INTERNATIONAL STANDARD

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Information and documentation — Interlibrary Loan Transactions

Information et documentation — Transactions de prêt interlibrairies

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 46, *Information and documentation*, Subcommittee SC 4, *Technical interoperability*.

Introduction

This International Standard will at first, supplement and eventually succeed the old ISO interlibrary lending protocol (consisting of ISO 10160, ISO 10161-1, and ISO 10161-2). Unlike its predecessor, this International Standard is well suited to the modern, Web-based technological environment which is based on XML and Web services. Another important difference between the two standards is that, while the old standard is based on a 1980s model of ILL transactions, its successor is based on and supports a much simpler exchange of transactions.

ISO TC 46/SC 4 made an attempt to revise ILL standards in 2007. The chosen policy, careful revision of the existing International Standard, failed, since for some SC 4 P-members the revision was too radical, whereas some other P-members indicated that it was not thorough enough. In order to avoid a similar deadlock, SC 4 plenary meeting chose a different strategy in 2012. The committee will keep the old standard alive as long as necessary by, for example, making the editorial changes needed. But SC 4 also decided to start the development of a new, Web-enabled ILL standard.

The new International Standard specifies three simple messages: a request, a supplying library message, and a requesting library message. The protocol is stateless, which means that there will be no need to maintain the interconnected state tables in the client and server applications (and the connections to the state tables in applications behind them). The new ILL protocol will be much easier to implement than the old one, while still retaining the essential functionality of its predecessor.

This International Standard is the first part of a more general strategic initiative to standardize resource sharing in ISO/TC 46/SC 4 *Technical interoperability.* As part of this intention, the editors have aligned element names, transport, and XML schema with similar functions in ANSI/NISO Z39.83 *NISO Circulation Interchange Protocol.*

Information and documentation — Interlibrary Loan Transactions

1 Scope

This International Standard specifies the transactions between libraries or libraries and other agencies to handle requests for library items and the following exchange of messages.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 2108, *Information and documentation — International standard book number (ISBN)*

ISO 3166-1, *Codes for the representation of names of countries and their subdivisions — Part 1: Country codes*

ISO 3166-2, *Codes for the representation of names of countries and their subdivisions — Part 2: Country subdivision code*

ISO 3297, *Information and documentation — International standard serial number (ISSN)*

ISO 4217, *Codes for the representation of currencies*

ISO 8601, *Data elements and interchange formats — Information interchange — Representation of dates and times*

ISO 10957, *Information and documentation — International standard music number (ISMN)*

ISO 15511, *Information and documentation — International standard identifier for libraries and related organizations (ISIL)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
agency
library, library-related organization, or other agency such as an archive or a museum, or a commercial document supplier

3.2
library
organization, or part of an organization, the main aim of which is to maintain a collection and to facilitate by services of a staff, the use of such documents as are required to meet the informational, research, educational, or recreational needs of its users

3.3
requesting agency
agency which can send requests for library items and receive them from the supplying agency

**3.4
supplying agency**
agency which receives requests for library items and delivers them to the requesting agency

**3.5
library-related organization**
institution, company, consortium, or other organization which handles ILL requests and/or receives requested library items on behalf of one or more libraries

**3.6
library items**
books, journals, articles, music, etc., or copies of these in physical or digital format

4 Messages

4.1 General

This International Standard specifies three messages and responses to them for handling interlibrary loan transactions:

— Request and Request Confirmation;

— Supplying Agency Message and Supplying Agency Message Confirmation;

— Requesting Agency Message and Requesting Agency Message Confirmation.

For Request, Supplying Agency Message, and Requesting Agency Message, a confirmation message is sent immediately (see 4.3, 4.5, and 4.7). The Request Confirmation message is not a positive or negative response to the Request; it indicates only that the Request message has been received. If the Request message contains problems, the Request Confirmation message shall include Error Data (see 4.10).

The following are the codes used in the tables:

— R: Repeatable;

— M: Mandatory;

— CT: Complex Type;

— OC: Open Code List (i.e. Scheme Value Pair);

— CC: Closed Code List (i.e. the code list is part of the ILL standard);

— SC: Standard Code List.

Open Code lists are predefined schemes, consisting of an enumerated list of possible values for a given data element that should be supported by applications conformant with this International Standard. The Open Code lists of values are not comprehensive and implementer groups can develop additional schemes for these enumerated types to cover their implementation requirements. Thus, an application can choose to support additional schemes for one or more Open Code lists. Core lists of values to be supported by all implementations are defined in Annex B.

Standard Code Lists are based on code lists published in International Standards or other normative documents.

New schemes and values can be added to the Open Code List as described in Annex B.

Complex Types are listed and defined in 4.8.

Closed Code Lists (see 4.9) are a normative part of this International Standard and shall be supported by applications conformant with this International Standard. They are similar to Open Code Lists, except

that Closed Code lists of values are expected to be relatively comprehensive and stable. Therefore, no online version of these lists shall be made available. However, new Closed Code scheme elements and code values can be added to the future versions of this International Standard.

Date and time shall always be provided in the format of YYYY-MM-DDThh:mm:ssZ, as specified by ISO 8601. When time is not significant, e.g. when a due date is given, use 23:59:59Z to indicate the time. For example: 2013-05-15T23:59:59Z.

