INTERNATIONAL STANDARD ISO/IEC 9594-9:1998
TECHNICAL CORRIGENDUM 2

Published 2002-08-15

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION
INTERNATIONAL ELECTROTECHNICAL COMMISSION • МЕЖДУНАРОДНАЯ ЭЛЕКТРОТЕХНИЧЕСКАЯ КОМИССИЯ • COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

Information technology — Open Systems Interconnection — The Directory: Replication

TECHNICAL CORRIGENDUM 2

Technologies de l'information — Interconnexion de systèmes ouverts (OSI) — L'annuaire: Duplication

RECTIFICATIF TECHNIQUE 2

Technical Corrigendum 2 to ISO/IEC 9594-9:1998 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 6, *Telecommunications and information exchange between systems*.

ICS 35.100.70 **Ref. No. ISO/IEC 9594-9:1998/Cor.2:2002(E)**

INTERNATIONAL STANDARD
ITU-T RECOMMENDATION

Information technology – Open Systems Interconnection – The Directory: Replication

TECHNICAL CORRIGENDUM 2

NOTE – This Technical Corrigendum covers the result of the ballot resolutions of Draft Technical Corrigenda 2, 3, and 4.

1) Defect reports covered by Draft Technical Corrigendum 2

(Covering resolutions to defect report 187, 208 and 243)

1.1) This corrects the defects reported in defect report 9594/187

In 7.2.1.1, add **root** *to the list of SDSE types.*

In 11.3.1.1, delete **root** *from the list of SDSE types.*

1.2) This corrects the defects reported in defect report 9594/208

Insert the following text into 7.2.2.3, at the end of both the second paragraph and the first sentence of the third paragraph (after "appropriate knowledge"*):*

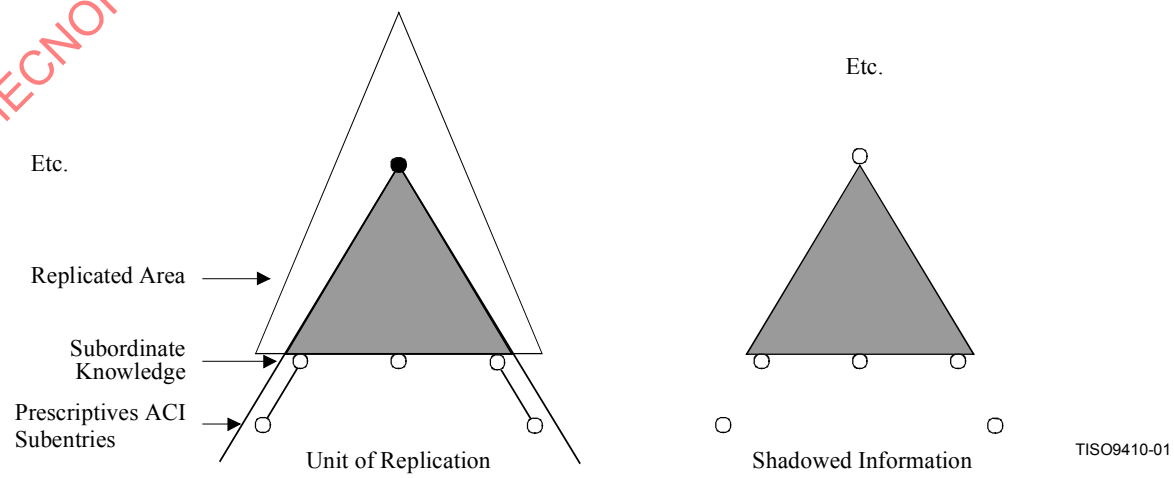
and access control information.

Insert a new third paragraph into 7.2.2.3 as follows:

If subordinate knowledge is supplied, and the supplying DSE (of type **subr)** is also of type **admPoint**, then the SDSE shall additionally be of type **admPoint** and the **administrativeRole** attribute shall be supplied. If such a DSE has any immediately subordinate subentries containing **PrescriptiveACI** relating to the administrative point, then they shall also be supplied as SDSEs in the shadowed information.

NOTE – A DSE can be of type **subr** and **admPoint** in a superior DSA, when the naming context in the subordinate DSA is the start of a new administrative area.

Update Figure 3 as follows to show a subentry immediately below a subordinate reference. The subentry contains prescriptiveACI and is part of the shadowed information.



Add supporting text to 7.2 in the paragraph after Figure 3. Insert the following sentences after the sentence "Subordinate knowledge may also be replicated":

Implicit in the subordinate knowledge is the access control information which governs access to the RDN of the subordinate knowledge. When the subordinate entry is an administrative point in another DSA, then part of this access control information may be held in **prescriptiveACI** subentries beneath the subordinate knowledge.

Add the following new point d) to 9.2.4.1:

d) if subordinate knowledge (not extended knowledge) is shadowed then any **prescriptiveACI** in subordinate subentries shall also be copied.

