



**INTERNATIONAL STANDARD ISO/IEC 10165-4:1992**  
**TECHNICAL CORRIGENDUM 2**

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**Information technology — Open Systems Interconnection —  
Structure of management information: Guidelines for the  
definition of managed objects**

**TECHNICAL CORRIGENDUM 2**

*Technologies de l'information — Interconnexion de systèmes ouverts — Structures des informations de gestion: Directives pour la définition des objets gérés*

*RECTIFICATIF TECHNIQUE 2*

Technical Corrigendum 2 to ISO/IEC 10165-4:1992 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*.



## INTERNATIONAL STANDARD

## ITU-T RECOMMENDATION

**INFORMATION TECHNOLOGY – OPEN SYSTEMS INTERCONNECTION –  
STRUCTURE OF MANAGEMENT INFORMATION: GUIDELINES  
FOR THE DEFINITION OF MANAGED OBJECTS**

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**Revision of GDMO to include ASN.1:1997**

**1) Subclause 2.1**

*Apply the following changes:*

*Replace:*

- ITU-T Recommendation X.680 (1995) | ISO/IEC 8824-1:1995, *Information technology – Abstract Syntax Notation One (ASN.1) – Specification of basic notation.*
- ITU-T Recommendation X.681 (1994) | ISO/IEC 8824-2:1995, *Information technology – Abstract Syntax Notation One (ASN.1) – Information object specification.*
- ITU-T Recommendation X.682 (1994) | ISO/IEC 8824-3:1995, *Information technology – Abstract Syntax Notation One (ASN.1) – Constraint specification.*
- ITU-T Recommendation X.683 (1994) | ISO/IEC 8824-4:1995, *Information technology – Abstract Syntax Notation One (ASN.1) – Parameterization of ASN.1 specifications.*
- ITU-T Recommendation X.690 (1994) | ISO/IEC 8825-1:1995, *Information technology – ASN.1 encoding rules – Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER).*
- ITU-T Recommendation X.691 (1995) | ISO/IEC 8825-2:1995, *Information technology – ASN.1 encoding rules – Specification of Packed Encoding Rules (PER).*

*with:*

- ITU-T Recommendation X.680 (1997) | ISO/IEC 8824-1:1998, *Information technology – Abstract Syntax Notation One (ASN.1): Specification of basic notation.*
- ITU-T Recommendation X.681 (1997) | ISO/IEC 8824-2:1998, *Information technology – Abstract Syntax Notation One (ASN.1): Information object specification.*
- ITU-T Recommendation X.682 (1997) | ISO/IEC 8824-3:1998, *Information technology – Abstract Syntax Notation One (ASN.1): Constraint specification.*
- ITU-T Recommendation X.710 (1997) | ISO/IEC 9595:1998, *Information technology – Open Systems Interconnection – Common Management Information service.*
- ITU-T Recommendation X.711 (1997) | ISO/IEC 9596-1:1998, *Information technology – Open Systems Interconnection – Common Management Information Protocol: Specification.*

**2) Subclause 2.2**

*Remove the following paired references:*

- CCITT Recommendation X.208 (1988), *Specification of abstract syntax notation one (ASN.1).*  
ISO/IEC 8824:1990, *Information technology – Open Systems Interconnection – Specification of Abstract Syntax Notation One (ASN.1).*
- CCITT Recommendation X.710 (1991), *Common Management Information Service Definition for CCITT Applications.*  
ISO/IEC 9595:1990, *Information technology – Open Systems Interconnection – Common management information service definition.*

- CCITT Recommendation X.711 (1991), *Common Management Information Protocol Specification for CCITT Applications*.  
ISO/IEC 9596-1:1991, *Information technology – Open Systems Interconnection – Common management information protocol – Part 1: Specification*.

### 3) Subclause 3.7

*Replace* CCITT Rec. X.208 and ISO/IEC 8824 *with* ITU-T Rec. X.680 | ISO/IEC 8824-1.

### 4) New subclause 3.8

*Insert the following new subclause and renumber the following subclauses accordingly:*

#### 3.8 ASN.1 information object class definitions

This Recommendation | International Standard makes use of the following terms defined in ITU-T Rec. X.681 | ISO/IEC 8824-2:

- a) information object class;
- b) value set field;
- c) variable-type.

