Internet Assigned Numbers Authority

Protocol Numbers

Last Updated
2024-05-02

Available Formats
[IMG]
XML [IMG]
HTML [IMG]
Plain text

Registry included below

- Assigned Internet Protocol Numbers

Assigned Internet Protocol Numbers

Registration Procedure(s)

IESG Approval or Standards Action

Reference
[RFC5237][RFC7045]

Note

In the Internet Protocol version 4 (IPv4) [RFC791] there is a field
called "Protocol" to identify the next level protocol. This is an 8
bit field. In Internet Protocol version 6 (IPv6) [RFC8200], this field
is called the "Next Header" field.

Note

Values that are also IPv6 Extension Header Types should be listed in the
IPv6 Extension Header Types registry at [IANA registry ipv6-parameters].

Available Formats
[IMG]
CSV

Decimal	Keyword	Protocol	IPv6 Extension Header	Reference
0	HOPOPT	IPv6 Hop-by-Hop Option	Y	[RFC8200]
1	ICMP	Internet Control Message		[RFC792]
2	IGMP	Internet Group Management		[RFC1112]
3	GGP	Gateway-to-Gateway		[RFC823]
4	IPv4	IPv4 encapsulation		[RFC2003]
5	ST	Stream		[RFC1190][RFC1819]
6	TCP	Transmission Control		[RFC9293]
7	CBT	CBT		[Tony_Ballardie]
8	EGP	Exterior Gateway Protocol		[RFC888] [David_Mills]
9	IGP	any private interior gateway (used by Cisco for their IGRP)		[Internet_Assigned_Numbers_Authority]
10	BBN-RCC-MON	BBN RCC Monitoring		[Steve_Chipman]
11	NVP-II	Network Voice Protocol		[RFC741] [Steve_Casner]

Shoch, E. Taft, and R. Metcalfe, "PUP: An Internetwork
     12   PUP   PUP
XEROX Palo Alto Research Center, CSL-79-10, July 1979;

Transactions on Communication, Volume COM-28, Number 4,

[[XEROX]]
     13   ARGUS (deprecated) ARGUS
[Robert_W_Scheifler]
     14   EMCON   EMCON
     15   XNET   Cross Net Debugger
"XNET Formats for Internet Protocol Version 4", IEN 158,

[Jack_Haverty]
     16   CHAOS   Chaos
     17   UDP   User Datagram
[Jon_Postel]
     18   MUX   Multiplexing
Postel, "Multiplexing Protocol", IEN 90,

Sciences Institute, May 1979.][Jon_Postel]
     19   DCN-MEAS   DCN Measurement Subsystems
     20   HMP   Host Monitoring
[Bob_Hinden]
     21   PRM   Packet Radio Measurement

Local Area Network: Data Link Layer and Physical Layer

AA-K759B-TK, Digital Equipment Corporation, Maynard, MA.

Ethernet - A Local Area Network", Version 1.0, Digital

Corporation, Intel Corporation, Xerox Corporation, September
     22   XNS-IDP   XEROX NS IDP
Ethernet, A Local Area Network: Data Link Layer and

Specifications", Digital, Intel and Xerox, November 1982.

Ethernet, A Local Area Network: Data Link Layer and

Specification", X3T51/80-50, Xerox Corporation, Stamford,

1980.][[XEROX]]
     23   TRUNK-1   Trunk-1
     24   TRUNK-2   Trunk-2
     25   LEAF-1   Leaf-1
     26   LEAF-2   Leaf-2
     27   RDP   Reliable Data Protocol
[Bob_Hinden]
     28   IRTP   Internet Reliable
[Trudy_Miller]
                             Transaction
     29   ISO-TP4   ISO Transport Protocol Class
[Robert_Cole]
                             4
     30   NETBLT   Bulk Data Transfer Protocol
[David_Clark]
                             MFE Network Services
"A Documentary of MFENet, a National Computer
     31   MFE-NSP   Protocol
52317, Lawrence Livermore Labs, Livermore, California,

[Barry_Howard]
     32   MERIT-INP   MERIT Internodal Protocol

[Boggs, D., J.

Architecture",

also in IEEE

April 1980.]

[Bich_Nguyen]
[Haverty, J.,

October 1980.]
[J_Noel_Chiappa]
[RFC768]

[Cohen, D. and J.

