

# Cisco VTS Day Zero Configuration Examples

The following sections provide details about the different VTS deployment scenarios and the respective Day Zero configuration.

**Note:** For details about platforms that are supported in each role, see the Supported Platforms section in *Cisco VTS Installation Guide*.

- [VTS Day Zero Configuration for Various Roles and Platforms](#)
- [Day Zero Configuration Changes Required on IOS XRv](#)
- [Underlay Day Zero Routing to Advertise for VTF and IOSXRv n/w to all Devices in Data Center Topology](#)
- [VTF - Day Zero Configuration on Non-VTEP Devices](#)
- [IOS XRv Day Zero Configuration for High Availability](#)

## VTS Day Zero Configuration for Various Roles and Platforms

The following sections provide examples of day zero configurations required on different platforms, based on their role.

**Note:** You need to replace the variables (IP addresses, passwords, and so on) in the examples below with values from your own system.

- Day Zero Configuration—IOS XRv
- Day Zero Configuration—Cisco Nexus 9300 or Cisco Nexus 9500 as ToR
- Day Zero Configuration—Cisco Nexus 5600 as ToR
- Day Zero Configuration—Cisco Nexus 9300 or Cisco Nexus 9500 as DC Gateway
- Day Zero Configuration—Cisco Nexus 5600 as DC Gateway
- Day Zero Configuration—Cisco Nexus 9300 or Cisco Nexus 9500 or Cisco Nexus 5600 or Cisco Nexus 7000 as Spine
- Day Zero Configuration—Cisco ASR 9000 as DCI—VRF Peering Mode
- Day Zero Configuration—Cisco Nexus 7000 as DCI—VRF Peering Mode
- Day Zero Configuration—Cisco ASR 9000 as Integrated DCI (DCI and DC Gateway)
- Day Zero Configuration—Cisco Nexus 7000 as Integrated DCI (DCI and DC Gateway)

### Day Zero Configuration—IOS XRv

```
hostname xrvr01
logging buffered 5242880
logging buffered critical
logging facility syslog
service timestamps log datetime
telnet vrf default ipv4 server max-servers 10
line console
exec-timeout 0 0
!
line default
```

```
exec-timeout 0 0
!
control-plane
management-plane
  out-of-band
  interface MgmtEth0/0/CPU0/0
    allow all peer
    address ipv4 169.254.10.0/30
  !
  !
  !
  !
  !
  !
interface Loopback0
ipv4 address 20.1.0.4 255.255.255.255
!
interface MgmtEth0/0/CPU0/0
ipv4 address 169.254.10.2 255.255.255.0
!
interface GigabitEthernet0/0/0/0
ipv4 address 10.29.128.12 255.255.255.0
!
interface GigabitEthernet0/0/0/1
ipv4 address 172.20.111.28 255.255.255.0
!
interface GigabitEthernet0/0/0/2
shutdown
!

router static
maximum path ipv4 30000
address-family ipv4 unicast
  0.0.0.0/0 10.29.128.1
!
!
router ospf 100
area 0.0.0.0
  default-cost 10
  interface Loopback0
  !
  interface GigabitEthernet0/0/0/0
  !
  interface GigabitEthernet0/0/0/1
  !
!
!
platform mode production accept-eula
end
```

