

**Windows NT  
Server 4**  
FOR  
**DUMMIES®**

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



Hungry Minds™

HUNGRY MINDS, INC.

New York, NY ♦ Indianapolis, IN ♦ Cleveland, OH

New York, NY 10022  
www.hungryminds.com  
www.dummies.com (Dummies Press Web site)

Copyright © 1999 Hungry Minds, Inc. All rights reserved. No part of this book, including interior design, cover design, and icons, may be reproduced or transmitted in any form, by any means (electronic, photocopying, recording, or otherwise) without the prior written permission of the publisher.

Library of Congress Catalog Card No.: 99-60727

ISBN: 0-7645-0524-6

Printed in the United States of America

10 9 8 7 6 5

1B/QV/QU/QR/IN

Distributed in the United States by Hungry Minds, Inc.

Distributed by CDG Books Canada Inc. for Canada; by Transworld Publishers Limited in the United Kingdom; by IDG Norge Books for Norway; by IDG Sweden Books for Sweden; by IDG Books Australia Publishing Corporation Pty. Ltd. for Australia and New Zealand; by TransQuest Publishers Pte Ltd. for Singapore, Malaysia, Thailand, Indonesia, and Hong Kong; by Gotop Information Inc. for Taiwan; by ICG Muse, Inc. for Japan; by Intersoft for South Africa; by Eyrolles for France; by International Thomson Publishing for Germany, Austria and Switzerland; by Distribuidora Cuspide for Argentina; by LR International for Brazil; by Galileo Libros for Chile; by Ediciones ZETA S.C.R. Ltda. for Peru; by WS Computer Publishing Corporation, Inc., for the Philippines; by Contemporanea de Ediciones for Venezuela; by Express Computer Distributors for the Caribbean and West Indies; by Micronesia Media Distributor, Inc. for Micronesia; by Chips Computadoras S.A. de C.V. for Mexico; by Editorial Norma de Panama S.A. for Panama; by American Bookshops for Finland.

For general information on Hungry Minds' products and services please contact our Customer Care Department within the U.S. at 800-762-2974, outside the U.S. at 317-572-3993 or fax 317-572-4002.

For sales inquiries and reseller information, including discounts, premium and bulk quantity sales, and foreign-language translations, please contact our Customer Care Department at 800-434-3422, fax 317-572-4002, or write to Hungry Minds, Inc., Attn: Customer Care Department, 10475 Crosspoint Boulevard, Indianapolis, IN 46256.

For information on licensing foreign or domestic rights, please contact our Sub-Rights Customer Care Department at 212-884-5000.

For authorization to photocopy items for corporate, personal, or educational use, please contact Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, or fax 978-750-4470.

For information on using Hungry Minds' products and services in the classroom or for ordering examination copies, please contact our Educational Sales Department at 800-434-2086 or fax 317-572-4005.

Please contact our Public Relations Department at 212-884-5163 for press review copies or 212-884-5000 for author interviews and other publicity information or fax 212-884-5400.

**LIMIT OF LIABILITY/DISCLAIMER OF WARRANTY:** THE PUBLISHER AND AUTHOR HAVE USED THEIR BEST EFFORTS IN PREPARING THIS BOOK. THE PUBLISHER AND AUTHOR MAKE NO REPRESENTATIONS OR WARRANTIES WITH RESPECT TO THE ACCURACY OR COMPLETENESS OF THE CONTENTS OF THIS BOOK AND SPECIFICALLY DISCLAIM ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTIONS CONTAINED IN THIS PARAGRAPH. NO WARRANTY MAY BE CREATED OR EXTENDED BY SALES REPRESENTATIVES OR WRITTEN SALES MATERIALS. THE ACCURACY AND COMPLETENESS OF THE INFORMATION PROVIDED HEREIN AND THE OPINIONS STATED HEREIN ARE NOT GUARANTEED OR WARRANTED TO PRODUCE ANY PARTICULAR RESULTS, AND THE ADVICE AND STRATEGIES CONTAINED HEREIN MAY NOT BE SUITABLE FOR EVERY INDIVIDUAL. NEITHER THE PUBLISHER NOR AUTHOR SHALL BE LIABLE FOR ANY LOSS OF PROFIT OR ANY OTHER COMMERCIAL DAMAGES, INCLUDING BUT NOT LIMITED TO SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR OTHER DAMAGES.

**Trademarks:** Windows NT is a registered trademark of Microsoft Corporation in the United States and/or other countries. For Dummies, Dummies Man, A Reference for the Rest of Us!, The Dummies Way, Dummies Daily, and related trade dress are registered trademarks or trademarks of Hungry Minds, Inc. in the United States and other countries, and may not be used without written permission. All other trademarks are the property of their respective owners. Hungry Minds, Inc. is not associated with any product or vendor mentioned in this book.

 Hungry Minds<sup>®</sup> is a trademark of Hungry Minds, Inc.

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

---

## *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:

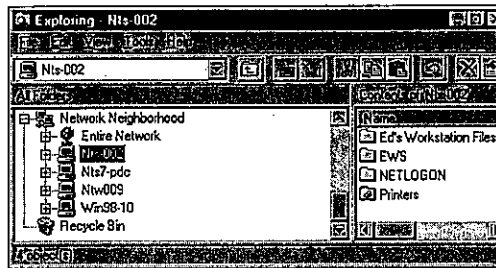
- ✓ NetBIOS names must be between 1 and 15 characters long. (If you have DOS or Windows 3.x machines on your network, they can't recognize NetBIOS names with more than 8 characters.)
- ✓ NetBIOS names may not contain any of the following characters: " (double quotation mark), / (right slash), \ (left 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.

# Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

## Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

## Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

## Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

## API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

## LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

## FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

## E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.