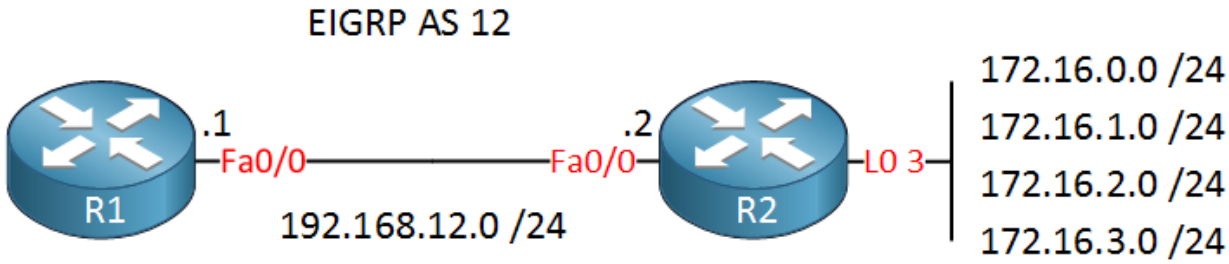
How to Filter Prefixes with Distribute-list

Prefixes that are advertised by routing protocols like OSPF, EIGRP or RIP can be filtered. One way of doing this is by using a distribute-list. In this lesson I'll give you an example of how to filter certain prefixes with a distribute-list.

Filtering can occur **inbound** or **outbound**. If you have an inbound route filter we will first check if the network is permitted or not before we will accept it. Let's take a look at a network topology so I can give you a demonstration:



R1 and R2 are connected to each other and running EIGRP. On R2 I have added a couple of loopback interfaces with prefixes that we will advertise in EIGRP. Here is the configuration:

```
R1(config)#router eigrp 12

R1(config-router)#no auto-summary

R1(config-router)#network 192.168.12.0

R2(config)#router eigrp 12

R2(config-router)#no auto-summary

R2(config-router)#network 192.168.12.0

R2(config-router)#network 172.16.0.0 0.0.3.255
```

Above you can see that we advertise all prefixes in EIGRP.

```
R1#show ip route eigrp
```

```
     172.16.0.0/24 is subnetted, 4 subnets

D       172.16.0.0 [90/156160] via 192.168.12.2, 00:01:07, FastEthernet0/0

D       172.16.1.0 [90/156160] via 192.168.12.2, 00:01:07, FastEthernet0/0

D       172.16.2.0 [90/156160] via 192.168.12.2, 00:01:07, FastEthernet0/0

D       172.16.3.0 [90/156160] via 192.168.12.2, 00:01:07, FastEthernet0/0
```

If we look at the routing table of router R1 we can see all those networks on the loopback interfaces as it should be. Now we'll see if we can do some filtering.

```
R1(config)#router eigrp 12

R1(config-router)#distribute-list ?

  <1-199>      IP access list number

  <1300-2699>  IP expanded access list number

  WORD         Access-list name

  gateway      Filtering incoming updates based on gateway

  prefix       Filter prefixes in routing updates

  route-map    Filter prefixes based on the route-map
```

Go to the configuration of the EIGRP process and use the **distribute-list** command to see your options. As you can see we can choose between an **access-list, a prefix-list or a route-map.** Let's start with the access-list. You are probably familiar with the concept of access-lists if you studied CCNA.

```
R1(config-router)#distribute-list 1 ?

  in   Filter incoming routing updates

  out  Filter outgoing routing updates
```

If you specify an access-list number you can choose if this route filter has to be **inbound** or **outbound**.

```
R1(config-router)#distribute-list 1 in ?

  Async              Async interface

  BVI                Bridge-Group Virtual Interface

  CDMA-Ix            CDMA Ix interface

  CTunnel            CTunnel interface

  Dialer             Dialer interface

  FastEthernet       FastEthernet IEEE 802.3

  Lex                Lex interface

  Loopback           Loopback interface

  MFR                Multilink Frame Relay bundle interface

  Multilink          Multilink-group interface

  Null               Null interface

  Port-channel       Ethernet Channel of interfaces

  Tunnel             Tunnel interface

  Vif                PGM Multicast Host interface

  Virtual-PPP        Virtual PPP interface

  Virtual-Template   Virtual Template interface

  Virtual-TokenRing  Virtual TokenRing

  <cr>
```

If you want you can choose the interface where to apply the inbound route filter to. If you don’t specify an interface it will apply to all interfaces.