A Naming Scheme for c=US

Status of this Memo

   This memo provides information for the Internet community.  It does
   not specify an Internet standard.  Distribution of this memo is
   unlimited.

Summary

   This RFC is a near-verbatim copy of a document, known as NADF-123,
   which has been produced by the North American Directory Forum (NADF).
   The NADF is a collection of organizations which offer, or plan to
   offer, public Directory services in North America, based on the CCITT
   X.500 Recommendations.  As a part of its charter, the NADF must reach
   agreement as to how entries are named in the public portions of the
   North American Directory.  NADF-123 is a scheme proposed for this
   purpose.  The NADF is circulating NADF-123 widely, expressly for the
   purpose of gathering comments.  The next meeting of the NADF is in
   mid-July, and it is important for comments to be received prior to
   the meeting, so that the scheme may receive adequate review.

                         A Naming Scheme for c=US
                    The North American Directory Forum
                                NADF-123
                      Supercedes: NADF-103, NADF-71
                            March 21, 1991

ABSTRACT

   This is one of a series of documents produced for discussion within
   the North American Directory Forum.  Distribution, with attribution,
   is unlimited.  This document is being circulated for comment.  The
   deadline for comments is July 1, 1991.  Comments should be directed
   to the contact given on page 16.

1.  Introduction

   Computer networks form the infrastructure between the users they
   interconnect.  For example, the electronic mail service offered by
   computer networks provides a means for users to collaborate towards
   some common goal.  In the simplest cases, this collaboration may be
   solely for the dissemination of information.  In other cases, two

   users may work on a joint research project, using electronic mail as
   their primary means of communication.

   However, networks themselves are built on an underlying naming and
   numbering infrastructure, usually in the form of names and addresses.
   For example, some authority must exist to assign network addresses to
   ensure that numbering collisions do not occur.  This is of paramount
   importance for an environment which consists of multiple service
   providers.

2.  Approach

   It should be observed that there are several different naming
   universes that can be realized in the Directory Information Tree
   (DIT).  For example, geographical naming, community naming, political
   naming, organizational naming, and so on.  The choice of naming
   universe largely determines the difficulty in mapping a user's query
   into a series of Directory operations.  Although it is possible to
   simultaneously support multiple naming universes with the DIT, this
   is likely to be unnatural.  As such, this proposal focuses on a
   single naming universe.

   The naming universe in this proposal is based on civil authority.
   That is, it uses the existing civil naming infrastructure and
   suggests a (nearly) straight-forward mapping on the DIT.  There are
   four components to the naming architecture:

   (1)  civil naming and optimized civil naming, which reflects
        names assigned by civil authority;

   (2)  organizational naming, which reflects names assigned
        within organizations;

   (3)  ADDMD naming, which reflects names assigned to public
        providers within the Directory service; and,

   (4)  application naming, which reflects names assigned to OSI
        entities.

   An important characteristic is that entries should be listed wherever
   searches for them are likely to occur.  This implies that a single
   object may be listed under several entries.

2.1.  Names and User-Friendliness

   It must be emphasized that there are three distinct concepts which
   are often confused when discussing a naming scheme:

(1)  user-friendly naming: a property of a Directory which
     allows users to easily identity objects;

(2)  user-friendly name: a technique for naming an object
     which exhibits "friendliness" according to an arbitrary
     set of user-criteria; and,

(3)  Distinguished Name: the administratively assigned name
     for an entry in the OSI Directory.

It must be emphasized that Distinguished Names are not necessarily
user-friendly names, and further, that user-friendly naming in the
Directory is a property of the Directory Service, not of
Distinguished Names.

2.2.  Choice of RDN Names

The key aspect to appreciate for choice of RDNs is that they should
provide a large name space to avoid collisions: the naming strategy
must provide enough "real estate" to accommodate a large demand for
entries.  This is the primary requirement for RDNs.  A secondary
requirement is that RDNs should be meaningful (friendly to people)
and should not impede searching.

However, it is important to understand that this second requirement
can be achieved by using additional (non-distinguished) attribute
values.  For example, if the RDN of an entry is

        organizationName is Performance Systems International

then it is perfectly acceptable (and indeed desirable) to have other
values for the organizationName attribute, e.g.,

        organizationName is PSI

The use of these abbreviated names greatly aids searching whilst
avoiding unnecessary Distinguished Name conflicts.

