                 Locator/ID Separation Protocol (LISP):
   Shared Extension Message & IANA Registry for Packet Type Allocations

Abstract

   This document specifies a Locator/ID Separation Protocol (LISP)
   shared message type for defining future extensions and conducting
   experiments without consuming a LISP packet type codepoint for each
   extension. It also defines a registry for LISP Packet Type
   allocations, thus updating RFC 6830.

Status of This Memo

   This document is not an Internet Standards Track specification; it is
   published for examination, experimental implementation, and
   evaluation.

   This document defines an Experimental Protocol for the Internet
   community. This document is a product of the Internet Engineering
   Task Force (IETF). It represents the consensus of the IETF
   community. It has received public review and has been approved for
   publication by the Internet Engineering Steering Group (IESG). Not
   all documents approved by the IESG are a candidate for any level of
   Internet Standard; see Section 2 of RFC 7841.

   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/rfc8113.

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1. Introduction

   The Locator/ID Separation Protocol (LISP) base specification,
   [RFC6830], defines a set of primitives that are identified with a
   packet type code. Several extensions have been proposed to add more
   LISP functionalities. For example, new message types are proposed in
   [LISP-DDT], [LISP-MN-EXT], [LISP-BULK], [NAT-LISP], or
   [LISP-SUBSCRIBE]. It is expected that additional LISP extensions
   will be proposed in the future.

   In order to ease the tracking of LISP message types, this document
   proposes to create a "LISP Packet Types" IANA registry (see
   Section 5).

   Because of the limited type space [RFC6830] and the need to conduct
   experiments to assess new LISP extensions, this document specifies a
   shared LISP extension message type and proposes a procedure for
   registering LISP shared extension sub-types (see Section 3).

   Concretely, one single LISP message type code is dedicated to future
   LISP extensions; sub-types are used to uniquely identify a given LISP
   extension making use of the shared LISP extension message type.
   These identifiers are selected by the author(s) of the corresponding
   LISP specification that introduces a new LISP extension message type.

2. Requirements Language

   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. LISP Shared Extension Message Type

   Figure 1 depicts the common format of the LISP shared extension
   message. The type field MUST be set to 15 (see Section 5).

```
        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
       +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
       |Type=15|      Sub-type     |       extension-specific         |
       +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
       //                      extension-specific                    //
       //                                                            //
       +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```
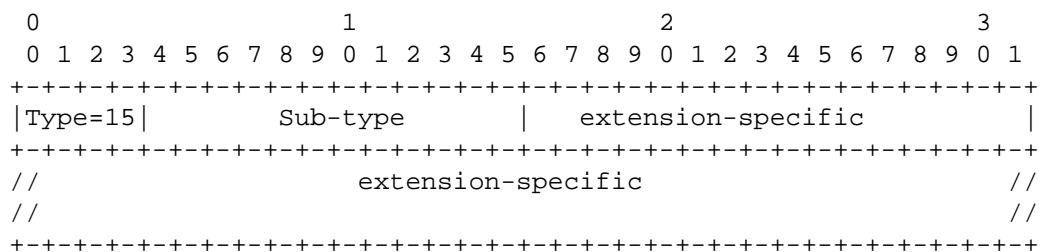
                 Figure 1: LISP Shared Extension Message Type

   The "Sub-type" field conveys a unique identifier that MUST be
   registered with IANA (see Section 5.2).

   The exact structure of the 'extension-specific' portion of the
   message is specified in the corresponding specification document.

4. Security Considerations

   This document does not introduce any additional security issues other
   than those discussed in [RFC6830].

5. IANA Considerations

5.1. LISP Packet Types

   IANA has created a new protocol registry for LISP Packet Types,
   numbered 0-15. The registry is initially populated with the
   following values:

   Message   Code   Reference
   ================================ ==== ===============
   Reserved   0   [RFC6830]
   LISP Map-Request   1   [RFC6830]
   LISP Map-Reply   2   [RFC6830]
   LISP Map-Register   3   [RFC6830]
   LISP Map-Notify   4   [RFC6830]
   LISP Encapsulated Control Message 8   [RFC6830]
   LISP Shared Extension Message   15   [RFC8113]

   The values in the ranges 5-7 and 9-14 can be assigned via Standards
   Action [RFC5226]. Documents that request for a new LISP packet type
   may indicate a preferred value in the corresponding IANA sections.

5.2. Sub-Types

   IANA has created the "LISP Shared Extension Message Type Sub-types"
   registry. No initial values are assigned at the creation of the
   registry; (0-4095) are available for future assignments.

   The values in the range 0-1023 are assigned via Standards Action.
   This range is provisioned to anticipate, in particular, the
   exhaustion of the LISP Packet types.

   The values in the range 1024-4095 are assigned on a First Come, First
   Served (FCFS) basis. The registration procedure should provide IANA
   with the desired codepoint and a point of contact; providing a short
   description (together with an acronym, if relevant) of the foreseen
   usage of the extension message is also encouraged.

6. References

6.1. Normative References

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6.2. Informative References

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