



# **N440BX Purpose Built File/Print Server Integration Guide**

# Revision History

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Revision	Revision History	Date
1.0	Initial Release	4/98
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## **Integrating a N440BX as a High-Performance File/Print Server**

### ***Assumptions***

This installation procedure assumes the reader is installing MS Windows NT\* 4.0 Server on a system built with an Intel N440BX Dual Processor Ready server baseboard and a Columbus-II chassis. In addition, it is assumed four new or unformatted hard drives are being used: 1 EIDE hard drive for installation of the O/S, and 3 identical SCSI hard drives for setting up a RAID 5 disk array. The first hard drive for installing the O/S should be at least 1GB and the other three can be almost any capacity as long as they are identical. Also, it is assumed that the onboard Symbios 53C876 SCSI controller is used for controlling the SCSI devices. The networking protocol assumed for this installation is TCP/IP and the network adapter used is assumed to be the onboard Intel 82558 Ethernet\* adapter. The Intel 82558 on-board NIC is functionally equivalent to the Intel EtherExpress™ PRO/100+ network interface controller. Refer to NT documentation for details on network protocols and other information if necessary.

Note: No tape drive was integrated into the server system. Intel strongly recommends integrating a backup device and running routine backups on any server that is put into production use by customers. In addition, no UPS (uninterruptible power supply) was integrated. As with tape drives it is also strongly recommended that a UPS be used with any server that contains critical customer data.

### ***Hardware Integration Overview***

- ❖ Prepare the Columbus-II Chassis Sub-Assembly Kit for baseboard installation according to instructions included with the chassis.
- ❖ Install the N440BX Server board into the Columbus-II Chassis
- ❖ Install the Pentium® II Processor(s) and/or termination cards on the N440BX Server board.
- ❖ Install the Memory DIMM(s) on the N440BX Baseboard.
- ❖ Install the Floppy disk drive into the Columbus-II Chassis
- ❖ Install an IDE ATAPI CD-ROM drive into the bottom 5.25 external drive bay.
- ❖ Install the IDE and SCSI Hard Disk Drives into the Internal drive bay and install the internal drive bay into the Columbus-II Chassis.

## **Installing Microsoft Windows NT Server 4.0**

**NOTE:** When operating under Microsoft\* Windows NT Server 4.0 it is recommended to use at least 32MB of memory for each processor installed in the system. For MS Windows NT Server 4.0 64MB is good starting point for amount of memory. More memory will increase system performance including to user file/print requests.

## Pre-Installation Steps

- A) Label a blank high density (HD) formatted 3.5" floppy disk "Emergency Repair Disk" and have it available for use during the install routine.
- B) Determine what protocol(s) this server will be running. Assuming TCP/IP record information below.

IP Address \_\_\_\_\_  
Subnet Mask \_\_\_\_\_  
Default Gateway \_\_\_\_\_  
Machine Name \_\_\_\_\_

**NOTE: It is not recommended to use DHCP to assign the IP information of a server.**

- C) Power up your system and note at the initial screen what level of BIOS is installed. The latest BIOS can be found at "<http://support.intel.com/support/motherboards/server/>". Enter BIOS Set Up (Press F2 during boot), Advanced Menu and confirm/set **Multi-Processing Specification to 1.4**
- D) Using the N440BX Server Board Resource CD that came with your N440BX Server Board create a set of MS Windows NT driver disks. You will need 4 formatted, blank, high-density floppy disks.
- i. Boot a working system with the N440BX Server Board Resource CD.
  - ii. The N440BX CD-ROM menu should start. Select "Create Diskettes" and hit <Enter>.
  - iii. Select "Create Disk Sets by Operating System" and hit <Enter>.
  - iv. Arrow down and select "Windows NT" and hit <Enter>.
  - v. A message screen stating the need for 4 diskettes will be displayed. Press any key to begin.
  - vi. Insert a blank high-density disk into the A: drive and hit <Enter> to extract the video drivers to the floppy drive. A percentage number will be displayed indicating extraction progress. Once completed eject the disk and label it N440BX Cirrus GD5480 NT 4.0 Video drivers
  - vii. Insert another blank high-density disk into the A: drive and hit <Enter> to extract the network drivers to the floppy drive. A percentage number will be displayed indicating extraction progress. Once completed eject the disk and label it N440BX Intel EtherExpress PRO NT 4.0 drivers.
  - viii. Insert another blank high-density disk into the A: drive and hit <Enter> to extract the SCSI drivers to the floppy drive. A percentage number will be displayed indicating extraction progress. Once completed eject the disk and label it N440BX Symbios SCSI NT 4.0 drivers.
  - ix. Insert another blank high-density disk into the A: drive and hit <Enter> to extract the SCSI utils to the floppy drive. A percentage number will be displayed indicating extraction progress. Once completed eject the disk and label it N440BX Symbios PCI NT Tools.
  - x. After the 4<sup>th</sup> disk has been created the menu utility should be displayed again.
  - xi. Select "Quit to DOS" and hit <Enter> to exit the application.