4.2 Request

The Request contains information about the item and service requested.

The Request is sent from the requesting agency to the supplying agency.

The Request contains some or all of the following groups of data elements:

— Header: Administrative information;

— BibliographicInfo: Details of the item being requested;

— PublicationInfo: Information about the publication;

— ServiceInfo: Details of the service being requested;

— SupplierInfo: List of potential suppliers;

— RequestedDeliveryInfo: Where and how to send the item;

— RequestingAgencyInfo: Details about the requesting agency;

— PatronInfo: Details about the patron;

— BillingInfo: How to charge the requesting agency.

Table 1 — Request

Element	Definition	Codes
Header	*Administrative information*	M
SupplyingAgencyId	Identification of supplying library	M
	(Complex Type AgencyId)	CT
RequestingAgencyId	Identification of requesting library	M
	(Complex Type AgencyId)	CT
Timestamp	Date and time of the transaction	M
	Ref. ISO 8601	
	Format: UTC: YYYY-MM-DDThh:mm:ssZ	
RequestingAgencyRequestId	Requesting library's request identification or number	M
RequestingAgencyAuthentication	Authentication in supplying library system of the requesting library	CT
	(Complex Type)	
BibliographicInfo	*Bibliographic Information about the requested item*	M
SupplierUniqueRecordId	*SupplierUniqueRecordId* should be used for the Supplying library's internal unique identifier for the requested item, acquired from a preceding automatic holdings request. If this identifier is used, there should be no other identifiers in *BibliographicInfo*. More information is provided in Annex E.	
Title	Title of the requested item	

Table 1 *(continued)*

Element	Definition	Codes
Author	Author of the requested item	
Subtitle	Subtitle of the requested item	
SeriesTitle	Title of the series	
Edition	Number of the edition	
TitleOfComponent	Title of the component part (e.g. article)	
AuthorOfComponent	Author of the component part	
Volume	Volume number	
Issue	Issue number	
PagesRequested	Page from and page to	
EstimatedNoPages	Expected number of pages	
BibliographicItemId	Identification of a physical or electronic object (Complex Type)	R CT
Sponsor	Person or organization sponsoring the publication	
InformationSource	Description of where bibliographic information was found	
BibliographicRecordId	Identification of a bibliographic record (Complex Type)	CT R
PublicationInfo	*Information about the publication*	
Publisher	Name of the publisher	
PublicationType	Type of publication	OC
PublicationDate	Date of publication NOTE For serials and serial articles, this should be the publication date of the component part such as issue, not the date when the serial was first issued.	
PlaceOfPublication	Place of publication, e.g. a city	
ServiceInfo	*Information about the requested service*	M
RequestType	Type of request (new, retry, or reminder) If no request type is specified, the default is "new".	CC
RequestingAgencyPrevious-RequestId	Requesting Agency's previous request number when a retry is sent with updated data based on ReasonRetry	
ServiceType	Type of service. Values: Copy, Loan, or CopyOrLoan. If Copy is requested, then the requesting library is interested only in a copy. If Loan is requested, then the requesting library is interested only in a loan. If CopyOrLoan is requested, then the requesting library is willing to accept either a copy or a loan.	M CC
ServiceLevel	Level of service	OC
PreferredFormat	Format of medium requested	OC
NeedBeforeDate	The request is not relevant after the stated date/time. Ref. ISO 8601 Format: UTC: YYYY-MM-DDThh:mm:ssZ	
CopyrightCompliance	The requesting library's copyright compliance	OC
AnyEdition	Values: Y or N. Yes, for yes to any edition. No, if only the specified edition is acceptable.	
Note	Human-readable note	

Table 1 *(continued)*

Element	Definition	Codes
SupplierInfo	*When a request is sent to a brokering institution, the requesting library can provide a list of potential suppliers (in preference order).* *Intended primarily for requests sent to brokers, but can be used in other circumstances as well.*	R
SortOrder	Value from 1 to 99 defining the order of preference of use	
SupplierCode	Code defining a potential supplier (Complex Type AgencyId)	CT
SupplierDescription	Textual information about supplier	
BibliographicRecordId	Identification of a bibliographic record used (Complex Type)	CT
CallNumber	Indication of the shelf position of the resource	
SummaryHoldings	Textual description of summary level holdings	
AvailabilityNote	Information about availability	
RequestedDeliveryInfo	*A prioritized list of suggested delivery methods, each with its own delivery address*	R
SortOrder	Value from 1 to 99 according to the order	
Address	Description of the delivery address (Complex Type ElectronicAddress or PhysicalAddress)	CT
RequestingAgencyInfo	*Details of the Requesting Agency*	
Name	Name of the Requesting Agency	
ContactName	Name of contact. For example, ILL staff member.	
Address	Description of how to contact the Requesting Agency (Complex Type ElectronicAddress or PhysicalAddress)	CT R
PatronInfo	*Details of the patron for whom the request is being made.* *Only used according to 5.3 Data privacy protection.*	
PatronId	Identification of the patron	
Surname	Surname of the patron	
GivenName	First name of the patron	
PatronType	Type of patron	OC
SendToPatron	Only used with value "Y", if requesting library asks the supplying library to send the requested resource directly to the patron	
Address	Description of how to contact the patron (Complex Type ElectronicAddress or PhysicalAddress)	CT R
BillingInfo	*Information about how the requesting agency expects to be billed for and pay for the item*	
PaymentMethod	The preferred payment method	OC
MaximumCosts	The highest amount the requesting agency is prepared to pay for the service (Complex Type Costs)	CT
BillingMethod	Preferred billing method	OC

