
NCIP

Direct Consortial Borrowing: User Agency Manages Transaction Application Profile

An Application Profile to support ANSI/NISO Z39.83-200x

Abstract: This application profile describes the functions, applications, and the operating environment in which an item agency's policies related to privileges, circulation, renewals, fines, and all other circulation transactions manage the circulation transactions.

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1. Introduction

This profile, referred to as the NCIP Direct Consortial Borrowing: User Agency Manages the Transaction (DCB-2) Profile of the NISO Circulation Interchange Protocol (NCIP), describes the functions, applications, and the operating environment in which a user agency's policies related to privileges, circulation, renewals, fines, and all other circulation transactions manage the circulation transactions. This allows the user agency to authenticate the user within its own systems and determine if the transaction may take place. No matter which application initiates the transaction it is the user agency that determines whether or not the transaction proceeds and, sets the conditions of the transaction, e.g. due date. The user agency determines what, if any, User data is shared with its NCIP partner.

The base standard that enables this communication is NCIP. This profile is based on that protocol, as well as the supporting NCIP Implementation Profile1.

There are three other Direct Consortial Borrowing profiles as follows:

DCB-1	Item Agency Manages the Transaction
DCB-3	Broker Application Manages Transaction Application Profile
DCB-4	User Agency Manages Transaction with Proxy Checkout Application Profile

2. Description of Application Area

Through Direct Consortial Borrowing (DCB), users of one agency can request and borrow items from another agency within a consortium. The NCIP facilitates the transfer of user and item data between disparate circulation applications, thereby allowing an agency to manage transactions for non-local patrons and/or provide local control of items belonging to another agency.

3. Scope

Direct Consortial Borrowing (DCB) provides a means for library users to place holds and check out materials within a consortium as a true circulation transaction. Some of the services provided are place hold, checkout and renew.

This profile facilitates agency-to-agency communication to support all normal circulation transactions for a user at a consortium library as if the user were at their home library. DCB does not create user or item records, checkout, checkin or other circulation activities in the partner application; the NCIP messages provide the circulation application with the information it needs to perform those actions. DCB applications may be accessed through a Public Access Catalogue (PAC) application or through a shared consortium system or, a gateway interface for the consortium. Under this profile the user agency's

policies for privileges, circulation, renewals, fines, etc. are the business rules that will be used for DCB transaction.

This profile defines the use of the NISO Circulation Interchange Protocol by a group of libraries to circulate items to users where the items are not owned by the library to which the user belongs. It ensures that the item's library is kept informed of the events in the circulation of items to other users. It does not provide tracking information to other libraries in the consortium.

This profile does not assume that the libraries employ a common application (e.g., a brokering application). It is expressly designed to require no other applications than profile-conformant circulation systems and PAC or other patron empowerment applications.

This profile requires allows the user agency to determine what, if any, user data is transmitted to other agencies. Because the user agency has the ability to fully control whether user data is transmitted beyond the boundaries of its own systems this profile is intended for use where such sharing of personal information is restricted or prohibited by policy or legal requirements.

This profile is intended for groups of libraries that desire a high level of resource sharing with a minimum of staff effort, and are willing and able to share and maintain policy and configuration information to attain that goal. This profile does not address what policy and configuration information must be shared, nor how it is maintained. It is assumed that conforming applications will have different requirements and will provide appropriate mechanisms to achieve them. For example, applications must be able to transmit NCIP initiation messages to the applications associated with other agencies. Because there is no facility in NCIP to determine a network address for an agency's NCIP application, each application must be able, outside the scope of this profile, to determine such addresses.

This profile defines the employment of NCIP services by conforming applications; other activities, while in many cases necessary to the employment of those services (e.g., database updates, display of information to the user) are out of the scope of this profile.

4. References

There are no standards or other references beyond those included in the NISO Circulation Interchange Protocol and Implementation Profile 1.

5. Definitions

In addition to the definitions in the NCIP protocol, this profile further defines:

Dropoff Agency	An agency where a user prefers to drop off physical information resources other than the user or item agency.
Event	An indication to an item agency or user agency

	application that a user or staff user seeks to invoke an NCIP Service or, a determination by such an application to invoke an NCIP Service.
Item Agency	The agency to which a specific physical or electronic information resource belongs.
Location	The physical location of the user or staff user when the Event occurs.
Pickup Agency	An agency where a user prefers to pick up physical information resources other than the user or item agency.
User Agency	The agency to which a user (person) is affiliated through registration and/or membership.
User Interface	An application that provides an interface to Users for those events that a user can generate without intervention of staff users of any agency (e.g, Request Item).

