

Configure Route Leaking Between Global and VRF Routing Table without Next-Hop

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Introduction

This document describes an alternative and simple approach in order to accomplish route leaking without the use of Next-hop.

Route leaking between Global Routing Table (GRT) and Virtual Routing and Forwarding (VRF) table is quiet easy with the use of static routes. You either provide the next-hop IP address (for multi-access segment) or point the route out of an interface (point-to-point interface). However, in the absence of a next-hop IP address on a multi-access segment, route leaking becomes tricky as you cannot use static route.

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- Basic IP routing
- Open Shortest Path First (OSPF) routing protocol concepts and terms

Components Used

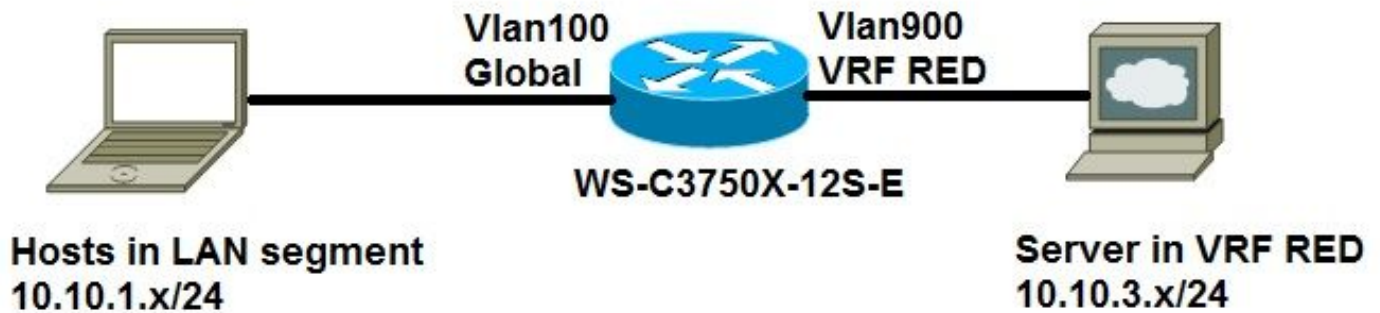
This document is not restricted to specific software and hardware versions.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Configure

Network Diagram

This image is used as a sample topology for rest of the document.



BGP Support for IP Prefix Import

Global IPv4 unicast or multicast prefixes are defined as match criteria for the import route map with the standard Cisco filtering mechanisms like an IP access-list or an IP prefix-list.

```
access-list 50 permit 10.10.1.0 0.0.0.255
or
ip prefix-list GLOBAL permit 10.10.1.0/24
```

The IP prefixes that are defined for import are then processed through a match clause in a route map. IP prefixes that pass through the route map are imported into the VRF.

```
route-map GLOBAL_TO_VRF permit 10
match ip address 50
or
match ip address prefix-list GLOBAL
!
ip vrf RED
rd 1:1
import ipv4 unicast mapGLOBAL_TO_VRF
!
ip route 10.10.3.0 255.255.255.0 Vlan900
```

This method requires to use Border Gateway Protocol (BGP) with VRF lite, which might not be feasible in all scenarios.

Policy Based Routing (PBR)

PBR can be used to leak routes between GRT and VRF. This is a sample configuration where a route leaking from global routing table to VRF is shown:

```
ip vrf RED
rd 1:1
```

```

!
interface Vlan100
  description GLOBAL_INTERFACE
  ip address 10.10.1.254 255.255.255.0
!
access-list 101 permit ip 10.10.3.0 0.0.0.255 10.10.1.0 0.0.0.255
!
route-map VRF_TO_GLOBAL permit 10
  match ip address 101
set global
!
interface Vlan900
  description VRF_RED
  ip vrf forwarding RED
  ip address 10.10.3.254 255.255.255.0
ip policy route-map VRF_TO_GLOBAL

```

This works well for high end devices like 6500 switch but for devices like 3750, it is not supported. It is a platform limitation as you can see in the error message like :

```

3750X(config)#int vlan 900
3750X(config-if)#ip policy route-map VRF_TO_GLOBAL
3750X(config-if)#
Mar 30 02:02:48.758: %PLATFORM_PBR-3-UNSUPPORTED_RMAP: Route-map VRF_TO_GLOBAL not supported for
Policy-Based Routing

```

VRF Receive

VRF Receive feature can be used to insert the connected GRT subnet as a connected route entry in the VRF routing table.

```

ip vrf RED
  rd 1:1
!
interface Vlan100
  description GLOBAL_INTERFACE
ip vrf select source
ip vrf receive RED
  ip address 10.10.1.254 255.255.255.0
end
!
interface Vlan900
  description VRF_RED
  ip vrf forwarding RED
  ip address 10.10.3.254 255.255.255.0
end
!
ip route 10.10.3.0 255.255.255.0 Vlan900

```

```
3750X#show ip route vrf RED
```

```
Routing Table: RED
```

```
Gateway of last resort is not set
```

```
10.0.0.0/8 is variably subnetted, 4 subnets, 2 masks
C    10.10.3.0/24 is directly connected, Vlan900
L    10.10.3.254/32 is directly connected, Vlan900
C    10.10.1.0/24 is directly connected, Vlan100
L    10.10.1.254/32 is directly connected, Vlan100
```

```
3750X#ping 10.10.3.1 source vlan 100
```

```
Type escape sequence to abort.
```

```
Sending 5, 100-byte ICMP Echos to 10.10.3.1, timeout is 2 seconds:
```

```
Packet sent with a source address of 10.10.1.254
```

```
!!!!
```

```
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/4/9 ms
```

```
3750X#show ip arp vrf RED vlan 900
```

Protocol	Address	Age (min)	Hardware Addr	Type	Interface
Internet	10.10.3.254	-	d072.dc36.7fc2	ARPA	Vlan900
Internet	10.10.3.1	0	c84c.751f.26f0	ARPA	Vlan900

Verify

There is currently no verification procedure available for this configuration.

Troubleshoot

There is currently no specific troubleshooting information available for this configuration.