INTERNATIONAL STANDARDIZED PROFILE

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Information technology — International Standardized Profiles AMH1n — Message Handling Systems — Common Messaging —

Part 2:
Specification of ROSE, RTSE, ACSE, Presentation and Session Protocols for use by MHS

Technologies de l'information — Profils normalisés internationaux AMH1n — Systèmes de messagerie — Messagerie commune —

Partie 2: Spécification des protocoles ROSE, RTSE, ACSE, Présentation et Session pour utilisation par MHS

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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. In addition to developing International Standards, ISO/IEC JTC 1 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 a 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 10611-2 was prepared with the collaboration of:

— Asia-Oceania Workshop (AOW);

— European Workshop for Open Systems (EWOS);

— Open Systems Environment Implementors' Workshop (OIW).

This second edition cancels and replaces the first edition (ISO/IEC ISP 10611-2:1994), which has been technically revised. It also incorporates Technical Corrigendum 1:1996.

ISO/IEC ISP 10611 consists of the following parts, under the general title *Information technology - International Standardized Profiles AMH1n - Message Handling Systems - Common Messaging*:

— *Part 1: MHS Service Support*

— *Part 2: Specification of ROSE, RTSE, ACSE, Presentation and Session Protocols for use by MHS*

— *Part 3: AMH11 - Message Transfer (P1)*

— *Part 4: AMH12 and AMH14 - MTS Access (P3) and MTS 94 Access (P3)*

— *Part 5: AMH13 - MS Access (P7)*

— *Part 6: AMH15 - MS 94 Access (P7)*

Annexes A, B, C and D form an integral part of this part of ISO/IEC ISP 10611.

Introduction

This part of ISO/IEC ISP 10611 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. 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 10611 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 10611 is harmonized between these three Workshops and it has been ratified by the plenary assemblies of all three Workshops.

Information technology – International Standardized Profiles AMH1n – Message Handling Systems – Common Messaging –

Part 2: Specification of ROSE, RTSE, ACSE, Presentation and Session Protocols for use by MHS

1   Scope

1.1   General

This part of ISO/IEC ISP 10611 specifies how the Remote Operations Service Element, the Reliable Transfer Service Element, the Association Control Service Element, the Presentation Layer, and the Session Layer standards shall be used to provide the required OSI upper layer functions for MHS (see also figure 1). These specifications are therefore the common basis for the Common Messaging application functions, as defined in the other parts of ISO/IEC ISP 10611, and for content type-dependent International Standardized Profiles for MHS that will be developed.

1.2   Position within the taxonomy

This part of ISO/IEC ISP 10611 is the second part, as common text, of a multipart ISP identified in ISO/IEC TR 10000-2 as "AMH1, Message Handling Systems – Common Messaging".

This part of ISO/IEC ISP 10611 does not, on its own, specify any profiles.

1.3   Scenario

The model used is one of two end systems running an end-to-end association using either or both of RTSE and ROSE, and the ACSE, Presentation and Session services and protocols (see figure 1).
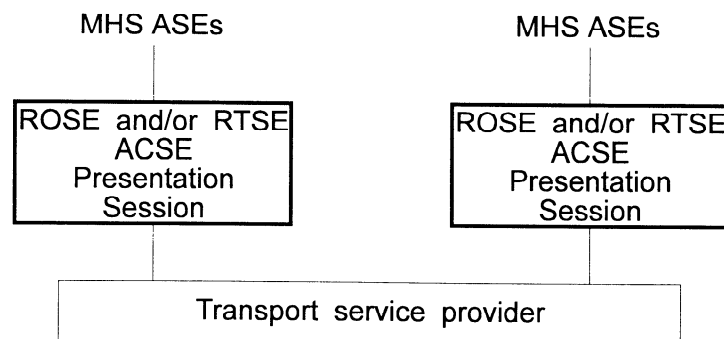

Figure 1 - Model of the supportive layers

The OSI upper layer services and protocols to support the Message Handling Systems functions covered by the AMH1 set of profiles are specified in the set of standards identified in table 1.

Table 1 - AMH profile model

Application Layer	MHS	ISO/IEC 10021-6
	ROSE	ISO/IEC 9072-2
	RTSE	ISO/IEC 9066-2
	ACSE	see ISO/IEC ISP 11188-1
Presentation Layer		see ISO/IEC ISP 11188-1
Session Layer		see ISO/IEC ISP 11188-1

2   Normative references

The following documents contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC ISP 10611. 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 10611 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.

