

VIRTUAL CD v4

MANUAL



Foreword

Thank you for choosing Virtual CD. We have improved and expanded the VCD program both to address the needs and preferences expressed by our users and to reflect broader developments such as the latest CD technologies and the increasingly widespread use of DVDs.

A couple of very basic changes have been made in the Virtual CD software for this fourth version. For example, while all the previous versions used the same driver kernel and file format, Virtual CD v4 has a whole new software kernel. The new driver was developed specifically to support the new MS Windows XP operating system while at the same time making Virtual CD forward-compatible with future software developments. The new file format has been implemented to support DVDs, which often contain considerably larger volumes of data than your average music or software CD.

Another change involves our company itself, rather than the software. You may have noticed that Virtual CD is now manufactured under the name *H+H Software* rather than *Microtest*. H+H Software GmbH, headquartered in Goettingen, Germany, was until recently a wholly-owned subsidiary of Microtest. In summer of 2001, the two companies officially parted ways. H+H has been developing the Virtual CD software ever since Version 2, and will continue to develop it in future.

This manual provides you with an introduction to Virtual CD, as well as basic instructions on all the main functions. For further details, please refer to the Help program integrated in Virtual CD.

Important Note:

If you use Virtual CD with CDs or DVDs that are under license, then creating multiple virtual images from a given CD/DVD or running the Virtual CD program with a given virtual CD on more than one computer at a time may constitute a breach of the software licensing agreement you entered into with the manufacturer of the CD/DVD in question. Make sure to check your licensing agreements for detailed information.

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You don't read manuals?

Are you one of those people who never bothers to read instruction manuals?

No problem! Experienced PC users will find no surprises in the installation procedure that sets up VCD v4. Not only that—the Help program starts automatically the first time you run the new installation.

Especially for you impatient types, we have developed the following 4-point 'Instant User's Guide':

1. If you have an earlier version of VCD, deinstall it and then (this is important:) **restart your computer**
2. Install Virtual CD v4 and then (this is important:) **restart your computer**
3. Insert a CD from which you wish to create a virtual image.
4. Double-click on the Virtual CD icon on your Desktop. The VCD v4 Wizards take over from there and guide you through the program functions.

That's it! You can now use your new virtual CD just like a real CD.



Version 4 uses a new file format, with the extension .VC4 rather than .FCD. You can convert files of the old format to the new format—but not vice versa!

What is Virtual CD?

Virtual CD makes your CD/DVD applications faster, more portable, and easier to use. This is because it stores CDs on your hard drive, using highly efficient data compression techniques. Once you've made a virtual CD from a physical CD or DVD, simply 'insert' it in a virtual drive to run it. Virtual drives behave just like physical drives, and look the same in your Windows Explorer.

With the Virtual CD program...

- your CD/DVD-based applications are much faster, because the CDs run from your hard drive rather than from the CD-ROM drive
- you don't have to bother with inserting and removing physical CDs—let alone having to look for them in the first place!
- you can run your CDs on computers that don't even have physical CD drives
- you can use multiple CDs simultaneously—no need for an expensive CD changer!
- your valuable original CDs won't get lost or damaged
- your notebook conserves precious battery power, because you don't have to run a CD drive
- your workplace is quieter, because CD drive noise is eliminated



New Features in Version 4

The new version is a completely reworked software suite, with a new user interface and lots of new features:

- Compatible with Windows 98/ME/NT4/2000 and XP
- Supports DVDs (independent of FAT32 file size restrictions!)
- Optional password protection for individual virtual CDs
- New data readout techniques (RAW mode, including sub-channel data) support the latest CD technologies
- Simplified Easy Copy Mode for beginners
- Virtual CDs can be sorted into categories and stored in different folders
- You can import ISO-format image files (for data exchange with CD-R software)
- Improved data compression that works even with copy-protected CDs
- Exclusive access to virtual CDs stored on a network
- Supports up to 99 data tracks per virtual audio CD
- Full support for all CD-player functions (such as visualization and play lists, for example)

Because so many functions have been added and expanded, Virtual CD v4 uses a new file format, with the extension .VC4 (rather than the old .FCD extension).

This version of Virtual CD is designed as a single-workstation application. A new network version will be available separately in early 2002. Even your single-user version, however, enables *exclusive* access to virtual CDs over the network. *Exclusive* access here means that a virtual CD stored on a network can be accessed by only one network user at a time. Once in use, the virtual CD is blocked for any other user until it is released again (by ejecting it from the virtual drive).

System Requirements

Trouble-free operation of Virtual CD is generally assured on any system where Windows also runs smoothly. To a great extent, Virtual CD is basically a Windows device driver that uses very little of your system resources.

Some of the Microsoft applications that are available free of charge, such as the Media Player and the Internet Explorer, optimize certain functions in the operating Windows system and thus are highly recommended for use in conjunction with Virtual CD.

To run Virtual CD, your system should meet the following minimum specifications:

- Windows 98/98SE/ME with at least 64 MB RAM or
Windows NT4 Workstation with Service Pack 6a and at least 128 MB RAM
or
Windows XP/2000 Professional with Service Pack 2 and at least 128 MB RAM
- Pentium 200 MHz processor or faster



- MS Internet Explorer 5 (or later)
- MS Media Player 7 (or later)
- Approximately 10 MB hard disk space for installation of the Virtual CD v4 software
- Optional: DirectSound-compatible sound card
- Optional: Internet access, to retrieve audio CD data over the Internet

You will also need space on the hard drive for your virtual CDs. How much space is required by a given virtual CD depends on both the CD content and the compression method used in creating the virtual CD, and may be anywhere from 1 to over 700 MB. Virtual DVD videos generally require 4 to 8 GB.

Document Conventions

Bold, italic type in the manual indicates either a procedure or a part of the program (such as buttons and menu items).



Notes that are especially important are marked by the exclamation point symbol you see here. These notes contain information that is essential for trouble-free operation of your Virtual CD program.



Tips and tricks for simplifying procedures are marked with the light-bulb symbol shown here.

Generally, whenever the term "CD" is used in this manual, it is meant to include DVDs as well.

The following definitions of some Virtual CD-specific terms may be helpful:

- **Virtual CD drives:** These look and "feel" just like normal CD drives in your Windows Explorer. You can set up as many virtual CD drives as you have drive letters available (for example, D: through Z:).
- **Virtual CD:** This is synonymous with the depiction of CD contents. Virtual CDs are displayed as symbols in the right-hand pane of the Virtual CD Management program (the main Virtual CD program). The number of virtual CDs you can create is limited only by the disk space you have available for their containers.
- **Virtual CD container (file):** Each virtual CD is made up of one "container file" (with the extension .VC4) and one or more other files, depending on the amount of data (or number of song tracks) on the source CDs in each case. The term "container" is sometimes used to refer to the container file together with the other files that make up the virtual CD. The container file basically "tells" the Virtual CD driver how to present the remaining CD data in virtual CD form.



Structure of a Virtual CD Container

You don't really need to understand how these files are structured in order to work with Virtual CD. But for those who are interested, the following provides a brief description of virtual CD container files.

Each virtual CD consists of 2 or more files:

- The container file, with the extension .VC4, which indicates the data structure of the virtual CD
- Virtual data CDs contain one or more files with extension(s) consisting of sequential numbers, from .000 up to .999, which contain the actual user data. These are especially important for DVDs, because when the FAT32 file system is used (which is most often the case), file size is limited to 2GB, while most DVDs contain larger volumes of data. In such cases, user data is divided into a number of separate files. The container file keeps track of the structure so that the virtual CD driver "knows" how to put them together in virtual CD form.
- Virtual audio CDs contain a number of audio files, depending on the number of tracks included from the source CD(s).

Installation



If you are updating an earlier VCD version, you need to **deinstall** the older version and then **restart your system** before installing Virtual CD v4. When you deinstall the old version, the program asks whether you wish to delete existing virtual CDs. Make sure you don't inadvertently delete any virtual CDs that you wish to convert for use with the new program!

Place the installation CD in a CD drive and wait a moment for Windows to detect it. If the autostart function is active, the installation begins automatically, starting with the "Welcome..." window.



Arbeitsplatz

If installation does not start automatically, double-click on "**My Computer**" in your Explorer and then on the symbol for the drive where you inserted the installation CD.



Setup

Now you should see the contents of the installation CD. Double-click on the "**SETUP**" file to start installation.

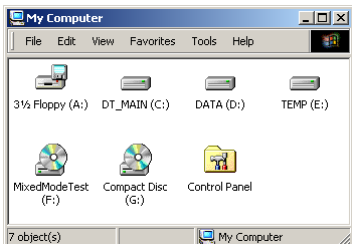
Follow the instructions as the Wizard guides you through the installation procedure. The program asks, for example, whether you wish to retrieve audio CD information over the Internet. Please do **not** answer "yes" here unless your computer has Internet access.



When installing Virtual CD under MS Windows XP, you may get some rather drastic-sounding warnings about installing a non-certified hardware driver. You can ignore these warnings (simply confirm and continue), as they refer to the virtual CD driver, which will not damage your system in any way.

Once the installation is finished, you need to *restart your computer* in order to have it detect the virtual drives. Under Windows XP/2000, after you restart your system, you might be prompted to restart it once again. You can answer this with "no", as an additional reboot is not necessary.

Once you've completed installation and restarted your computer, you can see your new virtual drives in the Windows Explorer:



In this example, drive *F:* is the physical drive and *G:* is the virtual drive. (You can also add more virtual drives at a later stage.)

