



# v6OPS Variable IIDs Problem Statement

`draft-mishra-6man-variable-iids-00`

`SLAAC Prefixes with Variable Interface ID (IID)`

IETF 120



**I E T F**<sup>®</sup>

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# Variable IID Solution

- Proposes longer prefixes in PIO for SLAAC allowing a maximum prefix length of /80 with an IID of 48 bits. This recommendation would eliminate the race to the bottom concerns.

- This implementation for backwards compatibility leverages the use of 6 bits in the PIO 32 bit Reserved2 field which today per RFC 4861 is initialized to 0 and is ignored by the receiver.

- Modified router will include a 6 bit “IID Length” indication in every RA/PIO message with the A bit set. This will override the value defined in RFC 2464 etc and in RFC 4291, for the prefix concerned being advertised.

## Operational Considerations:

Unmodified hosts & modified routers: **No change, all use 64 bit IID**

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Modified hosts & modified routers: **Longer prefix-shorter iid**

PIO Reserved2 Field = “00000000” means 64 bit length – no change & fully backwards compatible.

Any other value of the 6 bits of the Reserved2 field in RA/PIO would define the IID length in bits.

SLAAC prefix allowed /64-/80 IID length 48 to 64 bits

Values less than 48 bits “00110000” are not allowed (Prevent the Race to the Bottom)

Values greater than 64 bits are impossible. So the IID length is limited to 16 bits  $\geq 48$  &  $\leq 64$

Example of valid value : “00111011” /69 with 59 bit IID

When a modified node receives an “IID length” less than 64 it will use that value received and not the default value for all unicast address autoconfiguration under that prefix except link-local.

# Next Steps - Operational Considerations

Modified Routers & Mix of Modified & Unmodified hosts on a link:

**(NOT RECOMMENDED)**

## Modified:

Modified hosts will use the shorter IID and longer prefix lengths if the longer prefix lengths are announced

## Unmodified:

Unmodified hosts have two options below for operators

- The unmodified hosts, according to RFC 4861, must ignore the Reserved2 field
- According to RFC 4862 section 5.5.3 clause d, the hosts will ignore any PIO advertising a shorter IID.

Therefore operators have two choices for Unmodified hosts:

1. Decide that unmodified hosts will not be supported (will not be able to configure an address via SLAAC).
2. Announce (at least) 2 prefixes on the link – a /64 and a longer one with shorter IID. For that to make sense we need an extra rule for modified hosts: if a host receives several PIOs from the same router, it prefers all those with shortest IID and ignores all /64 IID.

**Mixture of Modified & Unmodified hosts is not recommended**

**Do we want to support shorter than 64 bit prefix & greater than 64 bit IID and if so we need 7 bit IID length field in PIO?**