ASSIGNED NUMBERS

Status of this Memo

   This memo is an official status report on the numbers used in
   protocols in the ARPA-Internet community. Distribution of this memo
   is unlimited.

Introduction

   This Network Working Group Request for Comments documents the
   currently assigned values from several series of numbers used in
   network protocol implementations. This RFC will be updated
   periodically, and in any case current information can be obtained
   from Joyce Reynolds. The assignment of numbers is also handled by
   Joyce. If you are developing a protocol or application that will
   require the use of a link, socket, port, protocol, network number,
   etc., please contact Joyce to receive a number assignment.

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   Most of the protocols mentioned here are documented in the RFC series
   of notes. The more prominent and more generally used are documented
   in the "Internet Protocol Transition Workbook" [39] or in the old
   "ARPANET Protocol Handbook" [40] prepared by the NIC. Some of the
   items listed are undocumented. Further information on protocols can
   be found in the memo "Official ARPA-Internet Protocols" [104].

   In all cases the name and mailbox of the responsible individual is
   indicated. In the lists that follow, a bracketed entry, e.g.,
   [nn,iii], at the right hand margin of the page indicates a reference
   for the listed protocol, where the number ("nn") cites the document
   and the letters ("iii") cites the person. Whenever possible, the
   letters are a NIC Ident as used in the WHOIS service.

ASSIGNED NETWORK NUMBERS

The network numbers listed here are used as internet addresses by the
Internet Protocol (IP) [39,92]. The IP uses a 32-bit address field
and divides that address into a network part and a "rest" or local
address part. The division takes 3 forms or classes.

   The first type of address, or class A, has a 7-bit network number
   and a 24-bit local address. The highest-order bit is set to 0.
   This allows 128 class A networks.

```
                          1                   2                   3
      0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
     +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
     |0|   NETWORK   |                Local Address                  |
     +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```
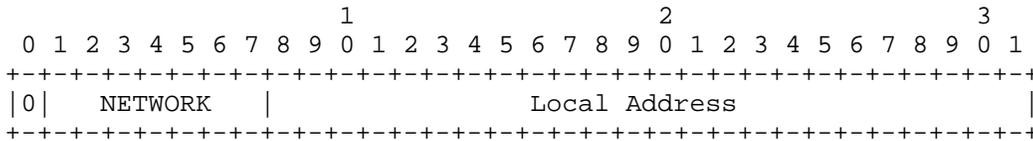
                          Class A Address

   The second type of address, class B, has a 14-bit network number
   and a 16-bit local address. The two highest-order bits are set to
   1-0. This allows 16,384 class B networks.

```
                          1                   2                   3
      0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
     +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
     |1 0|            NETWORK         |         Local Address         |
     +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```
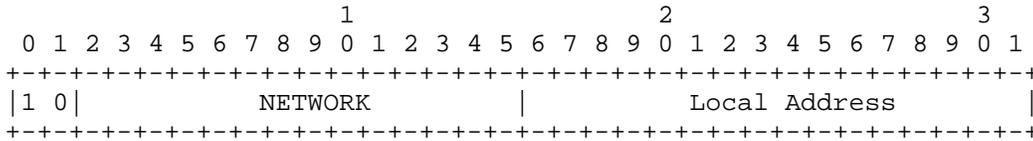
                          Class B Address

