INTERNATIONAL STANDARDIZED PROFILE

ISO/ISP 14226-1

Industrial automation systems — International Standardized Profile AMM11: MMS General Applications Base Profile —

Part 1:
Specification of ACSE, Presentation and Session protocols for use by MMS

Systèmes d'automatisation industrielle — Profil normalisé international AMM11: Profil de base pour applications générales MMS —

Partie 1: Spécification pour ACSE, protocoles de présentation et de session pour l'utilisation par MMS

Contents

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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/ISP 14226-1 was prepared by Technical Committee ISO/TC 184, *Industrial automation systems and integration*, Subcommittee SC 5, *Architecture and communications*, with the collaboration of

–   Asia-Oceania Workshop (AOW);

–   European Workshop for Open Systems (EWOS);

–   Open Systems Environment Implementors' Workshop (OIW).

ISO/ISP 14226 consists of the following parts, under the general title *Industrial automation systems - International Standardized Profile AMM11: MMS General Applications Base Profile*:

–   *Part 1: Specification of ACSE, Presentation and Session protocols for use by MMS*

–   *Part 2: Common MMS requirements*

–   *Part 3: Specific MMS requirements*

Annex A forms an integral part of this part of ISO/ISP 14226.

Introduction

ISO/ISP 14226 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.

Industrial automation systems - International Standardized Profile AMM11: MMS General Applications Base Profile -

Part 1:

Specification of ACSE, Presentation and Session protocols for use by MMS

1 Scope

1.1 General

This part of ISO/ISP 14226 specifies how the Association Control Service Element, the Presentation layer and the Session layer standards shall be used to support the required MMS functions specified in ISO/ISP 14226-3. Other MMS ISPs may specify this part of ISO/ISP 14226 as part of their profiles.

1.2 Position within the Taxonomy

This part of ISO/ISP 14226 is the first part of a multi-part ISP identified in ISO/IEC TR 10000-2 as "AMM11, General Applications Base Profile".

It may be combined with any T-Profile specifying the OSI connection-mode transport service.

1.3 Scenario

The model used is one of two end systems running an end-to-end association using the ACSE, Presentation and Session services and protocols (see figure 1).
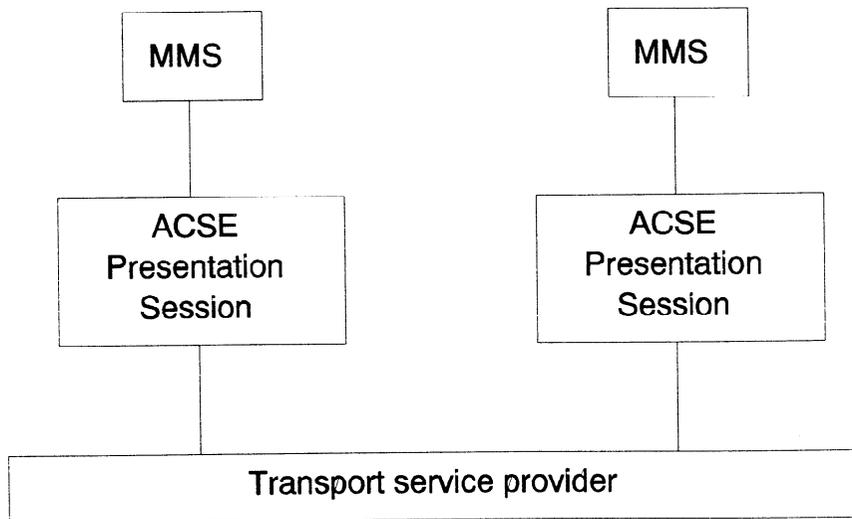
Figure 1 - Model of the supportive layers

2 Normative References

The following documents contain provisions which, through reference in this text, constitute provisions of this part of ISO/ISP 14226. 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/ISP 14226 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 ITU-T maintains published editions of its current Recommendations.

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

ISO/IEC TR 10000-1:1995, *Information technology - Framework and taxonomy of International Standardized Profiles - Part 1 : General principles and documentation framework.*

ISO/IEC TR 10000-2:1995, *Information technology - Framework and taxonomy of International Standardized Profiles - Part 2 : Principles and Taxonomy for OSI profiles.*

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

ISO/IEC ISP 11188-3:1996, *Information technology - International Standardized Profile - Common upper layer requirements - Part 3: Minimal OSI upper layer facilities.*

3 Definitions

There are two sets of conformance requirements defined in ISO/ISP 14226. One is called "Client Conformance Requirements (Client-CR)" and the other is called "Server Conformance Requirements (Server-CR)".

For the purposes of this part of ISO/ISP 14226, the following definitions apply.

3.1 Client Implementation: An MMS implementation compliant with the Client-CR.

3.2 Server Implementation: An MMS implementation compliant with the Server-CR.

4 Abbreviations

For the purposes of this part of ISO/ISP 14226, the abbrevations given in the referenced base standards and the following abbreviation apply.

PRL Profile Requirements List

5 Conformance

This part of ISO/ISP 14226 states requirements upon implementations to achieve interworking. A claim of conformance to this part of ISO/ISP 14226 is a claim that all requirements in the relevant base standards are satisfied, and that all requirements in the following subclauses and in Annex A are satisfied.

Annex A claims compliance with ISO/IEC ISP 11183-3 (mOSI) by completing tables D.1 and D.2 of ISO/IEC ISP 11183-3:1996.

