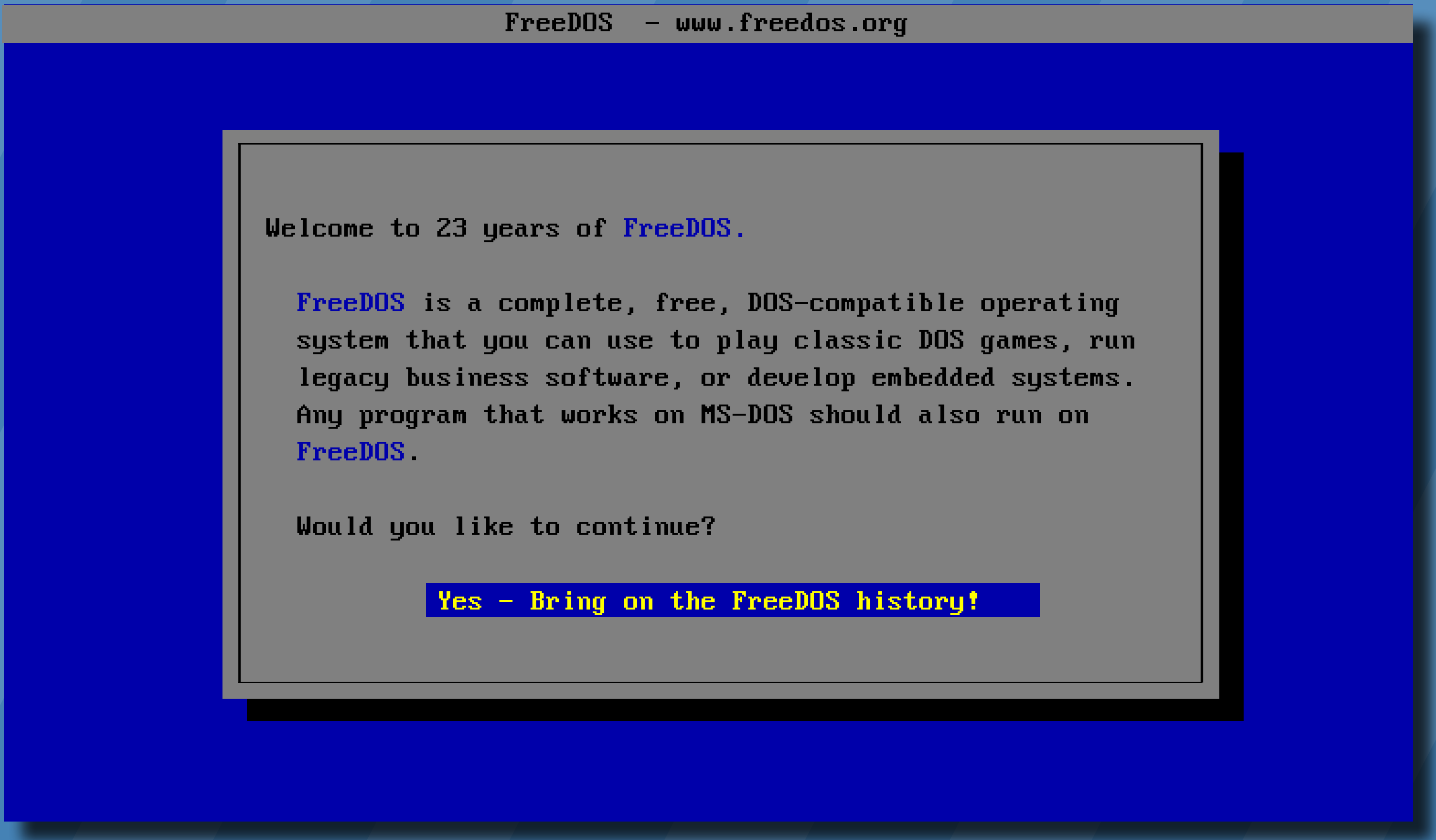
FreeDOS

23 Years of FreeDOS



```
FreeDOS  - www.freedos.org

Welcome to 23 years of FreeDOS.

  FreeDOS is a complete, free, DOS-compatible operating
  system that you can use to play classic DOS games, run
  legacy business software, or develop embedded systems.
  Any program that works on MS-DOS should also run on
  FreeDOS.

  Would you like to continue?

          Yes - Bring on the FreeDOS history!
```

Contributions by:
Jim Hall, Pat Villani, Fritz Mueller, Luca Ferrari, Imre Leber, Shane Coughlan, Marti Van Lin, Dr. Owain Kenway, Gregory Pietsch, Erwin Waterlander, Joel Graff, Nicolae Crefelean, Sparky4, Nick Gilbert, Catherinus van der Werf, Rugxulo, and Jerome Shidel

Edited by:
Jim Hall, Lauren Holly, Ben Norrman, and Shane Rose

Contents

FreeDOS

Contributors

Why an eBook?

On June 29th, 2017, FreeDOS turned 23 years old. There's nothing special about "23," but I thought it would be great to celebrate the anniversary by having a bunch of past and current users share their stories about why they use FreeDOS. So, I made a call for users to write their own FreeDOS stories.

These stories are written from different perspectives, such as: "How did you discover FreeDOS?" "What do you use FreeDOS for?" and "How do you contribute to FreeDOS?" In short, I requested users to answer the question: "Why FreeDOS?"

This eBook contains the voices of many of the users who contributed their stories, as well as the history of FreeDOS. Many individuals have helped make FreeDOS what it is, but this eBook represents only a few of them. I hope you enjoy this collection of 23 years of everything FreeDOS!

-Jim Hall

Editor’s note

We’d like to thank everyone for contributing to the ebook. It was our pleasure to read everyone’s FreeDOS stories, and see how people first discovered this great little operating system from a classic era.

Thanks also to Jim Hall for inviting us to collaborate on this ebook. This has been an interesting project. We hope you find these stories to be inspiring and motivating.

Editing the ebook was truly a team experience. From late June to early September, we worked together to collate, arrange, and edit everyone’s essays. We hope you enjoy the results!

And special thanks to Shane Rose for the design of this ebook. The look and feel mimics the design of the FreeDOS website, while the layout is reminiscent of a journal or magazine for easy reading.

-Lauren Holly, Ben Norrman, and Shane Rose

UTAPAW

UNIVERSITY TECHNICAL AND
PROFESSIONAL ASSOCIATION OF WRITING

UTAPAW IS A STUDENT LED GROUP AT THE
UNIVERSITY OF MINNESOTA.

Jim Hall

My Background

I grew up in the 1970s and 1980s. Our parents wanted to expose me and my brother to computers from an early age, so they bought an Apple II clone called the Franklin Ace 1000. I'm sure the first thing we used it for was to play games. But it didn't take long before my brother and I asked "How does it work?" So our parents bought us a book about how to program in AppleSoft BASIC, and we taught ourselves.

I remember my first programs were pretty standard stuff. Eventually, I developed a fondness for creating simulations and turn-based games. For example, my friends and I played Dungeons and Dragons in our spare time, and I wrote several "D&D"-style games. A favorite hobby of mine was re-creating the computer readouts from television shows and movies. Perhaps my largest effort was a program that let you "play" global thermonuclear war, based on the 1983 WarGames movie.

Later, we replaced the Apple with an IBM PC. The BASIC environment on DOS was different from AppleSoft BASIC, but I figured it out easily enough. I continued writing programs there throughout my junior high and high school years.

In 1990, I became an undergraduate physics student at the University of Wisconsin—River Falls. Even though my major was physics, I continued to write programs for myself. I learned the C programming language and picked up a C compiler. I wrote lots of utilities to help me analyze lab data or add new features to the MS-DOS command line. Like many others at the time, I also created utilities that replaced and enhanced the MS-DOS command line.

The university had a computer lab, and I got an account there on the VAX and Unix systems. I really liked Unix. The command line was similar to MS-DOS, but it was more powerful. I learned to use Unix when I was in the computer labs, but I still used MS-DOS on my personal computer. By running MS-DOS, I could use my favorite programs to write papers and help me analyze lab data.

I discovered the concept of "shareware" programs, which let you try the program for free. If you found the program useful, you registered the program by sending a check to the program's author. I thought shareware was a pretty neat idea, and I found shareware programs that filled my need on MS-DOS. For example, I originally wrote papers in WordPerfect, but switched to the shareware GalaxyWrite word processor. I used AsEasyAs to do spreadsheet analysis, and Telix to dial into the university's computer lab when I needed to use a Unix system.

In 1993, I learned about a Unix system that I could run on my home computer for free. This "Linux" system seemed just as powerful as the university's Unix systems, but now I could run everything on my home computer. I installed Linux on my PC, dual-booted with MS-DOS. I thought Linux was neat, and I did use it a lot, but spent most of my time in MS-DOS. Because let's face it: in 1993, there were a lot more applications and games on MS-DOS than on Linux.

The origins of FreeDOS

MS-DOS was my favorite operating system. I used it all the time. I had built up this library of utilities I'd written myself to add new functionality to MS-DOS. I just thought DOS was a great operating system. I'd used Windows by this point—but if you remember the era, you know Windows 3.1 wasn't a great platform. I preferred doing my work at the command line, not with a mouse.

And in early 1994, I started seeing a lot of tech magazine articles, interviews with Microsoft, announcing that the next version of Windows would totally do away with MS-DOS. Essentially, Windows would kill MS-DOS. I looked at Windows 3.1 and said, "If Windows 3.2 or Windows 4.0 will be anything like Windows 3.1, I want nothing to do with it."

Having some experience with Linux, I thought, "If developers can come together over the Internet to write a complete Unix operating system, surely we can do the same thing with DOS?" After all, DOS was a fairly straightforward operating system compared to Unix. DOS ran one task at a time (called single-tasking) and had a simpler memory model. And I'd already written for myself a number of utilities that expanded the MS-DOS command line, so I had a head start.

I asked around the comp.os.msdos.apps discussion group on Usenet. While others were interested in a free DOS, no one wanted to start such a project. So I volunteered to do it.

On June 29, 1994, I posted this first announcement to comp.os.msdos.apps:

> **ANNOUNCEMENT OF PD-DOS PROJECT:**
>
> A few months ago, I posted articles relating to starting a public domain version of DOS. The general support for this at the time was strong, and many people agreed with the statement, “start writing!”
> So, I have…
>
> Announcing the first effort to produce a PD-DOS. I have written up a “manifest” describing the goals of such a project and an outline of the work, as well as a “task list” that shows exactly what needs to be written. I’ll post those here, and let discussion follow.
>
> If you are thinking about developing, or have ideas or suggestions for PD-DOS, I would appreciate direct email to me. If you just want to discuss the merits or morals of writing a PD-DOS, I’ll leave that to the net. I’ll check in from time to time to see how the discussion is going, and maybe contribute a little to what promises to be a very polarized debate!
>
> I am excited about PD-DOS, and I am hoping I can get a group started!
>
> --James Hall
>
> PS -- of course, if this already exists, please point me to the group
> leader so I can at least contribute!

Developers contacted me almost immediately! We had all written our own MS-DOS extensions, power tools that expanded what you could do on the MS-DOS command line. We pooled our utilities, and looked on public FTP sites for public domain source code to other programs that replicated the features of MS-DOS.

A note about the name: When I started the project, I didn’t fully understand the nuances between “Free software” and “Public domain.” I assumed they were the same. And certainly many of the free tools we found on FTP sites were released into the public domain. So I used the name “PD-DOS” for Public Domain DOS. It only took a few weeks before I realized we wanted the protection of the GNU General Public License, which would make our DOS project a “Free software” project. By mid- to late-July, we changed the name to Free-DOS. Later, we dropped the hyphen to become FreeDOS.

Over the years, some developers have shared with me how they use FreeDOS to run an embedded system. My all-time favorite example is a developer who used FreeDOS to power a pinball machine. FreeDOS ran some application that controlled the board, tallied the score, and updated the back display. I don’t know exactly how it was built. One way I can think to design such a system is to have every bumper register a “key” on a keyboard bus, and the application simply read from that input. I thought it was cool!

People sometimes forget about legacy software, but this pops up in unexpected places. I used to be campus CIO of a small university, and we once had a faculty member bring in some floppy disks with old research data on them. The data wasn’t stored in plain text files, but as DOS application data. None of our modern systems would read the old data files, so we booted a spare PC with FreeDOS, downloaded a shareware DOS program that could read the application data, and exported the data to plain text.

There are other examples of legacy software running on DOS. My favorite is the McLaren F1 supercar can only be serviced with an ancient DOS laptop. And Game of Thrones author George R.R. Martin uses DOS to write his books. Those examples probably use MS-DOS, but there are likely a bunch of other legacy systems running from FreeDOS.

A few years ago, we ran a survey to see how people use FreeDOS. We found that people use FreeDOS in three different ways:

> **To play classic DOS games:** You can play your favorite DOS games on FreeDOS. And there are a lot of great classic games to play: Wolfenstein 3D, Doom, Commander Keen, Rise of the Triad, Jill of the Jungle, Duke Nukem, and many others!
>
> **To run legacy software:** Need to recover data from an old business program? Or maybe you need to run a report from your old finance system? Just install your legacy software under FreeDOS, and you’ll be good to go!
>
> **To develop embedded systems:** Many embedded systems run on DOS, although modern systems may instead run on Linux. If you support an older embedded system, you might be running DOS. And FreeDOS can fit in very well.

These days, I think that still represents most of the usage of FreeDOS. Although I’ll admit fewer people probably develop embedded systems on FreeDOS. Much of the embedded systems market has shifted to Linux, where there’s more developer interest. I think the Raspberry Pi and other low-cost and low-power devices have made Linux in embedded devices very attractive, so you don’t see as much DOS in embedded systems today—but you do see some DOS sometimes.

You can probably add a fourth category here: updating BIOS. I get a lot of email or other comments from people who still boot FreeDOS to update the BIOS in a computer system. DOS is still a safe way to do that.

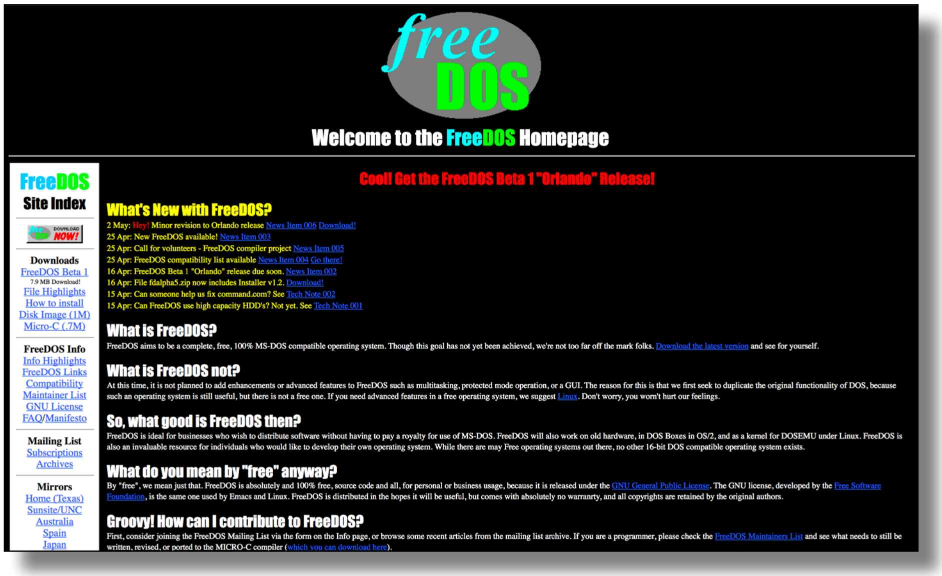
Evolution of the FreeDOS Website

Formed in 1994, the FreeDOS Project has been around a long time. We actually predate much of the World Wide Web. Back in 1994, the whole "Web" thing was a pretty new idea, so it didn't occur to us to create a website until a few years later. Here is the history of the FreeDOS website.

