

OPEN SOURCE TECHNOLOGY

CS 321



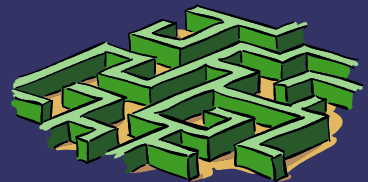
Note

- ◆ **Copyright:** The exclusive right to produce or reproduce (copy), to perform in public or to publish an original literary or artistic work. Many countries have expanded the definition of a "literary work" to include computer programs or other electronically stored information.
- ◆ **License:** A special permission to do something on, or with, somebody else's property which, were it not for the license, could be legally prevented or give rise to legal action in tort or trespass.



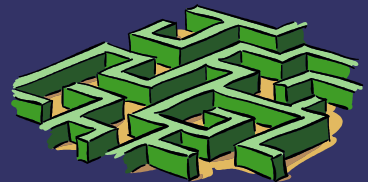
Free vs Open Source

- ◆ **Free Software Foundation (FSF)** – non-profit organization, founder: Richard M. Stallman, founded in 1985
 - free as in free speech, not as in free beer
 - principal organizational sponsor of the GNU Project
 - www.fsf.org
- ◆ **Open Software Initiative (OSI)** – non-profit corporation, founders: Todd Anderson, Chris Peterson, John "maddog" Hall, Larry Augustin, Sam Ockman, and Eric Raymond. Conceived in 1998. Not a membership organization. Currently 5 board members, with Raymond as President.
 - one-sentence sound bite: “Open source promotes software reliability and quality by supporting independent peer review and rapid evolution of source code.”
 - availability of source code
 - www.opensource.org



Free Software – according to FSF

- ◆ Free software is a matter of the users' freedom to **run, copy, distribute, study, change** and **improve** the software. More precisely, it refers to four kinds of freedom, for the users of the software:
 - ◆ The freedom to run the program, for any purpose (**freedom 0**).
 - ◆ The freedom to study how the program works, and adapt it to your needs (**freedom 1**). Access to the source code is a precondition for this.



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- ◆ The freedom to redistribute copies so you can help your neighbor (**freedom 2**).
- ◆ The freedom to improve the program, and release your improvements to the public, so that the whole community benefits (**freedom 3**).
Access to the source code is a precondition for this.

A program is free software if users have all of these freedoms.

Regardless of how you got your copies, you always have the freedom to copy and change the software, even to sell copies. ``Free software" does not mean ``non-commercial".



Licensing

- ➡ Software licensing has always been a part of the process of managing systems.
- ➡ Closed code licensing agreements such as those from Microsoft or Oracle are no better. They are usually longer and more difficult, and very often more restrictive.



Types of Licenses

- Open source licenses divided into two groups:
 - The **reciprocal or 'free' licenses**, of which the GNU General Public License (GPL) is best known.
 - The **nonreciprocal or 'open' licenses**, such as the BSD and Apache licenses.
- **Reciprocal licenses** contain a provision that requires on relicensing the code must be open source. If the distributor receives the source code, then it passes it on to others. Example: Linux uses the GPL.



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- ♦ **Nonreciprocal licenses** do not contain a relicensing provision, so they allow derivative works from open source code to revert to closed. This is nonreciprocal in the sense that a distributor can receive source code but may not necessarily pass it on. Example, Apple uses FreeBSD code as part of Mac OS X without needing to distribute the Mac OS X source code.
- ♦ Relicensing only matters if you distribute
- ♦ Reciprocal licenses are similar to commercial (closed source) licenses, which contain terms that restrict relicensing and distribution of information.
- ♦ Commercial licenses normally require you to agree not to disclose proprietary information that you acquired under the license to others.



Licenses in Use

- ♦ Top ten OSS licenses of 2016 according to whitesoftware.com are:
 - MIT 25%
 - GPL3.0 19%
 - Apache2.0 15%
 - GPL2.0 14%
 - BSD3 6%
 - LGPL2.1 6%
 - Ms-PL 4%
 - BSD2 3%
 - Zlib 1%
 - Eclipse1.0 1%
 - BSD4 1%
 - Other 5%



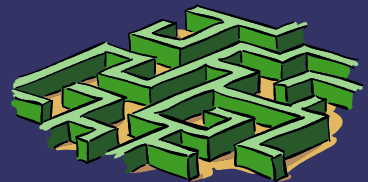
Reciprocal Licenses

- ♦ The GPL is the original “free software” license. It is used by Linux and many other core tools.
- ♦ The GPL is also an important piece of work in its own right.
- ♦ The Mozilla Public License is similar to the GPL but with clearer terms in requiring future free use.



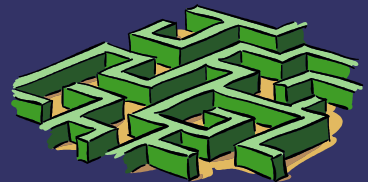
Nonreciprocal Licenses

- ♦ LGPL, BSD, Apache and MIT are **nonreciprocal licenses**.
- ♦ The Lesser General Public License (LGPL) is a nonreciprocal version of the GPL intended for certain libraries.
- ♦ The MIT license is best known for its use in the X Windows System.
- ♦ The Apache license is very similar.



Which License to Use

- ♦ It is strongly recommended that if you are distributing your own open source product you adopt one of these licenses without alteration:
 - GNU General Public License
 - Mozilla Public License
 - BSD, Apache, or MIT license
 - GNU Lesser General Public License
- ♦ The alternative is to hire an attorney who specializes in these issues to develop a custom license, as large companies such as IBM do.
- ♦ www.opensource.org/licenses



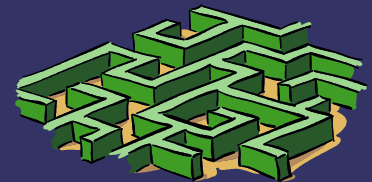
Mixing Open and Closed code

- It is possible to use closed code and some open source software together.
- Products that use databases often support some closed code databases, most often Oracle.
- Open source products are often sold as part of a bundled sale, which includes closed code products.



Dual Licensing

- ♦ Some products are dual licensed. **They are available with either an open source license or a commercial license.**
- ♦ Examples of such products are:
 - Qt, from TrollTech, the GUI toolkit used by KDE
 - **MySQL**, from MySQL AB, the database server
 - Berkeley DB, from SleepyCat Software, the embedded database program
- ♦ The dual license allows these companies to offer open source products to those who are developing open source software, or individual end users. Others may be required to pay for a commercial license.



Note:

- ♦ **Closed code:** you grant a license with restrictions that you specify, typically including relicensing and publication of proprietary information, and retain ownership.
- ♦ **Open source (reciprocal, e.g., GPL):** you grant a license with restrictions on relicensing of derivatives and retain ownership.
- ♦ **Open source (nonreciprocal):** you grant a broad license and retain ownership.
- ♦ **Public domain:** you relinquish ownership and all rights to it permanently.

