Network Working Group
Request for Comments: 943

Obsoletes RFCs: 923, 900, 870,
820, 790, 776, 770, 762, 758,
755, 750, 739, 604, 503, 433, 349
Obsoletes IENs: 127, 117, 93

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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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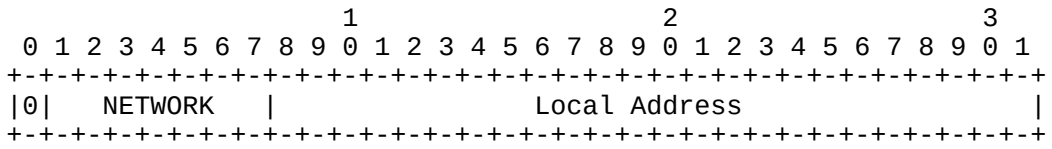
Most of the protocols mentioned here are documented in the RFC series of notes. The more prominent and more generally used are documented in the "Internet Protocol Transition Workbook" [35] or in the old "ARPANET Protocol Handbook" [36] prepared by the NIC. Some of the items listed are undocumented. Further information on protocols can be found in the memo "Official ARPA-Internet Protocols" [92].

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, letters are a NIC Ident as used in the WHOIS service.

ASSIGNED NETWORK NUMBERS

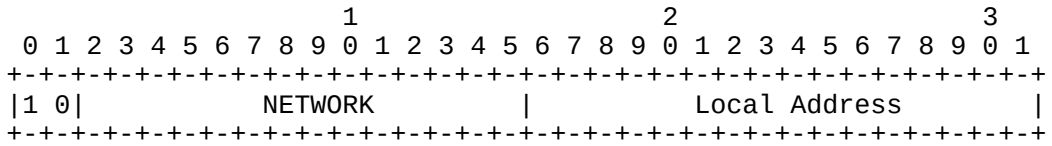
The network numbers listed here are used as internet addresses by the Internet Protocol (IP) [35,80]. The IP uses a 32-bit address field and divides that address into a network part and a "rest" or local address part. The division takes 3 forms or classes.

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.



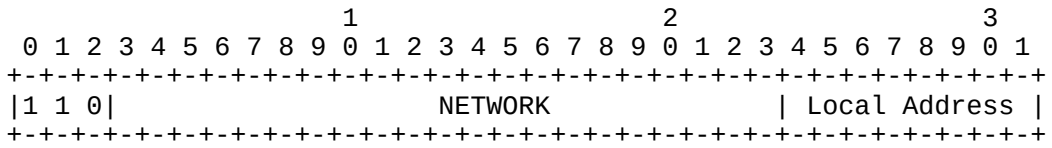
Class A Address

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.



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.



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-ISIF.ARPA in dotted decimal is 010.002.000.052, or 10.2.0.52.

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 need 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

*	Internet Address	Name	Network	References
	000.rrr.rrr.rrr		Reserved	[JBP]
R	004.rrr.rrr.rrr	SATNET	Atlantic Satellite Network	[DM11]
D	006.rrr.rrr.rrr T	YPG-NET-TEMP	Yuma Proving Grounds	[8,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	[8,36,REK2]
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	[17,91,DDC2]
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	[8,DHH]
R	025.rrr.rrr.rrr	RSRE-EXP-NET	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]
R	032.rrr.rrr.rrr	UCL-TAC	UCL TAC	[PK]
R	036.rrr.rrr.rrr T	SU-NET-TEMP	Stanford University Network	[JCM]
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]
	031.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]

Class B Networks

*	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	[62,DLM1]
R	128.005.rrr.rrr	FORDNET	FORD DCNET	[62,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	[62,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	[57,WIM]
R	128.012.rrr.rrr	SU-NET	Stanford University Net	[JCM]
D	128.013.rrr.rrr	MATNET	Mobile Access Terminal Net	[DM11]
R	128.014.rrr.rrr	BBN-SAT-TEST	BBN SATNET Test Net	[DM11]
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	[DM11]
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	[8,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	Testbed Development PR NET	[BG5]
R	128.029.rrr.rrr	MITRE	MITRE Cablenet	[99,APS]
R	128.030.rrr.rrr	MIT-NET	MIT Local Network	[DDC2]
R	128.031.rrr.rrr	MIT-RES	MIT Research Network	[DDC2]
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	[48,49,RK1]
R	128.036.rrr.rrr	YALE-NET	YALE NET	[113,JO5]
D	128.037.rrr.rrr	YPG-NET	Yuma Proving Grounds	[8,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	[62,113,PGM]
R	128.043.rrr.rrr	DRENET	Canada REF ARPANET	[8,JR17]

