Investigating Evergreen Holds Functionality in PINES

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CONTENTS

Tables and Figures

Investigating Evergreen Holds Functionality in PINES
February 2014

1. INTRODUCTION

> PINES creates a statewide "borderless library" that provides equal access to information for all Georgians. Georgians with a PINES library card have access to materials beyond what is available on their local shelves and enjoy the benefits of a shared collection of 9.6 million books and other materials that can be delivered to their home library free of charge. (Georgia Public Library Service 2011).

From the beginning of the PINES (Public Information Network for Electronic Services) Consortium to its current Mission Statement and Goals, the words "free and reliable access to [….] public library collections", "equitable distribution of library resources" and "statewide lending" have characterized the need for a robust and efficient method to deliver its chief objective: to be "a statewide lending resource". From the size of its database (over 1.9 million bibliographic records) to the square miles (almost 55,000) covered by the physical network, to the sheer number of libraries (more than 285 libraries and service outlets), PINES has proven to be a challenge. However, over time, the PINES community has gained experience with the pros and cons of statewide lending and the membership has responded to the challenges with the directed development of software solutions and the creation of policies and practices which together make up the operations and activities called holds (Georgia Public Library Service 2011).

PINES is used by the community as the name of the consortium and the name of the database. Since its development in 2006, PINES has used Evergreen as its integrated library management system. During the period of the testing described in this paper, PINES employed Evergreen version 2.3.

The goal of holds within PINES is to get the right book in the right hands in the least amount of time. Holds represents a key to PINES consortia success. The PINES community, through its membership structure, has pursued a course of increasing the efficiency of the systems that support holds. As a result, holds has become a much loved public feature of PINES yet remains a service that tends to find its users questioning, debating, and generally wondering just how holds functionality in Evergreen works. Holds processing is a complex structure of requesting, moving, and tracking physical information from one point to another and back again. PINES customizations to the software have been one way to provide solutions to the management of the holds service. What we want to know now, fourteen years after starting: is the software providing what is needed for the PINES community and, if not, what is still needed and how does PINES get it? Can a set of best practices be defined that will give our end users the best experience PINES can provide?

The goal of this paper is to provide the reader with

- An opportunity to gain a thorough knowledge of the holds functionality with the Evergreen software used by the PINES consortium.
- An understanding of the PINES community's intentions and directions for holds (Policy as well as expectations) and how well those requests are being met.
- A discussion and analysis of testing carried out to determine whether actual holds processing conforms to expected behavior.
- Ideas and a plan for completing the gap between functionality and PINES community's requests, as well as future directions.
- A set of best practices for libraries to assist them in managing holds that will make the service as efficient and useful as we can.

2. OVERVIEW OF HOLDS FUNCTIONALITY

Functionality is the purpose that something is designed or expected to fulfill (Oxford University Press 2013). Perception amongst PINES library staff is that there are differences between the way Evergreen holds functionality works and how the PINES Community wants it to work. This may be due to lack of knowledge of how the functionality really works and/or that the software fails to deliver expected results. In order to determine whether the underlying problem is one of perception or reality, a complete investigation into the software's functionality, documentation of any differences, investigation into those differences, and proposal, development and implementation of solutions was undertaken.

Holds functionality allows patrons to request books that are not currently available at their preferred library branch or system. Copies may be sent between branches and library systems to fill holds, and patrons are notified when the requested items are available at the requested pickup location (Evergreen DocuWiki 2008).

2.1 HOLDS COMPONENTS

2.1.1 PLACING HOLDS

Patron-placed holds are accomplished through the PINES OPAC, either in a library or on a patron's online computing device at a remote location. Patrons log in to their account, search for the item, and if not available, may place a hold on the item. Not all items are eligible for holds. Library staff may also place holds for patrons using their staff client and have the permission to place holds on some materials when patrons cannot.

Evergreen has five different levels of holds. Library staff can place holds at all five levels, while PINES patrons can only place title-level and parts-level holds. The chart below summarizes the five levels of holds (metarecord holds are not available beginning with Evergreen ver. 2.3 and parts holds are not currently implemented in PINES).

FIGURE 1 HOLDS LEVELS

Hold level	Abbreviation	When to use	Who can use	Hold tied to
Meta-record	M	Patron wants first available copy of multiple titles of the same/different format	Staff	Holdings attached to multiple MARC (title) records sharing the same title and author of selected format(s)(book, video, audiobook, etc.)
Title	T	Patron wants first available copy of a title	Patron or staff	Holdings attached to a single MARC (title) record
Parts	P	Patron wants a particular part of multivolume title	Patron or staff	Holdings with multiple, discrete parts attached to a single MARC title record.
Volume	V	A call number specific volume of a title is required	Staff	Holdings with identical call numbers owned by the same library and attached to a single MARC title record.

Hold level	Abbreviation	When to use	Who can use	Hold tied to
Copy	C	Patron or staff want a specific copy of a title	Staff	Item barcode

(Documentation Interest Group 2012)

2.1.2 MANAGING HOLDS

After a hold has been placed several actions can be taken that change the hold.

- Cancellation: at any time patron or staff can cancel a hold.
- Suspension: before an item is captured patrons or staff can suspend a hold for as long as six months, without losing their place in the queue. The hold can be reactivated.
- Change notification information: notification method (telephone or email), telephone number, pick-up location and expiration date can be edited.
- Change the pickup location and extend hold shelf times: staff can make these changes after a hold has been captured.
- Transferring: staff can transfer a hold from one title record to another without losing queue position
- Retargeting: staff can force the system to retarget the holds on a title record when needed. This often occurs since the software does not automatically recognize newly added items as available to fill holds. Retargeting permits the inclusion of the new copies.

2.1.3 HOLDS TARGETER AND OPPORTUNISTIC CAPTURE

2.1.3.1 HOLDS TARGETER

The holds targeter is a server-side process scheduled to run regularly to process Evergreen holds.

In PINES, holds are not filled on a first come, first served basis. "Rather, they are filled through a complex process designed to maximize the speed and efficiency of filling holds by first targeting local resources before looking to other branches and library systems for materials" (Evergreen DocuWiki 2008).

The holds targeter determines which is the best copy to fill a hold and initially runs when the hold is placed. It subsequently checks uncaptured holds every 24 hours. The targeter itself runs through all unsuspended holds every fifteen minutes, although it may be delayed because of the sheer number of holds to process. The targeter evaluates the possibility of a valid hold by examining the:

- Patron: is the patron eligible to place a hold, with no blocks, not barred, not expired? Have max holds been reached?
- Copy: each copy attached to the title record selected is examined for eligibility to fill a hold; Is it holdable?, reference?, age-protected?, available?
- Library: The attributes of libraries play a large role in determining which items fill holds, where requested items can be retrieved from, and how quickly requests are filled. Considered during eligibility determination are, the user home library, requesting library, and pickup library.

If the patron is eligible, and has selected a title with copies attached that are eligible, then the home library and pickup library will determine eligibility of age or format protected items. The targeter picks the nearest (in terms of the organizational hierarchy, not the physical location) available copy to become the target for that hold. The item will appear on that branch's pull list to be sent to the pickup library.

If that copy cannot be found, staff can set the copy to missing or take no action, then the item will appear on another library's pull list the next time the targeter runs. If the target library does not act on the hold within 24 hours, the hold will automatically retarget and a new target copy and location are identified.

When an item on the pull list is found, the hold is captured and the item is sent to the pickup library (Evergreen DocuWiki 2008).

For a static representation of the holds targeter processing, please see: Figure 6 Holds **Targeter Work Flow** and Figure 7 **Why That Copy** in Section 5. **Conclusions**.

The holds queue reflects the complexity of the processes as well as current activity for a title record's holds. The queue is ordered by the hold level and then by request creation date and time. If there are a variety of hold levels in a queue then each hold level has its own position list within the queue and each list is ordered by request date and time. The targeter process assigns eligible copies in level order (Meta, Title, Part, Volume, Copy) and then in queue position as long as the hold is not suspended and/or the patron is still eligible.

2.1.3.2 OPPORTUNISTIC CAPTURE

Opportunistic capture occurs as a copy is checked in. The software determines if the copy can fill a hold, even when another copy is targeted but not yet captured. The opportunistic capture fills the first hold in the queue where the pickup location matches the checkin library. However, if there is no matching hold for the checkin library then the item is captured and goes into transit for the first eligible hold in the queue, or, if there is no hold, the item is sent to the shelf at its owning/circulation library.

In PINES, opportunistic capture is stalled for five days to allow a copy to be returned to the pickup library. After the stall period expires, the hold becomes eligible for opportunistic capture. Stalling does not apply to the holds targeter. During the five day stall, the targeter process can identify a copy outside the pickup library and it can be captured by the owning library and transited for the hold.

Investigating Evergreen Holds Functionality in PINES
February 2014

FIGURE 2 OPPORTUNISTIC CAPTURE

Opportunistic capture

- Item checked in
- Is there a hold I can fill?
  - Am I too new?
  - Is my status non-holdable?
  - Is my copy location non-holdable?
  - Am I nonholdable?
  - Have I been deleted?
  - Does my Org Unit match the pick-up location?
  - Am I near the pick-up location on the proximity list?

- Multiple processes to compile list
  - Has the hold been captured?
  - Has it been cancelled?
  - Is it suspended?

- Similar process to targeting runs at every check in!
- Holds stalling is for opportunistic capture only!
- Stalling does not care whether or not patron pick-up library has a copy!
- Transit status is not a parameter, but capture is!

- Capture me!
- Transit me!
- Put me on the hold shelf
- Received at borrowing library

2.1.4 PULLING AND CAPTURING HOLDS

Items that have been targeted to fill a hold appear on a library's pull list report. Staff uses the list to search for items, pull them from the shelf and then scan the item barcode in the Holds Capture interface. Similar to checkin, Holds Capture triggers the necessary actions and paperwork for hold/patron identification and notifications, for the physical transit of the item, and for item status changes to On Holds Shelf or In Transit or Ready for Pickup. The hold is now considered captured. Once an item has been captured the software will not consider the hold for retargeting or further capture action.

2.1.5 TRANSIT SYSTEM

Items sent to other libraries are packaged to prevent damage, labeled for the library with patron information included, and picked up by the current courier service, routed and delivered to the appropriate library, where the item is unwrapped and scanned to change the item's status and trigger the patron notification process. Under the current courier contract, statewide delivery is from headquarters library to headquarters library. Individual systems are responsible for delivery to their branches.

