ITU - Telecommunications Standardization Sector

STUDY GROUP 7
and its Working Parties

Temporary Document **4419**

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Geneva, 15 - 26 April 1996

Question: 15/7

SOURCE: Meeting on Question 15/7

TITLE: **Directory Implementor's Guide Version 9**

Contents

1 Introduction

1.1 Background

This Guide is a compilation of reported defects and their resolutions to the 1988 and 1993 editions of the ITU X.500 Recommendations and ISO/IEC 9594 Standards. It includes all approved and draft corrigenda to both editions of the Directory specification. It is intended to be an additional authoritative source of information for implementors to be read in conjunction with the Recommendations / Standards themselves.

This Guide itself is not a ITU-T Recommendation or ISO/IEC Standard. However, the appendixes of the Guide reproduce approved Technical Corrigenda which are formal corrections to the Directory specifications. They also include draft Technical Corrigenda which have no formal standing and which may be overturned or altered during the ballot process.

1.2 Scope of the Guide

The Guide records the resolution of defects in the following categories:

- editorial errors
- technical errors, such as omissions or inconsistencies
- ambiguities

In addition, corrections of a typographical nature to the 1988 ITU X.500 Series of Recommendations have occurred as a result of transcribing the text for Blue Book publication; they are included in this Guide, but associated defect reports are not required.

Note: This Guide does not address proposed additions, deletions, or modifications to the Recommendations or Standard that are not strictly related to implementation difficulties in the above categories. Proposals for new features should be made in the normal way through contributions by national delegates to Question 15 within Study Group 7 of the ITU-T or JTC 1/SC 21/WG 8 Directory group of the ISO/IEC.

1.3 Contacts and Distribution of the Guide

This Guide is distributed through ITU-T Meeting Reports and White Paper contributions, and ISO/IEC JTC1/ SC21 N-series documents. It is also available on-line from the ITU and from a server maintained by the ISO Rapporteur for Directories, in the following directory.

```
ftp://nc-17.ma02.bull.com/pub/OSIdirectory/
```

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2 Defect Report and Resolution Procedures

2.1 Submission of Defects

Any implementor of the 1988 or 1993 editions of the X.500 Recommendations or the ISO/IEC International Standard 9594 is invited to submit a Directory defect report using the form found in Appendix D of the guide. The defect report should be submitted to the appropriate National Defect Report Editor, listed in Appendix E. Each form should cover a single defect. It is important that the form is completed accurately, especially the sections which relate to the base material against which the defect report is being raised.

2.2 Resolution of Defects

A collaborative Directory Defect Resolution Committee has been established to resolve reported defects. In the case of most countries, a single representative has been nominated to the committee from the ITU Administration and the ISO/IEC JTC 1 National Body.

Following agreement on a resolution, within the collaborative Defect Resolution Committee, the proposed resolution may require approval via ballot of ISO/IEC and the ITU.

Please note that no individual responses can be given to those submitting reports, and that the procedure is not intended as a consulting service.

3. Guide to Appendixes

The five appendixes of this Guide are organized as follows:

Appendix A is a collection of the approved Technical Corrigenda to the 1988 edition of the Directory specifications. It includes the minor editorial corrections applying to the X.500-series documents which are not covered by (and do not require) defect reports and technical corrigenda. The Directory specifications are arranged in the ISO/IEC order (Parts 1 to 8).

Appendix B is a collection of the approved and draft Technical Corrigenda to the 1993 edition of the Directory specifications. The Technical Corrigenda are again numbered from 1, just as for the 1988 edition. Approved Technical Corrigenda have been approved by an ISO/IEC ballot and await ITU-T Resolution 1 approval. All corrigenda have been approved by ITU-T Study Group 7, though draft Technical Corrigenda are subject to change through the ISO/IEC ballot.

Appendix C is a summary of the Defect Reports to the 1988 and 1993 editions. All defect reports up to and including 074 apply to the 1988 edition only. Defect reports from 075 apply mainly to the 1993 edition, but sometimes to both or (more rarely) to 1988.

Appendix D is a pro forma defect reporting form. This form, or one like it, should be used for reporting defects. The defect should be submitted together with a soft copy to ease the editor's task.

Appendix E is a list of Defect Editors with their contact information.

Appendix A

Technical Corrigenda to Rec. X.500 (1988) | ISO/IEC 9594:1990 Edition 1

Summary

X.500 | ISO/IEC 9594-1 (1988)

— Minor Editorial Corrections to Recommendation X.500 (1988)*

X.501 | ISO/IEC 9594-2 (1988)

— Technical Corrigendum 1 (covering resolutions to defect reports 006 & 021)
— Technical Corrigendum 2 (covering resolutions to defect reports 036 & 037)
— Minor Editorial Corrections to Recommendation X.501 (1988)*

X.511 | ISO/IEC 9594-3 (1988)

— Technical Corrigendum 1 (covering resolutions to defect reports 001, 007, 012, 014, 020, 032)
— Technical Corrigendum 2 (covering resolutions to defect reports 038 & 042)
— Technical Corrigendum 3 (covering resolutions to defect report 052)
— Technical Corrigendum 4 (covering resolutions to defect reports 041, 054, 060, 063, 068 & 069)
— Technical Corrigendum 5 (covering resolutions to defect report 067)
— Technical Corrigendum 6 (covering resolutions to defect report 072)
— Minor Editorial Corrections to Recommendation X.511 (1988)*

X.518 | ISO/IEC 9594-4 (1988)

— Technical Corrigendum 1 (covering resolutions to defect reports 004, 010, 011, 012, 013, 022, 023, 025, 026, 027, 029)
— Technical Corrigendum 2 (covering resolutions to defect reports 002, 034, 048, 050, 059)
— Technical Corrigendum 3 (covering resolutions to defect reports 024, 062, 065 & 066)
— Technical Corrigendum 4 (covering resolutions to defect reports 070, 071, 072)
— Minor Editorial Corrections to Recommendation X.518 (1988)*

X.519 | ISO/IEC 9594-5 (1988)

— Technical Corrigendum 1 (covering resolutions to defect report 052)
— Technical Corrigendum 2 (covering resolutions to defect reports 074, 075)
— Minor Editorial Corrections to Recommendation X.519 (1988)*

X.520 | ISO/IEC 9594-6 (1988)

— Technical Corrigendum 1 (covering resolutions to defect report 076)
— Minor Editorial Corrections to Recommendation X.520 (1988)*

X.521 | ISO/IEC 9594-7 (1988)

— Technical Corrigendum 1 (covering resolutions to defect report 005)
— Technical Corrigendum 2 (covering resolutions to defect report 055)
— Minor Editorial Corrections to Recommendation X.521 (1988)*

X.509 | ISO/IEC 9594-8 (1988)

— Technical Corrigendum 1 (covering resolutions to defect reports 009, 015, 016, 019, 031)
— Minor Editorial Corrections to Recommendation X.509 (1988)*

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* These corrections apply only to the X.500-series Recommendations of 1988, and generally align those documents with ISO/IEC 9594-1990. No defect report is required to report additional items to add to the ones published in this version of the Guide.

Minor Editorial Corrections to Recommendation X.500 (1988)

- Figure 1/X.500 (Blue Book page 6)
  Inside the circle on the right, "directory" should be "Directory".

- Clause 6.7, 3rd para (Blue Book page 8)
  The ending of the paragraph "whose name is GB" should be "whose name is:".

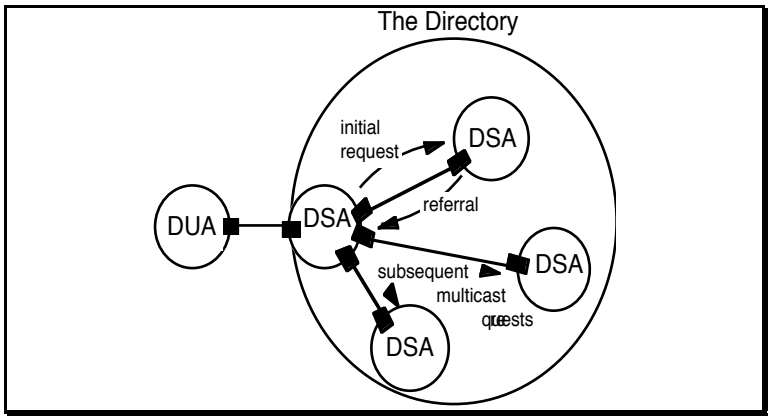
- Clause 7.2.1, 2nd sentence (Blue Book page 10)
  "size of the results" should be "size of results".

- Clause 8.1, 2nd para, 2nd sentence (Blue Book page 12)
  "in its local data base" should be "in its local database".

- Clause 8.1, 2nd para, 4th sentence (Blue Book page 12)
  "Local data bases" should be "Local databases".

- Clause 8.3.3.1, 1st sentence (Blue Book page 13)
  "the DSA C" should be "DSA C".

- Figure 8/X.500 (Blue Bookpage 15)
  Two port pairs are missing from the reproduced figure, as indicated below:



Date: 1991-08-20

Information processing systems - Open Systems Interconnection - The Directory -

Part 2:
Models

TECHNICAL CORRIGENDUM 1

(covering resolutions to defect reports 006 and 021)

Page 9

Subclause 9.4.3

Add the following sentence to the end of the clause:

"All values of the **ObjectClass** attribute are provided by the user when the entry is created."

Page 10

Subclause 9.4.6

Replace the existing **SubclassOf**, **Subclasses** and **Subclass** ASN.1 productions in the **OBJECT-CLASS MACRO** and clarify text of subitem (b) as indicated below:

Replace existing **SubclassOf** production with:

```
SubclassOf ::= "SUBCLASS" "OF" Superclasses | empty
```

Replace existing **Subclasses** production with:

```
Superclasses ::= Superclass | Superclass "," Superclasses
```

Replace existing **Subclass** production with:

```
Superclass ::= value (OBJECT-CLASS)
```

In item (b) of 9.4.6, replace the text "i.e. that following" with "i.e. those following".

Date: 1992-03-17

Information processing systems - Open Systems Interconnection - The Directory -

Part 2:
Models

TECHNICAL CORRIGENDUM 2

(covering resolutions to defect reports 036 and 037)

Page 2

Subclause 5.2.4

Add the following phrase to the beginning of the second sentence of the first paragraph:

"In any instance of communication...".

Page 5

Subclause 7.1.4

Replace the definition of attribute value assertion (leaving the note intact) with the following:

> "a proposition, which may be true, false, or undefined, according to the specified matching rules for the type, concerning the presence in an entry of an attribute value (or a distinguished value) of a particular type."

Page 6

Subclause 7.4.3

Replace the first sentence of the first paragraph with the following:

> "An *attribute value assertion (AVA)* is a proposition, which may be true, false, or undefined, according to the specified matching rules for the type, concerning the presence in an entry of an attribute value (or a distinguished value) of a particular type."

Minor Editorial Corrections to Recommendation X.501 (1988)

- Clause 7.2.3 (Blue Book page 27) - In ASN.1 **Attribute** production (3rd line)
  "**Attribute Type**" should be "**AttributeType**".

- Clause 7.3.1 (Blue Book page 27) - In ASN.1 **Attribute Type** production (1st line)
  "**Attribute Type**" should be "**AttributeType**".

- Clause 8.2.2 (Blue Book page 29) - In ASN.1 **NAME** production (1st line)
  "**NAME**" should be "**Name**".

- Clause 9.4.6 (Blue Book page 34) - In ASN.1 **Subclasses** production (1st line)
  "**Subclass I subclass**" should be "**Subclass I Subclass**".

- Clause 9.4.7 (Blue Book page 34) - In ASN.1 **ATTRIBUTE-SET** macro (1st line)
  "**ATTRIBUTE-SET-MACRO**" should be "**ATTRIBUTE-SET MACRO**".

- Clause 9.4.7 (Blue Book page 34) - In ASN.1 **ATTRIBUTE-SET** macro (3rd line)
  "**"CONTAINS" {"Attributes"**" should be "**"CONTAINS""{Attributes"**".

- Clause 9.5.3 (Blue Book page 36) - In ASN.1 **Multivalued** production (2nd line)
  "**MULTIVALUE**" should be "**MULTI VALUE**".

- Annex B (Blue Book page 40) - In ASN.1 list of **EXPORTS** (8th line)
  "**dap,dsp**" should be "**dap, dsp, distributedDirectoryObjectIdentifiers,**".

- Annex B (Blue Book page 41) - In ASN.1 for *--modules--* (5th line)
  "**protocolObjectIdentifier**" should be "**protocolObjectIdentifiers**".

- Annex C (Blue Book page 41) - In ASN.1 list of **EXPORTS** (4th line)
  A space " " should be inserted after each comma "**,**" on this line.

- Annex C (Blue Book page 42) - In ASN.1 collection of *--attribute data types--*,
  In the ASN.1 **Attribute** production, (2nd line)
  "**type AttributeType**" should be "**type AttributeType,**".

- Annex C (Blue Book page 42) - In ASN.1 **ATTRIBUTE-SET** macro (1st line)
  "**ATTRIBUTE-SET-MACRO**" should be "**ATTRIBUTE-SET MACRO**".

- Annex C (Blue Book page 42) - In ASN.1 **ATTRIBUTE-SET** macro (4th line)
  "**VALUEOBJECTIDENTIFIER**" should be "**VALUE OBJECT IDENTIFIER**".

- Annex C (Blue Book page 42) - In ASN.1 **ATTRIBUTE** macro (8th line)
  "**Match Types**" should be "**MatchTypes**".

Date: 1991-08-20

Information processing systems - Open Systems Interconnection - The Directory -

Part 3:
Abstract Service Definition

TECHNICAL CORRIGENDUM 1

(covering resolutions to defect reports 001, 007, 012, 014, 020, 032)

Page 6

Subclause 7.6.2.1

Delete "set of" from the first sentence.

Subclause 7.8.2

Replace existing text of 7.8.2 with:

"7.8.2 A **Filter** is either a **FilterItem**, or an expression involving simpler filters composed together with the logical operators **and**, **or**, and **not**.

7.8.2.1 A **Filter** which is a **FilterItem** has the value of the **FilterItem** (i.e. **TRUE**, **FALSE**, or undefined) (see Clause 7.8.3).

7.8.2.2 A **Filter** which is the **and** of a set of filters is **TRUE** if the set is empty or if each filter is **TRUE**; it is **FALSE** if at least one filter is **FALSE**; otherwise it is undefined (i.e. if at least one filter is undefined and no filters are **FALSE**).

7.8.2.3 A **Filter** which is the **or** of a set of filters is **FALSE** if the set is empty or if each filter is **FALSE**; it is **TRUE** if at least one filter is **TRUE**; otherwise it is undefined (i.e. if at least one filter is undefined and no filters are **TRUE**).

7.8.2.4 A **Filter** which is the **not** of a filter is **TRUE** if the filter is **FALSE**; **FALSE** if it is **TRUE**; and undefined if it undefined."

Subclause 7.8.3.2

In the first sentence, replace "if the **AttributeType** is known" with "if the **AttributeType** is known by the evaluating mechanism".

