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IPv6 Global Unicast Address Format

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Abstract

This document obsoletes RFC 2374, "An IPv6 Aggregatable Global Unicast Address Format". It defined an IPv6 address allocation structure that includes Top Level Aggregator (TLA) and Next Level Aggregator (NLA). This document makes RFC 2374 and the TLA/NLA structure historic.

1. Introduction

RFC 2374, "An IPv6 Aggregatable Global Unicast Address Format", defined an IPv6 address allocation structure that includes TLA and NLA. This document replaces RFC 2374, and makes RFC 2374 and the TLA/NLA structure historic.

2. TLA/NLA Made Historic

The TLA/NLA scheme has been replaced by a coordinated allocation policy defined by the Regional Internet Registries (RIRs) [IPV6RIR].

Part of the motivation for obsoleting the TLA/NLA structure is technical; for instance, there is concern that TLA/NLA is not the technically best approach at this stage of the deployment of IPv6. Moreover, the allocation of IPv6 addresses is related to policy and to the stewardship of the IP address space and routing table size, which the RIRs have been managing for IPv4. It is likely that the RIRs' policy will evolve as IPv6 deployment proceeds.

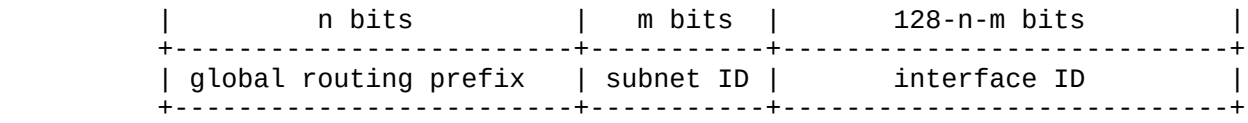
The IETF has provided technical input to the RIRs (for example, [RFC3177]), which the RIRs have taken into account when defining their address allocation policy.

RFC 2374 was the definition of addresses for Format Prefix 001 (2000::/3) which is formally made historic by this document. Even though currently only 2000::/3 is being delegated by the IANA, implementations should not make any assumptions about 2000::/3 being special. In the future, the IANA might be directed to delegate currently unassigned portions of the IPv6 address space for the purpose of Global Unicast as well.

The Subnet Local Aggregator (SLA) field in RFC 2374 remains in function but with a different name in [ARCH]. Its new name is "subnet ID".

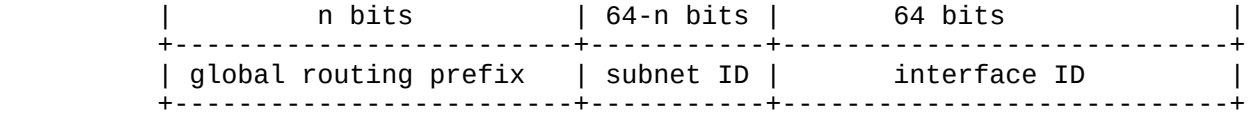
3. Address Format

The general format for IPv6 global unicast addresses as defined in "IP Version 6 Addressing Architecture" [ARCH] is as follows:



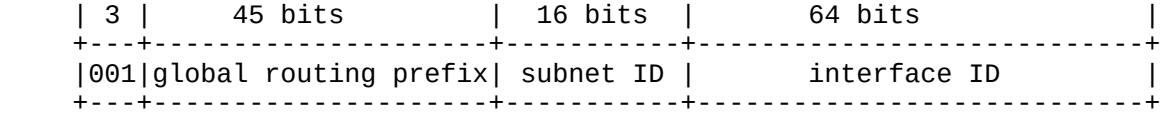
where the global routing prefix is a (typically hierarchically-structured) value assigned to a site (a cluster of subnets/links), the subnet ID is an identifier of a subnet within the site, and the interface ID is as defined in section 2.5.1 of [ARCH]. The global routing prefix is designed to be structured hierarchically by the RIRs and ISPs. The subnet field is designed to be structured hierarchically by site administrators.

[ARCH] also requires that all unicast addresses, except those that start with binary value 000, have Interface IDs that are 64 bits long and to be constructed in Modified EUI-64 format. The format of global unicast address in this case is:



where the routing prefix is a value assigned to identify a site (a cluster of subnets/links), the subnet ID is an identifier of a subnet within the site, and the interface ID is a modified EUI-64 format as defined in [ARCH].

An example of the resulting format of global unicast address under the 2000::/3 prefix that is currently being delegated by the IANA and consistent with the recommendations in RFC 3177 is:



4. Acknowledgments

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5. References

5.1. Normative References

[ARCH] Hinden, R. and S. Deering, "IP Version 6 Addressing Architecture", RFC 3513, April 2003.

[IPV6] Deering, S. and R. Hinden, "Internet Protocol, Version 6 (IPv6) Specification", RFC 2460, December 1998.

5.2. Informative References

[IPV6RIR] APNIC, ARIN, RIPE NCC, "IPv6 Address Allocation and Assignment Policy", Document ID: ripe-267, http://www.ripe.net/ripe/docs/ipv6policy.html, January 22, 2003.

[RFC3177] IAB/IESG, "Recommendations on IPv6 Address Allocations to Sites", RFC 3177, September 2001.

6. Security Considerations

IPv6 addressing documents do not have any direct impact on Internet infrastructure security.

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