Using Windows 3.1 and Networks

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About This Guide

Tip: For the best readability, view the *Using Windows 3.1 and Networks* ViewNote in a maximized window by choosing Maximize from the Control menu (--).

This ViewNote provides information about how to install the Windows version 3.1 operating system over your network and gives detailed information about file configuration and known compatibility issues for most networks.

You move around in this ViewNote by choosing a "hotspot." Hotspots can come in the form of hypertext or graphic icons. Choosing a hotspot can bring up a pop-up window or a jump.

The illustration below explains how to use the button bar located near the top of the ViewNote window. Choose a button to see an explanation of how to use it.
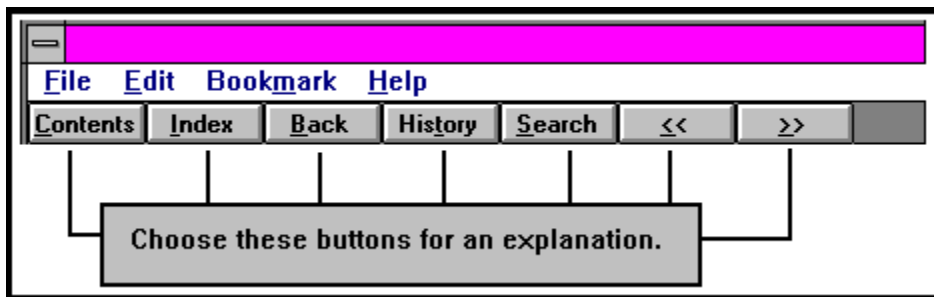
See also

Changing the Color of Your Hypertext

Hotspot

Hotspots are text, graphics, or parts of graphics that provide links to other topics or information about the current topic. The mouse pointer changes to the shape of a hand when it is over a graphical or hypertext hotspot.

To highlight all the hotspots in a topic, press CTRL+TAB.

Index Button

To find a topic from the index, choose the Index button and type a word or select one from the list.

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See also

Search Button

Browse Buttons

To move backward and forward to view the various topics available on the Contents screen, choose the << and >> Browse buttons .

Contents Button

To return to the Contents screen (the first screen), choose the Contents button .

Back Button

To return to the last screen you were viewing, choose the Back button.

History Button

To obtain a list of topics you have read, choose the History button. You can then choose a topic from the History list to return to that topic.

Search Button

To search the entire document for specific words, choose the Search button and type the desired word in the Search For text box.

For example, if you want to read all the topics in this ViewNote that refer to Windows, search on the word "Windows" by choosing the Search button and typing `windows` in the Search For text box. A list of topics will appear. To view the desired topic, choose the Go To button.

Hypertext

Hypertext is text that, when chosen, brings up a new screen or pop-up window to provide additional information about the current topic or a related topic. Hypertext is often (but not always) colored and underlined.

To show all hypertext in a topic, press CTRL+TAB.

You can change the color of the hypertext on your screen.

Graphic Icons

Not all graphic icons are hotspots. In this ViewNote, the folder icons and the More Information button icons are graphical hotspots. You can choose them to see more information about a topic or to go to a related topic.

To show all the hotspots in a topic, press CTRL+TAB.

(The buttons you see here are just illustrations. You cannot choose them.)

Choosing a Graphic or Hypertext Link

You choose a graphic or hypertext link by either clicking it with a mouse or pressing TAB to highlight it, and then pressing ENTER.

Changing the Color of Your Hypertext

You can change the color of the hypertext in this ViewNote by placing a `JUMPCOLOR` setting in the [Multimedia Viewer] section of your WIN.INI file. (The WIN.INI file is located in the WINDOWS\ SYSTEM directory, and can be edited with any text editor, such as Notepad.)

The `JUMPCOLOR` setting syntax is

```
jumpcolor=<red-value> <green-value> <blue-value>
```

where the value is a number from 000 to 999, with 999 giving the highest intensity. You must include three digits for each value, and you must include each color value. For example, the following `JUMPCOLOR` setting changes your hypertext to a high-intensity blue:

```
jumpcolor=000 000 999
```

Blue text works well on non-white backgrounds. You can experiment with this setting to create a color that works best for you.

Tip: Choose the Back button from the button bar to return to the previous screen.

Pop-up Windows

A pop-up window provides more information about a topic and keeps the original topic screen visible in the background. To return to the original screen, you can click anywhere with the mouse or press any key.

Jumps

A jump takes you to a related topic on a new screen. From there, you can navigate as you would in any screen. For example, choose the Back button to return to the previous screen.

Tip: For information about how to use this guide, choose the More Info button on the Contents screen (the first screen).

Click a mouse button or press a key to dismiss this notice.

General Installation Information

If your network is not loaded when you run Windows Setup, Windows installs for No Network. Network functionality, including printing through a network-designated printer port, will not be present until you install a Windows network driver. To install the appropriate drivers for your network, either choose the Custom Setup option and select the proper network, or quit Windows and type `setup` at the MS-DOS command prompt (do not choose the MS-DOS Prompt icon in Program Manager).

It is best to avoid running the Windows Setup program when your network is not loaded because the vnetbios and dosnet virtual devices will not be loaded. These devices provide virtual NetBIOS support for networks that are not 100-percent compatible with the Microsoft Networks product but do support the standard NetBIOS extensions.

Installing on Remote Boot Workstations

To run Windows on a remote boot workstation, you need to manually add the Windows driver files to the common file server share. The loadable drivers provided by Windows (HIMEM.SYS, EMM386.EXE, RAMDRIVE.SYS, SMARTDRV.EXE, and so on) must be placed on the boot disk for floppy disk systems or in the bootable share for diskless workstations.

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See also

Licensing
Logging On to the Network
Installing Windows on the Server (Setup /A)
Installing a Shared Copy of Windows on a Workstation (Setup /N)
Memory Management
Changing Your Network Configuration
Description of Windows Files

Logging On to the Network

Your network software should be loaded and the network started before running Windows version 3.1. Any attempt to start Windows before the network software is running can result in crashes and data loss.

Do not attempt to log on to the network from an MS-DOS command prompt running inside Windows. Although logging on in this manner may appear to succeed initially, network problems will occur later in the session.

Setup /A

Setup with the /A option is used to set up the Windows files on a network server.

Setup /N

Setup with the /N option is used to set up a shared copy of Windows for an individual workstation once the Windows files are available from the network server (you must first run Setup /A to place the files on the network server).

Licensing Information

You must have proper licensing for each workstation running Windows version 3.1 from the network server. Contact Microsoft Consumer Sales at (800) 426-9400 for information about Windows version 3.1 Network Node Packs.

Remote Boot Workstations

To run Windows on a remote boot workstation, you need to manually add the Windows driver files to the common file server share. The loadable drivers provided by Windows (HIMEM.SYS, EMM386.EXE, RAMDRIVE.SYS, SMARTDRV.EXE, and so on) must be placed on the boot disk for floppy-based systems, or in the bootable share for diskless workstations.

Memory Management

Choose one of the following topics for important information about memory management and your network.

Conventional Memory Availability

EMMExclude and Memory-Addressed Network Cards

386-Max

EMM386 and Remote Boot Workstations

EMM386 and Remote Boot Workstations

If you are using EMM386 with a network version of Windows at a diskless workstation, you need to change the EMM386 device line in your CONFIG.SYS file to

```
device=emm386.exe noems /y path
```

where *path* is the fully qualified path to the location where EMM386.EXE resides and is accessible to remote boot workstations. For example:

```
\USER\JOHN\WINDOWS\EMM386.EXE
```

386-Max

The network setup of Windows (Setup /N) does not support 386-Max.

Availability of Conventional Memory

Windows version 3.1 uses extended memory; therefore, availability of conventional memory is not a factor as long as you are running only Windows-based applications. However, because MS-DOS can use only conventional memory, any conventional memory used by your network software may impact the amount of memory available to run MS-DOS-based applications. Fortunately, there are ways to reduce the amount of conventional memory used by your network software, device drivers, and terminate-and-stay-resident programs (TSRs). Please consult your network vendor for information about managing the way your network uses memory.