## Day Zero Configuration—Cisco Nexus 9300 or Cisco Nexus 9500 as ToR

```
hostname ToR1

vdc ToR1 id 1
feature telnet
feature nxapi
feature bash-shell
cfs eth distribute
nv overlay evpn
feature ospf
feature bgp
feature pim

feature isis
feature interface-vlan
feature vn-segment-vlan-based
feature lacp
feature dhcp
feature vpc
feature lldp
feature vtp
feature scp
feature nv overlay

username admin password cisco123 role network-admin

ip pim rp-address 2.2.2.2 group-list 224.0.0.0/4
ip pim ssm range 232.0.0.0/8
route-map vts-subnet-policy permit
vrf context management
    ip route 0.0.0.0/0 172.29.128.1
vpc domain 50
    peer-keepalive destination 172.29.128.8
    peer-gateway
    ip arp synchronize
interface Ethernet1/1
    Description ***Interface connected to Computel eth1***
    switchport mode trunk
    switchport trunk allowed vlan none
    spanning-tree port type edge trunk
    spanning-tree bpduguard enable
    spanning-tree bpdufilter enable
interface Ethernet1/2
    Description ***Interface connected to Controller1 eth1 for dhcp***
    switchport mode trunk
    switchport trunk allowed vlan none
    spanning-tree port type edge trunk
    spanning-tree bpduguard enable
    spanning-tree bpdufilter enable
interface Ethernet1/3
    Description ***Interface connected to Computel eth2 for vPC link***
    switchport mode trunk
    switchport trunk allowed vlan none
    speed 1000
    channel-group 100
    no shutdown
interface Ethernet1/4
    Description ***Interface connected to ToR2 eth1/4 for vPC peer link***
    switchport mode trunk
```

```
channel-group 20
no shutdown

interface Ethernet1/47
  Description ***Interface connected to ios-XRV1***
  switchport mode access
  switchport access vlan 800
  no shutdown
interface Ethernet1/48
  Description ***Interface connected to ios-XRV2***
  switchport mode access
  switchport access vlan 800
  no shutdown
interface Vlan800
  no shutdown
  ip address 88.88.88.1/24
  ip router ospf 100 area 0.0.0.0
  ip pim sparse-mode
interface port-channel20
  Description ***Port channel link connected to ToR2 vPC peer link***
  switchport mode trunk
  spanning-tree port type network
  speed 1000
  vpc peer-link
interface port-channel100
  Description ***Port channel link connected to compute1 link***
  switchport mode trunk
  switchport trunk allowed vlan none
  spanning-tree port type edge trunk
  spanning-tree bpduguard enable
  spanning-tree bpdufilter enable
  vpc 50

interface Ethernet2/1
  Description ***Interface connected to Spine eth2/1***
  no switchport
  ip address 11.1.1.2/24
  ip router ospf 100 area 0.0.0.0
  ip pim sparse-mode
  no shutdown
interface mgmt0
  vrf member management
  ip address 172.29.128.7/26
interface loopback0
  ip address 2.2.2.2/32
  ip router ospf 100 area 0.0.0.0
  ip pim sparse-mode
line console
line vty
boot nxos bootflash:/n9000-dk9.7.0.3.I1.1.bin
router ospf 100
  router-id 2.2.2.2
  area 0.0.0.0 default-cost 10
```

*If you do not intend to configure a route reflector in your network, you must add the BGP ASN manually.*

```
router bgp 1
  router-id 1.0.0.1
  address-family ipv4 unicast
  address-family l2vpn evpn
  neighbor 1.0.0.2 remote-as 1
    update-source loopback0
  address-family ipv4 unicast
  address-family l2vpn evpn
    send-community both
```

*If you intend to relay DHCP requests to a central DHCP server:*

```
feature dhcp
service dhcp
ip dhcp relay
ip dhcp relay information option
ip dhcp relay sub-option type cisco
ip dhcp relay information option vpn
```

**FEX configuration:**

```
install feature-set fex
feature-set fex

fex 101
  pinning max-links 1
  description "FEX101"

interface port-channel100
  switchport mode fex-fabric
  fex associate 101

interface Ethernet1/1-4
  channel-group 100
```

*In case you want to connect the server in a VPC mode with the FEX port, Server VPC mode is supported.*

**Server VPC config:**

**TOR1**

```
vpc domain 50
  role priority 100
  system-priority 100
  peer-keepalive destination 172.29.128.57 source 172.29.128.56
  peer-gateway

interface port-channel50
  switchport mode trunk
```

```
switchport trunk allowed vlan none
spanning-tree port type network
vpc peer-link

interface port-channel21
switchport mode trunk
switchport trunk allowed vlan none
vpc 21

interface Ethernet101/1/48
switchport mode trunk
switchport trunk allowed vlan none
channel-group 21 mode active
```

## TOR2

```
vpc domain 50
role priority 100
system-priority 100
peer-keepalive destination 172.29.128.56 source 172.29.128.57
peer-gateway

interface port-channel50
switchport mode trunk
switchport trunk allowed vlan none
spanning-tree port type network
vpc peer-link

interface port-channel21
switchport mode trunk
switchport trunk allowed vlan none
vpc 21

interface Ethernet101/1/48
switchport mode trunk
switchport trunk allowed vlan none
channel-group 21 mode active
```