The virtual drive is empty at this point, because no virtual CDs have been created yet (let alone inserted!). At this point, the installation of the Virtual CD program is roughly equivalent to the installation of a hardware CD-ROM drive in the PC housing.

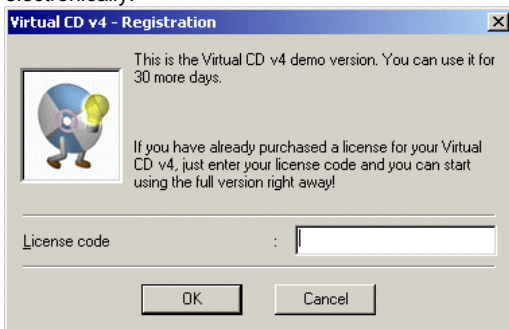
First Steps

This chapter is for those of you who have never used Virtual CD before. If you have already worked with an earlier version of Virtual CD, you can skip to page 25 for information on converting older virtual CDs for use with the new program.

To work with the Virtual CD program, you need to begin of course by creating a virtual CD. To do this, start by double-clicking on the Virtual CD program icon. This starts the program. The "Welcome..." window opens only the **first time** you start Virtual CD:

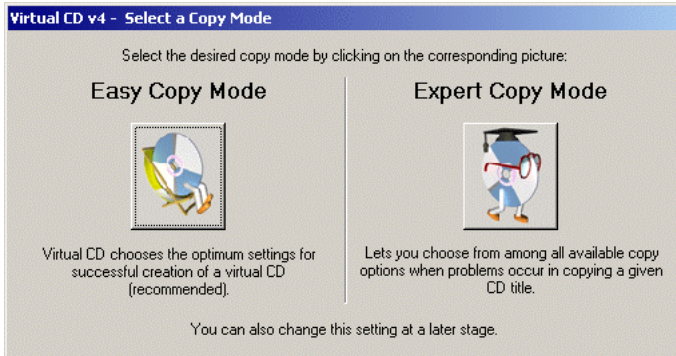


Select the first option here. You are then asked to enter your license code, which is either included in the package that contained the installation CD or was sent to you electronically:



If you don't have your license code handy at the moment, click on **Cancel**. You can still use the program, for another 30 days. To enter your license code at a later stage (within the 30-day period!), click on **Help** in the VCD Management program and select the **Licensing** menu item.

The next window asks you to select a copy mode:



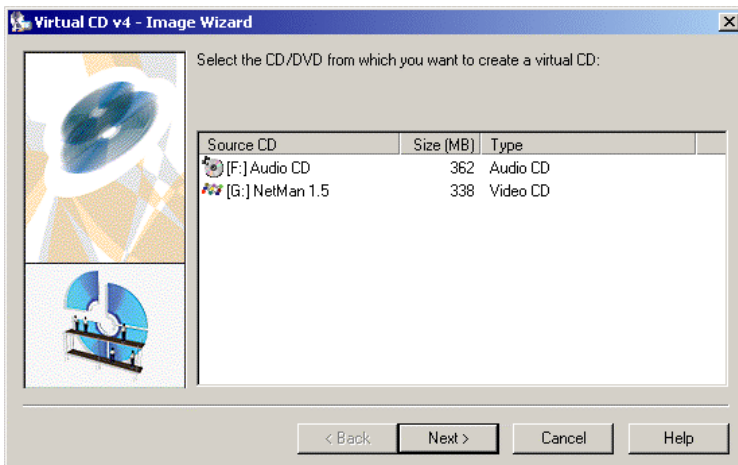
If you are a "Virtual CD Beginner", we recommend selecting the **Easy Copy Mode** at this point. In this mode, creating a virtual CD is really about as easy as falling off a log. You can always change to the Expert mode—and back again—at a later stage (see page 36).

Creating a Virtual CD: Easy Copy Mode

Select the physical CD from which you want to create a virtual CD and place it label-side up in your physical CD-ROM drive. Make sure the data side of the CD is not scratched or dirty.

Wait a few seconds for Windows to detect the CD.

If there are CDs in more than one CD drive on your computer, a dialog opens for selecting the desired source CD:





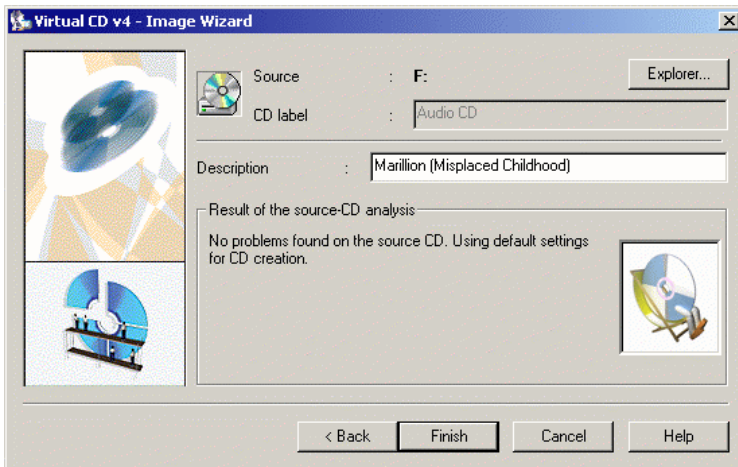
Select the desired source and click on **Next**.



Make sure the source CD is not accessed by any other application while you are making the virtual CD. In particular, make sure that Media Player is not running, as it might be set to start automatically any time a CD is inserted.

If the source is an audio CD and you activated the "CDDDB" function when you installed VCD v4, Virtual CD now attempts to download the CD title and track titles from the Internet. The CDDDB service is free of charge and is supplied by www.cddb.com. (If you do not have an Internet connection, an error message is shown. This does not affect the creation of your virtual CD—simply confirm and continue.) If you are not registered with CDDDB, the registration process is completed the first time you log on to the CDDDB server.

In the next dialog, you can enter a **Description** of the CD. Make sure the description is unique, and clearly identifies the CD it refers to, so you can use it to locate the virtual CD later:



When you click on **Next**, Virtual CD analyzes the performance of the physical drive and the structure of the source CD. This process runs in the background; you don't have to do anything.

Now Virtual CD uses the data on the physical CD to create a 1 : 1 image of it on your hard disk. Depending on the CD type and data volume, and on your computers performance specifications, this can take anywhere from 15 to 45 minutes. (If the CD is copy-protected, it may even take hours.) When data transfer is complete, the physical CD is ejected from the drive.

Congratulations! You can now insert your new virtual CD in a virtual drive (see page 22.) and use it just like a real CD!



If you have any problems while making a virtual CD, please refer to the Troubleshooting. section on page 39..

Creating a Virtual CD: Expert Copy Mode

Depending on the current settings in your Virtual CD program, you might have to deactivate the *Easy Copy Mode* before you can use the *Expert Copy Mode* (see page 36).

Select the physical CD from which you want to create a virtual CD and place it label-side up in your physical CD-ROM drive. Make sure the data side of the CD is not scratched or dirty.

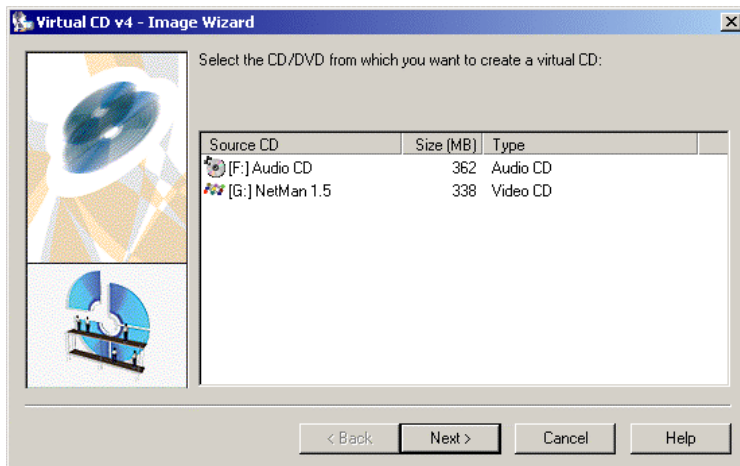
Wait a few seconds for Windows to detect the CD.



Make sure the source CD is not accessed by any other application while you are making the virtual CD. In particular, make sure that Media Player is not running, as it might be set to start automatically any time a CD is inserted.

If there is more than one CD available for use as a source CD, a selection dialog opens:

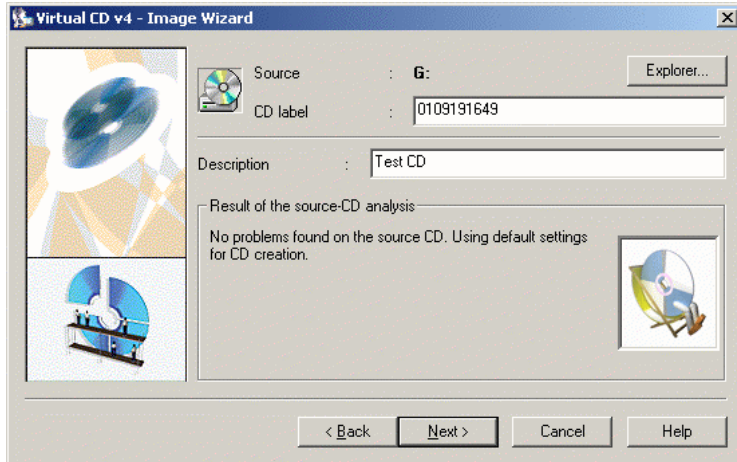
Selecting the Source CD



Select the desired source from the list and click on **Next**.



