PARAGON CD Emulator 2.0

User Manual

Paragon Technology GmbH, System Programmierung

Copyright © Paragon Technology GmbH

1. Introduction, installation, notes etc.

Summary – please read

Chapter one: Installation and programmeme execution.
Chapter two: The CD Emulator interface.
 Chapter three: Reference section

1.1 Important information

Last minute changes are documented in **README.TXT**

Support:

By e-mail**: support@cdrom-emulator.com**

USA
Fax inquiries: **831 - 392 - 1157**

Europe
Fax: +49 – 7631 17 33 19
Tel.:   +49 – 7631 17 33 18

1.2 Abbreviations and Explanations

PTS =   Paragon Technology Systems
DB =   Drive Backup
PM =   Partition Manager
BM =   Boot Manager
CDM =   CD Emulator (Manager)
DR =   Any drive, either physical or logical.
OS =   Operating System.

Applet: Program, appearing as tray bar icon.
Physical drive: Any physical drive (like hard drives, CD-ROM drives etc.)
Hard drive: A physical hard drive (the hardware).
CD-ROM drive: A physical CD-ROM drive that reads CD's.
Virtual drive: A drive that is based in memory.
Virtual CD-ROM drive: A CD-ROM drive that is based in memory.
Logical Drive: Any logical addressable drive wherever it may reside (on a hard drive, CD-ROM or in memory).
Logical drive identifier: The letters A through Z.
Partition: A sequential portion of the hard drive, from track to track.

Primary Partition: A bootable partition, which, when set "active", the partition table will recognize as "bootable". Actually becomes bootable with an operating system installed.

Extended Partition: Not bootable, a framework (sub-section of the hard drive) within which one can create (multiple) logical drives. This area is recorded/tracked just like a primary partition within the partition table

1.3 About the programmeme

The hardware and OS requirements are:
- Intel-compatible CPU, Pentium or better.
- Hard drive and CD-ROM drive.
- Windows 95/98/Me, Windows NT 4.0 or Windows 2000.

1.3.1 Function / scope

The CD Emulator has two main functions:

a) The creation of CD images and virtual CD-ROM drives .
b) Serving CD-based applications using CD images in virtual CD-ROM drives. (The memory-resident portion of CD-Emulator).

A detailed outline of the available functions:
- Create CD images (from CDs) on hard drives
    - On boot drives
    - On any other hard drive
- Create virtual CD-ROM drives
    - As many as there are logical drive letters available
- Make virtual CD-ROM drives available to the OS and applications
    - Auto-load virtual CD-ROM drives during OS startup
- Administer virtual CD-ROM drives
    - "Insert" CD images into virtual CD-ROM drives
    - "Eject" data from virtual CD-ROM drives
    - Completely remove CD images from hard drives

1.3.2 CD Emulator 's functions and capabilities

CD-Emulator makes it possible to work with CDs and CD-ROM drives without having the CDs and CD-ROM drives being physically present at all times. They need to be available only during the copy process of a CD image to a hard drive. CD-Emulator enables the creation of a virtual CD-ROM server in a network and gives any PC without a CD-ROM drive access to the contents of the CDs.

1.3.3 Benefits of using CD Emulator

- Run CD applications without having the original CD being physically present.

- Works using virtual CD-ROM drive(s).

- Allows access to (the data of) multiple CD's simultaneously, despite only one CD-ROM drive being present.

- Installable as a virtual server in a local area network.

- All virtual CD's and their applications are available at all times.

- Access to virtual CD's (installed on the hard drive) is several times faster than the original CD's.

- Lightning-quick switching from one CD to another (as opposed to manual switching of a data CD in a CD-ROM drive).

- No more "hunting around" for misplaced CDs.

- Works with multiple "CD's" at once, whether a real CD or CD-ROM drive is present or not.

1.3.4 Personal and Network versions

CD Emulator is distributed in the form of a personal/private network version and an enterprise network version.

The **personal** version is designed for use in a home environment, either on a single PC or on a small Local Area Network. There are no restrictions in the personal version except for support of multiple simultaneous users accessing the same image file, which does not apply to a home environment anyway.

The **enterprise network** version is intended to be used in an office environment on multiple workstations. This is a standard configuration for system administrators who want to have a CD server on the local area network.

With the network version of CD Emulator, one creates CD images and places them on some "host" computer (normally a file server), then sets up access permissions (for the individual users) for these images.

After that, the copy of CD Emulator residing on each respective workstation can use these images from the "host" computer by "inserting" a virtual drive on its workstation. This feature of the network version of CD Emulator allows simultaneous use of the same image file by multiple copies of CD Emulator on separate workstations. (The personal version doesn't have this feature).

To determine which version you have, select **About** command in the **Help** pulldown menu. The version number and version type of your copy of CD Emulator will be displayed in the subsequent dialogue window.

1.4 Programme installation

This is a standard Windows installation. Simply run **SETUP.EXE** from the CD using **Start | Run**. The setup programme then installs CD Emulator on your hard drive. *Note:* CD Emulator normally appears only as an applet (icon in system tray bar). Also, when the programme is minimized, it returns back to an applet, rather than to the taskbar.

1.4.1 Installation of a new version on top of an older version

It is very important that you execute the following steps before installing a new version of CD Emulator:
1. Terminate CD-ROM Emulator by right clicking on the CD-ROM Emulator icon and then left clicking on Exit.
2. Uninstall CD-ROM Emulator
3. Reboot Windows

Now you are able to install a new version of CD-ROM Emulator.
Note: In case the uninstallation fails see chapter **3.5 Manual uninstallation of CD Emulator**

1.4.2 Installing personal user version

This version requires that you enter a serial key during installation. This serial key is available on the registration card and for downloads you get it by online registration.

1.4.3 Network version – Administrator & Client

This requires a user name and a serial key. The serial key reflects the amount of users as well as the user name itself. Addionally it requires the installation of an administrator version before you are able to install any client version.

1.5 Program execution

CD-Emulator can be started in two ways, either manually by the user or automatically, when first starting the operating system.

To give Windows access to the virtual CD-ROM drives, the memory resident part of CD-Emulator is started automatically whenever Windows boots. This memory-resident portion of CD Emulator must be active in order for Windows (and application programmes run under it) to access the virtual drives.

For the creation and administration of CD images on hard drives as well as the creation of virtual CD-ROM drives, CD Emulator must be called as an ordinary Windows programme (**Start | Programs**, etc.). Alternately (since it is running in the background anyway), you can start CD Emulator from its applet by right-clicking the applet.

Note: This memory-resident portion of CD Emulator normally appears only as an applet. When minimized, it switches back to an applet, rather than returning to the taskbar.

2. The CD Emulator interface

2.1 The Start window of CD Emulator

However you may start the programme, for example by right clicking the applet icon and then left kicking on <Restore>

following Window will appear:
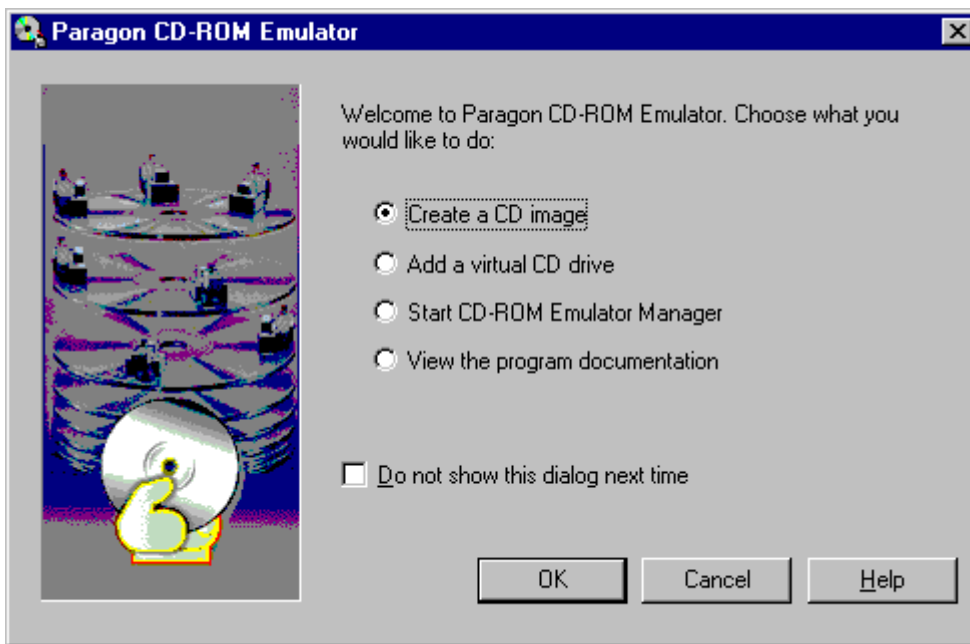
You have the following options by checking the box of
a) "Start CD-ROM Emulator Manager" will start the Main
 window of the programme (see 2.2. The main display)
b) "View the programme documentation"

c) "Create a CD Image" will start the "Create a CD Image Wizard"

d) "Add a virtual drive" will start the dialogue for a new virtual drive.

