

**MakeCD**

COLLABORATORS
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	TITLE : MakeCD		
ACTION	NAME	DATE	SIGNATURE
WRITTEN BY		July 19, 2024	

REVISION HISTORY
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NUMBER	DATE	DESCRIPTION	NAME

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# Chapter 1

# MakeCD

## 1.1 english/FD/MakeCD.guide

```
*****
                                MakeCD
                                Version 3.2 (11-07-1998)
                                English User Manual
                                Translation by HiSoft
*****
```

Please note that this manual is still in beta state. Especially the FAQ is not up to date. If you understand German, you'd better use the German manual instead.

Most of the other parts are translated, but we did not have enough time to spell check them. But this should not be a problem for you. Thank you for your understanding and your patience. We will release a final English manual for MakeCD as soon as we are finished.

Warning	Crack/Virus warning, test option for binaries
Legal	Registering MakeCD, copyright etc.
Features	Features of MakeCD
Hardware	Supported CD writers and CD-ROM drives
Introduction	Introduction to CD writers, MakeCD etc.
Installation	How to install MakeCD
Instructions	Instructions for MakeCD
Beginners	Advice for beginners
Questions	Frequently Asked Questions (FAQ)
Glossary	Glossary

Support	Support for MakeCD
Authors	How to contact the authors
Acknowledgements	Who helped?
Index	Index of keywords

## 1.2 MakeCD.guide/MWARN

### Crack Warning:

We have been sent some "100 % cracked" versions of MakeCD which did not function properly. Instead, they pretend to work, but with totally unpredictable results. Please do not use these versions and do not blame us if they cause you untold damage! Be smart and download the slightly restriction version from the MakeCD homepage: '<http://makecd.core.de/>'

We rely on your registrations to continue the development of MakeCD. Please bear in mind that we spend a lot of time working on MakeCD. When testing new drivers, we often end up with a huge pile of coasters to ensure that it does not happen to you! Please support us so that we can support MakeCD and the Amiga. Nobody is driving around in Ferraris! Without your registration, we cannot continue development.

### Registered Users:

Never use cracked/modified versions of MakeCD. Instead, unlock unmodified versions using your registration number.

### Test Binaries:

You can check the key MakeCD binaries for any tampering by a virus/cracker. Please be aware that the virus/cracker (an irresponsible person) may have changed our 'CRCList-binaries'. These are not covered by the test. For a more comprehensive test, check the PGP signature on 'CRCList-binaries'. You can find the PGP public key file on our home page.

Please carry out the binary test before you register MakeCD in the registration window (since registering will alter the binaries!).

>>> TEST MakeCD Binaries! <<<

Note that you must have started this guide from Workbench in order to perform this test, otherwise the test may not find all the files and could subsequently fail.

## 1.3 MakeCD.guide/MLEGL

### Legal

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As with most other software, there are legal conditions associated with MakeCD and you must read them before you first use the program. These conditions shall be interpreted according to the laws of your country. The German text of these conditions shall take precedence over any translation thereof for the purposes of legal interpretation.

Copyright	Copyright Notice
Disclaimer	Use at Own Risk
Alterations	What can happen if MakeCD is patched
Trademarks	References may be (Registered) Trademarks
Licence Agreement	Your Rights and Responsibilities
Registration	How to Get the Registered Version
Authors	How to Contact the Authors

## 1.4 MakeCD.guide/LCPYR

Copyright  
=====

MakeCD is subject to Copyright 1996-1998 by Angela Schmidt and Patrick Ohly. All Rights Reserved, for both Software and the documentation. No part of this product shall be distributed, altered, manipulated or copied without the prior written authorization of the authors.

The freely distributable, unregistered version of MakeCD is covered by special conditions regarding its copying and distribution.

## 1.5 MakeCD.guide/LDISC

Disclaimer  
=====

The authors shall not be held responsible for any damages or losses, direct or consequential, resulting from the use, or inability to use the software. This applies even if the authors have been made aware of the possibility of losses or damage.

## 1.6 MakeCD.guide/LALTR

Alterations  
=====

MakeCD shall not be altered (patched). Those who do this anyway, should not be surprised by extremely uncomfortable side-effects.

---

Of course, MakeCD shall not be distributed if it has been altered -- even when the altered software was based on the freely distributable version.

If a modification is thought to be useful, it's worth your while to contact the Authors, who may after all have the desired function in the next version.

## 1.7 MakeCD.guide/LTRAD

Trademarks  
=====

This documentation mentions various hardware and software by name. Such names are often protected Trademarks and their mention in this document shall in no way damage their legal status.

## 1.8 MakeCD.guide/LLICA

Licenses Agreement  
=====

This contract is a legal agreement between you, the end-user, and the authors of MakeCD. By using the software you are declaring your agreement to the conditions.

If you are using a registered version of MakeCD with a valid registration number you are entitled to use one copy of the software on one computer. Even if you have two (a TAO and a DAO registration number), you may still only use one computer.

For further details concerning your user rights see Registration fees. If you would like to sell a registered version of MakeCD to another person, we need to be informed about both parties involved. We will then lock the old registration number and charge a processing fee of 5 DM plus shipping costs to send the new owner a new registration number. If you are also registered for DAO, you must sell both the TAO and DAO numbers at the same time to the same person.

If you are using an unregistered version of MakeCD, you are permitted to use as many copies as you like and even pass on the software to other people. However, anyone who uses MakeCD for more than four weeks must apply for a license, even if that person does not need the extra functionality of the registered version. There is one exception: If you use MakeCD solely to play or read CDDA data (in which case you do not create ISO images or burn CDs), you do not need to register. However, you are not entitled to technical support in this instance.

An unregistered version of MakeCD is recognized by using the dialog window that appears when you run the program. The dialog requests the

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registration number and the user address. If all the fields are empty, the version is unregistered.

## 1.9 MakeCD.guide/LREGI

Registration  
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If you like MakeCD, please be sure to register. We spend a lot of time and effort developing MakeCD, so please support us. We deserve your support!

If the unregistered version of MakeCD does not work with your configuration, please stop using the program and please do not register. Some people seem to think that, just because they have registered, we have to support their system. This is simply not possible. We try our best to support as many configurations as possible, but there are some configurations that we cannot support. As an example, we cannot always obtain programmer documentation for some CD writers. Since we like to keep our customers happy, please only register if the unregistered version works on your system!

If the unregistered version of MakeCD does not support your hardware, the registered version will not support it either. If this is the case, wait for updates of MakeCD and register only once you have found an update that does support your system.

We reserve the right to lock individual registration numbers in later versions of MakeCD without informing you of the reasons.(1)

Registrations are issued for the current version. The registration numbers often remain valid for minor updates of MakeCD. Major updates may require a fee.

Restrictions	Restrictions in the unregistered version
Prices	Registration fees

Suppliers	Companies which distribute MakeCD
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----- Footnotes -----

(1) Naturally, we have no intention of doing this without good reason.

## 1.10 MakeCD.guide/LLRST

Restrictions in the unregistered version  
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The unregistered version has a few built-in restrictions in comparison

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to the registered version:

- You cannot choose the name of the CD-R, nor can you enter the "Publisher".
- You are limited to a maximum of ten tracks per CD-R.
- In Disc-At-Once (DAO) mode, you can burn in test mode only. (With Track-At-Once (TAO) mode, the unregistered version of MakeCD can burn in test mode and for real).

Cracked or modified versions of MakeCD often fail to work at all.

## 1.11 MakeCD.guide/LREGF

Registration fees

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We feel that UKP 70 to UKP 140 is too high a price for non-commercial users of MakeCD. Therefore we offer a tier of registration fees so that you can pick the most cost-effective version that suits your needs.

There are three classes of licensing. The more "commercial" the user of our software is (and the more money s/he makes with it), the higher his/her registration fee will be. Non-commercial users pay a small fee only. Users who burn CDs for a third party and charge for this service pay a fee in line with the current market prices. Users who have their mastered CD-ROM's duplicated commercially by a CD manufacturer (often for commercial sale) pay a fee that has to be negotiated with the authors individually. We can be flexible with the licensing in this instance. Please contact us to initiate negotiations!

We fell that the different registration classes try to make the world a slightly fairer place. Why should a private user, producing CDs for his/her private use, pay the same fee as a company?

Please bear in mind that we have gone to considerable expense to develop MakeCD. If you use the program, please consider registering to reward us for a lot of blood, sweat and tears! Also, your registration fee will help further the development of MakeCD and secure our dedication to the Amiga platform.

Private User

CDs created with MakeCD may only be used for your private, non-commercial needs. The "Publisher" entry cannot be modified and is filled with a standard text. Please contact your local dealer for pricing. If you purchase directly from the authors in Germany, the fee is DM 75,- (DAO: add 40 DM).

CD Recording Service, Non-Commercial Duplication

The recorded CDs may be sold to the respective customers who may not re-duplicate them again for commercial purposes. CDs created by MakeCD with this license may not be used as masters for pressing CD-ROM's. An exception is the non-commercial duplication

of CD-Rs. The "Publisher" entry cannot be modified and is filled with a standard text.

Please contact the authors of MakeCD, Angela Schmidt and Patrick Ohly.

CD Manufacturer, Commercial Duplication.

This license allows you to press CD-Rs with masters created by MakeCD. You will also be able to change the "Publisher" entry as required. Please contact the authors of MakeCD, Angela Schmidt and Patrick Ohly.

The Application-ID field always contains the serial number (which differs from the cryptic registration number) of the registered version. Therefore, it is possible for the authors of MakeCD to determine who has made the Data-CD by checking this number.

Please note that there are shipping costs in addition to the license fee. If you are purchasing the package from the authors in Germany:

Postage and Packing within Germany

5 DM for floppy only, or floppy with German-language manual.

Postage and Packing within Europe

5 DM for floppy only

15 DM for floppy with German-language manual.

Postage and Packing outside Europe (Air Mail)

10 DM for floppy only

25 DM for floppy with German-language manual.

Express Delivery

Add 15 DM. The registration will be processed immediately and sent via Express delivery. Standard registrations are processed quickly by Angela's sister -- about once a week, usually over the weekend.

Please note that Katrin takes the occasional holiday, usually around Whitsun or in August or September, and the start of January. Registrations cannot be processed during these times (usually one to three weeks). We apologize for the inconvenience caused.

C.O.D. (Germany only)

Add 9,50 DM. This must be arranged by telephone.

You may prefer to purchase MakeCD from your local dealer. Please note that you must contact the authors directly if the CDs you produce are not for personal use.

If you wish to purchase MakeCD from the authors in Germany:

A normal MakeCD Private registration without manual will cost 80 DM within Europe, including postage and packing. If you also want to use the DAO feature, it's 120 DM. Express registration of MakeCD Private with manual and delivery to the USA would cost  $75+15+20+15=125$  DM (Registration + manual + postage + Express).

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You can send a cheque within Germany -- the preferred and safest method. You can send cash too at your own risk. Inside Germany, the registration can also be done via C.O.D. (for an extra 9.50 DM -- this includes the 3 DM extra charged by the postman).

You can also send a cheque from outside of Germany, but please bear in mind that this can present some difficulties and disproportionate costs (an extra 20 DM is not unusual). Please ensure that there is enough money left over to pay your registration fee once all the additional costs have been met, otherwise your registration cannot be completed!

Since foreign cheques are often troublesome (Eurocheques in DM and cheques from a German bank are fine, though), we prefer foreign registrations to be paid with postal order or in cash (preferably DM, or US Dollars of equivalent value plus 10%).

Send your registration (in German, English or, if necessary, in French) to:

Katrin Schmidt  
Finkenweg 26  
89233 Neu-Ulm  
Deutschland  
Tel.: 0731/712316 (9:00 to 21:00 MET)

In case you have further questions, see FAQ.

## 1.12 MakeCD.guide/LCOMP

Distributors of MakeCD

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If you prefer to purchase MakeCD from a local distributor rather than directly from the authors, please contact your local distributor. If you do not have a local distributor, please contact the authors! Please note that the distributors listed below may in turn supply MakeCD to other local dealers, so this list cannot be comprehensive!

HiSoft

UK Distributor (English Version)  
HiSoft Systems  
The Old School  
Greenfield  
Bedford MK45 5DE  
England  
Tel.: 01525 718181  
Fax: 01525 713716  
E-Mail: [sales@hisoft.co.uk](mailto:sales@hisoft.co.uk)  
Web: <http://www.hisoft.co.uk/>  
Price: Please contact HiSOFT

Oberland Computer

Distributor for Germany/Austria/Switzerland (German version)  
Oberland Computer

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In der Schneithohl 5  
61476 Kronberg/Taunus  
Deutschland  
Telefon: 06173/608-0  
Fax: 06173/63385  
Web: <http://www.oberland.com/>  
Price: 99 DM including German manual

Please note that if you purchase MakeCD from a local dealer, you must use the dealer for your technical support.

Important!: Versions of MakeCD which are not purchased directly from the authors, but from one of the distributors are supplied with a special registration key. This key cannot be used to register internet updates for MakeCD. Do not panic just yet. Read the next section!

To be able to use the internet updates, you have to send your address to the authors of MakeCD. This can be done with the enclosed registration card, or it can be done directly by your dealer. Shortly after sending your address to the authors, you will receive your registration key without further charge. This new key can also be used with the Internet versions and updates. The only other difference is that you are not entitled to support directly from the authors. Instead, please contact your supplier.

## 1.13 MakeCD.guide/MFEAT

MakeCD Feature List  
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The MakeCD Feature List is subject to change without notice.

legend:

(1) not supported by all drives and not implemented for Panasonic and Sony drives -- see list of supported drives for details  
(2) if supported by drive  
(3) requires mpeg.a.library which is not part of the MakeCD distribution  
(\*) features currently (9.7.98) not found in any other Amiga CD writing software

General

- write modes supported:
    - Disc-At-Once (DAO) (1)
    - Session-At-Once (SAO) (2)
    - Track-At-Once (TAO)
  - support for ATAPI and SCSI CD-R/RW drives
  - file systems supported:
    - ISO 9660 Level 1, Level 2, Amiga
    - Rock Ridge incl. Amiga Extensions
-

- Multisession/Multivolume in TAO and SAO
  - CDTV/CD32 discs
- multi-threaded data reading, converting and writing with adjustable buffer management for optimal performance and safety
- user configurable interface: novice and expert mode, font and screen user-definable, external programs for notification when
  - error occurs
  - required medium insertion
  - disc writing finished
- (\*) context sensitive AmigaGuide help and bubble help
- manual and online texts in German and English, plus many translations done by volunteers into: (\*) Danish, Finish, French, Greek, Hungarian, Italian, Norwegian, Swedish, Czech, soon Spanish
- uniform project editing for DAO and TAO, flexible switching of write mode
- load and save projects
- (\*) AIFF-CD file interchange of complete CDs with audio editing software (supported by Samplitude CD; SoundProbe and AudioLabs16 are very interested)

#### Data and Image File Handling

- direct CD to CD-R copying, multiple source discs possible
  - on-the-fly writing of ISO tracks
  - import (any frequency, mono/stereo, 8/16 bit, uncompressed/u-law/a-law) of
    - AIFF
    - AIFC
    - (\*) AIFF-CD
    - MAUD
    - WAVE
    - CDDA
    - Samplitude HDP
    - ISO image files
-

- (\*) MPEG-A (3)
- data conversion on-the-fly or with temporary images
- export (with automatic selection based on file name suffix) of images in
  - AIFF
  - AIFC
  - (\*) AIFF-CD
  - MAUD
  - WAVE
  - CDDA
- automatic usage of temporary images if already available
- flexible deletion of temporary images:
  - immediately to reduce required disk space in TAO
  - after CD for multiple copies
  - not at all to keep images for latter reproduction
- one hard disk image

#### CD Writing Options

- Track Types (all data track types also raw):
    - Audio with/without Preemphasize
    - CD-ROM Mode 1
    - CD-ROM Mode 2
    - CD-XA Mode 2, Form 1
    - CD-XA Mode 2, Form 2
  - Disc-At-Once:
    - automatic data sector encoding
    - session fixation (2)
  - Track-At-Once (TAO):
    - incremental
  - indices in audio tracks:
    - in DAO
    - in TAO (2)
    - fast scanning of source audio CD for indices with all CD-ROM drives
-

- ISRCs and Medium Catalog Number in DAO and TAO (2)
- automatic TOC type selection
- automatic target disc size checking
- writing in test mode or after test
- configurable writing speeds
- extensive informations while copying data:
  - current action
  - transfer speeds
  - passed time and estimated time left
  - buffer usage
- automatic eject after writing and tray opening if new source CD required (configurable)

#### CD-R/CD-RW Manipulation

- fixation of disc or session
- CD-RW erase types (2):
  - full disc, blank data
  - full disc, fast
  - last session
  - last track
  - session/disc fixation
- repairing damaged discs (2)
- ejection of source or target discs
- detailed listing of disc contents, saveable as ASCII text

#### Audio

- playing of audio from images or CD with:
  - Amiga sound chip
  - AHI
- on-the-fly writing of all supported file formats
- automatic mono to stereo, 8 to 16 bit conversion
- fast frequency resampling
- export into many different formats (see above)

#### CD-ROM

---

- low memory requirements
- fast source directory scanning
- flexible inclusion of previous tracks
- on-the-fly writing
- configurable Rock Ridge and ISO options
- configurable CDTV/CD32 options
- bootable with CDTV/CD32

## 1.14 MakeCD.guide/MHARD

Supported CD writers and CD-ROM drives

=====

If you would like to learn more about the support for various devices, please read the compatibility list. The devices in the following list are generally supported.

Please note that, unlike the makers of certain other CD writer software, we have constructed this list with our own research.

We own the following CD writers, which of course means that they are particularly well supported:

- Philips CDD 2600
- Ricoh MP6200S
- Yamaha CDR 100
- Yamaha CDR 400t

We have had the use of the following writers for a lengthy period of time in order to program the drivers. We have since returned these drives to their respective owners:

- JVC XR-W2010
  - Matsushita CW-7501
  - Mitsumi CR2801TE
  - Panasonic CW-7502
  - Philips CDD 2000
  - Plextor PX-R24CSi
  - Sony CDU 926S
-

- Yamaha CDR 400c

The following CD writers are generally supported by MakeCD. CD writers marked with "(\*)" have not been tested by us, but in theory, they should work too.

- JVC or TEAC compatible CD writer (DAO support):
    - Hi-Val CD-R (\*) (Read 'doc/Compatibility')
    - JVC XR-W2001 (Read 'doc/Compatibility')
    - JVC XR-W2010 (Read 'doc/Compatibility')
    - JVC XR-W2012 (Read 'doc/Compatibility')
    - JVC XR-W2020 (Read 'doc/Compatibility')
    - JVC XR-W2022 (Read 'doc/Compatibility')
    - JVC XR-W2626 (\*) (Read 'doc/Compatibility')
    - Pinnacle RCD-1000 (Read 'doc/Compatibility')
    - Pinnacle RCD 5040 (\*) (Read 'doc/Compatibility')
    - Smart & Friendly CDR2006 Plus (\*) (Read 'doc/Compatibility')
    - TEAC CD-R50S
    - TEAC CD-R55S
    - Traxdata CDR 4120
  - MMC (SCSI3)/ATAPI-compatible CD writer (DAO support (however most ATAPI CD writers do not support real DAO)):
    - Compro CD-R 7502-INT (\*)
    - DynaTek CDE260R (\*)
    - Dysan CD-ReWritable CRW-620
    - Dysan CRW-1622
    - HP CD-Writer Plus 7100e (\*) (No DAO support)
    - HP CD-Writer Plus 7100i (\*) (No DAO support)
    - HP CD-Writer Plus 7110e (\*) (No DAO support)
    - HP CD-Writer Plus 7110i (\*) (No DAO support)
    - HP CD-Writer Plus 7200e (\*) (No DAO support)
    - HP CD-Writer Plus 7200i (\*) (No DAO support)
    - Matsushita CW-7502 (\*)
-

- Memorex CRW 620 (\*)
  - Microboards PlayWrite 2060R (\*)
  - Microboards PlayWrite 4001RW (\*)
  - MicroNet Technology Plus 4x6 (\*)
  - Mitsubishi CDRW 226
  - Mitsumi CR2600TE (No DAO support)
  - Mitsumi CR2801TE (No DAO support)
  - Nomai 680.RW
  - Panasonic CW-7502
  - Philips CDD 3600 (\*) (No DAO support)
  - Philips CDD 3610 (\*) (No DAO support)
  - Plasmon CDR 480 (\*)
  - Plextor PX-R412Ce (\*)
  - Plextor PX-R412Ci
  - Ricoh MP6200I (\*) (Problems are unlikely)
  - Ricoh MP6200S
  - Ricoh MP6201S
  - Ricoh MP6211S (\*) (Problems are unlikely)
  - Smart & Friendly CDR4006 (\*) (Problems are unlikely)
  - Sony CDU928S (No DAO support)
  - Traxdata CDR 2260EL+ (\*)
  - Traxdata CDR 2260EL pro (\*)
  - Traxdata CDR 2600
  - Traxdata CDR 4260EL pro (\*)
  - Traxdata CDR 4600 (\*) (Problems are unlikely)
  - Waitec CD-R 55 (\*) (Problems are unlikely)
  - Yamaha CDR 200
  - Yamaha CDR 400c
-

- Yamaha CDR 400t
  - Yamaha CDR 400tx
  - Yamaha CDR 401t (\*)
  - Yamaha CD-RW 4001 (\*)
  - Yamaha CRW 2260 (\*) (Problems are unlikely)
  - Yamaha CRW 4260
  - Panasonic/Matsushita compatible CD writer (No DAO support):
    - Compro CD-R 7501-INT (\*) (Problems are unlikely)
    - Creative Labs CDR4210 (\*) (Problems are unlikely)
    - Matsushita CW-7501
    - Panasonic CW-7501
    - Plasmon CDR-4240
  - Philips-CDD-2000 CD writer family (DAO support):
    - Grundig CDR1001PW
    - HP CD-Writer 4020i
    - Kodak PCD225 (\*)
    - Mitsumi CDR 2401
    - Philips CDD 2000
    - Philips CDD 521 (No test mode!)
    - Philips CDD 522
    - Plasmon CDR4220 (\*) (Problems are unlikely)
  - Philips-CDD-2600 CD writer family (DAO support):
    - HP CD-Writer 6020i
    - HP CD-Writer 6020es
    - Philips CDD 2600
    - Wearnes CDR632P
  - Sony compatible (Currently no DAO support):
    - Sony CDU926S
    - Microboards PlayWrite 2000 (\*)
    - Optima DisKovery 650 CD-R (\*)
    - Smart & Friendly CDR1002 (\*)
-



- Smart & Friendly CDR2004 (\*)
- Smart & Friendly CDR2006 Pro
- Sony CDU920S
- Sony CDU924S
- Sony CDU940S (\*)
- Sony Spressa 9211 (\*)
- Sony Spressa 9411 (\*)
- Sony Spressa 9611 (\*) (Problems are unlikely)
- Yamaha CDR 10x (and compatible CD writers) (DAO support):
  - Yamaha CDR 100
  - Yamaha CDR 102
  - Yamaha CDE 100
  - Yamaha CDE 102
  - Plasmon CDR-4400
  - DynaTek Automation Systems CDM400 (\*)
  - DynaTek Automation Systems CDM240 (\*)
  - Microboards PlayWrite 4000 (\*)
  - MicroNet Technology MasterCD Pro (\*)
  - Procom Technology PCDR-4x (\*)
  - Smart & Friendly CDR4000 (\*) (Problems are unlikely)
  - Smart & Friendly CDR1004 (\*) (Problems are unlikely)
- Ricoh/Plextor (and compatible CD writers) (DAO support):
  - Plextor PX-R24CS(i)
  - Ricoh RO-1420C
  - Ricoh RS-1420C
  - Turtle Beach 2040R (\*) (Problems are unlikely)

MakeCD also supports the following CD-ROM drives:

- ATAPI CD-ROM (read with CDDA)
- NEC CD-ROM (read with CDDA)

- Pioneer CD-ROM (Sony compatible)
- Plextor CD-ROM (read with CDDA)
- Sony CD-ROM (read with CDDA)
- TEAC CD-ROM (read with CDDA, usually Plextor compatible)
- Toshiba CD-ROM (read with CDDA, usually single speed only)
- any other CD-ROM drive (read without CDDA)

## 1.15 MakeCD.guide/MINTR

Introduction To CD Writers, MakeCD etc.

\*\*\*\*\*

This introduction was written to help you understand CD-Rs, CD writers and all related information. Additionally, valuable information on how to use MakeCD is included.

CD Writers	Differences: CD writers, CD-ROM drives
CD-Rs	CD-Rs
Buffers	Buffering
Tracks & Sessions	Interesting facts about tracks and sessions
Fixing	Fixing session or CD-R
Test mode	What happens during test mode
Multisession	How multisession works
Multivolume	How to create multivolume CD-Rs
CD-Extra	CD-Extra: audio and data on one CD-R
Mixed-Mode	Mixed Mode: audio and data on one CD-R
ISO 9660	Background details on ISO 9660
Rock Ridge	Rock Ridge and AMIGA attributes
HFS	HFS for CD-ROM and hybrid CDs
Joliet	Joliet, the Windows95 extension
Romeo	Romeo, another extension
Track-At-Once	TAO: Track-At-Once Essentials
Disc-At-Once	DAO: Disc-At-Once Essentials
Compatibility	Which driver goes with which CD writer

## 1.16 MakeCD.guide/MICDW

Diferences: CD Writers, CD-ROM Drives  
=====

CD writers usually resemble CD-ROM drives being equipped with either a tray or caddy.

In general, CD writers can read CDs and CD-Rs as well as write CD-Rs. CD-Rs can be thought of as CDs that can be written to. Since the read/write head used in the CD writer is significantly heavier than that of a conventional CD drive, it cannot move as quickly as its CD-ROM drive counterpart. Subsequently, the average transfer rates and seek rates tend to be slower than normal CD-ROM drives.

Nevertheless, CD writers can be used for reading CDs and CD-Rs. Just like conventional CD-ROM drives, CD writers can be mounted via a CD filesystem and then be used to access CDs on your Workbench screen. To do so, just enter the device name (Device name, ie. 'scsi.device') and device number (unit number) of the CD writer instead of the CD-ROM drive's values when you install the CD filesystem. Of course, you can also modify a mountlist entry (or 'DEVS:DOSDrivers/CD0') accordingly.

If you mount a CD filesystem on the CD writer while burning a CD-R, please make sure that the filesystem does not attempt to access the CD writer as this could cause problems such as a defective CD-R. While MakeCD accesses your CD writer, it tries to recognize and lock all CD filesystems that are mounted on your CD writer. This does not always work due to technical reasons, so care is needed.

## 1.17 MakeCD.guide/MICDR

CD-Rs  
=====

CD-Rs look like CDs. CD-R is a medium that can be written to using a CD writer. After the write process, CD-Rs may, in general, be used with any CD player or CD-ROM drive.

In contrast to conventional silver CD-ROMs, CD-Rs are available in green, gold or even blue.

Further distinctions between CD-ROMs and CD-Rs concern the CD-R's label surface. Some have a big label surface, other only a small one.

If a written label is required, do not use pointed objects. Write only onto the label. Damaging the label surface is likely to damage the data layer situated immediately below, which often leads to an unreadable CD.

Take care when using additional labels. Labels attached to just one side will almost certainly make the CD-R wobble inside the CD-ROM drive. Some people find out the hard way that the removal of the label can damage the golden colour (reflective layer) of the CD-R's surface. Have fun with your 'coaster'...

Avoid buying large quantities of CD-Rs until you are happy with the performance of the brand. Some CD-Rs may be happy during the write process only to later fail when used on other CD-ROM drives. Some drives may read the CD-Rs flawlessly while others may take a very long time to read the disc -- and even then there may be read errors.

In our experience Toshiba drives in particular may have problems reading some CD-R brands. This does not mean that there is a problem with Toshiba drives! It simply means that you should try brands in small quantities until you are happy with the results.

## 1.18 MakeCD.guide/MIBUF

Buffering  
=====

Once a CD writer has started to write data, it must continue to write uninterrupted until all the data has been written. With Track-At-Once mode, the track that is being written must be finished.

In Disc-At-Once mode the entire CD must be written without interruption.

The CD writer writes the data to CD-R several times to allow possible data recovery in the event of a defect. While writing block N, some data of blocks N-1 and N+1 are incorporated into block N simultaneously. If the data of block N+1 does not exist, block N cannot be written and so on.

Due to this, programs for CD writers and the CD writer itself require adequate buffering to ensure the continuous flow of data. If the data flow stops, the CD writer fails to plug the gap caused by the interruption when the write process resumes. CD writers usually have their own internal buffer of 512KB to 2MB. MakeCD uses its own buffer to combat the possibility of the CD writer's buffer emptying due to a shortage of new data.

If reselection for the CD writer is turned on, the SCSI bus will be blocked for a short time only while MakeCD sends data to the CD writer. With reselection turned off, the CD writer will block the SCSI bus most of the time. Very little time remains to read new data from the same SCSI bus.

As a result, MakeCD's internal buffer will always be close to empty when you read data from the same bus with reselection turned off. In this instance, a large internal buffer for the CD writer is of great help.

If you have to turn off reselection for your CD writer (in order to avoid SCSI problems), try to read the data from another SCSI bus or IDE controller. Otherwise, MakeCD's buffer will be close to empty most of the time, increasing the risk of a buffer underrun.

If you cannot use another SCSI interface or IDE controller for the source, swallow the bitter pill and try the process with an almost

---

empty buffer. Turn off 'Parallel Read/Write' in the settings. This will improve the performance slightly. In all other cases, 'Parallel Read/Write' should be turned on. As ever, we recommend that you test your system extensively in the test mode!

