
**Information technology —
ASN.1 encoding rules: XML Encoding
Rules (XER) —**

AMENDMENT 3: PER encoding instructions

*Technologies de l'information — Règles de codage ASN.1: Règles de
codage XML (XER) —*
AMENDEMENT 3: Instructions de codage PER

[ISO/IEC 8825-4:2002/Amd 3:2008](https://standards.iso.org/iso-iec-8825-4-2002-amd-3-2008)

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CONTENTS

	<i>Page</i>
1) Introduction.....	1
2) Subclause 3.2.3 <i>bis</i>	1
3) Subclause 8.3.3 <i>bis</i>	1
4) Subclause 8.3.4 <i>bis</i>	1
5) Subclauses 10.2.6, 10.2.7 and 10.2.8	1
6) Subclause 10.2.10.....	2
7) Subclause 11.4.....	2
8) Subclause 13.5	2
9) Subclause 13.7.....	2
10) Clause 14.....	2
11) Subclauses 14.1.2, 14.1.3, 14.1.4 and 14.1.5	2
12) Subclause 14.2.1.2.....	3
13) Subclause 14.2.1.17	3
14) Subclause 14.2.3.1.....	3
15) Subclause 15.1.3	4
16) Subclause 15.4.3	4
17) Subclause 16.4.....	4
18) Subclause 18.1.1	4
19) Subclause 18.2.12.....	4
20) Subclause 19.1.1	4
21) Subclause 19.1.4	4
22) Subclause 19.1.6.....	5
23) Subclause 19.2.1	5
24) Subclauses 19.2.7-19.2.9.....	5
25) Subclause 19.2.10.....	5
26) Subclauses 19.3.1-19.3.4.....	5
27) Subclause 20.1.1	6
28) Subclause 21.1.1	6
29) Subclause 22.1.1	6
30) Subclause 22.2.3	6
31) Subclause 23.1.1	6
32) Subclause 23.2.7	7
33) Subclause 24.1.1	7
34) Subclause 25.1.1	7
35) Subclause 25.2.1	7
36) Subclause 25.2.7	7
37) Subclause 26.1.1	7
38) Subclauses 26.2.1 and 26.2.2	7
39) Subclause 27.1.1	8
40) Subclause 28.1.1	8
41) Subclause 29.1.1	8
42) Subclause 29.2.1	8
43) Subclause 29.2.2	9

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	<i>Page</i>
44) Subclause 30.1.1	9
45) Subclause 31.1.1	9
46) Subclause 31.1.4	9
47) Subclause 31.2.3 <i>bis</i>	9
48) Subclause 31.2.5	9
49) Subclause 32.1.1	10
50) Subclause 32.2.1	10
51) Subclause 32.2.5	10
52) Subclause 32.3.4	10
53) Subclause 33.1.1	10
54) Subclause 33.2.6	10
55) Subclause 34.1.1	10
56) Subclause 34.3.4	10
57) Subclause 35.1.1	11
58) Subclause 35.2.1	11
59) Subclauses 35.2.2.1 and 35.2.2.2	11
60) Subclause 35.2.5	11
61) Subclause 35.2.7	11
62) Subclause 36.1.1	12
63) Subclause 36.2.3	12
64) Subclause 37.1.1	12
65) Subclause 37.2.4	12
66) Subclause 38.1.1	12
67) Subclause 38.2.7	12
68) Subclause 39.1.1	12
69) Subclause 39.2.1	13
70) Subclause 39.2.2 <i>bis</i>	13
71) Subclauses 39.3.1 and 39.3.2	13
72) Subclauses C.1.6 and C.1.7	13
73) Subclause C.2.2	13

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Foreword

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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.

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**INTERNATIONAL STANDARD
ITU-T RECOMMENDATION**

Information technology – ASN.1 encoding rules: XML encoding rules

Amendment 3: PER encoding instructions

Conventions used in this amendment: Original, unchanged, text is in normal font. Deleted text is struck-through, thus: ~~deleted text~~. Inserted text is underlined, thus: inserted text.

