ScummVM

A virtual machine running LucasArts™ adventures

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The ScummVM Team

MorphOS port by Rüdiger Hanke

MorphOS Manual

Introduction

What is ScummVM?

ScummVM is a virtual machine capable of running the famous adventures produced by the LucasArts Entertainment Company, such as Monkey Island, Indiana Jones and the Fate of Atlantis, or Sam & Max.

LucasArts is one of the most famous producers of adventures of all time. Their games are well-known for their good stories, humour and their very fair approach as the player can usually never die or get stuck in a dead end.

The last LucasArts games to appear on the Amiga were Monkey Island II and Indiana Jones 4, and even those do not run anymore on modern machines thanks to LucasArts' ingenious mix of custom chip and intuition programming. At last, ScummVM allows you to play the old classics on modern hardware, plus it gives you the chance to play the later games for the first time.

Starting with v0.2.0, ScummVM is also able to play some non-Scumm games. For the moment, these are Simon the Sorcerer by Adventure Soft and its sequel.

What is a virtual machine?

Think of a virtual machine as a "specialized computer" implemented in software. This "computer" has its own processor and memory. The instruction set of the processor, though, is tailored to its specific use. With a single instruction, an actor may be told to walk to a certain object, an object may be moved into the player's inventory, etc. The benefits are obvious. The implementor of a game can concentrate

on story and gameplay aspects rather than having to code animations, scrolling, etc. "low-level".

The virtual machine approach is not unusual – Infocom's Z machine or Sierra's SCI are just two of many other examples from the world of games. After all, it made porting significantly easier because only the virtual machine would have to be ported, the data files could more or less remain the same. The probably finest example of an efficient virtual machine implementation is Infocom's Z machine. With the exception of the later graphics games, all versions came with exactly the same data files. Even the interpreter remained unchanged over long periods of time, despite the Z machine having been an in-house standard.

For graphics adventures, the world was not equally ideal, since graphics restrictions and capabilities varied between platforms and required additional work for each supported system. Also, LucasArts tweaked and changed the Scumm interpreter from game to game, even between games of the same Scumm version.

In the end, though, it is thanks to this approach that you get your chance to play these classics on your Pegasos.

On a personal note from the MorphOS developer

I did enjoy LucasArts' adventures since the glorious days of Zak McKracken and Maniac Mansion. They never could quite compete to the considerably more nutritious Infocom games, but compared to the much weaker Sierra adventures – not to speak of other competition – they were the best and funniest the graphics adventure market had to offer.

It was only a matter of time until someone would write an interpreter that would allow people to play these classics. And due to my obsession with these games, it probably doesn't surprise you if I say that it had always been my wish to port it to Amiga. So you can imagine how happy I am to write these lines now as the ScummVM team's official MorphOS porter. And that sooner than I thought. I had checked out all bits and pieces on LucasArts' file format I could find on the web, but still some stuff such as costumes had not been fully figured out, so I considered an open Scumm interpreter not yet feasible. I applaud to the people who sacrificed their time to sneak into the binary depths of the LucasArts executables and data files.

So here's to the good old times one more time. Enjoy these classics, especially if you get the chance to play them for the first time now.

- Rüdiger Hanke, 4th April 2002

Installation and Invocation

Requirements

In order to run ScummVM, you need

>·MorphOS
>·AMidi 2 (for MIDI music)
>·cdda.library (music support for Monkey Island/Loom CD-ROM versions)
>·one or more supported games. Please see the compatibility chart in the
> appendix to see which games are currently supported.

   Please notice that *all* of the games are still copyrighted by LucasArts and Adventure Soft. They can not be downloaded for free (except some demo versions) and since there are enough sources for these games, there is no excuse not to purchase them if you want to play.

Installation

ScummVM itself does not need any special installation. Just drag the drawer from the archive to your harddisk.
   To install a Scumm game manually, copy the .000 and .001 or (for earlier games) .LFL and .LEC files from your original CD-ROM to your harddisk. In the case of games with speech (Indy 4 talkie, Sam & Max, Day of the Tentacle), copy the monster.sou file to the same directory as well. You can rename this file to the

basename of the .000 file plus the .sou ending (e. g. "samnmax.sou"). This will allow you to store more than one game in the same directory.

Later games (The Dig, Full Throttle) also contain huge video files. It is thus recommended to play them directly from CD-ROM.

For the Simon games, you must copy the following files to your harddisk: Gamepc, Icon.dat, Simon.gme, Simon.wav, Stripped.txt, Tbllist, all Sfxxxx files.

