

**THE INTERLIBRARY LOAN
PROTOCOL STANDARD**

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INTRODUCTION

1. What is the ILL Protocol Standard?
2. Why was the ILL protocol developed?
3. What are its features and how does it work?
4. What is optional, what is mandatory?
5. Are there any implementations of the ILL protocol?
6. How can it benefit libraries?

WHAT IS THE ILL PROTOCOL?

- International standard for ILL communications
- Approved by ISO in 1991
- ISO 10160 : Service Definition
- ISO 10161 : Protocol Specification
- Permits the exchange of ILL messages between systems that use different hardware and ILL systems
- Provides a basis for integrating messaging with the control and management of ILL transactions (borrowing and lending)

WHY WAS THE ILL PROTOCOL DEVELOPED?

1. To overcome barriers to ILL communications

- increase in ILL volume
- proliferation of incompatible ILL systems
- protocol standardizes message set and format

2. To facilitate ILL automation

- manual recording, processing, and tracking
cumbersome and time consuming
- protocol provides foundation for automation of
ILL systems: requesting, supplying, tracking

3. To support resource sharing

WHAT ARE THE FEATURES OF THE ILL PROTOCOL?

1. Supports Multiple Models of ILL Networking

i. Simple

- 2 parties
- patron to library, library to library, library to commercial supplier
- Forwarding

ii. Chained

- 3 or more parties
- all messaging passes through intermediary

iii. Partitioned

- 3 or more parties
- all messages leading to supply of item pass through intermediary

- tracking messages pass between
requester and
supplier

ILL PROTOCOL FEATURES

2. Defines a Full Suite of Services Representing All Stages of an ILL Transaction

- Services : mandatory or optional
- Messages (APDUs) : mandatory or optional

Requesting:

ILL-REQUEST, CONDITIONAL-REPLY,
CANCEL, RECEIVED, RENEW,
RETURNED, STATUS-QUERY, STATUS-OR-
ERROR-REPORT, LOST, DAMAGED,
MESSAGE

Responding:

FORWARD, FORWARD-NOTIFICATION,
CANCEL-REPLY, SHIPPED, ILL-ANSWER,
RENEW ANSWER, RECALL, OVERDUE,
CHECKED-IN, STATUS-QUERY, STATUS-

**OR-ERROR-REPORT, LOST, DAMAGED,
MESSAGE**

ILL PROTOCOL FEATURES

3. Specifies data elements within each service/ message

- Comprehensive
- Mandatory or optional
- Structured or unstructured

ILL-REQUEST (selected data elements)

ID Info: transaction, requester (institution or individual), supplier

Date and time of service

Delivery, billing addresses: postal or electronic

Optional messages: e.g. RECEIVED, SHIPPED

Dates: expiry, need by, received, returned, due, renewable

Med. type desired: printed, copy, microf., machine-readable

Client info: name, status, ID

Item Identification:

call number, author, title, subtitle, sponsoring body, place of publication, publisher, serial title and number, edition, date of publication, place of publication, article title, article author, pagination, ISSN, ISBN, system no., etc.

Cost Information: Account no., max. cost
Copyright compliance
Permissions: Send to list

ILL PROTOCOL FEATURES

4. Specifies Transaction States

- States associated with each ILL service/message

e.g. Requester has sent request: PENDING state

Supplier shipped the document: SHIPPED state

- Provides tracking information
- Controls correct sequence of events: state machine

5. Transaction Management Information

- Supports provision of full ILL management info:

Items requested and supplied, stage of transaction, tracking of item, success rate, users, suppliers, response time, costs, etc.

ILL PROTOCOL FEATURES

Identification:

Person or institution symbol or
name of person or institution

Client ID:

Name, status, id

Service Types:

Loan, copy/non-returnable, locations,
estimate, lender specific

ILL Request Responses:

Conditional, shipped, retry, unfilled,
locations,
will supply, hold placed, estimate

Status Query Report

HOW DOES THE PROTOCOL WORK?

