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DoD INTERNET HOST TABLE SPECIFICATION

INTRODUCTION

The ARPANET Official Network Host Table, as outlined in RFC 608, no longer suits the needs of the DoD community, nor does it follow a format suitable for internetting. This paper specifies a new host table format applicable to both ARPANET and Internet needs.

In addition to host name to host address translation and selected protocol information, we have also included network and gateway name to address correspondence, and host operating system information.

This Host Table is utilized by the DoD Host Name Server maintained by the ARPANET Network Information Center (NIC) on behalf of the Defense Communications Agency (DCA) (RFC 811). It obsoletes the host table described in RFC 608.

LOCATION OF THE STANDARD DoD ONLINE HOST TABLE

A machine-translatable ASCII text version of the new DoD Host Table is online in the file <NETINFO>HOSTS.TXT on the SRI-NIC host. It can be obtained by connecting to host SRI-NIC (10.0.0.73) from your local FTP server, logging in as user=ANONYMOUS, password=GUEST, and doing a 'get' on <NETINFO>HOSTS.TXT. The same table may also be obtained via the NIC Host Name Server.

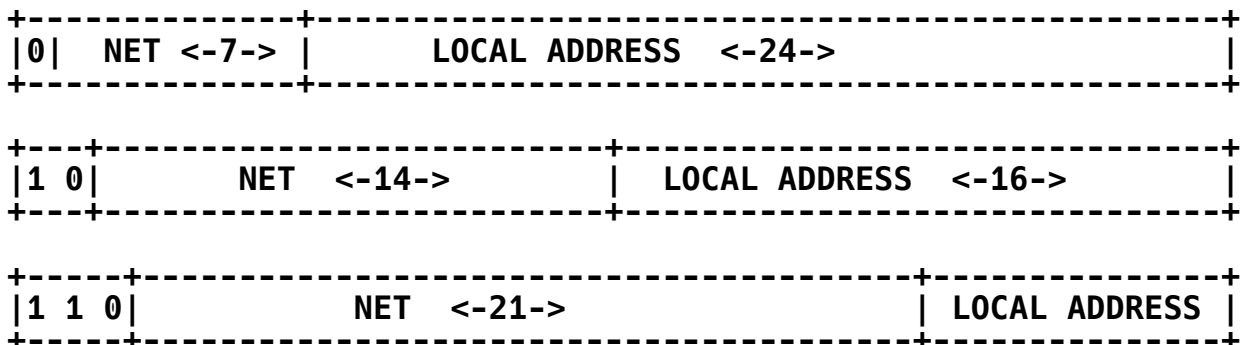NOTE: See Appendix A. for timeframe for cutover.

ASSUMPTIONS

1. A "name" (Net, Host, Gateway, or Domain name) is a text string up to 24 characters drawn from the alphabet (A-Z), digits (0-9), and the minus sign (-) and period (.). No blank or space characters are permitted as part of a name. No distinction is made between upper and lower case. The first character must be a letter. The last character must not be a minus sign or period. A host which serves as a GATEWAY should have "-GATEWAY" or "-GW" as part of its name. A host which is a TIP or a TAC should have "-TIP" or "-TAC" as part of its host name, if it is an ARPANET or DoD host.

2. Internet Addresses are 32-bit addresses (RFC 796). In the host table described herein each address is represented by four decimal numbers separated by a period. Each decimal number represents 1 octet.

3. If the first bit of the first octet of the address is 0 (zero),
then the next 7 bits of the first octet indicate the network number
(Class A Address). If the first two bits are 1,0 (one,zero), then
the next 14 bits define the net number (Class B Address). If the
first 3 bits are 1,1,0 (one,one,zero), then the next 21 bits define
the net number (Class C Address) (RFC 796).

