SDA - Steps to configure Fusion Router

TAC

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Contents

Spoiler

Introduction

In Digital Network Architecture Controller (DNAC) Software defined Access (SD-Access) solution, devices are managed and configured by a DNAC. But there is a part of the topology which has to be manually configured, as components with the role of Fusion Routers are not managed by DNAC. This article provides detailed steps for configuring the Fusion Routers, which helps achieve Virtual routing and forwarding (VRF) leaking across SD-Access Fabric domains, and host connectivity to differenet external servers (Dynamic Host configuration Protocol or DHCP and others).

Why the DNA-SDA solution requires Fusion router?

Today the Dynamic Network Architecture Software Defined Access (DNA-SDA) solution requires a fusion router to perform VRF route leaking between user VRFs and Shared-Services, which may be in the Global routing table (GRT) or another VRF. Shared Services may consist of DHCP, Domain Name System (DNS), Network Time Protocol (NTP), Wireless LAN Controller (WLC), Identity Services Engine (ISE), DNAC components which must be made available to other virtual networks (VN's) in the Campus. Thus by creating Border Gateway Protocol (BGP) peerings from the Border

Routers to the Fusion Routers, on the Fusion Router the fabric VRF's subnets which need access to these shared services will be leaked into GRT, and vice-versa. Route maps can be used to help contain routing tables to subnets specific to SDA Fabric.

Note:

This article is based on DNAC version 1.2.1. In the future, with the introduction of the " LISP Extranet" (Location Identifier Separation Protocol) feature, dependency on Fusion Router will be reduced.

Prerequisites

Requirements

Setup is required as per " Supported devices for SDA" which can be found at: Link to relase notes

