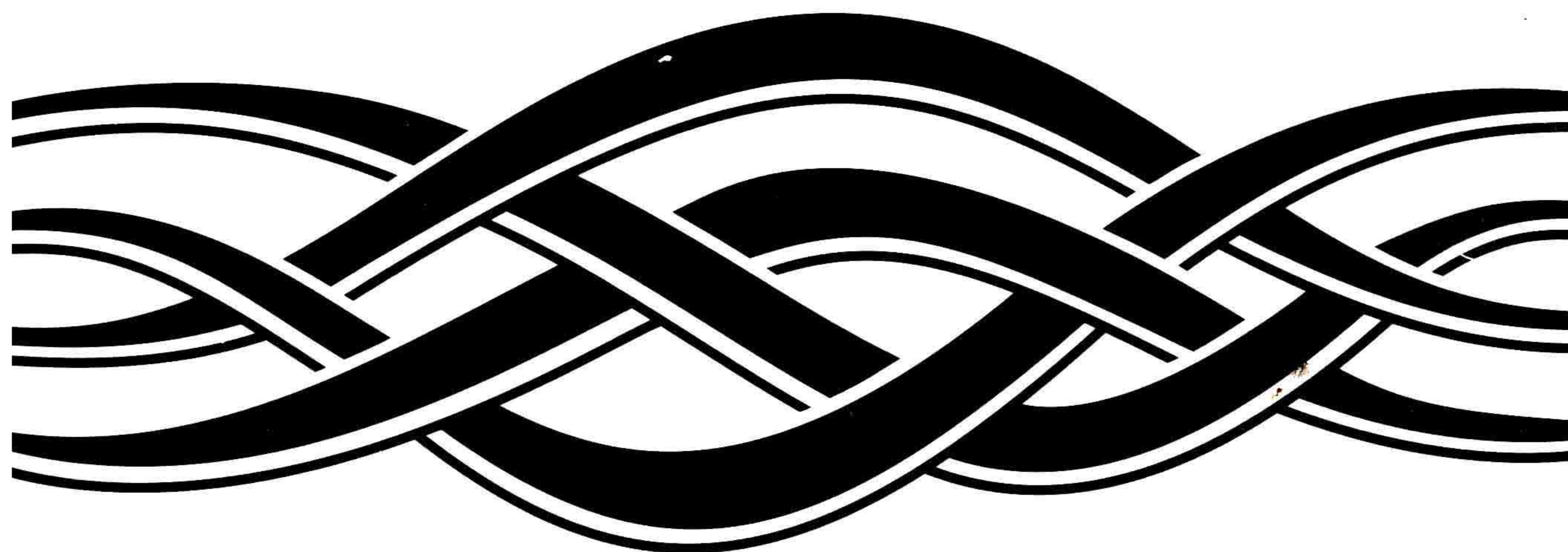




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**For
Windows NT
Server
Version
4.0**



Microsoft®
Windows NT®
Server

Networking

Guide

Technical Information and Tools
for the Support Professional

Microsoft® Press

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Introduction

Welcome to the *Microsoft® Windows NT® Server Resource Kit: Windows NT Server Networking Guide*.

The *Microsoft Windows NT Server Resource Kit* for version 4.0 consists of three new volumes and a single compact disc (CD) containing programs for both Windows NT Workstation and Windows NT Server. An online version of the new, comprehensive *Windows NT Workstation Resource Guide* is also available on the CD. Update books for the *Windows NT Server Resource Kit* will be released on a semi-annual basis. They will contain new information and major revisions of existing topics.

The *Windows NT Server Networking Guide* presents detailed information that is specific mainly to using Windows NT Server on or with a network, plus topics that are either new for version 4.0 or reflect issues that our Product Support people consider timely and important. This information is intended to be an in-depth, technical supplement to the printed and online documentation included as part of the Windows NT Server version 4.0 product. It does not replace that information as the source for learning how to use the product features and programs.

This introduction includes the following types of information you can use to get started.

- The first section outlines the contents of this book, so that you can quickly find pertinent technical details.
- The second section introduces the *Windows NT Server Resource Kit* CD.
- The third section describes the support policy for the *Windows NT Server Resource Kit*.

About the Windows NT Server Networking Guide

This book includes the following chapters.