Page 8

Subclause 8.1.1

Replace the ASN.1 of **password** with:

```
password    [2]    CHOICE { OCTET STRING,
                            PROTECTED OCTET STRING} OPTIONAL}
```

Subclause 8.1.2.1.2

Modify the first sentence of the second paragraph to include a definition for **identifier** between the definitions of **algorithm** and **name** as follows:

"...sign the information; (the **identifier** is the same as that defined in the value notation of the **SIGNED MACRO**); **name** is the name of the ...".

Page 17

Subclause 12.9.2 e

Change "attempted AddEntry operation" to "attempted AddEntry or ModifyRDN operation"

Page 18

Annex A

Add **DirectoryBindResult** and **DirectoryBindError** to the **EXPORTS** production.

Page 19

Annex A

Replace the ASN.1 of **password** with:

```
password    [2]    CHOICE { OCTET STRING,
                            PROTECTED OCTET STRING} OPTIONAL}
```

Date: 1992-05-24

Information processing systems - Open Systems Interconnection - The Directory -

Part 3:
Abstract Service Definition

TECHNICAL CORRIGENDUM 3

(covering resolutions to defect report 052)

Page 4

Subclause 7.3.1

In the ASN.1 for **CommonArguments**, modify **SecurityParameters** as follows:

[29] SecurityParameters OPTIONAL,

Page 10

Subclauses 9.3.4 & 9.3.6

Add the following phrase to the beginning of the last sentence of clause 9.3.6:

"As a local matter "

Move the revised last sentence of 9.3.6 to become a new second sentence in clause 9.3.4.

Page 23

Annex A

In the ASN.1 for **CommonArguments**, modify **SecurityParameters** as follows:

[29] SecurityParameters OPTIONAL,

Date: 1992-05-24

Information processing systems - Open Systems Interconnection - The Directory -

Part 3:
Abstract Service Definition

TECHNICAL CORRIGENDUM 3

(covering resolutions to defect report 052)

Subclause 7.3.1 & Annex A

Replace the **extensions** component of the ASN.1 production for **CommonArguments** with:

```
criticalExtensions [25]    BIT STRING    OPTIONAL
```

Delete the ASN.1 production for **Extension**.

Subclause 7.3.2.6

Replace clause 7.3.2.6 and all of its subclauses with the following:

> 7.3.2.6 The **criticalExtensions** component provides a mechanism to list a set of extensions which are critical to the performance of a Directory abstract operation. If the originator of the extended abstract operation wishes to indicate that the operation must be performed with one or more extensions (i.e., that performing the operation without these extensions is not acceptable), it does so by setting the **criticalExtensions** bit(s) which corresponds to the extension(s).
>
> If the Directory or some part of it, is unable to perform a critical extension, it returns an indication of **unavailableCriticalExtension** (as a **serviceError** or a **partialOutcomeQualifier**). If the Directory is unable to perform an extension which is not critical, it ignores the presence of the extension.

Date: 1992-10-30

Information processing systems - Open Systems Interconnection - The Directory -

Part 3:
Abstract Service Definition

TECHNICAL CORRIGENDUM 4

(covering resolutions to defect report 041, 054, 068, 060, 063, 069)

Page 7

(Clause 7.8.3.4 b))

Replace text of 7.8.3.4 b) with the following:

substrings, it is TRUE if and only if there is a partitioning of a value of the attribute (into portions) such that:

- the specified substrings (**initial**, **any**, **final**) match different portions of the value in the order of the **strings** sequence;
- **initial**, if present, matches the first portion of the value;
- **final**, if present, matches the last portion of the value;
- **any**, if present, matches some arbitrary portion of the value.

There shall be at most one **initial**, and at most one **final** in **strings**. If **initial** is present, it shall be the first element of **strings**. If **final** is present, it shall be the last element of **strings**. There shall be zero or more **any** in **strings**.

Subclause 7.8.3.4 c)

Replace "to any value of" with "to at least one value of".

Subclause 7.8.3.4 d)

Replace "to any value of" with "to at least one value of".

Page 8

Clause 8.1.1 and **Annex A**

Add an optional component to **StrongCredentials** to allow passing the requestor distinguished name.

```
StrongCredentials ::=     SET {
    certification-path    [0] CertificationPath OPTIONAL,
    bind-token            [1] Token,
    name                  [2] DistinguishedName OPTIONAL }
```

Clause 8.1.2.1.2

Add the following text to the end of the first sentence of the first paragraph:

", and the name of the requestor".

Page 15

Sublause 12.1.2

In the first paragraph,
- replace both instances of "is reported" with "should be reported";
- repace "determines which error" with "indicates which error".

Annex A

Add **Credentials** to the **EXPORTS** production.

Date: 1992-__-__

Information processing systems - Open Systems Interconnection - The Directory -

Part 3:
Abstract Service Definition

TECHNICAL CORRIGENDUM 5

(covering resolutions to defect report 067)

Pages 9 and 11

Clause 9.1.2.1 & 10.2.3.2

Add a new sentence to the end of 9.1.2.1 and to the end of 10.2.3.2 as follows:

> However it should not be assumed that the attributes returned are the same as or limited to those requested.

Date: 1995-__-__

Information processing systems - Open Systems Interconnection - The Directory -

Part 3:
Abstract Service Definition

TECHNICAL CORRIGENDUM 6

(covering resolutions to defect reports 072, 085)

Page 7

Clause 7.9.2.2

Strike "first" from the first sentence. Replace the second sentence with the following:

When appearing in **CommonArguments**, **name** is the distinguished name of the DSA to which the operation was submitted. When appearing in **CommonResults**, **name** is the distinguished name of the requestor, as defined in 7.3.2.3.

Page __

Clause 10.1.2

Add the following new clause to 10.1.2:

10.1.2.2 The **CommonArguments** (see 7.3) include a specification of the service controls applying to the request.

Minor Editorial Corrections to Recommendation X.511 (1988)

- Table of Contents (Blue Book page 82)

The Spanish text of the English document should be replaced with the following:

THE DIRECTORY - ABSTRACT SERVICE DEFINITION[1)]
(Melbourne, 1988)
CONTENTS

1) Recommendation X.511 and ISO 9594-3, Information Processing Systems - Open Systems Interconnection - The Directory - Abstract Service Definition, were developed in close collaboration and are technically aligned.

- Clause 7.3.1 (Blue Book page 87) - In ASN.1 **CommonArguments** production (6th line)

"**DEFAULT notStarted**" should be "**DEFAULT {notStarted}**".

- Clause 7.3.1 (Blue Book page 87) - In ASN.1 **CommonArguments** production (8th line)

"**SET OF EXTENSION OPTIONAL**" should be "**SET OF Extension OPTIONAL**".

- Clause 7.6.1 (Blue Book page 90) - In ASN.1 **EntryInformationSelection** production (5th line) "**select [1]]**" should be "**select [1]**".

- Clause 7.8.1 (Blue Book page 91) - In ASN.1 **FilterItem** production (6th line)
  "**Initial**" should be "**initial**".

- Clause 8.1.1 (Blue Book page 93) - In ASN.1 **DirectoryBindArgument** production
  (4th line) "**v1988}**" should be "**{v1988}}**".

- Clause 8.1.1 (Blue Book page 94) - In ASN.1 **DirectoryBindError** production (2nd line)
  "**DEFAULT v1988,**" should be "**DEFAULT {v1988},**"

- Clause 8.1.1 (Blue Book page 94) - In ASN.1 **DirectoryBindError** production (4th line)
  "**ServiceProblem**" should be "**ServiceProblem,**".

- Clause 9.1.1 (Blue Book page 95) - In ASN.1 **ReadArgument** production (3rd line)
  Delete "**Selection F13**".

- Clause 9.1.1 (Blue Book page 95) - In ASN.1 **ReadArgument** production (4th line)
  "**DEFAULT {}**" should be "**DEFAULT {},**".

- Clause 9.3.1 (Blue Book page 96) - In ASN.1 **AbandonArgument** (2nd line)
  "**InvokeId [0] InvokeId}**" should be "**invokeId [0] InvokeId}**".

- Clause 10.1.1 (Blue Book page 97) - In ASN.1 **List** production (5th line)
  "**NameError**" should be "**NameError,**".

- Clause 10.1.1 (Blue Book page 97) - In ASN.1 **ListResult** production (7th line)
  "**DEFAULT FALSE**" should be "**DEFAULT FALSE,**".

- Clause 10.1.1 (Blue Book page 97) - In ASN.1 **ListResult** production (10th line)
  "**PartialOutcomeQualifier OPTIONAL**" should be
  "**PartialOutcomeQualifier OPTIONAL,**".

- Clause 10.2.1 (Blue Book page 99) - In ASN.1 **SearchArgument** production (10th line)
  "**EntryInformationSelection DEFAULT {}**" should be
  "**EntryInformationSelection DEFAULT {},**".

- Clause 11.3.2.2 (Blue Book page 102) - In the note following list item d)
  "This operation is now allowed" should be "This operation is not allowed".

- Clause 12.4.1 (Blue Book page 104) - In ASN.1 **AttributeProblem** production (3rd line)
  "**InvalidAttributeSyntax**" should be "**invalidAttributeSyntax**".

- Clause 12.4.1 (BlueBook page 104) - In ASN.1 for **AttributeProblem** (5th line)
  "**InappropriateMatching**" should be "**inappropriateMatching**".

- Clause 12.7.1 (Blue Book page 105) - In ASN.1 **SecurityProblem** production (2nd line)
  "**InappropriateAuthentication**" should be "**inappropriateAuthentication**".

- Clause 12.7.1 (Blue Book page 105) - In ASN.1 **SecurityProblem** production (3rd line)
  "**InvalidCredentials**" should be "**invalidCredentials**".

- Clause 12.7.1 (Blue Book page 105) - In ASN.1 **SecurityProblem** production (4th line)
  "**InsufficientAccessRights**" should be "**insufficientAccessRights**".

- Clause 12.7.1 (Blue Book page 105) - In ASN.1 **SecurityProblem** production (5th line)
  "**InvalidSignature**" should be "**invalidSignature**".

- Clause 12.8.1 (Blue Book page 106) - In ASN.1 **ServiceError** production (3rd line)
  "**ServiceProblem},**" should be "**ServiceProblem}**".

- Annex A (Blue Book page 108) - In ASN.1 **IMPORTS** list (12th line)
  "**FROM InformationFramework InformationFramework**" should be
  "**FROM InformationFramework informationFramework**".

- Annex A (Blue Book page 108) - In ASN.1 **directory** production (3rd line)
  "**readPort [S].**" should be "**readPort [S],**".

- Annex A (Blue Book page 109) - In ASN.1 **dua** production (4th line)
  "**searchPort [C]**" should be "**searchPort [C],**".

- Annex A (Blue Book page 109) - In ASN.1 **DirectoryBindArgument** (3rd line)
  "**v1988}**" should be "**{v1988}}**".

- Annex A (Blue Book page 109) - In ASN.1 **Token** production (2nd line)
  "**AlgorithmIdentifier**" should be "**AlgorithmIdentifier,**".

- Annex A (Blue Book page 109) - In ASN.1 **Versions** production (1st line)
  "**(v1988(0)}**" should be "**{v1988(0)}**".

- Annex A (Blue Book page 110) - In ASN.1 **DirectoryBindError** production (2nd line)
  "**DEFAULT v1988,**" should be "**DEFAULT {v1988},**".

- Annex A (Blue Book page 110) - In ASN.1 **AbandonArgument** production (2nd line)
  "**InvokeId [0] InvokeId}**" should be "**invokeId [0] InvokeId}**".

- Annex A (Blue Book page 110) - In ASN.1 **List** production (5th line) Delete "**AttributeError**".

- Annex A (Blue Book page 111) - In ASN.1 **SearchResult** production (7th line)
  "**[2] partialOutcomeQualifier**" should be "**[2] PartialOutcomeQualifier**".

- Annex A (Blue Book page 111) - In ASN.1 **AddEntry** production (6th line)
  "**SecurityError**" should be "**SecurityError,**".

- Annex A (Blue Book page 112) - In ASN.1 **ModifyRDN**Argument (4th line)
  "**deleteoldRDN**" should be "**deleteOldRDN**".

- Annex A (Blue Book page 114) - In ASN.1 **CommonArguments** production (6th line)
  "**DEFAULT notStarted**" should be "**DEFAULT {notStarted}**".

- Annex A (Blue Book page 114) - In ASN.1 **EntryInformationSelection** production
  (12 line) "**attributeTypesandValues**" should be "**attributeTypesAndValues**".

- Annex A (Blue Book page 115) - In ASN.1 **SecurityParameters** production (2nd line)
  "**certification-Path**" should be "**certification-path**".

Date: 1991-08-20

Information processing systems - Open Systems Interconnection - The Directory -

Part 4:
Procedures for Distributed Operation

TECHNICAL CORRIGENDUM 1

(covering resolutions to defect reports 004, 010-013, 022, 023, 025-027, 029)

Page 10

Subclause 10.4.1

In the first sentence of the second paragraph and the second sentence of the third paragraph, replace "**returnCrossReference**" with "**returnCrossRefs**".

Page 11

Subclause 10.4.2.3

In the last sentence of the first paragraph, replace "**requestCrossReferences**" with "**returnCrossRefs**".

Page 12

Subclause 12.3.1

Because a DSA involved in chaining is unable to change the value of the subset argument (as required when dereferencing aliases for a one level search operation), add the new boolean argument "entryOnly" to the ChainingArguments ASN.1 definition as follows:

```
                    .
                    .
aliasDereferenced   [4]   BOOLEAN DEFAULT FALSE,
aliasedRDNs         [5]   INTEGER OPTIONAL,
        --absent unless aliasDereferenced is TRUE
entryOnly           [11]  BOOLEAN DEFAULT FALSE,
        --absent unless aliasDereferenced is TRUE
        --and operation is search, one-level
returnCrossRefs     [6]   BOOLEAN DEFAULT FALSE,
                    .
                    .
```

Page 13

Subclause 12.3.2.7

Add a new clause 12.3.2.7 with the following text to define the new **entryOnly** argument:

"12.3.2.7 The **entryOnly** component is set to **TRUE** if the original operation was a search, with the **subset** argument set to **oneLevel**, and an alias entry was encountered as an immediate subordinate of the **baseObject**. The DSA which successfully performs name resolution on the **targetObject** name, shall perform object evaluation on only the named entry."

Renumber existing clauses 12.3.2.7 and 12.3.2.8 to 12.3.2.8 and 12.3.2.9 respectively.

Page 14

Subclause 12.6.2

Replace the first sentence with the following:

"Each DSA which is propagating an operation to another adds a new item to the end of the sequence of **TraceItem**."

Page 15

Subclause 13.1.1

In the first sentence replace "**chainedRead**, **chainedSearch**, and **chainedModify** ports" by "**chainedReadPort**, **chainedSearchPort**, and **chainedModifyPort**".

