

PATHWORKS for DOS and Windows for Workgroups Installation Guide

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Introduction

This chapter contains the following information:

- * A brief description of the purpose of this document
- * New features that have been added to this version
- * A description of the software required for Windows for Workgroups
- * How to determine a configuration that meets your needs

About This Document

This document describes how a PATHWORKS for DOS Version 4.1a client is configured to add Microsoft Windows for Workgroups (WFW) 3.1 so they can work together.

The physical media supported include:

Ethernet
Token Ring
Asynchronous DECnet

The protocols supported include:

DECnet
PATHWORKS NetWare Co-Existence
Digital's LAST/LAD
PATHWORKS NetBEUI
Windows for Workgroups NetBEUI
Windows for Workgroups NOVELL

How you install and configure PATHWORKS for DOS and Windows for Workgroups determines the type of networking environment you are able to use and the features and functions available from within that environment.

Before you begin any installation, refer to "Determining the Right Configuration for Your Requirements" later in this chapter for a description of the types of environments you can configure and the features associated with each environment. Once you have determined this, proceed to the specific chapter that describes how to install and configure PATHWORKS for DOS and Windows for Workgroups for that specific environment.

This document also describes the following:

Modifying Windows for Workgroups NOVELL IPX installation for operation over Digital's Ethernet
Connecting your PC to a PATHWORKS for VMS or PATHWORKS for ULTRIX User Account
Setting Up Local Area Disk (LAD) Support
Using InfoServers

What's Been Added Since the Last Version:

Since the last version of this document, support for the following has been added:

Adding Windows for Workgroups - Token Ring (Chapter 3)
Adding Windows for Workgroups - Asynchronous DECnet (Chapter 4)

Software Requirements

To use PATHWORKS for DOS and Windows for Workgroups, the required software versions and licenses are listed in Table 1.

If you are installing Windows for Workgroups as a first-time Windows installation, you must obtain a copy of DECNET.386. If you are using Asynchronous DECnet, you will also need DECNB.386. Copy these files into your Windows SYSTEM subdirectory. Refer to Table 1 below for instructions on how to obtain a copies of DECNET.386 and DECNB.386. Do not use versions of these files that are older than those supplied with Windows 3.1.

Determining the Right Configuration for Your Requirements

You can configure PATHWORKS and Windows for Workgroups to suit your specific requirements. Before you install Workgroups for Windows, study the features and limitations of each configuration presented. Then, decide which features and functions you require, select the appropriate configuration, and proceed to the appropriate chapter for the installation instructions.

The "Configuration Options" section below describes sets of requirements and the type of Windows for Workgroups configuration that meets those requirements.

Configuration Options

There are several decisions you must make about your system requirements before you choose a configuration option. They are:

Do you require file and print services from DOS, Windows, or from a Windows DOS box (DOS selected from the Windows MS-DOS icon)?

Do you want to use DECnet, PATHWORKS NetBEUI, WFW NetBEUI, or WFW NOVELL IPX or some combination of these as your network transport?

Do you require share names longer than 8 characters or 12 characters?

Do you require Windows for Workgroups to function as a server providing peer-to-peer file and printer services to other PATHWORKS or Windows for Workgroups clients?

Do you plan to use Windows for Workgroups MSMAIL? If so, will this PC be the Windows for Workgroups post office?

NOTE

If you plan to use MSMAIL or use the calendar sharing feature of MS Schedule+, one PC must provide the Post Office function (WGPO). Consequently, this PC must have WFW server capability. How you answer these questions determines the particular Redirector you must install: one of the Redirectors supplied with PATHWORKS for DOS, or the Protected Mode Redirector supplied with Windows for Workgroups. Refer to Table 2 for a list of requirements and the configuration option needed to meet those requirements and go to the appropriate chapter listed in Table 2.

Note that the PATHWORKS SETHOST, PATHWORKS MAIL, and eXcursion applications do not require that a Redirector be loaded. They operate directly over DECnet or Asynchronous DECnet and, consequently, your intent to use these applications should not influence your decision on which Redirector or environment to choose.

Adding Windows for Workgroups - Ethernet

This chapter describes how to add Windows for Workgroups to a PATHWORKS environment for the following configurations:

PATHWORKS Real Mode Basic Redirector
 PATHWORKS Real Mode Enhanced Redirector
 Windows for Workgroups Protected Mode Enhanced Redirector

Preinstallation Procedures - Ethernet

The installation procedure changes key system files. It is important to create a backup copy of the following system files:

CONFIG.SYS
 AUTOEXEC.BAT

Also, create a bootable PATHWORKS key diskette and verify that it works. This is your safeguard against any user errors during the installation process.

Before you begin the installation of PATHWORKS and Windows for Workgroups, you must know the following information for the install procedure. For PATHWORKS you must know:

Your DECnet node name and address

The network drive letter for PATHWORKS PCSAV41 system service

Your network card type and its related configuration information (for example, IRQ level, buffer start address, etc.)

For Windows for Workgroups, you must know:

Set your computer name to be your PATHWORKS for VMS or ULTRIX account name.

Your network card type and its related configuration information (for example, IRQ level, buffer start address, etc.)

Your LAN Manager domain name (and optional password) as specified in the SETLOGON line of the STARTNET.BAT file

NOTE

If you are installing Windows for Workgroups as a first-time Windows installation, you must obtain a copy of DECNET.386. If you are using Asynchronous DECnet, you will also need DECNB.386. Copy these files into your Windows SYSTEM subdirectory. Refer to Table 1 for instructions on how to obtain a copy of DECNET.386 and DECNB.386. Do not use versions of these files that are older than those supplied with Windows 3.1.

Installing Windows for Workgroups Using a PATHWORKS Real Mode Redirector - Ethernet

This section describes how to add Windows for Workgroups to a PATHWORKS environment for the following configurations:

PATHWORKS Real Mode Basic Redirector with DECnet
 PATHWORKS Real Mode Enhanced Redirector with DECnet
 PATHWORKS Real Mode Enhanced Redirector with DECnet and NetBEUI

With any of the above Redirectors, PATHWORKS is always available from DOS, Windows for Workgroups, or a Windows for Workgroups DOS box.

With the PATHWORKS Real Mode Basic Redirector, the client PC cannot share files or printers with other networked PCs using Window for Workgroups facilities.

The following configuration instructions apply to both the Enhanced Redirector and the Basic Redirector.

Skip step 1 if PATHWORKS is already installed. It does not matter whether you selected the NDIS Datalink or the Native Datalink when using NETSETUP.

1. At the DOS prompt, install PATHWORKS for DOS using the NETSETUP command (refer to your PATHWORKS documentation for details). Select the Enhanced Redirector or the Basic Redirector during the installation process.

You can also choose to use XMS/EMS memory as required.