This is depicted in the following diagram:

```
+--------------+-------------------------------------------------+
|0|  NET <-7-> |      LOCAL ADDRESS  <-24->                      |
+--------------+-------------------------------------------------+


+---+-------------------------+--------------------------------+
|1 0|      NET  <-14->         |  LOCAL ADDRESS  <-16->         |
+---+-------------------------+--------------------------------+


+-----+-----------------------------------------+--------------+
|1 1 0|          NET  <-21->                     | LOCAL ADDRESS |
+-----+-----------------------------------------+--------------+
```

4. The LOCAL ADDRESS portion of the internet address identifies a
host within the network specified by the NET portion of the address.

5. For the ARPANET (a Class A network), the NET address is 10
(decimal) and the LOCAL ADDRESS maps as follows: the second octet
defines the physical host, the third octet defines the logical host,
and the fourth defines the IMP.

```
+-+-------------+--------------+--------------+--------------+
|0|     10      |     HOST     | LOGICAL HOST |     IMP      |
+-+-------------+--------------+--------------+--------------+
```

(NOTE: RFC 796 describes the local address mappings for several
other networks.)

6. It is the responsibility of the user using this host table to
translate it into whatever format is needed for his or her purposes.

7. Names and Addresses for DoD networks, gateways, and hosts will be
negotiated and registered with the Network Information Center
(NIC@SRI-NIC or (415) 859-4775) before being used and before traffic
is passed by a DoD host. For an interim period the NIC will attempt
to keep similar information for non-DoD networks and hosts if this
information is provided, and as long as it is needed, i.e., until
intercommunicating network name servers are in place.

EXAMPLE OF NEW HOST TABLE FORMAT

   NET : 10.0.0.0 : ARPANET :

```
   NET : 18.0.0.0 : LCSNET :
   GATEWAY : 10.0.0.77, 18.8.0.4 : MIT-GW :: MOS : IP/GW :
   HOST : 10.0.0.73 : SRI-NIC,NIC : FOONLY-F3 : TENEX :
       NCP/TELNET,NCP/FTP, TCP/TELNET, TCP/FTP :
   HOST: 10.2.0.11 : SU-TIP,FELT-TIP :::
```

SYNTAX AND CONVENTIONS

   ; (semicolon)   is used to denote the beginning of a comment.
                        Any text on a given line following a ';' is
                        comment, and not part of the host table.

   NET   keyword introducing a network name/address entry

   GATEWAY   keyword introducing a gateway name/address entry

   HOST   keyword introducing a host name/address entry

   : (colon)   is used as a field delimiter

   :: (2 colons)   indicates a null field

   , (comma)   is used as a data element delimiter

   XXX/YYY   indicates protocol information of the type
                        TRANSPORT/SERVICE.

       where TRANSPORT/SERVICE options are specified as

          "FOO/BAR" - both transport and service known
          "FOO"   - transport known; services not known or not
                      running, OR
          "BAR"   - name is known, what it does is not

          NOTE: See Appendices B and C for specific options and
                 acronyms.

   Each host table entry is an ASCII text string comprised of 6 fields,
   where

       Field 1 = KEYWORD indicating whether this entry pertains
                 to a NET, GATEWAY, or HOST. NET entries cannot have
                 alternate addresses or nicknames.
       Field 2 = Internet Address of Network, Gateway, or Host
                 followed by alternate addresses
       Field 3 = Official Name of Network, Gateway, or Host
                 (with optional nicknames)
       Field 4 = Machine Type
       Field 5 = Operating System
       Field 6 = Protocol List

Fields 4, 5 and 6 are optional.

Fields 3-6, if available, pertain to the first address in Field 2.

'Blanks' (spaces and tabs) are ignored between data elements or
fields, but are disallowed within a data element.

Each entry ends with a colon.

The host table will be sorted by internet address.