NOTE - References in the body of this part of ISO/IEC ISP 10611 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 9066-2: 1989, *Information processing systems - Text communication - Reliable Transfer - Part 2: Protocol specification.*

ISO/IEC 9066-3: 1996 | ITU-T Recommendation X.248(1995), *Information technology - Open Systems Interconnection - Reliable Transfer - Protocol Implementation Conformance Statement (PICS) proforma.*

ISO/IEC 9072-2: 1989, *Information processing systems - Text communication - Remote Operations - Part 2: Protocol specification.*

ISO/IEC 9072-4:—[1] | ITU-T Recommendation X.249(1995), *Information technology - Open Systems Interconnection - Remote Operations: Protocol Implementation Conformance Statement (PICS) proforma.*

ISO/IEC TR 10000-1:—[2], *Information technology - Framework and taxonomy of International Standardized Profiles - Part 1: General principles and documentation framework.*

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

ITU-T Recommendation X.419 (1995) | ISO/IEC 10021-6: 1996, *Information technology - Message Handling Systems (MHS): Protocol specifications.*

ISO/IEC ISP 10611-1: 1997, *Information technology - International Standardized Profiles AMH1n - Message Handling Systems - Common Messaging - Part 1: MHS Service Support.*

ISO/IEC ISP 11188-1: 1995, *Information technology - International Standardized Profile - Common upper layer requirements - Part 1: Basic connection oriented requirements.*

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[1] To be published.

[2] To be published. (Revision of ISO/IEC 10000:1995)

3 Definitions

For the purposes of this part of ISO/IEC ISP 10611, the following definitions apply.

Terms used in this part of ISO/IEC ISP 10611 are as defined in the referenced base standards; in addition, the terms defined in ISO/IEC ISP 11188-1 apply.

4 Abbreviations

AC   Application context
ACSE   Association Control Service Element
AMH   Application Message Handling
APDU   Application protocol data unit
ASN.1   Abstract Syntax Notation One
ISP   International Standardized Profile
MHS   Message Handling Systems
OSI   Open Systems Interconnection
PICS   Protocol Implementation Conformance Statement
ROSE   Remote Operations Service Element
RTSE   Reliable Transfer Service Element

Support level for protocol features (see subclause 4.2 of ISO/IEC ISP 11188-1):

m   mandatory support
o   optional support
c   conditional support
i   out of scope
—   not applicable

5 Conformance

This part of ISO/IEC ISP 10611 states requirements upon implementations to achieve interworking. A claim of conformance to this part of ISO/IEC ISP 10611 is a claim that all requirements in the relevant base standards are satisfied, that all the requirements in ISO/IEC ISP 11188-1 are satisfied, and that all requirements in the following clauses and in the annexes of this part of ISO/IEC ISP 10611 are satisfied. Annexes A, B and C state the relationship between these requirements and those of the base standards.

5.1 Conformance statement

The subsequent parts of ISO/IEC ISP 10611 specify the requirements for support of particular MHS application contexts. The requirements for conformance to this part of ISO/IEC ISP 10611 are as appropriate to the MHS application context(s) for which support is claimed, in accordance with ISO/IEC 10021-6.

For each implementation claiming conformance to this part of ISO/IEC ISP 10611 an appropriate set of PICSs shall be made available stating support or non-support of each option identified in this part of ISO/IEC ISP 10611.

5.2 Relationship with base standards

5.2.1 ROSE conformance

Implementations claiming support of any MHS application context which includes the Remote Operations Service Element (ROSE) shall implement all mandatory support (m) features (as specified in clause 6) except those features that are components of an unimplemented optional feature. It shall be stated which optional support (o) features are implemented.

5.2.2 RTSE conformance

Implementations claiming support of any MHS application context which includes the Reliable Transfer Service Element (RTSE) shall implement normal mode and optionally X.410-1984 mode (as appropriate) and shall implement all mandatory support (m) features (as specified in clause 7) except those features that are components of an unimplemented optional feature. It shall be stated which optional support (o) features are implemented.

5.2.3 ACSE conformance

To conform to the Association Control Service Element (ACSE) protocol used in this part of ISO/IEC ISP 10611, implementations shall implement normal mode and optionally X.410-1984 mode (as appropriate) and shall implement all mandatory support (m) features (as specified in clause 8) except those features that are components of an unimplemented optional feature. It shall be stated which optional support (o) features are implemented.

5.2.4 Presentation layer conformance

To conform to the Presentation protocol used in this part of ISO/IEC ISP 10611, implementations shall implement normal mode and optionally X.410-1984 mode (as appropriate) and shall implement all mandatory support (m) features (as specified in clause 9) except those features that are components of an unimplemented optional feature. It shall be stated which optional support (o) features are implemented.

5.2.5 Transfer syntax conformance

Implementations conforming to this part of ISO/IEC ISP 10611 shall support the "Basic Encoding of a single ASN.1 type" as specified in ISO/IEC ISP 11188-1.

5.2.6 Session layer conformance

To conform to the Session protocol used in this part of ISO/IEC ISP 10611, implementations shall implement all mandatory support (m) features (as specified in clause 10) except those features that are components of an unimplemented optional feature. It shall be stated which optional support (o) features are implemented.

6 Remote Operations Service Element (ROSE)

The Remote Operations Service Element (ROSE) shall be supported for any P3 or P7 application context.

NOTE - P3 and P7 remote operations are Class 2 (asynchronous) operations.

The support of functions and parameters for ROSE is as specified in annex C of this part of ISO/IEC ISP 10611.

7 Reliable Transfer Service Element (RTSE)

The Reliable Transfer Service Element (RTSE) shall be supported for any P1 application context and for any P3 or P7 application context involving RTSE.

