

Network Working Group
Request for Comments: 770

J. Postel
ISI
September 1980

Obsoletes RFCs: 762, 758, 755,
750, 739, 604, 503, 433, 349
Obsoletes IENs: 127, 117, 93

ASSIGNED NUMBERS

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 Jon Postel. The assignment of numbers is also handled by Jon. If you are developing a protocol or application that will require the use of a link, socket, etc. please contact Jon to receive a number assignment.

Jon Postel
USC - Information Sciences Institute
4676 Admiralty Way
Marina del Rey, California 90291

phone: (213) 822-1511

ARPANET mail: POSTEL@ISIF

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 Protocol Handbook [1] prepared by the Network Information Center (NIC). In the lists that follow a bracketed number, e.g. [1], off to the right of the page indicates a reference for the listed protocol.

Network Numbers

ASSIGNED NETWORK NUMBERS

This list of network numbers is used in the internet, the field is 8 bits in size.

Assigned Network Numbers

Decimal	Octal	Name	Network	References
-----	-----	----	-----	-----
0	0		Reserved	
1	1	BBN-PR	BBN Packet Radio Network	
2	2	SF-PR-1	SF Bay Area Packet Radio Network (1)	
3	3	BBN-RCC	BBN RCC Network	
4	4	SATNET	Atlantic Satellite Network	
5	5	SILL-PR	Ft. Sill Packet Radio Network	
6	6	SF-PR-2	SF Bay Area Packet Radio Network (2)	
7	7	CHAOS	MIT CHAOS Network	
8	10	CLARKNET	SATNET subnet for Clarksburg	
9	11	BRAGG-PR	Ft. Bragg Packet Radio Network	
10	12	ARPANET	ARPANET	[1,2]
11	13	UCLNET	University College London Network	
12	14	CYCLADES	CYCLADES	
13	15	NPLNET	National Physical Laboratory	
14	16	TELENET	TELENET	
15	17	EPSS	British Post Office EPSS	
16	20	DATAPAC	DATAPAC	
17	21	TRANSPAC	TRANSPAC	
18	22	LCSNET	MIT LCS Network	[37,38]
19	23	TYMNET	TYMNET	
20	24	DC-PR	Washington D.C. Packet Radio Network	
21	25	EDN	DCEC EDN	
22	26	DIALNET	DIALNET	[47,48]
23	27	MITRE	MITRE Cablenet	[23]
24	30	BBN-LOCAL	BBN Local Network	
25	31	RSRE-PPSN	RSRE / PPSN	
26	32	AUTODIN-II	AUTODIN II	
27	33	NOSC-LCCN	NOSC / LCCN	
28	34	WIDEBAND	Wide Band Satellite Network	
29	35	DCN-COMSAT	COMSAT Distributed Computing Network	
30	36	DCN-UCL	UCL Distributed Computing Network	
31	37	BBN-SAT-TEST	BBN SATNET Test Network	
32	40	UCL-CR1	UCL Cambridge Ring 1	
33	41	UCL-CR2	UCL Cambridge Ring 2	
34	42	MATNET	Mobile Access Terminal Network	
35	43	NULL	UCL/RSRE Null Network	
36	44	SU-NET	Stanford University Ethernet	

Network Numbers

37	45	DECNET	Digital Equipment Network
38	46	DECNET-TEST	Test Digital Equipment Network
39-254	47-376		Unassigned
255	377		Reserved

Internet Protocol Versions

ASSIGNED INTERNET PROTOCOL VERSIONS

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

Assigned Internet Protocol Versions

Decimal	Octal	Version	References
-----	-----	-----	-----
0	0	March 1977 version	[35]
1-3	1-3	Unassigned	
4	4	January 1980 version	[44]
5	5	ST Datagram Mode	[45]
6-14	6-16	Unassigned	
15	17	Reserved	

Internet Protocol Numbers

ASSIGNED INTERNET PROTOCOL NUMBERS

In the Internet Protocol (IP) [44] there is a field to identify the the next level protocol. This field is 8 bits in size. This field is called Protocol in the IP header.

