

CDbackup

Reference manual

Anodyne Software

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This manual applies to version 4.10 of CDbackup.

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Contents

INTRODUCTION	1
How to use this manual	1
Installing CDbackup	1
BACKUP BASICS	2
What to backup	2
When to backup	2
Where to backup	2
RECORDING BASICS	3
Disk types supported by CDbackup	3
Recorder features supported by CDbackup	3
Available features by type of disk	4
Disk recording speeds	4
CDBACKUP OVERVIEW	5
Windows in CDbackup	7
Backup types	7
CREATING YOUR FIRST BACKUP	8
SETTING CDBACKUP PREFERENCES	10
General preferences	10
File restore preferences	13
Saving your preferences	14
BACKING UP A PARTITION	15
Selecting backup options	15
Starting the backup process	16
Monitoring the backup process	17
VERIFYING/RESTORING A BACKUP	18
Selecting verify/restore options	18

Starting the verify/restore process	19
The partition verify/restore process	20
The file restore process	21
<u>LISTING THE CONTENTS OF A BACKUP DISK</u>	23
<u>OTHER CDBACKUP FEATURES</u>	25
About	25
Erase	25
Save window positions	26
<u>ACCESSING INDIVIDUAL FILES FROM THE DESKTOP</u>	27
<u>TROUBLESHOOTING</u>	28
Problems accessing your recorder	28
Problems writing to all media	28
Problems writing to a specific disk	28

Introduction

CDBackup is a component of CD Writer Suite, Anodyne Software's CD/DVD recording software. With CDBackup you can back up hard disk partitions to CD or DVD, quickly and easily, on all Atari compatibles. You can restore an entire partition from a backup, or (for FAT-style partitions) single or multiple files and folders. CDBackup uses the recording functions of ExtenDOS 4, Anodyne Software's CD/DVD driver software, which supports most modern CD and DVD recorders.

How to use this manual

It was our aim to make the CDBackup user interface simple enough to use that you can perform the basic functions without using a manual; thus, this manual is mainly designed as a reference manual. However, we have included a step-by-step guide to performing a backup for the first-time user in the section "Creating your first backup".

Installing CDBackup

Please refer to the separate installation guide.

Backup basics

You have only to lose critical data once to realise how important it is to perform regular backups of your hard disk partitions. Because of the direct-access capability of CDs and DVDs, your CD/DVD recorder makes an ideal backup device, and CDbackup makes it simple to use. Your main concerns with backup should be: What should I back up? How often should I back up? Where should I back up?

What to backup

CDbackup performs backups on a partition basis, so it depends on how your partitions are organised. If you have some partitions that just hold temporary data (downloads, work files, etc.) before it gets deleted or moved elsewhere, you may not want to back it up. Except for that circumstance, you will probably want to make a backup of each of your partitions as a starting point. Unless you have very large disks, even a complete backup is relatively quick and inexpensive in terms of media used.

When to backup

This is generally determined by how often your files change, and how much you can afford to lose. If your partitions are organised with infrequently changed programs and data on some partitions, and “work-in-progress” data on others, then you may decide to backup different partitions at different intervals. You should make a tentative schedule and then imagine the worst-case scenario, the unrecoverable loss of all your data. If you can’t stand losing the data created since the previous backup, you should seriously consider a more frequent backup schedule.

Where to backup

This is a consideration when you have relatively small partitions, so that you can fit many backups on one CD, or if you are backing up to DVD, which can accommodate several large partitions. In this situation, we suggest that you don’t keep backing up on the same disk until it is full. Any error in your backup hardware or software, or something as simple as losing the disk, could leave you without a recent backup. Instead, use two or more disks and backup to them in rotation.

Recording basics

Modern recorders, especially DVD recorders, support a bewildering array of disk types, features, and speeds. The following summarises what you need to know to use them with CDbackup.

Disk types supported by CDbackup

With CDbackup, you can record to various types of disk, depending on the type of recorder:

- CD Recorder: CD-R
- CD ReWriter: CD-R, CD-RW
- DVD Recorder: CD-R, CD-RW, DVD-R, DVD-RW, DVD+R

Note that CDbackup does not support DVD+RW, DVD-RAM or double-/dual-layer formats.

For simplicity, throughout this manual we use the term ‘disk’ or ‘medium’ to mean any supported CD or DVD format. When a function is restricted to a specific format, we specify that format.

Recorder features supported by CDbackup

CDbackup supports the following recording features, if available on your recorder:

<u>Feature</u>	<u>Description</u>
Quick erase	Allows you to erase the data in the first session of a recorded disk; in most cases, equivalent to a full erase
Full erase	Allows you to erase all of the data on a recorded disk
Simulate	Otherwise known as ‘Test write’, this allows you to fully simulate recording, except for actually writing to the disk
Burnproof	This allows you to record to a disk without encountering buffer underrun errors, even if your system cannot transfer data at the specified recording speed. The drive will wait for data if it can't receive it fast enough from the system. All DVD recorders that we know of provide this feature; it is also available on current CD recorders.

Available features by type of disk

Some of the above recording features are only available for certain types of disk. The following table summarises feature availability.

<u>Feature</u>	<u>Supported by</u>
Quick erase	CD-RW
Full erase	CD-RW, DVD-RW
Simulate	CD-R, CD-RW, DVD-R, DVD-RW
Burnproof	DVD+R always; for other disk types, depends on drive

Disk recording speeds

The recording speeds for both CDs and DVDs are typically quoted as nX , i.e. multiples of a basic speed. This speed is **not** the same for CDs and DVDs: a 1X speed for CD data is 150 Kbytes/sec; a 1X DVD speed is approximately nine times this rate, and is too fast for most Atari systems. Fortunately, most if not all DVD recorders provide the “burnproof” feature (sometimes under another name).

Thus, when recording to DVDs, we suggest that you use the slowest supported speed, and enable the burnproof feature. For CDs, we suggest using the following speeds as a starting point:

- 1X: For ST, STe, Mega ST, Mega STe, or if you have a slow hard drive
- 2X: For Falcon030
- 4X: For TT030 or faster system

If your drive doesn't support the suggested speed, choose the next lowest one if available. If the lowest speed is greater than the ones listed here, you will probably need to enable the burnproof feature.