USC/Information
[David_Mills]
[RFC869]

[Zaw_Sing_Su]
["The Ethernet, A

Specification",

Also as: "The

Equipment

1980. And: "The

Physical Layer

And: XEROX, "The

Physical Layer

CT., October

[Barry_Boehm]
[Barry_Boehm]
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[Barry_Boehm]
[RFC908]

[RFC938]

[RFC905]

[RFC969]

[Shuttleworth, B.,

Network", UCRL-

June 1977.]

[Hans_Werner_Braun]

Decimal	Keyword	Protocol	IPv6 Extension Header	Reference
33	DCCP	Datagram Congestion Control Protocol		[RFC4340]
34	3PC	Third Party Connect Protocol		[Stuart_A_Friedberg]
35	IDPR	Inter-Domain Policy Routing Protocol		[Martha_Steenstrup]
36	XTP	XTP		[Greg_Chesson]
37	DDP	Datagram Delivery Protocol		[Wesley_Craig]
38	IDPR-CMTP	IDPR Control Message Transport Proto		[Martha_Steenstrup]
39	TP++	TP++ Transport Protocol		[Dirk_Fromhein]
40	IL	IL Transport Protocol		[Dave_Presotto]
41	IPv6	IPv6 encapsulation		[RFC2473]
42	SDRP	Source Demand Routing Protocol		[Deborah_Estrin]
43	IPv6-Route	Routing Header for IPv6	Y	[Steve_Deering]
44	IPv6-Frag	Fragment Header for IPv6	Y	[Steve_Deering]
45	IDRP	Inter-Domain Routing Protocol		[Sue_Hares]
46	RSVP	Reservation Protocol		[RFC2205][RFC3209] [Bob_Braden]
47	GRE	Generic Routing Encapsulation		[RFC2784][Tony_Li]
48	DSR	Dynamic Source Routing Protocol		[RFC4728]
49	BNA	BNA		[Gary Salamon]
50	ESP	Encap Security Payload	Y	[RFC4303]
51	AH	Authentication Header	Y	[RFC4302]
52	I-NLSP	Integrated Net Layer Security TUBA		[K_Robert_Glenn]
53	SWIPE (deprecated)	IP with Encryption		[John_Ioannidis]
54	NARP	NBMA Address Resolution Protocol		[RFC1735]
55	Min-IPv4	Minimal IPv4 Encapsulation		[RFC2004] [Charlie_Perkins]
56	TLSP	Transport Layer Security Protocol using Kryptonet key management		[Christer_Oberg]
57	SKIP	SKIP		[Tom_Markson]
58	IPv6-ICMP	ICMP for IPv6		[RFC8200]
59	IPv6-NoNxt	No Next Header for IPv6		[RFC8200]
60	IPv6-Opts	Destination Options for IPv6	Y	[RFC8200]
61		any host internal protocol		[Internet_Assigned_Numbers_Authority]
62	CFTP	CFTP		[Forsdick, H., "CFTP", Network Message, Bolt Beranek and Newman, January 1982.] [Harry_Forsdick]
63		any local network		[Internet_Assigned_Numbers_Authority]
64	SAT-EXPAK	SATNET and Backroom EXPAK		[Steven_Blumenthal]
65	KRYPTOLAN	Kryptolan		[Paul Liu]
66	RVD	MIT Remote Virtual Disk Protocol		[Michael_Greenwald]
67	IPPC	Internet Pluribus Packet Core		[Steven_Blumenthal]
68		any distributed file system		[Internet_Assigned_Numbers_Authority]
69	SAT-MON	SATNET Monitoring		

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[Steven_Blumenthal]
     70    VISA            VISA Protocol                [Gene_Tsudik]
     71    IPCV            Internet Packet Core Utility
[Steven_Blumenthal]
     72    CPNX            Computer Protocol Network    [David Mittnacht]
                           Executive
     73    CPHB            Computer Protocol Heart Beat [David Mittnacht]
     74    WSN             Wang Span Network            [Victor Dafoulas]
     75    PVP             Packet Video Protocol        [Steve_Casner]
     76    BR-SAT-MON      Backroom SATNET Monitoring
[Steven_Blumenthal]
     77    SUN-ND          SUN ND PROTOCOL-Temporary    [William_Melohn]
     78    WB-MON          WIDEBAND Monitoring
[Steven_Blumenthal]
     79    WB-EXPAK        WIDEBAND EXPAK
[Steven_Blumenthal]
     80    ISO-IP          ISO Internet Protocol        [Marshall_T_Rose]
     81    VMTP            VMTP                         [Dave_Cheriton]
     82    SECURE-VMTP     SECURE-VMTP                  [Dave_Cheriton]
     83    VINES           VINES                        [Brian Horn]
     84    IPTM            Internet Protocol Traffic    [Jim_Stevens][1]
                           Manager
     85    NSFNET-IGP      NSFNET-IGP
[Hans_Werner_Braun]
     86    DGP             Dissimilar Gateway Protocol  [M/A-COM
Government Systems, "Dissimilar Gateway Protocol Specification,

