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**TECHNICAL CORRIGENDUM 1**

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# **Information technology — Open Systems Interconnection — The Directory: Public-key and attribute certificate frameworks**

## **TECHNICAL CORRIGENDUM 1**

*Technologies de l'information — Interconnexion de systèmes ouverts (OSI) — L'annuaire: Cadre général des certificats de clé publique et d'attribut*

*RECTIFICATIF TECHNIQUE 1*

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ITU-T RECOMMENDATIONInformation technology – Open Systems Interconnection – The Directory:  
Public-key and attribute certificate frameworks

## Technical Corrigendum 1

*(Covering resolution to defect reports 310, 311 and 314)***1) This corrects the defects reported in defect report 310***Replace Note 4 in 7.3 with the following text:*

When an implementation processing a CRL encounters the serial number of the certificate of interest in a CRL entry, but does not recognize a critical extension in the **crlEntryExtensions** field from that CRL entry, that CRL cannot be used to determine the status of the certificate. When an implementation does not recognize a critical extension in the **crlExtensions** field, that CRL cannot be used to determine the status of the certificate, regardless of whether the serial number of the certificate of interest appears in that CRL or not.

NOTE 4 – In these cases local policy may dictate actions in addition to and/or stronger than those stated in this Specification, such as seeking revocation status information from other sources.

Certificates for which revocation status cannot be determined should not be considered valid certificates.

**2) This corrects the defects reported in defect report 311***a) Replace Note 5 in 7.3 with the following text:*

If an extension affects the treatment of the list (e.g., multiple CRLs need to be scanned to examine the entire list of revoked certificates, or an entry may represent a range of certificates), then either that extension or a related extension shall be indicated as critical in the **crlExtensions** field. Therefore, a critical extension in the **crlEntryExtensions** field of an entry shall affect only the certificate specified in that entry, unless there is a related critical extension in the **crlExtensions** field that advertises a special treatment for it. The only example of this situation defined in this Specification is the **certificateIssuer** CRL entry extension and the related **issuingDistributionPoint** CRL extension when the **indirectCRL** boolean from that extension is set to **TRUE**.

*b) In 8.6.2.2, replace the first paragraph after the ASN.1 with the following:*

The **distributionPoint** component contains the name of the distribution point in one or more name forms. If **onlyContainsUserPublicKeyCerts** is **TRUE**, the CRL only contains revocations for end-entity public-key certificates. If **onlyContainsCACerts** is **TRUE**, the CRL only contains revocations for CA certificates. If **onlyContainsUserPublicKeyCerts** and **onlyContainsCACerts** are both false, the CRL contains revocations for both end-entity public-key certificates and CA certificates. A CRL shall not contain this extension where both **onlyContainsUserPublicKeyCerts** and **onlyContainsCACerts** are set to **TRUE**. If **onlySomeReasons** is present, the CRL only contains revocations of public-key certificates for the identified reason or reasons, otherwise the CRL contains revocations for all reasons. If **indirectCRL** is **TRUE**, then the CRL may contain revocation notifications for public-key certificates issued by authorities that have a name different from the name of the issuer of the CRL. The particular authority responsible for each entry is as indicated by the **certificateIssuer** CRL entry extension in that entry or in accordance with the defaulting rules described in 8.6.2.3. Consequently, a certificate using a system that is capable of processing a CRL in which **indirectCRL** is set to **TRUE** shall also be capable of processing the **certificateIssuer** CRL entry extension. In such a CRL, it is the responsibility of the CRL issuer to ensure that the CRL is complete in that it contains all revocation entries, consistent with **onlyContainsUserPublicKeyCerts**, **onlyContainsCACerts**, and **onlySomeReasons** indicators, from all authorities that identify this CRL issuer in their public-key certificates.

### 3) This corrects the defects reported in defect report 314

a) Replace the text in 8.4.2.2 with the following:

#### 8.4.2.2 Name constraints field

This field, which shall be used only in a CA certificate, indicates one or more name forms which have constraints placed upon their name spaces, and in which all subject names in the same name form in subsequent certificates in a certification path must be located. If this extension is absent, then no constraints are placed on any name form. If this extension is present but a name form is not included in the extension, then no constraints are imposed on that name form.

NOTE 1 – Because there can be an unbounded set of **registeredID** name forms, then in general it is not possible to constrain every possible name form of subject names with this extension.

This field is defined as follows:

```
nameConstraints EXTENSION ::= {
  SYNTAX      NameConstraintsSyntax
  IDENTIFIED BY id-ce-nameConstraints }
```

```
NameConstraintsSyntax ::= SEQUENCE {
  permittedSubtrees      [0] GeneralSubtrees OPTIONAL,
  excludedSubtrees      [1] GeneralSubtrees OPTIONAL }
(ALL EXCEPT ({ -- none; at least one component shall be present -- })))
```

```
GeneralSubtrees ::= SEQUENCE SIZE (1..MAX) OF GeneralSubtree
```

```
GeneralSubtree ::= SEQUENCE {
  base                      GeneralName,
  minimum                  [0] BaseDistance DEFAULT 0,
  maximum                  [1] BaseDistance OPTIONAL }
```

```
BaseDistance ::= INTEGER (0..MAX)
```

At least one of **permittedSubtrees** and **excludedSubtrees** shall be present.