Table 1 *(continued)*

Element	Definition	Codes
BillingName	Name of person in finance department, etc.	
Address	Description of the billing address (Complex Type ElectronicAddress or PhysicalAddress)	CT

4.3 Request Confirmation

Table 2 — Request Confirmation

Element	Definition	Codes
Header	*Administrative information*	M
SupplyingAgencyId	Identification of the supplying library (Complex Type AgencyId)	CT
RequestingAgencyId	Identification of the requesting library (Complex Type AgencyId)	CT
Timestamp	Date and time of the confirmation transaction Ref. ISO 8601 Format: UTC: YYYY-MM-DDThh:mm:ssZ	M
RequestingAgencyRequestId	Requesting library's request identification	
TimestampReceived	Date and time of the confirmed Request transaction Ref. ISO 8601 Format: UTC: YYYY-MM-DDThh:mm:ssZ	M
MessageStatus	Value: "OK" or "ERROR"	M
ErrorData	If there are any errors, an error message is included; refer to 4.10.	

4.4 Supplying Agency Message

Supplying Agency Message is a message sent from the supplying library to the requesting library. The message could be in response to a request or a message from the requesting library or a message initiated by the supplying library. In all these cases, the same message is used.

The message contains the following groups of data elements:

— Header: Administrative information;

— MessageInfo: Responses and notes;

— StatusInfo: Current status, i.e. status after any changes because of the message being sent;

— DeliveryInfo: Information about shipped item;

— ReturnInfo: If the Supplier asks the requesting library to return the item to another address.

Table 3 — Supplying Agency Message

Element	Definition	Codes
Header	*Administrative information*	M
SupplyingAgencyId	Identification of the supplying library (Complex Type AgencyId)	M CT

Table 3 *(continued)*

Element	Definition	Codes
RequestingAgencyId	Identification of the requesting library	M
	(Complex Type AgencyId)	CT
Timestamp	Date and time of the transaction	M
	Ref. ISO 8601	
	Format: UTC: YYYY-MM-DDThh:mm:ssZ	
RequestingAgencyRequestId	Requesting library's request identification or number	M
SupplyingAgencyRequestId	Supplying library's request identification or number	
MessageInfo	*Message from the supplying library to the requesting agency*	M
ReasonForMessage	A code defining the reason for the message	M
		CC
AnswerYesNo	Values: Y or N, for Yes or No to respond	
	Mandatory when ReasonForMessage is RenewResponse or Cancel-Response	
Note	Human-readable note	
ReasonUnfilled	The reason why the request cannot be filled	OC
ReasonRetry	The reason why the request cannot be filled, unless it is modified or repeated at a future date	OC
OfferedCosts	Applied when ReasonRetry is used because actual costs exceed the *MaximumCosts* of the requesting library. The supplying library indicates what the actual cost shall be.	CT
	(Consists of Complex Type Costs)	
RetryAfter	The date and time after which the retry request can be sent	
	Ref. ISO 8601	
	Format: UTC: YYYY-MM-DDThh:mm:ssZ	
RetryBefore	Date and time before which to send the retry request	
	Ref. ISO 8601	
	Format: UTC: YYYY-MM-DDThh:mm:ssZ	
StatusInfo	*Status information*	M
Status	Actual status of the request in the supplying library	M
		CC
ExpectedDeliveryDate	Date and time the supplying library expects to deliver the item	
	Ref. ISO 8601	
	Format: UTC: YYYY-MM-DDThh:mm:ssZ	
DueDate	Date and time the item is expected to be back at the supplying library	
	Ref. ISO 8601	
	Format: UTC: YYYY-MM-DDThh:mm:ssZ	
LastChange	Date and time of the last status change	M
	Ref. ISO 8601	
	Format: UTC: YYYY-MM-DDThh:mm:ssZ	
DeliveryInfo	*Information about the delivery*	

Table 3 *(continued)*

Element	Definition	Codes
DateSent	Date and time when the item was sent Ref. ISO 8601 Format: UTC: YYYY-MM-DDThh:mm:ssZ	M
ItemId	Value of Barcode or RFID-tag Id of the item being delivered	
SentVia	The service via which the requested item was sent	OC
SentToPatron	Value "Y", if the supplying library has sent the item directly to the patron and value "N", if the supplying library has not sent the item directly to the patron despite the fact that the requesting library asked for this service (see Request: SendToPatron)	
LoanCondition	Conditions for use of the item	OC
DeliveredFormat	Format of the delivered item	OC
DeliveryCosts	Amount the supplying library is charging the requesting library for the item and related service (Complex Type Costs)	CT
ReturnInfo	*If the Supplier asks the Requester to return the item to another address*	
ReturnAgencyId	Identification of the library to which the item should be returned (on request of the supplying library) (Complex Type AgencyId)	CT
Name	Name of the library to which the item should be returned	
PhysicalAddress	Address to which the item is to be returned (Consists of Complex Type PhysicalAddress)	CT