D	128.044.rrr.rrr	WSMR-NET	White Sands Network	[TBS]
C	128.045.rrr.rrr	DEC-WRL-NET	DEC WRL Network	[113,RKJ2]
R	128.046.rrr.rrr	PURDUE-NET	Purdue Campus Network	[CAK]
D	128.047.rrr.rrr	TACTNET	Tactical Packet Net	[7,KTP]
C*	128.048.rrr.rrr	UCDLA-NET	UCDLA MELVYL Network	[8,CXL]
R	128.049.rrr.rrr	NOSC-ETHER	NOSC Ethernet	[113,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	[113,MDC]
R	128.053.rrr.rrr	SAC-PR-2	SAC PRNET Number 2	[BG5]
R	128.054.rrr.rrr	UCSD	UC San Diego Network	[113,GH29]
R*	128.055.rrr.rrr	MFENET	LLNL MFE Network	[97,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	[113,RXB]
R	128.059.rrr.rrr	CU-NET	Columbia University	[113,LH2]
D	128.060.rrr.rrr	NRL-LAN	NRL Lab Area Net	[WF3]
R*	128.061.rrr.rrr	GATECH	Georgia Tech	[113,SXA]
R	128.062.rrr.rrr	MCC-NET	MCC Corporate Net	[113,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]
	128.081.rrr.rrr-191.254.rrr.rrr		Unassigned	[JBP]
	191.255.rrr.rrr		Reserved	[JBP]

