FISC CDM

Network Ready CD Mirror Server

User's Manual

Version 1.03

Part Number : 505115.0010.00

Important Notice

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(this manual is intended for FISC CDM firmware 3.30 and beyond)

Electronic Emission Notice

Federal Communications Commission (FCC)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential environment.

CE Notice

This device complies with the EMC directive of the European Community and meets or exceeds the following technical standard:

- EN 55022 ~ "Limits and Methods of Measurement of Radio interference Characteristics of information Technology Equipment." This device complies with CISPR Class B standard.
- EN 50082-1 ~ "Electromagnetic compatibility – Generic immunity standard Part1: Residential, and light industry."
- ICE 801-2 ~ "Electromagnetic compatibility for industrial-process measurement and control equipment Part2: Electrostatic discharge requirements" – Severity level 3.
- ICE 801-3 ~ "Electromagnetic compatibility for industrial-process measurement and control equipment Part3: Radiated electromagnetic field requirements." – Severity level 2.
- ICE 804-4 ~ "Electromagnetic compatibility for industrial-process measurement and control equipment Part4: Electrical fast transient/burst requirements. " – Severity level 2.

Safety Information

- To reduce the risk of fire or electric shock, install the unit in a temperature-controlled indoor area free of conductive contaminants. Do not place the unit near liquids or in an excessively humid environment.
- Do not allow liquids or foreign objects to enter the unit.
- All servicing of this equipment must be performed by qualified service personnel. Remove rings, watches and other jewelry before servicing the unit.
- Before maintenance, repair or shipment, the unit must be completely switched off and unplugged and all connections must be removed.

About This Manual

This User Manual describes your FISC CDM network-ready CD Mirror Server and explains how to install and begin to use it. Separate chapters in the manual cover the following topics:

Chapter 1 ***Introduction***	Describes the FISC CDM and lists all of its functions and features
Chapter 2 ***Getting Started***	Explains how to install your FISC CDM and how to start using it.
Chapter 3 ***Configuration & Management of FISC CDM***	Explains the configuration and management of your FISC CDM and how to enable your FISC CDM to operate correctly
Chapter 4 ***Using FISC CDM on Client Workstations***	Explains how to enable client workstations to access your FISC CDM
Appendix A ***Technical Specifications***	Describes the technical specifications of the FISC CDM
Appendix B ***LED Indicators***	Explains the meaning of the FISC CDM LED codes.
Appendix C **Jumper Settings and Connectors**	Demonstrates the settings of the jumpers and connectors on the FISC CDM main board

Conventions

The following icons are for drawing your attention to advisory messages.

	***Ignoring this information could result in personal injury.***
	***Ignoring this information could result in loss of data or harm to your equipment.***
	***These notes contain remarks, tips and other useful supplementary information.***

Abbreviations

The following abbreviations are used in this manual:

BOOTP	Bootstrap Protocol
CD	Compact Disc
CIFS	Common Internet File System
DHCP	Dynamic Host Configuration Protocol
DMA	Direct Memory Access
DVD	Digital Versatile Disc
EDO	Extended Data Out
HTTP	Hyper Text Transport Protocol
IDE	Integrated Drive Electronics
IP	Internet Protocol
LED	Light Emitting Diode
MAC	Media Access Control
MB	Mega Byte
Mbps	Mega Bit Per Second
MHz	Mega Hertz
NCP	NetWare Core Protocol
NFS	Network Files System
RARP	Reverse Address Resolution Protocol
SIMM	Single In-line Memory Module
SMB	Server Message Block
TCP	Transmission Control Protocol
URL	Universal Resource Locator
UTP	Unshielded Twisted Pair
WINS	Windows Internet Naming Service

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CHAPTER 1

Introduction

About FISC CDM

Thank you for choosing the FISC CDM network-ready CD Mirror Server. The FISC CDM is the only stand-alone CD Mirror Server in the world that is able to adopt the latest technological advances developed in PC industry. The FISC CDM uses standardized components and the latest advances in CD-ROM architecture to achieve the highest cost-performance available in the market.

The FISC CDM Network Ready CD Mirror Server comes with the following features:

- **Massive**
  - Hosts up to 640 CD images
  - Single CD image size is up to 4 GB
- **Multimedia**
  - Sustains over 20 MPEG-I video playback without gaps and jitters
  - Supports multimedia title formats like DVD Video, Audio CD, and Video CD
- **Mighty**
  - Pumps over 7MB per second to network, 3 to 5 times faster than competitors
- **Manageable**
  - Identifies duplicate CD images automatically
  - All administration jobs are done through WWW browsers

The FISC CDM deploys a Cyrix Media GX CPU, a Fast-Ethernet network interface, PCI bus-mastering technology, embedded network file sharing and network transport system, a real-time OS and intelligent cache system into one highly integrated single board controller. FISC CDM is definitely your best choice for CD-ROM networking!

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CHAPTER 2

Getting Started

Unpacking your FISC CDM Package

Please unpack your FISC CDM package carefully and verify that you receive the following components:

- One FISC CDM Controller
- One Network Connection Board
- One floppy disk containing the Remote Mirror Utility
- One UTP cable
- Four IDE flat cables
- Four short screws (for the FISC CDM controller)
- Two screws (for Network Connection Board)
- Three jumpers
- This User's Manual

If any of the components is damaged or missing, please contact your dealer.

This list does not apply if you bought a complete system from your FISC CDM dealer.

Site Considerations

Before installing the FISC CDM, prepare a suitable workplace. Select a clean installation operation site that meets the temperature and humidity requirement listed in **Appendix A** — ***Technical Specifications***.

Installing FISC CDM into a Tower

Since FISC CDM is equipped with 4 IDE channels that can host 8 EIDE HD or CD-ROM drives, you might use 9-bay tower cases. If you purchase a FISC CDM Tower, the FISC CDM controller has already been properly pre-installed into the bay in the center of the tower while the IDE flat cables have also been plugged onto the FISC CDM controller. All you have to do is to connect your EIDE HD or CD-ROM drives to the IDE cables. Please refer to page 8 — ***Connecting CD-ROM Drives***.

For instructions on installing the FISC CDM into a third party 9-bay tower case, please refer to the power and fan requirements stated in **Appendix A — *Technical Specifications*** and the following installation steps.

STOP **Caution!**	***In order to avoid the possible risk of electrical shock and any other injury, please disconnect the power before installation.***

1. Remove the screws at the rear of the tower that secure the cover of the tower to the tower chassis. Remove the cover of the tower.
2. Slide the FISC CDM controller into the fifth bay (in the center of the tower). Refer to the following illustration.

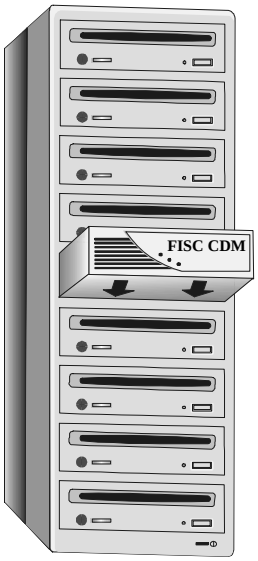


Figure 2-1: Installing the FISC CDM Controller

3. Secure the FISC CDM controller to the Tower chassis with the screws included in the package.

Note!

Please note that the length of the screws must not exceed 4 mm. Otherwise, the FISC CDM controller may be damaged.

4. Connect the power cord to FISC CDM. The power connector of the FISC CDM is a standard PC 4 pin power supply connector (12 and 5 V DC). See ***Figure 2-2***.

Note!

Before connecting the power cord to FISC CDM, be aware that Pin 4 (+5V) of power cord connector is next to UTP connector. Please refer to Appendix C Jumper Settings and Connectors.

5. Connect one end of the supplied UTP cable to the RJ 45 connector on the FISC CDM. See ***Figure 2-2***.

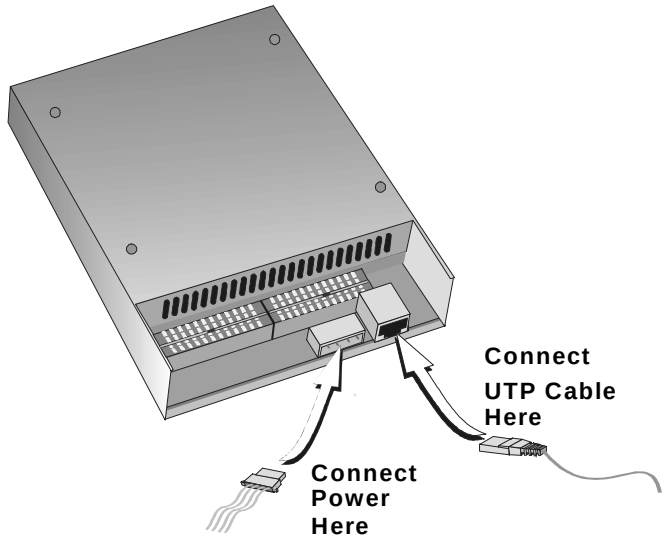


Figure 2-2: Connecting Power to the FISC CDM

6. Connect the network connection board to FISC CDM using the other end of the UTP cable and then mount the connection board on the back of the CD-ROM tower. Refer to ***Figure 2-3***.

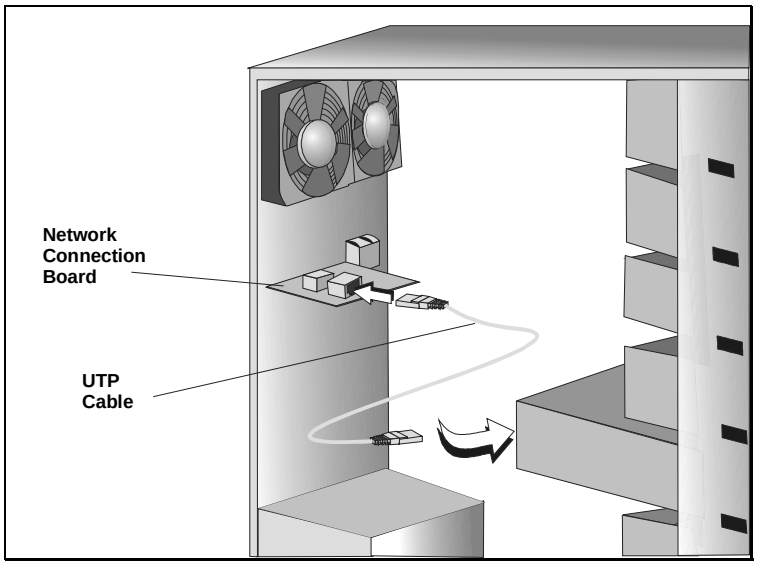


Figure 2-3: Connecting the Network Connection Board

The ideal air flow circulation of a FISC CDM tower is through the front of the tower to the rear. Therefore, the front panel of FISC CDM must not be blocked or shielded. If you are using a tower with a front door, the tower must have ventilation holes on both sides of the door.

SIMM Installation and Removal

In addition to the on-board 8MB of RAM, the FISC CDM comes with two SIMM sockets, which allow you to increase the total memory capacity. Use standard 8MB, 16MB or 32MB EDO SIMM modules to upgrade the memory of the FISC CDM.

Installing a SIMM

1. Remove the four screws that secure the top cover of the FISC CDM. Remove the top cover.
2. Locate the 72-pin SIMM sockets.
3. Firmly insert the module into the socket at an angle as in ***Figure 2-4***, #1. Make sure that the SIMM is seated evenly.
4. Press the top edge of the SIMM module in the direction of #2 in the illustration until the retaining latches click into place. Refer to the following illustration:

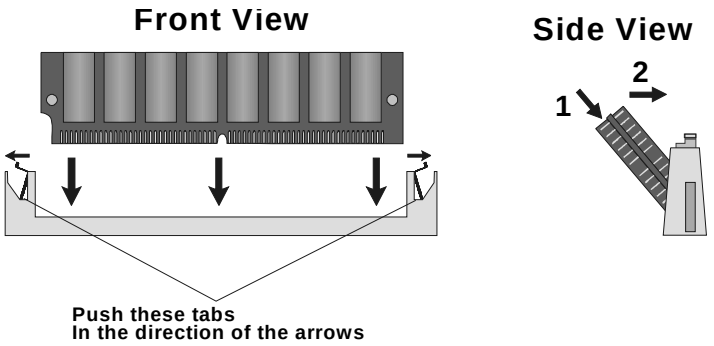


Figure 2-4: Installing a SIMM Module

Removing a SIMM Module

1. Gently push the retaining latches outwards and carefully but firmly pull the module in the opposite direction of #2 in ***Figure 2-4***.
2. Remove the module from the socket.

Memory Upgrade Path

Upgrade Path	Total Memory	On Board	Socket 1	Socket 2
1	8MB	8MB	0	0
2	24MB	8MB	8MB	8MB
3	40MB	8MB	16MB	16MB
4	72MB	8MB	32MB	32MB

Connecting CD-ROM Drives

A single FISC CDM can host up to 8 EIDE HD or CD-ROM drives using the 4 IDE flat cables which are included in your FISC CDM package.

Note!

To comply with ATA-4 specification, the following restrictions should be applied to the IDE cables used with the FISC CDM: the total length of a single IDE cable shall not exceed 0.46m (18 inch); and the cable capacitance shall not exceed 35pf.

To connect IDE HD or CD-ROM drives to FISC CDM, please refer to the following steps:

1. Connect one end of the IDE cables to the FISC CDM IDE connectors. The 4 IDE channel numbers are indicated besides the connectors on the main board of the FISC CDM. Refer to ***Figure 2-5***.

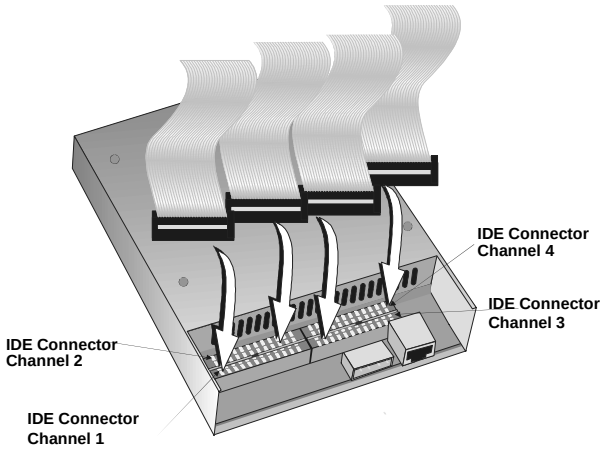


Figure 2-5: Connecting EIDE HD or CD-ROM Drives to the FISC CDM Controller

2. Connect the other end of the IDE cables to the IDE HD or CD-ROM drives.
3. The HD or CD-ROM drives which are going to be installed in the 1st and 2nd bays should be connected to IDE Channel 1; the 3rd and 4th bays should be connected to IDE Channel 2; the 6th and 7th bays to IDE Channel 3; and the 8th and 9th to IDE Channel 4. Refer to ***Figure 2-6*** and the following table for drive and channel configuration:

IDE Channel Configuration

BAY	IDE Channel
1 and 2	Connect to channel 1
3 and 4	Connect to channel 2
6 and 7	Connect to channel 3
8 and 9	Connect to channel 4

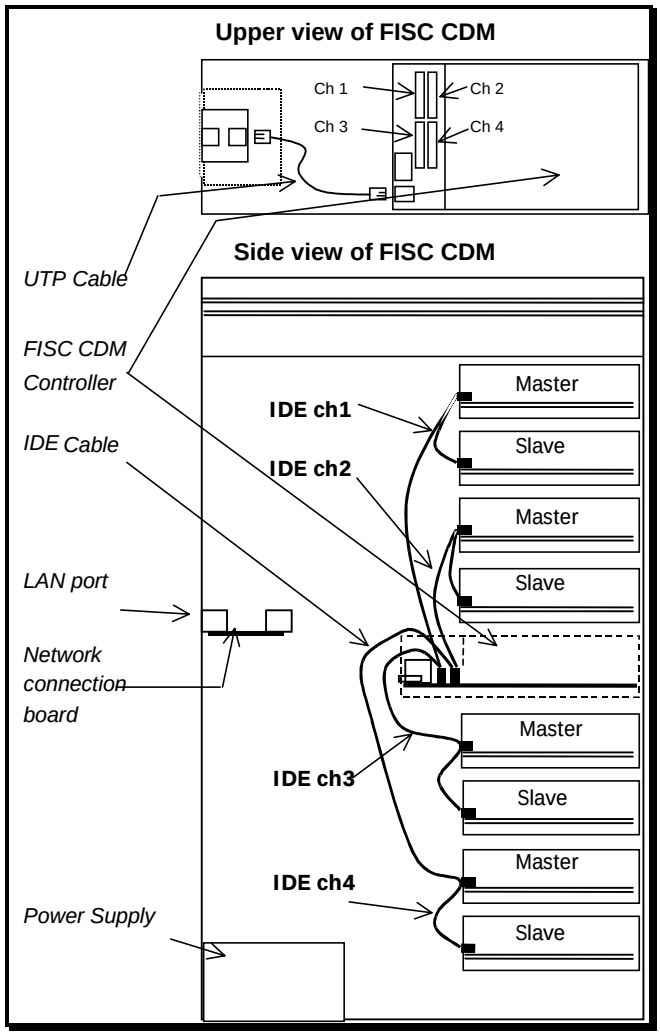


Figure 2-6: IDE Channel Connections

Important!

We recommend you use IDE CD-ROM drives that have passed our compatibility test listed in the "CD-ROM Drive Compatibility Sheet" (available from your dealer) with the FISC CDM controller.

Connecting Power to the FISC CDM Tower

Now you can connect power and your computer or Network hub to the FISC CDM tower. Please refer to the illustration and instructions below:

1. Connect the female end of the supplied power cable to the socket at the rear of the FISC CDM tower. Refer to ***Figure 2-7***.
2. Connect the male end of the power cable to a convenient grounded wall socket.
3. Connect the UTP Network Cable to the LAN port at the rear of the tower. Refer to ***Figure 2-7***.

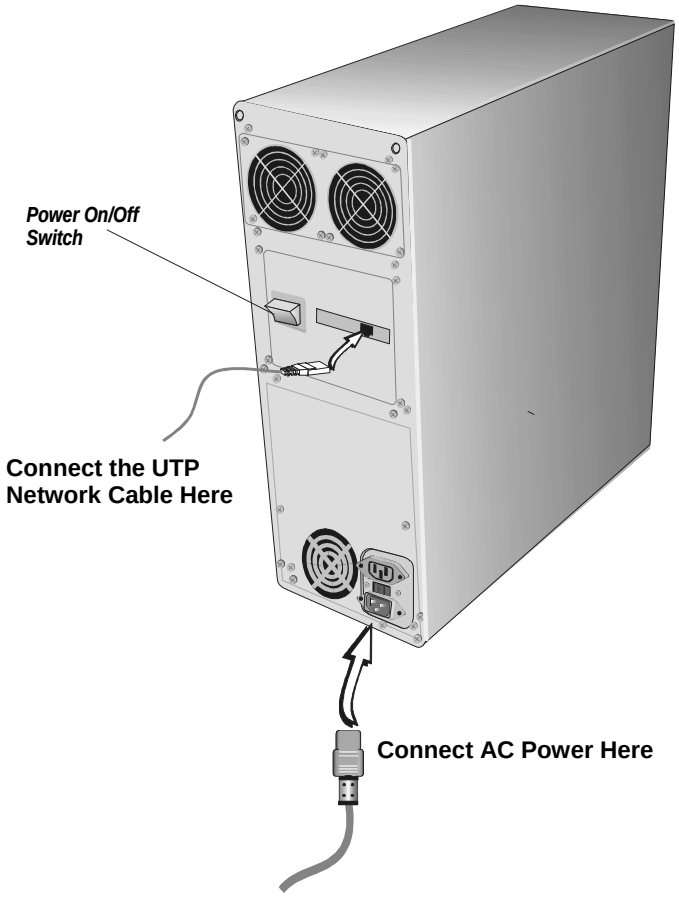


Figure 2-7: Connecting Power to the FISC CDM Tower

Important! 

The best kind of AC power source to connect to the FISC CDM tower is a UPS (Uninterruptible Power Supply). Lacking this, use a power strip with a built-in surge protector. Do not use inferior extension cords as this may result in damage to your FISC CDM.

