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**Information technology — Message
Handling Systems (MHS)**

Part 9:

Electronic Data Interchange Messaging
System

*Technologies de l'information — Systèmes de messagerie (MHS) —
Partie 9: Système de messagerie avec échange de données informatisé*



Reference number
ISO/IEC 10021-9:1995(E)

Contents

| | |
|---|------|
| Foreword | vii |
| Introduction..... | viii |
| Section 1 - Introduction..... | 1 |
| 1 Scope..... | 1 |
| 2 Normative references..... | 1 |
| 3 Definitions..... | 3 |
| 3.1 Common definitions for MHS..... | 3 |
| 3.2 Common definitions for abstract syntax notation one..... | 3 |
| 3.3 Terms imported from EDI service | 4 |
| 3.4 Other EDI definitions | 4 |
| 3.4.1 Terms imported from EDI for administration, commerce and transport..... | 4 |
| 3.4.2 Terms imported from United Nations trade data interchange | 5 |
| 3.4.3 Terms imported from ANSI X12.5 | 5 |
| 3.5 EDI messaging system definitions | 5 |
| 3.5.1 EDI message store | 5 |
| 3.5.2 EDI messaging system..... | 5 |
| 3.5.3 EDI user agent..... | 5 |
| 4 Abbreviations | 5 |
| 5 Conventions..... | 6 |
| 5.1 Terms | 6 |
| 5.2 ASN.1 | 6 |
| 5.3 Conventions for Attribute Types in Table 1 | 7 |
| 5.4 Conventions for Attribute Types in Table 2..... | 7 |
| 6 Information objects..... | 7 |
| 7 Common data types | 8 |
| 7.1 EDIM identifier | 8 |
| 7.2 Extensions | 8 |
| 8 EDI message..... | 9 |
| 8.1 Heading field component types..... | 10 |
| 8.1.1 Interchange recipient/sender | 10 |
| 8.1.1.1 Identification code | 10 |
| 8.1.1.2 Identification code qualifier | 10 |
| 8.1.1.3 Routing address..... | 10 |
| 8.2 Heading fields | 10 |
| 8.2.1 This EDIM | 11 |
| 8.2.2 Originator..... | 11 |
| 8.2.3 Recipients..... | 11 |
| 8.2.3.1 Recipient..... | 12 |
| 8.2.3.2 Action request..... | 12 |
| 8.2.3.3 EDI notification requests..... | 12 |
| 8.2.3.4 Responsibility passing allowed..... | 13 |
| 8.2.3.5 Interchange recipient..... | 14 |
| 8.2.3.6 Recipient reference | 14 |
| 8.2.3.7 Interchange control reference | 14 |

