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The Source for Connectivity



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CDUNM10

10 CD with 9GB HD Cache NetMate:
CDUNM10C

10CD & 1 DVD with 9GB HD Cache NetMate:
CDUNM10CDV

35 CD & 2 DVD with 23GB HD Cache NetMate:
CDUNM35CDV

70 CD & 1 DVD with 45GB HD Cache NetMate:
CDUNM70CDV

NetMate CD/DVD Servers



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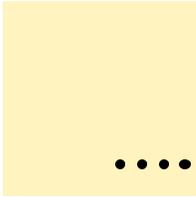
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Communications Regulation Information (Network Board Only)

FCC statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

WARNING: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from the one which the receiver is connected to.
- Consult the dealer or an experienced radio/TV technician for help.

The user may find the following booklet prepared by the Federal Communications Commission helpful:

The Interference Handbook

This booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 004-000-00345-4.

NOTE: In order to maintain compliance with the limits of a Class B digital device, Black Box. requires that you use quality interface cables when connecting to this device. Changes or modifications not expressly approved by Black Box could void the user's authority to operate this equipment. Refer to the manual for specifications on cabling types.



NetMate CD/DVD Servers

CE Notice

Marking by the symbol CE indicates compliance of this equipment to the EMC directive of the European Community. Such marking is indicative that this equipment meets or exceeds the following technical standards:

- EN 55022-"Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment."

- EN 50082-1-"Electromagnetic compatibility -Generic immunity standard Part 1: Residential, commercial, and light industry."

A "Declaration of Conformity" in accordance with the above standards is being made and is on file at Black Box.

CD-ROM drive laser information

WARNING Making adjustments or performing procedures other than those specified in your equipment's manual may result in hazardous exposure.

WARNING Do not attempt to disassemble the cabinet containing the laser. The laser beam used in this product is harmful to the eyes. The use of optical instruments, such as magnifying lenses, with this product increases the potential hazard to your eyes. For your safety, have this equipment serviced only by an authorized service provider.

Limits & Liabilities

Whereas Black Box. has tested the hardware and software described in this manual, neither Black Box. nor their dealers make any form of warranty or representation, either expressed or implied, concerning the manual or the hardware and software that it describes. In no event can any of these parties be held liable for indirect or consequential damage resulting from any defect in the software, firmware, hardware, disks, or manuals, even in the case where they have been advised of the possibility of such damages. The above mentioned can in no way be held responsible for any loss of data or damage done to media or other systems on the network used in conjunction with this product. There are some states that do not allow the exclusion or limitation of implied warranties or liabilities for incidental or consequential damages. If this is the case, then the above mentioned limitations and exclusions may not apply.

Black Box. cannot guarantee or be held responsible that you will be given notice of any revisions to the software described in this manual, even if you have previously returned the enclosed registration card. You should periodically check with your dealer for updates.



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Read this chapter to familiarize yourself with the basic features and functions

1

Welcome and Overview



Welcome

Congratulations on the purchase of your new Black Box powered CD/DVD Server! In this guide we provide you with information and instructions for installing and operating your new system.

Overview

Black Box's Netmate CD/DVD Servers are Network Attached Storage (NAS) Servers. They are extremely simple though powerful tools for sharing information over diverse computer networks. Their operating systems were designed from the ground up to be a high performance multi-protocol server for sharing CD-ROM or DVD-ROM discs, referred to as "shared resources", to clients over the network.

Most configuration items are automatically determined and configured during system startup. Should the Network Administrator need to modify these settings, information provided within this document will aid this process.

How NetMate CD/DVD Servers Work

NetMate CD/DVD Servers are connected as a node in a standard speed 10BaseT or Fast 100BaseT Ethernet Network. Other than the Domain services security verifications, in a Domain environment, all communication takes place directly between the NetMate CD/DVD Server and the network client requesting the information. The NetMate CD/DVD Server comes pre-installed with all the network functionality required. You do not need to



NetMate CD/DVD Servers

install any special software on any systems. NetMate CD/DVD Servers offer high performance, reliability, and independence from other equipment.

NetMate CD/DVD Servers install in minutes! In most environments, all you need is the physical connection between the NetMate CD/DVD Server and the network to start accessing CD's or DVD's.

Once the system is running all you have to do is insert CD's at the server and the volumes become almost instantly available to the clients. It's that simple!

When hard disk caching is enabled a newly inserted disc will automatically migrate itself over to the hard drive and eject itself making room for additional CD's.

IMPORTANT: If you are the network administrator, you should review the procedures in this guide necessary for you to install, configure, and use the NetMate CD/DVD Server in your particular networking environment.

Features & Benefits

NetMate has many features and advantages offering its users a variety of benefits.

■ Ease-of-Use

NetMate CD/DVD Server is easy-to-use; it uses protocols that already exist on today's networks such as Netware-NCP, Microsoft-SMB and IP, Apple-AFP and Unix-NFS, so there is no need to learn or install any software to access the CD server. It is a complete plug-and-play system! Just turn it on; it auto configures to your network and is available to use in 30 seconds with no network downtime.

■ Flexibility

NetMate CD/DVD Server simultaneously supports Novell NetWare, OS/2,



Windows, UNIX, and Apple Macintosh operating systems in both Internet and Intranet environments. This wealth of capability offers the greatest flexibility of network access available today.

Web Server Functionality

Since your new NetMate CD/DVD Server is a Web Server, you can access it using any Web browser, such as Netscape Navigator or Microsoft Internet Explorer. In a Web environment NetMate offers configuration, user management, and CD access. NetMate CD/DVD Server supports total Web browser administration and support.

CD-ROM Disc Formats

NetMate CD/DVD Server supports the various disc formats: ISO 9660 (Joliet & Romeo), RockRidge, High Sierra, Multi-session, HFS, Hybrid CDs as well as long file names. Additionally, all formats are available to all protocols and clients allowing cross platform sharing of data.

Incredible Network Performance

NetMate CD/DVD Server offers network throughput close to 100 Mbits/sec. A single read can sustain at nearly 6 Megabytes per second with overall throughput even greater!

Network Interface

Your NetMate CD/DVD Server has an auto switching fast Ethernet interface, RJ 45 connector (Category 5 unshielded twisted pair cable) for 10BaseT or 100BaseT fast Ethernet connection.

Hard Drive Caching

NetMate CD/DVD Server offers multiple variations of hard disc caching. Huge and highly cost effective systems can be built using today's higher capacity hard drives and CD-ROM, CD Changer or DVD-ROM Drive(s). Capacity or Performance is no longer limited to the number of individual CD-ROM or DVD-ROM installed. Upon insert a CD-ROM disc is entirely migrated over to the hard drive then ejected from the tower.

Performance Hard Drive Caching



If performance is paramount such as large rack configurations, NetMate CD/DVD Server can be configured to have the disc image both on the hard drive and in the CD-ROM pulling the information from both sources simultaneously similar to the way RAID systems function.

■ **Domain Services**

NetMate CD/DVD Server fully supports Novell NDS and Microsoft Domain Services. These advanced security systems are popular in today's larger networks since a single security strategy and user list is common to all network servers. The Net Base becomes part of your NDS Tree or Microsoft Domain and can be managed with the standard tools used for Domain Management.

■ **Security**

Users and groups can be stored or managed on the NetMate CD/DVD Server or kept remotely on your existing file servers. You can restrict access by setting up password protection. You can also limit the number of simultaneous users of any CD to comply with license agreements.

■ **Software Updates - Automatically!**

Flash memory allows you to easily download software updates over the network using a Web Browser, FTP, or just by doing a standard file copy in windows or from a mac. By using the "Firmware Autoupdate" feature the NetMate can automatically search the Internet and update it's own software!

■ **Network Management**

NetMate CD/DVD Server allows you to perform all configuration and management tasks via any standard Web browser. For non-IP networks all management and configuration functions can be maintained via text files stored on your local system. NetMate CD/DVD Server also supports the SNMP administrative Protocol.

■ **Year 2000 Compliant**

The NetMate CD/DVD Server was designed with Year 2000 compliance in mind and fully supports Year 2000 requirements.



This chapter provides connection and general information about the NetMate hardware

2

Installing the CD/DVD Server



Connecting the Cables

This section contains instructions for connecting your new CD/DVD Server.

- 1 Carefully remove your new CD/DVD Server from the shipping container and save all shipping materials.**
- 2 Position your NetMate CD/DVD Server in a location where it can be safely connected to power and the network.**

Make sure you provide adequate air circulation and do not block the ventilation fans. Also, do not place your new equipment in a location subject to unnecessary vibration, on an unstable base, near heat sources, direct sunlight, excessive dust, or moisture.

- 3 Connect the Network Cable.**

Your NetMate CD/DVD Server comes equipped with a RJ-45 connector. The NetMate CD/DVD Server automatically switches between 10BaseT and 100BaseT, full or half-duplex modes.



NetMate CD/DVD Servers

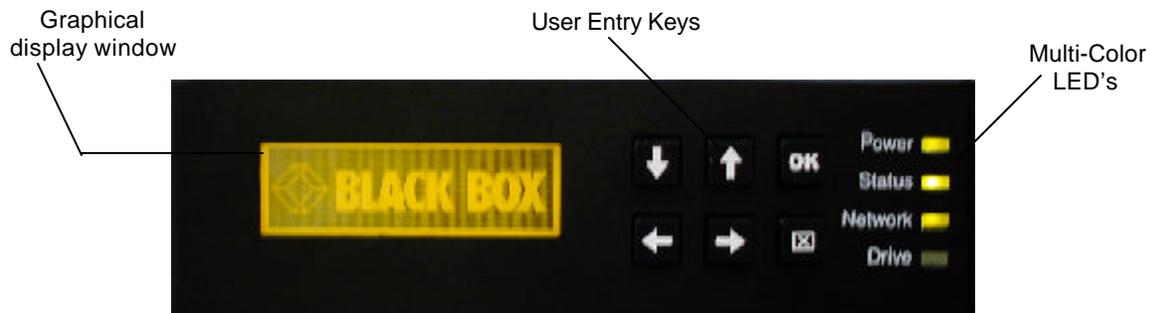
IMPORTANT: Make sure you always use a Category 5 UTP cable for 100 BaseT environments.

4 Connect the AC power cord.

Be sure to check foreign system voltage settings on the power supply(ies) first.

Front Panel Description

The front panel of the CD/DVD Server provides immediate configuration information to the Network Administrator. The Display model allows the Administrator to quickly and easily see how the Netmate configured itself to your network as well as allowing network configuration to be directly entered into the CD/DVD Server.



LED Description

The front panel LED's provide immediate feedback for configuration and operational information. (In 7 and 14 drive models only)

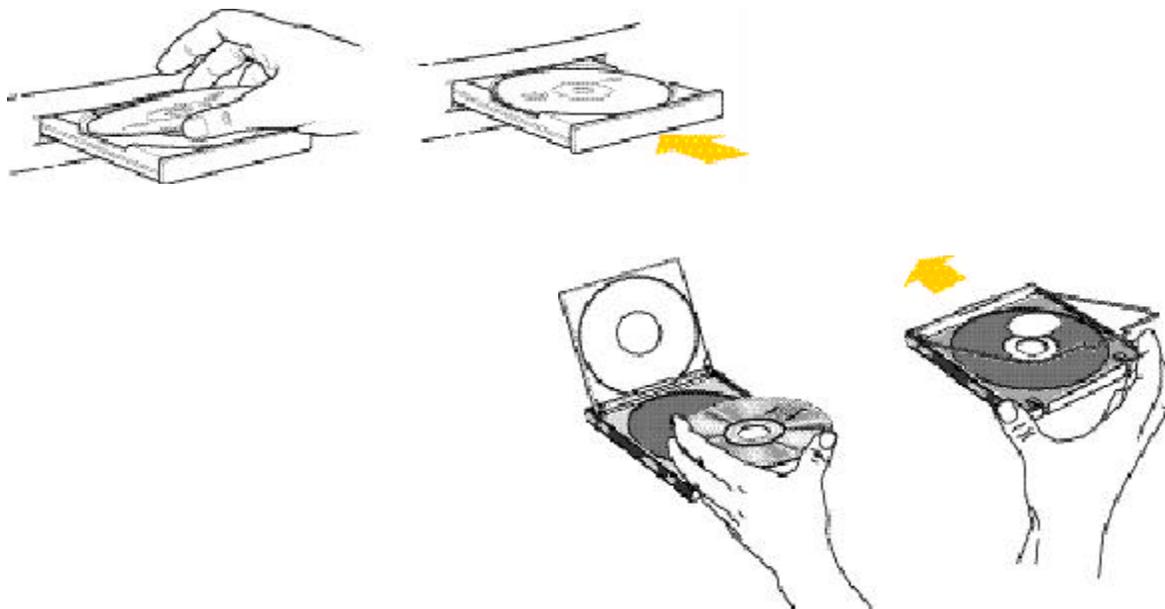
Each display is multi-colored and capable of displaying various colors. Also, some lights will display as solid colors while others will flash. The below chart describes how they function under different conditions.

Note: During system start time the Power light will initially show solid Red until the board has passed initialization and is ready for access over the network. This time period is approximately 30 seconds.

