                 Formally Deprecating some IPv4 Options
                 draft-gp-intarea-obsolete-ipv4-options-iana-02

Abstract

   A number of IPv4 options have become obsolete in practice, but have
   never been formally deprecated. This document deprecates such IPv4
   options, thus cleaning up the corresponding IANA registry, and
   serving as a basis for providing advice about the filtering of
   packets containing these options. Additionally, it requests that the
   status of the corresponding RFCs be changed to "Historic".

Status of this Memo

   This Internet-Draft is submitted in full conformance with the
   provisions of BCP 78 and BCP 79.

   Internet-Drafts are working documents of the Internet Engineering
   Task Force (IETF). Note that other groups may also distribute
   working documents as Internet-Drafts. The list of current Internet-
   Drafts is at http://datatracker.ietf.org/drafts/current/.

   Internet-Drafts are draft documents valid for a maximum of six months
   and may be updated, replaced, or obsoleted by other documents at any
   time. It is inappropriate to use Internet-Drafts as reference
   material or to cite them other than as "work in progress."

   This Internet-Draft will expire on March 27, 2013.

Copyright Notice

Table of Contents

1. Introduction

The Internet Protocol version 4 (IPv4) [RFC0791] provides for
expansion of the protocol by supporting a number of "options" in the
variable-length IPv4 header. IPv4 options are identified by an
option "type" value, whose registration is managed by IANA [IANA-IP].
A number of IPv4 options have become obsolete in practice, but have
never been formally deprecated. This document deprecates such IPv4
options, "cleaning up" the corresponding IANA registry.

This document also obsoletes [RFC1385], [RFC1393], [RFC1475], and
[RFC1770], and requests the RFC Editor to change their status to
"Historic".

2. Discussion of Deprecated Options

The following subsections discuss the details of options being
deprecated, and no other reference information has been found.

2.1. Stream ID

The Stream ID option is obsolete. It is specified in RFC 791
[RFC0791], and deprecated in Section 3.2.1.8 of RFC 1122 [RFC1122]
and Section 4.2.2.1 of RFC 1812 [RFC1812].

2.2. Extended Internet Protocol

The Extended Internet Protocol option is defined in [RFC1385], and is
superseded by [RFC2460].

2.3. Traceroute

The Traceroute option is defined in [RFC1393]. The Traceroute option
is defined as "experimental" and it was never widely deployed on the
public Internet.

2.4. ENCODE

This option was used for experimentation around IP-layer encryption.
No products are known to ever have shipped with support for this
option.

2.5. VISA

This option was part of an experiment [VISA87] [VISA89] at USC and
was never widely deployed.

2.6. Address Extension

   The Address Extension option is defined in the Experimental
   [RFC1475], and marked as IPv7.

2.7. Selective Directed Broadcast

   The Selective Directed Broadcast option is originally defined in
   [RFC1770].

2.8. Dynamic Packet State

   The Dynamic Packet State option was specified in
   [I-D.stoica-diffserv-dps]. The aforementioned document was meant to
   be published as "Experimental", but never became an RFC.

2.9. Upstream Multicast Pkt.

   This option was originally specified in [draft-farinacci-bidir-pim].
   Its use was deprecated by [RFC5015], which employs a control plane
   mechanism to solve the problem of doing upstream forwarding of
   multicast packets on a multi-access LAN.

3. IANA Considerations

   The "IP OPTION NUMBERS" registry [IANA-IP] contains the list of the
   currently assigned IP option numbers. This registry also denotes an
   deprecated IP Option Number by marking it with a single asterisk
   ("*").

   This document formally deprecates the following options, and requests
   IANA to mark them as such in the corresponding registry [IANA-IP].

Copy	Class	Number	Value	Name		Reference
----	-----	------	-----	------------------------------		-----------
1	0	8	136	SID	- Stream ID	[RFC791,JBP]*
1	0	14	142	VISA	- Expermental Access Control	[Estrin]*
0	0	15	15	ENCODE	- ???	[VerSteeg]*
1	0	17	145	EIP	- Extended Internet Protocol	[RFC1385]*
0	2	18	82	TR	- Traceroute	[RFC1393]*
1	0	19	147	ADDEXT	- Address Extension	[Ullmann IPv7]*
1	0	21	149	SDB	- Selective Directed Broadcast	[Graff]*
1	0	23	151	DPS	- Dynamic Packet State	[Malis]*
1	0	24	152	UMP	- Upstream Multicast Pkt.	[Farinacci]*

   The IP Options "MTU Probe" (MTUP, value 11) and "MTU Reply" (MTUR,

value 12) initially defined in [RFC1063] have already been deprecated
by [RFC1191].