Entering a Label and a Description



You can edit the **CD Label** if you wish, if this option has been activated in the Virtual CD Settings (see page 36). The CD label is limited to 16 characters and may contain letters, numbers and the hyphen or minus sign ("-").



Some CD applications identify the CD by its label. In such cases, changing the label might cause the application to malfunction. Thus it is not always advisable to change the CD label.

The default **Description** of the virtual CD is the CD label. If the title and artist name for an audio CD are downloaded from the Internet, the default Description is taken from this data.

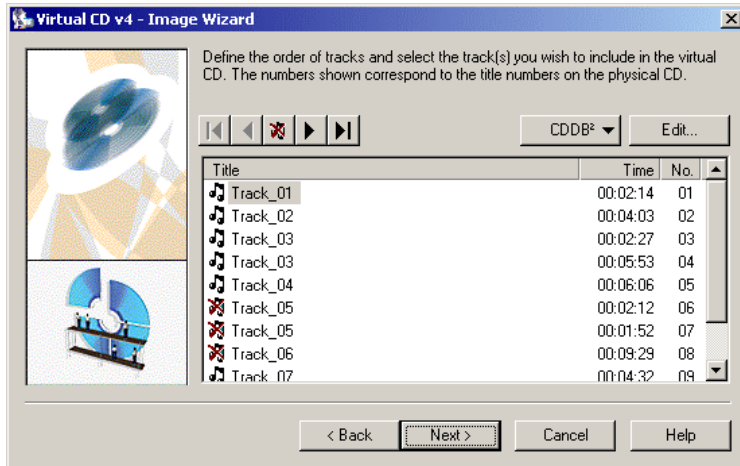
Changing the Description does not affect CD applications. Make sure you use a unique description (not used for any other virtual CD) that clearly identifies the CD.

The Description is limited to 127 characters, and special characters are not allowed. The Description is offered as the default for the container file name, which you can overwrite in a later dialog.


Click on **Next** to continue.



Selecting Data/Audio tracks



The next window shows all of the data and/or audio tracks on the source CD. If you simply click on **Next** at this point, all tracks are included on the virtual CD without modification. We strongly recommend doing this when making a virtual CD from a software CD.

If you are making an audio virtual CD, on the other hand, you may wish to exclude certain tracks, which you can do by selecting them and then clicking on the  button. You can also change the order of the tracks using the arrow buttons.

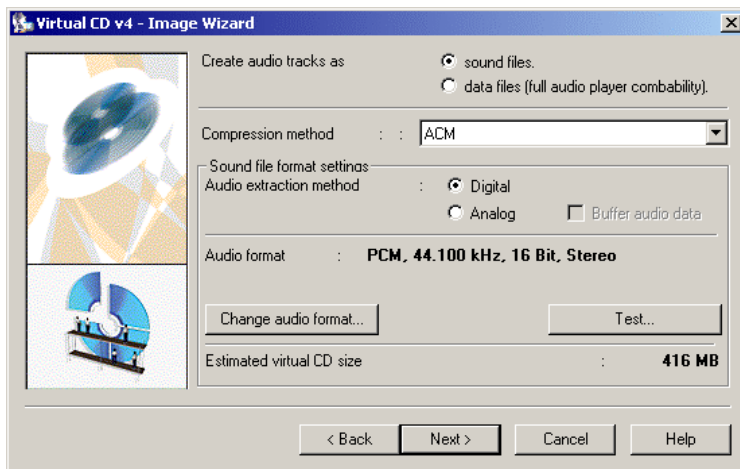


You can select multiple tracks by holding down the CTRL key while you click on the desired tracks. If you want to select a number of tracks shown *in a row*, hold down the shift key while you click on the first and last of the desired tracks.

Click on **Next** when you are ready to continue. The "Settings for Audio CD" dialog, shown below, opens only if the source CD is an audio CD. The dialog that opens for data CDs is explained further down.



Settings for Audio Tracks



The default setting in this window is the option for creating audio tracks as **individual sound files**. With this option, you can also select the **Compression method for sound files** from the select list. At the time of printing of this manual, "ACM" is the only method offered. Additional methods will be released shortly for integration in your Virtual CD program. As soon as these become available, you will find them on the Virtual CD Web site, at www.virtualcd-online.com.

The **audio formats** found on your PC are a subset of the selected compression method. The standard setting uses a method that creates 1 : 1 images in audio CD quality (PCM, 44.100Hz, 16-bit, stereo). If you want to change the audio format, keep one thing in mind:

"Sound quality costs disk space"

In other words, the better the sound quality, the more space used up on your hard disk by the virtual CD. The standard CODEC (**compression-decompression module**) integrated in Windows is the MS ADPCM CODEC, which offers a good compromise between the sound quality achieved and the disk space required. Other CODECs, such as MP3 and VQF, for example, offer even better compression and still produce sound quality approaching that of the original CD.

When you create music tracks as sound files, you can define whether the source data is read using a **digital** or an **analog** technique. Almost all CD-ROMs used today (8x and up) support the function for reading audio tracks **digitally**. This option offers better sound quality than the analog technique. Even so, there may be some audible interference. If this is the case, select the **analog** option. With this setting, the audio data is played from the original CD and recorded by your sound card. You can use the **Test** option to check the recording quality and volume.



If you select the **data files** option, the audio data is not treated as *audio* files by Virtual CD, compressed using *audio* coding/compression methods, but rather the raw data is read digitally and stored as *data* tracks. The compression method used, if selected, is for *data* compression. This compression method does not have the error tolerance that audio compression does, and is less efficient for audio tracks than the audio compression methods, which are designed especially for use with music files.



See page 31 for details on how to determine whether your CD-ROM drive supports the function for **Creating audio files as data tracks**. Under Windows 98, the MS Media Player v7 (or later) must be installed, and the "digital playback" option in its program settings must be selected. This setting is deactivated automatically, by the way, every time you insert a physical audio CD.

Both methods have advantages and disadvantages, so we can't really recommend one method over the other. The table below lists the pros and cons to help you decide which is best for you in any given case:

Write audio tracks as...	Advantages	Disadvantages
<i>...individual sound files</i>	<ul style="list-style-type: none"> • Saves hard disk space, for example when using MP3 compression • Files can be opened by music programs individually for editing • Can be created using any physical CD-ROM drive 	<ul style="list-style-type: none"> • Audio compression might take more CPU time • Takes longer to make the virtual CD • The virtual CD cannot be used as a source for another virtual CD, nor for CD-R or audio-CD 'ripping' software
<i>...data files</i>	<ul style="list-style-type: none"> • Full support for music player functions (such as visualization in Media Player) • The virtual CD can be used as source for another virtual CD, or for CD-R and audio-CD 'ripping' software • More flexible, as the files can be used later to create a virtual CD with sound files 	<ul style="list-style-type: none"> • Takes up more hard disk space • Doesn't work with every type of physical CD-ROM drive • Only works with certain configurations in Media Player

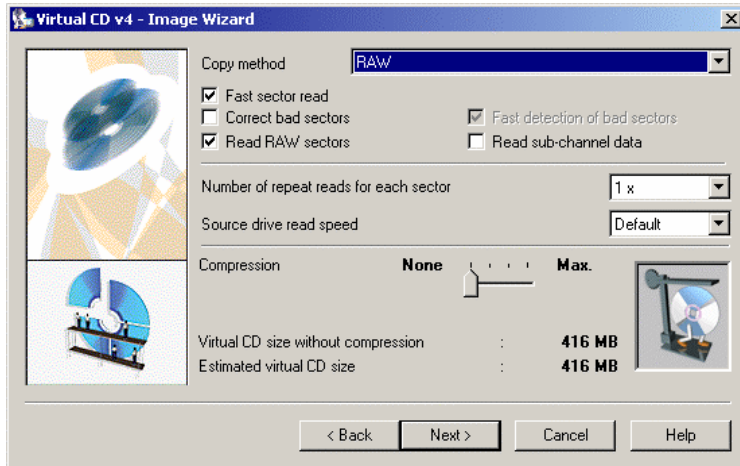


We recommend creating audio tracks as data files **only** if you plan to make use of the advantages listed here. Otherwise, we highly recommend selecting the **sound files** option in conjunction with a suitable data compression method (such as MP3).

Click on **Next** to continue to the next Image Wizard dialog:



Settings for Reading and Compressing Data



This dialog allows precise definition of the method used to read data from the source CD. These are the most *important* options for successful creation of a virtual CD!

When you insert the source CD, Virtual CD analyzes the performance of its CD-ROM drive and the structure of the source-CD data, and suggests a "conservative" choice of settings. You can change these settings as desired.

The first select list lets you choose from a range of data readout configurations. You can change the individual settings to adapt the configuration to your needs.

Fast sector read

With this option, sectors are read in blocks rather than individually. This is faster, on the one hand, but on the other hand, if a defective sector is found in a given block then the other sectors in that block must be read again individually. In most cases this is the preferred configuration. If a virtual CD created using this method doesn't work, however, try deselecting this option to improve the read quality.