Components Used

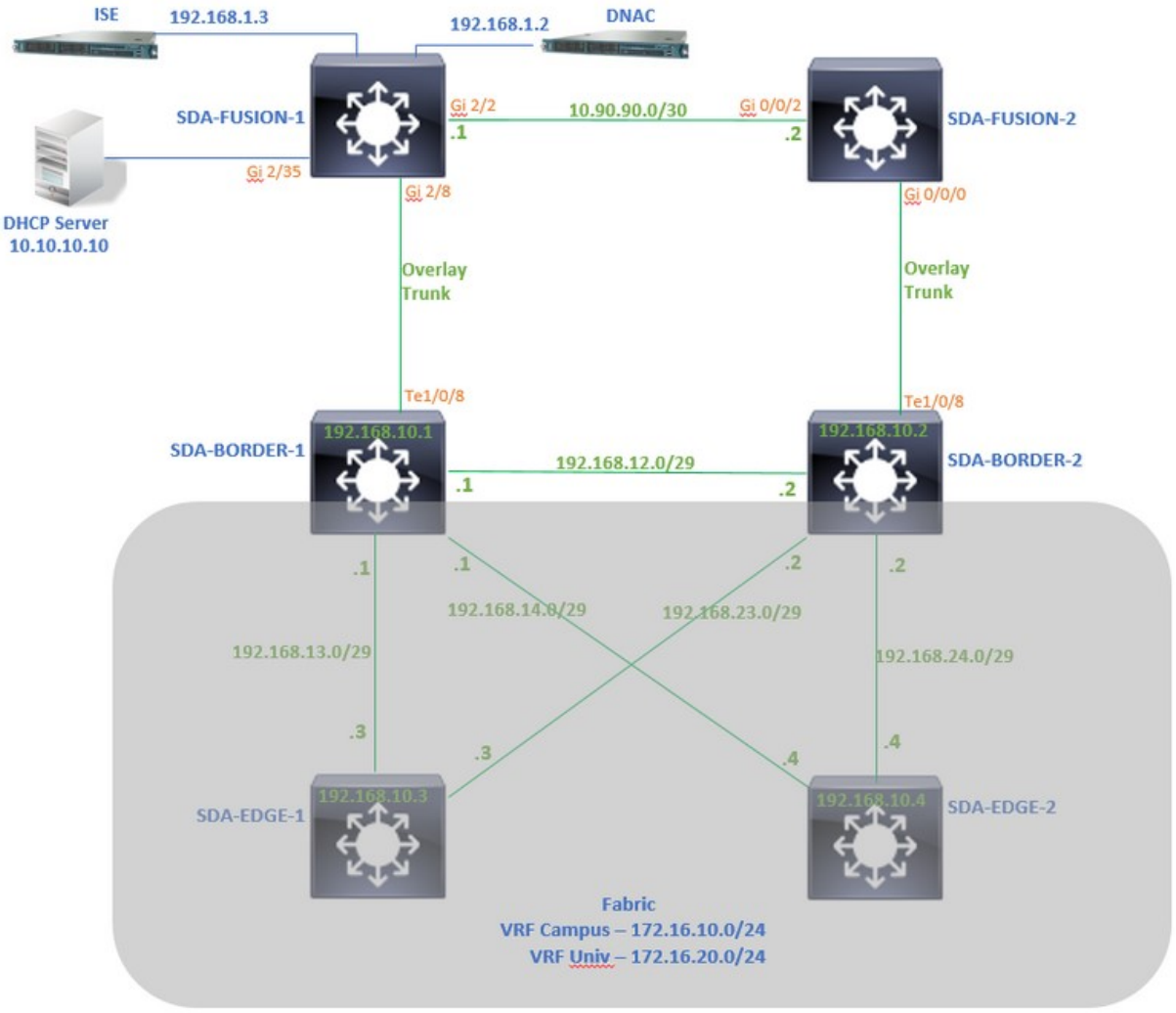
Devices used for this Article

DNAC	- Version 1.2.1
Edge and Border	- Cat3k Cisco Switch
Fusion	- Cisco Router with Support for Inter-VRF leaking

Configuration

Network Diagram

Topology used for this article consists of two Border Routers both bonfigured as External Borders, and two Fusion Routers with a connection to each respective Border Router.



