INTERNATIONAL STANDARD

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AMENDMENT 1
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Information technology — Open Systems Interconnection — Connection-oriented protocol for the Association Control Service Element: Protocol specification

AMENDMENT 1: Incorporation of extensibility markers

Technologies de l'information — Interconnexion de systèmes ouverts (OSI) — Protocole en mode orienté connexion pour l'élément de service de contrôle d'association: Spécification du protocole

AMENDEMENT 1: Incorporation de marqueurs d'extensibilité

Reference number
ISO/IEC 8650-1:1996/Amd.1:1997(E)

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. 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.

Amendment 1 to International Standard ISO/IEC 8650-1:1996 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 21, *Open systems interconnection, data management and open distributed processing*, in collaboration with ITU-T. The identical text is published as ITU-T Rec. X.227/Amd.1.

Introduction

This amendment to the connection-oriented ACSE protocol specification includes the ASN.1 extensibility marker in the module describing the protocol.

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INTERNATIONAL STANDARD

ITU-T RECOMMENDATION

INFORMATION TECHNOLOGY – OPEN SYSTEMS INTERCONNECTION – CONNECTION-ORIENTED PROTOCOL FOR THE ASSOCIATION CONTROL SERVICE ELEMENT: PROTOCOL SPECIFICATION

AMENDMENT 1
Incorporation of extensibility markers

1) Subclause 2.1

Add the following reference.

– ITU-T Recommendation X.501 (1993) | ISO/IEC 9594-2:1995, *Information Technology – Open Systems Interconnection – The Directory: Models*.

