Printing to an imagesetter from a PC (Personal Computer) using Microsoft Windows® 3.1 is significantly different than printing from a Macintosh® computer. Some issues that are of critical importance in the Microsoft Windows environment include connecting to the printer, using the correct printer driver and WPD, understanding the use of Print Manager, the Printer Control Panel, TrueType® fonts, and page size limitations.

Connecting to the printer

Connecting a Linotype-Hell PostScript™ raster image processor (RIP) and a Linotronic® imagesetter to a computer running MS Windows depends to some extent on whether single or multiple workstations are involved.

In a stand-alone environment where a single PC is driving a single imagesetter, most people use either the parallel port (LPT) or the serial port (COM).[1] The parallel interface has a faster data transfer rate than the serial interface and is usually easier to configure using Windows. However, it does impose a distance limitation of approximately 6 feet. A printer on the serial port, on the other hand, may be placed up to 50 feet away from your computer. Unfortunately, the serial port is slower than the parallel port, and, the available serial ports on a PC are usually taken up by other devices (the mouse, an uninterruptible power supply, a modem, etc.) In addition, by their own admission Microsoft has stated that Windows does not handle serial printers as well as parallel printers. Finally, customers should avoid parallel and serial switch boxes because unless custom cables are used they increase the distance from computer to printer. And, when a switch is made, it causes the signal to drop. As a result, the front-end thinks the back end went off-line and vice versa.

[1] LPT refers to Line Printer and COM refers to the serial communications port. Both of these terms are reserved by DOS (Disk Operating System) for printers.

There is an alternative solution for those who need:

- Greater distance
- Better performance
- Multiple PCs outputting to a single printer
- Or a single PC outputting to multiple printers.

Using a third party network interface card (NIC) and PC software that provides AppleTalk® stacks you can print via LocalTalk®, EtherTalk® Phase I or EtherTalk Phase II from stand-alone MS DOS® or MS Windows workstations. Some examples of this are Farallon's Timbuktu® for Windows, Farallon's PhoneNet PC (version 3.0 or higher), and Cooperative Printing Solutions' COPSTalk for Windows™. Users with an existing PC-based network will find that most major manufacturers offer LocalTalk and EtherTalk printing as an option. (See box on the following page.)

Please be aware that these vendors often have specific hardware and software requirements to run their software and options. In the cases where a vendor certifies, hardware it is highly recommend to use the certified hardware, and also to have certified technicians perform the installation.

Network Operating System	AppleTalk Option
Banyan's VINES®	VINES Option for Macintosh.
LANtastic	LANtastic for Macintosh
Microsoft's LAN Manager	LAN Manager for Macintosh.
MS Windows NT Advanced Server	Remote Services for Macintosh
Novell's NetWare® 386	NetWare for Macintosh
OS/2 LAN Manager	OS/2 LAN Manager for Macintosh

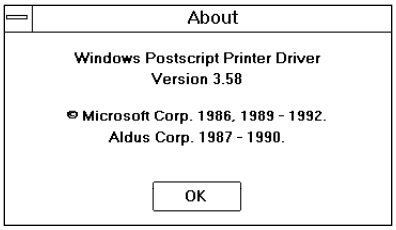
Users without access to the optional hardware or software can still output from the print server using the serial or parallel port.

Printer driver issues

The version of the MS Windows printer driver that you are using plays an important role. Upon installation or upgrade to MS Windows 3.1, the setup program will install version 3.5 of the PostScript driver. However, the latest version of the driver (as of this writing) is 3.58. If possible, you should use the latest version; however, you should not use anything less than 3.52 when printing to high resolution PostScript imagesetters. Those using TrueType fonts should use version 3.58 of the driver. If you are using Aldus PageMaker® for Windows version 5.0, you must use version 3.56 or higher of the driver. This is because PageMaker uses an escape sequence that was added especially to 3.56 to bypass the driver and insert their own PostScript code into the resulting PostScript file.

