

Network Working Group
Internet-Draft
Intended status: Informational
Expires: April 5, 2008

M. Blanchet
Viagenie
October 3, 2007

Special-Use IPv6 Addresses
draft-ietf-v6ops-rfc3330-for-ipv6-02.txt

Status of this Memo

By submitting this Internet-Draft, each author represents that any applicable patent or other IPR claims of which he or she is aware have been or will be disclosed, and any of which he or she becomes aware will be disclosed, in accordance with [Section 6 of BCP 79](#).

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/lid-abstracts.txt>.

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

This Internet-Draft will expire on April 5, 2008.

Copyright Notice

Copyright (C) The IETF Trust (2007).

Abstract

This document describes the global and other specialized IPv6 address blocks. It does not address IPv6 address space assigned to operators and users through the Regional Internet Registries. These descriptions are useful for route and IP filtering, for documentation and other purposes.

Internet-Draft

Special-Use IPv6 Addresses

October 2007

Table of Contents

1.	Introduction	3
2.	Address Blocks	3
2.1.	Node-scoped Unicast	3
2.2.	IPv4-Mapped Addresses	3
2.3.	IPv4-compatible Addresses	3
2.4.	Link-scoped Unicast	3
2.5.	Unique-Local	3
2.6.	Documentation Prefix	4
2.7.	6to4	4
2.8.	Teredo	4
2.9.	6bone	4
2.10.	Default Route	4
2.11.	IANA Special Purpose IPv6 Address Block	4
2.12.	Multicast	5
3.	Security Considerations	5
4.	IANA Considerations	5
5.	Acknowledgements	5
6.	References	5
6.1.	Normative References	5
6.2.	Informative References	5
	Author's Address	6
	Intellectual Property and Copyright Statements	7

1. Introduction

This document describes the global and other specialized IPv6 address blocks. It does not address IPv6 address space assigned to operators and users through the Regional Internet Registries. These descriptions are useful for route and IP filtering, for documentation and other purposes.

The document is structured by address types. The document format is similar to [\[RFC3330\]](#).

Some tips about filtering are given, but are not mandatory to implement.

2. Address Blocks

2.1. Node-scoped Unicast

::1/128 is the loopback address [\[RFC4291\]](#).

:::/128 is the unspecified address [\[RFC4291\]](#).

Addresses within this block should not appear on the public Internet.

2.2. IPv4-Mapped Addresses

::FFFF:0:0/96 is the IPv4-mapped addresses [\[RFC4291\]](#). Addresses within this block should not appear on the public Internet.

2.3. IPv4-compatible Addresses

::ipv4-address/96 is the IPv4-compatible addresses [\[RFC4291\]](#). These addresses are deprecated and should not appear on the public Internet.

[2.4.](#) Link-scoped Unicast

fe80::/10 are the link-local unicast[RFC4291] addresses. Addresses within this block should not appear on the public Internet.

[2.5.](#) Unique-Local

fc00::/7 are the unique-local addresses [[RFC4193](#)]. Addresses within this block should not appear by default on the public Internet. Procedure of advertising these addresses are further described in [[RFC4193](#)].

[2.6.](#) Documentation Prefix

The 2001:db8::/32 are the documentation addresses [[RFC3849](#)]. They are used for documentation purposes such as user manuals, RFCs, etc. Addresses within this block should not appear on the public Internet.

[2.7.](#) 6to4

2002::/16 are the 6to4 addresses [[RFC4291](#)][RFC3056]. The 6to4 addresses may be advertised when the site is running a 6to4 relay or offering a 6to4 transit service. However, the provider of this service should be aware of the implications of running such service[RFC3964], which includes some specific filtering rules for 6to4.

[2.8.](#) Teredo

2001::/32 are the Teredo addresses [[RFC4380](#)]. The Teredo addresses may be advertised when the site is running a Teredo relay or offering a Teredo transit service.

[2.9.](#) 6bone

5f00::/8 were the addresses of the first instance of the 6bone experimental network [[RFC1897](#)].

3ffe::/16 were the addresses of the second instance of the 6bone experimental network [[RFC2471](#)].

Both 5f00::/8 and 3ffe::/16 were returned to IANA [[RFC3701](#)]. These addresses are subject to future allocation, similar to current unallocated address space. Addresses within this block should not appear on the public Internet until they are reallocated.

[2.10.](#) Default Route

::/0 is the default unicast route address.

