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STD: 1   S. Ginoza
Category: Standards Track   L. Shiota
                                                           Editors
                                                     November 2001

                  Internet Official Protocol Standards

Status of this Memo

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Abstract

   This memo contains a snapshot of the state of standardization of
   protocols used in the Internet as of October 25, 2001. It lists
   official protocol standards and Best Current Practice RFCs; it is not
   a complete index to the RFC series. The latest version of this memo
   is designated STD 1.

Table of Contents

1. Overview

   This memo contains a snapshot of the state of standardization of
   protocols used in the Internet, as determined by the Internet
   Engineering Task Force (IETF). It is a October 25, 2001 snapshot of
   the current official protocol standards list and the Best Current
   Practice list, which is updated daily and is available from the RFC
   Editor Web site.

   The RFC Editor publishes Request for Comments (RFC) documents that
   are the output of the IETF process or are submitted individually via
   electronic mail. Further information about the RFC series is
   contained in section 2.1, RFC 2026 and at http://www.rfc-editor.org.

   This memo is published by the RFC Editor for the IESG and IAB in
   accordance with Section 2.1 of "The Internet Standards Process --
   Revision 3", RFC 2026, which specifies the rules and procedures by
   which all Internet standards are set. Sections 3.1 - 3.6 of this
   memo contain the lists of protocols in each stage of standardization
   - Standard, Draft Standard, Proposed Standard, Experimental,
   Historic, as well as Best Current Practice documents. Protocols that
   are new to this document or have been moved from one protocol level
   to another, or that differ from the previous edition of this document
   are marked with an asterisk. Informational RFCs are not included.
   This memo lists the current standards track, Best Current Practice,
   Experimental, and Historic protocols; it is not a complete index to
   RFCs.

2. Resources

   This section contains important contact information, for reference.

2.1. Internet-Related Organizations

   Internet Architecture Board (IAB) Contact: www.iab.org

   Internet Engineering Task Force (IETF) Contact: www.ietf.org

   Internet Research Task Force (IRTF) Contact: www.irtf.org

   Internet Assigned Numbers Authority (IANA) Contact: www.iana.org

2.2. Request for Comments Editor (RFC Editor) Web Pages

   The RFC Editor maintains the official repository of all RFCs and
   indexes to them. The RFC Editor web site is:

      http://www.rfc-editor.org.

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    At this URL, a user can:

    (a) Obtain the current "Internet Official Protocol Standards" list.
        See:

            http://www.rfc-editor.org/rfcxx00.html

        This hyper-linked listing is updated daily.

    (b) Retrieve the latest version of this STD 1 memo. See:

            http://www.rfc-editor.org/go.html, and select STD and "1".

    (c) Retrieve text of any RFC. See:

            http://www.rfc-editor.org/go.html

    (d) Search for RFCs by category. See:

            http://www.rfc-editor.org/category.html

    (e) Search the RFC index for document number, author, title, and/or
        keywords, and retrieve the text of any matching documents. See:

            http://www.rfc-editor.org/rfcsearch.html

    RFC information can also be retrieved using FTP or email.

2.3 Retrieval using FTP

    RFC-related files may be copied via FTP from the FTP.RFC-EDITOR.ORG
    computer using the FTP username "anonymous" and password
    "name@host.domain". An FTP user can:

    (a) Retrieve the latest version of this STD 1 memo.

            File: "in-notes/std/std1.txt"

    (b) Retrieve text of any RFC.

        File: "in-notes/rfcnnnn.txt" will retrieve the ASCII version.
        Some RFCs also have secondary Postscript and/or PDF versions,
        available from File: "in-notes/rfcnnnn.ps" and/or
        "in-notes/rfcnnnn.pdf", respectively.

        Here "nnnn" is a 1-4 digit RFC number, with no leading zeros.

2.4 Search and Retrieval Using Email

   To use the RFC Editor's email-based RFC-INFO service, send a request
   to:

      RFC-INFO@RFC-EDITOR.ORG

   In the message body, include your information request. For example,
   the following message bodies may be used.

   (a) To retrieve the latest version of this STD 1 memo:

         Retrieve: STD
            Doc-ID: STD0001

   (b) To retrieve ASCII text of any RFC:

         Retrieve: RFC
            Doc-ID: RFCnnnn

      Here "nnnn" must be filled with leading zeros to 4 digits.

   (c) The RFC-INFO@RFC-EDITOR.ORG server provides other capabilities,
       e.g., search and retrieval based on author, title, and/or
       keyword. For more information, send the following message body
       to the server:

         help: help

   The server will email back the results.

3. Current Technical Specifications

3.1. Standard Protocols Ordered by STD

Mnemonic	Title	RFC#	STD#
--------	Internet Official Protocol Standards	3000	1*
--------	Assigned Numbers	1700	2
--------	Requirements for Internet Hosts - Communication Layers	1122	3
--------	Requirements for Internet Hosts - Application and Support	1123	3
--------	[Reserved for Router Requirements. See RFC 1812.]		4
IP	Internet Protocol	791	5
ICMP	Internet Control Message Protocol	792	5
---------	Broadcasting Internet Datagrams	919	5
---------	Broadcasting Internet datagrams in the presence of subnets	922	5
--------	Internet Standard Subnetting Procedure	950	5
IGMP	Host extensions for IP multicasting	1112	5
UDP	User Datagram Protocol	768	6
TCP	Transmission Control Protocol	793	7
TELNET	Telnet Protocol Specification	854	8
TELNET	Telnet Option Specifications	855	8
FTP	File Transfer Protocol	959	9
SMTP	Simple Mail Transfer Protocol	821	10
SMTP-SIZE	SMTP Service Extension for Message Size Declaration	1870	10
MAIL	Standard for the format of ARPA Internet text messages	822	11
NTP	[Reserved for Network Time Protocol (NTP). See RFC 305.]		12
DOMAIN	Domain names - concepts and facilities	1034	13
DOMAIN	Domain names - implementation and specification	1035	13
--------	[Was Mail Routing and the Domain System. Now Historic.]		14
SNMP	Simple Network Management Protocol (SNMP)	1157	15
SMI	Structure and identification of management information for TCP/IP-based internets	1155	16
Concise-MI	Concise MIB definitions	1212	16
MIB-II	Management Information Base for Network Management of TCP/IP-based internets:MIB-II	1213	17
EGP	[Was Exterior Gateway Protocol (RFC 904). Now Historic.]		18
NETBIOS	Protocol standard for a NetBIOS service on a TCP/UDP transport: Concepts and methods	1001	19
NETBIOS	Protocol standard for a NetBIOS service on a TCP/UDP transport: Detailed specifications	1002	19
ECHO	Echo Protocol	862	20