4.5 Supplying Agency Message Confirmation

Table 4 — Supplying Agency Message Confirmation

Element	Definition	Codes
Header	*Administrative information*	M
SupplyingAgencyId	Identification of the supplying library (Complex Type AgencyId)	CT
RequestingAgencyId	Identification of the requesting library (Complex Type AgencyId)	CT
Timestamp	Date and time of the confirmation transaction Ref. ISO 8601 Format: UTC: YYYY-MM-DDThh:mm:ssZ	M
RequestingAgencyRequestId	Requesting library's request identification	
TimestampReceived	Date and time of the confirmed Supplying Agency Message transaction Ref. ISO 8601 Format: UTC: YYYY-MM-DDThh:mm:ssZ	M
MessageStatus	Value: "OK" or "ERROR"	M
ReasonForMessage	ReasonForMessage in confirmed Supplying Agency Message	CC
ErrorData	If there are any errors, an error message is included; refer to 4.10.	

4.6 Requesting Agency Message

Requesting Agency Message is a message from the requesting library to the Supplying library.

The message contains the following groups of data elements:

— Header: Administrative information;

— ActiveSection: Elements describing what to do.

Table 5 — Requesting Agency Message

Element	Definition	Codes
Header	*Administrative information*	M
SupplyingAgencyId	Identification of the supplying library (Complex Type AgencyId)	M CT
RequestingAgencyId	Identification of the requesting library (Complex Type AgencyId)	M CT
Timestamp	Date and time of the transaction Ref. ISO 8601 Format: UTC: YYYY-MM-DDThh:mm:ssZ	M
RequestingAgencyRequestId	Requesting library's request identification or number	M
SupplyingAgencyRequestId	Supplying library's request identification or number	
RequestingAgencyAuthentication	Authentication in supplying library system of the requesting library (Complex Type)	CT
ActiveSection	*Elements describing actions*	M
Action	An action for the request	M CC
Note	Human-readable note	

4.7 Requesting Agency Message Confirmation

Table 6 — Requesting Agency Message Confirmation

Element	Definition	Codes
Header	*Administrative information*	M
SupplyingAgencyId	Identification of supplying library (Complex Type AgencyId)	CT
RequestingAgencyId	Identification of requesting library (Complex Type AgencyId)	CT
Timestamp	Date and time of the confirmation transaction Ref. ISO 8601 Format: UTC: YYYY-MM-DDThh:mm:ssZ	M
RequestingAgencyRequestId	Requesting library's request identification	
TimestampReceived	Date and time of the confirmed Requesting Agency Message transaction Ref. ISO 8601 Format: UTC: YYYY-MM-DDThh:mm:ssZ	M

Table 6 *(continued)*

Element	Definition	Codes
MessageStatus	Value: "OK" or "ERROR"	M
Action	Action in confirmed Receiving Agency Message	CC
ErrorData	If there are any errors, an error message is included; refer to 4.10.	

4.8 Complex Types

A Complex Type is a set of information linked together describing, for example, an identification with type and value.

Table 7 — Complex Types

Element	Definition	Codes
AgencyId	*Identification of the supplying library or the requesting library*	
AgencyIdType	Type of identifier for the library	OC
AgencyIdValue	Value of the identifier for the library	
BibliographicItemId	*One or more unique standard identifiers (from different identifier systems) for the requested resource*	
BibliographicItemIdentifierCode	Type of bibliographic item identifier	OC
BibliographicItemIdentifier	A unique identifier for the item (e.g. the ISBN)	
BibliographicRecordId	*One or more unique identifiers (from different identifier systems) for the record related to the requested resource*	
BibliographicRecordIdentifierCode	Type of bibliographic record identifier	OC
BibliographicRecordIdentifier	A unique identifier for the record (e.g. the OCLC record number or LC control number)	
Costs	*The cost for the request*	
CurrencyCode	Currency symbol as specified in ISO 4217	SC
MonetaryValue	Amount of money	
ElectronicAddress	*Electronic address*	
ElectronicAddressType	Type of electronic address	OC
ElectronicAddressData	Value of the electronic address	
RequestingAgencyAuthentication	*Authentication in supplying library system of the requesting library*	
AccountId	The customer number in supplying library database of other libraries	
SecurityCode	Password, PIN code, or similar function	
PhysicalAddress	*Mailing address*	
Line1	Address, first line	
Line2	Address, second line	
Locality	Locality of the library/agency, or the contact person	
PostalCode	Postal code according to the rules of the country	
Region	Region symbol as specified in ISO 3166-2	SC
Country	Country symbol as specified in ISO 3166-1	SC

4.9   Closed Codes

Closed code elements and code values are vitally important to the Interlibrary loan protocol. All of them shall be supported by applications conformant to this International Standard.

Table 8 — Closed Codes

Elements	Code values	Description
RequestType	New	The requesting library sends a new request.
	Retry	The requesting library sends the request again based on status RetryPossible.
	Reminder	The requesting library sends the request again with the intention to remind the supplying library about the request.
ServiceType	Copy	The requesting library asks for a copy of the requested item.
	Loan	The requesting library asks for a loan.
	CopyOrLoan	The requesting library accepts both a copy and loan of the requested item.
ReasonForMessage	RequestResponse	Supplying library answers a request.
	StatusRequestResponse	Answer to the action *StatusRequest* from the requesting agency.
	RenewResponse	Answer to the action *Renew* from the requesting agency.
	CancelResponse	Answer to the action *Cancel* from the requesting library.
	StatusChange	Supplying library indicates a change of status without receiving a request to do so from the requesting library. The new status shall be selected from the Status element list of values.
	Notification	Supplying library is sending a message to the requesting library
Action	StatusRequest	Requesting library asks the supplying library to provide the current status for the request.
	Received	The requesting library notifies the supplying library that the requested item has been received.

