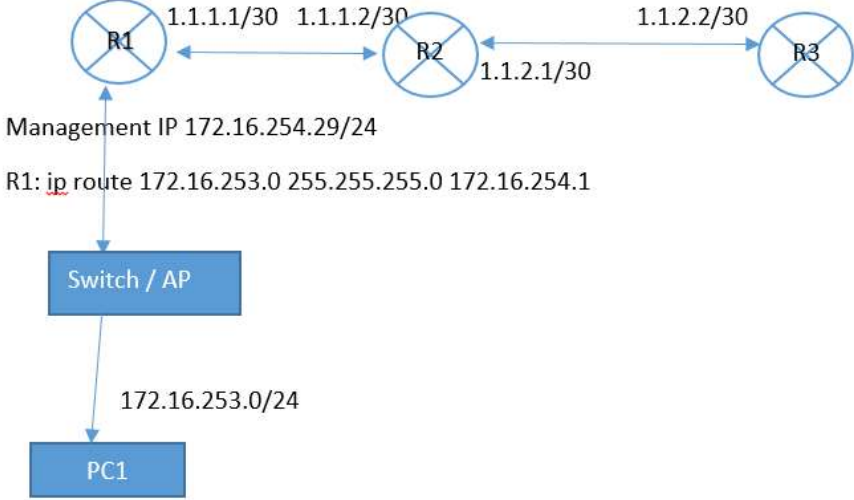


## OSPF Basic

<b>Purpose</b>	<b>Test OSPF test with area 0</b>
<b>Test setup</b>	 <p>Management IP 172.16.254.29/24</p> <p>R1: ip route 172.16.253.0 255.255.255.0 172.16.254.1</p>
<b>Test configuration</b>	<pre> ===== PuTTY log 2020.01.13 15:38:28 ===== Router_1# Router_1# Router_1# Router_1#sh ip int br Interface      IP-Address    Method Protocol-Status Null0          unassigned    manual up GigEthernet0/0 172.16.254.29 manual up GigEthernet0/1 1.1.1.1       manual up GigEthernet0/2 unassigned    manual down GigEthernet0/3 unassigned    manual down GigEthernet0/4 unassigned    manual down GigEthernet0/5 unassigned    manual down Async0/6       unassigned    manual down Router_1# Router_1#sh rin un Building configuration...  Current configuration: ! hostname Router_1 ! ! syslog buffer 64 level DEBUG class ALL ! ! </pre>

```
!  
isdn switch-type basic-5ess  
!  
!  
!  
!  
aaa authentication login default local  
aaa authentication enable default none  
aaa authentication ppp default local  
aaa authorization exec default local  
!  
username admin password 0 admin  
!  
!  
!  
crypto key load-keyconf end  
!  
!  
interface GigaEthernet0/0  
ip address 172.16.254.29 255.255.255.0  
no ip directed-broadcast  
ip http firewalltype 0  
!  
interface GigaEthernet0/1  
ip address 1.1.1.1 255.255.255.252  
no ip directed-broadcast  
ip http firewalltype 0  
!  
interface GigaEthernet0/2  
no ip address  
no ip directed-broadcast  
ip http firewalltype 0  
!  
interface GigaEthernet0/3  
no ip address  
no ip directed-broadcast  
ip http firewalltype 0  
!  
interface GigaEthernet0/4  
no ip address  
no ip directed-broadcast  
ip http firewalltype 0  
!  
interface GigaEthernet0/5  
no ip address  
no ip directed-broadcast  
ip http firewalltype 0  
!  
interface Async0/6  
no ip address  
no ip directed-broadcast  
!
```

```

!
--More--      !
!
ip sshd enable
ip sshd disable-weak
no ip sshd disable-aes
ip sshd version 2
!
!
!
router ospf 65000
network 172.16.254.0 255.255.255.0 area 0
network 1.1.1.0 255.255.255.0 area 0
redistribute static
redistribute connect

!
!
!
no ip route cache
ip route 172.16.253.0 255.255.255.0 172.16.254.1
!

!
!
Router_1#
Router_1#
Router_1#sh ip route
Codes: C - connected, S - static, R - RIP, B - BGP, BC - BGP connected
       D - BEIGRP, DEX - external BEIGRP, O - OSPF, OIA - OSPF inter area
       ON1 - OSPF NSSA external type 1, ON2 - OSPF NSSA external type 2
       OE1 - OSPF external type 1, OE2 - OSPF external type 2, L - Local
       DHCP - DHCP type, L1 - IS-IS level-1, L2 - IS-IS level-2
       IA - ISIS inter-level, I - IPSEC type

VRF ID: 0

C   1.1.1.0/30      is directly connected, GigaEthernet0/1
O   1.1.2.0/30      [110,2] via 1.1.1.2(on GigaEthernet0/1)
S   172.16.253.0/24 [1,0] via 172.16.254.1(on GigaEthernet0/0)
C   172.16.254.0/24 is directly connected, GigaEthernet0/0
O E2 194.16.80.0/24 [150,100] via 1.1.1.2(on GigaEthernet0/1)
O E2 194.16.81.0/24 [150,100] via 1.1.1.2(on GigaEthernet0/1)
O E2 194.16.82.0/24 [150,100] via 1.1.1.2(on GigaEthernet0/1)
O E2 194.16.83.0/24 [150,100] via 1.1.1.2(on GigaEthernet0/1)
O E2 194.16.85.0/24 [150,100] via 1.1.1.2(on GigaEthernet0/1)
O E2 194.16.86.0/24 [150,100] via 1.1.1.2(on GigaEthernet0/1)
O E2 194.16.87.0/24 [150,100] via 1.1.1.2(on GigaEthernet0/1)
Router_1#
Router_1#sh ip route ospf
VRF ID: 0