Select LAD/LAST at this time if you require it.

Select LAT or CTERM if you require it.

2. At the DOS prompt, install Windows for Workgroups using the instructions supplied with Windows for Workgroups

Install Windows for Workgroups using the Custom installation option.

During the installation note the following:

- a. If PATHWORKS is already installed, Windows for Workgroups displays a warning message indicating that a non-windows network is installed. Ignore it and select C to continue with the installation.
 - b. Note the drive letter and subdirectory specified for WFW files.
 - c. Supply the network card type, IRQ level, I/O port address and other information when requested.
 - d. On the Compatible Networks screen:
 1. Select Microsoft LAN Manager
 2. Select Add
 3. Select Settings
 - e. When the setup procedure asks you to make all changes, review and edit changes, or make changes later to the CONFIG.SYS file and AUTOEXEC.BAT file. Select the last option, which lets you make the changes later. Setup tells you the names it assigned to these files and their location. Make a note of this information.
 - f. Do not reboot the system at this time. Exit Windows by selecting the Return to DOS prompt.
3. Verify that the file DECNET.386 exists in your Windows for Workgroups SYSTEM subdirectory. If it does not, obtain it as described in Chapter 1.
 4. Refer to the CONFIG.SYS file (or print out a copy) generated by WFW setup. Look for the lines specifying HIMEM.SYS, SMARTDRV.EXE, STACKS=, and in some instances, EMM386.EXE.
 - a. Make a backup copy of CONFIG.SYS, if you haven't already done so.
 - b. Change the lines in your working CONFIG.SYS file to match the corresponding lines in the WFW file generated by the setup procedure.
 - c. Append a line similar to the one shown below with the appropriate drive and directory (omit /N if you are not using PATHWORKS NetBEUI or using the Basic Redirector):

DEVICE=C:\subdirectory\WORKGRP.SYS /N

where subdirectory is the Windows for Workgroups subdirectory.

5. Refer (or print out a copy) to the AUTOEXEC file generated by WFW setup. Look for the lines SMARTDRV.EXE, PATH=, and TEMP=.
 - a. Make a backup copy, if you haven't already done so.
 - b. Change the lines in your working AUTOEXEC.BAT file to match the corresponding lines in the Windows for Workgroups file generated by the setup procedure.

6. Edit the SYSTEM.INI file in the Windows for Workgroups subdirectory as follows.

- a. Make a backup copy, if you haven't already done so.
- b. In the [386enh] section of the SYSTEM.INI file, edit the NETWORK= line to include decnet.386 at the end of the line, for example:

```
network=vnetbios.386, ... ,decnet.386
```

- c. If you are installing Windows for Workgroups as a new Windows installation, add the following line the end of this section:

```
TimerCriticalSection=10000
```

If you are upgrading a PATHWORKS Windows 3.1 installation to Windows for Workgroups and used WIN3SETU during that installation, the line shown above is already installed.

If you are using the Real Mode Enhanced Redirector, do the following:

1. Reboot the system. You are ready to go. You will have file and print services at the DOS prompt and within the WFW DOS box. You will also have full WFW File Manager and Print Manager services.

If you are using the Real Mode Basic Redirector, do the following:

1. Locate the file MSNET.DR_ on the Windows for Workgroups kit (diskette 3 when you are using the 3.5" 1.44 megabyte floppy kit) and copy it to C:\
2. Locate the file EXPAND.EXE on the Windows for Workgroups kit (diskette 6 of the 3.5" 1.44 megabyte floppy kit) and copy it to C:\
3. Change your working directory to C:\ and run EXPAND.EXE as follows:

```
C:  
CD \  
EXPAND C:\MSNET.DR_  
C:\WFW\SYSTEM\MSNET.DRV
```
4. Change to your Windows for Workgroups subdirectory and edit the [BOOT] section of the SYSTEM.INI file as follows:
 - a. Locate the line NETWORK.DRV=
 - b. Comment out the original line using ";" as the first character and put in the new line shown below after it:

```
;NETWORK.DRV=WFWNET.DRV  
NETWORK.DRV=MSNET.DRV
```

5. In the \DECNET subdirectory edit STARTNET.BAT. Look for the line

```
%BOOT%\decnet\setname %_WSNODE%
```

and change it to

```
%BOOT%\decnet\setname user_account_name
```

where user_account_name is either your PATHWORKS for VMS or ULTRIX account user name.

6. Reboot your system. You are ready to go. You will have file and print services at the DOS prompt and within the WFW DOS box. You will only have WFW client services. You will not have WFW server capabilities. File Manager and Print manager allow you to connect to remote services but not share local files and printers.

PATHWORKS NetBEUI Configuration - Ethernet

When using the PATHWORKS enhanced redirector, you can also add the PATHWORKS NetBEUI transport. To add NetBEUI, do the following:

1. Follow the instructions provided as comment lines in the \DECNET\STARTNET.BAT file. The STARTNET.BAT file is built by NETSETUP when you install PATHWORKS. Make sure you follow all the instructions in the comment lines referring to NetBEUI.
2. In CONFIG.SYS, add the /N switch to the following line if you have not already done so:

```
DEVICE=C:\WFW\WORKGRP.SYS /N
```

Installing Windows for Workgroups and the Protected Mode Enhanced Redirector - Ethernet

This section also describes how to add Windows for Workgroups and use the Windows for Workgroups Protected Mode Enhanced Redirector. You can select from the following combination of transports:

DECnet
DECnet and WFW NetBEUI
DECnet and WFW NOVELL IPX
DECnet and WFW NetBEUI and WFW NOVELL IPX

This Windows for Workgroups Protected Mode Enhanced Redirector allows file and print services from Windows and a Windows DOS box. The PATHWORKS SETHOST, PATHWORKS MAIL, and eXcursion applications, however, are still available from DOS.

To add Windows for Workgroups using the WFW NetBEUI and WFW NOVELL IPX, do the following:

1. Install PATHWORKS for DOS using NETSETUP, if you haven't already done so, and do the following:
 - a. Configure it to use the NDIS driver and datalink and the PATHWORKS Basic Redirector.

You can also choose to use XMS/EMS memory as required.

Select LAD/LAST at this time if you require it.

Select LAT or CTERM if your require it.
 - b. Do not select the NOVELL Co-Existence option even if you plan to use NOVELL IPX with Windows for Workgroups.
 - c. Reboot your system to start PATHWORKS and verify operation before installing Windows for Workgroups.
2. Make the PATHWORKS PCSAV41 file service drive letter your current drive and copy the files you need to your local C:\DECNET directory as follows:

```
COPY \LMDOS\DRIVERS\PCSA\LAD.EXE C:\DECNET  
  
COPY \DECNET\LAT.EXE C:\DECNET  
  
COPY \DECNET\CTERM.EXE C:\DECNET
```
3. Install Windows for Workgroups using the instructions supplied with Windows for Workgroups.

