Chapter

3 The Windows Files

A question that technical people often ask about Microsoft Windows is: *What does this file do?* This chapter describes the purpose for each file in the WINDOWS directory and the SYSTEM subdirectory.

For information about how to add to the list of files that are installed automatically with Windows, see "Modifying .INF Files for Custom Installations" in Chapter 2, "The Windows Setup Information Files."

Related information

- *Windows Resource Kit:* Chapter 2, "The Windows Setup Information Files"; Chapter 4, "The Windows Initialization Files"; Appendix C, "Windows 3.1 Disks and Files"
- *Glossary terms:* code page, EMS, XMS, protected mode, virtual device

Contents of this chapter

About the Windows Files

When Microsoft Windows runs, it performs all operating system duties except file system management, which MS-DOS still performs. Windows calls functions that are stored in a variety of executable files, driver files, and other dynamic-link libraries to manage the display, keyboard, and other devices, and to manage memory and execute programs.

The kinds of files that make up Windows 3.1 include:

- The WIN.COM file.
- The core dynamic-link libraries (kernel files, USER, and GDI) that contain the code and data for the Windows functions.
- The font files and the drivers for keyboard, display, system, mouse, printers, networks, multimedia, and other devices.
- The files that provide MS-DOS support components for Windows.
- The Windows applications files and other files such as shells, utilities, and accessories.

Flowchart 1.7 Expanding Files from the Windows Disks

For instructions on how to expand any files from the Windows installation disks, see Flowchart 1.7 on page 16. For technical information about the Windows 3.1 files, see the manuals for the Microsoft Windows Software Development Kit and Driver Development Kit.

WIN.COM

WIN.COM is the loader for Windows. It checks the machine type, memory configuration, and device drivers to determine which mode is appropriate to start Windows. To start Windows, there needs to be sufficient memory, an XMS driver present (such as HIMEM.SYS), and processor support for standard mode (80286 or higher) or 386 enhanced mode (80386 or higher).

After WIN.COM determines the appropriate operating mode, it uses the MS-DOS **exec** command to execute one of the following files, which in turn loads Windows:

- DOSX.EXE for standard mode
- WIN386.EXE for 386 enhanced mode

To build Windows, WIN.COM brings together a number of files:

- The core files
- The drivers
- The fonts and language support files
- Support files for non-Windows application
- MS-DOS support and various mode-specific files

The Core Files

Three files make up the Windows core components: Kernel, User, and GDI.

- The kernel files (KRNL286.EXE or KRNL386.EXE) control and allocate all the machine resources to manage memory, load applications, and schedule program execution and other tasks.
- USER.EXE creates and maintains windows on the screen, carrying out all requests to create, move, size, or destroy a window. User also handles requests regarding the icons and other components of the user interface. User directs input to the appropriate application from the keyboard, mouse, and other input sources.
- GDI.EXE controls the Graphics Device Interface, which executes graphics operations that create images on the system display and other devices.

Drivers, Fonts, and International Support Files

Driver Files

Drivers make device independence possible for Windows applications, providing the hardware-specific interface between the physical devices and Windows. Setup can install several kinds of drivers for Windows, such as:

Comm drivers	Mouse drivers	Printer drivers
Display drivers	Multimedia drivers	Sound drivers
Keyboard drivers	Network drivers	System drivers

The network, multimedia, and printer drivers are optional. Also, drivers can be installed to support virtual machines in 386 enhanced mode, as described in “Files for 386 Enhanced Mode” later in this chapter.

System Driver Files

The system driver provides support for the system timer, information about system disks, and access to OEM-defined system hooks. There are two system drivers shipped with Windows:

- SYSTEM.DRV, the driver for most hardware systems
- HPSYSTEM.DRV, the HP Vectra system driver for standard mode

Keyboard Driver Files

The keyboard drivers shipped with Windows support keyboard input:

- KEYBOARD.DRV for standard keyboards, installed by default
- KBDHP.DRV for all Hewlett-Packard machines
- KBDMOUSE.DRV, the Olivetti/AT&T keyboard mouse driver

The keyboard driver is a standard driver for all systems worldwide. Windows can also handle international keyboards, including foreign symbols, by using the keyboard tables to refer to a language library.