Some memory managers, such as Microsoft EMM386 and Quarterdeck QEMM386, allow memory to be mapped to empty areas in the upper memory of your PC (between A000 and EFFF hexadecimal). By using this type of memory manager you could, for instance, load network drivers into the upper memory area, thus freeing conventional memory. If you are having problems loading your network drivers into upper memory, please contact your network vendor or memory manager software manufacturer.

EMMExclude and Memory-Addressed Network Cards

If your network board is memory addressed, you may need to edit the EMMExclude line in the SYSTEM.INI file to reference the memory range specified for your network board. If you are using a network board that uses shared memory, delete this line entirely.

If you are using the EMM386 device line in your CONFIG.SYS file, edit this line to exclude the net card's memory address. For example:

```
device=emm386.exe noems x=d800-dfff
```

Note that CONFIG.SYS settings take precedence over SYSTEM.INI settings.

Installing Windows on the Server (Setup /A)

Windows version 3.1 requires 16 MB of available disk space on the network server.

To install Windows version 3.1 on a server, issue the Setup /A command from Disk 1. Setup /A copies the Windows files to the network server, expands and renames the files in the network installation directory, and marks the files as read-only.

You can install the Windows files to another shared network server by running Setup /A from the current server directory. Setup /A prompts you for the company name and group name for each network installation. If you want to, you can specify a different company and/or group name for each shared Windows directory in your organization.

Note that the WIN.INI and SYSTEM.INI files are not created until you install the shared copy of Windows at each individual workstation by using Setup /N.

Warning: Do not use the `copy *.*` command to copy Windows files to another installation. This does not correctly duplicate the setup process. Also, do not delete the 0-byte files named DISK1, DISK2, DISK3, and so on, from the shared network directory. These files are required in order to run Setup /A.

For more information about Setup /A and /N, refer to Appendix A of the "Microsoft Windows User's Guide" and to "Getting Started with Microsoft Windows" for Windows version 3.1.

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See also

Automated Setup (Setup /H)
Installing a Shared Copy of Windows on a Workstation (Setup /N)
Manually Modifying the Boot Configuration
Description of Windows Files

Setup /H

You can automate the Setup program by using the Setup /H command. For more information about Setup /H, refer to the Windows Resource Kit and to the sample template file (SETUP.SHH) located on Disk 1 in the Windows 3.1 package.

Installing a Shared Copy of Windows on a Workstation (Setup /N)

Once you have installed a shared copy of Windows version 3.1 on a network server by using Setup /A, you can use Setup /N to install Windows for use on individual workstations. Workstation installation requires 300K of available disk space on the user's network directory or local hard disk.

Note: *With some network software products (for example, 3+Share, 3+Open, and LAN Manager), Setup must locate certain network files to perform its network detection. In this case, you need to ensure that the location of the network software is in the path statement of the workstation before issuing the Setup /N command.*

To set up Windows for individual workstations

1. At the MS-DOS command prompt from the shared directory, type `setup /n.`

2. When prompted, specify a location for the user's Windows files.

    If you are setting up Windows to run from a diskless workstation, specify the user's personal network directory. If you are setting up Windows to run from the user's local hard disk, specify a directory on the hard disk.

3. When prompted, indicate whether you want Setup to modify the user's workstation boot configuration.

    If you want Setup to modify the user's AUTOEXEC.BAT and CONFIG.SYS files, type `Y` for yes. If you would rather make these modifications manually, type `N` for No.

The automated portion of Setup /N is now complete.

For more information about Setup /A and Setup /N, refer to Appendix A of the "Microsoft Windows User's Guide" and to "Getting Started with Microsoft Windows" for Windows version 3.1.
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See also

How to Run Setup /A
Manually Modifying the Workstation Boot Configuration

Description of Windows Files

Windows Setup copies the following files to the destination directory you specify. Setup may install additional group (.GRP) files if you choose the Custom Setup option and then choose to have Windows automatically set up applications.

File	Description
MOUSE.COM	Updated file for Microsoft compatible mouse driver (copied only if a Microsoft-compatible mouse driver is installed)
WIN.COM	Windows startup program
REG.DAT	Registration database file
EMM386.EXE	EMM386, an expanded-memory manager for machines with an 80386 (or faster) processor
SMARTDRV.EXE	SMARTDrive, a disk-caching utility driver
WINVER.EXE	File used by Setup to determine the Windows version
ACCESSO.GRP	Accessories group file
GAMES.GRP	Games group file
MAIN.GRP	Main group file
STARTUP.GRP	Startup group file
CONTROL.INI	Control Panel configuration file
PROGMAN.INI	Program Manager configuration text file
SYSTEM.INI	Windows system configuration text file
WIN.INI	Windows preferences configuration text file
DOSPRMPT.PIF	MS-DOS Prompt program information file (.PIF)
_DEFAULT.PIF	Default (template) program information file (.PIF)
HIMEM.SYS	Extended-memory manager (copied to root directory if local hard drive specified)
RAMDRIVE.SYS	RAMDrive, a RAM-disk utility driver
BOOTLOG.TXT	Text file used to record the Windows boot sequence

Manually Modifying the Workstation Boot Configuration

If you chose not to have Setup modify the user's AUTOEXEC.BAT and CONFIG.SYS files, you need to manually modify these files.

If you set up Windows to run from the user's personal network directory, Setup /N creates sample CONFIG.SYS and AUTOEXEC.BAT files, and saves them in the user's network directory as CONFIG.WIN and AUTOEXEC.WIN. You can use these files as an example when modifying the user's AUTOEXEC.BAT and CONFIG.SYS files.

If the user workstation boots from a floppy disk, the CONFIG.SYS and AUTOEXEC.BAT files are located on the boot floppy disk.

If the user has a diskless workstation, contact your network software vendor if you need more information about modifying the boot configuration.

See also

Modifying the AUTOEXEC.BAT File
Modifying the CONFIG.SYS File

Modifying the AUTOEXEC.BAT File

1. Modify the user's path statement to include the user's Windows directory followed by the shared (server) Windows directory.

2. Set the TEMP environment variable.

    To set the TEMP environment variable, place a `set temp=` statement in the AUTOEXEC.BAT file. For example, to specify the network directory X:\USERDIR, use the statement `set temp=x:\userdir`.

3. Add the SMARTDrive command line.

    This step is optional, but recommended. For more information about the SMARTDrive command line, refer to chapter 14, "Optimizing Windows," in the *Microsoft Windows User's Guide* for Windows version 3.1.

See also

Modifying the CONFIG.SYS File

Modifying the CONFIG.SYS file

1. Add the HIMEM command line.

2. Add the SMARTDrive command line, if your hardware configuration requires it.

For more information about the HIMEM and SMARTDrive command lines, refer to chapter 14, "Optimizing Windows," in the *Microsoft Windows User's Guide* for Windows version 3.1.

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See also

Modifying the AUTOEXEC.BAT File

The TEMP Environment Variable

Windows Print Manager spools print jobs to the location specified by the TEMP environment variable. If TEMP is not set, Print Manager spools to the root directory of drive C. If the user does not have a local hard disk, the user will not be able to print successfully unless TEMP is set to a network directory. (This should be a directory to which the user has full access.)

The TEMP variable is also used to start an MS-DOS command prompt while Windows is running in standard mode.

Changing Your Network Configuration

If you need to change your network configuration, either to upgrade to a newer version of the network driver or to change the type of network you've installed, use the MS-DOS maintenance mode of Setup; do not use the Windows Setup program. Windows Setup may remove files from the `load=` line in the WIN.INI file and may not copy all the files that you need to run Windows. For information about how to use Setup from the MS-DOS prompt, refer to Chapter 15, "Maintaining Windows with Setup," in the *Microsoft Windows User's Guide* for Windows version 3.1.

