Network Working Group
INTERNET-DRAFT

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April 1992

Representing the O/R Address hierarchy in the Directory Information Tree

Status of this Memo

This document defines a representation of the O/R Address hierarchy in the Directory Information Tree [MHS88, CCI88]. This is useful for a range of purposes, including:

- Support for MHS Routing [HK92a].
- Support for X.400/RFC 822 address mappings [Kil90, HK92b].

This draft document will be submitted to the RFC editor as a protocol standard. Distribution of this memo is unlimited. Please send comments to the author or to the discussion group <osi-ds@CS.UCL.AC.UK>.

1 The O/R Address Hierarchy

An O/R Address hierarchy is mapped onto the directory by associating directory name components with O/R Address components. An example of this is given in Figure 1, the schema definition is given in Figure 2, and the required object classes and attributes defined in Figure 3.

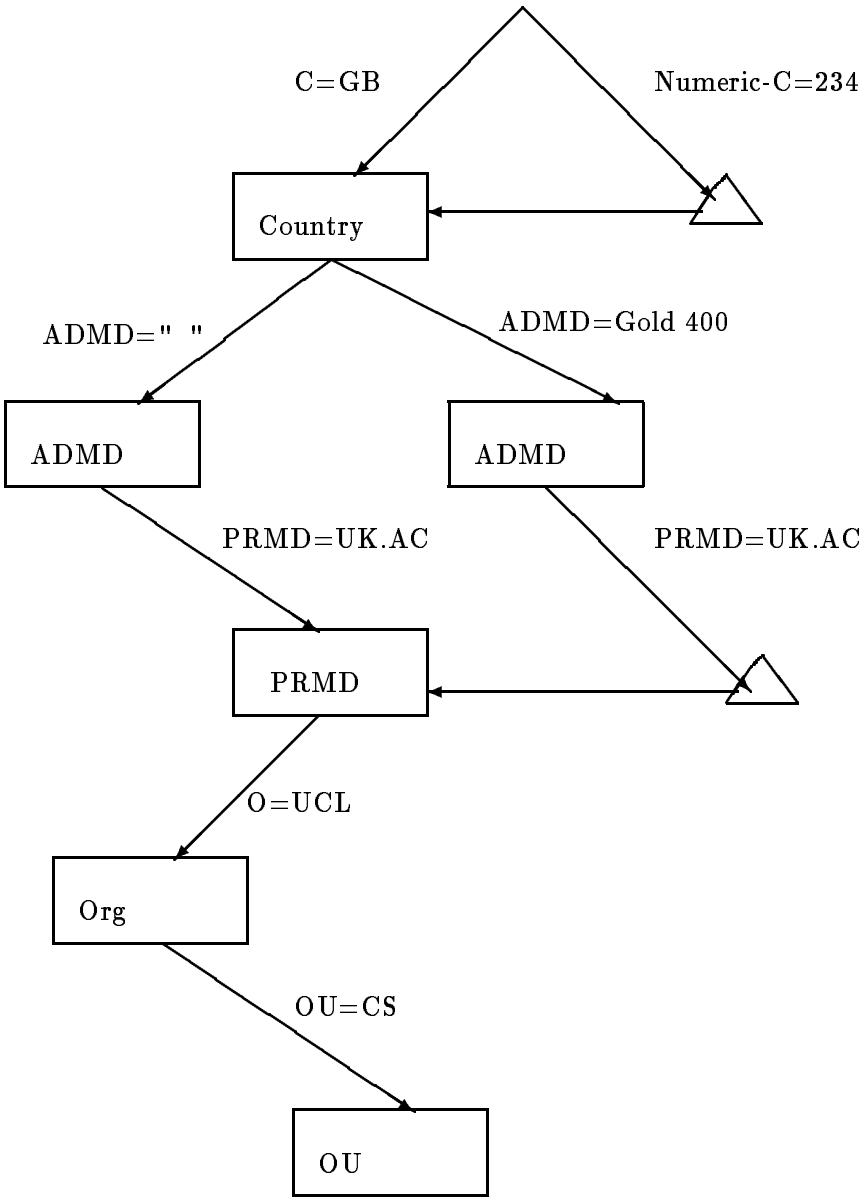

Figure 1: Example O/R Address Tree

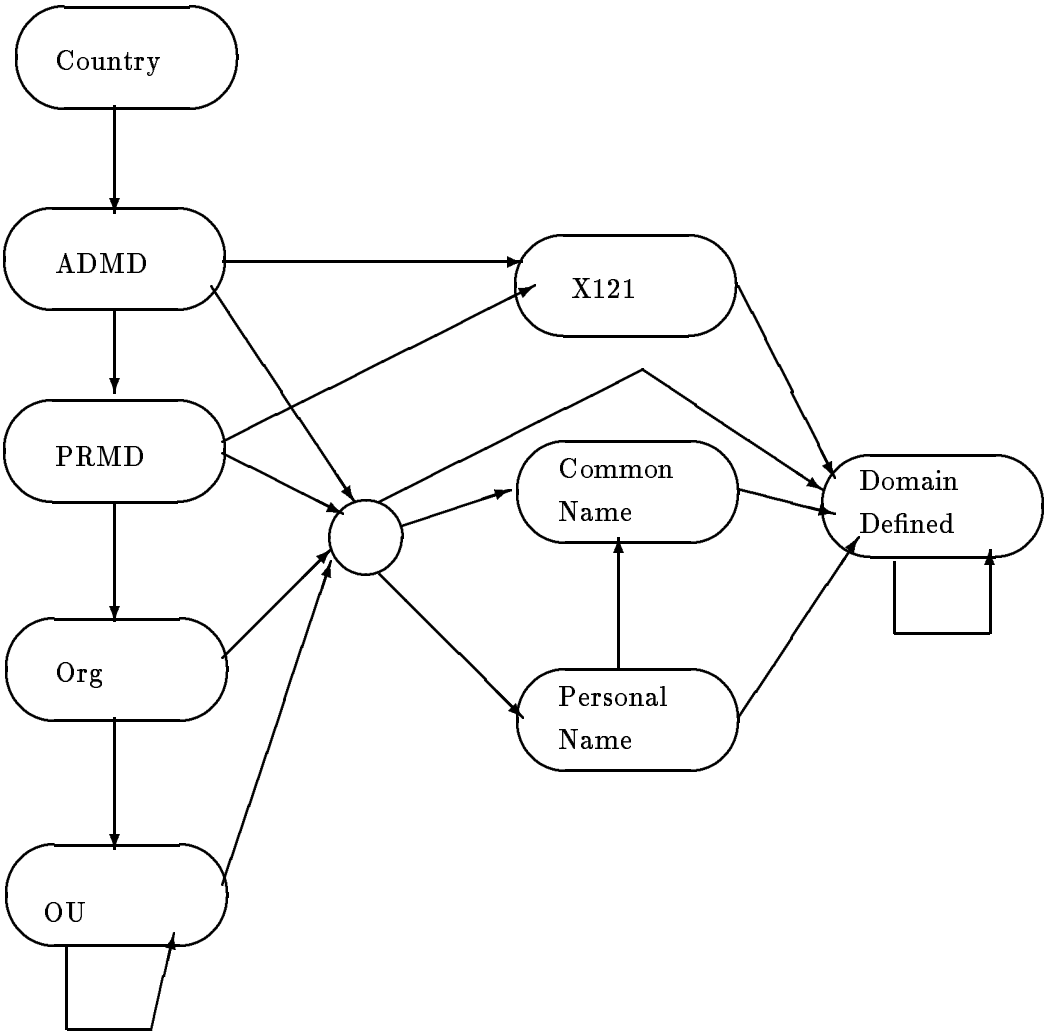

Figure 2: O/R Address Tree Schema

```
-- upper bounds are mostly imported from X.411

mHSCountry OBJECT-CLASS
   SUBCLASS OF  country
   MAY CONTAIN {
         countryName,                    -- one of these must be present
         mHSNumericCountryName }
   ::= oc-mhs-country
                                                                        10
mHSNumericCountryName ATTRIBUTE
   WITH ATTRIBUTE-SYNTAX
         NumericString (3..3)
   SINGLE VALUE
   ::= at-mhs-numeric-country-name

aDMD OBJECT-CLASS
   SUBCLASS OF top
   MUST CONTAIN {aDMDName }
   ::= oc-admd                                                          20

aDMDName ATTRIBUTE
   WITH ATTRIBUTE-SYNTAX
         caseIgnoreStringSyntax (SIZE (1..ub-domain-name-length))
   ::= at-admd-name

pRMD OBJECT-CLASS
   SUBCLASS OF top
   MUST CONTAIN {pRMDName }
   ::= oc-prmd                                                          30

pRMDName ATTRIBUTE
   WITH ATTRIBUTE-SYNTAX
         caseIgnoreStringSyntax (SIZE (1..ub-domain-name-length))
   ::= at-prmd-name

mHSOrganisation OBJECT-CLASS
   SUBCLASS OF top
   MUST CONTAIN {mHSOrganisationName }
   ::= oc-mhs-organisation                                              40

