PARAGON CD-ROM Emulator 3.0

Network Version

User Manual

Paragon Technology GmbH, System Programmierung

Published by:
Paragon Technologie GmbH
Systemprogrammierung
Pearl-Str. 1
D-79426 Buggingen
Germany

Contents

1 About Paragon CD-ROM Emulator

With Paragon CD-ROM Emulator, CD/DVD applications are faster, more portable and easier to use. CDs and DVDs are stored as "virtual CDs" on a hard disk in a compact form.

So, what are advantages of virtual CDs?

1. Virtual CDs can be used on computers that don't have physical CD drives.
2. CD/DVD-based applications become working much faster, because the virtual CDs run from a hard drive rather than from the CD-ROM drive. The average data transfer rate is tens times higher and the average seek delay is tens times smaller!
3. Valuable CD/DVD originals won't be lost or damaged.
4. Virtual CD/DVD drives do not produce noise.
5. Virtual CDs are inserted and ejected instantly.
6. Virtual CD drives do not consume power, so that they elongate battery cycle on portable computers.

2 Installation

The installation process of the program network version has a number of features those are needed to explain separately. This chapter describes the installation process step by step so you can take into account some important aspects.

2.1 System Requirements

The following system specifications are required for installing and running Paragon CD-ROM Emulator ver.3.0:

- Windows 98, 98 SE, ME with at least 64 MB RAM
  or Windows 2000, XP with at least 128 MB RAM
- Pentium-family CPU
- 10 MB hard disk space for installation of the CD-ROM Emulator software
- Microsoft Internet Explorer 4.0 or later, for viewing Help (optional)
- Sound card, for using CDs with audio tracks (optional)
- Network card, for using CD images placed in your local network

- Internet access, to retrieve audio CD titles (optional)

2.2 The Installation Process Overview

The program installation can be performed by a user with the administrator rights only. The installation includes the following steps:

Step 1. Run Setup application

Go to the directory where setup files were placed and run the **SETUP.EXE** file. This application will walk you through the procedure of the complete program installation. The setup utility is made with using InstallShield SDK. It contains the standard user interface and the standard set of installation screens.

Step 2. Choose Setup Language

Just after starting the SETUP application the dialogue window **Choose Setup Language** appears. A user should choose a language from the pull-down menu and then click on the OK button.

Step 3. Starting Setup

The **Welcome Screen** informs you which application is being installed. Just press **Next** button to move further.

Step 4. Confirm License Agreement

The **License Agreement Screen** displays the License Agreement text. Read it carefully and then press **Yes** button to accept the Agreement and continue the installation process.

Step 5. Choose the setup type

The **Setup Type Screen** displays two variants of the installation – whether it is the Administrator installation or the Client installation. If the setup has been started on a local network server then you should choose the Administrator variant else the Client variant should be chosen. Press the **Next** button to continue.

Step 6. Enter the customer information

The **Customer Information Screen** has two textual fields – User Name and Serial Number. You should enter the user name for that the product was registered and the Serial Number of the product. Press the **Next** button to continue.

Step 7. Choose an Installation Folder

The **Destination Location Screen** allows choosing the folder where the program will be installed. Press **Browse** button to customize the name of the installation folder. Press the **Next** button to apply selected name. The default value for the installation folder is:
C:\Program Files\...\Paragon CD-ROM Emulator Network

Step 8. Choose a Program Group

The **Program Folder Screen** allows selecting the application's program group in the **Start** Menu. By default, it will be the program group:

Start >Programs > Paragon CD-ROM Emulator

Step 9. Select Administrator Options

The **Administrator Options Screen** allows choosing whether the program will be installed for the current user of the computer only or for all the users of this computer. Please note that the amount of the program users is limited by the License Policy. Press **Next** button to continue.

Step 10. Choose a Shared Folder Destination

The **Shared Folder Destination Screen** allows pointing the folder where shared CD images will be stored. Press **Browse** button to customize the name of the folder. This folder has to be placed on the local network file server. Press the **Next** button to apply selected name.

Step 11. Enter Administrator Password

The **Administrator Password Screen** allows entering password for protection of the administrator functions of the program. These functions include defining rights of the program usage for each registered user. Enter the password and then confirm the password doubling it at the field below. Press the **Next** button to continue.

(!) Please note: if the Administrator type of installation was chosen then this screen will be skipped.

Step 12. Set Client Options

The **Client Options Screen** allows defining rights of the current user. Here the administrator can set what functions of the program are able to be performed by the user. To set an option you should mark a corresponding checkbox. Press the **Next** button to continue.

(!) Please note: if the Administrator type of installation was chosen then this screen will be skipped.

Step 13. Verify Setup Settings

The **Start Copying Screen** allows verifying settings you've made before and probably make corrections. Press **Back** button to walk back and modify the installation settings. Press **Next** button to complete the installation process.

Step 14. Copying Files

The **Setup Status Screen** shows the overall progress of the installation. You are allowed to abort the process by pressing the **Cancel** button.

Step 15. Finishing the Installation

The **Final Screen** reports the setup process end. From this moment, the program is ready to use.

3 Interface overview

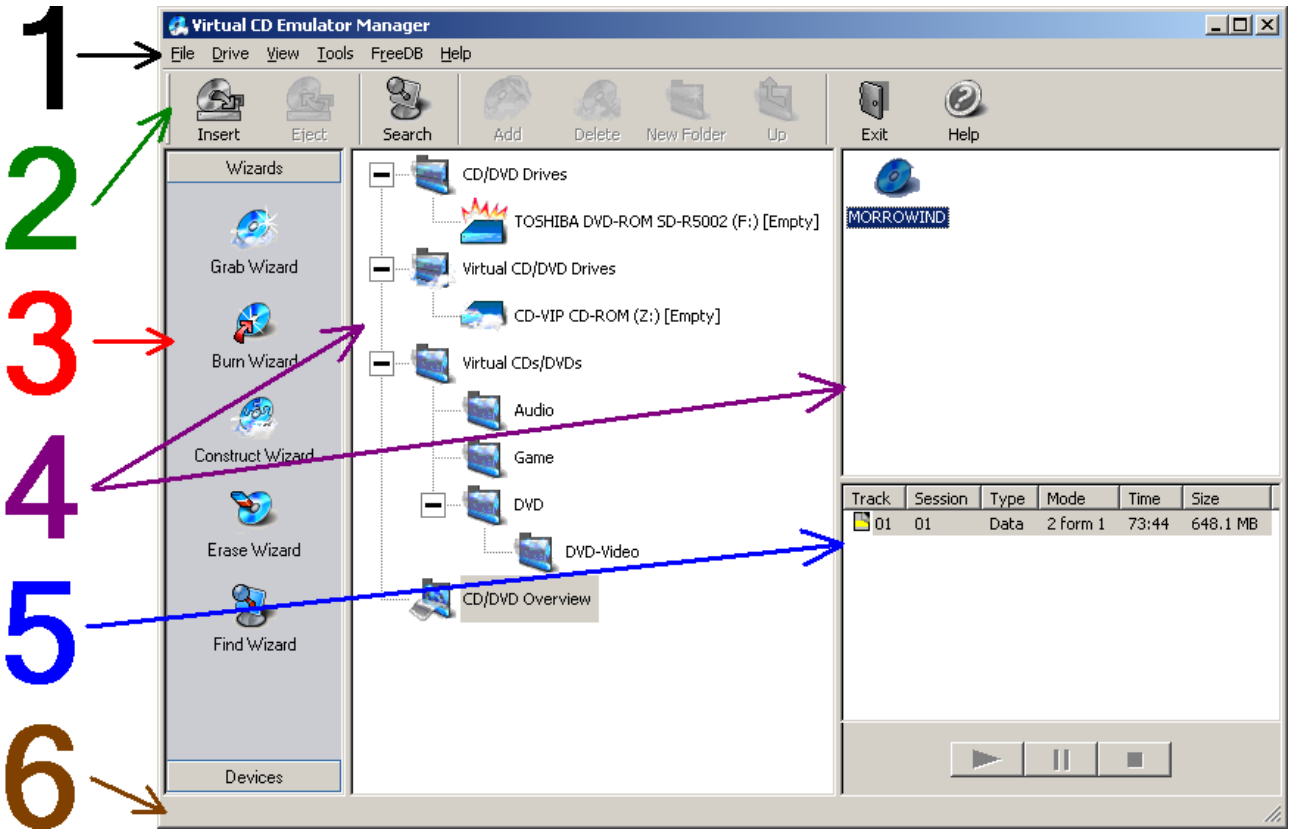
CD-ROM Emulator consists of two major components, the CD-ROM Emulator Driver and the CD-ROM Emulator Manager.

The *CD-ROM Emulator Driver* is responsible for background activity of the product, such as emulating virtual CD drives, playing virtual CDs and interaction with an operating system.

The *CD-ROM Emulator Manager* is responsible for all management tasks, such as mapping and removing virtual CD drives, creating and cataloguing CD images and controlling behavior of virtual drives and discs.

Some features of the client version of the program can be disabled by the local network administrator. In this case the program will warn a user with the message: "**Administrator switched this function off**". The administrator can on the disabled features using the program settings.

3.1 Layout of the main window



The main window of CD-ROM Emulator Manager includes several standard sections purposed for different tasks:

1. Main menu
2. Main toolbar
3. Utilities toolbar (Outlook-like toolbar)
4. CD Database Explorer
5. Track Player
6. Status bar

3.1.1 Main menu

The Main menu is located on the top of the main window.

The Main menu is intended for providing the unified access to all the program's functionality. All menu items and provided functionality are described in the chapter named Menus.

3.1.2 Main toolbar

The Main toolbar is located in the upper part of the main window.

The Main toolbar is intended for providing the fast access to frequently used operations over workable objects (CD and DVD drives, CD images etc.).

The contents of the Main toolbar are sensitive to the kind of selected objects. Toolbar's buttons become disabled, in case of referenced functions are inapplicable to a selected object. If the mouse cursor was located over a toolbar's button, the Status bar displays a brief prompt about function that is activated by this button.

Functionality of Main toolbar's buttons:

Button	Provided Functionality	Availability (available for …)
 Insert	Close tray of the CD drive ("insert disc")	Only Physical CD/DVD drives

 Eject	Open tray of the CD drive ("eject disc")	Both Physical and Virtual CD/DVD drives
 Search	Run the Find Wizard for searching CD images that are not registered in the *Collection of CD images*	Always available
 Add	Add manually an existing unregistered CD image to the Collection of CD images	Folders / subfolders of any level
 Delete	Delete the selected virtual CD from the Collection of CD images	Virtual CDs (that are listed in the Collection of CD images)
 New Folder	Create a new subfolder in the Collection of CD images	Folders / subfolders of any level
 Up	Move to upper level folder	Subfolders only (not allowed for the top level folders)
 Exit	Exit the CD-ROM Emulator Manager	Always available
 Help	Run the online help system	Always available

3.1.3 Utilities toolbar

The Utilities toolbar is located on the left of the main window.

The Utilities toolbar is intended for fast running CD-ROM Emulator's Wizards, which provide all the functionality of creating and managing virtual CD drives and virtual CDs.

The Utilities toolbar contains two tabs named "**Wizards**" and "**Devices**".

Wizards	**Provided Functionality**
 Grab Wizard	Starts the Grab Wizard. The Grab Wizard creates new virtual CDs from real ones.
 Burn Wizard	Starts the Burn Wizard The Burn Wizard allows making physical CD/DVD discs from virtual ones.
 Construct Wizard	Starts the Construct Wizard. The Construct Wizard allows creating virtual CDs from arbitrary files.
 Erase Wizard	Starts the Erase Wizard. The Erase Wizard erases contents of rewritable media to make them being writable again.
 Find Wizard	Starts the Find Wizard. The find Wizard searches CD images and adds them to the *Collection of CD images*.
Devices	
 Drive Manager	Starts the Drive Manager The Drive Manager allows mapping and removing virtual CD drives in the system.

3.1.4 CD Database Explorer

The CD Database Explorer is located on the right of the main window.

The CD Database Explorer is intended for organizing and displaying contents of the *Collection of CD images* in hierarchic form and quick managing virtual CD drives and physical CD/DVD devices.

In the *Collection of CD images*, all virtual CDs are sorted in multiple *categories*, which are displayed as "*collection folders*". A user is allowed manipulating CD images listed in the Collection of CD images:

- arbitrarily move virtual CDs between folders (i.e. categories)
- create new folders (i.e. categories) and subfolders (subcategories)
- rename folders (with the exception of default ones)
- rename virtual CDs
- delete folders (with the exception of default ones)

The special category (folder) named "**CD/DVD Overview**" provides the throughout list of all virtual CDs in the Collection, generally for the fast searching "lost" virtual CDs. Within this category, no sub-categories can be created and no virtual CDs can be moved in.

3.1.4.1 Shared Folder

Every CD-ROM 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 the adding of shortcuts, the network version of CD-ROM 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 with the program settings. 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-ROM Emulator dynamically scans the contents of the directory with the shared images creating their shortcuts. 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-ROM Emulator clients and will automatically appear as a shortcut.

CD images in the directory with shared images can 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-ROM emulator clients can create new shared CD images.

Any CD-ROM 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 which 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 be done by the client/administrator in which this shared image is shown as a static (not shared) image.

(!) Please note: Subfolders created in the Shared folder may have their access limitations those are defined by the Administrator. So contents of the Shared folder may change depending on that which user accesses it exactly. This feature helps the Administrator to pursue a flexible policy of network resources sharing.

3.1.5 Track Player

The Track Player appears at the lower right of the main window, if a virtual CD was selected in the Collection of CD images.

The Track Player is intended for quick playing audio tracks. When a user selects a virtual CD (i.e. CD image) in the *Collection of CD images*, the Track Player appears on the screen. It displays properties of all tracks of the selected CD image and allows playing audio tracks, without inserting the virtual CD to a virtual CD drive.

3.1.6 Status bar

The Status bar is located on the bottom of the main window.

The Status bar is intended for displaying prompts and brief information about status of performed operations. It does not provide any other functionality.