If you check the box "Do not show this dialogue next time" CD-ROM Emulator will start directly with the main display (see 2.2)

2.2 The main display

The main display consists of two main windows (panes), six pulldown menus and a toolbar.
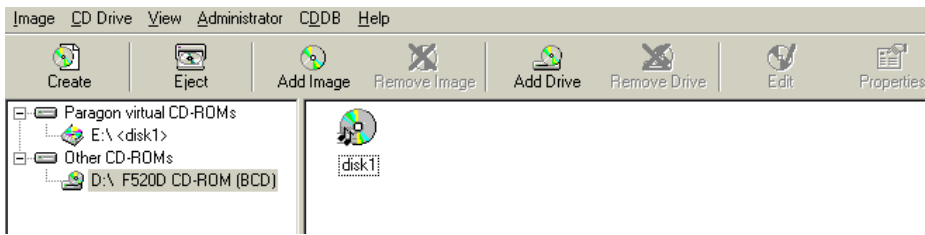
2.2.1 The main windows

The left window displays the actual physical and virtual CD drives present in the system.
The CD-ROM drives in the left windows are separated into two categories:
   a) Paragon virtual CD-ROM drives.
   b) Physical CD-ROM drives.

All Paragon virtual CD-ROM drives (except for the first) must be created by the user. The physical CD-ROM drives are all CD drives (and writers) found by the Windows operating system. These are always available to all Windows applications.

The right window shows the CD images available to CD Emulator . These CD images in the right window must either be created or added to CD Emulator . Each icon represents the contents of one original CD-ROM.

Icon with a question mark
If one of the images on the hard drive is moved or deleted, or the remote computer containing it becomes unavailable, CD Emulator will fail to recognize ("see") the image, and the icon for that image is displayed with a question mark ("**?**") on it.
Most of CD Emulator 's functions can be executed in one of three ways:
   1) Through its option in the appropriate pulldown menu.
   2) Using the functions button on the toolbar.
   3) By right-clicking the target, if it already exists.

2.2.2 The Toolbar

The toolbar is the strip just below the pulldown menus, at the top of the CD Emulator windows. It contains shortcut "buttons" for the most common CD Emulator functions. The following identifies and explains the various buttons on the toolbar from left to right:
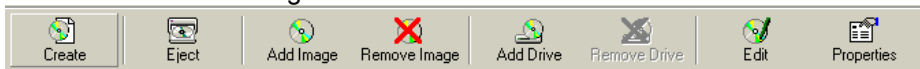
Button 1: Create a new CD image
Button 2: Eject an inserted CD image from its drive
Button 3: Add a CD image file
Button 4: Remove CD image file
Button 5: Add new (virtual) CD-ROM drive
Button 6: Remove (virtual) CD-ROM drive
Button 7: Edit CD image tracks
Button 8: Show CD image file properties

The exact functionality of the buttons is discussed in greater detail within each function's respective "pulldown" section, below.

2.3 The Image Pulldown

This pulldown deals with the creation and administration of CD images (virtual CDs) on hard drives and it also has the programme **Exit** function (Windows standard).
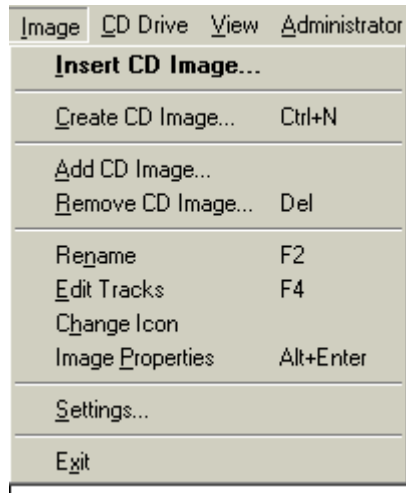
2.3.1 Insert a CD Image (Image | Insert CD Image)

Purpose: Assign a CD image ("insert" the image) to an existing virtual CD-ROM drive.

Alternate commands: Select **Insert To CD Drive** from the **CD Drive** pulldown or drag a CD image from the right window into a virtual CD-ROM drive in the left window. You can also right-click an existing CD image, then select the **Insert CD Image…** option from the popup.

Requirements: A CD image to be inserted must be selected, otherwise this command option is not active (A CD image must have been previously created using the **Create a CD image** function - see **2.3.2**, next function.) Also a virtual CD drive must exist as target. *Note: CD Emulator creates one empty virtual drive at installation – usually E:, and additional ones can be created using the **CD Drive | Add New CD Drive** command.*

Note: To understand more about how this works, please see the reference section: **6.2 Virtual CD-ROM drives.**

This command option is active only if a CD image is selected. If one is not selected, this option will be greyed-out.

When a valid CD image is selected, a dialogue opens in which the selected CD image file is displayed. This dialogue lets you select the target (virtual) drive. The CD image can thus be "inserted" to any of the empty virtual CD-ROM drives. After this, the image will be ready for use by Windows Explorer and any application programmes running under Windows, by simply selecting the virtual drive from any file dialogue within the applications programme (open, save, etc.)

Icon with a question mark
If one of the images on the hard drive is moved or deleted, or the remote computer containing it becomes unavailable, CD Emulator will fail to recognize ("see") the image, and the icon for that image is displayed with a question mark ("**?**") on it.

2.3.2 Create a CD Image (Image | Create CD Image) Ctrl + N

Purpose:
a) Transfer a CD image from a CD to a hard drive, or
b) Create an Image from track image files (ISO, WAV, MP3), or
c) Build an image from files

Requirements: In case of a) a physical CD-ROM drive must be present, and an actual data CD inserted in that CD-ROM drive. There must be enough space on a hard drive to copy the CD onto (roughly, although the data will generally take up less space on the hard drive than on the original).

Shortcuts: First button on the toolbar. This function can also be executed by pressing the key sequence: **CTRL** + **N**.

This starts the "Create CD image" wizard which will lead you step-by-step through the process of transferring a CD image from a physical CD disk to the hard drive in the form of an image file.

Depending on the source there are different numbers of screens in the **Create CD Image File** wizard. In all screens you can navigate forward and backward, using the `< Back` and `Next >` buttons. After you click the `Create` button the process of creating an image file is begun. The last screen shows a progress indicator.

Screen "Select source for CD Image"
a) Create CD image by copying a CD in a local CD-ROM drive
   Check box "CD-ROM drive"; This shows all available CD-ROM drives using a pulldown list. Select the physical CD-ROM drive to be copied from, if you have more than one (for example CD writer and reader).

b) Create CD image from track files on any drive
   Check box "track Image file"; This will show you all WAV, ISO and MP3 track. You may browse all available drives and directories with the <Browse> button.

c) Create CD image from any files on any drive
   Check box "build the image from arbitrary files" track Image file; This will not show an immediate reaction.

In all 3 cases press the `Next >` button to proceed. Depending on your selection the wizard will lead you through the right sequence of steps to create a CD image.

Case a) Create a CD image by copying a CD from a CD-ROM drive

 Screen "Select track(s) to be copied"
   Shows the tracks on the selected CD. If there are more than one, select desired tracks. If there are multiple tracks to be copied, you can use the `Select all` button to copy all of them.

   This screen also shows you the estimated size of the image file to be created (in MB). You must have enough space on a hard drive for the copy to complete successfully. Click `Next >` to proceed to the next dialogue box.

Note: In the case of .WAV or MP3 tracks on the source CD you may use
the CDDB capability of the programme.

 Screen "Select read mode"
   You may choose different options to bypass different schemes of copy protections. You may check the boxes for
   - raw read data tracks
   - try to access post-gap sectors
   - Ignore all bad sectors

   Note: The "raw read mode" is not available on all CD-ROM drives and with all kind of CDs. These options are also one of the reasons why you can only read from a local CD-ROM drive and not from a remote network CD-ROM drive.

 In the case of audio tracks you have the following additional options:
   - use jitter correction
   - ignore bad sectors

You also have the option to set the number of retries to read bad sectors.
Click `Next >` to proceed to the next dialogue box.

   Screen "Select compression ratio"
   Allows you to vary the compression ratio of the data in the resulting image file (on the hard drive). The default is preset to the *"optimum compression to speed"* ratio. To change it, drag the pointer in the slider bar in the desired direction. Higher compression results in less disk space occupied but also slower access to the virtual drive (and vice-versa). Keeping the default values is recommended.

   Unchecking the **Enable compression** box results in an image file of the same size as the data CD and also the fastest possible access to the resulting virtual drive.
   Click `Next >` to proceed to the next dialogue

Screen "Select hotkey and drive for the new image"
   This gives you the ability to assign a hotkey and a drive to the new image. By pressing this assigned hotkey the image will be automatically inserted into the specified drive. You may choose almost any key (except Return, ESC, Space etc.) or key combination. To select a key just press that key, for example F1, F2 or "STRG + S" and that key or key combination will be inserted.
To select a specific virtual drive use the pulldown list which shows all available virtual CD-ROM drives. If you do not want a specific drive leave the selection on "any" dive.
Click **Next >** to proceed to the next dialogue

Screen "Select target drive, path and name for the image file"
   Shows the available target drives for the CD image and allows modification of the following target data:

   - Target path and filename for the CD image.
   - The desired target drive for selected data track(s).
   - Assign alternate filenames for audio tracks.

