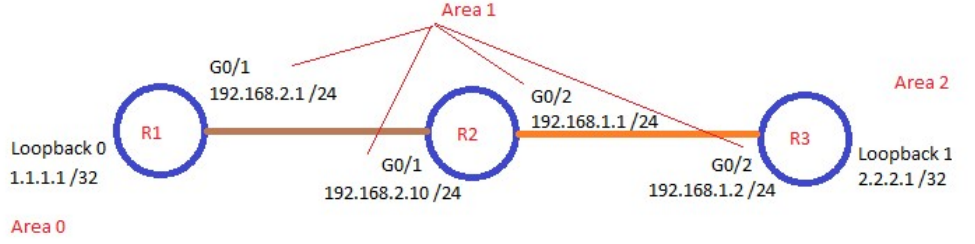


OSPF Authentication

Purpose	For access installed Router via Telnet
Test setup	 <p>The diagram illustrates a network topology with three routers: R1, R2, and R3. R1 is on the left, R2 is in the middle, and R3 is on the right. R1 is connected to R2 via interface G0/1 with IP 192.168.2.1/24. R2 is connected to R3 via interface G0/2 with IP 192.168.1.1/24. R1 has a loopback interface Loopback 0 with IP 1.1.1.1/32. R3 has a loopback interface Loopback 1 with IP 2.2.2.1/32. The network is divided into three areas: Area 0 (containing R1), Area 1 (containing R2), and Area 2 (containing R3). The connections between R1 and R2, and between R2 and R3, are highlighted in orange.</p>
Test configuration	<p>Router1 Config interface GigaEthernet0/1 ip address 192.168.2.1 255.255.255.0 ip ospf network authentication message-digest ip ospf message-digest-key 1 md5 0 test</p> <p>Router2 Config Interface GigaEthernet0/1 Ip address 192.168.2.10 255.255.255.0 ip ospf network authentication message-digest ip ospf message-digest-key 1 md5 0 test</p>
Procedure	First, enabled authentication only on router 1, to verify neighborhood does not work. Once confirmed, configure authentication on Router2. Then verify neighborhood is up. Also, Authentication status is shown.
Test result	Router 1 – Enabled Authentication message digest, verify with command “ show ip ospf interface ”

```

Router_1_10#sh ip ospf interface
Loopback0 is up, line protocol is up
  Internet Address: 1.1.1.1/32
  Interface index: 8, 0xlc73db14
  Nettype: Broadcast
  OSPF process is 1, AREA: 0, Router ID: 1.1.1.1
  Cost: 1, Priority 1, Transmit Delay is 1 sec
  Hello interval is 10, Dead timer is 40, Retransmit is 5
  OSPF INTF State is ILOOPBACK
  Neighbor Count is 0, Adjacent neighbor count is 0
  Null authentication enabled

GigaEthernet0/1 is up, line protocol is UP
  Internet Address: 192.168.2.1/24
  Interface index: 3, 0xlc7fe3a0
  Nettype: Broadcast
  OSPF process is 1, AREA: 1, Router ID: 1.1.1.1
  Cost: 1, Priority 1, Transmit Delay is 1 sec
  Hello interval is 10, Dead timer is 40, Retransmit is 5
  OSPF INTF State is IDr
  Designated Router ID: 1.1.1.1, Interface address 192.168.2.1
  Neighbor Count is 0, Adjacent neighbor count is 0
  Message digest authentication enabled
  Youngest key id is 1
  Rollover in progress

Router_1_10#

```

Verify Router 2 “ show ip ospf interface “

```

Router_2_20#sh ip ospf interface
GigaEthernet0/2 is up, line protocol is UP
  Internet Address: 192.168.1.1/24
  Interface index: 4, 0xlc7f72d4
  Nettype: Broadcast
  OSPF process is 1, AREA: 1, Router ID: 192.168.2.10
  Cost: 1, Priority 1, Transmit Delay is 1 sec
  Hello interval is 10, Dead timer is 40, Retransmit is 5
  OSPF INTF State is IBACKUP
  Designated Router ID: 2.2.2.1, Interface address 192.168.1.2
  Backup Designated Router ID: 192.168.2.10, Interface address 192.168.1.1
  Neighbor Count is 1, Adjacent neighbor count is 1
  Adjacent with neighbor 2.2.2.1 (Designated Router)
  Null authentication enabled

GigaEthernet0/1 is up, line protocol is UP
  Internet Address: 192.168.2.10/24
  Interface index: 3, 0xlc781cec
  Nettype: Broadcast
  OSPF process is 1, AREA: 1, Router ID: 192.168.2.10
  Cost: 1, Priority 1, Transmit Delay is 1 sec
  Hello interval is 10, Dead timer is 40, Retransmit is 5
  OSPF INTF State is IDr
  Designated Router ID: 192.168.2.10, Interface address 192.168.2.10
  Neighbor Count is 0, Adjacent neighbor count is 0
  Null authentication enabled

Router_2_20#

