

# Importance of Free Software

Scipy.in 2019

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# How do I get Python ??

Easy. Just Download it.

Same is true with GNU/Linux OS and a large number of software software packages.

How all these expensive softwares became available for free Download ?

Will they remain so in future?

What is your role in it ?

# Early days of computing

## UNIVAC

### UNIVersal Automatic Computer

"The first commercial computer made in the U.S."

#### Signed, sealed, delivered

**1951**

The first UNIVAC was delivered on March 30, 1951 to the U.S. Census Bureau.



**46**

In total, 46 UNIVAC 1 computers were built



#### The bolts and nuts

**5,200**

The number of vacuum tubes

**18,000**

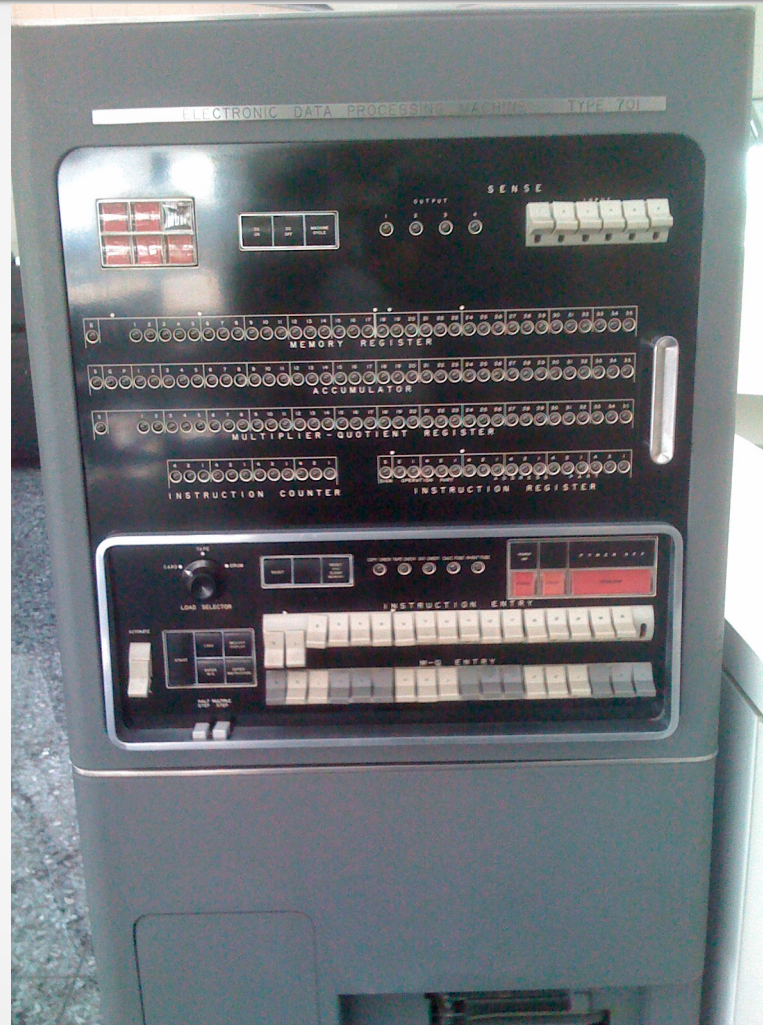
Crystal diodes

**125**

Kilowatts of electrical power



# IBM 701: May 21, 1952



US \$8,100 per month (for CPU only)

[https://www.ibm.com/ibm/history/exhibits/701/701\\_1415bx01.html](https://www.ibm.com/ibm/history/exhibits/701/701_1415bx01.html)



## Software Development Models (Main frames)

- SHARE Inc. is a volunteer-run user group for IBM mainframe computers that was founded in 1955 by Los Angeles-area users of the IBM 701 computer system.
- In 1959 SHARE released the SHARE Operating System (SOS), originally for the IBM 709 computer, later ported to the IBM 7090.
- SOS was one of the first instances of "commons-based peer production"

[https://en.wikipedia.org/wiki/SHARE\\_\(computing\)](https://en.wikipedia.org/wiki/SHARE_(computing))



# Personal Computers ...

**HOW TO "READ" FM TUNER SPECIFICATIONS**

# Popular Electronics

WORLD'S LARGEST-SELLING ELECTRONICS MAGAZINE JANUARY 1975/75¢

**PROJECT BREAKTHROUGH!**

## World's First Minicomputer Kit to Rival Commercial Models...

**"ALTAIR 8800" SAVE OVER \$1000**



**ALSO IN THIS ISSUE:**

- An Under-\$90 Scientific Calculator Project

Programmed using  
Front panel switches.

