

CCITT

THE INTERNATIONAL
TELEGRAPH AND TELEPHONE
CONSULTATIVE COMMITTEE

Message Handling Systems: EDI Messaging System

Draft Recommendation X.435

Version 5.0, June 15, 1990, Lausanne

**Message Handling Systems:
EDI Messaging System**

(Lausanne, 1990)

Contents

1.	<i>Scope</i>	3
2.	<i>References</i>	4
3.	<i>Definitions</i>	5
3.1	Common definitions for MHS.....	5
3.2	Common definitions for Abstract Syntax Notation One.....	6
3.3	EDI service definitions.....	6
3.4	Other EDI definitions.....	7
3.5	EDI Messaging System Definitions.....	9
4.	<i>Abbreviations</i>	9
5.	<i>Conventions</i>	10
5.1	Terms.....	10
5.2	ASN.1.....	10
6.	<i>Information Objects</i>	12
7.	<i>Common data types</i>	12
7.1	EDIM Identifier.....	12
7.2	Extensions.....	13
8.	<i>EDI Messages</i>	13

8.1	Heading Field Component Types.....	15
8.2	Heading Fields.....	16
8.3	Body Part Types.....	26
9.	<i>EDI Notifications</i>	29
9.1	Common Fields.....	30
9.2	Positive Notifications.....	32
9.3	Negative Notifications.....	33
9.4	Forwarded Notifications.....	37
10.	<i>Primary Object Types</i>	39
10.1	EDI Messaging User.....	40
10.2	EDI Messaging System.....	41
11.	<i>Primary Port Types</i>	41
11.1	Origination Port.....	41
11.2	Reception Port.....	41
12.	<i>Abstract Operations</i>	42
12.1	Origination Abstract Operations.....	42
12.2	Reception Abstract Operations.....	44
13.	<i>Abstract Errors</i>	46
13.1	Recipient Improperly Specified.....	46
14.	<i>Other capabilities</i>	46
15.	<i>Secondary Object Types</i>	47
15.1	EDI User Agent.....	48
15.2	EDI Message Store.....	49
15.3	Telematic Agent.....	49

15.4	Physical Delivery Access Unit.....	49
15.5	Message Transfer System.....	50
16.	<i>Secondary Port Types</i>	50
16.1	Submission Port.....	50
16.2	Delivery Port.....	51
16.3	Retrieval Port.....	51
16.4	Administration Port.....	51
16.5	Import Port.....	51
16.6	Export Port.....	51
17.	<i>User Agent Operation</i>	51
17.1	Performance of Origination Operations.....	52
17.2	Invocation of Reception Operations.....	55
17.3	Internal procedures.....	56
18.	<i>Message Store operation</i>	64
18.1	Binding to the MS.....	64
18.2	Abstract-bind result.....	65
18.3	Creation of Information Objects.....	65
18.4	Maintenance of Attributes.....	67
18.5	Negative Notification.....	68
18.6	Auto Action Types.....	68
18.7	Message Store Attributes.....	72
18.8	Procedures for EDI MS.....	90
19.	<i>Message Contents</i>	91
19.1	Content.....	91

19.2	Content Type.....	91
19.3	Content Length.....	92
19.4	Encoded Information Types.....	92
20.	<i>Port realization</i>	93
21.	<i>Conformance</i>	93
21.1	Origination versus Reception.....	93
21.2	Statement requirements.....	93
21.3	Static requirements.....	93
21.4	Dynamic requirements.....	94
<i>Annex A - Reference definition of Object Identifiers</i>		94
<i>Annex B - Reference definition of Abstract Information Objects</i>		98
<i>Annex C - Reference definition of Message Store Attributes</i>		113
<i>Annex D - Reference definition of Message Store Auto-Action Attributes</i>		123
<i>Annex E - Reference definition of EDIMS Functional Objects</i>		125
<i>Annex F - Reference definition of EDIMS Abstract Service</i>		128
<i>Annex G - Reference definition of EDIMS Upper Bounds Parameters</i>		130
<i>Annex H - Reference definition of Directory Object Classes and Attributes</i>		132
<i>Annex I - Enhanced Security Model</i>		135
I.1	Introduction.....	135
I.2	Security Services.....	136
I.3	Enhancements to Clause 10.2: Security Services.....	136
I.4	Non-repudiation of EDIM Responsibility services.....	137
<i>Annex J - Directory Object Classes and Attributes</i>		138
J.1	Introduction.....	138