Correct bad sectors

Some copy-protection methods are based on defective sectors, which can simply be reproduced by Virtual CD when this option is selected. Detecting defective sectors does take more time, however, which means creating a virtual CD with this setting can take up to a number of hours. Still, this option is recommended for certain CDs, such as "home-made" CDs, for example, because CD-writers often create bad sectors. This option is *not* necessary for audio CDs.

Fast detection of bad sectors

This option is available only if the **Correct bad sectors** option is selected.



Each sector is read individually and defects are reproduced only if a test routine shows an error. Without this option, each sector is read repeatedly until the exact same data is read several times. If a virtual CD created using this option doesn't work, deactivate this option. Again, the creation process takes longer if this option is not active.

Read RAW sectors

RAW sectors contain other information in addition to the desired user data. If the copy-protection technique used on the source CD involves evaluating these sectors, they must be read in order to create the virtual CD. Furthermore, RAW sectors must always be read to create video CDs, CD-Extra CDs or audio CDs. The disadvantage is that the virtual CD takes up more disk space, as additional files are included in the container. Please see page 31 for details on determining whether your physical CD-ROM drive supports this mode.

Read sub-channel data

Sub-channels also contain additional information which is often required for the CD, especially for newer audio CDs. Again, the disadvantage is that the virtual CD takes up more disk space. See page 31 for details on determining whether your physical CD-ROM drive supports this mode.

Number of repeat reads for each sector

Readout quality can be improved—especially for older CD-ROM drives—by reading each sector repeatedly. If a lot of errors are detected, the number of repeat reads should be set to 2 or 3. Unfortunately, this slows down the overall read speed.

Source drive read speed

With some CD-ROM drives, the readout quality can be improved by decreasing the speed. This can also reduce noise, as the source CD rotates more slowly. If this option is not available in this dialog, this indicates that your CD-ROM drive does not support it.

Compression

You can switch off data compression, or choose one of three compression_levels. The higher the compression level you choose, the longer it takes to create the virtual CD and the more CPU time is used when you run the CD. On the other hand, the lower the compression, the more hard-disk space is taken up by the resulting virtual CD.

The table below lists the advantages and disadvantages of the different compression options to help you decide which is best for you:

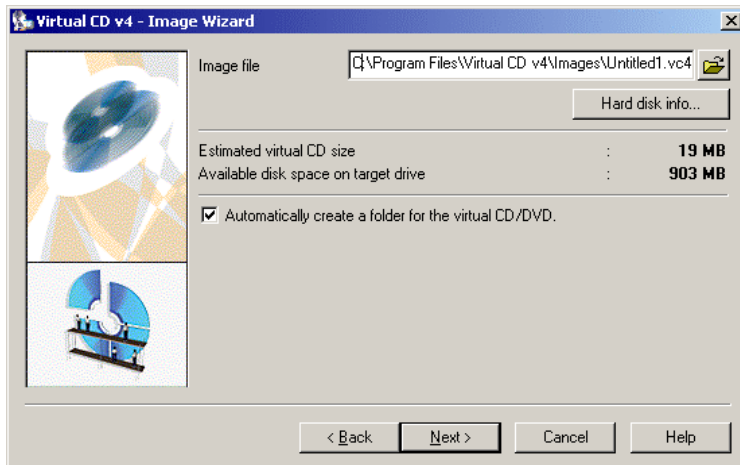
Compression	Advantages	Disadvantages
-------------	------------	---------------



None	<ul style="list-style-type: none"> • Quickest method for creating a virtual CD • No added load on the CPU 	Takes up the most space on the hard disk, as the size of the container corresponds directly to the data volume on the CD
Level 1	Good compromise between CPU load and storage space taken up	Low added CPU load
Level 2	Especially well suited for use with sectors copied using the RAW mode	Higher added CPU load
Level 3	Lowest disk space requirement	<ul style="list-style-type: none"> • For use only with processors of at least 700MHz • Takes longest to create the virtual CD

Once you have chosen the options that are best for you, click on **Next** to continue.

Entering a File Name and Path for the Container



This is where you define the path and file name for storing the VCD container on your hard disk.



The path and file name together must not exceed 254 characters in length.



The default path shown here is defined, and can be changed, in the Virtual CD Settings dialog (see page 33).

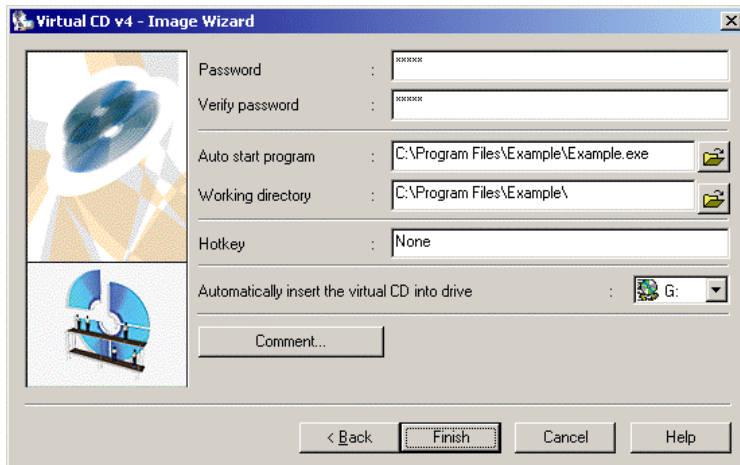
Generally, the path shown here is selected (white letters on a dark blue background) when this dialog opens. Thus when you enter characters, the entire default name is replaced by what you type. All you need to enter is a name for the file itself, as Virtual CD automatically adds the default path (see above) and the **.VC4** file name extension.

Click on **Hard disk info** for a quick view of the available disk space on your hard disk(s).

Select the **Automatically create a folder for the virtual CD/DVD** option if you want Virtual CD to create a separate folder for the files that make up your virtual CD. Since each virtual CD can consist of several files (see "Structure of a Virtual CD Container" on page 7), it can be difficult to tell later which files belong to which virtual CD. This is why we recommend leaving this option active for every virtual CD you create.

Click on **Next** to continue. The next dialog is the last one you need to edit before the virtual CD is created.

Additional Settings for the Virtual CD



You can assign a **password** to prevent unauthorized use of a given virtual CD. Once a password has been assigned, it must be entered before the virtual CD can be inserted or ejected, or its properties edited. When you assign a password, you have to enter it twice to avoid typographical errors ('typos').



The password merely protects the CD from unauthorized access; the virtual CD data itself is *not* encrypted.



We recommend using a password that is not too easy to guess. The longer the password, the more secure it is; combinations of numbers and letters are also more secure than simple words.

The password is case sensitive (a distinction is made between upper and lower-case letters), and can have up to 15 characters. You can change the password at a later stage in the virtual CD Properties dialog.

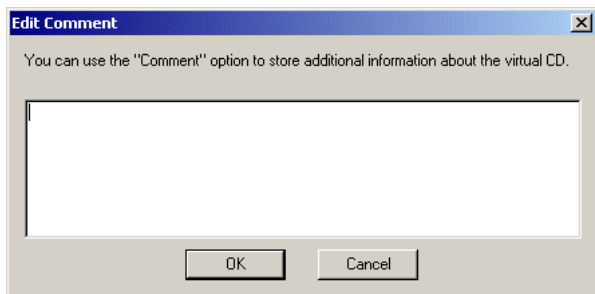
You can define a **start program** if you want to have a program of your choice started automatically when the virtual CD is inserted. For example, if the virtual CD contains images, you can enter a graphic editing program here as the start program.

For some CD applications, you need to define a **working directory** for the application to run in. Where this is the case, you can enter the directory here.

The **hotkey** is a combination of keys (such as "Ctrl+M", for example) that inserts the virtual CD automatically. This option can be very handy, especially for virtual CDs that are used frequently. Even if the Virtual CD program is not running and you are working with some other program, this hotkey inserts the virtual CD and runs any start program defined for it.

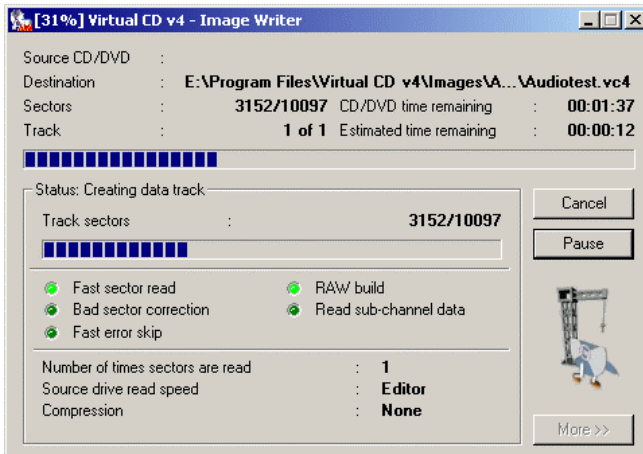
If you select a drive letter for the option '**Automatically insert the virtual CD into drive...**', the virtual CD is inserted in that drive as soon as it has been successfully created.

Click on the **Comment...** button to enter additional information about the virtual CD. The Comment text is limited to 2047 characters:



In the Virtual CD Settings, you can have the list of track titles from audio CDs added to the comment field automatically. For details, see page 36).

This completes the configuration of your virtual CD. The 'write' process begins when you click on **Finish**, and a window opens showing the progress.



You can stop the procedure temporarily by clicking on **Pause**, or end it before it has finished by clicking on **Cancel**.