1996 - 1998

Our first website was created by M. “Hannibal” Toal, who stepped in as project coordinator for a short time. I’m not sure exactly when we set up our first website, but I think it was around November 6, 1996. This snapshot from June 1998 still has the same look: white text on a black background with the original “oval logo.”

I returned to FreeDOS after a short absence and Hannibal handed “webmaster” duties to me. Unfortunately, I didn’t know much about how to edit a website. I pretty much left the site as-is until I had learned enough HTML to be dangerous.



Welcome to the FreeDOS Homepage

FreeDOS Site Index

Downloads
FreeDOS Beta 1
7.9 MB Download!
File Highlights
How to install
Disk Image (1M)
Micro-C (.7M)

FreeDOS Info
Info Highlights
FreeDOS Links
Compatibility
Maintainer List
GNU License
FAQ/Manifesto

Mailing List
Subscriptions
Archives

Mirrors
Home (Texas)
Sunsite/UNC
Australia
Spain
Japan

Cool! Get the FreeDOS Beta 1 "Orlando" Release!

What's New with FreeDOS?

2 May: Hey! Minor revision to Orlando release News Item 006 Download!
25 Apr: New FreeDOS available! News Item 003
25 Apr: Call for volunteers - FreeDOS compiler project News Item 005
25 Apr: FreeDOS compatibility list available News Item 004 Go there!
16 Apr: FreeDOS Beta 1 "Orlando" release due soon. News Item 002
16 Apr: File fdalpha5.zip now includes Installer v1.2. Download!
15 Apr: Can someone help us fix command.com? See Tech Note 002
15 Apr: Can FreeDOS use high capacity HDD's? Not yet. See Tech Note 001

What is FreeDOS?

FreeDOS aims to be a complete, free, 100% MS-DOS compatible operating system. Though this goal has not yet been achieved, we're not too far off the mark folks. Download the latest version and see for yourself.

What is FreeDOS not?

At this time, it is not planned to add enhancements or advanced features to FreeDOS such as multitasking, protected mode operation, or a GUI. The reason for this is that we first seek to duplicate the original functionality of DOS, because such an operating system is still useful, but there is not a free one. If you need advanced features in a free operating system, we suggest Linux. Don't worry, you won't hurt our feelings.

So, what good is FreeDOS then?

FreeDOS is ideal for businesses who wish to distribute software without having to pay a royalty for use of MS-DOS. FreeDOS will also work on old hardware, in DOS Boxes in OS/2, and as a kernel for DOSEMU under Linux. FreeDOS is also an invaluable resource for individuals who would like to develop their own operating system. While there are may Free operating systems out there, no other 16-bit DOS compatible operating system exists.

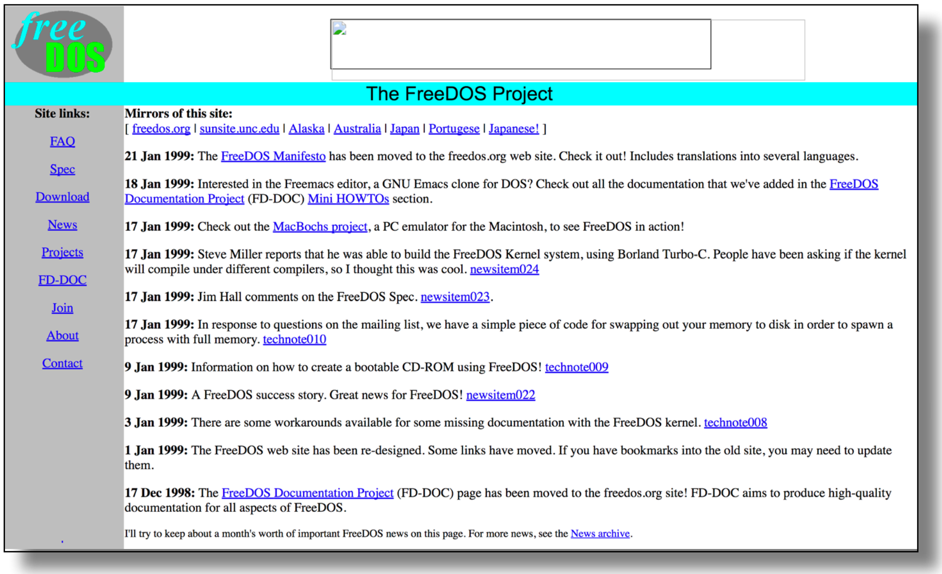
What do you mean by "free" anyway?

By "free", we mean just that. FreeDOS is absolutely and 100% free, source code and all, for personal or business usage, because it is released under the GNU General Public License. The GNU license, developed by the Free Software Foundation, is the same one used by Emacs and Linux. FreeDOS is distributed in the hopes it will be useful, but comes with absolutely no warranrty, and all copyrights are retained by the original authors.

Groovy! How can I contribute to FreeDOS?

First, consider joining the FreeDOS Mailing List via the form on the Info page, or browse some recent articles from the mailing list archive. If you are a programmer, please check the FreeDOS Maintainers List and see what needs to still be written, revised, or ported to the MICRO-C compiler (which you can download here).

1998 - 1999



The FreeDOS Project

Site links:
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Projects
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About
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Mirrors of this site:
[freedos.org | sunsite.unc.edu | Alaska | Australia | Japan | Portugese | Japanese!]

21 Jan 1999: The FreeDOS Manifesto has been moved to the freedos.org web site. Check it out! Includes translations into several languages.

18 Jan 1999: Interested in the Freemacs editor, a GNU Emacs clone for DOS? Check out all the documentation that we've added in the FreeDOS Documentation Project (FD-DOC) Mini HOWTOs section.

17 Jan 1999: Check out the MacBochs project, a PC emulator for the Macintosh, to see FreeDOS in action!

17 Jan 1999: Steve Miller reports that he was able to build the FreeDOS Kernel system, using Borland Turbo-C. People have been asking if the kernel will compile under different compilers, so I thought this was cool. newsitem024

17 Jan 1999: Jim Hall comments on the FreeDOS Spec. newsitem023.

17 Jan 1999: In response to questions on the mailing list, we have a simple piece of code for swapping out your memory to disk in order to spawn a process with full memory. technote010

9 Jan 1999: Information on how to create a bootable CD-ROM using FreeDOS! technote009

9 Jan 1999: A FreeDOS success story. Great news for FreeDOS! newsitem022

3 Jan 1999: There are some workarounds available for some missing documentation with the FreeDOS kernel. technote008

1 Jan 1999: The FreeDOS web site has been re-designed. Some links have moved. If you have bookmarks into the old site, you may need to update them.

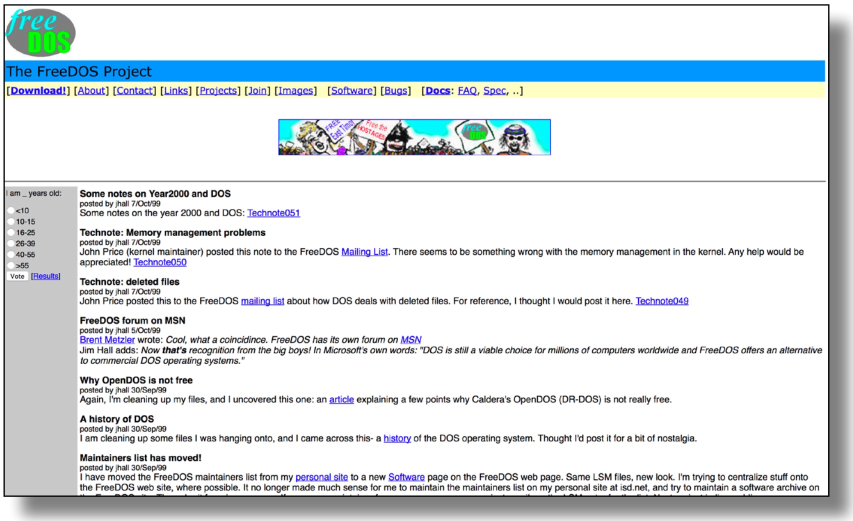
17 Dec 1998: The FreeDOS Documentation Project (FD-DOC) page has been moved to the freedos.org site! FD-DOC aims to produce high-quality documentation for all aspects of FreeDOS.

I'll try to keep about a month's worth of important FreeDOS news on this page. For more news, see the News archive.

Starting sometime late 1998, I began working on an update to the FreeDOS website. I wanted the new website to be easier to read. More websites were using a black-on-white color scheme, which I found easier on the eyes. After some months working on a new design, I put live the updated website on January 1, 1999. A snapshot from January 1999 shows the updated style: black text on a white background with a FreeDOS banner ad and the original “oval logo.”

1999

Later that in 1999, I updated the website design slightly, using a blue title bar and yellow navigation bar. I also added a “poll” feature to the sidebar, although this was meant more for fun than information gathering. The new website went live around mid- to late September 1999.



The FreeDOS Project

[**Download!**] [About] [Contact] [Links] [Projects] [Join] [Images] [Software] [Bugs] [**Docs**: FAQ, Spec, ..]

I am _ years old:

○ <10
○ 10-15
○ 16-25
○ 26-39
○ 40-55
○ >55

Vote [Results]

Some notes on Year2000 and DOS
posted by jhall 7/Oct/99
Some notes on the year 2000 and DOS: Technote051

Technote: Memory management problems
posted by jhall 7/Oct/99
John Price (kernel maintainer) posted this note to the FreeDOS Mailing List. There seems to be something wrong with the memory management in the kernel. Any help would be appreciated! Technote050

Technote: deleted files
posted by jhall 7/Oct/99
John Price posted this to the FreeDOS mailing list about how DOS deals with deleted files. For reference, I thought I would post it here. Technote049

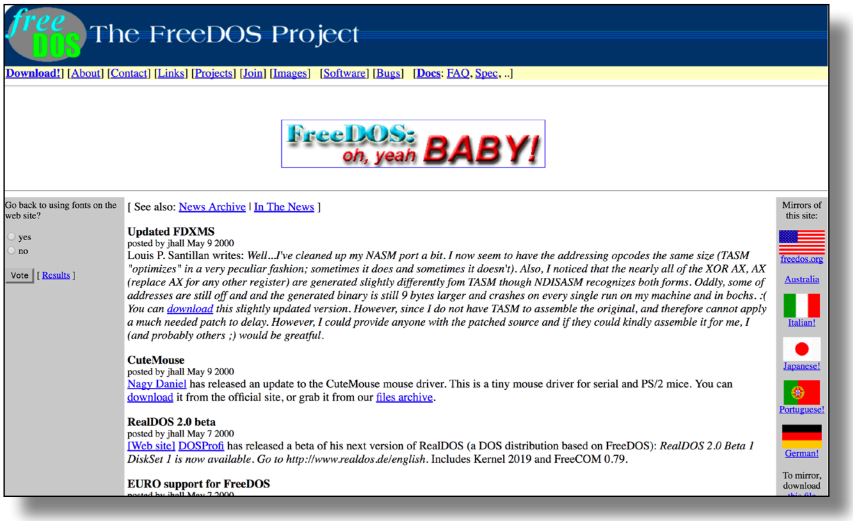
FreeDOS forum on MSN
posted by jhall 5/Oct/99
Brent Metzler wrote: *Cool, what a coincidince. FreeDOS has its own forum on MSN*
Jim Hall adds: *Now **that's** recognition from the big boys! In Microsoft's own words: "DOS is still a viable choice for millions of computers worldwide and FreeDOS offers an alternative to commercial DOS operating systems."*

Why OpenDOS is not free
posted by jhall 30/Sep/99
Again, I'm cleaning up my files, and I uncovered this one: an article explaining a few points why Caldera's OpenDOS (DR-DOS) is not really free.

A history of DOS
posted by jhall 30/Sep/99
I am cleaning up some files I was hanging onto, and I came across this- a history of the DOS operating system. Thought I'd post it for a bit of nostalgia.

Maintainers list has moved!
posted by jhall 30/Sep/99
I have moved the FreeDOS maintainers list from my personal site to a new Software page on the FreeDOS web page. Same LSM files, new look. I'm trying to centralize stuff onto the FreeDOS web site, where possible. It no longer made much sense for me to maintain the maintainers list on my personal site at isd.net, and try to maintain a software archive on

1999 - 2000



The FreeDOS Project

Download!] [About] [Contact] [Links] [Projects] [Join] [Images] [Software] [Bugs] [**Docs**: FAQ, Spec, ..]

Go back to using fonts on the web site?

○ yes
○ no

Vote [Results]

[See also: News Archive | In The News]

Updated FDXMS
posted by jhall May 9 2000
Louis P. Santillan writes: *Well...I've cleaned up my NASM port a bit. I now seem to have the addressing opcodes the same size (TASM "optimizes" in a very peculiar fashion; sometimes it does and sometimes it doesn't). Also, I noticed that the nearly all of the XOR AX, AX (replace AX for any other register) are generated slightly differently fom TASM though NDISASM recognizes both forms. Oddly, some of addresses are still off and and the generated binary is still 9 bytes larger and crashes on every single run on my machine and in bochs. :(You can download this slightly updated version. However, since I do not have TASM to assemble the original, and therefore cannot apply a much needed patch to delay. However, I could provide anyone with the patched source and if they could kindly assemble it for me, I (and probably others ;) would be greatful.*

CuteMouse
posted by jhall May 9 2000
Nagy Daniel has released an update to the CuteMouse mouse driver. This is a tiny mouse driver for serial and PS/2 mice. You can download it from the official site, or grab it from our files archive.

RealDOS 2.0 beta
posted by jhall May 7 2000
[Web site] DOSProfi has released a beta of his next version of RealDOS (a DOS distribution based on FreeDOS): *RealDOS 2.0 Beta 1 DiskSet 1 is now available. Go to http://www.realdos.de/english*. Includes Kernel 2019 and FreeCOM 0.79.

EURO support for FreeDOS
posted by jhall May 7 2000

Mirrors of this site:

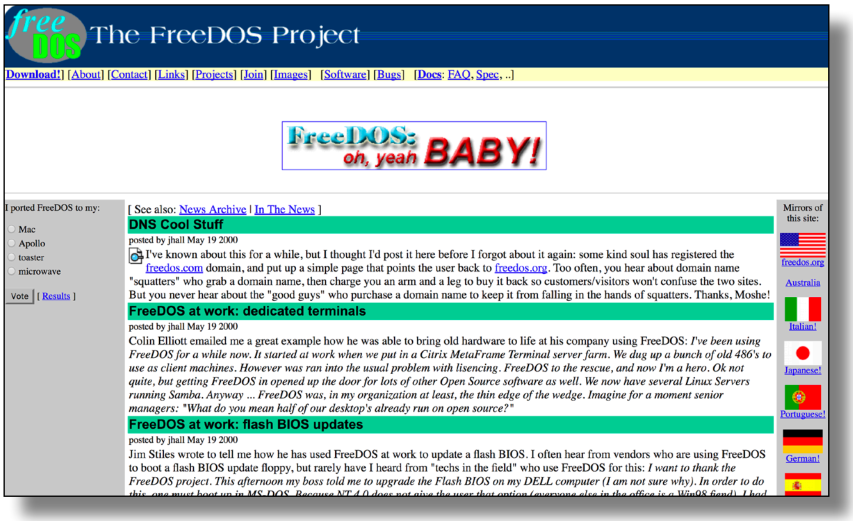
freedos.org
Australia
Italian!
Japanese!
Portuguese!
German!