Finding the Driver Version

1. Launch MS Windows 3.1.
2. Select the Control Panel from the Main Group by double clicking on the Icon with the mouse.
3. Choose Printers from the Control Panel by double clicking on the Icon with the mouse.
4. Highlight the Linotronic printer with the mouse, then click on the Setup... button. This will open another dialog box.
5. Click on the About... button. This will display the driver version number (see below).



To check the version of the MS Windows PostScript Driver, use the procedure shown in the box to the right. The latest version of the MS Windows PostScript Driver can be downloaded from the Microsoft Download Service at (206) 936-6735 or it can also be obtained from a commercial on-line services like CompuServe.®

WPDs

If your particular Linotype-Hell imagesetter does not show up in the MS Windows 3.1 Printer Control Panel as one of the printers to select then you may need to update your Windows Printer Definition files (WPDs). With MS Windows 3.1, Microsoft Corporation split the Windows PostScript driver into two components: the driver itself and a WPD file. The driver is comprised of the files PSCRIPT.DRV and PSCRIPT.HLP that normally reside in the \WINDOWS\SYSTEM directory; which is usually located on your C drive. The WPD is a compiled resource file located in the same directory.

WPDs are made from PPDs (PostScript Printer Definition) files but only use some of the PPD data. There are two versions of the WPD files available for Linotype-Hell PostScript RIPs and imagesetters. One version is distributed by Microsoft Corporation with MS Windows 3.1 and one is distributed by Linotype-Hell Company. The WPDs distributed by Microsoft do not include WPDs for all of the Linotype-Hell PostScript RIPs and imagesetters, and were not generated from the latest PPDs. Linotype-Hell began distributing

[2] The Linotype-Hell Bulletin Board System operates 24 hours a day (except for back-up and maintenance on Friday from 9 am to 12 noon eastern standard time). The baud rate is 9600 and the modem number is 516-434-7877.

the latest Linotype-Hell WPDs on the Linotype-Hell Printer Support Disk for the PC, Version 1.01, on October 15, 1992. This file can be downloaded from the Linotype-Hell BBS[2] which is open to all customers holding Linotype-Hell service contracts and to all members of the Linotype-Hell Users Group (L-HUG). You can also download the file PRSUPP.ZIP from Library 6 (PC DPT Utilities) of the Desktop Publishing Forum on CompuServe (type GO DTP). See the Linotype-Hell technical article entitled *Printer Description Files* for more information.

TrueType

While there were some problems outputting TrueType fonts initially, the majority of these problems have been resolved. Be sure that:

- You are using the latest version of the PostScript RIP System Software.
- You are using version 3.54 or later of the Windows PostScript driver.
- You have set the Advanced Options of the Printer Control Panel correctly (See box and section below.)

Checking the Advanced Options of the Printer Control Panel

1. Launch MS Windows 3.1.
2. Select the Control Panel from the Main Group by double clicking on the Icon with the mouse.
3. Choose Printers from the Control Panel by double clicking on the Icon with the mouse.
4. Highlight the Linotronic printer with the mouse, then click on the Setup... button. This opens a dialog box.
5. Click on the Options... button. This will open another dialog box.
6. Click on the Advanced... button. This will open another dialog box.
7. In the Send To Printer As box under TrueType fonts, make sure you have Adobe Type 1 selected.
8. In the Virtual Memory (KB): box under Memory, make sure the value entered does not exceed that available on your RIP. This can be determined using the Linotype-Hell PC Utility 7.1 and subtracting the VM used from the VM total.
   Note: Microsoft supplies a file, TESTPS.TXT, with MS Windows 3.1. This file is located in the \WINDOWS\SYSTEM directory on the drive you installed MS Windows 3.1 to (usually the C drive). This file is supposed to print out the VM information; however, when downloading this file to the Linotype-Hell PostScript RIP, you get a PostScript error rangecheck, OffendingCommand: sccbatch.
9. In the Resolution (DPI) box under Graphics, make sure the resolution setting matches the resolution the imagesetter will print the job at.
   Note: this setting does not change the resolution the imagesetter will print at, but it does affect your results when outputting TrueType fonts. Normally, when using only Adobe Type 1 fonts, this setting only controls the minimum X- and Y-values that a software application program can position a graphic.
10. Be sure that the Conform to Adobe Document Structuring Convention is checked. When this is set, MS Windows will clear the RIP's memory after each page before downloading fonts for the next page, similar to the Clear Memory Per Page option, making each page print independently of the others. This frees up more memory for fonts and graphics when printing complicated documents. This option also makes your documents compatible with pre-press applications that do page imposition and trapping.
    Note: It will take longer to print because fonts will be downloaded with each page instead of just at the start of the job.

