IETF 124 – 6lo

Path-Aware Semantic Addressing (PASA) for Low power and Lossy Networks

~~draft-ietf-6lo-path-aware-semantic-addressing-11~~

~~draft-ietf-6lo-path-aware-semantic-addressing-12~~

draft-ietf-6lo-path-aware-semantic-addressing-13

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IETF 124 – Montreal

Since IETF 123

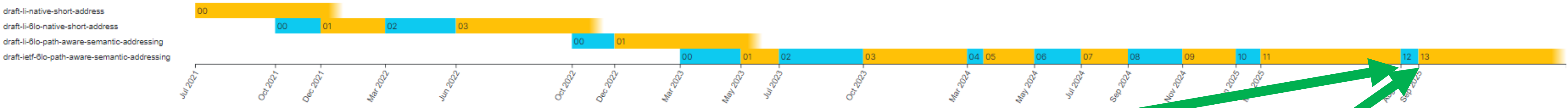
Path-Aware Semantic Addressing (PASA) for Low power and Lossy Networks

draft-ietf-6lo-path-aware-semantic-addressing-13

Status | IESG evaluation record | IESG writeups | Email expansions | History

Versions:

00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13



draft-ietf-6lo-path-aware-semantic-address-12.txt
August 2025
Main changes: Keep Alive

draft-ietf-6lo-path-aware-semantic-address-13.txt
September 2025
Main changes: Update GAAO usage examples as for the latest format

Main Change

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```
messages from potential parents.  The node can choose a parent on a
"first come first served" basis and send a Neighbor Solicitation (NS)
with a GAAO message to request an address to the selected parent (see
Figure 12 for an example of such option).

 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      |    Length     | Status/PfxLen |    Opaque     |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|C|         Reserved          |  TAAF  |     Assignment  Lifetime    |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                                                               |
~             Registration Ownership Verifier (ROVR)            ~
|                                                               |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+

                  Figure 12: NS GAAO option example.

The requester MUST indicate its role as indicated in Section 9.  If
the node acts as a PASA Router it means that the address will be
further delegated.  Otherwise, if the node acts as a PASA Host, the
address will not be further delegated.  The parent, acting as IPv6 ND
Registrar will process the received GAAO message and act according to
[I-D.ietf-6lo-nd-gaao], and the corresponding GAAO message for the NA
packet is generated.  The NA message will carry the GAAO message with
the AAF field set to the PASA TAAF value (see Section 11).
Furthermore, the C-bit of the GAAO message in the NA message MUST be
set in order to request confirmation of address usage through
explicit registration.  The returning GAAO message will carry as well
the PASA address that the parent assigns to its child using the
procedures described in Section 6.  The PASA address is appended to
the GAAO message (see Figure 13).

 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      |    Length     |    PfxLen     |    Opaque     |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|C|         Reserved          |  TAAF  |     Assignment  Lifetime    |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                                                               |
~             Registration Ownership Verifier (ROVR)            ~
|                                                               |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                                                               |
|                            Address                            |
|                          (128 bits)                           |
|                                                               |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

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```
messages from potential parents.  The node can choose a parent on a
"first come first served" basis and send a Neighbor Solicitation (NS)
with a GAAO message to request an address to the selected parent (see
Figure 12 for an example of such option).

 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      |    Length     | Status/PfxLen |    Opaque     |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|R|C|Rsvd |    PfxLen     |  TAAF  |     Assignment  Lifetime    |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                                                               |
~             Registration Ownership Verifier (ROVR)            ~
|                                                               |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+

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[I-D.ietf-6lo-nd-gaao], and the corresponding GAAO message for the NA
packet is generated.  The NA message will carry the GAAO message with
the AAF field set to the PASA TAAF value (see Section 11).
Furthermore, the R-bit of the GAAO message in the NA message MUST be
set in order to request confirmation of address usage through
explicit registration.  The returning GAAO message will carry as well
the PASA address that the parent assigns to its child using the
procedures described in Section 6.  The PASA address is appended to
the GAAO message (see Figure 13) and its prefix length is indicated
in the PfxLen field.

 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      |    Length     |    PfxLen     |    Opaque     |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|R|C|Rsvd |    PfxLen     |  TAAF  |     Assignment  Lifetime    |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                                                               |
~             Registration Ownership Verifier (ROVR)            ~
|                                                               |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                                                               |
|                            Address                            |
|                          (128 bits)                           |
|                                                               |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

- GAAO Option has been updated following Pascal's in-depth review, hence, the examples have been updated using the latest format

Next Steps

- Still good to go
  - But waiting for GAAO

THANKS!