CONTRIBUTION TO SONET INTEROPERABILITY FORUM

SIF PROJECT: SIF Remote Login Subgroup

TITLE: Lightweight Directory Access Protocol: ANSI T1.245 Schema
Definitions

SOURCE: John MacAuley   NORTEL Technology

CONTACT: John MacAuley   NORTEL Technology
             E-mail: macauley@nortel.ca
             Phone: (613) 765-4966
             Fax: (613) 763-4371

DATE: August 26, 1997
          Ypsilanti, Michigan

ABSTRACT

The Lightweight Directory Access Protocol (LDAP) [1] requires that the contents of
AttributeValue fields in protocol elements be octet strings. This document defines the
requirements that must be satisfied by encoding rules used to render directory attribute syntax
from ANSI T1.245 [2] and ITU-T M.3100 [3] into a form suitable for use in the LDAP. This
document then goes on to define LDAP schema definitions for attribute types, object classes, and
matching rules defined in [2] and [3].

NOTICE

This document has received the approval of the SONET Interoperability Forum (SIF)
October 23, 1997

Table of Contents

1. Introduction

1.1 Background

The Lightweight Directory Access Protocol (LDAP) [1] is an Internet standard designed to provide access to directories supporting the X.500 Directory schema [4], while not incurring the resource requirements of the X.500 Directory Access Protocol (DAP) [5].

LDAP requires that the contents of AttributeValue fields in protocol elements be octet strings. This document defines the requirements that must be satisfied by encoding rules used to render directory attribute syntax from ANSI T1.245 [2] and ITU-T M.3100 [3] into a form suitable for use in LDAP. This document then goes on to define LDAP schema definitions for attribute types, object classes, and matching rules defined in [2] and [3].

1.2 References

The following documents are referenced in this specification :

[1]   M. Wahl, T. Howes, S. Kille. *"Lightweight Directory Access Protocol (v3)",* INTERNET-DRAFT <draft-ietf-asid-ldapv3-protocol-07.txt>, August 5, 1997.

[2]   ANSI T1.245-1995. *"Directory Service for Telecommunications Management Network (TMN) and Synchronous Optical Network (SONET)",* American National Standard for Telecommunications.

[3]   ITU-T Recommendation M.3100 (1994, Revised). *"Maintenance: Telecommunications Management Network. Generic Network Information Model".*

[4]   ITU-T Rec. X.501 (1993 E) | ISO/IEC 9594-2:1993. *"Information technology - Open Systems Interconnection - The Directory - Models*".

[5]   ITU-T Rec. X.511 (1993 E) | ISO/IEC 9594-3:1993. "*Information technology - Open Systems Interconnection - The Directory - Abstract Service Definition*".

[6]   M. Wahl, A. Coulbeck, T. Howes, S. Kille. "*Lightweight Directory Access Protocol (v3): Attribute Syntax Definitions*", Internet Draft <draft-ietf-asid-ldapv3-attributes-07.txt>, August 5, 1997.

[7]   M. Wahl. "*A Summary of the X.500(96) User Schema for use with LDAPv3*", Internet Draft <draft-ietf-asid-ldapv3schema-x500-02.txt>, August 5, 1997.

[8]   S. Kille. "*A String Representation for Presentation Addresses*", RFC 1278, University College London, November 1991.

[9]   ITU-T Rec. X.521 (1993 E) | ISO/IEC 9594-7:1993. *"Information technology - Open Systems Interconnection - The Directory -Selected Object Classes."*

[10] ITU-T Rec. X.521 (1993 E) | ISO/IEC 9594-7:1993. *"Information technology - Open Systems Interconnection - The Directory: Selected Attribute Types."*

1.3 Revision History

ISSUE	DATE	SUMMARY OF CHANGES
Draft	June 3, 1997	First draft.
R1	July 16, 1997	Incorporated formatting changes suggested from June 1997 SIF.
R2	October 10, 1997	Removed all references to those SIF contributions not voted as accepted documents.

