Choosing a license for open source code and open data – experiences from the open_eGo project

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The open source license model

Principle: any utilization of software is prohibited (§ 69c of German UrhG)

Exception:

- Legal permission
- Contractual permission:
  **License:** Concession of rights to use as a contractual permission.

Minimum requirements for open source software:

- Right to use the software
- Right to duplicate software
- Right to distribute software
- Right to modify software

Necessary preconditions for attending the rights:

- freely accessible sourcecode
- no license fees

Source: Dr. Till Jaeger
## Comparision of license types

<table>
<thead>
<tr>
<th>Copyleft</th>
<th>Non-Copyleft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software can be freely used and modified, but can only be redistributed / published under the same copyleft-license.</td>
<td>Software can be freely used, modified and distributed. Dependent on the license a note to the origin of the software is required.</td>
</tr>
<tr>
<td>+ Transparency of software development</td>
<td>– No chance to track software development</td>
</tr>
<tr>
<td>+ Software remains open-source at all times</td>
<td>– Software can become closed-source</td>
</tr>
<tr>
<td>Modifications must be made transparent with date</td>
<td>(dependent on license) no obligation to mark modifications</td>
</tr>
<tr>
<td>– combination of code with two copyleft licenses only possible if explicitly compatible</td>
<td>+ Combination of non-copyleft code always possible, combinations with copyleft code easier</td>
</tr>
<tr>
<td>– possible barrier for software application by third parties</td>
<td>+ no restrictions of further development and application of software</td>
</tr>
</tbody>
</table>
Relevant copyleft licenses

**Principle:** Redistributions must always be made under original license.

<table>
<thead>
<tr>
<th>License</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPL - GNU General Public License, Version 3 (Link)</td>
<td>classic option for licenses with a strong copyleft effect. Software using GPL-licensed software must be published under GPL.</td>
</tr>
<tr>
<td>LGPL - GNU Lesser General Public License (Link)</td>
<td>specific form of GPL. Copyleft only applies if LGPL software is extended or modified, but not if libraries are embedded: if software using LGPL software exceeds character of a library, it must be LGPL-licensed.</td>
</tr>
<tr>
<td>AGPL - GNU Affero General Public License, Version 3 (Link)</td>
<td>Extension of GPL. Sourcecode must also be made available if software is only used in networks / on a server. <strong>Compatible to GPLv3. FSF recommends to use AGPL (!)</strong></td>
</tr>
</tbody>
</table>

Sources: Dr. Till Jaeger, https://www.it-economics.de/blog/2016-3/pt9oi6kzodgcl1tmsfc1yn1vzq4usb?rq=lizen
## Relevant non-copyleft licenses

**Principle:** Modified software may be redistributed under very liberal license terms.

<table>
<thead>
<tr>
<th>License</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>BSD License (Link)</td>
<td>very prominent BSD-typed license. These licenses are defined to be very liberal in order to freely use, extend, modify and publish software.</td>
</tr>
<tr>
<td>MIT License (Link)</td>
<td>brief and simple non-copyleft license. Software may be published under any license, but original MIT license text must be provided and original holder of rights must be credited.</td>
</tr>
<tr>
<td>Apache License 2.0 (Link)</td>
<td>quite popular permissive license. Software may be published under any license, but original Apache license text must be provided, original holder of rights must be credited and changes must be marked.</td>
</tr>
</tbody>
</table>

Sources: Dr. Till Jaeger, [https://www.it-economics.de/blog/2016-3/pt9oi6kzodgcl1tmsfc1yn1vzq4usb?rq=lizenz](https://www.it-economics.de/blog/2016-3/pt9oi6kzodgcl1tmsfc1yn1vzq4usb?rq=lizenz)
III. Licensing open data
Many projects do not only publish code, but also data (Inputs and outputs). In order to allow a proper usage of these data, it should also be licensed.

The central challenge is to ensure the compatibility of all data sources, which may hinder the redistribution of data from third-parties: when publishing processed data all original input licenses must be considered.

**Example:**
OSM-data (License: ODbL) and zensus-data (License: Deutschland Datenlizenz) are used to create grid districts relevant for demand allocation in open_eGo. Resulting data must be licensed under ODbL (copyleft effect) and credit other input sources.

The license of a database is not that relevant for the data itself since each dataset must be licensed individually.
Lessons learned from open_eGo

- Publishing data based on OSM in a database/table format is considered as a *derived database* and not a *produced work* (e.g. maps).

- In this case data must be published under ODbL ⇒ as soon as OSM data is involved and republished, use ODbL!

- Other inputs are credited as a source in metadata.

- If ODbL and other strong copyleft licensed data are used, licenses need to be compatible or data cannot be published ⇒ each dataset should be checked for input data, its licenses and their compatibility.
IV. Examples from open_eGo
open_eGo requirements & similar projects

1. Cooperation agreement of open_eGo recommends a copyleft license
2. eGo-Tool and its data shall be usable by anyone (including commercial use).
3. Code and data shall remain open source.

Licensing in other open source projects:

<table>
<thead>
<tr>
<th>Project</th>
<th>License</th>
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<tbody>
<tr>
<td>oemof</td>
<td>GNU GPLv3</td>
</tr>
<tr>
<td>PyPSA</td>
<td>GNU GPLv3</td>
</tr>
<tr>
<td>PyPOWER</td>
<td>BSD 3-Clause License</td>
</tr>
<tr>
<td>OSeMOSYS</td>
<td>Apache License, Version 2.0</td>
</tr>
<tr>
<td>SciGRID</td>
<td>Apache License, Version 2.0</td>
</tr>
<tr>
<td>osmTGmod</td>
<td>Apache License, Version 2.0</td>
</tr>
<tr>
<td>OPSD</td>
<td>MIT License</td>
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</table>
Licenses chosen for open_eGo

Code
- License: AGPL v3.0
  - Motivation: eGo tool remains open-source, even in network-based applications.
  - Link: https://github.com/openego

Data
- License: ODbL v1.0
  - Motivation: eGo data model is heavily dependent on OSM data which has a strong copyleft effect (ODbL).
  - Link: http://oep.iks.cs.ovgu.de/

Additionally, we license artwork, plots and text generated in open_eGo under Creative Commons Attribution 4.0 International License (CC BY 4.0).

We give the copyright per institution and not as a development group.
Thanks for your attention!

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Sources

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- http://de.creativecommons.org/was-ist-cc/
- http://opendatacommons.org/licenses/odbl/1.0/
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- http://opendatahandbook.org/guide/de/how-to-open-up-data/
- http://choosealicense.com/licenses/
- https://www.it-economics.de/blog/2016-3/pt9oi6kzodgcl1tmsfc1yn1vzq4