The areas of interaction with OCLC and UC’s Request service are listed below. Each required feature includes a brief description of how the feature is currently implemented within the UC system, and may also include a more detailed description in the appendices. A narrative overview of the current UC Request process from a technical perspective is included in Appendix I: UC’s Request system overview. A graphic representation of the interactions of the various systems that interact with the Request services is included immediately after the requirements. UC Request Service and WorldCat Local Pilot Interaction.

1. Request User Profile

Requirements:
Users should be able to store the following information in their OCLC personal account and access this information during their Request session when it originates from within WorldCat local and from Request sessions that originate from other locations.

- user’s email address
- home campus
- departmental affiliation or major
- library card account number
- preferred ILL/DDS pickup location

How this is done in the current UC Request service:
The user’s Melvyl Profile information is stored in the Melvyl Catalog. The Melvyl Catalog uses Aleph software from Ex Libris. This Profile can be activated for any Request session, including Request sessions that originate from outside the Melvyl Catalog.

Request sessions that originate in the Melvyl Catalog with the user signed into the Profile:
Request uses the Profile login/password from the user’s active Melvyl session to query the Aleph X server to retrieve any Request related Profile fields and then uses this data to populate the Request form fields.

Request sessions that originate in the Melvyl Catalog with the user not signed into the Profile
Request uses the Profile login/password from the user’s Profile activation in the Request form to query the Aleph X server to retrieve any Request related Profile fields and then uses this data to populate the Request form fields.

Request sessions that do not originate from the Melvyl Catalog
Request uses the Profile login/password from the user’s Profile activation in the Request form to query the Aleph X server to retrieve any Request related Profile fields and then uses this data to populate the Request form fields.

The Melvyl Profile can store information for the following Request related data (none of these fields are required to be populated):

- user’s email address
- home campus
• departmental affiliation or major
• library card account number
• preferred ILL/DDS pickup location
2. Getting UC Campus holdings (borrowing)

Requirements

OCLC must obtain the campus holdings and the circulation status data for all UC campuses for each item in the Request and pass the collated data to Request along with the bibliographic information.

How this is done in the current UC Request service:

Melvyl passes the Melvyl system number for each item to Request. For each item Request queries the Melvyl union catalog (through Z39.50) using the Melvyl system number to obtain the OPAC record. The Melvyl OPAC record contains a list of campuses owning the item, campus circulation data, and shelving locations and call numbers as well as the bibliographic data.

The Melvyl system obtains circulation data by querying the campus OPAC systems using the local campus system number included in the Melvyl record. Melvyl normalizes the circulation status messages returned from the campuses before passing this data to Request.

Request interprets the circulation data from Melvyl by matching it against a table of campus circulation status messages to determine if the item is available on the patron’s home campus. Request then reviews the holdings, and performs load balancing among the UC campuses that have an available copy of the item and creates a structured email message that is sent to VDX to initiate the ILL request. Within Request the items are processed one at a time, so this sequence happens for each item. A more detailed description of how Request determines the holdings, and builds the ILL lender string (rota) is included in Appendix II: How the Request resolution service gets UC holdings and builds a VDX rota or an OCLC lender string.

Request obtains holdings for items that come in through the UC-eLinks service (UC’s OpenURL resolver service.) See Appendix III: Metadata requirements for OpenURLs sent to the CDL SFX server for details on the type of information received by UC-eLinks. The holdings check is made using the ISSN or ISBN sent in the OpenURL. If the standard numbers are not present, then an exact title search is used. See Appendix IV: UC-eList Service Requirements.
3. **Request button availability**

**Requirements**

The Request button needs to be available at all record display levels. Users should be able to Request an individual item or multiple items from the current search result or from a saved results set via the Request button. When the user has completed the Request process they need to be returned to the originating search result or saved result.

**How this is done in the current UC Request service:**

The Request button appears for each item in the Melvyl Catalog in all display formats. Users can choose one or more items from a results list by checking the desired items and then clicking the Request button. The Melvyl Catalog Long display shows a single record. From this display users can click the Request button without checking the item.