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DISCARD     Discard Protocol                                863  21
CHARGEN     Character Generator Protocol                    864  22
QUOTE       Quote of the Day Protocol                       865  23
USERS       Active users                                    866  24
DAYTIME     Daytime Protocol                                867  25
TIME        Time Protocol                                   868  26
TOPT-BIN    Telnet Binary Transmission                      856  27
TOPT-ECHO   Telnet Echo Option                              857  28
TOPT-SUPP   Telnet Suppress Go Ahead Option                 858  29
TOPT-STAT   Telnet Status Option                            859  30
TOPT-TIM    Telnet Timing Mark Option                       860  31
TOPT-EXTOP  Telnet Extended Options: List Option            861  32
TFTP        The TFTP Protocol (Revision 2)                 1350  33
RIP1        [Was Routing Information Protocol (RIP).  Replaced    34
               by STD 56.]
TP-TCP      ISO transport services on top of the TCP:      1006  35
               Version 3
IP-FDDI     Transmission of IP and ARP over FDDI Networks  1390  36
ARP         Ethernet Address Resolution Protocol: Or converting 826  37
               network protocol addresses to 48.bit Ethernet
               address for transmission on Ethernet hardware
RARP        Reverse Address Resolution Protocol             903  38
IP-ARPA     [Was BBN Report 1822 (IMP/Host Interface).  Now     39
               Historic.]
IP-WB       Host Access Protocol specification              907  40
IP-E        Standard for the transmission of IP datagrams   894  41
               over Ethernet networks
IP-EE       Standard for the transmission of IP datagrams   895  42
               over experimental Ethernet networks
IP-IEEE     Standard for the transmission of IP datagrams  1042  43
               over IEEE 802 networks
IP-DC       DCN local-network protocols                     891  44
IP-HC       Internet Protocol on Network System's HYPERchannel: 1044  45
               Protocol specification
IP-ARC      Transmitting IP traffic over ARCNET networks   1201  46
IP-SLIP     Nonstandard for transmission of IP datagrams   1055  47
               over serial lines: SLIP
IP-NETBIOS  Standard for the transmission of IP datagrams  1088  48
               over NetBIOS networks
IP-IPX      Standard for the transmission of 802.2 packets 1132  49
               over IPX networks
ETHER-MIB   Definitions of Managed Objects for the Ethernet- 1643  50
               like Interface Types
PPP         The Point-to-Point Protocol (PPP)              1661  51
PPP-HDLC    PPP in HDLC-like Framing                       1662  51
IP-SMDS     Transmission of IP datagrams over the SMDS Service 1209  52
POP3        Post Office Protocol - Version 3               1939  53
OSPF2       OSPF Version 2                                 2328  54
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IP-FR      Multiprotocol Interconnect over Frame Relay       2427  55
RIP2       RIP Version 2                                      2453  56
RIP2-APP   RIP Version 2 Protocol Applicability Statement    1722  57
SMIv2      Structure of Management Information Version        2578  58
              2 (SMIv2)
CONV-MIB   Textual Conventions for SMIv2                      2579  58
CONF-MIB   Conformance Statements for SMIv2                   2580  58
RMON-MIB   Remote Network Monitoring Management Information   2819  59
              Base
SMTP-Pipe  SMTP Service Extension for Command Pipelining      2920  60
ONE-PASS   A One-Time Password System                         2289  61
```

   [Note: an asterisk at the end of a line indicates a change from the
   previous edition of this document.]

3.2. Standard Protocols Ordered by RFC

Mnemonic	Title	STD#	RFC#
--------	Internet Official Protocol Standards	1*	3000*
SMTP-Pipe	SMTP Service Extension for Command Pipelining	60	2920
RMON-MIB	Remote Network Monitoring Management Information Base	59	2819
CONF-MIB	Conformance Statements for SMIv2	58	2580
CONV-MIB	Textual Conventions for SMIv2	58	2579
SMIv2	Structure of Management Information Version 2 (SMIv2)	58	2578
RIP2	RIP Version 2	56	2453
IP-FR	Multiprotocol Interconnect over Frame Relay	55	2427
OSPF2	OSPF Version 2	54	2328
ONE-PASS	A One-Time Password System	61	2289
POP3	Post Office Protocol – Version 3	53	1939
SMTP-SIZE	SMTP Service Extension for Message Size Declaration	10	1870
RIP2-APP	RIP Version 2 Protocol Applicability Statement	57	1722
--------	Assigned Numbers	2	1700
PPP-HDLC	PPP in HDLC-like Framing	51	1662
PPP	The Point-to-Point Protocol (PPP)	51	1661
ETHER-MIB	Definitions of Managed Objects for the Ethernet-like Interface Types	50	1643
IP-FDDI	Transmission of IP and ARP over FDDI Networks	36	1390
TFTP	The TFTP Protocol (Revision 2)	33	1350
MIB-II	Management Information Base for Network Management of TCP/IP-based internets:MIB-II	17	1213
Concise-MI	Concise MIB definitions	16	1212
IP-SMDS	Transmission of IP datagrams over the SMDS Service	52	1209
IP-ARC	Transmitting IP traffic over ARCNET networks	46	1201
SNMP	Simple Network Management Protocol (SNMP)	15	1157
SMI	Structure and identification of management information for TCP/IP-based internets	16	1155
IP-IPX	Standard for the transmission of 802.2 packets over IPX networks	49	1132
--------	Requirements for Internet Hosts – Application and Support	3	1123
