

Implementation of ENV 41220 : 1993

**Information technology —
Functional standard for profile
A/MH31 —
Message Handling Systems
(1988 and later) —
Electronic data interchange
messaging service (EDIMS) —
EDIM end system to EDIM end
system (P EDI and P1)**

Technologie de l'information — Profil
fonctionnel pour profile A/MH 31 — Système
de messagerie (1988 et ultérieurement) —
Service de messagerie pour l'échange de
données informatisées (EDIMS) — Agent
d'utilisateur à agent d'utilisateur EDI (P EDI et P1)

Informationstechnik — Funktionelle Norm für
Profil A/MH 31 —
Mitteilungsübermittlungssysteme (1988 und
später) — Mitteilungsdienst für
Elektronischen Datenaustausch (EDIMS) —
EDIM-Endsystem (P EDI und P1)

UDC 681.324.01 : 681.327.8

National foreword

This Draft for Development is identical with the European Prestandard ENV 41220 : 1993 *Information technology — Functional standard for profile A/MH31 — Message Handling Systems (1988 and later) — Electronic data interchange messaging service (EDIMS) — EDIM end system to EDIM end system (P EDI and P1)*, prepared by CEN/CENELEC whose members have committed themselves to making it available in an appropriate form. In the UK the Draft for Development is the form now chosen for ENVs in the information technology area.

This Draft for Development is published under the direction of the Information Systems Technology Standards Policy Committee whose Technical Committee IST/18 has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international European committee any queries on interpretation, or proposals for change, and keep UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

NOTE. International and European Standards, as well as overseas standards, are available from Customer Services, Publications, BSI, Linford Wood, Milton Keynes, MK14 6LE.

After two years this ENV will be reviewed by CEN/CENELEC members with a view to its:

- conversion into a European Standard (which would be implemented in the UK as a British Standard);
- extension once for a further 2 years;
- replacement by a revised ENV (which would be published in the UK as a revised Draft for Development);
- withdrawal.

The future of this Draft for Development is therefore bound to that of the ENV and the Draft for Development will not be reviewed or developed separately.

This publication is not to be regarded as a British Standard.

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English version

Information technology — Functional standard for profile A/MH31 — Message Handling Systems (1988 and later) — Electronic data interchange messaging service (EDIMS) — EDIM end system to EDIM end system (P EDI and P1)

Technologie de l'information — Profil fonctionnel pour profile A/MH 31 — Système de messagerie (1988 et ultérieurement) — Service de messagerie pour l'échange de données informatisées (EDIMS) — Agent d'utilisateur à agent d'utilisateur EDI (P EDI et P1)

Informationstechnik — Funktionelle Norm für Profil A/MH 31 — Mitteilungsübermittlungssysteme (1988 und später) — Mitteilungsdienst für Elektronischen Datenaustausch (EDIMS) — EDIM-Endsystem (P EDI und P1)

This European Prestandard (ENV) was approved by CEN/CENELEC on 1993-01-29 as a prospective standard for provisional application. The period of validity of this ENV is limited initially to three years. After two years the members of CEN/CENELEC will be requested to submit their comments, particularly on the question whether the ENV can be converted into a European Standard (EN).

CEN/CENELEC members are required to announce the existence of this ENV in the same way as for an EN and to make the ENV available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the ENV) until the final decision about the possible conversion of the ENV into an EN is reached.

CEN/CENELEC members are the national standards bodies and national electrotechnical committees, respectively, of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN/CENELEC

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0 Foreword

This European Prestandard has jointly been prepared by EWOS EG MHS and ETSI TE.3.

The concept and structure of functional profiles for the interconnection of information systems are laid down in CEN/CENELEC/ETSI memorandum M-IT-01. This European Prestandard is one functional profile in the set defined in CEN/CENELEC/ETSI memorandum M-IT-02.

This functional profile describes Electronic Data Interchange (EDI) using Message Handling Systems (MHS) conforming to the CCITT and ISO standards [X.400 series of Recommendations | ISO/IEC 10021]. In particular this functional profile classifies the optional features of EDI Messaging System (EDIMS) defined in X.435 | ISO/IEC 10021-9, F.435 | ISO/IEC 10021-8 and modified by the MHS Implementors' Guide and the published ISO/IEC Technical Corrigenda.

This functional profile classifies the support requirements of features of EDI Messaging. It describes services of and communication provided by and between EDI-UAs.

This functional profile contains six annexes: A, B, C, E which are normative and D, F which are informative.