In order to appreciate the naming scheme which follows, it is
important to understand that it leverages, wherever possible,
existing naming infrastructure.  That is, it relies heavily on non-
OSI naming authorities which already exist.  Note that inasmuch as it
relies on existing naming authorities, there is little chance that
any "final" national decision could obsolete it.  [Footnote: Any
naming scheme may be subject to the jurisdiction of certain national
agencies.  For example, the US State Department is concerned with any
impact on US telecommunications treaty obligations.] (To do so would
require a national decision that disregards existing national and

regional infrastructure, and establishes some entirely new and
different national naming infrastructure.)

3.  Civil Naming

    Civil naming occurs at three levels:

    (1)  the national level, which contains objects that are
         recognized throughout a country;

    (2)  the regional level, which contains objects that are
         recognized throughout a state or state-equivalent; and,

    (3)  the local level, which contains objects that are
         recognized within a populated place.

3.1.  Naming at the National Level

    At the national-level (at least) three kinds of names may be listed:

    (1)  The States and State-Equivalents

    (2)  Organizations with National Standing

    (3)  ADDMD Operators

3.1.1.  The States and State-Equivalents

    For each state or state-equivalent (the District of Columbia and the
    eight outlying areas [Footnote: i.e., American Samoa, Federated
    States of Micronesia, Guam, Marshall Islands, Northern Mariana
    Islands, Palau, Puerto Rico, and Virgin Islands of the US.]), an
    instance of an

            usStateOrEquivalent

        object is used.  The RDN is formed as

            localityName is <FIPS 5 name>

        e.g.,

            localityName is California

    provides the RDN for the State of California.  In addition, this
    entry would contain attributes identifying both the FIPS 5 alpha and
    numeric code for the State, e.g.,

                    fipsStateNumericCode is 06
                    fipsStateAlphaCode is CA

     Of course, this entry could contain many other attributes such as

                  stateOrProvinceName is State of California

3.1.2.  Organizations with National Standing

     There is no authority in the United States which unambiguously
     registers the alphanumeric names of organizations with national
     standing.  It is proposed that ANSI provide this registry and that
     the ANSI alphanumeric name form be used as the basis for RDNs.

     For each organization with national standing, an instance of an

                 usOrganization

          object is used.  The RDN is formed as

              organizationName is <ANSI alphanumeric name form>

          e.g.,

              organizationName is Performance Systems International

     In addition, this entry would contain attributes identifying the ANSI
     Alphanumeric name form, e.g.,

                 ansiOrgNumericCode is 177777

     Of course, this entry would contain many other attributes such as

                 organizationName is PSI

     For the National Government, an instance of an

                 organization

     object is also used, and the RDN is taken from the ANSI alphanumeric
     name form registry.

3.1.3.  ADDMD Operators

     There is no authority in the United States which unambiguously
     registers the names of ADDMD operators.  It is expected that the
     North American Directory Forum will coordinate with the US CCITT
     National Committee Study Group D to provide this registry.  (At

worst, the ADDMDs can use ANSI alphanumeric name forms for their RDN
attribute values.)

         For each ADDMD operator, an instance of a

                 nadfADDMD

         object is used.  The RDN is formed as

                 addmdName is <NADF registered name>

         e.g.,

                 addmdName is PSINet

3.2.  Naming within a State or State-Equivalent

   At the regional level (at least) two kinds of names may be listed:

   (1)  Populated Places

   (2)  Organizations with Regional Standing

3.2.1.  Populated Places

   For each populated place within a state or state-equivalent,
   an instance of an

                 usPlace

         object is used.  The RDN is formed as

                 localityName is <FIPS 55 name>

         e.g.,

                 localityName is Hartford

   provides the RDN for the Hartford entry immediately subordinate to
   the usStateOrEquivalent entry for the State of Connecticut.  In
   addition, this entry would contain attributes identifying the FIPS 55
   place code, e.g.,

                  usPlaceCode is 37000

3.2.2.  Organizations with Regional Standing

   An organization is said to have regional standing if it is registered
   with the "Secretary of State" or similar entity within that region,
   as an entity doing business in the region.

