

LISP Geo-Prefixes

draft-farinacci-lisp-geo-02

*LISP Working Group - Seoul IETF
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LISP Geo-Coordinate Use-Cases
draft-farinacci-lisp-geo-00

Abstract

This draft describes how Geo-Coordinates can be used in the LISP Architecture and Protocols.

Status of This Memo

This Internet-Draft is submitted in full conformance with the provisions of BCP 78 and BCP 79.

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LISP Geo-Coordinate Use-Cases
draft-farinacci-lisp-geo-02

Abstract

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Status of This Memo

This Internet-Draft is submitted in full conformance with the provisions of BCP 78 and BCP 79.

Appendix B. Document Change Log

[RFC Editor: Please delete this section on publication as RFC.]

B.1. Changes to draft-farinacci-lisp-geo--02.txt

- o Posted October 2016.
- o Change format of the Geo-Coordinates LCAF Type to be compatible with equivalent proposals for OSPF, IS-IS, and BGP.
- o Add to the Security Considerations section to BCP160 compliance.

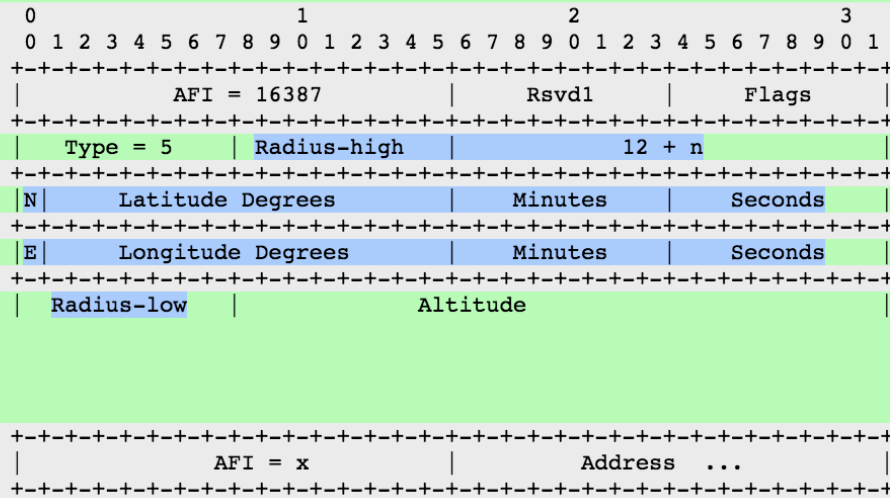
B.2. Changes to draft-farinacci-lisp-geo--01.txt

- o Posted October 2016.
- o Clarify that the Geo-Coordinates LCAF type should be encoded inside an Instance-ID LCAF type when VPNs are used.
- o Indiate what the value of the Altitude field is when not included in a message. Since this draft shortens the field, a new value is specified in this draft for not conveying an Altitude value in a message.

B.3. Changes to draft-farinacci-lisp-geo--00.txt

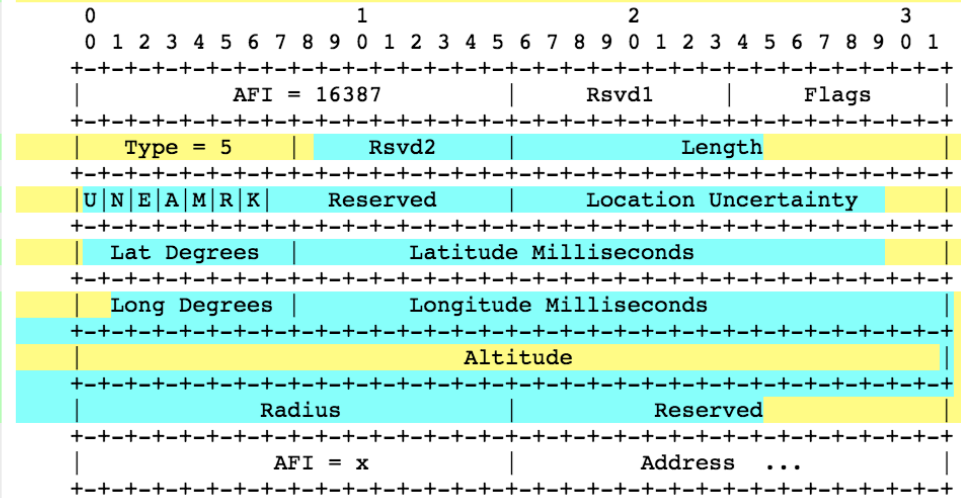
- o Initial draft posted April 2016.

5. Geo-Prefix and Geo-Point Encodings



5. Geo-Prefix and Geo-Point Encodings

When a Geo-Prefix or a Geo-Point are encoded in an EID-record, it is encoded solely with the Geo-Coordinates LCAF Type format when VPNs are not in use. When VPNs are used, the Geo-Coordinate LCAF Type is encoded within an Instance-ID LCAF Type.



- Create a consistent format among OSPF, IS-IS, BGP, and LISP
- Radius is a contiguous field
- Allow for different units for Lat/Long and Radius
- Provide for an Uncertainty index

6. Security Considerations

The use of Geo-Coordinates in any application must be considered carefully to not violate and privacy concerns about physical location.

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The use of Geo-Coordinates in any application must be considered carefully to not violate any privacy concerns about physical location. This draft does take into consideration the applicability of BCP160 [RFC6280] for location-based privacy protection.

