

Frequently Asked Questions from comp.windows.ms

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Acknowledgements

A companion posting can be found in **comp.windows.ms.programmer**.
(comp.windows.ms.programmer is a Usenet newsgroup and is not currently available from any of the BITNET list servers.)

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1. Why are there two newsgroups for Windows?

Comp.windows.ms.programmer is for discussion about developing Windows software. It is not intended for discussions about Windows software or for questions about the Foobar SVGA drivers.

Comp.windows.ms is for any Windows discussions that do not concern development of Windows software.

2. Are there free Windows applications available? How can I get them?

Yes, there are quite a few. Of course, there is always CompuServe (which has a **lot** of them) and your local BBS, but for us net.junkies the Windows Heaven is located at cica.cica.indiana.edu, and is accessed using a program called "ftp". This program is accessible from most Internet sites, but is not usable through uucp links. If you do have ftp available to you, follow the instructions below to connect to cica; do not type in the // comments!

```
$ ftp cica.cica.indiana.edu           // make connection
Connected to ... blah blah blah      // cica responds
Userid (user@cica): ftp              // enter "ftp" as userid
Password: real_userid@site           // enter your own userid
ftp> tenex                            // for binary transfers
ftp> cd /pub/pc/win3                  // where the goodies are
ftp> get ls-ltR                        // get the current index
ftp> quit                              // we're done
$ _
```

Of course, you can get multiple files at a time -- read the ftp man page for more information. Please do not access cica.cica.indiana.edu between 8am and 6pm EST to prevent overloading the system. If your ftp program complains about an unknown site, you can substitute the numeric address, 129.79.20.22, for cica.cica.indiana.edu in the ftp command.

Remember that shareware is not free. Register the software you use to encourage the development of more low-cost software.

3. Are there Windows drivers available for my Frobozz Super VGA Turbo X clone display card?

First, unless the card is one of the major brands (ATI, Orchid, Paradise, Video-7) find out which chipset the card has, either by looking at the manual or the card itself. Then check the /pub/pc/win3/video directory at **cica** for the appropriate driver. The generic SVGA driver will let you use 800x600x16 on just about any SVGA card as long as you can find out the appropriate video mode number. Finally, if you get desperate, you could call up your video card manufacturer/vendor and ask them why the drivers were not included with the card, and to send them to you.

4. Is it possible to use a mail server instead of ftp?

There are a number of sites that archive the Usenet sources newsgroups and make them available via an email query system. You send a message to an automated server saying something like "send comp.sources.unix/fbm", and a few hours or days later you get the file in the mail.

There are several sites that will perform general FTP retrievals for you in response to a similar mail query. For information on using one of them, send a message like this to info-server@cs.net :

```
request: info
topic: help-ftp
request: end
```

(NOTE: this server is currently "down for repairs". No estimate on when or if it will return.)

And for info on another one, send this message to bitftp@pucc.bitnet :

```
help
```

Apparently the bitftp server is no longer available to non-bitnet sites, though. One final choice is to use the **garbo** server, which lets you access the garbo archive (which contains many of the cica files). Send a mail message with "Subject: garbo-request" and a single line of text "send help" to mailserv@garbo.uwasa.fi.

Please be considerate, and don't over-use these services. If people start using them to retrieve hundreds of megabytes of GIF files, they will probably disappear.

5. How much memory do I need to run Windows?

The more the better! You can run in real mode with 640K (assuming you don't have a lot of device drivers or TSRs), but many large applications will run **very** slowly. Standard mode requires 1 MB, but 2 MB is much better. For 386 enhanced mode, you need a minimum of 2 MB. However, you should really have 3 to 4 MB available for good 386 enhanced mode performance, especially if you wish to run several DOS sessions.

In addition to the memory above, you might wish to have a disk cache (such as SmartDrive, included with Windows) to improve Windows performance. Some applications (such as WingZ, Excel or Word for Windows) are either impossible or impractical to run in real mode due to lack of memory.

