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Corrigendum 1
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SERIES X: DATA NETWORKS, OPEN SYSTEM
COMMUNICATIONS AND SECURITY

Directory

Information technology – Open Systems
Interconnection – The Directory: Selected attribute
types

Technical Corrigendum 1

Recommendation ITU-T X.520 (2012) – Technical
Corrigendum 1

ITU-T X-SERIES RECOMMENDATIONS

DATA NETWORKS, OPEN SYSTEM COMMUNICATIONS AND SECURITY

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.379
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.889
Generic applications of ASN.1	X.890–X.899
OPEN DISTRIBUTED PROCESSING	X.900–X.999
INFORMATION AND NETWORK SECURITY	X.1000–X.1099
SECURE APPLICATIONS AND SERVICES	X.1100–X.1199
CYBERSPACE SECURITY	X.1200–X.1299
SECURE APPLICATIONS AND SERVICES	X.1300–X.1399
CYBERSECURITY INFORMATION EXCHANGE	X.1500–X.1599
CLOUD COMPUTING SECURITY	X.1600–X.1699

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

**Information technology – Open Systems Interconnection –
The Directory: Selected attribute types**

Technical Corrigendum 1

Summary

This technical corrigendum, Corrigendum 1 to Rec. ITU-T X.520 (2012) | ISO/IEC 9594-6:2014 covers resolutions to defect reports 392, 395 and 396.

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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.

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INTERNATIONAL STANDARD
ITU-T RECOMMENDATIONInformation technology – Open Systems Interconnection –
The Directory: Selected attribute types

Technical Corrigendum 1

1) Correction of the defects reported in defect report 392

1.1) Clause 6.3.1

Update clause 6.3.1 as shown:

6.3.1 Country Name

A value of ~~the Country Name~~ countryName attribute type specifies a country. When used as a component of a directory name, it identifies the country in which the named object is physically located or with which it is associated in some other important way.

An attribute value for country name is a string chosen from ISO 3166-1 alpha-2 ~~or ISO 3166-3 alpha-2.~~

```
countryName ATTRIBUTE ::= {
  SUBTYPE OF          name
  WITH SYNTAX          CountryName
  SINGLE VALUE         TRUE
  LDAP-SYNTAX          countryString.&id
  LDAP-NAME            {"c"}
  ID                   id-at-countryName }
```

CountryName ::= PrintableString(SIZE (2)) (CONSTRAINED BY { -- ISO 3166 alpha-2 codes only -- })

~~CountryName ::= PrintableString(SIZE (2)) -- ISO 3166 codes only~~

1.2) New attribute types for three-letter country code and for a numeric country code

1.2.1) Clauses 6.3.1 and 6.3.2

Add the following definitions after clause 6.3.1, starting with a new clause 6.3.2 and renumber subsequent clauses:

6.3.2 Three-character country code

A value of **countryCode3a** attribute type specifies a country. When used as a component of a directory name, it identifies the country in which the named object is physically located or with which it is associated in some other important way.

An attribute value for **countryCode3a** is a string chosen from ISO 3166-1 alpha-3.

```
countryCode3c ATTRIBUTE ::= {
  SUBTYPE OF          name
  WITH SYNTAX          CountryCode3c
  SINGLE VALUE         TRUE
  LDAP-SYNTAX          countryString3c.&id
  LDAP-NAME            {"c3"}
  ID                   id-at-countryCode3c }
```

CountryCode3c ::= PrintableString(SIZE (3)) (CONSTRAINED BY { -- ISO 3166 alpha-3 codes only -- })

6.3.3 Numeric character country code

A value of **countryCode3n** attribute type specifies a country. When used as a component of a directory name, it identifies the country in which the named object is physically located or with which it is associated in some other important way.

An attribute value for **countryCode3n** is a string chosen from ISO 3166-1 numeric-3.

```
countryCode3n ATTRIBUTE ::= {
  SUBTYPE OF          name
  WITH SYNTAX          CountryCode3n
  SINGLE VALUE         TRUE
  LDAP-SYNTAX          countryCode3n.&id
  LDAP-NAME            {"n3"}
  ID                   id-at-countryCode3n }
```

```
CountryCode3n ::= NumericString(SIZE (3)) (CONSTRAINED BY { -- ISO 3166 numeric-3 codes
only -- })
```

1.3) Clauses 9.1.4 and 9.1.5

Add new clauses 9.1.4 and 9.1.5 after clause 9.1.3:

9.1.4 Three character country string syntax

```
countryString3a SYNTAX-NAME ::= {
  LDAP-DESC          "Country String alphas-3"
  DIRECTORY SYNTAX   CountryCode3c
  ID                 id-asx-countryString3c }
```

A value which has an LDAP country string syntax as a three-printable character string according to ISO 3166-1 alpha-3.

