

# The Early Days of TeXShop

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## 1 1988 - 1996

Max Horn is creating a server site which will contain all currently available sources of TeXShop. This forced me to turn on machines which haven't run for ten years, and look for old sources. Remarkably, all machines I tried still run.

I decided to write up some of the history that I still remember. Actually, the newly discovered sources are covered in section 6, and a reader could profitably go there. Having written sections 1 to 5, I cannot bring myself to erase them just because nobody else will find them interesting!

Let me start this history in 1988. A former student of mine named Steve Splonskowski worked for a mapping company in Berkeley for two years, and then moved to Portland, Oregon, to work for E-Machines, a company which made large screens for the original Mac. I liked to visit him because he knew all the rumors and new developments surrounding the Mac, while the University of Oregon seemed remarkably in the dark. For instance, he and his boss sneaked into Apple, carrying a large screen, by finding an open side door. They showed the screen to some engineers, who were fascinated. "Does it work on the Jonathan," the engineers asked. My friend's boss said "what's the Jonathan?", and then they were thrown out.

In the spring of 1988, Splonskowski took a job with a small American company working in Norway. This company had rented the second floor of a museum in a park by the water just across the fjord from Oslo. There were art exhibits and concerts in the ground floor, and programming on the second floor. One of the engineers quit, so Splons asked if I'd like to come over for the summer. Fascinating. Among other things, I climbed Norway's highest peak, Galdhopiggen, that summer.

After the summer, I took a year off from mathematics to work for the printing division at Tektronix in Portland on color matching software. This was a fascinating experience I'll never regret. I worked with an engineer who thought I was hopelessly naive about

the programming world, so he had to teach me many lessons, including: “always back up before leaving work.”

While I was at Tektronix, the NeXT computer was released, originally only for education. The University of Oregon decided not to carry the computer, but it was available at Oregon State. By that time, I had been at Oregon for twenty years, and I thought I deserved a “reward”. People in the industry couldn’t buy one, but I could, and I thought I’d be in great demand to demo the machine.

In fact, I never had a successful demo. If I showed the machine to a Macintosh owner, that owner would claim that NeXT put the scroll bar on the other side of the window just to be different, and then claim that the machine did nothing that the Mac didn’t do. “It doesn’t crash,” I’d say sheepishly. If I showed the machine to a Unix fan, the first thing they’d do was open a Terminal window to full screen, type like the devil, and then claim that `curses.h` was out of date.

After a few such experiences, I gave up demoing the machine. My machine, which I still have, had an optical disk, so it was slow and went CLICK, CLICK, CLICK.

But a year later, NeXT replaced the logic board containing a 68030 with a board containing a 68040, and I bought a hard disk that held, gulp, 850 megs of storage, and then I took the machine to school and attached it to the Ethernet network. The machine came with TeX and Mathematica. What more could a mathematician want?

The NeXT was the opposite of flashy. That’s why my demos all failed. But it couldn’t be beat for everybody work, at least in mathematics. My colleagues struggled with typesetting jobs that took two minutes to typeset ten pages, while my machine typeset 100 pages in seconds. And it never crashed. Programs gave you a blank page for *your own work*, rather than a page covered by buttons with almost no free remaining space.

My trips to Portland to meet computer friends became less and less interesting. People in the industry were giving up on the Macintosh, and never believed in the NeXT. “You might as well face it,” they said, “Microsoft has won.” And when I looked at their machines and projects – boring. A few years earlier, the UO had been in the dark ages, but now we were the future and the industry was in the dark ages.

I *was* successful convincing UO mathematicians to use a NeXT. Soon the department had two for graduate students. New faculty who had used a Sun in graduate school at MIT discovered that Windows hardware was cheaper, large color screens were available, and OpenStep did everything their old Sun did.

Around 1995, burglars invaded my house and stole Macintosh computers, hard disks, printers, everything. I was so discouraged about Apple that I replaced my Mac with a clone, but it was never delivered and I eventually canceled the order. All my work was done at school with that NeXT.

## 2 Apple Buys NeXT

In December of 1996, I had just finished grading my classes when I heard a rumor that Apple would adopt OpenStep as their next operating system. But I had seen IBM, and then Sun, license OpenStep and then do nothing with it. Therefore, I didn't get excited, but I watched the news. After a couple days, it transpired that Apple had bought NeXT lock, stock, and barrel, and Steve Jobs was returning as an unpaid adviser. *Then* I got excited. Suddenly, the computer of my dreams might be possible, with the power and stability of Unix, the flexibility of open source, and the networking of the Internet. *And* the market was be large enough that great commercial programs would be available for the machine. I replaced the stolen Mac with a real Mac, and indeed one which Apple guaranteed would run beta copies of OS X.

