

Network Working Group
INTERNET DRAFT

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Category

IANA Guidelines for IPv4 Multicast Address Allocation
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3. Abstract

This memo provides guidance for the IANA in assigning IPv4 multicast addresses.

4. Introduction

The Internet Assigned Numbers Authority (IANA) (www.iana.org) is charged with allocating parameter values for fields in protocols which have been designed, created or are maintained by the Internet Engineering Task Force (IETF). [RFC 2780](#) [[RFC2780](#)] provides the IANA guidance in the assignment of parameters for fields in newly developed protocols. This memo expands on [section 4.4.2 of RFC 2780](#) and attempts to codify existing IANA practice used in the assignment IPv4 multicast addresses.

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 [[RFC2434](#)]. The keywords MUST, MUST NOT, MAY, OPTIONAL, REQUIRED, RECOMMENDED, SHALL, SHALL NOT, SHOULD, SHOULD NOT are to be interpreted as defined in [RFC 2119](#) [[RFC2119](#)].

In general, due to the relatively small size of the IPv4 multicast addresses space, further allocation of IPv4 multicast address space is not recommended. Specifically, the IANA should only assign addresses in those cases where the dynamic selection (SDP/SAP), GLOP, SSM or Administratively Scoped address spaces cannot be used. The guidelines described below are reflected in <http://www.iana.org>.

5. Definition of Current Assignment Practice

Unlike IPv4 unicast address assignment, where blocks of addresses are delegated to regional registries, IPv4 multicast addresses are assigned directly by the IANA. Current allocations appear as follows [[IANA](#)]:

224.0.0.0	- 224.0.0.255	(224.0.0/24)	Local Network Control Block
224.0.1.0	- 224.0.1.255	(224.0.1/24)	Internetwork Control Block
224.0.2.0	- 224.0.255.0		AD-HOC Block
224.1.0.0	- 224.1.255.255	(224.1/16)	ST Multicast Groups
224.2.0.0	- 224.2.255.255	(224.2/16)	SDP/SAP Block
224.252.0.0	- 224.255.255.255		DIS Transient Block
225.0.0.0	- 225.255.255.255	(225/8)	MALLOC Block
226.0.0.0	- 231.255.255.255		RESERVED
232.0.0.0	- 232.255.255.255	(232/8)	Source Specific Multicast Block
233.0.0.0	- 233.255.255.255	(233/8)	GLOP Block
234.0.0.0	- 238.255.255.255		RESERVED
239.0.0.0	- 239.255.255.255	(239/8)	Administratively Scoped Block

The IANA generally allocates addresses from the Local Network Control, Internetwork Control, and AD-HOC blocks. Allocation guidelines for each of these blocks, as well as for the MALLOC, Source Specific Multicast, GLOP and Administratively Scoped Blocks, are described below.

Note that while some applications may informally use arbitrary parts of the IPv4 multicast address space (e.g., 229/8), an application MUST NOT use address space that is not allocated as described in this memo.

6. Local Network Control Block (224.0.0/24)

Addresses in the Local Network Control block are used for protocol control traffic that is not forwarded off link. Examples of this type of use include OSPFIGP All Routers (224.0.0.5) [[RFC2328](#)].

6.1. Allocation Guidelines

Allocation of addresses in the Local Network Configuration Block SHOULD BE accompanied by a specification ("Specification Required"). This specification will typically take the form of an internet draft or RFC.

7. Internetwork Control Block (224.0.1/24)

Addresses in the Internetwork Control block are used for protocol control that must be forwarded through the Internet. Examples include 224.0.1.1 (NTP [[RFC2030](#)]) and 224.0.1.68 (mdhcpdiscover [[RFC2730](#)]).

7.1. Allocation Guidelines

Allocation of addresses in the Internetwork Control block SHOULD BE accompanied by a specification ("Specification Required"). This specification will typically take the form of an internet draft or RFC.

8. AD-HOC Block (224.0.2.0/24 - 224.0.255.0/24)

Addresses in the AD-HOC block have traditionally been allocated for those applications that don't fit in either the Local or Internetwork Control blocks. These addresses are globally routed and are typically used by applications that require small blocks of addressing (e.g., less than a /24).

8.1. Allocation Guidelines

Allocation of addresses in the AD-HOC Block SHOULD BE accompanied by a specification ("Specification Required"). This specification will typically take the form of an internet draft or RFC. In general, the IANA SHOULD NOT assign addressing in the AD-HOC Block.

9. SDP/SAP Block (224.2/16)

Addresses in the SDP/SAP block are used by applications that receive addresses through the Session Announcement Protocol [[RFC2974](#)] for use via applications like the session directory tool (such as SDR [[SDR](#)]).

