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## 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 2, 2003. 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.

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## 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 an October 2, 2003 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 - 3.7 of this memo contain the lists of protocols in each stage of standardization - Standard, Draft Standard, Proposed Standard, Experimental, 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 and Historic RFCs are not included. This memo lists the current standards track, Best Current Practice, and Experimental 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](http://www.iab.org)

Internet Engineering Task Force (IETF) Contact: [www.ietf.org](http://www.ietf.org)

Internet Research Task Force (IRTF) Contact: [www.irtf.org](http://www.irtf.org)

Internet Assigned Numbers Authority (IANA) Contact: [www.iana.org](http://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>.

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   | 3600 | 1*   |
| -----      | [Reserved for Assigned Numbers. See RFC 1700 and RFC 3232.]                          |      | 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   |
| -----      | [Reserved for Network Time Protocol (NTP). See RFC 1305.]                            |      | 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   |
| -----      | [Was Simple Network Management Protocol. Now Historic.]                              |      | 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   |
| -----      | [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   | 1002 | 19   |

|            |   |      |     |
|------------|---|------|-----|
|            | a TCP/UDP transport: Detailed specifications  |      |     |
| ECHO       | Echo Protocol   | 862  | 20  |
| 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  |
| -----      | [Was Routing Information Protocol (RIP). Replaced by STD 56.]   |      | 34  |
| TP-TCP     | ISO transport services on top of the TCP: Version 3   | 1006 | 35  |
| IP-FDDI    | Transmission of IP and ARP over FDDI Networks   | 1390 | 36  |
| ARP        | Ethernet Address Resolution Protocol: Or converting network protocol addresses to 48.bit Ethernet address for transmission on Ethernet hardware | 826  | 37  |
| RARP       | Reverse Address Resolution Protocol   | 903  | 38  |
| IP-ARPA    | [Was BBN Report 1822 (IMP/Host Interface). Now Historic.]   |      | 39  |
| IP-WB      | Host Access Protocol specification  | 907  | 40  |
| IP-E       | Standard for the transmission of IP datagrams over Ethernet networks  | 894  | 41  |
| IP-EE      | Standard for the transmission of IP datagrams over experimental Ethernet networks   | 895  | 42  |
| IP-IEEE    | Standard for the transmission of IP datagrams over IEEE 802 networks  | 1042 | 43  |
| IP-DC      | DCN local-network protocols   | 891  | 44  |
| IP-HC      | Internet Protocol on Network System's HYPERchannel: Protocol specification  | 1044 | 45  |
| IP-ARC     | Transmitting IP traffic over ARCNET networks  | 1201 | 46  |
| IP-SLIP    | Nonstandard for transmission of IP datagrams over serial lines: SLIP  | 1055 | 47  |
| IP-NETBIOS | Standard for the transmission of IP datagrams over NetBIOS networks   | 1088 | 48  |
| IP-IPX     | Standard for the transmission of 802.2 packets over IPX networks  | 1132 | 49  |
| -----      | [Reserved for Definitions of Managed Objects for the Ethernet-like Interface Types. See RFC 3638.]  |      | 50* |
| 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  |
| 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 2 (SMIv2)  | 2578 | 58  |
| CONV-MIB   | Textual Conventions for SMIv2  | 2579 | 58  |
| CONF-MIB   | Conformance Statements for SMIv2   | 2580 | 58  |
| RMON-MIB   | Remote Network Monitoring Management Information Base  | 2819 | 59  |
| SMTP-Pipe  | SMTP Service Extension for Command Pipelining  | 2920 | 60  |
| ONE-PASS   | A One-Time Password System   | 2289 | 61  |
| ARCH-SNMP  | An Architecture for Describing Simple Network Management Protocol (SNMP) Management Frameworks   | 3411 | 62* |
| MPD-SNMP   | Message Processing and Dispatching for the Simple Network Management Protocol (SNMP)             | 3412 | 62* |
| SNMP-APP   | Simple Network Management Protocol (SNMP) Applications   | 3413 | 62* |
| USM-SNMPV3 | User-based Security Model (USM) for version 3 of the Simple Network Management Protocol (SNMPv3) | 3414 | 62* |
| VACM-SNMP  | View-based Access Control Model (VACM) for the Simple Network Management Protocol (SNMP)         | 3415 | 62* |
| OPS-MIB    | Version 2 of the Protocol Operations for the Simple Network Management Protocol (SNMP)           | 3416 | 62* |
| TRANS-MIB  | Transport Mappings for the Simple Network Management Protocol (SNMP)                             | 3417 | 62* |
| SNMPv2-MIB | Management Information Base (MIB) for the Simple Network Management Protocol (SNMP)              | 3418 | 62* |