   The third type of address, class C, has a 21-bit network number
   and a 8-bit local address. The three highest-order bits are set
   to 1-1-0. This allows 2,097,152 class C networks.

```
                          1                   2                   3
      0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
     +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
     |1 1 0|                NETWORK               | Local Address |
     +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```
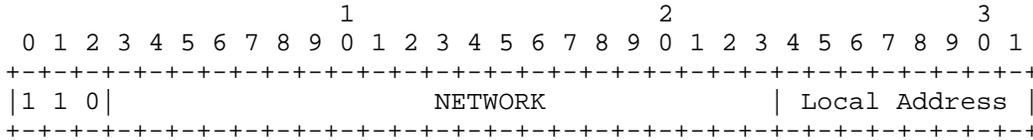
                          Class C Address

   Note: No addresses are allowed with the three highest-order bits
   set to 1-1-1. These addresses (sometimes called "class D") are
   reserved.

One commonly used notation for internet host addresses divides the
32-bit address into four 8-bit fields and specifies the value of each
field as a decimal number with the fields separated by periods. This
is called the "dotted decimal" notation. For example, the internet
address of USC-ISIB.ARPA in dotted decimal is 010.003.000.052, or
10.3.0.52.

The dotted decimal notation will be used in the listing of assigned
network numbers. The class A networks will have nnn.rrr.rrr.rrr, the
class B networks will have nnn.nnn.rrr.rrr, and the class C networks
will have nnn.nnn.nnn.rrr, where nnn represents part or all of a
network number and rrr represents part or all of a local address.

There are four catagories of users of Internet Addresses: Research,
Defense, Government (Non-Defense), and Commercial. To reflect the
allocation of network identifiers among the categories, a
one-character code is placed to the left of the network number: R for
Research, D for Defense, G for Government, and C for Commercial (see
Appendix A for further details on this division of the network
identification).

Network numbers are assigned for networks that are connected to the
ARPA-Internet and DDN-Internet, and for independent networks that use
the IP family protocols (these are usually commercial). These
independent networks are marked with an asterisk preceding the
number.

The administrators of independent networks must apply separately for
permission to interconnect their network with either the
ARPA-Internet of the DDN-Internet. Independent networks should not
be listed in the working tables of either the ARPA-Internet or
DDN-Internet hosts or gateways.

For various reasons, the assigned numbers of networks are sometimes
changed. To ease the transition the old number will be listed for a
transition period as well. These "old number" entries will be marked
with a "T" following the number and preceding the name, and the
network name will be suffixed "-TEMP".

Special Addresses:

   In certain contexts, it is useful to have fixed addresses with
   functional significance rather than as identifiers of specific
   hosts. When such usage is called for, the address zero is to be
   interpreted as meaning "this", as in "this network". The address
   of all ones are to be interpreted as meaning "all", as in "all
   hosts". For example, the address 128.9.255.255 could be

interpreted as meaning all hosts on the network 128.9. Or, the
address 0.0.0.37 could be interpreted as meaning host 37 on this
network.

Assigned Network Numbers

Class A Networks

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 * Internet Address   Name          Network               References
 - ----------------   ----          -------               ----------
   000.rrr.rrr.rrr                   Reserved                   [JBP]
 R 004.rrr.rrr.rrr   SATNET         Atlantic Satellite Network [SHB]
 D 006.rrr.rrr.rrr T YPG-NET-TEMP   Yuma Proving Grounds    [10,BXA]
 D 007.rrr.rrr.rrr T EDN-TEMP       DCEC EDN                   [EC5]
 R 008.rrr.rrr.rrr T BBN-NET-TEMP   BBN Network               [JSG5]
 R 010.rrr.rrr.rrr   ARPANET        ARPANET               [10,40,SA2]
 D 011.rrr.rrr.rrr   DODIIS         DoD INTEL INFO SYS         [AY7]
 C 012.rrr.rrr.rrr   ATT            ATT, Bell Labs            [MH12]
 C 014.rrr.rrr.rrr   PDN            Public Data Network       [REK4]
 R 018.rrr.rrr.rrr T MIT-TEMP       MIT Network          [20,103,DDC1]
 D 021.rrr.rrr.rrr   DDN-RVN        DDN-RVN                    [MLC]
 D 022.rrr.rrr.rrr   DISNET         DISNET                    [FLM2]
 D 023.rrr.rrr.rrr   DDN-TC-NET     DDN-TestCell-Network      [DH17]
 D 024.rrr.rrr.rrr   MINET          MINET                  [10,DHH]
 R 025.rrr.rrr.rrr   RSRE-EXP       RSRE                      [RNM1]
 D 026.rrr.rrr.rrr   MILNET         MILNET                    [FLM2]
 R 027.rrr.rrr.rrr T NOSC-LCCN-TEMP NOSC / LCCN                [RH6]
 R 028.rrr.rrr.rrr   WIDEBAND       Wide Band Satellite Net   [CJW2]
 D 029.rrr.rrr.rrr T MILX25-TEMP    MILNET X.25 Temp           [MLC]
 D 030.rrr.rrr.rrr T ARPAX25-TEMP   ARPA X.25 Temp             [MLC]
 G*031.rrr.rrr.rrr   UCDLA-NET      UCDLA-CATALOG-NET          [CXL]
 R 032.rrr.rrr.rrr   UCL-TAC        UCL TAC                     [PK]
 R 036.rrr.rrr.rrr T SU-NET-TEMP    Stanford University Network[PA5]
 R 039.rrr.rrr.rrr T SRINET-TEMP    SRI Local Network         [GEOF]
 R 041.rrr.rrr.rrr   BBN-TEST-A     BBN-GATE-TEST-A            [RH6]
 R 044.rrr.rrr.rrr   AMPRNET        Amateur Radio Experiment Net[HM]
   001.rrr.rrr.rrr-003.rrr.rrr.rrr Unassigned                 [JBP]
   005.rrr.rrr.rrr                 Unassigned                 [JBP]
   009.rrr.rrr.rrr                 Unassigned                 [JBP]
   013.rrr.rrr.rrr                 Unassigned                 [JBP]
   015.rrr.rrr.rrr-017.rrr.rrr.rrr Unassigned                 [JBP]
   019.rrr.rrr.rrr-020.rrr.rrr.rrr Unassigned                 [JBP]
   033.rrr.rrr.rrr-035.rrr.rrr.rrr Unassigned                 [JBP]
   037.rrr.rrr.rrr-038.rrr.rrr.rrr Unassigned                 [JBP]
   040.rrr.rrr.rrr                 Unassigned                 [JBP]
   042.rrr.rrr.rrr-043.rrr.rrr.rrr Unassigned                 [JBP]
   045.rrr.rrr.rrr-126.rrr.rrr.rrr Unassigned                 [JBP]
   127.rrr.rrr.rrr                 Reserved                   [JBP]
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Class B Networks

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* Internet Address    Name          Network              References
- ----------------    ----          -------              ----------
  128.000.rrr.rrr                   Reserved                  [JBP]
R 128.001.rrr.rrr     BBN-TEST-B    BBN-GATE-TEST-B           [RH6]
R 128.002.rrr.rrr     CMU-NET       CMU-Ethernet              [HDW2]
R 128.003.rrr.rrr     LBL-CSAM      LBL-CSAM-RESEARCH         [JS38]
R 128.004.rrr.rrr     DCNET         LINKABIT DCNET        [69,DLM1]
R 128.005.rrr.rrr     FORDNET       FORD DCNET            [69,DLM1]
R 128.006.rrr.rrr     RUTGERS       RUTGERS                   [CLH3]
R 128.007.rrr.rrr     DFVLR         DFVLR DCNET Network       [HDC1]
R 128.008.rrr.rrr     UMDNET        Univ of Maryland DCNET [69,DLM1]
R 128.009.rrr.rrr     ISI-NET       USC-ISI Local Network     [CMR]
R 128.010.rrr.rrr     PURDUE-CS-NET Purdue Computer Science   [CAK]
R 128.011.rrr.rrr     BBN-CRONUS    BBN DOS Project       [64,WIM]
R 128.012.rrr.rrr     SU-NET        Stanford University Net   [LB3]
D 128.013.rrr.rrr     MATNET        Mobile Access Terminal Net [SHB]
R 128.014.rrr.rrr     BBN-SAT-TEST  BBN SATNET Test Net       [SHB]
R 128.015.rrr.rrr     S1NET         LLL-S1-NET                [EAK1]
R 128.016.rrr.rrr     UCLNET        University College London  [PK]
D 128.017.rrr.rrr     MATNET-ALT    Mobile Access Terminal Alt [SHB]
R 128.018.rrr.rrr     SRINET        SRI Local Network         [GEOF]
D 128.019.rrr.rrr     EDN           DCEC EDN                  [EC5]
D 128.020.rrr.rrr     BRLNET        BRLNET                [10,MJM2]
R 128.021.rrr.rrr     SF-PR-1       SF-1 Packet Radio Network  [JEM]
R 128.022.rrr.rrr     SF-PR-2       SF-2 Packet Radio Network  [JEM]
R 128.023.rrr.rrr     BBN-PR        BBN Packet Radio Network   [JAW3]
R 128.024.rrr.rrr     ROCKWELL-PR   Rockwell Packet Radio Net  [EHP]
D 128.025.rrr.rrr     BRAGG-PR      Ft. Bragg Packet Radio Net [JEM]
D 128.026.rrr.rrr     SAC-PR        SAC Packet Radio Network   [BG5]
D 128.027.rrr.rrr     DEMO-PR-1     Demo-1 Packet Radio Network[LCS]
D 128.028.rrr.rrr     C3-PR-TEMP    Testbed Development PR NET [BG5]
R 128.029.rrr.rrr     MITRE         MITRE Cablenet        [111,TML]
R 128.030.rrr.rrr     MIT-NET       MIT Local Network         [DDC1]
R 128.031.rrr.rrr     MIT-RES       MIT Research Network      [DDC1]
R 128.032.rrr.rrr     UCB-ETHER     UC Berkeley Ethernet      [DAM1]
R 128.033.rrr.rrr     BBN-NET       BBN Network               [JSG5]
R 128.034.rrr.rrr     NOSC-LCCN     NOSC / LCCN               [RH6]
R 128.035.rrr.rrr     CISLTESTNET1  Honeywell            [52,53,JLM23]
R 128.036.rrr.rrr     YALE-NET      YALE NET              [128,JO5]
D 128.037.rrr.rrr     YPG-NET       Yuma Proving Grounds  [10,BXA]
D 128.038.rrr.rrr     NSWC-NET      NSWC Local Host Net       [RLH2]
R 128.039.rrr.rrr     NTANET        NDRE-TIU                  [PS3]
R 128.040.rrr.rrr     UCL-NET-A     UCL                       [RC7]
R 128.041.rrr.rrr     UCL-NET-B     UCL                       [RC7]
R 128.042.rrr.rrr     RICE-NET      Rice University      [69,128,PGM]
R 128.043.rrr.rrr     DRENET        Canada REF ARPANET    [10,JR17]
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   D 128.044.rrr.rrr   WSMR-NET      White Sands Network      [TBS]
   C 128.045.rrr.rrr   DEC-WRL-NET   DEC WRL Network     [128,RKJ2]
   R 128.046.rrr.rrr   PURDUE-NET    Purdue Campus Network    [CAK]
   D 128.047.rrr.rrr   TACTNET       Tactical Packet Net    [9,KTP]
   G*128.048.rrr.rrr   UCDLA-NET-B   UCDLA-Network-B       [10,CXL]
   R 128.049.rrr.rrr   NOSC-ETHER    NOSC Ethernet       [128,RLB3]
   G 128.050.rrr.rrr   COINS         COINS On-Line Intel Net  [RLS6]
   G 128.051.rrr.rrr   COINSTNET     COINS TEST NETWORK       [RLS6]
   R 128.052.rrr.rrr   MIT-AI-NET    MIT AI NET           [128,MDC]
   R 128.053.rrr.rrr   SAC-PR-2      SAC PRNET Number 2       [BG5]
   R 128.054.rrr.rrr   UCSD          UC San Diego Network [128,GH29]
   R*128.055.rrr.rrr   MFENET        LLNL MFE Network     [109,DRP]
   D 128.056.rrr.rrr   USNA-NET      US Naval Academy Network [TXS]
   D 128.057.rrr.rrr   DEMO-PR-2     Demo-2 Packet Radio Net  [LCS]
   C*128.058.rrr.rrr   SPAR          Schlumberger PA Net  [128,RXB]
   R 128.059.rrr.rrr   CU-NET        Columbia University  [128,LH2]
   D 128.060.rrr.rrr   NRL-LAN       NRL Lab Area Net          [WF3]
   R*128.061.rrr.rrr   GATECH        Georgia Tech         [128,SXA]
   R 128.062.rrr.rrr   MCC-NET       MCC Corporate Net    [128,CBD]
   R 128.063.rrr.rrr   BRL-SUBNET    BRL-SUBNET-EXP           [RBN1]
   R 128.064.rrr.rrr-128.079.rrr.rrr Net Dynamics Exp        [ZSU]
   D 128.080.rrr.rrr   CECOMNET      CECOM EPR NET            [PFS2]
   R 128.081.rrr.rrr   SCRC-ETHERNET SCRC ETHERNET        [128,CH2]
   R 128.082.rrr.rrr   UMICH         UOFMICHIGAN            [8,HWB]
   R 128.083.rrr.rrr   UTAUSTIN      U. Texas Austin     [128,JSQ1]
   R 128.084.rrr.rrr   CORNELL-NET   Cornell Backbone Net [128,BN9]
   C*128.085.rrr.rrr   DRILL-NET     Teleco Drilltech Net     [DBJ]
   R 128.086.rrr.rrr   MRC           UK.CO.GEC.RL.MRC         [RHC3]
   R 128.087.rrr.rrr   HIRST         UK.CO.GEC.RL.HRC         [RHC3]
   R*128.088.rrr.rrr   HP-NET        HEWLETT-PACKARD-NET      [AXG]
   R 128.089.rrr.rrr   BBN-ENET-TEMP BBN ETHER NETWORK    [128,SGC]
   C*128.090.rrr.rrr   PQS           PERQ SYSTEMS CORP    [128,DXS]
   R 128.091.rrr.rrr   UPENN         UPenn Campus Network [128,IXW]
   R 128.092.rrr.rrr   INTELLINET    INTELLICORP NET     [128,DAVE]
   R*128.093.rrr.rrr   INRIA-ROCQU   INRIA Rocquencourt       [MXA1]
   R*128.094.rrr.rrr   SYSNET        AT&T SYSNETWORK          [EXY]
   R*128.095.rrr.rrr   WASHINGTON    Comp Sci Ether Net   [128,RA17]
   C*128.096.rrr.rrr   BELLCORE-NET  BELLCORE-NET             [PK28]
   R 128.097.rrr.rrr   UCLANET       UCLA Network             [BJL5]
     128.098.rrr.rrr-191.254.rrr.rrr Unassigned               [JBP]
     191.255.rrr.rrr                 Reserved                 [JBP]
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Class C Networks

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   * Internet Address    Name           Network               References
   - ----------------    ----           -------               ----------
