

# Free Software, Open Standards, and You

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## Abstract

This presentation will talk through Free Software (software that you have the freedom to run, copy, distribute, study, change and improve; aka open source software), open standards, and related topics, and why libraries should be using and promoting these. Open standards and Free Software can save you money, make your systems more secure, let you work better with colleagues, allows you to move vendors easily (necessary if they go out of business, or stop supporting your product).

If you have ever had colleagues not be able to open MS Office files because they have a different version to you, you have encountered an issue with non-open standards. If you have ever had software become unsupported on a new operating system with a vendor disinterested in helping, then you have discovered something where Free Software might be able to help.

In this presentation I shall give a brief rundown of the history of Free Software and open standards, giving examples of particular relevance (e.g. Koha, LibreOffice and Linux; and MARC, Dublin Core, OpenDocument as a standard for sharing documents, and HTTP and HTML as the basis for the WWW), and give some examples of things you can do easily at home or in your own organisations.

The session will finish with a directed discussion looking at some of the themes of the presentation.

## Introduction

This document is the body of the talk that I provided at the New Librarian's Symposium 8 in Canberra in June 2017. It includes references and additional notes for those who are curious.

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<sup>1</sup> Special thanks to my employer, the State Library of Western Australia, for sponsoring my trip. The opinions expressed herein are my own, and do not necessarily reflect the views of my employer. But you knew that.  
Michael W Harris – NLS8 – “Free Software, Open Standards and You”

<<slide: intro>>

Hi Folks, today I will discuss the three things in the title of the talk: “Free Software, Open Standards and You”. I will explain what Free Software and Open Standards are, and how you can use and implement them at home and in your workplace.

I also have a handout which has additional information. It also has a web address of where you can get copy of this talk, the slideshow and references.

<<slide: brief justification >>

So, what's the big deal? In short: Free Software and open standards can save you money, help you work better with colleagues both in and outside your organisation, allows you to move vendors easily, and have many other benefits.

<<slide: Free Software>>

Firstly, what is Free Software? Free software is software that gives you, the user (as an individual or organisation), freedoms<sup>2</sup>. Unlike Microsoft Office, Adobe Photoshop, and iPhone iOS, Free Software gives you the theoretical possibility to change the software to fix problems and issues, and to add functionality. There are various legalities that I don't need to discuss here, but if you are familiar with Creative Commons, then you'll already have some idea.

Free Software allows you to be in control of your data and, if you wish, the code of the software. Think about some software you use, and how sometimes you have minor annoyances that you wish the vendors would fix. Sometimes they will, for a fee, sometimes they just aren't interested, and sometimes they say it's not a bug, it's a feature. With Free Software, you ask someone else to fix it for you, or **do it yourself** if you have the skills.

<<slide: open source vs free software>>

Now, many of you will have heard about Open Source Software. For the purposes of this talk, Open Source Software is effectively the same as Free Software, but with a different name.

The Free Software movement started in 1985 because a man couldn't get his printer to work properly. Frustrated, he wrote a manifesto about how important freedoms are to computer users, and so kick started a movement that is still going today.

Later, a group of people wanted to push the development processes of Free Software on companies, and started talking about Open Source Software, and how it could make and save companies money. So: One is about freedoms, the other: less so.<sup>3</sup>

<<slide scratching an itch>>

Often the motivators for a particular piece of Free Software is to “scratch an itch”<sup>4</sup>.

For example, the Koha library management system was created to scratch an itch. The Horowhenua Library Trust in NZ needed a new library management system as their old one had a serious bug the

<sup>2</sup> Free Software Foundation, ‘What Is Free Software?’

<sup>3</sup> Stallman, ‘Why Open Source Misses the Point of Free Software’.

<sup>4</sup> Raymond, ‘The Cathedral and the Bazaar’, The Mail Must Get Through.

vendor wouldn't fix<sup>5</sup>. They decided to develop their own system, and release it as Free Software.

This scratching an itch also extends to customising existing software. As someone later using Koha in the USA said:

It does not have to be "take it or leave it"; it does not have to be "let's ask for this feature and wait as long as we can." We were able to take decisive action to make Koha work for us. We were able to bend the software to our process, rather than have the software bend us.<sup>6</sup>

Trying doing that with your current library management system.

Linux is a perfect example of Free Software. It is the core of Android on mobile devices, runs on laptops and desktops, all the way through to supercomputers. It's also a lot more secure than MS Windows: you won't get worms like WannaCry if you run Linux.

