

INTERNATIONAL  
STANDARDIZED  
PROFILE

**ISO/IEC**  
**ISP**  
**12062-1**

First edition  
1995-02-15

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**Information technology — International  
Standardized Profiles AMH2n — Message  
Handling Systems — Interpersonal  
Messaging —**

**Part 1:**  
IPM MHS Service Support

*Technologies de l'information — Profils normalisés internationaux  
AMH2n — Systèmes de messagerie — Messagerie entre personnes —  
Partie 1: Support de service de IPM MHS*



Reference number  
ISO/IEC ISP 12062-1:1995(E)

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Printed in Switzerland

## 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 JTC1. In addition to developing International Standards, ISO/IEC JTC1 has created a Special Group on Functional Standardization for the elaboration of International Standardized Profiles.

An International Standardized Profile is an internationally agreed, harmonized document which identifies a standard or group of standards, together with options and parameters, necessary to accomplish a function or set of functions.

Draft International Standardized Profiles are circulated to national bodies for voting. Publication as an International Standardized Profile requires approval by at least 75% of the national bodies casting a vote.

International Standardized Profile ISO/IEC ISP 12062-1 was prepared with the collaboration of:

- OSI Asia-Oceania Workshop (AOW);
- European Workshop for Open Systems (EWOS) [jointly with the European Telecommunications Standards Institute (ETSI)];
- OSE Implementors' Workshop (OIW).

ISO/IEC ISP 12062 consists of the following parts, under the general title *Information technology - International Standardized Profiles AMH2n - Message Handling Systems - Interpersonal Messaging*:

- *Part 1 : IPM MHS Service Support*
- *Part 2 : AMH21 - IPM Content*
- *Part 3 : AMH22 - IPM Requirements for Message Transfer (P1)*
- *Part 4 : AMH23 - IPM Requirements for MTS Access (P3)*
- *Part 5 : AMH24 - IPM Requirements for Enhanced MS Access (P7)*

Annexes A and B form an integral part of this part of ISO/IEC ISP 12062. Annexes C and D are for information only.

## Introduction

This part of ISO/IEC ISP 12062 is defined within the context of Functional Standardization, in accordance with the principles specified by ISO/IEC TR 10000, "Framework and Taxonomy of International Standardized Profiles". The context of Functional Standardization is one part of the overall field of Information Technology (IT) standardization activities, covering base standards, profiles, and registration mechanisms. A profile defines a combination of base standards that collectively perform a specific well-defined IT function. Profiles standardize the use of options and other variations in the base standards, and provide a basis for the development of uniform, internationally recognized system tests.

One of the most important rôles for an ISP is to serve as the basis for the development (by organizations other than ISO and IEC) of internationally recognized tests and test centres. ISPs are produced not simply to 'legitimize' a particular choice of base standards and options, but to promote real system interoperability. The development and widespread acceptance of tests based on this and other ISPs is crucial to the successful realization of this goal.

The text for this part of ISO/IEC ISP 12062 was developed in close cooperation between the MHS Expert Groups of the three Regional Workshops: the North American OSE Implementors' Workshop (OIW), the European Workshop for Open Systems (EWOS) (jointly with the corresponding expert group of the European Telecommunications Standards Institute - ETSI) and the OSI Asia-Oceania Workshop (AOW). This part of ISO/IEC ISP 12062 is harmonized between these three Workshops and it has been ratified by the plenary assemblies of all three Workshops.

# Information technology – International Standardized Profiles AMH2n – Message Handling Systems – Interpersonal Messaging –

## Part 1 : IPM MHS Service Support

### 1 Scope

#### 1.1 General

This part of ISO/IEC ISP 12062 contains the overall specifications of the support of MHS Elements of Service and associated MHS functionality in an Interpersonal Messaging (IPM) environment which are generally not appropriate for consideration only from the perspective of a single MHS protocol. These specifications form part of the Interpersonal Messaging application functions, as defined in the parts of ISO/IEC ISP 12062, and are based on the Common Messaging content type-independent specifications in ISO/IEC ISP 10611. Such specifications are in many cases applicable to more than one MHS protocol or are otherwise concerned with component functionality which, although it can be verified via protocol, is not just related to protocol support. They are therefore designed to be referenced in the MHS Interpersonal Messaging application profiles ISO/IEC ISP 12062-2 (AMH21), ISO/IEC ISP 12062-3 (AMH22), ISO/IEC ISP 12062-4 (AMH23) and ISO/IEC ISP 12062-5 (AMH24), which specify the support of specific MHS protocols and associated functionality.

The specifications in this part of ISO/IEC ISP 12062 are divided into **basic requirements**, which are required to be supported by all IPM MHS implementations, and a number of optional **functional groups**, which cover significant discrete areas of related functionality which are not required to be supported by all implementations.

An overview of the scope and applicability of the AMH2n set of profiles and of the structure of this multipart ISP is provided in annex D.

#### 1.2 Position within the taxonomy

This part of ISO/IEC ISP 12062 is the first part, as common text, of a multipart ISP identified in ISO/IEC TR 10000-2 as "AMH2, Message Handling Systems - Interpersonal Messaging" (see also ISO/IEC TR 10000-1, 8.2 for the definition of multipart ISPs).