6. Conformance and Support

This section defines rules for determining whether an application's claim of conformance to this profile and any statement of support for optional features are valid. Throughout this section references to the Event Table are to Section 7.6 and to the Lookup Service Table are to Section 7.7 of this document.

6.1 Roles

This profile defines five roles to which an application may claim conformance:

- Item Agency
- User Agency
- User Interface
- Pickup Agency
- Dropoff Agency

These roles are defined in section 6.6 below.

6.2 Statements of Conformance

A statement of conformance to this profile SHALL be made in the following form:

"X conforms to the Y role(s)."

"X" specifies the application claiming conformance and "Y" identifies one or more of the roles listed above.

6.3 Requirements of Conformance

An application that claims conformance to a role, while operating according to this profile, SHALL:

1. Conform to the NISO Circulation Interchange Protocol and the Implementation Profile 1.
2. Be able to recognize every Required Event in those rows where its role is listed in the Initiating Application column of the Event Table.
3. Invoke each Required Service in those rows where its role is listed in the Initiating Application column of the Event Table whenever it recognizes an Event.
4. Be able to respond successfully to every Required Service in those rows where its role is listed in the Responding Application column of the Event Table.
5. Meet the Message Constraints as defined in the Event Table for all messages it transmits.
6. Include all required and conditionally required elements in all messages as defined in the Lookup Service Table.
7. Meet all restrictions on enumerated types as stated in section 7.5.3.

6.4 Statement of Support

A statement of support for an optional feature in this profile SHALL be in the following form:

"X supports the Z feature(s)."

"X" specifies the application claiming support of an optional feature and "Z" identifies one or more of the optional features listed above.

A statement of support for an optional feature in this profile SHALL be in the following form:

"X supports the Z feature(s)."

"X" specifies the application claiming support of an optional feature and "Z" identifies one or more of the optional features listed above.

7. Profile Specification

7.1. Profile Description

Direct Consortial Borrowing (DCB) provides a means for library users to place holds and check out materials within a consortium as a true circulation transaction. Some of the services provided are place hold, checkout and renew.

The DCB profiles facilitate agency-to-agency communication to support all normal circulation transactions for a user at a consortium library as if the user were at their home library. DCB does not create user or item records, checkout, checkin or other circulation

activities in the partner application; the NCIP messages provide the circulation application with the information it needs to perform those actions. DCB applications may be accessed through a PAC application or through a shared consortium system or, a gateway interface for the consortium. Under this profile the user agency's policies for privileges, circulation, renewals, fines, etc. are the business rules that will be used for DCB transaction.

Under the User Agency Manages the Transaction profile requests may be initiated through the user agency, the item agency or a user interface. When a user places a request through the user agency application the user agency sends a notification to the item agency. As part of the process the user is authenticated and determined to have privileges to place the request; however, that authentication step is outside of the NCIP messaging. When the request is placed through the item agency or a user interface an update is sent which must include either Authentication Input or Unique User ID. This allows the user agency to authenticate the user within its own systems and determine if the transaction may take place.

No matter which application initiates the transaction it is the user agency that determines whether or not the transaction proceeds and, sets the conditions of the transaction, e.g. due date. The user agency determines what, if any, user data is shared with its NCIP partner. Because of this control of user information, this profile is appropriate for consortium where policy or legal requirements restrict or prohibit transmission of user information outside of the home institution, region or state.

Searching other catalogs and identifying specific items to request is outside of the NCIP protocol. DCB profiles support users paying fees and fines at a partner agency but does not require this practice; by policy a consortia may choose to allow payment only at the agency where the fee or fine was incurred, only at the item agency or, only at the user agency. How funds are distributed after collection is outside of the NCIP interaction.