   For each organization with regional standing, an instance of an

           organization

        object is used.  The RDN is formed as

           organizationName is <registered name of organization>

        e.g.,

           organizationName is Network Management Associates

   might provide the RDN for a business entity registered with the State
   of California.  In this case, the entry thus named would be
   immediately subordinate to the usStateOrEquivalent entry for the
   State of California.

   Note that other non-distinguished attributes, such as an ANSI numeric
   name form value, may be included in such an entry --- the
   organization object might actually be a usOrganization object.

   For the Regional Government, an instance of an

           organization

        object is also used.  The RDN is formed as:

           organizationName is Government

3.3.  Naming within a Populated Place

   At the local level (at least) three kinds of names may be listed:

   (1)  Persons

   (2)  Organizations with Local Standing

   (3)  MHS Distribution Lists

3.3.1.  Naming of Persons

   Within a populated place, there is no centralized naming entity which
   registers residential persons.  It is proposed that entries for
   persons be immediately subordinate to the usPlace object which most
   accurately reflects their place of residence.

   For each person (wishing to have an entry in the Directory), an
   instance of a residentialperson

           residentialPerson

       object is used.  The RDN is usually multi-valued, formed with

           commonName is <person's full name>

   and some other attribute, such as postalCode, streetAddress, etc.
   However, because streetAddress is often considered private
   information, based on agreement with the entity managing the DMD and
   the listed person, some other, distinguishing attribute may be used,
   including a "serial number" (having no other purpose).  It should be
   noted however that this is non-helpful in regards to searching,
   unless other attribute values containing meaningful information are
   added to the entry and made available for public access.

3.3.2.  Organizations with Local Standing

   An organization is said to have local standing if it is registered
   with the County or City Clerk or similar entity within that locality
   as an entity "doing business" in that place.

   For each organization with local standing, an instance of an

           organization

       object is used.  The RDN is formed as

           organizationName is <registered name of organization>

       e.g.,

           organizationName is The Tied House

   might provide the RDN for a business entity registered with the City
   of Mountain View.  In this case, the entry thus named would be
   immediately subordinate to the usPlace entry for the City of Mountain
   View.

Note that other non-distinguished attributes, such as an ANSI numeric name form value, may be included in an entry.  (That is, the organization object might actually be a usOrganization object.)

For the Local Government, if any, an instance of an

organization

object is also used.  The RDN is formed as:

organizationName is Government

3.4.  Naming of MHS Distribution Lists

Naming of MHS distribution lists remains with the scoping DMD.

4.  Optimized Civil Naming

The structure of the civil component of the architecture can be concisely described as:

---------------------------------------------------------------------
| Level | Element | objectClass | Superior | RDN |
|-------|---------|-------------|----------|-----|
| root  | 0       |             |          |     |
|-------|---------|-------------|----------|-----|
| intl. | 1       | country     | 0        | countryName |
|-------|---------|-------------|----------|-----|
| natl. | 2       | usStateOrEquivalent | 1 | localityName |
|       | 3       | usOganization | 1      | organizationName |
|       | 4       | nadfADDMD   | 1        | addmdName |
|-------|---------|-------------|----------|-----|
| reg.  | 5       | usPlace     | 2        | localityName |
|       | 6       | organization | 2       | organizationName |
|-------|---------|-------------|----------|-----|
| local | 7       | residentialPerson | 5  | commonName, other |
|       | 8       | organization | 5       | organizationName |
|       | 9       | mhsDistributionList | 5  | commonName |
---------------------------------------------------------------------

Consider how an interrogation algorithm might locate a residential person, given:

(1)  a string denoting the person's real-world name;

(2)  a string denoting the real-world name of the populated place in which the person lives; and,

     (3)  the Distinguished Name of the state or state-equivalent.

   A straight-forward approach is to initiate a single-level search to
   locate the desired populated place.  The search results in zero or
   more Distinguished Names being returned which correspond to the
   string provided by the user.  Then, for each populated place, a
   subtree search might be initiated to locate the desired residential
   person.  If the number of populated places returned by the first
   search is large, then this strategy is inefficient.

   A better approach would be to initiate a single search, with a filter
   combining the strings for both the person's real-world name and the
   place's real-world name.  Unfortunately, such a search would have to
   involve the whole-subtree anchored at the Distinguished Name for the
   state or state-equivalent, which would be inefficient.