This part of ISO/IEC ISP 12062 does not, on its own, specify any profiles.

## 2 Normative references

The following documents contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC ISP 12062. At the time of publication, the editions indicated were valid. All documents are subject to revision, and parties to agreements based on this part of ISO/IEC ISP 12062 are warned against automatically applying any more recent editions of the documents listed below, since the nature of references made by ISPs to such documents is that they may be specific to a particular edition. Members of IEC and ISO maintain registers of currently valid International Standards and ISPs, and the Telecommunications Standardization Bureau of the ITU maintains a list of currently valid ITU-T Recommendations.

Amendments and corrigenda to the base standards referenced are listed in annex B.

NOTE - References in the body of this part of ISO/IEC ISP 12062 to specific clauses of ISO/IEC documents shall be considered to refer also to the corresponding clauses of the equivalent ITU-T Recommendations (as noted below) unless otherwise stated.

ISO/IEC 8613-1: 1994, *Information technology - Open Document Architecture (ODA) and Interchange Format - Part 1: Introduction and general principles.*

ISO/IEC TR 10000-1: 1992, *Information technology - Framework and taxonomy of International Standardized Profiles - Part 1: Framework.*

ISO/IEC TR 10000-2: 1994, *Information technology - Framework and taxonomy of International Standardized Profiles - Part 2: Principles and taxonomy for OSI profiles.*

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 X.400(1992)]*

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 10021-4: 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: 1990, *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 10021-7: 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 ISP 10610-1: 1993, *Information technology - International Standardized Profile FOD11 - Open Document Format: Simple document structure - Character content architecture only - Part 1: Document Application Profile (DAP).*

ISO/IEC ISP 10611-1: 1994, *Information technology - International Standardized Profiles AMH1n - Message Handling Systems - Common Messaging - Part 1: MHS Service Support.*

CCITT Recommendation X.400(1992), *Message handling system and service overview.*

CCITT Recommendation X.402(1992), *Message handling systems: Overall architecture.*

CCITT Recommendation X.411(1992), *Message handling systems: Message transfer system: Abstract service definition and procedures.*

CCITT Recommendation X.413(1992), *Message handling systems: Message store: Abstract service definition.*

CCITT Recommendation X.420(1992), *Message handling systems: Interpersonal messaging system.*

### 3 Definitions

For the purposes of this part of ISO/IEC ISP 12062, the following definitions apply.

Terms used in this part of ISO/IEC ISP 12062 are defined in the referenced base standards; in addition, the following terms are defined.

### 3.1 General

**Basic requirement** : an Element of Service, protocol element, procedural element or other identifiable feature specified in the base standards which is required to be supported by all MHS implementations.

**Functional group** : a specification of one or more related Elements of Service, protocol elements, procedural elements or other identifiable features specified in the base standards which together support a significant optional area of MHS functionality.

NOTE - A functional group can cover any combination of MHS features specified in the base standards for which the effect of implementation can be determined at a standardized external interface - i.e. via a standard OSI communications protocol (other forms of exposed interface, such as a standardized programmatic interface, are outside the scope of this version of ISO/IEC ISP 12062).

### 3.2 Support classification

To specify the support level of Elements of Service for this part of ISO/IEC ISP 12062, the following terminology is defined.

**mandatory support (m)** :

**for origination:**

for MT and MS Elements of Service:

a service provider (i.e. an MTA or MS) shall be able to make the Element of Service available to a service user in the rôle of originator; a service user (i.e. a UA) shall be able to use the Element of Service in the rôle of originator.

for IPM Elements of Service:

a service provider (i.e. an IPM UA) shall implement all procedures specified in the base standards which are associated with the provision of the Element of Service, including use of the corresponding MT or MS Element(s) of Service, as appropriate; where specified in the base standards, a service provider shall make the Element of Service available to the service user in the rôle of originator; in all cases it shall be stated in the PICS whether the Element of Service is made available to the service user and, if so, how this is achieved.

**for reception:**

for MT and MS Elements of Service:

a service provider (i.e. an MTA or MS) shall be able to make the Element of Service available to a service user in the rôle of recipient; a service user (i.e. a UA) shall be able to use the Element of Service in the rôle of recipient.

for IPM Elements of Service:

a service provider (i.e. an IPM UA) shall implement all procedures specified in the base standards which are associated with the provision of the Element of Service, including use of the corresponding MT or MS Element(s) of Service, as appropriate; where specified in the base standards, a service provider shall make the Element of Service available to the service user in the rôle of recipient; in all cases it shall be stated in the PICS whether the Element of Service is made available to the service user and, if so, how this is achieved.

**optional support (o)** : an implementation is not required to support the Element of Service. If support is claimed, then the Element of Service shall be treated as if it were specified as mandatory support.

**conditional support (c)** : the Element of Service shall be supported under the conditions specified in this part of ISO/IEC ISP 12062. If these conditions are met, the Element of Service shall be treated as if it were specified as mandatory support. If these conditions are not met, the Element of Service shall be treated as if it were specified as optional support (unless otherwise stated).