mHSOrganisationName ATTRIBUTE
   SUBTYPE OF organisationName
   WITH ATTRIBUTE-SYNTAX
         caseIngoreStringSyntax (SIZE (1..ub-organization-name-length))
   ::= at-mhs-organisation-name


mHSOrganisationalUnit OBJECT-CLASS
   SUBCLASS OF top                                                      50
   MUST CONTAIN {mHSOrganisationalUnitName }
   ::= oc-mhs-organisational-unit

mHSOrganisationalUnitName ATTRIBUTE
   SUBTYPE OF organizationalUnitName
   WITH ATTRIBUTE-SYNTAX
```

```
        caseIngoreStringSyntax (SIZE (1..ub-organizational-unit-name-length))
    ::= at-mhs-organisation-name

mHSPerson OBJECT-CLASS                                                    60
    SUBCLASS OF top
    MUST CONTAIN {personName}
    ::= oc-mhs-person

personName ATTRIBUTE
    SUBTYPE OF commonName
    ::= at-mhs-person-name

mHSNamedObject OBJECT-CLASS
    SUBCLASS OF top                                                       70
    MUST CONTAIN {mHSCommonName}
    ::= oc-mhs-named-object

mHSCommonName ATTRIBUTE
    SUBTYPE OF commonName
    WITH ATTRIBUTE-SYNTAX
        caseIngoreStringSyntax (SIZE (1..ub-common-name-length))
    ::= at-mhs-common-name

mHSX121 OBJECT-CLASS                                                      80
    SUBCLASS OF top
    MUST CONTAIN {mHSX121Address}
    ::= oc-mhs-x121

mHSX121Address ATTRIBUTE
    WITH ATTRIBUTE-SYNTAX
        caseIngoreStringSyntax (SIZE (1..ub-x121-address-length))
    ::= at-mhs-organisation-name

mHSDomainDefinedAttribute OBJECT-CLASS                                    90
    SUBCLASS OF top
    MUST CONTAIN {
        mHSDomainDefineAttributeType,
        mHSDomainDefineAttributeValue}
    ::= oc-mhs-domain-defined-attribute

mHSDomainDefinedAttributeType ATTRIBUTE
    WITH ATTRIBUTE-SYNTAX
        caseIngoreStringSyntax
 (SIZE (1..ub-domain-defined-attribute-type-length))                     100
    SINGLE VALUE
    ::= at-mhs-domain-defined-attribute-type

mHSDomainDefinedAttributeValue ATTRIBUTE
    WITH ATTRIBUTE-SYNTAX
        caseIngoreStringSyntax
 (SIZE (1..ub-domain-defined-attribute-value-length))
    SINGLE VALUE
    ::= at-mhs-domain-defined-attribute-value
                                                                          110
```

