

Electronic Commerce Modeling Language (ECML):
Version 2 Requirements

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Abstract

This document lists the design principles, scope, and requirements for the Electronic Commerce Modeling Language (ECML) version 2 specification. It includes requirements as they relate to Extensible Markup Language (XML) syntax, data model, format, and payment processing.

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1. Introduction

ECML Version 2.0 will describe the syntax of a class of data objects called Payment Processing Objects. This will involve the development of a hierarchically organized set of data elements and an XML syntax for payment transaction information for both electronic wallets and Business to Business (B2B) payment types such as credit card, electronic check, line of credit, ACH (Automated Clearing House,) Mobile Phone Payments, and PDA Payments.

This document lists the design principles, scope, and requirements over three things: (1) the scope of work available to the WG, (2) the ECML version 2 specification, and (3) applications that implement the specification. It includes requirements as they relate to the payment element syntax, data model, format, implementation, and external requirements. Those things that are required are designated as "must", those things that are optional are designated by "may", those things that are optional but recommended are designated as "should".

1.1 Relationship to Other Standards

The set of fields documented herein was started by the ECML Alliance [ECML] which developed the North American / HTML form field oriented Versions 1 and 1.1 of ECML [RFC 3106]. Control and development of future versions of the standard has been transferred to the IETF.

The ECML Version 1 fields were initially derived from and are consistent with the W3C P3P base data schema [P3P BASE]. Version 2 extends the fields provided to encompass [P3P ECOM] and selected additional fields from [ISO 8583], [JCM], or other sources.

ECML Version 2.0 is not a replacement or alternative to TLS [RFC 2246], SET [SET], EMV [EMV], XML [XML], or IOTP [RFC 2801]. These are important standards that provide functionality such as confidentiality, non-repudiated transactions, automatic payment scheme selection, and smart card support.

2. Design Principles and Scope

1. The specification must describe the fields necessary to process a payment between a consumer and merchant or between two businesses, describing the XML syntax and content in particular.
2. Keep the addition of fields beyond those in ECML v1.1 [RFC 3106] to a minimum.

3. Maintain all existing functionality from ECML v1.1. In essence, ECML v2 should be a superset of ECML v1.1.
4. Increase the flexibility of the standard to include other forms of payments. These include ACH, Mobile Phone, PDA, Purchasing Card and electronic check. See [P3P ECOM, JCM], etc.
5. Allow for use of a common and uniform DTD with back-end payment systems such as Enterprise Resource Provision (ERP), Card Line Item Detail (LID) Level II & Level III, etc.
6. Allow for use of the standard with Business to Business (B2B) payment vehicles, such as B2B Wallets, Marketplaces, etc.
7. Create a usage/implementation guide section of the specification to cover additional use cases for functionality included.
8. ECML version 2 may include the concept of an offer.
9. ECML version 2 should be developed as part of the broader Web design philosophy of decentralization, URIs, Web data, modularity /layering / extensibility, and assertions as statements about statements. [Berners-Lee, WebData, XML, XML Name] In this context, this standard should take advantage of existing provider (and infrastructure) primitives.

3. Requirements

ECML v2 must cover the data types and other requirements enumerated in this section. It should provide for asserting and querying relevant element values.

3.1 Payment Processing Elements

1. Cost
2. Receipt
3. Currency
4. Card
5. Payment
6. Bank/Telco

3.2 Payment Processing Types

1. All current Processing types for ECML 1.1 [RFC 3106].
2. Automated Clearing house [ACH]
3. Electronic check [eCheck]
4. Mobile phone payments
5. PDA payments

3.3 XML Data Model and Syntax

1. A well-formed DTD and possibly schema need to be developed to include new fields in this standard.
2. A W3C Note may be drafted to document changes from [W3C ECOM].