2.1.6 HOLDS NOTIFICATIONS

As items are checked in from patron returns and opportunistically captured or received from transit, the patron notification process begins. Patrons are notified by their chosen method: email or telephone (functionality for text messaging is also available). Email addresses are used when provided; if not, staff places telephone calls or automatic telephone notification systems are used. Items are held for patrons to pick up. Local libraries determine the amount of time allowed for pickup for their own items. Out of system items are held for seven business days. If the item is not picked up and thus expires, the hold is cancelled, pulled off the shelf, and scanned to trigger the next action for the item.

2.1.7 HOLDS SHELF MAINTENANCE

There are several system generated reports that aid in maintaining the holds shelf and cleaning up various problems that occur at the end point of the holds processes.

- Holds Shelf List helps staff identify stale, expired, canceled and suspended holds for clean-up.
- List of List of stale (time period locally determined) holds from collection and patron views assist staff in identifying and resolving holds that are taking too long to be filled.
- List of old transits staff to identify and resolve problems with items that have not been received from transit.

Holds shelf maintenance by staff of expired holds ensures the continuous movement of holds, patron satisfaction, and database maintenance as well as improved problem identification and resolution.

2.1.8 ORGANIZATIONAL AND SOFTWARE HOLDS POLICIES

2.1.8.1 ORGANIZATIONAL HOLD POLICIES

Organizational policy is a statement of intent that includes procedures and protocols that guide actions and decision making for staff and administration. PINES Circulation Policy pertaining to Holds or Intra-PINES Lending, contains the general agreement on how holds is expected to work and the rules and procedures that should fulfill the goals. See Appendix A PINES Holds Policy for the organizational holds policies for the PINES consortium.

2.1.8.2 SOFTWARE POLICIES

Software policies are objective parameters used by the software to enforce the PINES organizational policies. In Evergreen software terminology, a holds policy, "pulls together user, library, and item data to determine how library materials can be requested for and fulfill hold requests, such as: what patrons, from what libraries can request what types of materials, and what copies can fulfill those requests." (Scott 2012)

PINES holds logic comprises the software policies. Holds logic is divided into user, library and copy data elements that the software uses to enable the software holds policies. The software holds policies determine holds fulfillment.

The User data elements considered:

Max holds
User permissions:

Profile	Max holds
Patron (default)	50
Friend	50
Non-Resident	50
Out-of-State	50
Outreach	15
Payment Plan	50
Restricted	5
StaffNoPerm	50
Temp	5
TempRes6	50
TempRes12	50
Trustee	50

User status (staff with sufficient permission may override status rules):

- Patrons whose PINES account is expired will not be allowed to place holds *[Please note that the Evergreen software does not currently enforce this policy automatically].*
- Patrons with barred status are not allowed to place holds.
- Patrons with blocked status are not allowed to place holds.

The Library data elements considered:

- User home library
- Request library
- Pickup library
- Item circulation library
- Owning library

The Copy data elements considered are:

- Copy Status

Holdable

Available	On Holds Shelf
Checked Out	On Order
In Process	Reshelving
In Transit	

Investigating Evergreen Holds Functionality in PINES
February 2014

Not Holdable

Bindery	Lost
Cataloging	Missing
Damaged	On Reservation Shelf
Discard/Weed	Reserves
ILL	Temporarily Unavailable
Long Overdue	

- Circulation modifier

The following are *not* eligible for intra-PINES loans. They may have holds placed on them only if the patron's home library or the library where the hold is placed resides within the same system as the requested item:

art	microform
audiobook	music
av	realia-0
bestseller	realia-1
cd	realia-2
dvd	record
dvd-mid	software
dvd-long	statepass
e-book	talking book
e-device	toy
equipment	video
kit	video-mid
localpass	video-long
magazine	videogame
map	

The following *is* eligible for intra-PINES loans

Book

- MARC Type

Type Code	Description	Holdability
a	Language material	PINES holdable
c	Printed music	System holdable
d	Manuscript music	System holdable
e	Cartographic material	System holdable
f	Manuscript cartographic material	System holdable

g	Projected medium	System holdable
i	Nonmusical sound recording	System holdable
j	Musical sound recording	System holdable
k	Two-dimensional nonprojected graphic	System holdable
m	Computer files	System holdable
o	Kits	System holdable
p	Mixed material	System holdable
r	Three-dimensional nonprojected graphic	System holdable
t	Manuscript language material	PINES holdable

- Other

    An item/copy is not eligible for holds if:

    > The "reference" flag on the item is set to true.
    > The "circulate" flag on the item is set to false.

    An item/copy is not available for intra-PINES holds if:

    > The "deposit" copy flag is set to true (beginning with Evergreen ver. 2.3, the deposit flag was not included in holds configuration).

- Age hold protection rule(s)

    At creation, each item (copy) has an age protect flag which may be set to 3 months, 6 months, or none.

    If set to "3 month" and the item was created less than 3 months ago, the item is only holdable by patrons whose home library matches the circulation library of the copy. This item then automatically becomes "6 month" protected while the item is between 3 and 6 months old.

    If "6 month" is set and the item is less than 6 months old, the item is only holdable by patrons whose home library is within the same system as the circulating library of the item.

    If age protect is set to none, then no age protection occurs. (Georgia Public Library Service 2012)

3. PINES COMMUNITY GUIDELINES

PINES Policy and Procedures pertaining to holds are the results of requests and discussions between PINES member libraries. PINES Executive Committee actions are the resulting decisions that shape the policies and procedures for and by the PINES Community. The following is a timeline of the Executive Committee's actions concerning holds functionality.

3.1. EXECUTIVE COMMITTEE ACTIONS AND DISCUSSIONS

10/07/1999
Holds can be placed on on-shelf items.
Person physically present in library has preference if brings book with hold to desk to be checked out.
11/28/2001
Action postponed on user-initiated holds.
Reaffirm policy of designating library system rather than individual facility as default holds setting.
Reaffirm whether or not to allow proxy check-out of items on hold should be a local decision.
04/25/2002
Patrons can place holds on circulation restricted items only if materials are picked up at the owning library.
Creation of "Facility New Book" to allow a 3-month facility circulation restriction to local patrons.
02/26/2003
Allow patrons to place group range holds.
Reaffirm the no limits on holds.
01/16/2004
Reaffirm holds allowed on items owned by bookmobiles.
05/19/2004
Action postponed on allowing patrons to place system-range holds.
03/04/2005
System-wide patron-placed holds allowed.
05/19/2005
Reaffirm no limits on holds.
05/18/2006
Multiple same title record patron-placed holds are not allowed.
11/13/2006
Holds override permissions granted to Operations Manager (OPSM) and Library Manager staff profiles.
Leased books are treated the same as any other book with regards to holds.
Effective January 1, 2007 patrons are limited to 50 holds.
Discussion and subcommittee referral on holds abuse issues.
02/23/2007
Reaffirmed AV holds protection policy.
05/17/2007
Discussion and subcommittee referral on:
      24-hour opportunistic capture stall
      Holds disabling toggle.
      Holds expiration time period.
12/12/2007
Opportunistic capture stalls go from 3 to 5 days (no discussion found on 3 day stall).
02/13/2008
The default holds expiration date is 6 months.
If patron status is blocked hold placement is not allowed.
05/15/2008
Staff can change the pick-up library location of a hold even if the item status is on holds shelf/ready for pickup.
Discussion and a no change vote on allowing system-level AV holds.
11/19/2008

Investigating Evergreen Holds Functionality in PINES
February 2014

Holds Working Group formation announced.
09/03/2008
Discussion and no action on:
>Restricting patron-placed holds.
>Charging patrons for holds.
>Restricting hold fulfillment to system-level unless there are no copies.

05/20/2009
Items from outside the local library system should be on the holds shelf no longer than 7 open business days.
09/16/2009
The holds working group is tasked with refining recommendations on improving the holds process.
12/09/2009
Discussion and a no change vote to allow system-level AV holds.
02/18/2010
Discussion and reaffirmation that holds abuse is a local issue.
09/15/2010
Discussion and a no change vote on restricting hold fulfillment to system-level unless there are no copies.
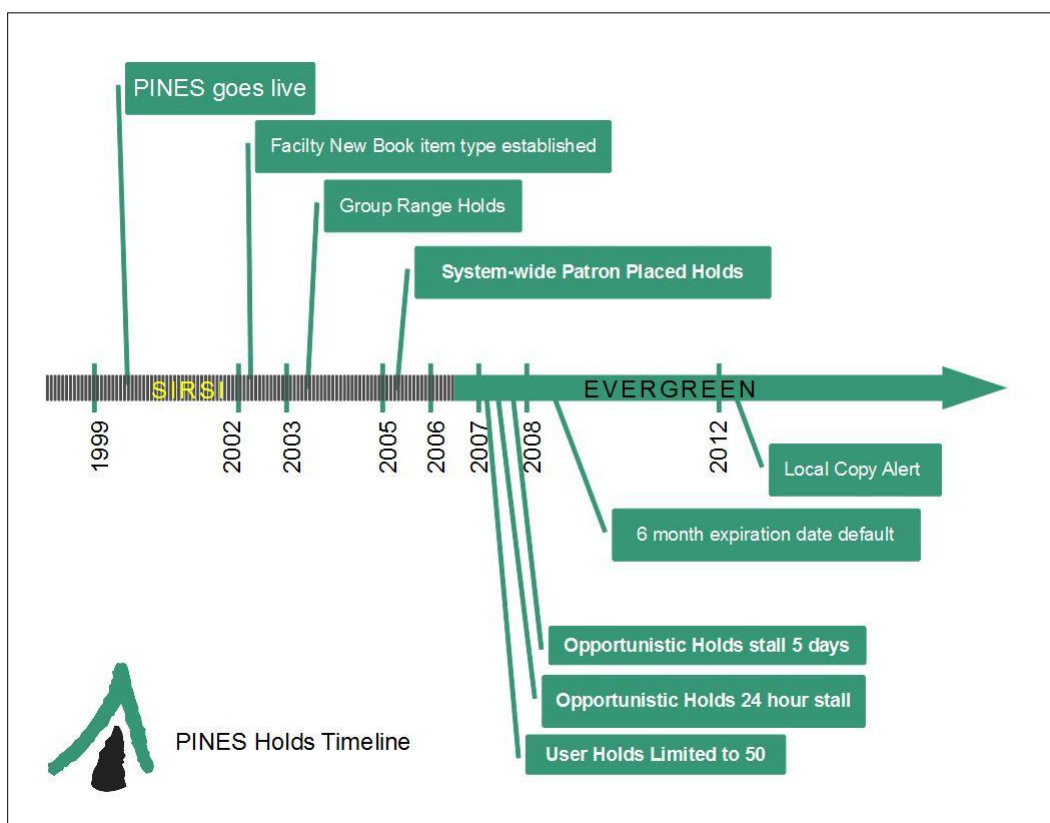**03/02/2012**
Discussion and a no change vote on the maximum number of holds per user.
Discussion and reaffirmation that holds abuse is a local issue.
Alert to patron for a hold being placed when a local copy is available.

