# Typical Multi-role Host Configuration

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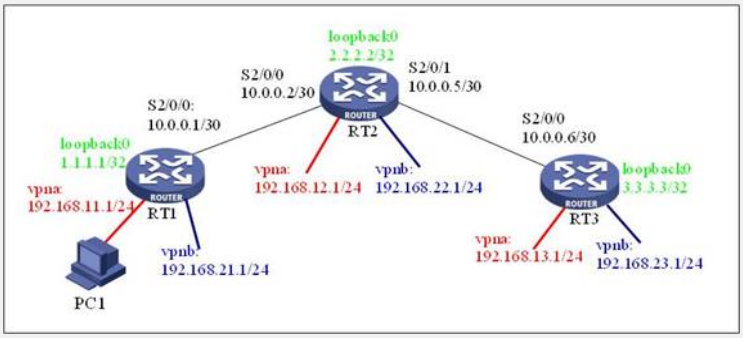
**Typical Multi-role Host Configuration**

**[Requirements]**

PC1 (192.168.11.2) belongs to vpna, and can access both vpna and vpnb.

**[Networking diagram]**




**[Configuration script]**

**Configuration script (RT1)**

```
#
 sysname RT1
#
 router id 1.1.1.1
#
 mpls lsr-id 1.1.1.1
#
radius scheme system
#
mpls
#
 mpls ldp
#
ip vpn-instance vpna
 route-distinguisher 100:1
 vpn-target 100:1 export-extcommunity
 vpn-target 100:1 import-extcommunity
#
ip vpn-instance vpnb
 route-distinguisher 200:1
 vpn-target 200:1 export-extcommunity
 vpn-target 200:1 import-extcommunity
#
domain system
#
acl number 3000              /Specify an address for the multi-role host, used in p
olicy routing/
 rule 0 permit ip vpn-instance vpna source 192.168.11.2 0
#
interface Ethernet1/0/0
 ip binding vpn-instance vpna
 ip address 192.168.11.1 255.255.255.0
 ip policy route-policy multi-role
/Apply policy routing on the interface to realize multi-role host/
#
interface Serial2/0/0
 link-protocol ppp
 ip address 10.0.0.1 255.255.255.252
 mpls
 mpls ldp enable

#
interface NULL0
#
interface LoopBack0
 ip address 1.1.1.1 255.255.255.255
#
interface LoopBack21
 ip binding vpn-instance vpnb
 ip address 192.168.21.1 255.255.255.0
#
bgp 100
 undo synchronization
 group inter internal
 peer 2.2.2.2 group inter
 peer 2.2.2.2 connect-interface LoopBack0
 #
 ipv4-family vpn-instance vpna
```

```
 ipv4-family vpn-instance vpna
  import-route direct
  undo synchronization
 #
 ipv4-family vpn-instance vpnb
  import-route direct
  import-route static                    /Import static route in vpnb/
  undo synchronization
 #
 ipv4-family vpnv4
  peer inter enable
  peer 2.2.2.2 group inter
#
ospf 1
 area 0.0.0.0
  network 1.1.1.1 0.0.0.0
  network 10.0.0.0 0.0.0.3
#
route-policy multi-role permit node 10
/Define policy routing for the multi-role host to search route in vpnb/
 if-match acl 3000                       /Apply ACL 3000/
 apply access-vpn vpn-instance vpnb      /Enable the multi-role host to sear
ch route in vpnb/
#
 ip route-static vpn-instance vpnb 192.168.11.2 255.255.255.255 vpn-instance
vpna 192.168.11.2  preference 60
/Add a static route in vpnb access to PC1, ensuring that the packet returned b
y vpnb can be forwarded to PC1/
#
user-interface con 0
user-interface vty 0 4
#
return
```

