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Introducing the Virtual CD Server

The Virtual CD Server is a "plug-and-share" mixed drive controller. It uses industry-standard Intel technology, providing superior performance and flexibility. The Virtual CD Server is an embedded multi-protocol server with direct network-attached storage appliances.

Network Protocols

Industry-standard communication protocols such as NCP (Novell NetWare protocol), SMB (Microsoft network protocol), and HTTP (internet web browser protocol) allow the Virtual CD Server to be accessed as a secondary server on your network.

- If you are running a Microsoft Windows NT or Windows 95/98 network, using the SMB protocol, the Virtual CD Server appears as a Windows NT server.
- If you are running a Novell NetWare network, using the NCP protocol, the Virtual CD Server appears as a NetWare server.
- If you are running a mixed NetWare and Windows NT network, the Virtual CD Server appears as a both a NetWare and a Windows NT server.
- If you are running a Banyan Vines network, the type of server displayed is dependant on which network client the workstation is using to assess the network's resources.

This unique technology allows you to seamlessly access and share mass storage appliances without the need to load any additional software on either the main file server or the client workstations. When the Virtual CD Server is attached to the network, all volumes of the Virtual CD Server appear as network accessible volumes or shares, enabling the client workstation to use a single drive letter to map to all CD data immediately.

The Virtual CD Server provides a clear advantage by eliminating the need to install additional file server or client workstation software. It off-loads traffic from the file server for better performance and eliminates hours of effort and downtime required to install server and client workstation software. Using native network protocols, it maintains the integrity of your network and prevents possible conflicts.

Virtual CD Server Architecture

The Virtual CD Server's multi-protocol architecture provides the flexibility to use existing client software running simultaneously on both Windows NT and Novell NetWare networks.

The Virtual CD Server may be access from any workstation using any of the following operating systems:

- Windows 3.x/95/98/NT
- DOS
- Other platforms equipped with NetWare or SMB clients
- Web browser (Netscape, Internet Explorer, etc.)

The Virtual CD Server is based on a FAT16 file system, which requires the "8.3" file naming convention (8-character maximum file name, 3-character maximum extension), even in Windows 95/98/NT.

Network Interfaces

The Virtual CD Server is available with either of the following network interfaces:

- Standard Ethernet 10BastT/2
- Fast Ethernet 10/100BastTX

Installation

Connecting to the Network

The Virtual CD Server is adaptable to a number of network environments.

The remote administration utility, CD-Vision Administrator, must be installed on a workstation to manage the CD-ROM volumes and User accounts.

1. Carefully remove the Virtual CD Server system from its shipping box. Please check for all components before dispensing with any packing materials. The system components are:
 - Virtual CD Server
 - Ethernet Patch Cable
 - Power Cord
 - SCSI Terminator
 - Virtual CD Server Installation Guide
 - CD-Vision Tools CD-ROM

Place the Virtual CD Server in a sturdy location that is well off the floor of your office. Dust exposure in CD products is a common cause of lower life expectancy.

2. Insert the Terminator in to the empty SCSI socket at the rear of the Virtual CD Server.
3. Connect the Virtual CD Server to the Ethernet hub or wall socket using the supplied Ethernet Patch Cable. The standard Virtual CD Server configuration is designed to work with 10/100BaseTX wiring. Other configurations are available. Contact Technical Support for more information.
4. Connect the Power Cord to the AC plug located at the rear of the Virtual CD Server. Be sure to connect the other end of the power cord to a power surge protection unit.

Installing CD-Administrator

CD-Administrator regulates network sharing, and management of Turbo-Cached discs, for the Virtual CD Server. It must be installed on a Windows95 or NT workstation.

1. Insert the CD Vision Tools CD-ROM into the workstation CD drive.
2. Begin the Installation program by using one of the two following methods:
 - 2.1. Click on Start, then select Run. Enter the letter of the local CD drive and the Setup program name. For example: **E:\Cd\410c\Cdvtools\Setup32\Setup.exe.**
 - 2.2. Browse the CD locate the Cdvtools/Setup32 directory and double-click on the Setup.exe icon.
3. When the Welcome screen open click on OK.
4. Select the directory where CD-Administrator is to be installed. Or accept the default directory provided the by the Setup program.
5. Click on the Installation Button. This is the large button on the left side of the Setup screen.
6. Click on OK when prompted that the Setup program successfully completed.

Call 800-38-Logic for help



Starting CD-Administrator

Once the CD-Administrator utility has been installed it is now possible to send CD-ROM information to the hard drives of the Virtual CD Server. This process is known as Turbo-Caching.

First Time Access to CD-Administrator

To login to CD-Administrator there must be a locally defined username and password in the Virtual CD Server. The unit arrives with default usernames of Admin, Administrator, Supervisor, and Guest. Initially, each of these has no password. During this first-time access, the Virtual CD Server is not remotely authenticating to the Novell NDS tree, or an NT Domain.

NT

Due to the constraints of the NT Domain, to access the Virtual CD Server the *first time*, the administrator must login to the Domain with the username Administrator or Supervisor, with supervisory rights. This will permit the administrator to access the Virtual CD Server through the CD-Administrator utility. At this point a new user name may be added to the bindery of the Virtual CD Server to allow future access for administration.

Novell

The default username of the Virtual CD Server remain the same, however the login name to the Virtual CD Server does not need to match the NDS tree login name.

Novell Environment

1. Turn on the power to the system by pushing in the power button located on the lower, right, front of the Virtual CD Server. As the boot sequence of the system proceeds a series of audio codes (beeps) will be heard.
2. The Virtual CD Server™ will broadcast the following **audio codes**:

Two beeps (pause) One beep (pause) One beep (pause)	This series of beeps indicates that the Virtual CD Server™ RAM passed a self-test. <i>During the initial network install/boot this code may be broadcast twice, as the unit “learns” the network frame type.</i>
One beep	The Virtual CD Server™ software passed a self-test.
Two beeps (ascending tone)	The Virtual CD Server™ boot is complete.

