Evergreen Inventory

From Start to Finish
Introduction

• Presenters
  – CUTPL Information Technology Manager
    • Andrew Baker
  – CUTPL Circulation Manager
    • Teresa Hudson

• Thank you to our Library Director, Colleen McCarty for being our advisor on this project.
Presentation Topics

• Our Idea & Goals
• Planning
• Testing
• Inventory Process
• Post-Processing
• Technical Details
• Live Demonstration
How things were before the inventory...

OUR IDEA & GOALS
About CUTPL

• We are from Culver-Union Twp. Public Library
  – In northern Indiana
  – Nestled on Lake Maxinkuckee
  – A Carnegie library
  – Founded in 1915
  – Addition in 2002
  – Collection size 40,000-45,000 items
  – 2,181 active patrons
Time to do An Inventory!

• Needed an inventory in 2011 because:
  – Four years since previous inventory
  – Had migrated to Evergreen in 2009
    • From Follett ILS software
• Our director & library board wanted:
  – A count of all items in our collection
  – To see what was missing
• We were running Evergreen 1.6
What to do?

• Consistency of item data was a concern
  – Old data
  – Migrated data
  – Do physical items match the system?
  – Accuracy of item records?

Keep Consistency
Define Our Current Situation

Questions we had:
- Do we want to close the library to perform an inventory?
  - No
- What data changes most frequently?
  - Item Status
- Where and when were changes to item data coming from?
  - Circulation
  - Cataloging
  - Remote Patron Renewals and Holds through the OPAC
- How are we going to mark an item as inventoried?
  - Especially when they are being checked in and out
  - Average daily circulation is: 180
- When were staff available to work on inventory?
  - Schedule available staff

So many changes! If only we could stop time!
Let’s Freeze the Database

- We decided to create a “frozen” database.
- Exported item data from Evergreen.
- A separate database.
- Developed web-based inventory software.
  - In-house dev. team
  - Intranet app
  - Minimal training req.
  - Simple to use
  - We show you how!

BRILLIANT!
Why a Separate Database?

- We didn’t want to disrupt:
  - Circulation
  - Cataloging
- We didn’t want our inventory data to be affected by:
  - Check-ins
  - Checkouts
  - Cataloging
- We didn’t want inventory changing our live database.
- We needed a field for inventory status:
  - TRUE/FALSE

Databases & Actions

Live (Production)
- Check-in
- Checkout
- Cataloging

Frozen (Inventory)
- Processing
- Reporting
- Analysis
Summary of Goals

- Frozen database & inventory software.
- We will show you how we
  - Performed a very fast inventory
  - Scanned 2000-3000 items per hour
  - Without moving items from shelves
- Mobile workstations (5 total):
  - Mobile Carts
  - Laptops
  - Barcode scanners
  - Wireless networking
  - LONG extension cords!
- Our inventory process:
  - Integrates deeply with Evergreen
  - Going back to adjust data

Mobile Workstation
What are we going to do?

PLANNING
Planning

• Our project management process:
  – Define our objective (Goals)
  – Consider our available resources
  – Develop a plan
  – Test the plan
  – Perform inventory
    • Get our number of items
  – Clean-up
Planning

• Analyze our circulation process:
  – When does item data change:
    • When items checked in
    • When items checked out
    • Goes lost or missing
    • Cataloging changes
    • New, replaced or deleted item barcodes

• We didn’t want to:
  – Disrupt day-to-day operations
  – Increase patron or staff stress levels
Planning

• We decided to:
  – Design an inventory program:
    • Separate from Evergreen
    • Uses its own database to track results
  – Design a user interface:
    • Input – Scanning items
    • Output - Administrative & reporting functions
  – Tweak and test:
    • Make usability adjustments
Hello…testing?

LIVE TESTING
Live Testing

• Determine if the software works:
  – Does it mark items as inventoried?
  – Does it warn staff if there is a problem?

• Verify software output:
  – Does the reporting interface work correctly?
  – Does it generate usable output?

