



I E T F[®]

IPv6 Specifications to Internet Standard

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6MAN chairs

Requirements for Internet Standard (RFC6410)



- There are at least two independent interoperating implementations with widespread deployment and successful operational experience.
- There are no errata against the specification that would cause a new implementation to fail to interoperate with deployed ones.
- There are no unused features in the specification that greatly increase implementation complexity.
- If the technology required to implement the specification requires patented or otherwise controlled technology, then the set of implementations must demonstrate at least two independent, separate and successful uses of the licensing process.

Proposed Plan



- Re-classify to Internet Standard draft standard documents that require no changes. (IESG action)
- Start work on those that require updates. Restricted to errata and updates that meet the criteria for Internet standard.
- Phase 2 (Proposed standards documents)

Alternatives:



- Re-classify to Internet Standard unchanged (same RFC number)
- Revise document and re-classify to IS (errata and updated-by that meet criteria of RFC6410)
- Don't advance (possibly revise document at current level)

Draft Standard documents



- RFC2460 – Internet Protocol, Version 6 (IPv6) Specification
- RFC4291 – IP Version 6 Addressing Architecture
- RFC4443 – Internet Control Message Protocol (ICMPv6) for the Internet Protocol Version 6 (IPv6) Specification
- RFC3596 – DNS Extensions to Support IP Version 6
- RFC1981 – Path MTU Discovery for IP version 6
- RFC4861 – Neighbor Discovery for IP version 6 (IPv6)
- RFC4862 – IPv6 Stateless Address Autoconfiguration
- RFC4941 – Privacy Extensions for Stateless Address Autoconfiguration in IPv6
- RFC5072 – IP Version 6 over PPP

RFC2460: IPv6 Specification



- Status

- 9 Updated by:
 - RH0 deprecation
 - Overlapping fragments (1 errata)
 - IANA considerations for routing types
 - flow label specification
 - uniform IPv6 extension header format
 - UDP checksum for tunneled packets (1 errata)
 - processing of atomic fragments
 - transmission and processing of IPv6 extension headers
 - implications of oversized IPv6 header chains
- Two errata Held for Document update

- Proposal

- RFC2460bis. Revise and re-classify as IS.
Bob Hinden volunteered to be document editor.

RFC2460 updated-by:



RFC	Summary	Action
5595	RH0 deprecation	Remove RH0 text
5722	Overlapping fragments	Add ban overlapping fragments text
5871	IANA considerations for RH	Add IANA considerations
6437	IPv6 flow label	Unclear. Remove appendix A. Remove or replace section 6. Add reference to 6437
6564	Uniform EH format	Add section 4 to 2460
6935	UDP zero	Add checksum exception text and reference
6946	Atomic fragments	Add section 4 text to 2460
7045	Transmission of EHs	Unclear
7112	Oversized header chain	Add requirement that chain is contained within first fragment
atomfrg	draft-ietf-6man-deprecate-atomfrag-generation	Remove MTU < 1280 = FH paragraph
hbh	draft-baker-6man-hbh-header-handling	Only nodes specifically configured to process HBH options must process them

RFC2460 errata:



Errata ID	Type	Action
2541	Held for document update	Add: Compared to RFC 1883, this specification reduces the size of the flow label field to 20 bits. The references to a 24 bit flow label field on pages 87 and 88 of RFC 2205 are updated accordingly.
4279	Held for document update	Clarify hop-limit behaviour for receiving packet of hop-limit 0 and 1. For Router and Host

RFC4291: IPv6 Addressing Architecture



- Status

- 5 updated by:

- IPv6 address text representation (1)
 - IPv6 addressing of IPv4/IPv6 translators
 - Significance of IPv6 Interface Identifiers
 - IPv6 multicast address scopes
 - Updates to the IPv6 multicast addressing architectures

- 2 errata (no interoperability issue)

- Proposal

- Re-classify RFC4291 to Internet Standard

RFC4443: ICMPv6



- Status:
 - 1 updated by:
 - Extended ICMP to Support Multi-Part Messages(1)
 - 4 errata (no interoperability issue)
- Proposal
 - Reclassify RFC4443 to Internet Standard.

RFC3596: DNS (AAAA)



- Status
 - No errata
 - No updated-by
- Proposal
 - Re-classify RFC3596 to Internet Standard

RFC1981:PMTUD



- Status:
 - No errata
 - No updated-by
- Proposal:
 - Re-classify as an Internet Standard

RFC4861: Neighbor Discovery



- Status:
 - 5 updated by:
 - IPv6 subnet model, links and subnet prefixes
 - Security issues with ipv6 fragmentation and ipv6 ND
 - NUD is too impatient
 - Enhanced duplicate address detection
 - Packet loss resiliency for router solicitations
 - 3 verified errata (interoperability arguable), 3 held for document update
- Proposal
 - Re-vise at same level

RFC4862: SLAAC



- Status:
 - 1 updated by:
 - Enhanced duplicate address detection
 - 1 errata reported (no interoperability issue)
- Proposal
 - Re-vise at same level

RFC4941: Privacy Addresses



- Status:
 - No updated by:
 - 3 verified errata (no interoperability issue), 4 held for document update
- Proposal:
 - Re-classify RFC4941 as Internet Standard

RFC5072: PPP



- Status:
 - No updated by
 - No errata
- Proposal
 - Phase 2 with rest of IPv6 over foo documents

Phase 2: IPv6 over foo?



- **RFC2464 – Transmission of IPv6 Packets over Ethernet Networks**
- RFC2467 – Transmission of IPv6 Packets over FDDI Networks
- RFC2470 – Transmission of IPv6 Packets over Token Ring Networks
- RFC2473 – Generic Packet Tunneling in IPv6 Specification
- RFC2491 – IPv6 over Non-Broadcast Multiple Access (NBMA) networks
- RFC2492 – IPv6 over ATM Networks
- RFC2497 – Transmission of IPv6 Packets over ARCnet Networks
- RFC2590 – Transmission of IPv6 Packets over Frame Relay Networks Specification
- RFC3146 – Transmission of IPv6 Packets over IEEE 1394 Networks
- RFC4338 – Transmission of IPv6, IPv4 and Address Resolution Protocol (ARP) Packets over Fibre Channel
- RFC4944 – Transmission of IPv6 Packets over IEEE 802.15.4 Networks
- RFC5121 – Transmission of IPv6 via the IPv6 Convergence Sublayer over IEEE 802.16 Networks
- RFC7428 – Transmission of IPv6 Packets over ITU-T G.9959 Networks

Discussion:



- Must RFC2460 be revised or can we re-classify as is?
 - Update references?
 - Errata, Updated-by?
- What do people think about doing an update to the core specifications?
 - Changing RFC number?
 - Or “Decaying” to PS?
- What’s the consequence of leaving documents as they are?