- Services are activated in the local system
- Message may or may not be sent
- Communication network not specified
- State of transaction update
- Terminal States:
Supply of copy, Receipt of copy, Return of item, Check of item back into collection, Lost

**** Protocol is transparent to the user**

WHAT IS MANDATORY/ WHAT IS OPTIONAL?

ILL System = Protocol Machine + ILL Application

- Protocol machine req'ts vs. ILL application req'ts
- Mandatory protocol requirements needed for conformance and systems interoperability
- Mandatory application requirements needed for ILL operations:
 - selected protocol features
 - non-protocol features:
 - databases
 - report generator
 - print of retrieval slips
 - copyright tracking
 - financial management, etc.

WHAT IS MANDATORY/ OPTIONAL IN THE PROTOCOL MACHINE?

Implementors

- Role: Requester, Responder or Intermediary role
- Requester or Responder: Two party transaction
- Intermediary: Chained or Partitioned
- At least “copy/non-returnable” or “loan” service
- Mandatory Requester services:
ILL-REQUEST, CONDITIONAL-REPLY, RECEIVED, LOST, STATUS-OR-ERROR-REPORT; RETURNED
- Mandatory Responder services:
SHIPPED, ILL-ANSWER, CANCEL-REPLY,
LOST, STATUS-OR-ERROR REPORT;

RECALL, CHECKED-IN, OVERDUE,
RENEW-ANSWER

****Receive all messages **Maintain state
machine**

WHAT IS MANDATORY/ OPTIONAL IN THE ILL APPLICATION?

Users

- Protocol specification not intended for users
- ILL application must support ILL operational requirements
- **Design considerations:**
 1. Role of org.: requester, responder, intermediary
 2. ILL service types: loan, copy, locations, etc.
 3. Management of transaction history
 4. Messages required by partner libraries
 5. Data elements

**6. Other operational requirements, e.g.
reports,
invoices**

CHANGES TO THE ILL PROTOCOL?

- **Simplification: what aspects?**
 - formalize a thin-ILL
 - define subset within a closed community
- **Profiling**
- **Additions:**
 - electronic document supply info
 - reciprocal borrowing
- **Proposals to ISO TC46/SC4/WG4**

IMPLEMENTATIONS OF THE ILL PROTOCOL

Canada

- Decentralized ILL communications
- E-mail: LAN, ENVOY 100, Internet SMTP
- Implementations:

National Library of Canada

Université du Québec - 20+ libraries

ISM's AVISO - approx. 200+

TKM's InterLEND - 30+

Europe

- ION Project: Netherlands, UK, France
- Netherlands, Germany, Ireland

IMPLEMENTATIONS OF THE ILL PROTOCOL

United States

- OCLC, RLG involved in standards development
- Slow to adopt use of protocol
- Centralized ILL communications:

OCLC, RLG, WLN

- Triangle Research Library Network - 1st U.S. implementations

Z39.50 ITEM ORDER

- Communication standard for document ordering during a Z39.50 search session
- Processing of order takes place outside Z39.50
- Does not support reply or follow-up messages
- Ideal for ordering items when the supply is assured, e.g. from commercial doc. supplier
- Complements the ILL protocol:
 - Within Item Order can use the ILL-Request PDU to describe the required item
 - Item Order can be used as the transport mechanism between ILL protocol machines

HOW CAN THE PROTOCOL BENEFIT LIBRARIES?

- Enables ILL systems to communicate with other ILL systems regardless of the design of the ILL software or the hardware used
- Supports local management and tracking of incoming and outgoing ILL requests and other ILL messages
- Provides the foundation for development of automated ILL systems
- Reduces the amount of system tailoring to handle different systems
- Ensures that community of users share a common set of messages and data elements
- Can be used as a systems procurement requirement

ILL ISSUES

1. Choice of transfer syntax: BER vs. EDIFACT

2. Conformance testing, interoperability testing

3. Z39.50 Item Order v. ILL Protocol

4. Handling legacy systems:
 - parsing messages
 - gateways
 - scripts (prompting routines)