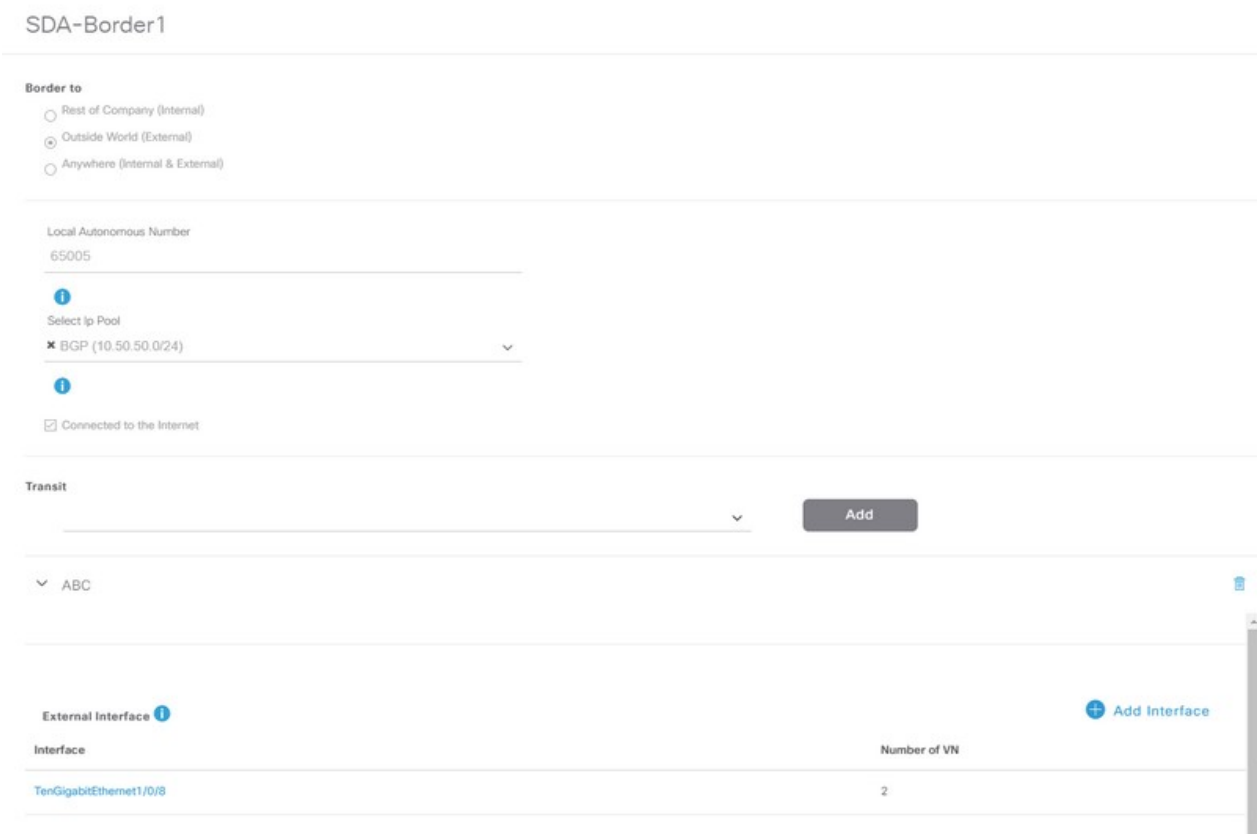
Configurations

Step1: Configuring L2 Handoff link from DNAC

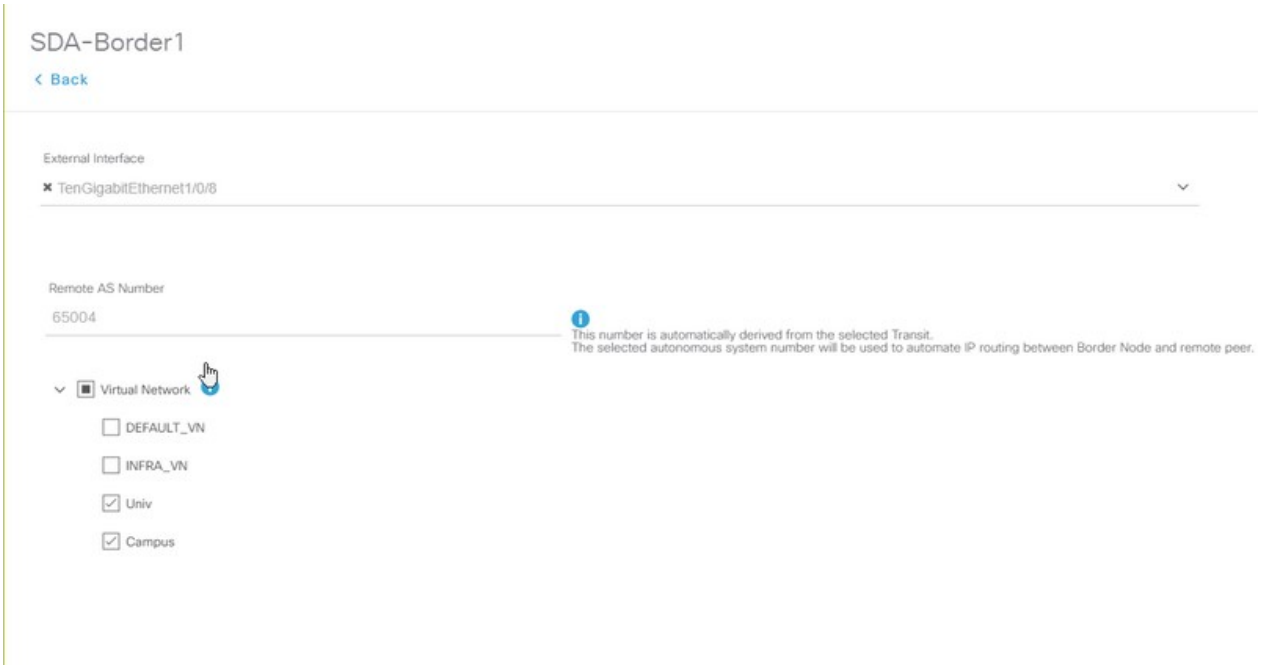
During the step of assisgning devices a role of Border Router while adding to the Fabric, Layer 2 hand-off link can be added.
Layer 2 hand-off link would be a trunk link connected to the Fusion Router. Following steaps are also needed:

- Configure Local AS Number for BGP. This Autonomous System (AS) number will be used to configure the BGP process on the Border Routers.

- Add interface under Transit. This interface is the direct connection between Border and Fusion Router. (Te 1/0/8 on Border in this example)



- Configure Remote AS Number. This AS Number will be used on Border Routers for neighbor statements towards Fusion Router to configure External BGP (eBGP) peering.
- Select all the Virtual Networks (VRFs) for which VRF leaking is required on Fusion Router.
- Deploy configuration from DNAC to Devices.



Follow same steps for SDA-Border-2 Device.

Step2: Verify Configurations pushed by DNAC on Border Routers

This Section covers verification of configuration on Border Routers related to BGP protocol

SDA-Border-1

```
SDA-Border1#sh run int lo 0
!
interface Loopback0
 ip address 192.168.10.1 255.255.255.255
 ip router isis
end


SDA-Border1#sh run int te 1/0/8
!
interface TenGigabitEthernet1/0/8
 switchport mode trunk
end


SDA-Border1#sh run int lo 1021

interface Loopback1021
 description Loopback Border
 vrf forwarding Campus
 ip address 172.16.10.1 255.255.255.255
end


SDA-Border1#sh run int lo 1022

interface Loopback1022
 description Loopback Border
 vrf forwarding Univ
 ip address 172.16.20.1 255.255.255.255
end


SDA-Border1#sh run | s vrf definition Campus
vrf definition Campus
 rd 1:4099
 !
 address-family ipv4
 route-target export 1:4099
 route-target import 1:4099
 exit-address-family
```

```
SDA-Border1#sh run | s vrf definition Univ
vrf definition Univ
 rd 1:4100
 !
 address-family ipv4
 route-target export 1:4100
 route-target import 1:4100
 exit-address-family
SDA-Border1#


SDA-Border1#sh run int vl 3007
!
interface Vlan3007                                          <<< SVI created
 description vrf interface to External router
 vrf forwarding Campus
 ip address 10.50.50.25 255.255.255.252
 no ip redirects
 ip route-cache same-interface
end

SDA-Border1#sh run int vl 3006
!
interface Vlan3006                                          <<< SVI created
 description vrf interface to External router
 vrf forwarding Univ
 ip address 10.50.50.21 255.255.255.252
 no ip redirects
 ip route-cache same-interface
end


SDA-Border1#sh run | s bgp
router bgp 65005                                            <<< Local AS Num
 bgp router-id interface Loopback0
 bgp log-neighbor-changes
 bgp graceful-restart
 !
 address-family ipv4
 network 192.168.10.1 mask 255.255.255.255
 redistribute lisp metric 10
```

```
 exit-address-family
 !
 address-family ipv4 vrf Campus
 bgp aggregate-timer 0
 network 172.16.10.1 mask 255.255.255.255                  <<< Anycast IP f
 aggregate-address 172.16.10.0 255.255.255.0 summary-only  <<< Only Summary
 redistribute lisp metric 10
 neighbor 10.50.50.26 remote-as 65004                      <<< Peer IP to b
 neighbor 10.50.50.26 update-source Vlan3007
 neighbor 10.50.50.26 activate
 neighbor 10.50.50.26 weight 65535
 exit-address-family
 !
 address-family ipv4 vrf Univ
 bgp aggregate-timer 0
 network 172.16.20.1 mask 255.255.255.255                  <<< Anycast IP f
 aggregate-address 172.16.20.0 255.255.255.0 summary-only
 redistribute lisp metric 10
 neighbor 10.50.50.22 remote-as 65004
 neighbor 10.50.50.22 update-source Vlan3006
 neighbor 10.50.50.22 activate
 neighbor 10.50.50.22 weight 65535
 exit-address-family
```