Power	Solid Green	Power is currently on and the board initialized
	Solid Red	Your system has a power supply problem
	No Light	Your system has a power supply problem
	Solid Amber	The NetMate did not initialization properly
Status	Solid Green	An IP# has been acquired automatically
	Solid Amber	An IP# has been set manually
	Off	IP has been configured and is set to 10.10.10.10
Network	Solid Green	Represents Ethernet Link
	Flashing Amber	Represents Ethernet activity (Transmitting)
Drive	Flashing Green	Data is currently being read from Bus 0
	Flashing Amber	Data is currently being read from Bus 1
	Flashing Yellow	Data is currently being read from both Buses



Loading and Unloading Discs



Care and handling of CD-ROM or DVD-ROM discs

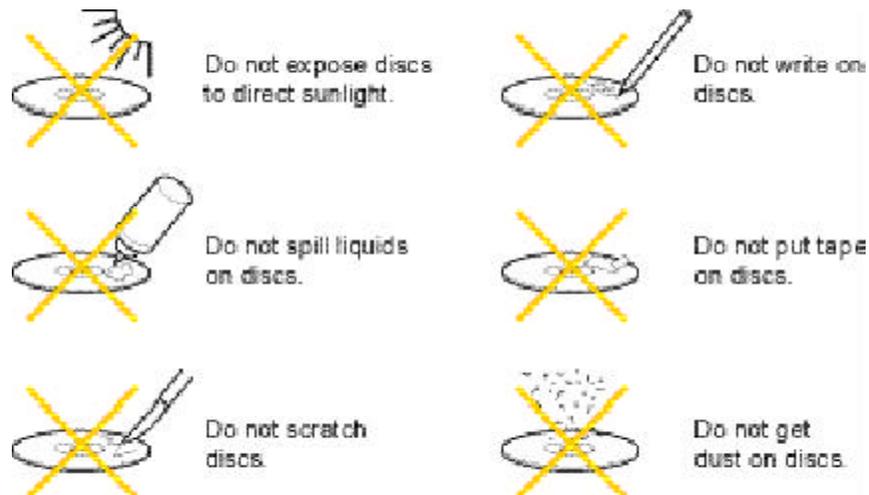
- Keep the important safety instructions in mind as you use your new CD Server.
- Position your CD Server so that the trays don't bump into anything when they open.
- Do not leave the disc trays open. If dust gets on the lens of a CD-ROM or DVD-ROM drive, the drive may have trouble reading discs.
- Do not put anything besides a CD-ROM on the disc loading tray when it is open.
- Do not force the disc loading tray open by hand.
- Use only approved cleaning kits to clean the optics in the CD-ROM or DVD-ROM drive. Do not clean the drive with anything not ex-



pressly made for the purpose.

- Do not transport the CD/DVD Server with discs in the drives.
- DO NOT touch the disc surface.** The CD-ROM or DVD-ROM is made of polycarbonate and a build-up of smudges, fingerprints, or other contaminants can affect the readability of the disc. Deep scratches or gouges will seriously damage the disc.
- The cleanliness of the media is extremely important. If a CD-ROM or DVD-ROM disc needs cleaning, use a soft, damp cloth, working in a straight line from center to edge.
- DO NOT smoke near computer equipment.** Ashes and tobacco are a prime source of drive contamination. Keep all tobacco and smoking materials away from areas where media is being used and stored.
- Keep your computer equipment and media away from sources of liquids. Spilled coffee and other beverages can penetrate the equipment and CD-ROM or DVD-ROM storage containers and cause serious contamination.

To avoid damage to your discs, follow these guidelines:





This chapter describes how the CD/DVD Server configures itself on your network and how to access the CD's

Automatic Configuration and Accessing the CD's



Overview

With your CD/DVD Server now connected to the network and AC power, the next step is to power on the CD/DVD Server. During start up, the CD/DVD Server will configure itself for your network and begin sharing any CD/DVD's inserted into the drives. Discs can be added at any time into a free tray or slot.

If Hard Disk caching is installed, the CD/DVD's will also be automatically copied over to the hard drive. Once fully cached, except with changer model drives or if configured not too, the CD/DVD's will be automatically ejected making way for new discs to be installed while the CD/DVD image is now available directly from the hard disk.

When first installed, the CD/DVD Server will have no security options enabled and be configured for Guest Access. Any discs placed in the tower will be accessible to any user that logs on. Microsoft networking users can access shares on the CD/DVD Server without being prompted for a password. Netware or Apple clients can enter either Supervisor or Guest with no password. See the "CD/DVD Server Security Overview" section for additional security options.

Also on each power up, the CD/DVD Server will automatically configure itself in almost all network environments without intervention.

The only protocol which may require some manual configuration is the IP Protocol. IP is the core protocol that runs the internet. Due to its increased popularity there are now multiple methods where IP can autoconfigure itself for new systems.



IP Configuration

When you first receive your system (or it is otherwise configured to its factory default settings), the CD/DVD Server will be set to automatically detect its IP address through all available methods. On many networks, this automatic IP initialization may be appropriate. If not, these settings may be configured manually.

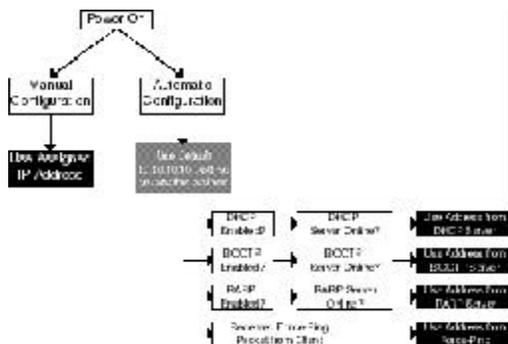
In your network environment, if you either:

- a** Are sure you have an automatic IP configuration system, such as DHCP, which will automatically configure the CD/DVD Server for IP or you are not going to be using IP with the CD/DVD Server and will likely use simple Microsoft Peer-to-Peer Networking or Apple Networking.

Go directly to the Accessing the CD's Section later in this chapter. Reading the IP configuration section is for informational purposes only.

- b** If you are going to use IP on your network and are unsure about how to configure it.

Review the chart on the next page and follow the instructions for the strategy that works best in your environment.



NOTE: It is important to remember that until the CD/DVD Server auto detects an IP address it is available on the network with its default temporary value of 10.10.10.10.



Automatic IP Configuration Methods

NetMate's CD/DVD Server has several methods for automatically obtaining IP addresses. These methods are:

DHCP (Dynamic Host Configuration Protocol)

DHCP is one of the newer and more popular methods for automatic IP number assignment. To use it, your network must have a DHCP server present and running on it. Many IP networks which use Windows-NT Servers, often have a Windows-NT DHCP server running on it. If you are unsure if your network has a DHCP server on it, check with your network administrator.

In any respect, DHCP is enabled on CD/DVD Server, upon startup, the CD/DVD Server will attempt to find a DHCP server on the network, and if it discovers one, obtain its IP address along with other required information such as default gateway, netmask, DNS, etc.

The factory default settings enable DHCP discovery and configuration.

BOOTP (Bootstrap Protocol)

BOOTP is another service used to dynamically assign IP addresses to machines on a network. BOOTP, like DHCP, requires a BOOTP server to be present on your network to function. BOOTP servers are typically UNIX servers. You can check with your network administrator to see if your network has a BOOTP server, or leave this option on to check for one.

Like with DHCP, upon startup, the CD/DVD Server will attempt to find a BOOTP server, and if found, will use it to obtain its IP settings.

The factory default settings enable BOOTP discovery and configuration.

RARP (Reverse Address Resolution Protocol)

Like the others, RARP requires that a RARP server be present on the network to use it. RARP servers however, are a bit more complicated in that they require one extra step in their setup. Your network administrator must enter your CD/DVD Server's MAC (Media Access Controller) address, or Ethernet Address into the



RARP server, and manually assign it an IP number.

You must contact your network administrator to have this done, supplying him or her with the Ethernet Address of your NetMate. For its complexity, RARP is rarely used these days vs. the simpler BOOTP and DHCP protocols.

The factory default settings enable RARP discovery and configuration.

Temporary IP Configuration Methods

A temporary IP configuration method is used just to get the CD/DVD Server up on your network enough to allow it to be configured with a permanent solution. There are 2 primary ways to temporarily configure an IP #.

"Unconfigured" or Default IP Address

When your CD/DVD Server boots up in automatic configuration mode, it uses one or several of the above protocols to attempt to configure its IP parameters. Often however, for several reasons, none of these methods will work. For example, when you turn on the CD/DVD Server for the first time, and you are running it on a network with no IP configuration servers.

In this case, the CD/DVD Server will be available using its "default" IP configuration. Any time the CD/DVD Server is turned on, while it is in the process of autoconfiguring but has not yet autoconfigured (i.e. was not able to find a server) it will use and respond to its default IP settings. The default settings are as follows:

IP Address: 10.10.10.10

Netmask: 255.255.255.0

Gateway: None

Accessing the CD/DVD Server at this address will give you access to it - most likely to access it and change its IP configuration (ie give it an address that is valid for your network.)

When the CD/DVD Server comes up on this address (and with this netmask) it is probable that your client will not be able to access it as the IP settings of your client will be incompatible with the CD/DVD Server's settings. You will need to change



your client's own IP address to one which is suitable to communicate with the CD/DVD Server on these settings. An example of an appropriate setting would be:

IP Address: 10.10.10.9

Netmask: 255.255.255.0

The specifics of how IP Addresses and netmasks actually work and are calculated are beyond the scope of this document. Your network administrator should help you if you need help with obtaining permanent IP number and netmasks which are correct for your network. In this case, you would often set you client's IP address to something similar to the one shown, and then connect to the CD/DVD Server with a web browser (See Setting Your IP Configuration) set its permanent IP settings for your network, then change your client's IP address back.

"Force-Pinging" an IP Address

A method exists to "shoot" your CD/DVD Server board an address for "one-time" use. This works to assign an IP address to a NetMate which would otherwise be unconfigured. Force-Pinging works only when the CD/DVD Server is attempting to autoconfigure an address. It will not work when it has an address manually assigned to it, and it will not work if one of the autoconfiguration techniques has already configured it. Force-Pinging autoconfiguration can work on almost any platform which supports an "arp" and a "ping" command. It is a two-step process which consists of the following:

- 1 Put your CD/DVD Server's Ethernet Address, and it's desired IP Address as a static entry in your workstation's ARP table.**

The CD/DVD Server's Ethernet Address is 00:e0:65:XX:XX:XX where XX:XX:XX is the units 6 digit serial number found on the rear of the CD/DVD Server.

- 2 Send a "ping" to the IP address with a data length of 75 bytes.**

On a typical Windows machine, this can be done from the "DOS Prompt" or "Command Prompt" as follows. Let's say for the sake of example that our CD/DVD Server's Serial number is 123456 and we wish to assign it an IP address of 100.120.140.160. We would use the following two commands:

- 1 arp -s 100.120.140.160 00-E0-65-12-34-56**



2 ping -l 75 100.120.140.160

If you have been successful, you will see several messages such as:

Reply from 100.120.140.160: bytes=75 time=1ms TTL=128

If not, you would receive many messages like "Command Timed Out"

For more information on these commands in Windows, type "ARP -?" and/or "PING -?"

A "Force-Pinged" address is only active for as long as the CD/DVD Server is running. If the CD/DVD Server is turned off or restarted, it will resolve to autoconfiguring again. Force-Pinging is designed to allow you to give it an address, so you can get it on your network and log-into it to set it with its "real" values to be used. (See Setting Your IP Configuration.)

Setting Your IP Configuration Manually

There are several different techniques which can be used to change or set-up the CD/DVD Server's permanent IP settings. As discussed before, when the CD/DVD Server is using its factory default settings, it will attempt to autoconfigure using several available methods. This is not always desirable. Often it is desired to assign the CD/DVD Server an explicit IP address (Manual Configuration), or enable certain automatic methods. There are several ways of making such changes.

Web Administration

The simplest of all consists of using a standard Web Browser to access NetMate's administration and maintenance pages. To do this, you must already be able to access the CD/DVD Server via. IP. This means that one of the automatic configuration methods must have worked, or you must have force-pinged it to a valid address, or you must be able to access it at its "default" (10.10.10.10) address. If none of these are true, you must use a different method.

If you can access the CD/DVD Server via. IP, do the following to get to the IP configuration page:

- 1 In the address bar of your web browser, enter the IP address of your CD/DVD Server.**
- 2 When NetMate's main page comes up, click the hyperlink to Administration**



- 3** When prompted to log in, enter the supervisor's username and password. The factory default will be a user name of "supervisor" no password.
- 4** In the frame on the left of your window, if the "Networking" menu is not expanded, click Networking to expand it.
- 5** Under the Networking menu, click TCP/IP
- 6** The main frame on the right will display the TCP/IP Settings page.
- 7** IP Enable should be set to Yes unless you wish to completely disable TCP/IP.
- 8** You have two primary options at this point:
 - 1 You may specify all manual parameters for TCP/IP
 - 2 You may set the CD/DVD Server up to autoconfigure all parameters
- 9** Click one of the two radio-buttons, for manual or automatic configuration.

Automatic Configuration

After clicking automatic, you may then select which of the automatic configuration methods you wish to enable. The recommended setting is to enable all three. Note that these checkboxes (DHCP, BOOTP and RARP) are only applicable when Automatic Configuration is specified.