6. Is there any advantage to running in standard mode instead of 386 enhanced mode?

Yes -- speed. Windows runs faster in standard mode than in 386 enhanced mode. You lose virtual memory, but if you have sufficient physical memory and don't have a need to run DOS applications, you may be happier in standard mode. Do remember, though, that some applications require 386 enhanced mode (wdeb386 is one example).

7. Can I run Windows 2.x applications in 3.0?

Yes. If you run in real mode, the applications behave just like in 2.x, but have somewhat less memory available to them. If the applications are "well-behaved", they will also run in standard and 386 enhanced modes, but Windows will first warn you with a "nag" message that the application wasn't written for Windows 3.0. If you run a ill-behaved application in standard or 386 enhanced mode, the application will likely crash with Unrecoverable Application Error.

If you have a 2.x application that runs well in all modes, you can mark it Windows 3.0-compatible using either the mark3.exe (?) or the nonag.exe utility. Both are available freely by ftp from cica.

8. Can I run DOS in a window?

Strictly speaking, you're running DOS even when you're in Windows. However, you can run a `command.com` session from Windows. In real mode, you are limited to a single session. In standard mode, you can have multiple sessions, but they must still run full-screen. In 386 enhanced mode, you can have multiple sessions, and they can run in a window, as well as continue to execute in the background.

You can control the starting up in a window vs full-screen by setting up a **.pif** file for the program (`command.com` or otherwise). You can also switch the state by pressing Alt-Enter.

9. Why do I run out of environment space when I run a batch file in a DOS session?

When Windows starts up a DOS session, by default, it gives the session an environment of 224 bytes, or the space required to hold your current environment, whichever is larger. If you need more space, there are two methods of circumventing this. In order of desirability:

1. Use a .pif file for each DOS application you run. In this you can specify the environment size by using the /e:nnn option (see your DOS manual). You will need a separate DOS file for each program. (You can, however, just create a command.pif with a suitable /e:nnn, and then specify in the win.ini a line such as:

```
[Extensions]
bat=command.pif ^.bat           // for DOS users
ksh=sh.exe ^.ksh                // for MKS users
```

With this, you can create batch file icons freely, and still get the options specified in command.pif.

2. Specify a dummy variable such as DUMMY1=xxxxx.... before starting up Windows. Then, as the first thing in each DOS session, do:

```
set DUMMY1=
```

to reclaim the space used by DUMMY1 for other environment variables.

10. Does Lotus 1-2-3 work under Windows?

Versions 1.x, 2.x and 3.1 run in all modes, but do not support any of the features of the Windows environment. For all intents and purposes, version 3.0 doesn't run under Windows. Lotus 1-2-3 for Windows is now available, as well as excellent spreadsheets such as Excel and WingZ.

11. Can I use DesqView/386 or QEMM/386 with Windows?

You can use versions 5.0 of QEMM/386 and below with real-mode Windows only. QEMM/386 version 5.1 provides XMS services for Windows, thus allowing Windows to run in all modes under QEMM/386, plus providing compatibility with VCPI applications (see below). Windows will run in standard and real modes as a DesqView/386 task.

12. Why won't my protected-mode software run under Windows?

Most protected-mode applications currently on the market use an extended-memory interface called VCPI (Virtual Control Program Interface), which is incompatible with Windows' DPMI (DOS Protected Mode Interface (?)). Microsoft went against an established standard in choosing DPMI, but there are valid technical reasons why VCPI was not chosen for Windows. At this point, you have three choices:

1. Run your protected-mode software under DOS. This means that you must NOT use Windows or SmartDrive before running your VCPI software, and may require you to have two different config.sys files.
2. Plead with your software developer to develop a Windows-compatible version. They should already be working on it anyway, given the momentum that Windows 3.0 has.
3. Buy QEMM/386, which provides VCPI. You'll be able to run your protected-mode software as well as Windows 3.0.

