DECEMBER 1993

NOVELL® RESEARCH

Installing NetWare 3.12 from CD-ROM

Larry E. Morris
Senior Editor
Systems Research Department

The CD-ROM installation option in NetWare 3.12 allows administrators to quickly and easily install the operating system without swapping diskettes during installation. Installing from a CD-ROM involves installing the CD-ROM device itself, copying NetWare files to the server hard disk, loading drivers, creating and mounting volumes, binding protocols to drivers, and creating boot files. Novell's online documentation, ElectroText, can also be installed from CD-ROM.

Related AppNotes

NetWare 3.12 Enhancements (Oct 93)

Copyright (c) 1993 by Novell, Inc., Provo, Utah. All rights reserved.

No part of this document may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without express written permission from Novell, Inc.

Disclaimer

Novell, Inc. makes no representations or warranties with respect to the contents or use of these Application Notes (AppNotes) or of any of the third-party products discussed in the AppNotes. Novell reserves the right to revise these AppNotes and to make changes in their content at any time, without obligation to notify any person or entity of such revisions or changes. These AppNotes do not constitute an endorsement of the third-party product or products that were tested. Configuration(s) tested or described may or may not be the only available solution. Any test is not a determination of product quality or correctness, nor does it ensure compliance with any federal, state, or local requirements. Novell does not warranty products except as stated in applicable Novell product warranties or license agreements.

Contents

Introduction . . . . .
The Move Toward CD-ROM . . . . .
SCSI Support Issues . . . . .
Installing NetWare 3.12. . . . . .
Install the CD-ROM Reader . . . . .
Create a DOS Partition. . . . . .
Copy the NetWare Startup Files. . . . . .
Load Disk Drivers and Create Partition Tables . . . . .
Create and Mount Volume SYS . . . . .
Copy the SYSTEM and PUBLIC Files . . . . .

Copyright © 1990-2000, Novell, Inc. All Rights Reserved. Novell Support Connection CD

Load LAN Drivers and Frame Types . . . . . .
Bind a Protocol to the LAN Driver. . . . . .
Create File Server Boot Files . . . . . .
Installing ElectroText. . . . . .

Trademarks

Novell, the N design, and NetWare are registered trademarks of Novell, Inc. ElectroText, Internetwork Packet Exchange, NetWare Loadable Module, and NLM are trademarks of Novell, Inc. IBM and OS/2 are registered trademarks of International Business Machines Corporation. Microsoft and MS-DOS are registered trademarks of Microsoft Corporation. All other product names mentioned are trademarks of their respective companies or distributors.

Introduction

This AppNote is directed toward network administrators, systems integrators, resellers, end users, and others who may be installing NetWare 3.12. It discusses the following procedures:

- How to install NetWare 3.12 from a CD-ROM
- How to install ElectroText (online documentation) from a CD-ROM

The CD-ROM installation option allows administrators to quickly and easily install NetWare 3.12 without swapping diskettes during installation. Although the operating system is also available on 3.5-inch diskettes, CD-ROM has become Novell's standard media for delivering NetWare. (NetWare 4.x is also available on CD-ROM.)

For a general overview of the features of NetWare 3.12, see NetWare 3.12 Enhancements in the October 1993 NetWare Application Notes, p. 23.

The next AppNote in this series will tell how to use a CD-ROM as a read-only volume and how to use the related MAGAZINE and MEDIA console commands.

The Move Toward CD-ROM

CD-ROM is quickly becoming a standard on servers requiring larger amounts of storage. The use of CD-ROMs allows administrators to reduce the amount of expensive disk storage, while at the same time making more information available to network clients. Accordingly, NetWare 3.12 includes a CD-ROM NLM and a complete suite of drivers that support server-attached, read-only CD-ROM devices.

Organizations can reduce costs by installing CD-ROM devices at servers rather than individual workstations. For example, the CD-ROM version of NetWare 3.12 includes ElectroText, a complete set of online documentation. ElectroText requires about 25 MB of hard disk storage. Installing the CD-ROM as a read-only device on the server enables users to access the entire set of manuals without losing any hard disk space on their individual workstations.