--------	Requirements for Internet Hosts – Communication Layers	3	1122
IGMP	Host extensions for IP multicasting	5	1112
IP-NETBIOS	Standard for the transmission of IP datagrams over NetBIOS networks	48	1088
IP-SLIP	Nonstandard for transmission of IP datagrams over serial lines: SLIP	47	1055
IP-HC	Internet Protocol on Network System's HYPERchannel: Protocol specification	45	1044

IP-IEEE	Standard for the transmission of IP datagrams over IEEE 802 networks	43	1042
DOMAIN	Domain names – implementation and specification	13	1035
DOMAIN	Domain names – concepts and facilities	13	1034
TP-TCP	ISO transport services on top of the TCP: Version 3	35	1006
NETBIOS	Protocol standard for a NetBIOS service on a TCP/UDP transport: Detailed specifications	19	1002
NETBIOS	Protocol standard for a NetBIOS service on a TCP/UDP transport: Concepts and methods	19	1001
FTP	File Transfer Protocol	9	959
--------	Internet Standard Subnetting Procedure	5	950
---------	Broadcasting Internet datagrams in the presence of subnets	5	922
---------	Broadcasting Internet Datagrams	5	919
IP-WB	Host Access Protocol specification	40	907
RARP	Reverse Address Resolution Protocol	38	903
IP-EE	Standard for the transmission of IP datagrams over experimental Ethernet networks	42	895
IP-E	Standard for the transmission of IP datagrams over Ethernet networks	41	894
IP-DC	DCN local-network protocols	44	891
TIME	Time Protocol	26	868
DAYTIME	Daytime Protocol	25	867
USERS	Active users	24	866
QUOTE	Quote of the Day Protocol	23	865
CHARGEN	Character Generator Protocol	22	864
DISCARD	Discard Protocol	21	863
ECHO	Echo Protocol	20	862
TOPT-EXTOP	Telnet Extended Options: List Option	32	861
TOPT-TIM	Telnet Timing Mark Option	31	860
TOPT-STAT	Telnet Status Option	30	859
TOPT-SUPP	Telnet Suppress Go Ahead Option	29	858
TOPT-ECHO	Telnet Echo Option	28	857
TOPT-BIN	Telnet Binary Transmission	27	856
TELNET	Telnet Option Specifications	8	855
TELNET	Telnet Protocol Specification	8	854
ARP	Ethernet Address Resolution Protocol: Or converting network protocol addresses to 48.bit Ethernet address for transmission on Ethernet hardware	37	826
MAIL	Standard for the format of ARPA Internet text messages	11	822
SMTP	Simple Mail Transfer Protocol	10	821
TCP	Transmission Control Protocol	7	793

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ICMP        Internet Control Message Protocol              5    792
IP          Internet Protocol                              5    791
UDP         User Datagram Protocol                         6    768
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   [Note: an asterisk at the end of a line indicates a change from the
   previous edition of this document.]

3.3. Draft Standard Protocols

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Mnemonic    Title                                                   RFC#
-------------------------------------------------------------------------
RADIUS      Remote Authentication Dial In User Service (RADIUS)     2865
INTERGRMIB  The Interfaces Group MIB                                2863
--------    Host Resources MIB                                      2790
--------    HTTP Authentication: Basic and Digest Access            2617
                Authentication
HTTP        Hypertext Transfer Protocol -- HTTP/1.1                 2616
VACM-SNMP   View-based Access Control Model (VACM) for              2575
                the Simple Network Management Protocol (SNMP)
USM-SNMPV3  User-based Security Model (USM) for version             2574
                3 of the Simple Network Management Protocol (SNMPv3)
SNMP-APP    SNMP Applications                                       2573
MPD-SNMP    Message Processing and Dispatching for the              2572
                Simple Network Management Protocol (SNMP)
ARCH-SNMP   An Architecture for Describing SNMP Management          2571
                Frameworks
ICMPv6      Internet Control Message Protocol (ICMPv6)              2463
                for the Internet Protocol Version 6 (IPv6)
                Specification
IPV6-AUTO   IPv6 Stateless Address Autoconfiguration                2462
IPV6-ND     Neighbor Discovery for IP Version 6 (IPv6)              2461
IPV6        Internet Protocol, Version 6 (IPv6) Specification       2460
URI-GEN     Uniform Resource Identifiers (URI): Generic Syntax      2396
IARP        Inverse Address Resolution Protocol                     2390
TN3270E     TN3270 Enhancements                                     2355
TFTP-Opt    TFTP Timeout Interval and Transfer Size Options         2349
TFTP-Blk    TFTP Blocksize Option                                   2348
TFTP-Ext    TFTP Option Extension                                   2347
UTF-8       UTF-8, a transformation format of ISO 10646             2279
DHCP-BOOTP  DHCP Options and BOOTP Vendor Extensions                2132
DHCP        Dynamic Host Configuration Protocol                     2131
FRAME-MIB   Management Information Base for Frame Relay              2115
                DTEs Using SMIv2
IP-HIPPI    IP over HIPPI                                           2067
MIME-CONF   Multipurpose Internet Mail Extensions (MIME)            2049
                Part Five: Conformance Criteria and Examples
MIME-MSG    MIME (Multipurpose Internet Mail Extensions)            2047
                Part Three: Message Header Extensions for
                Non-ASCII Text
MIME-MEDIA  Multipurpose Internet Mail Extensions (MIME)            2046
