

# American National Standard

INCITS/ISO/IEC 10021-9:1999 (R2019)

(ISO/IEC 10021-9:1999, IDT)

*Information Technology - Message Handling Systems (MHS) - Part 9: Electronic Data Interchange Messaging System*

**Developed by**



*Where IT all begins*



## INCITS/ISO/IEC 10021-9:1999 (R2019)

### PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

**Adopted by INCITS (InterNational Committee for Information Technology Standards) as an American National Standard.**

Date of ANSI Approval: 11/21/2019

Published by American National Standards Institute,  
25 West 43rd Street, New York, New York 10036

Copyright 2019 by Information Technology Industry Council  
(ITI). All rights reserved.

These materials are subject to copyright claims of International Standardization Organization (ISO), International Electrotechnical Commission (IEC), American National Standards Institute (ANSI), and Information Technology Industry Council (ITI). Not for resale. No part of this publication may be reproduced in any form, including an electronic retrieval system, without the prior written permission of ITI. All requests pertaining to this standard should be submitted to ITI, 1101 K Street NW, Suite 610, Washington DC 20005.

Printed in the United States of America

This is a preview of "INCITS/ISO/IEC 10021...". Click here to purchase the full version from the ANSI store.

STANDARD

**10021-9**

First edition  
1995-08-01

Reaffirmed as  
**INCITS/ISO/IEC 10021-9:1999[R2014]**

---

---

## **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*

**Adopted by INCITS (InterNational Committee for Information Technology Standards) as an American National Standard.**

Date of ANSI Approval: 12/28/2004

Published by American National Standards Institute,  
25 West 43rd Street, New York, New York 10036

Copyright 2002 by Information Technology Industry Council (ITI).  
All rights reserved.

These materials are subject to copyright claims of International Standardization Organization (ISO), International Electrotechnical Commission (IEC), American National Standards Institute (ANSI), and Information Technology Industry Council (ITI). Not for resale. No part of this publication may be reproduced in any form, including an electronic retrieval system, without the prior written permission of ITI. All requests pertaining to this standard should be submitted to ITI, 1250 Eye Street NW, Washington, DC 20005.

Printed in the United States of America



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

This is a preview of "INCITS/ISO/IEC 10021...". Click here to purchase the full version from the ANSI store.

## 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	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 1995

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

ISO/IEC Copyright Office • Case postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

This is a preview of "INCITS/ISO/IEC 10021...". Click here to purchase the full version from the ANSI store.

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

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

This is a preview of "INCITS/ISO/IEC 10021...". Click here to purchase the full version from the ANSI store.

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

This is a preview of "INCITS/ISO/IEC 10021...". Click here to purchase the full version from the ANSI store.

**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

This is a preview of "INCITS/ISO/IEC 10021...". Click here to purchase the full version from the ANSI store.

## 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.

This is a preview of "INCITS/ISO/IEC 10021...". Click [here](#) to purchase the full version from the ANSI store.

## 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).

# 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<sub>edi</sub>. 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))