
WinOnCD 3.7

POWER EDITION

User's Manual

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Getting Started

Welcome

Welcome to CeQuadrat's WinOnCD, the Windows 95/98/NT version of our prize-winning software.

This manual guides you through the functions of the WinOnCD package so that you can quickly and easily create your own CDs of many different formats.

The self-explanatory interface and the unique CeQuadrat assistant simplify the use of our software.

System Requirements

WinOnCD requires the following minimum configuration:

Computer

An IBM® Personal Computer, or one strictly compatible, with at least an Intel Pentium (or compatible) microprocessor and 32 MB main memory is needed.

On your computer you need to be running Microsoft® Windows® 95/98 or Windows® NT version 4.0, or higher.

You need a VGA graphics board that can display at least 256 colors.

Temporary Storage Space

Installation of the software requires approximately 10 MB of hard disk space.

It is possible, but not necessary, to create an "image file" before writing CDs.

When recording CDs without creating an image file beforehand – a method also known as "On-the-fly" recording –only a small reference file is stored on the hard disk. Virtually no hard disk capacity is needed for temporary storage.

If you decide to write CDs using an image file, or for other reasons it is necessary to create image files, an amount of hard disk space equal to the size of the data to be written to the CD must be available for temporary storage.

Hard Disk

CD recording places special demands on the data stream to the recorder. The data must arrive at the recorder in one continuous and constant stream, and if at any point during writing there is no data in the buffer of the recorder, what is called a "buffer under-run" error occurs and the CD is rendered unusable.

A slow hard disk or a hard disk that executes a thermal recalibration of long duration during the CD recording process may be a reason why "buffer under-runs" occur.

Recorder Connections

SCSI-Controller

SCSI is one of the two most widely used connections for CD-recorders. We recommend using at least a fast SCSI controller with a data transfer rate of 10 MB/sec for recording CDs. The SCSI host adapters currently available usually meet this requirement.

Be sure to follow the manufacturer's installation instructions carefully.

ATAPI/EIDE Interface

The second possibility for connecting a CD-recorder is the EIDE and/or ATAPI interface.

In terms of software, there is no difference between the SCSI- and ATAPI-interfaces.

Be sure to follow the installation instructions for the CD-recorder.

CD-Recorder

To record CDs you also need a CD recorder supported by this software package. For an up-to-date list of recorders supported, and information regarding their connection, please refer to our Internet homepage.

Note:

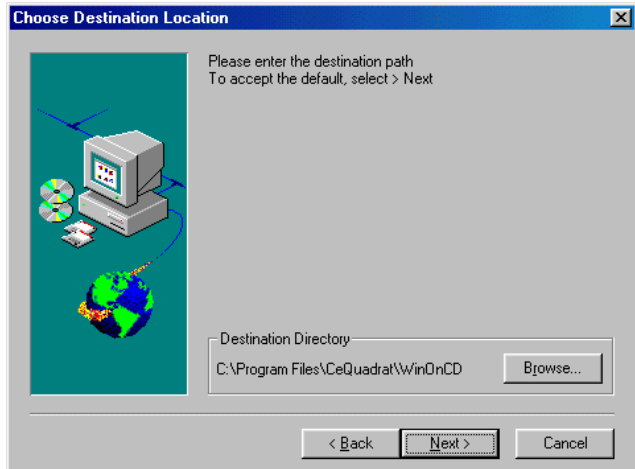
As all CeQuadrat software products use our modular General Recorder Interface, updating the software for new recorders is easy. We will provide drivers for new CD recorders when they become available, and the easiest way to obtain them is to download the latest driver from our web site (<http://www.cequadrat.com>).

Installation Procedure

Please read this chapter carefully **before** installing the software.

Before starting the installation procedure, make sure the operating system detects the CD-recorder, i.e. the CD-recorder should be assigned a drive letter.

1. Insert the CD into the CD-ROM drive. Usually the installation program should now start automatically.
If not, you can either use the Windows® tool **Add/Remove Programs** from the **Control Panel** or select the option **Run** from the Windows® task bar. Start the installer by typing **D:\install.exe** (where D:\ stands for the drive letter of your CD-ROM drive) and pressing **Enter**.
2. Select **Install WinOnCD 3.7**.
The installation assistant opens.
3. Click on **Next**.
The Software License Agreement is displayed.
4. If you agree to the terms and conditions, then confirm with **Yes**.
5. Enter the destination directory for installation.
Use the **Browse** function to select the directory.
Click on **Next**.



Selecting the destination directory

6. In the window that follows, enter your name, company and the serial number of the software. The number is printed on the registration card and the accompanying installation booklet. Confirm with **Next**. The registration data are displayed once again for you to check. If the data is correct, confirm by clicking on **Yes**.
7. In the next window, you can select whether you want to install background images for the booklet, sticker and insert card and/or a title database for detecting audio CDs. The components to be installed are marked with a check. Click on **Next**.
8. The software is installed on your hard disk and the corresponding icon is added to your **Programs** group.
9. Restart your PC to update all the settings.
10. Select the WinOnCD icon from the *Start menu* (Programs | CeQuadrat | WinOnCD).

Remember: Registration of your software is recommended!

Therefore, don't forget to send in the registration card. We only offer support to registered customers!


Quick Reference

General Information

This section contains a quick reference on how to make a CD-ROM and an Audio CD with WinOnCD. Also, the CD Copy module is explained here. It should be used if you already know how to use WinOnCD but want to make sure you have not forgotten any steps.

The examples are designed so that you can recreate them easily with your software and follow along.

WinOnCD Assistant

If you want to familiarize yourself with the CD recording topic first, please choose the WinOnCD Guide  from the main button bar or by selecting the **File | Assistant** command. You will be guided step by step through the production of an ISO 9660/Joliet CD, an Audio CD, a Video-CD, or a CD-Extra and be introduced to the use of the CD Copy module. Use the Guide as long as you feel you need this special support.

Creating a Data CD

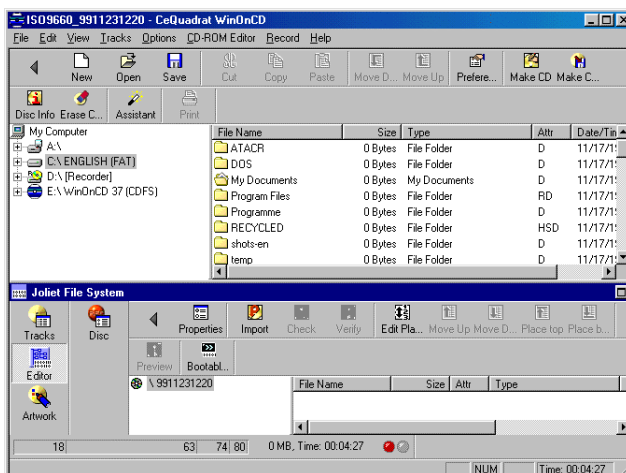
In this example, we deal with a data CD according to the ISO 9660/Joliet standard. You can easily follow along with your own files and, if desired, actually burn a CD.

Starting WinOnCD

Provided that WinOnCD has been properly installed, it can be started using the "Start" menu or with the Explorer by double-clicking the "WinOnCD" icon.

Choosing a New Project

Usually, WinOnCD will start up with the project selection window by default. Double clicking the **CD-ROM ISO 9660/Joliet** icon will open the WinOnCD main window that is divided into the source window above and the destination window below.



The Main WinOnCD Window

Main Window of WinOnCD

Except for the menu bar, there are three areas in every WinOnCD layout window: The button bars (under the menu bar), the source window (in the middle) and the destination window (at the bottom). Please refer to the Chapter entitled "Basics, The WinOnCD User Interface" for a description of the main window ".

To combine the data for an ISO 9660/Joliet CD (data CD), click the Editor button.

The horizontal divider between the source and destination windows is adjustable, as are the vertical dividers separating the left and right halves of the source and destination windows.

The source window works just like the Windows Explorer. The structure is shown on the left, while files and their attributes are shown on the right. Open and close a few directories to get a feel for the Source Window.

In addition, there are four buttons in the destination window of the ISO 9660/Joliet project:

Tracks

The total number of tracks on the CD is shown; for an ISO 9660/Joliet CD there is only one track per session.

Editor

Files and directories on the CD can be edited.

Artwork

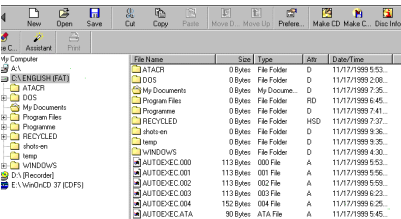
Opens a graphics editor for the easy creation of customized booklets, inlay cards and labels for the new CD.

Disc

Opens the "Disc Properties and Recording Settings" window.

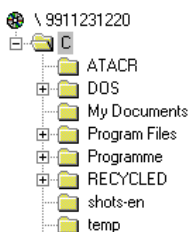
Selecting Files

As long as there are no files or directories assigned for the CD, only the empty root folder will be in the destination window. Next, simply drag a directory from the source window onto the icon of the CD root folder.



Source Window

The directory will appear in the destination window:



Destination Window Tree

You can also drag files directly from the Windows Explorer to the source window.

The new directory will be in the root directory of the CD, and all of its subfolders, if any, will be included. Other directories or files can be added to any directory in the destination window.

Context menu

The items in the destination window can be modified without affecting the originals on the hard disk by using the context menu (click the right mouse button):



ISO 9660 Editor Context Menu

Most of these options are self explanatory, just select an item in the Destination Window and try. All commands are explained in detail in the section entitled "Context menu" of the ISO 9660 / Joliet project.

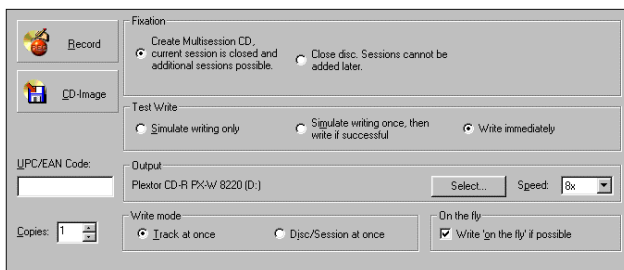
ISO/Joliet Properties

Some properties (e.g. naming conventions) have to be set before files are added. To do this, select **CD-ROM Editor | File System Properties**.

To find out more about each of the individual options, please consult the **ISO 9660/Joliet Project** chapter of this manual.

Burning the CD

When the layout is complete (or you just want to continue), select the 'DISC' button.



CD Properties and Write Options

For now, check the options as shown above to allow a safe operation. If you do not wish to write the CD, check "Simulate Writing Only". If the latter option is set, the recorder will go through the motion as if it were writing, but no actual writing will occur. If this option is activated, then the CD recorder will behave as if it were writing. However, no writing will actually occur.

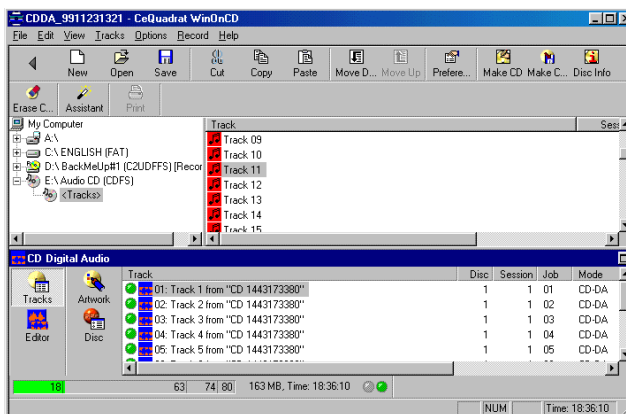
Obtain some information about your recorder by pressing the "Select..." button. When ready, press "OK". A dialog will prompt you to insert a CD, and clicking the 'Record' (REC) button starts writing or emulating the CD.

Creating an Audio CD

This example builds on the first one, so some basic elements will be skipped. The example given here demonstrates the steps you need to take to create an audio CD.

Selecting a Project (CD format)

After starting WinOnCD, choose **"CD Digital Audio"** from the project selection box. (If you are already working with WinOnCD, you can get to the selection box by choosing New in the File menu.) The main window appears in the Audio-Editor view:



Main Window of WinOnCD

Selecting Files

Use the browser to put music and sounds on a track. Select an audio file e.g. ".WAV" or ".MP3". Drag it into the destination window. The graph of the sound will be shown and you can mark all or part of it.

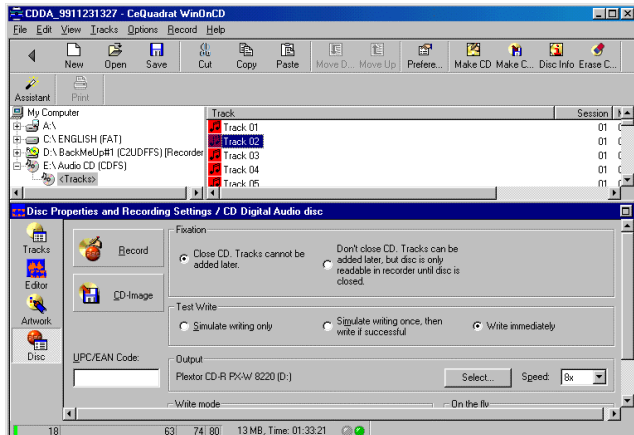
Several sounds can be inserted into one track by dragging them into the destination window. They will be inserted at the current selection.

The sounds on a CD can also be copied by dragging the symbol for the CD-ROM drive containing an audio CD into the Editor window. For more details, refer to the chapter entitled "Audio CD Project".

A short explanation for all icons in the Audio Button Bar can be displayed by selecting **Text Buttons** from the context menu (Click the right mouse button while over the button bar). ToolTips are also available when moving the mouse pointer over the buttons. Just try out these tools.

Adding More Tracks

To add more tracks, just click the "Tracks" button. All the tracks of the CD are listed.



Audio Tracks

A new track will be inserted into the list by selecting **Edit | Insert**, or by dragging a sound file into the list. The new track can be edited with the wave editor by double-clicking it in the track list.

Writing the CD

The CD is written exactly like the data CD. However, audio CDs are usually recorded in "Single session

mode" (closed) to ensure compatibility with older CD Players.

If you want to create a CD without any pauses between the tracks (e.g.: life music) or you want to use the CD-R as a master for mass replication, you should check the 'Disc-at-Once' option. The CD-R will be closed in that case.

Creating a CD copy

With the CD Copy module of WinOnCD you can make a backup copy of your frequently used software or of important data easily and comfortably. The CD Copy module virtually copies all types of CDs.

Just insert the CD to be copied into the read drive, start WinOnCD (or choose **File | New** if already running) and select the **CD Copy** project.

Please note that dirty or defective source CDs can cause 'buffer underrun' errors because of too many retries at reading your CD-ROM drive.

Warning:

WinOnCD may not be used for making illegal copies. CeQuadrat trusts you. We are sure that you respect the copyright of others.

Please refer to the chapter "CD Copy Project" for more details.

Basics

CD Recording Basics

This section covers some of the important topics related to CD recording in general.

CD Layout

All CDs can consist of multiple tracks and sessions.

- **Tracks**

A CD is physically separated into individual tracks. This division is used, for example, to separate songs from one another on audio CDs, or to separate different MPEG streams on a Video CD.

- **Sessions**

Each time you record to a data CD is called a session.

Some types of CDs have to be written in one session (**single session CDs**), for example, audio CDs. CDs that consist of multiple sessions are so-called multi-session CDs.

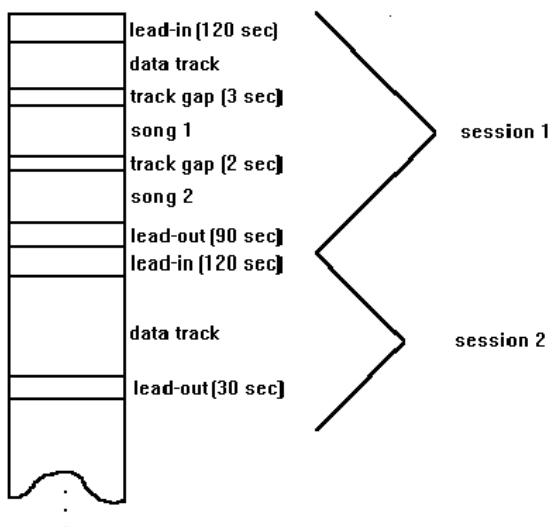
To create a **multisession CD**, all sessions, even the first one, have to be recorded in the multisession mode.

Note:

We recommend using multisession recording only for CD-ROMs. Audio-CDs recorded in this format cannot be read back completely by audio CD players.

If the CD is to conform to a standard, the first session may contain one or more tracks, while the subsequent sessions contain only one (data) track each. The figure shows a multisession mixed-mode CD. On a CD of this kind, all audio tracks are in one session; the first track is a data track, while the following

ones contain audio. The second session contains a second data track.



CD layout example

The various sessions on a multisession CD are usually not apparent to the user, as all tracks appear to be written in one session, i.e., all computer data are together just as if you had written to a hard disk for several times. A directory listing of the CD's contents will usually show both the files of the first session and the files of the second session together.

The length of the gap between the two tracks depends on the mode of the two tracks. If the track mode of both tracks is the same, the gap is 2 seconds. Otherwise, the gap is 3 seconds. The length of each session lead-in is 120 seconds.

The lead-out of the first session is 90 seconds long. Each additional session has a lead-out length of 30 seconds.

CD-R

CD-R is short for CD-Recordable. In contrast to pressed CDs, these discs contain a special layer that is burned in during the recording process.

Unlike CD-R discs, CD-RW (ReWriteable) discs, which you can format using the program PackedCD, are rewriteable, i.e., you can actually delete files.

Please note, however, that some CD-ROM drives may have problems reading CD-Rs correctly. Should your CD-ROM drive not recognize the CD-R that you have written, try writing the same CD again with a different type of CD-R media. Since blank CDs made by the same manufacturer are often sold under various names, you should try a blank CD with a different coating.

There are several ways to test whether a CD is written correctly:

- First of all, your CD is written correctly if it is readable in one or more CD-ROM drives.
- If the CD is readable in the recorder, the data has been written correctly (many CD recorders will not function as CD-ROM drives in Windows '95).
- Now you still have to check whether your CD has been closed correctly. To do so, invoke **Record | Close Session** in WinOnCD. (If the Close Session option is enabled, the CD has not been closed). If you have checked your CD like this and it is still not readable on some CD-ROM drives, presumably this is a problem with the CD-ROM drive or with the CD-ROM drive's ability to deal with the type of CD-R media used.

CD Capacity

CD-Rs come in four sizes: 18, 63, 74 and 80 minutes. The amount of raw space available on a CD-R can be calculated in the following way:

18 minutes - (2352 bytes/sector) x (75 sectors/second) x (60 seconds/minute) x (18 minutes) = 190.512.000 bytes = **182 MB**

63 minutes - (2352 bytes/sector) x (75 sectors/second) x (60 seconds/minute) x (63 minutes) = 666.792.000 bytes = **636 MB**

74 minutes - (2352 bytes/sector) x (75 sectors/second) x (60 seconds/minute) x (74 minutes) = 783.216.000 bytes = **747 MB**

80 minutes - (2352 bytes/sector) x (75 sectors/second) x (60 seconds/minute) x (80 minutes) = 846.720.000 bytes = **807 MB**

This raw space is not all available for user data. Different logical sector sizes are used on a CD, e.g., leaving only 2048 bytes for data. In addition to this, many CD formats such as ISO 9660 require additional space for directory information and the volume descriptor, meaning that some sectors cannot be utilized completely.

Since some of this overhead varies from CD to CD, it is not possible to calculate exactly how much space is available for user data. A rough estimate of the amount of space available for user data is as follows: 150 MB for 18 minute CDs, 540 MB for 63 minute CDs, 640 MB for 74 minute CDs, and 700 MB for 80 minute CDs. WinOnCD will check for sufficient space on the CD-R before any actual writing to the CD takes place.

File Systems

As a native Windows 9X/NT program, WinOnCD supports long filenames according to Microsoft's Joliet file system as well as pure ISO 9660 file systems. Thus long filenames of up to 64 characters are now possible.

ISO 9660

ISO 9660 is a data format first introduced in 1984 by the International Standards Organization (ISO). Since then it has succeeded in becoming a widely accepted cross-platform standard. For DOS/Windows PCs, ISO 9660 has become the most important CD format there is. Since ISO 9660 is the lowest common denominator of various file systems, it is subject to more stringent restrictions than the file system familiar from DOS/Windows. Filenames are not only limited to "8.3", but can also contain only the upper-case letters "A" through "Z", the numerals "0" through "9", and the underscore character "_". Special characters like "\$" or "-" are not allowed. Filenames without an extension must still have a dot/period at the end.

Directory names have a maximum length of 8 characters and cannot have an extension. Directory trees cannot be more than 8 levels deep.

