

# ExtenDOS

4

CD and DVD  
Driver Software  
for Atari Computers

Anodyne Software



# ***ExtenDOS***

# ***4***

Atari Compatible CD/DVD Driver Software

by Roger Burrows

Anodyne Software

## ExtenDOS 4

Manual rev 1.3 (January 2018)

This manual corresponds to version 4.0 of ExtenDOS 4.

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## DISCLAIMER

We have tested this product as thoroughly as possible and have not found it to cause problems of any kind. Nevertheless, Anodyne Software cannot guarantee that ExtenDOS 4 will function with all software and machine configurations, and hereby disclaims any implied warranty with respect to fitness for any particular purpose.

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## **Introduction**

Earlier versions of ExtenDOS established its position as the de facto standard driver for CD devices. Now ExtenDOS 4 extends this to support DVD devices too, including DVD recorders. The following summarises the major features of ExtenDOS 4:

- high performance (most of the driver is written in assembler)
- data and audio CDs appear to the operating system as read-only removable hard disks
- DVD-ROMs appear to the operating system as read-only removable hard disks (providing they contain an ISO9660 file system)
- improved audio player:
  - new dejittering feature enhances audio extraction, particularly on older drives
  - CD Text data on audio CDs is extracted and displayed
  - the included freedb database allows the display of album and track titles for over one million CDs
- includes MiNT XFS for better integration with recent versions of freemint
- provides low-level driver support for CD recording (CD-R/CD-RW) and DVD recording (DVD-R/DVD-RW/DVD+R)
- supports CD Session-At-Once recording for MMC drives
- supports Buffer-Underrun-Free (i.e. “burnproof”) recording

### ***How to use this manual***

Although you do not need to read the entire manual in order to get ExtenDOS 4 running, we suggest the following minimum reading:

If you are a new user, please read the section ***System requirements*** to determine what facilities are supported by your CD or DVD drive. Then read ***Installing ExtenDOS 4*** for the quickest way to be up and running.

If you are upgrading from a previous version of ExtenDOS, please read the section ***Installing ExtenDOS 4***. You may also need to refer to ***System requirements*** to determine what facilities are supported on your CD or DVD drive.

If you encounter any problems with installing or using ExtenDOS 4, please re-read the manual carefully, including ***Appendix A: Troubleshooting***.

## System requirements

### Base system hardware

*Computer:* ExtenDOS 4 will run on any ST, STe, Mega ST, Mega STe, TT030, Falcon030, or compatible system. ExtenDOS 4 needs a minimum of about 110K of memory, but the user can obtain increased performance by allocating additional memory for buffers.

*CD/DVD drive:* ATAPI/IDE drives are supported directly via the IDE port on a Falcon030; they are also supported via the SCSI port on a TT030, Falcon030, or compatible system with the use of an IDE-to-SCSI converter (please contact us for information on tested converters). SCSI drives are supported directly via the SCSI port on a TT030, Falcon030, or compatible. They are also supported via the ACSI DMA port by use of a suitable ACSI-to-SCSI host adapter. The Atari CDAR-504 is also directly supported via the ACSI DMA port.

*ACSI-SCSI host adapter:* If your SCSI drive requires arbitration (true of most CD and DVD drives), this must be provided by the host adapter. At the time of writing, the following host adapters support arbitration: the Link96 and Link97 (by WB Systemtechnik).

In order to access photoCDs, audio CDs, CD-R(W)s or DVDs, the host adapter must support the extended SCSI command feature that was introduced by ICD on the AdSCSI host adapter. Compatible host adapters include:

- AdSCSI, AdSCSI+, The Link (if your drive does not require parity), The Link2 (by ICD)
- Link96, Link97 (by WB Systemtechnik)

Older adapters such as the original host adapter from Atari may be used with ExtenDOS 4, but you will only be able to read standard CD-ROMs. You will **not** be able to play audio CDs, access photoCDs, or access any drive that requires arbitration.

### Base system software

ExtenDOS 4 works in the following environments:

- TOS (all versions)
- MultiTOS/MiNT (v1)
- Geneva (all current versions)
- MagiC (v2 through v6)

Please refer to the READ.ME file on the ExtenDOS 4 master diskette for any changes or additions to this list.

### CD/DVD read functions

ExtenDOS 4 provides support for four different read functions of your CD/DVD drive: data access to standard CD/DVD-ROMs, data access to photoCDs (both single-session and multi-session), playback of audio CDs, and direct digital copying of audio CD tracks. If you have an old drive (pre-MMC, i.e. manufactured earlier than about 1998), some functions may not be available. Please refer to **Appendix B: Pre-MMC drive support** for further information.

### CD/DVD write functions

ExtenDOS 4 provides support for the write functions of MMC-compatible CD/DVD drives. For pre-MMC CD-R drives (i.e. manufactured earlier than about 1998), the method for controlling the recording function varies greatly between drives, and is therefore only supported for certain models of drive. Please refer to **Appendix B: Pre-MMC drive support** for further information.

## ***Included files***

### **ExtenDOS 4 master diskette**

The ExtenDOS 4 master diskette contains the following files:

<u>File</u>	<u>Description</u>
INSTALL.APP	A program which is used for installing new versions of ExtenDOS 4 from floppy disk and for re-configuring previously installed versions.
INSTALL.RSC	The resource file for INSTALL.APP.
EXTENDOS.PRG	The base ExtenDOS 4 program; it provides the interface between GEMDOS and the drivers.
CD.BOS	The physical device driver for CD/DVD drives.
UNIDRIVE.DOS	The logical device driver that supports the ISO9660 and High Sierra file systems.
UNIMINT.XFS	The MiNT XFS that supports the ISO9660 and High Sierra file systems.
SESSION.CPX	A CPX that allows access to a specific session of a multi-session CD/DVD, or a specific backup track created by CDbackup (the partition backup program from Anodyne Software).
CDAUDIO.PRG	The program version of CDAudio, the audio CD control program.
CDAUDIO.RSC	The resource file for CDAUDIO.PRG.
EXTINFO.PRG	A program that displays hardware and software information about your system. There is more about this in <b><i>Appendix A: Troubleshooting</i></b> .
READ.ME	If this file is present, it may contain important information that could not be included in this manual due to publishing deadlines. Please double-click on it from the desktop, and Show or Print it before continuing.

Your ExtenDOS 4 master diskette may contain additional programs that were added too late to be included in this manual. If so, any required documentation will be found in the READ.ME file.

## Introduction

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### freedb CD

The CD supplied with ExtenDOS 4 contains an optimized version of the freedb database; the following files are present on the CD:

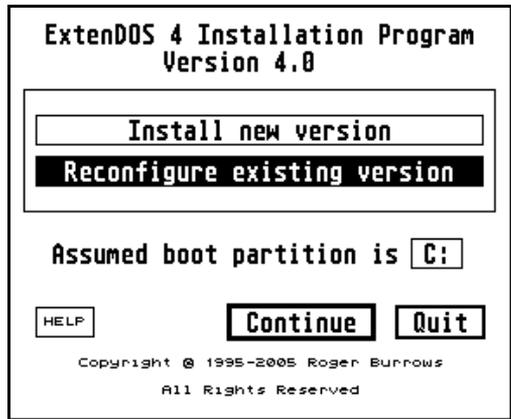
<u>File</u>	<u>Description</u>
README.1ST	A text file containing a description of all the files on this CD.
README	General information about the freedb database.
COPYING	The GPL license for the freedb database.
FREEDB.DAT	The Atari-format version of the freedb database, derived from the original text-format version. This is the version of the database for use with the CDaudio program in ExtenDOS 4.

There may be other files on this CD; if so, they will be described in the README.1ST file.

## Installing ExtenDOS 4

The installation program, INSTALL.APP, has two basic functions. It can install a new version of the software by copying all the files to the right places or it can reconfigure an existing version by updating EXTENDOS.CNF. These functions are accomplished by a series of GEM based dialogs.

In order to run INSTALL.APP, insert the distribution disk in your floppy drive, double-click on the drive icon, then double-click on the INSTALL.APP icon. The above dialog box is presented, and you can choose whether you want to install a new version of the program or re-configure your present version. By default, the components of ExtenDOS will be installed on the current boot drive; you may select a different drive by clicking on the box labelled **Assumed boot partition**.



Although EXTENDOS.CNF is normally located in the root folder of your boot partition, other locations are supported. Therefore the installation process checks if you have multiple copies of EXTENDOS.CNF and, if you do, it determines which one would be accessed by EXTENDOS.PRG, prepares to update that one, and issues a message to inform you.

Note that each dialog box contains a **Help** button; clicking on it will provide one or more screens of relevant information.

Let's follow a typical installation procedure.

### 1. Installation set-up

This dialog box is only displayed if you are installing ExtenDOS. Select where you are installing from, where you want to install the main components of ExtenDOS, and where you want to install the Session

The screenshot shows a dialog box titled "Installation setup". It has four input fields: "Source:" with "A:" entered, "Destination:" with "C:\EXTENDOS" entered, "CPX:" with "C:\CPX" entered, and "XFS:" with "C:\MINT" entered. Below the XFS field is a checkbox labeled "Install MiNT XFS?" which is checked, with "Yes" and "No" buttons next to it. At the bottom of the dialog are three buttons: "HELP", "Continue", and "Quit".