                Part Two: Media Types
MIME        Multipurpose Internet Mail Extensions (MIME)            2045
                Part One: Format of Internet Message Bodies
PPP-CHAP    PPP Challenge Handshake Authentication Protocol (CHAP)  1994
PPP-MP      The PPP Multilink Protocol (MP)                         1990
```

```
PPP-LINK   PPP Link Quality Monitoring                        1989
SNMPv2-MIB Management Information Base for Version 2          1907
              of the Simple Network Management Protocol (SNMPv2)
TRANS-MIB  Transport Mappings for Version 2 of the Simple    1906
              Network Management Protocol (SNMPv2)
OPS-MIB    Protocol Operations for Version 2 of the Simple   1905
              Network Management Protocol (SNMPv2)
CON-MD5    The Content-MD5 Header Field                      1864
OSPF-MIB   OSPF Version 2 Management Information Base         1850
XDR        XDR: External Data Representation Standard         1832
--------   The String Representation of Standard Attribute    1778
              Syntaxes
--------   Lightweight Directory Access Protocol              1777
BGP-4-APP  Application of the Border Gateway Protocol         1772
              in the Internet
BGP-4      A Border Gateway Protocol 4 (BGP-4)               1771
PPP-DNCP   The PPP DECnet Phase IV Control Protocol (DNCP)   1762
802.5-MIB  IEEE 802.5 MIB using SMIv2                        1748
RIP2-MIB   RIP Version 2 MIB Extension                       1724
SIP-MIB    Definitions of Managed Objects for SMDS Interfaces 1694
              using SMIv2
--------   Definitions of Managed Objects for Parallel-      1660
              printer-like Hardware Devices using SMIv2
--------   Definitions of Managed Objects for RS-232-        1659
              like Hardware Devices using SMIv2
--------   Definitions of Managed Objects for Character      1658
              Stream Devices using SMIv2
BGP-4-MIB  Definitions of Managed Objects for the Fourth     1657
              Version of the Border Gateway Protocol (BGP-
              4) using SMIv2
--------   SMTP Service Extension for 8bit-MIMEtransport     1652
OSI-NSAP   Guidelines for OSI NSAP Allocation in the Internet 1629
ISO-TS-ECH An Echo Function for CLNP (ISO 8473)              1575
DECNET-MIB DECnet Phase IV MIB Extensions                    1559
--------   Clarifications and Extensions for the Bootstrap   1542
              Protocol
DHCP-BOOTP Interoperation Between DHCP and BOOTP             1534
BRIDGE-MIB Definitions of Managed Objects for Bridges        1493
IP-X.25    Multiprotocol Interconnect on X.25 and ISDN       1356
              in the Packet Mode
NTPV3      Network Time Protocol (Version 3) Specification,  1305
              Implementation
FINGER     The Finger User Information Protocol              1288
IP-MTU     Path MTU discovery                                1191
--------   Proposed Standard for the Transmission of         1188
              IP Datagrams over FDDI Networks
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TOPT-LINE   Telnet Linemode Option   1184
NICNAME   NICNAME/WHOIS   954
BOOTP   Bootstrap Protocol   951

   [Note: an asterisk at the end of a line indicates a change from the
   previous edition of this document.]

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3.4. Proposed Standard Protocols

Mnemonic	Title	RFC#
--------	Reuse of CMS Content Encryption Keys	3185*
--------	Aggregation of RSVP for IPv4 and IPv6 Reservations	3175*
IPCOMP	IP Payload Compression Protocol (IPComp)	3173*
--------	The Addition of Explicit Congestion Notification (ECN) to IP	3168*
--------	Definitions of Managed Objects for the Delegation of Management Scripts	3165*
--------	RADIUS and IPv6	3162*
TSA	Internet X.509 Public Key Infrastructure Time-Stamp Protocol (TSP)	3161*
PIB	Structure of Policy Provisioning Information (SPPI)	3159*
MIME-PGP	MIME Security with OpenPGP	3156*
--------	PPP Multiplexing	3153*
--------	Transmission of IPv6 Packets over IEEE 1394 Networks	3146*
--------	L2TP Disconnect Cause Information	3145
--------	Remote Monitoring MIB Extensions for Interface Parameters Monitoring	3144*
--------	Per Hop Behavior Identification Codes	3140
--------	The Congestion Manager	3124
--------	Extensions to IPv6 Neighbor Discovery for Inverse Discovery Specification	3122
--------	A More Loss-Tolerant RTP Payload Format for MP3 Audio	3119
--------	Authentication for DHCP Messages	3118
--------	Mobile IP Vendor/Organization-Specific Extensions	3115
--------	Service Location Protocol Modifications for IPv6	3111
--------	RSA/SHA-1 SIGs and RSA KEYs in the Domain Name System (DNS)	3110
--------	Conventions for the use of the Session Description Protocol (SDP) for ATM Bearer Connections	3108
SDP	Carrying Label Information in BGP-4	3107
RSVP	RSVP Cryptographic Authentication -- Updated Message Type Value	3097
--------	RObust Header Compression (ROHC): Framework and four profiles	3095
--------	DNS Security Extension Clarification on Zone Status	3090
COPS-PR	COPS Usage for Policy Provisioning (COPS-PR)	3084
--------	Mapping the BEEP Core onto TCP	3081
BEEP	The Blocks Extensible Exchange Protocol Core	3080
--------	A Link-Layer Tunneling Mechanism for Unidirectional Links	3077
--------	XML-Signature Syntax and Processing	3075
--------	DHC Load Balancing Algorithm	3074
L2TP-FR	Layer Two Tunneling Protocol (L2TP) over Frame Relay	3070
--------	An Anycast Prefix for 6to4 Relay Routers	3068

