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Information and documentation - Open Systems Interconnection - Interlibrary Loan Application Service Definition

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INTERNATIONAL STANDARD

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Information and documentation — Open Systems Interconnection — Interlibrary Loan Application Service Definition

Information et documentation — Interconnexion de systèmes ouverts (OSI) — Définition du service d'application pour les prêts entre bibliothèques

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Contents

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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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75% of the member bodies casting a vote.

International Standard ISO 10160 was prepared by Technical Committee ISO/TC 46, *Information and documentation*, Subcommittee SC 4, *Computer applications in information and documentation.*

This second edition cancels and replaces the first edition (ISO 10160:1993), which has been technically revised.

Annexes A, B and C of this International Standard are for information only.

INTRODUCTION

The purpose of the Interlibrary Loan (ILL) standard is to provide a set of Application Layer services which can be used by libraries to perform loan-related activities in an Open Systems Interconnection (OSI) environment, as defined by ISO 7498.

The goal of Opens Systems Interconnection is to allow, with a minimum of technical agreement outside the interconnection standards, the interconnection of information processing systems:

— from different manufacturers;

— under different managements;

— of different levels of complexity; and

— of different technologies.

The ILL service provides capabilities to request the loan of returnable bibliographic items, such as books, or to request non-returnable items, such as photocopies of journal articles. Related procedures, such as loan renewal, item recall, overdue notification, etc. are also supported by this service.

The purpose of the service definition is to define the communications aspects of ILL processing in terms of a set of services provided to a user by an application-service-element (ASE). Performing an ILL-transaction involves a user invoking the services in the prescribed order.

The focus of ILL activity is the bibliographic item, which may be a book, periodical, journal article, microform, etc. The ILL application is concerned with procedures relating to the loan of these items between libraries or to the interchange of copies thereof.

This service definition strives to satisfy a number of objectives, including:

— Control of ILL-transactions. The services must provide a means of controlling the ILL-transaction in terms of constraining allowable actions, exchanging information, tracking a borrowed item, and synchronizing the activity of the two or more sites involved in the ILL-transaction.

— Interworking of Various Systems. The ILL activity will continue to be performed using a combination of manual and automated systems. The ILL service and protocol must recognize this fact and allow systems with varying degrees of automation to be able to interwork, i.e. communicate with each other in a meaningful way.

— Minimizing the Costs of ILL-transactions. The costs associated with an ILL-transaction include both operator costs and communications costs. An ILL protocol should attempt to minimize the costs incurred by implementations conforming to the protocol. This can be done by minimizing the operator intervention required by the protocol implementation, and by minimizing the number of messages sent between the sites involved in an ILL-transaction.

— Reflection of Current ILL Practices. The purpose in defining a protocol is not to introduce a new method for performing an ILL-transaction, but rather to formalize current practices in a way that allows existing systems to communicate with each other in a standardized way, as well as to allow newer automated systems to take full advantage of the protocol's potential. However, it is recognized that this International Standard may not be universally applicable to all existing ILL systems without some modification, due to the wide variation in their capabilities.

There is an inherent trade off in any attempt to reconcile these divergent objectives. For example, minimizing ILL-transaction costs may result in some loss of control over the ILL-transaction. Reducing the number of messages sent lowers the telecommunications cost and also lowers the operator costs as there is less need for the operator to initiate and control the communications operations. However, by reducing the total number of messages, some level of information regarding the ILL-transaction is lost as is the coordination between the requesting and responding libraries. By reducing the total number of stages through which a ILL-transaction must go (i.e. states), the operator interface of an automated system can be made simpler, with an associated reduction in requisite demands on the operator.

The approach taken in this International Standard is to set the mandatory requirements that all open systems must support in order to achieve an acceptable degree of coordination between automated parties to an ILL-transaction. Additional optional features are defined which allow implementors to achieve a greater degree of control if it is desired.

NOTE — The mandatory requirements of this International Standard may, however, exceed the capabilities and/or needs of some existing manual or semi-automated ILL systems.

This International Standard is one of a number of related standards supporting the interconnection of library systems. These standards can be used by themselves or in a cooperative manner to support library applications requiring a mixture of communications services. For example, ISO 10163, which supports remote access to bibliographic databases, could be used in conjunction with the ILL protocol to obtain item identification information. The control and management of interactions among such bibliographic applications are outside the scope of this International Standard.

Security and accounting issues as they relate to ILL operations are for further study.

Information and documentation — Open Systems Interconnection — Interlibrary Loan Application Service Definition

1 Scope

This International Standard is an Application Layer standard within the Open Systems Interconnection framework defined by ISO 7498.

This standard defines the services for Interlibrary Loan. These services are provided by the use of the ILL protocol in conjunction with the supporting telecommunications service which may be a store-and-forward messaging service, such as that provided by the MOTIS Standards, ISO 10021-4 etc.; or a direct connection-mode service using ISO 8822 and ISO 8649.

This standard does not specify individual implementations or products, nor does it constrain the implementation of entities and interfaces within a computer system. Computer systems may range from stand-alone workstations to mainframes.