   By default, the filenames of the CD images will be DISK1.CDI, DISK2.CDI and so on (**CDI** stands for **CD I**mage file) and will by default be created in the root of the drive with the most available free space. The default values supplied need not to be changed unless you wish to change the target filename or location. Prior creation of appropriate subdirectories/folders is recommended if many images are to be created.

   Also, it may be necessary to create the CD image on a physical hard drive with enough space to accommodate the data to be copied. If uncertain, click **< Back** to screen two, to determine how much space the proposed CD image will occupy.

   Now compare this figure to the free space on the target drive. The amount of free space on each hard drive is shown on this **"Create CD Image" wizard** dialogue.

   If audio tracks on the CD were selected to be copied and the **Assign audio file names automatically** box remains checked, the primary filenames of the resulting files will be identical to the primary names of the corresponding CDA files on the source CD. If any of the filenames are to be changed, uncheck the box and click the **Change** button to bring up the change filenames dialogue.

   Pressing the **Create** button begins creation of the CD image.

   Note: Whether using the personal or network version, if multiple CD images are to be created, it is highly recommended that some sort of logical directory structure be first created on a drive with plenty of space, to accommodate the CD images to be transferred.

Case b) Create CD image from track files on any drive

After selecting the tracks in
Screen "Select source for CD Image"
   click **Next >** to proceed to the next dialogue

The "Create CD Image wizard" will bring you directly to the
Screen "Select hotkey and drive for the new image"
Screen "Select target drive, path and name for the image file"
For detailed information about this screens see
Case a) Create CD image by copying a CD in a local CD-ROM drive

Case c) Create CD image from any files on any drive

After you selected **Screen "Select source for CD Image"**
   and clicking the **Next >** button to proceed you will see the

Screen for choosing an icon and image name
In this screen you may choose an icon and a name for the image file you want to create from your files.

If you have your own icons you may select one if them by pressing the <Change> button. This allows you to browse through your directories and find and choose your icon.

To give your image file a name just overwrite the default name "CD volume label" with a name of your choice. click **Next >** to proceed to the next dialogue

Screen for choosing files for your CD image
In this screen you can select the contents of your CD image file. You may select whole directories or single files to be inserted. Just browse through all available drives and directories in the top window, choose the directories or files and drag them to the bottom window. When you finish click **Next >** to proceed to the next dialogue

From here the "Create CD Image wizard" will bring you directly to the
Screen "Select compression ratio"
Screen "Select hotkey and drive for the new image"
Screen "Select target drive, path and name for the image file"
For detailed information about this screens see
Case a) Create CD image by copying a CD in a local CD-ROM drive

Last screen "Create CD image"
This is primarily a progress indicator for the CD image creation process. Pressing the **Cancel** button will terminate creation of the selected CD image.

2.3.3 Add a CD image (Image | Add CD image)

Purpose: Add a CD image file to the CD Emulator database.

Shortcut: Button 3 on the toolbar. You can also right-click the *background space* of the right pane (window) to bring up a popup menu.

For automatic update of the local CD Emulator image database see chapter **2.6.3 Shared Images**

Note: Add CD image is used only to restore previously created images or images created by other clients on another computer/drive, to restore the CD image in the CD Emulator database.

When CD images are created (previous function, **2.2.2**), they are automatically added to CD Emulator 's database and displayed in the right window as an icon.

However, there are other instances when there is a CD image file which is not registered in the CD Emulator database. This command is then used to restore or create the entry in CD Emulator 's (administration) database.

Instances when this might be necessary:

1)   After copying CD image(s) from other drives, to identify them.
2)   To identify/register CD images on remote computers (as in a LAN).
3)   After removing CD images from CD Emulator, to restore them from the still existing (physically present) image file (type CDI). This is somehow similar to a file "undelete".
4)   After complete removal and reinstallation of the entire CD Emulator application, to restore the CD image definitions to CD Emulator.

This command is very easy to use. It is simply a matter of opening the CDI file (CD image file) to be added to the database. Once added, the image file is displayed in the right window, and will be available for insertion into one of the created virtual CD-ROM drives.

A file open dialogue is presented, which allows you to select a CD image file, (type **CDI)** to get CD data from. This file will have been previously created with CD Emulator, using the **Create a CD Image** function (**see 2.3.2**). This file can be anywhere on your local drive, or any remote computer recognized by your Windows configuration (see Network Neighborhood in Windows Explorer or My Computer).
The Network version allows an automatic update of the local image database. See **2.6.3 Shared Images**

Use the **Open** dialogue to select the CDI file (CD image file) to be added to CD Emulator. When the CD image file is identified and displayed in the **File name** field, click the **Open** button to add the CD image to the CD Emulator database.

Once selected/added, the CD image will immediately be displayed in the right window as a virtual CD available to CD Emulator. This image file will still have to be **insert**ed into a virtual CD-ROM drive (**see Section 2.3.1 Insert a CD Image**), before it can be used by Windows and application programmes.

Icon with a question mark
If one of the images on the hard drive is later moved or deleted, or the remote computer containing it becomes unavailable, CD Emulator will fail to recognize ("see") the image, and the icon for that image will be displayed with a question mark ("**?**") on it.

2.3.4 Remove a CD image (Image | Remove CD image) Del

Purpose: Remove a CD image from CD Emulator (and optionally also from the hard drive).
Shortcuts: Press the third button on the toolbar, or right-click the CD image to be removed (right window pane) and click on **Remove CD image…**

This command is active only if a CD image has been selected. It removes the entry for a CD image from CD Emulator 's internal database of virtual CDs. Upon selection, a confirmation dialogue is displayed: **CD image will be removed from the Emulator database**.

The actual physical CD image will be deleted from the hard drive only if you select the **Delete CD image file from physical disk** option (box checked). If the box is unchecked, only the entry (icon, in the right window) for the CD image will be deleted, but the actual CDI file remains on the hard drive.

Click the **OK** button to remove the CD image entry (or the entry and its file, as selected), from CD Emulator. The entry will disappear from the right window.

If this function is selected by mistake, but the file itself wasn't deleted (**Delete CD image file from physical disk** was not checked), the entry can easily be restored by selecting the **Add CD Image** function (**2.3.3**).
If **Delete CD image …** was checked, the original CD may have to be re-read into the hard drive using the **Create CD Image** function (**2.3.2**). Check the Recycle Bin first. If the file can be restored, do so and then run the **Add CD Image** function (sec. **2.3.3**). This will avoid having to reload the original CD.

2.3.5 Rename a CD Image | Rename F2

Purpose: Rename an existing CD image in CD Emulator.
Shortcuts: Press **F2** or open the context menu by right-clicking the CD image and then selecting **Rename**.

This option is available only if a CD image has been selected. Keep in mind that this command renames the entry in the CD Emulator 's Database only, not the actual filename at the operating system level.

2.3.6 Edit tracks F4

Purpose: Adding, deleting, importing/exporting tracks to/from CD images.
Shortcuts: Open the context menu by right-clicking the CD image and then select **Edit tracks**.

This option allows one to rearrange tracks within the boundaries of a specific CD image and also to import and export tracks between different CD image files. This option is available only if a CD image has been selected. The following buttons are available:

a) Add (CD track) – <Add> button
Adds tracks from other CD images to the current CD image. If pressed, the dialogue for searching directories and files opens. Selecting a track from another CD image adds it to the current CD image.

b) Properties (of CD Track) - <Properties> button
If pressed, information about the CD image is displayed in a dialogue window of two selectable pages. The "General" page shows the name, path, image size, etc. and the "Audio" page shows information about audio tracks, if present.

c) Delete (CD track) – <Delete > button

This removes the track only from the CD image. The physical CD image will be deleted from the hard drive only if you select the **Delete track from physical disk** option (box checked).

d) Export (CD track) - <Export..> button

This is the opposite of a) Add CD tracks. The CD image is the source and another CD image the target for a CD track. After selecting a CD track, the **<Export>** button opens a window to select a target CD image file (to which the selected track will be exported).

2.3.7 Change Icon

This option lets you replace an existing icon with another one. The new icon must already exist. Activate the icon you want to replace, select the <change icon> button and start searching for your icon. When found choose it and this will replace the old icon with the new icon.

2.3.8 Image properties of CD image | Alt + Enter

Purpose: Shows information about a CD image and adds a hotkey and a specific drive to an image.

Shortcuts: Press `ALT` + `ENTER` or open the context menu by right clicking the CD Image and then select **Image property**.

This option is available only if a CD Image has been selected. When selected, a dialogue window displays information about the CD image on two selectable pages. The "General" page shows the name, path, image size, etc., and the "Track" page shows all tracks of the CD image. More information can be shown for each track using the "Property" button.

Besides these information pages there is a 3rd page which gives you the ability to assign a hotkey and a drive to any image. By pressing this hotkey, the image will be automatically inserted into the specified drive. You may choose almost any key (except Return, ESC, Space etc.) or key combination. To select a key just press that key, for example F1, F2 or "STRG + S" and that key or key combination will be inserted.