Manager CPX. You may also specify if you want to install the MiNT XFS and if so, where (if you run MiNT, you should be sure to install the MiNT XFS).

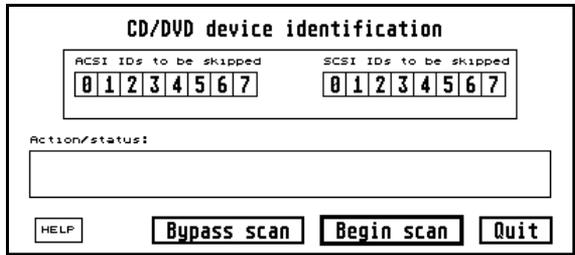
If you wish to use folders other than those shown, you may select new ones by clicking on the appropriate box. The **Source** box specifies where the ExtenDOS distribution files are located; this is normally a floppy drive. The **Destination** box is where you want to install the main ExtenDOS files. The **CPX** box is where you want to install the Session Manager CPX (normally where your active CPXs are stored). The **XFS** box is where your MiNT XFSs are located.

Note that the installation program will not allow you to set the **Destination** folder as the root folder of the disk; if you select the root, your selection will be ignored. Also, to satisfy operating system requirements, certain components, including the CDaudio accessory and EXTENDOS.PRG, will always be copied to your boot partition, irrespective of the folder selected here.

When you have set the folders appropriately, click on **Continue**.

## 2. Device identification

This dialog box allows you to control (and start) the scan for CD/DVD devices. If desired, you can tell it to ignore specific ACSI and SCSI hardware addresses during its



The screenshot shows a dialog box titled "CD/DVD device identification". It contains two input fields for "ACSI IDs to be skipped" and "SCSI IDs to be skipped", each with a grid of numbers 0-7. Below these is an "Action/status:" label and a large empty text box. At the bottom are three buttons: "HELP", "Bypass scan", and "Begin scan", and a "Quit" button.

scan. This is only necessary if the device at that address does not obey the SCSI protocol (for example, the Supercharger).

Note that the **Bypass scan** option is only shown when reconfiguring; this option is not available for a new installation. **Bypass scan** is intended to help the experienced user save time when reconfiguring options for a device configuration that is known to be unchanged. However, since a scan normally takes less than 20 seconds, we recommend that, even when reconfiguring, you always select **Begin scan** and allow INSTALL.APP to scan the system busses; it takes little time, and provides extra information during the reconfiguration process.

Click on **Begin scan** to start the scan. As the scan proceeds, you will see progress messages displayed in the **Action/status** box. When the scan is complete, the **Bus / count / drive summary** screen is displayed.

### 3. Bus / count / drive summary

This screen summarises the location of CD/DVD devices on your system. For each system bus, the following is displayed: the bus name, the total number of devices currently connected to the bus, and a summary of device letters currently used by ExtenDOS for that bus. The device letter summary has four formats:

Bus / count / drive summary			
Bus	Bus name	# Drv	
00	ACSI	0 -	Select
01	SCSI	6 P-R	Select

HELP   Global options   Done   Quit

Estimated memory required: 177458 KB

- no letters are assigned
- a** device letter **a** is assigned
- a-b** all device letters between **a** and **b** (inclusive) are assigned
- a~b** some device letters between **a** and **b** (inclusive) are assigned

The memory requirements for the current configuration are shown at the bottom of this box. If you have alternate (“TT”) RAM, the first value is the amount of primary (“ST”) RAM, the second is the amount of alternate RAM; otherwise there will be one number for the total RAM required. If you specified **Bypass scan** earlier, no estimate will be shown, since INSTALL.APP cannot determine which devices are present, and so cannot calculate memory usage.

From this dialog box you can go to subsidiary dialog boxes by clicking on either the **Global options** button or one of the **Select** buttons. The Global options dialog box (described later) contains options that affect the way ExtenDOS behaves as a whole. In order to configure individual devices on a bus, you should now click on the **Select** button for the appropriate bus.

## 4. Device id assignment

This dialog box shows which devices are connected to a specific bus on your computer. The **Name** column shows the name returned by that device during the scan; all devices other than CD/DVD drives are shown greyed out. The **Drive** column shows the drive letter for any CD/DVD drives you have connected and set up previously.

Device id assignment for SCSI			
Id	Name	Drive	
0	IBM DORS-32160	!#	
1	QUANTUM FIREBALL TH2110S		
2	SONY DVD RW DRU-800A	R	Setup
3	TOSHIBA CD-ROM XM-6401TA	-	Setup
4	MATSHITAPD-1 LF-1000	-	Setup
5	TEAC CD-R55S	Q	Setup
6	YAMAHA CRW6416S	P	Setup
7	ATARI TT HDDRIVER		

HELP Continue

Click on the **Setup** button to configure the settings for any one device. When you have configured all the desired devices, click on **Continue** to return to the **Bus / count / drive summary** dialog.

## 5. Configuring a CD/DVD drive

This dialog is where you set up the options that control each drive.

First, decide which drive letter (**C, D ... Y, Z**) you want to use for this

drive. If a drive letter is already in use for another device, it is not available and is greyed out (under MiNT and MagiC, drive **U** is always greyed out). Also note that drive letters above **P** or **Q** may not be supported by some versions of the Atari operating system or some programs. Click on the desired letter. Alternatively, if you want to remove a previous drive letter assignment, click on **Remove drive assignment**.

Note that if you have a changer mechanism, the installation program automatically determines the number of trays or slots in the

Options for SCSI id 6																									
<table border="1"> <tr><td>C</td><td>D</td><td>E</td><td>F</td><td>G</td><td>H</td><td>I</td><td>J</td><td>K</td><td>L</td><td>M</td><td>N</td></tr> <tr><td>O</td><td>P</td><td>Q</td><td>R</td><td>S</td><td>T</td><td>U</td><td>V</td><td>W</td><td>X</td><td>Y</td><td>Z</td></tr> </table>	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Path table size: 12 Number of buffers: 004 Trace table size: 0900 Trace data length: 064
C	D	E	F	G	H	I	J	K	L	M	N														
O	P	Q	R	S	T	U	V	W	X	Y	Z														
Remove drive assignment	Advanced options																								
Setup changer																									
HELP	Reset Cancel Set ALL ids Set this id																								

## Installing ExtenDOS 4

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mechanism. When you click on a drive letter for a changer mechanism, the installation program automatically selects a number of consecutive letters equal to the number of trays or slots. If this is incorrect, you can set the correct number via the **Setup changer** dialog, described below.

**Path table size** and **Number of buffers** are used to specify the size of cache for the path table (the main location of folder information for ISO9660 media) and other disk sectors, respectively. For slow drives, increasing these values will noticeably improve performance, but note that each increment uses up 2K of system memory. You can also use the Global options dialog (see later) to set values for these items for all your drives.

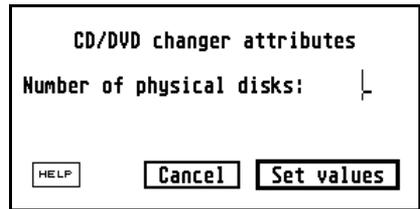
**Trace table size** and **Trace data length** are used to specify the size of the trace table maintained by CD.BOS for debugging purposes. This trace table is a valuable part of the information captured by EXTINFO.PRG, the system information program for ExtenDOS. For normal operation, these can be left blank; they only need to be set if you have problems and need to capture debugging information to send to Anodyne Software. Please see *Appendix A: Troubleshooting* for more details.

The **Setup changer** and **Advanced options** buttons lead to dialog boxes that allow you to specify more rarely-used options (see below).

When you have set the desired values for your drive, click on **Set this id** to continue. If you have multiple drives, and you wish to configure them with identical values (except for drive letter), then you may click on **Set ALL ids** as a shortcut alternative to entering the data for each drive individually. **Reset** sets values to their defaults; **Cancel** exits without changing the previously-specified options.

### 6. Setup changer

As noted above, the installation program automatically determines the number of trays or slots in a changer mechanism, and assigns one drive letter for each. In case the number of trays or slots is wrong, the **Setup changer** dialog allows you to override the automatic detection. Insert the correct value in **Number of physical disks**, and click on **Set values**.



## 7. Advanced options

Advanced options for SCSI id 6			
<b>Hardware interface</b>		<b>Operating system interface</b>	
Device type:	<input type="radio"/> 64K	<input type="radio"/> Dev	<input type="radio"/> No
Limit I/O length:	<input type="radio"/> Yes	<input type="radio"/> No	
Use SCSIIDRV routines:	<input type="radio"/> Yes	<input type="radio"/> No	
Use fast I/O:	<input type="radio"/> Yes	<input type="radio"/> No	
Use DMA data transfer:	<input type="radio"/> Yes	<input type="radio"/> No	
Use SCSI arbitration:	<input type="radio"/> Yes	<input type="radio"/> No	
Check SCSI parity:	<input type="radio"/> Yes	<input type="radio"/> No	
File attribute:	<input type="radio"/> R/H	<input type="radio"/> R/O	
Force uppercase names:	<input type="radio"/> Yes	<input type="radio"/> No	
Use Rock Ridge info:	<input type="radio"/> Yes	<input type="radio"/> No	
Use Joliet filenames:	<input type="radio"/> Yes	<input type="radio"/> No	
<input type="button" value="HELP"/> <input type="button" value="Reset"/> <input type="button" value="Cancel"/> <input type="button" value="Set values"/>			

The **Advanced options** dialog allows you to select additional options for your drive. In most cases, you will not need to change the defaults.

