

ISIS Route Learned From Multiple Level

Purpose	Learn routes from multiple level i.e Level 1 and Level 2
Test setup	<p>The diagram illustrates a network topology with three routers: R1, R2, and R3. R1 and R2 are connected via their G0/1 interfaces with IP addresses 192.168.2.1/24 and 192.168.2.10/24 respectively. R2 and R3 are connected via their G0/2 interfaces with IP addresses 192.168.1.1/24 and 192.168.1.2/24 respectively. R2 also has a loopback interface Loopback 10 with IP address 10.10.10.10. R1 has Loopback 0 (1.1.1.1/32). R3 has Loopback 1 (2.2.2.1/32) and Loopback 5 (5.5.5.5). R1 is configured as BGP 64000, and R2 as BGP 65000. All three routers are part of ISIS Area 1.</p>
Test configuration	<pre> Router 1 ! interface Loopback0 ip address 1.1.1.1 255.255.255.255 no ip directed-broadcast ! interface GigaEthernet0/1 ip address 192.168.2.1 255.255.255.0 no ip directed-broadcast ipv6 enable ipv6 address 10::1/64 ipv6 dhcp server IPv6 ip ospf message-digest-key 1 md5 0 test ip http firewalltype 0 ! interface GigaEthernet0/2 ip address 172.16.254.29 255.255.255.0 no ip directed-broadcast ip http firewalltype 0 ! router bgp 64000 no synchronization bgp log-neighbor-changes network 1.1.1.1/32 network 192.168.2.0/32 neighbor 192.168.2.10 remote-as 65000 Router 2 interface GigaEthernet0/2 ip address 192.168.1.1 255.255.255.0 no ip directed-broadcast ip router isis 1 ip http firewalltype 0 ! interface Loopback20 ip address 20.20.20.20 255.255.255.255 </pre>

	<pre> no ip directed-broadcast ! router isis 1 net 00.0001.0000.0000.0001.00 redistribute bgp 65000 ! router bgp 65000 no synchronization bgp log-neighbor-changes network 20.20.20.20/32 redistribute connected Router 3 interface GigaEthernet0/2 ip address 192.168.1.2 255.255.255.0 no ip directed-broadcast ip router isis 1 ip http firewalltype 0 ! router isis 1 net 00.0001.0000.0000.0002.00 </pre>
<p>Procedure</p>	<p>Configure ISIS between neighbors R2 and R3. Redistribute BGP learned routes into ISIS on R2 Configure BGP between neighbors R1 and R2. Redistribute connected networks into BGP on R2</p>
<p>Test result</p>	<pre> Router_3_62#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 L2 1.1.1.1/32 [118,10] via 192.168.1.1(on GigaEthernet0/2) C 2.2.2.1/32 is directly connected, Loopback1 C 5.5.5.5/32 is directly connected, Loopback5 L1 10.10.10.10/32 [115,20] via 192.168.1.1(on GigaEthernet0/2) 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 C 192.168.1.0/24 is directly connected, GigaEthernet0/2 Router_3_62# Router_3_62# </pre>

	<pre> Router_2_20#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 B 1.1.1.1/32 [20,0] via 192.168.2.1 L1 5.5.5.5/32 [115,20] via 192.168.1.2 (on GigaEthernet0/2) C 10.10.10.10/32 is directly connected, Loopback0 C 20.20.20.20/32 is directly connected, Loopback20 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 C 192.168.1.0/24 is directly connected, GigaEthernet0/2 C 192.168.2.0/24 is directly connected, GigaEthernet0/1 Router_2_20# Router_2_20# </pre>
Status	On R3 routes learned from Level 1 and Level 2.