3. **Start the CD-Administrator utility.** Click on Start, the select Programs. Choose the CD-Vision Tools option, and the select CD-Vision Administrator.
 - 3.1. The Administrator window will list the Virtual CD Server™ (named *Vision_xxxxx_NW*). The Handshake icon to the left of the server name indicates if you are logged in to the Virtual CD Server™. A red X between the hands means you are not logged in. To login to the Virtual CD Server™, double click on the server name. Enter the username, and password. Remember: the first time you log into this server you must use the default username of Admin, Administrator, or Supervisor, with no password. Click on OK.
 - 3.2. Once you are logged onto the Virtual CD Server™ the Handshake icon will change to the hands touching (no red X), and any users attached to the server will be displayed, as well as the Server Type (which network protocols are supported by the server).
4. Select the Console button. Three tabs will be visible.
 - 4.1. The Server Information tab (default) will display data about loaded system protocols, network IPX or IP address of the Virtual CD Server, and the number of connections to the system.
 - 4.2. The Users List tab displays information about the users attached to the Virtual CD Server.
 - 4.3. The Volumes List tab displays the volumes of the Virtual CD Server, and is used to Turbo-Cache CDs.
5. **To Turbo-Cache CD-ROM Discs (Copying a CD to the Hard Drive).** Click on the Volumes List tab.
 - 5.1. Insert a CD in the drive bay of the Virtual CD Server™. It may take up to 90 seconds for the disc to “spin up”. After “spin up” click the refresh button in the CD-Administrator™ window.
 - 5.2. Scroll to the bottom of the Volumes List window, the CD-ROM will appear at the bottom as Device Type CD-ROM, Volume Name xxxxx, Volume Path 0 as Master [P].
 - 5.3. Highlight the volume and click on the Turbo-Cache button at the top of the screen. Select the drive latter for the partition you wish to copy the CD onto.

Drive letter C may be offered as an option, but it is unavailable. Do not attempt to Turbo-Cache a disc to drive letter C.

- 5.4. Click on Start Now. If there is not enough space to copy the disc onto the partition an error message will tell you this, and return you to the Volumes List window. Select a new drive letter.
- 5.5. A progress bar will indicate the status of the turbo-caching/copying process. When finished the turbo-cached disc will appear as "X as *TurboCache Volume [P]*".
- 5.6. Dismount the physical disc by highlighting it (Master) and clicking on the Dismount button. The drive bay door will open and the disc will be ejected. Repeat these steps as necessary.
6. **To delete a Turbo-Cached disc.** Highlight the TurboCache volume you wish to remove, and click on the Dismount button at the top of the screen.
7. **Add users** to the local bindery, as necessary, via the Users Info screen in the CD-Vision Administrator window. For 50 or more individual User accounts Remote Authentication must be used. For information on remote NDS authentication see the Installing NDS Security Agent section of this manual for additional information.
8. **Map Win95 workstations to the Virtual volume of the Virtual CD Server™.** Open the workstation Network Neighborhood. Open the Virtual CD Server™. This may be located under Entire Network, NetWare Servers. Select the Virtual volume. Right-click on the folder icon, and select map network drive from the menu options. Select the drive letter to be assigned. Place a check mark in the "Reconnect at login" box if desired. Click on OK.

NetWare5

The Virtual CD Server™ has not been qualified for NetWare5. Initial tests indicate that the unit is compatible with NetWare5 running the standard Client 32 c2.5 over IPX. NetWare IP connectivity is not available.

NDS Authentication (NWVision.NLM) is currently unavailable to NetWare5. Users and groups must be created/administered from the bindery of the Virtual CD Server™.

Installing NDS Security Agent

This procedure will add Turbo-Cached Volumes to the NDS tree. It is recommended that an Organizational Unit (OU) be created in the NDS tree for these to be in, and that the NWVISION.NLM Security agent be installed on the Master Replica NetWare server.

The Security Agent installation must be run from a Windows95 or WindowsNT workstation that is logged into the NDS tree with Supervisor rights.

The NetWare server that the Security Agent is installed on must have at least the level of patches installed by Novell's LIBUPF.EXE (dated 7 January 1998)

1. If necessary install LIBUPF.EXE (or later) on the NetWare server. This will update CLIB to a date of 15December1997 (or later).
2. At a workstation logged on to the NDS tree, place the CD-Vision Tools CD in the local CD bay. In My Computer, or the Windows Explorer, open the CD. Open the Agents folder, the NDSAgent folder, and double-click on SETUP.EXE. This copies *NWVision.INI* and *NWVision.NLM* to the System directory of the NetWare server, and passes rights to the Virtual CD Server that are equivalent to the same person running the setup program.
3. At the server console prompt **LOAD NWVISION.NLM**. Use the administrator's username/password to complete the NLM loading.
4. At the workstation attach to the Admin volume of the Vision_XXXXX server. At the DOS prompt of the workstation change to the local CD drive. Move to the HYPERLNQ directory and enter this command:

SETUP /REMOTE=X:

Where *X* is the mapped drive letter of the Vision_XXXXX\Admin volume.

5. In the Setup Utility, select the Parameter Information menu option. Select the Protocol Information option and select Novell NetWare. The Novell NetWare Information page will open.
6. Define the following fields:
NDSSupport=Yes
NDSTreeName=<appropriate name> (ex: JONESLAW)
NDSContextName=<appropriate context> (ex: .LIBRARY)
Authentication=REMOTE: <name of server w/NLM loaded> (ex: REMOTE:SERV_1).
7. Press <F10> to accept the values entered. Press <Esc> to return to the Parameter Information menu. Select Create Setup, to modify the configuration files with the data values just entered. You will be returned to the DOS prompt.
8. Reboot the Vision_XXXXX server. As it reboots, and reads its configuration files, the NetWare server console will display each volume of the Vision_XXXXX server that is being added to the NDS tree.

