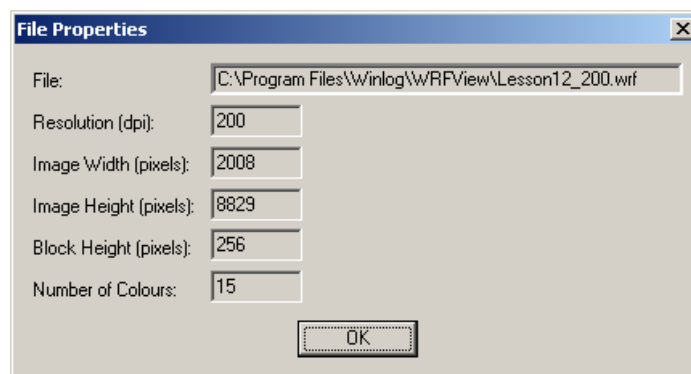
Opening a File



To open a file, select the **File > Open** menu option or click on the file open button in the toolbar . Use the following Open Raster File dialog to navigate to and select the file to open. Use the **Files of Type** drop down list in the Open Raster File Dialog to choose the file type - .WRF (Winlog Raster Format) or .GRS (GeoLogic Raster Format).

File Properties

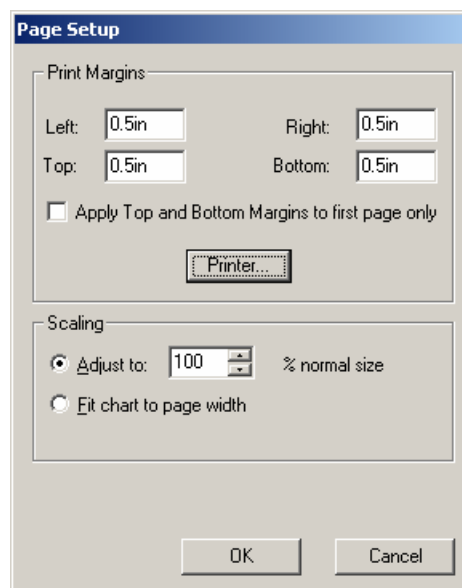
The File, Properties menu option provides information about the currently open file, e.g.



You can calculate the size that the image will be (in inches) if it is printed at 100% scaling simply by dividing the image width and image height by the resolution.

Page Setup

The Page Setup dialog allows you to configure the page for normal Windows printing:



Enter the required margins in the boxes provided.

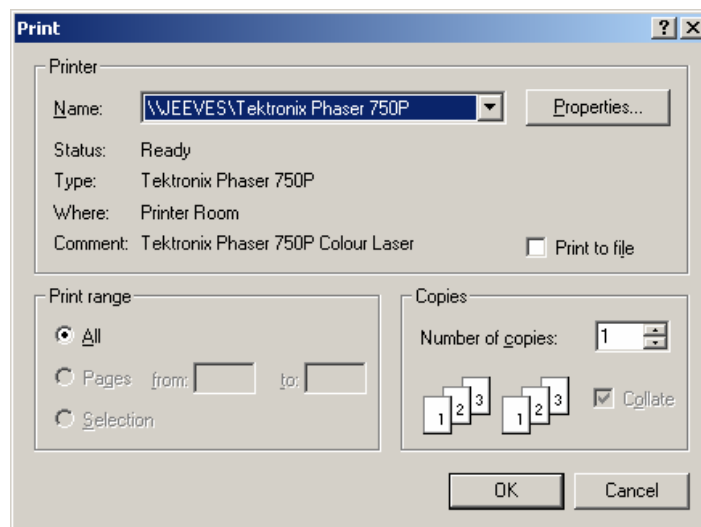
To print the log actual size (i.e. to print with the appropriate image width and length and thus generate the image at the vertical scale that was used in Winlog, click on the **Adjust to:** radio button and set the scaling value to 100%. To increase or decrease the scaling, enter a value greater than or less than 100%. Scaling affects the image equally in both the vertical and horizontal directions.

To make maximum use of the available page width, click on the **Fit chart to page** radio button.

Print

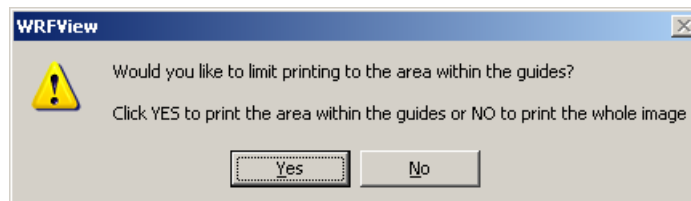


To print the image using the standard Windows printing system, select the **File > Print** menu option:



Select the printer from the **Name:** drop down list at the top of the dialog and click on **Properties** to set the properties of the printer in terms of paper size, quality etc. (the options available will depend upon the printer type and the printer driver associated with the printer).