Table 8 — *(continued)*

Elements	Code values	Description
Action	Cancel	The requesting library asks the supplying library if the requested item can be cancelled.
		The supplying library returns a SupplyingAgencyMessage with ReasonForMessage = CancelResponse Yes or No.
	Renew	The requesting library asks the supplying library if the item currently on loan can be renewed.
		The supplying library returns a SupplyingAgencyMessage with ReasonForMessage = RenewResponse Yes or No (and DueDate if applicable).
	ShippedReturn	The requesting library notifies the supplying library that the borrowed item has been sent back.
	ShippedForward	The requesting library notifies the supplying library that the borrowed item has been returned and sent to the library specified in ReturnInfo.
	Notification	The requesting library sends a message to the supplying library.
Status	RequestReceived	Supplying library has received the request.
	ExpectToSupply	Supplying library expects to fill the request, based on, e.g. information in the local OPAC.
		The message can include the ExpectedDeliveryDate.
	WillSupply	Supplying library has located the item but has not sent it yet.
	Loaned	The item is currently on loan to the requesting library for this request.
	Overdue	The item currently on loan to the requesting library for this request is now overdue.
	Recalled	The item currently on loan to the requesting library for this request has been recalled.
	RetryPossible	Supplying library cannot fill the request based on information provided or might be able to supply at a later date. The explanation can be provided in the ReasonRetry data element. The requesting library can submit a modified request with revised ServiceLevel or MaximumCost etc.
	Unfilled	Supplying library cannot fill the request. The explanation can be provided in the ReasonUnfilled data element.
	CopyCompleted	Supplying library has sent the requested item (this status is used when there is no need to return the item supplied).
	LoanCompleted	Supplying library has received the borrowed item from the requesting agency (this status is used for requests when the item supplied shall be returned by the requesting library, i.e. a loan).
	CompletedWithoutReturn	Supplying library has closed the request without the return of supplied item (e.g. because of loss or damage).
	Cancelled	Supplying library has cancelled the request (as indicated by the requesting library).

4.10 Error Data

If the supplying library or the requesting library or the ILL applications used by them are not able to process a request or a message, the receiving ILL application should respond with Error Data incorporated in the Confirmation Message.

Table 9 — Error Data

Element	Definition	Codes
ErrorData	*One of the following errors*	M
UnsupportedActionType	The supplying library cannot handle the received message because the *Action* in Requesting Agency Message is not supported. Value: Action type which is not supported by the application	
UnsupportedReasonforMessageType	The requesting library cannot handle the received message because the *ReasonforMessage* in the Supplying Agency Message is not supported. Value: ReasonforMessage Type which is not supported by the application	
UnrecognisedDataElement	The supplying library or requesting library has received a data element it does not recognize. Values: Data Element which is not recognized by the application	
UnrecognisedDataValue	For data elements with code lists, the receiving system can respond with an error message if the code is not recognized. Value: The combination of the name of the Data Element and the Element Value which is not recognized by the application	
BadlyFormedMessage	The structure of the incoming message did not conform to the protocol schema definition and could not be interpreted by the receiving system. No value	

5 Format and transport

5.1 Format

The format of all messages is described in an XML schema. The schema is described in Annex C.

5.2 Transport

Implementations that conform to this International Standard shall behave in the following manner in regard to the selection and use of transport protocols.

— Requesting Agency acts as initiator sending Request or Requesting Agency Message. In these cases Supplying Agency acts as responder sending the appropriate Confirmation Message.

— Supplying Agency acts as initiator sending Supplying Agency Message. In these cases Requesting Agency acts as responder sending a Confirmation Message.

NOTE   The transport of messages is inspired by NCIP (NISO Z39.83, *NISO Circulation Interchange Protocol*) which uses the transport method described in RFC 2616.

5.2.1 Applications Acting as Initiators

Applications acting as initiators should support at least one of the following transport protocols:

— HTTP;

— HTTPS.

5.2.2 Applications Acting as Responders

Applications acting as responders should support all of the following transport protocols:

— HTTP;

— HTTPS.

The selection of the transport protocol by the initiator of a message dictates the transport protocol used by the responder. The responder shall respond using the same connection, and therefore, the same transport protocol that was used by the initiator.

All ISO 18626 messages sent via HTTP or HTTPS shall use the POST method as specified in the version 1.1. of the Hypertext Transfer (HTTP) protocol [RFC 2616[1]], thus:

```
POST http://illtransactions.org HTTP/1.1 CRLF
```
All ISO 18626 response messages sent via HTTP or HTTPS shall use the normal HTTP/HTTPS protocol response mechanism used to respond to POSTs. For example:

```
HTTP/1.1 200 OK CRLF
<response header fields> CRLF CRLF
<response message>
```

5.2.3 HTTP/HTTPS Message Headers

For both optional ISO 18626 initiation and response messages, the HTTP/HTTPS Content-Type and Content-Length headers should be included and coded as follows:

```
Content-Type: application/xml; charset="utf-8" CRLF
Content-Length: nnnn CRLF
```

Where nnnn is the length of the data being sent (not including the length of the message headers).