1) Introduction

In the Introduction, insert "XER" in bullet a) as follows:

Clauses 18 to 39 specify:

- a) the syntax of each XER encoding instruction used in a type prefix or an XER encoding control section;
- b) restrictions on the XER encoding instructions that can be associated with a particular ASN.1 type (resulting from inheritance and multiple assignments);
- c) modifications to the XER encoding rules that are required in an EXTENDED-XER encoding when an XER encoding instruction is applied.

2) Subclause 3.2.3 bis

Replace subclause 3.2.3 bis with the following:

3.2.3 bis XER encoding instructions: Notation used to change the EXTENDED-XER encoding of a type (or of a component of a type).

NOTE – XER encoding instructions are included in either that are associated with an ASN.1 type (or with a component of an ASN.1 type) by assignment to that type (or component) in an XER type prefix (see ITU-T Rec. X.680 | ISO/IEC 8824-1, 30.3) or an XER encoding control section (see ITU-T Rec. X.680 | ISO/IEC 8824-1, clause 50).

3) Subclause 8.3.3 bis

Replace subclause 8.3.3 bis with the following:

8.3.3 bis The "XMLBooleanValue" specified in ITU-T Rec. X.680 | ISO/IEC 8824-1, 17.3, shall only be "EmptyElementBoolean" and the "XMLSequenceOfValue" and "XMLSetOfValue" with a component that is a boolean type shall be "XMLValueList".

4) Subclause 8.3.4 bis

Replace subclause 8.3.4 bis with the following:

8.3.4 bis The "XMLEnumeratedValue" specified in ITU-T Rec. X.680 | ISO/IEC 8824-1, 19.8, shall only be "EmptyElementEnumerated" and the "XMLSequenceOfValue" and "XMLSetOfValue" with a component that is an enumerated type shall be "XMLValueList".

5) Subclauses 10.2.6, 10.2.7 and 10.2.8

In subclauses 10.2.6, 10.2.7 and 10.2.8 change "Encoding Control Section" to "encoding control section".

6) Subclause 10.2.10

Replace subclause 10.2.10 with the following:

10.2.10 Conforming decoders and validators shall accept, but may ignore, the presence of an-type identification attribute ~~from the control namespace~~ in any XML element of an encoding unless its presence and use is as specified in clauses 37 and 38. Encoders shall not generate such attributes except as specified in clauses 37 and 38.

NOTE – Other XML tools may insert such attributes. In general, an EXTENDED-XER decoder cannot easily determine the permitted value and meaning of some-type identification attributes ~~from the control namespace~~. Their presence and value may be of use to an application if (for example) unexpected XML child elements are present that are (as a decoder's option) passed to the application – rather than being ignored or producing a fatal decoding error.

7) Subclause 11.4

In subclause 11.4, insert:

"[" (see ITU-T Rec. X.680 | ISO/IEC 8824-1, 11.26)
 "]" (see ITU-T Rec. X.680 | ISO/IEC 8824-1, 11.26)

after

":" (see ITU-T Rec. X.680 | ISO/IEC 8824-1, 11.26)

8) Subclause 13.5

Replace subclause 13.5 with the following:

13.5 Each use of a "PositiveInstruction" in an XER type prefix or in an XER encoding control section assigns that XER encoding instruction to the corresponding "Type". Each of the alternatives of "PositiveInstruction" (for example, "AnyAttributesInstruction") has two alternatives. Only the first alternative of these shall be used in a type prefix.

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9) Subclause 13.7

Replace subclause 13.7 with the following: standards.iteh.ai/catalog/standards/sist/647f008e-cb1d-47e8-9803-3b16c0c0d8ac/iso-iec-8825-4-2002-amd-3-2008

13.7 An encoding instruction in a type prefix or in an XER encoding control section can be a positive instruction, used to add or to replace an encoding instruction (use of "PositiveInstruction"), or a negating instruction used to cancel (use of "NegatingInstruction") one or more associated encoding instructions.

10) Clause 14

In the heading for clause 14, insert "XER" before "encoding control section".

11) Subclauses 14.1.2, 14.1.3, 14.1.4 and 14.1.5

Replace subclauses 14.1.2, 14.1.3, 14.1.4 and 14.1.5 with the following:

14.1.2 The XER "EncodingInstructionAssignmentList" production is:

EncodingInstructionAssignmentList ::=
EncodingInstruction
EncodingInstructionAssignmentList ?
| "[" **EncodingInstruction**
EncodingInstructionAssignmentList ?