If you are using the guides to define a partial image area to be printed the following will be displayed:



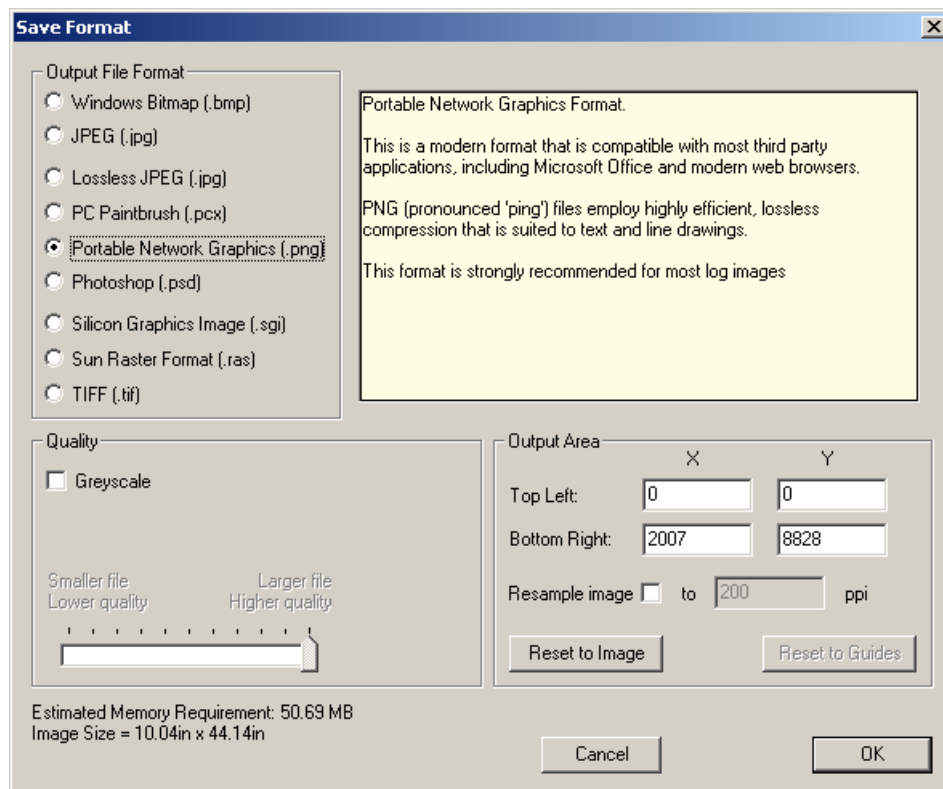
Select **Yes** if you wish to print only the area within the guides or **No** if you wish to print the whole log.

Users should be aware that using the Grey Scale viewing option will also cause the log to be printed in grey scale.

Save As



The **Save As** function in WRFView allows you to save (export) either a full or partial log image in a variety of different formats:



Options are included to choose the output file format, image quality (where relevant to and supported by the chosen format) and the area of the image to be exported. If you are using the guides, the Output Area will reflect the area contained within the guides.

Full details of the options available together with comments and advice for choosing the appropriate output format can be found in the on-line help system (**Help > Winlog Help**).

Create Web Page



The Create Web Page function allows you to export the log image into HTML format suitable for viewing using Internet Explorer or another web browser. It can therefore be used as a route for including log images on an intranet or the Internet. The results may be used as is or further edited using a third party web page editor such as Microsoft FrontPage or Macromedia Dreamweaver. As with all of the output functions, you may use the guides to define a partial log image to be output, e.g. to output only the reservoir section of a well.

Instead of producing the log as a very large, single image, WRFView divides the log up into a sequence of much smaller image slices and arranges them within an HTML table to reproduce the log. Dividing the images into image slices helps with page loading and allows the resultant log to be printed via a web browser. You may choose both the size of the individual slices and the image resolution.

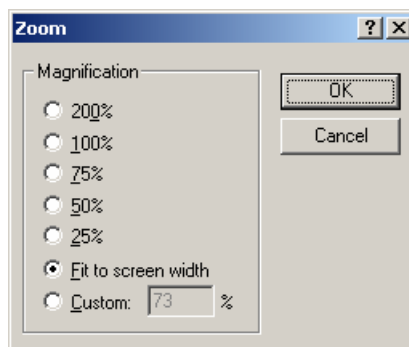
Further options allow you to define and format both a title and additional introductory text on the web page.