Connecting FISC CDM to the Network

To connect the FISC CDM to your network, please refer to the following steps:

1. Connect the UTP network cable to your hub or switching hub. You can use a 10Mbps, 100Mbps or auto-sensing hub; the FISC CDM will adjust itself automatically.
2. Turn on the power. The POWER, FAULT and LAN LED indicators will be lit for a short time (about 1 sec) during early POST (Power-On Self Test). Then the Power LED will flash to indicate that a POST (Power-On Self Test) is still running. After the POST is completed, the system will begin to mount the installed HD and CD-ROM drives. The FISC CDM is ready for use after all drives are mounted. For further information about POST statuses and the meanings of LED codes, please refer to **Appendix B — *LED Indicators***.

This concludes Chapter Two. Chapter Three covers how to configure and manage FISC CDM.

CHAPTER 3

Configuration and Management

This chapter presents easy-to-follow instructions to configure and manage your FISC CDM using Internet Web browsers. Configuration and changes of all the parameters of FISC CDM are done through your Web browser.

First-time Setup

Before you access FISC CDM using your Web browser, please ensure that the FISC CDM is properly installed and configured with a valid IP address. There are two ways to configure the IP address of FISC CDM: through the ROM-based IP Manager or by changing the TCP/IP address of your PC.

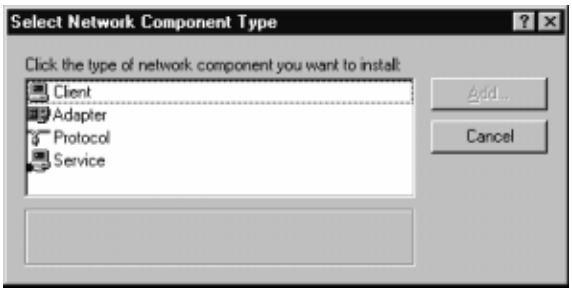
ROM-based IP Manager

The ROM-based IP Manager is a Win32 program that is stored in the flash ROM of the FISC CDM for the convenience of setting up the FISC CDM under the Windows 95/98 and Windows NT environments.

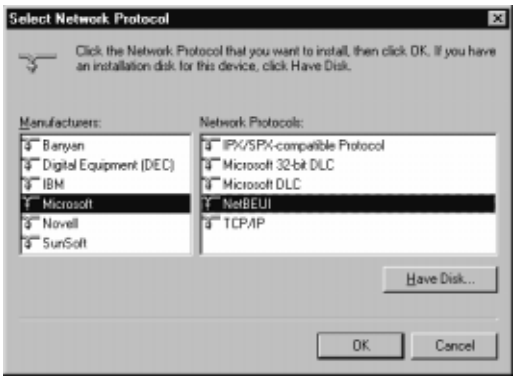
Before you can use the ROM-based IP Manager to change the installed IP address of the FISC CDM, you must ensure that the Microsoft NetBEUI protocol is activated. Please follow these steps:

1. Open the Windows Control Panel and double click the Network icon. The following window opens:

2. If the NetBEUI protocol is not listed click the *Add* button to open the Select Network Component Type window:



3. Select the Protocol network component and then click *Add*. The following window opens:



4. Under *Manufacturers:* select Microsoft. Under *Network Protocols:* select NetBEUI. Insert your Windows 95/98 CD-ROM into the CD-ROM drive if necessary, and click *OK*.

5. Windows will copy files to your hard disk drive and install the NetBEUI protocol.

Now you can configure the IP address for the FISC CDM.

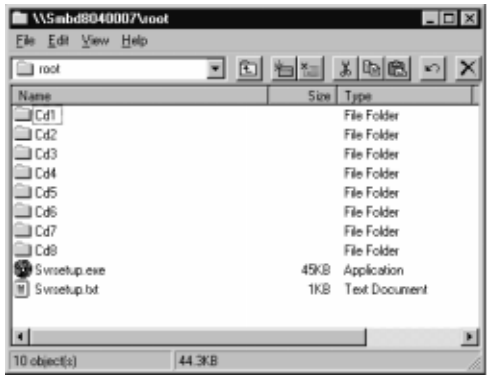
1. Connect your FISC CDM to a Microsoft network where the NetBEUI protocol is activated and turn on the power.

2. Select a PC (running Windows 95/98 or Windows NT) that is physically connected to the same network segment as the FISC CDM.

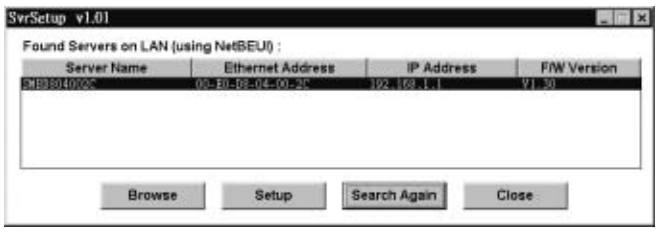
3. Please go to “Network Neighborhood” of this PC and browse the network by double clicking "Entire Network". You will find a new workgroup in the name "Workgroup". Please browse this workgroup and you will find FISC CDM in the name of “SMBxxxxxxxx” where xxxxxxxx are the last 8 digits of FISC CDM’s MAC (Media Access Control) address.

4. Enter the FISC CDM directories by double clicking "SMBxxxxxxxx". Locate the directory named "root" under FISC CDM.

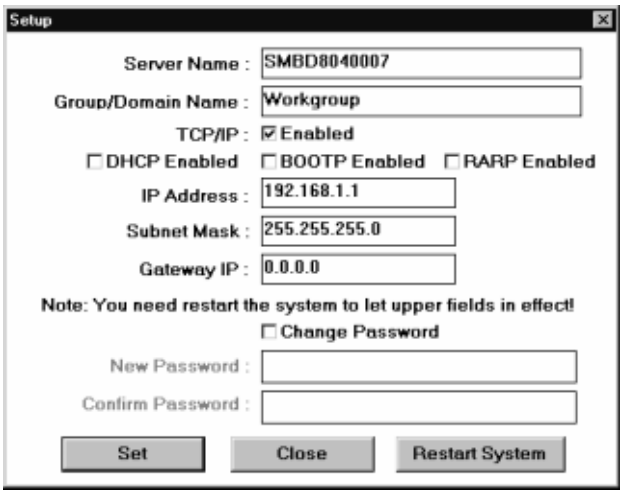
5. Double click "root" and locate the execution file "svrsetup.exe". "svrsetup.exe" is the FISC CDM IP Manager / Server Setup Program.



6. Double click "svrsetup.exe" to run the Server Setup program. The "Found Servers on LAN" window will pop up. Available FISC CDM servers on your network and relating MAC addresses (Ethernet Address) and IP addresses will be detected and shown in the window. Click the "Browse". button to browse the content of the selected FISC CDM server. Click the "Search Again" button to search again for available FISC CDM servers on LAN.



7. Select the FISC CDM you want to configure and click the icon "Setup." A Setup window will pop-up.



8. You will then be able to configure the FISC CDM's Server Name, Group/Domain Name, TCP/IP, IP Address, Subnet Mask and Gateway Address. Please refer to ***Server Setting Menu*** and ***Configuration Menu*** later in this chapter for detailed description of these parameters.

9. Acquire a valid IP address, the IP subnet mask, and the gateway IP address from your network administrator for the FISC CDM and fill in the appropriate boxes in this setup window.

10. After setting up the parameters above and restarting your FISC CDM, you will be able to access the FISC CDM server via your Web browsers.

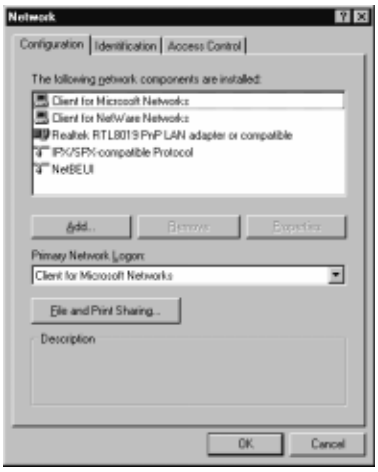
Important!

1. ***Please let the FISC CDM restart itself in order to effect your setup changes.***
2. ***Please configure your preferred administration password right away so that your FISC CDM ROM-based IP Manager program can be password-protected to avoid unauthorized changes to the server settings.***

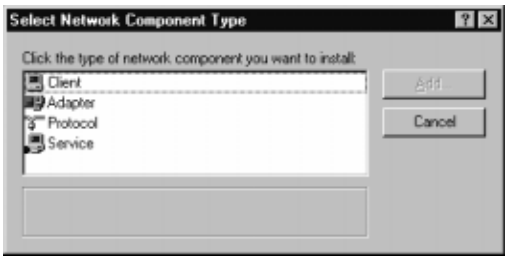
Changing the TCP/IP Address of Your PC

This section illustrates how to access the FISC CDM by changing the TCP/IP address of an existing PC. You must first ensure that the TCP/IP protocol is installed on your system. Please follow these instructions to install the TCP/IP protocol on your system:

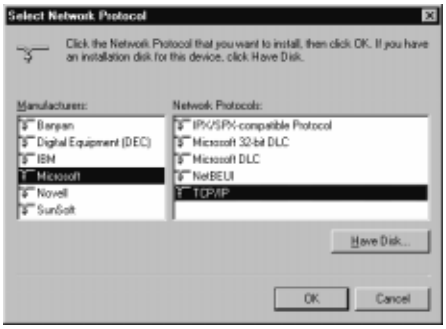
1. Open the Windows Control Panel and double click the Network icon. The following window opens:



2. If the TCP/IP protocol is not listed click the *Add* button to open the Select Network Component Type window:



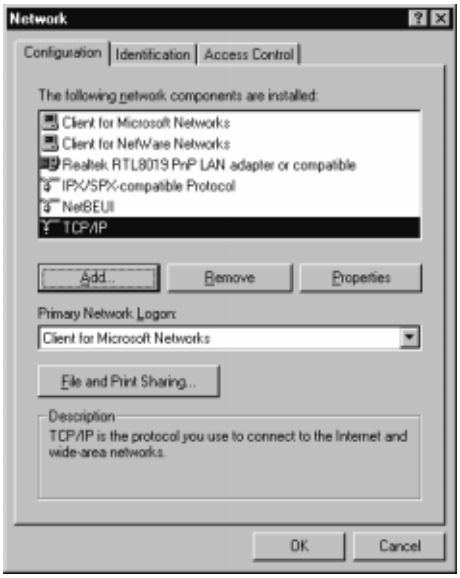
3. Select the Protocol network component and then click *Add*. The following window opens:



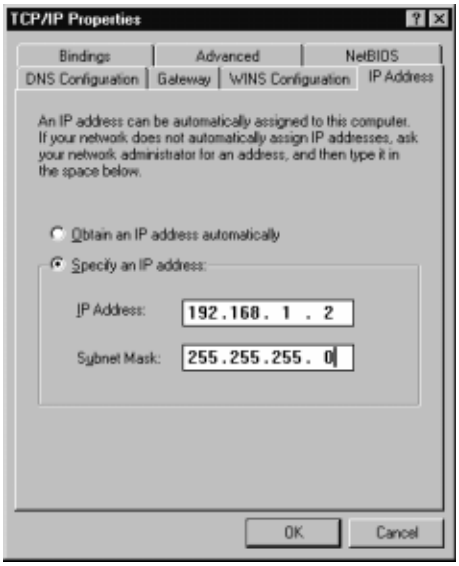
4. Under *Manufacturers:* select Microsoft. Under *Network Protocols:* select TCP/IP. Insert your Windows 95/98 CD-ROM into the CD-ROM drive and click OK.
5. Windows will copy the appropriate files to your hard disk drive and install the TCP/IP protocol.

Next, you need to change the IP address of your PC in order to configure the FISC CDM.

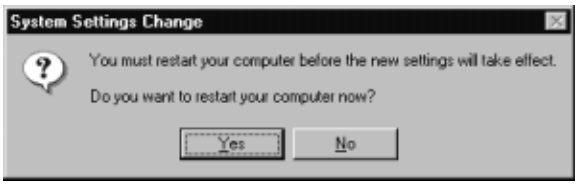
1. Select a PC (running Windows 95/98 or Windows NT) that is physically connected to the same network segment as the FISC CDM.
2. Make sure the TCP/IP protocol of this PC is installed and activated successfully.
3. Open the Control Panel and double click the Network icon to open the Network dialog box:



4. In the installed protocols window, select TCP/IP and click *Properties*. The TCP/IP Properties window will open:



5. Click the IP Address tab. Click the radio button next to *Specify an IP address*. In the *IP Address* field enter the IP address "192.168.1.2". In the *Subnet Mask* field enter "255.255.255.0". Click *OK* to enter the changes and return to the Network dialog box. Click *OK* to exit the Network dialog box. You will be prompted to restart your computer.



6. Click *Yes* to restart the computer and complete changes to the system settings.

Since the default IP address of FISC CDM is "192.168.1.1", this procedure will put the local PC and the FISC CDM on the same net. You will be able to access FISC CDM via Web browsers after the changes have been made. Please follow these instructions to access the FISC CDM via Netscape Navigator 2.0 or later, or Microsoft Internet Explorer 3.0 or later.

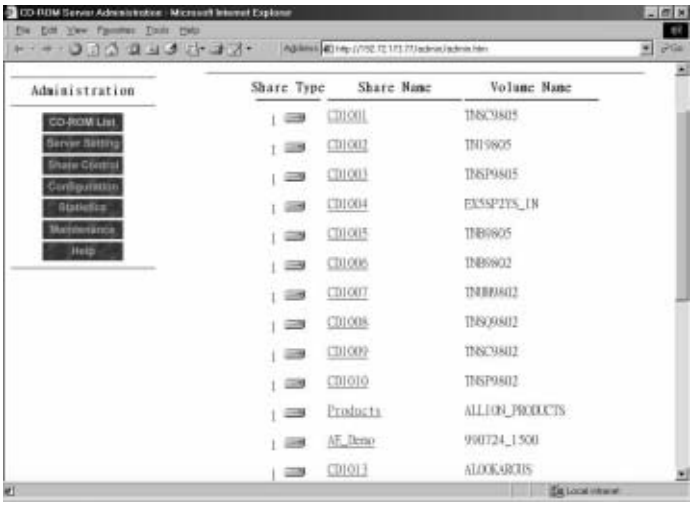
1. To access the FISC CDM using a browser, give the URL in the browser location box as http://<FISC CDM's IP Address>. The default FISC CDM IP address is "192.168.1.1". Type *http://192.168.1.1* in your browser location box to access the FISC CDM.

2. For the first-time setup, you can enter the Administration Page directly without needing to provide the password. The default setting of FISC CDM is not password-protected.
3. Configure your preferred administration password so that your FISC CDM Administration Page is password-protected. Refer to the section entitled ***Server Setting*** in this chapter.
4. Configure the Server Settings and IP address of the FISC CDM to enable FISC CDM to be accessed by the other client stations of your network. Please refer to the section entitled ***Server Setting*** and ***Configuration Menu*** later in this chapter.

Managing FISC CDM through Web Browsers

Netscape Navigator 2.0 or later, or Microsoft Internet Explorer 3.0 or later are required for managing the FISC CDM in a Web browser.

To open the Administration Page, simply add /admin at the end of FISC CDM's URL or IP address (i.e., http://<FISC CDM's IP address>/admin) in your browser's location box and press [Enter]. The Administration Page will appear in the browser. For example, if the IP address of the FISC CDM you want to manage is 192.9.54.200, then the URL you have to open is http://192.9.54.200/admin. The following illustration shows the Administration page opened with the default FISC CDM IP address (192.72.173.77):



The FISC CDM Administration Page contains two windows (frames). The left frame contains the menu of options for administrative tasks. When you click on the menu item, the corresponding page will appear in the right frame. Initially the right frame contains the CD-ROM list. All the functions in this page are self-explanatory and easy to follow.

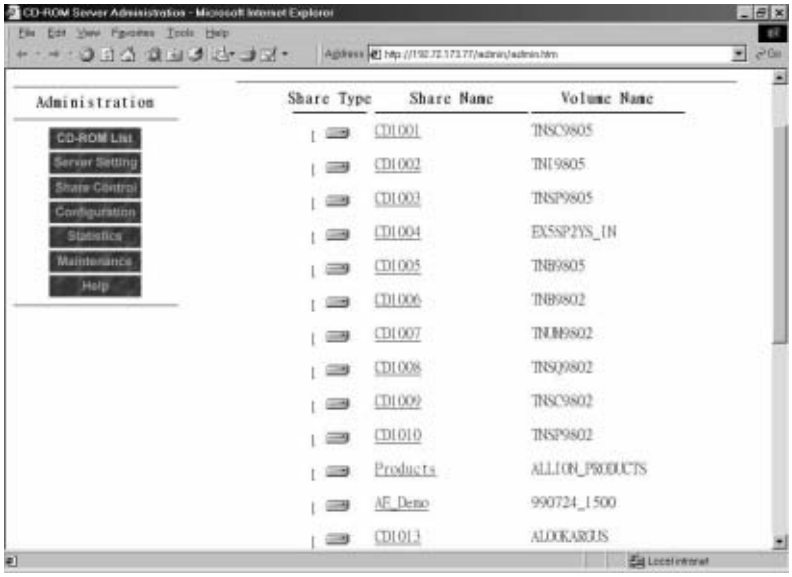
The administration menu contains the following sub-menus:

1. CD-ROM List
2. Server Setting
3. Share Control
4. Configuration
5. Statistics
6. Maintenance
7. Help

The functions and the operation of these sub-menus are described in the sections below.

CD-ROM List

Click the CD-ROM List button to view the currently loaded CD Titles:

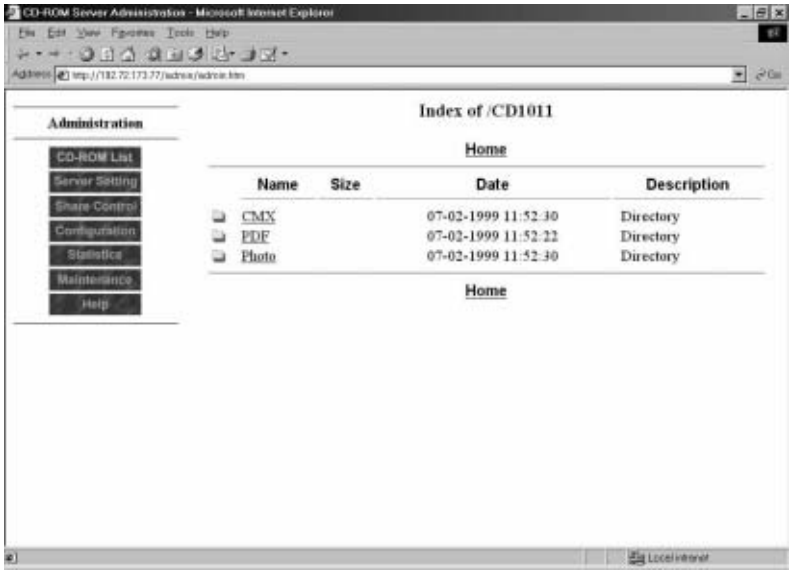


When you access FISC CDM through a Web browser, the FISC CDM default home page will appear, containing a list of CD-ROM volumes currently present on the FISC CDM. By clicking the CD-ROM volume name in the list, you can browse the content of each CD-ROM.

FISC CDM also supports CD changers. The default share name for changer is *CDX00Y* where X is the drive number, the same as in the case for CD-ROM drives; and Y is the CD number inside the changer. For example:

"CD2001" is the first CD title inserted in the HD or the CD changer connected as the second drive (slave) of IDE Channel 1, and "CD2002" is the second CD title inserted in the HD or the CD changer connected as the second drive of IDE Channel 1, and so on.