Note: The N440BX Server Board Resource CD also contains the System Setup Utility and the product manual. This CD can also be launched from within Win95 or NT to run the graphical user interface (GUI). In addition to all the functionality listed above, the GUI provides more product and support information along with links to various Intel web sites.

## Installation Steps

1. Insert the Microsoft Windows NT 4.0 Server - Setup Disk 1 into the 3.5" floppy drive and power on the system. Insert the Microsoft Windows NT 4.0 Server CD into CD-ROM drive after the system has started booting from the floppy drive.
2. System will automatically start the installation and will prompt you for Disk 2. Insert Disk 2 and hit <Enter> to continue. An initial Windows NT screen will appear recognizing one processor (regardless of what you actually have installed), the amount of memory present, and a multi-processing kernel. This is normal at this stage.
3. After 3 to 5 minutes the "Welcome to Setup" screen will appear. Press <Enter> to continue.
4. The next screen will ask you if you want to run or skip automatic detection of mass storage devices. Press <S> to force NT to skip auto-detection of mass storage devices.
5. This screen will prompt for specification of mass storage devices. Press <S> to specify additional devices.
6. By default Other (Requires disk from manufacturer) will be highlighted. Hit <Enter>.
7. Remove Disk 2 and insert the N440BX SCSI Drivers disk created at the beginning of this procedure and hit <Enter>.
8. Symbios Logic\* PCI (53c8XX) should be highlighted. Hit <Enter> to select and continue. You should see a message at the bottom of the screen that says "Loading Device Driver and then another screen stating that "Setup has recognized the following mass storage devices in your computer"  
Symbios Logic PCI (53c8XX)
9. Hit <S> to specify an additional device.
10. Hit the up-arrow key and highlight "IDE CD\_ROM (ATAPI 1.2)/PCI IDE Controller" and hit enter. NOTE: This step is assuming that the system is using an IDE CD-ROM connected to the secondary IDE channel on the N440BX Server Baseboard. If this is not correct than you will need to specify the correct controller for the CD-ROM in your system.
11. Insert Disk 3 when prompted and hit <Enter> to continue.
12. The next screen will indicate setup has recognized the following mass storage devices.  
Symbios Logic PCI (53c8XX)  
IDE CD-ROM (ATAPI 1.2)/PCI IDE Controller  
(Note: CD-ROM and any EIDE hard drives detected will vary based on the model installed.)
13. Press <Enter> to continue. **Notes:** If you have any hard drives with greater than 1024 cylinders an advisory will appear acknowledging this. Press <Enter>. If any of your hard drives are new or unpartitioned an advisory will appear telling you that

continuing the installation will destroy any information on the disk(s). Press <Enter> to continue.

14. The Windows NT Licensing Agreement will eventually appear. Scroll to the bottom of the agreement by pressing the <Page Down> key and press the <F8> key if you agree with the license.
15. You should see a list of your systems components on screen. Computer, Display, Keyboard, Keyboard layout, and Pointing Device. Press <Enter> to accept if the list is correct.
16. The next step in the installation is to specify the partition on which to install NT. Highlight the "Unpartitioned space" on Disk 0 at Id 0 on bus 0 on atapi and press <c> to create a partition. (Note: If there are any partitions listed on this disk press <d> to delete the partition.)
17. Enter a partition size that matches the maximum size of your EIDE hard disk and hit <Enter>. **Note:** If you choose not to use the entire drive for your O/S, ensure you create a "C:" partition of at least 500MB-1GB<sup>1</sup>
18. Verify that Disk 0 at ID 0 on bus 0 on atapi shows: C: New (Unformatted) and press <Enter>.
19. If an unformatted partition is selected for the install, a choice of file system formats will be presented. NTFS file system format is recommended. Select NTFS and press <Enter> to continue. The system will show a yellow status bar to indicate formatting progress.
20. Next you will be asked to choose the directory where NT is to be installed. Choose the default of \WINNT by pressing <Enter> or type in the desired directory name and press <Enter>.
21. The next screen prompts for an exhaustive examination to be performed on your disk. The time required for the examination increases in proportion to available drive space. An examination of a 1 GB drive takes well under 1 minute. Press <Enter> to run the examination.
22. You will be asked to inset the Symbios Logic PCI (53c8XX) disk into drive A:. Insert the Symbios SCSI driver disk created during the Pre-Installation steps and hit <Enter>
23. The installation will now copy necessary files from the CD-ROM. After this is done you will be prompted to remove any floppy or CD-ROM that may be present and press <Enter> to reboot. This completes the first stage of the install.