3.2 The Program Menus

This chapter reviews the functionality available via program's menus:

- Main menu
- Context menu for physical CD/DVD drives
- Context menu for virtual CD/DVD drives
- Context menu for virtual CDs
- Context menu for categories in the Collection of CD Images

3.2.1 Main Menu

File	
New	
Folder	Create a new subfolder in this folder Available only in case of some folder was selected in the Manager's window
Image	
Grab...	Run the Grab Wizard that allows creating CD images from physical CD/DVD discs
Constructor...	Run the Construct Wizard that allows creating CD images from arbitrarily selected files
Add Image	Manually include a CD image, which is not listed in the Collection, to this folder Note that this item does not activate the Find Wizard.
Delete	Remove the image from the Collection (with the ability of deletion image files from disk)
Rename	Change a label of the virtual CD, which represents the virtual CD disc in the Collection.
Change Icon	Change a pictogram that represents the virtual CD in the Collection.
Image properties	Display & edit properties of the selected CD image
Exit	Exit the *CD-ROM Emulator Manager*. This action does not remove virtual CD devices.
Drive	
Explore	Browse contents of a CD by the standard Windows Explorer tool. Available only in case of a CD is inserted in the drive.
Eject	Eject a CD from the selected CD drive.
Add drive	Run the Drive Manager in order to add/manage virtual CD drives. Available only for virtual CD drives
Remove drive	Remove the virtual CD drive from the system (and unmap the drive letter) Available only for virtual CD drives
Drive properties	Display properties of the selected physical CD drive Display & edit properties of the selected virtual CD drive
View	
Utilities Bar	Show the Utilities Bar at the left of the CD-ROM Emulator Manager's window
Toolbar	Show the Toolbar at the upper of the CD-ROM Emulator Manager's window
Status bar	Show the Toolbar at the bottom of the CD-ROM Emulator Manager's window
Big Icons	Use big pictograms for folders and virtual CDs in the Collection of CD Images
Small Icons	Use small pictograms for folders and virtual CDs in the Collection of CD Images
List	List contents of Collection categories (one item per line)
Refresh	Re-scan and display the contents the Collection of CD Images
Tools	
Burn...	Run the Burn Wizard that allows burning CD images to physical recordable CD & DVD
Erase...	Run the Erase Wizard that allows returning rewritable CD/DVD discs to the writable state
Find...	Run the Find Wizard that allows searching CD images not listed in the Collection.
Settings...	Display & edit general settings of the CD-ROM Emulator Manager.
FreeDB	
Enable FreeDB	Allows using FreeDB database to distinguish CD titles for Audio CDs being grabbed
Proxy Settings…	Set both the FreeDB account and the proxy server settings
Help	
Help topics	Display Help contents
About…	Display the "About the Program" dialog

3.2.2 Physical CD/DVD drive context menu

Explore	Browse contents of a CD by the standard Windows Explorer tool. Available only in case of a CD is inserted in the drive.
Insert	Close the tray of the physical CD drive. Makes nothing in case of the tray is already closed
Eject	Eject a CD from the CD drive. Available only in case of a virtual CD is inserted in the drive.
Grab	Make the CD image from the physical CD and add it to the *Collection of CD Images*.

	Available only in case of a CD is inserted in the drive.
CD/DVD drive properties	Display properties of the selected physical CD drive

3.2.3 Virtual CD drive context menu

Explore	Browse contents of a virtual CD by the standard Windows Explorer tool. Available only in case of a virtual CD is inserted in the drive.
Eject	Eject a virtual CD from the virtual CD drive. Available only in case of a virtual CD is inserted in the drive.
Remove Drive	Remove this virtual CD drive from the system (and unmap the drive letter)
CD/DVD drive properties	Display & edit properties of the selected virtual CD drive

3.2.4 Virtual CD context menu

Insert	Insert this virtual CD in a virtual CD drive. In case of some drive was assigned in the *Image properties*, the virtual CD disc is inserted in the predefined virtual drive. Otherwise, the program suggests choosing a targeted drive.
Rename	Change a label of the virtual CD, which represents the virtual CD disc in the Collection.
Change Icon	Change a pictogram that represents the virtual CD in the Collection.
Delete	Remove the image from the Collection (with the ability of deletion image files from disk)
Image properties	Display & edit properties of the selected CD image.

3.2.5 CD folder context menu

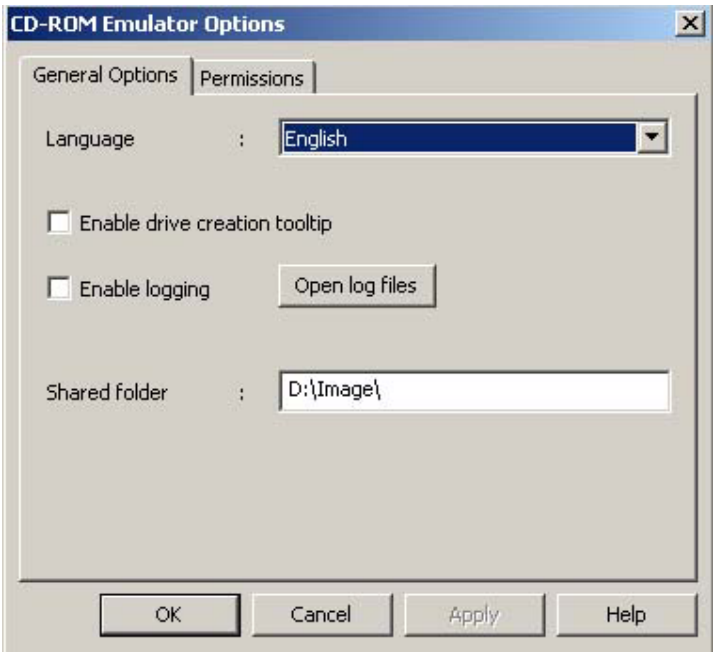
Add Image	Manually include a CD image, which is not listed in the Collection, to this folder Note that this item does not activate the Find Wizard.
Delete	Remove an image from the Collection (with the ability of deletion image files from disk)
New Folder	Create a new subfolder in this folder
Rename	Rename this folder

4 Settings

The CD-ROM Emulator Manager allows controlling properties and settings for following objects:

- The CD-ROM Emulator Manager
- Virtual CDs (i.e. CD Images that are listed in the Collection of CD Images)
- Virtual CD drives
- FreeDB connection & registration

4.1 CD-ROM Emulator settings



The "**CD-ROM Emulator options**" dialog allows controlling most general settings of the CD-ROM Emulator. The dialog is available through the main menu:

Tools > Settings…

The settings window has two tabs – accordingly for *General Options* and for *Permissions* settings.

4.1.1.1 General Settings

This settings page allows any user to define some important options of the program.

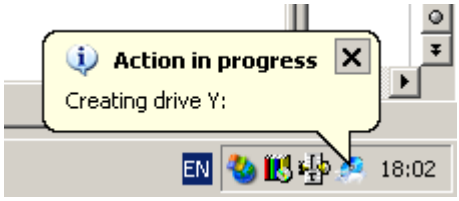
Language

This pull-down list allows choosing an interface language for the CD-ROM Emulator Manager.

Reloadable language resources are located in LangXXXX.DLL files that are located in the CD-ROM Emulator installation directory. These files are distributed through the company's download site.

Enable drive creation tooltip

If this option is turned ON, the program displays the notification balloon when creating a new virtual CD drive:



The operation of a new virtual CD drive creation may take several seconds in Windows 2000 and XP. During this process, this drive cannot be used.

Enable logging

If this option is turned ON, the program keeps log files during all the working session.

The program saves exhaustive information about working of all components of the CD-ROM Emulator, user actions and errors that appear during the session. Log files can be very useful for the program's debugging.

CD-ROM Emulator holds following log files: **CDDVDMan.log** and **Tray.log**. The program always appends these files so that they can have large size.

Use this option is the following manner: in case of you meet some problems in using the CD-ROM Emulator, turn on the LOG mode and repeat the erroneous operation. Then pick up CDDVDMan.log and Tray.log files, attach to the support request mail and send them to the company's Support Team.

Shared Folder

Shared folder is a folder on the file server of the local network where CD images are stored for common use. Any registered user can work with images placed in the Shared folder. If you are not know where the location of the folder is then please contact the local network administrator and type the path to the shared folder in this textual field. For more information concern the shared folder usage read the corresponding chapter Shared Folder of this document.

4.1.1.2 Permissions Settings

These settings allow the administrator to define permissions of the program features usage for every registered user. Taking into account the importance of these settings the access to this page is protected with the password.

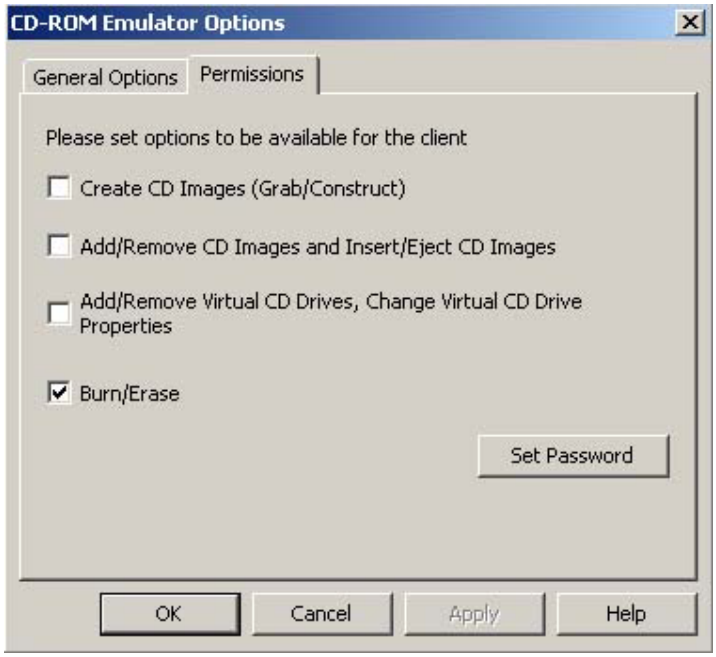
By clicking on the tab a user starts the form for entering of the administrator password:

A user should type the password and then click on the OK button.

The represented here options allow restricting the functionality of the client application and defining rights to:

- create CD images (Grab/Construct function);
- add and remove CD images;
- insert and eject CD images;

- add, remove Virtual CD Drives and also change Virtual CD Drive Properties;
- burn and erase CD images with a physical CD/DVD burner device.

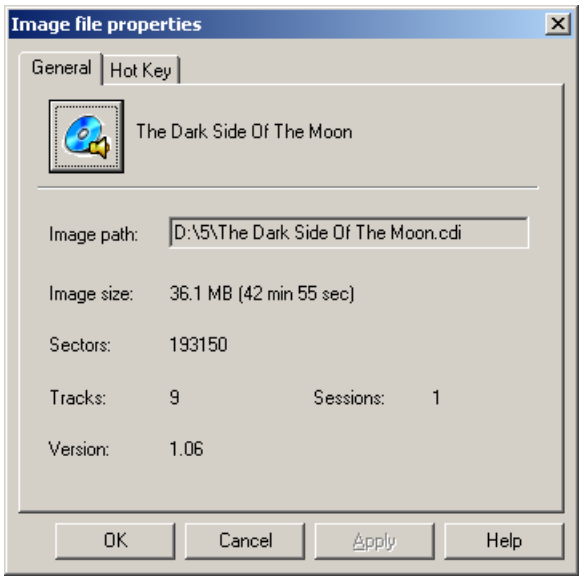


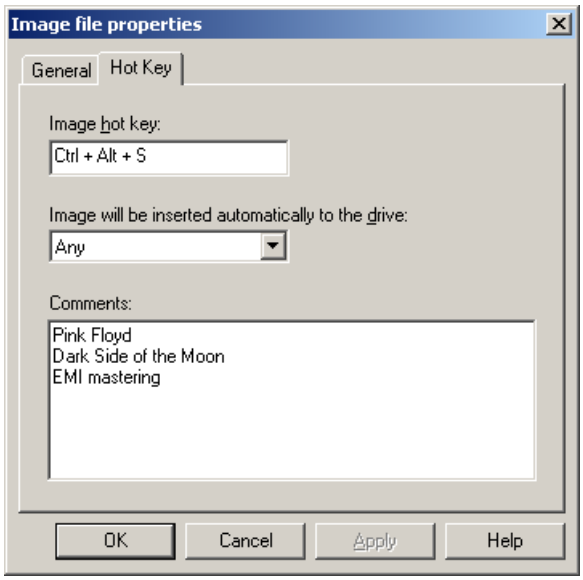
To set a permission of some option usage the administrator should just mark a corresponding to this option checkmark. By default, all these functions are disabled for any client.

To change the password click on the **Set Password** button. The administrator should enter new password into a textual field appeared form **Set administrator password** and confirm the password at the field below.

(!) Please note: The Permission settings are different for different users of a computer (workstation). When you change these options, you change them for the currently logged in user. The administrator password is also unique for each client application.

4.2 Image settings





The "**Image file properties**" dialog allows controlling behavior settings of CD images. The dialog is available through the popup menu for virtual CDs listed in the *Collection of CD images*.

The dialog contains two tabs: the "**General**" and "**Hot Key**" ones. The "**General**" tab just displays general information about the selected CD image such as *image filename* and location, *image size* (in MB and "playing time"), amount of tracks, sessions and sectors. The "**Hot Key**" tab partially duplicates functionality of the Image Usability screen of the Grab Wizard (see the section Screen 5: Image Usability options).

Generally, CD-ROM Emulator supports the feature of the *fast image insertion*. When a user presses the *hot key*, the program automatically inserts the virtual CD in the virtual CD drive.

4.2.1.1 Image hot key

This field allows defining the so-called *hot key* or *fast access key*, for the *fast image insertion*.

