POLICY ON SOFTWARE DISSEMINATION

Knowledge Transfer Group

Endorsed by the Enlarged Directorate on August 22, 2017

Summary

The 'Policy on Software Dissemination' aims to define the framework of software dissemination activities at CERN, which ensue from the Organization's mission to maximize the impact of CERN's science, technology, and know-how, on society. The more general 'Policy on the Management of Intellectual Property in Technology Transfer Activities at CERN' (the "CERN IP Policy") provides a framework for these activities, while the recommendation of the 'Final Report OSL-2012 – Main Volume' by the 'Open Source Licence Task Force' focuses on dissemination through open source licensing. This document thus aims at addressing the specific nature of software technologies and complements the CERN IP Policy by building on the recommendation of the 'Open Source Licence Task Force' and the practical experience of the Knowledge Transfer Group in this field. This Policy on Software Dissemination is addressed to the whole CERN community - members of personnel and their collaborators - whose work has potential applications outside their field of work or their direct environment, and aims to contribute to a coherent approach in licensing and dissemination of CERN's software.

Contents

I. Abbreviations and Definitions

CBS: Component Based Software. Software that uses external components usually downloaded from relevant sites external to the project. Most often they are open source software components.
FSF: Free Software Foundation.
GNU: "**GNU's** Not Unix!" recursive acronym. https://www.gnu.org/home.en.html.
GPL: GNU General Public Licence, https://www.gnu.org/licenses/gpl-3.0.en.html.
IDE: Integrated Development Environment. A software application that provides comprehensive facilities to computer programmers for software development.
KT: Knowledge Transfer.
LGPL: GNU Lesser General Public Licence, https://www.gnu.org/licenses/lgpl-3.0.en.html.
OSS: Open Source Software, https://en.wikipedia.org/wiki/Open-source_software.
Personnel: 'Employed Members of the Personnel'[1] (MPE) and 'Associated Members of the Personnel'[2] (MPA)
SaaS: Software as a service, https://en.wikipedia.org/wiki/Software_as_a_service.

[1] CERN employed member of personnel (MPE): Staff and Fellows . Under the sole authority of the Director-General, employed members of the personnel perform the functions entrusted to them in return for remuneration by the Organization

[2] CERN associated member of personnel (MPA): Associated members of the personnel are not employed by the Organization but are appointed by the Director-General on the basis of a contract of association. In accordance with the mission of the Organization, the purpose of contracts of association is to promote international collaboration, contacts between, and the exchange of scientists and advanced training.

1. Purpose of the Software Dissemination Policy

1.1. The policy reflects the following goals:

I. To establish the reasoning of how software dissemination is handled by the Knowledge Transfer Group;
II. To identify and ascertain the principles that drive the dissemination of software;
III. To establish the decision making process and dissemination options that are compatible with the driving principles but also the limitations that are shaping them;
IV. To recommend ways of anticipating software dissemination in order to facilitate it and mitigate the effect of the above mentioned limitations;
V. To contribute to a more coherent approach in licensing and dissemination of the Organization's software assets by taking into account the 'Final Report OSL-2012 – Main Volume' by the 'Open Source Licence Task Force' and the practical experience of the Knowledge Transfer Group in this field.

1.2 . The policy is based upon the following principles that relate CERN to society:

I. One of the core missions of CERN is the generation and dissemination of knowledge;
II. The Knowledge Transfer Group's mission is to:
    a. Maximize knowledge and technological return to Member States industry and society.
    b. Promote CERN image as a centre of excellence in technology and foster collaboration based on CERN technologies to that purpose.
III. Stemming from its mission, the Knowledge Transfer Group is mandated to disseminate knowledge and technologies generated at CERN;
IV. The use of IP management and technology transfer practices compatible with collaborative and open research governed by the CERN IP Policy[3];
V. The general provisions of the CERN IP Policy apply. The purpose of the Software Dissemination Policy detailed in this document is to cover the specificities associated with software technologies.

1.3 . The policy is based upon the following principles that relate personnel generating knowledge and technology, to CERN:

I. As stated in the CERN *Staff Rules and Regulations*[4], all Intellectual property rights generated from work by CERN Personnel are vested in CERN unless specified otherwise in

[3] CERN/FC/5434/RA 5 March 2010
[4] Article I 5.02 of the Staff Rules and Regulations

existing MoUs signed by CERN and third parties, including the MPA's institute as applicable.

