

**boulderdash**

**COLLABORATORS**

	<i>TITLE :</i> boulderdash		
<i>ACTION</i>	<i>NAME</i>	<i>DATE</i>	<i>SIGNATURE</i>
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**REVISION HISTORY**

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# Chapter 1

## boulderdash

### 1.1 Amiga Boulder Dash V1 Contents

#### CONTENTS

This AmigaGuide file contains the full documentation for the AmigaBoulderDash program. Please read the distribution information if you read nothing else in this file.

Distribution information

Introduction

Overview

The cave editor

System requirements

Hard-disk installation

Changes since V0.9

Bugs

Author

Additional credits

### 1.2 Distribution Restrictions & Guidelines

#### DISTRIBUTION RESTRICTIONS

Amiga Boulder Dash program ©1993 by Jeff Bevis

Permission to use and distribute this program is granted subject to the following conditions:

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»»~This program is DonationWare. If you find the program to be useful you should send appropriate payment to the author. \$20 (US) is suggested. I have chosen to distribute the full executable (rather than a partially crippled version). This is due, in part, to my own disdain of CrippleWare, but also to encourage widespread distribution of the program.

I will remember those who donated when the time comes to distribute the next version... And will likely mail out updates in the future. (when: I can't say :-)

(keep in mind that I spent over \$1000 in trying to provide this latest release! I'm broke now!)

»»~This program may not be sold for profit without the written approval of the author.

»» Permission is granted for this program to be included in freely distributable software libraries, such as the Fred Fish freely distributable AMIGA software library.

»» This program may NOT be distributed as part of a commercial publication, such as a disk/magazine.

»» This program should only be distributed in its entirety, with all original files present and intact (and unmodified).

»» The author accepts absolutely no liability for any use, misuse, or inability to use this software, nor any consequences (whether intentional or accidental) arising from its use or possession.

»» No warranty is implied nor in effect for the user of this program. Use of this program is at your own risk!

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## 1.3 Credits

### ADDITIONAL CREDITS

There are many people who have contributed to this version of the game.

- Peter Broadribb  
Game mechanics & refinements; Additional caves.
  - Laurence Vanhelsuwé  
Inspiration; Additional caves
  - Gerhard Witte  
Play testing; Constructive criticism; Psychotic limbo.  
The software bug-magnet.
-

- Heath Doerr  
Videotape; Letting me play the original!
- Ryan Osborn  
Mucho play-testing, suggestions.
- Mike Cuddy  
68030 debugging.
- Mike Seifert  
Providing the first 68030 platform for on which I could debug the game!
- Mike Ringle  
Original caves, play-testing.
- Chris Varga  
Additional sampling.
- Corey Linkel  
Additional caves; play-testing.
- Chris Green  
Help with graphics.library.
- Teijo Kinnunen  
Easy to use music software.
- PL  
A wonderful idea back in the early 80's.
- Barbara 'B'  
Motivation enhancement!

## Contents

## 1.4 System requirements

### SYSTEM REQUIREMENTS

I have attempted to make this version of the program accessible to as many Amiga users as possible. The previous version failed to run on faster machines do to some idiotic oversights on my part. However, now it should make no difference which processor you have.

Things you need:

- Kickstart 2.0 or higher.  
I will no longer support version 1.3 of the OS in any of my present or future projects. It's antiquated, and should no longer be in use. If you're still using 1.3, I strongly(!) encourage you to upgrade to the latest OS release. Without 2.0, I would still be writing the cave editor today...

- At least 512K of FAST memory. The program runs too slowly on machines with only CHIP memory. The result is usually a flickering gameplay display. A1200 users are particularly vulnerable to this problem since that machine is shipped with 2Mb of CHIP memory only.
- The program must load into FAST memory (I can't emphasize that enough). If you've tied up your FAST memory with other applications, you could end up running the program in CHIP (and it won't work well).
- At least 1Mb RAM total, with at least 1Mb CHIP recommended. (Precautions have been taken to hopefully get the program to work in less, but there are no lesser systems nearby to test :-)
- Lots of free time.