[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    | 3600* |
|            | Simple Network Management Protocol (SNMP)           |      |       |
| SNMPv2-MIB | Management Information Base (MIB) for the           | 62   | 3418* |
|            | Simple Network Management Protocol (SNMP)           |      |       |
| TRANS-MIB  | Transport Mappings for the Simple Network           | 62   | 3417* |
|            | Management Protocol (SNMP)                          |      |       |
| OPS-MIB    | Version 2 of the Protocol Operations for the        | 62   | 3416* |
|            | Simple Network Management Protocol (SNMP)           |      |       |
| VACM-SNMP  | View-based Access Control Model (VACM) for          | 62   | 3415* |
|            | the Simple Network Management Protocol (SNMP)       |      |       |
| USM-SNMPV3 | User-based Security Model (USM) for version         | 62   | 3414* |
|            | 3 of the Simple Network Management Protocol         |      |       |
|            | (SNMPv3)  |      |       |
| SNMP-APP   | Simple Network Management Protocol (SNMP)           | 62   | 3413* |
|            | Applications  |      |       |
| MPD-SNMP   | Message Processing and Dispatching for the          | 62   | 3412* |
|            | Simple Network Management Protocol (SNMP)           |      |       |
| ARCH-SNMP  | An Architecture for Describing Simple Network       | 62   | 3411* |
|            | Management Protocol (SNMP) Management Frameworks    |      |       |
| SMTP-Pipe  | SMTP Service Extension for Command Pipelining       | 60   | 2920  |
| RMON-MIB   | Remote Network Monitoring Management Information    | 59   | 2819  |
|            | Base  |      |       |
| CONF-MIB   | Conformance Statements for SMIV2                    | 58   | 2580  |
| CONV-MIB   | Textual Conventions for SMIV2                       | 58   | 2579  |
| SMIV2      | Structure of Management Information Version         | 58   | 2578  |
|            | 2 (SMIV2)   |      |       |
| 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  |
| PPP-HDLC   | PPP in HDLC-like Framing                            | 51   | 1662  |
| PPP        | The Point-to-Point Protocol (PPP)                   | 51   | 1661  |
| 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  | 17   | 1213  |
|            | of TCP/IP-based internets:MIB-II                    |      |       |
| 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  |
| SMI        | Structure and identification of management          | 16   | 1155  |
|            | information for TCP/IP-based internets              |      |       |



|            |   |    |      |
|------------|---|----|------|
| 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<br>network protocol addresses to 48.bit Ethernet<br>address for transmission on Ethernet hardware | 37 | 826 |
| MAIL   | Standard for the format of ARPA Internet text<br>messages   | 11 | 822 |
| SMTP   | Simple Mail Transfer Protocol   | 10 | 821 |
| TCP    | Transmission Control Protocol   | 7  | 793 |
| ICMP   | Internet Control Message Protocol   | 5  | 792 |
| IP     | Internet Protocol   | 5  | 791 |
| UDP    | User Datagram Protocol  | 6  | 768 |

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

## 3.3. Draft Standard Protocols

| Mnemonic   | Title   | RFC#  |
|------------|---|-------|
| -----      | Textual Conventions for MIB Modules Using<br>Performance History Based on 15 Minute Intervals                                     | 3593* |
| -----      | Definitions of Managed Objects for the Synchronous<br>Optical Network/Synchronous Digital Hierarchy<br>(SONET/SDH) Interface Type | 3592* |
| RTP        | RTP: A Transport Protocol for Real-Time Applications  | 3550* |
| DSN        | An Extensible Message Format for Delivery<br>Status Notifications   | 3464* |
| EMS-CODE   | Enhanced Mail System Status Codes   | 3463* |
| MIME-RPT   | The Multipart/Report Content Type for the<br>Reporting of Mail System Administrative Messages                                     | 3462* |
| SMTP-DSN   | Simple Mail Transfer Protocol (SMTP) Service<br>Extension for Delivery Status Notifications (DSNs)                                | 3461* |
| -----      | Capabilities Advertisement with BGP-4   | 3392* |
| -----      | Content Language Headers  | 3282  |
| -----      | (Extensible Markup Language) XML-Signature<br>Syntax and Processing   | 3275  |
| MINFAX-IM  | Minimal FAX address format in Internet Mail   | 3192  |
| MIN-PSTN   | Minimal GSTN address format in Internet Mail  | 3191  |
| RMON-MIB   | Remote Network Monitoring MIB Protocol Identifier<br>Reference  | 2895* |
| RADIUS     | Remote Authentication Dial In User Service (RADIUS)   | 2865  |
| INTERGRMIB | The Interfaces Group MIB  | 2863  |
| -----      | Host Resources MIB  | 2790  |
| SNMP       | Definitions of Managed Objects for Extensible<br>SNMP Agents  | 2742  |
| -----      | Agent Extensibility (AgentX) Protocol Version 1   | 2741  |
| -----      | HTTP Authentication: Basic and Digest Access<br>Authentication  | 2617  |
| HTTP       | Hypertext Transfer Protocol -- HTTP/1.1   | 2616  |
| ICMPv6     | Internet Control Message Protocol (ICMPv6)<br>for the Internet Protocol Version 6 (IPv6)<br>Specification                         | 2463  |
| 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<br>DTEs Using SMIV2   | 2115 |
| IP-HIPPI   | IP over HIPPI   | 2067 |
| MIME-CONF  | Multipurpose Internet Mail Extensions (MIME)<br>Part Five: Conformance Criteria and Examples                    | 2049 |
| MIME-MSG   | MIME (Multipurpose Internet Mail Extensions)<br>Part Three: Message Header Extensions for<br>Non-ASCII Text     | 2047 |
| MIME-MEDIA | Multipurpose Internet Mail Extensions (MIME)<br>Part Two: Media Types   | 2046 |
| MIME       | Multipurpose Internet Mail Extensions (MIME)<br>Part One: Format of Internet Message Bodies                     | 2045 |
| PPP-CHAP   | PPP Challenge Handshake Authentication Protocol (CHAP)  | 1994 |
| PPP-MP     | The PPP Multilink Protocol (MP)   | 1990 |
| PPP-LINK   | PPP Link Quality Monitoring   | 1989 |
| CON-MD5    | The Content-MD5 Header Field  | 1864 |
| OSPF-MIB   | OSPF Version 2 Management Information Base  | 1850 |
| XDR        | XDR: External Data Representation Standard  | 1832 |
| BGP-4-APP  | Application of the Border Gateway Protocol<br>in the Internet   | 1772 |
| 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<br>using SMIV2   | 1694 |
| -----      | Definitions of Managed Objects for Parallel-<br>printer-like Hardware Devices using SMIV2                       | 1660 |
| -----      | Definitions of Managed Objects for RS-232-<br>like Hardware Devices using SMIV2                                 | 1659 |
| -----      | Definitions of Managed Objects for Character<br>Stream Devices using SMIV2                                      | 1658 |
| BGP-4-MIB  | Definitions of Managed Objects for the Fourth<br>Version of the Border Gateway Protocol (BGP-<br>4) using SMIV2 | 1657 |
| -----      | 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<br>Protocol   | 1542 |
| 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<br>in the Packet Mode   | 1356 |
| NTPV3      | Network Time Protocol (Version 3) Specification,<br>Implementation  | 1305 |