UC also has the multi-item capability available from PubMed. By using the special UC logon ([http://www.ncbi.nlm.nih.gov/sites/entrez/query.fcgi?tool=cdl&c=tool=cdltool](http://www.ncbi.nlm.nih.gov/sites/entrez/query.fcgi?tool=cdl&c=tool=cdltool)), users can set the PubMed document delivery service to be UC via the “tool” option, and then ask for multiple items using the Order option from the Send to menu in PubMed. The PMIDs for the items are passed to the Request service. Request fetches the citation information from PubMed and creates a page that allows users to view their selected items and to Request one or more items. UC is seeking to expand this multi-item service function with other database vendors and has a specification included as [Appendix III UC-eList Service Requirements](#).
4. **VDX get campus holdings (lending)**

**Requirements**

At this time there is no action required from OCLC

**How this is done in the current UC Request service:**

VDX searches the individual campus catalog via Z39.50 to obtain an OPAC record for the item with holdings and circulation data. Items are load balanced within VDX, and do not go through Request.
UC Request Service and WorldCat Local Pilot Interaction

UC's Request Service Requirements for WorldCat Local Pilot 7 August 2007
Appendix I: UC’s Request system overview

The UC California Digital Library Request system is an application that allows Library patrons on any of the University of California campuses to make direct requests to libraries for the interlibrary loan or campus document delivery of materials contained in a union catalog database (Melvyl), in external databases, or from other sources of bibliographic data, e.g., a reading list for a class. The application has three basic components:

- Sources for bibliographic data: the Melvyl Catalog and the UC-eLinks Open URL Resolver service.
- The Request service, which has three parts, the user interface; the user authentication service that validates patrons, and the resolution service that gathers campus holdings and circulation data.
- The VDX ILL request processing and tracking service.

A description of the behavior and function of each of these three components follows.

Request sources—The Melvyl Catalog and UC-eLinks:

The Melvyl Catalog is a major source of bibliographic data for Request. The user can Request one or more items from a search result or from a saved list. Bibliographic data from the Catalog is passed to Request. The user may create a Profile in the Melvyl Catalog to store personal data, such as a library car number or their email address. Users may activate this Profile from within a Melvyl Catalog session, or from within a Request session.

The UC-eLinks service provides an entry into the Request system for requests that originate from external A&I databases, from internet search engines such as Google Scholar and for citation entered manually into a Citation Linker form (our interface to the SFX Open URL Resolver). When a user clicks the UC-eLinks button from within one of these resources (or the Continue button in Citation Linker) an OpenURL containing bibliographic data for the item is sent to the UC-eLinks service. When a user chooses the Request option in the UC-eLinks menu an OpenURL containing the bibliographic data is forwarded to the CDL Request service. The UC-eLinks service is currently supported by the SFX application from Ex Libris. The metadata specifications outlining the level of detail required for a successful Request is available in Appendix III Metadata requirements for OpenURLs sent to the CDL SFX server.

UC’s Request service:

The Request service has three applications: the enduser interface, the data processor that analyzes the holdings and circulation data, and the patron authentication service. Requests are processed and an ordered list of UC library locations holding the item is passed to the VDX ILL request tracking service. For Requests generated from the Melvyl Catalog the Request user interface queries UC’s IP address database to identify the user’s home campus. For Requests generated from UC-eLinks, the home campus information, in the form of an IP address, may be included in the OpenURL, if not, Request queries the IP database to match the user’s IP to a campus location. If the IP is not a UC IP the Request user interface application allows users to choose a home campus from a menu. Request passes this, along with patron-identifying information entered by the user, such as Library account number, email address, from the user’s Profile, or entered directly into the Request form to the resolution service application. The resolution service processes the items in the user’s Request one by one. During processing, the user interface presents any error messages to the user, as well as collecting any processing choices that need to be made by the user. The authentication application queries the campus patron databases (using an HTTP or LDAP protocol) to validate users for the request service, and the resolution service queries the Melvyl Catalog using the Melvyl system number (via Z39.50) to obtain holdings and circulation data in order to identify shelving locations.
and call numbers and establish whether the item is available on the patron’s home campus. For items entering via UC-eLinks the ISSN or ISBN included in the OpenURL is used as the search key. If these standard numbers are not included, then a search is done for the exact title of the item. Once all data has been gathered, the Request service creates a structured email message for each item in the Request that is sent to VDX to initiate the ILL request. The user also receives a confirmation screen that includes all items in the Request as well as listing the contact information for the user’s designated pick-up location.