**out of scope (i)** : the Element of Service is outside the scope of this part of ISO/IEC ISP 12062 - i.e. it will not be the subject of an ISP conformance test. However, the handling of associated protocol elements may be specified separately in the subsequent parts of this ISP.

**not applicable (-)** : the Element of Service is not applicable in the particular context in which this classification is used.

### 3.3 Profile object identifiers

Profiles that are specified in ISO/IEC ISP 12062 are identified by the object identifiers in table 1.

NOTE - These object identifiers are included for formal purposes and any use of them is not defined. They are not related to any implementation of messaging and do not appear in the protocols specified in this ISP.

**Table 1 - Profile object identifiers**

Profile	Object Identifier
AMH21	{ iso(1) standard(0) interpersonal-messaging(12062) ipm-content (2) }
AMH22	{ iso(1) standard(0) interpersonal-messaging(12062) ipm-message-transfer(3) }
AMH23	{ iso(1) standard(0) interpersonal-messaging(12062) ipm-mts-access(4) }
AMH24	{ iso(1) standard(0) interpersonal-messaging(12062) ipm-ms-access(5) }

## 4 Abbreviations

84IW	84 Interworking
AMH	Application Message Handling
ASN.1	Abstract Syntax Notation One
CV	Conversion
DIR	Use of Directory
DL	Distribution List
EoS	Element of Service
FG	Functional group
FWD	Manual Forwarding
IPM	Interpersonal Messaging
ISP	International Standardized Profile
LD	Latest Delivery
MHS	Message Handling Systems
MS	Message store
MT	Message transfer
MTA	Message transfer agent
MTS	Message Transfer System
OSI	Open Systems Interconnection
PD	Physical Delivery
PDAU	Physical delivery access unit
RED	Redirection
RoC	Return of Content
SEC	Security
UA	User agent

Support level for Elements of Service (see 3.2):

m mandatory support

- o optional support
- c conditional support
- i out of scope
- not applicable

## 5 Conformance

No conformance requirements are specified in this part of ISO/IEC ISP 12062.

NOTE - This part of ISO/IEC ISP 12062 is a reference specification of the basic requirements and functional groups covered by the AMH2n set of profiles and is additional to the protocol-specific requirements specified in the following parts of ISO/IEC ISP 12062. Although this part of ISO/IEC ISP 12062 contains normative requirements, there is no separate conformance to this part (i.e. it is not identified in the MHS taxonomy in ISO/IEC TR 10000-2) since such requirements are only significant when referenced in the context of a particular protocol.

Conformance requirements are specified by protocol for each MHS functional object in the following parts of ISO/IEC ISP 12062 with reference to the specifications in this part. Support of functionality as specified in this part may only be verifiable where the effect of implementation can be determined at a standardized external interface - i.e. via a standard OSI communications protocol. Further, the provision of Elements of Service and other functionality at a service interface will not necessarily be verifiable unless such interface is realized in the form of a standard OSI communications protocol. Other forms of exposed interface (such as a human user interface or a standardized programmatic interface) may be provided, but are not required for conformance to this version of ISO/IEC ISP 12062.

## 6 Basic requirements

Annex A specifies the basic requirements for support of MHS Elements of Service (EoS) for conformance to ISO/IEC ISP 12062. Basic requirements specify the level of support required by all IPM MHS implementations, as appropriate to each type of MHS functional object - i.e. MTA, MS or UA (as MTS-user or MS-user, as relevant).

An implementation conforming to the basic requirements of ISO/IEC ISP 12062 shall conform to the basic requirements of ISO/IEC ISP 10611, as appropriate to the type of MHS functional object.

### 6.1 Message length

If a UA implementation imposes any constraint on the size of the message content, then such constraint shall be stated in the PICS.

### 6.2 Number of recipients

If a UA implementation imposes any limit on the number of recipients that can be specified in an IPM heading, then such limit shall be stated in the PICS.

## 7 Functional groups

Annex A also specifies any additional requirements for support of MHS EoS if support of an optional functional group (FG) is claimed, as appropriate to each type of MHS functional object. The following subclauses summarize the functionality supported by each of the optional FGs and identify any particular requirements or implementation considerations which are outside the scope of formal conformance to ISO/IEC ISP 12062. A summary of the functional groups, identifying which may be supported (Y) and which are not applicable (N) for each type of MHS functional object (i.e. MTA, MS or UA - whether as MTS-user or as MS-user is not distinguished), is given in table 2.

The conformance requirements for support of the various functional groups, covering support of additional protocol elements and/or procedures, are specified in parts 2, 3, 4 and 5 of this ISP, according to the protocol(s) to which each functional group relates.