## 1.19 MakeCD.guide/MITUS

Interesting facts about tracks and sessions

=====

CDs and fixed CD-Rs contain one or more sessions. Each fixed session has one or more tracks. A track cannot extend across sections. Here's an example:

```

---- Lead-In (Start of CD and 1st Session) ---- (1)
----                      Track 1                      ----
----                      Track 2                      ----
----                      Track 3                      ----
----      Lead-Out (End of 1st Session)      ----
----      Lead-In (Start of 2nd Session)      ---- (2)
----                      Track 4                      ----
----                      Track 5                      ----
----      Lead-Out (End of 2nd Session)      ----
----      Lead-In (Start of 3rd Session)      ---- (3)
----                      Track 6                      ----
----      Lead-Out (End of 3rd Session)      ----
----      Lead-In (Start of 4th Session)      ---- (4)
----                      Track 7                      ----
----      Lead-Out (End of CD and 4th Session) ----

```

Creating a new track requires a comparatively small capacity - about 300KB or 152 blocks plus the data for the new track (which must be at least 600KB). In contrast, a new session takes up 22.5MB to fix the first session and 13.5MB to fix all subsequent sessions, not forgetting further memory for the actual data itself.

The more sessions a CD or CD-R incorporates the longer it takes for the CD-ROM drive to read the table of contents (TOC). Given the example above, the index of tracks 1 to 3 (track list) would be stored at (1), the index of track 4 and 5 at (2), the index of track 6 at (3) and the index of track 7 at (4). Therefore, the drive accesses four positions on the CD/CD-R just to read the complete track list (TOC).

Old CD-ROM drives or CD players that do not support multisession will be unaware of the additional tracks stored at position (2), and only tracks 1 to 3 will be accessible.

While some CD writers are capable of displaying unfixed tracks in the track list (TOC), others require special commands to access these tracks. CD-ROM file systems can only recognize such tracks if the CD-R is in a CD writer (not a CD-ROM drive) and if the CD writer displays the tracks in the track list. If required, MakeCD additionally reads the PMA (a special area of a CD-R) to generate a complete track list. CD-ROM file systems cannot offer you this feature.

Read errors may occur when searching through sessions, resulting in some tracks not being displayed. This is more likely to happen with CD-Rs that contain many sessions. Reinserting the CD-R usually alleviates the problem.

CD writers can read tracks that are in unfixed sessions. However, most CD-ROM drives cannot see such tracks. The result is that most CD-ROM drives will only read your CD-R if it is fixed. If the CD-R is not fixed, only those tracks leading up to the last fixed track will be shown.

If you would like to use the CD-R in your CD writer only and provided that your CD writer shows unfixed tracks in the TOC, you do not have to fix the CD (fixing takes up lots of space!). You can burn the tracks to the CD bit by bit (including data tracks), then fix the CD or session at the very end of the process. You can also create multisession CDs in this way -- i.e. without fixing the CD, although the name "Multisession" is no longer the correct description. However, the functionality is the same as a multisession CD.

## 1.20 MakeCD.guide/MISCF

Fix Session Or CD-R  
=====

Users are often confused as to whether they should fix the session or the CD-R. The following section aims to clarify the difference!:

- If you fix the CD-R, you cannot write any more data to the CD-R! The CD-R can then only be read. Do not fix the CD-R if you want to write more tracks to the CD-R at a later date!
  - If you fix the session, a new session is automatically opened. You will then be able to read all the tracks in the fixed sessions in a CD-ROM drive.
  - If you have not fixed the CD-R and if you have not fixed the session, you cannot usually read that is contained in the unfixed session using a CD-ROM drive. You can still read these tracks in the CD writer. If you are not bothered about reading the CD-R in a standard CD-ROM drive, you may prefer not to fix the session and use the space for more data!
  - Sessions and indeed the CD-R can only be fixed if there is at least one track in the last session. Empty sessions cannot be fixed in either case.
  - If you have fixed a session, you can no longer fix the CD-R without further changes, since a new session is automatically opened and you cannot fix an empty session! Incidentally, fixing a CD-R is in principle identical to fixing a session, with the exception that a new session is not opened when you fix the CD-R and subsequently the CD-R cannot be written to again.
-

- You should fix the CD-R if you are certain that no more data (now or later) will be written to the CD-R. This is because some drives take much longer to read a CD in which only the sessions are fixed. In this case, drives waste time looking in vain for data in the last open session, hitting upon read errors (because there is no data there!).

## 1.21 MakeCD.guide/MITST

### What Happens During Test Mode

=====

There is a gadget both in the preferences and the writing window that lets you turn test mode on or off. But what happens during test mode?

With test mode activated, the CD writer will pretend to write rather than write for real.

MakeCD sends data to the writer just as it would if writing for real. The writer performs almost identical actions, with the exception that the laser is not activated and thus the CD-R is not written to!

Since the actions carried out in test mode are so similar to those when writing for real, test mode is an invaluable tool to establish if there are any problems with the SCSI bus, or if there are buffering/transfer speed problems (i.e. you can test for buffer underruns and overflows).

Most CD writers remember any tracks that you write in test mode. These "virtual" tracks will be displayed in the target CD-R window track list even though they do not exist! This is not a problem, since you can remove these tracks if necessary. Simply remember that you may need to make your CD writer forget these tracks when you construct a new track list (click on Update).

We strongly advise all users of MakeCD to run the test mode before burning for real. The test is all the more essential if the directories you are copying contain many small files, or if you are using a slow source, or if you are burning direct from CD-ROM drive to CD writer (i.e. if you are not using image files).

## 1.22 MakeCD.guide/MIMUS

### How Multisession Works

=====

What is multisession?

A data CD is a normal CD when you have written just one track to it. Later on, you may wish to add more data. This is where multisession

comes in, letting you incorporate an older track into the new track.

MakeCD reads and remembers the contents of the last data track. The position where the data is stored on the CD-R is also remembered. The program then reads all information about the new data from hard disk except the actual contents of those files. The table of contents written into the new track contains information about the data of the old track as well as the new data. Since the data proper of the first track is already stored on the CD-R, all that is required in the new track is a compact reference to the previous track. The data for the new track is then written from the hard disk to the CD-R.

If you have already burnt two tracks and the second track incorporates the reference data for the first track, the third track need only incorporate a reference to the second track. Had you forgotten to incorporate the reference for the first track when writing the second track, simply record references for both the first and second track when you write the third track. Then, when you write the fourth track, you need only incorporate a reference to the third track! Clever stuff!

How does this work in practice?

MakeCD offers a very flexible way of creating multisession CDs. You select the tracks to be incorporated into an already existing track via the 'ISO settings window'. That is the same window that lets you select directories to be included in the image file. In the case of identical file names, the file of the track or directory scanned first will be selected and all other identical file names will be ignored.

You may write to the CD-R as usual once you have selected the tracks and directories. It's as simple as that!

MakeCD Version 2.1 upwards supports multisession data CDs.

## 1.23 MakeCD.guide/MIMVC

Multivolume CDs

=====

It is possible to burn several data tracks to a CD which will be shown as a single data carrier by the file system. The file system must support multivolume. Simply write the tracks one after the other and then fix as soon as you want the tracks written to be readable in a conventional CD-ROM drive.

For example, if you wish to write three tracks at the same time and then read all three tracks in a CD-ROM drive, fix the session (or CD-R) once all three tracks have been written. If you wish to write the tracks at different times and you would like to access the CD-R in a CD-ROM drive in between writing the tracks, you must fix the session before you read the CD-R in the CD-ROM drive, regardless of whether you have written one or several tracks in the session.

With a multivolume CD, each track represents an independent data

---



carrier -- the effect is similar to dividing a hard drive into partitions. See Fixing.

The sole difference between multisession and multivolume is that tracks of multivolume CD-Rs cannot contain data from previous tracks. If multisession were implemented on a hard drive, the structure would be as follows: the first partition would be a conventional one, the second would hold new data and links to all data on the first partition and the third partition would contain new data and links to all data on the second partition, and so on. Implementing multisession on hard disks would be rather confusing/useless. In contrast, multisession makes sense with CD-Rs, especially since multivolume filesystems are rarely used.

A CD-ROM file system that supports multivolume would either display all the data tracks (relating this to hard drives: all partitions) or at least permit you to select the track (relating this to hard drives: the partition) that it should display.

MakeCD Version 2.0 upwards supports Multivolume CDs. Proceed as described above. You will require a CD-ROM file system that supports multivolume, e.g. CacheCDFS from the IDEfix '97 package.

## 1.24 MakeCD.guide/MICDE

CD-Extra: Audio And Data On One CD  
=====

CD-Extra enables you to create mixed CDs (data and audio) which behave like a standard music CD when used in a CD player. You must however jump over the data track (you could damage your audio system by trying to play a data track!). If the mixed CD is inserted in a CD-ROM drive, the data track can be accessed!

First you burn all the audio tracks, then fix the session. This will enable a CD player to recognize the disc as a standard audio CD. In the next session you write a data track. A file system that supports multisession will recognise the data track and allow you to access the data contained within the track.

MakeCD supports the creation of CD-Extra from version 2.0 upwards. Proceed as described above.

## 1.25 MakeCD.guide/MIMIM

Mixed-Mode: Audio And Data On One CD  
=====

A Mixed Mode CD-R incorporates one data track and one or more audio tracks. The data track must be the first track. The session must fixed

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after the audio track(s). You cannot fix the session after the data track!

Create a list of tracks. Begin with the data track (this must be the first track in the list), then add as many audio tracks you like. Once you have completed the track list, write the CD-R.

Any CD-ROM drive can read the data track -- the drive does not have to support multisession.

When the mixed mode CD is used with a CD player, skip the first track since it is a data track. Take extreme care not to play the first track of a Mixed Mode CD or CD-R -- this may damage your hi-fi equipment if your CD player is not equipped to deal with a non-audio track.

## 1.26 MakeCD.guide/MISO

Background details on ISO 9660

=====

ISO 9660 is a very old file system that was developed to allow almost any computer system to access CDs.

Filenames can consist of capitals A-Z, numerals 0-9 and the underscore character '\_' only. Courtesy of MS-DOS ;-)

ISO Level 1 is additionally restricted to the 8+3 standard. File names must not exceed eight characters in front of and three characters behind the dot. The dot must be present and at least one character, either before or behind the dot is required.

ISO level 2 is more flexible - it allows up to 31 characters including the dot. Aside from the increased filename length, the same restrictions with level 1 apply: file names must contain one and only one dot and dots cannot be used for directory names. Lower-case characters and foreign characters are still not permitted.

These restrictions are not particularly suited to the AMIGA, since a file with an icon cannot be supported under these conditions! The file would lack the dot required. And if you did add the dot to the filename, the icon would have two dots courtesy of the '.info'. This is no good either, since two dots are not permitted for a filename!

As a result, it has become common practice within the AMIGA community to discard the restrictions and instead use AMIGA filenames as they stand. Thus, MakeCD offers a feature called the 'ISO 9660 AMIGA'. If selected, MakeCD uses the filenames as they are stored on your hard drive.

ISO 9660 has a further restriction: There may be no more than eight directory levels. MakeCD ignores this rule and writes as many levels as you have selected. AMIGA filesystems can handle more than eight levels, but an option to automatically move levels beyond a certain depth to the limit is planned.

## 1.27 MakeCD.guide/MIRRA

### Rock Ridge and AMIGA Attributes

=====

Even Unix users were not content with the restrictions in ISO 9660. They created an extension for this standard: Rock Ridge.

If a CD has Rock Ridge extensions, it has been created with ISO 9660, but space reserved by ISO 9660 for extensions is used for the Rock Ridge extensions.

File systems that recognize ISO 9660 only will not see the Rock Ridge extensions, i.e. Rock Ridge extensions are not an obstacle even if the system reading the disc does not support Rock Ridge!

The exact amount of additional space that Rock Ridge consumes on the CD is hard to tell. Very roughly, about 50 to 150 extra bites are required per directory or file, i.e. very little space is required.

Why use Rock Ridge?

Rock Ridge allows AMIGA users to be ISO 9660 compatible, yet also offer longer filenames with any character to users with a file system that supports Rock Ridge.

A file system that supports Rock Ridge also supports ISO 9660 technically. However, it will use the Rock Ridge names if they are present on the CD. If you have a file system that supports Rock Ridge but you get the shortened ISO 9660 file names, you probably need to adjust one or two settings within your file system.

If you still have problems reading the Rock Ridge file names with a file system that supports Rock Ridge, perhaps it does not support Rock Ridge 1.12 (if it is old, maybe it only supports Rock Ridge 1.09). Check with the maker of your file system to see if there is an update.

In mid 1996 a new standard (based on Rock Ridge) was developed, primarily by Angela Schmidt working closely with other AMIGA programmers and the principal author of Rock Ridge. This standard has been adopted by the AMIGA and is supported by major file systems (AmiCDFS, AsimCDFS and CacheCDFS). This standard permits AMIGA protection bits and file comments on CDs within the Rock Ridge extensions.

If you wish to use these AMIGA attributes, you will need to save the Rock Ridge extensions too.

At last one can properly back-up a hard drive to CD-R! The advantage is that you no longer lose the AMIGA attributes!

## 1.28 MakeCD.guide/MIHFS

HFS on CD-ROM, Hybrid CDs  
=====

Since the Apple Macintosh has problems with ISO 9660 too, Apple developed its own format for CDs: HFS.

MakeCD does not yet support HFS, and it is uncertain whether HFS support will be implemented. Simply put, we are not convinced of the importance to support HFS.

Hybrid-CDs are CDs containing both the ISO 9660 format and HFS format. This enables the hybrid CD to be read on either a PC (or other system such as the AMIGA that supports ISO 9660) or a Mac.

## 1.29 MakeCD.guide/MIJOL

Joliet, The Windows 95 Extension  
=====

The Microsoft "Joliet" File System (PC) is an expansion of the ISO 9660 standard and was designed to overcome the filename restrictions of "ISO 9660". Joliet permits long filenames and filenames containing characters from international character sets.

MakeCD does not yet support this extension. We have not yet decided whether to support Joliet in a future version of MakeCD.

## 1.30 MakeCD.guide/MIROM

Romeo, Another Extension  
=====

"Romeo" is a PC file system format which allows filenames of up to 128 characters in length. International characters are not supported.

## 1.31 MakeCD.guide/MITAO

TAO: Track-At-Once Essentials  
=====

Most CD writers offer several modes of writing a CD-R. The most common and important modes are TAO (track-at-once) and DAO (disc-at-once).

The easiest method (for the programmers) to implement is track-at-once.

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The program sends the data track by track to the writer and the writer takes care of the actual write process.

The disadvantage of TAO is the fact that most CD writers insert a pause of approximately 2 seconds (152 blocks) between the tracks. This is at its most annoying when you write a live concert to CD-R using more than one track -- you end up with a pause between each tracks.

DAO, with its own new restrictions, provides a solution to this. MakeCD optionally supports DAO from version 3.0. You will need to be registered for the DAO version. If you are registered for TAO only, you cannot use this feature!

## 1.32 MakeCD.guide/MIDAO

DAO: Disc-At-Once Essentials  
=====

Most CD writers offer several modes of writing a CD-R. The most common and important modes are TAO (track-at-once) and DAO (disc-at-once).

With track-at-once mode, you cannot avoid having pauses between tracks. With disc-at-once, all tracks can be written without inter-track pauses. DAO even allows you to create index marks within tracks!

Generally, DAO does not allow you to write more than one session to a CD. More recent CD writers combat this with SAO (Session-At-Once), permitting you to write several sessions to a CD in DAO mode.

MakeCDVersion 3.0 upwards supports DAO for a number of CD writers. We hope to add SAO in later versions.

## 1.33 MakeCD.guide/MICMP

Which driver goes with which CD writer  
=====

We have tried to provide as much compatibility information in the file: 'doc/Compatibility'. Unfortunately, we are not aware of the compatibility status for all existing CD writers. We cannot always suggest which driver is best for your CD writer. You can of course try the drivers one by one in test mode.

If the driver which you have selected is not compatible with your CD writer, MakeCD usually reports an error message. If the driver is incompatible with your CD writer, it is possible that the writer will misinterpret the command. This could possibly damage the CD-R.

Should you discover a driver that works for your CD writer, and if your CD writer does not appear in our compatibility list, we would be

extremely grateful to receive details. Please send the details to 'makecd@core.de' or to one of the authors addresses.

## 1.34 MakeCD.guide/MINST

### Installation

\*\*\*\*\*

Please install MakeCD using the supplied installation program. If you are using a cover-mount version, the program may be ready to run and not require installation, in which case you should ignore this section.

In general it should be possible to start MakeCD without installing.

You initiate the install process with a double-click on "Install".

The install program offers you a choice of languages. Click on your preferred language. The installer will proceed using the chosen language.

Simply follow the instructions. If you are unsure at any point, click on "Help".

Towards the end of the installation process, you can select which CD-ROM and CD burner drivers you would like to have installed. If you are already certain of which drivers you need, copy only those drivers. Otherwise, copy all the drivers and try them all to judge which one is best for your drive.

See Preferences.

Once the installation is complete, open the directory that MakeCD was installed to and start MakeCD. The registration window will open, so enter your registration number. If the registration number is incorrectly entered, MakeCD remains locked. If you wish to permanently save these details, you need to type in your complete address, then click on "Save". Otherwise, click on "Use".

Once you have started MakeCD you need to set the correct Preferences for your computer system. You are then ready to start using MakeCD.

## 1.35 MakeCD.guide/MI000

### Instructions

\*\*\*\*\*

Although MakeCD is easy to use, you should still read this section for a true understanding of MakeCD. If you do not read the instructions, you may miss some key points and make mistakes that could have been avoided had you read this section!

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Please note: MakeCD has an optional novice mode. Many of the elements described in the following sections are available in expert mode only! So, if you want to use one such program element, you must activate expert mode in the Settings window.

Here we introduce all the important windows and their operation. If you are having ← problems using a particular window, this is the place to look.

Settings	Description of Settings Window
Main Window	Description of Main Window
Track options	Description of Track Options Window
Advanced Settings	Description of Advanced Options Window

#### Generation of ISO Image

ISO Preferences	Description of ISO Options
ISO/Rock Ridge	Description of ISO/Rock Ridge Window
Boot Settings	Description of Boot Options Window

#### Writing Tracks, Image File, Playing Music

Scan Window	Description of Scan Window
Write Window	Description of Write Window

#### Tools on the Menu

Target CD-R Window	Description of Target CD-R Window
Copy Window	Description of Copy Window
CD Attachment Window	Description of CD Attachment Window

#### Menu Points

Main Menu	Description of Main Menu
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## 1.36 MakeCD.guide/MIS00

### Einstellungsfenster

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Bevor Sie beginnen, mit MakeCD zu arbeiten, müssen Sie die Einstellungen für Ihr System anpassen. MakeCD wird Sie nach dem ersten Starten normalerweise automatisch nach den Einstellungen für Ihr System fragen. Andernfalls -- oder wann immer Sie die Einstellungen ändern möchten -- verwenden Sie das Menü, um das Einstellungsfenster zu öffnen. Die folgenden Abschnitte erklären Ihnen, wozu die einzelnen Felder im Einstellungsfenster dienen und welche Werte am sinnvollsten sind. Zusätzlich zu den hier beschriebenen Einstellungsmöglichkeiten verwendet MakeCD übrigens einige Umgebungsvariablen, insbesondere um das Verhalten der Treiber bei eventuellen Kompatibilitätsproblemen zu beeinflussen. Mehr dazu finden Sie unter 'doc/Compatibility'.

Reading drive	Select the CD-ROM drive
Writing drive	Select the CR-writer
Audio output	Play music
AHI unit	Device number for AHI

User-Level	Novice or Expert
Speed...	Speed window
Normal Write Speed	Write speed
»For on-the-fly ISO image	Only for on-the-fly writing
»Fixation	Fixation speed
»Write speed for audio	Speed for writing audio tracks
»Read speed for audio	Speed for reading audio tracks
»Read speed for data	Speed for reading data tracks
Buffer...	Buffer window
»Write tracks/CDs	Buffer for burning tracks/CDs
»Play audio data	Buffer for playing audio data
»Create image files	Buffer for creating image files
»Audio reading - fill buffer	Completely fill buffer when reading audio?
Hardware compat. settings...	Hardware compatibility settings
»Ignore overflow	Buffer overflow on reading audio
»Parallel read/write	SCSI Problems -- read here!
»Adapt start position	Modify start of audio track
Further settings...	Other Settings
»Test mode	Test mode for Fixation/deletion
»Fixate in test mode	Send fixate commands in test mode
»Raw audio data	CDDA = Intel or Motorola
»Audio length	Audio data = multiple of 2352?
»Audio pause	Automatically cut Audio pause?
»Block medium	Write image to area of hard drive
»IO error	Action upon error
»Permit ExAll()	Function for directory search
»Unprotect	Unprotect read-protected files
Commands...	Externally started commands
»When error msg is displayed	On display of an error message
»When CD(-R) is requested	On requesting a CD-R
»After creating image files	After the creation of image files
»After writing to CD-R	After end of burn process
»Before writ. tracks to CD-R	Before the tracks are burnt
»Before fix./repair/format	Before fixation/repair/format

## 1.37 MakeCD.guide/MISR0

### Reading drive

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If you wish to burn tracks from a CD to a CD-R without using a temporary file, you naturally require a CD-ROM drive in addition to a CD writer, since the data has to be read at the same time as it is being written.

The device that you enter here is used whenever you read a track. You can enter the same device under Writing drive, i.e. your CD writer, but in this case temporary files must be used (image files).



Click on the popup gadget. A device selection window appears. If you have problems here, please see FAQ (Frequently Asked Questions).

The device selection window searches your system for device drivers ("Devices"). The majority of device drivers in your system are not suitable for SCSI commands and hence are filtered out. Usually, very few drivers remain, and even some of these may not necessarily understand SCSI commands.

Chose the device driver for your SCSI card that the read drive is connected to.

MakeCD then checks all the connected devices and displays them in the unit list. Select the read drive from this list.

Some devices are automatically recognized by MakeCD and the appropriate driver is set for you. Other devices are not recognized and are listed as unknown. Don't panic if this is the case, since one of the MakeCD driver's will probably work. You can set the driver manually with the 'Driver' popup gadget.

If you have to set the driver manually, you should be aware that MakeCD knows many SCSI commands for burning CDs, reading audio data, etc. Each of these commands is saved in its own driver. Drivers that begin with 'CD\_' (e. g. CD\_Plextor) are for CD-ROM drivers only. Drivers that begin with CDR\_ (e. g. CDR\_Sony) are suitable for CD writers. 'CD\_ROM' is for CD-ROM drives, but will not read audio data.

In case you are not sure which driver you need, we recommend that you try each driver until you find one that is suitable or exhaust all the drivers. The latter should not happen if your drive is listed in the MakeCD Compatibility List. The correct driver may even be suggested there.

'CD\_Plextor' and 'CD\_Sony' are almost identical. Both drivers are for CD-ROM drives only. 'CD\_Plextor' additionally lets you set the read speed for audio data. As such, 'CD\_Plextor' is usually the better option.

If you wish for MakeCD to recognize your device automatically in future, please send Patrick Ohly 'patrick@core.de' the 'INQUIRY' string for your device (you will find this in the drive selection window). If your device is currently unknown, it is because nobody had sent us this information prior to the version of MakeCD that you are using.

Before you send us the data for your drives, you should carry out the following tests to ensure that you have selected the best driver (often, several drivers work for a particular CD writer).

- Read Track Table of Contents (works with all drivers)
  - Read Data CDs (works with all drivers)
  - Read Audio CDs (does not work with all drivers)
  - Set Speed for Reading Audio CDs (does not work with all drivers)
-

When selecting the best driver, the compatibility list, shown in the lower part of the device selection window, can be helpful. The list will help you determine if the driver is for a CD-ROM drive or for a CD writer, whether the drive speed can be set, and which format (Intel or Motorola) the CDDA data is sent as and much more.

## 1.38 MakeCD.guide/MISW0

Writing drive

-----

This is where you set the CD burner that will be used for burning CD-Rs. Proceed with the description under Reading drive

If you have to select a driver manually, try only those drivers which are intended for CD writers. The remaining drivers cannot control CD burning.

Sometimes, it can be useful to set a driver here that is for CD-ROM drives only. This exceptional case is when you would like to try out the program but do not yet have a CD writer. If you insert a CD-R in the drive which has been fixed in the last session, you can create a multisession ISO image. If the last session has not been fixed, the ISO image will malfunction when burnt using a CD writer!

## 1.39 MakeCD.guide/MISA0

Audio output

-----

MakeCD allows you to listen to audio data too, with the audio output via the 'AMIGA'. The 'AMIGA' sound hardware is normally used for this purpose, but if you are using a sound card which offers AHI support, you can output the music via the sound card. The following settings are available:

'AMIGA'

Music is output using the 'AMIGA''s built-in hardware (connect to the audio jacks at the back of the 'AMIGA').

AHI

"AHI" stands for "Audio Hardware Interface" and is available for most AMIGA sound cards. AHI is a port which enables software to play music without knowledge of the underlying hardware. You need to set this cycle gadget to AHI and set 'AHI unit' to the correct value. MakeCD will then use your sound card when playing music.

For instructions on installing AHI, please consult your AHI package or the instructions for your sound cards. We cannot assist you here.

---

## 1.40 MakeCD.guide/MISU0

AHI unit  
-----

When setting the 'Audio output' cycle gadget to 'AHI', you should also set the correct device number (unit) for the AHI output. This number can be set using the AHI settings program, which is not part of MakeCD. Rather, the program belongs to AHI.

## 1.41 MakeCD.guide/MISL0

User Level  
-----

Use the 'User Level' cycle gadget to select if you want to operate MakeCD in novice or expert mode. In novice mode MakeCD hides some of the gadgets in order to simplify the user-interface. Standard values will be used for these gadgets.

If you are a beginner, we recommend that you use the novice mode to begin with. Should you later feel the need to change the hidden values, you can then switch over to expert mode!

## 1.42 MakeCD.guide/MISS0

Speed...  
-----

If you click on this gadget, a window opens in which you can set various speeds. This is the speed with which MakeCD will read and write data. The following settings are available:

- 0  
Maximum Speed
- 1  
Single Speed
- 2  
Double Speed
- 4  
Quad Speed

usw.

---

### N-Times Speed

With Track-At-Once mode, MakeCD can change the speed between tracks. With Disc-At-Once mode, the same speed must be used to burn the entire speed. So, when using Disc-At-Once, MakeCD will use the lowest speed that you have set for any individual track for all track

Some of the drivers do not allow you to change the speed. If this is the case, the speed input fields cannot be changed -- this can also happen if you have not yet selected a device.

## 1.43 MakeCD.guide/MISSN

Normal Write Speed

.....

This is the write speed that will be used if you have not set a specific write speed. The default is maximum speed.

## 1.44 MakeCD.guide/MISSO

For on-the-fly ISO image

.....

If you copy a data track on-the-fly, the speed that you set here will be used. A buffer underrun is a greater danger the higher you set this speed, especially if there many small files to be written. In view of this, single speed is the default option.

## 1.45 MakeCD.guide/MISSF

Fixation

.....

The speed that you set here will be used when fixing in the Track-At-Once mode. Since the 'AMIGA' has no data to send to the CD writer during fixation, this setting can usually be set to maximum speed (the default). Some -- in particular older -- CD-Rs are not prepared for high speeds, or are so scratched that writing at high speed can generate Track-Following-Errors. In this case, you need to reduce the speed.

---

## 1.46 MakeCD.guide/MISSW

Write speed for audio

.....

This is where you set the speed to be used for burning audio tracks.

Many CD-ROM drives can read audio data at single speed only. Also, there can be an audible drop in quality with some of the drives that can read audio data at a higher speed. Hence we allow you to set the read and write speeds for audio tracks separately.

With on-the-fly copying, this means that the write speed may need to be reduces in order to avoid a buffer underrun.

For technical reasons, the read and write speeds should be the same for on-the-fly audio copying. Otherwise, errors can appear in the audio data with some drives. If you drive does not create erroneous date when the buffer is full, you can set the read speed higher than the write speed.

If you are not sure which value to enter, set '1' for single speed.

## 1.47 MakeCD.guide/MISSR

Read speed for audio

.....

This is the place to enter the speed to be used for reading audio tracks.

For more information, see Write speed for audio.

If you are not sure which value to enter, set '1' for single speed. Please note that some drives do not allow you to set the speed. In this case, MakeCD will use the speed determined by the drive.

## 1.48 MakeCD.guide/MISSD

Read speed for data

.....

This is used for setting the speed that is used for reading data tracks. You rarely need to change this speed. However, if the CD is very scratched, reducing this value can help to read it without errors.

If you are not sure which value to enter, set '0' for maximum speed. Please note that some drives do not allow you to set the speed. In this case, MakeCD will use the speed determined by the drive.

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## 1.49 MakeCD.guide/MISB0

Buffers...

-----

MakeCD uses internal buffers when burning CDs, creating image files or playing audio data. You can set the size of each buffer and the size of the chunks. If the Buffer size is not a multiple of the chunk size, MakeCD automatically adjusts this for you.

## 1.50 MakeCD.guide/MISBT

Write tracks/CDs

.....

This is used for setting the buffer and Chunk size (in KB) used when writing CDs.

Buffer Size

In theory, setting "Buffer Size" to a higher value is not harmful. Should you enter a value that exceeds the available memory, MakeCD automatically uses a smaller buffer.

