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Management Guidelines for the Locator/ID Separation Protocol (LISP) Endpoint Identifier (EID) Block

Abstract

This document proposes a framework for the management of the Locator/ID Separation Protocol (LISP) Endpoint Identifier (EID) address block. The framework described relies on hierarchical distribution of the address space, granting temporary usage of prefixes of such space to requesting organizations.

Status of This Memo

This document is not an Internet Standards Track specification; it is published for informational purposes.

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Information about the current status of this document, any errata, and how to provide feedback on it may be obtained at http://www.rfc-editor.org/info/rfc7955.

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1. Introduction

The Locator/ID Separation Protocol (LISP [RFC6830]) and related mechanisms ([RFC6831], [RFC6832], [RFC6833], [RFC6834], [RFC6835], [RFC6836], [RFC6837]) separate the IP addressing space into two logical spaces, the Endpoint Identifier (EID) space and the Routing Locator (RLOC) space. The first space is used to identify communication endpoints, while the second is used to locate EIDs in the Internet routing infrastructure topology.

[RFC7954] requests an IPv6 address block reservation exclusively for use as EID prefixes in the LISP experiment. The rationale, intent, size, and usage of the EID address block are described in [RFC7954].

This document proposes a management framework for the registration of EID prefixes from that block, allowing the requesting organization exclusive use of those EID prefixes limited to the duration of the LISP experiment.

2. Requirements Notation

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 [RFC2119].

3. Definition of Terms

This document does not introduce any new terms related to the set of LISP Specifications ([RFC6830], [RFC6831], [RFC6832], [RFC6833], [RFC6834], [RFC6835], [RFC6836], [RFC6837]), but assumes that the reader is familiar with the LISP terminology. [INTRO] provides an introduction to the LISP technology, including its terminology.

4. EID Prefix Registration Policy

The request for registration of EID prefixes MUST be done under the following policies:

1. EID prefixes are made available in the reserved space on a temporary basis and for experimental uses. The requester of an experimental prefix MUST provide a short description of the intended use or experiment that will be carried out (see Section 6). If the prefix will be used for activities not documented in the original description, renewal of the registration may be denied.

2. EID prefix registrations MUST be renewed on a regular basis to ensure their use by active participants in the experiment. The registration period is 12 months. A renewal SHOULD NOT cause a change in the EID prefix registered in the previous request. The conditions of registration renewal are to be the same as the conditions of the first EID prefix registration request.

3. It is preferable that EID prefixes whose registrations have expired not be reused. When an EID prefix registration is removed from the registry, then the reuse of the EID prefix in a subsequent registration on behalf of a different end user should be avoided where possible. If the considerations of overall usage of the EID block prefix requires reuse of a previously registered EID prefix, then a minimum delay of at least one week between removal and subsequent registration SHOULD be applied by the registry operator.

4. When the reserved experimental LISP EID block expires, all EID prefix registrations expire as well. The further disposition of these prefixes and the associated registry entries are to be specified in the announcement of the cessation of this experiment.

5. EID Prefixes Registration Requirements

All EID prefix registrations MUST satisfy the following requirements:

1. All EID prefix registrations MUST use a globally unique EID prefix.

2. The EID prefix registration information, as specified in Section 6, MUST be collected upon initial registration and renewal, and made publicly available through interfaces allowing both the retrieval of specific registration details (search) and the enumeration of the entire registry contents (e.g., RDAP ([RFC7481]), WHOIS, HTTP, or similar access methods).

3. The registry operator MUST permit the delegation of EID prefixes in the reverse DNS space to holders of registered EID prefixes.

4. Anyone can obtain an entry in the EID prefix registry, on the understanding that the prefix so registered is for the exclusive use in the LISP experimental network, and that their registration details (as specified in Section 6) are openly published in the EID prefix registry.

6. EID Prefix Request Template

The following is a basic request template for prefix registration to ensure a uniform process. This template is inspired by IANA's online "Private Enterprise Number (PEN) Request" form <http://pen.iana.org/pen/PenApplication.page>.