2. Attribute Syntax

This document references a number of LDAP attribute syntax definitions defined in [6]. The following table lists these attribute syntax references with corresponding document sections.

Attribute Syntax	Reference
PrintableString	section 6.29 [6]
INTEGER	section 6.16 [6]
PresentationAddress	section 6.28 [6]
OID	section 6.25 [6]
DirectoryString	section 6.10 [6]

Table 1: Attribute Syntax References.

This section contains new LDAP attribute syntax definitions that an LDAP server must recognize if it is to be compliant to definitions of [2]. This section uses notations and syntax definitions already defined in [6]. The following table lists attribute syntax defined in this section along with corresponding source document references.

Attribute Syntax	Reference
NodeNumberUID	section 10.3 [2]
NameType	section 9.0 [3]

Table 2: New Attribute Syntax References.

2.1 NodeNumberUID

The *NodeNumberUID* syntax consists of the optional integer *nodeId* accompanied by the optional directory string *ringId* and is exclusively used to represent the *nodeIdInfo* attribute type. A *nodeId* value is an integer between 0 and 15 which represents a node in a Bi-directional Line Switched Ring topology. Values of the *NodeNumberUID* syntax are encoded in a DirectoryString according to the following BNF:

```
NodeNumberUID ::= [nodeId] ['#' ringId]
nodeId ::= INTEGER              ; in the range 0 .. 15
ringId ::= DirectoryString{1..16}   ; from 1 to 16 characters in length
```

2.2 NameType

The *NameType* syntax is a choice of either an integer value or a graphic string that is exclusively used to represent the *managedElementId* attribute type. Values of the *NameType* syntax are encoded in a *DirectoryString* according to the following BNF:

```
<NameType> ::= <numericName> / <pString>
<numericName> ::= 'numericName$' INTEGER
<pString> ::= 'pString$' <GraphicString>
<GraphicString> ::= DirectoryString
```

3. Matching Rules

This document references a number of LDAP matching rule definitions defined in [8]. The following table lists these matching rule references with corresponding document sections.

Matching Rule	Reference
integerMatch	section 8.1 [6] & section 6.2.2 [10]
caseIgnoreMatch	section 8.1 [6] & section 6.1.1 [10]
caseIgnoreSubstringsMatch	section 6.1.3 [11]
distinguishedNameMatch	section 8.1 [6] & section 12.5.2 [4]
objectIdentifierMatch	section 8.1 [7] & section 12.5.2 [4]

Table 3: Matching Rule References.

The matching rules defined in this section are additional matching rules found in [2]. LDAP servers must recognize these matching rules if they are to be compliant to definitions of [2]. The following table lists matching rules defined in this section along with corresponding source document references.

Matching Rule	Reference
nodeIdInfoMatch	section 10.3 [2]

Table 4: New Matching Rules References.

This document is a working draft which does not reflect a consensus of the SONET Interoperability Forum (SIF).

- 7 -

3.1 nodeIdInfoMatch

The *nodeIdInfoMatch* matching rule is defined to provide a procedure for matching two presented values of the *NodeNumberUID* attribute syntax as defined in section 3.1. The *nodeIdInfoMatch* matching rule has the following definition:

     (1.2.840.245.2.13.1
          NAME 'nodeIdInfoMatch'
          DESC 'This matching rule compares for equality a presented nodeIdInfo
               value with an attribute value of type nodeIdInfo. The rule returns TRUE if
               and only if the nodeId component is absent from the attribute value or
               matches the corresponding component from the presented value according
               to the IntegerMatch rule, and the ringId component is absent from the
               attribute value or matches the corresponding component from the presented
               value according to the caseIgnoreMatch rule.
               Where the strings being matched are of different ASN.1 syntax, the
               comparison proceeds as normal so long as the corresponding characters are in
               both character sets. Otherwise matching fails.'
          SYNTAX '1.3.6.1.4.1.1466.115.121.1.15'
)

The following matching rule use description defines attributes are suitable for use with the *nodeIdInfoMatch* matching rule:

     (1.2.840.245.2.13.1
          NAME 'nodeIdInfoMatchUse'
          DESC 'This matching rule use description defines attributes of the type nodeIdInfo as
               suitable for use with the nodeIdInfoMatch matching rule.'
          APPLIES nodeIdInfo
)

4. Attribute Types

This document references a number of LDAP attribute type definitions defined in [7]. The following table lists these attribute type references with corresponding document sections.