Replace the ASN.1 specification of **DSABind** with the following specification:

```
DSABind   ::=      ABSTRACT-BIND
      TO  { chainedReadPort,
            chainedSearchPort,
            chainedModifyPort }
  BIND
          ARGUMENT              DirectoryBindArgument
          RESULT                DirectoryBindResult
          BIND-ERROR            DirectoryBindError
```

Subclause 13.2.1

In the first sentence, replace "Chained Read, Chained Search and Chained Modify ports" with "**chainedReadPort**, **chainedSearchPort** and **chainedModifyPort**".

Replace the ASN.1 specification of **DSAUnbind** with the following specification:

```
DSAUnbind         ::=      ABSTRACT-UNBIND
   FROM  { chainedReadPort,
           chainedSearchPort,
           chainedModifyPort }
```

Page 18

Subclause 17.2

Add the following to the end of the second last paragraph:

"In the particular case where a DSA already contains an entry of the same name as that of the **object** in the **AddEntry**, **RemoveEntry** or **ModifyRDN** operation, or of the new name in the **ModifyRDN** operation, and receives the operation before name resolution has been completed, because another (as yet uncontacted) DSA holds the immediately superior entry, then it may optionally return an **UpdateError** instead of first passing the operation to the latter DSA for name resolution to be completed."

Page 23

Subclause 18.4.2.3

Replace both sentences with the following:

"**TraceInformation** is always updated, by appending a new **TraceItem**, before including it in any outgoing **ChainingArguments**. This is the case for both chained operations and newly generated subrequests."

Page 25

Sublause 18.4.6 1)

Replace the first sentence of the second paragraph with the following:

"If the operation originates from a DUA, adopt the value of **TRUE** for **aliasDereferenced** if **aliasedRDNs** is present, otherwise adopt the value **FALSE**."

Page 34

Subclause 18.7.2.2.1 1)

To include the new **entryOnly** argument, replace the first part of the first sentence (up to the first comma) with revised text as follows:

"1) If the **subset** argument is one of
(i) **baseObject**, or
(ii) **wholeSubtree**, or
(iii) **oneLevel** and **entryOnly** in **ChainingArguments** is set to **TRUE**,
then apply the filter ..."

Subclause 18.7.2.2.1 5)

Replace "...**targetObject** created from the **aliasedObjectName** attribute and the old **targetObject** name" with "Set **targetObject** to **aliasedObjectName**".

To include the omitted step and to incorporate the **entryOnly** argument, replace the second paragraph with the following:

"Set **aliasDereferenced** and **aliasedRDNs** in **ChainingArguments** to **TRUE** and to the number of RDNs in **aliasedObjectName**, respectively.

If the **subset** argument was **oneLevel**, set **entryOnly** to **TRUE** in **ChainingArguments**."

Page 35

Subclause 18.8

Add the following to the end of the second last paragraph:

"When the incoming result has been signed, the DSA shall not act upon the **ContinuationReference** unless an a priori agreement exists between the DSA and the DUA which will receive the result, and any intermediate DSAs. Where such an agreement exists:

1. the DSA may explore as described above except the continuation reference shall not be removed from the result;

2. any additional results shall be returned as described in 18.9.2;

3. the DUA and any intermediate DSAs processing the result shall ignore the referrals contained in the result."

Page 37

Annex A

Delete **DSABindArgument** from the **EXPORTS** production.

Delete **DirectoryBind** from the **IMPORTS** production.

Add **DirectoryBindArgument**, **DirectoryBindResult** and **DirectoryBindError** to the **IMPORTS** production.

Page 38

Annex A

Replace the ASN.1 specification of **DSABind** with the following specification:

```
DSABind   ::=      ABSTRACT-BIND
    TO    { chainedReadPort,
            chainedSearchPort,
            chainedModifyPort }
  BIND
          ARGUMENT          DirectoryBindArgument
          RESULT            DirectoryBindResult
          BIND-ERROR        DirectoryBindError
```

Replace the ASN.1 specification of **DSAUnbind** with the following specification:

```
DSAUnbind         ::=      ABSTRACT-UNBIND
  FROM    { chainedReadPort,
            chainedSearchPort,
            chainedModifyPort }
```

Date: 1992-03-17

Information processing systems - Open Systems Interconnection - The Directory -

Part 4:
Procedures for Distributed Operation

TECHNICAL CORRIGENDUM 2

(covering resolutions to defect reports 002, 034, 048, 50 and 059)

Page 3

Subclause 3.5.12

Replace the definition of naming context with the following:

> "a subtree of the DIT, held in a single DSA, defined as starting at a vertex and extending downwards to leaf and/or non-leaf vertices. Such vertices constitute the border of the naming context. The superior of the starting vertex of a naming context is not held in that DSA. Subordinates of the non-leaf vertices belonging to the border denote the start of further naming contexts which are not held in that DSA."

Subclause 3.5.17

Replace the definition of request decomposition with the following:

> "decomposition of a request into one or more of the following:
> a) subrequests to be chained to other DSAs;
> b) continuation references to be included in the results."

Page 7

Clause 9

In the fifth paragraph, replace the 3rd-5th sentences with the following:

> "A naming context is a subtree of the DIT, held in a single DSA, defined as starting at a vertex and extending downwards to leaf and/or non-leaf vertices. Such vertices constitute the border of the naming context. The superior of the starting vertex of a naming context is not held in that DSA. Subordinates of the non-leaf vertices belonging to the border denote the start of further naming contexts which are not held in that DSA."

Page 15 & 16

Subclause 14.3.1

In the ASN.1 for **ChainedX** ::= , add **Abandoned** to the **ERRORS** as follows:

```
ERRORS {...,DsaReferral, Abandoned,...}
```

Add a new note 1 as follows and renumber the existing note to note 2:

> "Notes:
> 1. The presence of the Abandoned error reflects the possibility discussed in 14.4, that a **ChainedAbandon** can be generated for an operation when a linked association fails.
>
> 2. The definitive ..."

Page 26

Subclause 18.6.1

To remove ambiguity and clarify the source of values for the arguments, replace the first sentence with the following:

> "The procedure makes use of the following arguments, set by Operation Dispatcher as detailed in 18.4.6 1):"

Delete the third bullet item from the list in 18.6.1 and add the following text as a new paragraph at the end of the clause:

> "In addition, the procedure makes use of the **dontDereferenceAliases** service control from **commonArguments**."

Page 33

Subclause 18.7.2.1.1 3)

Add the following phrase to the beginning of the first sentence:

> "Either generate a continuation reference to be included in the results or "

Page 34

Subclause 18.7.2.2.1 3)

Add the following phrase to the beginning of the second sentence:

> "Either generate a continuation reference to be included in the results or "

Subclause 18.7.2.2.1 5)

Add the following phrase to the second sentence immediately following the phrase "the alias and":

"Either generate a continuation reference to be included in the results or "

Annex A

In the ASN.1 definition of **ChainedModifyEntry** replace the errors with the following text:

```
ERRORS          { DsaReferral, Abandoned, AttributeError, NameError,
                ServiceError, SecurityError, UpdateError }
```

Date: 1992-10-30

Information processing systems - Open Systems Interconnection - The Directory -

Part 4:
Procedures for Distributed Operation

TECHNICAL CORRIGENDUM 3

(covering resolutions to defect reports 9594/024, 062, 065 and 066)

Page 14

Clause 12.9.1

Delete the following comment from the referenceType element of the ASN.1 specification of ContinuationReference:

"*--only present in the DSP--*"

Add a new element to ContinuationReference as indicated below:

```
ContinuationReference   ::=     SET {
        targetObject            [0]     Name,
        aliasedRDNs [1]         INTEGER OPTIONAL
        operationProgress       [2]     OperationProgress,
        rdnsResolved            [3]     INTEGER OPTIONAL,
        referenceType           [4]     ReferenceType OPTIONAL,
        accessPoints[5]         SET OF AccessPoint
        entryOnly               [6]     BOOLEAN DEFAULT FALSE
                                        --ABSENT UNLESS ALIASDEREFERENCED IS TRUE--
                                                --and operation is search one level --
                                                }
```

Page 15

Subclause 12.9.2.5

Delete the following phrase:

"which is only present in the DSA abstract service,"

Add a new clause 12.9.2.7 with the following text to define the new **entryOnly** argument:

"12.9.2.7 The **entryOnly** component is set to **TRUE** if the original operation was a search, with the **subset** argument set to **oneLevel**, and an alias entry was encountered as an immediate subordinate of the **baseObject**. The DSA which successfully performs name resolution on the **targetObject** name, shall perform object evaluation on only the named entry."

Page 26

Subclause 18.5

Add a third paragraph to 18.5:

If the DSA executes referrals, use of **traceInformation** is not sufficient to detect or avoid loops. A DSA executing referrals shall use the procedure of 18.5.3 for loop avoidance. Note that detection of loops due to the failure of other DSAs to follow this procedure is not possible.

Insert a new clause 18.5.3:

18.5.3 Loop Avoidance with Referrals

Loop avoidance in the execution of referrals requires that a DSA, immediately prior to executing a referral and in addition to the procedure of 18.5.2, check whether the consequential state of the operation has occurred previously for that DSA in relation to the processing of the original query. To do this, it is necessary for the DSA to maintain a list of these states for all requests and subrequests relating to the original query which it sends to other DSAs.

Page 37

Annex A

Add **AccessPoint** to the **EXPORTS** production.

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Part 4:
Procedures for Distributed Operation

TECHNICAL CORRIGENDUM 4

(covering resolutions to defect reports 9594/070, 071, 072)

Page 12

Clause 12.3.2.11

Add to the end of 12.3.2.11:

In constructing this parameter, "sender" refers to the initiating DSA, and "recipient" refers to the responding DSA. **name** is set to the distinguished name of the DSA to which the operation was chained.

Clause 12.4.2.3

Add to the end of 12.4.2.3:

In constructing this parameter, "sender" refers to the responding DSA, and "recipient" refers to the initiating DSA. **name** is set to the distinguished name of the DSA to which the responding DSA is replying.

Page 19

Annex A

Add to the end of the list of imports in Annex A:

```
OBJECT, PORT, ABSTRACT-BIND, ABSTRACT-UNBIND, ABSTRACT-OPERATION,
        ABSTRACT-ERROR
    FROM AbstractServiceNotation {joint-iso-ccitt mhs-motis(6) asdc(2)
        modules(0) notation(1)}
```

Minor Editorial Corrections to Recommendation X.518 (1988)

- Clause 12.3.1 (Blue Book page 132) - In ASN.1 **ChainingArguments** production
  (11th line) "**Info [8]**" should be "**info [8]**".

- Clause 12.4.1 (Blue Book page 133) - In ASN.1 **ChainingResults** production (2nd line)
  "**Info [0]**" should be "**info [0]**".

- Clause 14.3.1 (Blue Book page 137) - In ASN.1 **ChainedX** production (4th line)
  "**ChainingArgument**" should be "**Chaining Arguments**".

- Clause 14.3.1 (Blue Book page 137) - In ASN.1 **ChainedX** production (6th line)
  "**ChainingResult**" should be "**ChainingResults**".

- Clause 14.3.2.1 (Blue Book page 137) - In the first sentence
  "**ChainingArgument**" should be **ChainingArguments**".

- Clause 14.3.3.1 (Blue Book page 137) - In the first sentence
  "**ChainingResult**" should be "**ChainingResults**".

- Clause 15.1.1 (Blue Book page 138) - In the list component a)
  after "a) **invalidReference.**" add the following text:
  "The DSA returning this error detected an error in the calling DSA's knowledge as
  specified in the **referenceType** chaining argument;".

- Clause 15.1.1 (Blue Book page 138) - In the list component b)
  after "b) **loopDetected.**" add the following text:
  "The DSA returning this error detected a loop in the knowledge information in the Directory.".

- Clause 18.6.6.5 (Blue Book page 156) - In list item 7), in the first sentence
  "**ChainingArgument**" should be "**ChainingArguments**".

- Clause 18.6.6.5 (Blue Book page 156) - In list item 8), in the first sentence,
  "**ChainingArgument**" should be "**ChainingArguments**".

- Clause 18.6.6.5 (Blue Book page 156) - In list item 9), in the second sentence

"**ChainingArgument**" should be "**ChainingArguments**".

- Clause 18.9.1.2 (Blue Book page 161) - 4th paragraph, the last phrase:

  "**ChainingArgument**" should be "**ChainingArguments**".

- Annex A (Blue Book page 162) - In ASN.1 **IMPORTS** list (2nd line)

  "**InformationFramework, abstractService**" should be "**informationFramework, abstractService,**".

- Annex A (Blue Book page 162) - In ASN.1 **IMPORTS** list (8th line)

  "**DistributedDirectoryObjectIdentifiers,**" should be "**DistributedDirectoryObjectIdentifiers**".

- Annex A (Blue Book page 162) - In ASN.1 **IMPORTS** list (24th line)

  "**directoryAbstractService**" should be "**directoryAbstractService;**".

- Annex A (Blue Book page 162) - In ASN.1 **dsa** production (6th line)

  "**chainedSearchPort**" should be "**chainedSearchPort,**".

- Annex A (Blue Book page 163) - In ASN.1 **DSAUnbind** production (1st line)

  "**::= UNBIND**" should be "**::= ABSTRACT-UNBIND**".

- Annex A (Blue Book pages 163 and 164) - In each of the following ASN.1 productions:

  ChainedRead, **ChainedCompare**, **ChainedList**, **ChainedSearch**, **ChainedAddEntry**, **ChainedRemoveEntry**, **ChainedModifyEntry** and **ChainedModifyRDN**

  a) In the 4th line of each ASN.1 production listed above, "**ChainingArgument**" should be "**ChainingArguments**".

  b) In the 7th line of each ASN.1 production listed above, "**ChainingResult**" should be "**ChainingResults**".

- Annex A (Blue Book page 164) - In ASN.1 **ChainingArguments** production (4th line)

  "**{notStarted}**" should be "**{notStarted},**".

- Annex A (Blue Book page 165) - In ASN.1 **TraceInformation** production

  Replace the complete ASN.1 production with the following:

```
"TraceInformation ::= SEQUENCE OF TraceItem

TraceItem ::= SET {
 dsa                [0]     Name,
targetObject        [1]     Name OPTIONAL,
operationProgress   [2]     OperationProgress}" .
```

- Annex D (Blue Book page 174) - In ASN.1 comment below **it-ot-dsa** production

  "-- *part types* --" should be "-- *port types* --".

Date: 1992-05-24

Information processing systems - Open Systems Interconnection - The Directory -

Part 5:
Protocol Specifications

TECHNICAL CORRIGENDUM 1

(covering resolutions to defect report 052)

Clause 7

Add a new subclause 7.5 as follows:

7.5 Versions and the rules of extensibility

The Directory may be distributed and more than two Directory Application Entities may interoperate to service a request. The Directory AEs may be implemented conforming to the 1988 edition of the specification or some future edition, which may or may not be represented by different version numbers. The version number is negotiated to the highest common version number between two directly binding Directory AEs.

