Windows for Workgroups • solutions to common queries

Windows for Workgroups has had its teething troubles, but that doesn't mean you have to tear your hair out. This month, we take the top Workgroups queries and give you all the answers.

Question When running Windows for Workgroups you receive the error message 'The protocol manager has reported an incomplete binding.' What causes this error?

Answer The error is usually caused by a conflict in the upper-memory area or an incorrect setting in the PROTOCOL.INI file. First, check to see if you are using EMM386 to gain expanded memory for your MS-DOS programs. If so, then modify the CONFIG.SYS file to say:

```
device = \path\emm386..exe
x=a000-efff
```

If you still receive the error then check the PROTOCOL.INI file by using the Control Panel/Network icon and then the Adapters button. You should check that the brand name and model of the network card is listed under the Network Adapter In Use. If the network adapter is incorrect, choose the Remove button to erase the network card from the list and then choose the Add button to select the correct driver. You should also note the IRQ, I/O port and Base Memory address configurations. If any of these is incorrect then change the corresponding entry to its correct setting. Finally, check the protocol. You must have at least one protocol selected in the dialog box entitled Protocols In Use.
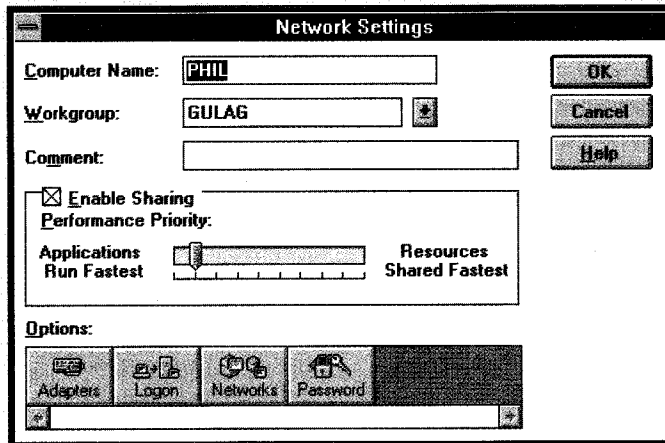
If you still can't get it to work and are using an Intel EtherExpress adapter card, then:

- Turn off the computer and disconnect any cables from the card.
- Attach a T-Connector to the card with 2 terminators on the T.
- Restart the computer.

If the message goes away then there's a problem with the cable.

Question When running Windows for Workgroups on a Novell network, you see the error message 'File server cannot be found.' Why is this?

Answer If you're using a Token Ring network then this is probably caused by the file ROUTE.COM being left in your AUTOEXEC.BAT file. You should surgically remove it using your favourite editor.

If you're using an Ethernet network then this may be caused either by exceeding the user limit of the Novell NetWare licence or by an entry in PROTOCOL.INI referring to an incorrect Ethernet frame type. You should be able to check whether you have exceeded your limit on the Novell licence quite quickly, but the error is rarely caused by that problem. More likely, you need to check PROTOCOL.INI. The easiest way to do this is to:

- Choose the Network icon in the Control Panel, and then click the Adapters button.
- Select the adapter that's bound to MSIPX, choose the Setup button and then choose the Advanced Button.
- Select Novell IPX from the Protocols In Use box and then choose the Settings Button.

Figure 1: Windows for Workgroups' Control Panel/Network setting gives you control of your connections.

Windows for Workgroups: setup tips

Entries referring to Workgroup and ComputerName should be limited to 15 characters, even when the dialog box allows more. All other share names must conform to the MS-DOS file naming conventions, which are the eight character maximum filename plus three characters as an optional extension.

- The Windows for Workgroups setup might not always detect your network card and its configuration accurately. For this reason, you may want to choose the custom setup so that you can modify the network card configuration yourself. You can, however, always change the configuration after setting up Windows for Workgroups using the Control Panel Networks Icon.

- Some network interface cards, such as the Intel EtherExpress, are software configurable with no jumpers or switches on the card. In this case the Windows for Workgroups network card installation software automatically configures these cards for IRQ, I/O port and RAM addresses.

- Windows for Workgroups only supports the NetBEUI protocol. The MSIPX protocol is only available after you install the option for Novell NetWare. The Windows for Workgroups protocols conform to the Network Driver Interface Specification (NDIS), so if you want to use another protocol, you must obtain the NDIS-compliant driver and an OEMSETUP.INF from the software company that provides the protocol.

