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Vendor Specific LISP Canonical Address Format (LCAF)
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Abstract

   This document describes a new LISP Canonical Address Format (LCAF),
   the Vendor Specific LCAF. This LCAF enables organizations to have
   internal encodings for LCAF addresses.

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1. Introduction

The LISP Canonical Address Format (LCAF) [RFC8060] defines the format
and encoding for different address types that can be used on LISP
[I-D.ietf-lisp-rfc6830bis] [I-D.ietf-lisp-rfc6833bis] deployments.
However, certain deployments require specific format encodings that
may not be applicable outside of the use-case for which they are
defined. The Vendor Specific LCAF allows organizations to create
LCAF addresses to be used only internally on particular LISP
deployments.

2. Requirements Notation

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT",
"SHOULD", "SHOULD NOT", "RECOMMENDED", "NOT RECOMMENDED", "MAY", and
"OPTIONAL" in this document are to be interpreted as described in BCP
14 [RFC2119] [RFC8174] when, and only when, they appear in all
capitals, as shown here.

3. Vendor Specific LCAF

The Vendor Specific LCAF relies on using the IEEE Organizationally
Unique Identifier (OUI) [IEEE.802_2001] to prevent collisions across
vendors or organizations using the LCAF. The format of the Vendor
Specific LCAF is provided below.

```
 0                   1                   2                   3
 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|           AFI = 16387         |     Rsvd1     |     Flags     |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|   Type = 255  |     Rsvd2     |             Length            |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|     Rsvd3     |   Organizationally Unique Identifier (OUI)   |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                       Internal format...                     |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

Vendor Specific LCAF

The fields in the first 8 octets of the above Vendor Specific LCAF
are actually the fields defined in the general LCAF format specified
in [RFC8060]. The "Type" field MUST be set to the value 255 to
indicate that this is a Vendor Specific LCAF. The Length field has
to be set accordingly to the length of the internal format plus the
OUI plus the Rsvd3 fields as for [RFC8060]. The fields defined by
the Vendor Specific LCAF are:

   Rsvd3: This 8-bit field is reserved for future use. It MUST be
   set to 0 on transmit and MUST be ignored on receipt.

   Organizationally Unique Identifier (OUI): This is a 24-bit field
   that carries the IEEE OUI [IEEE.802_2001] of the organization.

   Internal format: This is a variable length field that is left
   undefined on purpose. Each vendor or organization can define its
   own internal format(s) to use with the Vendor Specific LCAF.

The Vendor Specific LCAF type SHOULD NOT be used in deployments where
different organizations interoperate. However, there may be cases
where two (or more) organizations share a common deployment on which
they explicitly and mutually agree to use a particular Vendor
Specific LCAF. In that case, the organizations involved need to
carefully assess the interoperability concerns for that particular
deployment.

If a LISP device receives a LISP message containing a Vendor Specific
LCAF with an OUI that it does not understand, it MUST drop the
message and it SHOULD create a log message.

4. Security Considerations

   This document enables organizations to define new LCAFs for their
   internal use. It is the responsibility of these organizations to
   properly assess the security implications of the formats they define.

5. Acknowledgments

   The authors would like to thank Joel Halpern and Luigi Iannone for
   their suggestions and guidance regarding this document.

6. IANA Considerations

   Following the guidelines of [RFC8126], this document requests IANA to
   update the "LISP Canonical Address Format (LCAF) Types" Registry
   defined in [RFC8060] to allocate the following assignment:

```
   +---------+--------------------+-----------------------------+
   | Value # | LISP LCAF Type Name |          Reference         |
   +---------+--------------------+-----------------------------+
   |   255   |   Vendor Specific  |              Section 3      |
   +---------+--------------------+-----------------------------+
```

                Table 1: Vendor Specific LCAF assignment

7. Normative References

   [I-D.ietf-lisp-rfc6830bis]
              Farinacci, D., Fuller, V., Meyer, D., Lewis, D., and A.
              Cabellos-Aparicio, "The Locator/ID Separation Protocol
              (LISP)", draft-ietf-lisp-rfc6830bis-36 (work in progress),
              November 2020.

   [I-D.ietf-lisp-rfc6833bis]
              Farinacci, D., Maino, F., Fuller, V., and A. Cabellos-
              Aparicio, "Locator/ID Separation Protocol (LISP) Control-
              Plane", draft-ietf-lisp-rfc6833bis-30 (work in progress),
              November 2020.

   [IEEE.802_2001]
              IEEE, "IEEE Standard for Local and Metropolitan Area
              Networks: Overview and Architecture", IEEE 802-2001,
              DOI 10.1109/ieeestd.2002.93395, July 2002,
              <http://ieeexplore.ieee.org/servlet/opac?punumber=7732>.

   [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate
              Requirement Levels", BCP 14, RFC 2119,
              DOI 10.17487/RFC2119, March 1997,
              <https://www.rfc-editor.org/info/rfc2119>.

   [RFC8060] Farinacci, D., Meyer, D., and J. Snijders, "LISP Canonical
              Address Format (LCAF)", RFC 8060, DOI 10.17487/RFC8060,
              February 2017, <https://www.rfc-editor.org/info/rfc8060>.

   [RFC8126] Cotton, M., Leiba, B., and T. Narten, "Guidelines for
              Writing an IANA Considerations Section in RFCs", BCP 26,
              RFC 8126, DOI 10.17487/RFC8126, June 2017,
              <https://www.rfc-editor.org/info/rfc8126>.

   [RFC8174] Leiba, B., "Ambiguity of Uppercase vs Lowercase in RFC
              2119 Key Words", BCP 14, RFC 8174, DOI 10.17487/RFC8174,
              May 2017, <https://www.rfc-editor.org/info/rfc8174>.

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