Class C Networks

*	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-192.001.008.rrr		BBN local networks	[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	[113,PXK]
R	192.005.001.rrr	CISLHYPERNET	Honeywell	[RK1]
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	[106,KWP]
R	192.005.006.rrr	DEC-MRRAD	DEC Marlboro Developmt	[106,KWP]
R	192.005.007.rrr	CIT-CS-NET	Caltech-CS-Net	[112,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	[RF1]
R 192.005.013.rrr	GSWDNET	Compion Network	[113,FAS]
R 192.005.014.rrr	RAND-NET	RAND Network	[113,JDG]
R 192.005.015.rrr	NYU-NET	NYU Network	[EF5]
R 192.005.016.rrr	LANL-LAND	Los Alamos Dev LAN	[113,JC11]
R 192.005.017.rrr	NRL-NET	Naval Research Lab	[AP]
R 192.005.018.rrr	IPTO-NET	ARPA-IPTO Office Net	[REK2]
R 192.005.019.rrr	UCIICS	UCI-ICS Res Net	[MTR]
R 192.005.020.rrr	CISLTTYNET	Honeywell	[RK1]
D 192.005.021.rrr	BRLNET1	BRLNET1	[8,MJM2]
D 192.005.022.rrr	BRLNET2	BRLNET2	[8,MJM2]
D 192.005.023.rrr	BRLNET3	BRLNET3	[8,MJM2]
D 192.005.024.rrr	BRLNET4	BRLNET4	[8,MJM2]
D 192.005.025.rrr	BRLNET5	BRLNET5	[8,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]
R 192.005.032.rrr	CISLTESTNET2	Honeywell	[48,49,RK1]
R 192.005.033.rrr	CISLTESTNET3	Honeywell	[29,30,RK1]
R 192.005.034.rrr	CISLTESTNET4	Honeywell	[29,30,RK1]
R 192.005.035.rrr	RIACS	USRA	[113,RLB1]
R 192.005.036.rrr	CORNELL-CS	CORNELL CS Research	[113,DK2]
R 192.005.037.rrr	UR-CS-NET	U of R CS 3Mb Net	[60,LB1]
R 192.005.038.rrr	SRI-C3ETHER	SRI-AITAD C3ETHERNET	[113,BG5]
R 192.005.039.rrr	UDEL-EECIS	Udel EECIS LAN	[107,CC2]
R 192.005.040.rrr	PUCC-NET-A	PURDUE Comp Cntr Net	[JRS8]
D 192.005.041.rrr	WISLAN	WIS Research LAN	[99,JRM1]
D 192.005.042.rrr	AFDSC-HYPER	AFDSC Hypernet	[MCA1]
R 192.005.043.rrr	CUCSNET	Columbia CS Net	[113,LH2]
R 192.005.044.rrr	Farber-PC-Net	Farber PC Network	[DJF]
R 192.005.045.rrr	AIDS-NET	AI&DS Network	[113,HA]
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	[113,CAK]
R 192.005.049.rrr	UCSF	Univ of Calif, San Fran	[107,TF6]
R 192.005.050.rrr	CTH-CS-NET	Chalmers CSN Net	[107,UXB]
R 192.005.051.rrr	Theorynet	Cornell Theory Center	[113,AB13]
R 192.005.052.rrr	NLM-ETHER	NLM-LHNCBC-ETHERNET	[80,JA1]
R 192.005.053.rrr	UR-CS-ETHER	U of R CS 10Mb Net	[60,LB1]
R 192.005.054.rrr	AERO-A6	Aerospace	[2,LCN]
R*192.005.055.rrr	UCLA-CECS	UCLA-CECS Network	[113,RBW]
C 192.005.056.rrr	TARTAN-NET	Tartan Labs	[SXB]
R 192.005.057.rrr	UDEL-CC	UDEL Comp Center	[107,RR18]
R 192.005.058.rrr	CSNET-PDN	CSNET X.25 Network	[54,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	[106,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	[107,GIH]
R 192.005.068.rrr	AERO-130	AEROSPACE-130	[LCN]
R 192.005.069.rrr	UIUC-NET	Univ of IL at Urbana	[113,AXC]
G 192.005.070.rrr	CELAN	COINS Exper. LAN	[MXM]
R 192.005.071.rrr	SAC-ETHER	SAC C3 Ethernet	[113,BG5]
R*192.005.072.rrr-192.005.087.rrr		U Chicago	[TXN]
R 192.005.088.rrr	YALE-EE-NET	YALE-EE-NET	[113,AG22]
R 192.005.089.rrr	UTEXAS-NET	U. Texas Austin Net	[113,JSQ1]
R 192.005.090.rrr	HARV-ETHER	Harvard CS Ethernet	[SB28]
R 192.005.091.rrr	PURDUE-ECN1	Purdue ECN	[32,51,GG11]
R 192.005.092.rrr	BRAGG-ETHER	SRI Bragg Ether	[108,GIH]
R 192.005.093.rrr	SRI-DEMO	SRI Ether Demo	[108,GIH]
R*192.005.094.rrr	SDCRDCF-10MB	SDC R&D primary net	[113,DJV1]
R*192.005.095.rrr	SDCRDCF-3MB	SDC R&D old net	[60,DJV1]
R*192.005.096.rrr	UBC-CS-NET	UBC Comp Sci Net	[113,PXB]
R*192.005.097.rrr	UCLA-CS-LNI	UCLA CS LNI Network	[RBW]
R*192.005.098.rrr	UCLA-PIC	UCLA PIC Network	[113,RBW]
R 192.005.099.rrr	SPACENET	S-1 Workstation Network	[113,TXW]
192.005.100.rrr	Unassigned	Unassigned	[JBP]
R 192.005.101.rrr	PUCC-GW-NET	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	[113,BJN1]
