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Initial IPv6 Sub-TLA ID Assignments

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[1.0](#) Introduction

This document defines initial assignments of IPv6 Sub-TLA Aggregation Identifiers (Sub-TLA ID) to the Address Registries. 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

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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.

3	13	13	19
+-----+	+-----+	+-----+	+-----+
FP	TLA	Sub-TLA	NLA
	ID		ID
+-----+	+-----+	+-----+	+-----+

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](#) Acknowledgments

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[5.0](#) 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.

[6.0](#) 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.

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- [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.

[7.0](#) Authors' Addresses

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