

**NAME**

spoiledapples - Emulation of 6502, 680x0 and PowerPC-based Apple computers and clones

**SYNOPSIS**

**spoiledapples** [-s *version*] [-m *model*] [-c *cpu*]  
**spoiledapples -h**

**DESCRIPTION**

**spoiledapples** is a Bash command-line interface to launch emulators of 6502, 680x0 and PowerPC-based Apple computers with their operating systems on modern x86\_64 architectures under Linux, macOS and Windows.

**libspoiledapples** is a very heavy library aggregating a collection of emulators, various operating systems and many Apple ROM images.

The **Spoiled Apples** package includes the **libspoiledapples** library and the **spoiledapples** command-line interface to launch the different emulations.

**OPTIONS**

At least one of operating system, computer model or the architecture should be passed; otherwise this manual page is shown.

**BASIC OPTIONS**

**-s** *version*, **--system**=*version*  
 emulates the operating system *version*

For 680x0 and PowerPC-based computers the version may be passed as numbers in the *major[.minor[.revision]]* format. If the version provided is not implemented, then the closest one is chosen.

For 6502-based computers the format must be prefixed: **DOS\_***major[.minor[.revision]]* or **ProDOS\_***major[.minor[.revision]]*. If the version provided is not implemented, then the closest one is chosen.

Some 6502-based computers can receive also a Z80 extension card and run CP/M, which must be prefixed: **CPM\_***major[.minor]*. At the moment, only version 2.2 is implemented, but 3.0 may follow at some point.

Many Macintosh can alternatively run A/UX (Apple Unix). The format must be prefixed: **AUX\_***major[.minor[.revision]]*. If the version provided is not implemented, then the closest one is chosen.

If this parameter is not passed, then the best possible operating system for the selected computer model or architecture is chosen (in terms of offered possibilities versus running speed).

**-m** "*model*", **--model**="*model*"  
 emulates the computer *model*

Currently are implemented:

Apple II	Apple II Plus
Apple III	Apple IIe
Apple II GS	Apple IIc Plus
Agat-9	
Pravetz 8A	
Macintosh 128K	Macintosh 512K
Macintosh Plus	Macintosh SE
Macintosh II	Macintosh IIx
Macintosh SE/30	Macintosh IIcx

Macintosh IIfx	Macintosh IIfx
Macintosh Classic	Macintosh LC
Macintosh IIsi	Macintosh IIvi
Macintosh IIVx	Macintosh Color Classic
Macintosh Quadra 700	Macintosh Quadra 900
Macintosh Quadra 950	Macintosh Quadra 800
Macintosh Centris 610	Macintosh Centris 650
Macintosh Quadra 610	Macintosh Quadra 650
Power Macintosh 8100	Power Macintosh 9500
Power Macintosh 8500	Power Macintosh 8200
Power Macintosh 4400	Power Macintosh 8600
Power Macintosh 9600	
StarMax 3000	StarMax 4000
StarMax 5000	StarMax 5500
MaxxBoss 860	MaxxBoss 930
MaxxBoss 960	
Power Macintosh G3 (Minitower)	Power Mac G4 (PCI Graphics)
Power Mac G4 (AGP Graphics)	Power Mac G4 Cube
Power Mac G4 (Digital Audio)	

If this parameter is not passed, then the best possible computer model for the selected operating system or architecture is chosen (in terms of offered possibilities versus running speed).

**-c** (*6502|680x0|PowerPC*), **--cpu=**(*6502|680x0|PowerPC*)  
the implemented architectures are *6502*, *680x0* and *PowerPC*

This allows to run System 7.1 or 7.5 or Mac OS 7.6 or 8.1 on both 680x0 and PowerPC computers.

If this parameter is not passed, then the best possible architecture for the selected operating system or computer model is chosen (in terms of offered possibilities versus running speed).

## ADVANCED OPTIONS

**--rom=rom**

Please do not use this option unless you know exactly what you are doing. For legal reasons the ROM images cannot be documented yet. (Complain at Apple ;-) We are working on a "fair use" solution for this factual abandonware, in order to make preservation of computer and media history possible.

If this parameter is not passed, then the computer model defines its ROM.

**--prom=prom**

Please do not use this option unless you know exactly what you are doing. It allows to emulate specific hardware settings.

This option may be repeated.

Note that when A/UX is selected, the FPU (floating point unit) and PMMU (paged memory management unit) which are needed on some models are enabled automatically.

Note that when CP/M is selected, the Z80 extension card is enabled automatically.

**--plugin=**(*algol68|cobol74|fortran77|modula2|newton|pascal|prolog|rapira| ...*)

A plug-in can be used to add functionalities to the emulated computer.