## Day Zero Configuration—Cisco Nexus 5600 as ToR

```
hostname ToR2

install feature-set fabric
feature-set fabric
cfs eth distribute
feature fabric forwarding
nv overlay evpn
feature ospf
feature bgp
feature pim
feature interface-vlan
feature lacp
feature vpc
feature lldp
feature nv overlay
feature nxapi
feature vn-segment-vlan-based

hardware ethernet store-and-fwd-switching
configure profile vrf-tenant-profile
configure terminal
fabric forwarding switch-role leaf

username admin password cisco123 role network-admin

ip pim rp-address 1.1.1.1 group-list 239.0.0.0/24 bidir
ip pim ssm range 232.0.0.0/8
vrf context management
    ip route 0.0.0.0/0 172.29.128.1

vpc domain 50
    peer-keepalive destination 172.29.128.7
    peer-gateway
    ip arp synchronize

interface Vlan10
no shutdown
    ip address 1.0.1.1/24
    ip router ospf 1 area 0.0.0.0
    ip pim sparse-mode
vpc nve peer-link-vlan 10

interface Ethernet1/1
Description ***Interface connected to Compute2 eth1***
    switchport mode trunk
    switchport trunk allowed vlan none
    spanning-tree port type edge trunk
    spanning-tree bpduguard enable
    spanning-tree bpdufilter enable
interface Ethernet1/3
Description ***Interface connected to Computel1 eth3 for vPC link***
    switchport mode trunk
    switchport trunk allowed vlan none
    speed 1000
    channel-group 100
    no shutdown
    spanning-tree port type edge trunk
```

```

switchport trunk allowed vlan except 10

interface Ethernet1/4
  Description ***Interface connected to ToR2 eth1/4 for vPC peer link***
  switchport mode trunk
  channel-group 20
  no shutdown
interface port-channel20
  Description ***Port channel link connected to ToR1 vPC peer link***
  switchport mode trunk
  spanning-tree port type network
  speed 1000
  vpc peer-link
interface port-channel100
  Description ***Port channel link connected to compute2 link***
  switchport mode trunk
  switchport trunk allowed vlan none
  spanning-tree port type edge trunk
  spanning-tree bpduguard enable
  spanning-tree bpdufilter enable
  vpc 50
interface Ethernet2/1
  Description ***Interface connected to Spine eth2/1***
  no switchport
  ip address 12.1.1.2/24
  ip router ospf 100 area 0.0.0.0
  ip pim sparse-mode
  no shutdown
interface mgmt0
  vrf member management
  ip address 172.29.128.8/26
interface loopback0
  ip address 3.3.3.3/32
  ip router ospf 100 area 0.0.0.0
  ip pim sparse-mode
line console
line vty
boot nxos bootflash:/n9000-dk9.7.0.3.I1.1.bin
router ospf 100
  router-id 3.3.3.3
  area 0.0.0.0 default-cost 10

```

*If you do not intend to configure a route reflector in your network, you must add the BGP ASN manually.*

```

router bgp 1
  router-id 1.0.0.1
  address-family ipv4 unicast
  address-family l2vpn evpn
  neighbor 1.0.0.2 remote-as 1
  update-source loopback0
  address-family ipv4 unicast
  address-family l2vpn evpn
  send-community both

```



*If you intend to setup two 5600s in a VPC pair, as a prerequisite VPC should be configured.*

```
interface Vlan1001
  no shutdown
  ip address 1.0.1.1/24
  ip router ospf 1 area 0.0.0.0
  ip pim sparse-mode
  vpc nve peer-link-vlan 1001
```

*NVE config:*

```
interface nve1
  no shutdown
  source-interface loopback0
  host-reachability protocol bgp
```

*dot1q auto-config:*

```
platform fabric database dot1q disable
```

*If you intend to relay DHCP requests to a central DHCP server:*

```
feature dhcp
ip dhcp relay
ip dhcp relay information option
ip dhcp relay sub-option type cisco
ip dhcp relay information option vpn
```

**FEX configuration:**

```
feature fex
fex 101
  pinning max-links 1
  description "FEX0101"

fex 102
  pinning max-links 1
  description "FEX0102"

interface port-channel101
  fex associate 101

interface port-channel102
  fex associate 102

interface Ethernet1/1-2
  channel-group 102

interface Ethernet2/1
  channel-group 101
```

**VPC modes :**

---

FEX VPC:

```
feature vpc

vpc domain 100
  role priority 2000
  system-priority 4000
  peer-keepalive destination 172.29.128.55 source 172.29.128.54
  delay restore 150

interface port-channel30
  switchport mode trunk
  switchport trunk allowed vlan none
  spanning-tree port type network
  flowcontrol send on
  vpc peer-link

interface port-channel101
  switchport mode fex-fabric
  fex associate 101
  vpc 100

interface port-channel102
  switchport mode fex-fabric
  fex associate 102
  vpc 102

interface Ethernet101/1/1
  switchport mode trunk
  switchport trunk allowed vlan none

interface Ethernet101/1/2
  switchport mode trunk
  switchport trunk allowed vlan none

interface Ethernet101/1/3
  switchport mode trunk
  switchport trunk allowed vlan none
```

Enhanced VPC:

```
interface port-channel20
  switchport mode trunk
  switchport trunk allowed vlan none

interface Ethernet102/1/23
  switchport mode trunk
  switchport trunk allowed vlan none
  speed 1000
  channel-group 20 mode active

interface Ethernet101/1/48
  switchport mode trunk
  channel-group 20 mode active
```