# Software for Personal Computers

- In March 1974, [Paul Allen](#), [Bill Gates](#), and [Monte Davidoff](#), created a BASIC interpreter that worked under simulation on a PDP-10 mainframe computer at Harvard.
- In 1975 it was tested on MITS Altair8080
- On July 22, 1975 MITS signed the contract with Allen and Gates.
- They got \$3000 at the signing and a royalty for each copy of BASIC sold; \$30 to \$60



# Complaint against "Theft"

-2-

February 3, 1976

## An Open Letter to Hobbyists

To me, the most critical thing in the hobby market right now is the lack of good software courses, books and software itself. Without good software and an owner who understands programming, a hobby computer is wasted. Will quality software be written for the hobby market?

Almost a year ago, Paul Allen and myself, expecting the hobby market to expand, hired Monte Davidoff and developed Altair BASIC. Though the initial work took only two months, the three of us have spent most of the last year documenting, improving and adding features to BASIC. Now we have 4K, 8K, EXTENDED, ROM and DISK BASIC. The value of the computer time we have used exceeds \$40,000.

The feedback we have gotten from the hundreds of people who say they are using BASIC has all been positive. Two surprising things are apparent, however. 1) Most of these "users" never bought BASIC (less than 10% of all Altair owners have bought BASIC), and 2) The amount of royalties we have received from sales to hobbyists makes the time spent of Altair BASIC worth less than \$2 an hour.

Why is this? As the majority of hobbyists must be aware, most of you steal your software. Hardware must be paid for, but software is something to share. Who cares if the people who worked on it get paid?

Is this fair? One thing you don't do by stealing software is get back at MITS for some problem you may have had. MITS doesn't make money selling software. The royalty paid to us, the manual, the tape and the overhead make it a break-even operation. One thing you do do is prevent good software from being written. Who can afford to do professional work for nothing? What hobbyist can put 3-man years into programming, finding all bugs, documenting his product and distribute for free? The fact is, no one besides us has invested a lot of money in hobby software. We have written 6800 BASIC, and are writing 8080 APL and 6800 APL, but there is very little incentive to make this software available to hobbyists. Most directly, the thing you do is theft.

What about the guys who re-sell Altair BASIC, aren't they making money on hobby software? Yes, but those who have been reported to us may lose in the end. They are the ones who give hobbyists a bad name, and should be kicked out of any club meeting they show up at.

I would appreciate letters from any one who wants to pay up, or has a suggestion or comment. Just write me at 1180 Alvarado SE, #114, Albuquerque, New Mexico, 87108. Nothing would please me more than being able to hire ten programmers and deluge the hobby market with good software.

*Bill Gates*

Bill Gates  
General Partner, Micro-Soft

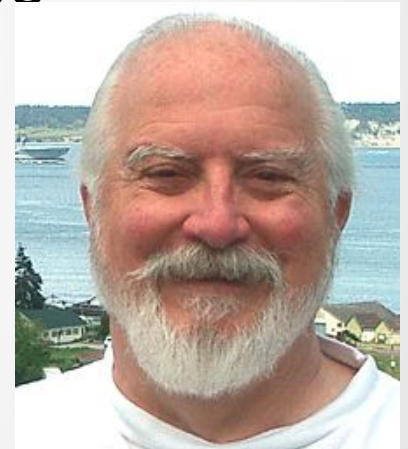
An Open letter from Bill Gates, on 3-Feb-1976. to Hobbyists complaining about people who are copying the BASIC interpreter without paying royalty.

**"Most of you steal your software"**

## Reply to the “theft” complaint

- There is a viable alternative to the problems raised by [Bill Gates in his irate letter to computer hobbyists](#) concerning "ripping off" software. When software is free, or so inexpensive that it's easier to pay for it than to duplicate it, then it won't be "stolen".

Jim Warren



- TinyBASIC was published openly and later invented the term "copyleft" to describe this.
- This made it popular in the burgeoning early microcomputer market.