The VDX ILL request tracking system:

The VDX ILL request tracking system operates as a centralized system housed at the CDL. The VDX service receives ILL requests from the Request service in the form of a structured email message and then manages the fulfillment of the request, tracking all transactions, and sending requests out via ISO ILL messages to remote sources when they have not been filled within UC. VDX also receives requests from other systems, typically through an ISO ILL standard protocol (ISO10160 and 10161) exchange. Requests received through ISO ILL sources do not contain shelving location information, and VDX searches the campus OPAC for this information. VDX provides a patron interface, Zportal, which allows patrons to view the status of their ILL requests.
Appendix II: How the Request resolution service gets UC holdings and builds a VDX rota or an OCLC lender string

Section 1: Definitions:

Request is the portion of the Request service that provides the patron interface.

The resolution service checks patron status to determine eligibility for ILL or DDS; checks the Melvyl Catalog to obtain UC holdings; and sends the request on to VDX or OCLC based on the ILL service the campus is using, the availability of holdings and ILL rules.

Special location refers to library units, e.g., Special Collections units that may or may not lend any particular item.

Non-lending refers to library locations that never lend items.

Net borrowers and Net lenders:

Net borrowers: campuses that borrow more items from other UCs than they lend to other UCs.

- Net borrowing campuses: UCD, UCI, UCM, UCR, UCSB, UCSC, UCSF, UCSD

Net lenders: campuses that lend more items to other UCs than they borrow from other UCs.

- Net lending campuses: UCB, UCLA

Northern campuses (closest to NRLF) are: UCB, UCD, UCM, UCSC, UCSF

Southern campuses (closest to SRLF) are: UCI, UCLA, UCR, UCSB, UCSD

Section 2: How the Request resolution service obtains and interprets Melvyl Catalog holdings:

Searching for holdings:

For Requests that originate from the Melvyl Catalog, the Melvyl system number is used to search the Melvyl Z39.50 server to obtain the OPAC record. For Requests that come from outside Melvyl, the ISSN or ISBN is used as the search key, and if the OpenURL does not contain a standard number, then an exact title search is done in the following way.

The Aleph system underlying the Melvyl Catalog uses MARC filing codes when indexing items for the “Exact title” index. These codes specify the number of character positions associated with an initial definite or indefinite article to be disregarded for indexing. Many, but not all, records contain these codes, so the Request Resolution Server needs to search for items allowing for the variation when doing an Exact search in order to get a standard number, e.g., ISBN, OCLC number, etc. to add to the record when there is no standard number is included in the original Request.

The Request resolution server first searches the “Exact title” as supplied.

- If there is no match, then the Request resolution server tries again dropping any of the articles in the list below from the beginning of the title if present, the exception to this rule is when the title is only a single word, and that word matches to a word on the list.

- If there is still no match, then the Request resolution server places the record in the home campus review queue. Items that do not have standard numbers included will not be sent direct to lender.
Note: The articles should all be followed by a blank space, with the exception of items that end in an apostrophe, these should not be followed by a blank space, e.g., l'Indonésie, is parsed as indonesie.

**Definite and indefinite articles**

<table>
<thead>
<tr>
<th>English</th>
<th>French</th>
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</thead>
<tbody>
<tr>
<td>a</td>
<td>gli</td>
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<tr>
<td>an</td>
<td>i</td>
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<tr>
<td>das</td>
<td>il</td>
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<tr>
<td>dem</td>
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<td>uno</td>
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<tr>
<td>gl'</td>
<td>ye</td>
</tr>
</tbody>
</table>

**Determining Monographic holdings:**

The Request resolution service uses Z39.50 to obtain the Melvyl OPAC record to get the circulation status. The Request resolution service does not connect to the individual campus OPAC systems to determine the circulation status. The circulation status messages in the Melvyl catalog are normalized to provide consistent values, thus the message that appears in the Melvyl circulation record may not be identical to the message that appears in the campus OPAC record. In some cases the circulation statuses sent to Melvyl by the campus OPAC are very limited, e.g. checked out and not checked out.