Things you don't need:

- A 68020, 030, or 040 is not needed, but recommended. The game runs better if you give it the power! The graphics animation is about 50% slower with a 68000 processor.
- Hard disk. (although it helps a lot)
- A Joystick (you can use the keyboard now)

Contents

## 1.5 Introduction to Amiga Boulder Dash

### INTRODUCTION

This is all Laurence Vanhelsuwé's fault. If his Rocky Clone V1.0 hadn't fallen into my hands, I would have continued to lead a perfectly happy life. Instead, my desire to play Boulderdash was rekindled (rather violently, I might add), and thusly this incarnation of the game was born.

Laurence's program does a great job of accurately reproducing the cell automata of the C64 version of Boulderdash, and I was duly impressed. However, I wanted it to look and sound like the C64 version (well, we should hope it would be a little better :-). This program represents a totally new implementation of the game, and none of the source code from Rocky Clone V1.0 has been used in this program. Several of the Rocky game caves are reproduced here, though -- primarily because 1) I haven't had time to make a lot of new caves, and 2) I think Rocky players (especially Laurence) would get a kick out of seeing the caves with new, better graphics and sound.

For this release, the program has undergone many changes. Lots of new features have been added, most notably the

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cave editor  
. Creating your  
own new cave files has never been simpler! For a full description of the  
new features and/or changes from version 0.9, see the  
Changes  
section of  
this file.

This version of the program has been tested successfully on several  
machine configurations:

- A2000
- A3000-25
- A3000 with PPS '040
- A4000

On each of these machines the program seemed to run fine. The program  
did not run well on the A1200 machines it was tested on, however they  
were not equipped with FAST memory (see  
system requirements  
).

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## 1.6 Changes since version 0.9

### CHANGES SINCE VERSION 0.9

The game has been extensively rewritten since the initial release. Many  
(and I mean MANY) new features and functions have been added. The most  
glaring change from version 0.9 is the addition of a full game level  
editor. I sincerely hope THIS addition to the game will motivate others  
to produce and share their own caves.

Other changes/features you should be aware of are:

- 68010,020,030,040 compatability has been achieved.
  - The program no longer does a "hostile takeover" of the machine.  
In fact, it is now OS-friendly. (ie, task switching is not  
disabled.) It does, however, OwnBlitter() during the entirety  
of gameplay, which will cause 80% of other tasks (which have  
graphical output) to still be blocked.
  - The program no longer messes around with the CIAs, except for  
Teijo's music software (which appropriately allocates this  
system resource).
  - The full program has been tested with latest available Enforcer.  
No Enforcer problems are known to exist at this time.
  - Game 'levels' are now more appropriately called 'caves'.
  - Butterflies and Fireflies may follow edges differently than
-



before. Previously, butterflies 'rotated' in the 'counter-clockwise' direction. That is, if following an interior edge, they would move counterclockwise. Fireflies rotated clockwise. The rotation for each is now selectable in the editor. I suggest that these 'rotation' parameters be kept the same in your own levels for the sake of consistency for the player.

- Certain walls are now 'unstable' for rocks and diamonds. If a rock or diamond is sitting on a corner of this type of wall, it will fall off the edge. This can cause compatibility problems with older caves which assume this isn't going to happen.
- Permanent wall now has its own selectable color, and its imagery has been changed.
- Boulders can now be colored. Three tinting options are available from the editor, and the tinting colors can be selected by the user.
- Regular wall now has its own selectable color.
- The color of semi-permeable walls has changed. It's orange now. It was blue in version 0.9.
- Diamonds now fall through semi-permeable walls the same way as do rocks.
- Boulders fall a little differently. Version 0.9 permitted them to fall 'diagonally'. However, in this version they move left or right and then drop directly downward. This change was made to comply better with the C64 version's behavior. In general, this doesn't cause serious compatibility problems since the conditions for falling are pretty much the same.
- There is now a vertically-growing wall object similar in function to the horizontally-growing wall.
- Another new object, "Homocide Box," has been added. This object must be protected as if it were the player. If destroyed, it will cause the player to be killed immediately. It is prone to the same dangers as is the player (ie, falling rocks, explosions, butterflies, etc.)
- Keyboard input can now substitute for joystick movement. The Cursor keys emulate joystick directions, and the shift key represents the fire button. Either may be used interchangeably during gameplay.
- - File passwords  
can be used to keep others from viewing your  
cave files.
  - - Cave codes  
have been added. The password is shown at the  
bottom of the screen when the cave title is shown. Typing this

password into the 'Code' box in the game window (before play begins) will select that level to be the first encountered during play.

