

Legal and practical aspects of Open Source software in industry

Legal Heidelberg OSADL Talks, September 29, 2020, Online Session 3

How can OSADL help with license compliance – Part II
OSADL Open Source License Obligations Checklists
OSADL License Compliance Audit
OSADL legal FAQ collection and legal assessments

Open Source licenses

- Open Source licenses are a sub-group of licenses with certain commonly agreed-on properties.
- A number of **common rights** are granted for Open Source software, but the **obligations** of different licenses may **vary greatly**.
- The license obligations of all licenses contained in a project have to be fulfilled.

Canonical license obligations checklists

- The difficulty lies in understanding the **obligations** formulated in different license texts.
- A common understanding of license obligations is required.
- The **compatibility** of different Open Source licenses with each other and with proprietary licenses needs to be evaluated.

Open Source License Obligations Checklists

- ✓ **USE CASE Source code delivery** Ref.
 - YOU MUST Provide Copyright notice** Ref. Interpretation △ All or some
 - ATTRIBUTE Highlighted** Ref.
 - ATTRIBUTE Appropriately** Ref.
 - YOU MUST Provide Warranty disclaimer** (Warranty disclaimer ⇔) Ref.
 - ATTRIBUTE Highlighted** Ref.
 - ATTRIBUTE Appropriately** Ref.
 - YOU MUST NOT Modify License notices** Ref.
 - YOU MUST NOT Modify Warranty disclaimer** (Warranty disclaimer ⇔) Ref.
 - YOU MUST Provide License text** Ref.
- ✓ **IF Software modification** Ref.
 - YOU MUST Grant License** Ref.
 - ATTRIBUTE Original license** Ref.
 - YOU MUST Provide Modification notice** Ref.
 - YOU MUST Provide Modification date** Ref.
- ✓ **IF Interactive AND Display License announcement** Ref.
 - YOU MUST Display License announcement** Ref.
 - YOU MUST Display Copyright notice** Ref. Interpretation △ All or some
 - YOU MUST Display Warranty disclaimer** Ref.
 - YOU MUST Reference License text** Ref.
 - YOU MUST NOT Restrict Granted rights** Ref. Interpretation △ Legal and/or other means

<https://www.osadl.org/OSLOC>
(will be under CC0-1.0)

Checklist elements

- “Language” elements, e.g.
 - **YOU MUST** (to encode a license obligation)
 - **YOU MUST NOT** (to encode a license prohibition)
- Actions to encode what MUST and what MUST NOT be done, e.g.
 - YOU MUST ***Provide***
 - YOU MUST NOT ***Restrict***
- Objects to the actions, e.g.
 - YOU MUST ***Provide*** **Copyright notice**
 - YOU MUST NOT ***Restrict*** **Granted rights**

Checklist elements with tooltips

- “Language” elements

- **YOU MUST** to encode a license obligation
- **YOU MUST NOT** to encode a license prohibition

The **YOU MUST NOT** language construct specifies an individual license prohibition, i.e. what not to do, probably among other things, to become license compliant. It may optionally be followed by indented language constructs such as **ATTRIBUTE** that further describe the license prohibition.

- Actions to encode what **MUST** and what **MUST NOT** be done, e.g.

- **YOU MUST** *Provide*
- **YOU MUST NOT** *Restrict*

The action to **Restrict** means to partly or completely withdraw formerly granted permissions or supplied access conditions.

- Objects to the actions, e.g.

- **YOU MUST** *Provide* Copyright notice
- **YOU MUST NOT** *Restrict* Granted rights

The term **Granted rights** describes contractual permissions of use or access that otherwise would not exist.

Example: BSD-2-Clause

☑ USE CASE **Source code delivery** [Ref.](#)

YOU MUST *Forward* **Copyright notices** [Ref.](#)

YOU MUST *Forward* **License text** [Ref.](#)

YOU MUST *Forward* **Warranty disclaimer** [Ref.](#)

☑ USE CASE **Binary delivery** [Ref.](#)

YOU MUST *Provide* **Copyright notices** In **Documentation OR Distribution material** [Ref.](#)

YOU MUST *Provide* **License text** In **Documentation OR Distribution material** [Ref.](#)

YOU MUST *Provide* **Warranty disclaimer** In **Documentation OR Distribution material** [Ref.](#)

Example: BSD-2-Clause

☐ USE CASE **Source code delivery** Ref.

☒ USE CASE **Binary delivery** Ref.

YOU MUST *Provide Copyright notices* In **Documentation OR Distribution material** Ref.

YOU MUST *Provide License text* In **Documentation OR Distribution material** Ref.

YOU MUST *Provide Warranty disclaimer* In **Documentation OR Distribution material** Ref.

Example: BSD-2-Clause

USE CASE Binary delivery

- ☐ YOU MUST *Provide* Copyright notices In Documentation OR Distribution material
- ☐ YOU MUST *Provide* License text In Documentation OR Distribution material
- ☐ YOU MUST *Provide* Warranty disclaimer In Documentation OR Distribution material

Example: GPL-2.0-only (excerpt)

❑ USE CASE **Source code delivery** Ref.

❑ USE CASE **Binary delivery** Ref.

Example: GPL-2.0-only (excerpt)

☐ USE CASE **Source code delivery** Ref.

☒ USE CASE **Binary delivery** Ref.

☐ EITHER Ref.

YOU MUST *Provide* **Source code** Ref.

☐ OR

YOU MUST *Provide* **Written offer** (Written offer ⇔) Ref.

Example: GPL-2.0-only (excerpt)

☐ USE CASE **Source code delivery** Ref.

☒ USE CASE **Binary delivery** Ref.

☐ EITHER Ref.

YOU MUST **Provide Source code** Ref.

☒ OR

YOU MUST **Provide Written offer** (**Written offer** ⇔) Ref.

ATTRIBUTE **Duration** 3 years Ref.

ATTRIBUTE To **Any third party** Ref.

ATTRIBUTE **No profit** Ref.

ATTRIBUTE **Delayed source code delivery** Ref.

ATTRIBUTE **Machine-readable** Ref.

ATTRIBUTE **Customary medium** Ref.

ATTRIBUTE **Including Tool chain information** Ref.

ATTRIBUTE **Including Installation scripts** Ref.

Example: GPL-2.0-only with reference

✓OR

YOU MUST *Provide Written offer* (Written offer ⇔) Ref.

ATTRIBUTE **Duration** 3 years Hide ref.

b) Accompany it with a written offer, **valid for at least three years**, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

ATTRIBUTE To **Any third party** Ref.

ATTRIBUTE **No profit** Ref.

ATTRIBUTE **Delayed source code delivery** Ref.

ATTRIBUTE **Machine-readable** Ref.

ATTRIBUTE **Customary medium** Ref.

ATTRIBUTE **Including Tool chain information** Ref.

ATTRIBUTE **Including Installation scripts** Ref.

Approval and feedback

Request for approval of checklists project participants

Please assist us to validate the above text. When clicking on the below button, you confirm that you approve the text in its current version taking into account the disclaimer below the text.

Approved

Request for feedback from checklists project participants

Please assist us to improve the above text taking into account the disclaimer below the text. Your feedback will be integrated into the text as soon as possible, and you will be notified. We gratefully acknowledge any comments, amendments and additions.

You may type or paste your text here.

Submit

Additional information – Interpretation

- Where a license is unclear, a possible interpretation is given.

