



1. Preface

CD's can be used as longterm carriers for electronic records. There is one important condition: they have to meet a certain standard of quality. These conditions are related to the way we use and manipulate CD's:

- ⦿ CD's degenerate. We can slow down this process by handling the CD's with special care.
- ⦿ CD's are written conform the official standards ISO-9660 en ISO-10149 because of the objective to archive as platform independent as possible. The application of the ISO-9660 standard comprises some limitations concerning the foldernames and filename. (Electronic archives: guideline 3 concerning the filenames in electronic archives.)

The application of this guideline is important when:

- ⦿ creating a CD that will be deposited at the archival services.
- ⦿ the administration makes back-up CD's. These CD's qualify for record-keeping at the archival services.

2. Taking good care of CD's.

- ⦿ Always hold the CD by the edges. Do not touch the top or the bottom of the CD with your fingers.
- ⦿ Do not write on the labelside of the CD with a felt-tip, a ballpoint pen or a pencil. Do not stick a label at the top of the CD.
- ⦿ Make sure that the CD isn't dropped on it's edge, or that the edges don't bump into anything.
- ⦿ Avoid scratches, dust or stains. The labelside of a CD is more vulnerable than the dataside. Remove dust and stains with a clean cloth. Wipe from the inside to the outside of the CD. Do not wipe in circles.
- ⦿ Always store the CD immediately in its properjewelcase. Do not use plastic covers or cardboard files to store away CD's. Make sure that the CD is held at it's place by the tray. Do not pile

them up.

- ① Label the CD box. Stick the label at the right-hand bottom corner of the box. The archival services shall provide you with the right number to put on the label.
- ① Do not store the CD's near a source of heat nor in the sunlight.
- ① Make two safety copies of each CD. Convey the master copy and one of the safety copies on to the archive. Keep one safety copy yourself and store it in a dry and dark place. If possible, use CD's from different producers for the master copy and the safety copies.

3. Making good CD's for the archival services.

- ① Use a computer whose internal memory is large enough (min. 64 MB) and enough free writtingspace (min. 1GB). Make sure that they're aren't too many applications running on your computer (f.i. screensaver, anti-virussoftware) so as to avoid 'buffer underrun'.
- ① Make sure that the empty CD is of a good quality. Check the CD for scratches, stains and fingerprints.
- ① Write the CD in one session and close it immediately. Avoid multy session CD's and if possible, do not place audiofiles and datafiles on the same CD. Use the 'disk-at-one' method. (see further), and, if possible, first create an 'image' on the hard disk of the CD you want to burn.
- ① Consider the long-term readability. Use as many standardised fileformats as possible and avoid compression. For instance: instead of making Kodak Photo CD's with Image-Pac files, make regular CD's with TIFF-or JPEG files. (*Digital Archiving: guideline & advice 4. Standards for fileformats*)
- ① Do not write the CD at high speed. In general, it is recommended to use 2x or 4x speed. It takes longer but the change for errors is smaller.
- ① Check if the CD holds all the necessary files and if the files are correctly copied. A number of programs exists for this purpose. The Windows program Windiff compares copied files or folders at bytelevel. Windiff is free available on the Microsoft website. Similar freeware programs are Filecheck and CDCheck.
- ① Check the CD for errors. Repeat this check regularly (f.i. once a year). A quality check can be executed with a program such as CD-R Diagnosticon with more sophisticated machines.

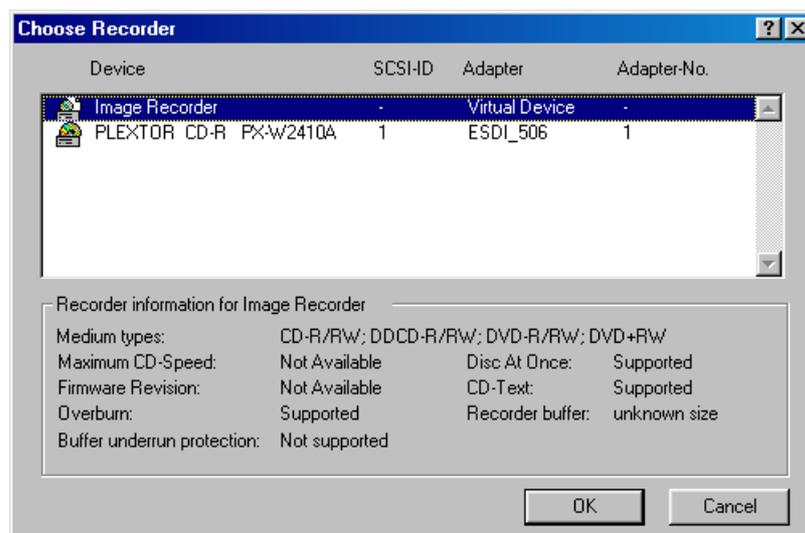
3.1 Making dataCD's.