ISO/IEC 10021-9:1995

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| | | |
|---|---|-----------|
| 8.2.3.8 | Processing priority code..... | 14 |
| 8.2.3.9 | Acknowledgement request..... | 14 |
| 8.2.3.10 | Communications agreement id..... | 14 |
| 8.2.3.11 | Test indicator..... | 14 |
| 8.2.3.12 | Authorization information | 15 |
| 8.2.3.13 | Recipient extensions | 15 |
| 8.2.4 | EDIN receiver | 15 |
| 8.2.5 | Responsibility forwarded | 15 |
| 8.2.6 | EDI body part type | 16 |
| 8.2.7 | Incomplete copy | 17 |
| 8.2.8 | Expiry time..... | 17 |
| 8.2.9 | Related messages..... | 17 |
| 8.2.10 | Obsoleted EDIMs | 17 |
| 8.2.11 | EDI application security elements..... | 17 |
| 8.2.12 | Cross referencing information..... | 17 |
| 8.2.13 | EDI message type | 18 |
| 8.2.14 | Service string advice..... | 18 |
| 8.2.15 | Syntax identifier | 18 |
| 8.2.16 | Interchange sender..... | 19 |
| 8.2.17 | Date and time of preparation..... | 19 |
| 8.2.18 | Application reference | 19 |
| 8.2.19 | Heading extensions..... | 19 |
| 8.3 | Body part types..... | 19 |
| 8.3.1 | EDI body part..... | 19 |
| 8.3.2 | EDIM body part..... | 19 |
| 8.3.3 | Externally defined body parts | 20 |
| 9 | EDI notifications | 21 |
| 9.1 | Common fields | 21 |
| 9.1.1 | Subject EDIM..... | 22 |
| 9.1.2 | EDI notification originator..... | 22 |
| 9.1.3 | First recipient | 22 |
| 9.1.4 | Notification time | 23 |
| 9.1.5 | Security elements | 23 |
| 9.1.6 | EDIN initiator..... | 23 |
| 9.1.7 | Notification extensions | 23 |
| 9.2 | Positive notifications | 24 |
| 9.2.1 | PN supplementary information | 24 |
| 9.2.2 | Positive notification extensions..... | 24 |
| 9.3 | Negative notifications..... | 24 |
| 9.3.1 | Negative notification reason | 24 |
| 9.3.2 | NN supplementary information..... | 27 |
| 9.3.3 | Negative notification extensions | 27 |
| 9.4 | Forwarded notifications | 27 |
| 9.4.1 | Forwarded to | 27 |
| 9.4.2 | Forwarded notification reason..... | 27 |
| 9.4.3 | FN supplementary information | 29 |
| 9.4.4 | Forwarded notification extensions | 29 |
| Section 2 - EDI environment and abstract service definition..... | | 29 |
| 10 | Primary object types | 29 |
| 10.1 | EDI messaging user | 30 |
| 10.2 | EDI messaging system..... | 30 |
| 11 | Primary port types | 31 |
| 11.1 | Origination port | 31 |
| 11.2 | Reception port | 31 |
| 12 | Abstract operations..... | 31 |
| 12.1 | Origination abstract operations | 32 |

ITC STANDARD PREVIEW
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 ISO/IEC 10021-9:1995
<https://standards.iteh.ai/catalog/standards/sist/69949b7e07e5f5e1e1e1-10021-9-1995>

| | | |
|-----------|--|----|
| 12.1.1 | Originate probe | 32 |
| 12.1.2 | Originate EDIM | 32 |
| 12.1.3 | Originate EDIN | 33 |
| 12.2 | Reception abstract operations..... | 33 |
| 12.2.1 | Receive report..... | 34 |
| 12.2.2 | Receive EDIM | 34 |
| 12.2.3 | Receive EDIN | 34 |
| 13 | Abstract errors | 35 |
| 13.1 | Recipient improperly specified..... | 35 |
| 14 | Other capabilities | 35 |
| 15 | Secondary object types..... | 36 |
| 15.1 | EDI user agent | 37 |
| 15.2 | EDI message store..... | 37 |
| 15.3 | Telematic agent..... | 37 |
| 15.4 | Physical delivery access unit..... | 37 |
| 15.5 | Message transfer system..... | 38 |
| 16 | Secondary port types | 38 |
| 16.1 | Submission port..... | 38 |
| 16.2 | Delivery port..... | 38 |
| 16.3 | Retrieval port | 38 |
| 16.4 | Administration port | 38 |
| 16.5 | Import port..... | 39 |
| 16.6 | Export port..... | 39 |
| Section 3 | - Procedures | 39 |
| 17 | User agent operation | 39 |
| 17.1 | Performance of origination operations..... | 39 |
| 17.1.1 | Originate probe | 39 |
| 17.1.2 | Originate EDIM | 40 |
| 17.1.3 | Originate EDIN | 41 |
| 17.2 | Invocation of reception operations..... | 42 |
| 17.2.1 | Receive report..... | 42 |
| 17.2.2 | Receive EDIM | 42 |
| 17.2.3 | Receive EDIN | 42 |
| 17.3 | Internal procedures..... | 43 |
| 17.3.1 | Acceptance of responsibility | 43 |
| 17.3.1.1 | Construction of PN..... | 43 |
| 17.3.1.2 | Submission of PN..... | 44 |
| 17.3.2 | Refusal of responsibility..... | 44 |
| 17.3.2.1 | Construction of NN | 44 |
| 17.3.2.2 | Submission of NN | 44 |
| 17.3.2.3 | Handling of received EDIM | 44 |
| 17.3.3 | EDI Forwarding | 45 |
| 17.3.3.1 | Forwarding of message and responsibility forwarded | 46 |
| 17.3.3.2 | Forwarding of message and responsibility accepted..... | 46 |
| 17.3.3.3 | Prevention of loops | 47 |
| 17.3.3.4 | Construction of forwarding EDIM..... | 47 |
| 17.3.3.5 | Submission of forwarded EDIM | 48 |
| 17.3.3.6 | Construction of FN..... | 48 |
| 17.3.3.7 | Submission of FN..... | 48 |
| Section 4 | - Message store | 48 |
| 18 | Message store operation | 48 |
| 18.1 | Binding to the MS | 49 |
| 18.1.1 | Abstract-bind argument..... | 49 |
| 18.2 | Abstract-bind result..... | 49 |
| 18.3 | Creation of information objects | 49 |
| 18.3.1 | Mapping of an MHS message in MS | 50 |