II. Any dissemination action engages the Organization's responsibility and reputation and should be undertaken on a sound legal basis and with the best interest of the Organization in mind.
III. The contributions of individuals or groups of individuals should be acknowledged according to the standard practices of the software industry/community;
IV. The opinion, perspective and expectations regarding the evolution of the technology, as expressed by the individuals, or groups of individuals, who developed the software technology, play a major role in choosing its dissemination course;

The distribution of any financial rewards resulting from the dissemination of CERN knowledge and/or technology is governed by the CERN IP Policy[5].

2. The Knowledge Transfer Group responsibilities and mandate

The Knowledge Transfer Group is responsible for facilitating the transfer of CERN technology for public use and benefit. Its mandate is to evaluate, obtain protection for, negotiate licensing and contractual agreements, provide legal advice, and promote CERN technologies. It also assists in developing the commercial dissemination potential of selected technologies by identifying prospective markets. This mandate stems from the mission of the group which is to optimize the impact of CERN's science, technology and know-how on society.

3. Policy provisions

3.1. The operating environment

Despite its uniqueness as a fundamental research laboratory, CERN does not differ from Industry or Academia with respect to software creation. The majority of the laboratory's output is CBS, and software that does not contain external components is the exception rather than the norm.

When referring to components, these are usually OSS components incorporated in code. OS-based CBS has reached a very high level of technical maturity and excellence. The proliferation of open reusable software components that can be freely downloaded and used, but also improved by the community whilst the improvements are given back, once a vision, is today part of the development landscape. A critical mass of excellent reusable software components has long been reached and their use is very widespread, including in businesses that do not have an open exploitation model. As such businesses are often CERN partners, there are a number of important implications to take into account when disseminating software.

Yet, the very high degree of diversification of licences under which the OSS components are distributed often hinders their use since incompatibilities between them create uncertainty and greatly reduce the confidence of development teams in using them. Worse, even incompatibilities

[5] CERN/FC/5434/RA 5 March 2010

between versions of the same licence (e.g. software licenced under GPLv3 cannot use a component licenced under GPLv2 only) can result in very complex situations that, if not considered carefully, can result in exposing the Organization to unnecessary risks.

This ambiguity, and often confusion, about the various licences is amplified by the collaborative environment in which the software is developed. Indeed as is often the case at CERN, many developers from different organizations, institutes, and countries contribute to various degrees to a given software project.

In practice, more often than not, development teams focus on the desired outcome and employ the component that seems most suitable to satisfy the project's quality and efficiency requirements. On some occasions code is automatically inserted by the developer's IDE and this is not always properly identified and documented. The licensing scheme of all these components is rarely taken into account. This is a perfectly valid approach if the CBS is not to be distributed outside CERN and/or the collaboration. This is the most common assumption development teams make.

3.2. Licensing model: freedom to choose

The possible dissemination paths are greatly influenced by the freedom to choose a licensing model. The table below summarizes the various cases[6]:

External code components used	External (non CERN) contributors involved in the development: No	External (non CERN) contributors involved in the development: Yes
Yes	*CASE 2: Moderate uncertainty* • Potential licence incompatibility • Uncertainty in licensing model • Uncertainty in the dissemination path	*CASE 3: High uncertainty* • Potential licence incompatibility • Uncertainly in licensing model • Uncertainty in the dissemination path • Potential diverging opinions
No	*CASE 1: Low uncertainty* • All licensing options open • All dissemination paths available	CASE 4: Moderate uncertainty • All licensing options open • All dissemination paths available • Potential diverging opinions

Table 1 Freedom to operate matrix. Legal uncertainty.

Software development projects fall into one of the four cases shown in *Table 1*:

[6] When addressing software licensing and dissemination this classification follows naturally. The same classification is referred to in the 'Final Report OSL-2012 – Main Volume' by the 'Open Source Licence Task Force' when discussing open source licensing at CERN.

CASE 1 is the simplest, where there is no code reuse nor collaborative development implicating organizations other than CERN. All options are open.

CASE 2 is very common at CERN. Thorough due diligence is necessary to avoid licence incompatibility and legal risks.

CASE 3. Large collaborative software developments are mostly in this category. Open source licensing is the most common choice, however due diligence is necessary to avoid or mitigate compatibility and legal risks.

CASE 4. This is a less common situation at CERN. It does occur and it is important to individually consider the agreements CERN has with the contributor's institute in order to determine the IP ownership and take the appropriate actions.

CASES 2 & 3 that involve CBS can present very complex situations that have legal and reputational implications for the Organization. Before considering the dissemination path for such software a due diligence study of the software is necessary. Such study should mainly focus on contributors, components, their licences, and compatibility.

In all cases once a licensing decision has been made it is important to make sure that any further development of the software respects the licence choice made initially or otherwise reassess the situation when the circumstances change. Equally, it must be ensured that new contributors agree with the licensing decisions associated with the software before their contributions are accepted.