1.3) This corrects the defects reported in defect report 9594/243

In 2.1, change all references ISO/IEC 9594-x:1997 *to* ISO/IEC 9594-x:1998.

In clause 6, change ITU-T Rec. X.518 | ISO/IEC 9594-5 *to* ITU-T Rec. X.519 | ISO/IEC 9594-5.

In 9.2 in the **UnitOfReplication** *type, change* **ContextType** *to* **CONTEXT.&id**.

In 11.1:

Change **CoordinateShadowUpdate** *to* **coordinateShadowUpdate**.

Remove the last right curly parenthesis in the **CoordinateShadowUpdateArgument**.

Replace the ASN.1 in Annex A with:

```
DirectoryShadowAbstractService
    {joint-iso-itu-t ds(5) module(1) directoryShadowAbstractService(15) 3}
DEFINITIONS   IMPLICIT TAGS   ::=
BEGIN

-- EXPORTS All --

-- The types and values defined in this module are exported for use in the other ASN.1 modules contained
-- within the Directory Specifications, and for the use of other applications which will use them to access
-- directory services. Other applications may use them for their own purposes, but this will not constrain
-- extensions and modifications needed to maintain or improve the directory service.

IMPORTS

-- from ITU-T Rec. X.501 | ISO/IEC 9594-2

    directoryAbstractService, directoryOperationalBindingTypes, informationFramework,
    disp, distributedOperations, dsaOperationalAttributeTypes, enhancedSecurity,
    opBindingManagement
        FROM UsefulDefinitions {joint-iso-itu-t ds(5) module(1) usefulDefinitions(0) 3}

    Attribute, AttributeType, CONTEXT, DistinguishedName, RelativeDistinguishedName,
    SubtreeSpecification
        FROM InformationFramework informationFramework

    OPERATIONAL-BINDING, OperationalBindingID
        FROM OperationalBindingManagement opBindingManagement

    DSEType, SupplierAndConsumers
        FROM DSAOperationalAttributeTypes dsaOperationalAttributeTypes

    OPTIONALLY-PROTECTED, OPTIONALLY-PROTECTED-SEQ
        FROM EnhancedSecurity enhancedSecurity

-- from ITU-T Rec. X.511 | ISO/IEC 9594-3

    CommonResultsSeq, ContextSelection, directoryBind, directoryUnbind, EntryModification,
    SecurityParameters
        FROM DirectoryAbstractService directoryAbstractService
```

```
-- from ITU-T Rec. X.518 | ISO/IEC 9594-4

    AccessPoint
        FROM DistributedOperations distributedOperations

-- from ITU-T Rec. X.519 | ISO/IEC 9594-5

    id-op-binding-shadow
        FROM DirectoryOperationalBindingTypes directoryOperationalBindingTypes

    id-errcode-shadowError, id-opcode-coordinateShadowUpdate, id-opcode-requestShadowUpdate,
    id-opcode-updateShadow, reliableShadowSupplierInitiatedAC,
    reliableShadowConsumerInitiatedAC,
    shadowConsumerInitiatedAC, shadowSupplierInitiatedAC
        FROM DirectoryInformationShadowProtocol disp

-- from ITU-T Rec. X.880 | ISO/IEC 13712-1

    ERROR, OPERATION
        FROM Remote-Operations-Information-Objects
            {joint-iso-itu-t remote-operations(4) informationObjects(5) version1(0) } ;

-- bind and unbind operations --

dSAShadowBind       OPERATION  ::=  directoryBind

dSAShadowUnbind     OPERATION  ::=  directoryUnbind

-- shadow operational binding --

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 }

-- types --

ModificationParameter       ::=  SEQUENCE {
    secondaryShadows        SET OF SupplierAndConsumers }

AgreementID                 ::=  OperationalBindingID

ShadowingAgreementInfo      ::=  SEQUENCE {
    shadowSubject                   UnitOfReplication,
    updateMode                      UpdateMode DEFAULT supplierInitiated : onChange : TRUE,
    master                          AccessPoint OPTIONAL,
    secondaryShadows        [2]   BOOLEAN DEFAULT FALSE }
```

```
UnitOfReplication               ::=  SEQUENCE {
    area                        AreaSpecification,
    attributes                  AttributeSelection,
    knowledge                   Knowledge OPTIONAL,
    subordinates                BOOLEAN DEFAULT FALSE,
    contextSelection            ContextSelection OPTIONAL,
    supplyContexts              [0]   CHOICE {
        allContexts                         NULL,
        selectedContexts                    SET SIZE (1..MAX) OF CONTEXT.&id } OPTIONAL }

AreaSpecification               ::=  SEQUENCE  {
    contextPrefix           DistinguishedName,
    replicationArea         SubtreeSpecification }

Knowledge                       ::=  SEQUENCE  {
    knowledgeType               ENUMERATED {
                                    master          (0),
                                    shadow          (1),
                                    both            (2) },
    extendedKnowledge           BOOLEAN DEFAULT FALSE }