|           |  |      |
|-----------|--|------|
| FINGER    | The Finger User Information Protocol   | 1288 |
| IP-MTU    | Path MTU discovery   | 1191 |
| -----     | Proposed Standard for the Transmission of<br>IP Datagrams over FDDI Networks | 1188 |
| 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.]

## 3.4. Proposed Standard Protocols

| Mnemonic | Title  | RFC#  |
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| SPKM       | The Simple Public-Key GSS-API Mechanism (SPKM)  | 2025 |
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| MULTI-UNI  | Support for Multicast over UNI 3.0/3.1 based ATM Networks   | 2022 |
| RMON-MIB   | Remote Network Monitoring Management Information Base Version 2 using SMIV2                           | 2021 |
| 802.12-MIB | IEEE 802.12 Interface MIB   | 2020 |
| TCP-ACK    | TCP Selective Acknowledgement Options   | 2018 |
| URL-ACC    | Definition of the URL MIME External-Body Access-Type  | 2017 |
| MIME-PGP   | MIME Security with Pretty Good Privacy (PGP)  | 2015 |
| MIB-UDP    | SNMPv2 Management Information Base for the User Datagram Protocol using SMIV2                         | 2013 |
| MIB-TCP    | SNMPv2 Management Information Base for the Transmission Control Protocol using SMIV2                  | 2012 |
| MIB-IP     | SNMPv2 Management Information Base for the Internet Protocol using SMIV2                              | 2011 |
| MOBILEIPMI | The Definitions of Managed Objects for IP Mobility Support using SMIV2                                | 2006 |
| -----      | Applicability Statement for IP Mobility Support   | 2005 |
| MINI-IP    | Minimal Encapsulation within IP   | 2004 |
| IPENCAPIP  | IP Encapsulation within IP  | 2003 |
| BGP-COMM   | BGP Communities Attribute   | 1997 |
| DNS-NOTIFY | A Mechanism for Prompt Notification of Zone Changes (DNS NOTIFY)                                      | 1996 |
| DNS-IZT    | Incremental Zone Transfer in DNS  | 1995 |
| SMTP-ETRN  | SMTP Service Extension for Remote Message Queue Starting  | 1985 |
| SNA        | Serial Number Arithmetic  | 1982 |
| MTU-IPV6   | Path MTU Discovery for IP version 6   | 1981 |
| PPP-FRAME  | PPP in Frame Relay  | 1973 |
| PPP-ECP    | The PPP Encryption Control Protocol (ECP)   | 1968 |
| GSSAPI-KER | The Kerberos Version 5 GSS-API Mechanism  | 1964 |
| PPP-CCP    | The PPP Compression Control Protocol (CCP)  | 1962 |
| GSSAPI-SOC | GSS-API Authentication Method for SOCKS Version 5   | 1961 |

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|------------|--|------|
| AUTH-SOCKS | Username/Password Authentication for SOCKS V5  | 1929 |
| SOCKSV5    | SOCKS Protocol Version 5   | 1928 |
| WHOIS++M   | How to Interact with a Whois++ Mesh  | 1914 |
| WHOIS++A   | Architecture of the Whois++ Index Service  | 1913 |
| DNS-IPV6   | DNS Extensions to support IP version 6   | 1886 |
| MIME-Sec   | MIME Object Security Services  | 1848 |
| MIME-Encyp | Security Multiparts for MIME: Multipart/Signed<br>and Multipart/Encrypted                      | 1847 |
| WHOIS++    | Architecture of the WHOIS++ service  | 1835 |
| -----      | Binding Protocols for ONC RPC Version 2  | 1833 |
| RPC        | RPC: Remote Procedure Call Protocol Specification<br>Version 2                                 | 1831 |
| -----      | The ESP DES-CBC Transform  | 1829 |
| -----      | IP Authentication using Keyed MD5  | 1828 |
| -----      | Requirements for IP Version 4 Routers  | 1812 |
| URL        | Relative Uniform Resource Locators   | 1808 |
| OSPF-DC    | Extending OSPF to Support Demand Circuits  | 1793 |
| MIME-EDI   | MIME Encapsulation of EDI Objects  | 1767 |
| XNSCP      | The PPP XNS IDP Control Protocol (XNSCP)   | 1764 |
| BVCP       | The PPP Banyan Vines Control Protocol (BVCP)   | 1763 |
| Print-MIB  | Printer MIB  | 1759 |
| ATM        | ATM Signaling Support for IP over ATM  | 1755 |
| IPNG       | The Recommendation for the IP Next Generation Protocol   | 1752 |
| 802.5-SSR  | IEEE 802.5 Station Source Routing MIB using SMIV2  | 1749 |
| SDLC SMIV2 | Definitions of Managed Objects for SNA Data Link<br>Control (SDLC) using SMIV2                 | 1747 |
| AT-MIB     | AppleTalk Management Information Base II   | 1742 |
| MacMIME    | MIME Encapsulation of Macintosh Files - MacMIME  | 1740 |
| URL        | Uniform Resource Locators (URL)  | 1738 |
| POP3-AUTH  | POP3 AUTHentication command  | 1734 |
| IMAP4-AUTH | IMAP4 Authentication Mechanisms  | 1731 |
| RDBMS-MIB  | Relational Database Management System (RDBMS)<br>Management Information Base (MIB) using SMIV2 | 1697 |
| MODEM-MIB  | Modem Management Information Base (MIB) using SMIV2  | 1696 |
| TMUX       | Transport Multiplexing Protocol (TMux)   | 1692 |
| SNANAU-MIB | Definitions of Managed Objects for SNA NAUs using<br>SMIV2                                     | 1666 |
| PPP-TRANS  | PPP Reliable Transmission  | 1663 |
| -----      | Postmaster Convention for X.400 Operations   | 1648 |
| UPS-MIB    | UPS Management Information Base  | 1628 |
| PPP-ISDN   | PPP over ISDN  | 1618 |
| PPP-X25    | PPP in X.25  | 1598 |
| OSPF-Multi | Multicast Extensions to OSPF   | 1584 |
| RIP-DC     | Extensions to RIP to Support Demand Circuits   | 1582 |
| TOPT-ENVIR | Telnet Environment Option  | 1572 |
| PPP-LCP    | PPP LCP Extensions   | 1570 |
| CIPX       | Compressing IPX Headers Over WAN Media (CIPX)  | 1553 |

