

Open source Tools and Applications in Medical Informatics



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What is open source

Simple definition:

“Free as in free speech, not free beer”

Synonyms:

Free and open source software (FOSS)

Free, libre and open source software (FLOSS) – sometimes used to differentiate between “freedom” (libre) and “free of cost” (gratis)

The Open Source Definition

1. Free redistribution
 2. Source code
 3. Derived works
 4. Integrity of the author's source code
 5. No discrimination against persons or groups
 6. No discrimination against fields of endeavor
 7. Distribution of license
 8. License must not be specific to a product
 9. License must not restrict other software
 10. License must be technology neutral
- From Bruce Perens, OSI,
www.opensource.org

The Free Software Definition

- Freedom 0: Freedom to run the program for any purpose
- Freedom 1: Study how the program works and adapt it to your needs
- Freedom 2: Freedom to redistribute
- Freedom 3: Freedom to redistribute your modifications

From GNU/FSF (one of the prominent open source groups):
<http://www.gnu.org/philosophy/free-sw.html>

Advantages of open source sw

- Improvements contributed by a diverse group of experts than those at one organization
- Source code will be available even if the group stops supporting it
- End users can identify bugs or security risks and fix them (“Given enough eyeballs, all bugs are shallow” – Eric S. Raymond, Co-founder of OSI)

Potential risks of open source sw

- FOSS programmers build such software out of their own interest, unless backed by a company. They may abandon the projects
- Support may not be available for some open source projects
- If the software breaks, you cannot pass the blame on to some vendor

Why they are just “potential” risks?

- Many companies provide support for open source software, just as well as or better than commercial closed source software
- The problems CAN be fixed, if not by the company, by yourself, since the source code is available
- A lot more people are studying the code, improving and fixing them, thus better than closed source SW

Today's Workshop

- Venue for various biomedical open source software authors to connect with the user community
- Answer questions about products, features, support, etc.
- Encourage target users to use these software
- Invite your participation as users, designers, programmers, bug reporters, <insert any role you like>

Coming up today...

- Projeny
- Tolven
- OpenMRS
- Mirth
- OpenClinica
- Eclipse OHF
- OpenEMPI

Projeny

- Probabilistic Networks Generator in Java
- <http://projeny.sourceforge.net>
- Modeling probabilistic networks for machine learning and temporal reasoning (requires some other open source tools to run)
- Senthil Nachimuthu, Department of Biomedical Informatics, University of Utah
- Licensed under GNU GPL v2

Tolven

- Tolven Electronic Health Record
- <http://www.tolven.org>
- Electronic Personal (PHR) and Clinician (CHR) health records
- Tom Jones, Tolven Inc.
- Released under GNU LGPL

OpenMRS

- An application that enables the design of a customized medical records
- <http://www.openmrs.org>
- Paul Biondich, OpenMRS
- Licensed under Mozilla Public License (MPL) 1.1

Mirth

- Cross-platform HL7 interface engine
- <http://www.mirthproject.org>
- Jon Teichrow, Gerald Bortis;
Webreach Inc
- Licensed under Mozilla Public License
(MPL) 1.1

OpenClinica

- Application for clinical and translational research (data capture and clinical trials management)
- <http://www.openclinica.org>
- Cal Collins, Akaza Research
- Licensed under GNU LGPL license

Eclipse Open Healthcare Framework

- A framework for creating software tools and libraries for healthcare
- Focuses on implementing standards for interoperability
- <http://www.eclipse.org/ohf>
- Matt Davis, Sarah Knoop, Sondra Renly; IBM Almaden Research Center
- Eishay Smith (previously with IBM)
- Licensed under Eclipse Common Public License (CPL)

OpenEMPI

- Electronic Master Person Index
- <http://www.openempi.org>
- Will Ross, Mendocino Informatics
- Licensed under BSD License

If you're still uncertain about FOSS...

- Several software and operating systems that power the Internet backbone and enterprise business systems are FOSS. E.g. Apache, BIND, Linux, BSD, OpenSSL, MySQL, PostgreSQL
- Many large companies support FOSS – e.g. IBM, Novell, Red Hat
- Do not be afraid of “open source” SW. Study your candidate SW based on all important criteria