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# IPv6 Auto-configuration

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Understanding IPv6 RA & RADVD

# RA on a router (Foundry)

- RA is part of the Neighbor Discovery Protocol
- RA enabled on an interface by default
- You can specify custom options or even suppress RA

```
foundry-router(config-if-e1000-5/20)#ipv6 nd ?
dad                Set DAD parameter
managed-config-flag Set managed-config-flag
ns-interval        Set ns-interval & RA retrans timer in secs
other-config-flag  Set other-config-flag
prefix-advertisement Configure IPv6 Routing Prefix Advertisement
ra-hop-limit       Set RA advertised Cur Hop Limit
ra-interval        Set ra-interval
ra-lifetime        Set ra-lifetime
reachable-time     Set reachable-time
suppress-mtu-option Set to suppress MTU option in Rtr advertisement.
suppress-ra        Set suppress-ra
```



# RA on a router (cont.)

- Can specify a prefix for use with RA on an interface with more than one IPv6 assignment

```
foundry-router(config-if-e1000-5/20)#ipv6 nd prefix-advertisement 2001:DB8:0:3::/64 ?  
  DECIMAL    Valid Lifetime, <0-4294967295> secs  
foundry-router(config-if-e1000-5/20)#ipv6 nd prefix-advertisement 2001:DB8:0:3::/64 0 ?  
  DECIMAL    Preferred Lifetime, <0-4294967295> secs  
foundry-router(config-if-e1000-5/20)#ipv6 nd prefix-advertisement 2001:DB8:0:3::/64 0 0 ?  
  autoconfig autoconfig  
  onlink      onlink  
<cr>
```



# RA on a router (cont.)

- What an interface can look like with multiple assignments and 1 for RA

```
foundry-router#sh run int e5/20
interface ethernet 5/20
  port-name Demonstration Port
  enable
  ipv6 address 2001:DB8:0:1::1/64
  ipv6 address 2001:DB8:0:2::1/64
  ipv6 address 2001:DB8:0:3::1/64
  ipv6 address 2001:DB8:0:4::1/64
  ipv6 enable
  ipv6 nd prefix-advertisement 2001:DB8:0:3::/64 0 0
!
```



# RADVD and Linux

- 1<sup>st</sup> usable IPv6 address configured on LAN facing interface

```
root@linux:~# ifconfig eth1
eth1      Link encap:Ethernet  HWaddr 00:1a:70:15:99:79
          UP BROADCAST MULTICAST  MTU:1500  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)
          Interrupt:19 Base address:0x2c00
```

```
root@linux:~# ip addr add 2001:db8:0:1::1/64 dev eth1
root@linux:~# ifconfig eth1
eth1      Link encap:Ethernet  HWaddr 00:1a:70:15:99:79
          inet6 addr: 2001:db8:0:1::1/64 Scope:Global
          UP BROADCAST MULTICAST  MTU:1500  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)
          Interrupt:19 Base address:0x2c00
```



# RADVD and Linux (cont.)

- RADVD installed
- Configured for LAN facing NIC

```
interface eth1
{
    AdvSendAdvert on;
    AdvHomeAgentFlag off;
    MinRtrAdvInterval 30;
    MaxRtrAdvInterval 100;
    prefix 2001:DB8:0:1::/64
    {
        AdvOnLink on;
        AdvAutonomous on;
        AdvRouterAddr on;
    };
};
```



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# RADVD and Linux (cont.)

- SYSCTL configured to forward IPv6 packets

```
net.ipv6.conf.all.forwarding=1
```

- Can start RADVD after completing all steps



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