In addition, WRFView can include a reduced size index image at the top of the page which provides the end user with a convenient navigable interface for viewing the log.

Details of the various options can be found in the WRFView on-line help system (**Help > Winlog Help**).

Send

This function will launch your default e-mail program and automatically include the WRF file as an attachment so that you can send copies to colleagues.



Select one of the pre-set zoom factors or use the **Custom** option to define your own zoom setting. Click on **Fit to screen width** to force the image to fit within the WRFView window. This facility is also available via the  button on the toolbar.

Force To Mono

Use this option to force all non-white colours to black. It is usually used to generate a 'pure', i.e. non-grey scale, image. Because a Winlog Raster File is simply a pattern of different coloured dots, the option cannot intelligently assess the context of colours. It cannot, for example, differentiate between blue as a background colour for a limestone and blue as the colour for a curve. Both would be translated to black.

If you need to produce pure monochrome images, ask the supplier of the WRF image to use the Force to Monochrome option in Winlog when they generate the image. Winlog does understand the context of objects and can correctly translate to black and white.

The function applies equally to both viewed and printed output and also works with the special, direct printing functions.

Grey Scale

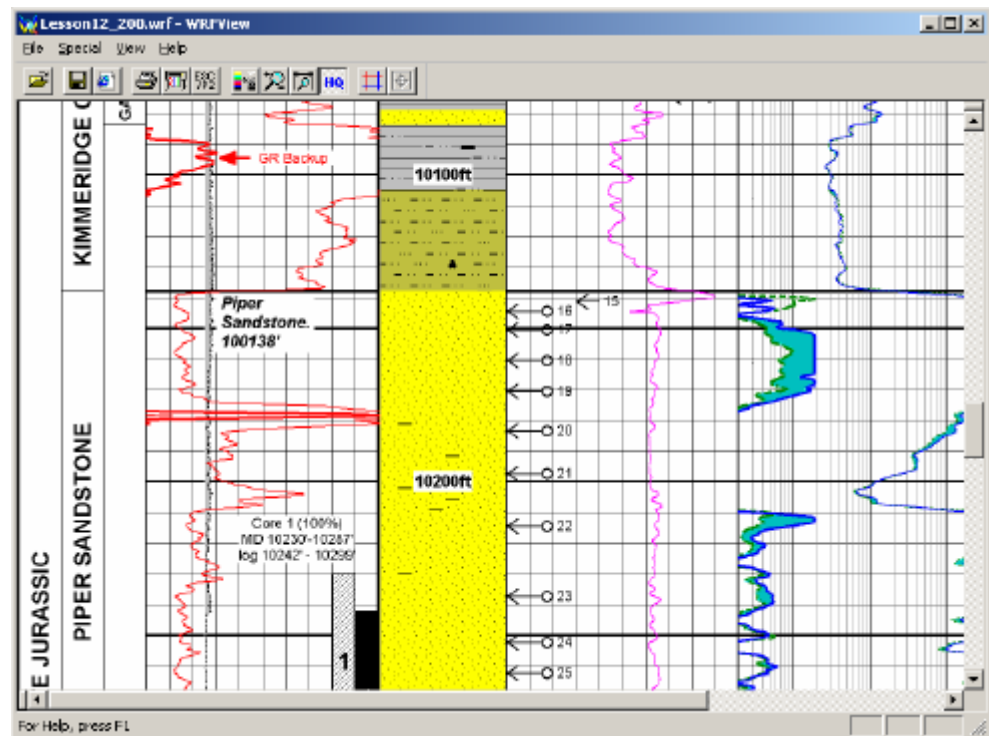


Use this option to convert the colours to grey scale. The function applies equally to both viewed and printed output and also works with the special, direct printing functions.

