

INN-Reach D2IR API Guide

DRAFT v2

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INN-Reach D2IR API

INN-Reach, Innovative's user-initiated consortial borrowing system, enables participating libraries to offer materials from libraries throughout the consortium, reduce fulfillment time, and raise the libraries' profile and visibility in their user communities. INN-Reach provides the ability to build, maintain, and search a central database formed from the records of many libraries. Patrons of the participating libraries can directly request and borrow materials from other participating libraries through the union catalog.

Libraries participating in an INN-Reach consortium contribute records to the central union catalog. When local records are updated, those in the union catalog are also updated. When patrons request materials from the union catalog, appropriate transactions are recorded in both borrowing and lending local libraries, and record status is updated in both the local catalog and the union catalog. The INN-Reach central server performs patron validation at the local library; no patron data is ever stored at INN-Reach central. All transactions are accomplished automatically, in real time.

The INN-Reach D2IR (Direct to INN-Reach) API allows libraries using any non-Innovative integrated library software system to participate in an INN-Reach resource-sharing consortium via Cloud services (AWS).

See "Glossary" on page 9 for definitions of INN-Reach terms.

Version

This document describes the INN-Reach API v2.

Security, Authentication, and Authorization

Requests and responses to and from the INN-Reach cloud platform support TLS/SSL.

The authentication procedure is based on oauth2 and uses encrypted http authorization headers. Third-party vendors are provided with a secure key that is verified against a secure secret, stored in their account on the platform.

The following is an example of a third-party authorization request:

```
POST https://api.iii.com/auth/v1/oauth2/token
Authorization: Basic ODVmMDJkNmUtMjc2ZC00MDJkLTk0ZTk-
tMzkyNDBkZTU3ZjZjOjM5YmVjNzRhLWM4YTAtNDUzNS05NjNkLTNlYjMxMDM3MGQ3N-
A==
grant_type=client_credentials&scope= innreach_tp
-- response --
200 OK

{
  "access_token":"af0649ae7c5177e9cd4772c83c57e8dd",
  "token_type":"Bearer",
  "expires_in":599
}
```

The string following “Basic” in the request is generated by combining the “key” and encrypted “secret” that are provided to the third party. This is done by putting a colon between the key and secret and base64 encoding the string. For example:

key: 85f02d6e-276d-402d-94e9-39240de57f6c

secret: 39bec74a-c8a0-4535-963d-3eb310370d74

are combined into :

85f02d6e-276d-402d-94e9-39240de57f6c:39bec74a-c8a0-4535-963d-3eb310370d74

which when base64 encoded becomes:

```
ODVmMDJkNmUtMjc2ZC00MDJkLTk0ZTk-
tMzkyNDBkZTU3ZjZjOjM5YmVjNzRhLWM4YTAtNDUzNS05NjNkLTNlYjMxMDM3MGQ3NA==
```

The “grant_type=client_credentials&scope= innreach_tp” go into the body of the request, or alternately can be added as parameters after a ? on the end of the url.

The returned token_type and access_token are used in the “Authorization” element in the HTTP header for subsequent InnReach API calls; for example:

```
Authorization: Bearer af0649ae7c5177e9cd4772c83c57e8dd
```

The Bearer token is used repeatedly for subsequent calls to the INN-Reach API until it expires, at which time another call to /auth/v1/oauth2/token is made to generate a new bearer token. The user does not need to keep

track of expiration time for the Bearer token, but can continue to use it until a “401 Unauthorized” error is returned by an API call.

Authentication Errors

Incorrect, missing, or invalid scope or client_credentials will result in errors like the following examples. The error_description describes the problem, in this case a missing scope:

400 Bad Request

```
{  
  "error": "invalid_request",  
  "error_description": "The scope parameter is required."  
}
```

In this case, the Bearer token is invalid:

401 Unauthorized

```
{  
  "error": "invalid_token",  
  "error_description": "Token authentication failed"  
}
```

Record Contribution

Local sites contribute, decontribute, and update records with the methods listed here. See:

- "HTTP Header Elements" below
- "Contribute Bib" below
- "Update Bib Status" on the next page
- "Contribute Item" on the next page
- "Contribute Batch Items" on page 6
- "Update Item Status" on page 7
- "Decontribute Record" on page 7
- "Post Locations" on page 7

HTTP Header Elements

These elements are common to all methods:

Property	Type	Required	Description
Authorization	String	yes	Authorization in form <token_type> <access_token> as returned by authorization request
X-From-Code	String	yes	Central/Local code of sending system (5 character code). The library needs only its own local code and the code for any central systems in which it participates.
X-To-Code	String	yes	Central/Local code of destination system (5 character code). The library needs only its own local code and the code for any central systems in which it participates. For record contribution endpoints this can be a comma separated list of destination central codes, OR an empty string which indicates all subscribed centrals.