J.2	Object Classes.....	139
J.3	Attributes.....	139
J.4	Attribute Syntaxes.....	140
<i>Annex K</i> - Comparison of terms of EDI syntaxes.....		141
<i>Annex L</i> - Comparison of terms in this Recommendation and Recommendation F.435.....		143
<i>Annex M</i> - Realization of an EDIMG User in the Directory.....		144
Index	146

1. Scope

This Recommendation is one of a set of Recommendations for Message Handling. The entire set provides a comprehensive blueprint for a message handling system (abMHSxe "ab:MHS"§) realized by any number of cooperating open systems.

The purpose of an MHS is to enable users to exchange messages on a store-and-forward basis. A message submitted on behalf of one user, the originator, is conveyed by the message transfer system (abMTSxe "ab:MTS"§) and subsequently delivered to the agents of one or more additional users, the recipients. Access units (abAUxe "ab:AU"§) link the MTS to communication systems of other kinds (e.g., postal systems). A user is assisted in the preparation, storage, and display of messages by a user agent (abUAxe "ab:UA"§). Optionally, it is assisted in the storage of messages by a message store (abMSxe "ab:MS"§). The MTS comprises a number of message transfer agents (abMTAxe "ab:MTA"§) which collectively perform the store-and-forward message transfer function.

This Recommendation defines the message handling application called EDI messaging system (abEDIMSxe "ab:EDIMS"§), specifying in the process glEDI messagingxe "gl:EDI messaging"§ (abEDIMGxe "ab:EDIMG"§), a form of message handling tailored for exchange of electronic data interchange (abEDIxe "ab:EDI"§) information, a new message content type and associated procedures known as Pedi. It is designed to meet the requirements of users of ISO 9735 (EDIFACT), and other commonly used EDI syntaxes.

This Recommendation is one of a series on message handling. Recommendation X.402 constitutes the introduction to the series and identifies the other documents in it.

The architectural basis and foundation for message handling are defined in still other Recommendations. Recommendation X.402 identifies those documents as well.

2. References

References are:

- CCITT Recommendation X.208, Specification of abstract syntax notation one (ASN.1), 1988.

ISO 8824, Specification of abstract syntax notation one (ASN.1), 1988 and Addendum 1.
- CCITT Recommendation X.209, Specification of basic encoding rules for abstract syntax notation one (ASN.1), 1988.

ISO 8825, Specification of basic encoding rules for abstract syntax notation one (ASN.1), 1988 and Addendum 1.
- CCITT Recommendation X.400, Message handling system and service overview, 1988.

ISO/IEC 10021-1, Information processing systems - text communication - Message-oriented text interchange systems (Message-Oriented Text Interchange Systems): System and service overview, 1988.
- CCITT Recommendation X.402, Message handling systems: Overall architecture, 1988.

ISO/IEC 10021-2, Message-oriented text interchange systems: Overall architecture, 1988.
- CCITT Recommendation X.407, Message handling systems: Message transfer system: Abstract service definition conventions, 1988.

ISO/IEC 10021-3, Message-oriented text interchange systems: Message transfer system: Abstract service definition and procedures, 1988.
- CCITT Recommendation X.408, Message handling systems: message transfer system: Encoded information type conversion rules, 1988.
- CCITT Recommendation X.411, Message handling systems: Message transfer system: Abstract service definition and procedures, 1988.

ISO/IEC 10021-4, Message-oriented text interchange systems: Message transfer system: Abstract service definition and procedures, 1988.
- CCITT Recommendation X.413, Message handling systems: Message store: Abstract service definition, 1988.

ISO/IEC 10021-5, Message-oriented text interchange systems: Message store: Abstract service definition, 1988.

- CCITT Recommendation X.419, Message handling systems: Protocol specifications, 1988.

ISO/IEC 10021-6, Message-oriented text interchange systems: Protocol specifications, 1988.

- CCITT Recommendation X.420, Message handling systems: Inter personal messaging, 1988.

ISO/IEC 10021-7, Message-oriented text interchange systems: Inter personal messaging, 1988.

- CCITT Recommendation X.500, Directory: Overview of concepts, models, and service, 1988.

ISO/IEC 9594-1, Information processing systems - Open systems interconnection - The directory (Directory): Overview of concepts, models, and service, 1988.