If Reselection (Disconnect/Reselect) is turned off and the data is being sent by a device that is connected to the same SCSI-Bus, you can use a relatively small value for the buffer (e. g. 1000-2000 KB). Since Reselection has been turned off, the buffer will remain close to empty anyway. You can also set a low value if you have turned on 'Parallel read/write'

If you have turned on reselection for the CD writer, or if you are reading the data from a drive that is not connected in the same SCSI bus, set this value as high as possible. This will reduce the danger of a buffer underrun.

You can read more about reselection under SCSI Problems and Buffer Behaviour.

A sensible value for this field is 8000. However, a value between 4000 and 20000 should be fine. Ultimately, you need to check the buffer level during writing to determine if the Buffer size is suitable.

Chunk size

This field enables you to set the size of the data packets (chunks) that MakeCD sends to your CD writer. This value should not exceed half the size of the internal buffer of your CD writer. In other words, at least two chunks should fit in the internal buffer of your CD writer, otherwise there is an acute danger of a buffer underrun.

Some SCSI interfaces are uncomfortable with large chunk sizes. Therefore, a chunk size of 50 KB is suitable for your test. Later

on, you can try increasing this value.

If you had to turn off reselection and the writer is on the same SCSI bus as the reading drive, we recommend a small chunk size.

## 1.51 MakeCD.guide/MISBA

Play audio data  
.....

Here you set the buffer size and chunk size for playing audio data in KB.

Buffer size

The smaller the "buffer" is, the quicker MakeCD starts playing audio data. However, if the buffer is too small, errors can arise.

Chunk size

The "Chunk size" defines the size of the data packets used by MakeCD to send data to the 'audio.device' or 'ahi.device'. The larger the chunk size that you set here, the longer it takes on average until an action like a change in volume comes into effect. If the chunk sizes are too small, the audio may suffer.

We recommend a chunk size between 20 to 50 KB and at least double that value for the buffer size.

## 1.52 MakeCD.guide/MISBI

Create image files  
.....

This is the place where you set the buffer size and chunk size for creating image files. Usually, the "Buffer size" can be set to a small value (about 1 MB), and the "Chunk size" can usually be set to a value similar to the one you are using to write tracks/CDs.

The buffer size and chunk size are also used for creating audio images. With some drives, you should avoid too small a buffer for reading audio data. Keep an eye on the Write Window. If the buffer reaches the right boundary, your drive may possibly chop off some of the audio data during a buffer overflow.

So, if your drive sends data at a faster rate than the buffer (to the hard drive), the MakeCD buffer fills up. On the next attempt by your drive to send data, it must wait -- with some drives, this can lead to crackling/noise. If this happens with your drive, ensure that the buffer is large enough and/or that your drive is reading the data at a slow enough rate to avoid a buffer overflow.

If you are creating an ISO image on your hard drive, there is no need for a large buffer since buffer underruns or overflows will not occur.

### 1.53 MakeCD.guide/MISBF

Audio reading - fill buffer completely  
.....

With some drives, if the software does not immediately take the audio data when the drive stops reading, the CD-ROM drive may produce noise.

MakeCD is unable to accept the audio data immediately when the buffer is full. MakeCD must wait until there is enough free space in the buffer for a complete chunk of data.

So that MakeCD works as harmoniously as possible with such drives, MakeCD usually only half-fills the buffer when reading audio data before sending it to the writer. Then the data arriving from the CD-ROM drive can continue to be accepted unhindered. Since the buffer is only half-filled, this increases the risk of a buffer underrun for the On-the-fly burning of audio tracks.

If the drive still transfers audio data error-free when the buffer is full, you should turn on this option. If the data is poor or the drive reports errors when the buffer is full, this option must be turned off.

### 1.54 MakeCD.guide/MISH0

Hardware compatibility settings...  
-----

A window opens when you click on this button. Set the hardware compatibility settings. If your hardware works perfectly, there is no reason to make changes here! If there are some hardware problems, perhaps there is an option here that can help.

### 1.55 MakeCD.guide/MISHI

Ignore overflow  
.....

Some CD-ROM drivers or burners will report an error if they are reading the audio data faster than the computer can accept. This is because the internal RAM fills and the read process must be interrupted.

When audio reading is interrupted with some drives, the drive can continue reading from the wrong position. Some drives will warn you

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about this by reporting an error. You can ignore such errors by turning on the 'Ignore overflow' option.

If your drive does not report these errors, do not select this option. This is because the drive may be reporting a more serious error that you should be aware of. Should your drive continuously report errors, try reducing the read speed. You should also increase the buffer size. If you still have problems, consider using another drive.

## 1.56 MakeCD.guide/MISHP

Parallel read/write  
.....

This is the place to set whether MakeCD sends parallel read or write commands to your source or target drive.

If you turn on this field and your SCSI configuration permits parallel read/write, (i. e. reselection is turned on for the CD writer or the data is being read from another bus), this option can bring lead to an increase in performance.

If reselection is turned off for the CD writer and the data is being read from the same SCSI bus that the writer is connected to, deselect this field. This will slightly improve performance.

In all other cases, you should turn on this field. There is one exception: if you do not have to turn off reselection for your burner, but your device driver has problems with extreme parallel access, deactivate this field.

## 1.57 MakeCD.guide/MISHA

Audio data reading - Adapt start position  
.....

Some drives (e. g. Yamaha CDR 100/102) have a firmware bug which prevents the first track from being read at block 0, hence the audio data is not read fully. The bug is detectable since about half a second will be missing from the start of a song. MakeCD automatically changes this setting when a read device is selected. You can nonetheless change the setting.

If you tick the option, MakeCD assumes that your read device has the bug and attempts to correct it.

## 1.58 MakeCD.guide/MISF0

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Further settings...

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You will reach more settings by clicking on the 'Further settings...' gadget.

## 1.59 MakeCD.guide/MISFT

Test mode

.....

This lets you define if MakeCD works in test mode when manually fixating and repairing (in the Target CD-R Window or in the Tools menu). Just before you burn a CD-R in the Write Window, you can select whether you wish to burn in test mode.

For more details about test mode, see Test mode.

## 1.60 MakeCD.guide/MISFF

Fixation in test mode

.....

Many CD writers experience problems when you fixate in test mode. Some writers become confused and report errors which will not occur when you fix for real. Some writers even fix for real in the test mode! The point is, test mode does not always work for fixation, depending on the drive. It is even possible that the CD-R will be ruined!

As a result, by default, Fixation commands are not sent in test mode. If you nonetheless want to try this out, turn on this option, but do not be surprised or annoyed if things go wrong.

## 1.61 MakeCD.guide/MISFA

Raw audio data

.....

It is unfortunately not standard practice to save raw audio data (CDDA data) in files. Some programs save them in Motorola Format (MSB), others in Intel Format (LSB).

This field lets you chose the format that MakeCD should use to read raw audio data from files to write to files. MakeCD will know which format to use when reading music data from a CD or when burning it to a CD-R.

For example, if you get CDDA files from a friend that are in Intel Format and you want to write these files to a CD-R using MakeCD, enter 'Intel' here. MakeCD will then know that the data is in Intel format. Even if your CD writer requires the data in Motorola format, MakeCD will automatically convert the data on-the-fly during the burn process.

If, on the other hand, your friend wants the data in Motorola format, enter 'Motorola'. MakeCD will automatically convert into Motorola format on-the-fly.

If you are working exclusively with MakeCD and you have no need to create CDDA files for other programs, you can more or less set this gadget how you like -- it will not affect the functionality. That said, most CD writers and readers use the Intel format, so you can often save a little time if you set the gadget to 'Intel'.

You can determine the format that your writer or reader uses by looking at the display in the Device Selection Window.

## 1.62 MakeCD.guide/MISFL

Audio length

.....

MakeCD attempts to automatically determine if the files to burn are of the correct type. For CDDA files, it is impossible to determine if they are CDDA files or some other data type. MakeCD checks to see if the size of the file to burn is a multiple of 2352 bytes, since CDDA files which have been read from CD always have a length that is a multiple of 2352 bytes.

All very well, but if you have sampled the data yourself, it is unlikely to have a length that is a multiple of 2352 bytes, so MakeCD cannot tell if the data is CDDA. In this case, you need to tell MakeCD not to be so fussy about the file size when checking for CDDA files.

Select 'Block' if you are reading audio data from CD only. If you are sampling audio data yourself, you must select 'any'.

If you select 'any', MakeCD will no longer carry out the CDDA test. It is therefore no longer possible to warn that the data is not in CDDA format. If you are not careful, you may accidentally burn data a file as CDDA -- a loud rustle.

## 1.63 MakeCD.guide/MISFP

Audio pause

.....

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There is unfortunately no standard method to determine the exact length of the track. Most programs work on the assumption that the audio track ends where the next track begins.

This assumption can lead to reading the pause between tracks (if there is a pause between tracks). The result is frequently two seconds of total silence at the end of a section of music.

This field lets you set the pause size after audio tracks. MakeCD will cut the corresponding number of blocks from the track. This can enable you to completely remove the two second pause at the end of a track -- at least in the image file. With Track-At-Once mode, the two second pause (152 blocks) is added again to each audio track.

CDs that you wish to write in TAO mode generally have a pause of 152 blocks between the tracks (this corresponds to  $2 \frac{2}{75}$  seconds). So, the best value to enter here is usually 152 or 00:02;2 See Track-At-Once.

Note: If you change this setting having already selected the tracks in the Track Selection Window, you must remove the tracks then reselect them.

This setting works exclusively when selecting the audio tracks that are to be read -- it is not intended to determine the pause between two tracks upon writing CDs. The length of the pause that is added during writing can only be chosen if you are burning in Disc-At-Once Mode. In that case, use Advanced Options in the Main Window.

## 1.64 MakeCD.guide/MISFB

Block medium  
.....

Beginners should avoid entering a value here. This field is only intended for those users who are experts and understand the implications. If you enter the wrong settings here, you could, for example, lose the data on your hard drive!

Rather than write to an image file, you can write data directly to a block medium (e.g. directly to the hard drive). This can be useful if you mount a hard drive then a CD-ROM file system in order to test the data. In addition, you can -- if you don't have a CD writer -- send the data in this form (directly on the hard drive) to a CD company.

If you select an area of the hard drive which is used by a file system, the file system will be overwritten during the process, losing important data -- only in rare cases can this data be recovered!

If, in spite of our warning, you still want to enter a value, click on the popup gadget. A device selection window will open.

The device needn't support SCSI commands, but it must support Trackdisk-compatible commands. Select the device you require.

---

You then need to enter which blocks can be overwritten on this device. Normally you would enter a startblock of 0 and a high number as the end block. MakeCD will only overwrite blocks within this region. Note that the Rigid Disk Block is usually saved to block 0 on the 'AMIGA'. If you destroy the RDB, maybe RDB-Salv can help...

The value that you enter here will only be used if you set 'Block medium' to either 'Source' or 'Target'

If you are using a hard drive (preferably empty) and if you have correctly set the values, close the window with 'OK'.

Please note that you can only save one track at a time to the block medium. Think of the block medium as a special instance of an image file.

## 1.65 MakeCD.guide/MISFI

IO error  
.....

If an error occurs during the read or write process, this determines the action to be taken.

Ignore  
The error is ignored and things continue as if nothing happened.

Pad with null characters  
Any data that is missing is filled with nulls and the program continues as if nothing happened.

Stop  
Stop, but write the buffer content to the target drive first. No new data is read, but the program will attempt to write the data that has already been read.

Delete file and cancel  
Stop immediately and delete the erroneous file (if possible).

Cancel  
Cancel immediately, but keep the incomplete file.

Ask  
Offer the options listed above and let the user decide.

## 1.66 MakeCD.guide/MISFE

Permit ExAll()  
.....

---

If you wish to create data CDs, MakeCD must search the source directory. There are two functions in the 'AMIGA'OS that can be used. One is old, very compatible, but relatively slow. The newer function, `ExAll()`, is faster, but it is not always compatible. If you want to try the `ExAll()` function, select this option.

MakeCD is aware of some -- possibly all -- of the weaknesses in the new function, so most of the associated problems can usually be navigated.

## 1.67 MakeCD.guide/MISFR

Unprotect  
.....

AMIGADOS allows files to be protected so that they can no longer be read. If a file is write protected, MakeCD cannot read the file and hence cannot burn it to CD. Instead of creating an ISO image, an error message appears.

To prevent this, there is an option called 'Unprotect'. If you turn on this option, MakeCD will temporarily make the file readable.

This option makes temporary changes to your hard drive. The protect bits of the files will be restored to their original state following the operation.

## 1.68 MakeCD.guide/MISE0

Commands...  
-----

Sometimes, under certain conditions, you want to execute an external command -- for example, to play a music track after an operation has ended.

You can chose any of the standard shell commands, e.g. 'Play MUSIC:Bang', 'Say "All Done!"', 'CTRLscsi scsi.device 3 RESELOFF' or 'Execute S:BurnScript'.

If you click on 'Commands...' in the Settings window, a window opens so that you can enter commands to be executed at a certain point in time. If you do not enter a command, the screen will blink.

The following sections briefly describe the occasions when you can execute commands.

## 1.69 MakeCD.guide/MISEE

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When error message is displayed  
.....

Whenever an error message is displayed, the command that you have entered in this field will be executed. e.g. 'Play MUSIC:Oh no!' for an audible error message warning!

## 1.70 MakeCD.guide/MISEC

When CD(-R) is requested  
.....

Whenever you are prompted for a CD-R or a CD-WR. You could enter a command that plays a fitting sample.

If you activate the tick for 'Eject Disc' the CD-R(W) will be automatically ejected when a new CR-R(W) is needed.

## 1.71 MakeCD.guide/MISEI

After finishing creating image files  
.....

Image file creation can take a long time. Why not enter a sample that is more likely to grab your attention?

## 1.72 MakeCD.guide/MISEW

After finishing writing to CD-R  
.....

Sometimes you would like to be informed that the CD-R has been written.

If you tick 'Eject Disc' the CD-R(W) will be ejected automatically at the end of the write process.

## 1.73 MakeCD.guide/MISET

Before writing tracks to CD-R  
.....

Maybe you would like to automatically quit some programs before you burn (some programs can interrupt the burn process). Enter the shell

---

script that ends the program(s).

## 1.74 MakeCD.guide/MISEF

Before fixation/repar/format  
.....

Some users lament that they have to turn off reselection when burning tracks, but that the writer attaches itself during the fixation of the CD-R. It is extremely useful for these users to have a command execute -- before fixation, repairing or formatting -- that turns on reselection. You can also have music play or simply leave the field empty.

## 1.75 MakeCD.guide/MIP00

Description of Main Window  
=====

The Main Window consists primarily of a track list. This is the list of the tracks that you want to be written. In addition, there are several gadgets for initiating the entire process.

In order to create your own CD, define the tracks using the track list.

New	Add new track
Remove	Remove track from list
Up	Move track up
Down	Move track down
Play	Play music track
Create image file...	Create image file for track
Track options...	Options for selected track
Advanced Options...	Global options
Create image files...	Create all image files
Write tracks...	Burn all tracks
Play audio...	Play all audio tracks
Total size	Total size of project

## 1.76 MakeCD.guide/MIPNW

New  
---

You create a new track in the track list with a double-click in the track list. The track is added the track list immediately below the selected track. Track options... You can determine the type and

---



content of the new track.

## 1.77 MakeCD.guide/MIPRM

Remove  
-----

The 'Remove' gadget removes the currently selected track from the track list. You will be prompted for confirmation.

## 1.78 MakeCD.guide/MIPUP

Up  
--

The 'Up' gadget moves the selected track one position up the list. This enables you to select the order of the tracks in the list. The tracks will be burnt in their order of appearance in the list.

## 1.79 MakeCD.guide/MIPDW

Down  
----

The 'Down' gadget moves the selected track one position down the list. This enables you to select the order of the tracks in the list. The tracks will be burnt in their order of appearance in the list.

## 1.80 MakeCD.guide/MIPPL

Play...  
-----

This gadget opens the Write Window and plays the selected track. MakeCD activates this gadget only if the selected track is an audio track.

## 1.81 MakeCD.guide/MIPC1

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Create image file...

-----

If in Track options... has been selected so that an image file is created for the selected track, you can create this in a targeted way with a click on 'Create image file...'.  
-----

The Write Window opens and MakeCD creates the image file.

If you want to create all image files at once, click on Create image files.... The image files will be created automatically before burning if you click on Write tracks...  
-----

## 1.82 MakeCD.guide/MIPTO

Track options...

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You need to make a few settings for each track in the track list. 'Track options...' opens the 'Track Options Window'. For information about how to set these options, please see Track Options Window  
-----

Once you have created all the tracks in the track list and set the preferences, you can create the image files, write the tracks or -- for audio CDs -- play the music belonging to the tracks.

## 1.83 MakeCD.guide/MIPFO

Advanced Options...

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There are a few global options for each project (e.g. the write mode: DAO or TAO). You can set these global options by clicking on 'Advanced Options...'. A window opens. For more details about this window, see Advanced Options.  
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## 1.84 MakeCD.guide/MIPCN

Create image files...

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This function determines which image files have not yet been created, then attempts to create them.

The Write Window opens and MakeCD creates all the image files.

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If you wish to add just one image file, click on Create image file.... However, the image files can be created before burning if you click on Write tracks...

## 1.85 MakeCD.guide/MIPWT

Write tracks...  
-----

This command writes all image files then sends them (or the data from the source if you are not using image files) to the CD writer. Please ensure that your system is fast enough for this process, otherwise the CD disc could be ruined.

## 1.86 MakeCD.guide/MIPPA

Play audio...  
-----

This command plays all the audio tracks in the track list. This enables you to check the quality of the audio data before it is written to a CD-R.

Once the Write Window opens, click on 'Start'. The audio data will start to play.

You can also control the 'AMIGA''s lowpass filter and the volume. You can also skip between tracks.

The pause tick pauses the music. 'Add Index Now' sets a new index in the track while it is playing. The 'Current index' gadget enables you to move between indices.

The menu allows use to save the settings for the lowpass filter and volume.

## 1.87 MakeCD.guide/MIPSZ

Total size  
-----

'Total size' shows you the combined size of the tracks in the track list. With ISO images that you have created yourself, this will only be known once MakeCD has searched through the directory tree.

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## 1.88 MakeCD.guide/MIT00

### The Track Options Window

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In order to select the options for a track you need to mark the track in the Main Window and then select the options in the Track Options Window. You can use the Triton Settings to parmanently fix the position of this window. You can find the Triton Settings in the Triton package or on the internet under '<http://home.pages.de/~szeiger/>'.

Track	Track gadget
Source	The source of the data
Target	Where the data is sent to
Advanced Settings	Options for the track
Indices	Indices for audio CDs

To set the track options, proceed as follows:

1. Select the source for the track as described in Source.
2. Select the target for the track, see Target.
3. If you have not selected 'Track from CD' for the source, all that remains is to select the correct track type. This will usually be a data or audio track, although other settings are possible. Proceed as described in Advanced Options. This describes how to set the pause and the ISRC.
4. If you want to burn an audio track, set index marks as described in Indices.

Carry out all these steps for each track that you wish to create. Some steps can be omitted according to your needs -- MakeCD makes some of the settings for you. Once you have finished, you can burn the CD-R or create the image files.

## 1.89 MakeCD.guide/MITTR

### Track Gadget

.....

The Track Options Window always refers to the currently selected track. You can change the currently selected track in the Main Window or with the 'Track' gadget.

## 1.90 MakeCD.guide/MITSR

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Source  
.....

The correct source for each track must be entered in the Track Options Window. The source is the data source that should be used for the track concerned. The following settings are available:

#### File System

The data for the track is read from a hard drive or another medium and an ISO 9660 image is created so that the data can be read on the CD.

If you select this, you must also set the settings in the ISO Settings Window. Simply click on the popup gadget for the source.

#### Track from CD

You can read the data for the new track from another CD. This can be any type of track. The track is then copied to the CD-R.

If you do not select this setting, you need to select the source track. Click on the popup gadget for the source and select the track from the Track Input Window that appears.

#### Image File

This preference has MakeCD read the data from an image file that you have created on a hard drive. This could be an ISO image, audio data, or another format.

If you select this setting, you need to choose the image file that you want to burn to the CD. Click on the popup gadget and select the image file using the file selection window.

Once you have selected an image file, MakeCD shows you the data type that it recognizes or guesses. The following types are possible:

##### [AIFF]:

An AIFF file which is automatically converted by MakeCD before it is sent to the writer. The conversion is so rapid that an intermediate file is not usually required.

##### [AIFC]:

A file in AIFC-Format which MakeCD converts automatically before passing it on to the burner. Only uncompressed files are accepted.

##### [CDDA?]:

CDDA files cannot be recognized with certainty. CDDA data can be in one of two formats: 'MSF' or 'Motorola' and 'LSF' or 'Intel'. You need to check that you have entered the correct format for your drive in the settings under 'Raw audio data'.

##### [DATA?]:

Data tracks cannot be identified unambiguously, hence the question mark.

---

**[HDP]:**

A file of the format "Samplitude Hard Disk Project" that is converted automatically by MakeCD before it is passed on to the burner. Note that MakeCD does not check the frequency of the project but assumes that it was created at 44.1 kHz. If you try to burn a project that has a different frequency, the disc will produce distortions when played!

**[IFF]:**

A file in a recognized IFF format that is not supported by MakeCD.

**[MAUD]:**

A file in MAUD format. This file is converted automatically by MakeCD before it is sent to the burner. The u-law and a-law compression types are supported.

**[MPEG-A]:**

A file in MPEG-A format which is converted automatically by MakeCD before it is passed on to the burner. Note that Stephane Tavenard's mpeg.a.library must be installed. You should also note that not all systems are fast enough to burn such files on-the-fly. In case of doubt use an image file otherwise a buffer under-run may damage the CD-R.

**[WAV]:**

A file in WAV format which is converted automatically by MakeCD before it is sent on to the burner. The file must be uncompressed.

**[8SVX]:**

A file in IFF-8SUX format. This format is not supported by MakeCD.

**[<Track Type>]:**

If a track type is shown within the square brackets, MakeCD has recognized data it wrote previously. MakeCD knows that it must be burnt as declared in the track type.

**[???]:**

MakeCD is unable to ascertain or even guess the type of file concerned. Choose a different image file or change the 'Track type'.

The audio files usually need to be uncompressed. The audio data must be burnt with a frequency of 44.1 kHz, hence you should ensure that your files are at this frequency. MakeCD will convert automatically if required, but the conversion takes up much processor time. The implication is that it may be necessary to work with an image file to avoid a buffer under-run.

**Block medium**

This setting reads the data from the block medium defined in the MakeCD Settings. This option is normally only used when you have created an image on this block medium and would like the image to be written to CD-R.

If you choose this setting, all that remains is to check that you have set the correct block medium in the Settings Window.

## 1.91 MakeCD.guide/MITTG

Target

.....

Target sets whether data should be sent directly to the CD writer or to an image file. In addition, you are able to set the name of the image file and when (if at all) the image file should be automatically deleted by MakeCD.

The cycle gadget for 'Target' has the follow options:

Use image file

The data is not sent directly to the CD writer. Instead, an image file is created. The data can only be sent to the writer once it has been written to the image file.

You should use this option if your hard drive has sufficient free storage space and you are not sure if the source can send the data at a fast enough rate.

Do not forget to enter the image file that is to be created under 'Image file'. Old files with the same name are overwritten if the length of the image file is not the same size as the data to be written. Otherwise, the image files that already exist are used.

Audio data is written according to the name you have entered for the image file. '.aiff' and '.aif' creates a file in AIFF format, '.aifc' and '.afc' a file in AIFC format, '.maud' a file in MAUD format and '.wav' or '.wave' a file in WAVE format. Other endings create a file in raw CDDA format. The audio data is always written as 16-bit stereo at 44.1 kHz.

If you would like to burn using an image file, use the 'Delete file' to determine if and when the image file should be deleted. MakeCD will only delete the files automatically if they were created using the 'Write Tracks...' function.

Immediately

The image file is created before the track is written, then it is deleted as soon as the track has been written. Use this option if you do not have room for all the image files on your hard drive.

With Disc-At-Once mode, the CD-R must be written in one go. This means that -- in contrast to Track-At-Once mode -- it is not possible to delete each image file in between writing tracks. This means that, in DAO mode, you need enough hard drive storage space for all the image files.

---

#### After CD

The image file is created before the first track is written and deleted when you quit the Write Window. Use this option when you want to write the same CD a number of times or when the source and target drive is the same device.

#### Never

The image file is created before the first track is written and it is not automatically deleted. This option is useful if you want to burn the same CD another time.

#### Direct to CD writer

The data is sent directly to the CD burner. An image file is not created; a block medium is not used.

It is often possible to transfer the data directly to the burner. However, be sure to try the test mode first. If test mode fails, perhaps you should use an image file after all.

#### Use block medium

MakeCD can write data directly to the hard drive -- starting at a block you have entered (usually block 0). This can be extremely useful if you want to test the ISO image before burning it. Also, most CD manufacturers can accept this form as source.

This option uses the block medium that is defined in the Settings Window. The image will be created on this medium.

Warning: This option can destroy data on your hard drive if you are not careful. If you have any doubts, do not use it.

## 1.92 MakeCD.guide/MITTO

### Advanced Options

.....

With 'Advanced Options' you can set some more track-specific options, the most important of which is 'Track type'. Use the cycle gadget to set the track type. The following settings are available:

#### Data (Mode 1)

You must use this track type if you want to create a data track. You use data tracks for writing the contents of your hard drive to CD-ROM. 2048 bytes per block are burnt.

#### Audio (normal)

You need this type for burning a conventional audio track, for example, if you want to create a music CD. 2352 bytes are used per block.

#### Audio (Preemphasize)

You rarely require this track type. However, there is a type of audio data that differs from standard audio data. CD players can use this data to attain a higher quality. MakeCD will not use this



setting for playing the data (it is played as normal audio data). If you burn a track with this type, 2352 bytes per block are used.

#### Mode 2 Form 1

This track type is used for normal data on CD-ROM/XA-CDs. This mode is similar to 'Datatrack (Mode 1)'. 2048 bytes are used for each block.

#### Mode 2 Form 2

This mode is suitable if error correction is not required (e.g. with audio or video data). 2328 bytes are used per block.

#### Mode 2

This enables you to mix mode 1 and mode 2 blocks. A sub-header in each block indicates which form (1 or 2) the block was created with -- if the block has a particular form. The sub-header can be omitted, leaving 2336 usable bytes per block. This mode is rarely used.

The source must transfer data in the correct form, which you define in 'Track type'. MakeCD often recognizes the required track type itself, in which case it will set the type for you.

Under 'Pause' you enter how much longer the pause between tracks should be on top of the technical minimum. Note that in some cases the pause length cannot be changed -- such as with Track-At-Once mode. If you want to create an audio CD without pauses between tracks, you need to use the Disc-At-Once version of MakeCD. Even with DAO, there will be a small pause between a data and an audio track.

'ISRC' (International Standard Recording Code) identifies audio tracks. It consists (in this order) of a country code, an owner code, the year of recording and a serial number. These fields are often left blank.

## 1.93 MakeCD.guide/MITTI

### Indices

.....

You can set indices within the track markings for audio CDs, which you can then use for targetted jumping with some quality CD players. If you write in Disk-At-Once mode (some writers support this feature with TAO mode too), you can set these markings when the music is played by MakeCD, or you can manually enter it in the list in the Track Options Window. There are always two indices: one at the start of the song and another in the first block of the pause after the track. It is possible to add up to another 98 indices in between.

You can add new indices using 'New' in the Index List. You can remove indices from the list with "Remove". The position of an index is changed using "Index Entry Field". "Read from Source" causes MakeCD to read the indices from the source and automatically enter them in the list.

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## 1.94 MakeCD.guide/MIF00

### Advanced Options

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If you click on 'Advanced Options...' in the Main Window, another window opens so that you can enter some global options -- such as Disc-At-Once oder Track-At-Once.

Base Dir	Current directory for files
Start block	First free block on CD-R
Catalog Number	UPC/EAN Number
Write mode	Disc-At-Once or Track-At-Once
Data Format	"Raw" or "cooked" data
Audio CD Start	First block number for audio CDs.

Choose the Settings then close the window with 'OK'.

## 1.95 MakeCD.guide/MITFB

Base Dir

.....

'Base Dir' defines the directory where the image files are created. Simply enter the directory.

This is particularly useful if you want the image files for each CD to use their own directory. If you specify this path before you create the track list, selecting the filenames for the image files is much quicker.

This option is particularly useful for CDs containing many tracks, e.g. music CDs.

## 1.96 MakeCD.guide/MITFS

Start block

.....

In most instances, 'Start block' does not have to be selected. It is only required when you need to create image files for Multisession/Multivolume CDs. In needs be, MakeCD makes an enquiry before creating the image file in order to calculate the start block automatically.

'Start block' is the block on the CD-R that should be written next. For

---

an empty CD, this value is 0. If the CD already contains data, it is a positive value. Set the track type for the first track, insert the CD-R in the writer and activate the popup gadget -- MakeCD will determine the next block that can be written (i.e. the start block). The track type of the first track to be written must be correctly set first because the start block of the track type can depend on the track type of the first track.

Actually, 'Startblock' need only be filled in correctly if you want to create an image file for a CD-R which already contains data and if you do not have this CD-R at hand or if you do not have a CD-burner at hand. The value that you enter under 'Start block' is only used by MakeCD if you click on Create image file(s) and not if you want the image files created automatically via 'Write tracks'.

If you have the target CD-R and CD-ROM drive (but no burner), MakeCD can use the CD-ROM drive to calculate the start block if the session was fixed after the last track on the CD-R. Otherwise the CD-ROM drive will an incorrect value.

