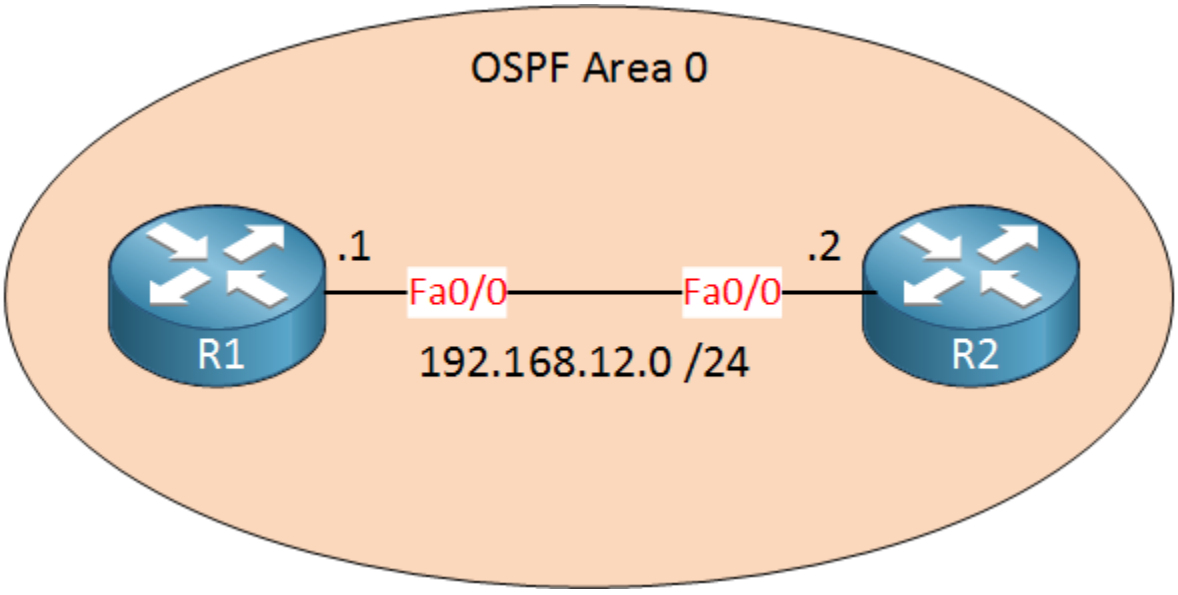
How to Configure OSPF MD5 Authentication

In a previous lesson I demonstrated how to configure plain text authentication for OSPF. This time we'll look at MD5 authentication. The idea is the same but some of the commands are different. Anyway here is the topology that we will use



Just two routers in the same area, nothing special. Here is the configuration to enable MD5 authentication:

```
R1(config)#interface fastEthernet 0/0

R1(config-if)#ip ospf message-digest-key 1 md5 MYPASS

R1(config-if)#ip ospf authentication message-digest

R2(config)#interface fastEthernet 0/0

R2(config-if)#ip ospf message-digest-key 1 md5 MYPASS

R2(config-if)#ip ospf authentication message-digest
```

For MD5 authentication you need different commands. First use **ip ospf message-digest-key X md5** to specify the key number and a password. It doesn't matter which key number you choose but it has to be the same on both ends. To enable OSPF authentication you need to type in **ip ospf authentication message-digest.**

It is also possible to enable authentication for the entire area, this way you don't have to use the ip ospf **authentication message-digest** command on all of your interfaces to activate it. Here's the command to enable MD5 authentication for the entire area:

```
R1(config)#router ospf 1

R1(config-router)#area 0 authentication message-digest
```