4. Changing the status of the corresponding RFCs to Historic

This document requests the RFC Editor to change the status of
[RFC1385], [RFC1393], [RFC1475], and [RFC1770] to "Historic".

5. Security Considerations

This document does not modify the security properties of the IPv4
Options being deprecated. However, formally deprecating these
options serves as a basis for e.g. providing advice about filtering
packets containing these options (as in
[I-D.ietf-opsec-ip-options-filtering]).

6. Acknowledgments

The authors would like to thank Ron Bonica for his guidance.

The authors would like to thank Ran Atkinson, Fred Baker, Deborah
Estrin, Dino Farinacci, Andrew Malis, Gene Tsudik, and Bill VerSteeg
for providing insights on some of the options being formally
deprecated by this document.

7. References

7.1. Normative References

[RFC0791]   Postel, J., "Internet Protocol", STD 5, RFC 791,
            September 1981.

[RFC1122]   Braden, R., "Requirements for Internet Hosts -
            Communication Layers", STD 3, RFC 1122, October 1989.

[RFC1191]   Mogul, J. and S. Deering, "Path MTU discovery", RFC 1191,
            November 1990.

[RFC1393]   Malkin, G., "Traceroute Using an IP Option", RFC 1393,
            January 1993.

[RFC1812]   Baker, F., "Requirements for IP Version 4 Routers",
            RFC 1812, June 1995.

7.2. Informative References

   [I-D.ietf-opsec-ip-options-filtering]
               Gont, F., Atkinson, R., and C. Pignataro, "Recommendations
               on filtering of IPv4 packets containing IPv4 options",
               draft-ietf-opsec-ip-options-filtering-00 (work in
               progress), June 2012.

   [I-D.stoica-diffserv-dps]
               Stoica, I., Zhang, H., Baker, F., and Y. Bernet, "Per Hop
               Behaviors Based on Dynamic Packet State",
               draft-stoica-diffserv-dps-02 (work in progress),
               October 2002.

   [IANA-IP]   Internet Assigned Numbers Authority, "IP OPTION NUMBERS",
               April 2011,
               <http://www.iana.org/assignments/ip-parameters>.

   [RFC1063]   Mogul, J., Kent, C., Partridge, C., and K. McCloghrie, "IP
               MTU discovery options", RFC 1063, July 1988.

   [RFC1385]   Wang, Z., "EIP: The Extended Internet Protocol", RFC 1385,
               November 1992.

   [RFC1475]   Ullmann, R., "TP/IX: The Next Internet", RFC 1475,
               June 1993.

   [RFC1770]   Graff, C., "IPv4 Option for Sender Directed Multi-
               Destination Delivery", RFC 1770, March 1995.

   [RFC2460]   Deering, S. and R. Hinden, "Internet Protocol, Version 6
               (IPv6) Specification", RFC 2460, December 1998.

   [RFC5015]   Handley, M., Kouvelas, I., Speakman, T., and L. Vicisano,
               "Bidirectional Protocol Independent Multicast (BIDIR-
               PIM)", RFC 5015, October 2007.

   [VISA87]   Estrin, D. and G. Tsudik, "VISA Scheme for Inter-
               Organizational Network Security", IEEE Symposium on
               Security and Privacy (S&P) , 1987.

   [VISA89]   Estrin, D., Mogul, J., and G. Tsudik, "VISA Protocols for
               Controlling Inter-Organizational Datagram Flow", IEEE
               Journal on Selected Areas in Communications , 1989.

   [draft-farinacci-bidir-pim]
               Estrin, D. and D. Farinacci, "Bi-Directional Shared Trees
               in PIM-SM", IETF Internet Draft,

draft-farinacci-bidir-pim, work in progress, May 1999.

Authors' Addresses

   Carlos Pignataro
   Cisco Systems
   7200-12 Kit Creek Road
   Research Triangle Park, NC 27709
   US

   Email: cpignata@cisco.com

   Fernando Gont
   UTN-FRH / SI6 Networks
   Evaristo Carriego 2644
   Haedo, Provincia de Buenos Aires 1706
   Argentina

   Phone: +54 11 4650 8472
   Email: fgont@si6networks.com
   URI: http://www.si6networks.com