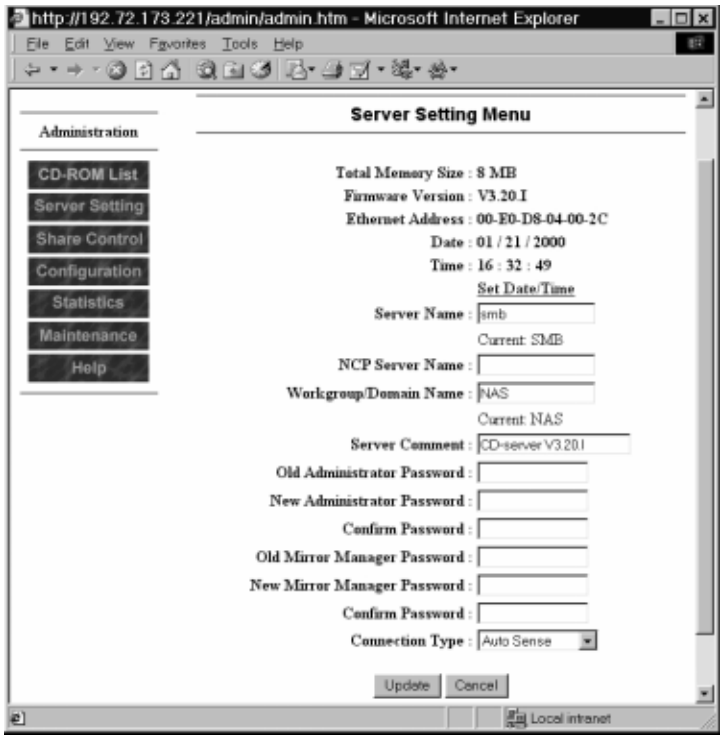
For an easy identification, CD-ROM drives, CD changers, and HD drives are represented by different icons in the CD-ROM List page.



FISC CDM can also act as a simple Web server that can handle requests for files on the CD-ROM volumes of FISC CDM. Refer to the *HTTP* entry under ***Configuration Menu*** later in this chapter for more details.

Server Setting Menu

Click the Server Setting button in the left frame. The Server Setting Menu will appear in the right frame:



The Server Setting Menu contains the following items:

1. Total Memory Size
2. Firmware Version
3. Ethernet Address
4. Date / Time
5. Server Name
6. NCP Server Name
7. Workgroup/Domain Name
8. Server Comment
9. Administration Password
10. Mirror Manager Password
11. Network Connection Mode

Each item is described below.

Total memory size

This field shows the total memory size of the FISC CDM. The FISC CDM has 8MB on-board memory that can be expanded up to 72MB via two SIMM slots (using two standard 32MB EDO RAM modules).

Firmware Version

This field shows the current firmware version of the FISC CDM. The firmware can be upgraded when a new version is released. Detailed instructions for upgrading the firmware can be found in the ***Maintenance*** section later in this chapter.

Ethernet Address

This field displays the MAC (Media Access Control) address of the FISC CDM. The default server name of the FISC CDM will be assigned based on this address.

Date / Time

These two fields show the current system date and time of the FISC CDM. You can change the date and time by clicking the **Set Date/Time** hyperlink located below the date and time fields.

Server Name

This field allows you to change the FISC CDM server name. The default setting is *SMBXXXXXXXX*, where XXXXXXXX are the last 8 digits of the FISC CDM's MAC address.

This field allows you to change the server name of the FISC CDM that will appear on a Microsoft network. The current server name is shown below the Server Name field.

NCP Server Name

This field allows you to change the server name of the FISC CDM on a Novell Network. The default name is *ANWXXXXXXXX* where XXXXXXXX are the last 8 digits of the FISC CDM's MAC address.

Workgroup/Domain Name

This field allows you to change the Workgroup/Domain Name that the FISC CDM belongs to. The default Workgroup/Domain name is *Workgroup*. The current Workgroup/Domain name is shown below the "Workgroup/Domain Name" field.

Server Comment

The Server Comment field shows the comment displayed by Windows Explorer or File Manager and allows you to change the message. The default is no message.

Administrator Password

The FISC CDM provides administrative password-protection. The default setting is not password-protected; you will not be asked to provide the password when you enter the Administration Page for the first time. However, you can configure your preferred administrator password to prevent unauthorized access to the FISC CDM Administration Page.

Please follow these instructions to set the Administration Password:

1. Type in your preferred password in the "New Administration Password" box.
2. Type the password again in the "Confirm Password" box.
3. Click the *Update* button on the bottom of the page to activate your new Administration Password.

Once the password is configured successfully, you will be prompted to enter your user name and password every time you enter the Administration Page since the configuration of FISC CDM can only be made under Administration Mode. Enter the user name as *Admin* and your FISC CDM Administration Password to enter the Administration Menu of the FISC CDM.

If you would like to change the administration Password, type in your current password in the "Old Administration Password" box, your new password in the "New Administration Password" and "Confirm Password" boxes. Then click the *Update* button on the bottom of this page to activate your new Administration Password.

Mirror Manager Password

Mirror Manager, bundled with FISC CDM, is a program that remotely duplicates files or CD/DVDs into FISC CDM through the network. Mirror Manager prompts for a password when it tries to write the image into FISC CDM. This is the password specified here.

Network Connection Mode

This field allows you to set the network speed of the FISC CDM. The available options are *Auto Sense*, *100Mbps Half-Duplex* or *10Mbps Half Duplex*. The default setting is *Auto Sense*.

Important! 

Please click the icon "Update" on the bottom of this page after changing the server setting parameters in order to activate the changes you made.

Share Control Menu

Click the Share Control Menu in the left frame. The Share Control Menu will appear in the right frame:

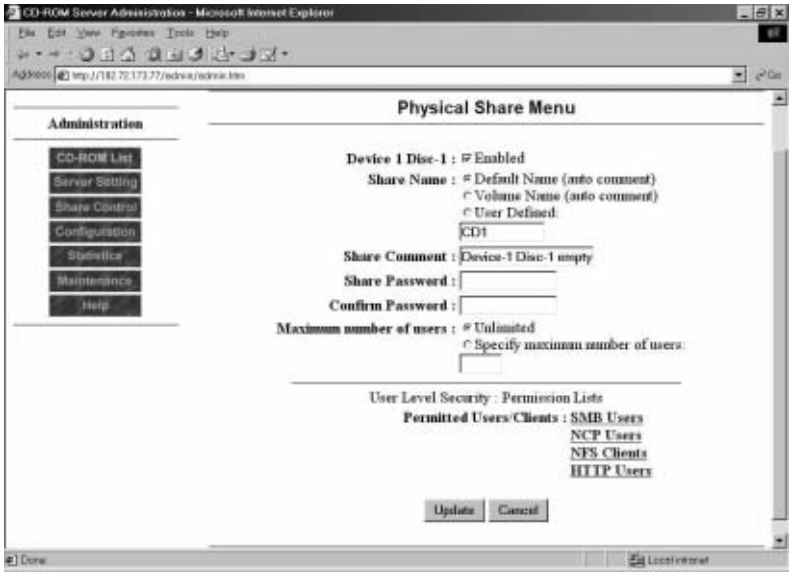
This field allows you to configure the physical share properties of every individual CD and the virtual share properties of a group of CDs that will appear on your network (e.g., the "Network Neighborhood" of a Windows 95/98 or Windows NT network). You can map the Physical Share and the Virtual Share you defined as drive letters on your desktop.

Please select Physical Share device

Here you can configure the Physical Share of each CD. The CDs are presented by the device number and the disc number. For example, if you connect a CD-ROM drive at Position 1 of IDE Channel 1, the CD inserted in this CD-ROM is presented as "Device 1 Disc 1". If you connect a 5-disc CD changer at the second drive (slave) of IDE Channel 3, the CDs inserted in this CD changer are presented as "Device 6 Disc 1", "Device 6 Disc 2", etc. To configure a Physical Share, simply select a CD and click the "Configure" button.

Physical Share Menu

Select one of the CDs in the "Please Select Physical Share device" drop-down menu and click the *Configure* button. The Configure screen appears:



This menu allows you to configure the parameters of each Physical Shared CD. The menu has the following fields:

1. Physical Share Enabled
2. Share name
3. Share Comment
4. Share password
5. Confirm password
6. Limited number of users
7. Lock the CD
8. User Level Security: Permission Lists
9. CD Mirror Function (only valid for CD/DVD-ROM drives; not valid for CD images on HD)

Physical Share Enabled

Clicking the *Enable* check box activates the Physical Share of the selected CD. Enabling the Physical Share of the CD allows you to view the selected CD on the network and map it as a Drive Letter.

Share Name

You can define the CD's name as it appears on the network. There are three options:

1. **Default Name (Auto Comment)**
   Use the Default Name "CD1", "CD2", "CD3", etc., as the Share Name with the respective volume name of each CD as its Share Comment. To view the Share Comment of a physical share, simply go to "Network Neighborhood" under Windows 95/98 & Windows NT and choose "view", "details" or type "net view" under DOS prompt.
2. **Volume Name (Auto Comment)**
   Using the respective volume names of each CD as the Share Name with the Device number and Disc number as its Share Comment.
3. **User Defined**
   Define any Share Name and Share Comment you prefer.

Share Password / Confirm Password

Each CD is shared without password-protection by default. You can set up a password to protect the access of each CD. Type the password in the *Share Password* box and again in the *Confirm Password* box. Click the *Update* button at the bottom of the page to enable share protection.

Maximum number of users

For software license or performance reasons, you may want to limit the number of users for the specified CD. This field allows you to specify the maximum number of users who can access the CD.

Lock the CD

By clicking the *Locked* check box, the eject button on the front panel of the CD-ROM drive will be disabled; the CD titles cannot be removed from the CD-ROM drives. Please note that the "Lock the CD" check box is void for CD changers.

Important! 

Please click the "Update" button on the bottom of this page after changing the parameters in order to activate the changes you made.

User Level Security: Permission Lists

Configure user/client access rights here. There are four protocols supporting User Level Security, including SMB, NCP, NFS, and HTTP. Click one of them to maintain user permission lists.

To get details about how to configure User Level Security, please refer to the section ***How to Configure User Level Security*** later on page 47.

CD Mirror Function

Please note that the CD Mirror Function menu appears only for CD/DVD drives and CD changers. You can choose from a variety of mirror options on the ***Physical Share Menu*** for the Mirror Drive.

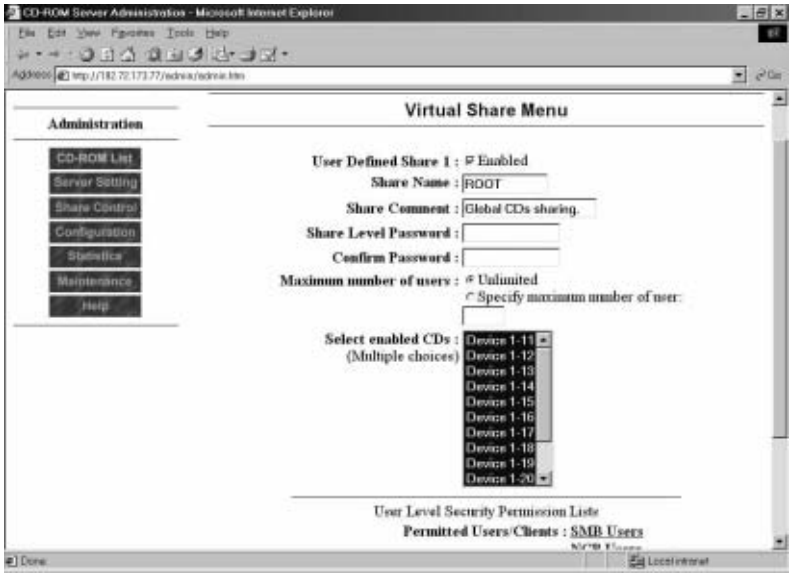
To get details about how to configure CD Mirror Function, please refer to the section ***How to Configure and Create CD Images*** on page 60.

Please select Virtual Share:

Here you can configure the Virtual Share of groups of several CDs. The Virtual Shares are presented as "Root Share" (User Defined Share 1), "User Defined Share 2", "User Defined Share 3", etc. "Root Share" is a pre-defined Virtual Share that hosts all the available CDs under the FISC CDM server. For example, when you map "Root Share" as Drive Letter **E** on your desktop, all the available CDs will be listed as sub-directories under Drive Letter **E**. "User Defined Share" allows you to select and group the available CDs randomly into one Virtual Share. When you map one of the "User Define Share" as a Drive Letter on your desktop, the CDs you selected are the sub-directories under that Drive Letter. To configure a Virtual Share, simply select a Virtual Share in the drop-down menu and click the *Configure* button.

Virtual Share Menu

Click one of the share items in the drop-down menu and click the *Configure* button. It will bring up the following screen:



From this menu, you can configure the parameters of each Virtual Shared CD. This menu contains items:

1. User Defined Share Enabled
2. Share Name
3. Share Comment
4. Share Password
5. Confirm Password
6. Limited Number of Users
7. Select Enabled CDs
8. User Level Security: Permission Lists

User Defined Share Enabled

Clicking the *Enable* check box activates the selected Virtual Share allowing you to view the selected Virtual Share on the network and map it as a Drive Letter.

Share Name

You can define the Virtual Share Name as it appears on the network.

Share Comment

You can define the Share Comment of the Virtual Share as it appears on the network. To view the Share Comment of a Virtual Share, go to "Network Neighborhood" under Windows 95/98 & Windows NT and choose *view*, *details* or type "*net view*" at the DOS prompt.

Share Password / Confirm Password

Each Virtual Share is shared without password-protection by default. You can set up a password to protect the sharing of each Virtual Share. Type the password in the *Share Password* box and again in the *Confirm Password* box. Click the *Update* button at the bottom of the page to enable share protection.

Maximum number of users

You can specify the maximum number of users who can access the Virtual Share.

Select enable CDs

You can select and group the available CDs randomly into one Virtual Share. "Root Share" (User Defined Share 1), by default, enables and hosts all the available CDs under FISC CDM. For example, you can select the CDs of "Device 1 Disc 1" and "Device 6 Disc 1" as your User Defined Share 2. To select multiple CDs press and hold the [Ctrl] key on the keyboard and click the CDs in the selection menu.

Important! 

Please click the "Update" button on the bottom of this page after changing the parameters in order to activate the changes you made.

User Level Security: Permission Lists

Configure user/client access rights here. There are four protocols supporting User Level Security, including SMB, NCP, NFS, and HTTP. Click one of them to maintain user permission lists.

To get more details about how to configure User Level Security, please refer to the section ***How to Configure User Level Security*** on page 47.

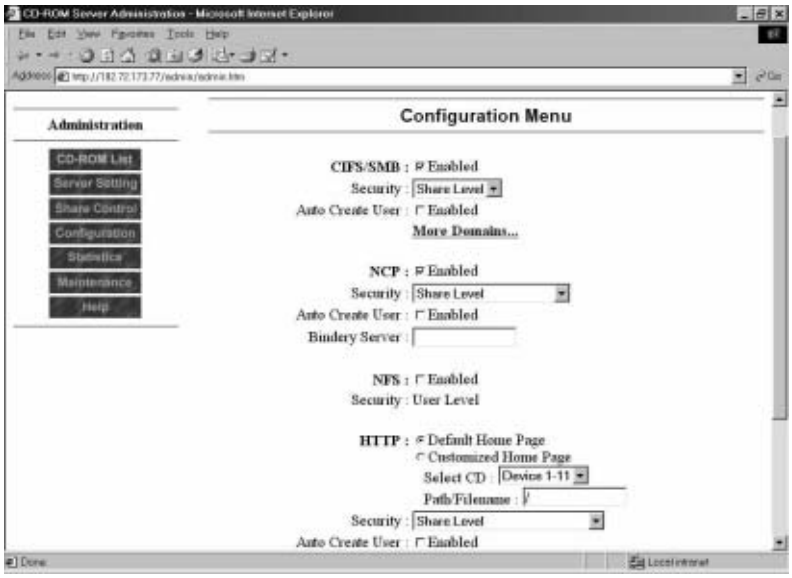
User Level Security: add/delete users

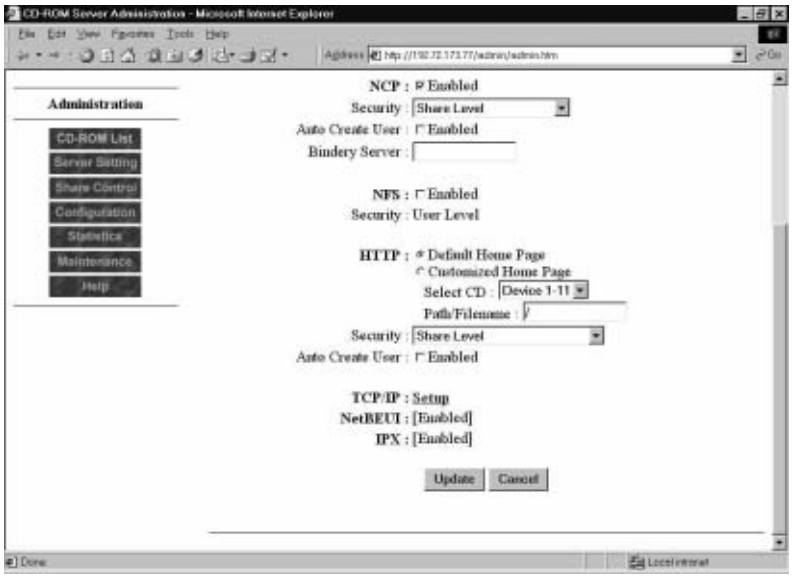
Maintain FISC CDM's internal user database here. There are four protocols supporting User Level Security, including SMB, NCP, NFS, and HTTP. Click one of them to add or delete user accounts.

To get details about how to configure User Level Security, please refer to the section ***How to Configure User Level Security*** on page 47.

Configuration Menu

Click the Configuration button in the left frame. The Configuration Menu will appear in the right frame:





The configuration menu contains the following items:

1. CIFS/SMB
2. NCP

3. NFS
4. HTTP
5. TCP/IP
6. NetBUEI
7. IPX

Each item is described below.

CIFS/SMB

By checking the *Enabled* box next to **CIFS/SMB**, you can enable the CIFS/SMB protocol support of FISC CDM.

Click the *Security* list box to choose the security level of CIFS/SMB. The CIFS/SMB protocol supports two kinds of security levels: Share Level and User Level. The items, *Auto Create User* and *More Domains*, are functional only when user level security is enabled.

Check the *Enabled* check box of *Auto Create User* to allow FISC CDM to automatically create user accounts. Click *More Domains* to specify additional PDC servers on LAN. Please refer to the section ***How to Configure User Level Security*** on page 47 for details.

SMB (Server Message Block) is the networking protocol used in Microsoft Windows, IBM OS/2, or LAN Manager networks that allows files and printers to be shared across the network.

CIFS (Common Internet File System) is an enhanced version of the SMB file sharing protocol for the Internet.

NCP

By checking the "Enabled" box, you can enable the NCP protocol support of FISC CDM.

Click the *Security* list box to choose the security level of NCP. There are two options, *Share Level* and *Users of Bindery Server*. The items *Auto Create User* and *Bindery Server* take effect only when user level security is enabled.

Check the *Enabled* check box of *Auto Create User* to let FISC CDM create user accounts automatically. The *Bindery Server* field specifies a bindery server on LAN. Please refer to the section ***How to Configure User Level Security*** on page 47 for more information.

NCP (NetWare Core Protocol) is NetWare's application layer protocol. NCP is the internal NetWare language used to communicate between client and server and provides functions such as opening, closing, reading and writing files and obtaining access to the NetWare servers.

NFS

By checking the "Enabled" box, you can enable the NFS protocol support of FISC CDM.

FISC CDM only supports user level security under the NFS protocol. Share level security is not supported.

NFS (Network File System), developed by Sun Computer, is the UNIX networking protocol that allows files and printers to be shared across the network. NFS is a high-level network protocol, like NCP and SMB.

HTTP

The default homepage of FISC CDM shows CD-ROMs that are hosted under FSIC CD (by clicking the "Default Home Page" radio button).

You can configure FISC CDM to be your Web Server by assigning any HTML file as the home page of your FISC CDM IP address (by clicking the radio button of "Customized Home Page"). This feature makes FISC CDM an easily managed and hacker-proof Web server.