9.1. Allocation Guidelines

Since addresses in the SDP/SAP block are chosen randomly from the range of addresses not already in use [[RFC2974](#)], no IANA allocation policy is required. Note that while no additional IANA allocation is required, addresses in the SDP/SAP block are explicitly for use by SDP/SAP and MUST NOT be used for other purposes.

10. MALLOC Block (225/8)

Addresses in the MALLOC block are dynamically allocated by the MALLOC suite of protocols [[RFC2908](#)]. This assignment is temporary and MUST BE reviewed annually.

10.1. Allocation Guidelines

Since addresses in the MALLOC block are chosen by elements of the MALLOC architecture, no IANA allocation policy is required. Note that while no additional IANA allocation is required, addresses in the MALLOC block are explicitly for allocation by MALLOC servers and MUST NOT be used for other purposes.

11. Source Specific Multicast Block (232/8)

The Source Specific Multicast (SSM) block use is outlined in [[SSM](#)]. In general, SSM is an extension of IP Multicast in which traffic is forwarded to receivers from only those multicast sources for which the receivers have explicitly expressed interest, and is primarily targeted at one-to-many (broadcast) applications where large receiver audiences require traffic from a small number of well known sources.

11.1. Allocation Guidelines

Because the SSM model essentially makes the entire multicast address space local to the host, no IANA allocation policy is required. Note, however, that while no additional IANA allocation is required, addresses in the SSM block are explicitly for use by SSM and MUST NOT be used for other purposes.

12. GLOP Block (233/8)

Addresses in the GLOP block are globally scoped statically assigned addresses. The assignment is made by mapping a domain's autonomous system number into the middle two octets of 233.X.Y.0/24. The mapping and allocation is defined in [[RFC2770](#)].

12.1. Allocation Guidelines

Because addresses in the GLOP block are algorithmically preassigned, no IANA allocation policy is required. Note that while no additional IANA allocation is required, addresses in the GLOP block are allocated for use as defined in [RFC 2770](#) and MUST NOT be used for other purposes.

13. Administratively Scoped Address Block (239/8)

Addresses in the Administratively Scoped Address block are for local use within a domain and are described in [[RFC2365](#)].

13.1. Allocation Guidelines

Since addresses in this block are local to a domain, no IANA allocation policy is required.

13.1.1. Relative Offsets

The relative offsets are used to ensure that a service can be located independent of the extent of the enclosing scope (see [RFC 2770](#) for details). Since there are only 256 such offsets, the IANA should only assign a relative offset to a protocol that provides an infrastructure supporting service. See [[IANA](#)] for the current set of assignments.

14. Annual Review

Given the dynamic nature of IPv4 multicast and its associated infrastructure, and the previously undocumented IPv4 multicast address assignment guidelines, the IANA should conduct an annual review of currently assigned addresses.

14.1. Address Reclamation

During the review described above, addresses that were mis-assigned should, where possible, be reclaimed or reassigned. An example of an address block that might be reclaimed is 224.1.0/24 [[RFC1190](#)], as this was an experimental allocation and is not in use. In addition, those allocations in 224.0.1/24 that are not used for Internet-wide

protocol control messages (as described above) above might be reclaimed.

The IANA should also review assignments in the AD-HOC, DIS Transient Groups, and ST Multicast Groups blocks and reclaim those addresses that are not in use on the global Internet (i.e, those applications which can use SSM, GLOP, or Administratively Scoped addressing, or are not globally routed).

15. Use of IANA Reserved Addresses

Applications MUST NOT use addressing in the IANA reserved blocks.

16. Appeals Process

An applicant that is denied a multicast assignment may ask for additional consideration of its application. Such appeals SHOULD be granted only in those cases in which (i). the applicant did not provide a specification, or (ii). the applicant believes that the IANA did not understand the technical basis on which the application rests (and hence the need for assignment of globally scoped addressing).

16.1. Requirements [[RFC2026](#)]

All appeals must include a detailed and specific description of the facts of the dispute.

All appeals must be initiated within two months of the public knowledge of the action or decision to be challenged.

At all stages of the appeals process, the individuals or bodies responsible for making the decisions have the discretion to define the specific procedures they will follow in the process of making their decision.

In all cases a decision concerning the disposition of the dispute, and the communication of that decision to the parties involved, must be accomplished within a reasonable period of time.

16.2. Process

When an application is appealed, the application (and specification, if one was provided) is to be reviewed by the IESG, indicating to the IANA whether the application should be accepted. The IESG MAY additionally employ Expert Review of the application.

16.2.1. Process Failure

If an applicant should disagree with an action taken by the IANA and IESG in this process, that application should first try to clarify its position with the IANA. If the IANA is unable to satisfy the applicant, the applicant may ask for its application (and specification, if one was provided) to be reviewed by the IAB.

The IAB decision is final with respect to the question of whether an assignment should be made.

17. Security Considerations

Security issues are not discussed in this memo.

18. Acknowledgments

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21. Full Copyright Statement

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