

VRF

Global Routing Table -

```
R1#sh ip route
```

```
Codes: C - connected, S - static, R - RIP, M - mobile, B - BGP
        D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
        N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
        E1 - OSPF external type 1, E2 - OSPF external type 2
        i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
        ia - IS-IS inter area, * - candidate default, U - per-user static route
        o - ODR, P - periodic downloaded static route
```

Gateway of last resort is not set

```
10.0.0.0/24 is subnetted, 1 subnets
C    10.10.12.0 is directly connected, Ethernet0/0
```

```
R1#sh ip cef ethernet 0/0
```

Prefix	Next Hop	Interface
10.10.12.0/24	attached	Ethernet0/0

VRF Routing Table -

```
R1#sh ip route vrf VRF-Test
```

```
Routing Table: VRF-Test
```

```
Codes: C - connected, S - static, R - RIP, M - mobile, B - BGP
        D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
        N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
        E1 - OSPF external type 1, E2 - OSPF external type 2
        i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
        ia - IS-IS inter area, * - candidate default, U - per-user static route
        o - ODR, P - periodic downloaded static route
```

Gateway of last resort is not set

```
10.0.0.0/24 is subnetted, 1 subnets
C    10.10.12.0 is directly connected, Ethernet0/1
```

```
R1#sh ip cef vrf VRF-Test ethernet 0/1
```

Prefix	Next Hop	Interface
10.10.12.0/24	attached	Ethernet0/1

```
R1#sh ip vrf
```

Name	Default RD	Interfaces
VRF-Test	1:1	Et0/1

Thus a same subnet could be present in Global and VRF Routing Table.

Interfaces in a VRF can be either physical, or logical, such as VLAN SVIs. Layer 3 interface cannot belong to more than one VRF at any time.

Once the VRF is assigned to Interface, we need to reconfigure the ip address on it.

Each VRF must be assigned a unique route distinguisher. A route distinguisher is simply a unique number stored beside each route in the routing table to associate it with its VRF and maintain uniqueness should two or more VRFs have overlapping address space.

There are two formats in which we can define a route distinguisher: <ASN>:<number> or <IP address>:<number>, where number is an arbitrary decimal number. which method we choose is arbitrary. While the format of route distinguishers is an important design consideration in "real" VPNs, in VRF lite (i.e. VRFs without MPLS) it is only a locally-significant value.

In above example we used the format <ASN>:<number> i.e. 1:1