NetWare Administrator now defines Users, Groups, and Volume Trustee Rights for the Vision_XXXXX server. The default Trustee Rights for Vision_XXXXX server volumes, including Turbo-Cached volumes, to all users (under the ORNETIX_OT_USER object) is Object rights: [SBCDR] and Property rights: All Rights.

If the Setup program fails

It is possible to manually enable NDS Authentication.

1. You must copy, using the Windows Explorer, the NWVision.NLM file to the NetWare file server SYS:SYSTEM directory.

Call 800-38-Logic for help



2. Load the NLM. Be sure to use the full-distinguished name of the Admin object. For example .CN=Admin.O=JONESLAW.
3. Edit the Server.ini file found in Network Neighborhood\Vision_XXXXX server\Admin. Open the file. In the Protocol.NCP section edit the following lines:


```
NDSSupport=Yes
NDSTreeName=<appropriate name> (ex: JONESLAW)
NDSContextName=<appropriate context> (ex: .LIBRARY)
Authentication=REMOTE: name of server w/NLM loaded> (ex: REMOTE:SERV_1)
```
4. Save and exit the file and reboot the Virtual CD Server. All volumes/TurboCache discs of the Virtual CD Server will appear in the NDS tree context reference above.

Novell NDS Agent Installation Notes

NetWare Server Revision: The NDS Agent must be installed on a Novell NetWare V4.X server with at least the level of patches installed by Novell's LIBUPF.EXE dated January 7th, 1998 (the CLIB file located in the system folder should be dated December 15th or later).

NDS Agent Load Sequence: The NDS Agent NLM should be loaded onto the NetWare server **before** the Virtual CD Server™ is powered on. If the Virtual CD Server™ is on during the NDS Agent installation then reboot the Virtual CD Server™. Note that the NDS Agent setup only copies the agent to the Novell server. You must also manually or with the AUTOEXEC.NCF file load the NDS Agent onto the Novell server. If you experience problems loading the NDS agent, delete any NWVision.NLM and NWVision.ini that exists in the SYS: volume of the Novell server. Manually copy the NWVision.NLM to the SYS: volume and load it. Follow the screen prompts and define an administrator's name. A blank screen is normal after the NLM is loaded. Press ALT and ESQ to leave the blank screen.

NDS Agent User Name: To ensure full NDS rights, replace the Ornetix default user name as follows. When prompted during the loading of the NDS Agent onto the Novell server, replace the default user name with an Administrators name (i.e.: Admin) that has supervisory rights and is defined in the NDS tree.

NetWare Security Server Host Name: To be fully compliant with NDS it is necessary to define the Security Server Host name. The Novell security server should be at least a Read/Write server if not a Master Replica Novell server.

Context Naming: The context name should be "typeless" (i.e.: without O, OU, =, etc.) and should have a leading "distinguishing" period in front of it's name.

Multiple Network Cards on NetWare Server: Multiple network cards installed on the NDS Agent based NetWare server may prevent users from authenticating or accessing the Virtual CD Server™.

Volume Security Using NetWare Administrator

Brief Architecture Description

Axonix' s Security Agent for NDS allows the Virtual CD Server™ to perform authentication and volume security operations against the NDS tree. It installs as an NLM on a NetWare V4.x server. Users defined in the NDS tree can seamlessly log-in and use the server's resources.

When a Virtual CD Server™ configured with authentication and security starts, it adds itself and its volumes as objects to the NDS tree within the specified context. The settings of the property ACL-CDVISION:OT for a volume, determines how a user can access the volume.

The new volume property ACL-CDVISION:OT controls volume-level permission for volumes on a Virtual CD Server™. When the Axonix Security Agent is installed on the Novell NetWare server, the property ACL-CDvision:OT is created in the NDS tree schema.

Defining Users & Groups

Users and Groups are created and maintained using the standard Novell NetWare Administration tool NWADMIN.

Assigning Trustee Rights

This section describes how to assign Trustee Rights to a volume so that only specified users or groups can access this volume. To limit access to a volume you must perform the following steps:

- Restrict access to this volume for all users.
- Select groups or users who may access this volume.

The default Trustee Rights value for all volumes on the Virtual CD Server™ are full access for all authenticated users.

To Restrict Access to A Volume for All Users

1. Run the NWADMIN utility. The Virtual CD Server™ is displayed in the tree as a NetWare server.
2. Right mouse click the volume whose access you want to change, and select *Trustees of this Object...* The Trustee of ...window is displayed.

If you select the volume instead of right mouse clicking the volume, NWADMIN attempts to log you into the Virtual CD Server™. Under certain conditions the login window is displayed. This step is unnecessary, as volume security information is retained in the NDS tree.

3. In the Trustees: list box select Root. Choose the Selected properties: option and select property ACL:CDvision:OT. Remove all other options in the Property rights fields (Supervisor, Compare, Read, Write, Add Self).
4. Press the **Inherited Rights Filter** button. The Inherited Rights Filter window is displayed.
5. Choose the Selected properties: option and select property ACL:CDvision:OT. Deselect all other options in the Property rights fields (Supervisor, Compare, Read, Write, Add Self). Press OK to confirm selection. Trustee Rights have been removed from this volume and it can no longer be accessed by any user.
4. Steps 2-5 should be repeated for all volumes whose access you want to limit.

To Select Groups or Users Who May Access This Volume

First restrict rights to all users described in the step above.

