

## **WormsShell**

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**REVISION HISTORY**

NUMBER	DATE	DESCRIPTION	NAME

# Contents

<b>1</b>	<b>WormsShell</b>	<b>1</b>
1.1	Contents . . . . .	1
1.2	Legal Notices . . . . .	1
1.3	Background to WormsShell . . . . .	2
1.4	Features of WormsShell . . . . .	2
1.5	Worms thinks a CD-ROM drive is a CD <sup>32</sup> - duh! . . . . .	3
1.6	0 is NOT a valid lock type . . . . .	3
1.7	Worms causes Enforcer hits and crashes . . . . .	3
1.8	Worms uses an unreliable hack to find itself . . . . .	3
1.9	Worms crashes if libraries are missing . . . . .	4
1.10	Acid Software doesn't believe in the 68010 . . . . .	4
1.11	A software company ate my trap handler! . . . . .	4
1.12	Help for our American cousins . . . . .	4
1.13	Memory, and... I used to remember . . . . .	4
1.14	Using a CD <sup>32</sup> joystick with Worms . . . . .	4
1.15	Using CD audio disks with Worms . . . . .	5
1.16	I want exploding sheep! Exploding bananas! I want everything to explode! . . . . .	5
1.17	Guns 'n' Ammo . . . . .	5
1.18	I love it when worms talk dirty to me . . . . .	5
1.19	A different configuration for every day of the week! . . . . .	5
1.20	Things which I'd like to do, but won't be really easy like the others . . . . .	5
1.21	What WormsShell requires in order to run . . . . .	6
1.22	How to install WormsShell . . . . .	6
1.23	Contact addresses for the author . . . . .	7
1.24	Information required in a bug report . . . . .	7
1.25	History of WormsShell . . . . .	8

# Chapter 1

# WormsShell

## 1.1 Contents

WormsShell  
Version 0.4 (beta)

by Ben Hutchings

WormsShell provides bug fixes  
and additional features for  
the popular game "Worms".

Legal

Background

Features

Requirements

Installation

History

Please read this if you've  
used earlier versions.

Addresses

## 1.2 Legal Notices

The WormsShell package consists of the files:

Install\_WormsShell

Install\_WormsShell.info

Make\_Report

Start\_Logs

Worms

WormsShell

WormsShell.icon

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WormsShell.guide

WormsShell.guide.info

(hereafter "the files"). This package is copyright © Ben Hutchings 1996. It may freely be distributed provided

(i) no charge is made for distribution above the costs of duplication, distribution and the media used,

(ii) the files are distributed together, and

(iii) none of the files are altered, except, if the distributor so wishes, by converting them into an archived or compressed form from which they can be retrieved unaltered using readily-available free software tools.

Software released under these conditions is often known as Freeware.

As far as I am aware, the NewIcons images used in the files "Install\_WormsShell.info" and "WormsShell.guide.info" are © 1996 The NewIcons Team and may freely be distributed on their own.

The NewIcons image used in the file "WormsShell.info" is © 1996 Phil Vedovatti and is used with permission.

## 1.3 Background to WormsShell

Worms has been phenomenally popular in all formats it has been released on, but unfortunately it seems that the original Amiga version is the most buggy. This is partly because it was compiled using Blitz Basic. Blitz Basic produces the slowest, most ridiculously bloated code I have ever seen in my life. Also, it does not support playing samples from Fast memory, which would of course make a lot of difference to Worms, which loads up to about 750K of samples. The main executable also seems to be missing a vital trap handler which would allow Worms to exit safely if it runs out of memory. Lastly, the CD features cannot be used without a CD<sup>32</sup> pad.

WormsShell aims to fix the above bugs and deficiencies. However, at the moment, I have yet to add any speedups or Fast-memory-playing since these may be quite complex. In addition, WormsShell provides a number of useful options, which make it easier to use some of the special features of Worms.

"Worms: The Director's Cut" appears to address most if not all of the deficiencies which WormsShell deals with. There were several bugs in the demo I saw on CUCD 5, but I've been in contact with Andy Davidson and it looks like these have been dealt with. Blitz Basic's libraries have apparently been updated to eliminate some of the bugs I found in them. It looks like Worms: TDC will be duplicated some time this week (25-29 November) so it can be released just in time for Christmas.