• Take input from staff:
  – Visual interface (color changes per result)
  – Sound effects (different for success & failure)
Live Testing

- Needed a time estimate:
  - For inventory completion
  - Staff scheduling
  - During open hours

- Measured the following:
  - Amount of time to scan a shelf of items
  - Number of items scanned in 30 minutes
Live Testing

• Finally, the user interface was tested.
  – Tested & trained with library staff.
• Made sure they understood:
  – The inventory software.
  – Their part of the inventory process.
Live Testing

• Revised software through testing and adjustment cycles:
  – Sound Effects
    • Different for success, failure, checked out
    • Lower volume to not annoy patrons
    • But still loud enough for staff to hear
  – Usability Adjustments
    • Displayed less information on screen
    • Made program work with barcode scanner
Testing – Technical Issues

• Power Distribution
  – Marked outlet locations on maps
  – Used extension cords to reach

• Wireless Networking
  – Tested signal in far corners of building
  – Worked well even before our upgrades
  – Very helpful!

• Barcode Scanners
  – Needed more than we had
  – Acquired several used scanners
INVENTORY PROCESS

How to get it done...
The Night Before Inventory

• Organized things before inventory:
  – Posted color-coded maps of:
    • Our collection
    • Shelving locations
  – Prioritized areas based on patron traffic flow
  – Posted lists to track inventory progress
  – Labeled aisles in stacks with letters
  – Labeled boxes for items with problems
  – Setup laptops on carts (workstations)
  – Setup workstation at circ desk to scan returns

• Posted “Inventory in Progress” signs
  – Keep our patrons informed

• After closing, copied to the “frozen” database.
<table>
<thead>
<tr>
<th>Priority</th>
<th>Code</th>
<th>Description</th>
<th>Stopped at Section</th>
<th>Date</th>
<th>Initials</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AUDIOBOOKS</td>
<td>Audiobooks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>BIO/REF</td>
<td>Biographies/R reference</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>BOOK CLUB</td>
<td>Book club display</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>DISPLAY A</td>
<td>Display &quot;Pyramid&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>DISPLAY B</td>
<td>Display near CDs/DVDs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>DISPLAY C</td>
<td>Display near Large Print</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>DISPLAY D</td>
<td>Display near stairs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>DVD-1</td>
<td>DVDs 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>
Inventory Process

- Arrived at 8:00 AM and started **inventory**.
  - One hour of time to:
    - Work out problems
    - Start high-speed scan
- High-traffic areas:
  - To finish before opening
  - Around 8,000 items
  - Done in 1 1/2 hours
- Monitored progress of scanning.

High Traffic Areas
Inventory Process

- While performing inventory:
  - Scan items
  - Listen for sound effects:
    - Success
    - Error
    - Checked Out
  - Items were pulled on the following conditions:
    - Checked out
    - Barcode not found
    - Barcode won’t scan
    - Excessive damage
  - Other errors:
    - Multiple barcodes found (should never happen)
    - Item already scanned

- The next two slides show inventory in progress...
Inventory Process

• After completing a section, a staff member would:
  – Return to the management station
  – Mark their progress:
    • Shelving map
    • Inventory location list.
  – Unload collected items into appropriately marked boxes.
  – Select the next section to inventory.
  – Go back into the stacks and keep scanning.
Inventory Process

• After the inventory was over, we:
  – Checked number of items scanned with management interface
  – Moved boxes with items to be processed to technical services
  – Cleaned up computers and wiring

• Completed inventory scan
  – 2 ½ business days
  – Around 20 hours of staff time to scan
  – 8 staff scanning first day, 7 second day
Cleaning up after inventory...

**POST-PROCESSING**
Post Processing

• After inventory was completed:
  – Scanned returned items twice:
    • Once with Evergreen
    • Once with inventory
  – Loan durations were:
    • 21 days
    • +1 renewal = 42 days
    • +18 days for “extra time”
    • =60 days total
  – Generated a final report.
  – Created plans to deal with leftover items
    • Formed a task force for data analysis & clean-up

