

# The Importance of Free and Open Source Software

in an increasingly non-free and proprietary world.

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# What is Free Software?

***“Free software” means software that respects users’ freedom and community. Roughly, it means that the users have the freedom to run, copy, distribute, study, change and improve the software. Thus, “free software” is a matter of liberty, not price. To understand the concept, you should think of “free” as in “free speech,” not as in “free beer.” We sometimes call it “libre software,” borrowing the French or Spanish word for “free” as in freedom, to show we do not mean the software is gratis.***

*You may have paid money to get copies of a free program, or you may have obtained copies at no charge. But regardless of how you got your copies, you always have the freedom to copy and change the software, even to sell copies.*

*- <https://www.gnu.org/philosophy/free-sw.html>*

## A real world example



# The Fourth Circle of Hell<sup>1</sup>

## Ink plans

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This is a serious pricing list for printer ink subscriptions.

Source: <https://www.hp.com/us-en/printers/instant-ink.html>

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<sup>1</sup>An argument can also be made for the eighth circle.

# Open Source is not Free Software

A term that a lot more people would've heard about is Open Source. Open Source, however, is not Free Software. They started with similar intentions but are entirely different philosophies today.

An extremely simple way of stating how they are different is "Open source is a development methodology; free software is a social movement."

The Open Source movement is concerned with keeping source code open to produce powerful and reliable software. It doesn't make any mention of freedom or rights of the user.

Put nicely it is more practical but more realistically it was created to make the idea more palatable to corporations who reacted badly to the concept of ideological freedom that the Free Software movement put forward.

# Open Source is not Free Software but that's okay

There is a bigger evil than Open Source (which is basically just an advertisement friendly version of Free Software), Proprietary Software <sup>2</sup>.

While Open Source does not explicitly protect the users who use it, it does not (usually) go out of its way to harm them. Which is by definition what proprietary software is designed to do.

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<sup>2</sup>Also commonly known as malware.

# Open Source is not Free Software but at least it isn't malware.

If you thought I was exaggerating earlier:

*Malware is any software **intentionally** designed to cause disruption to a computer, server, client, or computer network, **leak private information, gain unauthorized access to information or systems, deprive access to information, or which unknowingly interferes with the user's computer security and privacy.***

- <https://en.wikipedia.org/wiki/Malware>

An alarmingly large amount of proprietary software would fall into at least one of these categories and some of them like Microsoft's Windows check all of them.

# Why should you care? (In no particular order)

**1. Sustainability** An common strategy by most major software companies is absolute control over your devices. Companies make more money when you buy newer technology but a decent device can last decades. Apart from the hardware planned obsolescence, a particularly evil and devious strategy employed is to claim that your device doesn't support the latest version of your software and that you need the newest version to remain safe (FUD).

A recent example is the retirement of Windows 10. An OS that Microsoft had claimed would be the last version of Windows. This promise, that the OS would receive updates indefinitely, allowed Microsoft to try out new business tactics. However, they clearly lied as, support for Windows 10 was ended on October 14th, 2025. This alone wouldn't have been a major issue apart from a massive loss of money, but Microsoft made a new hardware requirement with Windows 11.

## Why should you care? (In no particular order)

This newly required chip was not present in any machines older than 2017 or 2019 depending on the manufacturer. That translates to nearly 14 million PCs <sup>3</sup>. There is absolutely nothing wrong with most of these PCs apart from the fact that they don't support Windows 11 <sup>4</sup>. Most people will be forced to throw these machines into the recycling due to the fact that without security updates they cannot be used for any important work.

All of these machines are easily supported by many Linux distributions with some (Ubuntu) offering up to 12 years of security updates and support<sup>5</sup>. It is interesting to note that this support is a paid subscription and not monetarily free.

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<sup>3</sup>In the UK alone. Numbers from [businesswaste.co.uk](https://www.businesswaste.co.uk)

<sup>4</sup>Which should be considered a safety feature in my opinion.

<sup>5</sup>Just a day before this presentation this was increased to 15 years.