ITeh STANDARD PREVIEW
 (standards.iteh.ai)
 ISO/IEC 10021-9:1995

| | | |
|----------|---|----|
| 18.3.2 | Mapping of forwarding messages in MS..... | 51 |
| 18.4 | Maintenance of attributes | 51 |
| 18.5 | Negative notification..... | 52 |
| 18.6 | Auto action types | 52 |
| 18.6.1 | Forwarding with responsibility not accepted | 53 |
| 18.6.2 | Forwarding with responsibility accepted | 54 |
| 18.7 | Message store attributes | 55 |
| 18.7.1 | Summary attributes | 61 |
| 18.7.1.1 | EDIMS entry type | 61 |
| 18.7.1.2 | EDIM synopsis..... | 61 |
| 18.7.2 | EDI notification indicator..... | 62 |
| 18.7.3 | Heading attributes | 63 |
| 18.7.3.1 | Heading | 63 |
| 18.7.3.2 | Heading fields..... | 63 |
| 18.7.3.3 | Recipient sub-field..... | 65 |
| 18.7.4 | Body attributes..... | 66 |
| 18.7.4.1 | Body | 66 |
| 18.7.4.2 | Body analyses | 67 |
| 18.7.4.3 | Primary body parts | 67 |
| 18.7.4.4 | Externally defined body part types | 67 |
| 18.7.4.5 | Externally defined body parts..... | 68 |
| 18.7.5 | Notification attributes | 68 |
| 18.7.5.1 | Common fields..... | 68 |
| 18.7.5.2 | Positive notification fields..... | 69 |
| 18.7.5.3 | Negative notification fields | 69 |
| 18.7.5.4 | Forwarded notification fields..... | 70 |
| 18.8 | Procedures for an EDI MS..... | 70 |
| 18.8.1 | Additional procedures for message delivery | 70 |
| 18.8.2 | Manual forwarding..... | 71 |
| 19 | Message contents | 71 |
| 19.1 | Content | 71 |
| 19.2 | Content type..... | 71 |
| 19.3 | Content length..... | 71 |
| 19.4 | Encoded information types..... | 72 |
| 20 | Port realization..... | 72 |
| 21 | Conformance..... | 72 |
| 21.1 | Origination versus reception..... | 72 |
| 21.2 | Statement requirements..... | 73 |
| 21.3 | Static requirements..... | 73 |
| 21.4 | Dynamic requirements | 73 |

ANNEXES

| | | |
|---|---|-----|
| A | Reference definition of object identifiers | 74 |
| B | Reference definition of abstract information objects | 77 |
| C | Reference definition of Message Store attributes | 90 |
| D | Reference definition of Message Store Auto-Action types | 99 |
| E | Reference definition of EDIMS functional objects | 101 |
| F | Reference definition of EDIMS abstract service | 104 |
| G | Reference definition of EDIMS Upper Bounds parameters | 106 |
| H | Reference definition of Directory object classes and attributes | 107 |
| I | Enhanced security model | 110 |
| J | Directory object classes and attributes | 113 |
| K | Comparison of terms of EDI syntaxes..... | 115 |
| L | Comparison of terms in this part of ISO/IEC 10021 and ISO/IEC 10021-8 CCITT Recommendation F.435 | 117 |
| M | Realization of an EDIMG User in the Directory..... | 118 |