Starting ScummVM from Shell

ScummVM for MorphOS has a standard MorphOS command line template which can be recalled at any time by typing `ScummVM ?` at the Shell prompt.

```
ScummVM STORY/A,DATAPATH/K,WBWINDOW/S,SCALER/K,AMIGA/S,
        MIDIUNIT/K/N,MUSIC/K,MUSICVOL/K/N,SFXVOL/K/N,
        TEMPO/K/N,TALKSPEED/K/N,NOSUBTITLES=NST/S
```

A summary of the possible arguments and their values follows.

STORY
Type: Keyword, mandatory argument
Values: see Compatibility Chart in the appendix
Default: n/a
Effect: The name of the game you want to play.

DATAPATH
Type: String
Values: any valid path
Default: "" (current path)
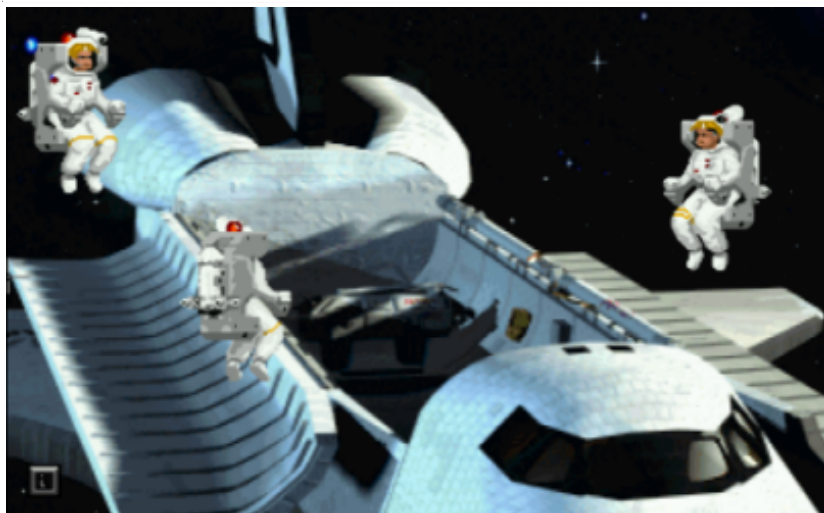*Effect:* The path where ScummVM is looking for the story's data files.

WBWINDOW
Type: Switch
Values: n/a
Default: Off (runs on custom screen)
Effect: If this switch is specified, ScummVM runs in a window on Workbench
           instead of its own custom screen.

SCALER

Type: Keyword
Values: none, Point, AdvMame2x, SuperEagle, Super2xSaI
Default: Super2xSaI
Effect: Selects one of ScummVM's scaling engines. See the section "MorphOS
            Scaling Engines" for more details.

AMIGA

Type: Switch
Values: n/a
Default: Off
Effect: Specify this to get correct colors if you run the Amiga versions of
            Monkey Island II and Indiana Jones 4.

MIDIUNIT

Type: Numeric
Values: 0 … 4
Default: 0
Effect: Specifies the AMidi unit to be opened for music playback.

MUSICVOL

Type: Numeric
Values: 0 … 100
Default: 60
Effect: Sets the master volume of the music, from silence (0) to full volume (100).

SFXVOL

Type: Numeric
Values: 0 … 255
Default: 100
Effect: Sets the master volume of the sound effects, from silence (0) to full volume (255).

TEMPO

Type: Numeric
Values: any
Default: Adlib: 2031616 (0x1F0000), Midi: 4587520 (0x460000)
Effect: Sets the tempo of the music. Recommended are the defaults.

MUSIC

Type: Keyword
Values: Off, Adlib, Midi, MidiEmu
Default: Adlib
Effect: Selects the music driver. "Off" will result in no music at all, Adlib will enable Adlib music (use only if you haven't got AMidi - and don't say you haven't been warned …). Midi enables Midi music (AMidi must be installed) and is the recommended and highest quality music support available. MidiEmu is a Midi emulation that is currently still in beta.

TALKSPEED

Type: Numeric
Values: any numeric
Default: 60
Effect: Set the talking speed.

NOSUBTITLES (= NST)
Type: Switch
Values: n/a
Default: Off (show subtitles)
Effect: Turns off subtitles for "talkie" game versions.

Example:

```
ScummVM monkey2 WBWINDOW SCALER=Super2xSaI AMIGA MIDIUNIT=3
```

will start ScummVM running the Amiga version of Monkey Island II in a Workbench window with the Super2xSaI scaling engine, playing the music through AMidi unit 3.

