



Appendix

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Appendix

The configuration of roles are given below.

Leaf Node Configuration

This is a configuration example for leaf brought up by POAP using FUJI2 leaf template. This example shows two route reflectors and LDAP configuration for auto-configuration.



Note

This is not a complete configuration, but only an illustration of configuration for unicast forwarding shown in Fabric Control Segment and BGP Control Plane.

The following is an example for BGP and FabricPath IS-IS:

```
install feature-set fabricpath
install feature-set fabric
feature-set fabricpath
feature-set fabric

feature fabric forwarding
feature bgp

ip access-list HOSTS
  10 permit ip any any
ipv6 access-list V6HOSTS
  10 permit ipv6 any any

ip prefix-list control-subnet seq 100 permit 44.2.0.0/22
route-map ALL-PATHS permit 10
  set path-selection all advertise
route-map FABRIC-RMAP-REDIST-HOST deny 10
  match interface Vlan1
route-map FABRIC-RMAP-REDIST-HOST permit 20
  match ip address HOSTS
route-map FABRIC-RMAP-REDIST-SUBNET permit 10
  match tag 12345
route-map FABRIC-RMAP-REDIST-V6HOST deny 10
  match interface Vlan1
route-map FABRIC-RMAP-REDIST-V6HOST permit 20
  match ip address V6HOSTS
```

```

route-map bgpMap permit 10
  match route-type internal
route-map bgp_next_hop_filter deny 100
  match ip address_prefix-list control-subnet
route-map bgp_next_hop_filter permit 200
  match ip address HOSTS

!control SVI
vlan 2
  mode fabricpath
interface Vlan1
  no shutdown
  mtu 9192
  ip address 44.2.3.33/22
  ipv6 forward
  fabric forwarding control-segment

router bgp 100
  !Generally the SVI address of the local control subnet
  router-id 44.2.3.33
  address-family ipv4 unicast
    redistribute hmm route-map FABRIC-RMAP-REDIST-HOST
    maximum-paths ibgp 2
    nexthop trigger-delay critical 250 non-critical 10000
    nexthop route-map bgp_next_hop_filter
    additional-paths receive
    additional-paths selection route-map ALL-PATHS
  address-family ipv6 unicast
    redistribute hmm route-map FABRIC-RMAP-REDIST-V6HOST
    maximum-paths ibgp 2
    nexthop trigger-delay critical 250 non-critical 10000
    additional-paths receive
    additional-paths selection route-map ALL-PATHS
  address-family vpnv4 unicast
    nexthop trigger-delay critical 250 non-critical 10000
    additional-paths receive
  address-family vpnv6 unicast
    nexthop trigger-delay critical 250 non-critical 10000
    additional-paths receive
  address-family ipv4 mvpn
    nexthop trigger-delay critical 250 non-critical 10000
    additional-paths receive
    additional-paths selection route-map ALL-PATHS
  address-family ipv6 mvpn
    nexthop trigger-delay critical 250 non-critical 10000
    additional-paths receive
    additional-paths selection route-map ALL-PATHS
!First RR
neighbor 44.2.0.101 remote-as 100
  address-family ipv4 unicast
    send-community both
  address-family ipv6 unicast
    send-community both
  address-family vpnv4 unicast
    send-community both
  address-family vpnv6 unicast
    send-community both
  address-family ipv4 mvpn
    send-community both
  address-family ipv6 mvpn
    send-community both
!Second RR
neighbor 44.2.0.144 remote-as 100
  address-family ipv4 unicast
    send-community both
  address-family ipv6 unicast
    send-community both
  address-family vpnv4 unicast
    send-community both
  address-family vpnv6 unicast
    send-community both
  address-family ipv4 mvpn

```

```

    send-community both
    address-family ipv6 mvpn
    send-community both