                                                        Draft Version",
Contract no. CS901145, November 16, 1987.][Mike_Little]
     87    TCF             TCF
[Guillermo_A_Loyola]
     88    EIGRP           EIGRP                        [RFC7868]
     89    OSPFIGP         OSPFIGP                      [RFC1583][RFC2328]
[RFC5340][John_Moy]

                                                        [Welch, B., "The
Sprite Remote Procedure Call System", Technical Report,
     90    Sprite-RPC      Sprite RPC Protocol          UCB/Computer
Science Dept., 86/302, University of California at Berkeley,

                                                        June 1986.][Bruce
Willins]
     91    LARP            Locus Address Resolution     [Brian Horn]
                           Protocol
     92    MTP             Multicast Transport Protocol [Susie_Armstrong]
     93    AX.25           AX.25 Frames                 [Brian_Kantor]
     94    IPIP            IP-within-IP Encapsulation   [John_Ioannidis]
                           Protocol
     95    MICP (deprecated) Mobile Internetworking     [John_Ioannidis]
                           Control Pro.
     96    SCC-SP          Semaphore Communications     [Howard_Hart]
                           Sec. Pro.
     97    ETHERIP         Ethernet-within-IP           [RFC3378]
                           Encapsulation
     98    ENCAP           Encapsulation Header         [RFC1241]
[Robert_Woodburn]
     99                    any private encryption
[Internet_Assigned_Numbers_Authority]
                           scheme
     100   GMTP            GMTP                         [[RXB5]]
     101   IFMP            Ipsilon Flow Management      [Bob_Hinden]
[November 1995, 1997.]
                           Protocol
     102   PNNI            PNNI over IP                 [Ross_Callon]
     103   PIM             Protocol Independent         [RFC7761]
[Dino_Farinacci]
                           Multicast
     104   ARIS            ARIS                         [Nancy_Feldman]
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Decimal	Keyword	Protocol	IPv6 Extension Header	Reference
105	SCPS	SCPS		[Robert_Durst]
106	QNX	QNX		[Michael_Hunter]
107	A/N	Active Networks		[Bob_Braden]
108	IPComp	IP Payload Compression Protocol		[RFC2393]
109	SNP	Sitara Networks Protocol		[Manickam_R_Sridhar]
110	Compaq-Peer	Compaq Peer Protocol		[Victor_Volpe]
111	IPX-in-IP	IPX in IP		[CJ_Lee]
112	VRRP	Virtual Router Redundancy Protocol		[RFC9568]
113	PGM	PGM Reliable Transport Protocol		[Tony_Speakman]
114		any 0-hop protocol		[Internet_Assigned_Numbers_Authority]
115	L2TP	Layer Two Tunneling Protocol		[RFC3931][Bernard_Aboba]
116	DDX	D-II Data Exchange (DDX)		[John_Worley]
117	IATP	Interactive Agent Transfer Protocol		[John_Murphy]
118	STP	Schedule Transfer Protocol		[Jean_Michel_Pittet]
119	SRP	SpectraLink Radio Protocol		[Mark_Hamilton]
120	UTI	UTI		[Peter_Lothberg]
121	SMP	Simple Message Protocol		[Leif_Ekblad]
122	SM (deprecated)	Simple Multicast Protocol		[Jon_Crowcroft][draft-perlman-simple-multicast]
123	PTP	Performance Transparency Protocol		[Michael_Welzl]
124	ISIS over IPv4			[Tony_Przygienda]
125	FIRE			[Criag_Partridge]
126	CRTP	Combat Radio Transport Protocol		[Robert_Sautter]
127	CRUDP	Combat Radio User Datagram		[Robert_Sautter]
128	SSCOPMCE			[Kurt_Waber]
129	IPLT			[[Hollbach]]
130	SPS	Secure Packet Shield		[Bill_McIntosh]
131	PIPE	Private IP Encapsulation within IP		[Bernhard_Petri]
132	SCTP	Stream Control Transmission Protocol		[Randall_R_Stewart]
133	FC	Fibre Channel		[Murali_Rajagopal][RFC6172]
134	RSVP-E2E-IGNORE			[RFC3175]
135	Mobility Header		Y	[RFC6275]
136	UDPLite			[RFC3828]
137	MPLS-in-IP			[RFC4023]
138	manet	MANET Protocols		[RFC5498]
139	HIP	Host Identity Protocol	Y	[RFC7401]
140	Shim6	Shim6 Protocol	Y	[RFC5533]
141	WESP	Wrapped Encapsulating Security Payload		[RFC5840]
142	ROHC	Robust Header Compression		[RFC5858]
143	Ethernet	Ethernet		[RFC8986]
144	AGGFRAG	AGGFRAG encapsulation payload for ESP		[RFC9347]
145	NSH	Network Service Header	N	[RFC9491]
146-252		Unassigned		[Internet_Assigned_Numbers_Authority]
253		Use for experimentation and testing	Y	[RFC3692]
254		Use for experimentation and testing	Y	[RFC3692]
255	Reserved			