```

```
O 1.1.2.0/30 [110,2] via 1.1.1.2(on GigaEthernet0/1)
O E2 194.16.80.0/24 [150,100] via 1.1.1.2(on GigaEthernet0/1)
O E2 194.16.81.0/24 [150,100] via 1.1.1.2(on GigaEthernet0/1)
O E2 194.16.82.0/24 [150,100] via 1.1.1.2(on GigaEthernet0/1)
O E2 194.16.83.0/24 [150,100] via 1.1.1.2(on GigaEthernet0/1)
O E2 194.16.85.0/24 [150,100] via 1.1.1.2(on GigaEthernet0/1)
O E2 194.16.86.0/24 [150,100] via 1.1.1.2(on GigaEthernet0/1)
O E2 194.16.87.0/24 [150,100] via 1.1.1.2(on GigaEthernet0/1)
```

Router\_1#

Router\_1#

Router\_1#

Router\_1#

Router\_1#

Router\_1#

Router\_1#telnet 1.1.1.2

Connecting to remote host...

Press 'q' or 'Q' to quit connection.

User Access Verification

Username: admin

Password:

Welcome to Techroutes Multi-Protocol TSR 2800-62 Series

Router\_2>

ena

Router\_2#

Router\_2#

Router\_2#

Router\_2#sh ip int br

Interface	IP-Address	Method	Protocol-Status
Null0	unassigned	manual	up
GigaEthernet0/0	1.1.2.1	manual	up
GigaEthernet0/1	1.1.1.2	manual	up
GigaEthernet0/2	unassigned	manual	down
Async0/4	unassigned	manual	down

Router\_2#

Router\_2#

Router\_2#sh run

Building configuration...