### Hardware interface options

The **Device type** should **ONLY** be set if your drive is not recognised by ExtenDOS. If you know that your drive works exactly the same as one in the list in **Appendix C: Device types**, then you may enter that device type. Since an incorrect setting here may prevent your drive from working correctly, we recommend that you contact Anodyne Software before entering a value here.

The purpose of the **Limit I/O length** option is to restrict the amount of data transferred by each I/O. By default, ExtenDOS transfers as much data per I/O as possible, in order to achieve maximum data transfer rates. Therefore you should normally leave this option set to **No**. However, some devices with buggy firmware do not handle large data transfers properly; this can cause incorrect output or a system 'hang'. To circumvent this kind of problem, select **64K** to limit the maximum data transferred per I/O to 64K bytes, or **Dev** to limit it to 25% of the device's internal buffer size.

ExtenDOS uses SCSIIDRV routines (if available) for low-level bus I/O on all busses; otherwise, if the device is connected to a standard ACSII or SCSI bus, it uses built-in routines. The **Use SCSIIDRV routines** option allows you to force ExtenDOS to use the built-in routines on standard ACSII/SCSI busses, even if a SCSIIDRV driver is available. Select **Yes** to use SCSIIDRV routines for this device; select **No** to use the built-in ACSII/SCSI routines. You should normally leave this option set to **Yes**.

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The remaining options under **Hardware interface** are only displayed (and only apply) if **Use SCSI DRV routines** is set to **No**.

The **Use fast I/O** option is only available for devices on the ACSI/SCSI busses, and only applies to devices using the built-in routines. By default, ExtenDOS ensures a minimum time of approximately 10 milliseconds (msec) between I/Os on the ACSI or SCSI busses. You may be able to achieve slightly higher performance by eliminating this delay; however, this could cause problems with some (older) devices. Select **Yes** to eliminate delays between I/Os; select **No** for a minimum 10 msec delay. For compatibility with earlier versions of ExtenDOS, this option defaults to **No**.

The **Use DMA data transfer** option is only available for devices on the ACSI/SCSI busses, and only applies to devices using the built-in routines. If this is set to **Yes**, ExtenDOS will use the DMA hardware where possible to provide high speed data transfer to and from CD/DVD devices; this is the same as previous versions. If this is set to **No**, ExtenDOS will use programmed I/O for data transfer, which is much slower on most systems. This option should **ONLY** be set to **No** for diagnostic reasons, or if there is a DMA hardware problem on your system.

The **Use SCSI arbitration** option is only available for devices on the SCSI bus, and only applies to devices using the built-in routines. If this option is set to **Yes**, ExtenDOS will use SCSI arbitration if possible; otherwise, it will only be used for SCSI-2 devices, or if necessary to communicate with the device. The default for this option is **Yes**; if you have an old device which isn't recognised properly during ExtenDOS initialisation, you may need to set this option to **No**.

The **Check SCSI parity** option is only available for devices on the SCSI bus, and only applies to devices using the built-in routines. If this option is set to **Yes**, ExtenDOS will check the parity of data coming from the device; otherwise, parity checking will not be done. The default is **No** for compatibility with previous versions; however, choosing **Yes** will provide additional error checking.

### ***Operating system interface options***

The **File attribute** option affects how ISO9660 file attributes are reported to GEMDOS. If **R/W** is selected (the default), files are reported as read/write; if **R/O** is selected, files are reported as read-only. This affects how the files are listed on the desktop, and the attributes of the

files when copied; no matter which button is selected, the files are always physically read-only. Note that this option applies to TOS/MagiC only.

The **Force uppercase names** option specifies whether to force uppercase filenames for Ffirst/Fsnext system calls (directory searches). Specify **Yes** to convert lowercase filenames to uppercase before returning them via the Ffirst/Fsnext system calls; specify **No** (the default) to leave them as lowercase. Note that this option applies to TOS/MagiC only.

The Rock Ridge Interchange Protocol (RRIP) is an ISO9660 extension which supports Posix-style file information, including long filenames and additional file date/time stamps. If you set the **Use Rock Ridge info** option to **Yes** (the default), ExtenDOS will use the RRIP information (if present) to derive filenames and date/time stamps; if this option is set to **No**, it will ignore the RRIP data. You should normally leave this option set to **Yes**.

The Joliet file system is an ISO9660 extension which supports long filenames (among other features). If you set the **Use Joliet filenames** option to **Yes** (the default), ExtenDOS will use the Joliet data (if present) to derive filenames; if this option is set to **No**, it will ignore the Joliet data. You should normally leave this option set to **Yes**.

If a CD/DVD contains both RRIP and Joliet information, and both of the corresponding options are set to **Yes**, then the RRIP data will be used.

When you have finished with the **Advanced options** dialog, click on **Set values** to change the values for this drive and continue. You may also click on **Cancel** to continue, ignoring any changes made. At any time, you may click on **Reset** to reset all values to their defaults.

### 8. Global options

This is where you can set options that affect the way ExtenDOS behaves as a whole.

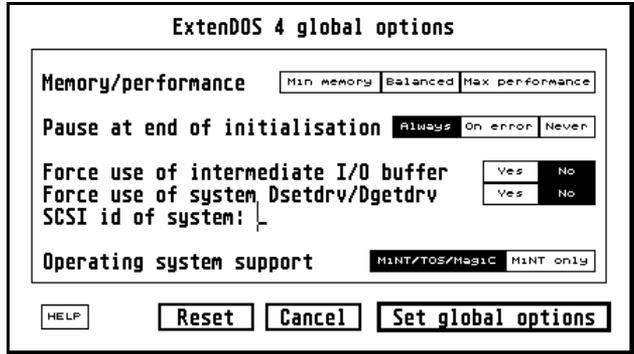
The **Memory / performance** buttons are a quick way of setting buffer usage for all your

drives. If you have limited memory, select **Min memory**. If you have lots of memory and want high performance from your drives (especially if the drives are relatively slow), select **Max performance**. For an intermediate situation, select the **Balanced** option. These buttons affect the same cache memory parameters that are set on individual options screens; the installation program will update the ExtenDOS configuration according to whichever method is used last.

**Pause at end of initialisation** selects whether or not ExtenDOS will pause (waiting for a key press) after completing initialisation. The default is **On error**; this ensures that you will be able to read any error messages that are issued, but that there will be no pause if everything initialised correctly. For debugging purposes, you may wish to set this to **Always**, so that you can read all the messages issued. Alternatively, if you frequently boot without your drive connected, you may wish to set this to **Never** to avoid pausing unnecessarily.

In normal circumstances, ExtenDOS will do any reads and writes directly from the calling program's buffer areas, if possible. If that isn't possible (for example, when doing I/O from the ACSII port to alternate RAM on a TT030), an intermediate buffer in standard system memory will be used. Setting **Force use of intermediate I/O buffer** to **Yes** makes ExtenDOS use an intermediate buffer for all I/O operations; this will reduce performance slightly, but may help if you are having problems running ExtenDOS with e.g. add-on memory boards. The default for this option is **No**.

ExtenDOS usually uses its own routines to set logical drive letters, bypassing the standard system routines. This allows ExtenDOS to access



the higher drive letters on systems like the Falcon030 (which normally prevents usage of drives higher than Q). Setting **Force use of system Dsetdrv/Dgetdrv** to **Yes** makes ExtenDOS use the system routines; the default for this option is **No**.

Some SCSI CD/DVD readers and most SCSI CD/DVD recorders require the host to perform arbitration. For arbitration, the host must have its own SCSI id, just like each peripheral. If you are using the ExtenDOS built-in routines to access a device, ExtenDOS uses the SCSI id stored in NVRAM, if available; otherwise it uses a SCSI id of 7. The option **SCSI id of system** allows you to select a different value (valid ids are 0-7 inclusive). The number you supply here must be different from that used for any other device on the SCSI bus. You should normally leave this blank.

**NOTE:** This option applies to SCSI ports only; arbitration on ACSII DMA ports must be handled by the ACSII-SCSI host adapter, which will have its own SCSI id (normally 7).

ExtenDOS supports CD/DVD devices under TOS, MagiC, and MiNT; for use with MiNT, you should have specified installation of the XFS driver in step 1 above. If you did so, you will be able to run ExtenDOS under any of these operating systems. If you **only** plan to run MiNT, you may set the **Operating system support** option in this dialog to **MiNT only**; this will avoid loading UNIDRIVE.DOS and thus save some memory.

