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                    Initial IPv6 Sub-TLA ID Assignments

Status of this Memo

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Abstract

   This document defines initial assignments of IPv6 Sub-Top-Level
   Aggregation Identifiers (Sub-TLA ID) to the Address Registries. It
   is intended as technical input to the Internet Assigned Numbers
   Authority (IANA) from the Internet Engineering Task Force (IETF)
   Internet Protocol 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.

   This document was originally developed to provide advice to IANA in
   the fall of 1998 and is being published at this time for the
   historical record. The Internet Architecture Board (IAB)
   subsequently requested that the IANA delegate these assignments to
   the Address Registries. The IANA did this and the Address Registries
   are now using them to assign IPv6 addresses.

[1]. **Introduction**

   This document was originally developed to provide advice to IANA in
   the fall of 1998 and is being published at this time for the
   historical record. The IAB subsequently requested that the IANA
   delegate these assignments to the Address Registries. The IANA did
   this and the Address Registries are now using them to assign IPv6
   addresses.

   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
   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]

2. 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. 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. Acknowledgments

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Thomas Narten, Kim Hubbard, Mirjam Kuehne, and Brian Carpenter for
their help with this document.

5. 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. References

   [AGGR]   Hinden, R., Deering, S. and M. O'Dell, "An Aggregatable
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   [IPV6]   Deering, S. and R. Hinden, "Internet Protocol, Version 6
                (IPv6) Specification", RFC 2460, December 1998.

   [RFC2026]   Bradner, S., "The Internet Standards Process -- Revision
                3", BCP 9, RFC 2026, October 1996.

   [TLA-RULES] Hinden, R., "Proposed TLA and NLA Assignment Rules", RFC
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Acknowledgement