To mirror, download

I updated the FreeDOS website design again in Spring 2000. The most visible change was in the header, with a series of stripes behind the “FreeDOS Project” wordmark. Technically, I don’t consider that a new FreeDOS logo, just a graphical decoration around the logo. This new “striped” web update went live in early May 2000.

2000

I made a small adjustment again in late May 2000, adding a mint green background to the titles of each news item. I’m sure I felt inspired by other websites that used a different color to set off article titles, although I’m a bit confused when I look at this design now. Green didn’t really fit with the dark blue banner.



The FreeDOS Project

Download!] [About] [Contact] [Links] [Projects] [Join] [Images] [Software] [Bugs] [**Docs**: FAQ, Spec, ..]

I ported FreeDOS to my:

○ Mac
○ Apollo
○ toaster
○ microwave

Vote [Results]

[See also: News Archive | In The News]

DNS Cool Stuff
posted by jhall May 19 2000
I've known about this for a while, but I thought I'd post it here before I forgot about it again: some kind soul has registered the freedos.com domain, and put up a simple page that points the user back to freedos.org. Too often, you hear about domain name "squatters" who grab a domain name, then charge you an arm and a leg to buy it back so customers/visitors won't confuse the two sites. But you never hear about the "good guys" who purchase a domain name to keep it from falling in the hands of squatters. Thanks, Moshe!

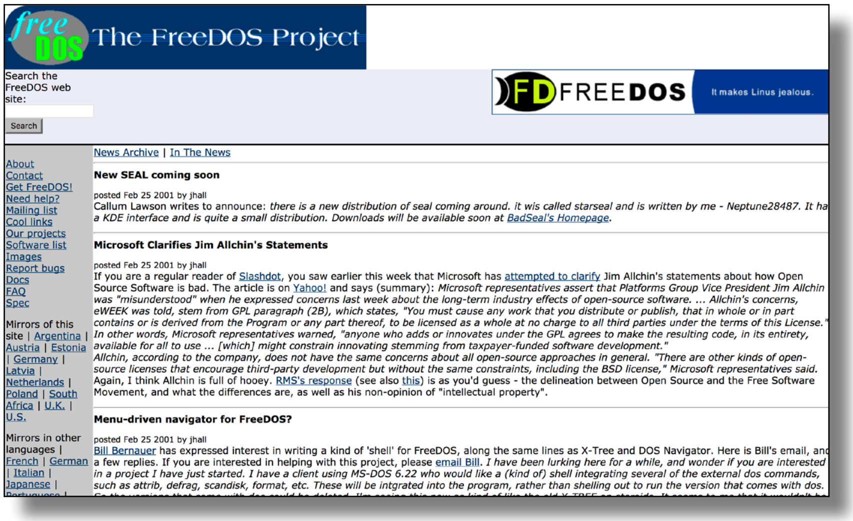
FreeDOS at work: dedicated terminals
posted by jhall May 19 2000
Colin Elliott emailed me a great example how he was able to bring old hardware to life at his company using FreeDOS: *I've been using FreeDOS for a while now. It started at work when we put in a Citrix MetaFrame Terminal server farm. We dug up a bunch of old 486's to use as client machines. However was ran into the usual problem with lisencing. FreeDOS to the rescue, and now I'm a hero. Ok not quite, but getting FreeDOS in opened up the door for lots of other Open Source software as well. We now have several Linux Servers running Samba. Anyway ... FreeDOS was, in my organization at least, the thin edge of the wedge. Imagine for a moment senior managers: "What do you mean half of our desktop's already run on open source?"*

FreeDOS at work: flash BIOS updates
posted by jhall May 19 2000
Jim Stiles wrote to tell me how he has used FreeDOS at work to update a flash BIOS. I often hear from vendors who are using FreeDOS to boot a flash BIOS update floppy, but rarely have I heard from "techs in the field" who use FreeDOS for this: *I want to thank the FreeDOS project. This afternoon my boss told me to upgrade the Flash BIOS on my DELL computer (I am not sure why). In order to do this, one must boot up in MS-DOS. Because NT 4.0 does not give the user that option (everyone else in the office is a Win98 fiend). I had*

Mirrors of this site:

freedos.org
Australia
Italian!
Japanese!
Portuguese!
German!

2001


free DOS
The FreeDOS Project
Search the FreeDOS web site:
Search
FD FREEDOS
It makes Linus jealous.
About
Contact
Get FreeDOS!
Need help?
Mailing list
Cool links
Our projects
Software list
Images
Report bugs
Docs
FAQ
Spec
Mirrors of this site | Argentina | Austria | Estonia | Germany | Latvia | Netherlands | Poland | South Africa | U.K. | U.S.
Mirrors in other languages | French | German | Italian | Japanese |

News Archive | In The News

New SEAL coming soon

posted Feb 25 2001 by jhall
Callum Lawson writes to announce: *there is a new distribution of seal coming around. it wis called starseal and is written by me - Neptune28487. It ha a KDE interface and is quite a small distribution. Downloads will be available soon at* BadSeal's Homepage.

Microsoft Clarifies Jim Allchin's Statements

posted Feb 25 2001 by jhall
If you are a regular reader of Slashdot, you saw earlier this week that Microsoft has attempted to clarify Jim Allchin's statements about how Open Source Software is bad. The article is on Yahoo! and says (summary): *Microsoft representatives assert that Platforms Group Vice President Jim Allchin was "misunderstood" when he expressed concerns last week about the long-term industry effects of open-source software. ... Allchin's concerns, eWEEK was told, stem from GPL paragraph (2B), which states, "You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License." In other words, Microsoft representatives warned, "anyone who adds or innovates under the GPL agrees to make the resulting code, in its entirety, available for all to use ... [which] might constrain innovating stemming from taxpayer-funded software development." Allchin, according to the company, does not have the same concerns about all open-source approaches in general. "There are other kinds of open-source licenses that encourage third-party development but without the same constraints, including the BSD license," Microsoft representatives said.*
Again, I think Allchin is full of hooey. RMS's response (see also this) is as you'd guess - the delineation between Open Source and the Free Software Movement, and what the differences are, as well as his non-opinion of "intellectual property".

Menu-driven navigator for FreeDOS?

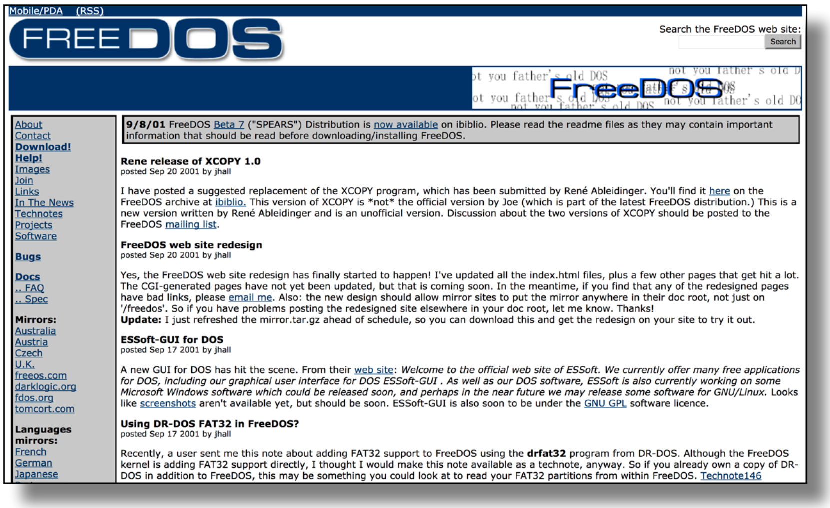
posted Feb 25 2001 by jhall
Bill Bernauer has expressed interest in writing a kind of 'shell' for FreeDOS, along the same lines as X-Tree and DOS Navigator. Here is Bill's email, and a few replies. If you are interested in helping with this project, please email Bill. *I have been lurking here for a while, and wonder if you are interested in a project I have just started. I have a client using MS-DOS 6.22 who would like a (kind of) shell integrating several of the external dos commands, such as attrib, defrag, scandisk, format, etc. These will be intgrated into the program, rather than shelling out to run the version that comes with dos.*

In early 2001, I again decided to change the FreeDOS website. I chose a unified blue-and-gray color scheme, with black-on-white text. I updated the website sometime in mid-February 2001.

2001

Several months later, our original "oval logo" was looking dated. Several FreeDOS users proposed new logos for us, but we liked Ben Rouner's logo best. His logo was a sleek, modern spin that was better suited for the banner on a website. We adopted this "blue stamped logo" in August or September 2001, accompanied by a website redesign with blue highlight colors and a white background.

This website design stuck around for a few years with only a few minor color tweaks in the design. We didn't update the web design until we decided to change the FreeDOS logo.



9/8/01 FreeDOS Beta 7 ("SPEARS") Distribution is now available on ibiblio. Please read the readme files as they may contain important information that should be read before downloading/installing FreeDOS.

Rene release of XCOPY 1.0
posted Sep 20 2001 by jhall

I have posted a suggested replacement of the XCOPY program, which has been submitted by René Ableidinger. You'll find it here on the FreeDOS archive at ibiblio. This version of XCOPY is *not* the official version by Joe (which is part of the latest FreeDOS distribution.) This is a new version written by René Ableidinger and is an unofficial version. Discussion about the two versions of XCOPY should be posted to the FreeDOS mailing list.

FreeDOS web site redesign
posted Sep 20 2001 by jhall

Yes, the FreeDOS web site redesign has finally started to happen! I've updated all the index.html files, plus a few other pages that get hit a lot. The CGI-generated pages have not yet been updated, but that is coming soon. In the meantime, if you find that any of the redesigned pages have bad links, please email me. Also: the new design should allow mirror sites to put the mirror anywhere in their doc root, not just on '/freedos'. So if you have problems posting the redesigned site elsewhere in your doc root, let me know. Thanks!
Update: I just refreshed the mirror.tar.gz ahead of schedule, so you can download this and get the redesign on your site to try it out.

ESSoft-GUI for DOS
posted Sep 17 2001 by jhall

A new GUI for DOS has hit the scene. From their web site: *Welcome to the official web site of ESSoft. We currently offer many free applications for DOS, including our graphical user interface for DOS ESSoft-GUI . As well as our DOS software, ESSoft is also currently working on some Microsoft Windows software which could be released soon, and perhaps in the near future we may release some software for GNU/Linux.* Looks like screenshots aren't available yet, but should be soon. ESSoft-GUI is also soon to be under the GNU GPL software licence.

Using DR-DOS FAT32 in FreeDOS?
posted Sep 17 2001 by jhall

Recently, a user sent me this note about adding FAT32 support to FreeDOS using the **drfat32** program from DR-DOS. Although the FreeDOS kernel is adding FAT32 support directly, I thought I would make this note available as a technote, anyway. So if you already own a copy of DR-DOS in addition to FreeDOS, this may be something you could look at to read your FAT32 partitions from within FreeDOS. Technote146

Between 2001 - 2004

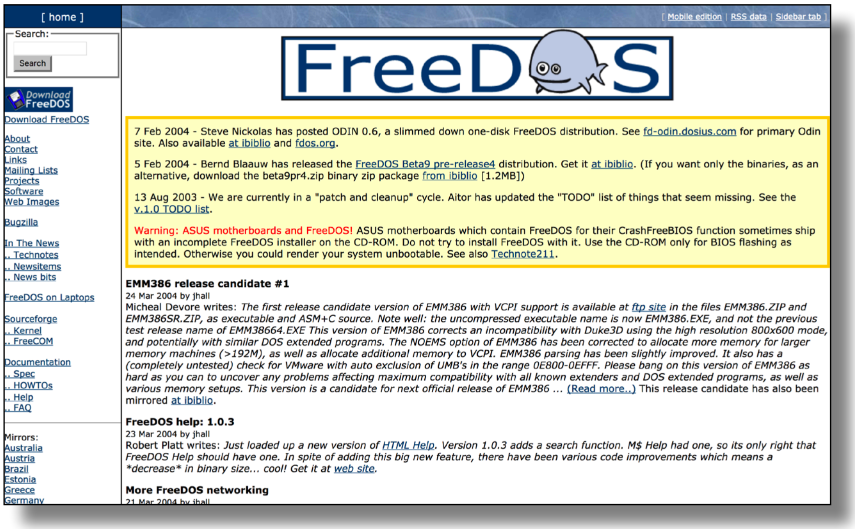
On the FreeDOS email list, someone restarted a discussion about FreeDOS adopting a mascot. After all, the Free Software Foundation had the gnu, Linux had the penguin, and BSD Unix had the daemon-in-sneakers. Shouldn't we have a mascot, too?

I admit, I'd kind of wanted a mascot for the FreeDOS Project for some time. Back in 1999, I thought a lemur would look neat. I always liked lemurs. But after a while, I thought FreeDOS should have a mascot that "paired well" with the Linux penguin. FreeDOS was a free operating system like Linux, so I thought it natural that someone might create a composite image that combined the Linux and FreeDOS mascots, maybe sitting next to each other. I thought a seal would be a great idea; imagine a seal and a penguin hanging out together. But we already had a SEAL graphical desktop package, and the name conflict seemed pretty obvious.

Someone else submitted a new FreeDOS logo that used a fish icon, claiming that the fish represented freedom. For some reason the fish caught on. Soon, Bas Snabilie contributed a cartoony FreeDOS fish mascot and matching logo. Bas's fish mascot was cute for a fish, so we adopted him as our mascot. We later named him Blinky because of his googly eye.

For more information about the FreeDOS logo or Blinky, click here!

2004



7 Feb 2004 - Steve Nickolas has posted ODIN 0.6, a slimmed down one-disk FreeDOS distribution. See fd-odin.dosius.com for primary Odin site. Also available at ibiblio and fdos.org.

5 Feb 2004 - Bernd Blaauw has released the FreeDOS Beta9 pre-release4 distribution. Get it at ibiblio. (If you want only the binaries, as an alternative, download the beta9pr4.zip binary zip package from ibiblio [1.2MB])

13 Aug 2003 - We are currently in a "patch and cleanup" cycle. Aitor has updated the "TODO" list of things that seem missing. See the v.1.0 TODO list.

Warning: ASUS motherboards and FreeDOS! ASUS motherboards which contain FreeDOS for their CrashFreeBIOS function sometimes ship with an incomplete FreeDOS installer on the CD-ROM. Do not try to install FreeDOS with it. Use the CD-ROM only for BIOS flashing as intended. Otherwise you could render your system unbootable. See also Technote211.