### 9. Finishing the standard installation

When you have finished setting up ExtenDOS, click on the **Done** button in the **Bus count / drive / summary** dialog. If you are installing a new version, at this point the installation program will copy all the files to the appropriate locations:

- CDAUDIO.ACC and CDAUDIO.RSC will be copied to the root folder of your boot drive.
- EXTENDOS.PRG will be copied to the AUTO folder of your boot drive.
- SESSION.CPX will be copied to the specified CPX folder
- UNIMINT.XFS will be copied to the specified XFS folder
- All other files will be copied to the **Destination** folder.

Whether you are installing a new version or just reconfiguring an existing version, INSTALL.APP will set up EXTENDOS.CNF. If it already exists, it will be updated; if it does not exist, it will be created in the root folder of your boot drive.

Since the EXTENDOS.CNF file is only read by ExtenDOS during start-up, you should now reset your computer to activate the new configuration. If you use a boot manager such as XBoot, you will need to set it up to load EXTENDOS.PRG and, if you wish, CDAUDIO.ACC.

### 10. Optional installation

The ExtenDOS distribution package includes a CD containing FREEDB.DAT, which is a compressed version of freedb, the public-domain CD database. This can be used by CDAudio to obtain text information (artist and title) about loaded CDs. If you have sufficient available hard disk space, you can copy this file to your hard disk. Alternatively, you can use it directly from the CD, although this requires at least two drives (one for the audio CD and one for the database CD).

## Accessing CDs/DVDs

When ExtenDOS has been loaded, each CD/DVD drive under its control behaves as a large removable hard disk. The logical drive letter assigned to each drive will be available from the desktop or from standard file selectors, and files are accessible just as on a hard disk (with the exception that they cannot be erased or modified in any way).

### ***Supported CD/DVD formats***

ExtenDOS supports most major CD/DVD formats, including:

- High Sierra
- ISO9660
- ISO9660 interchange level 2 (long filenames)
- the Joliet extension to ISO9660
- the Rock Ridge extension to ISO9660
- the "CD Extra" format for audio CDs
- single session & multi-session CD/DVDs (requires compliant drive)

ExtenDOS also supports the special partition backup format created by the CDbackup component of CD Writer Suite. This allows a partition backup created by CDbackup to be mounted as a TOS partition.

You can switch between supported disk formats without a reboot.

### ***Special desktop audio CD support***

If your drive supports direct digital copying (refer to ***Appendix B: Pre-MMC drive support***), ExtenDOS provides access to audio CDs directly from the desktop, as described below.

**NOTE:** the following information only applies to standard audio CDs. If a “CD Extra” format disk is loaded, the files shown on the desktop will be the files from the data portion of the disk, **not** the files representing the audio disk and tracks.

### **Playing audio CDs**

The most flexible way to play audio CDs is with the included CD player, CDaudio, described in the next section. But if you just want to be able to play an entire CD, or a specific track, quickly and easily, the QuickPlay feature is the answer. Place your audio CD in the drive, and open the drive from the desktop. You’ll see one “file” (TRACKnn.PRG where **nn** is the track number) representing each track, plus one “file” representing the entire disk (DISK.PRG). Double-click on DISK.PRG to play the entire disk, or on TRACKnn.PRG to play track **nn**.

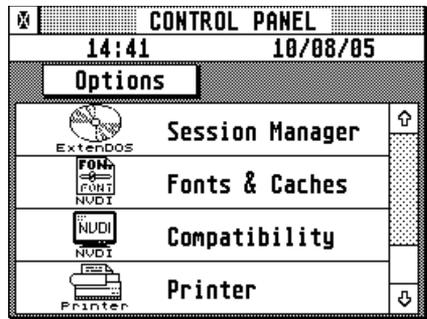
### **Copying audio CD tracks**

The included audio CD player, CDaudio, provides maximum flexibility in copying audio CD tracks. But ExtenDOS also allows audio CD tracks to be directly accessed from the desktop, just as if they were WAV files. TRACKnn.WAV represents the audio data from audio track **nn**.

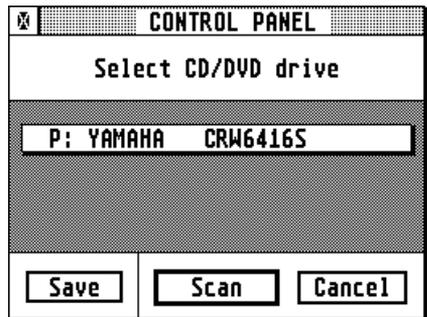
**NOTE:** Certain devices (such as the Yamaha 6416) will return audio data out of order when doing very large reads, such as when copying a WAV file from the desktop. If you have this problem, you can circumvent it by using the **Limit I/O length** option (see the **Advanced options** dialog in the installation/reconfiguration program).

## Using the Session Manager CPX

In order to use the Session Manager CPX (SESSION.CPX), you must have Atari's XCONTROL accessory (or third-party equivalent) installed. The CPX should be located in the system CPX directory, and activated. It will then appear in a standard CPX slot (shown here is a typical display using the XCONTROL accessory).



Select the Session Manager by double clicking on it. If you have only one CD/DVD drive defined by ExtenDOS, the drive will be scanned automatically at this point to produce a selection list (as described below). However, if you have more than one CD/DVD drive under ExtenDOS's control, the drive selection screen (shown right) will be displayed first. Clicking on the drive selection button will display a popup list of available drives; select the one you wish to access with the CPX. You may click on **Save** to save the selection you made as the default next time you open the CPX.



Once you have selected a drive, click on **Scan** to access the CD/DVD and prepare a selection list. The list produced depends on the type of disk that is currently in the drive: multi-session, or CDbackup.

## Multi-session disks

Multi-session disks are those created in more than recording session. A common example of this is a photoCD. In most cases, each session contains information about the files created in all previous sessions, so access to the last session (which is provided by ExtenDOS as a default) will give you access to all files. However, should you have a disk where each session is independent, or you are just curious about what's recorded in each session, you can use the Session Manager to select a

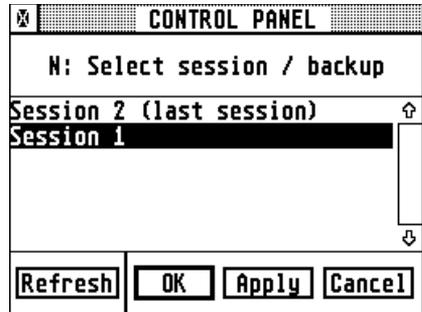
## Accessing CDs/DVDs

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specific session. When accessing a multi-session disk, the selection list is as shown on the following page.

**NOTE:** the sessions that will be shown in the selection list depend on the drive firmware as well as the contents of the CD/DVD. Some older drives allow access to the first session only; more recent drives allow access to the first and the last session; most current drives (including CD/DVD recorders) allow access to all sessions.

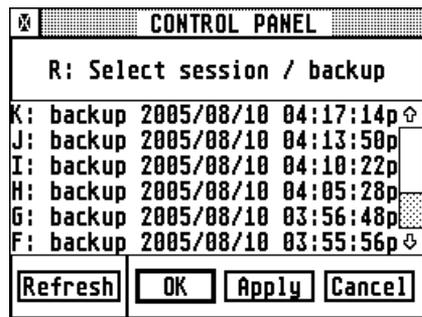
On this screen, you can click on a specific session, and then click on **OK** (to select the session and close the CPX), **Apply** (to select the session and leave the CPX open), or **Cancel** (to ignore the selection and close the CPX). If you change the disk in the drive while the CPX is open, you should click on **Refresh** to rescan the disk and obtain a new selection list.



## CDbackup disks

This is the format created by the CDbackup program which is part of the CD Writer Suite software package from Anodyne Software. These disks contain one or more partition backups; each backed-up partition is stored as a separate track. When you insert a disk created by CDbackup into your drive, ExtenDOS will automatically recognize the special format, and mount the first backup (the first track) on the disk as a standard TOS partition. In order to access other backups on the same disk, you must use the Session Manager CPX. When accessing a CDbackup disk, the selection list is as shown below. Backups are listed with the most recent one at the top.

On this screen, you can click on a specific backup, and then click on **OK** (to select the backup and close the CPX), **Apply** (to select the backup and leave the CPX open), or **Cancel** (to ignore the selection and close the CPX). If you change the disk in the drive while the CPX is open, you should click on



**Refresh** to rescan the disk and obtain a new selection list.

When you switch between backups, even on the same disk, the switch is automatically recognised as a media change, and the new backup is mounted.

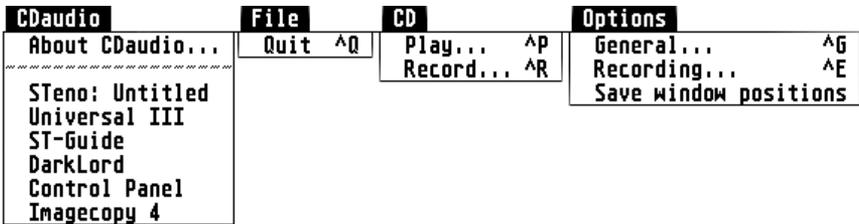
**IMPORTANT NOTE:** Unless you are running under MiNT or MagiC, you will **not** be able to access a backup from the desktop if the CD/DVD drive has a letter greater than P. This is a TOS restriction.