**Configuration script (RT2)**

```
#
 sysname RT2
#
 router id 2.2.2.2
#
 mpls lsr-id 2.2.2.2
#
radius scheme system
#
mpls
#
 mpls ldp
#
ip vpn-instance vpna
 route-distinguisher 100:1
 vpn-target 100:1 export-extcommunity
 vpn-target 100:1 import-extcommunity
#
ip vpn-instance vpnb
 route-distinguisher 200:1
 vpn-target 200:1 export-extcommunity
 vpn-target 200:1 import-extcommunity
#
domain system
#
interface Serial2/0/0
 link-protocol ppp
 ip address 10.0.0.2 255.255.255.252
 mpls
 mpls ldp enable
#
interface Serial2/0/1
 link-protocol ppp
 ip address 10.0.0.5 255.255.255.252
 mpls
 mpls ldp enable
#
interface NULL0
#
interface LoopBack0
 ip address 2.2.2.2 255.255.255.255
#
interface LoopBack12
 ip binding vpn-instance vpna
 ip address 192.168.12.1 255.255.255.0
#
interface LoopBack22
 ip binding vpn-instance vpnb
 ip address 192.168.22.1 255.255.255.0
#
bgp 100
 undo synchronization
 group inter internal
 peer inter reflect-client
 peer 1.1.1.1 group inter
 peer 1.1.1.1 connect-interface LoopBack0
 peer 3.3.3.3 group inter
 peer 3.3.3.3 connect-interface LoopBack0
 #
 ipv4-family vpn-instance vpna
  import-route direct
  undo synchronization
 #
 ipv4-family vpn-instance vpnb
  import-route direct
  undo synchronization
 #
 ipv4-family vpnv4
  peer inter enable
  peer inter reflect-client
  peer 1.1.1.1 group inter
  peer 3.3.3.3 group inter
#
ospf 1
 area 0.0.0.0
  network 2.2.2.2 0.0.0.0
  network 10.0.0.0 0.0.0.3
  network 10.0.0.4 0.0.0.3
#
user-interface con 0
user-interface vty 0 4
#
return
```

**Configuration script (RT3)**

```
#
 sysname RT3
#
 router id 3.3.3.3
#
 mpls lsr-id 3.3.3.3
#
radius scheme system
#
mpls
#
 mpls ldp
#
ip vpn-instance vpna
 route-distinguisher 100:1
 vpn-target 100:1 export-extcommunity
 vpn-target 100:1 import-extcommunity
#
ip vpn-instance vpnb
 route-distinguisher 200:1
 vpn-target 200:1 export-extcommunity
 vpn-target 200:1 import-extcommunity
#
domain system
#
interface Serial2/0/0
 link-protocol ppp
 ip address 10.0.0.6 255.255.255.252
 mpls
 mpls ldp enable
#
interface NULL0
#
interface LoopBack0
 ip address 3.3.3.3 255.255.255.255
#
interface LoopBack13
 ip binding vpn-instance vpna
 ip address 192.168.13.1 255.255.255.0
#
interface LoopBack23
 ip binding vpn-instance vpnb
 ip address 192.168.23.1 255.255.255.0
#
bgp 100
 undo synchronization
 group inter internal
 peer 2.2.2.2 group inter
 peer 2.2.2.2 connect-interface LoopBack0
 #
 ipv4-family vpn-instance vpna
  import-route direct
  undo synchronization
 #
 ipv4-family vpn-instance vpnb
  import-route direct
  undo synchronization
 #
 ipv4-family vpnv4
  peer inter enable
  peer 2.2.2.2 group inter
#
ospf 1
 area 0.0.0.0
  network 3.3.3.3 0.0.0.0
  network 10.0.0.4 0.0.0.3
#
user-interface con 0
user-interface vty 0 4
#
return
```

**[Configuration keypoint]**

Static Route and Routing Policy enable PC1 to search different VPN-instances for packets routing to different VPNs.

**[Verification]**

**Private route table of vpnb on RT1:**

disp ip rout vpn vpnb

vpnb Route Information

Routing Table: vpnb Route-Distinguisher: 200:1

| Destination/Mask | Protocol | Pre | Cost | Nexthop | Interface |
|---|---|---|---|---|---|
| 192.168.11.2/32 | STATIC | 60 | 0 | 192.168.11.2 | Ethernet1/0/0 |
| 192.168.21.0/24 | DIRECT | 0 | 0 | 192.168.21.1 | LoopBack21 |

192.168.21.1/32 DIRECT 0 0 127.0.0.1 InLoopBack0
192.168.22.0/24 BGP 256 0 2.2.2.2 InLoopBack0
192.168.23.0/24 BGP 256 0 3.3.3.3 InLoopBack0

**Private route table of vpnb on RT3:**

disp ip rout vpn vpnb
vpnb Route Information
Routing Table: vpnb Route-Distinguisher: 200:1
Destination/Mask Protocol Pre Cost Nexthop Interface
192.168.11.2/32 BGP 256 0 1.1.1.1 InLoopBack0
192.168.21.0/24 BGP 256 0 1.1.1.1 InLoopBack0
192.168.22.0/24 BGP 256 0 2.2.2.2 InLoopBack0
192.168.23.0/24 DIRECT 0 0 192.168.23.1 LoopBack23
192.168.23.1/32 DIRECT 0 0 127.0.0.1 InLoopBack0

**[Tip]**

1. The configuration of multi-role host is completed on the connected PE.
2. Where there are multiple VPNs, you can use the **apply access-vpn vpn-instance** command to specify the maximum of six VPNs.
3. Static Route and Routing Policy enable PC1 to search different VPN-instances for packets routing to different VPNs.