     192.000.000.rrr                     Reserved                  [JBP]
   R 192.000.001.rrr     BBN-TEST-C     BBN-GATE-TEST-C           [RH6]
     192.000.002.rrr-192.000.255.rrr Unassigned                  [JBP]
   R 192.001.000.rrr-192.001.004.rrr BBN local networks         [SGC]
   R 192.001.005.rrr     BBN-ENET2      BBN-ENET2                 [SGC]
   R 192.001.006.rrr                    BBN local network         [SGC]
   R 192.001.007.rrr     BBN-ENET       BBN-ENET                  [SGC]
   R 192.001.008.rrr                    BBN local network         [SGC]
   R 192.001.009.rrr     BBN-ENET3      BBN-ENET3                 [SGC]
   R 192.001.010.rrr     BBN-NETR       BBN-NETR                  [SGC]
   R 192.001.011.rrr     BBN-SPC-ENET   BBN-SPC-ENET              [SGC]
   R 192.001.012.rrr-192.003.255.rrr BBN local networks         [SGC]
   R*192.004.000.rrr-192.004.255.rrr BELLCORE-NET          [128,PK28]
   R 192.005.001.rrr     CISLHYPERNET   Honeywell               [JLM23]
   R 192.005.002.rrr     WISC           Univ of Wisconsin Madison [RS23]
   C 192.005.003.rrr     HP-DESIGN-AIDS HP Design Aids            [NXK]
   C 192.005.004.rrr     HP-TCG-UNIX    Hewlett Packard TCG Unix  [NXK]
   R 192.005.005.rrr     DEC-MRNET      DEC Marlboro Ethernet [119,KWP]
   R 192.005.006.rrr     DEC-MRRAD      DEC Marlboro Developmt [119,KWP]
   R 192.005.007.rrr     CIT-CS-NET     Caltech-CS-Net        [126,DSW]
   R 192.005.008.rrr     WASHINGTON     University of Washington  [JAR4]
   R 192.005.009.rrr     AERONET        Aerospace Labnet        [2,LCN]
   R 192.005.010.rrr     ECLNET         USC-ECL-CAMPUS-NET        [MAB4]
   R 192.005.011.rrr     CSS-RING       SEISMIC-RESEARCH-NET       [RR2]
   R 192.005.012.rrr     UTAH-NET       UTAH-COMPUTER-SCIENCE-NET [GW22]
   R 192.005.013.rrr     GSWDNET        Compion Network       [128,FAS]
   R 192.005.014.rrr     RAND-NET       RAND Network          [128,JDG]
   R 192.005.015.rrr     NYU-NET        NYU Network               [EF5]
   R 192.005.016.rrr     LANLLAND       Los Alamos Dev LAN   [128,JC11]
   R 192.005.017.rrr     NRL-NET        Naval Research Lab         [AP]
   R 192.005.018.rrr     IPTO-NET       ARPA-IPTO Office Net       [SA2]
   R 192.005.019.rrr     UCIICS         UCI-ICS Res Net           [MTR]
   R 192.005.020.rrr     CISLTTYNET     Honeywell               [JLM23]
   D 192.005.021.rrr     BRLNET1        BRLNET1               [10,MJM2]
   D 192.005.022.rrr     BRLNET2        BRLNET2               [10,MJM2]
   D 192.005.023.rrr     BRLNET3        BRLNET3               [10,MJM2]
   D 192.005.024.rrr     BRLNET4        BRLNET4               [10,MJM2]
   D 192.005.025.rrr     BRLNET5        BRLNET5               [10,MJM2]
   D 192.005.026.rrr     NSRDCOA-NET    NSRDC Office Auto Net      [TC4]
   D 192.005.027.rrr     DTNSRDC-NET    DTNSRDC-NET                [TC4]
   R 192.005.028.rrr     RSRE-NULL      RSRE-NULL                 [RNM1]
   R 192.005.029.rrr     RSRE-ACC       RSRE-ACC                  [RNM1]
   R 192.005.030.rrr     RSRE-PR        RSRE-PR                   [RNM1]
   R*192.005.031.rrr     SIEMENS-NET    Siemens Research Network   [PXN]
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      R 192.005.032.rrr   CISLTESTNET2   Honeywell            [52,53,JLM23]
      R 192.005.033.rrr   CISLTESTNET3   Honeywell            [32,33,JLM23]
      R 192.005.034.rrr   CISLTESTNET4   Honeywell            [32,33,JLM23]
      R 192.005.035.rrr   RIACS          USRA                    [113,RLB1]
      R 192.005.036.rrr   CORNELL-CS     CORNELL CS Research     [128,DK2]
      R 192.005.037.rrr   UR-CS-NET      U of R CS 3Mb Net        [67,LB1]
      R 192.005.038.rrr   SRI-C3ETHER    SRI-AITAD C3ETHERNET    [128,BG5]
      R 192.005.039.rrr   UDEL-EECIS     Udel EECIS LAN          [120,CC2]
      R 192.005.040.rrr   PUCC-NET-A     PURDUE Comp Cntr Net       [JRS8]
      D 192.005.041.rrr   WISLAN         WIS Research LAN        [111,JRM1]
      D 192.005.042.rrr   AFDSC-HYPER    AFDSC Hypernet             [MCA1]
      R 192.005.043.rrr   CUCSNET        Columbia CS Net         [128,LH2]
      R 192.005.044.rrr   Farber-PC-Net  Farber PC Network          [DJF]
      R 192.005.045.rrr   AIDS-NET       AI&DS Network           [128,KFD]
      R 192.005.046.rrr   NTA-RING       NDRE-RING                  [PS3]
      R 192.005.047.rrr   NSRDC          NSRDC                      [PXM]
      R 192.005.048.rrr   PURDUE-CS-EN   Purdue CS Ethernet      [128,CAK]
      R 192.005.049.rrr   UCSF           Univ of Calif, San Fran[120,TF6]
      R 192.005.050.rrr   CTH-CS-NET     Chalmers CSN Net        [120,UXB]
      R 192.005.051.rrr   Theorynet      Cornell Theory Center [128,AB13]
      R 192.005.052.rrr   NLM-ETHER      NLM-LHNCBC-ETHERNET      [92,JA1]
      R 192.005.053.rrr   UR-CS-ETHER    U of R CS 10Mb Net       [67,LB1]
      R 192.005.054.rrr   AERO-A6        Aerospace                [2,LCN]
      R 192.005.055.rrr   UCLA-CECS      UCLA-CECS Network       [128,RBW]
      C 192.005.056.rrr   TARTAN-NET     Tartan Labs                [SXB]
      R 192.005.057.rrr   UDEL-CC        UDEL Comp Center        [120,RR18]
      R 192.005.058.rrr   CSNET-PDN      CSNET X.25 Network       [60,RDR4]
      R*192.005.059.rrr   INRIA SM90     Inria GIP SM-90            [MXS]
      R*192.005.060.rrr   SM90 X1        Inria SM-90 exp. 1         [MXS]
      R*192.005.061.rrr   SM90 X2        Inria SM-90 exp. 2         [MXS]
      R*192.005.062.rrr   LITP SM90      LITP SM-90                 [MXS]
      R 192.005.064.rrr   AMES-NAS-NET   NASA ARC NAS LAN        [119,MF31]
      R 192.005.065.rrr   NPRDC-Ether    NPRDC TRCF Ethernet        [LRB]
      R 192.005.066.rrr   HARV-NET       Harvard Comp Sci Net      [SB28]
      R 192.005.067.rrr   CECOM-ETHER    CECOM ADDCOMPE ETHER    [120,GIH]
      R 192.005.068.rrr   AERO-130       AEROSPACE-130              [LCN]
      R 192.005.069.rrr   UIUC-NET       Univ of IL at Urbana    [128,AKC]
      G 192.005.070.rrr   CELAN          COINS Exper. LAN           [MXM]
      R 192.005.071.rrr   SAC-ETHER      SAC C3 Ethernet         [128,BG5]
      R*192.005.072.rrr-192.005.087.rrr U Chicago                  [TXN]
      R 192.005.088.rrr   YALE-EE-NET    YALE-EE-NET            [128,AG22]
      R 192.005.089.rrr   HARV-APOLLO    Harvard University       [4,SB28]
      R 192.005.090.rrr   HARV-ETHER     Harvard CS Ethernet       [SB28]
      R 192.005.091.rrr   PURDUE-ECN1    Purdue ECN            [36,55,GG11]
      R 192.005.092.rrr   BRAGG-ETHER    SRI Bragg Ether         [121,GIH]
      R 192.005.093.rrr   SRI-DEMO       SRI Ether Demo          [121,GIH]
      R*192.005.094.rrr   SDCRDCF-10MB   SDC R&D primary net     [128,DJV1]
      R*192.005.095.rrr   SDCRDCF-3MB    SDC R&D old net          [67,DJV1]
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    R*192.005.096.rrr   UBC-CS-NET    UBC Comp Sci Net      [128,PXB]
    R*192.005.097.rrr   UCLA-CS-LNI   UCLA CS LNI Network      [RBW]
    R*192.005.098.rrr   UCLA-PIC      UCLA PIC Network      [128,RBW]
    R 192.005.099.rrr   SPACENET      S-1 Workstation Net.  [128,TW11]
    R*192.005.100.rrr   HCSC-NET      Honeywell CSC Net     [128,RL2]
    R 192.005.101.rrr   PUCC-NET-B    Purdue Gateway Network   [JRS8]
    R 192.005.102.rrr   PUCC-RHF-NET  PUCC RHF Based Net       [JRS8]
    C*192.005.103.rrr   TYM-NTD-NET   Tymnet NTD Ethernet       [SMF]
    R 192.005.104.rrr   THINK-INET    Thinking Machines     [128,BJN1]
    R 192.005.105.rrr   CCA-POND      CCA Ethernet1 (POND)  [128,AL6]
    C*192.005.106.rrr   BITSTREAM     Bitstream Type Foundry [128,PXA]
    R*192.005.107.rrr   PASC-ETHER    IBM PASC Ethernet     [128,GXL]
    R*192.005.108.rrr   PASC-BB       IBM PASC Broadband     [56,GXL]
    R*192.005.109.rrr   CWR-JCC-T     ARJCC TOPS-20 NET     [128,JAG3]
    R*192.005.110.rrr   CWR-JCC-L     ARJCC LOCAL NET       [128,JAG3]
    R*192.005.111.rrr   CWR-QUAD      Campus QUAD NET       [128,JAG3]
    R*192.005.112.rrr   CWR-CAISR     CAISR LOCAL NET       [128,JAG3]
    R*192.005.113.rrr   CWR-CES       CES LOCAL NET            [JAG3]
    C*192.005.114.rrr   I2-RING-1     INTERMETRICS PRONET   [128,NXH]
    C*192.005.115.rrr   I2-ETHER-1    INTERMETRICS ETHER    [128,NXH]
    R 192.005.116.rrr   BRAGGNET-1    BRAGG/ADDCOMPE        [128,BG25]
    R 192.005.117.rrr   BRAGGNET-2    BRAGG/ADDCOMPE        [128,BG25]
    R 192.005.118.rrr   BRAGGNET-3    BRAGG/ADDCOMPE        [128,BG25]
    R 192.005.119.rrr   BRAGGNET-4    BRAGG/ADDCOMPE        [128,BG25]
    R 192.005.120.rrr   BRAGGNET-5    BRAGG/ADDCOMPE        [128,BG25]
    R 192.005.121.rrr   BRAGGNET-6    BRAGG/ADDCOMPE        [128,BG25]
    R 192.005.122.rrr   BRAGGNET-7    BRAGG/ADDCOMPE        [128,BG25]
    R 192.005.123.rrr   BRAGGNET-8    BRAGG/ADDCOMPE        [128,BG25]
    R 192.005.124.rrr   BRAGGNET-9    BRAGG/ADDCOMPE        [128,BG25]
    R 192.005.125.rrr   BRAGGNET-10   BRAGG/ADDCOMPE        [128,BG25]
    R 192.005.126.rrr   BRAGGNET-11   BRAGG/ADDCOMPE        [128,BG25]
    R 192.005.127.rrr   BRAGGNET-12   BRAGG/ADDCOMPE        [128,BG25]
    R 192.005.128.rrr   BRAGGNET-13   BRAGG/ADDCOMPE        [128,BG25]
    R 192.005.129.rrr   BRAGGNET-14   BRAGG/ADDCOMPE        [128,BG25]
    R 192.005.130.rrr   BRAGGNET-15   BRAGG/ADDCOMPE        [128,BG25]
    R 192.005.131.rrr   BRAGGNET-16   BRAGG/ADDCOMPE        [128,BG25]
    R 192.005.132.rrr   BRAGGNET-17   BRAGG/ADDCOMPE        [128,BG25]
    R*192.005.133.rrr   PERCEPT-AI    Perceptronics, AI Div.
                            [KXC]
       192.005.134.rrr-192.005.255.rrr Unassigned             [JBP]
    C*192.006.000.rrr-192.006.255.rrr Hewlett Packard         [AXG]
    C*192.007.000.rrr-192.007.255.rrr Computer Consoles, Inc.  [RA11]
    C*192.008.000.rrr-192.008.255.rrr Spartacus Computers, Inc. [SXM]
    C*192.009.000.rrr-192.009.255.rrr SUN Microsystems, Inc.   [BN4]
    C*192.010.000.rrr-192.010.040.rrr Symbolics, Inc.          [CH2]
    R 192.010.041.rrr T SCRC-ETHERNET SCRC ETHERNET        [128,CH2]
    C*192.010.042.rrr-192.010.255.rrr Symbolics, Inc.          [CH2]
    C*192.011.000.rrr-192.011.255.rrr ATT, Bell Labs          [MH12]
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C*192.012.000.rrr   CADMUS-ETHERNET CADMUS-NET              [MS9]
C*192.012.001.rrr   CADMUS-EXP-1    CADMUS-NET-EXP-1        [MS9]
C*192.012.002.rrr   CADMUS-EXP-2    CADMUS-NET-EXP-2        [MS9]
C*192.012.003.rrr   FLAIR           Fairchild AI Lab Net [128,AMS1]
C*192.012.004.rrr   SCG-NET         Hughes SCG Net       [122,MXP]
R 192.012.005.rrr   AIC-LISPMS      SRI-AIC-LispMachNet  [128,PM4]
R 192.012.006.rrr   NPS-C2          NPS-C2               [128,AW9]
R 192.012.007.rrr   NYU-CS-ETHER    NYU CompSci Ethernet [128,LOU]
D 192.012.008.rrr   PICANET1        Picatinny Arsenal LAN1[128,RFD1]
R 192.012.009.rrr   CADRE-NET       Decision Systems Lab     [SM6]
R 192.012.010.rrr   CORNELL-ENG     Cornell-Engineering  [128,BN9]
R 192.012.011.rrr   MIT-TEST        MIT Gateway TEST NET [128,NC3]
R 192.012.012.rrr   WISC-ETHER      Wisconsin Ether Net  [128,CBP]
R 192.012.013.rrr   JHU-NET1        JHU-NET1             [128,MO14]
R 192.012.014.rrr   JHU-NET2        JHU-NET2             [128,MO14]
R 192.012.015.rrr   BROOKNET        BNL Brooknet III      [128,GC]
R 192.012.016.rrr   PRMNET          SRI-SURAN-EN         [128,BP17]
G 192.012.017.rrr   LLL-TIS-NET     LLL-TIS-NET      [119,123,GP10]
R 192.012.018.rrr   CIT-CS-10NET    Caltech 10Meg EtherNet[126,AD22]
R 192.012.019.rrr   CIT-NET         Caltech Campus Net   [126,AD22]
R 192.012.020.rrr   CIT-SUN-NET     Caltech Sun Net      [126,AD22]
R 192.012.021.rrr   CIT-PHYSCOMP    Caltech Phys Comp Net [126,AD22]
R 192.012.022.rrr   UTCSRES         UTCS Net Research    [128,JSQ1]
R 192.012.023.rrr   UTCSTTY         UTCS TTY Kludgenet   [128,JSQ1]
R 192.012.024.rrr   MICANET         MITRE (Experimental)     [WDL]
R 192.012.025.rrr   CSS-GRAMINAE    CSS Workstation Net   [62,RR2]
R 192.012.026.rrr   NOSC-NETR       Net-R Testbed at BBN [106,CP10]
R 192.012.027.rrr   UR-LASER        UR Laser Energetics  [128,WXL]
R*192.012.028.rrr   RIACS-X-NET     RIACS-Experimental-Net   [DG28]
D 192.012.029.rrr   RF-EVANS        ADDCOMPE DC3 LAN1    [120,MB31]
D 192.012.030.rrr   RF-HEX-A        ADDCOMPE DC3 LAN2    [120,MB31]
D 192.012.031.rrr   USNA-ENET       USNA Engineering Net [120,TXS]
R*192.012.032.rrr   CMU-VINEYARD    CMU File Cluster Net [128,MXK]