3.4 Implementation

1. The ECML version 2 specification should meet the requirements of the following applications:
 - a. Internet Open Trading Protocol v1.0 [IOTP]
 - b. Check against representative ACH, electronic check, and Mobile Phone payment setup.
2. Test all XML DTDs, schemas and XML examples included the specification to insure that they are well-formed XML.
3. Compare completeness against (in accordance with standard's goals:)
 1. ECML v1.1 [RFC 3106]
 2. Using P3P for E-Commerce [P3P NOTE]
 3. Financial transaction card originated messages [ISO 8583]
 4. ebXML

3.5 Detailed Requests

The following are specific comments received on claimed deficiencies in ECML v1.1 and should all be considered for possible inclusion in ECML v2.

1. Increase Last Name field minimum required support to at least 22 characters.
2. Improved Internationalization support.
3. Longer minimum supported telephone number and email fields.
4. Provide a "translation field" which would specify a mapping between existing fields and ECML specified fields. The addition of such a field in ECML v2 (which would normally be hidden when presented in HTML) would permit ECML support with no change to existing fields or code. ECML code could fill in existing fields based on the ECML field they map to.

4. Security Considerations

Many ECML fields contain sensitive private information. ECML is dependent upon:

- the security of the transmission infrastructure used to send such private information
- the security of applications which store or release such sensitive information.

ECML need not add any security mechanisms to this infrastructure or these applications. The ECML v2 specification must include adequate warnings and suggested courses of action to protect this information.

5. References

- [ACH] Automated Clearing House <<http://www.nacha.org>>
- [Berners-Lee] "Axioms of Web Architecture: URIs", <<http://www.w3.org/DesignIssues/Axioms.html>>, "Web Architecture from 50,000 feet", <<http://www.w3.org/DesignIssues/Architecture.html>>
- [eCheck] Electronic Check <<http://www.echeck.org>>
- [ECML] Electronic Commerce Modeling Language, The ECML Alliance, <<http://www.oasis-open.org/cover/ecml.html>>.
- [HTML] "HTML 3.2 Reference Specification", Hyper Text Markup Language, <<http://www.w3.org/TR/REC-html32.html>>, D. Raggett, January 1997.
- [ISO 8583] "Financial transaction card originated messages -- Interchange message specifications", International Standards Organization, 1993.
- [JCM] "Java Commerce Messages", Sun Microsystems, IBM, April 1998.
- [EMV] The EuroCard, MasterCard, Visa chip card protocol standard. <<http://www.emvco.org>>
- [RFC 2026] Bradner, S., "The Internet Standards Process -- Revision 3", BCP 9, RFC 2026, October 1996.
- [RFC 2246] Dierks, T. and C. Allen, "The TLS Protocol: Version 1.0", RFC 2246, January 1999.

- [RFC 2801] "Internet Open Trading Protocol - IOTP Version 1.0", D. Burdett, April 2000.
- [RFC 3106] Eastlake, D. and T. Goldstein, "ECML v1.1: Field Names for E-Commerce", RFC 3106, April 2001.
- [P3P BASE] "The Platform for Privacy Preferences 1.0 (P3P1.0) Specification", L. Cranor, M. Langheinrich, M. Marchiori, M. Presler-Marshall, J. Reagle, December 2000, <<http://www.w3.org/TR/WD-P3P/basedata.html>>.
- [P3P ECOM] "Using P3P for E-Commerce", J. Coco, S. Klein, D. Schutzer, S. Yen, A. Slater, November 1999, <<http://www.w3.org/TR/P3P-for-ecommerce>>.
- [SET] "Secure Electronic Transaction", <http://www.setco.org/set_specifications.html>.
- [WebData] "Web Architecture: Describing and Exchanging Data", <<http://www.w3.org/1999/04/WebData>>
- [XML] "Extensible Markup Language (XML) 1.0 (Second Edition)", <<http://www.w3.org/TR/REC-xml>>, T. Bray, J. Paoli, C. M. Sperberg-McQueen.
- [XML Name] "Namespaces in XML", Tim Bray, Dave Hollander, Andrew Layman, 14 January 1999. <<http://www.w3.org/TR/REC-xml-names>>

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