Network Working Group
INTERNET-DRAFT

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# Use of the Directory to support routing for RFC 822 and related protocols

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## Abstract

This document defines a mechanism to route RFC 822 using the OSI Directory. The basic mechanisms are being developed for routing X.400 [HK92]. These offer a number of benefits relative to the current mechanisms available for RFC 822 routing. The prime goal of this specification is to provide integrated routing management for sites using both RFC 822 and X.400 [Cro82, MHS88].

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 <mhs-ds@mercury.udev.cdc.com>.

The domain hierarchy of an RFC 822 mailbox information are represented in the directory according to RFC 1279 [HK91]. This will allow domains and mailboxes to be verified. This information is used primarily for address checking and for mapping onto specific RFC 822 protocols. Protocol modules should utilise native RFC 822 directory and routing services (e.g., SMTP should use DNS) [Pos82, Moc87a, Moc87b].

Authoritative answers can be given for parts of the DNS tree where registration is complete (i.e., all of the children are present, and so any other purported child will be illegal). This is achieved by the `authoritativeAddress` attribute defined in Figure 1.

Once validity is determined, routing must be done. This information is not relevant to a site without RFC 822 support, as it will not be doing domain based routing. Some additional information needed for RFC 822 routing (binding) is given in Figure 1.

The attribute x400Domain indicates that some or all of the subtree under the domain specified uses X.400. If the value is "x400-only", the domain exists purely to represent X.400 addresses in the RFC 822 world, and X.400 routing should be used if possible. If the value is "x400-and-822", then protocol choice should reflect local policy (e.g., to prefer X.400 or to avoid protocol conversion). By default, PP will route to avoid protocol conversion.

For sites with SMTP on the Internet, any valid domain may be routed through SMTP. DNS Information is also available in the tree, to facilitate route calculation (RFC 1279 and RFC 974 [Par86]).

For sites with JNT Mail support, the jNTMailSupport attribute indicates that the domain supports JNT Mail, and gives sufficient information to make a routing decision. This mechanism is included to show how the directory can handle RFC 822 mail routing beyond SMTP.

Local addresses are handled in the same way as for X.400, as described in [HK92]. The approach is designed to be convenient for either environment. Where a site supports both, the appropriate bits of the O/R Address and Domain namespaces should be linked by aliases. The object pointed to should be of object class domain-component *and* or-address component. The location of the master should be chosen according to the volume of inbound traffic for each protocol.

**Note:** May need to define an attribute to point, as aliasing may not be possible in all cases.

An MTA identifies a local address by finding its own name as one of the MTAs that supports the UA in question. This is the same as for O/R Address checking.

One problem with bootstrapping this approach is that there is a need to load the DNS namespace information into the DIT. This can only be done gradually. Fortunately, there is no requirement for all of the domain name information to be in the DIT. The minimum needed is:

```
822Node OBJECT-CLASS
    SUBCLASS OF domain
    MAY CONTAIN {
            authoritativeAddress,
            x400Domain,
            badAddressSearchPoint,
            badAddressSearchAttributes}
   ::= oc-822-node

x400Domain ATTRIBUTE
    WITH ATTRIBUTE-SYNTAX X400DomainType
    ::= at-x400-domain

X400DomainType ::= ENUMERATED {
            x400-only(1),
            x400-and-822(2) }


jNTMailNode OBJECT-CLASS
    SUBCLASS OF 822Node
    MAY CONTAIN {
        jntMailSupport }
    ::= oc-jnt-mail-node

jNTMailSupport ATTRIBUTE
    WITH ATTRIBUTE-SYNTAX JNTMailSupport
    ::= at-jnt-mail-support

JNTMailSupport ::= SEQUENCE {
            supported-nets BITSTRING {
                janet(1),
                pss(2),
                ipss(3),
                ixi(4) }
            application-relay DistinguishedName }
```

Figure 1: RFC 822 Node Information

- Users local to the MTA, and the tree leading down to that
- All of the top level domains
- Information needed to verify or deny partially qualified domains.

PP will allow use of DNS as an alternative checking mechanism at this point. The disadvantages of doing this are:

- No mailbox (UA) checking
- No support for multiple RFC 822 protocols

Multiple Domain Routing Trees can be established analogously to O/R Address routing trees. This is important for:

- Sites with RFC 822 support, but not JNT Mail or SMTP.
- Sites which gateway RFC 822 to other protocols (e.g., UUCP).

## References


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# 1 Security Considerations

Security considerations are not discussed in this INTERNET–DRAFT .

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# A Object Identifier Assignment

rfc−822 **OBJECT IDENTIFIER** ::= {mhs−ds 6}

oc **OBJECT IDENTIFIER** ::= {rfc−822 1}
at **OBJECT IDENTIFIER** ::= {rfc−822 2}

oc−822−node **OBJECT IDENTIFIER** ::= {oc 1}
oc−jnt−mail−node **OBJECT IDENTIFIER** ::= {oc 2}

at−x400−domain **OBJECT IDENTIFIER** ::= {at 1}
at−jnt−mail−support **OBJECT IDENTIFIER** ::= {at 2}

Figure 2: Object Identifier Assignment