Attribute Type	Reference
cn (commonName)	section 5.4 [7]
c (countryName)	section 5.7 [7]
l (localityName)	section 5.8 [7]
st (stateOrProvinceName)	section 5.9 [7]
o (organizationName)	section 5.11 [7]
ou (organizationalUnitName)	section 5.12 [7]
supportedApplicationContext	section 5.31 [7]
name	section 5.42 [7]

Table 5: Attribute Type References.

Attribute types listed in this section are those defined in [2]. Attribute types from [2] are likely to be present in entries representing TMN Network Elements. LDAP Servers must recognize all the attribute types of this section if they are to be compliant to [2]. The following table lists the attribute types defined in this section with references to their corresponding standards documents.

Attribute Type	Reference
proprietaryAddress	section 10.2 [2]
nodeIdInfo	section 10.3 [2]
neType	section 10.4 [2]
vendorName	section 10.5 [2]
entityAddress	section 10.6 [2]
managedElementId	section 5.29 [3]

Table 6: New Attribute Type References.

4.1 proprietaryAddress

The *proprietaryAddress* attribute type is a *PrintableString* defined for use representing a TMN
NE vendor proprietary address in the Directory.

> (1.2.840.245.2.4.1
>   NAME 'proprietaryAddress'
>   DESC 'This attribute type is PrintableString for vendor proprietary address use.'
>   EQUALITY caseIgnoreMatch
>   SUBSTR caseIgnoreSubstringsMatch
>   SYNTAX '1.3.6.1.4.1.1466.115.121.1.44{256}'
>   SINGLE-VALUE
>   USAGE userApplications
>)

4.2 nodeIdInfo

The *nodeIdInfo* attribute type specifies a set of pairs (ringId, nodeId) that represents the node
number associated with a TMN/SDH Network Element. The *nodeIdInfo* attribute type uses the
NodeNumberUID attribute syntax defined in section 2.1.

> (1.2.840.245.2.4.2
>   NAME 'nodeIdInfo'
>   DESC 'This attribute type specifies a set of pairs (ringId, nodeId) that is the node
>   number associated with a TMN/SDH Network Element. This attribute type
>   uses the NodeNumberUID attribute syntax.'
>   EQUALITY nodeIdInfoMatch
>   SYNTAX '1.3.6.1.4.1.1466.115.121.1.15{19}'
>   USAGE userApplications
>)

4.3 neType

The *neType* attribute type uses the *OID* syntax to designate one or more roles the Network
Element plays in one or more domains in which it participates.

> (1.2.840.245.2.4.3
>   NAME 'neType'
>   DESC 'This attribute type uses the OID syntax to designate one or more roles the
>   Network Element plays in one or more domains in which it participates.'
>   EQUALITY objectIdentifierMatch
>   SYNTAX '1.3.6.1.4.1.1466.115.121.1.38'
>   USAGE userApplications
>)

4.4 vendorName

The *vendorName* attribute type uses the *DirectoryString* syntax to identify the vendor/supplier of
the TMN Network Element.

> (1.2.840.245.2.4.4
>   NAME 'vendorName'
>   DESC 'This attribute type uses the DirectoryString to identify the vendor/supplier of
>   the Network Element.'
>   SUP name
>   SYNTAX '1.3.6.1.4.1.1466.115.121.1.15 {128}'
>   USAGE userApplications
>)

4.5 entityAddress

The *entityAddress* attribute type uses the *PresentationAddress* syntax to represent an entity's
(TMN Network Element's) network address. The entity's network address is stored using the
NetworkAddress component of the *PresentationAddress* syntax as described in section 3 of [8].
The remaining components of *PresentationAddress* are not used.