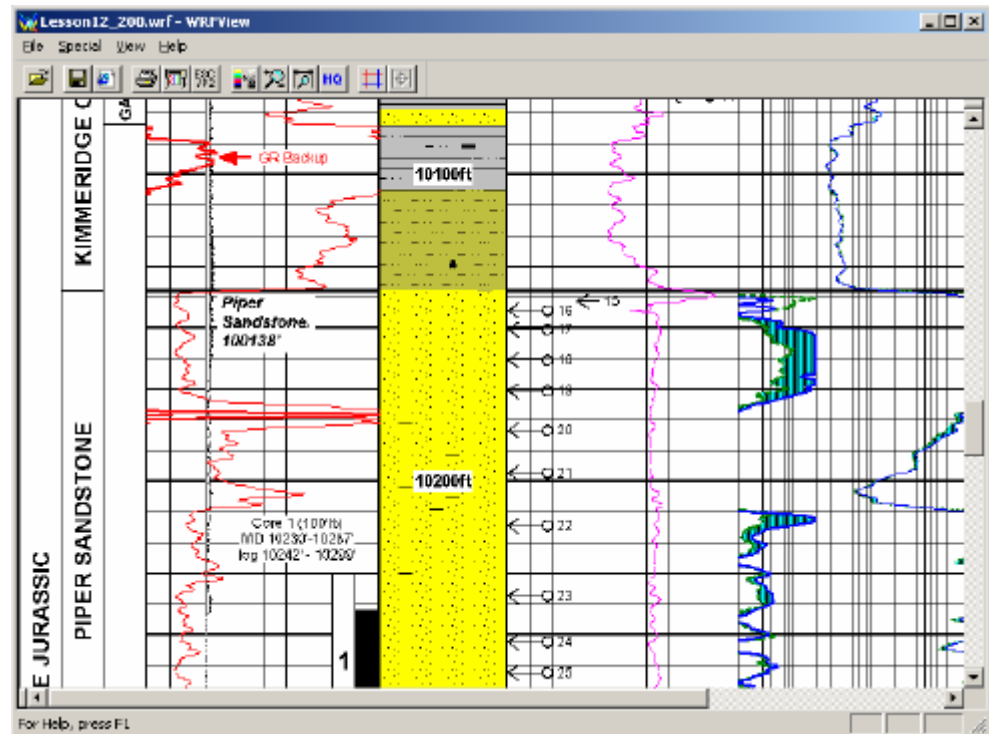
Smooth Image



The Smooth Image (HQ) button instructs WRFView to use a smoothing algorithm when displaying images on screen, e.g:



If the function is turned off, each pixel on the screen is mapped to the nearest pixel in the image. This leads to an inferior image because certain pixels in the image may be omitted on screen, e.g:



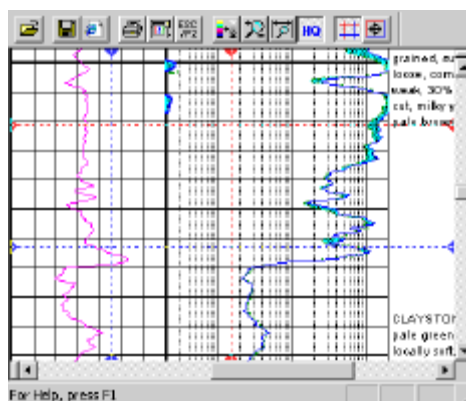
The HQ option is recommended for normal viewing but turning it off may be useful for some users with low powered computers because the time taken to display the image is significantly shorter.

Guides

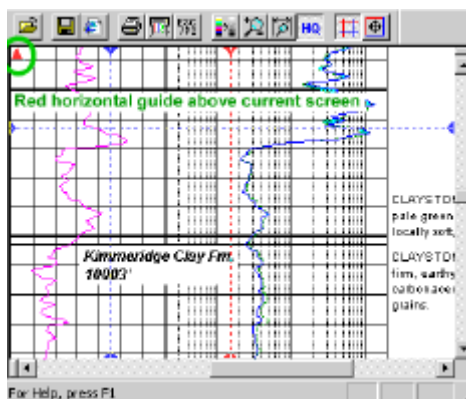


The **Guides** option turns the guides on or off. The Guides allow you to define a partial area of a log that can be used to limit output for any of the printing, exporting or creating a web page functions.

The guides are represented on screen by a pair of horizontal dotted lines and a pair of vertical dotted lines with triangular handles at the screen edges:



To move the guides, simply click and drag to the required position. You may click and drag either on the dotted lines or on the handles. If a guide is currently off-screen the dotted line will be replaced by a larger triangle pointing in the direction of the guide:



To move a guide that is off-screen, simply click and drag on the marker triangle.

The red and blue colours are simply aids to help you identify the individual guides. It does not matter which is at the top/bottom or left/right of the selected area.

Special Functions

The two special functions, **HP Designjet** and **Epson ESC/P2**, provide direct printing facilities that can be used in association with HP Designjet plotters and Epson ESC/P2 compatible printers. Both of them circumvent the Windows printing system and do not use any Windows printer drivers. They can therefore be used to print continuous logs, avoiding any page size restrictions imposed by the printer drivers.

