



# DHCPv6 for RIOT @ IETF 101 hackathon

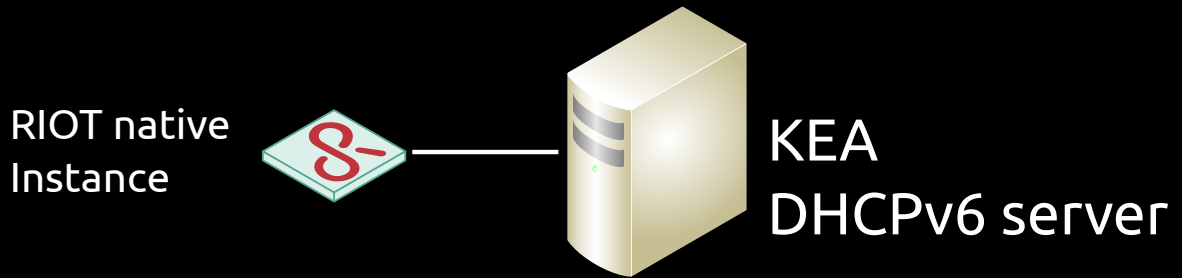
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# Goals

- Provide minimal implementation for prefix delegation for RIOT (IoT OS)
- Basis: [draft-ietf-dhc-rfc3315bis-12](#)
- Motivation:
  - prefix configuration on 6Lo border router (currently implemented as quick-fix hack "UHCP")
- Required client behavior for:
  - SOLICIT, ADVERTISE, REQUEST, REPLY, RENEW

# Set-up

Very simple set-up:



(RIOT native == Run RIOT as a Linux process)

# What did we manage to do?

- SOLICIT ✓, ADVERTISE ✓, REQUEST ✓ bis-12#section-11.4

Capturing from tapbr0

File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help

Apply a display filter ... <Ctrl-/> Expression... +

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	fe80::7cc3:b2ff:fe60:cfcf	ff02::1:2	DHCPv6	108	Solicit XID: 0xab9185 CID: 000300017ec3b26
2	0.001305	fe80::18fa:2bff:fe65:2c01	fe80::7cc3:b2ff:fe60:cfcf	DHCPv6	143	Advertise XID: 0xab9185 CID: 000300017ec3b26
3	0.064375	fe80::18fa:2bff:fe65:2c01	ff02::1:2	ICMPv6	150	Multicast Listener Report Message v2
4	0.994325	fe80::7cc3:b2ff:fe60:cfcf	ff02::1:2	DHCPv6	108	Solicit XID: 0xab9185 CID: 000300017ec3b26
5	0.995512	fe80::18fa:2bff:fe65:2c01	fe80::7cc3:b2ff:fe60:cfcf	DHCPv6	143	Advertise XID: 0xab9185 CID: 000300017ec3b26
6	0.996076	fe80::7cc3:b2ff:fe60:cfcf	ff02::1:2	DHCPv6	112	Request XID: 0xecc927 CID: 000300017ec3b26
7	0.996751	fe80::18fa:2bff:fe65:2c01	fe80::7cc3:b2ff:fe60:cfcf	DHCPv6	98	Reply XID: 0xecc927 CID: 000300017ec3b260c
8	1.068454	fe80::18fa:2bff:fe65:2c01	ff02::1:2	ICMPv6	150	Multicast Listener Report Message v2
9	1.964462	fe80::18fa:2bff:fe65:2c01	fe80::7cc3:b2ff:fe60:cfcf	ICMPv6	86	Neighbor Solicitation for fe80::7cc3:b2ff:fe60:cfcf
10	1.971977	fe80::7cc3:b2ff:fe60:cfcf	fe80::18fa:2bff:fe60:cfcf	ICMPv6	78	Neighbor Advertisement fe80::7cc3:b2ff:fe60:cfcf
11	10.197677	fe80::7cc3:b2ff:fe60:cfcf	fe80::18fa:2bff:fe60:cfcf	ICMPv6	86	Neighbor Solicitation for fe80::18fa:2bff:fe60:cfcf
12	10.197767	fe80::18fa:2bff:fe65:2c01	fe80::7cc3:b2ff:fe60:cfcf	ICMPv6	78	Neighbor Advertisement fe80::18fa:2bff:fe60:cfcf
13	10.900066	fe80::18fa:2bff:fe65:2c01	ff02::fb	MDNS	102	Standard query 0x0000 PTR _pgpkey-hkp._tcp

Frame 1: 108 bytes on wire (864 bits), 108 bytes captured (864 bits) on interface 0

- Ethernet II, Src: 7e:c3:b2:60:cf:cf (7e:c3:b2:60:cf:cf), Dst: IPv6mcast\_01:00:02 (33:33:00:01:00:02)
- Internet Protocol Version 6, Src: fe80::7cc3:b2ff:fe60:cfcf, Dst: ff02::1:2
- User Datagram Protocol, Src Port: 546, Dst Port: 547
- DHCPv6

0000 33 33 00 01 00 02 7e c3 b2 60 cf cf 86 dd 60 00 33...~. ....

0010 00 00 00 36 11 40 fe 80 00 00 00 00 00 7c c3 ...6@. ....

0020 b2 ff fe 60 cf cf ff 02 00 00 00 00 00 00 00 ... ..

0030 00 00 00 01 00 02 02 02 23 00 36 6a e7 01 ab ...". #.6j..

Frame (frame), 108 bytes

Packets: 13 · Displayed: 13 (100.0%) Profile: Default

# Lessons learned

- Don't get lost in details
- When in doubt: ask the draft's authors ;- ) (thanks Tomek for all the help)

# Further steps

- Clean-up implementation
- Finish implementation of prefix delegation
- Provide support for further DHCPv6 features
- Current code already PR'd to RIOT:  
<https://github.com/RIOT-OS/RIOT/pull/8796/>