Keyboard table	*Language library*
KBDBE.DLL	Belgian keyboard
KBDCA.DLL	French-Canadian keyboard
KBDDA.DLL	Danish keyboard
KBDDV.DLL	U.S.-Dvorak keyboard
KBDFC.DLL	Canadian multilingual keyboard
KBDFI.DLL	Finnish keyboard
KBDFR.DLL	French keyboard
KBDGR.DLL	German keyboard
KBDIC.DLL	Icelandic keyboard
KBDIT.DLL	Italian keyboard
KBDLA.DLL	Latin American keyboard
KBDNE.DLL	Dutch keyboard
KBDNO.DLL	Norwegian keyboard
KBDPO.DLL	Portuguese keyboard
KBDSF.DLL	Swiss-French keyboard
KBDSG.DLL	Swiss-German keyboard
KBDSP.DLL	Spanish keyboard
KBDSW.DLL	Swedish keyboard
KBDUK.DLL	British keyboard
KBDUS.DLL	U.S. keyboard
KBDUSX.DLL	U.S.-International keyboard

The .DLL filename extension indicates that the file is a dynamic-link library.

Mouse Driver Files

The mouse drivers shipped with Windows support pointing devices for use with Windows and Windows applications.

Driver	Supported mouse or pointing device
HPMOUSE.DRV	Hewlett-Packard mouse (HP-HIL)
KBDMOUSE.DRV	Olivetti/AT&T keyboard mouse
LMOUSE.DRV	Logitech Serial mouse
MSC3BC2.DRV	Mouse Systems COM2/3 button mouse
MSCMOUSE.DRV	Mouse Systems Serial/Bus mouse
MOUSE.DRV	Logitech Bus or PS/2 style, Microsoft, or IBM PS/2 mouse
NOMOUSE.DRV	No mouse attached to system

For information about the related MS-DOS mouse drivers, see "MS-DOS Support Components of Windows" later in this chapter.

Display Driver Files

The display drivers shipped with Windows support the system display and the cursor for the pointing device. The display driver, however, does not support non-Windows applications running in full screen, because such applications write directly to video.

Driver	Supported display adapter
8514.DR	8514/a
EGA.DRV	EGA
EGAHIBW.DRV	EGA with 128K RAM
EGAMONO.DRV	EGA monochrome
HERCULES.DRV	Hercules monochrome
OLIBW.DRV	Olivetti/AT&T monochrome or PVC display
PLASMA.DRV	Compaq Portable plasma
SUPERVGA.DRV	Super VGA (800x600 - 16 colors)
TIGA.DRV	TIGA
VGA.DRV	VGA
VGAMONO.DRV	VGA monochrome, MCGA
V7VGA	Video Seven VGA with 512K (FastWrite, VRAM, 1024i, and compatibles)
XGA.DRV	XGA

Other Driver Files

The communications driver, COMM.DRV, supports serial and parallel device communications.

The Advanced Power Management device driver, POWER.DRV, supports the power management features of laptop and notebook PCs.

Printer Driver Files

Printer drivers support output to the printer device. Some of the printer drivers shipped with Windows have a soft font installation utility. The related files also include help files for the printer drivers and soft font installers. In Windows 3.1, many of the dot-matrix drivers have been replaced by a universal printer driver. Other drivers have been updated for performance and to support TrueType fonts.

Printer driver	Representative printer
CANON10E.DRV	Canon Bubble-Jet BJ-10e
CANON130.DRV	Canon Bubble-Jet BJ-130e
CANON330.DRV	Canon Bubble-Jet BJ-300/330
CIT24US.DRV	Citizen 24-pin
CIT9US.DRV	Citizen 9-pin
CITOH.DRV	C-Itoh 8510 or AT&T 470/475
DICONIX.DRV	Kodak Diconix
DM309.DRV	Olivetti DM 309
DMCOLOR.DLL	Universal color printing support libary
EPSON24.DRV	Epson 24-pin
EPSON9.DRV	Epson 9-pin
ESCP2.DRV	Epson ESCP2 dot matrix
EXECJET.DRV	IBM ExecJet
FUJI24.DRV	Fujitsu 24-pin
FUJI9.DRV	Fujitsu 9-pin
GENDRV.DLL	Generic library
HPDSKJET.DRV	Hewlett-Packard DeskJet Series
HPPCL.DRV	HP LaserJet II Series
HPPCL5A.DRV	HP LaserJet III Series (HPPCL5A.HLP and HPPCL5OP.HLP are the help files)
HPPLOT.DRV	HP Plotter
IBM4019.DRV	IBM Laser Printer 4019
IBM5204.DRV	IBM Quickwriter 5204

Printer driver	Representative printer *(continued)*
IBMCOLOR.DRV	IBM Color
LBPII.DRV	Canon LBP-8 II
LBPIII.DRV	Canon LBPIII
NEC24PIN.DRV	NEC 24-pin
OKI24.DRV	Okidata 24-pin
OKI9.DRV	Okidata 9-pin

