



PATHWORKS for OpenVMS V5

Integrating with Windows NT

A White Paper on the Technical Issues of Microsoft Windows NT
Interoperability in the PATHWORKS for OpenVMS Environment

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Preface

The intended audience for this white paper includes computing professionals involved in the decisions related to multivendor desktop and server platform interoperability.

- Need for Highly Available Servers Within Domains
- Users with LANMAN Network Accounts and OpenVMS Accounts
- OpenVMS or Digital UNIX Applications
- DECnet Nodes and/or Applications
- TCP/IP Hosts and/or Applications

The goal of this white paper is to provide facts regarding the technical issues involved when creating a multivendor production environment consisting of Windows NT and PATHWORKS V5 servers together with various desktop client platforms.

| | |
|--|-----------|
| Revision History | 4 |
| Overview | 5 |
| Inter-operating in a Windows NT Domain | 6 |
| Merging a PATHWORKS V5 PDC into a Windows NT Domain | 7 |
| Setting up a PATHWORKS V5 Backup Domain Controller or Member Server | 12 |
| Managing User Accounts | 15 |
| Managing User Profiles | 16 |
| Managing PATHWORKS Server in a Windows NT Domain | 17 |
| PATHWORKS Clusters | 18 |
| Enabling Browsing | 19 |
| Managing Shares | 19 |
| Setting up Print Shares | 21 |
| Connecting to a PATHWORKS Server from a Windows NT Client | 22 |
| Common Network Protocol | 23 |
| PATHWORKS Client Licensing | 24 |
| Connecting to PATHWORKS File Shares | 25 |
| Domain Logon | 26 |

Revision History

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Overview

The PATHWORKS V5 for OpenVMS server works well as a down-level server in a Windows NT domain. Due to the differences of protocol level, there are a number of steps that need to be taken to ensure a seamless integration into the Windows NT network environment. This document attempts to identify these steps and the known limitations.

Inter-operating in a Windows NT Domain

A Windows NT domain is defined as a domain where a Windows NT server functions as the Primary Domain Controller (PDC). A PATHWORKS V5 for OpenVMS server can assume the role of a Backup Domain Controller (BDC), Member server or Standalone server in a Windows NT domain as a “down-level” server. A down-level server is a server running in a Windows NT domain that supports an SMB protocol level less than V3.0. The concept of Member server is different in a Windows NT domain than in a LAN Manager V2.2 domain. For ease of reference in this paper, when the term “Member server” is used, it is based on the LAN Manager V2.2 definition. The server will behave in the network as expected in the LAN Manager V2.2 style.

Merging a PATHWORKS V5 PDC into a Windows NT Domain

Perform the following steps:

1. Put the PATHWORKS server in Standalone mode and set the Guest account password to blank (null) using the undocumented LMUSER command:

```
$ NET ACCOUNTS /ROLE:STANDALONE
$ @SYS$STARTUP:PWRK$DEFINE_COMMANDS.COM
$ LMUSER -MP "" GUEST
```

2. Ensure a common transport is running on both systems:
 - The choices are NetBEUI, TCP/IP, or DECnet. Note that NetBEUI is not routeable.
 - If TCP/IP is used, the LMHOSTS file may need a PATHWORKS server entry.
 - Check the Network icon in the Control Panel for available Windows NT transports.
 - Check the ADMIN utility for configured transports on the PATHWORKS server.
3. Run the upgrade procedure on the PATHWORKS server: (Sample output from the upgrade procedure can be found at the end of this section.)

```
$ SET DEF SYS$UPDATE
$ @PWRK$UPGRADE
select Additional Upgrade Utilities
select UAS Merge
select Standalone UAS Merge Report (if needed)
select Standalone UAS Merge
```

The LANMAN accounts on the PATHWORKS server will be copied to the Primary Domain Controller system. The status of the passwords for those accounts will be as follows on PATHWORKS Version 5.0C ECO3 and later servers:

If the PDC is a Windows NT machine, and the keyword "mergepwd_username" is set to "Yes" in the [VMSSERVER] section of the PATHWORKS file PWRK\$LMROOT:[LANMAN]LANMAN.INI, the account's username is passed along as the password during the UAS Merge.

