                        VEMMI URL Specification

Status of this Memo

   This document specifies an Internet standards track protocol for the
   Internet community, and requests discussion and suggestions for
   improvements. Please refer to the current edition of the "Internet
   Official Protocol Standards" (STD 1) for the standardization state
   and status of this protocol. Distribution of this memo is unlimited.

1) Abstract

   A new URL scheme, "vemmi" is defined. It allows VEMMI client software
   and VEMMI terminals to connect to multimedia interactive services
   compliant to the VEMMI standard (Enhanced Man-Machine Interface for
   Videotex and Multimedia/Hypermedia Information Retrieval Services),
   sometimes abbreviated as "VErsatile MultiMedia Interface".

   VEMMI is a new international standard for on-line multimedia
   services, that is both an ITU-T (International Telecommunications
   Union, ex. CCITT) International Standard (T.107) [2] and an
   European Standard (ETSI European Telecommunications Standard
   Institute) standard (ETS 300 382 [3], obsoleted by ETS 300 709 [1]).

   VEMMI could be described as an on-line multimedia protocol describing
   both the man-machine interface and the client/server exchange
   protocol. VEMMI operates usually on a single continuous session
   between a client and a host and supports an object-oriented, event-
   driven, client/server oriented and platform independent multimedia
   interface. The well-known tcp port number 575 has been assigned by
   IANA to the VEMMI protocol [13].

   A description of the VEMMI standard along with its last approved
   version is publicly available on the Web: see the URL
   http://www.etsi.fr/ecs/projects/vemmi/vemmi.htm). A presentation of
   VEMMI can be found on http://www.mctel.fr/VEMMI/vemmien_intro.html

2) VEMMI URL scheme utility and operability:

    - VEMMI service selection: A VEMMI multimedia server will listen on
      its VEMMI well-known port for incoming connections. The server
      could of course be engaged in many simultaneous connections, and
      after a connection is established, the terminal must be able to
      select the desired VEMMI application, as a same system may host
      different VEMMI applications.
      The best mechanism to fully describe the VEMMI service to activate
      is the URL mechanism.
    - Reporting user action to a remote server: The VEMMI protocol
      establishes a continuous TCP/IP link between the terminal and the
      server during the whole user session. During a session managing
      VEMMI objects, the user actions are usually reported back to the
      server using the VEMMI user data report mechanism that is an
      integral part of the VEMMI protocol.
      However, in some case, the URL mechanism may be required to send
      back reports to a remote host. VEMMI is for example able to display
      HTML documents within a multimedia display area in a VEMMI dialog
      box. these HTML documents may be managed either by the VEMMI server
      (acting as a proxy gateway) or directly by the client software that
      will issue itself the HTTP requests on the network and browse
      across documents on the Web as a standard Web browser (the link to
      the VEMMI server is kept and used for interacting with other VEMMI
      objects and components but the VEMMI server may not be informed of
      the user navigation on the Web inside the multimedia area).
      In such a case, the URL mechanism could also be used to report the
      user actions and commands within a HTML document to be reported to
      the VEMMI server or even another system.
    - Extension of Web browsers: The VEMMI protocol is quite
      complementary to HTTP/HTML used by Web browsers, and several
      networks operators have decided to support jointly Web and VEMMI
      (seen as complementary protocols). Thanks to the VEMMI URL, Web
      browsers will be able to activate a VEMMI client software module to
      start a VEMMI session to the requested service when the user
      activate a vemmi URL included in the HTML document.

3) Description of the VEMMI scheme

    The VEMMI URL scheme is used to designate multimedia interactive
    services conforming to the VEMMI standard (ITU/T T.107 and ETS 300
    709).

    A VEMMI URL takes the form:
        vemmi://<host>:<port>/<vemmiservice>;
        <attribute>=<value>

as specified in Section 3.1. of RFC 1738. If :<port> is omitted, the
port defaults to 575 (client software may choose to ignore the
optional port number in order to increase security). The
<vemmiservice> part is optional and may be omitted.