Note - for example a version 1 & 2 DUA may bind to a version 1 DSA with a resulting agreed version of 1. That DSA may further bind to a version 1 & 2 DSA with a resulting agreed version of 1. Even though both the DUA and this remote DSA can support version 2, the negotiated versions are 1.

Version negotiation is used only to support those aspects of communication which must be common between the two directly bound Directory AEs.

Note - for example, basic understanding of PDU exchange (ROSE), common understanding of name resolution would be aspects that would be agreed through version negotiation.

A DUA may issue a request conforming to the highest level it supports. Using the rules of extensibility defined below, that request shall be forwarded to the appropriate DSA that will respond to that request, regardless of the level of the intervening DSAs. The responding DSA shall function as defined below.

7.5.1 DUA

7.5.1.1 When establishing an association, i.e., binding, utilizing the DAP, the version negotiated shall only affect the point to point aspects of the protocol exchanged between the DUA and the DSA to which it is connected. Subsequent requests on the association shall not be constrained by the version negotiated.

There are no point to point aspects of the DAP that are currently indicated by different versions.

7.5.1.2 The DUA may initiate requests at the highest level version of the specification of that request it supports. If one or more elements of the request are critical, it shall indicate these extensions in the Extension parameter.

7.5.1.3 When processing a known error type with unknown indicated problems and parameters, a DUA shall:

a) not consider the receipt of unknown indicated problems and parameters as a protocol violation (i.e., it shall not issue a **RO-U-REJECT**); and

b) optionally report the additional error information to the user.

7.5.2 DSA

7.5.2.1 When accepting an association, i.e., binding, utilizing the DAP, the version negotiated shall only affect the point to point aspects of the protocol exchanged between the DUA and the DSA to which it is connected. Subsequent requests received on the association shall not be constrained by the version negotiated.

There are no point to point aspects of the DAP that are currently indicated by different versions.

7.5.2.2 When establishing or accepting an association, i.e., binding, utilizing the DSP, the version negotiated shall only affect the point to point aspects of the protocol exchanged between the DSA. Subsequent requests or responses on the association shall not be constrained by the version negotiated.

There are no point to point aspects of the DSP that are currently indicated by different versions.

7.5.2.3 If any DSA detects an extension whose semantic is unknown and indicated as Critical, it shall return an **unavailableCriticalExtension** (as a **serviceError** or a **partialOutcomeQualifier**).. Otherwise, when processing a Directory PDU a DSA shall:

1. ignore all unknown bit name assignments within a bit string; and
2. ignore all unknown named numbers in an ENUMERATED type or INTEGER that is being used in the enumerated style; and
3. ignore all tag values not defined in the abstract syntaxes of this version of the Directory standard (these may be additional values at the end of a SEQUENCE or unknown types within a SET or CHOICE).

7.5.2.4 If the PDU is a request, the DSA shall forward the request containing the unknown values to any additional DSAs determined by the name resolution process.

7.5.2.5 If the PDU is a response, the DSA shall merge the unknown values as necessary and forward to the initiating DSA or DUA.

7.5.2.6 When processing a known error type with unknown indicated problems and parameters, a DSA shall not consider this a syntax error (i.e., it shall not issue a **RO-U-REJECT**).

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Part 5:
Protocol Specifications

TECHNICAL CORRIGENDUM 2

(covering resolutions to defect reports 074, 075)

Page 7

Clause 7.5.1.3 of Technical Corrigendum 1 to X.519 | 9594-5

Renumber this clause to 7.5.1.4 and insert in front of it the following:

7.5.1.3 When processing a response, a DUA shall:

a) ignore all unknown bit name assignments within a bit string; and

b) ignore all unknown named numbers in an **ENUMERATED** type or **INTEGER** type that is being used in the enumerated style, provided the number occurs as an optional element of a **SET** or **SEQUENCE**; and

c) ignore all unknown elements in **SET**s, at the end of **SEQUENCE**s, or in **CHOICE**s where the **CHOICE** is itself an optional element of a **SET** or **SEQUENCE**.

d) not consider the receipt of unknown attribute types and attribute values as a protocol violation; and

e) optionally report the unknown attribute types and attribute values to the user.

Page 10

Clause 9.1.1

Replace (b) with the following:

(b) The bind security level(s) for which conformance is claimed (none, simple, strong — and if simple, then whether without-password, with-password, or with protected-password); and whether the DUA can generate signed arguments or validate signed results.

Clause 9.2.1

Replace (d) with the following, and renumber the remaining items in the list:

(d) If conformance is claimed to the **directoryAccessAC** application context, the bind security level(s) for which conformance is claimed (none, simple, strong — and if simple, then whether without-password, with-password, or with protected-password); whether the DSA can perform originator authentication as defined in [Part 4 | X.518] clause 18.9.1 and if so, whether identity-based or signature-based; and whether the

DSA can perform result authentication as defined in [Part 4 | X.518] clause 18.9.2.

(e) If conformance is claimed to the **directorySystemAC** application context, thebind security level(s) for which conformance is claimed (none, simple, strong — and if simple, then whether without-password, with-password, or with protected-password); whether the DSA can perform originator authentication as defined in [Part 4 | X.518] clause 18.9.1 and if so, whether identity-based or signature-based; and whether the DSA can perform result authentication as defined in [Part 4 | X.518] clause 18.9.2.

Minor Editorial Corrections to Recommendation X.519 (1988)

- Clause 7.2.2 (Blue Book page 180) - In ASN.1 **chainedReadASE** production (5th line)
  "**chainedCompare**" should be "**chainedCompare,**".

- Annex B (Blue Book page 187) - In ASN.1 **IMPORTS** list (15th line)
  Delete "**DSAReferral**".

- Annex C (Blue Book page 189) - In ASN.1 **id-as-acse** production (3rd line)
  "**version1(1)}**" should be "**version (1)}**".

Date: 1995-__-__

Information processing systems - Open Systems Interconnection - The Directory -

Part 6:
Selected Attribute Types

TECHNICAL CORRIGENDUM 1

(covering resolutions to defect report 076)

Clause 6.2

Replace the first four paragraphs (up to the words ‘single space character’) with the following:

In the syntaxes specified in 6.2.1 to 6.2.4, the following spaces are regarded as not significant:

– leading spaces (i.e. those preceding the first character that is not a space);

– trailing spaces (i.e. those following the last character that is not a space);

– multiple consecutive spaces (these are taken as equivalent to a single space character).

A string consisting entirely of spaces is equivalent to a string containing exactly one space.

Minor Editorial Corrections to Recommendation X.520 (1988)

- Every page - In the footer of each page
  "**Rec. 520**" should be "**Rec. X.520**".

- Clause 5.5.2 (Blue Book page 195) - In ASN.1 **Criteria** production (3rd line)
  "**Type**" should be "**type**".

- Clause 5.5.2 (Blue Book page 195) - In ASN.1 **Criteria** production (6th line)
  "**not [3] Criteria**" should be "**not [3] Criteria}**".

- Clause 5.5.2 (Blue Book page 196) - In ASN.1 **intermediate-filter** production (6th line)
  "**type streetAddress**" should be "**type streetAddress,**".

- Clause 5.5.3 (Blue Book page 196) - In ASN.1 **businessCategory** production (5th line)
  "**{attributeType 15))**" should be "**{attributeType 15}**".

- Clause 5.7.2 (Blue Book page 198) - In ASN.1 **TelexNumber** production
  (2nd, 4th and 6th lines) - 3 instances of
  "**PrintableString,**" should each be "**PrintableString**".

- Clause 5.7.4 (Blue Book page 198) - In the 2nd paragraph, 1st sentence
  "Recommendation E.1xx" should be "Recommendation E.123".

- Clause 5.7.6 (Blue Book page 199) - In ASN.1 **internationalISDNNumber** production
  (4th line) "**ub-isdn-address**" should be "**ub-international-isdn-number**".

- Clause 5.7.7 (Blue Book page 199) - In ASN.1 **registeredAddress** production (3rd line)
  "**26}.**" should be "**26}**".

- Clause 5.9.1 (Blue Book page 200) - In ASN.1 **PresentationAddress** production
  (1st line) "**::= SEQUENCE**" should be "**::= SEQUENCE {**".

- Clause 6.2.1 (Blue Book page 202) - In ASN.1 **caseExactString** production
  (1st line) "**caseExactString ATTRIBUTE-SYNTAX**" should be

"**caseExactStringSyntax ATTRIBUTE-SYNTAX**".

- Annex A (Blue Book page 205) - In ASN.1 **IMPORTS** list (4th and 12th lines)

  both instances of "**joint-ISO-CCITT**" should be "**joint-iso-ccitt**".

- Annex A (Blue Book page 206) - In ASN.1 **organizationName** production (4th line)

  "**ub-organization-Name**" should be "**ub-organization-name**".

- Annex A (Blue Book page 206) - In ASN.1 **searchGuide** production (3rd line)

  "**Criteria**" should be "**Guide**".

- Annex A (Blue Book page 206) - In ASN.1 **Criteria** production (4th line)

  "**and [1] SET OF Criteria**" should be "**and [1] SET OF Criteria,**".

- Annex A (Blue Book page 206) - In ASN.1 **Criteria** production (5th line)

  "**or [2] SET OF Criteria**" should be "**or [2] SET OF Criteria,**".

- Annex A (Blue Book page 206) - In ASN.1 **CriteriaItem** production (3rd - 7th lines)

```
"equality                [0]    AttributeType
 substrings        [1]   AttributeType
 greaterOrEqual          [2]    AttributeType
 lessOrEqual             [3]    AttributeType
 approximateMatch        [4]    Attribute"
```

  should be

```
"equality                [0]    AttributeType,
 substrings        [1]   AttributeType,
 greaterOrEqual          [2]    AttributeType,
 lessOrEqual             [3]    AttributeType,
 approximateMatch        [4]    AttributeType}".
```

- Annex A (Blue Book page 207) - In ASN.1 **TeletexTerminalIdentifier** production

  (2nd line) "**teletexTerminalPrintableString**" should be "**teletexTerminal PrintableString**".

- Annex A (Blue Book page 208) - In ASN.1 **internationISDNNumber** production

  (4th line) "**ub-isdn-address**" should be "**ub-international-isdn-number**".

- Annex A (Blue Book page 209) - In ASN.1 **caseIgnoreSyntax** production (1st line)

  "**caseIgnoreSyntax**" should be "**caseIgnoreStringSyntax**".

- Annex C (Blue Book page 212) - In **ub-teletex-terminal-id** the upper bound "**INTEGER ::= 24**" should be "**INTEGER ::= 1024**".

Date: 1991-08-20

Information processing systems - Open Systems Interconnection - The Directory -

Part 7:
Selected Object Classes

TECHNICAL CORRIGENDUM 1

(covering resolutions to defect report 005)

Page 11

Annex B, Clause B.11

Remove Note 1. Renumber existing Note 2 to new Note 1.

Date: 1992-03-17

Information processing systems - Open Systems Interconnection - The Directory -

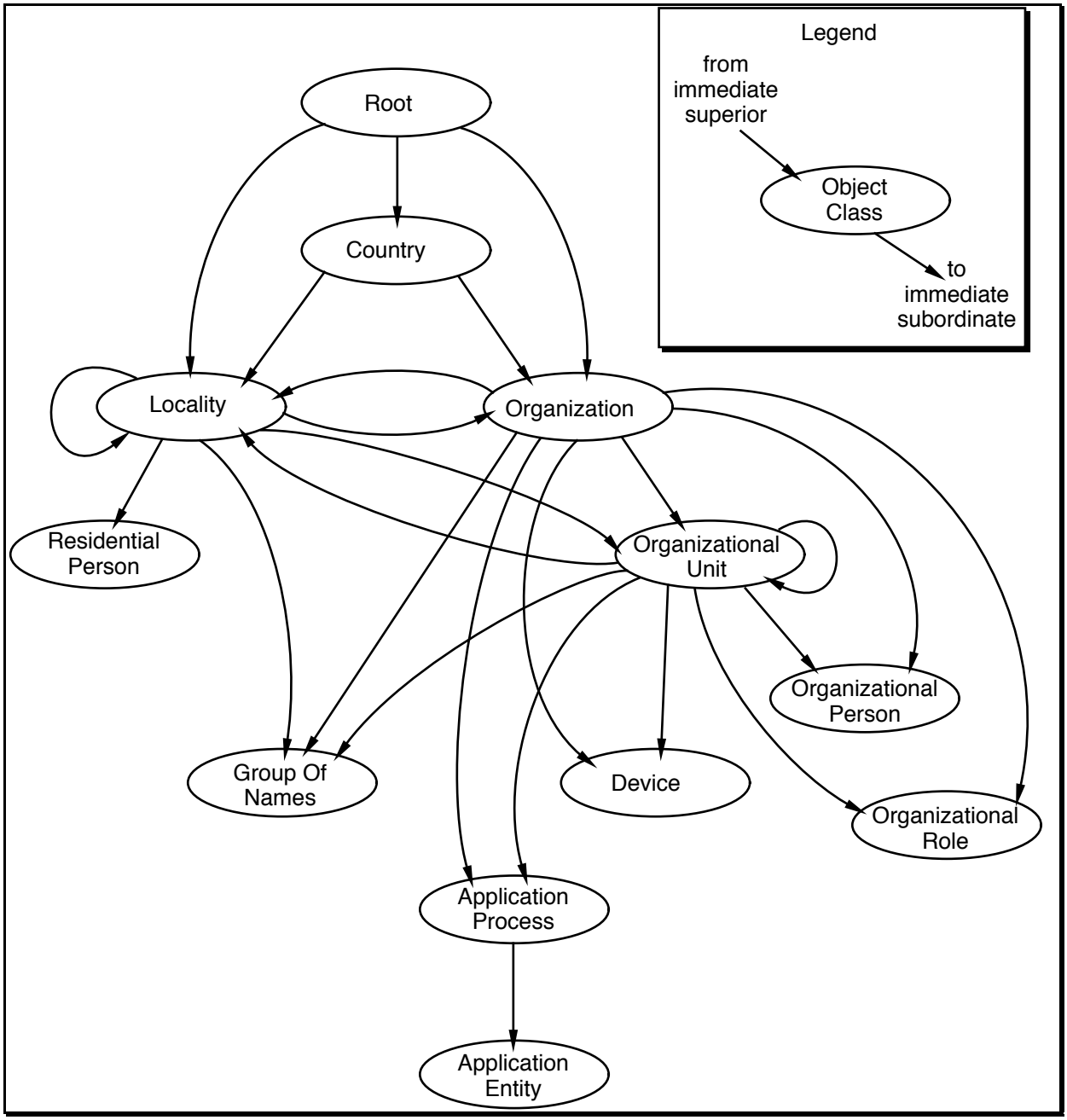
Part 7:
Selected Object Classes

TECHNICAL CORRIGENDUM 2

(covering resolutions to defect report 055)

Annex B, Figure B.1

Add a line to the figure permitting Group of Names to be subordinate to Organizational Unit, as illustrated below:



Minor Editorial Corrections to Recommendation X.521 (1988)

- Clause 5.1 (Blue Book page 215) - In ASN.1 **telecommunicationsAttributeSet** production (4th line) "**iSDNAddress,**" should be "**internationalISDNNumber,**".