It is important to know that the file system on the hard disk of a PC-based computer differs from this file system, which is the most used system for CD-ROMs. The differences are as follows:

Many CDs produced today do not, strictly speaking, comply with the ISO 9660 standard. It has become quite common to permit more than 8 directories with more than 8 levels, and many CDs also contain non-ISO special characters such as umlauts. The CD may behave strangely under some circumstances, and it may be impossible to read many directories and files.

Note: If the CD is for use on multiple platforms (e.g., Macintosh, Unix), it is important to respect the ISO conventions for the ISO part of the CD.

Joliet

Since the restrictions of ISO 9660 are quite limiting with modern operating systems, such as Windows

9X or the Macintosh OS, Microsoft and Apple have each defined proprietary extensions to ISO 9660. Of course, the advantages of these extensions can only be fully exploited by the OS for which they were intended.

Microsoft's ISO 9660 extension is called "Joliet" and permits filenames of up to 64 Unicode characters. Every Joliet CD actually contains two file systems: one complying with ISO 9660 to ensure full compatibility to other systems, the second one Joliet, currently supported only by Windows 9X and NT4.0. Thus Windows® 9X and Windows® NT systems will recognize the Joliet file system on a CD of this type, and all other platforms will only recognize the ISO part.

Recording Methods

With WinOnCD, CDs can be written in two different recording methods, "Track-at-Once" or "Disc-at-Once". While all CD recorders work in the "Track-at-Once" mode, some recorders do not support "Disc-at-Once".

Track-at-Once

The question of whether to record a CD in "Track-at-Once" or "Disc-at-Once" mode is only relevant when creating audio CDs. It makes no difference for a data CD which mode you record in. When recording "Track-at-Once" the recording process will be interrupted after each track and can be continued immediately or sometime later. This makes "Track-at-Once" recording more flexible, as one can, for instance, stop recording after each track and read out a new track from the CD recorder. The disadvantage of the "Track-at-Once" method, however, is that many recorders automatically insert a gap between tracks, which may be unwanted when recording live music. The Track-at-Once mode recording may also

have little clicks between tracks when reading from ordinary CD players.

Some recorders have a "Track-at-Once, zero gap" function which makes it possible to avoid the 2-second gap.

As a rule, multisession CDs must be recorded "Track-at-Once".

Disc-at-Once

Using the Disc-at-Once recording method, all the blocks of the CD-R are written by the recording software. This is especially useful when producing Audio CDs, as only "Disc-at-Once" allows the user full control over the gap between tracks and the ability to edit the PQ channel. This might be important when mastering the CD later.

The disadvantage, however, is that the entire CD has to be written at once.

CD Formats with WinOnCD

WinOnCD, the professional software by CeQuadrat, can write all CD formats:

- CD-ROM
- Audio CD
- Mixed-mode CD
- CD extra
- Bootable CD
- Video CD
- Universal Disk Format

CD-ROM Preview

Installing the CD-ROM Emulator

The CD-ROM Emulator is a virtual SCSI host adapter connected to a virtual CD-ROM drive. Thus the CD-ROM Emulator is installed via the Control Panel. To install it, you need the WinOnCD installation CD.

To install in Windows 9x:

Select **Settings | Control Panel** in the Windows Start Menu and double click on the **Hardware** icon. Follow the steps of the hardware wizard:

1. Answer the question "Do you want Windows to search for your new hardware?" with *No*. Click on **Continue**.
2. In the list of device types, select **SCSI Controller**. Click on **Continue**.
3. Click on **Have Disk**, then on **Continue**.
4. In the dialog box, click on **Browse** and set the directory to *C2SCSI\Win9x* on the WinOnCD installation CD. Acknowledge with **OK**.
5. The entry **CeQuadrat SoftSCSI Adapter** will appear in the list of models. Click on **Continue**.
6. Click on **Continue** to carry out the installation and copy the necessary drivers.

To install in Windows NT:

1. Select **Settings | Control Panel** in the Windows Start Menu.
2. Double click on the **SCSI Controller**.
3. Select the **Drivers** tab.
4. Click on **Insert**.
5. Click on **Have Disk**, then on **Continue**.

6. In the dialog box, click on **Browse** and set the directory to *C2SCSI\WinNT* on the WinOnCD installation CD. Acknowledge with **OK**.

You can view the momentary processing status of the CD-ROM data area in a virtual CD-ROM drive using any editor. This enables you to get an impression of the resulting CD before writing to CD media. You can open files on the drive, start applications, etc., just as you can with a real CD.

Important:

To use this function, you must first install the Ce-Quadrat CD-ROM Emulator driver.

Following successful installation, an additional CD-ROM drive letter will appear in Windows Explorer. This virtual drive is empty after every system startup. It will be filled with the current content of the selected project when you choose the **CD-ROM Editor | Preview** function.

Uninstalling the CD-ROM Emulator

To remove the CeQuadrat CD-ROM Emulator from your system, please proceed as follows:

To uninstall in Windows 9x:

1. Select **Settings | Control Panel** in the Windows start menu.
2. Double click on the **System** icon.
3. Select the **Device Manager** tab.
4. Open the **SCSI Controller** by clicking on the plus symbol.
5. Select the entry **CeQuadrat SoftSCSI Adapter** and click on **Remove**.
6. Acknowledge deinstallation of the driver with **OK**.

To uninstall in Windows NT:

1. Select **Settings | Control Panel** in the Windows start menu.
2. Double click on the **SCSI Controller**.

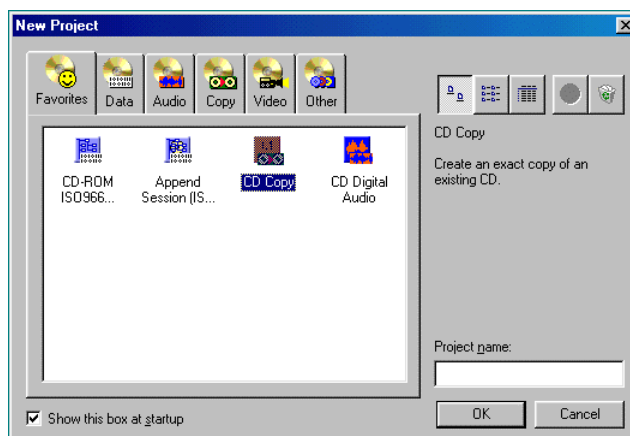
3. Select the **Driver** tab.
4. Click on **Remove**.
5. Acknowledge deinstallation of the driver with **OK**.

WinOnCD User Interface

This section explains the user interface common to the professional line of CeQuadrat products.

Editors

After starting CeQuadrat's software, a window with the various types of CD projects appears.





Project selection dialog

The project icons displayed represent the various kinds of CDs that can be created with WinOnCD. The projects are grouped into categories, which can be selected with the tabs above the selection window. The first group (Favorites), which is displayed at startup, contains a selection of commonly used CD formats. The other groups (Data, Audio, Copy, Video, Other) contain icons for the corresponding

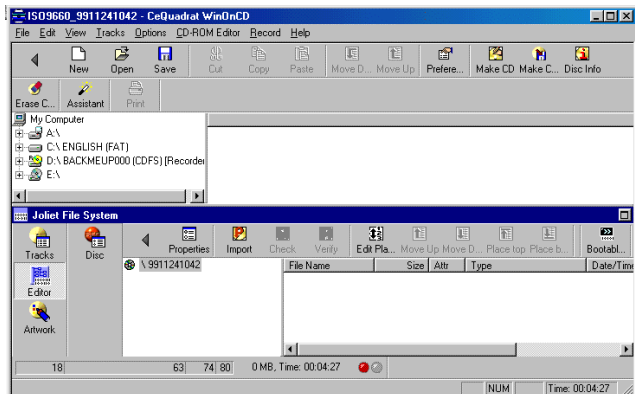
projects, which are described in detail elsewhere in this manual.

Use the , , and  buttons to change the view.

To add a project to your "Favorites" group, mark the project and press the  (add) button. Pressing  (delete) will delete the marked project from the Favorites group. (It will retain the icon in its original group).

After you have worked with WinOnCD and saved project files, these project files will also be listed in the project selection dialog as "History. Using the delete button will delete the file from the history (i.e., the original file will remain untouched).

To choose a project, double-click on the corresponding icon. The WinOnCD main window (shown in the following as an example for the ISO/Joliet project) will appear.

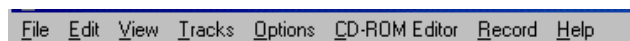


WinOnCD main window

With all program modules, the basic interface is divided into five parts:

Menu bar

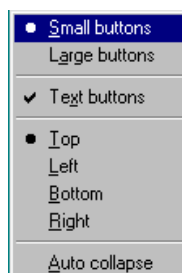
The menu bar contains the main commands.



Menu bar

Button bars

The button bars in WinOnCD can be used like tool-bars or pop-up menus. Clicking once on the bar icon (marked with an arrow pointing right) will expand or collapse the button bar. If the bar is collapsed, you can click the bar's icon, hold and then select the desired icon. After this, the bar will automatically collapse again. Clicking the right mouse button in a button bar activates the context menu:



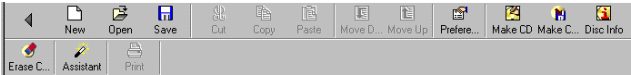
Button bar

Here the size and location of the button bar can be set. Activating **Text Buttons** will give you a description of each button.

The context menu of the source window button bar contains an additional item, **Add button to favorites**. Choosing this item copies the marked button of the destination window to the source window button bar under **Favorites**. You can delete stored favorites by marking the button in the destination window again, opening the context menu with the right mouse button, and choosing the item **Remove Button from favorites**.

Source window button bar

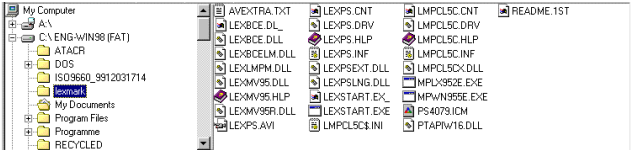
The source window button bar provides a shortcut for frequently used functions, which are described later in this manual.



Source window button bar

Source window

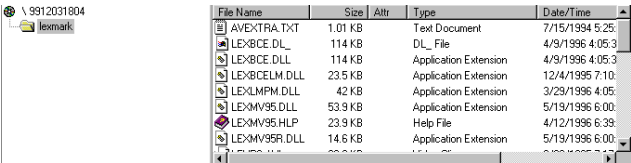
This window displays the source material for making CDs. The source window view can be set to your individual taste using the **View | Source** menu. The source window is similar to the Windows® 9X/NT Explorer and has much of the same functionality.



Source window

Destination window

This window displays the current project. Depending on the CD type to be created, different representation views are available. The views are explained in the next section of this manual. A destination window toolbar may be available, depending on the view selected.



Destination window

Destination window main button bar

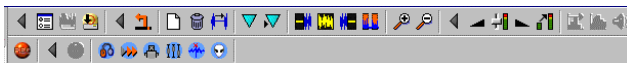
Here you can toggle between the different editing steps of your CD project, which are described below.



Main button bar in destination window

Destination window icon bar

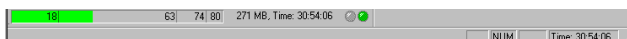
Here, WinOnCD makes available tools specific to the current editor. These are described in detail in the section "Destination window button bar".



Destination window button bar

Status bar

The status bar displays details about the process currently running or the command currently selected. It can be toggled on or off using the **View | Status Bar**.



Status bar

Menu Bar

This section explains each menu item on the menu bar in order from left to right.

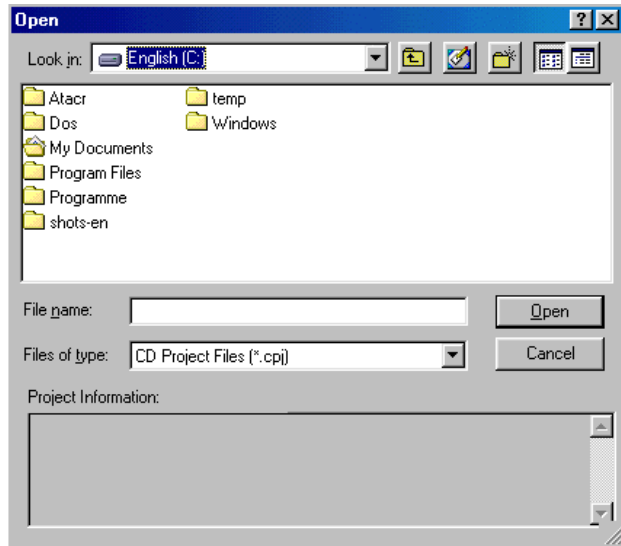
File

New

Opens the project selection dialog.

Open

Load a project file or a C2D file (full disc image). Project files have the extension ".CPJ".



Open file

Assistant Helps you to create your first CD quickly and easily. It sets the essential parameters and guides you through the program.

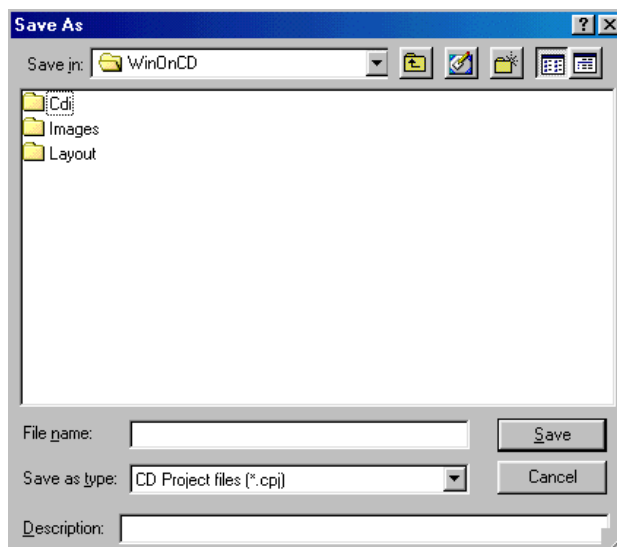
Save as... Save the project under a new name.

Make CD Image File The entire project can be saved to hard disk as an image file (*.C2D). Image files are used as master files, in order to make CD copies quickly and easily later.

Print In the artwork editor, this command prints the currently selected item (i.e., label, booklet, inlay card).

Save

Save the current project properties in a file. All booklets, inlay cards, and labels that you have edited in the editor are saved in the process.



Save file

Print Preview

In the artwork editor, this menu option shows a preview of the object that will be printed.

Recent Files

The last files that were edited are listed here.

Exit

This option quits the CeQuadrat application. If the current project has not been saved, you will be prompted to save your documents.

Edit

<i>Delete</i>	This command will delete the selected object(s) from the destination window, for example, tracks from the track list or a file from the ISO editor.
<i>Insert</i>	A new object will be inserted in the destination window. This can be a new track (in the track list) or a new directory (in the ISO Editor).
<i>Insert into Project</i>	Copy the object currently selected in the source window to the destination window.
<i>Cut</i>	An object marked in the destination window can be cut out of the project and stored in the WinOnCD clipboard using this function.
<i>Copy</i>	An object marked in the destination window can be copied into the WinOnCD clipboard.
<i>Paste</i>	Paste objects from the WinOnCD clipboard into the destination window.
<i>Properties</i>	Edit the properties of the currently selected object.
<i>Select All</i>	Selects all items in the source or destination window, depending on the current input focus.
<i>Invert Selection</i>	This command selects all (and only) items not currently selected.
<i>Find</i>	Searches for the specified text in the destination window (in CD-ROM editor only).

View

Refresh Updates the source and destination windows. This may be necessary if a removable disk has been changed, e.g., if new CDs have been inserted in CD-ROM drives.

Source The view of the source window can be specified here.

- Large Icons
- Small icons
- List
- Details
- Browser

CD The view of the source window can be selected here:

- Track List
- Track Editor
- Artwork
- Record

Additionally, you can show or hide various WinOnCD tools or status bars in the **View** menu:

- Editor Toolbars
- CD-Status
- Toolbar
- Status Bar
- CD-ROM Editor Toolbar

Tracks

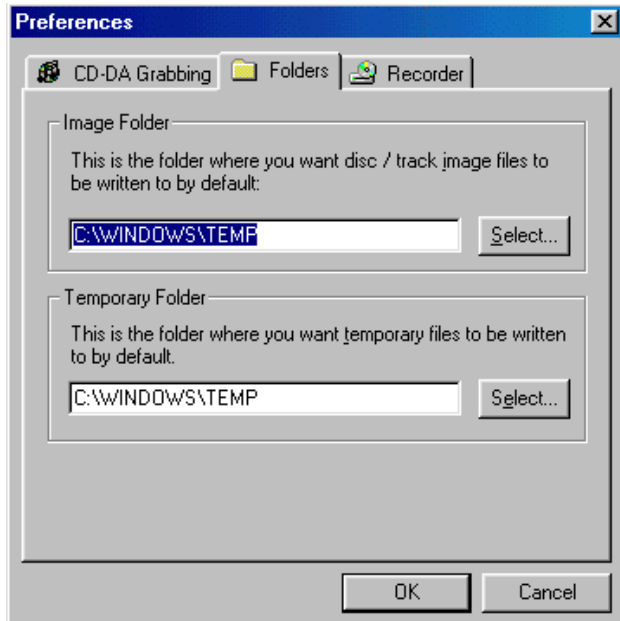
Move Up/Down

In the Track List mode, these commands move a track up or down if possible. They are disabled in the Track Edit mode.

Options

Preferences - Folders

The image folder is the standard folder for storing track image files. The temporary folder is the folder where WinOnCD will store all temporary files during various operations.



CD Preferences – Directory

Preferences – Recorder

If you have more than one recorder attached to your system, you can select the recorder to be used here.



CD Preferences – Recorder

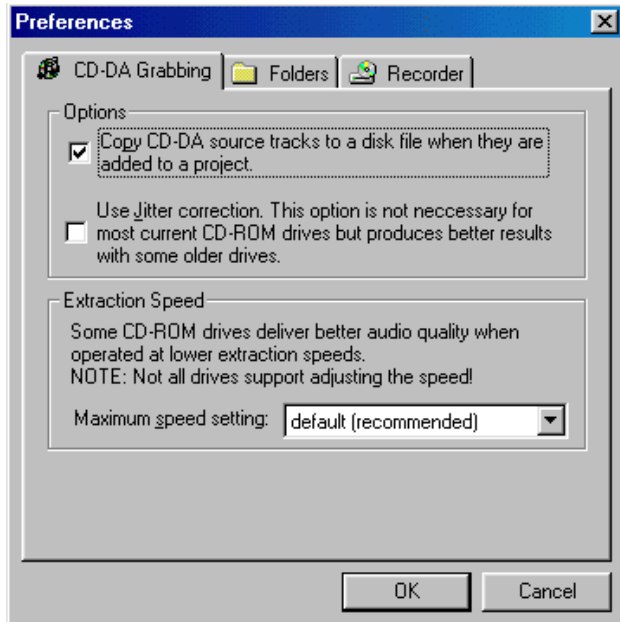
CD-DA Grabbing

If you use audio data from an existing CD for your project, you can decide here

- the rate at which the audio data can be read out. (Please also refer to the section "Importing Audio from CD", chapter "Audio CD Project".
- whether your audio data is to be read out with so-called "jitter correction", which can result in a higher quality of the read out data (especially with older CD-ROM drives).
- whether audio tracks from an audio CD should be copied direct to the hard disk when dragging them to the destination window. This is practi-

cal if this data requires editing. Generally, this is not necessary, if a compilation is to be recorded "on the-fly".

During CD-DA grabbing, the data is copied directly from CD to the hard disk. With music CDs, this is the simplest and most reliable CD recording method, since there is no distortion (soundcard).



CD Preference CD-DA Grabbing

CD-ROM Editor

The features of this menu are described in the ISO 9660 / Joliet Project.

Record

Make CD

Here you can define the CD properties and writing preferences.

Disc Info

Here you can view the disc information:

- **Disc Info**
CD type, CD size, number of sessions and tracks, free and unused space, write position and target write position
- **Details**
current and external lead-out, write position, unclosed sessions, UPC / EAN code, barcode
- **Tracks**
- **Close Disc/Session**

Erase CD-RW

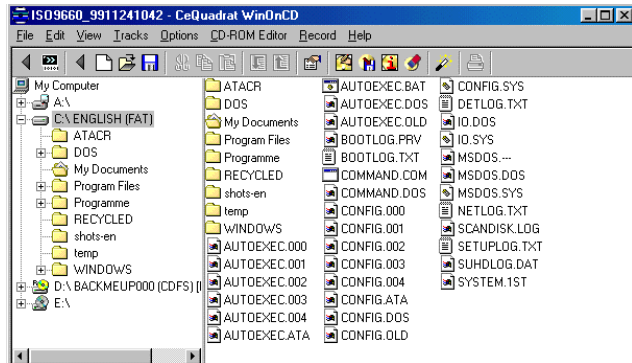
Delete a CD-RW.