[2.11.](#) IANA Special Purpose IPv6 Address Block

An IANA registry (iana-ipv6-special-registry) is set [[RFC4773](#)] for Special Purpose IPv6 address blocks assignments used for experiments and other purposes. Addresses within this registry should be reviewed for Internet routing considerations.

[2.12.](#) Multicast

ff00::/8 are multicast addresses [[RFC4291](#)]. They have a 4 bits scope in the address field where only some value are of global scope [[RFC4291](#)]. Only addresses with global scope in this block may appear on the public Internet.

Multicast routes must not appear in unicast routing tables.

[3.](#) Security Considerations

This document list addresses and guidelines associated with them. The guidelines should improve the security of networks by the filtering of invalid routing prefixes.

[4.](#) IANA Considerations

This document has no actions for IANA.

5. Acknowledgements

Florent Parent, Pekka Savola, Tim Chown, Alain Baudot, Stig Venaas, Vincent Jardin, Olaf Bonness, David Green, Gunter Van de Velde, Michael Barnes, Fred Baker, Edward Lewis, Marla Azinger, Brian Carpenter, Mark Smith, Kevin Loch, Alain Durand, Jim Bound, Peter Sherbin, Bob Hinden, Gert Doering and Niall O'Reilly have provided input and suggestions to this document.

6. References

6.1. Normative References

[RFC4291] Hinden, R. and S. Deering, "IP Version 6 Addressing Architecture", [RFC 4291](#), February 2006.

6.2. Informative References

[RFC1897] Hinden, R. and J. Postel, "IPv6 Testing Address Allocation", [RFC 1897](#), January 1996.

[RFC2471] Hinden, R., Fink, R., and J. Postel, "IPv6 Testing Address Allocation", [RFC 2471](#), December 1998.

[RFC3056] Carpenter, B. and K. Moore, "Connection of IPv6 Domains

via IPv4 Clouds", [RFC 3056](#), February 2001.

[RFC3330] IANA, "Special-Use IPv4 Addresses", [RFC 3330](#), September 2002.

[RFC3701] Fink, R. and R. Hinden, "6bone (IPv6 Testing Address Allocation) Phaseout", [RFC 3701](#), March 2004.

[RFC3849] Huston, G., Lord, A., and P. Smith, "IPv6 Address Prefix Reserved for Documentation", [RFC 3849](#), July 2004.

[RFC3964] Savola, P. and C. Patel, "Security Considerations for 6to4", [RFC 3964](#), December 2004.

[RFC4193] Hinden, R. and B. Haberman, "Unique Local IPv6 Unicast

Addresses", [RFC 4193](#), October 2005.

[RFC4380] Huitema, C., "Teredo: Tunneling IPv6 over UDP through Network Address Translations (NATs)", [RFC 4380](#), February 2006.

[RFC4773] Huston, G., "Administration of the IANA Special Purpose IPv6 Address Block", [RFC 4773](#), December 2006.

Author's Address

Marc Blanchet
Viagenie
2875 boul. Laurier, suite 1150
Quebec, QC G1V 2M2
Canada

Email: Marc.Blanchet@viagenie.ca

URI: <http://www.viagenie.ca>

Full Copyright Statement

Copyright (C) The IETF Trust (2007).

This document is subject to the rights, licenses and restrictions contained in [BCP 78](#), and except as set forth therein, the authors retain all their rights.

This document and the information contained herein are provided on an "AS IS" basis and THE CONTRIBUTOR, THE ORGANIZATION HE/SHE REPRESENTS OR IS SPONSORED BY (IF ANY), THE INTERNET SOCIETY, THE IETF TRUST AND THE INTERNET ENGINEERING TASK FORCE DISCLAIM 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.

Intellectual Property

The IETF takes no position regarding the validity or scope of any Intellectual Property Rights or other rights that might be claimed to pertain to the implementation or use of the technology described in this document or the extent to which any license under such rights might or might not be available; nor does it represent that it has made any independent effort to identify any such rights. Information on the procedures with respect to rights in RFC documents can be found in [BCP 78](#) and [BCP 79](#).

Copies of IPR disclosures made to the IETF Secretariat and any assurances of licenses to be made available, or the result of an attempt made to obtain a general license or permission for the use of such proprietary rights by implementers or users of this specification can be obtained from the IETF on-line IPR repository at <http://www.ietf.org/ipr>.

The IETF invites any interested party to bring to its attention any copyrights, patents or patent applications, or other proprietary rights that may cover technology that may be required to implement this standard. Please address the information to the IETF at ietf-ipr@ietf.org.

Acknowledgment

Funding for the RFC Editor function is provided by the IETF Administrative Support Activity (IASA).