SDA-Border-2

```
SDA-Border2#sh run int lo 0
!
interface Loopback0
 ip address 192.168.10.2 255.255.255.255
 ip router isis
end

SDA-Border2#sh run int te 1/0/8
!
interface TenGigabitEthernet1/0/8
 switchport mode trunk
end


SDA-Border2#sh run int lo 1021
!
interface Loopback1021
```

```
 description Loopback Border
 vrf forwarding Campus
 ip address 172.16.10.1 255.255.255.255
end

SDA-Border2#sh run int lo 1022
!
interface Loopback1022
 description Loopback Border
 vrf forwarding Univ
 ip address 172.16.20.1 255.255.255.255
end


SDA-Border2#sh run | s vrf definition Campus
vrf definition Campus
 rd 1:4099
 !
 address-family ipv4
  route-target export 1:4099
  route-target import 1:4099
 exit-address-family


SDA-Border2#sh run | s vrf definition Univ
vrf definition Univ
 rd 1:4100
 !
 address-family ipv4
  route-target export 1:4100
  route-target import 1:4100
 exit-address-family


SDA-Border2#sh run int vl 3001
!
interface Vlan3001
 description vrf interface to External router
 vrf forwarding Campus
 ip address 10.50.50.1 255.255.255.252
 no ip redirects
 ip route-cache same-interface
end
```

```
SDA-Border2#sh run int vl 3003
!
interface Vlan3003
 description vrf interface to External router
 vrf forwarding Univ
 ip address 10.50.50.9 255.255.255.252
 no ip redirects
 ip route-cache same-interface
end


SDA-Border2#sh run | s bgp
router bgp 65005
 bgp router-id interface Loopback0
 bgp log-neighbor-changes
 bgp graceful-restart
 !
 address-family ipv4
  network 192.168.10.2 mask 255.255.255.255
  redistribute lisp metric 10
 exit-address-family
 !
 address-family ipv4 vrf Campus
  bgp aggregate-timer 0
  network 172.16.10.1 mask 255.255.255.255
  aggregate-address 172.16.10.0 255.255.255.0 summary-only
  redistribute lisp metric 10
  neighbor 10.50.50.2 remote-as 65004
  neighbor 10.50.50.2 update-source Vlan3001
  neighbor 10.50.50.2 activate
  neighbor 10.50.50.2 weight 65535
 exit-address-family
 !
 address-family ipv4 vrf Univ
  bgp aggregate-timer 0
  network 172.16.20.1 mask 255.255.255.255
  aggregate-address 172.16.20.0 255.255.255.0 summary-only
  redistribute lisp metric 10
  neighbor 10.50.50.10 remote-as 65004
  neighbor 10.50.50.10 update-source Vlan3003
  neighbor 10.50.50.10 activate
  neighbor 10.50.50.10 weight 65535
```

```
 exit-address-family
```