Wenn Ihr Freund die CD-R, zu der Sie Daten hinzufügen wollen, gerade besitzt, können Sie ihn anrufen und bitten, Ihnen den korrekten Startblock mitzuteilen. Dann können Sie sogar ein Multivolume-Image erzeugen, ohne die CD-R wirklich in den Händen zu halten.

Note that MakeCD automatically uses the correct start block if the CD-R is available and you click on 'Write tracks'. In this case, the start block entered by the user is ignored.

When you call 'Create image files', the value entered for 'Start block' is used or the user is asked which CD-R the image is intended for.

MakeCD will warn you should you try creating an image file with the wrong start block. So long as you do not ignore the warning, you have little to fear!

## 1.97 MakeCD.guide/MITFC

Catalog Number  
.....

You can enter a 'catalog number' with 13 digits to identify the entire CD in accordance with the UPC/EAN codes.

Some CD writers let you set the catalog number in Track-At-Once mode, but other drives permit this only in the Disc-At-Once mode. Check the Device Selection Window (the window in which you choose the settings for your CD writer) to see if your drive can set the catalog number in TAO mode too.

## 1.98 MakeCD.guide/MITFW

### Write Mode

.....

'Write Mode' determines whether the CD is written in 'Disc-At-Once' or 'Track-At-Once' mode. If your writer also supports 'Session-At-Once' and you would like to burn in this mode, set 'Write mode' to 'Disc-At-Once'. Then, set 'Fixation' to 'Session'. Please note that you can only burn properly in DAO mode if you have either registered as a private user of DAO, or if you have chosen one of the higher registration classes.

### Track-At-Once

Each track is written separately. The data stream can be removed between writing the tracks. The CD can even be removed from the drive. In other words, the CD can be burnt in several sittings.

If the datastream is interrupted during burning, only the last track written is affected. You can fix the CD or carry on writing to it.

If you are using Track-At-Once, MakeCD can create image files separately, creating then deleting the file before the next image is required. This means that only one image file will be on the hard drive at a time, vastly reducing the storage space required. For this mode, set 'Delete file' (in the Track Options Window) to 'Immediately'. Then, click on 'Write tracks...'. MakeCD will take care of the rest for you.

### Disc-At-Once

(Also Burns Session-At-Once)

You must be registered for Disk-At-Once if you want to burn properly with Disc-At-Once. An additional fee is required for owners of the private user version. If you are not registered for Disc-At-Once you can try it out in test mode.

Please note that DAO only works if it is supported by the driver that you use for your CD writer. Not all of the MakeCD drivers support DAO. If you select your driver in the Device Selection Window, a separate region shows the features of the selected driver.

Even if your MakeCD driver supports DAO, your writer may or may not support DAO. Sony drives in particular may no longer support DAO. Come to your own conclusions as to why!

With DAO, the entire CD is burnt in one go. This enables you to avoid pauses between two audio tracks. The CD must be empty prior to burning, and the CD will be fixed at the end of the of the process. Some CD writers additionally support 'Session-At-Once'. This mode requires an empty session. After burning, only the session is fixed, not the entire CD-R. Please note that not all CD writers support this mode.

Disc-At-Once or Session-At-Once mode lends MakeCD more control in

terms of where tracks start and how the data is written within the track. This enables a more precise copying of a CD than is possible in Track-At-Once mode.

## 1.99 MakeCD.guide/MITFD

### Data Format

.....

The 'Data Format' setting only refers to burning in Disc-At-Once mode. If you are using DAO, this determines the format in which MakeCD sends data to the burner or the format for the image files.

Some CD writers support only one of the two formats. If this is the case, the setting will be ignored on burning. Image files, on the other hand, will be created with the selected format.

If you wish to know which formats your CD writer (or the MakeCD driver for your CD writer), go to the Settings window and open the Device Selection Window for your drive. You will find details there about the driver's features.

You can use 'Data Format' to set the following options:

### Format of the Writer

This is the default setting. MakeCD will use the format that your CD writer supports, usually 'Cooked User Data'. If the writer does not support this, 'Raw Block Contents' is used.

If you are unfamiliar with DAO, use this setting to ensure good results.

### Raw Block Contents

This transfers each block including the management, checksum and error correction data. For example, a data block will transfer 2352 bytes instead of just 2048 bytes. If you would like the copied CD to be as identical as possible to the source CD, use this mode -- the management data will then be copied from the source CD rather than be recalculated.

If you attempt to create a data CD in DAO mode and you have selected 'Raw Block Contents', MakeCD then has to calculate the check sums and error corrections itself. The time needed for these calculations is very considerable, so we thoroughly recommend that you try the test mode first to avoid a buffer under-run and faulty CD. Reduce the speed down to single if necessary or use an image file for the affected tracks.

## 1.100 MakeCD.guide/MITFA

---

Audio CD Start  
 .....

If the first track of a session is an audio track, it does not have to start at the first free block of that session. For example, many commercial audio CDs begin at block 32 or 33 (you can observe this in the Target CD-R Window). This setting determines how much space is left in front of the first audio track. The default setting is 0.

## 1.101 MakeCD.guide/MII00

Description of ISO Options  
 =====

If you want to create your own data CD, you need to create a data track, then set the source for the data track to 'File system' as described in Track options.... You then need to activate the popup gadget. This section describes how to proceed once the subsequent window opens.

You will see a list to the left within the window that appears. Under the list are options relating to the entry that is highlighted in the list. To the right are the global options. The global options refer to the entire data track.

Sources	Data which is recorded in the image
New	New, additional data source
Remove	Remove data source
Up	Move data source up
Down	Move data source down
Type	Type of the data source
Image path	Path in the ISO image for the data source
Volume name	Data carrier name of the ISO image
System ID	System ID
Preparer	Preparer of the data CD
Publisher	Publisher of the data CD
Copyright	Copyright of the data CD
Abstract	Abstract of the data CD
Bibliography	Bibliography of the data CD
ISO/Rock Ridge	ISO and Rock Ridge Options
Boot Settings	CDTV and MS DOS Boot Options

## 1.102 MakeCD.guide/MIISR

Sources  
 -----

There is a list titled 'Sources' in the top left of the ISO image prefs

---

window. This list contains all the sources that are to appear in the image. The sources can be path names or tracks from the CD-R with "Multisession Merging". You can also pass a list saved in a file which defines all the objects to be burned.

The sequence of the entries in this list is only important if the same filename appears more than once. If this is the case, you can decide if the file that occurs first in the source should be used (all subsequent files with the same name will be ignored).

You can add and delete entries using the gadgets that belong to the list. You can also define on a per-entry basis whether you want to add a path from the hard drive or a track from the CD-R (use the popup gadget).

### 1.103 MakeCD.guide/MIINW

New

---

'New' adds a new source to the ISO image. Remember to set the type of the source.

### 1.104 MakeCD.guide/MIIRM

Remove

-----

'Remove' removes a source from the image. The source is taken out of the list and the data specified there is no longer recorded into the image.

### 1.105 MakeCD.guide/MIUP

Up

--

'Up' moves the marked entry up the list. If there is a name collision when the sources are searched, the object that is specified first in the source will be recorded into the ISO image (after an inquiry).

### 1.106 MakeCD.guide/MIIDW

Down

----

'Down' changes the sequence of the source entries by moving the marked entry down the list. 'Up' moves the marked entry up the list. If there is a name collision when the sources are searched, the object that is specified first in the source will be recorded into the ISO image (after an inquiry).

## 1.107 MakeCD.guide/MILTY

Type

----

Use the 'Type' gadget to specify the type for each source in the source:

File System

Data is to be taken from the hard drive (either a directory including all subdirectories and files, or a single file) and recorded into an ISO image.

If you set a source as type 'File system', you must enter a file or directory in the text gadget below. You can alternatively select the file or directory using the file selection window.

Only the content of the directory (or file) that you have selected will be recorded into the ISO image. The structure within a directory is preserved, but the path in front of the directory (or file) is not preserved.

CD-R Track

Use the popup gadget to select the track that you wish to record into the ISO image. You can record more than one track from the same CD into the ISO image.

Please note that the sequence of the sources is important. If files from the hard drive should have precedence over files with the same name that have already been burned, cite the CD-R track after the files from the hard drive.

For example, if you burn a data CD in four sessions and you would like to have access to all the data in each session, when you create a new ISO image, simply record the last track that was burnt into the image. This will make all the data on the CD visible. If you forget to do this once, e.g. if you did this for track three but forgot to do this for track four, do not worry. Simply record both track three and track four into the next image (track five). If there is no new data in the new image, the track will take only seconds to write and uses a minimum of storage space on the CD. However, fixing the session will, as usual, cost about 13.5 MB.

File list

---



Sometimes you want to burn numerous files which are split amongst many directories on the hard drive (i.e. they are all over the place!). In this case, you should burn using a 'File list'.

When selecting this option, you pass MakeCD a file containing the names of all the files that you wish to burn.

Each line in the file list contains the name of a file. If the file is 200 lines long, 200 files will be recorded into the ISO image.

The files are read from the cited filenames and are written again with the same path. Only the part in front of the first colon (if there is a colon) is ignored. For example, 'Workbench:SYS/Format' would be recorded into the ISO image as 'SYS/Format'.

If you do not want the entire path to be burnt, use an assign: 'Assign PATH: DH0:Tools'. If you were then to put 'PATH:RDB-Salv/RDB-Salv.info' into the file list, the file 'DH0:Tools/RDB-Salv/RDB-Salv.info' would be recorded into the image as 'RDB-Salv/RDB-Salv.info'.

Sometimes you want to completely rename the file and/or the file path. Again, you can use the file list for this purpose. If you enter two colons after the file name in the same line, you can then enter the new name immediately after the colons. 'DH0:Tools.info::HD-Stuff/Utilities.info' would record the file 'DH0:Tools.info' into the image with the new name 'HD-Stuff/Utilities.info'.

An example file list:

```
DH0:Disk.info
PATH:RDB-Salv/RDB-Salv.info::Save/RDB-Salv/RDB-Salv.info
MakeCD
```

The list command that is located in your C directory is very adept at creating such file lists. E.g. 'List DH0:Tools LFORMAT "%p%n::Utilities/%n"'.

On the other hand, 'File list' has a few disadvantages too in comparison to 'File system':

- Each object in the file list required significantly more memory for creating the file tree.
- With 'File list', the directories are created from scratch and are not copied. 'File system' simply copies the directories. The implications are that 'File list' does not preserve attributes such as protection bits, directory data and comments.

In view of this, try to use 'File system' rather than 'File list'.

---

## 1.108 MakeCD.guide/MIIPA

Image path  
-----

One problem faced when an ISO image is created using several sources is name collision. MakeCD offers you a way to ensure that collisions do not occur in the first place. Each source can be placed into its own directory. Simply activate the check box for 'Image path' and enter the name of the directory to be created. The corresponding object will be copied into the directory that you entered. For example, if you have four sources, you can avoid name clashes by using four different directories.

## 1.109 MakeCD.guide/MIIVN

Volume name  
-----

You will want to give your data CD a name that will represent the disc on the Workbench. If you have a registered version of MakeCD, you can enter this name under 'Volume name'. Otherwise, the name for your data CD will be 'UNREGISTERED'.

The name usually consists of upper-case letters, digits and the underscore only (any other characters are not accepted). However, if you create an ISO Level 'AMIGA' CD, MakeCD will accept other characters. However, please note that such a CD may lead to problems on machines other than 'AMIGA'.

## 1.110 MakeCD.guide/MIISI

System ID  
-----

You can enter the name of the system that the ISO image was created for under 'System ID', e. g. 'AMIGA'. Only upper-case letters, digits and a few other characters are permitted. Illegal characters cannot even be entered.

## 1.111 MakeCD.guide/MIICR

Preparer  
-----

Enter your own name under 'Preparer'. The name that you enter can

---

consists of upper-case characters, digits and a few special characters only. You do not have to fill in this field -- most people are not interested in this field anyway!

Rather than enter your name, you can select a file from the root directory of the ISO image that contains your name. In this case, set the cycle gadget from 'Text' to 'File'.

### 1.112 MakeCD.guide/MIIPB

Publisher  
-----

You can only change the text for 'Publisher' if you registered for the commercial version of MakeCD. You are only permitted to distribute copies of a CD if you have the commercial license for MakeCD. You should enter the name of your company here. Only upper-case letters, digits and a few special characters are accepted.

Rather than enter the name of your company, you can select a file from the root directory of the ISO image that contains the name. In this case, set the cycle gadget from 'Text' to 'File'.

### 1.113 MakeCD.guide/MIICO

Copyright  
-----

Click on 'Copyright' if you want to select a file on the root directory of the ISO image that contains the copyright information.

You do not have to fill in this field. Most people do not read this field anyway.

### 1.114 MakeCD.guide/MIIOV

Abstract  
-----

Click on 'Abstract' if you want to select a file on the root directory of the ISO image that contains an overview.

You do not have to fill in this field. Most people do not read this field anyway.

---

## 1.115 MakeCD.guide/MIICT

### Bibliography

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Click on 'Bibliography' if you want to select a file on the root directory of the ISO image that contains a bibliography.

You do not have to fill in this field. Most people do not read this field anyway.

## 1.116 MakeCD.guide/MIIIR

### ISO/Rock Ridge...

-----

If you click on 'ISO/Rock Ridge...', a window opens in which you can enter the ISO- and Rock Ridge options. For more details on these options, see ISO/Rock Ridge.

## 1.117 MakeCD.guide/MIR00

### ISO/Rock Ridge

=====

Make sure that you have correctly set the ISO 9660 and Rock Ridge options so that your data CDs are burnt for optimum results. Click on 'ISO/Rock Ridge...' to open a window in which you can set some of the ISO and Rock Ridge options.

If you own a Meeting Pearls CD (I to IV) and you are happy with the operation of the CD on your system, you can select the options used to create that CD by menu. Meeting Pearls CD (I to IV) all used the same options. Other CDs used slightly different options.

#### Sort Order

New

Remove

Rock Ridge

World access

Group access

'AMIGA' File Attributes

ISO Level

Convert .info suffix to lower case

Convert ISO names to upper case

#### Save files together

New entry for sort order

Remove entry from sort order

Turn on Rock Ridge Extensions

Rock Ridge: Open World access

Rock Ridge: Open Group access

Rock Ridge: Write 'AMIGA' attributes

Choose the ISO level

Convert .info to lower-case

Convert ISO names to upper-case

## 1.118 MakeCD.guide/MIRSO

Sort Order  
-----

The 'Sort Order' list enables you to write files that have the same ending to the same region in the ISO image. Once the first file with the ending has been read, the CD-ROM drive can usually access the other files very quickly.

Perhaps you have noticed that CDs which were created using MakeCD (admittedly other mastering programs too) soon display their icons in directories, much faster than you would expect. Although a CD-ROM drive requires between about 1/10th and 2/10ths of a second to access a file, a directory with 20 icons tends to be displayed in less than 2 to 4 seconds. This is because MakeCD usually saves all '.info' files in the same region, so that, once the first '.info' file has been accessed, the following '.info' files are copied into the cache so that they can be loaded rapidly.

The 'Sort Order' list contains the suffixes of the files that you wish to be saved together in the same region. For example, if you want '.html' files to be loaded quickly too, add '.html' to the list.

The default is '.info'.

## 1.119 MakeCD.guide/MIRNW

New  
---

'New' enables you to add a new entry to the list.

## 1.120 MakeCD.guide/MIRRM

Remove  
-----

'Remove' removes the selected entry from the list.

## 1.121 MakeCD.guide/MIRRR

Rock Ridge  
-----

Rock Ridge extensions will be written in the image if you turn on this

---

option. CDs with Rock Ridge extensions can be read on any file system that supports ISO 9660. If your system supports Rock Ridge, you can benefit from a few additional features such as Multiuser Flags, AMIGA File Attributes or full file names (even if the CD was mastered with ISO 9660 Level 1 or 2).

We recommend that you use this option.

AmiCDFS, AmiCDROM, CacheCDFS, BabelCDROMFS and AsimCDFS (at least the latest version) support Rock Ridge.

CommodoreCDFS (included with OS 3.1) does not support Rock Ridge, i. e. it does not allow you to use the additional features if you use Rock Ridge. However, the CD can be read if you do turn on Rock Ridge.

## 1.122 MakeCD.guide/MIRWA

World access

-----

If you have turned on Rock Ridge, Multiuser Flags are written in the image. The 'World access' option ensures that the 'World' user group receives the same access privileges as the owner.

This option can be useful if you would like the CD to be used under Unix.

## 1.123 MakeCD.guide/MIRGA

Group access

-----

If you have turned on Rock Ridge, multiuser flags are written to the image. The 'Group access' option gives the 'Group' users the same access privileges as the owner.

This option can be useful if you would like the CD to be used under Unix.

## 1.124 MakeCD.guide/MIRAA

'AMIGA' File Attributes

-----

If 'Save 'AMIGA' File Attributes' is selected, AMIGA Protection bits and AMIGA file comments are recorded into the image.

If these attributes are important for you, turn on this option.

Please note that you need a CD-ROM file system that supports AMIGA File Attributes to see the attributes.

The following AMIGA CD-ROM file systems support AMIGA attributes:  
AmiCDFS 2.30 or higher, AsimCDFS 3.7 and CacheCDFS (from the IDEfix '97 Package).

## 1.125 MakeCD.guide/MIRIL

ISO Level

-----

A number of limitations are involved with ISO 9660 file and directory names: only upper-case characters, digits and the underscore '\_' are permitted. There must be one and one dot only in a file name; directory names themselves cannot contain the dot character. File and directory names cannot exceed 31 characters in length.

You can ignore this standard if you select 'ISO 9660 AMIGA'. This is because all 'AMIGA' CD-ROM file systems that do not support Rock Ridge (e.g. Commodore CDFS, included with OS 3.1) do not work well under these restrictions. CDs that have been created using this options will still work on most systems. However, since MS-DOS systems can have problems reading such CDs, use this option with care.

ISO 9660 Level 1 creates file names that are fully compatible with MS-DOS systems. Names are reduced into the 8.3 format.

ISO 9660 Level 2 does not convert to the 8.3 format. However, all other restrictions above apply.

If your file system supports 'Rock Ridge', the level that you enter here is of little concern, since your file system will display the Rock Ridge names anyway. However, if you intend to pass on the CD to other users, you should consider which option is the best one to select.

We recommend that you use 'ISO 9660 AMIGA' if the CD is exclusively for the AMIGA. If you want the CD to be readable on MS-DOS systems too, use ISO 9660 Level 1 with Rock Ridge extensions.

## 1.126 MakeCD.guide/MIRSC

Convert .info suffix to lower case

-----

This option instructs MakeCD to convert '.info' files to lower case -- in the ISO part of the image too.

Workbench 1.3 will not display icons unless they end exactly in ``.info'`. For example, WB1.3 will not show icons for ``.INFO'` or ``.Info'`. This option will ensure that all ``.info'` suffixes are lower-case only. You only need to use this option if you would like the CD to be readable under Kickstart/Workbench 1.3 or on the CDTV.

## 1.127 MakeCD.guide/MIRBC

Convert ISO names to upper case

-----

Turn on this option if you do not want reduced file names to be saved under ISO 9660 but you would like to make the CD easier to read under MS-DOS. All ISO names will be converted to upper-case. All other invalid characters remain unaffected. This option merely converts a-z to A-Z. Your 'AMIGA' will show names predominantly in upper-case, but at least the CD can be used under MS-DOS -- even though not all files are guaranteed to be accessible. Schatztruhe GmbH uses this option for many of their CDs.

If you turn on Rock Ridge too (like Schatztruhe GmbH), you will see the full Rock Ridge names if you are using a file system that supports Rock Ridge. The Rock Ridge names themselves will not have been converted.

CDs that have been written with this option can be read problem-free on the AMIGA and are more compatible with MS-DOS than an 'ISO 9660 AMIGA' CD that was written without this option. And if you do turn on Rock Ridge, AMIGA users who are using a file system that supports Rock Ridge will be unable to tell the difference. If you do not turn on Rock Ridge, or if the target system does not support Rock Ridge, names will be in upper-case.

## 1.128 MakeCD.guide/MIIBO

Boot Options...

-----

Clicking on 'Boot Options...' opens the window described in Boot Options. This enables you to make the ISO image bootable under CDTV/CD32 or MS-DOS computers. You can usually leave the boot options turned off.

## 1.129 MakeCD.guide/MIB00

Boot Options

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If you click on 'Boot Options...' in the ISO Settings, a 'Boot Options' window opens in which you can make CDs bootable under CD32, CDTV or MSDOS.

MS-DOS Boot Settings	Boot under MS-DOS
CDTV/CD32 Boot Settings	Boot under CD32 and CDTV

## 1.130 MakeCD.guide/MIB32

CDTV/CD32 Boot Options

-----

Activate 'Add CDTV settings to image' if you want the CD to be bootable on the CD32 and/or CDTV.

The Commodore documentation as to the meaning of 'FL nodes', 'FH nodes', 'Retries', 'Fast Search', 'Data cache', 'Dir cache', 'Speed Index' and 'Direct read' is somewhat vague. Nonetheless, MakeCD permits you to change these values. By all means tinker with these options and judge how they affect performance on the CDTV/CD32. You can usually leave the values as they are.

It is important that you chose a correct trademark file, otherwise the CD will not boot. Trademark files can be found on the AMIGA Developer CD v1.1 in the 'CD32/ISO9660Tools\_V1.04/ISOCD' directory. Choose either 'CDTV.TM' or 'CD32.TM'. Please note that these files cannot be included with MakeCD due to license rights.

## 1.131 MakeCD.guide/MIBDS

MS-DOS Boot Options

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Activate 'Make Bootable Under MS-DOS' if you want your CD to be bootable under MS-DOS. Note that you will require an 'MS-DOS Image File' to boot from.

'Mediums-Emulation' sets which the medium type under which this MS-DOS image file is to be emulated. Set this value bearing in mind the medium with which you created the MS-DOS image file.

You may be wondering how to create an MS-DOS image file. The authors of MakeCD are faithful to the AMIGA and do not have MS-DOS computers! However, a kind beta tester has the following advice for you:

1. Create a bootable floppy on the PC. The floppy must contain a CD-ROM driver and CD extensions. Test the floppy. Write-protect the floppy to ensure that it is not written to during the boot process. If the floppy works and no error messages appear, the

floppy can be used as a boot image. Use relative path names, otherwise the boot image could be identified as your floppy drive!

2. Make an image file from the floppy. For the 'AMIGA', you can proceed as follows:

- Download 'dev\_hdl.lha' from Aminet and install it ('mount dev:').
- PC0: register ('mount PC0:')
- 'Copy dev:pc0 RAM:osboot.img' This creates a file called 'RAM:osboot.img'. This file is your 'MS-DOS Image File'.

A similar process should work for the PC with 'Norton DiskEdit'.

## 1.132 MakeCD.guide/MID00

Description of ISO Write Window

=====

In order to create an ISO 9660 image, MakeCD needs to search the source path that is to be recorded in the image. A window opens, showing you the search action performed by MakeCD. This window is called the ISO Write Window.

In the upper region of the window, under Path Search, you are shown how many files and directories have been searched.

In the lower part of the window, under 'Directory/File', you are shown which file/directory is currently being checked. The display is updated between one to five times per second, so not every file will appear here. This saves considerable processor time.

Once scanning has been completed, the total size of the ISO image is calculated and displayed under 'Image File Size'. MakeCD then prepares the ISO image and starts to write it. 'Writing ISO Image' shows how many files/directories have been written as well as the corresponding percentage that this represents. 'Directory/File' will show you which file is currently being written to the ISO image.

You can abort the entire operation at any time. This will cause MakeCD to quit with the error: 'User Abort'.

## 1.133 MakeCD.guide/MIW00

Description of Write Window

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The Write Window opens when you create an ISO image, burn a track or play audio data. This window helps you to control the process and shows you the current state. There is also useful information about the buffer, source and target.

The following options are not always present in the Write Window. For example, there are a number of options for playing audio data that are not available when writing tracks.

Note that you can save the state of all gadgets at any time via the menu.

Please note that when you play audio data some of the gadgets demonstrate a slight delay between their activation and resultant affect. The size of this delay depends on the chunk size that has been set.

#### Top Part Of Window:

Buffer	Fill state of buffer
Source	Information regarding the data source
Target	Information regarding the target
»Transfer rate	Transfer rate of source and target

#### Lower Part Of Window:

Current Activity	What is currently happening
Current track	Number of the current track
Writing time	Elapsed time so far
Status Display	List with messages

#### Action Buttons:

Start	Start of data transfer
CD-R Contents	Read table of contents (when burning)
Update	Update CD writer (when burning)
Abort	Abort data transfer

#### Additional Options For Writing:

Write mode	Test mode or write for real
Fixate	Session, CD-R or not at all

#### Additional Options For Playing Audio Data:

No lowpass filter	Turn off lowpass filter
Volume	Volume for playing audio
100% Pause	Pause for playing audio
Current index	Index which is now playing
Add index now	Set new index

## 1.134 MakeCD.guide/MIWBU

Buffer  
-----

The 'Buffer Display' shows you the size of MakeCD's internal buffer. Do not confuse this buffer with the buffer that is built into your CD

---

writer! Your writer's buffer will not be shown in the Write Window. Even when MakeCD's buffer is empty, the buffer for your CD writer could be full!

You can alter the size of the buffer for MakeCD in the Settings window. MakeCD will use this value as a recommendation only. MakeCD may opt for a smaller buffer size or even a larger buffer size.

If you notice that the buffer is almost constantly full, you can change the value later in the Settings Window.

If on the other hand, the buffer is almost always empty during the write process, perhaps you have turned off reselection for the CD writer or turned on 'Parallel read/write' in the Settings. You can reduce the buffer size in the settings, since the majority of the buffer is not being used.

### 1.135 MakeCD.guide/MIWSR

Source

-----

The Write Window lists some useful information about the data source under 'Source'. To the top left you are informed of the track which is currently being worked on. You are also informed of where the data is coming from. To the right of this you are shown the current transfer rate. As described in Transfer rate, this value does not always show the true transfer rate!

The progress display below shows you the percentage of the source that has been read as well as the corresponding number of bytes.

### 1.136 MakeCD.guide/MIWTG

Target

-----

'Target' in the Write Window contains useful details about the data target. Towards the top left, the track that is currently being worked on is shown. You are also shown where the data is coming from. To the right of this is the current transfer rate, which, as described in Transfer rate, does not always show the true value.

The progress display below shows you the percentage of the target that has been read as well as the corresponding number of bytes. If you play audio, you can even change the progress display yourself, in which case MakeCD jumps to the corresponding position and continues to play from there.

### 1.137 MakeCD.guide/MIWTR

Transfer rate  
-----

'Transfer rate', which is present in both the Source and Target windows, often shows a value higher than the technical maximum for the drive! This is not a bug in MakeCD; neither is your drive somehow faster than the specifications! Rather, this is a technical phenomenon relating to your drive's buffer.

For example, this effect can arise if the CD-ROM drive fills its internal buffer (without your knowledge!) with the next sectors while the burner is writing the data. When MakeCD requests the next data from the CD-ROM drive, it receives the data extremely quickly -- directly from the CD-ROM drive's buffer. MakeCD is not told whether this data has been sent from the buffer or read afresh, so MakeCD has to show simply the time it took to receive the data from the drive. For this reason, the transfer rate shown may at times be higher than the speed of your CD-ROM drive!

### 1.138 MakeCD.guide/MIWAT

Current track  
-----

'Current track' lets you jump from one track to another. If the track is being burnt or if the image files are being created, this gadget will show the track that is being worked on.

### 1.139 MakeCD.guide/MIWAA

Current Activity  
-----

'Current Activity' contains a short description of what MakeCD is up to. You should look at this line whenever you are not sure what MakeCD is doing. This line shows the last relevant line of the status display.

### 1.140 MakeCD.guide/MIWWD

Writing time  
-----

'Writing time' shows the amount of time MakeCD has spent writing the

---

data. When playing music data, this display is called 'Play Time', and it then describes how much time has been spent playing the data.

### 1.141 MakeCD.guide/MIWSL

Status Display

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There is a display towards the bottom of the window which shows you messages from time to time. The messages keep you informed of what MakeCD is currently busying itself with.

If, after clicking on 'Abort', a message appears here telling you that the program is waiting for IO to end, this means that your drive has not yet responded to all the read or write requests. This can be due to an error with your device or SCSI interface. There is nothing that we can do about this!

### 1.142 MakeCD.guide/MIWST

Start

-----

Clicking on 'Start' will initiate data transfer.

### 1.143 MakeCD.guide/MIWCC

CD-R Contents

-----

Clicking on 'CD-R Contents' will list the content of the CD that is currently in the CD writer in the Status Display.

### 1.144 MakeCD.guide/MIWAC

Update

-----

CD writers usually remember tracks that you have burnt in test mode. If you wish to burn a CD bit by bit in test mode, this makes sense. However, it can also have side-effects. If this is the case, you can make your writer forget the tracks that it burnt in test mode by clicking on 'Update'.

---

If you want to burn a CD for real, MakeCD automatically sends this command before burning commences.

However, if you want to burn several times in test mode, and each time you wish to start with an empty CD-R, you need to click on 'Update'. Otherwise, the writer will think that the tracks you burnt in the preceding tests still exist. You can check the content by clicking on 'CD-R Contents'.

## 1.145 MakeCD.guide/MIWCL

Abort  
-----

You can abort the process by clicking on 'Abort'. For safety, you are requested to confirm the abort. The process will continue until you have responded to the confirmation request and confirmed the abort.