Table 2 - Summary of AMH2n optional functional groups

Functional Group	MTA	MS	UA
IPM Conversion (CV)	Y	N	Y
IPM Distribution List (DL)	Y	N	N
IPM Physical Delivery (PD)	Y	N	Y
IPM Manual Forwarding (FWD)	N	N	Y
IPM Redirection (RED)	Y	N	Y
IPM Latest Delivery (LD)	Y	N	Y
IPM Return of Content (RoC)	Y	Y	Y
IPM Security (SEC)	Y	Y	Y
IPM Use of Directory (DIR)	Y	N	Y
IPM 84 Interworking (84IW)	Y	N	Y

### 7.1 IPM Conversion (CV)

The IPM Conversion FG covers support of those EoS which provide the functionality required to perform the action of message body part conversion. Support of the IPM CV FG is applicable to an MTA or a UA. Support of the IPM CV FG by an MTA covers support of either or both of the Explicit Conversion and Implicit Conversion EoS. Support of the IPM CV FG by a UA covers support of the Explicit Conversion EoS only.

NOTE - Support of EoS associated with conversion prohibition is a basic MTA requirement, but this does not imply a capability to perform conversion.

A UA implementation conforming to the IPM CV FG shall support use of the MT Explicit Conversion EoS and the MT Conversion Prohibition in Case of Loss of Information EoS. It shall be stated in the PICS which encoded information type conversions the UA can request.

An MTA implementation conforming to the IPM CV FG shall conform to the Common Messaging CV FG as specified in ISO/IEC ISP 10611 in an IPM context (i.e. the ability to perform conversion of IPM body parts is required).

### 7.2 IPM Distribution List (DL)

The IPM Distribution List FG covers all issues relating to the performance of distribution list (DL) expansion. Support of the IPM DL FG is only applicable to an MTA.

An implementation conforming to the IPM DL FG shall conform to the Common Messaging DL FG as specified in ISO/IEC ISP 10611. There are no additional requirements for an MTA in an IPM environment.

### 7.3 IPM Physical Delivery (PD)

The IPM Physical Delivery FG is concerned with access to physical delivery (i.e. postal, courier, etc) services. The IPM PD FG comprises two separate and distinct parts:

- support of PD EoS on origination and submission;

- support of a co-located physical delivery access unit (PDAU).

Support of PD EoS on submission is applicable to an MTA or a UA. Support of a PDAU is only applicable to an MTA. The requirements for the PDAU itself are outside the scope of this ISP.

An implementation conforming to the IPM PD FG shall conform to the Common Messaging PD FG as specified in ISO/IEC ISP 10611. There are no additional requirements for an MTA or UA in an IPM environment.

#### 7.4 IPM Manual Forwarding (FWD)

The IPM Manual Forwarding FG covers support for forwarding of messages by the MHS user. Support of the IPM FWD FG is only applicable to a UA.

A UA implementation conforming to the IPM FWD FG shall support the Forwarded IP-message Indication EoS on origination.

#### 7.5 IPM Redirection (RED)

The IPM Redirection FG covers support of those EoS which provide the functionality required to perform the actions associated with the delivery of a message to a recipient other than the one initially specified by the originator. Support of the IPM RED FG is applicable to an MTA or a UA.

An MTA implementation conforming to the IPM RED FG shall conform to the Common Messaging RED FG as specified in ISO/IEC ISP 10611. There are no additional requirements for an MTA in an IPM environment.

A UA implementation conforming to the IPM RED FG shall support use of the following MT EoS:

- Alternate Recipient Allowed
- Originator Requested Alternate Recipient
- Redirection of Incoming Messages

#### 7.6 IPM Latest Delivery (LD)

The IPM Latest Delivery FG covers support of the Latest Delivery EoS - i.e. the functionality required to cause non-delivery to occur if a latest delivery time specified by the originator has expired. Support of the IPM LD FG is applicable to an MTA or a UA.

An implementation conforming to the IPM LD FG shall conform to the Common Messaging LD FG as specified in ISO/IEC ISP 10611. There are no additional requirements for an MTA or UA in an IPM environment.

#### 7.7 IPM Return of Content (RoC)

The IPM Return of Content FG covers support of the Return of Content EoS - i.e. the functionality required to cause the contents of a submitted message to be returned in any non-delivery notification if so requested by the originator. Support of the IPM RoC FG is applicable to an MTA, an MS or a UA.

NOTE - The IPM RoC FG is concerned only with the return of content in a non-delivery notification, not with return of an IPM in a non-receipt notification.

An implementation conforming to the IPM RoC FG shall conform to the Common Messaging RoC FG as specified in ISO/IEC ISP 10611. There are no additional requirements for an MTA, MS or UA in an IPM environment.

#### 7.8 IPM Security (SEC)

The IPM Security FG covers the provision of secure messaging in an IPM environment and is specified as three **security classes** which are incremental subsets of the security features available in the MHS base standards:

- S0** This security class only requires security functions which are applicable between MTS-users. Consequently security mechanisms are implemented within the MTS-user. An MTA is only required to support the syntax of the security services on submission and delivery (support of the syntax on relaying is a basic requirement). An MTA is not expected to understand the semantics of the security services.
- S1** This security class requires security functionality within both the MTS-user and the MTS. The MTS security functionality is only required to achieve secure access management. As with S0, most of the security mechanisms are implemented within an MTS user. S1 primarily provides integrity and authentication between MTS users. However, MTAs are expected to support digital signatures for peer-to-peer authentication, security labelling and security contexts.
- S2** This security class adds security functions within MTAs and the MTS. The main security function added within this class is authentication within the MTS, and hence non-repudiation can also be provided.

