

# License compliance for embedded Linux devices with Buildroot

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FOSDEM 2020

# About me

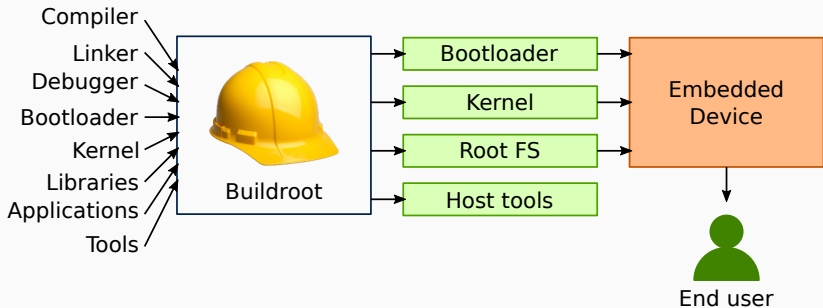


- Embedded Linux engineer at AIM Sportline  
[www.aim-sportline.com](http://www.aim-sportline.com)
  - Develop products on custom hardware
  - Kernel, drivers, bootloader, FPGA
  - Integration, build system
- Open source enthusiast
  - Contributor to the Linux kernel, U-Boot, Buildroot and others

# Buildroot

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# Build system



**Demo:**  
**Buildroot basics**

# Open-source licensing

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# Typical license families

## Permissive

(BSD, MIT, X11...)



Use, modify, redistribute



Provide license text

## Copyleft

(GPL, LGPL, AGPL...)



Use, modify, redistribute



Provide license text

Provide source code

# Caveats

- There are many variations
  - License incompatibility
  - Info on websites etc might be inaccurate
- Check the license *in the source code*



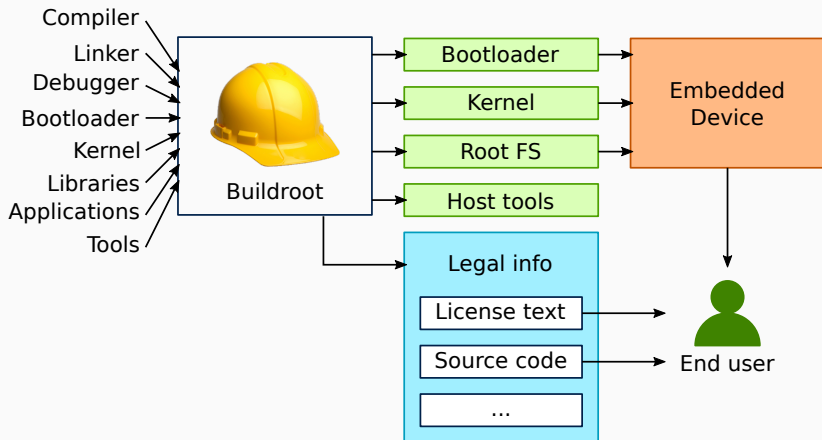
# So, what do I have to do?

- Provide license text
- Store source code archives (provide them on request)
  - Including the “scripts used to control compilation and installation”
    - I.e. the entire buildsystem

## **Compliance tools in Buildroot**

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# Compliance tools in Buildroot



**Demo:**

```
make legal-info
```

# Implementing legal-info in Buildroot packages

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## Add license info to a package

package/vlc/vlc.mk

```
VLC_LICENSE = GPL-2.0+, LGPL-2.1+  
VLC_LICENSE_FILES = COPYING COPYING.LIB
```

package/vlc/vlc.hash

```
sha256 8177f975...1b880643  COPYING  
sha256 dc626520...032fe551  COPYING.LIB
```

# Your own closed source program

```
package/myapp/myapp.mk
```

```
MYAPP_LICENSE = Proprietary  
MYAPP_REDISTRIBUTE = NO
```

## Source from unusual locations

- Source code is not saved when using
    - `<PKG>_OVERRIDE_SRCDIR`
    - `<PKG>_SITE_METHOD = local`
- Avoid them when releasing



- For some special packages:
  - `<PKG>_SOURCE` contains binaries
  - `<PKG>_ACTUAL_SOURCE` points to the tarball with the actual sources
  - Only used for pre-built external toolchains

# Conclusions

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- The Buildroot user manual  
(<https://buildroot.org/docs.html>)
  - § 12. Legal notice and licensing [↗](#)
  - § 17.5. Infrastructure for packages with specific build systems [↗](#)
- License Compliance in Embedded Linux with the Yocto Project, Paul Barker, ELCE 2019 ( [slides ↗](#) , [video ↗](#) )
  - Mostly buildsystem-agnostic

Thank you for your attention!

Questions?

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## Extra slides

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# Typical license families

*Public domain*



*Permissive*



*LGPL*



*GPL*



Can use, modify

Can redistribute

Must provide license text

Must provide source code

Derived work becomes GPL