R 192.012.033.rrr   SRI-CSL-NET     SRI-CSL 10MB Ethernet   [GEOF]
C*192.012.034.rrr-192.012.043.rrr Schlumberger PA Net   [128,RXB]
R 192.012.044.rrr   NRTC-NET        Northrop Research Net [128,RSM1]
R 192.012.045.rrr   ACC-SB-IMP-NET ACC Santa Barbara IMP    [AB20]
R 192.012.046.rrr   ACC-SB-ETHER   ACC Santa Barbara Ethernet[AB20]
R 192.012.047.rrr   UMN-UCC-NET     Univ. of Minnesota       [RG12]
G 192.012.048.rrr   AMES-ED-EXPNET Code ED Exp. Net.    [128,MSM1]
G 192.012.049.rrr   AMES-ED-NET     Code ED IP Net      [128,MSM1]
G 192.012.050.rrr   AMES-DB-NET     Ames DBridge Net    [128,MSM1]
R 192.012.051.rrr   THINK-CHAOS     TMC Chaos           [128,BJN1]
R*192.012.052.rrr   NEURO-NET       NEURO-NET           [128,JXB]
R*192.012.053.rrr   PU-LCA          Princeton U. LCA    [128,CXH]
R 192.012.054.rrr   WISC-MADISON    Univ Wisc - MACC    [128,JXD]
R 192.012.055.rrr   HAZ-LPR-BETA    Hazeltine LPR Net   [128,KXK]
R 192.012.056.rrr   UTAH-AP-NET     Utah-Appolo-Ring-Net     [JL15]
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R 192.012.057.rrr   MCC-CAD-NET    MCC AI Subnet          [128,CBD]
R 192.012.058.rrr   MCC-PP-NET     MCC CAD Subnet         [128,CBD]
R 192.012.059.rrr   MCC-DB-NET     MCC DB Subnet          [128,CBD]
R 192.012.060.rrr   MCC-HI-NET     MCC HI Subnet          [128,CBD]
R 192.012.061.rrr   MCC-SW-NET     MCC SW Subnet          [128,CBD]
R 192.012.062.rrr   DREA-ENET      DREA Lispm & Vaxen     [128,GLH5]
R 192.012.063.rrr   CYPRESS        CYPRESS Serial Net        [CAK]
D 192.012.064.rrr   LOGNET         Logistics Net GW       [62,JXR]
D 192.012.065.rrr   HELNET1        HELNET1                [128,MJM2]
D 192.012.066.rrr   HELNET2        HELNET2                [128,MJM2]
D 192.012.067.rrr   HELNET3        HELNET3                   [MJM2]
G 192.012.068.rrr   ORNL-MSRNET    ORNL Local Area Net     [62,HD]
R 192.012.069.rrr   UA-CS-NET      UNIV. OF ARIZ-CS DEPT  [128,BXM]
R 192.012.070.rrr   NPRDC-IPD      NPRDC-IPD REMOTE ETHERNET  [LRB]
R 192.012.071.rrr   NPRDC-ISG      NPRDC-ISG REMOTE ETHERNET  [LRB]
R 192.012.072.rrr   ULCC           UK.AC.ULCC                [RHC3]
R 192.012.073.rrr   BTRL           UK.CO.BT-RESEARCH-LABS    [RHC3]
R*192.012.074.rrr   APPLE-ETHER    APPLE COMPUTER ETHER   [128,RXJ]
R*192.012.075.rrr   PASC-RING      IBM PASC TOKEN RING       [GXL]
R*192.012.076.rrr   UQ-NET         UNIV. OF QLD NETWORK   [128,AXH]
C*192.012.077.rrr   PRIME          PRIME COMPUTER, INC.      [FXS]
C*192.012.078.rrr   GENNET         GENENTECH NET          [128,SXM]
C*192.012.079.rrr   SLI            SOFTWARE LEVERAGE INC.    [MXG]
R 192.012.080.rrr   CAEN           UMICH-CAEN                [HWB]
R 192.012.081.rrr   YALE-RING-NET  YALE RESEARCH RING       [RC77]
C 192.012.082.rrr   CU-CC-NET      Columbia CC Net        [128,BC14]
G*192.012.083.rrr   UCDLA-EXNET    UCDLA EXPERIMENTAL NET    [CXL]
G*192.012.084.rrr   UCDLA-PCNET    UCDLA PERSONAL NET        [CXL]
G*192.012.085.rrr   UCDLA-OPNET    UCDLA OPTICAL DISK        [CXL]
G*192.012.086.rrr   UCDLA-RADNET   UCDLA PACKET RADIO        [CXL]
G*192.012.087.rrr   UCDLA-CSLNET   UCDLA STATE LIBRARY       [CXL]
R*192.012.088.rrr   RUTGERS-NWK    RUTGERS, NEWARK           [DXB]
R 192.012.089.rrr   SBCS-CSDEPT-1  SB Computer Science       [JXS]
R 192.012.090.rrr   SBCS-CSDEPT-2  SB Computer Science       [JXS]
R*192.012.091.rrr   RPICSNET0      RPICS-LOCALNET-0          [MS9]
R*192.012.092.rrr   RPICSNET1      RPICS-LOCALNET-1          [MS9]
R*192.012.093.rrr   RPICSNET2      RPICS-LOCALNET-2          [MS9]
R*192.012.094.rrr   RPICSNET3      RPICS-LOCALNET-3          [MS9]
R*192.012.095.rrr   RPICSNET4      RPICS-LOCALNET-4          [MS9]
R*192.012.096.rrr   RPICSNET5      RPICS-LOCALNET-5          [MS9]
R*192.012.097.rrr   RPICSNET6      RPICS-LOCALNET-6          [MS9]
R*192.012.098.rrr   RPICSNET7      RPICS-LOCALNET-7          [MS9]
R*192.012.099.rrr   RPICSNET8      RPICS-LOCALNET-8          [MS9]
R*192.012.100.rrr   RPICSNET9      RPICS-LOCALNET-9          [MS9]
R*192.012.101.rrr   OSU-CGRG       OSU Computer Graphics  [128,KXS]
G 192.012.102.rrr   AMES-NAS-HY    AMES NAS HY NET          [MF31]
R*192.012.103 rrr-192.012.118.rrr Colorado State Univ Nets [RXB1]
G 192.012.119.rrr   ICST           ICST Network           [128,JCN2]
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D 192.012.120.rrr   MITRE-B-NET   MITRE BEDFORD ETHER        [BSW]
R*192.012.121.rrr   FSUCS         FSU COMPUTER SCIENCE 1     [TXB]
R*192.012.122.rrr   FSUCS2        FSU COMPUTER SCIENCE 2     [TXB]
G 192.012.123.rrr   AMES-CCF-NET  AMES CCF NETWORK      [128,MSM1]
D 192.012.124.rrr   ETL-LAN       ETL LOCAL AREA NET    [128,WWS]
D 192.012.125.rrr   CRDC-NET1     CRDC-NET1             [128,JXY]
D 192.012.126.rrr   CRDC-NET2     CRDC-NET2             [128,JXY]
R 192.012.127.rrr   LL-MI-NET     LL-Machine Intell.    [128,GAA]
R 192.012.128.rrr   AITAC-ADMIN   SRI-AITAC ADMIN NET   [128,DVC]
C*192.012.129.rrr   SYM-CAN       Symbolics/Canada           [MXH]
R 192.012.130.rrr   SDC-SM        SDC Santa Monica           [CAS]
R 192.012.131.rrr   SAC-ADMIN     SRI-SAC ADMIN NET     [128,KMC3]
R 192.012.132.rrr   LLL-MON       LLL Open Labnet-1     [128,BANDY]
R 192.012.133.rrr   LLL-TUES      LLL Open Labnet-2     [128,BANDY]
R 192.012.134.rrr   LLL-WED       LLL Open Labnet-3     [128,BANDY]
R 192.012.135.rrr   LLL-THU       LLL Open Labnet-4     [128,BANDY]
R 192.012.136.rrr   LLL-FRI       LLL Open Labnet-5     [128,BANDY]
R 192.012.137.rrr   LLL-SAT       LLL Open Labnet-6     [128,BANDY]
R 192.012.138.rrr   LLL-SUN       LLL Open Labnet-7     [128,BANDY]
D 192.012.139.rrr   JTELS-BEN-GW  JUMPS Teleprocessing       [RR26]
R*192.012.140.rrr   INFERENCE     INFERENCE                  [DXT]
R 192.012.141.rrr   CSS-ETHER     CSS Workstation Net 2      [RA11]
C*192.012.142.rrr   SENTRY        Sentry Adv. Prod. Net      [LXL]
C*192.012.143.rrr   VHSIC-NET     Sentry VHSIC Test          [LXL]
R*192.012.144.rrr   ECRCNET       ECRC Internet         [128,PXD]
C*192.012.145 rrr-192.012.154.rrr RCA-CADNET            [128,RXG]
C*192.012.155 rrr-192.012.170.rrr MTCS-CUST                  [SXF]
D 192.012.171.rrr   PICANET2      Picatinny Arsenal 2        [RFD1]
R 192.012.172.rrr   ROCKWELLENET  ROCKWELL ETHERNET           [NG]
D 192.012.173.rrr   JTELS-BEN1-GW JUMPS Teleprocessing       [RR26]
R*192.012.174 rrr-192.012.183.rrr TORONTO              [128,BXD]
  192.012.184 rrr-192.012.255.rrr Unassigned                [JBP]
D 192.013.000.rrr-192.014.255.rrr DODIIS Subnetworks        [AY5]
C*192.015.000.rrr-192.015.255.rrr NBINET                    [WW2]
G 192.016.000.rrr-192.016.049.rrr LANLLAN              [128,JC11]
  192.016.050.rrr-192.016.255.rrr Unassigned                [JBP]
R*192.017.000.rrr-192.017.255.rrr NIBELUNG                  [MXA]
C*192.018.000.rrr-192.018.255.rrr SUN Microsystems, Inc.    [BN4]
C*192.019.000.rrr-192.019.255.rrr SYSNET-2                  [EXY]
C*192.020.000.rrr-192.020.255.rrr ATT-MD-NET           [128,MH12]
  192.021.000.rrr-223.255.254.rrr Unassigned                [JBP]
  223.255.255.rrr                  Reserved                 [JBP]
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Other Reserved Internet Addresses

*	Internet Address	Name	Network	References
	224.000.000.000-255.255.255.255	Reserved		[JBP]

Network Totals

   Assigned for the ARPA-Internet and the DDN-Internet

Class	A	B	C	Total
Research	7	63	911	981
Defense	8	15	536	559
Government	0	2	59	61
Commercial	2	1	4	7
Total	17	81	1510	1608

   Allocated for Internet and Independent Uses

Class	A	B	C	Total
Research	7	68	1764	1838
Defense	8	15	536	559
Government	1	3	64	68
Commercial	2	5	2357	2364
Total	18	91	4721	4829

Maximum Allowed

Class	A	B	C	Total
Research	8	1024	65536	66568
Defense	24	3072	458752	461848
Government	24	3072	458752	461848
Commercial	74	9214	1114137	1123394
Total	126	16382	2097150	2113658

                         ASSIGNED VERSION NUMBERS

     In the Internet Protocol (IP) [39,92] there is a field to identify
     the version of the internetwork general protocol. This field is 4
     bits in size.

     Assigned Internet Version Numbers

         Decimal   Keyword   Version   References
         -------   -------   -------   ----------
            0   Reserved   [JBP]
           1-3   Unassigned   [JBP]
            4   IP   Internet Protocol   [37,85,JBP]
            5   ST   ST Datagram Mode   [40,JWF]
           6-14   Unassigned   [JBP]
           15   Reserved   [JBP]

                    ASSIGNED PROTOCOL NUMBERS

     In the Internet Protocol (IP) [39,92] there is a field, called
     Protocol, to identify the the next level protocol. This is an 8 bit
     field.

     Assigned Internet Protocol Numbers

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         Decimal      Keyword    Protocol                    References
         -------      -------    --------                    ----------
             0                   Reserved                         [JBP]
             1        ICMP       Internet Control Message     [84,JBP]
             2                   Unassigned                       [JBP]
             3        GGP        Gateway-to-Gateway            [51,MB]
             4                   Unassigned                       [JBP]
             5        ST         Stream                        [43,JWF]
             6        TCP        Transmission Control       [39,93,JBP]
             7        UCL        UCL                               [PK]
             8        EGP        Exterior Gateway Protocol   [108,DLM1]
             9        IGP        any private interior gateway     [JBP]
            10        BBN-RCC-MON BBN RCC Monitoring              [SGC]
            11        NVP-II     Network Voice Protocol        [21,SC3]
            12        PUP        PUP                           [15,HGM]
            13        ARGUS      ARGUS                            [RWS4]
            14        EMCON      EMCON                             [BN7]
            15        XNET       Cross Net Debugger           [49,JFH2]
            16        CHAOS      Chaos                             [NC3]
            17        UDP        User Datagram              [39,91,JBP]
            18        MUX        Multiplexing                  [22,JBP]
            19        DCN-MEAS   DCN Measurement Subsystems       [DLM1]
            20        HMP        Host Monitoring               [6,RH6]
            21        PRM        Packet Radio Measurement          [ZSU]
            22        XNS-IDP    XEROX NS IDP                 [129,LLG]
            23        TRUNK-1    Trunk-1                           [SA2]
            24        TRUNK-2    Trunk-2                           [SA2]
            25        LEAF-1     Leaf-1                            [SA2]
            26        LEAF-2     Leaf-2                            [SA2]
            27        RDP        Reliable Data Protocol       [125,RH6]
            28        IRTP       Internet Reliable Transaction [68,TXM]
            29        ISO-TP4    ISO Transport Protocol Class 4 [57,RC7]
         30-60                   Unassigned                       [JBP]
            61                   any host internal protocol       [JBP]
            62        CFTP       CFTP                         [44,HCF2]
            63                   any local network                [JBP]
            64        SAT-EXPAK  SATNET and Backroom EXPAK         [SHB]
            65        MIT-SUBNET MIT Subnet Support                [NC3]
            66        RVD        MIT Remote Virtual Disk Protocol  [MBG]
            67        IPPC       Internet Pluribus Packet Core     [SHB]
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    68                        any distributed file system    [JBP]
    69      SAT-MON           SATNET Monitoring              [SHB]
    70                        Unassigned                     [JBP]
    71      IPCV              Internet Packet Core Utility   [SHB]
 72-75                        Unassigned                     [JBP]
    76      BR-SAT-MON        Backroom SATNET Monitoring     [SHB]
    77                        Unassigned                     [JBP]
    78      WB-MON            WIDEBAND Monitoring            [SHB]
    79      WB-EXPAK          WIDEBAND EXPAK                 [SHB]
80-254                        Unassigned                     [JBP]
   255                        Reserved                       [JBP]
```