Manual Configuration

If you have selected manual configuration, proceed to enter all the applicable information shown, such as IP address, netmask, gateway, DNS server, etc. All of these parameters should be supplied by your network administrator. These fields are only used when Manual Configuration is specified.

- 10** When you are done making your changes, click the submit button to save them.

Saved changes will not go into effect until the CD/DVD Server is rebooted.



At this time, you will be prompted to optionally reboot the CD/DVD Server. Click reboot if so desired.

Note that when you enter the TCP/IP Configuration page, the active values are shown in the text fields (IP Address, Netmask, etc.) This means that if you are currently set up for automatic configuration, these numbers will reflect the values assigned to your board by the autoconfiguration server or force-ping, or 10.10.10.10 (default) if your board has not been autoconfigured.

Configuration Text File

The Configuration Text File allows access to server parameters through a different protocol when IP is not available. The downside being that you are required to modify a formatted text file, rather than use the easy and intuitive web interface.

To set IP parameters from the configuration file, you will need to have access to the CD/DVD Server from either AppleTalk, Microsoft Networking or Novell Networking. (See applicable sections.) If you are running a Windows-NT system, you will need to have logged in with the user name "supervisor" on system startup. If you haven't, log-out and log into your workstation as supervisor.

To access the administrative text file:

- 1 Use the applicable technique to log-into the CD/DVD Server. (Usually Network Neighborhood or Find Computer for Windows machines, or Chooser for a Macintosh.)**
- 2 When/if prompted for a username and password, use a username of supervisor and the supervisor account password. The factory default is no password.**
- 3 There should be a folder, icon or directory named SYS. Enter this.**
- 4 There should be a folder within SYS called CONFIG. Enter this.**
- 5 There will be a file named CONFIG.INI. Using your favorite text editor (like Wordpad, or TeachText) open CONFIG.INI**
- 6 Scroll down to the section which starts with the text [TCP/IP]. These are all the TCP/IP settings.**
- 7 For each setting to be modified, modify the text immediately to the**



right of the equals-sign (=). Be careful not to insert and spaces, tabs, or other characters that do not belong here. Maintain and preserve the current format of the text shown.

8 If you are going to configure your CD/DVD Server for manual IP configuration:

- 1 Enter the IP Address, Subnet Mask, Default Gateway, Domain Name, and Primary & Secondary DNS.
- 2 All entries (except Domain Name) should be dotted-decimal formatted IP Addresses. (No host names or hexadecimal numbers.)
- 3 If a gateway or DNS server is not to be specified, use 0.0.0.0 for its entry.
- 4 If the Domain Name is not to be specified, you may leave it blank.

9 If you are going to configure your CD/DVD Server for automatic IP configuration:

- 1 Set the IP Address, Subnet Mask, Default Gateway, and Primary & Secondary DNS servers all to 0.0.0.0.
- 2 Change DHCP_Enable, RARP_Enable and BOOTP_Enable all to yes or no, each as desired.

10 Save the file after making your changes.

11 Changes will not go into effect until after the CD/DVD Server is rebooted. You may do so at this time.

Note that the rightmost parameters listed in each line after the pound-sign (#) in the CONFIG.INI file represent the currently active settings for the CD/DVD Server. This means that if you are currently set up for automatic configuration, these numbers will reflect the values assigned to your board by the autoconfiguration server or force-ping, or 10.10.10.10 (default) if your board has not been autoconfigured.



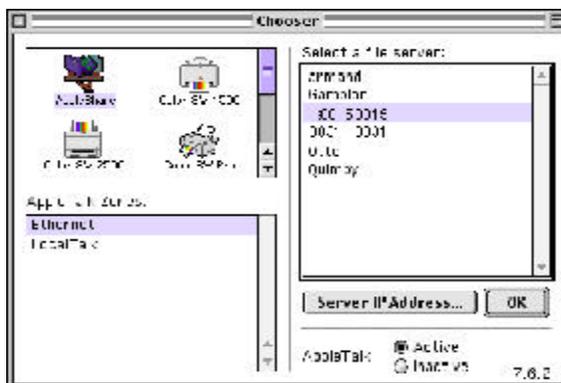
Apple Macintosh Networking

Automatic Configuration

On startup the CD/DVD Server automatically configures itself as an Apple Macintosh File Server capable of sharing volumes over standard AppleTalk or AppleTalk over IP. If there are multiple zones then the network router will provide the CD/DVD Server with the default zone in which the CD/DVD Server will appear.

Accessing the CD's

- 1 From the Macintosh client open the Chooser by selecting it from the Apple menu.



- 2 Click on the AppleShare icon.
- 3 Select the zone that contains the CD/DVD Server.
If there is only one zone, no zone information will appear in the Chooser.
- 4 Select the name of the CD/DVD Server from the list on the right.
A new unconfigured CD/DVD Server, or one that has been set back to



factory defaults, will display itself with the name “Black BoxXXXX” where XXXX are the last 4 digits of the systems serial number from the Registration Card.

5 Click “OK”.

A dialog box will display.

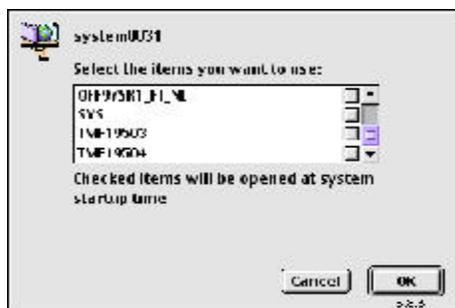


6 Initially select “Supervisor” and no password.

The factory default is no password.

7 Click “OK”.

A list of available shared volumes will appear.



8 Highlight the volumes to be accessed.



NetMate CD/DVD Servers

If the shift key is held down, multiple volumes may be selected. Optionally, clicking the check box to the right of each name will mount these volumes at startup without any user intervention. Also, the configuration can be set to automatically remember the password to access the chosen volume(s).

- 9 Click “OK”.
- 10 The shared volume icon or folder will appear on the desktop under the icons for your local disks.

The selected item is now available for use. Open the item by double-clicking on the icon, and use the data as if it were on your local computer.



SYS Volume:

You will notice one additional volume besides the ones that are the physical CD-ROM or DVD-ROM discs. This volume seen, as “SYS”, is a special volume called a “Virtual Volume”. A Virtual Volume is a logical volume that the CD/DVD Server creates on it’s own. In the next chapter there are instructions on how to create additional Virtual Volumes to assist in organization of data. The SYS volume is a special non-configurable Virtual Volume that contains all the CD’s in one place for easy access and a single mount point. Also, the configuration files, explained in the “Administrative Tools” chapter are in a sub folder/directory within the sys Volume.

TIP: By having your client(s) auto-remount the SYS volume on startup the Administrator can remove and insert new discs and have these discs automatically mount on the clients on startup.



Windows PC Networking

Automatic Configuration

On Startup the CD/DVD Server automatically configures itself for Microsoft Networking. The CD/DVD Server searches the network for Primary Domain controllers and initially registers itself with all of them showing up in all workgroups on your network until it configured to only be in one of them.

The NetMate CD/DVD Server will configure itself as BOTH an SMB over NetBEUI server, commonly used in simple Microsoft peer-to-peer networks, or as an SMB over IP server as used in more powerful NT Server environments.

In SMB over IP environments, and if DHCP is used, the CD/DVD Server will automatically configure WINS and DNS information.

NOTE: It is recommended after automatic configuration to put the CD/DVD Server within one workgroup using the administrative tools and not let the CD/DVD Server continuously present itself in all workgroups.

Accessing the CD's - Find Computer Method

Until the CD/DVD Server shows up in the Network Neighborhood Workgroups or Domains, or if none exist on your network, it can be found almost immediately by using the Find Computer method. Choose Find Computer from the Start Menu and type Black BoxXXXX_smb for Microsoft Networking or Black BoxXXXX_nw for Novell NetWare networking where XXXX are the last 4 digits of the CD/DVD Server's serial number from the Registration Card.

Accessing the CD's - Network Neighborhood Method

To access your NetMate CD/DVD server from Windows 95, 98 or NT 4.0 or greater system

- 1 Open your Network Neighborhood icon on your desktop.





- 2 Then open the "Entire Network" icon within this folder.



- 3 Then open the Networking method that is used on your network

Microsoft Networking

Microsoft Networking users can open the "Workgroup" of their choice. In this example it is NetMate (Keep in mind it will take a number of minutes, sometimes longer for big networks, for the CD/DVD Server to register itself to your network and appear in a workgroup)





Novell Networking

Novell Networking users will see a folder similar to “NetWare Servers” or “IntraNetWare Servers” . Open this folder to see Netware servers and locate the CD/DVD Server.



- 4 **Once you have located the CD/DVD Server in your environment open the CD/DVD Server to log in.**

NetWare users will be prompted for a username and password, use a



NetMate CD/DVD Servers

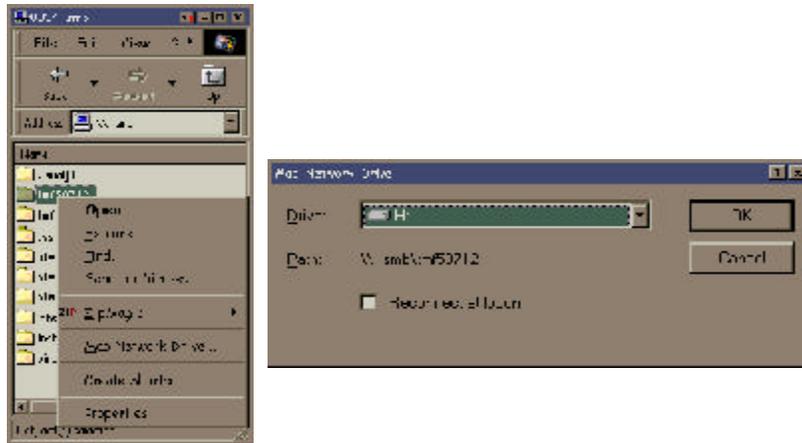
username of supervisor and the supervisor account password. The factory default is no password.



5 (If desired) Map the device to a local Drive before accessing it.

Some programs require that the CD-ROM be “mapped” to a local device in order to operate correctly. To do this, right click on the CD-ROM in Network Neighborhood and choose “Map Device”. You will be prompted to choose a free drive letter to assign the device too and whether or not to automatically re-connect and Map on each startup.





SYS Volume:

You will notice one additional volume besides the ones that are the physical CD-ROM or DVD-ROM discs. This volume seen, as “SYS”, is a special volume called a “Virtual Volume”. A Virtual Volume is a logical volume that the NetMate creates on it’s own. In the next chapter there are instructions on how to create additional Virtual Volumes to assist in organization of data. The SYS volume is a special non-configurable Virtual Volume that contains all the CD’s in one place for easy access and a single mount point. Also, the configuration files, explained in the “Administrative Tools” chapter are in a sub folder/ directory within the sys Volume.

TIP: By having your client(s) auto-remount the SYS volume on startup the Administrator can remove and insert new discs and have these discs automatically mount on the clients on startup.

NOTE: These are the most simple and straight forward ways to access the CD/DVD Server in a Windows PC environment. Please note that many other windows based methods can be used to access the CD/DVD Server. Any utility or method that is used to access any standard Microsoft or NetWare server can also be used to access



NetMate CD/DVD Servers

CD's on the CD/DVD Server. These include but are not limited to: NetUse Commands, NetX drivers, VLM Drivers, The windows explorer, OS/2, Windows for Workgroups, Find Computer, etc.

HTML Access

(Once an IP # has been established as described earlier)

The CD/DVD Server supports HTTP over TCP/IP, which simply means that you can use your new CD/DVD Server unit as a Web server. Using the CD/DVD Server with HTML access over the network makes your CDs available on the Internet and your companies Intranet.

In an HTTP environment, you can access the CD/DVD Server's CD-ROM data and images using a standard Web browser, such as Microsoft Internet Explorer or Netscape Navigator.



ATTENTION: Due to the nature of NFS and TCP, the instructions expect that a user has common knowledge of these systems in order to utilize them and therefore provides only minimal information.

NOTE : The IP address is the IP address you assigned to the CD/DVD Server in IP Configuration. The <host name> is the host name that you assigned to the CD/DVD Server.

NFS Access

To access NetMate on a UNIX system:

- 1 Create a directory for the CD/DVD Server.**

```
mkdir /Black Box
```

- 2 Mount the CD/DVD Server.**

```
mount <hostname>:/Black Box or mount <IP address>:/Black Box
```

Example:

Here's an example of what you might do on a Unix server:

```
mkdir /cdroms
```

This creates the empty directory used as a mount point.

```
mount -F nfs 202.202.202.98:cdroms /cdroms
```

The CD/DVD Server's host name may be used instead of the IP address

FTP Access

The CD/DVD Server is available as a standard FTP server. It can be accessed by any graphical or text based FTP client

To access the CD/DVD Server on a DOS system:

- 1 At the DOS prompt type:**

```
FTP open <host name> or FTP open <IP Address>
```





Read this chapter to learn
how to Administer and
Configure the CD/DVD
Server

4

Administrative Tools



Web Administration and Feature Description

Web administration is the most powerful administration tool available on the CD/DVD Server. All configuration and Administration items can be set through the Web Administration pages quickly and effectively.

