

## Chapter 3

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

.  
Files”; Chapter 4, “The Windows Initialization Files”; Appendix C, “Windows 3.1 Disks and Files”

.

### Contents of this chapter

About the Windows Files

WIN.COM

The Core Files

Drivers, Fonts, and International Support Files

Driver Files

Font Files

International Support Files

MS-DOS Support Components of Windows

MS-DOS Driver Files

WinOldAp and the Grabber Files

Files for Standard Mode

Files for 386 Enhanced Mode

Windows Applications, Setup, and Other Files

Files for Windows Applications

Setup-Related Files

Other Files

Files You Can Delete

## Chapter 3 The Windows Files

### 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:

- 
- 
- contain the code and data for the Windows functions.
- 
- printers, networks, multimedia, and other devices.
- 
- 
- 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:

- 
-

## Chapter 3 The Windows Files

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

- .
- .
- .
- .
- .

### The Core Files

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

- .

all the machine resources to manage memory, load applications, and schedule program execution and other tasks.

- .

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.

- .

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  
 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:

- .
- .

#### Keyboard Driver Files

The keyboard drivers shipped with Windows support keyboard input:

- .
- .
- .

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

KBDBE.DLL  
 KBDCA.DLL  
 KBDDA.DLL

KBDDV.DLL  
 KBDFC.DLL  
 KBDFI.DLL

Windows Resource Kit

## Chapter 3 The Windows Files

KBDFR.DLL  
KBDGR.DLL  
KBDIC.DLL

KBDIT.DLL  
KBDLA.DLL  
KBDNE.DLL

KBDNO.DLL  
KBDPO.DLL  
KBDSF.DLL  
KBDSG.DLL  
KBDSP.DLL

KBDSW.DLL  
KBDUK.DLL  
KBDUS.DLL  
KBDUSX.DLL

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

HPMOUSE.DRV  
KBDMOUSE.DRV  
LMOUSE.DRV

MSC3BC2.DRV  
MSCMOUSE.DRV  
MOUSE.DRV  
NOMOUSE.DRV

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

8514.DR  
EGA.DRV  
EGAHIBW.DRV  
EGAMONO.DRV

HERCULES.DRV  
OLIBW.DRV  
PLASMA.DRV  
SUPERVGA.DRV

TIGA.DRV  
VGA.DRV  
VGAMONO.DRV  
V7VGA

XGA.DRV



## Chapter 3 The Windows Files

### 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

CANON10E.DRV  
CANON130.DRV  
CANON330.DRV

CIT24US.DRV  
CIT9US.DRV  
CITOH.DRV

DICONIX.DRV  
DM309.DRV  
DMCOLOR.DLL

EPSON24.DRV  
EPSON9.DRV  
ESCP2.DRV

EXECJET.DRV  
FUJI24.DRV  
FUJI9.DRV

GENDRV.DLL  
HPDSKJET.DRV  
HPPCL.DRV  
HPPCL5A.DRV

HPLOT.DRV  
IBM4019.DRV  
IBM5204.DRV

Printer driver  
(continued)

IBMCOLOR.DRV  
LBPII.DRV  
LBPIII.DRV

NEC24PIN.DRV  
OKI24.DRV  
OKI9.DRV

OKI9IBM.DRV  
PAINTJET.DRV  
PANSON24.DRV

PANSON9.DRV  
PG306.DRV  
PROPRINT.DRV

PROPRN24.DRV  
PS1.DRV  
PSCRIPT.DRV

QWIII.DRV  
THINKJET.DRV  
TI850.DRV

TOSHIBA.DRV  
TTY.DRV  
UNIDRV.DLL

The following files are soft font installers for specific printers.

Soft font installer

CAN\_ADF.EXE  
SF4019.EXE

Windows Resource Kit

## Chapter 3 The Windows Files

SFINST.EXE  
FINSTALL.DLL

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

PostScript description

40291730.WPD  
40293930.WPD  
EPL75523.WPD

HERMES\_1.WPD  
HERMES\_2.WPD  
HPELI523.WPD

HPIID522.WPD  
HPIII522.WPD  
HPIIP522.WPD

PostScript description  
(continued)

HP\_3D522.WPD  
HP\_3P522.WPD  
IBM17521.WPD

IBM39521.WPD  
MT\_TI101.WPD  
N2090522.WPD

N2290520.WPD  
N2990523.WPD  
OL840518.WPD

Q2200510.WPD  
Q820\_517.WPD  
SEIKO\_04.WPD

OLIVETI1.WPD  
P4455514.WPD  
TRIUMPH1.WPD

N890X505.WPD  
N890\_470.WPD  
O5241503.WPD

O5242503.WPD  
OLIVETI2.WPD  
PHIIPX.WPD

SEIKO\_14.WPD  
TIM17521.WPD  
TRIUMPH2.WPD

U9415470.WPD  
TIM35521.WPD  
TKPHZR21.WPD

TKPHZR31.WPD  
DEC1150.WPD  
DEC2150.WPD

DEC2250.WPD  
DEC3250.WPD  
DECCOLOR.WPD

DECLPS20.WPD  
NCM40519.WPD  
NCM80519.WPD

L200230&.WPD  
L330\_52&.WPD  
L530\_52&.WPD  
L630\_52&.WPD

## Chapter 3 The Windows Files

### Network Driver Files

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

Driver  
Supported network

LANMAN.DRV  
Microsoft LAN Manager 2.0 Extended

(and 100% compatible)

