Meta-discussion about Declaring IPv4 Historic

Draft-howard-sunset4-ipv4historic

Definition of "Historic"
rfc2026, "The Internet Standards Process"

4.2.4 Historic

A specification that has been superseded by a more recent specification or is for any other reason considered to be obsolete is assigned to the "Historic" level. [...]

Note: Standards track specifications normally must not depend on other standards track specifications which are at a lower maturity level or on non standards track specifications other than referenced specifications from other standards bodies. (See Section 7.) .

Is IPv4 Historic?

- IPv4 [RFC791] has been superseded by the more recent IPv6 specification [RFC2460bis].

- The IPv6 document specifically says, "IP version 6 (IPv6) is a new version of the Internet Protocol, designed as the successor to IP version 4 (IPv4) [RFC0791]."

- RFC791 is therefore Historic.

- IPv4 has inherent limitations which can not be mitigated; the IETF has therefore developed a new protocol without these limitations. Current and future work builds on IPv6, making it better for every purpose than the old protocol.

The use of IPv4 is deprecated

- The term "deprecated" is used to indicate a feature, characteristic, or practice that should be avoided, in this case because it is being superseded by a newer protocol.
- The term does not indicate that the practice is harmful, but that there will be no further development in IPv4, and therefore those using the old version are advised to transition to the newer version.

Implications (1 of 2)

1. Moving an Internet Standard to the Historic maturity level does not mean that it cannot be used.
   a. It does mean that any Standards Track RFC with a Normative reference to RFC791 is Historic.
   b. Any RFC defining IPv4 options is Historic.
2. In addition, some RFCs that refer to RFC791, such as [RFC1035] "DOMAIN NAMES - IMPLEMENTATION AND SPECIFICATION" which defines A and IN-ADDR.ARPA, will be Updated By this document, but are not Historic. Other documents with incidental references to RFC791 should not be affected. Documents requiring updates may be referred to [draft-ietf-sunset4-gapanalysis].

Implications (2 of 2)

3. The IETF may not update Historic RFCs.

   a. Therefore, the IETF will no longer work on IPv4 technologies, including transition technologies.

4. The term "IP," without address family specified, is assumed to mean "IPv6"

Security Considerations

- It is possible that bugs inherent to IPv4 may yet be discovered. According to the definition of Historic, once IPv4 is Historic, the IETF may not update IPv4. Therefore, for security reasons, the use of IPv6 exclusively is recommended.

IANA Considerations

- The IANA may still allocate IPv4 addresses according to its processes. This is unlikely to conflict with IETF declaration and practice for long.

- Need to add: Do not yet change:
  - IP Version Numbers registry
  - IPv4 Address Space registries
  - in-addr.arpa delegations

What Can the IETF Do?

IETF CAN DO	IETF CAN NOT DO
✓ Recommend transition schedule (rfc5211)	❖ Stop routing IPv4
✓ Publish deployment guides (v6ops)	❖ Tell ICANN to require IPv6 in TLDs
• Stop working on IPv4 and transition technologies (declare IPv4 historic)	❖ Impose a flag day on operators
• Recommend against IPv4 (deprecate)	❖ Force retail products to support IPv6
➢ Tell IAOC to require IPv6 from vendors	❖ Prevent network admins from using IPv4
➢ Tell IAOC to provide only IPv6 on wireless	
➢ Notes to SDO liaisons to deprecate IPv4	
➢ Say "IPv6 is at functional parity with IPv4."	
❖ Tell IANA to remove IPv4 assignment records	
❖ Tell IANA to remove in-addr.arpa	

Does IPv4 Meet the Definition?

- If not, under what circumstances would one call IPv4 historic?

- What RFCs would be made obsolete or historic? What are the implications?

- Are there gaps that need to be referred to sunset4?

A specification that has been superseded by a more recent specification