> (1.2.840.245.2.4.5
>   NAME 'entityAddress'
>   DESC 'This attribute type is used to represent the network address of an entity.'
>   EQUALITY caseIgnoreMatch
>   SUBSTR caseIgnoreSubstringsMatch
>   SYNTAX '1.3.6.1.4.1.1466.115.121.1.43'
>   USAGE userApplications
>)

4.6 managedElementId

The *managedElementId* attribute type may have a distinguished value that could be used as an RDN when naming an instance of the *tmnNE* object class. An attribute of this type replicates the value in the *managedElementId* attribute of the MIB object *managedElement*. This attribute type uses the *NameType* syntax encoding rules defined in section 2.2.

```
( 0.0.13.3100.0.7.28
        NAME 'managedElementId'
        DESC 'This attribute type's distinguished value can be used as an RDN when naming
                an instance of the tmnNE object class.  An attribute of this type replicates the
                value in the managedElementId attribute of the MIB object managedElement.
                This attribute type uses the NameType attribute syntax encoding rules.'
        EQUALITY caseIgnoreMatch
        SYNTAX '1.3.6.1.4.1.1466.115.121.1.15'
        SINGLE-VALUED
        USAGE userApplications
)
```

5. Object Classes

This document references a number of LDAP object class definitions defined in [7]. The following table lists these object class references with corresponding document sections.

Object Class	Reference
top	section 7.1 [7]
alias	section 7.2 [7]
country	section 7.3 [7]
locality	section 7.4 [7]
organization	section 7.5 [7]
organizationalUnit	section 7.6 [7]
groupOfNames	section 7.10 [7]
applicationProcess	section 7.12 [7]
applicationEntity	section 7.13 [7]

Table 7: Object Class References.

Object classes listed in this section are those defined in [2] which are used to represent TMN entities in a network. LDAP Servers must recognize all the object classes of this section if they are to be compliant to [2]. The following table lists the object classes defined in this section with references to their corresponding standards documents.

Object Class	Reference
tmnNE	section 9.2 [2]
sdhNEEntry	section 9.3 [2]
apaeAlias	section 9.4 [2]

Table 8: New Object Class References.

5.1 *tmnNE*

The *tmnNE* object class describes a Network Element as defined in M.3010. The NE contains Network Element Function (NEF) and may also contain Mediation Function (MF), Operations System Function (OSF), or both. There is one instance of this object class in the DIB for each Network Element in the TMN.

```
( 1.2.840.245.2.6.1
        NAME 'tmnNE'
        DESC 'This object class represents a Network Element as defined in M.3010.  The NE
                contains Network Element Function (NEF) and may also contain Mediation
                Function (MF), Operations System Function (OSF), or both.  There is one
                instance of this object class in the DIB for each Network Element in the
                TMN.'
        SUP top
        STRUCTURAL
        MUST ( cn $ managedElementId $ entityAddress )
        MAY ( proprietaryAddress $ vendorName $ l $ neType )
)
```

5.2 *sdhNEEntry*

The *sdhNEEntry* object class represents a Synchronous Digital Hierarchy (SDH) Network Element.

```
( 1.2.840.245.2.6.2
        NAME 'sdhNEEntry'
        DESC 'This object class represents a Synchronous Digital Hierarchy (SDH) Network
                Element.'
        SUP top
        AUXILIARY
        MAY nodeIdInfo
)
```

This document is a working draft which does not reflect a consensus
of the SONET Interoperability Forum (SIF).