   As such, it may be desirable to optimize the civil naming component
   by listing some entries at a higher level.  This is accomplished by
   using a multi-valued RDN formed by combining the RDNs of the entry
   and its superior.

   There are three cases in civil naming:

   (1)  listing an organization with regional standing at the
        national level;

   (2)  listing an organization with local standing at the
        regional level; and,

   (3)  listing a person with local standing at the regional
        level.

   Hence, under the optimized civil naming component, a single-level
   search, anchored at the Distinguished Name for the state or state-
   equivalent, could be used.  Further, the implementation of a DSA
   supporting this optimization would highly-index the attributes used
   for searching, in order to achieve high-performance.

   In order to clearly indicate that optimized civil naming is in
   effect, a new attribute type, nadfSearchGuide, is introduced.  An
   attribute value of this type is placed in an entry to indicate which
   optimizations are in effect.  Using the residential example above,
   the entry for the state or state-equivalent would contain an
   nadfSearchGuide value indicating that when searching for entries of
   type residentialPerson, a single-level search should be performed
   with a filter containing the logical-and of two terms, one involving
   the commonName attribute, and the other involving the localityName
   attribute.  The nadfSearchGuide is a refinement of the X.500

searchGuide in that it indicates the depth of the search which should
be performed, and always contains an indication of the object class
for which the optimization exists.

Finally, note that for naming within organizations, this technique
might also be used.

4.1.  Naming at the National Level

4.1.1.  Organizations with Regional Standing

An organization with standing within a state or state-equivalent may
be listed directly under c=US.

For an organization with regional standing, an instance of an

           organization

      object is used.  The RDN is multi-valued, formed as

           organizationName is <registered name of organization>
           localityName is <FIPS 5 name>

        e.g.,

           organizationName is Network Management Associates
           localityName is California

It must be emphasized that uniqueness within the RDN comes from using
the a regional localityName (state or state-Equivalent) in
association with the correspondent organizationName in that region.

4.2.  Naming within a State or State-Equivalent

4.2.1.  Organizations with Local Standing

An organization with standing within a populated place may be listed
directly under its state or state-equivalent.

For an organization with local standing, an instance of an

           organization

      object is used.  The RDN is multi-valued, formed as

           organizationName is <registered name of organization>
           localityName is <FIPS 55 name>

        e.g.,

                organizationName is The Tied House
                localityName is City of Mountain View

   It must be emphasized that uniqueness within the RDN comes from using
   the a local localityName (populated place) in association with the
   correspondent organizationName in that place.

4.2.2.  Persons

   An person may be listed directly under its state or state-equivalent.

   For such a person, an instance of a

                residentialPerson

   object is used.  The RDN is multi-valued, formed by taking the RDN of
   the person and adding the RDN of the populated place containing the
   person.

                commonName is the Marshall T. Rose
                postalCode is 94043-2112
                localityName is City of Mountain View

   Note that for optimization to occur, the RDN of the person must not
   contain a localityName attribute value.

5.  Organizational Naming

   The internal structure of each usOrganization or organization object
   is a matter for that organization to establish.

   It is strongly recommended that organizationalUnit objects be used
   for structuring.  (If an organization uses a locality-based
   organizational hierarchy, this information can still be represented
   using the

                organizationalUnit

        object.)

6.  ADDMD Naming

   The internal structure of each nadfADDMD object is a matter for that
   service-provider to establish.

7.  Application Naming

   There are (at least) four kinds of OSI entities which may be listed:

   (1)  Application Processes and Entities

   (2)  MHS Distribution Lists

   (3)  EDI Users

   (4)  Devices

7.1.  Naming of Application Processes and Entities

   Naming of OSI application processes and entities remains with the
   scoping DMD.  However, in order to foster interoperability, two
   requirements are made: first, application entity objects must be
   immediately subordinate to application process objects; and, second,
   application entities are represented by the nadfApplicationEntity
   object, which is identical to the applicationEntity object except
   that the presence of an attribute value of
   supportedApplicationContext is mandatory.

7.2.  Naming of MHS Distribution Lists

   Naming of MHS distribution lists remains with the scoping DMD.

7.3.  Naming of EDI Users

   Naming of EDI users remains with the scoping DMD.