**NOTE: At this time NT will recognize multiple processors if present. Also, the installation routine will convert the C: partition to NTFS if it was selected. This will require an additional automatic reboot of the system. This is normal.**

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<sup>1</sup> This number indicates the capacity of the "C:" drive in which NT and associated utilities will be installed. The smallest partition size for installing NT is about 200MB. However this will leave very little room for growth and installation of other applications which default to a directory in "C:". You must also note that this partition is used for NT's swap space, meaning for every megabytes of RAM you install, NT will require at least 1 MB of space in "C:". If you install 256MB of RAM then the minimum space recommended is 200+256 or roughly 500MB. Remember, there is no penalties for a large C: partition size, so a 1024 or 2048 MB is advisable.

16. When NT comes up after the second reboot, you will be prompted to re-insert the Windows NT CD-ROM disk to continue Set Up. Then you will be presented with the Windows NT Server Setup dialog box. Click <Next> to continue.
17. Enter in a username and an organization name. After entering in the names desired, click on <Next> to continue.
18. Enter in the product ID number. This number can be found on the Certificate Of Authenticity provided with the software or on the CD case. Click on <Next> to continue.
19. This next screen is for licensing. Enter the number of concurrent connections that you have licensed. Click <Next> to continue.
20. Enter in a computer name of 15 characters or less. Click <Next> to continue.
21. Select a server type. For this example, select Stand Alone Server. Click <Next> to continue.
22. For the Administrator Account Password, use something simple to begin with as you can always change it later. Click <Next> to continue.
23. Select “No, do not create an emergency repair disk”. While this is an important step, it is more efficient to wait until you have completed the install. Click <Next> to continue.
24. At the next screen, accept the default list of components to be installed. Click <Next> to continue.
25. The installation of Windows NT networking will now start. Click <Next> to continue.
26. Verify “Wired to the network” is selected. Click <Next> to continue.
27. You should de-select “Install Microsoft Internet Information Server” since this install is for a file/print server. Click <Next> to continue.
28. Click “Select from list”
29. Click “Have Disk...”
30. Insert the N440BX Intel EtherExpress PRO Drivers disk created during the pre-installation routine and hit <Enter>.
31. A dialog box indicating the “Intel EtherExpress PRO Adapter” should be displayed and highlighted. Click OK.
32. Verify the “Intel EtherExpress PRO Adapter” has a check mark beside it and click on <Next>.
33. Select the Network protocols you wish to install. For the purpose of this install only TCP/IP need be selected, deselect all other protocols. Click <Next> to continue.
34. Next you will be presented with a dialog box that lists the Network Services to be installed. Click <Next> to continue.
35. NT is now ready to install the Networking Components that you selected. Click <Next> to continue. Files will be copied from the CD-ROM.
36. Since the Intel EtherExpress PRO onboard adapter is being used, an “Adapter properties” dialog box is presented. Click <OK> to continue.
37. DHCP is used in large organizations where there may be a shortage of available IP addresses. Select <NO> to continue.
38. The Microsoft TCP/IP properties dialog box will eventually appear, prompting for TCP/IP information. Enter in the TCP/IP information recorded in the pre-installation steps. After entering in the data click <OK> to continue. If a dialog box appears



- reporting that an adapter card has an empty WINS address, click <YES> to continue. Other TCP/IP fields should remain empty.
39. The next dialog box that appears will show the bindings that are enabled for the server being installed. Selected bindings may be disabled/enabled here. Click <Next> to continue. These can be changed after the installation if so desired.
  40. The network is now ready to be started. Click <Next> to continue.
  41. Enter a workgroup name. Click <Next> to continue.
  42. The “Finishing Setup” dialog box will now appear. Click <Finish>.
  43. **(Note: If you chose to install Microsoft Internet Information Server you will be prompted with an install dialog box. Make the choices desired and click OK to continue. You will probably get a warning message indicating that no Internet Domain name has been specified. Click OK to continue. Select the SQL Server driver when prompted and click <OK>.)**
  44. Select the appropriate time zone and deselect/select “Automatically adjust clock for daylight savings changes” as appropriate.
  45. Click on the Date & Time tab to verify the time and date are correct. Click <Close> to continue.
  46. The detected display dialog box will be shown next. Click <OK> to continue. Adjust the Desktop Area and the Color Palette if desired, and click <Test>. Testing will begin after clicking <OK>. If the test bitmap was displayed properly and could be viewed clearly, click <Yes>, then <OK> to verify the instructions. Click <OK> to continue. Additional file copying and system setup will occur.
  47. A Windows NT Set Up dialog box will be displayed stating: “Windows NT has been successfully installed.” Remove the Windows NT CD-ROM disk and click <Restart Computer> to complete the baseline installation of Windows NT 4.0.
  48. After selecting Windows NT\* 4.0 Server as the Operating System to start, a login screen will be presented. Press <Ctrl+Alt+Del> to login. Enter the Administrator password and press <Enter> to login.
  49. When the “Welcome” screen appears, click <Close>. Windows NT 4.0 Server is now installed and running.

