Standards and Protocol Support

Standards Compliance

IEEE 802.1ab-REV/D3 Station and Media Access Control Connectivity Discovery
IEEE 802.1d Bridging
IEEE 802.1p/Q VLAN Tagging
IEEE 802.1s Multiple Spanning Tree
IEEE 802.1w Rapid Spanning Tree Protocol
IEEE 802.1x Port Based Network Access Control
IEEE 802.1ad Provider Bridges
IEEE 802.1ah Provider Backbone Bridges
IEEE 802.1ag Service Layer OAM
IEEE 802.3ah Ethernet in the First Mile
IEEE 802.1ak Multiple MAC Registration Protocol
IEEE 802.3 10BaseT
IEEE 802.3ad Link Aggregation
IEEE 802.3ae 10Gbps Ethernet
IEEE 802.3af Ethernet OAM
IEEE 802.3x Flow Control
IEEE 802.3z 1000BaseSX/LX
ITU-T G.8031 OAM functions and mechanisms for Ethernet based networks
ITU-T G.8031 Ethernet linear protection switching
ITU-T G.8032 Ethernet Ring Protection Switching (version 2)

Protocol Support

OSPF
RFC 1765 OSPF Database Overflow
RFC 2328 OSPF Version 2
RFC 2370 Opaque LSA Support
RFC 2740 OSPF for IPv6 (OSPFv3)
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RFC 3101 OSPF NSSA Option
RFC 3137 OSPF Stub Router Advertisement
RFC 3623 Graceful OSPF Restart – GR helper
RFC 3630 Traffic Engineering (TE) Extensions to OSPF Version 2
RFC 4203 - OSPF Extensions in Support of Generalized Multi-Protocol Label Switching (GMPLS) - (support of Link Local/Remote Identifiers and SRLG sub-TLVs)
RFC 5185 OSPF Multi-Area Adjacency
RFC 3623 Graceful OSPF Restart — GR helper
RFC 3630 Traffic Engineering (TE) Extensions to OSPF Version 2
RFC 4203 for Shared Risk Link Group (SRLG) sub-TLV

BGP
RFC 1397 BGP Default Route Advertisement
RFC 1772 Application of BGP in the Internet
RFC 1965 Confederations for BGP
RFC 1997 BGP Communities Attribute
RFC 2385 Protection of BGP Sessions via MD5
RFC 2439 BGP Route Flap Dampening
RFC 2558 Multiprotocol Extensions for BGP
RFC 2918 Route Refresh Capability for BGP
RFC 3107 Carrying Label Information in BGP
RFC 3392 Capabilities Advertisement with BGP
RFC 4271 BGP-4 (previously RFC 1771)
RFC 4360 BGP Extended Communities Attribute
RFC 4364 BGP/MPLS IP Virtual Private Networks (VPNs) (previously RFC 2547bis BGP/MPLS VPNs)
RFC 4456 BGP Route Reflection: Alternative to Full-mesh IBGP
(previously RFC 1966 & 2796)
RFC 4486 Subcodes for BGP Cease Notification Message
RFC 4577 BGP as the Provider/ Customer Edge Protocol for BGP/
MPLS IP Virtual Private Networks (VPNs)
RFC 4659 BGP-MPLS IP Virtual Private Network (VPN) Extension for IPv6 VPN
RFC 4684 Constrained Route Distribution for Border Gateway Protocol/MultiProtocol Label Switching (BGP/MPLS) Internet Protocol (IP) Virtual Private Networks (VPNs)
RFC 4724 Graceful Restart Mechanism for BGP – GR helper
RFC 4760 Multi-protocol Extensions for BGP
RFC 4798 Connecting IPv6 Islands over IPv4 MPLS Using IPv6 Provider Edge Routers (6PE)
RFC 4893 BGP Support for Four-octet AS Number Space
RFC 5004 Avoid BGP Best Path Transitions from One External to Another
RFC 5065 Confederations for BGP (obsoletes 3065)
RFC 5291 Outbound Route Filtering Capability for BGP-4
RFC 5575 Dissemination of Flow Specification Rules
RFC 5668 4-Octet AS Specific BGP Extended Community
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IS-IS
RFC 1142 OSI IS-IS Intra-domain Routing Protocol (ISO 10589)
RFC 1195 Use of OSI IS-IS for routing in TCP/IP & dual environments
RFC 2763 Dynamic Hostname Exchange for IS-IS
RFC 2966 Domain-wide Prefix Distribution with Two-Level IS-IS
RFC 2973 IS-IS Mesh Groups
RFC 3567 Intermediate System to Intermediate System (ISIS) Cryptographic Authentication
Standards and Protocols