Starting ScummVM from MorphOS Desktop

For your convenience, it is also possible to start ScummVM from the MorphOS Desktop. Arguments are read from ScummVM icon's tooltypes in this case. It is also possible to create a project icon for each game and specify the ScummVM executable as its default tool. Then both the program's icon tooltypes and thereafter the tooltypes of the project icon will be parsed. You can use this feature to specify the most common settings in the ScummVM executable icon, and individual settings in the project icon.

The story data files will be searched in the same directory as the project icon, or in the directory of the executable if you do not use project icons, unless you specify the DATAPATH tooltype.

The tooltype names and values are the same as the Shell arguments above, with the exception of NOSUBTITLES which is called SUBTITLES. Also, for switches, a value has to be given, for example, WBWINDOW=YES or SUBTITLES=NO. This is so that project tooltypes can override settings in ScummVM tooltypes. I think you'll agree with me that NOSUBTITLES=NO to switch on subtitles would be paranoid.

There is no relationship between the project icon name and the story name, so the tooltype STORY must be specified. You thus don't have to name the project icon for Monkey Island II monkey2.info, etc. but can choose any name you like.

Command Keys

You can use the following command keys during the game:

[/]	Lower / raise music volume
- / +	Lower / raise text speed
.	Skips current line of text in some games
Space	Pauses the game
F5	Gamesave requester
Alt-Return	Toggles the game between fullscreen and window modes
Alt-0	Disables scaling engines
Alt-1	Enables Point scaler
Alt-2	Enables AdvMame2x scaler
Alt-3	Enables SuperEagle scaler
Alt-4	Enables Super2xSaI scaler
Shift-0-9	Quicksave of savegame #0-9
Ctrl-0-9	Quickload of savegame #0-9
Ctrl-s	Show memory consumption
Ctrl-d	Start the debugger
Ctrl-z	Quit ScummVM

Saving and Restoring Game Positions

Games are by default saved to the directory which also contains the game's data files. You can change this by setting the environment variableSCUMMVM_SAVEPATH to the path you'd like to write the savefiles to, e. g.

```
SetEnv SCUMMVM_SAVEPATH Games:LucasArts/SaveGames/
```

If you want to make the setting permanent, also type

```
Copy ENV:SCUMMVM_SAVEPATH ENVARC:
```

 Since ScummVM is still in beta, the game may crash at times. Therefore, your game position is automatically saved every five minutes in gamesave slot 0.

CD-ROM Music

ScummVM uses cdda.library for playing CD audio tracks in games such as Monkey Island and Loom. cdda.library will auto-detect all mounted SCSI-II compliant CDROM drives in your system. Also, when several drives are installed in your system it is smart enough to detect the drive containing the correct disc.

The MorphOS Scaling Engines

LucasArts' SCUMM games were written in a time when a typical screen resolution for games would be 320x200 pixels. Since this is only a fraction of modern screen resolutions, the game looks tiny when run in a window on Workbench. This is even more severe on operating systems that do not support screens like MorphOS does, such as Windows.

What would usually be done would be to double the game window. A 640x400 resolution is already an acceptable size. This is what ScummVM's original SDL engine did. However, by simply doubling the pixels, the graphics will look rough and blocky.

The idea is to use some of the calculation power of modern processors to provide some kind of "anti-alising", that is, the scaling engine tries to detect hard edges and smooth them. Notice that this is different from ordinary "blur" effects as you might know them from some "anti-aliased Workbench fonts" patches which simply take

Spot the difference: a scene from Day of the Tentacle, once the original 320x200 graphic scaled to twice its height *(left)* and once the considerably smoother image rendered by the new ScummVM MorphOS scaling engine *(right)*.

the colors of surrounding pixels and calculate the average to determine the value of the extra pixel. With proper anti-aliasing, the image sharpness and brightness ideally does not suffer.

In practice, "true" anti-aliasing is hard to achieve in a bitmap graphics game. This is because unlike vector graphics, bitmap graphics store no information about edges.

The SuperSaI scaling engines built into ScummVM have been written by Derek Liauw Kie Fa. They have originally been created for the Snes9x emulator, but are used in several other programs as well. One of these programs that has also been ported to MorphOS by myself is Exult.

Here's a short overview of all available scaling modes:

Super2xSaI: Derek's Super2xSaI is probably the currently best bitmap scaler available. It is also the default scaler. Super2xSaI guesses the colors of the three extra pixels created per pixel based on an analysis of lines and edges in the original image.