- ① An XML-file with metadata about the archived CD and it's electronic records, shall be put in the rootfile of each CD.
- ① Make an image of the CD on the hard disk first, if possible.
- ① Do not use Rock Ridge (Unix) or Joliet (Microsoft) extensions. Use the ISO-9660 filesystem instead.
 - Folder names, may not consist of more than 31 characters, filenames no more than 30 characters. If possible adapt the length of the file names and folder names in advance. Choose between ISO-9660 (8+3) and long filenames. Avoid the option MS-DOS filenames.(screen 2, p. 3).

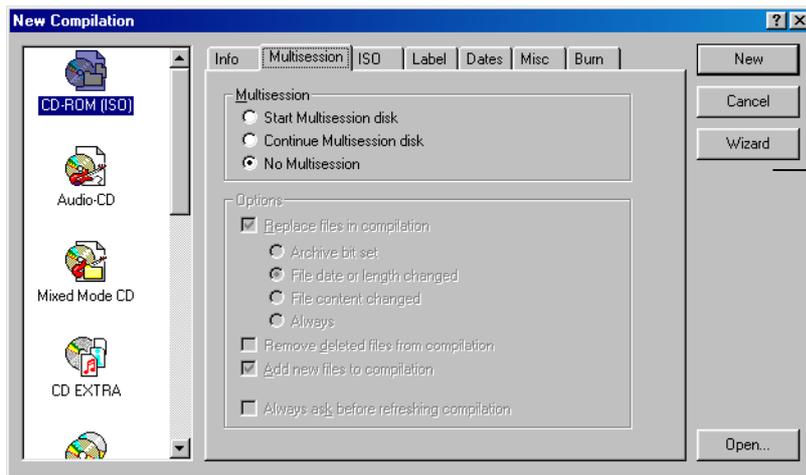
- Allowed characters for filenames are, among others, A-Z, 0-9, a point and an underscore. The characters \ / : * ? " < > | ! % & ' - ; = and an interspace are not allowed.
- Keep the depth of the filestructure within limits. Do not go beyond 5 levels.
- fill out the necessary fields of the primary volume descriptor. Consult with the city archive for the completion of the fields. Spaces and hyphens are not allowed. Instead use the underscore sign. For instance: CDROM_SA_901 as volumelabel. (p. 4)
- write the CD according to the ISO-9660 standard. Indicate that you're using 'Mode 1: CD-ROM'. (P.4)

With 'Nero Burning Rom'

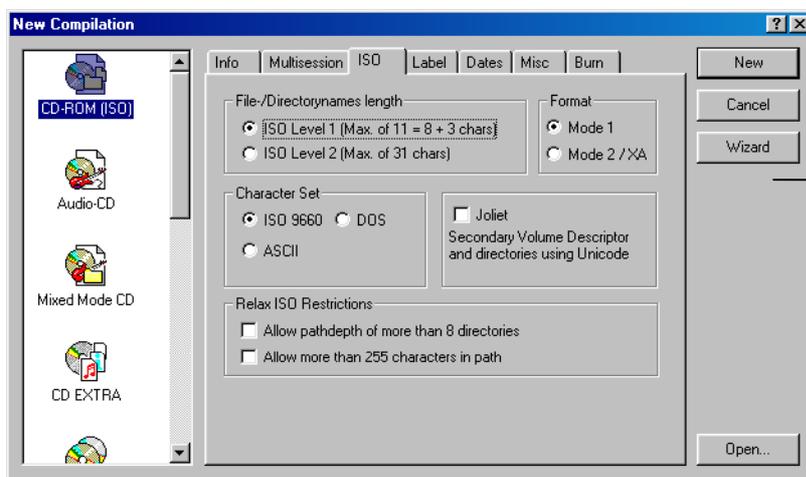
- ↳ Start Nero Burning Rom and close the wizard.
- ↳ Making an image, before burning the CD: click in the menu 'RECORDER' on 'Choose recorder'.