Contribute Bib

Note:

Use this method to both add and modify bib records. The bibID is accepted in either the URL or the body; the URL is preferred.

post /innreach/v2/contribution/bib/<bibid>

Property	Type	Required	Description
bibid	String	yes	Lowercase alphanumeric string, maximum 24 characters (32 in future release). The bibID is the

Property	Type	Required	Description
			local system's bib identifier.
agencyCode	String	yes	5 character lower case alpha-numeric
marc21BibFormat	String	yes	Currently supports "ISO2709"
marc21BibData	String	yes	Base 64 encoded MARC data (maximum 99999 bytes before base 64 encoding). <ul style="list-style-type: none"> • Only standard MARC fields accepted • Must include 008 and 245 fields • Omit 9XX fields • Strip data with local meaning only or that you do not want to expose
titleHoldCount	Integer	no	Number of title level holds
itemCount	Integer	no	Number of items linked to this bib
suppress	String	no	ASCII y, n, or g only; 'g' means display as owned by system, not by site. Default: n.

Update Bib Status

post /innreach/v2/contribution/bibstatus/<bibld>

Property	Type	Required	Description
titleHoldCount	Integer	yes	Number of title level holds
itemCount	Integer	yes	Number of items linked to this bib

Contribute Item

Note:

This single item contribution method will be dropped in an upcoming release. To contribute a single item, use the [Contribute Batch Items](#) method, including only a single itemID.

post /innreach/v2/contribution/item/<bibld>

Property	Type	Required	Description
itemId	String	yes	Lowercase alphanumeric string, maximum 24 characters (32 in future release)
agencyCode	String	yes	5 character lower case alpha-numeric
localItemType	String	yes	Book Video Recording Sound Recording Other AV Media eResource

Property	Type	Required	Description
			Map
			Microform
			Periodical
			Software
			Kit
location	String	yes	Location name as contributed in Locations service
itemCircStatus	String	yes	Available/Not Available/On Loan/Non-Lendable
holdCount	Integer	no	Item hold count, maximum 99
dueDateTime	DateTime	no	Unix timestamp, maximum 32 bits
callNumber	String	no	Maximum 128 characters
volumeDesignation	String	no	Maximum 32 characters
copyNumber	Integer	conditional	Only if non-zero
marc856URI	String	no	Maximum 512 bytes (valid URL format)
marc856PublicNote	String	no	Maximum 64 characters
itemNote	String	no	Maximum 256 characters
suppress	String	no	ASCII 'y' or 'n' only. Default: n

Contribute Batch Items

Note:

Use this method to both add and modify item records.

post /innreach/v2/contribution/items/<bibld>

Request

Property	Type	Required	Description
itemInfo	[]	yes	list of itemInfo (maximum count 100)

iteminfo

Property	Type	Required	Description
itemId	String	yes	Lowercase alphanumeric string, maximum 24 characters (32 in future release)
agencyCode	String	yes	5 character lower case alpha-numeric
localItemType	String	yes	Book
			Video Recording
			Sound Recording
			Other AV Media
			eResource
			Map

Property	Type	Required	Description
			Microform
			Periodical
			Software
			Kit
locationCode	String	yes	Location name as contributed in Locations service
itemCircStatus	String	yes	Available/Not Available/On Loan/Non-Lendable
holdCount	Integer	no	Item hold count, maximum 99
dueDateTime	DateTime	no	Unix timestamp, maximum 32 bits
callNumber	String	no	Maximum 128 characters
volumeDesignation	String	no	Maximum 32 characters
copyNumber	Integer	conditional	Only if non-zero
marc856URI	String	no	Maximum 512 bytes (valid URL format)
marc856PublicNote	String	no	Maximum 64 characters
itemNote	String	no	Maximum 256 characters
suppress	String	no	ASCII 'y' or 'n' only. Default: n

Update Item Status

post /innreach/v2/contribution/itemstatus/<itemId>

Property	Type	Required	Description
itemCircStatus	String	yes	Available/Not Available/On Loan/Non-Lendable
holdCount	Integer	no	Item hold count, maximum 99
dueDateTime	DateTime	no	Unix timestamp, maximum 32 bits

Decontribute Record

delete /innreach/v2/contribution/<recordType>/<recordId>

- Deleting a bib removes all its associated items.
- Deleting all items associated with a bib record does NOT remove the bib.