But there were struggles ahead. As soon as betas of OS X appeared, I switched to using them for some of my work. Someone had compiled teTeX for the beta OS X, so you could write source in TextEdit and typeset from the Terminal. I discovered pdfTeX, then at version 0.14, but still, it worked. So a dvi display wasn't necessary and I could preview with Preview. This gave a very primitive TeX system.

I kept pestering our local Apple representatives for real TeX and for Mathematica. They assured me that they understood how important both were. But I couldn't see any progress.

Finally one day I thought "you wrote some programs using OpenStep, and you also wrote a commercial 3D program for high school teachers with object Pascal. It ought to be possible to write a front end for TeX on the new Mac with Cocoa. Cocoa has NSText and NSImage and NSTask. Why, the program almost writes itself."

## 3 The Start of TeXShop

I do not know when I started coding TeXShop. I know for sure that I had a working TeXShop by May of 2000. I suspect the program was started not much earlier, perhaps in the spring of 2000.

The start cannot have been much earlier than that because in 1986 - 2000 I worked with a colleague named Alan Hoffer on a 3D program for high school teachers, called 3D Images. This program was sold by a commercial firm for OS 9. When OS X first went into beta I began translating the code from object Pascal to C++. Then when Apple introduced Carbon, I translated the C++ into Carbon. I spent some of the summer of 2000 extending that program with Hoffer, and the final Carbon version is dated August, 2000. This was never released because the publisher switched fields.

After that I turned full time to TeXShop.

## 4 WWDC 2000

The 2000 Worldwide Developer Conference, WWDC, was in San Jose in May. At this conference, Apple was slated to give developers the release version of OS X, which would be sold to users several months later. I was only teaching one course that spring, a Discrete Mathematics course for Computer Science students. The authors of the book were also at the University of Oregon, so I asked them to teach my class for a week and went to the conference.

Just before this conference, I bought a 17" PPC Portable. I immediately erased the hard disk and partitioned it so I could install OSX release at the Conference. This machine still runs and some of the later TeXShop sources in Horn's collection came from it in 2016.

In the keynote address in 2000, Steve Jobs said that sometimes in the computer industry, there had to be name changes for marketing reasons. He then announced that the release version of OS X would instead be named *OS X Public Beta* and instead of costing \$150, it would be sold for a \$15 handling fee. After the keynote, a friend said to me "wasn't that smooth? Jobs just announced that OS X is delayed a year." And my friend was correct.

By this time, TeXShop was definitely working on beta versions of OS X, but the Apple PDF software had a significant bug: the software could not read embedded fonts in files. Consequently, TeX documents written with Times Roman displayed beautifully, but any mathematics in the document would appear as blank areas. I hurried back to the motel at the end of the Monday session, installed the public beta, and ran TeXShop. Embedded fonts still did not display.

## 5 WWDC, 2002

Let me temporarily skip ahead to 2002, the year I retired from the University of Oregon. By that time, Gerben Wierda had released i-Installer and Mac users installed TeX with that program and then used one of several open source programs to process TeX files. That year, Apple announced that there would be a new design award for "Open Source Software." Gerben convinced me to submit TeXShop, and I sent Apple a package explaining exactly how to install TeX using Gerben's software, how to run TeXShop, and how to typeset a document. By that time, several people had contributed to TeXShop and I carefully listed their names and contributions. Then I forgot all about the submission.

One of my courses was Discrete Mathematics, and on a Wednesday in late May, my phone rang at 9:30 as I was preparing the 10:00 lecture. The person on the phone asked for “Robert Koch.” “That’s not me,” I said, “but I think there is someone in the business school with that name. Give me a minute and I’ll find his phone number.” The guy on the phone said “TeXShop?” and I said “well yes, I did write that program.”

So the guy said “The Apple Design Awards will be presented tonight at 7:00. I cannot tell you who won, but there is a reason you might like to be there. Can you come?” I said “I have no idea; can I call you back?”