Also, during the installation note the following:

- a. If PATHWORKS is already installed, Windows for Workgroups displays a warning message indicating that a non Windows network is installed. Ignore it and select C to continue with the installation.
 - b. The network card type, IRQ level, I/O port address and other information must be specified when it is requested.
 - c. On the Compatible Networks screen:
 - 1. Select Microsoft LAN Manager
 - 2. Select Add
 - 3. Select Settings
 On LAN Manager Settings screen:
 - 1. Select Log On to LAN Manager Domain
 - 2. Enter the PATHWORKS LAN Manager Domain Name
 - 3. Select OK
 - d. Allow the Windows for Workgroups setup procedure to make the changes to your CONFIG.SYS file and AUTOEXEC.BAT file.
 - e. Do not reboot the system at this time. Exit Windows for Workgroups setup and return to DOS.
4. Verify that the file DECNET.386 exists in your Windows for Workgroups SYSTEM subdirectory. If it does not, obtain it as described in Chapter 1.
5. Modify your CONFIG.SYS file as follows:
- a. Make a backup copy if you haven't done so.
 - b. Delete the following line:


```
DEVICE=\DECNET\PROTMAN.DOS /I:C:\DECNET
```
 - c. Check to ensure that the following line:


```
C:\WINDOWS\PROTMAN.DOS
```

precedes the lines that specify the Windows for Workgroups network card driver (for example, DEPCA.DOS or ELNKMC.DOS) and Windows for Workgroups driver, WORKGRP.SYS. Move it before both of these lines, if necessary.

- d. Add the following line to include the PATHWORKS for DOS DLL NDIS driver before the line installing WRKGRP.SYS and after DEPCA.DOS:

```
DEVICE=C:\DECNET\DLLNDIS.EXE
```

The relevant portion of your CONFIG.SYS file should look like the example below (the example assumes an EtherWORKS DEPCA card). If not, change it to resemble it. Note that the order in which the drivers are loaded is critical and must be identical to the order shown below.

```
DEVICE=C:\WINDOWS\PROTMAN.DOS /I:C:\WINDOWS
DEVICE=C:\WINDOWS\DEPCA.DOS
DEVICE=C:\DECNET\DLLNDIS.EXE
DEVICE=C:\WINDOWS\WORKGRP.SYS
DEVICE=C:\WINDOWS\MSIPX.SYS
LASTDRIVE=P
```

Note that if you are including NOVELL IPX, the LASTDRIVE= line must be set to a letter other than Z.

- 6. Make a backup copy of AUTOEXEC.BAT if you haven't done so. Modify your AUTOEXEC.BAT file by adding the following to your PATH= statement:

PATH=C:\DECNET; ...

7. Move to your Windows for Workgroups subdirectory. Modify the PROTOCOL.INI file created by the Windows for Workgroups installation as follows:

- a. Make a backup copy if you haven't already done so.
- b. In the [NETWORK.SETUP] section, copy one of the LANA lines like

```
LANA0=MS$EWTRB,1,MS$NETBEUI
```

and add it to the end of this section. Modify it to resemble the following line:

```
LANAn=MS$EWTRB,1,DATALINK
```

where n the next available LANA number. Be sure to change only the LANA number and last string to DATALINK. If the highest LANA number used in the original section is 1, assign the above statement as LANA2. Replace the last element of this line with DATALINK, as shown above.

After adding this line, the [NETWORK.SETUP] section resembles the following sample:

```
[NETWORK.SETUP]
VERSION=0X3100
NETCARD=MS$EWTRB,1,MS$EWTRB
TRANSPORT=MS$NETBEUI,MS$NETBEUI
TRANSPORT=MS$IPX,MS$IPX
LANA0=MS$EWTRB,1,MS$IPX
LANA1=MS$EWTRB,1,MS$NETBEUI
LANA2=MS$EWTRB,1,DATALINK
```

NOTE

MS\$EWTRB is the name of the network card driver in this example. Unless you are using an EtherWORKS Turbo DEPCA card, your driver name will be different.

- c. Add a PATHWORKS for DOS DLL NDIS driver section, [DATALINK], to the end of the Windows for Workgroups PROTOCOL.INI file.

Do this by extracting the complete [DATALINK] section of the PATHWORKS for DOS PROTOCOL.INI file usually located in the \DECNET subdirectory and copy it to the bottom of Windows for Workgroups PROTOCOL.INI file.

You can do this by copying PROTOCOL.INI to DNET.STB as follows:

```
COPY C:\DECNET\PROTOCOL.INI
C:\WINDOWS\DNET.STB
```

Then edit DNET.STB and delete all the lines up to the [DATALINK] section. Append DNET.STB to the Windows for Workgroups PROTOCOL.INI file as follows:

```
COPY PROTOCOL.INI + DNET.STB PROTOCOL.INI
```

- d. Edit the revised PROTOCOL.INI and copy a BINDINGS statement from an earlier section and copy it to the [DATALINK] section as shown in boldface below.

```
[DATALINK]
DriverName=dll$mac
BINDINGS=MS$EWTRB
LG_BUFFERS = 16
SM_BUFFERS = 6
OUTSTANDING= 32
```

HEURISTICS = 0

- e. If you are using a 3COM 3C503 MC network controller card, add the following line to the end of the [MS\$ELNKMC] section of the PROTOCOL.INI file so that it now resembles the following:

```
[ELNKMC.DOS]
DRIVERNAME=ELNKMC$
MAXTRANSMITS=20
```

8. Modify your SYSTEM.INI file as follows:

- a. Modify the network line in the [386enh] section to include decnet.386, as follows:
network=vnetbios.386, ...,decnet.386

- b. If you are installing Windows for Workgroups as a new Windows installation, add the following line to the end of this section:

```
TimerCriticalSection=10000
```

If you are upgrading a PATHWORKS Windows 3.1 installation to Windows for Workgroups and used WIN3SETU during that installation, the line shown above is already installed.

9. Move to your \DECNET subdirectory. Modify your STARTNET.BAT file as follows:

- a. Make a backup copy if you have not already done so.

- b. Comment the following lines out with REM statements:

```
REM %BOOT%\DECNET\DLLNDIS
```

and

```
REM %BOOT%\DECNET\NETBIND
```

- c. Windows for Workgroups always configures LANABASE=0 for its NOVELL IPX (it must be 0) and LANABASE=1 for NetBEUI in the PROTOCOL.INI file above. DECnet is assigned the next available LANA number, which in this example is 2.