Investigating Evergreen Holds Functionality in PINES
February 2014

FIGURE 3 HOLDS DISCUSSION AND ACTION TIMELINE

4. TESTING

PINES community guidelines embodied in PINES holds policies are supported by staff and the Evergreen software. Staff and patron complaints, help desk tickets, and dialogue questioning functionality of holds processing all helped to create the perception that software is not working as desired by the PINES community. To determine whether holds functionality within Evergreen was functioning as developed to enforce PINES community requirements, a series of software tests were designed and implemented. Initially, test scenarios were set up and run on a test server to discover how the software reacted in different situations. Subsequent tests consisted of observing holds queues on the live PINES system, documenting changes in a queue over several 24 hour periods, and determining if the changes were following the rules.

4.1 FIRST SERIES

The first series of tests were conducted by designing scenarios that asked pertinent questions which could be answered by how the software handled specific holds requests. Full testing data is available in Appendix C Testing Data; samples will be used here for discussion.

The test questions and scenarios were based on testing scenarios developed by MassLNC (Massachusetts Library Network Cooperative), an Evergreen Community member. See Appendix B Massachusetts Library Network Cooperative Testing Scenarios for their original document. The MassLNC test was customized for the PINES environment.

Testing questions centered around three areas: targeting, opportunistic capture, and the holds queue. Targeting and opportunistic capture questions examine the rules that allow an item to be designated for a

patron. Holds queue questions examine the rules that choose which patron gets which copy when patron requests exceed copies available.

The questions asked were:

Targeting/Opportunistic capture:

1. Is the Evergreen software looking at the user's home library or pickup library when filling the hold?
2. Will the Evergreen software fill the hold with a copy from the same system? Is this consistent?
3. How will the Evergreen software fill a hold when a copy is not available in the patron's branch or system?
4. If the copy at the patron's pickup library is eligible but checked out, will the hold request move to another library?
5. If the copy at the patron's pickup library is lost or in another ineligible status, will the hold request move to another library?

Holds Queue:

6. When a copy is checked in, will the Evergreen software prioritize a local patron (as defined by the pickup library) even if there are others higher in the holds queue?
7. Does the Evergreen software give preference to the item's owning/circulation library or to the checkin location?
8. Is the Evergreen software calling a user local based on home library or pickup library?
9. If the pickup location and checkin location do not match, will the Evergreen software then give priority to a patron whose home library is the same as the item's owning/circulation library?
10. If the pickup location and checkin location do not match, will the Evergreen software give priority to the patron whose pickup library is the same as the item's owning/circulation library?

4.1.1 TESTING ENVIRONMENT

A test server (test.gapines.org) was setup with version 2.3.2 of the Evergreen software, all current PINES system settings were in place and scripts running except notifications. A full database snapshot was loaded.

In order to attempt to reflect the width and breadth of PINES libraries, three different types of library systems were identified and example systems selected. The library systems are:

Library A: single county, single branch

Conyers/Rockdale Library System [ROCK]
Brooks County Library System [BROOK]

Library B: multi-county, multi-branch system (using only two branches, designated B1 and B2)

Middle Georgia Regional Library System [MGRL]
West Georgia Regional Library System [WGRL]

Library C: single county, multi-branch system

Hall County Library System [HALL]
Newton County Library System [NCLS]

Workstations were registered to all the organizational units including at least two branches in each multi-branch system.

Dummy patron records used in the tests were created (home libraries set, passwords and logins set).

Bibliographic/title records were identified that fit the scope of the project:

- The title records were books format and thus holds eligible across PINES.
- The title records had to show significant holds activity but not too many to easily observe dummy patron holds (more than 10 requests and less than 50).
- The copies/items attached to the bibliographic records could not be age-protected.
- Title records chosen include copies attached from libraries used in any particular scenario: some should have items from branches of the six libraries and some should belong to only some libraries.
- Two title records were selected for each scenario.

The scenarios were set up and put into action by placing holds within the test strategies.

The first scenario is illustrated here showing how the scenarios were set up (see Appendix C Testing Data for all the scenarios)

Section 1: Titles are available, which library is targeted?

Scenario 1:

Title: Held by Library A, Library B1 and Library C. Available at all three locations.
Patron: Home library is Library A, pickup location is Library C.
Question: Is the system looking at the user's home library or pickup library when filling the hold?
Action:
- Patron from Library A places a hold on title and sets the pickup location as Library C.
- Log into the Library A, Library B1, and Library C workstations to run the Pull List for holds requests.
- See which Library that gets the holds request.

Testing began by using dummy patrons to place holds in the OPAC on the target titles. Then testers logged in to workstations as staff and checked books in and out to simulate patron returns. The software was thus forced to action and testers observed and documented the results. Each targeting scenario was run three separate times, and each holds queue scenario was run twice.

During testing it was observed that there appeared to be no stalling in targeting copies. Further tests using Scenario 4 (See Appendix C Testing Data) were run to verify the first results.

Testing for questions 9 and 10 above also had unexpected results leading to a second round of testing for those scenarios. Results from questions 4, 9 and 10 revealed that it was necessary to discover how targeting was working before, at, and after the five day stall period. Scenarios were set up with three bibliographic records chosen for each scenario in order to run the activities on day four, on day five, and on day six after the holds request was made. Additionally, in these tests the full holds cycle was completed after capture: copies were put into transit, and received from transit to determine what actions, if any, would be different than expected.

Scenario 11 was set up to explore if and how the status of a targeted copy might affect the holds queue. Three bibliographic records were identified, copy status was noted, and a local copy checked in at less than five days and more than five days.

FIGURE 4 TEST SERIES: SCENARIO 1

		Title	Author	ISBN/Record ID	# Held in PINES	Item Status	Owned?
Scenario 1		Bodily Harm	Dugoni	9781416592969	61		
				5130939			
	Held By:	Lib A	ROCK-NG			AVAIL	
		Lib B	MGRL-WA			AVAIL	
		Lib C	HALL-GVL			AVAIL	
	Patron Home Lib:	Lib A	ROCK-NG				Y
	Patron PickUp Lib:	Lib C	HALL-GVL				Y
Scenario 1A		Angelolgy	Trussoni	9780670021475	79		
				5112434			
	Held By:	Lib A	ROCK-NG			AVAIL	
		Lib B	MGRL-WA			AVAIL	
		Lib C	HALL-GVL			AVAIL	
	Patron Home Lib:	Lib A	ROCK-NG				Y
	Patron PickUp Lib:	Lib C	HALL-GVL				Y

FIGURE 5 FIRST TEST SERIES: SCENARIO 1 RESULTS

Results	Test 1	Test 2	Test 3
Hold ID #	10466438	10466553	10466523
Request Time	2/21/2013 14:00	2/27/2013 9:38	3/11/2013 15:46
Previous Check Time	2/22/2013 14:12	2/27/2013 9:38	3/11/2013 15:46
Time to Target Copy	24:12:00	0:00:00	0:00:00
Stall/No Stall?	no stall	no stall	no stall
Current Copy	31025002993517	31025002993517	31025002994846
Owning Library	HALL-GVL	HALL-GVL	HALL-GVL
Hold Type	T	T	T
Answer?	Pick-up library	Pick-up library	Pick-up library
Result	As expected and desired	As expected and desired	As expected and desired
Hold ID #	10466439	10466454	10466524
Request Time	2/21/2013 15:00	2/27/2013 9:39	3/11/2013 16:03
Previous Check Time	2/23/2013 3:03	2/27/2013 9:39	3/11/2013 16:03
Time to Target Copy	36:03:00	0:00:00	0:00:00
Stall/No Stall?	no stall	no stall	no stall
Current Copy	31025002941813	31025002941797	31025002941797
Owning Library	HALL-SSP	HALL-GVL	HALL-GVL
Hold Type	T	T	T
Answer?	Pick-up library system	Pick-up library	Pickup library
Result	Not quite as expected	As expected and desired	As expected and desired

Investigating Evergreen Holds Functionality in PINES
February 2014

4.2. SECOND SERIES

Results from the first testing series raised further questions about holds functionality and an exploration of the holds code was made to discover more precisely the way the software works. Using the knowledge gained from Evergreen Community resources and this peek under the hood, a second set of tests was designed to explore opportunistic capture and to answer the following question:

If are no hold requests where the checkin library matches the pickup library, when a copy eligible to fill a hold is checked in will it fill the next targeted but not captured hold in the queue?

4.2.1 TESTING ENVIRONMENT

We decided that this question would best be answered in the live environment; but, should not interfere with the holds queues or staff workflows. To meet this requirement, bibliographic records were identified that fit the following profile:

- Must be a book format that is holds eligible across PINES.
- Majority of copies/items attached to the title record could not be age-protected.
- The title record had to show significant holds activity (more than 10 active title level requests).
- The title record should have more hold requests than copies available.

Snapshots were taken of a holds queues approximately every 24 hours. Each day's snapshot of the holds queue was compared to the previous day's snapshot and any differences were noted. The differences were then examined to:

- Identify captured holds.
- Determine if hold was an opportunistic capture and thus stalled for five days or was from the targeter.
- Determine how both types of capture filled a hold and if it was filled according to software documentation including PINES customizations.

For the time period May 31st through June 20th seven holds queues were identified and examined. Queues ranged in size, activity, and available copies versus number of hold requests. All queues were book formats. Queues examined were chosen with a creation date outside of the basic age protection range. Only title level holds were examined.

See Appendix C Testing Data for the complete test data for second testing series.

4.3. TESTING RESULTS

4.3.1 FIRST SERIES RESULTS

(See Appendix C Testing Data for full test results)

Targeting/Opportunistic capture:

   1. Is the Evergreen software looking at the user's home library or pickup library when filling the hold?
       ✓ The software is looking at the user's pickup library.
   2. Will the Evergreen software fill the hold with a copy from the same system? Is this consistent?
       ✓ The hold will be filled from the same system consistently.

3. How will the Evergreen software fill a hold when a copy is not available in the patron's branch or system?
   - ✓ The software will target a copy outside the patron's branch or system.
4. If the copy at the patron's pickup library is eligible but checked out, will the hold request move to another library?
   - ✓ The hold request moves to another library, inside the same system first, then outside the system.
5. If the copy at the patron's pickup library is lost or in another ineligible status, will the hold request move to another library?
   - ✓ The hold request moves to another library, inside the same system first, then outside the system.