## Using CDaudio

This section explains how to use CDaudio, the audio CD player that is included with ExtendDOS. Two versions of CDaudio are supplied: a standalone GEM program and a Desk Accessory. The program version is installed in your ExtendDOS installation folder (typically EXTENDOS) and the accessory version is installed in the root folder of your boot drive. The two versions are very similar; differences are noted in the section entitled *The CDaudio Desk Accessory*.

### The menu bar in CDaudio

The menu bar (shown below as a composite) is only available when running the program version of CDaudio.



Menu items are selectable by point and click or by typing the appropriate control character (as shown). The last item under **Options** allows you to save the current window positions for use the next time that the program is run.

## ***Windows in CDAudio***

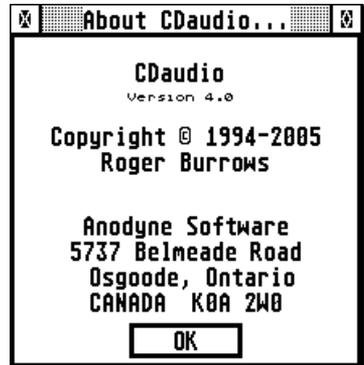
CDAudio interfaces with the user by means of dialogs in multiple independent non-modal windows. Each window may be controlled individually using the standard GEM gadgets:

- The Close button closes the window.
- The Full button (the upper right window gadget) switches between displaying the full window and displaying just the title bar; this feature is sometimes called ‘shading’, and is available under all supported operating systems.
- The Send-to-back button (available under AES 4.0) sends the window to the back of the displayed windows.
- The Iconify button (available under AES 4.0) iconifies the window.

Five windows are available from the menu bar: **About CDAudio ...**, **CDAudio player**, **CDAudio recorder**, **General preferences**, and **Recording preferences**.

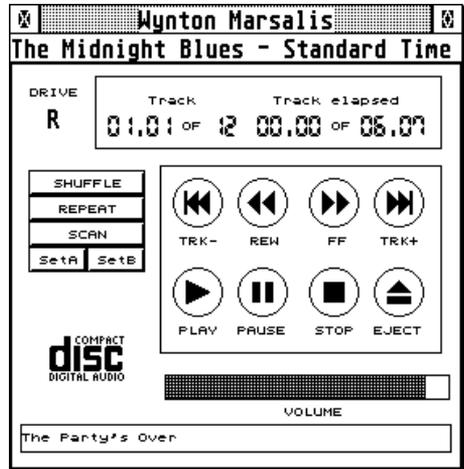
### ***About CDAudio ...***

This window provides the standard author and version information.



### Play CD

The **Play CD** window is automatically opened when the program version of CDAudio is launched. Most of the controls in this window should be familiar to owners of audio CD players. They are described in detail in the remainder of this section. Note that the relative dimensions of each item (button text, etc.) may change somewhat, depending on the resolution that you are currently using.

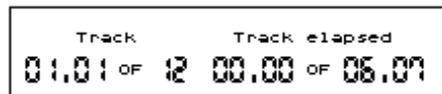


### Text and drive information

If available from CD Text data or from the freedb database (see p.22), the window title line will show the name of the artist, the window info line will show the name of the CD, and the box at the bottom of the window will show the name of the current track. The letter of the drive currently being controlled is also displayed. If you have more than one drive, you can switch between different drives via the **General preferences** window.

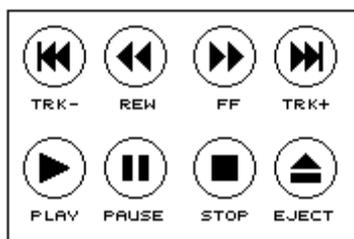
### Current CD position

Shows the current track and index, the maximum track number and the time in minutes and seconds for the current track as a whole. Click above the time display to cycle through



four time displays: **Track elapsed**, **Track remaining**, **Total elapsed**, **Total remaining**.

## Main CD controls



**REW** and **FF** skip backwards and forwards, respectively, through the currently playing CD track by 3 second intervals. If you hold them down, they repeat in a “ballistic” fashion: the number of seconds skipped increases each time. If a CD is not playing, they change the index counter. **TRK-** and **TRK+** let you

move through your audio disk track by track; these buttons are active whether the CD is stopped or playing.

**PLAY** starts playback from the current position (if paused) or the currently displayed starting track/index; **PAUSE** temporarily stops playback. These buttons are shaded while active. **STOP** halts playback and resets the current track position to the start of the CD. And finally, **EJECT** opens your drive tray or ejects your CD or caddy, provided the eject function is supported by your drive.

## Additional CD controls

**SHUFFLE** plays the tracks of the CD in random order.

**REPEAT** makes CDAudio start playing the CD at the beginning again, once it has finished. In order for these two functions to work, CDAudio must be loaded as a desk accessory, or must continue to run as a program.

You can select both **SHUFFLE** and **REPEAT**, in which case every track will be played once (in random order), and then repeated (in a different random order), and so on. If you click on **SCAN**, CDAudio will play the first 10 seconds of every track on the CD. **SCAN** can be combined with **SHUFFLE** and/or **REPEAT** for a truly memorable experience ...



The **SetA** and **SetB** buttons are used to select start and end points for a segment of music. If set, the **PLAY** button will play just that segment. When combined with **REPEAT** the segment will be played over and over.

**NOTE:** If you run CDAudio as a program, the **REPEAT** and **SHUFFLE** features will only work while the program is active, because these features are implemented by code within CDAudio itself. If you have **REPEAT** and/or **SHUFFLE** set for an audio CD that is currently playing,

## Using CDaudio

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and you attempt to exit the program, you will receive a warning message to remind you of this.

### Volume control

The volume control slide box sets the output volume level: the further to the right, the louder. Note that some drives do not support software volume control.



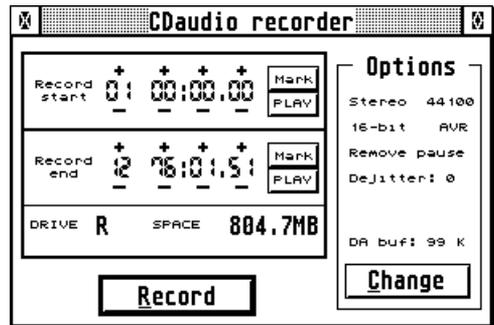
### Record CD

One of the most powerful features of CDaudio is the ability to save segments of audio CDs directly to your hard disk. This is more powerful than sampling an audio source through an analogue-to-digital converter, since a segment of digital audio (which may be anything up to the length of the entire disk) is digitally transferred to your hard disk and saved as a sample in AIF, AVR, or WAV format. This ensures that every single bit of digital audio data is available to you.

This function is performed through the **Record CD** window, shown here. The usage of each control and display is described in the following sections.

You should note that digital audio data takes up a lot of disk space, roughly 10 megabytes per minute for data saved in 16-bit stereo at

44.1 kHz. You should also be aware that this function does not work on some older drives; if your drive is not MMC-compatible, please refer to **Appendix B: Pre-MMC drive support** to determine if your drive supports this capability.



**IMPORTANT:** Anodyne Software does not condone the use of this powerful feature for stealing other people's work and using it in your own recordings (that is, copyright theft). If you intend to use this function then we ask you to gain the necessary permission from the copyright holder.

## Recording start and end

The **Record start** and **Record end** boxes show the start and end times of the segment to be recorded. Values in these two boxes are set in one of two ways: either click on the appropriate **Mark** button to set the current CD position (e.g., during playback), or use the **+** and **-** symbols above and below each item (track, minute, second, frame) to adjust it. This allows extremely precise control over the recorded selection.

Record start	+	+	+	+	Mark
	01	00	00	00	PLAY
	-	-	-	-	
Record end	+	+	+	+	Mark
	12	76	10	51	PLAY
	-	-	-	-	
DRIVE	R	SPACE	804.7MB		

Clicking on the **PLAY** button in the **Record start** box will play your entire segment; clicking on the **PLAY** button in the **Record end** box will play the last 10 seconds of the segment. These facilities allow you to make a last minute check on the selection to be recorded. The **DRIVE** letter shows the current drive, and **SPACE** shows the amount of hard disk space required for the recording, using the currently selected options.

## Options

For quick reference, the **Options** box shows the currently selected recording options; to change any option, click on the **Change** button. This will open the **Recording preferences** window. The recording options are described in detail in the section entitled *Recording preferences*.

<b>Options</b>	
Stereo	44100
16-bit	AVR
Remove pause	
Dejitter:	0
DA buf:	99 K
<b>Change</b>	

## Record

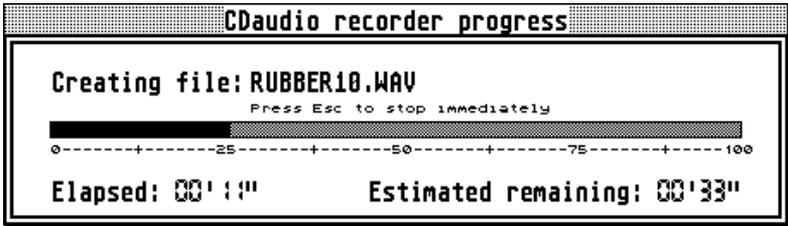
Click on the **Record** button to start the process of copying data from the CD to your hard disk. The standard file selector will be displayed so that you can select a path and file name for your audio file. After clicking on **OK** in the file selector, if the selected recording area spans more than one track, you will be given a choice:

## Using CDAudio

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- create a single file which includes the entire recording area
- create multiple files, one per track.