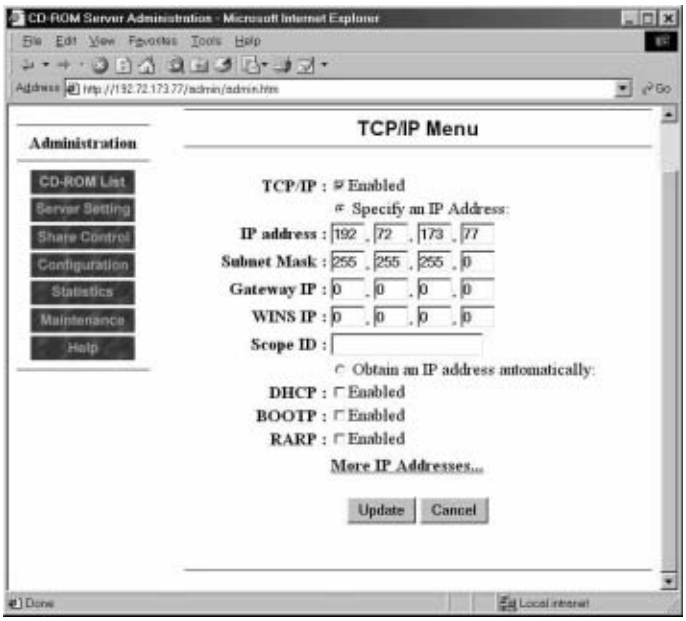
1. Click the "Customized Home Page" radio button.
2. Select the specific CD where the HTML file is located in "Select CD" (for example, "Device 1 Disc 1").
3. Give the path of the HTML file in "Path/File Name" (for example "\home\page.html").
4. Click the *Update* button. The next time you access FISC CDM via its IP address, FISC CDM will bring you to the HTML file you assigned instead of the default homepage of the CD-ROM list.

Click the *Security* list box to choose the security level of HTTP. There are two options: *Share Level* and *Users of SMB Primary Domain*. The item *Auto Create User* takes effect only when user level security is enabled.

Check the *Enabled* check box of *Auto Create User* to let FISC CDM create user accounts automatically. Please refer to the section ***How to Configure User Level Security*** later in this chapter for more information.

TCP/IP

Click ***Setup*** next to ***TCP/IP:*** to bring up the TCP/IP setup submenu:



This menu allows you to configure the TCP/IP settings of the FISC CDM. In order to build up the communication with FISC CDM in a TCP/IP network, you must assign an appropriate IP address. Each item in this submenu is described below:

TCP/IP

Simply check *Enabled* check box to enable the TCP/IP protocol

Specify an IP Address:

IP Address / Subnet Mask / Gateway IP

If you can acquire a valid IP address from your network administrator, please enable *Specify an IP Addr*ess check

box to assign the IP address, subnet mask and the gateway IP address for the FISC CDM.

WINS IP

If there is a WINS (Windows Internet Naming Service) server on your network and you would like to enable WINS support of the FISC CDM, please acquire a WINS IP from your network administrator.

FISC CDM can use WINS to register itself in the WINS server. To enable WINS support, go to the ***TCP IP*** setting of ***Configuration*** menu in the FISC CDM Administration page to give IP address of WINS server in ***WINS IP*** box and the scope identifier in the ***Scope ID*** box.

The ***Scope ID*** box is usually left blank; it is used only for communication based on NetBIOS over TCP/IP. In such a case, all computers on all the TCP/IP networks must have the same Scope ID. The scope ID can be assigned to a group of computers if those computers communicate within the group only.

Obtain an IP address automatically:

If you want an automatic assignment of IP address for FISC CDM, please enable *Obtain an IP Address Automatically* check box and select the following three ways to obtain an IP address for FISC CDM.

DHCP

Check the *Enabled* check box to enable DHCP support for the FISC CDM.

BOOTP

Check the *Enabled* check box to enable BOOTP support for the FISC CDM.

RARP

Check the *Enabled* check box to enable RARP support for the FISC CDM.

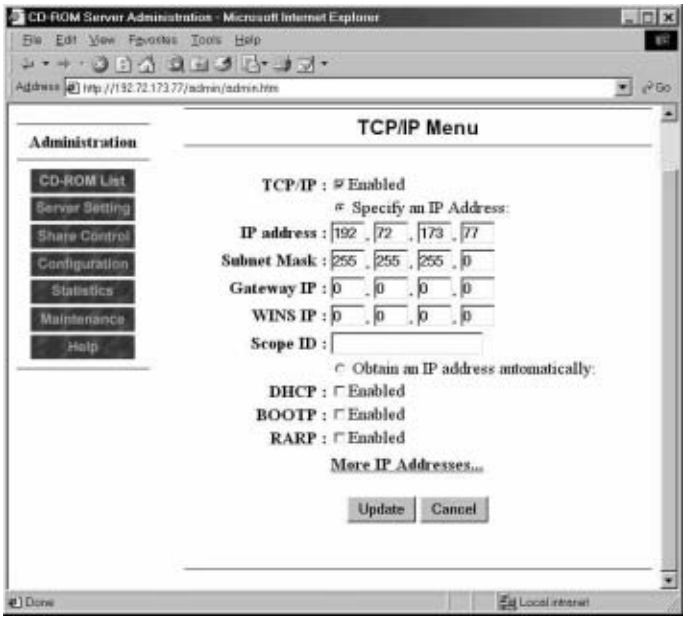
Important! ***Please click the icon "Update" on the bottom of this page after making new changes to the TCP/IP setting parameters in order to activate the changes you made.***

More IP Addresses

FISC CDM provides seven additional IP addresses and homepages for HTTP applications. With total 8 IP addresses and 8 homepages, FISC CDM can work as an instant Web server, providing virtual host capability that hosts 8 different homepages at the same time.

How to configure the multiple IP addresses?

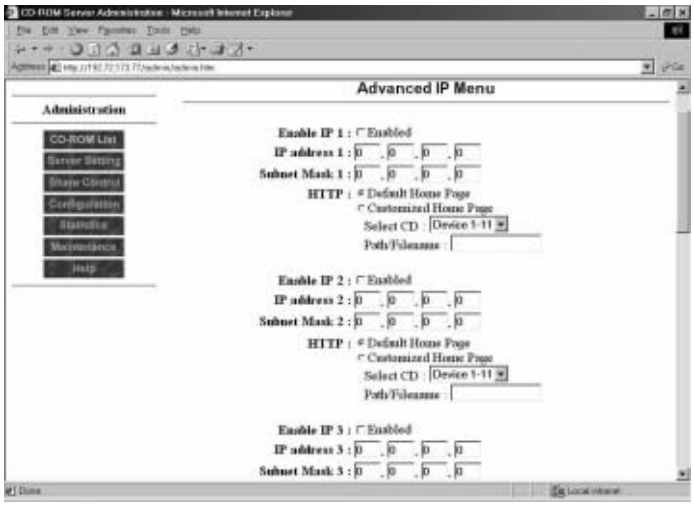
1. Go to the ***Configuration*** menu in the FISC CDM Administration page and click ***TCP/IP setup*** to enter the ***TCP/IP*** menu.



2. Click ***More IP Addresses…*** to enter the ***Advanced IP Menu*** and configure the additional IP addresses and home page files.

3. Check ***Enable*** check box in ***Enable IP1*** to activate the first additional IP address and assign the IP address and subnet mask for your first additional homepage.

4. Check the ***Customized Home Page*** check box; select the specific CD where the HTML homepage file is located in the ***Select CD*** list box; give the path of the HTML file in ***Path/Filename***. Click ***Update*** button.



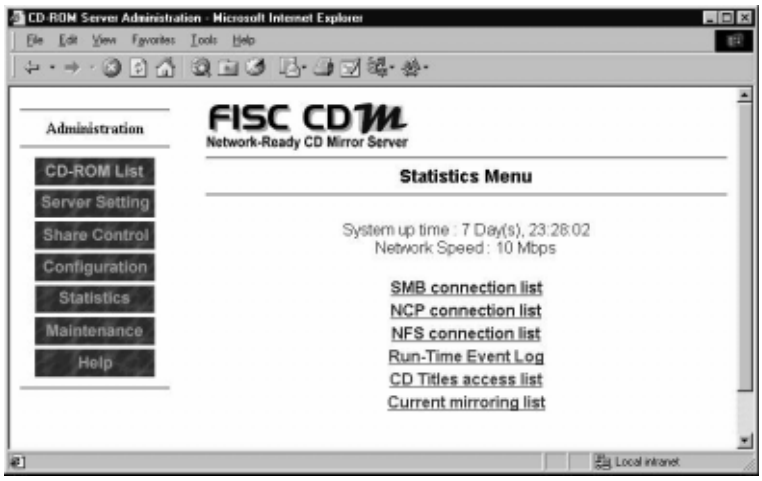
5. Re-accessing FISC CDM by typing the first additional IP address, FISC CDM will bring you to the HTML homepage that you just assigned.

6. Repeat the above procedures for the other 6 additional IP addresses, FISC CDM then becomes a Web server that can host totally 8 different homepages at the same time.

Please note that the Gateway IP, WINS, DHCP, BOOTP, RARP and Direct Ping functions are only valid for the "main" IP address setting in the ***TCP/IP menu***. That is, the seven IP addresses in ***Advanced IP Menu*** are only for the function of Web hosting and have no effect on the TCP/IP setting of the FISC CDM server.

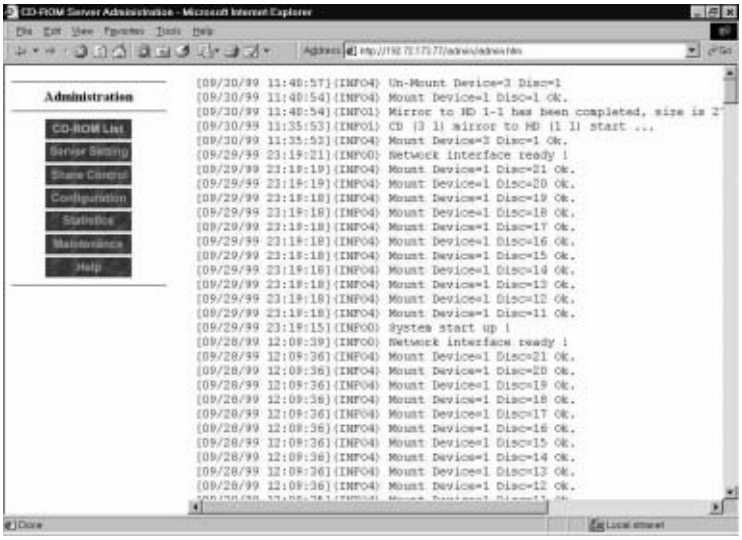
Statistics

Click the Statistics button in the left frame. The Statistics menu will appear in the right frame:

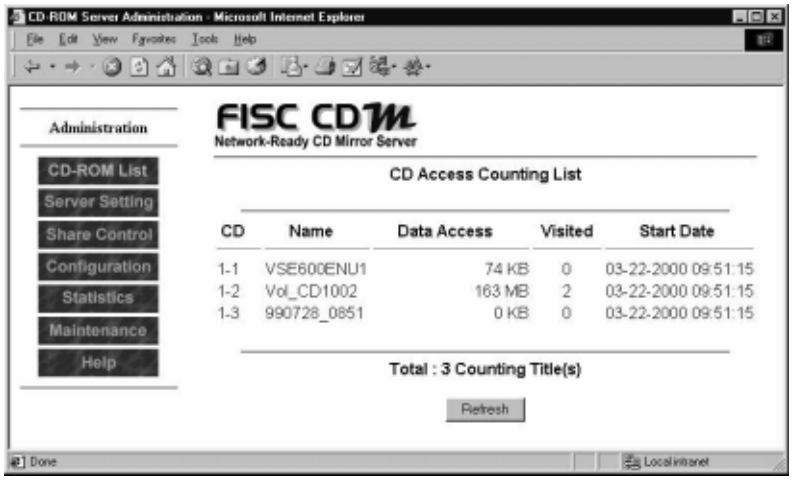


You can see certain statistical information related to network protocols, including SMB, NCP, and NFS.

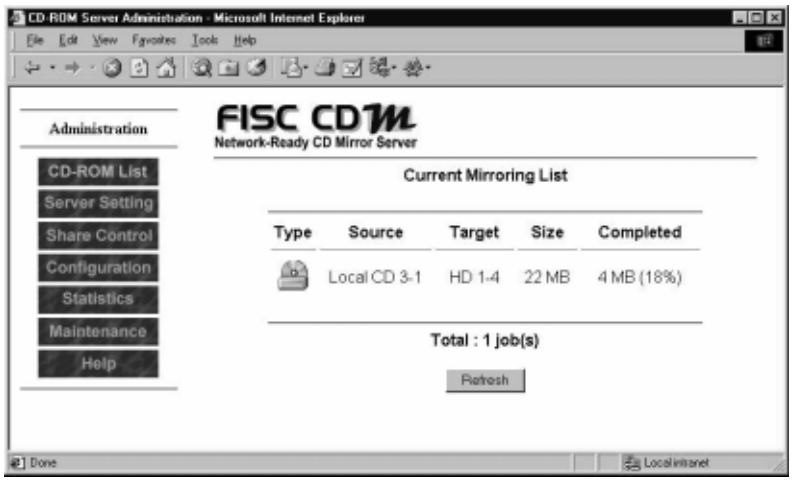
Click **Run-time event log** to watch the system log. FISC CDM will record system events after FISC CDM starts or resets. FISC CDM will log the following system events: system starts, network interface gets ready, CD-ROM drives get mounted and security-related events and warnings.



By clicking “CD Titles Access List”, it lists the amount of data and times of being read of each CD share.

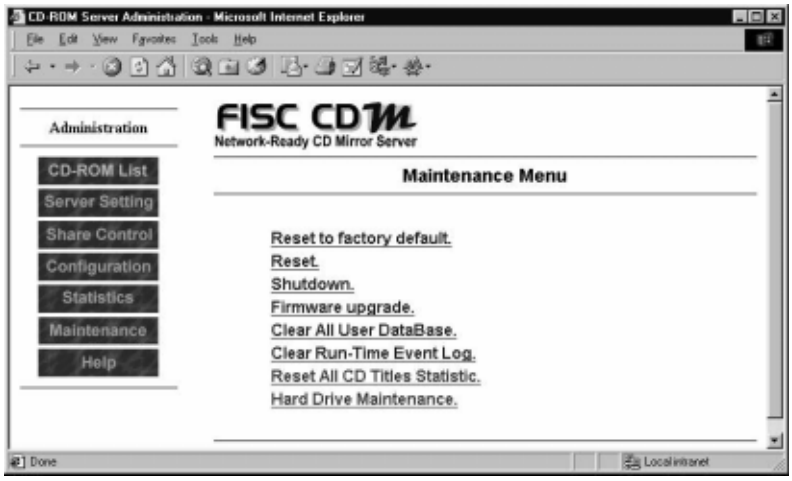


By clicking “Current mirroring list”, it displays all CD duplicating tasks that are currently going on.



Maintenance

Click the Maintenance button in the left frame. The Maintenance menu will appear in the right frame:



The Maintenance menu contains the following items:

1. Reset configuration to factory default
2. Reset
3. Shutdown
4. Firmware Upgrade
5. Clear All User Database
6. Clear Run-Time Event Log
7. Reset All CD Titles Statistics
8. Hard Drive Maintenance

Each item is described below.

Reset configuration to factory default

This option will load the factory default settings for the FISC CDM. The FISC CDM will use the factory default configuration the next time you restart the FISC CDM server. All settings and parameters will be set to the factory defaults; however, the administration password will still be maintained. To reset the administration password to the factory default (to delete the administration password), please refer to **Appendix C** — *Jumper Settings and Connectors*.

Reset

This option will perform the system reset of FISC CDM. Before resetting the system, make sure that there is no on-line user accessing the FISC CDM.

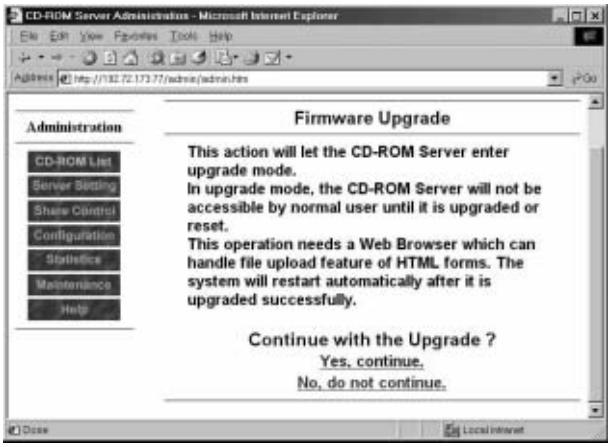
Shutdown

Use this function to shut down FISC CDM.

Important! ***For easy management of a name space network like SMB/CIFS, we strongly suggest that you shut down the FISC CDM using this procedure before you turn off the power of FISC CDM.***

Firmware Upgrade

The firmware of FISC CDM can be upgraded through Web browsers supporting "File Upload" functions, such as Netscape Navigator 2.0 or later and Internet Explorer 4.0 or later.



When you click the Firmware Upgrade link in the administration pages, you will be prompted to confirm that you want to enter the upgrade mode. This mode will stop the normal function of FISC CDM and the administrator will be the only one who has the access to that FISC CDM.

If you click **Yes, Continue**, it will bring up a screen as above. There is a field for entering an upgrade key. For minor firmware upgrade, you do not need the upgrade key. Just leave the field blank. However, you do have to get a key for major firmware upgrade. If you are prompted to enter an upgrade key after you press the **Upgrade** button, please contact your dealer for more information.

To upgrade the firmware, give the path where the new firmware image file is located and click the **Upgrade** button. After the firmware upgrade process has been completed, the FISC CDM will automatically reset. After the FISC CDM has restarted, we suggest the administrator to check if the FISC CDM has been successfully upgraded.

Clear All User Database

To support user level security, FISC CDM maintains an internal user database, which stores the information of user accounts and lists of permitted users. This function, ***Clear All User Database***, erases the user database clearly.

Clear Run-Time Event Log

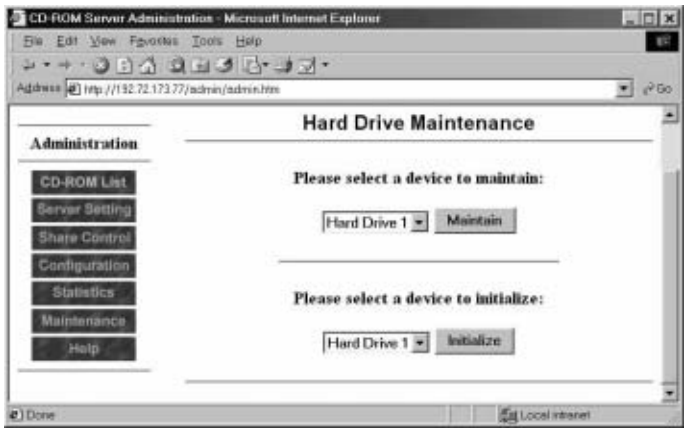
On the **Statistics** menu of the **Administration Page**, there is an item – **Run Time Event Log**, that shows the system event log. Choose "**Clear Run-Time Event Log"** to clear the log there.

Reset All CD Titles Statistics

On the **Statistics** menu of the **Administration Page**, there is an item, **CD Titles Access List**, that shows the statistics of user access to shares. Choose "**Reset All CD Titles Statistics"** to clear the log.

Hard Drive Maintenance

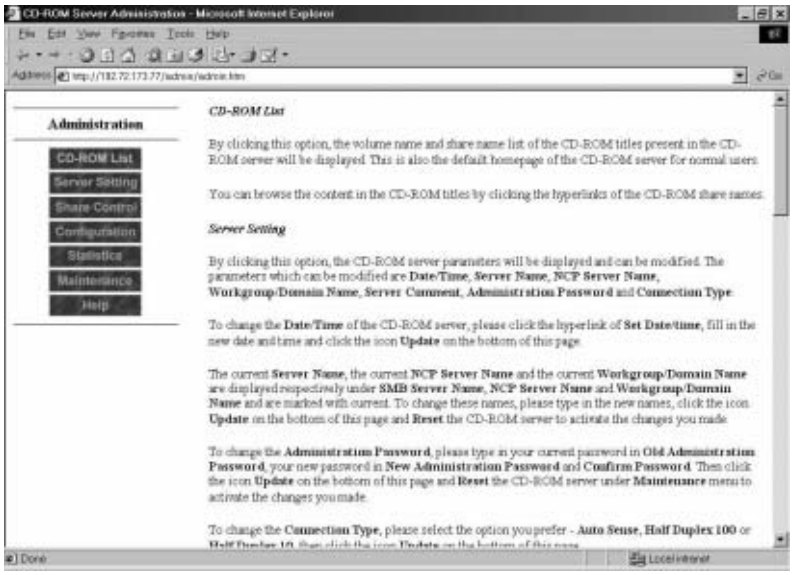
FISC CDM use hard drives for storing CD images. Use this function to list and delete CD images on hard drives.



Please refer to the **"How to Configure and Create CD Images"** section for more details of hard drive maintenance.