Holds Queue:

6. When a copy is checked in, will the Evergreen software prioritize a local patron (as defined by the pickup library) even if there are others higher in the holds queue?
   - ✓ If a copy is checked in, it will prioritize a local patron even though there are others higher in the holds queue.
7. Does the Evergreen software give preference to the item's owning/circulation library or to the checkin location?
   - ✓ The system gives preference to the item's checkin location.
8. Is the Evergreen software calling a user "local" based on home library or pickup library?
   - ✓ The system is calling the user "local" based on the pickup library.
9. If the pickup location and checkin location do not match, will the Evergreen software then give priority to a patron whose home library is the same as the item's owning/circulation library?
   - ✓ The system does not capture this copy for any hold.
10. If the pickup location and checkin location do not match, will the Evergreen software give priority to the patron whose pickup library is the same as the item's owning/circulation library?
    - ✓ The system does not capture this copy for any hold.

4.3.1.1 FIRST SERIES, SECOND ROUND RESULTS

(See Appendix C Testing Data for full test results.)

Scenarios were re-examined on the live server since results on test.gapines.org suggested that opportunistic capture was not functioning as expected. Testers were concerned that the static nature of the test environment was affecting the targeting process as well as opportunistic capture. The scenarios for questions three of the above questions were examined on the live server and an eleventh question was formulated for study.

Question 4: If the copy at the patron's pickup library is eligible but checked out, will the hold request move to another library?
   - ✓ Hold requests were immediately targeted at other libraries for all tests.

Question 9: If the pickup location and checkin location do not match, will the Evergreen software then give priority to a patron whose home library is the same as the item's owning/circulation library?

6 days after hold is placed:
   - ✓ Software gives priority to patron whose pickup library is the same as the checkin library or the next hold in the queue.

Investigating Evergreen Holds Functionality in PINES
February 2014

✓ Software uses the checked in copy to fill the next hold in the queue at the pickup library.
5 days after hold is placed:
   ✓ Software gives priority to patron whose home library is the same as the checkin library or the next hold in the queue.
   ✓ Software sends copy to circulating library and captured copy remains intransit to fill the hold.
4 days after hold is placed:
   ✓ Age protection was set on copy used in the test, therefore the item was sent to circulating library.

Question 10: If the pickup location and checkin location do not match, will the software give priority to the patron whose pickup library is the same as the item's holding (circulation) library?

5 days after hold is placed:
   ✓ Software gives priority to the patron whose pickup library is the same as the item's holding library.
   ✓ Software sends next copy to fill next hold in list.
5 days after hold is placed:
   ✓ Software gives priority to the patron's hold that is first on the queue (pickup and home library match)
4 days after hold is placed:
   ✓ No hold is filled; item sent to circulating library where at checkin item is captured to fill a hold where the circulation library is the pickup library.

Anomaly noted: If patron home library does not own a copy and the 5 day stall is in effect item checkin will return the copy to the owning library.

Question 11: If a hold request has targeted a copy outside of the patron's pickup library and it is not yet captured OR is captured and in transit, then a local copy is checked in, where does it go?

Holds not yet captured
   ✓ Copies are captured to fill holds at checkin library.

Holds captured/In transit
   ✓ Copies are not targeted to fill holds that are already captured but to fill the next hold in the queue.

4.3.2 SECOND TEST SERIES (OPPORTUNISTIC CAPTURE) RESULTS

In the First Testing Series Scenarios 9 and 10, items were checked in but did not fill holds with opportunistic capture as expected. The records used for the test did not have copies in the pickup libraries, so testers expected opportunistic capture to occur without stalling. However, the items were sent back to the owning library and placed in reshelving when checked in rather than filling the hold. We questioned whether opportunistic capture was either not working or was not working on the static test.gapine.org server. Examination of the holds and the holds queues in the Second Testing Series revealed that opportunistic capture is functioning correctly; however, stalling is very simplistic and does not take in to account whether there are items in the pickup library attached to the title record or not. The stall occurs regardless.

Overall 245 captures were examined and 83 of those, or 34%, were found to be opportunistic captures.

Of the 83 captures:

33 filled holds at the checkin library

21 filled holds at the checkin library's system (another branch)
29 were transited to another library system to fill holds

It was also found that of the 83 captures observed, averaged wait times were:

29 days for a capture at the checkin library
55 days for a capture at the checkin library's system
114 days for a capture transited to another library system

Although many holds are filled much faster, these times illustrate that it is always faster if the item lands at the pickup library first, pickup library's system second, with transited holds taking the longest to fill.

Opportunistic capture is functioning and appeared to fill holds in the following order:

First: the next eligible hold in the queue where the pickup library matches the checkin library.
Second: the next eligible hold in the queue where the pickup library is in the checkin library's system.
Third: the next eligible hold in the queue.

5. CONCLUSIONS

Testing resulted in a significantly improved understanding of how the holds process works, particularly what we are calling the logic gates guiding the targeting, opportunistic stall, and opportunistic capture processes. As illustrated in Figure 6 Holds Targeter Work Flow, the logic gates control the decision making process for the holds targeter in order to determine if the copy, patron, and organizational unit elements that make up the hold request can create a viable target copy for that hold. While we have used a linear representation and a term generally associated with Boolean algebra, logic gates here are not linear nor do they solely use Boolean algebra. Complex and multiple lines of code comprise the logic gate for each of the three elements.

As illustrated in Figure 7 Why That Copy, the holds targeter ultimately compiles a best copy list to fulfil each hold request. From that best copy list, one is targeted and subsequently placed on a branch library's hold pull list. If the hold is not captured within 24 hours, the targeter re-targets another copy for the hold. Once a copy is captured for the hold and either placed on the hold's shelf or in transit for the patron, the holds processing is completed from the software perspective.

FIGURE 6 HOLDS TARGETER WORK FLOW

Holds Targeter Workflow: Title level holds

User places title level hold

Logic Gates

User elements

Copy elements

Org Unit elements

Targeter targets potential copy

Library pulls hold list with potential copy

Library captures item for hold

Item placed in transit for another library

Item placed on library hold shelf for local patron

Taken out of transit by borrowing library

FIGURE 7 WHY THAT COPY

Holds Targeter: Why that copy?

- Holds List
- All copies list
- List ordered by request time and previous check time
- Multiple processes to compile list
  - Previous check time ≤ 24
  - No item has been captured
  - Has not been fulfilled
  - Have not been cancelled
  - Are not frozen

Verifies previous processes to see if status changed since start
Any eligible copy in PINES (gathers all non-deleted copies attached to the bib record)
Randomizes list

- Good copy list
- Multiple processes to compile list
  - Is status non-holdable
  - Is copy location non-holdable
  - Is copy nonholdable
  - Is copy deleted
  - Randomizes list

Analyzes OrgUnits based on proximity list
Chooses structurally nearest copy to pick-up library
Is copy capturable?
Randomizes list

- Best copy list
- Multiple processes to compile list

- Targeted copy
- Randomly chosen from Best Copy List

Targeter runs every 15 minutes and as soon as hold is placed
Copy retargets after 24 hours

