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# GitHub Fundamentals

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# Objectives

GitHub Repository	CI/CD
GitHub Codespaces	Docker
GitHub Pull Requests	Git
GitHub Templates	Markdown
GitHub Releases / Tag	Microservices
GitHub Issues	Free Software
GitHub Actions	Open Source
GitHub Wikis	GitHub is your CV
GitHub Pages	
GitHub Advanced Search	





# GitHub in Numbers



94+ million Developers



200+ million Repositories



3+ million Organizations



90% Fortune 500





# How did we arrived here?

Unix	<b>1970</b>	AT&T Bell Labs
GNU	<b>1983</b>	GNU Project
GCC	<b>1987</b>	GCC + Libs
GPL	<b>1989</b>	4 Freedoms
Linux Kernel	<b>1991</b>	Linux Kernel
Open Source	<b>1998</b>	Netscape
GIT	<b>2005</b>	BitKeeper
GitHub	<b>2008</b>	Logical Awesome LLC
	<b>2021</b>	





# Free Software & Open Source



**Richard Stallman**



**Bruce Perens**



**Eric Raymond**





# What does “**free software**” mean?

## User has freedom to:

- **Run** the program as you wish, for any purpose.
- **Study** how the program works and change it, so it does your computing as you wish.
- **Redistribute** copies so you can help others.
- **Distribute** copies of your modified versions to others.

Access to the source code is a precondition for this!

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





# What does “**open source**” mean?

The software is:

- **Redistributed** for free.
- The source code should be **publicly available**.
- The software can be **modified and distributed** in a different format from the original software.
- The software should **not discriminate against persons or groups**.
- The software should **not restrict the usage of other software**.

<https://opensource.org/osd>





# Free software **vs** Open source

## Free Software

Social movement.

Free software focus on the user's freedom to use the program, to modify it, and to share it.



## Open source

Open source is a development methodology.

Open-source focus on the availability of the source code and the ability to modify and share it.







# Is Public repository open source?

Public **≠** Open Source

Anyone can view and fork your public project, but your work comes with no permissions.

**What if you don't apply an open source license?**

**Everybody** who contributes to your project also **becomes an exclusive copyright holder of their work**. That means **nobody can use, copy, distribute, or modify their contributions** – and that “nobody” includes you.

If you want others to use, distribute, modify, or contribute back to your project, you need to include an open source license.





# What is a software license?

An open source license is a legal contract between the author of the software and the user of a software. An open source license states what the user is permitted to do with the software, their obligations, and what they cannot do.





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- Apache License 2.0 (Apache-2.0)
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- Artistic license 1.0 (Artistic-1.0) (superseded)
- Artistic License 2.0 (Artistic-2.0)
- Attribution Assurance License (AAL)
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- Etc.

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- Etc.
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- X.Net License (Xnet)
- Zero-Clause BSD (0BSD)
- Zope Public License 2.0 (ZPL-2.0)
- zlib/libpng license (Zlib)





# What is a software license?

	Public Domain	Permissive	Copyleft	Noncommercial license	Proprietary	Trade secret
Rules	Grants all rights	Grants use rights, including right to <b>relicense</b>	Grants use rights, forbids <b>proprietaryization</b>	Grants rights for noncommercial use only.	No rights granted	No information made public
Example	CC*, WTFPL	Apache, MIT, BSD	GPL, AGPL	JRL, AFPL	Copyrights, no public license	
Users	< 1%	Kubernetes, GitLab	Linux Kernel, Gimp			





# What license to choose from?

**<https://choosealicense.com>**

<https://blog.usejournal.com/understanding-open-source-and-free-software-licensing-c0fa600106c9>





# Change the license of my project?

## CHOOSE WISELY !

<https://opensource.guide/legal/#what-if-i-want-to-change-the-license-of-my-project>

