

Extending ICMPv6 for SRv6-SID-related Information Validation

draft-liu-6man-icmp-verification

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Background and Motivation

SRv6 SIDs can be related with extra information :

- VPN/EVPN Services
- SRv6 Endpoint Behaviors
- Flex Algorithms
- Service Functions
- ...

SR-MPLS/MPLS

LSP Ping: new info related with MPLS label/SID-->new FEC sub-TLV defined

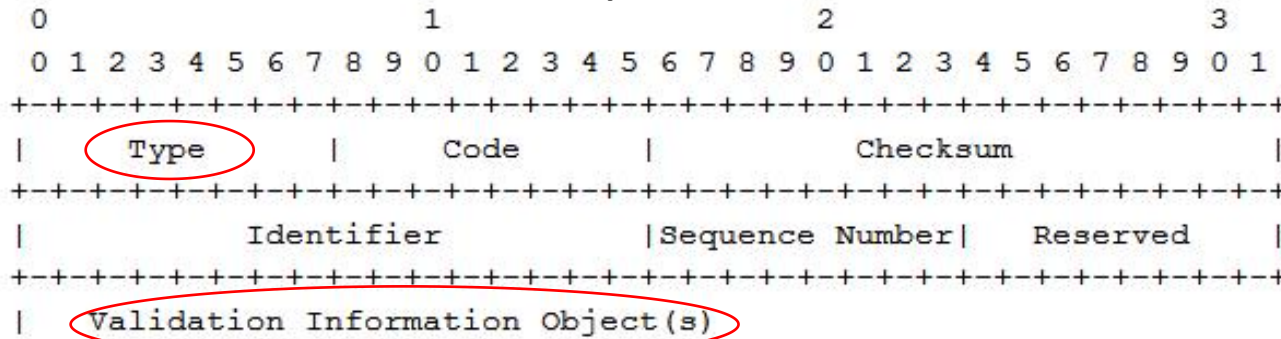
SRv6

No similar mechanism

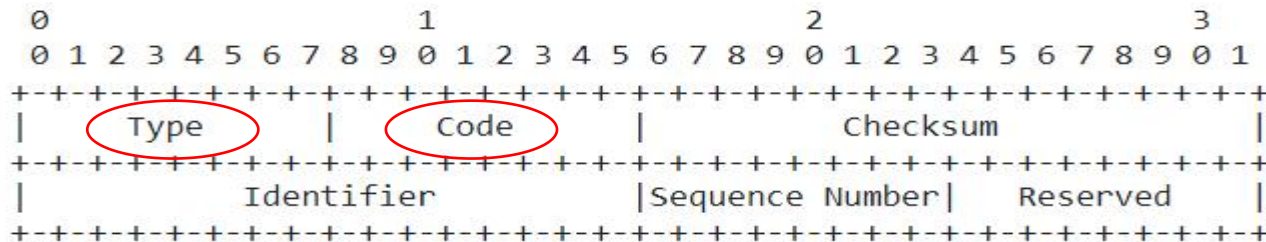
This draft defines ICMPv6 messages to verify the data plane against the control plane for SRv6.

New ICMPv6 Messages

ICMPv6 Validation Request



ICMPv6 Validation Reply



Code:

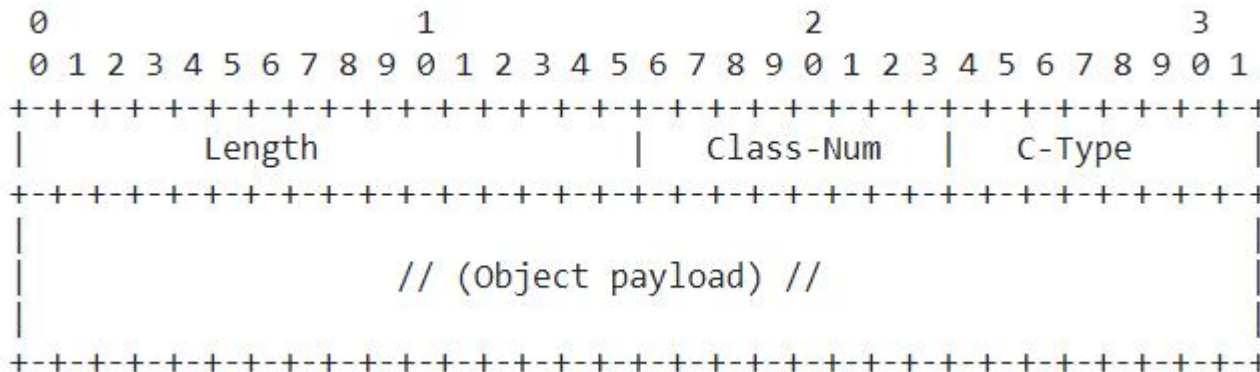
(0) Validation passed

(1) Malformed request received

(2) One or more of the objects were not understood

(3) Information mismatch

Validation Information Object



a new ICMP Extension Object

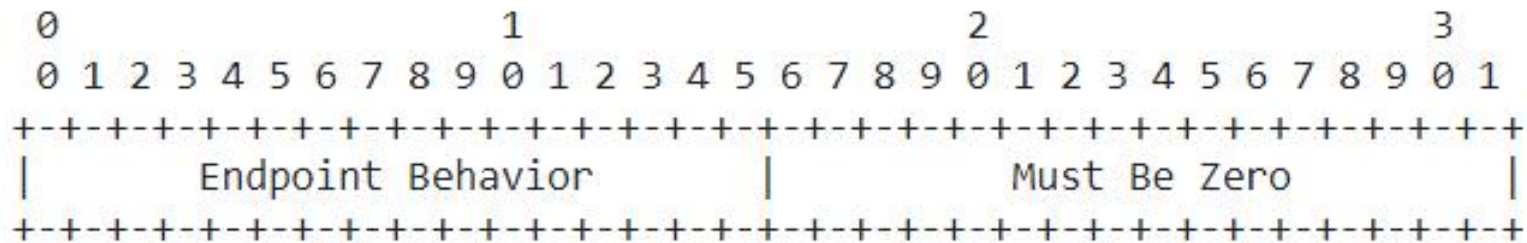
- Class-Num: TBA, indicates the Validation Information Object
- C-Type: indicates the type of the information that needs to be verified
- Object payload: C-Type-specific data

C-Type	Object Payload
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1	Endpoint Behavior
2	IPv6 Prefix IGP Algorithm
3	SRv6 IGP-Adjacency Segment
4	VPN IPv4 Prefix
5	VPN IPv6 Prefix