This URL does not designate a data object, but rather a multimedia
interactive service. A VEMMI service starts a multimedia session
managing multimedia objects and interacting with the user during the
session. To the difference of other stateless protocols, the link
between the client and the server is usually maintained during the
whole session (although in some cases other mechanisms may be used,
see below).

The <vemmiservice> is the name of the VEMMI service to activate. This
field is not mandatory and could be omitted for example if the remote
host manages only one VEMMI service or activates a VEMMI service by
default when no service is specified. If this field is omitted in the
URL and the server requests it, it is assumed that the VEMMI client
software will prompt the user for it.

In addition, after the <vemmiservice>, optional attributes and values
(parameters) associated with the VEMMI service may be specified as
part of the URL. When present, each parameter (attribute/value pair)
is separated from each other and from the rest of the URL by a ";"
(semicolon). The name of the attribute and its value are separated by
a "=" (equal sign). If present, these fields are used to transmit
additional data useful for service selection or to request to perform
a specific processing. For example, the $USERDATA field can be
specified to transmit additional user-specified data to the VEMMI
service.

4) Client/server dialog during service selection

   The VEMMI client will interpret the VEMMI URL to connect to the
   remote host and to access the specified VEMMI service. After
   connecting to the remote system, the host may prompt the VEMMI client
   for service name and user identification.

   Before starting the VEMMI session, a VEMMI terminal is in 'standard'
   mode and may display the data received from the network in a videotex
   or telnet terminal window. As the VEMMI session may be started
   anytime during an interactive videotex or telnet session, the VEMMI
   service selection is performed by a simple dialog between the client
   and the server.

   The service, username and password information are transmitted by the
   client software to the host in answer to the corresponding requests
   received from the host. The following behavior is expected from the

client:
- wait for the optional request strings from the host server
  ('service:', 'username:' and 'password:') and answer them
  (respectively by <vemmiservice> value defined in the URL and the
  <username> and <password> entered by the user if required). The
  terminal answer may be sent automatically if the answers are known
  (that is if they are specified in the URL or terminal
  configuration) or it may prompt the user for the needed
  informations. When parameters (attribute and value pairs) are
  present in the URL, these fields will be sent following the
  <vemmiservice> transmitted to the host in answer to the 'service:'
  request received from the host, separated from the <vemmiservice>
  value by a semicolon.
- the client answers must always be followed by a Carriage Return
  (CR). If a Line Feed (LF) is transmitted after the CR, it will be
  ignored by the server.
- in both cases, the server may echo the characters received from the
  client terminal, the received CR being echoed as CR LF. The server
  may echo the password characters as stars or any other scrambled
  output for safety purpose.
- the client must also be ready to start the VEMMI session as soon
  as it receives the VEMMI_Open command. Before starting this VEMMI
  session, the terminal is in 'standard' mode and may display the
  data received from the network in a videotex or telnet terminal
  window (this is the reason why the service, username and password
  data are requested by the server using a telnet or videotex
  compatible dialog).

Should an error occur during VEMMI service activation, the remote
host may inform the user by displaying the error cause. It is
recommended that, when possible and applicable, the status code
syntax described in HTTP [8] [9] be used to facilitate automatic
processing by the client of the host answer during error or normal
operation.

If a VEMMI client software wants to request a VEMMI object without
establishing a continuous VEMMI session, such a request may also be
performed using a HTTP request for the vemmi object encoded using the
Internet media type application/vemmi (pending registration by IANA
[10]). In the same way, HTTP could be used in some cases to exchange
data pertaining to a VEMMI session with or without setting the keep-
alive keyword in the Connection header to request a persistent
connection [9]. Protocol switching using the upgrade header field may
be used in such case to switch to vemmi protocol [9]. This possible
use of HTTP for VEMMI is not described in this document.