EMM386 release candidate #1
24 Mar 2004 by jhall
Micheal Devore writes: *The first release candidate version of EMM386 with VCPI support is available at ftp site in the files EMM386.ZIP and EMM386SR.ZIP, as executable and ASM+C source. Note well: the uncompressed executable name is now EMM386.EXE, and not the previous test release name of EMM38664.EXE This version of EMM386 corrects an incompatibility with Duke3D using the high resolution 800x600 mode, and potentially with similar DOS extended programs. The NOEMS option of EMM386 has been corrected to allocate more memory for larger memory machines (>192M), as well as allocate additional memory to VCPI. EMM386 parsing has been slightly improved. It also has a (completely untested) check for VMware with auto exclusion of UMB's in the range 0E800-0EFFF. Please bang on this version of EMM386 as hard as you can to uncover any problems affecting maximum compatibility with all known extenders and DOS extended programs, as well as various memory setups. This version is a candidate for next official release of EMM386 ...* (Read more..) This release candidate has also been mirrored at ibiblio.

FreeDOS help: 1.0.3
23 Mar 2004 by jhall
Robert Platt writes: *Just loaded up a new version of HTML Help. Version 1.0.3 adds a search function. M$ Help had one, so its only right that FreeDOS Help should have one. In spite of adding this big new feature, there have been various code improvements which means a *decrease* in binary size... cool! Get it at web site.*

More FreeDOS networking
21 Mar 2004 by jhall

In February or March 2004, I created an updated website design that used the new FreeDOS “boxed wordmark logo” with the FreeDOS fish. We would keep this website design for several years. Over time, we made a few tweaks here and there, such as moving the “blue swirls” decorative banner from the top of the page to just under the logo, but the design concept remained.

On February 6, 2006, I rebuilt the FreeDOS website using “divs” and stylesheets, following a growing trend. The website look and feel remained the same, but the construction was more modern.

2006

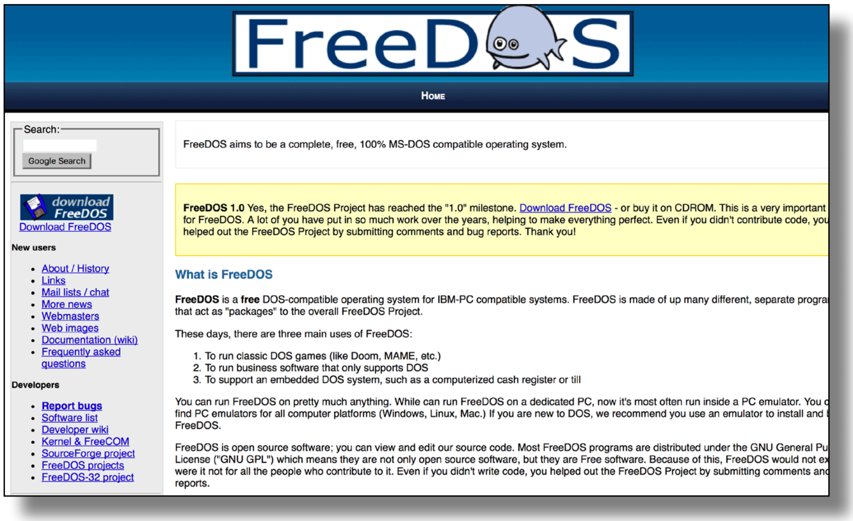
In late July or early August 2006, we tweaked the FreeDOS website design to use a “flattened” appearance that had become popular on other websites at the time.

We finally released the FreeDOS 1.0 distribution on September 3, 2006. With our milestone release came an update to the FreeDOS website. The new website incorporated a “What is FreeDOS” section on the front page, including a brief description of the ways most people use FreeDOS: to run classic DOS games, to run legacy software, and to do embedded development.

2007

Sometime in April 2007, I made a minor design change to the website, to put a blue “gradient background” behind the FreeDOS logo with a dark blue gradient as a sort of page title bar.

I’m not able to track changes to the website very well after this. I didn’t keep a history of changes to the website. However, sometime in November 2008 or very early December 2008, we updated the website again.



FreeDOS aims to be a complete, free, 100% MS-DOS compatible operating system.

FreeDOS 1.0 Yes, the FreeDOS Project has reached the "1.0" milestone. Download FreeDOS - or buy it on CDROM. This is a very important for FreeDOS. A lot of you have put in so much work over the years, helping to make everything perfect. Even if you didn't contribute code, you helped out the FreeDOS Project by submitting comments and bug reports. Thank you!

What is FreeDOS

FreeDOS is a **free** DOS-compatible operating system for IBM-PC compatible systems. FreeDOS is made of up many different, separate progra that act as "packages" to the overall FreeDOS Project.

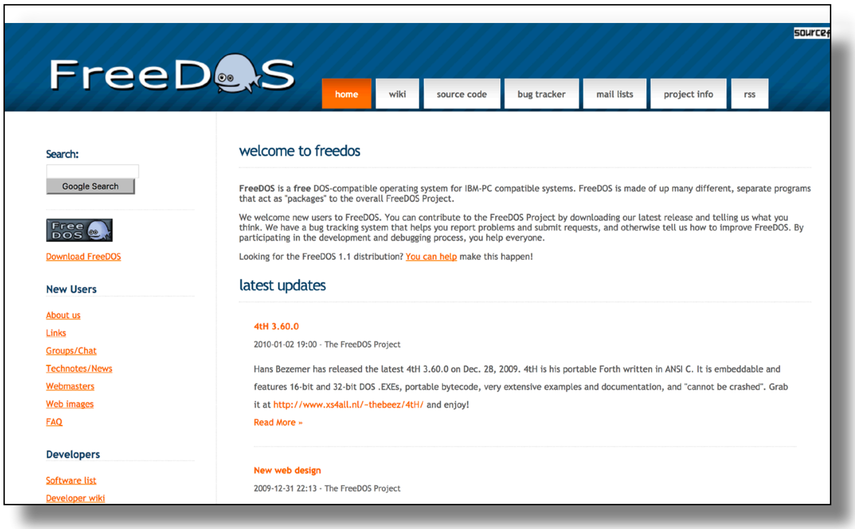
These days, there are three main uses of FreeDOS:

1. To run classic DOS games (like Doom, MAME, etc.)
2. To run business software that only supports DOS
3. To support an embedded DOS system, such as a computerized cash register or till

You can run FreeDOS on pretty much anything. While can run FreeDOS on a dedicated PC, now it's most often run inside a PC emulator. You c find PC emulators for all computer platforms (Windows, Linux, Mac.) If you are new to DOS, we recommend you use an emulator to install and FreeDOS.

FreeDOS is open source software; you can view and edit our source code. Most FreeDOS programs are distributed under the GNU General Pu License ("GNU GPL") which means they are not only open source software, but they are Free software. Because of this, FreeDOS would not ex were it not for all the people who contribute to it. Even if you didn't write code, you helped out the FreeDOS Project by submitting comments and reports.

2009



[Download FreeDOS]

New Users

About us
Links
Groups/Chat
Technotes/News
Webmasters
Web images
FAQ

Developers

Software list
Developer wiki

welcome to freedos

FreeDOS is a **free** DOS-compatible operating system for IBM-PC compatible systems. FreeDOS is made of up many different, separate programs that act as "packages" to the overall FreeDOS Project.

We welcome new users to FreeDOS. You can contribute to the FreeDOS Project by downloading our latest release and telling us what you think. We have a bug tracking system that helps you report problems and submit requests, and otherwise tell us how to improve FreeDOS. By participating in the development and debugging process, you help everyone.

Looking for the FreeDOS 1.1 distribution? You can help make this happen!

latest updates

4tH 3.60.0

2010-01-02 19:00 - The FreeDOS Project

Hans Bezemer has released the latest 4tH 3.60.0 on Dec. 28, 2009. 4tH is his portable Forth written in ANSI C. It is embeddable and features 16-bit and 32-bit DOS .EXEs, portable bytecode, very extensive examples and documentation, and "cannot be crashed". Grab it at http://www.xs4all.nl/~thebeez/4tH/ and enjoy!

Read More »

New web design

2009-12-31 22:13 - The FreeDOS Project

In late 2009, I decided to ask for help in updating the FreeDOS website design. I wanted to make the website easier to use. I posted a plea around October 2009, and several months later I found myself in contact with a web designer named “nodethirtythree.” This person volunteered to contribute a design from their website catalog, and on January 1, 2010, we refreshed the FreeDOS website with the new design. This update included a new “white wordmark logo” with the same FreeDOS fish from our boxed wordmark logo and wordmark in white with a black drop-shadow.

As you can see, this website was really meant for wide screens. If you have a low display resolution, the link “tabs” or “buttons” partially cover the FreeDOS logo.

2012

We’ve used variations on this design ever since. While the website’s code may have changed “under the hood,” the outward appearance has remained mostly intact. The link “buttons” from the banner changed, but the blue striped background remained as part of our new web “brand.”

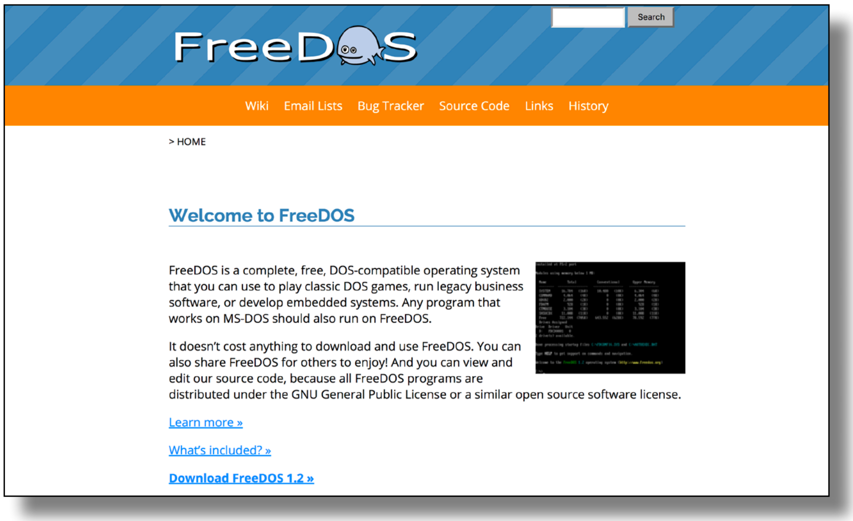
This version of the website remained for several years. Eventually, I wanted to arrange information on the website to attract new users, and make information easier to find. Over sevral months in Spring 2012, I experimented with how to arrange information that was easiest for users to digest. On June 3, 2012, I finally put live the new website. The new design included a FreeDOS screenshot, updated sub-pages with improved cross-linking to information, and “quick answer” links to help new visitors learn about FreeDOS.

Those “quick answer” links seemed like a clever idea at the time, but not everyone liked them. They used javascript to only show one answer at a time. This was a little weird to some folks, so we eventually removed this in favor of more straightforward navigation.

2016

On December 25, 2016, we released the FreeDOS 1.2 distribution. To mark the occasion, we updated the website, providing a cleaner look and new fonts. This new design also added separate descriptions with brief descriptions of how people use FreeDOS, which hadn’t really changed since 2006: “Classic games,” “Legacy software,” and “Embedded systems.”

This new website design is the same one we use today. This version is based around HTML5 and uses a clean presentation that incorporates more screenshots on the front page. A major change in the new website is the shift towards SVG for the images, such as the FreeDOS logo and the icons. While we’ve used a responsive web design for years, using SVG allows for cleaner scaling of images on different displays.



Welcome to FreeDOS

FreeDOS is a complete, free, DOS-compatible operating system that you can use to play classic DOS games, run legacy business software, or develop embedded systems. Any program that works on MS-DOS should also run on FreeDOS.

It doesn’t cost anything to download and use FreeDOS. You can also share FreeDOS for others to enjoy! And you can view and edit our source code, because all FreeDOS programs are distributed under the GNU General Public License or a similar open source software license.

Learn more »

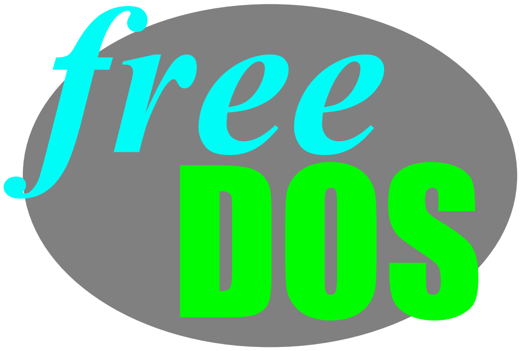
What’s included? »

Download FreeDOS 1.2 »

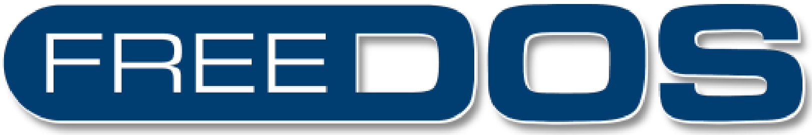
I’m not planning further changes to the website. But then again, I think I’ve said that after every major website update. Based on past experience, we’ll likely make tweaks and small iterations to the website design, but no major changes for a few years. Enjoy!

History of the FreeDOS Logo

The FreeDOS Project has had several logos. Do you know them all?



Our first logo was created by then-webmaster M. “Hannibal” Toal when he created our first website in November 1996. Until then, we didn’t have a website, only an ftp site on the University of North Carolina’s SunSITE system. Hannibal created the logo using Windows Paint, so it’s no surprise that it uses simple colors and standard Windows fonts: Impact and Times New Roman.

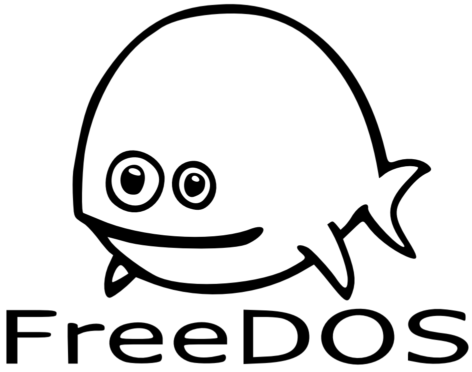


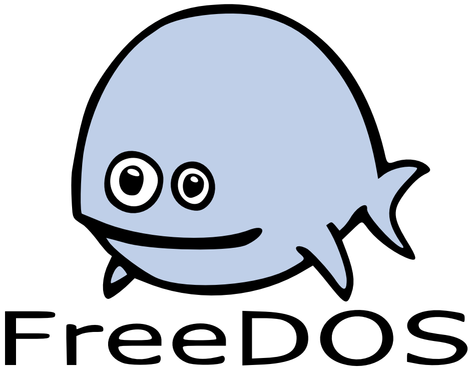
Several years later, we decided the original oval logo was starting to look dated. Several FreeDOS users attempted new logos for us, but we liked Ben Rouner’s logo best. His logo was a sleek, modern spin that was better suited to the banner on a website. We adopted this blue stamped logo in August or September 2001, accompanied by a website redesign with blue highlight colors and a white background.

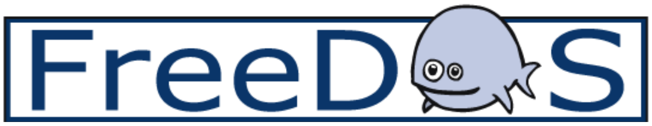
The Search for a Mascot

The logo above remained popular for several years. It was around this time that some started to wonder if FreeDOS should adopt an official mascot. After all, Linux had the penguin and BSD had the daemon, so maybe FreeDOS should have a mascot, too. One user had created a FreeDOS mascot as a kind of blue ball thing with the oval logo printed on it, but that was never made official. I thought we might adopt a seal for our official mascot. I imagined the Linux penguin sitting next to the FreeDOS seal. But one contributor suggested a fish, and another user created a simple web logo in the outline of a fish. So the fish caught on.