9.1.5 Numeric country string syntax

```
countryString3n SYNTAX-NAME ::= {
  LDAP-DESC          "Country String numeric-3"
  DIRECTORY SYNTAX   CountryCode3n
  ID                 id-asx-countryString3n }
```

A value which has an LDAP country string syntax as a three numeric string according to ISO 3166-1 numeric-3.

1.4) Annex A definitions

Add the definitions introduced/updated above to Annex A.

1.5) Additions to Annex A

In Annex A, at the appropriate places, add:

id-at-countryCode3c	OBJECT IDENTIFIER ::= {id-at 98}
id-at-countryCode3n	OBJECT IDENTIFIER ::= {id-at 99}
id-asx-countryString3c	OBJECT IDENTIFIER ::= {id-asx 7}
id-asx-countryString3n	OBJECT IDENTIFIER ::= {id-asx 8}

2) Correction of the defects reported in defect report 395

2.1) References

Add the following references to clause 2.2:

- IETF RFC 3492 (2003), *Punycode: A Bootstring encoding of Unicode for Internationalized Domain Names in Applications (IDNA)*.
- IETF RFC 5890 (2010), *Internationalized Domain Names for Applications (IDNA): Definitions and Document Framework*.
- IETF RFC 5892 (2010), *The Unicode Code Points and Internationalized Domain Names for Applications (IDNA)*.

2.2) Abbreviations

Add the following abbreviations to clause 4:

IDN	Internationalized Domain Name
-----	-------------------------------

LDH Letters, Digits, Hyphen

2.3) Clause 6.2.15

Add the following new attribute type to clause 6.2 (as clause 6.2.15):

6.2.15 Domain name

A value of attribute type **dnsName** is used for holding a DNS domain name, which may be an internationalized domain names (IDN).

```
dnsName ATTRIBUTE ::= {
  WITH SYNTAX          DomainName
  EQUALITY MATCHING RULE dnsNameMatch
  LDAP-SYNTAX          dnsString.&id
  LDAP-NAME            {"DNS name"}
  ID                   id-at-dnsName }
```

```
DomainName ::= UTF8String (CONSTRAINED BY { -- Conforms to the format of a
(internationalized) domain name. -- })
```

A value of the **DomainName** data type shall be in the syntax, as specified by section 2.3.1 of IETF RFC 5890 meaning that a domain name is a sequence of labels in the letters, digits, hyphen (LDH) format separated by dots.

A label may be in three formats:

- a) All characters in the label are from the Basic Latin collection as defined by ISO/IEC 10646 (i.e., having code points in the ranges 002D, 0030-0039, 0041-005A and 0061-007A) and it does not start with "xn--". The maximum length is 63 octets.
- b) It is an A-label as defined in IETF RFC 5890, i.e., it starts with the "xn--" and is a U-label converted to valid ASCII characters as in item a) using the Punycode algorithm defined by IETF RFC 3492. The converted string shall be maximum 59 octets. To be valid, it shall be possible for an A-label to be converted to a valid U-label.

NOTE 1 – An A-label is normally not human readable.

- c) It is a U-label as defined in IETF RFC 5890, i.e., it contains characters outside the Basic Latin collection. A valid U-label shall not include any characters that are not included in the restricted Unicode repertoire as defined by IETF RFC 5892 and it shall be convertible to a valid A-label as defined in item b). A valid U-label may be more than 63 octets.

NOTE 2 – In a constraint environment, it is recommended to use a domain name whenever possible, according to item a).

NOTE 3 – When used as a naming attribute, a unique distinguished name may be constructed using only this attribute type.

An attribute of type **dnsName** to be used as a distinguished name in a public-key certificate or in an attribute certificate shall be a fully-qualified domain name (FQDN), i.e., it shall identify a particular entity. An FQDN may have an asterisk (*) as an additional leftmost label, which is a substitute (wildcard) for all labels at the next levels of subdomains of the domain identified by the FQDN without the asterisk. An attribute of type **dnsName** holding an FQDN with a wildcard label may in some cases be used in the **subject** component of an end-entity public-key certificate.