## 1.4 Features of WormsShell

Bugs fixed

Problems with CD-ROM drives

Incompatibility with MUFS

Enforcer hits and crashes

Asks you to insert disks

Crashes if libraries missing

Problems with 68010 CPU

Software failure 8000 0020

Doesn't work on NTSC Amigas

Features added

Various options to modify memory usage

Option to use a CD<sup>32</sup> pad (CD32PAD tooltype)

Using audio CDs with any distribution of Worms

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Start with Sheep Mode on (SHEEPMODE tooltype)

Set weapon availability

Use multiple sample sets (SAMPLEDIRn tooltype)

Use multiple configurations

You can also start WormsShell from the command line, using any of the tooltypes as command-line arguments.

To-do list

## 1.5 Worms thinks a CD-ROM drive is a CD<sup>32</sup> - duh!

The executable files used for the CD and floppy versions of Worms are the same. If Worms can open "cd.device" when it starts, it assumes that it is running on a CD<sup>32</sup> and accepts input only from a CD<sup>32</sup> joystick and not from the keyboard. This means that if you have a CD-ROM drive, Worms will appear to have entered Helen Keller mode when you reach the code entry screen and can't type anything!

If you have a CD-ROM drive, you can now **use the audio CD functions of Worms** without the need for a CD<sup>32</sup> controller.

## 1.6 0 is NOT a valid lock type

Every call Worms makes to the DOS function Lock(), apart from those in the Blitz library functions, specifies the lock type as 0 instead of SHARED\_LOCK, which it should be. The standard Amiga file system doesn't mind this but, for security, MultiUserFileSystem does. This means that the Lock() call fails and Worms thinks files are not there. WormsShell fixes these calls to use SHARED\_LOCK.

## 1.7 Worms causes Enforcer hits and crashes

I checked out Worms with the excellent "Enforcer" tool written by Michael Sinz. I found several places in the Worms code where it can read or write invalid memory addresses, sometimes causing crashes:

- When Worms starts, it writes "WORM" to address 0. This is just plain wrong. Actually, this isn't just a bug but deliberate bad behaviour. WormsShell removes this code.
- Sometimes when a memory allocation fails, Blitz's memory list seems to get confused and it can try to use a null pointer when freeing memory. WormsShell fixes the code used to traverse the list.
- Two Blitz functions which Worms uses for timing are bugged: they attempt to pack the three bytes of a CIA clock together in a memory buffer, but instead they use the contents of the buffer (which will always be 0) as the buffer address. WormsShell fixes the functions to use the buffer correctly. Note that these functions are illegal anyway as they read and write the CIAA TOD clock, which is always reserved for the use of the operating systems.

## 1.8 Worms uses an unreliable hack to find itself

Instead of following the correct procedure when started from Workbench, which is to find out where it has been run from using its startup message, Worms attempts to copy the current directory of the Workbench. If it is lucky, this will work, but if you do anything with the Workbench while Worms is derunching it won't. This could often make Worms ask you to insert disk 1 even though it was installed on a hard drive. WormsShell makes Worms use the correct directory.

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## 1.9 Worms crashes if libraries are missing

Worms makes many calls to the `OpenLibrary()` and `OldOpenLibrary()` OS functions so that it can use various OS functions. In many cases it does not check whether the call succeeded. If the call fails, Worms will crash when it tries to use the library. This is a particular problem with `diskfont.library` and `mathtrans.library`, which are stored on disk.

WormsShell should make Worms exit cleanly if it can't open a library - not all `OpenLibrary/OldOpenLibrary` calls are fixed, but those which open the disk-based libraries are.

## 1.10 Acid Software doesn't believe in the 68010

Blitz appears to check the vector-base register only on a 68020 or better; this could potentially prevent Worms from working if you have a 68010 CPU. WormsShell makes it read the VBR on 68010s too. This fix has not been tested since I don't have a 68010 - I just noticed this problem while trying to understand the disassembled code.