[Internet_Assigned_Numbers_Authority]

ID	Name	Contact URI	Last Updated
[Barry_Boehm]	Barry Boehm	mailto:boehm&arpa.mil	
[Barry_Howard]	Barry Howard	mailto:Howard&nmfecc.llnl.gov	
[Bernard_Aboba]	Bernard Aboba	mailto:bernarda&microsoft.com	1998-04
[Bernhard_Petri]	Bernhard Petri	mailto:bernhard.petri&siemens.com	2012-07-09
[Bich_Nguyen]	Bich Nguyen	mailto:bitnguyen&gmail.com	2023-01-09
[Bill_McIntosh]	Bill McIntosh	mailto:BMcIntosh&fortresstech.com	
[Bob_Braden]	Bob Braden	mailto:braden&isi.edu	1997-07
[Bob_Hinden]	Bob Hinden	mailto:bob.hinden&gmail.com	2013-02-17
[Brian_Kantor]	Brian Kantor	mailto:brian&ucsd.edu	
[CJ_Lee]	CJ Lee	mailto:cj_lee&novell.com	1997-10
[Charlie_Perkins]	Charlie Perkins	mailto:perk&watson.ibm.com	1994-10
[Christer_Oberg]	Christer Oberg	mailto:chg&bull.se	1994-10
[Criag_Partridge]	Criag Partridge	mailto:craig&bbn.com	1999-08
[Dave_Cheriton]	Dave Cheriton	mailto:cheriton&pescadero.stanford.edu	
[Dave_Presotto]	Dave Presotto	mailto:presotto&plan9.att.com	1995-07
[David_Clark]	David Clark	mailto:ddc&lcs.mit.edu	
[David_Mills]	David Mills	mailto:Mills&huey.udel.edu	
[Deborah_Estrin]	Deborah Estrin	mailto:estrin&usc.edu	
[Dino_Farinacci]	Dino Farinacci	mailto:dino&cisco.com	1996-03
[Dirk_Fromhein]	Dirk Fromhein	mailto:df&watershed.com	
[Gene_Tsudik]	Gene Tsudik	mailto:tsudik&usc.edu	
[Greg_Chesson]	Greg Chesson	mailto:Greg&sgi.com	
[Guillermo_A_Loyola]	Guillermo A. Loyola	mailto:LOYOLA&ibm.com	
[Hans_Werner_Braun]	Hans-Werner Braun	mailto:HWB&mcr.umich.edu	
[Harry_Forsdick]	Harry Forsdick	mailto:Forsdick&bbn.com	
[Howard_Hart]	Howard Hart	mailto:hch&hybrid.com	
[Internet_Assigned_Numbers_Authority]	Internet Assigned Numbers Authority	mailto:iana&iana.org	1995-06
[J_Noel_Chiappa]	J. Noel Chiappa	mailto:JNC&xx.lcs.mit.edu	
[Jack_Haverty]	Jack Haverty	mailto:jhaverty&oracle.com	
[Jean_Michel_Pittet]	Jean-Michel Pittet		