1. Run the NWADMIN utility. The Virtual CD Server™ is displayed in the NDS tree as a NetWare server.
2. Right-click the volume for which you want to define Trustee Rights, and select *Trustees of this Object*. The Trustees of ...window is displayed.
3. Press the **Add Trustee....** button. Select a user from the *Available objects* list or group from *Browse context* list to whom you want to assign trustee rights. Press OK.
4. In the Trustee of.... window, choose *Selected properties:* option and then select property ACL:CDvision:OT. Select the rights you want to allocate to the selected user. Press OK. Trustee Rights for this volume are now set for the specified group or user. For example, if you want to allow a user to access a volume with read only, you need to check both Read and Compare properties and press OK.
5. Steps 2-4 should be repeated for all volumes for which you want to set Trustee Rights.

NT Environment

1. Turn on the power to the system by pushing in the power button located on the lower, right, front of the Virtual CD Server. As the boot sequence of the system proceeds a series of audio codes (beeps) will be heard.
2. The Virtual CD Server™ will broadcast the following **audio codes**:

Two beeps (pause) One beep (pause) One beep (pause)	This series of beeps also indicates that the Virtual CD Server Ram passed a self-test. <i>This group of tones will repeat three (3) times, as the Virtual CD Server “learns” the network cabling type.</i>
One beep	The Virtual CD Server software passed a self-test.
Two beeps (ascending tone)	The Virtual CD Server boot is complete.

3. **Logon to a workstation** as username Administrator, with no password. NT will require users of the Virtual CD Server™ to log onto it with the same username and password as the network logon; for first-time access to the Virtual CD Server™ you must log on as Administrator or Supervisor.
4. **Set the IP address.**
 - 4.1. Select CD-Vision Tools© from the Programs menu, and then select Set IP Address for Servers. The *Vision_XXXXX* server will be displayed with a red line through the icon.
 - 4.2. Double click on the icon. In the Server Properties window that opens up edit the Domain Name, IP Address, Network IP Mask, and Router Address as necessary.
 - 4.3. Click on OK. Reboot the Virtual CD Server when prompted.
 - 4.4. Close the Set IP Address window.
5. **Start the CD-Administrator utility.** Click on Start, the select Programs. Choose the CD-Vision Tools option, and the select CD-Vision Administrator.
 - 5.1. The Administrator window will list the Virtual CD Server™ (named *Vision_XXXXX*). The Handshake icon to the left of the server name indicates if you are logged in to the Virtual CD Server™. A red X between the hands means you are not logged in. To login to the Virtual CD Server™, double click on the server name. Enter the username, and password. Remember: the first time you log into this server you must use the default username of Administrator, or Supervisor, with no password. Click on OK.
 - 5.2. Once you are logged onto the Virtual CD Server™ the Handshake icon will change to the hands touching (no red X), and any users attached to the server will be displayed, as well as the Server Type (which network protocols are supported by the server).
6. Select the Console button. Three tabs will be visible.
 - 6.1. The Server Information tab (default) will display data about loaded system protocols, network IPX or IP address of the Virtual CD Server, and the number of connections to the system.
 - 6.2. The Users List tab displays information about the users attached to the Virtual CD Server.
 - 6.3. The Volumes List tab displays the volumes of the Virtual CD Server, and is used to Turbo-Cache CDs.

7. **To Turbo-Cache CD-ROM Discs (Copying a CD to the Hard Drive).** Click on the Volumes List tab.

- 7.1. Insert a CD in the drive bay of the Virtual CD Server™. It may take up to 90 seconds for the disc to “spin up”. After “spin up” click the refresh button in the CD-Administrator™ window.
- 7.2. Scroll to the bottom of the Volumes List window, the CD-ROM will appear at the bottom as Device Type CD-ROM, Volume Name xxxxx, Volume Path 0 as Master [P].
- 7.3. Highlight the volume and click on the Turbo-Cache button at the top of the screen. Select the drive letter for the partition you wish to copy the CD onto.

Drive letter C may be offered as an option, but it is unavailable. Do not attempt to Turbo-Cache a disc to drive letter C.

- 7.4. Click on Start Now. If there is not enough space to copy the disc onto the partition an error message will tell you this, and return you to the Volumes List window. Select a new drive letter.
 - 7.5. A progress bar will indicate the status of the turbo-caching/copying process. When finished the turbo-cached disc will appear as “X as *TurboCache Volume [P]*”.
 - 7.6. Dismount the physical disc by highlighting it (Master) and clicking on the Dismount button. The drive bay door will open and the disc will be ejected. Repeat these steps as necessary.
8. **To delete a Turbo-Cached disc.** Highlight the TurboCache volume you wish to remove, and click on the Dismount button at the top of the screen.
9. **Add users as necessary**, via the Users List screen in the CD-Vision Administrator™ window. For 50 or more individual User accounts Remote Authentication must be used. See the NT Agent/NT Remote Authentication section of this Guide for further information.
10. **Map Win95 workstations to the Virtual volume of the Virtual CD Server™.** Open the workstation Network Neighborhood. Open the Virtual CD Server™. Right-click on the folder icon, and select map network drive from the menu options. Select the drive letter to be assigned. Place a check mark in the “Reconnect at login” box if desired. Click on OK.

NT Defined Users

Users and Groups are defined by using the standard NT Domain Administration tools.

Users must be defined as domain users (not as local workstation users). No special or additional attribute or definition is required.

Assigning permissions

This section describes how to assign permissions to a volume so that only specified users or groups can access this volume. To limit access to a volume you must perform the following steps:

- Restrict default access to this volume for all users.
- Select groups or users who may access this volume.

The default permission for all volumes on the Virtual CD Server™ is full access for all domain users.

To Restrict Access to A Volume for All Users

1. Using Explorer, change directory to D:\CDVISION\<name of Virtual CD Server™>
2. Right-click the volume whose access rights you want to restrict.
3. Select *Sharing...* from the pop up menu. The Properties dialog box opens.
4. Press the *Security* tab and then press the *Permissions* button.
5. In the *Directory Permissions* window, select Everyone and press the Remove button. This restricts access to the volume for all users
6. Steps 2-5 should be repeated for all volumes whose access you want to restrict.