```
BGP-ASC    Autonomous System Confederations for BGP          3065
--------   LDAP Password Modify Extended Operation            3062
CIM        Policy Core Information Model -- Version 1          3060
              Specification
SLPv2      Attribute List Extension for the Service Location  3059
              Protocol
--------   ISDN Q.921-User Adaptation Layer                   3057
--------   Connection of IPv6 Domains via IPv4 Clouds         3056
--------   Management Information Base for the PINT Services   3055
              Architecture
--------   TN3270E Service Location and Session Balancing     3049
--------   RTP Payload Format for ITU-T Recommendation G.722.1 3047
--------   DHCP Relay Agent Information Option                3046
--------   Enhancing TCP's Loss Recovery Using Limited Transmit 3042
--------   Privacy Extensions for Stateless Address           3041
              Autoconfiguration in IPv6
--------   Internet X.509 Public Key Infrastructure Qualified 3039
              Certificates Profile
--------   VCID Notification over ATM link for LDP            3038
--------   LDP Specification                                  3036
--------   MPLS using LDP and ATM VC Switching                3035
--------   Use of Label Switching on Frame Relay Networks     3034
              Specification
--------   The Assignment of the Information Field and Protocol 3033
              Identifier in the Q.2941 Generic Identifier
              and Q.2957 User-to-user Signaling for the Internet
              Protocol
--------   MPLS Label Stack Encoding                          3032
MPLS       Multiprotocol Label Switching Architecture         3031
--------   SMTP Service Extensions for Transmission of Large  3030
              and Binary MIME Messages
--------   Sieve: A Mail Filtering Language                   3028
--------   Reverse Tunneling for Mobile IP, revised           3024
--------   XML Media Types                                    3023
--------   Using 31-Bit Prefixes on IPv4 Point-to-Point Links 3021
--------   Definitions of Managed Objects for Monitoring and  3020
              Controlling the UNI/NNI Multilink Frame Relay
              Function
--------   IP Version 6 Management Information Base for The    3019
              Multicast Listener Discovery Protocol
--------   XML DTD for Roaming Access Phone Book               3017
--------   RTP Payload Format for MPEG-4 Audio/Visual Streams  3016
MEGACO     Megaco Protocol Version 1.0                        3015
--------   Notification Log MIB                                3014
--------   Mobile IPv4 Challenge/Response Extensions          3012
--------   The IPv4 Subnet Selection Option for DHCP          3011
NFSv4      NFS version 4 Protocol                             3010
--------   Registration of parityfec MIME types               3009
```

DNSSEC	Domain Name System Security (DNSSEC) Signing Authority	3008
--------	Secure Domain Name System (DNS) Dynamic Update	3007
--------	Integrated Services in the Presence of Compressible Flows	3006
--------	The User Class Option for DHCP	3004
--------	The audio/mpeg Media Type	3003
--------	Specification of the Null Service Type	2997
--------	Format of the RSVP DCLASS Object	2996
--------	Computing TCP's Retransmission Timer	2988
--------	Registration of Charset and Languages Media Features Tags	2987
--------	Use of the CAST-128 Encryption Algorithm in CMS	2984
--------	Distributed Management Expression MIB	2982
--------	Event MIB	2981
--------	The SIP INFO Method	2976
--------	IMAP4 ID extension	2971
--------	HTTP State Management Mechanism	2965
--------	RSVP Refresh Overhead Reduction Extensions	2961
--------	Stream Control Transmission Protocol	2960
--------	Real-Time Transport Protocol Management Information Base	2959
--------	Definitions of Managed Objects for Monitoring and Controlling the Frame Relay/ATM PVC Service Interworking Function	2955
FR-MIB	Definitions of Managed Objects for Frame Relay Service	2954
--------	Telnet Encryption: CAST-128 64 bit Cipher Feedback	2950
--------	Telnet Encryption: CAST-128 64 bit Output Feedback	2949
--------	Telnet Encryption: DES3 64 bit Output Feedback	2948
--------	Telnet Encryption: DES3 64 bit Cipher Feedback	2947
--------	Telnet Data Encryption Option	2946
--------	The SRP Authentication and Key Exchange System	2945
--------	Telnet Authentication: SRP	2944
--------	TELNET Authentication Using DSA	2943
--------	Telnet Authentication: Kerberos Version 5	2942
TOPT-AUTH	Telnet Authentication Option	2941
--------	Definitions of Managed Objects for Common Open Policy Service (COPS) Protocol Clients	2940
--------	Identifying Composite Media Features	2938
--------	The Name Service Search Option for DHCP	2937
IOTP-HTTP	Internet Open Trading Protocol (IOTP) HTTP Supplement	2935
--------	Internet Group Management Protocol MIB	2933
--------	IPv4 Multicast Routing MIB	2932
--------	DNS Request and Transaction Signatures (SIG(0)s)	2931
TKEY-RR	Secret Key Establishment for DNS (TKEY RR)	2930
--------	Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations	2925
--------	List-Id: A Structured Field and Namespace for the Identification of Mailing Lists	2919

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--------    Route Refresh Capability for BGP-4                    2918
--------    E.164 number and DNS                                  2916
NAPTR       The Naming Authority Pointer (NAPTR) DNS Resource     2915
               Record
--------    MIME Content Types in Media Feature Expressions       2913
--------    Indicating Media Features for MIME Content            2912
IPP-M-S     Internet Printing Protocol/1.1: Model and Semantics   2911
IPP-E-T     Internet Printing Protocol/1.1: Encoding and Transport 2910
--------    MADCAP Multicast Scope Nesting State Option           2907
RMON-MIB    Remote Network Monitoring MIB Protocol Identifier     2895
               Reference
--------    Router Renumbering for IPv6                           2894
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              Assignment and Aggregation Strategy
CIDR-ARCH  An Architecture for IP Address Allocation with CIDR   1518
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--------   Token Ring Extensions to the Remote Network Monitoring 1513
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              Control Protocol of the Point-to-Point Protocol
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PEM-CKM     Privacy Enhancement for Internet Electronic Mail:     1422
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SNMP-AT     SNMP over AppleTalk                                    1419
SNMP-OSI    SNMP over OSI                                          1418
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IDENT-MIB   Identification MIB                                     1414
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---------   Default Route Advertisement In BGP2 and BGP3 Version  1397
                of The Border Gateway Protocol
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SNMP-LAPB   SNMP MIB Extension for X.25 LAPB                      1381
PPP-ATCP    The PPP AppleTalk Control Protocol (ATCP)             1378
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--------    Applicability Statement for OSPF                      1370
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--------    X.400 1988 to 1984 downgrading                        1328
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                Internet
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--------    Encoding Network Addresses to Support Operation       1277
                over Non-OSI Lower Layers
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                to provide an Internet Directory using X.500
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IS-IS       Use of OSI IS-IS for routing in TCP/IP and dual      1195
                environments
IP-CMPRS    Compressing TCP/IP headers for low-speed serial links 1144
TOPT-XDL    Telnet X display location option                     1096