If the PDC is a Windows NT machine, and the keyword "mergepwd_username" is **not** set to "Yes", then the password after the UAS Merge will be unknown. Windows NT machines will not accept encrypted passwords.

(Prior to 5.0C ECO3, merged LANMAN user accounts had unknown passwords.)

4. At the end of the merge procedure, select the new PATHWORKS server role:

```
0 for Backup Domain Controller
1 for Member Server
```

5. Make sure the time is synchronized on the PATHWORKS system and the Windows NT PDC:

```
$ SET TIME=30-OCT-1996:19:31:0.0
```

Perform the following steps on the Windows NT PDC:

1. Make Guest Account Modifications:

Enable Guest account. (It's disabled by default). Set it to have a null password. This can be done via User Manager. Select Policies→ Account→ Allow Blank Passwords.

2. Make User Accounts Modifications:

Add the text: "HOSTMAP=*vmsuser*" in the account's Description field. This will allow synchronization between UAS and UAF. This is only necessary if the OpenVMS account is different than the UAS account.

Make certain that the GROUP Servers is a global group.

3. SYNC the Domain on the Windows NT machine:

Server Manager → Select a Server → Computer Menu → Sync with entire Domain

4. Enable Browsing between LAN Manager 2.x and Windows NT.

Enable NT to browse LM 2.x Clients:

Select Control Panel → Network → Network Settings → choose Computer Browser from Installed Network Software → Configure → in Browser Configuration, add LANMAN domains.

NOTE:

If using the NT 3.5 Workstation only: to add LANMAN domains, edit the registry and set the parameter OtherDomains to the name of the domain the workstation needs to see. This parameter has a data type of REG_MULTI_SZ under this key:

```
\HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet  
\Services\LanmanWorkstation\Parameters
```

For example, if the LAN Manager domain name is FIDO—after setting the parameter, this value would show in the Registry Editor: OtherDomains:REG_MULTI_SZ:FIDO.

Enable LM 2.x Servers to Browse NT:

Select Control Panel → Network → Network Settings → choose Server from Installed Network Software → Configure → in Server Dialog Box, check Make Browser Broadcasts to LM 2.x Clients.

NOTE:

If using the NT 3.5 Workstation only: to enable the LM 2.x to Browse NT feature, edit the registry and change the Lmannounce setting from 0 to 1 under:

```
\HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet  
\Services\LanmanServer\Parameters
```

NOTES:

The Windows NT domain controller does **not** require a PATHWORKS license for domain communication. However, a license would be required if the Windows NT server needs to make connections to PATHWORKS V5 file or print services or to perform management functions (such as deleting shares, etc.).

Sample output from upgrade procedure:

The following procedure merges PATHWORKS users and groups from an OpenVMS system with users and groups on a Windows NT system. When OpenVMS-based PATHWORKS systems share a domain with Windows NT systems, the NT system must be the Primary Domain Controller (PDC).

If the OpenVMS system is switched to a Backup or Member server in the Windows NT's domain, the Windows NT user database will overwrite the OpenVMS PATHWORKS user database. All users and groups on the OpenVMS system will be lost. The merge procedure saves the user database by combining it with the user database on the Windows NT system.

Before starting, **make a backup copy** of the OpenVMS system PATHWORKS user database. Copy the file PWRK\$LMROOT:[LANMAN.DATAFILES]ACCOUNTS.LMX to a different directory, or to tape, so a backup will be available, if needed.