13. Why can't I use Windows from the MKS Korn shell?

There are two possible problems. First, with versions up to and including 3.1c of the MKS Toolkit, the use of login.exe precludes the use of Windows 3.0 in any but the real mode. To avoid this, have your machine boot directly into the Korn shell or command.com.

Second, somebody at Microsoft had a brain fade, and Windows gets confused if it is started with a forward slash path. Thus, if you simply type "win" in Korn shell, the shell invokes Windows with something like:

```
"c:/usr/windows/win.com"
```

and Windows doesn't know where to find itself! To cure this, specify an alias for Windows: I use:

```
alias -x win='c:\\usr\\windows\\win.com'
```

Note that the double backslashes are necessary for the Korn shell, even inside the single quotes.

The newer versions of MKS Toolkit allow (standard and 386 enhanced mode) Windows to run directly from the login: prompt; but they still won't let you run standard/386 enhanced Windows from the shell (if you used login). An updated version of init.exe is available from MKS for users of older versions of the MKS Toolkit.

14. Which networks are compatible with Windows 3.0?

The following are known to work; see also networks.txt in your Windows directory:

Network	earliest version	
-----	-----	
3Com 3 Plus	1.0	
3Com 3+Open	1.0	
Banyan Vines	4.0	
BW NFS	??	
DEC PathWorks	4.0	
IBM PC LAN	1.1	[except server]
LAN Manager	1.0	
LANtastic	4.0	
Novell Netware	2.15	[shell & utilities must be version 3.01]
Sun PC-NFS	3.5	[real/standard mode only]

15. How can I use COM3 or COM4 from Windows?

This is generally a problem only in 386 enhanced mode. To use these ports, you will need to tell Windows where they are located; the instructions for doing this can be found in the Windows readme file SYSINI2.TXT, which should be located in your Windows directory.

In summary, what you need to do is tell Windows what memory addresses and interrupts (IRQs) your COM3 and COM4 ports use. This should work, but is not guaranteed. COM3 and COM4 are not standardized, and this is one of the most difficult things to get working with Windows. If possible, move your devices to COM1 or COM2.

If the port still does not work after specifying the correct IRQ and memory address for the port, there is another possible solution: Assuming the ports work OK from plain DOS, try setting up COM3.OS2 (or COM4.OS2) instead of the usual COM3 or COM4. The manual says this is just for OS/2 machines, but it seems to work for many clones.

16. Why doesn't my mouse work in a DOS window?

If you are running a DOS application in a window, Windows will retain control of the mouse for cutting and pasting. You can use a mouse in a full-screen DOS session if you install a mouse driver by running MOUSE.COM (either before starting Windows, or inside the DOS session), or by including 'device=mouse.sys' in your config.sys file.

If you're running WordPerfect 5.1 inside Windows, WordPerfect must be **started** full-screen in order to detect the mouse. Once it has started, you can use Alt-Enter to run in a window, if you wish. You could also convert to WP for Windows.

17. Why don't my TSRs work in DOS sessions?

Some TSR programs will not work if you install them before running Windows. Some of them will not work if you install them inside a DOS session. Generally the best idea is to avoid TSRs completely unless you really need them. See also the description of `winstart.bat` in the Windows `.txt` files.

18. Can I use 256 colors in Windows?

Yes, given two caveats: First, your display card and its driver must support 256 colors. Second, your application must know about 256 colors, as this requires palette switching and some additional programming. Most applications currently on the market only support 16 colors. In order to get 256 colors, your video card will need at least 320K (for 640x480), 512K (for 800x600) or 768K (for 1024x768) of RAM. 256-color drivers are also much slower than 16-color drivers.

19. Are there any good communication programs for Windows?

Well, maybe. There is not yet a consensus about any of the current products. There are a number of free or shareware ones: Terminal (included with Windows), WinQVT, Unicom and WinKermit, but all have their problems and lack in some features. All of them are also available on cica. Commercial packages include DynaComm ("big brother" of Terminal), MicroPhone, CrossTalk for Windows and Wincomm. Again, none of them stands out as the perfect choice, although several have shown promise.