Printer Control Panel

The Advanced Options of the Printer Control Panel, includes a number of important settings (see Figure 1 on the following page). The Negative Image and Mirror boxes under Graphics should not be checked. These operations should be performed at the output device. In addition, you will probably want to uncheck the Print PostScript Error Information unless you are experiencing a particular printing problem. By checking Print PostScript Error Information, a PostScript error handler is downloaded as part of the header. This error handler prints a separate page for each error message as it occurs. Depending on the way that file is ultimately downloaded, you might be able see the same information back on your computer, and, avoid the added waste of film or paper.

Compress Bitmaps, when checked, will cause a document to take longer to print, however, it will free up your software application program faster, so this

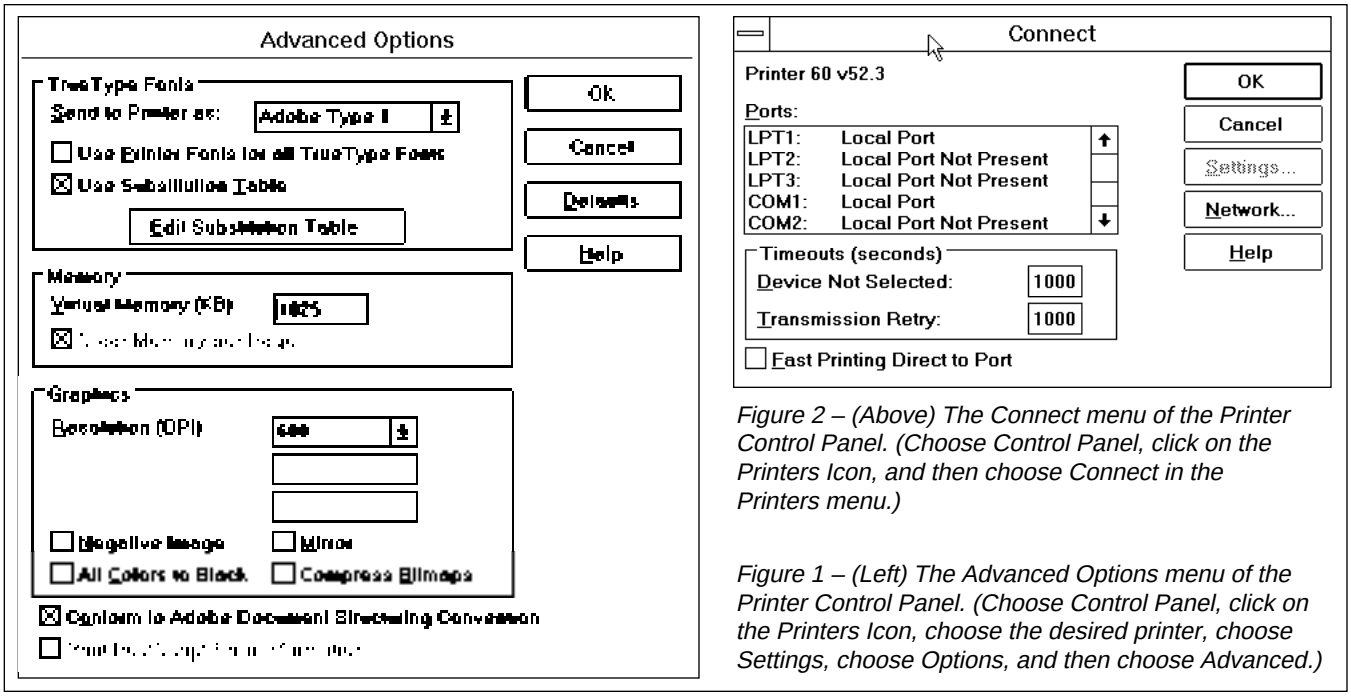


Figure 2 – (Above) The Connect menu of the Printer Control Panel. (Choose Control Panel, click on the Printers Icon, and then choose Connect in the Printers menu.)