SuperEagle: Also by Derek Kiauw Kie Fa, probably an extension of Dirk Stevens' Eagle engine. SuperEagle tends to darken the image a bit and strong lines are painted even stronger.

AdvMame2x: AdvMame2x is less blocky than point, less blurry than SuperEagle but also less smooth than Super2xSaI.

Point: Simply doubles the pixels. No anti-aliasing is performed.

The ScummVM Debugger

Introduction

ScummVM has a built-in debugger which is mainly used during development. For end users, it has little valuable information. If you want to sneak into the depths of a LucasArts story, you are better off with a program like *Scumm Revisited*, which is sadly not available for MorphOS.

The debugger has a very simple shell interface. When you hit Ctrl-d during a game session, you'll see in the console from which ScummVM was started something like:

```
Debugging Mode entered!, please switch to this console for input.
Enter h to list all the debug commands
debug>
```

Debugger Commands

Commands are issued as single letters with a numeric parameter where applicable. The following commands are supported by now:

(h)elp	Displays an overview of all available commands.
(q)uit	Quits the debugger.
(g)o [numframes]	Lets the game run on for *numframes* frame (Default: 1 frame).
(a)ctor [actornum]	Shows information about actor *actornum*. If *actornum* is omitted, all current actors will be listed.
(r)oom [roomnum]	Loads room *roomnum*. Switching rooms during a game session is not always safe and may lead to various side effects including crashes.
(s)cripts	Shows a list of all running scripts.
(b)oxes	Lists the current walkboxes.
(v)ariable var [val]	Sets (if *val* is given) or shows the value of variable *var*.
(w)atch [varnum]	Print notification when variable *varnum* changes its value. 0 means all variables, omitting *varnum* clears all watches.
(e)xit	Exits the game (like pressing Ctrl-z in game window).

Walkboxes

Walkboxes describe the regions of a picture in which actors may move. In earlier games, these were indeed boxes, while in later games they could be arbitrary polygons. The walkboxes, together with a walk matrix which describes how to get from one box to another, determine how actors get from their current position to another one.

Actor Information

#	actor number. There is a limit of 13 or 30, depending on game version
room	room in which the actor currently is
x y	the actor's coordinates in (x,y) screen coordinates
elev	elevation of the actor
cos	the actor's current costume
width	width of the actor in pixels
box	walkbox in which the actor is currently
mov	when actor is moving, the destination walkbox
zp	enforce z clipping
frame	animation frame of the actor
scale	a scale factor between 0 … 255 where 255 means full size. LucasArts started introducing actor scaling in *The Secret of Monkey Island.*
spd	walking speed
dir	direction the actor is facing, in degrees

Frequently Asked Questions

This section of the manual answers some common questions or problems which may arise with the MorphOS port or ScummVM in general. Please read this section before contacting me for help. Thank you!

ScummVM questions

Q: Who has written ScummVM?

A: ScummVM has been written by Ludvig Strigeus and the ScummVM team.

Q: Is ScummVM free?

A: Yes, it has been released under GPL. This means you can get the source code and modify it as you like. The source code can be downloaded for the ScummVM Sourceforge project page.

Q: Where can I find more information about ScummVM in general on the web and get in touch with the authors?

A: http://www.sourceforge.net/projects/scummvm is the main project page with forums, mailing lists and other contact possibilities.

http://scummvm.sourceforge.net is the project's homepage which includes news and another FAQ.

http://www.sebelinteractive.de/scummvm is the homepage for the Amiga ports of ScummVM, also featuring the MorphOS port.

Q: Scumm, iMuse, inSane, ... can you explain what this all means?

A: Ok, let's have a try … correct me if I'm wrong on something please :).

First of all, while most people refer to the LucasArts development system as "SCUMM", the engine was really called SPUTM. SCUMM is just the script compiler. You might think of SCUMM as a compiler used for development, and SPUTM the actual interpreter (so ScummVM really reimplements SPUTM rather than SCUMM).

The SPUTM engine itself consists of a number of subsystems (just as MorphOS consists of a set of system libraries). These are:

iMUSE: This is the MIDI control engine by Michael Land and Peter McConnell, allowing dynamic music

SMUSH: This is a movie compression format and player

inSANE: This is the event management system used in V7+ games such as *The Dig* and *Full Throttle*.

MMUCAS: This is the memory allocation stuff used in *Curse of Monkey Island*

Q: Where can I find more information about Scumm internals?