                        ASSIGNED PORT NUMBERS

   Ports are used in the TCP [39,93] to name the ends of logical
   connections which carry long term conversations. For the purpose of
   providing services to unknown callers, a service contact port is
   defined. This list specifies the port used by the server process as
   its contact port. The contact port is sometimes called the
   "well-known port".

   To the extent possible, these same port assignments are used with the
   UDP [39,91].

   To the extent possible, these same port assignments are used with the
   ISO-TP4 [57].

   The assigned ports use a small portion of the possible port numbers.
   The assigned ports have all except the low order eight bits cleared
   to zero. The low order eight bits are specified here.

   Port Assignments:

Decimal	Keyword	Description	References
0		Reserved	[JBP]
1-4		Unassigned	[JBP]
5	RJE	Remote Job Entry	[17,40,JBP]
7	ECHO	Echo	[82,JBP]
9	DISCARD	Discard	[80,JBP]
11	USERS	Active Users	[76,JBP]
13	DAYTIME	Daytime	[79,JBP]
15	NETSTAT	Who is up or NETSTAT	[JBP]
17	QUOTE	Quote of the Day	[87,JBP]
19	CHARGEN	Character Generator	[78,JBP]
20	FTP-DATA	File Transfer [Default Data]	[39,83,JBP]
21	FTP	File Transfer [Control]	[39,83,JBP]
23	TELNET	Telnet	[99,JBP]
25	SMTP	Simple Mail Transfer	[39,89,JBP]
27	NSW-FE	NSW User System FE	[23,RHT]
29	MSG-ICP	MSG ICP	[74,RHT]
31	MSG-AUTH	MSG Authentication	[74,RHT]
33	DSP	Display Support Protocol	[MLC]
35		any private printer server	[JBP]
37	TIME	Time	[95,JBP]
39	RLP	Resource Location Protocol	[1,MA]
41	GRAPHICS	Graphics	[40,115,JBP]
42	NAMESERVER	Host Name Server	[39,86,JBP]
43	NICNAME	Who Is	[39,48,JAKE]
44	MPM-FLAGS	MPM FLAGS Protocol	[JBP]

```
45        MPM          Message Processing Module [recv]    [85,JBP]
46        MPM-SND      MPM [default send]                  [91,JBP]
47        NI-FTP       NI FTP                             [122,SK]
49        LOGIN        Login Host Protocol                  [PHD1]
51        LA-MAINT     IMP Logical Address Maintenance     [66,AGM]
53        DOMAIN       Domain Name Server               [81,71,PM1]
55        ISI-GL       ISI Graphics Language               [14,RB6]
57                     any private terminal access           [JBP]
59                     any private file service              [JBP]
61        NI-MAIL      NI MAIL                             [12,SK]
63        VIA-FTP      VIA Systems - FTP                     [DXD]
65        TACACS-DS    TACACS-Database Service             [11,RHT]
67        BOOTPS       Bootstrap Protocol Server           [35,WJC2]
68        BOOTPC       Bootstrap Protocol Client           [35,WJC2]
69        TFTP         Trivial File Transfer          [39,102,DDC1]
71        NETRJS-1     Remote Job Service                [16,40,RTB]
72        NETRJS-2     Remote Job Service                [16,40,RTB]
73        NETRJS-3     Remote Job Service                [16,40,RTB]
74        NETRJS-4     Remote Job Service                [16,40,RTB]
75                     any private dial out service          [JBP]
77                     any private RJE service               [JBP]
79        FINGER       Finger                            [40,46,KLH]
81        HOSTS2-NS    HOSTS2 Name Server                   [EAK1]
83        MIT-ML-DEV   MIT ML Device                        [DPR]
85        MIT-ML-DEV   MIT ML Device                        [DPR]
87                     any private terminal link             [JBP]
89        SU-MIT-TG    SU/MIT Telnet Gateway                [MRC]
91        MIT-DOV      MIT Dover Spooler                    [EBM]
93        DCP          Device Control Protocol              [DT15]
95        SUPDUP       SUPDUP                            [26,MRC]
97        SWIFT-RVF    Swift Remote Vitural File Protocol   [MXR]
98        TACNEWS      TAC News                            [FRAN]
99        METAGRAM     Metagram Relay                      [GEOF]
101       HOSTNAME     NIC Host Name Server             [39,47,JAKE]
103                    Unassigned                           [JBP]
105       CSNET-NS     Mailbox Name Nameserver            [113,MHS1]
107       RTELNET      Remote Telnet Service               [88,JBP]
109       POP-2        Post Office Protocol - Version 2    [19,JKR1]
111       SUNRPC       SUN Remote Procedure Call            [DXG]
113       AUTH         Authentication Service             [116,MCSJ]
115       SFTP         Simple File Transfer Protocol       [60,MKL1]
117       UUCP-PATH    UUCP Path Service                   [38,MAE]
119       UNTP         USENET News Transfer Protocol       [61,PL4]
121       ERPC         HYDRA Expedited Remote Procedure Call[118,JXO]
123       NTP          Network Time Protocol               [70,DLM1]
125       LOCUS-MAP    Locus PC-Interface Net Map Server  [124,BXG]
127       LOCUS-CON    Locus PC-Interface Conn Server     [124,BXG]
129                    Unassigned                           [JBP]
```

```
   131                     Unassigned                             [JBP]
   133-223                 Reserved                               [JBP]
   224-241                 Unassigned                             [JBP]
   243       SUR-MEAS      Survey Measurement                  [13,AV]
   245       LINK          LINK                              [18,RDB2]
   247-255                 Unassigned                             [JBP]
```