- Clause 5.1 (Blue Book page 215) - In ASN.1 **telecommunicationsAttributeSet** production (7th line) remove "**x121Address,**"

- Clause 5.1 (Blue Book page 215) - In ASN.1 **telecommunicationsAttributeSet** production (10th line) "**registeredAddress}**" should be "**registeredAddress,**
x121Address}".

- Annex A (Blue Book page 220) - In ASN.1 **IMPORTS** list (6th line) "**CACertificate**" should be "**cACertificate**".

- Annex A (Blue Book page 220) - In ASN.1 **telecommunicationsAttributeSet** production (4th line) "**iSDNAddress,**" should be "**internationalISDNNumber,**".

- Annex A (Blue Book page 220) - In ASN.1 **telecommunicationsAttributeSet** production (8th and 9th lines) "**x121Address, preferredDeliveryMethod, destinationIndicator,**
registeredAddress}" should be "**preferredDeliveryMethod,**
destinationIndicator,
registeredAddress,
x121Address}".

Date: 1991-08-20

Information processing systems - Open Systems Interconnection - The Directory -

Part 8:
Authentication Framework

TECHNICAL CORRIGENDUM 1

(covering resolutions to defect reports 009, 015, 016, 019, 031)

Page 6

Subclause 7.2

In the first sentence of the second paragraph, which begins "where SN is the serial number..." add the following parenthetical expression immediately after "used to sign the certificate,":

"(the **identifier** is the same as that defined in the value notation of the **SIGNED MACRO**)".

Page 7

Subclause 7.6

Add the following text to the end of the clause:

"The following ASN.1 data types can be used to represent certificates and a certification path:

```
Certificates ::= SEQUENCE {
        userCertificate             Certificate
        certificationPath     ForwardCertificationPath  OPTIONAL}

CertificationPath ::= SEQUENCE {
        userCertificate             Certificate
        theCACertificates   SEQUENCE OF
                                        CertificatePair  OPTIONAL}
```

In addition, the following ASN.1 data type can be used to represent the forward certification path. This component contains the certification path which can point back to the originator.

```
ForwardCertificationPath ::= SEQUENCE OF  CrossCertificates "
```

Page 11

Subclause 9.4 8)

Replace "$A\{r^B\}$" with "$A\{r^B, B\}$".

Page 19

Annex C, Clause C.6.2

Replace the last sentence of the clause with the following:

"It must be ensured that $e > \log_2(n)$. If not, then the simple operation of taking the integer e'th root of a ciphertext block will disclose the plaintext."

Annex D, Subclause D.2

Leave the first sentence as is. Replace all remaining text of clause D.2 with the following:

"The square-mod hash function that was formerly described in this annex is deprecated."

Minor Editorial Corrections to Recommendation X.509 (1988)

- Clause 7.2 (Blue Book page 58) - In ASN.1 **Certificate** production (2nd line)
  "**DEFAULT 1988,**" should be "**DEFAULT v1988,**".

- Clause 7.2 (Blue Book page 58) - In ASN.1 **Certificate** production (3rd line)
  "**SerialNumber,**" should be "**CertificateSerialNumber,**".

- Clause 7.2 (Blue Book page 58) - In ASN.1 **Certificate** production (4th line)
  "**AlgorithmIdentifier**" should be "**AlgorithmIdentifier,**".

- Clause 7.2 (Blue Book page 58) - In ASN.1 **Certificate** production (5th line)
  "**Name**" should be "**Name,**".

- Clause 7.2 (Blue Book page 58) - In ASN.1 **Version** production (1st line)
  "**{1988(0)}**" should be "**{v1988(0)}**".

- Clause 7.2 (Blue Book page 58) - In ASN.1 **SerialNumber** production (1st line)
  "**SerialNumber**" should be "**CertificateSerialNumber**".

- Clause 7.2 (Blue Book page 58) - In ASN.1 **SubjectPublicKeyInfo** production (3rd line)
  "**AlgorithmIdentifier**" should be "**AlgorithmIdentifier,**".

- Clause 7.2 (Blue Book page 58) - In ASN.1 **AlgorithnIdentifier** production (3rd line)
  "**OBJECT IDENTIFIER**" should be "**OBJECT IDENTIFIER,**".

- Clause 7.6 (Blue Book page 59) - In ASN.1 **CertificatePair** production (3rd line)
  a) the letter o in "**[o]**" should be the numeral zero "**[0]**".
  b) "**Certificate OPTIONAL**" should be "**Certificate OPTIONAL,**".

- Clause 8.5 (Blue Book page 63) - In ASN.1 **SIGNED** macro (last line)
  "**END -- OF SIGNED.)**" should be "**)**
  END -- OF SIGNED".

- Clause 8.6 (Blue Book page 63) - In ASN.1 **SIGNATURE** macro (last line)

"**END -- OF SIGNATURE.)**" should be "**)**
END -- OF SIGNATURE".

- Clause 10.2.6.4 (Blue Book page 69) - In ASN.1 **CertificateList** production (8th line)
  "**issuer Name, CertificateSerialNumber subject,**" should be
  "**issuer Name,**
  subject CertificateSerialNumber,".

- Annex G (Blue Book page 79) - In ASN.1 **IMPORTS** list (7th line)
  "**ub-user-passwordFROM**" should be "**ub-user-password FROM**".

- Annex G (Blue Book page 79) - In ASN.1 **Certificate** production (2nd line)
  "**DEFAULT 1988,**" should be "**DEFAULT v1988,**".

- Annex G (Blue Book page 79) - In ASN.1 **Certificate** production (3rd line)
  "**SerialNumber,**" should be "**CertificateSerialNumber,**".

- Annex G (Blue Book page 79) - In ASN.1 **Version** production (1st line)
  "**{1988(0)}**" should be "**{v1988(0)}**".

- Annex G (Blue Book page 79) - In ASN.1 **SerialNumber** production (1st line)
  "**SerialNumber**" should be "**CertificateSerialNumber**".

- Annex G (Blue Book page 79) - In ASN.1 **Validity** production (2nd line)
  "**notBefore UTCTime**" should be "**notBefore UTCTime,**".

- Annex G (Blue Book page 79) - In ASN.1 **SubjectPublicKeyInfo** production (2nd line)
  "**AlgorithmIdentifier**" should be "**AlgorithmIdentifier,**".

- Annex G (Blue Book page 79) - In ASN.1 **CertificateList** production (5th line)
  "**SIGNEDSEQUENCE**" should be "**SIGNED SEQUENCE**".

- Annex G (Blue Book page 79) - In ASN.1 **CertificateList** production (8th line)
  "**userCertificate SerialNumber,**" should be "**subject CertificateSerialNumber,**".

- Annex G (Blue Book page 79) - In ASN.1 **UserCertificate** production (2nd line)

"**ATTRIBUTE-SYNTAXCertificate**" should be "**ATTRIBUTE-SYNTAX Certificate**".

- Annex G (Blue Book page 79) - In ASN.1 **CACertificate** production (2nd line)
  "**ATTRIBUTE-SYNTAXCertificate**" should be "**ATTRIBUTE-SYNTAX Certificate**".

- Annex G (Blue Book page 80) - In ASN.1 **CrossCertificatePair** production (2nd line)
  "**ATTRIBUTE-SYNTAXCertificatePair**" should be
  "**ATTRIBUTE-SYNTAX CertificatePair**".

- Annex G (Blue Book page 80) - In ASN.1 **CertificateRevocationList** production
  (2nd line) "**ATTRIBUTE-SYNTAXCertificateList**" should be
  "**ATTRIBUTE-SYNTAX CertificateList**".

- Annex G (Blue Book page 80) - In ASN.1 **AuthorityRevocationList** production
  (2nd line) "**ATTRIBUTE-SYNTAXCertificateList**" should be
  "**ATTRIBUTE-SYNTAX CertificateList**".

- Annex G (Blue Book page 80) - In ASN.1 **ENCRYPTED** macro (4th line)
  "**(VALUE BIT STRING**" should be "**(VALUE BIT STRING)**"

Appendix B

Technical Corrigenda to Rec. X.500 (1993) | ISO/IEC 9594 : 1995 Edition 2

Summary

X.500 | ISO/IEC 9594-1 (1993)

— none

X.501 | ISO/IEC 9594-2 (1993)

— Technical Corrigendum 1 (covering resolutions to defect reports 088, 089, 090, 091, 102, 104, 125)

— Draft Technical Corrigendum 2 (covering resolutions to defect reports 134, 136)

X.511 | ISO/IEC 9594-3 (1993)

— Technical Corrigendum 1 (covering resolutions to defect report 085)

— Draft Technical Corrigendum 2 (covering resolutions to defect reports 119, 133)

X.518 | ISO/IEC 9594-4 (1993)

— Technical Corrigendum 1 (covering resolutions to defect reports 094, 106, 108, 109, 111, 112, 113, 114, 115)

— Draft Technical Corrigendum 2 (covering resolutions to defect reports 116, 117, 118, 119, 120, 121, 130)

X.519 | ISO/IEC 9594-5 (1993)

— Technical Corrigendum 1 (covering resolutions to defect reports 075, 124)

X.520 | ISO/IEC 9594-6 (1993)

— Technical Corrigendum 1 (covering resolutions to defect reports 076, 122, 127)

X.521 | ISO/IEC 9594-7 (1993)

— none

X.509 | ISO/IEC 9594-8 (1993)

— Technical Corrigendum 1 (covering resolutions to defect report 128)

— Technical Corrigendum 2 (covering resolutions to defect reports 077, 078, 083, 084)

— Draft Technical Corrigendum 3 (covering resolutions to defect reports 80, 92, 100)

X.525 I ISO/IEC 9594-9 (1993)

— Technical Corrigendum 1 (covering resolutions to defect reports 097, 099, 123)
— Draft Technical Corrigendum 2 (covering resolutions to defect report 132)

Date: 1995-__-__

Recommendation X.501 (1993) | ISO/IEC 9594-2:1995:

Information processing systems - Open Systems Interconnection - The Directory - Models

TECHNICAL CORRIGENDUM 1

(covering resolutions to defect reports 088, 089, 090, 091, 102, 125)

Page 41

Clause 12.6.5

Add the following new paragraph to the end of 12.6.5:

> If an entry which is itself a subschema administrative point is not included for the purposes of subschema administration in its subschema subentry then the subschema from the immediately superior subschema administrative area is used to govern the entry.

Clause 12.6.6

Replace item c) in 12.6.6 with the following text:

> c) the **superiorStructureRules** component identifies permitted superior structure rules for entries governed by the rule. If this component is omitted, then the DIT structure rule applies to a subschema administrative point.

Replace the ASN.1 specification of **STRUCTURE-RULE** with:

```
STRUCTURE-RULE  ::=     CLASS {
        &nameForm                   NAME-FORM,
        &SuperiorStructureRules     STRUCTURE-RULE OPTIONAL,
        &id                         RuleIdentifier }
WITH SYNTAX {
        NAME FORM                   &nameForm
        [ SUPERIOR RULES            &SuperiorStructureRules ]
        ID                          &id }
```

Page 50

Clause 14.7.3

Replace the paragraph "The **information** component …" with:

> The **description** component contains a natural language description of the algorithms associated with the rule.
>
> The **information** component contains the ASN.1 definition of the assertion syntax of the rule.

Page 96

Clause 24.3

In the ASN.1 specification of **ModifyOperationalBindingArgument**, replace the **newAgreement** component with:

```
newAgreement      [7]     OPERATIONAL-BINDING&Agreement
                          ({OpBindingSet}{@binding Type})  OPTIONAL,
```

Page 98

Clause 24.5

Replace the text in item a) with:

a) **invalidID**: The operational binding ID given in the request is not known by the receiving DSA or is in the wrong state for the requested operation.

Page 106

Annex B

Replace the definition of **STRUCTURE-RULE** with the amended definition shown above for clause 12.6.6

Draft Technical Corrigendum 2 to Recommendation X.501 (1993) | ISO/IEC 9594-2:1995

This corrects the defect reported in defect report 9594/134.

Page __

Clause 24.2

Delete the Note that states that only the **identifier** component of **OperationalBindingID** is present.

Page __

Clause 24.4

Replace the paragraph that begins "The identification of the operational binding instance" with the following:

> The identification of the operational binding instance to be terminated is given by **bindingID**. The **version** component present in **bindingID** is ignored.

This corrects the defect reported in defect report 9594/136

Page __

Clause 8.2

In the ASN.1 definition of **Attribute**, replace **(1..MAX)** by **(0..MAX)**, i.e.

```
Attribute   ::=  SEQUENCE {
    type    ATTRIBUTE.&id  ({  SupportedAttributes  }),
    values  SET SIZE (0 .. MAX) OF ATTRIBUTE.&TYPE ({
                SupportedAttributes}{@type})}
```

Replace the paragraph immediately below Note 2 with the following:

> An attribute may be designated as single valued or multi-valued. The Directory shall ensure that single valued attributes have only one value. Attributes in storage shall have at least one value, but may at times appear to have zero values when transferred to or from storage (e.g. because values are hidden by access control).

Date: 1995-__-__

Recommendation X.511 (1993) | ISO/IEC 9594-3:1995:

Information processing systems - Open Systems Interconnection - The Directory - Abstract Service Definition

TECHNICAL CORRIGENDUM 1

(covering resolutions to defect report 085)

Clause 10.1.2

Add the following new paragraph to the end of 10.1.2:

> The **CommonArguments** (see 7.3) include a specification of the service controls applying to the request.

Draft Technical Corrigendum 2 to Recommendation X.511 (1993) | ISO/IEC 9594-3:1995

This corrects the defect reported in defect report 9594/104.

Page __

Clauses 7.11.1, 10.2.5.1, 11.1.2

In each of these clauses, replace "**aliasedObjectName**" or "**AliasedObjectName**" with "**aliasedEntryName**".

This corrects the defect reported in defect report 9594/119.

Page __

Clause 10.1.3

Append the following to paragraph b):

See 12.6.

Page __

Clause 12.6

Append the following new paragraph:

Before acting on a continuation reference, the DUA shall check that an identical request to the one that would be generated from the continuation reference has not already been issued as a part of processing the same user request. If it has, the DUA shall not act on the continuation reference. This avoids loops.

This corrects the defect reported in defect report 9594/133.

Page __

Clause 7.3.1

Add the following note after the second paragraph of clause 7.3.1:

NOTE — The first extension is given the identifier 1 and corresponds to bit 1 of the BIT STRING. Bit 0 of the BIT STRING is not used.

Date: 1995-__-__

Recommendation X.518 (1993) | ISO/IEC 9594-4:1995:

Information processing systems - Open Systems Interconnection - The Directory - Procedures for Distributed Operation

TECHNICAL CORRIGENDUM 1

(covering resolutions to defect reports 094, 108, 109, 111, 112, 113, 114, 115)

Page 14

Clause 10.4

In item d), delete the word “immediately”.