After you set the Internet address, as described in the earlier section, you are ready to use the CD/DVD Server from any standard Web browser, such as Microsofts Internet Explorer or Netscape Navigator. Any Web browser that supports frames can be used to Administer the NetMate. In the following example we are using Netscape Navigator To access NetMate using a Web browser:

- 1 Start Netscape Navigator.**
- 2 In the Open Location field, or address line, enter your system's URL.**
- 3 Click Open.**
- 4 Begin by clicking on the "Administration" button**
- 5 Enter "Supervisor" as the user name with no password.**
- 6 You should now be in the Administrative section.**



Making Changes

As configuration items are modified you will be prompted to save these changes as necessary. Also, some changes modify network information and require the system to be rebooted for the changes to take effect. These are the possible options you will be presented with as you make changes to the CD/DVD Server.

Submit

Use this button to save changes to the system once you are satisfied with your choice(s).

Reset

Use this option to reset any entries made prior to submitting changes.

Save Changes

When available, this option writes changes made into permanent storage. Any modification or group of modifications should be followed by clicking this button. You will be prompted when you have made changes that need to be saved.

Server

General

The most basic aspects of the server can be set from within this screen.



Server Name

This is the primary name of the server. For new systems this field is by default left blank and the server name is set to "Black Box" plus up to four digits from the end of the ethernet address. Entering a new name in this field modifies the Server Name. The Server Name can include upper and lower case alphanumeric characters as well as space, underscore and apostrophe. The CD/DVD Server will present itself in the various networking environments with the name entered in this field. Under some networking environments this name will be additionally appended with a suffix such as "_nw" for Novell NetWare clients and "_smb" for Microsoft networking clients.

Ethernet Address

This is a unique identifier for your CD/DVD Server and is used by other products on your network to communicate with the CD/DVD Server. All Network products have a unique identifier regardless of manufacturer or product type. This item cannot be changed and is provided for information purposes only.

Software Version

This field represents the currently loaded software revision of the CD/DVD Server's Operating System.

System Uptime

This field shows the elapsed time since the CD/DVD Server was last started or rebooted. This value is reset upon each new power up.

Enable Guest Access

On by default, this setting allows guest access privileges to be granted to all shared resources of the NetMate. Guest access can be shut off thus requiring either remote authentication through NetWare, NDS, Microsoft Domain Services, or that specific users be created and given access privileges from within the Users & Groups section of the CD/DVD Server itself.

Reset to Factory Defaults

Clicking this button will permanently erase all saved settings on the CD/DVD Server. The server will be as it was when it was initially installed with all information, users, groups and security rights initialized to original values. This feature is used only under extreme conditions or if the server is being relocated on a different network with different users.



File Systems

Multi-session CD

When the system attempts to mount a disc with multiple data tracks (commonly called a Multi-session CD), this option determines which tracks are made available as shared resources. By selecting “mount all sessions”, each track will be mounted as a separate shared resource. If “mount last session only” is selected then only the last track (which will be the most recently written) will be mounted and the other tracks will be ignored.

ISO9660/High Sierra Enable

Defaulting to on, this setting enables mounting of the ISO-9660 and High Sierra disc formats including Rock Ridge, Romeo and Joliet file format extensions. These formats are common to the Intel Windows and UNIX based systems.

HFS Enable

Defaulting to on, this setting enables mounting of the HFS disc format. The HFS disc format is common to Macintosh based computers.



Date & Time



This page can be used to set the servers internal Date and Time. When adjustments to Date and Time are made be sure to click the "Update Date/Time" box(es) prior to submitting changes to the NetMate.

Use Local Workstation Time

This button can be used to automatically enter the time of the local PC into the date and time fields on this page. You still need to check the "Update" boxes and submit changes to set the NetMates clock.



Statistics



The statistics page gives detailed information on the CD/DVD Server. System Capacity, Cache Statistics, Protocol Information, and other information are available on this page.

Users & Groups

The CD/DVD Server provides flexible and powerful management tools incorporated directly into the CD/DVD Server. Security can be handled in multiple ways either through domain services, existing servers or from within the CD/DVD Server itself. Multiple methods can also be used simultaneously. The Users & Groups section and the Volumes Section of the CD/DVD Server administration pages allow the Supervisor to configure all of these security options.



Add User



This page allows the administrator to enter new users into the CD/DVD Server. Users can either be “Local” users where the NetMate handles all security or “Remote” users where the user exists on another server but accesses shared resources on the CD/DVD Server. To create a user type the new name into the “User Name:” field and click “Continue”. The following fields then appear:

User Name

This displays the user name entered on the previous screen.



Local User

Click this button if the CD/DVD Server will handle all security for this user. Enter and confirm the password for this new user here as well.

Remote User

Click this button if the user to be created is a remote user. A remote user is created for one of two reasons. Either the user is going to be added to a local group and have access privileges to items this local group can access, or if the user is going to be given specific access rights to a shared resource. Also, whenever the CD/DVD Server is accessed via NDS a remote user is automatically generated for this NDS user.

Disable Login

Click this button if the user should be denied access to the CD/DVD Server.

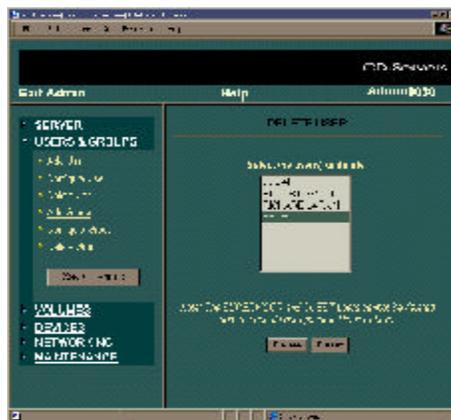
NFS ID

The default NFS ID of “-2” is used for all new users. An alternate ID can be entered in this field.

Configure User

This feature allows you to configure existing users. The same configurable parameters that were available in the Add User page are available on this page.

Delete User



The following fields then appear:

Group Name

This displays the group name entered on the previous screen.

Local Group

Click this button if the NetMate will handle security for this group.

Remote Group

Click this button if the group to be created shall be a remote group. A remote group is a group that is stored on another server. During access to a shared resource a request is made to the remote server to see if the user trying to log in belongs to the remote group.

NFS ID

The default NFS ID of “-2” is used for all new groups. An alternate ID can be entered in this field.

Select users for local group

These lists are used to select users that will belong to the currently displayed group. Users belonging to this group will have access to shared resources that are assigned to this group. To include a user, select the desired user from the left list and click the right arrow (Add) to move the selection to the list on the right. To remove a user, select the user in the list on the right and click the left arrow (Remove).

Configure Group

This feature allows you to configure existing groups. The same configurable parameters that were available in the Add Group page are available on this page.



Delete Group



Any existing groups can be deleted from this page.

Volumes

Configure Volume



The CD/DVD Server's volume management feature is flexible and powerful. Security options include: management down to a directory level, changing volume names and



restricting concurrent user access to comply with the licensing restrictions of software publishers. These functions and others are configurable within the Configure Volume pages.

Within this page the user is present with a list of all physical shared resources whether actual CD/DVD volumes or Archived Volumes. A volume can be highlighted and one of the following 3 choices made:

Properties



Original name

This field represents the actual volume name of the disc prior to any alias being created (unless the volume name is a duplicate volume name that the CD/DVD Server will internally change to reduce confusion).

Alias

A name entered into this field will replace the original name of the volume as seen from the client. This feature allows the administrator to rename sometimes confusing volume names with ones that are easier to understand.

File System

This field displays the type of file system of this shared resource.



NetMate CD/DVD Servers

Size

This represents the size of the shared resource in megabytes.

Device

This is displayed in the format of [BUS,ID,LUN]. The CD/DVD Server can support up to 240 individual SCSI devices using all available parameters.

BUS

The bus the device is on. The CD/DVD Server has up to two busses numbered 0 and 1.

ID

The SCSI ID of the device. Narrow SCSI ranges from 0 to 6 and Wide SCSI ranges from 0 to 15 (excluding 7 which is used by the NetMate).

LUN

The Logical Unit Number of the device. In the range of 0 to 7.

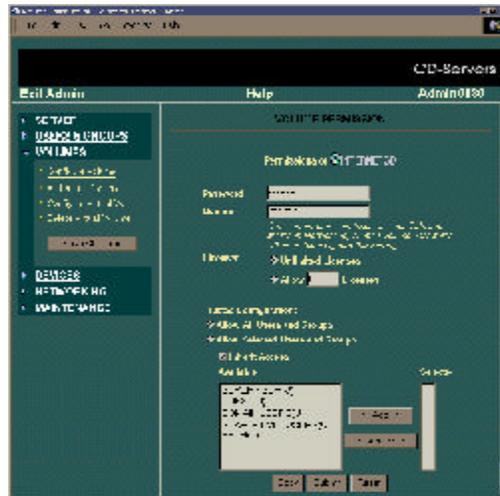
Open

When a volume or directory is highlighted in the list, clicking this button will open this item displaying the content of the next sub-directory. If the (Parent Directory) item for a given directory is chosen and this button is clicked, then the current location displayed is moved up one directory.

Permissions

The following permission information is available to be set for the entire shared resource and not for a given directory.





Password

Enter a password here for the volume. This becomes the password used for AppleTalk or Microsoft share level security.

Confirm

Confirm the share-level security password here.

Licenses

This field represents the number of concurrent users that can access a particular shared resource. This feature allows the system administrator to conform to specific license restriction imposed by software publishers. Either unlimited users “licenses” or a specific number of users “licenses” can be set with this field.

The following permission information is available to be set for the entire shared resource or for individual directories within the shared resource.

Allow all Users and Groups

Check this choice if all users and groups will have access to this shared resource or directory.





On the next window two lists appear. The one to the left represents all online volumes, which can be placed within a virtual volume. The list to the right represents the contents of the virtual volume. Items to left can be added or removed from the virtual volume. When the desired items have been added to the virtual volume clicking “done” saves all changes.

Open

When a volume or directory is highlighted in the left most list clicking this button will open this item displaying the contents of the next sub-directory. If the (Parent Directory) item for a given directory is chosen and this button is clicked, then the current location displayed is moved up one directory.

> Add > (Add)

When a volume or directory is highlighted in the left most list clicking this button will include this item in the virtual volume being created and move the item to the right list.

< Remove < (Remove)

When a volume or directory is highlighted in the right list clicking this button will remove this item from the virtual volume being created.

Done



When all desired items have been entered into the virtual volume clicking this button saves all changes.

Configure Virtual Volume

This feature allows you to configure an existing Virtual Volume. Selecting a Virtual Volume from the list and clicking on the “Properties” button allows the same configurable parameters that were available in the Add Virtual Volume page to be manipulated.

Permissions

The following permission information is available to be set for the entire shared resource and not for a given directory.

Password

Enter a password here for the volume. This becomes the password used for AppleTalk or Microsoft share level security.

Confirm

Confirm the share-level security password here.

Licenses

This field represents the number of concurrent users that can access a particular shared resource. This feature allows the Network Administrator to conform to specific license restriction imposed by software publishers. Either unlimited users “licenses” or a specific number of users “licenses” can be set with this field.

The following permission information is available to be set for the entire shared resource or for individual directories within the shared resource.

Allow Everyone

Check this choice if all users and groups will have access to this shared resource or directory.

Inherit Access

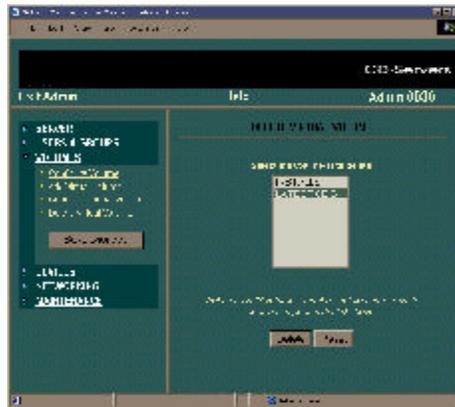
Check this choice for directories within a shared resource if this directory is going to have the same security rights as the directory above it.

Available/Selected Users and Groups



These lists are used to select users and/or groups that will have access to the currently displayed shared resource or directory. To include an item, select the appropriate user/group from the left list and click the right arrow (Add) to move the selection to the list on the right. To remove an item, select the user/group in the list on the right and click the left arrow (Remove).

Delete Virtual Volume



Any existing Virtual Volumes can be deleted from this page.

Devices

Drive Information

Specific information about each drive, as well as information about the volumes mounted within each drive is available here.





Device

This is displayed in the format of [BUS, ID, LUN]. The CD/DVD Server can support up to 240 individual SCSI devices using all available parameters.

BUS

The bus the device is on. NetMate has up to two busses numbered 0 and 1.

ID

The SCSI ID of the device. Narrow SCSI ranges from 0 to 6 and Wide SCSI ranges from 0 to 15 (excluding 7 which is used by the CD/DVD Server).

LUN

The Logical Unit Number of the device. In the range of 0 to 7.

Vendor

This field displays the drive mechanism's Vendor name.

Name

This field displays the drive mechanism's Product name.



Revision

This field displays the drive mechanism's internal software revision number.

Volume

This field displays the mounted volume name(s) for multiple partition discs. If a disc is renamed then the changed name is displayed here. If a disc has been archived by the Hard Disk Caching process but not yet ejected this field will say "Unmounted"

File System

This field displays the type of file system(s) on the disc in this device.

Eject

This feature ejects the disc mounted within this device.

