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AMENDMENT 1
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Information technology — Open Systems Interconnection — Connectionless Session protocol: Protocol specification

AMENDMENT 1: Efficiency enhancements

Technologies de l'information — Interconnexion de systèmes ouverts (OSI) — Protocole de service de session en mode sans connexion: Spécification du protocole

AMENDEMENT 1: Améliorations du rendement

Reference number
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Foreword

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In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this Amendment may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

Amendment 1 to International Standard ISO/IEC 9548-1:1996 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, in collaboration with ITU-T. The identical text is published as ITU-T Rec. X.235/Amd.1.

Introduction

This amendment is one of a set of amendments to the OSI upper-layers standards produced to facilitate the interconnection of information processing systems in an open environment where efficiency of communications is paramount. Such efficiencies include:

a) reduction in the overhead needed to encode control information for use in bandwidth-limited environments (such as radio links) or processing-limited systems (such as switching systems);

b) reduction in the delay to set up the association between the communicating applications so that data transfer can begin expeditiously;

c) reduction in the support of unneeded functionality in certain environments where the communications requirements of the applications are limited.

This amendment modifies the connectionless Session Protocol to support the "short-encoding" protocol option. The short-encoding option provides alternative and smaller protocol control information for the connectionless-mode session protocol data units.

INTERNATIONAL STANDARD

ITU-T RECOMMENDATION

INFORMATION TECHNOLOGY – OPEN SYSTEMS INTERCONNECTION – CONNECTIONLESS SESSION PROTOCOL: PROTOCOL SPECIFICATION

AMENDMENT 1

Efficiency enhancements

1) Subclause 2.1

Add the following reference by numerical order:

– ITU-T Recommendation X.215 (1995)/Amd.1 (1997) | ISO/IEC 8326:1996/Amd.1:1998, *Information technology – Open Systems Interconnection – Session Service Definition – Amendment 1: Efficiency enhancements.*

2) Subclause 3.2

Add the following definitions after 3.2.2:

3.2.3 **Long-form SPDU**: An SPDU that has the long-form structure defined in 7.2.

3.2.4 **Short-form SPDU**: An SPDU that has the short-form structure defined in 7.4. All short-form SPDUs have names that begin with the word SHORT and abbreviations beginning with the letter S.

3.2.5 **Short-encoding protocol option**: An option of the session protocol that permits the use of smaller protocol control information of the Session SPDUs in the data transfer phase.

3.2.6 **Parameter indication**: A field in the low-order bits of the first octet of a short-form SPDU (the high-order bits will contain the SPDU identifier).

3) Subclause 4.2

Add the following abbreviation by alphabetical order:

SUD SPDU Short Unit Data SPDU

4) Subclause 4.3

Add the following abbreviation by alphabetical order:

SI&P SPDU identifier (for short-form SPDUs) and parameter indication

5) Subclause 6.1.3

Add the following SPDU at the beginning of the list:

SHORT-UNIT-DATA SUD

6) Subclause 6.2.3

Add the following at the beginning of the list:

SUD SPDU

user data

7) Subclause 6.2.4

Add the following to 6.2.4:

The UNIT-DATA SPDU is transmitted when the initiating SPM has chosen not to use a SHORT-UNIT-DATA SPDU.

8) New subclauses 6.2.6 and 6.2.7

Add the following two new subclauses after 6.2.5:

6.2.6 Sending a SUD SPDU

The initiating SPM can choose to use the SHORT-UNIT-DATA SPDU if in the parameters of the S-UNIT-DATA request the Called Session Address and Calling Session Address have NIL values of the Called and Calling Session Selectors.

The Called and Calling Session Address parameters of the S-UNIT-DATA request service primitive are used to determine the source and destination addresses.

If the length of the SPDU exceeds the maximum TSDU size supported by the transport service, then the S-UNIT-DATA request is discarded and a local report may be made to the SS-user indicating the inability of the session layer to provide the service requested.

A SUD SPDU is constructed with the user data supplied by the SS-user in the S-UNIT-DATA request.

The SHORT-UNIT-DATA SPDU is transmitted on the User-data of a T-UNIT-DATA request primitive.

A T-UNIT-DATA request service primitive is issued with the source and destination addresses determined above, the Quality of Service requested and a TS-user-data parameter containing the SHORT-UNIT-DATA SPDU.

6.2.7 Receiving a SUD SPDU

The SUD SPDU arrives in the TS-user-data field of a T-UNIT-DATA indication.

If the receiving SPM does not support the short-encoding protocol option and the SHORT-UNIT-DATA SPDU is received as user data on a T-UNIT-DATA indication primitive, it shall discard the SPDU without any notification.

A valid incoming SHORT-UNIT-DATA SPDU results in an S-UNIT-DATA indication.

The source address from the T-UNIT-DATA indication and the NIL session selector will be used to determine the calling session address parameter for the S-UNIT-DATA indication. The destination address from the T-UNIT-DATA indication and the NIL session selector will be used to determine the called session address parameter for the S-UNIT-DATA indication.

The user information field of the SUD SPDU will be mapped to the user data parameter of the S-UNIT-DATA indication.