In addition, each of the three security classes has a variant (denoted as **S0C**, **S1C** and **S2C**) which requires support of end-to-end content confidentiality.

Support of the SEC FG is applicable to an MTA, an MS or a UA (either as MTS-user or as MS-user) and requires as a minimum support of security class S0.

An implementation conforming to the IPM SEC FG shall conform to the Common Messaging SEC FG as specified in ISO/IEC ISP 10611. There are no additional requirements for an MTA, UA or MS in an IPM environment.

## 7.9 IPM Use of Directory (DIR)

The IPM Use of Directory functional group covers support of the Designation of Recipient by Directory Name EoS as follows:

- support of specification of a recipient by means of a directory name by an MTS-user or an MTA on submission;
- support of access to a directory service by an MTA to obtain one or more O/R addresses (either on submission or subsequently if an O/R address is absent or determined to be invalid and a directory name is present).

NOTE - A directory may also be used directly by MHS users to obtain information to assist in the submission of messages. However, such use is not necessarily MHS-specific and is therefore outside the scope of this ISP.

An implementation conforming to the IPM DIR FG shall conform to the Common Messaging DIR FG as specified in ISO/IEC ISP 10611. There are no additional requirements for an MTA or UA in an IPM environment.

## 7.10 IPM 84 Interworking (84IW)

The 84 Interworking functional group covers interworking between implementations conforming to ISO/IEC ISP 12062 (hereafter referred to as '1988 systems') and implementations conforming to the CCITT X.400(1984) Recommendations (hereafter referred to as '1984 systems').

Support of the 84IW FG is applicable to an MTA or a UA.

An MTA implementation conforming to the IPM 84IW FG shall conform to the Common Messaging 84IW FG as specified in ISO/IEC ISP 10611. There are no additional requirements for an MTA in an IPM environment.

A UA implementation conforming to the IPM 84IW FG shall support origination and reception of IPM content identified as integer 2 as specified in subclause 20.2 of ISO/IEC 10021-7 and shall support origination of IA5 Text body parts.

Additional recommended practices for interworking with 1984 systems are described in annex C, covering procedures for downgrading IPM content type 22 to content type 2.

## 8 Naming and addressing

Implementations shall support naming and addressing capabilities as specified in clause 8 of ISO/IEC ISP 10611-1. In addition, a UA implementation shall support use of the numeric and terminal O/R address forms to identify recipients (support of these forms to identify the UA itself is not required).

## 9 Error and exception handling

The upper bounds defined in annex K of ISO/IEC 10021-7 are normative for the purposes of this ISP.

An implementation shall not generate elements which exceed such bounds.

An implementation detecting a violation of such bounds may generate a size-constraint-violation, but is not required to do so.

An implementation is not required to be able to accept elements up to such bounds where an appropriate error indication is defined in the base standards.

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## Annex A

### (normative)

### Elements of Service

In the event of a discrepancy becoming apparent in the body of this part of ISO/IEC ISP 12062 and the tables in this annex, this annex is to take precedence.

#### A.1 MT Elements of Service

The requirements for support of MT EoS by an MTA are as specified in clause A.1 of ISO/IEC ISP 10611-1. The following tables specify the requirements for use of such services by an MTS-user in an IPM environment (i.e. IPM UA) for conformance to ISO/IEC ISP 12062. Whether such services are made available to the MHS user is covered in the AMH21 PICS proforma.

In the following tables, the "Basic" column reflects the basic requirements for conformance to ISO/IEC ISP 12062 - i.e. the minimum level of support required by all IPM UA implementations (see clause 6). The "Functional Group" column specifies any additional support requirements if support of an optional functional group is claimed (see clause 7). Each column is then further subdivided into support for origination ("Orig") and reception ("Rec") as defined in 3.2, together with the abbreviated name of the functional group ("FG") in the case of the second column.

**Table A.1 - Elements of Service Belonging to The Basic IPM Service (MT EoS)**

Element of Service	Basic		Functional Group		
	Orig.	Rec.	FG	Orig.	Rec.
Access Management	m	m			
Content Type Indication	m	m			
Converted Indication	-	m			
Delivery Time Stamp Indication	-	m			
Message Identification	m	m			
Non-delivery Notification	m	-			
Original Encoded Information Types Indication	m	m			
Submission Time Stamp Indication	m	m			
User/UA Capabilities Registration	-	m			

Table A.2 - IPM Optional User Facilities (MT EoS)