2) Subclause 9.1

Replace the ASN.1 module with the following:

```
ACSE-1 { joint-iso-itu-t association-control(2) modules(0) apdus(0) version1(1) }
-- ACSE-1 refers to ACSE version 1

DEFINITIONS ::=

BEGIN

EXPORTS
    acse-as-id, ACSE-apdu,
    aCSE-id, Application-context-name,
    AP-title, AE-qualifier,
    AE-title, AP-invocation-identifier,
    AE-invocation-identifier,
    Mechanism-name, Authentication-value,
    ACSE-requirements;

IMPORTS Name, RelativeDistinguishedName
        FROM InformationFramework
            { joint-iso-ccitt ds(5) module(1) informationFramework(1) 2 };
-- The data types Name and RelativeDistinguishedName are imported from ISO/IEC 9594-2.
-- object identifier assignments

acse-as-id OBJECT IDENTIFIER ::=
  { joint-iso-itu-t association-control(2) abstract-syntax(1) apdus(0) version1(1) }
-- may be used to reference the abstract syntax of the ACSE APDUs

aCSE-id OBJECT IDENTIFIER ::=
  { joint-iso-itu-t association-control(2) ase-id(3) acse-ase(1) version(1) }
-- may be used to identify the Association Control ASE.
```

```
-- top level CHOICE

ACSE-apdu ::= CHOICE
 {
     aarq  AARQ-apdu,
      aare  AARE-apdu,
      rlrq  RLRQ-apdu,
      rlre  RLRE-apdu,
      abrt  ABRT-apdu,
     ...
 }

AARQ-apdu ::= [ APPLICATION 0 ] IMPLICIT SEQUENCE
 { protocol-version                          [0]   IMPLICIT BIT STRING { version1 (0) }
                                                       DEFAULT { version1 },
  application-context-name                   [1]   Application-context-name,
  called-AP-title                            [2]   AP-title OPTIONAL,
  called-AE-qualifier                        [3]   AE-qualifier OPTIONAL,
  called-AP-invocation-identifier            [4]   AP-invocation-identifier  OPTIONAL,
  called-AE-invocation-identifier            [5]   AE-invocation-identifier  OPTIONAL,
  calling-AP-title                           [6]   AP-titleOPTIONAL,
  calling-AE-qualifier                       [7]   AE-qualifier  OPTIONAL,
  calling-AP-invocation-identifier           [8]   AP-invocation-identifier  OPTIONAL,
  calling-AE-invocation-identifier           [9]   AE-invocation-identifier  OPTIONAL,
  -- The following field shall not be present if only the Kernel is used.
  sender-acse-requirements                   [10]  IMPLICIT ACSE-requirements
                                                       OPTIONAL,
  -- The following field shall only be present if the Authentication functional unit is selected.
   mechanism-name                            [11]  IMPLICIT Mechanism-name
                                                       OPTIONAL,
  -- The following field shall only be present if the Authentication functional unit is selected.
   calling-authentication-value              [12]  EXPLICIT Authentication-value
                                                       OPTIONAL,
   application-context-name-list             [13]  IMPLICIT Application-context-name-list
                                                       OPTIONAL,
  -- The above field shall only be present if the Application Context Negotiation functional unit is selected
   implementation-information                [29]  IMPLICIT Implementation-data
                                                       OPTIONAL,
   ..., ...,
   user-information                          [30]  IMPLICIT Association-information
                                                       OPTIONAL
 }

AARE-apdu ::= [ APPLICATION 1 ] IMPLICIT SEQUENCE
 { protocol-version                          [0]   IMPLICIT BIT STRING{ version1 (0) }
                                                       DEFAULT { version1 },
  application-context-name                   [1]   Application-context-name,
  result                                     [2]   Associate-result,
  result-source-diagnostic                   [3]   Associate-source-diagnostic,
  responding-AP-title                        [4]   AP-title  OPTIONAL,
  responding-AE-qualifier                    [5]   AE-qualifier OPTIONAL,
  responding-AP-invocation-identifier        [6]   AP-invocation-identifier OPTIONAL,
  responding-AE-invocation-identifier        [7]   AE-invocation-identifier OPTIONAL,
  The following field shall not be present if only the Kernel is used.
  responder-acse-requirements                [8]   IMPLICIT ACSE-requirements
                                                       OPTIONAL,
 -- The following field shall only be present if the Authentication functional unit is selected.
  mechanism-name                             [9]   IMPLICIT Mechanism-name
                                                       OPTIONAL,
 -- This following field shall only be present if the Authentication functional unit is selected.
  responding-authentication-value            [10]  EXPLICIT Authentication-value
                                                       OPTIONAL,
  application-context-name-list              [11]  IMPLICIT Application-context-name-list
                                                       OPTIONAL,
  -- The above field shall only be present if the Application Context Negotiation functional unit is selected
  implementation-information                 [29]  IMPLICIT Implementation-data
                                                       OPTIONAL,

  ..., ...,
```

```
    user-information                                [30]    IMPLICIT Association-information
                                                            OPTIONAL
  }

RLRQ-apdu  ::=  [ APPLICATION 2 ] IMPLICIT SEQUENCE
  { reason                                          [0]     IMPLICIT Release-request-reason  OPTIONAL,
    ..., ...,
    user-information                                [30]    IMPLICIT Association-information  OPTIONAL
  }

RLRE-apdu  ::=  [ APPLICATION 3 ] IMPLICIT SEQUENCE
  { reason                                          [0]     IMPLICIT Release-response-reason  OPTIONAL,
    ..., ...,
    user-information                                [30]    IMPLICIT Association-information  OPTIONAL
  }

ABRT-apdu ::= [ APPLICATION 4 ] IMPLICIT SEQUENCE
  { abort-source                                    [0]     IMPLICIT ABRT-source,
    abort-diagnostic                                [1]     IMPLICIT ABRT-diagnostic  OPTIONAL,
-- This field shall not be present if only the Kernel is used.
    ..., ...,
    user-information                                [30]    IMPLICIT Association-information  OPTIONAL
  }

ABRT-diagnostic ::= ENUMERATED
  { no-reason-given (1),
    protocol-error (2),