5.3 apaeAlias

The *apaeAlias* object class is used to provide a means of including, under an entry for an NE, aliases for application processes and application entities which are not resident on the NE itself. The *cn (commonName)* attribute is used to provide a means whereby the alias entry can be referenced during administrative operations.

```
( 1.2.840.245.2.6.3
        NAME 'apaeAlias'
        DESC ' This object class is used to provide a means of including, under an entry for
                an NE, aliases for application processes and application entities which are not
                resident on the NE itself.  The cn (commonName) attribute is used to provide
                a means whereby the alias entry can be referenced during administrative
                operations.'
        SUP alias
        STRUCTURAL
        MUST  cn
)
```

6. Content Rules

Content Rules listed in this section are those defined in [2]. LDAP Servers must recognize all the content rules of this section if they are to be compliant to [2]. The following table lists the content rule defined in this section with references to their corresponding standards documents.

Context Rule	Reference
applicationEntity	section 9.1 [2]
networkElementRule	appendix G.4 [2]

Table 9: New Content Rule References.

6.1 applicationEntityRule

The *applicationEntityRule* content rule specifies an additional restriction of having to include the *supportedApplicationContext* attribute in an entry of the *applicationEntity* object class.

```
( 2.5.6.12
        NAME 'applicationEntityRule'
        DESC 'This content rule specifies that the supportedApplicationContext attribute must be
                present in an entry of the applicationEntity object class.'
        MUST supportedApplicationContext
)
```

6.2 networkElementRule

The *networkElementRule* content rule specifies an additional restriction of having to include the auxiliary object class *sdhNEEntry* in an entry of the *tmnNE* object class.

This document is a working draft which does not reflect a consensus
of the SONET Interoperability Forum (SIF).

```
( 1.2.840.245.2.6.1
        NAME 'networkElementRule'
        DESC 'This content rule specifies an additional restriction of having to include the
                auxiliary object class sdhNEEntry in an entry of the tmnNE object class.'
        AUX sdhNEEntry
)
```

7. Name Forms

This document references a number of X.500 name form definitions defined in [10]. The following table lists these name form references with corresponding document sections.

Name Form	Reference
countryNameForm	Annex B.1 [9]
sOPNameForm	Annex B.12 [9]
locNameForm	Annex B.3 [9]
orgNameForm	Annex B.2 [9]
orgUnitNameForm	Annex B.4 [9]
gonNameForm	Annex B.7 [9]
applProcessNameForm	Annex B.11 [9]
applEntityNameForm	Annex B.9 [9]

Table 10: Name Form References.

Name forms listed in this section are those defined in [2]. LDAP Servers must recognize all the name forms of this section if they are to be compliant to [2]. The following table lists the name forms defined in this section with references to their corresponding standards documents.

Name Form	Reference
tmnNENameForm	appendix G.4 [2]
apaeAliasNameForm	appendix G.4 [2]
orgUnitLocNameForm	appendix G.4 [2]
orgUnitLocOrgNameForm	appendix G.4 [2]

Table 11: New Name Form References.

7.1 tmnNENameForm

The *tmnNENameForm* name form allows an entry of the *tmnNE* object class to be named by the *cn (commonName)* attribute.

```
( 1.2.840.245.2.15.1
        NAME 'tmnNENameForm'
        DESC 'An entry of the tmnNE object class can be named by the cn (commonName)
```

This document is a working draft which does not reflect a consensus
of the SONET Interoperability Forum (SIF).

```
              attribute.'
        OC tmnNE
        MUST cn
)
```

7.2 apaeAliasNameForm

The *apaeAliasNameForm* name form allows an entry of the *apaeAlias* object class to be named by the *cn (commonName)* attribute.

```
( 1.2.840.245.2.15.2
        NAME 'apaeAliasNameForm'
        DESC 'An entry of the apaeAlias object class can be named by the cn (commonName)
              attribute.'
        OC apaeAlias
        MUST cn
)
```

7.3 orgUnitLocNameForm

The *orgUnitLocNameForm* name form allows an entry of the *organizationalUnit* object class to be named by the *l* (*localityName*) attribute.

```
( 1.2.840.245.2.15.3
        NAME 'orgUnitLocNameForm'
        DESC 'An entry of the organizationalUnit object class can be named by the l
              (localityName) attribute.'
        OC organizationalUnit
        MUST l
)
```

