

# **DHCPv6/SLAAC Interaction Problems**

[\*\(draft-liu-bonica-dhcpv6-slaac-problem-01\)\*](#)

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# Background 1/2

- ICMPv6 RA messages include the following flags
  - “**A**utonomous Flag”: indicates that a prefix can be used for SLAAC
  - “**M**anaged Flag”: indicates that addresses are available via DHCPv6
  - “**O**therConfig Flag”: indicates that other configuration information is available via DCPv6

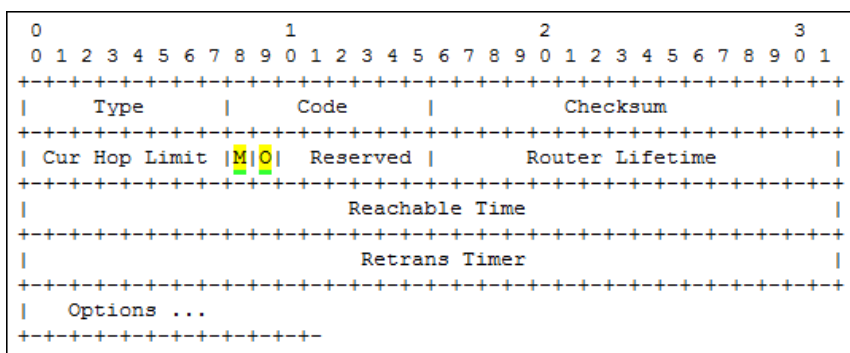


Fig. M/O flags in RA message

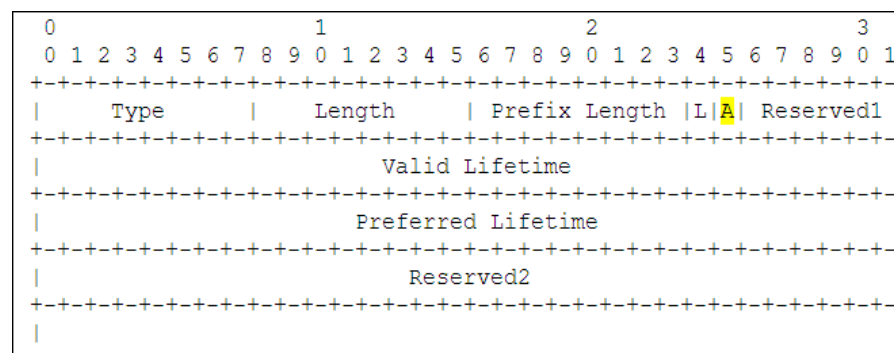


Fig. A flag in Prefix Information Option

# Background 2/2

- RFC 4861 provides a clear definition for these flags
- Neither RFC 4861 nor RFC 4862 completely specifies the host behavior when these flags are set
  - *Prescriptive behavior – Host MUST use protocol X to obtain information Y when flag is set. Host MUST NOT use protocol X to obtain information Y when flag is not set*
  - *Advisory behavior - Protocol X is available to obtain Information Y. However, host behavior may be influenced by other factors.*

# Testing

- We tested various operating system's handling of these flags
  - Windows 7
  - Linux (Ubuntu 12.10)
  - Mac OS (10.7)

# Important test results

## A flag behaviors

- For SLAAC-configured hosts, when A changed from 1 to 0, the behaviors varied, Win7 releases address learned from SLAAC while Linux/MAC doesn't

## M flag behaviors

- Linux/MAC only start DHCPv6 until receive RA with M=1
- SLAAC-configured hosts receiving RA with M=1, Win7 does DHCPv6, Linux/MAC don't
- DHCPv6-configured hosts receiving RA with M=0, Win7 release DHCPv6 addresses, Linux/MAC doesn't

## O flag behaviors

- Linux/MAC won't initiate stateless DHCPv6 when A flag is NOT set. Window will.
- O=1, then M from 1 to 0 or vice versa, Win7 would switch to stateless DHCPv6 or statefull DHCPv6; Linux/MAC no action

# Operational Issues

- Given inconsistent host behavior, it is difficult for network managers to predict and control host addressing
- In the nominal case
- In the case of renumbering
  - Renumbering exercise may require transition from SLAAC to DHCP or vice versa

# Question

- Does 6man need to specify:
  - Whether flags have prescriptive or advisory influence on host behavior?
  - If advisory, what other factors influence host behavior?

# Comments?

Thank you

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