### ***Obtaining and Applying the latest NT Service Pack***

The latest Microsoft Windows NT Server 4.0 service pack (SP3) can be found at:

**<http://support.microsoft.com/support/downloads/>**

An alternate location for Windows NT Service Packs is located at:

**<ftp://198.105.232.37/fixes/>**

Due to high demand at support.microsoft.com, the alternate site will generally provide better download response. This site also includes international versions of the service packs and hot fixes to problems that are discovered after the release of the latest service

pack. These hot fixes generally tend to make up the contents of the follow-on Service Pack.

At the writing of this document service pack 3 was the latest and was used for completing the installation.

**Note: The NT Service Pack 3 is too large to fit on floppy disks. Therefore, it is recommended that nt4sp3\_i.exe be copied to a high density media accessible by the server (e.g. CDROM).**

1. From your internet browser download the ReadMe.1st and nt4sp3\_i.exe files from the appropriate directory.
2. To apply the patch, double click on the nt4sp3\_i.exe file. The installation files will be unpacked and the Service pack installation dialogue window will be displayed.
3. Read the welcome message and Click on <Next>.
4. Read the Software License Agreement and select <Yes> if you agree with the licensing agreement.
5. Ensure that the “Install the Service Pack” option is selected and click on <Next>.
6. Ensure that the “Yes, I want to create an uninstall directory” is selected, click on <Next>.
7. Click on <Finish> and the service pack 3 installation will proceed. (Note: If you installed Microsoft Windows NT Server 4.0 from a CD that was made for resale in the United States, then 128-bit encryption was installed. The service pack only has 40-bit encryption. You will be prompted to replace the 128-bit encryption with the 40-bit encryption scheme. Choose <Skip> unless you really do want to replace your encryption scheme.)
8. After some files and directories are updated, the message “Windows NT 4.0 has been updated; Remove any disks from floppy disk drives and choose OK to restart your computer” will be displayed. Remove disks and click <OK> to restart.

### ***Instructions for Configuring RAID Level 5 using Disk Administrator***

1. Start the Disk Administrator utility by clicking Start, Programs, Administrative Tools, Disk Administrator .
2. Click <OK> at the Disk Administrator dialog box after reading it.
3. Click <Yes> to create a signature on any/all disks if prompted. This allows the operating system to see the disk as on-line.
4. Change the CD-ROM drive letter to E: drive by single-clicking on D:. Select Tools, Assign Drive letter. Click on the down arrow and select E:. Click <OK> and <Yes> to continue. Verify CD-ROM is now E: drive.
5. Select the free space on Disks 1, 2, and 3 by doing the following: Click on the ‘Free Space’ area of Disk 1. Hold down the <Ctrl> key and click on the ‘Free Space’ area of Disk 2 and then Disk 3. Let go of <Ctrl> key.

6. Select the Fault Tolerance menu, Create Stripe Set with Parity... Click <OK> after verifying that the “maximum total size for the stripe set” value is equal to the “create stripe set of total size” value.
7. Select Partition, Commit Changes Now.
8. Click <Yes> to save changes.
9. Click <Yes> to restart computer and click <OK> at the Disk Administrator dialog box.
10. After system has restarted, log on and start the Disk Administrator utility again.
11. Select the D: drive by clicking on it. Select Tools, Format. Change the File System to NTFS, type in an appropriate volume label and click on Start in the Format D: dialog box. A blue status bar will appear at the bottom of dialog box indicating format progress. Click <OK> when finished and click <Close> .
12. Follow the procedure “Creating an Emergency Repair Disk with the RDISK utility”.

### ***Creating and Sharing the D: drive on your network***

This disk array created by using the above procedure cannot be used by network clients until it is shared.

1. Double-click the “My Computer” icon in the upper-left section of the desktop. Notice the D: drive icon does not have a “hand” under it.
2. Single-right-click on the D: icon to present a menu of choices.
3. Click on ‘Sharing’.
4. Select ‘Shared As’ and enter a share name. Enter a comment if desired.
5. Click <OK>. Notice drive D: icon now has a “hand” under it indicating that it is a shared drive and is ready to be used by the network.

### ***Creating an Emergency Repair Disk with the RDISK utility***

The Emergency Repair Disk contains data necessary to reconstruct a configuration if you NT system is no longer able to boot. The Repair Disk utility saves all of the current system settings to a floppy. You can then use this floppy disk to restore the server system in the unlikely event of the files being damaged. Depending on when you wish to create a Repair Disk, there are two different procedures which can accomplish this:

1. Insert a blank floppy disk labeled “Emergency Repair Disk” into the 3.5” floppy drive.
2. Click Start, then Run. Type <rdisk> in the Open box and press <Enter>
3. Click ‘Create Repair Disk’ button. Click <OK> to continue.
4. When complete, click <exit>.

Note: Microsoft recommends updating this repair disk whenever you make significant changes to the server.

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1. Finish adding all required, value-added software and configuration modifications to the server system.
  2. Insert the floppy diskette you created and labeled *Emergency Repair Disk* into the 3.5-inch floppy drive.