The support of functions and parameters for RTSE is as specified in annex B of this part of ISO/IEC ISP 10611 and as described below.

7.1 Dialogue-mode

Monologue dialogue-mode shall be supported for any P1 application context. In addition, two-way alternate dialogue-mode may optionally be supported.

Two-way alternate dialogue-mode shall be supported for any P3 or P7 application context involving RTSE.

In monologue dialogue-mode, the initiator shall keep the initial turn.

7.2 Checkpointing

Checkpointing shall be supported, both as initiator and as responder.

Use of no checkpointing without prior bilateral agreement on maximum APDU size is discouraged.

It shall be stated in the PICS which values of checkpoint size and window size are supported as initiator and as responder, and the maximum APDU size that can be supported in no checkpointing mode.

7.3 Mode

Normal mode shall be supported for the P1 mts-transfer application context and for any P3 or P7 application context. X.410-1984 mode shall be supported for the P1 mts-transfer-protocol and mts-transfer-protocol-1984 application contexts.

7.4 Elements of procedure

Use of checkpointing does not imply that association recovery is used.

NOTE - It is recommended that the RTSE association recovery procedure (subclause 7.8.3 of ISO/IEC 9066-2) is not used in a secure messaging environment, since the authentication of the RTSE association may be compromised (this is currently the subject of an RTSE defect report). It is permissible, however, to use the RTSE activity resumption procedure (subclause 7.8.1 of ISO/IEC 9066-2) on an existing, authenticated, RTSE association.

8 Association Control Service Element (ACSE)

The support of functions and parameters for the Association Control Service Element is as specified in ISO/IEC ISP 11188-1 subject to any additional requirements in annex A of this part of ISO/IEC ISP 10611.

9 Presentation layer

The support of functions and parameters for the Presentation protocol is as specified in ISO/IEC ISP 11188-1 subject to any additional requirements in annex A of this part of ISO/IEC ISP 10611.

10 Session layer

The support of functions and parameters for the Session protocol is as specified in ISO/IEC ISP 11188-1 subject to any additional requirements in this clause and in annex A of this part of ISO/IEC ISP 10611.

10.1 Session version

Session version 2 shall be supported for the P1 mts-transfer application context and for any P3 or P7 application context. Session version 1 shall be supported for the P1 mts-transfer-protocol application context and for the P1 mts-transfer-protocol-1984 application context.

Any requirements with respect to which version(s) may be proposed for a particular association are as specified in the base standards, except that only version 1 shall be proposed for the P1 mts-transfer-protocol-1984 application context.

Annex A

(normative)

ISPICS Requirements List

Specific Upper Layer Requirements for ACSE, Presentation and Session

A.1　General

In the event of a discrepancy becoming apparent in the body of this part of ISO/IEC ISP 10611 and the tables in this annex, this annex is to take precedence.

The tables of this annex specify the level of support for the ACSE, Presentation and Session protocols, as required by the International Standardized Profiles AMHnn. Where features of these protocols are not specified in the tables of this annex then the requirements for conformance to this part of ISO/IEC ISP 10611 are as specified in the corresponding annex of ISO/IEC ISP 11188-1. The notation used for references is as specified in clause A.2 of ISO/IEC ISP 11188-1.

A.2　Classification of requirements

In each table, the "Base" column reflects the level of support required for conformance to the base standard and the "Profile" column reflects the level of support required by this ISP. The specification of levels of support uses the classification defined in subclause 4.2 of ISO/IEC ISP 11188-1.

A.3　Association Control Service Element

A.3.1　Supported rôles

A.3.1.1 Association establishment

Ref	Capability	Base	Profile
A.A.5.1/1	Association initiator	o	c1
A.A.5.1/2	Association responder	o	c2

c1 - if any P1 or P3 AC is supported, or if any P7 AC is supported by a UA, then m else i

c2 - if any P1 or P3 AC is supported, or if any P7 AC is supported by an MS, then m else i

A.3.2 Protocol mechanisms

Ref	Protocol Mechanism	Base	Profile
A.A.6/1	Normal mode	o	c1
A.A.6/2	X.410-1984 mode	o	c2
A.A.6/4	Supports operation of Session version 2	o	c1

c1 - if only the P1 **mts-transfer-protocol** and/or P1 **mts-transfer-protocol-1984** AC is supported then o else m

c2 - if the P1 **mts-transfer-protocol** and/or P1 **mts-transfer-protocol-1984** AC is supported then m else –

A.3.3 Supported APDU parameters

A.3.3.1 A-associate-request (AARQ)

Ref	Protocol Mechanism	Base	Profile
A.A.9.1/15	User information	o	m

A.3.3.2 A-associate-response (AARE)

Ref	Protocol Mechanism	Base	Profile
A.A.9.2/13	User information	o	m

A.4 Presentation protocol

A.4.1 Functional units

Ref	Presentation functional unit	Base	Profile
P.A.5.2/2	Presentation Context Management	o	i
P.A.5.2/3	Presentation Context Restoration	c1	i

c1 - if Presentation Context Management (2) is supported then o else –