```

LDAP configuration with a backup LDAP. It is not mandatory to have second LDAP but we recommend.

```

fabric database type network
  server protocol ldap host ldap-server1.cisco.com vrf management enable-ssl
  db-table ou=networks,dc=cisco,dc=com key-type 1
  db-security user admin password cisco123

  server protocol ldap host ldap-server2.cisco.com vrf management enable-ssl
  db-table ou=networks,dc=cisco,dc=com key-type 1
  db-security user admin password cisco123

fabric database type profile
  server protocol ldap host ldap-server1.cisco.com vrf management enable-ssl
  db-table ou=profiles,dc=cisco,dc=com
  db-security user admin password cisco123

  server protocol ldap host ldap-server2.cisco.com vrf management enable-ssl
  db-table ou=profiles,dc=cisco,dc=com
  db-security user admin password cisco123

fabric database type partition
  server protocol ldap host ldap-server1.cisco.com vrf management enable-ssl
  db-table ou=partitions,dc=cisco,dc=com
  db-security user admin password cisco123

  server protocol ldap host ldap-server2.cisco.com vrf management enable-ssl
  db-table ou=partitions,dc=cisco,dc=com
  db-security user admin password cisco123

```

Route Reflector Configuration

The following is an example for BGP:

```

router bgp 100
!Generally the SVI address of the local control subnet
router-id 44.2.0.101
address-family ipv4 unicast
  maximum-paths ibgp 2
  nexthop trigger-delay critical 250 non-critical 10000
  additional-paths send
  additional-paths selection route-map ALL-PATHS
address-family ipv6 unicast
  maximum-paths ibgp 2
  nexthop trigger-delay critical 250 non-critical 10000
  additional-paths send
  additional-paths selection route-map ALL-PATHS
address-family vpnv4 unicast
  nexthop trigger-delay critical 250 non-critical 10000
  additional-paths send
  additional-paths receive
  additional-paths selection route-map ALL-PATHS
address-family vpnv6 unicast
  nexthop trigger-delay critical 250 non-critical 10000
  additional-paths send
  additional-paths receive
  additional-paths selection route-map ALL-PATHS
address-family ipv4 mvpn
  nexthop trigger-delay critical 250 non-critical 10000
  additional-paths send
  additional-paths receive
  additional-paths selection route-map ALL-PATHS
address-family ipv6 mvpn
  nexthop trigger-delay critical 250 non-critical 10000
  additional-paths send
  additional-paths receive
  additional-paths selection route-map ALL-PATHS

neighbor 44.2.0.0/22 remote-as 100

```

```

address-family ipv4 unicast
  send-community both
  route-reflector-client
address-family ipv6 unicast
  send-community both
  route-reflector-client
address-family vpnv4 unicast
  send-community both
  route-reflector-client
address-family vpnv6 unicast
  send-community both
  route-reflector-client
address-family ipv4 mvpn
  send-community both
  route-reflector-client
address-family ipv6 mvpn
  send-community both
  route-reflector-client

```

Border Leaf Node Configuration

The example shows the border leaf configuration. The border leaf specific configuration is in bold and the rest is common to interior leaf. A tenant configuration and its neighbor ship to DCI Edge router is also shown in this example.

The following is an example for BGP:

```

!One tenant which is extended to DC Edge box
vrf context CiscoLive:Part4
  vni 65004
  rd auto
  address-family ipv4 unicast
    route-target both auto

!Sub interface towards DC Edge box
interface port-channel400.1004
  encapsulation dot1q 1004
  vrf member CiscoLive:Part4
  ip address 4.1.1.2/24

!!Border leaf specific policy:
!Deny the default route received from within fabric by other border leaf(s) Permit any other
route
ip prefix-list default-route seq 5 permit 0.0.0.0/0 le 1
route-map deny-default-route deny 100
  match ip address prefix-list default-route
route-map deny-default-route permit 200
  match ip address HOSTS

router bgp 100

!Generally the SVI address of the local control subnet
router-id 44.2.3.63
fabric-soo 100:1
address-family ipv4 unicast
  redistribute hmm route-map FABRIC-RMAP-REDIST-HOST
  maximum-paths ibgp 2
  nexthop trigger-delay critical 250 non-critical 10000
  nexthop route-map bgp_next_hop_filter
  default-information originate
  additional-paths receive
  additional-paths selection route-map ALL-PATHS
address-family ipv6 unicast
  redistribute hmm route-map FABRIC-RMAP-REDIST-V6HOST
  maximum-paths ibgp 2
  nexthop trigger-delay critical 250 non-critical 10000
  default-information originate
  additional-paths receive
  additional-paths selection route-map ALL-PATHS
address-family vpnv4 unicast
  nexthop trigger-delay critical 250 non-critical 10000