Scanning Returns
# Final Numbers
**(NOT Inventoried Of Total)**

<table>
<thead>
<tr>
<th>Status (at time of inventory)</th>
<th>Not Inventoried</th>
<th>Total</th>
<th>Not Found %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Available</td>
<td>1570</td>
<td>40722</td>
<td>3.86%</td>
</tr>
<tr>
<td>Bindery</td>
<td>1</td>
<td>3</td>
<td>33.33%</td>
</tr>
<tr>
<td>Cataloging</td>
<td>5</td>
<td>5</td>
<td>100.00%</td>
</tr>
<tr>
<td>Checked Out</td>
<td>497</td>
<td>1759</td>
<td>28.25%</td>
</tr>
<tr>
<td>Damaged</td>
<td>8</td>
<td>13</td>
<td>61.54%</td>
</tr>
<tr>
<td>In Process</td>
<td>24</td>
<td>123</td>
<td>19.51%</td>
</tr>
<tr>
<td>In Transit</td>
<td>10</td>
<td>114</td>
<td>8.77%</td>
</tr>
<tr>
<td>Lost</td>
<td>171</td>
<td>175</td>
<td>97.71%</td>
</tr>
<tr>
<td>Mending</td>
<td>2</td>
<td>4</td>
<td>50.00%</td>
</tr>
<tr>
<td>Missing</td>
<td>85</td>
<td>112</td>
<td>75.89%</td>
</tr>
<tr>
<td>On Holds Shelf</td>
<td>9</td>
<td>43</td>
<td>20.93%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2382</td>
<td>43073</td>
<td>5.53%</td>
</tr>
</tbody>
</table>
Final Numbers Summary

• At the end of our inventory scanning:
  – Overall, 5% of items weren’t inventoried.
  – 0.6% of our items were Lost or Missing:
    • Found 31 lost or missing items
    • Number will increase during & after cleanup
  – 1262 items inventoried were Checked Out
    • Most were already Checked Out when we created the “frozen” database
    • Items that were on shelves were checked in
      – Recalculated relevant fines and fees
Post Processing

• Handled post-processing by item status.
• Split items into the following categories:
  – Available
  – Checked Out
  – In Transit or On Holds Shelf
  – Miscellaneous:
    • Bindery
    • Cataloging
    • Damaged
    • In Process
    • Lost – Patron lost the item
    • Mending
    • Missing – Can’t find on shelves
Post-Processing – Transits

- A total of 19 items were left with a status of *In Transit/On Holds Shelf*.
- They were “stuck” in the holds system.
- Identified & tried to locate the items.
- Called appropriate libraries.
- Decided whether or not items were lost.
- Updated *Evergreen* item status.
- Recovered 16/19 items.
Post-Processing — Checked Out

• A total of 497 items were left with a status of Checked Out.
• Dealing with items on a per-account basis.
• Mark item status Lost.
• Charge patron accordingly:
  – Before 11/04/2009 (EI Migration Date):
    • Charged only for price of items.
  – After 11/04/2009:
    • Adopted Evergreen policies for fines.
• Made follow-up notes on items and accounts.
Post-Processing - Available

• 1570 items with status *Available* were not found by the inventory.
  – Should be on the shelves, but not found.
• Split list up by shelving location:
  – Using filters in Excel.
• Created two files per shelving location:
  – A “final result” spreadsheet.
  – A “shelf search” spreadsheet.
### Inventory Output

<table>
<thead>
<tr>
<th>Stat</th>
<th>Library</th>
<th>Barcode</th>
<th>Call Number</th>
<th>Type</th>
<th>Shelving Location</th>
<th>Copy Status</th>
<th>Title</th>
<th>Price</th>
<th>Creation Date</th>
<th>Last Edit Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CUTPLC</td>
<td>34304000016317</td>
<td>AUDIO CD MCG DEA</td>
<td>audiobook</td>
<td>Adult - Audiobook</td>
<td>Available</td>
<td>dead or alive</td>
<td>20</td>
<td>2/2/2009</td>
<td>6/7/2010</td>
</tr>
<tr>
<td>1</td>
<td>CUTPLC</td>
<td>343040000456349</td>
<td>438 NF CD GER</td>
<td>audiobook</td>
<td>Adult - Audiobook</td>
<td>Available</td>
<td>teach yourself german</td>
<td>12.05</td>
<td>11/7/2006</td>
<td>11/4/2009</td>
</tr>
<tr>
<td>1</td>
<td>CUTPLC</td>
<td>343040000327243</td>
<td>800 FEA</td>
<td>audiobook</td>
<td>Adult - Audiobook</td>
<td>Available</td>
<td>life lessons from the great books</td>
<td>69.95</td>
<td>1/27/2011</td>
<td>1/27/2011</td>
</tr>
<tr>
<td>0</td>
<td>CUTPLC</td>
<td>343040000327219</td>
<td>883.01 HOM</td>
<td>audiobook</td>
<td>Adult - Audiobook</td>
<td>Available</td>
<td>the iliad of homer</td>
<td>19.95</td>
<td>1/27/2011</td>
<td>1/27/2011</td>
</tr>
</tbody>
</table>