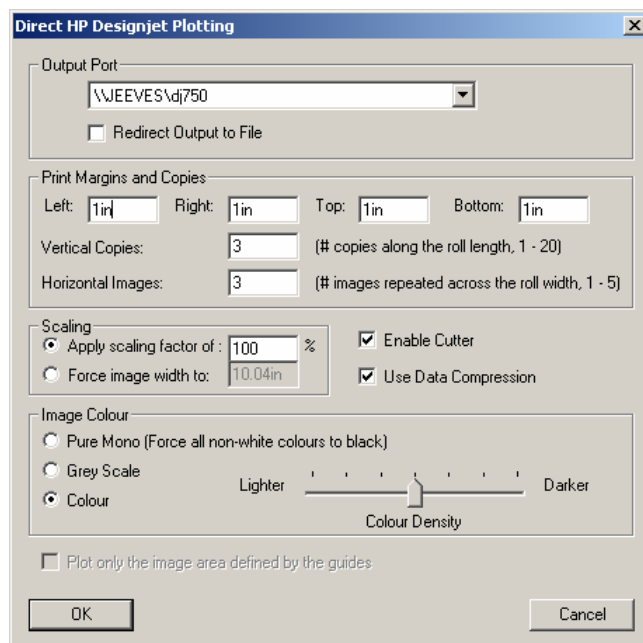
HP Designjet



This function may be used to plot directly to an HP Designjet plotter. At the time of writing, this had been fully tested using an HP 750C and found to be working correctly. It has not been fully tested on other Designjet models, but the method used is generic and we do not envisage any major problems. It may also work with other, Designjet compatible plotters, but no guarantees are given.

The function uses the 'on the fly' HPRTL printing technique to drive the plotter. This provides two highly significant advantages:

1. The 3m maximum plot length imposed by the standard Windows HP Designjet printer drivers is exceeded. The method is capable of producing plots up to 15m in length (the maximum physical capability of most Designjet plotters).
2. The method used causes the plotter to start plotting as soon as the buffer is full. Thereafter, the system waits until buffer space becomes available before sending further data. As a result, you can plot very large images even if your plotter does not have much RAM.



Output Port

Choose the **Output Port** where your plotter is located from the drop down list. Data will be sent to this port but, because use of the Windows printer drivers is

circumvented, WRFView cannot tell if the device attached to the port is correct - it is up to you to make sure that the selected port is correct.

If you are attached to a network you should find that shared network printers are also available (as in the above illustration). Further information about networked plotters and how to access them can be found in the appendix.

Check the **Redirect Output To File** box if you want to send output to file rather than direct to the port. This can be a useful option for improving performance (direct port output may cause your system to function slowly while printing takes place). Once the file has been created you can copy it to the desired printer using the DOS copy command. This takes the general form Copy <source> <target> <options>, e.g. Copy MyPlot.spl LPT1 /b. Note that the /b option, which instructs DOS to treat the file as a binary file, is essential. When the plot has started, simply minimise the DOS Window and carry on working (make sure that the Always Suspend box on the Misc page of the MS DOS Prompt Properties is not checked, or printing will stop while the window is minimised).

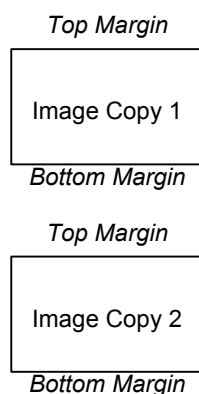
Print Margins and Copies

The **Print Margins and Copies** edit boxes are used to define the margins and the number of copies required for your print. Always make sure that the paper you are using is of an appropriate width because WRFView bypasses the Winows printer drivers and as a result cannot check this for you.

Users should be aware that HP Designjet plotters have minimum top and left margins of approximately 1/8" and 3/8" respectively (when the margins are set to 'normal' via the front panel settings) and that even if you enter values lower than these you will still get margins of this size.

Vertical Copies

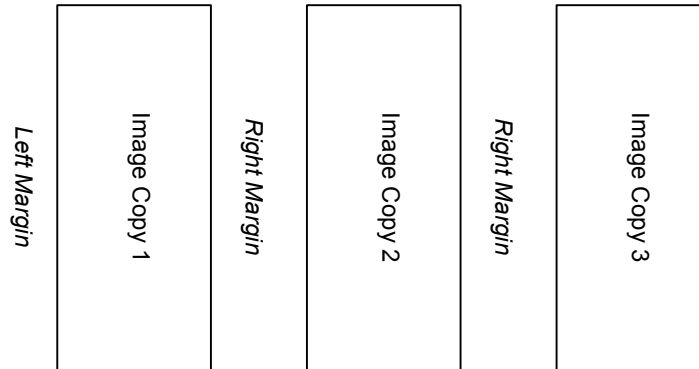
Enter the number of vertical copies (from 1 to 20) that you require. Each copy is sent as a separate job to the plotter and includes both the top and bottom margins. The result is as follows:



Please note that, if you use the Redirect Output to File option, the resultant file will contain data and instructions to plot all of the vertical copies and not just 1. Alternative, more generic, methods of plotting multiple copies are described in the appendix.

