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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 16263.4-2025

Replacing GB/T 16263.4-2015

**Information technology - ASN.1 encoding rules - Part 4: XML
Encoding Rules (XER)
(English Translation)**

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document is part 4 of GB/T 16263 "Information Technology ASN.1 Coding Rules". GB/T 16263 has published the following part.

- Part 1: Specifications of Basic Encoding Rules (BER), Regular Encoding Rules (CER) and Untypical Encoding Rules (DER);
- Part 2: Specification of Restricted Encoding Rules (PER);
- Part 4: XML Encoding Rules (XER);
- Part 5: Mapping of W3C XML Schema definitions to ASN.1.

This document replaces GB/T 16263.4-2015 "Information Technology ASN.1 Encoding Rules Part 4: XML Encoding Rules" (XER)", compared with GB/T 16263.4-2015, in addition to structural adjustments and editorial changes, the main technical changes are as follows.

- a) The requirements for XML document elements have been changed (see 8.3.9, 8.3.9 of GB/T 16263.4-2015);
- b) Changed the applicable types of multiple assignments of XER coded instructions in the same category (see 15.4.4, GB/T 16263.4-2015 15.4.4);

c) The encoding effect of the TEXT encoding instruction has been changed (see 31.3.4.1, 31.3.4.1 of GB/T 16263.4-2015).

This document is equivalent to ISO/IEC 8825-4:2021 "Information technology ASN.1 encoding rules Part 4: XML encoding rules (XER)".

The following minimal editorial changes were made to this document.

--- Delete the "Note" in the normative reference documents and quote the latest version of ISO/IEC 10646. The reference content does not involve technical changes.

Introduction

GB/T 16262.1-2025, GB/T 16262.2-2025, GB/T 16262.3-2025, GB/T 16262.4-2025 are used together Abstract Syntax Notation One (ASN.1) is used to describe a notation for message definitions that can be exchanged between end applications.

This document specifies the notations that can be applied using GB/T 16262.1-2025 and GB/T 16262.2-2025.

Encoding rules for values of an ASN.1 type. Applying these encoding rules produces a transfer syntax for the value. The encoding rules can also be used for decoding.

More than one set of encoding rules may apply to values of ASN.1 types. This document defines three encoding rules that use the Extensible Markup Language (XML).

These encoding rules all generate XML documents that conform to W3CXML1.0.2008. The first is called "basic XML encoding rules" (BASIC-XER). The second is called "Regular XML encoding rules" (CANONICAL-XER or CXER), because There is only one way to encode an ASN.1 value using these encoding rules. (Regular encoding rules are generally used to encode security-related features.

The third type is called "Extended XML Encoding Rules" (EXTENDED-XER).

Additional encoder options are allowed, and allow for encoding directives that specify BASIC-XER encoding variations to support XML documents (see below).

The extended XML encoding rules are not canonical, and there is no canonical form for the rules defined in this document.

XML representations of data have various features (such as using XML attributes instead of subelements, or using whitespace delimited tables), such as How to use it is a matter of style and XML designer choice. If the types defined by the ASN.1 specification are used by BASIC-XER or CXER If the XML encoding instructions specified in this document are the syntax and semantics of XML are specified in the EXTENDED-XER encoding. XER encoding instructions can also be used to determine the Possibility to insert XML processing instructions into EXTENDED-XER encoding. XER encoding instructions are

replaced by BASIC-XER and CXER Ignored, but used by EXTENDED-XER.

NOTE: "Style features", such as the use of attributes or whitespace delimited tables, can also affect the size of the code and the ease with which it can be processed, so use these Features are not merely stylistic issues. When these issues are important, EXTENDED-XER with coded instructions is more suitable than BASIC-XER or CXER.

Can be the first choice.

GB/T 16263 is planned to consist of eight parts.

--- Part 1: Basic Encoding Rules (BER), Regular Encoding Rules (CER) and Untypical Encoding Rules (DER) specifications.

To specify a set of basic encoding rules.

--- Part 2: Specification of the compressed encoding rules (PER). The purpose is to specify a set of compressed encoding rules.

--- Part 3: Encoding Control Notation (ECN) Specification. The purpose is to standardize the ASN.1 Encoding Control Notation.

--- Part 4: XML Encoding Rules (XER). The purpose is to specify the Basic XML Encoding Rules (BASIC-XER), regular XML Encoding Rules Set (CXER) and Extended XML Encoding Rules Set (EXTENDED-XER).

--- Part 5: Mapping of W3C XML Schema Definitions to ASN.1. The purpose is to define the mapping from any XSD schema to ASN.1 There are two versions of the mapping mode.

--- Part 6: Registration and application of PER coded instructions. The purpose is to specify the PER coded instruction format, mechanism, registration agency Methods of operation, PER and ASN.1 related.

--- Part 7: Octet Encoding Rules (OER) Specification. The purpose is to provide constraints for the Basic Octet Encoding Rules and Generates a unique encoding for any given ASN.1 value.

--- Part 8: JavaScript Object Notation Encoding Rules (JER) specification. The purpose is to specify a set of JavaScript objects Representation encoding rules for applications that interoperate with JSON.

Information technology ASN.1 encoding rules Part 4: XML Encoding Rules (XER)

1 Scope

The basic XML encoding rules set (BASIC-XER) specified in this document can be used to derive a transfer syntax applicable to GB/T 16262.1-this document also specifies a set of regular XML encoding rules.