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|------------|--|------|
| IPXCP      | The PPP Internetworking Packet Exchange Control Protocol (IPXCP)   | 1552 |
| SRB-MIB    | Definitions of Managed Objects for Source Routing Bridges  | 1525 |
| CIDR-STRA  | Classless Inter-Domain Routing (CIDR): an Address Assignment and Aggregation Strategy                        | 1519 |
| CIDR-ARCH  | An Architecture for IP Address Allocation with CIDR  | 1518 |
| CIDR       | Applicability Statement for the Implementation of Classless Inter-Domain Routing (CIDR)                      | 1517 |
| -----      | Token Ring Extensions to the Remote Network Monitoring MIB   | 1513 |
| FDDI-MIB   | FDDI Management Information Base   | 1512 |
| KERBEROS   | The Kerberos Network Authentication Service (V5)   | 1510 |
| -----      | X.400 Use of Extended Character Sets   | 1502 |
| HARPOON    | Rules for downgrading messages from X.400/88 to X.400/84 when MIME content-types are present in the messages | 1496 |
| Equiv      | Equivalences between 1988 X.400 and RFC-822 Message Bodies   | 1494 |
| IDPR       | Inter-Domain Policy Routing Protocol Specification: Version 1  | 1479 |
| IDPR-ARCH  | An Architecture for Inter-Domain Policy Routing  | 1478 |
| PPP/Bridge | The Definitions of Managed Objects for the Bridge Network Control Protocol of the Point-to-Point Protocol    | 1474 |
| PPP/IPMIB  | The Definitions of Managed Objects for the IP Network Control Protocol of the Point-to-Point Protocol        | 1473 |
| PPP/SECMIB | The Definitions of Managed Objects for the Security Protocols of the Point-to-Point Protocol                 | 1472 |
| PPP/LCPMIB | The Definitions of Managed Objects for the Link Control Protocol of the Point-to-Point Protocol              | 1471 |
| IP-TR-MC   | IP Multicast over Token-Ring Local Area Networks   | 1469 |
| X25-MIB    | SNMP MIB extension for Multiprotocol Interconnect over X.25  | 1461 |
| PEM-KEY    | Privacy Enhancement for Internet Electronic Mail: Part IV  | 1424 |
| PEM-ALG    | Privacy Enhancement for Internet Electronic Mail: Part III   | 1423 |
| PEM-CKM    | Privacy Enhancement for Internet Electronic Mail: Part II  | 1422 |
| PEM-ENC    | Privacy Enhancement for Internet Electronic Mail: Part I   | 1421 |
| SNMP-IPX   | SNMP over IPX  | 1420 |
| SNMP-AT    | SNMP over AppleTalk  | 1419 |
| SNMP-OSI   | SNMP over OSI  | 1418 |
| FTP        | FTP-FTAM Gateway Specification   | 1415 |
| IDENT-MIB  | Identification MIB   | 1414 |
| IDENT      | Identification Protocol  | 1413 |