## Why should you care? (In no particular order)

**2. Privacy** The world is getting less and less private. The amount of information that we dump on the internet is enormous but it is at least a conscious decision. A huge part of proprietary software is how they infringe on your rights and privacy. An excerpt from the Microsoft Service Agreement<sup>6</sup> says

*To the extent necessary to provide the Services to you and others, to protect you and the Services, and to improve Microsoft products and services, you grant to Microsoft a worldwide and royalty-free intellectual property license to use Your Content, for example, to make copies of, retain, transmit, reformat, display, and distribute via communication tools Your Content on the Services. . . .*

The opening statement of this section in the agreement says that you retain ownership of your data. However, the excerpt provided above shows that while you own your data, they can do whatever they want with it.

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<sup>6</sup>[https://www.microsoft.com/en-us/servicesagreement#2\\_yourContent](https://www.microsoft.com/en-us/servicesagreement#2_yourContent)

## Why should you care? (In no particular order)

The more you read these documents the less you understand what you actually have rights to and what you don't. This is on purpose. Most people never read this document and while it is completely illegal to write contracts or licences that violate your basic rights, it is something that must be decided in court. In a lengthy court battle with Microsoft the only loser will be the user.

This isn't even the worst of their offences in the era of AI. A new "feature" called Recall would allow users to quickly find and jump back into anything you've seen before on your PC. In simple terms it would take periodic screenshots and analyse them with AI to help you find things. Now when approached about the privacy implications Microsoft assured us that they will not screenshot any DRM managed content such as Netflix.

## Why should you care? (In no particular order)

**3. Finances** FOSS is usually free and much cheaper than proprietary software with subscriptions only when continued support is required. While this is not a hard requirement for FOSS, the end result is almost always cheaper. There is usually not a drastic difference in quality and sometimes might even be better than proprietary alternatives <sup>7</sup>. The cheapest Office subscription is 6,899 rs per year. Even google's office alternatives are free.  
<sup>8</sup>

There are many alternatives to popular proprietary software that is inexpensive or outright free, some are even the standard (VLC).

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<sup>7</sup> Blender is an example that comes to mind.

<sup>8</sup> Personally I wouldn't trust google and their cloud services without a proper look at their terms of service. Its another reason I try not to put important documents on my drive. Unfortunately, they can get you in unexpected ways, for example large email attachments are automatically uploaded to drive.

## Why should you care? (In no particular order)

**4. Freedom** Your hardware belongs to you. You paid for it and you now own it. Why should the software that is required to run it be outside your control? It should be illegal to buy a device then be required to accept an arbitrary license agreement to use the device.

Many new laptops that come with Windows 11 are also encrypted by default. At first glance this seems like a good thing as added security can never be bad. However, who has the keys to your encryption? Most people don't even know their machines are encrypted as they are never told. A key is silently uploaded to OneDrive when you first login. This encryption is meant to make it difficult for thieves to steal your data if your laptop is stolen. However, the encryption has no effect once you login. If you ever damage your laptop and need to get your data out, you are now left in a situation where you are stopped by your own protection. (Most people don't know

where to find their decryption keys. I don't either!)

## Why should you care? (In no particular order)

**5. You already use them** A popular open source library core-js is used on upto 75% of the top 100 websites on the internet.<sup>9</sup>. However, the author of this library was completely broke. For his work supporting the entire internet and some extremely rich companies (Spotify, Ebay, Netflix, LinkedIn, Whatsapp, etc.), he raised a grand total of 57 \$/month. He had absolutely no support and even faced toxicity from the open source community when he considered monetizing his work.

This may sound niche, but even Wikipedia does a donation drive every year where they ask for less than a 100 rs per reader. A fast food meal in Mumbai costs nearly twice that. For the largest and most complete source of human knowledge that is almost insulting. Even us students can afford to donate that.

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<sup>9</sup>I recommend you read the whole story. <https://github.com/zloirock/core-js/blob/master/docs/2023-02-14-so-whats-next.md>

## But proprietary software has less issues...

A very common sentiment that was extremely popular just a few years ago was that Linux was for computer nerds and was too difficult to actually use daily. It was a "well known" fact that open source and free software was difficult to install and update.