## 1.146 MakeCD.guide/MIWWM

Write Mode  
-----

When burning a CD you can set the 'Write mode' before the write process begins.

Test mode On

The CD-R will be written in test mode. No permanent changes are made to the CD-R.

Test mode \_Off\_

The CD-R will be written for real. All changes are permanent.

Write After Test

The CD is written for real after a successful test run. You can start the progress, then go away to return later, safe in the knowledge that the CD will only be burnt if the test run succeeded. There is a minor possibility that the test run will work but the real burn fails, but this cannot be avoided!

## 1.147 MakeCD.guide/MIWFX

Fix  
---

The session of CD-R can be fixed automatically once the tracks have

---

been written without error. Set the 'Fix' gadget as required. Be sure to read Target CD-R Window and Fix CD-R Or Session.

No

Fixation is not automatic.

Session

The session is fixed automatically following a successful write process.

CD-R

The CD-R is fixed automatically following a successful write process.

## 1.148 MakeCD.guide/MIWLF

No lowpass filter

-----

'No lowpass filter' turns off the lowpass filter of your 'AMIGA' when audio data is played. This improves the music quality, although it can lead to distortions with poor quality loudspeakers.

## 1.149 MakeCD.guide/MIWVL

Volume

-----

'Volume' controls the volume of the music output. Values above 100% over-modulate the music.

## 1.150 MakeCD.guide/MIWPS

Pause

-----

'Pause' pauses the playing of audio data. If you deactivate Pause, MakeCD starts playing the music again from the previous position.

## 1.151 MakeCD.guide/MIWAI



Current index  
-----

'Current index' enables you to jump between indices within the current track. The premise is that the MakeCD project is aware of the indices, i.e. MakeCD needs to scan the indices first, or the indices need to have been manually added to the project.

## 1.152 MakeCD.guide/MIWNI

Add index now  
-----

'Add Index Now' adds a new index to your project. A new index will be recorded for the position that MakeCD is currently playing. However, the index is not always set to the exact same position due to technical limitations.

## 1.153 MakeCD.guide/MIZ00

Description of Target CD-R Window  
=====

The main purpose of the Target CD-R Window is to show which tracks and sessions have already been written to the CD. In addition, you can also fix the last session or the entire CD, as well as repair CDs and delete CD-RWs.

The Target CD-R Window can be reached via the Tools menu. If you have just burnt in test mode, the tracks that you burnt are also shown. If you want to see only those tracks which have really been burnt to the CD, click on 'Update'.

Read ISRCs	Read International Standard Recording Code
Update	Forget all tracks burnt in test mode
Save Contents	Save table of contents in file
Medium type	Type of the medium inserted
Catalog Number	Catalog number of the inserted medium
Table of contents	Table of contents for the CD/CD-R/CD-RW
Used space	Occupied space on the CD
Free space	Free space on the CD
CD-R status	Status of the CD
Fix CD-R	Fix CD -- No further changes
Fix Session	Fix session
Repair CD-R	Repair CD if defect

CD-RW Erase

Erase CD-RW

Once you have informed yourself about your target CD-R and possibly fixed or repaired it, leave the window via its close gadget.

### 1.154 MakeCD.guide/MIZIR

Read International Standard Recording Code

-----

An ISRC (International Standard Recording Code) can be saved for each audio track by activating 'Read ISRCs'. This process will take noticeably longer than simply reading the track, since each audio track must be controlled separately to read the ISRCs.

The ISRC for each audio track is shown at the end of the line. If MakeCD is unable to determine if a track has an ISRC or not, a question mark is shown.

If you always want the ISRCs to be shown, turn on 'Read ISRC' and save the current gadget state via the menu.

### 1.155 MakeCD.guide/MIZAC

Update

-----

CD writers usually remember the tracks that you have burnt in test mode, hence you are able to see these tracks in the Target CD-R Window. Sometimes, you don't want this to happen. If that is the case, click on 'Update' so that the CD writer forgets all the tracks that have been written in test mode.

Sometimes the CD writer will not register a CD change. Clicking on 'Update' can help in this instance too.

### 1.156 MakeCD.guide/MIZSC

Save Contents

-----

Sometimes it is helpful to have the table of contents for a CD in the form of a file -- e.g. to help print a label for the CD-R.

'Save Contents' saves the contents shown in the Target CD-R window to a file.

---

## 1.157 MakeCD.guide/MIZMT

Medium type

-----

If your CD writer supports media type recognition, 'Medium type' shows the type of medium inserted, and possibly the type of tracks that are on the medium.

However, some drives do not support the reading of the medium type.

## 1.158 MakeCD.guide/MIZCN

Catalog Number

-----

'Catalog Number' shows the explicit description of the CD -- not all CDs or CD-Rs have this.

## 1.159 MakeCD.guide/MIZCT

Table of contents

-----

'Table of contents' shows all the tracks and sessions burnt on the CD -- sometimes it will also show tracks that have been burnt in test mode.

Each track is displayed on its own line. The line consists of the track number, the track type, the length of the track in minutes and megabytes, the block addresses for the start and end of the track and, if applicable, the ISRC.

Sessions are indicated with horizontal lines. After the last session line, you are informed if the session or the entire CD-R has been fixed.

## 1.160 MakeCD.guide/MIZUS

Used Space

-----

'Used Space' shows the data (in minutes) that has already been saved to the CD/CD-R. Two values are shown. The first value is the sum of the track lengths. This value does not include the data that is lost due to inter-track pauses or session boundaries, only the amount of your data that has been saved. The second value declares the entire space that has been used on the CD-R, inclusive of pauses and sessions.

---

## 1.161 MakeCD.guide/MIZFS

Free space

-----

'Free space' shows the amount of space free on the CD-R. You can write to the CD-R until 0 bytes are free. Even then, there is stirtcly speaking still some storage space left, but this is reserved for the lead-out.

If you add the free and used space together, under certain circumstances you can arrive at a value that is 2-3 seconds out from the real length of the CD. This difference is normal and can be ignored.

## 1.162 MakeCD.guide/MIZCS

CD-R status

-----

'CD-R-Status' shows if the CD-R is okay or not, provided that your drive supports this information.

## 1.163 MakeCD.guide/MIZCF

Fix CD-R

-----

A mouse click on 'Fix CD-R' fixes the entire CD-R. Once the entire CD-R has been fixed you cannot add further tracks or sessions. See Fix CD-R Or Session.

## 1.164 MakeCD.guide/MIZSF

Fix Session

-----

'Fix Session' fixes the session. You will still be able to write new tracks in the next session. To fix the CD-R later, you will have to write at least one more track in a new session. See Fix CD-R Or Session.

---

## 1.165 MakeCD.guide/MIZRC

### Repair CD-R

-----

'Repair CD-R' only works for those drives that support the repair function, such as the drives from Philips and Sony. Sony drives have a better repair function than Philips, repairing many defect CDs, so that one can at least write new tracks. Often, the old tracks in the CD are partly readable. Sometimes, a CD-R is lost for ever -- repairing cannot help you in this case.

## 1.166 MakeCD.guide/MIZEC

### CD-RW Erase

-----

'CD-RW Erase' deletes a CD-R, either partially or fully. Set the cycle gadget to the required delete mode, then click on 'Perform erase' to send the command to the CD writer.

You can choose from the following delete modes:

#### complete CD-RW, fast

The content of the medium will be deleted. This is achieved by deleting the table of contents. The data itself is not actually deleted. In theory, the data proper can still be recovered using suitable software. If you want to ensure that all private data is deleted, use 'Entire CD-RW, slow'.

#### Entire CD-RW, slow

The entire content of the medium is deleted. This will take a relatively long time. If the data is not sensitive, a quicker method is to delete just the table of contents: 'complete CD-RW, fast'.

#### Session fixation

This function deletes the fixation of the last session or the CD-R. You will then be able to add tracks to the last session. This function is not supported by all CD-RW writers.

#### Last track

The last track written is deleted provided that the session or CD-R is not fixed.

#### Last session

This function deleted the last session that was written. This function is not supported by all CD writers.

---

## 1.167 MakeCD.guide/MIC00

### Description of Copy CD Window

=====

Please check the license conditions for any CDs that you would like to copy. If you flaunt the license conditions, you are breaking the law.

You can open the 'Copy CD' Window via the menu. You can use this window to copy entire CDs in Disc-At-Once or Track-At-Once mode. You can copy the CD using image files or -- if your system is reliable enough -- on-the-fly.

Most of the fields in this window have been explained in the preceding chapters. See Track options and Advanced Options.

We recommend that you set a base directory when using image files. Please see Base Dir.

Set 'Temporary Images' and 'Delete file' as described in Target.

Use 'Write mode' to determine if you wish to burn a CD in Disc-At-Once mode or Track-At-Once mode. Please note that you must be registered for Disc-At-Once and that both your CD burner and the MakeCD driver must support DAO. If you are registered for Track-At-Once only, you can burn using Disc-At-Once in test mode only! With DAO, MakeCD is able to create more exact copies than is possible with TAO. That said, track-at-once is often fine for copying CDs.

If you have settled on Disc-At-Once, set the 'Data Format' cycle gadget. See Data Format. See Adapt start position

Usually, 'Audio - Adapt start position' can be left as it is. See Adapt start position.

If you want to copy in track-at-once mode, set 'TAO -- Track starts' as required. With track-at-once mode, inter-track pauses cannot be avoided. If there are no pauses between two tracks on your source CD, MakeCD will record the tracks but add about a two second pause between them. This causes the second tracks to begin about two seconds later than from the original CD. 'exact (cut audio and data tracks accordingly)' cuts all of the tracks by about two seconds so that all the tracks begin at the same position as on the original CD. With Mode2 games CDs you should generally avoid using this mode. The shortening of audio tracks is not too critical -- at worst you lose two seconds of music. However, shortening data tracks can render the track unreadable, so there is a third option: 'exact for audio CDs only (cut audio tracks only)'. In this mode the data tracks are not cut so that all track start positions which follow a data track are shifted slightly.

Some music CDs have index markings within the tracks. These markings can be burnt in Disc-At-Once mode (some drives let you burn the markings in Track-At-Once mode too -- look for confirmation in the Device Selection Window). Reading the indices adds to the read time, hence the default turns off this option. If you want the indices to be read, turn on the 'Scan for indices' option. If the scan for index

markings fails or if you do not want to copy the index markings over, use 'Index-Pause' to set the pause index that is required at the end of the track. Usually you do not need to alter the default setting of two seconds.

Reading ISRCs (See Advanced Options noticeably slows down the reading of audio tracks. If you want the ISRCs to be copied too, turn on 'Read ISRCs'.

Once you have activated all the settings, click on 'Copy CD...' to initiate the copy process, or click on 'Setup Project' to start a project. The project can create a copy of the source CD, but this option allows you to change modify the copy somewhat.

If you click on 'Copy CD...', the Write Window opens. See Write Window.

If instead you select 'Setup Project', a new track list is created and the Advanced Options are correctly set for you.

If you change your mind and no longer wish to create a copy of the CD, click on 'Abort'.

## 1.168 MakeCD.guide/MIA00

Description Of Append complete CD Window  
=====

The 'Append complete CD Window' can be opened from the menu. Using this window you can add all the tracks from the source CD after your current project.

This window is less powerful than the 'Copy CD' Window (described in Copy CD). If you use this window for copying, some information may be lost which 'Copy CD' would have preserved. However, in contrast to 'Copy CD', the 'Append complete CD Window' adds the tracks to your project. 'Copy CD' will delete the previous project. The 'Append complete CD Window' enables you, for example, to create a project that combines two half-full audio CDs into a single CD-R.

The fields in this window correspond to those in the 'Copy CD' window, with the exception of one new field, 'Audio pause'. This overrides the 'Audio Pause' from the Settings window. See Audio pause.

Once you have changed the settings as required, add the tracks from the CD in the source device to the current track list by clicking on 'Append CD'. 'Abort' quits the function.

## 1.169 MakeCD.guide/MIM00

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## Description of Main Menu

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The Main Menu has several menu points to help project management and your interaction with the drives and CD-Rs.

Project	Load, Save, Quit, ...
Edit	Edit track list
Window	Open or activate window
Tools	Target CD-R, Fix, Delete, Eject, ...
Settings	Settings, Quickhelp, Window Settings ...

## 1.170 MakeCD.guide/MIMPO

### The Project menu

-----

The Project Menu contains functions for project management. You can load and save the settings.

Open...	Load project file and overwrite track list
Append...	Load project file and add to track list
Save	Save track list as project
Save as...	Save track list under new name
Create AIFF-CD Image...	Creates a file in AIFF-CD format
Register...	Open the registration window
About...	Open window containing information about MakeCD
Write logfile...	Create logfile (for the authors)
Quit MakeCD	Quit MakeCD

## 1.171 MakeCD.guide/MIMPO

Open...

.....

This menu point opens a file selection window which you can use to load a previously saved MakeCD project. Once you have selected the project and clicked on 'OK', the saved track settings are shown in the track editor. Any project previously in memory will be lost.

## 1.172 MakeCD.guide/MIMPA

Append...

.....



This function does the same as 'Open...' (See Open), with the exception that, if there are already tracks in the track editor, they are not removed. Instead, the loaded project is added to the tracks. This option can combine two projects for you.

### 1.173 MakeCD.guide/MIMPS

Save

....

'Save' saves the current project, in other words your track list, the Track options and the Advanced Options. A file selection window will open if the project is still unnamed. Otherwise, the project is saved under the old name.

If you do not declare the '.mcd' ending, MakeCD automatically adds this for you.

### 1.174 MakeCD.guide/MIMPW

Save as...

.....

This menu points saves the current project.

If you do not declare the '.mcd' ending, MakeCD automatically adds this for you.

### 1.175 MakeCD.guide/MIMPC

Create AIFF-CD Image...

.....

This function saves the project including the track data in AIFF-CD format. This format is also recognized by other programs (e.g. Samplitude). This enables us to read a CD using MakeCD, save the CD in AIFF-CD format, edit using Samplitude, save again in AIFF-CD format, then load the altered file into MakeCD for burning.

### 1.176 MakeCD.guide/MIMPR

Register...  
.....

If you have not save your registration properly, you can do so by selecting this menu point. If your registration number has already been saved, this menu point cannot be selected.

### 1.177 MakeCD.guide/MIMPX

About...t  
.....

A window containing some information about MakeCD opens. Your registration number and the name of the person who registered the program will be shown here.

Your license class and your serial number are shown. You should always have your serial number at hand when requesting technical support. You will also need to cite the serial number for a chargeable upgrade (e. g. to upgrade from TAO to DAO).

### 1.178 MakeCD.guide/MIMPL

Write Logfile  
.....

If you are experiencing problems with your CD writer and MakeCD reports errors when burning, reading tracks, etc., you can select this menu point to create a logfile which can help the authors of MakeCD locate the problem.

Please note that the logfile cannot help us if your problems are related to the SCSI bus, or if you have buffer under-runs, or if your CD writer is not supported by MakeCD.

If you wish to send a logfile to the authors, please e-mail it to:  
'patrick@core.de'

### 1.179 MakeCD.guide/MIMPQ

Quit MakeCD  
.....

You can quit MakeCD using this menu point or by clicking on the close gadget. You will not be asked to confirm the action!

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## 1.180 MakeCD.guide/MIME0

The Edit Menu

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The Edit Menu contains information about changing the track list.

Append complete CD Window...	Read tracks from reading drive
Add Image File(s)...	Read image file(s)
Import AIFF-CD file...	Import AIFF-CD files
Split track between indices	Subdivide audio track
Delete Current Project	Delete track list

## 1.181 MakeCD.guide/MIMEC

Append complete CD Window

.....

This enables you to read the table of contents for the CD in the reading drive. It will then be added to the track list. This function opens the Append complete CD Window. See the description in Append complete CD Window for more details.

In most cases you can instead use the 'Copy CD' window. In fact, 'Copy CD' is required for more identical copies.

## 1.182 MakeCD.guide/MIMEI

Add Image File(s)

.....

In contrast to the 'Append complete CD Window', this function enables you to choose one or more image files to be added to the track list.

The important point to note is that MakeCD cannot automatically determine the 'Track type' for the images. As a result, you may have to correct the track types manually.

This function is useful if, for example, you have several music tracks in various locations of your hard drive. You can use the multiselect in the ASL file requestor to select all the tracks in once swoop and add them to the track list.

## 1.183 MakeCD.guide/MIMEA

Import AIFF-CD file...  
 .....

The AIFF-CD format is a special format which describes how CDs should appear. Samplitude, for example, can create using this format. This makes it possible to create a CD in Samplitude, save the project in AIFF-CD format, then load into MakeCD to burn a CD.

This function adds the tracks that are contained in the AIFF-CD file to the current project and adopts the relevant information such as catalog number and write mode. MakeCD can burn the data directly from the AIFF-CD file, i.e. images do not have to be created.

### 1.184 MakeCD.guide/MIMES

Split track between indices  
 .....

Sometimes we want to split an audio track at certain positions. MakeCD is by no means a music data editor, but since indices can be set within the track, the track can be split.

'Split track between indices' splits the track that is marked in the track list between indices, provided that these exist within the track. This means that the first and last indices in the list are usually ignored if they lie at the track start or end.

### 1.185 MakeCD.guide/MIMED

Delete  
 .....

This menu point removes all entries from the track list and sets some global options to the standard settings.

### 1.186 MakeCD.guide/MIMW0

Window Menu  
 -----

You can use the window menu to move between the Main Window, the 'Track options' window and the 'Advanced Options' window. If the window you require is not yet open, you can activate it with the corresponding menu point. If it is already open, it is activated and moved to the foreground of the screen.

## 1.187 MakeCD.guide/MIMT0

The Tools Menu

-----

The Tools menu contains some useful tools -- most of these tools relate to the target CD-R.

Target CD-R...	Open Target CD-R Window
Copy CD...	Open Copy CD Window
Save CD-R Contents...	Save CD-R track list
Update CD writer	Forget test mode tracks
Fix CD-R	Fix CD-R
Fix Session	Fix session
Repair CD-R	Repair CD-R
CD-RW Erase	CD-RW: Erase partially or fully
Eject	Eject source or target

## 1.188 MakeCD.guide/MIMTT

Target CD-R...

.....

This menu point opens the 'Target CD-R Window'. For more information about this window, see Target CD-R Window. This allows you to look at the content of the target CD-R and -- if you wish -- fix or repair the CD-R.

## 1.189 MakeCD.guide/MIMTC

Copy CD...

.....

This menu point opens the Copy CD Window, as described in Copy Window. This window helps you create copies of CDs that are as identical as possible. You can also start the copy process from here.

## 1.190 MakeCD.guide/MIMTL

Save CD-R Contents...

.....

This menu point saves the track list for the CD in your CD writer to a file. You might like to do this to assist you in creating a table of contents for your CD-R. A file selection window opens. Simply enter the

file name which the file should be saved under.

### 1.191 MakeCD.guide/MIMTA

Update CD writer  
.....

This menu point sends a command to the CD writer which makes it "forget" about any tracks you have written in test mode.

### 1.192 MakeCD.guide/MIMTF

Fix CD-R  
.....

If you would like to fix the CD-R, you can do this directly in the 'Target CD-R Window' (as described in Fix CD-R), or you can use this menu point. The CD writer will require a few minutes to fix the CD-R. See Fix CD-R Or Session.

### 1.193 MakeCD.guide/MIMTS

Fix Session  
.....

If you would like to fix the session, you can do this directly in the 'Target CD-R Window' (as described in Fix Session), or you can use this menu point. The CD writer will require a few minutes to fix the session. See Fix CD-R Or Session.

### 1.194 MakeCD.guide/MIMTR

Repair CD-R  
.....

If you would like to repair the CD, you can do this directly in the 'Target CD-R Window' (as described in Repair CD-R), or you can use this menu point. The CD writer will require a few minutes to fix the CD.

---

## 1.195 MakeCD.guide/MIMTD

CD-RW Erase  
.....

This menu point enables you to partially or fully delete the CD-RW. Use the sub-menu to select which delete mode you require. The delete modes are also present in the 'Target CD-R Window'. See CD-RW Erase.

## 1.196 MakeCD.guide/MIMTE

Eject  
.....

The Eject menu point contains two sub-menus: 'Source' and 'Target'. According to which of the sub-menu options you select, the CD in the read or the write drive will be ejected.

## 1.197 MakeCD.guide/MIMOO

The Options Menu  
-----

You can set some important options via the Options menu.

Settings...	Open Configuration Window
Window Settings...	Start Triton Settings program
Save Gadget State	Saves gadgets for some of the windows
Quickhelp	Turn Bubblehelp on/off

## 1.198 MakeCD.guide/MIMOS

Settings ...  
.....

This menu point opens the Settings window. This window is used to configure MakeCD for your system (i.e. it is very important!).

## 1.199 MakeCD.guide/MIMOT

---

Window Settings (Triton Prefs)  
.....

If you select this menu point, MakeCD attempts to start the 'Triton' program. The program must be in your system paths or in 'SYS:Prefs/Triton'. The Triton prefs enable you to save the window positions and sizes for MakeCD.

The Triton archive can be found on Aminet in the 'dev/gui/' directory.

## 1.200 MakeCD.guide/MIMOG

Save Current Gadget State  
.....

This menu point will save some of the gadgets of the current window.

## 1.201 MakeCD.guide/MIMOQ

Quickhelp  
.....

MakeCD offers you bubblehelp for the user interface. The sub-menu points are used to activate or deactivate the bubblehelp. The current state of the sub-menu can also be saved.

## 1.202 MakeCD.guide/MBEGN

New user's Guide  
\*\*\*\*\*

This new user's guide is not only for AMIGA novices, but also for all of you who are not familiar with the finer points of MakeCD. Even expert users may discover useful information here.

MakeCD	MakeCD fundamentals
Copy	Copying a CD
Data-CD	Making a data-CD
Audio-CD	Making an audio-CD

## 1.203 MakeCD.guide/MBMCD

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## MakeCD fundamentals

=====

MakeCD is predominantly a track editor. Whether you're copying a CD or making your own CD from scratch, the tracks are grouped as a list in the track editor before they are burnt.

For each track you need to define its type (usually a data track or an audio track), the source of the data (where it is coming from), and whether you want to automatically have an image file written.

When you are happy with the list, you click either on 'Create image files' to create the image files only, or 'Write tracks' to burn all the tracks consecutively. Any image files that are required are not automatically created before burning.

## 1.204 MakeCD.guide/MBCOP

### Copying a CD

=====

As already mentioned, MakeCD allows you to copy a CD. There are a few settings that you need to make in order to ensure as close a duplicate as possible (there are several methods of copying a CD). Proceed as follows:

1. Configure MakeCD as described in Settings.
  2. Using the Tools menu, open the 'Copy CD' window.
  3. Under 'Temporary Images', select if you want to use image files or have the data sent directly to the CD. If you have one CD burner but no CD-ROM drive, you must burn the CD using image files.
  4. If you want to use image files, use 'Base dir' to select the directory where the files are to be written. Under 'Delete file', define when the files are to be automatically deleted.
  5. For 'Write mode', chose whether to copy in the Disc-At-Once or Track-At-Once mode. The Disc-At-Once mode gives you a more exact copy and there are no automatic two second pauses between audio tracks. Please note that you may only burn in Disc-At-Once mode if this is supported by your burner. In addition, the corresponding driver Disc-At-Once must be implemented in MakeCD and you must be registered to use Disc-At-Once.
  6. 'Data Format' is usually left unchanged. In any case, you can only set it in Disc-At-Once mode. If the generated copy does not work properly and your burner supports the 'Raw Block Contents', try again using the 'Raw Block Contents' setting.
  7. To ensure the most exact copy, select 'Scan for indices' and 'Read ISRCs'. Some CD burners permit this even when in Track-At-Once
-

mode; other burners will only play ball in Disc-At-Once mode.

8. Click on 'Copy...' and follow the instructions. Select the fixing mode. For the most identical CD, select 'Fix CD-R'. The CD-R will then be written.

That's all there is to it! The burned CD-R is as close to an identical copy as possible.

## 1.205 MakeCD.guide/MBDAT

Making a Data-CD

=====

The most common application of burning a data CD is to copy a partition or a directory to a CD-R. This chapter tells you how this is done.

A simple data CD consists of a data track. Launch MakeCD and add a data track to the track list. Click on 'Add'. You should see the track

appear in the track list.

Next, ensure that the track type and the source are correctly set for your Track. Use the mouse to select the new track in the track list (in fact, it's probably selected already) so that it is highlighted. Now, click on 'Track Options...'.

For our example we wish to burn a partition or a complete directory, so select 'File system' as the source. Set the corresponding cycle gadget to 'File system'.

MakeCD cannot tell which file it should burn. So, click on the popup gadget next to Source. A window opens...

This window shows a list -- all source paths must be entered into the list. Click on 'Add' and check that the cycle gadget for the source type is set to 'File system'.

Having selected the source, choose the type of CD that you wish to master. Click on 'ISO/Rock Ridge...'.

Enter the following values to ensure that the data CD reads well on as many AMIGAs as possible:

1. Rock Ridge: on
  2. World access: on
  3. Group access: on
  4. Save AMIGA File attributes: on
  5. ISO 9660 AMIGA
-

6. Convert .info suffix to lowercase: on

7. Convery ISO names to uppercase: off

Now enter '.info' in the 'Sort order' list. This will make the CD read quickly under Workbench.

Leave the window by selecting 'Save' or 'Use'.

Now your data CD needs a name. Set the 'Volume name'. This is the name that will appear on the Workbench. For 'Preparer' enter your name. The remaining fields can be left empty.

Leave the window by selecting 'OK'.

Your next decision is whether to create an image file first, or send the data direct to the CD.

Decide if you want to create an image file first or have the data sent directly to the CD burner. Set the cycle gadget for 'Target' correspondingly. If you want to create an image file, enter the filename in the corresponding text gadget. Sending the data directly to the CD burner is a more hazardous process, since the performance requirements are greater and a buffer underflow is more likely. You should always run in the test mode first to ensure that the system is running smoothly. You may need to increase the buffer size in the settings window and/or reduce the burn speed.

We're almost at the finishing post! You now need to click on 'Write tracks'. All image files will be created and written to the CD. Follow the on-screen instructions.

The write window will appear. Use the window to burn the CD-R in the test mode or for real. We recommend that you try the test mode first. In test mode, the same process is used as with real burning, with the exception that the laser beam of the burner is not turned on i.e. no permanent changes are made to the CD-R.

In addition, you can set if and when the CD-R should be fixed. More about this later on. If you are not sure if you want the CD-R to be fixed, turn off the automatic fixing for now.

Next, click on 'Start'. This starts the process.

The process will take some time. We recommend that you leave your AMIGA to work uninterrupted. It is possible to have other programs running during the process, for example, a stable word processor is unlikely to cause problems. However, you must avoid all programs that use the CPU for a long period at a time at a high priority (and of course any programs that have a habit of crashing unexpectedly!) - if MakeCD is ousted from the processor for more than a few seconds (typically 0.5 - 15 seconds, depending on the size of the burner's internal buffer and the writing speed), your CD burner may experience a buffer underflow. A buffer underflow can ruin the entire CD-R, making it unusable. At the very least, the current track is likely to be lost.

---

Note: reports suggest that some graphics cards use up so much processor time at such a high priority when changing screens that MakeCD can be locked out from the processor long enough to cause buffer underflows. This is not a problem on all systems - try this out for yourself in the test mode i.e. keep changing the screen while in test mode and see if there are problems. i.e.: see if you get problems when changing screens. Incidentally, similar problems can occur when opening large windows on screens with a high colour depth.

Once MakeCD has burnt the track, either the CD-R is fixed, the session is fixed, or nothing is fixed - this will depend on the setting you chose. The MakeCD status display will inform you of any fixation that takes place. You can now burn another CD-R (which you don't want to do) or click on 'Abort'. Click on 'Abort'.

If the CD-R or the session was fixed, take out the CD-R and try reading it from your CD-ROM drive. You can add data later if you fixed the session only.

If there was no fixation, use the menu to select 'Fix session' (select this if you want to add more data to the CD-R later on) or 'Fix CD-R' (select this if you are sure that no more data is to be added to the CD-R).

We've finished creating our data CD! Now try reading the CD-R from a CD-ROM drive!

If you want to try out the CD in your CD writer, it may be possible -- depending on the make of your burner -- to read the CD without actually fixing anything! This can save a lot of space on the CD-R, but bear in mind that you must fix the CD-R if you want to read it on a standard CD-ROM drive.

Note: You can create the image files without burning a CD by clicking on 'Write tracks' instead of 'Create image files'. You can create the image files without burning a CD immediately! It doesn't matter if the CD-R that you want to burn the image to is empty. If the CD-R already contains data, MakeCD has to access the CD-R in order to determine how to create the image. More precisely: MakeCD determines the start block on the CD-R for burning the image file. In the case of empty CD-Rs, the start block will be block 0. Not to worry -- a dialog window will make you aware of the condition and allow you to act upon it.

## 1.206 MakeCD.guide/MBAIO

Making an Audio-CD

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An audio CD usually has several tracks. There is normally one piece of music per track. Each track has a number by which it can be referenced -- this is the track number displayed by CD players.

Arrange the music data in the track list. The first entry in the list

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corresponds to the first piece of music, the second entry corresponds to the second piece of music, etc.

You can copy music directly from other CDs or load them from files. Files must be in the CDDA format (this is the raw format as read from CDs) or in the 'AIFF' format (16 bit stereo at 44.1kHz). MakeCD automatically recognizes the format and converts it during burning into data which the CD burner recognizes.

You can use MakeCD to make a CD which takes its tracks from a number of different music CDs as well as data read from a file. MakeCD will prompt you to insert the CDs as they are required during the copy process. You can also make copies, even if you have just the one drive.