RFC 3719 Recommendations for Interoperable Networks using IS-IS
RFC 3784 Intermediate System to Intermediate System (IS-IS) Extensions for Traffic Engineering (TE)
RFC 3787 Recommendations for Interoperable IPv6 Networks
RFC 3847 Restart Signaling for IS-IS – GR helper
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RFC 5305 Three-Way Handshake for Intermediate System to Intermediate System (IS-IS) Point-to-Point Adjacencies
RFC 5305 IS-IS Extensions for Traffic Engineering
RFC 5307 IS-IS Extensions in Support of Generalized Multi-Protocol Label Switching (GMPLS) – (support of Link Local/Remote Identifiers and SRLG sub-TLVs)

IPSec
RFC 2401 Security Architecture for the Internet Protocol

IPv6
RFC 1981 Path MTU Discovery for IPv6
RFC 2375 IPv6 Multicast Address Assignments
RFC 2460 Internet Protocol, Version 6 (IPv6) Specification
RFC 2461 Neighbor Discovery for IPv6
RFC 2462 IPv6 Stateless Address Auto configuration
RFC 2463 Internet Control Message Protocol (ICMPv6) for the Internet Protocol Version 6 Specification
RFC 2464 Transmission of IPv6 Packets over Ethernet Networks
RFC 2529 Transmission of IPv6 over IPv4 Domains without Explicit Tunnels
RFC 2545 Use of BGP-4 Multiprotocol Extension for IPv6 Inter-Domain Routing
RFC 2710 Multicast Listener Discovery (MLD) for IPv6 RFC 2740 OSPF for IPv6
RFC 3306 Unicast-Prefix-based IPv6 Multicast Addresses
RFC 3315 Dynamic Host Configuration Protocol for IPv6

RFC 3587 IPv6 Global Unicast Address Format
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RFC 4007 IPv6 Scoped Address Architecture
RFC 4193 Unique Local IPv6 Unicast Addresses
RFC 4291 IPv6 Addressing Architecture
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RFC 4659 BGP-MPLS IP Virtual Private Network (VPN) Extension for IPv6 VPN
RFC 5072 IP Version 6 over PPP
RFC 5095 Deprecation of Type 0 Routing Headers in IPv6
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RFC 2236 Internet Group Management Protocol, (Snooping)
RFC 3376 Internet Group Management Protocol, Version 3 (Snooping)
RFC 2362 Protocol Independent Multicast-Sparse Mode (PIMSM)
RFC 3618 Multicast Source Discovery Protocol (MSDP)
RFC 3446 Anycast Rendezvous Point (RP) mechanism using Protocol Independent Multicast (PIM) and Multicast Source Discovery Protocol (MSDP)
RFC 4604 Using IGMPv3 and MLDv2 for Source-Specific Multicast
RFC 4607 Source-Specific Multicast for IP
RFC 4608 Source-Specific Protocol Independent Multicast in 232/8
RFC 4610 Anycast-RP Using Protocol Independent Multicast (PIM)
RFC 5186, Internet Group Management Protocol Version 3 (IGMPv3)/ Multicast Listener Discovery

Version 2 (MLDv2) and Multicast Routing Protocol Interaction
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RFC 3956: Embedding the Rendezvous Point (RP) Address in an IPv6 Multicast Address

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RFC 2474 Definition of the DS Field the IPv4 and IPv6 Headers (Rev)
RFC 2597 Assured Forwarding PHB Group (rev3260)
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RFC 3031 MPLS Architecture
RFC 3032 MPLS Label Stack Encoding
RFC 3443 Time To Live (TTL) Processing in Multi-Protocol Label Switching (MPLS) Networks
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RFC 3478 Graceful Restart Mechanism for LDP – GR helper
RFC 5036 LDP Specification
RFC 5283 LDP extension for Inter-Area LSP
RFC 5443 LDP IGP Synchronization
RFC 6388 Extensions for Point-to-Multipoint and Multipoint-to-Multipoint LSP
RFC 6388 Multipoint LDP in-band signaling for Point-to-Multipoint
and Multipoint-to-Multipoint Label Switched Paths