Even if defective sectors are indicated in the **Sector overview** (opened by clicking on **More>>**), this does not necessarily mean that the virtual CD created will be defective. Some CDs are purposely made with defective sectors; these are included on the virtual CD if the **Correct bad sectors** option is selected.

Inserting a Virtual CD

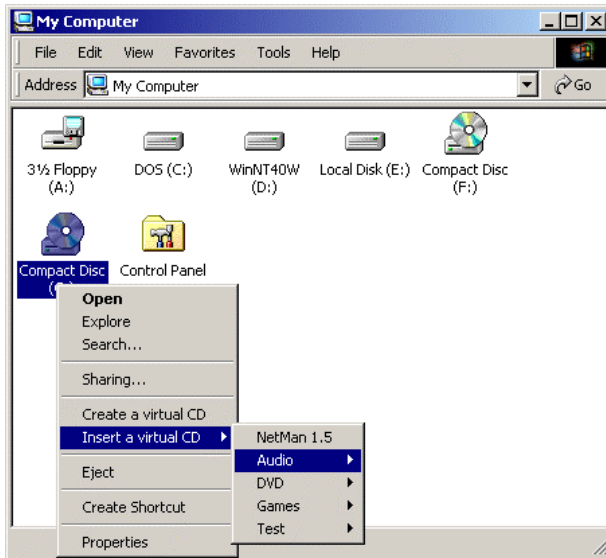
There are a number of ways to insert a virtual CD:

- Through the Virtual CD Management program
- Through the quick-launch symbol in the taskbar
- By right-clicking on a virtual CD drive in the Windows Explorer

The latter option is described in the following:

Double-click on the "My Computer" icon in your Windows Explorer. Right-click on the virtual drive in which you want to insert a virtual CD.

The Virtual CD program has expanded the shortcut menu that opens here, so that it now includes the item **Insert a virtual CD**:



When you move the mouse cursor to this option, a list of all your virtual CDs is opened. Click on the desired CD to insert it. You can now work with this virtual CD in the same manner as if it were a real CD.

Working with the Virtual CD Management Program

Virtual CD Management is the main program in Virtual CD, and should be quite familiar to users of earlier Virtual CD versions. You can access all Virtual CD functions and configure all of the available program options in this program window.

Starting the Virtual CD Management Program

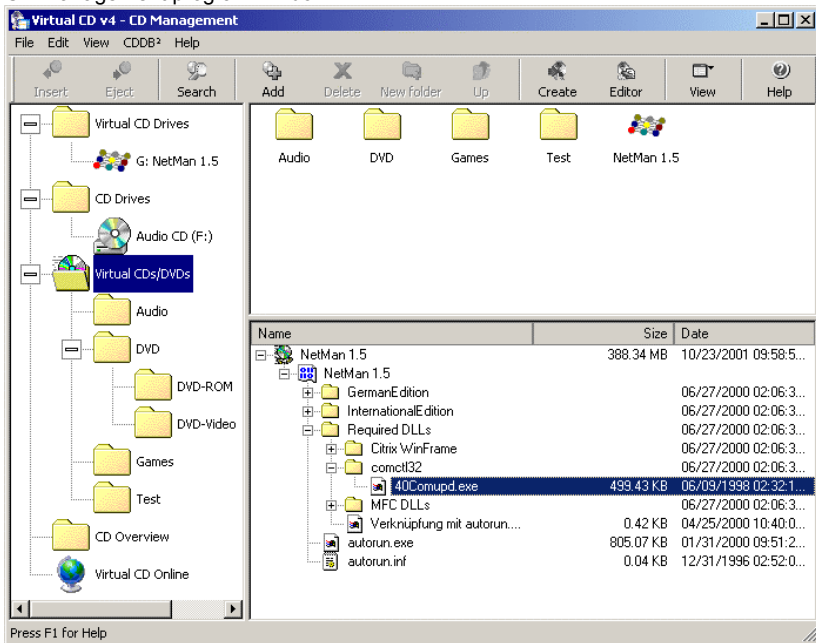
You can open the Virtual CD Management program (actually the main program window in Virtual CD) by double-clicking on the quick-launch symbol in your Windows taskbar (if you have not deactivated the Quick Start Utility; see page 33), or on the program icon on your desktop—or of course by using the classic method: Click on the **Start** button in your Windows taskbar and select **Programs** → **Virtual CD v4** → **CD Management**.

Unless you have deactivated it in the Virtual CD Settings dialog (see page 33), the **Start Selection** dialog starts rather than the Management program:



This window offers direct access to the most frequently-used Virtual CD functions. To open the Virtual CD Management program from here, click on either **Manage your virtual CDs** or **Disable the Start Selection Dialog**. In the latter case, the Start Selection dialog is not opened any more unless you re-activate it (see page 33).

CD Management program window:



This main window is divided into 3 panes. All drives and all virtual CDs are shown on the left in the usual tree structure. The virtual CDs are shown with their respective folders, under **Virtual CDs/DVDs**, and again at the bottom of the tree in a simple list, under **CD Overview**. You can change the display mode of this window pane so that it



shows only your *virtual* CD-ROM drives, as was the case in the earlier Virtual CD program versions (see page 34).

The upper half of the right-hand pane shows all of the virtual CDs that are registered (see below) in the Management program. The lower half shows the *contents* of the selected virtual CD.

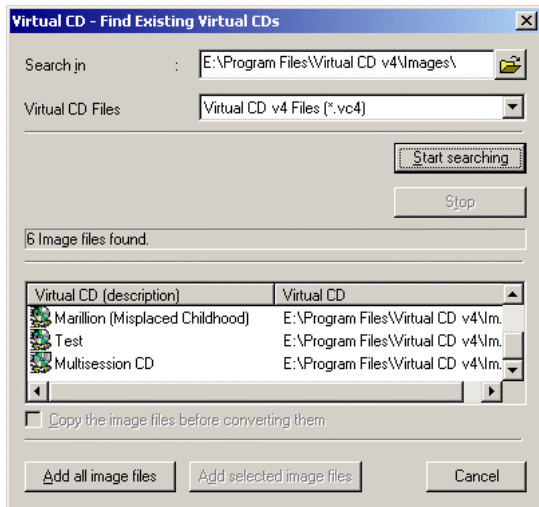
Adding Existing Virtual CDs to the Management Program

When Virtual CD is first installed, it doesn't "know" about any virtual CDs you may already have on your hard disk. Existing virtual CDs have to be added to the Management program, or "registered", before you can use them.

When you select the **Find** function in the Virtual CD Management program, Virtual CD searches your system for existing virtual CDs. The CDs found are presented in a selection dialog, so you can define which ones are added.



To add CDs, start by clicking on the **Search** button to open the "Find..." dialog. Enter the path to be searched under **Search in:**



Under **Virtual CD files** you can restrict the search to certain file types. You can choose between container files from earlier Virtual CD versions and .ISO files, which are created by CD-R programs. Click on **Start searching** when you are ready to start the search; all CDs found are shown in the box at the bottom of this dialog.

From the files listed, you can select the desired containers and click on **Add selected image files** to register the corresponding virtual CDs in the Virtual CD Management



program. Alternatively, you can click on **Add all image files** to register *all* of the virtual CDs found.



In order to integrate new functions in Virtual CD, we have implemented a whole new file format. The new files have the extension .VC4, rather than the old .FCD extension. When you add older files to your new Virtual CD Management program, they are automatically converted to the new file

format.

Once an older .FCD file has been converted to the new .VC4 format, it can no longer be used with an earlier version of the Virtual CD program. If you think you might want to have the virtual CD available for use with an older program version, then you need to select the option to **Copy the image files before converting them** before you click on either of the **Add...** buttons. If you do not select this option, a warning is displayed before older files are converted. Keep in mind that it is NOT possible to convert the file *back* to the old .FCD format once it has been converted to a .VC4 file. When this warning is displayed, you can click on the **Cancel** button to go back and select the **Copy files...** option.

Deleting Virtual CDs

If you have a virtual CD that you don't need any longer, you might want to delete it. The command for this is in the Virtual CD Management program.

Select the CD in the upper half of the right-hand window pane and click on **Delete**. The following dialog opens, to make sure you don't inadvertently delete a virtual CD that you wish to keep:



If you do *not* select the option to **Delete the virtual CD from the hard disk** before clicking on OK, then the CD in question is no longer displayed in the CD Management program, but remains on your hard disk. In this case, you can add it to the Management program again at any time (see "Adding Existing Virtual CDs..." above).

Creating Customized Virtual CDs

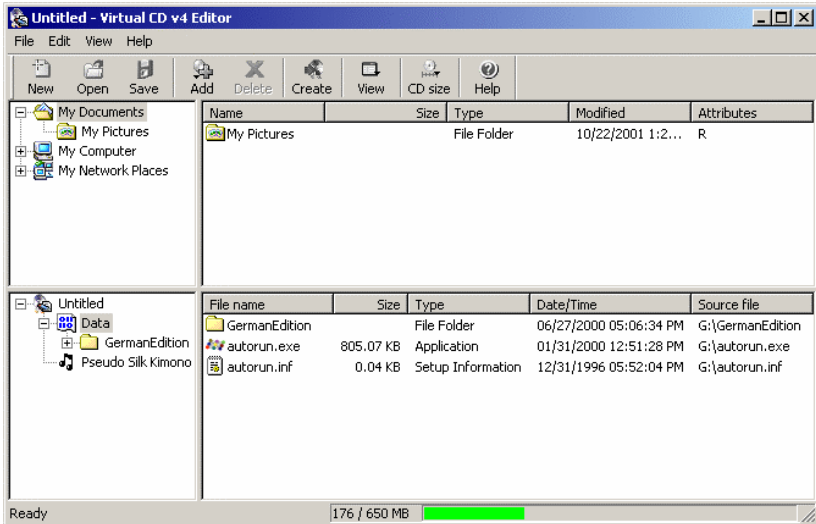
The Virtual CD Editor is a high-performance program module that lets you make virtual CDs with your choice of content. For example, if you want to 'burn' a custom CD, you can write the desired tracks to a virtual CD first so that you can test the CD without using up a blank physical CD. You can also use this function if you want to make a virtual CD from a software CD, but want to leave out data that you don't



need—which would otherwise take up space unnecessarily—such as service pack installers or demo files.