TABLES

| | |
|---|-----|
| 1 - Summary of EDI specific MS attribute types..... | 57 |
| 2 - Generation of the EDI specific MS attribute types..... | 58 |
| I-1 - Supplements to table 7 of ISO/IEC 10021-2 CCITT Recommendation X.402.. | 111 |
| K-1 - Comparison of terms for EDI Interchange header fields | 116 |
| K-2 - Comparison for terms to EDI Interchange header segments..... | 116 |
| L-1 - Comparison of terms in this part of ISO/IEC 10021 with those of ISO/IEC 10021-8 CCITT Recommendation F.435 | 117 |

FIGURES

| | |
|---|----|
| 1 - EDI message structure..... | 10 |
| 2 - EDIM body part structure..... | 20 |
| 3 - EDI notification structure..... | 22 |
| 4 - The EDI messaging environment | 30 |
| 5 - The EDI messaging system | 36 |
| 6 - Forwarding..... | 45 |
| 7 - MHS message with EDIM - Mapping in MS | 50 |
| 8 - Forwarding message in MS | 51 |

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

International Standard ISO/IEC 10021-9 was prepared by ITU-T (as CCITT Recommendation X.435) and was adopted, under a special “fast-track procedure”, by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, in parallel with its approval by national bodies of ISO and IEC.

ISO/IEC 10021 consists of the following parts, under the general title *Information technology — Message Handling Systems (MHS)*:

- *Part 1: System and Service Overview*
- *Part 2: Overall Architecture*
- *Part 3: Abstract Service Definition Conventions*
- *Part 4: Message Transfer System: Abstract Service Definition and Procedures*
- *Part 5: Message Store: Abstract Service Definition*
- *Part 6: Protocol Specification*
- *Part 7: Interpersonal Messaging System*
- *Part 8: Electronic Data Interchange Messaging Service*
- *Part 9: Electronic Data Interchange Messaging System*

Annexes A to J form an integral part of this part of ISO/IEC 10021. Annexes K, L and M are for information only.

Introduction

This part of ISO/IEC 10021 is one of a number of parts of ISO/IEC 10021 (the International Standard for Message Handling Systems (MHS)).

MHS provides for the exchange of messages between users on a store-and-forward basis. A message submitted by one user (the *originator*) is transferred through the Message Transfer System (MTS), and delivered to one or more other users (the *recipients*). A user may interact directly with the MTS, or indirectly via a message store (MS).

The MTS comprises a number of message-transfer-agents (MTAs), which transfer messages and deliver them to their intended recipients.

This part of ISO/IEC 10021 was developed and published by the ITU-T in 1991. The equivalent ITU-T document is CCITT Recommendation X.435 (1991) as amended by the MHS Implementor's Guide (version 12).

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Information technology - Message Handling Systems (MHS) -

Part 9 : Electronic Data Interchange Messaging System

Section 1 - Introduction

1 Scope

This part of ISO/IEC 10021 is one of a set of standards for message handling. The entire set provides a comprehensive blueprint for a message handling system (MHS) realized by any number of cooperating open systems.

NOTE - The Message-Oriented Text Interchange System (MOTIS) was formerly the title of 10021:1990 parts and has been superseded by amendment to become Message Handling Systems (MHS). MHS is also published by the ITU-T as part of the X.400 series of Recommendations.

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 (MTS) and subsequently delivered to the agents of one or more additional users, the recipients. Access units (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 (UA). Optionally, it is assisted in the storage of messages by a message store (MS). The MTS comprises a number of message transfer agents (MTA) which collectively perform the store-and-forward message transfer function.

This part of ISO/IEC 10021 defines the message handling application called EDI messaging (EDIMG), a form of message handling tailored for exchange of electronic data interchange (EDI) information, a new message content type and associated procedures known as P_{edi} . It is designed to meet the requirements of users of ISO 9735 (EDIFACT), and other commonly used EDI systems.

This part of ISO/IEC 10021 is one of a series on message handling. ISO/IEC 10021-2 | CCITT 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 parts. ISO/IEC 10021-2 | CCITT Recommendation X.402 identifies those documents as well.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 10021. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO/IEC 10021 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 8824:1990, *Information technology – Open Systems Interconnection – Specification of Abstract Syntax Notation One (ASN.1)*.