Help

Click on the *Help* button to open the Help screen:



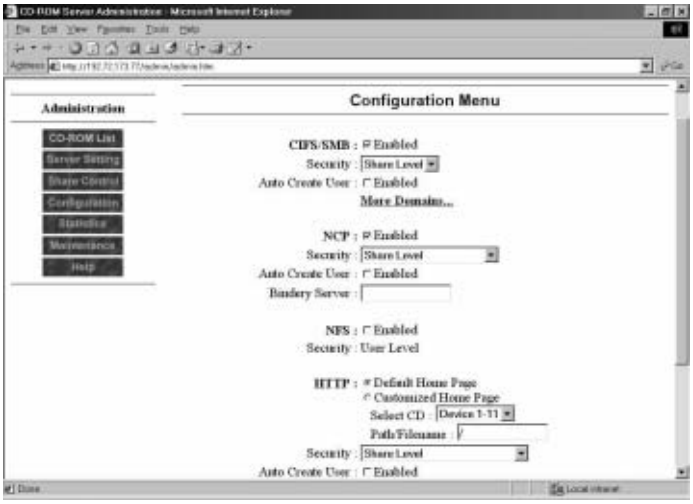
This screen provides on-line help for all the menu options for the FISC CDM configuration.

How to Configure User Level Security

It takes three steps to configure user level security. First, configure the security level of FISC CDM as "User Level Security". Second, create a user database. Third, assign user access rights to each CD-ROM share. Details are described below. After you complete these steps, unauthorized users will be prohibited from accessing FISC CDM.

Configure as User Level Security

On the Administration page, click *Configuration* to enter the *Configuration Menu*. There are four protocols supporting user level security. They are CIFS/SMB, NCP, NFS and HTTP. All of them except NFS support both share and user level security. NFS supports user level security only.



To enable user level security of CIFS/SMB:

Click the *Security:* list box under ***CIFS/SMB*** on the Configuration Menu. You can see two items after clicking on the list box: *Share Level* and *User Level*. Select *User Level*. Click the *Update* button to confirm the change.

Note:

You should have at least one PDC (Primary Domain Controller) server on your LAN to validate the user level security of CIFS/SMB. PDC servers maintain user security information. FISC CDM needs a PDC server to authenticate the username and password provided by users.

Single Domain:

If you would like to use one PDC server for user authentication, please fill the *Workgroup/Domain Name* field on the *Server Setting Menu* with the domain name of the PDC server.

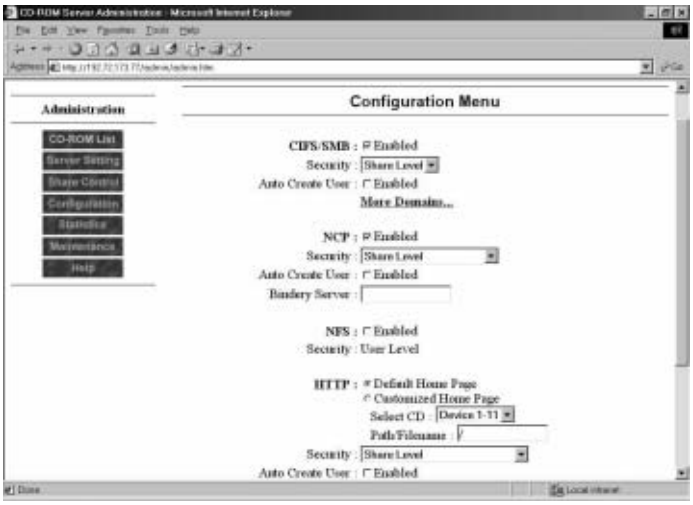
Although FISC CDM has to be in the same domain of the PDC server, this is not the case with client PCs. You can access FISC CDM from any client PC that resides in a different domain.

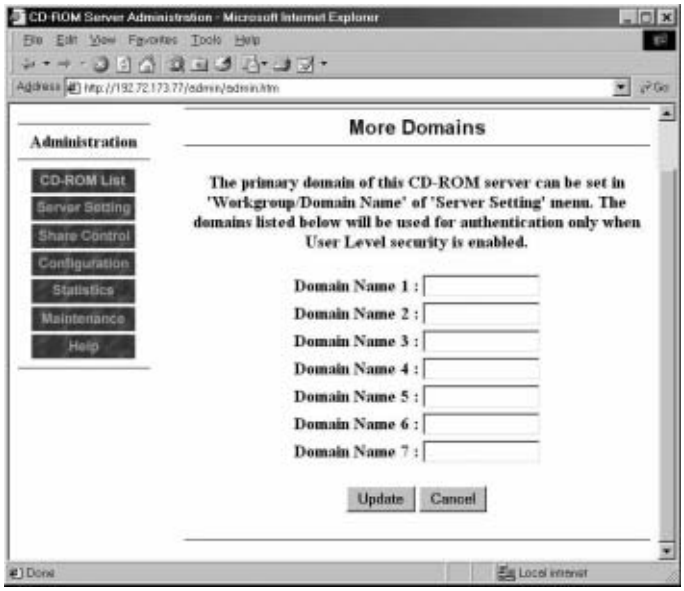
More Domains:

If there are several PDC servers that maintain user security information, you have to specify these PDC servers during FISC CDM configuration.

Suppose there are 3 PDC servers on your LAN – PDC1, PDC2, and PDC3. Please put the first PDC server, PDC1, in the *Workgroup/Domain Name* field on the *Server Setting Menu* as above. As for other PDC servers, please go to *Configuration Menu*. Click *More Domains* under **CIFS/SMB**. You will see *More*

Domains menu. Please put PDC2 in the *Domain name 1:* field and PDC3 in *Domain name 2:*.





Suppose there are three users – user A, user B and user C. User A has logged on to PDC1, user B to PDC2, user C to PDC3.

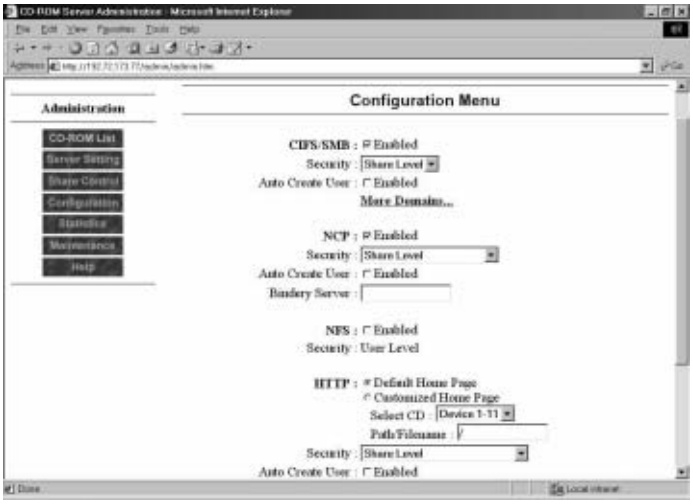
Since user A is in PDC1's domain, FISC CDM will ask PDC1 whether user A is legal when user A tries to access any CD share in FISC CDM. If user A is legal, then FISC CDM will begin to check its internal user database to see if user A is allowed to read the CD share.

When user B tries to access any CD share in FISC CDM, FISC CDM will ask PDC2 for authentication because user B is in PDC2's domain. If user C tries to access, FISC CDM will ask PDC3.

To get more information about how to create FISC CDM internal user database, and how to grant access rights to users, please refer to these sections: ***Create User Database*** and ***Assign User Access Rights***.

To enable user level security of NCP

Click the *Security:* list box under ***NCP*** on the *Configuration Menu*. Select *Users of Bindery Server*. Please also specify the bindery server by filling in the *Bindery Server:* field. Click the *Update* button to confirm the change.



Note:

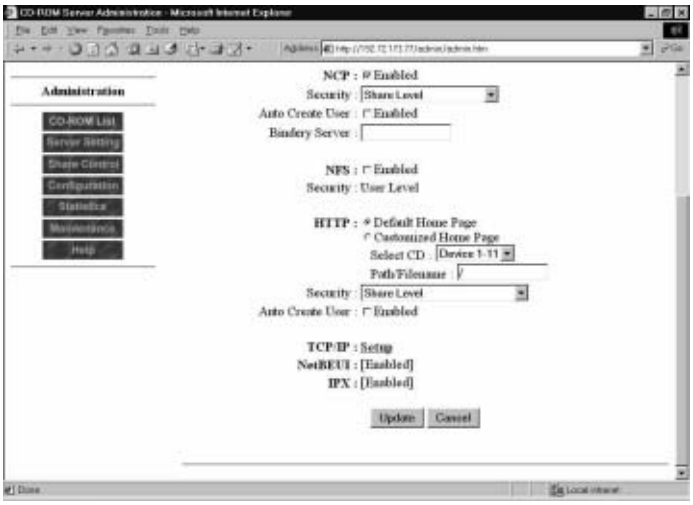
FISC CDM only supports NetWare bindery so far. You should have a bindery server on your LAN to validate the user level security of NCP.

If a user tries to access any CD share in FISC CDM, FISC CDM will prompt a dialog box for username and password. Then FISC CDM will ask the bindery server whether the user is legal. If the bindery server approves and the user is marked READ in the permission list, the user will be able to access the CD share.

To enable user level security of HTTP

Click the *Security:* list box under ***HTTP*** on the *Configuration Menu*. Select *Users of SMB primary domain* to enable the user level security of HTTP. Click the *Update* button to confirm the change.

The user level security of HTTP is implemented just as the single domain case of SMB. It also requires one PDC server on your LAN. They even share the same internal user database. The difference is that FISC CDM will not check users' domains when users try to access via Internet browsers.



Important! ***Please click the icon "Update" on the bottom of this page after making new changes to the TCP/IP setting parameters in order to activate the changes you made.***

Create User Database

A user database can be created manually or automatically. To create a user account manually, follow ***Guideline 1***. To create a user account automatically, follow ***Guideline 2***.

Guideline 1. How to create a user manually.

1. On the Administration page, click *Share Control* to enter the *Share Control Menu*.

2. You will see Manage Users/Clients: on the screen. Please click SMB Users, NCP Users, NFS Clients or HTTP Users to enter the Manage XXX* Users (or Clients) menu.

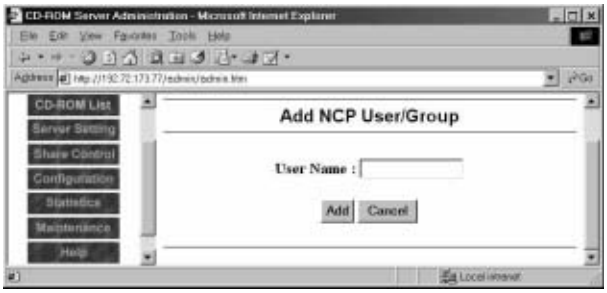
   *:XXX means SMB, NCP, NFS or HTTP.

3. Click Add a new user on the Manage XXX* Users(Clients) menu. You will see Add XXX User/Group.

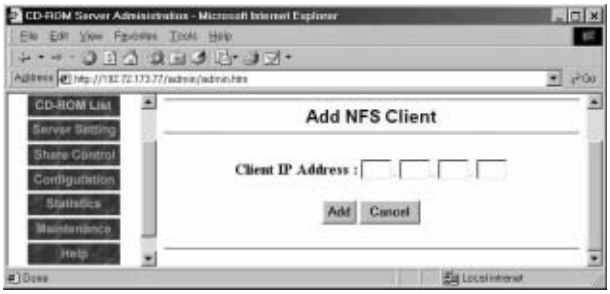
   a. If you would like to add a new SMB user, fill in the *Domain Name:* and *User/Group Name:* fields. Choose *User* next to the ***Type:*** item. Then click the *Add* button.

If you would like to add a new SMB group, please choose *Group* next to the ***Type:*** item.

b. If you would like to add a new NCP user, fill in the *User Name:* field and click the *Add* button.



c. If you would like to add a new NFS user, fill in the *Client IP Address:* field and click the *Add* button.



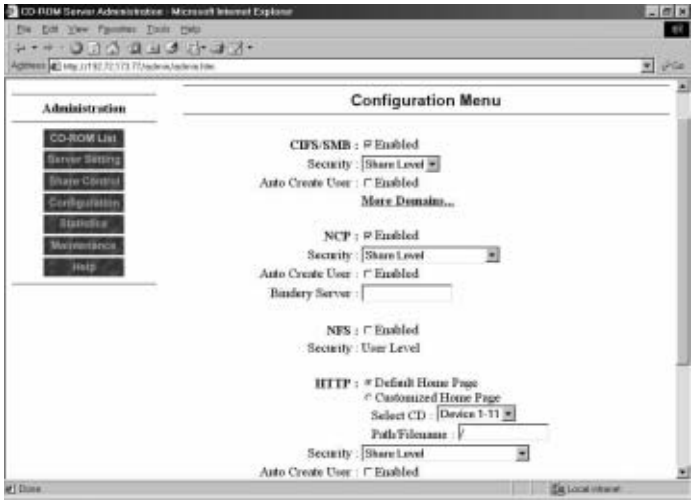
d. If you would like to add a new HTTP user, fill in the *User/Group Name:* field, choose to add *User* or *Group* and click the *Add* button.

4. To delete a user, go to the *Manage XXX* Users (Clients)* menu, check the user's *Del* check box and press the *Update* button.

Guideline 2. How to create a user automatically.

1. Click *Configuration* on the *Administration* page to enter the *Configuration Menu*.

2. Under **CIFS/SMB**, **NCP** or **HTTP**, you will see *Auto Create Users:* check boxes. Check the box under the protocol of which you want to enable the function. The default option is *Enabled*. Click the *Update* button at the bottom of the screen if you make any changes.



3. Have a user read any CD share in FISC CDM using the protocol you just chose. The access will be prohibited.

However, by doing this, the system will put the user's name in the user database, automatically.

Take the CIFS/SMB protocol as an example.

a. On the *Configuration Menu*, check the *Auto Create Users* check box under ***CIFS/SMB***.

b. Click the *Update* button.

c. If you want to add user AAA to the SMB user database, the only task is to have user AAA read any CD in FISC CDM through CIFS/SMB. The access will be prohibited because user AAA has no access rights yet. However, the system will put the user's name in the user database automatically.

   For accessing FISC CDM through CIFS/SMB, please refer to the section "***Using FISC CDM in Windows 95/98***" in Chapter 4: "***Using FISC CDM on Client Workstations***".

d. Enter the *Share Control Menu*, and click *Manage Users/Clients: SMB Users*. You will see that user AAA has been put in the user list. However, his/her access will still be prohibited until he/she is granted access rights.

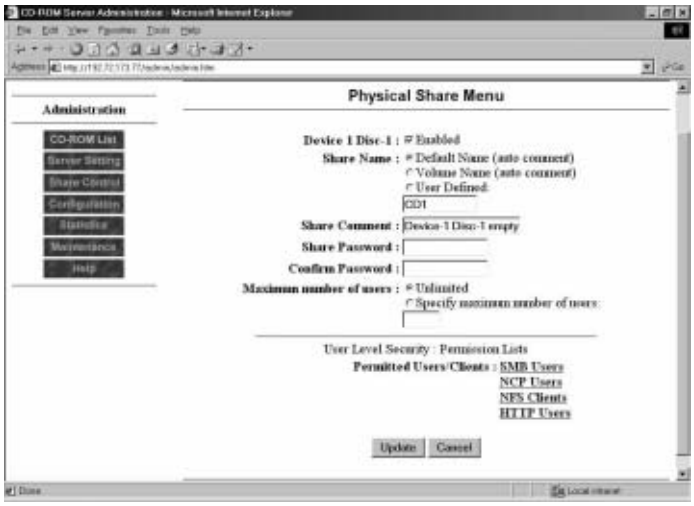
Assign User Access Rights

Even when a user is in the user database, he/she will still be prohibited from accessing until he/she is granted access rights. Follow the following steps to assign access rights.

1. On the *Administration* page, click *Share Control* to enter the *Share Control Menu*.

2. Please select one *Physical Share* device or *Virtual Share* in the list boxes for configuration. Click the *Configure* button. You will enter the *Physical Share Menu* or *Virtual Share Menu*.

3. On the *Physical Share Menu* or *Virtual Share Menu*, find *Permitted Users/Clients* at the bottom of the page. You can add permitted users (or clients) here, including *SMB users*, *NCP users*, *NFS clients* and *HTTP users*.

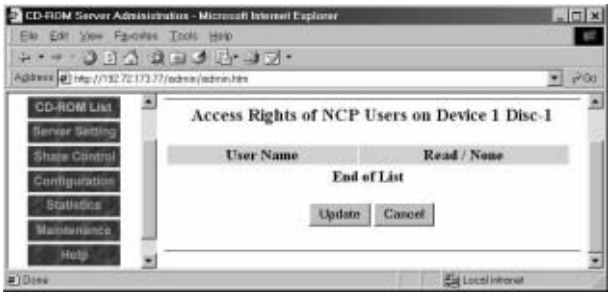


Click** SMB Users **to configure access rights of SMB users.

You will see a SMB user list here. There are 3 fields: *Domain Name*, *User/Group* Name* and *Read/None*. If you want to grant user AAA of SMB access right, choose the corresponding *Read* and click the *Update* button.

Click** NCP users **to configure access rights of NCP users.

You will see a NCP user list here. There are 2 fields: *User Name* and *Read/None*. If you want to grant user AAA of NCP access right, choose user AAA's *Read* and click the *Update* button.

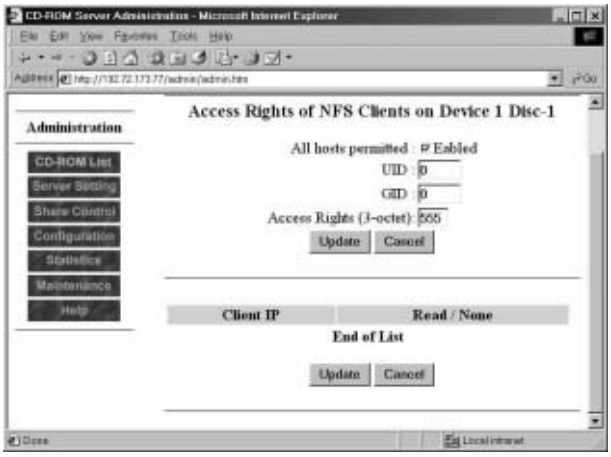


Click** NFS Users **to manage access rights of NFS users.

On this page you must specify from which computer the user can access the CD, and who has the access rights.

i) Assign from which computer users can access the CD:

If you click the *Enabled* check box next to *All hosts permitted:* , all computers will have access rights to the CD regardless of their IP addresses.



If you would like to assign exactly from which computer users can access FISC CDM, please select the corresponding *Read* next to the computer's client IP.

Click the *Update* button for all changes to take effect.

ii) Specify who has the access rights:

First, specify which user/group can access the CD share by entering the UID and GID fields. Then, fill in the Access Rights (3-octet): field to assign the access rights of the CD

share. Please refer to the following table to know more about Access Rights.

Details of NFS Access Rights

Access Rights – 3-octet digits in details:

1st octet digit (3 bits)			2nd octet digit (3 bits)			3rd octet digit (3 bits)		
USER access rights			GROUP access rights			OTHERS access rights		
r_u	w_u	x_u	r_g	w_g	x_g	r_o	w_o	x_o

r_u, w_u, x_u, r_g, w_g, x_g, r_o, w_o, x_o are all single bits.

In UNIX, there are 3 kinds of access rights:

r: means Read access rights.
w: means Write access rights, not applicable here.
x: means eXecute access rights.

To give an example, suppose user AAA's UID is 123, GID is 5. Group BBB's GID is 9.

If you would like to give Read and eXecute access rights to user AAA, please fill in the ***UID*** field with 123. FISC CDM will not check ***GID*** value in this case. As for ***Access Rights***, r_u will be 1, x_u will be 1, other binary digits are 0, so ***Access Rights*** should be 101 000 000 in binary, which is 500 in octet.

If you would like to give Read and eXecute access rights to group BBB, please fill in the ***GID*** field with 9. FISC CDM will not check ***UID*** field here. In this case, r_g=1, x_g=1, other binary digits are 0, so ***Access Rights*** should be 000 101 000 in binary, which is 050 in octet.

Important! ***Please click the icon "Update" on the bottom of this page after making new changes to the TCP/IP setting parameters in order to activate the changes you made.***

Click** HTTP Users **to manage access rights of HTTP users.