See also

SYSTEM.INI Settings: (No Network)

SYSTEM.INI Settings: No Network Detected

If the Windows Setup program does not detect a network, it sets the SYSTEM.INI file settings as follows.

```
SYSTEM.INI

[boot]
network.drv=

[386enh]
network=*vnetbios,*dosnet
```

Using Windows 3.1 and Networks

About This Guide

Choose this button for information about navigating inside this ViewNote.

Installing Windows

Choose this button for information about installing Windows version 3.l for use over a network.

Specific Network Considerations

General Info	TCS 10Net	Banyan VINES
DEC Pathworks	Sun PC-NFS	Invisible Net
Novell NetWare	NetWare Lite	Artisoft LANtastic
TOPS Network	3Com 3+Share	3Com 3+Open
Microsoft or Compatible	IBM OS/2 LAN Server	IBM PC-LAN Program
Microsoft LAN Manager		

Miscellaneous Troubleshooting

Choose this button to see a short list of miscellaneous issues that are not specific to any particular network software.

General Information: Specific Network Considerations

Choose from the list of networks for information about how Setup configures the SYSTEM.INI file settings and other network-specific information. This list includes the most common networks supported for use with the Windows version 3.1 operating system, as well as certain networks not specifically supported. More information about specific networks is provided in the NETWORKS.WRI file included with Windows.

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See Also

Changing Your Network

The SYSTEM.INI File

The SYSTEM.INI file is a Windows initialization file that you can edit to customize Windows for your system's hardware. For some networks, you may be able to remove one or more SYSTEM.INI file entries to improve performance. For more information about these entries, see the SYSINI.WRI file included with Windows version 3.1.

Microsoft Network (or 100-Percent Compatible)

The following issues apply to the general category of networks that support the MS-DOS network interface and NetBIOS protocols. Choose a topic for more information.

SYSTEM.INI Settings: Microsoft Network (or 100-Percent Compatible)
Unidentifiable Network
Network Software Must Be in Path Statement
Print Manager Issues
Vendor Name Aliasing

SYSTEM.INI Settings: Microsoft Network (or 100-Percent Compatible)

If the Windows Setup program detects a Microsoft or 100-percent compatible network, it sets the SYSTEM.INI file settings as follows.

```
SYSTEM.INI

[boot]
network.drv=msnet.drv

[386enh]
PSPIncrement=5
UniqueDOSPSP=TRUE
TimerCriticalSection=10000
network=*vnetbios,*dosnet
```

Unidentifiable Network

If Setup detects a network but is unable to identify it, Setup uses Microsoft Networks as the default.

Network Software Must Be in Path Statement

If the location of your network software is not included in the workstation's AUTOEXEC.BAT path statement, Setup does not detect a network and proposes "No Network Installed" for your system configuration. Use the Custom Setup option to specify that Microsoft Networks is installed.

Print Manager Issues

Due to the way some networks handle print queues, Print Manager may not be able to distinguish multiple print queues on the same server, and the lists of print jobs in these queues may display improperly. In addition, Print Manager may not be able to display a print job's title when displaying queue information.

Vendor Name Aliasing

The Microsoft Networks driver does not support any vendor name-aliasing schemes.

3Com 3+Open

The 3Com 3+Open network is based on <u>Microsoft LAN Manager</u> versions 1.x and is similar in functionality. For more information about 3Com 3+Open network setup requirements, see the NETWORKS.WRI readme file included with Windows version 3.1.

For more information about installing 3Com 3+Open networks on a Windows version 3.1 system, choose the following topics:

<u>SYSTEM.INI Settings: 3Com 3+Open</u>
<u>Netprog Directory Files Updated</u>
<u>3Com 3C505 Card</u>

SYSTEM.INI Settings: 3Com 3+Open

If Setup detects a 3Com 3+Open network, it sets the SYSTEM.INI file settings as follows.

Versions 1.x

```
SYSTEM.INI

[boot]
network.drv=msnet.drv

[386enh]
PSPIncrement=5
UniqueDOSPSP=TRUE
TimerCriticalSection=10000
network=*vnetbios,*dosnet, lanman10.386
```

Version 2.0 Basic

```
SYSTEM.INI

[boot]
network.drv=msnet.drv

[386enh]
network=*vnetbios,*dosnet, lanman10.386
```

Version 2.0 Enhanced

```
SYSTEM.INI

[boot]
network.drv=lanman.drv

[386enh]
network=*vnetbios,*dosnet
```

Netprog Directory Files Updated

Windows updates the existing NETAPI.DLL, PMSPL.DLL, LANMAN.HLP, WINPOPUP.EXE, and WINPOPUP.HLP files in the NETPROG directory of your 3+Open installation.

3Com 3C505 Card

If you are using the 3Com 3C505 card, you must disable 3Com LinkPlus to run Windows version 3.1 in 386 enhanced mode. To disable LinkPlus, remove the PSH.SYS and PTH.SYS entries from your CONFIG.SYS file and the LDR entry from your AUTOEXEC.BAT file or network login script.

3Com 3+Share

If Setup detects a 3Com 3+Share network, it sets the SYSTEM.INI file settings as follows.

```
SYSTEM.INI

[boot]
network.drv=msnet.drv

[386enh]
PSPIncrement=5
UniqueDOSPSP=TRUE
TimerCriticalSection=10000
network=*vnetbios,*dosnet
```

Diskless Workstations

Setup will not detect a 3Com 3+Share network when installing Windows on a diskless workstation. Choose the Custom Setup option, and specify the 3Com network.

If your 3Com 3+Share diskless workstation comes with an All ChargeCard, make sure your machine is not configured to load the network into the upper memory area between 640K and 1 MB because this conflicts with how Windows manages memory. You will not be able to set up Windows if your system is configured in this way. Refer to your All ChargeCard documentation for more information.

Artisoft LANtastic

Choose a button for more information about the LANtastic version you are using.

SYSTEM.INI Settings (all versions)

LANtastic Versions x.x (all versions)

LANtastic Versions 3.x

LANtastic for Windows

LANtastic Version 4.0

SYSTEM.INI Settings: Artisoft LANtastic

If Setup detects an Artisoft LANtastic network, it sets the SYSTEM.INI settings as follows.

Versions 3.x

```
SYSTEM.INI

[boot]
network.drv=msnet.drv

[386enh]
NetAsynchFallback=TRUE
NetAsynch Timeout=50
NetHeapSize=76
EMMExclude=D800-DFFF
InDOSPolling=TRUE
network=*vnetbios,*dosnet
```

Versions 4.x

```
SYSTEM.INI

[boot]
network.drv=msnet.drv

[386enh]
NetAsynchFallback=TRUE
NetAsynch Timeout=50
NetHeapSize=64
PerVMFiles=0
EMMExclude=D800-DFFF
network=lantasti.386,*vnetbios
```

LANtastic Versions x.x

The following issues apply to all versions of Artisoft LANtastic running with Windows version 3.1.
Choose a topic for more information.

EMMExclude
KBFLOW Program
MS-NET Network Driver
Artisoft ALONE and Windows SMARTDrive
MS-DOS Prompt
MS-DOS Backup/Restore

EMMExclude

Windows Setup sets the EMMExclude line in the SYSTEM.INI file to D800-DFFF. If your network board uses a different memory range, you need to edit the EMMExclude line to reference the proper memory configuration for your network board. If you are using a network board that uses shared memory, delete this line entirely.

If you are using the EMM386 device line in your CONFIG.SYS file, edit this line to exclude the net card memory address. For example:

```
device=emm386.exe noems x=d800-dfff
```

Note that CONFIG.SYS settings take precedence over SYSTEM.INI settings.

KBFLOW Program

Start Windows before loading the KBFLOW terminate-and-stay-resident (TSR) program provided by Artisoft. If this program is loaded before Windows, your system may fail at startup or when you choose the MS-DOS Prompt icon from the Windows Program Manager.