AttributeSelection              ::=  SET OF ClassAttributeSelection

ClassAttributeSelection         ::=  SEQUENCE {
    class                       OBJECT IDENTIFIER OPTIONAL,
    classAttributes             ClassAttributes DEFAULT allAttributes : NULL }

ClassAttributes                 ::=  CHOICE {
    allAttributes               NULL,
    include                     [0]   AttributeTypes,
    exclude                     [1]   AttributeTypes }

AttributeTypes                  ::=  SET OF AttributeType

UpdateMode                      ::=  CHOICE {
    supplierInitiated           [0]   SupplierUpdateMode,
    consumerInitiated           [1]   ConsumerUpdateMode }

SupplierUpdateMode              ::=  CHOICE {
    onChange                    BOOLEAN,
    scheduled                   SchedulingParameters }

ConsumerUpdateMode              ::=  SchedulingParameters

SchedulingParameters            ::=  SEQUENCE {
    periodic                    PeriodicStrategy OPTIONAL,  -- must be present if othertimes is set to FALSE --
    othertimes                  BOOLEAN DEFAULT FALSE }

PeriodicStrategy                ::=  SEQUENCE {
    beginTime                   Time OPTIONAL,
    windowSize                  INTEGER,
    updateInterval              INTEGER }

Time  ::=  GeneralizedTime
    -- as per 41.3 b) and c) of ITU-T Rec. X.680 | ISO/IEC 8824-1

-- shadow operations, arguments, and results --

All-operations-consumer-initiated  OPERATION  ::=  {
        requestShadowUpdate | updateShadow }

All-operations-supplier-initiated  OPERATION  ::=  {
        coordinateShadowUpdate | updateShadow }

coordinateShadowUpdate  OPERATION  ::=  {
    ARGUMENT        CoordinateShadowUpdateArgument
    RESULT          CoordinateShadowUpdateResult
    ERRORS          { shadowError }
    CODE            id-opcode-coordinateShadowUpdate }
```

```
CoordinateShadowUpdateArgument ::= OPTIONALLY-PROTECTED { [0] SEQUENCE {
    agreementID             AgreementID,
    lastUpdate              Time OPTIONAL,
    updateStrategy          CHOICE {
        standard                ENUMERATED {
            noChanges               (0),
            incremental             (1),
            total                   (2) },
        other                   EXTERNAL },
    securityParameters      SecurityParameters OPTIONAL } }

CoordinateShadowUpdateResult ::= CHOICE {
    null                NULL,
    information         OPTIONALLY-PROTECTED { [0] SEQUENCE {
        greementID              AgreementID,
        lastUpdate              Time OPTIONAL,
        COMPONENTS OF           CommonResultsSeq } } }

requestShadowUpdate   OPERATION ::= {
    ARGUMENT            RequestShadowUpdateArgument
    RESULT              RequestShadowUpdateResult
    ERRORS              { shadowError }
    CODE                id-opcode-requestShadowUpdate }

RequestShadowUpdateArgument ::= OPTIONALLY-PROTECTED { [0] SEQUENCE {
    agreementID             AgreementID,
    lastUpdate              Time OPTIONAL,
    requestedStrategy       CHOICE {
        standard        ENUMERATED {
            incremental         (1),
            total               (2) },
        other           EXTERNAL },
    securityParameters      SecurityParameters OPTIONAL } }

RequestShadowUpdateResult  ::=  CHOICE {
    null                NULL,
    information         OPTIONALLY-PROTECTED { [0] SEQUENCE {
        agreementID             AgreementID,
        lastUpdate              Time OPTIONAL,
        COMPONENTS OF           CommonResultsSeq } } }

updateShadow  OPERATION  ::=  {
    ARGUMENT            UpdateShadowArgument
    RESULT              UpdateShadowResult
    ERRORS              { shadowError }
    CODE                id-opcode-updateShadow }

UpdateShadowArgument  ::=  OPTIONALLY-PROTECTED { [0] SEQUENCE {
    agreementID             AgreementID,
    updateTime              Time,
    updateWindow            UpdateWindow OPTIONAL,
    updatedInfo             RefreshInformation,
    securityParameters      SecurityParameters OPTIONAL } }

UpdateShadowResult ::= CHOICE {
    null                NULL,
    information         OPTIONALLY-PROTECTED { [0] SEQUENCE {
        agreementID             AgreementID,
        lastUpdate              Time OPTIONAL,
        COMPONENTS OF           CommonResultsSeq } } }

UpdateWindow ::= SEQUENCE {
    start       Time,
    stop        Time }

RefreshInformation ::=  CHOICE {
    noRefresh               NULL,
    total               [0] TotalRefresh,
    incremental         [1] IncrementalRefresh,
    otherStrategy           EXTERNAL }
```