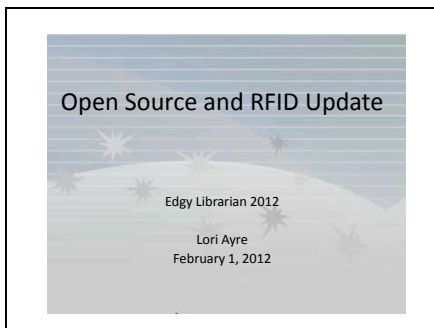


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Open Source and RFID Update  
Edgy Librarian, February 1, 2012


Presenter: Lori Bowen Ayre, The Galecia Group, lori.ayre@galecia.com

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Wordle combining words that come to mind when we think about open source. Developed with my co-presenters at open source session done at CLA Conference last year.

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OPEN SOURCE  OPEN LIBRARIES

- First year focused on raising awareness of open source options
- Next year began migrations
  - Nine migrations to Koha
  - LSTA Grant Amount: \$90,000
  - Annual savings: \$130,500 (all libraries)
- This year focusing on Evergreen migrations for existing or new consortia

Open Source – Open Libraries – membership consortium started up three years ago to raise awareness of open source ILS opportunities.

Year One did workshops around the state to raise awareness and do some myth busting about open source software.

Year Two, migrated nine libraries to Koha. Some went on a shared system. That group of libraries is saving \$130,500 per year over their previous annual costs for ILS. Not always a cost saving associated with moving to open source but for this group there was partly because many moved from stand-alone systems to a shared system.

This year we are going to focus on Evergreen and find some libraries that are better suited to that system. We'd like to get at least one shared system, based on Evergreen, up (or close to up) by the end of the year.

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Koha 2011 Highlights

- Over 150 “committers”
- Thousands of libraries worldwide use it
- Time-based releases
  - Koha 3.6.3 January 26, 2012
  - Koha 3.6.0 October 22, 2011
  - Koha 3.4.2 June 28, 2011
  - Koha 3.2.10 June 9, 2011
- 2011 - California libraries begin sponsoring developments!




Koha 2011 highlights

- Number of developers aka “committers” up to 150
- Koha continues to expand worldwide with thousands of installations around the world
- Moved to time-based releases which means more enhancements are getting rolled into the code faster
- Some California libraries sponsored enhancements (Los Gatos) so California is now giving back!

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**Koha Libraries in California**

- Arcadia Public Library
- Harrison Library (Carmel)
- Los Gatos Public Library
- NorthNet Library System
  - Trinity County Library
  - Plumas County Library
  - Orland Library
  - Del Norte County Library
  - Siskiyou County Library
- San Benito County Library
- California Institute of Integral Studies
- Jung Institute
- New Haven School District
- Pacifica Graduate Institute
- Palo Alto University
- Samuel Merritt College
- Wright Institute



In California, lots of public libraries on Koha. Also a smattering of school, special and academic libraries.

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- 1000<sup>th</sup> Evergreen library goes live
- More service providers
  - Equinox – full range of services
  - Lyrisis – migration and hosting
  - AlphaG – migration
  - Some existing Evergreen consortia offering hosting services (unofficially)
  - Several new developers begin working on Evergreen code
- Evergreen project joins Software Freedom Conservancy
- Version 2.x debuts

Evergreen Update

Running Evergreen today

521 library systems, over 1000 outlets

20 consortia, 4 states

More Service providers including Equinox and Lyrisis, also AlphaG for migration assistance. Also some existing Evergreen consortia looking to become service providers (e.g. hosting, sys admin)

SFC: not-for-profit organization that helps promote, improve, develop, and defend FLOSS projects

- non-profit organizational structure without the overhead
- ability to collect donations
- hold assets on behalf of the project
- protection from personal liability for developers

Big Upgrades

2.0.0 October 4, 2011

2.1.1 November 16, 2011

2.2 in beta

Improvements

-Template Toolkit-based OPAC

-Expansion of Holds management options

-Improvements to most modules including new Acquisitions and Serials modules

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**Evergreen in California**


CA Libraries on Evergreen

- William Jessup University
- Bear River Tribal Library
- Santa Cruz Public Library

Goal: Move more libraries to shared ILS

- extremely flexible
- robust holds functionality
- libraries retain more local control
- plus there's Fulfillment....

