



FOSSology: Component Analysis

Part I: Why we need to look at licenses?

What is Open Source Software?

Very briefly

- Made available with source code
- Providing the right to study, modify, redistribute, etc.

Open Source Initiative (OSI)

- Free Redistribution
- Source Code
- Derived Works
- Integrity of The Author's Source Code
- No Discrimination Against Persons or Groups
- No Discrimination Against Fields of Endeavor
- Distribution of License
- License Must Not Be Specific to a Product
- License Must Not Restrict Other Software
- License Must Be Technology-Neutral

Further reading:

- **Open Source Initiative**
<https://opensource.org/>
- **Wikipedia**
https://en.wikipedia.org/wiki/Open-source_software



What is Open Source Software Licensing?

Basics about Licensing

- Obligations
- Restrictions
- Rights

Example for GPL version 2.0 (*selection*)

- **Obligations**
 - Include original source, copyrights
 - Include license
- **Restrictions**
 - Cannot be held liable
- **Rights**
 - Modify
 - Distribute

Further reading:

- The Linux Foundation provides a public training including basics about licensing <https://training.linuxfoundation.org/linux-courses/open-source-compliance-course/compliance-basics-for-developers>
- The TLDR Legal pages at <https://tldrlegal.com/> provide **OUTLINES** about license obligations, restrictions, rights



Open Source Software Licenses

Open Source Licenses

- There are many of them
- “License proliferation”
- They can be categorized, but requires effort and assessment
 - Copyleft vs. permissive licenses
 - GPL version 2 compatibility
 - Patent left effect
 - ... a lot more possible.

SPDX Software Package Data Exchange®

SPDX License List

The SPDX License List is a list of commonly found open source licenses and exceptions for the purposes of being able to easily and efficiently identify such licenses and exceptions in an SPDX document (or elsewhere). The SPDX License List includes a standardized short identifier, full name for each license, vetted license text, other basic information, and a canonical permanent URL for each license and exception. By providing a short identifier, users can efficiently refer to a license without having to redundantly reproduce the full license. License exceptions can be used with the License Expression Syntax operator, "WITH" to create a license with an exception.

- **License Exceptions:** The list of commonly found exceptions to open source licenses, which can be used with the License Expression Syntax operator, "WITH" to create a license with an exception.
- **Master Files:** The HTML pages you see here are generated from the master files for the SPDX License List. The master files include a spreadsheet listing all the licenses, deprecated licenses, and license exceptions, and the text for each license in a .txt file. These files are available in a Git repository.
- **Overview:** For general information about the SPDX License List, including principles for inclusion of a license and an explanation of the fields contained on the list.
- **Matching Guidelines:** Guidelines for what constitutes a license match to the SPDX License List. For licenses that include markup, the license text on the HTML pages here will display omissible text in blue and replaceable text in red (see Guideline #2 for more information).
- **Request New License:** For instructions on how to propose additional licenses or license exceptions be added to the SPDX License List.