- If you have an Ethernet adapter that can automatically emulate either an NE1000 or an NE2000 network card, choose the NE1000 compatible adapter for an 8-bit card or the NE2000 compatible adapter for a 16-bit card in the Network Adapter dialog box.

- If you have an ARCnet adapter that conforms to NDIS, then select the ARCnet-compatible network card in the Control Panel's Network Adapter dialog box. Note, however, that you can't use ir with the Novell NetWare MSIPX protocol.

- In the Adapter Media Type Value Box, you'll see Novell/Ethernet or Ethernet_II(DIX). You'll need to swap the Media Type Parameter: if you see Novell/Ethernet then you'll need to select the Ethernet_II(DIX) driver.

Question When loading Windows for Workgroups, I receive the error message 'NetBIOS session limit exceeded.' Why?

Answer This error message refers to the number of connections that can be made to your server at any one time as set by the SESSIONS variable in the [MS$NetBeui] section of the PROTOCOL.INI file. To increase the number of sessions:
- Use Notepad to open PROTOCOL.INI.
- Locate the section titled [MS$NetBEUI].
- Double the value following the SESSIONS= and increase the value following the NCBS= to double the value of SESSIONS.
- Save the file and restart Windows.

Question What should I do if my machine locks up when installing Windows for Workgroups?

Answer Setup has had difficulty recognising your network interface card so you should try F3 to Exit setup or reboot your machine. You should then run Setup again and install Windows for Workgroups in the same directory. This is because Setup will then automatically detect a problem with the first installation and won't try to detect your adapter. It will, however, prompt you for the type of adapter that you've installed.

If you still have trouble, restart and use the /I switch to force setup to disable all its hardware detection capabilities by typing the following at the MS-DOS prompt:

```
Setup /i
```

Question When starting up Windows for Workgroups, I get the error message 'The protocol manager has reported a hardware failure.' Why is this?

Answer This can be caused by an incorrect network adapter selection or PROTO-COL.INI. You should check the name of the network adapter in the Control Panel/Network icon, as described in the answer to the error message 'The protocol manager has reported an incorrect binding.' You should
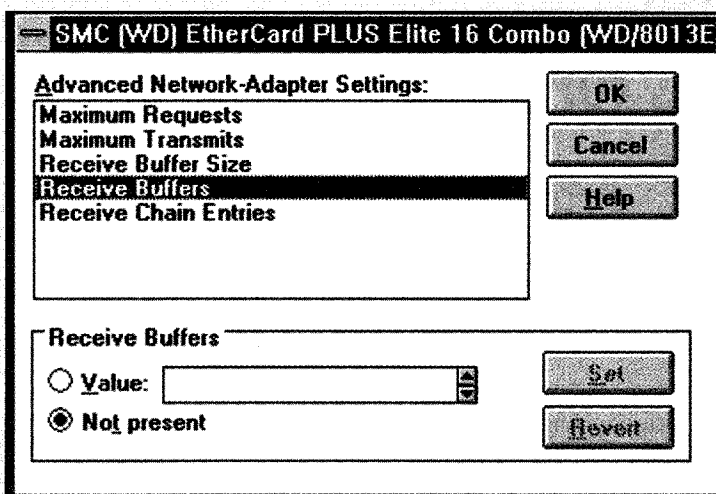
also check that your CONFIG.SYS file has the correct drivers in the correct sequence (as shown in Listing 1, below).

The first line contains the Protocol Manager device driver. The path following the /i: represents the drive and directory location of the PROTOCOL.INI file. The usual location is in the Windows directory. However, if you installed Windows for Workgroups on a compressed drive (such as one made with Stacker, SuperStor or MS-DOS 6.0) then the drivers are located in the root directory of your C: drive. The second line contains the device driver for your network interface card and varies depending on the card's manufacturer. The third line only occurs if you have added the Novell option—MSIPX.SYS contains the code to support Novell's IPX protocol under Windows for Workgroups. The final line contains the device driver that allows drive sharing under Windows for Workgroups.

Question Why does Windows for Workgroups change my Novell login drive to Q?

Answer When you add Novell capability to Windows for Workgroups, Setup modifies your CONFIG.SYS to include the setting LASTDRIVE=P. Windows for Workgroups can then use MS-DOS drive letters up to P to connect to other Windows for Workgroups PCs. Novell therefore assumes that the login drive is one after the LASTDRIVE setting, which in this case, is Q. But you can always map Novell drives

over A to P using the Windows for Workgroups File Manager.