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|------------|---|------|
| -----      | Default Route Advertisement In BGP2 and BGP3 Version<br>of The Border Gateway Protocol            | 1397 |
| SNMP-X.25  | SNMP MIB Extension for the X.25 Packet Layer  | 1382 |
| SNMP-LAPB  | SNMP MIB Extension for X.25 LAPB  | 1381 |
| PPP-ATCP   | The PPP AppleTalk Control Protocol (ATCP)   | 1378 |
| PPP-OSINLC | The PPP OSI Network Layer Control Protocol (OSINLCP)  | 1377 |
| TOPT-RFC   | Telnet Remote Flow Control Option   | 1372 |
| -----      | Applicability Statement for OSPF  | 1370 |
| PPP-IPCP   | The PPP Internet Protocol Control Protocol (IPCP)   | 1332 |
| -----      | X.400 1988 to 1984 downgrading  | 1328 |
| TCP-EXT    | TCP Extensions for High Performance   | 1323 |
| NETFAX     | A File Format for the Exchange of Images in the<br>Internet                                       | 1314 |
| FDDI-MIB   | FDDI Management Information Base  | 1285 |
| -----      | Encoding Network Addresses to Support Operation<br>over Non-OSI Lower Layers                      | 1277 |
| -----      | Replication and Distributed Operations extensions<br>to provide an Internet Directory using X.500 | 1276 |
| -----      | The COSINE and Internet X.500 Schema  | 1274 |
| BGP-MIB    | Definitions of Managed Objects for the Border Gateway<br>Protocol: Version 3                      | 1269 |
| ICMP-ROUT  | ICMP Router Discovery Messages  | 1256 |
| STD-MIBS   | Reassignment of experimental MIBs to standard MIBs  | 1239 |
| IPX-IP     | Tunneling IPX traffic through IP networks   | 1234 |
| IS-IS      | Use of OSI IS-IS for routing in TCP/IP and dual<br>environments                                   | 1195 |
| IP-CMPRS   | Compressing TCP/IP headers for low-speed serial links   | 1144 |
| TOPT-XDL   | Telnet X display location option  | 1096 |
| TOPT-TERM  | Telnet terminal-type option   | 1091 |
| TOPT-TS    | Telnet terminal speed option  | 1079 |
| TOPT-NAWS  | Telnet window size option   | 1073 |
| TOPT-X.3   | Telnet X.3 PAD option   | 1053 |
| TOPT-DATA  | Telnet Data Entry Terminal option: DODIIS<br>implementation                                       | 1043 |
| TOPT-3270  | Telnet 3270 regime option   | 1041 |
| NNTP       | Network News Transfer Protocol  | 977  |
| TOPT-TLN   | Telnet terminal location number option  | 946  |
| TOPT-OM    | Output marking Telnet option  | 933  |
| TOPT-TACAC | TACACS user identification Telnet option  | 927  |
| TOPT-EOR   | Telnet end of record option   | 885  |
| TOPT-SNDL  | Telnet send-location option   | 779  |
| TOPT-SUPO  | Telnet SUPDUP-Output option   | 749  |
| TOPT-SUP   | Telnet SUPDUP option  | 736  |
| TOPT-BYTE  | Revised Telnet byte macro option  | 735  |

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|-----------|---|-----|
| TOPT-LOGO | Telnet logout option  | 727 |
| TOPT-REM  | Remote Controlled Transmission and Echoing Telnet<br>option | 726 |
| TOPT-EXT  | Telnet extended ASCII option                                | 698 |

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

## 3.5. Best Current Practice by BCP

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| -----    | Best Current Practices  | 1818 | 1    |
| -----    | Addendum to RFC 1602 -- Variance Procedure  | 1871 | 2    |
| -----    | Variance for The PPP Compression Control Protocol<br>and The PPP Encryption Control Protocol                      | 1915 | 3    |
| -----    | An Appeal to the Internet Community to Return<br>Unused IP Networks (Prefixes) to the IANA                        | 1917 | 4    |
| -----    | Address Allocation for Private Internets  | 1918 | 5    |
| -----    | Guidelines for creation, selection, and<br>registration of an Autonomous System (AS)                              | 1930 | 6    |
| -----    | Implications of Various Address Allocation<br>Policies for Internet Routing                                       | 2008 | 7    |
| -----    | IRTF Research Group Guidelines and Procedures   | 2014 | 8    |
| -----    | The Internet Standards Process -- Revision 3  | 2026 | 9    |
| -----    | IAB and IESG Selection, Confirmation, and Recall<br>Process: Operation of the Nominating and Recall<br>Committees | 2727 | 10   |
| -----    | The Organizations Involved in the IETF Standards<br>Process   | 2028 | 11   |
| -----    | Internet Registry IP Allocation Guidelines  | 2050 | 12   |
| -----    | Multipurpose Internet Mail Extensions (MIME) Part<br>Four: Registration Procedures                                | 2048 | 13   |
| -----    | Key words for use in RFCs to Indicate Requirement<br>Levels   | 2119 | 14   |
| -----    | 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<br>Response   | 2350 | 21   |
| -----    | 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<br>Section in RFCs  | 2434 | 26   |
| -----    | Advancement of MIB specifications on the IETF<br>Standards Track  | 2438 | 27   |
| -----    | Enhancing TCP Over Satellite Channels using<br>Standard Mechanisms  | 2488 | 28   |
| -----    | Procedure for Defining New DHCP Options   | 2489 | 29   |
| -----    | Anti-Spam Recommendations for SMTP MTAs   | 2505 | 30   |
| -----    | Media Feature Tag Registration Procedure  | 2506 | 31   |