OKI9IBM.DRV	Okidata 9-Pin IBM Model
PAINTJET.DRV	HP PaintJet
PANSON24.DRV	Panasonic 24-pin
PANSON9.DRV	Panasonic 9-pin
PG306.DRV	PG 306
PROPRINT.DRV	IBM Pro series
PROPRN24.DRV	IBM Pro 24 pin series
PS1.DRV	IBM PS/1
PSCRIPT.DRV	Postscript (PSCRIPT.HLP is the help file)
QWIII.DRV	IBM QuietWriter III
THINKJET.DRV	HP ThinkJet (2225 C-D)
TI850.DRV	TI 850/855
TOSHIBA.DRV	Toshiba p351/1351
TTY.DRV	Generic / Text only (TTY.HLP is the help file)
UNIDRV.DLL	Microsoft universal library (UNIDRV.HLP is the help file)

The following files are soft font installers for specific printers.

Soft font installer	***Related printer***
CAN_ADF.EXE	Canon LBP-8 II or LBPIII
SF4019.EXE	IBM Laser Printer 4019
SFINST.EXE	PG 306
FINSTALL.DLL	HPPCL5/A (FINSTALL.HLP is the help file)

The following files provide additional PostScript description information for specific printers.

PostScript description	***Related printer***
40291730.WPD	IBM LaserPrinter 4029 (17 fonts)
40293930.WPD	IBM LaserPrinter 4029 (39 fonts)
EPL75523.WPD	Epson EPL-7500
HERMES_1.WPD	Hermes H 606 PS (13 Fonts)
HERMES_2.WPD	Hermes H 606 PS (35 Fonts)
HPELI523.WPD	HP LaserJet IIISi PostScript
HPIID522.WPD	HP LaserJet IID PostScript
HPIII522.WPD	HP LaserJet III PostScript
HPIIP522.WPD	HP LaserJet IIP PostScript

PostScript description	***Related printer*** *(continued)*
HP_3D522.WPD	HP LaserJet IIID PostScript
HP_3P522.WPD	HP LaserJet IIIP PostScript
IBM17521.WPD	IBM 4019 (17 fonts)
IBM39521.WPD	IBM 4019 (39 fonts)
MT_TI101.WPD	Microtek TrueLaser
N2090522.WPD	NEC Silentwriter2 90
N2290520.WPD	NEC Silentwriter2 290
N2990523.WPD	NEC Silentwriter2 990
OL840518.WPD	Oki OL840/PS

Q2200510.WPD	QMS-PS 2200
Q820_517.WPD	QMS-PS 820
SEIKO_04.WPD	Seiko ColorPoint PS Model 04
OLIVETI1.WPD	Olivetti PG 306 PS (13 fonts)
P4455514.WPD	Panasonic KX-P4455
TRIUMPH1.WPD	Triumph Adler SDR 7706 PS (13 fonts)
N890X505.WPD	NEC Silentwriter LC890XL
N890_470.WPD	NEC Silentwriter LC890
O5241503.WPD	OceColor G5241 PS
O5242503.WPD	OceColor G5242 PS
OLIVETI2.WPD	Olivetti PG 306 PS (35 fonts)
PHIIPX.WPD	Phaser II PX
SEIKO_14.WPD	Seiko ColorPoint PS Model 14
TIM17521.WPD	TI microLaser PS17
TRIUMPH2.WPD	Triumph Adler SDR 7706 PS
U9415470.WPD	Unisys AP9415
TIM35521.WPD	TI microLaser PS35
TKPHZR21.WPD	Phaser II PX I
TKPHZR31.WPD	Phaser III PX I
DEC1150.WPD	Digital DEClaser 1150
DEC2150.WPD	Digital DEClaser 2150
DEC2250.WPD	Digital DEClaser 2250
DEC3250.WPD	Digital DEClaser 3250
DECCOLOR.WPD	Digital ColorMate PS
DECLPS20.WPD	Digital LPS Print Server
NCM40519.WPD	NEC Colormate PS/40
NCM80519.WPD	NEC Colormate PS/80
L200230&.WPD	Linotronic 200/230
L330_52&.WPD	Linotronic 330
L530_52&.WPD	Linotronic 530
L630_52&.WPD	Linotronic 630

Network Driver Files

The network drivers provide a network interface to the Windows File Manager, Control Panel, Print Manager, and system utilities.