- Oh yeah -- there's a cave editor now, too. Users no longer need to edit the cave file in a textual format. All editing and parameter manipulation is done through the editor functions. Naturally, the editor was constructed with the help of OS2.0's splendid gadtools.library.

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## 1.7 Installation Procedure

INSTALLATION

No ASSIGNS, fonts, or special libraries are needed to run this program. All that is required is that the program files exist in the same directory, and that the program be invoked only from that directory (or by its Workbench icon).

These are the files you need to have:

- abd
- abd.info
- abd.guide
- abd.guide.info
- abd.snd
- abd.txt
- abd.16
- abd.ed
- abd.ts
- abd.mod

Additionally, there must exist a subdirectory 'caves' in the same directory as the game files. This subdirectory must (or will) contain all the cave files you wish to have accessible. Cave files always end in '.caves'. There are three cave files provided with this release:

- Original.caves (these are enhanced caves from version 0.9)
- BDash\_I.caves
- CKit.caves

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## 1.8 Overview

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## OVERVIEW

When you run the program, a window appears on the Workbench. This window is often referred to as the "startup window" in this document. The main purpose of the window is to allow you to

select a cave file  
to play (each

file may contain many unique caves). You may only select one cave file at a time. Note that selecting the cave file (by clicking on its name in the listview gadget) will cause the program to attempt to load the cave file into memory. Any other currently loaded cave file (including work left in the editor) will immediately be unloaded.

There are several button gadgets in the startup window:

- Play  
This gadget, when not ghosted, begins play of the chosen cave file.
- Editor  
Use this gadget (again, only when not ghosted) to edit the selected cave file. This invokes the  
cave editor  
.
- New  
This gadget will create a new cave file and automatically open the  
cave editor  
screen.
- Quit  
This button, or the startup-window close gadget, will quit the program.

In addition to these gadgets, there are two text-entry gadgets.

- Password  
File passwords  
must be entered here. Cave files which  
require a password are not editable unless the correct  
password has been entered.
- Code  
Enter a  
cave code  
(appears during gameplay with the  
name of the level) to start play on any level you  
like.

After you click 'Play', you get the game title screen. Press any key or the joystick trigger button to continue. The next screen appears with the title of the first cave. Again, press a key or the joystick trigger. You'll then begin play on the first cave.

---

At the bottom is shown:

```
CAVE xxx  the current cave level number
NEED xxx  the number of diamonds still needed to finish the level

TIME xxx  the time (seconds) you have to complete the level
xxxxxxx  your score
```

During gameplay, the following keyboard commands exist:

```
SPACE    pauses the game
ESCAPE   leave the game; returns to the Workbench window
RETURN   commit suicide -- restarts the level
cursor keys emulates joystick movement
SHIFT keys emulates joystick firebutton
```

The idea is to get the number of diamonds indicated before time runs out. To do so, you move around with the joystick, avoiding obstacles and threats while maneuvering to collect diamonds. When you have enough diamonds to leave the cave (you will hear a 'snap' sound and the screen will flash), you must find the exit symbol and move into it.

At the end of a level, your time bonus is calculated and added to your score. You then proceed to the next cave. Simple, right!?!

At any time during gameplay, you can press the escape key to back out to the title screen. Pressing escape at the title screen returns you to the Workbench window.

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## 1.9 Known Bugs, Warnings, etc.

KNOWN BUGS

- Blitter access for other tasks will be blocked during gameplay. This will cause programs which try to render graphics to sleep until you leave gameplay (and return to the editor or Workbench window).
- The current version will not work properly on machines without FAST memory. The program must be loaded into FAST memory to run quickly enough to provide adequate game speed and a stable double-buffered display.