The following sections help you create your first music CD.

Start by setting the 'Track type' cycle gadget to 'Audio (normal)' and the 'Type' for 'Source' to 'Image file' (if you want to read most of the data from files) or to 'Track from CD' (if you want to read most of the data from another CD). This is not essential, but it saves you a little work later on. The gadget settings can be different for each track in the track list. However, the settings from the previous entry are copied for each new entry in the track list.

If most of your tracks will use image files, set the cycle gadget 'Target' to 'Use image file', otherwise, set it to 'Direct to CD writer'. This setting can be changed later on for each track, but why not make life easier and set the default to the most frequent setting? We recommend that you use image files to begin with if you have sufficient hard drive space.

'Delete file' can also be set separately for each track. You can set when the temporary image files should be automatically deleted. If you set 'Never', you will have to delete the image files yourself.

Save these settings using 'Save current gadget state' from the menu - the defaults will help save time later on.

We have taken care of the settings. Now we want to create a CD with the following structure:

1. Music piece from CD A (piece 3), with image file
2. Music piece from CD B (piece 2), without image file
3. Music piece from an available AIFF file
4. Music piece from an available CDDA file
5. Music piece from CD C (piece 5), without image file

To begin with, let's add a track in the track list for each music piece. We will also adjust the settings for each track.

Track 1 (CD A, Track 3, with image file)

Click on 'Add' to create the first track. Next, set the 'Type' for 'Source' to 'Track from CD'. Now, insert a music CD in your read drive and click on the 'Source' popup gadget.

A track selection window opens. Click on 'Update CD-R writer' to read the contents on the CD. We want to record the third music piece to our CD, so click on the third entry in the track

selection window list. If you know the song title, type it (or an abbreviation) into 'Name' - please avoid using the space character. Leave the track selection window by clicking on 'OK'. The 'Track type' is automatically set to the correct value when you leave the track selection window, so you needn't change 'Track type'.

We want to create an image file for the first track, so make sure that 'Target' is set to 'Use image file'. Then, enter a name for the track in 'Image file' - this name is used when the track is saved to the hard drive. MakeCD may suggest a name for you - by all means change this to a more appropriate entry.

You must enter an appropriate path for the image file. Image files use considerable storage space - about 173 KB per second for audio data. Make sure that the partition you select has sufficient free space. If you want to save all image files to the same directory, you can enter the directory in 'Base dir'. This directory will be used for all objects with a relative path. If you leave 'Base dir' empty, use absolute paths only (i.e. names containing a colon).

We have finished defining the first track. Now to define the second track...

#### Track 2 (CD B, Piece 2, no image file)

Click on 'Add' to create the next track. Set the 'Type' for 'Source' to 'Track from CD'. Insert another audio CD, and click on the gadget again. The track selection window opens.

Select 'Update'. In the track selection window, select track 2 and enter a name in 'Name'. Leave the window using 'OK'. 'Track type' is automatically set to the correct value when you leave the track selection window.

Set 'Target' to 'Direct to CD writer'.

NB: select 'Use image file' as described above if you have selected the same device for reading and writing in the Settings window. MakeCD can only copy tracks directly if the source and the target drives are different!

We have finished defining the second track!

#### Track 3 (AIFF-File)

Please skip this part if you do not have an AIFF file.

Otherwise, click on 'Add' to create a new track. Set 'Track type' to 'Audio (normal)'. Set 'Source' to select 'Image file'. This means that MakeCD is to read the data from an image file.

Click on the 'Source' popup gadget. The track selection window does not open this time. Instead, a file selection window appears - MakeCD realizes that you want to read an existing image file and not a track.

Select the AIFF file and close the file selection window using 'OK'.

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MakeCD can convert AIFF files into data that your CD burner understands very quickly, so enter the target as 'Direct to CD writer'. You could, theoretically, create an image file - this would contain the data in the same form that is eventually sent to the CD burner. However, this is usually unnecessary.

We have finished setting up the AIFF file!

Track 4 (CDDA Data) Please skip this part if you do not have a CDDA file.

Otherwise, proceed as with track 3, but choose a CDDA file instead of an AIFF file. MakeCD automatically recognizes the CDDA file and sends the data to the CD burner. MakeCD will change the byte sequence if necessary.

Note: CDDA data must be in the exact byte sequence selected in the settings window - otherwise you will end up with a terrible, ringing data noise

There is no point in creating an image file for CDDA data, so select 'Direct to CD writer'.

Track 5 (CD C, Piece 5, no image file) Finally, we want to add another track from a third CD. This should be the fifth track.

You should now be able create this track without additional help. This time we do not want to create an image file.

The most difficult part is over! We are going to create image files in the following section. We will then be able to listen to the results, and finally, we can burn the CD!

Click on 'Create image files' to create the image files. Follow the on-screen instructions.

If the image files were written, click on 'Play audio'. A window containing a few gadgets opens. Click on 'Start'. You should soon be able to hear the data using your AMIGA loudspeakers. You can skip within the current track or between the tracks, and alter the volume and lowpass filter.

Close the window once you have finished checking the tracks. We are now ready to write the tracks. Click on 'Write tracks'.

The write window opens. Use 'Write mode' to burn in the test mode (no permanent changes will be made to the CD-R) or to burn without the test mode (the CD will be written for real!). You can also select to run the test mode first and then burn if no problems are encountered.

You must now choose if, and how, the tracks are fixed following a successful write process.

You cannot add further audio tracks if you fix the session, only data tracks. The written tracks can be read by a CD player immediately afterwards.

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You cannot add further tracks if you fix the CD-R. The written tracks can be read by a CD player immediately afterwards.

You can add more audio tracks if you do not fix the session or the CD-R. However, the written tracks can only be read by your CD burner.

After making your choice, click on 'Start'. Then, avoid using your AMIGA in such a way that could cause a crash or lead to a buffer underflow - avoid using "greedy" applications (those which use the processor for a long time at a high priority). A buffer underflow ruins the current track and can even destroy the entire CD-R.

Please read the following sections for trouble-shooting.

#### Buffer Overrun/Buffer Overrun

It is possible to copy audio tracks directly: the source drive and the target drive must run at exactly the same speed. You can set the read speed separately for audio tracks, but some CD-ROM drivers ignore this value. If the read speed cannot be set, make sure you set the target drive to the same speed as the source drive. Many CD-ROM drives transfer CDDA at single speed only.

The direct copying of audio tracks is a time-critical operation. This is because the source drive cannot pause once it has started to transfer audio data. We strongly recommend that you try the test mode first. In case of doubt, we recommend that you use image files.

Track M requires "Audio (normal)" with Block Size 2352

This message usually appears if you try to read CDDA data. MakeCD can only recognize if the data is CDDA in the following way: MakeCD checks to see if the data has a recognized format. If the format is not recognized, MakeCD checks if the file length is divisible by 2352 - all audio data from CD is divisible by 2352. If you recorded the data yourself, the file is unlikely to be divisible by 2352 and you need to set the 'Audio length' from 'Block' to 'any' (in the 'Further settings' window). The disadvantage: it is then possible to select any file, i.e. you could select a file which is totally unrelated to CDDA!

## 1.207 MakeCD.guide/MF000

### Frequently Asked Questions

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Please carefully read through the FAQ before attempting to contact the authors for support -- you may find the answer in the FAQ.

Registration

Questions about registration

Support

Questions regarding support/registration



Burner Problems	Problems with specific CD-burners
SCSI Problems	SCSI problems, hanging SCSI bus
Audio CDs	Questions about audio CDs
Data CDs	Questions about data CDs
CD Back-up Copies	Questions about copying CDs
Miscellaneous	Miscellaneous questions about burning CDs
GUI	Questions concerning the GUI
Settings	Questions about the settings

## 1.208 MakeCD.guide/FREGI

Questions regarding registration  
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Frage (Registration with email):

Please send me my registration number via email.

Answer:

This is unfortunately not possible for several reasons:

1. Katrin Schmidt is not on the Internet.
2. Even beta versions have gone "missing" by e-mail, only to end up on some cracked/copied boards. We have no intention to help this code-crackers in any way, so we will in future make no attempt to facilitate orders by e-mail. This is the only way we can be sure of obtaining the real address of every registered person, thereby enabling us to track down code-crackers and take legal action. If we didn't fight piracy, we would not be able to continue developing for the AMIGA.

Katrin Schmidt deals with registrations very quickly (with the exception of holidays). In any case, a CD burning program isn't usually something you need within 24 hours. It is normally part of a longer-term plan.

Question:

I'd like to pay with my VISA card (or any other credit card). Do you accept such cards?

Answer:

Unfortunately, VISA (and other credit card institutes) has quite strong conditions. If we accepted VISA cards, we would need a lot of VISA registrations. We are far from that. So, payment with VISA is not possibly, sorry.

However, MakeCD is also being distributed by some companies. Maybe one of these companies accepts credit cards.

Question:

I want to get registered by transferring the money on a bank account. Please tell me an account number.

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Answer:

We did not include our bank account in these documents on intention. Often, name and address do not appear properly on our bank statements, so we can't send you the registration. Furthermore it will need more time to register you, as we don't get our bank statements very often and since we would have to transfer your data to Katrin Schmidt, who goes ahead with your registration. If you really don't see any other possibility, you can write us an email about that, but other possibilities are really preferred!

Question:

I don't live in Germany, but I want to order MakeCD anyway. How can I transfer the money to Germany?

Answer:

There are several possibilities:

Euro cheque in DM

That's most likely the most comfortable method for both of us. But please make sure you write an DM amount on the cheque and not an amount of your national currency. We can only cash euro cheques without additional fees if they are in DM. If they are in a different currency they cost us a lot of fees.

Cheque from German bank

Ask your bank if they have a partner bank in Germany. In this case, your bank can ask that partner bank in Germany to write a cheque in DM. If the cheque is from a German bank and written in DM, we don't have to pay additional fees for it. In your own interest, ask your bank which fees you will have to pay for that!

Postal money order (German or international)

Go to your post office and ask them to send us the money in DM. That's a safe method. In parallel, you should send your registration form to us, but in case the post loses your registration form, make sure to note your whole address and the use on the postal money order. Then we can send you MakeCD at once even in case your letter gets lost.

If you are sending your postal money order from outside Germany, please choose an international postal money order with Germany as destination country. That's how Michael Habermann <drmike@peabody.jhu.edu> transferred his money from the USA. He writes:

I went to the Post Office. I fill out a form with my name and yours, enclose a money order for \$XX, but there are additional fees of about \$7.50 for processing the transaction. The form and the money order get sent to International Money Orders in St. Louis, Missouri and they convert my USA money order into a German money order which you can cash at any bank. They mail it directly to you, and they say it takes about 4-6 weeks.

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You are right, apparently not too many people use this service, even the Postmaster told me that, and the person at the desk gave me the wrong information: He said that in a few weeks International Money Orders would send ME the converted money order that I would then send to you! Reading the information on the form I had to correct the postal worker on this. So it is not an everyday transaction.

Not all USA post offices sell International money orders, although I think all of them sell regular USA money orders. You might inform your other customers of the procedure I followed.

#### Cash

Of course, that's your own risk. Just go to your bank and get some German bank notes. Some persons then send the money in registered letters, but this also can't guarantee 100 % safety. However, usually the money reaches us. However, once we got a registered letter from Italy that did not contain the cash anymore. We don't know what happened here. We could not say if the letter has been opened or not (it was an air bag envelope) Maybe somebody stole the money out of the envelope.

#### Cheque from your bank

Cheques from outside Germany, which are none of those as described above, cost us -- depending -- about 20 DM each to cash. This amount of money is taken by our bank from the amount of money which you have written on the cheque. Therefore, you have to add about 20 DM to your cheque, if you want to use this method.

#### Question:

Why do I have to send the registration fee to Katrin and not to you, the authors?

#### Answer:

We are busy with writing MakeCD and if we made the registrations ourselves, it would take much more time than when Katrin's does this job. She's Angela's little sister and happy to earn some pocket money with this job. She especially enjoys nice persons at the phone and those letters which contain some nice words. ;-) Please note, that she can not answer technical questions. Please contact the authors directly, if you have such questions.

## 1.209 MakeCD.guide/FSUPT

Questions regarding support/registration

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Question (A question ...):

I have a question for you...

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Answer:

Sure, but please make sure you have the following details:

Serial number

The serial number can be found in the 'About' window. This is not the number that you type in for registration! We reserve the right to help registered customers only.

Version number

You can also find the version number of MakeCD in the 'About' window.

Hardware configuration

This includes in particular the exact version numbers for your SCSI host adapter and CD burner.

Software configuration

This includes all the programs you have stated before encountering a problem with MakeCD, as well as programs in 'SYS:WBStartup' and 'S:User-Startup'.

Question (Hi authors, I'm stuck):

I purchased MakeCD from company XYZ and have the following problem: ...

Answer:

Please direct your question to XYZ or to the support address under Support. Please do not try to contact the authors of MakeCD directly, since this takes up time that could otherwise be spent improving MakeCD.

Question (Registration number cannot be saved):

I have typed in my registration number and address and saved. But when I next run MakeCD, I'm asked for the registration number again. Why?

Answer:

You are probably trying to register MakeCD on a partition with AFS (AMIGA File Safe) and are using a version of AFS that is older than 16.16. Update the AFS and the registration should work.

Question (Mailing lists):

Is there a mailing list for MakeCD?

Answer:

Yes. You can read more about this under Mailing lists.

Question (High serial number):

Wow! I have just registered and noticed how high the serial number is. You have a lot of registered users!

Answer:

Appearances can be deceptive. We don't want our rivals to know how many (or how few) registered users we have, so the registration number is designed to hide this.

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Question (Latest version of MakeCD):

I am a registered user of MakeCD and would like the latest version. Where can I get it from?

Answer:

If you have Internet access, simply visit our home page:  
'<http://makecd.core.de/>'.

If you do not have Internet access, please contact the company that supplied you with MakeCD.

If you registered MakeCD directly from the authors, you can use the registration form to order a free demo version (you pay the postage and packaging only - 5 DM within Europe, 10 DM outside Europe). This offer is limited to one floppy per letter. Enter your registration number in this demo version to turn it into a new, registered version.

If you are not telling us which version you are actually using, you will get the actual version. If you tell us which version you have, we will make sure not to send you the same version again.

You can save yourself time by paying for updates in advance. For example, if you would like to be sent the next three updates, please send us three times the postage and packaging fee (in this case 15 DM within Europe, 30 DM outside Europe) with a covering letter stating that you would like to be sent the next three updates. Please don't take this to excesses - there may not be as many updates as you pay for!

Incidentally, you do not have to be registered to order the demo version. The offer is open to all unregistered users too, who perhaps are using old versions of MakeCD and are interested to see what the latest version offers.

Question (EMail-Support):

Your EMail machine answered that I didn't do my homework (read docs and FAQ). Now I finally did it. What do I have to do now in order to reach you, the authors, rather than just an email machine?

Answer:

If you can't find the solution for your problem in the FAQ or in the docs, then send us another email. For the Subject, use the following form:

'MCD' version language serialnumber ':' further text

If you are using e.g. the English version of MakeCD version 3.1b and if you have the serial number #110000025 (you can find it in the about window) and if you have problems with illegal Command, you'd use the following subject:

'MCD3.1b english #110000025: problem with illegal Command'

If you have the same problem with an unregistered version, send us the following subject:

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'MCD3.1b english #0: problem with illegal Command'

If you have the same problem with the German version, use the following line:

'MCD3.1b deutsch #110000025: problem with illegal Command'

If you have the same problem with version 3.1a, write a subject like this:

'MCD3.1a english #110000025: problem with illegal Command'

If your subject is correct, your email will be automatically directed to the authors and won't be answered by the automatic answering program. We are sorry that we had to go for such an answering machine, but the past showed that about half of the persons who contact us did not or not enough read the FAQ and the docs.

## 1.210 MakeCD.guide/FW RTP

Problems with specific CD-burners

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Question (Philips CDD 2600 reads incorrect data):

I have a Philips CDD 2600 and when reading audio CDs with this burner many errors occur -- especially when I try to read the outer regions of a music CD. Has this anything to do with the firmware version? I am still using the original firmware version 1.07.

Answer:

This is the official response from Philips:

Tests have shown that the CDD2600 is not 100% reliable when reading audio CDs or packet written CDs at 6x speed. This problem is caused by the hardware and can \*not\* be solved via a firmware upgrade.

You can get round the problem by reducing the speed for audio CDs in the settings to single or double speed.

With MakeCD you are able to get round this problem by setting the speed for audio CDs down to single or double speed in its preferences.

Question (Burner does not read short data tracks):

My HP\_Burner (presumably a Philips) will not read pressed CDs with just one track (a short data track).

Answer:

This is the official response from HP:

HP is aware of an issue reading certain pressed CD-ROM disks with a single track. The most important factor relating to this problem is the data size of the disk. Disks with more than 27MB are likely not to have this problem. The less data on the disc, the bigger the chance the CD cannot be read.

Only a very small percentage of CD-ROM disks fall in this category. However there are two CD-R specific applications which may be affected:

1. Adaptec Easy CD Pro
2. Seagate Backup.

Analysis of the issue is almost complete as of mid-April. Due to component level work that needs to occur, a delivery date for the fix is not yet available. An exchange will ultimately need to occur when the fix is available.

Communication has gone out to small application developers and should minimize the issue in the long term. Updates will be communicated via the WWW at <http://www.hp.com/isgsupport/cdr/> as to when the fix will be made available.

While work is being completed by HP and its partners to fix the issue, it is recommended that the disc be read by a standard CD-ROM in the system.

Thank You  
Debbie  
SureStore Support

Question (Write append error):

I frequently operate my HP 4020 CD-burner (or Philips CDD 2000, Grundig, or similar) in test mode and everything runs perfectly. But if I turn off the test mode, after a while the CD-Rs are trashed. MakeCD responds with: "write append error". This has never happened in test mode, but is very frequent when test mode is off. My friend has the same CD-burner. He did not have this problem when the burner was new, but now, some time later, he is getting the same problems. What has gone wrong?

Answer:

You most probably have a faulty CD-burner. Your burner needs to be repaired. A new firmware or a new version of MakeCD will not help in this case.

A user claimed on Internet that HP expressed surprise that a user managed to burn 200 blanks using a SureStore 4020 before this error occurred.

Alexander Becker <[alex@enjoy.regio.net](mailto:alex@enjoy.regio.net)> reported in <[5eu67r\\$1q0@enjoy.regio.net](mailto:5eu67r$1q0@enjoy.regio.net)> on 25.2.1997 that HP sent him new blanks without objection after he called them and faxed in the bill - he also claimed that he was even refunded the cost of the burner.

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Other users have even exchanged their burners two or three times -- without long term success -- and have eventually been refunded.

One of the beta testers for MakeCD has told us that the following firm has good support for defect burners:

Repair 2000 Hardware Service GmbH  
Werkstrasse 5  
22844 Norderstedt  
Deutschland  
Tel.: 040 5225031 (ask for Mr. Peter and describe the problem)  
Fax: 040 5264811

If you are dexterous, you may be able to resolve the problem by thoroughly cleaning the burner yourself (remove any dust, and oil the carriage with a suitable lubricant). Any repair that you attempt is at your own risk and we cannot and will not offer you further advice on repairing units yourself.

Question (Problems with Phase 5 host adapter):

I have a Phase 5 SCSI host adapter and CD burning simply doesn't work for me. What can I do?

Answer:

Make sure that you are using at least version 8.1 of your SCSI driver. For example, type 'version full 1230scsi.device' (you may have to replace '1230scsi.device' with another name) and check if you have version 8.1 or higher. If not, obtain an update from Phase 5.

Question (All sorts of problems):

I am having all sorts of problems with my CD-burner. Sometimes fixing fails, sometimes the written data cannot be read, sometimes the wrong directory is shown, sometimes a silly error report crops up, or the burner hangs. I am totally dissatisfied. What can I do?

Answer:

There have been several people with one or more of the above problems. It is difficult to find the cause from a distance, although we have been able to help some people.

1. Use quality media only. If you have problems, try a few media of another brand. You can read about the experience of other MakeCD users with regards to certain blank brands in 'doc/Compatibility'. Try those media reported as the most reliable.
  2. Check your cabling and the termination of your SCSI chain. Try to shorten the SCSI chain to its minimum. Only use thick SCSI cables with good shielding. Please avoid cheap cables!
  3. Boot with a virgin OS installation and without additional tools, then try MakeCD. Hacks sometimes cause programs to malfunction.
  4. Do you smoke in the vicinity of your CD-burner? If yes, you should certainly try cleaning the lense of your CD-burner. A
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user who smokes has told us that he has burnt the first half of a CD with a dirty lense and the second half with a cleaned lense. The difference on the CD-R was clearly visible -- and CD-Rs burnt with the cleaned lense worked suddently properly again. Similar problems can also be experienced by non-smokers -- e.g. through candles or dust.

5. Try connecting your CD-burner to another power supply unit. One user has enormous problems with his brand new Yamaha CDR 200, used with an (AMIGA and a PC. Fixing often failed and the written tracks could not be read in many drives. He was using a PC mains adapter for the CD-burner. He tried the burner with the A3000 mains adapter, and suddenly everything started working perfectly -- similar to a cleaned lense (see above). There was presumably a defect with his PC mains adapter. A similar fault is also imaginable if the mains adapter is overloaded. The nasty thing about this was that it was not obvious that the mains adapter was faulty - the burner was obviously getting power and was even burning. So this is always worth bearing in mind.
6. Put your CD-burner into its own SCSI case. Some CD-burners do not like operating at warm temperatures and can produce the most bizarre results when installed in a SCSI tower. Giving a burner its own external case with a good fan can work wonders.
7. You can clean your burner at your own risk. Dust clusters can sometimes block the mechanism so that the laser can no longer move freely on the carriage. This can produce peculiar results. Cleaning (and perhaps after oiling the mechanism with a suitable lubricant) often helps. The authors of MakeCD have never tried this and are unable to help. Do not try this if you are unsure, and remember, it is at your own risk.

Question (CD-R "cannot be written to"):

I have a Yamaha CDR100 and write a track to the second session in test mode. I then try to write for real, and the burner suddenly reports that the inserted medium cannot be written to?!

Answer:

Yamaha CDR100/102s sometimes appear to have problems with the update after writing in test mode. Existing tracks are no longer listed, and the CD-R is no longer seen as a CD-R, but as a normal CD. This was reproduced several times, and each time the output in the target CDR window was different.

In this case all you can do is take out the CD-R and insert it again. Unfortunately, this means that the automatic "Write after test" is no longer possible.

Question (Ricoh loses tracks):

I have a Ricoh 1420C V1.6x. With some CDs, including my own CDs, the last track in the track list is swallowed and the Target CDR Window claims that writing was interrupted. Repeated updates of the contents does not help. Can anything be done?

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Answer:

This seems to be a SCSI problem. Some people have no problems and others even have SCSI hangs. A tester has told us that he solved exactly the same problem by turning off reselection for the burner, turning off synchronous transfer mode for his hard drive, and resetting the SCSI bus. He was using the CyberSCSI controller.

Question (JVC problems):

I am using a JVC-burner and have several problems. When will there be a driver that works properly?

Answer:

The problem is not so much the driver, but rather the defective firmware of the JVC XR-W2010 V1.51. You can read more about this under: `'doc/Compatibility'`. The major problems are:

Reading transfers defective data without error report. If you have a Meeting Pearls III or IV, register your JVC burner as a CD-ROM drive, insert the Meeting Pearls and click on `'English'`. An amigaguide document should appear with a link which can be used to check the CD. Try checking the CD! If faulty files are shown without a read/write error, your JVC burner is most probably transferring defective data without error reports!

Rejection of write commands

Under certain conditions some JVC CD burners apparently reject write or fix commands with `'ILLEGAL COMMAND'`. This can sometimes be solved by shortening the SCSI bus (as Patrick found) or by using another, better medium (as we were told by JVC). Try both! Also, a heat problem was reported (the burner was getting to warm in a casing with a poor fan). In one case the casing had been tightened so much that the burner was slightly warped and developed a mechanical problem.

Other errors

Please see the JVC section in `'doc/Compatibility'`.

Question (JVC problems with audio CDs):

I am having problems with my JVC XR-W2010 CD-burner, especially with audio CDs. What can I do about this?

Answer:

Make sure you are using the latest firmware version (V1.51 or higher). Older versions have a lot of problems with audio CDs.

Question (JVC: Medium Error):

When burning with the JVC XR-W2010, the burner reports "Medium Error: WRITE ERROR". What shall I do?

Answer:

One user experienced this error report only when writing at double speed. It was fine at single speed, although this could depend on the medium used.

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## 1.211 MakeCD.guide/FSCSI

SCSI problems, hanging SCSI bus

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Question (SCSI problems):

I have a big problem. Nothing seems to work. MakeCD or the SCSI bus keep hanging. What can I do about this?

Answer:

Your CD-burner and/or your SCSI host adapter is faulty. Sorry, but we are unable to help you in this instance. Please check our compatibility list - perhaps you will find a user there with a similar configuration who has managed to resolve the problem.

If this doesn't help, try the following -- in test mode!

- Select a small chunk size (32 or 64KB) in the settings window and see if that helps. We have been told that this helps with some Phase 5 host adapters.
- The chunk size plays a major part as to whether hanging occurs with the Philips CDD 2600 (and possibly with other CD-burners). Some people report hanging when the chunk size is too small, but in our experience hanging occurs when the chunk size is too large. You may need to experiment a little here.
- Turn off parallel read/write in the settings window and try testing. If you turn off parallel read/write, the buffer will be constantly almost empty. This is normal but also more dangerous since a buffer underrun is more likely. In this case there is little point in selecting a large buffer. 1MB should be more than sufficient.
- Turn off reselection for all devices, especially for the CD-burner. We have included a small tool with most versions of MakeCD to turn off reselection for Commodore's V39/V40 scsi.device. If this helps, experiment with reselection until you establish which devices can have reselection turned on and which devices must have reselection turned off. If reselection is turned off, the same applies to the buffer behaviour as described above.
- Carsten Schlote (formerly with phase5) has tipped setting the CD-burner to a lower ID number than the hard drive which is being read. This can sometimes help with phase5 hardware and possibly other hardware.
- If nothing helps, try borrowing another host adapter and see if the results are any better when connecting the burner onto its own host adapter. Turn off reselection for the CD-burner, but turn on parallel read/write.

Question (Reselection):

I keep hearing about reselection, the buffer, and so on. What are

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these?

Answer:

Read the introduction for the chapter on the buffer in the MakeCD instructions.

Questions (Oktagon hangs):

My Oktagon hangs when I read or write audio or mode2 tracks. Will a newer version of the oktagon device help?

Answer:

This problem affects all currently available Oktagon versions ((i. e. up to and including version 6.12)). You must turn off reselection for the unit of the CD-burner or CD-ROM drive using the program OktagonPrefs, otherwise the data transfer will only work for tracks with a minimum block size of 2048 bytes.

Other sources recommend turning off reselection and synchronous for all devices attached to the Oktagon and setting the chunk size to 256KB. In addition, you should set 'softXC???oktagon.device' as the device driver in place of 'oktagon.device'.

Question (SCSI problems):

I keep getting "buffer underruns" or the SCSI bus hangs. What can I do about this?

Answer (from 'John Hendrikx <john@globalxs.nl>'):

I have experimented with "Buffer Underruns" with reselection for my CD-burner turned off. The result was that the hard drive could do nothing while the CD-burner used the bus (which can be quite a long time). Turning on selection for my CD-burner and hard drive sometimes led to SCSI errors. However, everything was fine with reselection on for the CD-burner only and not for the hard drive. This hardly affected the speed, since the hard drive (for which reselection has been turned off) does not use the bus for very long anyway.

I have successfully burnt CDs at quad speed using the Yamaha CD-burner, although I have an 030 system with 22MHz and only 8MB FastRAM. The data came from an IDE hard drive (I believe that the additional IDE controller simplified the matter somewhat. I was close to the limit using this configuration: one day I had a buffer run - it turned out that I had to run ReOrg over the source drive to make it fast enough again :-)

Anyway, a few tips:

- If you think that your hard drive is too slow, try running ReOrg over the hard drive.
  - Use large block sizes on your image partitions. I use 2KB blocks on all image partitions (many people use even larger values, but I like to be able to use such partitions as normal partitions too). Fragmented files slow down the hard drive, so small block files sizes are best avoided.
  - Check the reselection settings of your SCSI devices.
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Reselection does not have to be activated for all fast devices (e. g. hard drives), but it probably needs to be turned on for the CD-burner (I have turned off reselection for all my devices apart from the burner -- works brilliantly). If you would like to see the effects of reselection, try the following: turn on parallel read/write; write a large image file to a CD in test mode. Now use a reselection tool and try turning reselection on/off for the CD-burner. As soon as it is turned off, the buffer shrinks. As soon as it is turned on, the buffer fills again in a matter of seconds (this may be different with your configuration - try it anyhow).

- If you suspect that the SCSI host adapter simply isn't fast enough, or if turning on reselection for the CD-burner generates SCSI errors, try using a different SCSI host adapter (a second SCSI adapter or simply an IDE controller). That should work even better, since reselection problems should no longer play a part.

Turning off reselection for your hard drive can actually improve the speed (at least if only one is in use). I measured an almost 20% speed increase with my Seagate hard drive when turning off reselection (it has problems with reselect turned on anyhow -- that was the cause of my hanging SCSI chain, as I eventually found out, not my Yamaha CD-burner).

## 1.212 MakeCD.guide/FAUDI

Questions about audio CDs  
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Question (Audio file formats):

Which audio file formats are supported by MakeCD?