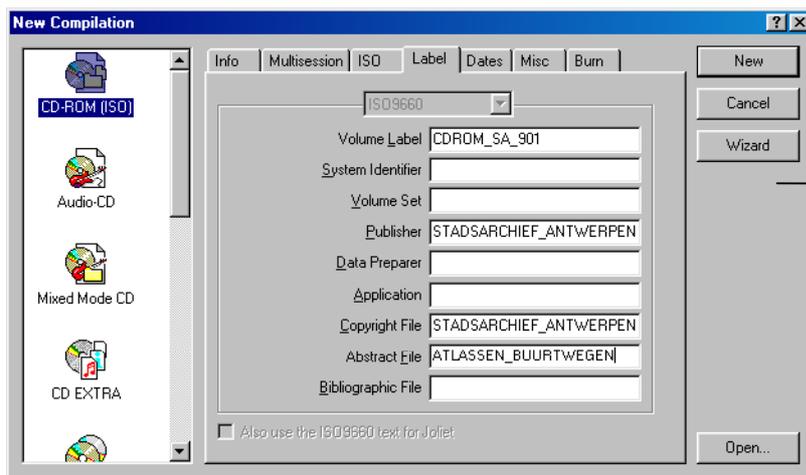
- ↳ Make a new CD: click in the menu 'FILE' on 'New' and select CD-ROM (ISO).



Indicate that you're not making a multisession CD.

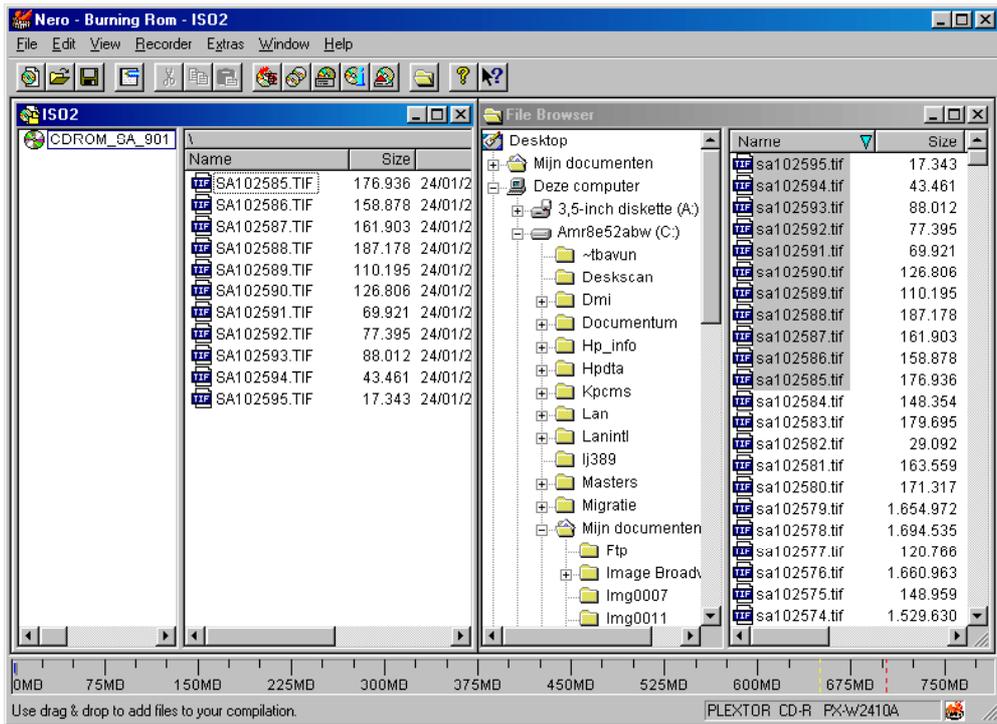


Check the box for the ISO-9660 options and write the CD conform the ISO-10149.



Fill out the primary volume descriptor.