Version: 2.3 Jan 05, 2016

Full name	Identifier	OSI Approved?	Text
Setix Glide License	GLide		License Text
Abobytes License	Aboby2e9		License Text
Academic Free License v1.1	AFL-1.1	Y	License Text
Academic Free License v1.2	AFL-1.2	Y	License Text
Academic Free License v2.0	AFL-2.0	Y	License Text
Academic Free License v2.1	AFL-2.1	Y	License Text
Academic Free License v3.0	AFL-3.0	Y	License Text
Academy of Motion Picture Arts and Sciences BSD	AMPAS		License Text
Adaptive Public License 1.0	APL-1.0	Y	License Text
Adobe Glyph List License	Adobe-Glyph		License Text
Adobe Postscript AFM License	AFMPL		License Text
Adobe Systems Incorporated Source Code License Agreement	Adobe-2006		License Text
Affero General Public License v1.0	AGPL-1.0		License Text
Affero License	Affero-1.0		License Text
Aladdin Free Public License	Aladdin		License Text
Amazon Digital Services License	ADSL		License Text
AMD's pipe_map.c License	AMSPLEA		License Text
ANTLR Software Rights Notice	ANTLR-PD		License Text
Apache License 1.0	Apache-1.0		License Text
Apache License 1.1	Apache-1.1	Y	License Text
Apache License 2.0	Apache-2.0	Y	License Text
Apple MIT License	MITL		License Text
Apple Public Source License 1.0	APSL-1.0	Y	License Text
Apple Public Source License 1.1	APSL-1.1	Y	License Text
Apple Public Source License 1.2	APSL-1.2	Y	License Text
Apple Public Source License 2.0	APSL-2.0	Y	License Text
Artistic License 1.0	Artistic-1.0	Y	License Text
Artistic License 1.0 (Perl)	Artistic-1.0-Perl	Y	License Text
Artistic License 1.0 weakcase B	Artistic-1.0-weakB	Y	License Text
Artistic License 2.0	Artistic-2.0	Y	License Text
Attribution Assurance License	AAL	Y	License Text
Bahvel License	Bahvel		License Text

Further reading:

- See the SPDX License List pages at <http://spdx.org/licenses/> to see a selection of popular open source licenses

Analysis – Not Only Scanning but also Concluding

What are the goals?

It is about telling the software developers what to care for:

1. **Identify obligations to fulfill, including providing for example**
 - a) Credits (copyrights, prominent notice)
 - b) Information about licensing
 - c) Source code
2. **Check for license compatibility**
 - a) Simple example: GPL version 2 and CC-SA (copyleft effect examples)
3. **Be able to check desired usage**
 - a) Does your business case match the licensing?
 - b) Is the context of usage envisaged from the OSS publishers





FOSSology: Component Analysis

Part II: Motivating Examples

Examples for Licensing – Clarification Needed

(all examples from the same package zlib-1.2.8.tar.gz)

* gzlog.c

* Copyright (C) 2004, 2008, 2012 Mark Adler. all rights reserved

* For conditions of distribution and use, see copyright notice in gzlog.h

* version 2.2, 14 Aug 2012

/* gzclose.c -- zlib gzclose() function

* Copyright (C) 2004, 2010 Mark Adler

* For conditions of distribution and use, see copyright notice in zlib.h

* Copyright (C) 2003, 2012 Mark Adler

* For conditions of distribution and use, see copyright notice in blast.h

* version 1.2, 24 Oct 2012

* Copyright (C) 2002-2013 Mark Adler

* For conditions of distribution and use, see copyright notice in puff.h

* version 2.3, 21 Jan 2013

* Copyright (C) 2003 Cosmin Truta.

* Derived from original sources by Bob Dellaca.

* For conditions of distribution and use, see copyright notice in readme.txt

- These real world examples show only references to a licensing statement, which is found elsewhere
- A scanner for text cannot generally determine the licensing from these files without capturing the particular occurrence and context
- A person is required to clarify the licensing

Examples for Licensing – Clarification Needed 2

(from `zlib-1.2.8.tar/ zlib-1.2.8/ contrib/ amd64/ amd64-match.S`)

```
/*  
 * match.S -- optimized version of longest_match()  
 * based on the similar work by Gilles Vollant, and  
 * Brian Raiter, written 1998  
 *  
 * This is free software; you can redistribute it  
 * and/or modify it  
 * under the terms of the BSD License. Use by  
 * owners of Che Guevarra  
 * parafernalia is prohibited, where possible, and  
 * highly discouraged  
 * elsewhere.  
 */
```

...