PROCEDURE:

The exact steps for a UAS merge are detailed below:

1. \$ @SYS\$UPDATE:PWRK\$UPGRADE

This procedure shuts down the currently running PATHWORKS V5 server.

```
Do you want to continue with upgrade [yes]: <CR>
Shutting down the currently running server(s)...
Stopping IPX Daemon (NPSD)...OK
PATHWORKS is configured to use DECnet, NetBEUI, TCP/IP.
```

```
>>If you are upgrading a server in an existing domain that has a designated
>>Primary Domain Controller, the upgrade procedure communicates with it to
>>enumerate users and groups in the existing domain.
```

```
>>If you are not upgrading a server in an existing domain, press Return.
```

```
Are you upgrading a server in an existing domain [no]:YES
```

```
>>The upgrade procedure uses only one of the transports configured on the server.
>>Choose a transport and make sure that the designated Primary Domain Controller
>>is running that transport.
```

Which transport do you want to use for upgrade [DECnet]: NetBEUI
Starting NBDAEMON in order to perform upgrade over NetBEUI...
Process PWRK\$NBDAEMON created with identification 00000133

Enter the name of the Domain [PF2 for Help]: NTDOMAIN
Enter Primary Domain Controller's node name [PF2 for Help]: NT1
Enter a user name for a privileged account [Admin | PF2 for Help]:<CR>

>>This assumes that an account called Admin has been created on the NT server.

Enter password:xxxxxxx

>>The Upgrade Utility menu appears.

Additional Upgrade Utilities
UAS Merge.
Standalone UAS Merge Report

>>Use the report to view users and groups that will be merged. Uncommented
>>lines will be executed. Edit the report as desired.

Standalone UAS Merge.

Do you want to use a UAS Merge report as input to the Standalone UAS merge?

Enter Y or N, or press Return to use the default: Y

Specify the UAS Merge report for the Standalone UAS merge on the next
line [PWRK\$LMUPGRADE:PWRK\$UPG\$UAS_SA.RPT is default] <CR>

>>Accounts and groups are added at the PDC and the message "UAS Merge
>>complete" is displayed.

Please enter the node name of this system [VMSSYS | PF2 for Help]<CR>

>>The OpenVMS system's name is added to the Servers group on the PDC.

Enter new workstation role [0 for backup, 1 for member, PF2 for Help]:0

Standalone merge complete
press Return to continue <CR>

Return to Previous Menu
Exit

>>Check the User list on the NT PDC to make sure the account database was
>>updated with users from the OpenVMS system.

Start PATHWORKS on the OpenVMS system. It should come up as a Backup or
Member server in the NT domain.

2. \$ @SYS\$STARTUP:PWRK\$STARTUP

>>Verify server's role by using the DCL command \$NET ACCOUNTS.

\$net accounts

| | |
|---|-----------|
| Force user logoff how long after time expires: | Never |
| Lock out account after how many bad passwords: | Never |
| Minimum password age (days): | 0 |
| Maximum password age (days): | Unlimited |
| Minimum password length: | 0 |
| Length of password history maintained: | None |
| Server role: | BACKUP |
| Primary Domain Controller for workstation domain: | \\NT1 |

The command completed successfully.

Setting up a PATHWORKS V5 Backup Domain Controller or Member Server

In LAN Manager V2.2, a Backup Domain Controller (BDC) and/or a Member server gets an updated copy of the User Accounts Subsystem (UAS) from the Primary Domain Controller (PDC) so that they share the same user and group information. The BDC also runs the NETLOGON service and can perform NETLOGON authentication for clients. The Member server does run the NETLOGON service, but it does NOT perform NETLOGON authentication for clients.

***** WARNING: *****

These steps result in the Windows NT user database overwriting the PATHWORKS server user database. To avoid loss of the user database, perform the UAS merge procedure in the PWRK\$UPGRADE utility. Refer to the section "Merging a PATHWORKS V5 PDC into a Windows NT Domain" for more information.

Perform the following steps on the indicated (PW or NT) system:

The following steps assume the PATHWORKS server is currently a Standalone LAN Manager server. If the PATHWORKS server is currently a PDC, BDC or Member, see the section titled "Merging a PATHWORKS V5 PDC into a Windows NT Domain".