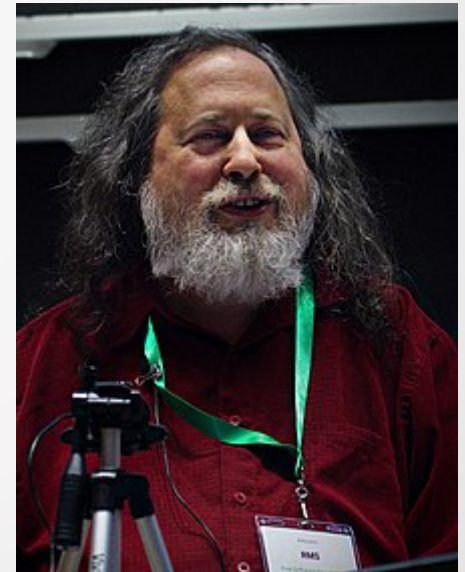
# Decline of Free Software

- In the late 1970s and early 1980s, computer vendors and “software-only” companies began routinely charging for software licenses, marketing software as "Program Products" and imposing legal restrictions on new software developments, now seen as assets, through copyrights, trademarks, and leasing contracts.
- In 1979, AT&T began to enforce its licenses when the company decided it might profit by selling the Unix system.
- In an announcement letter dated 8-Feb-1983 IBM inaugurated a policy of **no longer distributing sources with purchased software.**



# The free software movement: GNU Project

- Richard Stallman (Free as in Freedom)
- Physics BA, Harvard, 1974. Programmer at MIT
- In 1983, launched the GNU Project to write a completely free operating system.
- The Free Software Foundation, 1985
- GNU General Public License
- By 1991, GNU OS was almost complete **except the Kernel (HURD)**.



# The Linux Kernel, from Linus Torvalds

Computer science student and University of Helsinki, Finland.

25 August, 1991, he made a posting to the comp.os.minix newsgroup:

Hello everybody out there using minix -

I'm doing a (free) operating system (just a hobby, won't be big and professional like gnu) for 386(486) AT clones. This has been brewing since april, and is starting to get ready.

December 1992 he published version 0.99 using the GNU General Public License.



# A Free Operating System

- March 1994, Linux kernel 1.0.0 was released
- Combined with software from GNU and several other projects a Free Operating system became available.
- It is called GNU/Linux

The end users need some mechanism to use the software available from different sources.

# Distributions

- A typical Linux distribution comprises a Linux kernel, GNU tools and libraries, additional software, documentation, and an install script packaged on a media like a CD.
- Slackware ..... Individual
- RedHat ..... Corporation
- Debian ..... Non profit organization
- Ubuntu ..... Corporation (free/paid business model)

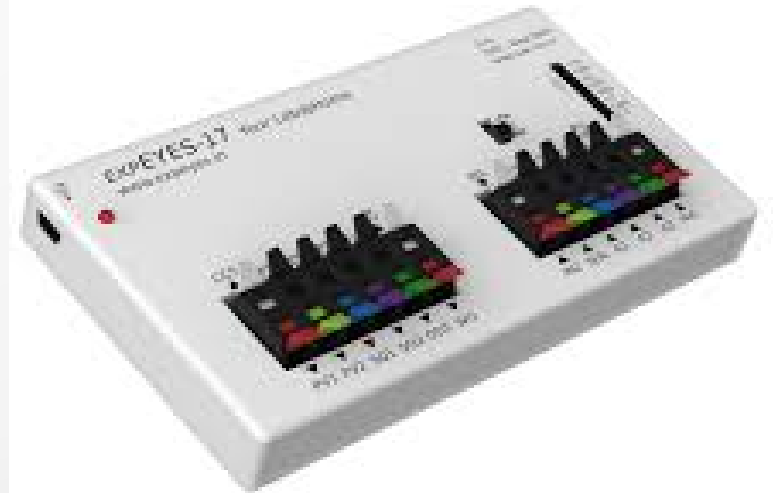
# Current Free Software availability

- GNU/Linux OS , several distributions
- Compilers/Interpreters for almost all languages
- RDBMS systems
- Office packages
- Web and mail Servers
- Scientific computation
- Graphics
- Networking
- Education

Easy to install and under GPL compatible licenses

# Usage of Free Software at IUAC

- Accelerator Control Systems
- High speed data acquisition systems
- Scientific computation
- Electronics circuit design (KiCAD)
- Affordable scientific instruments



[www.expeyes.in](http://www.expeyes.in)