To define the hot key:

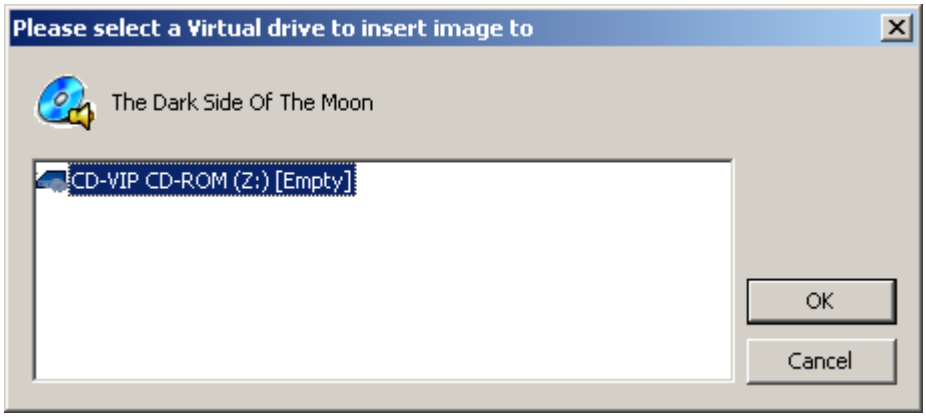
1. Place the cursor into this filed.
2. Press a desired key on the keyboard. The program will display the "Ctrl+Alt+{key}" combination in the filed.

CD-ROM Emulator allows using CTRL+ALT+{KEY}, {Fnn}, {Ctrl / Alt / Shift} + {Fnn} keyboard combinations as hot keys.

4.2.1.2 Image will be inserted automatically to the drive:

This pull-down list allows choosing a virtual CD drive where the selected virtual CD will be inserted.

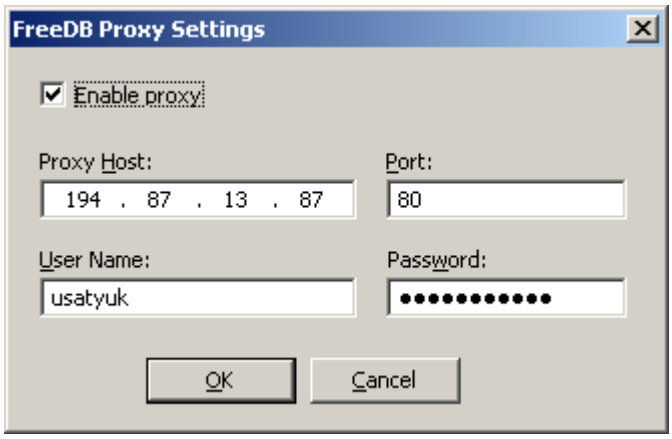
If a user selects the special value "**Any**" in this list, the program will ask the virtual CD drive to be used every time a user presses the hot key:



4.2.1.3 Comments

The "**Comments**" textual field allows assigning a popup hint text to the new image. This hint appears in case of moving the mouse cursor over the image.

4.3 FreeDB settings



The "**FreeDB Proxy Settings**" dialog allows tuning settings for the connection to the FreeDB online database. The CD-ROM Emulator can use these settings when grabbing Audio CDs for downloading CD titles from the FreeDB database.

This dialog is available through the main menu:

FreeDB > Proxy Settings…

4.3.1.1 Enable proxy

Set this option in order to enable using proxy.

Proxy servers cache information from the Internet, and using of proxy servers can potentially increase the speed of a connection to the Internet.

4.3.1.2 Proxy Host

Enter the IP address of a used proxy server.

The IP address is represented as the tetrad (of integer numbers, each ranged between 0 and 255). This value can be received:

- From the network administrator of your local network
- From the Internet Service Provider
- From lists of Public Proxy Servers (e.g. http://www.publicproxyservers.com/)

4.3.1.3 Port

Assign the *port number* parameter for the used proxy server in this field.

The "port number" is the important parameter of a connection; it actually identifies a remote service being requested. For proxy service, usually "80", "8080" and "3128" values are in use.

4.3.1.4 User Name

In this field, the *user account* registered in the FreeDB should be entered.

To use the FreeDB service, one should register in the FreeDB (see the next section).

4.3.1.5 Password

In this field, the password to the *user account* in the FreeDB should be entered.

This password can be received at the registration in the FreeDB (see the next section).

4.3.2 Using FreeDB service

The FreeDB is a database to look up CD information using the Internet. A FreeDB client uses a disc ID for retrieving information from the CD database: the artist, CD-title, track list and some additional info.

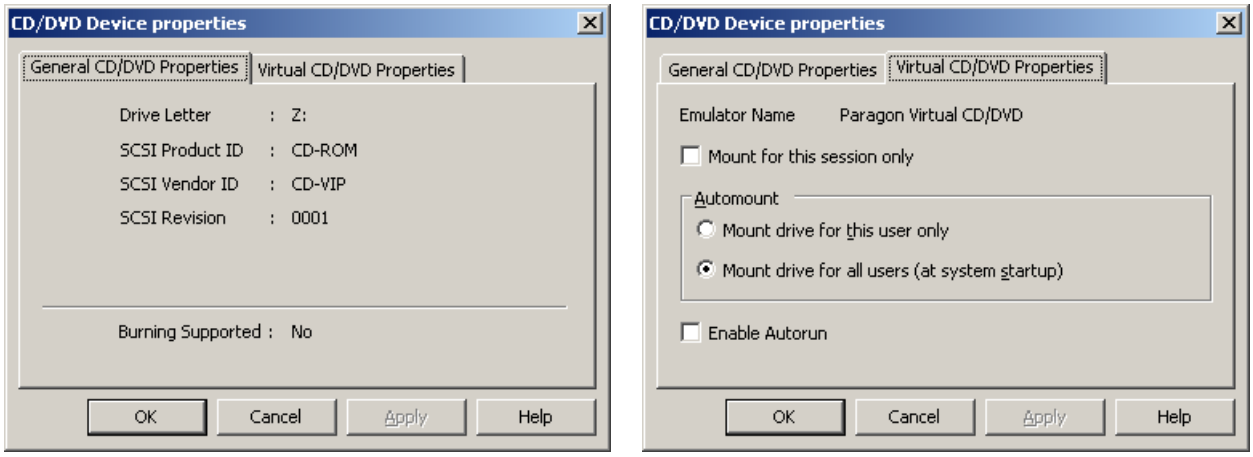
CD-ROM Emulator allows using FreeDB service for retrieving CD-title information for grabbed Audio CDs. To use this service, one should pass the free registration on the FreeDB site, http://www.freedb.org/:

1. Run the web browser and go to the FreeDB website http://www.freedb.org/
2. On the first page, click the "**Your Account**" link (left side of the screen, bottom the **main menu** section), or enter the following address in the Address bar: http://www.freedb.org/modules.php?name=Your_Account

3. On the Registration Screen, click the "**New User Registration**" link,
   or enter the following address in the Address bar:
   http://www.freedb.org/modules.php?name=Your_Account&op=new_user
4. Fill in the *user registration form* on this page and press the "**New User**" button below this form. One of the most important parameters of the registration is the *user email*. FreeDB will send the *user password* to this address.
5. Receive the password to the user account from the FreeDB.
6. Run the CD-ROM Emulator Manager and enter the FreeDB registration to the FreeDB settings, as described in the above sections.

After completing these actions, the CD-ROM Emulator can automatically access to the FreeDB database in order to retrieve CD titles.

4.4 Virtual CD drive settings



The "**CD/DVD Device properties**" dialog allows defining the behavior options for virtual CD drives. This dialog is available through the popup menu for virtual CD drives.

The "**CD/DVD Device properties**" window contains two tabs. The first one named "**General CD/DVD Properties**" includes only information about **drive letter** assigned, the **Vendor ID** and the **Product ID**. The second tab that is named "**Virtual CD/DVD Properties**" includes options that affect on the virtual CD drive behavior.

4.4.1.1 Mount for this session only

If the option was set, CD-ROM Emulator automatically removes this virtual CD drive at the end of Windows session.

By default, the program creates virtual CD drives for a "permanent" use.

4.4.1.2 Mount drive for this user only

If this choice was selected, the selected virtual CD drive:

- is available for the user who creates this drive, but not for other users (until they create the drive by self).
- appears in the system only after the user logs on to the system.

4.4.1.3 Mount drive for all users (at system startup)

If this choice was selected, the selected virtual CD drive:

- is available for all users, until someone removes it,
- appears in the system after the starting the CD-ROM Emulator service.

(!) Please note: Only members of the "Administrators" user group in Windows can create and remove virtual drives "for all users".

4.4.1.4 Enable Autorun

This option switches ON/OFF the *Autoplay* feature that is supported by Windows.

If this option was turned ON, the system automatically starts playing contents of a virtual CD disc as it is inserted to a virtual CD drive.

(!) Please note: The feature requires rebooting the system in order to come into effect.

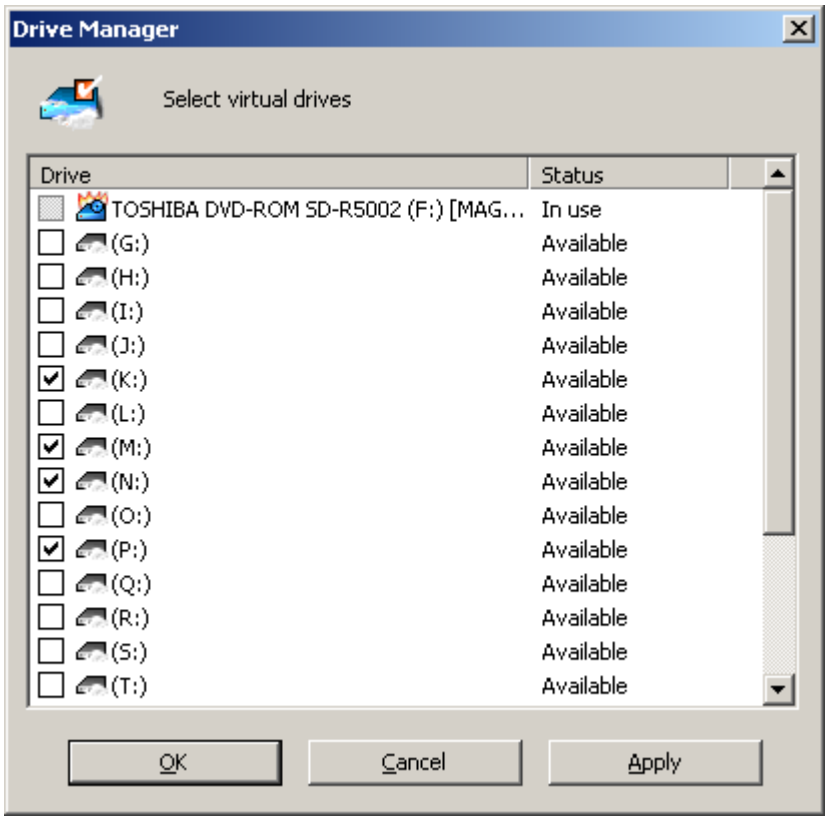
5 Working with the program

The CD-ROM Emulator Manager includes following components:

- Drive Manager
  The Drive Manager is intended for adding/removing *virtual CD drives* to the system.
- Grab Wizard
  The Grab Wizard is intended for *making* CD images from physical CD and DVD discs.
- Burn Wizard
  The Burn Wizard is intended for *writing* contents of ISO images to recordable CD and DVD discs.
- Construct Wizard
  The Construct Wizard is intended for *building* virtual CDs from files located on a hard disk(s).
- Erase Wizard
  The Erase Wizard is intended for *erasing* rewritable media.
- Find Wizard
  The Find Wizard is intended for *searching* CD images, which are not listed in the *Collection of CD images*.
- CD Database Explorer
  The CD Database Explorer is intended for *organizing* virtual CDs.

(!) Please note: some wizards and corresponding to them functions can be disabled by the local network administrator. In this case a user attempts to start using such function will be accompanied by a warning message.

5.1 Drive Manager



The Drive Manager is intended for adding/removing virtual CD drives to the system.

Virtual CD drives of CD-ROM Emulator can play virtual CD discs of ISO, CCD and CDI formats.

5.1.1 Using Drive Manager

Use the Drive Manager in the following manner:

1. Start the Drive Manager.
   The Drive Manager lists all drive letters that can be used or are already used by virtual CD drives.
2. To add a new virtual CD drive, just set a checkmark against a required drive letter.
   Multiple drives can be added per a single Drive Manager's session.
3. To remove an existing virtual CD drive, just remove a checkmark against an appropriate drive letter.

4. Changes in virtual CD drives distribution will come into effect after pressing "**Apply**" or "**OK**" buttons.

5.1.2 Defining properties of a virtual CD drive

CD-ROM Emulator provides the ability of setting behavior options for each virtual CD drive independently.

Use the following procedure to set properties of a virtual CD drive:

1. Select an existing virtual CD drive in the *CD-ROM Emulator Manager*.
2. Call the popup menu for the selected virtual CD drive (by clicking the right mouse button).
3. Select the item "**CD/DVD drive properties**".

The detailed description of virtual CD drive properties is provided in the section Virtual CD drive settings. Below, a brief description is provided.

The "**CD/DVD Device properties**" window contains two tabs. The first one named "**General CD/DVD Properties**" includes only information about drive letter assigned, the Vendor ID and the Product ID.

The second tab that is named "**Virtual CD/DVD Properties**" includes options that affect on the virtual CD drive behavior.

Mount for this session only

If the option was set, CD-ROM Emulator automatically removes this virtual CD drive at the end of Windows session. By default, the program creates virtual CD drives for a "permanent" use.

Mount drive for this user only

If this choice was selected, the selected virtual CD drive is available for the user who creates this drive only, but not for others. It appears in the system only after the user logs on to the system.