- PW** 1. Modify the PWRK\$LANMAN:LANMAN.INI file for correct host account mapping, password synchronization, and compatibility mode settings: (See the PATHWORKS Server Administrator's Guide for further details on these settings.)

[VMSSERVER]

applyhostmapcomment = yes

When a user connects to the server, this parameter determines if the server looks for an OpenVMS account name that matches the LAN Manager account name.

hostmapmode = if_exist_else_default

This parameter determines to which account a user maps. The setting "if_exist_else_default" means map to PWRK\$DEFAULT if there is no OpenVMS account.

hostpasswordsync = yes

This specifies whether the password for each LAN Manager user account is to be synchronized with the password for its corresponding OpenVMS account.

compatibility = no

This setting determines if there will be support for clients with earlier versions of the PATHWORKS client software as well as for those running PATHWORKS V5 for DOS and Windows.

[WORKSTATION]

domain = *ntdomainname*

This specifies the name of the domain that includes the server.

- PW** 2. Start/restart PATHWORKS and clear the Guest account password using the undocumented LMUSER command:

```
$ @SYS$STARTUP:PWRK$STARTUP.COM
$ @SYS$STARTUP:PWRK$DEFINE_COMMANDS.COM
$ LMUSER -MP "" GUEST
```

- NT** 3. Make Windows NT User Accounts Modifications:

Add the text: "HOSTMAP=*vmuser*" in the account's Description field. This will allow synchronization between UAS and User Authorization File (UAF). This is only necessary if the OpenVMS account is different than the UAS account.

Make certain that the GROUP Servers is a global group.

Create an account called Admin that matches the PATHWORKS LAN Manager Admin account and put it in the Administrators group.

Enable Guest account. (It's disabled by default.) Set it to have a null password. This can be done via User Manager. Select Policies → Account → Allow Blank Passwords.

- NT** 4. Enable Browsing between LAN Manager 2.x and Windows NT.

Enable NT to browse LM 2.x Clients:

Select Control Panel → Network → Network Settings → choose Computer Browser from Installed Network Software → Configure → in Browser Configuration, add LANMAN domains.

NOTE:

If using the NT 3.5 Workstation only: to add LANMAN domains, edit the registry and set the parameter OtherDomains to the name of the domain the workstation needs to see. This parameter has a data type of REG_MULTI_SZ under this key:

```
\HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet
\Services\LanmanWorkstation\Parameters
```

For example, if the LAN Manager domain name is FIDO—after setting the parameter, this value would show in the Registry Editor: OtherDomains:REG_MULTI_SZ:FIDO.

Enable LM 2.x Servers to Browse NT:

Select Control Panel → Network → Network Settings → choose Server from Installed Network Software → Configure → in Server Dialog Box, check Make Browser Broadcasts to LM 2.x Clients.

NOTE:

If using the NT 3.5 Workstation only: to enable the LM 2.x to Browse NT feature, edit the registry and change the Lmannounce setting from 0 to 1 under:

```
\HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet
\Services\LanmanServer\Parameters
```

BOTH 5. Ensure a common transport is running on both systems:

The choices are NetBEUI, TCP/IP, or DECnet. Note that NetBEUI is not a routeable protocol. If TCP/IP is used, the LMHOSTS file may need a PATHWORKS entry. Check the Network icon in the Control Panel for available Windows NT transports. Check the ADMIN Utility for configured transports for the PATHWORKS server.