                    ASSIGNED AUTONOMOUS SYSTEM NUMBERS

   The Exterior Gateway Protocol (EGP) [108,105] specifies that groups
   of gateways may form autonomous systems. The EGP provides a 16-bit
   field for identifying such systems. The values of this field are
   registered here.

   Autonomous System Numbers:

   Decimal   Name   References
   -------   ----   ----------
        0   Reserved   [JBP]
        1   The BBN Core Gateways   [MB]
        2   DCN-AS   [DLM1]
        3   The MIT Gateways   [LM8]
        4   ISI-AS   [JKR1]
        5   Symbolics   [CH2]
        6   HIS-Multics   [BIM,JLM23]
        7   UK-MOD   [RNM1]
        8   RICE-AS   [PGM]
        9   CMU-ROUTER   [MA]
       10   CSNET-PDN-AS   [RDR4]
       11   HARVARD   [SB28]
       12   NYU-DOMAIN   [EF5]
       13   BRL-AS   [RBN1]
       14   COLUMBIA-GW   [BC14]
       15   NET DYNAMICS EXP   [ZSU]
       16   LBL   [WG]
       17   PURDUE-CS   [KCS1]
       18   UTEXAS   [JSQ1]
       19   CSS-DOMAIN   [RR2]
       20   UR   [LB16]
       21   RAND   [JDG]
       22   NOSC   [RLB3]
       23   RIACS-AS   [DG28]
       24   AMES-NAS-GW   [MF31]
       25   UCB   [MK17]
       26   CORNELL   [BN9]
       27   UMDNET   [JWO1]
       28   DFVLR-SYS   [HDC1]
       29   YALE-AS   [JG46]
       30   SRI-AICNET   [PM4]
       31   CIT-CS   [AD22]
       32   STANFORD   [PA5]
       33   DEC-WRL-AS   [RKJ2]
       34   UDEL-EECIS   [NMM]
       35   MICATON   [WDL]
       36   EGP-TESTOR   [BP17]

```
        37  NSWC                                            [MXP1]
        38  UIUC                                             [AKC]
        39  NRL-ITD                                           [AP]
        40  MIT-TEST                                         [NC3]
        41  AMES                                            [MSM1]
        42  THINK-AS                                        [BJN1]
        43  BNL-AS                                            [GC]
        44  S1-DOMAIN                                        [LWR]
        45  LLL-TIS-AS                                      [GP10]
        46  RUTGERS                                          [RM8]
        47  USC-OBERON                                      [DRS4]
        48  NRL-AS                                           [WF3]
        49  ICST-AS                                         [JCN2]
        50  ORNL-MSRNET                                      [THD]
        51  USAREUR-EM-AS                                    [WXD]
        52  UCLA                                             [BXL]
  53-65534  Unassigned                                       [JBP]
     65535  Reserved                                         [JBP]
```

                         DOMAIN SYSTEM PARAMETERS

   The Internet Domain Naming System (DOMAIN) includes several
   parameters. These are documented in RFC 883 [72]. The CLASS
   parameter is listed here. The per CLASS parameters are defined in
   separate RFCs as indicated.

   Domain System Parameters:

      Decimal   Name   References
      -------   ----   ----------
            0   Reserved   [PM1]
            1   Internet   [72,PM1]
            2   Unassigned   [PM1]
            3   Chaos   [PM1]
      4-65534   Unassigned   [PM1]
        65535   Reserved   [PM1]

                    ASSIGNED ARPANET LOGICAL ADDRESSES

   The ARPANET facility for "logical addressing" is described in
   RFC 878 [65]. A portion of the possible logical addresses are
   reserved for standard uses.

   There are 49,152 possible logical host addresses. Of these, 256 are
   reserved for assignment to well-known functions. Assignments for
   well-known functions are made by Joyce Reynolds. Assignments for
   other logical host addresses are made by the NIC.

   Logical Address Assignments:

       Decimal   Description   References
       -------   -----------   ----------
       0   Reserved   [JBP]
       1   The BBN Core Gateways   [MB]
       2-255   Unassigned   [JBP]
       256   Reserved   [JBP]

                    ASSIGNED ARPANET LINK NUMBERS

The word "link" here refers to a field in the original ARPANET
Host/IMP interface leader. The link was originally defined as an
8-bit field. Later specifications defined this field as the
"message-id" with a length of 12 bits. The name link now refers to
the high order 8 bits of this 12-bit message-id field. The Host/IMP
interface is defined in BBN Report 1822 [10].

The low-order 4 bits of the message-id field are called the sub-link.
Unless explicitly specified otherwise for a particular protocol,
there is no sender to receiver significance to the sub-link. The
sender may use the sub-link in any way he chooses (it is returned in
the RFNM by the destination IMP), the receiver should ignore the
sub-link.

Link Assignments:

    Decimal   Description   References
    -------   -----------   ----------
    0   Reserved   [JBP]
    1-149   Unassigned   [JBP]
    150   Xerox NS IDP   [129,LLG]
    151   Unassigned   [JBP]
    152   PARC Universal Protocol   [15,HGM]
    153   TIP Status Reporting   [JGH]
    154   TIP Accounting   [JGH]
    155   Internet Protocol [regular]   [39,92,JBP]
    156-158   Internet Protocol [experimental]   [39,92,JBP]
    159   Figleaf Link   [JBW1]
    160-194   Unassigned   [JBP]
    195   ISO-IP   [58,RXM]
    196-247   Experimental Protocols   [JBP]
    248-255   Network Maintenance   [JGH]

                    IEEE 802 SAP NUMBERS OF INTEREST

Some of the networks of all classes are IEEE 802 Networks. These
systems may use a Service Access Point field in much the same way the
ARPANET uses the "link" field. For further information and SAP
number assignments, please contact: Mr. Maris Graube, Chairman, IEEE
802, Route 1, 244 H, Forest Grove, Oregon, 97116.

Assignments:

   Service Access Point   Description   References
   --------------------   -----------   ----------
   decimal binary
     127   01111111   ISO DIS 8473   [JXJ]
      96   01100000   DOD IP   [39,91,JBP]

The IEEE 802.3 header does not have a type field to indicate what
protocol is used at the next level. As a work around for this
problem, one can put the Ethernet type field value in the IEEE 802.3
header's length field and use the following test to determine the
appropriate processing on receipt.

If the value in the length field of the IEEE 802.3 header is greater
than the Ethernet maximum packet length, then interpret the value as
an Ethernet type field. Otherwise, interpret the packet as an IEEE
802.3 packet.

The proposed standard for transmission of IP datagrams over IEEE
802.3 networks is specified in RFC 948 [127].

ETHERNET NUMBERS OF INTEREST

Many of the networks of all classes are Ethernets (10Mb) or
Experimental Ethernets (3Mb). These systems use a message "type"
field in much the same way the ARPANET uses the "link" field.

If you need an Ethernet number, contact the XEROX Corporation, Office
Products Division, Network Systems Administration Office, 333 Coyote
Hill Road, Palo Alto, California, 94304.

Assignments:

Ethernet		Exp. Ethernet		Description	References
decimal	Hex	decimal	octal		
512	0200	512	1000	XEROX PUP	[1,HGM]
513	0201	–	–	PUP Addr. Trans.	[HGM]
1536	0600	1536	3000	XEROX NS IDP	[128,HGM]
2048	0800	513	1001	DOD IP	[39,91,JBP]
2049	0801	–	–	X.75 Internet	[HGM]
2050	0802	–	–	NBS Internet	[HGM]
2051	0803	–	–	ECMA Internet	[HGM]
2052	0804	–	–	Chaosnet	[HGM]
2053	0805	–	–	X.25 Level 3	[HGM]
2054	0806	–	–	ARP	[74,JBP]
2055	0807	–	–	XNS Compatability	[HGM]
2076	081C	–	–	Symbolics Private	[DCP1]
32771	8003	–	–	Cronus VLN	[116,DT15]
32772	8004	–	–	Cronus Direct	[116,DT15]
32774	8006	–	–	Nestar	[HGM]
32784	8010	–	–	Excelan	[HGM]
32821	8035	–	–	Reverse ARP	[42,JCM]
36864	9000	–	–	Loopback	[HGM]

The standard for transmission of IP datagrams over Ethernets and
Experimental Ethernets is specified in RFC 894 [54] and RFC 895 [76]
respectively.

ASSIGNED ADDRESS RESOLUTION PROTOCOL PARAMETERS

The Address Resolution Protocol (ARP) specified in RFC 826 [75] has
several parameters. The assigned values for these parameters are
listed here.