You will see an HTTP user list here. There are 2 fields: *User Name* and *Read/None*. If you want to grant user AAA

of HTTP access right, choose user AAA's *Read* and click the *Update* button.

How to Configure and Create CD Images

Basic Concepts and Terminology

1. To start mirroring, simply enable any CD drive (select ***Physical Share*** under ***Share Control Menu***) to be the "Mirror Drive". Once you put a CD into that drive, the Mirror operation will be initiated as per the configuration in the CD Mirror Function menu. Please refer to the **"Configure CD Mirror Options"** subsection later in this section for more details of the configuration.
2. The CD mirror images are organized as "slots". Each hard drive is able to host up to 80 slots, or CD images. You may wish to think of the hard drive as a large CD changer with 80 slots. Creating a CD image on a hard drive is just like putting a CD into a changer slot.
3. You can host up to 480 CD images if the CD server is connected with 6 hard drives, or 640 images with 8 hard drives. There is no limitation on the size of hard drive. The maximum size per CD image is 4GB.
4. Every time you create a CD image, a corresponding Physical Share will automatically be created to all the protocols that have been enabled. The default share – "Root" (or any of the 7 customizable virtual shares) can host up to 63 shares.

Adding & Initializing Hard Drive For CD Mirroring

To install hard drives, simply connect them with the controller's IDE channels starting from channel #1 master & slave then #2 master & slave etc. Up to 6 drives on three channels.

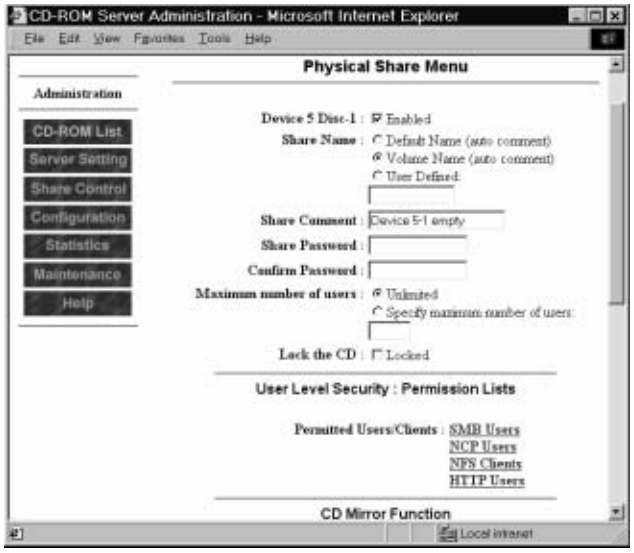
Note: We suggest using hard drive of the same brand. If you install a single drive, please configure it as master and do not connect any other device on the same channel.

Once installed, all the hard drives will be initialized (erased) upon boot-up.

Note: The CD server **WILL NOT** check if the hard drive has data on it.

Configure CD Mirror Options

Please click ***Share Control*** in the left frame of the ***Administration Page***. On the page, select a real CD-ROM drive in the list box below ***"Please select a Physical Share device :".*** Then click the ***Configure*** button to enter the ***Physical Control Menu***. If you select a real CD drive, you should see a ***Physical Control Menu*** as below. Scroll the page down until you see ***CD Mirror Function***.



The CD Mirror Function submenu contains the following items:

1. Mirror CD
2. Target Name
3. Launch Target
4. Launch Schedule
5. Mirror Option

Each item is described below.

Mirror CD: Check this to enable this drive as a Mirror Drive

Target Name: You can specify how to name the created CD/DVD image here. **"Default Name"** means a name will be generated automatically as CDxxxx. **"Volume Name"** means the created CD/DVD image has the same name as the volume name of the source CD/DVD.

Launch Target: Select one of the three options to choose where to put the image:

- **Auto & Smart Mode:** The CD server will choose an available hard drive and slot automatically, and checks if there is a duplicate CD image existing on the any of the hard drives. If a duplicated image is found, it will simply bypass mirroring the CD.

- **Auto & Force Mode:** The CD server will choose the available hard drive and slot automatically, and will NOT check if there is a pre-existing duplicate CD image.

- **Manual Mode:** You can select the hard drive and slot number manually. The duplicate CD check will not be performed.

Launch Schedule: Select one of the two options to determine when to launch the mirror operation:

- **As Soon As Possible:** The Mirror job will start as soon as the CD is inserted into the CD drive.

- **Schedule Mirror Date:** Start mirror job at the given date and time.

Mirror Option: Check any of the options for more convenient scheduling and control:

- **Prioritized network access:** Check this to set mirroring jobs to a LOWER priority than network CD access. This option will speed up network access and is useful if the CD server is located in a busy CD networking environment.

- **Lock CD door during mirror:** If enabled, the door of Mirror Drive cannot be opened by pushing the eject button on the CD drive during the mirroring operation.

- **Eject CD when mirror is completed:** CD server will eject CD when the mirror job is finished. This option is valid for both successful or failed mirror operations.

Note: You need to check the event-log (or under the Share Name in the CD List) to make sure that the mirroring job has been successful.

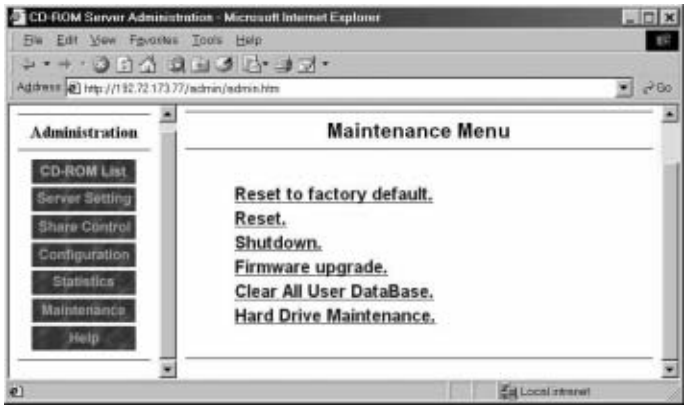
How to Create CD images

Here are the steps to create a CD image.

1. Choose the CD drive as the Mirror Drive by enabling the ***Mirror CD*** check box on its ***Physical Share Menu*** (under ***Share Control Menu***).
2. Configure the options, as you required. As a normal default setup, you might choose ***Auto & Smart Mode*** and check ***Eject CD when mirror is completed***.
3. Click the ***Update*** button.
4. Put the target CD into the Mirror Drive. The mirror function starts automatically.
5. Check if the mirror images are created successfully by either clicking on the ***Share Name*** in the ***CD-ROM List*** (the additional images will be displayed as additional hard drive slots) or reading the ***Run-Time Event Log*** on the ***Statistics*** menu.

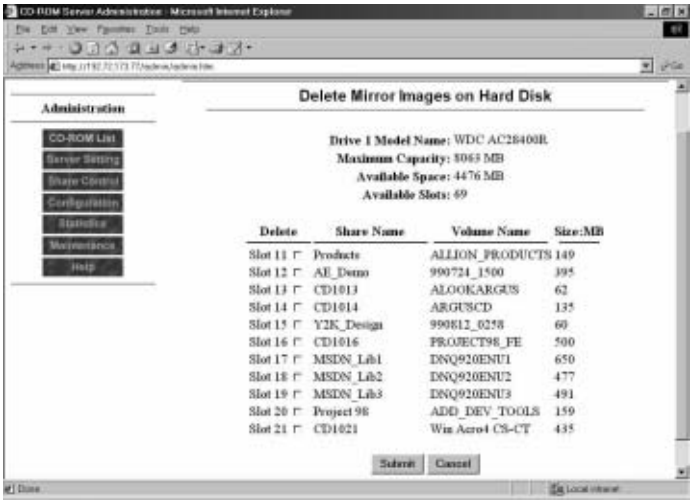
List CD Images on Hard Drives & Delete CD Images

Please go to the ***Maintenance Menu*** by clicking ***Maintenance*** on the left frame of the **Administration** page.



On the ***Maintenance Menu***, click ***Hard Drive Maintenance***. The screen will appear as below.

Please choose a hard drive in the list box next to the ***Maintenance*** button. Click the ***Maintain*** button to bring up the following screen.



On the screen, it displays the information about the hard drive, including the model name of the hard drive, its maximum capacity, available space, and available slots (the number of empty slots). Also included is a list of all CD images on the hard drive.

To delete a CD image, please check the corresponding ***Delete*** check box and click the ***Submit*** button.

You can manually initialize (format) a hard drive installed in the CD server. To initialize a hard drive, choose a hard drive in the list box next to the ***Initialize*** button on the ***Hard Drive Maintenance*** menu.

It will bring up the screen:

Click the ***Submit*** button on the screen to proceed. The hard drive will be initialized the next time the system restarts.

Note: This can also be used as a quick way of deleting all CD images on a hard drive.

This concludes Chapter Three. Chapter Four covers using the FISC CDM on client workstations.

CHAPTER 4

Using FISC CDM on Client Workstations

FISC CDM integrates itself into your network once the setup and configuration is completed. You can access the FISC CDM server by means of the browsing and mapping tools that are built into your network operating system. The following sections briefly explain how to setup each client and access the FISC CDM from your desktop in various client environments. For technical support, please consult your network administrator or FISC CDM dealer.

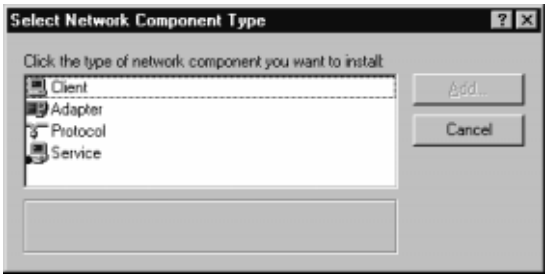
Installing Software Components in Windows 95/98

Before you can use the FISC CDM under Windows 95/98, you must ensure that you have the necessary protocol, client, and service components configured in the Control Panel. The following section will help you to enable these network options.

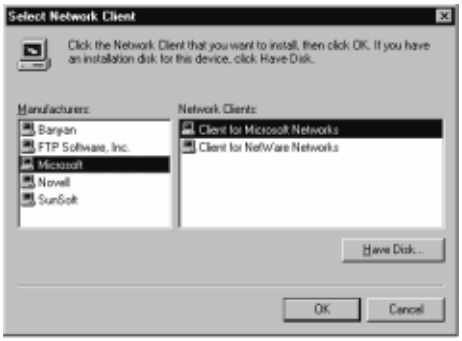
Please follow these instructions to configure the client, protocol and service components:

1. Open the **Control Panel** and double click the **Network** icon. The ***Network Configuration*** screen will open:

2. Click the *Add* button. The ***Select Network Component Type*** dialog box will open:

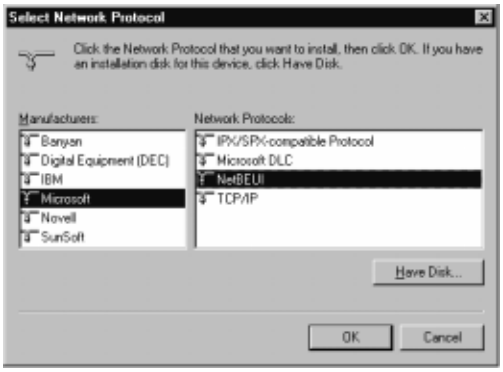


3. Choose the "Client" network component and click the *Add* button. The following screen will appear:



4. Under *Manufacturers*, choose "Microsoft". Under *Network Clients* choose "Clients for Microsoft Networks". Click *OK*. You will be returned to the ***Network Configuration*** screen.

5. Click *Add* to open the ***Select Network Component Type*** window. This time choose "Protocol" and click the *Add* button. The following screen will appear:



6. Under *Manufacturers* select "Microsoft". Under *Network Protocols* select "NetBEUI". Click the *OK* button. You will be returned to the ***Network Configuration*** screen.

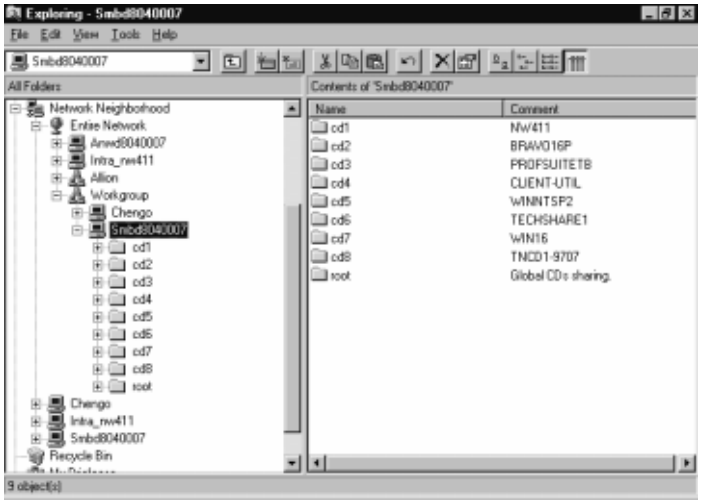
7. If necessary, insert your Windows 95/98 CD-ROM into the CD-ROM drive. Click *OK* again. Windows will copy files to your HDD.

8. After Windows has finished copying files, you will be prompted to restart your system. This is necessary for the above changes to take effect.

Using FISC CDM in Windows 95/98

Start Windows Explorer or Network Neighborhood. The FISC CDM will appear as a machine icon in the workgroup, whose name was specified in "***Server Name***" under the "***Server Setting Menu***" of the Administration Page of FISC CDM (refer to **Chapter 3 — *Server Setting Menu***).

Double click the icon that represents the FISC CDM. You will find all the CD/DVDs in the FISC CDM. The physical share name of each CD-ROM is displayed as a file folder with default names as CD1, CD2, etc. The virtual share name represents a group of all CD-ROMs, also displayed as a file folder with the default name ROOT. Refer to the following illustration:



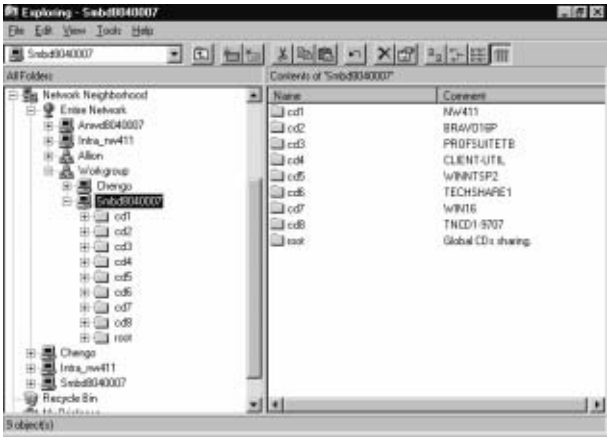
You can now access the FISC CDM by double clicking the file folders mentioned above.

The CDs inserted in a CD changer will also be shown as folders, the same way as CDs inserted in a CD-ROM drive. Please refer to User Manual Chapter 3 "Configuration and Management" to configure them.

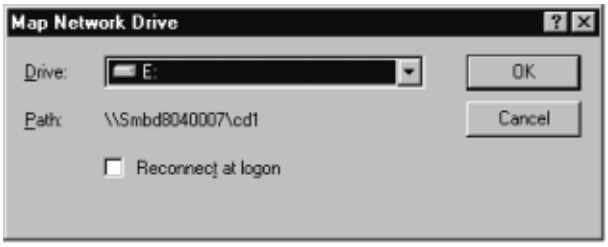
Mapping FISC Drives in Windows 95/98

To map the FISC CDM, follow these steps:

1. Start **Windows Explorer** from the **Start Menu**.
2. Expand the **Network Neighborhood**. The FISC CDM SMB server name will be shown beneath the specific workgroup ("WORKGROUP" is the default workgroup name of the FISC CDM).
3. Double click the server name of the FISC CDM. The following window will open:



4. Choose a specific share (such as "CD1") and open **Tools**, "Map Network Drive…" from the menu to map this share to a local client. Note that you must have a CD-ROM inserted in the CD-ROM drive to map the drive using this method.



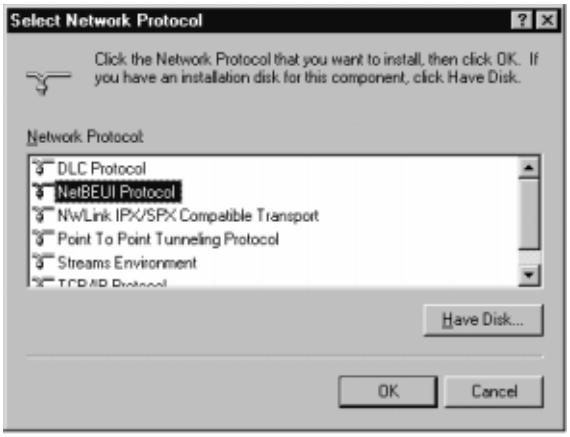
5. Click *OK* to finish mapping the drive.

Alternatively, you can click the folder icon you want using the right mouse button and select "Map Network Drive…" from the drop-down menu. All the physical shared CD-ROMs and virtual shared CD-ROM groups can be mapped as drive letters. Please refer to your Windows 95/98 User's Manual for more information on how to map network-shared directories as drive letters.

Installing Software Components in Windows NT

Before you can use the FISC CDM under Windows NT, you must ensure that you have Windows NT protocol and service components configured in the Windows NT Control Panel. The following section will help you install these network components.

1. Open the Windows NT **Control Panel** and double click the **Network** icon.
2. In the ***Network Configuration*** window, click the **Protocols** tab. Click the *Add* button. You will see the following screen:



3. Under *Network Protocol* select the "Net BEUI Protocol" option and click *OK*.

4. In the **Network Configuration** window, click the **Services** tab. Ensure that the following services are enabled:

   - *Computer Browser*
   - *NetBIOS Interface*
   - *Workstation*

5. If the service is not enabled, click the *Add* button to add the service.

6. Your screen should look like the following:

7. When you have finished configuring the services, click the *OK* button. You will be prompted to restart your computer.

8. Click *Yes* to restart the computer and finalize the configuration of the client in Windows NT.

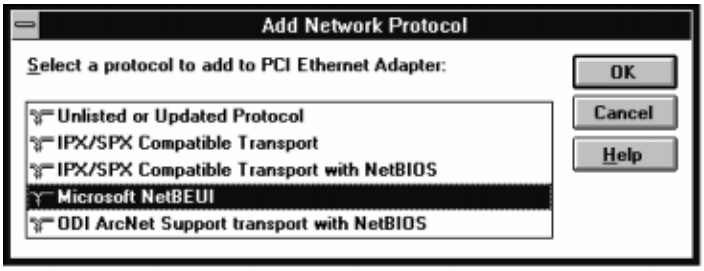
Using the FISC CDM in Windows NT

The way to use the FISC CDM in Windows NT 4.0 is quite similar to the routine in a Windows 95/98 environment. Start "Network Neighborhood", and select the "Microsoft Windows Network" item. Double click the FISC CDM name you assigned at setup. The physical share names of CD-ROM drives are displayed as file folders named CD1, CD2, etc. by default. The virtual share name of the group containing all CD-ROMs is also displayed as a file folder named ROOT by default.

Installing Software Components in Windows for Workgroups

Before you can use the FISC CDM under Windows for Workgroups, you must ensure that you have the Windows NetBEUI (for file access) and TCP/IP (for access through the Web browser) protocols configured. The following section will help you install these network options.

1. Open the Windows **Control Panel** and double click the **Network** icon.
2. In the **Network Setup** window, click the **Protocol** tab. Click the *Add* button. You will see the following screen:



3. To access the FISC CDM server in Windows for Workgroups, install the Microsoft TCP/IP and the NetBEUI protocols.
4. Click *OK* to install the protocols. You will be prompted to restart your machine.
5. Click *Yes* to restart your computer and finalize the installation of the NetBEUI and TCP/IP protocols.

Using FISC CDM under Windows for Workgroups

In Windows for Workgroups, start the **File Manager**, and then select "Connect Network Drive..." in the **Disk** menu. A dialog box entitled **Connect Network Drive** will pop-up.