Element of Service	Basic		Functional Group		
	Orig.	Rec.	FG	Orig.	Rec.
Additional Physical Rendition	o	–			
Alternate Recipient Allowed	o	–	RED	m	
Alternate Recipient Assignment <sup>2</sup>	–	–			
Basic Physical Rendition	o	–	PD	m	
Content Confidentiality	o	o	SEC	c <sup>1</sup>	c <sup>1</sup>
Content Integrity	o	o	SEC	c <sup>1</sup>	c <sup>1</sup>
Conversion Prohibition	m	m			
Conversion Prohibition in Case of Loss of Information	o	o	CV	m	m
Counter Collection	o	–	PD	m	
Counter Collection with Advice	o	–			
Deferred Delivery	m	–			
Deferred Delivery Cancellation <sup>3</sup>	m	–			
Delivery Notification	m	–			
Delivery via Bureau Fax Service	o	–			
Designation of Recipient by Directory Name	o	–	DIR	m	
Disclosure of Other Recipients	o	m			
DL Expansion History Indication	–	m			
DL Expansion Prohibited	m <sup>4</sup>	–			
EMS (Express Mail Service)	o	–	PD	m	
Explicit Conversion	o	–	CV	m	
Grade of Delivery Selection	m	m			
Hold for Delivery	–	o			
Implicit Conversion	–	–			
Latest Delivery Designation	o	–	LD	m	
Message Flow Confidentiality	i	i			
Message Origin Authentication	o	o	SEC	c <sup>1</sup>	c <sup>1</sup>

Element of Service	Basic		Functional Group		
	Orig.	Rec.	FG	Orig.	Rec.
Message Security Labelling	o	o	SEC	c <sup>1</sup>	c <sup>1</sup>
Message Sequence Integrity	o	o			
Multi-destination Delivery	m	–			
Non-repudiation of Delivery	o	o	SEC	c <sup>1</sup>	c <sup>1</sup>
Non-repudiation of Origin	o	o	SEC	c <sup>1</sup>	c <sup>1</sup>
Non-repudiation of Submission	i	–	SEC	c <sup>1</sup>	
Ordinary Mail	o	–	PD	m	
Originator Requested Alternate Recipient	o	–	RED	m	
Physical Delivery Notification by MHS	o	–			
Physical Delivery Notification by PDS	o	–			
Physical Forwarding Allowed	o	–	PD	m	
Physical Forwarding Prohibited	o	–	PD	m	
Prevention of Non-delivery Notification	o	–			
Probe	o	–			
Probe Origin Authentication	i	–	SEC	c <sup>1</sup>	
Proof of Delivery	o	o	SEC	c <sup>1</sup>	c <sup>1</sup>
Proof of Submission	i	–	SEC	c <sup>1</sup>	
Redirection Disallowed by Originator	m <sup>4</sup>	–			
Redirection of Incoming Messages <sup>5</sup>	–	o	RED		m
Registered Mail	o	–			
Registered Mail to Addressee in Person	o	–			
Report Origin Authentication	i	i	SEC	c <sup>1</sup>	c <sup>1</sup>
Request for Forwarding Address	o	–			
Requested Preferred Delivery Method	o	–			
Restricted Delivery	–	i			
Return of Content	o	–	RoC	m	

Element of Service	Basic		Functional Group		
	Orig.	Rec.	FG	Orig.	Rec.
Secure Access Management	o	o	SEC	c <sup>1</sup>	c <sup>1</sup>
Special Delivery	o	–	PD	m	
Undeliverable Mail with Return of Physical Message	o	–	PD	m	
Use of Distribution List	m <sup>6</sup>	–			

NOTES

- Support is according to the security class for which support is claimed - see clause A.1 of ISO/IEC ISP 10611-1.
- The method by which an alternate recipient is specified to the MTA is outside the scope of this ISP.
- Performance of this EoS is not guaranteed if the message has already been transferred from the submitting MTA.
- Support of this EoS has been made mandatory as the default is "allowed" (the capability to generate both the "prohibited" value and the "allowed" value is required).
- It is not required that support of this EoS is achieved using the Register operation.
- Use of Distribution List on submission is always possible as DLs cannot be distinguished from other O/R addresses.

## A.2 MS Elements of Service

The requirements for support of MS EoS by an MS are as specified in clause A.2 of ISO/IEC ISP 10611-1. The following tables specify the requirements for use of such services by an MS-user in an IPM environment (i.e. IPM UA) for conformance to ISO/IEC ISP 12062. Whether such services are made available to the MHS user is covered in the AMH21 PICS proforma.

In the following tables, the "Basic" column reflects the basic requirements for conformance to ISO/IEC ISP 12062 - i.e. the minimum level of support required by all IPM UA implementations (see clause 6). The "Functional Group" column specifies any additional support requirements if support of an optional functional group is claimed (see clause 7), together with the abbreviated name of the functional group ("FG").

**Table A.3 - Base Message Store**

Element of Service	Basic	Functional Group	
	UA	FG	UA
MS Register	o		
Stored Message Deletion	m		
Stored Message Fetching	m		
Stored Message Listing	m		
Stored Message Summary	m		

Table A.4 - MS Optional User Facilities

Element of Service	Basic	Functional Group	
	UA	FG	UA
Stored Message Alert	o		
Stored Message Auto-forward	o		

### A.3 IPM-specific Elements of Service

The following tables specify the requirements for support of IPM-specific Elements of Service by an MTS-user in an IPM environment (i.e. IPM UA) for conformance to ISO/IEC ISP 12062. Whether such services are made available to the MHS user is covered in the AMH21 PICS proforma.