Assignments:

Operation Code (op)

     1   REQUEST
     2   REPLY

Hardware Type (hrd)

     Type   Description   References
     ----   -----------   ----------
      1   Ethernet (10Mb)   [JBP]
      2   Experimental Ethernet (3Mb)   [JBP]
      3   Amateur Radio AX.25   [PXK]
      4   Proton ProNET Token Ring   [JBP]
      5   Chaos   [GXP]

Protocol Type (pro)

     Use the same codes as listed in the section called "Ethernet
     Numbers of Interest" (all hardware types use this code set for
     the protocol type).

                ASSIGNED PUBLIC DATA NETWORK NUMBERS

     One of the Internet Class A Networks is the international system of
     Public Data Networks. This section lists the mapping between the
     Internet Addresses and the Public Data Network Addresses (X.121).

     Assignments:

Internet	Public Data Net	Description	References
014.000.000.000		Reserved	[JBP]
014.000.000.001	3110-317-00035 00	PURDUE-TN	[CAK]
014.000.000.002	3110-608-00027 00	UWISC-TN	[CAK]
014.000.000.003	3110-302-00024 00	UDEL-TN	[CAK]
014.000.000.004	2342-192-00149 23	UCL-VTEST	[PK]
014.000.000.005	2342-192-00300 23	UCL-TG	[PK]
014.000.000.006	2342-192-00300 25	UK-SATNET	[PK]
014.000.000.007	3110-608-00024 00	UWISC-IBM	[MHS1]
014.000.000.008	3110-213-00045 00	RAND-TN	[MO2]
014.000.000.009	2342-192-00300 23	UCL-CS	[PK]
014.000.000.010	3110-617-00025 00	BBN-VAN-GW	[JD21]
014.000.000.011	2405-015-50300 00	CHALMERS	[UXB]
014.000.000.012	3110-713-00165 00	RICE	[PAM6]
014.000.000.013	3110-415-00261 00	DECWRL	[PAM6]
014.000.000.014	3110-408-00051 00	IBM-SJ	[SA1]
014.000.000.015	2041-117-01000 00	SHAPE	[JFW]
014.000.000.016	2628-153-90075 00	DFVLR4-X25	[HDC1]
014.000.000.017	3110-213-00032 00	ISI-VAN-GW	[JD21]
014.000.000.018	2624-522-80900 52	DFVLR5-X25	[HDC1]
014.000.000.019	2041-170-10000 00	SHAPE-X25	[JFW]
014.000.000.020	5052-737-20000 50	UQNET	[AXH]
014.000.000.021	3020-801-00057 50	DMC-CRC1	[JR17]
014.000.000.022-014.255.255.254		Unassigned	[JBP]
014.255.255.255		Reserved	[JBP]

     The standard for transmission of IP datagrams over the Public Data
     Network is specified in RFC 877 [60].

                         ASSIGNED TELNET OPTIONS

    The Telnet Protocol has a number of options that may be negotiated.
    These options are listed here. "Official ARPA-Internet
    Protocols" [104] provides more detailed information.

    Options Name   References
    ------- ----------------------   ----------
        0   Binary Transmission   [97,JBP]
        1   Echo   [98,JBP]
        2   Reconnection   [7,JBP]
        3   Suppress Go Ahead   [101,JBP]
        4   Approx Message Size Negotiation   [40,JBP]
        5   Status   [100,JBP]
        6   Timing Mark   [102,JBP]
        7   Remote Controlled Trans and Echo   [94,JBP]
        8   Output Line Width   [5,JBP]
        9   Output Page Size   [6,JBP]
       10   Output Carriage-Return Disposition   [27,JBP]
       11   Output Horizontal Tab Stops   [31,JBP]
       12   Output Horizontal Tab Disposition   [30,JBP]
       13   Output Formfeed Disposition   [28,JBP]
       14   Output Vertical Tabstops   [33,JBP]
       15   Output Vertical Tab Disposition   [32,JBP]
       16   Output Linefeed Disposition   [29,JBP]
       17   Extended ASCII   [123,JBP]
       18   Logout   [24,MRC]
       19   Byte Macro   [34,JBP]
       20   Data Entry Terminal   [37,JBP]
       22   SUPDUP   [26,25,MRC]
       22   SUPDUP Output   [45,MRC]
       23   Send Location   [59,EAK1]
       24   Terminal Type   [114,MHS1]
       25   End of Record   [89,JBP]
       26   TACACS User Identification   [3,BA4]
       27   Output Marking   [110,SXS]
       28   Terminal Location Number   [73,RN6]
      255   Extended-Options-List   [96,JBP]

                    OFFICIAL MACHINE NAMES

    These are the Official Machine Names as they appear in the NIC Host
    Table. Their use is described in RFC 810 [41].

    ALTO
    AMDAHL-V7
    APOLLO
    ATT-3B20
    BBN-C/60
    BURROUGHS-B/29
    BURROUGHS-B/4800
    BUTTERFLY
    C/30
    C/70
    CADLINC
    CADR
    CDC-170
    CDC-170/750
    CDC-173
    CELERITY-1200
    COMTEN-3690
    CP8040
    CTIWS-117
    DANDELION
    DEC-10
    DEC-1050
    DEC-1077
    DEC-1080
    DEC-1090
    DEC-1090B
    DEC-1090T
    DEC-2020T
    DEC-2040
    DEC-2040T
    DEC-2050T
    DEC-2060
    DEC-2060T
    DEC-2065
    DEC-FALCON
    DEC-KS10
    DORADO
    DPS8/70M
    ELXSI-6400
    FOONLY-F2
    FOONLY-F3
    FOONLY-F4
    GOULD

        GOULD-6050
        GOULD-6080
        GOULD-9050
        GOULD-9080
        H-316
        H-60/68
        H-68
        H-68/80
        H-89
        HONEYWELL-DPS-6
        HONEYWELL-DPS-8/70
        HP3000
        HP3000/64
        IBM-158
        IBM-360/67
        IBM-370/3033
        IBM-3081
        IBM-3084QX
        IBM-3101
        IBM-4331
        IBM-4341
        IBM-4361
        IBM-4381
        IBM-4956
        IBM-PC
        IBM-PC/AT
        IBM-PC/XT
        IBM-SERIES/1
        IMAGEN
        IMAGEN-8/300
        IMSAI
        INTEGRATED-SOLUTIONS
        INTEGRATED-SOLUTIONS-68K
        INTEGRATED-SOLUTIONS-CREATOR
        INTEGRATED-SOLUTIONS-CREATOR-8
        INTEL-IPSC
        IRIS
        IRIS-1400
        IS-1
        IS-68010
        LMI
        LSI-11
        LSI-11/2
        LSI-11/23
        LSI-11/73
        M-6800
        M68000
        MASSCOMP

    MC500
    MC68000
    MICROVAX
    MICROVAX-I
    MV/8000
    NAS3-5
    NCR-COMTEN-3690
    NOW
    ONYX-Z8000
    PDP-11
    PDP-11/3
    PDP-11/23
    PDP-11/24
    PDP-11/34
    PDP-11/40
    PDP-11/44
    PDP-11/45
    PDP-11/50
    PDP-11/70
    PDP-11/73
    PE-7/32
    PE-3205
    PERQ
    PLEXUS-P/60
    PLI
    PLURIBUS
    PYRAMID-90
    PYRAMID-90MX
    PYRAMID-90X
    RIDGE
    RIDGE-32
    RIDGE-32C
    ROLM-1666
    S1-MKIIA
    SMI
    SEQUENT
    SEQUENT-BALANCE-8000
    SGI-IRIS
    SIEMENS
    SILICON-GRAPHICS
    SILICON-GRAPHICS-IRIS
    SPERRY-DCP/10
    SUN
    SUN-2
    SUN-2/50
    SUN-2/100
    SUN-2/120
    SUN-2/140

```
        SUN-2/150
        SUN-2/160
        SUN-2/170
        SUN-3/160
        SUN-3/75
        SUN-50
        SUN-100
        SUN-120
        SUN-130
        SUN-150
        SUN-170
        SUN-68000
        SYMBOLICS-3600
        SYMBOLICS-3670
        TANDEM-TXP
        TEK-6130
        TI-EXPLORER
        TP-4000
        TRS-80
        UNIVAC-1100
        UNIVAC-1100/60
        UNIVAC-1100/62
        UNIVAC-1100/63
        UNIVAC-1100/64
        UNIVAC-1100/70
        UNIVAC-1160
        VAX-11/725
        VAX-11/730
        VAX-11/750
        VAX-11/780
        VAX-11/785
        VAX-11/790
        VAX-11/8600
        VAX-8600
        WANG-PC002
        WANG-VS100
        WANG-VS400
        XEROX-1100
        XEROX-1108
        XEROX-8010
```

                     OFFICIAL SYSTEM NAMES

     These are the Official System Names as they appear in the NIC Host
     Table. Their use is described in RFC 810 [41].

     AEGIS
     APOLLO
     BS-2000
     CEDAR
     CGW
     CHRYSALIS
     CMOS
     CMS
     COS
     CPIX
     CTOS
     DCN
     DDNOS
     DOMAIN
     EDX
     ELF
     EMBOS
     EMMOS
     EPOS
     FOONEX
     FUZZ
     GCOS
     GPOS
     HDOS
     IMAGEN
     INTERCOM
     IMPRESS
     INTERLISP
     IOS
     ITS
     LISP
     LISPM
     LOCUS
     MINOS
     MOS
     MPE5
     MSDOS
     MULTICS
     MVS
     MVS/SP
     NEXUS
     NMS
     NONSTOP

```
   NOS-2
   OS/DDP
   OS4
   OS86
   OSX
   PCDOS
   PERQ-OS
   PLI
   PSDOS/MIT
   RMX/RDOS
   ROS
   RSX11M
   SATOPS
   SCS
   SIMP
   SWIFT
   TAC
   TANDEM
   TENEX
   TOPS-10
   TOPS-20
   TP3010
   TRSDOS
   ULTRIX
   UNIX
   UT2D
   V
   VM
   VM/370
   VM/CMS
   VM/SP
   VMS
   VMS/EUNICE
   VRTX
   WAITS
   WANG
   XDE
   XENIX
```