CDbackup overview

On start-up, CDbackup establishes a standard GEM menu bar; the following composite shows all of the menu items:



Menu items are selectable by point and click or by typing the appropriate control character. Note that the **Erase** item will be greyed out unless the currently selected backup drive supports erasing.

CDbackup has multiple non-modal windows, which can be positioned independently. You can save window positions if you have a favourite layout. Windows can be minimised to show only a title bar, by clicking on the upper right window gadget; this feature is sometimes called 'shading' and is available under all supported operating systems. Under an appropriate multitasking system such as MagiC or MiNT, windows can be iconified too.

Because current recorders support a variety of disk types with different features and capacities, CDbackup monitors the currently selected backup drive for disk changes and automatically refreshes any open windows appropriately.

You can use CDbackup to:

- list the available backups and free space on a disk
- backup FAT16, FAT32, Minix or Ext2 filesystems
- backup one or more partitions to a disk
- backup a partition that is larger than a disk to two or more disks
- verify that a partition backup is correct
- restore a partition or (for FAT-style partitions) individual files/folders
- erase CD-RW or DVD-RW disks (on a suitable drive)

Note that, although you can backup more than one partition at the same time, you can only restore one at a time. This is a safety precaution.

For partitions smaller than the capacity of a single disk, you can backup multiple partitions in the same run, as long as they will all fit on one disk. Each backed-up partition is written to a separate track on the disk. Multisession is fully supported, so as long as there is sufficient space available on a disk you can add another backup at any time.

For partitions larger than the capacity of a single disk, you can backup to multiple disks. In this case, you can't add additional backups to the last disk in the set, even if it isn't full.

CDbackup overview

CAUTION: Once you have written to a disk with CDbackup, do not attempt to use the same disk with CDwriter or CD InScriptOr, unless it is an erasable disk and you erase it first.

CDbackup recognises two types of partitions: FAT (FAT16 and FAT32) and non-FAT (Minix and Ext2 filesystems). The details of the backup process differ slightly for these two types.

FAT partition backup

When backing up a FAT16 or (for MiNT and MagiC 6.10/6.20 users) a FAT32 partition, you may reduce the amount of data backed up by selecting a Backup type of **Used space only**. FAT partitions also support the **File restore** option. Because this requires access to the FAT, which can be very large in a FAT32 partition, CDbackup buffers the FAT32 FAT to a temporary hard disk file during file restore.

The backup/verify/restore functions handle FAT partitions containing bad clusters. The backup will contain zeroes in the corresponding sectors, and restoring a backup to its original partition will avoid writing to the bad sectors. Restoring to a partition that has bad sectors in different locations from the backup will fail with an appropriate error message.

Note that CDbackup expects a partition id of **F32** for FAT32 partitions.

Non-FAT partition backup

For MiNT users, CDbackup supports non-FAT partitions (i.e. Minix or Ext2 filesystems). This requires XHDI support; if present, XHDI will be used for this function even if the 'Use XHDI' preference is disabled. Due to the structure of non-FAT filesystems, the entire partition is always dumped, even if **Used space only** is selected. The **File restore** option is not supported for this type of backup.

If you wish to verify a backup of a non-FAT partition, please refer to the caution on page 19 for possible problems.

Note that CDbackup expects a partition id of **MIX** for Minix partitions and a partition id of **LNx** for Ext2 partitions.

Windows in CDBackup

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

- The Close button closes the window.
- The Full button switches between displaying the full window and displaying just the title bar.
- 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.

Backup types

CDBackup always backs up your hard disk on a partition basis, but there are two types of partition backup that can be performed: entire partition, and used space only. The following summarises the differences between these two and suggests where you might use each type.

Entire partition

This backs up all space, including all unused space, in a partition. The only reason to choose this is if some of the unused space might have data in that could be retrieved. So if you have inadvertently deleted some files, and want to be able to restore the backup at a later time and attempt to “undelete” the files (with an appropriate hard disk tool) then, you could choose this type of backup.

Used space only

This option backs up everything up to the "high water mark" of the partition, that is, the last cluster that has data from any currently allocated file in it. This normally will include some unused space (from files in the middle of the partition which have been deleted) but is usually a lot less than the entire partition. In almost all cases, this is the best choice, since it backs up all the current files, yet requires less space on the backup disk. As noted above, this option only applies to FAT partitions. Non-FAT partitions (i.e. Minix or Ext2 filesystems) always use “Entire partition” backups, even if you specify “Used space only”.

NOTE: Although TOS allocates files such that files tend to be found at the beginning of a partition and empty space at the end, so-called disk defragmentation software can reorganise a partition differently. For example, selecting the option “optimize for writing” in Diamond Edge will move all free space to the beginning of a partition. For such a partition, “Used space only” will back up the entire partition, and will require the same space on your backup disk as “Entire partition”.

Creating your first backup

Creating a backup is simple. Here's a step-by-step guide that you can follow to create your first backup. It assumes that you only have one CD/DVD recorder connected to your system; if you're fortunate enough to have more than one, you should read "Backup preferences" on page 10 to find out how to select which drive the program will use.

1. Ensure that ExtenDOS version 4.0 (or later) is installed and configured properly for your recorder. Refer to the ExtenDOS manual for further information.
2. Ensure that CDbackup is installed properly.
3. Verify that your recorder is connected and powered on.
4. Insert a blank recordable disk in your drive. See page 3 for information on supported disk types. For your first backup, we recommend that you use a CD-R or CD-RW disk.
5. Launch CDbackup by double-clicking on the icon.
6. Open the Backup window. You can do this in one of two ways: either hold down the Control key and press the B key, or select **CD/DVD** on the menu bar and click on the **Backup...** item.
7. Select the partition(s) you wish to backup by clicking on the appropriate drive letter(s).
8. Click on the **Speed** button, and select a recording speed. See page 4 for suggested recording speeds.
9. Click on the **Backup type** button, and select **Used space only**.
10. Click on the **Refresh** button to scan all the partitions and determine the amount of space required. If this is greater than the amount of available space on the disk, you will get an error message; in this case, deselect one or more of the partitions by clicking on the appropriate button, and click on **Refresh** again. Repeat this until the backups will fit on your disk (you get no error message). Note that if any of the partitions is too large to fit on a single disk, you will need to backup that partition on its own.
11. Click on **Simulate + write**. This performs a simulated write and, if the simulation is successful, a real write immediately afterwards. During the simulation and the real write, a window is displayed showing the progress of the backup. When the backup completes successfully, or if an error occurs, a message is displayed indicating the result.
12. Wait for the simulated write to finish. During processing, if you are backing up a partition that will not fit on a single disk, you will be prompted to switch disks as necessary. At the end, the disk will be ejected and then reloaded (if the disk cannot be ejected and/or reloaded under program control, you will be