Part I, About Windows NT Server Networking

Chapter 1, “Windows NT Networking Architecture,” describes the layered networking architecture built into Windows NT, and how it fits into the Open Systems Interconnect (OSI) model. It also describes the Windows NT transfer protocols, distributed processing, the distributed component object model (DCOM), network resource access, workstation and server services, services for Macintosh, and the Remote Access Service (RAS).

Chapter 2, “Network Security and Domain Planning,” describes the security model built into Windows NT. It also introduces the security architecture and how the features work over the network domain structure to provide a secure network. The chapter concludes with extensive and detailed advice for planning a domain structure (including a description of the Microsoft corporate domain model), and a section on troubleshooting security problems.

Chapter 3, “Windows NT Browser Service,” describes the browser service built into Windows NT. It presents the different types of browser computers, and tells how Windows NT ensures that the browse list (the visual display of all available network devices) is always accessible. The chapter also describes how to select computers to be browsers and how browsing across a wide area network (WAN) is handled.

Part II, Network Interoperability

Chapter 4, “Terra Flora: A Fictitious Case Study,” introduces Terra Flora corporation, a fictitious international floral company, and gives background information about the corporation. This corporation will be used to illustrate the ability of heterogeneous networks to operate together using Windows NT Server. The networking model that Terra Flora Corporation will implement, as shown in the network diagram on the inside back cover of this book, contains four levels of server services and provides a brief introduction to the levels and services offered at each level.

Chapter 5, “Network Services: Enterprise Level,” presents various decisions Terra Flora had to make about its network and explains the procedures for implementing and configuring those choices. These issues include their network protocol standard, addressing, logons, centralized services, backups, and connecting to the Internet and remote access.

Part III, TCP/IP

Chapter 6, “TCP/IP Implementation Details,” provides additional detail about the architecture of Transmission Control Protocol/Internet Protocol (TCP/IP), including information about TCP/IP advanced configuration options and descriptions of the client/server services that make it easier to administer TCP/IP networks.

Chapter 7, “Managing Microsoft DHCP Servers,” describes the client/server architecture of the Dynamic Host Configuration Protocol (DHCP) and planning for DHCP server installation, managing the DHCP database, and troubleshooting DHCP service problems.

Chapter 8, “Managing Microsoft WINS Servers,” describes the architecture of the Windows Internet Name Service (WINS)—an RFC-compliant NetBIOS name server for TCP/IP networks, and discusses planning for WINS server implementation.

Chapter 9, “Managing Microsoft DNS Servers,” describes the Domain Name System and Microsoft DNS Server, and includes information on the implementation of domain, zone, and Microsoft DNS server and client concepts; planning issues for DNS, WINS, and Internet security; and using DNS Manager to configure and manage Microsoft DNS Server.

Chapter 10, “Using LMHOSTS Files,” provides information about the LMHOSTS file that contains static mappings of “friendly” NetBIOS computer names to IP addresses to enable computers to locate resources on the Internet or on routed TCP/IP intranets.

Chapter 11, “Using SNMP for Network Management,” describes the Simple Network Management Protocol (SNMP) of the TCP/IP protocol suite and its implementation under Windows NT.

Chapter 12, “Troubleshooting Tools and Strategies,” presents information about the TCP/IP programs that are used specifically for connectivity troubleshooting on TCP/IP-based intranets.

Part IV, Using Windows NT Server Networking

Chapter 13, “Using NetBEUI with Windows NT,” describes the implementation of the NetBEUI transport under Windows NT for administrators and support personnel who support legacy networks (LANS) using the NetBEUI protocol.

Chapter 14, “Using DLC with Windows NT,” provides information about the Data Link Control (DLC) protocol under Windows NT, which provides connectivity to IBM mainframes and to LAN printers attached directly to the network.

Chapter 15, “Remoteboot,” explains how a computer running Windows NT Server can start client computers (MS-DOS®, Microsoft Windows® 3.1, and Microsoft Windows 95) over the network.

Chapter 16, “Microsoft Network Client Version 3.0 for MS-DOS,” describes how to install, use, and troubleshoot Microsoft Network Client version 3.0 for MS-DOS. Network Client is software that you install on a computer running the MS-DOS operating system so that the computer can use resources on a network.