To Select Groups or Users Who May Access This Volume

First restrict rights to all users described in the step above.

1. Using Explorer, change directory to D:\CDVISION\<name of Virtual CD Server™>
Right-click the volume whose access rights you want to manage.
Select *Sharing...* from the pop up menu. The Properties dialog box opens.
2. Press the *Security* tab and press the *Permissions* button.
3. In the Directory Permissions window, press the Add button. The Add Users and Groups dialog box is displayed.
4. Select user or group from the Names list, assign permission from the *Type of Access* box and press OK.

Note: The default permission for all Virtual CD Server™ volumes is that everyone has full permission This completes assigning permission to a volume

5. Steps 2-6 should be repeated for all volumes for which you want to set volume permissions

NT Domain Authentication

This option will allow for Remote Domain Authentication without enabling the share-level control of the NT Agent Installation. After performing these modifications any Administrator, in any Domain, will attach to the Virtual CD Server™ as Administrator. Any User, in any Domain, will attach to the Virtual CD Server™ as Guest.

1. Open Network Neighborhood. Open the Vision_XXXXX server. Open the Admin folder. Open the server.ini file.
2. Unlike the standard Remote Domain Authentication setup the [Protocol.SMB] section of the Virtual CD Server™ server.ini file will NOT be altered. The command line **Authentication=LOCAL** will remain unaltered.
3. The [Server] section of the server.ini file will be altered. Insert, or edit, the command line **Security=Disable**
4. Save and close the server.ini file. Reboot the Virtual CD Server™.

Configuring WINS and LMHOSTS on TCP/IP Networks

Introduction

This section shows how to access a Virtual CD Server™ in the situation when the client workstation and server are not on the same TCP/IP segment.

For the client workstation to access the CD-ROM server it must resolve the CD-ROM server's name to an IP address. In a Microsoft Network environment, this can be done in either of the following ways:

- Using WINS (Windows Internet Name Service)
- Defining the IP address of the Virtual CD Server™ in the LMHOSTS file

Using WINS

NT Server Component

In order to use the CD-ROM server in WINS environment you need to define it as a static mapping in the WINS Manager.

1. Click on Start. Select the Programs Menu Select Administrator Tools (common), WINS Manager
2. Map the Virtual CD Server™'s name to its IP address as a static mapping. Click on Mappings. Choose Static Mappings then click on the Add Mapping Button.
3. Type in the Virtual CD Server™'s name and IP address and press Close button.

Client Workstation Component

On the client workstations, ensure that WINS resolution has been set.

1. Right-click on Network Neighborhood. Select Properties. Choose the TCP/IP tab.
2. Select the WINS Configuration tab.
3. Click on the Enable WINS Resolution radio button.
4. Set the IP address of the Primary WINS server.
5. Click on the OK button.

Call 800-38-Logic for help



Using LMHOSTS

The LMHOSTS file is a static workstation file that is used to resolve computer names to IP addresses. There is a sample LMHOSTS in the workstation C:\WINDOWS directory. Modify this file as necessary and save the modification as LMHOSTS without a 3-character extension (no .ini, or .exe). The sample LMHOSTS file that follows indicates that a Virtual CD Server, the IP address of 132.20.7.80, in the Library Domain, will be resolved to the server named Vision_12345.

```
130.20.7.80 vision_12345 #DOM:Library
```

On the Virtual CD Server™, ensure that the IP router address points to the gateway machine.

Troubleshooting

Exhausting the Flash ROM

There is a finite amount of space in the Flash ROM of the Virtual CD Server™, which limits the number of users that may be added to the local bindery via the CDAdministrator. There are two options for preventing the exhaustion of the Flash ROM memory.

- (Novell and NT) Use Remote Authentication to define User names, passwords, and rights. Remote Authentication does not use any Flash ROM memory. The User account database is part of NDS or the NT Domain. For 50 or more individual User accounts Remote Authentication must be used.
- (Novell only) If you are accessing the Virtual CD Server™ as a Novell server, and security is not required; you may create a single locally defined User account with which all users attach to the Virtual CD Server™. For example: all network users may log into the Virtual CD Server™ may use the User account CDUSER, with no password. Up to 250 users may access the Virtual CD Server™ using this single User account.

Re-Installing CD-Vision software in the Flash ROM

In the event that the data in the flash ROM becomes corrupted or exhausted; normal operations are restored by reformatting the Flash ROM and reloading the CD-Vision software using the Bay PC's serial mode.

Reformatting the Flash ROM

1. Turn off the power of the Virtual CD Server. Remove the cover and detach the internal ribbon cable that connects the Bay PC to the hard drives. Remove the screws and plastic washers that hold the Bay PC in place. *Do Not Loose These Screws and Washers*. Slide the Bay PC forward so that the utility cover on top of the device is accessible. Remove the utility cover.
2. Locate the DIPswitch block inside the Bay PC. Identify position number 8 and move it to the ON position.
3. Turn on the power to the Virtual CD Server.
4. Listen for the Audio Beep indicators. You should hear the RAM test beeps (2 beeps, pause, 1 beep, pause, 1 beep). Then you should here one long beep and two short beeps. If you do not hear these tones, turn the power off, check the DIPswitch setting, and change if needed and turn the power back on. The Bay PC will automatically begin to format the Flash ROM. When it is done the Audio Beep Indicators will again broadcast one long beep and two short beeps to verify that the format was successful.
5. Turn off the Virtual CD Server.
6. Move DIP switch position 8 back to the OFF position.