7.4.  Naming of Devices

   Naming of OSI devices remains with the scoping DMD.

8.  Usage Examples

   Consider the following examples, expressed in a concise format (read
   left-to-right):

           Federal Government:

               { c=US, o=Government }

           The State of California:

               { c=US, l=California }

The District of Columbia:

```
{ c=US, l=District of Columbia }
```

An organization with national standing:

```
{ c=US, o=Performance Systems International }
```

An ADDMD:

```
{ c=US, addmdName=PSINet }
```

The Government of the State of California:

```
{ c=US, l=California, o=Government }
```

The Government of the District of Columbia:

```
{ c=US, l=District of Columbia, o=Government }
```

A city within the State of California:

```
{ c=US, l=California, l=City of Mountain View }
```

An organization licensed to operate within the State of California:

```
{ c=US,
  l=California,
  o=Network Management Associates, Inc. }
```

An optimized listing for a organization with regional standing:

```
{ c=US,
  { l=California,
    o=Network Management Associates }}
```

A city government:

```
{ c=US,
  l=California,
  l=City of Mountain View,
  o=Government }
```

A residential person:

```
{ c=US,
  l=California,
  l=City of Mountain View,
  { cn=Marshall T. Rose, postalCode=94043-2112 }}
```

An organization licensed to operate within a city:

```
{ c=US,
  l=California,
  l=City of Mountain View,
  o=The Tied House }
```

An entity within the Federal Government:

```
{ c=US, o=Government, ou=Department of the Air Force }
```

An entity within an organization with national standing:

```
{ c=US,
  o=Performance Systems International,
  ou=Marketing }
```

9.  Acknowledgements

   This document is based on many sources, including, but not limited
   to:

   - Listing Services Database Generic Requirements, Bellcore
     TA-TSY-000985;

   - Common Directory Use ED 013 (Q/511) (EWOS/EGDIR/90/156);
     and,

   - The THORN X.500 Naming Architecture (UCL-45 revision 6.1).

10.  Bibliography

    X.500: The Directory --- Overview of Concepts, Models, and
          Service, CCITT Recommendation X.500, December, 1988.

    US FIPS 5: Codes for the Identification of the States, The
          District of Columbia and Outlying Areas of the United
          States, and Associated Areas, US Department of Commerce
          FIPS 5--2, May 28, 1987.

    US FIPS 6: Counties and Equivalent Entities of the United
          States, its Possessions, and Associated Areas, US
          Department of Commerce FIPS 6--4, August 31, 1990.

    US FIPS 55: Guideline: Codes for Named Populated Places,
          Primary County Divisions, and other Locational Entities
          of the United States and Outlying Areas, US Department of
          Commerce FIPS 55--2, February 3, 1987.

    The NADF is soliticting comments on this naming scheme.  Comments
    should be directed to:

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    Comments should be received prior to July 1, 1991.

Appendix A:  Naming Architecture

    There are two aspects to the naming architecture: a DIT structure and
    a set of related Schema definitions.  These are shown on pages 17 and
    18, respectively.

DIT Structure

```
-------------------------------------------------------------------
Level   Element   objectClass            Superior    RDN
-------------------------------------------------------------------
root    0
-------------------------------------------------------------------
intl.   1         country                0           countryName
-------------------------------------------------------------------
natl.   2         usStateOrEquivalent    1           localityName
        3         usOganization          1           organizationName
        4         nadfADDMD              1           addmdName
-------------------------------------------------------------------
reg.    5         usPlace                2           localityName
        6         organization           2           organizationName
-------------------------------------------------------------------
local   7         residentialPerson      5           commonName,
                                                     other
        8         organization           5           organizationName
        9         mhsDistributionList    5           commonName
-------------------------------------------------------------------
-------------------------------------------------------------------
opt.    6*        organization           1           organizationName,
                                                     localityName
        7*        residentialPerson      2           commonName,
                                                     other,
                                                     localityName
        8*        organization           2           organizationName,
                                                     localityName
-------------------------------------------------------------------
-------------------------------------------------------------------
org.    10**      organizationalUnit     3,6,8,10,11 orgUnitName
        11**      locality               3,6,8,10,11 localityName
        12**      organizationalRole     3,6,8,10,11 commonName
        13**      organizationalPerson   3,6,8,10,11 commonName
-------------------------------------------------------------------
-------------------------------------------------------------------
appl.   14        applicationProcess     3,6,8,10,11 commonName
        15        nadfApplicationEntity  14          commonName
        16        mhsDistributionList    3,6,8,10,11 commonName
        17        ediUser                3,6,8,10,11 ediName
        18        device                 3,6,8,10,11 commonName
-------------------------------------------------------------------
```

   * = These are the optimized form of the corresponding element in the
   civil component.