By its nature DCB interactions are activities between trusted partners and assumes:

- User agencies are responsible for authenticating its own users and that authentication step is outside of the NCIP interaction.
- Item agencies shall assume that user agencies have authenticated the user before initiating requests.
- User can not be prevented from returning materials to locations (e.g. drop boxes) other than the item and user agency associated with that circulation transaction.
- Users are provided with some means of searching and identifying specific materials held by members of the consortium.
- Item agency applications shall provide a mechanism for the user for authentication input such as authorization and password if Unique User ID is insufficient, by consortium policy or design, to allow the user agency to authenticate the user.

7.2 Participating Applications

This profile defines behaviors for interoperability among the following five applications:

- User Agency application
- Item Agency application
- Broker application
- Pickup agency

- Dropoff agency.

All these agencies and applications initiate NCIP services; however, the list of NCIP services invoked by the applications is constrained by this profile to ensure that the user agency application manages the entire circulation transaction. Pickup agencies do not initiate the NCIP transaction (initial User request) but may initiate NCIP messages such as “checkout item”.

In order to support the ability of all users within the consortium to request items from all other members of the consortium it is expected that the circulation systems will implement both the item and user agency applications as described by this profile.

7.3 Business Rules

All business rules, e.g. circulation policies, are determined and applied by the user agency application.

7.4 Management of User and Staff User Interaction

In order to support all models of user behavior the user interface may be at the user agency, the item agency, a user interface or, all three. The interface may be part of a Public Access Catalog (PAC) or some other gateway interface.

7.5 Required Components

7.5.1 Required and Optional Services

The following table lists the required and optional services, messages and responses for this profile. Services not listed are not employed by this profile. Groups that do not allow users to pickup materials at third locations (Pickup Agencies) do not need the Accept Item message pair.

Service	Required (R) or Optional (O)		
	Basic Circulation Support	Consortia that Support 3 rd Location Pickup	Required for fiscal account support at locations other than the User Agency
Lookup Agency	R	O	O
Lookup Item	R	O	O
Lookup User	R	O	O
Check In Item	R	O	O
Check Out Item	R	O	O
Recall Item	R	O	O
Renew Item	R	O	O
Item Shipped	R	O	O

Service	Required (R) or Optional (O)		
	Basic Circulation Support	Consortia that Support 3 rd Location Pickup	Required for fiscal account support at locations other than the User Agency
Accept Item	O	R	O
Create User Fiscal Transaction	O	O	R
Cancel Recall Item	O	O	O
Cancel Request Item	O	O	O
Circulation Status Change Reported	O	O	O
Create Item	O	O	O
Create User	O	O	O
Report Circulation Status Change	O	O	O
Request Item	O	O	O
Send User Notice	O	O	O
Update Item	O	O	O
Update Request Item	O	O	O
Update User	O	R	O
Update User Fiscal Transaction	O	O	R
Item Checked In	O	O	O
Item Checked Out	O	O	O
Item Created	O	O	O
Item Recalled	O	O	O
Item Recall Cancelled	O	O	O
Item Received	O	O	O
Item Renewed	O	O	O
Item Request Canceled	O	O	O
Item Request Updated	O	O	O
Item Requested	O	O	O

Service	Required (R) or Optional (O)		
	Basic Circulation Support	Consortia that Support 3 rd Location Pickup	Required for fiscal account support at locations other than the User Agency
Item Updated	O	O	O
User Created	O	O	O
User Fiscal Transaction Created	O	O	O
User Fiscal Transaction Updated	O	O	O
User Notice Sent	O	O	O
User Updated	O	O	O

7.5.2 Required and Conditionally Required Data Elements

Message	Profile Required Elements	Conditions
Lookup Agency Response	Agency Address Information	Supports shipping materials
	Authentication Prompt	Supports ability to authenticate user
	Consortium Agreement	
Lookup Item Response	Item Optional Fields	Identifies circulation status
Lookup User	Loaned Items Desired	Supports ability of interface to present comprehensive results to User on their requests/loans
	Requested Items Desired	Supports ability of interface to present comprehensive results to User on their requests/loans
Lookup User Response	Loaned Items Count	Supports user tracking
	Requested Items Count	Supports user tracking
	User Fiscal Account	Supports ability to pay fees and fines
	User Optional Fields	Supports ability to confirm User is correct Supports direct delivery to User Supports privileges
Accept Item	Unique Request ID	Supports tracking