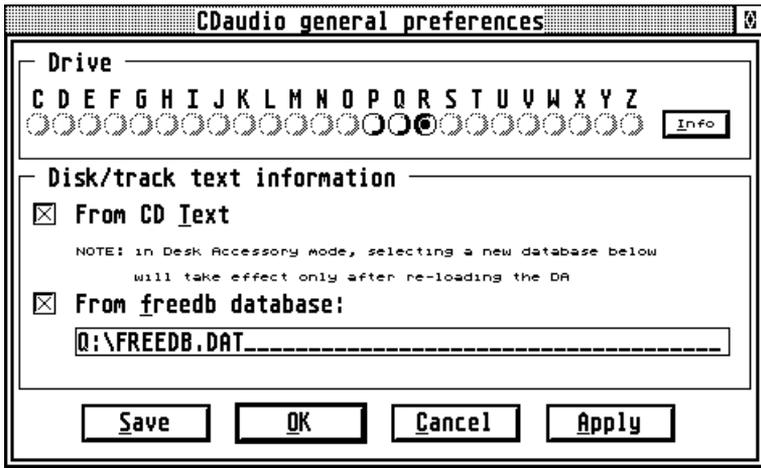
After making this choice, recording will commence. A separate window containing a progress bar is displayed during recording, as shown below.



At any time during recording, you can press the Esc key to stop. After pressing Esc, an alert will be displayed, giving you the choice to Continue (ignore the interruption), Keep the file (and stop) or Discard the file (and stop).

## General preferences

This window is used to specify the drive to be used, and the source for text information about mounted CDs.



### Drive

This is where you select the drive that the **Play CD** and **Record CD** windows operate on. Drive letters that do not refer to CD/DVD drives will be greyed out. Clicking on the **Info** button will display an alert showing the manufacturer and model of the selected drive.

### Disk/track text information

The **Play CD** window is capable of displaying text information about a CD. There are two possible sources for this information: the CD itself (if it contains CD Text), or the freedb standalone database. By checking the appropriate box, you tell CDAudio which source to use; if you check both boxes, CDAudio will first look for CD Text and, if not found, search the freedb database.

If the freedb database box is checked, CDAudio will look for the database at the location shown in the text box. If the database is not found, you will receive a message, and the freedb database lookup will be disabled. To change the lookup location, double-click on the box and

## Using CDAudio

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the standard file selector will be shown, allowing you to select the correct location.

### Saving your preferences

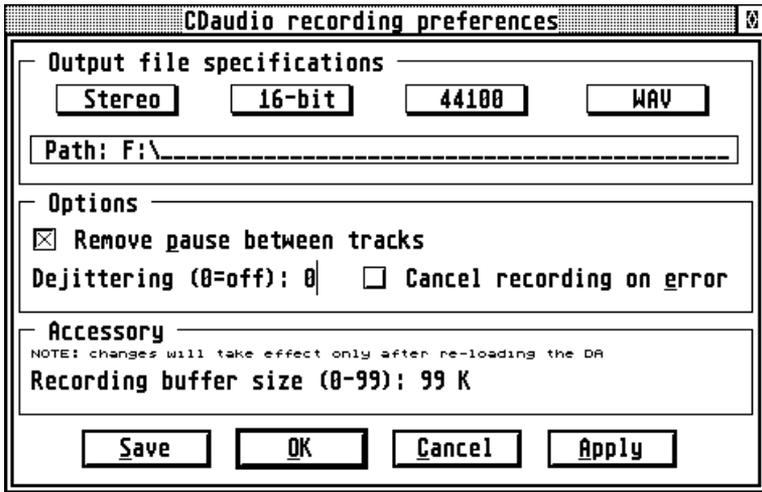
After setting up your General preferences, you can choose **Save**, **OK**, **Cancel** or **Apply**:

- **Save** saves the changes you have made to the CDAUDIO.INF file, but does not alter your current General preferences. The window remains open.
- **OK** makes the changes effective immediately and updates any open Play CD or Record CD window. The General preferences window will be closed.
- **Cancel** ignores any changes you have made, and closes the window.
- **Apply** makes the changes effective immediately and updates any open Play CD or Record CD window. The General preferences window remains open.

On start-up, default General preferences are read from the CDAUDIO.INF file, if it exists, so preserving values set by the most recent **Save**.

## Recording preferences

This window is used to specify all options related to recording from a CD. It may be accessed either from the menu bar, or by clicking on the **Change** button in the **Record CD** window.



## Output file specifications

This is where you set up the parameters of the file created by CDAudio. When you click on any of the buttons, a popup is displayed. You may set the mode (**Stereo** or **Mono**), the resolution (**16-bit** or **8-bit**), the frequency of the output file in Hz (**50066**, **44100**, or **25033**) and the type of file (**AIF**, **AVR**, or **WAV**). You may also set the default path for the output files by clicking on the **Path:** box and choosing a path via the standard file selector.

## Options

The **Remove pause between tracks** option controls whether the normal silence between tracks (technically known as the pause) is removed when copying multiple tracks with one file per track. By default, this option is checked; this provides compatibility with the audio CD creation program in CD Writer Suite (also by Anodyne Software), which by default adds silence between tracks.

## Using CDAudio

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The remaining options in this section are related to dejittering support. Many older drives are incapable of extracting audio data on audio sector boundaries; this is known as “jitter”. The result of jitter is that some data may be repeated or missing; in bad cases, this is audible as a “stuttering” sound, although in many situations there is no audible effect.

The optional dejittering feature is designed to eliminate jitter, by performing overlapping reads and matching up the data so that there are no repeats or missing samples. By default, **Dejittering** is set to 0, which disables it. To enable dejittering, set a value between 1 and 9: note that this will usually slow down the copying process significantly. Higher values can cope with worse jitter, but slow down the copying process more.

The **Cancel recording on error** option specifies what CDAudio should do if the dejittering process is unsuccessful. By default, the recording will continue and you will not be notified of the problem. If this box is selected, the recording will be cancelled with an appropriate message if dejittering fails.

## Accessory

This section allows you to specify the **Recording buffer size** for the Desk Accessory version of CDAudio (the size of the recording buffer for the program version of CDAudio is determined dynamically). Since this buffer is permanently allocated, the default size is zero in order to minimise the amount of memory used by the accessory.

**NOTE:** a buffer size of zero disables recording as well as access to the **Record CD** window, so until you change this value, you will not be able to record from the accessory.

## Saving your preferences

After setting up your Recording preferences, you can choose **Save**, **OK**, **Cancel** or **Apply**:

- **Save** saves the changes you have made to the CDAUDIO.INF file, but does not alter your current Recording preferences. The window remains open.

- **OK** makes the changes effective immediately and updates any open Record CD window. The Recording preferences window will be closed.
- **Cancel** ignores any changes you have made, and closes the window.
- **Apply** makes the changes effective immediately and updates any open Record CD window. The Recording preferences window remains open.

On start-up, default Recording preferences are read from the CDAUDIO.INF file, if it exists, so preserving values set by the most recent **Save**.

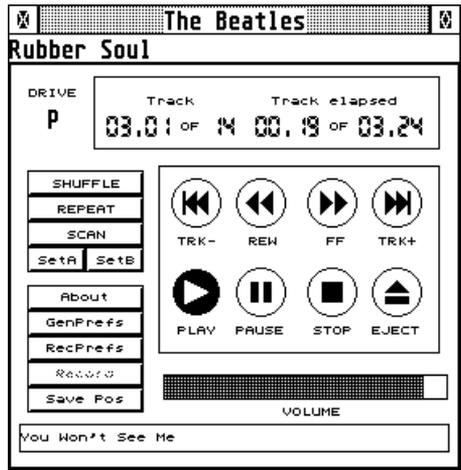
## The CDAudio Desk Accessory

The Desk Accessory version of CDAudio is very similar to the program version; this section describes the differences.

When you access the CDAudio Desk Accessory, the Play CD window is opened. Since accessories do not share the menu bar, selecting other windows is accomplished via additional buttons at the lower left of the Play CD window (see right).

As noted in the previous section, the default value for **Recording buffer size** is zero, in order to minimise memory used by the accessory. This disables recording, so the Record CD window is initially unavailable. In order to record from the accessory, you must open the Recording preferences window, set the buffer size to a non-zero value, and save the preferences. When you next boot the system, recording will be enabled. For best results, we recommend that you allocate a buffer size of at least 50K. Smaller values will tend to reduce performance, and on certain drives may affect the quality of recording.

**NOTE:** If you run the CDAudio Desk Accessory under MultiDesk (or MultiDesk Deluxe), you should set the Timers option in MultiDesk. This is because CDAudio "wakes up" on a timed basis to query the current position of the player and to handle **Repeat** and **Shuffle**. If the Timers option is not set, these functions will not work.