- Library pull list
- Repeat if not captured in 24 hrs

Process repeated for each hold on the Holds list
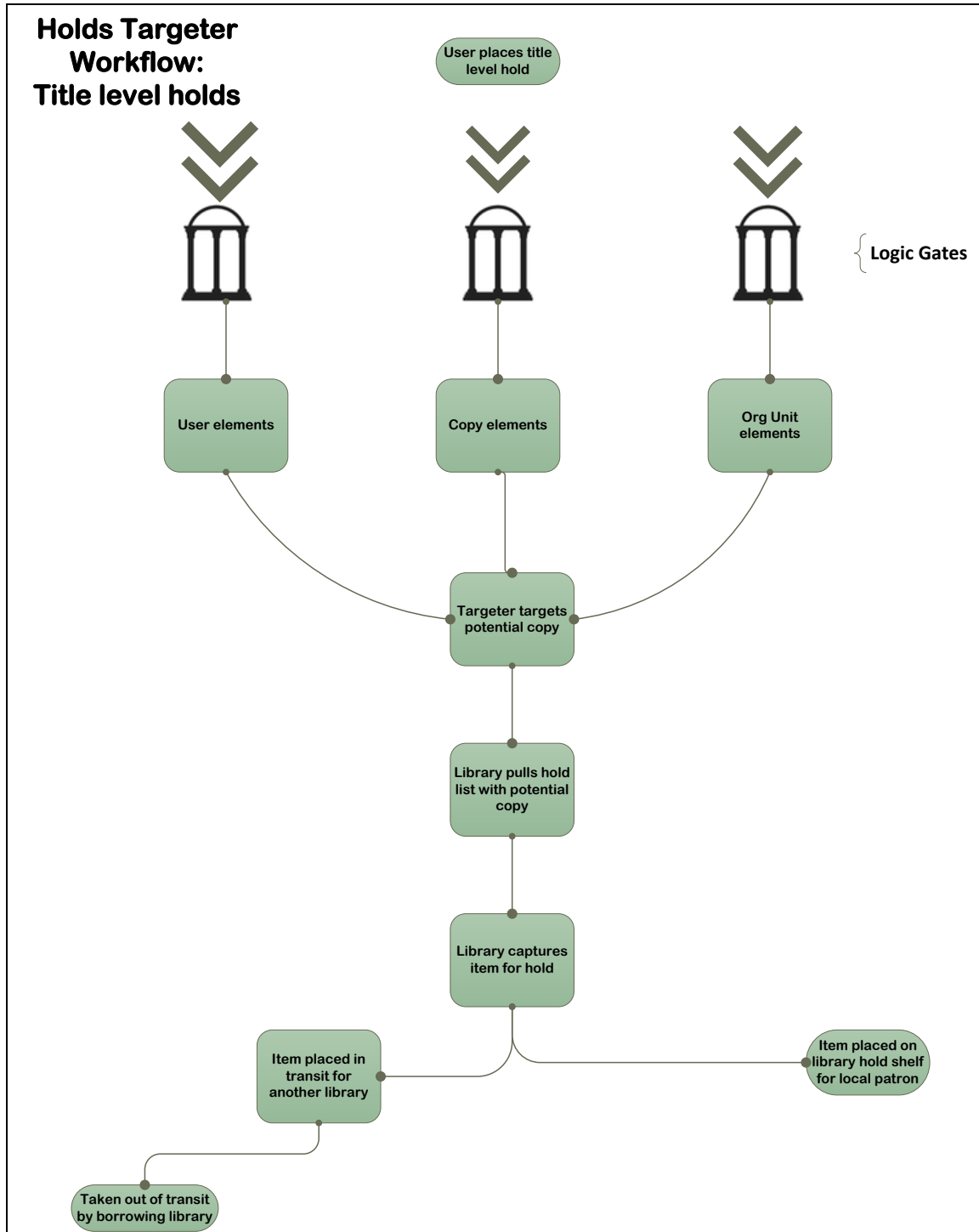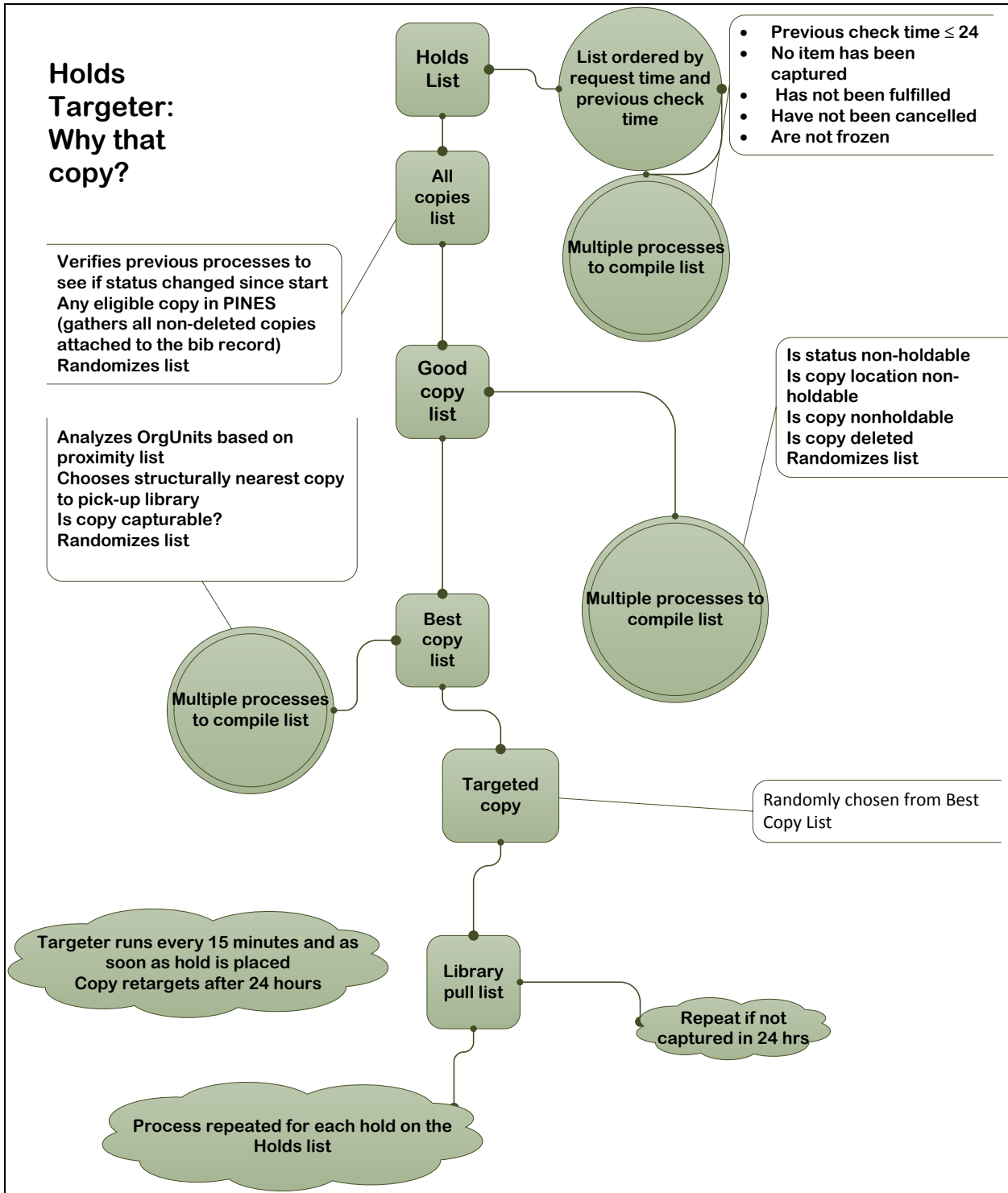
Our testing revealed that the holds process is functioning as described in the software documentation and as PINES community guidelines specify. The software appears to generally be in good working order. However, there are differences between how the hold process functions and how the PINES community understands what the software does or how it should function. The differences are principally related to the definition of proximity, stalling, and opportunistic capture. They are primarily due to misinformation supplied by authoritative sources several years ago and between what was asked to be developed versus what was intended to be requested.

Specifically testing showed that:

- Patrons not in good standing don't have access to holds.
- Patrons are limited to 50 active holds.
- Items eligible for IntraPINES holds are books only (Except for the AV agreement between Lee County Public Library and Dougherty County Public Library Systems, which is working as designed).
- Age protection is working appropriately within the three and six month parameters.
- Opportunistic capture of copies from outside a library branch/system is stalled for five days to allow a local copy to fill the hold first.
- Each hold request contains a default 6 month expiration, if set when the item is added to the PINES database.
- Holds are consistently filled first from the requesting library, then from the requesting library system, and finally from outside the requesting library system.
- The system recognizes unavailable copies by moving targeting to the next appropriate copy.
- A patron is defined as local based on their designated pickup library.
- Each hold level has its own queue position list within a hold queue.
- Once a hold is captured no other copy will be targeted or opportunistically captured to fill the hold.

Key misunderstandings about how holds processing functions in Evergreen have led to some of the misperceptions that the software does not work as the PINES community has requested. These misconceptions are:

Holds Stalling:

Stalling as defined in in the Circulation Manual as: "For 5 days, the hold targeter will only select items within the pickup library. After 5 days, the hold may be filled by any copy within PINES." (Georgia Public Library Service 2013)

Testing and Evergreen documentation revealed that holds stalling applies only to opportunistic capture and not to the targeter process. Investigation of the PINES Executive Committee minutes from 2007 showed the original development request was for opportunistic capture only; the targeter is not mentioned. PINES collective understanding of stalling went astray during the first iteration of the holds working group and the belief that stalling was for all holds slid into PINES community documentation and understanding. Testing confirmed the original intent.

Further testing indicated that holds stalling occurs whether or not the patron home library/pickup library has holdings attached to the bibliographic record. These two elements mean that a hold can be targeted by the holds targeter outside the patron's home library/pickup library within the five day stall period. It also conversely means that an opportunistic capture will not occur within that five day period if the patron home library/pickup library does not have an item attached to the title.

Proximity:

Due to a miscommunication between staff at Equinox Software and GPLS, proximity was defined as geographic rather than organizational (see Figure 8). Proximity as related to holds currently means organizational structure proximity. The proximity table within PINES has hundreds of rows to represent relationship between each organizational unit. Proximity is how close structurally organizational units are to each other. We can represent these relationships using a genealogical chart. Proximity relationship goes up through parental units and then back down.
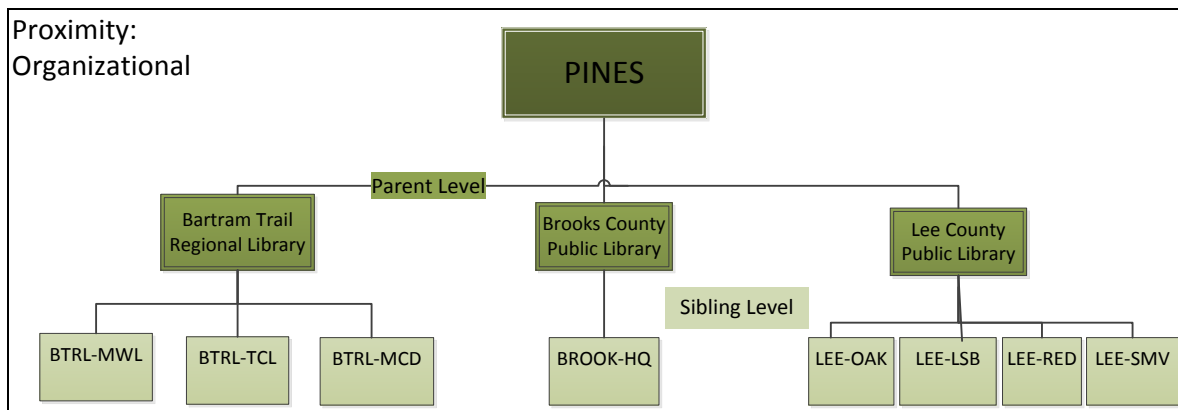
> *PINES:* Grandparent.
> *System:* Parent (1 step away from PINES).
> *Branch:* Sibling (2 steps away from PINES).
> > Branches are child units of systems.
> > Branches are not siblings across systems; but, are analogous to cousins.

FIGURE 8 PROXIMITY

The complexity of holds processing results in what appear to be anomalies that are outside holds policy parameters. Testing and investigation, however, generally discovered that the anomalies actually are conforming to functionality.

Two situations in particular, while not tested here, were noted as common occurrences that may appear to be anomalies, but in fact are not:

- The processes which allow a hold to be placed are not the same processes that target the hold. When a hold is placed, the software looks at the patron's status at the time the hold is requested to determine eligibility and at whether the title record or item can be placed on hold by that patron, or any patron. If the item or the patron is not eligible for the hold at that point in time, then the hold cannot be placed. If they are eligible, then the hold will be placed. However, it is possible, that when the holds targeter runs at a future point, either the patron is no longer eligible (expired account, too many fines, etc.) or the copies are no longer available for a hold (missing, lost, etc.). Unfortunately, the software has no ability to inform the patron that their hold request cannot be filled.
- Where the hold is placed can mean a patron otherwise ineligible for a hold can place a hold they would not otherwise be able to place and the item will be targeted for them. For example, if an out of system patron places a hold for a DVD in the owning/circulation library, Evergreen software interprets that

patron as eligible and allows the hold to be placed. The item will be on the owning/circulation library's pull list for transit to the out of system pickup library. We suspect this is also true for age protected items; but, have not yet had verification.

Testing revealed that some of the perceived problems with holds may be created by users or are the unintended results of requested development. The testers' observations of these issues include:

- Copies become trapped in a checkin system or branch that is not the owning library, filling those holds before returning to owning library or branch. This is a result of the PINES community's stated desire not to have items crisscrossing the state. Development to elevate excessive geographic transiting means that an item will fill holds in the checkin library before the targeter moves to another library, even the copy's owning library.
- When a patron becomes ineligible for the hold due to fines, overdue materials, and other blocks on their record, they are blocked from holds and no copy is targeted. The hold is still in the system to be evaluated each time the targeter runs.
- Failure to execute the pull holds and transit of items in a timely manner.
- Slow transits inside library systems and therefore slow transits from system to system.
- Failure to follow through on holds shelf maintenance.
- The large number of copy level holds placed by staff for patrons. Copy or volume level holds are filled very slowly due to their specific nature, these hold levels/types generally should not be used for patrons as this will slow hold fulfillment and will not result in the return of an owning library's copy. An exception to placing copy level holds would be when a specific volume of a multi-volume set or a specific copy is desired.