An implementation claiming conformance to this part of ISO/ISP 14226 shall fulfill the requirements stated in ISO/IEC 11183-3 and the requirements stated in tables D.1 and D.2 in Annex A.

5.1 Conformance Statement

For each implementation claiming conformance to this part of ISO/14226 an appropriate set of PICSs shall be made available stating support or non-support of each option identified in this part of ISO/ISP 14226.

5.2 Relationship with Base Standards

All requirements defined in ISO/IEC ISP 11188-3 concerning the relationship with base standards apply for an implementation to conform to this part of ISO/ISP 14226.

Annex A makes mandatory support of some features that were optional in ISO/IEC ISP 11188-3.

5.2.1 ACSE Conformance

All rules defined in ISO/IEC ISP 11188-3 and in Annex A shall be applied.

5.2.2 Presentation Conformance

All rules defined in ISO/IEC ISP 11188-3 and in Annex A shall be applied.

Conformant implementations shall also support the following encoding rules:

Constructed encodings shall not be used for bit strings (or types derived from bit strings by tagging) shorter than 256 bits, nor for octet strings (or types derived from octet strings by tagging) shorter than 1024 octets in the MMS PDUs. For such strings, only primitive encoding shall be used. Upon receipt of a constructed bit string or octet string that violates this restriction, the receiving implementation may reject the corresponding PDU or send a P-U-Abort, but shall not send a P-P-Abort.

3

5.2.3 Transfer Syntax Conformance

An implementation conforming to this part of ISO/ISP 14226 shall support the "Basic Encoding rules of a single ASN.1 type" as defined in ISO/IEC 8825, together with the additional rules defined in ISO/IEC 11188-3, for the generation of protocol encodings specified in ASN.1.

5.2.4 Session Conformance

All rules defined in ISO/IEC ISP 11188-3 and in Annex A shall be applied.

Annex A

(normative)

Profile Requirements List for ACSE, Presentation and Session

A.1 General

The supporting layer requirements of any application layer protocol can be expressed relative to ISO/IEC 11188-3 (CULR-3) and its annex D. The response to each item in CULR-3 annex D is referenced by the requirements lists in the earlier annexes of CULR-3, which in turn refer to the appropriate PICSs.

The upper layer requirements of this part of ISO/ISP 14226 are expressed by filling tables D.1 and D.2 of ISO/IEC 11188-3:1996.

A.2 Profile requirements list proforma

Table D.1 of ISO/IEC 11188-3:1996, Annex D - Profile requirements list proforma

	Item/variable	Compliant choice	Specification's choice	Constraint/value
1	Establishment-initiator	m;o;i;-	c[1]	Both shall not be "i".
2	Establishment-responder	m;o;i;-	c[2]	
3	Establishment-responder-reject	m;o;i;-	c[2]	The value shall be "i" if Establishment-responder has the value "i".
4	Normal-data-requestor	m;o;i;-	m	Both may be "i".
5	Normal-data-acceptor	m;o;i;-	m	
6	Release-requestor	m;o;i;-	c[1]	Both may be "i".
7	Release-acceptor	m;o;i;-	c[2]	
8	Authentication	m;o;i;-	i	
9	Application-context-negotiation	m;o;i;-	i	
10	Transport-expedited	m;o;i;-	o	
11	Number of presentation-contexts required	1 or more	>=2	The value chosen includes the presentation-context used for ACSE PDUs.
12	ISO/IEC ISP 11181-1 compliance	yes	yes	If the answer is not "yes", the referencing specification may not claim mOSI compliance.
13	Status values for all open (*) parameters (see table D.2)	all "m"; all "o"; all "i"; or "mixed"	mixed	If the answer is "mixed" (i.e. not all "m" and "0", or not all "o" and "-"), details shall be given in Table D.2.

[1]: if an MMS implementation claims support for the MMS Initiate service in the requester role then "m" else "o".

[2]: if an MMS implementation claims support for the MMS Initiate service in the responder role then "m" else "o".

A.3 Open parameters

Table D.2 of ISO/IEC 11188-3:1996, Annex D - Open parameters (*)

	Referenced table (In annexes A, B and C of ISO/IEC 11188-3)	Parameter	Specification's statement - Sender [a]	Specification's statement - Receiver [a]	Constraint/value
1	A.6.1 [AARQ]	Calling AE title	o	m	Includes both the AP title and AE qualifier for each.
2		Called AE title	m	o	
3		Calling invocation ids	i	i	Includes both the AP invocation identifier and the AE invocation identifier for each.
4		Called invocation ids	i	i	
5		User Information	m	m	
6	A.6.2 [AARE]	Responding AE title	o	m	Includes both the AP title and AE qualifier.
7		Responding Invocation identifiers	i	i	Includes both the AP invocation identifier and the AE invocation identifier.
8		User Information	m	m	
9	A.6.3 [RLRQ]	Reason	m	m	
10		User Information	x	x	
11	A.6.4 [RLRE]	Reason	o	o	
12		User Information	x	x	
13	A.6.5 [ABRT]	User Information	i	i	
14	A.7.1 [AARQ and AARE]	Form 1 (Directory name)	o	m	For Receiver, compliant answer is "m" or "-". That is, if AE titles are supported for receiving, both forms are mandatory.
15		Form 2 (Object id + integer)	m	m	

16	B.4.1 [CP]	Default context name	i	i	May be used for simple encoding of ACSE and user PCI.
17		CPC Type	o	m	Shall be mandatory for receipt.
18	B.4.3 [CPR]	Default context result	i	i	
19	B.4.5 [ARP]	Event Identifier	m	m	