Lock/Unlock

Locking a drive disables the "Eject" button on the front of the device once the unit is powered on and a volume is mounted in the device.

Hard Drive Caching

Hard Drive Caching is one of the most powerful features of the NetMate Server. This page provides information about cached disks as well as options to cache additional CD/DVD's.

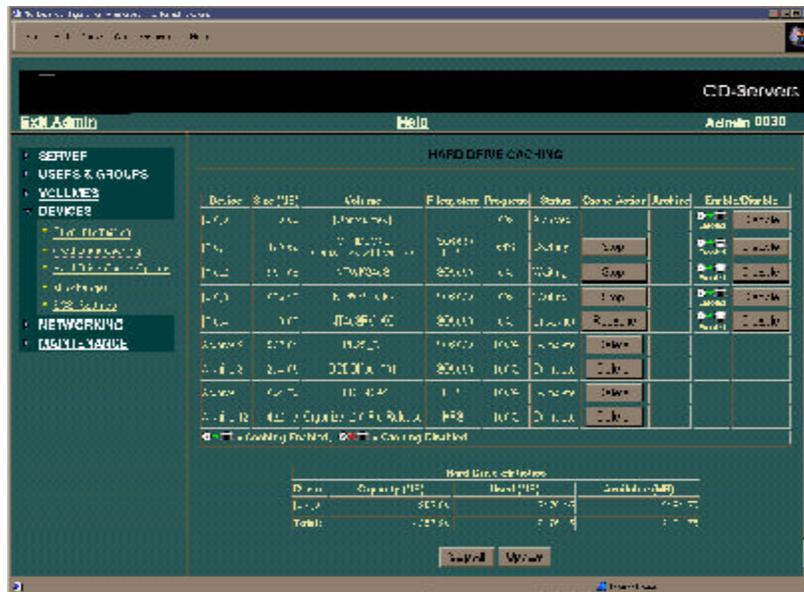
This page will appear only if a hard drive is found during startup that can be used for caching.

There are 2 primary hard disc caching modes:

ARCHIVE CACHING: The default setting, in this mode the CD/DVD Server will automatically start caching each disc inserted into it. When the caching is completed for each disc the CD/DVD Server will create an archive volume with the contents of each disc. After each disc has been archived the disc will automatically be ejected, except for Changer units which by default are set to not eject a disc after archiving so as to cache all discs within the changer without user intervention.



PERFORMANCE CACHING: This mode is used for discs that will be used in the most demanding multi-user scenarios. This mode is enabled by turning “HD Cache Auto Mode” to off. In this mode when a new disc is inserted it is still cached but upon completion an archive is not automatically created. As user requests come to this CD the data is accessed first from the hard drive but if user requests for information start to back-up the information is simultaneously still accessed from the CD-ROM drive. This mode allows the best of both world’s allowing the fast access of a hard drive but still providing a dedicated CD-ROM device for heavy use scenarios.



Device.

This is displayed in the format of [BUS, ID, LUN]. The NetMate can support up to 240 individual SCSI devices using all available parameters.



BUS

The bus the device is on. The CD/DVD Server has up to two busses numbered 0 and 1.

ID

The SCSI ID of the device. Narrow SCSI ranges from 0 to 6 and Wide SCSI ranges from 0 to 15 (excluding 7 which is used by the CD/DVD Server).

LUN

The Logical Unit Number of the device. In the range of 0 to 7.

Size (Megabytes)

This value represents the size of the CD/DVD. It also represents the amount of hard disk space that will be taken up once the CD/DVD is fully cached.

Volume

This field displays the volume name(s) of the CD/DVD-ROM or CD/DVD-ROM partition. If a disc has been archived but not yet ejected this field will say "Unmounted"

File System

This field displays the type of file system(s) on the disc in this device.

Progress

Displayed as a percentage, this value represents the amount of the CD/DVD-ROM disc that has been cached thus far. Pressing the "Update" button on the bottom of this page updates this value if the CD/DVD is currently being cached.

Status:

Uncached

This message is displayed if caching for this device has not started (and is not waiting to start) or has been disabled and the administrator has not manually initiated caching for this volume.

No Media

This message is displayed if there is no disc in this location.

Caching

This message is displayed if caching is currently processing for a disc in this location. In



this condition pressing the “Update” button should display an increasing number in the “Progress” field as the CD/DVD-ROM contents are copied to the hard disk.

Waiting

This message is displayed if caching had been stopped and re-started again and the NetMate is currently caching other devices.

Partial

This message is displayed if caching had been stopped for a disc in this location. If a client accesses this disc, then the data already cached to the hard drive will be accessible from the hard drive while the un-cached data will be accessed from the CD/DVD-ROM drive.

Complete

This message is displayed if the caching process has completed for a CD/DVD-ROM disc in this location.

Archived

This message is displayed when a device has been archived but the disc was not ejected (if ejects were disabled or the device was locked). The disc must be manually ejected before a new volume can be mounted in this device.

Cache Action

Cache

Pressing this button causes the caching process to begin for the selected location.

Stop

Pressing this button interrupts the caching process for the selected location. The process can be resumed later by pressing the “Continue Caching” button at the bottom of the page.

Recache

Pressing this button deletes the cached volume on the hard disk and re-caches it for the selected location.



Archive

A button will appear in this column once a CD/DVD-ROM disc has been completely cached and accesses are now done from the hard disk. Clicking this button goes one step further and creates an "Archive" disc ejecting the physical disc from the CD/DVD Server. This allows the drive mechanism's slot to be available to share additional CD/DVD-ROM discs.

Delete

When a disc has been archived, the Delete option will become available. Pressing this button deletes the chosen "Archive" drive. The archive drive and its contents are no longer available as a shared resource but the space it occupied is now available to be used to cache other discs.

Enable/Disable

Enabling caching on a device (the default mode) causes caching to begin as soon as a new volume is detected. When caching is disabled, the administrator must press the "Cache" button in the "Cache Action" section to begin caching.

Function Buttons

Continue Caching

Press this button to continue a "stopped" caching process.

Cache All

When available, clicking this button will initiate caching on all uncached volumes.

Reformat

Clicking this button causes all performance and archive caches on all hard drives to be erased. When pushed, further caching activity will be suspended until the "Cache All" button is clicked. This button is only available when no volume is actively building a cache.

Update

Press this button to update the on-screen information.

Stop All



NetMate CD/DVD Servers

Press this button to halt the caching process.

Hard Drive Statistics



Device

This is the device location of the hard drive. It is displayed in the same format as described earlier in this section.

Capacity (MBytes)

This is the total size of the hard drive.

Used (MBytes)

This is the amount of space occupied by active caches on the hard drive.

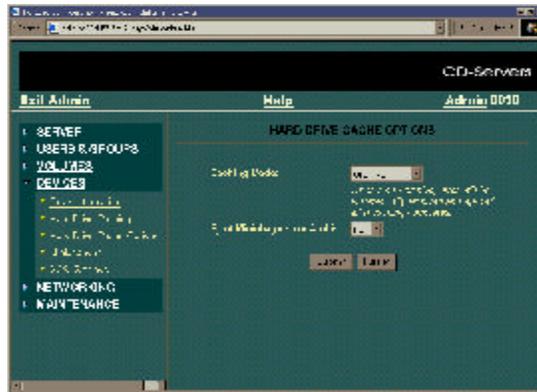
Available (MBytes)

This is the total amount of free space on the hard drive.

Hard Drive Cache Options

This setting allows the administrator to set system wide features of Hard Disk Caching.





Caching Mode

This setting controls the behavior of the Hard Drive Caching sub-system after a disc has finished building its cache. When set to “archive”, discs will immediately archive and eject (if ejecting is enabled) once the cache is built. Further access to the volume will be directed solely to the Hard Drive. When set to “performance”, the disc will remain in the CD/DVD-ROM drive after the cache is built. In this case, if the Hard Drive is busy when information is requested from the cached resource, it will be fetched from the CD/DVD instead.

Eject Minichanger on Archive

This setting determines whether a disc will be ejected from a minichanger when an archive cache is created. Since several minichanger models will suspend normal operation upon eject until a user manually removes the disc from the drive, it is recommended to leave this option on its default setting of “no”.

Minichanger

This setting allows the administrator to “fine tune” performance of Minichanger devices.





MiniChanger Lock Time

The value entered here is the total time that is dedicated to each user request per Minichanger device before the disc is swapped to service the next user request. This setting can be experimented with but should not be decreased below approximately 6 seconds as drive “thrashing” can occur. Drive thrashing occurs when multiple users are trying to access different CD’s on the same Minichanger and the discs are constantly swapping.

SCSI Settings

Use choices on this page to customize SCSI settings for devices that do not support the default settings.





Wide Enable

Normally set to on, Wide SCSI negotiation can be turned off here. When on this option also enables recognition of SCSI ID numbers in the range of 8 to 15.

Disconnect Enabled

Normally set to on, SCSI Disconnect/Reconnect can be turned off here.

Synchronous Enabled

Normally set to on, Synchronous SCSI transfers can be turned off here.

Parity Enabled

Normally set to on, SCSI parity checking can be turned off here.

Bus 0 Termination

Normally set to narrow/wide, bus 0 termination can be set here to either off, narrow only, wide only or both on.

Bus 1 Termination

Normally set to narrow/wide, bus 1 termination can be set here to either off, narrow only, wide only or both on.

Networking



AppleTalk



AppleTalk Enable

“yes” by default, this feature turns on AFP the Apple File Protocol that is native to Apple Macintosh file servers. If Macintosh access is desired then this feature should be left on.

AppleTalk/IP Enable

“yes” by default, this feature turns on AFP over IP. This is similar to the above choice but allows the Apple File Protocol to run over the industry standard “IP” or Internet Protocol. This feature allows Apple Macintosh computers to access shared resources from the NetMate over the Internet. In order for AppleTalk IP to function AppleTalk Enable must also be set to yes. If AppleTalk Enable is set to no AppleTalk IP Enable is automatically set to no as well.

AppleTalk Network Number

This is the network number that the CD/DVD Server has selected from within the range provided by an AppleTalk Router on your network. If no router is present, it will be zero. This number is read-only and is provided for information and trouble-shooting purposes only.

AppleTalk Node Number

This is the node number that the CD/DVD Server has selected from the available node numbers on its network number. All node numbers associated with the same network number must be unique and in the range of 1 to 254. This number is read-only and is



provided for information and trouble-shooting purposes only.

AppleTalk Zone

This is the zone name which the CD/DVD Server will appear in. When uninitialized, it will be set to the default zone as specified by an AppleTalk Router on your network. If no router is present, the zone name is ignored. Changing this field causes the CD/DVD Server to immediately relocate to the new zone without requiring a server restart.

Login Message

Any message typed here will be displayed to all Macintosh users while logging in. This information is displayed within a dialog box prior to mounting any volumes. You do not need to restart the CD/DVD Server to allow changes to this field to be active.

FTP/TFTP



TFTP Enabled

On by default, TFTP access can be turned off here. TFTP is primarily used as a protocol to upload firmware.

FTP Enable

On by default, FTP access can be turned off here. The NetMate functions as an FTP server working with all standard and graphical FTP clients.



FTP Guest Access

On by default, FTP Guest access can be turned off here. Commonly FTP Guest Access is shut off if the NetMate is going to act as a high security FTP Server with all users being entered into the CD/DVD Server via the Users & Groups section. Enabling FTP Guest access allows use of Anonymous user name during an FTP session.

HTTP



HTTP Enable

On by default, HTTP access can be turned off here. The CD/DVD Server functions as a web server when this feature is set to on. This setting also controls access to administrative features via the web. Once disabled, this setting can be re-enabled by editing the config.ini in the SYS/CONFIG directory.

Base URL

This is the Web Page that is initially displayed when a user accesses the CD/DVD Server via a web browser. Providing the new Base URL here can change the initial "home page". It is possible to burn a custom CD/DVD with a custom web home page for the CD/DVD Server.

Alternate index.html



This is a list of HTML filenames which will be automatically opened when they are encountered during the browsing of a disc. When a directory is opened that contains one or more of these files, the list is checked in order and the first filename that matches is opened. The special file index.htm(l) is always checked first and does not appear on the list. To add an item to the list, type it's name in the "Alternate index.html" box (you do not need to add .html or .htm) and click the "Add To List" button. To remove an item, select it in the list and click the "Remove" button. To move an item, select it in the list and click either the "Raise Priority" or "Lower Priority" button. To remove all entries, click the "Clear All" button (index.htm(l) is not removed). Once you are satisfied with the entries in the list, click the "Submit" button to save your changes.

Microsoft Networking



Bind to NetBEUI

On by default, SMB over NetBEUI access can be turned off here. The NetMate functions as a standard Windows NetBEUI server when this feature is enabled. This type of networking is popular in smaller workgroup environments or if IP is not configured on the network. Accessing the server in this configuration is very simple and does not require IP information to be entered or name servers such as DNS or WINS to exist on the network. Drawbacks to NetBEUI servers are that the packets are not routable and thus cannot be



used between wide area networks. If Both NetBEUI and IP bindings are enabled on the server and on the client it is sometimes difficult to see which protocol is being used to access the CD/DVD Server. Whichever is used to access the CD/DVD Server depends on how the client is configured to prioritize protocols.