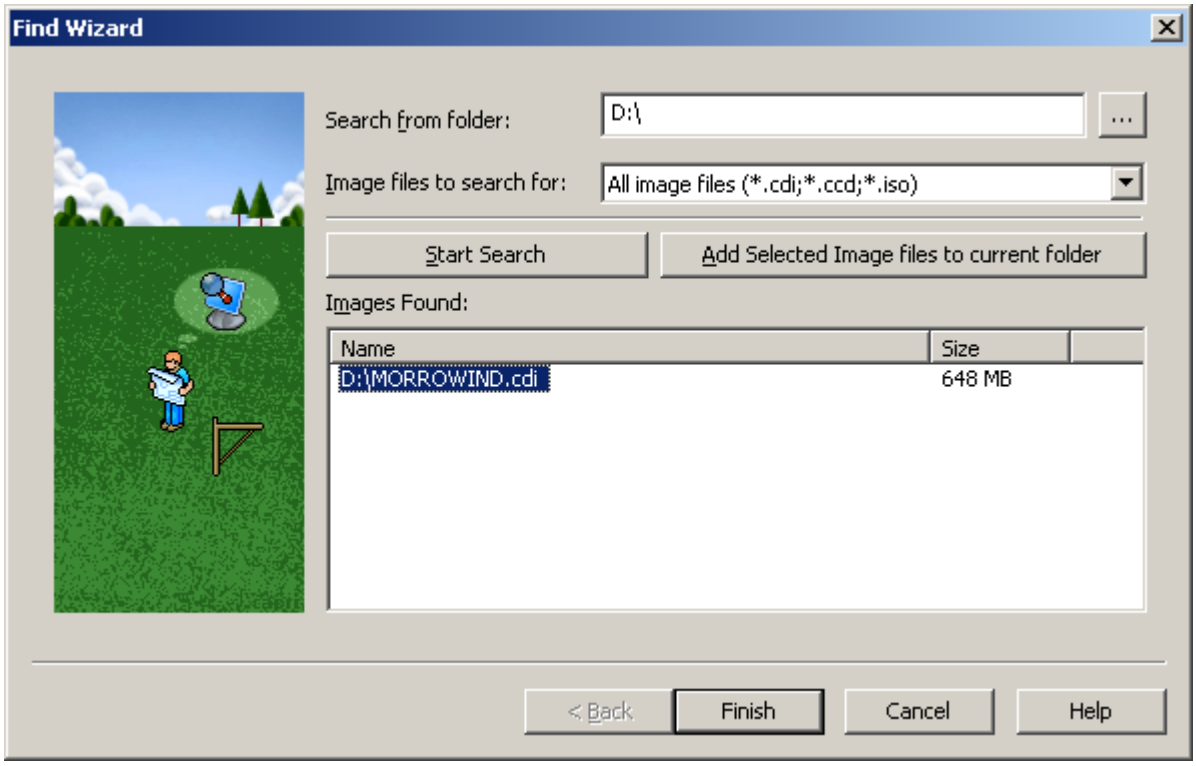
Mount drive for all users (at system startup)

If this choice was selected, the selected virtual CD drive is available for all users. It appears in the system after the starting the CD-ROM Emulator service. This feature is available for members of the "Administrators" group only.

Enable Autorun

This option switches ON/OFF the *Autoplay* feature that is supported by Windows. The feature requires rebooting the system in order to come into effect.

5.2 Find Wizard



The Find Wizard is intended for searching CD images, which are not listed in the *Collection of CD images*, on local hard disks and also on the local network disks.

The program recognizes CD images of following formats:

- ISO (generic CD images in ISO 9660 compliant format).
- CCD (images in CloneCD format).
- CDI (images in CD-ROM Emulator format).

Found images can be selectively included to the Collection of CD images.

5.2.1 Using Find Wizard

Use the Find Wizard in the following manner:

1. Start the Find Wizard.
2. Choose the type of images to be searched, in the pull-down list named "**Image files to search for**". Available options: ISO, CCD, CDI or all of them.
3. Select a top-level directory or a disk to be scanned, in the field named "**Search from folder**". The Find Wizard will scan this directory and all of its subfolders.
4. Press the "**Start search**" button to begin searching images.
5. The program will display found images in the list labeled "**Images found**".
6. One can stop scanning before the process ends, by pressing the "**Stop**" button located on the bottom of the window.
7. Select explicitly images that should be included to the database.
8. Then press the button "**Add selected images to current folder**".

The program will insert selected images to the *Root Folder* of the *Collection of CD images*. Duplicates will be ignored.

5.2.2 Dialog description

5.2.2.1 Search from folder

This field contains the name of the scanned directory. The program will search files in the directory and all of its subdirectories. The button on the right (...) allows selecting the required directory in the explorer-like window.

5.2.2.2 Image files to search for

This pull-down list allows specifying the type of files to be searched. Available values:

- *.ISO files, (generic CD images in ISO 9660 compliant format).
- *.CCD files, (images in CloneCD format).
- *.CDI files, (images in CD-ROM Emulator format).

5.2.2.3 Start search

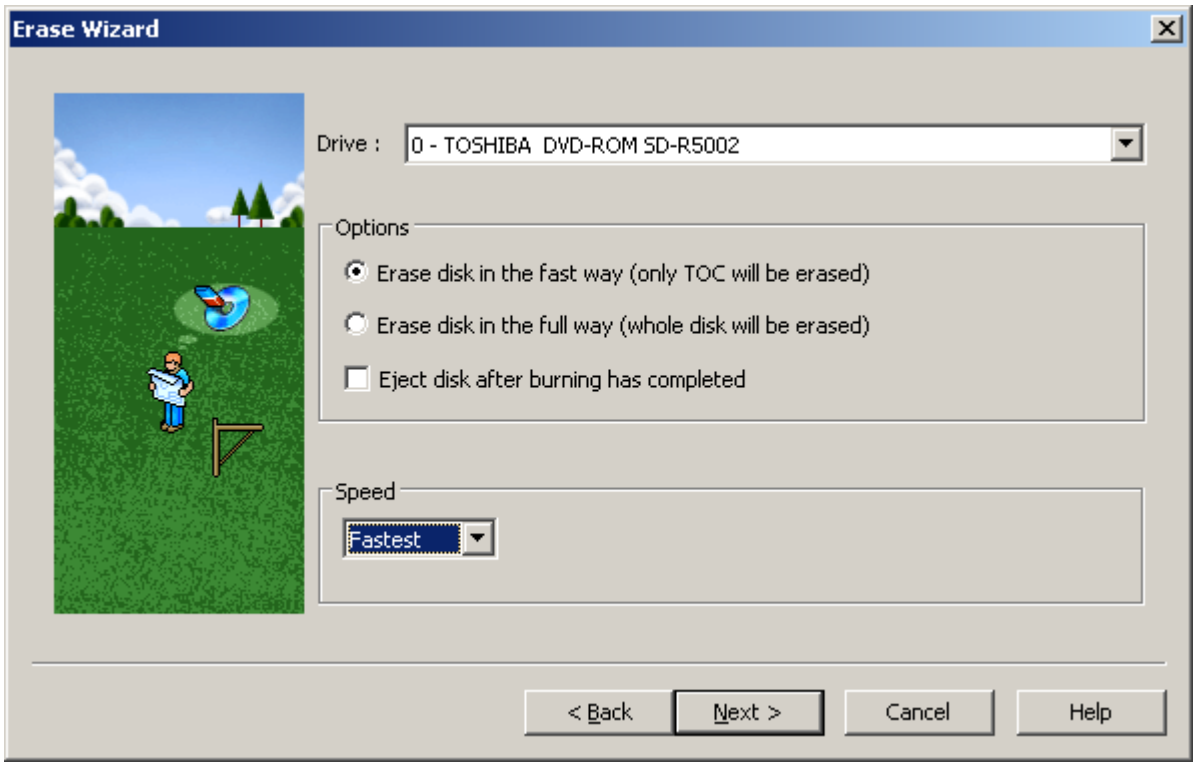
Start the searching procedure.

5.2.2.4 Add selected images to current folder

Adds found images to the *Collection of CD images* in the main window of the CD-ROM Emulator Manager. Images are added to the *root folder*, and duplicates are omitted.

(!) Please note: A user must explicitly select images to add.

5.3 Erase Wizard



The Erase Wizard is intended for *erasing* non-empty rewritable media.

Erasing is required for non-empty media to be writable again, writing to non-empty media is not allowed. The program can erase any type of rewritable media supported by CD/DVD recording hardware installed on the computer.

Rewritable media types: CD-RW, DVD-RW, DVD+RW and DVD-RAM.

5.3.1 Using Erase Wizard

Use the Erase Wizard in the following manner:

1. Insert a rewritable disc to the CD/DVD recordable drive.
2. Start the Erase Wizard.
3. In the "**Drive**" pull-down list, select the drive in use.
4. In the section named "**Options**", select the *erasing method* (**fast** or **full** method).
5. If required, set the option "**Eject disk after burning has completed**".
   If this option is selected, the program will eject media after completing the erasing procedure.
6. Additionally, you can specify the *writing speed* for the erasing process, in the pull-down list named "**Speed**".
   In this list, the program displays all admittable values for this parameter. By default, the "**Fastest**" speed is selected. However, it can be inappropriate in case of using worn-out discs; in this case, the speed should be decelerated.
7. Press the "**Next**" button to start the erasing process. The program will display the progress of the operation.

5.3.2 Dialog description

5.3.2.1 Drive

This pull-down list displays all CD/DVD recordable physical drives, which are available in the system.

(!) Please note: The user should choose the drive that is actually in use.

5.3.2.2 Erase disc in the fast way (only TOC will be erased)

If this choice was selected, the program erases only the TOC (and PMA) of a rewritable disc.

Contents erasing is required for over-writing information on rewritable CD/DVD media, it is not applicable for WORM (Write-Once Recordable Media) such as CD-R, DVD-R and DVD+R discs.

The *erasing* itself means filling data/audio and subcodes with zeroes (the so-called *Logical Erase*). The *fast erasing* method assumes erasing only the TOC and PMA (Table Of Contents and Program Memory Area, a temporal TOC for un-closed session) of a disc, this procedure is relatively fast and takes just a few minutes.

In fact, the fast erasing produces good results only for well qualitative equipment and "unworn" media. In case of using "worn-out" media, write errors may accumulate on the disc. The *full erase* method allows elongating slightly the lifetime of an intensively used rewritable disc.

5.3.2.3 Erase disc in the full way (whole disc will be erased)

If this choice was selected, the program erases entire contents of a rewritable disc.

Contents erasing is required for over-writing information on rewritable CD/DVD media, it is not applicable for WORM (Write-Once Recordable Media) such as CD-R, DVD-R and DVD+R discs.

The *erasing* itself means filling data/audio and subcodes with zeroes (the so-called *Logical Erase*). The *full erasing* method assumes erasing all logical information on a disc (TOC and data of all sessions and tracks). This procedure is slow and takes dozens of minutes.

In most cases, the *fast erasing* can be used instead of the full erasing. The only advantage of the *full erase* method is that it allows elongating slightly the lifetime of an intensively used rewritable disc.

5.3.2.4 Eject disc after burning has completed

If this option was turned ON, the program automatically ejects media after completing the erasing procedure.

Some early models of recordable CD drives require ejecting "just erased" media, otherwise they cannot continue working with it.

5.3.2.5 Speed

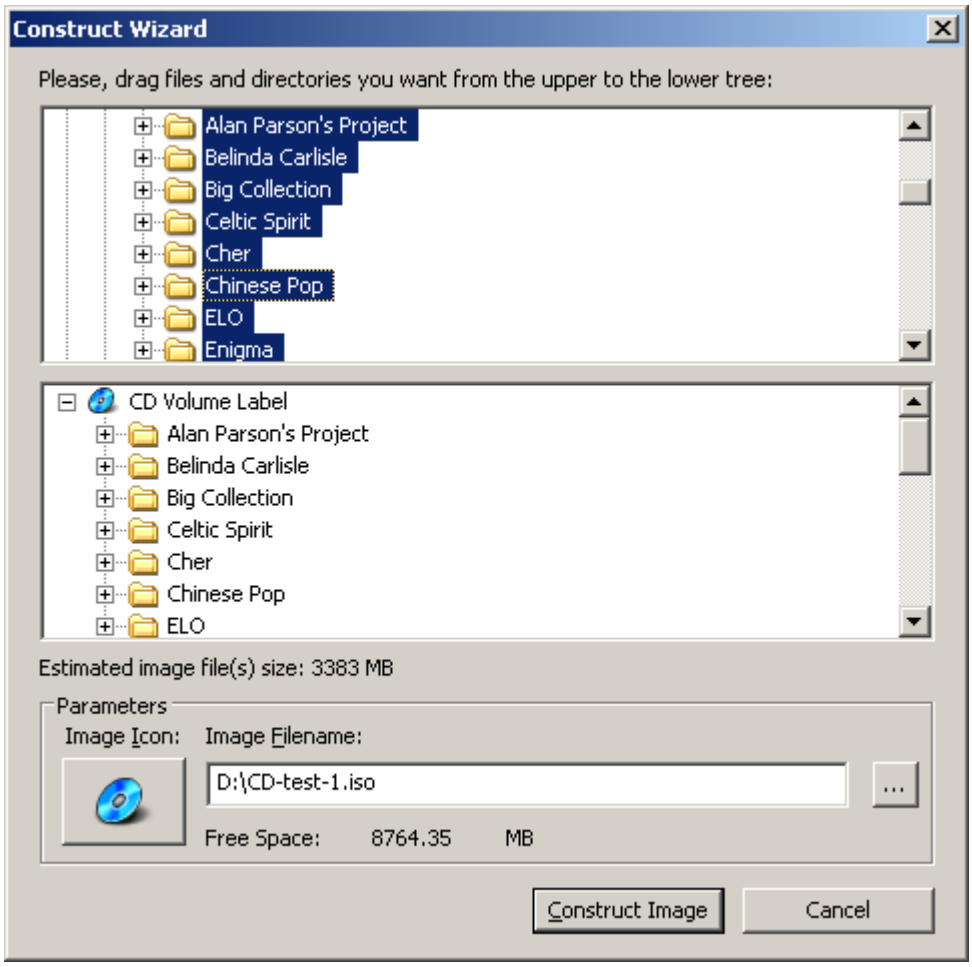
This pull-down list displays correct values of *erasing speed*.