To Reload the CD-Vision software

1. Move DIP switch position number 3 to the ON position.
2. Connect a null mode serial cable to the serial connector on the back of the Bay PC. Attach the other end to the COM1 or COM2 port on your workstation or laptop PC.
3. At the workstation, insert the CD-Vision Tools Restore Utility diskette into the floppy drive. If working at a Windows workstation, move to the DOS prompt. Enter **a:install a: c:** at the DOS prompt, where **a:** is the floppy drive where the disk is inserted, and **c:** is the destination hard drive of the workstation.

The install program will create several subdirectories; copy files into those programs, and delete both the files and directories when the data transfer to the Virtual CD Server is complete.

4. Turn the Virtual CD Server on.
5. Listen for the Audio Beep indicators. After the RAM indicators, you will hear one long and three short beeps. If you don't, turn off the power, check the DIPswitch settings, change is needed and turn the power back on.
6. At the workstation, at the DOS prompt type **restore** <Enter>.
7. When prompted identify which serial port that is being used for data transfer. Transmission status will be display on the screen, and constantly updated as the transfer proceeds. When transmission is complete the program will return to the DOS prompt. The Audio Beep indicator will emit one long and three short beeps to verify that the data transfer was successful.
8. Turn the Virtual CD Server off.
9. Change DIPswitch position 3 back to the OFF position.
10. Replace the utility cover. Slide the Bay PC back into place, and secure with the screws and plastic washers. *WASHERS MUST BE USED TO SECURE THE BAY PC.* Reattach the ribbon cable to the hard drives. Replace and secure the Virtual CD Server case.

Error Messages

"CD in Use" Error: The Volume you are attempting to dismount or TurboCache is mapped under Win95/NT's Network Neighborhood. To correct the error, go to My Computer and under FILE select the mapped drive and "Disconnect Drive".

TurboCache Drive C Error: The C drive cannot accept TurboCached discs. Ignore this drive letter under the TurboCache drive button when selecting a TurboCache drive.

Use of CD-Commander™: CD-Commander™ (a client utility available from Ornetix's Web site, www.Ornetix.com) may be used optionally to enhance the networking and drive mapping of Windows 3.X, WIN95 or NT client workstations.

TurboCache Errors: CD disc's that have been recorded using Adaptec's EZSCSI CD recording software on an IDE recorder are not compatible. SCSI CD recorders are compatible with EZSCSI.

"Too many connections" Error: Version 4.10c has addressed this error. Use of the NT Agent or initially attaching with a non-NT Service Pack 3 (SP3) workstation (i.e.: Win95) normally corrects this error in versions earlier than 4.10c.

Novell IPX Network Address Error: If your Novell file server reports errors on establishing the correct Network Address then it may be necessary to either enable the *"Get Near Server"* option on the Novell server or change the *"External Network Address"* in the Virtual CD Server™'s server.ini file. If you cannot access the Virtual CD Server™ you may need to set the *"Preferred Server"* name located in the NetWare client properties in Windows Network Neighborhood properties to the Virtual CD Server™'s server name. If you need to

manually set the Virtual CD Server™ IPX address you may do so in the [Protocol.NCP] section of the server.ini file, which is located in the Virtual CD Server's Admin volume. Change the External, and not the Internal, network address number to the IPX number being used by your network and reboot the Virtual CD Server™.

Ethernet II Frame Type Support: To support Ethernet II frame type it is necessary to modify the net.cfg file located in the network folder under the Flash volume. Edit the net.cfg file so that the Ethernet II (line 2) is in the first line. The Virtual CD Server™ will need to be on an 802.2 or 802.3 frame type network or directly attached to a workstation with a crossover cable to perform the edit. If there is no Novell server to automatically set the frame type the Virtual CD Server™ will default to 802.2. You may optionally force the frame type using the Virtual CD Server™'s utility DIPswitch. Refer to the Administrator Manual for details.

Incompatibilities and Other Known Problems

Dismounting and Re-TurboCaching Images: There is a known problem with dismounting (deleting) a TurboCached CD than attempting to re-TurboCache the same CD into the same partition. If a TurboCached image is dismounted before the master CD is dismounted (ejected) the CD will not eject. The current work-around is to re-TurboCache the CD into a different partition and dismount the physical CD before dismounting the TurboCached image.

Backing Up server.ini: The Virtual CD Server™'s server.ini file is located in the Admin volume and includes a database of information about TurboCached volumes. If the Virtual CD Server™ is rebooted with the internal SCSI cable detached, this database will be lost. If you want the ability to restore TurboCached volumes, it is recommended that the server.ini file be backed up.

Unable to Remotely Authenticate with NT PDC: If after enabling remote NT authentication the PDC server's name is not displayed in the CDAdministrator TCP/IP section, add the following lines (listed below in bold type) to the server.ini file [Protocol.SMB] section.

[Protocol.SMB]

Authentication=REMOTE: *(add the PDC server name here if the NT agent is loaded on the PDC)*

PDCAddress=*(add the PDC's IP address here)*

ServiceHostAddress=*(add the PDC's IP address here)*

Instant Internet Winsock Incompatibility: Instant Internet can cause errors when attempting to access the Virtual CD Server over TCP/IP. Replace the workstation's Winsock to correct the problem.

Long Server Names: The Virtual CD Server can support server names that are 11 characters in length, however a length of 8 character or less is recommended.

General Operational Notes

Compatibility

Windows 98: The CD Vision Tools administrative utilities have not been qualified to run on Windows 98. Client access of the Virtual CD server has been found to be full compatible on a Windows 98 based workstation.

NetWare 5: The Virtual CD Server has not been qualified on NetWare 5. Initial tests indicate that the Virtual CD Server is compatible with NetWare 5 running the standard Client 32 v2.5 over IPX.

Windows NT Service Pack 4 (SP4): The Virtual CD Server has been qualified to run with SP4.