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mailto:jmp&gandalf.engr.sgi.com                    1998-11
    [Jim_Stevens]                     Jim Stevens
mailto:jasteven&rockwellcollins.com                2011-01-26
    [John_Ioannidis]                  John Ioannidis
mailto:ji&tla.org                                  2015-01-06
    [John_Moy]                        John Moy
mailto:jmoy&proteon.com
    [John_Murphy]                     John Murphy
mailto:john.m.murphy&mci.com                       1998-10
    [John_Worley]                     John Worley
mailto:worley&milehigh.net                         1998-06
    [Jon_Crowcroft]                   Jon Crowcroft
mailto:jon&cs.ucl.ac.uk                            1999-06
    [Jon_Postel]                      Jon Postel
mailto:postel&isi.edu
    [K_Robert_Glenn]                  K. Robert Glenn
mailto:glenn&osi.ncsl.nist.gov
    [Kurt_Waber]                      Kurt Waber
mailto:kurt.waber&swisscom.com                     1999-08
    [Leif_Ekblad]                     Leif Ekblad
mailto:leif&rdos.net                               2012-08-21
    [Manickam_R_Sridhar]              Manickam R. Sridhar
mailto:msridhar&sitaranetworks.com                 1997-09
    [Mark_Hamilton]                   Mark Hamilton
mailto:mah&spectralink.com                         1998-11
    [Marshall_T_Rose]                 Marshall T. Rose
mailto:mrose&dbc.mtview.ca.us
    [Martha_Steenstrup]               Martha Steenstrup
mailto:MSteenst&bbn.com
    [Michael_Greenwald]               Michael Greenwald
mailto:Greenwald&scrc-stony-brook.symbolics.com
    [Michael_Hunter]                  Michael Hunter
mailto:mphunter&qnx.com                            1997-07
    [Michael_Welzl]                   Michael Welzl
mailto:michael&tk.uni-linz.ac.at                   1999-08
    [Mike_Little]                     Mike Little
mailto:little&macom4.arpa
    [Murali_Rajagopal]                Murali Rajagopal
mailto:murali&gadzoox.com                          2000-05
    [Nancy_Feldman]                   Nancy Feldman
mailto:nkf&vnet.ibm.com                            1997-01
    [Peter_Lothberg]                  Peter Lothberg
mailto:roll&stupi.se                               1999-03
    [Randall_R_Stewart]               Randall R. Stewart
mailto:rrs&lakerest.net                            2000-04
    [Robert_Cole]                     Robert Cole
mailto:robert&CS.UCL.AC.UK
    [Robert_Durst]                    Robert Durst
mailto:durst&mitre.org                             1997-03
    [Robert_Sautter]                  Robert Sautter
mailto:rsautter&acdnj.itt.com                      1999-08
    [Robert_W_Scheifler]              Robert W. Scheifler
mailto:rscheifler&comcast.net                      2015-10-06
    [Robert_Woodburn]                 Robert Woodburn
mailto:woody&cseic.saic.com
    [Ross_Callon]                     Ross Callon
mailto:rcallon&baynetworks.com                     1995-12
    [Steve_Casner]                    Steve Casner
mailto:casner&isi.edu
    [Steve_Chipman]                   Steve Chipman
mailto:Chipman&f.bbn.com
    [Steve_Deering]                   Steve Deering
mailto:deering&parc.xerox.com                      1995-03
    [Steven_Blumenthal]               Steven Blumenthal
mailto:BLUMENTHAL&vax.bbn.com
```

```
    [Stuart_A_Friedberg]                    Stuart A. Friedberg
mailto:stuart&cs.wisc.edu
    [Sue_Hares]                             Sue Hares
mailto:skh&merit.edu
    [Susie_Armstrong]                       Susie Armstrong
mailto:Armstrong.wbst128&xerox.com
    [Tom_Markson]                           Tom Markson
mailto:markson&osmosys.ingog.com               1995-09
    [Tony_Ballardie]                        Tony Ballardie
mailto:A.Ballardie&cs.ucl.ac.uk
    [Tony_Li]                               Tony Li
mailto:tony.li&tony.li                         2012-10-17
    [Tony_Przygienda]                       Tony Przygienda
mailto:prz&siara.com                           1999-08
    [Tony_Speakman]                         Tony Speakman
mailto:speakman&cisco.com                      1998-01
    [Trudy_Miller]                          Trudy Miller
mailto:Trudy&acc.com
    [Victor_Volpe]                          Victor Volpe
mailto:vvolpe&smtp.microcom.com                1997-10
    [Wesley_Craig]                          Wesley Craig
mailto:Wesley.Craig&terminator.cc.umich.edu
    [William_Melohn]                        William Melohn
mailto:Melohn&sun.com
    [Zaw_Sing_Su]                           Zaw-Sing Su
mailto:ZSu&tsca.istc.sri.
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                                                    Footnote

    [1] Until March 2023, value 84 was also assigned to TTP (Transaction Transport Protocol).

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