3. Click Start, then Run. Type *rdisk* in the Open box and press <Enter>.
4. Click the <Update Repair Info> button. A message box will be displayed warning you about deleting the old repair information. Click <Yes> to continue.
5. A message box will appear next warning you that all the data on the floppy will be erased. Click <OK> to continue. You will see progress indicators titled 'Formatting Floppy' and 'Saving Configuration'.
6. Click <Exit> and remove the Emergency Disk from the drive.

## Network Server Configuration For File & Printer Sharing

### ***Introduction***

This document provides instructions for configuration of a small network environment that allows file and printer sharing. Network services and management are provided by an Intel Architecture server running *Microsoft Windows NT Server 4.0* operating system. Users are able to share data, applications, and file services by using PCs running *Microsoft Windows NT Workstation* or the *Windows 95* operating systems.

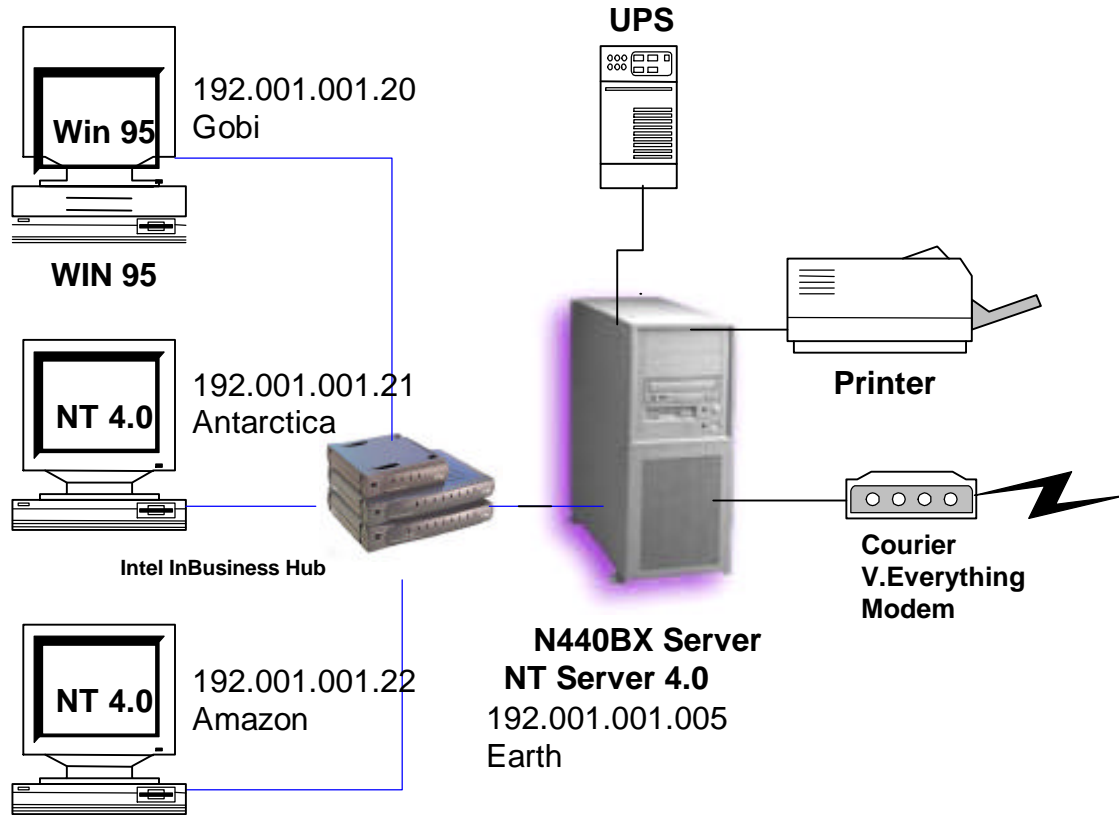
To keep the configuration instructions simple and easy to follow, this document refrains from explaining networking terms and concepts. A basic understanding of networking concepts and familiarity with *Windows NT Server* is helpful although not entirely necessary.

Experienced systems/network administrators may opt to utilize or enable additional network protocols and implement services such as WINS, DHCP, NT Domains and DNS as their needs dictate

For additional information please refer to Microsoft Press publications on Windows NT server 4.0, Windows NT Workstation and Windows 95. If you have access to the Internet try [www.microsoft.com](http://www.microsoft.com) for product information, updates, and more information. A number of books on NT and Windows 95 administration have been published you may wish to look at:

- ❖ Microsoft Windows NT Resource Kit from Microsoft PRESS ISBN 1-57231-343-9
- ❖ Mastering Windows NT Server 4 from NETWORK PRESS ISBN 0-7821-2067-9
- ❖ Complete Guide to WINDOWS 95 From SAMS ISBN 0-672-30791-X.