Driver	Support file	Supported network
LANMAN.DRV	LANMAN.HLP	Microsoft LAN Manager 2.0 Extended (and 100% compatible)
	LANMAN.HLP	Microsoft LAN Manager 2.0 driver help
	NETAPI20.DLL	Microsoft LAN Manager API library
	PMSPL20.DLL	Microsoft LAN Manager printer API library
MSNET.DRV		Generic network driver*
PCSA.DRV		DEC Pathworks network driver
NETWARE.DRV	NETWARE.HLP	Novell NetWare 2.10 or above; Novell NetWare386
	NWPOPUP.EXE	Supports pop-up messages
	NETX.COM	Workstation shell
	IPX.OBJ	Workstation comm driver (dedicated)
	IPXODI.COM	Workstation comm driver (ODI model)
	LSL.COM	Workstation link support layer (ODI)
	TBMI2.COM	Workstation task switch support (IPX/SPX)

* MSNET.DRV supports 3Com 3+Share, 3Com 3+Open LAN Manager (XMS only), Banyan VINES 4.0, Microsoft LAN Manager 1.x (and compatibles), Microsoft LAN Manager 2.0 Basic (and compatibles), Microsoft Network (and compatibles), and IBM PC LAN Program.

For a list of the supporting virtual device files, see "Files for 386 Enhanced Mode" later in this chapter. For information about networks, see Chapter 12, "Networks and Windows 3.1."

Multimedia Driver Files

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The following drivers support the multimedia capabilities of Windows 3.1.

Filename	Purpose
MCICDA.DRV	MCI CD-audio driver
MCISEQ.DRV	MCI driver for MIDI driver
MCIWAVE.DRV	MCI driver for waveform audio
MIDIMAP.DRV	Driver for MIDI Mapper Control Panel extension
MPU401.DRV	MIDI driver for MPU401 compatibles
MMSOUND.DRV	Multimedia sound driver
MSADLIB.DRV	MIDI driver for Adlib compatibles
SNDBLST.DRV	SoundBlaster 1.5 DSP driver
SNDBLST2.DRV	SoundBlaster 2.0 DSP driver
TIMER.DRV	Multimedia timer driver

Font Files

Windows has several fonts for supporting the Windows system and Windows applications, and for non-Windows applications running in Windows and data copied to the Clipboard from those applications. For details about Windows fonts, see Chapter 9, "Fonts."

Font files usually have a .TTF, .FON, or .FOT filename extension.

System Font Files

Three basic types of fonts are installed to support display and output devices:

- **System** is a proportional font used by default to draw menus, dialog box controls, and other text in Windows 3.x.
- **Fixed** is a fixed-width font used in Windows 2.x and earlier versions as the system font (for menus and dialog boxes).
- **OEM font**, or Terminal, is a fixed-width font used to display the OEM text in the Windows Clipboard Viewer. The OEM font also provides an OEM character set used by some Windows applications.

The system, fixed, and OEM fonts that are shipped with Windows 3.1 are listed in the following tables.

System font file	*Supported display resolution*
8514SYS.FON	8514/a (1024x768) resolution system font
EGASYS.FON	EGA (640x350) resolution system font
VGASYS.FON	VGA (640x480) resolution system font

Fixed font file	*Supported display resolution*
8514FIX.FON	8514/a (1024x768) resolution fixed system font
EGAFIX.FON	EGA (640x350) resolution fixed system font
EGAFIX.FON	AT&T (640x400) resolution fixed system font
VGAFIX.FON	VGA (640x480) resolution fixed system font

OEM font file	Supported display resolution
8514OEM.FON	8514/a (1024x768) resolution Terminal font (U.S./Europe)
EGAOEM.FON	EGA (640x350) resolution Terminal font (U.S./Europe)
EGAOEM.FON	AT&T (640x400) resolution Terminal font (U.S./Europe)
VGAOEM.FON	VGA (640x480) resolution Terminal font (U.S./Europe)

Raster Font Files

Six resolutions of raster screen fonts are shipped with Windows. If used for printing, raster fonts print text and graphics as bitmaps or raster lines. The resolutions are identified by a letter appended to the filename of the font as described in the following table.

Letter	Output device	Resolution	x size*	y size*
A**	CGA display	2:1	96	48
B	EGA display	1.33:1	96	72
C**	Printer	1:1.2	60	72
D**	Printer	1.66:1	120	72
E	VGA display	1:1	96	96
F	8514 display	1:1	120	120

* *x,y* indicates the height/width aspect ratio, in pixels per inch.
** These fonts are not included on the Windows 3.1 installation disks.

By appending the letter that identifies the resolution to the raster font filenames in the following table, you can see the files that Windows installs for a given display or printer. For example, the files for the 8514 raster fonts are COURF.FON, SSERIFF.FON, SERIFF.FON, SMALLF.FON, and SYMBOLF.FON.