PW 6. Make sure the time is synchronized on the PATHWORKS server and the NT PDC:

```
$ SET TIME=30-OCT-1996:19:31:0.0
```

PW 7. Logon to PATHWORKS server using the Admin account:

```
$ NET LOGON ADMIN <password>
```

PW 8. Change server role to Backup Domain Controller or Member Server:

```
***** WARNING: *****  
This step results in the Windows NT user database overwriting the  
PATHWORKS server user database. To avoid loss of the user database,  
perform the UAS merge procedure in the PWRK$UPGRADE utility.  
Refer to the section "Merging a PATHWORKS V5 PDC into a Windows  
NT Domain" for more information.  
*****
```

```
$ NET ACCOUNTS /ROLE:BACKUP
```

```
**or**
```

```
$ NET ACCOUNTS /ROLE:MEMBER
```

NOTES:

1. The Windows NT domain controller does **not** require a PATHWORKS license for domain communication. However, a license would be required if the Windows NT server needs to make connections to PATHWORKS V5 file or print services or to perform management functions (such as deleting shares, etc.).
2. The BDCs will receive user account information from the PDC and will validate user logon requests. The Member servers will receive user account information from the PDC, but they will **NOT** validate user logon requests.

Managing User Accounts

There are some differences in the way user accounts are administered on Windows NT servers and PATHWORKS V5 servers. The following is a comparison of some of the important account fields and how they can be managed:

| <u>General</u> | <u>NT Server</u> | <u>PATHWORKS Server</u> |
|---|--|--------------------------|
| Default Administration Account Name | Administrator | Admin |
| Default Users | Guest | Guest |
| Default Groups | Users, Guests, Administrators, Replicators, Backup Operators | Admins*, Users*, Guests* |
| <u>Account Fields</u> | <u>NT Server</u> | <u>PATHWORKS Server</u> |
| Name | Y | Y |
| Full Name | Y | Y |
| Description | Y | N (description in NT |
| Comment | N | Y maps to comment in V5) |
| User Comment | N | Y |
| Password | Y | Y |
| Confirm Password | Y | N |
| Host Map | *Note1 | Y |
| Privilege Level | N | Y |
| Operator Privileges | N | Y |
| User Must Change Password at Next Logon | Y | N |
| User Cannot Change Password | Y | N |
| Password Never Expires | Y | N |
| Account Disabled | Y | Y |
| Group Membership | Y | Y |
| User Profile Path | Y | N |
| Logon Script Name | Y | Y |
| Home Directory (Local or Connect To) | Y | Y |
| Logon Hours | Y | Y |
| Logon To | Y | Y |
| Account Expiration | Y | Y |
| Logon Domain | N | Y |
| User Storage Limit | N | Y |
| Hostname | N | Y |

*Note1: Hostmap on a PATHWORKS system is equivalent to the Description field being set to "hostmap=vmsuser" on the Windows NT system.

| <u>Tool Name</u> | <u>Operating System</u> |
|--------------------------|----------------------------|
| User Manager for Domains | WIN NT |
| User Manager for Domains | WIN 95 (from Resource Kit) |
| NetAdmin | WIN 3.1/WFW 3.11 |
| ADMIN/PATH | OpenVMS |

Managing User Profiles

Due to the differences between Windows NT and PATHWORKS V5, there are certain fields in the user profile that can be set on Windows NT that have no translation on the PATHWORKS V5 server. This section identifies the fields which cannot be managed from the other server.

Using the User Manager for Domains utility from the Windows NT server to manage a PATHWORKS V5 server:

The following fields cannot be entered: Comment, User Comment, Logon Domain, User Storage Limit, VMS Hostname.

To set the Hostmap field on the PATHWORKS server, set the Description field to be "hostmap=vmsusername".

Local Groups are not viewable in ADMIN/PATH but are via NET commands. (Hint: Only utilize Global Groups.)

Creating a new account will not create an OpenVMS user account on the PATHWORKS system.

Using the ADMIN utility from the PATHWORKS server to manage a Windows NT server:

The following fields cannot be entered: Description, Confirm Password, User Must Change Password at Next Logon, User Cannot Change Password, Password Never Expires, User Profile Path.

Creating a new account will create a personal share on the PATHWORKS system, but it will fail to set permissions correctly on this share. Either remove the personal share or set the desired permissions.

Local Groups are not viewable in ADMIN/PATH but are via NET commands. (Hint: Only utilize Global Groups.)