In parallel with the work on the European profiles (A/MHnn) there has been international work on messaging ISPs (International Standardized Profile). The European representative in this work has been the joint EWOS/ETSI MHS group. It is expected that the ISP, when approved, will be progressed to EN. The ISP on EDI messaging is scheduled to be approved as ISP in late 1994.

This European Prestandard was submitted for formal vote by the CEN Central Secretariat to the members of CEN/CENELEC on 1992-10-23 with the deadline of 1992-12-23. The result of the formal vote was positive.

According to the CEN/CENELEC Internal Regulations, the following countries are bound to announce the existence of this European Prestandard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

1 Scope

1.1 Introduction

The purpose of a functional profile is to recommend how certain information technology standards should be used to satisfy one or more specific requirements. In particular, a functional profile should determine which options, available in the Base Specifications are necessary or desirable if the specific requirements are to be met.

This functional profile applies to Message Handling Systems within the general context of the OSI Reference Model.

The scope of this functional profile is the following:

- Specification of the conformance rules for the EDI-UAs.
- Specification of the conformance rules for interchange of the message content type and the associated procedures as defined in [X.435 | ISO/IEC 10021-9] and [F.435 | ISO/IEC 10021-8]. This is known as *Pedi* and abbreviated as such in this functional standard.

1.2 General

This functional profile describes the rules for the behaviour of the EDI-UA required for conformance to this profile.

The precise interface between the EDI Messaging User (EDIMG user as defined in [Recommendation X.435 | ISO/IEC 10021-9] and [Recommendation F.435]) and the EDI Messaging System (EDIMS as defined in [Recommendation X.435 | ISO/IEC 10021-9] and [Recommendation F.435]) will require the definition of an Application Programming Interface (API). This interface is outside the scope of this profile.

Elements of Service, abstract services and abstract information objects are classified in a modular way by using the concept of Functional Groups. Optional functional groups may be required by procurement specifications in order to meet particular requirements.

Local MTS-user functions are not covered by this profile. In particular, mechanisms for the origination and rendition of graphic characters are outside the scope of this profile.

NOTE: It is recommended, in order to obtain the full functionality implied by this profile that EDI-UA's require the services of an MTS which as a minimum are classified as mandatory Elements of Service in this profile.

1.3 Position within the Taxonomy

This profile is developed in the following context.

Common Facilities

- A/MH11 MTA and MTS
- A/MH12 UA to MS (P7)
- A/MH13 MTS-user to MTA (P3)

IPMS

- A/MH21 IPM end system to IPM end system (P2 over P1)
- A/MH22 IPM UA to IPM MS (P2 over P7)
- A/MH23 IPM UA or IPM MS to MTA (P2 over P3)

EDIMS

- A/MH31 EDI-UA to EDI-UA (*Pedi* over P1)
- A/MH32 EDI-UA to EDI-MS (*Pedi* over P7)
- A/MH33 EDI-UA or EDI-MS to MTA (*Pedi* over P3)

1.4 Scenario Description

The scenario is described in Figure 1.

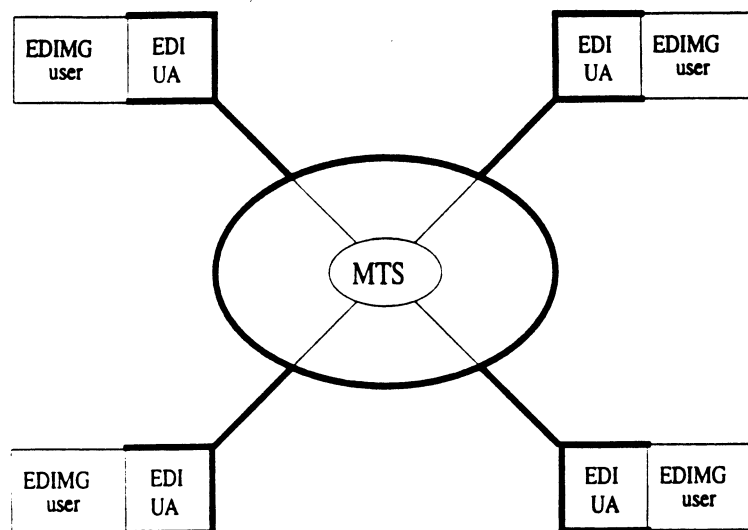


Figure 1: EDI Message Handling Scenario

EDIMS Service X.435 ISO/IEC 10021-9 F.435 ISO/IEC 10021-8
X.208 ISO/IEC 8824 and X.209 ISO/IEC 8825

Figure 2: Model of profile A/MH31

1.5 Maintenance

The user is invited to check with the EWOS secretariat if any defect reports or corrigenda to this profile are available and may be obtained from:

European Workshop for Open Systems
Attn: Mr Luc Van Den Berghe
Rue de Stassart, 36
B - 1050 Brussels
BELGIUM

Such documents may be subject to conformance.