7.4 orgUnitLocOrgNameForm

The *orgUnitLocOrgNameForm* name form allows an entry of the *organizationalUnit* object class to be named by the *l* (*localityName*) and *ou* (*organizationalUnitName*) attributes.

```
( 1.2.840.245.2.15.4
        NAME 'orgUnitLocOrgNameForm'
        DESC 'An entry of the organizationalUnit object class can be named by l
                (localityName) and ou (organizationalUnitName) attributes.'
        OC organizationalUnit
        MUST ( l $ ou )
)
```

8. Structure Rules

Structure rules listed in this section are those defined in [2]. LDAP Servers must recognize all the structure rules of this section if they are to be compliant to [2].

8.1 sr1

Sr1 is the structure rule for *country* using *c (countryName)* as the distinguished naming attribute.

```
( 1
        NAME 'sr1'
        DESC 'Structure rule for country using c (countryName) as the distinguished naming
                attribute.'
        FORM countryNameForm
)
```

8.2 sr2

Sr2 is the structure rule for *locality* using st (*stateOrProvinceName)* as the distinguished naming attribute.

```
( 2
        NAME 'sr2'
        DESC 'Structure rule for locality using st (stateOrProvinceName) as the distinguished
                naming attribute.'
        FORM sOPNameForm
)
```

8.3 sr3

Sr3 is the structure rule for *locality* using *l (localityName)* as the distinguished naming attribute.

```
( 3
        NAME 'sr3'
        DESC 'Structure rule for locality using l (localityName) as the distinguished naming
                attribute.'
        FORM locNameForm
)
```

8.4 sr4

Sr4 is the structure rule for *locality* as a direct subordinate of *country* using st (*stateOrProvinceName)* as the distinguished naming attribute.

```
( 4
        NAME 'sr4'
        DESC 'Structure rule for locality as a direct subordinate of country using st
                stateOrProvinceName as the distinguished naming attribute.'
        FORM sOPNameForm
        SUP ( sr1 )
)
```

8.5 sr5

Sr5 is the structure rule for *locality* as a direct subordinate of *country* or *locality* using *l (localityName)* as the distinguished naming attribute.

```
( 5
        NAME 'sr5'
        DESC 'Structure rule for locality as a direct subordinate of country or locality using l
                (localityName) as the distinguished naming attribute.'
        FORM locNameForm
        SUP ( sr1 | sr2 | sr3 | sr4 | sr5 )
)
```

8.6 sr6

Sr6 is the structure rule for *organization* using *o (organizationName)* as the distinguished naming attribute.

```
( 6
        NAME 'sr6'
        DESC 'Structure rule for organization using o (organizationName) as the
                distinguished naming attribute.'
        FORM orgNameForm
)
```

8.7 sr7

Sr7 is the structure rule for *organization* as a direct subordinate of *country* or *locality* using *o (organizationName)* as the distinguished naming attribute.

```
( 7
        NAME 'sr7'
        DESC 'Structure rule for organization as a direct subordinate of country or locality
                using o (organizationName) as the distinguished naming attribute.'
        FORM orgNameForm
        SUP ( sr1 | sr2 | sr3 | sr4 | sr5 )
)
```

8.8 sr8

Sr8 is the structure rule for *organizationalUnit* as a direct subordinate of *organization* using *ou (organizationiUnitName)* as the distinguished naming attribute.

```
( 8
        NAME 'sr8'
        DESC 'Structure rule for organizationalUnit as a direct subordinate of organization
                using ou (organizationiUnitName) as the distinguished naming attribute.'
        FORM orgUnitNameForm
        SUP ( sr6 | sr7 | sr8 | sr9 | sr10 )
)
```

