

Cost of Resource Exchange (CORE) Protocol

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Abstract: CORE defines an XML schema to facilitate the exchange of financial information related to the acquisition of library resources between systems. The two systems may be within the same organization, e.g., an ILS and an ERMS, or from two different organizations, e.g., a subscription agent and a library.

A Recommended Practice of the
National Information Standards Organization

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Foreword

The NISO Cost of Resource Exchange (CORE) project was first proposed by Jeff Aipperspach (Product Manager, Serials Solutions), Ted Koppel (AGent Verso (ILS) Product Manager, Auto-Graphics, Inc.), and Ed Riding (Technical Product Manager, SirsiDynix). They felt that the ability to request financial data (whether for display or for writing to populate an ERM) from an ILS acquisitions system would enable both real-time lookups and cost-per-click and other cost-related reports in the ERMS all the more possible, without the work of manually entering the same data in two different systems. Using defined XML data schemas, they anticipated, a standard would provide a common method of requesting cost-related information from an ILS for a specific electronic resource, within the boundaries of a subscription period. Once defined, implemented and successful, it is likely that this standard could be expanded to include other elements for purposes not yet envisioned.

The CORE Working Group was approved in June 2007 with a three-goal charter:

- 1) To develop and refine the list of data elements exchanged between an Electronic Resource Management System (ERMS), and Integrated Library System (ILS), Business Systems, and other interested parties holding acquisitions metadata to support the population of the ERMS with financial and vendor information in the automated system.
- 2) To create a transport protocol useful in moving these data elements from one system to another.
- 3) To write a small number of use cases that will help all parties understand the capabilities of the protocol.

Previously, in late 2006, as a next step in the progress of the Digital Library Federation's (DLF) Electronic Resource Management Initiative, a subcommittee of the DLF Electronic Resource Management Initiative, Phase II, constituted by Norm Medeiros (Haverford College), Linda Miller (Library of Congress), Adam Chandler (Cornell), and Angela Riggio (UCLA), queried a number of librarians, ERMS suppliers and ILS vendors to discover which elements from an ILS would most likely be required to facilitate cost management within the context of the ERMS. They published their findings in the *White Paper on Interoperability between Acquisitions Modules of Integrated Library Systems and Electronic Resource Management Systems*¹. In that white paper, the authors summarized the data elements critical to exchange in acquisitions as follows:

¹ Medeiros, Norm, et al. *White Paper on Interoperability between Acquisitions Modules of Integrated Library Systems and Electronic Resource Management Systems*. Prepared by a Subcommittee of the Digital Library Federation's Electronic Resource Management Initiative, Phase II. Washington, D.C.: Digital Library Federation, January 2008. Available at: http://www.diglib.org/standards/ERMI_Interop_Report_20080108.pdf

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Critical Acquisitions Elements

Element Name	UCLA	Cornell University	Tri-College Consortium	Library of Congress
purchase order number	X	X	X	X
price	X	X	X	X
start/end dates	X	X	X	X
vendor	X	X	X	X
vendor ID	X	X	X	X
invoice number	X	X	X	X
fund code	X	X	X	
invoice date		X	X	X
selector		X	X	
vendor contact information				X
purchase order note		X		
line item note		X		
invoice note		X		

The CORE Working Group built on this work in assembling the data dictionary portion of this recommended practice, defining and validating the data elements to be exchanged, specifying which are required and which are optional, as well as specifying the protocol to be used to transport the data from one system to another.

In March 2009, NISO issued CORE (Cost of Resource Exchange) as a draft standard with a trial period of 12 months. In June 2010, the NISO CORE Working Group met to discuss the progress of the draft standard for trial use (DSFTU) and determine next steps for this publication. During the trial period no systems vendors (ILS or ERMS) implemented or tested the draft standard, and few, if any, systems vendors were willing to commit to implementing the draft standard soon enough to warrant an extension to the DSFTU period.

The working group concluded that the lack of implementation is the direct result of the worldwide economic downturn and not a lack of demand from librarians or interest from vendors. The working group further concluded that there is still high interest in this work.