Another real world example:

- What was meant to be fun (or a political statement), is difficult for license analysis
- *Question: Can this be ignored or shall the origination check for ownership of referred parafernalia?*

Examples for Licensing – Clarification Needed 3

(TrueCrypt 7.1a Source.zip/ Common/ Cache.c)

Legal Notice: Some portions of the source code contained in this file were derived from the source code of Encryption for the Masses 2.02a, which is Copyright (c) 1998-2000 Paul Le Roux and which is governed by the 'License Agreement for Encryption for the Masses'. Modifications and additions to the original source code (contained in this file) and all other portions of this file are Copyright (c) 2003-2008 TrueCrypt Developers Association and are governed by the TrueCrypt License 3.0 the full text of which is contained in the file License.txt included in TrueCrypt binary and source code distribution packages. */

...

Another real world example:

- The text is actually occurs with this formatting in file
- Very special occurrence in fact that requires review



Examples for Licensing – Clarification Needed 4

(TrueCrypt 7.1a Source.zip/ Crypto/ AesSmall.h)

The free distribution and use of this software in both source and binary form is allowed (with or without changes) provided that:

1. distributions of this source code include the above copyright notice, this list of conditions and the following disclaimer;
2. distributions in binary form include the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other associated materials;
3. the copyright holder's name is not used to endorse products built using this software without specific written permission.

ALTERNATIVELY, provided that this notice is retained in full, this product may be distributed under the terms of the GNU General Public License (GPL), in which case the provisions of the GPL apply INSTEAD OF those given above.

DISCLAIMER

This software is provided 'as is' with no explicit or implied warranties in respect of its properties, including, but not limited to, correctness and/or fitness for purpose.

Another real world example:

- How does the organization decide which license to choose
- There may be an external reason for choosing either one or the another



Examples for Licensing – Attention Needed 5

```
/*  
* Copyright (C) 2008 - 2015 ***, Inc. All rights reserved.  
*  
* Permission is hereby granted, free of charge, to any person obtaining a copy  
* of this software and associated documentation files (the "Software"), to deal  
* in the Software without restriction, including without limitation the rights  
* to use, copy, modify, merge, publish, distribute, sublicense, and/or sell  
* copies of the Software, and to permit persons to whom the Software is  
* furnished to do so, subject to the following conditions:  
*  
* The above copyright notice and this permission notice shall be included in  
* all copies or substantial portions of the Software.  
*  
* Use of the Software is limited solely to applications:  
* (a) running on a *** device. or  
* (b) that interact with a *** device through a bus or interconnect.  
*  
* THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXP  
* IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY  
* FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE  
* *** CONSORTIUM BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY,  
* WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF  
* OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE  
* SOFTWARE.  
*  
*/
```

Another real world example:

- It is actually based on an MIT license text
- MIT license: very popular and permissive
- Added two conditions inside the original license text
 - (not so permissive)
- Very hard to identify with



Examples Copyrights

- # Copyright Siemens AG
- # Copyright 2010 Siemens AG
- # Copyright 2010,2011,2012 Siemens AG
- # © 2013-2015 Siemens AG
- # (c) 2013-2015 Siemens AG

See here:

- Copyrights
- Year
- Organization
- Contact authors

fossology Home Search Browse Upload Jobs Organize Admin Help
Copyright/Email/URL/Author Browser
3.1.0rc1-1-g39b0e73, commit: [#39b0e7] 2016/03/31 19:19 UTC built @ 2016/03/31 19:28 UTC

Folder: **Software Repository/**
commons-collections4-4.1-src (1).zip

License Browser | File Browser | ECC | Browse | Copyright/Email/URL | Licenses

Show all
Jump to: [Emails](#) | [URLs](#) | [Authors or Maintainers](#)
Show 50 entries Search:

Count	Copyright	
541	copyright ownership. The ASF licenses this file to You under the Apache License, Version 2.0 (the "License"); you may not use this file except in compliance with the License. You may obtain a copy of the License at	✘
7	copyright ownership. The ASF licenses this file to You under the Apache License, Version 2.0 (the "License"); you may not use this file except in compliance with the License. You may obtain a copy of the License at http://www.apache.org/licenses/LICENSE-2.0 Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.	✘
7	copyright ownership. The ASF licenses this file to you under the Apache License, Version 2.0 (the "License"); you may not use this file except in compliance with the License. You may obtain a copy of the License at	✘
2	Copyright 2013 The Apache Software Foundation.	✘
1	(c) You must retain, in the Source form of any Derivative Works	✘
1	Copyright [yyyy] [name of copyright owner]	✘
1	copyright ownership. The ASF licenses this file to You under the Apache License, Version 2.0 (the "License"); you may not use this file except in compliance with the License. You may obtain a copy of the License at http://www.apache.org/licenses/LICENSE-2.0 Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License. -->	✘
1	copyright owner or by an individual or Legal Entity authorized to submit on behalf of	✘
1	Copyright © 2001- $\{current.year\}$ - Apache Software Foundation" use="true" encoding="math\{compile.encoding\}" source="math\{compile.source\}"> classpath refid="compile.classpath"/> link href="math\{jdk.javadoc\}"> link href="math\{collections.javadoc\}"> javadoc> target>	✘
1	Copyright 2001-2015 The Apache Software Foundation	✘
1	(C) object);	✘
1	(C) object);	✘

Showing 1 to 12 of 12 entries

Jump to: [Copyright Statements](#) | [URLs](#) | [Authors or Maintainers](#)
Show 50 entries Search:

Count	Email	
23	dev@commons.apache.org	✘
2	user@commons.apache.org	✘

Examples for Copyrights – Clarification Needed

1. **Examples of incomplete statements**

- a) Year missing
- b) Individual or organization missing

2. **Copyright missing**

- a) Again: What about orphaned files? Who wrote them?

3. **Unambiguous copyright information for every file**

- a) Copyright or copyright sign, year or years, individual or organization
- b) Common understanding is covered by the Berne convention

4. **How about authored, thanks to, contributed?**

- a) They do not express copyright, consult your legal counsel for guidance in these cases

- The Wikipedia article on the Berne convention presents the basics and origin about copyright law
https://en.wikipedia.org/wiki/Berne_Convention



FOSSology: Component Analysis

Part III: Scope and Terminology

Analyzing the License Situation of a Component

Analysis & Clarification of Compliance Issues

1. **Analyzing Component vs. Usage Analysis**
 - a) On a per component basis
 - b) Shall not consider a particular usage case – enabling reuse of license analysis
 - c) Opposed the usage clearing: considers all involved components

- As previous licensing examples have shown, expert knowledge is required
- As such, available tools, such as FOSSology will need experts to clarify ambiguous licensing situations
- A license analysis tool does not replace the expert



Misconceptions: Other Terms and Analysis

Component Analysis & Clarification of Component License Condition

1. License Analysis

- a) How do call what: license analysis vs. component analysis?
- b) There is also an analysis of the license required: clarifying license terms
For example: new licenses, rare licenses, licenses written for the US law, used in Europe, etc.

2. Looking at OSS components or your own product?

- a) A product may consist of many OSS components a separate analysis is required
- b) An analysis on product level considers incompatible licensing or business case compatibility



License Analysis of a Component

1. Overall goals

- a) Mitigate risk
- b) Help the engineering with definitive instructions
- c) Building a list of reusable assets, requires usage independent clearing of component

2. How to perform a component analysis for licensing

- a) Reviewing file notices
- b) Reviewing license texts
- c) Determining the exact text for obligations (rights, restrictions)
- d) Identify new licenses
- e) License clarification required?
 - Expert group available
 - Legal advice required

- The FOSSology project enables the tool-based identification of licenses:
 - Finding license relevant text
 - Aggregating license occurrences in a hierarchical view
 - Highlighting text occurrences
 - Identifying wording differences compared with reference license text
 - Searching for licensing phrases
 - Reporting of found licenses in software



© Siemens AG 2016, Linux Foundation

CC-BY-SA 4.0

<https://creativecommons.org/licenses/by-sa/4.0/>

Internet

<https://www.fossology.org>

Github

<https://github.com/fossology/fossology>

Further Links

<https://github.com/sw360/sw360portal>