Current configuration:

```
!  
hostname Router_2  
!  
syslog buffer 64 level DEBUG class ALL  
!  
isdn switch-type basic-5ess  
aaa authentication login default local  
aaa authentication enable default none  
aaa authentication ppp default local
```

```
aaa authorization exec default local
!
username admin password 0 admin
!
!
!
crypto key load-keyconf end
!
!
interface GigaEthernet0/0
ip address 1.1.2.1 255.255.255.252
no ip directed-broadcast
ip http firewalltype 0
!
interface GigaEthernet0/1
ip address 1.1.1.2 255.255.255.252
no ip directed-broadcast
ip http firewalltype 0
!
interface GigaEthernet0/2
no ip address
--More-- no ip directed-broadcast
ip http firewalltype 0
!
interface Async0/4
no ip address
no ip directed-broadcast
!
!
!
!
ip sshd enable
ip sshd disable-weak
no ip sshd disable-aes
ip sshd version 2
!
!
!
router ospf 65000
network 1.1.1.0 255.255.255.0 area 0
network 1.1.2.0 255.255.255.0 area 0
redistribute static
redistribute connect

--More-- !
!
!
no ip route cache
ip route default 1.1.2.2
ip route 194.16.80.0 255.255.255.0 1.1.2.2
ip route 194.16.81.0 255.255.255.0 1.1.2.2
```

```

ip route 194.16.82.0 255.255.255.0 1.1.2.2
ip route 194.16.83.0 255.255.255.0 1.1.2.2
ip route 194.16.85.0 255.255.255.0 1.1.2.2
ip route 194.16.86.0 255.255.255.0 1.1.2.2
ip route 194.16.87.0 255.255.255.0 1.1.2.2
!
!
!
!
Router_2#sh ip ospf
OSPF process: 65000, Router ID: 1.1.2.1, 0x1c7c866c
Distance: intra-area 110, inter-area 110, external 150
Redistributing: static, connect
It is an autonomous system boundary router
SPF schedule delay 5 secs, Hold time between two SPFs 10 secs
SPFTV:0(0), TOs:60, SCHEDs:173, RTAB_REV:13, upd_cnt:1
All Rtrs support Demand-Circuit.
IETF GR helper support enabled.
MPLS TE enabled
Number of virtual-links is 0(UP: 0).
Number of areas is 1
AREA: 0, 0x1c7c8824
  Number of interface in this area is 2(UP: 2)
  Number of MPLS-TE enabled interface in this area is 0(UP: 0)
  Area authentication type: None
  All Rtrs in this area support Demand-Circuit.
Incremental-SPF disabled.
The maximum number of non-default ASE-LSAs is not limited.
There are 8 non-default ASE-LSAs in the LSDB now.
Age Interval 60. ASE-LSA age hash-num-interval 501.

Router_2#
Router_2#sh ip route ospf
VRF ID: 0

O E2 172.16.253.0/24 [150,100] via 1.1.1.1(on GigaEthernet0/1)
O 172.16.254.0/24 [110,2] via 1.1.1.1(on GigaEthernet0/1)
Router_2#
Router_2#
Router_2#
Router_2#sh ip route
Codes: C - connected, S - static, R - RIP, B - BGP, BC - BGP connected
       D - BEIGRP, DEX - external BEIGRP, O - OSPF, OIA - OSPF inter area
       ON1 - OSPF NSSA external type 1, ON2 - OSPF NSSA external type 2
       OE1 - OSPF external type 1, OE2 - OSPF external type 2, L - Local
       DHCP - DHCP type, L1 - IS-IS level-1, L2 - IS-IS level-2
       IA - ISIS inter-level, I - IPSEC type

VRF ID: 0

S 0.0.0.0/0 [1,0] via 1.1.2.2(on GigaEthernet0/0)

```

```
C 1.1.1.0/30 is directly connected, GigaEthernet0/1
C 1.1.2.0/30 is directly connected, GigaEthernet0/0
O E2 172.16.253.0/24 [150,100] via 1.1.1.1(on GigaEthernet0/1)
O 172.16.254.0/24 [110,2] via 1.1.1.1(on GigaEthernet0/1)
S 194.16.80.0/24 [1,0] via 1.1.2.2(on GigaEthernet0/0)
S 194.16.81.0/24 [1,0] via 1.1.2.2(on GigaEthernet0/0)
S 194.16.82.0/24 [1,0] via 1.1.2.2(on GigaEthernet0/0)
S 194.16.83.0/24 [1,0] via 1.1.2.2(on GigaEthernet0/0)
S 194.16.85.0/24 [1,0] via 1.1.2.2(on GigaEthernet0/0)
S 194.16.86.0/24 [1,0] via 1.1.2.2(on GigaEthernet0/0)
S 194.16.87.0/24 [1,0] via 1.1.2.2(on GigaEthernet0/0)
Router_2#
Router_2#
Router_2#telnet 1.1.2.3
Connecting to remote host...
Press 'q' or 'Q' to quit connection.
Permission denied
Router_2#telnet 1.1.2.3 2
Connecting to remote host...
Press 'q' or 'Q' to quit connection.
User Access Verification

Username: admin
Password:
Authentication failed!

Username: admin
Password:
Welcome to Tchroutes Multi-Protocol TSR 2800-10C Series

Router_3>
ena
Router_3#
Router_3#sh ip int br
Interface IP-Address Method Protocol-Status
Null0 unassigned manual up
GigaEthernet0/0 1.1.2.2 manual up
GigaEthernet0/1 unassigned manual down
GigaEthernet0/2 unassigned manual up
Async0/0 unassigned manual down
Async0/1 unassigned manual down
Async0/2 unassigned manual down
Router_3#
Router_3#
Router_3#
Router_3#sh run
Building configuration...

Current configuration:
!
```

```
hostname Router_3
!
syslog buffer 64 level DEBUG class ALL
!
isdn switch-type basic-5ess
!
!
aaa authentication login default local
aaa authentication enable default none
aaa authentication ppp default local
aaa authorization exec default local
!
username admin password 0 admin
!
!
!
crypto key load-keyconf end
!
!
interface GigaEthernet0/0
ip address 1.1.2.2 255.255.255.252
no ip directed-broadcast
ip http firewalltype 0
!
!
ip sshd enable
ip sshd disable-weak
no ip sshd disable-aes
ip sshd version 2
!

router ospf 65000
network 1.1.2.0 255.255.255.0 area 0
redistribute static
redistribute connect

!
!
Router_3#
Router_3#
Router_3#
Router_3#sh ip ospf
OSPF process: 65000, Router ID: 1.1.2.2, 0x1c7c5ec0
Distance: intra-area 110, inter-area 110, external 150
Redistributing: static, connect
It is an autonomous system boundary router
SPF schedule delay 5 secs, Hold time between two SPFs 10 secs
SPFTV:0(0), TOs:30, SCHEDs:59, RTAB_REV:15, upd_cnt:0
All Rtrs support Demand-Circuit.
IETF GR helper support enabled.
MPLS TE enabled
```



