Proposal: Unique Borrower ID for Shared Patron File

Vision Statement:

DALNET and Ameritech established a partnership to jointly develop and implement an open, integrated library and information system as the central component of a metropolitan information hub. The information hub will help people served by DALNET member libraries in their lifelong library-based educational, research, professional, cultural and recreation endeavors.[*]

As part of the partnership, both Ameritech and DALNET recognized that Horizon, as it existed at that time, was not able to provide some of the functionality essential for the DALNET consortium. To address these needs, seven enhancements were proposed that would address the most critical requirements. One of those enhancements is a shared patron database. This proposal specifically addresses the Unique Borrower ID component of the shared and local patron databases.

DALNET envisioned a mechanism that would facilitate our patron's abilities to move among all the DALNET libraries with which they are affiliated. The patron should be able to obtain any relevant information about their status, holds, requests, etc. It also needs to provide for a mechanism that would enable patrons to authenticate for various commercial databases. This information should be available to the patron working in the library or working remotely. At the same time, the same mechanism must provide sufficient security so that personal information is not revealed unnecessarily. Detroit Public Library estimates that over 30% of their patrons have declined to provide their Social Security Number. DPL attributes this to a strong need for assured security and confidentiality. Other Horizon sites and consortia may find the use of this UBID useful.

The DALNET consortium consists of over seventy libraries, with a user population approaching a million. Training, workloads, and staff expertise are a significant issue. Like most libraries, staffs in the DALNET consortia have large workloads. In all cases this enhancement must be designed to minimize the data entry and processing requirements of the circulation staff. The staff should not be asked to process data that can better be handled by the system. Many large library systems make use of entry level staff and/or student employees. These personnel need very straightforward processes to use for data entry. The data entry components should clearly prompt for the correct data. Service standards require that new accounts become active immediately so that a new borrower may check materials on the same day that the borrower's record was created. Therefore, the system must allow for immediate, real time processing of both the local and shared pattern file without requiring extra processing by the circulation staff. Such a design should minimize the training requirements on the various member libraries. In no case, should the circulation staff member entering the data be able to determine the patron's unique borrower ID.

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[*] Extracted from DALNET/AMERITECH PARTNERSHIP PROPOSAL

The Unique Borrower ID (UBID)
The UBID is constructed to be unique to each patron in the DALNET consortium. The DALNET database has a population of approximately one million. Since DALNET is likely to expand to new members, the UBID calculation should allow for growth capacity, potentially for two to three million.

Two required elements in this ID are the month and day of the patron's birthday and the last four digits of that patron's Social Security number (the last four digits of the 'second_id'). These two source elements were chosen as information easily attainable by all the DALNET member libraries. DALNET has identified that the use of the full birth-date is not acceptable to some DALNET member libraries and other member libraries cannot use the full Social Security Number. To compute the UBID, this combination of the social security number and birth-date and name will have a calculation applied to it that will create an entirely new number. The UBID should be calculated in such a way as to eliminate duplicates.

DALNET recognizes that it is possible that the use of the only the two elements described above, may create duplicates. DALNET therefore offers two possible methods that could be used as strategies for avoiding duplicates.

Scenario One
The UBID is a field calculated from the month and day of the patron's birthday, the last four digits of that patron's Social Security Number (SSN), and the first three characters of the first or last name.

Scenario Two
The UBID field uses the original two elements and uses the first or last name, only when there is a need to prevent a duplicate ID.

Comments
There are a couple of problems with the use of the name in the algorithm. People sometimes change their names. Although it is more common for a last name to change as a result in the change of marital status, people also change their first name, as well. In the case of non-English speaking patrons, it is not always easy to identify which name is the first or last name. While the potential problems with the use of name does not eliminate it from use, DALNET welcome alternate suggestions from Ameritech.

Scenario Three
This option involves the use of the last four digits of a phone number as part of the number to which the algorithm is applied. Phone numbers are subject to change, so the original phone number used in the calculation would have to be noted in the patron record.