A number of DOS-based communication packages, such a ProComm and Telix, will also happily function in the background in a DOS session.

20. How do I change the icon for a program?

Choose the item in Program Manager, and then select File Properties. Click on "Icon...", and then enter the name of the file containing the new icon. If the icon file is a DLL or EXE containing multiple icons, you can cycle through the icons by clicking "Next Icon". Click "OK", and then "OK" again. You can also use icons from other programs by the same method: just specify the name of the .exe file instead of an icon or DLL file.

The icon that is displayed by the application when it is minimized is controlled by the application. It is not normally possible to change that. However, several work-arounds exist. First, you can use the IINJECT or PUTICON utility to replace the standard DOS icon, which is contained in winoa286.mod and/or winoa386.mod. Alternatively, the IconFixer utility monitors your DOS applications, and updates their icons as you minimize them, allowing you to have different icons for different DOS applications. All three utilities are available from cica.cica.indiana.edu. You can also wait for Windows 3.1.

21. Can I create my own icons?

Yes. You can use either IconDraw (shareware) or SDKPaint (a part of the Windows SDK). Simply draw your icon, and save it as an ".ico" file.

22. Do I have to keep my icons and wallpaper bitmaps in the Windows directory?

Wallpaper bitmaps have to be kept in the Windows directory (unless you use a utility such as PaperBoy for changing the wallpaper, or do all your wallpaper changes by manually editing the win.ini file). Icons may be kept anywhere; it may be convenient to create an ICON subdirectory under the Windows directory.

23. I installed some more fonts using Control Panel. Why can't I access them in Word for Windows (or another application)?

Word for Windows shows in its font menu the fonts currently available for the selected *output* device, not the *display* device. You can still use, say, vector fonts that you installed, by typing the name of the font in the edit box. Windows will draw vector fonts on the output device without problems -- you may or may not like the results. Screen fonts are also used for printing on dot-matrix printers.

In some cases, you may also need to force the application to refresh its output device font list. The easiest way to do this is to do File Printer Setup, click Setup, then click OK, and finally OK again.

24. Do Bitstream FaceLift, Adobe Type Manager (ATM) and TrueType really work? Are they worth the money?

Yes, they work -- except for TrueType, which is not yet available (Windows 3.1). Both ATM and FaceLift also have some problems with Ami Professional, which does strange things with its screen fonts. On the whole, FaceLift will support more applications and output devices than ATM, but the difference may not be significant. FaceLift also lets you generate soft fonts for the LaserJet series (for faster printing). ATM does not give you that option (although it will let you use existing soft fonts). Finally, FaceLift is somewhat more flexible than ATM, and uses less memory. However, ATM can use the numerous free Adobe Type 1 fonts available free from places like cica.cica.indiana.edu. Both provide high-quality fonts and much better WYSIWYG at the cost of somewhat slower screen updates and slightly slower printing.

And at street prices not much above \$50, yes, both of them are worth the money you'll pay for them. They are compatible, so you can run both of them on the same system.

You might, however, want to consider the fact that Windows 3.1 will include TrueType, which does the same job as ATM and FaceLift (although using yet another different font format).

25. How can I convert a GIF or MS-Paint file to a .bmp to use it as a wallpaper in Windows?

You can save a .msp file as a .bmp from Windows Paint. You can convert a .gif file to a .bmp using the GIF2BMP utility from cica. WINGIF will also do a good conversion, including dithering 256-color images to 16 colors (rescale before dithering!).

26. Why won't my .bmp wallpaper display correctly?

Well, it could be a number of reasons. The most likely are:

1. Your .bmp file is corrupted. Try reading it into Paintbrush to verify that it is readable.
2. You are trying to display 256 colors with a 16-color video driver.
3. You have insufficient memory to display the bitmap. A 800x600x16 bitmap requires 256K of memory; 1024x768x256 would require 768K!