```

```

!optional configuration: use when all tenants are on all Border Leafs
  default-information originate always rd 44.2.3.63:100 route-target 100:9999
  additional-paths receive
address-family vpnv6 unicast
  nexthop trigger-delay critical 250 non-critical 10000
!optional configuration: use when all tenants are on all Border Leafs
  default-information originate always rd 44.2.3.63:100 route-target 100:9999
  additional-paths receive
address-family ipv4 mvpn
  nexthop trigger-delay critical 250 non-critical 10000
  additional-paths receive
  additional-paths selection route-map ALL-PATHS
address-family ipv6 mvpn
  nexthop trigger-delay critical 250 non-critical 10000
  additional-paths receive
  additional-paths selection route-map ALL-PATHS
!First RR
neighbor 44.2.0.101 remote-as 100
  address-family ipv4 unicast
    send-community both
    route-map deny-default-route in
    next-hop-self
  address-family ipv6 unicast
    send-community both
  address-family vpnv4 unicast
    send-community both
    route-map deny-default-route in
  address-family vpnv6 unicast
    send-community both
  address-family ipv4 mvpn
    send-community both
  address-family ipv6 mvpn
    send-community both
!Second RR
neighbor 44.2.0.144 remote-as 100
  address-family ipv4 unicast
    send-community both
    route-map deny-default-route in
    next-hop-self
  address-family ipv6 unicast
    send-community both
  address-family vpnv4 unicast
    send-community both
    route-map deny-default-route in
  address-family vpnv6 unicast
    send-community both
  address-family ipv4 mvpn
    send-community both
  address-family ipv6 mvpn
    send-community both
!BGP session for tenant towards Border Leaf
vrf CiscoLive:Part4
  address-family ipv4 unicast
    maximum-paths 2
    maximum-paths ibgp 2
    additional-paths send
    additional-paths receive
    additional-paths selection route-map ALL-PATHS

!For Border Leaf to DC Edge tenant extension auto-configuration
fabric database override-vrf-profile vrf-common-universal-bl
server protocol ldap host ldap-server1.cisco.com vrf management enable-ssl
  db-table ou=profiles,dc=cisco,dc=com
  db-security user admin password cisco123

server protocol ldap host ldap-server2.cisco.com vrf management enable-ssl
  db-table ou=profiles,dc=cisco,dc=com
  db-security user admin password cisco123

fabric database type partition
server protocol ldap host ldap-server1.cisco.com vrf management enable-ssl
  db-table ou=partitions,dc=cisco,dc=com
  db-security user admin password cisco123

```

```

server protocol ldap host ldap-server2.cisco.com vrf management enable-ssl
db-table ou=partitions,dc=cisco,dc=com
db-security user admin password cisco123

!For Border Leaf to DC Edge tenant extension auto-configuration feature
fabric database type bl-dci
server protocol ldap host ldap-server1.cisco.com vrf management enable-ssl
db-table ou=bl-dcis,dc=cisco,dc=com
db-security user admin password cisco123

server protocol ldap host ldap-server2.cisco.com vrf management enable-ssl
db-table ou=bl-dcis,dc=cisco,dc=com
db-security user admin password cisco123

```

DC Edge Router

Example of tenant session towards border leaf for Cisco Nexus 7000 Series Switches running on 6.2 image.

```

!Sub interface towards border leaf
interface port-channel400.1004
encapsulation dot1q 1004
vrf member CiscoLive:Part4
ip address 4.1.1.1/24
no shutdown

!External RD and RT
vrf context CiscoLive:Part4
rd 65500:1604
address-family ipv4 unicast
route-target import 65500:1604
route-target export 65500:1604
router bgp 400
!BGP session towards border leaf
vrf CiscoLive:Part4
neighbor 4.1.1.2 remote-as 100
address-family ipv4 unicast
send-community both
default-originate

```