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AMENDMENT 2
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Information technology — ASN.1 encoding rules: Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER)

AMENDMENT 2: Time type support

Technologies de l'information — Règles de codage ASN.1: Spécification des règles de codage de base (BER), des règles de codage canoniques (CER) et des règles de codage distinctives (DER)

AMENDEMENT 2: Prise en charge du type de temps

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Foreword

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Amendment 2 to ISO/IEC 8825-1:2002 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 ITU-T Rec. X.690 (2002)/Amd.2 (06/2006).

INTERNATIONAL STANDARD
ITU-T RECOMMENDATION

Information technology – ASN.1 encoding rules: Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER)

Amendment 2: Time type support

1) Contents

Update the Contents as follows:

2) Clause 8.23

Replace 8.23 with the following (giving it a heading):

8.23 Encoding for values of the Useful Types

The following "useful types" shall be encoded as if they had been replaced by their definitions given in clauses 42-44 of ITU-T Rec. X.680 | ISO/IEC 8824-1:

– generalized time;
– universal time;
– object descriptor.

3) New clause 8.24

Add the following new clause:

8.24 Encoding for values of the TIME type and the useful time types

8.24.1 Encoding for values of the TIME type

NOTE – The defined time types are subtypes of the **TIME** type, with the same tag, and have the same encoding as the **TIME** type.

8.24.1.1 The encoding of the **TIME** type shall be primitive.

8.24.1.2 The contents octets shall be the UTF-8 encoding of the value notation, after the removal of initial and final QUOTATION MARK (34) characters.

8.24.2 Encoding for values of the DATE type

8.24.2.1 The encoding of the **DATE** type shall be primitive.

8.24.2.2 The contents octets shall be the UTF-8 encoding of the value notation, after the removal of initial and final QUOTATION MARK (34) characters and all HYPHEN-MINUS (45) characters.

8.24.3 Encoding for values of the `TIME-OF-DAY` type

8.24.3.1 The encoding of the **`TIME-OF-DAY`** type shall be primitive.

8.24.3.2 The contents octets shall be the UTF-8 encoding of the value notation, after the removal of initial and final QUOTATION MARK (34) characters and all COLON (58) characters.

8.24.4 Encoding for values of the `DATE-TIME` type

8.24.4.1 The encoding of the **`DATE-TIME`** type shall be primitive.

8.24.4.2 The contents octets shall be the UTF-8 encoding of the value notation, after the removal of initial and final QUOTATION MARK (34) characters, all HYPHEN-MINUS (45) characters, all COLON (58) characters, and the LATIN CAPITAL LETTER T character.

8.24.5 Encoding for values of the `DURATION` type

8.24.5.1 The encoding of the **`DURATION`** type shall be primitive.

8.24.5.2 The contents octets shall be the UTF-8 encoding of the value notation, after the removal of initial and final QUOTATION MARK (34) characters and the LATIN CAPITAL LETTER P character.

4) New clause 11.9

Add the following new clause:

11.9 The `TIME` type and the useful time types

11.9.1 The value notation for abstract values of the **`TIME`**, **`TIME-OF-DAY`**, **`DATE`**, **`DATE-TIME`**, and **`DURATION`** types shall be converted to a canonical form by the following transformations:

a) All commas used as decimal signs shall be converted to full stop.

b) The minutes digits for all time difference components that are an integral number of hours shall be removed.

c) If an interval or recurring interval contains a start point and an end point, and the end point contains the same time difference component as the start point, the time difference component of the end point shall be removed.

d) For a duration, and for a duration in an interval (or in an interval in a recurring interval) expressed with a start point and a duration or with a duration and an end point, the value notation shall be modified to remove all zero time components except the least significant time component that is present in the instance of the value notation.

11.9.2 The resulting value notation shall then be used to encode the abstract value as specified in 8.24.