While you sign away a lot of your rights and Windows is expensive that must mean that there's a quality that free work can't provide right? Paid things must obviously be better than free things.



Your PC ran into a problem and needs to restart. We're just collecting some error info, and then we'll restart for you.

20% complete



For more information about this issue and possible fixes, visit <https://www.windows.com/stopcode>

If you call a support person, give them this info:

Stop code: CRITICAL\_PROCESS\_DIED

## But proprietary software has less issues...

A lot of this sentiment is completely manufactured by companies such as Microsoft by a tactic called FUD (Fear, Uncertainty and Doubt). This tactic has been confirmed through leaks of internal memos called the Halloween documents.

A large amount of issues with Linux and other FOSS software is at best a lack of support from hardware manufacturers (Most laptop companies, Nvidia) and at worst intentional sabotage through obfuscation (Nvidia)<sup>10</sup>. The reason Windows has better support is that the manufacturers write their drivers to work on Windows but don't extend this courtesy to Linux. Which would be fine if they told us how their hardware works but that is usually hidden behind patents and other IPR<sup>11</sup>.

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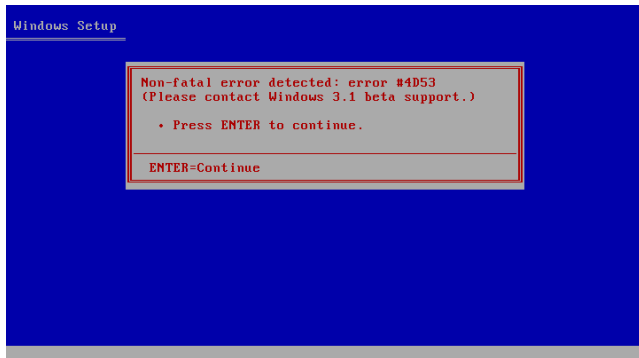
<sup>10</sup> Nvidia have "forgotten" to add Ubuntu 18.04 to their OS allowlist in the past.

<https://medium.com/@idohlevi/tales-of-working-with-nvidia-in-linux-a-rant-5cd1199342b7>

<sup>11</sup> Speaking of IPR Richard Stallman has a great write up on how the idea of IPR is heavily warped by corporations to suit them instead of the creators it seeks to protect. You can read more about it here

[https://www.fsf.org/resources/advocacy-materials/not\\_ipr.pdf](https://www.fsf.org/resources/advocacy-materials/not_ipr.pdf)

## But proprietary software has issues...



This was an error shown in Windows 3.1. This is before Windows was a full scale operating system and was just a graphical interface that could be run on any DOS system including IBM's DR DOS. However, users running Windows 3.1 on DR DOS would see this error message. In reality there was no problem or error behind the scenes. This message was put there only to make users doubt the reliability of DR DOS.

## But proprietary software has issues...

An interesting problem that is possible on Windows 11 is that your login PIN can become "unavailable". This can happen for a few different reasons, which include some odd reasons such as a TPM being reset or changed (I believe disabling Secure boot can sometimes trigger this) and some Windows Updates. Which means your PIN can sometimes be unusable for reasons completely out of your control since Windows updates have been mandatory for the lower paying Windows Home users since Windows 10.

My point is not that proprietary software is terrible<sup>12</sup>. My point is that the issues you would have on Linux or FOSS are the same issues that you would have on Windows or MacOS.

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<sup>12</sup>Even though a case can be made for this

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Many Linux and free software alternatives are perfectly usable by everyone. When your computer has an issue the average person never tries to solve it themselves, yet the apparent difficulty of doing so has interestingly turned into a barrier to FOSS.

If anything FOSS is easier for the average person to get used to as the every user has the ability to fix anything that they have had issues with. The support of users doesn't require programming expertise as designers, proof-reading, translations, etc. are all things that a project needs.