One way to start the Virtual CD Editor is by clicking on the **Editor** symbol in the **Virtual CD Management** program:



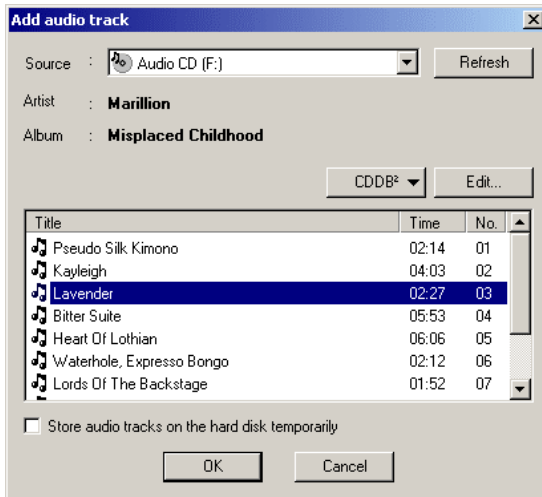
The Editor program window is divided into 4 panes. The view on the upper left shows a tree structure with all of your system's physical drives, including all their folders. The contents of the folder selected here are shown in the upper right-hand pane.

The view on the lower left-hand side shows the structure of the virtual CD currently being created, and the contents of the element selected here are shown in the lower right-hand view.

Virtual CD sets the size of the CD to be created at 650 MB, as this is the usual capacity of blank CDs. To change this setting, click on the "CD Size" button.

Then start selecting the data you wish to include on the virtual CD. To do this, you can either use 'drag & drop'; that is, drag the desired data from the upper to the lower half of the window, or click on the **Add** button, which opens a list where you can select the type of element you wish to add (audio tracks, directory, or files).

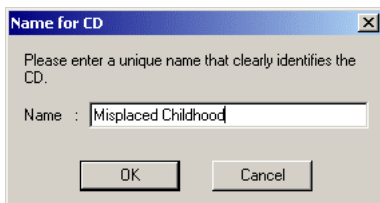
Depending on the type of element you select from this list, a dialog opens where you can specify the data you wish to add. The dialog shown here, for example, opens when you select "Audio tracks":



If the physical drive selected in the upper left-hand pane of the Editor window contains an audio CD, the tracks are listed in the box shown here.

The option to **Store audio tracks on the hard disk temporarily** is especially useful if your virtual CD will contain audio tracks from a number of *different* source CDs. When you activate this function, the selected track(s) from the currently selected CD are stored *immediately* on your hard disk, so that you do not need to insert the source CD again later, when you have finished composing the CD and start the Image Writer.

The next dialog prompts you to enter a name by which the source CD can be identified:



The name you enter here is the name used later, when the Image Writer is writing the virtual CD and you are prompted to insert source CDs. It is important to enter a unique name that clearly identifies the CD.

Once you have put together all of the data you wish to include on your virtual CD, click on the **Create** button to write the virtual CD.



Alternatively, you can just save the data in a 'definition file', which contains the information (see below) for creating the virtual CD, without actually making a virtual CD at this point. To do this, select **Save** from the **File** menu. The file is saved with the extension .VCX, and can be opened in the Virtual CD Editor at a later stage and used to create a virtual CD.



The .VCX file stores only the structure of the virtual CD you have defined (references to files and folders), but not the actual data that the virtual CD will contain. This means that, for example, if you save a definition file that indicates the folder "C:/Pictures", and then modify the contents of that folder before making the virtual CD, the virtual CD will contain the modified content, rather than the content that existed at the time you saved the definition file.

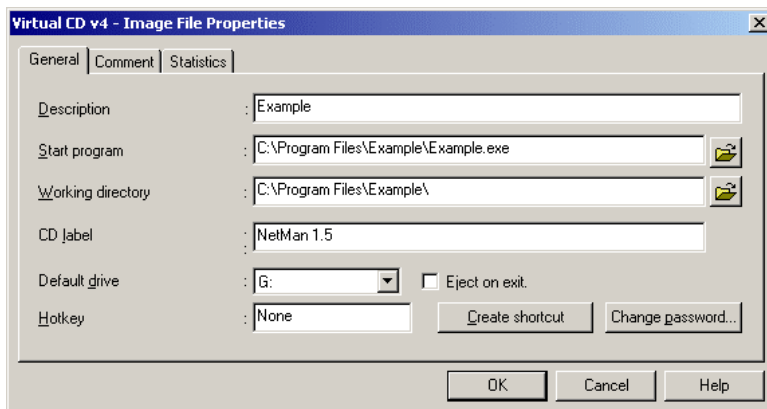


You can edit the content of an existing virtual CD by loading its VC4 file in the Editor. When the modified CD is written, the changes are stored in a new CD session which is added by the Image Writer. The resulting virtual CD is thus a multisession CD.

Properties of a Virtual CD

Some of the settings you configure when creating a virtual CD can be changed later in the Properties dialog. The easiest way to open this dialog is to right-click on the virtual CD in the Management window. The Properties dialog is divided into 3 pages:

General Dialog Page

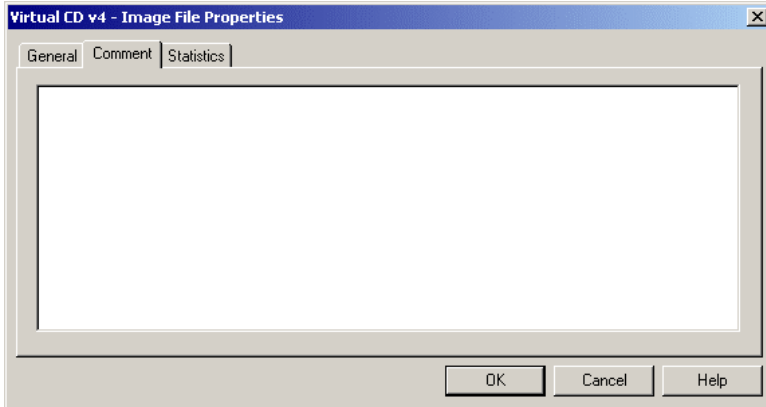


Eject on exit ejects the virtual CD when the computer is shut down; if you do not select this option, the virtual CD is inserted automatically when you start the computer again. This setting is especially important for virtual CDs stored on a network. In this case, this option ejects the CD when you log off the network. If you don't select this option, the virtual CD is inserted as soon as the network connection is re-



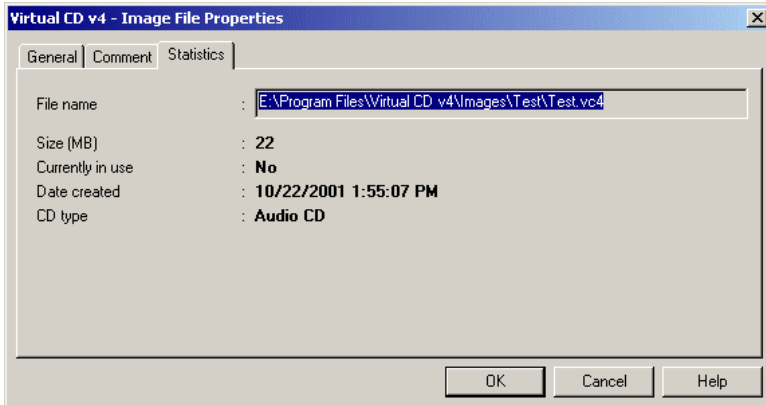
established, and any start program or autostart function defined for the CD starts automatically.

Comment Dialog Page



This dialog is fairly self-explanatory. You can enter up to 2047 characters here, to provide additional information about the virtual CD.

Statistics Dialog Page



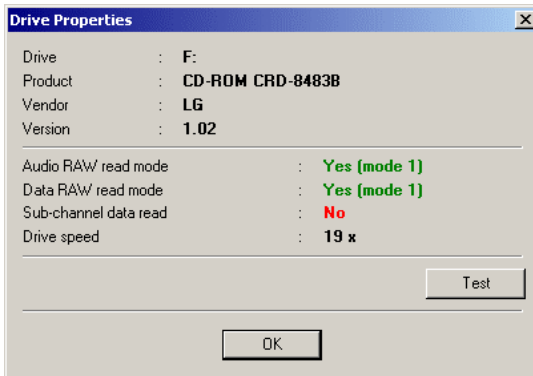
The fields on the Statistics page cannot be edited, but provide you with statistics on the virtual CD.



Properties of a Physical CD Drive

The properties of a physical CD-ROM drive provide information not only about its performance features and drivers, but also indicate what methods it supports for reading data. The newer the drive, the better the chances that it supports all of the available options.