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| ----- | URN Namespace Definition Mechanisms   | 2611 | 33 |
| ----- | Changing the Default for Directed Broadcasts in Routers   | 2644 | 34 |
| ----- | Registration Procedures for URL Scheme Names  | 2717 | 35 |
| ----- | Guidelines for Writers of RTP Payload Format Specifications   | 2736 | 36 |
| ----- | IANA Allocation Guidelines For Values In the Internet Protocol and Related Headers                          | 2780 | 37 |
| ----- | Network Ingress Filtering: Defeating Denial of Service Attacks which employ IP Source Address Spoofing      | 2827 | 38 |
| ----- | Charter of the Internet Architecture Board (IAB)  | 2850 | 39 |
| ----- | Root Name Server Operational Requirements   | 2870 | 40 |
| ----- | Congestion Control Principles   | 2914 | 41 |
| ----- | Domain Name System (DNS) IANA Considerations  | 2929 | 42 |
| ----- | Procedures and IANA Guidelines for Definition of New DHCP Options and Message Types                         | 2939 | 43 |
| ----- | Use of HTTP State Management  | 2964 | 44 |
| ----- | IETF Discussion List Charter  | 3005 | 45 |
| ----- | Recommended Internet Service Provider Security Services and Procedures                                      | 3013 | 46 |
| ----- | Tags for the Identification of Languages  | 3066 | 47 |
| ----- | End-to-end Performance Implications of Slow Links   | 3150 | 48 |
| ----- | Delegation of IP6.ARPA  | 3152 | 49 |
| ----- | End-to-end Performance Implications of Links with Errors  | 3155 | 50 |
| ----- | IANA Guidelines for IPv4 Multicast Address Assignments  | 3171 | 51 |
| ----- | Management Guidelines & Operational Requirements for the Address and Routing Parameter Area Domain ("arpa") | 3172 | 52 |
| ----- | GLOP Addressing in 233/8  | 3180 | 53 |
| ----- | IETF Guidelines for Conduct   | 3184 | 54 |
| ----- | Guidelines for Evidence Collection and Archiving  | 3227 | 55 |
| ----- | On the use of HTTP as a Substrate   | 3205 | 56 |
| ----- | IANA Considerations for IPv4 Internet Group Management Protocol (IGMP)                                      | 3228 | 57 |
| ----- | Defining the IETF   | 3233 | 58 |
| ----- | A Transient Prefix for Identifying Profiles under Development   | 3349 | 59 |
| ----- | Inappropriate TCP Resets Considered Harmful   | 3360 | 60 |
| ----- | Strong Security Requirements for Internet Engineering Task Force Standard Protocols                         | 3365 | 61 |
| ----- | Advice to link designers on link Automatic Repeat reQuest (ARQ)   | 3366 | 62 |
| ----- | Session Initiation Protocol (SIP) for Telephones (SIP-T): Context and Architectures                         | 3372 | 63 |

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| ----- | Internet Assigned Numbers Authority (IANA)<br>Considerations for the Lightweight Directory<br>Access Protocol (LDAP) | 3383 | 64  |
| ----- | Dynamic Delegation Discovery System (DDDS) Part<br>Five: URI.ARPA Assignment Procedures                              | 3405 | 65  |
| ----- | Uniform Resource Names (URN) Namespace Definition<br>Mechanisms  | 3406 | 66  |
| ----- | Change Process for the Session Initiation Protocol<br>(SIP)  | 3427 | 67* |
| ----- | Layer Two Tunneling Protocol (L2TP) Internet<br>Assigned Numbers Authority (IANA) Considerations<br>Update           | 3438 | 68* |
| ----- | TCP Performance Implications of Network Path<br>Asymmetry  | 3449 | 69* |
| ----- | Guidelines for the Use of Extensible Markup<br>Language (XML) within IETF Protocols                                  | 3470 | 70* |
| ----- | TCP over Second (2.5G) and Third (3G) Generation<br>Wireless Networks  | 3481 | 71* |
| ----- | Guidelines for Writing RFC Text on Security<br>Considerations  | 3552 | 72* |
| ----- | An IETF URN Sub-namespace for Registered Protocol<br>Parameters  | 3553 | 73* |
| ----- | Coexistence between Version 1, Version 2, and<br>Version 3 of the Internet-standard Network<br>Management Framework  | 3584 | 74* |

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| -----    | Coexistence between Version 1, Version 2, and Version 3 of the Internet-standard Network Management Framework  | 74   | 3584* |
| -----    | An IETF URN Sub-namespace for Registered Protocol Parameters   | 73   | 3553* |
| -----    | Guidelines for Writing RFC Text on Security Considerations   | 72   | 3552* |
| -----    | TCP over Second (2.5G) and Third (3G) Generation Wireless Networks   | 71   | 3481* |
| -----    | Guidelines for the Use of Extensible Markup Language (XML) within IETF Protocols                               | 70   | 3470* |
| -----    | TCP Performance Implications of Network Path Asymmetry   | 69   | 3449* |
| -----    | Layer Two Tunneling Protocol (L2TP) Internet Assigned Numbers Authority (IANA) Considerations Updatd           | 68   | 3438* |
| -----    | Change Process for the Session Initiation Protocol (SIP)   | 67   | 3427* |
| -----    | Uniform Resource Names (URN) Namespace Definition Mechanisms   | 66   | 3406  |
| -----    | Dynamic Delegation Discovery System (DDDS) Part Five: URI.ARPA Assignment Procedures                           | 65   | 3405  |
| -----    | Internet Assigned Numbers Authority (IANA) Considerations for the Lightweight Directory Access Protocol (LDAP) | 64   | 3383  |
| -----    | Session Initiation Protocol (SIP) for Telephones (SIP-T): Context and Architectures                            | 63   | 3372  |
| -----    | Advice to link designers on link Automatic Repeat reQuest (ARQ)  | 62   | 3366  |
| -----    | Strong Security Requirements for Internet Engineering Task Force Standard Protocols                            | 61   | 3365  |
| -----    | Inappropriate TCP Resets Considered Harmful  | 60   | 3360  |
| -----    | A Transient Prefix for Identifying Profiles under Development  | 59   | 3349  |
| -----    | Defining the IETF  | 58   | 3233  |
| -----    | IANA Considerations for IPv4 Internet Group Management Protocol (IGMP)   | 57   | 3228  |
| -----    | Guidelines for Evidence Collection and Archiving   | 55   | 3227  |
| -----    | On the use of HTTP as a Substrate  | 56   | 3205  |
| -----    | IETF Guidelines for Conduct  | 54   | 3184  |
| -----    | GLOP Addressing in 233/8   | 53   | 3180  |
| -----    | Management Guidelines & Operational Requirements for the Address and Routing Parameter Area Domain ("arpa")    | 52   | 3172  |