   ** = This scheme makes no requirements on the DIT structure within an

organization.  The organizational structure shown here is only for
exposition.  For example, MHS objects are not listed beneath the
organizational level, though they are likely to occur within an
organization.

Schema Definitions

```
        NADF-SCHEMA { joint-iso-ccitt mhs(6) group(6) al-grimstad(5)
                    nadf(1) schema(1) }

        DEFINITIONS ::= BEGIN

        IMPORTS
            OBJECT-CLASS, ATTRIBUTE
                FROM InformationFramework
                    { joint-iso-ccitt ds(5) module(1)
                        informationFramework(1) }
            caseIgnoreStringSyntax, Criteria
                FROM SelectedAttributeTypes
                    { joint-iso-ccitt ds(5) module(1)
                        selectedAttributeTypes(5) }
            locality, organization, applicationEntity, top
                FROM SelectedObjectClasses
                    { joint-iso-ccitt ds(5) module(1)
                        selectedObjectClasses(6) }
                ;


        nadf OBJECT IDENTIFIER ::= { joint-iso-ccitt mhs(6) group (6)
                                al-grimstad(5) 1 }

        nadfModule          OBJECT IDENTIFIER ::= { nadf 1 }
        nadfAttributeType   OBJECT IDENTIFIER ::= { nadf 4 }
        nadfObjectClass     OBJECT IDENTIFIER ::= { nadf 6 }


        -- object classes

        usStateOrEquivalent OBJECT-CLASS
            -- localityName is used for RDN
            -- values come from US FIPS PUB 5
            SUBCLASS OF locality
            MUST CONTAIN { fipsStateNumericCode,
                        fipsStateAlphaCode,
                        stateOrProvinceName }
            MAY CONTAIN  { nadfSearchGuide }
            ::= { nadfObjectClass 1 }
```

```
        usPlace OBJECT-CLASS
            -- localityName is used for RDN
            -- values come from US FIPS PUB 55
            SUBCLASS OF locality
            MUST CONTAIN { fipsPlaceNumericCode,
                            localityName }
            MAY CONTAIN  { nadfSearchGuide }
            ::= { nadfObjectClass 2 }

         usCounty OBJECT-CLASS
            SUBCLASS OF usPlace
            MUST CONTAIN { fipsCountyNumericCode }
            ::= { nadfObjectClass 3 }

        usOrganization OBJECT-CLASS
            -- organizationName is used for RDN
            -- values come from ANSI Alphanumeric Registry
            SUBCLASS OF organization
            MUST CONTAIN { ansiOrgNumericCode }
            MAY CONTAIN  { nadfSearchGuide }
            ::= { nadfObjectClass 4 }

        nadfApplicationEntity OBJECT-CLASS
            SUBCLASS OF applicationEntity
            MUST CONTAIN { supportedApplicationContext }
            ::= { nadfObjectClass 5 }

        nadfADDMD OBJECT-CLASS
            -- addmdName is used for RDN
            -- values come from NADF Registry (tbd)
            SUBCLASS OF top
            MUST CONTAIN { addmdName }
            MAY CONTAIN  { nadfSearchGuide }
            ::= { nadfObjectClass 6 }


        -- auxiliary classes

        nadfObject OBJECT-CLASS
            SUBCLASS OF top
            MAY CONTAIN { supplementaryInformation }
            ::= { nadfObjectClass 7 }
```

```
     -- attribute types


fipsStateNumericCode ATTRIBUTE

          -- semantics and values defined in US FIPS PUB 5
     WITH ATTRIBUTE-SYNTAX
                    -- leading zero is significant
          NumericString (SIZE (2))
          MATCHES FOR EQUALITY
     ::= { nadfAttributeType 1 }


fipsStateAlphaCode ATTRIBUTE
          -- semantics and values defined in US FIPS PUB 5
     WITH ATTRIBUTE-SYNTAX
          PrintableString (SIZE (2))
          MATCHES FOR EQUALITY       -- case-insensitive
     ::= { nadfAttributeType 2 }


fipsCountyNumericCode ATTRIBUTE
          -- semantics and values defined in US FIPS PUB 6
     WITH ATTRIBUTE-SYNTAX
                    -- leading zeros are significant
          NumericString (SIZE (3))
          MATCHES FOR EQUALITY
     ::= { nadfAttributeType 3 }


fipsPlaceNumericCode ATTRIBUTE
          -- semantics and values defined in US FIPS PUB 55
     WITH ATTRIBUTE-SYNTAX
                    -- leading zeros are significant
          NumericString (SIZE (5))
          MATCHES FOR EQUALITY
     ::= { nadfAttributeType 4 }


ansiOrgNumericCode ATTRIBUTE
          -- semantics and values defined in ANSI registry
     WITH ATTRIBUTE-SYNTAX
          INTEGER
          MATCHES FOR EQUALITY
     ::= { nadfAttributeType 5 }


addmdName ATTRIBUTE
          -- semantics and values defined in NADF registry
     WITH ATTRIBUTE-SYNTAX caseIgnoreStringSyntax
     ::= { nadfAttributeType 6 }
```

```
        nadfSearchGuide ATTRIBUTE
            WITH ATTRIBUTE-SYNTAX NadfGuide
            ::= { nadfAttributeType 7 }

        NadfGuide ::=
            SET {
                objectClass[0]
                    OBJECT-CLASS,
                criteria[1]
                    Criteria,
                subset[2]
                    INTEGER {
                        baseObject(0), oneLevel(1), wholeSubtree(2)
                    } DEFAULT oneLevel
            }

        supplementaryInformation ATTRIBUTE
            WITH ATTRIBUTE-SYNTAX caseIgnoreStringSyntax (SIZE (1..76))
            ::= { nadfAttributeType 8 }

        END
```