Purposes of the UBID
The principal uses of the UBID number are:
- To insure that duplicate patron records are not created for the same patron in the shared file
- To verify that the proper patron record is retrieved if the patron does not have his/her library card with the bar code on it
- To enable batch loaded patron records to match and update records in the local and shared files
- As the ID for patron authentication for patron empowerment services and access to licenses resources

Use of the UBID
The UBID will not be displayed on the borrower record view in Circulation. Proper processing, backlinking, and indexing will be accomplished through Horizon's deferred indexing feature for the initial record conversion and batch-loaded data. All records entered by circulation staff will be indexed in real-time. The UBID will have a unique, browse (openlist) index created on it. This index will be listed in the Horizon search options tables as available for borrower searches, making it available in the Circulation module for the Find Borrower menu option.

Identifying an existing patron
The UBID search option, when selected by the staff operator, will display an example demonstrating the method of number construction. Staff will enter in the appropriate patron data in accordance with the example displayed. Horizon will calculate the UBID from the input field and then conduct the search of the index. The resulting display will place the staff person in an alphabetical list of patrons with the correct entry highlighted. If no match is found, an error message will be displayed.

ReUse of UBIDs
In no case shall a UBID ever be reassigned to another patron. If a patron and corresponding UBID is removed from the database, that UBID shall be flagged, permanently, for no future use.

Changing UBID
In the event that a person's SSN changes or is added after their initial load into the patron file, the UBID will need to be recalculated and all linkages in the patron's records should be adjusted accordingly.

Patron Record creation methodologies

Loading patron data
When a record is loaded as part of a file of records, it will be constructed from the designated elements. Incoming records will contain all these elements. If any data element is not present the record will not be loaded, but will be written to a report. An input file is loaded by the ALS BIMPORT utility into a Horizon database. Ameritech will construct the UBID from data elements in BIMPORT after applying the calculation as mentioned in *The Unique Borrower ID (UBID)*. Errors will be written out to the Horizon 'mistake' table.

Keying a new patron record

The staff operator conducts a patron search as a preliminary check to rule out pre-existing records and potential duplicates. After conducting the search and identifying that the borrower was not already in the database, the staff operator could recheck the UBID elements for accuracy, or open a New Borrower window by pressing the F5 key to begin entering a new patron record. The staff operator will enter all required data elements in separate fields. Horizon will perform the calculation, load and index the new patron record and ID.

Copying records from the DALNET consortium

To insure integrity of both the shared and local databases, patron records will not be copied between member libraries, only down from the shared file. Note as described in the shared patron file document that the system will regularly update the shared file from the local files.

Initial Shared patron file

The Unique Borrower ID initially will be created in the local patron files. The UBID will then be used as the matching point for the shared patron file. DALNET will select the priorities for which patron database is loaded in which order. If one or more records have UBIDs that match, but are not duplicate records, an alternate calculation will be applied to the record and it will then be loaded into the patron file.

Institutional borrowers

To handle institutional borrowers (i.e. a company) without birth dates and social security numbers, DALNET will establish a convention for entering unique information in the data entry fields.

Other classes of borrowers

The system will have the flexibility to allow DALNET add other types of borrowers, other than those described above. Should it be needed, Ameritech will work with DALNET on a consultant or contractual basis to implement any necessary changes.

Authentication

The Unique Borrower ID will also serve as the sole means by which patrons authenticate for patron empowerment services and access to databases.

When asked to authenticate, the patrons will see a comparable screen to the new patron add screen. This screen will provide an example and the fields for input. After the patron inputs the appropriate data and presses the enter key, the system then applies the conversion calculation and authenticates and/or authorizes the patron for the requested service. If the process fails, the patron should receive and appropriate error message. Possible examples include:

"The system did not find a matching authentication record for you. Try again?" "Please see a librarian if you need assistance."

'Yes' or 'OK' would return the patron to the entry screen and 'No' would exit the authentication routine.

Patron Record
Current and future development should conform to all established library standards. Where established standards do not exist, data entry and elements should follow standard database management principle, e.g., only one data element per field. Specific changes to the current database structure require separating the patron's name into four discrete components: last name, first name, middle initial, and title (e.g. Sr. - Senior, etc.). Note that only the last name needs to be a searchable field. DALNET also wants to separate City, State or Province, and Zip code or Postal code, into separate fields. Due to our proximity to Canada, the ability to accommodate Canadian addresses is essential.

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