Number of virtual-links is 0(UP: 0).  
Number of areas is 1  
AREA: 0, 0x1c7c6078  
Number of interface in this area is 1(UP: 1)  
Number of MPLS-TE enabled interface in this area is 0(UP: 0)  
Area authentication type: None  
All Rtrs in this area support Demand-Circuit.  
Incremental-SPF disabled.  
The maximum number of non-default ASE-LSAs is not limited.  
There are 8 non-default ASE-LSAs in the LSDB now.  
Age Interval 60. ASE-LSA age hash-num-interval 501.

```
Router_3#  
Router_3#  
Router_3#  
Router_3#  
Router_3#  
Router_3#sh route ospf  
Can't find route-map ospf  
Router_3#  
Router_3#sh ip route  
Codes: C - connected, S - static, R - RIP, B - BGP, BC - BGP connected  
D - BEIGRP, DEX - external BEIGRP, O - OSPF, OIA - OSPF inter area  
ON1 - OSPF NSSA external type 1, ON2 - OSPF NSSA external type 2  
OE1 - OSPF external type 1, OE2 - OSPF external type 2, L - Local  
DHCP - DHCP type, L1 - IS-IS level-1, L2 - IS-IS level-2  
IA - ISIS inter-level, I - IPSEC type
```

VRF ID: 0

```
O 1.1.1.0/30 [110,2] via 1.1.2.1(on GigaEthernet0/0)  
C 1.1.2.0/30 is directly connected, GigaEthernet0/0  
O E2 172.16.253.0/24 [150,100] via 1.1.2.1(on GigaEthernet0/0)  
O 172.16.254.0/24 [110,3] via 1.1.2.1(on GigaEthernet0/0)  
O E2 194.16.80.0/24 [150,100] via 1.1.2.1(on GigaEthernet0/0)  
O E2 194.16.81.0/24 [150,100] via 1.1.2.1(on GigaEthernet0/0)  
O E2 194.16.82.0/24 [150,100] via 1.1.2.1(on GigaEthernet0/0)  
O E2 194.16.83.0/24 [150,100] via 1.1.2.1(on GigaEthernet0/0)  
O E2 194.16.85.0/24 [150,100] via 1.1.2.1(on GigaEthernet0/0)  
O E2 194.16.86.0/24 [150,100] via 1.1.2.1(on GigaEthernet0/0)  
O E2 194.16.87.0/24 [150,100] via 1.1.2.1(on GigaEthernet0/0)
```

```
Router_3#  
Router_3#  
Router_3#  
Router_3#  
Router_3#ping 1.1.1.2  
PING 1.1.1.2 (1.1.1.2): 56 data bytes  
!!!!  
--- 1.1.1.2 ping statistics ---  
5 packets transmitted, 5 packets received, 0% packet loss  
round-trip min/avg/max = 0/0/0 ms
```

```
Router_3#  
Router_3#  
Router_3#ping 1.1.1.2 1  
PING 1.1.1.1 (1.1.1.1): 56 data bytes  
!!!!  
--- 1.1.1.1 ping statistics ---  
5 packets transmitted, 5 packets received, 0% packet loss  
round-trip min/avg/max = 0/0/0 ms  
Router_3#  
Router_3#  
Router_3#  
Router_3#ping 172.16.254.29  
PING 172.16.254.29 (172.16.254.29): 56 data bytes  
!!!!  
--- 172.16.254.29 ping statistics ---  
5 packets transmitted, 5 packets received, 0% packet loss  
round-trip min/avg/max = 0/0/0 ms  
Router_3#  
Router_3#  
Router_3#
```