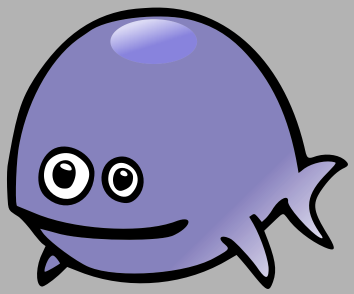
Then digital artist Bas Snabilie wrote to me with his take on a FreeDOS fish. His fish mascot was adorable and more cartoony than the other proposed FreeDOS fish. Bas also created a version of the FreeDOS fish that incorporated new logo text, including an alternate "boxed wordmark logo" that replaced the "O" in FreeDOS with the new FreeDOS fish. We adopted this new FreeDOS mascot, and the new logo, in February or March 2004.



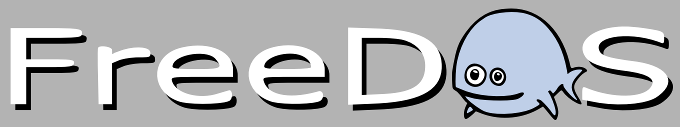




In case you're curious, the FreeDOS fish didn't have a name for quite a while. We later dubbed him "Blinky" because of his googly eye. The name stuck.



Later, Rikard Lang slightly modified the FreeDOS fish and turned Blinky purple with a shiny spot on his head. While this glossy fish logo was never used on the FreeDOS website and thus never became an official logo, we have adopted it for use on certain social media sites.



We've continued to incorporate the FreeDOS fish in the FreeDOS logo. On January 1, 2010, we refreshed the FreeDOS website with a new look, including a slightly updated logo. The new white wordmark logo used the same FreeDOS fish from our boxed wordmark logo with the text in white with a black drop-shadow.

Over time, the only updates we've made have been to convert the FreeDOS logos to scalable vector graphics, or SVG. The original oval logo was GIF, the stamped logo was Photoshop converted to PNG, the FreeDOS fish logo was JPG, and the white wordmark logo was PNG. While these raster images work well to represent an image, we have made them smaller and more scalable by adapting them to vector graphics. Many thanks to FreeDOS developer Mateusz Viste for converting many of our logos to SVG.

History of the FreeDOS Distributions

They say that for any open source software project to get traction at the beginning, it needs to release early and release often. That's just what we did when we started the FreeDOS Project.

You probably know the backstory: I announced the project on June 29, 1994. Others soon joined the effort, and we formed the FreeDOS Project.

Our first goal was to identify the functionality of MS-DOS that we wanted to replicate. Once we had a list of commands and features, we began searching for free software and public domain tools to fill those needs. We found several, including a neat replacement for PRINT called SPOOL, which operated in the background to print to the line printer when the computer was less busy. For those commands where we couldn't find existing tools, we wrote our own. Tim Norman was one of our first contributors, and started work on a free replacement for the COMMAND shell, later dubbed FreeCOM.

Once we had a core set of utilities, we released our first FreeDOS Alpha Distribution on September 16, 1994.

We didn't have a kernel yet, so "FreeDOS" at this point was still incomplete; you needed a copy of MS-DOS to use as the kernel. But the Alpha release got the attention of other DOS developers, who soon contributed new features and new commands. I don't have an exact date for our next Alpha, but our email list archives at MARC.info suggest we released our FreeDOS Alpha 2 Distribution in very late 1994. I'll assume December 1994.

From there, we attempted regular releases of the FreeDOS Alpha. We released the FreeDOS Alpha 3 Distribution shortly after, in January 1995. A few months later, we made the FreeDOS Alpha 4 Distribution. From a FAQ posted to Usenet and an archived FreeDOS announcement, I can place the Alpha 4 to after May 20 1995 and before June 18 1995. I'll assume June 1995.

Our next two Alpha releases took a while to get out the door. We were starting to grow as a community and things were stabilizing. A little over a year later, we released the FreeDOS Alpha 5 Distribution on August 10, 1996. More than a year after that, we made the FreeDOS Alpha 6 Distribution in November 1996.

All through the Alpha releases, we were missing something: there was no "installer" for FreeDOS. To update an existing FreeDOS system, you had to manually transfer the new kernel to the system using SYS, then unzip the entire Alpha package to your computer. We needed to make FreeDOS easier to install, which meant we needed an automated install program. So I spent a few weekends writing one.

Our first installer wasn't very pretty. It simply automated the setup steps via a Batch file, then ran the install program to let you select what "packages" and "package sets" you wanted to install on your system. It didn't use console menus, just scrolled text from the bottom of the screen. But it worked. With this, we had the start of a new FreeDOS distribution.

The new installer deserved a new version for the next FreeDOS distribution. We were still far from "1.0," but with the new installer, we moved from "Alpha" to "Beta."

We created the "code names" for the Beta releases because we thought it was an interesting "beta-ish" thing to do. Mostly it was just fun. There wasn't a scheme to the names; we just assigned a code name from whatever seemed relevant at the time.

I released the FreeDOS Beta 1 "Orlando" Distribution on April 24, 1998, just before I went to visit my brother in Orlando, Florida. I thought it would be cool to name the distribution based on that trip. I think I literally uploaded the new release, then finished packing so we could fly down the next morning.

A few months later, we released the FreeDOS Beta 2 "Marvin" Distribution on October 28, 1998. The name comes from the old MicroVAX system that we used in our campus computer lab around the time I created the FreeDOS Project. Sometime in October 1998, I returned to campus as part of an alumni event and learned that the university had finally decommissioned the last of the old computing system. It had been a venerable system, so I named the Beta 2 release after the system I used so fondly as an undergraduate student.

We fell into a semi-regular update cycle, and released the FreeDOS Beta 3 "Ventura" Distribution a few months later, on April 22, 1999. I live in Minnesota; we had elected former WWE wrestler Jesse Ventura as our governor the previous Fall, and he assumed office that January. By April, he'd probably done something really dumb, and I probably thought it was funny to use his name as the Beta 3 code name.

Around this time, someone started a discussion on the email list about the FreeDOS Project adopting a mascot. Linux had the penguin, BSD had the daemon, and GNU had the gnu. I thought a mascot would be cool, but I don't think I pushed the idea of adopting an official FreeDOS mascot because I didn't want to get distracted by the noise that would create. As a compromise for myself, I named the next Beta release the FreeDOS Beta 4 "Lemur" Distribution on December 29, 1999 as a way of "adopting" a mascot when we really didn't have one. I always thought lemurs looked cool, so I tried to insert the lemur as our mascot.

After a bit of a lag, we released the FreeDOS Beta 5 “Lara” Distribution on August 11, 2000. I played a lot of Tomb Raider on the PlayStation in the late 1990s. I think the “Lara” codename came about because I was really looking forward to the upcoming Tomb Raider Chronicles game (later released in November 2000). They advertised this as the last Tomb Raider game in the series, so I probably memorialized it in the Beta 5 codename. The title character in Tomb Raider is Lara Croft.

The next Beta release also marks a sad time for me. Our beloved cat Midnite died in March 2001 during the run-up to the next release. I named the next Beta after him, as the FreeDOS Beta 6 “Midnite” Distribution on March 30, 2001.

For the next FreeDOS release, I passed the distribution maintainer role to someone else. We released the FreeDOS Beta 7 “Spears” Distribution on September 8, 2001. I’m not completely sure about the origin of the name. I think this had something to do with Britney Spears. Her self-titled album Britney would be released in November 2001, and in September 2001 we would have heard a ton of her music on the radio to advertise the upcoming album. So we probably had that on our minds when we picked the codename.

Jeremy Davis posted the next version of FreeDOS, releasing the FreeDOS Beta 8 (“Nikita”) Distribution on April 7, 2002, and the FreeDOS Beta 8 H1 (“hot release 1”) Distribution a few months later on September 15, 2002. I’m not sure where the “Nikita” name came from.

We changed distribution maintainers again for the next version. Bernd Blaauw didn’t think we were ready yet for a Beta 9 version, so the next release was instead a release candidate. Bernd released the FreeDOS Beta 9 “Methusalem” RC1 Distribution on July 19, 2003. I suspect the code name came about because the Bible says Methusalem lived the longest at 969 years old, and Bernd might have been making a joke at how long DOS had been around.

After the Beta 9 RC1, we decided the codenames thing had run its course, so we stopped giving cute names to releases. The FreeDOS Beta 9 RC2 Distribution on September 1, 2003 was the first since the FreeDOS Alpha releases not to have a codename.

We sort of crawled our way towards the inevitable “1.0” by increments. I think everyone pretty much realized that the “1.0” release would be a big deal, and we wanted that version to be as perfect as we could make it. We weren’t satisfied with broken functionality, so each new distribution was a tiny step forward. We walked our way through the Beta 9 release candidates in several stages: the FreeDOS Beta 9 RC3 Distribution (September 28, 2003), the FreeDOS Beta 9 RC4 Distribution (February 5, 2004), and the FreeDOS Beta 9 RC5 Distribution (April 20, 2004)

With five release candidates, we felt ready to finally release the FreeDOS Beta 9 Distribution on September 28, 2005. We made some “service release” updates to the Beta 9 soon after: the FreeDOS Beta 9 SR1 Distribution on November 30, 2004 and the FreeDOS Beta 9 SR2 Distribution a year later on November 30, 2005.

We took three years to go through the Beta 9 cycle, but we wanted to make sure we were ready before the official “1.0” release. The following year, we finally felt FreeDOS was ready! We released the FreeDOS 1.0 Distribution on September 3, 2006.

The “1.0” release was a big deal. Every software project considers the “1.0” release to be a major milestone. It’s when you decide everything is stable and ready for prime-time. But after “1.0,” what to do next? We’d mostly achieved parity with MS-DOS. You could run pretty much any DOS program on FreeDOS, except some versions of Windows. And MS-DOS compatibility wasn’t a moving target. So many of us didn’t feel much need to create an update to the FreeDOS distribution for some years.

It would be almost six years before the next version of FreeDOS. We posted the FreeDOS 1.1 Distribution on January 2, 2012. Technically, the release was ready on December 31, 2011 but that’s New Year’s Day, and we didn’t want to make a major release on a holiday. So we waited a day before I released it on the website. But because we had transitioned our FreeDOS News system to use GMT time, not local time, the news item was stamped with a January 2, 2012 date. Ah well.

A few years later we’d started to collect enough updates to the FreeDOS core system that we decided to make a new FreeDOS release. But I wanted “1.2” to be more than a simple package update. I decided that our install program was very outdated. We’d continued to make updates to it since the Beta 1 distribution in 1998. I thought we should re-write the installer to reduce the number of steps to install FreeDOS. Jerome Shidel volunteered to write the new installer, based on a set of Batch script power tools. Jerome’s “V8” tools created a whole new install process, basically one smart Batch program.

Jerome made many “pre-release” FreeDOS distributions, ending with a series of two official release candidates before a final “1.2” version.

This time we decided to follow a holiday release cycle. Jerome released the FreeDOS 1.2 RC1 Distribution on October 31, 2016 (Halloween) and the FreeDOS 1.2 RC2 Distribution on November 24, 2016 (US Thanksgiving).

After much testing, and to much press coverage, we finally released the FreeDOS 1.2 Distribution on December 25, 2016 (Christmas).

And that brings us to today! What’s next? We haven’t had an official discussion yet, but a few of us are starting to think about the next version. We aren’t sure if the next release will be called “1.3” or “2.0.”

We do know the next version will remain 16-bit, with the focus on a single-user command-line environment, just like classic DOS. FreeDOS can’t be “DOS” if we change that. The next version will continue to run on old PCs (XT, ‘286, ‘386, etc), but will support new hardware with expanded driver support where possible. However, direct support for UEFI systems may be impossible.

Words from Pat Villani

Longtime FreeDOSers may recognize the name Pat Villani. For our newer members, Pasquale "Pat" Villani created the FreeDOS kernel, the core of the FreeDOS operating system. Sadly, Pat passed away in August 2011.

Pat and I were good friends. Although we never met in person, we chatted on the phone several times, and had lots and lots of email conversations, half the time about FreeDOS and half about just anything. And since Pat isn't here to share his FreeDOS story, I thought I could attempt to retell his story as best I can.

To start, I'll quote Pat's own words from his Open Source Depot website, where he shared the history of his DOS kernel experiment, which later became the FreeDOS kernel.

> DOS-C started in 1988 as an experiment in writing device drivers in C for Microsoft's MS-DOS. Both block and character device drivers were written, along with special C data structures to match the MS-DOS request packet. It was then recognized that using the same techniques, an operating system could be written that would take advantage of the C language features and would require much less time to develop than the traditional assembly language techniques. Although UNIX had proven this earlier, it was not tried with a traditional PC operating system. At this time, a minimal operating system using the device drivers written earlier along with a new 8086 interrupt API was developed. It was called XDOS and proved to be a functional operating system. This new operating system was used to develop booting techniques and a C library SDK was developed for it. XDOS enhancements were started in 1989 and MS-DOS was chosen as the new API. A more advanced architecture was also developed. This included the use of an IPL (intermediate program loader) to set up the operating environment prior to loading the operating system itself and reentrant system calls facilitating real-time applications. This version, known as NSS-DOS, was completed and demonstrated in 1991. As a result of these demonstrations, NSS was approached to supply source license for this operating system by a major defense contractor. The only new requirement - it had to run on 68K processors.
>
> This presented a new challenge. Due to the MS-DOS model used for the API, NSS-DOS relied heavily on a segmented architecture. To meet this challenge, a major redesign of NSS-DOS was undertaken. New proprietary techniques were developed that allowed the same source to be compiled on a variety of hosts and with a wide range of compilers. This new version, DOS/NT, was the result of this new project. The kernel was redesigned as a micro kernel along with logical separation of the file system, memory and task managers. A new DOS API was designed along with a new DOS SDK to guarantee portability. Additionally, all processor unique code was separated from the core functions. The result is the highly portable operating system that DOS/NT represents.
>
> After a number of successful commercial applications, DOS/NT became part of both dosemu and FreeDOS.

I'll pick it up from there, to fill in some details on how Pat's kernel became the FreeDOS kernel.

Pat wanted to contribute his kernel to an open source software project that would find it useful. I think it was late 1994 that Pat emailed the DOSEMU folks, asking if they were interested in his DOS-compatible kernel. The DOSEMU team thought Pat's kernel was really interesting, and suggested that Pat contribute his DOS kernel to the FreeDOS Project. The DOSEMU developers helped Pat get in touch with me.

Pat had created a DOS-like kernel that was feature-complete with earlier versions of MS-DOS, like MS-DOS 4 or 3.3. And Pat had licensed his kernel under the GNU General Public License, which meant we could include it in FreeDOS!

We immediately adopted Pat's kernel as the new FreeDOS kernel. Over time, other developers contributed to the FreeDOS kernel, including Aitor Santamaria, Arkady Belousov, Bernd Blaauwm Brian Reifsnyder, Charles Dye, Eduardo Casino, Eric Auer, Geraldo Netto, Jason Hood, Luchezar Georgiev, Ron Cemer, ror4, Steffen Kaiser, Tom Ehlert, and others. Some volunteered as kernel maintainers, including Jeremy Davis, Bart Oldeman, Jim Tabor, John Price. Among these many names, I'd like to give special kudos to Jim Tabor, who forklifted our kernel to support network redirection. Without this feature, FreeDOS would not have network and CD-ROM support.