R 192.005.105.rrr	CCA-POND	CCA Ethernet1 (POND)	[113,AL6]
C*192.005.106.rrr	BITSTREAM	Bitstream Type Foundry	[113,PXA]
R*192.005.107.rrr	PASC-ETHER	IBM PASC Ethernet	[113,GXL]
R*192.005.108.rrr	PASC-BB	IBM PASC Broadband	[52,GXL]
192.005.109.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 Microsystem, Inc.	[WNJ]
C*192.010.000.rrr-192.010.040.rrr		Symbolics, Inc.	[CH2]
R 192.010.041.rrr	SCRC-ETHERNET	SCRC ETHERNET	[113,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]
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	[113,AMS1]
C*192.012.004.rrr	SCG-NET	Hughes SCG Net	[109,MXP]

```
R 192.012.005.rrr   AIC-LISPMS    SRI-AIC-LispMachNet    [113,PM4]
R 192.012.006.rrr   NPS-C2        NPS-C2                 [113,AW9]
R 192.012.007.rrr   NYU-CS-ETHER  NYU CompSci Ethernet   [113,LOU]
D 192.012.008.rrr   PICANET1      Picatinny Arsenal LAN1[113,RFD1]
R 192.012.009.rrr   CADRE-NET     Decision Systems Lab       [SM6]
R 192.012.010.rrr   CORNELL-ENG   Cornell-Engineering    [113,BN9]
R 192.012.011.rrr   MIT-36        MIT Building 36       [113,RH60]
R 192.012.012.rrr   WISC-ETHER    Wisconsin Ether Net    [113,CBP]
R 192.012.013.rrr   JHU-NET1      JHU-NET1              [113,MO14]
R 192.012.014.rrr   JHU-NET2      JHU-NET2              [113,MO14]
R 192.012.015.rrr   BROOKNET      BNL Brooknet III        [113,GC]
R 192.012.016.rrr   PRMNET        SRI-SURAN-EN          [113,BP17]
G 192.012.017.rrr   LLL-TIS-NET   LLL-TIS-NET       [106,110,GP10]
R 192.012.018.rrr   CIT-CS-10NET  Caltech 10Meg EtherNet[112,AD22]
R 192.012.019.rrr   CIT-NET       Caltech Campus Net    [112,AD22]
R 192.012.020.rrr   CIT-SUN-NET   Caltech Sun Net       [112,AD22]
R 192.012.021.rrr   CIT-PHYSCOMP  Caltech Phys Comp Net [112,AD22]
R 192.012.022.rrr   UTCSRES       UTCS Net Research     [113,JSQ1]
R 192.012.023.rrr   UTCSTTY       UTCS TTY Kludgenet    [113,JSQ1]
R 192.012.024.rrr   MICANET       MITRE (Experimental)       [JN2]
R 192.012.025.rrr   CSS-GRAMINAE  CSS Workstation Net     [55,RR2]
R 192.012.026.rrr   NOSC-NETR     Net-R Testbed at BBN   [94,CP10]
R 192.012.027.rrr   UR-LASER      UR Laser Energetics    [113,WXL]
R*192.012.028.rrr   RIACS-X-NET   RIACS-Experimental-Net    [DG28]
D 192.012.029.rrr   RF-EVANS      ADDCOMPE DC3 LAN1     [107,MB31]
D 192.012.030.rrr   RF-HEX-A      ADDCOMPE DC3 LAN2     [107,MB31]
D 192.012.031.rrr   USNA-ENET     USNA Engineering Net   [107,TXS]
R*192.012.032.rrr   CMU-VINEYARD  CMU File Cluster Net   [113,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    [113,RXB]
R 192.012.044.rrr   NRTC-NET      Northrop Research Net [113,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-VA    Univ. of Minnesota         [RXG]
G 192.012.048.rrr   AMES-ED-EXPNET Code ED Exp. Net.    [113,MSM1]
G 192.012.049.rrr   AMES-ED-NET   Code ED IP Net        [113,MSM1]
G 192.012.050.rrr   AMES-DB-NET   Ames DBridge Net      [113,MSM1]
R 192.012.051.rrr   THINK-CHAOS   TMC Chaos             [113,BJN1]
R*192.012.052.rrr   NEURO-NET     NEURO-NET              [113,JXB]
R*192.012.053.rrr   PU-LCA        Princeton U. LCA       [113,CXH]
R 192.012.054.rrr   WISC-MADISON  Univ Wisc - MACC       [113,JXD]
R 192.012.055.rrr   HAZ-LPR-BETA  Hazeltine LPR Net      [113,KXK]
R 192.012.056.rrr   UTAH-AP-NET   Utah-Appolo-Ring-Net      [JL15]
R 192.012.057.rrr   MCC-AI-NET    MCC AI Subnet          [113,CBD]
R 192.012.058.rrr   MCC-CAD-NET   MCC CAD Subnet         [113,CBD]
R 192.012.059.rrr   MCC-DB-NET    MCC DB Subnet          [113,CBD]
R 192.012.060.rrr   MCC-HI-NET    MCC HI Subnet          [113,CBD]
R 192.012.061.rrr   MCC-SW-NET    MCC SW Subnet          [113,CBD]
```

