

# *Windows NT Server 4*

FOR  
DUMMIES®

**by Ed Tittel with Mary Madden &  
James Michael Stewart**



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# Next on Montel — IP Addresses and the Nerds Who Love Them

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## *In This Chapter*

- ▶ Working with TCP/IP and NetBIOS names
  - ▶ Understanding IP addressing, nets, and subnets
  - ▶ Obtaining Internet-ready IP addresses
  - ▶ Using private IP addresses
  - ▶ Using proxy servers and address translation
  - ▶ Working with DHCP
  - ▶ Knowing when to use WINS
  - ▶ Working with DNS
- 

**T**CP/IP drives the Internet and makes it accessible around the world. TCP/IP, however, is a lot more than just a collection of protocols: Many elements in the TCP/IP marry protocols to related services to provide more complete capabilities. Important examples include dynamic address allocation and management, known as DHCP, plus domain name to address resolution services, known as DNS. You find out about TCP/IP names, addresses, and related standard services in this chapter, as well as some other services that are unique to Windows NT.

## *Name-Calling with TCP/IP and NetBIOS*

Whenever you issue a command in Windows NT, you're expected to use the proper syntax. Otherwise, your efforts might not produce the desired results. For example, when you issue a NET USE command from a command prompt, you must enter the server name and a share name, as well as the drive you wish to map. Thus, a simple command like NET USE G: \\LANWRIGHTS\APPS associates the drive letter G: with a share named APPS

...A Windows NT to the server. Instead, it understands IP addresses, such as 172.16.1.7.

If you use TCP/IP on your network, you need some way to convert IP addresses into names, and vice versa. Just as the United Nations requires translators so everyone can communicate, so does Windows NT! That's why understanding naming conventions and name-to-address resolution is such an important part of working with TCP/IP on Windows NT.

## *NetBIOS names*

If you're like most folks, you freeze like a deer in the headlights when you hear the word NetBIOS. Don't worry. Only a small number of people really understand NetBIOS in detail, but figuring out what you need to know without stressing out is easy.

A NetBIOS name is often called a computer name. When you install Windows NT onto a network, each computer that runs Windows NT requires a unique computer name. This permits all NetBIOS-based utilities to identify each machine by its name. Any time you enter a command that includes a computer name, Windows NT knows which computer you're talking about.

If you try to give two devices the same name, you run into trouble — like trying to use the same Social Security number for two people. Each time a computer joins the network, it registers its name with a browser service that keeps track of such things. When the second computer with the same name tries to register, it is rejected because that name is already "taken." In fact, that machine will be unable to join the network until its name is changed to something unique.

When creating NetBIOS names, you need to work within their limitations:

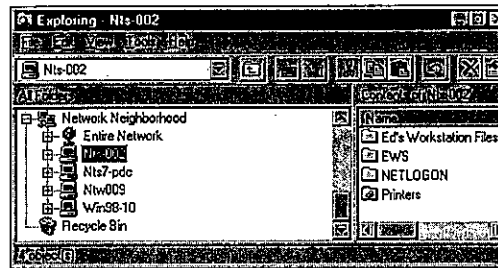
- ✓ NetBIOS names must be between 1 and 15 characters long. (If you have DOS or Windows 3.x machines on your network, they can't recognize NetBIOS names with more than 8 characters.)
- ✓ NetBIOS names may not contain any of the following characters: " (double quotation mark), / (right slash), \ (left slash), [ (left square bracket), ] (right square bracket), : (colon), ; (semicolon), | (vertical slash), = (equal sign), + (plus sign), \* (asterisk), ? (question mark), < (left angle bracket), and > (right angle bracket). Dollar signs are not recommended because they have a special meaning. (A NetBIOS name that ends in \$ does not display in a browse list.)

networking clients or systems may not be able to handle such usages.

- ✓ Pick names that make sense to users that are short and to the point. Don't name machines after their users or locations, especially if users come and go regularly, or if machines move around a lot. When it comes to servers, name them to indicate organizational role or affiliation (for example, Sales).

What's in a NetBIOS name, you ask? A short, clear indication of what's being named so that users can recognize what they see. At best, this kind of naming convention will make sense without requiring further explanation. At the least, you can do what we do and put a sticker with the machine's name on each monitor for self-identification purposes. Figure 12-1 shows a list of NetBIOS names in our network's Network Neighborhood (names that begin with Nts indicate Windows NT Servers, Ntw indicates Windows NT Workstations, and Win98 . . . well, you see what we mean; we also add numbers to identify each machine's IP address).

**Figure 12-1:**  
NetBIOS  
computer  
names  
show up for  
machines  
under  
the NT  
Explorer  
Network  
Neighborhood.



## *TCP/IP names and addresses*

TCP/IP uses a different scheme for names than does NetBIOS. TCP/IP uses 32-bit numbers to construct IP addresses (for example, 172.16.1.11). Each host or node on a TCP/IP network must have a unique IP address.

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