## **Error messages**

If the CDaudio window does not appear when you start the program, you should see a message indicating the reason. Most messages are in the language of the resource file; however, the following messages are issued in English only:

### **Cannot register CDaudio**

This message is issued by the desk accessory CDAUDIO.ACC when trying to register its menu entry. It indicates a problem with your system (either GEM or AES).

### **Cannot initialise resources**

#### **Cannot load .RSC file**

#### **Invalid .RSC file**

There is something wrong with CDAUDIO.RSC. Copy the correct version from your distribution diskette.

#### **Wrong version of .RSC file**

The CDAUDIO.RSC file is at the wrong level. Copy the correct version from your distribution diskette.

Correct the problems, and reboot if necessary.

# Appendix A: Troubleshooting

Note: in the following text, we use the word 'medium' to mean CD or DVD as appropriate for your hardware.

## *Known restrictions and incompatibilities*

### General

When using CDaudio to play audio CDs on your CD/DVD drive, all audio output is from the drive itself, **NOT** through your system's speaker(s). Most drives provide output sockets at the front (headphone) and/or rear (RCA jacks or other connector). In order to hear the output from your drive, you **MUST** connect one or other of these to your audio equipment..

When an ISO9660 (or High Sierra) medium is mounted on a CD/DVD drive, it does **NOT** have a low-level file structure like a hard disk partition. Programs that expect all devices to look like a hard disk partition may issue an error message such as "can't access BPB" or "unrecognised boot sector". This does not indicate a problem with the device.

### MagiC/HDDRIVER

ExtenDOS does not currently support the 'Background DMA' option. You should ensure that this is disabled when running ExtenDOS.

### NeoDesk

If you get a message that "data on the disk is corrupted or damaged" when you double click on the CD/DVD drive icon, or open a folder on the drive, turn off the option 'check for executable bootsector' in NeoDesk | Set Preferences | More.

### Alternate (TT) RAM

EXTENDOS.PRG must be loaded into ST RAM for correct operation. If you have a system with alternate RAM, such as the TT030, do **NOT** set the program flags to load it into alternate RAM.

### ***Problems reading any media***

There are a number of reasons why you may not be able to read any media at all. Before calling for assistance, you can save yourself and us time and effort by making some basic checks:

- Check your hardware: are you sure that the drive is in working order, and that the cable is OK? A loose cable can cause many types of intermittent or permanent problems.
- SCSI equipment requires a terminator at the end of the chain of devices: are you sure that your drive is terminated properly?
- The connecting cables for ATAPI devices must not exceed the standard (45 cm or 18 inches).
- Make sure that the drive is addressed correctly. It must have a unique address, and the address must correspond to that in your EXTENDOS.CNF file.
- Note the messages issued during start-up; these may indicate where the problem is. For example, if you do not get any messages from a driver, the driver is probably not specified correctly in your EXTENDOS.CNF file.
- Be aware that EXTENDOS.PRG looks in up to three places for EXTENDOS.CNF: the root folder, the AUTO folder, and the EXTENDOS folder. To avoid confusion, keep only one copy!

### ***Problems reading a specific medium***

Check that the medium is ISO9660 or High Sierra. If it is, ExtenDOS should be able to read it, so perhaps it is physically damaged: check to see if it is readable on another system.

If the medium is a CD and it is not standard ISO9660/High Sierra, is it a photoCD? If so, refer to "System Requirements" to determine if photoCD is supported on your drive and, if so, whether single- or multi-session.

The following types of CD are not supported by ExtenDOS at this time: Macintosh HFS, CD-I.

### ***ISO9660/High Sierra problems***

If a medium is manufactured properly to the ISO9660 or High Sierra standard, it contains two sets of information about the files on it. One set is designed for Intel-architecture machines (such as the PC), and one is designed for Motorola-architecture machines (such as the Atari).

Unfortunately, some older authoring packages did not create both sets of information correctly. UNIDRIVE.DOS is designed to automatically detect this situation, and choose the correct set of information. At this time, we have not encountered any media that cannot be handled by this method.

However, if UNIDRIVE.DOS cannot detect one of the sets of data, it may use the wrong set of data to access the medium. One of the symptoms of this is directories appearing to be empty when they should have files in them. If this situation should occur, please contact Anodyne Software.

### ***Gathering debugging information***

If you are unable to get ExtenDOS to work correctly with your CD/DVD drive then please contact Anodyne Software, and provide the following information:

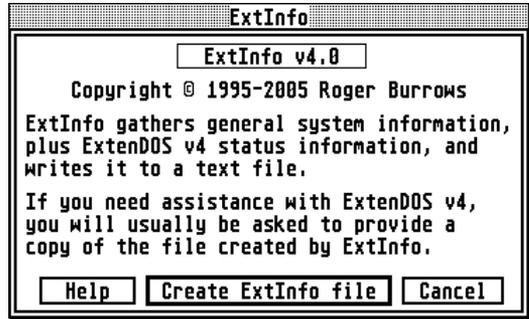
- a copy of EXTINFO.TXT, a system information file created by the EXTINFO.PRG program in your EXTENDOS folder
- a copy of your EXTENDOS.CNF file.

The information in EXTINFO.TXT is very important in diagnosing both hardware and software problems, so without it, we may be unable to help you. Here's how to run EXTINFO.PRG:

1. Using the **Reconfigure** option in INSTALL.APP, ensure that both **Trace table size** and **Trace data length** settings are set up for your drive. Use a trace table size of at least 200 and a trace data length of 48; if you have sufficient memory, a trace table size of 1024 and a trace data length of 64 is desirable, since it will provide more debugging information.
2. Unless the problem you have is associated with the CDAudio desk accessory, disable any active CDAUDIO.ACC.

3. Reboot your system and recreate whatever failure or problem you are having.

4. Run EXTINFO.PRG from your desktop; the start-up screen shown at right will be displayed. Click on the **Create ExtInfo file** button.



5. The User Information screen at right will be displayed. The first time you run EXTINFO.PRG, this page will be blank, and you should complete all the relevant fields. When you click **OK**, the user information will be saved in the file EXTINFO.INF, and will be used to complete this screen for subsequent runs.

The screenshot shows a window titled "ExtInfo" with a sub-header "User Information (REQUIRED)". It contains several fields with dashed lines for input: "Name: Professor James Moriarty", "Address: \_\_\_\_\_", "City: London", "Province/State: \_\_\_\_\_", "Postal Code/ZIP: \_\_\_\_\_", "Country: England", "Voice Phone: \_\_\_\_\_", "Fax Phone: \_\_\_\_\_", and "Email Address: spider@web.co.uk". At the bottom right are "OK" and "Cancel" buttons.

6. After clicking **OK** on the User Information screen, the Problem Description screen will be displayed. Please enter a clear and accurate description. This description, plus the user information you entered before, will be saved to the EXTINFOOn.TXT file to make it easier to track your problem. Then click **OK**, and the EXTINFOOn.TXT file will be created. This will normally take a few seconds.

The screenshot shows a window titled "ExtInfo" with a sub-header "Problem description (REQUIRED)". The main text reads: "Cannot read audio data from 8-track tape". Below this text are three dashed lines for additional input. At the bottom right are "OK" and "Cancel" buttons.

7. Once you have finished running EXTINFO.PRG, you may wish to use the **Reconfigure** option in INSTALL.APP again to clear the

## Appendix A: Troubleshooting

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**Trace table size** and **Trace data length** settings, in order to reduce memory usage.

The EXTINFOn.TXT file is plain text, so it may be printed out and mailed to us; however, if you have an email connection, please email it to us: it's faster, and it's easier for us to browse the file on screen than on paper. If you do email the file, we request that you compress it first (using STZIP for example). This avoids the Internet's habit of wrapping text lines, which makes it much harder to read; it will also greatly reduce the size of the file and thus your connection time.

## Appendix B: Pre-MMC drive support

### ***CD-ROM drives***

Data access to standard CD-ROMs is provided for all drives. However, because pre-MMC drives vary in the facilities they provide, and how those facilities are controlled, support for other functions varies by drive type. The following summarises the functions supported for each drive; please refer to the READ.ME file on the ExtenDOS 4 master disk for any changes or additions.

