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INTERNATIONAL STANDARD

ISO/IEC 8825-2

Fourth edition
2008-12-15

Information technology — ASN.1 encoding rules: Specification of Packed Encoding Rules (PER)

Technologies de l'information — Règles de codage ASN.1: Spécification des règles de codage compact (PER)

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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 8825-2 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 6, *Telecommunications and information exchange between systems*, in collaboration with ITU-T. The identical text is published as Rec. ITU-T X.691 (11/2008).

This fourth edition cancels and replaces the third edition (ISO/IEC 8825-2:2002), which has been technically revised. It also incorporates the Amendments ISO/IEC 8825-2:2002/Amd.1:2004, ISO/IEC 8825-2:2002/Amd.2:2007 and ISO/IEC 8825-2:2002/Amd.3:2008, and the Technical Corrigenda ISO/IEC 8825-2:2002/Cor.1:2006 and ISO/IEC 8825-2:2002/Cor.2:2006.

ISO/IEC 8825 consists of the following parts, under the general title *Information technology — ASN.1 encoding rules*:

— *Part 1: Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER)*

— *Part 2: Specification of Packed Encoding Rules (PER)*

— *Part 3: Specification of Encoding Control Notation (ECN)*

— *Part 4: XML Encoding Rules (XER)*

— *Part 5: Mapping W3C XML schema definitions into ASN.1*

— *Part 6: Registration and application of PER encoding instructions*

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Introduction

The publications ITU-T Rec. X.680 | ISO/IEC 8824-1, ITU-T Rec. X.681 | ISO/IEC 8824-2, ITU-T Rec. X.682 | ISO/IEC 8824-3, ITU-T Rec. X.683 | ISO/IEC 8824-4 together describe Abstract Syntax Notation One (ASN.1), a notation for the definition of messages to be exchanged between peer applications.

This Recommendation | International Standard defines encoding rules that may be applied to values of types defined using the notation specified in ITU-T Rec. X.680 | ISO/IEC 8824-1. Application of these encoding rules produces a transfer syntax for such values. It is implicit in the specification of these encoding rules that they are also to be used for decoding.

There are more than one set of encoding rules that can be applied to values of ASN.1 types. This Recommendation | International Standard defines a set of Packed Encoding Rules (PER), so called because they achieve a much more compact representation than that achieved by the Basic Encoding Rules (BER) and its derivatives described in ITU-T Rec. X.690 | ISO/IEC 8825-1 which is referenced for some parts of the specification of these Packed Encoding Rules.

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INTERNATIONAL STANDARD

ITU-T RECOMMENDATION

Information technology – ASN.1 encoding rules: Specification of Packed Encoding Rules (PER)

1 Scope

This Recommendation | International Standard specifies a set of Packed Encoding Rules that may be used to derive a transfer syntax for values of types defined in ITU-T Rec. X.680 | ISO/IEC 8824-1. These Packed Encoding Rules are also to be applied for decoding such a transfer syntax in order to identify the data values being transferred.

The encoding rules specified in this Recommendation | International Standard:

– are used at the time of communication;

– are intended for use in circumstances where minimizing the size of the representation of values is the major concern in the choice of encoding rules;

– allow the extension of an abstract syntax by addition of extra values, preserving the encodings of the existing values, for all forms of extension described in ITU-T Rec. X.680 | ISO/IEC 8824-1;

– can be modified in accordance with the provisions of ITU-T Rec. X.695 | ISO/IEC 8825-6.

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2 Normative references

The following Recommendations and International Standards contain provisions which, through reference in this text, constitute provisions of this Recommendation | International Standard. At the time of publication, the editions indicated were valid. All Recommendations and Standards are subject to revision, and parties to agreements based on this Recommendation | International Standard are encouraged to investigate the possibility of applying the most recent edition of the Recommendations and Standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards. The Telecommunication Standardization Bureau of the ITU maintains a list of currently valid ITU-T Recommendations.

2.1 Identical Recommendations | International Standards

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

– ITU-T Recommendation X.681 (2008) | ISO/IEC 8824-2:2008, *Information technology – Abstract Syntax Notation One (ASN.1): Information object specification.*

– ITU-T Recommendation X.682 (2008) | ISO/IEC 8824-3:2008, *Information technology – Abstract Syntax Notation One (ASN.1): Constraint specification.*

– ITU-T Recommendation X.683 (2008) | ISO/IEC 8824-4:2008, *Information technology – Abstract Syntax Notation One (ASN.1): Parameterization of ASN.1 specifications.*

– ITU-T Recommendation X.690 (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).*

– ITU-T Recommendation X.695 (2008) | ISO/IEC 8825-6:2008, *Information technology – ASN.1 encoding rules: Registration and application of PER encoding instructions.*

2.2 Additional references

– ISO/IEC 646:1991, *Information technology – ISO 7-bit coded character set for information interchange.*

– ISO/IEC 2022:1994, *Information technology – Character code structure and extension techniques.*

– ISO/IEC 2375:2003, *Information technology – Procedure for registration of escape sequences and coded character sets.*

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– ISO 6093:1985, *Information processing – Representation of numerical values in character strings for information interchange.*

– *ISO International Register of Coded Character Sets to be Used with Escape Sequences.*

– ISO/IEC 10646:2003, *Information technology – Universal Multiple-Octet Coded Character Set (UCS).*

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