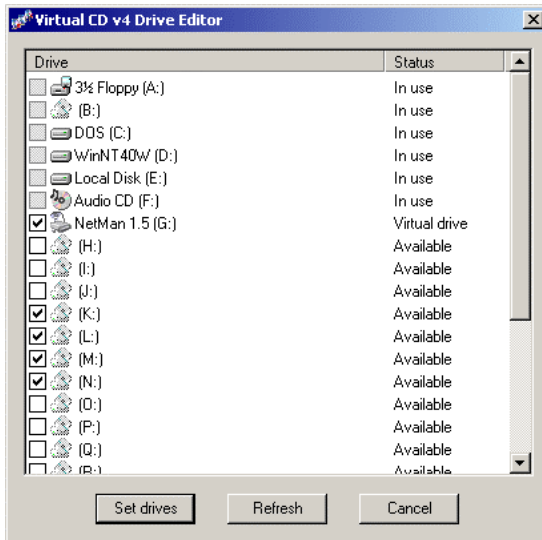
To check these properties, first load a data CD in a physical drive and then select that drive in the Virtual CD Management program. Open the **Edit** menu and select **Properties** and click on **Test** for an overview of the drive properties:



If the drive does not support the functions you require, select a different physical drive (if possible) for creating your virtual CD.

Adding/Removing Virtual CD Drives

To open the dialog for adding and removing virtual drives, select **Edit drives** from the **Edit** menu in the Virtual CD Management program:



In the example shown above, the drive letter **K**: has been selected for use as a virtual drive. After selecting a drive, click on **Refresh** and then restart the computer; the new virtual CD drive is then shown in the Windows Explorer.

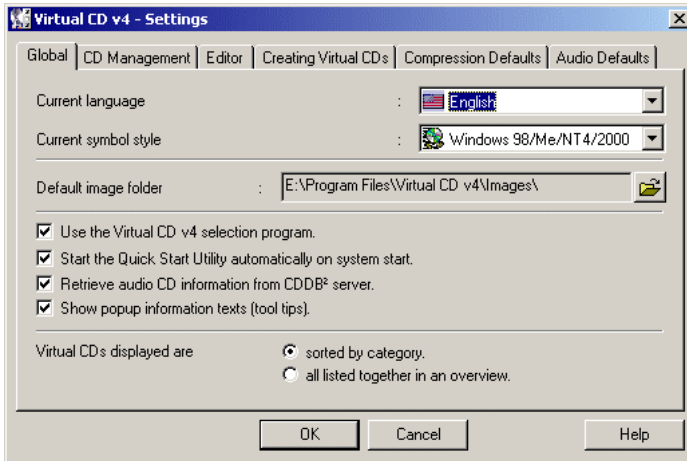
If there is only one virtual drive, then the **Set drives** button is deactivated, as the Virtual CD program requires that at least one virtual drive exists.

Customizing the Virtual CD Program

Select **View** → **Virtual CD settings** in the Management program to open the Settings dialog. Here you can configure the program in detail to suit your requirements and preferences. The Settings dialog is divided into different categories, each on its own dialog page (Global, CD Management, Editor, etc.) :



Global Dialog Page



The **Current language** setting applies to all Virtual CD v4 programs. You need to restart your computer after changing this setting.

The **Current symbol style** setting lets you choose between the **Windows XP** and **Windows 98/Me/NT4/2000** styles for the symbols displayed in the main program, the menu bar, and in program windows. This setting does not affect the *functioning* of Virtual CD.

The **Default image folder** is the default folder for storing container files on the hard disk when a new virtual CD is created. This path is used automatically by the Image Wizard when creating a virtual CD. If you enter a different path in the Image Wizard dialog for a container file name, then that path is used instead of this default.



Make sure the directory you define here is on a hard disk that has sufficient space available for your virtual CDs.

If you activate the **Use the Virtual CD selection program** option, then the Start Selection dialog (see page 23) is opened rather than the Management program when Virtual CD is started.

When you install the Virtual CD program, the Virtual CD Quick Start Utility is automatically added to the quick-launch section of your Windows taskbar (on the far right). If you don't want this icon on your taskbar, deselect the **Start the Quick Start Utility automatically on system start** option here.

Activate the **Retrieve audio CD information from CDDDB² server** option to have Virtual CD download the album title, track titles and artist's name of audio CDs through



the Internet, from the CDDB Service. Please *deactivate* this option if your computer does not have Internet access.

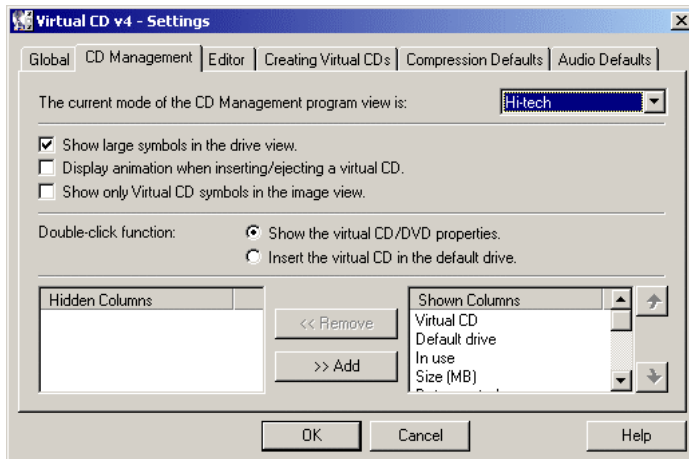
The **Show popup information texts** option lets you activate and deactivate the *tool tips*. A tool tip is the brief explanatory text that appears when the mouse cursor rests on a given operating element. Once you know your way around the Virtual CD program, you might want to deactivate these texts.

The last option concerns one of the new functions in Virtual CD: you can now configure folders for sorting your virtual CDs, which can make them easier to keep track of. The option **Virtual CDs displayed are...** lets you define whether your virtual CDs are shown in the right-hand window pane **sorted by category**, if you want to view the folders, or **all listed together in an overview**, if you just want to see a list of all the virtual CDs, without their folders.



If you have a large number of virtual CDs, we recommend using the **sorted by categories** option and assigning designations to the folders that clearly identify the contents, such as "DVD Videos", "Music CDs" and "Applications", for example.

CD Management Dialog Page



This page lets you configure more display options for your Virtual CD Management, the main program window in Virtual CD.

The **Current mode of the CD Management program view** defines the left-hand window pane, which shows the virtual CD drives. When you select the **Hi-tech** mode, the left hand pane shows not only the virtual CD drives but also the physical drives, as well as all of your virtual CDs, both a in a plain list **and** sorted by category in a tree structure, in their separate folders. In this mode, the Drive View gives you direct access to all CD-ROM drives and all virtual CDs. The **classic** view shows only the



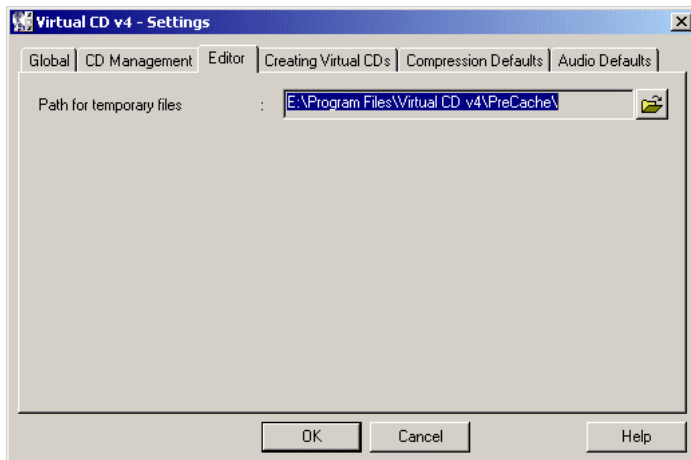
virtual CD drives, as was the case in the earlier Virtual CD versions. This mode might be easier to work with for VCD beginners.

The option **Show only Virtual CD symbols in the image view** gives you the choice of having only Virtual CD icons shown, or using the symbols that come with the original CDs. Not all CD applications come with their own symbols. For those that don't, a Virtual CD symbol is used in the display.

The option for the **Double-click function** determines what happens when you double-click on a virtual CD in the Management program. Select the **Show the virtual CD/DVD properties** if you want a double-click to open the Properties dialog for the virtual CD. Alternatively, you can select the **Insert the virtual CD in the default drive** to insert a virtual CD by double-clicking on it. If no default drive is defined for a given virtual CD, then it is inserted in the first available virtual drive found. If no virtual CD drive is available, then the virtual CD in the first virtual drive found is ejected, and the virtual CD in question is inserted in its place.

The boxes at the bottom of this page let you define which columns are shown, as well as the order they appear in, when 'details' are shown in the CD View.