	Audio CD playback	Single- session photoCD	Multi- session photoCD	Direct digital copying
Apple CD SC+, CD-150 (Sony 8002)	✓			
Apple CD-300e (Sony 8003A)	✓	✓	✓	✓
Apple CD-300e+ (Panasonic 8004)	✓	✓	✓	✓
Apple CD-600 (Panasonic 8005)	✓	✓	✓	✓
Apple PowerCD (Philips 080)	✓	✓	✓	
Atari CDAR-504				
Chinon 431/435	✓	✓		
Chinon 525	✓	✓	✓	
Chinon 535	✓	✓	✓	✓
Compaq 503	✓	✓		
Compaq 561	✓	✓	✓	✓
Mediavision Reno	✓	✓	✓	
Nakamichi MBR-7	✓	✓	✓	
Nakamichi MJ-4.8s/MJ-5.16s	✓	✓	✓	✓
NEC 35/72/77/80/82	✓			
NEC 25/73/83	✓	✓		
NEC 37/74/84	✓	✓	✓	
NEC 38/74-1/84-1/210	✓	✓	✓	✓
NEC 400/401/410/500/501/510 (MultiSpin 3X/4X series)	✓	✓	✓	✓
Panasonic 501	✓			
Pioneer 602x	✓	✓	✓	✓
Pioneer 604x (firmware rev 2401)				
Pioneer 604x (rev 2403 & up)	✓	✓	✓	
Pioneer 124x/U24x/U03s/533	✓	✓	✓	✓
Plextor 3024/5024	✓	✓		
Plextor 3028/5028	✓	✓	✓	
Plextor 4plex/6plex/8plex etc.	✓	✓	✓	✓
Sony 541/6211/8022	✓	✓		
Sony 55S/76S/561/7811	✓	✓	✓	✓
Sun CD Plus (Sony 561 OEM)	✓	✓	✓	✓
TEAC CD-50	✓	✓	✓	
TEAC CD-56S/CD-516S/CD-532S	✓	✓	✓	✓

## Appendix B: Pre-MMC drive support

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	Audio CD playback	Single-session photoCD	Multi-session photoCD	Direct digital copying
Texel 3021/5021	✓			
Texel 3024/5024	✓	✓		
Texel 3028/5028	✓	✓	✓	
Toshiba 3201	✓			
Toshiba 3301	✓	✓		
Toshiba 3401/3501/3601/3701/3801	✓	✓	✓	✓
Toshiba 4101/5201/5301/5401/5701	✓	✓	✓	✓
Toshiba 5901/6201/6401	✓	✓	✓	✓
Other SCSI-2 CD-ROM drive (note 1)	✓			
Other SCSI CD-ROM drive (note 2)				

Note 1: If the drive is not recognised but identifies itself as a SCSI-2 device, it is handled in the same way as other SCSI-2 drives from the same manufacturer. This will usually provide photoCD support in addition to audio CD, and may also provide digital copy support.

Note 2: If the drive is not recognised and is not a SCSI-2 device, ExtenDOS does not provide any special audio CD or photoCD support. However, since many drives automatically switch between standard CD-ROM and photoCD, such drives will support single-session photoCD automatically.

### ***CD-R drives with CD-ROM support only***

The following drives are supported as CD-ROM drives only, due to lack of information concerning the recording function. Data access to CD-ROMs is supported, together with the specified read functions.

	Audio CD playback	Single-session photoCD	Multi-session photoCD	Direct digital copying
Smart & Friendly 2004, 2006	✓	✓	✓	✓
Sony 92x, 94x	✓	✓	✓	✓

### ***Untested CD-R drives with recording support***

The following drives are believed to work correctly as recorders with ExtenDOS; data access to CD-ROMs should also work correctly, together with the specified read functions. However, these drives have **not** been tested.

	Audio CD playback	Single- session photoCD	Multi- session photoCD	Direct digital copying
Grundig 100	✓	✓	✓	✓
JVC 2001, 2010, 2020, 2626	✓	✓	✓	✓
Kodak 225, 600	✓	✓	✓	✓
Philips 521, 2600, 3600	✓	✓	✓	✓
Pinnacle 1000, 5020, 5040, 4x4	✓	✓	✓	✓
Pioneer 114, 504	✓	✓	✓	✓
Plasmon 4100	✓	✓	✓	✓
Plextor R24	✓	✓	✓	✓
Ricoh 1420	✓	✓	✓	✓
Smart & Friendly 2006+, 4012, 226	✓	✓	✓	✓
Taiyo Yuden 180	✓	✓	✓	✓
Traxdata 4120	✓	✓	✓	✓
Wearnes 632	✓	✓	✓	✓

### ***Tested CD-R drives with recording support***

The following drives have been tested and verified to work correctly as recorders with ExtenDOS. Data access to CD-ROMs is also supported, together with the specified read functions.

	Audio CD playback	Single- session photoCD	Multi- session photoCD	Direct digital copying
HP 4020, 6020	✓	✓	✓	✓
Philips 522, 2000	✓	✓	✓	✓
TEAC 50S, 55S	✓	✓	✓	✓
Yamaha 100, 102	✓	✓	✓	✓

## Appendix C: Device types

ExtenDOS recognises most common CD and DVD drives, and supports available drive functions automatically. However, particularly if you have an uncommon drive, ExtenDOS may not recognise it and so may not provide all functions. For example, if you know that your drive is photoCD-capable but it will not read a photoCD under ExtenDOS, or if you know that it is multi-session-capable but you can only access the first session, this may be because ExtenDOS does not recognise the drive. You may be able to resolve this by specifying the device type option when running INSTALL.APP.

In order to use the device type option, you must know which drive your drive behaves like. For example, if you have an NEC drive, it probably behaves like one of the supported NEC drives, so you could try a device type of **20**, **21**, or **22**. Please see below for a list of valid device types.

<u>Device type</u>	<u>Drive</u>
1	Generic SCSI-1 drive (no audio, no photoCD)
2	Generic SCSI-2 drive (audio, no photoCD)
3	Generic SCSI-3 MMC CD-ROM drive
4	Generic SCSI-3 MMC CD-R drive
5	Generic SCSI-3 MMC CD-RW drive
6	Generic MMC 2/3/4 drive (e.g. DVD)
10	Toshiba 3401/3501/3601/3701/4101/5201/5301
11	Toshiba 3301
12	Toshiba 3201
20	NEC 38/74-1/84-1/3X/4X/210 (SCSI-2 mode)
21	NEC 38/74-1/84-1/3X/4X/210 (SCSI-1 mode)
22	NEC 37/74/84
23	NEC 35/72/77/80/82
24	NEC 25/73/83
30	Sony 561/55S, 8003A (Apple CD-300)
31	Sony 541/6211/8022
32	Sony 8002 (Apple CD-150)
33	Sony OEM (Sun CD plus)
35	Sony 920/924/926/928/940
40	Texel 3028/5028
41	Texel 3024/5024
42	Texel 5021
50	Chinon 535 (early firmware)
51	Chinon 431/435
52	Chinon 535 revs R,S
53	Chinon 525
60	Philips 080 (Apple PowerCD)
61	Philips (IMS) CDD521 (CD-R)
62	Philips (IMS) CDD521 (CD-R)

<b><u>Device type</u></b>	<b><u>Drive</u></b>
63	Philips (IMS) CDD522 (CD-R)
64	Philips CDD2600 (CD-R)
70	Panasonic 8004, 8005 (Apple CD-600)
71	Panasonic CR-501
75	Panasonic 7502 (CD-RW)
80	Plextor 3028
81	Plextor 3024
82	Plextor 4plex/6plex etc
85	Plextor R24 (CD-R)
90	Mediavision Reno
100	Pioneer 602x
101	Pioneer 604x rev 2401
102	Pioneer 604x (other revs), Pioneer DR-124X
105	Pioneer 504x (CD-R)
106	Pioneer s114x (CD-R)
110	Compaq 56l
111	Compaq 503
120	Nakamichi MBR-7/MJ-4.8s/MJ-5.16s
130	Sanyo SCSI-1 drives
140	HP 4020 (CD-R)
141	HP 6020 (CD-R)
150	Grundig 100 (CD-R)
155	Wearnes 632 (CD-R)
160	Kodak 225/ 600 (CD-Rs)
170	Plasmon 4100 (CD-R)
175	Ricoh 1420 (CD-R)
180	Tyuden 50 (CD-R)
185	Traxdata 4120 (CD-R)
190	Yamaha CDR100 (CD-R)
191	Yamaha CDR102 (CD-R)
192	Yamaha CDR200/CDR400 (CD-R)
193	Yamaha CRW2260/CRW4260 (CD RW)
200	JVC 2001 (CD-R)
201	JVC 2010 (CD-R)
202	JVC 2020 (CD-R)
203	JVC 2026 (CD-R)
210	Pinnacle 1000 (CD-R)
211	Pinnacle 5020 (CD-R)
212	Pinnacle 5040 (CD-R)
213	Pinnacle 4x4 (CD-R)
220	Smart & Friendly 2004 (CD-R)
221	Smart & Friendly 2006plus (CD-R)
222	Smart & Friendly 2006 (CD-R)
223	Smart & Friendly 4012 (CD-R)
224	Smart & Friendly 4224 (CD-RW)
230	Teac 50S/55S (CD-R)
231	Teac 56S/58S (CD-R)
232	Teac CD-50
233	Teac 532S
240	Memorex 8220 (CD-RW)
510	Generic ATAPI v1.2 CD-ROM drive

## Appendix C: Device types

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<u>Device type</u>	<u>Drive</u>
511	Generic ATAPI v1.2 CD-R drive
512	Generic ATAPI v1.2 CD-RW drive
520	Generic ATAPI v2.6 CD-ROM drive
521	Generic ATAPI v2.6 CD-R drive
522	Generic ATAPI v2.6 CD-RW drive

Please refer to the READ.ME file on your ExtenDOS 4 master diskette for any changes or additions to this list.

**IMPORTANT NOTE:** Specifying the drive type option cannot change the hardware characteristics of your drive. It cannot make a drive photoCD-capable if the hardware does not support this, or change a single-session drive into a multi-session one. Its sole function is to supplement the automatic recognition feature of ExtenDOS.