See White Paper: Why Sharing a Library System Makes Sense available from <http://galecia.com/presentations>



Only three libraries on Evergreen in California. We will focus this year (as part of OS-OL) on getting Evergreen going for libraries that are either on a shared system now or would like to be part of a shared system. Evergreen very good for shared systems because it was designed for consortia. Super flexible.

See “White Paper: Why Sharing a Library System Makes Sense” for more on that available from [http://galecia.com/sites/default/files/2012\\_Ayre\\_Why\\_A\\_Shared\\_Library\\_System\\_Makes\\_Sense.pdf](http://galecia.com/sites/default/files/2012_Ayre_Why_A_Shared_Library_System_Makes_Sense.pdf)

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**Fulfillment**

[\(http://www.fulfillment-ill.org/blog/\)](http://www.fulfillment-ill.org/blog/)

- Open Source ILL software
- Developed by Equinox for OHIONET and others
- Will be released in next few weeks
- Provides “circulation interoperability” with
  - Evergreen
  - Koha
  - Polaris
  - Symphony
  - Millennium

Another open source product to keep on your radar is Fulfillment. It is an open source ILL product along the lines of INN-Reach (Innovative), URSA (SirsiDynix) and AutoGraphics Resource-Sharing and RelaisD2D.

It will provide circulation interoperability for Evergreen, Koha, Polaris, Symphony and Millennium in its first release. Its due out in first quarter 2012 (now).

Could replace all those expensive resource-sharing systems we have in CA based on INN-Reach (Link+)

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Marshall Breeding (with Andromeda Yelton)

**PERCEPTIONS 2011**

Every year Marshall Breeding does an ILS Perceptions survey. This year he is partnering with Andromeda Yelton. Interesting findings about open source ILSs.

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### Evergreen and Koha Top Candidates For Libraries Looking to Migrate

- 566 libraries indicated that they are considering migrating to a new ILS
- Most frequently mentioned as replacement candidate:
  - Innovative Interfaces Sierra (88)
  - Evergreen (87)
  - Koha (74)
  - Polaris (69)
  - SirsiDynix Symphony (67)



Source: Marshall Breeding's Perception Survey available from <http://www.librarytechnology.org/perceptions2011.pl>

From the report: "Though the open source interest scores were low, a substantial portion of libraries that registered some interest in moving to a new ILS named open source products among the replacement candidates."

This is good info! Tells us that people actually using the open source products are enthusiastic about them. They are the one who should know!

Libraries considering migrating....many looking at Sierra and Evergreen and Koha as options (and Polaris and Symphony).

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### Open Source Solutions Satisfying

Interest in open source increased for ALL libraries using an open source ILS:

- Koha – Independent
- Koha – ByWater Solutions
- Koha – LibLime
- OPALS
- Evergreen



Source: Marshall Breeding's Perception Survey available from <http://www.librarytechnology.org/perceptions2011.pl>

Interest in Open Source is clearly satisfying the existing users of ALL open source ILS products regardless of support provider (and even those running independent systems).

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Ranking of 21 ILSs: Functionality–Support-Overall

	Functionality	Support	Overall
Polaris	3	7	5
Koha w/ByWater	9	5	8
Millennium	10	15	12
Evergreen	15	11	14
Symphony	14	17	16

Source: Marshall Breeding's Perception Survey available from <http://www.librarytechnology.org/perceptions2011.pl>

Top 11 ILSs in each of the following areas: support, functionality, overall

Support	Functionality	Overall
1 Apollo	1. Apollo	1. Apollo
2 EOS.Web	2. OPALS	2. OPALS
3 OPALS	3. Polaris	3. Koha-Indy
4 Agent Verso	4. Koha – Indy	4. EOS.Web
5 Koha – ByWater	5. EOS.Web	5. Polaris
6 Atrium	6. Agent Verso	6. Agent Verso
7 Polaris	7. Atrium	7. Atrium
8 Library.Solution	8. Library.Solution	8. Koha-ByWater
9 Circ Plus	9. Koha-ByWater	9. Library.Solution
10 Destiny	10. Millennium	10. Destiny
11 Evergreen		14. Evergreen

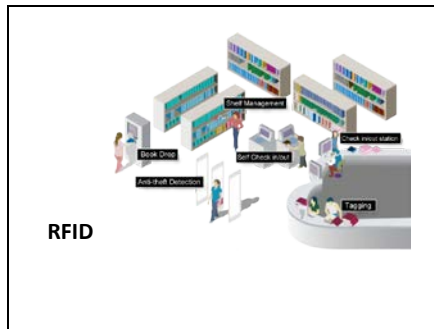
Libraries with collections larger than one million items, Polaris received highest scores, followed by Millennium.