The entity transferred via the HTTP message shall contain the entire text of the message following a carriage return/line feed (CRLF) with no preceding text, thus:

```
CRLF
<initiation message> | <response message>
```

Where `<initiation message>` or `<response message>` contains the XML formatted data (see 5.1) for the message being sent.

5.3 Data privacy protection

The Request Message provides an option to include information about the patron for whom the item is being requested.

Both the requesting and supplying agencies shall observe appropriate regulations (whether they are international, national, regional, or local in scope) regarding the privacy and protection of patron data when PatronInfo is transferred or stored.

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1) See http://tools.ietf.org/html/rfc2616.

6   Conformance requirements

A local application in the Supplying Agency is conformant to this International Standard if it supports the receipt of Requests and Messages. A local application in the Requesting Agency is conformant if it supports the receipt of messages as described in 4.2, 4.3, and 4.4 using the format and transport method as described in 5.1 and 5.2.

If a Request or a Message includes actions which cannot be processed by the local application at the Supplying Agency, the local application in the Supplying Agency or the Requesting Agency shall respond with the relevant error code in the Confirmation Message.

A local application in the Supplying Agency shall support at least two statuses.

Annex A
(informative)

Information website

A website with additional information about this International Standard is available at:

http://illtransactions.org

At the time of the publication of this International Standard, the website was maintained by Relais International (http://www.relais-intl.com/).

Annex B
(informative)

Open Codes

B.1 General

Open Code data elements and their identifiers (URIs) are listed in B.2. Values for these data elements are specified in B.3. For instance, there are just two values for the BillingMethod, Account, and Invoice.

New data elements or data element values to existing data elements can be added as required by the implementers and users of the protocol. In order to foster adoption of these extensions to the International Standard, an up-to-date version of the Open Code List shall be available at http://illtransactions. org/opencode.

Please note that existing implementations of the protocol are not likely to refer to the website to validate the use of Open Code data elements and their values in protocol messages. It is recommended that only the Open Code List in this Annex is used for interoperability testing and application development purposes when dealing with the first-time suppliers and other vendors who are not already thoroughly familiar with the International Standard.

Usage of private extensions to the Open Code List (that is, specifying additional data elements and element values, but not adding them to the Open Code List maintained in the Web) is not recommended. But if such private extension to the protocol is necessary for purely application internal purposes, new URI should be assigned to the data element even if just a new data element value is assigned, since other applications might not be able to recognize the value. For instance, if a third BillingMethod value is specified locally, a new URI should be specified within that application for the extended BillingMethod data element. The application could then use the normal URI and BillingMethod values specified in the International Standard for communication with other, un-extended implementations of this International Standard.

B.2 Open code data elements and their URIs

— AgencyIdType

  URI: http://illtransactions.org/ISO 18626/OpenCodeList/AgencyIdTypeList-V1.0

— BibliographicItemIdCode

  URI: http://illtransactions.org/ISO 18626/OpenCodeList/BibliographicItemIdCodeList-V1.0

— BibliographicRecordIdCode

  URI: http://illtransactions.org/ISO 18626/OpenCodeList/BibliographicRecordIdCodeList-V1.0

— BillingMethod

  URI: http://illtransactions.org/ISO 18626/OpenCodeList/BillingMethodList-V1.0

— CopyrightCompliance

  URI: http://illtransactions.org/ISO 18626/OpenCodeList/CopyrightComplianceList-V1.0

— ElectronicAddressType

  URI: http://illtransactions.org/ISO 18626/OpenCodeList/ElectronicAddressType-V1.0

— LoanCondition

URI: http://illtransactions.org/ISO 18626/OpenCodeList/LoanConditionList-V1.0

— DeliveredFormat

URI: http://illtransactions.org/ISO 18626/OpenCodeList/ DeliveredFormatList-V1.0

— PatronType

URI: http://illtransactions.org/ISO 18626/OpenCodeList/PatronTypeList-V1.0

— PaymentMethod

URI: http://illtransactions.org/ISO 18626/OpenCodeList/PaymentMethodList-V1.0

— PreferredFormat

URI: http://illtransactions.org/ISO 18626/OpenCodeList/PreferredFormatList-V1.0

— PublicationType

URI: http://illtransactions.org/ISO 18626/OpenCodeList/PublicationTypeList-V1.0

— ReasonUnfilled

URI: http://illtransactions.org/ISO 18626/OpenCodeList/ReasonUnfilledList-V1.0

— SentVia

URI: http://illtransactions.org/ISO 18626/OpenCodeList/SentViaList-V1.0

— ServiceLevel

URI: http://illtransactions.org/ISO 18626/OpenCodeList/ServiceLevelList-V1.0

B.3 Data element values

Table B.1 — Data element values

Elements	Values	Source/definition
AgencyIdType	ISIL	ISO 15511
BibliographicItemIdCode	ISBN	ISO 2108
	ISSN	ISO 3297
	ISMN	ISO 10957

Table B.1 (continued)

