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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. 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]
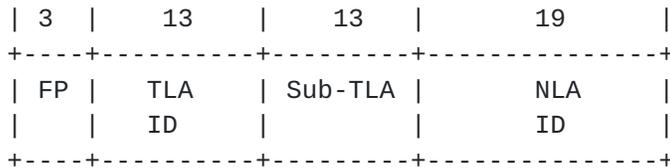   - RFC 2450 "Proposed TLA and NLA Assignment Rules" [TLA-RULES]

   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.

```
          | 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

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.

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
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[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
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   [RFC2026]   Bradner, S., "The Internet Standards Process -- Revision
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                Allocation", RFC2471, December 1998.

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