Assigned Internet Protocol Numbers

Decimal	Octal	Protocol Numbers	References
-----	-----	-----	-----
0	0	Reserved	
1	1	raw internet datagrams	[44]
2	2	TCP-3	[36]
3	3	Gateway-to-Gateway	[49]
4	4	Gateway Monitoring Message	[41]
5	5	ST	[45]
6	6	TCP-4	[46]
7	7	UCL	
8	10	DSP	[37,38]
9	11	Secure	
10	12	TCP-2	[35]
11	13	NVP	[39]
12	14	PUP	[55]
13	15	Pluribus	
14	16	Telenet	
15	17	XNET	
16	20	Chaos	
17	21	User Datagram	[50]
18	22	Multiplexing	[51]
19	23	DCN	
20-62	24-76	Unassigned	
63	77	any local network	
64	100	EXPAK cumstats	
65	101	EXPAK PC messages	
66	102	Unassigned	
67	103	Gateway Monitoring	
68	104	Unassigned	
69	105	SIMP monitoring	
70	106	SIMP polling	
71	107	SIMP packet core/U	
72-76	110-114	Unassigned	
77	115	backroom SIMP polling	
78	116	backroom SIMP monitoring	
79	117	SIMP message generators	
80-254	120-376	Unassigned	
255	377	Reserved	

Port or Socket Numbers

ASSIGNED PORT or SOCKET NUMBERS

Ports are used in the TCP [46] and sockets are used in the AHHP [1,3] to name the ends of logical connections which carry long term conversations. For the purpose of providing services to unknown callers a service contact socket is defined. This list specifies the port or socket used by the server process as its contact socket. In the AHHP an Initial Connection Procedure ICP [1,34] is used between the user process and the server process to make the initial contact and establish the long term connections leaving the contact socket free to handle other callers. In the TCP no ICP is necessary since a port may engage in many simultaneous connections.

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

Socket Assignments:

General Assignments:

Decimal	Octal	Description
-----	-----	-----
0-63	0-77	Network Wide Standard Function
64-127	100-177	Hosts Specific Functions
128-223	200-337	Reserved for Future Use
224-255	340-377	Any Experimental Function

Port or Socket Numbers

Specific Assignments:

Network Standard Functions

Decimal -----	Octal -----	Description -----	References -----
1	1	Old Telnet	[6]
3	3	Old File Transfer	[7,8,9]
5	5	Remote Job Entry	[1,10]
7	7	Echo	[11]
9	11	Discard	[12]
11	13	Who is on or SYSTAT	
13	15	Date and Time	
15	17	Who is up or NETSTAT	
17	21	Short Text Message	
19	23	Character generator or TTYTST	[13]
21	25	New File Transfer	[1,14,15]
23	27	New Telnet	[1,16,17]
25	31	Distributed Programming System	[18,19]
27	33	NSW User System w/COMPASS FE	[20]
29	35	MSG-3 ICP	[21]
31	37	MSG-3 Authentication	[21]
33	41	DPS ICP	[18,19]
35	43	IO Station Spooler	
37	45	Time Server	[1,22]
39	47	NSW User System w/SRI FE	[20]
41	51	Graphics	[1,26]
42	52	Name Server	[52]
43	53	WhoIs	
45	55	Internet Message Processing Module	[53]
47	57	NI FTP	[54]
49	61	RAND Network Graphics Conference	[56]
51	63	Simple Internet Mail	
53	65	AUTODIN II FTP	[57]
55	67	ISI Graphics Language	[58]
57	71	Mail Transfer	[43]
59-63	73-77	unassigned	

Port or Socket Numbers

Host Specific Functions

Decimal -----	Octal -----	Description -----	References -----
65	101	unassigned	
67	103	Datacomputer at CCA	[24]
69	105	CPYNET	
69	105	Trivial File Transfer	[42]
71	107	NETRJS (EBCDIC) at UCLA-CCN	[1,25]
73	111	NETRJS (ASCII-68) at UCLA-CCN	[1,25]
75	113	NETRJS (ASCII-63) at UCLA-CCN	[1,25]
77	115	any private RJE server	
79	117	Name or Finger	[1,40]
81	121	Network BSYS	
83	123	MIT ML Device	
85	125	MIT ML Device	
87	127	any terminal link	
89	131	SU/MIT Telnet Gateway	
91-94	133-136	unassigned	
95	137	SUPDUP	[33]
97	141	Datacomputer Status	
99	143	CADC - NIFTP via UCL	
101	145	NPL - NIFTP via UCL	
103	147	BNPL - NIFTP via UCL	
105	151	CAMBRIDGE - NIFTP via UCL	
107	153	HARWELL - NIFTP via UCL	
109	155	SWURCC - NIFTP via UCL	
111	157	ESSEX - NIFTP via UCL	
113	161	RUTHERFORD - NIFTP via UCL	
115-127	163-177	unassigned	

Reserved for Future Use

Decimal -----	Octal -----	Description -----	References -----
128-223	200-337	reserved	

Port or Socket Numbers

Experimental Functions

Decimal	Octal	Description	References
-----	-----	-----	-----
224-231	340-347	unassigned	
232-237	350-355	Authorized Mailer at BBN	
239	357	unassigned	
241	361	NCP Measurement	[27,28]
243	363	Survey Measurement	[28,29,30]
245	365	LINK	[31]
247	367	TIPSRV	
249-255	371-377	RSEXEC	[31,32]

Link Numbers

ASSIGNED 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. Some time after the ARPANET Host-to-Host (AHHP) protocol was defined and, by now, some time ago the definition of this field was changed to "Message-ID" and the length to 12 bits. The name link now refers to the high order 8 bits of this 12 bit message-id field. The low order 4 bits of the message-id field are to be zero unless specifically specified otherwise for the particular protocol used on that link. The Host/IMP interface is defined in BBN report 1822 [2].