Horizontal Images

This option allows you to plot multiple copies of the log image side by side across the width of the paper and hence make better use of wide roll media. It is up to you to make sure that the overall width of the paper is adequate for the total plot width. In this context the Left and Right margins are used as follows:



In other words, the Total Plot Width = Image Width x #copies + Left Margin + Right Margin x #copies-1. Please bear in mind that HP Designjet Plotters have minimum left and right margins (approx 3/8" for a Designjet 750C set to 'normal margins' via the front panel) and that the full width of a 36" roll cannot be used.

The effect of sending a plot which is wider than the plotter's maximum capability will be device dependant. On a Designjet 750C if you send a plot which is wider than 36" the plotter simply ignores the excess.

Like the Vertical Copies option, if you use the Redirect Output to File option the resultant file will contain data and instructions to plot all of the horizontal images and not just 1.

If required, the horizontal images and vertical copies options can be used in combination with each other. Please remember to ensure that your plotter has adequate paper and ink before attempting to use these facilities. Remember the first law of plotters – ink and paper only run out when the plotter is unattended!

Scaling

The **Scaling** options allow you to determine the scaling of the image. Check the **Apply Scaling Factor of** radio button and enter a value of 100 to produce a full size, correctly scaled image. Alternatively, use a value other than 100 to compress or expand the image (the same factor is used both horizontally and vertically).

Alternatively, check the **Force Image Width to:** radio button to fit the image to a known width. The value that you enter will be the actual width of the printed image excluding any margins. It is up to you to make sure that appropriate paper is loaded.

The **Enable Cutter** check box can be used to enable or disable the plotter cutter when the plot is complete. It will not prevent the plotter from advancing the paper.

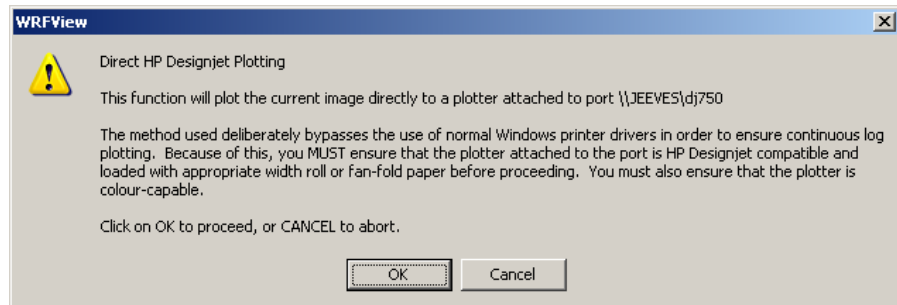
Image Colour

Check one of the **Pure Mono**, **Grey Scale** and **Colour** radio buttons to choose how non-black and non-white colours are to be treated.

For grey scale and colour images, you can also use the Colour Density slider to control how light or dark the image is. This will, to a large extent, depend on the colours used in the original image. As a guide, we have found that best results on the Designjet 750C are achieved with the slider positioned one or two divisions left of centre, but you may need to experiment with the settings.

Starting the Plot

Click on **OK** to start the plot. If you have elected to redirect output to file, you will be prompted to define the file that is to be created. If you are plotting direct to the port, you will receive a warning:



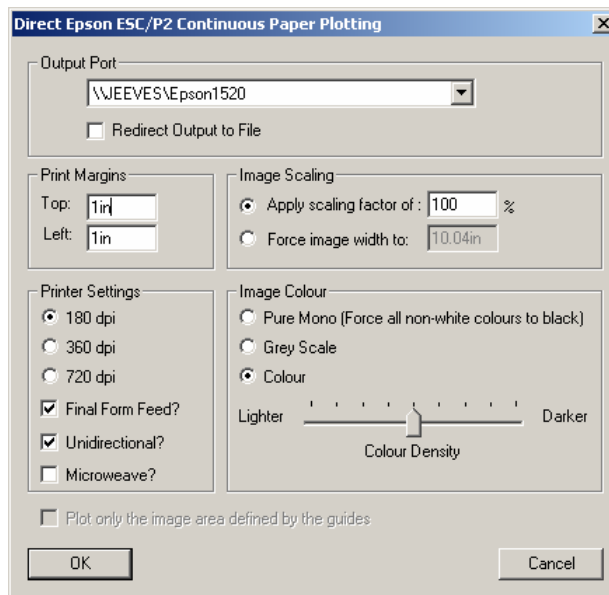
Click on **OK** to proceed or **Cancel** to abort.