Message	Profile Required Elements	Conditions
	Requested Action Type	Supports ability to recognize request as pickup
	Item Use Restrictions	Supports ability Agencies to enforce use restrictions
	Name Information	Supports ability of Agency to match item to user for simple pick up (on hold shelf under last name)
	Date for Return or Non Returnable Flag	Supports ability of Pickup location to return material within specified time frame (hold for User until X time)
	New Fiscal Transaction	Supports ability to collect fees
Check Out Item Response	New Fiscal Transaction	Supports ability to collect fess
	User Optional Fields	Supports ability of item agency staff to explain why a transaction failed (block or trap element)
Create Item	Item Description	Support ability to create a temporary bib record
	Item Use Restriction Type	Supports ability of Agency to enforce use restrictions
	Physical Condition	Supports ability of Agency to record pre-existing conditions
	Unique Item ID	Supports ability of Agencies to have single unique key across transactions
Create User	Visible User ID	Supports end user authentication
Create User Fiscal Transaction		Supports ability to collect fees at other than the home Agency
Recall Item	Shipping Information	Supports ability to send materials to correct Agency address
Renew Item Response	Date Due	Supports renewals
Request Item Response	Shipping Information	Supports ability to ship materials to correct Agency address
Update User Service	Add User Fields	Supports ability to correct user information
	Delete User Fields	Supports ability to correct user information

7.5.3 Enumerated Types

This profile makes use of the following defined and undefined enumerated types.

Data Type	Values
Authentication Input Type	http://www.niso.org/ncip/v1_0/imp1/schemes/authenticationinputtype/authenticationinputtype.scm
Authentication Prompt Type	http://www.niso.org/ncip/v1_0/imp1/schemes/authenticationprompttype/authenticationprompttype.scm
Bibliographic Item Identifier Code	http://www.niso.org/ncip/v1_0/imp1/schemes/bibliographicitemidentifiercode/bibliographicitemidentifiercode.scm
Bibliographic Level	http://www.niso.org/ncip/v1_0/imp1/schemes/bibliographiclevel/bibliographiclevel.scm
Block or Trap Type	http://www.niso.org/ncip/v1_0/imp1/schemes/blockortraptype/blockortraptype.scm
Circulation Status	http://www.niso.org/ncip/v1_0/imp1/schemes/circulationstatus/circulationstatus.scm
Fiscal Action Type	http://www.niso.org/ncip/v1_0/imp1/schemes/fiscalactiontype/fiscalactiontype.scm
Fiscal Transaction Type	http://www.niso.org/ncip/v1_0/imp1/schemes/fiscaltransactiontype/fiscaltransactiontype.scm
Item Use Restriction Type	http://www.niso.org/ncip/v1_0/imp1/schemes/itemuserrestrictiontype/itemuserrestrictiontype.scm
Notice Type	http://www.niso.org/ncip/v1_0/imp1/schemes/noticetype/noticetype.scm
Payment Method Type	http://www.niso.org/ncip/v1_0/imp1/schemes/paymentmethodtype/paymentmethodtype.scm
Request Status Type	http://www.niso.org/ncip/v1_0/imp1/schemes/requeststatustype/requeststatustype.scm
Request Type	http://www.niso.org/ncip/v1_0/imp1/schemes/requesttype/requesttype.scm
Requested Action Type	http://www.niso.org/ncip/v1_0/imp1/schemes/requestedactiontype/requestedactiontype.scm
User Privilege Status Type	http://www.niso.org/ncip/v1_0/imp1/schemes/userprivilegestatustype/userprivilegestatustype.scm
Visible Item Identifier Type	http://www.niso.org/ncip/v1_0/imp1/schemes/visibleitemidentifiertype/visibleitemidentifiertype.scm
Visible User Identifier Type	http://www.niso.org/ncip/v1_0/imp1/schemes/visibleuseridentifiertype/visibleuseridentifiertype.scm
Undefined	http://www.niso.org/ncip/v1_0/imp1/schemes/undefined/undefined.scm