MS-NET Network Driver

If you attempt to run Artisoft's Windows Net Manager program (WNET_MGR.EXE) with the Microsoft Networks (MS-NET) network driver installed, you may receive the error message:

>   You are not using the LANtastic Windows network driver. Please reinstall.

If you choose OK, your system may appear to hang. If you encounter this problem, please contact your network representative for an upgraded version of the network operating system.

Artisoft ALONE and Windows SMARTDrive

Disable SMARTDrive (SMARTDRV.EXE) when using the ALONE program. When the ALONE program and SMARTDrive version 4.0 (shipped with Windows version 3.1) are used together, your server may hang during server/workstation file transfers.

MS-DOS Prompt

If you lose your network drive connections while inside an MS-DOS command prompt, contact your network representative for an upgraded version of the network operating system software.

MS-DOS Backup and Restore Commands

The MS-DOS **backup** and **restore** commands may not function correctly when run on an MS-DOS virtual machine with other virtual machines running in the background. If you experience this problem, contact your network representative for an upgraded version of the network-operating-system software.

LANtastic Versions 3.x

The following issues apply to Artisoft LANtastic versions 3.0 and later.

<u>386 Enhanced Mode on a Server</u>
<u>Standard VGA Driver</u>

386 Enhanced Mode on a Server

Although you can run Windows version 3.1 in 386 enhanced mode on a LANtastic workstation, the LANtastic 3.x server supports Windows only in standard mode. Running 386 enhanced mode on a LANtastic 3.x server can crash the network. Please note that running from a server is not the same as running on the server itself. You can install and run Windows in 386 enhanced mode from a LANtastic 3.x server, provided it is running on a workstation using the workstation's processor and memory.

Standard VGA Driver

Irregular characters display on the screen if you use the standard generic VGA driver over Artisoft's PPORT.EXE parallel port driver version 3.01, and switch between MS-DOS running in a full-screen and MS-DOS running in a window. The Super-VGA driver does not exhibit this problem.

LANtastic Version 4.0

Before you run Windows Setup, make sure that your LANtastic virtual device locations are in your path statement and that the network is loaded. If Windows Setup cannot find the device locations, it specifies *DOSNET instead of LANTASTI.386 in the `network=` line of the [386enh] section in the SYSTEM.INI file.

LANtastic for Windows

The following issues apply only to Artisoft LANtastic for Windows. (Note that this is a separate product from Artisoft LANtastic.)

LANTNET.DRV Network Driver
WINSTALL.EXE
LANtastic NET

LANTNET.DRV Network Driver

Follow the Artisoft LANtastic for Windows installation instructions so that the Artisoft LANTNET.DRV driver is specified in the Windows SYSTEM.INI file.

WINSTALL.EXE

If you have a version of WINSTALL.EXE dated earlier than October 1991, you may encounter one of the following error messages when you attempt to install LANtastic over Windows version 3.1.

    Application Error: Call to Undefined Dynalink
    Fatal Exit code=0x0404

Artisoft has upgraded WINSTALL.EXE to install correctly over Windows version 3.1. Call your network representative for the upgrade. If you run LANtastic for Windows with Windows version 3.0 and then upgrade to Windows version 3.1, you should not encounter this problem.

LANtastic NET

If you are using LANtastic for Windows with LANtastic NET, you may receive a general protection (GP) fault if you attempt to connect a disk drive server resource by using a mouse to drag the resource icon onto a free drive icon. Please contact your network representative for an upgraded version of LANtastic for Windows.

Banyan VINES

The following topics provide version-specific information about using Banyan VINES with Windows 3.1. Choose the topic you want information about.

All Versions of Banyan VINES

SYSTEM.INI Settings: Banyan VINES
"Could Not Start STDA Session: COM 163 - Timeout Event" Error
Word for Windows 2.0 Documents and Token Ring Driver
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Banyan VINES Version 4.0

Banyan VINES Version 4.0

Banyan VINES Version 4.1

Virtual Device Locations
Printing and VINES.DRV

SYSTEM.INI Settings: Banyan VINES

If Setup detects a Banyan VINES network, it sets the SYSTEM.INI file settings as follows.

Versions 4.0x

```
SYSTEM.INI

[boot]
network.drv=msnet.drv

[386enh]
PSPIncrement=5
UniqueDOSPSP=TRUE
TimerCriticalSection=5000
network=*vnetbios,*dosnet,
baninst.386
```

Version 4.1

```
SYSTEM.INI

[boot]
network.drv=vines.drv

[386enh]
PSPIncrement=5
UniqueDOSPSP=TRUE
TimerCriticalSection=5000
network=*vnetbios,*dosnet,
vvinesd.386
```

"Could Not Start STDA Session: COM 163 - Timeout Event" Error

If you receive this error message when you choose the Browse button, make sure that you have an STDA service running, then choose the Browse button again. Banyan has confirmed this to be a problem and plans to resolve this issue in Banyan VINES versions 4.11 and 5.1.

Word for Windows 2.0 Documents and Token Ring Driver

If you are using Banyan's Token Ring driver and you experience problems saving documents created with version 2.0 of Microsoft Word for Windows, contact Banyan for an updated Token Ring driver. Banyan has confirmed this to be a problem and plans to resolve this issue in Banyan VINES versions 4.11 and 5.1.

Print Manager Displays Date and Time as 12:00 AM 1-1-2098

After printing a file in Windows, Print Manager displays the date and time for files queued to network printers as 12:00 AM 1-1-2098. The date and time are correct for files queued to the local printer. Banyan has confirmed this to be a problem and plans to resolve this issue in Banyan VINES version 5.1.

SMARTDrive and REDIR4 Drivers

If you load SMARTDrive (SMARTDRV.EXE) and the VINES driver REDIR4.EXE high, your system may hang during startup. Try loading the REDIR4 driver high first, and then load SMARTDrive into the upper memory blocks (UMBs). Banyan has confirmed this to be a problem and plans to resolve this issue in Banyan VINES version 5.1.

Multiple Mail Applications

Applications such as Lotus Notes and Reach MailMAN may interrupt each other's connection to the Banyan VINES network. Banyan has confirmed this to be a problem and plans to resolve this issue in Banyan VINES version 5.1.

MS-DOS Prompt in Standard Mode

If you load Banyan VINES NetBIOS globally and run Windows in standard mode, you will not be able to choose the MS-DOS Prompt icon. To work around this, run the terminate-and-stay-resident (TSR) NOSWAP.COM program (available from the Microsoft Windows Driver Library [WDL]) before running Windows in standard mode. Banyan has confirmed this to be a problem and plans to resolve this issue in Banyan VINES version 5.1.

Microsoft Windows Driver Library

Microsoft has made available the Windows Driver Library (WDL). The WDL contains many printer, display, and sound card drivers that were not provided with Windows 3.1. If you have a modem, the drivers are available at no charge on CompuServe, GEnie, Microsoft OnLine, and the Microsoft Download Service (MSDL). However, note that standard connect-time fees and long-distance telephone charges, if any, will still apply during downloading. When you connect to any of these services, please read the WDL.TXT file for downloading instructions and a complete list of the devices supported in the WDL.

The phone number for the MSDL is (206) 936-MSDL (6735). There is no connect-time charge for using this service.

On CompuServe, the WDL is in the Microsoft Software Library, which can be reached by typing `go msl` at the system prompt. (To find WDL.TXT, search for S13354.)

On the GEnie and Microsoft OnLine systems, the WDL is in the Microsoft Software Library. (To find WDL.TXT, search for S13354.)

If you do not have a modem, the WDL will be available after 5/1/92 on disk from Microsoft Consumer Sales. To order the WDL on disk, call (800) 426-9400 Monday - Friday, 6:00 A.M. - 5:30 P.M., Pacific time. There is a $20 fee for ordering the WDL on disk.

Running Multiple Virtual Machines

If you experience problems running multiple virtual machines with Banyan VINES, you may want to increase the amount of time the multiple virtual machines run by adding the following switch to the [386Enh] section of your SYSTEM.INI file:

```
ModifyDOSInt2A=FALSE
```

Banyan has confirmed this to be a problem and plans to resolve this issue in Banyan VINES version 5.1.