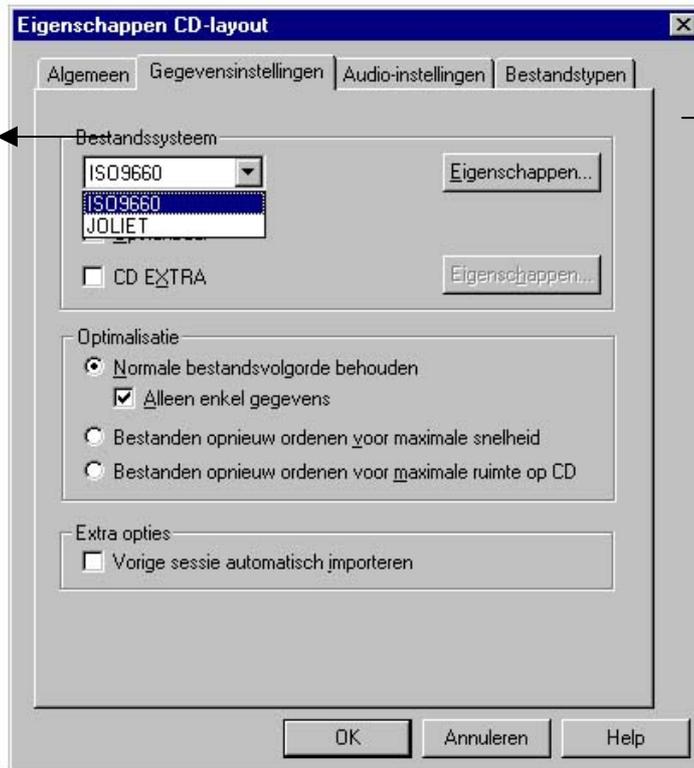
↳ Click on 'New' and train the sourcefiles from the 'File Browser' to the CD.



Met 'Easy CD Creator'

Sreen 1

Step 1: Make sure that ISO-9660 is selected.



Step 2: click on characteristics ('eigenschappen')

Fill out a number of fields of the primary volume descriptor.

Indicate of which the data the filesystem is keeping record.

Which system is used for filenames? Choose between 'ISO-9660 8.3 signs' (level 1) and 'long filenames (level2)

Indicate 'Mode1: 'CD-ROM' to apply ISO-10149.

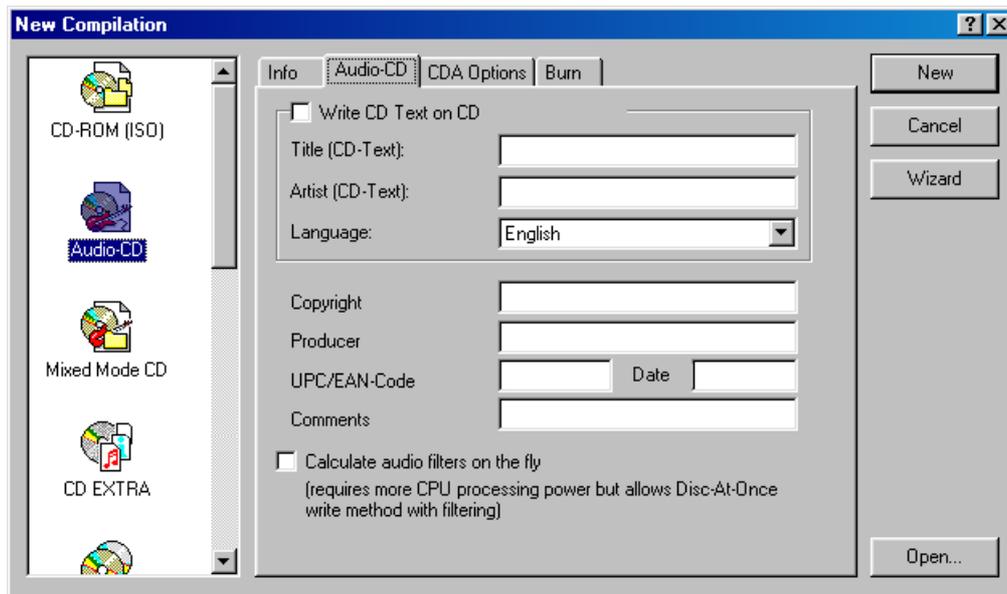
3.2 The making of audioCD's

It's not possible to fill out the primary volume descriptor or the volumelabel when making audio CD's. At best you will dispose of a "title" field and an "artistname" field where you can fill out a small description and the authors' name.

3.3. Burning a CD

When making an audioCd it's impossible to fill out a primary volume descriptor or volumetabel. At best you will dispose of a field 'Title' and ' Name artist', in which you can insert a short description and authorsname.