Object Payload-1

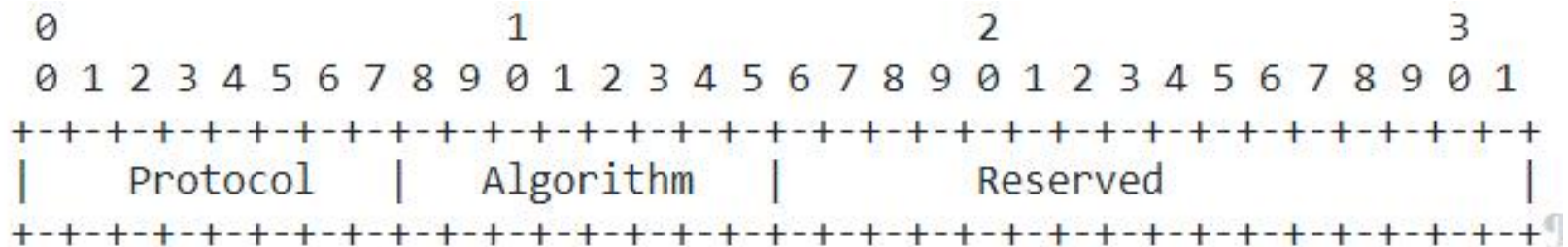
SRv6 Endpoint Behavior

RFC8986



IPv6 Prefix IGP Algorithm

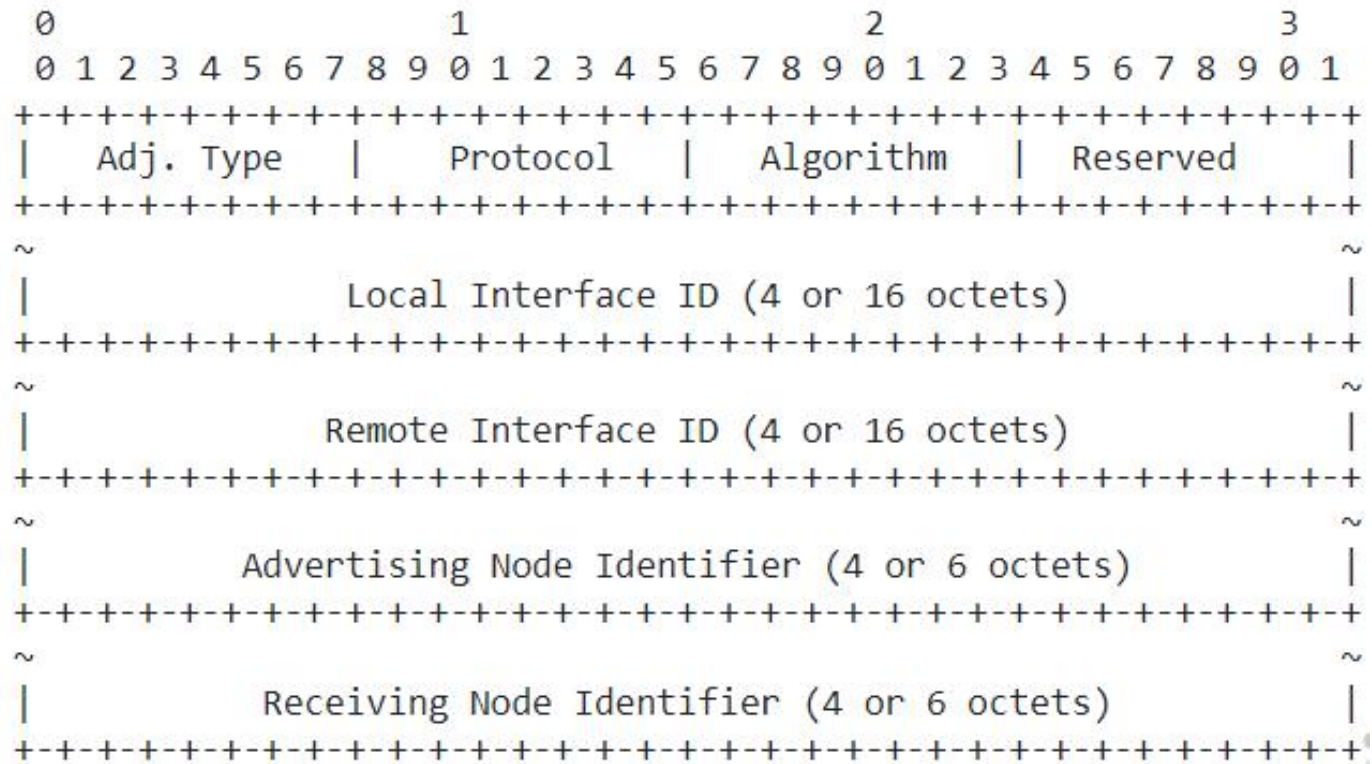
RFC9350



Object Payload-2

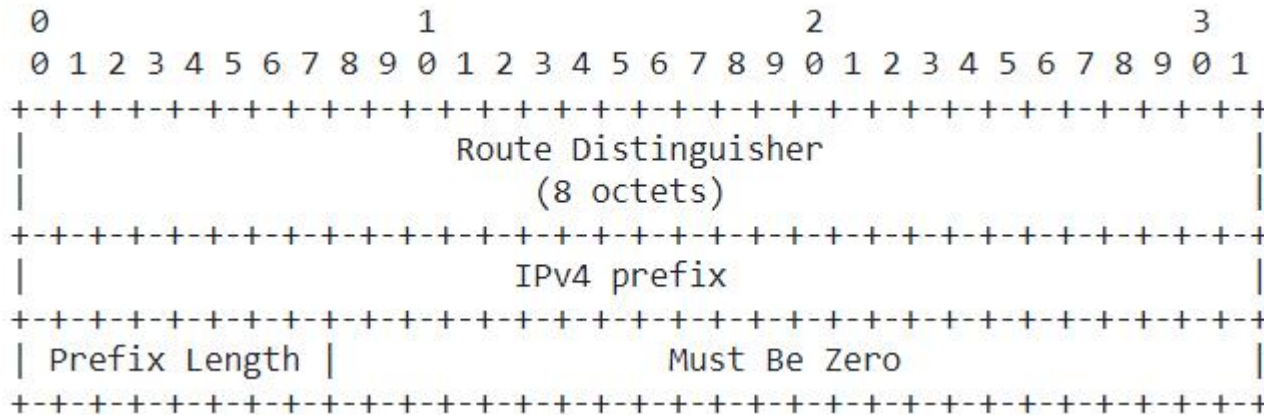
SRv6 IGP-Adjacency

RFC8402