- CCITT Recommendation X.501, Directory: Models, 1988.

ISO/IEC 9594-2, Directory: Models, 1988.

- CCITT Recommendation X.511, Directory: Abstract service definition, 1988.

ISO/IEC 9594-3, Directory: Abstract service definition, 1988.

- CCITT Recommendation X.518, Directory: Procedures for distributed operation, 1988.

ISO/IEC 9594-4, Directory: Procedures for distributed operation, 1988.

- CCITT Recommendation X.519, Directory: Protocol specifications, 1988.

ISO/IEC 9594-5, Directory: Protocol specifications, 1988.

- CCITT Recommendation X.520, Directory: Selected attribute types, 1988.

ISO/IEC 9594-6, Directory: Selected attribute types, 1988.

- CCITT Recommendation X.521, Directory: Selected object classes, 1988.

ISO/IEC 9594-7, Directory: Selected object classes, 1988.

- CCITT Recommendation X.509, Directory: Authentication framework, 1988.

ISO/IEC 9594-8, Directory: Authentication framework, 1988.

- CCITT Recommendation F.435, Message handling: EDI messaging service, forthcoming.

ISO/IEC 10021-m, Message handling: EDI messaging service, forthcoming

- ISO 9735, Electronic data interchange for administration, commerce and transport (EDIFACT) - Application level syntax rules, 1987.

3. Definitions

3.1 *Common definitions for MHS*

This Recommendation uses terms defined in Recommendation X.400, Recommendation X.402 and Recommendation X.413.

- a) access unit
- b) body
- c) content
- d) distribution list
- e) encoded information types
- f) envelope
- g) message handling system
- h) message-oriented text interchange system
- i) message store
- j) message transfer agent
- k) message transfer system
- l) physical delivery access unit
- m) recipient
- n) submission identifier
- o) submission time

- p) synopsis
- q) telematic agent
- r) telex access unit
- s) user
- t) user agent

3.2 *Common definitions for Abstract Syntax Notation One*

This Recommendation uses the full extent of the Abstract Syntax Notation One (ASN.1) as defined in Recommendation X.208.

3.3 *EDI service definitions*

This Recommendation uses terms defined in Recommendation F.435.

- a) EDI forwarding
- b) EDI message
- c) EDI notification
- d) EDI user
- e) EDIM responsibility

3.4 *Other EDI definitions*

The terms listed below may assume different meanings in the standards referenced.

3.4.1 *EDI For Administration, Commerce and Transport*

This Recommendation uses terms defined in ISO 9735 (EDIFACT).

- acknowledgement request
- address for reverse routing
- application reference

- communications agreement
- component data element separator
- data element separator
- date/time of preparation
- decimal notation
- functional group header
- identification code
- identification code qualifier
- interchange control reference
- interchange header
- interchange recipient
- interchange sender
- message header
- processing priority code
- recipient identification code
- recipients reference qualifier
- recipients reference, password
- release indicator
- routing address
- segment terminator
- sender identification
- service string advice
- syntax identifier
- syntax version

- test indicator
- UNA segment
- UNB segment
- UNH segment

3.4.2 United Nations Trade Data Interchange

This Recommendation uses terms defined in the United Nations Trade Data Interchange (UNTDI) syntax rules (developed from the earlier syntax recommendation UNGTDI) unanimously accepted by the United Nations Economic Commission for Europe, Working Party 4, in September 1985.

- application reference
- date and time of transmission
- message header
- MHD segment
- recipients reference/password
- start of transmission
- transmission priority code
- transmission recipient
- transmission sender

3.4.3 American National Standards Institute X12 Definitions

This Recommendation uses terms defined in the American National Standards Institute X12 (ANSIX12) standard.

- authorization information qualifier
- authorization information
- functional group header
- interchange date

- interchange header
- interchange receiver id
- interchange sender id
- interchange time
- ISA segment
- test indicator
- transactional set header, ST segment

3.5 *EDI Messaging System Definitions*

For the purposes of this Recommendation the following definitions apply:

3.5.1 *EDI Message Store*

An EDI message store is a specialized message store for the purposes of EDI messaging.

3.5.2 *EDI Messaging System*

The EDI messaging system is the functional object by means of which all users communicate with one another in EDI messaging.

3.5.3 *EDI User Agent*

An EDI user agent is a specialized user agent for the purposes of EDI messaging.