Epson ESC/P2



This function may be used to plot directly to an Epson ESC/P2 or compatible printer. It generates ESC/P2 commands and data without issuing any form-feeds during the print and so can be used to circumvent problems associated with Windows printer drivers inserting form feeds even when you have selected fanfold paper.

In principle, the method is very similar to that used for direct plotting to the HP Designjet (see above).



Output Port

Choose the **Output Port** where your plotter is located from the drop down list. Data will be sent to this port but, because use of the Windows printer drivers is circumvented, WRFView cannot tell if the device attached to the port is correct - it is up to you to make sure that the selected port is correct.

If you are attached to a network you should find that shared network printers are also available (as in the above illustration). Further information about networked plotters and how to access them can be found in the appendix.

Check the **Redirect Output To File** box if you want to send output to file rather than direct to the port. This can be a useful option for improving performance (direct port output may cause your system to function slowly while printing takes place). Once the file has been created you can copy it to the desired printer using the DOS copy command. This takes the general form Copy <source> <target> <options>, e.g. Copy MyPlot.spl LPT1 /b. Note that the /b option, which instructs DOS to treat the file as a binary file, is essential. When the plot has started, simply minimise the DOS Window and carry on working (make sure that the Always Suspend box on the Misc page of the MS DOS Prompt Properties is not checked, or printing will stop while the window is minimised).

Print Margins

Use the **Print Margins** edit boxes to define any margins for your print. Make sure that the paper you are using is of an appropriate width - WRFView cannot check this for you.

Scaling

The **Scaling** options allow you to determine the scaling of the image. Check the **Apply Scaling Factor of** radio button and enter a value of 100 to produce a full size, correctly scaled image. Alternatively, use a value other than 100 to compress or expand the image (the same factor is used both horizontally and vertically).

Alternatively, check the **Force Image Width to:** radio button to fit the image to a known width. The value that you enter will be the actual width of the printed image excluding any margins. It is up to you to make sure that appropriate paper is loaded.

Printer Settings

Choose the appropriate resolution for your output device. As a general guide, choose the option that is equal to or greater than the resolution of your image. Remember that printing at high resolutions is much slower than at low resolutions. Printing at 720 dpi is generally not recommended unless you have special media and a lot of patience!.

The three options presented are those commonly available for ESC/P2 printers, but not all printers can support all resolutions, especially 720 dpi - it is up to you to make sure that the printer supports the option that you have chosen.

Check the **Final Form Feed** box if you want the printer to throw a form feed when the print is finished.

Check the **Unidirectional** box if you want to print unidirectionally (printing only takes place when the print head moves in one direction), leave it unchecked if you want to print bidirectionally (printing takes place both when the print head moves left to right and right to left). Bidirectional printing is faster than unidirectional printing, but vertical alignment is often not as good. Not all printers support bidirectional printing and even those that do often have a dip switch setting to control this which cannot be overridden by software commands. You should not, therefore, be surprised if changing for unidirectional to bidirectional and vice versa has no effect.

The Microweave option enables microweave on those printers that support it. If microweave is on, colour banding in the image is reduced but printing may well be slower.

Image Colour

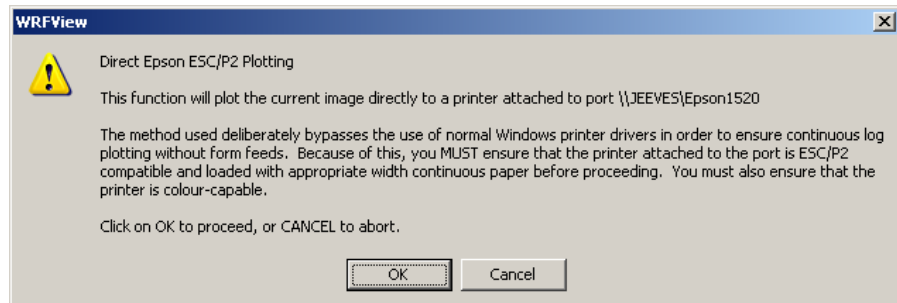
Check one of the **Pure Mono**, **Grey Scale** and **Colour** radio buttons to choose how non-black and non-white colours are to be treated.

For grey scale and colour images, you can also use the Colour Density slider to control how light or dark the image is. This will, to a large extent, depend on the colours used in the original image. The output resolution also affects overall density - lower resolutions produce light images and higher resolutions produce darker images. You may need to experiment to obtain the best results.

It is your responsibility to ensure that you have a colour-capable printer if you select Colour printing.