Asynchronous Dial-Up and MS-DOS Prompt

If you log on to a Banyan network using an asynchronous dial-up feature and then run Windows, you should not try to run a network from an MS-DOS prompt running in a window. If you need to run a network from an MS-DOS prompt running in a window, you may have to quit Windows in order to reestablish your network connection. Banyan is researching this problem.

NetBIOS Support

If NetBIOS support under Banyan VINES is not loaded, you will receive an error message that the network software has not been loaded, and you will be unable to print.   To load NetBIOS support under Banyan VINES, either use the PCCONFIG program or run PCNETB.COM. PCNETB.COM should be available on the default drive Z mapping (:\PCNETB.COM).

Banyan VINES Version 4.0

While the Windows Setup program will detect and install for a Banyan VINES network, Windows version 3.1 does not support the driver shipped with Banyan VINES 4.0.   Contact Banyan for an updated driver. For more information, see the NETWORKS.WRI file in your Windows directory.

Virtual Device Locations

Make sure that VINES.DRV and the virtual devices are in the path statement, and that the network is loaded before you run Windows Setup. Otherwise, Setup may install MSNET.DRV instead of VINES.DRV.

Printing and VINES.DRV

The original Banyan Vines 4.1x VINES.DRV driver file causes printing problems in Windows. Contact your Banyan distributor to obtain an upgraded driver. For more information, see the NETWORKS.WRI file in your Windows directory.

DEC Pathworks

DEC Pathworks versions 4.0 and later are supported by Windows version 3.1. The following issues apply to Pathworks versions 4.0x and 4.1.

SYSTEM.INI Settings: DEC Pathworks
Remote Boot Stations
File Manager Functionality
System Administration from MS-DOS
NetBIOS Application
LANSESS Protocol Using Virtual Machines

SYSTEM.INI Settings: DEC Pathworks

If Setup detects a DEC Pathworks network, it sets the SYSTEM.INI file settings as follows:

Versions 4.0x and 4.1

```
SYSTEM.INI

[boot]
network.drv=pcsa.drv

[386enh]
TimerCriticalSection=10000
network=*vnetbios,decnet.386,
decnb.386
```

Remote Boot Stations

To run Windows on a DEC Pathworks remote boot workstation, you must manually add the Windows driver files to the common file server share. DEC Pathworks writes the network boot files to a floppy disk or, on diskless workstations, to a bootable share area. The loadable drivers provided by Windows (HIMEM.SYS, EMM386.EXE, RAMDRIVE.SYS, SMARTDRV.EXE, and so on) must be placed on the boot disk for floppy disk systems or the bootable share for diskless workstations.

File Manager Functionality

▪ In the Network Connections dialog box in File Manager, the Previous and Browse buttons are unavailable (dimmed). These options are not available with Pathworks.

▪ The File Search option in File Manager does not work properly with Pathworks. If you specify `*.*` as your file search criteria, File Manager displays the directory names only. More definitive searches sometimes work, but may not gather all the applicable files. Microsoft recommends that you not use the Search command under Pathworks.

▪ When a DEC Pathworks station is initialized on the network, between one and eight local access virtual disk service (LAD) drives are chosen (four is the default). The network sets these drive letters aside for attachment to Application Disk services, which are read-only. These drive letters are the first one to eight drives after the local drives. The best way to tell which drive letters they are is to look at the Master DEC share, usually PCSAV40 or PCSAV41, which contains a full DECnet directory and the other VAX and VMS applications. This drive is assigned the next available drive letter after the LAD drives. The drivers provided by DEC for use under Windows version 3.1 do not allow you to use File Manager to connect to the LAD drive letters. Pathworks displays a network error message if you attempt to connect to these drives.

Note: Your shared Windows directory may be an Application Disk Service or LAD drive.

System Administration from MS-DOS

Pathworks system administration cannot be done from MS-DOS. You must either use the Server console or a VT emulator to access the operating system to maintain shares.

NetBIOS Applications

If you have problems with NetBIOS applications using Windows version 3.1 with Pathworks, add *vnetbios to the `network=` line in the SYSTEM.INI file. It appears that some NetBIOS calls are unsupported in DEC's DECNB.386 driver.

LANSESS Protocol and LAST Drivers

If you are using the LANSESS protocol and LAST drivers, the system may hang after you access the network from an MS-DOS virtual machine. To prevent this, add the following switch to the [386Enh] section of the SYSTEM.INI file:

```
NetNoBlock=FALSE
```

OS/2 LAN Server

IBM OS/2 LAN Server, also known as IBM DOS LAN Requester, is based on Microsoft LAN Manager. Windows supports LAN Server versions 1.2 and later. Choose from the following topics for version-specific information.

All Versions of OS/2 LAN Server

SYSTEM.INI Settings: IBM OS/2 LAN Server
Network Browse Functionality
Pop-Up Messages
/API Option

LAN Server Version 2.0

Path Statement and File Locations

Versions of LAN Server Earlier Than Version 2.0

General Information
Restrictions

SYSTEM.INI Settings: IBM OS/2 LAN Server

If Setup detects an IBM OS/2 LAN Server network, it sets the SYSTEM.INI file settings as follows:

Version 1.2

```
SYSTEM.INI
[boot]
network.drv=msnet.drv

[386enh]
network=*vnetbios,*dosnet
```

Version 1.3

```
SYSTEM.INI

[boot]
network.drv=msnet.drv

[386enh]
network=*vnetbios,*dosnet
```

Version 1.3 with CSD 5015/5050

```
SYSTEM.INI

[boot]
network.drv=lanman.drv

[386enh]
network=*vnetbios,*dosnet
```

Version 2.0

```
SYSTEM.INI

[boot]
network.drv=lansrv.drv

[386enh]
network=*vnetbios,*dosnet
```

Path Statement and File Locations

Make sure that the LAN Server directory is in your path statement, and that the following files are in the LAN Server directory: LANSRV.DRV, LANSRV.HLP, WINDLR.DLL, NETAPI.DLL, PMSPL.DLL, WINPOPUP.EXE, and WINPOPUP.HLP.

Network Browse Functionality

If the network Browse function in Windows File Manager and Control Panel does not show all the available servers, you may need to increase the LAN Server /NVS option. You can do this by adding the following line to the DOSLAN.INI file in your LAN Server directory:

    /NVS:1

Set the value to a number at least as large as the number of servers in your domain.

Pop-Up Messages

If you want to receive pop-up messages while working in Windows, make sure the following lines are included in the DOSLAN.INI file in your LAN Server directory:

```
/NMS:2
/RCV
/POP
```

The value of /NMS can be set higher but must be a minimum of 2.

You must also make sure the entry `load=WinPopup` is included in the [Windows] section of your WIN.INI file.

If you are setting up Windows on a workstation, make sure the workstation does not receive messages while Setup is running. If the workstation receives messages while Setup is running, the Setup program may be damaged.

/API Option

Some IBM OS/2 LAN Server versions do not include the /API option. (The application programming interface [API] is a formally defined programming language that interfaces between an IBM system control program, or other licensed program, and the user. (An API allows an application program [in your workstation] to use a particular Communications Manager service.) If you are unsure whether you have the API loaded, check your AUTOEXEC.BAT file.

General Information

All IBM OS/2 LAN Server versions are 100-percent compatible with the Microsoft Networks (MS-NET) product. Versions 1.3, 1.3 CSD 5015, and later are based on <u>Microsoft LAN Manager</u> version 2.0 and are handled as such by Windows.

Running Windows version 3.1 with LAN Server versions 1.3 CSD 5015 or later requires the files LANMAN.DRV, LANMAN.HLP, WINPOPUP.EXE, WINPOPUP.HLP, NETAPI.DLL, and PMSPL.DLL. These files should be located in your LAN Server directory. If your version of LAN Server does not provide these files, Windows Setup copies them to your Windows \SYSTEM directory. Windows also installs updated versions of the NETAPI.DLL and PMSPL.DLL files during setup.