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TOPT-TS     Telnet terminal speed option                         1079
TOPT-NAWS   Telnet window size option                            1073
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TOPT-DATA   Telnet Data Entry Terminal option: DODIIS            1043
                implementation
TOPT-3270   Telnet 3270 regime option                            1041
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TOPT-TLN    Telnet terminal location number option                946
TOPT-OM     Output marking Telnet option                          933
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TOPT-LOGO Telnet logout option   727
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TOPT-EXT   Telnet extended ASCII option   698

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   previous edition of this document.]

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3.5. Best Current Practice by BCP

Mnemonic   Title   RFC# BCP#

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          and The PPP Encryption Control Protocol
-------- An Appeal to the Internet Community to Return   1917 4
          Unused IP Networks (Prefixes) to the IANA
-------- Address Allocation for Private Internets   1918 5
-------- Guidelines for creation, selection, and   1930 6
          registration of an Autonomous System (AS)
-------- Implications of Various Address Allocation   2008 7
          Policies for Internet Routing
-------- IRTF Research Group Guidelines and Procedures   2014 8
-------- The Internet Standards Process -- Revision 3   2026 9
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          Process: Operation of the Nominating and Recall
          Committees
-------- The Organizations Involved in the IETF Standards   2028 11
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-------- Internet Registry IP Allocation Guidelines   2050 12
-------- Multipurpose Internet Mail Extensions (MIME) Part 2048 13
          Four: Registration Procedures
-------- Key words for use in RFCs to Indicate Requirement 2119 14
          Levels
-------- Deployment of the Internet White Pages Service   2148 15
-------- Selection and Operation of Secondary DNS Servers   2182 16
-------- Use of DNS Aliases for Network Services   2219 17
-------- IETF Policy on Character Sets and Languages   2277 18
-------- IANA Charset Registration Procedures   2978 19
-------- Classless IN-ADDR.ARPA delegation   2317 20
-------- Expectations for Computer Security Incident   2350 21
          Response
-------- Guide for Internet Standards Writers   2360 22
-------- Administratively Scoped IP Multicast   2365 23
-------- RSVP over ATM Implementation Guidelines   2379 24
-------- IETF Working Group Guidelines and Procedures   2418 25
-------- Guidelines for Writing an IANA Considerations   2434 26
          Section in RFCs
-------- Advancement of MIB specifications on the IETF   2438 27
          Standards Track
-------- Enhancing TCP Over Satellite Channels using   2488 28
          Stanard Mechanisms

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   previous edition of this document.]

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3.6. Best Current Practice by RFC

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-------- IETF Guidelines for Conduct                        54   3184*
-------- GLOP Addressing in 233/8                           53   3180*
-------- Management Guidelines & Operational Requirements   52   3172*
            for the Address and Routing Parameter Area Domain
            ("arpa")
-------- IANA Guidelines for IPv4 Multicast Address         51   3171*
            Assignments
-------- End-to-end Performance Implications of Links with  50   3155*
            Errors
-------- Delegation of IP6.ARPA                             49   3152*
-------- End-to-end Performance Implications of Slow Links  48   3150*
-------- Tags for the Identification of Languages           47   3066
-------- Recommended Internet Service Provider Security     46   3013
            Services and Procedures
-------- IETF Discussion List Charter                       45   3005
-------- IANA Charset Registration Procedures               19   2978
-------- Use of HTTP State Management                       44   2964
-------- Procedures and IANA Guidelines for Definition of   43   2939
            New DHCP Options and Message Types
-------- Domain Name System (DNS) IANA Considerations       42   2929
-------- Congestion Control Principles                      41   2914
-------- Root Name Server Operational Requirements          40   2870
-------- Charter of the Internet Architecture Board (IAB)   39   2850
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-------- IANA Allocation Guidelines For Values In the       37   2780
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-------- IAB and IESG Selection, Confirmation, and Recall   10   2727
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            Committees
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-------- Changing the Default for Directed Broadcasts in    34   2644
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-------- Reserved Top Level DNS Names                        32   2606
-------- Media Feature Tag Registration Procedure           31   2506
-------- Anti-Spam Recommendations for SMTP MTAs            30   2505
-------- Procedure for Defining New DHCP Options            29   2489
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-------- Administratively Scoped IP Multicast              23  2365
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-------- Expectations for Computer Security Incident        21  2350
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-------- IETF Policy on Character Sets and Languages        18  2277
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-------- Deployment of the Internet White Pages Service     15  2148
-------- Key words for use in RFCs to Indicate Requirement  14  2119
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-------- Internet Registry IP Allocation Guidelines         12  2050
-------- Multipurpose Internet Mail Extensions (MIME) Part  13  2048
            Four: Registration Procedures
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            Process
-------- The Internet Standards Process -- Revision 3        9  2026
-------- IRTF Research Group Guidelines and Procedures       8  2014
-------- Implications of Various Address Allocation          7  2008
            Policies for Internet Routing
-------- Guidelines for creation, selection, and            6  1930
            registration of an Autonomous System (AS)
-------- Address Allocation for Private Internets           5  1918
-------- An Appeal to the Internet Community to Return       4  1917
            Unused IP Networks (Prefixes) to the IANA
-------- Variance for The PPP Connection Control Protocol    3  1915
            and The PPP Encryption Control Protocol
-------- Addendum to RFC 1602 -- Variance Procedure          2  1871
-------- Best Current Practices                              1  1818
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   previous edition of this document.]

3.7. Experimental Protocols

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--------   A DNS RR Type for Lists of Address Prefixes (APL RR)   3123*
--------   OpenLDAP Root Service An experimental LDAP referral    3088
              service
--------   Notification and Subscription for SLP                  3082
--------   MPLS Loop Prevention Mechanism                         3063
--------   Internet X.509 Public Key Infrastructure Data          3029
              Validation and Certification Server Protocols
--------   Unified Memory Space Protocol Specification            3018
SAP        Session Announcement Protocol                          2974
--------   Protocol Independent Multicast MIB for IPv4            2934
MASC       The Multicast Address-Set Claim (MASC) Protocol        2909
--------   Generic AAA Architecture                               2903