This standard is intended for use by libraries, information utilities such as union catalogue centres, and any other system which processes bibliographic information. These systems may participate in an interlibrary loan transaction in the role of requester (i.e. an initiator of ILL requests), responder (i.e. a provider of bibliographic material or information) and/or intermediary (i.e. an agent that acts on behalf of a requester to find suitable responders).

Various interworking topologies are supported, ranging from simple two-party interactions to multi-party interactions.

There is no requirement for conformance to this standard. Conformance is required only for the ILL protocol specification.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revison, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO/IEC 7498-1: 1994	Information technology - Open Systems Interconnection - Basic Reference Model: The Basic Model.
ISO 7498-2:1989	Information processing systems - Open Systems Interconnection - Basic Reference Model - Part 2: Security Architecture.
ISO 7498-3:1989	Information processing systems - Open Systems Interconnection - Basic Reference Model - Part 3: Naming and addressing.
ISO/IEC 7498-4: 1989	Information processing systems - Open Systems Interconnection - Basic Reference Model - Part 4: Management framework.
	NOTE - ISO/IEC 7498-1:1994, ISO 7498-2:1989, ISO 7498-3: 1989 and ISO/IEC 7498-4:1989 supersede ISO 7498:1984. However, when this International Standard was under development, the previous edition was valid and this International Standard is therefore based on this edition, which is given below.
ISO 7498:1984	Information Processing Systems - Open Systems Interconnection - Basic Reference Model.
ISO/IEC 10731: 1994	Information technology - Open Systems Interconnection - Basic Reference Model - Conventions for the definition of OSI services.
	NOTE - ISO/IEC 10731:1994 supersedes ISO/TR 8509:1987. However, when this International Standard was under development, ISO/TR 8509 was valid and this International Standard is therefore based on ISO/TR 8509, which is given below.
ISO/TR 8509:1987	Information Processing Systems - Open Systems Interconnection - Service Conventions.
ISO/IEC 10026-1: 1992	Information Technology - Open Systems Interconnection - Distributed Transaction Processing - Part 1: OSI TP model.

ISO 10161-1:1997 Information and Documentation - Open Systems Interconnection - Interlibrary Loan Application Protocol Specification - Part 1: Protocol specification.

3 Definitions

For the purposes of this International Standard, the following definitions apply.

3.1 Reference Model Definitions

This International Standard is based on the concepts developed in ISO 7498:1984 and makes use of the following terms found in it. These terms are replicated here as a convenience to the reader.

3.1.1 **application-entity**: The aspects of an application-process pertinent to OSI.

3.1.2 **Application Layer:** The seventh and highest layer in the Reference Model for Open Systems Interconnection (OSI); it serves as the window between correspondent application-processes which are using the OSI to exchange meaningful information.

3.1.3 **application-protocol-data-unit:** A unit of data specified in an application-protocol and consisting of application-protocol-information and possibly application-user-data.

3.1.4 **application-service-element:** That part of an application-entity which provides an OSI environment capability, using underlying services when appropriate.

3.1.5 **(N)-service:** A capability of the (N)-layer and the layers beneath it, which is provided to (N+1)-entities at the boundary between the (N)-layer and the (N+1)-layer.

NOTE — An application-service does not provide a capability to higher layer entities, but rather to application-processes.

3.1.6 **presentation-service:** A capability of the Presentation Layer and the layers beneath it, which is provided to application-entities at the boundary between the Presentation and the Application Layer.

3.2 Application Layer Structure Definitions

This International Standard makes use of the following terms defined in ISO/IEC 9545:1989.

3.2.1 **application-association:** A cooperative relationship between two application-entity-invocations for the purpose of communication of information and co-ordination of their joint operation. This relationship is formed by the exchange of application-protocol-control-information using the Presentation Service.

3.2.2 **application-context:** A set of rules shared in common by two application-entity-invocations governing their behavior in order to enable their cooperative operation.

NOTE — An application-context is a shared conceptual schema for the universe of discourse for communication.

3.2.3 **application-context-definition:** The description of an application-context.

3.2.4 **application-entity-invocation:** A specific utilization of part or all of the capabilities of a given application-entity in support of the communications requirements of an application-process-invocation.

3.2.5 **application-process-invocation:** A specific utilization of part or all of the capabilities of a given application-process in support of a specific occasion of information processing.

3.3 Service Conventions Definitions

This International Standard makes use of the following terms defined in ISO/TR 8509:1987.

3.3.1 **indication primitive:** A representation of an interaction in which a service-provider either:

a. indicates that it has, on its own initiative, invoked some procedure; or

b. indicates that a procedure has been invoked by the service-user at the peer service-access-point.

3.3.2 **non-confirmed service:** A distinct part of the total (N)-service which does not result in an explicit confirmation from the service-provider to the initiating service-user.

3.3.3 **provider-initiated service:** A distinct part of the total (N)-service which is initiated by the service-provider rather than the service-user.

3.3.4 **request primitive:** A representation of an interaction in which a service-user invokes some procedure.

3.3.5 **service primitive:** An abstract, implementation-independent representation of an interaction between service-user and the service-provider.

3.3.6 **service-provider:** An abstract of the totality of those entities which provide a service to peer service-users.

3.3.7 **service-user:** An entity in a single open system that makes use of a service.