Microsoft LAN Manager 2.0 driver help

Microsoft LAN Manager API library

Microsoft LAN Manager printer API library

MSNET.DRV  
Generic network driver\*

PCSA.DRV  
DEC Pathworks network driver

NETWARE.DRV  
Novell NetWare 2.10 or above; Novell NetWare386

Supports pop-up messages

Workstation shell

Workstation comm driver (dedicated)

Workstation comm driver (ODI model)

Workstation link support layer (ODI)

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

W

3.1.

#### Filename

MCICDA.DRV  
MCISEQ.DRV  
MCIWAVE.DRV

MIDIMAP.DRV  
MPU401.DRV  
MMSOUND.DRV  
MSADLIB.DRV

SNDBLST.DRV  
SNDBLST2.DRV  
TIMER.DRV

### 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:

.

controls, and other text in Windows 3.x.

Windows Resource Kit

## Chapter 3 The Windows Files

.  
the system font (for menus and dialog boxes).

.  
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

8514SYS.FON  
EGASYS.FON  
VGASYS.FON

### Fixed font file

8514FIX.FON  
EGAFIX.FON  
EGAFIX.FON  
VGAFIX.FON

## OEM font file

8514OEM.FON  
 EGAOEM.FON  
 EGAOEM.FON  
 VGAOEM.FON

## 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  
 Resolution  
 y size\*

A\*\*  
 2:1  
 48  
 B  
 1.33:1  
 72  
 C\*\*  
 1:1.2  
 72  
 D\*\*  
 1.66:1  
 72  
 E  
 1:1  
 96  
 F  
 1:1  
 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

Windows Resource Kit



## Chapter 3 The Windows Files

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  
Character set

Courier  
ANSI  
MS Sans Serif  
ANSI  
MS Serif  
ANSI  
Small  
ANSI  
Symbol  
Symbol

### 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

W  
the Arial, Courier, Symbol, and Times New Roman font families. Each family requires two files, a .TTF file and an .FOT file.

### TrueType filenames

ARIAL.FOT, ARIAL.TTF  
ARIALBD.FOT, ARIALBD.TTF  
ARIALBI.FOT, ARIALBI.TTF  
ARIALI.FOT, ARIALI.TTF

COUR.FOT, COUR.TTF  
COURBD.FOT, COURBD.TTF

COURBI.FOT, COURBI.TTF  
COURI.FOT, COURI.TTF

TIMES.FOT, TIMES.TTF  
TIMESBD.FOT, TIMESBD.TTF  
TIMESBI.FOT, TIMESBI.TTF  
TIMESI.FOT, TIMESI.TTF

SYMBOL.FOT, SYMBOL.TTF  
WINGDING.FOT, WINGDING.TTF

#### 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.

## Chapter 3 The Windows Files

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

Code  
Font file  
page

APP850.FON  
850  
DOSAPP.FON  
437

CGA40850.FON  
850  
CGA40WOA.FON  
437  
CGA80850.FON  
850  
CGA80WOA.FON  
437

EGA40850.FON  
850  
EGA40WOA.FON  
437  
EGA80850.FON  
850  
EGA80WOA.FON  
437

HERC850.FON  
850  
HERCWOA.FON  
437

VGA850.FON  
850  
VGA860.FON  
860  
VGA861.FON  
861  
VGA863.FON

154

863  
VGA865.FON  
865

### International Support Files

Windows provides language libraries to support a number of languages.

#### Filename

LANGDUT.DLL  
LANGENG.DLL  
LANGFRN.DLL  
LANGGER.DLL  
LANGSCA.DLL  
LANGSPA.DLL

## Chapter 3 The Windows Files

### 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

EGA.SYS  
EMM386.EXE  
HIMEM.SYS

RAMDRIVE.SYS  
SMARTDRV.EXE  
utility  
LMOUSE.COM

MOUSE.COM  
MOUSE.SYS  
MOUSEHP.COM  
MOUSEHP.SYS

#### 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:

- 
-

## Chapter 3 The Windows Files

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:

- .
- .
- .
- .
- .

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

CGA.2GR  
EGACOLOR.2GR  
EGAMONO.2GR

HERCULES.2GR  
OLIGRAB.2GR  
VGACOLOR.2GR  
VGAMONO.2GR

386 grabber  
support file

EGA.3GR  
HERC.3GR  
PLASMA.3GR

V7VGA.3GR  
VGA.3GR  
VGA30.3GR

VGADIB.3GR



## Chapter 3 The Windows Files

### 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:

.

.