Figure 1 Small network environment with clients connected to a server via a 100Mbit/s network hub



**Pre-Installation Steps**

Complete the following tables for all clients and your server:

Client Name	IP address

Server Name	IP address

Work Group Name: \_\_\_\_\_  
 Network Mask: \_\_\_\_\_  
 Example: refers to tables listed above

Client Name	IP address
Gobi	192.001.001.20

Amazon	192.001.001.21
Antarctica	192.001.001.22

Server Name	IP address
Earth	192.001.001.005

Work Group Name: localnet  
Network Mask: 255.255.255.0

The IP addresses used in this example are invalid for access to the Internet. If you will be using this network to access the Internet you should contact an Internet Service Provider who will provide you with unique IP addresses, a network mask and instructions for connecting your network to the ISP. Please refer to the Internet Gateway Server document for further detail. If this is an isolated (ie: not connected to the public internet) network the IP addresses used in this example may be used.

Machine names are limited to 15 characters; share names are limited to 12 characters; user names may be up to 20 characters.

Note: All examples will be placed in {}.

1. Install your network by connecting all PC's and the Server to your network hub.<sup>2</sup>
2. Install NT on the server as described by the Microsoft Windows NT 4.0 Server Installation guide. You may enter network configuration parameters during installation<sup>3</sup> or follow procedure below to correct any information entered during the NT install.
3. Install your client's operating systems, allow any Network Interface Card to be identified and configured. You may enter network configuration parameters during installation or follow procedure below.

### ***Configuring the Server***

1. Log on as Administrator.
2. From the "Control Panel" double click on the "Network" icon.
3. In the "Identification" tab enter your server's host name{earth}.
4. Highlight any work group text and click on the "Change"; Enter the workgroup name that you have selected {localnet}. Click on <OK>.
5. Welcome to workgroup message is displayed; Click on <OK> to continue.
6. Select the "Protocols" tab. You only need TCP/IP; you may remove all others.

<sup>2</sup> An Intel InBusiness™ Fast (100 Mbit) Hub was used in this particular configuration. Category 5 unshielded twisted pair (UTP) Ethernet cable was used for all connections.

<sup>3</sup> The network configuration information such as IP address and Network mask may not be known during NT install, however the NT install procedure requires them to be entered during the initial NT install. It is possible to skip network configuration during NT installation and perform the installation once the server is at final destination or when attached to a network. In such a case network services can be installed by following the instructions outlined in the network installation section of the Microsoft Windows NT 4.0 Server installation guide (from start select settings, then control panel; double click on Network to begin installation). You will need the Intel EtherExpress PRO drivers diskette created during the pre-installation step and the NT 4.0 Server Installation CD.

7. From the “Protocols” dialog box, select TCP/IP and click on “Properties”. The “Microsoft TCP/IP Properties” dialog box appears.
8. Select the “Specify an IP address” entry and enter the server’s IP address {192.001.001.005}.
9. Enter your subnet mask {255.255.255.0}.
10. There is no need to enter a default gateway at this point.<sup>4</sup>
11. The DNS, WINS, and Routing tabs should be clear at this stage.
12. Click on <OK>.
13. A message indicating that at least one of the adapter cards has an empty WINS address will be displayed. Click on <Yes> to continue.
14. Close the network configuration window.
15. Reboot the server.

### ***Configuring PCs running the Microsoft NT Workstation***

1. Log on as Administrator.
2. From the Control Panel double click on “Network” icon.<sup>5</sup>
3. In the “Identification” tab enter your workstation’s client name {Antarctica or Amazon}.
4. Highlight any work group text and click on the “Change”. Enter the workgroup name that you have selected {localnet}. Click on <OK>.
5. Welcome to workgroup message is displayed; Click on <OK> to continue.
6. Select the “Protocols” tab. You only need TCP/IP; you may remove all others.
7. Select TCP/IP and click on “Properties”. The “Microsoft TCP/IP Properties” dialog box appears.
8. Select the “Specify an IP address” entry and enter the client’s IP address {192.001.001.021 for amazon} and {192.001.001.022 for Antarctica}.
9. Enter your subnet mask {255.255.255.0}.
10. There is no need to enter a default gateway at this point.
11. The DNS, WINS, and Routing tabs should be clear.
12. Click on <OK>.
13. Close the network configuration window
14. Reboot the client.

### **Test point**

See if you can communicate with the server or other PCs (which have been configured and rebooted.) This can be done using the “ping” command from a DOS window {ping 192.001.002.005}. If this works you may also double click on the Network Neighborhood icon and observe that that you can see your server under the specified workgroup.

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<sup>4</sup> The instructions on connecting to the Internet will provide additional detail otherwise this information will not be required given network topology described in Fig 1.

<sup>5</sup> This procedure assumes that network has been installed and configured during NT workstation install.