If the data cannot be immediately delivered to a SS-user due to non-existent recipient, recipient not ready to receive, or too large data field size, that unit data is discarded without any notification.

9) Clause 7

Change the title of clause 7 to:

7 Encoding of the unit data SPDUs

10) Subclause 7.2

a) Change title of subclause 7.2 to:

7.2 SPDU structure (long form SPDU)

b) Change the first sentence of 7.2, based on the underlined additions, as follows:

This subclause specifies the general structure of long-form SPDUs in terms of their constituent fields. Long-form SPDUs are all SPDUs whose names do not begin with "SHORT".

c) Add long-form *in front of* SPDU *throughout the rest of 7.2.*

11) Subclauses 7.2.1 through 7.2.5

Add long-form *in front of* SPDU *wherever it occurs in 7.2.1 through 7.2.5.*

12) Subclause 7.3

Change title of 7.3 to:

7.3 SPDU identifiers and associated parameter fields (long form SPDU)

13) New subclauses 7.4 and 7.5

Add the following two new subclauses after 7.3:

7.4 SPDU structure (short-form SPDUs)

This subclause specifies the general structure of short-form SPDUs in terms of their constituent fields. Short-form SPDUs are all SPDUs whose names begin with "SHORT". The general structure for such SPDUs is illustrated in Table 4.

Codings and structural requirements specific to particular short-form SPDUs are specified in 7.5.

Examples of valid short-form SPDU structure are illustrated in Table 4.

Table 4 – Short-form SPDU structure

Short-form SPDUs	SI&P field	Parameter field	User-information field
SI&P octet	i i i i i 0 0 0		

7.4.1 Short-form SPDUs

Short-form SPDUs shall contain, in the following order:

a) an SI&P field of one octet;

b) the User-information field, if defined for the SPDU and if present.

The SI&P octet contains the following field:

c) The SI field in bits 4-8, shown as "i" in Table 4. This identifies the type of short-form SPDU; the high-order bit (bit 8 of the SI&P octet) is 1 for all short-form SPDUs.

The overall length of a short-form SPDU is determined by the TSDU length.

7.4.2 User-information fields

Following the SI&P octet and any fixed length parameters, the User-information field of the short-form SPDU shall contain the SSDU. The order of the octets and the order of the bits in the SSDU shall be maintained in the SPDU.

7.5 Short-form SPDU identifiers and associated parameter fields

All short-form SPDUs have SI fields of 5 bits, in which the high-order bit (bit 8 of the SI&P field) is 1.

The short-form SPDUs specified in the remainder of this subclause have SI fields of five bits. These are represented in this subclause as bit strings, using the notation:

"VWXYZ"b

where each of "V", "W", "X", "Y", "Z" is either a "0" or "1". In the SI&P octet of the short-form SPDU:

– The value shown in position V represents bit 8 of the SI&P octet;

– The value shown in position W represents bit 7 of the SI&P octet;

– The value shown in position X represents bit 6 of the SI&P octet;

– The value shown in position Y represents bit 5 of the SI&P octet;

– The value shown in position Z represents bit 4 of the SI&P octet.

NOTE – Bit 8 (V) is 1 for all short-form SPDUs (and bit 8 is always zero in the SI octet of a long-form SPDUs). For most, but not all, short-form SPDUs, WXYZ is the same as the low-order four bits of the SI of the corresponding long-form SPDU.

7.5.1 SHORT-UNIT-DATA (SUD) SPDU

7.5.1.1 The SI field of the SI&P octet shall contain "11000"b.

7.5.1.2 Bit 3 of the SI&P octet shall contain the parameter indication, as specified in 7.4.2.

7.5.1.3 Bits 1 and 2 of the SI&P octet shall be zero.

7.5.1.4 Octet 2 and any following octets shall contain the User-information field.

NOTE – The SUD always has a length greater than one.

14) Annex A

Make the following changes to Annex A:

a) *Delete the statement* There are no predicates.

b) *Add the following row in Table A.1, Incoming events for the SUD incoming event, and change, as shown by the underlined text, the description of the UD incoming event:*

UD SUD	Long-form SPDU short-form SPDU	Long-form Session Unit Data SPDU Short-form Session Unit Data SPDU

c) *Add the following row in Table A.2, Outgoing events for the SUD outgoing event, and change, as shown by the underlined text, the description of the UD outgoing event:*

UD SUD	Long-form SPDU short-form SPDU	Long-form Session Unit Data SPDU ; sent as TS-user-data on a T-UNIT-DATA request primitive Short-form Session Unit Data SPDU ; sent as TS-user-data on a T-UNIT-DATA request primitive

d) *Add the following entry to Table A.3, Unit Data Transfer State Table for SUD event, and change, as shown by the underlined text, the description of S-UNIT-DATAreq.*

Event \ State	Idle
S-UNIT-DATAreq	p1 SUD Idle ¬ p1 UD Idle
SUD	S-UNIT-DATAind Idle
p1: local choice and SHORT-UNIT-DATA SPDU can be sent in User-data of T-UNIT-DATA request	