Close Session

Close the session.

Source Window

The source window is used to select files and directories. It is located in the top half of the WinOnCD window, and works similarly to the Windows Explorer™. It is split in half, and on the left side you can see the "Tree" of all available drives (hard disks, mapped network drives, and other devices) connected to the computer.



Source window

The tree can be expanded by clicking the "+" icon to show directories. After expanding, the "+" is transformed into a "-", and clicking it collapses the branch again.

Clicking on an item in the tree displays the contents of the item (appearing to the right of the item) in one of several formats.

The format for this view can be set using the **View | Source** menu. The **Small/Large Icons** and **List** views display only the files, while the other two view modes provide additional information.

Details View

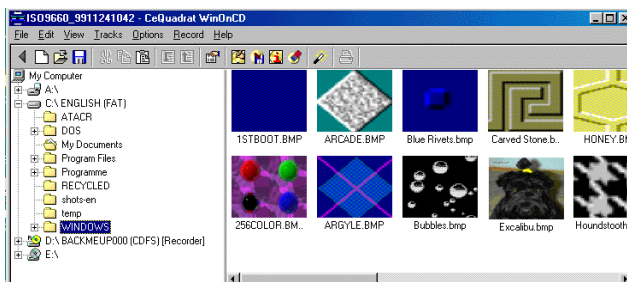
The details view lists all files and directories in the object selected together with their size, attributes (directory, archive, read-only, hidden, and system) and the date of the last modification.

The column width can be varied by dragging the divider between two column headings. Single or double clicking on the header of the list will sort the list in ascending or descending order according to the corresponding column.

Browser View

This view is especially useful for multimedia files because it displays thumbnails of images, and information about sample rate and sample size is given for sounds.

However, only appropriate input files for the current project (e.g., images and sounds) are displayed. Double clicking on the file icon will play it (sound or movie) or display its contents full size (images).



Browser view source window

Selecting Files

Irrespective of the CD format, files are selected as input by dragging them from the source window or from the Windows Explorer™ into the destination window.

Files can be selected in the right half of the source window in the standard Windows way: a single click selects one file, while multiple files can be selected using shift clicks (consecutive files) or control clicks (non-consecutive files). The selected files are highlighted, and can be dragged to the destination all at once.

Button Bar

The following functions can be accessed directly via the buttons on the source window button bar:

New



This button opens the project selection dialog.

Open



This button brings up the dialog box to open an existing project.

Save



This button saves the current project.

Cut



This button activates the clipboard cut function for objects marked in the destination window.

Copy



This button copies objects marked in the destination window to the WinOnCD clipboard.

Paste



This button inserts objects from the WinOnCD clipboard.

Move Up/Down



In the track list, these buttons move a track up or down if possible. They are disabled in the track editors.

Preferences



Opens the **Preferences** dialog, in which the image directory and the temporary directory are defined and the CD recorder selected, and in which audio project preferences can be configured.

Make CD



This button will open the "Disc Properties and Recording Settings" dialog.

Make CD Image Files



This button will open the "Save As (CD Image Files)" dialog.

Disc Info



Shows information (such as previously recorded sessions and free space) about a CD in the CD recorder.

Erase CD-RW



Opens the "CD Information | Blank" dialog.

CD Assistant



Opens the CeQuadrat Assistant.

Print



Prints the current booklet, insert card, or label.

Destination Window

The destination window contains the current project. There are different views available for a project. The Track List is a general view of the current project. Each editor, however, has its own view for showing track content.

Button Bar

The appearance of the button bar varies depending on the type of CD created, and all destination window toolbars are explained in the different WinOnCD projects.

Main Button Bar

To the left of the Destination Window there are four buttons:

Tracks Button



The tracks button switches to the track list view of the CD. A red/green signal lamp at the beginning of each line informs you whether the contents of this track can be recorded properly.

Editor Button



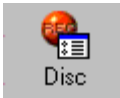
The editor button switches to the editor view of the CD. The individual editors are described under the respective projects.

Artwork Button



The artwork button switches to the artwork view. Here you can create and print labels, booklets, etc.

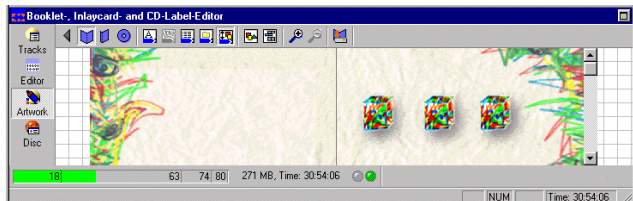
Record Button



Switches to the Record Window.

Artwork Editor

In the Artwork Editor, you can create labels, booklets, and inlays for your CDs.



Artwork editor

Button Bar



Switches to the **Booklet** editor.



Switches to the **Inlay card** editor.



Switches to the **Label** editor.

To create graphic objects:

Click the desired icon and drag the mouse within the canvas to create a box that encloses the object. After creating the object, the settings dialog for it will open automatically.

To edit the object preferences, just double click on the object at any time.

Main Button Bar



Inserts a text object that will hold multiple lines of text.



Inserts an object with round text (CD label only).



Inserts a track list object in which the track entries of the destination window are taken over.



Inserts a directory tree object (for ISO/Joliet projects only).



Inserts a movable artwork object. Images in BMP, JPG, and WMF format can be imported. The position of the image can be defined.



Permits specification of a background image. Images in BMP, JPG, and WMF format can be imported.

You can also select a background image by Drag&Drop from the source window to the destination window. If you press the shift key while dragging, then you can import the image only on the left or right side of the booklet.



Edits titles and artists for all tracks of the project.



Zooms the view of insert, label, or booklet in and out.



Exports the insert, label, or booklet to a selected directory.

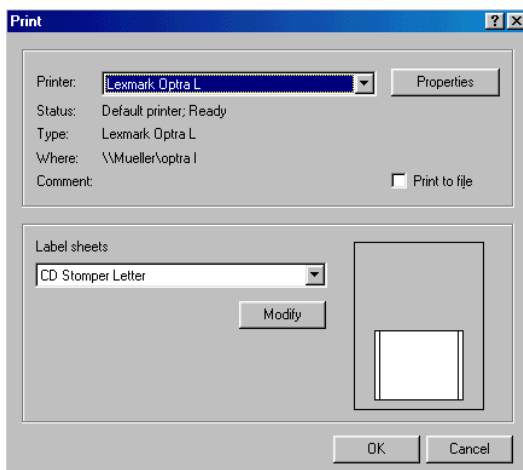
Context Menu

The Artwork Editor context menu, which you open by marking and right clicking on an object, provides the following functions:

- **Properties**
Opens the properties window for the selected object, e.g., the Text Style window for a text object.
- **Set to tail**
This command moves the selected text object to the back.
- **Delete**
Delete the selected object.

Printing artwork

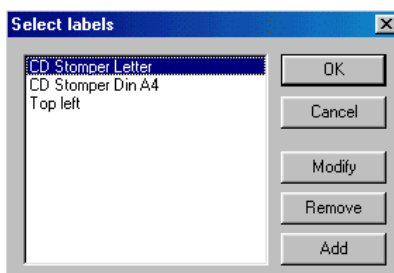
To print the selected artwork, choose **Print**:



Print dialog

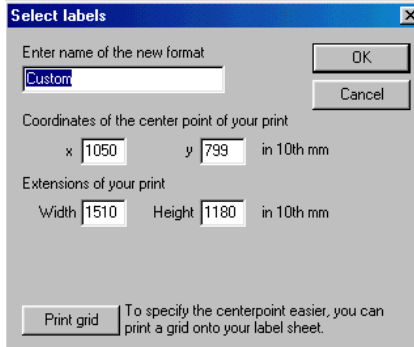
Depending on the layout you have chosen (the example shown is for labels), different paper settings will be offered.

To add your own custom paper style, just double click on the "sheet" shown just above the **OK** and **Cancel** buttons. A dialog box to select, modify, add, or remove a new paper style will open. Here you can also change the position and size of the label.



Label selection dialog

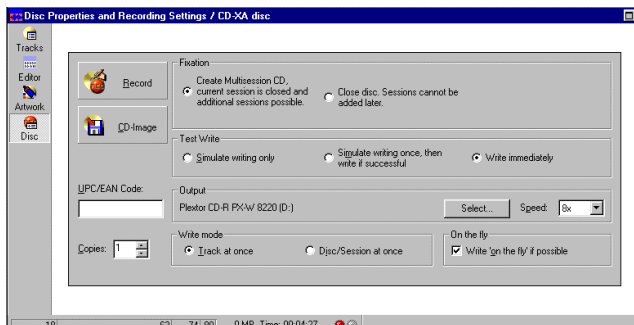
The **Add** and **Modify** buttons open a box in which the parameters for the new paper style can be set. To determine these parameters, simply print a grid onto the new custom paper and copy it the appropriate number of times.



Select paper style

Record Dialog

Here you can determine how the selected data will be written to the CD. WinOnCD makes preselections. Depending on the type of project, you can only set options that result in a valid CD. If you need to circumvent this for any reason, the only way is to select the project type "Custom project"; then all settings are allowed.



Record dialog settings

Finalization (Fixation)

For Audio CDs:

Don't close CD

An audio CD written with this option cannot be read by a CD-ROM drive or an audio CD player. Only CD recorders are able to read these CDs.

Close CD. Tracks cannot be added later.

Only if you are sure that you not want to add more tracks to an Audio CD later, write the last track(s) using this option. After it has been closed, this CD-R is readable by CD-ROM drives and audio CD players.

For all other types of CDs:

Create Multi-session CD

CDs created as so-called multisession CDs can be read from any CD-ROM drive. You can, however, add data later with a CD recorder.

Close disc. Sessions cannot be added later.

Select this option only if you are certain that you do not want to record any additional sessions on this CD.

Test Write

The test mode is not available for all CD formats (e.g., not for CD Extra).

Simulate writing only

CD recorders have a special emulation mode. Using this, you can very exactly test the performance of the entire system, as data is actually sent via the interface to the recorder.

Write immediately

Choose this option only if you are already familiar with CD recording using WinOnCD.

Output

Select If there is more than one recorder in your system, check here which one you want the data to be written to.

Speed If supported by the installed CD recorder, you can set different write speeds here.

Write mode

Track at once Default mode for data CDs

Disc/Session at once Default mode for audio CDs and CD copy

On the fly

- **Yes**
Mostly you can write your CD "on-the-fly", i.e., without copying the data to the hard disk first. If you are uncertain about the performance of your system, you should simulate the write process first.
- **No**
A track image will be created. This is useful when the source data is coming from a slow drive or when very many small files are to be written on the CD with an ISO/Joliet project.

UPC/EAN Code

EAN (European Article Number) or UPC (Universal Product Code) codes identify products and manufacturers. This is usually only required for professional CD mastering. Codes are assigned on a country-by-country basis.

In the US, contact:

Uniform Code Council, Inc.
8163 Old Yankee Street, Suite J
Dayton, OH 45458

and in UK:

Association for Standards and Practices in Electronic Trade

EAN UK Ltd.

10 Maltravers Street, London WC2R 3BX

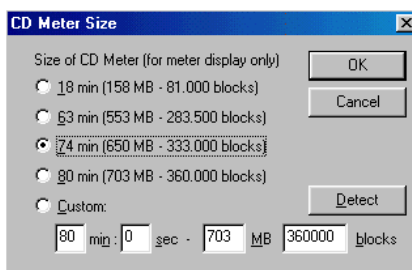
Copies

Here you can set the number of copies you want to record.

Status Bar

Here you can obtain the following information:

- Length of the current CD, number of blocks and the percentage utilization of the CD. Clicking on the bar opens the **CD Meter Size**. Here you can change the size of the CD meter by activating the corresponding radio button. You can change the playing time and thus the capacity of the CD by activating the corresponding radio button.



CD Meter Size

- A short description of the selected command.
- A red or green signal light informing you whether your project can be recorded properly.

ISO 9660/Joliet Project

General Information

ISO 9660 is the basic data structure for many types of CDs. Therefore, the ISO 9660 editor is used not only for pure Joliet and ISO 9660 data CDs, but also Mixed Mode CDs, CD-Extra, Hybrid CDs and Video CDs.

These other CD types usually have one track or partition with an ISO 9660 file system.

The ISO 9660 editor always allows for the option to create a Joliet file system. At the start of WinOnCD you will see the New Project selection dialog. Double clicking on the **CD-ROM ISO 9660/Joliet** icon (which is always in the "Favorites" and in the "Data" group) creates a new data CD project. In the "Data" group you can also select **Append Session (ISO 9660/Joliet)**, which will automatically import data from a previously written CD.

You can also create a CD-ROM with an additional boot image. Select **Bootable CD** in the "Data" group. The window **Select Boot Properties** will appear where you can define the properties. Refer to the chapter entitled "Bootable CD Project" for a more detailed explanation.

After selecting a project WinOnCD will open with its main window which is divided into the upper source window and the lower destination window.

Destination Window

On the left side of the destination window of the ISO 9660/Joliet project, there are four buttons:

- **Tracks**
The total number of tracks on the CD is shown. For an ISO 9660/Joliet CD, there is only one track per session.
- **Editor**
Files and directories on the CD can be edited.
- **Artwork**
Opens a graphics editor for the easy creation of customized booklets, inlay cards and labels for the new CD.
- **Disc**
Opens the "Disc Properties and Recording Settings" window.

In the editor view of the ISO 9660/Joliet project, the destination window has two sections. The left section shows a tree of the directories and files to be included on the new CD project. In order to layout your final CD, you can simply drag the selected files from the source window into this section.

The right-hand section shows individual files from one folder. These are listed with detailed information, such as size, modification date and the ISO and Joliet names.

You can modify the content of the ISO 9660 CD by dragging items into the destination window, or moving around the items in the window. To modify the properties of files or directories to be written, a context menu can be used (right mouse click).

The tree view will show how the finished CD looks, and you can edit the tree irrespective of the source. Thus, for example, deleting a file in the tree view will not delete the original file.

Context Menu

Selecting an item in the destination window and pressing the right mouse button opens the corresponding context menu.

It contains the following commands:

New Directory

Creates a new directory in the ISO 9660 tree. The new directory can be used like any other directory in the destination window.

Rename/Volume label

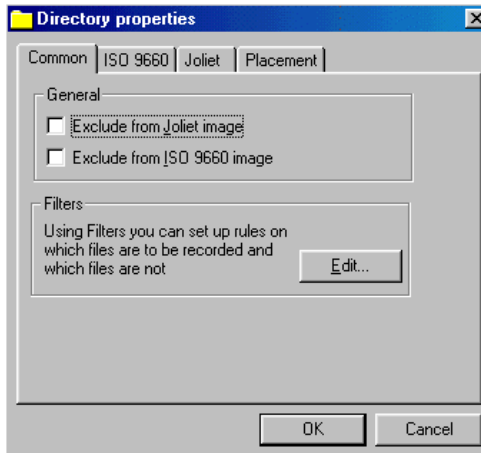
With this command, you can change the ISO 9660 or Joliet names. In the highest level of the CD, this command is called **Volume label** and changes the name of the volume.

Properties

With the **Directory properties** dialog, you can edit the file or directory properties applying to either the ISO 9660 or the Joliet file system or completely exclude a file from either file system.

Common

Under the "Common" tab with the common properties, a file or directory can be excluded from either the ISO 9660 or the Joliet image. If the selected item is a directory, filters (as explained in the section **Filters**) can also be set here.

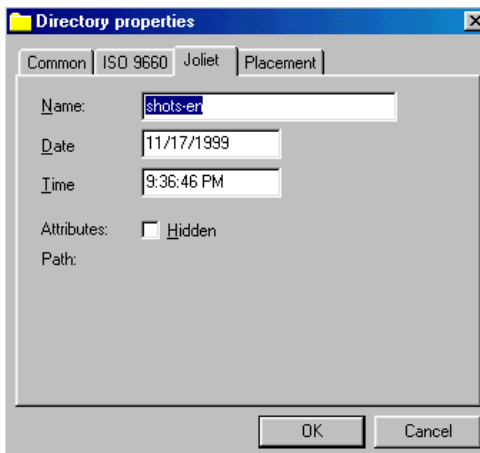


Directory properties: Common

ISO 9660 / Joliet

Filenames and modification dates can be set independently for the ISO and the Joliet partition of the CD.

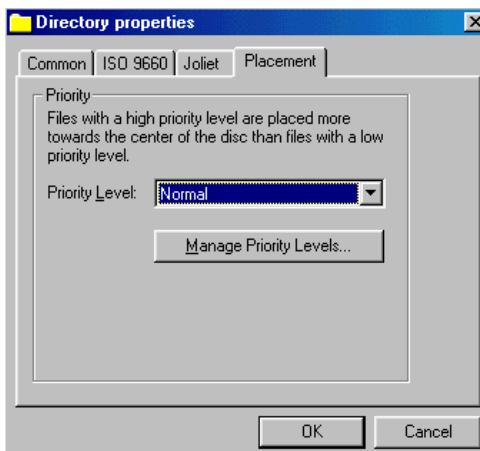
How the "Hidden" attribute is handled depends strictly on the read-back software. Using the Windows Explorer or the DIR command, hidden files on an ISO 9660/Joliet CD are shown if the respective option has been selected.



File Properties: Joliet

Placement

The last property page contains options for file placement. A dedicated section explains ISO 9660 file placement, and how to use it with WinOnCD.



File Properties: Placement

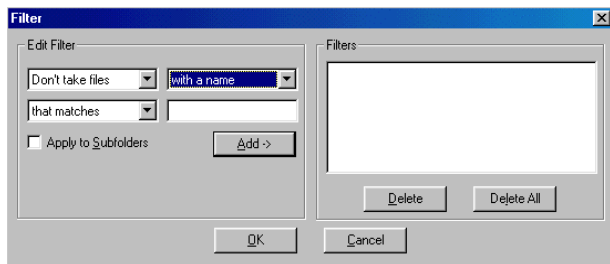
Filter

This command can only be invoked in the tree of the directory window. This command applies filters to, or removes filters from, a tree branch.

Filters can be assigned to either only the directory selected, or to all its subdirectories as well.

Filters are used to include and/or exclude files with certain attributes, date settings and wildcard patterns. All filters are saved with the project and therefore their settings are taken into account whenever the project is processed.

Using **Filter...** opens up a dialog box for specification of the filter conditions:



Filter

The following types of filters can be set:

- Name filter
- Attribute filter
- Date filter
- Size filter

Delete

Deletes the currently selected item(s) in the current window. The original source item(s) will not be deleted.

Cut, Copy, Paste

Provides the standard functionality for items in the ISO/Joliet destination window.

Autorun

This submenu contains the following commands:

- **Set as AutoPlay**
- **Set as Icon**
- **Set as Verb**

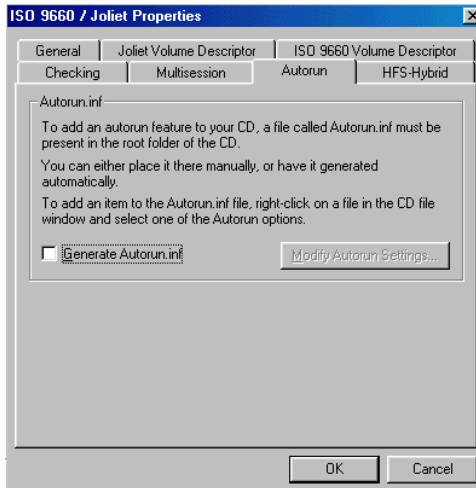
The Autorun command selects an executable file (.exe) to be automatically executed by a Windows 9X/NT system when the CD is inserted. The Icon command sets an icon to be displayed contained in an executable (*.exe), a dynamic library (*.dll) or an icon (*.ico) file. The **ISO 9660 /Joliet Properties** dialog opens automatically when you select these options.

On the **Autorun** tab, check the box next to **Generate Autorun.inf** and click on **Modify Autorun settings**. The window **AutoPlay Properties** will appear where you can modify the properties.

Autorun

When a CD is inserted, the Autorun files start automatically on Windows 9X/NT systems and the icon defined for this CD is displayed.

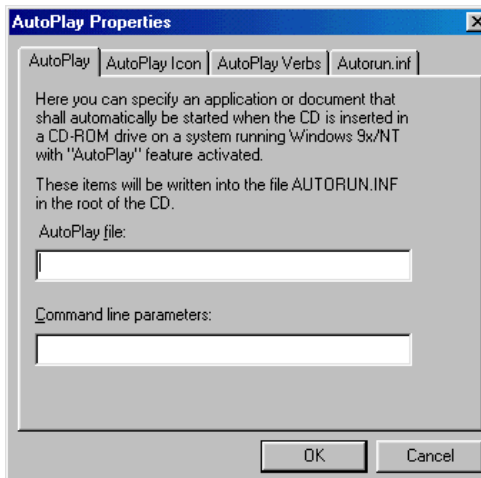
Autorun files can be created or modified on the Autorun tab. The easiest way to specify autorun settings is to use the context menu in the destination window.