In the following tables, the "Basic" column reflects the basic requirements for conformance to ISO/IEC ISP 12062 - i.e. the minimum level of support required by all IPM UA implementations (see clause 6). The "Functional Group" column specifies any additional support requirements if support of an optional functional group is claimed (see clause 7). Each column is then further subdivided into support for origination ("Orig") and reception ("Rec") as defined in 3.2, together with the abbreviated name of the functional group ("FG") in the case of the second column.

Table A.5 - Elements of Service Belonging to The Basic IPM Service (IPM EoS)

Element of Service	Basic		Functional Group		
	Orig	Rec.	FG	Orig.	Rec.
IP-message Identification	m	m			
Typed Body	m	m			

Table A.6 - IPM Optional User Facilities (IPM EoS)

Element of Service	Basic		Functional Group		
	Orig.	Rec.	FG	Orig.	Rec.
Authorizing Users Indication	o	m			
Auto-forwarded Indication	o	m			
Blind Copy Recipient Indication	o	m			
Body Part Encryption Indication	o	m			
Cross-referencing Indication	o	m			
Expiry Date Indication	o	m			
Forwarded IP-message Indication	o	m	FWD	m	
Importance Indication	o	m			
Incomplete Copy Indication	o	m			
Language Indication	o	m			
Multi-part Body	m	m			
Non-receipt Notification Request Indication	o	m <sup>1</sup>			
Obsoleting Indication	o	m			
Originator Indication	m	m			
Primary and Copy Recipients Indication	m	m			
Receipt Notification Request Indication	o	o			
Reply Request Indication	o	m			
Replying IP-message Indication	m	m			
Sensitivity Indication	o	m			
Subject Indication	m	m			
<b>NOTES</b>					
1 The capability to generate a non-receipt notification does not have to be demonstrated for an implementation in which a non-receipt condition cannot occur.					

## Annex B

### (normative)

### Amendments and corrigenda

International Standards are subject to constant review and revision by the ISO/IEC Technical Committees concerned. The following amendments and corrigenda are approved by ISO/IEC JTC1 and are considered as normative references in this part of ISO/IEC ISP 12062.

NOTE - Corresponding corrigenda to the equivalent CCITT Recommendations are contained in the joint *MHS Implementors' Guide*, Version 11 (ITU Special Rapporteur's Group on Message Handling Systems and ISO/IEC JTC1/SC18/WG4 SWG on Messaging).

ISO/IEC 10021-1:1990/Cor.1:1991	ISO/IEC 10021-5:1990/Cor.1:1991
ISO/IEC 10021-1:1990/Cor.2:1991	ISO/IEC 10021-5:1990/Cor.2:1991
ISO/IEC 10021-1:1990/Cor.3:1992	ISO/IEC 10021-5:1990/Cor.3:1992
ISO/IEC 10021-1:1990/Cor.4:1992	ISO/IEC 10021-5:1990/Cor.4:1992
ISO/IEC 10021-1:1990/Cor.5:1992	ISO/IEC 10021-5:1990/Cor.5:1992
ISO/IEC 10021-1:1990/Cor.6:1994	ISO/IEC 10021-5:1990/Cor.6:1993
ISO/IEC 10021-2:1990/Cor.1:1991	ISO/IEC 10021-5:1990/Cor.7:1994
ISO/IEC 10021-2:1990/Cor.2:1991	ISO/IEC 10021-7:1990/Cor.1:1991
ISO/IEC 10021-2:1990/Cor.3:1992	ISO/IEC 10021-7:1990/Cor.2:1991
ISO/IEC 10021-2:1990/Cor.4:1992	ISO/IEC 10021-7:1990/Cor.3:1992
ISO/IEC 10021-2:1990/Cor.5:1993	ISO/IEC 10021-7:1990/Cor.4:1992
ISO/IEC 10021-2:1990/Cor.6:1994	ISO/IEC 10021-7:1990/Cor.5:1992
ISO/IEC 10021-2:1990/Cor.7:1994	ISO/IEC 10021-7:1990/Cor.6:1993
ISO/IEC 10021-4:1990/Cor.1:1991	ISO/IEC 10021-7:1990/Cor.7:1994
ISO/IEC 10021-4:1990/Cor.2:1991	ISO/IEC 10021-7:1990/Cor.8:1994
ISO/IEC 10021-4:1990/Cor.3:1992	
ISO/IEC 10021-4:1990/Cor.4:1992	ISO/IEC 10021-1:1990/Amd.2:1994
ISO/IEC 10021-4:1990/Cor.5:1992	ISO/IEC 10021-2:1990/Amd.1:1993
ISO/IEC 10021-4:1990/Cor.6:1993	ISO/IEC 10021-2:1990/Amd.2:1994
ISO/IEC 10021-4:1990/Cor.7:1994	ISO/IEC 10021-4:1990/Amd.1:1994
ISO/IEC 10021-4:1990/Cor.8:1994	

## Annex C

(informative)

### Additional recommended practices for 1984 interworking

#### C.1 Introduction

This annex provides some additional recommendations concerning interworking between IPM UA implementations conforming to ISO/IEC ISP 12062 (hereafter referred to as '1988 systems') and IPM UA implementations conforming to earlier versions of the MHS base standards (hereafter referred to as '1984 systems').