prompted to do it manually). The real write will then be performed; once again, if you are backing up to more than one disk, you will be prompted to switch disks as necessary. At the end, the disk will be ejected.

Congratulations, you have completed your first backup! Make sure you label the disk(s) (if you write on the upper surface of the disk itself, make sure you use a special CD/DVD marker). You can now:

- list the contents of the disk using CDbackup's List window (see page 23)
- verify that the backup matches the partition(s) using the Verify/Restore window (see page 18), or
- access any of the individual files in the backed-up partition(s) from CDbackup itself (see page 21) or directly from the desktop or a file selector (see page 27).

NOTE: If the simulation in step 11 above fails, it is probably because your system is not fast enough to support the selected recording speed: select a slower speed and/or make sure that the burnproof feature is enabled (see "Backup preferences" on page 10), and try again. All systems should be able to record to a CD at 1X; if you cannot do even this, there is probably another problem: please refer to "Troubleshooting" on page 28 for suggestions on how to proceed.

Setting CDbbackup preferences

In order to avoid changing the standard defaults to your own preferences each time you run CDbbackup, you should set up and save your typical backup and restore preferences. Because of the number of options available, there are two Preferences windows: **General**, reached by clicking on the **Options|General...** menu item, or pressing **control-G** on the keyboard; and **File Restore**, reached by clicking on the **Options|File restore...** menu item, or pressing **control-F** on the keyboard.

General preferences

The General preferences window is divided into three sections: Backup preferences, List/verify/restore preferences, and Miscellaneous preferences.

Backup preferences

This section defines the defaults to use when creating backups.

Backup preferences

Recorder: C D E F G H I J K L M N O P **Q R** S T U V W X Y Z **Info**

Partitions: C D E F G H I J K L M N O P Q R S T U V W X Y Z

Speed: **1 X** Backup type: **Used space only** Read check: **None**

Minimise screen updates Enable burnproof recording

Here you can choose:

- the drive to use for backups. Only drive letters that ExtenDOS recognises as corresponding to CD/DVD recorders will be selectable, so unless you have multiple recorders, most letters will be greyed out. Clicking on the **Info** button will display the manufacturer, model, and firmware revision of the currently selected drive.
- the default partition(s) to backup. Click on an unselected letter to select that partition; click on a selected letter to deselect the partition. Partitions that don't exist will be greyed out and therefore not selectable.
- the default speed to use. Click on the **Speed** button and a popup list like the one shown on the right will appear (the only speeds shown will be those that are valid for the combination of the selected recorder and the loaded disk). The check mark shows the currently selected speed; click on a speed to select it.



- the default type of backup. Click on the **Backup type** button and the popup list shown on the right will appear. The check mark shows the currently selected type; click on a type to select it. For a description of the differences between the two types of backup, please refer to “Backup types” on page 7.

- whether to perform a read check after finalizing the disk. This permits quick detection of unreadable backups that can occur when writing to defective media. Click on the **Read check** button and the popup list shown on the right will appear. The check mark shows the currently selected option; click on an option to select it. The available options are:
 - **None**: no read check is performed; this is the default and is the same as in previous versions of CDbackup
 - **Quick**: up to 300 sectors are read from the start, middle, and end of each track; this is a low-overhead way of checking the media
 - **Full**: each track is read in its entirety; this will significantly slow overall throughput, but provides a comprehensive check
- the default screen update option during backups. When **Minimise screen updates** is selected, the backup progress window is only updated at the end of a track. At this point, the screen update cannot interfere with a recording. If the option is cleared, the progress bar is updated approximately once per second. In rare cases, this could slow down the system enough to reduce the maximum recording speed, so you could try setting this option if you experience occasional errors during backup.
- whether CDbackup will use the burnproof feature when backing up. In most cases, you will want to select **Enable burnproof recording**. However, although this feature will allow you to select a very high recording speed without causing a write failure, too high a speed will actually slow the overall recording throughput because the drive must constantly stop and start. The optimum speed is normally the highest speed that you can set without needing burnproof, or the lowest speed that needs burnproof.

Setting CDbbackup preferences

List/verify/restore preferences

This section defines the defaults to use for listing, verifying, or restoring backups.

List/verify/restore preferences	
CD/DVD drive:	C D E F G H I J K L M N O P Q R S T U V W X Y Z <input type="button" value="Info"/>
Partition:	C D E F G H I J K L M N O P Q R S T U V W X Y Z

Here you can choose:

- the drive to use for list/verify/restore. Drive letters that don't correspond to known CD or DVD drives will be greyed out. To reduce confusion, at least initially, you will probably find it helpful to select the same drive as your backup drive. However, if your backup drive is not always available, or if you have a different drive that you would rather use for these functions, you can select another drive here. Clicking on the **Info** button will display the manufacturer, model, and firmware revision of the currently selected drive.
- the default partition to verify/restore. Only one partition can be chosen here; this is a safety feature to reduce the damage that could be done by an inadvertent restore.

Miscellaneous preferences

This section defines various other options.

