

pfSense Docs - Todo #16146

Document net.inet6.icmp6.nd6_onlink_ns_rfc4861

04/18/2025 05:24 PM - Marcos M

Status:	Rejected	Start date:	
Priority:	Normal	Due date:	
Assignee:	Jim Pingle	% Done:	0%
Category:	Troubleshooting	Estimated time:	0.00 hour
Target version:			
Description			
Some ISPs require net.inet6.icmp6.nd6_onlink_ns_rfc4861 to be set (e.g. sysctl net.inet6.icmp6.nd6_onlink_ns_rfc4861=1). This is needed to allow pfSense to respond to Neighbor Solicitation requests sourced by an address that pfSense doesn't already know about.			
For example, before setting the tunable:			
<pre>15:40:29.529162 IP6 2001:db8:ffff:5:5::1 > ff02::1:ff2:3434: ICMP6, neighbor solicitation, who has fe80::208:a2ff:fe12:ec78, length 32 15:40:30.528332 IP6 2001:db8:ffff:5:5::1 > ff02::1:ff2:3434: ICMP6, neighbor solicitation, who has fe80::208:a2ff:fe12:ec78, length 32 15:40:31.528522 IP6 2001:db8:ffff:5:5::1 > ff02::1:ff2:3434: ICMP6, neighbor solicitation, who has fe80::208:a2ff:fe12:ec78, length 32 15:40:32.529656 IP6 2001:db8:ffff:5:5::1 > ff02::1:ff2:3434: ICMP6, neighbor solicitation, who has fe80::208:a2ff:fe12:ec78, length 32 15:40:33.529546 IP6 2001:db8:ffff:5:5::1 > ff02::1:ff2:3434: ICMP6, neighbor solicitation, who has fe80::208:a2ff:fe12:ec78, length 32 15:40:34.529569 IP6 2001:db8:ffff:5:5::1 > ff02::1:ff2:3434: ICMP6, neighbor solicitation, who has fe80::208:a2ff:fe12:ec78, length 32</pre>			
and after setting it:			
<pre>17:03:07.113692 IP6 2001:db8:ffff:5:5::1 > ff02::1:ff2:3434: ICMP6, neighbor solicitation, who has fe80::250:56ff:feb2:3434, length 32 17:03:07.113819 IP6 fe80::250:56ff:feb2:3434 > ff02::1:ff12:ec78: ICMP6, neighbor solicitation, who has fe80::208:a2ff:fe12:ec78, length 32 17:03:07.114223 IP6 2001:db8:ffff:5:5::1 > fe80::250:56ff:feb2:3434: ICMP6, echo request, id 18079, seq 0, length 16 17:03:07.114296 IP6 fe80::208:a2ff:fe12:ec78 > fe80::250:56ff:feb2:3434: ICMP6, neighbor advertisement, tgt is fe80::208:a2ff:fe12:ec78, length 32 17:03:07.114317 IP6 fd6e:6574:6761:7465:8361:a967:bcc8:70d3 > 2001:db8:ffff:5:5::1: ICMP6, neighbor advertisement, tgt is fe80::250:56ff:feb2:3434, length 32 17:03:07.114339 IP6 fe80::250:56ff:feb2:3434 > 2001:db8:ffff:5:5::1: ICMP6, echo reply, id 18079, seq 0, length 16 17:03:08.114233 IP6 2001:db8:ffff:5:5::1 > fe80::250:56ff:feb2:3434: ICMP6, echo request, id 18079, seq 1, length 16 17:03:08.114266 IP6 fe80::250:56ff:feb2:3434 > 2001:db8:ffff:5:5::1: ICMP6, echo reply, id 18079, seq 1, length 16</pre>			
Information on this can be added to: https://docs.netgate.com/pfsense/en/latest/troubleshooting/connectivity.html			
Related discussion: https://bugs.freebsd.org/bugzilla/show_bug.cgi?id=263288 https://forum.netgate.com/topic/140950/ipv6-native-with-telstra-australia https://forum.netgate.com/topic/196962/gigaclear-ip6-lose-of-connectivity-after-exactly-5-minutes			

History

#1 - 04/21/2025 01:02 PM - Jim Pingle

- Assignee set to Jim Pingle

#2 - 04/21/2025 02:54 PM - Jim Pingle

- Status changed from New to Rejected

Looking at the Bugzilla entry I do not think we should document this. Certainly not in any primary troubleshooting documentation. Toggling that sysctl [exposes the firewall to CVE-2008-2476](#) and it is only safe to do if the link is properly isolated from any other potential sources of rogue ND messages.