What we have discovered that creates the appearance of anomalies and errors:

- User pickup library trumps other locations.
- Checkin library trumps owning library.
- Current proximity is organizational not geographic.
- Opportunistic capture and the holds targeter are different, yet similar processes.
- Placing a hold is a different set of processes than targeting a hold.
- Where a hold is placed can override patron based restrictions.
- Stalling applies only to opportunistic capture.
- Stalling is still in effect even if the patron home library does not have a copy.

5.1 DIFFERENCES BETWEEN POLICY AND PROCESS

There are three places where PINES policies are not supported by holds processing in Evergreen:

- The software does not currently support the local copy alert to patrons.
- The software does not currently support a block on patron-placed holds when a patron account is expired. However, holds will not be targeted if the account is expired.
- The software does not currently support the block on holds when an item has the "deposit" copy flag set.

5.2 POTENTIAL SOLUTIONS

What we can manage now with the current version of Evergreen:

- Holds shelf management:

Investigating Evergreen Holds Functionality in PINES
February 2014

Several reports that exist PINES reports should be run once a month at each library system/branch which would assist staff in holds shelf management.

- o Purchase alert report: This report produces a list of titles that have more than a predetermined ratio of hold requests to copies owned.
- o Holds to Copies: This report shows libraries which titles have a high ratio of holds (for their patrons) to available items.
- o Old Holds reports: Two reports to identify problems where holds are targeted or captured over a predetermined number of days. One report for a library's holdings that are on hold; and a second report on holds by a library's patrons. Both reports can include holds over a predetermined length of time such as 60, 90, or 120 days.
- o Clear Holds Shelf: Expired, canceled, and suspended holds are currently displayed through the Browse Holds Shelf Function and the Clear Holds Shelf function.
- o Old Transits: This report identifies items that have been in transit longer than a predetermined length of time.

- Staff Education/Training in holds processing and management.

- Missing item management

  - o Marking items as missing as well as routine investigation and resolution of those items marked as missing would speed holds processing. PINES libraries are encouraged to remove items with missing status after one year (See PINES Executive Committee Meeting Minutes for February 2003 http://pines.georgialibraries.org/february-2003-executive-committee-meeting).

- Implementation of Monographic Parts functionality

  - o Utilization of Evergreen's Monographic Parts functionality would enable holds to be placed on a specific volume of a multipart title across all libraries that hold that volume. This would enable patrons to place their own hold for a specific volume.

- Ongoing Bibliographic Database cleanup:

  - o Merging duplicate title records enables more items to be available for holds consideration and makes choosing which title to use for a hold simpler.
  - o Overlaying bibliographic records with more information over those with little or incorrect information assists patron and staff in choosing the correct record.

- Best Practices
  - o The PINES Circulation subcommittee develops Best Practices for Holds. Subcommittee development of this workflow and supporting document would ensure the broadest reach for discussion and a common sense approach to the workflow. A document framework is has been prepared for the subcommittee's use, please see Appendix D PINES Best Practices for Holds

Functionality available in Evergreen version 2.4 and 2.5 that may help PINES holds management:

- New features beginning in version 2.4:
  - o Best-Hold Selection Sort Order: The ranking algorithm that chooses the best hold to target a copy in hand at a capture time used to be fairly simple with only had two modes, FIFO (First In First Out) and not-FIFO. In the latest versions the ranking algorithm has more configuration options, producing much greater flexibility in holds processing. When the software captures a copy it sets out to evaluate what hold, if any, that copy might best fulfill. With this new feature,

PINES could choose exactly which comparisons the software makes in what order. Best hold selection order may allow an item to return to its owning library to fill holds and not get trapped filling holds solely through opportunistic capture. While PINES policies may restrict some ranking, investigation into it is necessary to determine how this feature could support PINES policies while improving the holds process.

o Organizational Unit Proximity: Adjustments will allow libraries to indicate lending preferences for holds between libraries in an Evergreen consortium. When a hold is placed in Evergreen, the hold targeter looks for copies that can fill the hold. One factor that the hold targeter uses to choose the best copy to fill the hold is the distance, or proximity, between the capturing library and the pickup library for the request. The proximity is based on the number of steps through the org tree that it takes to get from one org unit to another.

5.3 FUTURE DIRECTION IN PINES HOLDS MANAGEMENT

The PINES community has continually improved holds functionality through software development and refining PINES policies. With this investigation into holds functionality completed and a greater understanding of that functionality as a result, we would like to encourage the community to create a roadmap for future development for missing or needed features. Creating a list of desired development would enable the community to set priorities, acquire funding, and produce requirements. To begin the dialog we have a few suggestions for development considerations.

Produce requirements for the policy elements not currently supported by the software:

- Create an alert to inform patrons a local copy is available for checkout.
- Create a block on patron-placed holds when a patron account is expired. We suggest this feature include a message informing the patron how to renew their account to enable holds. Perhaps it should also include the ability to suspend the hold until the account is updated.
- Return the block on intraPINES holds when an item has the "deposit" copy flag set.

Create more sophisticated communication mechanisms for the patron-placed holds process:

- Clearer error messages explaining why a hold was rejected. For example, a current notice is: "*The title you have requested is not available for hold requests at this time. Please contact your local library for assistance.*" The patron should be given a fuller explanation as to why the hold could not be placed. This could include a notice explaining that audiobooks are not available for intraPINES loans or the patron already has reached the hold limit. Better information provides the patron with options: they can decline to place a hold, request the print book, cancel some holds, or ask their local library to buy the audiobook. Having clearer lines of communication means a patron either can enter into a conversation with library staff better informed or they may be able to provide their own solution.
- Another current notice is: *"There appears to be a problem with your library account. Please contact your local library for assistance."* Communicating to the patron the nature of the block on their account (too many overdue items or fines, an expired account, etc.) would serve the patron better.

- Holds notifications should include more information for patrons:
  1. Include the minimum number of days item is held on the hold shelf.
  2. Remind user that the same card that made the hold must be presented to get the item(s).

- Expanded functionality of hold suspensions:
  1. Required suspension expiration date at time of suspension is set. Expiration without further patron action could result in cancellation of the hold.
  2. A log detailing the history of the suspension (when a hold was suspended, how many times it has been suspended, dates of suspension and reactivation) should be retained and be easily accessible by staff.
- A proactive system of alerts for staff management of holds and related activities. The alert activity would be generated from a set of locally set defaults with time-limit triggers. Once the limit has been met the software generates an alert to staff so the issue can be handled expeditiously.

  Suggested alerts:
  1. Hold shelf item expiration (not picked up).
  2. On holds shelf item hold canceled.
  3. Transit not received within set number of days.

- Automated generation of daily online report containing all unresolved alerts.

Glossary

Capture	Scanning the barcode of an item and catching a specific hold for a patron.
Checkin library	Library item is returned to after checkout.
Circulating library	The library which has checked out an item.
Circulation library	The library where item resides for circulation. May differ from Owning Library.
Circulation limit sets	Refines circulation policies by limiting the number of items that users can check out.
Circulation modifiers	Circulation modifiers pull together Loan Duration, Renewal Limit, Fine Level, Max Fine, and Profile Permission Group to create circulation rules for different types of materials on an item level. Circulation Modifiers are also a factor in determining Hold Policies.
Copies	A specific item. Also, in the Evergreen three level record structure (title, volume, copy), the part of the record that has the barcode and attributes that help govern circulation and holds rules and policies for the specific item.
Eligible/Available copy	Copy is eligible for a hold if holdable (shelving location, status, not reference), not age protected, etc. Copy is available if it is holdable and status is Available.
Evergreen	The open-source Integrated Library System software developed by GPLS. PINES implemented Evergreen in September 2006.
FIFO	First In First Out. In a FIFO environment, holds are filled in the order that they are placed. New items added to a bibliographic record and library close dates can mean FIFO is not strictly by hold placement order.
Hold boundaries	Defines which organizational units are available to fill specific holds. Boundaries can be soft or hard. Hard boundaries restrict placement of holds for any organizational unit that exists beyond the hard boundary. Soft boundaries tell processing where to begin looking for a hold. Both types of boundaries are unset in PINES.
Holds/Circulation policy	Software context: rules or business logic governing holds processing. Not to be confused with PINES consortium policies around holds.
Holds queue	The list of holds placed on an individual bibliographic/title record. Separate holds queues exist for different levels of holds – title, copy or volume.
Holds targeter	Holds targeter runs every 15 minutes and when a hold is placed.
Holds targeting	Processes where potential copies are identified to fill a hold.

Home library	Patron's primary library. Plays roll in allowing holds placement and targeting.
Logic gates	Traditionally, logic gates are electronic or digital circuits that allow a signal to pass through if the signal contains the correct conditions based on Boolean algebra. Here, the phrase is used to indicate the processes the holds targeter uses to determine the best copy match based on patron, copy and organizational unit parameters. It is not linear nor uses Boolean logic, however.
Opportunistic Capture	Opportunistic captures are processed serendipitously when the copy is checked in anywhere for a hold placed anywhere. Holds logical processes are used to determine best match to patron hold. Stalls can be applied to prevent opportunistic capture for a particular hold to give time for a local copy to return to patron pick-up library.
Opportunistic stall	Opportunistic capture is limited to the patron pick-up library for a set interval. In PINES this is five days. Stalling does not take into consideration whether or not the pick-up library owns a copy or not. Opportunistic capture on non-pickup library copies will not occur during the stall interval. Stalling does not affect the targeter.
Organizational units	Organizational Units (org units or OUs) are the specific instances of the organization unit types that make up your library's hierarchy.
Organization unit type	The organization types in the hierarchy of a library system.
Owning library	The library which has purchased a particular item and created the volume and copy records. May differ from **Circulation Library**. Owning libraries may loan titles to another library for long term circulation. Setting the circulation library to the different organizational unit allows the item to return to the circulation library rather than to the owning library upon return.
Parent organizational unit	An organizational unit one level above whose policies may be inherited by its child units.
Parts	Parts are labels for different volumes of a multipart set. Using Parts functionality to define specific volumes attached to a title records with the same label enables patrons to place holds on the specific volume held by different organizational units.
Pickup library	Library designated by patron or staff as the location where requested material is to be picked up.
Previous check time	Last time targeter processed hold for potential copy
PINES	Public Information Network for Electronic Services. The voluntary consortium of Georgia public library systems that participate in a unified integrated library automation system (ILS) and provide their users with a statewide library card.

Proximity   Based on organization structure within PINES and is not geographic.