In case media is already inserted to the selected recordable CD/DVD drive, the program displays speed values that are correct for both drive and rewritable disc. Otherwise, it displays all speed values supported by the selected drive.

The special item "**Fastest**" means automatically selecting the best acceptable speed value, with taking into account parameters of both drive and disc. The "**Fastest**" option is the default one.

In fact, the manual deceleration of erasing speed is sensible only in case of using worn-out or low-quality discs.

5.4 Construct Wizard



The Construct Wizard is intended for building virtual CDs from files located on a hard disk(s).

The Construct Wizard creates a valid ISO image from selected files, as if they were grabbed from a real CD or DVD. The ISO image meets CD-ROM XA and DVD-ROM specifications (file systems: ISO 9660+Joliet and UDF Bridge, respectively). The actually used format depends on the image size.

The ISO images can be used for:

- playing in virtual CD drives (as "data CDs").
- writing to recordable CDs and DVDs, by using the Burn Wizard of the CD-ROM Emulator or other CD/DVD burning software.

(!) Please note: *image compression* and *multivolume image* features are not supported for ISO images.

5.4.1 Using Construct Wizard

Use the Construct Wizard in the following manner:

1. Start the Construct Wizard.
2. Select required files and/or directories on the upper panel and move them to the lower panel, by using the *drag-&-drop* technique.
3. If required, re-organize and rename files and directories in the lower panel.
4. Select the filename for the new CD image, in the field named "**Image Filename**".
5. Optionally, change the icon for the new image, by clicking the pictured button, which is named "**Image Icon**".
6. Press the button named "**Construct Image**" for starting the process of image creation. The program will display the progress of the operation.

5.4.2 Dialog description

The Construct Wizard's dialog contains two panels:

5.4.2.1 (Upper panel)

The upper panel displays contents of local and network drives available in the system. Files and directories are displayed as the tree list. A user can expand tree nodes and select multiple files and directories.

5.4.2.2 (Lower panel)

The lower panel displays future contents of a CD image being under construction. A user should "drag-and-drop" selected files/directories to the lower panel.

In this panel, files and directories are displayed as the tree list, too. A user can re-organize files arbitrarily, rename files and directories or delete them.

5.4.2.3 Image Icon

Press this button in order to change an icon assigned to a newly created image. The program allows only loading icons from .ICO files.

5.4.2.4 Image Filename

This field contains the full filename and path to the newly created image. The button on the right (...) allows selecting the required file in the explorer-like window.

5.4.2.5 Estimated image file(s) size

This textual filed displays the future size of the just created image, in MB. When files are added or removed from the lower panel, the program recalculates this value.

(!) Please note: During the image creation, the program does not perform any validation checks of the image size.

5.4.2.6 Free space

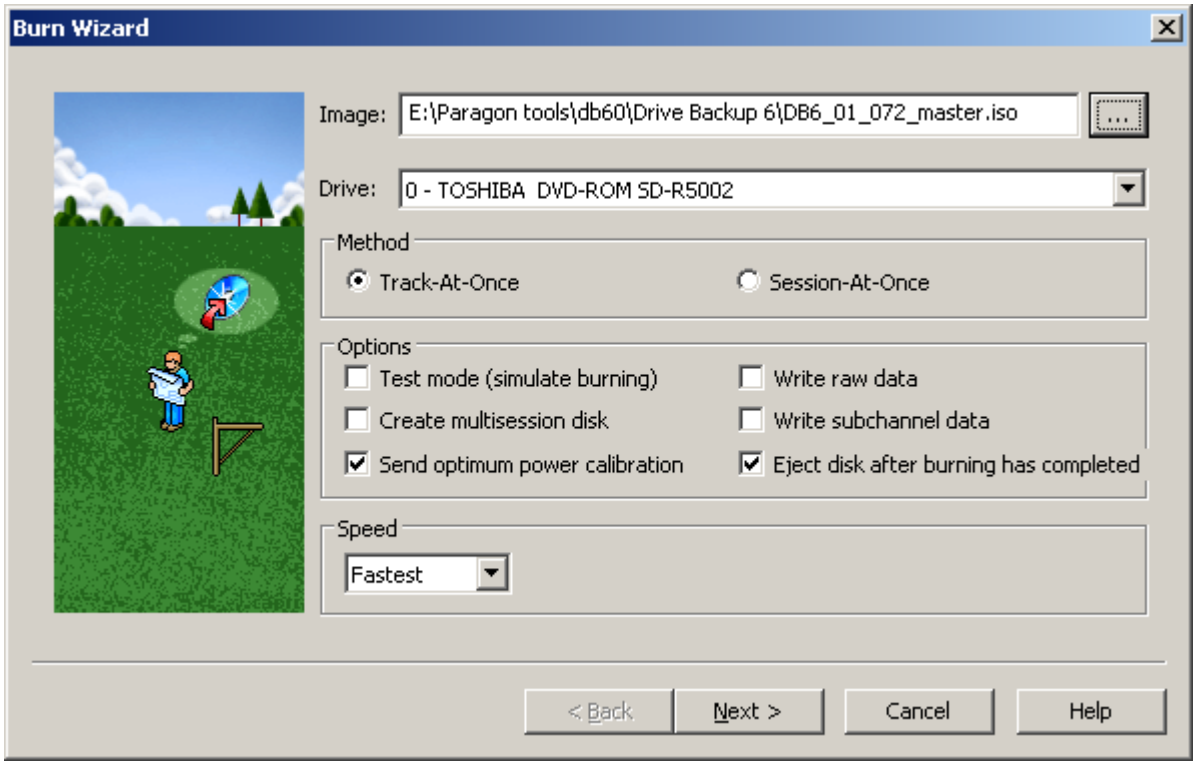
This textual filed displays amount of free space on a drive that is currently selected for storing the new image. This value allows to evaluate a possibility of creating an image on a currently drive.

5.4.2.7 Construct Image

If this button was pressed, the program starts the image creation process.

CD-ROM Emulator builds the ISO image and copies selected files and directories to it. The ISO image meets CD-ROM XA or DVD-ROM specifications. The actual image format depends on the resulting image size.

5.5 Burn Wizard



The Burn Wizard is intended for writing contents of ISO images to recordable CD and DVD discs.

The Burn Wizard accepts ISO 9660 images that meet CD-ROM XA or DVD-ROM specifications. Such images can be created by the CD-ROM Emulator's Construct Wizard or by other CD burning software.

5.5.1 Using Burn Wizard

Use the Burn Wizard in the following manner:

1. Insert media in a recordable CD or DVD drive.
   (!) Please note: the Burn Wizard can use only clear media (either pristine or erased ones).
2. Start the Burn Wizard.
3. Select the recordable drive to be used for writing, in the "**Drive**" pull-down list.
4. Choose an existing ISO image file to be written, in the filed named "**Image**". The button on the right (...) allows selecting the required file in the explorer-like window.
5. Set write options to appropriate values, in the section named "**Options**".
6. Set the "**Test mode**" option in order to make a generic data-copying test without the real writing to CD.
7. Set the "**Create Multisession disc**" option in order to make appendable CD-ROM disc (i.e. a disc that allows adding new data).
8. If required, set the option "**Eject disk after burning has completed**".
   If this option is selected, the program will eject media after completing the erasing procedure.
9. If required, specify the *writing method* (**Track-at-Once** or **Session-at-Once**).
10. Additionally, you can specify the *writing speed* for the erasing process, in the pull-down list named "**Speed**". In this list, the program displays all admittable values for this parameter. By default, the "**Fastest**" speed is selected. However, it can be inappropriate in case of using worn-out discs; in this case, the speed should be decelerated.
11. Press the "**Next**" button to start the erasing process. The program will display the progress of the operation.

5.5.2 Dialog description

5.5.2.1 Image

This field contains the full filename and path to the image to be written to CD/DVD disc. The button on the right (...) allows selecting the required file in the explorer-like window.

5.5.2.2 Drive

This pull-down list displays all CD/DVD recordable physical drives, which are available in the system.

(!) Please note: The user should choose the drive that is actually in use.

5.5.2.3 Track-at-Once

If this choice was selected, the program will use the so-called **Track-at-Once** writing method (*TAO*). The Track-at-Once mode is available for both Audio and Data CD/DVD.

In Track-at-Once recording, the recording laser is turned OFF after completing every track, and ON again when a next track should be written. Tracks are divided by so-called gaps, which are actually areas with undefined contents. By default, each gap between tracks is 2 seconds long (on Audio CD), which corresponds to 150 sectors (on CD-ROM).

Pro et contra of TAO mode:

\+ All models of recording CD/DVD drives support the Track-at-Once mode.
\+ Track-at-Once mode is allowed for *Multisession CDs*.
− There are non-maskable 2-second pauses between tracks on Audio CDs.
− Not applicable for *CD-Text* format.
− Some CD players cannot handle these gaps correctly and getting stuck.

5.5.2.4 Session-at-Once

If this choice was selected, the program will use:

- The **Disc-at-Once** writing method (*DAO*), in case of the single-session CD image is selected, and the option named "**Create Multisession disc**" is switched off.
- The **Session-at-Once** writing method (*SAO*), in other cases (Multisession image is used or the "**Multisession disc**" option is switched on).

In fact, the Session-at-Once is the extended version of the Disc-at-Once mode.

In both methods, all tracks (within a session/disc) are written without switching OFF the recording laser. The gap between tracks can be programmatically changed to any value.

In case of enabling the "**Multisession disc**" option, the disc is not closed (the *Lead-out* area is not written).

(!) Please note: In case of the recordable drive does not support Multisession CDs, the program automatically uses the Disc-at-Once method.

Pro et contra of SAO & DAO modes:

+ Disc-at-Once mode is applicable for *CD-Text* format.
+ Pauses between audio tracks can be arbitrarily changed (in both DAO and SAO modes)
+ All audio players support Disc-at-Once based discs.
+ Session-at-Once mode is allowed for *CD-Extra* format, which is usually applied to games.
− Disc-at-Once and Session-at-Once modes must be supported by hardware.
  In fact, only some older models do not support these modes.

5.5.2.5 Test mode (simulate burning)

If this option is switched ON, the CD-ROM Emulator *simulates* the burning process: the program sends data to a CD drive in a usual way, but the recording laser is underpowered, so that no real writing is performed.

This feature allows verifying that the system is capable providing the selected *write speed* through the whole procedure of writing, without wasting recordable discs.

5.5.2.6 Create Multisession disc

If this option was switched ON, the program creates the Multisession disc.

The disc is not closed, and further writing is possible.

(!) Please note: This option is ignored in case of the recordable drive does not support Multisession CDs. In fact, only old models of recordable drives do not support Multisession CDs.

5.5.2.7 Send optimum power calibration

If this option was switched ON, the program forces the CD drive performing the laser calibration before starting the writing process.

Modern recordable drives support the feature of the *Optimum Power Calibration* (OPC) for recordable laser, in order to make the writing process more reliable. On a blank recordable disc, a part of the Lead-in record is used for a test writing to determine the proper laser power for each recording session. This area is called *Power Calibration Area* (PCA).

The OPC is used to compensate negative effects due to deviation of environment characteristics (temperature, dust, transparency of a disc plastics etc). The OPC can be performed once per writing session.

(!) Please note: The option is ignored in case of the recordable drive does not support the OPC feature.

5.5.2.8 Write raw data

If this option was turned ON, the program is able writing *RAW data*, in case of this information presents in the selected CD image. This option requires supporting from the hardware side.

Information on CD-ROM and DVD-ROM discs consists of two different parts:

- The first part is "*usable data*", such as data files.
- The second part is "*servicing data*", which are purposed for keeping integrity of usable information.

Usable data are usually named "*cooked data*", while the composition of usable and servicing data is named *RAW data*.

Servicing data consist of EDC and ECC (*Error Detection Code* and *Error Correction Code*), which take approximately an eighth part of all information. This extra information allows detecting read errors and even compensates small-scale amounts of corrupted data.

Generally, servicing data must be generated from usable data by the algoristic rules. However, sometimes it is not the case, e.g. some copy protection schemes use non-standard contents of servicing data. CD-ROM Emulator is able duplicating correctly such customized servicing data, if they were saved in the CD image.

(!) Please note: The option is ignored in following cases:

- the recordable drive does not support the feature of RAW writing.
- the selected image contains only "cooked" data.

(!) Please note: the RAW writing mode is supported by most of modern CD drives and by almost all DVD drives, but most of older models do not.

5.5.2.9 Write subchannel data

If this option was turned ON, the program writes contents of P-W subcode channels in addition to RAW data, in case of this information presents in the selected CD image. It is of value only in case of the "**Write raw data**" option is activated. The mode of writing RAW data with P-W subchannels is also named "*RAW+SUB*" or "*RAW+96* ". This feature requires supporting from the hardware side.

The underlying format of CD sectors includes special data that are originally named "*subcode channels*". Subchannels are enumerated from "P" to "W" (of totally 8 subcode channels). Subchannels take 1 byte per *frame*, which constitute 96 bytes of subchannel data plus 2 bytes of subchannel parity per CD sector.

The CD specifications from the *Red Book* declare using P and Q subchannels for servicing purposes, in all CD formats, and additionally using R-W subchannels in *CD-Graphics* and *CD-Text* formats.

(!) Please note: The option is ignored in following cases:

- the "**Write raw data**" option is not turned ON.
- the recordable drive does not support the feature of "RAW+SUB" writing.
- the selected image does not contain subchannel data.

(!) Please note: the "RAW+SUB" writing mode is supported by modern CD drives only.

5.5.2.10 Eject disc after burning has completed

If this option was turned ON, the program automatically ejects media after completing the writing procedure.

5.5.2.11 Speed

This pull-down list displays correct values of *writing speed*.

In case media is already inserted to the selected recordable CD/DVD drive, the program displays speed values that are correct for both drive and rewritable disc. Otherwise, it displays all speed values supported by the selected drive.