Locate the line specifying DNNETH.EXE and add the /LANA switch (shown in boldface below) as follows:

```
%BOOT%\decnet\emsload.exe
%BOOT%\decnet\dnmeth.exe /REM:2 /LANA:2
if errorlevel 1
%BOOT%\decnet\dnmeth.exe /REM:2 /LANA:2
```

- d. Locate the Redirector section by looking for the string

```
echo -----
echo Using Basic Redirector
echo -----
```

Insert the line GOTO TIMEDONE so it looks like the following:

```
GOTO TIMEDONE
echo -----
echo Using Basic Redirector
echo -----
```

- e. If you choose to load LAT.EXE or CTERM.EXE, you can add the following to STARTNET.BAT after the label :TIMEDONE:

For CTERM.EXE:

```
:TIMEDONE  
C:\DECNET\CTERM.EXE
```

For LAT.EXE:

```
:TIMEDONE  
C:\DECNET\LAT.EXE
```

10. Reboot the system. You are ready to go. You will not have file and print services at the DOS prompt. You will, however, have full file and print services within a WFW DOS box. You will also have full WFW File Manager and Print Manager services.

Adding Windows for Workgroups - Token Ring

The chapter describes the procedures for updating an existing Token Ring PATHWORKS 4.1a DECnet NDIS Client to add Windows for Workgroups for either:

PATHWORKS Real Mode Basic Redirector
Windows for Workgroups Protected Mode Redirector

Preinstallation Procedures - Token Ring

The installation procedure changes key system files.
It is important to create a backup copy of the following system files:

CONFIG.SYS
AUTOEXEC.BAT
\\DECNET\STARTNET.BAT

Also, create a bootable PATHWORKS key diskette and verify that it works. This is your safeguard against any user errors during the installation process.

Before you begin the installation of PATHWORKS and Windows for Workgroups, you must know the following information for the install procedure. For PATHWORKS you must know:

Your DECnet node name and address

The network drive letter for PATHWORKS PCSAV41 system service

The NetWare preferred server name

Your network card type and its related configuration information (for example, IRQ level, buffer start address, etc.)

For Windows for Workgroups, you must know:

Set your computer name to be your PATHWORKS for VMS or ULTRIX host account name.

Your network card type and its related configuration information (for example, IRQ level, buffer start address, etc.)

Your LAN Manager domain name (and optional password) as specified in the SETLOGON line of the STARTNET.BAT file

NOTE

If you are installing Windows for Workgroups as a first-time Windows installation, you must obtain a copy of DECNET.386. If you are using Asynchronous DECnet, you will also need DECNB.386. Copy these files into your Windows SYSTEM subdirectory. Refer to Table 1 for instructions on how to obtain a copy of DECNET.386 and DECNB.386. Do not use versions of these files that are older than those supplied with Windows 3.1.

Installing Windows for Workgroups and the PATHWORKS Real Mode Basic Redirector - Token Ring

The procedures in this section describe how to update an existing PATHWORKS 4.1a DECnet NDIS Client on Token Ring to add Windows for Workgroups using the PATHWORKS Real Mode Basic Redirector. The PATHWORKS Client is configured for DECnet, NetWare Co-Existence, source routing, CTERM for SETHOST access and SETLOGON.

Windows was previously installed and Windows for Workgroups was installed to the same \WINDOWS directory.

With the PATHWORKS Real Mode Basic Redirector, the client PC cannot share files or printers with other networked PCs using Window for Workgroups facilities. PATHWORKS is available from DOS, Windows for Workgroups, or a Windows for Workgroups DOS box.

To install Windows for Workgroups using the PATHWORKS Real Mode Redirector with Token Ring, do the following:

1. At the DOS prompt, install PATHWORKS for DOS using the NETSETUP command, if you have not already done so (refer to your PATHWORKS documentation for details).

In this example, the following options are selected: DECnet, NetWare Co-Existence, source routing, PATHWORKS Basic Mode Redirector.

You can also choose to use XMS/EMS memory as required.

Select CTERM if your require it.

2. At the DOS prompt, install Windows for Workgroups using the instructions supplied with Windows for Workgroups

Install Windows for Workgroups using the Custom installation option.

During the installation do the following:

- a. Note the drive letter and subdirectory specified for WFW files.
- b. If PATHWORKS is already installed, Windows for Workgroups displays a warning message indicating that a non-windows network is installed. Ignore it and select C to continue with the installation.
- c. Supply the network card type, IRQ level, I/O port address and other information when requested.
- d. On the Compatible Networks screen:
 1. Select Microsoft LAN Manager
 2. Select Add
 3. Select Settings

On the LAN Manager Settings screen:

1. Select Log On to LAN Manager Domain
2. Enter the PATHWORKS LAN Manager Domain Name
3. Select OK

On the Compatible Networks screen:

1. Select Novell NetWare
2. Select Add
3. Select Continue

On the Windows Setup screen:

1. Select Review and Edit Changes
2. Select Continue

3. Modify AUTOEXEC.BAT as follows:
 - a. Comment out the Windows for Workgroups calls


```
REM C:\WINDOWS\NET START
REM C:\WINDOWS\MSIPX
```
 - b. Change \WINDOWS to \DECNET


```
C:\DECNET\ROUTE
C:\DECNET\NET4 /PS=preferred_server_node
```
 - c. Select Continue
4. Modify CONFIG.SYS as follows:
 - a. Delete the following lines:


```
DEVICE=C:\WINDOWS\PROTMAN.DOS /I:C:\WINDOWS
DEVICE=C:\WINDOWS\MSIPX.SYS
```
 - b. Add the following line:


```
DEVICE=C:\WINDOWS\WORKGROUP.SYS
```
 - c. Select Continue
 - d. Do not reboot the system at this time. Exit Windows by selecting the Return to DOS prompt.
3. Verify that the file DECNET.386 exists in your Windows for Workgroups SYSTEM subdirectory. If it does not, obtain it as described in Chapter 1.
4. Locate the file MSNET.DR_ on the Windows for Workgroups kit (diskette 3 when you are using the 3.5" 1.44 megabyte floppy kit) and copy it to C:\
5. Locate the file EXPAND.EXE on the Windows for Workgroups kit (it is on diskette 6 of the 3.5" 1.44 megabyte floppy kit) and copy it to C:\
6. Change your working directory to C:\ and run EXPAND.EXE as follows:


```
C:
CD \
EXPAND C:\MSNET.DR_
C:\WFW\SYSTEM\MSNET.DRV
```
7. Change to your Windows for Workgroups subdirectory and edit the [BOOT] section of the SYSTEM.INI file as follows:
 - a. Locate the line NETWORK.DRV=
 - b. Comment out the original line using ";" as the first character and put in the new line shown below after it:


```
 ;NETWORK.DRV=WFWNET.DRV
NETWORK.DRV=MSNET.DRV
```
 - c. In the [386enh] section, add decnet.386 at the end of the line containing network=


```
network=vnetbios.386,...vwc.386,decnet.386
```
 - d. If you are installing Windows for Workgroups as a new Windows installation, add the following line to the end of this section:

TimerCriticalSection=10000

If you are upgrading a PATHWORKS Windows 3.1 installation to Windows for Workgroups and used WIN3SETU during that installation, the line shown above is already installed.