YOU MUST NOT *Restrict* **Granted rights**

Ref.

Interpretation

⚠ *Legal and/or other means*

Additional information – Interpretation

- Where a license is unclear, a possible interpretation is given.

YOU MUST NOT *Restrict* **Granted rights**

Ref.

Hide interpretation

Legal and/or other means: The named 'further restrictions' may relate to the restrictions of this license and, thus, prohibit further restricting legal clauses; however, it also is conceivable that any other means such as technical hindrance methods are included in the meaning of 'further restrictions'.

Additional information – Copyleft clause

- Obligations for derivative works: Is there a copyleft clause? (e.g. MPL-2.0: Yes)

Copyleft clause

- Yes

All distribution of Covered Software in Source Code Form, including any Modifications that You create or to which You contribute, **must be under the terms of this License**. You must inform recipients that the Source Code Form of the Covered Software is governed by the terms of this License, and how they can obtain a copy of this License. You may not attempt to alter or restrict the recipients' rights in the Source Code Form.

Additional information – Copyleft clause

- Obligations for derivative works: Is there a copyleft clause? (e.g. OpenSSL: Questionable)

Copyleft clause

- Questionable

The licence and distribution terms for any publically available version or derivative of this code cannot be changed. i.e. this code cannot simply be copied and put under another distribution licence [including the GNU Public Licence.]

Questionable copyleft: The final statement of the appended SSLeay License "The licence and distribution terms for any publically available version or derivative of this code cannot be changed" normally must be interpreted as a copyleft clause, but there is no general consensus on this interpretation. Therefore, a recommendation on the compatibility of the OpenSSL license cannot be given.

Additional information – Patent hints

- Does the license contain patent hints? (e.g. EPL-2.0)

Patent hints

- Yes [Hide ref.](#)

b) Subject to the terms of this Agreement, each Contributor hereby grants Recipient a non-exclusive, worldwide, royalty-free patent license under Licensed Patents to make, use, sell, offer to sell, import and otherwise transfer the Contribution of such Contributor, if any, in Source Code or other form. This patent license shall apply to the combination of the Contribution and the Program if, at the time the Contribution is added by the Contributor, such addition of the Contribution causes such combination to be covered by the Licensed Patents. The patent license shall not apply to any other combinations which include the Contribution. No hardware per se is licensed hereunder.

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If Recipient institutes patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Program itself (excluding combinations of the Program with other software or hardware) infringes such Recipient's patent(s), then such Recipient's rights granted under Section 2(b) shall terminate as of the date such litigation is filed.

Additional information – Templates

- Text templates for various circumstances:
 - Acknowledgment
 - Written offer
 - Warranty disclaimer
 - Notices

⋮

Additional information – Templates

- e.g. GPL-2.0: Written offer

This product contains software components that are licensed by the holder of the rights as free software, or Open Source software, under GNU General Public License, Version 2. The source code for these software components can be obtained from us on a data carrier (CD, DVD or USB stick) by submitting a request to our customer service department at the following address within three years after delivery of the product by us:

[Company name]

[Contact]

[Address]

Please provide the following product information

[Name]

[Serial number]

[Date of delivery]

and transfer 5 euros to the account [account information] to cover the costs of providing the data carrier and shipping it.

License compatibility

- Copyright allows to combine software components under different licenses.
- Copying and distributing such a **combined work** is only possible if the licenses are compatible.
- Compatibility is given when there are no conflicting license obligations or prohibitions.
- If two licenses are **unilaterally** compatible, the combined work has to be licensed under one (leading) license.
- If two licenses are **bilaterally** compatible, the combined work may be licensed under either of the involved licenses.

License compatibility

- Guidelines:
 - Copyleft licenses are not compatible with each other.

License compatibility

- Guidelines:
 - Copyleft licenses are not compatible with each other.
- Exception:
 - Explicit exception clauses can make two copyleft licenses compatible. E.g. LGPL-2.1:
"You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library"

License compatibility

- Guidelines:
 - Copyleft licenses are not compatible with each other.
 - Permissive licenses are bilaterally compatible.

License compatibility

- Guidelines:
 - Copyleft licenses are not compatible with each other.
 - Permissive licenses are bilaterally compatible.
 - Permissive licenses are unilaterally compatible with copyleft licenses.

License compatibility

- Guidelines:
 - Copyleft licenses are not compatible with each other.
 - Permissive licenses are bilaterally compatible.
 - Permissive licenses are unilaterally compatible with copyleft licenses.
- Exception:
 - No compatibility when a permissive license contains additional obligations or requirements that the copyleft license forbids to require.

License compatibility

- Guidelines:
 - Copyleft licenses are not compatible with each other.
 - Permissive licenses are bilaterally compatible.
 - Permissive licenses are unilaterally compatible with copyleft licenses.
 - If a license is unclear or the copyleft is questionable, compatibility has to be decided on an individual basis.

License compatibility

- Guidelines:
 - **Copyleft licenses are not compatible with each other.**
 - **Permissive licenses are bilaterally compatible.**
 - **Permissive licenses are unilaterally compatible with copyleft licenses.**
 - If a license is unclear or the copyleft is questionable, compatibility has to be decided on an individual basis.

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 Open Source Automation Development Lab (OSADL), Heidelberg



[illegible]

Compatibility Matrix

GPL-2.0-only and BSD-2-Clause

Compatibility*	AFL-2.0	AFL-2.1	AGPL-3.0-only	AGPL-3.0-or-later	Apache-1.0	Apache-1.1	Apache-2.0	Artistic-1.0-Perl	BSD-2-Clause	BSD-2-Clause-Patent	BSD-3-Clause	BSD-4-Clause	BSD-4-Clause-UC	BSL-1.0	bzip2-1.0.5
AFL-2.0		Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	?	Yes
AFL-2.1	Yes		No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	?	Yes

⋮

EUPL-1.1	?	?	No	No	No	No	?	?	Yes	Yes	Yes	No	No	?	Yes
FTL	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	?	Yes
GPL-2.0-only	?	?	No	No	No	No	?	?	Yes	Yes	Yes	No	No	?	Yes
GPL-2.0-only WITH Classpath-exception-2.0	?	?	No	No	No	No	?	?	Yes	Yes	Yes	No	No	?	Yes
GPL-2.0-or-later	?	?	No	No	No	No	?	?	Yes	Yes	Yes	No	No	?	Yes
GPL-3.0-only	?	?	Yes	No	No	No	Yes	?	Yes	Yes	Yes	No	No	?	Yes
GPL-3.0-or-later	?	?	No	Yes	No	No	Yes	?	Yes	Yes	Yes	No	No	?	Yes
HPND	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	?	Yes

Compatibility Matrix

GPL-2.0-only and BSD-2-Clause

[illegible]