To select a specific virtual drive use the pulldown list which shows available virtual CD-ROM drives. If you do not want a specific drive leave the selection on "any" dive.

2.3.9 Settings

This menu option has 2 pages
Page 1 the Interface page with 3 check boxes rules the display or hiding of windows.
> Show the startup dialogue
> Show the warning dialogue when exiting the manager
> Show the tray icon

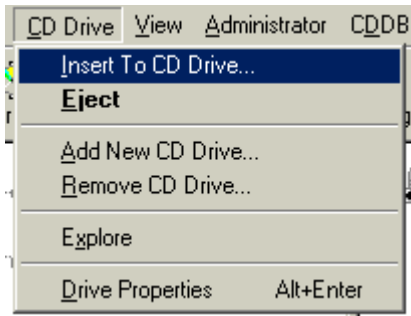If any of this boxes is unchecked the window behind the respective box will be hidden.

The CD-ROM drive page with one entry
> Number of retries on bad sectors

This number tells the physical CD-ROM drive how often it should try to read a bad sector during a "create image operation".

2.4 The Drive pulldown menu

This pulldown deals with managing virtual CD-ROM drives.

2.4.1 Insert to CD Drive (<u>C</u>D Drive | <u>I</u>nsert to CD-Drive)

Purpose: Insert a CD image into a virtual CD-ROM drive.

Alternate commands: In the **Image** pulldown, select **Insert CD image**, or drag a CD image in the right window to a virtual CD-ROM drive (in the left window). These options perform essentially identical functions, therefore please see **Section 2.3.1** for more information on this function.

Note this function is active only when an empty virtual CD is selected as target. A dialogue window opens in which the selected virtual CD-ROM drive is displayed. The pulldown window **Insert virtual CD image file** lets you select any available CD image (in the right window). The selected CD image is then "inserted" into the initially selected target virtual CD-ROM drive by clicking **OK**.

The CD image name is displayed in the left window (identifying the virtual CD it was inserted into).

2.4.2 Eject a CD image (<u>C</u>D Drive | <u>E</u>ject)

Purpose: Remove ("eject") a CD image from a virtual CD-ROM drive, to free up the drive for another CD image.

Shortcuts: Third button on the toolbar. A right-click on the virtual CD drive offers the **Eject** option. A double-click on the virtual CD-ROM drive will also instantly eject any inserted CD image.

This command option is only active when a virtual CD-ROM drive with an inserted CD image has been selected. Upon execution of this function, the inserted CD image will be ejected from the virtual drive without any further confirmation, but will remain in the right window to show that the CD image is still available to be inserted into a virtual CD drive again later.

2.4.3 Create a virtual CD-ROM drive (<u>C</u>D Drive | <u>A</u>dd new CD Drive)

Purpose: Create a new virtual CD-ROM drive.

Shortcut: The fifth button on the toolbar. You can also right-click any existing virtual CD, or right-click the parent item, **Paragon virtual CD-ROMs** to create a new virtual CD. If either of these items is selected, a right-click anywhere in the left window offers this option as well.

A dialogue window with the following options appears:
Choose Drive letter: Default is the next free drive letter.
Mount for this session only: Default is **No** (box is not checked). If the box **is checked**, this CD-ROM drive will not be recreated during the next system start up.

The Auto mount option

Mount drive for this user only: drive will be visible for this user only.
Mount drive for all users (at system startup): Drive is available to all users.

This auto mount option is generally used with the network version of CD Emulator (however, it can be used with either version).

In the first option (Mount for this user), the virtual drive will be created and mounted after the user logs into the system.

In the second option (Mount at system startup), the virtual drive will be created during system initialization (before any users log into the system). So in the second case the virtual drive will be available to all users (as opposed to

only for the current user). For the network version it's recommended to use the second option, where the system makes any local resource shared at system startup. If a virtual device is created with the first option (Mount for this user only) and then shared, the shared information will be cleared on the next system shutdown or restart.

Note: If your particular CD-ROM drive has an image on a network drive you should use "Mount drive for this user only", or else CD Emulator will try to insert a CD-ROM image at system startup when the system hasn't yet mounted the network drive and thus will fail to insert the virtual CD.

Press OK to create the virtual CD-ROM drive.

Anytime you need more than one virtual CD at your fingertips, a new virtual CD drive must be created (for each CD image to have at your immediate disposal). Each CD image to be accessed must first be **insert**ed into one of these created virtual drives (see **2.3.1, 2.4.1**).

2.4.4 Remove virtual CD-ROM drive (C̲D Drive | R̲emove CD Drive)

Purpose: Delete an existing virtual CD-ROM drive.

Shortcut: The fourth button on the toolbar, or a right-click on the target virtual CD-ROM drive in the left window.

This command removes a virtual CD-ROM drive from CD Emulator .

Caution: When this function is executed, the selected virtual CD-ROM drive will be deleted immediately and without any further confirmation. Any CD image data it contained, will no longer be accessible to the OS or any application programmes which had pointers to this virtual drive.

Data (CD image) is not affected
The CD image which was in the virtual drive is not affected. It remains on the hard drive. Also the image will still remain recognized by CD Emulator (stay in the right window). The image can then be reinserted into another virtual CD-ROM drive at any later time.

2.4.5 Explore

This option is only active on a CD-ROM drive with an inserted image. It shows all available data about the inserted image like number of tracks etc.

2.4.6 Drive Properties

Purpose: Parameter settings per individual virtual CD-ROM drive.

This option is available only if a virtual CD-ROM drive has been selected.

This dialogue window has two tabs:
1)   The "Mount" tab, with the following dialogue options:
     Mount for this session only: Default is **No** (box is not checked) : CD-ROM drive will not be recreated during the next system start up.

The Automount option

Mount drive for this user only: drive will not be visible to any other user.
Mount drive for all users (at system startup): Drive is available to all users.
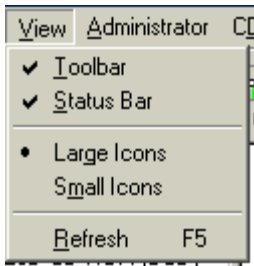
2) The "Insert" tab, with the following options:
Insert Image at logon/Start up: If checked, a CD image is inserted at every startup or logon.
CD-Image (to be inserted). Select the CD image to be automatically inserted at system startup.

Enable autorun: If checked, the inserted CD image will be started automatically if it contains an autorun file.

2.5 The View pulldown menu

2.5.1 Enable/disable toolbar (<u>V</u>iew | <u>T</u>oolbar)

Purpose: Enable/disable the toolbar.

Enables (and displays) or disables (hides) the toolbar. The toolbar is the strip just below the pulldown menus, at the top of the CD Emulator window. It contains shortcut "buttons" for the most common CD Emulator functions.

If a checkmark is displayed next to this option, the toolbar is displayed and active. In this case, clicking this option will turn it off (hide the toolbar). If no checkmark is displayed then the toolbar will not be visible either. In this case, clicking this option results in turning it on. A checkmark will be displayed next to the option and the toolbar will be displayed and its functions made available to the user.

For a screenshot of the toolbar that shows the various buttons and their function, please refer to **Section 2.2.2 The Toolbar**.

2.5.2 Display/hide Status Bar (<u>V</u>iew | <u>S</u>tatus Bar)

Purpose: Hide or redisplay the status bar.

Displays or hides the status bar at the bottom of the CD Emulator window. The status bar displays a longer explanation of a function, button or other item that is too long to be displayed, when the mouse is "held/hovering over" that item or button.

When you hover the mouse over a button on the toolbar, a more detailed explanation of its function will be displayed on the status bar. When you hover the mouse over a CD image (icon, in the right window), the status bar shows the full path and file name of the object (CDI file). Also, when a function is in progress, the status bar will usually display what is being done.

If a checkmark is displayed next to this option, the status bar is displayed and active. In this case, clicking this option will turn it off (hide the status bar). If no checkmark is displayed then the status bar will not be visible either. In this case, clicking this option results in turning it on. A checkmark will be displayed next to the option and the status bar made active.

2.5.3 View CD images as Large Icons (<u>V</u>iew | Large Icons)

The available CD image files (CDI files), in the right window, can be displayed either as large icons or small icons (but not both). Both these (mutually exclusive) options are displayed on the **View** pulldown, and a circular bullet appears next to the currently active option. There will be a bullet next to only one of the two options, since they cannot both be selected at the same time.

This is similar to the corresponding view options in Windows Explorer and various Microsoft application programmes using dialogues that involve files and/or shortcuts.

2.5.4 View CD images as Small Icons (<u>V</u>iew | <u>S</u>mall Icons)

Please see the previous section (**2.5.3**), for a complete explanation of these two options.

2.5.5 Refresh window contents (<u>V</u>iew | <u>R</u>efresh)

 Shortcut: Press the **F5** function key. This function key and its resulting effect is a Windows standard convention.