    authentication-mechanism-name-not-recognized (3),
    authentication-mechanism-name-required (4),
    authentication-failure (5),
    authentication-required (6),
    ...
  }

ABRT-source  ::=  INTEGER { acse-service-user (0), acse-service-provider (1)} (0..1, ...)

ACSE-requirements  ::=  BIT STRING  { authentication (0), application-context-negotiation(1) }

Application-context-name-list ::= SEQUENCE OF Application-context-name

Application-context-name ::= OBJECT IDENTIFIER
-- Application-entity title productions follow (not in alphabetical order)

AP-title ::= CHOICE {
            ap-title-form1                          AP-title-form1,
            ap-title-form2                          AP-title-form2,
            ... }

AE-qualifier ::= CHOICE {
            ae-qualifier-form1                      AE-qualifier-form1,
            ae-qualifier-form2                      AE-qualifier-form2,
            ... }
-- When both AP-title and AE-qualifier data values are present in an AARQ or AARE APDU, both must
-- have the same form to allow the construction of an AE-title as discussed in CCITT Rec. X.665 |
-- ISO/IEC 9834-6.

AP-title-form1 ::= Name
-- The value assigned to AP-title-form1 is The Directory Name of an application-process title.

AE-qualifier-form1 ::= RelativeDistinguishedName
-- The value assigned to AE-qualifier-form1 is the relative distinguished name of a particular
-- application-entity of the application-process identified by AP-title-form1.

AP-title-form2 ::= OBJECT IDENTIFIER

AE-qualifier-form2 ::= INTEGER

AE-title ::= CHOICE {
            ae-title-form1                          AE-title-form1,
            ae-title-form2                          AE-title-form2,
            ...             }
```

```
-- As defined in CCITT Rec. X.650 | ISO 7498-3, an application-entity title is composed of an application-
-- process title and an application-entity qualifier.  The ACSE protocol provides for the transfer of an
-- application-entity title value by the transfer of its component values.  However, the following data type
-- is provided for International Standards that reference a single syntactic structure for AE titles.

        AE-title-form1 ::= Name
-- For access to The Directory (ITU-T Rec. X.500-Series | ISO/IEC 9594), an AE title has AE-title-form1.
-- This value can be constructed from AP-title-form1 and AE-qualifier-form1 values contained in an
-- AARQ or AARE APDU. A discussion of forming an AE-title-form1 from AP-title-form1 and AE-qualifier-
-- form1 may be found in CCITT Rec. X.665 | ISO/IEC 9834-6.

        AE-title-form2 ::= OBJECT IDENTIFIER
        -- A discussion of forming an AE-title-form2 from AP-title-form2 and AE-qualifier-form2 may be
        -- found in CCITT Rec. X.665 | ISO/IEC 9834-6.

        AE-invocation-identifier ::= INTEGER

        AP-invocation-identifier ::= INTEGER
        -- End of Application-entity title productions

        Associate-result  ::= INTEGER
              { accepted (0),
              rejected-permanent (1),
              rejected-transient (2)
               } (0..2, ...)

        Associate-source-diagnostic  ::=  CHOICE
         { acse-service-user                    [1] INTEGER
                                                { null (0),
                                                 no-reason-given (1),
                                                application-context-name-not-supported (2),
                                                calling-AP-title-not-recognized (3),
                                                calling-AP-invocation-identifier-not-recognized (4),
                                                calling-AE-qualifier-not-recognized (5),
                                                calling-AE-invocation-identifier-not-recognized (6),
                                                called-AP-title-not-recognized (7),
                                                called-AP-invocation-identifier-not-recognized (8),
                                                called-AE-qualifier-not-recognized (9),
                                                called-AE-invocation-identifier-not-recognized (10),
                                                authentication-mechanism-name-not-recognized (11),
                                                authentication-mechanism-name-required (12),
                                                authentication-failure (13),
                                                authentication-required (14)
                                                } (0..14 , ...),
           acse-service-provider                [2] INTEGER
                                                { null (0),
                                                no-reason-given (1),
                                                no-common-acse-version (2)
                                                }(0..2 , ...)
         }

        Association-information ::=  SEQUENCE SIZE (1, ..., 0 | 2..MAX) OF EXTERNAL

        Authentication-value  ::=  CHOICE
         { charstring    [0] IMPLICIT GraphicString,
           bitstring     [1] IMPLICIT BIT STRING,
           external      [2] IMPLICIT EXTERNAL,
           other         [3] IMPLICIT SEQUENCE {
                  other-mechanism-name  MECHANISM-NAME.&id ({ObjectSet}),
                  other-mechanism-value  MECHANISM-NAME.&Type ({ObjectSet}{@.other-mechanism-name})
                        }
         }
-- The abstract syntax of (calling/responding) authentication-value is determined by the authentication
-- mechanism used during association establishment.  The authentication mechanism is either explicitly
-- denoted by the &id field (of type OBJECT IDENTIFIER) for a mechanism belonging to the class
-- MECHANISM-NAME, or it is known implicitly by
-- prior agreement between the communicating partners.  If the "other" component is chosen, then
-- the "mechanism-name" component must be present in accordance with
-- ITU-T Rec. X.680 | ISO/IEC 8824. If the value "mechanism-name" occurs in the AARQ-apdu or the
-- AARE-apdu, then that value must be the same as the value for "other-mechanism-name"
```

```
Implementation-data ::= GraphicString

Mechanism-name ::= OBJECT IDENTIFIER

MECHANISM-NAME ::=TYPE-IDENTIFIER

ObjectSet MECHANISM-NAME ::= {...}

Release-request-reason ::= INTEGER { normal (0) , urgent (1) , user-defined (30) } (0 | 1 | 30, ...)

Release-response-reason ::= INTEGER { normal (0) , not-finished (1) , user-defined (30) } (0 | 1 | 30, ...)

END
```