Step3: Configure "allowas-in" on Border Routers

As per VRF leaking on Fusion Router, address-family ipv4 for VRF Campus will learn routes originated by VRF Univ (172.16.20.0/24). But both originating and learning router have the same BGP AS number (65005). To Overcome BGP loop prevention mechanism and accept/install the routes on Border Routers, "allowas-in" must be configured for the peerings with the Fusion Router:

```
SDA-Border1

SDA-Border1(config)# router bgp 65005
SDA-Border1(config-router)# address-family ipv4 vrf Campus
SDA-Border1(config-router-af)# neighbor 10.50.50.26 allowas-in
SDA-Border1(config-router-af)# exit-address-family
SDA-Border1(config-router)#
SDA-Border1(config-router)#  address-family ipv4 vrf Univ
SDA-Border1(config-router-af)#  neighbor 10.50.50.22 allowas-in
SDA-Border1(config-router-af)# exit-address-family
SDA-Border1(config-router)#


SDA-Border2

SDA-Border2(config)#router bgp 65005
SDA-Border2(config-router)# address-family ipv4 vrf Campus
SDA-Border2(config-router-af)#  neighbor 10.50.50.2 allowas-in
SDA-Border2(config-router-af)# exit-address-family
SDA-Border2(config-router)#
SDA-Border2(config-router)#  address-family ipv4 vrf Univ
SDA-Border2(config-router-af)#  neighbor 10.50.50.10 allowas-in
SDA-Border2(config-router-af)# exit-address-family
SDA-Border2(config-router)#
```

Step4: Configure Fusion Routers

This Section will show all the configuration needed on Fusion routers which are configured manually.

SDA-Fusion-1

Configure link towards Border Router as trunk

```
interface GigabitEthernet2/8
```

```
 switchport
 switchport trunk encapsulation dot1q
 switchport trunk allowed vlan 3006, 3007
 switchport mode trunk
end
```

Configure corresponding VRF-s

```
vrf definition Campus
 rd 1:4099
 !
 address-family ipv4
  route-target export 1:4099
  route-target import 1:4099
 exit-address-family
!

vrf definition Univ
 rd 1:4100
 !
 address-family ipv4
  route-target export 1:4100
  route-target import 1:4100
 exit-address-family
```

Configure SVI interfaces

```
interface Vlan3007
 vrf forwarding Campus
 ip address 10.50.50.26 255.255.255.252
end

interface Vlan3006
 vrf forwarding Univ
 ip address 10.50.50.22 255.255.255.252
end
```

Configure eBGP Peering with SDA-Border-1

```
router bgp 65004                                    <<< Remote AS from DNAC
 bgp log-neighbor-changes
 !
 address-family ipv4
```

```
 exit-address-family
 !
 address-family ipv4 vrf Campus
  neighbor 10.50.50.25 remote-as 65005
  neighbor 10.50.50.25 update-source Vlan3007
  neighbor 10.50.50.25 activate
 exit-address-family
 !
 address-family ipv4 vrf Univ
  neighbor 10.50.50.21 remote-as 65005
  neighbor 10.50.50.21 update-source Vlan3006
  neighbor 10.50.50.21 activate
 exit-address-family
```

Configure Internal BGP (iBGP) Peering with SDA-Fusion-2

```
interface GigabitEthernet2/2
 description SDA-Fusion1--->SDA-Fusion2
 ip address 10.90.90.1 255.255.255.252
end

router bgp 65004
 neighbor 10.90.90.2 remote-as 65004
 !
 address-family ipv4
  neighbor 10.90.90.2 activate
 exit-address-family
 !
```

Advertise DHCP Server Pool Under Global Address-Family

DHCP Server IP - 10.10.10.10

```
interface GigabitEthernet2/35
 description connection to DHCP server
 ip address 10.10.10.9 255.255.255.252
end


router bgp 65004
 !
 address-family ipv4
  network 10.10.10.8 mask 255.255.255.252
 exit-address-family
 !
```

SDA-Fusion-2

Configure link towards Border Router. If an interface on Fusion is L3 instead of trunk - configure subinterfaces.

```
interface GigabitEthernet0/0/0.3001
 encapsulation dot1Q 3001
 vrf forwarding Campus
 ip address 10.50.50.2 255.255.255.252
end

interface GigabitEthernet0/0/0.3003
 encapsulation dot1Q 3003
 vrf forwarding Univ
 ip address 10.50.50.10 255.255.255.252
end
```

Configure corresponding VRFs

```
vrf definition Campus
 rd 1:4099
 !
 address-family ipv4
  route-target export 1:4099
  route-target import 1:4099
 exit-address-family
!
!
vrf definition Univ
 rd 1:4100
 !
 address-family ipv4
  route-target export 1:4100
  route-target import 1:4100
 exit-address-family
!
```

Configure eBGP Peering with SDA-Border-2

```
router bgp 65004
 bgp log-neighbor-changes
 !
 address-family ipv4
 exit-address-family
 !
 address-family ipv4 vrf Campus
```

```
 neighbor 10.50.50.1 remote-as 65005
 neighbor 10.50.50.1 update-source GigabitEthernet0/0/0.3001
 neighbor 10.50.50.1 activate
exit-address-family
!
address-family ipv4 vrf Univ
 neighbor 10.50.50.9 remote-as 65005
 neighbor 10.50.50.9 update-source GigabitEthernet0/0/0.3003
 neighbor 10.50.50.9 activate
exit-address-family
```

Configure iBGP Peering with SDA-Fusion-1

```
interface GigabitEthernet0/0/2
 ip address 10.90.90.2 255.255.255.252
 negotiation auto
end

router bgp 65004
 neighbor 10.90.90.1 remote-as 65004
 !
 address-family ipv4
  neighbor 10.90.90.1 activate
 exit-address-family
```