In a LISP environment, Geo-Coordinates can be registered to the Mapping Database System. When this occurs, an xTR is allowing its physical location to be known to queriers of the mapping system as well as network components that make up the mapping system. There are various sets of trust relationships that may exist.

An xTR at a LISP site already has a business and trust relationship with its Mapping Service Provider (MSP). When xTRs register their mappings with Geo-Coordinate information, a policy is agreed upon about who can access the information. Typically, the policy is stored locally and processed by the xTR when the MSP forwards Map-Requests to the xTRs of the LISP site. Conditionally, based on the requesting xTR, the responding xTR can apply the local policy to decide if a Map-Reply is sent with all RLOC-records, or perhaps, the RLOC-records that do not contain Geo-Coordinate information.

The MSP can also be requested by LISP site xTRs to proxy Map-Reply to Map-Requests. In this case, the MSP must apply the xTR policy so only authorized requesters get access to Geo-Coordinate information.

Note that once a requester is authorized, Map-Replies are returned directly to the requester and are signed with [I-D.ietf-lisp-sec]. The Map-Replies not only authenticates the Map-Replier but can be encrypted by the Map-Replier so no eavesdropping of Geo-Coordinate information can occur.

- IESG comments on LCAF draft to spec out privacy protection
 - Reference BCP160
 - Spec where geo-coordinates will be stored in LISP network elements

Geo in Mapping System

geo-locations	[1000]	no (ams)	--	never	never	--
	[1000]'san-jose'	yes (dynamic)	[0]104.155.10.225	0:00:08	23:46:31	p-s-l-t-r-m-n
	[1000]'new-york'	yes (dynamic)	[0]104.155.10.225	0:00:08	23:46:31	p-s-l-t-r-m-n
	[1000]'paris'	yes (dynamic)	[0]104.155.10.225	0:00:08	23:46:31	p-s-l-t-r-m-n
	[1000]'london'	yes (dynamic)	[0]104.155.10.225	0:00:08	23:46:31	p-s-l-t-r-m-n
	[1000]'tokyo'	yes (dynamic)	[0]104.155.10.225	0:00:08	23:46:31	p-s-l-t-r-m-n
	[1000]'sjc'	yes (dynamic)	[0]104.155.10.225	0:00:08	23:46:31	p-s-l-t-r-m-n
	[1000]'cdg'	yes (dynamic)	[0]104.155.10.225	0:00:08	23:46:31	p-s-l-t-r-m-n

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Geo-Prefix

ms1

Site name: geo-locations EID-prefix: [1000] 'paris', registered: **yes**, dynamic
 Description:
 Last registerer: [0]104.155.10.225, xTR-ID: 0x30e223f69843fdc0, site-ID: 0
 First registered: 23:48:02, last registered: 0:00:39, auth-type: sha2, registration flags: p-s-I-t-r-m-n
 Default registration timeout TTL: 180 seconds
 Forcing proxy Map-Reply: yes
 Forcing proxy Map-Reply for xTRs behind NATs: no
 Send drop-action proxy Map-Reply to PITR: no
 Proxy Map-Reply action: not configured
 Allowed RLOC-set: any

Registered RLOC-set (replacement-semantics):
 [0]no-address, state: up-state, up/uw/mp/mw: 0/0/255/0
 geo: [48-51-12-N-2-20-55-E/100](#)
 [0]10.210.100.249, state: up-state, up/uw/mp/mw: 254/0/255/0, RTR
 [0]130.211.169.66, state: up-state, up/uw/mp/mw: 254/0/255/0, RTR

Individual registrations: none

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Geo-Point

ms1

Site name: geo-locations EID-prefix: [1000] 'cdg', registered: **yes**, dynamic
 Description:
 Last registerer: [0]104.155.10.225, xTR-ID: 0x30e223f69843fdc0, site-ID: 0
 First registered: 23:48:28, last registered: 0:00:05, auth-type: sha2, registration flags: p-s-I-t-r-m-n
 Default registration timeout TTL: 180 seconds
 Forcing proxy Map-Reply: yes
 Forcing proxy Map-Reply for xTRs behind NATs: no
 Send drop-action proxy Map-Reply to PITR: no
 Proxy Map-Reply action: not configured
 Allowed RLOC-set: any

Registered RLOC-set (replacement-semantics):
 [0]no-address, state: up-state, up/uw/mp/mw: 0/0/255/0
 geo: [49-0-14-N-2-34-15-E](#)
 [0]10.210.100.249, state: up-state, up/uw/mp/mw: 254/0/255/0, RTR
 [0]130.211.169.66, state: up-state, up/uw/mp/mw: 254/0/255/0, RTR

Individual registrations: none

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Geo Lookups

Run **lig** on EID: to Map-Resolver: count (1-5): no-nat:

Run **rig** on EID: to any DDT-node: follow-all-referrals:

Run **geo-test** on geo-point: for geo-prefix:

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ms1

Geo-Point: [49-0-14-N-2-34-15-E](#) (49.003889, 2.570833), EID [1000]'cdg'
Geo-Prefix: [48-51-12-N-2-20-55-E/100](#) (48.853333, 2.348611), 100 kilometer radius, EID-prefix [1000]'paris'
Distance: 23.36 kilometers, point is **inside** of circle

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