Since the Password Never Expires field does not exist on the PATHWORKS server, the Guest account password (if present) will expire on the PATHWORKS system after the number of days specified in the Security Settings section of the ADMIN menu.

Managing PATHWORKS Server in a Windows NT Domain

Although PATHWORKS and Windows NT are related network operating systems, they are slightly different. In addition, there are differences between OpenVMS and the Windows NT operating system in regard to administration, security, and licensing. The following pages detail some considerations and limitations for managing a PATHWORKS server that is in a Windows NT domain.

PATHWORKS Clusters

An OpenVMS cluster has some special considerations when more than one node is running PATHWORKS for OpenVMS (LANMAN) V5.0.

The considerations revolve around the fact that all members of the OpenVMS cluster running PATHWORKS V5 must be running in the same LAN Manager **role**. All members of the cluster running PATHWORKS V5 must have: a common SYSUAF and RIGHTSLIST; a common PWRK\$ROOT (meaning on the same cluster-accessible drive); and, due to the manner in which NETLOGON runs in a cluster, all members must be on the same network (*e.g.*, no split-rail Ethernets).

Other important facts: The account in the Servers group that matters when a cluster is being used is the PATHWORKS cluster alias account name. That account name must be different than any of the server names and the domain name. Also note that Windows NT acting as a client has trouble connecting to a PATHWORKS V5 cluster alias, since the NT client cannot resolve the alias name. So those clients should connect directly to a node in the cluster.

Enabling Browsing

Microsoft Windows-based LAN Manager clients (Windows for Workgroups, Windows 95 and Windows NT) use what Microsoft calls a “master browse server” to help clients browse shared resources on the network. Master browse servers listen for LANMAN service announcements and keep a list of LANMAN servers in their workgroup or domain. Backup browse servers are also created automatically when more than 15 Windows for Workgroups or Windows 95 clients—or 31 Windows NT clients—are started in a workgroup or domain. When the user browses the network from a Microsoft Windows client and double-clicks on a workgroup or domain name, a request is sent to the master browse server or to one of the backups for a list of LANMAN servers in that workgroup or domain. Any Microsoft Windows-based client can be a master browse server. However, a PATHWORKS V5 server can **not** function in this capacity since the V5 server runs an earlier version of LANMAN.

For a client to browse a PATHWORKS V5 server, several requirements must be met:

1. The Microsoft Windows client that is browsing must have a PATHWORKS client-based license loaded into its PATHWORKS license responder, or the server must have server-based licenses loaded and available.
2. There must be at least one Microsoft client with its workgroup name set to the same name as the PATHWORKS domain.
3. If the Microsoft client is a Windows for Workgroups or a Windows 95 machine, it must have file sharing enabled. In Windows for Workgroups, this is done by selecting Network→ Network Setup→ Sharing. On a Windows 95 machine, this service is added by choosing Settings→ Control Panel→ Network.

After it is configured and rebooted, the master browse server will need several minutes to build a list of available servers in the domain or workgroup. If there is only one Microsoft client in the workgroup or domain that can act as a master browse server, then that machine must stay on all the time in order for other Microsoft clients to be able to browse.

More information about browsing and masters browse servers can be found in the Windows 95 Resource Kit, Windows for Workgroups Resource Kit, or Windows NT Resource Kit.

Managing Shares

Although Windows NT and LAN Manager V2.2 use different versions of the SMB specification, there are certain share management functions that can be performed when the Windows NT and V5 servers are in the same domain.

| <u>Function</u> | <u>From NT to V5</u> | <u>From V5 to NT</u> |
|----------------------|----------------------|----------------------|
| VIEWING SHARES | Y | Y |
| ADDING SHARES | N | Y * |
| STOPPING SHARES | Y | Y |
| PAUSE SHARING | Y ** | Y |
| VIEWING PERMISSIONS | N | N |
| SETTING PERMISSIONS | N | N |
| VIEWING SESSIONS | Y | Y |
| STOPPING SESSIONS | Y | Y |
| VIEWING CONNECTIONS | Y | Y |
| STOPPING CONNECTIONS | Y | Y |
| VIEWING STATISTICS | Y *** | Y |
| VIEWING SERVICES | Y | N |
| STOPPING SERVICES | Y | N |
| STARTING SERVICES | Y **** | N |