Answer:

MakeCD only supports audio data at a frequency of 44.1 khz in 16 bit stereo. With MakeCD 2.4 this data must exist in pure form without additional information (sometimes termed CDDA format) or as AIFF.

If the additional information is missing, the settings for byte order (i.e. Motorola or Intel) and the file length ("multiple of the block length" or "any") are used. This does not apply to the AIFF format, since it does contain additional information.

Question (AIFF length incorrect):

I have converted sound data into AIFF, but when I select the file, MakeCD reports the AIFF file length as incorrect. Why doesn't adjusting the audio length help?

Answer: The exact error message is presumably as follows:

Source file »filename« has wrong type »wrong AIFF« or wrong

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size 0. Track 1 requires »Audio (normal)« with block size 2352.

This error occurs not because of the size, but because of the file format. It is admittedly an AIFF file, but does not contain audio data that can be burnt directly to the CD (see the question on supported audio formats).

The audio length settings are only used for data without additional information, and are therefore not used with AIFF.

Question (Audio data variation):

I have read an audio track several times, written to various files, and then compared the files. Unfortunately I notice that the files are completely different, although the audio data sounds fine. Surely this is not normal - I thought that the data is stored digitally -- the files ought to be identical!

Answer:

It is true that the data is stored in digital form. Even so, it is difficult for your CD player, your CD-ROM drive and your CD-burner to control an audio track with exact precision. Even the better CD-ROM drives do not always begin reading an audio track at exactly the same byte. The result is that the bytes in the two image files are slightly out of synch (for example, the TEAC CD516S V1.0D tends to vary between 20 to 100 bytes). A byte comparison of such image files will leave the impression that the files differ greatly from one another - in reality, there are merely slightly out of synch by a small number of bytes. One second of music corresponds to 176400 bytes. So, if the drive starts reading 100 bytes too late, you are actually losing a mere 0.0006 seconds of music.

Since there are no error reports and correction for audio data, it is certainly possible that differing data is transferred from time to time, especially if the medium is not of the highest quality. Whether these disturbances are extreme or not very much depends on your CD-ROM drive. Some CD-ROM drives are very good at reading scratched CDs, while others will transfer corrupted data.

Question (Start of song missing):

When reading audio data I notice that some songs are missing the start of a track -- perhaps half a second. This is not noticeable with some songs, but is very annoying with others.

Answer:

The problem lies with your CD-ROM drive or CD-burner. Some CD-burners (e.g. Yamaha CDR 100/102 and Philips CDD 2600) start reading audio data in the wrong place if the pregap of the first track has an unusually high value. You can recognize this if the first track does not begin at block 0, but, for example, block 33. Drives which exhibit this problem start reading the first block too late (and will continue reading a little beyond the last block).

You can get round this problem by modifying the start block for

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audio data in the MakeCD settings. Enter the number of the first block of the first track on the audio CD and you should get the full song. So, if the first track starts at block 32, enter '32'.

Please bear in mind that this change will only affect those tracks that you select after changing the settings. If you have already selected the tracks, you need to select them all over again, since the block numbers are automatically corrected when choosing the tracks and not when the tracks are first read.

Question (Cyclic cracking in audio data):

I have burnt an audio CD but can hear a cyclic cracking in the music. I have checked the image files, and the cracking is present there too. What is causing this?

Answer:

Some CD-ROM file systems regularly check to see if a CD is in the drive. The method used by AsimCDFs can corrupt audio data. MakeCD tries to deny such accesses by file systems, but technical limitations mean that the problem can still arise. Turning off the CD-ROM file system normally resolves the problem.

Question (Errors in audio data):

I have read audio data from a music CD and there are detectable errors at random positions. What's going wrong?

Answer:

Somebody has reported such a problem, which arose as soon as a Zip drive was attached to the same SCSI bus. As soon as he removed the Zip drive, the phenomenon disappeared. Another person reported that more noise was generated with reselection turned on than with reselection turned off. Your best bet is to save the data to RAM or to use a huge buffer. We have also been told that you should check the termination of the SCSI bus in this case.

Question (CD-ROM drive too slow with audio CDs):

If I copy an audio CD, the data stream breaks off after a while. My 8x CD-ROM drive is evidently not fast enough, even though my burner writes at double speed only. What is going on here?

Answer:

Many CD-ROM drives read CDDA data at single speed only. When copying an audio track, you should set your CD-burner back to single speed -- or use temporary files.

Some SCSI host adapters (e.g. Oktagon2008 v6.8) cannot transfer certain block sizes at full speed ((e. g. block sizes that are not to the power of 2 or are not a multiple of 256 bytes). Oktagon informed us that it would only transfer at about 230 KB/s. A CD-ROM drive that reads at double speed needs the audio data to arrive at about 345 KB/s.

The future ROM update for the host adapter may remedy the problem -- or, of course, another SCSI host adapter.

Question (Audio tracks missing when using CD player):

I tested MakeCD by writing a single audio track. I then fixed the

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session and inserted the CD in my CD player. Worked perfectly! Then I wrote another track, but this was only recognized by my CD-ROM drive, and not by my CD player. Why?

Answer:

CD players recognize only those tracks contained in the first session. You should not have fixed after the first track, but only then, when all tracks had been written.

But the CD is not totally unusable. Simply write a data image to the remaining space! Then all you need is a file system that supports multisession CDs in order to access your freshly burnt data CD.

Question (Philips -- Audio problems):

I would like to read some audio tracks with my Philips CDD 2600 CD-burner. The inner tracks can be read without problem, but I get errors with the outer tracks. What can I do about this?

Answer:

This is a typical problem with the Philips CDD 2600 and HP SureStore 6020 (and similar drives). Reduce the read speed for audio data using the settings window to single or double speed. This usually helps.

Question (toshiba -- audio problems):

I am using a Toshiba CD-ROM drive, CD-ROM XM-3701TA. It will not read audio data correctly. My firmware version is 3055 (12/25/95). Please can you support this drive too?

Answer:

You are using a defective and outdated firmware version. Obtain the latest firmware version from the Toshiba BBS: +49 2131/158123. The file that you require is 'tosh-up.zip'. One user has told us that he could not read CDDA data at all. After he obtained the update, everything was fine. Perhaps this will help with similar problems involving Toshiba drives.

Question (Ricoh -- audio problems):

My Ricoh 1420 CD-burner, firmware 1.6x, reads audio data, but the quality is very poor. What can I do about this?

Answer:

We have heard that the Ricoh 1.6x firmware reads with multiple speed but with a loss in quality. Try adjusting the speed in the MakeCD program settings to single or double speed, or try using firmware 1.4x. You require another digit in place of the "x" depending on whether you are using the 512 KB, 1 MB or 2 MB Ricoh.

Question (pause between audio tracks):

How can I change the pause length between the tracks?

Answer:

MakeCD currently uses Track-At-Once-Mode only, i. e. it always transfers the raw data for a single track and leaves it to the burner to create checksums and write the pauses and contents. This has the advantage that the writing between the tracks can be

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interrupted for any length of time and multisession is possible. Only the Disc-At-Once-Mode would permit you to determine the pause lengths. MakeCD will support this mode as soon as possible.

Question (Noise instead of music):

I have burnt an audio CD, but the CD does not contain the audio tracks selected, merely noise. What have I done wrong?

Answer:

Presumably the audio data byte sequence is incorrect. MakeCD can create and use data in either the Motorola format (MSF) or the Intel format (LSF). You can select this in the settings. There is no method for MakeCD to find out which format audio data has been saved under, so you must enter the correct value. The audio format that you select will then be used both for reading and writing audio data.

## 1.213 MakeCD.guide/FDATA

Questions about data CDs

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Question (Drive shows wrong session):

I have a CD-R containing several sessions, but my drive shows the wrong session. It should show the last session written, but it always shows the previous or last but two session. How can I access the data I have just burnt?

Answer:

There are two possibilities: either your CD-ROM file system is not working properly (try a different CD-ROM file system), or your drive has a problem with multisession CDs containing too many sessions. These drives stop reading the CD from a certain session. Unfortunately there is little we can recommend here -- aside from purchasing a new drive, We have got on well with the TEAC CD516: the Teac recognized and correctly read all sessions on a CD-R that has problems when used with a Toshiba drive or CD-burner.

Question (Multivolume):

I would like to make a multivolume CD by copying the data tracks from several fairly empty CDs onto a single CD-R. I have tried this by reading the tracks from the source CDs and then copying them one after the other to the CD-R, fixing the session each time -- anyway, I have tried twice without success - both times, only the first track can be read. What am I doing wrong?

Answer:

Each multisession track or multivolume track that is not the very first track on the CD-R must be specially made since the data track is different -- according to which block the track starts at on the CD-R. Tracks set to base block 0 cannot be written to another position on the CD-R. MakeCD warns about this from V2.0 or higher - previous versions gave no warning (base blocks were not even supported then).

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Question (Multivolume confusion):

I have just made a multivolume CD and experimented with a few file systems, but I can only see either the first or the last volume. Where are the other volumes?

Answer:

Unfortunately, many file systems do not support multivolume yet. At the time of writing, we are aware of just one file system with multivolume support: CacheCDFS from the IDEfix '97 pack. We expect that multivolume will be supported in future versions of AmiCDFS and AsimCDFS.

Question (Creating multisession CDs):

How do I go about burning a multisession CD?

Answer:

First read the instructions, then follow the instructions!

Question (Multisession Confusion):

I have made a multisession CD. The first session contains about 200 MB of data and in the second session I have about another 100 MB of data. Workbench displays just 100 MB - surely this should be 300 MB? I have tried fixing the CD-R, but that doesn't help.

Answer:

This is not a problem. Although the new track in the new session shows only the number of bytes contained in this track, all the data is there. Try it and see!

Question (Size of data on CD):

When I use Meeting Pearls II, Workbench says, for example: 650 MB used. But when I calculate the size in bytes using DirOpus, I do not get the anticipated 680,525,824 bytes, but about 50 MB less. What has happened to the missing 50 MB?

Answer:

A CD is written with a block size of 2048 bytes. This means that on average there are 1024 bytes waste for each file. So 50,000 files would account for a waste of about 50 MB. Well, how many files does DirOpus count for Meeting Pearls II? ;-)

The system data (directory structure etc.) uses very little space under ISO9660 and RockRidge.

Question ( Protection bits cannot be seen):

I have read that MakeCD can write AMIGA protection bits and file comments. I have written an image file and selected both RockRidge and AMIGA attributes -- but when I register the image file, all files have standard protection bits. The script bits are still missing. What has gone wrong here?

Answer:

You must use a file system that supports AMIGA protection bits. AmiCDFS2, which is freely-distributable, support AMIGA protection bits from V2.30. CacheCDFS (included in the IDEfix '97 pack) also has support for the Amiga protection bits, and, in addition, also

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has multivolume support. AsimCDFS supports Amiga protection bits from V3.7 (L:AsimCDFS contains an old version string! "AsimCDFS 3.6 (05.11.96)").

Question (File system for CD-burner):

I have an A3000 (scsi.device V40.12) and a Yamaha CDR 100. MakeCD works brilliantly. I have no problems at all. The Yamaha seems to be a very good writer! However, my file system is unable to mount CDs on the CD-burner. MakeCD can read the data track, but my file system (BabelCDROMFS) comes up with "not a DOS disk". The same CD works fine in my CD-ROM drive -- even with the strange file system. This seems weird!

Answer:

We tested the same configuration and experienced the same problem. The Yamaha CDR 100 is indeed a very good writer and is not to blame for this problem. The scsi.device has problems controlling the writer with the trackdisk command. It is possible that the same problem will arise with the A2091 and other Commodore host adapters. We were able to solve the problem on the A3000 by installing the new V34 scsi.device.

If you do not want to install scsi.device V34, use a file system that employs SCSI-direct commands. AmiCDFS (shareware) would be a good choice. In any case, make sure that the file system uses SCSI commands (check the documentation of your file system). Then, everything should be fine.

Question (Checking data CDs):

How can I check that the data CDs I create really are okay?

Answer:

We check our data CDs using 'brik'. Brik is included with some versions of MakeCD. It can also be found on the Meeting Pearls III or IV CD-ROM, or on our home page. Brik generates CRC32 check sums for one or all files. You should generate the checksums for the data on your source partition. After burning, you can then check -- with the help of brik -- whether the data is identical to that on the source partition.

The version of brik included with MakeCD includes a short description file to assist you in using brik.

Question (Slow image generation):

I have tried to create an image file using MakeCD. But regardless of whether I write it to the hard drive as an image, or send it directly to the CD-writer -- it is incredibly slow. Can't you optimize this a little? My processor is normally very fast and I have plenty of memory.

Answer:

MakeCD is already extensively optimized. But we have heard of such cases in the past. These problems were traced back to a configuration error in the mask value of HDToolBox.

Proceed as follows -- we accept no responsibility for any damage to your rigid disk block! You make all changes at your own risk!

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If you destroy your RDB, don't format the whole disk -- try taking a look at Angela's RDB-Salv first. You can find it at <http://home.pages.de/~Angela/rdbsalv.html>. RDB-Salv can save lost AmigaDOS partitions!

1. Start HDToolBox
2. Select the hard drive containing the partition that is to be used for creating the image.
3. Click on 'Partition Drive'.
4. Click on 'Advanced Options'.
5. Now select the partition which you read the data from.
6. Click on 'Change ...'.
7. You should now see 'Mask'. Your value is probably '0xffff?', where 'f' is often 'c', 'e', or 'f'. Add two 'f's after the five 'f's (e. g. '0xffffffc' and then save.
8. Exit HDToolBox and restart your AMIGA.

Now try creating another image using MakeCD, storing it on the partition that you have just edited. If the process is much faster, change your other partitions in the same manner.

Question (ISO image contains MakeCD):

I have created an ISO image which contains my data. But once I had burnt it to my CD-R, I noticed that MakeCD was also recorded into the image. I am a registered user and do not find this amusing! Please help me stop this!

Answer:

We have not intentionally packed MakeCD into your image. To be more precise, you have done this. ;-) When you were in the settings and set the path to be included in the image, you probably clicked on "New" too many times. This would generate empty entries in the list and cause MakeCD to record the directory "" into the image. The directory "" usually contains MakeCD. Please make sure that you do not create empty entries in this list and you should be okay.

Question (ISO 9660 directory levels):

Before I burn an AMIGA CD, I check all directories to ensure that I do not exceed eight directory levels, so that the image is not defective. When are you finally going to install the corresponding function?

Answer:

Don't worry about this -- even if you do exceed the eight directory levels, the image is by no means ruined. In fact, such images are can be read without any problems at all on the AMIGA. It is only on DOS machines that you are unable to access the deep directories. But this is not a problem for most AMIGA users. All

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the same, we will install a suitable function as soon as time permits.

Question (ISO 9660 directory levels):

Okay, so I now know that the restriction to eight levels does not apply to the AMIGA. But what, then, is the directory level restriction for CDs on the AMIGA?

Answer:

There is no such absolute limit on the AMIGA. However, directories become so unwieldy at a certain depth (very long paths etc.), that many AMIGA applications will probably crash or malfunction when presented with such directories.

You should be able to burn as many AMIGA directory levels as you wish on the CD-R.

At a certain depth (undefined - this can be different each time), the stack for MakeCD will run out and the program will crash. But this should only happen at a very deep directory level.

## 1.214 MakeCD.guide/FBCKP

Questions about copying CDs

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Question (CD Back-up Copies):

How can I make a back-up copy of my diverse CDs (with several tracks to)?

Answer:

In the Audio section of the settings window you have to use as Start 0 blocks and Pause 152 blocks. Back in the main window you can add the entire CD via the menu. When required (if the performance is not sufficient), you can turn on temporary images and write the CD.

You can use these settings to copy most, but not all, CDs successfully.

Disk-At-Once is required for making 100% identical copies of CDs. This is planned for version 3.0 of MakeCD. Even so, the above method often suffices.

Question (Copying problems):

I have tried copying a CD to a CD-R. I read from the CD-ROM drive and wrote directly to the CD-burner, i.e. without using temporary files. My CD-ROM drive reads at 12x speed and my CD-burner writes at quad speed. Suddenly, the speed of the CD-ROM drive falls dramatically and the buffer empties out. Another saucer.:- ( Please repair this.

Answer:

We cannot repair this. CD-ROM drives often reduce their speed when

they encounter a scratched surface that has to be read. Once the scratch has been passed, many drives then move speed up again, while others stay at the reduced speed. The latter is probably what is happening in your case. You could try a firmware update for your drive that may correct this, or use temporary files for scratched CDs. It may also help to reduce the write speed.

## 1.215 MakeCD.guide/FVRIO

Miscellaneous questions about burning CDs

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Question (Screenshots as bug reports):

MakeCD aborts with an error. I enclose a screenshot of the requester by E-mail.

Answer:

Please do not send us screenshots or error requesters! This burdens the Internet, and there are very few cases where a screenshot is required/helpful. Please use ASCII!

Question (Bug reports):

MakeCD aborts with the error xyz. Any ideas?

Answer:

If you can reproduce the error, you can help us by activating 'DEBUG=<file>' in the 'DEBUG=<file>' tooltypes. Then, restart 'DEBUG=<file>', reproduce the error, and send us the debug info.

Question (Burning CDs bit by bit):

Is it possible to burn a CD bit by bit? For example, I would like to burn a few audio tracks today, a few more tomorrow, and then fix the CD on the following day. Am I able to remove the CD from the drive in the meantime. Is there something else I need to know?

Answer:

Yes, in Track-At-Once-Mode the burning process can be interrupted for any length of time after the burning of each track. In addition, you are also able to take the CD-R out of the drive. You can even finish the CD-R in a completely different CD-burner. MakeCD automatically takes care of this for you. All the same, you should make sure that MakeCD does not fix the session without your explicit wish, since a CD player will only find the audio tracks contained in the first session, which in this case would not be your intention. So, make sure that you turn off automatic fixing.

Question (CD-R Size):

Today I am standing in front of a shelf with various 74 minute CD-Rs. Should I purchase the CD-Rs with 780 MB or the CD-Rs with 650 Mb? Actually, I would like to pack as much information onto the CD as possible, but provided that 780 MB CD-Rs are at least as good as 650 MB CD-Rs. Can I buy the 780 MB CD-Rs with confidence?

Answer:

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You have fallen for a marketing ploy. 74 minutes are 74 minutes, that cannot be disputed. Both CD-Rs, however, store about the same amount of data. You will, of course, ask why the MB statements do not agree. This is quite simple: 330,000 blocks fits on a 74 minute CD-R. If you write 330,000 blocks to the CD-R, you end up with  $330,000 \times 2.048$  bytes, i.e. 681,984,000 bytes (650 MB). Some firms mark state the capacity as 680 MB for marketing reasons (where 'M' no longer stands for "mega", but "million". If you then fill the 330,00 blocks of the CD-R with music data, you end up with  $330,000 \times 2.352$  bytes, i.e. 783,216,000 bytes (746 MB), since music data does not require bytes for the sector header, ECCs or EDCs. To work the figures as much as possible, some firms then state the capacity as 780 MB or 783 MB.

In conclusion, one can say that 650 MB, 680 MB, 750 MB and 780 MB CD-Rs all have the same storage capacity.

Question (Target CD-R: inconsistent storage shown):

The space shown in the target CD-R window is not consistent. If I add the used and the available space together, this does not agree with the total size of the CD-R.

Answer:

This is a known problem and depends on your burner. Some CD-burners include the pause after the last track that has not yet been written, others count this as free space. This can lead to deviations of 2-3 seconds - just ignore this.

Question (Storage question):

How can I tell if all the files I select will fit onto a CD?

Answer:

MakeCD is calculating since version 2.2 the amount of data to be written and is comparing this size with the amount of free space on the inserted media. If not enough space is available, a warning will be shown.

Question (Draco):

Shouldn't MakeCD run on the Draco too? I am experiencing all manner of problems.

Answer:

You are presumably using more than one memory module with the Draco. Place a large memory module (32MB if possible) in the first connector and make sure that there is still memory free on this module before you start MakeCD. MakeCD is stable if you have all data necessary for SCSI transfer in this first module. The buffer, whose size can be selected in the settings, can be stored in the other memory modules, but the (small) "IORequests" and SCSI commands must be stored in the first module.

Incidentally, this is a bug in the dracoscsi.device - there is nothing we can do about it. If you follow our instructions, you should be able to get around the problem.

Question (Hanging SCSI bus):

My burner frequently hangs after a while. The SCSI bus seems to be

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blocked. What can I do?

Answer:

Try turning off reselection and synchronous transfer mode. There is a tool, 'CTRLscsi' (Archivname: 'HWGCTRLscsi.lha'), for V39/V40 Commodore SCSI devices. This tool is included with most versions of MakeCD and lets you turn reselection on and off for each unit.

See also SCSI problems

Question (Drive does not show all tracks):

I have a CD-R containing several tracks, but my drive does not show all tracks -- the last few tracks are always lost. This means that I am unable to use multisession or multivolume CDs as intended. What am I doing wrong?

Answer:

You have purchased a poor drive. Good drives show all sessions; bad drives can have problems and show only those tracks in the first few sessions.

Question (Corrupted data CD):

I have created a data CD using MakeCD. No errors were shown, but the image must have been corrupted, since several icons burnt to the CD are missing on the Workbench, and numerous archives are corrupt. I have tried using another version of MakeCD, resulting in another defect CD-R. Sometimes even the disk icon fails to appear, and sometimes the file system even crashes. My configuration is: A4000, Yamaha CDR 100, Toshiba 4101, Noname blank.

Answer:

Have you tested the CD on your Toshiba? Toshiba drives (and drives from other firms too) have always had problems with specific types of CD-R. The same blanks can be read without problem on other drives. Try this - your two apparently defect blanks can probably be read perfectly on another drive (e. g. TEAC). See the file 'doc/Compatibility'. This contains details on some CD-Rs which we have found to be reliable.

Question (Read problems):

My CD-burner used to work perfectly with all types of CD (silver CDs, CD-Rs, etc.). For a while now, I have been able to read silver (pressed) CDs only. I experience problems trying to read CD-Rs - even those that I wrote a few months ago on this very CD-burner! What can I do about this?

Answer:

Somebody described exactly the same problem to us. After using a CD-cleaner, everything was fine again. Such problems are particularly common among smokers.

Question (Transfer rate):

The transfer rate for my CD-ROM drive is faster than it should be - or at least it appears to be. MakeCD's write window shows a very high transfer rate for the drive. Why?

Answer:

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MakeCD the interval between sending a read request to the CD-ROM drive and receiving back the request together with the data. That is all. Some drives used intelligent buffer technology while MakeCD is not using the drive to fill its buffer with data that it hopes will be requested on the next access to the drive. The drive often "guesses" correctly and the drive is able to send the data directly from the buffer to MakeCD without even having to access the CD. This is why the drive appears to be so fast. Were it not for the small pauses, the value would be slower.

Question (CD- drives):

What are CD-RW drives? They have something to do with CD burning too, don't they?

Answer:

CD-RW drives are CD-burners which can also write to the new CD-RW media. CD-RW media are special CD-Rs which, although significantly more expensive than CD-Rs, can be written to up to 1000 times, although they can only be used with CD-RW drives. CD-RWs cannot be read using CD players or CD-ROM drives built prior to 1997. Only some drives built before 1997 can also read CD-RWs.

Question (Fixing the CD-R):

I am unable to fix my CD-R! I have fixed all the sessions and now I want to fix the CD, but I cannot!

Answer:

You can only fix the CD-R if you have written tracks to the last session. When you fix a session, a new session (without tracks is opened. This is why you cannot fix the CD-R, because you have not written further tracks since fixing the last session.

When you fix a session, the lead-in for this session is written. This includes the track table of contents for this session required by the CD-ROM drive to find the tracks. This is why unfixed session cannot be read on CD-ROM drives. The lead-in also contains information about the start of the next session, even if this is empty.

When you fix a CD-R, the principle is exactly the same, except that, instead of the information about where the next session begins, a marker indicates that there are no more sessions on the CD.

Since a drive runs through all the sessions one by one when reading the tracks, it will stumble at the last session if the CD-R has not been fixed. This is because it encounters unreadable data when searching for the last session. This slows down the reading of the track's table of contents. For this reason it is best to fix the CD if you are sure that no further tracks need to be written.

Question (Safety measures when burning):

What do I need to turn off while I am burning a CD? I know that I should turn off my screen blanker as well as quit any programs running in the background. Is there anything else to worry about?

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Answer:

To be honest, we, the authors, turn off absolutely nothing when burning a CD. Our screen blanker continues to run and does not interfere. Sometimes we type in texts during burning -- without any problems.

It only becomes critical if a program crashes (so only use stable programs), or if a program takes up lots of processor time at a higher priority. We have been told that the switching of high resolution screens on graphics cards can cause a buffer underrun if the graphics card driver is set to a higher priority. We have not encountered problems using normal AMIGA-Screens.

Question (CD-burner recommendation):

CD-burners

Which CD-burner should I buy?

Answer:

We always recommend Yamaha CD-burners (CDR 100, CDR 102, CDR 200 and CDR 400), as well as the Ricoh MP6200S. It is well worth looking at the file 'doc/Compatibility'.

Question (CD-ROM drive recommendation):

I am planing to buy a new CD-ROM drive. Any tips?

Answer:

Angela has a TEAC CD516S (SCSI), which also has an ATAPI version, and is very satisfied with it. The drive should theoretically read at 16 speed - on the A3000 we could only measure 12 speed. But the drive has a number of advantages:

- Reliable reading of audio data (CDDA). There were no discernable differences in the CDDA files on the A3000 when reading at quad speed, with the exception of being a few bytes out of synch (which is to be expected). When reading at 8 speed, there were a few small inaudible changes every million bytes or so.
- Excellent error correction. Even scratched CDs can be read well. The same goes for CD-Rs which were completely unreadable in other drives.
- No detectable reselection problems, although the A3000 is very susceptible to this.
- Quiet -- the drive is supposedly quieter than most other 16-speed drives, although we have not been able to compare the noise to other 16-speed drives.
- FlashROM -- the firmware can be updated with the help of a PC should the need arise.
- drawer technology, so caddies are not required.

These tests were carried out with a TEAC CD516S, firmware version 1.0D. The firmware version 1.0g is reputedly even better and

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resolves a few problems. e.g. firmware version 1.0D swaps the audio channels of the TEAC, but this has been resolved in firmware version 1.0g. Therefore we heartily recommend updating to 1.0g.

Question (CD-burner support):

When are you going to support my CD-burner XYZ?

Answer:

It is not easy to support all the different makes of CD-burner, because there is no SCSI command set which has been implemented for all CD-burners. Try our MCC driver for modern CD-burners. If this driver doesn't work, try the other drivers. If none of the drivers work, we need the programming docs for your CD-burner and often a loan unit for this version. Check 'doc/Compatibility' to see if support is already planned for your drive.

Question (Add entire CD or image file):

What is the difference between 'Add entire CD' and 'Add image file'?

Answer:

'Add entire CD' reads all the tracks from your read drive and adds them to the track list. Track types are set automatically.

'Add image file(s)' opens a file selection window which you can use to select one or more image files to be added to the track list. For technical reasons, the track types cannot be recognized and set automatically -- you may need to set this yourself.

Question (Block medium):

What do I do about the block medium. Do I need to create a special partition for it?

Answer:

Actually, even a hard disk would be appropriate. It would then be very easy to mount a CD-ROM file system on this disk so that the image can be tested. This saves you having to use cdromemu.device.

Also, you can send such disks to a press works.

If you are not sure what you are doing, you are well advised to leave the block medium alone - if you make a mistake, you can destroy a lot of data.

Should you nonetheless proceed and end up destroying the RDB, perhaps RDB-Salv can help you:

'<http://home.pages.de/~Angela/rdbsalv.html>'

Question (Corrupt CD):

I have written a CD which seems to be defective. My CD-ROM drive cannot read it at all. :-(

Answer:

Fix the session or the CD-R so that you can access the CD using the CD-ROM drive.

Make sure that you are not using a cracked version of MakeCD. Many

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crackers are incompetent and often cause far more damage to the program than they realize.

Please don't blame us for viruses on cracked versions. You should download a clean, slightly limited version from our home page.

Question (Root directory):

This is a nice feature, since you can use the name of the track as the name of the ISO image. This saves time as well. The files are always written to PROGDIR: -- except if you change the path by hand. This can be irritating. Please can you add a feature so that you can chose the default directory?

Answer:

You are referring to the 'Root directory' gadget in the top left of the main window. Simply enter your work directory there.

Question (Read error):

I want to read a CD with data and audio tracks. At the end of a data track, MakeCD reports a read error!?

Answer

The table of contents (TOC) of a CD only saves the positions where the CD tracks begin, not where they stop or how long they are.

On reading a CDs table of contents (TOC), MakeCD attempts to strip the pause after a track from the length of the track. For technical reasons, this only works if the pause after the data track is not unusually long and if the CD shows no read errors at the end of the track (e. g. through scratches).

If the method used to determine the track length fails, you can either reduce the track length before reading, or ignore the error by selecting "Use File" in the error requester.

Question (Problems not concerning data tracks):

Reading and writing is fine with data tracks, even with disconnect, but I get problems with other track types. Why?

Answer:

Some SCSI host adapters increase their performance if you e. g. make assumptions about the block size, z. B. that the block size is a power of 2 or a multiple of x bytes (x = 32, 64, ...). These assumptions are wrong for unusual block sizes such as 2352 bytes (audio tracks) and that will cause the host adapter to fail.

Question (Repairing CD-Rs):

Which burners can I use in conjunction with the repair option in the "Target CDR" window? What will be repaired?