(See also CCITT Recommendation X.208 (1988))

ISO/IEC 8825:1990, *Information technology – Open Systems Interconnection – Specification of Basic Encoding Rules for Abstract Syntax Notation One (ASN.1)*.

(See also CCITT Recommendation X.209 (1988))

ISO/IEC 8859, *Information processing - 8-bit single-byte coded graphic character sets.*

ISO/IEC 9594-1:1990, *Information technology – Open Systems Interconnection – The Directory - Part 1: Overview of concepts, models, and service.*

(See also CCITT Recommendation X.500 (1988))

ISO/IEC 9594-2:1990, *Information technology – Open Systems Interconnection – The Directory – Part 2: Models.*

(See also CCITT Recommendation X.501 (1988))

ISO/IEC 9594-3:1990, *Information technology – Open Systems Interconnection – The Directory – Part 3: Abstract service definition.*

(See also CCITT Recommendation X.511 (1988))

ISO/IEC 9594-4:1990, *Information technology – Open Systems Interconnection – The Directory – Part 4: Procedures for distributed operation.*

(See also CCITT Recommendation X.518 (1988))

ISO/IEC 9594-5:1990, *Information technology – Open Systems Interconnection – The Directory – Part 5: Protocol specifications.*

(See also CCITT Recommendation X.519 (1988))

ISO/IEC 9594-6:1990, *Information technology – Open Systems Interconnection – The Directory – Part 6: Selected attribute types.*

(See also CCITT Recommendation X.520 (1988))

ISO/IEC 9594-7:1990, *Information technology – Open Systems Interconnection – The Directory – Part 7: Selected object classes.*

(See also CCITT Recommendation X.521 (1988))

ISO/IEC 9594-8:1990, *Information technology – Open Systems Interconnection – The Directory – Part 8: Authentication framework.*

(See also CCITT Recommendation X.509 (1988))

ISO 9735:1988, *Electronic data interchange for administration, commerce and transport (EDIFACT) - Application level syntax rules.*

ISO 9735:1988/Amd.1:1990, *Electronic data interchange for administration, commerce and transport (EDIFACT) - Application level syntax rules – Amendment 1.*

ISO/IEC 10021-1:1990, *Information technology – Text Communication – Message-Oriented Text Interchange Systems (MOTIS) - Part 1: System and Service Overview.*

(See also CCITT Recommendation F.400 (1992) | X.400 (1993))

ISO/IEC 10021-2:1990, *Information technology – Text Communication – Message-Oriented Text Interchange Systems (MOTIS) - Part 2: Overall Architecture.*

(See also CCITT Recommendation X.402 (1992))

ISO/IEC 10021-3:1990, *Information technology – Text Communication – Message-Oriented Text Interchange Systems (MOTIS) - Part 3: Abstract Service Definition.*

(See also CCITT Recommendation X.407 (1988))

ISO/IEC 10021-4:1990, *Information technology – Text Communication – Message-Oriented Text Interchange Systems (MOTIS) - Part 4: Message Transfer System: Abstract Service Definition and Procedures.*

(See also CCITT Recommendation X.411 (1992))

ISO/IEC 10021-5:1994, *Information technology – Text Communication – Message-Oriented Text Interchange Systems (MOTIS) - Part 5: Message Store: Abstract Service Definition.*

(See also CCITT Recommendation X.413 (1992))

ISO/IEC 10021-6:1990, *Information technology – Text Communication – Message-Oriented Text Interchange Systems (MOTIS) - Part 6: Protocol Specifications.*

(See also CCITT Recommendation X.419 (1992))

ISO/IEC 10021-7:1990, *Information technology – Text Communication – Message-Oriented Text Interchange Systems (MOTIS) - Part 7: Interpersonal Messaging System.*

(See also CCITT Recommendation X.420 (1992))

ISO/IEC 10021-8:1995, *Information technology – Message Handling Systems (MHS) - Part 8: Electronic Data Interchange Messaging Service.*

(See also CCITT Recommendation F.435 (1991))

CCITT Recommendation X.408 (1988), *Message handling systems: Encoded information type conversion rules.*

ANSI X12.5-1987: *American National Standard for electronic business data interchange - interchange control structure.*

NOTES

1 - ITU-T Recommendations are published subsequent to March 1993 and CCITT Recommendations were published prior to March 1993. The term *CCITT Recommendation* is used because all of the editions referred to in this part of ISO/IEC 10021 were published before March 1993.