8. Reboot your system. You are ready to go. You have file and print services at the DOS prompt within Windows for Workgroups and within the Windows for Workgroups DOS box. You will only have Windows for Workgroups client services. You will not have Windows for Workgroups server capabilities. File Manager and Print manager allow you to connect to remote services but not share local files and printers.

Installing Windows for Workgroups and the Protected Mode Redirector - Token Ring

The procedures in this section describe how to update an existing PATHWORKS 4.1a DECnet NDIS Client on Token Ring to add Windows for Workgroups and configured to use the Windows for Workgroups Protected Mode Enhanced Redirector. Windows was not previously installed and Windows for Workgroups was installed to the \WFW directory.

This installation procedure assumes you are using the IBM Token Ring card.

The resulting PATHWORKS client supports DECnet, source routing and CTERM. It uses the Windows for Workgroups Protected Mode Enhanced Redirector and coexists with Windows for Workgroups NetBEUI and NOVELL.

To install Windows for Workgroups and the Protected Mode Redirector with Token Ring, do the following:

1. Install PATHWORKS for DOS using NETSETUP, if you have not already done so, and do the following:
 - a. Configure it to use the Token Ring NDIS driver and datalink and the PATHWORKS Basic Redirector.

You can also choose to use XMS/EMS memory as required.

Select CTERM if your require it.
 - b. Run it before installing Windows for Workgroups.
2. Make the PATHWORKS PCSAV41 file service drive letter your current drive and copy CTERM.EXE, if you need it, to your local C:\DECNET directory as follows:

```
COPY \DECNET\CTERM.EXE C:\DECNET
```

3. Install Windows for Workgroups using the instructions supplied with Windows for Workgroups.

Also, during the installation note the following:

- a. If PATHWORKS is already installed, Windows for Workgroups displays a warning message indicating that a non Windows network is installed. Ignore it and select C to continue with the installation.
- b. The network card type, IRQ level, I/O port address and other information must specify be specified when it is requested.
- c. On the Compatible Networks screen:
 1. Select Microsoft LAN Manager
 2. Select Add

3. Select Settings

On the LAN Manager Settings screen:

1. Select Log On to LAN Manager Domain
2. Enter the PATHWORKS LAN Manager Domain Name
3. Select OK

On the Compatible Networks screen:

1. Select Novell NetWare
2. Select Add
3. Select Continue

- d. Allow the Windows for Workgroups setup procedure to make the changes to your CONFIG.SYS file and AUTOEXEC.BAT file.
 - e. Do not reboot the system at this time. Exit Windows for Workgroups setup and return to DOS.
4. Verify that the file DECNET.386 is in your Windows for Workgroups SYSTEM subdirectory. If it does not, obtain it as described in Chapter 1.
 5. Modify your CONFIG.SYS file as described below.
 - a. Delete line containing the following:

```
DEVICE=C:\DECNET\PROTMAN.DOS /I:C\DECNET
```

b. Insert the following line between the line containing the NDIS compliant driver (IBMTOK.DOS) and Windows for Workgroups WORKGRP.SYS:

```
DEVICE=C:\DECNET\DLLNDIST.EXE
```

The resulting example CONFIG.SYS file must include the following lines in the exact order shown below:

```
DEVICE=C:\WFW\PROTMAN.DOS /I:C\WFW
DEVICE=C:\WFW\IBMTOK.DOS
DEVICE=C:\DECNET\DLLNDIST.EXE
DEVICE=C:\WFW\WORKGRP.SYS
DEVICE=C:\WFW\MSIPX.SYS
LASTDRIVE=P
STACKS=9,256
```

6. Modify the AUTOEXEC.BAT file by adding your NetWare Server preferred service name to the line containing NETX, as shown below:

```
C:\WFW\NETX /PS=NetWare_server_name
```

The resulting AUTOEXEC.BAT file should resemble the following example:

```
C:\WFW\net start
C:\WFW\msipx
.
.
.
C:\WFW\route
C:\WFW\netx /ps=NOVELL_server_name
```

7. Modify C:\DECNET\STARTNET.BAT as described below:

a. Make a backup copy of the file if you have not already done so.

b. Comment out the following lines:

```
REM %BOOT%\DECNET\DLLNDIST
: :
REM %BOOT%\DECNET\IPX
: :
REM %BOOT%\DECNET\NETBIND
```

c. Windows for Workgroups always configures LANABASE=0 for its NOVELL IPX (it must be 0) and LANABASE=1 for NetBEUI in the PROTOCOL.INI file above. DECnet is assigned the next available LANANA number, which in this example is 2.

Locate the line specifying DNNETH.EXE and add the /I2A:N switch and the /LANA switch (shown in boldface below) as follows:

```
%BOOT%\decnet\emsload.exe
%BOOT%\decnet\dnneth.exe /REM:2/I2A:N/LANA:2
if errorlevel 1 %BOOT%\decnet\dnneth.exe
/REM:2/I2A:N/LANA:2
```

d. Locate the Redirector section by looking for the string

```
echo -----
echo Using Basic Redirector
echo -----
```

Insert the line GOTO TIMEDONE so it looks like the following:

```
GOTO TIMEDONE
echo -----
echo Using Basic Redirector
echo -----
```

e. If you choose to load LAT.EXE or CTERM.EXE, you can add the following to START_NET.BAT after the label :TIMEDONE:

For CTERM.EXE:

```
:TIMEDONE
C:\DECNET\CTERM.EXE
```

8. Modify your SYSTEM.INI file as follows:

a. Make a backup copy of the file if you have not already done so

b. Modify the network line in the [386enh] section to include decnet.386, as follows:

```
network=vnetbios.386, ...,decnet.386
```

c. If you are installing Windows for Workgroups as a new Windows installation, add the following line to the end of this section:

```
TimerCriticalSection=10000
```

If you are upgrading a PATHWORKS Windows 3.1 installation to Windows for Workgroups and used WIN3SETU during that installation, the line shown above is already installed.

9. Update the PROTOCOL.INI file in your Windows for Workgroups directory, as described below:
 - a. Add a PATHWORKS for DOS DLL NDIS driver section, [DATALINK], to the end of the Windows for Workgroups PROTOCOL.INI file.