Answer:

If the writing was interrupted by a power failure, the Philips burners and compatibles offer a command so that a defective CD-R can be used again -- but only if the CD-R was not removed from the drive! This is the feature used by the MakeCD Philips drivers.

The Yamaha CDR100/102 and compatibles do not support repair.

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The Sony 926S, Yamaha CDR200 and Yamaha CDR400 have a very powerful repair command which can even cope with defective CD-Rs that are not recognized at all on other drives.

Most devices finish the last track automatically should the data stream be interrupted and the burner is still running. The track is then too short, but at least further tracks can be written to the CD-R.

Question (CD-R label):

I have removed a small label from the CD-R. I have accidentally removed a some of the golden surface at the same time (now stuck to the label). There is now a small hole in the middle of the CD which can be seen through. Can I paint over the hole? I have already tried putting the label back, but the CD still cannot be read.

Answer:

No, I'm afraid that the disk is damaged beyond repair. Unfortunately, removing the label often damages the reflective surface, destroying the CD.

## 1.216 MakeCD.guide/F-GUI

Questions concerning the GUI

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Question (MUI):

When will MakeCD have a MUI user-interface? I have already registered for MUI and don't want to register for Triton too!

Answer:

We currently have no plans for a MakeCD MUI user-interface. If someone would like to program a MUI interface, s/he should contact Patrick.

Triton allows the integration of gadtools gadgets into a program and saves us time calculating the gadget positions ourselves. From the user's perspective, the difference between gadtools and Triton is scarcely noticeable.

Question (Online help):

The online help causes problems with CycleToMenu and MagicCX. What can I do about this?

Answer:

You should not install hacks. Well, you supposedly don't want to remove these hacks. So we recommend that you turn off the online help once you are familiar with MakeCD. Please bear in mind that the bubble help comes from triton.library - we cannot change the way it works.

Question (Save window sizes and public screen):

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I want to save window sizes or have MakeCD run on a public screen.  
Is this possible?

Answer

The windows come from triton.library, so you can use the triton Preferences editor for both. You do not have to register triton for this -- although Stefan Zeiger would not complain :-)

You can find the complete triton system including the preferences editor on Stefan Zeiger's home page  
'<http://home.pages.de/~szeiger/>'. For further information, please see 'doc/Triton.readme'.

Here is a section from the trition manual:

If you want to register, please send DM20, US\$15 or an equal amount in any other valid currency to me. See Support, for addresses.

Send money by EuroCheque (only in German Marks (DM!)),  
postal(!) money order or cash! It's impossible for me to cash  
in foreign cheques, even if the amount is in DM.

EMail:  
'triton-support@laren.rhein-main.de'

Mail:  
Stefan Zeiger  
Seligenstädter Weg 24  
D-63796 Kahl  
Germany

Voice:  
+49-6188-900712

## 1.217 MakeCD.guide/FSETT

Questions about the settings

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Question (Device selection window crashes):

MakeCD crashes if I try to change my burner in the device selection window. This happens occasionally for one of my friends - another friend has never had this problem.

Answer:

We haven't been able to find a bug in MakeCD that could cause this. We have attached the Plextor burner to an A3000 and run HDToolBox. The program crashed while HDToolBox was scanning the SCSI bus. We have occasionally experienced this with the Yamaha CDR 100 and JVC XR-W2010, although we were able to solve the problem by changing the order of the devices in the SCSI chain.

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MakeCD tries to select trackdisk compatible device drivers with the help of NSD. Device drivers containing bugs can cause crashes. Please use NSDPatch from Heinz Wrobels and NSDQuery to find out which device driver caused the crash. Please inform us which driver caused the crash, not forgetting the version number. Simply type in 'NSDQuery CHECKALL'. Please try to send us a copy of the driver itself too. NSDPatch will allow you to edit the device driver without restricting its functionality so that it no longer causes crashes.

Please turn on 'DEBUG' in the MakeCD tooltypes and send us the output generated by MakeCD leading up to the crash.

If you are unable to adjust the device using the device selection window, activate the MakeCD program icon, select "Information" from the Workbench menu, and edit the tooltypes by hand. Set 'WRITE\_DEVICE', 'WRITE\_UNIT', 'WRITE\_DRIVER', 'READ\_DEVICE', 'READ\_UNIT' and 'READ\_DRIVER' as required. The extension '.driver' must not be declared for the '#?\_DRIVER' tooltypes.

Question (Parallel Read/Write):

What is the difference between sequential and parallel read/write?  
Which should I use?

Answer:

MakeCD 1.0 always uses the parallel method: two independent processes write and read simultaneously. In sequential mode, buffers of the same size are read and written alternatively.

The parallel method places higher reliability demands. It only works well if disconnect is properly supported and is turned on for the burner.

The sequential method can avoid possible errors in the controller, but has the following disadvantage: the next write process cannot begin if the preceding read process is delayed, even if the buffer is not empty. i. e. the buffer cannot compensate short-term fluctuations in the read performance.

## 1.218 MakeCD.guide/MGLOS

### Glossary

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#### Access Time

The "access time" is the time required to access a certain piece of information. For CD-ROM drives, the maximum access time is the time it takes for the read head to move from one end of the drive to the other end.

#### AIFF

"AIFF" stands for "Audio Interchange File Format"; Created by Apple as a standard file format for saving sound files of any type.

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## Block

In CD terminology, a "block" corresponds to a "sector". See "Sector".

## Blue Book

The "Blue Book" describes the CD EXTRA format.

## Bug Report

Almost all useful programs contain bugs. The complexity of programs makes it almost impossible to write error-free code. If you encounter bugs in MakeCD, please send us a "bug report". Please describe the bug as accurately as possible, including a "recipe" for reproducing the error. Be sure to document the exact version number of MakeCD that you are using. Also, please state your precise system details.

## Caddy

A "caddy" is a cover for CDs used by some CD-ROM drives or CD writers. The caddy is usually made of plastic or metal and you insert the caddy directly into the drive, the idea being to reduce the scratching of CD disks -- this only works in practice if each CD has its own caddy.

Caddies are of no use if you use a tray-loaded drive.

## CD

A "CD" is a storage medium that can save information. Think of a CD as a write-protected floppy disk with a massive storage capacity. Whereas floppy disks and hard drives normally use the AMIGA Filing System (OFS or FFS), CDs use a format known as ISO 9660. ISO 9660 is extremely popular -- files on ISO 9660 CDs can be read on almost any computer system.

## CD-DA

"CD-DA" stands for "Compact Disc Digital Audio".

Philips and Sony introduced CD-DA in October 1982, making it possible to record and save music digitally. The "compact disc" ("CD") was introduced along with CD-DA -- see "Red Book".

## CD Extra

See "Enhanced Music CD".

## CD-i

"CD-i" stands for "Compact Disc Interactive", a computer system developed by Philips for multimedia applications (real-time animations, video and sound). The CD-i format is defined in the Green Book.

## CD Plus

See "Enhanced Music CD".

## CD-R

"CD-R" stands for CD Recordable. These are special compact discs (also known as "gold disks" due to their colour) which can record data by using a special laser (in a CD writer) that "burns" microscopic holes into the recording layer. These pits can then be

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read by standard CD readers. CD-Rs are more fragile than standard CDs (the label side is particularly delicate) so extra care should be taken in their storage and handling. The recordable side is usually gold, green or blue in colour. The non-recordable side is often covered with some kind of label. Without a label, some people inevitably insert the CD-R upside down.

The surface above the reflective layer is very thin. This makes CD-Rs quite sensitive to scratches on the top side of the CD. Please bear this in mind when you label the CD - avoid using sharp nibs or markers containing solvents.

#### CD-ROM

"CD-ROM" stands for "Compact Disc Read Only Memory". This is a CD based on a standard for saving digital data to a CD. In contrast to CD-DA, less data is saved on the CD-ROM. The seemingly unused space is actually used for error correction codes. This coding is extremely important for data reliability.

#### CD-ROM Drive

A "CD-ROM drive" is a device that can be attached to a computer to allow CD-ROMs to be read or played. In order to play music CDs, you normally require amplified speakers or headphones - these are usually attached to the CD-ROM drive rather than to the computer itself.

#### CD-ROM Image

CD-ROMs, as well as floppy disks, hard disks or individual partitions, can be written as a single file. In the case of a CD-ROM, the image file is created by writing all the blocks to the file, beginning at block 0 and ending with the highest block number. When the file is written back to a CD-R, a CD-ROM is created which contains exactly the same data as the original CD-ROM. In principle, the CD-ROM has been copied.

If you want to save data from a hard drive to a CD, you cannot simply save the image of the hard drive to the CD-R. Instead you must use MakeCD to create an image derived from the directory or directories - this image can then be written to the CD-R.

#### CD-ROM-XA

The "XA" of "CD-ROM-XA" stands for "Extended Architecture". CD-ROM-XA is an extension of the "Yellow Book" standard. XA tracks can contain audio and video data and are suited to multimedia applications. CD-ROM-XA is commonly used for photo CDs.

#### CD-RW

"CD-RW" stands for Compact Disc ReWritable. This type of compact disc can be written to up to 1000 times.

#### CD-WO

"WO" stands for Compact Disc Write Once. See "CD-R".

#### Coaster

A "coaster" is a damaged CD-R(W). Coasters are totally useless for data, but some people find artistic uses for them!

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### Coffee Break

A coffee break is the amount of time a program requires to do a particular task in the background. The idea is that you go and have a cup of coffee while the task is running. Sometimes you'll barely have time to get to the kettle, another time you'll be able to bake a cake to go with the coffee...

My sincere apologies to those of you familiar with "Meeting Pearls III" who thought "coffee break" meant one cup of coffee. ;-)

### Compact Disc

See "CD".

### DAE

"DAE" stands for "Digital Audio Extraction". Audio data is read from a music CD and is passed on to the computer. The audio data can then be processed by the computer.

Please note: not all CD-ROM drives support "DAE"!

### DAO (Disc-At-Once)

"DAO" stands for "Disc-At-Once". This is a method for burning a CD-R. With "Disc-At-Once", one or several tracks are written directly in one piece (without a pause). The CD-R is fixed once the track or tracks have been written. "Disc-At-Once" enables you to make a 100% identical copy of a CD. It also enables you to make music CDs without a pause between tracks.

### Device Driver

Your AMIGA uses "device drivers" to communicate with devices such as hard drives or CD writers. Among other things, this driver is used to read data from the CD burner or to write data to it. Device drivers use the file suffix '.device'. For example: 'scsi.device', 'gvp SCSI.device', 'omni SCSI.device', 'z3 SCSI.device', 'dracoscsi.device', 'squirrel SCSI.device', 'squirrelserial.device' etc.

### Enhanced Music CD

Also called "CD EXTRA" and formerly known as "CD Plus". This is the standard for interactive CDs defined in the Blue Book. These discs consist of two sessions. The first session contains pure audio tracks, the second session is data in a restricted format (normally MPEG pictures). If a CD EXTRA disc is inserted into a standard audio CD player, only the audio tracks are visible.

### Green Book

Describes the details of the CD-i format. See "CD-i".

### HFS

"HFS" stands for the Hierarchical File System, the standard Macintosh file system. HFS does not conform to the ISO standard due to the unique data fork and resource fork structure of Mac files as well as the support for long file names. MakeCD cannot write CDs in the HFS format. There seems little point in adding HFS support, since Macs can read standard ISO 9660 discs.

### High Sierra Format

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The "High Sierra Format" is the file system originally designed for saving data to CD-ROMs. It was short-lived, being superseded by "ISO 9660".

#### Hybrid

"Hybrid" has two different meanings with regards to CDs:

1. In the "Orange Book", a "hybrid" is a CD-R with one or more sessions saved. However, the CD-R is not fixed -- data can still be written to the CD-R.
2. The word "hybrid" is increasingly used to refer to a CD that contains data in both the "HFS format" and in the "ISO 9660 format". With hybrid CDs, the HSF files are usually visible on the Macintosh, whereas other systems see the ISO 9660 files. Some AMIGA file systems show the HFS files too.

#### Image File

An "image file" is a single file containing all the data to be written to the CD. The file contains the data in the exact form that will be written to the CD.

#### ISO 9660

"ISO 9660" is a standard for cross-platform CD-ROMs. Discs created in this format can be read by many operating systems, including Amiga, CD32, Macintosh, MS-DOS, Windows and Unix.

#### ISO 9660 Amiga

The ISO restrictions are not suitable for the AMIGA. Under the ISO definitions, the filename would require a dot, which means that the AMIGA icon file would contain two dots (as it consists of the filename and the suffix ".info"). However, two dots do not comply with the ISO restrictions... So it is common practice for Amiga users to discard the restrictions and use filenames at will. Thus, MakeCD offers an option called "ISO 9660m Amiga" which uses the filenames as stored on your hard disk.

#### ISO 9660 Level 1

"ISO 9660 Level 1" does not support long filenames, just the old 8+3 style (FILENAME.EXT). The dot must be present and at least one character, either before or after the dot, is required. Furthermore, filenames can contain only capitals, numerals and the underscore character.

#### ISO 9660 Level 2

"ISO 9660 Level 2" is more flexible than "ISO 9660 Level 1": it allows up to 31 characters including the dot. The other restrictions for level 1 still apply: only one dot can be used and lowercase letters are not permitted.

#### ISO 9660 Level 3

"ISO 9660 Level 3" has none of the restrictions present in "ISO 9660 Level 1" and "ISO 9660 Level 2".

#### ISRC

"ISRC" stands for "International Standard Recording Code" and is a

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standard for cross-platform CD-ROMs. Discs created in this format can be read by many operating systems, including Amiga, CD32, Macintosh, MS-DOS, Windows and Unix.

#### Joliet

The Microsoft "Joliet" File System is an expansion of the ISO 9660 standard and was designed to overcome the filename restrictions of "ISO 9660". Joliet permits long filenames and filenames containing characters from international character sets.

#### Lead-in

The "lead-in" is the area at the start of every section on a CD-R. The lead-in remains empty until the session or the CD-R is fixed. During fixing, the table of contents (TOC) is written to the lead-in. The lead-in occupies 4500 sectors, which equates to one minute or about 9MB.

#### Lead-out

The area at the end of a session is referred to as the "lead-out". The lead-out simply marks out the end of the session. The lead-out for the first session requires 6750 sectors, which is one-and-a-half minutes or about 13MB. Lead-outs for the subsequent sessions take up less space: 2250 sectors, which is half a minute or about 4MB.

#### Meeting Pearls

"Meeting Pearls" is Germany's favourite CD series. If you have internet access, you can access the Meeting Pearls homepage at:

[www.core.de/mp/](http://www.core.de/mp/)

#### Mixed Mode CD

A "Mixed Mode CD" is a CD containing a data track as well as audio tracks. The data track is the first track on the CD. It is then followed by one or more audio tracks.

#### mkisofs

A program from the unix community used to create "CD-ROM images".

#### Multisession

"Multisession" means that a CD consists of information written in multiple sessions, each recorded at a different time. The sessions are linked together in such a way that only one logical device appears when the CD is mounted. Not all CD writers can record this type of CD, and not all CD readers can read them.

#### Multivolume

"Multivolume" means that a CD consists of multiple sessions, each recorded at a different time. However, unlike multisession CDs, all the sessions are completely independent of one another so that when the CD is mounted each session appears as an individual logical name. Not all CD writers can record this type of CD, and not all CD readers can read them.

#### OPC Area

"OPC Area" stands for "Optimum Calibration Area". This is a special area on the CD-R, close to the inner edge.

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A CD writer needs to test the CD-R material before burning a track in order to establish the optimum strength for the laser beam. The testing takes place in the OPA, which allows for up to 99 tests.

#### Orange Book

"Orange Book" describes the details of the CD-R (recordable compact disc) standard developed by Sony and Philips.

#### Packet Writing

"Track-at-once" has a maximum of 99 tracks per CD. Packet writing is a special method allowing several writes per track with minimal overhead (7 blocks per write). However, not all CD-ROM drives can read CD-Rs created using this method.

#### PCA

The "PCA" or "Power Calibration Area" is an area towards the centre of the disc used for fine-tuning the laser.

#### PhotoCD

"PhotoCD" is a standard based on the "CD-ROM XA", "ISO 9660" and Hybrid specifications in the "Orange Book". It allows photos to be saved to a CD-R.

#### PMA

The "PMA" or "Program Memory Area" is an area on the CD-R containing information about where individual tracks start and end. The PMA is used by CD writers only. Some of this data is written to the "lead-in" of the current session upon the fixation of the session or the CD-. This enables normal CD-ROM drives to find the tracks. MakeCD always tries to read in the PMA if you are using a CD writer. This is because the PMC, in contrast to the lead-in, contains details on the exact length of the tracks.

#### PostGap

The "PostGap" is 75 sectors in size and must be written after a track when the next track is a different type (e. g. data/audio).

#### PreGap

The "PreGap" is an area written before a new track. The PreGap separates the track from the preceding track and also stores further information for certain track types. The PreGap usually takes up 150 blocks (2 seconds).

#### Progress Indicator

The "progress indicator" informs you how much of the process has been completed. The movement of the indicator can be jerky under certain conditions. This is the case if the length for the operation could not be calculated before the process was started. Also, the processor may be overflow so that it simply does not have time to redraw the indicator rapidly enough.

#### Red Book

The "Red Book" describes the details of the original CD-DA (Compact Disc Digital Audio) standard developed by Sony and Philips.

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### Rock Ridge Extensions

"Rock Ridge extensions" extend on the ISO-9660 standard.

Among other things, Rock Ridge supports long, mixed-case filenames. The files can also be read with file systems that do not support Rock Ridge, although the long forms of the filenames will not be shown.

Angela Schmidt has teamed up with other AMIGA programmers to develop an AMIGA standard which allows AMIGA attributes (protection bits and file comments) to be saved for every single object on the CD-ROM. MakeCD supports these special Rock Ridge extensions.

We recommend that you use Rock Ridge extensions.

### Romeo

"Romeo" is a file system format which allows filenames of up to 128 characters in length. However, international characters are not supported.

### Run-in/Run-out Blocks

When the laser is turned on or off, 5 "run-in" or 2 "run-out" blocks are written. For technical reasons, these blocks must be written.

### SCSI ID Number

So that SCSI devices can communicate together without conflict, each device must have its own unique identification number (its SCSI ID). This is usually a number between 0 and 6, allowing up to 7 devices to be connected on your SCSI chain.

SCSI peripherals will normally have an ID selector on the outside of the case; this will be a display that indicates the current ID number and a push or rotary switch that allows you to change the number. Simply ensure that all the devices in your SCSI chain have different ID numbers. If you cannot see an ID selector, consult your user manual or contact the dealer that supplied your peripheral.

### Sector

A sector is the smallest unit that can be written by a CD writer. The number of bytes available in the sector depends on the track type. For data tracks, this value is 2048 bytes; for audio tracks, 2352 bytes. There are 75 sectors to a second. This means that 75 sectors of music data must be written to the CD-R to produce one second of music. A 74-minute CD contains  $74 \times 60 = 4440$  seconds or 333000 sectors of audio data.

### Session

A session is a collection of one or more tracks on a CD. Each recording procedure generates a session containing all the tracks recorded at that time. A CD recorded in multiple recording sessions is known as a multisession CD.

An empty CD-R always contains an open session, the first session. At least one track must be written to the session before the

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session or the CD-R can be fixed.

When a session is fixed, a new session is opened so that further data can be added.

When a CD-R is fixed, a new session is not opened and no further data can be written to the CD-R.

A fixed session always contains one or more tracks. An open session cannot contain any tracks.

A track cannot span several sessions.

#### TAO

"TAO" or "Track-At-Once" is the most common way of burning a CD-R. The laser can be stopped after each track. In fact, you can even take the CD-R out of the CD writer! This is not possible with "DAO".

The disadvantage of TAO is that 152 blocks (about 2 seconds) are usually written between tracks. With audio CDs, this leads to a two-second pause between songs.

#### TOC

The "TOC" ("Table of Contents") contains the number of tracks and the start sectors for each track. This information allows you to jump to tracks. The TOC contains details for fixed sessions or fixed CD-Rs only.

#### Track

A track is the smallest logical unit on a CD. A track is a minimum of 600 sectors in length and a CD can contain up to 99 tracks. There are three types of tracks: audio tracks, CD-ROM tracks and XA/CD-i tracks.

A track is a continuous data area on the CD. With music CDs, each song usually has its own track. This makes it easy to select the title you want to play: all you need to do is enter the corresponding track number.

When burning a music CD, you should give each title its own track. A music CD typically contains 10 to 20 tracks.

A simple data CD has just one track containing all the files. A multisession or multivolume CD has more than one track with data.

Each session contains one or more tracks. A track cannot span several sessions.

#### Unit

See "SCSI ID Number".

#### UPC

"UPC" stands for "Universal Product Code", a.k.a. "EAN". Some CD writers allow you to define a catalogue number (UPC) with 13 digits. The UPC is written to the "TOC".

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#### Video-CD

"Video-CD" is used for recording full-motion videos or movies on to a CD.

#### Yellow Book

The "Yellow Book" describes all the parameters for CD-ROMs.

## 1.219 MakeCD.guide/MSUPP

#### Support

\*\*\*\*\*

We work hard to ensure good support for MakeCD. We prefer support by internet where possible. The internet is constantly changing the way people work.

Letters take much more time to reply to - muchh more than e-mail. In view of this, we request that you use e-mail if possible or telephone. Post tends to have a slower response time.

If you have internet access, please use this facility to obtain your updates and support! In this way, we are able to spend more time developing MakeCD further.

Updates	MakeCD updates
Mailing Lists	MakeCD mailing lists

## 1.220 MakeCD.guide/SUPDT

#### MakeCD Updates

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MakeCD is continually in development. You can find the latest version of MakeCD, as well as new CD-R drivers etc., on the internet at:

`http://makecd.core.de/'

Alternatively, you can obtain the latest version free of charge (you pay the postage and packing costs only) from Katrin Schmidt. This offer is limited to one floppy per order. See registration form.

## 1.221 MakeCD.guide/SMLLS

#### Mailing Lists

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There are three mailing lists for MakeCD. English is the language of

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choice for the mailing lists!

`'ml-makecd@unix-ag.org'`

For discussions with other MakeCD users. The MakeCD authors read these too, especially to help ensure that everyone gets a response. Sometimes the authors will ask the users for opinions on a particular new feature, etc.

`'ml-makecd-announce@unix-ag.org'`

No discussions, but announcements made by the authors. For example, new versions or new drivers are announced here.

`'ml-makecd-binaries@unix-ag.org'`

This list sends all new MakeCD binary files (as well as new versions of MakeCD) directly to the mailbox of the person entered. This is useful for those without access to FTP servers or home pages.

You can make your entry in a list with `'"SUBSCRIBE <user@host.domain>"'` at `'<listname>-request@unix-ag.org'`, where `'<listname>'` stands for the name of the mailing list, e. g. `'ml-makecd-announce'`. Do not send these requests to the lists themselves, i. e. do not forget the `'-request'` in the address! Let's take an example: this is how we enter ourselves on the announcement list with the address `'user@my.email.address'`:

To: ml-makecd-announce-request@unix-ag.org  
Subject: Something

SUBSCRIBE user@my.email.address

To remove oneself from the list, you send a similar message, but where `'SUBSCRIBE'` is replaced with `'UNSUBSCRIBE'`.

The following message sends further instructions:

To: listserv@unix-ag.org  
Subject: Something

HELP

## 1.222 MakeCD.guide/MAUTH

Autoren von MakeCD  
\*\*\*\*\*

Two people have worked long and hard to bring you MakeCD

EMail to both authors: `'makecd@core.de'`

Unfortunately we cannot accept any registrations per EMail. If you have any questions regarding registration (e.g. whether your application has arrived/is being processed), please ring Katrin Schmidt (see registration form). We both live a long way away from Katrin und therefore don't know which registrations have been recieved in the last

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days/weeks. Also note that Katrin has no access to EMail.

Important: If you bought MakeCD through a dealer, you can only receive support from them or the distributor but not from authors named below. Please try to understand that we earn a lot less from a copy sold through a dealer than from a normal shareware registration. To make up this shortcoming, our business partners take it upon themselves provide support for buyers of the MakeCD package.

Patrick Ohly

He programs the GUI, all the SCSI stuff (including the CDROM and CD writer drivers), and just about everything to do with MakeCD, apart from the creation of ISO images. His address until end of September 1998 is:

Patrick Ohly  
KM104, Kenneth Max Kenzie House  
7 Richmond Place  
Edinburgh EH8 9VE  
Great Britain

Phone: ++44 (0)131 6624448/23104  
(Please don't expect him to call you back. If you just get an answering machine, just try again later instead.)

E-Mail: patrick@core.de

Angela Schmidt

She programs the routines to create the ISO images (and everything to do with them), most of the registration window, and the installer script. She also organises the distribution archives and writes the documentation. Her address at the moment (may become invalid after Autumn 1998) is:

Angela Schmidt  
Klosterweg 28/I501  
76131 Karlsruhe  
Germany

Phone: +49 721 695307 (18:30 h - 19:30 h CET)

E-Mail: angela@core.de

Please read the Instructions and the FAQ thoroughly before you attempt to approach the authors with your problem. Questions and problems that are covered in the documentation will no longer be answered or tackled by us in the future. When we receive irritating queries regarding something explained in the docs, we normally end up replying in a pretty unfriendly manner. We haven't written all these docs for nothing!

If you do have problems with MakeCD, first try using a 'clean' workbench installation (i.e. no extra programs or hacks/patches etc.) and see if the problem still exists before you contact the authors please. Otherwise you will receive no support.

If you have problems with your SCSI devices e.g. after clicking on 'Cancel' it takes an eternity waiting for IO to finish and no error requesters are displayed, please contact your dealer. In this case either your SCSI host adapter or CD writer are not working as they

should (see FAQ). Unfortunately we cannot help you if this is the case. If your SCSI bus 'hangs' while your CD writer accesses it, you probably have such a problem.

If, on the other hand, MakeCD displays an error requester, then please contact us. First enable the 'DEBUG' tootype in the MakeCD icon, reproduce the error, and send the resulting debug file to Patrick. You can also use the 'Write Logfile' option from the 'Project' menu.

Before you contact your dealer you should of course always read our FAQ and compatibility list!

The catalog files are from the following people by the way. The authors of MakeCD cannot be held responsible for any discrepancies in the translations.

Danish

Mark Holm <markh@email.dk>

German

Patrick Ohly <patrick@core.de>

Finnish

Mikko Virtanen <mtv@klinja.fipnet.fi>

French

Jean-Marc Boursot <jmarc.boursot@mail.dotcom.fr>

Greek

Manolis S. Pappas <el93637@central.ntua.gr>

Dutch

Tim & Korneel <crisp@unicall.be>

Italian

Francesco Dipietromaria <dpm@sinet.it>

Norwegian

Eivind Olsen <eivindo@bgnett.no>

Swedish

Fredrik Zetterlund <frallan@canit.se>

Czechoslovakian

Stepan Chladek <gyzamb@zamberk.alberon.cz> and Vit Sindlar  
<sindlar@jackal.cis.vutbr.cz>

Hungarian (needs 'util/sys/Magyar.lha')

Horváth Péter <pcpince@syneco.hu>

## 1.223 MakeCD.guide/MCRDT

Credits

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Katrin Schmidt

- For reliably organising the registrations.

Heinz Wrobel

- Valuable suggestions for improving the GUI.
- English translation of some parts of MakeCD.
- HWGCTRLscsi
- makeinfo
- NSDPatch
- JVC Firmware bug-hunter!-

HiSoft, UK

- English translation of parts of the manual
- Distribution of MakeCD-in Great Britain.

Oberland Computer, Germany

- Distribution of MakeCD in Germany and Switzerland.

Sven Hansen

- English translation of parts of the manual
- Correction of parts of the English translation of the manual.

Dominique Schreckling

Mike Hellers

- Correction of parts of the English manual
- English translation of parts of the manual

Jean-Marc Boursot

- French translation of the catalog file and installer script
- MagicWB Icon
- Thorough testing and constructive comments

Eivind Olsen

- Norwegian translation of catalog file and installer script

Fredrik Zetterlund

- Swedish translation of catalog file and installer script

Francesco Dipietromaria

- Italian translation of catalog file and installer script

Horváth Péter

- Hungarian translation of catalog file (requires  
'util/sys/Magyar.lha') and installer script

Mikko Virtanen

- Finnish translation of catalog file and installer script

Mark Holm

- Danish Translation of catalog file and installer script
- NewIcons Icon

Tim & Korneel

- Dutch translation of catalog file

Frank Arlt

---

- Lent us a JVC XR-W2010 for several weeks

Jesper Tuck

- Lent us a Matsushita CW-7501

Holger Hesselbarth

- Lent us a Panasonic CW-7502

Matthias Supp

- Detailed bug reports and suggestions
- Lent us a CDR 400

Oliver Kastl

- Knowledge of SCSI and CD-ROM technology!

Francisco Sepulveda

- Beta-tested the Panasonic driver

Christian Berger

Frank Zündorff

Glenn Mrosek

Sven Hansen

Friedhelm Bunk

Rudi Brand

Michael Knoke

M. L. Lie

Torsten Bücheler

Matthias Supp

Jesper Tuck

Klaus Melchior

Magnus Bouvin

Martin Schulze

Mirko Schäfer

- Invaluable bug reports and suggestions

Lars Eilebrecht

- MakeCD-Mailing lists

Michael van Elst

- CDDA-Sources

Michael-Wolfgang Hohmann

- Most of the icons in MakeCD

Thierry Schmitt

- MagicWB Icon

Bjørn Sjulstok

- NewIcons Icon

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Smoking	FW RTP
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Writing time	MIWWD
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