Page 20

Clause 14.2

Add the following new paragraph to the end of 14.2:

> **Note**: The flowcharts which accompany the procedures are intended to be used as aids towards understanding the procedures. They are not to be considered as being a precise alternative to the textual descriptions. Where there is a disparity between the textual description and the flowchart for a particular procedure, it is intended that the textual description take precedence.

Page 33

Clause 17.3.3.1

Add the following new item b) and the relabel the current items b) - e) as c) - f):

> b) **ChainingArguments.operationProgress** is set to the value of **CommonArguments.operationProgress**.

Page 38

Clause 18.3.1

In step 2), replace the text “continue with step 7)” with “continue at step 5)”.

In step 3) replace the text “If not completed” with “If not **completed**”.

In step 4) replace the text “if the Name Resolution Phase is already completed” with "if **nameResolutionPhase** is **completed**".

In step 6) remove the text “(i.e., is of type shadow)” from the second dash point.

In step 7), 4th dash point, replace the text “continue at step 10)” with “continue at step 8)”.

In step 7), 6th dash point, replace the text “whereas 1988 edition DSAs set **aliasedRDNs** to **i**” with “(whereas 1988 edition DSAs set **aliasedRDNs** to the number of RDNs in **aliasedEntryName**)”. Replace the text “continuing at step 9)” with “continuing at step 1)”.

In step 8) replace the text “if the Name Resolution Phase is already completed” with “if **nameResolutionPhase** is **completed**”.

In step 9) replace the text “If the Name Resolution Phase is completed” with “if **nameResolutionPhase** is **completed**”.

Page 42

Clause 18.3.4.1

Add the following new paragraph to the start of step 8):

> If the operation is **Search** with **searchAliases** set to **TRUE** and the DSE is of type **alias** then if **chainingArguments.excludeShadows** is **FALSE** return **entry suitable**, if it is **TRUE** return **entry unsuitable.**

Replace Figure 12 with the following amended figure:

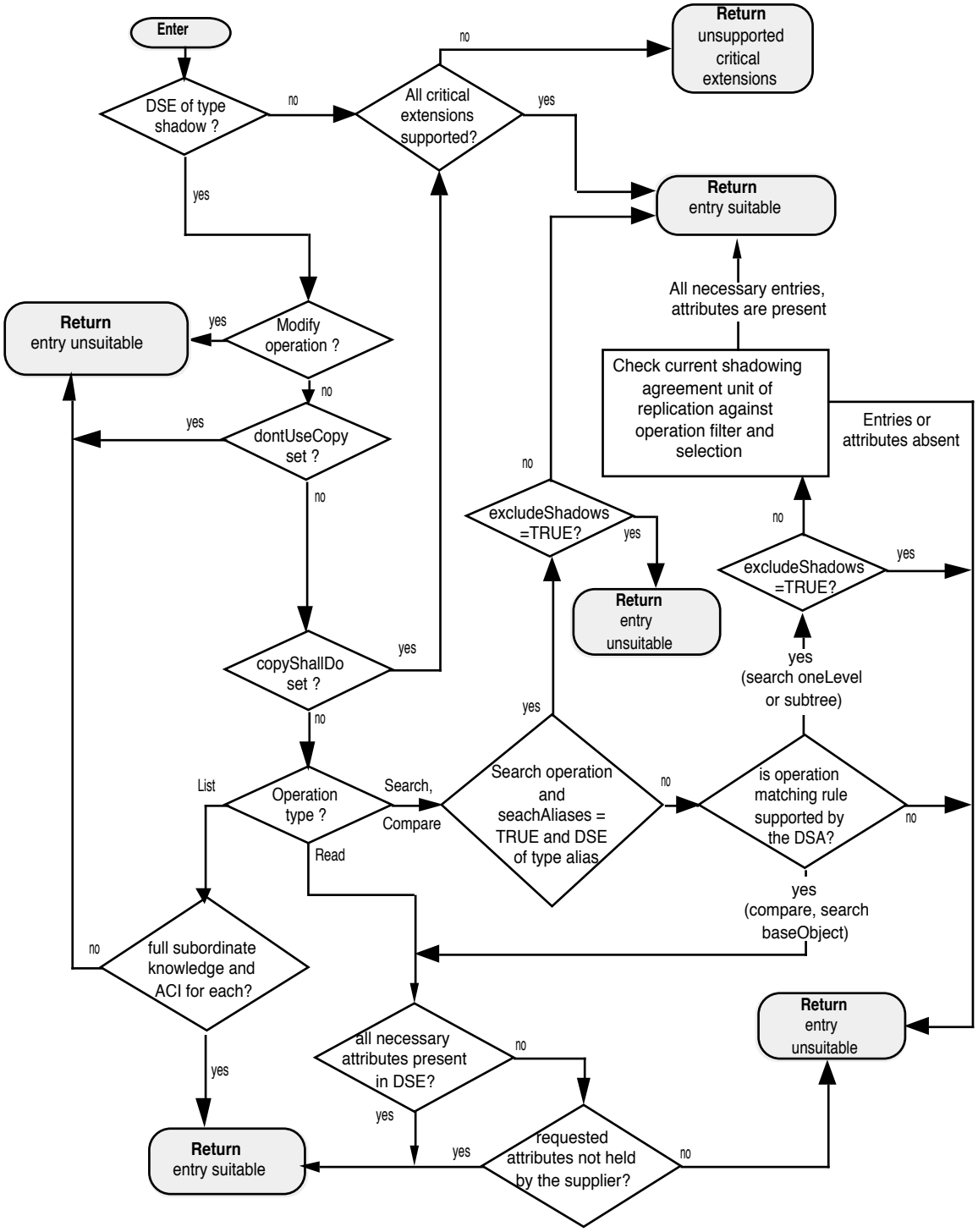


Figure 12 — Check Suitability Procedure

Clause 19.1.4

Replace the current steps 2) and 3) with the following text:

2) If the operation is either to move an entry or to both move an entry and change its Relative Distinguished Name, go to step 3). If the operation is to only change the Relative Distinguished Name of an entry, go to step 4).

3) The operation shall be performed according to the definition in 11.4.1 of ITU-T Rec. 511 | ISO/IEC 9594-3. If either the old superior, the new superior, the entry or any of its subordinates are not in this DSA, or if the new superior has NSSRs, then the operation shall be rejected with **UpdateError affectsMultipleDSAs**. The DSA shall ensure that no other entry with the new name already exists, otherwise it shall return an **UpdateError** with problem **entryAlreadyExists**. The DSA shall ensure that the new name of the entry conforms to the sub-schema, otherwise it shall return an appropriate **AttributeError** or **UpdateError**. If none of these problems arise then move the entry (changing the RDN if required) and go to step 9).

Page 51, 52

Clause 19.3.1.2.1

Replace the current step 1) with the following text:

1) If the service control **subentry** is set, then go to Step 5), otherwise go to Step 2).

Add the new step 5):

5) For each subentry **e'** immediately subordinate to DSE **e** execute the following steps:

a) Check the ACI in **e'**. If the ACI disallows listing the RDN of **e´**, then skip this DSE. Otherwise add the RDN of **e'** to **listResult.subordinates** with **aliasEntry** set to **False** and **fromEntry** set according to whether **e'** is a copy.

b) Check if time, size or administrative limit is exceeded. If so, set **limitProblem** accordingly in **partialOutcomeQualifier** and return.

Add the new step 6):

6) Return to the operation dispatcher.

Page 56

Clause 19.3.2.2.1

In step 4), replace the first line with the following:

> If **subset** is **baseObject**, or if **entryOnly** is **TRUE** then continue with this step, otherwise go to step (5).
>
> If one of the following is **TRUE**:

In step 4) substep i), replace the text "go to Step 6)" with "return".

In step 4), remove substep iii) and replace the final line with:

> Return.

In step 7), replace b) with the following:

> b) For all cases:
>
> (i) If **subset** is **oneLevel**, set **entryOnly** to **TRUE**.
>
> (ii) Recursively execute **Search Procedure(I)** for target DSE **e'**.

Page 56

Clause 19.3.2.2.2

Replace step 2) with the following:

> 2) If the DSE is not of type **cp** then ignore it and return to Step 1).

In step 3) remove the first part of the first sentence up to, and including, the comma.

Page 78

Clause 24.1.4.1.1

In the first sentence immediately following the ASN.1 specification of **Vertex**, replace the text up to the first comma with:

> The **contextPrefixInfo** component is the sequence of RDNs that form the distinguished name of the immediate superior of the new context prefix

Draft Technical Corrigendum 2 to Recommendation X.518 (1993) | ISO/IEC 9594-4:1993

This corrects the defect reported in defect report 9594/116.

Page __

Clause 19.3.2.2.3

In steps 2) and 3), replace the words "**targetObject** or **baseObject**" with:

> **targetObject** or **baseObject** or any of the previous values of the target object in **chainingArguments.traceInformation**

This corrects the defect reported in defect report 9594/117.

Page __

Clause 20

Add the following text to the end of paragraph 2:

> Within each of these sets there may be continuation references which occur more than once. The sets should be scanned and any duplicates found should be discarded.

Clause 20.4.4

Add the following text to the end of step 3):

> Within each set, remove any duplicates.

This corrects the defect reported in defect report 9594/118.

Page __

Clause 20.1.1

Add the following Note after the first paragraph:

> NOTE — Setting **nameResolveOnMaster** to **TRUE** eliminates the possibility of multiple paths during name resolution by (1) ignoring shadow entries and (2) by ensuring that only one DSA may proceed with name resolution in situations where a complex DIT distribution would otherwise permit more than one to proceed. This is achieved by allowing only the DSA holding the

master entry corresponding to the first **nextRDNToBeResolved** RDNs of the target object name to continue with name resolution. Any other DSAs will not be able to proceed even though they may hold master entries which match more of the target object name.

This corrects the defect reported in defect report 9594/119.

Page __

Clause 16.1.2

Add a new data structure **referralRequests** to the end of the list:

– **referralRequests** – A list of the requests or subrequests which have been chained as a result of executing referrals. Each such request/subrequest is summarised in the form of a **TraceItem**. This list is used by the Loop Avoidance procedure of 15.4.2.

Page __

Clause 20.4.5

In Step 5), relabel substep b) as c), update the reference to this clause in a), and add a new substep b):

b) If the request or subrequest to be chained is the result of executing a referral then an extra check for loop avoidance is required. Check if an item with the same **targetObject**, **operationProgress** and target DSA occurs in **referralRequests**. If so then take the action specified in a). If not, then add a new **TraceItem** to **referralRequests** with the following components:
- **targetObject** and **operationProgress** set to the value of the chained request/subrequest;
- **dsa** set to the name of the DSA to which the request/subrequest is to be chained.

This corrects the defect reported in defect report 9594/120.

Page __

Clause 21

In each of steps 2) and 3), replace the sentence “Remove all duplicates.” with

Remove all duplicates, giving preference to master information over shadow information.

This corrects the defect reported in defect report 9594/121.

Page __

Clause 18.3.1 / Figure 9

In Figure 9, replace the label "cp and other shadow" with two labels "cp and shadow" and "other", labelling the vertical lines to the left and right of the original label respectively.

Page __

Clause 18.3.3

In Step 3), change the value to which **operationProgress.nextRDNToBeResolved** is set from **i** to **m**.

Page __

Clause 19.3.2.2.1

In Step 1), replace "is a prefix of **e**'s DN" with "is a prefix of the DN of **e**".

This corrects the defect reported in defect report 9594/130.

Page __

Clauses 24.1.4.1.1 and 24.1.4.2

In each of these clauses, add the following Note after the paragraph that defines the **accessPoints** parameter:

NOTE — The master access point within **accessPoints** is the same as that passed in the **accessPoint** parameter of the Establish and Modify Operational Binding operations.

Date: 1995-__-__

Recommendation X.519 (1993) | ISO/IEC 9594-5:1995:

Information processing systems - Open Systems Interconnection - The Directory - Protocol Specifications

TECHNICAL CORRIGENDUM 1

(covering resolutions to defect reports 075, 124)

Page 10

Clause 7.1

Add the following note at the end of the clause (just before clause 7.1.1):

> **Note** — The abstract syntaxes defined in this clause that import from module **DirectoryShadowAbstractService** will use a mixture of implicit and explicit tags.

Page __

Clause 9.1.1

Replace (b) with the following:

(b) The bind security level(s) for which conformance is claimed (none, simple, strong — and if simple, then whether without-password, with-password, or with protected-password); and whether the DUA can generate signed arguments or validate signed results.

Clause 9.2.1

Replace (e) with the following, and renumber the remaining items in the list:

(e) If conformance is claimed to the **directoryAccessAC** application context, the bind security level(s) for which conformance is claimed (none, simple, strong — and if simple, then whether without-password, with-password, or with protected-password); whether the DSA can perform originator authentication as defined in [Part 4 | X.518] clause 18.9.1 and if so, whether identity-based or signature-based; and whether the DSA can perform result authentication as defined in [Part 4 | X.518] clause 18.9.2.

(f) If conformance is claimed to the **directorySystemAC** application context, the bind security level(s) for which conformance is claimed (none, simple, strong — and if simple, then whether without-password, with-password, or with protected-password); whether the DSA can perform originator authentication as defined in [Part 4 | X.518] clause 18.9.1 and if so, whether identity-based or signature-based; and whether the DSA can perform result authentication as defined in [Part 4 | X.518] clause 18.9.2.

Date: 1995-__-__

Recommendation X.520 (1993) | ISO/IEC 9594-6:1995:

Information processing systems - Open Systems Interconnection - The Directory - Selected Attribute Types

TECHNICAL CORRIGENDUM 1

(covering resolutions to defect reports 076, 122, 126)

Page 3

Clause 5

Replace the ASN.1 specification with:

```
DirectoryString { INTEGER : maxSize } ::= CHOICE {
        teletexString           TeletexString (SIZE (1..maxSize)),
        printableString         PrintableString (SIZE (1..maxSize)),
        bmpString               BMPString (SIZE (1..maxSize)),
        universalString         UniversalString (SIZE (1..maxSize)) }
```

Replace the final paragraph with:

Some implementations of the Directory do not support **BMPString** or **UniversalString**, and will not be able to generate, match, or display attributes having such a syntax.

Page 15

Clause 6.1.1

In the first paragraph, replace the text “attribute value of type **DirectoryString**” with:

attribute value of type **PrintableString**, **NumericString**, **TeletexString**, **BMPString**, **UniversalString**, or **DirectoryString**

Page 15 - 17

Clause 6.1.2 - 6.1.6

In the first paragraph, replace the text “attribute value of type **DirectoryString**” with:

attribute value whose type is one of the ones listed in 6.1.1

Page __

Clause 6.2

Replace the first four paragraphs (up to the words ‘single space character’) with the following:

In the matching rules specified in 6.1.1 through 6.1.11, the following spaces are regarded as not significant:

- leading spaces (i.e. those preceding the first character that is not a space);
- trailing spaces (i.e. those following the last character that is not a space);
- multiple consecutive spaces (these are taken as equivalent to a single space character).