7.6. Event Table

Triggering Event and Event Location	Initiating Application	Service Initiated	Responding Application	Message Constraints
Describe the event that triggers the application to initiate a service and the location of the event in the application architecture.	Specify which application initiates the service that results from the triggering event.	List the service initiated	Specify which application responds to the service.	Specify requirements for the initiation and response messages such as optional elements that must be included or are not permitted.
Triggering Events				
Below is a list of events that trigger a message in this profile.				
Triggering Event and Event Location	Initiating Application	Service Initiated	Responding Application	Message Constraints
User requests an item be placed on hold	User Agency	Item Requested	Item Agency	Request type Hold
User requests an item be placed on hold	Item Agency	Request Item (R)	User Agency	Request type Hold
User requests an item be placed on hold	User Interface	Request Item (R)	User Agency	Request type Hold
User requests an item be retrieved from stacks	User Agency	Item Requested	Item Agency	Request type Stack Retrieval
User requests an item be retrieved from stacks	Item Agency	Request Item (R)	User Agency	Request type Stack Retrieval
User requests an item be retrieved from stacks	User Interface	Request Item	User Agency	Request type Stack Retrieval
User requests a copy of an item	User Agency	Item Requested	Item Agency	Request type Non-Returnable Copy
User requests a copy of an item	Item Agency	Request Item (R)	User Agency	Request type Non-Returnable Copy

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Triggering Event and Event Location	Initiating Application	Service Initiated	Responding Application	Message Constraints
User requests a copy of an item	User Interface	Request Item (R)	User Agency	Request type Non-Returnable Copy
User changes request for an item	User Agency	Request Updated	Item Agency	Note: the notification should include appropriate optional fields to support the changes made to the request
User changes request for an item	Item Agency	Update Request	User Agency	Note: the update should include appropriate optional fields to support the changes made to the request
User changes request for an item	User Interface	Update Request	User Agency	Note: the update should include appropriate optional fields to support the changes made to the request
User agency requests permission to send an item to pickup location	User Agency	Accept Item (with Request Action Type of "Pickup") (R)	Pickup Agency	If ItemUseRestrictionType is present then DateOfBirth and UserPrivilege are required Note: in this profile only the user agency may send Accept Item. Item agency does not have the authority to negotiate terms.
Pickup Agency declines to permit pickup	User Agency	Item Request Cancelled	Item Agency	
Item is shipped to User agency for pickup	Item Agency	Item Shipped (R)	User Agency	
Item is shipped to pickup location	Item Agency	Item Shipped (R)	Pickup Agency	Note: shipping address will be the pickup agency's address
		Item Shipped (R)	User Agency	Note: shipping address will be the user agency's address
Item is received at user agency for pickup	User Agency	Item Received	Item Agency	
Item is received at pickup location	Pickup Agency	Item Received	User Agency	
		Item Received	Item Agency	
User checks out item at item agency	Item Agency	Check Out Item (R)	User Agency	
User checks out item at pickup location (Required Event if pickup agency has accepted the request)	Pickup Agency	Check Out Item (R)	User Agency	

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Triggering Event and Event Location	Initiating Application	Service Initiated	Responding Application	Message Constraints
User agency responds successfully to Check Out Item initiation message	User Agency	Item Checked Out	Item Agency	
User incurs a fee or fine	User Agency	User Fiscal Transaction Created	Item Agency	Note: User can't incur a fee at item agency because user agency manages everything, including fees.
Item agency corrects a fee or fine	Item Agency	Create User Fiscal Transaction	User Agency	Note: Item agency can't correct a fee because user agency manages everything, including fees.
User pays a fee or fine at user agency	User Agency	User Fiscal Transaction Updated	Item Agency	
User pays a fee or fine at item agency	Item Agency	Create User Fiscal Transaction	User Agency	
Item is recalled	Item Agency	Recall Item (R)	User Agency	
Item recall is cancelled	Item Agency	Cancel Recall Item	User Agency	
User agency sends a notice to the User	User Agency	User Notice Sent	Item Agency	
User renews item	User Agency	Item Renewed	Item Agency	
User renews item	Item Agency	Renew Item (R)	User Agency	
User renews item	User Interface	Renew Item (R)	User Agency	
User reports an item lost	Item Agency	Report Circulation Status Change	User Agency	
User reports an item lost	User Agency	Circulation Status Change Report ed	Item Agency	
User claims item was returned	Item Agency	Report Circulation Status Change	User Agency	
User claims item was returned	User Agency	Circulation Status Change Reported	Item Agency	