--------   TCP Congestion Window Validation                       2861
TSWTCM     A Time Sliding Window Three Colour Marker (TSWTCM)     2859
--------   OSPF over ATM and Proxy-PAR                            2844
PPP-SDL    PPP over Simple Data Link (SDL) using SONET/SDH        2823
              with ATM-like framing
--------   Diffie-Helman USM Key Management Information Base       2786
              and Textual Convention
--------   An HTTP Extension Framework                            2774
--------   Encryption using KEA and SKIPJACK                      2773
--------   GLOP Addressing in 233/8                               2770
--------   Sampling of the Group Membership in RTP                2762
--------   Definitions of Managed Objects for Service Level       2758
              Agreements Performance Monitoring
HTCP       Hyper Text Caching Protocol (HTCP/0.0)                 2756
--------   RTFM: New Attributes for Traffic Flow Measurement      2724
--------   PPP EAP TLS Authentication Protocol                    2716
--------   SPKI Certificate Theory                                2693
--------   SPKI Requirements                                      2692
--------   QoS Routing Mechanisms and OSPF Extensions             2676
--------   The Secure HyperText Transfer Protocol                 2660
--------   Security Extensions For HTML                           2659
--------   LDAPv2 Client vs. the Index Mesh                       2657
--------   Registration Procedures for SOIF Template Types        2656
--------   CIP Index Object Format for SOIF Objects               2655
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--------   An LDAP Control and Schema for Holding Operation       2649
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--------   The NewReno Modification to TCP's Fast Recovery        2582
              Algorithm
--------   Mapping between LPD and IPP Protocols                  2569
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               for the Internet Printing Protocol
IPP-DG      Design Goals for an Internet Printing Protocol          2567
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PHOTURIS-E  Photuris: Extended Schemes and Attributes               2523
PHOTURIS-S  Photuris: Session-Key Management Protocol               2522
ICMP-SEC    ICMP Security Failures Messages                         2521
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--------    URI Resolution Services Necessary for URN Resolution    2483
--------    IPv6 Testing Address Allocation                        2471
MARS-SCSP   A Distributed MARS Service Using SCSP                   2443
TCP-WIN     Increasing TCP's Initial Window                        2414
PIM-SM      Protocol Independent Multicast-Sparse Mode              2362
               PIM-SM): Protocol Specification
--------    Domain Names and Company Name Retrieval                 2345
RTP-MPEG    RTP Payload Format for Bundled MPEG                     2343
--------    Intra-LIS IP multicast among routers over ATM           2337
               using Sparse Mode PIM
--------    The Safe Response Header Field                          2310
LDAP-NIS    An Approach for Using LDAP as a Network Information     2307
               Service
HTTP-RVSA   HTTP Remote Variant Selection Algorithm -- RVSA/1.0     2296
TCN-HTTP    Transparent Content Negotiation in HTTP                 2295
TOPT-COMPO  Telnet Com Port Control Option                         2217
--------    Core Based Trees (CBT) Multicast Routing Architecture   2201
--------    Core Based Trees (CBT version 2) Multicast Routing      2189
--------    A Trivial Convention for using HTTP in URN Resolution   2169
--------    Resolution of Uniform Resource Identifiers using        2168
               the Domain Name System
MAP-MAIL    MaXIM-11 - Mapping between X.400 / Internet mail        2162
               and  Mail-11 mail
MIME-ODA    A MIME Body Part for ODA                                2161
OSPF-DIG    OSPF with Digital Signatures                           2154
IP-SCSI     Encapsulating IP with the Small Computer System        2143
               Interface
X.500-NAME  Managing the X.500 Root Naming Context                  2120
GKMP-ARCH   Group Key Management Protocol (GKMP) Architecture       2094
GKMP-SPEC   Group Key Management Protocol (GKMP) Specification      2093
TFTP-MULTI  TFTP Multicast Option                                   2090
IP-Echo     IP Echo Host Service                                    2075
TOPT-CHARS  TELNET CHARSET Option                                   2066
URAS        Uniform Resource Agents (URAs)                          2016
GPS-AR      GPS-Based Addressing and Routing                        2009
ETFTP       Experiments with a Simple File Transfer Protocol        1986
               for Radio Links using Enhanced Trivial File
               Transfer Protocol (ETFTP)
BGP-RR      BGP Route Reflection An alternative to full mesh IBGP   1966
SMKD        Scalable Multicast Key Distribution                     1949
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```
SNMPV2SM    User-based Security Model for SNMPv2                1910
SNMPV2AI    An Administrative Infrastructure for SNMPv2         1909
SNMPV2CB    Introduction to Community-based SNMPv2              1901
--------    OSI NSAPs and IPv6                                  1888
DNS-LOC     A Means for Expressing Location Information in      1876
               the Domain Name System
SGML-MT     SGML Media Types                                   1874
CONT-MT     Message/External-Body Content-ID Access Type       1873
UNARP       ARP Extension - UNARP                              1868
BGP-IDRP    A BGP/IDRP Route Server alternative to a full      1863
               mesh routing
ESP3DES     The ESP Triple DES Transform                       1851
--------    SMTP 521 Reply Code                                1846
--------    SMTP Service Extension for Checkpoint/Restart      1845
ST2         Internet Stream Protocol Version 2 (ST2) Protocol  1819
               Specification - Version ST2+
--------    Communicating Presentation Information in Internet 1806
               Messages: The Content-Disposition Header
--------    Schema Publishing in X.500 Directory               1804
--------    MHS use of the X.500 Directory to support MHS Routing 1801
--------    Class A Subnet Experiment                          1797
TCP/IPXMIB  TCP/IPX Connection Mib Specification               1792
--------    TCP And UDP Over IPX Networks With Fixed Path MTU  1791
ICMP-DM     ICMP Domain Name Messages                          1788
CLNP-MULT   Host Group Extensions for CLNP Multicasting        1768
OSPF-OVFL   OSPF Database Overflow                             1765
RWP         Remote Write Protocol - Version 1.0               1756
NARP        NBMA Address Resolution Protocol (NARP)            1735
DNS-ENCODE  DNS Encoding of Geographical Location              1712
TCP-POS     An Extension to TCP : Partial Order Service        1693
T/TCP       T/TCP -- TCP Extensions for Transactions Functional 1644
               Specification
MIME-UNI    Using Unicode with MIME                            1641
FOOBAR      FTP Operation Over Big Address Records (FOOBAR)    1639
X500-CHART  Charting Networks in the X.500 Directory           1609
X500-DIR    Representing IP Information in the X.500 Directory 1608
SNMP-DPI    Simple Network Management Protocol Distributed     1592
               Protocol Interface Version 2.0
CLNP-TUBA   Use of ISO CLNP in TUBA Environments               1561
REM-PRINT   Principles of Operation for the TPC.INT Subdomain: 1528
               Remote Printing -- Technical Procedures
DASS        DASS - Distributed Authentication Security Service 1507
EHF-MAIL    Encoding Header Field for Internet Messages        1505
RAP         RAP: Internet Route Access Protocol                1476
TP-IX       TP/IX: The Next Internet                           1475
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--------    Routing Coordination for X.400 MHS Services Within    1465