R	192.012.062.rrr	DREA-ENET	DREA Lispm & Vaxen	[113,GLH5]
R	192.012.063.rrr	CYPRESS	CYPRESS Serial Net	[CAK]
D	192.012.064.rrr	LOGNET	Logistics Net GW	[55,JXR]
	192.012.065.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	[DM27]
G	192.016.000.rrr-192.016.049.rrr		LANLLAN	[113,JC11]
	192.016.050.rrr-223.255.254.rrr		Unassigned	[JBP]
	223.255.255.rrr		Reserved	[JBP]

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	56	870	933
Defense	8	15	526	549
Government	0	2	55	57
Commercial	2	1	6	9
Total	17	74	1457	1548

Allocated for Internet and Independent Uses

Class	A	B	C	Total
Research	7	57	1415	1479
Defense	8	15	526	549
Government	0	2	55	57
Commercial	2	3	1555	1560
Total	17	77	3551	3645

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) [35,80] 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	[33,73,JBP]
5	ST	ST Datagram Mode	[36,JWF]
6-14		Unassigned	[JBP]
15		Reserved	[JBP]

ASSIGNED PROTOCOL NUMBERS

In the Internet Protocol (IP) [35,80] there is a field, called Protocol, to identify the the next level protocol. This is an 8 bit field.

Assigned Internet Protocol Numbers

Decimal	Keyword	Protocol	References
0		Reserved	[JBP]
1	ICMP	Internet Control Message	[72,JBP]
2		Unassigned	[JBP]
3	GGP	Gateway-to-Gateway	[47,MB]
4		Unassigned	[JBP]
5	ST	Stream	[39,JWF]
6	TCP	Transmission Control	[35,81,JBP]
7	UCL	UCL	[PK]
8	EGP	Exterior Gateway Protocol	[96,DLM1]
9	IGP	any private interior gateway	[JBP]
10	BBN-RCC-MON	BBN RCC Monitoring	[SGC]
11	NVP-II	Network Voice Protocol	[18,SC3]
12	PUP	PUP	[12,HGM]
13	ARGUS	ARGUS	[RWS4]
14	EMCON	EMCON	[BN7]
15	XNET	Cross Net Debugger	[45,JFH2]
16	CHAOS	Chaos	[NC3]
17	UDP	User Datagram	[35,79,JBP]
18	MUX	Multiplexing	[19,JBP]
19	DCN-MEAS	DCN Measurement Subsystems	[DLM1]
20	HMP	Host Monitoring	[5,RH6]
21	PRM	Packet Radio Measurement	[ZSU]
22	XNS-IDP	XEROX NS IDP	[114,LLG]
23	TRUNK-1	Trunk-1	[BML]
24	TRUNK-2	Trunk-2	[BML]
25	LEAF-1	Leaf-1	[BML]
26	LEAF-2	Leaf-2	[BML]
27	RDP	Reliable Data Protocol	[111,RH6]
28	IRTP	Internet Reliable Transaction	[61,TXM]
29-60		Unassigned	[JBP]
61		any host internal protocol	[JBP]
62	CFTP	CFTP	[40,HCF2]
63		any local network	[JBP]
64	SAT-EXPAK	SATNET and Backroom EXPAK	[DM11]
65	MIT-SUBNET	MIT Subnet Support	[NC3]
66	RVD	MIT Remote Virtual Disk Protocol	[MBG]
67	IPPC	Internet Pluribus Packet Core	[DM11]
68		any distributed file system	[JBP]

69	SAT-MON	SATNET Monitoring	[DM11]
70		Unassigned	[JBP]
71	IPCV	Internet Packet Core Utility	[DM11]
72-75		Unassigned	[JBP]
76	BR-SAT-MON	Backroom SATNET Monitoring	[DM11]
77		Unassigned	[JBP]
78	WB-MON	WIDEBAND Monitoring	[DM11]
79	WB-EXPAK	WIDEBAND EXPAK	[DM11]
80-254		Unassigned	[JBP]
255		Reserved	[JBP]

ASSIGNED PORT NUMBERS

Ports are used in the TCP [35,81] 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 [35,79].

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	[14,36,JBP]
7	ECHO	Echo	[70,JBP]
9	DISCARD	Discard	[69,JBP]
11	USERS	Active Users	[65,JBP]
13	DAYTIME	Daytime	[68,JBP]
15	NETSTAT	Who is up or NETSTAT	[JBP]
17	QUOTE	Quote of the Day	[75,JBP]
19	CHARGEN	Character Generator	[67,JBP]
20	FTP	File Transfer [Default Data]	[35,71,JBP]
21	FTP	File Transfer [Control]	[35,71,JBP]
23	TELNET	Telnet	[87,JBP]
25	SMTP	Simple Mail Transfer	[35,77,JBP]
27	NSW-FE	NSW User System FE	[20,RHT]
29	MSG-ICP	MSG ICP	[63,RHT]
31	MSG-AUTH	MSG Authentication	[63,RHT]
33		Unassigned	[JBP]
35		any private printer server	[JBP]
37	TIME	Time	[83,JBP]
39	RLP	Resource Location Protocol	[1,MA]
41	GRAPHICS	Graphics	[36,103,JBP]
42	NAMESERVER	Host Name Server	[35,74,JBP]
43	NICNAME	Who Is	[35,44,JAKE]
44	MPM-FLAGS	MPM FLAGS Protocol	[JBP]
45	MPM	Message Processing Module [recv]	[73,JBP]
46	MPM	MPM [default send]	[79,JBP]
47	NI-FTP	NI FTP	[109,SK]