3.3. Software dissemination approach

Taking into account the operating environment described above and in accordance with the mandate previously cited, the approach below is followed, every time the Knowledge Transfer Group is solicited.

I. Software technology initial assessment

Initial assessment of the dissemination potential of the software technology while taking into account the developer's team needs and aspirations. This follows the software disclosure to the Knowledge Transfer Group or ad-hoc analysis in the absence of formal disclosure. This is performed by the Knowledge Transfer Group jointly with the development team.

II. Legal landscape initial assessment

Classification of the technology according to the four cases as described above (3.2).

a. For CASE 2 & 3: Due diligence performed to clarify contributions and contributors. Depending on the case this could be of varying complexity.
b. CASE 4: Due diligence performed to clearly identify contributors and clarify the IP ownership of the software.

III. Licensing

Following the clarification of the legal landscape:

a. CASE 1:

Recommendation to use an Open Source licence when:

i. The technology is a 'platform' technology and can be used as a base upon which other applications of diverse scope can be developed;
ii. The validation of the approach chosen by the developers of the technology and contributions of the community are of paramount importance to the development of the project;
iii. There is a clear will to foster a community around the technology by the developers and/or other key individuals involved;
iv. The technology's potential uses are mostly in Academia.

Recommendation to use a CERN proprietary licence when:

v. Derivative works produced by non-experts in the field can cause prejudice to the Organization;
vi. The application field is specialized, well identified, and there is expressed interest in the technology by a commercial partner;
vii. The dissemination path is associated with commercial technology and the licensing choice will have direct impact on that technology;
viii. The development team has clear and specific reasons to keep control over the source code and are committed to support the technology under these terms only.

b. CASE 2:

i. In most cases, recommendation to use an Open Source licence, unless one or more of the conditions (v) to (viii) of CASE1 above apply and the licences of the components allow it;
ii. If a commercial model has been identified, the choice of Open Source licence is such that privileges community building and contributions back to the project, while it also enables the transfer to third parties within the given commercial model.

c. CASE 3:

i. Open Source licence recommended unless there exists a wider collaboration agreement settling the IP ownership and defining the choice of licensing scheme as a joint proprietary licence;
ii. The choice of the specific Open Source licence is determined by the due diligence and the objectives of the collaborating parties[7];
iii. If not already existing, a joint IP agreement defining the IP ownership and agreed licensing terms is established;

[7] See Note B under 'Notes' in the next page.

d. CASE 4:
    i. Similar to CASE 1 but the decision on licensing requires the approval of all IP owners;
    ii. If not existing already, a joint IP agreement defining the IP ownership and agreed licensing terms is established.

IV. Acknowledgement and Protection

Depending on the licensing scheme decided, appropriate legal statements should be included in the software and associated documentation and contributors should be duly acknowledged[8].

V. Dissemination actions

The Knowledge Transfer Group undertakes a number of concrete actions to promote CERN technologies. These apply equally to software technologies. They range from the simple publication of a technical brief on the Knowledge Transfer Group website to full market research and establishment of agreements with third parties that express interest in the technology. In addition the Knowledge Transfer group promotes CERN technologies through its network of incubators[9] of CERN technologies in Member States and is running programs aiming to expose CERN technologies to potential entrepreneurs. The appropriate path is determined by the outcome of the steps above.

Notes:

A. The Knowledge Transfer Group provides support and expertise to assist in all steps underpinning the dissemination process. The group can be contacted via email (mail-KT@cern.ch) for advice on software licensing and dissemination;
B. In all cases where an OSS licensing scheme is decided, the recommendations of the 'Task Force on Open Source Software Licence at CERN'[10] are taken into consideration;
C. A 'platform technology' is a technology used as a base upon which other applications are developed like for example a software framework. In such cases an OSS licence provides maximum dissemination potential but also benefit for CERN through community contributions.
D. Assigning an OSS licence to a software technology does not automatically imply dissemination[11] nor the creation of a community of contributors.
E. Distributing a technology under an OSS licence does not allow the owner of the technology to decide on its potential use. Thus the clause of non-military use of CERN technologies cannot be enforced.

[8] See Annex I
[9] CERN has concluded agreements with Business Incubation Centres across Member States. To this date, nine such agreements have been concluded.
[10] Final Report OSL-2012 – 10 January 2010
[11] See Annex I

3.4. Dual Licensing

Dual licensing is the practice of distributing software under more than one licence. This can happen during the first distribution of the software or at any moment in the lifecycle of a software application. It is important to note that each distribution has its own life and open source licensing cannot be revoked. A typical case is free distribution under the GPL licence and a proprietary version of the same software, allowing licensees that wish to create derivative works by incorporating the software in their applications, to do so, without being subject to the copyleft provisions of the GPL licence.