Do this by extracting the complete [DATALINK] section of the PATHWORKS for DOS PROTOCOL.INI file usually located in the \DECNET subdirectory and copy it to the bottom of Windows for Workgroups PROTOCOL.INI file. You can do this by copying PROTOCOL.INI to DNET.STB as follows:

```
COPY C:\DECNET\PROTOCOL.INI
C:\WINDOWS\DNET.STB
```

Then edit DNET.STB and delete all the lines up to the [DATALINK] section. Append DNET.STB to the Windows for Workgroups PROTOCOL.INI file as follows:

COPY PROTOCOL.INI + DNET.STB PROTOCOL.INI

- b. Edit the modified PROTOCOL.INI file and in the [NETWORK.SETUP] section, add the LANA statement by copying the LANA lines like LANA0 and modify it to resemble the following line:

```
LANA2=adapter_name,1,DATALINK
```

- c. Edit the revised PROTOCOL.INI and copy a BINDINGS statement from an earlier section and copy it to the [DATALINK] section as shown in boldface below.

```
[DATALINK]
DriverName=dll$mac
BINDINGS=MS$IBMTR4
LG_BUFFERS = 16
SM_BUFFERS = 6
OUTSTANDING= 32
HEURISTICS = 0
```

The resulting example PROTOCOL.INI file should resemble the following example:

```
[NETWORK.SETUP]
version=0x3100
netcard=ms$ibmtr4,1,MS$IBMTR4
transport=ms$netbeui,MS$NETBEUI
transport=ms$ipx_tr,MS$IPX_TR
lana0=ms$ibmtr4,1,ms$ipx_tr
lana1=ms$ibmtr4,1,ms$netbeui
lana2=ms$ibmtr4,1,DATALINK
.
.
.
[DATALINK]
DRIVERNAME= DLL$MAC
LG_BUFFERS= 16
SM_BUFFERS= 6
OUTSTANDING = 32
HEURISTICS= 0
BINDINGS = MS$IBMTR4
; Specify IRQ level used by workstations network
; adapter
NI_IRQ = 3
```

11. Reboot the system. You are ready to go. You will not have file and print services at the DOS prompt. You will, however, have full file and print services within a WFW DOS box. You will also have full WFW File Manager and Print Manager services.

Adding Windows for Workgroups -Asynchronous DECnet

This chapter describes how to configure Windows for Workgroups to operate over Asynchronous DECnet using the Real Mode Basic Redirector.

The Real Mode Enhanced Redirector is not recommended for use with Asynchronous DECnet.

Preinstallation Procedures - Asynchronous DECnet

The installation procedure changes key system files. It is important to create a backup copy of the following system files:

CONFIG.SYS
AUTOEXEC.BAT

Also, create a bootable PATHWORKS key diskette and verify that it works. This is your safeguard against any user errors during the installation process by allowing you to return to a PATHWORKS system file service.

Before you begin the installation of PATHWORKS and Windows for Workgroups, determine your DECnet node name and address.

NOTE

If you are installing Windows for Workgroups as a first-time Windows installation, you must obtain a copy of DECNET.386. If you are using Asynchronous DECnet, you will also need DECNB.386. Copy these files into your Windows SYSTEM subdirectory. Refer to Table 1 for instructions on how to obtain a copy of DECNET.386 and DECNB.386. Do not use versions of these files that are older than those supplied with Windows 3.1.

Asynchronous Patch Kit Files

The files included in the Asynchronous Patch kit are:

DLLASYNC.EXE - The PATHWORKS DLLASYNC Asynchronous Datalink, V4.3.000.

DNNETHA.EXE - Version X4.0.128 of DNNETH.EXE interfaces to the new DLLASYNC.EXE.

PCSA.DRV - Version 4.1.004 has been updated to include asynchronous support. It can also be used for non-asynchronous configurations.

SCH.EXE - Version T3.9.39 is an updated version designed for this kit. It supersedes PATHWORKS 4.1 version. It can also be used for non-asynchronous configurations.

EMSLOADN.EXE - A new version of EMSLOAD, X1.1.001. It only works with the new version of DNNETH for DDCMP, DNNETHA.

COMMVER.EXE - Verifies proper installation and configuration of the update kit. It also reports on the number of data overruns.

Asynchronous Configuration - Real Mode Basic Redirector

To install and configure the Asynchronous Patch kit, do the following:

1. Copy the Asynchronous Patchkit to your LAN specific DECnet subdirectory, for example, C:\DECNET.
2. Make sure that your local \DECNET subdirectory includes NCP and all its support modules. You can copy them as follows:

```
COPY drive:\DECNET\NCP.*.* C:\DECNET
```

where drive is the drive letter assigned to your network PCSAV41 file service. You will need to use NCP later with all network activity stopped.

Also copy SETHOST.EXE and CTERM.EXE. You use SETHOST to dialup and make your physical connection. Ensure that USE.EXE is in your local directory.

3. Move to the root directory of your boot drive and modify AUTOEXEC.BAT as follows:
 - a. Copy AUTOEXEC.BAT to AUTOEXEC.ETH.
 - b. Edit AUTOEXEC.BAT and locate the line

```
C:\WINDOWS\NET START
```

and comment this line out, as follows:

```
REM C:\WINDOWS\NET START
```

- c. Immediately after the commented line above, insert the following line:

```
SET DECNET=C:\DECNET
```

- d. Locate and modify your PATH= statement to include a reference to the DECnet subdirectory above; for example:

```
PATH= ... C:\DECNET; ...
```

4. Modify CONFIG.SYS as follows:

- a. Copy CONFIG.SYS to CONFIG.ETH

- b. In CONFIG.SYS, locate and delete the lines that reference PROTMAN.DOS, your network card MAC layer driver (DEPCA.DOS or ELNKMC.DOS, for example), DLLNDIS.EXE, and WORKGRP.SYS.

5. Go to your Windows for Workgroups subdirectory and modify SYSTEM.INI as follows:

- a. Copy SYSTEM.INI to SYSTEM.ETH.

- b. In the [BOOT] section, change

```
NETWORK.DRV=WFWNET.DRV
```

to

```
NETWORK.DRV=PCSA.DRV.
```

- c. In the [386enh] section, replace the NETWORK= line to the following:

```
network=*dosnet,decnet.386,decnb.386
```

- d. Change netheapsize to the following:

netheapsize=64

6. Copy PCSA.DRV now in your \DECNET subdirectory to the \SYSTEM subdirectory within your Windows for Workgroups subdirectory; for example:

```
COPY C:\DECNET\PCSA.DRV C:\WFW\SYSTEM
```

Also copy DECNET.386 and DECNB.386 to the SYSTEM subdirectory within your Windows for Workgroups directory. Refer to Table 1 on how to obtain these files.