For 256-to-16 color dithering, you may wish to try using PicLab 1.82 with the help of wincnv.zip (available from cica).

27. I can't create a permanent swapfile. What could be the cause?

First of all, you must be running in real mode to be able to create a permanent swapfile. Second, You must not have any SUBSTed drives or Windows won't create the swapfile. Once the swapfile has been created, you can re-SUBST your drives.

You also can't create a permanent swapfile on a drive partitioned with third-party software such as SpeedStor (see question 30). If you are installing on a Novell client, you must first disable the "receive network messages" feature (using the network icon in the Control Panel) and reboot. Once you have installed the swapfile, turn messages back on again.

28. Why do I get floppy drive errors installing Windows or Windows apps?

If you have SHARE installed, you must rename share.exe (to, something like noshare.exe) and reboot. Once you have completed the installation, you can rename share.exe back to its original name.

29. Are there problems with using Windows 3.0 on large hard disks?

Yes, but only in rare cases. Your system is at risk IF:

- You are using third-party partitioning software, such as:
 - Disk Manager (dmdrv.bin)
 - InnerSpace (edvr.sys)
 - SpeedStor (sstor.sys or harddrive.sys)
 - Vfeatures Deluxe (fixt_drv.sys)
- *AND* you are using SmartDrive (smartdrv.sys) as your disk cache
- *AND* your hard disk has more than 1023 cylinders

If your hard disk has fewer than 1024 cylinders, you may still be at risk if the first two conditions hold true, you are using DOS 3.30 or later, *AND* your hard disk is not supported by your BIOS.

To avoid problems, you can either stop using SmartDrive, or reformat your disk using the DOS FDISK utility.

Note that in 386 enhanced mode, Windows 3.0 supports only ST-506, ESDI and IDE disk controllers. If you have a SCSI controller, you need to load SmartDrive in order to allow Windows to recognize your hard disk. As an alternative, you may insert the following line in your system.ini file, in the:

```
[386ENH] section:  
VirtualHDIRQ=off
```

Do not disable double buffering in a SCSI drive. Also, some people report having problems with permanent swapfiles on SCSI drives.

If you are still having problems, call Microsoft Tech Support at (206) 454-2030.

There are no problems with large partitions created by the FDISK program included with MS-DOS 4.0 and some versions of MS-DOS 3.3.

30. How can I make Windows 3.0 act like the runtime versions of 2.x, which exit Windows when you exit your application?

You can do this as follows (the example is for Excel; others are similar):

1. Create a new directory called `c:\excel` (it doesn't have to be distinct; it could be your normal Excel directory, as long as it's not the main Windows 3 directory).
2. Copy the following to the new directory from the Windows directory:
`win.com`
`win.ini`
`system.ini`
3. In the new directory modify the [boot] section of 'system.ini' by changing the shell= line to point to the one-and-only program you want to run. The original line should read:

```
shell=progman.exe
```

and the modified line should be something like:

```
shell=c:\excel\excel.exe
```

Remember to type the complete path\filename of the program to be executed, including the '.exe' suffix.

4. To execute the dedicated Windows session just put the new directory ahead of the normal Windows directory in your path and issue the 'win' command, or start Windows with the command '`c:\excel\win`'.

What we're doing here is making Windows think it's running on a network where the actual executable files etc. are on a network server, and only the basic control files (and win.com) are on the user's local disk.

Note that this technique isolates any changes in WIN.INI and SYSTEM.INI made in the dedicated task from any changes made in normal Windows; this may or may not be desirable. If you need to keep the two flavors of Windows in sync you'll have to provide an outboard copy function to refresh the files.

31. How do I use the keypad in Windows Terminal?

Press ScrollLock to toggle the keypad between local and remote mode. Default is local mode.

32. Why does F5 in Notepad insert only a date and not the time as well?

It's a bug. Maybe Windows 3.1 will fix it...