Such recommendations are additional to the requirements of the IPM 84 Interworking functional group, either because the interworking issue in question is outside the scope of the MHS base standards (and hence also outside the scope of formal conformance to this ISP) or because it is anticipated that the issue should be resolved in the MHS base standards.

The recommendations in this annex are concerned with the downgrading of interpersonal messages (IPMs) and interpersonal notifications (IPNs) from content type 22 to content type 2. Such a capability could be implemented in an originating IPM UA or elsewhere in the message path.

This annex does not specify the conditions under which an implementation may invoke these procedures, or how a requirement for downgrading of a particular IPM or IPN should be determined. Such determination will require knowledge of the recipient's capabilities, bilateral agreements, configuration or some other appropriate means. Without such knowledge it may be inappropriate to invoke these procedures, and it is strongly recommended that content downgrading is only performed when it is known that it is appropriate to do so.

NOTE - Recommended practices for interworking between 1988 and 1984 MTA implementations are covered in annex D of ISO/IEC ISP 10611-1.

#### C.2 Downgrading an Interpersonal Message (IPM)

Downgrading of an IPM of content type 22 is as follows.

These rules are also applied recursively to an IPM in a Message body part if the delivered content type of that IPM is known to be 2.

Downgrading of an IPM containing both 1984 and 1988 recipients should only be performed for 1984 recipients (i.e. such an IPM will need to be split).

Any prohibition on implicit conversion or conversion with loss is only concerned with encoded information types and therefore has no impact on any transformation of heading elements.

##### C.2.1 Extensions

If the extensions field is present in the heading, or any recipient extensions field is present in a recipient specifier, then each such field is deleted.

##### C.2.2 O/R Descriptors

If an O/R descriptor contains a formal-name (an O/R name), then the O/R name is downgraded as specified in subclause B.2.7 of ISO/IEC 10021-6.

NOTE - O/R descriptors occur in each of the originator, authorizing-users, primary-recipients, copy-recipients, blind-copy-recipients and reply-recipients heading fields.

For an originator O/R descriptor, if, after applying these rules, the formal-name has not been downgraded, then downgrading of the content always fails and a non-delivery notification should be returned.

For other O/R descriptors, if, after applying these rules, downgrading has failed, then information from the directory name and/or the original O/R address may be captured in an implementation-defined manner (for example, it may be placed in the free-form-name or in a domain-defined attribute) and the formal-name may then be deleted.

### C.2.3 IPM Identifiers

If an IPM identifier contains an O/R name, then the O/R name is downgraded as specified in subclause B.2.7 of ISO/IEC 10021-6.

NOTE - IPM identifiers occur in each of the this-IPM, replied-to-IPM, obsoleted-IPMs and related-IPMs heading fields.

If the O/R name cannot be downgraded, then it is deleted. In such a case, if it is not known that the user-relative-identifier is sufficient on its own for reference purposes, then a string value of "..." should be appended to the user-relative-identifier to indicate that significant information may have been lost. If the result would cause the upper bound to be exceeded, then the "..." string will have to overwrite one or more trailing characters of the original string.

### C.2.4 Delivery Envelope

The delivery-envelope, if present in the parameters element of a Message body part, is downgraded according to the following rules. If the delivery-envelope cannot be downgraded, then it is deleted.

If the content-identifier is present, then it is deleted.

If the extensions element is present, then it is deleted.

NOTE 1 - Criticality indicators do not apply.

NOTE 2 - The redirection-history extension should not be transformed into the equivalent format as specified in the suspended 1986 version of MOTIS, since the latter's use of tag [9] conflicts with the use of this tag value for the extensions element in OtherMessageDeliveryFields in ISO/IEC 10021-4.

If the delivered content type is 22, then it is changed to 2.

All O/R names are downgraded as specified in subclause B.2.7 of ISO/IEC 10021-6.

If the originator-name or this-recipient-name cannot be downgraded, then the delivery-envelope cannot be downgraded.

If the originally-intended-recipient-name cannot be downgraded, then either it is deleted or the delivery-envelope cannot be downgraded.

If an other-recipient-name cannot be downgraded, then either that name is deleted or all the other-recipient-names are deleted.

Encoded information types are downgraded as specified in subclause B.2.9 of ISO/IEC 10021-6.

### C.2.5 Body

If the syntax element is present in the parameters element of a Videotex body part, then it is deleted.

If an IA5 Text body part or a Message body part is represented as an Externally Defined body part, then it is transformed into the corresponding basic body part type. If an Externally Defined body part is of an extended body part type other than IA5 Text or Message, and that body part type has a basic body part type defined, then the Externally Defined body part may be transformed into the corresponding basic body part type. Annex B of