Performance Notes

Searching Server Delays on NT Networks: If the Virtual CD Server™ does not appear in Network Neighborhood, or if you experience long delays in locating the "CD-Server" default domain name, replace the factory default domain name with that of a server that is physically close to the Virtual CD Server™. There is an "auto search" mode that you can set in CD-Administrator that will reduce the time it takes to locate the Virtual CD Server™ on either Novell or NT networks.

Windows 95/98 Re-login: If you have rebooted or changed the server name it may be necessary to re-login your Windows 95/98 workstation before the workstation will refresh its list of servers in Network Neighborhood. Windows NT workstations normally refreshes its server list without having to re-login.

Title Name Refresh Time: Refreshing new titles mounted onto the Virtual CD Server™ may take 3- 5 minutes to appear in either the CD Administrator's Volume list or Network Neighborhood.

Virtual CD Server DIP Switch Settings

The Bay PC has an internal DIPswitch block that is used to control five system settings.

- Ethernet Frame Type (auto-detect, 802.2, or 802.3)
- Token Ring Speed (4 or 16MB/sec)
- Serial Mode (alternate software transfer method)
- Format Hard-Disk Drive
- Format Flash ROM (if corrupted)

To access the internal DIP switch block

1. Turn off the Virtual CD Server.
2. Remove the case of the Virtual CD Server.
3. Remove the four screws and washers that hold the Bay PC.
4. Slide the Bay PC forward.
5. Remove the two screws that hold the utility cover.
6. Remove the utility cover.

Ethernet Frame Type

The Bay PC will default to auto-detection of the correct Ethernet frame type. If the frame type must be forced for some reason, DIP switches 1 and 2 are used.

Switch 2 controls the auto-detecting feature of the unit. The default setting is OFF; or Auto-Sensing enabled. Changing this to ON will disable the auto-sensing feature.

Switch 1 controls the Ethernet Frame type. The default of OFF indicates 802.3. Changing this to the ON position will force the frame type to 802.2.

Token Ring Speed

The Bay PC will default to auto-detection of the correct Token Ring speed. If the speed must be forced for some reason, DIP switches 5 and 6 are used.

Switch 6 controls the auto-detection of the unit. The default setting is OFF; or Auto-Sensing enabled. Changing this to ON will disable the auto-sensing feature.

Switch 5 controls the Token Ring speed. The default of OFF indicates 16 MB/sec. Changing this to the ON position will force the speed to 4 MB/sec.

Format Mode

CAUTION: Formatting the Flash ROM and/or hard drives causes all CD Administrator database values to be lost. This is used only in disaster recovery.

Switch 7 controls hard drive formatting. Changing this to ON will automatically reformat the internal hard drives of the Virtual CD Server.

Switch 8 controls flash ROM reformatting. Changing this to ON will automatically reformat the flash ROM of the Virtual CD Server.

Virtual CD Server™ and Banyan Vines

The Virtual CD Server™ can operate in a multi-protocol network in conjunction with Banyan Vines. The Virtual CD Server must be accessed using one of three protocols: SMB/TCP-IP, NCP/IPX or HTTP/TCP-IP.

It is possible to add the Virtual CD Server™ to a Banyan Vines network that has no file server. A network client utility (embedded in Windows95) must be made active on each workstation. The Virtual CD Server™ will then emulate either a Novell or NT server, depending on which client is loaded.

Novell

In a server-less environment, if the Client for NetWare Networks is loaded, the Virtual CD Server will appear in Network Neighborhood as a Novell 3.12 server with the server name of Vision_XXXXX_NW. The bindery of the Virtual CD Server™ is used to create users and define user rights.

NT

In a server-less environment, if the Client for Microsoft Networks is loaded, the Virtual CD Server™ will appear in Network Neighborhood as an NT server with the server name of Vision_xxxxx. An IP address must be established for each workstation, and the Virtual CD Server™. The Domain name of the server must be changed to match the workgroup name. The bindery of the Virtual CD Server™ is used to create users and define user rights.

In rare occasions the server does not automatically appear in Network Neighborhood. If this happens select the Find Computer option from the Windows Start menu. Enter the Virtual CD Server™ name and click Find Now. After the server is located it will also appear in Network Neighborhood.

Using the Virtual CD Server™ and a Microtest DiscPort™ on the same network

The Virtual CD Server™ can be added to a network with an existing Microtest DiscPort™. Both thin-server devices should not be on the same network segment or hub.

If the Microtest DiscPort™ is added to the network after the Virtual CD Server™ the following steps must be taken. The DiscView™ software setup utility searches the network for all available servers. The servers will be displayed and one is chosen to which to copy network related drivers. The Flash ROM of the Virtual CD Server™ cannot accept such data. When the DiscView™ setup utility tries to list all available servers, it will hang before the servers.

1. Bring down the Virtual CD Server™.
2. Install the DiscView™ utility as normal.
3. Reboot the Virtual CD Server™.

Defining User Names and Passwords

Initial Use of CDAdministrator or Web Browser

CD-Administration and Web Browser Authentication: To login to CDAdministrator or the Web browser you must first have a user and password defined in the local bindery of the Virtual CD Server™. Neither the Web browser nor the CD-Administrator utility initially authenticates remotely to either an NDS or NT server.

NT Networks: Initially if you don't have a local user account defined on the Virtual CD Server™ with supervisory rights you must Login with the same name into both the network and the CDAdministrator utility as *Administrator*, *Supervisor* or *Admin* with supervisory rights. The Virtual CD Server™ login password must initially be blank.

Novell Networks: The same as NT except the network and the Virtual CD Server™ login names do not need to be the same.

The Novell NetWare emulation of the Virtual CD Server™ appears in CD-Administrator and Network Neighborhood with an appended _NW. This distinguishes it from the Virtual CD Server™ emulating an NT server. If enabled the Virtual CD Server™ will appear as both a Novell (NCP) and NT (SMB) server.