Compatibility Matrix

GPL-2.0-only and BSD-2-Clause

Compatibility*	AFL-2.0	AFL-2.1	AGPL-3.0-only	AGPL-3.0-or-later	Apache-1.0	Apache-1.1	Apache-2.0	Artistic-1.0-Perl	BSD-2-Clause	BSD-2-Clause-Patent	BSD-3-Clause	BSD-4-Clause	BSD-4-Clause-UC	BSL-1.0	bzip2-1.0.5		
AFL-2.0		Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	?	Yes		
AFL-2.1	Yes		No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	?	Yes		
⋮																	
EUPL-1.1	?	?	No	No	No	No	?	?	Yes	Yes	Yes	No	No	?	Yes		
FTL	Yes	Yes	No	No	Yes	Yes	Yes	Yes		Yes	Yes	Yes	?	Yes			
GPL-2.0-only	?	?	No	No	No	No	?			Yes	No	No	?	Yes			
GPL-2.0-only WITH Classpath-exception-2.0	?	?	No	No	No	No	?			?	Yes	Yes	No	No	?	Yes	
GPL-2.0-or-later	?	?	No	No	No	No	?			?	Yes	Yes	Yes	No	No	?	Yes
GPL-3.0-only	?	?	Yes	No	No	No	Yes			?	Yes	Yes	Yes	No	No	?	Yes
GPL-3.0-or-later	?	?	No	Yes	No	No	Yes	?	Yes	Yes	Yes	No	No	?	Yes		
HPND	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	?	Yes		

Compatibility Matrix

BSD-2-Clause and GPL-2.0-only

Compatibility*	AFL-2.0	AFL-2.1	AGPL-3.0-only	AGPL-3.0-or-later	Apache-1.0	...	EPL-2.0	EUPL-1.1	FTL	GPL-2.0-only	GPL-2.0-only WITH Classpath-exception-2.0	GPL-2.0-or-later	GPL-3.0-only	GPL-3.0-or-later	HPND
AFL-2.0		Yes	No	No	Yes		No	No	Yes	No	No	No	No	No	Yes
AFL-2.1	Yes		No	No	Yes		No	No	Yes	No	No	No	No	No	Yes
AGPL-3.0-only	?	?		No	No		No	No	No	No	No	No	Yes	Yes	?
AGPL-3.0-or-later	?	?	Yes		No		No	No	No	No	No	No	Yes	Yes	?
Apache-1.0	Yes	Yes	No	No			No	No	Yes	No	No	No	No	No	Yes
Apache-1.1	Yes	Yes	No	No	Yes		No	No	Yes	No	No	No	No	No	Yes
Apache-2.0	Yes	Yes	No	No	Yes		No	No	Yes	No	No	No	No	No	Yes
Artistic-1.0-Perl	Yes	Yes	No	No	Yes		No	No		No	No	No	No	No	Yes
BSD-2-Clause	Yes	Yes	No	No	Yes		No	No		No	No	No	No	No	Yes
BSD-2-Clause-Patent	Yes	Yes	No	No	Yes		No	No		No	No	No	No	No	Yes
BSD-3-Clause	Yes	Yes	No	No	Yes		No	No	Yes	No	No	No	No	No	Yes
BSD-4-Clause	Yes	Yes	No	No	Yes		No	No	Yes	No	No	No	No	No	Yes
BSD-4-Clause-UC	Yes	Yes	No	No	Yes		No	No	Yes	No	No	No	No	No	Yes
BSL-1.0	?	?	No	No	?		No	No	?	No	No	No	No	No	?

Compatibility Matrix

GPL-2.0-only and BSD-4-Clause

Compatibility*	AFL-2.0	AFL-2.1	AGPL-3.0-only	AGPL-3.0-or-later	Apache-1.0	Apache-1.1	Apache-2.0	Artistic-1.0-Perl	BSD-2-Clause	BSD-2-Clause-Patent	BSD-3-Clause	BSD-4-Clause	BSD-4-Clause-UC	BSL-1.0	bzip2-1.0.5
AFL-2.0		Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	?	Yes
AFL-2.1	Yes		No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	?	Yes
⋮															
EUPL-1.1	?	?	No	No	No	No	?	?	Yes	Yes	Yes	No	No	?	Yes
FTL	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	?	Yes
GPL-2.0-only	?	?	No	No	No	No	?	?	Yes	Yes	Yes	No	No	?	Yes
GPL-2.0-only WITH Classpath-exception-2.0	?	?	No	No	No	No	?	?	Yes	Yes	Yes	No	No	?	Yes
GPL-2.0-or-later	?	?	No	No	No	No	?	?	Yes	Yes	Yes	No	No	?	Yes
GPL-3.0-only	?	?	Yes	No	No	No	Yes	?	Yes	Yes	Yes	No	No	?	Yes
GPL-3.0-or-later	?	?	No	Yes	No	No	Yes	?	Yes	Yes	Yes	No	No	?	Yes
HPND	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	?	Yes

Compatibility Matrix

GPL-2.0-only and BSD-4-Clause

Yes	No	No
Yes	Yes	Yes
Yes	No	No
	No	No

BSD-4-
clause

3. All advertising materials mentioning features or use of this software must display the following acknowledgement: This product includes software developed by the organization.

contradicts

GPL-2.0-
only

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

Compatibility Matrix

Proprietary licenses

The following rows are intended as prototypical examples, and row #3 to #5 need to be labeled, reviewed and adapted according to a company's particular licensing requirements

[illegible]

Conclusion

- The freedom to choose the license terms under which conveying a copyright protected work is allowed has led to a large number of different licenses.
- A **canonical language** is required to establish a common understanding of Open Source license obligations.
- The **Open Source License Obligations Checklists** project has encoded the obligations of 66 licenses, as of today.
- In addition, the **compatibility** of these licenses was evaluated.
- **Feedback and approval** from international legal experts is being collected.

Access to the checklists

- For the time being, access to the checklists is granted to everybody on request; please write to office@osadl.org to obtain personal login data.
- Volunteers are welcome to provide feedback on the quality and usability of the checklists.

OSADL Legal FAQ

THE OSADL LEGAL FAQ PROCESS

OSADL Legal FAQ

- Every employee of an OSADL member company may submit **legal and technical questions of general interest** to OSADL (office@osadl.org).
- Technical questions are answered directly by OSADL.
- Legal questions are answered by OSADL's General Counsel, Dr. Till Jaeger, certified copyright and media law attorney. OSADL covers the attorney's fee.
- If necessary, OSADL edits question and answer in collaboration with the questioner and Dr. Jaeger.
- The final question is added to OSADL's **collection of legal or technical FAQ** in English and German, and all OSADL members are notified.

Selected example FAQ

- ***General Aspects of License Agreements***

Is it sufficient to specify a URL for the license text or does the complete license text have to be supplied to the customer? Is it otherwise useful to work with URLs in contracts?

- ***Derivative Work***

What is the impact of the copyleft of the GPL, if two independent software components (e.g. application and Linux kernel) are distributed together in a common file such as a zip archive file, .iso file, VM image file or an installation file for an embedded firmware?

General Aspects of License Agreements

“Is it sufficient to specify a URL for the license text or does the complete license text have to be supplied to the customer? Is it otherwise useful to work with URLs in contracts?”

Answer

Open Source licenses deal differently with the question if the license text has to be supplied with the product in paper form or as a file, or whether it is sufficient to specify a URL. Most licenses, like the GPL, require that the license text is supplied **together with the product**. The Landgericht München (Regional Court Munich) has explicitly deemed this as necessary in a judgment.

Also irrespective of the license terms requiring the inclusion of license texts in the product, the **use of URLs is not recommended in contracts**. Contracts are often created for long-term use, so that **amendments to a URL** can lead to a loss of relevant parts of the contract. In addition, the **legal relevance of the URL is greatly reduced** since it has to be proven which text was located under the URL at the time when the contract was concluded. This will often lead to practical problems as well as to easy manipulation.