Step5: Configure VRF Leaking on Fusion Router

Configuration for VRF leaking is identical for both Fusion Routers SDA-Fusion-1 and SDA-Fusion-2

At first configure VRF leaking between two VRFs - Campus and Univ - using " route-traget import"

```
vrf definition Campus
 !
 address-family ipv4
  route-target export 1:4099
  route-target import 1:4099
  route-target import 1:4100        <<< Import VRF Univ prefixes in VRF Cam
 exit-address-family
 !
vrf definition Univ
 !
 address-family ipv4
  route-target export 1:4100
  route-target import 1:4100
  route-target import 1:4099        <<< Import VRF Campus prefixes in VRF U
```

```
 exit-address-family
 !
```

Then configure route leaking between Global Routing Table to VRFs and VRFs to Global Routing Table using Import-map and export-map.

```
ip prefix-list Campus_Prefix seq 5 permit 172.16.10.0/24    <<< Include Pre
ip prefix-list Global_Prefix seq 5 permit 10.10.10.8/30     <<< Include Pre
ip prefix-list Univ_Prefix seq 5 permit 172.16.20.0/24      <<< Include Pre



route-map Univ_Map permit 10
 match ip address prefix-list Univ_Prefix
route-map Global_Map permit 10
 match ip address prefix-list Global_Prefix
route-map Campus_Map permit 10
 match ip address prefix-list Campus_Prefix


vrf definition Campus
 !
 address-family ipv4
  import ipv4 unicast map Global_Map     <<< Injecting Global into VRF Camp
  export ipv4 unicast map Campus_Map     <<< Injecting VRF Campus into Glob
 exit-address-family
 !
vrf definition Univ
 !
 address-family ipv4
  import ipv4 unicast map Global_Map    <<< Injecting Global into VRF Univ
  export ipv4 unicast map Univ_Map      <<< Injecting VRF Univ into Global
 exit-address-family
 !
```

Verify

This Section contains Verification steps to ensure configuration done as part of previous section has taken effect correctly.

Step1: Verify eBGP Peering Between Fusion and Border Routers

SDA-Border-1 ------Peering--------SDA-Fusion-1

```
SDA-Border1#sh ip bgp vpnv4 vrf Campus summary

Neighbor        V           AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down
```

```
10.50.50.26     4        65004    1294    1295       32    0    0 19:32:22



SDA-Border1#sh ip bgp vpnv4 vrf Univ summary

Neighbor        V           AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down
10.50.50.22     4        65004    1294    1292       32    0    0 19:32:57


-------------------------------------------------


SDA-Fusion1#sh ip bgp vpnv4 vrf Campus summary

Neighbor        V           AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down
10.50.50.25     4        65005    1305    1305       31    0    0 19:41:58


SDA-Fusion1#sh ip bgp vpnv4 vrf Univ summary

Neighbor        V           AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down
10.50.50.21     4        65005    1303    1305       31    0    0 19:42:14
```

SDA-Border-2 ------Peering--------SDA-Fusion-2

```
SDA-Border2#sh ip bgp vpnv4 vrf Campus summary

Neighbor        V           AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down
10.50.50.2      4        65004       6       6       61    0    0 00:01:37


SDA-Border2#sh ip bgp vpnv4 vrf Univ summary

Neighbor        V           AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down
10.50.50.10     4        65004       6       6       61    0    0 00:01:39

------------------------------------------------------------------------


SDA-Fusion2#sh ip bgp vpnv4 vrf Campus summary

Neighbor        V           AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down
10.50.50.1      4        65005      17      17        9    0    0 00:11:16
```

```
SDA-Fusion2#sh ip bgp vpnv4 vrf Univ summary

Neighbor        V           AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down
10.50.50.9      4        65005      17      17        9    0    0 00:11:33
```

Step2: Verify iBGP Peering Between both Fusion Routers

SDA-Fusion-1 ------Peering--------SDA-Fusion-2

```
SDA-Fusion1#sh ip bgp summary

Neighbor        V           AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down
10.90.90.2      4        65004      10      12       12    0    0 00:04:57


---------------------------------------------------------------

SDA-Fusion2#sh ip bgp summary

Neighbor        V           AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down
10.90.90.1      4        65004      19      17        4    0    0 00:11:35
```