2.4) New level 2 header for clause 8.9

Add the following new level 2 header:

8.9 Identity matching rules

2.5) Change to current clause 8.9 header

Change the current 8.9 header to:

8.9.1 URI match

2.6) New matching rule

Add a new matching rule:

8.9.2 DNS name match

The **dnsNameMatch** compares two values of type **dnsName** for equality and is defined as:

```
dnsNameMatch MATCHING-RULE ::= {
  SYNTAX      DomainName
  LDAP-SYNTAX dnsString.&id
  LDAP-NAME   {"dnsNameMatch"}
  ID          id-mr-dnsNameMatch }
```

The equality matching is performed label for label. If the number of the labels in the two attribute values are different, the rule shall return FALSE. The rule shall return TRUE for each pair of labels matched for the rule to return TRUE for the two values. Otherwise, it shall return FALSE. The matching of the individual labels shall be performed as follows:

- If one of the labels to be compared is of the type defined in item a) of clause 6.2.15 and the other label is either an A-label or a U-label as defined in IETF RFC 5890, the rule shall return FALSE.
- If the two labels are of the same type, they shall be compared following the rules for **caseIgnoreMatch**.
- If one the labels is of type A-label and the other one is of type U-label, the latter shall be converted to an A-label before comparison following the rules for **caseIgnoreMatch**.

In addition, the following applies if one or both of the values have wildcard (*) labels:

- If at least one of the values contains more than one wildcard label or if a wildcard label is not the leftmost label, the rule shall return FALSE.
- If one or both the values has a wildcard as the leftmost label, the remaining labels shall be matched as stated in a) to c) above and shall return TRUE or FALSE accordingly.

NOTE – The effect of the wildcard match is that *.example.com will match a.example.com and b.example.com but not a.b.example.com nor example.com.

2.7) New syntax definition

Add a new syntax definition:

9.1.6 DNS name string syntax

```
dnsString SYNTAX-NAME ::= {
  LDAP-DESC      "DNS Name String"
  DIRECTORY SYNTAX DomainName
  ID             id-asx-dnsString }
```

A value, which is an internationalized domain name (IDN), has a syntax as specified in clause 6.2.15.

2.8) Annex A update

Add the above-mentioned attribute type definition to Annex A.

2.9) Annex A addition

Add the following to Annex A:

id-at-dnsName	OBJECT IDENTIFIER ::= {id-at 100}
id-mr-dnsNameMatch	OBJECT IDENTIFIER ::= {id-mr 74}
id-asx-dnsString	OBJECT IDENTIFIER ::= {id-asx 9}

3) Correction of the defects reported in defect report 396

3.1) Figure F.2

Replace Figure F.2 with the following figure:

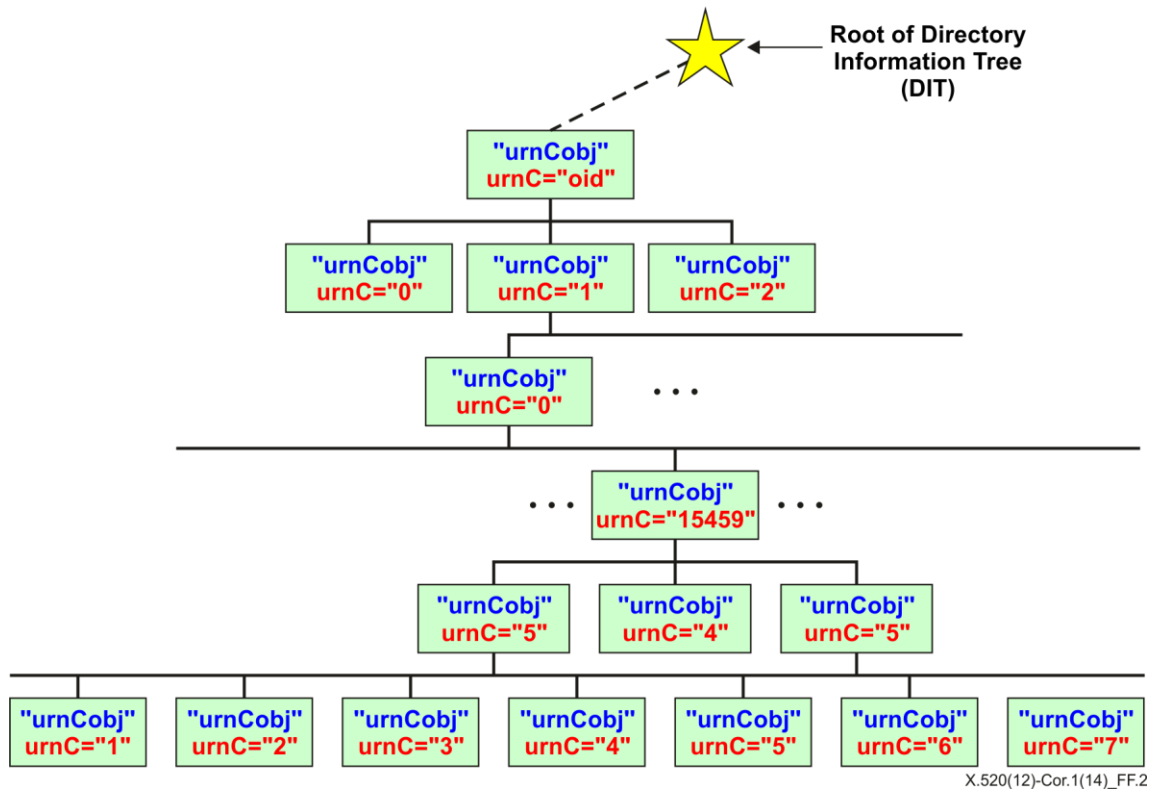


Figure F.2 – DIT subtree of OIDs defined as URNs

3.1.1) Distinguished name specification Figure F.2

Replace the distinguished name specification under the figure as shown:

{ urnC~~1~~="oid", urnC~~2~~="1", urnC="0", urnC="15459", urnC="5", urnC="1" }

3.2) Figure F.3

Replace Figure F.3 with the following figure:

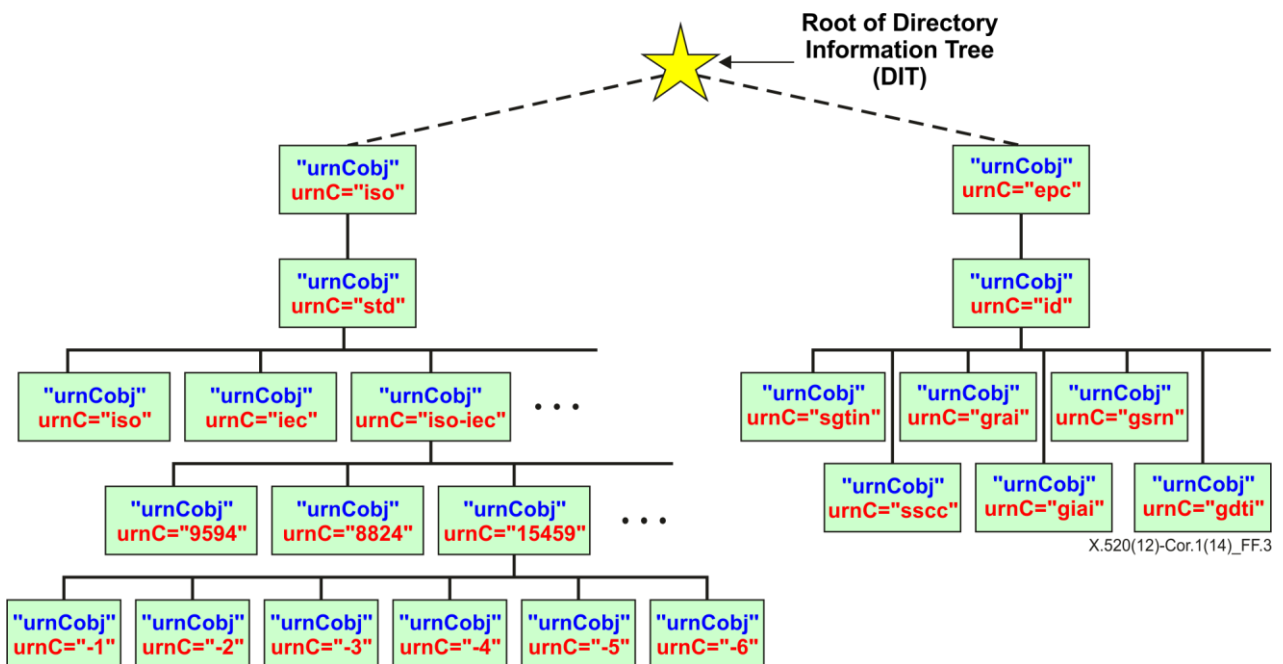


Figure F.3 – URNs representing ISO and GS1 EPCglobal specifications

3.2.1) Distinguished name specification Figure F.3

Replace the distinguished name specification under the figure as shown:

{ urnC~~1~~="iso", urnC~~2~~="std", urnC="iso-iec", urnC="15459" }

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