This package includes, as examples, the compilers Reto Kromer wrote in the 1980s and 1990s for five programming languages plus three and a half he wrote during the SARS-CoV-2 pandemic in

2020-2021:

language	architecture			implemented syntax	
Pascal	6502	680x0		doc/bnf_pascal.txt	
Modula-2		680x0		doc/bnf_modula2.txt	
ALGOL 68		680x0	PowerPC	doc/bnf_algol68.txt	
Newton		680x0	PowerPC	doc/bnf_newton.txt	
Prolog		680x0	PowerPC	doc/bnf_prolog.txt	
COBOL-74		680x0	PowerPC	doc/bnf_cobol74.txt	
FORTRAN 77		680x0	PowerPC	doc/bnf_fortran77.txt	
Rapira	6502	Z80	680x0	PowerPC	doc/bnf_rapira.txt
Pascal		Z80		PowerPC	doc/bnf_pascal.txt

This option may be repeated.

If a plug-in is incompatible with the emulated computer, then the option is silently discarded.

Newton is a programming language developed by Charles Rapin at the Swiss Federal Institute of Technology in Lausanne (EPFL) in 1977-1987 and used there for undergraduate teaching.

Rapira is a procedural programming language from the former Soviet Union.

#### INFORMATIVE OPTION

**-h, --help**

display a help message

#### NOTES

This piece of software uses Reto Kromer's own emulators for 6502 and Z80, flavours of **Mini vMac**, **Basilisk II** and **Shoebill** for 680x0, and flavours of **SheepShaver** and **QEMU** for PowerPC.

The following operating systems and architecture combinations are currently implemented:

operating system	architecture			remarks
Apple DOS 3.3	6502			including clones
Apple ProDOS 1.0.2	6502			
Apple ProDOS 2.0.3	6502			
ProDOS 2.4.2	6502			all Apple II
ProDOS 2.5 alpha 8	6502			all Apple II and III
CP/M 2.2	Z80			Apple II, Plus, IIe; Agat-9, Pravetz 8A
System Software 6.0.8	680x0			
A/UX 1.1.1	680x0			some Macintosh II
A/UX 2.0.2	680x0			more Macintosh II
A/UX 3.1.1	680x0			many Macintosh II
System 7.1.2	680x0	PowerPC		
System 7.5.5	680x0	PowerPC		including clones
Mac OS 7.6.1	680x0	PowerPC		including clones
Mac OS 8.1	600x0	PowerPC		including clones
Mac OS 8.5.1		PowerPC		including clones
Mac OS 8.6		PowerPC		including clones
Mac OS 9.0.4		PowerPC		including clones
Mac OS 9.2.2		PowerPC		

and have been successfully tested on modern x86\_64 and AArch64 architectures running the following operating systems:

**Linux:** Debian 12.1, 11.7, 10.13, 9.13, 8.11 and 7.11; Ubuntu 23.04, 22.04.3 LTS, 20.04.6 LTS, 18.04.6 LTS, 16.04.7 LTS, 14.04.6 LTS and 12.04.5 LTS; Slackware 15.0, 14.2, 14.1 and 14.0; Qubes OS 4.1.0, 4.0.4 and 3.2.1

**Macintosh:** macOS 13.4.1, 12.6.7, 11.7.8, 10.15.7, 10.14.6, 10.13.6 and 10.12.6; OS X 10.11.6, 10.10.5, 10.9.5, 10.8.5, 10.7.5, 10.6.8, 10.5.8 and 10.4.11

**Windows:** 11 version 22H2 and 21H2; 10 version 22H2, 21H2, 21H1, 20H2, 2004, 1909, 1903, 1809, 1803 and 1709 with Terminal or Subsystem for Linux

In addition, cross-compilation from Debian works fine.

ProDOS 2.4 has been released by John Brooks on 2016-09-15 and runs on all Apple II computers, unlike Apple's own ProDOS. And ProDOS 2.5 runs even on Apple III computers.

CP/M 2.2 runs on Apple II, II Plus and IIe, as well as on the Soviet Agat-9 and Bulgarian Pravetz 8A clones.

A/UX 1.1.1 runs on Macintosh II, IIx, SE/30, IIcx and IIci.

A/UX 2.0.2 runs on Macintosh II, IIx, SE/30, IIcx, IIci, IIfx and IIsi.

A/UX 3.1.1 runs on Macintosh II, IIx, SE/30, IIcx, IIci, IIfx, IIsi; Macintosh Quadra 700, 900 and 950; Centris 610 and 650; Quadra 610, 650 and 800.

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