SCSI Support Issues

The ability to install NetWare 3.12 from CD-ROM and then install a CD-ROM read-only volume raises some support issues. Novell's CD-ROM NLM supports ISO 9660-compliant devices. Although most DOS-based CD-ROM devices can be used to install NetWare 3.12 from CD-ROM media, not all such devices have drivers that allow them to be connected as read-only devices after the server is installed. If you want to use the CD-ROM as a read-only volume, you should choose a CD-ROM device that is supported in both configurations.

If you have a CD-ROM device that shares a SCSI bus with a disk subsystem and contains volumes to

Copyright © 1990-2000, Novell, Inc. All Rights Reserved. Novell Support Connection CD

which NetWare installation files are copied (typically volume SYS), your keyboard may lock up while copying. Here are some possible solutions to this problem:

- If the CD-ROM has a parallel-to-SCSI adapter, reconfigure the CD-ROM under DOS to use this adapter instead of the shared SCSI bus.
- Obtain a separate SCSI board for the CD-ROM. Repeat the installation, loading the NetWare SCSI driver for the subsystem SCSI board only.
- Re-create volume SYS on the internal hard disk of the server, rather than on the subsystem drive. Do not load the NetWare SCSI driver until after installation.

Installing NetWare 3.12

This section outlines the steps necessary to install NetWare 3.12 from a CD-ROM device. We tested the installation procedure using the following hardware and software:

- Compaq 386/25 server with 8MB of RAM
- NE2000 network adapter
- Toshiba CD-ROM reader
- Version 2.3.1 of Toshiba CD-ROM drivers

For further information about installing NetWare 3.12, see the NetWare 3.12 Installation and Upgrade manual.

Install the CD-ROM Reader

The first task is to hook up the CD-ROM reader to the server and boot the computer:

1. Install the CD-ROM reader. This includes the following steps:
   a. Install the CD-ROM adapter in a free slot in the server.
   b. Connect the cable between the CD-ROM reader and the adapter.
   c. Plug in the power cord for the CD-ROM reader.
2. Load CD-ROM drivers according to the vendor's specifications. This involves copying files from the floppy accompanying the CD-ROM to the server. Check the CD-ROM documentation for more information, or check the floppy for an installation or setup program.

   Some programs automatically add the appropriate CD-ROM driver information to the CONFIG.SYS and AUTOEXEC.BAT files. Check the vendor installation instructions to see if you need to do this yourself.
3. Insert the NetWare 3.12 CD-ROM into the CD-ROM reader and turn on the CD-ROM reader.
4. Reboot the computer. Rebooting executes the updated CONFIG.SYS and AUTOEXEC.BAT files.

Create a DOS Partition

Creating a DOS partition from which to boot the server is strongly recommended. You can perform this task from within the NetWare 3.12 INSTALL program. Follow these steps:

1. Change to the drive letter corresponding to the CD-ROM; then change to the NETWARE.312/ENGLISH directory.

Copyright © 1990-2000, Novell, Inc. All Rights Reserved. Novell Support Connection CD

2. Type the following:

   INSTALL <Enter>

3. Select Install new NetWare 3.12 from the Select an Installation Option menu.

4. Determine your DOS partition requirements and create a DOS partition if appropriate. (Allocate at least 5MB of disk space if possible.)

   Warning! If your hard disk contains a previous DOS partition, continuing with the next step will erase that partition and destroy all data. Make sure you have the necessary backup copies.

5. Select Create a new DOS partition.

6. Select "Create a DOS partition."

7. Enter the size (in megabytes) of the new partition.

   A prompt asks if you want to add the partition and destroy the data on your hard disk. Answer yes to the prompt.

8. Another prompt informs you that a new partition has been created and that the computer will now reboot.

   Insert Diskette-1 into drive A and press any key to continue. The computer will reboot.

9. Enter the date and time if prompted.

10. Type the following at the A: prompt:

    DOSTOOLS\FORMAT C: /X/S <Enter>

    This command formats the DOS partition.

11. You are warned that all existing data will be destroyed and asked if you want to continue. Answer yes to the prompt.

12. Enter the volume label.

    A prompt informs you that the disk has been successfully formatted; disk space information is listed.