Triggering Event and Event Location	Initiating Application	Service Initiated	Responding Application	Message Constraints
Item agency receives an item that is Checked-Out to a User	Item Agency	Check Item In (R)	User Agency	
Dropoff Agency receives an item	Dropoff Agency	Item Shipped (R)	Item Agency	Note: The "Dropoff agency" may be the user agency. The dropoff agency determines item agency identity by visual inspection of item and or the use of Z39.50, NCIP or other services.
Item agency receives an item shipped to it by the dropoff agency	Item Agency	Item Received	Dropoff Agency	
Item agency receives an item	Item Agency	Check Item In (R)	User Agency	

7.7 Lookup Service Table

In order to initiate some NCIP services, one application may need to obtain information from another application. The table below lists services that can be initiated in order to obtain such information. The first column lists the application that provides the information. The second column lists the service executed. The third column lists the identifiers that are optional within the NCIP, but are required for this profile. The fourth column lists the data returned.

Responding Application	Lookup Service	Required Unique Ids	Required Response Data Elements
Item Agency	Lookup Item	Visible Item ID	Circulation Status
User Agency	Lookup User	Visible User ID or Authentication Input	User Privilege
Item Agency	Lookup Agency	Unique Agency ID	Agency Address Information and authentication prompt requirements
User Agency	Lookup Agency	Unique Agency ID	Agency Address Information
Pickup Agency	Lookup Agency	Unique Agency ID	Agency Address Information

8. Transport Protocol

All applications SHALL employ HTTPS for transmission of all NCIP messages while operating according to this profile.

9. Security and Privacy

As noted in the Scope:

This profile requires the transmission of confidential personal information by the user agency to other agencies. While it requires use of a reasonably secure transport protocol (HTTPS), this profile is not intended for use where such sharing of confidential personal information is not acceptable.

The implication of this is that a user agency participating in activity according to this profile is assumed to trust the other agencies with which it shares this confidential user information.

Authentication of the user is assumed to occur prior to invoking further NCIP services at the direction of the user. This profile requires conforming applications to support the use of the Lookup User service to perform this; it is possible for applications to employ alternatives beyond those defined in this profile.

An agency that recognizes events indicated by staff users should authenticate those staff users, however whether it does so and how it does so is outside the scope of this profile.

Responding applications may require From Agency Authentication and/or From System Authentication elements in the initiation header of some or all messages. Whether they do, and if so what the value should be is outside the scope of this profile, as are the implications for the consortium if some applications are not able to provide this in initiation messages.

10. Registration of Schemes Used in the Profile

For information about maintenance and registration activities see Appendix G, Designation of Maintenance and Registration Agency in the NCIP standard.

11. Guidelines for Implementers (Non-normative)

The success of inter-system interoperability depends on many factors beyond proper coding and decoding of standards-based messages. These guidelines list some of the additional considerations libraries and systems should address as part of their NCIP implementation.

General Performance Issues

- Users can be expected to search and request materials at any time of day. Applications may run aging processes in a batch mode. In order to ensure that messages are not lost the listening port should be open as close to 24*7*365 as possible. If the user agency application is not available messages should be queued and processed as soon as possible.
- Update responses should be sent as close to real time as possible.
- For system performance considerations it may be desirable to batch most notifications.

Messages

- In order to support the widest range of user functionality within the application itself, while not required by the protocol or the profile systems should send the most complete version of any message or message response including optional data.
- Applications should provide means of sending repeat messages in the event where the first message was not received or the response indicates the message could not be understood.
- Item and user information are not required in the Accept Item; if those elements are not present the pickup agency can send Lookup Item or User service to gather the information. While there is a work-around provided by NCIP, it is preferable to send a more complete Accept Item message to eliminate the need for additional messaging and staff effort.
- The user agency should track the Pickup Expiry Date and send the pickup agency an Item Recalled when the date is passed if it has not received an item shipped message.

Interface and use considerations

- The system itself and/or the staff interface must provide some means of negotiating transactions. For example if a pickup agency refuses Accept Item based one or more of the conditions the user agency must have some means of both seeing the problem conditions and choosing to resolve them.
- While agencies are not required to take any action on a notification it may be desirable to make at least some notifications visible to staff to allow library staff to provide additional service. Example, the item agency may wish to check the stacks and for an item's actual availability.
- When asking the user to authenticate the system should present a list of its NCIP partner libraries.
- Item agencies should provide means of direct user input of authentication input that preserves the privacy of the user. That data should not be visible to staff at the item agency or user application.