Derivative Work

“What is the impact of the copyleft of the GPL, if two independent software components (e.g. application and Linux kernel) are distributed together in a common file such as a zip archive file, .iso file, VM image file or an installation file for an embedded firmware?”

Answer

Copyleft may also be relevant for completely independent programs, i.e. they must be licensed under the GPL altogether, if they are **not distributed as separate works**. This is particularly the case when the independent parts can no longer be separated easily so, in fact, a single work is created (e.g. in a single binary file).

However, the GPL makes it also clear that **the "mere aggregation" of independent software components** on the same storage or distribution medium **does not result in a situation where copyleft becomes effective**. This normally applies to archive and image files provided they can be unpacked easily in such a way that the original independent files become available again.

What are OSADL legal assessments?

- Should an FAQ be too complex to be answered in a couple of sentences, OSADL may decide to order a complete legal assessment on the topic.
- Currently, the following legal assessments are available:
 - Feb. 13, 2009: **Liability of a licensor of safety-critical Open Source software** by Dr. Till Jaeger and Prof. Axel Metzger
 - Sep. 16, 2011: **GPL assessment with reference to “Hypervisor”** by Dr. Till Jaeger
 - Nov. 18: **Business risk associated with participation in the OIN patent pool** by Johanna Schwarz and colleagues at JBB, and Mishi Choudhary
 - Dec. 18, 2018: **Linux distributions** by Dr. Till Jaeger
 - Dec. 18: **LGPL and third-party software** by Dr. Till Jaeger
 - Jan. 19: **License obligations of Open Source software in the so-called “Cloud”** by Dr. Till Jaeger and Prof. Axel Metzger

What is the OSADL License Compliance Audit (LCA)?

- To be audited and possibly certified:
 - Delivery of the product and accompanying documents
 - Linux kernel
 - C library
 - Relevant company documents
- Audited, but not certified:
 - Proprietarily licensed user-space applications
- Should irregularities be found:
 - Analysis of company processes and proposals for improvement



Example of an OSADL Legal Assessment

Why is it so difficult to redistribute a complete Linux distribution?

Scenarios

- A manufacturer of computer boards for embedded systems wants to provide a ready-to-use “**Linux PC**” with a cross toolchain to their customer so that these can develop software for the boards without any overhead.
- A manufacturer of large and complex **embedded systems** wants to avoid the effort of developing their own root filesystem and instead uses an existing complete distribution that he installs on his embedded systems, configures as required and distributes to his customers.

Scenarios

- **“Linux PC”**: The distribution remains unmodified but possibly additional own programs are added.
- **Embedded system**: An existing distribution is modified extensively, e.g. by installing additional drivers and programs.

Why may these Linux distributions not simply be copied and distributed?

Third-party rights on a Linux distribution

- Copyrights of all software authors
- Collective copyrights of the manufacturer of the distribution
- Trademarks of the manufacturer of the distribution
- Patent rights of the respective patent owners

To compliantly copy and distribute a Linux distribution all rights must be considered!

Who must fulfill the license obligations of a Linux distribution?

- Whoever has received a licensed software and is **copying and distributing** it, must fulfill the **license obligations**.



Manufacturer of the distribution:

- **is copying**
- **must fulfill license obligations**

User:

- does not copy anything
- does not need to fulfill license obligations

What happens when a distribution is copied and conveyed?

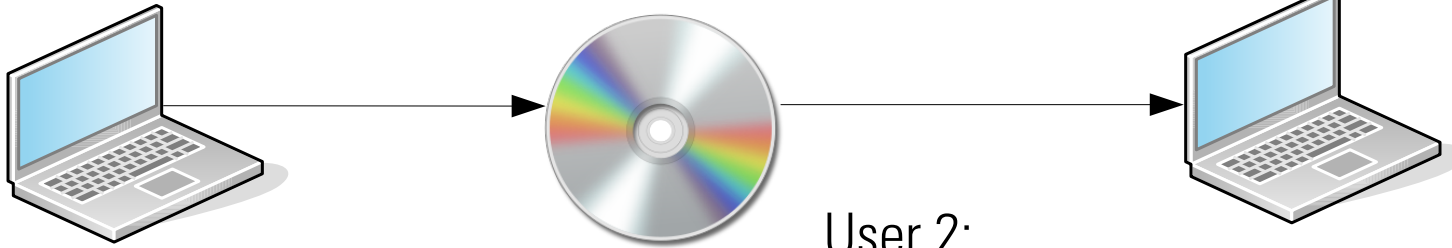


Manufacturer of the distribution:

- **is copying**
- **must fulfill license obligations**

User 1:

- does not copy anything
- does not need to fulfill license obligations



User 1:

- **is copying**
- **must fulfill license obligations**

User 2:

- does not copy anything
- does not need to fulfill license obligations

What happens when a distribution is copied and conveyed?

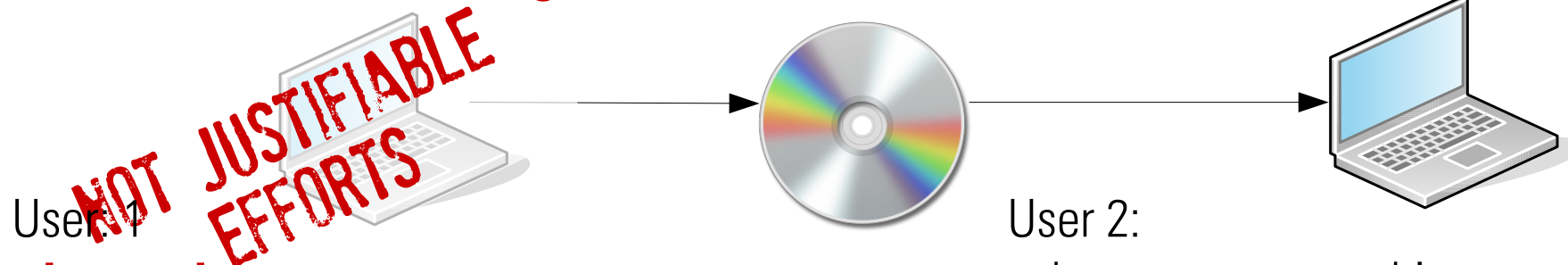


Manufacturer of the distribution:

- **is copying**
- **must fulfill license obligations**

User 1:

- does not copy anything
- does not need to fulfill license obligations



User 1:

- **is copying**
- **must fulfill license obligations**

User 2:

- does not copy anything
- does not need to fulfill license obligations

What happens when a distribution is conveyed without being copied or modified?