Font	Filename	Character set	Font description
Courier	COURx.FON	ANSI	Fixed-width with serifs
MS Sans Serif	SSERIFx.FON	ANSI	Sans serif proportional-width
MS Serif	SERIFx.FON	ANSI	Serif proportional-width
Small	SMALLx.FON	ANSI	Proportional small size
Symbol	SYMBOLx.FON	Symbol	Math symbols

Vector Font Files

Windows provides these vector font files: ROMAN.FON, SCRIPT.FON, and MODERN.FON. For vector fonts, characters are stored as sets of relative coordinate pair points with connecting lines. Vector fonts are fully scalable fonts, so the font can be created in any size desired, although applications or printing devices might have limits on the font sizes they support.

TrueType Font Files

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The TrueType downloadable fonts shipped with Windows 3.1 support the Arial, Courier, Symbol, and Times New Roman font families. Each family requires two files, a .TTF file and an .FOT file.

TrueType filenames	Font name
ARIAL.FOT, ARIAL.TTF	Arial
ARIALBD.FOT, ARIALBD.TTF	Arial Bold
ARIALBI.FOT, ARIALBI.TTF	Arial Bold Italic
ARIALI.FOT, ARIALI.TTF	Arial Italic
COUR.FOT, COUR.TTF	Courier
COURBD.FOT, COURBD.TTF	Courier Bold
COURBI.FOT, COURBI.TTF	Courier Bold Italic
COURI.FOT, COURI.TTF	Courier Italic
TIMES.FOT, TIMES.TTF	Times New Roman
TIMESBD.FOT, TIMESBD.TTF	Times New Roman Bold
TIMESBI.FOT, TIMESBI.TTF	Times New Roman Bold Italic
TIMESI.FOT, TIMESI.TTF	Times New Roman Italic
SYMBOL.FOT, SYMBOL.TTF	Symbol
WINGDING.FOT, WINGDING.TTF	Wingding

Font Files for Non-Windows Applications

Some fonts are installed for displaying non-Windows applications in a window when Windows is running in 386 enhanced mode. By default, code page 437 (U.S.) fonts are installed. Other font files are included for international language support. These are identified by the code page number appended to the filename.

The following font files are provided with the associated code page translation table files.

Font file	Translation table	Code page	Configuration
APP850.FON		850	U.S., 386 enhanced mode
DOSAPP.FON		437	U.S., 386 enhanced mode
CGA40850.FON	XLAT850.BIN	850	Multilingual
CGA40WOA.FON	-	437	U.S.
CGA80850.FON	XLAT850.BIN	850	Multilingual
CGA80WOA.FON	-	437	U.S.
EGA40850.FON	XLAT850.BIN	850	Multilingual
EGA40WOA.FON	-	437	U.S.
EGA80850.FON	XLAT850.BIN	850	Multilingual
EGA80WOA.FON	-	437	U.S.
HERC850.FON	XLAT850.BIN	850	Multilingual
HERCWOA.FON	-	437	U.S.
VGA850.FON	XLAT850.BIN	850	Multilingual
VGA860.FON	XLAT860.BIN	860	Portuguese
VGA861.FON	XLAT861.BIN	861	Icelandic
VGA863.FON	XLAT863.BIN	863	French Canadian
VGA865.FON	XLAT865.BIN	865	Norwegian/Danish

International Support Files

Windows provides language libraries to support a number of languages.

Filename	Supported languages
LANGDUT.DLL	Dutch language driver
LANGENG.DLL	General International language driver
LANGFRN.DLL	French language driver
LANGGER.DLL	German language driver
LANGSCA.DLL	Finnish/Icelandic/Norwegian/Swedish language driver
LANGSPA.DLL	Spanish language driver

MS-DOS Support Components of Windows

Two kinds of files provide MS-DOS support for Windows: MS-DOS drivers and the grabber files that support data exchange between Windows and non-Windows applications.

MS-DOS Driver Files

Several MS-DOS driver files are included with Windows. The following drivers are the recommended versions to use with Windows 3.1.