The Request resolution service maintains a table of campus locations for which all items are non-circulating and the shelving locations from the requested title’s holdings are checked in this table. The circulation status message in the Melvyl OPAC record is then checked against the Request resolution service table to determine if the item is available for ILL. The Request resolution service function checks the "Circulation status" and the combination of three OPAC Holdings fields: the “localCampus”; “shelvingLocation”; and “copyNumber” to determine if an item circulates and if it is available. Request does not check any other part of the holdings record. Note, if the Melvyl OPAC record for an item contains the message, “Circulation information is unavailable for this location” the item is deemed available on the user’s home campus. Any holdings information that is placed in the Call number field or Notes field is ignored by PIR.
Determining Serials (periodicals) holdings:
The Request resolution service checks the Periodical title’s “LocalCampus field” (some locations do not lend: e.g., UCSF Mt Zion and UCSF SFGH) and a holdings field called “enum_and_cron”. The Request resolution service does not check any other part of the holdings record. The same check against the table of non-circulating locations that is done for books is done for periodical holdings. When the Request resolution service looks at the contents of the “enum_and_cron” it uses the rules for interpreting serials holdings below. Note that these rules only look for the words “Currently received” and for dates. The Request resolution service does not look for other text items, such as “Internet” and does not check the MARC 856 field for electronic holdings.

Rules for interpreting serials holdings

- The Request resolution service’s journal holdings parsing algorithm looks for dates in the 1800s, 1900s, and 2000s
- The Request resolution service bases holdings on the years held, it does not recognize partial years, missing volumes or missing issues.
- For each holding statement, the Request resolution service finds the first year held.
- Then the Request resolution service finds the last year held. If the subscription status indicates “Currently received” (which can be indicated by a dash at the end of the holdings statement) the Request resolution service assumes the last year held is the current year. If the subscription status is not “Currently received” the Request resolution service finds the last year held.
- If item’s citation year is within the first & last years held, assume the location has the issue.
- The Request resolution service looks for a four digit year in the holdings and in the citation. If the year is not present in both the holdings and the citation i.e., at least one of the two does not have a year, the home campus must review the Request
- If the items is determined to be available at the patron’s home campus
  - If the years in the citation and the holdings statement match, the status in the Request resolution service is “available at patron’s home campus” and the Request is denied. Patrons that are eligible for campus document delivery service are offered the opportunity to Request the item via DDS, otherwise the user is required to Skip the item or Cancel the Request.
  - If the patron’s home campus holds a title with no year in the holdings statement, the Request for the item is sent to the patron's to the home campus' review queue (set to idle in VDX.) The home campus ILL unit must manually review the Request and make the decision to reject the patron’s request as locally available, or to forward to another location for filling.
- If the items is determined to be unavailable at the patron’s home campus, and it is held at one or more UC campuses
  - If UC holdings are found among potential UC lenders, then the holding campus is included in the lender string.

How the Request resolution service collects the UC holdings.

Locations fail the test and are ignored (skipped) if they

- don't begin with "UC" or "Bancroft" or "NRLF" or "SRLF" or "CRL." (Bancroft:NRLF is treated as a UCB location)
• are one of two special non-lending locations: UCSFMt.Zion, UCSFSFGH
• are serials, and the article year cannot be found in the holdings
• are from non-serials and one of the following words appears in the circulation status
  these words are matched regardless of case:
  "bindery"   "lost"
  "hold"      "missing"
  "in catalog processing since"   "on order"

Locations that pass all these tests are noted as being “ownedByUC”

Note: If there is no link to circulation status information, e.g., the circulation message is
“Circulation information is unavailable for this location” the item is treated as if it is
available on the patron’s home campus. This is usually accurate since on average less than
half of the collection is circulating, leaving the bulk of the items available for use.

• If the location is on patron’s home campus

  If the item is held by the patron’s home campus and is available for use, i.e., the item is not
  checked out or it is held by a Special location (Special locations on the user’s home campus
  are considered always available) or the user’s home campus and the location is SRLF (which
  is treated as part of UCLA) the Request service requires the user to ask for DDS unless:
  o it is an NRLF item requested by a UCB user. NRLF items requested by UCB are
    treated like other requests, except the home campus receives the request by email

Section 3: The Request resolution service begins building rota (lender string)

The Request resolution service keeps track of the lenders used within a calendar day in a table. This
table is used for load balancing. The following items are ignored and not added to the rota:
• holdings from non-lending locations
• with status inquire at reserves
• with status library use only

1. If there is only one holding location for the item
  • and that location is not on the user’s home campus
  • and the item did not get sent to home campus for review due to missing data
  • and the item is held at a UC location that will or may lend.