In early 1996, Pat wrote a book about the FreeDOS kernel, describing its development and function, by way of teaching others how to create a DOS-compatible kernel. You can still find Pat's book on various booksellers, including Amazon: FreeDOS Kernel; An MS-DOS Emulator for Platform Independence and Embedded Systems Development.

Fritz Mueller

Computer parts were rather expensive in 1999, so we had computer flea markets in my city and other neighboring cities. It was on a Sunday that I drove to a city about 50 miles away. One of the traders was selling CDs with the “FreeDOS OS” on it. As the price was only a few German Deutsche Marks, I bought a copy. Later, I learned that FreeDOS was free software.

At home, I tested FreeDOS and noticed that there was only a boot disk on it, but most other necessary programs were on it.

I searched Google for FreeDOS and found the website and downloaded extra tools. It was not as stable as MS-DOS, but it worked fine on many systems and it was much smaller than MS-DOS. I could run the OS and the backup tool I used at that time from one disk, which made work much easier!

At work, I developed a Windows 98 DOS Boot CD with a lot of programs on it which could be started by a simple batch menu. I used this to run different backup tools, virus checkers, hard drive wipeout tools, etc. As parts of this software were not open source or freeware, I developed a bootable FreeDOS CD with 135 free games on it. This worked well, but you had to save game results on a diskette so that you could continue the game later.

While working on the FreeDOS games CD, I noticed different bugs and reported them to Eric Auer, the maintainer of several FreeDOS tools. I do not remember how it happened exactly, but one day I had the idea to translate the Help documentation to German. I thought I could do this within a few months, but it turned out I needed about four years for this job—with some interruptions, of course.

I started with translation. Then I noticed that some of the Help texts, which are a part of the different files from each package by different programmers, were out of date, options were added or removed, or programs of other programmers were in use. The Help files looked different, the links did not work, etc; simply spoken, it was almost impossible to rely on the previous version of the Help files.

First of all, I tried to find the latest version of each tool. I ran the program /? function to get the correct syntax and options, then started to correct the English version of the Help documentation. But the English information was wrong too, so I had to read the English manuals and add them in the English translations for the Help files. As English is not my first language, I may have slipped in some bugs; I beg your pardon for this.

Next, I added relative hyperlinks to other Help documents and checked that they were correct. In later versions, I found some tools which helped me a lot, such as multi-replace, a tool to test all links, and a tool to test if the HTML source code is correct. Additionally, I had to look for line breaks after 80 characters in the HTML code so that the DOS browser showed the text correctly. Finally, I was able to start with the German translation. FreeDOS Help 1.0.6 had more than 100 English HTML sites with a lot of expressions from the readme.txt files that I had never heard before, because I am not a programmer, only a trained user. But eventually, the last translation was done and I could publish FreeDOS Help 1.0.6.

Version 1.0.6 was still a little buggy, so I did an update to 1.0.7 shortly after. This must have been in Spring 2008. Also in 2008, I made a trip to the United States and met Jim Hall in Minneapolis, Minnesota. This meeting encouraged me to finish this job.

I added the article Networking in FreeDOS in the Help documents. It was from a German journalist, written in English, and I got his permission to add it in the Help files. As time went by, I had other things going on, and one day I got an email from somebody on the FreeDOS team saying they planned to release version 0.9 or 1.0. Now I had to hurry up! With the help of another German speaker, we got it. Of course, like always, there were some minor bugs inside.

Additionally, I made an Internet version which has more internal links than the DOS version, as the built-in Help browser does not need them. Adding them was a hard job, as the German and the English DOS versions each have about 320 HTML files, so all together that’s more than 640 HTML files! All links had to be checked for accuracy. Without the tool, I would still be working on this. Eventually FreeDOS Help 1.0.7a was out. Even today, I have no idea why some people still use older versions of Help. You should not find a broken link or malformed HTML code or a line breaking text in Help 1.0.7a.

I just checked the DOS file download site and noticed that version 1.0.7 with Spanish translations is out. I had a closer look at the Spanish HTML files and noticed that the translator seems to have given up after about 40% of the translation. I can understand why; it’s a lot of work for one person! It would be fantastic if this job could be finished.

Luca Ferrari

I found the FreeDOS blog challenge while reading one of my planets, so I decided to share a few lines about my personal experience.

Back in the days when I was a little, young developer just kicked off by the university, I found a job where I was supposed to use a fourth-level language—something I would hate for the following years. The development chain was awkward. While the production machine was a Linux system and the deployment was done on a Linux server, the development machine ran on DOS. You could develop and compile applications on Linux, some Unix, and DOS (or better, a Microsoft Windows including a DOS). Installing the compiler on a Linux machine was a real pain, so I worked on Windows XP and its DOS installation.

Another reason to stay on the DOS side of development was that the source code used cp850, shorthand for code page 850, which is a set of characters used to create frames and decorations. While such characters were really popular on the DOS side, they were some kind of alien character for any decent Unix like machine. Let's say that opening a cp850 file on my editor of choice, Emacs, resulted in it displaying a full mess of strange letters.

Therefore, to be able to develop, I had to boot my laptop on Windows, open the DOS prompt, and interact with all the DOS basic programs and commands, like the text editor and FIND. Deploying was as easy as copying a file from the DOS box to the Linux server via either a Secure Shell or a remote shared drive.

It was not the most comfortable development environment for me, since I was a "Unix-inside" developer, and I was also coming out of university where I saw a lot of shiny, brand new development tools like Eclipse.

I started thinking about ways of running the DOS compiler on my Linux box directly, which led me to FreeDOS. The problem was that I needed to run both FreeDOS and Linux at the same time. I used FreeDOS to get command line power and used Linux to run the required compiler and tools. I hear you saying, "virtualization to the rescue!"

Not so easy pal! Back in those days (2003) virtualization was not as widespread as it is today, and the only tools available to me were Unix chroot jails or VMWare. Unfortunately, booting a FreeDOS machine via VMWare on my poor Intel Celeron 733 megaHertz CPU with 192 megabytes of memory was not an efficient idea. Therefore I was forced to throw away the idea of using FreeDOS for that purpose.

This experience pushed me to better study the compiler and face the problem of installing cp850 on my Emacs editor, as well as configuring the terminal to use the compiler entirely on Linux. I never came back to the Windows-DOS couple for my development.

After a few months, I had to manage another ancient machine used to send out faxes. The machine was bare metal directly attached to a modem on its own phone line, running a DOS program to send faxes. Due to a hydraulic problem, that lead to water flowing literally through that machine, the machine blew out, so I had to replace it. Of course, it was not possible to find both a decent running copy of MS-DOS and a machine with an Hylafax server. Luckily, I had gained a little experience on FreeDOS, so I decided to run that version on the fax machine. Several years later, I got an email from a previous colleague of mine telling me that they have turned off the fax machine. The machine ran FreeDOS for over six years without any problem!

Let's be honest here, the job of the machine and the operating system was not so complex in this deployment, but I think it is great to have an open source project like FreeDOS that allows anyone to run ancient programs and access data—even years after the program's developers have moved on!

So what about today?

I believe it is a lot easier to run FreeDOS today, and in fact I've always had a virtual machine around with a recent version of FreeDOS that I use to run my twenty years old C programs I made in school.

I would like to say thank you very much to all the developers, maintainers, and everyone else behind the FreeDOS project. Unlike other free operating systems that often share a common architecture and execution runtime, this one is especially important in my opinion because it allows us to run programs no other operating system could.

Imre Leber

I started programming when I was fourteen years old. At the time, my family had just bought an entry level computer: an 80386SX-25 CPU with two megabytes of memory and a forty megabyte hard disk drive. Money was tight, so I was unable to upgrade until I was nineteen years old. So, I just kept myself busy with the computer as it was. At the time, it ran DR-DOS. You should know that at the time, computers were more for the tech-savvy people. You couldn't do much with it! Apart from playing a few simple games, if you had a computer, you usually had it to know the ins and outs of it.

I think it was the simplicity of the MS-DOS system that allowed me to become so knowledgeable about it. You could really understand its shortcomings and think of ways to improve on the basic concept. At the time, there was also a lot of information available about ways people had tried to extend the life of the system. There were lots and lots of small tricks that seemed very clever at the time.

I got interested in finding some of my own clever tricks. The most clever of which would be building multitasking into the system. I thought about how cool it would be to have the source code to the system so you could really play with it. While studying computer science at university, one day I stumbled upon a little thing called FreeDOS, which intrigued me!

I looked at the FreeDOS source code and discovered it had something they called the kernel and some other programs. I was just starting to program in C—I had been mostly programming in QuickBASIC 4.5 up to this point—so I skipped the kernel, but did manage to make some important changes to the Diskcopy program. I decided to send it to the Diskcopy maintainer, who asked me to continue development on it, which is how I became a maintainer on the FreeDOS Project.

I played a lot with the code for Diskcopy and added a lot of features which made the program very powerful. Very much on par with some of the shareware offerings that existed prior. As the code became bloated, I started to look into some of the programs that didn't exist yet in FreeDOS, and decided that I was going to implement Defrag. I had no idea how one would even write a defragmentation program, so I started out implementing the functionality that I did know how to implement which was the user interface. This is why, for quite a while, the program was known as an empty shell that didn't do much of anything.

As a student of computer science, I also tried to do everything in a structured manner, which led me to build a library to manipulate the FAT file system, which I called the FAT Transformation Engine. With this, I did eventually complete Defrag and implemented Chkdsk, but it all had taken so much time that people had gotten tired of me always promising things.

Then there were also the odd projects that seemed to need work, like Move, which I also worked on occasionally.

After some years working on FreeDOS, life had put too much strain on me to continue. See, work for FreeDOS programmers wasn't exactly booming, which is not to say there wasn't any work at all. I don't really regret working on FreeDOS, it is a testament to how careless my childhood had been. Prior to graduating from university, I had never even thought about what I would do after school. This forced me to go back to school again, and because of that, I simply dropped of the mailing list until so much time had passed I forgot about FreeDOS altogether. Then, I implemented a program called Emulare which was an emulator for the Arduino micro-controller, which is when I really moved away from FreeDOS to do other things.

I loved my time being part of the FreeDOS Project. It was an amazing time. The term open source had just been coined and being part of open source software, through FreeDOS, made me feel like I was part of something bigger than myself. For years, it felt like we were going to revolutionize the world, like we were building something that would enable people to get out of poverty, to work on things they were passionate about, and not have to depend on day to day earnings to survive.

We were also the last generation to create open source out of thin air. We still had to create everything ourselves. We had no compiler or libraries, nothing but a willingness to succeed. After us, there came a new generation of open source developers, projects that re-used other code libraries, people with more commercial and less ideological ideas. HaikuOS started in 2001 and was a clear departure from our way of thinking about what open source should be.

Shane Coughlan

Every journey has a beginning. OpenGEM was the beginning of mine in Open Source.

I grew up in relative poverty for my generation in Ireland. The first computer in my home was provided by a family friend when I was seventeen years old. It was an Amstrad PC 1512, originally built in 1986, and a decade out of date in 1997. The computer had a copy of MS-DOS 3.3 installed, a twenty megabyte hard drive with bad sectors, and little else except an accompanying user manual with a reference to a graphical desktop called GEM.

I diligently learned how to use DOS and I kept returning to the manual to review GEM with a certain twinge of curiosity. I did not have a copy of this software, I was not sure how to get it, but I felt sure it would be useful. My eleven year old sister was struggling to use DOS despite the batch files I created to automate tasks. But a graphical user interface...it held promise.

Eventually I tracked down a copy of GEM via a gentleman who collected old software (and later became a great friend) and installed it on my computer. It was crisp, clean and it solved some of the major problems my sister had faced while using DOS. This boiled down to making it easy to manipulate files. It was simple to click, select and drag or drop files to move them, copy them or delete them. Small things that completely transformed the user experience.

Around 1998 I bought a cut-price modern(ish) computer built from recycled components with a very early version of Windows 95 installed. This, in conjunction with a 33.6 kilobits per second modem, brought me onto the Internet with blazing speed. Well, tolerable speed. For the time. It was a little like watching paint dry.

One of the first things I did when connected to the Internet was search for information about GEM. As wonderful as it was to have a connected Windows computer, it had been a long path to get there, and I felt there must be other people who had faced the same journey. I had a vague idea that it would be great to make technology like GEM more easily available for people with old computers and family members who did not particularly like the command line.

I quickly discovered FreeDOS and then the FreeGEM community. I was astounded. Instead of having to scrounge around for old and often broken floppy disks with original software in flea market sales or from generous friends who had stored their unused technology, here were communities rebuilding software from scratch and sharing it with the world. It blew my mind. After using DOS 3.3 with all its limitations, finding FreeDOS and its goals to be better than DOS 6.0 was simply outstanding. And you could ask questions! And the project participants would reply! And sometimes they improved the code based on feedback!

I joined the FreeGEM mailing list and became a small part of their community. First I tested the existing software and then I began to ponder what I could give back. It came back to “what would my sister want?” As noble as FreeDOS and FreeGEM were, they were both pretty technical to download, install and use. I felt that there was room for making things much simpler, and that perhaps—even with my limited skills—this is where I could make a contribution.

The OpenGEM project was born. As with most Open Source projects it started modestly. The launch announcement was on July 12 2002:

> Hi guys. I’m put together another beta of a new GEM distro ... I need help with smoothing out the problems and with getting the thing in order. The basic idea of this distro is to create a GEM distro that installs and runs without hassle.

I built on top of the FreeGEM 1.2 distribution by Owen Rudge and used a lot of the code collected by Ben Jemmett on his excellent Deltasoft website. Most of my contribution was in collecting the latest versions of the packages and working on having some scripts to try and set things up or adjust things in as automated a manner as possible. This was wrapped in a simple website, some documentation, and designed—though I lacked the vocabulary to describe it at the time—as a way to make on-boarding to using GEM as simple as possible.

OpenGEM grew to become the most popular GEM distribution and had six major revisions, eventually becoming an official FreeDOS package for that project’s 1.0 release cycle. I was tremendously honoured to have become part of a community that had given me so much, and to play a small part in making computing more accessible to other people. The FreeDOS and

FreeGEM communities were where I discovered and understood the potential of open source software.

Even today people are downloading and using FreeDOS, and I even occasionally get a question about OpenGEM. I may have stopped development in 2006 due to other commitments, but I have not forgotten about this community, and I try to respond in a timely manner when people reach out. DOS is a learning tool now, with Linux used by people seeking productivity, but it still delivers value all across the world.

There is a long tail of computing that goes far beyond the short life-cycles of product releases. There is a world full of people with old devices, with curiosity and with a desire to improve things. Open Source is an interesting approach to software because it allows both the commercial and the non-commercial users of code to accomplish their goals. It inherently enables all types of evolution and revolution around implementations of or approaches to technology. Use, learn, share and improve is far more than a mantra. It is a methodology that has transformed innovation.

OpenGEM, Enigmail, Mobility Project, FSFE, OIN… My journey through Open Source has evolved from projects to governance to building bridges for more than a decade. I'm curious as to where it will take me next.

Marti Van Lin

Since the late 1990s, I have been interested in emulators, which lets me run software for my previous beloved computer systems (MSX2 and Commodore Amiga) on a Pentium PC.