The special item "**Fastest**" means automatically selecting the best acceptable speed value, with taking into account parameters of both drive and disc. The "**Fastest**" option is the default one.

In fact, the manual deceleration of writing speed is sensible only in case of using worn-out or low-quality discs.

5.6 Grab Wizard

The Grab Wizard is intended for making images (i.e. *virtual CDs*) from physical CD and DVD discs. Virtual CDs can be played in virtual drives of CD-ROM Emulator. Virtual CDs and virtual CD drives have many advantages in comparison with real ones (see the chapter named Introduction).

The function of making virtual CDs is commonly named "*grabbing*". Concerning to CD-ROM Emulator, it is one of the essential functions.

CD-ROM Emulator allows grabbing CD and DVD discs of the following formats:

- *CD-Audio* and derived formats (such as CD-Text, CD-Graphics).
- *CD-ROM*, CD-ROM XA and derived formats (such as CD-Extra, CD-i, Video CD etc).
- All *DVD* formats (DVD-ROM, DVD-Video, DVD-Audio).

The newly created CD images are automatically included to the *Collection of CD images*.

CD-ROM Emulator allows:

- Grabbing audio tracks into audio files.
  As a result, grabbed tracks can be played both as isolated audio files and as a part of a virtual Audio CD.
- Compressing contents of CD images.
  This feature allows making images of smaller size.
- Splitting CD images into multiple volumes.
  This feature allows getting around file size limitations that exist in FAT16 and FAT32 file systems. It can be very usable in case of making images of DVD discs.
- Saving extra information about the real CD format.
  This feature allows making workable images of various CD and DVD formats including copy protected ones.

Important!

This Software is not purposed for the illegal and unauthorized duplication of copyrighted materials. Unauthorized duplication of copyrighted material is liable to criminal prosecution.

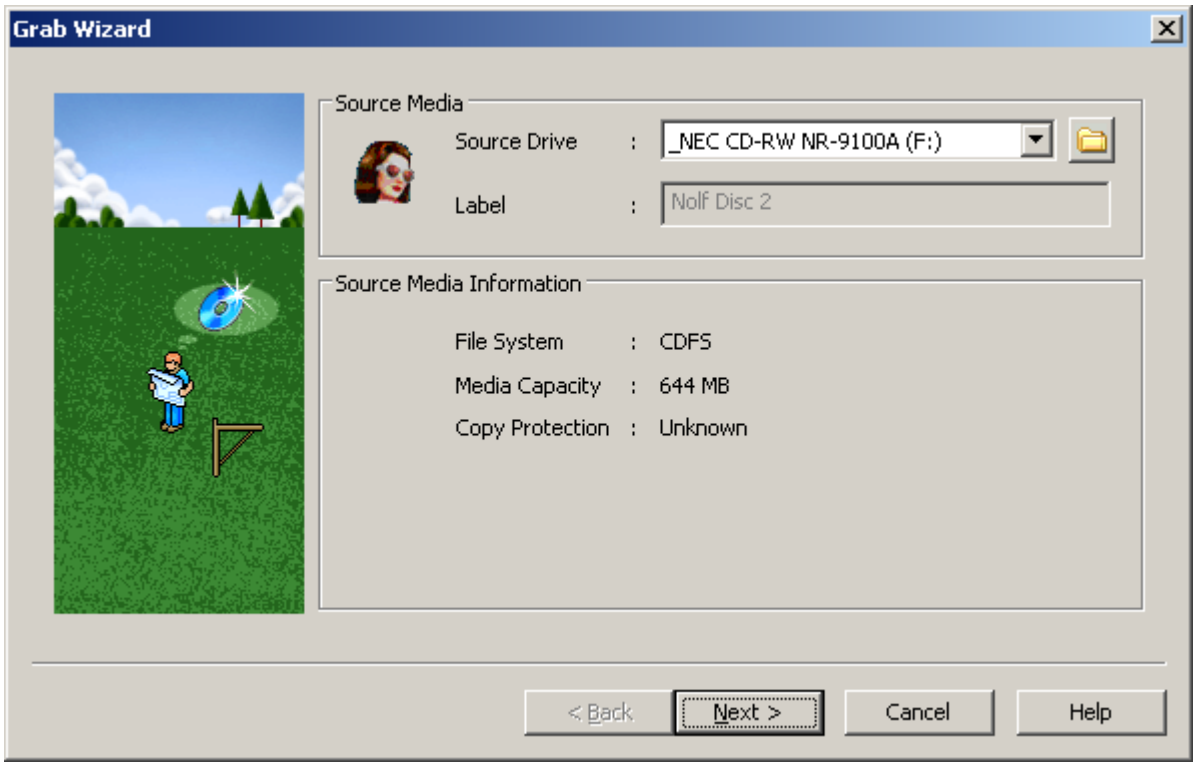
If you are not sure of your rights, please contact your local legal advisor.

5.6.1 Using Grab Wizard

Use the Grab Wizard in the following manner:

1. Insert a physical CD or DVD disc to a physical CD or DVD drive.
2. Start the Grab Wizard.
   CD-ROM Emulator provides multiple grab settings, so that the Grab Wizard consists of multiple screens.
3. On the first screen of the Grab Wizard, select the drive to be used for grabbing, in the "**Source drive**" pull-down list. The program will automatically detect the type of the inserted disc and its characteristics.
4. On the second screen, select parameters of the grabbing (most important of them are noted below).
5. Choose the *image type* to be created, in the "**Image Format**" pull-down list.
6. Select the data *compression level*, by moving the "**Data compression**" slider control.
   (!) Please note: This feature is available only in images of CDI format.
7. For audio tracks, choose an *audio codec*, which should be used for converting audio tracks into audio files.
8. For a chosen audio codec, select the *bit rate* parameter.
   This parameter affects on the final image size and audio quality.
9. Additionally, you can change some advanced options, which allow controlling a behavior of the grabber module.
10. On the third screen, select *audio* and *data tracks* to be included to the newly created image.
    (!) Please note: This feature is not available for CloneCD images.
    In addition, audio tracks can be played in the Grab Wizard, for reviewing purposes.
11. On the fourth screen, define the image location (see below).
12. Enter the full path and filename of the new image in the "**Image File**" field.
13. Change the **Image Label** in the appropriate field.
14. Define the maximum size of volumes of the CD image, in the "**Image Split Size**" spinner control.
    (!) Please note: This feature is available only in images of CDI format.
15. On the fifth screen, define usability options for the new image: a hot key (in the "Shortcut" field), a CD icon, a folder of the *Collection of CD images* where the image will be placed and Comments, which are a popup hint for the new image.
16. Press the "**Finish**" button to begin the disc grabbing. The program will display the progress of the operation.

5.6.2 Screen 1: Source drive



5.6.2.1 Source Drive

This pull-down list displays all CD/DVD recordable physical drives, which are available in the system.

(!) Please note: The user should choose the drive that is actually in use.

The small button on right simply opens the Windows Explorer in order to allow a user inspect contents of CD drive(s) in a usual fashion.

5.6.2.2 Label

This field displays the textual label of a disc that is currently inserted to the selected CD/DVD drive.

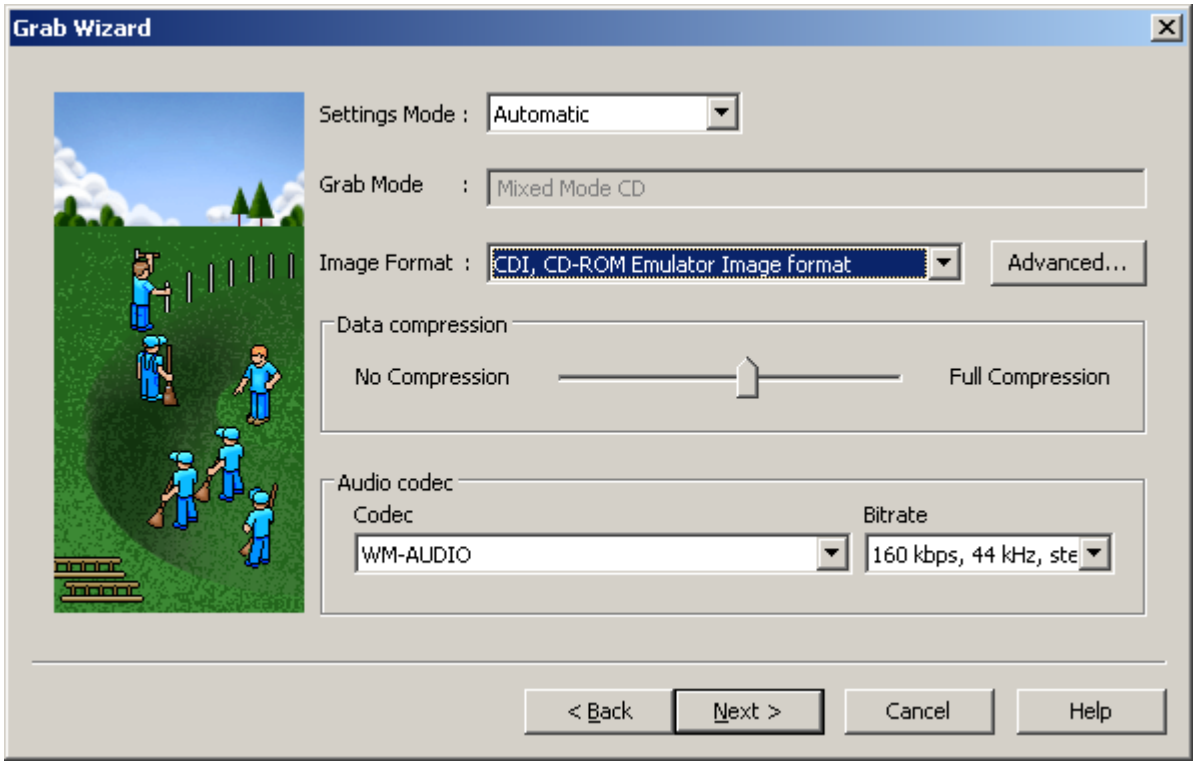
- For data CDs, this information is taken from data tracks.
- For audio CDs, the label displays text "Audio CD".

5.6.2.3 Source Media Information

This section displays general information about the currently inserted disc:

- Actual File System
- Total disc capacity (i.e. amount of information on the disc)
- Used copy protection

5.6.3 Screen 2: Grabbing options



5.6.3.1 Settings Mode

This pull-down list allows choosing a *Grab mode profile*.

Grab mode profiles define globally characteristics of the grabbing module, such as:

- default options and available options (i.e. ones that can be changed)
- default image format and available image formats (i.e. ones that can be changed)

This parameter provides only two alternatives:

Automatic	Automatic profile selection. The program automatically detects media type, parameters of the disc format and used copy protection. Relying on this information, the program selects an appropriate *Grab mode profile* and suggests optimal settings for successful grabbing the used disc.
Manual	Using the manual mode profile. The program allows a user arbitrarily changing all possible options, choosing all available values for every parameter. The program neither controls mutual compatibility of options nor verifies their compatibility with hardware properties and the actual media format.

5.6.3.2 Grab Mode

This pull-down list displays the selected *Grab mode profile*.

In the **Automatic** profile selection mode (see Settings Mode), this control is *disabled*; its value cannot be changed.

5.6.3.3 Image Format

This pull-down list allows selecting the type of the newly created CD image.

CD-ROM Emulator allows creating CD images of several formats:

- ISO (generic CD images in ISO 9660 compliant format).
- CCD (images in CloneCD format).
- CDI (images in CD-ROM Emulator format).

Each of image formats has advantages and disadvantages:

Format	Acceptable media	Characteristics	Popularity
CDI	Any CD and DVD types	Supports: compression, multivolume images, variable data thoroughness (from *plain data* to *exact CD copy*).	Supported only by CD-ROM Emulator
CCD	Any CD types (DVD is not supported)	Very exhaustive copy of CD contents. Detailing level cannot be changed.	Supported by CloneCD (format originator), CD-ROM Emulator, Alcohol120% and some other CD emulation software.
ISO	Unprotected data CDs and DVD	Simplest and prevalent data format.	Supported by almost all CD emulation and CD burning software.

5.6.3.4 Advanced…

By pressing this button, the "**Advanced Grab Options**" dialog can be started.

In the mode of Automatic profile selection, the contents of this dialog depend on the selected profile and CD image format. The detailed dialog description is placed in the section Advanced grabbing options.

5.6.3.5 Data Compression

This slider control allows choosing a compression level.

The maximum level usually halves the image size for most game CDs (the actual compression rate fundamentally depends on data being processed).

(!) Please note: This feature is available only for CDI images.

5.6.3.6 Codec

This pull-down list allows selecting an audio codec that should be used for grabbing audio tracks to audio files.

Normally, CD-ROM Emulator does not save contents of audio tracks but converts them into audio files. To complete such a conversion, audio *codec* software is required. CD-ROM Emulator allows using audio codecs that are registered in Windows. The registered audio codecs are listed in the *Windows Device Manager* (Device Manager => Sound, video and game controllers => Audio codecs).

(!) Please note: This feature is available only for CDs that have audio tracks (CD-Audio, CD-Extra, Mixed Mode CD).

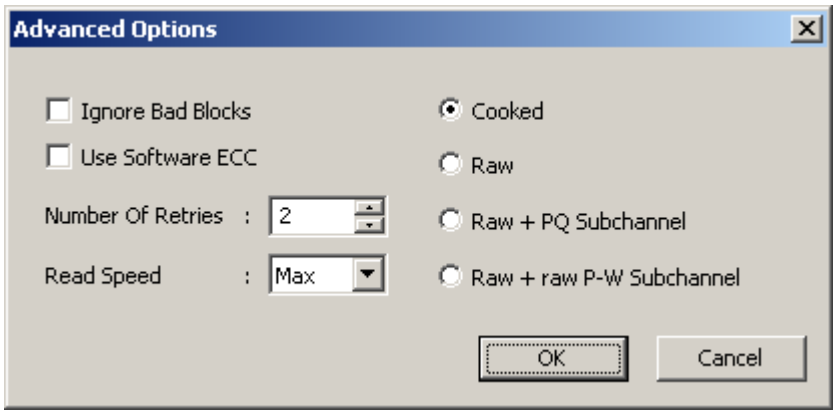
5.6.3.7 Bitrate

This pull-down list allows selecting the *bit rate* for the chosen audio codec. This parameter is a composite parameter that includes: amount of channels (mono/stereo), sample rate (in kHz), channel capacity (bit per channel) or bit rate (in Kbits/sec).