                a Multi Protocol / Multi Network Environment
                Table Format V3 for Static Routing
--------    Using the Domain Name System To Store Arbitrary       1464
                String Attributes
IRCP        Internet Relay Chat Protocol                          1459
SIFT        SIFT/UFT: Sender-Initiated/Unsolicited File Transfer  1440
DIR-ARP     Directed ARP                                         1433
TEL-SPX     Telnet Authentication: SPX                           1412
TEL-KER     Telnet Authentication: Kerberos Version 4            1411
TRACE-IP    Traceroute Using an IP Option                        1393
DNS-IP      An Experiment in DNS Based IP Routing                1383
RMCP        Remote Mail Checking Protocol                        1339
MSP2        Message Send Protocol 2                              1312
DSLCP       Dynamically Switched Link Control Protocol           1307
--------    X.500 and Domains                                    1279
IN-ENCAP    Scheme for an internet encapsulation protocol:        1241
                Version 1
CLNS-MIB    CLNS MIB for use with Connectionless Network Protocol 1238
                (ISO 8473) and End System to Intermediate
                System (ISO 9542)
CFDP        Coherent File Distribution Protocol                  1235
IP-AX.25    Internet protocol encapsulation of AX.25 frames      1226
ALERTS      Techniques for managing asynchronously generated alerts 1224
MPP         Message Posting Protocol (MPP)                       1204
SNMP-BULK   Bulk Table Retrieval with the SNMP                   1187
DNS-RR      New DNS RR Definitions                               1183
IMAP2       Interactive Mail Access Protocol: Version 2          1176
NTP-OSI     Network Time Protocol (NTP) over the OSI Remote      1165
                Operations Service
DMF-MAIL    Digest message format                                1153
RDP         Version 2 of the Reliable Data Protocol (RDP)        1151
--------    Standard for the transmission of IP datagrams         1149
                on avian carriers
TCP-ACO     TCP alternate checksum options                       1146
--------    The Q Method of Implementing TELNET Option Negotiation 1143
IP-DVMRP    Distance Vector Multicast Routing Protocol           1075
VMTP        VMTP: Versatile Message Transaction Protocol         1045
COOKIE-JAR  Distributed-protocol authentication scheme           1004
NETBLT      NETBLT: A bulk data transfer protocol                 998
IRTP        Internet Reliable Transaction Protocol functional     938
                and interface specification
LDP         Loader Debugger Protocol                              909
RDP         Reliable Data Protocol                               908
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   previous edition of this document.]

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3.8. Historic Protocols

Mnemonic	Title	RFC#
IP-MAC	IP Authentication using Keyed SHA1 with Interleaved Padding (IP-MAC)	2841
L2F	Cisco Layer Two Forwarding (Protocol) "L2F"	2341
IPV6-UNI	An IPv6 Provider-Based Unicast Address Format	2073
HTML-INT	Internationalization of the Hypertext Markup Language	2070
--------	A Proposed Extension to HTML : Client-Side Image Maps	1980
HTML-TBL	HTML Tables	1942
IPV6-Addr	IP Version 6 Addressing Architecture	1884
--------	Form-based File Upload in HTML	1867
HTML	Hypertext Markup Language - 2.0	1866
BGP4-IDRP	BGP4/IDRP for IP---OSPF Interaction	1745*
--------	Definitions of Managed Objects for the Ethernet-like Interface Types	1623
--------	Manager-to-Manager Management Information Base	1451
--------	Party MIB for version 2 of the Simple Network Management Protocol (SNMPv2)	1447
--------	Security Protocols for version 2 of the Simple Network Management Protocol (SNMPv2)	1446
--------	Administrative Model for version 2 of the Simple Network Management Protocol (SNMPv2)	1445
TOPT-ENVIR	Telnet Environment Option	1408
BGP-OSPF	BGP OSPF Interaction	1403*
SNMP-PARTY	Definitions of Managed Objects for Administration of SNMP Parties	1353
SNMP-SEC	SNMP Security Protocols	1352
SNMP-ADMIN	SNMP Administrative Model	1351
--------	Application of the Border Gateway Protocol in the Internet	1268
BGP3	Border Gateway Protocol 3 (BGP-3)	1267
OSI-UDP	OSI connectionless transport services on top of UDP: Version 1	1240
802.4-MIP	IEEE 802.4 Token Bus MIB	1230
SNMP-MUX	SNMP MUX protocol and MIB	1227
OIM-MIB-II	OSI internet management: Management Information Base	1214
IMAP3	Interactive Mail Access Protocol: Version 3	1203
CMOT	Common Management Information Services and Protocols for the Internet (CMOT and CMIP)	1189
--------	Application of the Border Gateway Protocol in the Internet	1164
BGP	Border Gateway Protocol (BGP)	1163
MIB-I	Management Information Base for network management of TCP/IP-based internets	1156
--------	Mapping between full RFC 822 and RFC 822 with restricted encoding	1137

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--------    Privacy enhancement for Internet electronic mail:   1115
               Part III - algorithms, modes, and identifiers
--------    Privacy enhancement for Internet electronic mail:   1114
               Part II - certificate-based key management
--------    Privacy enhancement for Internet electronic mail:   1113
               Part I - message encipherment and authentication
               procedures
IPSO        U.S. Department of Defense Security Options for     1108
               the Internet Protocol
RIP         Routing Information Protocol                        1058
---------   Standard for the transmission of IP datagrams       1051
               and ARP packets over ARCNET networks
SUN-RPC     RPC: Remote Procedure Call Protocol specification   1050
CONTENT     Content-type header field for Internet messages     1049
NFILE       NFILE - a file access protocol                      1037
SGMP        Simple Gateway Monitoring Protocol                  1028
HEMS        High-level Entity Management System (HEMS)          1021
--------    Requirements for Internet gateways                  1009
STATSRV     Statistics server                                    996
HOSTNAME    Hostname Server                                       953
POP2        Post Office Protocol: Version 2                       937
HFEP        Proposed Host-Front End Protocol                      929
RATP        Reliable Asynchronous Transfer Protocol (RATP)        916
THINWIRE    Thinwire protocol for connecting personal computers   914
               to the Internet
SFTP        Simple File Transfer Protocol                         913
EGP         Exterior Gateway Protocol formal specification        904
HMP         Host Monitoring Protocol                              869
GGP         DARPA Internet gateway                                823
RTELNET     Remote User Telnet service                            818
CLOCK       DCNET Internet Clock Service                          778
MPM         Internet Message Protocol                             759
NETRJS      NETRJS Protocol                                       740
SUPDUP      SUPDUP Protocol                                       734
TOPT-OLD    Telnet output linefeed disposition                   658
TOPT-OVTD   Telnet output vertical tab disposition option        657
TOPT-OVT    Telnet output vertical tabstops option               656
TOPT-OFD    Telnet output formfeed disposition option            655
TOPT-OHTD   Telnet output horizontal tab disposition option      654
TOPT-OHT    Telnet output horizontal tabstops option             653
TOPT-OCRD   Telnet output carriage-return disposition option     652
NETED       NETED: A Common Editor for the ARPA Network          569
RJE         Remote Job Entry Protocol                            407
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   previous edition of this document.]

4. Security Coniderations

   This memo does not affect the technical security of the Internet, but
   it does cite a number of important security specifications.

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6. Full Copyright Statement

Acknowledgement