Pull list   System generated list of targeted copies run at owning library. If copy not captured within 24 hours or if it is captured opportunistically first, item will longer be targeted at the pull list library. "Until capture, the holds pull list is theoretical". (Rylander 2011)

Volumes   Multiple meanings within PINES and Evergreen. Primarily part of the three levels of a record in the Evergreen system: the call number record attached to a title record. Copy records are then attached to the volume record. Also an individual volume of a multipart set.

Investigating Evergreen Holds Functionality in PINES
February 2014

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Investigating Evergreen Holds Functionality in PINES
February 2014

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APPENDIX A PINES HOLDS POLICIES AND PROCEDURES

PINES Circulation Policies and Procedures
IV   Holds

Intra-PINES Lending

If a patron wishes to borrow an item that his/her library does not own but is owned by other PINES libraries, the patron may place a hold on that item. PINES libraries will print a report of items on their shelves which have hold requests and will pull those items listed and scan them into the Checkin Interface (Circulation -> Capture Holds). The screen will instruct staff to route the item to another PINES library to fill a hold, and the item will be put into transit. When the destination library receives the item, it will be scanned and placed on the holds shelf for pickup. Once the item is scanned at the pickup location, a holds notice via email will be generated for accounts with email addresses or staff will be prompted to telephone the user with holds notification.

The Holds report should be retrieved and processed promptly each morning at each library site. Items listed should be pulled from the shelf, packaged and sent within 24 hours. The holds list is regenerated periodically to ensure that the list is fresh whenever a library retrieves it during the day. Holds that are not processed within 24 hours will be re-targeted to another library if possible. For 5 days, the hold targeter will only select items within the pickup library. After 5 days, the hold may be filled by any copy within PINES [2007.12]. Borrowed items should be promptly sent back to the owning library or on to the next library to fill a hold. Items should be appropriately packaged to protect them from damage while in transit [2008.11].

Placing Holds

1. Materials will retain the same circulation period regardless of whether the patron is local or from another PINES library. When thinking of intra-PINES lending, it is important to remember that a PINES patron is a patron exactly like your local patron. Intra-PINES loans are not ILLs – they are simply circulations like any other. The PINES Executive Committee has ruled that circulations between PINES libraries must be free of charge to system libraries and to patrons [2008.09].

2. Holds may be placed on items which are on the shelf in any PINES library. If a patron presents the on-hold item for checkout before it is retrieved for the requesting patron, the in-house patron with item in hand receives preference; a circulation supervisor will override the hold and check out the item to the in-house patron. The requesting patron will be next in line for the item.

3. Most patrons may place 50 holds at any given time on their account [2006.11]. Certain user categories are restricted to different number of holds limits.

4. Under normal circumstance, PINES does not allow intra-PINES loans on the following item categories:

- Audiobooks
- CDs
- DVDs
- Bestsellers
- Equipment
- Microforms
- New Books

- Reference
- Reserve
- Software
- Toy
- Videocassettes
- Video Games
- Leased Materials
- Outreach
- Deposit (monetary).

Items with these item types may be borrowed within regional library systems. Leased items will be treated the same as any other book with regards to holds [2006.11]. For other item types, a title-level hold will find the first available copy of the title in PINES to fill the hold. The Holds report will first look for an available copy in the patron's pickup library, then in the pickup library's system; if no copy is available, it will then select a copy from another PINES library.

5. Patrons may place their own holds via the OPAC, and may select their pickup location and notification method. The software will refuse holds requests which do not conform to PINES policies. Patrons may choose any pickup location for holds. Patrons may not place multiple holds on a single title record, but staff may place multiple holds on a single title record on behalf of the patron (e.g., for a book club) [2006.05].

6. The vision of the PINES statewide library card included as a key component the ability for patrons to see and borrow library materials from all participating public libraries in the state. Our goal is maximum access for all patrons, while realistically addressing the logistics of moving materials around the state. Member libraries have agreed that PINES membership would not relieve libraries of the responsibility for purchasing the materials needed to meet the demands of local patrons.

7. Patrons whose PINES cards are expired will not be allowed to place holds until the card privilege is renewed. Please note that the Evergreen software does not currently enforce this policy automatically.

Intra-PINES holds Procedures

- The holds pull list is retrieved every weekday (M-F) at each PINES library (Circulation -> Pull List for Hold Requests). The report lists all on-shelf items for which there are holds for all PINES libraries.
- Locate each item on your list on the shelves. If an item should be on the shelf but cannot be found, staff should mark the item is missing (Circulation -> Show Item Status by Barcode -> Actions for Selected Items -> Mark Item Missing). This will force the hold to "roll" to another copy within PINES. It will also allow you to generate a report of missing items in your library.
- If you receive an inappropriate holds request on your list (for an item type that is not eligible for intra-PINES loans), contact the requesting library via e-mail or telephone and ask them to remove the hold. Please DO NOT ignore such holds, as they will continue to appear on your list each day until they are resolved.
- When you have gathered the items on your list, scan each barcode into the Checkin Interface (Circulation -> Capture Holds). Be sure your terminal is connected to a receipt printer. As you trap each item, a receipt will be printed, telling you where to send the item.
- Prepare each item for sending via the PINES courier. Items should be appropriately packaged to protect them from damage while in transit [2008.11]. All materials should be treated the same as each library would want its own materials handled [2009.05].

- A database of PINES mailing addresses in mailing label format will be provided to each library; you can print out the addresses needed on demand. For convenience, the Evergreen receipt templates for transit items can be configured to print the library policy name and courier code for each item. All items should be mailed within 24 hours of receipt of the holds report.
- When you receive items from other PINES libraries to fill holds, check in each item when it arrives, and place it on your holds pickup shelf. As the item is checked in, a holds pickup receipt will be printed.
- Holds notices will be emailed within an hour of when the item is available for those patrons who have email addresses in their user records. Each library is responsible for contacting users who need to be telephoned regarding available holds. No paper notices will be mailed centrally.
- Each library may decide how long to keep its own items on the holds pickup shelf; however, items from outside the local library system should be held on the holds shelf for a maximum of seven (7) open business days [2009.05], then returned to the owning library or forwarded to the next person waiting in line for a hold.
- A staff member may change the pickup library location of a hold once it is on a holds shelf ready for pickup. This is only allowed for hold items that have the pickup library changed to a unit within that regional library system. [2008.05]. Once the pickup location has been changed, the item needs to be scanned on the checkin screen to place it in transit to the correct pickup library.
- When an item you have borrowed to fill a hold is returned, send it back to the owning library, or to the next library with a hold (the transit slip will direct you) within 24 hours of its return.
- Holds will also be captured in the normal course of checking in items. These holds should be mailed out within 24 hours as well.
- Staff must never give preference to one patron over another regarding holds. The PINES code of ethics requires that all libraries respect the integrity of the hold queue, and share equitably.
- Hold requests expire after 6 months with the option for staff or patron to make it an earlier or later date [2008.02].

Suspending Holds

A hold can be placed on an item and then suspended until a later date by staff or the patron. A date of activation will be required when the hold is suspended. This will allow the patron to stop his/her holds for a set amount of time. The hold will not trap until the activation date unless it is activated manually by staff or by the patron.

Holds Notices

Hold notice wording [2007.09]. The items between % and in braces [] are placeholders for the actual information displayed when emails are sent:

> [% date %]
> [% user_name %]
> [% pickup_library %]
> To: [% user_email %]
> From: [% sender_email %]
> Subject: Hold Available Notification
> Dear [% first_name %] [% last_name %],
> The item(s) you requested are available for pickup from the Library.
> Contact the Circulation Desk to check out the item.
> [% list of items %]

Please do not reply to this email. This notice was sent from an address that cannot accept incoming mail.

Processing Holds

When an item on hold is scanned at check-in, the following steps should take place:

- The check-in screen will display the patron's name and pick-up location for this item.
- The receipt printer will print a transit slip, which should be placed in the item.
- The item should be placed in the library's designated spot for items to be sent to other PINES libraries.
- If the item is to be picked up at the check-in library, the item should be placed in the appropriate location for holds waiting to be picked up. The system will generate a hold notice to be emailed to the patron if an email address is located in the patron record. (Georgia Public Library Service 2013)

Holds Testing Scenarios

Submitted by Kathy Lussier on Tue, 10/26/2010 - 8:50am

Holds Testing

Tested using Evergreen version _____

Testing Environment:

A. Working with four different org units. The libraries will be referred to in this document as:

    i.   Library A - a single institution
    ii.   Library B1 - a branch in a multi-branch system
    iii. Library B2 - another branch in the same multi-branch system.
    iv.   Library C - a single institution.

B. Set up a minimum of three workstations registered to three different org units or use profile manager to set up one workstation to log into Evergreen under three different libraries. Workstations should be registered for Library A, Library B1, and Library C.

C. Several bib records should have items from all three libraries attached. Some records should have items from Library A and Library B1 attached, some records should have items from Library A and Library C attached, some records should have items only belonging to Library A, and at least one record should have items only belonging to Library B1.

D. Patrons also need to be registered to all four libraries. (Tip: To minimize confusion, give test patrons the same last name as the library to which they are registered.)

Testing How Holds are Filled:

The following scenarios do not require any restrictions in the holds policy settings. Each scenario will be tested under the following configurations in library settings.

1. Soft boundary set to 1, FIFO is set to false.
2. No boundaries, FIFO is set to false.

Section 1: Titles are available, which library is targeted?

Scenario 1

Title: Held by Library A, Library B1 and Library C. Available at all three locations.

Patron: home library is Library A, pickup location is Library C.

Question: Is the system looking at the user's home library or pickup library when filling the hold?

Investigating Evergreen Holds Functionality in PINES
February 2014

1. Patron from Library A places a hold on title and sets the pickup location as Library C.
2. Log into the Library A, Library B1, and Library C workstations to run the Pull List for holds requests.

Library that gets the holds request:

No boundaries _____
Soft boundary 1 _____

Scenario 2

Title: Held by Library A, Library B1, and Library C. Available at all three locations.

Patron: home library and pickup library is Library B2.

Question: Will the Evergreen fill the hold with a copy from the same system? Is this consistent? (Note: need to test several times or re-target the hold several times to determine consistency.)

1. Patron from Library B2 Branch places a hold on the title. The pickup location is Library B2.
2. Log into the Library A, Library B1, and Library C workstations to run the Pull List for holds requests.

Library that gets the holds request:

No boundaries _____
Soft boundary 1 _____

Scenario 3

Title: Held by Library A and Library B1. Available at both locations.

Patron: home library and pickup library is Library C

Question: How will the system fill a hold when a copy is not available in the patron's branch or system? (Note: To see if the system consistently fills the hold from the same branch or if it's random, this scenario should run several or the tester should re-target the hold several times.).)

