INTERNATIONAL TELECOMMUNICATION UNION

ITU-T X.691

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

Corrigendum 2
(02/2001)

SERIES X: DATA NETWORKS AND OPEN SYSTEM COMMUNICATIONS

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

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

Technical Corrigendum 2

ITU-T Recommendation X.691 (1997) – Corrigendum 2

(Formerly CCITT Recommendation)

ITU-T X-SERIES RECOMMENDATIONS

DATA NETWORKS AND OPEN SYSTEM COMMUNICATIONS

PUBLIC DATA NETWORKS	
Services and facilities	X.1–X.19
Interfaces	X.20–X.49
Transmission, signalling and switching	X.50–X.89
Network aspects	X.90–X.149
Maintenance	X.150–X.179
Administrative arrangements	X.180–X.199
OPEN SYSTEMS INTERCONNECTION	
Model and notation	X.200–X.209
Service definitions	X.210–X.219
Connection-mode protocol specifications	X.220–X.229
Connectionless-mode protocol specifications	X.230–X.239
PICS proformas	X.240–X.259
Protocol Identification	X.260–X.269
Security Protocols	X.270–X.279
Layer Managed Objects	X.280–X.289
Conformance testing	X.290–X.299
INTERWORKING BETWEEN NETWORKS	
General	X.300–X.349
Satellite data transmission systems	X.350–X.369
IP-based networks	X.370–X.399
MESSAGE HANDLING SYSTEMS	X.400–X.499
DIRECTORY	X.500–X.599
OSI NETWORKING AND SYSTEM ASPECTS	
Networking	X.600–X.629
Efficiency	X.630–X.639
Quality of service	X.640–X.649
Naming, Addressing and Registration	X.650–X.679
Abstract Syntax Notation One (ASN.1)	**X.680–X.699**
OSI MANAGEMENT	
Systems Management framework and architecture	X.700–X.709
Management Communication Service and Protocol	X.710–X.719
Structure of Management Information	X.720–X.729
Management functions and ODMA functions	X.730–X.799
SECURITY	X.800–X.849
OSI APPLICATIONS	
Commitment, Concurrency and Recovery	X.850–X.859
Transaction processing	X.860–X.879
Remote operations	X.880–X.899
OPEN DISTRIBUTED PROCESSING	X.900–X.999

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

INTERNATIONAL STANDARD ISO/IEC 8825-2
ITU-T RECOMMENDATION X.691

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

TECHNICAL CORRIGENDUM 2

Summary

This technical corrigendum to ITU-T Rec. X.691 | ISO/IEC 8825-2:

a) clarifies the PER visibility of pattern constraints;

b) clarifies the encoding of the length determinant when the type is constrained and has an upper bound greater than or equal to 64K and the UNALIGNED variant of PER is in use;

c) clarifies the behaviour of compound subtype constraints that involve permitted alphabet constraints.

Source

Corrigendum 2 to ITU-T Recommendation X.691 (1997) was prepared by ITU-T Study Group 7 (2001-2004) and approved on 2 February 2001. An identical text is also published as Technical Corrigendum 2 to ISO/IEC 8825-2.

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications. 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.

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As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementors are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database.

CONTENTS

INTERNATIONAL STANDARD
ITU-T RECOMMENDATION

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

TECHNICAL CORRIGENDUM 2

1) Subclause 3.7.9

Change subclause 3.7.9 to:

3.7.9 effective PermittedAlphabet constraint (for a constrained restricted character string type): A single PermittedAlphabet constraint that could be applied to a built-in known-multiplier character string type and whose effect would be to permit all and only those characters that can be present in at least one character position of any one of the values in the constrained restricted character string type.

NOTE – For example, in:

Ax ::= IA5String (FROM("AB") | FROM("CD"))

Bx ::= IA5String (SIZE(1..4) | FROM("abc"))

"Ax" has an effective PermittedAlphabet constraint of "ABCD". "Bx" has an effective PermittedAlphabet constraint that consists of the entire IA5String alphabet since there is no smaller PermittedAlphabet constraint that applies to all values of "Bx".

2) New subclause 9.3.6 *bis*

Add a new subclause 9.3.6 bis as follows:

9.3.6 *bis* Pattern constraints are not PER-visible.