ISO 9660 / Joliet Properties: Autorun

AutoPlay

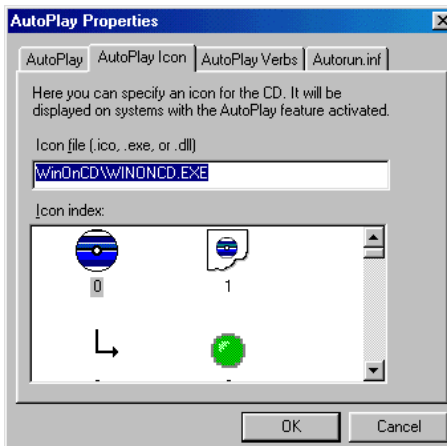
Here the file to be started when the CD is mounted can be specified, relative to its position on the CD. If the context menu command **Set as AutoPlay...** is used, the file name is automatically entered here. Additional parameters can be specified in the list box **Command line parameters**.



AutoPlay Properties: AutoPlay

AutoPlay Icon

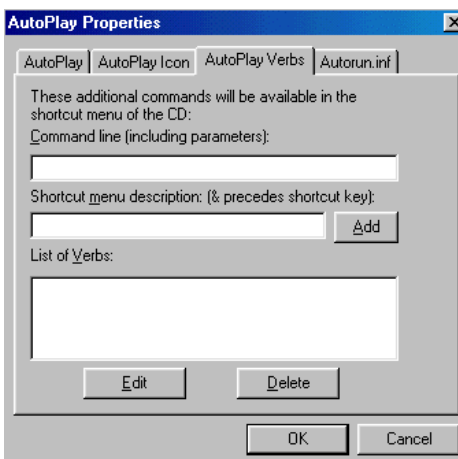
The icon specified on this page will be used as the custom icon for the CD. Any "*.exe", "*.dll" or "*.ico" file can be used. By default, the icon at index 0 will be used. If the **Set as Icon...** command from the destination window context menu is used, that file is automatically entered here.



AutoPlay Properties: AutoPlay Icon

AutoPlay Verb

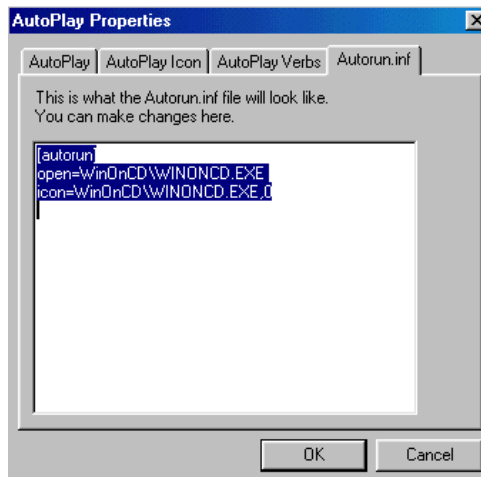
The additional commands entered on this page are added to the context menu of the CD.



ISO 9660/Joliet Properties: AutoPlay Verb

Autorun.inf

For expert users, the *Autorun.inf* file can be reviewed and edited here.




AutoPlay Properties: Autorun.inf

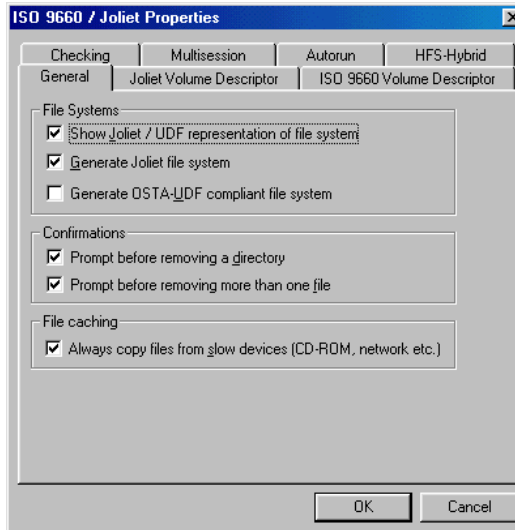
Button Bar

The ISO 9660 Destination window contains a movable Button Bar, whose commands are also available from the "ISO 9660" menu in the main menu bar. It contains the following commands:

Properties

Press  to open the **ISO 9660 / Joliet Properties** window where you can make settings which apply to the entire CD.

General



ISO 9660/Joliet Properties: General

Files Systems

Show Joliet representation of file system

Toggles the display of the Joliet file system specific information. Even if the Joliet file system is not displayed, it is still written.

Generate Joliet file system

Toggles the display of the Joliet file system specific information for the current project. If this option is disabled, then only an ISO 9660 file system is written on the CD.

Generate OSTA / UDF File System

Toggles the display of specific information for the UDF file system.

Confirmations

Prompt before removing a directory/more than one file

Toggles the safety boxes in the ISO/Joliet editor.

File caching

Always copy files from slow devices (CD-ROM, networks etc.)

With this option set, files which are on potentially "slow" devices (e.g. CD-ROMs, networks) will be copied to an image file independent of other settings. This allows you to create CD-Rs partly "on the fly" which contain files from both fast and slow drives.

ISO 9660 Volume Descriptor / Joliet Volume Descriptor

The tabs for the ISO 9660 and the Joliet Volume Descriptor look identical and serve identical purposes. The Joliet volume descriptor can be edited independently of the ISO volume descriptor and can use long filenames.

The data in the Volume Descriptors is purely informational and can be left out.

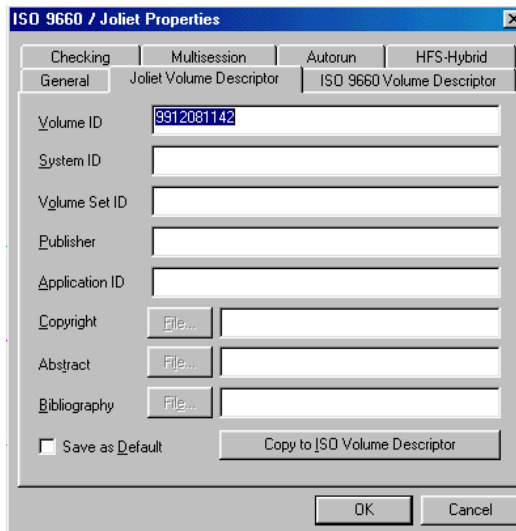
The volume descriptors are special sections on ISO 9660 and Joliet file system CDs which contain pointers to the root directory of the CD. More important for the author of the CD, however, they contain content, copyright, and publishing information that the author can specify. The ISO 9660 fields are contained in the Primary Volume Descriptor (PVD), while the Joliet fields are contained in the Supplementary Volume Descriptor (SVD).

The Volume Descriptor information, with the exception of the volume ID, which most computer systems display as the name of the CD, cannot easily be made visible.

However, the Volume Descriptor information can be seen by reading certain blocks of the CD, i.e. block 16 for the PVD. It should be filled out in accordance with ISO 9660 and Joliet standard for subsequent identification of the CD.

The ISO 9660 fields have to be filled out using the characters "A" through "Z", "0" through "9", and "_" only (for more information see description of the ISO

9660 standard). The Joliet fields can contain long (Unicode) filenames.



ISO 9660/Joliet Properties: Volume Descriptor

Volume ID

The volume identifier should state the name of the volume, a volume being a single CD or a set of related CDs. On most computer systems this field is displayed as the name of the CD.

This field is 32 (Joliet: 16) characters long.

System ID

The system identifier should specify an identification of the system (the first 16 blocks of the CD). These first 16 blocks can contain special system-specific information.

This field is 32 (Joliet: 16) characters long.

Volume Set ID

The volume set identifier field is used on sets consisting of multiple CDs. If you are making a CD set you may wish to define the order of the CDs by giving each CD in the set one volume set ID according to its position in the set.

This field is 128 (Joliet: 64) characters long.

Publisher

The publisher identifier field contains information about the publisher, i.e. your company.

This field is 128 (Joliet: 64) characters long.

The information in this field can be stored in two different ways, exactly as in the Copyright field.

Application ID

The application identifier field contains information about the application used to work on the data on the CD. For a Bridge Disc, for example, this field has to represent the complete pathname of the CD-i Application program.

CeQuadrat's WinOnCD will automatically override this field with correct information if necessary for the CD type to be written.

This field is 128 (Joliet: 64) characters long.

Copyright

The copyright field contains the copyright statement for this CD. Although this information is not visible on most computer systems it can be made visible by specifically reading block 16 of the CD. You should fill out this field to identify the CD.

This field is 37 (Joliet: 18) characters long.

The information in this field can be stored in two different ways:

- The field contains the information itself. The length of the field must not exceed the maximum length as described above.
- The field contains the name of a file in the root directory of the CD and the copyright information is stored in this file.

Abstract

This field contains an overview of all the CDs belonging to the volume set (from ... to ..., total number of volumes).

This field is 37 (Joliet: 18) characters long.

The information in this field can be stored in two different ways, exactly as in the Copyright field.

Bibliography

This field contains bibliographical entries stored in a format that the publisher and the recipient of this CD have agreed on.

This field is 37 (Joliet: 18) characters long.

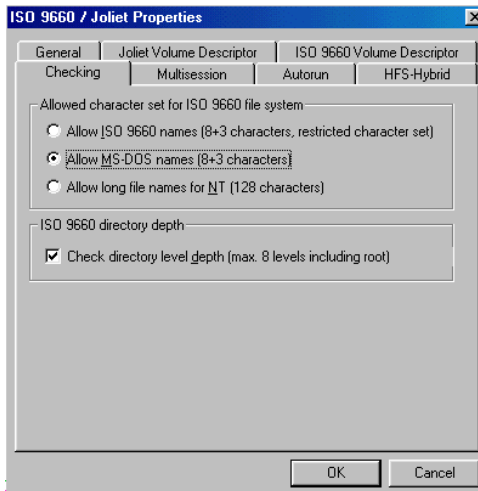
The information in this field can be stored in two different ways, exactly as in the Copyright field.

Copy to ISO Volume Descriptor

Activating this button will make an exact copy all entries of the ISO 9660 VD to the Joliet VD.

Checking

This page allows the override of certain rules of the ISO 9660 standard:



ISO 9660/Joliet Properties: Checking

*Allowed character set
for ISO 9660 file
system*

You can enable the following character sets
are for ISO names:

- Only ISO 9660 names (8+3 characters, restricted character set)
- MS-DOS names (8+3 characters) and
- Long file names for NT (128 characters)

*ISO 9660 directory
depth*

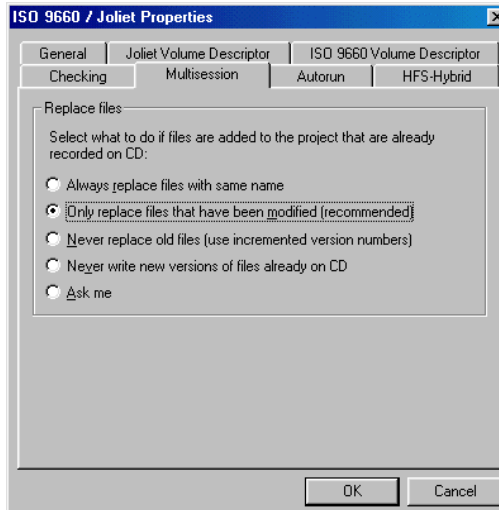
Usually, only eight nested directories on an ISO 9660 CD are allowed. This restriction can be disabled to allow any depth of nested directories.

Although it is usually safe to use MS-DOS legal characters in ISO names, any deviation from the ISO 9660 standard might cause problems when reading the CD. These options must be used with caution.

These options can only be set or changed while the ISO file system is empty.


Multisession

The options on this tab control how WinOnCD handles multisession writing.



ISO 9660/Joliet Properties: Multisession

Import (Session)


When creating a multisession CD, choosing the menu item  **Import (Session)** will read the CD currently in the CD Recorder and import its contents into the destination tree. You can edit, re-arrange and delete the imported items just like any other items from the source window.

These files will re-appear on the CD after writing, but are only written once.


Files that are imported from previous session(s) on the CD are marked in the ISO editor with a special icon.

Multisession recording is explained in detail in the section entitled **Multisession Recording**.

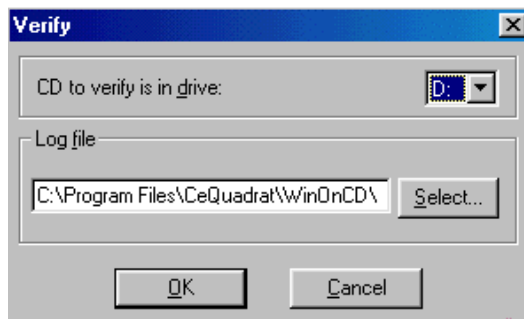
Check (CD)

 This command tests the CD for errors relating to naming conventions and directory depth.

Verify (CD)

 This command will check the data written to a CD by comparing it to the source data.

The following options can be set:




Verify

CD to verify is in drive Specifies the drive letter of the CD-ROM or recorder that the CD-R is in.



Log file Please insert here where the log file holding the information about the verification process is to be saved.

Edit Placement



 This command will toggle between the standard file system view and a placement list of the files, which are to be written to CD.

File placement, and how to use it with WinOnCD, is explained in the dedicated " File Placement with WinOnCD" section.

Move Up/Move Down

Use these options   to move an item up or down. These two commands are only available in the placement list and assign placements to files and directories.

Place top/Place bottom

These two commands   are only available in the placement list. A click on these buttons moves the selected object to the start and the end of the session respectively.

Multisession Recording

General Information

The ability to do multisession writing is an important feature of ISO 9660. While CD-Recordables are

write-once media, the multisession technique allows data to be written to the CD several times, in multiple "sessions".

Files can not physically be deleted from a CD-R and space that has been used up can never be recovered, but files can be added and the directory structure can be altered. The later feature is useful to move files to a different subdirectory, or to hide ("delete") them.

Note:

When using a CD-ReWritable (CD-RW) recorder and special CD-RW media it is also possible to delete data from a disc and re-write it. WinOnCD supports that type of recorders. However, due to the ISO 9660 file system constraints, only complete sessions/discs can be erased and not single files.

In order to use the multisession feature, a multisession capable recorder is needed to write the disk, and a multisession capable CD-ROM drive is needed to access a CD-R so written.

Besides simply adding data to a CD-R, WinOnCD can also keep track of files and file changes, (i.e. if desired, files will only be written to the CD if they have actually changed).

Creating a multisession CD is simple: The first session of a multisession CD is created in the same way as any other ISO 9660 CD with the ISO Editor. The write option "Multisession" must be set.

Note:

Do not use the **Close CD** option when creating a CD for multisession use, as no further writing would be possible to that CD-R.

Tip:

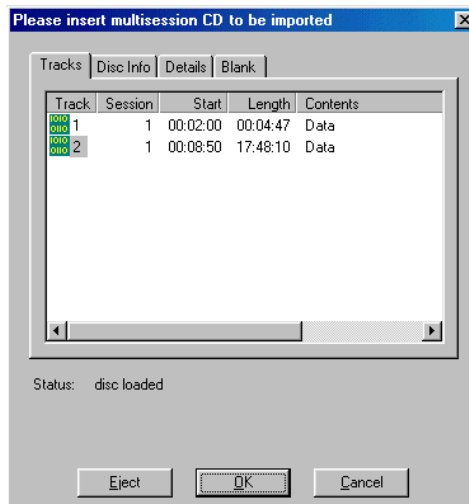
If you cancel writing and/or if writing was not successful, you can still use the CD for recording by importing the last successfully written session. The session which was canceled will then be overwritten.

Import Session

When data is to be added at some later time, open a new project again. Select the **Append Session (ISO 9660/Joliet)** project. The last session will now be checked and imported.

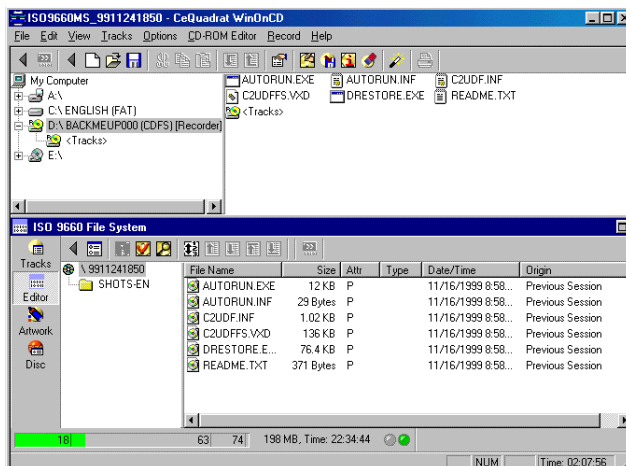
You can also add a session with the command **Import (Session)** from the menu of the ISO Editor or the toolbar.

In the dialog box that appears, any previous session can be selected. By doing this, you can "revert" CDs to a prior status or "Undo" a recording session.



Session Selection Dialog

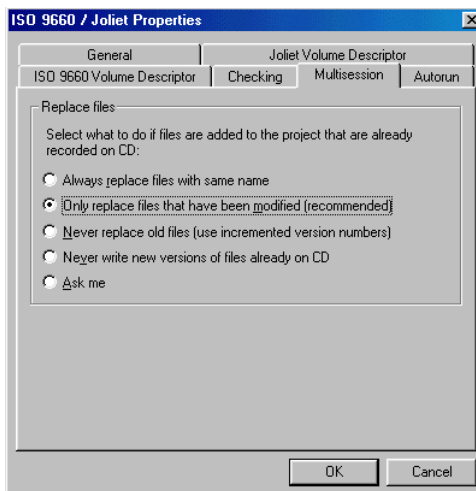
All files and folders on the CD will now be listed in the destination window and can be modified like all other files.



Destination Window with Imported Session

Define Multisession Properties

When recording multisession CDs, it is important to make sure the correct options are set. To access these options, choose **Properties** from the toolbar of the ISO Editor and click the **Multisession** tab.



ISO 9660 / Joliet Properties: Multisession

Always replace files with same name

Any files selected will always be written to the CD, and all previously recorded files with the same name will be replaced.

Only replace files that have been modified (recommended)

With this option set, files will only be written to the CD if they are newer (date of modification) than the file on CD. This saves CD space, as only the reference to the file in the old session will be written to the new session.

Never replace old files (use incremented version numbers)

This option will append a version number to the old file (e.g. "Test.txt;2"). However, under Windows the old files will be visible, but not accessible, as Windows does not honor version numbers.

On other systems (e.g. MacOS), files will be listed with their version number and all versions of a file can be accessed.

CeQuadrat does not recommend using this option for Windows/MS-DOS CD-Rs.

Never write new versions of files already on CD

This makes sure that only actually new files (new file name) are written to the CD. Old versions of files will not be replaced, and will still be accessible.

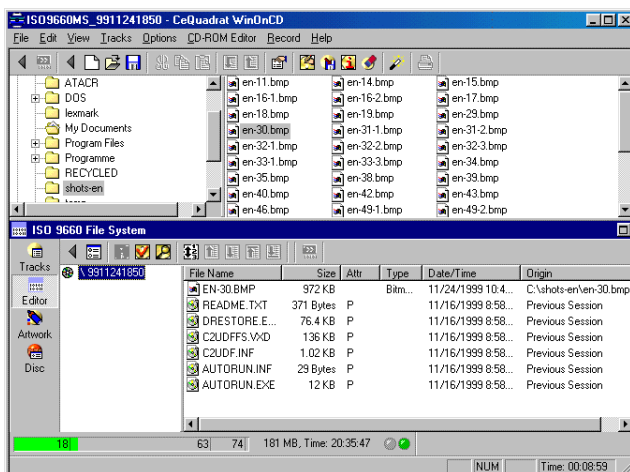
Ask me

This option opens a dialog box for each new file with the same name as a previously recorded file.

Adding new files

After importing old files, new files can be added to the destination window as mentioned before. It is important to have the correct option for replacing old files set before doing so, as replacement will be determined when the files are dragged into the destination window.

If existing folders are dragged into the destination window, files contained therein will be checked individually.



ISO Destination Window with Imported and New Files

Note that imported files have a different icon than the other files. The originals are listed as "Previous Session". This means, only the reference to this file will be kept. New or changed files will actually be written to CD.

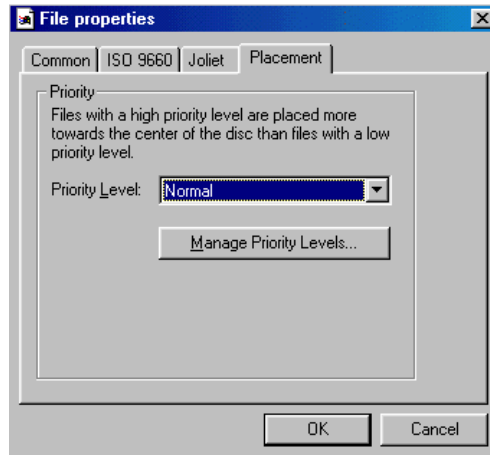
Remember that imported files can be handled like all other files, and can even be renamed.

