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IANA Considerations for IGMP
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Abstract

This memo requests that the IANA create a registry for fields in the IGMP protocol header, and provides guidance for the IANA to use in assigning parameters for those fields.

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1. Introduction

This memo requests that the IANA create a registry for fields in the IGMP protocol header.

The terms "Specification Required", "Expert Review", "IESG Approval", "IETF Consensus", and "Standards Action", are used in this memo to refer to the processes described in [4].

2. IANA Considerations for fields in the IPv4 IGMP header

The IPv4 IGMP header [1] contains the following fields that carry values assigned from IANA-managed name spaces: Type and Code. Code field values are defined relative to a specific Type value.

Values for the IPv4 IGMP Type fields are allocated using an IESG Approval or Standards Action processes. Code Values for existing IPv4 IGMP Type fields are allocated using IESG Approval or Standards Action processes. The policy for assigning Code values for new IPv4 IGMP Types should be defined in the document defining the new Type value.

3. Assignments for testing and experimentation

Instead of suggesting temporary assignments as in [2], this document follows the lead of [3] and assigns a range of values for experimental use. The IGMP Code values 240-255 inclusive (0xf0 - 0xff) are reserved for protocol testing and experimentation.

Systems should silently ignore IGMP messages with unknown Code values.

4. Security Considerations

Security analyzers such as firewalls and network intrusion detection monitors often rely on unambiguous interpretations of the fields described in this memo. As new values for the fields are assigned, existing security analyzers that do not understand the new values may fail, resulting in either loss of connectivity if the analyzer declines to forward the unrecognized traffic, or loss of security if it does forward the traffic and the new values are used as part of an attack. This vulnerability argues for high visibility (which the Standards Action and IETF Consensus processes ensure) for the assignments whenever possible.

5. References

[1] Fenner, W., "Internet Group Management Protocol, Version 2", RFC 2236, November 1997

[2] Bradner, S. and V. Paxson, "IANA Allocation Guidelines For Values In the Internet Protocol and Related Headers", BCP 37, RFC 2780, March 2000.

[3] Narten, T. "Assigning Experimental and Testing Numbers Considered Useful", draft-narten-iana-experimental-allocations-00.txt, July 2001.

[4] Narten, T. and H. Alvestrand, "Guidelines for Writing an IANA Considerations Section in RFCs", BCP 26, RFC 2434, October 1998.

6. Current IGMP Type/Code Assignments

This section is suitable for use as initial version of the IANA's igmp-parameters file. It is to be removed before publication as RFC.

One open issue: is there a place to publish the not-a-standard PIMv1 spec? It's an I-D that's been expired for 6 years, but is arguably the only place that the packet formats for PIMv1 are defined. Can this spec be placed in a stable place at the RFC-editor site without giving it any kind of official status?

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IGMP TYPE NUMBERS

The Internet Group Message Protocol (IGMP) has many messages that
are identified by a "type" field.

Note that the original definition of IGMP in RFC1112 divided this
field into two 4-byte values, "version" and "type".  This was
decided to be too restrictive, so the fields were combined into a
single 8-bit type space.

Type      Name                                    Reference
----      ----------------------                  ---------
0x11      IGMP Membership Query                   [RFC1112]
0x12      IGMPv1 Membership Report                [RFC1112]
0x13      DVMRP                                   [...]
0x14      PIM version 1                           [PIMv1]
0x15      Cisco Trace Messages
0x16      IGMPv2 Membership Report                [RFC2236]
0x17      IGMPv2 Leave Group                      [RFC2236]
0x1e      Multicast Traceroute Response           [Fenner]
0x1f      Multicast Traceroute                    [Fenner]
0x22      IGMPv3 Membership Report                [...]
0xf0-0xff Reserved for experimentation            [...]


Many of these IGMP types have a "code" field.  Here we list the types
again with their assigned code fields.

Type      Name                                    Reference
----      -------------------------               ---------
0x11      IGMP Membership Query                   [RFC1112]

          Codes
              0  IGMP Version 1
          1-255  IGMP Version 2 or above Max Response Time

0x12      IGMPv1 Membership Report                [RFC1112]
0x13      DVMRP                                   [...]

          Codes
              1  Probe
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                2  Route Report
                3  Old Ask Neighbors
                4  Old Neighbors Reply
                5  Ask Neighbors
                6  Neighbors Reply
                7  Prune
                8  Graft
                9  Graft Ack

0x14      PIM version 1                         [PIMv1]

          Codes
                0  Query
                1  Register
                2  Register-Stop
                3  Join/Prune
                4  RP-Reachable
                5  Assert
                6  Graft
                7  Graft Ack
                8  Mode

0x16      IGMPv2 Membership Report              [RFC2236]

0x17      IGMPv2 Leave Group                    [RFC2236]

0x1e      Multicast Traceroute Response         [Fenner]

0x1f      Multicast Traceroute                  [Fenner]

0x22      IGMPv3 Membership Report              [...]

0xf0-0xff Reserved for experimentation          [...]
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REFERENCES

[RFC1112] Deering, S., "Host extensions for IP multicasting", RFC 1112, Stanford University, August 1989.

[RFC2236] Fenner, W., "Internet Group Management Protocol, Version 2", RFC 2236, Xerox PARC, November 1997.

[PIMv1] Estrin, D. et al, "Protocol Independent Multicast (PIM): Protocol Specification", no stable reference known, draft-ietf-idmr-pim-spec-01.ps, January 1995.

[...] Pusateri, T., "DVMRP Version 3", work in progress, Juniper Networks, July? 2001.

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[...]      Cain, B., S. Deering, B. Fenner, I. Kouvelas, A. Thyagarajan,
           "Internet Group Management Protocol, Version 3", work in
           progress, July? 2001.

[...]      Fenner, W., "IANA Considerations for IGMP", work in progress,
           October 2001.
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PEOPLE
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