Driver	Purpose
EGA.SYS	EGA MS-DOS driver
EMM386.EXE	Microsoft MS-DOS 386 EMS manager
HIMEM.SYS	Microsoft MS-DOS XMS manager
RAMDRIVE.SYS	Microsoft MS-DOS RAMDrive utility
SMARTDRV.EXE	Microsoft MS-DOS SMARTDrive 4.0 disk caching utility
LMOUSE.COM	MS-DOS Level Logitech mouse driver
MOUSE.COM	MS-DOS mouse driver
MOUSE.SYS	MS-DOS mouse driver (installed at MS-DOS boot time)
MOUSEHP.COM	MS-DOS mouse driver for Hewlett-Packard systems
MOUSEHP.SYS	MS-DOS mouse driver for Hewlett-Packard systems

WinOldAp and the Grabber Files

Two primary parts of Windows support non-Windows applications under standard mode Windows: WinOldAp and the grabber. When Windows runs in 386 enhanced mode, the limited resources on the machine are virtualized to provide virtual memory, virtual displays, and virtual communications along with a number of other services. The related files are discussed in "Files for 386 Enhanced Mode" later in this chapter.

WinOldAp and the grabber files support data exchange between non-Windows applications and Windows. The support for non-Windows applications varies, depending on the capabilities of the system CPU and the mode in which Windows is running.

WinOldAp comes in two versions for the two Windows operating modes:

- WINOLDAP.MOD for standard mode
- WINOA386.MOD for 386 enhanced mode

The grabber for your system is specific to the display driver.

The 286 grabbers used for standard mode only support PrintScreen and copying and pasting text between Windows applications and non-Windows applications. The 386 grabbers that support Windows 386 enhanced mode provide the following capabilities:

- Copying text from non-Windows applications
- Displaying data in a windowed virtual machine
- Selecting data in a windowed virtual machine
- Copying graphics to the Windows Clipboard
- PrintScreen

The files that provide font support for the grabbers are listed below, with descriptions of the kinds of display drivers that the grabbers support.

286 grabber support file	***Display device supported***
CGA.2GR	CGA
EGACOLOR.2GR	EGA
EGAMONO.2GR	EGA monochrome
HERCULES.2GR	Hercules monochrome
OLIGRAB.2GR	Olivetti/AT&T PVC
VGACOLOR.2GR	VGA
VGAMONO.2GR	VGA monochrome

386 grabber support file	***Display device supported***
EGA.3GR	EGA 386
HERC.3GR	Hercules monochrome
PLASMA.3GR	Compaq Portable plasma
V7VGA.3GR	Video 7
VGA.3GR	VGA
VGA30.3GR	VGA (version 3.0)
VGADIB.3GR	DIB (8514/a monochrome)

Files for Standard Mode

When Windows is running in standard mode, the processor is switched into 80286 protected mode, allowing access to extended memory through XMS support. The DOSX.EXE file, required for standard mode, is the MS-DOS Extender for Windows. When Windows runs in standard mode, WIN.COM executes DOSX.EXE. Then the Kernel file is loaded (KRNL286.EXE for 80286 machines, or KRNL386.EXE for 80386 machines), which in turn loads the other parts of Windows. Two more files support task swapping for standard mode:

- WSWAP.EXE supports Windows applications in standard mode.
- DSWAP.EXE supports non-Windows applications in standard mode.

Files for 386 Enhanced Mode

In 386 enhanced mode, Windows can use virtual memory. Much of the virtual support is provided by WIN386.EXE, which is executed by WIN.COM. When WIN386.EXE begins to load, it looks for the files identified in the **[386enh]** section of SYSTEM.INI. Some of the standard files are built into WIN386.EXE (designated with the "*****" symbol in SYSTEM.INI entries). The other files that WIN386.EXE loads to support virtual devices are listed in the following table.

Filename	*Virtual device supported*
BANINST.386	Banyan VINES 4.0 instancing virtual device
DECNB.386	DEC Pathworks
DECNET.386	
LANMAN10.386	LAN Manager version 1.0 support
HPEBIOS.386	EBIOS virtual device for Hewlett-Packard machines
LVMD.386	Logitech virtual mouse device
MSCVMD.386	Mouse Systems virtual mouse device
V7VDD.386	Video Seven virtual display device
VADLIBD.386	Virtual DMA device for Adlib
VDD8514.386	8514/a virtual display device
VDDCGA.386	CGA virtual display device
VDDCT441.386	82C441 VGA virtual display device
VDDEGA.386	EGA virtual display device
VDDHERC.386	Hercules monochrome virtual display device
VDDTIGA.386	TIGA virtual display device
VDDVGA30.386	VGA virtual display device (version 3.0)
VDDXGA.386	XGA virtual display device
VIPX.386	Novell NetWare virtual IPX support
VNETWARE.386	NetWare virtual support
VPOWERD.386	Advanced Power Management virtual device
VSBD.386	SoundBlaster virtual device
VTDAPI.386	MultiMedia virtual timer device
WIN386.PS2	Support for PS/2 architecture

Windows Applications, Setup, and Other Files

Files for Windows Applications

The Windows files also include applications, shells, utilities, accessories, and games. The following table lists the applications and associated files, with a brief description of each application.

