Network Working Group   Tim Howes
INTERNET DRAFT   Mark Smith
draft-ietf-asid-mime-centroid-00.txt   University of Michigan

             An Application/Directory MIME Content-Type Centroid Profile

1. Status of this Memo

2. Abstract

This memo defines an directory profile for carrying centroid or other
indexing information pertaining to one or more directory entities within
an application/directory MIME Content-Type. The profile consists of type
definitions, what the types are allowed to contain, and rules for their
use and interpretation within the application/directory body part.

The scheme is fairly general and with a few extensions could be used to
handle directory modification information pertaining to a single entity,
or sets of modifications pertaining to many entries, in addition to
updates to centroid or other index information that apply to many enti-
ties.

3. Overview

The application/directory MIME Content-Type defined in [MIME-DIR] is
used for representing directory information in MIME format. It defines a
general framework for carrying "type: value"-style information in the
body part, but does not define specific types or values. This document
defines a profile containing the types and corresponding value formats

for representing centroid or other directory indexing information.

The goal of this scheme is to represent changes to directory information to support indexing. In this scheme, a directory server might send a MIME message containing centroid or other indexing information to one or more other servers providing wide-area search service. The wide-area search server can use the index information to provide efficient searches over many servers, contacting only those servers likely to be able to answer a query.

The scheme described here defines types and profiles for representing changes to centroid or other indexing information within an application/directory MIME content type. Types are defined for representing the type of update and the specific update to be performed.

[4]. The Centroid Profile

This profile is used to represent a change to a directory centroid or other collection of index information. The profile is defined as fol-lows, using the profile registration template from [Section 8] of [MIME-DIR].

[4.1]. Centroid Profile Definition

      To: ietf-mime-direct@umich.edu
      Subject: Registration of application/directory MIME profile centroid

      Profile name: centroid

      Profile purpose: to hold information about a change to a centroid or
      other collection of index information

      Profile types: time, changetype, indextype, indexparm

      Profile special notes:

         The types used in the centroid profile must adhere to a specific
         ordering. If given, the "time" line must come first, followed by
         one or more "changetype" lines. The ordering is given by the fol-
         lowing grammar.

            changelist := changelist changes | changes

            changes := [time CRLF] [indextype CRLF]
                       [indexparm CRLF] 1*(change CRLF)

            time := "time" ":" date-time ; from [Section 5.1 of [RFC-822]] (see
below)

```
     indextype := "indextype" ":" ( "word" / "value" / x-token )

     indexparm := "indexparm" ":" ( "weights" / x-token )

     change := "changetype" ":" changeinfo

     changeinfo := "add" CRLF mods
                 / "delete" CRLF [ mods ]
                 / "replace" CRLF mods

     mods := content ; from Section 5 of [MIME-DIR]
```

Changes to multiple index entities may be included in the same
MIME message by specifying multiple application/directory body
parts wrapped inside a multipart/parallel body part.

The name and source of the centroid can optionally be taken from
the application/directory MIME Content-Type "name" and "source"
header parameters.

The associated type definitions follow, using the type registration tem-
plate from Section 9 of [MIME-DIR].

4.2. Time Type Definition

To: ietf-mime-direct@umich.edu
Subject: Registration of application/directory MIME type time

Type name: time

Type purpose: to hold a time.

Type encoding: a string containing a time as defined in section 5.1
of [RFC-822] for "date-time".

4.3. Changetype Type Definition

To: ietf-mime-direct@umich.edu
Subject: Registration of application/directory MIME type changetype

Type name: changetype

Type purpose: to hold the type of change to make to the named direc-
tory entity

Type encoding: one of the strings "add", "delete", or "replace".

Type special notes:

The changetypes have the following meanings, which pertain to sub-
sequent information in the application/directory body part. Also
given are the subsequent information the body part must contain to
accomplish the change.

add   Add additional index information, or create the informa-
          tion if none yet exists. The "changetype: add" line is
          followed by one or more "type: value" lines indicating
          the information to add.

delete   Delete existing index information. If the "changetype:
          delete" line is not followed by any additional parame-
          ters (i.e., the end of the body part, or the next change
          record comes next), the entire set of index information
          is to be deleted. Otherwise, additional "type: value"
          lines follow indicating the index values to be removed
          from the index information.

replace   Change an existing set of index information by replacing
          any information currently in the index, or creating a
          new index if none yet exists. The "changetype: replace"
          line is followed by one or more "type: value" lines
          indicating the information that should be placed in the
          index in place of any existing information with the same
          type name. Types that are not mentioned are not changed.

