

RPSLng

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2002/01/15

IPv6 and multicast routing policies using RPSL

- Currently
 - RPSL does not define IPv6 nor multicast routing policies (RFC2622)
- Ongoing work:
 - RPSLng task force (started at RIPE40)
 - Document IPv6 and multicast usage in current RPSL classes
 - Define new classes/attributes/syntax where required

Current proposal

- draft-parent-multiprotocol-rpsl-00.txt
- Based on initial draft *draft-parent-rpsl-ipv6-00.txt* and discussions/contributions on mailing list and at IETF52
 - Cengiz Alaettinoglu, Larry Blunk, Marc Blanchet, David Kessens, Bart Peirens, Mark Prior.
- Minimize number of new classes and attributes
- Changes should be generic
 - not limited to adding IPv6/multicast

New address family in RPSL

- Identifying the type of address inside an attribute
- Where ?
 - import, export, route, members, peering, ifaddr, peer, etc.
- How ?
 - introduce new syntax to specify address family in current attributes:

```
[afi <address-family>] <address-prefix>  
<address-family> = enum[ipv4, ipv6, ipv4-multicast,  
                        ipv6-multicast]
```

- Optional attribute. Default is ipv4-unicast (keeps backward compatibility)

route and route-set

```
route: [afi <address-family>] <address-prefix>
```

```
route: 10.0.0.0/8    ==  route: afi ipv4 10.0.0.0/6  
origin: AS1          origin: AS1
```

```
route: afi ipv6 3ffe:ffff::/28  
origin: AS1
```

```
route-set: RS-peer1  
members: [afi <address-family>] <address-prefix>
```

```
route-set: ipv6-martians  
members: afi ipv6 ff00::/8  
members: afi ipv6 fe80::/10  
members: afi ipv6 fec0::/10  
members: afi ipv6 ::/96
```

peering-set

```
peering: <as-expression>  
        [<[afi <address-family>] router-expression-1>]  
        [at <[afi <address-family>] router-expression-2>]
```

Example:

```
peering-set: AS1-v6  
peering: AS1 afi ipv6 3ffe:ffff::1 at afi ipv6 3ffe:ffff::2
```

- **[afi <address-family>]** specifies the IP protocol used for the actual peering. Acceptable values would be **ipv4** or **ipv6**

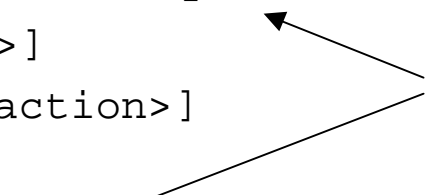
aut-num

- Extend the « protocol » specification in the import and export attributes
 - Allow other than IPv4 unicast
 - Extend RPSL dictionary to define new « afi » and « safi » protocol attribute
 - Similar to RFC2858 « Multiprotocol Extensions for BGP-4 »

Examples: import

```
import: [protocol <protocol> [afi(address-family)
                                safi(subsequent-address-family)]]
        [into protocol <protocol>]
        from <peering> [action <action>]
        accept <filter>
```

New protocol option
IPv6 peering



```
import: protocol BGP afi(ipv6), safi(unicast)
        from AS1 afi ipv6 3ffe:ffff::1 at afi ipv6 3ffe:ffff::2
        accept AS1:RS-PROVIDER
```

OR

```
import: protocol BGP afi(ipv6)
        from AS1-v6
        accept AS1:RS-PROVIDER
```

Impact and transition

- Current RPSL database remains intact
- New server will be required
 - New server = current database + multiprotocol changes
- Clients accessing new server will need to support these changes
- Need to extend current tools (IRRtoolset)

Next step

- Discussion on mailing-list
- Port IRRtoolset to support the new extensions
 - Important component for an IPv6 route server
- Move document forward at IETF

- mailing list: `rpslng@ripe.net`
- subscribe at: `rpslng-request@ripe.net`
- <http://www.normos.org/ietf/draft/draft-parent-multiprotocol-rpsl-00.txt>