The CORE Working Group is unanimous in believing the work useful for future development as the economy picks up and as demand for the exchange of cost information increases. It was with that in mind that they recommended to NISO's Business Information Topic Committee that the CORE draft standard be issued as a NISO Recommended Practice document, with a provision that the Topic Committee revisit this topic in one year to determine if economics and interest have improved such that the vendor community begins to implement it. The working group further recommended that a standing committee for CORE promotion and review be created to market the recommended practice and help the library community understand its role in the standards implementation process by requiring its adoption and testing from system vendors. This standing committee would also be responsible for monitoring use of the recommended practice and in making recommendations to NISO regarding future steps regarding the draft standard/recommended practice.

The Business Information Topic Committee agreed with the CORE Working Group and approved the publication of this document during their July 20, 2010 meeting, with provision to review the document annually for a period of no less than three years, and with the establishment of a standing committee to provide support and outreach for this protocol.

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Business Information Topic Committee

At the time this recommended practice was approved for publication, the following were members of the Business Information Topic Committee:

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The CORE Working Group gratefully acknowledges the substantial contributions made by Mark Wilson in creating the schema files for the protocol.

Cost of Resource Exchange (CORE) Protocol

1 Purpose

The purpose of the Cost of Resource Exchange (CORE) specification is to facilitate the transfer of cost and related library acquisitions information from one automated system to another. This transfer may be from: 1) an Integrated Library System (ILS) acquisitions module (the data source and CORE responder) to an Electronic Resource Management System (ERMS) (the data recipient and CORE requester), both belonging to the same library; 2) a book or serials vendor to a library's ERMS; 3) a transfer of cost and transaction data among members of a consortium; or 4) any transaction partner to another that can benefit from the sharing of cost and library acquisitions-related data.

Using the defined CORE XML data schema, this recommended practice provides a common method of requesting cost-related information by a client application (an ERMS, for example) for a specific order transaction, a specific resource, or all resources that the library owns, within the boundaries of a payment period or access period. The client requester must supply sufficient request information (e.g., a unique order identifier, a date range) in its request, so that the responding system (an ILS, for example) can interpret the request, identify the appropriate financial record(s), and respond with the appropriate financial and/or resource data elements.

2 Scope

2.1 CORE Transactions

The CORE protocol has been generalized in order to be useful for a variety of transaction partners by identifying and defining data elements that are generally supported by ILS, ERMS, subscription agents, and materials vendors.

The CORE protocol defines the semantics for a set of transactions implied by three defined CORE use cases (see [Appendix B](#)). While not every CORE implementation may require the full set of use cases, the design supports all three.

An XML schema conveys CORE protocol transactions (see [Appendix A](#)). The schema, using CORE-specific derived data types (see [Section 6.3](#)), frequently restricts the form and value of data components. The schema presented supports single-query requests with possible multi-part replies.

2.2 Transport Mechanism

The CORE protocol describes a data structure and not the transport mechanism. While the NISO CORE Working Group recommends SOAP be used as the Web Services transport mechanism, the specifics of the SOAP configuration are beyond the scope of the CORE recommended practice and are left to trading partners to devise. Implementers of the CORE protocol may also use other transport mechanisms that are already in place, such as FTP or SMTP, or even physical transfer media.

2.3 Out of Scope

It is not the intent of this recommended practice to specify or restrict whether the request shall be initiated automatically or manually, nor whether the data provided in the response should be used for

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purposes of display or data population. The recommended practice is only intended to specify the data elements and a schema used in such an exchange.

CORE, by definition, is transmitting financial information and, therefore, data transferred in the CORE message should be considered confidential between the two parties. CORE, being the payload, does not include methods for secure transmission. Some suggested methods for securing the CORE payload are provided in [Appendix C](#).

3 References

This recommended practice references the following documents. When cited in the text of the recommended practice, the below standards may be referred to by their number only or an abbreviated title. Where no date is supplied, the most current version of the standard should be used.

ISO 4217, *Codes for the representation of currencies and funds*

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

4 Definitions

The following terms, as used in this recommended practice, have the meanings indicated.