4.4. Indextype Type Definition

To: ietf-mime-direct@umich.edu
Subject: Registration of application/directory MIME type indextype

Type name: indextype

Type purpose: to hold the type of index information contained in the
body part

Type encoding: a string defined as follows.

indextype := x-token / "word" / "value"

x-token := <The two characters "X-" or "x-" followed, with
              no intervening white space, by any token>

The "x-token" indextype construct is to be used for bilaterally
agreed upon types of index information.

Type special notes:

The "indextype" line is used to indicate the type of index infor-
mation contained in the body part. A value of "word" indicates
that values are LWSP-delimited words. A value of "value" indicates
that values are entire values. Future versions of this document
may define other values for this parameter.

4.5. Indexparm Type Definition

      To: ietf-mime-direct@umich.edu
      Subject: Registration of application/directory MIME type indexparm

      Type name: indexparm

      Type purpose: to hold additional parameters describing the type of
      index information contained in the body part.

      Type encoding: a string defined as follows.

         indexparm := x-token / "weights"

         x-token := <The two characters "X-" or "x-" followed, with
                       no intervening white space, by any token>

      The "x-token" indexparm construct is to be used for bilaterally agree
      upon types of index information.

      Type special notes:

         The "indexparm" line is used to indicate any additional informa-
         tion transmitted with the index. A value of "weights" indicates
         that values are accompanied by weights indicating their relative
         frequencies in the source data. A future version of this document
         may define additional values of this parameter and will define the
         use of the "weights" parameter in more detail.

5. Centroid Examples

The   following   example   illustrates   simple   use   of   the
application/directory MIME Content-Type with the "centroid" profile, for
value-based index information. Note the use of the "changetype: add"
line to indicate that the index information is an update to existing
information.

      From: Whomever
      To: Someone
      Subject: whatever
      MIME-Version: 1.0
      Message-ID: <id1@host.net>

```
     Content-Type: application/directory;
                   profile="centroid";
                   source="ldap://ldap.itd.umich.edu/o=U%20of%20M"
     Content-ID: <id2@host.com>

     time: Wed, 10 Jan 1996 09:45:38 EST
     indextype: value
     changetype: add
     cn: Babs Jensen
     cn: Barbara Jensen
     cn: Bjorn Jensen
     cn: Bob Jensen
```

The next example illustrates the use of the "centroid" profile for
word-based index information. Note the use of the "defaulttype" parame-
ter to avoid duplicating type names, and the "changetype: replace" line
to indicate the index information should be replaced, instead of
updated.

```
     From: Whomever
     To: Someone
     Subject: whatever
     MIME-Version: 1.0
     Message-ID: <id1@host.net>
     Content-Type: application/directory;
                   profile="centroid";
                   source="ldap://ldap.itd.umich.edu/o=U%20of%20M";
                   defaulttype="cn"
     Content-ID: <id2@host.com>

     time: Wed, 10 Jan 1996 09:45:38 EST
     indextype: value
     changetype: replace
     : Jensen
     : Babs
     : Barbara
     : Bjorn
     : Bob
```

[6]. Security Considerations

Internet mail is subject to many well known security attacks, including
monitoring, replay, and forgery. Applications should also be aware that
there may be privacy and security implications associated with releasing
index information.

7. Acknowledgements

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8. Bibliography

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9. Author's Address

   Tim Howes
   University of Michigan
   535 W William St.
   Ann Arbor, MI 48103-4943
   USA
   +1 313 747-4454

    tim@umich.edu

    Mark Smith
    University of Michigan
    535 W William St.
    Ann Arbor, MI 48103-4943
    USA
    +1 313 764-2277
    mcs@umich.edu