### 5) Subclause 6.4

*Replace all occurrences of* CCITT Rec. X.208 and ISO/IEC 8824 *with* ITU-T Rec. X.680 | ISO/IEC 8824-1.

### 6) Clause 8

*Insert the following paragraph between the title of clause 8 and the title of subclause 8.1:*

The GDMO templates defined in this Recommendation | International Standard may be used to specify Action types, Attribute types, Event report types and their associated ASN.1 type definitions, as an alternative to using the Information Object Class definitions specified in ITU-T Rec. X.711 | ISO/IEC 9596-1.

### 7) Subclause 8.2, item f)

*Replace both occurrences of* CCITT Rec. X.208 and ISO/IEC 8824 *with* ITU-T Rec. X.680 | ISO/IEC 8824-1.

### 8) Subclause 8.5.1

*Replace:*

The type specified in a Parameter template is used to fill in an ANY DEFINED BY  $\times$  construct in a management PDU, where  $\times$  is a field in the PDU that carries the object identifier assigned to the parameter.

*with:*

The type specified in a Parameter template defines the type of the variable-type value set field in an information object class, as defined in ITU-T Rec. X.681 | ISO/IEC 8824-2. This field is carried in a management PDU when that PDU carries the object identifier value assigned to that template in the context specified in that template.

### 9) Subclause 8.5.1.1.1

*Replace:*

The context is unambiguously identified by the management PDU if and only if the ANY DEFINED BY construct appears in that PDU exactly once.

with:

The context is unambiguously identified by the management PDU if and only if the PDU contains exactly one variable-type value set field.

## 10) Clause 9

Replace the following (including the footnote):

NOTE – ISO/IEC JTC 1/SC 21 rules dictate a periodic review for renewal of the ASN.1:1990 International Standards every one (1) year<sup>1)</sup>. National Bodies are asked to consider the above when reviewing the ASN.1:1990 standards. This ensures that the ASN.1:1990 standards are retained as long as needed.

Related footnote:

- <sup>1)</sup> ISO/IEC JTC 1/SC 21 (SC21) reaffirmed the continuation of availability of the ASN.1:1990 standards for reasons of conformance and interpretability (in SC21 N 9001 rev). SC21 requested its WGs to continue to maintain these standards. An SC21 resolution to continue maintenance will be conducted at each SC21 meeting (currently, once a year).

with:

NOTE – ASN.1:1994 is used to mean the language specified by the 1994 or later versions of ITU-T Rec. X.680 | ISO/IEC 8824-1 and ASN.1:1990 means the language specified by CCITT Rec. X.208 and ISO/IEC 8824 which is now obsolete but previously was identified as "CCITT Recommendation X.208 (1988), *Specification of Abstract Syntax Notation One (ASN.1)*" or "ISO/IEC 8824:1990, *Information technology – Open Systems Interconnection – Specification of Abstract Syntax Notation One (ASN.1)*".

## 11) Subclause A.3

Replace the production for **SpecificErrorInfo** with the following ASN.1 production:

```
SpecificErrorInfo ::= SEQUENCE {
    errorId          CMIP-SPECIFICERROR.&id ({SpecificErrorSet}),
    errorInfo        CMIP-SPECIFICERROR.&Value ({SpecificErrorSet} {@.errorId}) }
```

## 12) Subclause B.6.1

Replace the following:

**Any**

ASN.1 allows a special type ANY which can contain any other ASN.1 type at all. Such a type is not allowed within Z and it would be difficult to extend it to include one. However given any known set of types, it is possible to define a Z free type which can include any of those other types. An alternative strategy is to define ANY as a given set for typechecking purposes. This is satisfactory as long as nothing else is done with it. The type *AttributeValues* usually replaces ANY. This is defined below.

with:

**Open Types**

ASN.1 allows open types which can contain any other ASN.1 type at all. Such a type is not allowed within Z and it would be difficult to extend Z to include open types. However, given any known set of types, it is possible to define a Z free type which can include any of those other types. An alternative strategy is to define open type as a given set for typechecking purposes. This is satisfactory as long as nothing else is done with it. The type *AttributeValues* usually replaces open type. This is defined below.

## 13) Subclause B.6.5

Replace:

As mentioned above, it is difficult to model ASN.1 type ANY in Z.

with:

As mentioned above, it is difficult to model ASN.1 open types in Z.