### 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

BANINST.386  
DECNB.386  
DECNET.386  
LANMAN10.386  
HPEBIOS.386  
LVMD.386  
  
MSCVMD.386  
V7VDD.386  
VADLIBD.386  
VDD8514.386  
VDDCGA.386  
VDDCT441.386  
  
VDDEGA.386

VDDHERC.386  
VDDTIGA.386  
VDDVGA30.386  
VDDXGA.386  
VIPX.386

VNETWARE.386  
VPOWERD.386  
VSBD.386  
VTDAPI.386  
WIN386.PS2

## 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.

Application  
Filename  
name and description

CALC.EXE  
Calculator (general/scientific)

CALENDAR.EXE  
Calendar

CARDFILE.EXE  
Cardfile (desktop Rolodex)

CHARMAP.EXE  
Character Map

CLIPBRD.EXE  
Clipboard Viewer

CLOCK.EXE  
Clock (analog/digital)

CONTROL.EXE  
Control Panel  
Windows Resource Kit

## Chapter 3 The Windows Files

Initialization file

386 enhanced mode extension for Control Panel

Installable drivers extension for Control Panel

File expansion utility for Control Panel

Main Control Panel extension

MIDI Mapper extension file for Control Panel

Sound extension for Control Panel

DRWATSON.EXE

Windows fault detection utility

MPLAYER.EXE

Media Player

Multimedia system library

Multimedia background task

MSD.EXE

Microsoft Diagnostics utility and initialization file

NOTEPAD.EXE

Notepad (desktop text editor)

PACKAGER.EXE

Object Packager

PBRUSH.EXE

Paintbrush

PIFEDIT.EXE

PIF Editor

POWER.HLP

Advanced Power Management supporting files

PRINTMAN.EXE

Print Manager (Windows print spooler)

PROGMAN.EXE

Program Manager (Windows 3.1 shell)

RECORDER.EXE

Recorder (desktop macro recorder)

REGEDIT.EXE

Registration Editor and supporting files

DDE management library

Client library and server

for Object Linking and Embedding

Application

Filename

name and description

SHELL.DLL

Shell library

SOL.EXE

Solitaire (most-tested game)

SMARTDRV.EXE

Disk-caching utility

SOUNDREC.EXE

Sound Recorder

SYSEDIT.EXE

Windows System Editor

TASKMAN.EXE

Task Manager (application switcher)

Windows Resource Kit

## Chapter 3 The Windows Files

TERMINAL.EXE  
Terminal (desktop communications)

TOOLHELP.DLL  
Windows Tool Helper library

WINFILE.EXE  
File Manager (Windows 3.1 shell)

WINHELP.EXE  
Help (Windows help engine)

Windows Help glossary

WINMINE.EXE  
MineSweeper (game)

WINTUTOR.EXE  
Windows Tutorial

WRITE.EXE  
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

SETUP.SHH  
SETUP.EXE

SETUP.HLP

SETUP.INF  
SETUP.INI  
SETUP.REG

SETUP.TXT  
VER.DLL  
WINVER

XMSMMGR.EXE  
EXPAND.EXE

Filename  
(continued)

Startup logo files:  
CGALOGO.LGO  
CGALOGO.RLE

EGALOGO.LGO  
EGALOGO.RLE  
EGAMONO.LGO  
EGAMONO.RLE

HERCLOGO.LGO  
HERCLOGO.RLE

VGALOGO.LGO  
VGALOGO.RLE

Initialization and information source files:  
APPS.INF  
CONTROL.INF  
CONTROL.SRC

PRTUPD.INF  
SYSTEM.SRC  
WIN.CNF  
WIN.SRC

Other Files

These files serve a wide range of functions, including support for PS/2  
Windows Resource Kit

## Chapter 3 The Windows Files

architectures and README files for general information.

Filename

MORICONS.DLL

Bitmaps files for wallpaper:

256COLOR.BMP

ARCADE.BMP

ARCHES.BMP

ARGYLE.BMP

CARS.BMP

CASTLE.BMP

CHITZ.BMP

EGYPT.BMP

FLOCK.BMP

HONEY.BMP

LEAVES.BMP

MARBLE.BMP

REDBRICK.BMP

RIVETS.BMP

SQUARES.BMP

Filename

(continued)

TARTAN.BMP

THATCH.BMP

WINLOGO.BMP

ZIGZAG.BMP

Screensaver files:

SSSTARS.SCR

SCRNSAVE.SCR

SSMYST.SCR

SSMARQUE.SCR

SSFLYWIN.SCR

MIDI sound file:

CANYON.MID

Wave-form sound files:

CHORD.WAV

DING.WAV

CHIMES.WAV

TADA.WAV

README files:

NETWORKS.WRI

PRINTERS.WRI

README.WRI

SYSINI.WRI

WININI.WRI

Miscellaneous hardware support and other supporting files:

386MAX.VXD

BLUEMAX.VXD

COMMDLG.DLL

TIGAWIN.RLM

WIN87EM.DLL

WINDOWS.LOD

TESTPS.TXT



## Chapter 3 The Windows Files

### 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

exit Windows, then delete the files from the command prompt.

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

- EMM support for non-Windows applications

- 

- 

- 

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:

- 

Cardfile) with their related .HLP and .DLL 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.”

