Individual Submission
INTERNET-DRAFT
Expires: March 2002

Bill Fenner
AT&T Research
September 2001

IANA Considerations for IGMP
draft-fenner-igmp-iana-01.ps

Status of this Document

This document is an Internet-Draft and is in full conformance with all provisions of Section 10 of RFC2026.

Internet-Drafts are working documents of the Internet Engineering Task Force (IETF), its areas, and its working groups. Note that other groups may also distribute working documents as Internet-Drafts.

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."

The list of current Internet-Drafts can be accessed at http://www.ietf.org/ietf/1id-abstracts.txt

The list of Internet-Draft Shadow Directories can be accessed at http://www.ietf.org/shadow.html.

This document is a product of an individual. Comments are solicited and should be addressed to the author.

Copyright Notice

Copyright (C) The Internet Society (2001). All Rights Reserved.

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.

Table of Contents

1. Introduction 2
2. IANA Considerations for fields in the IPv4 IGMP header 2
3. Assignments for testing and experimentation 2
4. Security Considerations 2
5. References 2
6. Current IGMP Type/Code Assignments 3
7. Author's Address 6
8. Full Copyright Statement 6

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 unknwon 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.

```
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	
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	
	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

            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           [...]
```

REFERENCES

[RFC1112] Deerins, 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.

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

[...] 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, September 2001.

PEOPLE

```
------

[Fenner] Bill Fenner, <fenner@research.att.com>

[]
```

7. Author's Address

Bill Fenner
AT&T Labs -- Research
75 Willow Rd
Menlo Park, CA 94025
USA

Email: fenner@research.att.com

8. Full Copyright Statement

Copyright (C) The Internet Society (2001). All Rights Reserved.

This document and translations of it may be copied and furnished to others, and derivative works that comment on or otherwise explain it or assist in its implementation may be prepared, copied, published and distributed, in whole or in part, without restriction of any kind, provided that the above copyright notice and this paragraph are included on all such copies and derivative works. However, this document itself may not be modified in any way, such as by removing the copyright notice or references to the Internet Society or other Internet organizations, except as needed for the purpose of developing Internet standards in which case the procedures for copyrights defined in the Internet Standards process must be followed, or as required to translate it into languages other than English.

The limited permissions granted above are perpetual and will not be revoked by the Internet Society or its successors or assigns.

This document and the information contained herein is provided on an "AS IS" basis and THE INTERNET SOCIETY AND THE INTERNET ENGINEERING TASK FORCE DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY THAT THE USE OF THE INFORMATION HEREIN WILL NOT INFRINGE ANY RIGHTS OR ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.