13. Reinstall the CD-ROM drivers on the DOS partition (these were deleted when you reformatted the disk).

14. Reboot the computer.

Copy the NetWare Startup Files

The next step is to copy the NetWare startup files to the computer's hard disk. Follow these steps:

1. Change to the NETWARE.312\ENGLISH directory on the CD-ROM.

2. Type the following command:

   INSTALL <Enter>

3. Select Install new NetWare 3.12 from the Select an Installation Option menu.

4. Select Retain current disk partitions from the "Disk Partition Options" menu.

Copyright © 1990-2000, Novell, Inc. All Rights Reserved. Novell Support Connection CD

5. Enter the server name.

   The server name can be between 2 and 47 characters. Spaces and periods are not allowed.

6. Enter an IPX internal network number.

   The installation program randomly generates a number. You can accept this or enter your own unique, hexadecimal number from one to eight digits. See "IPX internal network number" in the NetWare Concepts manual for more information.

   The installation program is now ready to copy the server boot files to the hard disk. Default source and destination paths are listed on the screen.

7. Accept or change the default source path.

8. Accept or change the default destination path.

9. Press <Enter> to begin copying.

   A graph shows the progress of the copying process. When all files are copied, a language menu appears.

10. Press <F10> to accept the default values. Press <Enter> to modify any of the values.

    A filename format menu appears.

11. Select the format for your DOS files.

    A prompt asks if you want to specify startup SET commands.

12. Answer yes or no to the prompt.

    Answering yes brings up a blank screen for entering commands. Press <F10> to save startup commands.

13. Add SERVER.EXE to your AUTOEXEC.BAT file if appropriate. Doing so causes NetWare to automatically load whenever the server is rebooted. (Otherwise, you have to enter "SERVER" to load NetWare.)

14. Enter the complete path to AUTOEXEC.BAT and press <Enter>.

    SERVER.EXE is executed; the server prompt appears.

15. Use REGISTER MEMORY to add additional memory (this is optional).

Load Disk Drivers and Create Partition Tables

Next you need to load the driver(s) for the server's hard disks and create NetWare partitions. Follow these steps:

1. Load the disk drivers for the controller board(s) in the file server by entering the following at the console prompt:

   LOAD disk_driver <Enter>

   For example, to load drivers for an AT-type controller, enter the following:

   LOAD ISADISK <Enter>

   For a list of available disk drivers, see Chapter 2 of the NetWare 3.12 Installation and Upgrade

Copyright © 1990-2000, Novell, Inc. All Rights Reserved. Novell Support Connection CD

manual.

2. Enter the I/O port address if you are using an ISA or IDE server.
3. Enter the interrupt number if you are using an ISA or IDE server.
4. Confirm the slot number for the network board if you are using an EISA or Micro Channel server.
5. Load the INSTALL utility by entering the following at the console prompt:

   LOAD path INSTALL

   If necessary, replace path with the directory path to INSTALL.NLM. Entering the path is generally not required.
6. Select Disk Options from the Installation Options menu.
7. Select Partition Tables from the "Available Disk Options" menu.
8. Select "Create NetWare Partition" from the Partitions Options" menu.

   A partition information menu appears.
9. Press <Esc> to accept the values listed and return to the "Partition Options" menu.

   To change a value, press <Enter>. Make the appropriate change; then press <Enter> again to move to the next field.
10. Press <Esc>. A prompt asks if you want to create the partition.
11. Answer yes to the prompt.
12. Return to the "Installation Options" menu by pressing <Esc>.

Create and Mount Volume SYS

Once the disk drivers are loaded and you have a NetWare partition, you are ready to create volume SYS and mount it. Follow these steps:

1. Select Volume Options from the Installation Options menu.
2. Press <Ins> on the Volumes menu.

   A "New Volume Information" menu appears.
3. Make any desired changes (optional).
4. Press <Esc>.

   A prompt asks if you want to create a volume.
5. Answer yes to the prompt.

   The volume "SYS:" is now listed on the "Volumes" menu.
6. Press <Enter> to mount the SYS volume.

   A volume information menu appears.
7. Press the down-arrow key to highlight the "Status" field.

Copyright © 1990-2000, Novell, Inc. All Rights Reserved. Novell Support Connection CD

8. Press <Enter> and select "Mount Volume."

   The "Status" field now shows that volume SYS is mounted.

Copy the SYSTEM and PUBLIC Files

The SYSTEM and PUBLIC directories contain the NetWare administrative and user utilities. Follow these steps to copy them to the server:

1. Select System Options from the Installation Options menu.
2. Select Copy System and Public Files from the "Available System Options" menu.