7. Go to the \DECNET subdirectory and rename STARTNET.BAT to STARTNET.ETH, for example:

```
CD \DECNET
REN STARTNET.BAT STARTNET.ETH
```

8. Reboot your system with the new versions of the system files. The boot process will complain that it cannot find STARTNET.BAT. This is normal.
9. Go to your \DECNET subdirectory and create a new DECPARM.DAT file as follows:

a. Rename DECPARM.DAT to DECPARM.ETH as follows:

```
REN DECPARM.DAT DECPARM.ETH
```

b. Enter the following sequence of commands after moving to the \DECNET subdirectory:

```
SCH
DLLASYNC
DNNETHA
```

DNNETHA will report that it cannot find DECPARM.DAT. This is okay.

Also, verify that they are the appropriate versions:

```
SCH - T3.9.39
DLLASYNC - 4.3.000
DNNETHA - X4.0.128
```

c. Run NCP and at the NCP prompt enter the following commands. You can substitute any com port in the DEF LINE DEVICE line and speed in the subsequent DEF LINE SPEED line. DECPARM.DAT now exists.

```
NCP> DEF EXEC NAME node ADDRESS node_address
NCP> DEF EXEC STATE ON
NCP> DEF CIRC STATE ON
NCP> DEF LINE STATE ON
NCP> DEF LINE DEVICE COM-1
NCP> DEF LINE SPEED 9600
NCP> DEF LINE MODEM NULL
NCP> DEF EXEC DELAY FACTOR 96
NCP> EXIT
```

10. Create a new Asynchronous version of STARTNET.BAT by creating a file (with your favorite editor) named STARTNET.BAT to include the following lines:

```
SAVE
SCH
DLLASYNC
DNNETHA
```

```
REDIR5
SETNAME host_user_name
SETLOGON your_domain_name
CTERM
```

11. Reboot the system.
12. The first time you use Asynchronous DECnet, run COMMVER.EXE in DOS before starting Windows for Workgroups and verify that it displays the following message:

COMn is running at m baud with an x chip

where n is the com port being used, m is the baud rate specified and x is the identity of the particular chip found on the asynchronous channel being used. An overrun error might occur. This is normal.

NOTE

If an asynchronous DEPARM.DAT file already exists in C:\DECNET, enter the following NCP command:

```
NCP DEF EXEC DELAY FACTOR 96
```

Starting Asynchronous DECnet

To Start Asynchronous DECnet use SETHOST to dial and get a physical connection to your DECnet asynchronous port server, and do the following:

1. After rebooting, execute the following command line:

```
NCP SET LINE STATE OFF
```

2. Run SETHOST and specify the communications port; for example:

```
SETHOST COMn
```

where n is the communications port number.

3. Make your connection to your DECnet asynchronous port server.

4. Exit SETHOST and enter the following NCP command line:

```
NCP SET LINE STATE ON
```

Asynchronous DECnet should now be up and running. You can use Windows for Workgroups or DOS.

Run Windows for Workgroups in 386 enhanced mode and select the Windows for Workgroups DOS box. Execute COMMVER.EXE. You should now see the following message:

```
COMn is running at m baud with an x chip Special Pathworks Windows Asynchronous Code Is Running
```

The last line indicates that the special Windows Enhanced Mode features of the Asynchronous Update kit have been successfully installed. You might also see a "Data Overrun" message. This is normal.

Changing from an Asynchronous Environment Back to a LAN Environment

To switch back to a full LAN environment, do the following:

1. Rename the modified files with an extension such as .ANS; for example:

```
REN AUTOEXEC.BAT AUTOEXEC.ANS
REN CONFIG.SYS CONFIG.ANS
REN SYSTEM.INI SYSTEM.ANS
REN STARTNET.BAT STARTNET.ANS
REN DECPARM.DAT DECPARM.ANS
```

2. Rename the same files with the .ETH extension back to their corresponding standard extension; for example:

```
REN AUTOEXEC.ETH AUTOEXEC.BAT
REN CONFIG.ETH CONFIG.SYS
REN SYSTEM.ETH SYSTEM.INI
REN STARTNET.ETH STARTNET.BAT
REN DECPARM.ETH DECPARM.DAT
```

3. Run Windows for Workgroups in a LAN environment as it was before installing Asynchronous DECnet.

You might want to create two simple .BAT files to automate steps one and two.

Additional Features

This chapter describes how to do the following:

Configuring Windows for Workgroups NOVELL IPX for Ethernet (DIX)

Connect to a PATHWORKS for VMS or PATHWORKS for ULTRIX server using the Enhanced Redirector

How to use the Local Area Disk (LAD) utility with Windows for Workgroups

How to use InfoServers with Windows for Workgroups

Configuring Windows for Workgroups NOVELL IPX to Run Over Ethernet (DIX)

To configure Windows for Workgroups for Ethernet (DIX), do the following:

1. Run Windows for Workgroups
2. At startup, a warning dialog indicates the NOVELL shell was not loaded
3. Run the Control Panel
4. Select Network
5. Select Adapters
6. Press Setup
7. Press Protocols
8. Select Novel IPX from Protocols in use list
9. Press Settings
10. Select Adapter Media Type from Advanced Protocol Settings list
11. Select Ethernet_II (DIX) from the Value Combo box and press Set
12. Press OK until you exit the Control Panel

Reboot the computer as instructed.

Connecting to a Server Account Using the Enhanced Redirector

The Redirector you use determines the maximum length of the share name you can specify. Table 3 below lists the Redirectors and the permissible share length names:

Table 3: Redirectors and Share Name Lengths

Redirector	Share Name Length
PATHWORKS Basic Redirector	32 characters
PATHWORKS Enhanced Redirector	8 characters
Windows for Workgroups	12 characters
Protected Mode Redirector	

When you are using the Windows for Workgroups File Manager to connect to a specific PATHWORKS for VMS or ULTRIX account and use it as a file share, you must set your computer name to your PATHWORKS for VMS or ULTRIX user account name by changing the SETNAME line in your STARTNET.BAT file to read:

```
SETNAME host_user_name
```

This lets you replace command lines of the form:

```
\\host_node_name\service%host_user_name password
```

with the following:

```
\\host_node_name\service
```

where service could, of course, be your own PATHWORKS for VMS or ULTRIX user account as in:

```
\\host_node_name\host_user_name
```

When you connect to your PATHWORKS for VMS or ULTRIX user account, Windows for Workgroups asks you for a password. Enter your VMS or ULTRIX user account password. Windows for Workgroups automatically elects to save this password in a password list. Deselect it. This permits user validation between PATHWORKS servers and Windows for Workgroups to work properly. If you do not deselect the password list, problems might arise later.

NOTE

Windows for Workgroups tries a NULL password and then a single space password as its first two attempts at a password. If it fails, it checks the password list. If it does not locate the password in the password list, it asks you for it.

You might occasionally find your account locked because of too many failed attempts to connect. If this occurs, it is probably related to Windows for Workgroups attempting to determine your password before prompting you.