Link Assignments:

Decimal	Octal	Description	References
-----	-----	-----	-----
0	0	AHHP Control Messages	[1,3]
1	1	Reserved	
2-71	2-107	AHHP Regular Messages	[1,3]
72-150	110-226	Reserved	
151	227	CHAOS Protocol	
152	230	PARC Universal Protocol	
153	231	TIP Status Reporting	
154	232	TIP Accounting	
155	233	Internet Protocol (regular traffic)	[44]
156-158	234-236	Internet Protocol (experimental traffic)	[44]
159-191	237-277	Measurements	[28]
192-195	300-303	Message Switching Protocol	[4,5]
196-255	304-377	Experimental Protocols	
224-255	340-377	NVP	[1,39]
248-255	370-377	Network Maintenance	

References

REFERENCES

- [1] Feinler, E. and J. Postel, eds., "ARPANET Protocol Handbook," NIC 7104, for the Defense Communications Agency by SRI International, Menlo Park, California, Revised January 1978.
- [2] BBN, "Specifications for the Interconnection of a Host and an IMP," Report 1822, Bolt Beranek and Newman, Cambridge, Massachusetts, May 1978.
- [3] McKenzie, A. "Host/Host Protocol for the ARPA Network," NIC 8246, January 1972. Also in [1].
- [4] Walden, D. "A System for Interprocess Communication in a Resource Sharing Network," RFC 62, NIC 4962, 3 August 1970. Also published in Communications of the ACM, volume 15, number 4, April 1972.
- [5] Bressler, B. "A Proposed Experiment with a Message Switching Protocol," RFC 333, NIC 9926, 15 May 72.
- [6] Postel, J. "Telnet Protocol," RFC 318, NIC 9348, 3 April 1972.
- [7] McKenzie, A. "File Transfer Protocol," RFC 454, NIC 14333, 16 February 1973.
- [8] Clements, R. "FTPSRV -- Extensions for Tenex Paged Files," RFC 683, NIC 32251, 3 April 1975. Also in [1].
- [9] Harvey, B. "One More Try on the FTP," RFC 691, NIC 32700, 6 June 1975.
- [10] Bressler, B. "Remote Job Entry Protocol," RFC 407, NIC 12112, 16 October 72. Also in [1].
- [11] Postel, J. "Echo Process," RFC 347, NIC 10426, 30 May 1972.
- [12] Postel, J. "Discard Process," RFC 348, NIC 10427, 30 May 1972.
- [13] Postel, J. "Character Generator Process," RFC 429, NIC 13281, 12 December 1972.
- [14] Neigus, N. "File Transfer Protocol," RFC 542, NIC 17759, 12 July 1973. Also in [1].

References

- [15] Postel, J. "Revised FTP Reply Codes," RFC 640, NIC 30843, 5 June 1974. Also in [1].
- [16] McKenzie, A. "Telnet Protocol Specification," NIC 18639, August 1973. Also in [1].
- [17] McKenzie, A. "Telnet Option Specification," NIC 18640, August 1973. Also in [1].
- [18] White, J. "A High Level Framework for Network-Based Resource Sharing," RFC 707, NIC 34263, 14 January 1976. Also in NCC Proceedings, AFIPS, June 1976.
- [19] White, J. "Elements of a Distributed Programming System," RFC 708, NIC 34353, 28 January 1976.
- [20] COMPASS. "Semi-Annual Technical Report," CADD-7603-0411, Massachusetts Computer Associates, 4 March 1976. Also as, "National Software Works, Status Report No. 1," RADC-TR-76-276, Volume 1, September 1976. And COMPASS. "Second Semi-Annual Report," CADD-7608-1611, Massachusetts Computer Associates, 16 August 1976.
- [21] NSW Protocol Committee, "MSG: The Interprocess Communication Facility for the National Software Works," CADD-7612-2411, Massachusetts Computer Associates, BBN 3237, Bolt Beranek and Newman, Revised 24 December 1976.
- [22] Harrenstien, K. "Time Server," RFC 738, NIC 42218, 31 October 1977. Also in [1].
- [23] Skelton, A., S. Holmgren, and D. Wood, "The MITRE Cablenet Project," IEN 96, April 1979.
- [24] CCA, "Datacomputer Version 5/4 User Manual," Computer Corporation of America, August 1979.
- [25] Braden, R. "NETRJS Protocol," RFC 740, NIC 42423, 22 November 1977. Also in [1].
- [26] Sproull, R, and E. Thomas. "A Networks Graphics Protocol," NIC 24308, 16 August 1974. Also in [1].
- [27] Cerf, V., "NCP Statistics," RFC 388, NIC 11360, 23 August 1972.