A: There's some stuff at LucasHacks at http://scumm.mixnmojo.com that might be interesting to check out. Scumm Revisited at http://scummrev.mixnmojo.com is a very good data file browser, but not available on MorphOS. However, the source has been released some time ago and browsing through it already gives you a good idea about various Scumm aspects.

Also, David Given is in the process of writing a "inCompleat SCUMM Reference Guide" the information in which is being derived from the ScummVM source code. The document can be found at http://www.cowlark.com/scumm. Please bookmark this URL only, it's a redirect.

Q: Where can I find the latest MorphOS version or get in touch with the MorphOS maintainer?

A: The most recent official MorphOS ScummVM version can always be obtained from http://www.muenster.de/~tomjoad/scummvm.html including CVS snapshots at times. If you have MorphOS-specific problems or would like to suggest new features for the MorphOS version, write to tomjoad@muenster.de.

Q: Must I stick to predefined story names like monkey2 or ft? Can't I rename the data files to FullThrottle.000 etc. and run ScummVM FullThrottle?

A: Well, indeed you can, but ScummVM uses the story name to detect which game is running. As a non-open in-house standard, SCUMM was never as cleanly defined as, say, Infocom's Z code machine (which wasn't public either but at least well-defined). Some games need "special treatment" and fixes at various points, and ScummVM uses the story name to decide whether to switch them on.

Q: Can I use my old savefiles from the original games?

A: No.

Q: I updated ScummVM and my savefiles seem to be broken ...

A: ScummVM is not finished yet and still considered in alpha state by the development team. Which means that such things may happen, although it is tried to be avoided.

MorphOS-specific questions

Q: I don't hear any music?

A: Please have a look at the compatibility chart to see if music is supported for the game. For MIDI music, you must have the MorphOS version of AMidi (AMidi 2) installed in order to hear music if Adlib is not supported. Make sure you have configured AMidi 2 correctly.

The Secret of Monkey Island and *Loom* have the speech and/or music on audio tracks on the CD-ROM. ScummVM is capable of playing these tracks through cdda.library, but it plays them through the audio output of your CD-ROM drive and not through AHI. You have to connect the audio output of your CD-ROM

drive to the CD input of your soundcard. A suitable cable is usually shipped with your CD-ROM drive. For more information, see the documentations of your CD-ROM drive and soundcard.

If your equipment does not provide the neccessary connection plugs, you can still plug a headphone into the headphone output on the front chassis on your CD-ROM drive.

Q: Sometimes the audio just stops abruptly in the CD-ROM games. Why?

A: You're probably trying to play the game directly from CD-ROM. When an audio track is being played and a data file is accessed, the audio stops. Please copy the Loom/Monkey Island data files to your harddisk.

Q: Characters are "talking" forever and never stop so the game is unplayable!

A: You're trying to run a "talkie" version without having copied the voice sound file to the game installation directory.

Questions about LucasArts games

Q: Where can I download the LucasArts games?

A: Nowhere. You're supposed to *buy* them. They are not freeware. They are not even abandonware, despite whatever abandonware sites may be saying (e. g. rubbish like "anything pre-1998 is Abandonware"). Also, the regular LucasArts games are very easy to obtain from budget editions.

Q: Ok, ok. Now where can I buy them?

A: 1) in the online LucasArts company store

2) compilations of LucasArts games are still common in high street stores

3) on EBay. For example, I paid EUR 5.75 for a copy of *Full Throttle* in original packaging there including postage, less than what a budget edition in a stupid CD jewelcase or DVD box would cost.

Q: Where do I get the correct Secret of Monkey Island version? I got it from CD-ROM, but it still only contains the .LFL instead of .00x files.

A: Not all CD-ROM collections of LucasArts games contain the correct game version. The one you need for ScummVM was contained for example on the *Monkey Special* (in the USA: *Monkey Madness*) CD which contained the first two parts of the series and a demo of *The Curse of Monkey Island* as a bonus. Alternatively, the Macintosh version has been reported to work with ScummVM as well.

Q: Where do I get the Indy 4 Talkie version?

A: It's a rare find and has some collector value so it's more expensive than the "ordinary" version, but it's perfectly possible to get hold of one.

Q: Where do I get the 256 color Loom Talkie version?

A: I admit it's not a common find … good luck!

Q: Where do I get the 256 color version of Indy 3?

A: I'm puzzled myself. If you can give me more information, let me know please.

Q: Where do I get the 256 color version of Zak McKracken and why have I never heard about it?