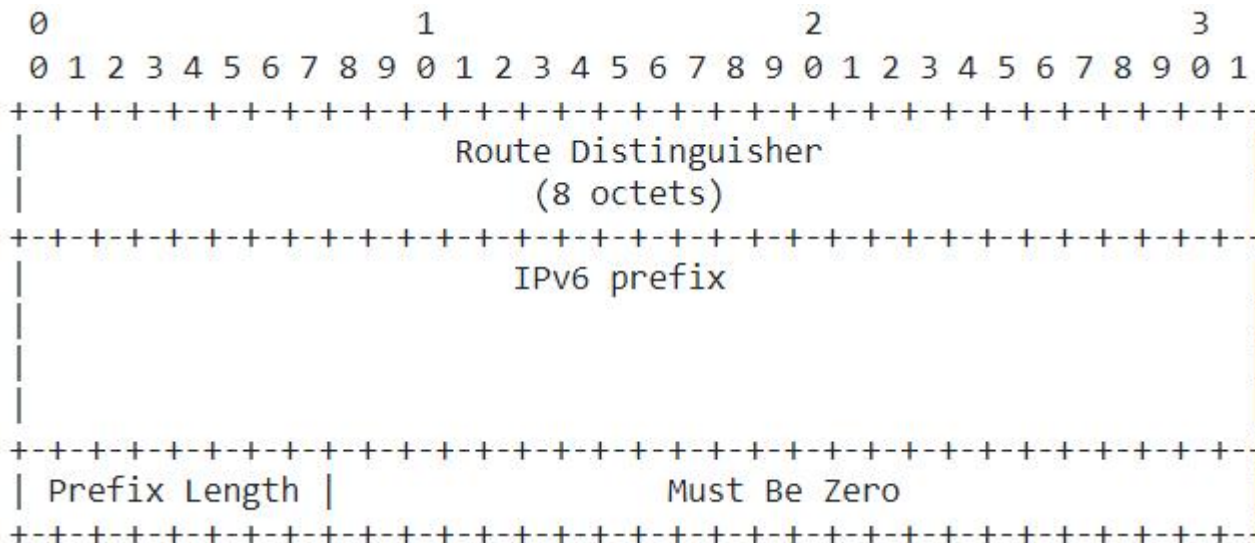
Object Payload-3

VPN IPv4 Prefix



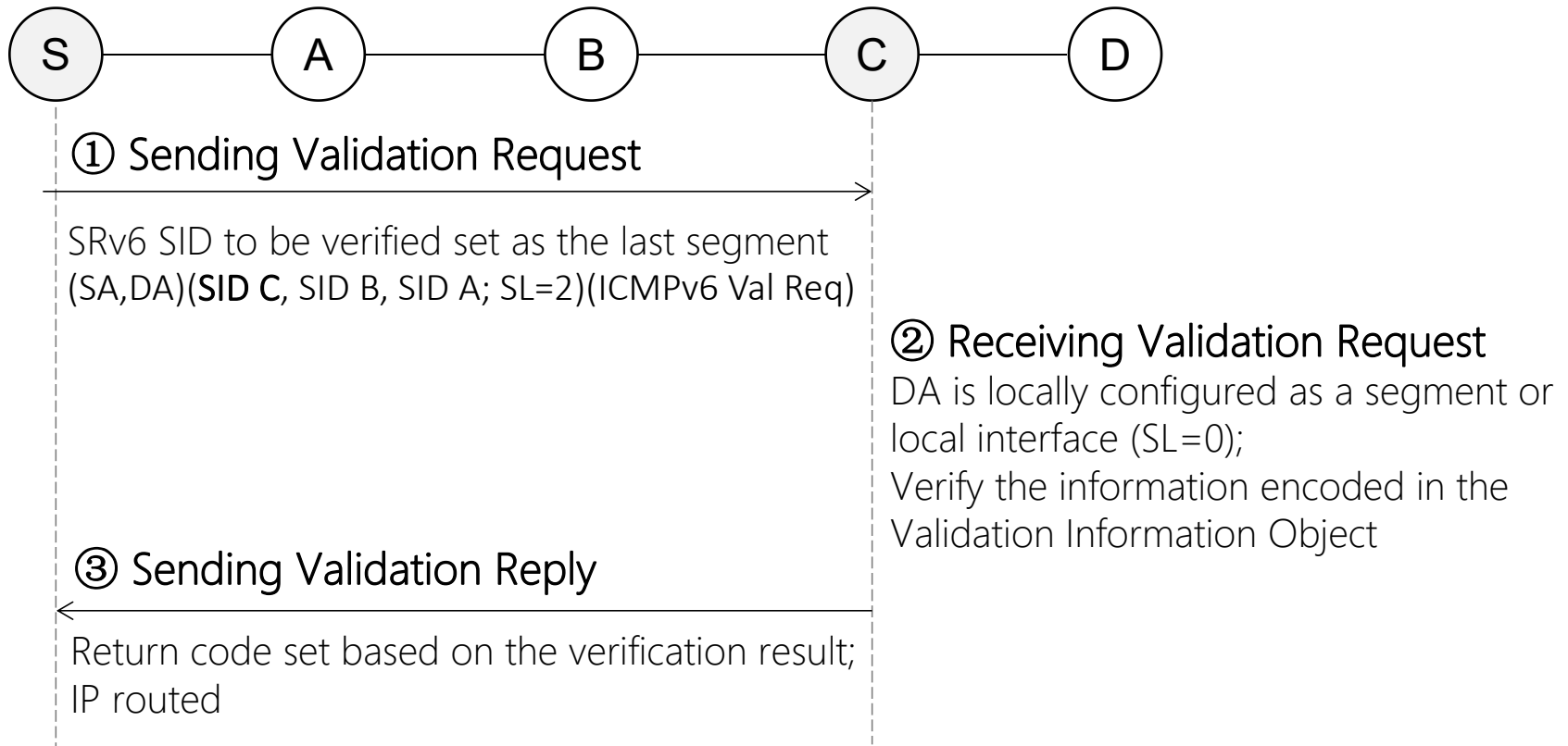
RFC9252

VPN IPv6 Prefix



Processing Procedures

Ping Mode



Changes since IETF 116

- Claim updates to RFC4884, ICMP Extension Structure in the new ICMPv6 messages
- IANA section refined
- Add Yisong Liu as a co-author

Next Steps

- Add new types of object payloads for validation
- Consider about more detailed error info in the reply messages
- Request feedback and comments
- Welcome cooperation!

Thank You !