```

Configure Authentication message digest on Router 2

```
Router_2_20#sh run | begi GigaEthernet0/1
Building configuration...

Current configuration:
!
interface GigaEthernet0/1
 ip address 192.168.2.10 255.255.255.0
 no ip directed-broadcast
 ipv6 enable
 ipv6 address autoconfig
 ipv6 dhcp client na
 ip ospf authentication message-digest
 ip ospf message-digest-key 1 md5 0 test
 ip http firewalltype 0
!
```

Verify both routers are now adjacent neighbor “ **show ip ospf interface** “

```
Router_1_10#sh ip ospf interface
Loopback0 is up, line protocol is up
 Internet Address: 1.1.1.1/32
 Interface index: 8, 0xlc73db14
 Nettype: Broadcast
 OSPF process is 1, AREA: 0, Router ID: 1.1.1.1
 Cost: 1, Priority 1, Transmit Delay is 1 sec
 Hello interval is 10, Dead timer is 40, Retransmit is 5
 OSPF INTF State is ILOOPBACK
 Neighbor Count is 0, Adjacent neighbor count is 0
 Null authentication enabled

GigaEthernet0/1 is up, line protocol is UP
 Internet Address: 192.168.2.1/24
 Interface index: 3, 0xlc7fe3a0
 Nettype: Broadcast
 OSPF process is 1, AREA: 1, Router ID: 1.1.1.1
 Cost: 1, Priority 1, Transmit Delay is 1 sec
 Hello interval is 10, Dead timer is 40, Retransmit is 5
 OSPF INTF State is IBACKUP
 Designated Router ID: 192.168.2.10, Interface address 192.168.2.10
 Backup Designated Router ID: 1.1.1.1, Interface address 192.168.2.1
 Neighbor Count is 1, Adjacent neighbor count is 1
   Adjacent with neighbor 192.168.2.10 (Designated Router)
 Message digest authentication enabled
 Youngest key id is 1
```

	<pre> Router_2_20#sh ip ospf interface GigaEthernet0/2 is up, line protocol is UP Internet Address: 192.168.1.1/24 Interface index: 4, 0xlc7f72d4 Nettype: Broadcast OSPF process is 1, AREA: 1, Router ID: 192.168.2.10 Cost: 1, Priority 1, Transmit Delay is 1 sec Hello interval is 10, Dead timer is 40, Retransmit is 5 OSPF INTF State is IBACKUP Designated Router ID: 2.2.2.1, Interface address 192.168.1.2 Backup Designated Router ID: 192.168.2.10, Interface address 192.168.1.1 Neighbor Count is 1, Adjacent neighbor count is 1 Adjacent with neighbor 2.2.2.1 (Designated Router) Null authentication enabled GigaEthernet0/1 is up, line protocol is UP Internet Address: 192.168.2.10/24 Interface index: 3, 0xlc781cec Nettype: Broadcast OSPF process is 1, AREA: 1, Router ID: 192.168.2.10 Cost: 1, Priority 1, Transmit Delay is 1 sec Hello interval is 10, Dead timer is 40, Retransmit is 5 OSPF INTF State is IDr Designated Router ID: 192.168.2.10, Interface address 192.168.2.10 Backup Designated Router ID: 1.1.1.1, Interface address 192.168.2.1 Neighbor Count is 1, Adjacent neighbor count is 1 Adjacent with neighbor 1.1.1.1 (Backup Designated Router) Message digest authentication enabled Youngest key id is 1 </pre>
Status	If Authentication configured on both routers correctly, neighborhood comes up. If any of the router is missing configuration neighborhood will not come up.