Running the Setup Utility to Enable NT & NDS Agent

The Setup Utility is a DOS utility used to enable or disable remote NDS and NT authentication for the Virtual CD Server™. It is located on the CD-Vision Tools CD disc under the HyperLinQ™ directory.

Compatible Operating Systems: It is recommended that you run the Setup Utility only on a Windows 95 or Win3.X/DOS workstation and *not* on a 98 or NT workstation. Note that the other two setup programs for setting up the NDS and NT Agents onto a file server *will* run on an NT workstation.

Selecting An Agent: To access the Parameter Information menu of the Setup Utility you must first select *Change Setup* in the first menu then *F10* to accept and then select *Protocol Information* to open up a menu of protocols to modify.

TEMP Error: Type and enter the following two commands at a DOS prompt if a "*TMP or TEMP error*" prevents the Setup Utility from executing: Set TMP=(enter) and Set Temp=(enter).

Web Browser Administration and Server.ini Modifications: It is recommended that the Setup utility be used to enable agents and make other changes. You may optionally use a Web browser if you have TCP/IP access to the Virtual CD Server™ to make changes such as adding user accounts to the local bindery (i.e.: not for remote authentication) of the Virtual CD Server™.

It is recommended that you use the Setup utility to enable/disable NCP/SMB/HTTP protocols. The V4.10B Web browser interface does not fully enable/disable protocols. Both the Web browser and the Setup utility make changes to the server.ini file located in the Admin folder.

Caution: Be very careful editing the server.ini since errors can cause the Virtual CD Server™ to malfunction. Notice that if you manually change the NT authentication from **LOCAL** to **REMOTE:** that the word **REMOTE:** is case sensitive.

Defining User Names and Passwords Locally vs. Remotely

You may define user names and passwords locally using CD-Administrator or remotely using either Novell's NDS or Microsoft's NT domain services. It is recommended that you only have one remote authentication agent active at a time to allow fail safe access in the event that remote authentication is non-functional.

To confirm that remote authentication has been successfully enabled, open up the Console in CD Administrator and check to see if the Security Server for either the TCP/IP or IPX protocols has a name assigned to it. If it is set to either N/A or LOCAL then it is not remotely authenticating.

Please read the Exhausting the Flash ROM section of this manual for further information on this topic.

Year 2000 Compliance

The following notice issued by Ornetix Network Products relates to the software used by the Virtual CD Server™.

This document is to verify that Ornetix is year 2000 compliant and that all software and/or hardware produced by the company is compliant until the year 9999.

Ornetix provides the following products for networking CD-ROM towers, changers and jukeboxes, magneto optical devices, hard disks and Iomega Zip and Jaz drives. All products stated (including all versions and user licenses) are covered by Year 200 Compliance.

- SerView
- CD-View
- CD-Vision
- CD-Vision Jukebox
- CD-Commander
- HyperLinQ
- Definitions:
- "Ornetix" - Ornetix Network Products

"Year 2000 Compliant" - software and/or hardware produced by Ornetix and any modification, enhancements, upgrades, or other changes to the goods, provided under contract, are capable of recording, sorting, calculating, storing, presenting and otherwise processing without error or misinterpreting all dates and date-related data prior to and during the year 2000 and up to the year 9999.

"Date-related processing" - for the purpose of this definition shall include leap year calculations.

For: Ornetix Network products
Name: Gal Alrog
Title: Chief Executive Officer
Date: 3/7/97


```
Image1=E:\CDVISION\MIRROR\DISC0000.IMG  
Image2=F:\CDVISION\MIRROR\DISC0001.IMG  
Image3=F:\CDVISION\MIRROR\DISC0002.IMG  
Image4=H:\CDVISION\MIRROR\DISC0003.IMG
```

- 4.1. Turbo-Cached discs must be listed in numerical order of DISC00xx. Hard drive partitions do not need to be in alphabetical order.
- 4.2. The Images= statement must have all its 1s at the beginning of the line. If there are only two Turbo-Cached discs, named DISC0000 and DISC0015, the beginning of the number string would be Images=11000000000..... The placement of the 1s and 0s is not influenced by the DISC00xx naming convention.

Mystery Beeps

If Axonix box gives 7 beeps in a row after RAM test & never finds network the NIC may be damaged or defective. Contact Academy Computer Services.

Novell Environment

If the Virtual CD Server broadcasts all of the appropriate audio codes, but the server is not visible in Network Neighborhood the auto-sensing feature of the NIC is not detecting the correct network frame-type. The frame type must be forced to 802.2 (standard Novell) or 802.3.

To force to EthernetII frame type

If this is an Ethernet II network a direct connection, using a cross-over cable, must be made from the workstation to the Virtual CD Server so that the net.cfg file of the server may be modified to correctly identify Ethernet II.

1. Use a cross-over cable to directly connect from the Virtual CD Server to the workstation.
2. Open Network Neighborhood. Open the Vision_xxxxx server.
3. Open the Flash directory.
4. Open the Netwk directory.
5. Open the NET.CFG file. All viable frame types are listed. REM or remove everything but EthernetII

Turbo-Caching Problems

If The Turbo-Cache process appears to be fine, but the turbo-cached volume never shows on the volume list, and when the process is attempted again an error message states that the disc already been cached, there may be a corrupt RENAME.DAT file.

Has the TurboCache disc been renamed? And was the physical disc renamed before it was Turbo-Cached?

Turbo-Cached discs displaying a volume name WPC12345(P) - are non-renamed discs - P is for Primary

Turbo-Cached discs displaying a volume name WPC12345(R) - are Renamed discs - R is for Renamed

It is possible to dismount the physical disc that can't be Turbo-Cached, delete the rename.dat file, and reboot the Virtual CD Server. The rename.dat will reconstitute itself and TurboCaching can now be accomplished.

A simpler solution, is to just rename the physical disc and TurboCache.