Dual licensing has been previously mentioned in some cases as a possibility to meet the needs of certain, often commercial, partners or users. In general, it is a good choice to allow the dissemination of a technology to a partner that would not adopt it otherwise. However there are very few successful examples of commercialization of software distributed on a non OSS licence after having been distributed under an OSS licence.

3.5. Contributor Licence Agreements (CLA)

CERN contributes software developments to a large number of open source communities. These communities increasingly require contributors to sign Contributor Licence Agreements, which give them the necessary rights to redistribute the contributions in future releases. In order to (i) ensure that there are no legal hurdles to signing the CLA, (ii) track, CERN-wide, which communities CERN contributes to, and which CLAs have been signed, and (iii) provide a standard operating procedure to avoid duplication of efforts and a coherent front to the communities, the following procedure is proposed.

Approval procedure

1. Contributor contacts the Group Leader of his group to initiate the process;
2. Contributor or Group Leader contact either CERN Legal or KT Legal for feedback on the CLA;
3. Based on feedback the CLA is approved, negotiated, or rejected by Department Head;
4. If CLA is approved, Contributor contacts KT to initiate signature process;
5. KT allocates contract number (KNxxxx/dept/KT/ttcL);
6. KT initiates EDH procedure for "Letter Licence"[12], including the contributor and his GL in the loop.

Signature

Department Head (for IT Department projects) or KT Group Leader (for projects from other Departments);

Filing

KT will scan the signed CLA, file the document appropriately and inform the contributor and his GL by email. A list of all CLAs signed will be kept by KT in view of creating a common repository available for consultation by all Staff and Fellows.

[12] According to Delegation of signature rights memo IPT/TL/all/3431, the approval loop includes KT Officer in charge, KT Group Leader, KT-IP Section Leader, KT Legal Adviser. Technical officer and his GL shall be manually included in the approval loop.

3.6. Software Patents

Intellectual property protection of computer software using patents, is a subject of many discussions and diverging opinions. For example patentable subject matter is not the same in Europe and the USA as European law expressly excludes 'computer program *per se'* and 'methods of doing business *per se*' from the patentable subject matter. In other countries too, many innovations patentable in Europe and the USA might fall outside of the scope of patentable subject matter. As a result, software patents are controversial, and often the subject of complex and expensive litigation without any proven dissemination benefits.

For the reasons above and in order to avoid reputational risks for the Organization, we do not recommend the use of software patents at CERN.

3.7. Software as a Service (SaaS)

Software as a service refers to the licensing and delivery of centrally hosted software on a subscription basis. It is an additional and very interesting dissemination path for certain CERN applications.

The KT group believes that there are many good opportunities to further promote CERN works using this option. It can give access to elaborate software applications to licensees with limited resources, allow for occasional users and thus broaden the use of CERN software, while offering the latest software to subscribers. At the same time it shifts the burden of running a service to CERN which requires resources and creates certain obligations for the Organization.

KT believes that the provision of software as a service by CERN, for certain software applications, can be a first concrete step before handing the service over to a spin out company willing to develop the activity and market for such services. In this way, dissemination is enhanced while at the same time entrepreneurial initiatives based on the Organization's technologies are encouraged.

A first condition for such an approach is that the development team of a specific software application embraces and supports the idea. Even though, SaaS raises a number of important questions of legal, financial, technical, and resource planning nature that need to be addressed by a coherent policy across the Organization if it is to be officially and commonly adopted as an additional dissemination path for CERN software applications.

These questions need to be tackled in collaboration with the various services concerned. A wider consultation is therefore necessary before establishing a policy for the Organization. For this reason, SaaS as an additional dissemination path, will be the object of a separate policy document.

Annex - Licensing, copyright notices and contribution acknowledgments

1. How to licence software under an OSS licence

This example considers the GNU Public Licence (GPL) and the GNU Lesser General Public Licence (LGPL) which are free software licences published by the Free Software Foundation (FSF) .

For code distributed under LGPL,

a. In the code distribution directory:

Include a file named 'COPYING.LESSER' or LICENCE.TXT which reproduces the LGPL v.X licence verbatim (where X corresponds to the version of the licence you will use) see http://www.gnu.org/licenses/lgpl.txt but also include the equivalent GPL version (http://www.gnu.org/licenses/gpl.txt) in this file, since LGPL is a set of extra permissions on top of the GPL. Or you can have 2 files, one file named COPYING with the GPL licence and one named 'COPYING.LESSER' with the LGPL text.

b. In every source file:

Include the following statements,

'© Copyright [the copyright owners] [13][The year of the first release of the software]. All rights not expressly granted are reserved'. [Optional: an email address, preferably a non-personal one].