To share fun software with my brothers, I created and released the Multiple Computers and Operating Systems (MultiOS) CD-ROM series. Over the years, I added more "alternative" operating systems for the Intel CPU architecture, including Greycat Linux, ReactOS, Minix, and my own favorite: FreeDOS.

I didn't just slap together disk images on MultiOS. I actually tested the operating systems on bare metal. I actually ran FreeDOS 1.0 on a physical Pentium PC.

But these days, I mostly run FreeDOS in VirtualBox and DOSemu on Linux systems. I even run FreeDOS via DOSBox on my Raspberry Pi.

I run WordPerfect 5.1 (which supports one of my printers using Postscript), Ashton Tate dBASE IV (which tracks my album and CD collection), many of my favorite "old school" games, and Microsoft QuickBASIC 4.5.

That doesn't mean that FreeDOS is old school only. To the contrary, FreeDOS is a modern operating system that supports multimedia and networking, including DHCP. This is in contrast to MS-DOS, which did not. You should really give the excellent Dillo web browser a try on FreeDOS.

Another great advantage of the FreeDOS 1.2 release is its excellent package manager, FDIMPLES.

I prefer to run the FreeDOS 1.2 installer in Advanced mode, which will prompt you to start a user friendly Slackware-ish package manager.

FreeDOS might not be my primary OS, yet I use it on a daily basis. FreeDOS is a wonderful operating system every geek deserves.

Dr. Owain Kenway

Generally, I'm a tinkerer. I like playing with things: taking them apart and fixing them. I do this in my day job looking after UCL's supercomputers, but I like to have some systems at home to play with. If I'm honest, I'm attracted to unusual, old pieces of technology, such as old programmable calculators, old computers.

A while back, I went looking for something to do with my ancient ASUS EeePC 701 Netbook, which had been sitting in a drawer for some time after several years of service during my PhD program. For a while, I planned to install a 32-bit Ubuntu server, but its meager specifications (256 megabytes of memory, and 4 gigabytes of storage) made this a struggle. Then, after watching Lazy Game Reviews of old DOS computers, I had an epiphany: while my EeePC was going to struggle to run Linux, it would be an excellent DOS machine. I don't care about networking on machines I tinker on. And indeed, due to my security paranoia, networks on old machines are an anti-feature!

Then came a hunt for a DOS. My MS-DOS 6.22 floppies from twenty-three years ago were long gone. I wanted PC-DOS 7.0 because it had REXX, which I wanted to play with more, but it was quite hard to find legitimately. I'm not a fan of piracy, even for abandonware. So I decided to try FreeDOS.

It was a little bit of a struggle to install on the machine, because the EeePC 701 is quite old, and my USB DVD drive really didn't like the format of the installer. FreeDOS could boot but not see the install files. But thanks to the installer being well-written, I hit upon a workaround: boot off the CD-ROM installer and read the install files from a separate USB stick.

After an evening of prodding it I had a working machine!

FreeDOS works pretty well on the EeePC. I haven't tried networking yet, and the APM power-control tools aren't able to read the battery status, but hardware indicators work. Overall, it's a great little development machine.

Even better, FreeDOS comes with a massive stack of packages to get you up and running, including the 4DOS shell and the OpenWatcom compiler, which used to be commercial products in my childhood, and which were regularly advertised in Byte Magazine. FreeDOS has a friendly, Linux-like package management tool for installing software, which is great.

Here are some great, useful packages that come with FreeDOS:

4DOS
An enhanced shell.

OpenWatcom C/C++
The open source version of the "gold standard" C/C++ DOS compilers from the 1990s. Also includes DOS/4GW!

Regina REXX
The same REXX implementation that I use on Linux.

FreeBASIC
A BASIC compiler that is similar to QBASIC.

Doszip Commander
A Norton Commander or Midnight Commander clone.

OpenGEM
That "other" desktop environment from the early 1990s.

Games
Not actually useful but fun.

In addition to the provided tools, most (or all?) DOS software works on FreeDOS, and so do the standard set of packages I added: VIM for DOS, and the OpenWatcom F77 compilers.

I also added a USB floppy drive to both this machine and to my Linux machines for that little bit of "retro flair" when copying files between them. USB mass storage devices such as hard drives work on this machine as long as it's plugged in at boot.

What do I use this machine for? It's mostly a machine for doing some hobby programming in Fortran. The EeePC 701 is ideal for the task as it's extremely portable. It's also stress- and distraction-free. I don't have Twitter prodding me in the background. No email or YouTube videos to distract me. And I don't have to worry about security patches or updates as the EeePC is not connected to any networks. Instead, I can focus on writing code.

For the same reasons, the EeePC is an excellent machine for taking notes at meetings. With no distractions, I am forced to pay attention to what is going on in the meeting. Notes written, then copy the files onto a floppy and transfer them to my main Linux machine. The joyous "retro click" of the floppy drive always drags me back to my computers from the 1990s.

The FreeDOS system is simple enough that tinkering on it while understanding what is going on is easy. One of my frustrations with Linux is that, over the last decade, it's become increasingly Windows-like in its complexity. This is arguably necessary to provide a modern desktop, but it is deadly to understanding how it works. FreeDOS is simple in a good, old-fashioned way. FreeDOS is easy to learn and easy to learn things on. There is over thirty-five years of software available. DOS is pretty well documented. And FreeDOS runs on modern hardware.

Perhaps the biggest surprise is that FreeDOS seems modern and easy to use for software development. The workflow for coding on the machine is different from what I do on Linux only in that I don't have ***git*** available. Even though I'm using compilers from the 1990s, a user interface from the 1980s, and VIM. Both the FreeDOS COMMAND.COM shell and 4DOS have tab completion, although it works differently from ***bash*** on Linux. If you really need them, Unix-style tools are available for FreeDOS. Watcom's ***wmake*** is a fairly adequate implementation of ***make***. As a result, I've tackled my first largish Fortran 77 project pretty successfully: my implementation of Conway's Game of Life on FreeDOS with Codepage 437 graphics.

Overall, if you have a spare machine lying around and want to do some programming, or are just hankering after a "retro system" to play with, you should try FreeDOS. You'll learn a lot about what makes the machine work, and you'll have a lot of fun. The community on the mailing lists and twitter appears friendly as well.

Gregory Pietsch

I stumbled across FreeDOS around 1998 or so. At the time, I was familiar with MS-DOS, having used it since around 1985, and thought, "Okay, this group wants to build a GPL'ed version of MS-DOS, that shouldn't be too hard." So I decided to contribute a couple of programs. One of them, named "Code", is an encoder and decoder for uuencode, uudecode, xxencode, and xxdecode. I thought it was especially useful and could have been expanded to handle other base-64 encoding schemes.

A few years later, I got a bit more ambitious. I wanted to get something in the FreeDOS Base distribution with my name on it. I noticed that FreeDOS didn't have a version of Edlin, the line editor from the early days of MS-DOS. I figured, who cares if nobody uses this program anymore, that's my ticket into FreeDOS Base. Of course, I had to write it along different lines than the original. The original was in tight Assembler, so I wrote mine in C. After several false starts and a week of programming, I finally had something usable, and submitted it as FreeDOS Edlin 1.0.

I organized FreeDOS Edlin around three tiers. The top tier parses the input and calls the middle tier, a library called edlib, which calls the string and array-handling code to do the dirty work. Internationalization was originally achieved when all the literal strings within the code were made into macros that could easily be swapped out. FreeDOS Edlin is currently the most internationalized program in FreeDOS, with translations into nineteen languages so far. (Japanese was the most challenging from a technical standpoint; I had to include support for Shift JIS multibyte characters. Fortunately, most of the glaring technical atrocities were fixed by a team within Japan as a patch to Version 2.1. I asked for permission to add the Japanese effort to my own.) Sadly, this is part of the reason I do not release executables along with the source code. I would have to know what compiler, what language, and what environment to use to compile FreeDOS Edlin. Since the number of compilers, languages, and environments multiplied together would be in the hundreds (and possibly thousands), I'd rather release the source and have others recompile it.

Since then, I have debugged FreeDOS Edlin when I have needed to. I attempted to add FreeDOS catalog internationalization support to it with varying degrees of success. I also made it easy to take apart. A programmer could use the back end of Edlin as the back end of an editor like Edit, or reuse the string and array-handling bits if they wanted. I also got it running on various versions of Unix and Linux as well as MS-DOS and FreeDOS and made sure it compiled on OpenWatcom 1.9 as well as gcc. The configure system used allows for the flexibility.

Also, every time I upgraded Edlin, the new version came with a note written by me to Jim Hall, who published it on the FreeDOS site. These pronouncements usually contain a lot of braggadocio without being too overpowering, and I sometimes try to top previous installments. I got the idea for that from the original Rotisserie Baseball book. On page 190, in the "Publishing a Newsletter" section, the idea is that you have to sound like a TASS editorialist on May Day in your pronouncements, even if your program is not very useful. It was the least I could do.

Joel Graff

I grew up on DOS. My first computer was an IBM PS/2 Personal Computer, Model 30. At that time, the IBM PC came with a low-density 3.5-inch floppy drive, a 10 megabyte hard disk, MCGA display, 256-color graphics, and a 24-pin dot matrix printer. All for the modest price of $3,495.

The IBM PC was expensive, but it was a valuable addition to our family and it drew me into the world of computing. I had gotten a taste of gaming and BASIC programming on a VIC-20 computer, but the IBM PS/2, preloaded with MS-DOS 3.31, introduced me to a system with configurable hardware and a fully functional operating system. It was an entirely different and far more powerful experience than the old VIC-20.

I quickly grew to love DOS, and it wasn't long before I mastered nearly every facet of it. By then, I was coding mouse hardware support in GW-BASIC thanks to my buddy who shared with me a book about DOS hardware programming. It was that direct, low-level access to the computer system and its hardware that kept me coming back to programming in DOS.

DOS wasn't a complex environment. It was quick, clean, and simple. But then, the computing environment it had to manage was small and limited. There was no Internet, no Cloud, and no mobile platforms. "Scalability" wasn't a word. Even if it were, DOS wasn't going to have anything to do with it. It's the lack of complexity in DOS that afforded the ability to master a hardware domain which, in retrospect, it accomplished with remarkable simplicity and efficiency. It wasn't a bad way to be. My entire digital life could be contained on a single, 720 kilobyte floppy disk.

As time moved on, my interests changed. Life in general had much to do with it, but I can honestly say that Windows replacing DOS as the standard gaming platform gave me little reason to pursue my gaming interests. Being a developer didn't hold much appeal for me when Windows, with its arcane API dominated by Hungarian-notated commands, appeared to be the only commercial future for software developers.

So I did something else with my life. But I never gave up entirely on computing.

These days, I'm a Linux and open source software nerd. I abandoned Windows when I saw the Windows 8 ship sailing and I haven't looked back. It's been a challenging, but great experience. Still even Linux, for all its terminal-level coolness, just doesn't compare to the experience of working at a DOS command prompt. And while I didn't have any real need for my DOS skills, those old DOS games seemed to always go with me, wherever I went, just waiting for something to happen.

Preserving those games had always been in the back of my mind; I knew I needed to do something about it. I toyed with DOSBox in the past, but using it didn't really encourage me to dust off my old software floppies. Then I discovered FreeDOS, and it got me to take a second look.

I downloaded the FreeDOS install CD-ROM and built a virtual machine with it. QEMU made quick, easy work of that. Booting FreeDOS for the first time was a blast! I discovered I had somewhat missed the C:\> prompt with its patient, blinking cursor. After only a few minutes at the FreeDOS command prompt, I surprised myself with how much I remembered about DOS, and with how faithfully FreeDOS preserves the DOS computing experience. Because of that, I had little difficulty working out the unique features of FreeDOS and taking advantage of some of the goodies (like Ethernet support) that, while not part of the original DOS experience, have been implemented in a way that's really appropriate to it.

I finally dusted off my old floppy disks and got a floppy drive. Mounting the virtual machine image under Linux to copy data files in was simple. A couple weeks later and I had copied over most of my old floppy disks. Unfortunately, several were unrecoverable, which I expected, but enough had survived to preserve most of my gaming library.

Reliving my old gaming days has been a great experience. I don't really need FreeDOS to do it. I can dig up some original DOS floppies somewhere and make it happen, or I can use DOSBox. They're both good options. But FreeDOS gives me a true, open source DOS environment to use, which beats either proprietary DOS or an emulator.

The real advantage, though, is using FreeDOS in a virtual machine.

Using a virtual machine means I can contain my entire software library in a single virtual disk file. This makes my entire DOS library easily portable to different machines and platforms and even easier to preserve. The fact that I can preserve a snapshot of my entire DOS life is really awesome.

The best part, though, is that the FreeDOS project is alive and well. Because it's a genuinely useful operating system that's great for low-resource applications, people care about it. That means it's going to stick around for a while.

Jerome Shidel

My FreeDOS story began many years ago in the pre-DOS days. An early version of MS-DOS may have been around, but it definitely was not a big thing yet. It brings back fond memories.

I was nine years old, lying on the living room floor and hoarding the television with the Sinclair ZX80 powered up and its manual opened. I was teaching myself to program its 1 kilobyte of memory with that terrible membrane keyboard. It wasn't long until my father got me the enormous 16 kilobyte RAM add-on module. That was a lot to fill back in those days. When you bumped the ZX80, it would reset that extra memory module. Next came that incredible Atari 800XL and the Coleco Adam home computers. Then, my father got a Laser XT and we moved into the reign of the 8086 CPU and MS-DOS. I spent many wonderful winter days sitting up in the attic with a space heater blowing under the desk, waiting for the keyboard to warm up enough for the computer to boot without errors.

After several years, Windows 3.1 became popular, but I only had limited use for it at the time. I still spent most of my time wearing out keyboards programming odds and ends in DOS.

In 1995, Microsoft broke my heart with Windows 95. It looked so new and cool. I was so excited to give try it on my almost new $5000 notebook computer. That would be pricey now, so imagine that in 1995 dollars. I went over all the requirements. Every specification met or far exceeded what it needed. I was ready to rock Windows 95, or so I thought. Part of the way through installation, the notebook all of the sudden went to a black screen. The install trashed my video BIOS firmware. According to the manufacturer, I would have to send it in and have some chips replaced. Not the patient sort, through a lot of trial and error, I was able to just re-flash the BIOS and get it working again. But it would never support Windows 95.

At that point I started to look around the internet for alternatives to Microsoft products. I messed around with Slackware Linux and other DOS systems, like PC-DOS. Even though I eventually grew to accept what happened in the Windows 95 debacle, I never did truly forgive them. I can really hold a grudge, even now.

I have been aware of FreeDOS since its early days in the late 1990s, but I did not use it much back in those days. FreeDOS was still in its early alpha stages. There were also several other DOS distributions and Linux platforms that I had favored at the time. However, I did install some of those early versions and played around with them a little. I found it interesting that unlike many of the commercial versions of DOS, FreeDOS was not stagnant and was slowly progressing. I figured that I needed to keep an eye on that crazy FreeDOS project.

Fast forward nearly 20 years…

Generally speaking, I'm not much into any of the social media stuff on the web. So it was kind of unusual when, back in March of 2015, I was wasting time on Facebook. I was looking at Facebook pages and groups for some of my interests. OpenSUSE, bash, Delphi, Pascal, assembly, and FreeDOS. I thought to myself, "Huh? What? There is a FreeDOS page on Facebook? Wow! Neat."