33. Does Windows take advantage of an 80x87 math coprocessor? And what is this WIN87EM.DLL file in my Windows directory?

Windows itself does not take advantage of a math chip. Windows apps, on the other hand, may or may not, depending on the application: Excel will, Word for Windows won't. In general, an 80x87 gives the greatest speedup for trig/log type of calculations, and does not improve graphics speed in most cases.

The WIN87EM.DLL is a dynamic link library which provides floating-point emulation for Windows applications. Any application which is capable of using an 80x87 will need this library on a machine without an 80x87.

34. How do I start up Excel or Word for Windows in a different directory?

To start up a Windows application in a default directory other than the Windows directory, you have three choices:

- i) Create an auto-execute macro for that application, which will change your directory upon startup.
- ii) Specify your application's path in Program Manager as something like "d:\u\personal\letters\winword.exe". As long as the application is on your path, it will be started as usual, but with the default directory being the one you specified in Program Manager.
- iii) FTP StartUp from cica. It can be used to set the startup directory for any application.

35. What are "free system resources"? How do they differ from free memory?

Free system resources are things such as window handles and global memory block handles. You can't increase them by just adding more memory; the only real solution is to close some applications if you are running low.

Windows 3.1 is reputed to have higher limits, and a later version will do away with the limits altogether.

36. How can I automatically open applications when I start up Windows, with predefined window sizes and positions?

You can load applications automatically in two ways:

- i. By specifying them on the load= line in win.ini. This will load the specified applications as icons.
- ii. By specifying them on the run= line in win.ini. This will load the applications with their default window sizes.

If you need specific window sizes or positions, you will need to use another utility, either shareware (such as SizeIt, Layout, Command Post or Aporia) or commercial (Batchworks, Bridge or NewWave).

37. How do I get rid of the Windows opening logo? Or change it?

Start Windows with the command line such as "win : ". Be warned, however, that some people have had problems with this.

To change the logo to something else, you need to first create a .RLE file (using a graphics utility package), with no more than 16 colours, and not exceeding the VGA 640x480 screen resolution, and no more than 64K in size. Once you have this file, say mylogo.rle, enter the following command in your system subdirectory:

```
copy win.cnf /B + vgalogo.lgo /B + mylogo.rle /B win.com
```

If you use CGA or EGA, limit the .RLE file to the appropriate resolution, and replace the "vgalogo" above with "cgalogo" or "egalogo".

38. Why doesn't my mouse work when I run WordPerfect (or another application) inside Windows?

To use a mouse with a DOS application, you need to install a mouse driver (such as mouse.sys or mouse.com). Further, the mouse will not work if you are running the DOS application in a window, as Windows will retain the control of the mouse. Finally, some applications (such as WordPerfect) will only detect the mouse if the application starts in full-screen mode.

39. What could cause Windows to start up VERY slowly (over a minute)?

One possible reason is the use of a serial mouse on COM2 instead of COM1. If you have a serial mouse, Windows will first attempt to find it (with great persistence) on COM1, before it looks on COM2. If your mouse is on COM2, move it to COM1.

Using a temporary swapfile instead of a permanent one for 386 enhanced mode also slows down the startup process, but not to even nearly the same extent as the serial mouse problem.

40. How can get File Manager to format floppies?

If you are having trouble formatting floppies from the file manager, try adding one or more:

```
DEVICE=DRIVER.SYS /D:# /F:#
```

lines to your CONFIG.SYS.

41. What do I need to do to get MS-SH to work with Windows?

The basic problem is the MS-SH 'swap' setting. In real mode, you will need to use 'swap disk'. In Standard mode, you can also use 'swap extend', but you will have to specify at least 200K of XMS memory in the MS-SH .PIF file. Alternatively, if you are using Standard or 386 Enhanced mode, you can use 'swap ems', but again you need to specify at least 200K of EMS memory in your .PIF file. Also, a bug in the current version of MS-SH prevents 'swap extend' from working in 386 enhanced mode; MS-SH will always crash with a panic error.

42. What can cause strange problems with 0xff being written to every other byte when copying files to a floppy within a DOS session?