Large and complex library organizations and diverse library types. Strong performers were Millennium, Library.Solution and Evergreen.

Notes about other top 10:

Apollo (Biblionix)– small publics                      EOSWeb (EOS) – law, govt, specials  
 OPALS – school    Atrium (Book Systems)– publics  
 CircPlus and Destiny (Follett)– publics, schools  
 Switching gears: RFID

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**Tag Prices at All-time Low**

- Book Tags \$ .19
  - Tagsys
  - FCI
  - UPM
  - 3M
- Media Tags \$ .69
  - UPM RFID Stingray
  - FCI X-Range Single Coil Smartag

Pricing.  
 Book tags: 19 cents  
 Media tags: 69 cents

Don't bother with donut tags.

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**New FEIG RFID Reader: RF Shielded Antenna Pad**

- Reduces unintended capture and
- Reduces radiation area
- Strongly shielded downward and toward the sides

Not many new RFID products in 2011 but here's one:

**FEIG RF Shielded Antenna Pad**

- strongly shielded downward and toward the sides
- reduces radiation area.
- reduces "unintended capture" of transponders or RFID tags is reduced significantly.
- Use on or under desks
- Also can be easily mounted on conveyor belts
- Comes with or without an integrated RFID reader and with RS-232, USB, or PoE (Power over Ethernet) interface

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### ISO RFID Standards

- In March, 2011 ISO finalized ISO 28560 (<http://biblistandard.dk/rfid/>)
- Composed of three parts
  - ISO 28560-1 defines the data elements
  - ISO 28560-2 and ISO 28560-3 describe two different ways of encoding the tags
- Based on previous standards:
  - ISO 18000-3, Mode 1 ----> 28560-1
  - ISO 15962 --> 28560-2
  - Danish Data Model --> 28560-3

New ISO RFID Standard finalized last March.

Part 1 builds on ISO 15693 → 18000-3, Mode 1 → ISO 28560-1

But ISO 15693 and 18000-3, Mode 1 are not equivalent. ISO 18000-3 Mode 1 has additional features and some of the features that are optional now are likely to be upgraded to requirements. The rules for Application Family Identifier (AFI) (discussed in 3.2) are fundamentally different. Although the same basic chip design platform is used, the library community, as it moves forward with standardization, needs to ensure that the tags it uses have the required features. Having said all this, the chip and tag vendors might still refer to an ISO 15693 tag as being acceptable for library applications. They may very well be right—the only real test is a check on the supported features. The safest position will be to focus on the ISO 18000-3 Mode 1 standard, as this standard is maintained for item management applications.

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### ISO 28560-2 and 28560-3

- ISO 28560-2 - UK and Australia data model. Field location dynamic.
  - Advantage: very flexible: selective locking, reading, and encoding, variable length encoding
  - Disadvantage: newer, less familiar
- ISO 28560-3 – similar to the Danish data model. Each field assigned a specific location on the tag.
  - Advantage: lots of vendors/libraries using something like this already
  - Disadvantage: poor use of tag space

ISO 15962 --> ISO 28560-2

Danish Data Model --> ISO 28560-3

Again, similar but not equivalent. Also, big differences between Part 2 and Part 3.

- Part 2 supports selective locking, none of the data elements in Part 3 can be selectively locked, just the entire 32 bytes.
- Part 2 is designed for selective reading, only transferring those blocks that are necessary. (ABOUT CRC: While Part 3 can also read selected blocks, the decoding process is usually at the same point in the communications hierarchy as that for Part 2. In each case it is beyond the basic "off the shelf" compliant decoder logic. The data CRC brings no advantage with selective reading. It is calculated as part of the 32 byte block and only provides a functional benefit when reading all 32 bytes. )
- Part 2 allows selective encoding, so the entire encoding can be shorter than Part 3.
- Part 2 supports variable length encoding for any data element, Part 3 does not.