Post Locations

This method submits a complete list of location codes with descriptions. Locations can represent branches, sections, collections, and/or other local entities.

Important:

Post Locations replaces/updates the complete set of locations.

put /innreach/v2/contribute/locations

Property	Type	Required	Description
locationList	[]	Yes	Full list of location codes with descriptions. Replaces any previously submitted locations.

locationList

Property	Type	Required	Description
locationCode	String	yes	Maximum 32 characters (lower case alpha-numeric)
description	String	yes	

Glossary

Agency

Collection of holdings, items, and patrons that are defined to belong to an organization on a Local Server that uses the INN-Reach Agency Model. On the INN-Reach Catalog, each agency is identified as a separate organization.

INN-Reach Agency Model

Items and other attached records from the Local Server are assigned to agencies. Each agency is identified as a separate organization on the INN-Reach Catalog. When a patron requests an item from the INN-Reach Catalog, he must identify to which agency he belongs. This model is typically used when the Local Server hosts multiple libraries.

INN-Reach Catalog

A combined database of the holdings from all the Local Servers that contribute to the INN-Reach Central Server. The INN-Reach Catalog comprises master bibliographic records and detailed holdings from the sites that own copies of those records. The INN-Reach Central Server receives records and updates from Local Servers in real time.

INN-Reach Central Server

Houses and provides the Web PAC for the INN-Reach Catalog. Also serves as the hub through which circulation requests and messages are received and sent to owning and borrowing sites. Uses INN-Reach software to perform a variety of tasks, including building and maintaining the INN-Reach Catalog; building and maintaining INN-Reach statistics; load balancing; and determination of lender.

INN-Reach Institution Model

All the records from the Local Server are identified as belonging to a single organization in the INN-Reach Catalog. This model is typically used when the Local Server hosts one library.

INN-Reach Request

Request for an item on the INN-Reach Catalog.

INN-Reach System

A group of Local Servers and the INN-Reach Central Server to which they all contribute. Local Servers that contribute to more than one INN-Reach Central Server belong to more than one INN-Reach System.

Institution

The library on a Local Server that uses the INN-Reach Institution Model. On the INN-Reach Catalog, this library is identified as a single organization.

Local Server

Stores records that are contributed to an INN-Reach Central Server. A Local Server is often the integrated library system for the libraries it represents. A Local Server can use the INN-Reach Agency Model or the INN-Reach Institution Model.

Local Server Code

Five-character code that represents the Local Server. In the INN-Reach Institution Model, this Local Server code is identical to the institution code. In the INN-Reach Agency Model, the Local Server is assigned a unique code or may use the same code as one of its agencies.

Messages

Data transmitted between Local Servers and the INN-Reach Central Server to update circulation information and circulation statuses in the INN-Reach System.

Non-Innovative Libraries

Libraries that do not use Innovative's integrated library system for their OPAC or circulation modules.

Owning Site

The site to which the requested INN-Reach item belongs.

Patron Site

The site to which the requesting INN-Reach patron belongs.

Site

Generic term that can represent an agency or an institution on a Local Server.

Site Code

Five-character code that represents an agency or institution. Site codes must be unique within the INN-Reach System(s) in which they are used. All site codes must be entered in the Branch Location Codes table at each participating Local Server.

Virtual Records

Temporary records constructed by INN-Reach software. Virtual records do not exist as autonomous records. Instead, they are stored within the records to which they are linked. There are two kinds of virtual records:

Virtual Item

Represents an item requested by an INN-Reach patron. The virtual item record is stored within the requesting patron's record.

Virtual Patron

Represents the patron who requested an INN-Reach item. The virtual patron record is stored within the requested item record.