Bind to IP

On by default, SMB over IP access can be turned off here. The CD/DVD Server functions as a standard Windows IP server when this feature is enabled. This type of networking is standard in today's Enterprise networks. In order to utilize Microsoft IP networking your network should additionally have a name server such as DNS or WINS in order to allow servers to be accessed by name vs IP number. If Both NetBEUI and IP bindings are enabled on the server and on the client it is sometimes difficult to see which protocol is being used to access the CD/DVD Server. Whichever is used to access the CD/DVD Server depends on how the client is configured to prioritize protocols.

Microsoft Server Name

A specific and different name can be entered here which will be used for all Microsoft networking. A name entered here will supersede any server name entered under General Configuration. If no name is entered here, the Microsoft server name will be set by appending “_smb” to the name entered in General Configuration.

Workgroup/Domain

This is an important and required field for Microsoft Networking. It determines where the CD/DVD Server will appear to the client computers and in a Microsoft Domain environment it further determines what machine will be used to authenticate access rights.

NT Style Authentication

Set to Off by default, NT style Authentication allows for security to be configured such that specific users would have access to specific shared resources. When this setting is set to Off the CD/DVD Server prompts the client for User Name and Password rather than relying on the current User Name of the workstation.

Share Level Access

Set to Enabled by default, Share Level Access requires that a user only supply a password to access a shared resource.

Map Domain Users To

Users who are authenticated by a Domain Controller will have access to the CD/DVD



Server's resources as the user selected here. The special entity "DOMAIN USERS" is the default and can be used to assign permissions to volumes or directories.

NDS



Enable NDS

Off by default, this feature can be turned on to enable NDS access in a NetWare environment. When enabling NDS the other NDS fields also need to be properly configured. If NDS is configured to be on and the CD/DVD Server has not been correctly configured and installed into the NDS Tree, then some NetWare clients can have trouble accessing the CD/DVD Server.

Install Mounted Volumes

Change this option to yes to have the volumes installed into the NDS Tree along with the CD/DVD Server.

Tree Name

Enter the name of the NDS Tree you wish to install the CD/DVD Server into here. The tree must already exist.

Context

Enter the Context of the NDS Tree here.



Server using either protocol. In order for NetWare/IP to function NetWare Enable must also be set to yes. If NetWare Enable is set to no NetWare/IP Enable is automatically set to no as well.

NetWare Server Name

A specific and different name can be entered here which will be used for NetWare networking. A name entered here will supersede any server name entered under General Configuration. If no name is entered here, the NetWare server will be set by appending “_nw” to the name entered in General Configuration.

Authentication Server

The name of an existing Bindery server can be entered here. If so, NetWare requests will be routed to this server to see if the user has proper authentication to access shared resources.

NetWare/IP DSS Server

In a NetWare IP environment the IP DSS server must be entered here.

Network Numbers

Either automatic or manual configuration is selected here. By default automatic network number configuration is enabled causing frame type(s) and network numbers to be detected during power on. The NetMate supports 802.2, 802.3, SNAP and Ethernet II frame types.





NFS

NFS Enable

On by default, NFS access can be turned off here. The CD/DVD Server functions as an NFS server when this feature is enabled.

PCNFSD Server

A PCNFSD Server name can be set here for PCNFSD client access.

NFS User License Timeout

In seconds, NFS user license timeout can be set by changing this field. By default, a blank entry represents a timeout period of zero seconds or no timeout. In this case NFS user access occupies a user license only during actual data reads. If this item is set to a non-zero value NFS clients will occupy a user license for each shared resource for the timeout period following the last access.

Allow Any Host Access

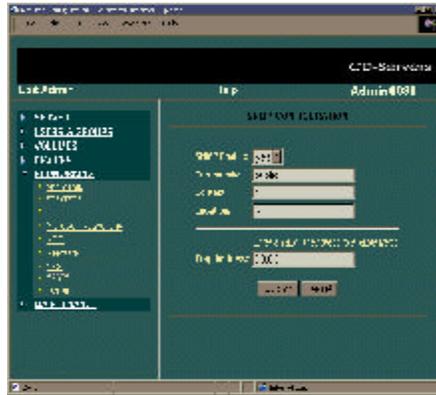
On by default, all IP numbers can access the CD/DVD Server as long as they also meet the set security features for Users, Groups, or Guest access.

Restrict Access to Certain Hosts by Mask and Address

As an additional security step, NFS access can be restricted to a specific IP mask and address range.



SNMP



SNMP Enable

On by default, SNMP access can be turned off here. The CD/DVD Server can be seen as an SNMP object with some of its parameters modifiable by SNMP.

Community

This field is the readCommunity SNMP object and is the community for all SNMP traps.

Contact

This is an optional field that can be used to display the Supervisor or system contact.

Location

This is an optional field that can be used to display the physical location of the CD/DVD Server.

Trap Address

This field is the trapAddress SNMP object and is the IP address to which all SNMP traps are sent.



The Subnet mask is used to determine whether network traffic will stay within the local network or be passed through a router to other networks. The standard class C Subnet Mask is 255.255.255.0 though other Subnet masks can also be used. If Automatic Network Configuration is turned on and a Subnet mask has been obtained it will be displayed here.

Default Gateway

Sometimes also known as “Default Router” this is the IP address of the router where all traffic outside your network is sent to. If Automatic Network Configuration is turned on and a valid Default gateway address has been obtained it will be displayed here.

Primary DNS

This is the IP address of the Primary “DNS” or Domain Name Server. The DNS is used to associate a server name with it’s IP address. If Automatic Network Configuration is turned on and a valid Primary DNS address has been obtained it will be displayed here.

Secondary DNS

This is the IP address of the Secondary DNS. This server will be used if the primary server is unavailable or unreachable. If Automatic Network Configuration is turned on and a valid Secondary DNS address has been obtained it will be displayed here.

Domain Name

This is the name of the Domain which the CD/DVD Server is configured to. If Automatic Network Configuration is turned on and a valid Domain name has been obtained it will be displayed here.

WINS Server

This is the IP address of the Windows Name Server. This name server machine provides similar functionality to a DNS Server but uses the Microsoft WINS name server protocol. If Automatic Network Configuration is turned on and a valid WINS server address has been obtained it will be displayed here.

NetBIOS Scope

This is the NetBIOS scope which the CD/DVD Server is configured to. If Automatic Network Configuration is turned on and a valid NetBIOS scope address has been obtained it will be displayed here.



The Log page gives a time line of information about the server. Note that the log page is of a limited size and that a server running long enough will only show the most recent log entries.

ROM Usage

The ROM Usage page provides detailed information about the current capacity and usage of the internal system ROM “Read Only Memory”. The ROM is where Management items are stored. The individual Management items are summarized on this page. Clicking on an entry in the “Record Type” column displays a list of entries where items can be deleted to recover space on the ROM should it becomes full. It is highly unlikely that the administrator or supervisor will ever need to remove any ROM stored items as this feature is provided mostly for informational purposes only.

Restart/Shutdown

This page allows the administrator to Restart or Shutdown the CD/DVD Server.

Restart

This feature is commonly used to enable newly changed Configuration parameters to take effect.

ShutDown

This feature completely shuts down the NetMate. Once this feature is chosen the CD/DVD Server must have its power recycled to enable it to be accessible over the network again.





Read this chapter to learn about the multiple security options of the CD/DVD Server.

5

CD/DVD Server Security Overview

In this section we discuss the security options provided by the CD/DVD Server. Use the concepts within this chapter and the administrative tools described in Chapter 4 to implement your chosen level of security.

Initial Security - Guest Access

When first installed, the CD/DVD Server will have no security options enabled. Any discs placed in the tower will be accessible to any user that logs on. Microsoft networking users can access shares on the CD/DVD Server without being prompted for a password. Netware or Apple clients can enter either Supervisor or Guest with no password.

IMPORTANT: the supervisor account (used to administer the CD/DVD Server) will have no password. It is recommended that a minimal level of security be established by setting the supervisor password

Increasing Security

If it is necessary or desired, an increased level of security can be enabled either on a system wide, per volume or even per directory basis. To enable system wide security, change the "Enable Guest Access" setting on the General Configuration



page to "no". Once this is set, all users will have to authenticate (either locally or remotely) with a valid username and password before access is granted. Enabling security on a CD/DVD, archived volume or a specific directory, is managed from the Configure Volume page, while security for a virtual volume is handled from the Configure Virtual Volume page. Only users specifically granted access or users who belong to a group which has been granted access are allowed to connect to a volume once security has been enabled on it.

Using NDS

In order to use NDS you must first enable it and install the NetMate into the desired tree. This can be done by filling in the tree name, context, administrator name and password on the NDS configuration page, setting "Enable NDS" to yes, checking the "Install now to the NDS tree" box and submitting the page. You can also set "Install Mounted Volumes" to yes if you would like the NetMate to maintain the list of its volumes on the tree.

Once NDS is enabled and properly configured, users, groups and volume rights can be maintained through the standard NDS administrative tools.

Note: Enabling NDS without installing the server into the tree may cause connection problems for some NetWare users.

Using Microsoft Domain Services

In order to use Microsoft Domain Services you must first enter a Microsoft Domain in which to authenticate from. This is accomplished via one of the Administrative methods. For example; using the Web Administration go to the page Networking>>Microsoft Networking>>WorkGroup/Domain. Once this is done the NetMate contacts the Primary Domain Controller for the domain entered. Further authentication requests that cannot be verified as local users or groups are passed on to the Primary Domain Controller for verification.

By default, users that are authenticated against a domain controller are initially



given access to all volumes in the server. This can be changed by creating a different default domain user which has been assigned specific domain rights and changing the “Map Domain Users” choice in Microsoft Networking.



Users & Groups (User Level Security)

Before setting up access rights to each volume, you need to create users and/or groups. Each user and group can be configured as either local or remote. Using local means that administration of this user/group is handled by the CD/DVD Server and that authentication is done internally. Remote means that the user/group exists on a different server and that authentication requests are sent out to a predefined remote server to determine if access is granted.

By organizing users into groups access permissions become easier to setup and manage. Once some users are defined and group memberships are established, you can assign permissions to groups and individual users for one or more volumes, using the Configure Volume or Configure Virtual Volume page.

Remote Authentication

Each protocol that supports remote authentication has its own remote server. This server is either manually entered into the protocol specific configuration page or is automatically determined during system startup. A given remote authentication server will only be used in the context in which it was defined. For example, a user attempting to login using Novell NetWare will not be authenticated against the Microsoft Networking Primary Domain Controller but might be authenticated against the NetWare Authentication Server if no local user exists that matches the supplied username.



Share Level Security

Some protocols, such as Microsoft Networking and AppleTalk, allow you to set password for volumes as well as users. This is sometimes referred to as Share Level security. Anytime a volume with a password set is connected to over one of these protocols, the user will be prompted for the password before further access is granted.

NT Authentication

NT servers authenticate users in a different fashion than previous version of Windows file sharing such as those included in Windows 95, 98 or Windows for Workgroups. The CD/DVD Server supports both the previous version and the Windows NT style of authentication. Either can be chosen depending on what the mix is of workstations on your network.

If NT Style Authentication is turned on, a Windows-NT machine can only log into a NetMate using the same Username which they logged into their local NT workstation as. (Usually upon startup). If the user then tries to connect to a CD/DVD Server specifying a different username, the CD/DVD Server will fail the login. The user name used when starting up the client must have access rights for the given server. If the present user does not have access rights then the user must log out of their workstation and back in as a user that does.

About Guest Access and UNIX Environments

In addition to global control of guest access, some protocols (such as FTP) allow individual control over guest access. In the case of FTP, enabling guest access also allows the use of the common FTP username of anonymous as an alias to guest. Disabling FTP guest access causes FTP to refuse guest and anonymous logins but does not affect any other protocol.

Should you desire a more secure system but also want some level of guest access, you can configure the guest user account with a password. This will allow users to login as guest (or in FTP as anonymous) but will require the correct password to be entered before access is granted.



Use the Glossary of terms for an explanation of the items within networking and storage systems



Appendix A Glossary

- 10BaseT** This is the earlier version of twisted pair Ethernet which can operate over standard telephone wiring. This type of Ethernet networking usually requires a network hub and is wired in what is called a star topology.
- 100BaseT** This new form of Ethernet is similar to 10BaseT in design but runs at 10 times the speed of its predecessor and requires a more stringent level of twisting and wire grade to sustain the faster speeds.
- Access Rights** This is a security privilege set by the system administrator giving a network client access to shared resources.
- Access Time** The amount of time it takes a storage device to locate the desired data on the device. This time does not include the time it takes to transfer the actual data.
- AFP** AppleTalk Filing Protocol is the standard protocol which Macintosh clients and servers use to transfer data between them.



NetMate CD/DVD Servers

Alert Dialog	A box that appears on the screen to give a warning or to report an error during use of an application. Its appearance is usually accompanied by a beep.
Anonymous User	This is a special type of user in an FTP environment that is not a registered user.
Application	This is a special type of computer file that can be "launched" or "started" to perform a specific task.
Authentication	This is the process by which a user's security rights are verified prior to that user being given access to resources. This process can happen locally on the CD/DVD Server or via remote authentication against another Novell server or against a Microsoft or Netware Domain.
Bindery	This is a database that NetWare 3.x servers use to store Users and Groups.
Bit	A contraction of the words "binary digit", the smallest unit of information that a computer can hold. The value of a bit, 0 or 1, represents a simple two-way choice, such as on or off, true or false, black or white, and so on. Bits are put together to represent text characters, numbers, graphic images, sounds, etc.
Block	A physical or logical number containing a set quantity of bytes. Most drives have either 512 or 1024 byte blocks. CD-ROMs have 2048 byte blocks.
BOOTP	Also known as Boot Strap Protocol, is an earlier version of automatic IP number assignment which is similar but less powerful than DHCP. BOOTP only sets the IP address and not other settings that DHCP is able to automatically configure.



