OSPF Authentication

Purpose	For access installed Router via Telnet
Test setup	Area 1 G0/1 192.168.2.1/24 Coopback 0 1.1.1.1/32 G0/2 192.168.2.10/24 G0/2 192.168.1.1/24 G0/2 192.168.1.1/24 G0/2 192.168.1.2/24 Coopback 1 2.2.2.1/32 Area 2 Coopback 1 2.2.2.1/32 Coopback 1 Coopback 1
Test configuration	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 Router2 Config Interface GigaEthernet0/1 Ip address 192.168.2.10 255.255.255.0 ip ospf network authentication message-digest ip ospf network lip address 192.168.2.10 255.255.255.0 ip ospf network authentication message-digest ip ospf message-digest-key 1 md5 0 test
Procedure	First, enabled authentication only on router 1, to verify neighborship does not work. Once confirmed, configure authentication on Router2. Then verify neighborship is up. Also, Authentication status is shown.
Test result	Router 1 – Enabled Authentication message digest, verify with command " show ip ospf interface "

Deuton 1 10tab in caref 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, 0x1c73db14
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, 0x1c7fe3a0
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 "
Verify <u>Router 2</u> " show ip ospf interface "
Verify <u>Router 2</u> " show ip ospf interface " Router 2 20‡sh 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
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
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
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, 0x1c7f72d4 Nettype: Broadcast OSPF process is 1, AREA: 1, Router ID: 192.168.2.10
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, 0x1c7f72d4 Nettype: Broadcast OSPF process is 1, AREA: 1, Router ID: 192.168.2.10 Cost: 1, Priority 1, Transmit Delay is 1 sec
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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, 0x1c7f72d4 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
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<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, 0x1c7f72d4 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</pre> GigaEthernet0/1 is up, line protocol is UP Interface index: 3, 0x1c781cec 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 Null authentication enabled
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```
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, 0xlc73dbl4
 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>GigaEthernet0/2 is up, line protocol is UP Internet Address: 192.168.1.1/24 Interface index: 4, 0xlo7f72d4 Nettype: Broadcast OSFF 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 OSFF INTF State is IBACKUP Designated Router ID: 192.168.2.10, 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 Interface index: 3, 0xlc78lcec Nettype: Broadcast OSFF 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 OSFF INTF State is IDr Designated Router ID: 192.168.2.10, Interface address 192.168.2.10 Eackup Designated Router ID: 192.168.2.10, Interface address 192.168.2.10 Backup Designated Router ID: 1.1.1.1, Interface address 192.168.2.10 Backup Designated Router ID: 1.1.1.1 (Backup Designated Router) Message digest authentication enabled Youngest key id is 1</pre>		Router 2 20#sh ip ospf interface
<pre>Interface index: 4, 0x1c7f72d4 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: 12.2.2.1, 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 Interface index: 3, 0x1c781cec 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 IDP Designated Router ID: 192.168.2.10, Interface address 192.168.2.10 Rost: 1, Priority 1, Transmit Delay is 1 sec Hello interval is 10, Dead timer is 40, Retransmit is 5 OSPF INTF State is IDP Designated Router ID: 1.1.1.1, Interface address 192.168.2.10 Rostup Designated Router ID: 1.1.1.1, Interface address 192.168.2.10 Neighbor Count is 1, Adjacent neighbor count is 1 Adjacent with neighbor 1.1.1.1 (Backup Designated Router) Message digest authentication enabled Support Router ID: 1.1.1.1 (Stackup Designated Router) Message digest authentication enabled Support Router ID: 1.1.1.1 (Stackup Designated Router) Message digest authentication enabled Support Router ID: 1.1.1.1 (Stackup Designated Router) Message digest authentication enabled Support Router ID: 1.1.1.1 (Stackup Designated Router)</pre>		GigaEthernet0/2 is up, line protocol is UP
<pre>Nettype: Broadcast OSFF 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, Oxlc78leec Nettype: Broadcast OSFF 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 OSFF INTF State is IDr Designated Router ID: 192.168.2.10 Backup Designated Router ID: 1.1.1.1, Interface address 192.168.2.10 Backup Designated Router ID: 1.1.1.1, Interface address 192.168.2.10 Neighbor Count is 1, Adjacent neighbor count is 1 Adjacent with neighbor 1.1.1.1 (Backup Designated Router) Message digest authentication enabled F Authonication configured on both router correctly polyhorphic comes up for up for the router.</pre>		Internet Address: 192.168.1.1/24
<pre>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 Interface index: 3, 0x1c781cc 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 192.168.2.10 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>		Interface index: 4, 0x1c7f72d4
<pre>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, Oxlc78lcec 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, Interface address 192.168.2.10 Neighbor Count is 1, Adjacent neighbor count is 1 Adjacent with neighbor 1.1.1.1 (Backup Designated Router) Message digest authentication enabled</pre>		Nettype: Broadcast
<pre>Hello interval is 10, Dead timer is 40, Retransmit is 5 OSFF 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, 0x1c781cec 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: 11.1.1, 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>		OSPF process is 1, AREA: 1, Router ID: 192.168.2.10
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<pre>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, 0xlc78lcec 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 192.168.2.10 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>		Hello interval is 10, Dead timer is 40, Retransmit is 5
<pre>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, 0x1c781cc 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 192.168.2.11 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>		OSPF INTF State is IBACKUP
<pre>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, 0x1c781cc 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>		Designated Router ID: 2.2.2.1, Interface address 192.168.1.2
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, 0x1c781cec 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 192.168.2.10 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		Backup Designated Router ID: 192.168.2.10, Interface address 192.168.1.1
<pre>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>		Neighbor Count is 1, Adjacent neighbor count is 1
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Internet Address: 192.168.2.10/24 Interface index: 3, 0x1c781cec 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		
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Status	Status	If Authentication configured on both routers correctly, neighborship comes up. If any of the router
is missing configuration neighborship will not come up.		is missing configuration neighborship will not come up.