I called the mathematics office, five minutes later they had a plane ticket to San Francisco, and I was told that a commercial Van traveled from the airport to San Jose. I went to my class at 10:00, said “I cannot tell you the reason, but class is canceled for today” and drove to the airport with my teaching clothes, no bag or toothbrush, and a Visa card. By 2:00 I was in San Jose. People at the developer conference suggested a motel three blocks away that miraculously had rooms available, and that evening TeXShop won a design award for open source.

It turns out that most of the people who entered this category thought that the award was for porting Unix command line software to OS X and ignored the “Design” part of the name. This fluke will never be repeated again. I could no more win a design award today than I could fly to the moon.

The award came with a heavy transparent plastic award now sitting on my desk (so I know that the version of TeXShop available in 2002 was 1.19), Apple’s latest Mac Pro, and a large Apple flat screen. I decided that it was only fair to share the award with my collaborators, so I distributed \$5000 to them. The most interesting of these side gifts went to a high school student in Argentina who told me to send an Amazon card because inflation would make actual money worthless in a few days.

I mention all this because that Prize Machine contains all of the oldest sources for TeXShop. When I upgraded to it from older machines I no longer own, I moved the software from the older machines to the prize machine. For instance, the earliest current TeXShop sources are in a folder named *fromJacobi*, the name of an older machine I no longer own.

By 2003, I was retired, and I attended every developer conference from 2003 to 2011 except one. I didn’t go to the 2005 conference because I was teaching for a colleague with a sick child (Apple announced the transition to Intel in 2005). The 2011 conference is the last one keynoted by Steve Jobs, who died a few months later. As Apple grew more prosperous, these conferences began selling out rapidly, and after 2011 I have not been able to get a ticket.

The 2003 Conference was held in San Francisco, and all later conferences were there. In 2003, Apple announced the G5 Mac Pro, which I bought. It was much, much faster than

my prize machine. So I actually used the prize machine for only a year.

Toward the end of the Jobs reign, interest shifted to the iPhone and iPad, and I found the conference less exciting than before. Nowadays, due to the sellout, the conference is broadcast on Apple TV, either directly or within a few days, and beta software is immediately made available to all developers. So it is just as much fun, and less hectic, to sit on an easy chair, watch the sessions, and experiment with the beta software.

## **6 TeXShop from WWDC 2000 until the actual OS X release in March of 2001**

The following history comes from the sources on the prize Macintosh that I found over the last two days. The first release of TeXShop to the open source community occurred shortly after WWDC 2000, on July 23, 2000. It was called version 1.0d1. I have not found source for this release. A month later on August 31, 2000, version 1.0d2 was released and I have both that program and its source code. (This release fixed an interesting bug. In the original version, any source code containing a hex character larger than 127 could not be saved or typeset).

Version 1.0d2 still has my very primitive icon. It only supports English localization, and astonishingly the only source files are main.m, MyDocument (.h and .m), and TextFinder (.h and .m). Since Apple's PDF software could not render embedded fonts, the program could not typeset mathematical documents, but it could be used for letters written with Times Roman.

Version 1.0d3 was released on October 7, 2000. By that time, the public beta of OS X had been released to the public, and this version fixed a bug in it. But significantly, this version also had a preference setting causing the program to render pdf pages using Ghostscript. The resulting pages were blurry, but could display embedded fonts and thus mathematics. Users could turn this off, dispense with mathematics, and glimpse the faster operation and crisp display that OS X would eventually provide. But in the meantime, they could turn it on and write mathematics.

I've provided Max Horn with a separate version of 1.0d2 containing this fix. So there must have been some internal experiments before 1.0d3 was released.

Early versions of TeXShop were released as dmg files; when expanded, the user got a folder with TeXShop and supplemental information. The folder I'm sending Max Horn for version 1.0d3 contains all of the files in this folder: Example.tex and Example.pdf, TeXShop, TexShop\_Help.rtf, and Version History.rtf. The two example files were provided for users with no TeX distribution so they could see how the program worked. The TeX

Help file contained, among other things, an explanation of how to get a TeX distribution. This release occurred slightly before Gerben Wierda began distributing i-Installer, TeX, and Ghostscript.

To obtain TeX, the instructions direct users to the teTeX web site to obtain a copy of the distribution compiled for OS X beta. I do not know who compiled that version. Other instructions state that the distribution is also on my web site, and explain how to uncompress it. I think this is ultimately the same teTeX version. Curiously, these instructions cause TeX to be installed in `/Local/Library`, with binary directory `/Local/Library/teTeX/bin/powerpc-apple-rhapsody5.3`. A symbolic link to these binaries is created: `/usr/local/bin`. Believe it or not, that is the name of the link. I guess users with an actual bin directory were left out in the cold.