Then the single location is placed in the VDX rota or the OCLC lender string without going
through load balancing.

2. If there is more than one holding location for a record the rota/lender string is created as
   follows:
   2.1. Item is held at NRLF and/or SRLF
        If held by both locations then the one geographically closest to the patron's home campus is
        listed first, then the other will follow
   2.2. Item is available at D, I, M, R, SB, SC, SD, or SF (net borrowers):
        If there is more than one, an internal lender table is checked to see which location has been
        first in the lender string the least number of times that day, and that location is listed first
        and the table updated
   2.3. Item is available at B, LA (net lenders):
2.4. Item is available at CRL and the borrowing campus is a CRL member:
CRL is placed after the net lenders. When CRL is included it is always the last item in the rota/lender string. CRL is not added to the rota/lender string if campus is not a member.

2.5. If all UC copies are non-circulating:
Then the user's Request for the item is sent to the home campus for review. In VDX the item is set to “idle” in OCLC it goes to the home campus review queue by coding the sources as UCPIRxx0, where xx is the campus code.

2.6. If one or more holdings locations are Special Collections locations
- If there are both Special Collections and non-Special collections locations
  The Special Collections locations are not used. Only the RLFs, the non-special locations and CRL are used to build the rota/lender string.
- If all UC holding locations for a requested item are Special Collections
  In this case the Request is sent to user's home campus ILL idle/review queue instead of forwarding the request directly to a potential lending location; the ILL staff receiving the email will then attempt to find “lendable” copies of the item, either within UC or in OCLC.

3. The final lender string is built in the following order based on the rules above:
- SRLF & NRLF, (the closest to the requestor’s campus is put first)
- The special collections locations at net borrowing campuses (see section 2.6)
- The special collections locations at net lending campuses (see section 2.6)
- The non-special collections UC locations at net borrowing campuses
- The non-special collections UC locations at net lending campuses
- The CRL location, if it occurs and the campus is a CRL member

4. Items are sent to home campus review under the following circumstances:
(Material type is set to OTHR for VDX, placed in review queue for OCLC)
- the citation is marked as incomplete.
- the rota is empty AND there is no ISSN AND there is no ISSN AND there is either no OCLC number or more than one OCLC number.
- if all UC copies are non-circulating or if all UC locations are Special Collections
Appendix III: Metadata requirements for OpenURLs sent to the CDL SFX server

To support CDL’s Request service (automatic generation of ISO Interlibrary Loan requests); the capture of article citations for use in bibliographies; and e-content links at the article level the CDL SFX server needs to receive a comprehensive set of metadata data in the OpenURL from the source service (A&I vendor).

1. In the Origin-Description we need a database specific `sid` value.

2. In the Object-Metadata zone the elements are:
   - `issn`; `isbn`
   - `aulast`
   - `aufirst`; `auinit`; `auinit1`; `auinitm`
   - `title`;
   - `atitle`
   - `volume`
   - `issue`
   - `pages`; `spage`; `epage`
   - `date`
   - `genre`

3. In the Local-Identifier zone the elements are:
   - `publisher`
   - `placeOfPublication`
   - `edition`
   - `seriesTitle`
   - `conferenceTitle`
   - `conferenceDate`
   - `reportNumber`
   - `dissertationNumber`

Examples are provided on the following page.
Example 1. Book record
Barry, B. T. K. Tin and its alloys and compounds / B.T.K. Barry and C.J. Thwaites
Series title: Ellis Horwood series in industrial metals.

The OpenURL for this book would be:
OpenURL version 1.0
<sid>;genre=book;isbn=0470274808;title=Tin%20and%20its%20alloys%20and%20compounds%;
date=1983;aulast=Barry;aufirst=B;auinit=T;rtf_id=info%3Aoclcnum%2F9756612;rtf_id=urn%3AISBN%3A0470274808;rtf.aualast=Barry;rtf.aufirst=B;rtf.auinit=T;rtf.btitle=Tin%20and%20its%20alloys%20and%20compounds%;
rtf.date=1983;rtf.isbn=0470274808;rtf.place=Chichester;rtf.pub=Ellis%20Horwood;rtf.sseriesTitle=Ellis Horwood series in industrial metals