Part V, Appendixes

Appendix A, “TCP/IP Utilities Reference,” provides a listing and description of the TCP/IP programs and commands that are supported by Windows NT for intranet and Internet troubleshooting and connectivity.

Appendix B, “Port Reference for Microsoft TCP/IP,” describes the well-known and registered port assignments that are supported by Microsoft TCP/IP for Windows NT.

Appendix C, “MIB Object Types for Windows NT,” provides listings of the SNMP managed-objects implemented in Windows NT.

Appendix D, “Windows Sockets,” is primarily for the developer. This appendix provides information about using Windows Sockets and developing Windows Sockets programs for Windows NT.

Appendix E, “RAS Reference,” provides an overview of the most important modem compatibility standards and how they work within the Remote Access Service (RAS). This appendix also presents a series of quick-reference charts to give you a high-level perspective on how RAS works during a call to a Windows NT RAS server, and reference tables for RAS server and client computers that detail the different versions of RAS and the features they support.

Appendix F, “Routers and Switches,” provides an overview of routing and switching technologies, descriptions of the routing and switching equipment selected and installed at Terra Flora, and the technical and business reasons for those choices.

Appendix G, “NetBIOS Names,” lists the 16th character of a NetBIOS computer name that uniquely identifies the networking client service, such as workstation or browser. The 16th character is recognized and used in WINS and LMHOSTS name resolution services.

Index to this Windows NT Server Networking Guide.

Resource Kit Compact Disc

The *Windows NT Server Resource Kit* CD includes a wide variety of tools and programs to help you work more efficiently with both Windows NT Workstation and Windows NT Server. You can read about some of the enhancements made to the existing tools and programs as well as new ones that have been added for this version 4.0 release in the Introduction to the *Windows NT Server Resource Guide*.

The CD that accompanies the *Windows NT Server Resource Kit* contains programs that apply to information in the *Windows NT Workstation Resource Guide*, the *Windows NT Server Resource Guide*, the *Windows NT Server Networking Guide*, and the *Windows NT Server Internet Guide*. This new CD replaces all previous ones. It includes a collection of information resources, tools, and programs that can make networking and working with the Windows NT platform even easier.

Note The programs on this CD are designed and tested for the U.S. version of Windows NT version 4.0. Use of these programs on any other version of Windows NT can cause unpredictable results.

A large Help file with explanations of and user actions for the majority of the messages included in Windows NT version 4.0, and a large Help file of Performance Counter Definitions are just two of the major items included on the *Windows NT Server Resource Kit* CD. Updates to these files and others will be provided, when available, on the Microsoft Internet web site for the Windows NT Resource Kits. See the *Rktools.hlp* file for the exact site address, as well as the addresses of other Microsoft information sites.

After installing the *Windows NT Server Resource Kit*, please refer first to the following three files:

- The *Readme.wri* file, which contains a complete list of all the tools and programs on the *Windows NT Server Resource Kit* CD and additional setup instructions for some of them.
- Either the *Rkdocw.hlp* file (for Windows NT Workstation) or the *Rkdocs.hlp* file (for Windows NT Server), which provides a single entry point for all of the major components of the Resource Kit's online documentation.
- The *Rktools.hlp* file, which provides an overview of the Resource Kit tools and programs and basic instructions on how to use many of them, along with links to additional documentation and, in some cases, to the actual program files.

The most current corrections to those tools and programs and their documentation, as well as the POSIX and Perl source code files, are available on the Internet at the following Microsoft FTP site:

<ftp://ftp.microsoft.com/bussys/winnt/winnt-public/reskit/nt40/>

Resource Kit Support Policy

The SOFTWARE supplied in the *Windows NT Server Resource Kit* is not officially supported. Microsoft does not guarantee the performance of the *Windows NT Server Resource Kit* tools, response times for answering questions, or bug fixes to the tools. However, we do provide a way for customers who purchase the *Windows NT Server Resource Kit* to report bugs and receive possible fixes for their issues. You can do this either by sending Internet mail to **RKINPUT@MICROSOFT.COM** or by referring to one of the options listed in the *Start Here* book, which is included with your Windows NT Server product. This mail address is only for issues related to *Windows NT Server Resource Kit*.

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