## 1.11 A software company ate my trap handler!

If Worms encounters a fatal error, e.g. it runs out of memory, then it will issue the instruction `TRAP #0`, which should call an "trap handler" to deal with the problem. However, Worms does not set up such a trap handler, so instead the standard OS trap handler is invoked - which just tells you "Software Failure, Error: 8000 0020". WormsShell installs a trap handler which causes Worms to jump to its exit code if a fatal error occurs. This doesn't seem to work perfectly at the moment though; Worms still crashes the machine sometimes. Also, not all memory gets freed always.

## 1.12 Help for our American cousins

If you run Worms on an NTSC Amiga, part of Worms's screen will be cut off. This can also happen if you have a PAL Amiga but use an NTSC screenmode for your Workbench screen. But if you have the ECS Agnus or the AGA chipset (and virtually all Amigas have one or the other) and a suitable monitor or TV, then you can use PAL screenmodes anyway.

Use the tooltype `FORCEPAL=YES` to force the display to PAL frequencies before Worms runs and to patch the OS so that your Amiga looks like a real PAL machine. The OS settings will be restored when Worms is finished. (Thanks to Nico François for the source code I based this on.) You may need to use the tooltype `CLOSEWB=YES` as well to make this work properly; unfortunately this may make it impossible to return to the Workbench after exiting Worms; I'm working on that problem.

## 1.13 Memory, and... I used to remember

There are a number of experimental options to let you control the way Worms uses memory. At some point I hope to be able to make WormsShell set these options automatically, but I need some experimental data and I want you - yes you - to provide it. Please try out different combinations of options and **tell me** which ones work on your system.

The tooltypes used for the options are:

- `USE2MCHIP` - Worms normally sets this if you have 2M Chip RAM installed
- `USEFAST` - Worms normally sets this if you have some Fast RAM installed
- `CLOSEWB` - Worms normally sets this if and only if it didn't set both of the above

## 1.14 Using a CD<sup>32</sup> joypad with Worms

You should be able to use a CD<sup>32</sup> joypad with Worms on an A1200 and maybe on an A4000 too. To do this, use the `CD32PAD` tooltype. Note that this will disable keyboard input to Worms.

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## 1.15 Using CD audio disks with Worms

If you have a "cd.device" driver for your CD-ROM drive, Worms will give you the CD audio features it has on the CD<sup>32</sup>. Normally this would require you to use a CD<sup>32</sup> joystick but WormsShell allows these two things to be used separately. See the Worms manual for information about the CD audio features. Clicking on track numbers cycles through the available tracks; clicking "CHANGE DISC" should eject the disc (I have a top-loading CD-ROM drive so I couldn't test this), wait for you to insert a new disc, and then read the new table of contents.

## 1.16 I want exploding sheep! Exploding bananas! I want everything to explode!

Worms has a hidden feature called "Sheep Mode" which you can activate by typing "total wormage" while the title screen is displayed. This gives you lots of sheep, lots of dynamite and one banana bomb at the beginning of each round. If you like to play in this mode all the time, add the tooltype SHEEPMODE to the WormsShell icon and you will no longer have to enter the special code.

## 1.17 Guns 'n' Ammo

WormsShell lets you set the availability of almost all weapons freely, without going to the appropriate options screen in Worms every time you start it, and it can even change a few weapons not listed there. Use the following tooltypes:

AIRSTRIKES BANANABOMBS BAZOOKAS BLOWTORCH BUNGEE CLUSTERBOMBS DRAGONBALLS DRILL DYNAMITE FIREPUNCHES GIRDERS GRENADES KAMIKAZE MINES MINIGUN MISSILES NINJAROPE SHEEP SHOTGUN TELEPORT

The value for the tooltype should be OFF to turn the weapon off, 1-9 to allow it to be used that many times, or INFINITE to allow the weapon to be used freely.