Version 1.0d4 was released on November 1, 2000. It allowed saving full 8-bit text for Europeans.

Version 1.0d5 was released on November 24, 2000, with two significant changes. First, the TeX installation instructions no longer refer users to the teTeX web page, but instead to Gerben Wierda's installation. So he appeared about four months after the first TeXShop release.

And second, this version has a French localization by Jerome Laurens, marking its first localization and Jerome's arrival.

I'm also providing Max Horn with a later version of 1.0d5 labeled "Dirk". This marks the arrival of Dirk Olmes from Germany, who played a significant role in the early history of TeXShop. Max Horn later played this same role. Both cleaned up the TeXShop code, making it more professional. Dirk's role can be seen by looking at the source code. The earlier d5 still contains only main, MyDocument, and TexFinder. But the new d5 contains globals, main, MyDocument, Preferences, and TexFinder. I hate to think of the spaghetti mess that would have existed if Olmes hadn't broken out Preferences as a separate class, and introduced reasonable global variables.

Version 1.0d6 was released on Christmas Day, December 25, 2000. It has several important changes including a German localization, syntax coloring, tags, Undo, and clicking on a parenthesis to select text between it and its matching parenthesis. Several of these features were provided by others, so the power of open source was beginning to be used.

Curiously, my source code for this version doesn't have Dirk's new factorization. Maybe all changes weren't yet in sync.

For version 1.0d6, I'm providing Max Horn with an additional folder named `TeXShop_Helpers`. This folder contains the teTeX distribution mentioned earlier, as distributed to users in the early days. By 1.0d6, Gerben's distribution was used instead by most users.

Version 1.0d6 was the last development release. The next release was version 1.0 for the release version of OS X, dated March 24, 2001. But between 1.0d6 and 1.0 there was a significant development. I don't know if I have documents from that period.

Shortly after the December, 2000 release, I got a note from Jerome Laurens offering to add a feature to TeXShop somewhat like the eventual Macros, and also offering to set up a svn server to make it easier for others to contribute to TeXShop. I gave Jerome an OK, and waited to see his addition.

But what I got, a couple of months later, was a complete rewrite of the code which Jerome called "TeXShop Version 2." Instead of five or six source files, there were a gazillion files. I remember in particular the files for a new object called FlipView. When opened, this class had one method with three lines of code, to flip up with down on the screen. I still don't know why it was there.

At this point, I threw up my hands and stopped communicating with Jerome. (Not very mature, I know).

All this while, Apple was working on OS X, and in March they announced the final release version. This time, developers got their copy only a week before the official release. When I got my copy, I immediately tried TeXShop (version 1!). Apple had fixed the embedded font problem.

So I got very busy in a hurry. First I told Jerome that I couldn't figure out his code and since OS X was about to be released, I would retreat to the older version. I also explained that to Dirk and other collaborators. Then I stripped out the code to call Ghostscript for rendering. When I was done, I went to the UO and bought five letter sweaters with the University of Oregon logo, and send them to Apple's developers as my thanks for the bug fix.

I got a note back from Jerome, saying that if his code wouldn't be used, at least he'd like to contribute a program icon. Say what you will about Jerome (and here I need to add that Jerome eventually created iTeXMac and syncTeX, designed the TeX Dist structure with German Wierda, and wrote the TeX Dist Pref Pane, all wonderful contributions), he is a master icon builder. So version 1 at last has Jerome's icon, which it would contain until the complete redesign of the Mac by Apple many years later. I am still partial to Jerome's icon. Jerome designed other icons used by other GUI TeX apps on the Mac.

A few days before the official release of OS X, I put version 1.0 on the internet. (One person accused me of jumping the gun and telling users of the rendering bug fix too early. Luckily that person wasn't associated with Apple.)

Looking at the 1.0 code, I see that Dirk's refactorization still hadn't been added. I'm curious to see how long I waited to add that. Version 1 marks the real start of TeXShop, and after that, very important additions from others began flowing in.



I'm sending Max Horn the 1.0 program, source, release notes, and complete folder for the release. Then separately, I'm sending him the actual web pages for this release. These web pages contain a link to other web pages, also being sent to Horn, for the earlier releases, in case users didn't yet get the release OS X. So the Max Horn archive will contain all the information I know about the initial official release.