Question How do I configure my CD-ROM drive so that it can be shared?

Answer The CD-ROM drive can be shared as you would any local drive. You select the CD-ROM icon in the File Manager and select the directories that you want to share. This allows file access to the CD-ROM across the network so other users don't need to load the MSCDEX. EXE driver.

Question How do I create a Post Office for Microsoft Mail?

Answer When you start Mail for the first time, you must select the menu item Create A New Workgroup Post Office. This creates a new subdirectory, WGPO, in the Post Office administrator's Windows Directory. You need to then Exit Mail and share the WGPO subdirectory with full access rights using the File Manager. Note that you must also only create *one* post office for all computers in the workgroup. (For further information, see *PC Magazine,* March 1993.)

Using the Microsoft LAN Manager TCP/IP protocol with Windows for Workgroups

Microsoft LAN Manager 2.1 provides support for several protocols not provided as part of Windows for Workgroups, including TCP/IP, ASYBEUI (used for remote asynchronous connectivity and also known as Remote Access Services or RAS), and DLC (Dynamic Link Control).

In general, any NDIS-compliant protocol can work with Windows for Workgroups. But the problem is whether the protocol has been integrated with a Setup installation procedure, or whether the settings files (for example, CONFIG.SYS, AUTOEXEC. BAT and PROTOCOL.INI) must be edited by hand to configure the

Figure 2: from the Control Panel, you can set low-level configuration options on your workstation's hardware.

SMC (WD) EtherCard PLUS Elite 16 Combo (WD/8013E

Advanced Network-Adapter Settings:
- Maximum Requests
- Maximum Transmits
- Receive Buffer Size
- Receive Buffers
- Receive Chain Entries

OK   Cancel   Help

Receive Buffers
- ○ Value: [   ]
- ● Not present

Set   Revert

Listing 1   **A typical Windows for Workgroups CONFIG.SYS file**

```
device = c:\windows\protman.dos /i:c:\windows\path
device = c:\windows\exp16.dos   (the driver name depending on
the adapter you install)
device = c:\windows\msipx.sys (if you added the Novell option)
device = c:\windows\workgrp.sys
```

protocol. The following example does this by configuring Windows for Workgroups to use the Microsoft TCP/IP protocol. We will need to modify the following files:

- CONFIG.SYS
- AUTOEXEC.BAT
- SYSTEM.INI
- PROTOCOL.INI

We suggest that you run SYSEDIT for the first three files and open a Notepad for PROTOCOL.INI.

We have also included a completed example of three of these files in Listings 2 to 4 but, for brevity, we haven't included the relatively trivial installation of the TCP/IP utility pack. So, you can't use the sockets library with this installation. In Listings 2 to 4, the areas in which we have made changes are set in lighter text.

First, you must install MS-DOS LAN Manager on the workstation. You should follow the procedures and installation prompts for installing the TCP/IP protocol stack. When you're prompted for the IP address, sub-net mask, and the default gateway address, you should use the information you would usually use for the workstations.

We will also use this information to manually modify the PROTOCOL.INI file later in the TCP/IP with Windows for Workgroups installation. Once you have installed LAN Manager, you should copy the following files to a floppy disk:

```
C:\LANMAN.DOS\DRIVERS\PROTO
COL\TCPIP\EMSBFR.EXE
C:\LANMAN.DOS\DRIVERS\PROTO
COL\TCPIP\NEMM.DOS
C:\LANMAN.DOS\DRIVERS\PROTO
COL\TCPIP\TCPTSR.EXE
C:\LANMAN.DOS\DRIVERS\PROTO
COL\TCPIP\TCPDRV.DOS
C:\LANMAN.DOS\DRIVERS\PROTO
COL\TCPIP\TINYRFC.EXE
C:\LANMAN.DOS\DRIVERS\PROTO
COL\TCPIP\UMB.COM
C:\LANMAN.DOS\DRIVERS\PROTO
COL\TCPIP\NMTSR.EXE
C:\LANMAN.DOS\TCPUTILS.INI
C:\LANMAN.DOS\NETPROG\PING.EXE
```

Next, you'll need to install Windows for Workgroups on the workstation in the usual manner. When complete, you should take the TCP/IP files that you just copied to a floppy disk and copy them into the directory that you installed Windows for Workgroups on the workstation—usually C:\WINDOWS.