Restrictions

Versions of LAN Server earlier than 2.0 do not support the IBM OS/2 LAN Server aliasing scheme from inside Windows-based applications.

These versions of LAN Server also do not support logging on through Windows Control Panel. Doing so may cause your machine to lock up. Always log on at an MS-DOS command prompt before starting Windows.

IBM PC-LAN Program

The IBM PC-LAN Program is based on the Microsoft Networks (MS-NET) product and is handled as such by Windows. Choose from the following topics for more information:

SYSTEM.INI Settings: IBM PC-LAN Program
File Manager and Control Panel Functionality
Network Messages in Windows

SYSTEM.INI Settings: IBM PC-LAN Program

If Setup detects an IBM PC-LAN Program network, it sets the SYSTEM.INI file settings as follows.

All Versions of PC-LAN

```
SYSTEM.INI

[boot]
network.drv=msnet.drv

[386enh]
InDOSPolling=TRUE
network=*vnetbios,*do
snet
```

File Manager and Control Panel Functionality

If you use File Manager to connect to a network share, or Control Panel to connect to a network printer, the connection is not detected by non-Windows-based applications. It is, however, still usable by Windows and Windows-based applications.

IBM PC-LAN Extended Services refers to network drives and printers by two different names. Usually, when connecting to a network, you select connections from a list containing descriptive names, but internal connections are made with hidden names such as \\SERVER\IBMXS001. To make new network connections by using Control Panel or File Manager, you must type the hidden names. Consult your network administrator to learn the proper names to use.

Network Messages in Windows

PC-LAN supports network broadcast messages. However, with some versions of the PC-LAN workstation software, the system will crash if you receive a network message while in Windows. To work around this problem, you can either use the PC-LAN NET PAUSE MESSENGER command to disable broadcast messages, or you can start the network with NET START RDR instead of NET START MSG or NET START RCV.

Microsoft LAN Manager

Choose from the following topics for version-specific information.

All Versions of Microsoft LAN Manager

SYSTEM.INI Settings: Microsoft LAN Manager
Logging Off with Control Panel

Microsoft LAN Manager Versions 2.x

Expanded Memory
File Manager Functionality

Microsoft LAN Manager Versions 2.x Enhanced

SYSTEM.INI File
Necessary Files

SYSTEM.INI Settings: Microsoft LAN Manager

If Setup detects the Microsoft LAN Manager network, it sets the SYSTEM.INI file settings as follows:

Versions 1.x, 2.0, and 2.1 Basic

```
SYSTEM.INI

[boot]
network.drv=msnet.drv

[386enh]
network=*vnetbios,*dosnet,
lanman10.386
```

Version 2.0 Enhanced

```
SYSTEM.INI

[boot]
network.drv=lanman.drv

[386enh]
network=*vnetbios,*dosnet
```

Version 2.1 Enhanced

```
SYSTEM.INI

[boot]
network.drv=lanman21.
drv

[386enh]
network=*vnetbios,*do
snet
```

Logging Off with Control Panel

After installing Windows using the Setup /N command, do not try to log off the network by running Control Panel, choosing the Networks icon, and then choosing Logoff from the Account menu. If you log off in this fashion, Windows loses access to all the critical files it needs to operate (for example, KERNEL.EXE and GDI.EXE) and will crash, resulting in possible data loss.

Expanded Memory

You may find that your system slows down considerably when you run Windows in 386 enhanced mode if your LAN Manager components are configured to use expanded memory. If this is a problem, turn off the use of expanded memory by modifying your LANMAN.INI and PROTOCOL.INI files. The exact procedure will vary depending on what components you are running. See your LAN Manager documentation for further details.

To turn off expanded memory

1. Open your LANMAN.INI file in a text editor, such as Notepad. (LANMAN.INI is located in your LAN Manager directory.)

2. Find or add the [workstation] section. If you are using Notepad, find the [workstation] section by choosing Find from the Search menu, typing [workstation], and then choosing the OK button.

3. Find or add the `LIM=` line in this section, and then specify the following line:

   ```
   lim=no
   ```

4. Save the file.

5. Restart your workstation.

Alternatively, you can use the NET STOP and NET START workstation commands to stop your workstation and restart it again. You may also want to configure other network components (such as protocol stacks) to avoid using expanded memory. Consult your network's documentation for instructions on how to do this.

File Manager Functionality with LAN Manager 2.1

In Microsoft LAN Manager 2.1, if you try to use File Manager to disconnect from a network drive after you have copied a file to that drive, you receive the following message:

> Cannot disconnect network drive X:. An application is using the connection. Please close any open files on this drive to prevent loss of data.

If you go back to your local drive, open, and edit any file, and then close it, you can disconnect the network drive without this problem occurring. LAN Manager keeps the last file handle open to speed up network drive access. When you perform a local operation and file closure, LAN Manager releases the handle, allowing you to disconnect.

SYSTEM.INI File

When you set up Windows for use with LAN Manager 2.x Enhanced, one of the following entries is added to the [boot] section of your SYSTEM.INI file:

```
Network.drv=lanman21.drv        (For LAN Manager 2.1)
Network.drv=lanman.drv          (For LAN Manager 2.0)
```

Make sure that the location of the LAN Manager driver is in the path statement before running Windows Setup. If the `Network.drv=` entry lists MSNET.DRV instead of the LAN Manager driver, you can manually change this entry. For example:

```
NETWORK.DRV=C:\location\LANMAN21.DRV
```

See the SYSINI.WRI file for more information on this entry.

Necessary Files

For Windows to support LAN Manager versions 2.x Enhanced, you must have the following files:

LAN Manager 2.x	LAN Manager 2.1	LAN Manager 2.0
NETAPI.DLL	LANMAN21.DRV	LANMAN.DRV
PMSPL.DLL	LM21_W31.HLP	LANMAN.HLP
WINPOPUP.EXE		
WINPOPUP.HLP		

These files are usually located in your LAN Manager \NETPROG directory, which is on your path. If you are missing any of these files, you may receive warning messages when starting Windows or be unable to use Windows network functions.

Windows version 3.1 updates LAN Manager version 2.0 files during Setup, provided they are located on your path and the network is loaded when you run Setup.

Novell NetWare

Windows version 3.1 supports Novell NetWare with NetWare workstation shell software version 3.01 or later. Windows version 3.1 shipped with the latest NetWare workstation components available at the time of release. (Refer to the NETWORKS.WRI file for a complete list of the NetWare components available in Windows version 3.1.) Future workstation software updates can be obtained from Novell's LANswer group, the CompuServe NetWare forum, or authorized NetWare dealers.

For more information, choose from the following topics.

SYSTEM.INI Settings: Novell NetWare

MS-DOS NetBIOS Applications

Printing Considerations

Renaming Directories or Subdirectories

Renaming Files in Read-Only Directory

NetBIOS.EXE and MS-DOS

Drive Mappings in File Manager and
　　MS-DOS

Icon Changes after Move/Copy in
　　Program Manager

SHELL.CFG Configuration File

Expired Password

Setup /N and NetWare Servers

Messaging Disabled

ArcNet Topology and MSD

SYSTEM.INI Settings: Novell NetWare

If Setup detects the Novel NetWare network, it sets the SYSTEM.INI file settings as follows.

Shell Versions 3.01 and Later

```
SYSTEM.INI

[boot]
network.drv=netware.drv

[386enh]
OverlappedIO=OFF
network=*vnetbios, vnetware.386,
vipx.386
```

SHELL.CFG

The SHELL.CFG is a Novell configuration file that should be located in the same subdirectory as the shell files. If it does not exist, you need to create it. You can add the following entries to this file:

`SHOW DOTS=ON`	Displays two dots to represent the parent directory
`FILE HANDLES=60`	Number of files that can be open on the server
`NETBIOS BROADCAST COUNT=5`	This number reflects the size of your network or internetwork.
`NETBIOS BROADCAST DELAY=10`	This value reflects the traffic of the network.