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## 1.10 Author

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## CONTACT:

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Beech Grove, IN 46107

Internet: bevis@ecn.purdue.edu

Generally, the best way to reach me is by email except during the summer months. At that time, my net access is limited so you should contact me by snail-mail.

Feel free to mail me your own cave creations; I would love to collect caves YOU have created and release them as part of a (free) compilation in the future. Let's see what we can do with this thing!

- Suggestions are the best way to get changes.
- Monetary contributions greatly enhance my motivation!

Other credits

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## 1.11 File password protection

### FILE PASSWORD PROTECTION

It is possible to prevent others from editing your cave files by adding a file password. To add such protection, simply type in a non-empty password name in the password box in the

cave selector  
window and save

the cave. Others will not be able to edit your file unless they have the correct password.

Keep in mind that it's not very useful to have a file password unless you also select encryption to be used, too. The cave file format is readable text unless it is encrypted. Be careful, though! If you save your file in encrypted form, and then forget your password, you will have no way to recover your file!! Because of this potential for disaster, I suggest you always keep one copy of your cave file in non-encrypted form, and save with a different filename when generating the encrypted copy. To do this, just change the file name in the

cave selector  
window (the old

file will not be deleted unless you tell the program to do so).

Note please that the file password is an entirely different thing than the

cave codes

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## Contents

### 1.12 The cave editor

#### THE CAVE EDITOR

In the previous version, the only way to create a cave was to type it into the cave file by hand. No more! The cave editor supplied with this release makes creating your own levels almost as easy as playing them!

The editor features allow you to do the following things in a friendly, reliable environment:

- Remove caves from a file
- Change the play order of caves in a file
- Create new caves in any editable file
- Add
  - password protection to the file
- Draw cave maps in a "paint" fashion
- Adjust a plethora of parameters on a per-cave basis:
  - Time limits
  - Graphics
  - Colors
  - ... and more
- View

cave passwords

The Amiga Boulder Dash cave editor is a part of the game program ↔ itself.

You may choose to edit existing cave files, or create your own from scratch (by selecting "New" from the startup window).

There are several windows associated with the cave editor; none of these windows appear on the Workbench (like the startup window). Instead, a separate screen is used. The height of this screen is usually a little over 210 lines, which makes it a little taller than a normal NTSC screen. Normally this will not cause any problems. The windows which comprise the editor are:

- - Cave selector
  - 
  - Visual editor
  - 
  - Color palette
  - 
  - Cave info
  - Saving of the edited caves (probably the most important feature!) ↔ is

accomplished in the cave selector. See the Cave Selector section for more information on how this is done.

There are several design rules to keep in mind when using the cave editor to make your own caves. Please see the

designing caves  
section

for more information.

For examples with the cave editor, the BDash\_I cave file has been left unencrypted and without a file password.

Selecting cave file

Contents

## 1.13 Designing caves

DESIGNING CAVES

Cave designers should heed the following design criteria:

- ALWAYS BOUND MOVABLE OR MOVING OBJECTS WITH PERMANENT WALLS  
This is the single most important characteristic of all good caves. No objects such as the player, butterflies or fireflies, growing walls, diamonds or rocks, or anything else which moves, should ever be allowed to get to the edge of a cave. Explosions must never center on the very edge of caves, and this design rule keeps that from happening. It is OK to have non-moving objects on the borders, however, like limbo or non-permanent walls. Non-permanent walls are NOT a good bounding device, though, since they can be destroyed by any explosion which then leaves the cave borders accessible to moving objects.

One final warning here: If you don't follow this rule, and something moves to the border of the cave, the object may be able to move OUT OF THE CAVE. If this happens, expect weird results and POTENTIAL CRASHES. You were warned!!

- Allow a little extra time on each level. Some machines run a little slower than others, and not everyone plays as well as you do, so you should add at least 10% extra time than is actually necessary to complete each level.

One 68000 machines, game play is currently about 1/8 slower than on '020 an above processors.

