

I n t e r n a t i o n a l T e l e c o m m u n i c a t i o n U n i o n

**ITU-T**

TELECOMMUNICATION  
STANDARDIZATION SECTOR  
OF ITU

**X.691**

**Corrigendum 1**  
(10/2011)

SERIES X: DATA NETWORKS, OPEN SYSTEM  
COMMUNICATIONS AND SECURITY

OSI networking and system aspects – Abstract Syntax  
Notation One (ASN.1)

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

**Technical Corrigendum 1**

Recommendation ITU-T X.691 (2008) – Technical  
Corrigendum 1



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*For further details, please refer to the list of ITU-T Recommendations.*

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

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**History**

Edition	Recommendation	Approval	Study Group
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2.1	ITU-T X.691 (1997) Technical Cor. 1	1999-06-18	7
2.2	ITU-T X.691 (1997) Amd. 1	1999-06-18	7
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3.2	ITU-T X.691 (2002) Technical Cor. 1	2005-05-14	17
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3.4	ITU-T X.691 (2002) Amd. 2	2006-06-13	17
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4.1	ITU-T X.691 (2008) Cor. 1	2011-10-14	17

## FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications, information and communication technologies (ICTs). The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

## NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

Compliance with this Recommendation is voluntary. However, the Recommendation may contain certain mandatory provisions (to ensure, e.g., interoperability or applicability) and compliance with the Recommendation is achieved when all of these mandatory provisions are met. The words "shall" or some other obligatory language such as "must" and the negative equivalents are used to express requirements. The use of such words does not suggest that compliance with the Recommendation is required of any party.

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## INTERNATIONAL STANDARD

## RECOMMENDATION ITU-T

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

**Technical Corrigendum 1**

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

**1 Clause 2**

*Add a new NOTE to the first paragraph as follows:*

NOTE – This Recommendation | International Standard is based on ISO/IEC 10646:2003. It cannot be applied using later versions of this standard.

**2 Clause 3.7.20**

*Replace the current NOTE after 3.7.20 with:*

NOTE – The value of a ~~two's complement non-negative~~-binary-number is derived by numbering the bits in the contents octets, starting with bit 1 of the last octet as bit zero and ending the numbering with bit 8 of the first octet. Each bit is assigned a numerical value of  $2^N$ , where N is its position in the above numbering sequence. The value of the ~~two's complement non-negative~~-binary-number is obtained by summing the numerical values assigned to each bit for those bits which are set to one.

**3 Clause 11.1.3**

*Replace the last sentence of 11.1.3 with:*

If it is a non-empty bit string and it is not a multiple of eight bits, (~~zero~~one to seven) zero bits shall be appended to it to produce a multiple of eight bits.

**4 Clause 13.2.6**

*Replace the current NOTE after 13.2.6 a) with:*

NOTE – The encoding of the value "foo INTEGER (256..1234567) ::= 256" would thus be encoded in the ALIGNED variant as 00xxxxxx00000000, where each 'x' represents a zero pad bit that may or may not be present depending on where within the octet the length occurs (e.g., the encoding is 00 xxxxxx 00000000 if the length starts on an octet boundary, and 00 00000000 if it starts with the two least significant bits (bits 2 and 1) of an octet).

**5 Clause 23.7**

*Replace the current text with:*

**23.7** If the extension bit is present and the chosen alternative lies within the extension root, the choice index of the chosen alternative shall be encoded as if the extension marker is absent, according to the procedure of clause 13. This shall then be followed by the fields of the chosen alternative, completing the procedures of this clause.





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