49	LOGIN	Login Host Protocol	[PHD1]
51	LA-MAINT	IMP Logical Address Maintenance	[59,AGM]
53	DOMAIN	Domain Name Server	[PM1]
55	ISI-GL	ISI Graphics Language	[11,RB6]
57		any private terminal access	[JBP]
59		any private file service	[JBP]
61	NI-MAIL	NI MAIL	[9,SK]
63	VIA-FTP	VIA Systems - FTP	[DXD]
65	TACACS-DS	TACACS-Database Service	[115,RHT]
67		Unassigned	[JBP]
69	TFTP	Trivial File Transfer	[35,90,KRS]
71	NETRJS	Remote Job Service	[13,36,RTB]
72	NETRJS	Remote Job Service	[13,36,RTB]
73	NETRJS	Remote Job Service	[13,36,RTB]
74	NETRJS	Remote Job Service	[13,36,RTB]
75		any private dial out service	[JBP]
77		any private RJE service	[JBP]
79	FINGER	Finger	[36,42,KLH]
81		HOSTS2 Name Server	[EAK1]
83	HOSTS2-NS	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	[23,MRC]
97	SWIFT-RVF	Swift Remote Vitural File Protocol	[MXR]
99	METAGRAM	Metagram Relay	[GEOF]
101	HOSTNAME	NIC Host Name Server	[35,43,JAKE]
103		Unassigned	[JBP]
105	CSNET-NS	Mailbox Name Nameserver	[101,MHS1]
107	RTELNET	Remote Telnet Service	[76,JBP]
109	POP-2	Post Office Protocol - Version 2	[16,JKR1]
111	SUNRPC	SUN Remote Procedure Call	[DXG]
113	AUTH	Authentication Service	[104,MCA1]
115	SFTP	Simple File Transfer Protocol	[54,MKL1]
116		Unassigned	[JBP]
117	UUCP-PATH	UUCP Path Service	[34,MAE]
119	UNTP	USENET News Transfer Protocol	[117,PL4]
120-129		Unassigned	[JBP]
131		Unassigned	[JBP]
132-223		Reserved	[JBP]
224-241		Unassigned	[JBP]
243	SUR-MEAS	Survey Measurement	[10,AV]
245	LINK	LINK	[15,RDB2]
247-255		Unassigned	[JBP]

ASSIGNED AUTONOMOUS SYSTEM NUMBERS

The Exterior Gateway Protocol (EGP) [96,93] 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,RK1]
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	[JN2]
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]
44-65534	Unassigned	[JBP]
65535	Reserved	[JBP]

ASSIGNED ARPANET LOGICAL ADDRESSES

The ARPANET facility for "logical addressing" is described in RFC 878 [58]. 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 [8].

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	[114,LLG]
151	Unassigned	[JBP]
152	PARC Universal Protocol	[12,HGM]
153	TIP Status Reporting	[JGH]
154	TIP Accounting	[JGH]
155	Internet Protocol [regular]	[35,80,JBP]
156-158	Internet Protocol [experimental]	[35,80,JBP]
159	Figleaf Link	[JBW1]
160-194	Unassigned	[JBP]
195	ISO-IP	[116,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, c/o Tektronix, P.O. Box 500, D/S 50-473, Beaverton, Oregon, 97077.

Assignments:

Service Access Point		Description	References
decimal	binary		
96	01100000	DOD IP	[35,79,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.