8.9 sr9

Sr9 is the structure rule for *organizationalUnit* as a direct subordinate of *organization* using *l (localityName)* as the distinguished naming attribute.

```
( 9
        NAME 'sr9'
        DESC 'Structure rule for organizationalUnit as a direct subordinate of organization
                using l (localityName) as the distinguished naming attribute.'
        FORM orgUnitLocNameForm
        SUP ( sr6 | sr7 | sr8 | sr9 | sr10 )
)
```

8.10 sr10

Sr10 is the structure rule for *organizationalUnit* as a direct subordinate of *organization* using *l (localityName)* and *ou (organizationalUnitName)* as the distinguished naming attributes.

```
( 10
        NAME 'sr10'
        DESC 'Structure rule for organizationalUnit as a direct subordinate of organization
                using l (localityName) and o (organizationalUnitName) as the distinguished
                naming attributes.'
        FORM orgUnitLocOrgNameForm
        SUP ( sr6 | sr7 | sr8 | sr9 | sr10 )
)
```

8.11 sr11

Sr11 is the structure rule for *groupOfNames* as a direct subordinate of *locality*, *organization* or *organizationalUnit* using *cn (commonName)* as the distinguished naming attribute.

```
( 11
        NAME 'sr11'
        DESC 'Structure rule for groupOfNames as a direct subordinate of locality,
                organization or organizationalUnit using cn (commonName) as the
                distinguished naming attribute.'
        FORM gonNameForm
        SUP ( sr2 | sr3 | sr4 | sr5 | sr6 | sr7 | sr8 | sr9 | sr10 )
)
```

8.12 sr12

Sr12 is the structure rule for *tmnNE* as a direct subordinate of *locality*, *organization*, or *organizationalUnit*, using *cn (commonName)* as the distinguished naming attribute.

```
( 12
        NAME 'sr12'
        DESC 'Structure rule for tmnNE as a direct subordinate of locality, organization, or
                organizationalUnit, using cn (commonName) as the distinguished naming
                attribute.'
        FORM tmnNENameForm
        SUP ( sr2 | sr3 | sr4 | sr5 | sr6 | sr7 | sr8 | sr9 | sr10 )
)
```

8.13 sr13

Sr13 is the structure rule for *applicationProcess* as a direct subordinate of *locality*, *organization*, *organizationalUnit*, or *tmnNE* using *cn (commonName)* as the distinguished naming attribute.

```
( 13
        NAME 'sr13'
        DESC 'Structure rule for applicationProcess as a direct subordinate of locality,
                organization, organizationalUnit, or tmnNE using cn (commonName) as the
                distinguished naming attribute.'
        FORM applProcessNameForm
        SUP ( sr2 | sr3 | sr4 | sr5 | sr6 | sr7 | sr8 | sr9 | sr10 | sr12 )
)
```

8.14 sr14

Sr14 is the structure rule for *applicationEntity* as a direct subordinate of *locality*, *organization*, *organizationalUnit*, *tmnNE*, or *applicationProcess* using *cn (commonName)* as the distinguished naming attribute.

```
( 14
        NAME 'sr14'
        DESC 'Structure rule for applicationEntity as a direct subordinate of locality,
                organization, organizationalUnit, tmnNE, or applicationProcess using cn
                (commonName) as the distinguished naming attribute.'
        FORM applEntityNameForm
        SUP ( sr2 | sr3 | sr4 | sr5 | sr6 | sr7 | sr8 | sr9 | sr10 | sr12 | sr13 )
)
```

8.15 sr15

Sr15 is the structure rule for *apaeAlias* as a direct subordinate of *tmnNE* using *cn (commonName)* as the distinguished naming attribute.

```
( 15
        NAME 'sr15'
        DESC 'Structure rule for apaeAlias as a direct subordinate of tmnNE using cn
                (commonName) as the distinguished naming attribute.'
        FORM apaeAliasNameForm
        SUP ( sr12 )
)
```

9. Author's Address

John MacAuley
NORTEL Technology
P.O. Box 3511, Station C
Ottawa, Canada
K1Y 4H7
Phone: (613) 765-4966
E-mail: macauley@nortel.ca