File Placement with WinOnCD

WinOnCD offers a very simple way to assign physical placement on the CD-R. This allows the most

often used files to be placed where they can be accessed most quickly.

On the **Placement** page of the properties dialog, a placement level can be assigned from a pop-up menu. By default, all files have “Normal” priority.



File properties: Placement

To add or delete priority levels, press the **Manage Priority Levels...** button. Files and directories in levels with high values are placed closer to the center.

By placing files that are accessed very often close to the center of the CD where the Path Tables are located, you can speed up access time. Especially when access is mostly limited to these files, the read-head of the CD-ROM only has to travel a very short distance to read them.

Generally, you should only override the default file placement when you are sure about how you (or the users of the CD) will benefit from this non-standard placement. Also, remember that you should only assign placement for a few files. It is not appropriate or necessary to place every single file to a new position.

CD-ReWritable

To erase a CD-RW, please choose "Erase CD-RW" from the "Record" menu. Then select one of the different erasing functions depending on the type and model of CD recorder you are working with.

- **Quick blank (TOC only):**
In that case only the "Table of Contents" TOC of your CD will be erased. WinOnCD will recognize this CD as an empty disc that can be overwritten. The data is not actually erased, though, until it is overwritten. The erasing process usually only takes a few seconds.
- **Blank entire CD:**
With this function the area that has been written to will be completely erased, i.e., the data will be erased physically. This erasing process may take up to 40 minutes.
- **Erase Last Track:**
This command will erase the last track of a CD-RW. This is useful for Audio CDs or multisession recordings. It might be necessary to Un-Close the CD first.
- **Un-Close:**
Will remove the Lead-In and Lead-Out from a CD-RW, e.g. enabling you to write more audio tracks to a previously closed CD-RW disc.

The later two commands are currently supported only by a limited number of CD-RW Recorders.

Note:

CD-RW media recorded with WinOnCD can only be erased completely. The ISO file system does not allow deleting of single files. Selective deletion requires special software packages such as PacketCD™ version 2.0 or higher.

Audio CD Project

General Information

This section explains the creation of an Audio CD (according to the RedBook standard) with WinOnCD.

The Audio CD project has two different views:

- the Track List - where all tracks of the new CD are displayed and
- the Audio Editor - where sounds from each track can be edited individually.

To create a new Audio CD project, choose **File | New** and open an **CD Digital Audio** project. A standard audio project is always found in the Favorites section, other audio project types can be found under "Audio".

To create a CD with CD Text, the appropriate icon must be chosen.


Track List

The current project can be shown as a list of all existing tracks. Just press the **Tracks** button to get this view.

Moving or deleting Audio tracks is possible in this view. Double clicking on a certain track or pressing the **Editor** button will change the view to the Audio Editor where the sound can be edited.

You can create a new Audio track with the command **Edit | Insert Into Project**.

Note:


Some settings, which can be useful in an Audio project, can be reached by pressing the  button in the main button bar or using the **Options | Preferences** menu.

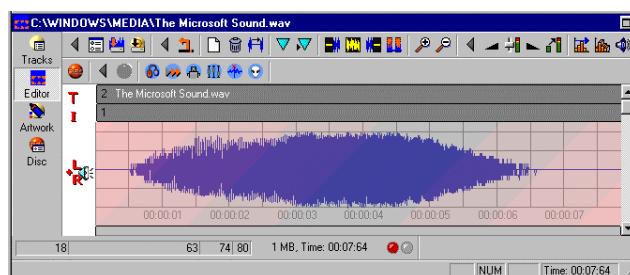
Audio Editor

Press the **Editor** button to see the Editor view of the CD.

The Audio Editor is used to view and edit sound files. Parts of sounds can be deleted, sounds can be inserted, and index marks can be set.

Note:

When writing CDs "Track-at-Once", a two second gap is added between the tracks. However, some CD recorders are also able to write in the "Track-at-Once" mode without a gap (TAO, zero gap). You can define this in **Properties - Track** on the **Parameters** tab which you can invoke in the editor dialog with .



Audio Editor Destination Window

Information about the current selection is given at the bottom of the destination window. The selection can be changed either with the mouse or by entering start and end points in the **Mark From** and **Mark To** edit fields.

To add sound or music to a track in the Wave Editor, drag a sound from the source window or the Explorer to the destination area. If the editor already has content, the new sound is inserted at the current mark.

Above the waveform (marked with "T" and "I") are Track and Index bars. To create a new track or index, Control-Click in the respective bar where you would like the new track or index to start. Alternatively, you can set the selection mark and choose "Insert Track" or "Insert Index" from the context menu (right mouse button).

To change these items, click and drag the number of the track or index you wish to change. To delete a track or index, highlight it by clicking it once and choose **Delete** from the context menu.



This insertion of track marks into a piece of music is also called "PQ-Editing".

Shift-clicking a track or index will select the waveform for that area. Click on the "T" or "I" to show or hide the track and index bar.

Notes:

Only CD recorders which support "Disc-at-Once" can write CDs with track marks in a sound file without a gap. Otherwise, the recorder writes the CD with "Track-at-Once", i.e. a two-second pause is usually added before each track.

More recent recorders (especially those with an EIDE interface) are often capable of writing in "Track-at-Once" mode without a pause (TAO, zero gap). You can define this in **Properties - Track** under the **Parameter** tab.

The bar below the waveform can be toggled between "volume adjustment"  and "effects"  by clicking on the respective icon.

By control-clicking in the volume adjuster, you create a new handle that can be dragged to change the

volume. The results are shown automatically in the waveform. To delete a handle, select it and choose **Delete** from the context menu.

The effect bar works much like the track bar, displaying which effects are applied to the sound. Double-click the effect bar to open a box where you can define the properties for the effects.

For a better overview, you can hide the track/index bar, and display the waveform for both channels by clicking the icon in at the left of the respective bar.

Context Menu

The context menu of the Audio editor is used to set or delete track and index marks as well as to rescan the wave.

To create a new track or index within the currently displayed sound, set the mark and choose **Insert Index** (or **Insert Track**) from the context menu (click the right mouse button).


Control-click to add a node in the volume adjuster. You can delete the nodes with the context menu.

Button Bar

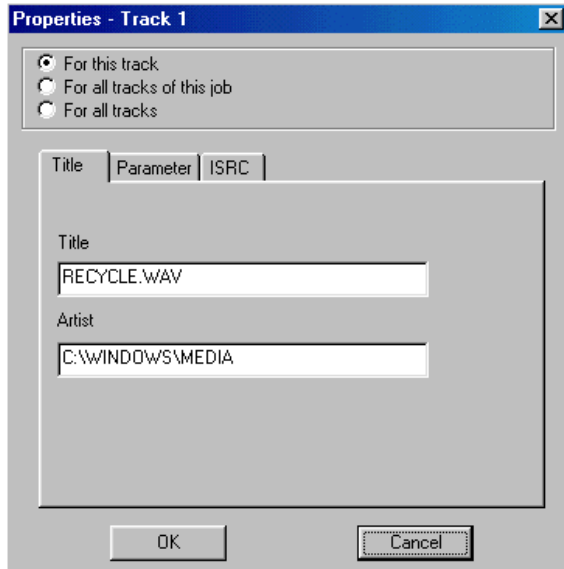
The Audio Editor has four movable button bars, which are displayed at the bottom by default. These bars contain the following tools.

General

Properties - Track

Click  to open the dialog box **Properties - Track** for the track in the current editor window.

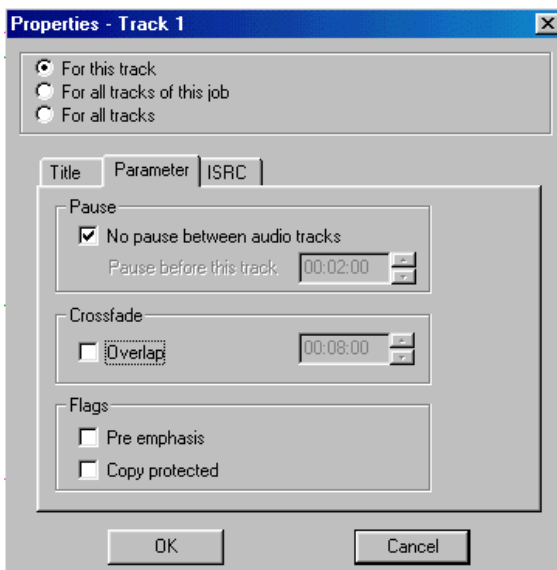
Title



Properties – Track: Title

Use this option to enter or edit the song title and the artist of the current track. This information will be used in the artwork editor and—if selected—as the CD Text information.

Parameter



Properties – Track: Parameter

- **Pause before this track**
If your recorder supports "Disc-at-Once" writing, this option allows you to insert a pause before the track in this editor window. If the recorder only supports "Track-at-Once", there will always be a pause of two seconds before each track.

Some CD recorders are also able to write in the "Track-at-Once" mode without a gap.

- **Crossfade**
Use this function to fade over from one track to the next. You can set the fade time yourself.
- **Pre emphasis**
Some CDs are recorded with pre-emphasis, i.e. treble correction. For these tracks, the pre-emphasis bit must be set and is analyzed by the audio CD players.

The player de-emphasizes the treble accordingly during playback.

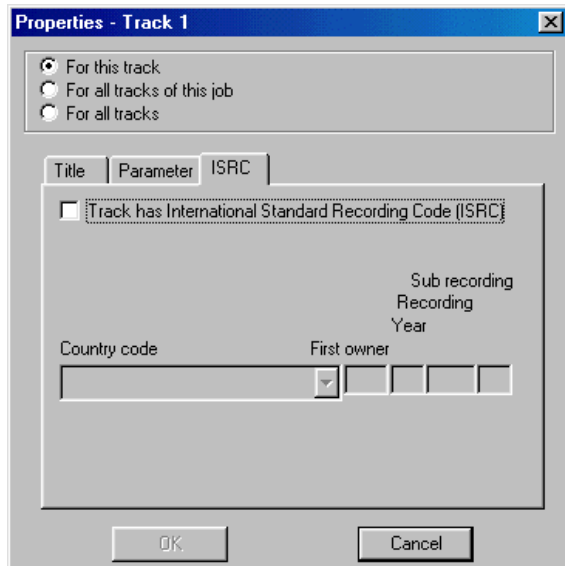
This bit is automatically recorded with the rest when you add a CD track with a pre-emphasis bit to an audio project.

If you make a compilation of several songs in a track in the Wav Editor, then the settings made for the track will apply to all songs in the track.

– **Copy protected**

Sets a "Digital Copy Prohibited" mark for this track. This mark is a command to digital recorders not to copy this track. CD recording programs do not normally adhere this command.

ISRC



Properties – Track: ISRC

This option allows you to make an "International Standard Recording Code" for the track. Only select this option if you have an ISRC number for the material you are recording (see


ISO 3901). To be assigned an ISRC number, you must have an "ISRC Owner Code". This code is normally reserved exclusively for professional use.

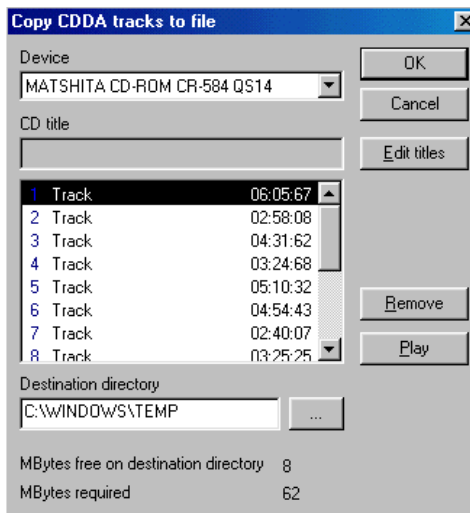
For more information on ISRC and an "ISRC Owner Code", contact:

International Federation of the Phonographic Industry (IFPI)

54 Regent Street
London W1R 5PJ, United Kingdom
Fax: (44) 1-71-439 9166

Copy CDDA Tracks to file

This command  opens a dialog that allows you to copy a track from an Audio CD to your hard disk in wave (.wav) format.



Copy CDDA Tracks to file

Using shift- or control-clicks, several tracks can be selected. These files can later be used as input for WinOnCD.

Edit

Undo



Cancels the last action in the Editor.

Clear job



Erases everything in the current editor window.

Delete



Deletes the current selection.

Insert silence



Inserts a determinable amount of silence at the current mark.

Bookmark



Inserts a bookmark at the current selection.

Go to



The cursor jumps from one bookmark to the next.

***Select left / right
silence area***



Selects the leading or trailing silence of the sound currently in the editor window. This is most useful for selecting and deleting unwanted silence in a sound file.

Select all



Selects everything in the current editor window.

Detect Tracks



Scans the waveform for pauses and automatically sets a new track mark. This function can be very useful when using .wav files which contain more than one song (e.g. recorded from an LP).

Zoom In



Enlarges the wave form. An area of the wave form is selected, and is sized to fit the window.

Zoom out



Reduces the size of the wave form so that more of it can be displayed.

Play

Fade In



Increases the volume of the current selection from a start level to a limit level. New adjustable volume handles will be added to the volume "rubber band" below the waveform.

Set volume



Turns the volume level up/down in the selected area. The volume can also be adjusted using the volume "rubber band" under the waveform.

Fade out



Decreases the volume of the current selection from a start level to a limit level. This command also adds adjustable volume handles to the rubber band below the waveform.

Maximize volume



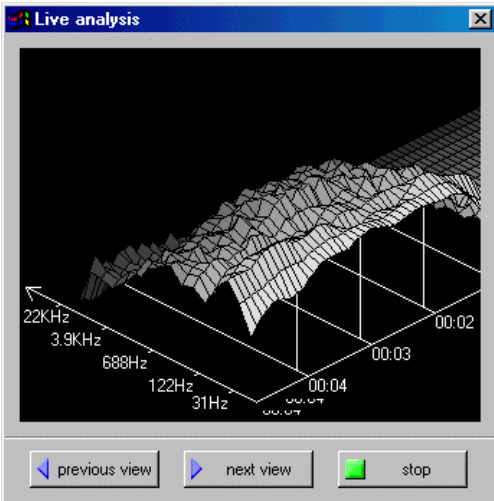
Determines the highest level on the CD and defines it as the maximum level for volume.

Live analysis



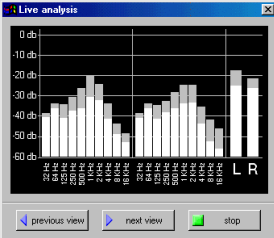
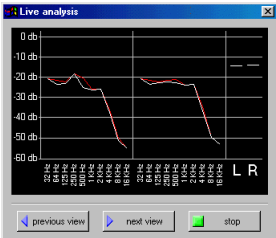
WinOnCD can perform a frequency analysis and display a real time visualization of the playing sound. This analysis is especially helpful in conjunction with the effects (e.g. equalizer) or to find out more about the nature of noise in recordings.

The "Real Time Analysis" opens a separate window, in which the visualization is displayed whenever a sound is playing:



Real Time Analysis


Using the right mouse button or the **Next view** and **Previous view** buttons, you can toggle between the 3D and other 2D views:

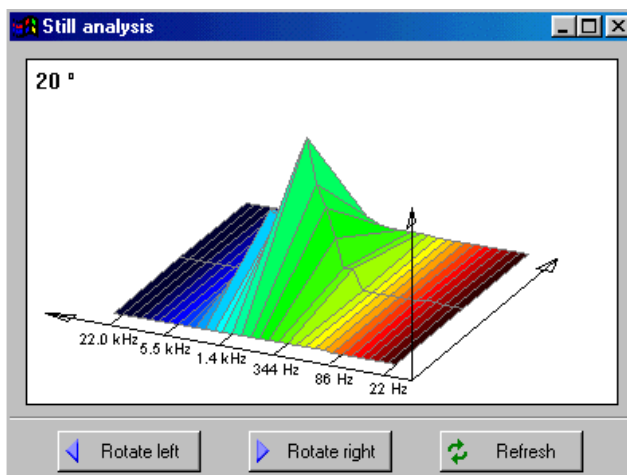


2D Views of the Real Time Analyzer

You can use the analyzer in correlation with any effects.

Still analysis

This command  performs a frequency analysis for the actual selection of the wave file:



Still Analysis

The above picture shows a good example of a broad banded pop/click of an LP recording (in the front), which can be reduced using the "declick" effect.

Play



Plays the current selection, including all selected effects and other modifications.

Export



This button will write the current selection including all changes (e.g. volume adjustment, effects) as a ".wav" file or a Microsoft Audio 4.0 file to hard disk.

Record audio



Opens a record dialog to record audio from external sources with your sound card. This records incoming audio data from "Line-In". Therefore, the "Line-In" of the volume adjuster must be enabled in the properties of the sound card.



Record Audio

Effects

To apply an effect to the current selection, choose one of the effect buttons below. To access the settings of the effect, double-click its description in the FX bar under the waveform.

While changing the settings for an effect, you can choose the **Play** or **Live analysis (Real Time)** button from the "Play" button bar to play and analyze the sound.

In the individual effects, enable the checkbox **Bypass** to temporarily turn off the effect. This will allow you to listen to the influence of the effect when playing. Once you disable the checkbox, the effects you set before are enabled again.

Note:

While you are using effects, the information on which effects you have changed is saved in a file with the extension .waf. To save the changes, you must export the file or save it as a project. However, you can also burn the CD directly without saving.

Tip: For various selections in your waveform, you can set different effects, or the same effect with different settings. This option can also be helpful if, for example, you are using the declicker.

Do not use effects on MPEG 1, Layer 3 (.mp3) compressed source files. Due to the compression used in

these files, the effects might produce unwanted results.

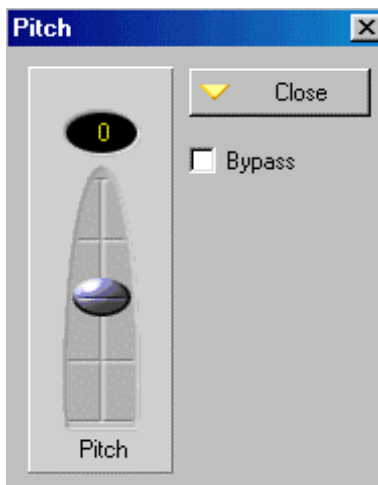
Delete Effect



Deletes the effect selected in the FX bar.

Pitch

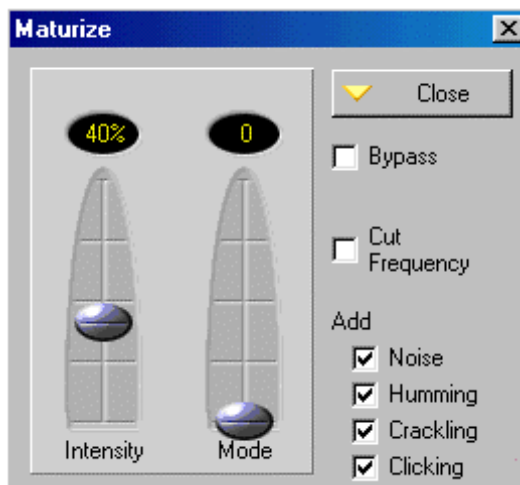
Use this option  to change the pitch.



Change Pitch


Maturizer

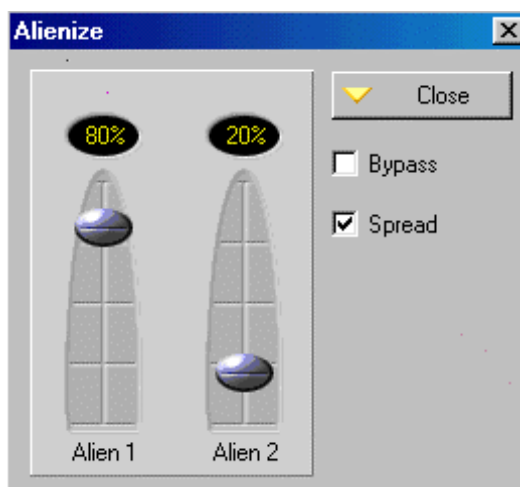
This option creates a broadband, brief noise, e.g. crackles and click, such as those produced in LP recordings.