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	[113,HGM]
2048	0800	513	1001	DOD IP	[35,79,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	[63,DCP1]
2055	0807	-	-	XNS Compatability	[HGM]
2076	081C	-	-	Symbolics Private	[DCP1]
32771	8003	-	-	Cronus VLN	[104,DT15]
32772	8004	-	-	Cronus Direct	[104,DT15]
32774	8006	-	-	Nestar	[HGM]
32784	8010	-	-	Excelan	[HGM]
32821	8035	-	-	Reverse ARP	[38,JCM]
36864	9000	-	-	Loopback	[HGM]

The standard for transmission of IP datagrams over Ethernets and Experimental Ethernets is specified in RFC 894 [50] and RFC 895 [65] respectively.

ASSIGNED ADDRESS RESOLUTION PROTOCOL PARAMETERS

The Address Resolution Protocol (ARP) specified in RFC 826 [64] 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]

Protocol Type (pro)

Use the same codes as listed in the section called "Ethernet Numbers of Interest".

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	[PG3]
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]
014.000.000.020-014.255.255.254		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 [54].

ASSIGNED TELNET OPTIONS

The Telnet Protocol has a number of options that may be negotiated. These options are listed here. "Official ARPA-Internet Protocols" [92] provides more detailed information.

Options	Name	References
0	Binary Transmission	[85,JBP]
1	Echo	[86,JBP]
2	Reconnection	[6,JBP]
3	Suppress Go Ahead	[89,JBP]
4	Approx Message Size Negotiation	[36,JBP]
5	Status	[88,JBP]
6	Timing Mark	[90,JBP]
7	Remote Controlled Trans and Echo	[82,JBP]
8	Output Line Width	[4,JBP]
9	Output Page Size	[5,JBP]
10	Output Carriage-Return Disposition	[24,JBP]
11	Output Horizontal Tab Stops	[28,JBP]
12	Output Horizontal Tab Disposition	[27,JBP]
13	Output Formfeed Disposition	[25,JBP]
14	Output Vertical Tabstops	[30,JBP]
15	Output Vertical Tab Disposition	[29,JBP]
16	Output Linefeed Disposition	[26,JBP]
17	Extended ASCII	[110,JBP]
18	Logout	[21,MRC]
19	Byte Macro	[31,JBP]
20	Data Entry Terminal	[33,JBP]
22	SUPDUP	[23,22,MRC]
22	SUPDUP Output	[41,MRC]
23	Send Location	[53,EAK1]
24	Terminal Type	[102,MHS1]
25	End of Record	[77,JBP]
26	TACACS User Identification	[3,BA4]
27	Output Marking	[98,SXS]
255	Extended-Options-List	[84,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 [37].

ALTO
AMDAHL-V7
BURROUGHS-B/29
C/30
C/70
CADLINC
CADR
CDC-173
DEC-10
DEC-1050
DEC-1080
DEC-1090
DEC-1090B
DEC-1090T
DEC-2020T
DEC-2040
DEC-2040T
DEC-2050T
DEC-2060
DEC-2060T
DEC-FALCON
DPS8/70M
FOONLY-F2
FOONLY-F3
FOONLY-F4
H-316
H-60/68
H-68
H-68/80
H-89
HONEYWELL-DPS-8/70M
IBM-158
IBM-360/67
IBM-370/3033
IBM-4341
IBM-PC
IMSAI
K102
LSI-11
LSI-11/23
M6800
MAXC
MLC

NAS-AS/5
ONYX-09001
ONYX-28000
PDP-11
PDP-11/34
PDP-11/40
PDP-11/44
PDP-11/45
PDP-11/50
PDP-11/70
PERQ
PLURIBUS
ROLM-1666
SMI
SUN-150
SYMBOLICS-3600
UNIVAC-1100
VAX-11/730
VAX-11/750
VAX-11/780
VAX-11/785
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 [37].

ASP
AUGUST
BKY
CCP
DOS/360
ELF
EPOS
EXEC-8
GCOS
GPOS
ITS
INTERCOM
INTERLISP
KRONOS
MCP
MOS
MPX-RT
MULTICS
MVT
NOS
NOS/BE
OS/MVS
OS/MVT
RIG
RSX-11M
RT11
SCOPE
SIGNAL
SINTRAN
TAC
TENEX
TOPS-10
TOPS-20
TSS
UNIX
VM/370
VM/CMS
VMS
WAITS
XDE

OFFICIAL PROTOCOL AND SERVICE NAMES

These are the Official Protocol Names. Their use is described in greater detail in RFC 810 [37].

```
ARGUS               - ARGUS Protocol
AUTH                - Authentication Service
BBN-RCC-MON         - BBN RCC Monitoring
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
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
   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
   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 [102]. 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

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
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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.