Even with appropriate warnings I don't like the idea of suggesting something like this officially. I know people don't have a lot of choice in what their ISP does, but affected users can find that information in forum threads specific to their ISP if needed.

#3 - 04/24/2025 09:20 PM - Marcos M

For reference this behavior can be achieved with pfSense as the upstream router, e.g. if the address being pinged by the client is a VIP on the upstream pfSense device:

1	2025-04-22	21:51:22.826675	0.000000	2001:db8:aaac:0:250:56ff:feb2:3c91	2001:db8:aaaa::a	ICMPv
6	63	Echo (ping) request id=0x093e, seq=7098, hop limit=64 (no response found!)				
2	2025-04-22	21:51:23.346219	0.519544	2001:db8:aaac:0:250:56ff:feb2:3c91	2001:db8:aaaa::a	ICMPv
6	63	Echo (ping) request id=0x093e, seq=7099, hop limit=64 (no response found!)				
3	2025-04-22	21:51:23.346238	0.000019	2001:db8:aaaa::a	ff02::1:fffb2:3c91	ICMPv6 86 Neighb
or	Solicitation for 2001:db8:aaac:0:250:56ff:feb2:3c91 from 00:50:56:b2:71:1f					
4	2025-04-22	21:51:23.856758	0.510520	2001:db8:aaac:0:250:56ff:feb2:3c91	2001:db8:aaaa::a	ICMPv
6	63	Echo (ping) request id=0x093e, seq=7100, hop limit=64 (no response found!)				
5	2025-04-22	21:51:23.870134	0.013376	2001:db8:aaac:0:250:56ff:feb2:3c91	2001:db8:f:5:5::1	ICMP
v6	70	Echo (ping) request id=0xcdbe, seq=0, hop limit=64 (no response found!)				
6	2025-04-22	21:51:24.345543	0.475409	2001:db8:aaaa::a	ff02::1:fffb2:3c91	ICMPv6 86 Neighb
or	Solicitation for 2001:db8:aaac:0:250:56ff:feb2:3c91 from 00:50:56:b2:71:1f					
7	2025-04-22	21:51:24.366376	0.020833	2001:db8:aaac:0:250:56ff:feb2:3c91	2001:db8:aaaa::a	ICMPv
6	63	Echo (ping) request id=0x093e, seq=7101, hop limit=64 (no response found!)				
8	2025-04-22	21:51:24.886571	0.520195	2001:db8:aaac:0:250:56ff:feb2:3c91	2001:db8:aaaa::a	ICMPv
6	63	Echo (ping) request id=0x093e, seq=7102, hop limit=64 (no response found!)				
9	2025-04-22	21:51:24.886694	0.000123	2001:db8:aaac:0:250:56ff:feb2:3c91	2001:db8:f:5:5::1	ICMP
v6	70	Echo (ping) request id=0xcdbe, seq=1, hop limit=64 (no response found!)				
10	2025-04-22	21:51:25.345792	0.459098	2001:db8:aaaa::a	ff02::1:fffb2:3c91	ICMPv6 86 Neigh
bor	Solicitation for 2001:db8:aaac:0:250:56ff:feb2:3c91 from 00:50:56:b2:71:1f					
11	2025-04-22	21:51:25.396228	0.050436	2001:db8:aaac:0:250:56ff:feb2:3c91	2001:db8:aaaa::a	ICMP
v6	63	Echo (ping) request id=0x093e, seq=7103, hop limit=64 (no response found!)				
12	2025-04-22	21:51:25.899130	0.502902	2001:db8:aaac:0:250:56ff:feb2:3c91	2001:db8:f:5:5::1	ICM
Pv6	70	Echo (ping) request id=0xcdbe, seq=2, hop limit=64 (no response found!)				
13	2025-04-22	21:51:25.910089	0.010959	2001:db8:aaac:0:250:56ff:feb2:3c91	2001:db8:aaaa::a	ICMP
v6	63	Echo (ping) request id=0x093e, seq=7104, hop limit=64 (no response found!)				