Cave editor

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## 1.14 Selecting a cave file

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## SELECTING A CAVE FILE

Select a cave file from the Workbench game window (the first one which opens when you run the game). To do this, you simply click on one of the names in the list at the left side of the window. If this list is empty, you may not have a caves subdirectory in the main game directory, or you may not have any caves in that directory.

If there is any problem loading your selected file, it will be displayed in the text box at the top of the window. Otherwise, you may then play or edit the caves in that file. (to edit, you may need to enter a file password first, if it is required)

Information about the cave file is shown at the bottom of the window.

- Author  
The name of the author of the currently loaded cave file.
- Date  
The last date of modification of the cave file.
- Version  
The version number of the cave file. Higher numbers indicate later versions. Numbering begins with 1 (one).
- Encryption status  
Cave files may be encrypted. The status of the currently loaded file is shown to the right of the version number.

## Contents

### 1.15 Cave selector

#### CAVE SELECTOR

The Cave Selector is the first of the editor windows. It presents a list of the caves contained in the current file (listed in play order from top to bottom). You may rearrange the play order with the move up/down gadgets, add a new cave, or edit an existing cave. To edit, select the cave you want and click "edit". The  
visual editor  
will then open  
its window.

The "done" gadget leaves the cave selector and returns you to the startup window on the Workbench. It will first prompt you about saving the file. Cave files are saved by acknowledging the requester accordingly.

The name of the cave file can be changed in this window. Additionally, the

file password  
can be changed here (an empty password string will deactivate password protection of the file).

---



There is last gadget of importance here: The encryption checkbox. If selected, the cave file will be saved in an unreadable form to prevent others from reading or modifying it. Additionally, encrypted files are password-secure; The password can not be learned by reading the file with a text-editor.

## Contents

### 1.16 Visual editor

#### VISUAL EDITOR

The visual editor is the primary work window for the editor package. It provides a graphical (scrolling window) display of the currently selected cave (which was selected in the cave selector). In this part of the editor you may redraw the cave by adding or removing any game objects you desire.

Most of the gadgetry should be self explanatory.

Special keycode operations in the visual editor:

- cursor  
Cave window scrolling, same effect as using the sliders at the sides of the window.
- SHIFT+cursor  
Jump to an edge of the cave. For instance, the SHIFT+cursor\_up combination would show the topmost visible portion of the cave.
- ALT+cursor  
Shift the entire cave by one position in the specified direction. This is useful in centering or adding space to a cave early on in its development. Note that the portion which is shifted off of the other side of the cave 'rotates' around to the other side. This makes the shifting operation lossless in that no cave information will be lost during shifting.

Mouse functions:

- Left mouse button  
Pressing this mouse button inside of the cave window will 'paint' the currently selected object at the pointer's position. You may draw single positions, or you can drag the mouse over an area, drawing the object throughout.
  - Right mouse button  
This button provides a limited undo. The previous drawing operation may be removed with this feature. Only drawing performed with the mouse may be undone. (shift operations or sizing operations can't be undone.)
-

## TESTING CAVES

The cave can be easily tested during development. The "Test" gadget begins gameplay with the current cave. Pressing escape during testing returns to the editor. Note that when (and if) the player enters the exit box (completing the level) during test play, you still have to press escape to return to the editor. This is done to permit viewing the results (score, etc) if needed or useful.

## Contents

### 1.17 Cave Palette

#### CAVE COLOR PALETTE

The palette window permits you to adjust colors for the following items on a per-cave basis:

- Diamonds
- Boulders
- Dirt
- Butterflies
- Regular walls
- Permanent walls

The features of the palette window are:

- RGB color sliders  
Adjust the currently selected color
- Color operations  
Spread, Copy, and Exchange colors
- Color gadgets  
Rectangular samples of each color.
- Gadgets to select boulder and diamond characteristics

One color is selected as the "current" color at any given time. This color will have its red, green, and blue values shown in the color sliders. Adjusting the sliders will adjust the currently selected color with immediate visual feedback. To select a different "current" color, simply click inside the gadget for the desired color. The currently selected color will always be marked by an "X" in its gadget.