Maturizer


Alienizer

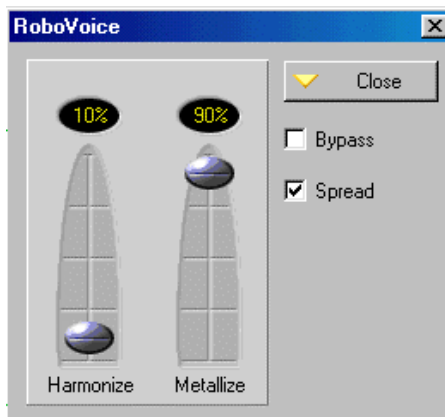
Use this option  to distort voices and alienize them. Enable the checkbox **Spread** to make the recording 3D sound.



Voice Alienizer

RoboVoice

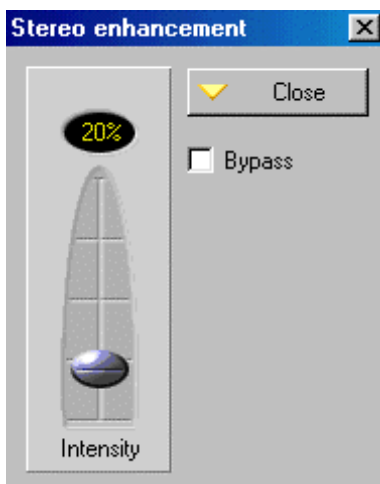
 Use this option to generate a metallic sound or robot voices.



RoboVoice

Stereo Enhancement

Use this option to enhance the impression of stereo recordings.

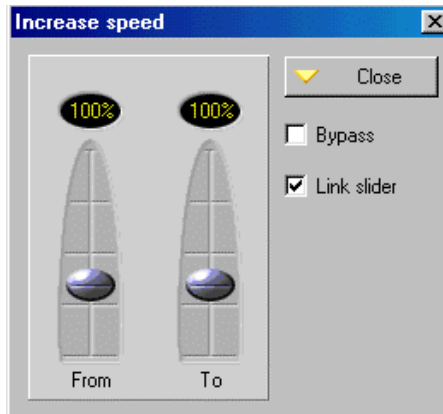


Stereo Enhancement

Increase Speed



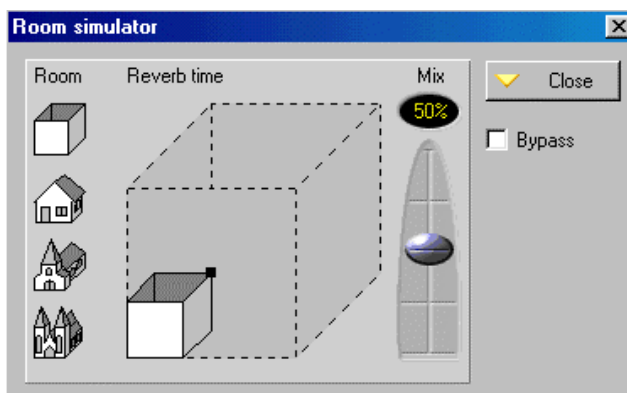
This effect makes it easy to change the speed of your recordings.



Increase Speed

If the sliders are connected, the speed will be simply changed for the marked part. It is also possible to choose values for the initial and final speed.

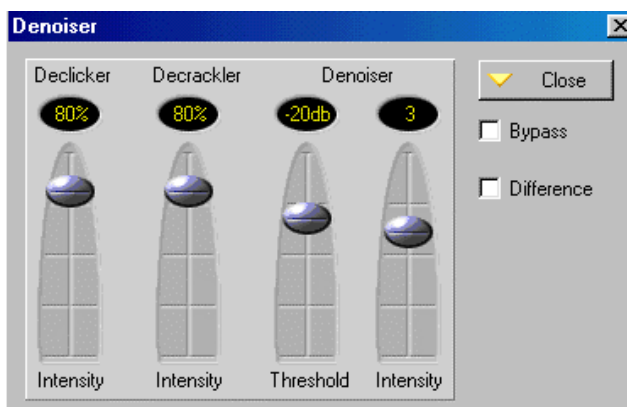
Room simulator Here you can generate a 3D effect.



Room Simulation

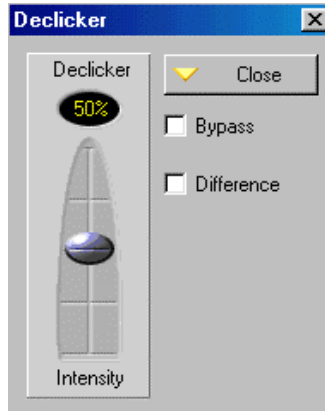
You can change the 3D parameters by resizing the selected building.

Denoiser This function starts the Denoiser.



Denoiser Settings


Declicker This function starts the Declicker.

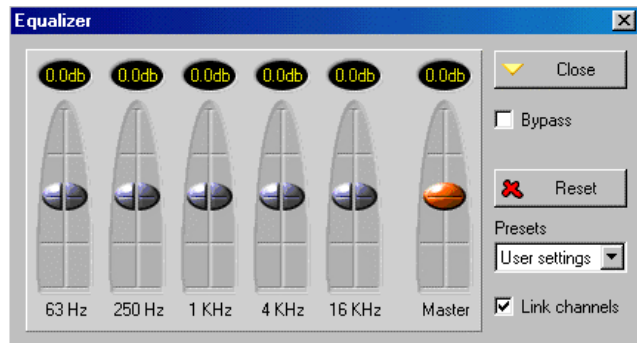


Declicker Settings

You can use the declicker to reduce broadband, brief noises, e.g. crackles and clicks, such as those produced from LP recordings. It may make sense to use the declicker only for the area of one song containing clicks or to select different settings for individual sections.

Equalizer

 Click here to start the equalizer.



Equalizer Settings

The **Equalizer** effect mimics a stereo, 5 band equalizer. With each slider, the desired frequency can be amplified or softened by -10 to +10 dB. If **Link channels** is selected, the same settings will be applied to both the left and right channel, otherwise they are handled individually: The left channel using the upper, and the right channel using the lower sliders. The **Reset** button will return all sliders to the zero setting.

The pop-up menu contains predefined settings that you may find useful.


CD Text

CD Text is a feature added to the conventional CD Digital Audio format by Sony and Philips. CD players equipped with CD Text decoding capability can display information such as album title, artist and song title.

The CD Text feature requires a CD Text capable CD-Recorder. Check the Capabilities page in the Recorder Information dialog (Options | Preferences | Recorder | Info) to find out whether your CD-Recorder is capable of writing CD Text disc.

Creating a CD Text Audio Disc

To create a CD Text disc, you must choose the **CD Text (Digital Audio)** project, located in the **Audio** group of the New Project selection window (**File | New**).

For CD Text, the Properties – Track  or Artwork editor infos will be used.

CD Text projects must be written in Disc-At-Once mode.

Importing Audio from CD

With WinOnCD you can use the data coming from an Audio CD read out, whether from a SCSI or EIDE CD-ROM drive, as source material.

Due to the nature of Audio data, you sometimes may, however, encounter quality problems with the transferred material. Some possible reasons for this could be:

Addresses of sectors

Unlike Data CDs, sectors on Audio CDs don't contain addresses and synchronization information. For that reason a CD-ROM drive is not always able to continue at the same sector when the data stream has been interrupted. Interruptions can be caused as the data transfer rates of the CD-ROM drive and the hard disk are not the synchronous. This is also true for the transfer rates of CD-ROM drive and CD recorder when writing "on the fly".

If necessary, WinOnCD uses an overlapping reading scheme to make sure the tracks fit.

Most new CD-ROM drives take internal measures to ensure the continuity of tracks.

Basically Audio quality at this point may depend on the read-out speed and the CD-ROM drive used.

Error Correction

Another reason for the loss of quality may be in the error correction. Audio CDs do not have the same error correction as data CDs. Some errors, especially the ones caused by physical damages, cannot always be corrected entirely. The resulting transfer of incorrect data is called "drop outs", which WinOnCD can repair. In other cases, it may be helpful to use the Declicking tool (as described in the "Effects" section of this manual).

In order to get the best results, check the **CD-DA Grabbing** settings in the main **Preferences** dialog, which is located in the **Options** menu.

Supported File Formats

WinOnCD supports the following audio file formats:

- **Wave Files**

".WAV"

- **Audio Interchange File Format (AIFF)**

".AIF"

These two formats are supported with sample rates of 11, 22 or 44 kHz, 8 or 16 Bit sample size, mono or stereo.

- **MPEG 1 Layer 3**

".MP3"

The MPEG files are decoded and written to the audio CDs as Red Book audio, playable on standard audio CD players. On slower systems it might not be possible to write MP3 files "on the fly".

We also recommend not using any effects on MP3 files, as they may produce unwanted result due to the compression used in these files.

Track image ("raw") files can also be written, but these files are not checked for their contents. To avoid errors, raw files must have a specific extension to specify the byte ordering in the source file:

- **Raw**

(Pulse Code Modulation), INTEL byte order:
".RAW" or ".PCL"

- **Raw**

(Pulse Code Modulation), Motorola byte order:
".PCM"

If a raw file contains music, it will contain a 32-bit word for each sample, with the first 16 bits for the

left, and the rest for the right channel. The sample rate is 44.100 kHz.

Recording an Audio CD

Adding Audio Tracks

Recording an audio CD generally works just like described in the section "The WinOnCD User Interface" (Chapter "Basisc").

WinOnCD makes recording audio CDs in multiple "sessions" easier:

If a CD already containing audio tracks is in the CD-Recorder when the **Record** button is clicked, WinOnCD will check if the first tracks in the project are identical to the corresponding tracks already on the CD. If so, WinOnCD will only write the new tracks.

This means, you can record the first set of audio tracks to a CD-R or CD-RW (remember to choose **Don't close CD** in the record options), and save the project. When you are ready to add more tracks, simply open the existing project, add the new tracks, and record. WinOnCD will only record the added tracks.

Of course, it is not necessary to save the project in order to add tracks to a not closed audio CD.

Remember to close the CD after the last track has been added in order to make it readable by a standard CD-Player.

Manually Closing Audio CDs

If you have recorded an Audio CD using the **Don't close CD** CD recording option, you can add new audio tracks at any time. If you want to be able to play back the CD in a regular CD player, though, you need to close the CD. This can be done in two ways: You can either select the Close CD recording option in the last session, or you can close the CD by invoking the **Close Session** option from the **Record** Menu.

CD-ReWritable Features

With selected CD-RW recorders, WinOnCD allows you to unclosed the disc and to delete the last track (which can be done repeatedly). To find out more about these features, please refer to the end of the section **WinOnCD User Interface** (chapter "Basics").

PC/Macintosh Hybrid-CD

General Information

A Hybrid CD contains both an ISO-9660 and an Apple HFS partition. Macintosh computers will automatically access the HFS part; all other operating systems will access the ISO-9660 part.

On standard Hybrid CDs, the ISO and HFS partitions are discrete; i.e., Macintosh computers cannot access files on the ISO-9660 partition and vice versa.

In addition to these standard Hybrid CDs, WinOnCD can create Hybrid CDs that contain shared data. This means, that a file is only actually written to one of the partitions, but accessible from both. This is especially useful for multimedia CDs, where files (e.g. QuickTime movies or sound) can be used by both Macintosh and IBM-PCs.

Only the so-called "Data Fork" of Macintosh files is shared, as the "Resource Fork" usually contains data specific to the Macintosh.

To create a Hybrid CD, choose **File | New**. In the "Data" group select **HFS + ISO 9660/Joliet Hybrid CD**.

Requirements

To create a Hybrid CD, an HFS medium must be connected to the PC. This can be a SCSI hard disk, SyQuest drive, etc., or a CD-ROM containing the HFS (Macintosh) partition to be written.

Note:

Macintosh files can not be transferred from a Network.

This partition will be written to the HFS part of the CD exactly as it is, including all files as well as icon and folder placement information. The size of the partition is irrelevant, however it must not contain more data than the size of the CD minus the space for the ISO-9660 partition.

If the Hybrid CD is to contain shared files, they must be on the HFS partition as well. Shared files can not be added to the HFS partition with WinOnCD.

Only the "Data Fork" of the files, which usually contains the data usable by PCs, will be shared. If a hard disk is used as a source device, it must be connected to the SCSI bus of the PC.

Creation of a Hybrid CD

Hybrid CDs do not require a special editor. They are edited with the standard ISO-9660/Joliet CD-ROM Editor.

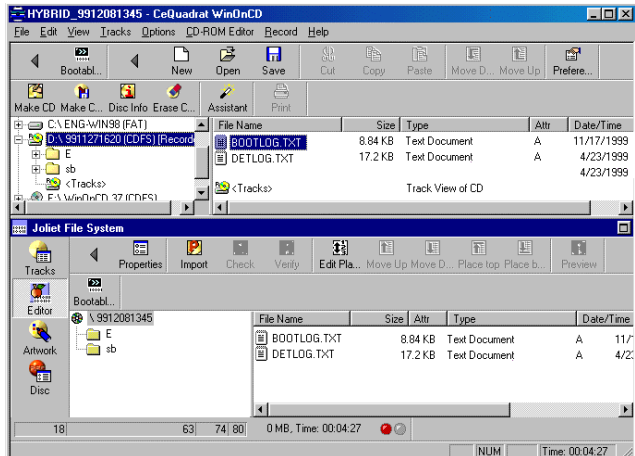
References for Macintosh files are treated just like PC files, and most of the editor features also work on these files.

Note :

Hybrid CDs cannot be recorded as multisession CDs.

HFS Partitions in the ISO/Joliet Editor

HFS partitions recognized by WinOnCD will appear after the PC-drives in the source window.

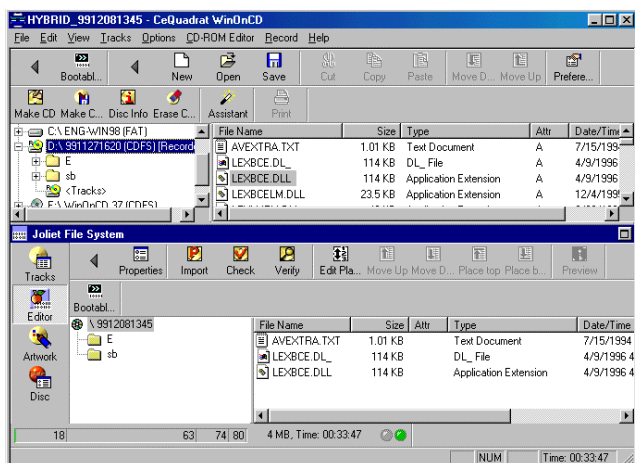


CD-ROM Editor with Macintosh disk in source window

In addition to the Name, information about the size of the data and resource forks, type, creator, flags and date of last modification is given.

The type and creator information, as well as the "A" (Alias) and "R" (Read Only) flags are for information only, and will not be copied to the ISO-9660 file system. The "H" (hidden) flag is carried over into the ISO file system, and can be changed with the **Properties** command in the File context menu.

To add a reference for a shared file to the ISO-9660 partition, drag and drop the file into the destination tree, just like a regular file. All features (including rename) of the ISO editor are available. Shared files, however, can not be placed. When the first file is added to the destination tree, the Hybrid partition is added automatically.



Destination window with shared HFS files

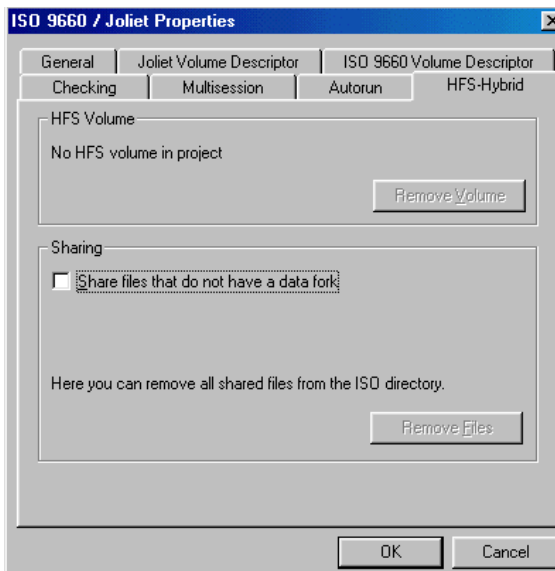
In the above window, shared (Apple icon) and PC only (standard icon) files are combined in one directory. The "P" attribute indicates that these files have a fixed position and cannot be placed.

Shared files can have up to three different names: One for HFS, one for Joliet and one for ISO.

To add an HFS partition without sharing files, simply drag the icon of the HFS partition into the destination tree.

Hybrid Options

To set the options for Hybrid CDs, select CD-ROM | Properties and go to the HFS-Hybrid tab:



ISO 9660 / Joliet Properties: HFS-Hybrid

Remove Volume

This button will remove the HFS partition from the project. Afterwards, either a different volume can be added, or the CD can be written as ISO 9660/Joliet only.

Sharing

The option Share files that do not have a data fork will also share HFS files that only have a resource fork into the ISO 9660/Joliet volume. By default it is not activated.

Note:

Files without a data fork will appear as zero-length files on the ISO 9660/Joliet partition. The resource fork is never accessible from the PC side.

Remove Files

This button only removes all references to HFS files from the PC file system. The CD is still a Hybrid CD, just without shared files.

CD Extra Project

General Information

This CD type consists of three different partitions according to the Blue Book Standard

- specific information for CD Extra,
- an ISO 9660 data track and
- one or more audio tracks.

The CD-Extra specific information can be information about the song or piece of music, copyright, lyrics, and a picture.


This information can be given in several languages if desired.

Multimedia PCs, MacOS computers with the appropriate software or specific CD Extra players are capable of playing CD Extra discs.

To create a new CD-Extra project, choose **File | New** and then select the **CD Extra** project in the Audio section.

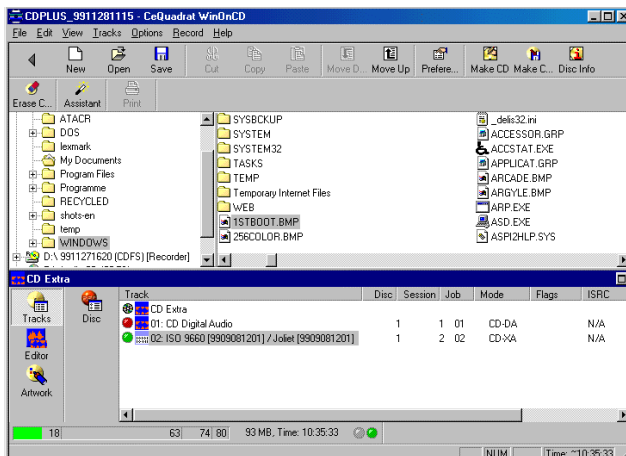
Audio Tracks

To create audio tracks, switch to the "Track List view" by pressing the **Tracks** button. **Edit | Insert** will insert a new digital audio track, which can be edited using the Audio Editor by double-clicking on the track number or by pressing the **Editor** button.

Use the  button on the Audio Editor to make settings for the CD-Extra project.

ISO 9660 Data Track

To edit the ISO 9660/Joliet track of the CD, click on the CD-ROM track in the list view and press the **Editor** button.



ISO/Joliet Editor

The ISO File System can then be edited with the ISO 9660/Joliet Editor, which is explained in details in the ISO 9660/Joliet project.

Multisession recording, however, is not possible with CD-Extra.

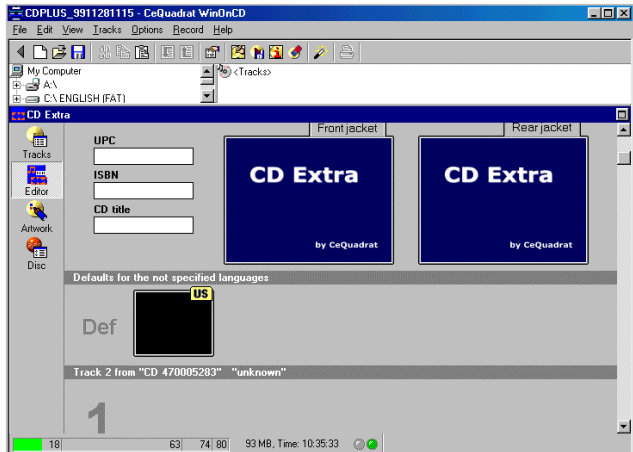
WinOnCD will always add files with specific CD Extra information to the CD. The following structure is an example for information in English (US) and German (DE):

Directory: CDPLUS

- INFO.CDP
- SUB_INFO.US
- SUB_INFO.DE

CD Extra Editor

To edit the CD-Extra specific features, select the CD-ROM track in the list view and press the Editor button.



CD Extra window consists of two parts

Valid for the entire CD

The Destination area for a CD Extra contains the pictures associated with the CD (CD cover).

To add a CD cover, just drag the images of the front and rear jacket into the respective sector.