References

- [28] Cerf, V., "Formation of a Network Measurement Group (NMG)," RFC 323, NIC 9630, 23 March 1972.
- [29] Bhushan, A., "A Report on the Survey Project," RFC 530, NIC 17375, 22 June 1973.
- [30] Cantor, D., "Storing Network Survey Data at the Datacomputer," RFC 565, NIC 18777, 28 August 1973.
- [31] Bressler, R., "Inter-Entity Communication -- An Experiment," RFC 441, NIC 13773, 19 January 1973.
- [32] Thomas, R. "A Resource Sharing Executive for the ARPANET," AFIPS Conference Proceedings, 42:155-163, NCC, 1973.
- [33] Crispin, M. "SUPDUP Protocol," RFC 734, NIC 41953, 7 October 1977. Also in [1].
- [34] Postel, J. "Official Initial Connection Protocol," NIC 7101, 11 June 1971. Also in [1].
- [35] Cerf, V. "Specification of Internet Transmission Control Program -- TCP (version 2)," March 1977.
- [36] Cerf, V. and J. Postel, "Specification of Internetwork Transmission Control Program -- TCP Version 3," USC/Information Sciences Institute, January 1978.
- [37] Reed, D. "Protocols for the LCS Network," Local Network Note 3, Laboratory for Computer Science, MIT, 29 November 1976.
- [38] Clark, D. "Revision of DSP Specification," Local Network Note 9, Laboratory for Computer Science, MIT, 17 June 1977.
- [39] Cohen, D. "Specifications for the Network Voice Protocol (NVP)," NSC Note 68, 29 January 1976. Also as USC/Information Sciences Institute RR-75-39, March 1976, and as RFC 741, NIC 42444, 22 November 1977. Also in [1].
- [40] Harrenstien, K. "Name/Finger," RFC 742, NIC 42758, 30 December 1977. Also in [1].
- [41] Cole, J. "Gateway Monitoring Messages," BBN, 1 February 1978.
- [42] Sollins, K. "The TFTP Protocol," IEN 133, MIT/LCS, January 1980.

References

- [43] Sluizer, S., and J. Postel, "Mail Transfer Protocol," RFC 772, USC/Information Sciences Institute, September 1980.
- [44] Postel, J. "DOD Standard Internet Protocol," IEN 128, RFC 760, USC/Information Sciences Institute, January 1980.
- [45] Forgie, J. "ST - A Proposed Internet Stream Protocol," IEN 119, M.I.T. Lincoln Laboratory, September 1979.
- [46] Postel, J., "DOD Standard Transmission Control Protocol," IEN 129, RFC 761, USC/Information Sciences Institute, January 1980.
- [47] McCarthy, J. and L. Earnest, "DIALNET," Stanford University Artificial Intelligence Laboratory, Undated.
- [48] Crispin, M. and I. Zabala, "DIALNET Protocols," Stanford University Artificial Intelligence Laboratory, July 1978.
- [49] Strazisar, V., "How to Build a Gateway," IEN 109, Bolt Berenak and Newman, August 1979.
- [50] Postel, J., "User Datagram Protocol," IEN 88, USC/Information Sciences Institute, May 1979.
- [51] Cohen, D. and J. Postel, "Multiplexing Protocol," IEN 90, USC/Information Sciences Institute, May 1979.
- [52] Postel, J., "Name Server," IEN 116, USC/Information Sciences Institute, August 1979.
- [53] Postel, J., "Internet Message Protocol," RFC 759, IEN 113, USC/Information Sciences Institute, August 1980.
- [54] The High Level Protocol Group, "A Network Independent File Transfer Protocol," INWG Protocol Note 86, December 1977.
- [55] Boggs, D., J. Shoch, E. Taft, and R. Metcalfe, "PUP: An Internetwork Architecture," XEROX Palo Alto Research Center, CSL-79-10, July 1979.
- [56] O'Brien, M., "A Network Graphical Conferencing System," RAND Corporation, N-1250-ARPA, August 1979.
- [57] Forsdick, H., and A. McKenzie, "FTP Functional Specification," Bolt Beranek and Newman, Report 4051, August 1979.

References

- [58] Bisbey, R., D. Hollingworth, B. Britt, and G. Mellstrom,
"Graphics Language (version 2)," USC/Information Sciences
Institute, June 1979.