I am sure anyone who has used Linux in the last 5 years will have had a very surprising experience. Modern Linux is incredibly user friendly and frankly quite beautiful<sup>13</sup>. The switch is good for you, your hardware and your wallet.

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<sup>13</sup>There's a great [subreddit](#) that shows this off

A screenshot of my laptop setup.

Feb 8 20:15 218 KB/s 44°C 9.5 W 5h 49m 1.6 GHz en, 35:52 70%

🔍 Type to search



## Further Reading / References

- 1 <https://www.gnu.org/philosophy/free-software-for-freedom.html>
- 2 <https://www.gnu.org/philosophy/open-source-misses-the-point.html>
- 3 <https://www.gnu.org/philosophy/when-free-software-isnt-practically-superior.html>
- 4 <https://www.gnu.org/education/edu-schools.html>
- 5 [https://en.wikipedia.org/wiki/Fear%2C\\_uncertainty%2C\\_and\\_doubt#Examples](https://en.wikipedia.org/wiki/Fear%2C_uncertainty%2C_and_doubt#Examples)
- 6 <https://web.archive.org/web/20210409165315/https://redmondmag.com/blogs/scott-bekker/2019/01/windows-10-microsofts-forever-os.aspx>

## Further Reading / References

- 7 [https://www.theregister.com/2025/10/08/windows\\_10\\_precious\\_metals/](https://www.theregister.com/2025/10/08/windows_10_precious_metals/)
- 8 **Zorin OS** (I have not used it personally but I have heard it is the easiest for those switching from Windows and MacOS.)
- 9 **Fedora** (#notsponsored but it is easily my favourite and recommended Linux distro.)
- 10 **Immutable Linux**, the next big deal in Linux. An extremely secure and reliable of running Linux.
- 11 <https://www.gnu.org/licenses/gpl-faq.html> A FAQ on the General Public License.

## Some Resources

for those that decide to stick with proprietary software for any reason.

- 1 Using a Local Account with Windows 11. <https://www.reddit.com/r/pcmasterrace/comments/1lp0iw1/comment/n0rdq7a/>  
This is important as it prevents most ways of Windows deciding to lock you out of your own machine. You might want to disable password expiry<sup>14</sup> as well.
- 2 Finding your Bitlocker keys.  
<https://support.microsoft.com/en-us/windows/find-your-bitlocker-recovery-key-6b71ad27-0b89-ea08-f143->  
Windows kindly "backs up" your encryption keys to their cloud, in case you get locked out by Bitlocker<sup>15</sup>.

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<sup>14</sup>Yes this is a real feature that is enabled by default with no warnings anywhere.

<sup>15</sup>Recent reasons for this include Windows updates...

## Some Resources

- ③ Disable everything that is enabled by default if asked. Anything that you absolutely need will never be an option. The only things Windows will present options for are extremely moral grey area "features" that they need your consent for.<sup>16</sup>
- ④ **Use an ad blocker.** Never, ever access the internet without a content blocker. uBlock origin is one of the best options for this. Most computers do not need an antivirus program as long as you ensure you block malware on your browser. Any malware that can affect you past an ad blocker preys more on the user than any vulnerabilities in your machine. Common sense and an ad blocker will save you a lot of money and time<sup>17</sup>. This is especially important in today's world where Google is using Chrome to actively try and kill ad blockers.

<sup>16</sup>Unless its OneDrive, as some options can only be changed 3 times a year and should definitely be turned off. **No really.**

<sup>17</sup>According to a study, uBlock's content blocking saves nearly \$1.8 billion/year in electricity. (<https://www.mdpi.com/2227-7080/8/2/18>)

## Disclaimers

While a lot of what is talked about here is fact. A huge part of the Free Software Movement is having freedom. This is an extremely biased talk that is made with the express intent of getting people to consider FOSS seriously. You may have many situations where you cannot avoid proprietary software. You will also have situations where they work better. There is absolutely nothing wrong with using proprietary software when needed. Free Software simply works to ensure you have an alternative that respects your freedom.

Most things here are my personal opinions. I simply hope that as scientists we are able to use our computational resources to their fullest extent.