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- RFC 2702 Requirements for Traffic Engineering over MPLS
- RFC2747 RSVP Cryptographic Authentication
- RFC 2961 RSVP Refresh Overhead Reduction Extensions
- RFC3097 RSVP Cryptographic Authentication - Updated Message Type Value
- RFC 3209 Extensions to RSVP for Tunnels
- RFC 3473 Generalized Multi-Protocol Label Switching (GMPLS) Signaling
- RFC 3477 Signalling Unnumbered Links in Resource ReSerVation Protocol - Traffic Engineering (RSVP-TE)
- RFC 3564 Requirements for Diff-Serv-aware TE
- RFC 3906 Calculating Interior Gateway Protocol (IGP) Routes Over Traffic Engineering Tunnels
- RFC 4090 Fast reroute Extensions to RSVP-TE for LSP Tunnels
- RFC 4124 Protocol Extensions for Support of Diffserv-aware MPLS Traffic Engineering
- RFC 4125 Maximum Allocation Bandwidth Constraints Model for Diffserv-aware MPLS Traffic Engineering
- RFC 4127 Russian Dolls Bandwidth Constraints Model for DiffServ-aware MPLS Traffic Engineering
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- RFC 4561 Definition of a RRO Node-Id Sub-Object
- RFC 4875 Extensions to Resource Reservation Protocol - Traffic Engineering (RSVP-TE) for Point-to-Multipoint TE Label Switched Paths (LSPs)
- RFC 5151 Inter-domain MPLS and GMPLS Traffic Engineering – RSVP-TE Extensions
- RFC 5712 MPLS Traffic Engineering Soft Preemption
- RFC 5817 Graceful Shutdown in GMPLS Traffic Engineering Networks

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- RFC 6425 Detecting Data Plane Failures in Point-to-Multipoint Multiprotocol Label Switching (MPLS) - Extensions to LSP Ping

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- RFC 5921 A Framework for MPLS in Transport Networks
- RFC 5960 MPLS Transport Profile Data Plane Architecture
- RFC 6370 MPLS-TP Identifiers
- RFC 6378 MPLS-TP Linear Protection
- RFC 6428 Proactive Connectivity Verification, Continuity Check and Remote Defect indication for MPLS Transport Profile
- RFC 6426 MPLS On-Demand Connectivity and Route Tracing
- RFC 6478 Pseudowire Status for Static Pseudowires
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- RFC 2082 RIP-2 MD5 Authentication
- RFC 2453 RIP Version 2

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- RFC 1350 The TFTP Protocol (Rev.
- RFC 791 IP
- RFC 792 ICMP

**VRF**
- RFC 793 TCP
- RFC 826 ARP
- RFC 854 Telnet
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- RFC 2347 TFTP option Extension
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- RFC 2428 FTP Extensions for IPv6 and NATs
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- RFC 5880 Bidirectional Forwarding Detection
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- RFC 5286 Basic Specification for IP Fast Reroute: Loop-Free Alternates

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- RFC 2787 Definitions of Managed Objects for the Virtual Router Redundancy Protocol
- RFC 3768 Virtual Router Redundancy Protocol
- RFC 5798, Virtual Router Redundancy Protocol Version 3 for IPv4 and IPv6

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- RFC 2131 Dynamic Host Configuration Protocol (REV)
- RFC 3046 DHCP Relay Agent Information Option (Option 82)
- RFC 1534 Interoperation between DHCP and BOOTP

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- RFC 5501: Requirements for Multicast Support in Virtual Private LAN

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**Standards and Protocols**

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Standards and Protocols

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RFC 5085, Pseudowire Virtual Circuit Connectivity Verification (VCCV): A Control Channel for Pseudowires
RFC 5659 An Architecture for Multi-Segment Pseudowire Emulation Edge-to-Edge
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RFC 6310 Pseudowire (PW) OAM Message Mapping
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RFC 3019 IP Version 6 Management Information Base for The Multicast Listener Discovery Protocol
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