Not all Free Software is created from scratching an itch, e.g. LibreOffice is a different case. Originally created as a non-Free system, it was bought by Sun Microsystems who then Freed it. Long story short, a professional, high quality office suite, and a Free at that.<sup>789</sup>

<<slide: principles>><sup>101112</sup>

So, why is Free Software important for libraries? Beyond the practical benefits mentioned, there are philosophical reasons libraries and librarians should be using and promoting Free Software. Philosophically modern librarianship has a lot to share with the Free Software movement.

Both value and promote equitable access to data, information and knowledge. Both value cooperation, connectedness and the peer review process. And I could go on.

We should be using Free Software as a matter of principle.

## What are open standards?

<<slide: open standards>><sup>1314</sup>

Open standards are standards that are publicly available for use without restriction, and without needing to pay (whether patent or copyright or other fee) to access or implement them. They can be freely adopted, implemented and extended by anyone.

Open standards are essential for open computing. If you wish to communicate with someone who owns software or hardware from a different company to yours, then the two companies must agree to a common standard. When you have as many companies as there are in the computing world, it's easier to just use a single standard, which any company can implement.

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5 Koha Library Software Community, 'History'.

6 Hall, 'Everyday I Help Libraries Make the Switch to Open Source'.

7 Sun Microsystems, 'SUN MICROSYSTEMS OPEN SOURCES STAROFFICE TECHNOLOGY'.

8 'OpenOffice.Org'.

9 'LibreOffice'.

10 Morgan, 'Open Source Software in Libraries'.

11 American Library Association, 'Core Values of Librarianship'.

12 Dorman, 'Ubiquity'.

13 Calvesbert, 'The Benefits of Open Standards'.

14 Kjendal, 'On the Importance of Open Standards – Senet'.

<<slide: marc example, plus view in opac>>

There are a few standards that are very relevant in our area of work. MARC is an obvious one, which was created to allow the easy sharing of cataloguing data between libraries.

MARC has been around since the 1960s, and while it may have its problems, the fact that I can take a library management system and export records as MARC, and then you can import them into your different library management system, is a testament to its success and importance.

For this talk the most important type of open standard are those that describe file formats. These open formats allow multiple independent implementations, allowing you to move from vendor to vendor, without worrying about compatibility<sup>15</sup>. However, other open standards are just as important for communication between different software platforms and systems.

Open formats are also essential for access to data and information in the future. While non-open formats can be reverse engineered given time, it is often the case that 3rd party implementations do not get things quite right. Open formats are essential for ongoing digital preservation. Though are only one part.

<<slide: HTML source and in three browsers>>

Some of the most widespread open standards are those that relate to the Internet and the World Wide Web. HTML which describes web pages, has many implementations, including Firefox and Chrome. Because HTML is an open standard, people who create web pages do not have to worry about the users who use these pages having the correct software, nor whether the person is using the same operating system, or any other concerns. Hypertext transfer protocol, or HTTP, is used to transfer HTML from server to client, again, without concern about what software or system either end is using.

<<slide: other standard examples>>

Another standard you'll likely have heard of is Dublin Core, a metadata standard that makes it easier to understand the metadata attached to documents.

PDF/A is another example of format that is valuable for libraries. PDF means that you can be confident that a document you produce will look the same regardless of the system you use, or the system the person you share it with is using. PDF/A an international standard, that allows you to be confident that your files will still be usable in 10, 50 or even 100 years time.

I mentioned LibreOffice briefly earlier. The file formats used by LibreOffice (OpenDocument) are another example of open formats; these files can be opened by a variety of office suites, even be MS Office.

<<slide: defacto standards>><sup>16</sup>

<sup>15</sup> This assumes that the software implements the standard correctly, which some major commercial companies claim they do, but actually don't. Software that does not actually implement an open format correctly but which the vendor claims or implies that it does, leads people to not use the format, because they can't share files.

<sup>16</sup> Sutor, 'Open Source vs. Open Standards'.

Now, open standards must be distinguished from *de facto* standards. These are often not fully documented in any one place, or even fully documented at all. If they are, a single vendor may control this standard, making it difficult for other players in the market to implement it (especially if the details are not freely available). As well, the single vendor could easily change the standard without notice to anyone. Two obvious examples of this are Microsoft Office file formats and Adobe product file formats.