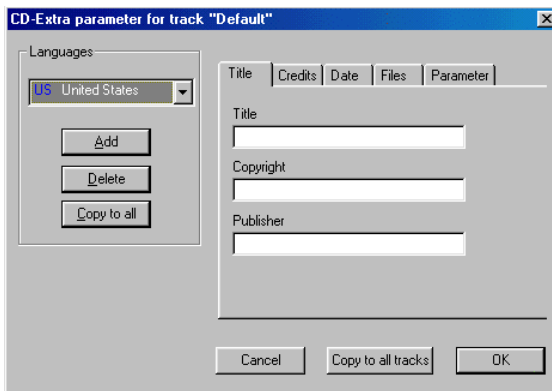
You can also enter the ISBN (International Standard Book Number) and UPC/EAN (Universal Product Code) for the CD.

Valid for the selected track

One picture per audio tracks for each language and particular information can be assigned to each Audio track of a CD-Extra. These can be added using the "Default button".

Pictures etc. can also be assigned to the tracks by dragging them into the respective part of the destination window. When doing this, however, one language must be selected, and the audio part of this track must already exist.

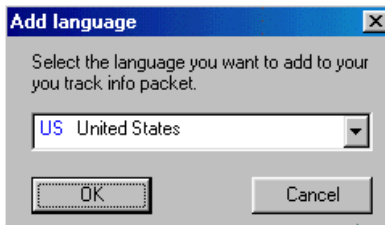
CD-Extra Track Properties



CD-Extra parameter for track "Default"

Languages

The information for the audio tracks can be supplied for a variety of languages. To add information in a specific language, it has to be added to the list using the "Add" button.



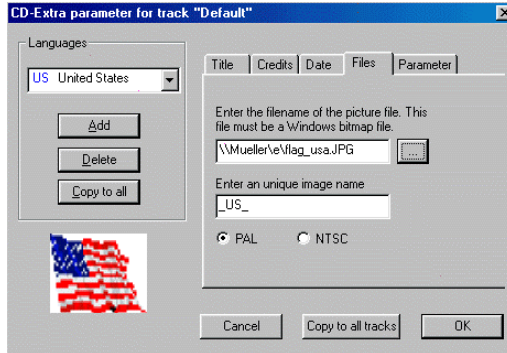
Add Language Dialog

Now the information for the languages in the list can be edited independently.

***Title, Credits,
Date***

Here the general information about a title (Composer, Artist, etc.) can be entered.

There is no specific standard for these fields.



CD-Extra parameter for track "Default": Files

Files

Here one bitmap file per language can be assigned to the audio track. The image name ("_US_", in the example) is the name under which the image was saved on the CD. To be on the safe side, you should not change the suggested name unless you are very familiar with the CD-Extra format.

Once the image has loaded properly, you will see a preview of the image to the lower left (a flag in our example).

Please choose **PAL** or **NTSC** to determine the image size that is to be stored in Still MPEG format on the CD-Extra.

The fields for **Genre**, **Key** and **Tempo** (**Parameter** tab) are only provided for your information and have no bearing on the playback of tracks.

Parameter

This is where you can set the priority for the individual files. Files with high priority are placed towards the middle of the CD to minimize access times. You can choose between high, normal and low priority.

Bootable CD Project

General Information

"Booting" is another name for the loading of the operating system. In order to "boot" from CD, you must create special "bootable CDs". For PCs, these are made according to the so-called "El Torito" standard.

In order to boot from a bootable CD, a PC must either have a compatible BIOS or, when booting from a SCSI-CD-ROM drive, a SCSI adapter with a BIOS that supports this standard.

Not all operating systems can be booted from CD. Windows95 and Windows NT, for example, write to the medium from which they are booted on boot up. Since this is impossible with a CD, however, the process aborts. These operating systems are not designed to boot from a ROM medium.

MS-DOS is an example of an operating system that can be started from CD.

A bootable CD consists of a bootable partition and an ISO 9660/Joliet partition, which is optional.

MS-DOS cannot access the ISO 9660 part of the CD unless a reading driver for the CD-ROM drive and the "MSCDEX" driver were installed during the boot procedure for the boot partition. A bootable CD for a PC is usually made so that DOS and the CD-ROM reading driver are started via the boot image and afterwards the rest of the installation executes from the ISO part.

Requirements for writing a Bootable CD

To create a new Bootable CD Project, choose **File | New** and select the **Bootable CD** project icon in the **Data** section.

Requirements for writing a Bootable CD

A "Bootable CD" can only be created from an existing, bootable, partition on a hard disk or floppy disk. This partition will be copied completely to the CD, and therefore must be smaller than the capacity of the medium (e.g. 650 MB). If additional ISO 9660 files are to be written to CD, the partition must be small enough to leave room for them.

Note:

For the bootable CD to work, the system BIOS (main board firmware) must support booting from EIDE CD-ROM drives. And for SCSI drives, the BIOS of the SCSI host adapter must support a bootable CD-ROM. Operating systems that attempt to write to the boot drive during boot up (for example, Windows 95) cannot be started from CD.

Creating A Bootable-CD

To create a bootable-CD, choose **File | New** and then click on the **Bootable CD** icon in the **Data** section.

Properties of the Boot-Partition

When you start the project, the **Select Boot Properties** dialog box appears. Any time you want to change the properties, you can also open this dialog box via **CD-ROM-Properties | Bootable Properties**.

There are two tabs for specifying the properties:

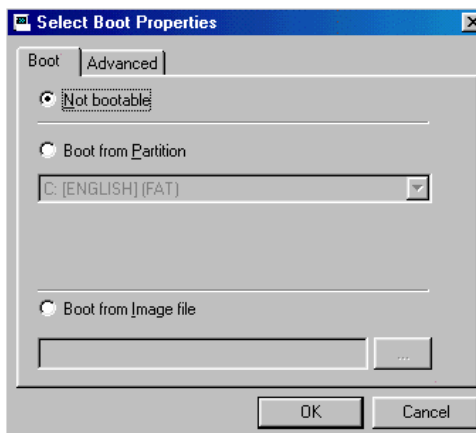
Boot

Use the **Boot** tab to define whether or not a CD should be bootable.

Here you can either select the boot partition or enter an image file (an image of a partition).

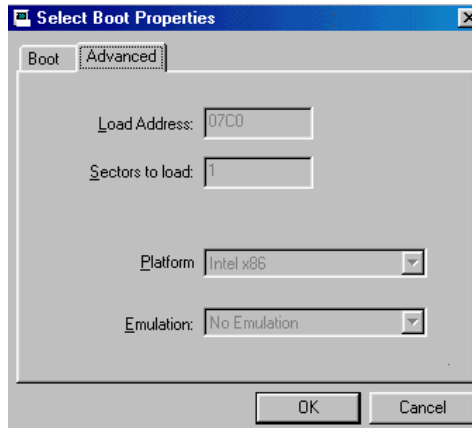
Please note that the source partition must itself be bootable (DOS or Windows 3.x) and ensure that the system does not work only with writeable media. Moreover, remember that the entire partition, including all files, will be written to the CD.

WinOnCD does not check for the validity of this image file. Parameters for the image file must be specified on the **Advanced** tab.



Select Boot Properties: Boot

Advanced



Select Boot Properties: Advanced

These parameters are to be set when an image file has been selected as source.

Load address

This determines to which address in the computers' memory the boot sectors are to be loaded. For booting Intel x86 compatible PCs, this must be 07C0.

Sectors to load

Determines how many sectors have to be loaded before the start of the boot program. For booting Intel x86 compatible PCs, the value '1' must be entered.

Platform

Here the platform for which the CD is intended can be specified. This can be Intel x86, PowerPC or Macintosh.

Emulation

This determines whether the PC will treat the CD as a floppy (Drive letter A) or hard disk (C). Be aware that if the CD is to be treated as a floppy, the bootable partition or files must be no larger than 1.44 MB. Furthermore, the BIOS of the computer from which

this CD is to be booted must support the selected disk format. This is frequently not the case with 2.88 MB floppy disks.

ISO Data

The files on the bootable partition of the CD will only be visible if the system is actually started from that CD.

It is, however, possible to put additional data (in the ISO 9660 format) onto the CD which can be read if the system was either **not** started from it or if, using a CD-ROM driver and MSCDEX in the boot partition, CD-ROM access was activated during the boot process. This data could be a complete copy of the bootable partition or just a text file saying that this is a bootable CD, or a installation package activated by the boot partition.

To specify files for the ISO 9660 file system, select the ISO 9660 entry in the tracklist and press the **Editor** Button.

The ISO 9660/Joliet editor appears, which works just like described in the "ISO/Joliet-Editor" section of this manual.

Video-CD Project

General Information

A Video-CD compliant to the WhiteBook 2.0 standard is a CD-i Bridge-Disc, containing a CD-i application, an ISO 9660 file system and one or more MPEG video tracks.

These CDs can be played on personal computers equipped with an MPEG playback card or corresponding software (MPC3), on CD-i players with a Digital-Video cartridge, on Video-CD players or on DVD video equipment. Moreover, the ISO-9660 file system can be used to store additional information, retrievable, for example, on Windows-based personal computers.

To create a new Video-CD project, choose **File | New** and then select the **Video CD 2.0** project in the **Video** group.

Video-CD

The first track of a Video-CD always contains Video-CD specific data (for example the CD-i application). As WinOnCD will take care of all necessary selections, you have nothing to do at this point.

CD-i

Apart from a Digital-Video cartridge, a CD-i player needs software to play a Video-CD. This software must be supplied on the Video-CD itself.

WinOnCD includes the royalty-free CeQuadrat CD-i player application. You may use this program without paying additional license fees, and there is no limitation on the number of titles or copies you can produce with the CeQuadrat CD-i application.

The CeQuadrat CD-i application program is Video-CD 2.0 (WhiteBook) compliant. It does not, however support all CD-i player features. If you need full functionality in the CD-i environment, we recommend that you use a program that permits you to switch CD-i applications.

It is illegal to use any part of the CeQuadrat CD-i application in combination with software from other vendors. The CD-i application program may only be distributed in its entirety and solely on Video-CDs created with CeQuadrat software.

ISO 9660 Data

To edit the ISO 9660 part of the project, mark the ISO 9660 entry in the track list and click the "Editor" button.

Suitable Source Material

The Video-CD editor supports MPEG or AVI files as input for Video-CD movies. The MPEG files must be WhiteBook compliant system streams (i.e. multiplexed, with a video bit rate of 1,151,929.1 bits/sec and an audio bit rate of 224 kbit/sec).

AVI files are encoded and multiplexed by an MPEG-Encoder integrated in WinOnCD.

For audio tracks, the same requirements described under Audio-CD Project apply.

Standard Video-CD Editor

The simple editor only supports video tracks. The disks created in this editor can be played on any of the devices mentioned above.

After opening a standard Video CD 2.0 project, simply drag suitable video data (MPEG or AVI) into the destination window.

Video CD Extended Editor

The extended editor lets you create video CDs using the expanded possibilities of the Video 2.0 standard. A video-CD player or corresponding software for a PC or a CD-i player is needed for playback.

In the extended editor, you can create CDs that contain MPEG slide shows (with optional sound) and audio tracks in addition to video tracks.

You can also use menu structures to create interactive video-CDs.

MPEG Video Tracks

To create new video tracks, choose the command **Edit | Insert**, then drag the source file from the source window to the video track. You can also drag a video file directly into the track list.

Suitable File Formats

The MPEG editor accepts MPEG or AVI files as input. The MPEG files must be WhiteBook system streams (i.e., multiplexed with a video bit rate of 1,151,929.1 bits/sec and an audio bit rate of 224 kbits/sec).

AVI files are edited using integrated MPEG encoders and multiplexers.

Note :

Encoding may take time. It may take up to 50 minutes (depending on the performance of the CPU in your personal computer) to encode 1 minute of video material.

Destination Window

For the extended Video-CD project, both the standard track editor and a special Video-CD view are used to create the CD.

Track List

A Video-CD consists of the Video-CD 2.0 data track, followed by one or more MPEG tracks and audio tracks.

MPEG video tracks or audio tracks can be added to the Video-CD project by dragging them into the destination window.

Track list editing is described in the chapter ISO 9660 / Joliet Project.

Video View

The contents of the Video-CD and the connections between the various objects are defined here.

Each object in the video-CD structure is represented by a symbol. The symbols are connected to each other, thus defining a playback sequence.

Toolbar

The following functions can be accessed directly via the buttons of the toolbar:

Nodes

Wizard



Automatically creates a hierarchical menu structure according to user defined parameters.

Insert



This button creates a new node. This may be a slide show with optional audio, a video track, an audio track, or a menu.

Container



Creates a new container. A container can contain a node or other containers.

Delete



Deletes the currently selected objects.

Editor

Zoom in / Zoom out



Enlarge or reduce.

Placement



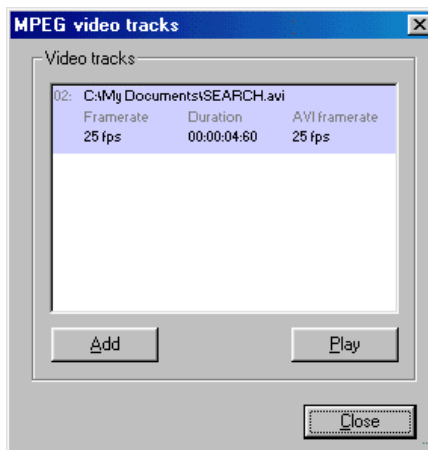
This function rearranges nodes and containers according to their hierarchical connections.

Tracks

Video tracks



This button calls up the **MPEG video tracks** dialog box.



MPEG-Video-Tracks

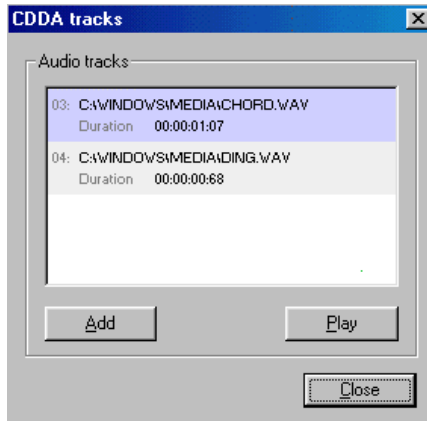
All MPEG tracks for the current project are listed in this box; further MPEG tracks can be added to the list.

All tracks in the track list will be written to the CD later, regardless of whether they are referenced by nodes. The only way to remove an MPEG track from the project is by deleting it from the track list. It is not automatically deleted if, for example, a node using the track is deleted.

Audio tracks



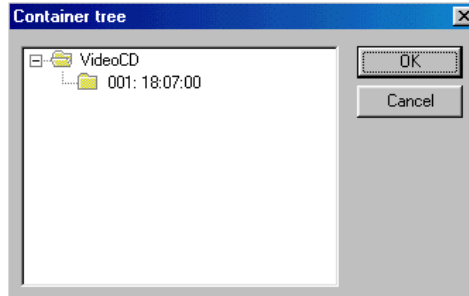
This button calls up the **CDDA tracks** dialog box.



CDDA tracks dialog box

Within the dialog box, it is possible to add and play audio tracks. Audio tracks can also only be deleted by deleting them from the track list of the project.

Container Browser This button calls up the **Container tree** dialog box.



Container tree dialog box

This is a hierarchical view of all containers used in the current project. The containers are displayed with their name and number. Double clicking on a container name will open the corresponding container.

Context Menu

Call up the context menu by clicking the right mouse button.



Context menu

<i>Insert node / Insert container</i>	Insert a new node or container.
<i>Zoom in / Zoom out</i>	Enlarge/reduce
<i>Reload all thumbnails</i>	Update all thumbnails for the current project.
<i>Video tracks</i>	Opens the MPEG video tracks dialog box.
<i>Audio tracks</i>	Opens the Audio tracks dialog box.
<i>Container tree</i>	Opens the Container tree dialog box.

Video Structure

The Video-CD Structure consists of nodes and containers.

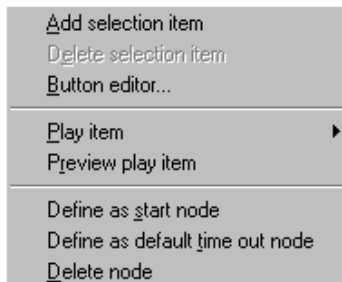
Nodes contain multimedia data (i.e. images, video, audio), and menus. Containers may contain nodes and other containers, and are merely a way to organize the structure and simplify working with large projects, but are not necessary.

Links between nodes define the sequence in which nodes are played. Each node has one in-connector to enter the node, and several out-connectors to exit the node. Which node this is depends on the setting defined in the editor and, where menus are concerned, user input.

The start node is marked **Start** in the upper left corner. Once the content of a node has been defined, the properties are defined.

Context menu

Mark a node and press the right mouse button. The context menu will appear.



Node Context Menu

Add selection item Add a menu item to the node.

Button editor Open the button editor.

<i>Play item</i>	This function specifies the type of content for the node.
<i>Preview play item</i>	Specific hardware or software may be required to play back certain types of content, e.g. an MPEG decoder for MPEG movies).
<i>Define as start node</i>	Selects the node as the start node for the CD.
<i>Define as default time out node</i>	Set the select node as default for time-outs that are not otherwise explicitly specified.
<i>Delete node</i>	Delete this node.

Node Content

Nodes can have the following types of content:

- MPEG slide show (with or without audio)
- MPEG video tracks
- Audio tracks

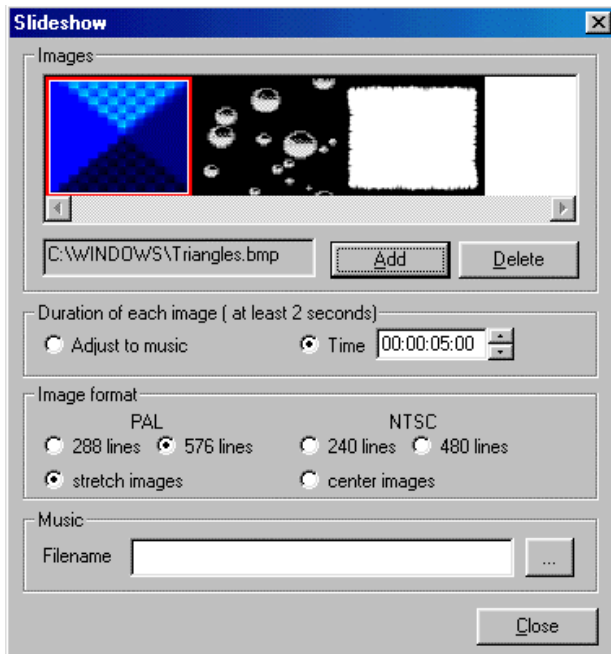
To specify content, either drag appropriate files from the source window into the node, or use the **Play Item** context menu submenu.

Slideshow (with or without Audio)

This subtype specifies MPEG still pictures, MPEG audio or a combination of both. An MPEG slide show is a single stream containing one or more still images, each displayed for a set number of seconds.

When both MPEG audio and MPEG still are specified, the two streams are multiplexed by WinOnCD and the audio plays continuously while the images are displayed.

You can define the following properties for this type of content:



Defining properties for an MPEG slide show

Only MPEG Slide Show

WinOnCD creates an MPEG slide show using the specified images.

To add an image to the slide show, click on **Add**. To move an image to a different position, just drag-and-drop it within the slide show.

It is possible to specify for each image individually whether the image is to appear in PAL or NTSC format, and low or high resolution.

The image sizes correspond to the following formats:

Standard Resolution	High Resolution
------------------------	--------------------

PAL	352 x 288	352 x 240
NTSC	704 x 576	704 x 480

The choice between low and high resolution depends on how the CD is to be used. The quality of low-resolution images is not as good. High-resolution images are good for details, but not every playback device is capable of displaying them.

If the images are played on a different TV standard than specified, either a black border will be added or the images will be cropped.

Each image in the slide show is displayed for the amount of time entered in the **Duration of each image** field.

MPEG Audio and MPEG Slide Show

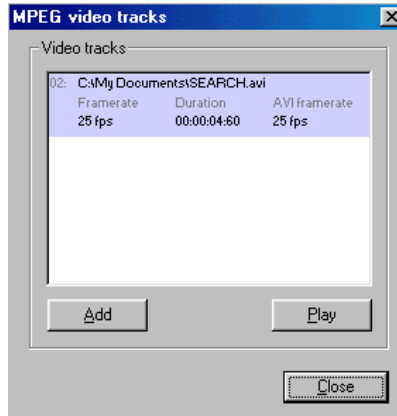
An existing MPEG audio stream (MPA) or WAV files can be used as input for the MPEG audio stream. WinOnCD converts the latter to MPEG audio.

Each image of the slide show is displayed for the predefined period of time, while the audio plays continuously. If the **Adjust to Music** radio button is selected, the images are displayed until the audio file ends.

Video track

To use an MPEG Video as content for a node, either drag the desired source file to the node, or select it using the **Play item: Video track** context submenu.

After this, double-click on the node to edit its properties.