A: This is the one and only case where I recommend downloading an ISO image from the web. This game is probably the rarest of the LucasArts game lot, because it was never released for PC but only for a Japanese game console called FM-TOWNS, and it was only available in Japan.

Q: Which of LucasArts' games is the best?

A: That's like asking someone for his favorite child. *The Secret of Monkey Island* is definitely a classic and a must-have.

My favorite one, though, has always been "Professor" Brian Moriarty's *Loom* because of its beautiful graphics and the wonderful music (Tchaikovsky). Be aware that it is created for beginners and contains too few (and too easy) puzzles to keep an adventure veteran busy for weeks. Which was partly the reason for it being one of the less successful (and less critically acclaimed) LucasArts adventures. Unfortunately, the sequel *Forge* never materialized. Brian stated regarding a *Loom* sequel that they didn't find the mass audience they suspected out there by making games easier and needed to make the games harder again to win back the hardcore gamers they lost.

I still recommend playing it just for the sake of letting Moriarty enchant yourself. If you have played his Infocom titles (especially *Wishbringer*), you know what you can expect from him …

Questions about supported non-LucasArts games

Q: Can I use the Amiga versions of Simon the Sorcerer 1&2 with ScummVM?

A: epic interactive's Simon 2 Amiga version does work with ScummVM. The Amiga version of Simon 1 does not work, neither the A1200 nor the CD[32] version.

Q: Can I still buy the Simon games somewhere?

A: They've been very popular. It shouldn't be difficult to get hold of a copy. You can still find them as budget versions in high street stores, e.g. in the "play it easy" series you get both games for 3 Euro.

Appendix A: Compatibility Chart

Game	Startup keyword	Scumm version	Done	Music	Known Bugs
Fully playable games					
Zak McKracken (256 color FmTowns)	zak256	3	90%	-	No music or sound effects yet.
LOOM (256 color CD version)	loomcd	5	90%	CD	Bobbin may sometimes appear to walk backwards.
The Secret of Monkey Island (VGA CD)	monkey	5	95%	CD	
Monkey Island II: LeChuck's Revenge	monkey2	5	90%	Adlib MIDI	
Indiana Jones 4 and the Fate of Atlantis	atlantis	5	95%	Adlib MIDI	Keyboard fighting does not work, mouse fighting is the default now.
Indiana Jones 4 (Demo)	playfate	5	95%	Adlib MIDI	
Day of the Tentacle	tentacle	6	95%	Adlib MIDI	
Day of the Tentacle (Demo)	dottdemo	6	95%	Adlib MIDI	
Sam and Max Hit the Road	samnmax	6	90%	MIDI	Subgames not all fully functional, Conroy singing in Bumpusville: music may overlap and Conroy will get stuck singing. Just hit escape to skip the cutscene.
Sam and Max Hit the Road (Demo)	samdemo	6	95%	MIDI	
Simon the Sorcerer (VGA CD)	simon1win simon1dos	n/a	95%	MIDI	
Loading but not fully playable games					
Indiana Jones and the Last Crusade (VGA)	indy3	3	30%	-	Missing/incorrect SCUMM opcodes cause occasional crashes
The Secret of Monkey Island (EGA)	monkeyega	4	5%	-	Copy protection screen will show, but game crashes shortly afterwards
The Secret of Monkey Island (VGA floppy)	monkeyvga	4	40%	-	

Full Throttle	ft	7	40%	-	Game crashes at various points, due to missing SCUMM opcodes
The Dig	dig	7	40%	-	Game crashes at various points, due to missing SCUMM opcodes
Simon the Sorcerer 2 (Windows/Amiga CD)	simon2win	n/a	?	-	
Games not loading yet					
Maniac Mansion (C64)	maniacc64	1	0%	-	ScummVM doesn't understand the non-blocked LFL format
Zak McKracken (C64)	zakc64	1	0%	-	ScummVM doesn't understand the non-blocked LFL format
Maniac Mansion (EGA)	maniacega	2	0%	-	ScummVM doesn't understand the non-blocked LFL format
Zak McKracken (EGA)	zakega	2	0%	-	ScummVM doesn't understand the non-blocked LFL format
Indiana Jones and the Last Crusade (EGA)	indy3ega	2	0%	-	ScummVM doesn't understand the non-blocked LFL format
Loom (EGA)	loom	3	0%	-	ScummVM doesn't understand the non-blocked LFL format
The Curse of Monkey Island	curse	8	5%	-	ScummVM doesn't understand the various CMI subsystems

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