<<insert slide, image of MS Office on Mac not being able to open MS Office for Windows<sup>17</sup>>>

Did you know that just because you have MS Office doesn't necessarily mean you can open MS Office files? The issue was not just between different versions (older versions couldn't open newer file formats), but also between versions on different operating systems.

MS even have a support post on the matter which says you should use open formats in your Powerpoint presentations to ensure that they will work on different systems!<sup>18</sup>

## What you can do at home?

<<slide: what to do at home>>

Now having had a look at what Free Software is, and what Open Standards are, why should you care? Have a look at the tools you use and think about how much you pay for them. Can they save to an open standard format? Are your files in a format that you will be able to open in ten or twenty years' time?

A common digital preservation example is the WordStar document saved on a floppy disk. WordStar is a word processing program from the 1980s, while the format has been comprehensively reverse engineered, people would have been better off saving as plain text. If you want to be confident that documents you create today will still be usable in ten years time, you are better off with an open standard with multiple implementations. More recently, MS Works files have had to be reversed engineered by Free Software programmers, but there is no guarantee that it will be perfect.<sup>19,20</sup>

As well, when getting a new tool (e.g. photo editor) do a search for alternatives. Mostly they'll be upfront that they are Free Software or Open Source Software.

<<slide of screenshots of websites>>

You can save yourself significant amounts of money compared to paying the yearly fee for a tool like Photoshop.

## What you can do at work?

<<insert slide: at work>>

<sup>17</sup> Microsoft, 'OOXML-Excel-Issues'.

<sup>18</sup> Bajaj, 'Cross Platform PowerPoint Compatibility'.

<sup>19</sup> 'Microsoft Works'.

<sup>20</sup> Ziem et al., 'Microsoft Works Format Import Library'.

Depending on your job, you may have more or less influence on IT decisions. However, different opportunities may turn up.

For example, you may be involved in a project team to evaluate software, or to choose a new platform or system. In these cases, you should push to also include Free Software in the evaluation. E.g. if buying a new library or learning management system consider Free Software alternatives such as Koha and Moodle. A full evaluation should also consider a RFQ for a customisation of existing software, or even the development of new software under a Free Software License (which is how we got Koha).

Of course, sometimes Free Software is not an option. In this case, you should push that the system should be able to export an open standard format.

<<slide at work, other things,>>

If you work at a library or other organisation with publicly accessible computers, suggest that Free Software such as LibreOffice is used. In my experience patrons will adjust and in some cases even appreciate the more traditional interface. And of course you will save money compared to buying MS Office.

Not only that, you could suggest that professional quality tools like Audacity for audio editing, Blender for 3D and animation, and Scribus for desktop publishing, could be put on some or all of the PCs. These tools fit perfectly in with the maker movement that many libraries have embraced.

And, if you have computer classes, explain how patrons can save money by not paying for multi-media tools, and expensive office suites.

## Key takeaways

<<slide: conclusions 1-4, one at a time.>>

I've got four key takeaways for you. I'm hedging my bets with these: Free Software is great, but be careful. Open standards though, essential.

One. If your software can export your data in an (actual) open standard (and preferably import it), then it's probably OK, as you can always move with your data to another vendor if required. So long as you use the open format by default.

Two. Free Software is not a cure-all or panacea, and you need to choose the best option for you. However, see takeaway one, if your best option cannot export an open standard format, it might not actually be your best option. (Double check to make sure it actually is an actual open standard format, and not an almost open standard format.)

Three. Free Software and open standards allow you to bypass vendors who might otherwise try to lock you into their eco-system, which can save you money, etc.

Four. Free Software can be expensive; do your homework first to ensure that the system will do what you want, and workout how much it will cost to customise the system to get it to that stage. Though this also applies for non-Free Software.

## Questions for discussion

What might be some opportunities to promote free software or open standards in your Library?

Have you had problems with Free Software previously?

Why do you think so many people are resistant to Free Software? See for example governments which really should be spending money in the local community, instead paying ridiculous amounts of money to US corporations (e.g. Microsoft, Apple, Adobe, Oracle, etc.).

Why people don't want to go with Free software.

Other things to discuss could be is it the GLAMR responsibility to use free software/open standards (reducing costs and making things accessible)? Also how do we protect open software when walled gardens like Apple make proprietary software very inviting, especially to those with low computer literacy skills.

## References

I've included a number of references for people looking for additional information. However, much of it in my talk does not have references, as I've based it on remembered knowledge collected over the years. In many cases Wikipedia provides an excellent resource for people looking for more information.

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