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#### Basic Benefits of RFID Standards

- Interoperability
  - Material encoded by another library can be read by another
  - If everyone adheres to same standard
- No vendor lock-in
  - RFPs can be issued separately for tags, self-checks, AMH, security, and handhelds.
  - Different vendors can provide different aspects of system even if using RFID (more like barcode-based systems are now)

From NISO Recommendations document:

The goal of interoperability is achieved by following standards and by making sure that the data on the tag is in a standardized format and is used consistently. The specifications contained in the NISO data model provide flexibility for some feature differentiation among the vendors by allowing for optional data, and by not specifying controls on how the data can be used. It also provides a minimum set of the data objects that must be provided to perform the most basic of library functions using RFID equipment. The ultimate intention is that RFID tags programmed by one vendor in compliance with the data model will be usable by another RFID vendor without any reprogramming.

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#### NISO Recommendation for US Libraries

- NISO recommends ISO 28560-2 ([http://www.niso.org/apps/group\\_public/download.php?document\\_id=6508](http://www.niso.org/apps/group_public/download.php?document_id=6508))
- Two mandatory fields
  - Primary Object ID - unique identifier such as the barcode number (mandatory)
  - Tag Content Key - this explains what else is on the tag (mandatory)

NISO recommends 28560-2. See

[http://www.niso.org/apps/group\\_public/download.php?document\\_id=6508](http://www.niso.org/apps/group_public/download.php?document_id=6508)

More flexible than 28560-3 even though more California libraries are currently using something closer to 28560-3 (e.g. Danish Data Model).

Only two mandatory fields: primary object id (bar code) and tag content key (which fields are included and where they are located).

Other fields are optional.

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### Some Optional Data Elements

- Owner Library – ISIL or OCLC code
- Set Info - total in set/part number
- Type of Usage – can be used for security (e.g. circulating, non-circulating, reference)
- Shelf Location - probably a call number
- Media Format (ONIX and MARC)
- ILL Borrowing Institution - ISIL or OCLC code
- ILL Borrowing Transaction - ILL request number
- ISBN number

Here's some of the optional (but potentially very useful) fields:

- Owner Library – ISIL or OCLC code
- Set Info - total in set/part number
- Type of Usage – can be used for security (e.g. circulating, non-circulating, reference)
- Shelf Location - probably a call number
- Media Format (ONIX and MARC)
- ILL Borrowing Institution - ISIL or OCLC code
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### RFID Tags CAN be more than barcodes

- Use "Owner Library" and "ILL borrowing institution" to sort items between libraries without requiring a SIP connection or routing slips
- Dedicate a "Local Data Field" to "Last Checkout Date" or "Number of Circs" to support weeding with handheld devices
- Use "Type of Usage" field to ensure non-circulating material doesn't leave the library without requiring ILS connection
- Support ILL workflow with "ILL Borrowing Institution" and "ILL Transaction" fields
- Use "Shelf Location" for items that should be routed directly to the Holds Pickup shelves
- Use "ISBN number" so smart phones with RFID tag readers can get book reviews and do interesting things with their smart phone apps

Some ideas for HOW we could make better use of RFID tags:

- Use "Owner Library" and "ILL borrowing institution" to sort items between libraries without requiring a SIP connection or routing slips
- Dedicate a "Local Data Field" to "Last Checkout Date" or "Number of Circs" to support weeding with handheld devices
- Use "Type of Usage" field to ensure non-circulating material doesn't leave the library without requiring ILS connection
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- Use "Shelf Location" for items that should be routed directly to the Holds Pickup shelves
- Use "ISBN number" so smart phones with RFID tag readers can get book reviews and do interesting things with their smart phone apps

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What the new standard means for libraries already using RFID

- You don't have to do anything....but you also won't benefit from the standards
- Talk to your ILS and RFID vendor about converting.
- Make sure they know you want to move to the standard.

What the new standard means for libraries already using RFID:  
You don't HAVE to do anything (no pain, no gain).

Recommend:

Talk to your ILS and RFID vendor about converting.

Make sure they know you want to move to the standard.