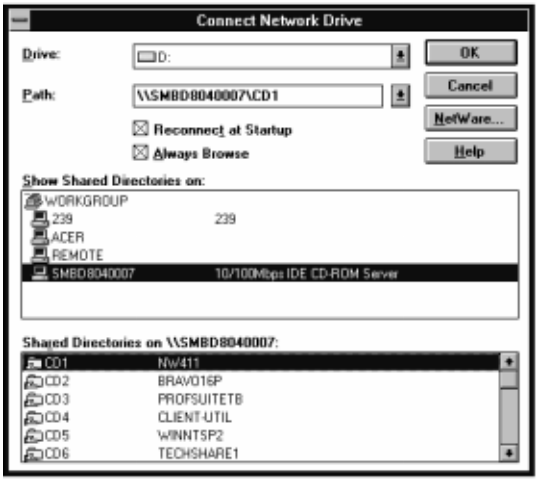
In the **Show Shared Directories** frame, double click the FISC CDM workgroup to expand the entire server in this group. If the FISC CDM workgroup name does not appear in this list, click the *Browse* button to refresh the network status.

Double click the FISC CDM name; each CD-ROM now appears as a folder in the lower part of the **Share Directories** field.

Mapping FISC Drives in Windows for Workgroups

To map the FISC CDM in Windows for Workgroups, please follow these steps:

1. Start the **File Manager** program group.
2. Choose **Disk** from the menu bar and click "Connect Network Drive".
3. The SMB server name of the FISC CDM will be shown beneath the specific workgroup ("WORKGROUP" is the default FISC CDM workgroup name).
4. Double click the FISC CDM name. The following window will appear:



5. Choose a specific share (such as "CD1") and press *OK* to map this share to a local client. You can now access the FISC CDM drive as a normal drive letter.

Please refer to your Windows for Workgroups User's Manual for further information on how to map network-shared directories as drive letters.

Using FISC CDM under DOS with Microsoft Network Client 3.0

In order to access FISC CDM under DOS environment, please install Microsoft Network Client 3.0 and enable NetBEUI or TCP/IP protocol then use the "NET USE" command to access FISC CDM.

Example 1:

Syntax:

net use <logical drive letter:> \\(FISC CDM's name)\share name

To map the share name "cd1" of a FISC CDM with default server name "smbd8040007" as the drive letter F, type:

```
net use f: \\smbd8040007\cd1
```

Example 2:

Syntax:

net use * \\(FISC CDM's name)\share name

To map the share name "cd1" of a FISC CDM with default server name "smbd8040007" as the next available drive letter, type:

```
net use * \\smbd8040007\cd1
```

Using FISC CDM under OS/2 Warp 3.0

To access the FISC CDM server under OS/2 Warp 3.0, install NetBIOS over the TCP/IP protocol available in Warp Connect. (NetBIOS is available in the network kit for OS/2 Warp.) There are two ways to access the FISC CDM from an OS/2 computer: by using the “Net Use” command at the OS/2 command prompt; or by using the "OS/2 Peer" icon at the **Desktop** level.

Connecting by means of the NET USE command

Example:

To view the share names on the FISC CDM with the default server name “smbd8040007”, type:

```
net view \\smbd8040007
```

The above command lists all the available shares on the FISC CDM “smbd8040007”.

To map the drive letter to a physical share "cd1" of a FISC CDM with the default server name “smbd8040007”, type:

```
net use e: \\smbd8040007\cd1
```

The above command maps the drive letter E to the physical share "cd1" on FISC CDM “smbd8040007”(peer desktop).

Accessing the FISC CDM by Means of an OS/2 Peer

1. Click the **OS/2 Peer** icon on the Desktop.
2. Click the **Sharing and Connecting** icon in the **OS/2 Peer** window.
3. Select “Create” from the **Connection** menu item.
4. Type the FISC CDM server name in the **Workstation** box.
5. Press [Tab].

After this, the OS/2 gains the share names from the FISC CDM and displays them in the **Share/alias** box. Please wait a few seconds for the shares list to appear. Then follow these instructions:

1. Select the Share name to connect from the **Share/alias** Box.
2. Select the drive letter from the **Local driver letter** Box.
3. Click the *Create* button or press [Enter].

Using FISC CDM under Novell NetWare Clients

This section outlines the basic configuration settings for running FISC CDM in the Novell NetWare environment. It also describes how to access CD-ROM drives managed by FISC CDM from various NetWare clients and how to setup the access restrictions.

Configuration for NetWare

FISC CDM emulates itself as a Novell NetWare 3.x bindery server. **In order to explore the name and resources of the FISC CDM to every NetWare client, a Novell NetWare 3.x/4.x server is required in the same network where the FISC CDM is located.**

NetWare Server Name

The default NetWare server name of the FISC CDM is **ANWXXXXXXXX**, where XXXXXXXX is the last 8 digits of the FISC CDM serial number. This name can easily be changed via the FISC CDM HTML administration page under "Server Setting – NetWare server name" using any Internet browser (refer to **Chapter 3 — *Server Setting Menu***).

NCP Protocol

Be sure to enable NCP protocol. The default values of this option is set to "enable"; and this option can be easily found/changed in the HTML administration page under "Configuration" (refer to **Chapter 3 — *Configuration***).

Installing As a Bindery Server

Bindery server characteristics are an advantage to using the FISC CDM. No specific installation is required prior to accessing the FISC CDM. Please see information later in this section regarding security management in the NetWare bindery mode.

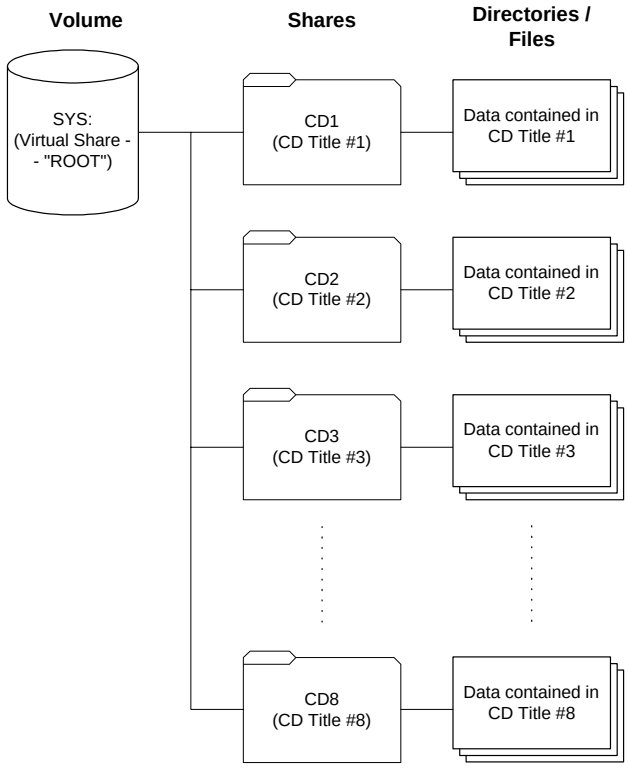
Volume / Directory Structure for NetWare

The FISC CDM will be available to your system as a NetWare file server. Just like any other NetWare file server, FISC CDM has it own volume and directory (folder) structure where files are stored.

The "SYS:" is the only available volume of the FISC CDM when it configures itself as a NetWare bindery server. The content contained beneath "SYS:" depends on the user name that you use to access the FISC CDM. The following examples will illustrate how to use different user names to access the FISC CDM:

Example #1:

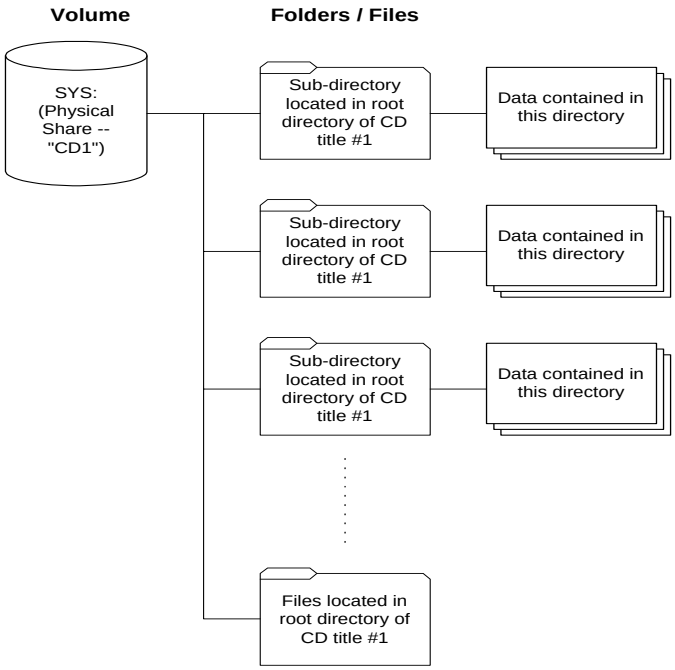
If you are using "ROOT" (default share name of virtual share device) as the user name for FISC CDM to authenticate, the directory structure should look as follows:



In this case, you are able to access any CD titles managed by the FISC CDM from your NetWare client if the "ROOT" user has been successfully authenticated.

Example #2:

If you are using "CD1" (the default share name of physical share device #1) as the user name for the FISC CDM to authenticate, the directory structure should look as follows:



In this case, you are authorized to access directories/files located beneath CD1 (CD title #1) from your NetWare client if "CD1" user has been successfully authenticated.

Security Management for NetWare

The way to manage security for NetWare user depends on using the mode *NetWare Bindery Mode without Authentication*.

In this mode, user authentication is not required to access the FISC CDM. This means that it is not necessary for the FISC CDM to logon to any authentication server (NetWare 3.x) to authenticate the user and read which group he belongs to. To restrict access to the FISC CDM from NetWare clients, a set of built-in users is already provided in the FISC CDM. For NetWare clients, the user name and password required for accessing the FISC CDM are naturally coming with the share name and share password of shared devices. In short, "Share name" of share device = "User name" for accessing this share device and "Share password" of share device = "User password" for accessing this share device

Before you can set up the FISC CDM to be used with Novell NetWare Clients, you must first install the appropriate protocols and clients for your platform. The next section will briefly cover the installation of the protocols and clients for NetWare.

Configuring Clients and Protocols for NetWare Clients

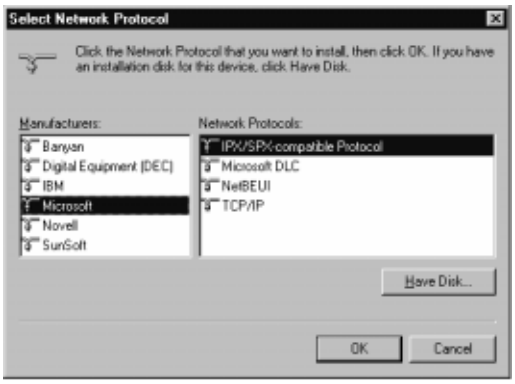
The following sections describe the configuration of Clients and Protocols for various platforms running Novell NetWare.

Windows 95/98 without Client 32 for NetWare

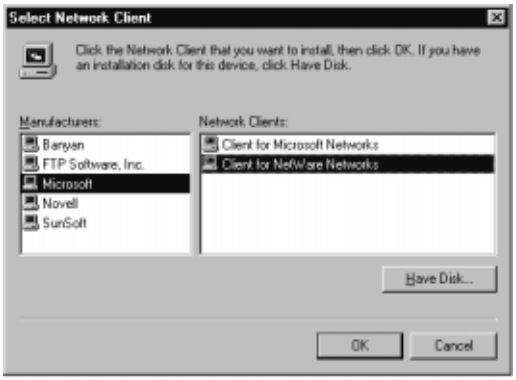
Configuring Your Client

Make sure that the following Protocols and Clients are installed in the Network Neighborhood **Properties** dialog box to enable you to access data from the FISC CDM.

IPX/SPX Compatible Protocol



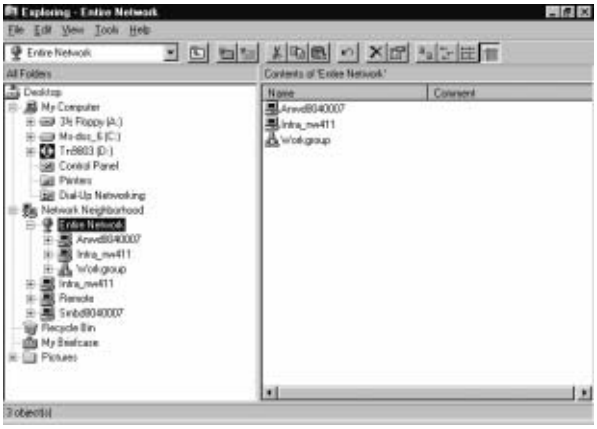
Client for NetWare Networks



Map Drive from FISC CDM

To map the FISC CDM, follow these steps:

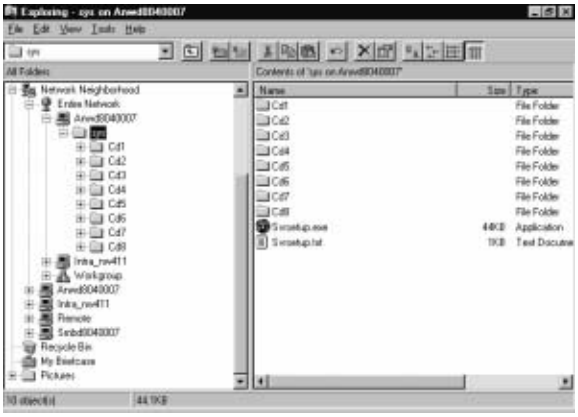
1. Start **Windows Explorer** from the **Start Menu**.
2. Expand the **Network Neighborhood** icon and then expand the **Entire Network.** The FISC CDM NCP server name (ANWxxxxxxxx) will be shown as follows:



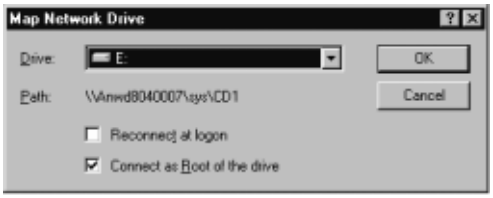
3. Double click the NCP name "FISC CDM". The system will prompt you to enter a user name and password as follows:

Important! ***Use the share name (root, CD1, etc.) as the User Name, and the share password as the Password.***

4. After a user name and password have been entered, available resources will be shown in the **Windows Explorer** as follows:



5. Choose a specific volume (such as “SYS”) or folder (such as “CD1”). Click **File** on the menu bar and then click “Map Network Drive…” to map this resource to a local client.

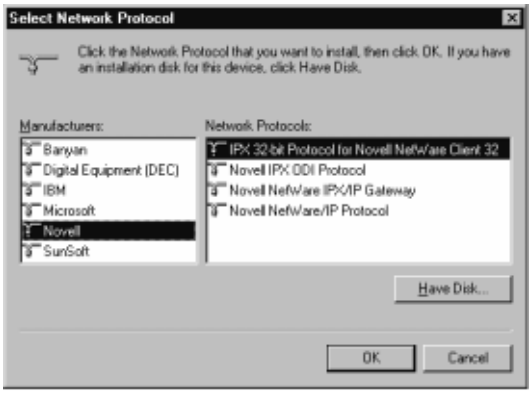


Windows 95/98 with Client 32 for NetWare

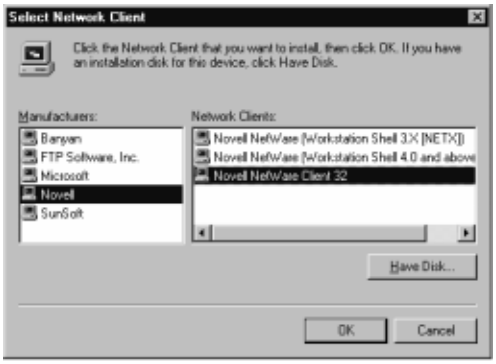
Configuring Your Client

Ensure that the following Protocols and Clients are installed in the Network Neighborhood **Properties** dialog box to enable you to access data from the FISC CDM.

IPX 32-bit Protocol for Novell NetWare Client 32



Novell NetWare Client 32

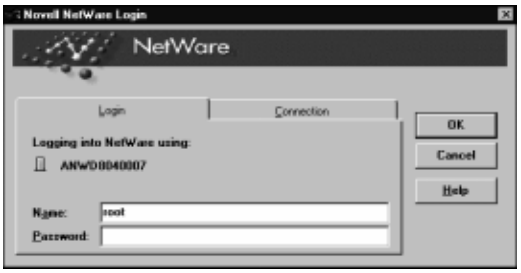


Map Drive from FISC CDM

To map the FISC CDM, follow these steps:

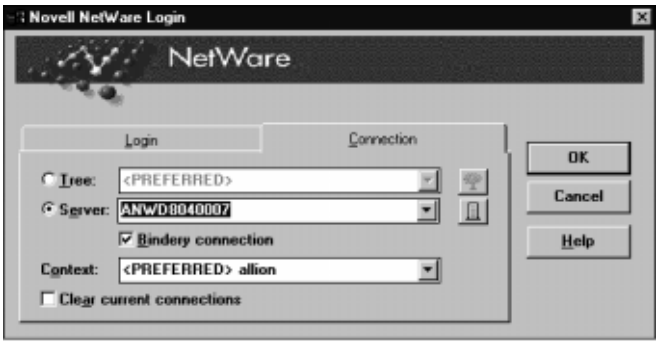
1. Start the **Windows Explorer** from the **Start Menu**.
2. Expand the **Network Neighborhood** icon and then expand the **Entire Network** and **NetWare Servers**. The FISC CDM NCP will be located beneath the "NetWare Servers" group.

3. Double click the FISC CDM entry. You will be prompted to enter a user name and password as follows:



Important! ***Use the share name (root, CD1, etc.) as the User Name, and the share password as the Password.***

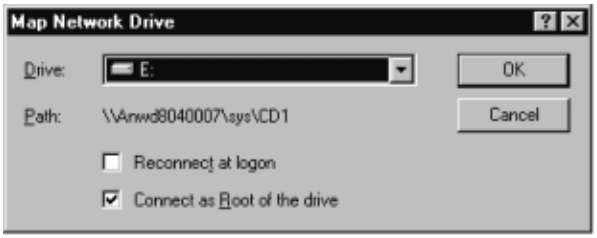
4. Click the **Connection** tab. The following screen appears:



5. Check "Bindery Connection". Click *OK* to attach the FISC CDM.

6. Once the FISC CDM has been successfully attached, expand the "SYS" volume to display all available resources:

7. Choose a specific volume (such as "SYS") or folder (such as "CD1") and click **File**, "Map Network Drive…"on the menu bar to map this resource to a local client.

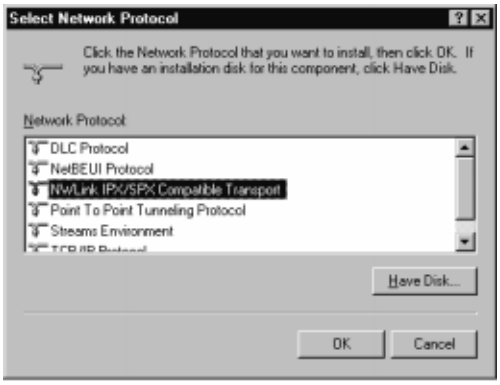


Windows NT 4.0 without IntraNetWare Client

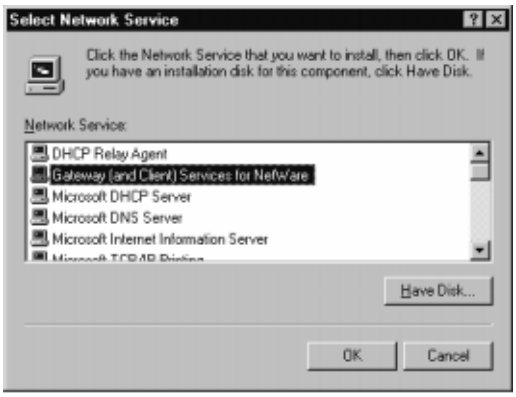
Configuring Your Client

Ensure that the following Protocols and Services are installed in the Network Neighborhood **Properties** dialog box to enable you to access data from the FISC CDM.

NWLink IPX/SPX Compatible Transport



Gateway (and Client) Services for NetWare



Map Drive from FISC CDM

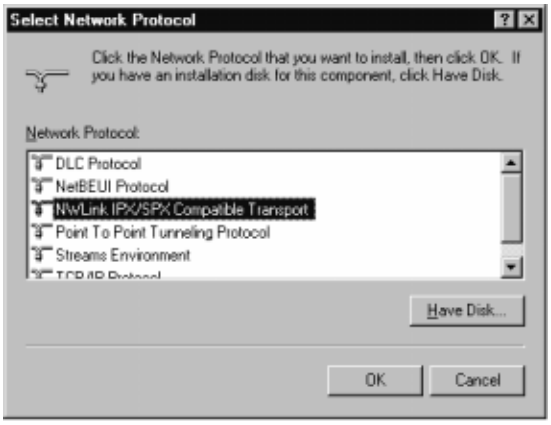
The procedure for mapping the drive is virtually the same as the procedure for Windows 95/98 in the previous section.