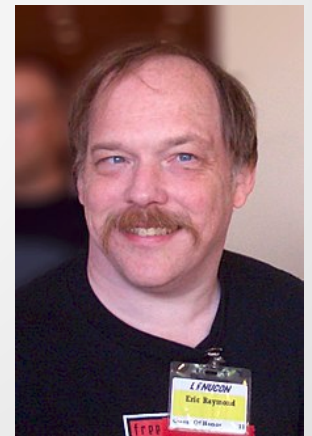
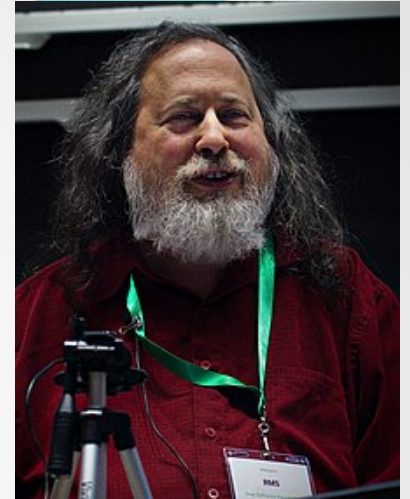


# Free vs Open Source

- Free software is a social and moral philosophy because it places more emphasis on freedom. Freedom is more important than software.
- open source is a development philosophy that is more business oriented, attractive to the corporate world. It emphasizes the technical merits of the open source approach.

<http://old.law.columbia.edu/>

<https://www.gnu.org/philosophy/rms-kernel-trap-interview.en.html>



Eric Raymond

# Is there any threat to Free Software ???

- Microsoft funding of SCO controversy
- Story of an upgrade that costed Rs/ 120,000/-
- Do you get an OS media when you buy MS Windows ?  
Implications of it
- embrace, extend, and exterminate
- <http://techrights.org/2019/06/30/how-free-libre-software-comes-under-attack/>

# Tricks with data..

Comes v. Microsc

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**From:** Bill Gates  
**Sent:** Saturday, December 05, 1998 9:44 AM  
**To:** Bob Muglia (Exchange); Jon DeVaar; Steven Sinofsky  
**Cc:** Paul Maritz  
**Subject:** Office rendering

One thing we have got to change in our strategy - allowing Office documents to be rendered very well by other peoples browsers is one of the most destructive things we could do to the company.

We have to stop putting any effort into this and make sure that Office documents very well depends on PROPRIETARY IE capabilities.

Anything else is suicide for our platform. This is a case where Office has to avoid doing something to destory Windows.

I would be glad to explain at greater length.

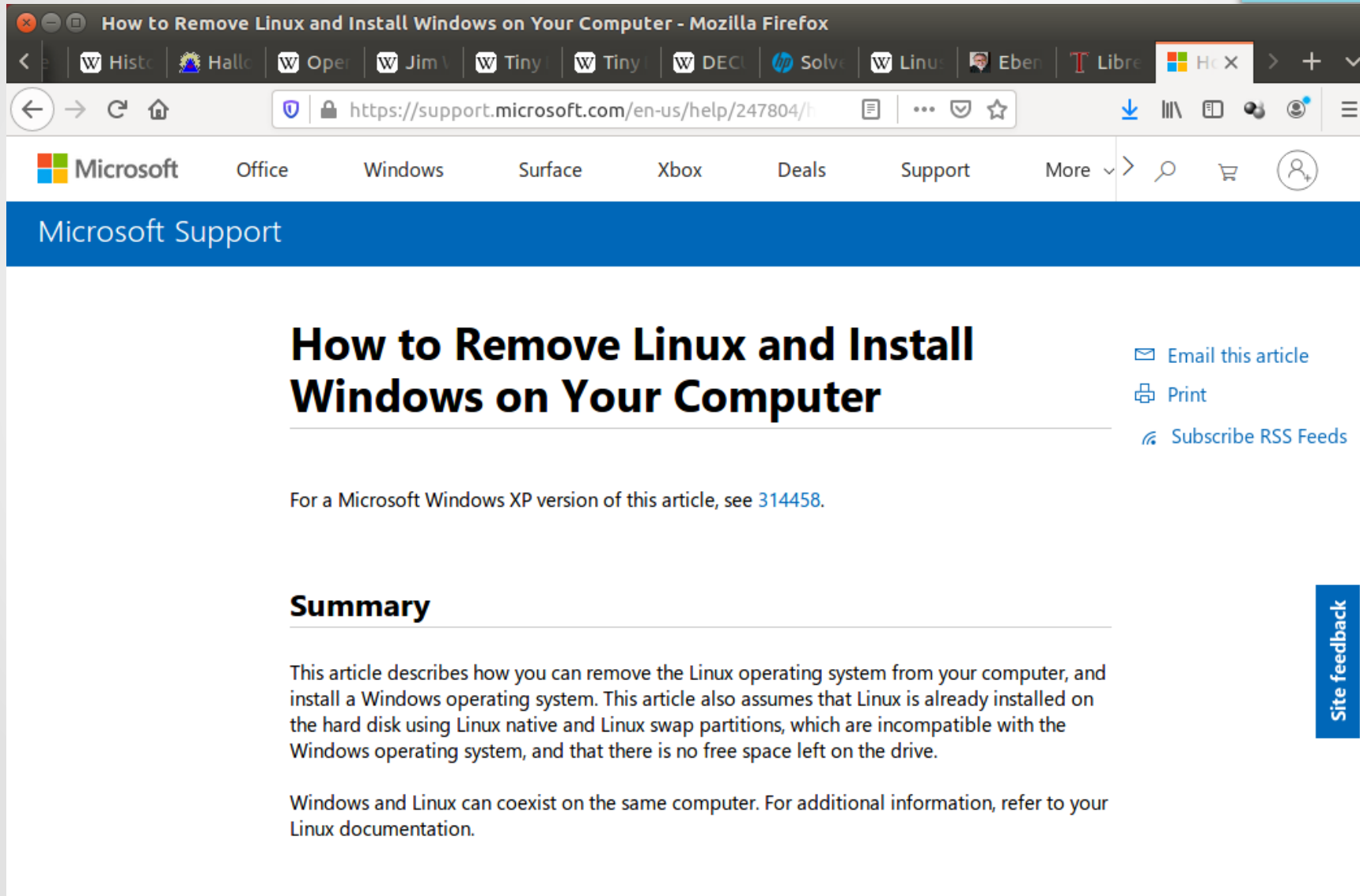
Likewise this love of DAV in Office/Exchange is a huge problem. I would also like to make sure people understand this as well.