A string consisting entirely of spaces is equivalent to a string containing exactly one space.

Date: 1995-__-__

Recommendation X.509 (1993) | ISO/IEC 9594-8:1995:

Information processing systems - Open Systems Interconnection - The Directory - Authentication Framework

TECHNICAL CORRIGENDUM 1

(covering resolutions to defect report 128)

Clause 2.1

Add a new reference, as follows:

CCITT Rec. X.660 (1992) | ISO/IEC 9834-1:1993, Information Technology - Open Systems Interconnection - Procedures for the Operation of OSI Registration Authorities: General Procedures.

Clause 8

In the ASN.1 specification for **Certificate**, make the following changes:

- In the comment for **issuerUniqueID**, replace "*must be v2*" with "*must be v2 or v3*"
- In the comment for **subjectUniqueID**, replace "*must be v2*" with "*must be v2 or v3*"
- Add the following as a new element to the end of the sequence:

```
extensions      [3]     Extensions OPTIONAL
                        -- If present, version must be v3 --   } }
```

In the **Version** production, add a new value "**v3(2)**"

Add the following, immediately below the ASN.1 specification for **SubjectPublicKeyInfo**:

```
Extensions ::= SEQUENCE OF Extension
```

For those extensions where ordering of individual extensions within the SEQUENCE is significant, the specification of those individual extensions shall include the rules for the significance of the ordering.

```
Extension ::= SEQUENCE {
    extnId          EXTENSION.&id ({ExtensionSet}),
    critical        BOOLEAN DEFAULT FALSE,
    extnValue       OCTET STRING
                    -- contains a DER encoding of a value of type &ExtnType
                    -- for the extension object identified by extnId -- }

-- Definition of the following information object set is deferred, perhaps to
-- standardized profiles or to protocol implementation conformance statements.

ExtensionSet        EXTENSION       ::=     { ... }
```

The extensions field allows addition of new fields to the structure without modification to the ASN.1 definition. An extension field consists of an extension identifier, a criticality flag, and a canonical encoding of a data value of an ASN.1 type associated with the identified extension. When an implementation processing a certificate does not recognize an extension, if the criticality flag is FALSE, it may ignore that extension. If the

criticality flag is TRUE, unrecognized extensions shall cause the structure to be considered invalid, i.e., in a certificate, an unrecognized critical extension would cause validation of a signature using that certificate to fail.

The following object class is used to define specific extensions.

Specificextensions may be defined in ITU-T Recommendations | International Standards or by any organizations which has a need. The object indentifier which identifies an extension shall be defined in accordanc with ITU-T Rec. X.660 | ISO/IEC 9834-1.

```
EXTENSION ::= CLASS
{
    &id             OBJECT IDENTIFIER UNIQUE,
    &ExtnType
}
WITH SYNTAX
{
    SYNTAX          &ExtnType
    IDENTIFIED BY   &id
}
```

Clause 11.2

In the ASN.1 **CertificateList** production, add a new **version** element as the first element of the **SEQUENCE** (ahead of the **signature** element) as follows:

```
version             Version OPTIONAL,
                    -- if present, version must be v2--
```

In the ASN.1 **CertificateList** production, add **crlExtensions** as a final element of the **CertificateList SEQUENCE** and add **crlEntryExtensions** as the final element of the **revokedCertificates SEQUENCE OF SEQUENCE**, by replacing the last line of the production

```
 revocationDate     UTCTime } OPTIONAL }}
```

with the following:

```
revocationDate      UTCTime,
crlEntryExtensions  Extensions OPTIONAL } OPTIONAL,
crlExtensions       [0]  Extensions OPTIONAL }}
```

Add a new note (note 3) to the list of notes immediately following the ASN.1 CertificateList production as follows:

3 If any extensions included in a **CertificateList** are defined as critical, the version element of the **CertificateList** shall be present. If no extensions defined as critical are included, the version element shall be absent.

4 When an implementation processing a certificate revocation list does not recognize a critical extension in the **crlEntryExtensions** field, it shall assume that, at a minimum, the identified certificate has been revoked and is no longer valid and perform additional actions concerning that revoked certificate as dictated by local policy. When an implementation does not recognize a critical extension in the **crlExtensions** field, it shall assume that identified certificates have been revoked and are no longer valid. However in the latter case, since the list may not be complete, certificates that have not been identified as being revoked cannot be assumed to be valid. In this case local policy shall dictate the action to be taken. In any case local policy may dictate actions in addition to and/or stronger than those stated in this specification.

5 If an extension affects the treatment of the list (e.g. multiple CRLs must be scanned to examine the entire list of revoked certificates, or an entry may represent a range of certificates), then that extension shall be indicated as critical in the **crlExtensions** field regardless of where the extension is placed in the CRL. An extension indicated in the **crlEntryExtensions** field of an entry shall be placed in that entry and shall affect only the certificate(s) specified in that entry.

Annex A

In the ASN.1 specification for **Certificate**, make the following changes:

- In the comment for **issuerUniqueID**, replace "*must be v2*" with "*must be v2 or v3*"
- In the comment for **subjectUniqueID**, replace "*must be v2*" with "*must be v2 or v3*"
- Add the following as a new element to the end of the sequence:

```
extensions      [3]     Extensions OPTIONAL
                        - If present, version must be v3 --    } }
```

In the **Version** production, add a new value "**v3(2)**"

Add the following, immediately below the ASN.1 specification for **SubjectPublicKeyInfo**:

```
Extensions ::= SEQUENCE OF Extension
```

For those extensions where ordering of individual extensions within the SEQUENCE is significant, the specification of those individual extensions shall include the rules for the significance of the ordering.

```
Extension ::= SEQUENCE {
    extnId          EXTENSION.&id ({ExtensionSet}),
    critical        BOOLEAN DEFAULT FALSE,
    extnValue       OCTET STRING
                    -- contains a DER encoding of a value of type &ExtnType
                    -- for the extension object identified by extnId -- }

-- Definition of the following information object set is deferred, perhaps
to
```

```
-- standardized profiles or to protocol implementation conformance
statements.
-- The set is required to specify a table constraint on the critical
component of  Extension.

ExtensionSet      EXTENSION     ::=      { ... }

EXTENSION ::= CLASS
{
    &id               OBJECT IDENTIFIER UNIQUE,
    &ExtnType
}
WITH SYNTAX
{
    SYNTAX          &ExtnType
    IDENTIFIED BY   &id
}
```

In the ASN.1 **CertificateList** production, add a new **version** element as the first element of the **SEQUENCE** (ahead of the **signature** element) as follows:

```
version             Version  OPTIONAL,
                    -- if present, version must be v2--
```

In the ASN.1 **CertificateList** production, add **crlExtensions** as a final element of the CertificateList SEQUENCE and add crlEntryExtensions as the final element of the **revokedCertificates SEQUENCE OF SEQUENCE**, by replacing the last line of the production **revocationDate UTCTime } OPTIONAL }}** with the following:

```
revocationDate      UTCTime,
crlEntryExtensions  Extensions OPTIONAL } OPTIONAL,
crlExtensions       [0]  Extensions OPTIONAL }}
```

Date: 1995-__-__

Recommendation X.509 (1993) | ISO/IEC 9594-8:1995:

Information processing systems - Open Systems Interconnection - The Directory - Authentication Framework

TECHNICAL CORRIGENDUM 2

(covering resolutions to defect reports 077, 078, 083, 084)

Page 1

Clause 1

In paragraph 5, replace the sentence “The user certificates …” with the following text:

> The user certificates are assumed to be formed by ‘off-line’ means, and may subsequently be placed in the Directory.

Page 8

Clause 7

In the first paragraph, replace the word “secret” with “private”.

Page 17

Clause 11.1

In the second paragraph, replace the word “secret” with “private”.

Clause 11.2

In the list a) - c), replace the text in b) with the following text:

> b) If the means of generation of key pairs of 11.1(b) or of 11.1(c) is employed, the user's private key must be transferred to the user in a secure manner.

Page 28

Annex D.4

Add the following text to the end of the second sentence in the second last paragraph of D.4:

> where the first bit is the highest order bit of the first octet of the data block.

Draft Technical Corrigendum 3 to Recommendation X.509 (1993) | ISO/IEC 9594-8:1993

This corrects the defects reported in defect reports 9594/080 and 9594/092.

Page __

Clause 9

Remove the clause beginning "In the case where only the signature is required" and the existing definition of SIGNATURE, and replace these by the following clause placed after Note 4:

The signature of some data item is formed by encrypting a shortened or "hashed" transformation of the item, and may be described by the following ASN.1:

```
ENCRYPTED-HASH { ToBeSigned }        ::= BIT STRING (
CONSTRAINED BY {
   -- must be the result of applying a hashing procedure to the BER-encoded
octets --
   -- of a value of -- ToBeSigned -- and then applying an encipherment
procedure to those octets -- })

SIGNATURE { ToBeSigned }    ::=        SEQUENCE {
   algorithmIdentifier          AlgorithmIdentifier,
   encrypted                            ENCRYPTED-HASH {
ToBeSigned }}
```

Page __

Annex A

Replace the definitions of the parameterized type **HASHED** with the definition of **ENCRYPTED-HASH** (from Clause 9)

Change the definition of **SIGNATURE** to that given in the amended Clause 9 and move it to immediately above the definition of **SIGNED**.

This corrects the defect reported in defect reports 9594/100.

Page __

Clause 9

<< Text will be supplied that deprecates the current approach of using a special variation of BER encoding when generating a

digital signature, and instead states that the DSA preserves the incoming byte stream or order of information in storage when signing chained or locally held data. Migration and other issues are currently being liaised with other groups. >>

Date: 1995-__-__

Recommendation X.525 (1993) | ISO/IEC 9594-9:1995:

Information processing systems - Open Systems Interconnection - The Directory - Replication

TECHNICAL CORRIGENDUM 1

(covering resolutions to defect reports 097, 099, 123)

Page 13

Clause 8.2.2.1

Remove the second last paragraph ("If the **ModificationParameter** parameter is present, it is ignored.").

Page 14

Clause 8.3 and Annex A

Replace the ASN.1 specification of **shadowOperationalBinding** with:

```
shadowOperationalBinding OPERATIONAL-BINDING ::= {
        AGREEMENT                   ShadowingAgreementInfo
        APPLICATION CONTEXTS {
                { shadowSupplierInitiatedAC
                        APPLIES TO { All-operations-supplier-initiated } } |
                { shadowConsumerInitiatedAC
                        APPLIES TO { All-operations-consumer-initiated } } |
                { reliableShadowSupplierInitiatedAC
                        APPLIES TO { All-operations-supplier-initiated } } |
                { reliableShadowConsumerInitiatedAC
                        APPLIES TO { All-operations-consumer-initiated } } }
        ASYMMETRIC
                ROLE-A          {       -- shadow supplier role
                        ESTABLISHMENT-INITIATOR         TRUE
                        ESTABLISHMENT-PARAMETER         NULL
                        MODIFICATION-INITIATOR          TRUE
                        TERMINATION-INITIATOR           TRUE }
                ROLE-B          {       -- shadow consumer role
                        ESTABLISHMENT-INITIATOR         TRUE
                        ESTABLISHMENT-PARAMETER         NULL
                        MODIFICATION-INITIATOR          TRUE
                        MODIFICATION-PARAMETER  ModificationParameter
                        TERMINATION-INITIATOR           TRUE }
        ID      id-op-binding-shadow }
```

Page 28

Clause 12

Replace the last line of the ASN.1 definition of **ShadowingProblem** with the following:

```
invalidSequencing  (10),
insufficientResources       (11))
```

Page 29

Clause 12.1

Add the following item to the list:

k) **insufficientResources**: Indicates that the executing DSA has insufficient resources to carry out the operation.

Draft Technical Corrigendum 2 to Recommendation X.525 (1993) | ISO/IEC 9594-9:1993

This corrects the defect reported in defect report 9594/132.

Page __

Clauses 11.1.1 and 11.2.1

Replace the definition of **lastUpdate** in both clauses with the following:

> The **lastUpdate** argument is the time provided by the shadow supplier in the most recent successful update. It shall be absent if there has been no previous successful update for the shadowing agreement, or if the shadow consumer requires a full update even if there have been no changes to the shadowed information, e.g. to recover from errors.

Page __

Clause 11.3.1

Append the following to the paragraph that defines **noRefresh**:

> It shall not be used where the **updateShadow** operation is in response to a **coordinateShadowUpdate** or **refreshShadowUpdate** operation in which the **lastUpdate** argument has been omitted.

Appendix C

Summary of Defect Reports

Defects Prior to Publication of the 1993 Edition

No.	Title	Part /Clause	WG4 Ref	Contributor	Resolution
001	ModifyRDN errors	3/12.9.2e	N1077	UK	3-Cor.1
002	Name resolution args	4/18.6.1	N1077	UK	4-Cor.2
003	*Signing NULL results and errors*		*N1077*	*UK*	*Rejected*
004	Signed continuation refs	4/18.8	N1077	UK	4-Cor.1
005	AE Common Name	7/Annex B 11	N1077	UK	7-Cor.1
006	Who provides object class attribute	2/9.4.3	N1077	UK	2-Cor.1
007	Signature algorithm identifier 1	3/8.1.2.1.2	N1077	UK	3-Cor.1
008	*Chained modify - abandoned error*		*N1077*	*UK*	*Rejected*
009	Signature algorithm identifier 2	8/7.2	N1077	UK	8-Cor.1
010	Subset argument with search	4/12.3.2/7, 4/18.7.2.2.1	N1077	UK	4-Cor.1
011	Order of Trace items	4/12.6.2	N1077	UK	4-Cor.1
012	DSABind and DSAUnbind	3/Annex A, 4/13.2.1, 4/Annex A	N1077	UK	3-Cor.1 and 4-Cor.1
013	Trace info and new subrequests	4/18.4.2.3	N1077	UK	4-Cor.1
014	Evaluation of filter expressions	3/7.8.2, 3/7.8.3.2	N1077	UK	3-Cor.1
015	Insecure hash function	8/Annex D 2	N1077	CCITT	8-Cor.1
016	3-way auth. protocol	8/9.4 8)	N1077	CCITT	8-Cor.1
017	*Form of auth. token*		*N1077*	*CCITT*	*Rejected*