1.6 Base Specifications

The Base Specifications comprise the CCITT X.400 series of Recommendations, Recommendation F.435 and the ISO/IEC 10021 Standards as modified by the MHS Implementor's Guide and the published ISO/IEC Technical Corrigenda.

1.7 Normative Relationships With Other Functional Standards

This profile classifies and specifies the use of Elements of Service for an EDIMS. The MT Element of Service classification is based upon Annex B of ENV 41219.

2 Normative References

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

CCITT Recommendation X.400 Message Handling System and Service Overview

CCITT Recommendation X.435 Message Handling System : EDI Messaging System

CCITT Recommendation F.435 Message Handling : EDI Messaging Service.

CCITT Recommendation T.61 (1988) Character repertoire and coded character sets for the international Teletex service

ISO/IEC TR 10000-1 (1992) Information Technology - Framework and Taxonomy of International Standardized Profiles - Part 1 : Framework

ISO/IEC 10021-1 1990 Information Technology - Text Communication - Message Oriented Text Interchange System - Part 1 : Service and Service Overview

ISO/IEC 10021-8 1993 Information Technology - Text Communication - Message Oriented Text Interchange System - Part 8 : EDI Messaging Service

ISO/IEC 10021-9 1993 Information Technology - Text Communication - Message Oriented Text Interchange System - Part 9 : EDI Messaging System

CEN/CENELEC/ETSI M-IT-01 : The Concept of Profiles and Structure of Functional Standards for Information Technology (Issue 2)

CEN/CENELEC/ETSI M-IT-02 : Taxonomy of Profiles and Directory of Functional Standards (Issue 5)

ENV 41214:1992 Information Technology - Functional Standard for Profile A/MH11 - Message Handling Systems - Common facilities - MTA and MTS (P1)

ENV 41219:1993 Information Technology - Functional Standard for Profile A/MH13 - Message Handling Systems - Common facilities - MTS-user to MTA (P3)

MHS Implementor's Guide Version 11, July 1993

The last document is available from:

European Workshop for Open Systems
Attn: Mr. Luc Van Den Berghe
Rue de Stassart, 36
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3 Abbreviations

The following list of abbreviations are used in this functional profile in addition to some of those from the reference documents:

ANSIX12 : American National Standards Institute committee X12

APDU : Application Protocol Data Unit

API : Application Programming Interface

ASN.1 : Abstract Syntax Notation One

CCITT : International Telegraph and Telephone Consultative Committee

CEN : Comité Européen de Normalisation

CENELEC : Comité Européen de Normalisation de l'Electrotechnique

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

EDIMG : EDI Messaging

EDIMS : EDI Messaging System

EDIN : EDI Notification

EIT : Encoded Information Type

EoS : Element of Service

ETSI : European Telecommunications Standards Institute

EWOS : European Workshop for Open Systems

FG : Functional Group

FN : Forwarded Notification

IA5 : CCITT International Alphabet no. 5

IEC : International Electrotechnical Committee

IPM : Interpersonal Message

IPMS : Interpersonal Messaging System

ISO : International Organization for Standardization

MASE : Message Administration Service Element

MDSE : Message Delivery Service Element

MHS : Message Handling System

MSSE : Message Submission Service Element

MT : Message Transfer

MTA : Message Transfer Agent

MTS : Message Transfer System

NN : Negative Notification

O/R : Originator/Recipient

OSI : Open Systems Interconnection

P1 : Message Transfer Protocol

P2 : Interpersonal Messaging Protocol

P3 : MTS Access Protocol

P7 : MS Access Protocol

PD : Physical Delivery

PICS : Protocol Implementation Conformance Statement

Pedi : Protocol for Electronic Data Interchange

PN : Positive Notification

S0 : Security Class 0

TEDIS : Trade EDI Systems

UA : User Agent

UNTDI : United Nations/Trade Data Interchange

4 Conformance

4.1 General

This clause specifies the requirements placed on an implementation for which conformance to this functional profile is claimed.

NOTE: Conformance to ENV 41219 is not a necessary prerequisite for conformance to this profile.

NOTE: Conformance to this profile does not imply conformance to ENV 41219.