We now need to start manually modifying the configuration files. First, you should insert the following lines in CON-

Example CONFIG.SYS after installation of TCP/IP with Windows for Workgroups

```
device=c:\dos\setver.exe
device=c:\windows\himem.sys
device=c:\windows\emm386.exe noems x=b800-c800
dos=high,umb
files=30
buffers=10
lastdrive=z
device=c:\windows\protman.dos /i:c:\windows
device=c:\windows\nemm.dos
device=c:\windows\tcpdrv.dos /i:c:\windows
device=c:\windows\workgrp.sys
device=c:\windows\elnkii.dos
stacks=9,256
```

Example AUTOEXEC.BAT after installation of TCP/IP with Windows for Workgroups

```
c:\windows\smartdrv.exe
c:\windows\umb.com
c:\windows\net start
c:\windows\emsbfr
c:\windows\tcptsr
c:\windows\tinyrfc
c:\windows\nmtsr
@echo off
prompt $p$g
path c:\windows;c:\dos
set temp=c:\dos
```

Example PROTOCOL.INI after installation of TCP/IP with Windows for Workgroups

```
[network.setup]
version=0x3100
netcard=ms$elnkii,1,ms$elnkii
transport=ms$netbeui,ms$netbeui
transport=ms$tcp,ms$tcp
lana0=ms$elnkii,1,ms$netbeui
lana1=ms$elnkii,1,ms$tcp

[protman]
drivername=protman$
priority=ms$netbeui

[ms$elnkii]
drivername=elnkii$
interrupt=5
ioaddress=0x300
maxtransmits=40
transceiver=external

[ms$netbeui]
drivername=netbeui$
sessions=6
ncbs=12
bindings=ms$elnkii
lanabase=0 [ms$tcp]
drivername=TCPIP$
nbsessions=10
bindings=ms$elnkii
lanabase=1
ipaddress0=11 1 7 99
subnetmask0=255 255 00
defaultgateway0=11 1 0 1
```

Figure 3   **The active components of the TCP/IP installation**

```
┌─────────────────────────┐ ┌─────────────────────────┐
│   Virtual Redirector     │ │     Virtual Server       │
│       VREDIR.386         │ │      VSERVER.386         │
└─────────────────────────┘ └─────────────────────────┘
┌───────────────────────────────────────────────────────┐
│      Virtual NetBIOS Interface Driver                  │
│                 VNETBIOS.386                           │
└───────────────────────────────────────────────────────┘
┌───────────────────────────────────────────────────────┐
│   Virtual (Protect Mode) NetBEUI Protocol Driver       │
│                    VNB.386                             │
└───────────────────────────────────────────────────────┘
           ┌───────────────────────┐ ┌───────────────────────┐
           │     TINYRFC.EXE       │ │      NMTSR.EXE         │
           └───────────────────────┘ └───────────────────────┘
           ┌───────────────────────────────────────────────┐
           │               TCPTSR.EXE                      │
           └───────────────────────────────────────────────┘
           ┌───────────────────────────────────────────────┐
           │                UMB.COM                        │
           └───────────────────────────────────────────────┘
┌─────────────────────────┐ ┌───────────────────────────────┐
│     WORKGRP.SYS          │ │         TOPDRV.DOS            │
└─────────────────────────┘ └───────────────────────────────┘
┌───────────────────────────────────────────────────────┐
│      Protocol Manager for NDIS                         │
│                 PROTMAN.DOS                            │
└───────────────────────────────────────────────────────┘
┌───────────────────────────────────────────────────────┐
│      Network Interface Device Driver                   │
│                  ELNKII.DOS                            │
└───────────────────────────────────────────────────────┘
```
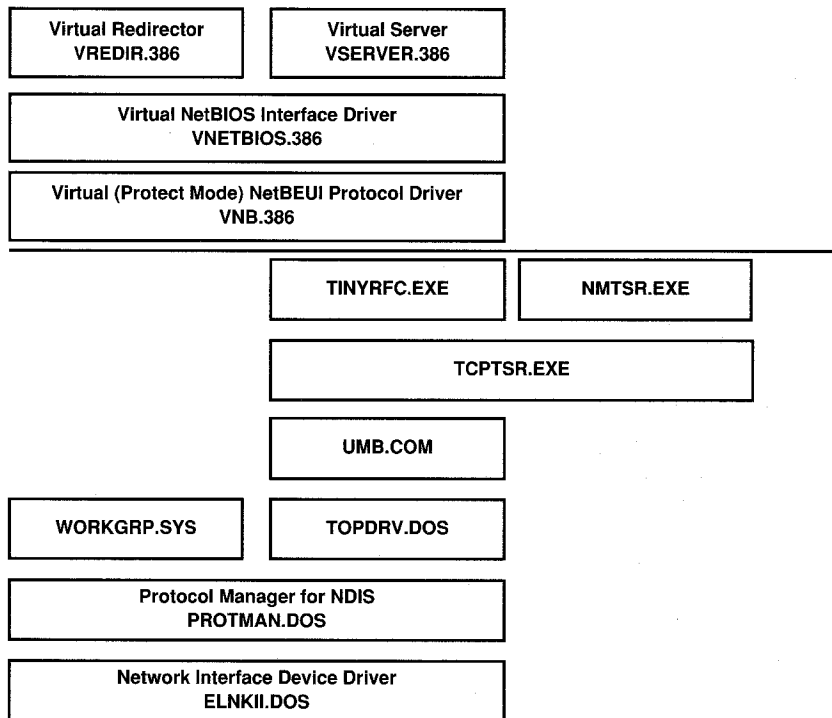
FIG.SYS immediately *after* the device driver PROTMAN.DOS.

```
device=c:\windows\nemm.dos
device=c:\windows\tcpdrv.dos
/i:c:\windows
```