Miscellaneous preferences	
<input type="checkbox"/> Use XHDI for read/write if available	<input type="checkbox"/> Enable log file

Here you can set the following preferences:

- the low-level interface that CDbbackup will use to access the partition sectors. By default, CDbbackup will use the Rwabs interface, which is the original TOS method. Another interface known as XHDI is provided by some hard disk drivers, including HDDRIVER, and is used by some systems, including MiNT. Depending on your operating system, you may need to set **Use XHDI interface if available** to allow CDbbackup to access your hard disk partitions. Note that if your hard disk driver does **not** support XHDI, and you have this option checked, CDbbackup will use the Rwabs interface instead.
- the default log file option. When **Enable log file** is set, a log file called CDBACKUP.LOG is created in the CDbbackup directory every time that CDBACKUP.PRG is run (if the file already exists, it is overwritten). The log file contains debugging information. Normally, you should leave this option deselected.

CAUTION: If “Enable log file” is selected, the partition containing the log file (the one that CDbbackup was launched from) will be altered while the backup is in

progress, and thus will never match a backup. Because of this, you should ensure that logging is disabled if you plan to backup and verify the partition that contains CDBACKUP.PRG.

File restore preferences

The File restore preferences window is divided into three sections: Preserve date and time, Action when file exists, and Action if restore error occurs.

Preserve date and time

This section defines how the date and time of restored files and folders are handled.

Preserve date and time

Of files
 Of folders

When restoring a file and/or folder, you can select if you want to preserve the date and time of the original (i.e use the date and time from the backup), or use the date and time that the actual restore is done.

NOTE: Preserving the date and time of folders requires the manipulation of the system time, so this option should be used with caution in a pre-emptive multitasking environment such as MagiC or MiNT: you should avoid running other programs simultaneously that may manipulate or depend on the system time.

Action when file exists

This section specifies what the program should do when the file or symbolic link (symlink) it is attempting to restore already exists. Note that attempting to restore a **folder** that already exists always succeeds.

Action when file exists

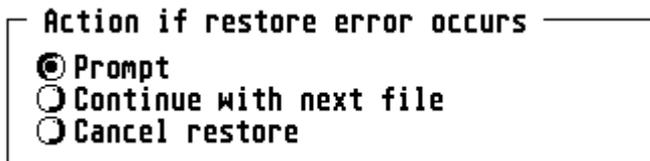
Prompt
 Always overwrite
 Overwrite if backup is newer
 Overwrite if backup is older
 Never overwrite
 Cancel restore

The default action is **Prompt**; when this option is selected and a file/symlink being restored is found to exist, an alert is issued with the following choices: **Overwrite** the existing file/symlink, **Skip** the restore of the file/symlink in question, or **Cancel** the entire restore. The other options are self-explanatory.

Setting CDbbackup preferences

Action if restore error occurs

This section specifies the action that the program should take when certain errors occur during a restore, such as attempting to restore a file/symlink when a folder of the same name exists (or vice versa), or encountering a CD/DVD read error.



Action if restore error occurs

Prompt

Continue with next file

Cancel restore

The default action is **Prompt**; when this option is selected and an error occurs when restoring a file, an alert is issued with the following choices: **Ignore** the error and continue with the next file, or **Cancel** the entire restore.

The other options allow you to pre-select one of these choices, avoiding the possibility of repeated prompts during the restore of multiple files and/or folders.

Saving your preferences

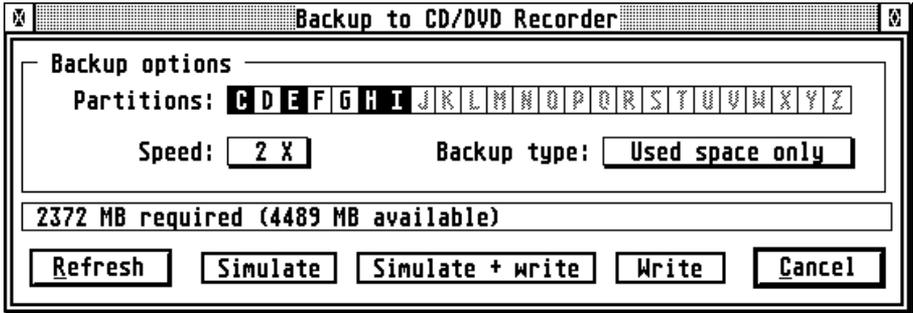
After setting up your preferences in either window, you can choose **Save**, **OK**, **Cancel** or **Apply**.

- **Save** saves the changes you have made to the CDBACKUP.INF file, but does not alter your current preferences. The Preferences window remains open.
- **OK** makes the changes effective immediately and updates any open Backup, List, or Verify/Restore window. The Preferences window will be closed.
- **Cancel** ignores any changes you have made, and closes the Preferences window.
- **Apply** makes the changes effective immediately and updates any open Backup, List, or Verify/Restore window. The Preferences window remains open.

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

Backing up a partition

Backups are performed from the Backup window, which is reached by clicking on the **CD/DVD|Backup...** menu item, or pressing **control-B** on the keyboard. The following dialog will be displayed.



The options set when this window is opened correspond to those set by your most recent **Apply** or **OK** in a Preferences window (if you have not changed a Preferences window in this CDbackup session, they will correspond to those saved by the last **Save** in a Preferences window). You may override them temporarily by making changes in this window.

Selecting backup options

You may select the partitions to backup, the recording speed, the backup type, and whether a read check will be performed after the backup. Note that the backup drive cannot be changed here; it must be set in the Preferences window.

Click on unselected partitions to add them to the list of partitions to backup, or click on already-selected partitions to deselect them. The partitions will always be backed up in alphabetical order, irrespective of the order of selection.

To change the recording speed, click on the **Speed** button, and select a speed from the popup list.

To change the type of backup, click on the **Backup type** button, and select a backup type from the popup list. Refer to “Backup types” on page 7 for more details.

When you have completed your selections, click on **Refresh**. This will scan the selected partitions, calculate the space required on disk for backup, and report both the space required and the space available on the current disk. Note that the backup space required on disk is somewhat larger than the space backed up, due to track and session overheads.

If the required space exceeds the available space, you will not be able to start a backup; deselect one or more of the partitions and/or insert a disk with more available space into your backup drive, and click on **Refresh** again.

Backing up a partition

If any partition is too large to fit on one disk, you can make a backup of it on two or more disks (this is known as a multidisk backup). In this situation, you may only backup one partition at a time. When you have selected that partition and no others, CDbackup will display a message telling you how many disks are required.