BroadCast	This is a type of network transfer that is designed to go to all computers on the local network. The CD/DVD Server BroadCasts certain packets to initialize itself onto a new network and later to maintain itself.
Broadcast Address	This is a common address that will be received by all user addresses on the network.
Browse List	Used in Microsoft Networking, this list maintains all of the hosts and domains available on the network. This list is what is used to construct the “Network Neighborhood” for the clients.
Browser	This is a special type of application that is used to access information over the World Wide Web. The most common Browsers are Netscape Communicator and Microsofts Internet Explorer. Browsers can access other computers, such as the CD/DVD Server, through either their Web Address or Host Name
Byte	A unit of computer memory consisting of eight bits. A byte is the amount of storage used to represent a single character.
Cache Drive	This is a hard drive on the CD/DVD Server that is used to Cache CD-ROM or DVD-ROM’s too
Changer	This is a type of CD-ROM or DVD-ROM device that can hold multiple CD discs simultaneously to provide more online storage. The drawback is that though multiple discs are available for use only one can be accessed at a time.
CD-R	This is a special type of CD-ROM or DVD-ROM disc that a user can create on their own in a CD-ROM writer system. The CD/ DVD Server supports CD-R discs.



NetMate CD/DVD Servers

Class X Network	Where “X” can be “A”, “B” or “C” this defines the type of Internet Protocol “IP” network that your network utilizes. Class A networks are extremely large with thousands of computers where on the other extreme Class A networks can have only up to 255 computers or users.
Client	This is a type of computer attached to a network that accesses information from other computers or services.
Datagram	This is a packet of data that is using a protocol that does not guarantee delivery. This type of protocol streams data over the network vs sending small amounts and waiting for acknowledgement before sending additional packets.
Desktop	Your working environment on the computer. The menu bar and the background area on your screen.
Device	See Peripheral Device.
Directory	A list of the contents of a folder or a disk.
DHCP	Standing for Dynamic Host Configuration Protocol, DHCP is used in modern networks to configure IP services. A common DHCP server keeps track of all IP configurations for all computers that it services.
Disc	A flat, circular, optical surface on which data can be recorded, as in a CD-ROM or DVD-ROM.
Disk	A flat, circular, magnetic surface on which data can be recorded, as in a floppy disk, or hard disk.
Dismount	This is the process by which a disc that is currently being



shared over the network is removed from the list of available resources. This process happens each time a volume is ejected or a cache volume deleted.

DNS	Standing for Domain Name System, DNS is a database that correlates a machines IP address to it's host name.
DNS Server	This is a common server on an IP based network that maintains and handles requests to and from the DNS server database.
Domain	A domain is a compilation of computers into a logical and more understandable group. Microsoft or Novell Domain services are common access points for which to log into all available servers and network resources. In the Internet world a Domain also is a naming convention used to access IP based computers.
Domain Name	Each domain must have a specific name that distinguishes it over the Internet. A Domain name has 2 parts. First and last. The first is usually the name of the organization and the last it its type. For example 'ford.com' or 'nyu.edu' are two examples of domain names.
Drive Mapping	This is the process by which a client can make a remote volume on a server seem to be a local storage device. This is many times required in order to access applications on network volumes. During the mapping process a volume can be set to automatically re-map on each subsequent startup of the client without additional user intervention.
DVD-ROM	This is a new type of Read-Only storage similar to CD-ROM but of a much larger capacity.



NetMate CD/DVD Servers

Eject	To remove a disc from its drive by unmounting it.
Ethernet	This is a wiring standard used to connect computers together over networks. There were other earlier types of networking but Ethernet has risen to be the dominant form of networking used today.
Ethernet Address	Every device on the Ethernet network must have its own unique identifier. The Ethernet Address of a CD/DVD Server will always be 00:E0:65:xx:xx:xx where the last 6 "x" characters are the systems serial number.
Factory Defaults	This is the form that a new CD/DVD Server arrives in and is installed on to a new network. No network configuration or security information is entered at this point.
Firmware	A software program on a computer chip (rom) that contains information. Sometimes manufacturers have firmware upgrades to handle new features.
Flash Memory	Flash Memory or Flash ROM's are a type of memory chip that can be reprogrammed with new software or firmware in the field. The CD/DVD Server utilizes Flash ROM's to store its firmware
Frame Type	In Ethernet Networks the data packets that carry information must belong to a specific Frame Type. The Frame Type is used to distinguish the type of packet. NetWare Networks utilize all 4 Frame Types, IEEE802.2, IEEE802.3, Ethernet II and Ethernet SNAP. The CD/DVD Server utilizes all four for frame types while sharing data to Novell networking clients, 802.2 for Microsoft SMB Networking and Ethernet II for IP.
FTP	Standing for File Transfer Protocol, FTP is the popular proto-



col to transfer files in a UNIX IP environment.

Gateway	A Gateway is a piece of networking hardware that separates two networks allowing data to pass between them. In IP networks a Gateway is usually assigned during configuration so that the workstation sending data knows whether or not to send the data directly to a local computer, in the case of a LAN, or to the Router or GateWay in order to be passed on to other computers outside of your local network.
HFS	Standing for Hierarchical File System, this is the type of file system that is common to Macintosh only CD-ROM's or DVD-ROM's
Host	This is a server or computer from which a client can copy information from or log into. The term Host is more commonly used in Internet Networking though it applies to all types of networks.
Host ID	This is part of the IP address that determines the computer on the individual network. Host ID+Network ID=IP Address
HTML	Standing for Hypertext Markup Language, HTML is the programming language that is used to create Web pages.
HTTP	Standing for Hypertext Transfer Protocol, HTTP is the protocol that is used to transfer HTML information over the network.
Hyperlink	These are the underlined words, or graphics, in a Web page that are used to jump to other web pages or resources.
Internet	This is the term used to define all of the computers that use the IP protocol. The Internet is a combination of IP based



computers all over the world. Any computer can have access to any other computer over the Internet if access rights have been granted.

IP Short for Internet Protocol, IP is the underlying Protocol for all internet transfers. IP is considered a datagram or unreliable packet since it is sent out without any required provision for verification of receipt.

IP Address This is the address scheme used to identify a node on an IP network. Every node on a given network is represented by a unique set of four numbers, each ranging from 0 to 255. These numbers are commonly arranged with periods as separators, e.g., 204.57.59.68. The largest example of an IP based network is the Internet. Since every address on the network must be unique, for a node to exist on the Internet it must be assigned an IP Address. IP numbers are typically assigned to an organization as a group of similar numbers which are then distributed to their machines either dynamically or on a permanent basis.

IPX Network Number An eight-digit hexadecimal number that uniquely identifies a Netware network.

ISO 9660 This is the most common disc format for CD-ROM and DVD-ROM discs. It is defined by the International Standardization Organization (ISO).

LAN (Local Area Network) A LAN is a collection of computers linked together that are physically close to each other, usually in the same building.

LED (Light-Emitting Diode) An electronic component that emits light. The light is generally used as an indicator to signify a condition or activity.



Long File Name	This is a format for file names used in Windows 95,98, and NT. Unlike the earlier format of eight-dot-three where file names could only be 8 characters long filed by a period and a 3 letter suffix, Long File Names can be up to 255 characters, including spaces but not the characters V:*?"<> .
LUN (Logical Unit Number)	The SCSI specification provides a sub-identifier for each SCSI ID called a Logical Unit Number or LUN. Every SCSI ID has eight LUNs numbered 0 through 7 that can each be processing a command at any given time. LUNs are typically used to communicate with distinct components of a device, such as a jukebox which might have a mechanical arm for moving discs on one LUN and one or more read heads on others. A LUN consolodiation tower can connect up to eight standard devices to a single SCSI ID by mapping each device to a separate LUN.
Master Browser	This is the computer on a Microsoft Network that maintains the browse list workgroup or NT domain. When a computer starts up in a Microsoft network it offers it's name to the network. The Master Browser accepts this name and puts it in the Browse List
Media	The physical medium where the data is written to. The media is protected by the cartridge housing, or in the case of CD-ROMs, the loading tray or caddy.
Mount	The process of making a volume available to be shared. This is generally performed at system startup.
Narrow SCSI	This is a type of SCSI interface that can run up to 20 Megabytes per second in Ultra SCSI mode and 10 Megabytes per second in Fast SCSI mode.
NCP	Standing for NetWare Core Protocol, NCP is a combination of



routines used by a Novell Server to communicate transactions to and from a Netware server and NetWare client.

- NDS** Standing for Novell Directory Services, NDS is a logical grouping of Novell servers and resources. These resources are presented in a Network Neighborhood as one entity for ease of access and a common method to control security for multiple servers. A user logs into the NDS Tree vs a single server as it was under NetWare 3.x. By logging into the NDS Tree user can have access to all the resources of the NDS Tree without requiring multiple log-ins.
- NOS** Standing for Network Operating System, an NOS is specifically designed operating system whose sole purpose is to share data to other computers on the network. The CD/DVD Server features a highly optimized NOS.
- NetWare Bindery** This is a database that a Netware NetWare 3.x servers uses to store Users and Groups.
- Network** A group of interconnected computers.
- Network Neighborhood**
Under Windows 95, 98 & NT this is a desktop icon that represents the network that the workstation is connected to.
- Network ID** This is part of the IP address that determines the network that an individual workstation is on. Host ID+Network ID=IP Address
- NFS** Standing for Network File System, NFS is the file server system used by UNIX systems. A NFS volume is mounted locally to a NFS client computer and seen as a local device.



Node	Any computer on a network is considered a Node on that network.
NT Domain	An NT domain is a logical grouping of servers or hosts on a network. They are presented in a Network Neighborhood as one entity for ease of access. NT Domains are very similar to Microsoft Workgroups. They look identical in the Network Neighborhood. The difference is that a domain provides for common control of network security and access privileges. A user logs into the domain vs a single server. By logging into the Domain the user can have access to all the resources of the domain without requiring multiple log-ins.
Partition	A defined storage area on a disk. Each partition is treated as a separate volume and has its own icon on the desktop.
Peripheral Device	Any device that can be attached to a data port on a computer. For example: hard disk drive, tape drive, CD-ROM drive, printer, modem, graphics tablet, etc
Operating System	This is the primary program a computer will run on startup. Applications are normally run on top of Operating Systems.
Primary Domain Controller	This is the computer on an NT Domain that handles security and maintenance functions for the domain. There can also be a backup domain controller which will operate should the Primary Domain Controller be unavailable.
Protocol	A protocol is a specific communications method between two computers over a network. Similar to two people speaking a foreign language, both computers must speak the same Protocol, or language, to transfer data to and from each other.



RARP	This is an earlier version of automatic IP number assignment which is similar but less powerful than DHCP. RARP only sets the IP address and not other settings that DHCP is able to automatically configure.
Read	To transfer information from a source such as a disk drive, or main memory or to other destinations such as a client on the network.
Reboot	This is the process of safely shutting down the system, disconnecting all users, and restarting.
Router	This is a piece of computer networking equipment that decides the path that data will follow. Routers are used to separate computer networks where desired usually for security or performance reasons.
SCSI	<p>Small Computer Systems Interface. American National Standards Institute (ANSI) defined interface, ANSI X3.131-1986. A parallel, bi-directional communications interface used to transfer data between at least two digital devices.</p> <p>(See also Narrow SCSI and Wide SCSI)</p>
SCSI Address	A unique value from 0 to 7 that is assigned to a SCSI device. No devices are allowed to have the same address. The SCSI Address for most host adapters, and the CD/DVD Server is ID # 7.
SCSI bus	A group of SCSI devices linked to one another through SCSI peripheral interface cables and linked to the SCSI port on the computer through a SCSI system cable. Sometimes referred to as a Daisy Chain.



SCSI ID	SCSI Identification Number - See SCSI Address.
SCSI port	The connector on the back panel of the server or peripheral device to which you connect SCSI cables.
SCSI terminator	A device used at the end of a SCSI bus to maintain the integrity of the signals passing along the SCSI bus. A SCSI bus should always have two terminators, one at each end of the bus. On some devices, a terminator may be built in. Three different types of termination are (1) passive termination (2) active termination, and (3) digital active termination. Passive termination is static and not responsive to SCSI Bus changes. Active termination is responsive to SCSI Bus changes, but controls the data lines as a group. Digital Active Termination is responsive to SCSI Bus changes, but manages each of the data lines individually.
Share	When data on a computer is made accessible to remote computers.
Static IP	A static IP # is an IP number that was manually entered and will not change unless specifically modified by the systems administrator.
Subnet Mask	A component of IP configuration, the Subnet Mask is used to tell computers that they are in the same network and to send data directly to each other or to a Gateway should the destination be a computer on the other side of the Gateway.
TCP/IP	Standing for Transmission Control Protocol/Internet Protocol, TCP/IP is the backbone of the Internet. Systems on the Internet all use TCP/IP to speak to each other. TCP/IP regulates packet transmission, error checking and all communication between computers over the Internet regardless of operating system.