14.1.3 The "EncodingInstruction" production is defined in 13.3. Each alternative of "PositiveInstruction" (for example "AnyAttributesInstruction") has two alternatives. An XER encoding control section shall contain only one of the alternatives for "EncodingInstructionAssignmentList". If the first alternative is used, then the first alternative for each of the alternatives of "PositiveInstruction" shall be used. If the second alternative is used, then the second alternative for each of the alternatives of "PositiveInstruction" shall be used.

NOTE – Each alternative of "PositiveInstruction" provides two alternative forms. The first is provided for historical reasons. The second alternative form provides the matching "]" and moves the "TargetList" (if any) to the end of the production. It is provided for similarity with the syntax used in the "EncodingInstructionAssignmentList" of other ASN.1 encoding rule standards, and for

readability. The use of the second alternative of the "EncodingInstructionAssignmentList" (and hence the second alternative of all the alternatives of "PositiveInstruction" within it) is recommended for new specifications.

14.1.4 Each use of an "EncodingInstruction" in an XER encoding control section assigns that XER encoding instruction to the occurrences of "Type" that are identified in the "TargetList" of the encoding instruction, or to the type references in an imports list. The "TargetList" production and the targets it identifies are specified in 14.2.

14.1.5 Subclauses 13.4 to 13.14 also apply to encoding instructions in an XER encoding control section. The clauses defining the detailed syntax for each encoding instruction category are listed in Table 1. Categories of XER encoding instructions are also listed in Table 1.

12) Subclause 14.2.1.2

In subclause 14.2.1.2, NOTE 2, insert "XER" before "encoding control section".

13) Subclause 14.2.1.17

In subclause 14.2.1.17, insert "XER" before "encoding control section".

14) Subclause 14.2.3.1

Replace subclause 14.2.3.1 with the following:

14.2.3.1 The "BuiltInTypeIdentification" production is:

BuiltInTypeIdentification ::=

BuiltInTypeName

BuiltInTypeQualifyingInformationPart ?

BuiltInTypeName ::=

BIT STRING

| BOOLEAN

| CHARACTER STRING

| CHOICE [https://standards.iteh.ai/catalog/standards/sist/647f008e-cb1d-47e8-9803-](https://standards.iteh.ai/catalog/standards/sist/647f008e-cb1d-47e8-9803-3b16c0c0d8ac/iso-iec-8825-4-2002-amd-3-2008)

| DATE [3b16c0c0d8ac/iso-iec-8825-4-2002-amd-3-2008](https://standards.iteh.ai/catalog/standards/sist/647f008e-cb1d-47e8-9803-3b16c0c0d8ac/iso-iec-8825-4-2002-amd-3-2008)

| DATE-TIME

| DURATION

| EMBEDDED PDV

| ENUMERATED

| EXTERNAL

| GeneralizedTime

| INSTANCE OF

| INTEGER

| NULL

| ObjectDescriptor

| OBJECT IDENTIFIER

| OCTET STRING

| REAL

| RELATIVE-OID

| SEQUENCE

| SEQUENCE OF

| SET

| SET OF

| TIME

| TIME-OF-DAY

| UTCTime

| RestrictedCharacterStringType

BuiltInTypeQualifyingInformationPart ::=

" : "

BuiltInTypeQualifyingInformation

**BuiltInTypeQualifyingInformation
identifier**
| ALL

15) Subclause 15.1.3

In subclause 15.1.3 and its NOTE, insert "XER" before all 4 occurrences of "encoding control section".

16) Subclause 15.4.3

In subclause 15.4.3, insert "XER" before both occurrences of "encoding control section" in the NOTE.

17) Subclause 16.4

In subclause 16.4, insert "XER" before "encoding control section" in the NOTE.

18) Subclause 18.1.1

Replace subclause 18.1.1 with the following:

18.1.1 The "AnyAttributesInstruction" is:

AnyAttributesInstruction ::=

ANY-ATTRIBUTES TargetList NamespaceRestriction ?
| ANY-ATTRIBUTES NamespaceRestriction ? "]" TargetList

NamespaceRestriction ::=

FROM URIList
| EXCEPT URIList

URIList ::=

QuotedURIorAbsent standards.iteh.ai/catalog/standards/sist/647f008e-cb1d-47e8-9803-1a1111111111/iso-iec-8825-4-2002-amd-3-2008
| URIList QuotedURIorAbsent

QuotedURIorAbsent ::=

QuotedURI
| ABSENT

19) Subclause 18.2.12

In subclause 18.2.12, insert "XER" before "encoding control section".