Starting the backup process

When you have finished setting the backup options, you are ready to proceed. For DVD+R disks, you can select **Write** or **Cancel**; for all other supported disk types, you can select **Simulate**, **Simulate + write**, **Write**, or **Cancel**.

Simulate performs a simulated backup. This is exactly the same as a real backup, except that no data is actually written to the disk. Its main function is to allow you to determine if your system is fast enough to supply data to your recorder at the selected recording speed. You should use this the first time you backup, and any time you make a significant change to your system or to CDbackup's parameters.

Simulate + write performs a simulated backup first, followed by a real backup if (and only if) the simulation was successful. This is for those cautious people who want to check that everything is OK every time they backup. The only disadvantage is that it will take approximately twice as long as a Write on its own.

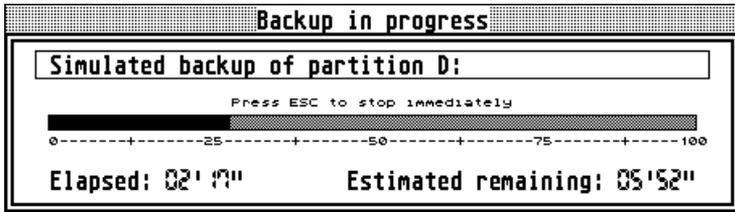
Write performs a real backup immediately. If your system consistently does backups without problems, this is the fastest choice.

Cancel closes this dialog immediately, without performing any backup action.

Once you have clicked on **Simulate**, **Simulate + write**, or **Write**, the progress window will appear.

Monitoring the backup process

During a backup, the following progress window will be displayed.



The heading shows whether the backup is simulated or real, and the partition currently being backed up. The length of the progress bar is based on the percentage of data transferred, and the window also shows the elapsed time since the backup started, and the estimated time remaining. If you have selected the **Minimise screen updates** option, the progress bar and the time estimates will only be updated at the end of each track; otherwise they will be updated every second or so during the backup.

While a backup is in progress, the screen will be locked to avoid interrupting the backup, which could result in a failed backup and/or a wasted disk. You may press the **Esc** key at any time during a backup to interrupt CDbackup; if a simulation is in progress, CDbackup will stop immediately; otherwise it will pause at the end of the current track, and issue an alert; the alert allows you to stop the backup at this point (all partitions processed so far will have been completely backed up), or continue with the next partition as though there had been no interruption.

When all the backup data has been written, the backup session must be “finalized” (closed). This can take a few minutes, so the progress window changes to show elapsed time for finalization. If supported by the drive, percentage complete will also be displayed; otherwise the progress bar will flash on and off to show activity.

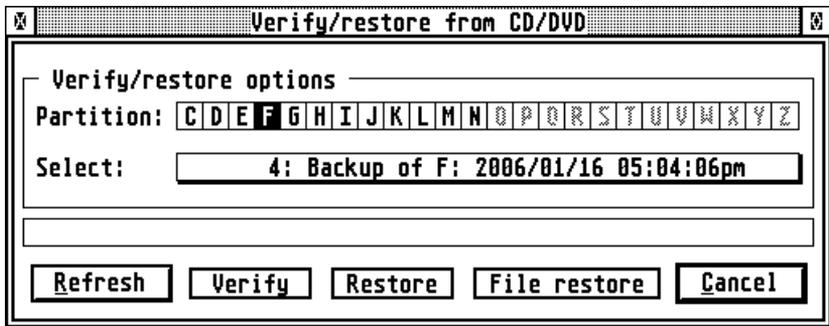
When finalization has completed, the backup is complete, and the disk will be ejected. If you selected **Simulate + write**, and this is the end of the Simulate pass, the disk will be automatically reloaded (if possible), ready for the Write pass.

Verifying/restoring a backup

Verify compares the selected backup against the selected partition. Click on the **CD/DVD|Verify...** menu item, or press **control-V** on the keyboard to reach the Verify/restore window, as shown below.

Restore performs a full restore of the selected backup to the selected partition. Click on the **CD/DVD|Restore...** menu item, or press **control-R** on the keyboard to reach the Verify/restore window, shown below.

File restore restores an individual file from the selected backup to any partition. Click on the **CD/DVD|Restore...** menu item, or press **control-R** on the keyboard to reach the Verify/restore window, shown below. If you are running under plain TOS or MagiC, and the backup is from a FAT16 filesystem and resides on a single disk, you may find it more convenient to access individual files in the backup directly from the operating system: please refer to page 27 for how to use this powerful feature of ExtendOS.



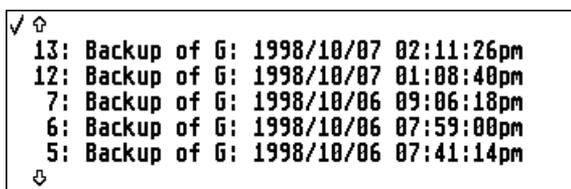
The options set when this window is opened correspond to those set by your most recent **Apply** or **OK** in a Preferences window (if you have not changed a Preferences window in this CDbackup session, they will correspond to those saved by the last **Save** in a Preferences window). You may override them temporarily by making changes in this window.

Selecting verify/restore options

You may select one partition to verify or restore, as well as the specific backup to use. To select a different partition, just click on it. To select a backup, use the **Select** popup. Note that the verify/restore drive cannot be changed here; it must be set in the General Preferences window.

By default, the backup selected will be the most recent backup that can be restored to the selected partition. If there is no such backup, the **Verify** and **Restore** buttons will be greyed out, and another backup will be set as the default. As long as the backup is from a FAT partition, the **File restore** button will be enabled, since individual files and folders can be restored from any FAT backup.

At this point, you may select a different backup by clicking on the **Select** button. A popup list with room for up to seven backups will appear; if there are more than seven matching backups, the list will be scrollable, as shown below.



Click on the desired backup to select it, or on the scroll bars to scroll the list. Note that if you select a backup that does not match the selected partition, the **Verify** and **Restore** buttons will be greyed out.