If for some reason, the virtual CD configuration is changed (virtual CDs or CD images added or removed) and the changes are not reflected in either the left or right window of CD Emulator , use **View | Refresh** to redisplay the

contents of both windows with the new, updated information. As noted, the **F5** function key will yield the same results according to Windows standard convention.

2.6 Administrator

This pulldown menu is available only in the network version and only to users with write permission to the directory where the shared images are stored.
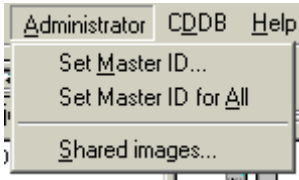
2.6.1 Set master ID

Pressing this button will assign a new master ID to the selected shared image. This makes it accessible to all clients in the network.

2.6.2 Set master ID for All

Pressing this button will assign a new master ID to all shared images. This makes them all accessible to all clients in the network.

2.6.3 Shared Images

This option enables an automatic update of any clients local image database. It is only available on network versions and it requires the complete name (PC name, drive letter and directory name) of the folder where the shared images are stored. Upon each start of CD Emulator, the programme will scan the named folder for (new) images and update the local image database automatically. Images that were not yet in the database will then be visible in the right pane as shared images.

Shared images are set to Read Only (shown in the status bar) which means you can neither remove or add tracks, nor are you able to change their name or icon.

2.7 CDDB

The pulldown menu has the following options
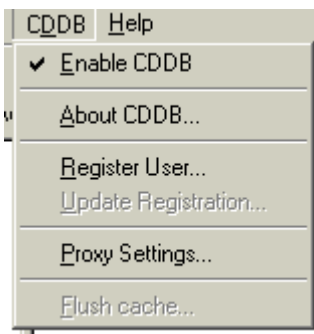
2.7.1 Enable CDDB

This is a FlipFlop switch; Any time you click it switches from one state to the other one (from ON to OFF and from OFF to ON). If checked, CDDB will work. If you do not want any information about your audio CDs or if you do not have internet access set this switch to off.

2.7.2 About CDDB

CDDB is a Recognition Service for audio CDs. It is based on a database of CD text information, used for CD recognition purposes and it works only with CDDB-enabled players. These CDDB enabled players will access the Internet server(s) which contain the CDDB database to identify the Audio CD and download all information about that specific CD. If there is no internet access the CDDB will not work.

2.7.3 Register User

To register, run the CDDB-enabled application. If it is the first time you access CDDB, the CDDB Registration Wizard appears automatically. Follow the screens for a "New Registration" to select a "nickname" and password. The remaining information is optional, but does help CDDB provide better service.
Once you have registered, you should never have to register again, unless you want to use CDDB from a different computer, in which case you only need to type in your "nickname" and password again.

2.7.4 Update Registration

At any time, you can update your registration information, change your privacy settings, or delete any registration information you have established for your Nickname.
To change your registration information or settings, enter your Nickname and Password and change the desired settings. When you complete the re-registration process, this information will replace any registration information stored by the CDDB server.

2.7.5 Proxy Settings

Proxy settings are standard options for browsing the Internet and downloading files. You can specify them in all programmes that use the internet (Netscape Communicator, Internet Explorer, download managers etc.). If you use a proxy server you must set the proxy server settings so that the CDDB client will be able to connect to the external servers through a proxy server.

2.7.6 Flush cache

All CDDB clients use cache to store some downloaded information locally – this avoids repeat downloads of identical information. To force CDDB to perform a new download use this menu point which will flush the CDDB client cache. An empty cache forces the CDDB service to perform a new download.

2.8 The Help pulldown menu

This pulldown menu has two options
Contents with a complete help system for CD Emulator
and
About… which displays information about CD Emulator:
version number of CD Emulator, version type (Personal or Network) that you are running, phone numbers and web addresses of Paragon, for customer support, as well as the copyright.

3. The reference section

3.1 The working principles and the parts of CD Emulator

Physical CD-ROM drives utilize CD "images" from actual physical data CDs.

CD Emulator likewise uses the same principle by placing the entire CD image (from an actual data CD) onto a hard drive. This CD image contains one or all tracks of the physical CD is and is called the CD image.

Virtual CD drives work with CD images the same way as real physical CD-ROM drives work with real physical CD disks, only the data can also be compressed to take up much less space than it did on the CD it came from. Despite this, the access speed of a virtual drive is generally several times faster than a CD in a CD-ROM drive, usually at least by a factor of ten.

CD Emulator consists of two main parts. One part lets the user create CD images and virtual CD-ROM drives.

The other part allows the Windows OS to recognize and access those virtual CD-ROM drives. This is done by loading the necessary CD Emulator device drivers into the Windows startup configuration, and executing the TSR (terminate-stay-resident) portion of CD Emulator , that allows Windows and applications to access the virtual drives just like any other drive. All this is done automatically and is transparent to the user (once CD Emulator has been installed and the system restarted).

The TSR portion of CD Emulator normally appears only as an applet. Also, when the programme is run and then minimized, it returns back to an applet, rather than to the taskbar. Changing the virtual drive configuration (by running CD Emulator) can be done by right-clicking this applet, which starts the user-interface portion of CD Emulator .

3.2 The memory-resident portion of CD Emulator

CD Emulator relies on the automatic loading of drivers at startup, in order for the virtual CD-ROM drives to be recognized. These drivers are loaded when Windows boots, and at the end of the Windows startup sequence the virtual CD machine is ready for use.

Under normal usage, CD Emulator 's required system drivers load automatically at Windows startup, and CD Emulator does not appear on the taskbar, **only as an applet** (systray). To have access to the CD Emulator functions and modify your virtual drive configuration, you can right-click the applet and select **Restore** (or run CD Emulator from the **Programs** group). **Also**, when CD Emulator is minimized by the user, it returns to running in the background (applet), and disappears from the taskbar.

CD Emulator can be identified in the Windows task Emulator, either as **CDman** or **Paragon CD Emulator Emulator** , but can be terminated more easily by right-clicking its applet and selecting **Exit…**
Caution: Doing this, however, will disable access to all virtual drives for this windows session.

3.3 Windows Device Manager and the virtual CD-ROM Drives

The virtual CD-ROM drives are based on a virtual SCSI-controller. Both the virtual CD-ROM drives and the SCSI controller are visible in the Windows Device Manager . To see them, select:
Start | Settings | Control panel
Double-click the System icon.
Click the Device Manager tab.
Then select either:
CD-ROM drives for the virtual CD-ROM drives or …
SCSI-Controller for the virtual SCSI controller.
These devices are treated as standard Windows devices and if selected, their settings may be changed using the <Property> button. For example, if a Paragon virtual CD-ROM drive is selected, the <Property> button will show all three pages: "General", "Settings" and "Drivers". Any change done in "Settings" will apply only to the selected virtual CD-ROM drive.

3.4 Removing/exiting the memory-resident programme

This terminates the virtual CD-ROM machine. Deleting or removing the memory-resident part of CD Emulator makes the CD Emulator itself and all virtual CD-ROM drives for the ongoing Windows session unavailable.

The simple way to do this, is by right-clicking the CD Emulator applet in the systray (by the clock). This will open the applet menu which has the **<EXIT>** option. When selected, a warning window tells you that CD Emulator will be terminated if you proceed.

3.5 Manual uninstallation of CD Emulator

Normally an uninstallation removes all Registry entries as well as all files including .dlls that come with CD Emulator. In case this removal fails (for whatever reason) we give you here an exact description for a manual removal of registry entries, etc.

1. Run Registry Editor (Press 'Start' button, choose 'Run', type 'regedit', press OK). Delete registry key KEY_LOCAL_MACHINE\ Software\ Microsoft\Windows\Current Version\App Paths\cdman.exe,

also delete all registry key entries which look like
KEY_LOCAL_MACHINE\Software\Microsoft\Windows\Current
Version\Uninstall\Paragon CD Emulator(*)
The difference could be only in the name of the last key where
the (*) could be any string.

2. Delete the following files (%windir% - Windows installation folder, usually C:\Windows or C:\Winnt):

in Windows 9x/ME:
%windir%\system\cdshell.dll
%windir%\system\iosubsys\cdiport.pdr

in Windows NT/2000:
%windir%\system32\cdshell.dll
%windir%\system32\drivers\cdidrv.sys
%windir%\system32\drivers\nullcd.sys

3. Under Windows 9x/ME: go to Control Panel, launch System applet, switch to 'Devices' tab and delete the 'Paragon CD Emulator virtual SCSI adapter' under 'SCSI adapters' branch.

4. Reboot Windows.

3.6 Command line control of CD Emulator

Important: This chapter is for advanced users only! Be very careful when using the command line option of CD Emulator.

This option allows various options of CD Emulator to be executed directly from the MS-DOS prompt, which facilitates startup functions using batch files and logon scripts.

You can use command line control to automate any process, which is linked with CD Emulator in any way. The executable you need to reference is **CDMAN.EXE**, which is the executable that's also used to open the CD Emulator window. However, in the command line mode the window doesn't open; CDMAN.EXE works instead in "silent" mode. **CDMAN.EXE** is located in the installation directory of the product.

command line syntax:

```
cdman /command:cmd1<'>-"parameters",cmd2<'>-"parameters",...
or
cdman /c:cmd1<'>"parameters",cmd2<'>"parameters",...
```

Definitions:
`cmdx` – command identifier, see below.