5) Proposed syntax

   The proposed BNF syntax is encoded as specified in RFC 1738 [5] [14]:

; vemmi (see ITU-T T.107 and ETSI ETS 300 709)

```
vemmiurl       = "vemmi://" hostport [ "/" vemmiservice *[ parameter ] ]
vemmiservice   = *[ uchar | "/" | "?" | ":" | "@" | "&" | "=" ]
parameter      = ";" attribute "=" value
attribute      = *[ uchar | "/" | "?" | ":" | "@" | "&" ]
value          = *[ uchar | "/" | "?" | ":" | "@" | "&" ]
```

   This syntax: - allows the user to specify the remote host address by
      its name or numeric address. Although he could select a specific
      port, it is expected the information providers and VEMMI software
      will mostly use the port number assigned to VEMMI (575) [13]. For
      security reasons, the username and password could not be specified
      in the URL.
   - allows him to select a specific VEMMI service if the remote host
      manages several different VEMMI services.
   - allows also to send additional data to the service using the
      parameter syntax, either during the service selection phase or when
      the user selects a vemmi hyperlink within a HTML document displayed
      in a VEMMI multimedia area. To the difference of the params syntax
      used in [4], the parameter syntax requires each value to be labeled
      by an attribute. The parameter attribute names are case-
      insensitive. Parameter values may or may not be case-sensitive,
      depending on the attribute.

   All the values of fieldname beginning by a dollar ($) sign are
   reserved for specific use, including:
   - $COMMAND: VEMMI command to be returned to the host when the VEMMI
      session do not use a continuous link.
   - $CONTEXTDATA: context data.
   - $OBJECT_REQUEST: requests the retransmission of a given VEMMI object.
   - $USERDATA: user data specific by the user and to be processed by the
      VEMMI service.

6) Examples:

   Some examples of VEMMI URLs along with the corresponding
   client/server dialog are presented below, they are for information
   only:

   a) A simple VEMMI URL and the corresponding dialog for a VEMMI
      service that does not enforce access control might be:
         URL: vemmi://zeus.mctel.fr/demo

       In this case, the exchange between client and server will be as
       follow (the server requests are presented left, client answers
       right):
   service: demo
   200 OK   {status code returned by the VEMMI host}

   b) The service name may be omitted (for example if the remote server
      hosts only one VEMMI service), and the URL might then be:
        URL: vemmi://zeus.mctel.fr
      In this case, the VEMMI interactive session is started immediately
      by the host without requesting first the service name (should the
      client receive a service request from the host, it will prompt the
      user for service name).

   c) The URL could not include the username and password. In this case,
      should they be requested by the host, the VEMMI client may use a
      default value specified for this service or prompt the user for
      them (for example it could propose anonymous and user e-mail
      address as defaults):
        URL: vemmi://mctel.fr/demo
      In this case, the exchange between client and server may be as
      follows (server requests at the left, client answers at the right):
   service: demo
   login: anonymous   {user has been prompted for username}
   password: mavrakis@ties.itu.ch {user prompted for password}
   401 Unauthorized   {an anonymous user is not allowed to
                                    access the service}

   d) Some services may use additional data transmitted in the parameter
      fields, for example:
        URL: vemmi://mctel.fr/demo;$USERDATA=smith;account=1234
      If no access check is done by the host, the dialog might be:
   service: demo;$USERDATA=smith;account=1234
   200 OK
     ...starting VEMMI session...

7) Procedure to use when a VEMMI URL is encountered in a HTML document
     without VEMMI support:

   The VEMMI URL support may be built-in in some Web browsers, or
   offered by an associated software or plug-in interworking with the
   user browser, for example using the WWW_RegisterProtocol API command
   to register the new VEMMI protocol.

   When a Web browser encounters a VEMMI URL without having VEMMI support,
   two cases may occur:
   - some browsers will detect an unrecognized scheme and signal an
     unrecoverable error directly.

      - others will manage it as a relative URL [4] and will build a
        complete URL including the VEMMI URL and will request it from the
        host having sent the current document. In this case the host will
        usually return the error "not found".