MS-DOS NetBIOS Applications

If you are running MS-DOS NetBIOS applications within MS-DOS virtual machines (386 enhanced mode), you must set the following switch in the [386Enh] section of the SYSTEM.INI file:

```
TimerCriticalSection=1000
```

ArcNet Topology and MSD

If you are running on an ArcNet topology, do not run the Microsoft Diagnostics program (MSD). In some cases, running MSD will terminate your network connection and might cause connection problems with other workstations on the network. If you want to run MSD, please do so without detection. You can turn off detection by running MSD with a command-line parameter (/I), as follows:

```
c:\>MSD /I
```

Once MSD is running, all the fields will be blank. To gather information about your system, manually select the areas of interest. Do **not** gather information about the network. If you do so, you will terminate your connection (and possibly others) when you exit MSD.

Icon Changes After Move/Copy in Program Manager

When you move or copy Program Manager icons between different groups, your original icon designation changes to a plain, square icon. You need to manually change your icon back to its original designation after the move/copy operation. To change the icon:

1. Select the icon you want to change.

2. From the File menu in Program Manager, choose Properties.

3. Choose the Change Icon button in Program Manager.

4. Type the appropriate path in the File Name box or choose the Browse button to select a path.

5. Choose the OK button.

Renaming Directories or Subdirectories

You cannot rename directories or subdirectories on a Novell NetWare server.

Drive Mappings in File Manager and MS-DOS

If you have NWShareHandles turned off (that is, not selected in the Control Panel Networks option), and you run Windows in standard mode on your workstation and then restart Windows in 386 enhanced mode, any network drive mappings made in File Manager will not be seen in subsequent MS-DOS virtual machines. To recognize drive mappings made in File Manager in subsequent MS-DOS virtual machines, quit Windows, log off your network, and restart your machine.

NETBIOS.EXE and MS-DOS

Do not run Novell's NetBIOS (NETBIOS.EXE) program on an MS-DOS virtual machine. Doing so may hang your system. NETBIOS is supported only when run globally. Start NetBIOS prior to starting Windows.

Expired Password

If you use File Manager or Control Panel to attach to another server and your password has expired, you cannot change your password in NetWare. You must change your password at the MS-DOS command prompt (you can also change your password in Windows if you have NetWare Tools for Windows).

Messaging Disabled

If you have messaging disabled (from the Control Panel Networks option), and you receive messages while in Windows, the messages will not appear. However, the messages are saved and will attempt to display on the bottom of your screen when you exit Windows. If you press CTRL+ENTER to clear the message, your computer will either hang, or scroll uncontrollably and display garbled characters.

To resolve this, enable messaging prior to exiting Windows. This will allow any queued messages to appear in a Windows dialog box, where you can clear them without any problems.

Renaming Files in Read-Only Directory

Even though you can see and select a file in a directory to which you have read-only privileges, you cannot rename the file. If you attempt to do so, you will receive the following error message:

    Cannot rename file <drive:path\filename>:   Cannot find file

Printing Considerations

Windows version 3.1 requires the NetWare shell version 3.01 or later for proper operation.

If you have persistent printer connections (that is, your printers are redirected each time you start up Windows), you will receive an error message when Windows starts up if the print queue is empty. The NetWare driver is attempting to reconnect your printers to a print queue that no longer exists.

To eliminate these error messages, connect your LPTx ports to another print queue (preferably the one you want to use), and make it a permanent connection. By making your new connections permanent, you will overwrite the nonexistent print queue information in the WIN.INI file with your new permanent connection information.

NetWare's Printer Connection dialog box may exhibit some repainting problems when it is displayed on an EGA monitor. The keyboard accelerator appears to be missing for Printer Connections; however, pressing ALT+P still works correctly.

Setup /N and NetWare Servers

When Setup /N is run from a NetWare server, Setup attempts to add either the local directory where you installed Windows (C:\WINDOWS by default) or the network directory where you have a shared copy of Windows (for example, W:\WINDOWS\WIN31) to the path statement in the AUTOEXEC.BAT file. These directories appear before your original path references.

If you have the shared Windows files in a search path, there is really no need to have w:\ windows\win31 in your path statement. This is especially true if your login script includes the Map Insert command, which appends the individual MS-DOS path designations as additional NetWare search drives after all other network search drives have been redirected. If you leave the w:\ windows\win31 designation in your path statement, you will have two search drives to your shared Windows directory on your NetWare server. This redundancy does not cause any problems, but is unnecessary and may become an issue if you are nearing your limit of 16 search drives.

TCS 10Net

TCS 10Net version 4.1 or later is required for proper operation of Windows version 3.1. If you use earlier versions of 10Net, you may experience problems. If you use an earlier version, you need to manually add the `TimerCriticalSection=` parameter as noted in the example of the [386Enh] section of the SYSTEM.INI file. For update information, contact TCS Technical Support.

For more information about TCS 10Net, choose from the following topics:

SYSTEM.INI Settings: TCS 10Net
WTNET.DRV and Control Panel and File Manager Functionality
10Windows

SYSTEM.INI Settings: TCS 10Net

If Setup detects the TCS 10Net network, it sets the SYSTEM.INI settings as follows.

Versions 4.1x

```
SYSTEM.INI

[boot]
network.drv=msnet.drv

[386enh]
TimerCriticalSection=10000
network=*vnetbios,*dosnet
```

Versions 4.1x with DCA 1M

```
SYSTEM.INI

[boot]
network.drv=msnet.drv

[386enh]
InDOSPolling=TRUE
PSPIncrement=5
UniqueDOSPSP=TRUE
TimerCriticalSection=10000
network=*vnetbios,*dosnet
```

Versions 4.2 and Later

```
SYSTEM.INI

[boot]
network.drv=msnet.drv

[386enh]
TimerCriticalSection=2000
network=*vnetbios,*dosnet
```

Version 5.0

```
SYSTEM.INI

[boot]
network.drv=msnet.drv

[386enh]
TimerCriticalSection=2000
network=*vnetbios,*dosnet
```

WTNET.DRV and Control Panel and File Manager Functionality

When you are using the 10Net WTNET.DRV driver, do not close File Manager while you are still reading drive A. If you do, your system may hang the next time you open File Manager. Contact TCS to obtain an updated driver. If you have problems using Control Panel to disconnect from a network print queue, contact TCS for an updated driver.

10Windows

TCS's 10Windows is a separate TCS product. The TCS installation program installs the network driver WTNET.DRV in the SYSTEM.INI file. If you purchase 10Windows, follow TCS's instructions on how to install it and the WTNET.DRV driver. If you had 10Windows installed in Windows version 3.0 and experience problems when upgrading to Windows version 3.1, run the TCS installation program again after performing the upgrade.

The 10Windows installation program may add the line `device=10dma` to the [386Enh] section of SYSTEM.INI file. If so, modify the line to read `device=10dma.386`.

Invisible Net

Invisible Net is a peer-to-peer network. Windows identifies the network as No Network Installed.

For more information about Invisible Net, choose from the following topics:

Loading NET 30 Drivers
Using the Truncate Command to Print to a Network Printer

Loading NET 30 Drivers

The Invisible Net product NET 30 for Windows version 3.0 provides network drivers for Windows. To load these drivers, select Other Network at the Windows Setup configuration screen, and then specify the path to the NET 30 files. NET 30 installs the drivers and makes the following entries to the SYSTEM.INI file and WIN.INI files:

SYSTEM.INI

```
[boot]
network.drv=isnet.drv

[boot.description]
network.drv=NET/30 for Windows

[386enh]
network=*vnetbios, *dosnet
FileSysChange=OFF
InDOSPolling=TRUE
INT28Critical=TRUE
ReflectDOSInt2A=FALSE
UniqueDOSPSP=FALSE
LPT1AutoAssign=0
LPT2AutoAssign=0
LPT3AutoAssgin=0
PerVMFiles=0
```

WIN.INI

```
[windows]
spooler=yes

[spooler]
netupdate=yes
netspool=yes
```

For additional information, refer to your NET 30 for Windows software documentation.