## **Configuring Windows\* 95 clients**

1. From the “Control Panel” double click on “Network”.
2. In the “Configuration” tab you only need to install “Client for Microsoft Networks”, “Intel EtherExpress PRO/100 (PCI)”<sup>6</sup> and “TCP/IP” network components.<sup>7</sup>
3. Select the “Client for Microsoft Networks” and click on “Properties”.
4. In the “Network Logon Options” select “Logon and restore network connections”.
5. Click on <O.K.> to go back to the main “Network configuration” window.
6. Select TCP/IP and click on Properties. The “TCP/IP Properties” window appears.
7. Select the “IP Address” tab and enter the client’s IP address {192.001.001.020}. Do not select the “obtain an IP address automatically” option.
8. Enter your subnet mask. This number will be the same for all nodes on the network {255.255.255.0}. After entering the network mask Click on <O.K.>
9. Select the “WINS Configuration” tab and ensure that the “Disable WINS Resolution” is selected.
10. Select the “DNS Configuration” and ensure that the Disable DNS is selected.
11. There is no need to enter a default gateway at this point.
12. Click <O.K.> to return to the main “Network” dialog box.
13. Under the “Primary Network Logon” select “Client for Microsoft Networks”.
14. Select the “Identification” tab and enter your PC’s computer name {Gobi}. Enter the Workgroup name that you have selected {localnet}.
15. Select the “Access Control” tab. Select the Share-level access control.
16. Reboot the client.

### **Test point:**

See if you can communicate with the server or other PCs (which have been configured and rebooted.) This can be done using the “ping” command from a DOS window {ping 192.001.002.005}. If this works you may also double click on the Network Neighborhood icon and observe that that you can see your server under the specified workgroup.

## **Creating Network user accounts**

1. Log on as the administrator on the server. Use the “User Administrator” interface to create user accounts, which belong to “user” group. You must create an account for each user, which will be accessing the shared resources of the server.

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<sup>6</sup> PC’s used for this illustration were equipped with the Intel Ether Express PRO/100 Network Interface cards. If you are using a different network card you must ensure that the network card installed on your PC is listed in place of the Intel Network Interface card.

<sup>7</sup> This procedure assumes that the Network services have been installed and the installed NIC identified during initial setup. The procedure outlined in this section provides instructions on the minimum steps required to quickly setup a network. If the Network configuration was skipped during initial Windows 95 installation, double clicking on the network icon will result in an interactive Windows 95 network install and configuration. You may follow the instructions and enter client’s network configuration information as prompted by the Windows 95 network services installation procedure. If this happens you will need drivers for your network card (if not found by Windows) and Windows 95 installation CD.



2. On each PC (network client) create user accounts for the users who will be using the PC. Ensure that the user names and passwords on the server and the PCs are identical.

### ***File Sharing***

Drives or directories are not visible on the network until they are marked “shared”. The procedure below will accomplish this for drive D: of the server.

1. Double-click the “My Computer” icon in the upper-left section of the desktop.
2. Single-right-click on the D: icon to present a menu of choices.
3. Click on ‘Sharing’.
4. Select ‘Shared As’ and enter a share name. Enter a comment if desired.
5. If desired, access rights and permissions can be assigned to individual network users by clicking on the “Permissions” button. The default is to allow “everyone” full access rights to the data on drive D:
6. Click <OK>.
7. Network clients can now use the “Network Neighborhood” to browse the server and attach to the sharable drive or directory or they can use the “Map Network Drive” option from “My Computer” browser. Users must log on to their PC with the new accounts otherwise they will be asked for user names and password every time they try to access a shared file.

### ***Printer Sharing***

#### **Server Instructions**

1. Install and configure your printer as instructed by the printer installation guide.<sup>8</sup>
2. Click on Start->Settings->Printers-><*new printer*>.
3. Click on the “Properties” tab and then select “Sharing”.
4. Select the “Shared” option and then provide a share name {Printer1}.
5. Click <O.K.>
6. You have now created a network printer resource, which can be shared by users.

Note: Only the network users who have been defined/created, with sufficient permissions, on the site server may gain access or share the printer device on the server.

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<sup>8</sup> You must ensure that the printer is compatible with NT4.0 and Windows 95. It is recommended that Windows 95 printer drives be installed as alternate drivers. This will allow the server to provide Windows 95 drivers when a Windows 95 PC adds the printer as a network printer.

## Client Instructions

1. Log on to any client using an assigned user ID and assigned network password.
2. Click on Start->Settings->Printers->Add Printer.
3. Select the "Network Printer Server" option, then click on <Next>.
4. Enter <\\servername>\<printername> in printer field or browse the network by double clicking on the "Network Neighborhood" icon, double click on your workgroup, then the server and finally the printer.
5. Click on <O.K.>.
6. Click on <Finish>.
7. After some activity, a dialogue box asking if you want Windows to set up this printer for use on this system appears. Click on <Yes>.
8. The printer status window appears. Close it.
9. Close all windows until you get back to the Connect Network Printer Window.
10. You will be asked if you prefer to "Make this the default printer?". Click on <Yes>.
11. Complete the installation by clicking on <Finish>.
12. You are done.