OpenURL version 0.1 (before percent encoding)
<sid>;isbn=0470274808&aulast=barry&auinit=BTK&title=Tin%20and%20its%20alloys%20and%20compounds&date=1983&pid=publisher=Ellis Horwood;placeOfPublication=Chichester;seriesTitle=Ellis Horwood series in industrial metals

Example 2. Article record
Hall M; Thwaites R; Gompels MJ. Census of availability of neonatal intensive care should have used different denominator. BMJ (Clinical Research Ed.), 2001 Mar 17,322(7287):675

The OpenURL for this article would be:
OpenURL version 1.0
<sid>;rtf.atitle=Census%20of%20availability%20of%20neonatal%20intensive%20care%20should%20have%20used%20different%20denominator;rtf.auinit=M;rtf.aulast=Hall;rtf.date=2001;rtf.epage=675;rtf.genre=article;rtf.issn=0959-535X;rtf.issue=7287;rtf.spage=675;rtf.stitle=BRIT%20MED%20J;rtf.title=BRITISH%20MEDICAL%20JOURNAL;rtf.volume=322;rtf.au=Thwaites%20R;rtf.au=Gompels%20M

OpenURL version 0.1 (before percent encoding)
<host>?issn=0959-8138&atitle=Bmj (Clinical Research Ed.)&aulast=Hall&auinit1=M&atitle=Census of availability of neonatal intensive care should have used different denominator&date=2001-03-17&volume=322&issue=7287&spage=675
Appendix IV: UC-eList Service Requirements

The California Digital Library (CDL) needs to be able to integrate the University of California’s (UC) licensed database sites with CDL service applications, such as the CDL’s Request service which allows users to initiate an Interlibrary Loan or Document Delivery request from citations(s) found in the database search results. To support such integration, UC requires an efficient method for forwarding a list of items from the vendor site to the CDL services infrastructure.

UC’s OpenURL service, UC-eLinks, integrates UC end users with CDL services acting on an item by item basis. The UC-eList service integrates users with the CDL services acting on multiple items discovered in a vendor system.

Many vendors already provide a mechanism allowing users to select multiple records for printing, emailing, exporting to citation management software, etc. and this specification extends that existing functionality.

The vendor site must be able to provide the following functionality:

- The site must recognize the user as a member of the UC community.
- The vendor’s interface must allow the user to designate multiple items of interest and then offer a hyperlink or button for the “UC-eList” option that will allow the user to act upon the selected items with a single click of the button or another simple action. A logical place for this would be in the Export options section of the vendor’s interface.
- When a user clicks on the “UC-eList services” option, the vendor site should use an http redirect mechanism to open a new window and send information about the selected items to the CDL’s server.

Upon receipt of the initial list from the vendor site, the CDL’s server will use the new window to present the list of bibliographic citations received from the vendor, along with the relevant CDL service applications.

Communication between servers

Option 1: the CDL’s preference for receipt of the item information is as follows:

a. The vendor will send CDL a URL containing a query string with unique, retrievable record IDs for all items on the user’s list.

b. The CDL request would be made against the vendor’s http server and the response would be returned as an OpenURL. OpenURL version 0.1 or version 1.0 are acceptable. The CDL server will request one or more items (up to ten at one time.) These queries are identified as coming from the CDL.

c. The vendor site will then return a concatenated string of OpenURLs delimited by a separation character, e.g., NL.

Advantages: This method capitalizes on the server’s ability to handle load on a response. Building a customized HTTP response is generally easier that an HTTP POST request. The use of the query response model requires no temporary sets on the server side.

If the vendor is able to support Option 1 but cannot support the sending of an OpenURL-formatted record in response to a record retrieval request, the CDL would consider other methods of fetching the bibliographic citation data.
**Option 2:** CDL will be willing to receive an OpenURL 1.0 multi-item request as POST operation containing:

a. A single version 1.0 OpenURL multi-item request.

b. Each item should be formatted as a ctx:context-object contained within a single XML request.

**Disadvantages:** The drawback to this method is in generating a long POST XM.

**Advantages:** This method generates a long POST XM, but does not require the vendor to support a secondary request back from CDL. The transmission of a long list of items could be very prone to data loss. The first method avoids this possibility as well as providing a kind of flow control.