The paths shown will be different if you have installed Windows for Workgroups to a different directory than C:\WINDOWS. The path after the /i for the TCPDRV.DOS device driver refers to the TCPUTILS.INI file which you have just copied. If you want to place this file in a different directory then change the path after the /i switch to the appropriate place.

You should save the CONFIG.SYS file and turn your attention to the AUTOEXEC.BAT file. You need to insert the following line:

```
c:\windows\umb.com
```

immediately *before* the net start line and add the following lines immediately *after* the net start line:

```
c:\windows\emsbfr
c:\windows\tcptsr
c:\windows\tinyrfc
c:\windows\nmtsr
```

When it comes to PROTOCOL.INI file, you need to find the last transport line in the [network.setup] section and add:

```
transport=ms$tcp,ms$tcp
```

Next, you'll need to add a line dependent on the network interface card device driver identifier. For example, if you're using 3Com EtherLink II Ethernet network interface cards then the device driver identifier is MS$ELNKII.

Once the device driver identifier has been found, you should find the last LANA number line in the [network.setup] section. Note the number after LANA, increment it and add a new line with the new number. For example, for the adapter described and the last existing line starting LANA1, you'd add:

```
lana2=ms$elnkii,1,ms$tcp
```

At the end of the PROTOCOL.INI file you should add an [ms$tcp] section. This contains the settings for the TCP/IP protocol stack, so therefore some settings need to match settings in the [network.setup] section. In particular, the lanabase= value in the [ms$tcp] section must match the lanaX= entry in the [network.setup] section and the bindings= entry in the [ms$tcp] section must match the device driver identifier described above.

Then, the ipaddress0, subnetmask0, and defaultgateway0 values are dependent on the workstation and network setup. These settings are the ones used at the start during the installation of LAN Manager. Remember, it's important that you use spaces as separators between the numbers, instead of the more traditional full points or commas.

We've also increased nbsessions value from the LAN Manager default value of 6, to increase the number of sessions supported by the TCP/IP device driver. The following is an example [ms$tcp] section:

```
[ms$tcp]
drivername=tcpip$
nbsessions=10
bindings=ms$elnkii
lanabase=1
ipaddress0=11 1 7 99
subnetmask0=255 255 0 0
defaultgateway0=11 1 0 1
```

Finally, you need to make two minor modifications to the SYSTEM.INI file. In the [386Enh] section you should add:

```
V86ModeLanas=2
```

where the number is the last number referred to in the [network.setup] section line of lanaX. You will also need to increase the NETHEAPSIZE= parameter in the same section to 60 from its default value of 20. This is because some additional memory buffer space is needed for passing network frames between real and protected mode.

You should now restart the workstation to reload all the device drivers and TSRs you need. When restarting, don't worry about WORKGRP.SYS giving a diagnostic error message at startup of 'No NETBEUI section found in configuration information.' If you don't have NetBEUI as an additional protocol, this is expected and harmless.

Also, be aware of the extra time, approximately 10 to 20 seconds, that TCP/IP can require to identify itself on the LAN/WAN before starting Windows for Workgroups. You might therefore want to place a PAUSE statement in your AUTOEXEC.BAT file before you start up Windows for Workgroups, as shown in Figure 3. ▨

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