That's all we have to do. Let's verify our work…

Verification

```
R1#show ip ospf interface fastEthernet 0/0

FastEthernet0/0 is up, line protocol is up

  Internet Address 192.168.12.1/24, Area 0

  Process ID 1, Router ID 192.168.12.1, Network Type BROADCAST, Cost: 1

  Transmit Delay is 1 sec, State BDR, Priority 1

  Designated Router (ID) 192.168.12.2, Interface address 192.168.12.2

  Backup Designated router (ID) 192.168.12.1, Interface address 192.168.12.1

  Flush timer for old DR LSA due in 00:01:53

  Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5

    oob-resync timeout 40

    Hello due in 00:00:05

  Supports Link-local Signaling (LLS)

  Index 1/1, flood queue length 0
```

```
  Next 0x0(0)/0x0(0)

  Last flood scan length is 1, maximum is 1

  Last flood scan time is 0 msec, maximum is 0 msec

  Neighbor Count is 1, Adjacent neighbor count is 1

    Adjacent with neighbor 192.168.12.2  (Designated Router)

  Suppress hello for 0 neighbor(s)

  Message digest authentication enabled

    Youngest key id is 1
```

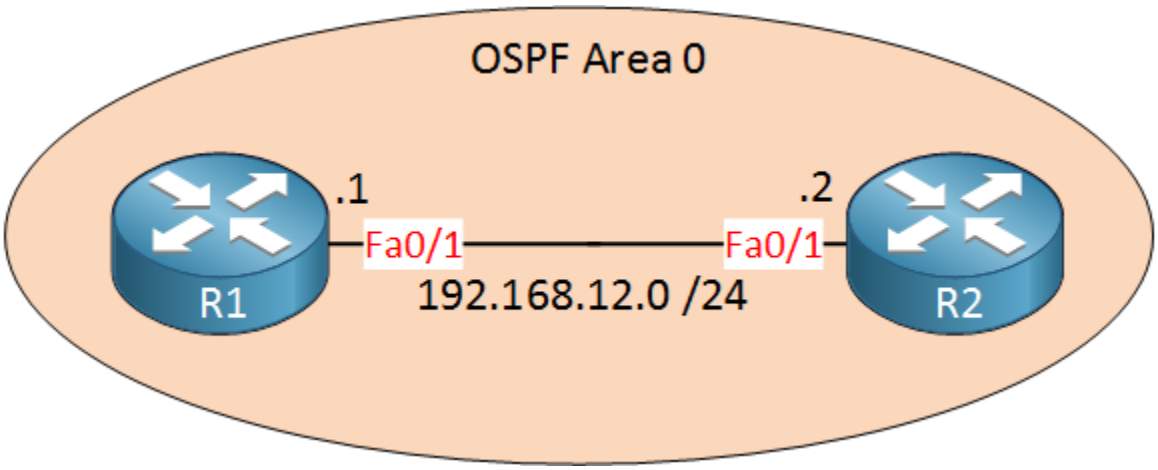
Using **show ip ospf interface** we see MD5 authentication is enabled and we are using key ID 1. We have a neighbor so it seems to be working.

```
R1#debug ip ospf packet

OSPF packet debugging is on



OSPF: rcv. v:2 t:1 l:48 rid:192.168.12.2

      aid:0.0.0.0 chk:0 aut:2 keyid:1 seq:0x3C7EC653 from FastEthernet0/0
```

Debug shows us that MD5 authentication is enabled (aut:2) and we are using key ID 1. Debug is also great to fix authentication errors, here's why

How to configure OSPF Default Route

With OSPF it is no problem to configure a default route. There are a couple of options if you want to do this. Here's an example:




```
R1(config)#router ospf 1

R1(config-router)#default-information originate ?

  always       Always advertise default route

  metric       OSPF default metric

  metric-type  OSPF metric type for default routes

  route-map    Route-map reference

  <cr>
```

There are a number of things. We can change the metric or metric type but the most important thing most people forget is the **always** keyword.

If you use the **default-information originate** you can advertise a default route in OSPF. OSPF won't advertise a default route if you don't already **have it in your routing table**. If you add the **always** keyword it will advertise the default route even if you don't have it in the routing table. Once you have advertised the default route it will look like this on other routers:

```
R2#show ip ospf database | begin Type-5

                Type-5 AS External Link States
```

```
Link ID         ADV Router      Age         Seq#       Checksum Tag

0.0.0.0         172.16.3.1      59          0x80000001 0x008D64 1

R2#show ip route ospf

O*E2 0.0.0.0/0 [110/1] via 192.168.12.1, 00:00:24, FastEthernet0/0
```