If present, the **permittedSubtrees** component specifies one or more subtrees, for one or more name forms, within which subject names in acceptable certificates shall be contained. If present, the **excludedSubtrees** component specifies one or more subtrees for one or more name forms within which subject names in acceptable certificates shall not be contained. Subject names that are compared against specified subtrees include those present in both the **subject** field and the **subjectAltNames** extension of a certificate. Each subtree is defined by the name of the root of the subtree, the **base** component, and, optionally, within that subtree, an area that is bounded by upper and/or lower levels.

The **minimum** field specifies the upper bound of the area within the subtree. All names whose final name component is above the level specified are not contained within the area. A value of **minimum** equal to zero (the default) corresponds to the base, i.e., the top node of the subtree. For example, if **minimum** is set to one, then the subtree excludes the base node but includes subordinate nodes.

The **maximum** field specifies the lower bound of the area within the subtree. All names whose last component is below the level specified are not contained within the area. A value of **maximum** of zero corresponds to the base, i.e., the top of the subtree. An absent **maximum** component indicates that no lower limit should be imposed on the area within the subtree. For example, if **maximum** is set to one, then the subtree excludes all nodes except the subtree base and its immediate subordinates.

The set of all **permittedSubtrees** and **excludedSubtrees** for a name form together comprise the constrained name space for the name form. All subject names, in certificates issued by the subject CA and subsequent CAs in a certification path, which are of a constrained name form shall be located in the constrained name space for the certificate to be acceptable.

**permittedSubtrees**, if present, specifies the subtrees within which all the subject names that are of a constrained name form shall lie, for the certificate to be acceptable. If **excludedSubtrees** is present, any certificate issued by the subject CA or subsequent CAs in the certification path that has a subject name within these subtrees is unacceptable. If both **permittedSubtrees** and **excludedSubtrees** are present for a name form and the name spaces overlap, the exclusion statement takes precedence.

If none of the name forms of the subject name in the certificate is constrained by this extension, the certificate is acceptable.

In some situations, more than one certificate may need to be issued to satisfy the name constraints requirements. Annex G illustrates two of these situations. For example, if names constraints are defined for multiple name forms, but a certificate needs to meet the name constraints for only one of the name forms (logical OR on constraints), then multiple certificates should be issued, each constraining a single name form.

Of the name forms available through the **GeneralName** type, only those name forms that have a well-defined hierarchical structure may be used in these fields.

The **directoryName** name form satisfies this requirement; when using this name form a naming subtree corresponds to a DIT subtree. A **certificate** is considered subordinate to the **base** (and therefore a candidate to be within the subtree) if the **SEQUENCE** of **RDNs**, which forms the full DN in **base**, is identical to the initial **SEQUENCE** of the same number of **RDNs** which forms the first part of the DN of the subject (in the **subject** field or **directoryName** of **subjectAltNames** extension) of the **certificate**. The DN of the subject of the **certificate** may have additional trailing **RDNs** in its sequence that do not appear in the DN in **base**. The **distinguishedNameMatch** matching rule is used to compare the value of **base** with the initial sequence of **RDNs** in the DN of the subject of the certificate.

Conformant implementations are not required to recognize all possible name forms. If the extension is flagged critical and a certificate-using implementation does not recognize a name form used in any **base** component, the certificate shall be handled as if an unrecognized critical extension had been encountered. If the extension is flagged non-critical and a certificate-using implementation does not recognize a name form used in any **base** component, then that subtree may be ignored.

NOTE 2 – When testing certificate subject names for consistency with a name constraint, names in non-critical subject alternative name extensions shall be processed, not ignored.

This extension may, at the option of the certificate issuer, be either critical or non-critical. It is recommended that it be flagged critical, otherwise a certificate user may not check that subsequent certificates in a certification path are located in the constrained name spaces intended by the issuing CA.

If this extension is present and is flagged critical, then a certificate-using system shall check that the certification path being processed is consistent with the value in this extension.

Annex G contains examples of use of the name constraints extension.

b) In 10.5.2, delete item c) and rename items d), e), f), g), h) to c), d), e), f), g) respectively.

c) Replace the following ASN.1 definitions associated with the **nameConstraints** EXTENSION in Annex A.2:

**nameConstraints** EXTENSION ::= {

SYNTAX NameConstraintsSyntax  
IDENTIFIED BY id-ce-nameConstraint }

**NameConstraintsSyntax** ::= SEQUENCE {

permittedSubtrees [0] GeneralSubtrees OPTIONAL,  
excludedSubtrees [1] GeneralSubtrees OPTIONAL,  
requiredNameForms [2] NameForms OPTIONAL }

**GeneralSubtrees** ::= SEQUENCE SIZE (1..MAX) OF GeneralSubtree

**GeneralSubtree** ::= SEQUENCE {

base GeneralName,  
minimum [0] BaseDistance DEFAULT 0,  
maximum [1] BaseDistance OPTIONAL }

**BaseDistance** ::= INTEGER (0..MAX)

**NameForms** ::= SEQUENCE {

basicNameForms [0] BasicNameForms OPTIONAL,  
otherNameForms [1] SEQUENCE SIZE (1..MAX) OF OBJECT IDENTIFIER OPTIONAL }

(ALL EXCEPT { -- none; i.e.: at least one component shall be present -- })