# Halloween Documents

<http://www.catb.org/~esr/halloween/>

- OSS poses a direct, short-term revenue and platform threat to Microsoft, particularly in server space.
- Additionally, the intrinsic parallelism and free idea exchange in OSS has benefits that are not replicable with our current licensing model
- Recent case studies (the Internet) provide very dramatic evidence ... that commercial quality can be achieved / exceeded by OSS projects.
- ...to understand how to compete against OSS, we must target a process rather than a company.

# Help is available !!!



The screenshot shows a Mozilla Firefox browser window with the following details:

- Browser Title:** How to Remove Linux and Install Windows on Your Computer - Mozilla Firefox
- Address Bar:** <https://support.microsoft.com/en-us/help/247804/h>
- Navigation Bar:** Microsoft | Office | Windows | Surface | Xbox | Deals | Support | More
- Page Header:** Microsoft Support
- Article Title:** **How to Remove Linux and Install Windows on Your Computer**
- Actions:** Email this article, Print, Subscribe RSS Feeds
- Text:**

For a Microsoft Windows XP version of this article, see [314458](#).

### Summary

This article describes how you can remove the Linux operating system from your computer, and install a Windows operating system. This article also assumes that Linux is already installed on the hard disk using Linux native and Linux swap partitions, which are incompatible with the Windows operating system, and that there is no free space left on the drive.

Windows and Linux can coexist on the same computer. For additional information, refer to your Linux documentation.
- Feedback:** Site feedback (vertical button on the right)

## Counter help: How to remove \*\*\*\*\*

- Download any GNU/Linux ISO image
- Make a USB pendrive bootable with it
- Boot you PC with it and start using (no data saving)
- Understand the hard disk partitioning
- Delete the last partition (we need around 50 GB)
- Install and make the system dual boot

With time you will realize that walking through a door is easier than jumping through a window.

“People who don't value their freedom will lose it”



# History says “Your choice matters...”

When National Semiconductor, which made their own microprocessor chips in '77 or '78, decided they needed a BASIC ... they asked, 'What's the most popular BASIC?' And the answer was Microsoft BASIC because everybody had copied it and everybody was using it.

This was the marketing function and the hobbyists did the marketing with a complete antipathy of the company in question.

There were other BASICs and, you know, some of them might even have been better. ... [Gates's later success] was in a certain measure because of what we did, that he said we shouldn't do, we were thieves to do it, and all.

Lee Felsenstein



**Osborne 1**

April 3, 1981



Thank You