Filename	Associated files	Application name and description
CALC.EXE	CALC.HLP	Calculator (general/scientific)
CALENDAR.EXE	CALENDAR.HLP	Calendar
CARDFILE.EXE	CARDFILE.HLP	Cardfile (desktop Rolodex)
CHARMAP.EXE	CHARMAP.HLP	Character Map
CLIPBRD.EXE	CLIPBRD.HLP	Clipboard Viewer
CLOCK.EXE		Clock (analog/digital)
CONTROL.EXE	CONTROL.HLP	Control Panel
	CONTROL.INI	Initialization file
	CPWIN386.CPL	386 enhanced mode extension for Control Panel
	DRIVERS.CPL	Installable drivers extension for Control Panel
	LZEXPAND.DLL	File expansion utility for Control Panel
	MAIN.CPL	Main Control Panel extension
	MIDIMAP.CFG	MIDI Mapper extension file for Control Panel
	SND.CPL	Sound extension for Control Panel
DRWATSON.EXE		Windows fault detection utility
MPLAYER.EXE	MPLAYER.HLP	Media Player
	MMSYSTEM.DLL	Multimedia system library
	MMTASK.TSK	Multimedia background task
MSD.EXE	MSD.INI	Microsoft Diagnostics utility and initialization file
NOTEPAD.EXE	NOTEPAD.HLP	Notepad (desktop text editor)
PACKAGER.EXE	PACKAGER.HLP	Object Packager
PBRUSH.EXE	PBRUSH.DLL	Paintbrush
	PBRUSH.HLP	
PIFEDIT.EXE	PIFEDIT.HLP	PIF Editor
POWER.HLP	SL.DLL, SL.HLP	Advanced Power Management supporting files
PRINTMAN.EXE	PRINTMAN.HLP	Print Manager (Windows print spooler)
PROGMAN.EXE	PROGMAN.INI	Program Manager (Windows 3.1 shell)
	PROGMAN.HLP	
RECORDER.EXE	RECORDER.HLP	Recorder (desktop macro recorder)
	RECORDER.DLL	
REGEDIT.EXE	REGEDIT.HLP	Registration Editor and supporting files
	REGEDITV.HLP	
	DDEML.DLL	DDE management library
	OLECLI.DLL	Client library and server
	OLESVR.DLL	for Object Linking and Embedding

Filename	Associated files	Application name and description *(continued)*
SHELL.DLL		Shell library
SOL.EXE	SOL.HLP	Solitaire (most-tested game)
SMARTDRV.EXE		Disk-caching utility
SOUNDREC.EXE	SOUNDREC.HLP	Sound Recorder
SYSEDIT.EXE		Windows System Editor
TASKMAN.EXE		Task Manager (application switcher)
TERMINAL.EXE	TERMINAL.HLP	Terminal (desktop communications)
TOOLHELP.DLL		Windows Tool Helper library
WINFILE.EXE	WINFILE.HLP	File Manager (Windows 3.1 shell)
WINHELP.EXE	WINHELP.HLP GLOSSARY.HLP	Help (Windows help engine) Windows Help glossary
WINMINE.EXE	WINMINE.HLP	MineSweeper (game)
WINTUTOR.EXE	WINTUTOR.DAT	Windows Tutorial
WRITE.EXE	WRITE.HLP	Write (desktop word processor)

Control Panel uses LZEXPAND.DLL to decompress files from the Windows installation disks. Because most of the files on the Windows installation disks are compressed (except SETUP.INF, SETUP.EXE, and EXPAND.EXE), Control Panel must decompress the files to install a new printer or to add fonts. LZEXPAND is a Windows library counterpart to EXPAND.EXE.

Setup-Related Files

Setup has a number of files for its exclusive use. For example, the *.LGO files contain the code for displaying the opening screen logo, and the *.RLE files contain the actual logo bitmap (in Run Length Encoded format). Setup combines the .LGO and .RLE files with the WIN.CNF file to create WIN.COM. Setup also uses the files listed in the following table.

