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Information technology — Telecommunications and information exchange between systems — ASN.1 for Computer Supported Telecommunications Applications (CSTA) Phase III

Technologies de l'information — Téléinformatique — ASN.1 pour applications en télécommunications supportées par ordinateur (CSTA) en phase III

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. 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 document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 18052 was prepared by Ecma International (as ECMA-285) and was adopted, under a special "fast-track procedure", by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, in parallel with its approval by national bodies of ISO and IEC.

This third edition cancels and replaces the second edition (ISO/IEC 18052:2011), which has been technically revised.

Introduction

This International Standard specifies the ASN.1 for Phase III of Services for Computer Supported Telecommunications Applications (CSTA), ISO/IEC 18051 6th edition. This International Standard is an alternative to the XML Schema Definitions (XSD) in ECMA-323.

ASN.1 Tools Acknowledgement

The ASN.1 specified in this International Standard has been checked for conformance with the ASN.1 Standard by the OSS Nokalva, Inc. ASN.1 Tools.

Information technology — Telecommunications and information exchange between systems — ASN.1 for Computer Supported Telecommunications Applications (CSTA) Phase III

1 Scope

This International Standard specifies application protocol data units (APDUs) for the services described in ISO/IEC 18051, Services, for Computer Supported Telecommunications Applications (CSTA) Phase III.

Clause 5 to Clause 7 inclusive describes the concepts underlying the Remote Operations model, notation and service.

Clause 8 to Clause 27 inclusive contains CSTA-specific message templates in ASN.1.

The APDUs are exchanged in the context of an application association.

2 Conformance

Implementations may include any ASN.1 message definition part specified in this International Standard, as long as it satisfies the minimum conformance requirements as specified in Clause 2 of ISO/IEC 18051.

As specified and required in ISO/IEC 18051 a Protocol Implementation Conformance Statement (PICS) shall be made; for implementations of this standard its edition shall be declared as the protocol version in the PICS.

2.1 Static Requirements

To conform to this International Standard, a system shall support the transfer syntax (derived from the encoding rules specified in ISO/IEC 8825-1) named {joint-iso-ccitt asn1(1) basic-encoding(1) }; CSTA APDUs shall be interpreted according to ISO/IEC 8824-1.

2.2 Dynamic Requirements

To conform to this International Standard, a system shall:

a. follow the procedures as specified in this Standard, and ISO/IEC 18051, relevant to each CSTA operation that the system claims to implement; and

b. satisfy the definitions, as specified in ISO/IEC 18051, relevant to each CSTA service that the system claims to implement.

2.3 PICS Requirement

To conform to this International Standard, the following shall be stated by the implementer when defining a PICS corresponding to an application or implementation:

a. which CSTA operations, as defined in ISO/IEC 18051, are supported by the system for the particular implementation; and

b. which optional parameters are supported by the PDUs belonging to the supported operations.

A PICS proforma is given in Annex A of this International Standard.

3 Normative References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 18051:2012, *Information technology — Telecommunications and information exchange between systems — Services for Computer Supported Telecommunications Applications (CSTA) Phase III (ECMA-269)*

ISO/IEC TR 18053:2000, *Information technology — Telecommunications and information exchange between systems — Glossary of definitions and terminology for Computer Supported Telecommunications Applications (CSTA) Phase III (ECMA TR/72)*

ISO/IEC 8649:1996, *Information technology — Open Systems Interconnection — Service definition for the Association Control Service Element (this corresponds to ITU-T Rec. X.217, 1995)*

ISO/IEC 9545:1994, *Information technology — Open Systems Interconnection Application Layer structure*

ISO/IEC 13712-1:1995, *Information technology — Remote Operations: Concepts, model, and notation (this corresponds to ITU-T Rec. X.880, 1994)*

ISO/IEC 13712-2:1995, *Information technology — Remote Operations: OSI realisations — Remote Operations Service Element (ROSE) service definition (this corresponds to ITU-T Rec. X.881,1994)*

ISO/IEC 13712-3:1995, *Information technology — Remote Operations: OSI realisations — Remote Operations Service Element (ROSE) protocol specification (this corresponds to ITU-T Rec.X.882, 1994)*

ISO/IEC 8824-1:2008, *Information technology — Abstract Syntax Notation One (ASN.1): Specification of basic notation (this corresponds to ITU-T X.680, 2008)*

ISO/IEC 8825-1:2008, *Information technology — ASN.1 encoding rules — Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER) (this corresponds to ITU-T Rec. ITU-T X.690, 2008)*

RFC 4119, *A Presence-based GEOPRIV Location Object Format*

4 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC TR 18053 apply. In addition, the following terms defined in other International Standards apply.

- Remote Operations (as per ISO/IEC 13712-1)
- Application Association (as per ISO/IEC 8649)
- Application Context (as per ISO/IEC 8649)

5 CSTA Service Definition Model

5.1 CSTA Application Layer Structure

The CSTA Application Layer structure conforms to the model described in ISO/IEC 9545.

5.2 Remote Operations

The services of CSTA are modeled as Remote Operations as described in ISO/IEC 13712-1. Typically, one entity requests that a particular operation be performed; the other entity attempts to perform the operation and responds to the requestor.

Consequently the operation of the protocol is an elementary request/reply interaction, supported within the OSI Application Layer, and carried out within the context of an application association. The protocol specifications in ISO/IEC 18051 determine the class of the operation.

For some of the CSTA services, the entity to which the request is sent generates a reply which can indicate success or failure.
For these services, implementations shall use the operations Class 2, defined in ISO/IEC 13712-2 as:

- Asynchronous, reporting success or failure (result or error).

For some of the CSTA services, the entity to which the request is sent generates a reply which can only indicate failure.
For these services, implementations shall use the operations Class 3, defined in ISO/IEC 13712-2 as:

- Asynchronous, reporting failure (error) only, if any.

For some of the CSTA services, particularly the ongoing reporting of events, no reply is generated.
For these services, implementations shall use the operations Class 5, defined in ISO/IEC 13712-2 as:

- Asynchronous, outcome not reported.

Implementations shall correlate the single response, denoting success or failure, with the originating request by using the mechanisms within the ROSE protocol.

5.3 The CSTA Service Response

CSTA employs a generic response mechanism which is, in principle, decoupled from the specifics of the switching activity.

The following points describe the operation of the CSTA service response:

a. Specific services may have an unconfirmed mode where responses to correct requests are not returned.

b. The server shall check the correctness of the request (e.g. syntactical checks) before issuing the response.
Incorrect requests shall result in an error response, even in the unconfirmed mode.

5.4 Cross Referencing of Event Reports

A computer application process may need to cross reference a CSTAEventReport to one of the following:

a. a CSTA Object ID (Call ID or Device ID),

b. an earlier Monitor request; or

c. one of many Monitor requests (pertaining to the same CSTA Object).

For the above scenarios the necessary cross referencing function may be fulfilled by use of the parameter “MonitorCrossRefID”. The content of MonitorCrossRefID depends upon the context and it may be one of the following: Call ID, Device ID or another independently switch managed static identifier.

The independent identifier may have a unique correlation to either: one device, one call, or one monitor request.