Free vs Proprietary software & monitoring

Almada/2018.10.24
By G. HUSSON - Liberasys
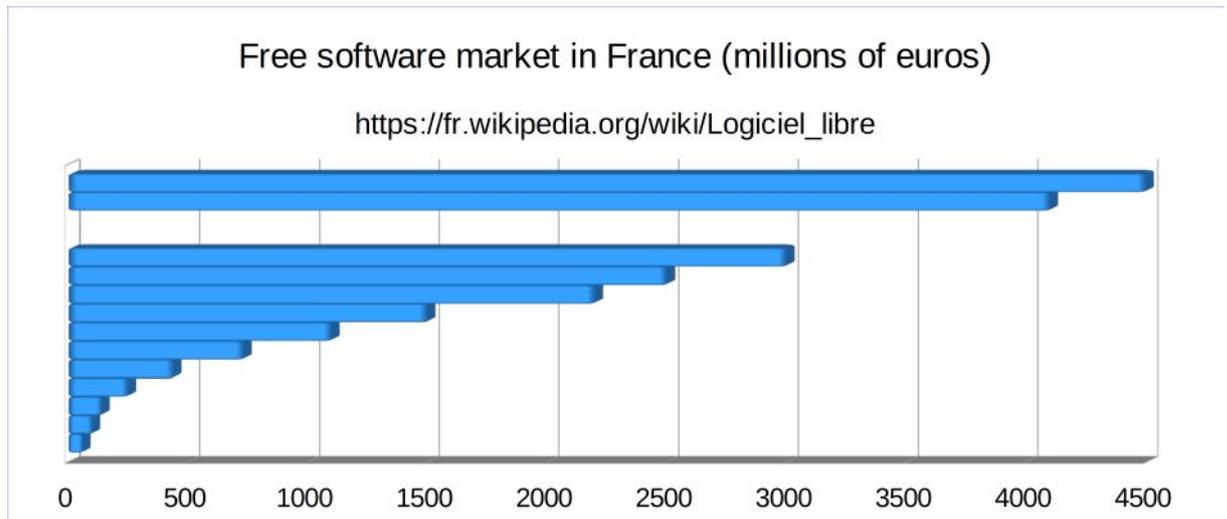Introduction of difference between free and proprietary software,
open energy monitoring solutions

Free software introduction

- Free software is everywhere but on your computer : servers, smart phones, printers, cars, internet box, TVs, ...

- Free software is more and more used by industrials and big companies

- Exponentially growing market

Free software market in France (millions of euros)

https://fr.wikipedia.org/wiki/Logiciel_libre

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Software = source code

- Software = source code at first

- Example : hello_world.c

- **EDIT → source code → COMPILE → executable → EXECUTE**

- Example :

Fundamentals : proprietary software

- Proprietary :
  - you have the executable,
  - And you have a license which permits its execution.

- In summary : you can execute the executable.

- And what else ?

- NOTHING !   ...   :-)

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Fundamentals : open source

- Open Source Software : basically you can view the sources.

- And then ?

- You can :
  - Audit the code (ex : quality, security)

- And what else ?

- Basically : NOTHING !   ...   :-)

- Pushing the limits : Windows is an « open source » software *

* if you are a big big company or a national security agency, you can ask microsoft® to show the micosoft® windows® code... but « for eyes only » !

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Fundamentals : free software - libre

- **Free as in freedom**, not just as free for use (freeware)

- 4 fundamentals freedoms :

  - Execute as you wish, for any goal

  - Study and change the source code for your needs

  - Make exact copies in order to sell or to give them

  - Make copies of your modified version in order to sell or to give them

- And what else ? NOTHING because we can't have better :-)

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- Here we got the coffee !

*

* no coffee mug has been mistreated
   during the redaction of this document

by Manolo Rei

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Fundamentals : free software - libre

- And then ?
  - We can use the software as we want
  - We can study and modify the code
  - We can share it
- Example :

```
GNU nano 2.7.4

#include <stdio.h>

int main()
  {
  printf("Hello EMPOWER !!!");
  return(0);
  }
```

```
ghusson@ghu-thinkpad:~/Developpement/almada_example$ gcc hello_world.c -o hello_almada
ghusson@ghu-thinkpad:~/Developpement/almada_example$ ./hello_almada
Hello ALMADA !!!
```

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Free software : frequent mistakes

- Free software does not implies it is costless :
  - You need to find it, install it and configure it
  - Sometimes you need to customize it to your needs
  - It requires skills
  - Business model is based on the service, not on licenses

- Free Software have licenses :
  - Source code author is identified
  - Limits of use, limits of warranty and liability, ...