OFFICIAL PROTOCOL AND SERVICE NAMES

These are the Official Protocol Names. Their use is described in
greater detail in RFC 810 [41].

```
ARGUS               - ARGUS Protocol
AUTH                - Authentication Service
BBN-RCC-MON         - BBN RCC Monitoring
BOOTPC              - Bootstrap Protocol Client
BOOTPS              - Bootstrap Protocol Server
BR-SAT-MON          - Backroom SATNET Monitoring
CFTP                - CFTP
CHAOS               - CHAOS Protocol
CHARGEN             - Character Generator Protocol
CLOCK               - DCNET Time Server Protocol
CSNET-NS            - CSNET Mailbox Nameserver Protocol
DAYTIME             - Daytime Protocol
DCN-MEAS            - DCN Measurement Subsystems Protocol
DCP                 - Device Control Protocol
DISCARD             - Discard Protocol
DOMAIN              - Domain Name Server
ECHO                - Echo Protocol
EGP                 - Exterior Gateway Protocol
EMCON               - Emission Control Protocol
FINGER              - Finger Protocol
FTP                 - File Transfer Protocol
GGP                 - Gateway Gateway Protocol
GRAPHICS            - Graphics Protocol
HMP                 - Host Monitoring Protocol
HOST2-NS            - Host2 Name Server
HOSTNAME            - Hostname Protocol
ICMP                - Internet Control Message Protocol
IGP                 - Interior Gateway Protocol
IP                  - Internet Protocol
IPCU                - Internet Packet Core Utility
IPPC                - Internet Pluribus Packet Core
IRTP                - Internet Reliable Transaction Protocol
ISI-GL              - ISI Graphics Language Protocol
ISO-TP4             - ISO Transport Protocol Class 4
LA-MAINT            - IMP Logical Address Maintenance
LEAF-1              - Leaf-1 Protocol
LEAF-2              - Leaf-2 Protocol
LINK                - Link Protocol
LOGIN               - Login Host Protocol
METAGRAM            - Metagram Relay
MIT-ML-DEV          - MIT ML Device
MIT-SUBNET          - MIT Subnet Support
MIT-DOV             - MIT Dover Spooler
```

```
     MPM                     - Internet Message Protocol (Multimedia Mail)
     MPM-FLAGS               - MP Flags Protocol
     MSG-AUTH                - MSG Authentication Protocol
     MSG-ICP                 - MSG ICP Protocol
     MUX                     - Multiplexing Protocol
     NAMESERVER              - Host Name Server
     NETED                   - Network Standard Text Editor
     NETRJS                  - Remote Job Service
     NI-FTP                  - NI File Transfer Protocol
     NI-MAIL                 - NI Mail Protocol
     NICNAME                 - Who Is Protocol
     NSW-FE                  - NSW User System Front End
     NTP                     - Network Time Protocol
     NVP-II                  - Network Voice Protocol
     POP2                    - Post Office Protocol - Version 2
     PRM                     - Packet Radio Measurement
     PUP                     - PUP Protocol
     QUOTE                   - Quote of the Day Protocol
     RDP                     - Reliable Data Protocol
     RJE                     - Remote Job Entry
     RLP                     - Resource Location Protocol
     RTELNET                 - Remote Telnet Service
     RVD                     - Remote Virtual Disk Protocol
     SAT-EXPAK               - Satnet and Backroom EXPAK
     SAT-MON                 - SATNET Monitoring
     SFTP                    - Simple File Transfer Protocol
     SMTP                    - Simple Mail Transfer Protocol
     ST                      - Stream Protocol
     SU-MIT-TG               - SU/MIT Telnet Gateway Protocol
     SUNRPC                  - SUN Remote Procedure Call
     SUPDUP                  - SUPDUP Protocol
     SUR-MEAS                - Survey Measurement
     SWIFT-RVF               - Remote Virtual File Protocol
     TACACS-DS               - TACACS-Database Service
     TACNEWS                 - TAC News
     TCP                     - Transmission Control Protocol
     TELNET                  - Telnet Protocol
     TFTP                    - Trivial File Transfer Protocol
     TIME                    - Time Server Protocol
     TRUNK-1                 - Trunk-1 Protocol
     TRUNK-2                 - Trunk-2 Protocol
     UCL                     - University College London Protocol
     UDP                     - User Datagram Protocol
     UNTP                    - USENET News Transfer Protocol
     USERS                   - Active Users Protocol
     UUCP-PATH               - UUCP Path Service
     VIA-FTP                 - VIA Systems-File Transfer Protocol
     WB-EXPAK                - Wideband EXPAK
```

     WB-MON   - Wideband Monitoring
     XNET   - Cross Net Debugger
     XNS-IDP   - Xerox NS IDP

OFFICIAL TERMINAL TYPE NAMES

These are the Official Terminal Type Names. Their use is described
in RFC 930 [114]. The maximum length of a name is 40 characters.

    ADDS-CONSUL-980
    ADDS-REGENT-100
    ADDS-REGENT-20
    ADDS-REGENT-200
    ADDS-REGENT-25
    ADDS-REGENT-40
    ADDS-REGENT-60
    AMPEX-DIALOGUE-80
    ANDERSON-JACOBSON-630
    ANDERSON-JACOBSON-832
    ANDERSON-JACOBSON-841
    ANN-ARBOR-AMBASSADOR
    ARDS
    BITGRAPH
    BUSSIPLEXER
    CALCOMP-565
    CDC-456
    CDI-1030
    CDI-1203
    CLNZ
    COMPUCOLOR-II
    CONCEPT-100
    CONCEPT-104
    CONCEPT-108
    DATA-100
    DATA-GENERAL-6053
    DATAGRAPHIX-132A
    DATAMEDIA-1520
    DATAMEDIA-1521
    DATAMEDIA-2500
    DATAMEDIA-3025
    DATAMEDIA-3025A
    DATAMEDIA-3045
    DATAMEDIA-3045A
    DATAMEDIA-DT80/1
    DATAPOINT-2200
    DATAPOINT-3000
    DATAPOINT-3300
    DATAPOINT-3360
    DEC-DECWRITER-I
    DEC-DECWRITER-II
    DEC-GT40
    DEC-GT40A

     DEC-GT42
     DEC-LA120
     DEC-LA30
     DEC-LA36
     DEC-LA38
     DEC-VT05
     DEC-VT100
     DEC-VT132
     DEC-VT50
     DEC-VT50H
     DEC-VT52
     DELTA-DATA-5000
     DELTA-TELTERM-2
     DIABLO-1620
     DIABLO-1640
     DIGILOG-333
     DTC-300S
     EDT-1200
     EXECUPORT-4000
     EXECUPORT-4080
     GENERAL-TERMINAL-100A
     GSI
     HAZELTINE-1500
     HAZELTINE-1510
     HAZELTINE-1520
     HAZELTINE-2000
     HP-2621
     HP-2621A
     HP-2621P
     HP-2626
     HP-2626A
     HP-2626P
     HP-2640
     HP-2640A
     HP-2640B
     HP-2645
     HP-2645A
     HP-2648
     HP-2648A
     HP-2649
     HP-2649A
     IBM-3101
     IBM-3101-10
     IBM-3275-2
     IBM-3276-2
     IBM-3276-3
     IBM-3276-4
     IBM-3277-2

        IBM-3278-2
        IBM-3278-3
        IBM-3278-4
        IBM-3278-5
        IBM-3279-2
        IBM-3279-3
        IMLAC
        INFOTON-100
        INFOTONKAS
        ISC-8001
        LSI-ADM-3
        LSI-ADM-31
        LSI-ADM-3A
        LSI-ADM-42
        MEMOREX-1240
        MICROBEE
        MICROTERM-ACT-IV
        MICROTERM-ACT-V
        MICROTERM-MIME-1
        MICROTERM-MIME-2
        NETRONICS
        NETWORK-VIRTUAL-TERMINAL
        OMRON-8025AG
        PERKIN-ELMER-1100
        PERKIN-ELMER-1200
        PERQ
        PLASMA-PANEL
        QUME-SPRINT-5
        SOROC
        SOROC-120
        SOUTHWEST-TECHNICAL-PRODUCTS-CT82
        SUPERBEE
        SUPERBEE-III-M
        TEC
        TEKTRONIX-4010
        TEKTRONIX-4012
        TEKTRONIX-4013
        TEKTRONIX-4014
        TEKTRONIX-4023
        TEKTRONIX-4024
        TEKTRONIX-4025
        TEKTRONIX-4027
        TELERAY-1061
        TELERAY-3700
        TELERAY-3800
        TELETEC-DATASCREEN
        TELETERM-1030
        TELETYPE-33

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        TELETYPE-35
        TELETYPE-37
        TELETYPE-38
        TELETYPE-43
        TELEVIDEO-912
        TELEVIDEO-920
        TELEVIDEO-920B
        TELEVIDEO-920C
        TELEVIDEO-950
        TERMINET-1200
        TERMINET-300
        TI-700
        TI-733
        TI-735
        TI-743
        TI-745
        TYCOM
        UNIVAC-DCT-500
        VIDEO-SYSTEMS-1200
        VIDEO-SYSTEMS-5000
        VISUAL-200
        XEROX-1720
        ZENITH-H19
        ZENTEC-30
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                          APPENDIX A

  Network Numbers

      The network numbers in class A, B, and C network addresses are
      allocated among Research, Defense, Government (Non-Defense) and
      Commercial uses.

      Class A (highest-order bit 0)

         Research allocation: 8
         Defense allocation: 24
         Government allocation: 24
         Commercial allocation: 94
         Reserved Addresses: (0, 127)
         Total   128

      Class B (highest-order bits 1-0)

         Research allocation: 1024
         Defense allocation: 3072
         Government allocation: 3072
         Commercial allocation: 12286
         Reserved Addresses: (0, 16383)
         Total   16384

      Class C (highest-order bits 1-1-0)

         Research allocation: 65536
         Defense allocation: 458725
         Government allocation: 458725
         Commercial allocation: 1572862
         Reserved Addresses: (0, 2097151)
         Total   2097152

      Class D (highest-order bits 1-1-1)

         All addresses in this class are reserved for future use.

      Within the Research community, network identifiers will only be
      granted to applicants who show evidence that they are acquiring
      standard Bolt Beranek and Newman gateway software or have
      implemented or are acquiring a gateway meeting the Exterior
      Gateway Protocol requirements. Acquisition of the Berkeley BSD
      4.2 UNIX software might be considered evidence of the latter.

Experimental networks which later become operational need not be
renumbered. Rather, the identifiers could be moved from Research
to Defense, Government or Commercial status. Thus, network
identifiers may change state among Research, Defense, Government
and Commercial, but the number of identifiers allocated to each
use must remain within the limits indicated above. To make
possible this fluid assignment, the network identifier spaces are
not allocated by simple partition, but rather by specific
assignment.

Protocol Identifiers

These assignments are shared by the four communities.

Port Numbers

These assignments are shared by the four communities.

ARPANET Link Numbers

These assignments are shared by the four communities.

IP Version Numbers

These assignments are shared by the four communities.

TCP, IP and Telnet Option Identifiers

These assignments are shared by the four communities.

Implementation:

Joyce Reynolds is the coordinator for all number assignments.