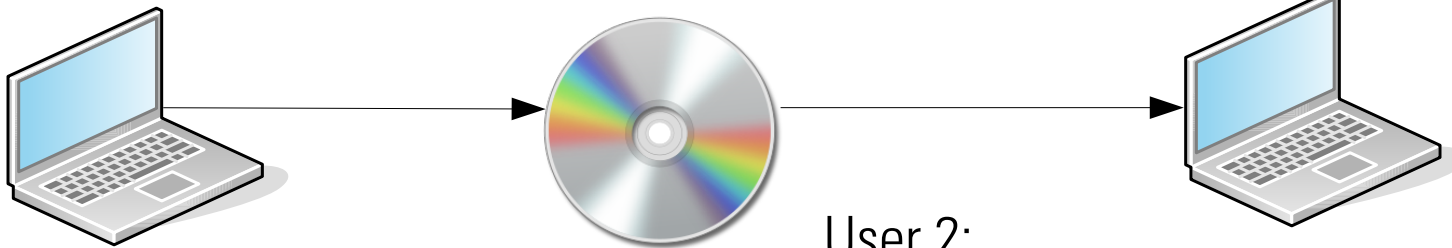


Manufacturer of the distribution:

- **is copying**
- **must fulfill license obligations**

User 1:

- does not copy anything
- does not need to fulfill license obligations



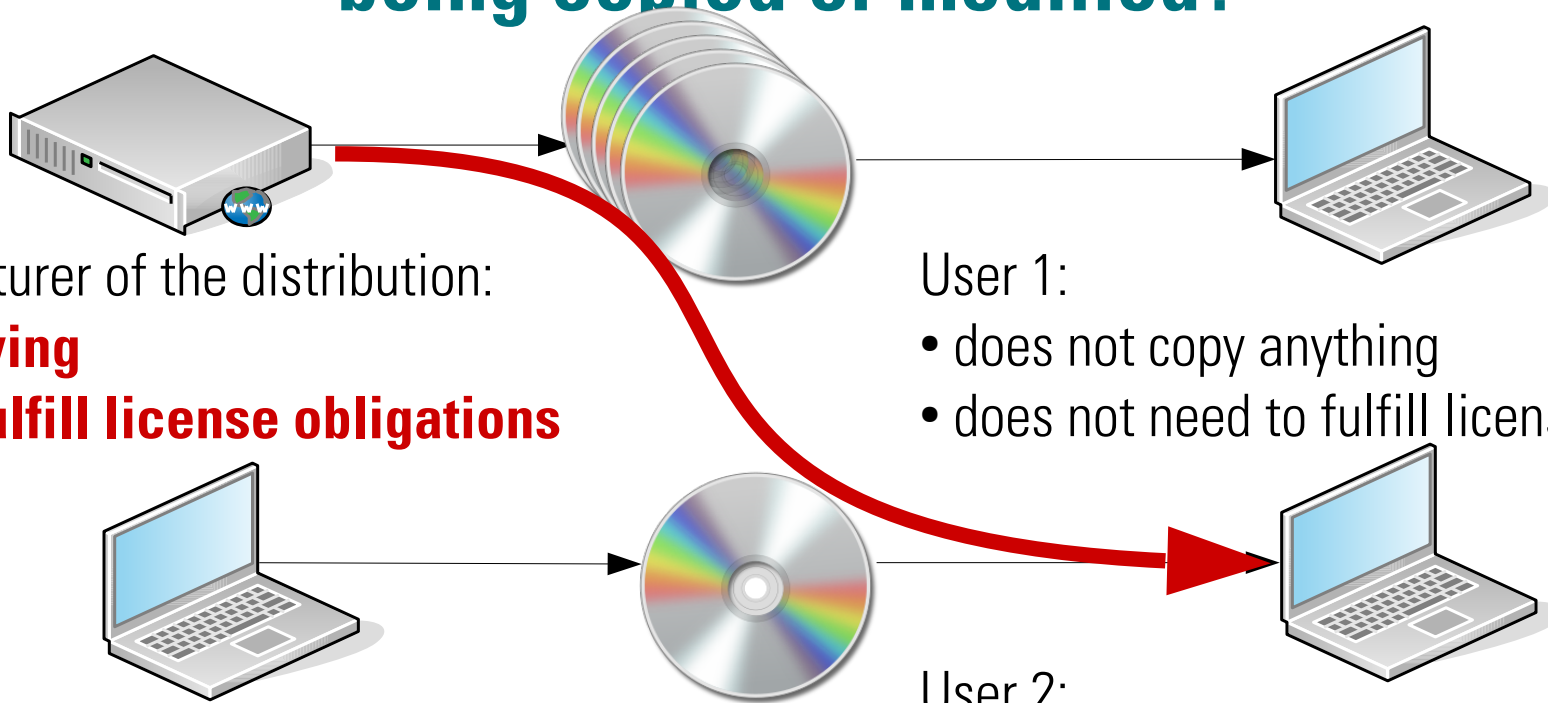
User 1:

- conveys CD, does not copy
- does not need to fulfill license obligations

User 2:

- does not copy anything
- does not need to fulfill license obligations

What happens when a distribution is conveyed without being copied or modified?



Manufacturer of the distribution:

- **is copying**
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User 1:

- does not copy anything
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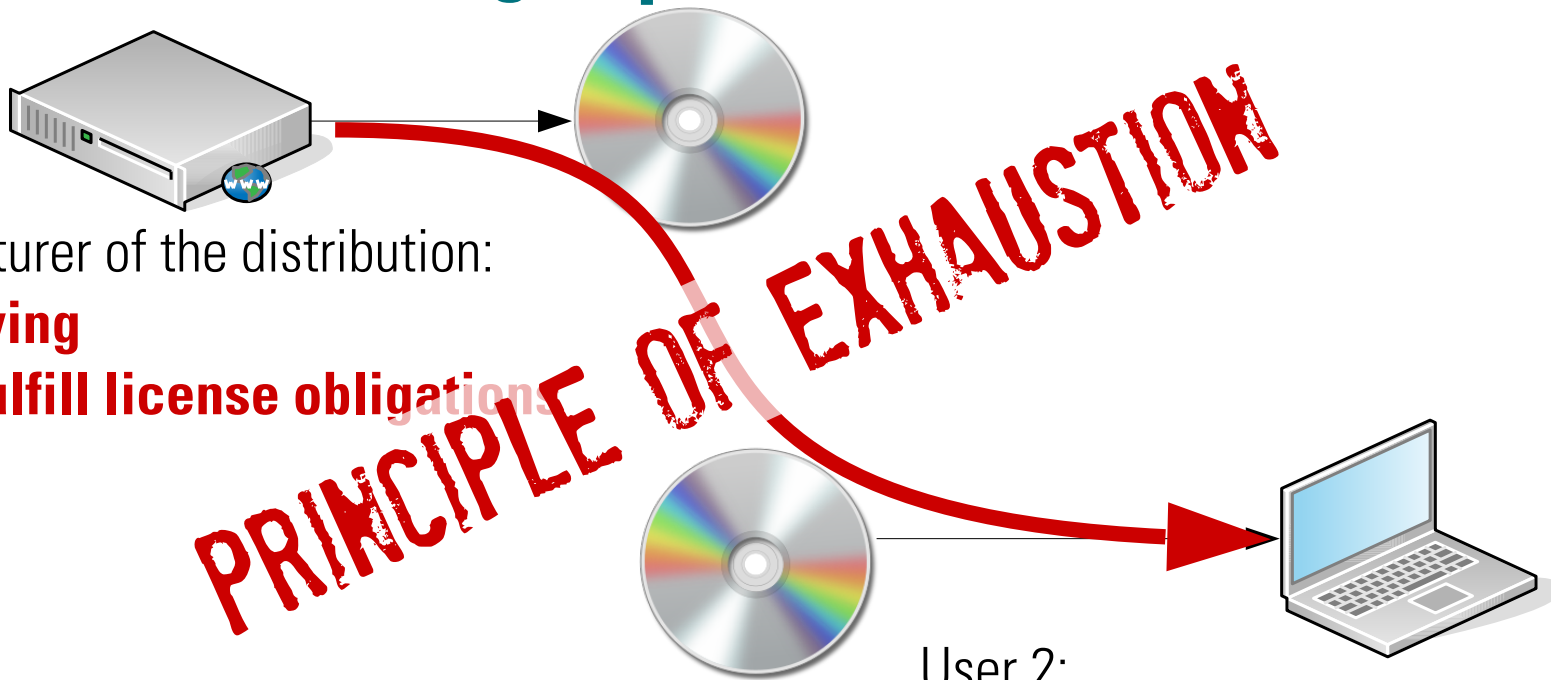
User 1:

- conveys CD, does not copy
- does not need to fulfill license obligations

User 2:

- does not copy anything
- does not need to fulfill license obligations

What happens when a distribution is conveyed without being copied or modified?



