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Initial IPv6 Sub-TLA ID Assignments

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Status of this Memo

1.0 Introduction

This document defines initial assignments of IPv6 Sub-TLA Aggregation Identifiers (Sub-TLA ID) to the Address Registries and continued management of the IP6.INT domain. It is intended as technical input to the IANA from the IETF IP Next Generation (IPNG) and Next Generation Transition (NGTRANS) working groups, as an input to the process of developing guidelines for the allocation of IPv6 addresses.

The IAB and IESG have authorized the Internet Assigned Numbers

Authority (IANA) as the appropriate entity to have the responsibility for the management of the IPv6 address space as defined in [ALLOC].

The proposed initial assignment described in the document is consistent with:

- RFC 2373,"IP Version 6 Addressing Architecture" [ARCH]
- RFC 2374 "An Aggregatable Global Unicast Address Format" [AGGR]
- RFC 2450 "Proposed TLA and NLA Assignment Rules" [TLA-RULES]

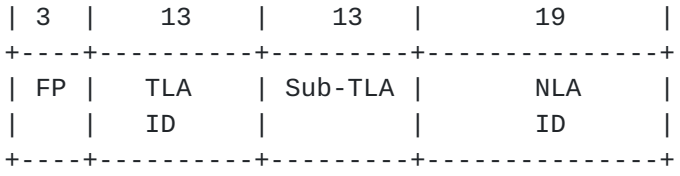
The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [RFC 2119].

2.0 Background

[TLA-RULES] specifies that TLA assignments will be done in two stages. The first stage is to allocate a Sub-TLA ID. This document specifies the initial assignments of Sub-TLA ID's to the Registries.

As defined in [TLA-RULES] Section 5.1:

"Sub-TLA ID's are assigned out of TLA ID 0x0001 as follows. Note that use of the Reserved field to create the Sub-TLA field is specific to TLA ID 0x0001. It does not affect any other TLA.



where:

FP = 001 = Format Prefix

This is the Format Prefix used to identify aggregatable global unicast addresses.

TLA ID = 0x0001 = Top-Level Aggregation Identifier

This is the TLA ID assigned by the IANA for Sub-TLA allocation.

Sub-TLA ID = Sub-TLA Aggregation Identifier

The Sub-TLA ID field is used by the registries for initial

allocations to organizations meeting the requirements in Section 5.2 of this document. The IANA will assign small blocks (e.g., few hundred) of Sub-TLA ID's to registries. The registries will assign the Sub-TLA ID's to organizations meeting the requirements specified in Section 5.2. When the registries have assigned all of their Sub-TLA ID's they can request that the IANA give them another block. The blocks do not have to be contiguous. The IANA may also assign Sub-TLA ID's to organizations directly. This includes the temporary TLA assignment for testing and experimental usage for activities such as the 6bone or new approaches like exchanges.

NLA ID = Next-Level Aggregation Identifier

Next-Level Aggregation ID's are used by organizations assigned a TLA ID to create an addressing hierarchy and to identify sites. The organization can assign the top part of the NLA ID in a manner to create an addressing hierarchy appropriate to its network."

Note: In the above quote from [TLA-RULES] the references to "Section 5.2" refer to section 5.2 in [TLA-RULES].

3.0 Initial Assignments

As specified in [TLA-RULES], Sub-TLA ID assignments are made in blocks. The initial Sub-TLA ID assignments to IP address registries are in blocks of 64 Sub-TLA IDs. These assignments are listed below.

Binary Value	IPv6 Prefix Range	Assignment
0000 000X XXXX X	2001:0000::/29 - 2001:01F8::/29	IANA
0000 001X XXXX X	2001:0200::/29 - 2001:03F8::/29	APNIC
0000 010X XXXX X	2001:0400::/29 - 2001:05F8::/29	ARIN
0000 011X XXXX X	2001:0600::/29 - 2001:07F8::/29	RIPE NCC
0000 100X XXXX X	2001:0800::/29 - 2001:09F8::/29	(future assignment)
0000 101X XXXX X	2001:0A00::/29 - 2001:0BF8::/29	(future assignment)
0000 110X XXXX X	2001:0C00::/29 - 2001:0DF8::/29	(future assignment)
0000 111X XXXX X	2001:0E00::/29 - 2001:0FF8::/29	(future assignment)
0001 000X XXXX X	2001:1000::/29 - 2001:11F8::/29	(future assignment)
. . .		
. . .		
. . .		
1111 111X XXXX X	2001:FE00::/29 - 2001:FFF8::/29	(future assignment)

Where "X" indicates "0" or "1".

All other Sub-TLA ID values not listed above are reserved.

When a registry has assigned all of the Sub-TLA IDs in their block they can request that the IANA provide another block. The blocks assigned to a registry do not have to be contiguous.

The block of Sub-TLA IDs assigned to the IANA (i.e., 2001:0000::/29 - 2001:01F8::/29) is for assignment for testing and experimental usage to support activities such as the 6bone, and for new approaches like exchanges.

4.0 IP6.INT DOMAIN Management

In RFC-1886, "DNS Extensions to support IP version 6", a special domain is defined to look up a record given an address. The intent of this domain is to provide a way of mapping an IPv6 address to a host name, although it may be used for other purposes as well. The domain is rooted at IP6.INT.

The IP6.INT domain has been in use for the IPv6 "6bone" testbed network to provide mapping from IPv6 Test addresses to domain names under the special IPv6 Testing Address Allocation [TST-ALLOC] and has been managed by direction of the IANA at ISI.

The management of the IP6.INT domain will continue to be done in the same manner for the Sub-TLA ID's as they are assigned based on the assignment defined in this document.

5.0 Acknowledgments

The authors would like to express their thanks to Joyce Reynolds, Thomas Narten, Kim Hubbard, Mirjam Kuehne, and Brian Carpenter for their help with this document.

6.0 Security Considerations

IPv6 addressing documents do not have any direct impact on Internet infrastructure security. Authentication of IPv6 packets is defined in [AUTH]. Authentication of the ownership of prefixes to avoid "prefix stealing" is a related security issue but is beyond the scope of this document.

7.0 References

[AGGR] Hinden, R., Deering, S., O'Dell, M., "An Aggregatable Global Unicast Address Format", RFC2374, July 1998.

[ALLOC] IAB and IESG, "IPv6 Address Allocation Management", RFC1881, December 1995.

[ARCH] Hinden, R., "IP Version 6 Addressing Architecture", RFC2373, July 1998.

[AUTH] Kent, S., R. Atkinson, "IP Authentication Header", RFC2402, November 1998.

[IPV6] Deering, S., R. Hinden, "Internet Protocol, Version 6 (IPv6) Specification", RFC2460, December 1998.

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", RFC2119, BCP14, March 1997.

[RFC2026] Bradner, S., "The Internet Standards Process -- Revision 3", RFC2026, BCP00009, October 1996.

[TLA-RULES] Hinden, R., "Proposed TLA and NLA Assignment Rules", RFC2450, December 1998.

[TST-ALLOC] Hinden, R., R. Fink, J. Postel, "IPv6 Testing Address Allocation", RFC2471, December 1998.

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