With 'Nero Burning Rom'



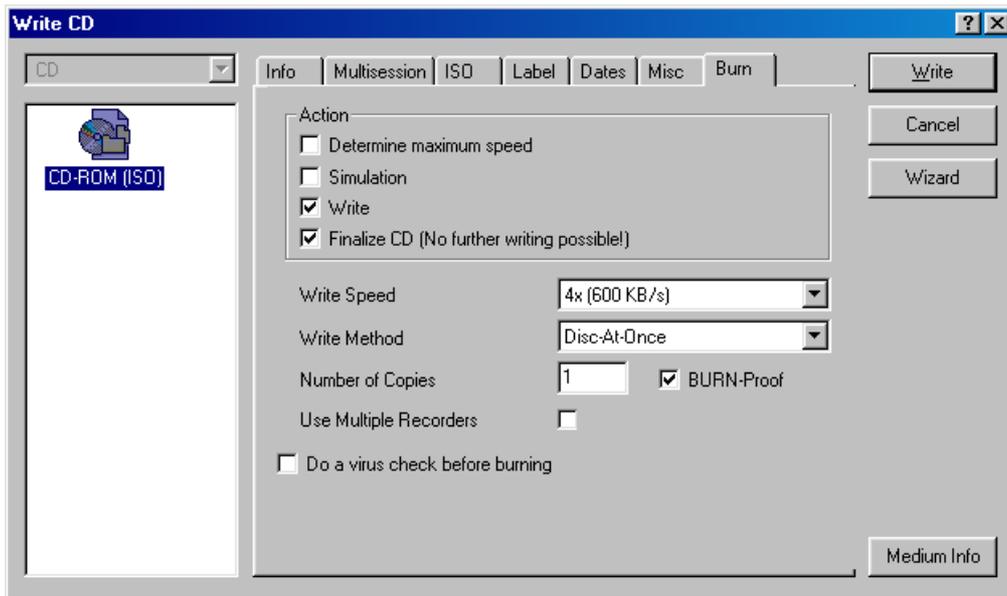
With 'Easy CD Creator'



3.3 Burning a CD

- ↳ close the CD immediatly.
- ↳ Apply the 'Disk-at-once' writingmethode.
- ↳ Adjust the writingspeed (f.i. 2x or 4x)

With 'Nero Burning Rom'



With 'Easy CD Creator'

Indicate whether you're making a dataCD or an audioCD. copy the files to the targetCD.

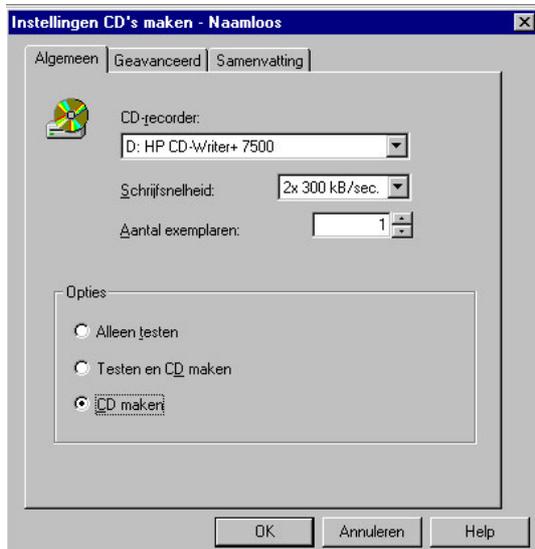
Step 1: Which files contains the targetCD?

1. Indicate the source location here.

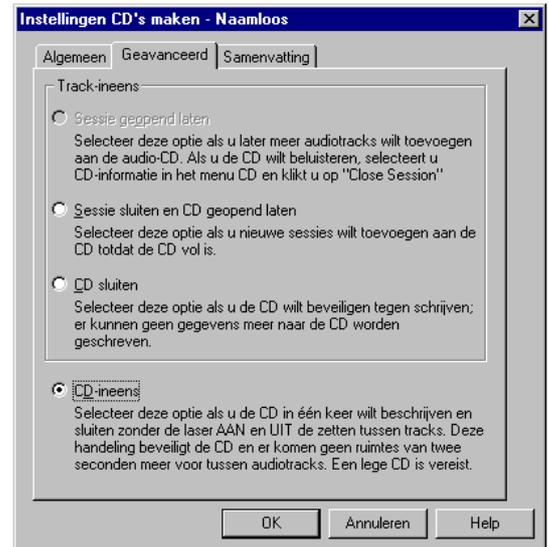
2. Select the files that are being copied.

3. Train the selected files to the targetCD.

Stap 2: choose the option 'making CD' in the menu 'FILE'. Indicate that all you want to do is, make a CD.



Stap 3: Use the 'disk-at-once' writing method. Indicate 'CD at once'.



4. ?Questions? Suggestions?



Turn to DAVID for all your questions and suggestions:
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More background information can be found in:
F. BOUDREZ, *CD's for archives*, Antwerpen, 2001
(zie <http://www.antwerpen.be/david>) (dutch only)