Free software and semantics

- *Open Source* term is often used for *Free Software (by mean of the Open Source Initiative)*, but sometimes it is not !

- *Free Software* term is sometimes used as « free for use », not free as in freedom...

- How to know what we are dealing with ?
    → read the license !

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Free software licenses

- In brief, most used free software licenses :
  - General Public License - GPL
  - Massachusetts Institute of Technology – MIT license
  - Apache license
  - Berkeley Software Distribution – BSD license

- Why plenty of license ?
  - Several differences (ex : copyleft : mandatory to keep the license when modifications are made to source code)
  - Several limitations (ex : not for commercial use, but is it still free as in freedom ? No, In this case it is open source :-) ex : CC-BY-NC)

Free software licenses : use it !

- Refer to a lawyer for having precisions
- Or use what European Union has already done : EUPL ?
- https://eupl.eu/
- PROS :
  - Available in 23 languages
  - Compatible with well known free software licenses
  - Can be used for any type of work
  - Protection of your mark and logo included !

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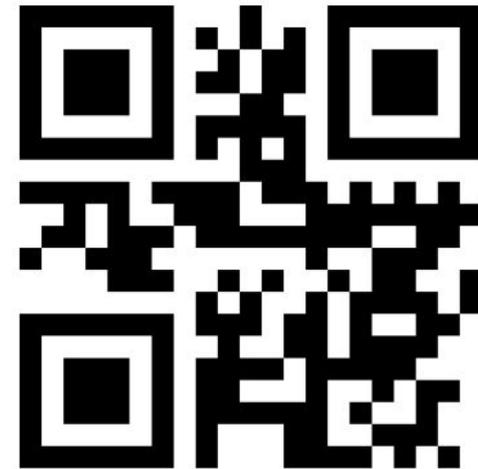
- Datalogging / supervision / monitoring (as you like) shares the same problems as home automation :
    - Technically complex
    - Costs
    - Lack of protocols universality :
        - Protocol = description of data exchange formalism + protocol implementation (code)
        - Several companies with several protocols, sometimes proprietary, thus can't talk to each others

Free software & monitoring : advantages

- In what free software can help :

  - Reuse already done work (use and not code), without incentives :
    - Allows to reduce complexity (you don't start from scratch)
    - Allows to use any protocols that have already been implemented (coded in the language you use)
    - Thus it reduces costs too ! Often after a certain scale.

  - Contributing to projects brings you more knowledge (mastering)
  - Sharing your source code allows other people to benefit from your work

Free software & monitoring : community

- Free software is often the result of a community work :
  - A company/person/collective initiates a project and allows anybody to contribute
  - As a contributor, you can implement features you need
  - All the community gets your improvements

- Joining a community allows you to contribute directly (code) or indirectly (documentation, organization, communication, etc). **You become a contributor and not a simple user.**

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Free software & monitoring : some advices

- If you are not technically competent, use free software which is supported by a company (support contract)

- 4 freedoms can apply to documents too ! Share your work :-)

- You have free software oriented company near you that could help !

- For your monitoring hardware, choose protocols that are at last open (free specifications).

Free / proprietary software : Summary

- Proprietary : you can just execute the software

- Free Software : you have the freedom to modify the code, to execute it for any goal and to share it.

- Open source is in the middle, refers to the license

- EUPL can be used for your documents and your software, let's begin today !

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Free software & monitoring : summary

- Reduce costs by using free software

- Be an actor : contribute and share your work

- Master your monitoring (you know what is inside)

- Avoid proprietary protocols that will not speak with your monitoring solutions

> → attends to the presentation "Energy monitoring and Internet of Things"

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Conclusion

- This document is available under EUPL v1.2 license (link to the document at the end of the presentation)

- Be an actor of your software

- Share your work, join projects communities, contribute to free software !

- And don't forget...

Conclusion

- If you want the coffee, use free software :-)

by Manolo Rei

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End of presentation

Thank you for your attention

??? Do you have questions ???

Link of this presentation
(hybrid PDF, use LibreOffice Impress to edit it)
((of course LibreOffice is a free software :-)))

https://www.liberasys.com/diffusion/free_software_and_monitoring_almada_201810.pdf

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