Figure 1 – (Left) The Advanced Options menu of the Printer Control Panel. (Choose Control Panel, click on the Printers Icon, choose the desired printer, choose Settings, choose Options, and then choose Advanced.)

setting is a personal preference. Keep in mind that some vendors recommend this setting be on for their program to work optimally.

Fast Printing Direct to Port in the Connect window of the Printer Control Panel (see Figure 2) allows MS Windows 3.1 to by-pass the MS DOS Operating System and the BIOS (Basic Input Output System) and talk directly to the parallel interface hardware in the PC for printing. Do not turn on the Fast Printing Direct to Port option if you are using a local print spooler such as Print Manager because it will actually take longer to print the job. In addition, the Fast Printing Direct to Port option should not be used if you are printing over LocalTalk or EtherTalk, or if you are printing to a spool queue on a networked print server. This is because these programs redirect the interrupt used by DOS for printing, so if you bypass DOS, you could experience problems.

If your the printer consistently drops off-line, then most likely, you need to increase the timeout settings in the Printer Control Panel for the Device Not Selected and the Transmission Retry to higher settings.

Print Manager

Print Manager is a local spooler which, upon printing, frees up the workstation faster than if you had printed directly. While this allows you to continue working, it does mean that the job will take longer to print. It is redundant and unnecessary to turn Print Manager on if you are already printing through a network print queue. In fact, if you do this, it will actually take longer to print the job.

Some jobs won't print with Print Manager turned on unless you must have enough room on your local hard disk to hold the spooled PostScript file. On average, these files are approximately three times the size of your original file. In addition, there must be a SET TEMP variable in the AUTOEXEC.BAT file pointing to a valid directory. You can use the SET command at the DOS prompt to check what variables are defined in your environment space. This command returns to the screen a list of all defined variables.

Page sizes

No maximum page size has been published for Linotype-Hell PostScript RIPs and Linotronic imagesetter since the RIP 4. (The maximum page size for the RIP 4 was 33 inches.) With the newer model RIPs, the maximum

page size is virtually unlimited (depending on memory, of course). Roll-fed (also called capstan) recorders like the Linotronic 330 are limited in page length by the amount of film that the take-up cassette can hold (typically 10 meters or about 30 feet).

Limitations on user-defined paper sizes are imposed by the front-end (i.e. the Macintosh, the PC, UNIX®, etc.). With Windows 3.1, this is a known problem. On high-resolution devices such as Linotype-Hell PostScript RIPs and Linotronic imagesetters, there is a limited area that is available for user-defined size (approximately an 8 inch by 8 inch square). This is determined by the 32K maximum pixel per page limitation. In the Advanced Options of the Printer Control Panel in MS Windows 3.1, the user can specify a user-defined page size. If the page size (in inches) multiplied by the resolution (in dots per inch) exceeds 32,767, the MS Windows 3.1 PostScript driver may compress bitmaps either vertically and/or horizontally.

Miscellaneous problems

In most cases, where there is difficulty printing through the parallel interface, the parallel cable turns out to be longer than the six feet allowed for a Centronics® or Centronics-compatible parallel cable. If you are having trouble using a switch box, try disconnecting it and printing directly from the PC to the RIP. In addition, if you are running MS DOS applications on 386 or higher machines, make sure you add the following line to your AUTOEXEC.BAT file:

```
C:\DOS\MODE LPT1:,,P
```

This sets it up for infinite retries on the parallel port. This is a timing problem.