Note that all details in this registration become part of the registry and will be published in the LISP EID Prefix Registry managed by RIPE NCC.

The EID Prefix Request template MUST at a minimum contain:

1. Organization (In the case of individuals requesting an EID prefix, this section can be left empty)

   (a) Organization Name

   (b) Organization Address

(c) Organization Phone

(d) Organization Website

2. Contact Person (Mandatory)

(a) Name

(b) Address

(c) Phone

(d) Fax (optional)

(e) Email

3. EID Prefix Request (Mandatory)

(a) Prefix Size

+ Expressed as an address prefix length.

(b) Prefix Size Rationale

(c) Lease Period

+ Note well: All EID Prefix registrations will be valid until the earlier date of 12 months from the date of registration or August 2019.

+ All registrations may be renewed by the applicant for further 12-month periods, ending on August 2019.

+ According to the 3+3 year experimentation plan, defined in [RFC7954], all registrations MUST end by August 2019, unless the IETF community decides to grant a permanent LISP EID address block. In the latter case, registrations following the present document policy MUST end by August 2022 and a new policy (to be decided -- see Section 7) will apply thereafter.

4. Experiment Description

(a) Experiment and Deployment Description

(b) Interoperability with Existing LISP Deployments

(c) Interoperability with Legacy Internet

5. Reverse DNS Servers (Optional)

   (a) Name Server Name

   (b) Name Server Address

   (c) Name Server Name

   (d) Name Server Address

   (Repeat if necessary)

7. Policy Validity Period

The policy outlined in the present document is tied to the existence of the experimental LISP EID block requested in [RFC7954] and is valid until August 2019.

If the IETF decides to transform the block into a permanent allocation, the usage period reserved for the LISP EID block will be extended for three years (until August 2022) to allow time for the IETF to define, following the policies outlined in [RFC5226], the final size of the EID block and create a transition plan, while the policy in the present document will still apply.

Note that, as stated in [RFC7954], the transition of the EID block into a permanent allocation has the potential to pose policy issues (as recognized in [RFC2860], Section 4.3); hence, discussion with the IANA, the Regional Internet Registry (RIR) communities, and the IETF community will be necessary to determine the appropriate policy for permanent EID prefix management, which will be effective after August 2022.

8. Security Considerations

This document does not introduce new security threats in the LISP architecture nor in the Legacy Internet architecture.

For accountability reasons and in line with the security considerations in [RFC7020], each registration request MUST contain accurate information about the requesting entity (company, institution, individual, etc.) and valid and accurate contact information of a referral person (see Section 6).

9. IANA Considerations

IANA allocated the following IPv6 address block for experimental use as the LISP EID prefix [RFC7954]:

- Address Block: 2001:5::/32
- Name: EID Space for LISP
- RFC: [RFC7954]
- Further details are at: www.iana.org/assignments/iana-ipv6-special-registry

To grant requesting organizations and individuals exclusive use of EID prefixes out of this reserved block (limited to the duration of the LISP experiment as outlined in Section 7), there is an operational requirement for an EID registration service.

Provided that the policies and requirements outlined in Sections 4, 5, and 6 are satisfied, EID prefix registration is accorded based on a "First Come First Served" basis.

There is no hard limit to the number of registrations an organization or individual can submit, as long as the information described in Section 6 is provided, in particular point 4: "Experiment Description".

For the duration defined in [RFC7954], RIPE NCC will manage the LISP EID prefix as described herein. Therefore, this document has no IANA actions.

10. Procedures to be Followed by RIPE NCC

RIPE NCC will provide the registration service following the EID Prefix Registration Policy (Section 4) and the EID Prefix Registration Requirements (Section 5) provided in this document. The request form provided by RIPE NCC will include at least the information from the template in Section 6. RIPE NCC will make all received requests publicly available. While this document does not suggest any minimum allocation size; RIPE NCC is allowed to introduce such a minimum size for management purposes.

11. References

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