3) Subclause 9.3.10

Change subclause 9.3.10 to:

9.3.10 The effective PermittedAlphabet constraint for a constrained type is a single PermittedAlphabet constraint which allows a character if and only if there is some value of the constrained type that contains that character. If all characters of the type being constrained can be present in some value of the constrained type, then the effective PermittedAlphabet constraint is the set of characters defined for the unconstrained type.

NOTE 1 – In the definition of a constrained type, multiple PER-visible constraints may be applied either directly or through the use of "ContainedSubtype"s.

NOTE 2 – See Annex B for observations on the effect of combining constraints that individually are PER-visible.

4) Subclause 10.9.4.1

Change subclause 10.9.4.1 to:

10.9.4.1 If the length determinant "n" to be encoded is a constrained whole number with "ub" less than 64K, then ("n" – "lb") shall be encoded as a non-negative-binary-integer (as specified in 10.3) using the minimum number of bits necessary to encode the "range" ("ub" – "lb" + 1), unless "range" is 1, in which case there shall be no length encoding. If "n" is non-zero this shall be followed by an associated field or list of fields, completing these procedures. If "n" is zero there shall be no further addition to the field-list, completing these procedures.

NOTE – If "range" satisfies the inequality $2^m <$ "range" $\leq 2^{m+1}$, then the number of bits in the length determinant is m + 1.

5) Subclause 10.9.4.2

Change subclause 10.9.4.2 to:

10.9.4.2 If the length determinant "n" to be encoded is a normally small length, or a constrained whole number with "ub" greater than or equal to 64K, or is a semi-constrained whole number, then "n" shall be encoded as specified in 10.9.3.4 to 10.9.3.8.4.

NOTE – Thus, if "ub" is greater than or equal to 64K, the encoding of the length determinant is the same as it would be if the length were unconstrained.

6) Subclause 26.4

Change the last sentence of subclause 26.4 before the Note to:

If the value is outside the range of the extension root, then the following encoding shall be as if there was no effective size constraint, and shall have an effective PermittedAlphabet constraint that consists of the set of characters of the unconstrained type.

7) Annex B

Change the contents of Annex B to:

Certain properties can be observed when PER-visible subtype elements are combined. The following describes by means of examples such properties:

B.1 The effective size constraint for:

A ::= IA5String (SIZE(1..4) | SIZE(9..10))

is:

A ::= IA5String (SIZE(1..4 | 9..10))

B.2 When PermittedAlphabet constraints are combined with size constraints, there can be both an effective PermittedAlphabet constraint and an effective size constraint. For example:

```
B ::= IA5String ( FROM ("AB") ^ SIZE(1..2) |
                  FROM ("DE") ^ SIZE(3) |
                  FROM ("AXE") ^ (SIZE(1..5) )
```

has an effective size constraint and effective PermittedAlphabet constraint of:

B ::= IA5String (FROM ("ABDEX") ^ SIZE(1..5))

B.3 Another example is the following:

E ::= IA5String (SIZE(1..4) | SIZE(5..10) ^ FROM("ABCD") | SIZE(6..10))

There is an effective size constraint of SIZE(1..10) and an effective permitted alphabet constraint that consists of the entire IA5String alphabet.

SERIES OF ITU-T RECOMMENDATIONS

Series A	Organization of the work of ITU-T
Series B	Means of expression: definitions, symbols, classification
Series C	General telecommunication statistics
Series D	General tariff principles
Series E	Overall network operation, telephone service, service operation and human factors
Series F	Non-telephone telecommunication services
Series G	Transmission systems and media, digital systems and networks
Series H	Audiovisual and multimedia systems
Series I	Integrated services digital network
Series J	Cable networks and transmission of television, sound programme and other multimedia signals
Series K	Protection against interference
Series L	Construction, installation and protection of cables and other elements of outside plant
Series M	TMN and network maintenance: international transmission systems, telephone circuits, telegraphy, facsimile and leased circuits
Series N	Maintenance: international sound programme and television transmission circuits
Series O	Specifications of measuring equipment
Series P	Telephone transmission quality, telephone installations, local line networks
Series Q	Switching and signalling
Series R	Telegraph transmission
Series S	Telegraph services terminal equipment
Series T	Terminals for telematic services
Series U	Telegraph switching
Series V	Data communication over the telephone network
Series X	**Data networks and open system communications**
Series Y	Global information infrastructure and Internet protocol aspects
Series Z	Languages and general software aspects for telecommunication systems

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