Specify properties for MPEG video track

Here you can choose an MPEG track already added to the project, or add a new one.

CDDA track (Audio track)

The contents of a node can also be stored as a digital audio track on the video-CD. The suitable source files are the same as those for the audio CD project.

The properties of audio tracks are the same as those for video tracks

Menus

In addition to multimedia contents, a node may contain a menu structure with selection items.

Nodes always have a previous and next inputs and outputs.

There is an additional output for each selection item. The outputs link the nodes to other objects.

Previous and **Next** correspond to the usual buttons on the remote control of the player.

Timeout refers to the link activated when one minute has elapsed without user interaction.

The **Input** at the top is used when other items are linked to this node. Moving the mouse cursor over the connectors displays their respective functions.

Once the contents have been selected, you can add selection items using **Add Selection Item** in the selection list context menu. This will add an output at the bottom of the node, which is used as a connector to link the item to another node.

If this particular selection item is then activated during playback, the player jumps to the link.

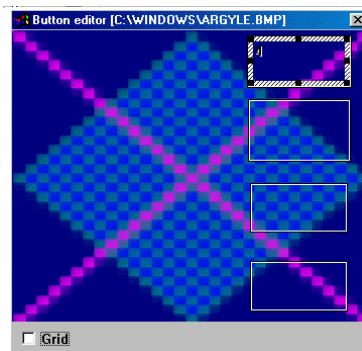
Selection Items

There are various ways of activating selection items. These include using buttons or the numbered keys on the remote control or, on some playback devices, a mouse or a joystick-type pointing device.

To create a selection item use **Add Selection Item** from the selection list context submenu. Once all selection items for a selection list have been created, you can control and edit them using the Button Editor.

Button Editor

Open the **Button Editor** window, in which (for MPEG slide shows), a thumbnail of the content and the menu items are shown.



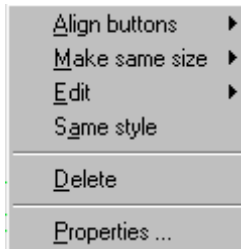
Button Editor

Buttons for menu entries are always rectangular, but their size, location, and style can be changed.

When the **Grid** option is active, buttons are aligned in a grid when they are dragged.

Context Menu

Click the right mouse button to open the context menu.



Button Editor Context Menu

The functions **Align buttons**, **Edit**, and **Same Style** all work on individual buttons or a group of buttons.

You can select a group of buttons by dragging a rectangle around them with the mouse.

Each button belonging to the group is marked by a thin border. The main button (the one marked prior to the group's selection) is marked by a thick border.

Align buttons
Left/Right/
Top/Bottom

Aligns all selected buttons accordingly

Edit –
Copy style

Copy the style of the currently selected button to the clipboard. Style refers to all property settings, except location, size, and button text.

Edit -
Paste style

Paste style from clipboard to currently selected button.

Same style

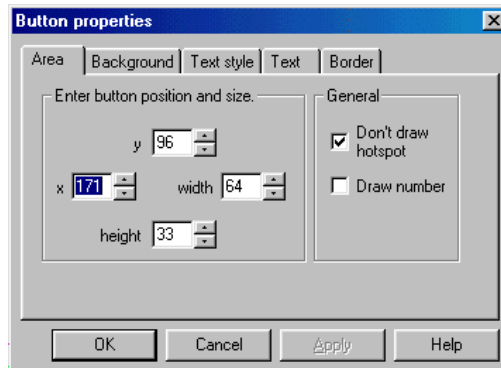
Apply the style of the main button to the rest of the group.

Properties

Note:

This function can only be used on individual buttons, not on a group of buttons.

The **Button Properties** dialog box shows the properties for the selected button.



Button Properties

Area

On this tab, you can set the size and location of the button area.

If the **Don't draw hotspot** option is selected, the button is invisible but still activatable.

The **Draw number** option automatically displays the button's number. This makes it easier for the user to find the corresponding key on the remote control.

Background, Text style, Text, Border

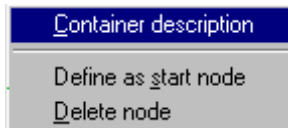
On these tabs, you can set the text, text style, and background.

Containers

Containers are a very useful feature for complex projects. The project is then structured according hierarchy.

To create a container, select **Insert container** in the context menu.

A container has one in-connector and an out-connector. Double clicking on the container opens the container, showing its contents. A container may contain any structure of nodes and additional containers.



The Container Context Menu

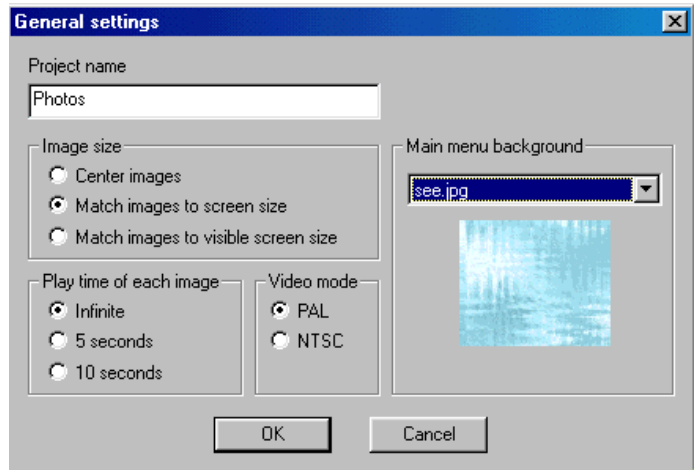
Context menu

You can name a container using **Container description**.


Define as start node defines the container as the first node to be played when the Video-CD is started.


Delete Node deletes the container.

- Image size
- Play time for each image (for slide shows - only when played back as a Video-CD), how long an image should be displayed
- Main menu background
- Video mode (for the playback device)



General settings for the photo album

Click  to remove individual images from the album.

Click  to delete albums. The numbering will not be updated.

If you double click on an album, the **Image group** window will appear. Here you can enter the group name of the album and change the background for the main menu of this album.

Universal Disk Format

WinOnCD and UDF

The UDF formatter in WinOnCD is designed to produce DVD-ROM premasters or small production quantities. For compatibility reasons, WinOnCD creates UDF file systems according to OSTA UDF 1.02.

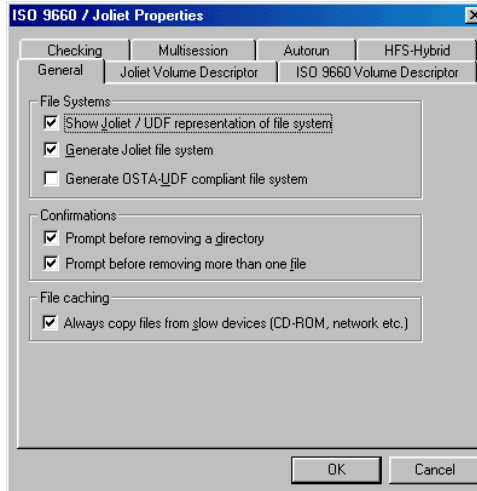
WinOnCD automatically creates "UDF bridge discs". This means that the discs always include ISO-9660 and Joliet file systems as well and, therefore, can be read by operating systems without UDF support.

Creating a UDF File System

To create a UDF-CD, choose **File | New** and the **Data** registration card. Then, select the **UDF+ISO9660/Joliet** symbol.

The UDF file system is automatically edited with the standard ISO/Joliet Editor.

Alternatively, generation of a UDF file system can be activated (or deactivated) using the **Generate OSTA-UDF compliant file system** option in the **CD-ROM Editor | File System Properties**.



ISO 9660 /Joliet Properties with UDF option

After this, simply layout your CD as you would a regular data CD. The UDF file and directory names are identical to those in the Joliet part.

CD Copy Project

General Information

The CD Copy module will create an exact copy of nearly all types of CDs, with the exception of CDs that do not correspond to standardized CD formats such as RedBook, YellowBook, etc., which is often the case with CDs for game consoles or copy-protected CDs.

Note:

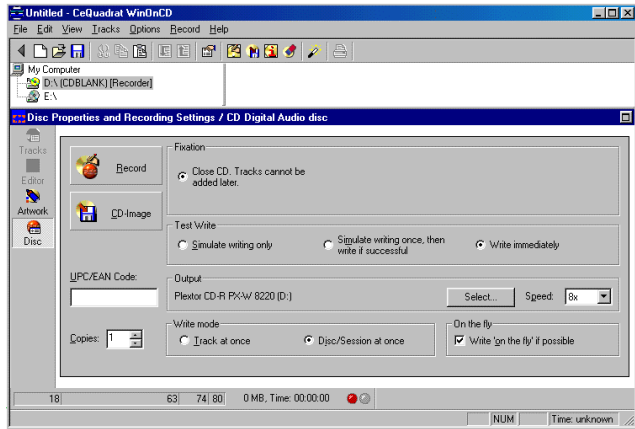
WinOnCD may not be used for making illegal copies. CeQuadrat trusts you. We are certain that you will respect the copyrights of others.

To create a copy that is as nearly identical to the original CD as possible, CD Copy will write the CD "Disc-at-Once", if this is supported by your recorder.

To enter the CD Copy module, choose **File | New** and select the **CD Copy** project from the **Favorites** or the **Copy** group.

If a CD is in the drive, it will be analyzed immediately and copied to the track list.

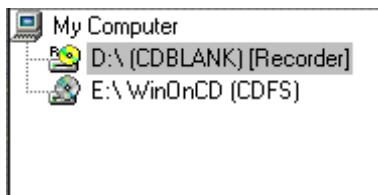
Copying a CD



CD Copy

Copying a CD

If the CD to be copied is not yet in the source drive when you start CD Copy, please insert the CD and select the drive symbol in the source window. (In CD Copy mode, only those devices that are suitable for copying are shown in the source directory). If the track list does display automatically, you can refresh the view with **View | Refresh** (F5).



Source view tree

When copying CDs in "on-the-fly" mode, be sure that the original is absolutely clean and undamaged. Otherwise copying might fail due to reading problems (e.g., "Buffer Underrun" errors).

When copying CDs, the issue of the actual capacity of the destination CD-R/RW often arises. The answer is complicated, because CD media manufacturers' stated capacities (e.g., 74 minutes) merely indicate the position at which the outermost lead-out should be written. Most CD-R media, however, can also be written to beyond this mark.

Note:

Media that are recorded on beyond the indicated length no longer comply with the standard.

If you want to copy a CD that is longer than the CD media inserted, WinOnCD will first issue a corresponding warning. The writing is simulated first and then the CD is only actually burned if the simulation was successful.

CD Image

If you want to make multiple copies of a CD, then you first create an image of the CD on the hard disk. You can then copy this image onto a CD later.

First create a data, audio, video, or copy project in which you gather together the data for the CD.

Instead of writing the data to the CD immediately, create an image of the CD on the hard disk under **File | Make CD Image File**. In the project properties, you can specify the directory in which the image is stored. You can change the path temporarily.

Then select the **CD Image** project from the **Copy** group.

Select the image that you want to copy to CD. Files or directories on the CD cannot be changed here. The editor is inactive.

In the Artwork Editor, you can create or change booklets, inlays, and labels.

Next start recording the CD in the record window.

Glossary

ASPI

ASPI stands for Advanced SCSI Programming Interface and defines an interface for the access to SCSI and ATAPI devices.

Audio CDs

Audio CDs are probably the most widely known type of CD. They contain audio data, such as music, and can be played back both in CD-ROM drives and in the normal audio CD players of stereo sets.

Bridge Disc

A Bridge Disc is a special form of CD-XA disc containing an ISO 9660 file system. On this disc, a CD-i application program enables CD-i players to access the data on these discs. On other systems you need a special application program to handle the data. The Video CD is an example for a Bridge Disc.

Buffer Underrun

Each track on a CD has to be written without interruption. To achieve this, every CD recorder has a built-in buffer, to compensate for reductions in the transfer rate from the computer. If the transfer speed is too slow, the buffer is not filled fast enough and runs out of data. This is called "buffer underrun". Depending on the CD recording options, the commenced track or the entire CD-R will be unusable if this happens.

CD-DA

CD-DA stands for "CD Digital Audio" and is the well-known standard for audio CDs described in the RedBook.

The audio information is stored in frames of 1/75 second length. There are 44,100 samples per second stored. Each sample occupies two bytes (16 bit) and there are two channels (left and right) stored on the CD-DA. This gives a sector size of $44,100 * 2 * 2 / 75 = 2352$ bytes per frame, which is the total size of a physical block on a CD. WinOnCD can edit and write CD-DA discs.

CD-Extra

The CD-Extra is a format which combines audio and data. This CD type holds two sessions with the audio tracks being the first and the data track being the second. As audio players will just play the first session of a CD, the data track will not be opened.

The second, data session contains additional information, such as song lyrics and still pictures, playable on multimedia PCs and special CD-EXTRA players.

Note:

Not every CD-ROM drive capable of multisessions is compatible with CD-Extra. Some older drives have been programmed so that a CD is considered a pure audio CD whenever the first track detected in the first session is an audio track. Since an audio CD is a single session CD, the drive does not search for any other sessions.

Of course, you can also add your own data to the ISA 9660 file system in the data division of CD-Extra.

CD-i

CD-i means Compact Disc-interactive and is a multimedia playstation designed by Philips. A Video CD, being a bridge disc, contains a CD-i application enabling playback in CD-i players.

CD-ROM

The Compact Disc Read Only Memory was invented by Philips and Sony for computer data. The YellowBook of the CD inventors, Philips and Sony, contains only the standard for the physical record medium.

The complete data of the CD-ROM are stored in one track, the user block size being 2048 bytes. As a physical block contains 2352, there remain 304 bytes left in the physical CD frame. These bytes are used for extended low-level error correction and additional information bytes.

The information of the CD can be stored in a variety of formats, including the ISO 9660 standard. Some computers support their native file system on a CD-ROM (i.e. Macintosh or most UNIX systems).

Disc-at-Once

When you use the "Disc-at-Once" write method, all blocks of a CD-R are written by the software without interruption from the software, including the gaps between tracks. This is especially useful when producing audio CDs, as only Disc-at-Once allows full control over the gap between

tracks and the "PQ"-channel, necessary for mastering the CD.

ISO

The International Standards Organization (ISO) defines standards for all areas of technology and business. For example, ISO 9002 is a quality standard for production processes.

ISO 9660

ISO 9660 is an internationally standardized file system adapted by most operating system manufacturers. This standard is also known as ECMA 119. The use of this file system enables many systems to access files recorded conforming to this file system. The disc has to be read back on MS-DOS, Apple Macintosh, UNIX or VMS systems and must meet all the restrictions of these various file systems.

ISO 9660 is usually recorded in CD-ROM mode.

Lead-In

The lead-in contains the *table of contents* of a session, which holds information about the track layout of the current session. It is always written together with the lead-out at the end of a session. Each lead-in takes up 4500 sectors (about 9 MB) on the CD.

Lead-Out

The lead-out indicates the physical end of a session, but contains no actual data. It is always written together with the lead-in at the end of a session. The first lead-out written to a disc takes up 6750 sectors (about 13 MB) on the CD, while subsequent lead-outs take up 2250 sectors (about 4 MB).

Mixed Mode CD

CDs that contain both computer data and audio data are called mixed mode CDs. The computer data on a mixed mode CD is stored in the first track. Audio data is stored on all subsequent tracks. Modern CD players will mute the first tracks when played while older models will try to "play back" the computer data. This usually results in a loud, high-pitched noise which in some case may even damage loudspeakers.

Multisession

A multisession CD-R is a CD-R with more than one session on it. However, multisession is more commonly used in conjunction with the ISO 9660 file system, where it describes the process of adding information to an ISO 9660 CD after its initial creation.

On-the-fly

When writing CDs, a constant data rate has to be maintained. Therefore, it is sometimes advantageous to assemble the complete CD as an image file on the hard disk. When this image file is written to the recorder, it will be read linearly which guarantees an optimum read performance. This process is safe, but requires more hard disk space and is more time consuming than "on the fly" writing.

If the overall system speed is sufficient, the image can be assembled while the CD is being written "on the fly", not producing an intermediate file. Because of increased disk seek operations, this may lead to problems ("Buffer underrun") on slower systems.

Raw File

A "raw file" (aka track image file) is a file that can be written to the CD Recorder without further modifications, and the data contained in the file is already in CD format. One "raw file" represents one track. For example, an audio "raw file" can be used as input for a CD-DA track.

RedBook

The RedBook by Philips and Sony is the basic definition of the CD. It includes only the physical characteristics of a CD and the normal Audio CD. All other books, however, use the same physical medium and low-level data format described in the RedBook.

RIFF

RIFF is an acronym for "Resource Interchange File Format". This format was developed by Microsoft and IBM as a new multimedia file format standard. An example of RIFF files are the Wave files. These files (Extension ".WAV") can be read by WinOnCD.

SCSI

The "Small Computers System Interface" (SCSI) is an interface standard for high-speed mass storage, such as

hard disks, CD-ROMs, etc. SCSI is used with a variety of computer systems.

Session

CDs are subdivided into tracks and sessions. A CD can hold several sessions. Each session can hold one data track, but more than one audio or video track. Audio tracks have to be in the first session of a CD.

If you want to write a data CD in several steps, you have to write a dedicated session each time. This is what is called a multisession CD consisting of a Lead-in area, a data track, and a Lead-out area, repeated any number of times. You will need about 15 MB of CD space for each Lead-in and Lead-out overhead which does not contain any useful data. If you write an Audio CD in several steps, you will only add a track each time and close the CD after the last track. This is a so-called "Track-at-Once, single session CD".

Termination

The high speed of information on SCSI cable may lead to errors if the ends of the SCSI chain are not terminated with resistor packs, so-called "terminators". Proper termination is important for successful CD recording.

Thermal Recalibration (tcal)

When a hard disk is in operation for a certain length of time the read and write heads of the disk need re-calibrating to take account of heat expansion. During recalibration, hard disks cannot read or write data. If this procedure is done during the writing process, the data stream is interrupted, possibly resulting in a "buffer underrun" error. So-called AV (Audio/Video) hard disk has been specially designed to postpone tcal and thus maintain a constant data rate during reading and writing. Although these drives are not required, they are best suited for CD writing.

Track-at-Once

"Track-at-Once" (TAO) is a recording method where every track is written separately. Between the tracks the CD recorder can control the recording process. There is no difference in data CDs written "Disc-at-Once" or "Track-at-Once". For Audio CDs the "Track-at-Once" recording method is significantly more flexible. An Audio CD can, for example, be recorded in several steps and with most recorders an Audio CD can be continued after a "buffer underrun" error. If, however, the CD shall be used as a

master CD for mass replication, it must be written "Disc-at-Once". Also, with "Track-at-Once" CDs, clicks are sometimes heard between the tracks. This will never happen with CDs written "Disc-at-Once".

For some CD recorders "Track-at-Once" is the only way to record CDs.

Unicode

Like the American Standard Code for Information Interchange (ASCII), Unicode is a standard for the representation of characters. In contrast to ASCII which uses 8 bits for one character, Unicode uses 16 bits.

Therefore, with Unicode not only the standard Latin characters but also Kanji, Arabic and other scripts can be represented.

Universal Disk Format

The Universal Disk Format (UDF) is a logical format for nearly any storage medium. The current standard for personal computer CD-ROMs (ISO 9660) was designed to be simple enough for almost any operating system to read. Conversely, UDF is flexible enough to handle the demands of modern operating systems, including very large drives and files, long filenames, foreign character sets, security attributes, and more.

UDF was designed especially with DVD, CD-R and CD-RW in mind, and there already is a wide acceptance in the computer industry. New operating systems (e.g. Windows 98 or MacOS 8.1) already contain native UDF support.

VideoCD

The Video CD is a special Bridge Disc, which contains MPEG-1 compressed, full-motion video. Video CDs can be played back with properly-equipped multimedia PCs (MPC3) or CD-i players, as well as with special Video CD or DVD-Video players.

An MPEG encoder is integrated with the WinOnCD, so AVI files can be converted to the MPEG format. Of course, WhiteBook compatible MPEG files can also be used as input.

Volume

A volume is a set of one or more related CDs, e.g. three CDs published as a part of a series of classical composers are considered as one volume. The information given in the Volume Descriptor fields refer to the whole set of CDs.

WAVE

This is a RIFF audio file format. These files can be read by WinOnCD, and some editing is possible.

WhiteBook

The WhiteBook is a definition document for the Video CD standard agreed upon by Philips, Sony, Matsushita, and JVC. There are two main versions, version 1.1 and version 2.0.

YellowBook

In the YellowBook, also known as ECMA 130, Philips and Sony defined the extensions from the RedBook audio CD to the data CD (CD-ROM).

The YellowBook defines two data "modes": mode 1 contains 2048 bytes of user data (like CD-ROM), mode 2 contains 2336 bytes of user data. The remainder of the physical block (2352) is used for error correction and sync information.

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