Note: There is virtually no chance you are following the NISO 28560-2 recommendation  
Most libraries are using RFID systems that are closer to 28560-3, but those installations are generally not compliant

*Encoding to 28560-2 requires the appropriate AFI and DSFID to be encoded. This enables tags compliant with the ISO standard to be distinguished from previous encoding schemes. Tags that were previously locked might not be able to be converted. In this case it might be necessary to re-tag the particular loan item. Generally if none of the previous data has been locked, then re-tagging is less likely.*

From <http://biblstandard.dk/rfid/docs/RFID-in-libraries-q-and-a/index.htm>

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What about libraries that haven't implemented RFID yet?

- Demand your RFID tag vendor provide tags that comply with ISO 28560-1
- Demand that any vendor writing data to your tags adhere to ISO 28560-2
- Develop your own Library RFID Profile

If you haven't implemented RFID yet:

- Demand your RFID tag vendor provide tags that comply with ISO 28560-1
- Demand that any vendor writing data to your tags adhere to ISO 28560-2
- Develop your own Library RFID Profile

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### Library RFID Profile

Includes:

- Mandatory data elements
- Additional data elements you want to use
- Arranged how you want them arranged
- Encoded per 28560-2

What's an RFID Library Profile?

It includes:

- Mandatory data elements
- Additional data elements you want to use
- Arranged how you want them arranged
- Encoding per 28560-2

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### Tag Testing and Quality Assurance

- No official body exists for verifying tags are compliant
- Look for new services to be offered to libraries to
  - help you develop your own “profile”
  - verify that the tags are compliant
  - verify that encoding is compliant
  - provide opportunities for testing encoding options with your desired data elements

How can you be sure your tags are following the standard?

- No official body exists for verifying tags are compliant
- Look for new services to be offered to libraries to
  - help you develop your own “profile”
  - verify that the tags are compliant
  - verify that encoding is compliant
  - provide opportunities for testing encoding options with your desired data elements

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**RFID + OPEN SOURCE ILS**

Now let's combine our topics: RFID + Open Source

RFID applications will need to communicate with the ILS. New modules, new applications will be needed to truly exploit the possibilities. This is more challenging when dealing with a proprietary vendor but exciting possibilities arise for libraries on an open source ILS.

Use generic equipment (why pay for premium “library” handhelds when a generic Motorola RFID handheld could do what you need (if you could control the code)?)

Wireless Dynamics has created the iCarte 110 NFC / RFID reader. Imagine what you could create for your patrons with that?!

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#### RFID vendors working with Evergreen and Koha libraries

##### Evergreen

- 3M
- TechLogic
- Envisionware
- Bibliotheca
- ITG
- Sentry RFID

##### Koha

- Since Koha is Web-based, most libraries want to avoid installing a software client on the workstation
- Only two vendors I've seen so far:
  - 3M
  - TechLogic

The intersection between RFID and Open Source is already happening. Lots of Evergreen libraries using RFID. Fewer Koha libraries using RFID. This is partly because Koha is 100% web-based and no one has figured out how to provide the RFID interface without requiring client software.

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#### New RFID Applications Rely on ILS

- **If you have an Open Source ILS, you can develop your own RFID-enabled applications rather than waiting for vendors to figure out what you need.**
- If you are not on an Open Source ILS, you will have to work with your vendor.

The connection to the ILS is important. If you have an Open Source ILS, you can develop your own RFID-enabled applications rather than waiting for vendors to figure out what you need. If you are not on an Open Source ILS, you will have to work with your vendor.

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**KEY TAKE-AWAYS**

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**RFID**



- Learn about ISO 28560 standard and get creative
- Put pressure on your RFID and ILS vendors to support it so you aren't locked in
- RFID procurements:
  - insist on ISO 28560-2 compliant systems
  - make sure you are getting good tag prices

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**Open Source ILS**



- Recognize that Koha and Evergreen are among the top ten ILS options
- If you are on a shared ILS, make sure to look into Evergreen
- If you are not on a shared ILS, look into moving to a shared system
- Keep an eye on Fulfillment as a replacement for your pricey ILL/resource-sharing systems (e.g. Link+)

## Key Take-Aways

### RFID

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- Put pressure on your RFID and ILS vendors to support it so you aren't locked in
- RFID procurements:
  - insist on ISO 28560-2 compliant systems
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