Using the Truncate Command to Print to a Network Printer

If you are experiencing problems printing to a network printer using an Invisible Net network, the Truncate command may help solve those problems.

When you print to a network printer over the Invisible Net network, the print jobs queue in the network print spooler. With large print jobs or heavy network traffic, the print spooler may not recognize an end-of-file marker, and may choose an arbitrary time to begin printing, or wait until the application closes before printing. With the truncate parameter set too low, the spooler may start printing the job before the entire job is received, resulting in scrambled output.

You can modify the wait period by adding the following statement to the AUTOEXEC.BAT file

```
truncate xxx
```

where *xxx* is the number of seconds (from 1 to 250) before the printer starts printing. The default for the Truncate command is zero. With the default setting, the spooler does not cut off the print stream.

According to Invisible Software Technical Support, a truncate value of 10 is usually adequate. For word-processing print jobs, where the entire job is sent to the printer at once, truncate 1 is adequate. For database print jobs, a higher number should be used.

TOPS Network

Windows version 3.1 cannot identify the TOPS network during Setup. Windows identifies this network as No Network Installed, and this is the best selection. Use the following guidelines when running Windows version 3.1 with a TOPS network configuration:

- Do not use Setup /A or Setup /N. Each workstation must have a full Windows setup.
- Install applications on the local workstation. You can create, edit, and print files on server share drives, but do not run the application itself from the server share.
- Connect to all shares before you access Windows. The drives will then display as local drives in File Manager and Windows-based applications.
- Load TOPS in extended memory only. Do not load TOPS in conventional memory because it may cause Windows to hang.

NetWare Lite

Follow the instructions in the NetWare Lite ReadMe file when installing Windows on the network. Install Windows locally; do not attempt to install it from a network directory.   Follow the regular installation procedure using Windows disks. If Setup installs for the Microsoft Network Or 100% Compatible, change this to No Network Installed.

Choose from the following topics for more information:

Server Drive Goes Down
SEND Messages
Printing from Windows

Server Drive Goes Down

If a server to which you have mapped a drive goes down, Windows displays a message indicating that the drive does not contain any files. Any attempt to access that drive will fail. Under MS-DOS, this error is trapped, and the user workstation (the client) generally saves enough information to restore the network directory connection when the downed server returns. Windows prevents MS-DOS from trapping this error.

SEND Messages

NetWare Lite SEND messages appear only at the MS-DOS command prompt.

Printing from Windows

To print from Windows, do the following before starting Windows.

1. Use NetWare Lite's Net Capture command to redirect printing from your LPT1 and LPT2 ports to a network printer.

2. Configure your printer in Windows to either the LPT1.OS2 or LPT2.OS2 ports, depending on which port you captured before entering Windows.

Workstations that are configured as both server and client should use LPT1.OS2 or LPT2.OS2 to print from Windows.

Sun PC-NFS

Sun PC-NFS version 3.5 is not supported by Windows version 3.1. PC-NFS is not compatible with Microsoft Networks (MS-NET) because it does not support the assign list Interrupt 21h functions on which the MSNET.DRV driver file relies. Windows Setup detects the PC-NFS as No Network Installed. Any Windows installation must be on the local workstation, not on the network.

If you are using Windows 3.1 with a PC-NFS network, add the following line (if it doesn't already exist) to the [386Enh] section of the SYSTEM.INI file:

    UniqueDosPSPS=True

Save the SYSTEM.INI file, then quit and restart Windows.

Also refer to these guidelines:

Temporary Files
Network Connections
Command Syntax
PIF Files
MS-DOS 5.0

Temporary Files

Make sure that any Windows swap files or temporary files are created on a local drive. You may want to verify that the following SYSTEM.INI file settings and MS-DOS environment variables do not refer to a remote drive.

SYSTEM.INI Settings

```
[386 Enh]
PagingFile= path to a local
drive
[NonWindowsApp]
SwapDisk= path to a local drive
```

MS-DOS Environment Variable Settings

```
TEMP = path to a local drive
```

Network Connections

With PC-NFS version 3.5, you cannot view a network printer queue from within Print Manager, and you cannot connect or disconnect network drives from within File Manager. You can connect or disconnect network drives either from MS-DOS before you start Windows, or from the MS-DOS Prompt icon while running Windows.

If you make network connections from MS-DOS before you access Windows, they appear as local drives in Windows. This kind of connection is accessible from File Manager or any MS-DOS session.

If you make network connections from the MS-DOS Prompt icon while running Windows, they are only visible from the MS-DOS session. These network connections are not visible from File Manager, or from MS-DOS after you quit Windows.

Command Syntax

The command syntax for connecting to a network share in PC-NFS is similar to LAN Manager syntax. For example:

To view PC-NFS server shares, type the following at the MS-DOS command prompt:

```
showmnt servername
```

To connect to a PC-NFS server (or host server), type the following at the MS-DOS command prompt:

```
Net use f: \\dunelm\usr\home\username
```
(type the complete path)

To specify a UNIX path, type:

```
Net use f: dunelm:/usr/home
```

To disconnect network drives, type:

```
Net use f: /d
```

For more information, type:

```
Net
```

PIF Files

When creating PIF files for running PC-NFS programs in Windows 386 enhanced mode, select Lock Application Memory in the Advanced Options dialog box in the PIF Editor.   Failure to do so may result in system interruption and data loss.

MS-DOS Version 5.0

If you are using MS-DOS version 5.0, you can load device drivers high to save on conventional memory. Some of the PC-NFS device drivers can be loaded high.

Using Windows 3.1 and Networks

About This Guide

Choose this button for information about navigating inside this ViewNote.

Installing Windows

Choose this button for information about installing Windows version 3.l for use over a network.

Specific Network Considerations

Choose this button for information about network-specific file settings and compatibility issues.

Miscellaneous Troubleshooting

General Installation Information	**Remote Boot Workstations**
Insufficient Memory on the Network Drive	**Diskless Workstations with EGA Monitors**
Sharing Violations	**Diskless Workstations and MSD Reports**

Diskless Workstations with EGA Monitors

If you use Setup /N to install a network version of Windows for a diskless workstation with an EGA monitor, Setup adds the following line to the CONFIG.SYS file

```
device=g:\user\win31\ega.sys
```

where `\user` is the user's personal network directory. When you reboot, CONFIG.SYS will tell you that it cannot find EGA.SYS. This is because Windows copied EGA.SYS to the network directory instead of the root of drive C (where it would be available during boot time). To correct this problem, do the following.

1. Log on to the network and locate EGA.SYS in the user's network directory.
2. Copy EGA.SYS to the root directory of the user's boot drive.
3. Edit the CONFIG.SYS file to read

   ```
   device=boot drive\ega.sys
   ```

   where *boot drive* is the drive from which you boot (for example drive C).
4. Reboot the user's workstation.

Sharing Violations

If you receive sharing violations when multiple users execute the same application over the network, make sure the application's .EXE files are marked read-only. Additionally, some networks require that you not load the MS-DOS **share** command on workstations if you want multiple users to run Windows simultaneously.

Insufficient Memory on the Network Drive

If you receive an error message stating that there is insufficient memory on the network drive, you may not have the correct settings necessary for Windows to create its temporary files. To correct this problem, place a `SET TEMP=` statement in the AUTOEXEC.BAT file or network login script, or add the following line to the [NonWindowsApps] section of the SYSTEM.INI file

    swapdisk= *path*

where *path* is a valid network path (for example, F:\TEMP).

Diskless Workstation and MSD

The Microsoft Diagnostics (MSD) program does not search a diskless workstation's network path for the SYSTEM.INI and WIN.INI files, even if the path is in the AUTOEXEC.BAT file. If a user has a diskless workstation and tries to generate an MSD report, the SYSTEM.INI and WIN.INI files will not be included. This problem occurs on all networks with diskless workstations.