NOTE: A backup matches a partition as long as the number of data clusters in the original backed-up partition will fit exactly in the partition space. You can determine the number of data clusters in a backup by using the **List** function. See page 23 for further details.

Starting the verify/restore process

When you have finished setting the verify/restore options, you are ready to proceed. You can select **Verify**, **Restore**, **File restore**, or **Cancel**.

Verify compares the selected backup and the selected partition to ensure that they match. This could be done immediately following a backup, to provide an extra level of comfort that the backup was completed successfully, but is not normally necessary. Note that the comparison is on a byte by byte basis for all the sectors involved, so that even creating a zero-length file and then deleting it between doing a backup and a verify will probably cause the verify to fail, since a directory sector will have been modified. Also, please see the caution under “Miscellaneous preferences” on page 12.

CAUTION: If you wish to verify a backup of a non-FAT partition, you must ensure that the operating system does not modify the filesystem when it is remounted after the backup. The best way to do this is to perform the backup and verify from TOS. It may also be possible to do this by closing all open desktop windows for that partition before performing the backup, and verifying immediately after the backup; however, even with these precautions, the operating system can sometimes update the partition anyway, causing the verify to fail.

Restore restores the selected backup to the selected partition. If the backup is restorable but does not have exactly the same characteristics as the target partition, a warning message will be issued.

File restore allows you to restore one file at a time from a FAT backup. This is the only method available to restore individual files from a multidisk FAT backup, since the disks in a multidisk backup cannot be mounted from the desktop.

Cancel closes this dialog immediately, without performing any backup action.

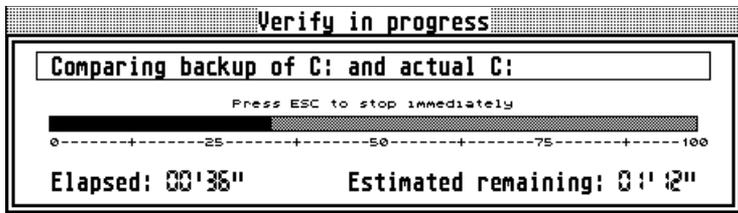
Verifying/restoring a backup

If you select **Verify** or **Restore**, the progress window will appear (see “The partition verify/restore process” below).

If you click on **File Restore**, a status window will appear while the backup is scanned for files; refer to “The file restore process” for further details.

The partition verify/restore process

During a partition verify or restore, the following progress window will be displayed.



This shows the operation (Verify or Restore), the partition currently being verified or restored, the elapsed time since the process started, and the estimated time remaining. These values will be updated every second or so.

During a verify, the sectors on the hard disk and the backup are compared byte for byte; the verify stops with an error message as soon as a miscompare is detected.

During a restore, the partition being written to is locked against updates from other programs, if partition locking is supported by the operating system (locking is supported by both MiNT and MagiC). This avoids the possibility of data corruption. In a plain TOS environment, users must manually ensure that no desk accessory or other resident program attempts to update the partition in question.

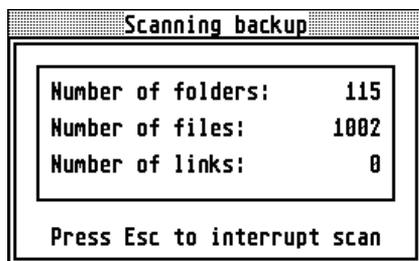
While a verify or restore is in progress, the screen will be locked; however, you may press the **Esc** key at any time to stop the verify or restore. Note that interrupting a restore will leave the partition in a totally scrambled state, so you should not access it via GEMDOS until you have either completed another restore, or reinitialised it with the appropriate function of your hard disk partitioning software (usually called Zero partition).

If you are verifying or restoring a backup that is contained on more than one disk, CDbackup will prompt you for each disk in turn.

CAUTION: At the end of a successful restore to a FAT partition, a media change is forced on the partition written to, in order to notify the operating system to discard any disk data it may have cached. In the event that a media change could not be forced, an error alert is issued, advising an immediate reboot. If you see such a message, please reboot at once to avoid potential data loss.

The file restore process

If you are restoring from a multidisk backup, make sure that the first volume of the set is loaded before you start the process. After clicking on **File restore**, CDbackup scans the filesystem on the mounted disk in order to build an index to the files and folders. While the scan is in progress, the window shown at the right is displayed.



When the filesystem scan is finished, CDbackup opens a window displaying the contents of the root folder of the backup, as shown here. The names of folders are prefixed by the normal folder marker; files do not have a prefix. Symbolic links (symlinks) are italicised to distinguish them from normal files.

You can navigate the backup like a hard disk partition: click on a folder to open it, or on the Closer gadget to close it. You can scroll the file restore window by using the standard window gadgets, or by using the arrow keys on the

F:\	
⊗	⊗ BOUNDS 1999/12/11 02:15:08pm
⊗	⊗ ANIPLAY.NEW 2001/06/28 12:07:36am
⊗	⊗ BENCHMARK.KS 2000/06/10 05:24:34pm
⊗	⊗ DEFRAG 2001/11/22 01:00:38am
⊗	⊗ DOSTOOLS 2001/11/22 01:00:40am
⊗	⊗ DTP2HTML 2001/06/28 12:08:04am
⊗	⊗ EGALE.E34 1999/12/11 02:15:46pm
⊗	⊗ ESSCD61 1999/12/11 02:16:50pm
⊗	⊗ EXTRAS 1999/12/11 02:14:32pm
⊗	⊗ GS 2001/03/08 01:47:00pm
⊗	⊗ LOGFILES 1999/12/11 02:14:32pm
⊗	⊗ NR0FF 1999/12/11 02:16:52pm
⊗	⊗ P2C 2001/11/22 08:23:34pm
⊗	⊗ PC.OLD 2001/03/20 12:00:20pm
⊗	⊗ SOUND 1999/12/11 02:15:20pm
⊗	⊗ STYLE.OLD 2001/03/20 12:02:28pm
⊗	⊗ TERA_130 1999/12/11 02:17:26pm
⊗	⊗ WAVE_20 1999/12/11 02:15:50pm
⊗	⊗ XBIN23 1999/12/11 02:15:06pm
	6020.TXT 1148704 1997/03/16 10:10:50pm
	6020.ZZZ 1145830 1997/03/16 10:04:18pm
	ALICE.LZH 56277 1993/09/16 09:27:46pm
	CRND501.ZIP 285800 1997/01/06 11:07:12pm

keyboard: up arrow and down arrow scroll a line at a time; shift+uparrow and shift+downarrow scroll a page at a time.