Elements	Values	Source/definition
BibliographicRecordIdCode	AMICUS	Canadian National Catalogue code
	BL	British Library
	FAUST	FAUST number (Denmark)
	Medline	Medline
	JNB	Japanese National Bibliography
	LA	Libraries Australia
	LCCN	Library of Congress Cataloging Number (US)
	Medline	Medline
	NCID	NACSIS-CAT bibliographic record identifier (Japan)
	OCLC	OCLC
	PMID	PubMed Id
	TP	Te Puna (New Zealand)
BillingMethod	Account	Account
	FreeOfCharge	There are no payments involved in the ILL transaction
	Invoice	Invoice
	Other	Some other payment method, not included here, is used
	ReciprocityAgreement	Requesting and supplying agencies have an agreement on how payment shall be taken care of
CopyrightCompliance	AU-CopyRCatS183ComW	Copyright Cat S183 — Commonwealth (Australia)
	AU-CopyRCatS183State	Copyright Act S183 — State (Australia)
	AU-CopyrightActS49	Copyright Act S49 (Australia)
	AU-CopyrightActS50-1	Copyright Act S50[2] (Australia)
	AU-CopyrightActS50-7A	Copyright Act S50[8]A (Australia)
	AU-CopyrightCleared	Copyright Cleared (Australia)
	AU-GenBus	General Business (Australia)
	NZ-CopyrightActS54	Copyright Act S54 (New Zealand)
	NZ-CopyrightActS55	Copyright Act S55 (New Zealand)
	Other	Other types of copyright compliance. Use Note in ServiceInfo for details.
	UK-CopyRFeePaid	Copyright Fee Paid (UK)
	UK-FairDealing	Fair Dealing (UK)
	US-CCG	CCG (US)
	US-CCL	CCL (US code)
ElectronicAddressType	Chat	Chat
	Email	Email
	FTP	FTP or File Transfer Protocol
	Skype	Skype

Table B.1 *(continued)*

Elements	Values	Source/definition
LoanCondition	LibraryUseOnly	Use in library only
	WatchLibraryUseOnly	Watch over use in library only
	NoReproduction	No reproduction
	SignatureRequired	Signature required
	SpecCollSupervReq	Special collections supervision required
DeliveredFormat **PreferredFormat**	Blu-ray	Blu-ray
	Braille	Braille
	CassetteTape	Compact Cassette tape
	CD	Compact Disk
	CD-ROM	CD-ROM
	Daisy-ROM	Daisy-ROM
	DVD	DVD disk
	JPEG	JPEG image file
	LargePrint	Large Print
	LP	Long Play vinyl record
	Microform	Microform
	MP3	MPEG-1 or MPEG-2 Audio Layer III file
	Multimedia	Combined media
	PaperCopy	Photocopy or print on pieces of paper
	PDF	PDF or PDF/A file
	Printed	Printed book, journal, etc.
	Tape	Tape
	TIFF	TIFF file
	VHS	VHS
PatronType	Adult	Adult
	Child	Child
	Faculty	Faculty
	GraduateStudent	Graduate Student
	Researcher	Researcher
	Staff	Staff
	Student	Student
	UnderGraduateStudent	Under Graduate Student

Table B.1 *(continued)*

Elements	Values	Source/definition
PaymentMethod	BankTransfer	Bank Transfer
	CreditCard	Credit Card
	DebitCard	Debit Card
	EFTS	Electronic Fund Transfer System
	IBS	Interloan Billing System (New Zealand)
	IIBS	International Interloan Billing System (New Zealand)
	IFLAVoucher	IFLA Voucher
	IFM	OCLC Fee management system
	LAPS	Libraries Australia Payment Service
	Paypal	Paypal
PublicationType	ArchiveMaterial	Archive Material
	Article	Article
	AudioBook	Audio Book
	Book	Book
	Chapter	Chapter
	ConferenceProc	Conference Proceedings
	Game	Game
	GovernmentPubl	Government Publication
	Image	Image
	Journal	Journal
	Manuscript	Manuscript
	Map	Map
	Movie	Movie
	MusicRecording	Music Recording
	MusicScore	MusicScore
	Newspaper	Newspaper
	Patent	Patent
	Report	Report
	SoundRecording	Sound Recording
	Thesis	Thesis

Table B.1 *(continued)*

Elements	Values	Source/definition
ReasonRetry	AtBindery	At bindery
	CostExceedsMaxCost	The highest amount the requesting library is prepared to pay is lower than the cost to supply
	LoanPossible	If only copy is requested and loan is possible, but not copy
	NotCurrentAvailableForILL	Not currently available for ILL
	NotFoundAsCited	Not found as cited
	OnLoan	On loan
	OnOrder	On Order
	ReqDelDateNotPossible	Requested delivery date not possible
	ReqDelMethodNotSupp	Requested delivery method not supported
ReasonUnfilled	NonCirculating	Non-circulating (e.g. handbook)
	NotAvailableForILL	Not available for ILL
	NotHeld	Not held
	NotOnShelf	Not on shelf
	PolicyProblem	Policy problem
	PoorCondition	Poor condition
SentVia	ArticleExchange	Article Exchange
	Ariel	Ariel
	Email	Email
	Mail	Mail
	Odyssey	Odyssey
	URL	Website to download from
	FTP	FTP or File Transfer Protocol
ServiceLevel	Express	Express (Australia)
	Normal	Normal
	Rush	Rush (Australia)
	SecondaryMail	SecondaryMail
	Standard	Standard (Australia)
	Urgent	Urgent

Annex C
(informative)

The XML schemas for the ILL protocol

The XML schemas for different versions of ISO 18626 are hosted at the website:

http://illtransactions.org/schemas

The website shall contain a link to the most current schema for each version of this International Standard. For interoperability purposes, there can also be links to the past versions of these schemas.