1. Patron places a hold on the title with the pickup location as Library C.
2. Log into Library A and Library B1 workstations to run the Pull List for holds requests.

Library that gets the holds request:

No boundaries _____
Soft boundary 1 _____

Scenario 4

Title: Held by Library A and Library C. Library A's title is checked out.

Patron: home library and pickup library is Library A

Question: If the copy at the patron's pickup library is eligible but checked out, will the hold request move to another library?

1. Check out title to any patron.

2. Patron from Library A places the hold.
3. Log into Library C workstation to run the Pull List for holds request.

Does the hold request go to Library C?

No boundaries _____

Soft boundary 1 _____

Scenario 5

Title: owned by Library A and Library C. Library A's title is lost.

Patron: home library and pickup library is Library A

Question: If the copy at the patron's pickup library is lost and therefore no longer eligible, will the hold request move to another library?

1. Check out title to any patron.
2. Mark the item as lost
3. Patron from Library A places the hold.
4. Log into Library C workstation to run the Pull List for holds request

Does the hold request go to Library C?

No boundaries _____

Soft boundary 1 _____

Section 2: Titles with a holds queue. When the copy is checked in, where does it go?

Scenario 6

Title: Held by Library A and checked out to patron from Library A.

Patrons: Patrons from Library A and Library C

Question: When a copy is checked in, will it prioritize a local patron even if there are others higher in the holds queue?

1. Check out title to patron from Library A.
2. Patron from Library C places a hold on the title with a pickup location for Library C.
3. Patron from Library A places a hold on the title with a pickup location for Library A.
4. Log into the Library A workstation and check the copy in.

Where does the system send the hold?

No boundaries _____

Soft boundary 1 _____

Scenario 6a

Title: Held by Library A and checked out to patron from Library C.

Patrons: Patrons from Library A and Library C

Question: Does the system give preference to the item's holding (circulation) library or to the checkin location?

1. Check out title to patron from Library C.
2. Patron from Library C places a hold on the title with a pickup location for Library C.
3. Patron from Library A places a hold on the title with a pickup location for Library A.
4. Log into the Library C workstation and check the copy in.

No boundaries _____

Soft boundary 1 _____

Scenario 7

Title: Held by Library A and checked out to patron from Library A.

Patrons: Patrons from Library A and Library C

Question: Is the system calling a user local based on home library or pickup library?

1. Check out item to patron from Library A.
2. Another patron from Library A places a hold on the item with a pickup location of Library C.
3. Patron from Library C places a hold on the item with a pickup location of Library A.
4. Log into the Library A workstation to check the copy in.

Where does the system send the hold?

No boundaries _____

Soft boundary 1 _____

Scenario 8

Title: Held by Library A, checked out to patron from Library B1.

Patrons: patrons from Library A, Library B1 and Library C

Question: If the pickup location and checkin location do not match, will the system then give priority to a patron whose home library is the same as the item's holding (circulation) library?

1. Check out item to patron from Library B1.
2. Patron from Library C places a hold on the item with a pickup location of Library C.
3. Patron from Library A places a hold on the item with a pickup location of Library C.
4. Log into workstation from Library B1 to check in the item.

Whose hold does the system fill?

No boundaries _____

Soft boundary 1 _____

Scenario 9

Title: Held by Library A, checked out to patron from Library B1.

Patrons: Patrons from Library B1 and Library C

Question: If the pickup location and checkin location do not match, will the system give priority to the patron whose pickup library is the same as the item's holding (circulation) library?

1. Check out item to patron from Library B1.

2. Patron from Library C places a hold on the item with a pickup location of Library C.
3. 2nd patron from Library C places a hold on the item with a pickup location of Library A.
4. Log into workstation from Library B1 to check in the item.

Where does the system send the hold?

No boundaries _____
Soft boundary 1 _____

(Lussier 2010)

APPENDIX C TESTING DATA

The testing data files are too large to be included in this document. They can be found at:

http://pines.georgialibraries.org/sites/default/files/files/50ShadesOfGreyQueueOCCaptureTest.xlsx
http://pines.georgialibraries.org/sites/default/files/files/AmericaTheBeautifulQueueOCCaptureTest.xlsx
http://pines.georgialibraries.org/sites/default/files/files/BaredToYouHoldsQueueOCCaptureTest.xlsx
http://pines.georgialibraries.org/sites/default/files/files/BeautifulRedemptionHoldsQueueOCCaptureTest.xlsx
http://pines.georgialibraries.org/sites/default/files/files/GoneGirlHoldsQueueOCCaptureTest.xlsx
http://pines.georgialibraries.org/sites/default/files/files/HarbringerHoldsQueueOCCaptureTest.xlsx
http://pines.georgialibraries.org/sites/default/files/files/PetersonsMasterGEDHoldsQueueOCCaptureTest.xlsx
http://pines.georgialibraries.org/sites/default/files/files/Scenario%20Tests.xlsx

The complete test data for some testing series contains current patron identification and due to privacy laws and concerns is available by request only. Unfortunately, not all requests for the data will be honored, also due to privacy concerns. Patron data has been eliminated from files offered here.

APPENDIX D PINES BEST PRACTICES FOR HOLDS

The goal of PINES holds is to get the right book in the right hands in the least amount of time. Holds is a complex process of requesting, moving and tracking physical information from one point to another and back again which requires smooth and efficient interactivity between patrons, staff, software systems, and courier systems. The following document provides suggestions and procedures that if used could bring greater efficiency to staff's interactive role with Holds processes. These are not intended to be proscriptive; but, rather to encourage dialog with PINES library staff in order to craft a more comprehensive and relevant set of best practices for holds processing in PINES libraries.

1.   Staff Training

- Learn PINES policies, procedures and understand local and PINESwide holds workflow.

- Learn the basics of how the software works.

- Train staff to train patrons in how to place holds, what is eligible for holds, when and where.

- Learn to place holds for patrons at appropriate hold levels. Almost all holds should be title level holds. Copy or volume level holds should be placed for patrons ONLY when a particular, part, copy or volume is requested. Requesting patrons should be warned that this type of request may be filled more slowly than expected.

2.   Follow PINES procedures (see Appendix A PINES Holds Policies and Procedures or http://PINES.georgialibraries.org/circulation-policies-and-procedures)

- Request and execute the holds pull list every day the library is open. (Circulation -> Pull List for Hold Requests).

- Locate each item on your holds list on the shelves. If an item cannot be found, staff should mark the item as missing (Circulation -> Show Item Status by Barcode -> Actions for Selected Items -> Mark Item Missing). This will force the hold to move to another copy. It will also allow you to generate a report of missing items in your library. Check to make sure there are other items attached to the record; if not, other action may be needed.

- If you receive an inappropriate hold request on your list (for an item type that is not eligible for intra-PINES loans), contact the requesting library and ask them to remove the hold. Please DO NOT ignore such holds, as they will continue to appear on your list each day until they are resolved and prevent the patron from getting their hold.

- After the items on your list have been gathered, scan each barcode into the Checkin Interface (Circulation -> Capture Holds). Be sure your terminal is connected to a printer. As you capture each item, a receipt will be printed, telling you where to send the item.

- Prepare each item for sending via the PINES courier. Items should be appropriately packaged to protect them from damage while in transit. All materials should be treated the same as each library would want its own materials handled.
    o   Do not apply any tape directly on any item.

- Do not pack items tightly or too loosely – both will serve to damage bindings and cases. Bubble wrap, recycled plastic bags and other appropriate packing materials can be included to cushion fragile items.
- Use PINES green bags whenever possible. To request extras, open a HelpDesk ticket.
- Bins, tubs and boxes with secure lids/tops can be used to transport large numbers of items. Again label and pack items appropriately with cushioning when necessary.
- Do not apply tape over the printed area of the address slip. Tape causes the ink to fade and be unreadable.
- All items should out of your building within 24 hours of capture or at the next scheduled courier pickup.

- When you receive items from other PINES libraries to fill holds, checkin each item. All items delivered to your building should be unpacked and checked in within 24 hours of delivery.
- As each item is checked in, a holds pickup receipt will be printed containing the requesting patron's information including notification method. No paper notices are mailed.
- For patrons with email addresses in their user records, holds notices are sent within an hour of the item being scanned by the receiving library.
- Each library is responsible for contacting users who need to be telephoned regarding available holds.
- Each library may decide how long to keep its own items on the holds pickup shelf; however, items from outside the local library system should be held on the holds shelf for a maximum of seven (7) open business days. It is recommended that patrons be given sufficient time to pick-up items so that unfilled hold returns are at a minimum. Between 5 and 7 days seem to work the best for most libraries.
- All items returned from filling a hold, captured for a hold upon return, or cleared off the Holds shelf, should be appropriately packed and out of your building within 24 hours of its return or at your next scheduled courier pickup.
- Staff must never give preference to one patron over another regarding holds. The PINES code of ethics requires that all libraries respect the integrity of the holds queue, and share equitably.

3. Use PINES reports to manage the Holds Shelf.
Both the physical holds shelf and the database holds shelf require regular maintenance. On a regular (daily or weekly) basis, reconcile your physical holds shelf against the Browse Holds Shelf list, clearing expired and patron-canceled holds and resolving anomalies causing differences between the two.

- Regularly running the following reports will allow library staff to fine tune Holds management to effectively and proactively resolve the majority of issues that will occur with Holds processes.

  - Run two Holds reports:
    - First to show the library's titles and copies that are on hold.
    - Second to show the library's patrons who have unfilled hold requests.
    - Scope the reports to provide information on holds that are older than a predetermined amount of time that the library deems acceptable to fill a hold: 60 days or other similar target. Research the titles/items to discover how best to meet the patron's request; search the shelves again, retarget the hold, make a purchase or other option. If you determine that the hold cannot be filled, communicate this to the patron and/or the requesting library.

  - Run two Transit reports:

- First identify the library's items that have been in transit too long.
- Second identify items that have been in transit to the library too long.

  Too long is equal to a predetermined amount of time that the library deems acceptable: 14 days or other similar target. Search for the items, resolve issues and request assistance through the HelpDesk whenever needed to resolve transit issues.

- Run two Collection Management reports:
  - Purchase Alert Report. which can be short, produces a list of titles that have a high ration of holds to copies. One way to alleviate long hold wait times is to purchase additional copies of titles with many hold requests.
  - Holds to Copies report can be longer because the scoping that is in place on the above Purchase Alert Report is not in place. This report will allow you to catch titles with hold only a couple of hold requests that may not be filled due to overdue items or other problems.

Investigating Evergreen Holds Functionality in PINES
February 2014