2 - ISO/IEC 8859 is a multi-part standard.

3 Definitions

3.1 Common definitions for MHS

This part of ISO/IEC 10021 uses the following terms defined in ISO/IEC 10021-1 | CCITT Recommendation X.400, ISO/IEC 10021-2 | CCITT Recommendation X.402 and ISO/IEC 10021-5 | CCITT Recommendation X.413:

- a) Access unit
- b) Body
- c) Content
- d) Distribution list
- e) Encoded information type
- f) Envelope
- g) Message handling system
- h) Message-oriented text interchange system (defined and used prior to 1993)
- 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 part of ISO/IEC 10021 uses the full extent of the abstract syntax notation one (ASN.1) as defined in ISO/IEC 8824 | CCITT Recommendation X.208.

3.3 Terms imported from EDI service

This part of ISO/IEC 10021 uses the following terms defined in ISO/IEC 10021-8 | CCITT 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 Terms imported from EDI for administration, commerce and transport

This part of ISO/IEC 10021 uses the following terms defined in ISO 9735 (EDIFACT - Application level syntax rules):

- 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 control 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

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- UNH segment

3.4.2 Terms imported from United Nations trade data interchange

This part of ISO/IEC 10021 uses the following 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 Terms imported from ANSI X12.5

- 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 part of ISO/IEC 10021, the following definitions apply.

3.5.1 EDI message store: A specialized message store for the purposes of EDI messaging.

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

3.5.3 EDI user agent: A specialized user agent for the purposes of EDI messaging.

4 Abbreviations

| | |
|---------|---|
| ANSIX12 | American National Standards Institute, Accredited Committee X12 |
| AU | Access unit |
| DL | Distribution list |
| EDI | Electronic data interchange |
| EDI-MS | EDI message store |
| EDI-UA | EDI user agent |

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| | |
|------------|--|
| EDIFACT | Electronic data interchange for administration, commerce and transport |
| EDIM | EDI message |
| EDIME | EDI messaging environment |
| EDIMG | EDI messaging |
| EDIMG user | EDI messaging user |
| EDIMS | EDI messaging system |
| EDIN | EDI notification |
| EIT | Encoded information type |
| FN | Forwarded notification |
| MD | Management domain |
| MHS | Message handling system |
| MS | 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 |

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5 Conventions

5.1 Terms

Throughout the rest of this part of ISO/IEC 10021, terms that refer to ASN.1 types are written with initial upper-case letters for all words in the ASN.1 type (for example, ORName or OR Name).

5.2 ASN.1

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 a normative annex, the definition in the annex shall be used. ASN.1 notation is defined in ISO/IEC 8824 | CCITT Recommendation X.208.

This part of ISO/IEC 10021 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 REFINE macros of ISO/IEC 10021-3 | CCITT Recommendation X.407;
- c) to define the abstract service of EDI Messaging, the PORT and ABSTRACT-operation and ERROR macros of ISO/IEC 10021-3 | CCITT Recommendation X.407;
- d) to define the protocol extensions, the EDIM-EXTENSION macro of this part of ISO/IEC 10021;

- e) to define extended body part types, the EXTENDED-BODY-PART-TYPE macro of ISO/IEC 10021-7 | CCITT Recommendation X.420;
- f) to define MS Auto-actions, the AUTO-ACTION macro of ISO/IEC 10021-5 | CCITT Recommendation X.413;
- g) to define MS attributes, the ATTRIBUTE macro of ISO/IEC 9594-2 | CCITT Recommendation X.501.

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 part of ISO/IEC 10021 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 delivered PN”, “Presence in delivered NN” and “Presence in delivered 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.
- - a hyphen (-) indicates “always absent”, otherwise.

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

- N: No
- Y: Yes

5.4 Conventions for Attribute Types in Table 2

This part of ISO/IEC 10021 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: Message Delivery abstract-operation
- MS: Message Store
- RD: Report Delivery abstract-operation

6 Information objects

The information objects that users exchange in EDI messaging are of two kinds: EDI messages (EDIM), and EDI notifications (EDIN).