When you reach the part of the backup you are interested in, you can restore an individual file or an entire folder (and its included files and subfolders) with one click. Symlinks and long filenames are fully supported, but you must be running under an operating system that supports them (i.e. MiNT or MagiC) in order to restore them correctly.

Restoring an individual file

To restore an individual file or symlink, just click on its name. This will bring up the file selector to allow you to select a restore location. Clicking on OK in the file

Verifying/restoring a backup

selector starts the restore. For example, you are displaying the root of a backup of partition C:, and you click on NEWDESK.INF. The file selector is displayed and you navigate into the folder E:\SAVE and press OK. CDbackup will restore the file to E:\SAVE\NEWDESK.INF.

Restoring an entire folder

There are two ways of restoring an entire folder (and included files and subfolders):

1. Shift-click on a displayed folder name. This will bring up the file selector to allow you to select a restore location. Clicking on OK in the file selector starts the restore. For example, you are displaying the root of a backup of partition C:, and you shift-click on AUTO. The file selector is displayed and you navigate into the folder G:\TEMP and press OK. CDbackup will create a folder G:\TEMP\AUTO and copy the contents of AUTO (and all included files and subfolders) to it.
2. Control-shift-click anywhere in the file restore window. This performs the same function as (1) above, except that it restores the contents of the folder being displayed (and all subfolders). For example, you are displaying the AUTO folder of a backup of partition C:, and you control-shift-click in the window. The file selector is displayed and you navigate into the folder G:\TEMP and press OK. CDbackup will copy the contents of AUTO (and all included files and subfolders) into G:\TEMP.

HINT: If you use method (2) when displaying the root folder of a backup, you can do a file restore of the entire partition. This will be much slower than a standard partition restore, but will allow you to restore to a partition of a different type or size.

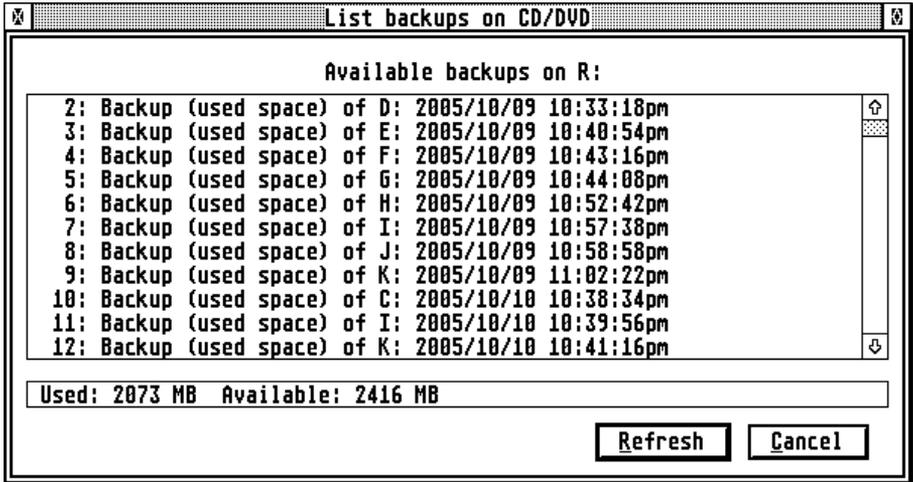
IMPORTANT: if you are restoring from a multidisk backup, only some of the files and folders are immediately accessible. If you try to restore a file that exists partly or wholly on a different disk, you'll be prompted to mount the additional disk(s) as required. Similarly, if a folder exists partly or wholly on a different disk, when you try to access it, you'll see a message "Click here to continue retrieving this folder". If you click on that message, you'll be prompted for additional disk(s) as required, and the scanning process will resume.

It is possible you may have to go through this process more than once (a folder on disk #1 could point to a folder on disk #2, which could point to a folder on disk #1 and so on), but each time the results are added to the original scan, so you won't lose access to the original data.

CAUTION: If you close the root folder of the display (by clicking on the Closer gadget), the window will close and CDbackup will discard all the filesystem information. So if you then decide to get another file from the backup, you'll have to go through the scan process again.

Listing the contents of a backup disk

The contents of a backup disk are displayed in the List window, which is reached by clicking on the **CD/DVD|List** menu item, or pressing **control-L** on the keyboard. The following dialog will be displayed.



This window lists **all** backups on a disk, together with **Used** and **Available** space. Backups are listed in the sequence they are stored on the disk, with the first backup at the top. If there are too many backups to display on one screen, you may use the scroll bar to move up and down the list. If this disk is part of a multidisk backup, the format will be the same as shown above, except:

- there will only be one line (only one partition per disk is allowed for a multidisk backup)
- the number of the disk within the multidisk set will be shown in parentheses following the date, e.g. **(2/3)**.

The date and time of each backup is displayed according to the format specified by the **_IDT** cookie (introduced in Falcon TOS). If there is no **_IDT** cookie:

- dates will be displayed as YYYY/MM/DD, where YYYY is the 4-digit year, MM is the two-digit month and DD is the two-digit day
- times will be displayed as HH:MM:SSxx, where HH is the 2-digit hour (1 to 12), MM is the 2-digit minutes, SS is the 2-digit seconds, and xx is **am** for times before noon and **pm** for times after noon.

If you click on any of the backup entries in this window, an alert will display the “vital statistics” of the partition that was backed up. If you need to create a new partition to restore to (for example, if you replaced your hard disk), you should use

Listing the contents of a backup disk

this information when you run your hard disk partitioning software, to create a partition with the same characteristics as the backup. This will allow CDbackup to do a full restore (CDbackup will only do a full restore to a partition that matches the size of the one that was originally backed up).