   After a pause, an information screen appears.
3. Press <F6>.

   A path prompt appears.
4. Enter the complete path for the CD-ROM.

   The progress of the copying process is shown on the screen. The process takes several minutes. When copying is completed, a "File Upload Complete" message appears.
5. Press <Esc> to continue.
6. Exit INSTALL by pressing <Esc>.

Load LAN Drivers and Frame Types

You must now load drivers for the network interface cards in the server. Follow these steps:

1. Load the drivers with the 802.2 frame type. For example, if you are using Ethernet and an NE2000 network adapter, type the following:

   LOAD NE2000 FRAME = ETHERNET_802.2 <Enter>
2. Enter the I/O port number.
3. Enter the interrupt number.

   You are returned to the server prompt.

Bind a Protocol to the LAN Driver

Before network communication can begin, you must bind a protocol (such as IPX) to the LAN driver. Follow these steps:

1. Type the following at the console prompt:

   BIND IPX TO LAN_DRIVER <Enter>

   For example, if you are using an NE2000, enter the following:

   BIND IPX TO NE2000

   It is also possible to bind other protocols, to specify frame type, and to bind protocols to multiple network boards. See Bind in the NetWare System Administration manual for more information.

Copyright © 1990-2000, Novell, Inc. All Rights Reserved. Novell Support Connection CD

2. Assign the network number.

   This is not the same as the internal IPX network number assigned earlier. This is the number that identifies the cabling segment to which the network adapter is attached.

   A message appears informing you that the protocol is now bound to the LAN driver. You are returned to the console prompt.

Create File Server Boot Files

The final task is to create boot (.NCF) files to automatically execute the above commands whenever the server is booted. Follow these steps:

1. Load the INSTALL utility by entering the following at the console prompt:

   LOAD INSTALL <Enter>

2. Select System Options from the opening menu.

3. Select Create STARTUP.NCF File from the Available System Options menu.

4. Enter the path for the STARTUP.NCF file.

   A STARTUP.NCF information screen appears. Commands you entered during the installation process have already been included in the file. For example, a line similar to the following might be listed:

   LOAD ISADISK port=1F0 int=E

5. Add any other commands you want to include.

6. Press <Esc> to save the file.

   A prompt asks if you want to save the file. Answer yes to the prompt.

7. Return to the "Available System Options" menu by pressing <Esc>.

8. Select "Create AUTOEXEC.NCF File."

9. An AUTOEXEC.NCF information screen appears. Commands you entered during the installation process have already been included in the file. For example, the following lines might be listed:

   file server name BILLY

   ipx internal net 2CBD73A4

   LOAD NE2000 FRAME=ETHERNET_802.2 port=300 int=3

   bind IPX to NE2000 net=01030007

10. Include any additional commands.

11. Press <Esc> to save the file. A prompt asks if you want to save the file. Answer yes to the prompt.

12. Exit INSTALL by pressing <Esc>.

The server is now ready for use.

Installing ElectroText

The Novell ElectroText viewer allows you to read NetWare manuals from a Windows or OS/2 workstation.

Copyright © 1990-2000, Novell, Inc. All Rights Reserved. Novell Support Connection CD

Follow these steps to install ElectroText on a NetWare server:

1. Install the CD-ROM reader according to the vendor's instructions.
2. Load the INSTALL utility by typing the following at the console prompt:

   LOAD INSTALL <Enter>

   The Installation Options menu appears.
3. Select Product Options.

   The Currently Installed Products screen appears.
4. Press <Ins>.

   You are prompted for the location of the ElectroText Files.
5. Enter the drive letter and path. In our test, we entered the following:

   D:\NETWARE.312\ENGLISH\DOC

   Copying the files takes several minutes. Screen messages show copying progress. A "File Upload Complete" message appears when copying is completed.
6. Press <Esc> to continue.

   The NetWare Electronic Documentation is now listed as a currently installed product.
7. Exit INSTALL by pressing <Esc>.

You can now set up a Windows or OS/2 workstation to view ElectroText files. See Appendix B of the NetWare 3.12 Installation and Upgrade manual for more information.

Copyright © 1990-2000, Novell, Inc. All Rights Reserved. Novell Support Connection CD