Most of the color gadgets in the window represent single colors. The diamond and butterfly gadgets, however, represent sixteen colors each. Both of these gadgets actually represent color-cycle sequences. When selecting colors in these gadgets, the "X" marker will appear on top of one of the sixteen colors in the gadget (this is the selected color).

Colors may be copied with the "copy" gadget. The currently selected color will be copied to another location if the user clicks "copy" then the

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destination color gadget. The exchange operation is similar in operation, except the destination color replaces the source.

The Spread operation applies only to the sixteen-color diamond and butterfly color gadgets. It produces smoothly-graded color transitions between any two arbitrary colors in a single gadget. To use do this, first select a color at one end of the range to be affected. Then, click "spread" and subsequently the color at the other end of the range.

#### BOULDER TYPE

This gadget selects one of three types of boulders to use with the cave. The three possible selections are:

- Monochromatic  
Gray boulder which looks like the version 0.9 boulder.
- Boulder color tinted  
Tinted boulder; The tinting color comes from the color gadget at the top of the palette window. Shading on the boulder is automatically generated.
- Tinted + Wall Highlight  
The boulder is again tinted, however, it also has a second color highlight in its brightest area. The color used is the same as for regular walls.

#### DIAMOND TYPE

This gadget selects the shape of the diamond for the cave. There are several possibilities. Most of the shapes use only the diamond color cycle, however, there are "two-color" diamonds which use both the regular diamond color sequence AND the butterfly color sequence.

### Contents

## 1.18 Cave Info

#### CAVE INFORMATION

This intimidating window has a bazillion sliders and gadgets to change every possible cave parameter:

- Cave width (4 to 64)  
Width of the cave map
  - Cave height (4 to 48)  
Height of the cave map
  - Max amoeba (0 to 100%)  
Maximum portion of the cave map the amoeba may occupy before turning into rocks.
-

- Amoeba growth (0 to 100%)  
Normal rate of amoeba growth. 100% is fastest growth.
  - Amoeba flood  
Rate of amoeba growth after "amoeba time" has elapsed.  
(see below)
  - Permeability  
Rate which boulders and diamonds penetrate permeable walls. 100% is fast.
  - Time limit (5 to 750)  
Time allotted to finish the level. Roughly in seconds.
  - Amoeba time (5 to 750)  
Amount of time during which the amoeba grows at its regular rate. Afterwards, it grows at the flood rate.
  - Milling time (5 to 750)  
Amount of time the magic walls will mill diamonds and rocks after they are first activated.
  - Diamonds needed (0 to 500)  
Number of diamonds required to complete the level (the exit activates when the player collects this number of diamonds).
  - Diamond points (-500 to 500)  
Points received for each diamond prior to acquisition of the number needed for completion of the level.
  - Greedy points (-500 to 500)  
Points received for each diamond after the player has collected enough to finish the level.
  - Time bonus (-500 to 500)  
Score bonus given for completing the level.
  - Intermission bonus (-1000 to 1000)  
Score bonus given for successfully completing an intermission level.
  - Intermission checkbox  
Selects whether the cave is an intermission level. Intermissions are different only in that the player continues to the next cave if killed, rather than starting the same level again.
  - Cave name  
The name of the cave (displayed before playing the cave).
  - Butterfly rotation  
Direction the butterfly will traverse around an interior edge.
  - Firefly rotation
-

Direction the fireflies will traverse around an interior edge.

In addition, the following information for the cave is shown, but cannot be changed in the info window:

- Ordinal number of the cave in the list of caves for the file, beginning with one.
- Password code for the cave (automatically generated)

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## 1.19 Cave codes

CAVE CODES

Cave codes permit the user to start gameplay with any cave in a cave file. The cave codes are different for each cave file, and must be acquired in one of two ways.

- Either by playing the cave file, and recording the passwords for each cave you encounter, or:
- The  
cave editor info window  
provides the cave author with  
the cave code.

The level is entered in the startup window "Code" text gadget.

NOTE that cave codes are a different thing than

file passwords

. The file

password controls editing access to the cave file. Cave codes are for the player to use when playing the cave file.

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## 1.20 foobar

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