Filename	Purpose
SETUP.SHH	Automated Setup template
SETUP.EXE	Windows Setup application file
SETUP.HLP	Setup Help
SETUP.INF	Setup information file
SETUP.INI	Initialization file for Setup
SETUP.REG	Registration Database template
SETUP.TXT	Windows Readme file
VER.DLL	Version Resource and File Installation library
WINVER	Windows-version utility
XMSMMGR.EXE	Setup XMS Manager
EXPAND.EXE	MS-DOS-based file expansion utility

Filename	Purpose	(continued)
Startup logo files:		
CGALOGO.LGO	CGA startup logo code	
CGALOGO.RLE	CGA display logo screen	
EGALOGO.LGO	EGA display logo screen	
EGALOGO.RLE	EGA display logo screen	
EGAMONO.LGO	EGA mono startup logo code	
EGAMONO.RLE	EGA monochrome logo screen	
HERCLOGO.LGO	Hercules mono startup logo code	
HERCLOGO.RLE	Hercules display logo screen	
VGALOGO.LGO	VGA startup logo code	
VGALOGO.RLE	VGA display logo screen	
Initialization and information source files:		
APPS.INF	Information file for non-Windows applications	
CONTROL.INF	Information file for Control Panel and printer installation	
CONTROL.SRC	CONTROL.INI template	
PRTUPD.INF	Information for printer driver updates	
SYSTEM.SRC	SYSTEM.INI template	
WIN.CNF	Windows startup code	
WIN.SRC	WIN.INI template	

Other Files

These files serve a wide range of functions, including support for PS/2 architectures and README files for general information.

Filename	Purpose
MORICONS.DLL	Icons for non-Windows applications
Bitmaps files for wallpaper:	
256COLOR.BMP	256-color wallpaper
ARCADE.BMP	Arcade wallpaper
ARCHES.BMP	Arches wallpaper
ARGYLE.BMP	Argyle wallpaper
CARS.BMP	Cars wallpaper
CASTLE.BMP	Castle wallpaper
CHITZ.BMP	Chitz wallpaper
EGYPT.BMP	Egypt wallpaper
FLOCK.BMP	Flock wallpaper
HONEY.BMP	Honey wallpaper
LEAVES.BMP	Leaves wallpaper
MARBLE.BMP	Marble wallpaper
REDBRICK.BMP	Redbrick wallpaper
RIVETS.BMP	Rivets wallpaper
SQUARES.BMP	Squares wallpaper

Filename	***Purpose*** *(continued)*
TARTAN.BMP	Tartan wallpaper
THATCH.BMP	Thatch wallpaper
WINLOGO.BMP	Logo wallpaper
ZIGZAG.BMP	Zigzag wallpaper
Screensaver files:	
SSTARS.SCR	Stars screen saver
SCRNSAVE.SCR	Generic screen saver
SSMYST.SCR	Mystify screen saver
SSMARQUE.SCR	Marquee screen saver
SSFLYWIN.SCR	Flying Windows
MIDI sound file:	
CANYON.MID	Canyon MIDI sound
Wave-form sound files:	
CHORD.WAV	Question Sound
DING.WAV	Default Beep
CHIMES.WAV	Exit Sound
TADA.WAV	Start Sound
README files:	
NETWORKS.WRI	README file for networks
PRINTERS.WRI	README file for printers
README.WRI	README file
SYSINI.WRI	README file for SYSTEM.INI
WININI.WRI	README file for WIN.INI
Miscellaneous hardware support and other supporting files:	
386MAX.VXD	Qualitas 386MAX virtual device for standard mode
BLUEMAX.VXD	Qualitas BlueMAX virtual device
COMMDLG.DLL	Windows Common Dialogs library
TIGAWIN.RLM	TIGA firmware code
WIN87EM.DLL	80x87 math coprocessor emulation library
WINDOWS.LOD	Qualitas 386MAX/BlueMAX loadable module
TESTPS.TXT	PostScript test text file

Files You Can Delete

Because of the large number of files that come with Windows 3.1, you might want to delete some of the files to free disk space.

Note Do not delete any of these files while Windows is running. Instead, exit Windows, then delete the files from the command prompt.

You can delete these files when Windows is not running without degrading Windows performance:

- EMM386.EXE (expanded memory emulator) if you don't need to provide EMM support for non-Windows applications
- Any files in the TEMP directory
- Any files that start with the characters ~WOA or ~GRB
- Any files named WIN386.SWP (a temporary Windows swap file)

You can choose the Windows Setup icon in Control Panel, then choose Add/Remove Components from the Options menu to remove any of these files from your system:

- Any accessories you do not use (such as Paintbrush, Write, Calendar, Cardfile) with their related .HLP and .DLL files
- Games
- Screen savers
- Wallpapers (.BMP files) and sound files (.WAV files)

For a list of the files for a minimum Windows configuration, see "Minimizing the Windows 'Footprint'" in Appendix C, "Windows 3.1 Disks and Files."