If the problem is in MS Windows 3.1, try printing the job to file and then outputting the PostScript print file from outside of MS Windows 3.1. This will tell you if the problem is a communication problem or a MS Windows problem. In some cases, you might try using PRINTFIX.COM, a memory-resident utility from Microsoft Corporation for computers that encounter printing errors under MS DOS Version 4.0, 4.01, 5.0 or 6.0. PRINTFIX disables the extended error checking that these versions of MS-DOS perform when printing to a parallel port. Extended error checking needs to be disabled only if your computer's hardware does not support the hardware checks MS DOS is making. You should not install PRINTFIX if you aren't experiencing printing errors.

Finally, if your RIP is connected to a network file server, taking down the file server and printing from DOS directly will let you know if the network hardware is working. If it works, then the problem is likely due to your network printer configuration setup.

Adobe's printer driver

Adobe Systems, Inc. has been working on their own version of a PostScript driver for MS Windows 3.1 but as of the writing of this article, it is not available. This driver is supposed to provide a number of features including full support for both PostScript Level 1 and Level 2 Printers. (Call Adobe technical sales at 800-833-6687 for more information).

Conclusion

While we don't recommend specific brands of PC software and hardware, the demands placed on a computer by many desktop publishing or imaging software programs make it advisable to use the best price/performance 486 or Pentium™ computer you can afford. It should have at least 16-MB of RAM, and very fast hard drives and Video Display Adapters. A 32-bit EISA Bus architecture is recommended with 32-bit EISA cards wherever possible. (EISA stands for Extended Industry Standard Architecture). Do not run versions of MS DOS earlier than version 5.0 or MS Windows earlier than version 3.1. In addition, vendors of Microsoft Windows desktop publishing or

Calling the Linotype-Hell Technical Assistance Center (800-633-1900)

The Linotype-Hell Technical Assistance Center will be better able to help you with a Windows-related question if you have the following materials ready:

1. Your Linotype-Hell service contract number.
2. Copies of your AUTOEXEC.BAT, CONFIG.SYS, SYSTEM.INI and WIN.INI files, preferably on a floppy diskette, otherwise as hard copy.
3. The version numbers for MS DOS, MS Windows, the Windows PostScript driver, the software application program you are using, and the model name of the Linotype-Hell PostScript RIP and imagesetter along with the PostScript system software being used.
4. A complete description of the PC hardware including: manufacturer/model, amount of RAM, hard disk, network interface card, etc.
5. The name, address, and phone number of a contact at the manufacturer of the software application program being used. While we have contacts with many vendors, this information helps us to get technical details on a specific program.
6. A complete description of the problem, a copy of the problem job (both application source file and PostScript print file) on disk and a hard copy printout of the job, if available.
7. A complete list of all the fonts being used and whether you have them downloaded on the hard disk of the Linotype-Hell PostScript RIP or not. Please indicate the version number of the program you use to download fonts. If you are using Adobe Type Manager™ for Windows, list the version.

imaging software programs regularly release patches and updated versions of their products that fix problems and improve features. Get these fixes as soon as possible and install them on your machine.

If after reading this document you still have an unanswered question or are experiencing problems printing using MS Windows 3.1, and you are a Linotype-Hell service contract customer, please contact the Linotype-Hell Technical Assistance Center at (800-633-1900). By preparing yourself with the information in the box above, the support representative will be better able to diagnose your problem.

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For fun

A new book by Daniel Will-Harris takes a humorous look at MS Windows. It is called *Dr. Daniel's Windows Diet: A fast cure for your Windows pains.* The focus of the book is MS Windows, rather than MS Windows printing issues, but it is done in such a charming style, that it makes for entertaining and educational reading. It is published by PeachPit Press.(800-283-9444).

Please direct any questions or comments to: Jim Hamilton, Marketing Department, Linotype-Hell Company, 425 Oser Avenue, Hauppauge, NY 11788
(For subscription information on the Linotype-Hell technical information series, please call 1-800-842-9721.)

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