Figure 3: O/R Address Hierarchy

Some choices of interest that are made in this hierarchy:

- The representation is defined so that it is straightforward to make a mechanical transformation in either direction. This requires that each node is named by an attribute whose type can determine the mapping.
- Where there are multiple domain defined attributes, the first in the sequence is the most significant.
- Physical Delivery (postal) addresses are not represented in this hierarchy. This is primarily because this is not needed for either of the major uses of this representation.
- Terminal and network forms of address are not handled, except for X.121 form, which is useful for addressing faxes.
- MHSCountry is defined as a subclass of Country, and so the same entry will be used for MHS Routing as for the rest of the DIT.
- The numeric country code will be an alias.
- ADMD will always be present in the hierarchy. This is true in the case of "␣" and of "0". This facilitates an easy mechanical transformation between the two forms of address.
- Each node is named by the relevant part of the O/R Address.
- Aliases may be used in other parts of the tree, in order to normalise alternate values. Where an alias is used, the value of the alias should be present as an alternate value in the node aliased to. Aliases may not be used for domain defined attributes.
- Domain Defined Attributes are named by a multi-valued RDN (Relative Distinguished Name), consisting of the type and value. This is done so that standard attribute syntaxes can be used.
- Where an O/R Address has a valid Printable String and T.61 form, both must be present, with one as an alias for the other. When both are present in the O/R Address, either may be used to construct the distinguished name.
- Personal name is normalised into a string, according to RFC 1148 [Kil90]. This is more convenient than having structure by name components, and allows for mailboxes to be cleanly used for both RFC 822 and X.400 routing [Cro82, HK92c, HK92a].

  If this sharing is done, mailboxes must be specified using the printable string character set only. T.61 names should be restricted to X.400 only sites.

For example, the O/R Address:

```
I=S; S=Kille; OU=CS; O=UCL,
PRMD=UK.AC; ADMD=Gold 400; C=GB;
```

would be represented in the directory as:

```
CN=S.Kille, MHS-OU=CS, MHS-O=UCL,
PRMD=UK.AC, ADMD=Gold 400, C=GB
```

References

[CCI88] The Directory — overview of concepts, models and services, December 1988. CCITT X.500 Series Recommendations.

[Cro82] D.H. Crocker. Standard of the format of ARPA internet text messages. Request for Comments 822, University of Delaware, August 1982.

[HK92a] S.E. Hardcastle-Kille. MHS use of the directory to support MHS routing, April 1992. Internet Draft.

[HK92b] S.E. Hardcastle-Kille. Use of the directory to support mapping between X.400 and RFC 822 addresses, April 1992. Internet Draft.

[HK92c] S.E. Hardcastle-Kille. Use of the directory to support routing for RFC 822 and related protocols, April 1992. Internet Draft.

[Kil90] S.E. Kille. Mapping between X.400(1988) / ISO 10021 and RFC 822. Request for Comments 1148, DDN Network Information Center, SRI International, March 1990. Also available as MailGroup Note 23.

[MHS88] CCITT recommendations X.400 / ISO 10021, April 1988. CCITT SG 5/VII / ISO/IEC JTC1, Message Handling: System and Service Overview.

2 Security Considerations

Security considerations are not discussed in this INTERNET–DRAFT .

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