GRAMMATICAL HOST TABLE SPECIFICATION

A. Parsing grammar

```
<entry> ::= <keyword> ":" <addresses> ":" <names> [":" [<cputype>]
                    [":" [<opsys>]  [":" [<protocol list>] ]]] ":"
<addresses> ::= <address> *["," <address>]
<address> ::= <octet> "." <octet> "." <octet> "." <octet>
<octet> ::= <0 to 255 decimal>
<names> ::= <netname> | <gatename>
            | <official hostname> *["," <nicknames>]
<netname>  ::= <name>
<gatename> ::= <name>
<official hostname> ::= <name>
<nickname> ::= <name>
<protocol list> ::= <protocol spec> *["," <protocol spec>]
<protocol spec> ::= <transport name> "/" <service name> |
                    <raw protocol name>
```

B. Lexical grammar

```
<entry-field> ::= <entry-text> [<cr><lf> <blank> <entry-field>]
<blank> ::= <space or tab>
<keyword> ::= NET | GATEWAY | HOST
<name> ::= <letter>[*[<letter-or-digit-or-hyphen>]<letter-or-digit>]
<cputype> ::= PDP-11/70 | DEC-1080 | C/30 | CDC-6400...etc.
<opsys>    ::= ITS | MULTICS | TOPS20 | UNIX...etc.
<transport name> ::= TCP | NCP | UDP | IP...etc.
<service name> ::= TELNET | FTP | SMTP | MTP...etc.
<raw protocol name> ::= <name>
<comment> ::= ";" <arbitrary text><cr><lf>
```

Notes:

1. Zero or more 'blanks' between separators " , : " are allowed.
'Blanks' are spaces and tabs.
2. Continuation lines are lines that begin with at least one
blank. They may be used anywhere 'blanks' are legal to split an
entry across lines.

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                    APPENDIX A. CUTOVER DETAILS

   The cutover date for use of the new host table is 1 May 1982. The
   table below indicates which files will contain the old or the new
   versions of the host table for what period of time. After 1 August
   1982, the old format for <NETINFO>HOSTS.TXT (specified in RFC-608)
   will no longer be supported.

     May 1982   June-July 1982   August 1982 on

   <NETINFO>HOSTS.TXT   <NETINFO>HOSTS.TXT   <NETINFO>HOSTS.TXT
     old version   new version   new version

   <NETINFO>NHOSTS.TXT   <NETINFO>NHOSTS.TXT   old version
     new version (test)   new version   discontinued

   <NETINFO>OHOSTS.TXT   <NETINFO>OHOSTS.TXT
     old version   old version

   These periods of overlap should give implementors time to make the
   necessary changes to programs accessing this file.

          APPENDIX B.   TRANSPORT/SERVICE OPTIONS AND ACRONYMS

Current TRANSPORT/SERVICE options are:

    IP   TCP/FTP
    IP/GW   TCP/MTP
    NCP   TCP/NNS
    NCP/FTP   TCP/RJE
    NCP/RJE   TCP/SMTP
    NCP/SMTP   TCP/TELNET
    NCP/TELNET   TCP/TFTP
    NCP/NNS   UDP
    NVP
    TCP

    Note: "TCP" implies IP is also implemented

Acronym definitions for the above protocol options are:

    FTP - File Transfer Protocol
    GW   - Gateway Protocol
    IP   - Internet Protocol
    MTP - Mail Transfer Protocol
    NCP - Network Control Protocol
    NNP - NIC Internet Name Server Protocol
    NVP - Network Voice Protocol
    RJE - Remote Job Entry Protocol
    SMTP - Simple Mail Transfer Protocol
    TELNET - TELNET Protocol
    TCP - Transmission Control Protocol
    TFTP - Trivial File Transfer Protocol
    UDP - User Datagram Protocol

APPENDIX C.   OPERATING SYSTEM ACRONYMS

Current operating system acronyms are:

```
ASP             KRONOS          RSX11M          VMS
AUGUST          MCP             RT11            WAITS
BKY             MOS             SCOPE
CCP             MPX-RT          SIGNAL
DOS/360         MULTICS         SINTRAN
ELF             MVT             TENEX
EPOS            NOS             TOPS10
EXEC-8          NOS/BE          TOPS20
GCOS            OS/MVS          TSS
GPOS            OS/MVT          UNIX
ITS             RIG             VM/370
INTERCOM        RSX11           VM/CMS
```