Starting the Print

Click on **OK** to start the print. If you have elected to redirect output to file, you will be prompted to define the file that is to be created. If you are printing direct to the port, you will receive a warning:



Click on **OK** to proceed or **Cancel** to abort.

Appendix

Networked Plotters

If you have a networked plotter or printer and wish to use the special functions to plot direct without using the Windows printer drivers provided by the manufacturer, you may find that the port for the plotter/printer does not appear in the list of available ports.

This can be overcome using the techniques described below. In both cases you are advised to contact your network supervisor or IT help department for advice - they should understand the techniques involved:

Method 1

Open a DOS window (**Start, Programs, Command Prompt** under Windows NT, **Start, Programs, MS-DOS Prompt** under Windows 95).

Assign an unused parallel port number to your shared printer/plotter resource using the **NET USE** command. You can get help about the syntax of this command by typing:

```
C:> NET USE /? |MORE {enter}
```

In principle, you use the **NET USE** command to assign an unused parallel port name to the path of your shared device, e.g:

```
C:> NET USE LPT9: \\netport1\p2 {enter}
```

The above example assigns the shared plotter with the network path \\netport1\p2 to parallel port LPT9. When you close the DOS Window (type "Exit" and press Enter), LPT9 will appear as an option in the port list within the WRFView special function dialogs.

Further information about **NET USE** (deleting assignments, making them permanent, assigning passwords etc. can be obtained from the above **NET USE /? |More** command. NT users can also obtain further information from the on line help system: **Start, Help, Index**, Net Use command.

Method 2

Windows 95 users can use an alternative technique to assign an unused parallel port number to a shared device by 'capturing' a parallel port.

Click on **Start, Settings, Printers** to open the Printers folder. Right click on the icon for the printer/plotter concerned and select **Properties** from the menu.

On the printer's property sheet, select the **Details** page. Click on the **Capture Printer Port** button and in the small dialog that follows, select an unused port number from the **Device:** box and select or type the path to the shared plotter/printer in the **Path:** box.

Check the **Reconnect at logon** box. When you have returned to the Details page, use the newly assigned port as the port which the printer/plotter will use.

When you have done the above, the port used will appear in the WRFView special function port selection boxes.

Multiple Copies and Spooling

The Special HP Designjet function provides facilities for plotting multiple copies of logs both vertically and horizontally. These options are provided primarily to allow users to make more efficient use of wide roll media

Users who wish to plot multiple copies to Esc/P2 printers can use the following technique. It can also be used for the HP Designjet and has the advantage of being more efficient although it can only be used to plot multiple vertical copies and cannot be used to tile images horizontally.

In the appropriate special function, check the **Redirect Output to File** box. When you have clicked on **OK** to start the print/plotting process, a dialog will open which allows you to define the path and name of the file to be created. Instead of directing output to the port, WRFView will send the appropriate printer/plotter commands and data to the specified file. You will find that this is much faster than printing direct to the port as there is no time spent waiting for the printer/plotter to be ready to accept more data.

When the process is complete, the file that you have created will contain all of the instructions and data that the printer/plotter requires. Printing can then be achieved by simply copying the file to the printer/plotter using the DOS copy command. Open a DOS window (**Start, Programs, Command Prompt** under Windows NT, **Start, Programs, MS-DOS Prompt** under Windows 95) and type the following command:

```
C:\> COPY filename port /b {enter}
```

Where filename is the name of the file that you created and port is the port number, e.g.:

```
C:\> COPY \temp\mylog.spl LPT9: /b {enter}
```

Please note that the /b switch in the above, which tells DOS that it must copy the file as a binary file, is essential. If you omit it DOS may insert additional linefeed commands where they are not expected and your plot may become scrambled. Do NOT attempt to use the Windows NT 'Print' command in place of the above technique as this only works correctly for text files.

The file will be copied to the appropriate port. Windows 95 users will also find that printing will occur in the background and that other applications can be run in the meantime, further increasing efficiency.

For multiple copies, simply issue several commands or alternatively use Notepad to write a batch file to issue the commands sequentially and then run the batch file. For example, to plot 5 copies you could run Notepad and enter the following:

```
COPY \temp\mylog.spl LPT9: /b
COPY \temp\mylog.spl LPT9: /b
COPY \temp\mylog.spl LPT9: /b
```

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```
COPY \temp\mylog.spl LPT9: /b  
COPY \temp\mylog.spl LPT9: /b
```

Having done so, save the text as a batch file, e.g. Plot5.bat, and exit Notepad. Then run the batch file by typing the batch file name (without the extension) at the DOS prompt, e.g.:

```
C:\> Plot5 {enter}
```