The bit rate affects on the quality of grabbed audio data and on size of resulting files.

(!) Please note: This feature is available only for CDs that have audio tracks (CD-Audio, CD-Extra, Mixed Mode CD).

5.6.4 Advanced grabbing options



The "**Advanced options**" dialog allows customizing the grabbing process.

5.6.4.1 Ignore Bad Blocks

If this option was turned OFF, the program pauses when detecting bad blocks on a CD/DVD disc and displays the warning message. A user is allowed:

Abort	abort the operation
Retry	retry reading data one more time
Ignore	save data, remember the error and continue working. The CD image will contain the same "error" at this place

If this option is turned ON, the program does not stop when detecting bad blocks but continues the procedure as if a user says "**Ignore**".

5.6.4.2 Use Software ECC

If this option is turned ON, the program tries disabling the verification of ECC on hardware side and using own software module instead. This feature allows accelerating the CD reading.

This feature requires supporting from the hardware side.

5.6.4.3 Numbers of Retries

In this spinner control, set the amount tries the program should make before displaying the warning message about read errors.

5.6.4.4 Read Speed

This pull-down list displays correct values of *reading speed*.

The special item "**Max**" means automatically selecting the best acceptable speed value, this option is the default one. The manual deceleration of reading speed may help in case of using worn-out or low-quality discs.

5.6.4.5 Cooked

In case of this choice was selected, the program reads only *cooked data* from data tracks and only audio data from audio tracks. This mode of reading is supported by all models of CD and DVD drives.

In this mode, textual and graphics information cannot be copied from CD-Text and CD-Graphics discs. In addition, most copy protected CDs are not grabbed correctly, so that resulting images become unworkable.

5.6.4.6 Raw

In case of this choice was selected, the program tries reading *RAW data* instead of *cooked* ones. This feature is applicable only to data tracks on CDs. This option requires supporting from the hardware side.

Information on CD-ROM and DVD-ROM discs consists of two different parts:

- The first part is "*usable data*", such as data files.
- The second part is "*servicing data*", which are purposed for keeping integrity of usable information.

Usable data are usually named "*cooked data*", while the composition of usable and servicing data is named *RAW data*.

Servicing data consist of EDC and ECC (*Error Detection Code* and *Error Correction Code*), which take approximately an eighth part of all information. This extra information allows detecting read errors and even compensates small-scale amounts of corrupted data.

Generally, servicing data must be generated from usable data by the algoristic rules. However, sometimes it is not the case, e.g. some copy protection schemes use non-standard contents of servicing data. CD-ROM Emulator is able duplicating correctly such customized servicing data, in the CD image.

(!) Please note: The option will be ignored if the CD drive does not support the feature of RAW reading. Most of modern CD drives support the RAW read mode.

For some advanced copy protection schemes, this mode is not enough to produce workable images.

5.6.4.7 Raw+PQ Subchannel

If this option was turned ON, the program tries reading contents of P and Q subcode channels in addition to RAW data, for data and audio tracks. The mode of writing RAW data with subchannels is named "*RAW+SUB*" or "*RAW+96* ". This feature requires supporting from the hardware side.

The underlying format of CD sectors includes special data that are originally named "*subcode channels*". Subchannels are enumerated from "P" to "W" (of totally 8 subcode channels). Subchannels take 1 byte per *frame*, which constitute 96 bytes of subchannel data plus 2 bytes of subchannel parity per CD sector.

The CD specifications from the *Red Book* declare using P and Q subchannels for servicing purposes:

- The P-subchannel is used for marking start and end of each track.
- The Q-subchannel is used for saving time-codes, track type, track index, ISRC and TOC (in Lead-in area).

(!) Please note: the "RAW+SUB" reading mode is supported by modern CD drives only.

5.6.4.8 Raw+raw PW Subchannel

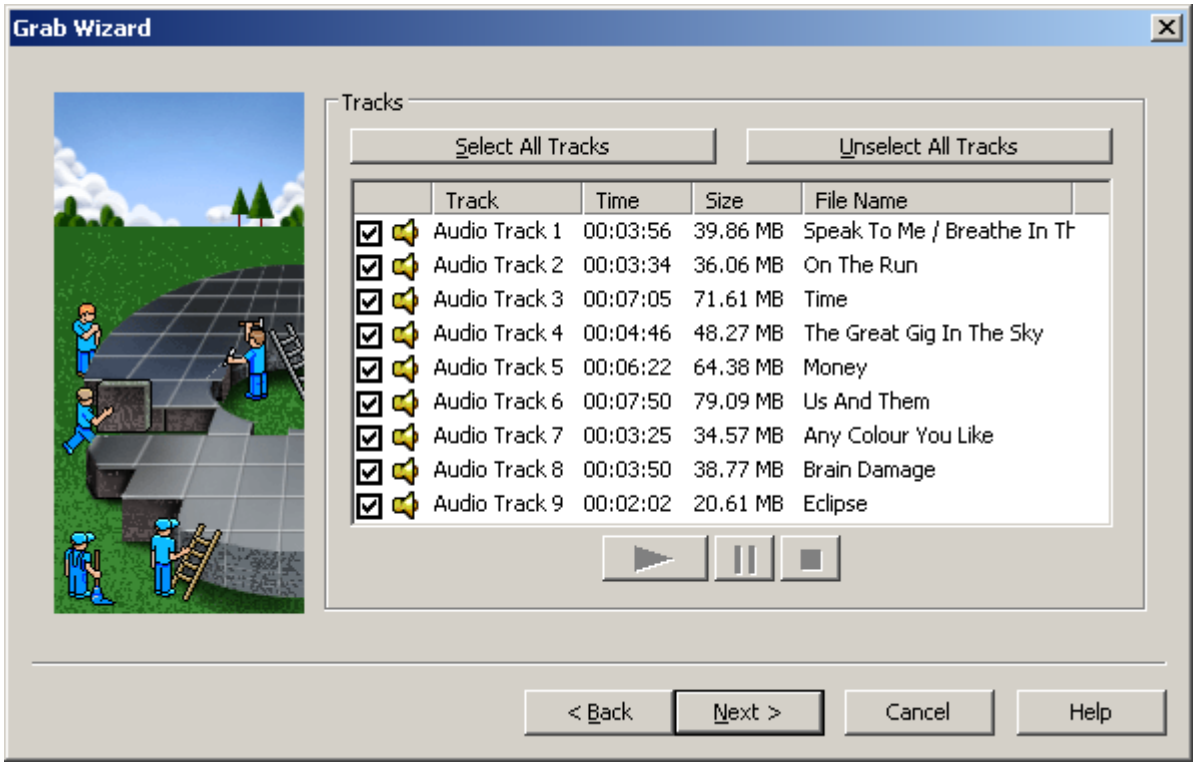
If this option was turned ON, the program tries reading contents of P to W subcode channels in addition to RAW data, for data and audio tracks. The mode of writing RAW data with subchannels is named "*RAW+SUB*" or "*RAW+96* ". This feature requires supporting from the hardware side.

The underlying format of CD sectors includes special data that are originally named "*subcode channels*". Subchannels are enumerated from "P" to "W" (of totally 8 subcode channels). Subchannels take 1 byte per *frame*, which constitute 96 bytes of subchannel data plus 2 bytes of subchannel parity per CD sector.

The CD specifications from the *Red Book* declare using P and Q subchannels for servicing purposes, in all CD formats, and additionally using R-W subchannels in *CD-Graphics* and *CD-Text* formats. In addition, some copy protection schemes use subchannels for their purposes.

(!) Please note: the "RAW+SUB" reading mode is supported by modern CD drives only.

5.6.5 Screen 3: Selecting Tracks



On this screen, one can select tracks to be grabbed, in case of multiple tracks are on the CD/DVD.

There is a tracks list in the middle of the screen. The list displays:

- *Track type*, encoded by an icon: "folder" for data tracks, "speaker" for audio tracks.
- *Track size*, in MB and in playtime format (min:sec:block).
- File Name, for a volume of the image that will contain this track.

The first column includes a checkmark for every track. If the checkmark is set, the track will be grabbed and included in the CD image. Otherwise, the track will be ignored.

For audio files produced by CD-ROM Emulator, file names are generated by following rules:

- In case of *FreeDB is enabled* and is available, the program will restore album name and track titles from the database of FreeDB.
- Otherwise, the program will automatically generate file names from the Image Label and track number.
- In any case, audio files will have .WAV extension regardless of their real audio format (e.g. MPEG Layer-3 files will have .WAV extension instead of commonly used .MP3).

5.6.5.1 Select all Tracks

Press this button to select all tracks to be grabbed.

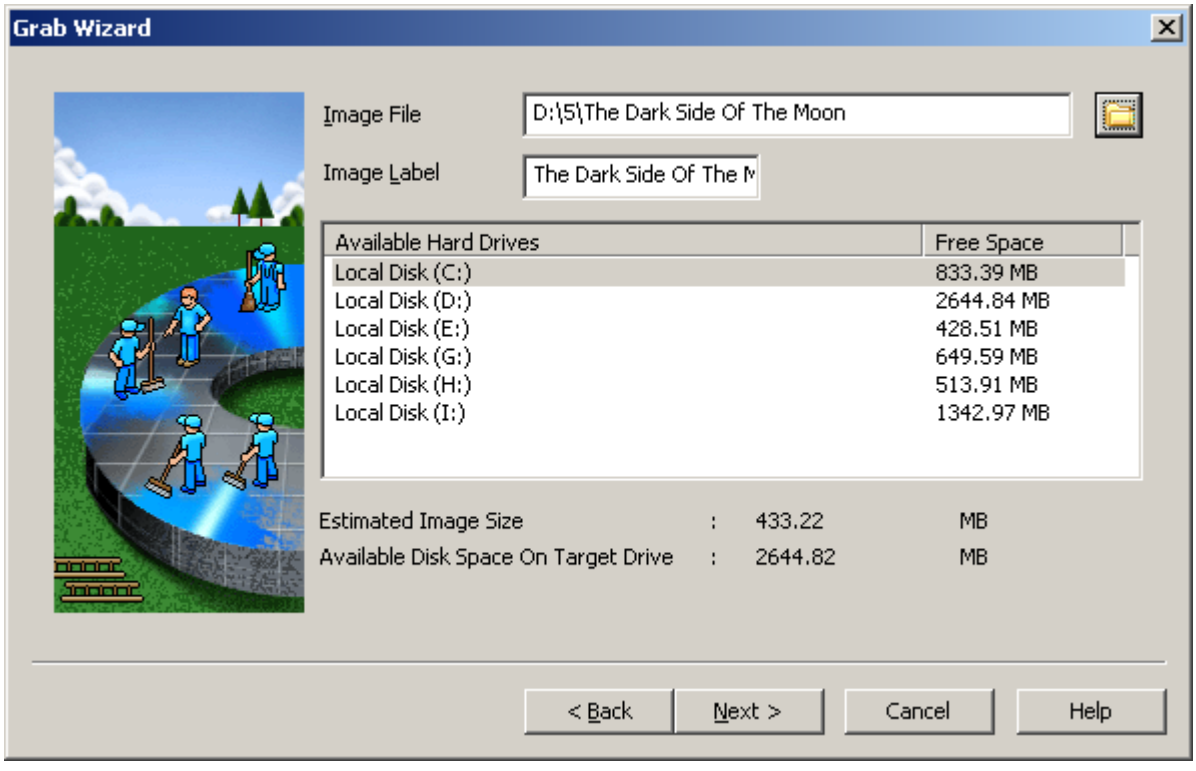
5.6.5.2 Unselect all Tracks

Press this button to deselect all tracks.

5.6.5.3 Player buttons (Play, Pause, Stop)

CD-ROM Emulator allows playing selected audio tracks. **Play** button (triangle) starts playing from the first marked audio track. **Pause** (two lines) and **Stop** (square) buttons pause and stop playing, respectively.

5.6.6 Screen 4: Image Location options



5.6.6.1 Image File

Enter the full filename and path for the new image into this field. The button on the right allows selecting the directory and the filename in the explorer-like window.

By default, the image filename coincides with the Image Label.

5.6.6.2 Image Label

Enter the desired *image label* to this field. The image label will be used in the *Collection of CD images* to represent this image.