I was quite surprised to find out that there were still several very active DOS communities around the world. It was pretty weird in a cool way. I figured I should do something nice for them. I perused some of the programs that I wrote back in the early 1990s and decided to make some of the stuff open source. Most notably was "Program Manager v7.2," a multi-menu program and game launcher. Program Manager's most recent update was way back in 1992, yet it was well received by the FreeDOS community. I also decided to do more.

That led me to do a complete rewrite of Program Manager using more modern concepts and techniques. I went a little (ok, a lot) overboard: theme-able, multi-language, custom fonts, screen savers, etc. Like FreeDOS, The Program Manager Eternity (PGME) was reborn to live forever.

During the development of PGME, it was brought to my attention that Jim Hall was looking to create a brand new installer for FreeDOS. Something that looked more modern, was easier to install, and was powered by batch files. He was looking for something that could use some "simple" command line utilities to install FreeDOS. A set of tiny non-memory resident utilities that can interact with each other to create a text mode UI for batch files. All the logic for the batch program to reside in the batch. Use no memory, yet provide batch files with enough functionality to build a flexible and simple installer. It sounded interesting. So I said, "Sure, why not."

I volunteered to create some GPL'd tools that could do the job. There were a few naysayers that thought it could not be done or just wouldn't work, but most were excited that a new FreeDOS release might be coming soon.

As you may know, one thing tends to lead to another, and I created V8 Power Tools. As the foremost expert on the usage of V8PT, I wrote a set of batch tools. I volunteered to create the new installer and work began on FDI, the new FreeDOS Installer. There were many enhancements and additions to V8PT during the development of FDI. It was a long and slow process, jumping back and forth between them as new needs arose, but the work progressed.

There was a lot of back and forth with Jim during the development of FDI, lots of design, workflow, and other decisions. I needed to coordinate all of the additional languages supplied by the community, so the new installer was quite a lot of work.

After dozens of public beta tests and two Release Candidates, we released FreeDOS 1.2-Final on Christmas Day 2016.

Then of course there is FDIMPLES, the FreeDOS Installer "My Package List Editor Software." I originally created it specifically to provide detailed package selection for the Advanced Mode of FDI. Its only purpose was to modify the package list used during installation. But, as so many plans go, it didn't stay there. It was just too cool for installing and removing packages. I have big plans for FDIMPLES.

Many thanks to the FreeDOS community for all their help during the development of FreeDOS 1.2. They are a wonderful community with many great people. Without their efforts this release would not exist.

Nowadays there are several other areas that keep me busy with the FreeDOS project. But that would be a tale for another day.

Catharinus van der Werf

I grew up with MS-DOS. I used it since 1988, when I bought my first computer, a Commodore PC-I without a hard disk drive and with two 5.25-inch floppy disk drives. The first thing I did on that computer was build an application in Dynamo, a program that was used at the Wageningen University.

I soon discovered DEFRAG, which sped up the execution of MS-DOS programs. I created software programs in my work, so it was important not to lose that. That's why I used PC Tools Backup to backup the complete partition to a series of fifteen 3.5-inch floppy disks.

My next computer was a Pentium that ran Windows 3.1. Because I did not know what to do with that, I replaced Windows with MS-DOS. I continued making backups on that computer with PC Tools.

When I started using Windows 95, I became inspired. But because the computers and partitions grew bigger every day, backing up on floppy disks became a time-consuming problem. Since then, I have used Norton Ghost to backup the working partition to another partition on the same computer. That is how I still work at the present time: I a multi-boot system that contains Windows 10 and FreeDOS. When I boot to FreeDOS, I start Ghost and make a backup with it. Backing up with FreeDOS works well.

When FreeDOS 1.2 arrived in December 2016, I immediately threw away all my MS-DOS floppy disks. FreeDOS 1.2 was the first DOS version that could easily be downloaded, installed on a USB flash drive—MS-DOS does not provide such a wonderful attribute—and after that installed on a FAT32 drive. Since then my computers no longer have MS-DOS on them, but only the wonderfully working FreeDOS.

Sparky4

Here is my take on FreeDOS: I discovered FreeDOS in mid- to late-2007, when I got a computer technician “Starter Pack.” It was a broken Gateway 2000 computer from 1997 with an Intel 80686 Pentium-II CPU, a Knoppix Linux install CD-ROM, and a FreeDOS 1.0 “Full” install CD-ROM. FreeDOS 1.0 was the latest release.

I installed FreeDOS on my main computer, but I did not know enough about how to boot into FreeDOS. Over time, I started using FreeDOS more on a Packard Bell computer that I had, which I got for free. I used MS-DOS sometimes, but I grew to love FreeDOS much more than MS-DOS.

I use this cute and awesome operating system on all of my computers. Even my newest computer has it, although I wish it had a network card and sound card that worked with FreeDOS. I happen to own an original IBM Personal Computer XT, Model 5160 and a generic 80286 PC clone. They both run FreeDOS.

These computers are also extremely fancy, with VGA graphics, Sound Blaster sound, massive hard drives, and networking. I got this for a reason: Higanbana Project, code-named “Project 16,” a new game to play on these computers. This game requires VGA and OPL2 sound for maximum “radness,” so I’m testing the game on those computers.

Today, I still use FreeDOS. In fact, I wrote this article using FreeDOS with FreeDOS Edit 0.9a. I know this editor is bulky on the IBM XT, but it runs fine here.

Erwin Waterlander

I have good memories of DOS. In the late 1980s and early 1990s, I used DOS mainly for playing games and text processing. Around 1996, I started my programming hobby on MS-DOS. Like many at the time, I didn’t like that MS-DOS was going to be deprecated. I used MS-DOS until about 1999 when I started using Windows 98SE.

On Usenet discussion groups, I learned about FreeDOS, probably around 1997. For several years, I was on the FreeDOS mailing list. It was nice to see a large community of DOS enthusiasts. This kept me supporting the DOS platform.

I first contributed my Wherever Change Directory program (“wcd”) to the FreeDOS utilities in 1998. Later, after 2009, I added a program to convert text files between DOS and Unix format (“dos2unix”). The FreeDOS community gave me lots of useful feedback.

I ran FreeDOS 1.0 in QEMU, but now I run FreeDOS 1.2 in VirtualBox. I have to admit that after 1999, I did most of my programming for DOS in a command window on 32-bit Windows because that worked for me. I have also used DOSBox for gaming. I use FreeDOS nowadays only for porting my programs to DOS. I will keep on supporting FreeDOS as long as I can.

Rugxulo

In 1994, I got my first 80486SX-25 computer with 4 megabytes of memory running MS-DOS 6.0 and Windows 3.1. Obviously, it was very underpowered compared to computers now, but it still had a lot of good, irreplaceable software—mostly games like King's Quest 6, which utilized VGA, CD-ROM, SoundBlaster 16, and the mouse to great effect.

For a few years, I was calling lots of bulletin board systems via dial-up modem, but most software was shareware (or worse, nagware). It was very frustrating! Eventually, I decided to learn programming just to avoid all the "BS." Luckily, even back then there were some good open source development tools like NASM and DJGPP. I also found my favorite editor, TDE, which unfortunately was hacked or ripped off by some opportunist trying to grab money from suckers. Gotta love greed! Later, I found the original version in the public domain with sources.

In 1998, I was tired of the slow 486, so I got a used Pentium 166 megaHertz computer with 32 megabytes of memory running Windows 95. I never did write much fancy software, but one wimpy public domain NASM-assembled utility was uploaded to Simtel. I was only superficially aware of FreeDOS and DR-DOS, and they definitely inspired me, but I didn't know the details and didn't try them yet. Eventually, Windows 95 hosed itself, so I gave up for a while.

In 2002, I got a Pentium 4, 2.52 gigaHertz with 512 megabytes of memory, running Windows XP. While NTVDM had some bugs and wasn't perfect (especially for graphics and sound on old games), at least things like DJGPP were able to workaround most of the issues; but for those years, I was still focused more on learning assembly. I resurrected the old Pentium but chose DR-DOS 7.03 instead of FreeDOS. (I'm not exactly sure why, and I didn't fully understand the short-lived OpenDOS fork. Eventually, I dual-booted both DR-DOS and FreeDOS on one computer.) DR-DOS was very good, but it had many hard-coded limits and most of its tools and drivers were limited. I ended up replacing half of the utilities and drivers with freeware. Several years later, FreeDOS did everything I wanted, so I weaned myself off of DR-DOS. (How far we've come from FreeDOS Beta 8, which I still have on physical floppies! Can you believe that was before Open Watcom even existed?)

In 2004, I manually, but sloppily, converted PSR Invaders from TASM to NASM. Later in 2005, I learned sed, which I found immensely useful. With that simple scripting, I was able to convert some of my own code "on the fly" between various assemblers, which was useful for comparison since I disliked being stuck to one tool.

Around 2006, I got more active in online forums, mostly about DOS programming. I read and posted a lot to the FASM, BTTR, FBC, and DJGPP online forums. Since I was still using my old computers, I was interested in the various x86 CPU families and CPUID. I also made a lot of floppies, including a single-floppy DJGPP install, as well as an unofficial FreeDOS mini-distribution called RUFFIDEA. I made a simple Geocities website and included lots of links to other "new" stuff. Eventually I migrated to Google Pages, which later became Google Sites. I was heavily invested in keeping track of all the "new" DOS software developments. Since I was still using floppies and old machines, I was also interested in compression, hence my work on Paq8o8z.

But my 2007-era 32-bit Windows Vista laptop, with AMD Turion 64 X2 1.7 gigaHertz CPU, and 1 gigabyte of memory, was worse than Windows XP regarding NTVDM given its silly DPMI limit. And it had many other issues. In fact, by 2010, it (and most of my other old hardware) had failed. I don't want to say I gave up on assembly, but I certainly lost some interest in that and in compression, floppies, etc.

By 2011, I was using a new Lenovo Core i5, 3.2 gigaHertz, 6 gigabytes of memory. Again, Windows hosed itself, but it was probably a blessing in disguise because now I was triple-booting FreeDOS, Lucid Puppy Linux, and Windows 7 (64-bit). Plus, that machine has VT-X (EPT) and "unrestricted guest mode", which is dozens of times faster than my 2009-ish Dell laptop, with Pentium Dual Core, 2.2 gigaHertz, and 4 gigabytes of memory, running Windows 7 (also 64-bit). Around this time I also started learning Pascal and derivatives. Truly, portable code is just easier to adapt to new architectures and OSes, and I don't think AMD64 will live forever! FPC 3.0.2 even has an "i8086-msdos" target nowadays, so it's better than ever. FPC even supports inline assembly.

By this time, I also started using bootable USBs thanks to great tools like RUFUS. And of course, I went back to floppies by making a MetaDOS minimal virtual image for networking under virtual machines with FreeDOS. Sure, I bought a USB floppy drive years ago, but I don't need it these days. It's easy to install, deploy, and upgrade both old and new machines with FreeDOS. We've come a long way, baby!

Nick Gilbert

I was born in 1994. By the time I first starting using computers, around 2000, Windows 95 and Windows 98 had taken over the PC market. My first computer was an eMachine running Windows 98. Although I only knew DOS as the daunting command line behind the operating system back then, I recently started exploring "retro gaming." YouTube channels like The 8-bit Guy and Lazy Game Reviews inspired me to get into DOS gaming myself. As a software engineer, I have always wanted to experiment with BASIC, so buying a DOS laptop for "retro gaming" and experimenting made sense to me.

However, when I looked on eBay, I realized there were no cheap DOS laptops that I believed would work without expert repairs. In my search for an alternative I came across FreeDOS, which blew my mind. I did not expect to find a DOS-based operating system that was actively maintained in 2017.

Unsure of what to expect, I downloaded the FreeDOS distribution, burned it to a USB drive, and installed it on an old Acer netbook I had lying around. To my amazement, it worked right out of the box! I was expecting to spend hours fiddling with drivers to make the sound, video, and input all work correctly. However, FreeDOS came with all the required drivers and no hassle.

To make my experience as authentic as possible, I got a USB floppy drive and some floppy disks from my college professor. Even though I was amazed by the driver support in FreeDOS, I still did not expect a USB device to "plug and play" like on Windows. However, once I plugged in the USB floppy drive and put in a disk, it worked great! The computer even tried to boot from the floppy like MS-DOS would have back in the day. I was highly impressed!

I copied King's Quest 1 to a floppy disk and ran it in FreeDOS. The sound, controls, and graphics all worked perfectly and I spent hours playing my way through the game. I tried several other games too: DOOM, Scorched Earth, Aaargh, and Monster Bash. All of them worked and I had several fun evenings acquainting myself with video gaming as it was in the 1980s and early 1990s.

I highly recommend FreeDOS for anybody looking to satisfy their nostalgia for DOS or experience computing as it was before Windows. The development team has done a great job recreating the experience while minimizing the hassle.

Nicolae Crefelean

I discovered FreeDOS about fifteen years ago. I still worked with MS-DOS quite frequently as a systems administrator, so I was amazed to find out about FreeDOS. There was still plenty of work to do, but even then FreeDOS did a lot of things. There was a lot of software that worked with FreeDOS, and that was great.

I was so excited about it that I kept telling my colleagues what else was new. Back then, the development was still very active. But that wasn't enough to compensate for my enthusiasm. I thought I should translate the FreeDOS Manifesto to Romanian, so others can read a little bit about the project, get curious, share the word, maybe support it, and so on.

That's all I did for FreeDOS, but it still felt like I did something important. As tiny as my FreeDOS contribution was, it was my first contribution to an open source project and it lit a spark in me. Since then, I have contributed to many other open source software projects with translations, code, management, technical support, donations, and so on. It's been a blast so far! I'll keep at it, as I love doing it.

FreeDOS was my first stepping stone to contributing to free software, and that makes it very special for me. Thanks for keeping the ball rolling!

Thank You

When I created the FreeDOS Project in 1994, we aimed to create a free DOS that could replace the proprietary MS-DOS. Together, we not only met that goal, but exceeded it. FreeDOS includes many modern features not found in MS-DOS, or features that are significantly improved from MS-DOS.

I want to thank everyone who has helped make FreeDOS what it is today. From our meager beginning with just a few basic utilities, developers from around the world have come together to contribute code patches and new features to FreeDOS. Today, FreeDOS is a complete, free, DOS-compatible operating system that you can use to play classic DOS games, run legacy business software, or develop embedded systems. Any program that works on MS-DOS should also run on FreeDOS.

FreeDOS wouldn't exist today without people. That's what the success of FreeDOS really comes down to: the developers and users. This ebook captures FreeDOS stories from only a handful of those who contributed to FreeDOS over the years. There are too many of you to name individually. FreeDOS is still around due to the the efforts of lots of contributors who believed in a little free software project that was quietly announced to the world all those years ago.

And there's still more to come! As we look forward to the next version of FreeDOS, we want to create a modern DOS. That will be a fine balance. We can add things and change some other things, but in the end FreeDOS must remain "DOS." FreeDOS will always be the classic 16-bit operating system that runs legacy MS-DOS programs, but we want FreeDOS to be more than just an "also ran." We aren't sure what the next version will look like—at least, not exactly—but I encourage everyone who reads this to join the conversation on the FreeDOS email lists, and help us shape the future of FreeDOS.

-Jim Hall

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The FreeDOS Project