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| ----- | IANA Guidelines for IPv4 Multicast Address Assignments   | 51 | 3171 |
| ----- | End-to-end Performance Implications of Links with Errors   | 50 | 3155 |
| ----- | 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 Services and Procedures                                 | 46 | 3013 |
| ----- | 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 New DHCP Options and Message Types                    | 43 | 2939 |
| ----- | 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 |
| ----- | Network Ingress Filtering: Defeating Denial of Service Attacks which employ IP Source Address Spoofing | 38 | 2827 |
| ----- | IANA Allocation Guidelines For Values In the Internet Protocol and Related Headers                     | 37 | 2780 |
| ----- | Guidelines for Writers of RTP Payload Format Specifications  | 36 | 2736 |
| ----- | Registration Procedures for URL Scheme Names   | 35 | 2717 |
| ----- | Changing the Default for Directed Broadcasts in Routers  | 34 | 2644 |
| ----- | URN Namespace Definition Mechanisms  | 33 | 2611 |
| ----- | 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 |
| ----- | Enhancing TCP Over Satellite Channels using Standard Mechanisms  | 28 | 2488 |
| ----- | Advancement of MIB specifications on the IETF Standards Track  | 27 | 2438 |
| ----- | Guidelines for Writing an IANA Considerations Section in RFCs  | 26 | 2434 |
| ----- | IETF Working Group Guidelines and Procedures   | 25 | 2418 |
| ----- | RSVP over ATM Implementation Guidelines  | 24 | 2379 |
| ----- | Administratively Scoped IP Multicast   | 23 | 2365 |
| ----- | Guide for Internet Standards Writers   | 22 | 2360 |
| ----- | Expectations for Computer Security Incident Response   | 21 | 2350 |
| ----- | Classless IN-ADDR.ARPA delegation  | 20 | 2317 |
| ----- | IETF Policy on Character Sets and Languages  | 18 | 2277 |
| ----- | Use of DNS Aliases for Network Services  | 17 | 2219 |

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| ----- | Selection and Operation of Secondary DNS Servers  | 16 | 2182 |
| ----- | Deployment of the Internet White Pages Service  | 15 | 2148 |
| ----- | Key words for use in RFCs to Indicate Requirement Levels  | 14 | 2119 |
| ----- | Internet Registry IP Allocation Guidelines  | 12 | 2050 |
| ----- | Multipurpose Internet Mail Extensions (MIME) Part Four: Registration Procedures                             | 13 | 2048 |
| ----- | The Organizations Involved in the IETF Standards Process  | 11 | 2028 |
| ----- | IAB and IESG Selection, Confirmation, and Recall Process: Operation of the Nominating and Recall Committees | 10 | 2727 |
| ----- | The Internet Standards Process -- Revision 3  | 9  | 2026 |
| ----- | IRTF Research Group Guidelines and Procedures   | 8  | 2014 |
| ----- | Implications of Various Address Allocation Policies for Internet Routing                                    | 7  | 2008 |
| ----- | Guidelines for creation, selection, and registration of an Autonomous System (AS)                           | 6  | 1930 |
| ----- | Address Allocation for Private Internets  | 5  | 1918 |
| ----- | An Appeal to the Internet Community to Return Unused IP Networks (Prefixes) to the IANA                     | 4  | 1917 |
| ----- | Variance for The PPP Compression Control Protocol and The PPP Encryption Control Protocol                   | 3  | 1915 |
| ----- | Addendum to RFC 1602 -- Variance Procedure  | 2  | 1871 |
| ----- | Best Current Practices  | 1  | 1818 |

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## 3.7. Experimental Protocols

| Mnemonic | Title   | RFC#  |
|----------|---|-------|
| -----    | Ad hoc On-Demand Distance Vector (AODV) Routing   | 3561* |
| -----    | Robust Explicit Congestion Notification (ECN) Signaling with Nonces   | 3540* |
| -----    | Using Extensible Markup Language-Remote Procedure Calling (XML-RPC) in Blocks Extensible Exchange Protocol (BEEP) | 3529* |
| -----    | Mesh-enhanced Service Location Protocol (mSLP)  | 3528* |
| -----    | The Eifel Detection Algorithm for TCP   | 3522* |
| -----    | TCP Congestion Control with Appropriate Byte Counting (ABC)   | 3465* |
| -----    | Forward Error Correction (FEC) Building Block   | 3452* |
| -----    | Layered Coding Transport (LCT) Building Block   | 3451* |
| -----    | Simple Network Management Protocol Over Transmission Control Protocol Transport Mapping                           | 3430* |
| -----    | Select and Sort Extensions for the Service Location Protocol (SLP)  | 3421* |
| -----    | The Application Exchange (APEX) Presence Service  | 3343* |
| -----    | Dual Stack Hosts Using "Bump-in-the-API" (BIA)  | 3338  |
| -----    | Policy-Based Accounting   | 3334  |
| -----    | PGM Reliable Transport Protocol Specification   | 3208  |
| -----    | Domain Security Services using S/MIME   | 3183  |
| SMX      | Script MIB Extensibility Protocol Version 1.1   | 3179  |
| -----    | ISO/IEC 9798-3 Authentication SASL Mechanism  | 3163  |
| -----    | Electronic Signature Policies   | 3125  |
| -----    | A DNS RR Type for Lists of Address Prefixes (APL RR)  | 3123  |
| -----    | Finding an RSIP Server with SLP   | 3105  |
| -----    | RSIP Support for End-to-end IPsec   | 3104  |
| -----    | Realm Specific IP: Protocol Specification   | 3103  |
| -----    | Realm Specific IP: Framework  | 3102  |
| -----    | OpenLDAP Root Service An experimental LDAP referral service   | 3088  |
| -----    | Notification and Subscription for SLP   | 3082  |
| -----    | MPLS Loop Prevention Mechanism  | 3063  |
| -----    | Internet X.509 Public Key Infrastructure Data Validation and Certification Server Protocols                       | 3029  |
| -----    | 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  |
| -----    | DNS Extensions to Support IPv6 Address Aggregation and Renumbering  | 2874  |
| -----    | TCP Congestion Window Validation  | 2861  |
| TSWTCM   | A Time Sliding Window Three Colour Marker (TSWTCM)  | 2859  |

