

Network Working Group
Internet-Draft
Intended status: Informational
Expires: September 21, 2007

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March 20, 2007

Special-Use IPv6 Addresses
draft-ietf-v6ops-rfc3330-for-ipv6-00.txt

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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.

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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.

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

2. Address Types

2.1. Node-scoped Unicast

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

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

The node-scoped unicast addresses should not be advertised and should be filtered out when received.

2.2. IPv4-Mapped Addresses

::FFFF:0:0/96 is the IPv4-mapped addresses [[RFC4291](#)]. IPv4-mapped addresses should not be advertised and should be filtered out when received.

2.3. Link-scoped Unicast

fe80::/10 are the link-local unicast [[RFC4291](#)] addresses. Link-local addresses should not be advertised and should be filtered out when received.

[2.4.](#) Site-scoped Unicast

fc00::/7 are the unique-local addresses [[RFC4193](#)]. Unique-local addresses should not be advertised on the public Internet.

[2.5.](#) Documentation Prefix

The 2001:0db8::/32 are the documentation addresses [[RFC3849](#)]. They are used for documentation purposes such as user manuals, RFCs, etc. Documentation addresses should not be advertised and should be filtered out when received.

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[2.6.](#) 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.

[2.7.](#) 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.

[2.8.](#) 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. These addresses should not be advertised and should be filtered out when received until they are reallocated.

[2.9.](#) Default Route

::/0 is the default unicast route address.

[2.10.](#) Multicast

ff00::/8 are multicast addresses [[RFC4291](#)]. They have a 4 bits scope in the address field. Only addresses having the 'E' value in the scope field are of global scope, all other values are local or reserved. Therefore, only ffXe:: routes may be advertised outside a site, where X may be any value.

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.

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[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 and Alain Durand have provided input and suggestions to this document.

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Acknowledgment

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