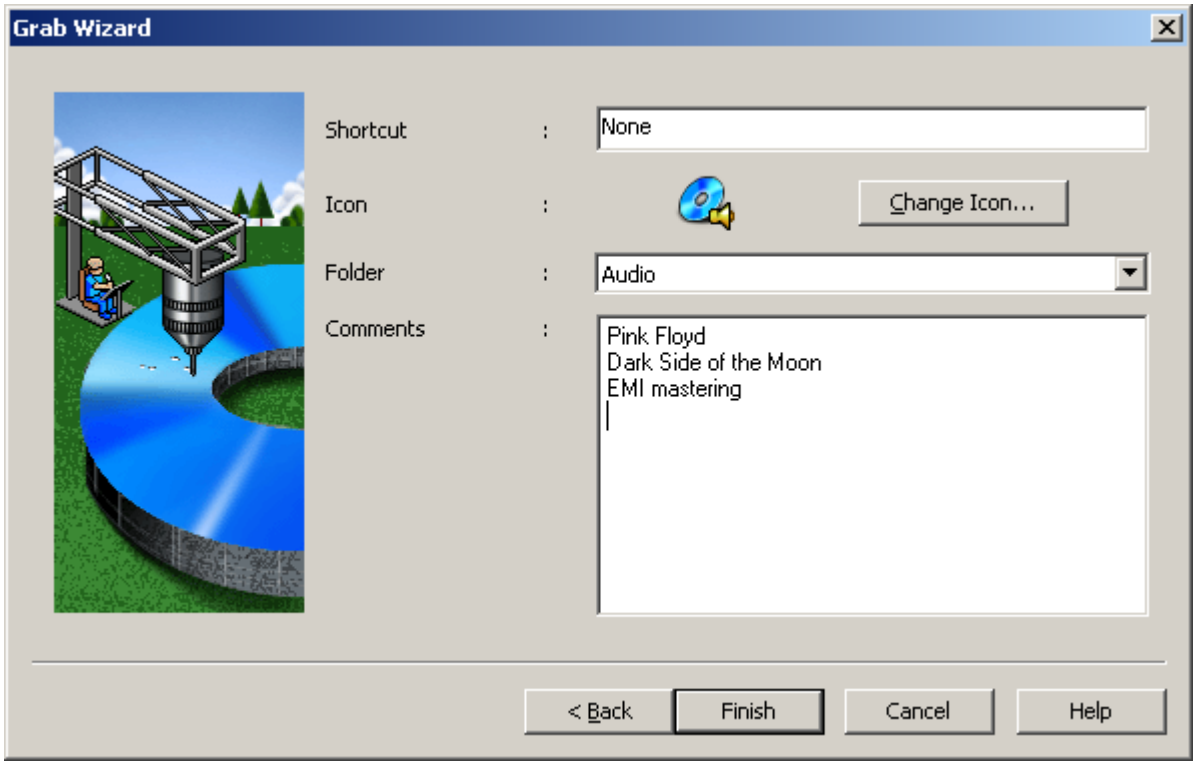
In case of the FreeDB is enabled and is available, the program will suggest using the album name as a default image label.

5.6.6.3 Available Drives

This list displays all local drives mapped in the system, with mention of their drive letter and free space. In case of some drive is selected in the list, the program suggests placing the new image to the root directory of this drive.

Two informational fields placed below the list, displays an expected image size (**Estimated Image size**) and amount of free space on a disk that is actually targeted to hold the image (**Available Disk Space on Target Drive**).

5.6.7 Screen 5: Image Usability options



On this screen, the image usability options can be defined. These settings make the using of images easy and comfortable.

5.6.7.1 Shortcut

This field allows defining the so-called *hot key* or *fast access key*, for the *fast image insertion*.

To define the hot key:

1. Place cursor (move focus) into the "**Shortcut**" filed.
2. Press a desired key on the keyboard. The program will display the "Ctrl+Alt+{key}" combination in the filed.

CD-ROM Emulator allows using CTRL+ALT+{KEY}, {Fnn}, {Ctrl / Alt / Shift} + {Fnn} keyboard combinations as hot keys.

5.6.7.2 Icon

Each image is represented by a small picture, or icon. This field displays the icon currently associated with the image. One can change the icon by pressing the "**Change Icon**" button.

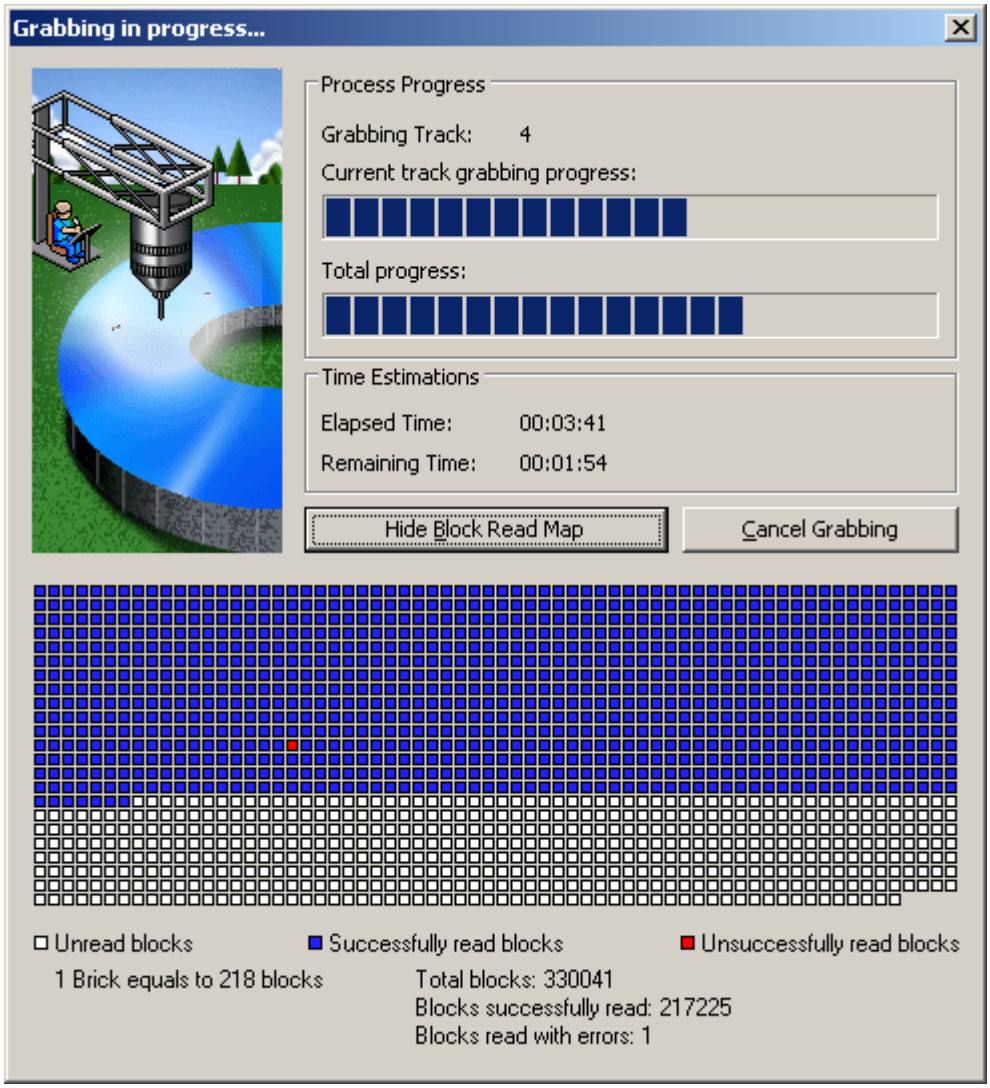
5.6.7.3 Folder

This pull-down list allows choosing a folder within the *Collection of CD images* to place the new image to. The pull-down list allows selecting an appropriate folder.

5.6.7.4 Comments

This textual field allows assigning a popup hint (prompt) to the new image. This hint appears in case of moving the mouse cursor over the image.

5.6.8 Screen 6: Grabbing progress



This dialog displays detailed information about the operation progress: the index of a currently grabbed track, track grabbing progress and overall disc grabbing progress, elapsed time, estimated remaining time and, optionally, the status map of disc blocks.

5.6.8.1 Show/Hide Block Read Map

This button toggles on/off the status map of disc blocks.

5.6.8.2 Cancel Grabbing

This button allows a user aborting the grabbing process at any time. In this case, the incomplete image will be erased.

6 Command line mode

The CD-ROM Emulator supports a command line operating mode. You can manage the program directly from the MS-DOS prompt. It gives you a possibility to develop batch files and scripts for the automation of different operations with CD images, compact disks and CD/DVD-ROM drives.

(!) This chapter is oriented to advanced users! Be very careful while using command line control of CD-ROM Emulator.

In order to work with a command line you should type the name of the executable file CDDVDMAN.EXE and one (or some) of the represented below commands in a line of a bath file, a script or directly in the MS-DOS prompt. Usually the CDDVDMAN.EXE file is used for starting the standard window of CD-ROM Emulator. However if you follow the adopted command line syntax the program will work in “silent” mode and the program window will not open. The CDDVDMAN.EXE file is located at the same folder where all the CD-ROM Emulator files were placed in the course of the installation.

6.1 The syntax

Commands must be typed at a line in the following way:

CDDVDMAN /command:cmd1[‘]-”parameters1”,cmd2[‘]-”parameters2”,…,cmdN[‘]-”parametersN” ,

Here **CDDVDMAN** is the program executable file name.

The next word (**/command:**) switches the program starting to the command line mode. You can also use just **/c:** instead of the full name. In this case the line will look so: **CDDVDMAN /c:cmd1[‘]”parameters1”, … .**

Then you can type the program commands themselves. They are represented in the formula by identifiers **cmd1,cmd2,…,cmdN**. The commands are separated by commas. All the possible commands are described below at the section Commands of the CD-ROM Emulator.

(!) There are not allowed any spaces between service words of the command line. There are only two exceptional cases – spaces of file names and the space between words **CDDVDMAN** and **/c:** .

It is clear that commands can have their parameters. They must be enclosed in quotation marks with the hyphen symbol before the list. The parameter list must follow a corresponding command.

If the program cannot execute the typed command then it terminates its work and returns one of the error codes. But you may need uninterrupted execution of some commands sequence. In this case you should use the apostrophe symbol (‘) that must be typed in the line just after the command name, before the parameter list. For example, the command line **cddvdman /command:a-"G",i- "G=d:\image.cdi”** allows to add a new virtual CD-ROM drive G and then insert the CD image d:\image.cdi into this drive. Assume that the drive G has existed already. Then the program terminates its work with an error code and the CD image will not be inserted into the G drive. Your task will not be done. To avoid similar problems you should just add the apostrophe after the command: **cddvdman /command:a’-"G",i-"G=d:\image.cdi”** The apostrophe symbol is optional – its usage depends on a particular task.

(!) To get a short reference concern the command line mode you should use the command “h” without any parameters. In this case the line will look so: **CDDVDMAN /c:h**.

6.2 Commands of the CD-ROM Emulator

Many of the program operations can be executed from a command line. CD-ROM Emulator commands are easy to write although their reading and editing need more attention from a user’s side.

6.2.1 Add a new virtual CD-ROM drive(s)

To *add a new virtual CD-ROM drive* you should use the “**a**” identifier as a command. The new drives will be added for the current Windows session only. You need to type drive letters for each adding drive in the parameters section of the command line. Drive letters doesn’t separated by any symbols. For example the command line of the adding of two virtual CD-ROM drives G and F looks so:

cddvdman /command:a-"GF"

If it is not important which drive letter exactly is assigned to a new virtual drive then you should use the question symbol (?) instead of a concrete letter. The following command line adds new drive G and two new CD-ROM drives with any drive letters those are not in use of the operating system:

cddvdman /command:a-"G??"

6.2.2 Remove a virtual CD-ROM drive(s)

To *remove a virtual CD-ROM drive* you should use the “**r**” identifier as a command. You need to type drive letters for each removing drive in the parameters section of the command line. Drive letters doesn’t separate in the line by any symbols. For example the command line of the removing of two virtual drives G and F looks so:

cddvdman /command:r-"GF"

6.2.3 Insert a CD image into a virtual CD-ROM drive

To *insert a CD image into a virtual CD-ROM drive* you should use the “**i**” identifier as a command. You need to type a drive letters and the CD image file name (including the full path to this file) in the parameters section of the command line. The image file name can be a long file name with spaces and non-Latin characters. For example the command line of the inserting of the CD image “d:\the image.cdi” into the virtual CD-ROM drive G looks so:

cddvdman /command:i-"G=d:\the image.cdi"

6.2.4 Eject a CD image from a virtual CD-ROM drive

To *eject a CD image from a virtual CD-ROM drive* you should use the "**e**" identifier as a command. You need to type a drive letters from which CD images will be ejected in the parameters section of the command line. For example the command line of the ejecting of CD images from virtual drives G and F looks so:

cddvdman /command:e-"GF"

6.2.5 Get a virtual CD-ROM drive mask

To *get a virtual CD-ROM drive mask* you should use the "**m**" identifier as a command. All commands those are followed this command will be ignored. During the command operating the program returns CD-ROM drives mask as exit code. Drives are encoded according to the following easy rule – drive A corresponds to the lowest bit in the exit code, drive B to the second one and so on. The command line of the getting virtual drives mask looks so:

cddvdman /command:m

6.2.6 Grab operations

Grab operations is more complicated ones. There are many parameters which allow to control the grabbing process, to influence on it. To *perform any grab operations* you should use the "**g**" identifier as a command. Further the sequence of parameters with their values must follows. Parameters must be divided by semicolons. So in the general case the command line will have the following view:

cddvdman /command:g-"<parameter1>=<value1>; … "

The program supports the next parameters (please check the Grabbing options and Advanced grabbing options chapters for more information about the meanings of these parameters):

d – CD/DVD drive letter;

f – image filename (without extension, the extensions for files are set automatically);

r – number of retries to read bad blocks (default value is **2**);

b – ignore Bad Blocks option (**0** – do not ignore, **1** – to ignore, the default value is **ignore**);

m – image format (**0** - CDI, **1** - ISO, **2** – CCD, the default value is **CDI**);

e – use Software ECC (**0** – do not use, **1** – to use, the default is **do not use**);

g – sub-channel reading mode (for CDI image only) (**0** - cooked, **1** - raw, **2** - raw + P-Q, **3** - raw + raw P-W, the default value is **cooked**);

c – compression level (for CDI image only) (**0** – no compression, **1-9** – compression level, the default value depends on CD/DVD data like in the user mode);

v – volume size in Mb (for CDI image only), (**1 – 2047** MB, the default value is **2047** MB);

s – read speed (**1** - 1x, **2** - 2x, **4** - 4x etc., the default value is **Maximum**).

For example the command line of grabbing CD in the drive G: to c:\image.cdi will looks so:

cddvdman /command:g-"d=G;f=c:\image"

(!) In command line CDE grabs ALL tracks from CD/DVD. There is no any possibility to select various tracks to grab.
(!) There is no possibility to set the codec for Audio in the command line mode.

6.3 The error code list

Error code	Interpretation
0	Success
1	General error
2	Invalid function
3	Invalid handle (a drive is not opened)

4	A drive or a file is not 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