This is most likely caused by an expansion board using the same memory area also used by Windows for EMM. You should check that you EMMExclude all areas used by your cards.

The Video-7 1024 SVGA board needs a more radical measure: you need to change a jumper to do all ROM decoding in C000-C7FF, and change a DIP switch to force 8-bit ROM access.

43. What could be the cause of serious performance deterioration in a DOS session in 386 Enhanced mode?

The most likely cause is slow memory. If your onboard memory is accessed with basically no wait states, but you have a slower memory expansion card, your machine will run slower whenever it is using those higher memory addresses. This will generally happen when you start a DOS session, and often result in 30-50% performance reductions using various benchmarks. The performance is actually also reduced within Windows, but it's difficult to notice this due to the lack of a suitable benchmark.

The proper cure for this problem is to either upgrade your memory expansion card, or to correct whatever problem is causing your machine to access extended memory with such poor problem.

DOS application performance is also degraded by using a PIF file (such as the default PIF) with the Monitor Ports option enabled.

44. What can I do to get WordPerfect for Windows to read my A: drive?

In the [386Enhanced] section of your SYSTEM.INI file, add the line

HighFloppyReads=0

45. Where can I find a Windows driver for my Canon BJ-10e (or another non-standard) printer?

The Windows Supplemental Driver Disks (available from Microsoft support) include a large number of additional drivers, including BJ-10e. These drivers are also available by FTP from cica.cica.indiana.edu.

46. Windows refuses to run without a file called WINA20.386, but I can't find it on any of my Windows disks. Where do I get it from?

Quoting from the MS-DOS 5.0 README.TXT file:

4.3 WINA20.386 File

Setup installs a read-only file named WINA20.386 in your root directory.

If you move the WINA20.386 file to a different directory, do the following:

1. Add a SWITCHES=/W command to your CONFIG.SYS file.
2. Add a DEVICE=[drive:][path]WINA20.386 command to the [386Enh] section of your Windows SYSTEM.INI file.

47. When will Windows 3.1 be available? And what will it cost?

Microsoft has announced a \$79 suggested list price on Windows 3.1; upgrades will cost \$49 until June 1, and \$59 thereafter. *ALL* legal copies of Windows 3.0 will be eligible; if yours was included with your system, contact your system vendor to see whether they have an upgrade available directly.

The announced availability date is April 6, 1991.

48. How do I swap the Ctrl and Caps Locks Keys?

You need a new keyboard driver. A good one comes with the distribution of Kermit for windows. You can get Kermit for windows using FTP from watsun.cc.columbia.edu.

49. What major applications are available for Windows?

Word processing:

- Lotus Ami
- Lotus Ami Professional
- Symantec JustWrite
- NBI Legacy
- Microsoft Word for Windows
- SPC Professional Write for Windows
- WordPerfect for Windows
- WordStar Legacy
- WordStar for Windows

Spreadsheets:

- Bell Atlantic ThinX
- CA Compete!
- Informix WingZ
- Lotus 1-2-3 for Windows
- Microsoft Excel for Windows

Integrated

- Microsoft Works for Windows
- PFS Works for Windows

Desktop publishing:

- Aldus PageMaker for Windows
- Microsoft Publisher
- Xerox Ventura Publisher for Windows

Drawing/Graphic arts:

- Corel Draw!
- Harvard Draw for Windows
- Micrografx Designer
- Micrografx Windows Draw

Presentation graphics:

- Aldus Persuasion
- Harvard Graphics for Windows
- IBM Hollywood
- Microsoft Powerpoint

Project management:

- CA SuperProject for Windows
- Microsoft Project for Windows
- OnTarget
- Scitor Project Scheduler

Financial Management:

Intuit Quicken for Windows

Microsoft Money

Relational databases:

DB Vista III

ObjectTrieve

Omnis 5

SuperBase 4

dBFast for Windows

See the companion posting in comp.windows.ms.programmer for a description of available development tools.