- This is the output from our inventory program.
- Each record (row) contains:
  - A TRUE/FALSE field to indicate if an item has been inventoried.
  - Item Details necessary to follow up on each item.
Post-Processing - Available

• The shelf-search list was created by:
  – Copying barcodes out of our inventory output into a text file.
  – Using Evergreen item status screen
    • To get current item status
    • Process shown on next slide
  – Merging CSV file exported from Evergreen with the spreadsheet on an upcoming slide.
Open Evergreen and go to the Item Status screen.
1. Click the **Upload from File** button and browse for the text file
   a) Wait for the list to populate
2. Click **List Actions** at the bottom of the screen
3. Click **Save List to CSV File**
4. Save the file.
# Shelf Search List

<table>
<thead>
<tr>
<th>Date</th>
<th>Found (Y/N)</th>
<th>Barcode</th>
<th>Call Number</th>
<th>Title</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/8/2011</td>
<td>N</td>
<td>34304000266888</td>
<td>AUDIO WESTERN SCH</td>
<td>SHANE (SOUND RECORDING)</td>
<td>Available</td>
</tr>
<tr>
<td>12/8/2011</td>
<td>N</td>
<td>34304000374294</td>
<td>AUDIO MYSTERY BRA CAT</td>
<td>The cat who went banans. (Sound Recording)</td>
<td>Available</td>
</tr>
<tr>
<td>12/8/2011</td>
<td>N</td>
<td>34304000268215</td>
<td>AUDIO MYSTERY BRA</td>
<td>THE CAT WHO KNEW SHAKESPEARE (SOUND RECORDING)</td>
<td>Available</td>
</tr>
<tr>
<td>12/8/2011</td>
<td>N</td>
<td>34304000333159</td>
<td>AUDIO MYSTERY BAR DEA</td>
<td>Deadly climate (Sound Recording)</td>
<td>Available</td>
</tr>
<tr>
<td>12/8/2011</td>
<td>N</td>
<td>34304000393997</td>
<td>AUDIO MYS GRA R</td>
<td>R is for ricochet (Sound Recording)</td>
<td>Available</td>
</tr>
</tbody>
</table>

- This is our shelf-search list.
- Only contains information necessary to locate an item on the shelves:
  - Shows current item status.
  - Printed out to use for searching the shelves.
  - Date and YES/NO would be written in by hand.
Post-Processing - Available

• Printed shelf search spreadsheets.
• Searched shelves for items.
• After the shelf search:
  – Transfer information from paper back into shelf search spreadsheet.
  – Transfer information from the shelf search spreadsheet into the final processing spreadsheet.
Post-Processing - Available

• After information entered into the final processing spreadsheets:
  – Change item status in Evergreen
  – Mark as complete in final spreadsheet
  – Move final spreadsheet to “processed” folder

• The final processing spreadsheet contains a drop-down list for actions taken:
  – Deleted
  – Found
  – Lost
  – Missing
  – Replaced
## Final Result Spreadsheet

<table>
<thead>
<tr>
<th>Date</th>
<th>Initials</th>
<th>Action</th>
<th>Notes</th>
<th>Barcode</th>
<th>Call Number</th>
<th>Title</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/8/2011</td>
<td>AB</td>
<td>Deleted</td>
<td></td>
<td>34304000262101</td>
<td>AUDIO 940.54 BRO</td>
<td>the greatest generation speaks. (sound recording)</td>
<td>$21.57</td>
</tr>
<tr>
<td>12/8/2011</td>
<td>AB</td>
<td>Deleted</td>
<td></td>
<td>34304000352969</td>
<td>AUDIO CASS ALB FIV</td>
<td>the five people you meet in heaven</td>
<td>$28.80</td>
</tr>
<tr>
<td>12/8/2011</td>
<td>AB</td>
<td>Deleted</td>
<td></td>
<td>34304000632030</td>
<td>AUDIO CASS CF HEN</td>
<td>true courage</td>
<td>$67.75</td>
</tr>
<tr>
<td>12/8/2011</td>
<td>AB</td>
<td>Missing</td>
<td></td>
<td>34304000636999</td>
<td>AUDIO CASS LEO UP///</td>
<td>up in honey's room</td>
<td>$72.75</td>
</tr>
<tr>
<td>12/17/2011</td>
<td>AB</td>
<td>Missing</td>
<td></td>
<td>34304000370243</td>
<td>AUDIO CASS MYSTERY HIL</td>
<td>skeleton man (sound recording)</td>
<td>$39.80</td>
</tr>
<tr>
<td>12/17/2011</td>
<td>AB</td>
<td>Barcode not found</td>
<td></td>
<td>34304000601381</td>
<td>AUDIO CD 158.1 CAR</td>
<td>the leader in you: how to win friends, influence people, and succeed in a changing world</td>
<td></td>
</tr>
</tbody>
</table>