**Note: Microsoft recommends updating this repair disk whenever you make significant changes to the server. For information on how to update/build a repair disk see Microsoft Windows NT 4.0 Server Creating An Emergency Repair Disk.**

### ***Installing LANDesk Server Manager (Version 2.8 with LSC 5)***

Please review the documentation in the LANDesk Server Manager Installation Guide located on the LANDesk CD in the \elecdocs directory. You will need to install Adobe Acrobat Reader 3.0 which is the file ar32e30.exe in the elecdocs directory. Double-click on the file ar3230.exe and follow the on-screen instructions to install.

1. Boot the system and log on as Administrator.
2. Insert the Intel LANDesk Server Manager v2.8 CD that was bundled with the N440BX baseboard into the CD-ROM drive.
3. Click Start, then Run.
4. Enter the following in the Open box < e:\disk1\setup.exe> then click <Enter>.
5. When the LANDesk Server Manager Set Up dialog box comes up click <Continue>.
6. Deselect "Server Manager Netware Services," "SNMP Event Forwarder" "Server Monitor Module Driver" (unless LANDesk Server Monitor Module installed), and "OEM Snap-in Module" click <Continue>.
7. Review the License agreement and click <OK> if you accept.
8. Enter the directory in which you wish to install LANDesk or accept the default of c:\smm32, click <Continue>.
9. Next you will get a warning message stating that SNMP is not installed on this station. Hit <OK> to continue. SNMP is only needed to generate SNMP alerts. Regular LANDesk alerts can still be generated.
10. Another SNMP warning message will be displayed. Hit <OK> to continue.

11. LANDESK SERVER MANAGER will then begin copying files. If prompted about “DLLs in use by another program” click <Ignore>. For further information refer to the LANDESK SERVER MANAGER Help file.
12. If prompted to replace a file with an older version, select <No> to continue the install.
13. At LANDesk Server Monitor Set Up dialog box, choose a group type and click <Continue>.
14. LANDESK SERVER MANAGER continues with various dialog boxes that open and close as well as starting some LANDesk services. You will be asked if you want to view the “readme” file. Viewing is recommended.
15. A dialog box will open stating that LANDESK SERVER MANAGER install is complete, and will request that you reboot the computer.
16. Upon reboot, click Start, Programs, LANDesk Server Manager, LDSM Console. A dialog box will appear asking you to identify a modem to use. Check <Don't Use a Modem> if connected to a network and click <OK>.
17. The LANDESK SERVER MANAGER menu will appear and you should see an icon for “MS Windows Network” displayed. Click on that icon and an icon should appear with your selected workgroup name. Click on the icon for your selected workgroup and an icon should appear with your selected server name.
18. Click on the icon for your server and when prompted, enter “root” as the User ID and “calvin” as the password. A tree should appear underneath your server name with icons for: DMI, Configured Thresholds, NT Performance Monitor, Historian, Symbios Logic Management Application and Server Control. Selecting “Server Control” allows you to take advantage of the server hardware monitoring features of LANDesk.

**Note: Microsoft recommends updating this repair disk whenever you make significant changes to the server. For information on how to update/build a repair disk see Microsoft Windows NT 4.0 Server Creating An Emergency Repair Disk.**

## Appendix A: Detailed Equipment List

### **Hardware**

Chassis	Intel Columbus II
Baseboard	Intel N440BX Server Board
Processor	2 Intel Pentium II microprocessors operating at 350 MHz
Memory	2 32MB Micron PC/100 compliant DIMMS (Always check approved memory list before buying DIMMS for your N440BX Server Board) <a href="http://support.intel.com/support/motherboards/server/n440bx">http://support.intel.com/support/motherboards/server/n440bx</a>
SCSI Controller	Integrated Symbios 53C876 dual channel
NIC	Integrated Intel 82558 controller (EtherExpress PRO/100+)
Video	Integrated Cirrus Logic GD 5480 PCI w/2MB of Video RAM
Hub	Intel InBusiness 8 Port Fast Ethernet
IDE Controller	Integrated dual channel IDE controller
Floppy Cont.	Integrated floppy controller
Floppy drive	TEAC* FD235HF
CD-ROM	IDE ATAPI Sony* CDU311 connected as master on 2 <sup>nd</sup> IDE channel
Hard Drives	
IDE	1 Seagate* ST32132A – 2.1gig capacity
SCSI	3 Quantum* Atlas II Wide, XP32275W 2.2gig capacity Configured in a software RAID Level 5 disk array
Monitor	15" Mag* Innovision Model NO:DX15FG
Mouse	Microsoft 2-button PS/2
Keyboard	Keytronic* 104 Key Model E03601QIPS2-C

### **Software**

OS	Microsoft Windows Server NT 4.0 with Service Pack 3
Management	Intel LANDesk® Server Manager 2.8 with LSC 5.0 (Included w/N440BX Server Board)

### **Misc**

BIOS: Production Release 4.0  
BMC Revision 05010039