Using the Local Area Disk (LAD) Utility

The Local Area Disk (LAD) utility does not require a redirector; it operates within DOS as a disk driver. Therefore, load the NDIS datalink, the LAST transport layer and LAD to get LAD services. LAD services are available directly from DOS without running Windows for Workgroups.

Also, because LAD is a DOS disk driver, connections made under DOS are recognized by Windows for Workgroups and continue to be recognized by DOS after exiting Windows for Workgroups.

Using LAD with Windows for Workgroups

When you use a PATHWORKS for DOS Real Mode Redirector as described in Chapter 2, you will have used the PATHWORKS NETSETUP program to create the STARTNET.BAT file. If you specified LAST/LAD at that time, the STARTNET.BAT file generated is correct as it is. No further modifications are required to use LAD.

When you are operating in a Windows for Workgroups environment using the Windows for Workgroups Protected Mode Enhanced Redirector, additional edits to the PATHWORKS STARTNET.BAT file are needed to use LAD.

If you have installed LAD services using NETSETUP and you have modified STARTNET.BAT as described earlier in Chapter 3, you must make additional modifications to STARTNET.BAT to use LAD.

Edit STARTNET.BAT as follows:

1. Search for LAD.EXE section as shown below.

```
echo -----  
ECHO START THE LOCAL AREA DISK SOFTWARE  
%_SYSD%\LMDOS\DRIVERS\PCSA\EMSLOAD  
%_SYSD%\LMDOS\DRIVERS\PCSA\LAD.EXE /R:-1 /W:-1 /A:-1  
IF NOT ERRORLEVEL 1 GOTO LADDONE  
%_SYSD%\LMDOS\DRIVERS\PCSA\LAD.EXE /R:-1 /W:-1 /A:-1  
IF NOT ERRORLEVEL 1 GOTO LADDONE  
ECHO ** ERROR ** UNABLE TO START THE LOCAL  
AREA DISK SOFTWARE  
GOTO AFTER_ERROR
```

:LADDONE

2. Move the entire LAD.EXE section after the :TIMEDONE label. Make the changes to the sequence of lines below as indicated by the boldface type, as follows:

```
:TIMEDONE
ECHO -----
ECHO START THE LOCAL AREA DISK SOFTWARE
C:\DECNET\EMSLOAD C:\DECNET\LAD.EXE /R:-1
/W:-1 /A:-1
IF NOT ERRORLEVEL 1 GOTO LADDONE
C:\DECNET\LAD.EXE /R:-1 /W:-1 /A:-1
IF NOT ERRORLEVEL 1 GOTO LADDONE
ECHO ** ERROR ** UNABLE TO START THE LOCAL AREA
DISK SOFTWARE
GOTO AFTER_ERROR
:LADDONE
```

If you copy this section rather than move it, you must comment out the original occurrence of the label :LADDONE using a REM statement.

If you did not originally select LAD/LAST when running NETSETUP, you may simply add these lines. You must also add the line:

```
DEVICE=C:\DECNET\LADDRV.SYS /D:4
```

to your CONFIG.SYS file.

When PATHWORKS for DOS and Windows for Workgroups are used together, the Windows for Workgroups network driver, WFWNET.DRV, is used. Consequently, LAD support under Windows is limited. You cannot make connections to LAD drives using the Windows File Manager. You can still make new connections from a Windows for Workgroups DOS box and proceed as you would under DOS alone by entering the following command:

```
USE ? : <LAD service name>
```

The Windows for Workgroups File manager represents LAD drives using the floppy disk icon rather than the network icon as in Windows 3.1.

Using InfoServers with Windows for Workgroups

Digital InfoServers and Windows for Workgroups work together in much the same way as LAD drives and Windows for Workgroups.

To enable InfoServers to work with Windows for Workgroups, do the following:

1. Specify LADCDDRV.EXE in CONFIG.SYS file.
2. Include MSCDEX.EXE in the AUTOEXEC.BAT after the Windows for Workgroups command line NET START.

MSCDEX operates over LAD and LAST. Consequently, InfoServers are available over the network directly under DOS and Windows for Workgroups. You can make connections to an InfoServer while in DOS or in a Windows for Workgroups DOS shell. InfoServer connections are preserved when you enter and leave Windows for Workgroups sessions regardless of when the

connection was made.

Technical Notes

This appendix contains technical notes and observations on the operation of Windows for Workgroups and PATHWORKS for DOS.

File Services

There are situations when you may observe conflicting status messages. When you make a connection to a file service using the WFW FILE MANAGER and then later, in a Windows DOS box, inquire about the status of that connection with the PATHWORKS USE command, USE reports that the connection is PAUSED when clearly it is not.

Print Services

When connecting to print services, the WFW Print Manager indicates that the printer has an error status. The printer, however, is fully operational and available.

Asynchronous DECnet

Asynchronous DECnet has been tested at 9600 baud using a 386 20 megahertz PC. Faster PCs will not have any problems running Asynchronous DECnet.

DECnet NetBIOS Extensions

Digital's NetBIOS extended functions (INT2A, AH=0DCH) are not available on Ethernet or Token Ring. Installing Windows for Workgroups on a PATHWORKS File Server

In situations where multiple licenses for Windows for Workgroups are purchased and there is a need for a single point of access, you can copy Windows for Workgroups to a PATHWORKS file service and install it directly from there onto individual PC's. The process is quite simple, as follows:

1. Connect to the service
2. Create a Windows for Workgroups subdirectory.
3. Using the DOS XCOPY command (or File Manager in Windows), copy each of the disks to the Windows for Workgroups subdirectory with the following command.

```
XCOPY A:\ drive: \WFW/S/E/V
```

To install, do the following:

1. Change your current drive to network_drive_letter
2. Move to the Windows for Workgroups subdirectory
3. Run the Windows for Workgroups SETUP and follow the installation instructions supplied for installing and configuring Windows for Workgroups.

Proteon P1390 and P1392 Network Adapters

For Proteon P1390 and P1392 Network Adapters, the PROTMAN installed by Windows for Workgroups looks for the wrong device driver name (NDI39XR.DOS) even though it installs the correct device driver (NDIS39XR.DOS) in the \WINDOWS subdirectory.

The PROTMAN files, PROTMAN.DOS and PROTMAN.EXE, are not changeable. To supply PROTMAN a network adapter device driver file with the name it requires and to change CONFIG.SYS and \WINDOWS\PROTOCOL.INI to load\point to that same file\driver, do the following:

1. In the \WINDOWS directory, do the following:

`COPY NDIS39XR.DOS NDI39XR.DOS`

2. Edit the [MS\$PRO139x] section of the PROTOCOL.INI file and in change the DriverName from NDIS39XR\$ to NDI39XR\$
3. In the root directory, edit CONFIG.SYS by changing the network adapterdevice driver name from NDIS39XR.DOS to NDI39XR.DOS