<u>Term</u>	<u>Definition</u>
access period	The range of dates for which access to a Product (resource) is provided. Example: A 2009 invoice payment was for the access period of August 1, 2009 until July 31, 2010. Also referred to as subscription period. Compare to payment period.
attribute	In XML, a name-value pair within a tagged XML element that modifies certain features of the element. NOTE: The allowable attributes for the elements described in the CORE protocol are listed and defined in Table 4.
Boolean	An element that uses the logical value of either “true” or “false”.
client	In client/server software architecture, the system that makes requests. NOTE: The actual requesting application may physically reside on a server, even though it referred to as the client.
cost	Amount paid. NOTE 1: In CORE, the term payment is used to refer to cost. NOTE 2: Cost as a data element does not stand alone; it must be qualified as “cost for this transaction” or “cost for this subscription period.”
currency	The system of money used, such as the U.S. dollar or the EURO.

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<u>Term</u>	<u>Definition</u>
data type	The type of data that can be represented in the value of the data element. NOTE: The allowable data types for the elements described in the CORE protocol are listed and defined in Table 3. The character set used is UTF-8, the default for XML.
date range	The series of dates as specified by a start date and an end date. NOTE: See the sections on BeginDate (7.2.2.5.1.1.1) and EndDate (7.2.2.5.1.1.2) for guidelines on date range entry, particularly when either start or end date is indefinite.
element	A block of text or data in an XML document that is made up of a start and end tag, and the content between the tags. NOTE: The Data Dictionary, Section 7, of this recommended practice defines the CORE XML schema elements.
ERM (Electronic Resource Management [system])	A database and software system dedicated to handling the cataloging, licensing, accessing, and other aspects of electronic resource use.
fiscal year	The budget year of the organization acquiring a resource. NOTE: In the CORE schema, the PaymentPeriod element (7.2.2.5.2) generally corresponds to fiscal year.
FTP (File Transfer Protocol)	An Internet protocol used for transferring files from one computer to another through a network.
fund code	A code used by a library to identify which fund or budget is associated with a payment. NOTE: See the CORE element, LibraryFundCode (7.3.4.2.16).
identifier	A unique “name” for an object to differentiate it from other objects. NOTE 1: The identifier syntax is usually defined by a national or international standard and assigned through some type of registration agency. NOTE 2: An object may have more than one unique identifier, each of which identifies it for a different purpose.
ILS (Integrated Library System)	A set of automated library services—such as an online catalog, circulation management, and serial tracking—that share a common database.
number	A numerical (or alphanumeric) identifier that may or may not be unique, and is often only relevant or unique within the organization that assigned it. NOTE: See for example PONumber (7.3.4.2.7) and InvoiceNumber (7.3.4.2.11) in the CORE schema.
payment	The amount paid for a resource. NOTE: CORE is designed to transmit payment information, not prices or estimates.

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<u>Term</u>	<u>Definition</u>
payment period	The range of dates in which the product (resource) is paid. Often synonymous with fiscal year. Example: Provide a list of all invoices paid during the Payment Period of January 1, 2009 through December 31, 2009. Compare to access period.
product	The specific information object or collection of objects, in any format, that is acquired or licensed. Also called a resource.
request	An XML-formatted message sent from one computer application (client) to another computer application (server), containing a query for which it expects to receive a response.
resource	An information object or collection of objects, in any format, that is acquired or licensed. Examples: books, journals, e-journals, databases. NOTE: In the CORE protocol, the resource is what is being paid for in the transaction and is referred to as the product.
response	An XML-formatted message sent from one computer application (server) to another computer application (client) containing the information specified in a request.
server	In a client/server software architecture, the system that responds to requests.
SMTP (Simple Mail Transfer Protocol)	A protocol to allow mail servers to exchange messages with each other.
SOAP (Simple Object Access Protocol)	A web service protocol that specifies a self-contained messaging system used to exchange data and access services across a network (commonly the Internet).
subscription period	The period of time (expressed as a start date and end date) that is covered by a payment for a subscription. NOTE: In CORE, the element AccessPeriod reflects the subscription period.
transaction	A complete CORE exchange, comprised of a Request and a Response.
transaction partner	One of two entities exchanging CORE messages.
XML (Extensible Markup Language)	A specification of the World Wide Web Consortium (W3C) for creating custom mark-up languages that enable information systems to share structured information.