20) Subclause 19.1.1

Replace subclause 19.1.1 with the following:

19.1.1 The "AnyElementInstruction" is:

AnyElementInstruction ::=

ANY-ELEMENT TargetList NamespaceRestriction ?
| ANY-ELEMENT NamespaceRestriction ? "]" TargetList

21) Subclause 19.1.4

Replace subclause 19.1.4 with the following:

19.1.4 This encoding instruction enables an ASN.1 type that is an octetstring or a UTF8String to provide the specification of a single XML element.

NOTE – The content and attributes of the XML element are unrestricted. It may have attributes or child elements, and names of child elements and attributes may be qualified or unqualified, and are not affected by any "NamespaceRestriction".

22) Subclause 19.1.6

Replace subclause 19.1.6 with the following:

19.1.6 The type **UTF8String** with this final encoding instruction may be the root type of the encoding, or may be a component of a choice, sequence, set, sequence-of or set-of type. If it is a top-level type, the type reference name is ignored. If it is a component, the identifier-component name is ignored.

23) Subclause 19.2.1

Replace subclause 19.2.1 with the following:

19.2.1 An ASN.1 type shall not have this final encoding instruction unless it is an octetstring type or a UTF8String type restricted as follows:-

- a) if the type is an octetstring type, it is required to have a restriction applied to it so that each abstract value is a fast infoset document in conformance with ITU-T Rec. X.891 | ISO/IEC 24824-1.

NOTE 1 – It is recommended that the constraint on the octetstring be expressed as:

(CONSTRAINED BY

{/* Shall be a fast infoset document in conformance with
ITU-T Rec. X.891 | ISO/IEC 24824-1. */}

- b) if the type is a UTF8String, it The component is required to have a restriction applied to it that imposes the format and content specified in 19.2.4 to 19.2.9 by reference to this clause 19 or otherwise.

NOTE 2 – It is recommended that the constraint on the UTF8String be expressed as:

(CONSTRAINED BY

{/* Shall conform to the "AnyElementFormat" specified in
ITU-T Rec. X.693 | ISO/IEC 8825-4, clause 19. */}

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24) Subclauses 19.2.7-19.2.9 (standards.iteh.ai)

Replace subclauses 19.2.7-19.2.9 with the following:

19.2.7 The value of the octetstring or of the UTF8String shall not cause 10.2.11 to be violated.

19.2.8 If there is a "NamespaceRestriction" of **FROM**, then the root element of the fast infoset document (case (a) of 19.2.1) or the (outermost) element name in "AnyElementFormat" (case (b) of 19.2.1) shall be the "URI" in a "QuotedURI" in the "URIList", and may be absent only if the keyword **ABSENT** occurs in the "URIList".

19.2.9 If there is a "NamespaceRestriction" of **EXCEPT**, then the root element of the fast infoset document (case (a) of 19.2.1) or the (outermost) element name in "AnyElementFormat" shall not be the "URI" in a "QuotedURI" in the "URIList", and shall not be absent if the keyword **ABSENT** occurs in the "URIList".

25) Subclause 19.2.10

In subclause 19.2.10, insert "XER" before "encoding control section".

26) Subclauses 19.3.1-19.3.4

Replace subclauses 19.3.1-19.3.4 with the following:

19.3.1 When this encoding instruction is applied to an octetstring, an EXTENDED-XER encoder shall convert the fast infoset document in the octetstring to an XML document, and shall include the root element of that XML document in the encoding in place of an XML element that would otherwise be generated for this component (ignoring the identifier of the component), or for the root type.

19.3.1 bis When this encoding instruction is applied to a UTF8String, an EXTENDED-XER encoder shall include the abstract value of the UTF8String in the encoding as an XML element in place of an XML element that would otherwise be generated for this component (ignoring the identifier of the component), or for the root type. The element included shall be identical to the abstract value of the UTF8String, except as specified in 19.3.2.