Manufacturer of the distribution:

- **is copying**
- **must fulfill license obligations**

User 2:

- does not copy anything
- does not need to fulfill license obligations

What are the prerequisites for “exhaustion”?

- The original distributor must convey the software compliantly:
 - Information obligations must be fulfilled
 - Disclosure obligations must be fulfilled (complete corresponding source code is delivered with the product or offered to be delivered on request)
- Whoever is conveying such software, must make sure that the license obligations are correctly fulfilled.
- The software must be conveyed **unmodified**.
- The software may **not be installed** yet.
- In this case, there is also exhaustion of the trademark rights.

What must be done if “exhaustion” does not apply?

- The **license obligations** of the distribution and all software packages contained within **must be fulfilled**.
- The **trademarked** logos and word marks of the manufacturer of the distribution **must be removed** or a trademark license for their use must be acquired.

Summary

- Linux distributions are normally intended to be directly received from the manufacturer and used, but not to be copied and distributed.
- There are two ways to convey a Linux distribution:
 - 1) Unmodified versions without keeping a copy**
 - If the primary distribution by the manufacturer is correct, **exhaustion** of copyright and trademark rights applies: The manufacturer must fulfill the license obligations.
 - 2) Modified or pre-installed versions or when keeping a copy**
 - **License obligations must be fulfilled** by whomever conveys the distribution.

Recommendation (1)

- If a particular product requires **only few additions or modifications** of the distribution:
 - Acquire **original media** from the manufacturer of the Linux distribution and convey them without retaining a copy.
 - Create a **second medium** with installation packages that contain the required additions or modifications and add them to the product.
 - Instruct the customer that the two media must be **installed subsequently** before the product can be used.

Manufacturer of the Linux distribution must fulfill these license obligations.

Recommendation (1)

The conveying person must only fulfill these license obligations

- If a particular product requires **only few additions or modifications** of the distribution:
 - Acquire **original media** from the manufacturer of the Linux distribution and convey them without retaining a copy.
 - Create a **second medium** with installation packages that contain the required additions or modifications and add them to the product.
 - Instruct the customer that the two media must be **installed subsequently** before the product can be used.

Recommendation (2)

- If a particular product requires **a large number of additions or modifications** of the distribution:
 - Remove all unneeded packages.
 - Remove all word marks and logos of the manufacturer of the distribution.
 - Remove all packages that are suspicious of containing patents (e.g. Codecs).
 - Acquire source packages of all remaining binary packages, unpack them, extract copyright and license notices, warranty disclaimers and license texts and convey along with the product. Do sample test builds of the source packages and either convey along with the product or archive to be delivered upon request. Fulfill additional license obligations, if any.

Recommendation (2)

- If a particular product requires **a large number of additions or modifications** of the distribution:
 - Remove all unneeded packages.
 - Remove all word marks and logos of the manufacturer of the distribution.
 - Remove all packages that are suspicious of containing patents (e.g. Codecs).
 - Acquire source packages of all remaining binary packages, unpack them, extract copyright and license notices, warranty disclaimers and license texts and convey along with the product. Do sample test builds of the source packages and either convey along with the product or archive to be delivered upon request. Fulfill additional license obligations, if any.
 - **The legal assessment contains recipes to do so.**

Example of an OSADL Legal Assessment

License obligations under the LGPL-2.1 when linked to proprietary third-party software

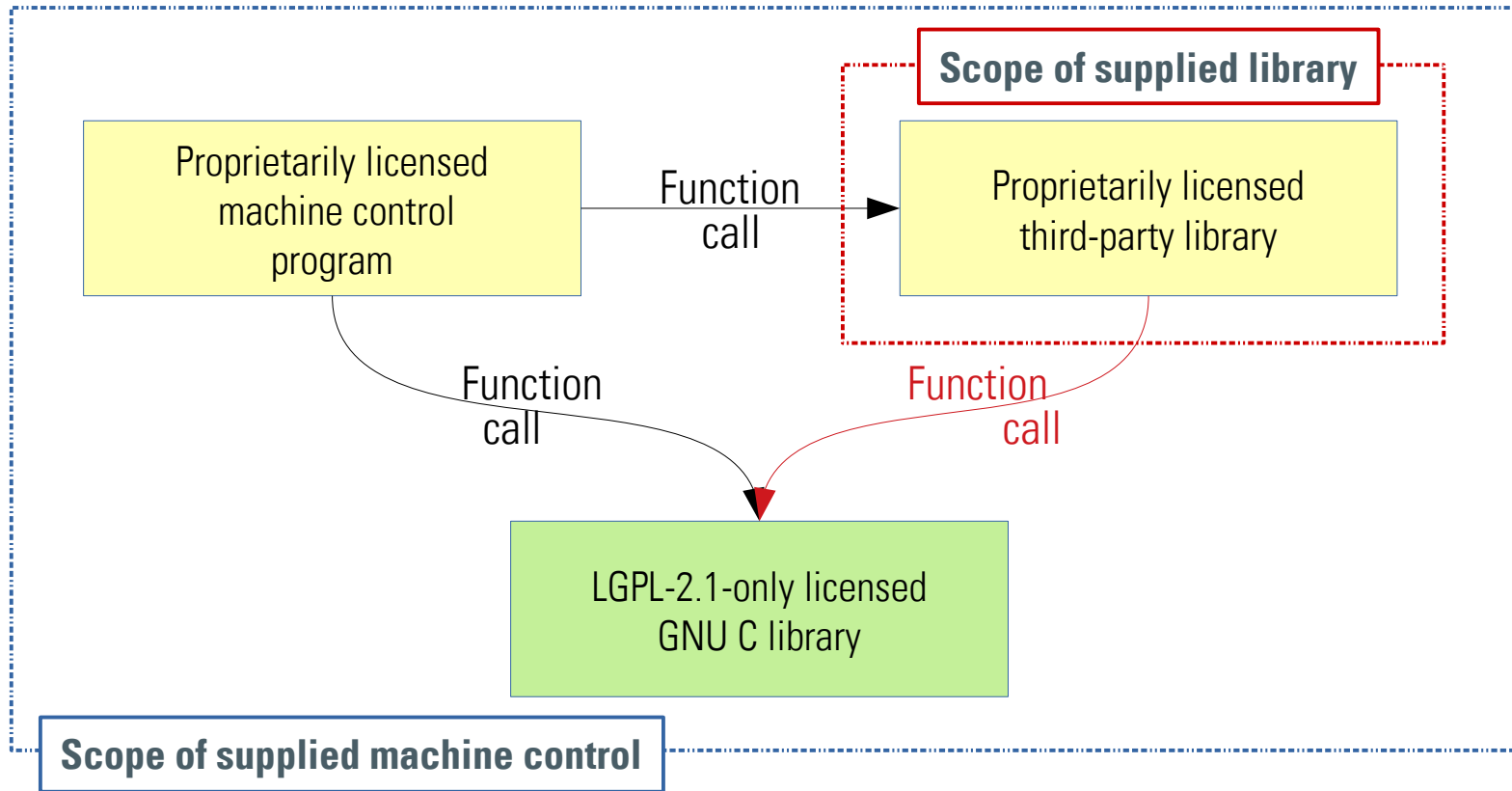
The OSADL member asked:

*With our product we are using a **binary proprietary third-party software** that requires an **LGPL-2.1 library** at runtime.*

*To distribute this third-party software along with the LGPL library we need to fulfill the **license obligations of the LGPL for linked works** also for this third-party software. The **supplier** of the third-party software, however, **refuses** to grant the permissions required to fulfill the obligations.*

What can we do?