018	*Digital signatures*		*N1077*	*CCITT*	*Rejected*
019	Conditions on use of RSA	8/Annex C 6.2	N1077	CCITT	8-Cor.1
020	Attribute sets	3/7.6.2.1	N1077	Canada	3-Cor.1
021	Object class macro	2/9.4.6	N1077	Canada	2-Cor.1
022	Return cross refs	4/10.4.1, 4/10.4.2.3	N1077	Australia	4-Cor.1
023	Value of alias dereferenced	4/18.4.6 1)	N1077	Australia	4-Cor.1
024	Undetected looping	4/18.5	N1077	Australia	4-Cor.3
025	Subset argument with search	4/12.3.2/7, 4/18.7.2.2. 1	N1077	Australia	4-Cor.1
026	Alias dereferencing in search	4/12.3.2/7, 4/18.7.2.2. 1	N1077	Australia	4-Cor.1
027	Resetting target object	4/18.7.2.2. 1 5)	N1077	Australia	4-Cor.1
028	*Certification path*		*N1077*	*Canada*	*Rejected*
029	Modify-update error	4/17.2	N1077	UK	4-Cor.1
030	*Bind credentials*		*N1077*	*UK*	*Withdrawn*
031	Certificates	8/7.6	N1077	Canada	8-Cor.1
032	Password in Bind	3/8.1.1	N1078	UK	3-Cor.1
033	*Revocation lists*		*N1232*	*France*	*Rejected*
034	Naming context definition	4/3.5.12, 4/9	N1232	US	4-Cor.2
035	*Name in certificates*		*N1232*	*US*	*Withdrawn*
036	AVA definitions	2/7.1.4, 2/7.4.3	N1232	Canada	2-Cor.2
037	Multi user UDA	2/5.2.4	N1232	Japan	2-Cor.2
038	Security parameters	3/7.3.1, 3/Annex A	N1232	Japan	3-Cor.2
039	*Use of cross references*		*N1232*	*Denmark*	*Rejected*
040	*Root context clarification*		*N1232*	*Denmark*	*Rejected*
041	Error precedence	3/12.1.2	N1232	Denmark	3-Cor.4

042	Abandon failed selection	3/9.3.4, 3/9.3.6	N1232	Denmark	3-Cor.2
043	*Returning multiple referrals*		*N1232*	*Denmark*	*Rejected*
044	*Reference type for list and search*		*N1232*	*Denmark*	*Rejected*
045	*Number of DSAs ref'd by NSSR*		*N1232*	*Denmark*	*Rejected*
046	*Search loops*		*N1232*	*Denmark*	*Rejected*
047	*Facsimile telephone number*		*N1232*	*UK*	*Rejected*
048	Chained abandon	4/14.3.1	N1232	UK	4-Cor.2
049	*Reaction to errors*		*N1232*	*Denmark*	*Rejected*
050	Mode of operation evaluation	4/3.5.17, 4/18.7.2	N1232	Denmark	4-Cor.2
051	*Alias dereferencing*		*N1232*	*Denmark*	*Rejected*
052	Migration and extensibility	3/7.3.1, 3/7.3.2.6, 3/Annex A, 5/7.5	N1232	ISO Rapp.	3-Cor.3 and 5-Cor.1
053	*Migration and extensibility (schema)*		*N1232*	*ISO Rapp.*	*Rejected*
054	Substring matching	3/7.8.3.4.b	N1256	UK	3-Cor.4
055	Schema (fig B.1)	7/ Annex B	N1257	UK	7-Cor.2
056	*Certificate revoation lists*		*N1308*	*US*	*Rejected*
057	*Certificate revoation lists*		*N1309*	*US*	*Rejected*
058	*Simple credentials*		*N1310*	*US*	*Rejected*
059	Chained modify attribute error	4/Annex A	N1311	Defect Group	4-Cor.2
060	Ordering in multi-valued attributes	3/7.8.3.4.c	N1312	Defect Group	3-Cor.4
061	*Filters & less/greater than*		*N1313*	*Defect Group*	*Rejected*
062	Exporting access point	4/Annex A	N1351	US	4-Cor.3
063	Strong credentials	3/8.1.2.1.2	N1396	Proj Editor	3-Cor.4

064	*Simple protected authentication*		*N1397*	*Proj Editor*	*Rejected*
065	Entry only and continuation refs	4/12.9.2.7	N1398	UK	4-Cor.3
066	DAP referral and DSP referral diffs	4/12.9.2.5	N1399	UK	4-Cor.3
067	Receipt of non-requested attributes	3/7.7.4	N1401	CCITT Rapp	3-Cor.5
068	Evaluating substrings	3/7.8.3.4.b	N1402	Denmark	3-Cor.4
069	Exporting credentials	3/Annex A	N1413	Proj Editor	3-Cor.4
070	IMPORT errors	3/Annex A	N1646	Japan	4-Cor.4
071	Use of security params	3/7.9.1	N1647	UK	4-Cor.4
072	Use of security params 2	3/7.9.2.2	N1648	UK	3-Cor.6, 4-Cor.4
073	*Use of credentials*		*N1649*	*UK*	*Rejected*
074	DUA protocol transparency	5/7.5	N1651	Australia	5-Cor.2

Defects Since Publication of the 1993 Edition

All references to clauses and technical corrigenda are to the 1993 edition except where marked with a superscript ^{88}, in which case the reference is to the 1988 edition.

075	Security levels	5^{88}/9.2.1.d, 5/9.2.1.d	N1651	Japan	5^{88}-Cor.2 5-Cor.1
076	String attributes and spaces	6^{88}/6.2, 6/6.2	N1664	UK	6^{88}-Cor.1 6-Cor.1
077	Bit ordering and DER	8/Annex D.4	N1874	UK	8-Cor.2
078	Use of term 'private key'	8/various	N1875	UK	8-Cor.2
079	*Hash functions*		*N1876*	*UK*	*Rejected*
080	Meaning of HASHED	8/Annex A.9	N1877	UK	8-Cor.3 draft
081	*Typing error*		*N1878*	*UK*	*Rejected*
082	*Padding conventions*		*N1879*	*UK*	*Rejected*
083	Transfer of key data	8/11.2.b	N1880	UK	8-Cor.2
084	Placement of certificates in the Directory	8/Scope	N1881	UK	8-Cor.2
085	Common arguments in List	3^{88}/10.1.2, 3/10.1.2	N1882	UK	3^{88}-Cor.6 3-Cor.1
086	*Access control and aliases*		*N1883*	*UK*	*Rejected*
087	*Names for remove entry*		*N1884*	*UK*	*Rejected*
088	Absence of superior structure rule	2/12.6.5 and 2/12.6.6	N1885	UK	2-Cor.1
089	Creating administrative points	2/12.6.5 and 2/12.6.6	N1886	UK	2-Cor.1
090	New agreement parameter	2/24.3	N1887	UK	2-Cor.1
091	invalidID problem definition	2/24.5	N1888	UK	2-Cor.1
092	Encoding of signatures	8/Clause 9 & 8/Annex A	N1889	UK	8-Cor.3 draft

093	*Typing error*		*N1890*	*UK*	*Rejected*
094	contextPrefixInfo	4/24.1.4.1.1	N1891	UK	4-Cor.1
095	*Typing error*		*N1892*	*UK*	*Rejected*
096	*Typing error*		*N1893*	*UK*	*Rejected*
097	Modification parameter for replication protocol	9/8.2.2.1 and 9/8.2.2.2	N1984	UK	9-Cor.1
098	*Inactive agreements*		*N1895*	*UK*	*Rejected*
099	Insufficient resources	9/Clause 12	N1896	UK	9-Cor.1
100	Canonical encodings	8/8.7	N1999	UK	8-Cor.3 draft
101	*Omission of userPassword*		*N2001*	*UK*	*Rejected*
102	Problems with structure rule	2/12.6.6	N2002	Australia	2-Cor.1
103	*ModifyDN with subordinates present*		*N2003*	*Australia*	*Rejected*
104	Aliased entry name	2/all	N2004	Australia	3-Cor.2 draft
105	*ModifyDN description errors*		*N2005*	*Australia*	*Rejected*
106	Already searched	410.4	N2006	Australia	4-Cor.1
107	*ASN.1 error*		*N2007*		*Rejected*
108	Common argument ignored	4/17.3.3.1	N2008	Australia	4-Cor.1
109	Find DSA procedure errors	4/18.3.1	N2009	Australia	4-Cor.1
110	*Target not found sub-procedure errors*		*N2010*	*Australia*	*Rejected*
111	Check suitability procedure errors	4/18.3.4.1	N2011	Australia	4-Cor.1
112	ModifyDN procedure errors	4/19.1.4	N2012	Australia	4-Cor.1
113	List procedure (I) errors	4/19.3.1.2.1	N2013	Australia	4-Cor.1

114	Search procedure (I) errors	4/19.3.2.2.1	N2014	Australia	4-Cor.1
115	Search procedure (II) errors	4/19.3.2.2.2	N2015	Australia	4-Cor.1
116	Checking trace information	4/19.3.2.2.3	N2016	Australia	4-Cor.2 draft
117	Repetitive chaining	4/Clause 20	N2017	Australia	4-Cor.2 draft
118	Avoiding duplicate results	4/20.1.1	N2018	Australia	4-Cor.2 draft
119	Looping involving referrals	4/15.4.2, 4/16.1.2, 4/20.4.5	N2019	Australia	3-Cor.2 draft 4-Cor.2 draft
120	Duplicate removal in results merging	4/Clause 21	N2020	Australia	4-Cor.2 draft
121	General improvements to text	4/18.3.3(3), 4/19.3.2.2.1	N2021	Australia	4-Cor.2 draft
122	Matching rules for directory strings	6/6.1	N2022	Australia	6-Cor.1
123	Shadow operational binding	9/8.3	N2023	ITU Rapp.	9-Cor.1
124	ASN.1 tags for shadow operational binding	5/Annex D	N2024	ITU Rapp.	5-Cor.1
125	Matching rule description	2/14.7.3	N2025	ITU Rapp.	2-Cor.1
126	*Attribute syntax publication*		*N2026*	*ITU Rapp.*	*Rejected*
127	BMPString	6/Clause 5	N2027	ITU Rapp.	6-Cor.1
128	Certificate extensibility	8/Clause 8	N2028	ISO Rapp.	8-Cor.1
129	*Changes to Modify Op Binding*			*UK*	*Rejected*
130	Clarification re Access Points	4/24.1.4.1.1, 4/24/1/4/2, 2/23		UK	4-Cor.2

131	Incremental refreshes	9/11.3.1.2	UK	**Open**
132	Consumer initiated updates	9/11/3/1	UK	9-Cor.2 draft
133	Critical extension bits	3/7.3.1	UK	3-Cor.2 draft
134	Version and Op Binding ID	2/24.2, 2/24.4		2-Cor.2 draft
135	UTC time matching	6/6.3.2	ITU Rapp.	**Open**
136	Min. no. of att values	2/8.2	UK	2-Cor.2 draft
137	Access control flowcharts	3/Fig B-11	UK	**Open**
138	Access control flowcharts	3/Fig B-6	UK	**Open**
139	Application contexts for shadowing	5/7.2.3, 5/8.1.1.1.2, 5/9.3.1, 5/9.4.1	UK	**Open**
140	Hierarchical operational bindings	9/24	UK	**Open**
141	Prefix v policy information	9/9.2	UK	**Open**
142	Area specification	9/9.2	UK	**Open**
143	Absence of application component	2/14.7.4	Defect Group	**Open**
144	Extension of subschema modification procedure	2/14.5	Germany	**Open**
145	subtreeSpecification in subschema subentry	2/14.3	Germany	**Open**
146	Wrong upper bound for surname attribute	6/5.2.3, 6/AnnexA, 6/AnnexC	Germany	**Open**
147	Type reference and attribute syntax	2/14.7.4 note	Germany	**Open**
148	Inconsistencies in Search and List	3/10.1.2, 3/10.1.5, 3/10.2.3, 3/10.2.5	Germany	**Open**
149	Matching rule distinguishedNameMatch	2/12.5.2	Germany	**Open**

150	New update error: noSuchNewSuperior	3/11.4, 3/12.9	Germany	**Open**
151	modifyDN on base of replicated area	3/11.4.1	Germany	**Open**
152	Wrong references	4/various	Germany	**Open**
153	Error in figure: Operation dispatcher	4/Fig. 6	Germany	**Open**
154	Arguments for Find DSE procedure	4/18.2.1, 4/18.3.4.1	Germany	**Open**
155	Find DSE procedure	4/18.3.1	Germany	**Open**
156	Figure in Add Entry procedure	4/19.1.1	Germany	**Open**
157	ModifyDN and UnitOfReplication	4/19.1.4	Germany	**Open**
158	Errors in search procedure	4/19.3.2.1.3	Germany	**Open**
159	targetObject in Search (I) procedure	4/19.3.2.2.1	Germany	**Open**
160	Collective attributes in Search (I) procedure	4/19.3.2.2.1	Germany	**Open**
161	Search continuation reference procedure	4/20.4.4	Germany	**Open**
162	APInfo procedure	4/20.4.5	Germany	**Open**
163	Shadowed information procedure	9/7.2, 9.Fig.3	Germany	**Open**
164	ASN.1 of SupplierUpdateMode	9/9.3	Germany	**Open**
165	Time limit in chaining arguments for modify or nssr	4/19.1.5	Germany	**Open**
166	Alias control by alias dereferencing	3/7.11.1	Germany	**Open**
167	Aliased RDNs in chaining args and cont. refs	4/10.3, 4/10.10, 4/18.3.1	Germany	**Open**
168	Protected password	8/Clause 6	EWOS	**Open**

169	Permutable property for PKCS	8/Clause 7, 8/10.2, 8/10.3	UK	**Open**
170	Entry selection in search procedure	3/Fig. B-11	UK	**Open**
171	Problems with Embedded PDV	2/12.4.6	ITU Rapp.	**Open**
172	Subschema for the root entry and other problems	2/13.1	ITU Rapp.	**Open**
173	NSSRs in the root entry	2/18.5	ITU Rapp.	**Open**
174	Service Errors and Operational Bindings	2/24.2-24.4	ITU Rapp.	**Open**
175	Approximate match should imply equality	3/7.8.2f	ITU Rapp.	**Open**
176	Access controls on aliases	3/7.11.1	ITU Rapp.	**Open**

Appendix D

Defect Report Form

Please also send a soft copy of the defect in Microsoft Word format to the Defect Editor (r.exner@trl.oz.au).

DEFECT REPORT FORM

1. Defect Report Number:

   Title:

2. Source:

3. Addressed to: ISO/IEC JTC1/SC21/WG8 and ITU-T SG 7 Editor Group on the Directory

4. (a) WG Secretariat: ANSI
   (b) ITU-T WP: WP 4

5. Date Circulated by WG Secretariat:

6. Deadline for Response from Editor:

7. Defect Report Concerning:
   (number and title of IS or DIS final text/CCITT Recommendation)

8. Qualifier: (e.g.: error, omission, clarification required)

9. References in Document: (e.g.: page, clause/section, figure, and/or table numbers)

10. Nature of Defect: (complete, concise explanation of the perceived problem)

11. Solution Proposed by the Source: (optional)

12. Editor's Response:

(any material proposed for processing as an erratum to, an amendment to, or a commentary on the IS or DIS final text/CCITT Recommendation or Draft Recommendation is attached separately to this completed report).

Appendix E

Defect Resolution Committee Members

The following representatives have been nominated to the Collaborative Defect Resolution Committee.

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