## 1.18 I love it when worms talk dirty to me

The Worms manual mentions the possibility of replacing the Worms speech samples. There are several reasonably large sample sets available in the public domain, including "T2: Judgement Day", "Bottom" and "Beavis and Butthead". Normally you would install these by copying the new samples over the samples in the TWENGLISH/FRENCH/GERMAN directory. But this means you can't choose to go back to the old samples without re-installing from the original Worms disks.

WormsShell lets you have up to 3 named sample sets which replace the language options you normally see when starting Worms. To install a new sample set, first create a subdirectory for it in the directory you installed Worms, with a name up to 9 letters long. Then copy the new samples into the new directory. Finally add the tooltype SAMPLEDIRn=mydirname to the WormsShell icon, where n = 1 to replace the English option, 2 to replace French, or 3 to replace German, and mydirname is the name of the directory you created.

## 1.19 A different configuration for every day of the week!

If you want to use multiple configurations with WormsShell, just make copies of its icon and change the copy's tooltypes appropriately. You don't need to copy WormsShell itself. Use the command-line argument "SETTINGS" to read the configuration from a different icon.

## 1.20 Things which I'd like to do, but won't be really easy like the others

· Add code to make an intelligent decision when setting the three startup options.

- Add Fast-memory sample playing.
- Speed up important routines. (Some calculations are done using very slow floating point maths which could easily be replaced by integer routines over 10× faster.)
- Fix title screen colours when using SHEEPMODE tootype.
- Allow skipping of language/sample set selection.
- Fix the many remaining bugs in Worms and WormsShell which I haven't found yet. (Every program is either trivial or contains at least one bug.)
- Show a landscape list when you right-click during landscape generation.
- Add a friendly installer for extra custom landscapes and sample sets.
- Provide the option to run worms in a 31 kHz (VGA-compatible) screen-mode. Someone will have to help me with this as I have no idea how to do it.
- Allow viewing of the silly animations on the CD when starting Worms from HD.
- Allow running of CD version with only WormsShell installed on HD.
- Translate the installer and this guide - and maybe even Worms itself - into other languages. If you would like to do this, please [contact me](#).

## 1.21 What WormsShell requires in order to run

- An original copy of Worms. WormsShell should work with the original floppy release, the budget floppy release (which is the same), and the CD version. If you have a legal version which it doesn't recognise, please tell me.
- A hard drive.
- OS 2.0 or later.
- Slightly more memory than Worms normally requires.
- lowlevel.library v40 (should be included with CD<sup>32</sup> "emulators" and some AGA games), if you want to use a CD<sup>32</sup> joystick with Worms.
- An appropriate version of cd.device (should be included with CD<sup>32</sup> emulators), if you want to play CD audio tracks within Worms.

## 1.22 How to install WormsShell

To install WormsShell properly, you must have the official Installer program. If you are lucky, someone will have included an illegal copy along with WormsShell but since I prefer not to get into trouble with whoever owns the Amiga this week, I have not included it in the package as released. Maybe once VIScorp gets its act together, I will be able to get a license to distribute Installer myself. You should use Installer v43, as earlier versions don't seem to be able to run the installation script correctly. (There are known bugs in earlier versions.)

If you have already installed Worms, you may want to delete your existing installation. My installation script can re-install Worms much more cleanly than the installer supplied with Worms, and won't copy any unnecessary files to your hard disk.

If you are re-installing, or installing from the Worms CD, you should answer "No" when you are asked whether Worms is already installed. The installation procedure will let you select which languages to install and set up all the necessary icons for you.

Alternatively, you can install WormsShell in an existing installation of Worms. Just answer "Yes" when you are asked whether Worms is already installed. You will be given the option to delete some files which Worms installs to your hard disk which are only needed used when it boots from a floppy disk.

There are a number of questions you will be asked in order to set up the WormsShell icon with some initial settings. In particular, you will need to set the [memory options](#). If you have lowlevel.library installed, you can choose to [use a CD<sup>32</sup> joystick](#) instead

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of the keyboard. You can also choose to switch **Sheep Mode** on, although you can also set the **availability of each weapon individually** later on.