Scenario



Digression: Function calls



Digression: Function calls



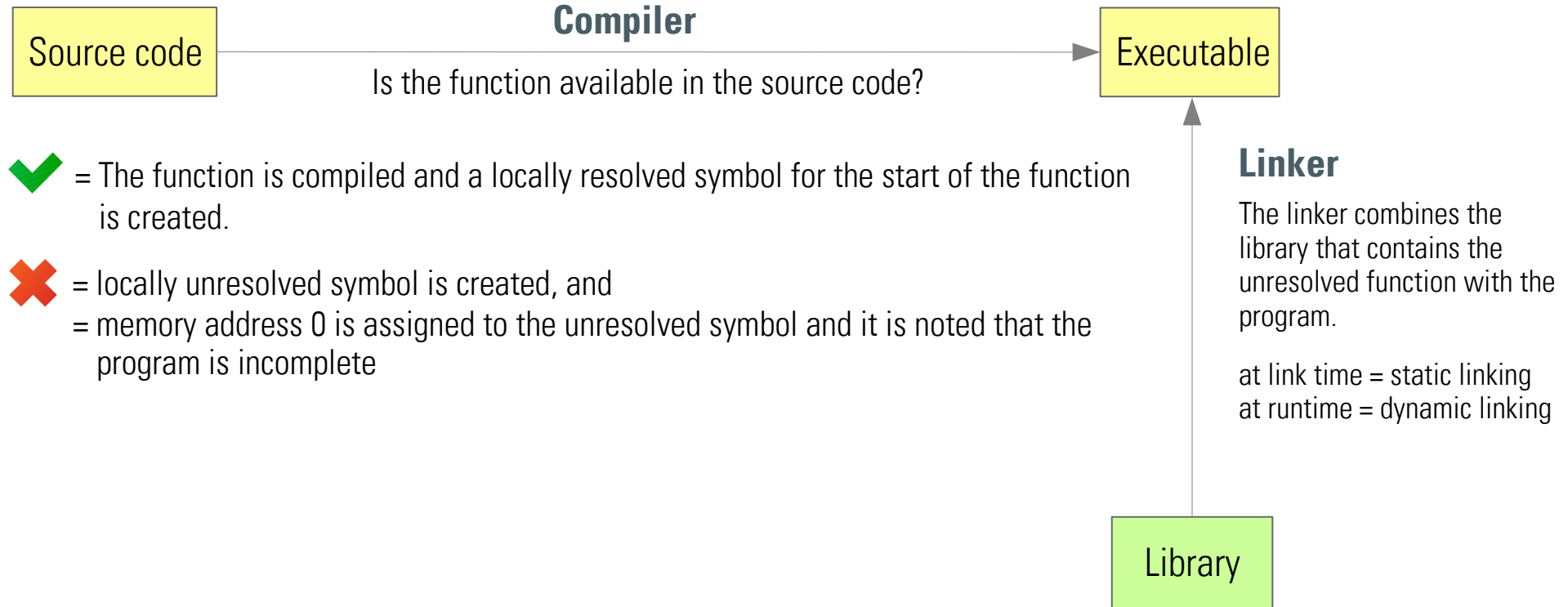
✓ = The function is compiled and a locally resolved symbol for the start of the function is created.

Digression: Function calls

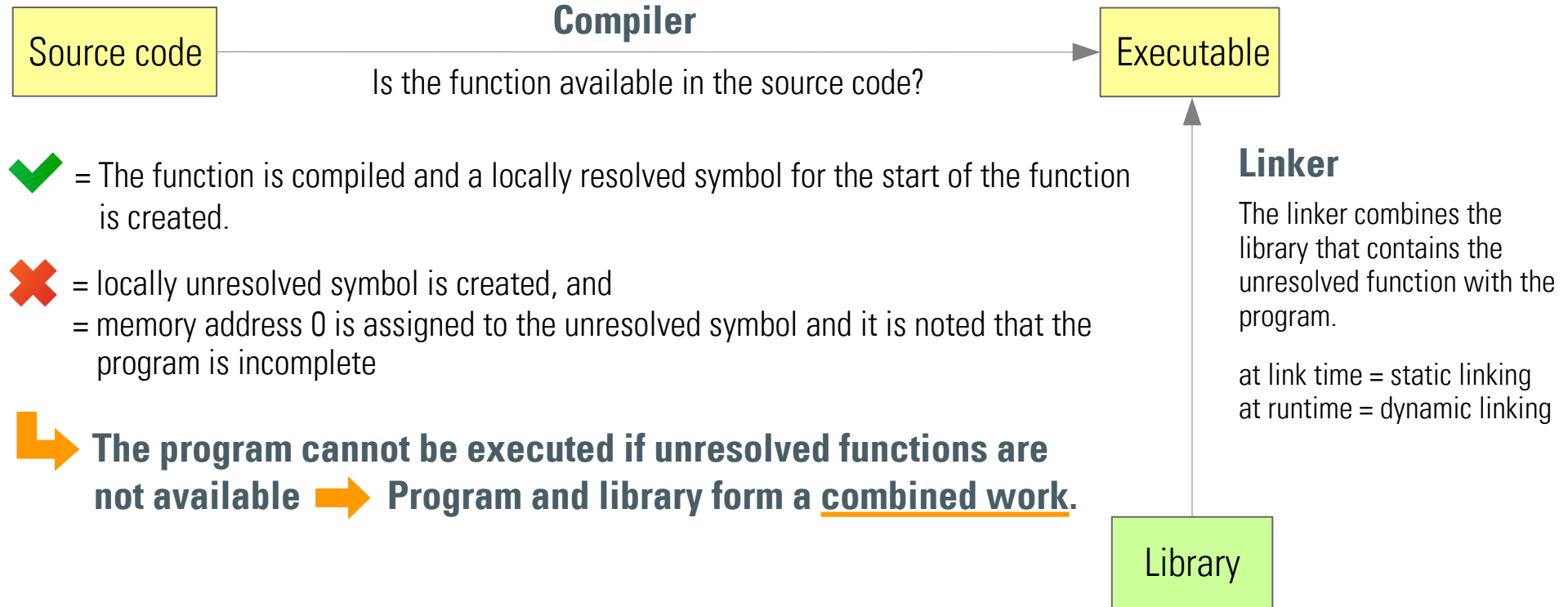


- ✓ = The function is compiled and a locally resolved symbol for the start of the function is created.
- ✗ = locally unresolved symbol is created, and
= memory address 0 is assigned to the unresolved symbol and it is noted that the program is incomplete