An implementation for which conformance to this functional profile is claimed shall:

- Conform to functionality on the basis of functional groups,
- Conform to profile constraints,
- Conform to the criticality mechanism,
- Conform to abstract operations,
- Conform to the use of ASN.1.

Annex E contains PICS proformas which list the information that has to be stated for an EDI-UA implementation to meet the requirements in this functional profile.

The content of a note embedded in the text is informative only and does not constrain a conformant implementation. When a note is placed against an element in a table, the content of the note is normative and does constrain the implementation.

4.2 Conformance to Functional Groups

A functional group is a set of related services. A functional group provides consistent functionality which may, as a whole, be provided by an EDIMS.

This functional profile specifies a number of functional groups together with conformance requirements for each in section 6. The meaning of conformance to a functional group is defined in 5.2.5.

An implementation for which conformance to this profile is claimed shall implement the EDIMS Kernel functional group. An implementation for which conformance to the EDIMS Kernel functional group is claimed may implement zero, one or more additional functional groups.

For the EDIMS Security functional group, different classes of functionality have been defined. An implementation for which conformance is claimed for such a functional group shall implement one or more of those classes.

When more than one functional group or class is implemented, and the same protocol element, Element of Service or action is included in more than one of them, then if it is mandatory in any of the functional groups or classes it shall be implemented. An exception to this is if it is out of scope in any of the functional groups or classes then it shall be out of scope.

4.3 Conformance to Profile Constraints

The lower and upper bounds of the protocol elements supported by this functional profile are defined in [X.435 | ISO/IEC 10021-9]. If an implementation detects a profile constraint violation, it may generate the appropriate error indication, but is not required to do so. The following constraints are identified:

1. The number of elements used in types "set of", "sequence of".

An implementation for which conformance is claimed shall not generate a protocol element with a number of instances outside the specified range, and shall accept and properly handle a protocol element with a number of instances included in the specified range.

2. The length of a bit string, an octet string, and a character string.

An implementation for which conformance is claimed shall not generate a protocol element whose length (bits, octets or characters) is outside the specified range and shall accept and properly handle a protocol element whose length is included in the specified range.

Where an upper bound is used to specify the size of a Teletex String, the following interpretation applies: the quoted upper bound applies to the number of characters rendered at a human interface and double the quoted upper bound applies to the number of octets occupied by the value.

NOTE: For example, ub-organization-name-length of 64 applied to TeletexOrganizationName means upper bounds of 64 characters and 128 octets. When the same value is applied to OrganizationName, which is a Printable String, the upper bounds are 64 characters and 64 octets.

3. The range of an integer.

An implementation for which conformance is claimed shall not generate a protocol element whose value is outside the specified range, and shall accept and properly handle a protocol element whose value is included in the specified range.

4. The value of an enumerated.

An implementation for which conformance is claimed shall not generate a protocol element whose value is outside the enumerated list and shall accept and properly handle a protocol element whose value is included in the enumerated list.

5. Teletex String.

a An implementation for which conformance is claimed shall be able to accept the TeletexString elements containing all repertoires of ASN.1 TeletexString (i.e. 102, 103, 106, 107, 87 + SPACE + DELETE).

b An implementation for which conformance is claimed shall be able to generate TeletexString elements using either repertoires {102,103} or that subset of those repertoires which can also be expressed in {6,100}.

6. APDU Length

It shall be documented in the PICS the maximum length of an APDU the EDI-UA supports.

4.4 Conformance to Criticality Mechanism

An implementation for which conformance to this functional profile is claimed shall obey the criticality mechanism defined in the Base Specifications. Any implementation conforming to this profile shall be able to recognize the criticality attribute of any extensions (even if identified by an object identifier) and act on it as specified in the Base Specifications. The meaning of conformance to the criticality mechanism is defined below.

Support of criticality as defined in the base standards and further qualified in this profile is as follows:

- A non-critical function may be ignored or discarded on delivery but shall not be discarded by a forwarding EDI-UA except when accepting responsibility for the received EDIM.
- A critical extension shall not be ignored or discarded by a forwarding EDI-UA.
- A non-critical extension shall not be discarded by a forwarding EDI-UA when forwarding responsibility.

4.5 Conformance to Abstract Information Service

The minimum conformance requirement of this profile is provision of those abstract information service elements as defined in annex B. The meaning of conformance to an abstract information service is defined in 5.2.4.

4.6 Conformance to the use of ASN.1

An implementation for which conformance to this functional profile is claimed shall obey the rules in [X.435] section 5.2 and further qualified in annex C.