The schema shall be updated to correct errors and/or to conform to the future versions of the XML schema standards or this International Standard itself.

The XML schemas for the ILL protocol shall be identified by the namespace http://illtransactions.org/2013/iso18626

Annex D
(informative)

Guidelines — Use cases

D.1 General

The informational website (see Annex A) shall include a set of guidelines at:

http://illtransactions.org/guidelines

Please note that Annex D only gives a few examples to illustrate the guidelines. These guidelines are not part of this International Standard.

D.2 Examples of guidelines

D.2.1 The requesting library sends a request, and then cancels it. The supplying library is no longer able to cancel the transaction

Table D.1 — Request Example 1

	Action		Requesting library (XYZ)	Supplying library (ABC)
1	Requesting library (XYZ) sends a request to supplying Library (ABC).	1a	— sends Request message	
		1b		— sends Confirmation message
2	Requesting library (XYZ) decides to cancel the request before hearing whether the supplying library is able to fulfil the request.	2a	— sends RequestingAgency message with — Action = Cancel	
		2b		— sends Confirmation message
3	Supplying library cannot agree to cancel the request as it has already processed the item and shipped it, although the library has not yet informed the requester of this.	3a		— sends SupplyingAgency message with — Reason for Message = CancelResponse — AnswerYesNo = No
		3b	— sends Confirmation message	

D.2.2 The requesting library sends a request. The supplying library is unable to fulfill the request

Table D.2 — Request Example 2

	Action		Requesting library (XYZ)	Supplying library (ABC)
1	Requesting library (XYZ) sends a request to supplying library (ABC).	1a	— sends Request message	
		1b		— sends Confirmation message

Table D.2 *(continued)*

	Action		Requesting library (XYZ)	Supplying library (ABC)
2	Supplying library (ABC) cannot supply the requested item because it is not on the shelf.	2a		— sends SupplyingAgency message with — Reason for Message = RequestResponse — ReasonUnfilled = NotOnShelf — Status = Unfilled
		2b	— sends Confirmation message	

D.2.3 The supplying library cannot fulfill a request because the costs exceed the maximum cost specified by the requesting library

The supplying library cannot fulfill a request because the costs exceed the maximum cost specified by the requesting library. The supplying library sends a message to the requesting library with this information. The supplying library also indicates the real costs and the date and time by which a retry request shall be sent.

Table D.3 — Request Example 3

	Action		Requesting library (XYZ)	Supplying library (ABC)
1	Requesting library (XYZ) sends a request for an article, indicating that the maximum amount they are willing to pay is $25.	1a	— sends Request message with Header RequestingAgencyRequestId = XYZ123 ServiceInfo RequestType = New — MaximumCosts CurrencyCode = USD MonetaryValue = 25	
		1b		— sends Confirmation message
2	Supplying library (ABC) does have the requested item but the cost of delivery is $35. The request is Unfilled.	2a		— sends SupplyingAgency message with — Reason for Message = RequestResponse — ReasonUnfilled = CostExceedsMaxCost — OfferedCosts CurrencyCode = USD MonetaryValue = 35 — RetryBefore = 2013-07-31T16:00:00-06:00 — Status = RetryPossible
		2b	— sends Confirmation message	

See Use Case in D.2.4.

D.2.4 The requesting library sends a retry request with a new maximum cost

Table D.4 — Request Example 4

	Action		Requesting library (XYZ)	Supplying library (ABC)
1	Requesting library (XYZ) sends a retry request (for an article) referencing the request submitted in Use Case in D.2.3, to the supplying library (ABC) indicating that the maximum amount they are willing to pay is $35.	1a	— sends Request message with Header RequestingAgencyRequestId = XYZ456 ServiceInfo RequestType = Retry RequestingAgencyPreviousRequestID = XYZ123 — MaximumCosts CurrencyCode = USD MonetaryValue = 35	
		1b		— sends Confirmation message
2	Supplying library (ABC) fills the request.	2a		— sends SupplyingAgency message with: — Reason for Message = RequestResponse — Status = Completed
		2b	— sends Confirmation message	
3	Requesting library (XYZ) receives the requested item.	3a	— sends RequestingAgency message with: — Action = Received	
		3b		— sends Confirmation message

D.2.5   Requesting library asks for a loan. The supplying library lends the requested item

Table D.5 — Request Example 5

	Action		Requesting library (XYZ)	Supplying library (ABC)
1	Requesting library (XYZ) sends a request for a loan to the supplying library (ABC).	1a	— sends Request message with — ServiceType = Loan	
		1b		— sends Confirmation message
2	Supplying library (ABC) lends the item.	2a		— sends SupplyingAgency message with: — Reason for Message = RequestResponse — Status = OnLoan — DueDate = 2013-12-31T23:59:59 — ItemId = *barcode number*
		2b	— sends Confirmation message	