Step3: Verify Prefixes in BGP table and Routing Table

Device: SDA-Border-1

```
SDA-Border1#sh ip bgp vpnv4 vrf Campus

     Network          Next Hop            Metric LocPrf Weight Path
Route Distinguisher: 1:4099 (default for vrf Campus)
 *>   10.10.10.8/30    10.50.50.26                            65535 65004 i
 *>   172.16.10.0/24   0.0.0.0                                32768 i
 *>   172.16.20.0/24   10.50.50.26                            65535 65004 65005


SDA-Border1#sh ip route vrf Campus bgp

Routing Table: Campus


B        10.10.10.8/30 [20/0] via 10.50.50.26, 20:30:30          <<< RIB en
B        172.16.10.0/24 [200/0], 20:32:45, Null0                 <<< Null e
B        172.16.20.0/24 [20/0] via 10.50.50.26, 20:32:45         <<< RIB en

---------------------------------------------------------------------------
```

```
SDA-Border1#sh ip bgp vpnv4 vrf Univ

     Network          Next Hop            Metric LocPrf Weight Path
Route Distinguisher: 1:4100 (default for vrf Univ)
 *>   10.10.10.8/30    10.50.50.22                            65535 65004 i
 *>   172.16.10.0/24   10.50.50.22                            65535 65004 65005
 *>   172.16.20.0/24   0.0.0.0                                32768 i


 SDA-Border1#sh ip route vrf Univ bgp

Routing Table: Univ


B        10.10.10.8/30 [20/0] via 10.50.50.22, 20:31:06          <<< RIB en
B        172.16.10.0/24 [20/0] via 10.50.50.22, 20:33:21         <<< RIB en
B        172.16.20.0/24 [200/0], 20:33:21, Null0                 <<< Null e
```

Device: SDA-Border-2

```
SDA-Border2#sh ip bgp vpnv4 vrf Campus

     Network          Next Hop            Metric LocPrf Weight Path
Route Distinguisher: 1:4099 (default for vrf Campus)
 *>   10.10.10.8/30    10.50.50.2                             65535 65004 i
 *>   172.16.10.0/24   0.0.0.0                                32768 i
 *>   172.16.20.0/24   10.50.50.2                             65535 65004 65005


SDA-Border2#sh ip route vrf Campus bgp

B        10.10.10.8/30 [20/0] via 10.50.50.2, 01:02:19           <<< RIB ent
B        172.16.10.0/24 [200/0], 1w6d, Null0                     <<< Null en
B        172.16.20.0/24 [20/0] via 10.50.50.2, 01:02:27          <<< RIB ent

-----------------------------------------------------------------------

SDA-Border2#sh ip bgp vpnv4 vrf Univ

     Network          Next Hop            Metric LocPrf Weight Path
```

```
Route Distinguisher: 1:4100 (default for vrf Univ)
 *>   10.10.10.8/30    10.50.50.10                          65535 65004 i
 *>   172.16.10.0/24   10.50.50.10                          65535 65004 65005
 *>   172.16.20.0/24   0.0.0.0                               32768 i


SDA-Border2#sh ip route vrf Univ bgp

B        10.10.10.8/30 [20/0] via 10.50.50.10, 01:02:29          <<< RIB en
B        172.16.10.0/24 [20/0] via 10.50.50.10, 01:02:34         <<< RIB en
B        172.16.20.0/24 [200/0], 1w6d, Null0                     <<< Null e
```

Device: SDA-Fusion-1

```
SDA-Fusion1#sh ip bgp

     Network          Next Hop            Metric LocPrf Weight Path
 *>  10.10.10.8/30    0.0.0.0                  0         32768 i
 * i 172.16.10.0/24   10.50.50.1               0    100      0 65005 i
 *>                   10.50.50.25              0             0 65005 i
 * i 172.16.20.0/24   10.50.50.9               0    100      0 65005 i
 *>                   10.50.50.21              0             0 65005 i


SDA-Fusion1#sh ip route

C        10.10.10.8/30 is directly connected, GigabitEthernet2/35
B        172.16.10.0 [20/0] via 10.50.50.25 (Campus), 20:50:21
B        172.16.20.0 [20/0] via 10.50.50.21 (Univ), 20:50:21

------------------------------------------------------------------------


SDA-Fusion1#sh ip bgp vpnv4 vrf Campus

     Network          Next Hop            Metric LocPrf Weight Path
Route Distinguisher: 1:4099 (default for vrf Campus)
Import Map: Global_Map, Address-Family: IPv4 Unicast, Pfx Count/Limit: 1/10
Export Map: Campus_Map, Address-Family: IPv4 Unicast, Pfx Count/Limit: 1/10
 *>  10.10.10.8/30    0.0.0.0                  0         32768 i
 *>  172.16.10.0/24   10.50.50.25              0             0 65005 i
 *>  172.16.20.0/24   10.50.50.21              0             0 65005 i
```

```
SDA-Fusion1#sh ip bgp vpnv4 vrf Campus 172.16.20.0/24
BGP routing table entry for 1:4099:172.16.20.0/24, version 27
Paths: (1 available, best #1, table Campus)
 Advertised to update-groups:
 5
 Refresh Epoch 1
 65005, (aggregated by 65005 192.168.10.1), imported path from 1:4100:172.1
 10.50.50.21 (via vrf Univ) (via Univ) from 10.50.50.21 (192.168.10.1)
 Origin IGP, metric 0, localpref 100, valid, external, atomic-aggregate, be
 Extended Community: RT:1:4100
 rx pathid: 0, tx pathid: 0x0



SDA-Fusion1#sh ip route vrf Campus bgp


B        10.10.10.8/30 is directly connected, 20:46:51, GigabitEthernet2/35
B        172.16.10.0 [20/0] via 10.50.50.25, 20:50:07
B        172.16.20.0 [20/0] via 10.50.50.21 (Univ), 20:50:07

------------------------------------------------------------------------------


SDA-Fusion1#sh ip bgp vpnv4 vrf Univ

     Network          Next Hop            Metric LocPrf Weight Path
Route Distinguisher: 1:4100 (default for vrf Univ)
Import Map: Global_Map, Address-Family: IPv4 Unicast, Pfx Count/Limit: 1/10
Export Map: Univ_Map, Address-Family: IPv4 Unicast, Pfx Count/Limit: 1/1000
 *>  10.10.10.8/30    0.0.0.0                  0         32768 i
 *>  172.16.10.0/24   10.50.50.25              0             0 65005 i
 *>  172.16.20.0/24   10.50.50.21              0             0 65005 i


SDA-Fusion1#sh ip bgp vpnv4 vrf Univ 172.16.10.0/24
BGP routing table entry for 1:4100:172.16.10.0/24, version 25
Paths: (1 available, best #1, table Univ)
 Advertised to update-groups:
 4
 Refresh Epoch 1
```

```
 65005, (aggregated by 65005 192.168.10.1), imported path from 1:4099:172.1
 10.50.50.25 (via vrf Campus) (via Campus) from 10.50.50.25 (192.168.10.1)
 Origin IGP, metric 0, localpref 100, valid, external, atomic-aggregate, be
 Extended Community: RT:1:4099
 rx pathid: 0, tx pathid: 0x0



SDA-Fusion1#sh ip route vrf Univ bgp

B        10.10.10.8/30 is directly connected, 20:47:01, GigabitEthernet2/35
B        172.16.10.0 [20/0] via 10.50.50.25 (Campus), 20:50:17
B        172.16.20.0 [20/0] via 10.50.50.21, 20:50:17
```