4. **Abbreviations**

ANSIX12	American National Standards Institute committee X12
AU	Access Unit
DL	Distribution List
EDI	Electronic Data Interchange
EDI-MS	EDI Message Store
EDI-UA	EDI User Agent
EDIFACT	Electronic Data Interchange for Administration, Commerce and Transport

EDIM	EDI Message
EDIME	EDI Messaging Environment
EDIMG	EDI Messaging
EDIMG-user	EDI Messaging System user
EDIMS	EDI Messaging System
EDIN	EDI Notification
EIT	Encoded Information Types
FN	Forwarded Notification
MD	Management Domain
MHS	Message Handling System
MOTIS	Message-Oriented Text Interchange Systemxe "ab:MOTIS"§
MS	EDI Message Store
MTA	Message Transfer Agent
MTS	Message Transfer System
NN	Negative Notification
PDAU	Physical Delivery Access Unit
PDS	Physical Delivery System
PN	Positive Notification
TLMA	Telematic Agent
UA	EDI User Agent
UNTDI	United Nations/Trade Data Interchange

5. Conventions

NOTE - See 5 of Recommendation F.435 for conventions related to terms defined in that Recommendation.

5.1 Terms

Throughout the rest of this Recommendation, terms that refer to ASN.1 types are written with upper-case letters for all words in the ASN.1 type (for example, OR Name).

5.2 ASN.1

glASN.1 definitionsxe "gl:ASN.1 definitions"§ appear both in the main text and in the Annexes. In case of inconsistency between a definition presented in the text, and a definition presented in an Annex forming an integral part of this Recommendation, the definition in the Annex shall be used. ASN.1 notation is defined in Recommendation X.208.

This Recommendation uses for the indicated purposes the following ASN.1-based descriptive conventions:

- a) to define the information objects of EDI Messaging, and other data types and values of all kinds, ASN.1 itself
- b) to define the functional objects of EDI Messaging, the OBJECT and REFINED macros of Recommendation X.407
- c) to define the abstract service of EDI Messaging, the PORT and ABSTRACT-operation and ERROR macros of Recommendation X.407
- d) to define the protocol extensions, the EDIM-EXTENSION macro of this Recommendation
- e) to define extended body part types, the EXTENDED-BODY-PART-TYPE macro of Recommendation X.420
- f) to define MS Auto-actions, the AUTO-ACTION macro of Recommendation X.413
- g) to define MS attributes, the ATTRIBUTE macro of Recommendation X.500

ASN.1 tags are implicit throughout the ASN.1 modules defined in any Annex; the module is definitive in that respect.

NOTE - The use of ASN.1 to describe a class or piece of information does not in itself imply that information is transported between open systems. The fact that the information, by virtue of its description in ASN.1 and of ASN.1's basic encoding rules, has a concrete transfer syntax may be immaterial. Information actually conveyed between systems is designated as such by its inclusion in an application protocol.

5.3 Conventions for Attribute Types in Table 1

This Recommendation uses the conventions listed below in its definition of attribute types for the MS abstract services.

For the columns headed 'Single/Multi-valued' the following values can occur:

- S: single-valued
- M: multi-valued

For the columns headed 'Support level by MS and UA' (where UA refers only to a UA that accesses an MS) the following values can occur:

- M: mandatory
- O: optional

For the columns headed 'Presence in delivered EDIM', 'Presence in PN', 'Presence in NN' and 'Presence in FN', the presence of each attribute type is described by one of the following values:

- P: 'always present' in the entry because it is mandatory for generation by the MS or it is a mandatory or defaulted parameter in the relevant abstract operation.
- C: 'conditionally present' in the entry. It will be present because it is supported by the MS and subscribed to by the user and it was present in an optional parameter in the relevant abstract operation.
- 'always absent', otherwise.

For the columns headed 'Available for list, alert' and 'Available for summarize', the following values can occur:

- N: no
- Y: yes

NOTE - All attributes are available to the fetch abstract operation, subject to support by the implementation and subscription.

5.4 Conventions for Attribute Types in Table 2

This Recommendation uses the conventions listed below in its definition of attribute types for the MS abstract services.

For the columns headed 'Source generated by' the following values can occur:

- MD: MessageDelivery abstract-operation
- MS: MessageStore
- RD: ReportDelivery abstract-operation