Appendix B:  Revision History of this Scheme

   The first version of this scheme (NADF-71) was contributed to the
   North American Directory Forum at its November 27--30, 1990 meeting.
   The (mis)features were:

   (1)  Because of the lack of confidence in ANSI registration
        procedures, it was proposed that the US trademarks be
        used as the basis for RDNs of organizations with
        national-standing.

        This proved unworkable since the same trademark may be
        issued to different organizations in different
        industries.

   (2)  There was no pre-existing registry used for populated
        places.

        This proved unworkable since the effort to define a new
        registry is problematic.

   The second version of this scheme was contributed to the ANSI
   Registration Authority Committee at its January 30, 1991 meeting, and
   the IETF OSI Directory Services Working Group at its February 12--13,
   1991 meeting.  The (mis)features were:

(1)  The ANSI numeric name form registry was used as the basis
     for RDNs of organizations with national standings.

(2)  The FIPS 5 state numeric code was used as the basis for
     RDNs of states and state-equivalents.

(3)  The FIPS 55 place numeric code was used as the basis for
     RDNs of populated places.

The choice of numeric rather than alphanumeric name forms was
unpopular, but was motivated by the desire to avoid using the ANSI
alphanumeric name form registry, which was perceived as unstable.

The third version of this scheme was contributed to US State
Department Study Group D's MHS-MD subcommittee at its March 7--8 1991
meeting.  That version used alphanumeric name forms for all objects,
under the perception that the ANSI alphanumeric name form registry
will prove stable.  If the ANSI alphanumeric name form registry
proves unstable, then two alternatives are possible:

(1)  disallow organizations with national-standing in the US
     portion of the DIT; or,

(2)  use the ANSI numeric name form registry instead.

Hopefully neither of these two undesirable alternatives will prove
necessary.

The fourth version of this scheme (NADF-103) was contributed to the
North American Directory Forum at its March 18--22, 1990 meeting.
This version introduced the notion of organizations with regional
standing being listed at the national level through the use of alias
names and multi-valued RDNs.

The current (fifth) version of this scheme (NADF-123) generalized the
listing concept by introducing the notion of optimized civil naming.
Further, the document was edited to clearly note the different naming
components and the relation between them.

Security Considerations

    Security issues are not discussed in this memo.

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