Device: SDA-Fusion-2

```
SDA-Fusion2#sh ip bgp

     Network          Next Hop            Metric LocPrf Weight Path
 *>i 10.10.10.8/30    10.90.90.1               0    100      0 i
 *>  172.16.10.0/24   10.50.50.1               0             0 65005 i
 * i                  10.50.50.25              0    100      0 65005 i
 *>  172.16.20.0/24   10.50.50.9               0             0 65005 i
 * i                  10.50.50.21              0    100      0 65005 i


SDA-Fusion2#sh ip route

B        10.10.10.8/30 [200/0] via 10.90.90.1, 01:25:56
B        172.16.10.0 [20/0] via 10.50.50.1 (Campus), 01:25:56
B        172.16.20.0 [20/0] via 10.50.50.9 (Univ), 01:25:56

------------------------------------------------------------------------------

SDA-Fusion2#sh ip bgp vpnv4 vrf Campus

     Network          Next Hop            Metric LocPrf Weight Path
Route Distinguisher: 1:4099 (default for vrf Campus)
Import Map: Global_Map, Address-Family: IPv4 Unicast, Pfx Count/Limit: 1/10
Export Map: Campus_Map, Address-Family: IPv4 Unicast, Pfx Count/Limit: 1/10
 *>i 10.10.10.8/30    10.90.90.1               0    100      0 i
 *>  172.16.10.0/24   10.50.50.1               0             0 65005 i
```

```
 *>  172.16.20.0/24   10.50.50.9              0             0 65005 i


SDA-Fusion2#sh ip route vrf Campus bgp


B        10.10.10.8/30 [200/0] via 10.90.90.1, 01:26:09
B        172.16.10.0 [20/0] via 10.50.50.1, 01:26:13
B        172.16.20.0 [20/0] via 10.50.50.9 (Univ), 01:26:13

------------------------------------------------------------------------------

SDA-Fusion2#sh ip bgp vpnv4 vrf Univ

     Network          Next Hop            Metric LocPrf Weight Path
Route Distinguisher: 1:4100 (default for vrf Univ)
Import Map: Global_Map, Address-Family: IPv4 Unicast, Pfx Count/Limit: 1/10
Export Map: Univ_Map, Address-Family: IPv4 Unicast, Pfx Count/Limit: 1/1000
 *>i 10.10.10.8/30    10.90.90.1               0    100      0 i
 *>  172.16.10.0/24   10.50.50.1               0             0 65005 i
 *>  172.16.20.0/24   10.50.50.9               0             0 65005 i


SDA-Fusion2#sh ip route vrf Univ bgp


B        10.10.10.8/30 [200/0] via 10.90.90.1, 01:26:19
B        172.16.10.0 [20/0] via 10.50.50.1 (Campus), 01:26:23
B        172.16.20.0 [20/0] via 10.50.50.9, 01:26:23
```