- After being processed, items were marked with:
  - Date processed
  - Staff initials
  - Action taken
  - Notes (if necessary)
How our inventory program works...

**TECHNICAL DETAILS**
Parts of the Software

- **Database**
  - Tracks inventory status
  - Hourly backups
- **Web Interface**
  - Setup
    - Data Upload
    - Clear Database
  - Monitoring
    - Summary
    - Circ Type
    - Shelving Location
  - Reporting
    - Check Status of Inventory
    - Generate CSV Output
  - Processing
    - For scanning of items
Software & Programming Languages

• Operating System
  – Debian Linux
• Web Server
  – Apache
• Database
  – MySQL
• Server-Side Scripts
  – PHP
• User Interface
  – AJAX (JavaScript + XHTML)
  – CSS
• Web Browser (staff computers)
  – Internet Explorer 9 or Firefox
• Project “Size”
  – 1161 Lines of Code (no optimization)
  – 118 KB (68 KB Sounds)
    • 50 KB PHP/JS/HTML
Hardware

- Our inventory database server was running on the following hardware:
  - Dell OptiPlex 755
  - Intel Core 2 Duo CPU
    - (E6700 - 2 x 2.66 GHz)
  - 2 GB RAM
  - 80 GB Hard Drive

- Resource usage:
  - 6-8 staff scanning continuously
  - 15-20% peak CPU usage
Database

- Our database contained one table (inventory) with the following columns:
  - Inventory_status – 1/0 (1 if item was scanned)
  - owning_ou – Library name from Evergreen
  - call_number
  - barcode
  - circtype
  - shelvloc
  - copystatus
  - title
  - price
  - date_create
  - date_edit

- Each item was represented as a row in the database.
- The next slide shows some sample data.
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Inventory Software - Setup

• Setup scripts were created for:
  – Initial Setup
    • Create database and tables.
  – Data Upload
    • Populate database with report from Evergreen.
  – Empty Database
    • Delete the inventory database and start over.

• The next two slides show the Evergreen report used to extract data.
# Report – Displayed Fields

<table>
<thead>
<tr>
<th>Source Specifier</th>
<th>Display Name</th>
<th>Field Name</th>
<th>Data Type</th>
<th>Field Transform</th>
<th>Field Transform Type</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Raw Data</td>
<td>Bare</td>
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<td>Location ::</td>
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<td>Owning Org Unit</td>
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<td>(Shelving)</td>
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<td>name</td>
<td>text</td>
<td>Raw Data</td>
<td>Bare</td>
</tr>
<tr>
<td>Shelving Location</td>
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<td></td>
</tr>
<tr>
<td>Item :: Copy</td>
<td>Copy Status</td>
<td>name</td>
<td>text</td>
<td>Raw Data</td>
<td>Bare</td>
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<tr>
<td>Status</td>
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<td>Title Proper (normalized)</td>
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<td>Volume ::</td>
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<td>money</td>
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<td>Bare</td>
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<td>timestamp</td>
<td>Date</td>
<td>date</td>
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<tr>
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<td>Last Edit Date/Time</td>
<td>edit_date</td>
<td>timestamp</td>
<td>Date</td>
<td>date</td>
</tr>
<tr>
<td>Call Number/</td>
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<td></td>
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<td>Volume</td>
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## Report – Base Filters

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<tr>
<th>Source Specifier</th>
<th>Field Name</th>
<th>Field Name</th>
<th>Data Type</th>
<th>Field Transform</th>
<th>Field Transform Type</th>
<th>Operator</th>
<th>Value</th>
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<tbody>
<tr>
<td>Item</td>
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<td>bool</td>
<td>Raw Data</td>
<td>Bare</td>
<td>Equals</td>
<td>FALSE</td>
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<tr>
<td>Item :: Shelving Location</td>
<td>Owning Org Unit</td>
<td>owning_lib</td>
<td>org_unit</td>
<td>Raw Data</td>
<td>Bare</td>
<td>In list</td>
<td></td>
</tr>
</tbody>
</table>
Inventory Software - Monitoring