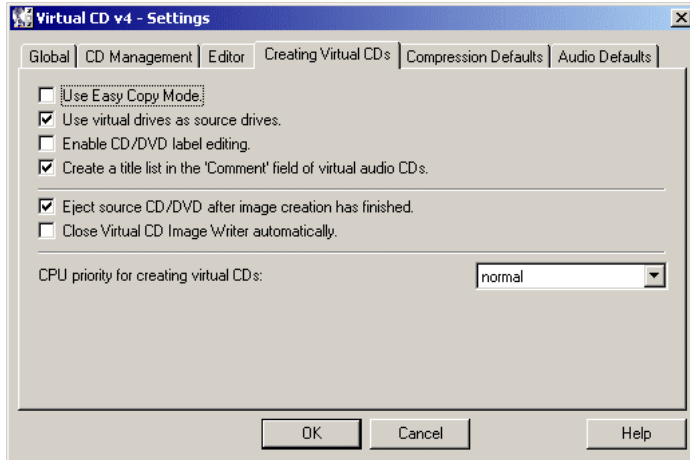
Editor Dialog Page



On the dialog page for Virtual CD Editor settings, you can define the default directory for the temporary files stored when creating a customized virtual CD. Make sure the directory you define here is on a hard disk that has sufficient space available for the temporary files. All files in this directory are deleted automatically once the virtual CD in question has been created.



Creating Virtual CDs Dialog Page



One of the most important options is the selection of the copy mode. The new **Easy Copy Mode** has been added especially for users who want to create virtual CDs as quickly and easily as possible. Deactivating this option sets the Image Wizard to the Expert Copy Mode.

In the Easy Copy Mode, almost all of the settings for creating a virtual CD are configured automatically:

- If there is only one drive that can be used as a source drive, then this drive is selected automatically.
- A 1:1 image of the source CD is created. When making a virtual audio CD, for example, you cannot choose which tracks are included or excluded.
- The container file for the virtual CD is given a name automatically.
- The source CD-dependent settings are configured automatically based on the results of Virtual CD's analysis of the source CD structure.

The Easy Copy Mode is definitely the fastest and least complicated method for creating virtual CDs.



Some CDs actually require that certain configurations are set manually, to ensure that the virtual CD functions properly. In such cases, you need to deactivate the Easy Copy Mode here, so that you can edit all of the configuration options (including password protection and hotkeys, for example).

Activate the **Use virtual drives as source drives** option to make virtual CDs from other virtual CDs. Even with this option selected, the only virtual CDs you can use as sources for other virtual CDs are audio CDs and data CDs created using the *normal*



copy method. To make a virtual CD from another virtual CD, select the source virtual drive and then activate the **Create** function in the Virtual CD Management program.

The **Enable CD/DVD label editing** option lets you edit the field for CD labels.

If you select the **Create a title list in the 'Comment' field of virtual audio CDs** option, then all track titles from a source music CD are automatically listed in the "Comment" field of the virtual CD. The "Comment" field can be edited at any time, regardless of whether this option is selected or not.

The option **Eject source CD/DVD after image creation has finished** can be useful for providing a clear indication—by opening the physical CD-ROM drive—that the virtual CD creation process is finished. Once the virtual CD has been created, the physical CD is no longer required anyway, and ejecting it automatically can help prevent confusion.

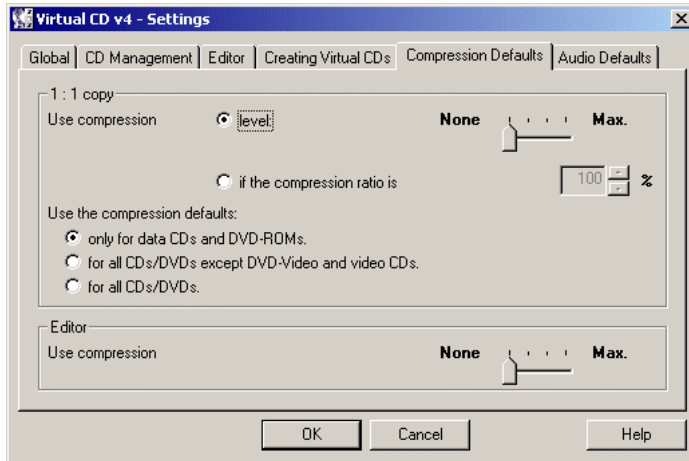
Once the creation of a virtual CD is completed, the Image Wizard usually opens a window with a summary of the creation process; including, for example, the time it took to make the virtual CD. If you select the **Close Virtual CD Image Writer automatically** option, the Summary window and the Image Writer are closed automatically.

The last option on this page lets you adjust the priority given by the operating system when allotting system resources to the Image Writer for creating a virtual CD. If the computer has nothing else to do than to create a virtual CD, then the **high priority** setting shortens the time this process takes. In this case, the majority of system resources are given to the Image Writer, and any other programs running are allotted far less CPU time.

If you plan to do other work with your computer while the Image Writer is running, you should set the priority to **low** or **medium**.



Compression Defaults Dialog Page



The defaults you set here are applied automatically by the Image Writer when the Easy Copy Mode is active, and are presented as defaults that can be overwritten in the Image Writer when you use the Expert Copy Mode. For detailed information on the use of data compression, please see "Compression" on page 18.

There are 2 options for data compression settings on this page:

The first option lets you choose one of three compression *levels* (or "none") as the default.

If you activate the second option, Virtual CD estimates the results attainable with each level of compression, and selects a level based on the value you enter under **Compression ratio**. This value is the percentage of the total data volume on the original CD. For example, if you enter 80% as the target compression ratio, then Virtual CD selects the lowest compression level that can reduce the data volume to 80% of the original volume.



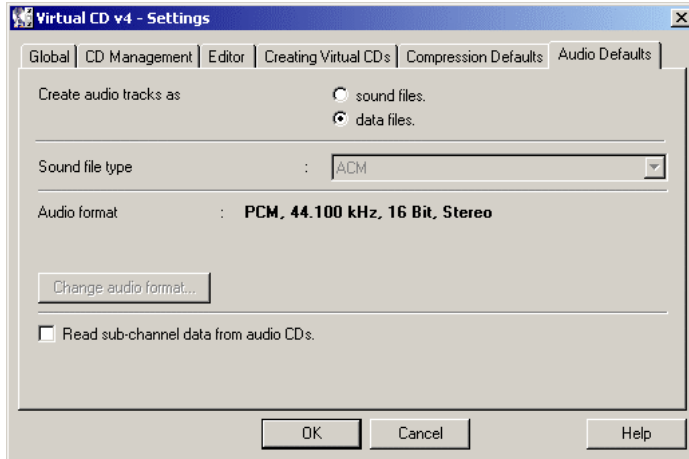
Please don't set the ratio too low, as this could result in Virtual CD selecting the highest compression level every time—which might put a considerable strain on system resources. The optimum setting is generally around 70% to 80%.

The setting under **Use the compression defaults** lets you define whether the defaults set here are applied only to certain types of source CD. For example, experience has shown that there is not much point in using compression on video-DVD/CDs, as the data they contain is already highly compressed and further compression only takes up CPU time without noticeably reducing the data volume of the virtual CD.



The default compression level for the Virtual CD *Editor* is a separate setting, configured at the bottom of this page.

Audio Defaults Dialog Page



The default settings for audio tracks that you configure here are applied automatically when working in the Easy Copy Mode, and presented as defaults that you can overwrite in the Image Wizard when working in the Expert Copy Mode.

Please see "Settings for Audio " on page 15 for details on audio track settings.

Troubleshooting

Some circumstances can lead to difficulties with your Virtual CD program. We've listed these in the following, along with descriptions of how to solve or get around the problems:

The source CD-ROM drive doesn't support the RAW mode for reading data

Virtual CD "asks" the source drive whether it supports the RAW mode or not, but some drives give an incorrect answer. Solution: If possible, use a different CD drive for your source CD.

The source CD or DVD has a special type of copy-protection

Virtual CD analyzes source CDs to determine both their data structure and the optimum method for reading their data. Of course, Virtual CD doesn't have standard settings for absolutely every single type of CD that is available on the market. If Virtual CD doesn't recognize the structure of a given CD, it may help to set certain options manually. First, deactivate the *Easy Copy Mode* (if it's active) in the Virtual CD



Settings (see page 36) and then try configuring other settings in the Image Wizard when defining your virtual CD. Refer to the instructions starting on page 12 in this manual for detailed information on the options available. Unfortunately, if the source CD is a video DVD with CSS copy protection, then no combination of settings will work! There is no way to get around this copy protection technique, due to legal technicalities.

The application on a software CD cannot be installed from a virtual CD

If the application has already been installed from the physical CD, it probably "remembers" the drive letter it was installed from, and looks for its data there rather than on the virtual CD. Solution: uninstall the application in question and then install it from the virtual CD. NOTE: Before running the deinstallation, make sure you save any user data that was generated with that application; otherwise, it might be deleted during deinstallation.

Other applications interfere with Virtual CD functions

Before its release, Virtual CD v4 was thoroughly tested for compatibility with the most widely used computer programs. However, there are innumerable possible combinations of system configurations, and we couldn't test every single possibility. Please check the Virtual VC Web site at www.virtualcd-online.com for up-to-date information on specific compatibility problems that have been discovered in combination with other software products.

Technical Support

If you have any problems with Virtual CD v4, we'd like to ask that you check the manual, the on-line Help and the continuously updated Web pages at www.virtualcd-online.com for assistance.

Naturally we are constantly striving to improve the Virtual CD software. Software upgrades are released in the form of **Service Packs** that you can download from the Virtual CD Web site.

If you still have questions, please do not hesitate to contact us. For information on how to reach us, see the **Readme** file installed with Virtual CD or check our Web pages.

You have now reached the end of the manual. Thank you once again for choosing Virtual CD, and we hope you enjoy using it!

We are always interested in hearing from our customers, whether you have questions, suggestions or complaints. After all, we make this software for you, so it's important for us to know what you want! Please send any comments you have about Virtual CD to gbartels@online.de