`<'>` - optional apostrophe - if used, specifies ignoring returned errors.
`"parameters"` – parameter(s) for particular command.

The command line must not contain any spaces (with the exception of filenames). Parameters must be in quotation marks. If an error occurs while processing the command line, CD Emulator terminates and returns an error code (see the end of this section). To ignore a return value while processing the command, use the apostrophe.

Examples:

`cdman /command:a-"G",i-"G=d:\image.cdi"`
In this sample if the drive G:\ already exists, command line processing terminates with an error code.

`cdman /command:a'-"G",i-"G=d:\image.cdi"`
In this sample if the drive G:\ already exists command line processing doesn't terminate and the next command ('i') is processed.

Command identifiers:

The **"a"** command: Adds new virtual CD-ROM drive(s); the sequence of drive letters is not significant. The new drives are added as if the "**For this session only**" checkbox were checked (in the standard "**Add new CD-ROM drive**" dialogue).
There are predefined drive letters like F, R , etc. but also question marks
(?) for any free available drive letter possible.

The following sample adds two new drives R: and T: :
`cdman /command:a-"RT"`

The following sample adds 3 new drives, one with the drive letter Z and 2 other drives with any other free drive letter:
`cdman /command:a-"Z??"`

The **"r"** command: Removes virtual CD-ROM drive(s); the sequence of drive letters is not significant.
The following sample removes two drives F:\ and M:\ :
`cdman /command:r-"MF"`

The **"m"** command: Gets virtual drives mask. All commands following this one are ignored. The following sample returns drives mask as exit code:
`cdman /command:m`
Drives are encoded in the following way: drive letter A: corresponds to the lowest bit in exit code, drive letter B: - to the second bit and so on.

The **"i" command**: inserts a CD image into a virtual CD-ROM drive. The image filename can be a long filename with spaces and non-English characters.
There are real drive letters like F, R , etc. possible but also question marks
(?) for any free available drive

The following sample inserts image 'C:\the image.cdi' into drive G:\ :
`cdman /command:i-"G=C:\the image.cdi"`

The following sample inserts image 'C:\the image.cdi' into the next free drive
`cdman /command:i-"?=C:\the image.cdi"`

The **"e"** command: Ejects CD image(s) from virtual drive(s); the sequence of drive letters is not significant.
The following sample ejects drives G:\ and D:\ :
`Cdman /command:e-"GD"`

Error codes:

0 – Success.
1 – General error.

2 – Invalid function.
3 – Invalid handle (driver is not opened).
4 – Drive or file already exists.
5 – Invalid drive.
6 – File not found.
7 – Read/write error (I/O error).
8 – Invalid CD image file format.
9 – Image already inserted.
10 – Image version is not supported.

3.7 Command shortcuts and Q&A

Insert CD-Image in a virtual CD-ROM drive
Drag & drop method: Pick a CD image and drop it on the target virtual CD-ROM drive.

Ejecting CD-Image from virtual CD-ROM drive
Double-click the virtual CD-ROM drive with an image inserted.

Start CD-Image Wizard (create CD Image)
Double-click on an empty space in the right window (the CD-image window).

Start CD-Emulator (Application Interface)
Double-click on the CD Emulator applet in the tray bar. If the application interface was closed it will now open.

Exit CD-Emulator (Application Interface)
Double-click on the CD Emulator applet in the tray bar. If the application interface was open it will now close.

Q&A

Q1: Why should I use CD Emulator rather than just copying files from my CD-ROM to my hard disk ?

A1.1: A lot of applications do not work if the original CD isn't physically present in the CD-ROM drive. CD Emulator emulates the physical device and the application considers it to be working from the real CD.

A1.2: CD Emulator copies audio tracks as well. These are emulated as real audio tracks.

A1.3: Having a virtual CD-ROM drive is very advantageous because many applications would not run just from the folder on the hard disk. Such applications often rely on their original path.

A1.4: CD Emulator optionally creates compressed images. When the original CD has a lot of small files, copying using directories, such a CD will take huge amounts of disk space because of the big cluster size on the hard drive. (On how to change cluster size, see Paragon Partition Emulator). By copying as a compressed image, the same CD will take much less space. Furthermore, compression does not affect performance very much although the compression ratio may typically approach 50%.

Q2: How does decompression of a CD image affect performance?

A2: Decompression does affect performance but very slightly. When using a real CD-ROM drive, performance is slowed much more because of time-consuming seek operations that are necessary to read a lot of small files. However, you can turn off compression during image creation.

Q3: How can I access a virtual CD created on a server from different workstations simultaneously ?

A3: Some applications shipped on CD-ROM have licensing restrictions so you cannot run them more than once. If this is not the case, then the application can run from unlimited virtual CD-ROM drives.

1. You can use the end user version of CD Emulator to emulate a CD-ROM with image file on the network server.

2. You can emulate a virtual CD-ROM drive on the server and then share this virtual device. In this case you should use the multi-license or network version of CD Emulator. (click here to read more about network version) The end-user version of CD Emulator does not allow the sharing of virtual CD-ROM drives as a network resource.

Q4:   Can I copy copy-protected CDs with CD Emulator ?

A4:   In many cases you can, but some new copy protection schemes can mark every CD with unique markups or signs, and such CDs cannot be copied with CD Emulator. To test whether CD Emulator will be able to work with your particular CDs, you can use a trial version of CD Emulator.

Q5:   What types of CDs does CD Emulator support ?

A5:   CD Emulator currently supports data CDs, audio CDs and mixed CDs (one with both data and audio tracks).

Q6:   What operating systems can CD Emulator be used with?

A6:   As of March 10, 2001, CD Emulator works under MS Windows 95/98/Me as well as Windows NT 4.0 and Windows 2000. We expect to have CD Emulator working under MS Windows XP as soon as that Windows version is available.

Q7:   Can I specify a drive letter for a virtual CD-ROM drive?

A7:   Yes, when creating a new virtual CD-ROM drive, you can specify the desired drive letter for it. However, you can choose this drive letter only from currently unused logical drive identifiers.

Q8:   The dialogue "Add CD-ROM drive" has an option to "Mount drive for this user only" or "Mount drive for all users (at system startup)". What does this mean ?

A8.1:   This option is relevant to the network version of CD Emulator (however, it can be used in any case). In the first case (Mount for this user), the virtual drive will be created and mounted after the user logs into the system. In the second case (Mount at system startup), the virtual drive will be created during system initialization (before any user logs onto the system). So in the second case the virtual drive will be available for all users (as opposed to only for current user). For the network version it's recommended to use the second option: the system makes any local resource shared at system startup. If a virtual device is created with the first option (Mount for this user only) and then shared, the sharing information will be cleared at the next system shutdown or restart.

A8.2:   If your particular CD-ROM drive has an image on the network drive you should use "Mount drive for this user only", or else CD Emulator will try to insert the CD-ROM image at system startup when the system hasn't yet mounted network drive and thus will fail to insert the virtual CD.

Q9:   The dialogue "Add CD-ROM drive" has a checkbox "Mount for this session only". What does this mean ?

A9:   If this checkbox is checked, this virtual drive will be present in the system only until the next system shutdown or restart. If this checkbox is not checked, the drive will be created again at each system startup, so you will have this drive "almost" permanently.

Q10:   Where are images I see in the right pane located on my hard drive ?

A10:   Icons you see in the right pane are just links to real image files. The image files are located on your hard disks (or network drives). Usually their locations are specified during their creation from the original physical CD. Also, these real image files can be copied or moved to any other location. The paths CD Emulator uses for "inserting" CDs into drives are those specified in the "Add CD-ROM image" or "Create CD image" dialogues. After adding (or creating) a CD image to the CD Emulator database (right pane), the icon will be linked with that image file.

Q11:   When I try to remove a CD image from CD Emulator, I'm asked whether to delete the image file. What does this mean ?

A11:   You are given an option whether to delete only an icon (or a link) from the right pane of the programme, or also to delete the real image file. See also Question 10 and the CD Emulator documentation.

Q12: When I run my system I always see an icon of CD Emulator in the tray bar. Is it necessary for CD Emulator to be always loaded?

A12: The CD Emulator Windows application is necessary for operations with image files and inserting/ejecting virtual CD-ROMs in/from virtual CD-ROM drives, and also to play virtual audio CD-ROMs. In any other case you can unload CD Emulator Emulator – see Q13.

Q13: How can I exit CD Emulator (to even remove it from the tray bar) ?

A13: Right-click the CD Emulator icon in the tray bar and choose the Exit command, or select Image | Exit from the CD Emulator menu.

Q14: After installing CD Emulator and rebooting Windows, I get the message "Cannot initialize port driver CDIPORT.PDR". Why ?

A14: Under Windows 95 OSR1, CD Emulator's installation programme doesn't work correctly. You can use Windows OSR2 or the manual install programme driver CDIPORT.PDR. For detailed information, contact Support Service by email: mailto:support@paragon.ru.