- Real-time progress monitor:
  - Used at circulation desk during inventory
- Three monitoring methods:
  - Summary
    - Total items
    - Items processed
    - Items remaining
  - Circulation Type
    - Items processed/remaining by circulation type.
  - Shelving Location
    - Processed/remaining by shelving location

<table>
<thead>
<tr>
<th>Circulation Type</th>
<th>Items Processed</th>
<th>Items Remaining</th>
<th>Total Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>audiobook</td>
<td>0</td>
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<td>book</td>
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<td>cd-music</td>
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<td>dvd</td>
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<td>4058</td>
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<tr>
<td>dvd new</td>
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<td>dvd new r-rated</td>
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<td>dvd r-rated</td>
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<td>595</td>
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<td>government document</td>
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<td>1</td>
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<tr>
<td>kit</td>
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<tr>
<td>music (sheet)</td>
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<td><strong>48212</strong></td>
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</tbody>
</table>
Inventory Software - Reporting

- Reporting interface...
  - Tables in web browser
    - Can be slow
  - Export to CSV file
- Filters include:
  - Circulation Type
  - Shelving Location
- Filter selection:
  - From a drop-down list
  - Populates from item data
  - Inventory Status
    - All
    - Inventoried
    - Not Inventoried

<table>
<thead>
<tr>
<th>Inventory Status</th>
<th>Owning OU</th>
<th>Barcodes</th>
<th>Call Number</th>
<th>Circulation Type</th>
<th>Shelving Location</th>
<th>Copy Status</th>
<th>Title</th>
<th>Price</th>
<th>Creation Date</th>
<th>Last Edit Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incomplete</td>
<td>CUTPLC</td>
<td>34004000152658</td>
<td>book</td>
<td>Adult - Mystery</td>
<td>Available</td>
<td>double art and other events</td>
<td>10.00</td>
<td>2002-09-26</td>
<td>2013-03-01</td>
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<td>34004000152664</td>
<td>book</td>
<td>Adult - Mystery</td>
<td>Available</td>
<td>wasted</td>
<td>18.95</td>
<td>2002-09-26</td>
<td>2012-02-14</td>
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<td>CUTPLC</td>
<td>34004000160324</td>
<td>book</td>
<td>Adult - Mystery</td>
<td>Available</td>
<td>where are you now</td>
<td>25.95</td>
<td>2008-04-05</td>
<td>2012-02-11</td>
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<td>Adult - Mystery</td>
<td>Available</td>
<td>fast</td>
<td>25.95</td>
<td>2007-02-03</td>
<td>2012-01-18</td>
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</tbody>
</table>

Warning: “Files” can be very resource intensive with large numbers of items, which may cause the web browser to slow down or freeze up. Recommend using Download CSV button instead.
Inventory Software - Processing

- Processing interface:
  - Staff scan item barcodes
- Options include:
  - Show Item Details
  - Play Sound on Success
  - Play Sound on Failure

- Technical Challenges
  - Input with barcode scanners (enter key)
  - Getting sounds to work
    - Without Flash Player
    - Only on modern browsers (IE9/Firefox 4+)
Inventory Software - Processing

- Staff would scan & wait for response:
  - Visual (color-coded):
    - **Green** – OK to move on
    - **Yellow** – Item is checked out
    - **Red** – Item not found, try again. If still fails pull item
  - Sounds (to increase staff scanning speed):
    - Staff didn’t have to watch screen constantly
    - Two beeps
      - One from barcode scanner
      - One from inventory system
    - Separate sound effects for:
      - OK
      - Item Checked Out
      - Item Not Found
For More Information...

• This presentation is available for download at:
  http://bit.ly/J0iaMk

• A whole packaged virtual machine is available for download at:
  http://bit.ly/Im9LPC

• VMWare Player is available from:
  http://www.vmware.com/products/player/
For More Information...

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  – CUTPL Circulation Manager
    • Teresa Hudson
    • thudson@culver.lib.in.us
  – 574-842-2941
  – www.culver.lib.in.us