* if directory exists, and the path is obtained by the GUI, using the Dir button

** by pausing the Server service

*** limited

**** cannot set startup options

Setting up Print Shares

For proper operation of PATHWORKS print shares in a Windows client environment, the OpenVMS print queue name and the PATHWORKS V5 share name should be the same. If the names are different, Windows will ask for the status of the print queue by the name of the print share. This will fail and cause the Windows client to show the print share in an error condition. If the names are the same, the Windows client will get back the status of the queue and will show the jobs in the queue. A workaround to this problem is to create an OpenVMS logical that points the share name to the queue name by executing:

```
$ DEFINE /SYS /EXE <sharename> <queuename>
```

If it is to be used on a permanent basis, this DEFINE command needs to be in the OpenVMS system startup procedure.

Connecting to a PATHWORKS Server from a Windows NT Client

In order to make file and print connections, the Windows NT client (whether Workstation or Server) requires no special software or configuration, with the following exceptions: the client and server must share a common protocol, and the client must be properly licensed to connect to the PATHWORKS server. A PATHWORKS V5 server will refuse unlicensed connections from Windows NT clients.

Windows NT clients and PATHWORKS V5 servers are both LAN Manager based. Thus, they can communicate with one another. However, the following points—common network protocol, PATHWORKS client licensing, connecting to PATHWORKS file shares, and domain logon—should be considered. These will be discussed on the following pages.

Common Network Protocol

There has to be a common network protocol between the Windows NT client and the PATHWORKS server for a connection to be made. The PATHWORKS V5 server is capable of LAN Manager file and print connections over TCP/IP, DECnet and NetBEUI. The Windows NT client has native network protocols for TCP/IP and NetBEUI, and it can run DECnet by installing PATHWORKS for Windows NT. PATHWORKS for Windows NT is only required if DECnet is needed on the Windows NT client.

WAN connections can be made over TCP/IP and DECnet (if installed). To make a WAN file and print connection over TCP/IP, add the IP address and name of the PATHWORKS server to the LMHOSTS file. If WINS is being used, add the PATHWORKS server information to the WINS database. To make a WAN file and print connection over DECnet, define the PATHWORKS server as Object 64 in the Remote Adapter table in the NCP database. NetBEUI, which is a non-routeable protocol, does not support WAN connections.

PATHWORKS Client Licensing

The PATHWORKS V5 server will refuse a file and print connection from a Windows NT machine without a valid PATHWORKS license. There are two licenses that could be used, depending on the Windows NT client configuration:

A “native” Windows NT client (*i.e.*, no PATHWORKS is installed on the Windows NT machine) can use a client license. Or the native Windows NT client can use a server license. To use the PATHWORKS client license, the PATHWORKS client license requester must be installed on the Windows NT machine and configured to request the correct license. The PATHWORKS license requester can be installed from the PATHWORKS CD-ROM or from the PATHWORKS FPA License Requester kit, which can be obtained from the Digital Customer Support Center or copied from the Internet. No PATHWORKS client requester is required with server licensing.

Connecting to PATHWORKS File Shares

After proper PATHWORKS licensing is configured, connecting to PATHWORKS file shares is accomplished in the same manner as connecting to Windows NT file shares—through Network Neighborhood, Explorer or Start → Run `\\servername\sharename`. Note that Start → Run `\\servername\sharename` does not work with personal shares.

Domain Logon

All clients need a PATHWORKS license to logon to a PATHWORKS domain controller.

Also, a Windows NT Workstation client (configured for domain logon) cannot get domain logon validation from a PATHWORKS V5 server, since the Windows NT product is a later version of LAN Manager than the PATHWORKS server product.