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| -----      | OSPF over ATM and Proxy-PAR   | 2844 |
| PPP-SDL    | PPP over Simple Data Link (SDL) using SONET/SDH<br>with ATM-like framing                    | 2823 |
| -----      | Diffie-Helman USM Key Management Information Base<br>and Textual Convention                 | 2786 |
| -----      | An HTTP Extension Framework   | 2774 |
| -----      | Encryption using KEA and SKIPJACK   | 2773 |
| -----      | Sampling of the Group Membership in RTP   | 2762 |
| -----      | Definitions of Managed Objects for Service Level<br>Agreements Performance Monitoring       | 2758 |
| 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 |
| DNS        | Binary Labels in the Domain Name System   | 2673 |
| -----      | 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 |
| -----      | A Tagged Index Object for use in the Common Indexing<br>Protocol                            | 2654 |
| -----      | An LDAP Control and Schema for Holding Operation<br>Signatures                              | 2649 |
| -----      | The NewReno Modification to TCP's Fast Recovery<br>Algorithm                                | 2582 |
| -----      | Mapping between LPD and IPP Protocols   | 2569 |
| IPP-RAT    | Rationale for the Structure of the Model and Protocol<br>for the Internet Printing Protocol | 2568 |
| IPP-DG     | Design Goals for an Internet Printing Protocol  | 2567 |
| DNS-INFO   | Detached Domain Name System (DNS) Information   | 2540 |
| PHOTURIS-E | Photuris: Extended Schemes and Attributes   | 2523 |
| PHOTURIS-S | Photuris: Session-Key Management Protocol   | 2522 |
| ICMP-SEC   | ICMP Security Failures Messages   | 2521 |
| NHRP-MNHCS | NHRP with Mobile NHCs   | 2520 |
| -----      | URI Resolution Services Necessary for URN Resolution  | 2483 |
| -----      | IPv6 Testing Address Allocation   | 2471 |
| MARS-SCSP  | A Distributed MARS Service Using SCSP   | 2443 |
| PIM-SM     | Protocol Independent Multicast-Sparse Mode (PIM-<br>SM): Protocol Specification             | 2362 |
| -----      | Domain Names and Company Name Retrieval   | 2345 |
| RTP-MPEG   | RTP Payload Format for Bundled MPEG   | 2343 |
| -----      | Intra-LIS IP multicast among routers over ATM<br>using Sparse Mode PIM                      | 2337 |
| -----      | The Safe Response Header Field  | 2310 |

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| LDAP-NIS   | An Approach for Using LDAP as a Network Information Service  | 2307 |
| 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<br>-- Protocol Specification --   | 2189 |
| -----      | A Trivial Convention for using HTTP in URN Resolution  | 2169 |
| MAP-MAIL   | MaXIM-11 - Mapping between X.400 / Internet mail<br>and Mail-11 mail   | 2162 |
| 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<br>Interface   | 2143 |
| 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<br>for Radio Links using Enhanced Trivial File<br>Transfer Protocol (ETFTP) | 1986 |
| BGP-RR     | BGP Route Reflection An alternative to full mesh IBGP  | 1966 |
| SMKD       | Scalable Multicast Key Distribution  | 1949 |
| -----      | OSI NSAPs and IPv6   | 1888 |
| DNS-LOC    | A Means for Expressing Location Information in<br>the Domain Name System   | 1876 |
| 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<br>mesh routing  | 1863 |
| 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<br>Specification - Version ST2+  | 1819 |
| -----      | Communicating Presentation Information in Internet<br>Messages: The Content-Disposition Header                               | 1806 |
| -----      | 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 |

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| 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 Specification  | 1644 |
| 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 Protocol Interface Version 2.0  | 1592 |
| CLNP-TUBA  | Use of ISO CLNP in TUBA Environments   | 1561 |
| REM-PRINT  | Principles of Operation for the TPC.INT Subdomain: Remote Printing -- Technical Procedures   | 1528 |
| 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 |
| -----      | Routing Coordination for X.400 MHS Services Within a Multi Protocol / Multi Network Environment Table Format V3 for Static Routing | 1465 |
| -----      | Using the Domain Name System To Store Arbitrary String Attributes  | 1464 |
| 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: Version 1   | 1241 |
| CLNS-MIB   | CLNS MIB for use with Connectionless Network Protocol (ISO 8473) and End System to Intermediate System (ISO 9542)                  | 1238 |
| 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 |

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| 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<br>Operations Service            | 1165 |
| DMF-MAIL   | Digest message format  | 1153 |
| RDP        | Version 2 of the Reliable Data Protocol (RDP)                                    | 1151 |
| -----      | Standard for the transmission of IP datagrams<br>on avian carriers               | 1149 |
| 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<br>and interface specification | 938  |
| LDP        | Loader Debugger Protocol   | 909  |
| RDP        | Reliable Data Protocol   | 908  |

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



#### 4. Security Considerations

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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