Windows NT 4.0 with IntraNetWare Client

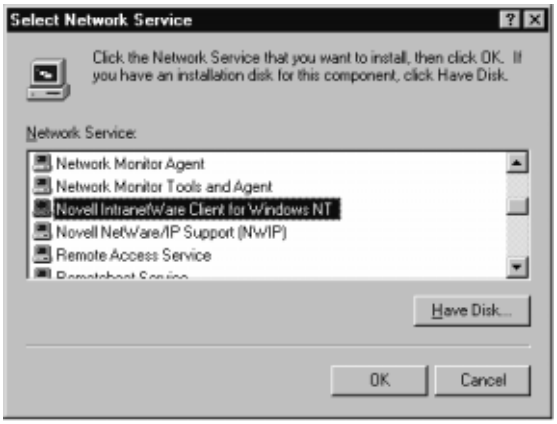
Configuring Your Client

Ensure that the following Protocols and Services are installed in the Network Neighborhood **Properties** dialog box to enable you to access data from the FISC CDM.

NWLink IPX/SPX Compatible Transport



Novell IntranetWare Client for Windows NT



Map Drive from the FISC CDM

The procedure for mapping the drive is virtually the same as the procedure for Windows 95/98 in the previous section.

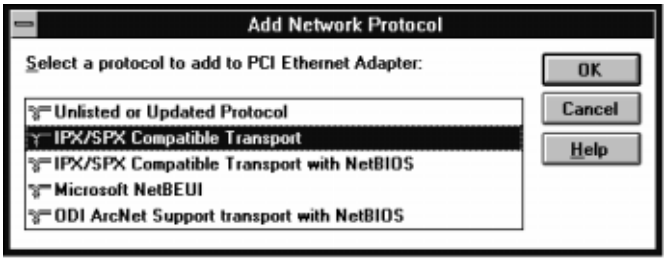
Windows for Workgroups without Client 32 for NetWare

Configuring Your Client

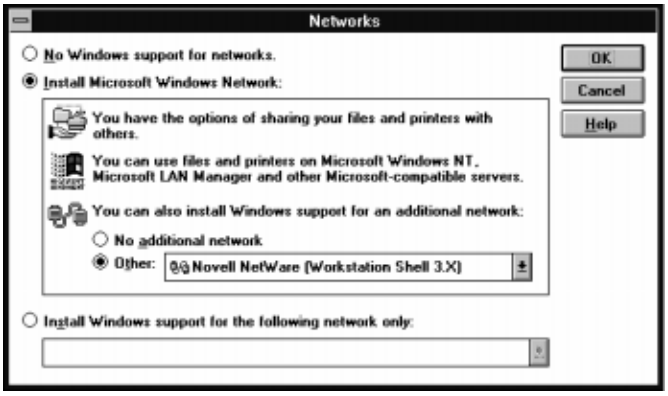
Be sure the following Protocols and Networks are installed in the Network Setup before you access data from the FISC CDM.

Ensure that the following Protocols and Networks are installed in the Network **Setup** dialog box to enable you to access data from the FISC CDM.

IPX/SPX Compatible Transport



Microsoft Windows Network



Map Drive from FISC CDM

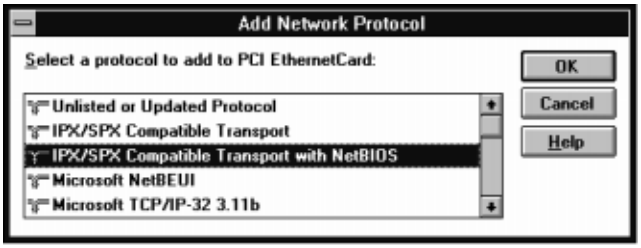
The procedure for mapping the drive is virtually the same as the procedure for Windows 95/98 in the previous section.

Windows for Workgroup with Client 32 for NetWare

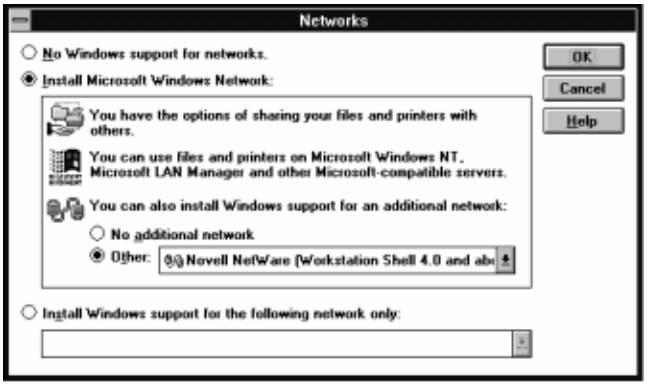
Configuring Your Client

Ensure that the following Protocols, Networks and NetWare Tools are installed in the Network Setup and NetWare Client 32 dialog boxes for DOS/Win 3.x to enable you to access data from the FISC CDM.

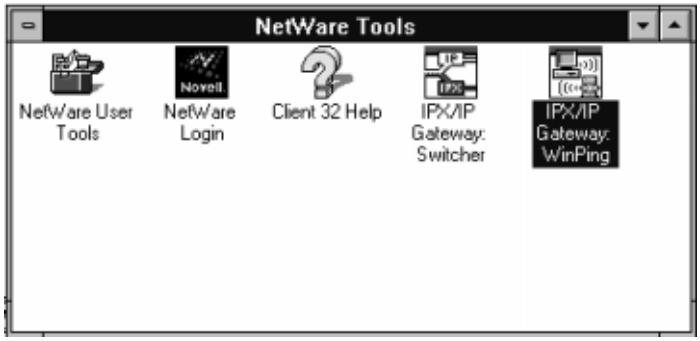
IPX/SPX Compatible Transport with NetBIOS



Microsoft Windows Network



NetWare Tools



Map Drive from FISC CDM

The procedure for mapping the drive is virtually the same as the procedure for Windows 95/98 in the previous section.

DOS with Client 32 for NetWare

Configuring Your Client

Ensure that the appropriate NetWare Link Support utility, driver, protocol and shell have been successfully loaded and login Novell NetWare server with valid user account.

Map Drive from FISC CDM

Please use the following commands to map shared resources to access FISC CDM:

Syntax:

Map <logical drive letter:>=<FISC CDM's NetWare server name>\SYS:

Example 1:

To map the virtual share "root" of a FISC CDM with the default NetWare server name "anwd8040007" as drive letter F, type:

```
map f:=anwd8040007\sys:
```

FISC CDM will prompt you to enter your user name and password. Please type the virtual share "root" as the user name and the virtual share password of "root" as the password. Then this virtual share "root" will be assigned as the "sys" volume and mapped to drive G: of local machine while all the mounted CDs will be shown as directories under "sys" volume.

Example 2:

To map the physical share "cd1" of a FISC CDM with the default NetWare server name "anwd8040007" as drive letter H, type:

```
map h:=anwd8040007\sys:
```

FISC CDM will prompt you to enter your user name and password. Please type the physical share "cd1" as the user name and the physical share password of "cd1" as the password. Then this physical share "cd1 will be assigned as the "sys"

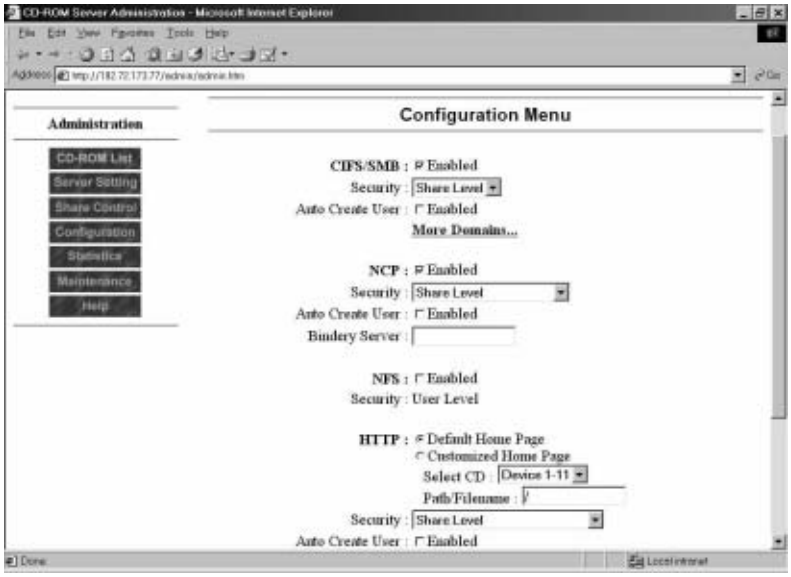
volume and mapped to drive H: of local machine while all the files will be shown under "sys" volume.

Using FISC CDM under NFS Clients

FISC CDM can now export all the CD volumes that are currently available as NFS-mountable volumes to any NFS client. The NFS functions of FISC CDM has been tested under the following UNIX platforms:

- Solaris (x86, v2.6)
- Linux (Slackware 3.5, core 2.0.35)
- SCO UNIX (Internet Faststart 1.0)
- Digital UNIX (OSF1, v4.0)

How to use FISC CDM under NFS Clients



a. Enable NFS protocol support in the Configuration menu on FISC CDM Administration page.

b. Add a routing entry in the UNIX client host table:

In order to avoid the inconvenience of typing the IP address of the CD server when mounting the CD, you can add one line in "/etc/hosts" file:

Syntax:

<FISC CDM IP Address> <FISC CDM Server Name>

Example:

To add a routing entry for the CD server "FISC" with its IP address at 192.132.253.123 in the UNIX client host table, add the following line in the /etc/hosts file:

```
192.132.253.123 FISC
```

c. Add the mount point at UNIX client, usually named ***mnt*** under root directory:

```
cd /
mkdir mnt
```

d. Mount FISC CDM on a UNIX client mount point

A UNIX client can mount any exported volumes of FISC CDM using "mount" command. Please refer the following example for mounting "CD1" of FISC CDM (server name FISC, IP address 192.132.253.123) on /mnt directory on the client:

```
# mount -o ro FISC:/cd1 /mnt
```

(the routing entry has been configured) or,

```
# mount -o ro 192.132.253.123:/cd1 /mnt
```

(the routing entry has not been configured)

You can also mount a directory of "CD1" on /mnt directory on the client. For example, to mount the "font" directory of "CD1":

```
# mount FISC:/cd1/font /mnt
```

e. To find out exported volumes from FISC

In order to find out what volumes are exported for mounting through NFS, you can issue the following command on a UNIX client:

```
# showmount -e FISC
```

Here is a snapshot from the FISC CDM with IP address 164.164.67.2 with 7 NFS mountable volumes.

```
# showmount -e 164.164.67.2
Export list for 164.164.67.2:
/cd1 (everyone)
/cd2 (everyone)
/cd3 (everyone)
/cd4 (everyone)
```

```
/cd5 (everyone)
/cd6 (everyone)
/cd7 (everyone)
```

f. To show FISC CDM server mount information

```
# showmount -a FISC
```

g. To remove a mounted volume

```
# umount /mnt
```

h. In the Statistics menu, you can find the NFS connection list.

This concludes Chapter Four.

APPENDIX A

Technical Specification

Technical Specifications

Network Protocols

- **Physical & Media Access**
  IEEE 802.3 Ethernet, 802.3u Fast Ethernet
- **Network & Transport**
  TCP/IP, NetBEUI, IPX/SPX, NetBIOS, AppleTalk*
- **File Access**
  SMB/CIFS, HTTP, NCP, NFS, AFP*
- **TCP/IP Suite**
  ARP, RARP, BOOTP, DHCP, ICMP, WINS*

Network Interface

- One 10/100Mbps auto-sensing port via an RJ-45 connector

Memory

- **Level 1 Cache:** 16KB
- **Flash-ROM:** 1MB
- **DRAM:** 8MB on-board, up to 72MB through two 32MB EDO SIMM.

CPU

- Cyrix MediaGX, 180MHz

Bus Structure

- PCI

HD & CD-ROM Interface

- Four bus-mastering enhanced IDE channels, via standard 40-pin connectors

Number of Drives

- Up to 8 EIDE HD or ATAPI CD-ROM drives/changers

CD-ROM Format

- **Track Level:** DVD, Audio CD (Red Book), CD-ROM (Yellow Book), CD-R (Orange Book), Video CD (White Book), CD-Extra (Blue Book), Multi-session CD, Photo CD
- **CD File System:** ISO-9660, High-Sierra, Rock Ridge Extension, Joliet, Hybrid CD*, Apple HFS*, UDF

Operating Condition

- **Temperature:** 32-104°F (0-40°C) for controller
- **Humidity:** 10-90% RHS

Power Rating

- FISC CDM Controller: +5V/3.0A
  +12V/0.1A
- FISC CDM Tower: +5V/11.8A
  +12V/12.0A

Fan Requirement

- 35 CFM

Regulatory

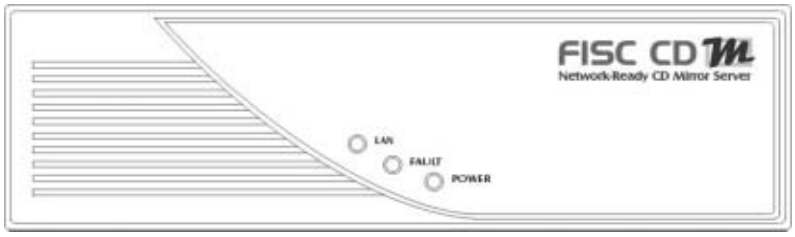
- UL, CSA, FCC, CE

Some features are not implemented in the early releases of firmware.

APPENDIX B
LED Indicators

Description of LED Indicators

Diagram of Front Panel



	LED	Color
1	LAN	Green
2	FAULT	Yellow
3	POWER	Green

Power

Power LED indicates that the system power is ON. The Power LED will flash when you turn on the power. After all the CD-ROM drives are successfully mounted on FISC CDM, the Power LED will stay ON.

Fault

Fault LED indicates the system fault.

LAN

LAN LED indicates the network activity.

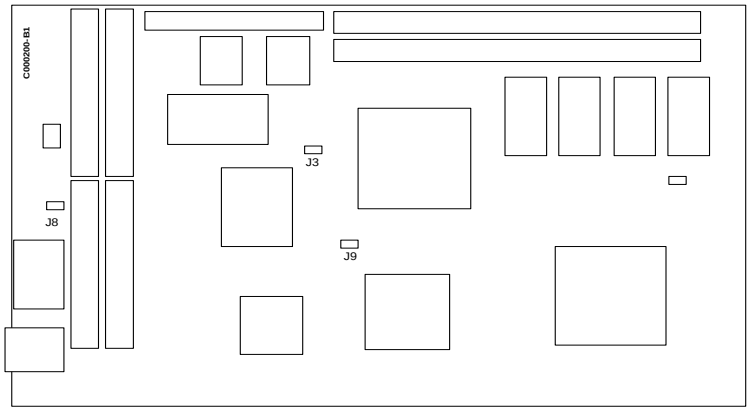
LED Code

STAGE	POWER LED	FAULT LED	LAN LED
POWER ON	ON	OFF	OFF
POST	FLASH	OFF	OFF
POST ERROR			
Memory error	ON	ON	OFF
Flash Memory Part A error	ON	FLASH	OFF
Flash Memory Part B error	OFF	FLASH	OFF
RTC error	OFF	ON	OFF
Network error	FLASH	ON	OFF
CMD IDE error	OFF	ON	ON
SET DEFAULT	FLASH	ON	FLASH
FIRMWARE UPGRADE	FLASH	OFF	FLASH
READY	ON	OFF	FLASH
SYSTEM HALT	ON	ON	ON

APPENDIX C

Jumper Setting & Connectors

Jumpers



Jumper	ON (short)	OFF (open)
J3	Set default	Normal *
J8	Reset	Normal *
J9	MFG mode	Normal *

***** Means factory default setting.

If you turn off the power, short Jumper 3 and then turn-on the power again, FISC CDM will be set to factory defaults:

- The password is cleared.
- The IP address is set to "192.168.1.1".
- NCP protocol is enabled.
- DHCP, RARP, BOOTP functions are disabled.
- The Workgroup/Domain name is set to “Workgroup”.
- The Server name is set to “SMBXXXXXXXX” and the NetWare Server name is set to "ANWXXXXXXXX" while

"XXXXXXXX" are the last eight digits of the Ethernet Mac address of FISC CDM.

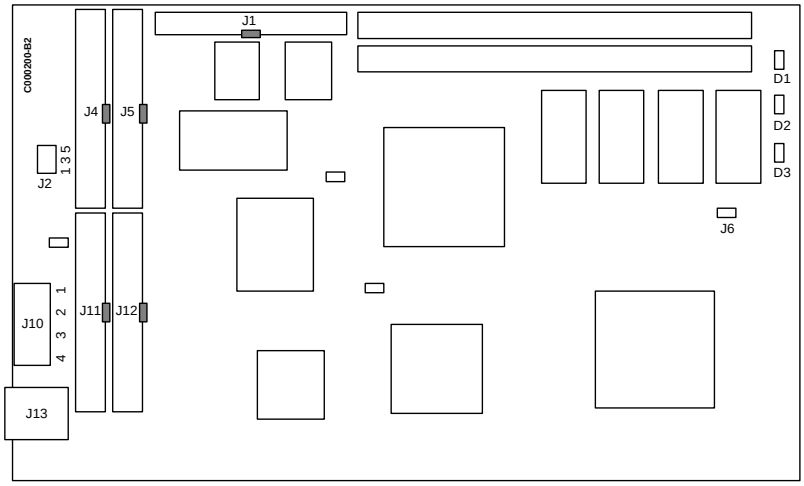
- The physical share names are set to "CD 1" - "CD 8".

After completing the factory default setting, the Power and LAN LED will FLASH and Fault LED will be ON. Please turn off the power, remove the jumper of J3 and turn on the power again.

If you short Jumper 8, the system will be reset.

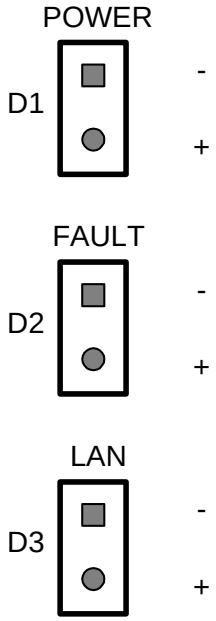
Jumper 9 is for manufacturing diagnostic purpose. Please DO NOT short jumper 9.

Connectors



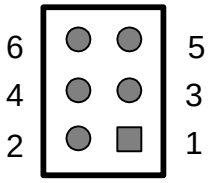
- J1 - I/O Board connector (for manufacturing purposes only)
- D1, D2, D3 - LED connector
- J2 - Extra LED connector (in case LED has to be shown somewhere else)
- J4,J5,J11,J12 - IDE connector
- J6 - FAN connector (maximum 0.1 Amp)
- J10 - Power Connector
- J13 - TP (RJ-45) connector

LED connector - D1, D2, D3



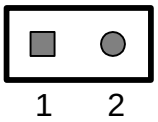
PIN	SIGNALS	FUNCTION
D1-	-POWERLED	POWER LED
D1+	+POWERLED	
D2-	-STATUS	FAULT LED
D2+	+STATUS	
D3-	-LANLED	LAN LED
D3+	+LANLED	

Extra LED connector - J2



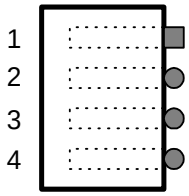
PIN	SIGNALS	FUNCTION
1	-POWERLED	POWER LED
2	+POWERLED	
3	-STATUS	FAULT LED
4	+STATUS	
5	-LANLED	LAN LED
6	+LANLED	

FAN connector - J6



PIN	SIGNALS	FUNCTION
1	GND	GROUND
2	+12V	POWER +12V

Power Connector - J10



PIN	SIGNALS	FUNCTION
1	+12V	POWER +12V
2	GND	GROUND
3	GND	GROUND
4	+5V	POWER +5V