   Among the mechanisms that could be used in order to offer a friendly
   interface to both users with and without VEMMI support:
   - when the second case occurs and the relative URL including the
     vemmi:// string is transmitted to the server, the HTTPD server may
     be modified in order to recognize such URL and to propose the
     downloading of a VEMMI client software.
   - the HTML document including the vemmi URL allowing to start the
     VEMMI session may propose both options, for example:
        If your browser supports VEMMI, directly
        <A HREF="vemmi://ares.mctel.fr/TEST">start the interactive
        multimedia service</A>, otherwise
        <A HREF="ftp://ftp.mctel.fr/vemmi.exe">download first a VEMMI
        client software</A>.
   - the application/vemmi MIME type is defined below (to allow for
     example exchange of vemmi objects). A possible way is for the
     server to look in the HTTP Accept header field and to deduce that if
     application/vemmi is supported, then the VEMMI support exists (in
     this case, application/vemmi is to be defined in the browser and
     associated with the vemmi decoder).

8) Security Considerations:

   The VEMMI URL scheme is subject to the same security implications as
   the general URL scheme [5] [14], so the usual precautions outlined in
   [5] [14] apply (for example, it is not allowed to store the username
   and password in the URLs).

   Furthermore, among VEMMI objects that could be used during the
   interactive session, metacode objects (representing a sequence of
   VEMMI commands) and operative objects (they are executable programs
   to be run on the client platform) may be downloaded and/or started.

   In order to protect the user against the activation of an harmful
   operative object, it is strongly recommended that the users use the
   configuration menu of their VEMMI software to disable the option of
   running operative objects when receiving potentially unsafe VEMMI
   objects, or at least enable the option to request first user approval
   before starting the execution of an operative object.

   The VEMMI remote interactive services may vary widely in their access
   control policies; in practice, when a prompt for username or password
   is received, the VEMMI terminal should request them from the user.
   The VEMMI terminal implementation could support additional features,

for example proposing by default "anonymous" as username and the user
Internet e-mail address as password, or looking in an encrypted local
database for user identification on this service.

Such an identification mechanism using the username/password scheme
is unsecure and is provided for backwards compatibility only. The
VEMMI services requiring a safe identification procedure must rely on
other alternative mechanisms (e.g. S/KEY or other). In numerous
cases, the user identification procedure will be performed by the
VEMMI service.

9) application/vemmi MIME type

   VEMMI is a multimedia interactive service and VEMMI objects are
   usually exchanged through a continuous VEMMI multimedia session.
   However, VEMMI objects could also be transmitted and exchanged using
   other mechanisms, for example using HTTP, through e-mail, and so
   on... The assignment of a MIME media type application/vemmi will
   allow this transport and exchange of VEMMI objects, and this
   paragraph describes this MIME type.

   Furthermore, for Web browsers not supporting the addition of new URL
   protocol scheme, the VEMMI MIME type may also be used to transmit,
   instead of a VEMMI object, a text file containing the VEMMI URL to
   activate to connect to a VEMMI server.

9A) DESCRIPTION:

   MIME media type name: "application"

   MIME subtype name: "vemmi"

   Required parameters: none

   Optional parameters:
   - version:
     an optional version number may be specified, in the format:

        version=<integer>

     The version number is a numeric integer whose is encoded as the
     <version> parameter defined in ETS 300 709 (e.g. version=100), and
     whose the first digit represents the major VEMMI version number.
     It must be pointed out that the VEMMI objects includes the VEMMI
     version and a timestamp.

9B) ENCODING CONSIDERATIONS:

   The "base64" mechanism is preferred because VEMMI use a native 8-bit
   binary file format. However, as VEMMI includes its own 7-bits
   encoding mechanisms, VEMMI data could also be transmitted in 7-bit
   mode.

9C) SECURITY CONSIDERATIONS:

   Refer to paragraph 8.

9D) INTEROPERABILITY CONSIDERATIONS:

   VEMMI is designed to be fully platform independent, and the VEMMI
   objects and contents could interoperate between any platform. The
   only exception are the VEMMI operative objects that could be binary
   programs specific to a given hardware platform and operating system.

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