Q15: Is or will the CD Emulator be able to save Audio CDs in MP3 format ?

A15: Currently no, but a workaround is available. Check news on our web-site http://www.paragon-gmbh.com

Q16: What restrictions does the trial version of CD Emulator have ?

A16: It has a 30 day working limit. You can create only one virtual CD-ROM drive. In the full version you can create up to 23 virtual CD-ROM drives. Also you can't add already created images, you can only use images created with the particular version on your computer.

Q17: How can I change the "Autoinsert notification" option for virtual drives ?

A17: Since CD Emulator creates virtual CD-ROM drives with the full functionality of normal physical CD drives, you can change the "Autoinsert notification" option for virtual drives the same way you do for normal physical drives. For example, for Windows 9x, you need to open System properties (right-click 'My computer' on the desktop and choose 'Properties'), click on the 'Devices' tab, open the 'Properties' dialogue for the desired CD-ROM device and click the "Autoinsert notification" checkbox.

Q18: What is the difference between the personal (single-user) and the network (multi-user) versions of CD Emulator ?

A18: The personal version of CD Emulator is designed to be used in end-user (home) environments. The network version is designed for local or network environments with shared image files. This is the normal case when CD Emulator is intended to be used in some office to create a CD server. We recommend placing image files on an office file server as a network resource, and installing the CD Emulator programme on workstations, creating virtual CD drives on workstations and loading them with images from the file server. In this situation, the personal version will not allow users from different workstations to use the same image file, but the network version will.

Q19: I have a personal version of CD Emulator and try to insert the same image in two virtual drives. On the first drive everything works fine, but for the 2nd the system returns "The system can't open the file". What is wrong ?

A19: This is the correct behavior for the personal version. You can insert the same image into several virtual drives only in the network version of CD Emulator.

4 CD Emulator network versions

The Paragon CD Emulator offers four different network versions.
- Private network version
- Network version without license control
- Network version with license control
- Network version for terminal servers.

These different network versions serve different market needs in functionality.
- The private network version is very simple to install and can be used to share CD Images on a private network by two clients at the same time. Therefore this "simplest" network version is comparatively inexpensive. Contrary to the personal version this network version runs also on Windows NT/2000 servers.

- The network version without license control has all the necessary functions that are needed in middle/large network environments. A centralized CD Image database makes all CD Images stored on any network drive instantly available to all CD Emulator clients. This version has also additional Administrator functionalities. There are only "legal" licensing restrictions – no technical restrictions are limiting the number of CD Emulator clients. Therefore this Network version is usually delivered under the terms of Open or Enterprise-wide License.

- Network version with License Control.
Exactly the same functionality as the network version without License control but with a tracking mechanism that controls the number of accesses to CD images.

- Network Version for Terminal Servers. This version provides additionally virtual CD drives for Terminal Server clients. Therefore additional administration functions for a Terminal Server are available.

Here is the summary comparison table for different CD Emulator versions:

Version type/feature	Personal	Private Network Version	Network version	Network Version with License Control	Network version for TS
Key difference	Only exclusive access to network CD Image	Only for 2 network clients	From 5 network clients, no technical license control	From 5 network clients, license control mechanism	From 5 Network clients, works with Terminal Server Clients as well
Different modules?	No, single installation	No, single installation	Yes, Admin and Client installations	Yes, Admin and Client installations	No, single installation
Administrator options	No	No	Yes	Yes	Yes
"Silent mode" installation	No	No	Yes	Yes	Yes
Behavior when network is not accessible	No difference	No difference	Network CD Images can be mounted as soon network is available	Network CD Images can be mounted as soon License Control File is available (from the network)	Network CD Images can be mounted as soon network is available
Installation	Retail	Yes	Both Client	Only Admin	Yes

requires serial number	version only		and Admin installations require S/N	installation requires S/N	
Target groups	Retail	SOHO Market	VARs, Open License, Enterprise-Wide License	Small and medium networks	Terminal servers
License policy	Per Seat	Per seat	Per seat	Per seat	Per Seat and TS CAL
Note: When you start the installation, a message appears designating exact version name.					

4.1 Installing the CD Emulator network versions in dialogue mode

When you start the installation, there a message appears designating the exact version name.

4.1.1. Installation of private network version

The private network version installation does not differ from the installation of the personal version of CD Emulator. You should install the version on the two clients which will use CD images across the network. The Installation asks for a serial number and the same serial number should be used for both clients. After installation each client can create CD Images and store them on any network drive as well as mount them into their virtual CD-ROM drives.

4.1.2. Installation of Network version

The Network version requires two installations: the administrator installation and the installation on all clients. The installation asks in all cases if you want to install an administrator or client version.

The administrator version can be used to create CD images and manage them in a network. It can be any workstation with a physical CD-ROM drive and access to the file server. The created images may be stored locally or on a file server. Additionally, in a **network version with license control** the administrator version of CD Emulator tracks the numbers of connections to CD images.

The difference between the administrator and the client installation is that the client installation does not install the additional administrator functionality. To identify an already installed version on a particular computer, look in the 'About' dialogue window of CD Emulator.

Installation of network versions with license control

1. In this case you must install the Administrator module first.
2. The user name and serial number will be required. Be aware that both fields are case sensitive.
3. The installation asks you to specify a folder where the license account file should be created. This file is required for license control. It is very important that the account file reside in a folder which is accessible as a network resource for all computers running the network version of CD Emulator. This resource must be available with READ/WRITE access rights.
After selecting a folder for the license account file the installation of CD Emulator Administrator will proceed. When finished you must reboot the system. CD Emulator will run automatically and will try to create a license account file. If something goes wrong you have specified an invalid path or a previous file can't be overwritten or you don't have write access rights for that folder. In all this cases you need to reinstall CD Emulator.
Note: Only a user with administrator privileges can install CD Emulator on Windows NT/WIN 2000.

Installation of client versions of CD Emulator.
During the installation of a client version you will be asked only to specify the path where the license account file is stored (this file was created during the installation of the administrator version). No additional information is needed. After completion you will be asked to reboot the system. You have to do this first reboot by using the same user profile.

Note: user name and serial number are taken from the license account file.

Installation of Network version without License Control

This installation is almost identical with the version with License Control. The only difference is that the administrator version is not creating a license control file and therefore each installation of a client will ask again for the user name and the serial key.

4.1.3. Installation of Terminal Server version

The User Name and Serial key will be required. Enter these data carefully because both fields are case sensitive. Note that only a user with administrator privileges can install CD Emulator on Terminal Server (either login locally or through a console). The installation will automatically install CD Emulator for all users on the server. It is necessary that CD Emulator is being installed for all users, otherwise the service will be accessible for the administrator only. CD Emulator manager will differ in its behaviour for different users. For users with administrative privileges CD Emulator will behave like a administrator version part of CD Emulator network version with license control. For all other users CD Emulator will behave like a client of CD Emulator Network with License Control.

4.2 Configuration of CD Emulator network versions

After the installation of the administrator and client components some additional settings should be done to be able to use the features of the network version.
- Central directory and database for shared images
- Administrator settings on clients
- License control settings (if necessary)

4.2.1. Centralized database for CD images (shared images):

Every CD Emulator client has a database with "shortcuts" to CD Image files stored locally or on any remote network drive. These shortcuts to CD Images are either added automatically during the creation of a CD Image or manually by adding a CD Image.
To automate this adding of shortcuts, the network version of CD Emulator has an additional centralized database of "shared" images. These images are located in a shared directory. The name of this directory can be entered on any client through the menu item "Shared images" in the pull-down menu Administrator> . This directory should be the same for all clients and administrator installations in a network. It is recommended to use UNC (universal name conversion format) to make it independent from the drive mapping.

How do shared images work?
CD Emulator dynamically scans the contents of the directory with the shared images and creates shortcuts to these images. The shortcut will have the word "shared" in the image status bar (for example, "q:\netcde\msdn.cdi Shared"). Therefore, as soon as a new CD Image is created in the directory with shared images, it will be recognized by all other CD Emulator clients and will automatically appear as a shortcut.

CD images in the directory with shared images can only be created and deleted (edited etc.) by a user with write access to that directory. If that directory is shared for all clients with read/write access then all CD emulator clients can create new shared CD images.

Any CD emulator client or administrator that creates a new CD Image will create a static (not shared) shortcut in its database to this CD image, wherever it may be stored. If this image is created in the directory for shared images, this new CD image will appear on all clients in the network as a shared image except for the client/administrator who created it. The reason is that the scanning of CD images in the directory for shared images adds only shortcuts to shared CD images that do not yet exist in the clients database as a static shortcut. Shared images cannot be renamed or deleted, therefore managing shared images can only be done by the client/administrator in which this shared image is shown as a static (not shared) image.

4.2.2. Administrator settings on the Client

The client installation of CD Emulator has additional options. These options are mainly to restrict the functionality of the client and include:
-    The right to create new CD Images
-    The right to add/delete CD Images

- The right to edit CD Images
- The right to add/remove virtual CD-ROM drives
- The right to change virtual CD-ROM drive properties.

By default, all these functions are disabled for any client, so that a client is limited to using shared CD images only.