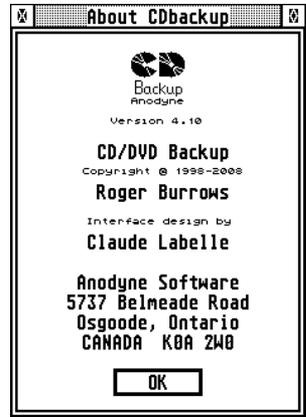
NOTE 1: each track and backup session requires a few megabytes of overhead. This overhead is included in the space used.

NOTE 2: the available space is determined from information provided by the drive. If the drive you are using for List/verify/restore is an older CD-ROM drive, it may not be capable of providing that information; in such a case, available space may be shown as 0 MB even if there is space available.

Other CDbackup features

About

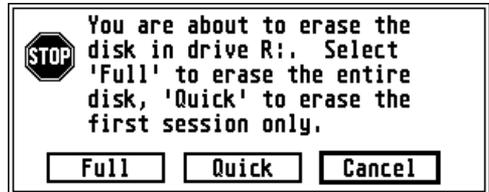
This provides the normal program information, including version, copyright, authors, and publisher, as shown here. This information is displayed in an independent window that may be moved, minimised, or iconified like the **Backup**, **List**, and **Verify/Restore** windows.



Erase

Clicking on **CD/DVD|Erase** or pressing **control-E** on the keyboard invokes this function. It allows you to erase a rewriteable disk on a drive that supports such disks; the item will be greyed out unless the recorder selected by “Backup preferences” (see page 10) supports erase.

Selecting **Erase** will cause an alert to be displayed, confirming that you wish to erase the disk. The alert on the right is shown when erasing a CD-RW; a similar alert is displayed when erasing a DVD-RW, except that the **Quick** option is not available.



Clicking on **Full** will erase the entire disk; clicking on **Quick** will erase just the first session. A quick erase is always faster (sometimes a lot faster) than a full erase, and in most cases is sufficient to allow the CD-RW disk to be rewritten subsequently; however, in rare cases you may need to use a full erase to prevent previously-recorded sessions of a multi-session CD from “re-appearing”. A full erase can take up to 45 minutes on a CD or 60 minutes on a DVD.

A progress bar is displayed during the erase process, and the mouse shape turns into an eraser; if supported by the drive, the progress display will show percentage complete. If possible, CDbackup will allow the Erase to continue “in the background”, freeing up the SCSI bus and your system for other work (although the CD recorder will remain busy).

NOTE: If the CD recorder does not support the “background” Erase function, both CDbackup and the SCSI bus will remain busy for the entire Erase operation.

Other CDbackup features

Save window positions

This menu item is reached by clicking on **Options|Save window positions**. It allows you to save the current screen positions of all windows; for a window that is not currently being displayed, the position saved will be where it was most recently displayed.

Selecting **Save window positions** will cause this alert to be displayed, confirming that you wish to save the positions. Clicking on **Yes** will save.



Accessing individual files from the desktop

In addition to accessing partition backups from CDbbackup for verify and restore purposes, you can also access them directly from the desktop provided that:

- ExtenDOS v4 (or later) is loaded
- the backup is contained on one disk
- the backup is a FAT16 partition
- you are running under plain TOS or MagiC

This provides an extremely simple way of restoring an individual file or files.

All you need to do is to put the backup disk into your recorder. Then display the contents of the drive from the desktop, with an item selector, or using any other standard TOS method. You will see the data from the first partition that was backed up on the disk. You can use the desktop, Kobold, UIS III, or any other standard method to copy whichever file(s) you want to wherever you want.

The backup looks so much like a standard TOS partition that you can use pretty much any hard disk tool to access it, including sector viewers. Just remember you can't write to it ... if you try, you'll get a write error.

If the file you're looking for is **not** in the first partition backed up on the disk, then you will need to use the ExtenDOS Session Manager CPX, SESSION.CPX, to select the desired backup. The next time you access the drive, the selected partition backup will be available. You can change disks in the drive at any time (including changing from a backup disk to a standard ISO9660 disk, and vice versa) without problems. For further information on using SESSION.CPX, please refer to the ExtenDOS manual.

NOTE 1: If the partition backup is on two or more disks, or you are running under MiNT, you cannot use this method to restore an individual file. You **must** use the **File restore** function instead.

NOTE 2: Due to TOS restrictions, in order to access partition backups by this method, the backup disk **must** be loaded in a drive with a drive letter between C and P inclusive. If you are using MagiC, this restriction does not apply; any drive letter may be used.

Troubleshooting

Problems accessing your recorder

Ensure that you have installed ExtenDOS properly. If you have another CD/DVD drive, is it working properly with ExtenDOS? If not, perhaps your boot manager has inadvertently disabled EXTENDOS.PRG in the AUTO folder.

Was your recorder detected by ExtenDOS's installation program? If not, and it is connected via the ACSI port, it is probable that it requires SCSI arbitration, and your host adapter does not support it. You will need to replace your host adapter with one that does, such as the Link96/Link97.

If your recorder was detected by ExtenDOS, and is connected properly and powered up, but it does not appear as a selectable drive on the Preferences screen of CDbackup, then there may be a problem with your hardware or with the ExtenDOS set-up. Please refer to the ExtenDOS manual for troubleshooting assistance.

Problems writing to all media

The most common cause of this problem is trying to write at too high a recording speed for your system. Use the simulate function, and try different speeds to find the fastest that works consistently.

The fewer interruptions that your system has from other programs, the more likely you are to be successful, so you should consider disabling any accessories that cause timer interruptions. If you are using a multitasking system like MiNT or MagiC, you will get better results if you do not run any other programs while running CDbackup. In marginal cases, using the **Minimise screen updates** option may allow you to record at a higher speed than otherwise.

If the drive won't even write successfully to a CD at 1X, it is either a hardware problem with the drive or an incompatibility with ExtenDOS.

Problems writing to a specific disk

Very rarely, blank CD media have flaws that cause an error during writing; this problem seems to occur more often with DVD media, especially those from "brand X" manufacturers. If you encounter an error on one disk only, or one brand of disk only, it is almost certainly a problem with the medium.