At the end of the WormsShell installation you will be told the procedure which is needed to run WormsShell from the CLI if you have insufficient memory to run it from Workbench. If you have installed Worms before, you may find that is slightly different from what the original installer told you. You should write it down as it will be different for different Amigas and you won't be shown it again. If you run WormsShell from the CLI, it will still read its icon tooltypes. (You can also add to or override these by adding tooltypes to the final command line.) In both cases, you can also choose to install this guide file in the Worms drawer.

## 1.23 Contact addresses for the author

If you send a bug report, please supply all the required information. It would be best if you used the report form on the web at <http://users.ox.ac.uk/~worc0223/amiga/freeware/WormsShell/bugreport.html>.

snail Ben Hutchings  
43 Harrison Close  
Reigate  
Surrey RH2 7HS  
email [benjamin.hutchings@worchester.oxford.ac.uk](mailto:benjamin.hutchings@worchester.oxford.ac.uk)  
WWW <http://users.ox.ac.uk/~worc0223>  
(for support pages, append /amiga/freeware)  
IRC wombleII (find me in #amigacafe on EFnet/Undernet)

## 1.24 Information required in a bug report

I've had a lot of bug reports - hardly surprising since WormsShell is only in beta stages - and the problem I've found is keeping track of the details of all the different systems people are trying to run it on. If you send me a bug report, I'd like you to include the following information:

- Model number (A500, A1200, etc.)
- CPU (68000, 68010, 68020, etc.)
- Amount of Chip RAM
- Amount of Fast RAM
- Amount of RAM available (of each type) before running WormsShell
- Type and speed of CD-ROM drive (if present)
- ROM version
- Disk software version (if different)
- Version of Worms (floppy or CD)
- The settings for the WormsShell icon
- Any different behaviour when running from Workbench, CLI, or boot CLI
- If you can, try using SnoopDos and/or Enforcer (preferably with SegTracker) to log what happens, and send me any useful information they reveal. I've included a couple of scripts to help you do this. Execute Start\_Logs to start logging with SnoopDos and Enforcer, and execute Make\_Report to generate a report from the logs. The logs are stored on a recoverable RAM drive, so they should be retained even if the computer crashes.

## 1.25 History of WormsShell

version 0.4 (beta), released 25th November 1996

- Fixed more bugs and deficiencies in the installer script (which has become quite a monster!). It should also run faster now.
- Changed boolean tooltypes/keywords to take a value, instead of always turning on a feature if present. Use YES/OUI/JA to turn an option on or NO/NON/NEIN to turn it off. This means you can override all settings in an icon on the command line.
- Fixed version number in WormsShell. In versions 0.2 and 0.3 the version string still said it was version 0.1.
- Fixed ILBM level loader so it should exit neatly if the image is wider, taller or deeper than the bitmap in memory, or if the image uses an unknown compression method. Previously it could crash or corrupt other data if it encountered such an image.
- Added FORCEPAL tooltype which should let you run Worms on an NTSC Amiga or a PAL Amiga using an NTSC screenmode for the Workbench screen.

version 0.3 (beta), released 12th November 1996

- Fixed a couple of serious bugs in the installer script, which prevented some installations from working properly, and broke when installing from CD. I'm very sorry, I obviously didn't test properly.
- Fixed bugs in the sample directory name handling. If you ran WS from the CLI, any names set in the icon would always get replaced by those read from the command line. Also the memory containing directory names in the DiskObject or ReadArgs structure was freed before patching the Worms executable, so the strings could be replaced with garbage.. Now the strings are duplicated before being freed.

version 0.2 (beta), released 6th November 1996

- Added CD-ROM and CD<sup>32</sup> support.
- Added option to decrunch Worms during installation.
- Added free choice of weapon availability.
- Added memory-usage settings.
- Added SetPatch to the Worms script, which may solve some problems.
- Added ability to use multiple configurations.
- Improved documentation.
- Started using XFD for decrunching (will fall back on internal routines if XFD is not installed).
- Removed support for OS 1.x. One more reason to upgrade!
- Removed option to deprotect Worms, following legal advice. Sorry, but I can't risk getting into legal trouble with Team 17.

version 0.1 (beta), released 19th October 1996

First public release.

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