Note that the year, is the year that you finished preparing the code release. If there are more years you can put a range, e.g. 2013-2015. So if the code was ready for release in 2014, put 2014 as the year (or start year). If you use a range, this shows the copyright protection covers all updates or revisions made during the period listed.

It is essential to add the copyright statement above to all other material, documentation, website, etc.

For software written by large collaborations at CERN, notably the large experiments, you can use the following statement:

[13] If CERN is not the only legal copyright owner, list all the owners, eg. *CERN and XXX, YYY, ZZZ*.
If too many, you can refer to the as *'the copyright Holders of [the name of the project], see [link] for details'* and provide a like to a file with all the owners.

'© Copyright CERN for the benefit of [XYZ collaboration] [14][The year of the first release of the software]. All rights not expressly granted are reserved'. [Optional: an email address, preferably a non-personal one].

However you must be aware that this statement essentially implies transfer of all copyright to CERN, as a legal entity. This entails for CERN the right to choose the licence. It is understood that collaborations should be consulted and agree on this. Make sure that everyone involved understands the implications of this © statement. Alternatively if all collaborating institutes are listed, as in the first example, each and every one must explicitly agree on the licence choice.

Then, just after the © statements you can add the standard FSF text:

> This file is part of **[Name of your software package].**
>
> **[Name of your software package]**is free software: you can redistribute it and/or modify it under the terms of the GNU Lesser General Public Licence as published by the Free Software Foundation, either version [X] of the Licence, or (at your option) any later version.
>
> **[Name of your software package]**is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public Licence for more details.
>
> You should have received a copy of the GNU Lesser General Public License along with **[Name of your software package].** If not, see <http://www.gnu.org/licenses/>.

For code distributed under GPL, just replace LPGL by GPL in the text, include only a file named 'COPYING or LICENSE.TXT' which reproduces the GPL v.X licence verbatim (where X corresponds to the version of the licence you will use) and omit the part about LGPL.

If you are using another Open Source licence, you can use the above model with your licence providing, in the software distribution directory, a 'COPYING or LICENCE.TXT' file that reproduces the licence used, and in each source file, the appropriate copyright statement ©, and few lines specifying the terms of distribution of the software.

2. How to licence software under a 'proprietary' licence

If the decision taken is to licence the software under proprietary CERN licence then the Knowledge Transfer Group can provide help and expertise in writing such a licence. There is no obligation to make public such a licence since it is granted on individual terms. However it

[14] If CERN is not the only legal copyright owner, list all the owners, eg. *CERN and XXX, YYY, ZZZ*.
If too many, you can refer to the as *'the copyright Holders of [the name of the project], see [link] for details'* and provide a like to a file with all the owners.

is important to include a copyright statement and clarify the licensing terms of the software. The example below can be used for this purpose.

"© Copyright CERN 2014. All rights reserved. This software is released under a CERN proprietary software licence. Any permission to use it shall be granted in writing. Requests shall be addressed to CERN through mail-KT@cern.ch"

And the following, in all documentation:

"© Copyright CERN 2014. All rights reserved"

3. Acknowledgements

You can have an Acknowledgements or Credits section after the copyright statement. If you acknowledge external OS software components you can do it as in the example below:

> This application (or **[Name of your software package]**)
>
> uses Open Source components. You can find the source code of their open source projects along with license information below. We acknowledge and are grateful to these developers for their contributions to open source.
>
> Project: Express-Combo https://github.com/yahoo/express... Copyright 2013 TheGoodCorp Inc. All right reserved. License (3-Clause BSD) https://github.com/yahoo/express...

Individual contributors

To acknowledge individual contributors, you can have a section after the copyright statement like:

> The author(s) would like to acknowledge the much appreciated contribution to the application (or to **[Name of your software package]**) of the following people below: *(In alphabetical order)*
>
> *Name Firstname <email address or website or other>*
>
> *Name Firstname <email address or website or other>*

If you have many contributors you can put his information in a separate file named 'AUTHORS' and place it in the same directory as the licence file.

4. Centralize copyright information

If your project is made of many files you can centralize the copyright information by having the following notice in every file and adding a COPYRIGHT file at the top level directory:

> Copyright [YEAR] [The copyright holders]. See the COPYRIGHT file at the top-level directory of this distribution and at [http://example.org/project/COPYRIGHT].

You can do the same with licensing and refer to the central licensing notice by adding an equivalent statement.