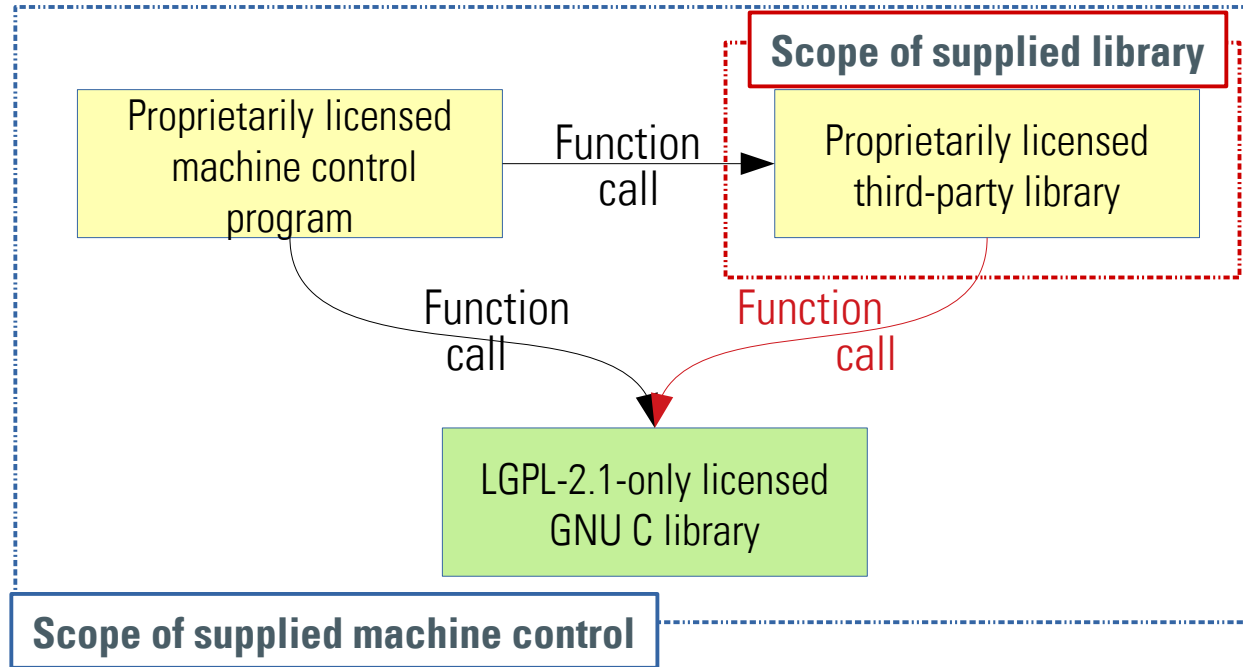
Digression: Function calls



Digression: Function calls



Scenario



Neither the proprietary machine control program nor the supplier's proprietary third-party library can be executed without functions provided by the dynamically linked GNU C library.

•Original wording of LGPL-2.1 Article 6

As an exception [...], you may also combine or link a **"work that uses the Library"** with the Library to produce a work containing portions of the Library, and distribute that work under **terms of your choice, provided that the terms permit modification of the work** for the customer's own use **and reverse engineering** for debugging such modifications.

• Original wording of LGPL-2.1 Article 6

As an exception [...], you may also combine or link a **"work that uses the Library"** with the Library to produce a work containing portions of the Library, ...

Is my software a “work that uses the Library”?

- ***Objdump***: diagnostic program that also analyzes included symbols and differentiates “locally resolved” from “locally unresolved” symbols
- Locally unresolved symbols are marked as “**UND**” and the **function name** is displayed.
- Example: C program with the function

```
puts("Hello world\n");
```
- The function `puts` is not available within the program but requires a library (= unresolved symbol)

Example: Output of *objdump*

```
objdump -x hello
```

```
000000000000000000 F *UND* 000000000000000000 puts@@GLIBC_2.2.5
```

Example: Output of *objdump*

```
objdump -x hello
```

```
0000000000000000 F *UND* 0000000000000000 puts@@GLIBC_2.2.5
```

UNDefined: unresolved symbol

Function name: `puts`

Library that provides the function: GNU C Library *glibc* version 2.2.5

- What is the license of the *glibc*?
- What obligations does it require to fulfill?

Example: Output of *objdump*

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objdump -x hello
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```
0000000000000000 F *UND* 0000000000000000 puts@@GLIBC_2.2.5
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Recommended addition to the company's General Terms to account for general Open Source licenses

If the General Terms and Conditions contain clauses such as

Except, and only to the extent that may be permitted under applicable law, you may not copy, decompile, disassemble, or reverse engineer the software by any means whatsoever, or alter, modify, enhance, or create a derivative work of the Software.

they must be modified by appending for example:

The above restrictions do not apply, if particular other licenses (for example of Free and Open Source software) grant more extensive rights to copy and distribute or explicitly permit reverse engineering under certain conditions. In this case and in this context, the other licenses take precedence over these General Terms and Conditions.

Recommended additional licensing to account for LGPL-2.1 obligations

Required explicit licensing to disable a legal prohibition:

Modifications of the software for the customer's own use and reverse engineering for debugging such modifications are herewith permitted.

Limit the required permissions as far as possible:

However, forwarding the knowledge acquired during reverse engineering or debugging to third parties is prohibited. Furthermore, it is prohibited to distribute modified versions of the software. In any case, warranty claims on the software will expire as long as the customers cannot prove that the defect would also have occurred without these modification.

• Our supplier refuses to grant required permissions (1)



The software cannot be distributed compliantly.



Are there any legal means to force our supplier to grant the permissions?

• Our supplier refuses to grant required permissions

(1)



The software cannot be distributed compliantly.



Are there any legal means to force our supplier to grant the permissions?



NO

• Our supplier refuses to grant required permissions

(1)



The software cannot be distributed compliantly.



Are there any legal means to force our supplier to grant the permissions?



NO



Defect of title

- Notice of defects: Request for rectification
- Withdrawal from the contract, reclaiming the purchase price

• Our supplier refuses to grant required permissions

(2)



The software cannot be distributed compliantly.



What can happen if we grant our customers the additional permissions without the consent of our supplier?

• Our supplier refuses to grant required permissions

(2)



The software cannot be distributed compliantly.



What can happen if we grant our customers the additional permissions without the consent of our supplier?



Licence Violation, as you cannot grant rights that you do not possess.

• Our supplier refuses to grant required permissions

(2)



The software cannot be distributed compliantly.



What can happen if we grant our customers the additional permissions without the consent of our supplier?



Licence Violation, as you cannot grant rights that you do not possess.



Claims by the rightholder(s) under copyright law:
e.g. injunction, abatement and removal, claims for damages

- **Practical recommendations**

Purchase Department (before ordering!)

Inquiry to third-party software suppliers which additional components that are not part of the delivery are required to run the software.

Goods Receiving Department (before the expiry of potential return dates!)

Check which additional components that are not part of the delivery are required to run the software, e.g. using *objdump*.

Example of an OSADL Legal Assessment

**Please ask your questions
in the *online discussion after this session*
or via email and phone.**

Thank you for your attention!