To change these options select the pull-down menu "Administrator" -> menu item "Options" on the Client version of CD Emulator and enter the password to access the options. By default the password is empty.

To change the password select the pull-down menu "Administrator" -> menu item "Change Password"

Note: The Administrator options are different for different users of a computer (workstation) because they are saved separately for each user. Every time you change these options, you change them for the currently logged in user. Only the administrator password is unique for any given computer.

### 4.2.3. Network version with license control.

The network version with license control utilizes a special mechanism to track the number of CD Emulator users currently using network CD Images. The mechanism uses the License Account File and the Master ID.

License Account File.
This file is created during the installation of the Administrator part of CD Emulator. The user selects the path where this file will be created. This license account file should be accessible with read and write privileges to all clients with CD emulator. It is recommended to use the UNC path to avoid any problems with drive mapping. The installation of any CD emulator client asks for the path where this License Account file is stored.

The license account file contains information about all CD Emulator clients using network CD images. When the number of clients exceeds the number of licenses, the next client access will be denied.

As soon as a CD emulator client tries to insert a non local CD image file for the first time, a special entry will be created for this client in the license account file. It indicates that license for that client is used. The client is identified through a unique number generated from the NIC (network card). The administrator installation contains a special "Monitoring Utility" to view the state of this file.
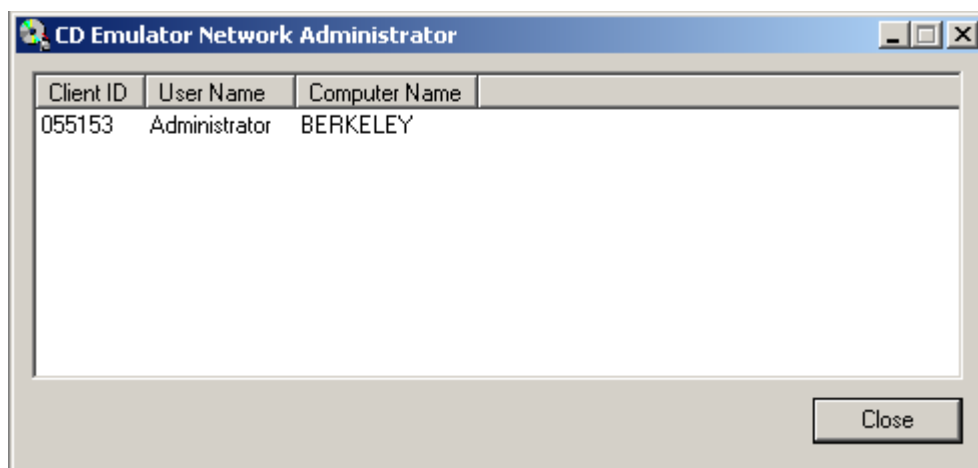
If a CD emulator client cannot locate the license account file during its start, there will be a warning displayed that only local CD images will be accessible. As soon as the license account file is available (or the network connection is available again) the network CD images can be used again. It is important for users of notebooks that CD Emulator still works with local images when no network connection is available.

Master ID
All network CD images created by a network version with License control are signed with a master ID. This master ID is unique for every CD emulator administrator installation and is intended to distinguish network CD images for different installations of CD emulator. The client or administrator part of the CD Emulator can only work with

network CD images with a appropriate master ID. If the master ID does not fit, it can be changed by the administrator.

This manual change of the master ID avoids the re-building of CD images created by another version of CD Emulator or by another administrator. The change for one or all CD images can be done in the pull-down menu Administrator.

Note: Read/Write access is required to change the master ID of a CD image.

4.3. Using CD Emulator on a Terminal Server

There is a special CD Emulator network version for Terminal Server (TS Version). CD Emulator, when installed on a terminal server allows the creation of virtual CD-ROM drives and the inserting of CD images for different sessions and users.

CD Emulator versions designed for normal Windows OS (not a terminal server) can create "System-wide" visible virtual CD-ROM drives as well as virtual CD-ROM drives that are visible to one single user only. The table below illustrates the difference of global and local virtual CROM drives for different OS's and the Terminal Server version.

Terminal Server can also be used as a file server for storing CD Images and we actually recommend this configuration because users working with terminal server console do not have any additional performance effects - the CD Images are local.

Operating system/virtual drive type	Windows 9x/ME/NT/2000	Windows 2000 Terminal Server
System-wide virtual CDROM drive	Appears for all users using the same drive letter.	Appears for all sessions and users of Terminal Server using the same drive letter.
"For this user only" virtual CDROM drive	Appears only when current user is logged in.	This virtual CDROM drive works only during current session. If user logged onto the terminal server twice on different console, he/she does not see virtual CDROM drive created in an another session.

4.4 Installation of network versions in batch mode

You can install Network version with or without license control and network version for terminal server in silent mode (batch mode). This works by starting the setup with a parameter that forces the installation routines to bypass all dialogue screens and read all parameters from an external file.

This enables completely automated installations on a number of workstations (together with Windows Networking logon scripts).

To install the programme in silent mode the files silent.ini and setup.iss are required. The file setup.iss is supplied together with the installation and cannot be changed. The file silent.ini contains all individual parameters (destination folder, programme group name etc.) for a specific installation and may be changed according to your needs.

4.4.1 Create silent.ini file automatically

To create the file silent.ini you should perform a full installation in dialogue mode with the key **/sw<IniPath>**. <IniPath> - is the full path (without any brackets and quotation marks) to the directory in which silent.ini file will be created. If <IniPath> is absent, the file will be created in the same directory were the Setup.exe file resides. After a correct installation all parameters entered during the installation will be stored in the file silent.ini.

Examples:
setup /sw - starts the installation and saves the entered parameters in the file Silent.ini located in the default directory (where setup.exe is).

setup /swc:\my directory – starts the installation and saves the entered parameters in the file Silent.ini located in "C:\My directory" directory.

4.4.2 Edit silent.ini file manually.

The file Silent.ini has the following format:

[SetupType]
Admin=0

[Registration]
UserName=User
SerialKey=12345-12345-12345-12345

[Folders]
Shared=c:\
Target=C:\Program Files\Paragon Software\Paragon CD Emulator Network
AccountFilePath=c:\

[ProgramGroup]
Name=Paragon CD Emulator Network
Personal=0

[Finish]
Reboot=0
LaunchApp=1

You can edit any of the parameters.

Description of parameters:
SetupType field:
      Admin – define type of installation (0 = setup as Client and 1 =
       setup as administrator)

Registration field:
      UserName – your User Name
      SerialKey – your Serial Key

Folders field:
      Shared – assign folder where you want to store the shared
       images
      Target – destination installation directory
      AccountFilePath – Account file path (used by version with License Control)

ProgramGroup field:
      Name - Program group name
      Personal - assign type of Program Group (0 – for all user,
      1 – for this user only)

Finish field:
      Reboot – assign behaviour after installation (0 – do not reboot
    computer, 1 – reboot).

    LaunchApp – launch or do not launch the application after
    installation (0 – do not, this parameter is ignored if Reboot=1)

4.4.3. Install in Batch mode

To install CD Emulator in batch (silent) mode you should start up setup.exe with the following parameters:
/s /f2<LogFile> /sr<IniPath> key. /f2<LogFile> - specifies an alternate location and name of the log file created by InstallShield . By default, if this key is absent the Setup.log log file is created and stored in the directory were setup.inx resides.
<IniPath> - is the full path name (without any brackets and quotation marks) to the directory in which silent.ini file is located. If <IniPath> is absent, the file will be searched for in the directory were the setup.exe file resides.

Examples:
setup /s /sr - start up installation in silent mode with silent.ini, silent.log, setup.log located in the default directory (where setup.exe is).

setup /f2"c:\My directory\Setup1.log" /src:\My directory - start up installation in silent mode with silent.ini, silent.log and setup1.log located in "c:\My directory" directory.

Note: The CD-ROM emulator installation in silent mode creates a protocol in two files. The first file is defined by the /F2 key (by default the setup.log file is created and stored in the same directory as setup.inx). The second file is silent.log which will be created in the same directory were the silent.ini file resides. If there are any problems send these 2 files to support@penreader.com.

4.4.4. Installation using logon scripts.

Logon scripts are a standard way for automated administration in Windows NT networks. Below we describe how to use them in the case of an automated installation of CD Emulator on multiple computers (workstations).

To use logon scripts you should have a domain network administered by Windows NT or 2000 domain controller.

The Windows NT server resource kit contains a utility named Kixtart. You will need the file kix32.exe on the server. For Windows 9x workstations you will need to place the files kx16.dll, kx32.dll and kx5.dll into the system directory (C:\windows\system).

In the user manager you may then specify logon scripts. Specify the necessary script file (or create new ones with one command only) and insert there the call for the Kixtart utility with a specially prepared script file: kix32.exe cdemul.kix. The main difficulty with using plain logon scripts is that these scripts are performed on the server locally. The Kixtart utility bypasses these difficulties and allows the execution of commands on a user's workstations during the login procedure.

You can find a detailed description of the syntax for Kixtart scripts in the resource kit help files.