Terminator	See SCSI Terminator.
UNC	Standing for Universal Naming Convention, this is the common format used by operating systems to locate computers over a network. Two backslashes “//” signify the computer while one “/” signify the directory. For example //server/directory is a valid UNC.
URL	Standing for Universal Resource Locator, the URL is the HTTP address of a given resource on a network.
Unmount	When the data from a disk volume or CD-ROM is no longer accessible over the network or from the local computer.
Volume	A general term referring to a storage device. Often used in reference to hard disks and file servers. A volume can be an entire disk or only part of a disk (a partition). Each mounted partition will appear as a volume with its own separate folder or icon.
WINS	Standing for Windows Internet Naming Services, WINS is used by an NT server to provide IP name to address resolution similar to a DNS server.
Web Browser	See Browser
Wide SCSI	This is a type of SCSI interface that can run up to 40 Megabytes per second in Ultra SCSI mode and 20 Megabytes per second in Fast SCSI mode.
Write	To transfer information from main memory, or a client on the network, to a source such as a disk drive.



Read this section should you need to update firmware or reset to Factory Defaults.

Appendix B Updating Firmware and Factory Defaults



Updating Firmware

Should a new version of system software or “firmware” be available for your server, there are multiple ways to install it. Other than the “Automatic” method, you must have first obtained the new firmware file, a “.ROM” file from Black Box .

CAUTION: Never power down your system while updating firmware. This can corrupt the integrity of the ROM data and require returning your system to its manufacturer.

Automatic

A NetMate exclusive, this feature allows for a systems upgrade with nearly no user intervention. The software is downloaded automatically from the internet!

Web

Any standard Web Browser can be used to upgrade firmware.

- 1 Click on the Browse button.
- 2 Local the firmware file. This is a file you would have obtained from Black Box. This file type usually ends in “.rom”



3 Once the file name is displayed in the File Name field choose Submit

After a few moments you will be prompted to restart your CD/DVD Server to have the new firmware take effect.

File Copy

Any standard Mac or Windows system that has access to the CD/DVD Server can upgrade the Firmware by this method.

1 Logged in as “Supervisor” locate the SYS directory and then the “Config” directory.

2 Rename the Firmware file you received from your source to “enrom.rom”

3 Copy the file into the config directory replacing the current one.

After a few moments, once the file completes its copy, you must restart your CD/DVD Server to have the new firmware take effect.

FTP

Using the same steps as in the file copy method, an FTP client can be used to upgrade firmware.

Reset to Factory Defaults

In somewhat rare situations, such as a lost Supervisor password, a diagnostics tool or when moving the CD/DVD Server to a different network the system can be reset to factory defaults. Doing so completely erases all stored configuration information returning the CD/DVD Server to its original configuration. It will again report itself as Black Box_XXXX where XXXX are the last characters of the units serial number. There are 5 ways to reset the NetMate to its factory defaults. It is important to note that the CD/DVD Server must be power cycled after resetting its factory defaults in order for this change to take effect.

Web Client

This feature exists under the maintenance section of the Web Administration pages.



Administration Text File

Open the "Config.ini" file in the SYS directory and change the value for "Use Factory Defaults" to yes. Close the file and restart the board.

Reset Button

A small hole appears under the LED's. With the unit powered OFF press a small paper clip into this hole until the button is felt being pushed on. Power ON the unit and wait approximately 10 seconds until the STATUS light begins to flash in rotating colors signifying the process as complete. Restart the unit again and it is now in factory defaults.

Board Jumper Pins

Use the diagram in the section "installing NetMate into a Tower" to locate the required board pin-out. With the unit powered OFF insert a jumper pin into the Reset to Factory Defaults jumper location. Power ON the unit and wait approximately 10 seconds until the STATUS light begins to flash in rotating colors signifying the process as complete. Power OFF the unit removing the jumper pin and restart the unit again. The NetMate is now using factory defaults.





Consult this section if you are experiencing problems with your CD/DVD Server.

Appendix C

Troubleshooting and Technical Resources



HardWare

I turn on the CD/DVD Server and no LED lights flash.

Make sure that the power cable to the CD-ROM or DVD-ROM server is connected. If no lights flash at all on the NetMate then contact Black Box technical support.

CD/DVD Server ejects a CD-ROM or DVD-ROM disc that was inserted.

Make sure the disc is flat in the tray and the disc label is facing up. If you're using a small (8 cm) disc, make sure it's centered within the tray's inner ring.

The disc may need to be cleaned. If there are visible scratches on the shiny side of the disc, you may be able to remove them with a CD polishing kit (available from your audio CD dealer). If the scratches can't be removed, you'll need to replace the disc.

The disc may be damaged. Try another disc in your CD-ROM player, or try the problematic disc in another player. If the original player reads other discs, or if the problematic disc doesn't work in another player, the disc is probably damaged. You'll need to replace the disc.



I cannot eject a CD from the drive by pressing the eject button on the front of the drive.

Using the Web Administration>>Devices>>Drive Information page be sure that the device is not “Locked” disallowing all eject commands. If the device is not locked then the signal to open the tray may not be reaching the drive or the drive is defective. Turn off your CD/DVD Server and locate the small pinhole on the CD-ROM tray opening. Insert the end of a large straightened paper clip horizontally into the pinhole. Push gently but firmly until the tray is released, then carefully pull the tray open. Do not force the tray open; wait until the paper clip has dislodged it or you may break the front of the tray.

CD/DVD Server does not make a newly inserted disc available in the Network Neighborhood though other discs are visible.

Remember to wait for CD/DVD Server to mount the CD-ROM or DVD-ROM's. Every few seconds the CD/DVD Server “polls” for newly inserted CD-ROM's. In a system with a large number of devices this time can seem substantial.

Using the Web Administration>>Devices>>Drive Information page see if the disc is mounted. If it is then pressing “F5” on your client should show the newly mounted volume in your Network Neighborhood.

If the disc is inserted into the drive and enough time has passed for the disc to be mounted then your drive may not be performing properly or the disc may be damaged. The disc may need to be cleaned. If there are visible scratches on the shiny side of the disc, you may be able to remove them with a CD polishing kit (available from your audio CD dealer). If the scratches can't be removed, you'll need to replace the disc.

The disc may be damaged. Try another disc in your CD-ROM player, or try the problematic disc in another player. If the original player reads other discs, or if the problematic disc doesn't work in another player, the disc is probably damaged. You'll need to replace the disc.



The caddy will not insert into the drive. (Caddy Drives only)

There may already be a caddy in the drive.

The power to the CD Server must have been "ON"

The caddy must be inserted with the arrow pointed towards the drive's slot.

The caddy may be in upside down. The clear side (so that you can see the disc) must be up.

Software and Operations

You can't open a file or launch an Application on a CD-ROM disc.

Some programs require that the CD-ROM or DVD-ROM be "mapped" to a local device in order to operate correctly. To do this, right click on the CD-ROM or DVD-ROM in Network Neighborhood and choose "Map Device". You will be prompted to choose a free drive letter to assign the volume too.

When I try to map a volume that is longer then 8 characters I get an error.

Certain clients cannot access volumes that are longer then 8 characters. Using the Web Administration pages go to Volumes>>Configure Volumes>>Properties and change the "Alias" of the volume to one that is less then 8 characters.

I just installed my NetMate and cannot find the NetMate over the network from a Windows based computer.

The process for the CD/DVD Server to register itself may take several minutes to much longer depending on the size of your network. A quicker



way to find the CD/DVD Server prior to it showing up in a WorkGroup or Domain is to take the following steps.

First, obtain the serial number of the CD/DVD Server from the rear of the system.

Microsoft Networks

From the Start button choose Start>>Find>>Computer and type "Black Boxxxxx_smb" where xxxx are the last 4 numbers of the units serial number

NetWare Networks

From the Start button choose Start>>Find>>Computer and type "Black Boxxxxx_nw" where xxxx are the last 4 numbers of the units serial number

In Windows NT I am asked to enter a user name and password, I do so, but still cannot gain access to discs?

If NT Style Authentication is turned on, a Windows-NT machine can only log into the CD/DVD Server using the same Username which they logged into their local NT workstation as. (Usually upon startup). If the user then tries to connect to the CD/DVD Server specifying a different username, the NetMate will fail the login.

There are three ways around this: 1. Create an account on the CD/DVD Server with the same username that is used on the Windows-NT system. 2. Log in on the Windows-NT system under the same username which will be used on NetMate 3. Under the administrative/configuration web page on the CD/DVD Server, turn OFF NT-Style authentication.

This is due to the fact that Windows tries to make life simplify security by remembering your username and always using it for all network logins thereafter. For example, under other NT servers, you would be required to user your initial-login username.



I get a blank screen when I try to access the Web administration though I know that IP is configured properly.

This compatibility issue happens with a non-frames capable browser. Your browser must be able to handle frames to work correctly. This means Netscape Navigator 3.0 or greater or Internet Explorer 3.0 or greater, or any browser that supports the frames standard.

Many version of NT come with Microsoft Internet Explorer version 2.2 which will not work since this version of software does not support frames and needs to be upgraded.

I forgot my administrators password.

This will require setting the CD/DVD Server back to factory defaults. Remember, this clears out all configured items including Users, Groups, Network information etc.

Display Models

With display models this can be done by using the interactive keypad and display.

Non-Display Models

Resetting to factory defaults is accomplished by:

- 1 Power off the unit.**
- 2 Carefully insert a paper click into the small hole under the LED's and push and hold the reset button.**
- 3 Power on the unit for 5 seconds while still pushing down the reset button.**
- 4 Release the reset button and cycle the power on the CD/DVD Server again. The CD/DVD Server will restart with all setting set to initial values.**





Consult this section if you
are experiencing
problems with your CD/
DVD Server.



Appendix D Specifications

NETWORK OPERATING SYSTEMS

Simultaneous operation in the following networking environments:

Apple Macintosh:

AppleTalk version 1.1 or greater

AppleTalk/IP

IBM OS/2 LAN Server

LAN Server V1.3 and above

SMB over NetBIOS and TCP/IP

SMB over NetBIOS and NetBEUI

Microsoft Windows NT / LAN Manager

LAN Manager V1.3 and above

SMB over NetBIOS and TCP/IP

SMB over NetBIOS and NetBEUI



Novell NetWare

NetWare V3.11, 3.12, 4.10 and 4.11

IPX/SPX, emulating both Bindery (V3.12) and true NDS

NCP via IP

Unix

NFS compatible Unix systems

NFS over UDP/IP

FTP

ARP, RARP, BOOTP, DHCP, SNMP

World Wide Web

HTTP 1.0 and HTML 2.0 compatible browser

HTTP over TCP/IP

SECURITY

Users and groups can be stored and managed directly on the CD/DVD Server or kept remotely on your existing file servers.

Access to the CD/DVD Server can be restricted by users and/or groups down to the directory level. The number of users per CD can also be restricted through disc metering.

NetWare

Security is handled internally, storing and modifying users and groups on the CD/DVD Server, or externally via third party authentication from an existing Novell server. The CD/DVD Server can also be inserted into the NDS Tree allowing NDS to handle all security.



Windows, OS/2

Internal users and groups or remote users. Share Level Security, SMB User-Level Security authenticates users against the Primary Domain Controller fully supporting Microsofts Domain Services.

Unix:

NFS version 2, PCNFSD, mountd

Apple Macintosh:

Standard Apple User or Grouped security supported.

HARDWARE SPECIFICATIONS

Storage Capacity

2 Ultra Wide independent SCSI busses, 2 wide connectors, 2 narrow connectors. Support for 14 SCSI devices per channel or 112 CD's with LUN expansion.

CD-ROM DISC FORMATS

ISO 9660 (Joliet & Romeo), RockRidge, High Sierra, Multi-session, HFS, Hybrids

Memory Capacity

Up to 128 MB DRAM using low cost 72 pin EDO SIMMs, Flash memory: 2MB

Network Performance

Network throughput close to 100 Mbits/sec.

Network Interface

Auto-switching fast ethernet interface,



NetMate CD/DVD Servers

RJ-45 connector (Category 5 unshielded twisted pair cable) for 10BaseT or 100Base TX fast ethernet.

Software Updates

Flash memory allows remote software updates over the network using a Web Browser, TFTP, a standard file copy or a provided utility.

Supported Devices

All SCSI-2 CD/DVD-ROM Devices and Minichangers, Supports SCSI disconnect/reconnect and Synchronous SCSI transfers.

Hardware

CPU: INTEL i960 32-bit RISC processor, QLogic ISP1240 RISC based SCSI controller, RS-232 compatible serial port, options for LEDs, alphanumeric display and keypad.

Dimensions

Bracket fits into standard 5.25" enclosure. The bare board can be mounted separately inside the tower chassis.

Environmental

System Temperature: 38-110°F (4-42°C)

Humidity: 10-85% RHG, non-condensing

Power

5 Volts Tolerance: +/- 5% Typical Draw: 2.15A Maximum Draw: 2.50A

12 Volts Tolerance: +/- 5% Typical Draw: 0 A Maximum Draw 500 mA



Netmate CD/DVD Server Controller Manual Version 1.14

Black Box Part Number CDU-NM10

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Black Box

<http://www.BlackBox.com>