## Day Zero Configuration—Cisco Nexus 9300 or Cisco Nexus 9500 as DC Gateway

```
hostname ToR3
vdc ToR1 id 1

feature telnet
feature nxapi
feature bash-shell
cfs eth distribute
nv overlay evpn
feature ospf
feature bgp
feature pim
feature isis
feature interface-vlan

feature vn-segment-vlan-based
feature lacp
feature dhcp
feature vpc

feature lldp
feature vtp
feature scp
feature nv overlay
username admin password cisco123 role network-admin
no password strength-check
ip domain-lookup
spanning-tree mode mst
snmp-server user admin network-admin auth md5 cisco123 priv cisco123
localizedkey

ip pim rp-address 2.2.2.2 group-list 224.0.0.0/4
ip pim ssm range 232.0.0.0/8

vrf context management
    ip route 0.0.0.0/0 172.29.128.1
interface Ethernet1/1
    Description ***Interface connected to Compute3 eth1***
    switchport mode trunk
    switchport trunk allowed vlan none
    spanning-tree port type edge trunk
    spanning-tree bpduguard enable
    spanning-tree bpdufilter enable
interface Ethernet1/2
    Description ***Interface connected to DCI G0/0/1/19***
    no switchport
    ip address 10.5.55.1/24
    no shutdown
interface Ethernet2/1
    Description ***Interface connected to Spine eth2/1***
    no switchport
    ip address 13.1.1.2/24
    ip router ospf 100 area 0.0.0.0
```

---

```
    ip pim sparse-mode
    no shutdown
interface mgmt0
    vrf member management
    ip address 172.29.128.9/26
interface loopback0
    ip address 4.4.4.4/32
    ip router ospf 100 area 0.0.0.0
    ip pim sparse-mode
line console
line vty
boot nxos bootflash:/n9000-dk9.7.0.3.I1.1.bin
router ospf 100
    router-id 4.4.4.4
        area 0.0.0.0 default-cost 10
```

## Day Zero Configuration—Cisco Nexus 5600 as DC Gateway

```
hostname ToR2

install feature-set fabric
feature-set fabric
cfs eth distribute
feature fabric forwarding
nv overlay evpn
feature ospf
feature bgp
feature pim
feature interface-vlan
feature lacp
feature vpc
feature lldp
feature nv overlay
feature nxapi
feature vn-segment-vlan-based

hardware ethernet store-and-fwd-switching
configure profile vrf-tenant-profile
configure terminal
fabric forwarding switch-role leaf

username admin password cisco123 role network-admin

ip pim rp-address 10.10.10.250 group-list 239.0.0.0/24 bidir
ip pim ssm range 232.0.0.0/8
vrf context management
    ip route 0.0.0.0/0 172.29.128.1

vpc domain 50
    peer-keepalive destination 172.29.128.7
    peer-gateway
    ip arp synchronize

interface Vlan10
    no shutdown
    ip address 1.0.1.1/24
    ip router ospf 1 area 0.0.0.0
    ip pim sparse-mode
vpc nve peer-link-vlan 10

interface Ethernet1/1
    Description ***Interface connected to Compute2 eth1***
    switchport mode trunk
    switchport trunk allowed vlan none
    spanning-tree port type edge trunk
    spanning-tree bpduguard enable
    spanning-tree bpdufilter enable
interface Ethernet1/3
    Description ***Interface connected to Compute1 eth3 for vPC link***
    switchport mode trunk
    switchport trunk allowed vlan none
    speed 1000
    channel-group 100
    no shutdown
interface Ethernet1/4
```

```

Description ***Interface connected to ToR2 eth1/4 for vPC peer link***
  switchport mode trunk
  channel-group 20
  no shutdown
interface port-channel20
  Description ***port channel link connected to ToR1 vPC peer link***
  switchport mode trunk
  spanning-tree port type network
  speed 1000
  vpc peer-link
interface Ethernet1/5
  Description ***Interface connected to DCI G0/0/1/19***
  no switchport
  ip address 10.5.55.1/24
  no shutdown
interface Ethernet2/1
  Description ***Interface connected to Spine eth2/1***
  no switchport
  ip address 12.1.1.2/24
  ip router ospf 100 area 0.0.0.0
  ip pim sparse-mode
  no shutdown
interface mgmt0
  vrf member management
  ip address 172.29.128.8/26
interface loopback0
  ip address 3.3.3.3/32
  ip router ospf 100 area 0.0.0.0
  ip pim sparse-mode

line console
line vty
boot nxos bootflash:/n9000-dk9.7.0.3.I1.1.bin
router ospf 100
  router-id 3.3.3.3
  area 0.0.0.0 default-cost 10

BGP:

router bgp 65000
router-id 10.10.10.211
address-family ipv4 unicast
neighbor 10.10.10.1 remote-as 65000
update-source loopback0
address-family l2vpn evpn
send-community both
neighbor 10.10.10.2 remote-as 65000
update-source loopback0
address-family l2vpn evpn
send-community both
neighbor 10.10.254.72 remote-as 100 <-- vrf peering to Edge Router
update-source loopback0
disable-connected-check
address-family ipv4 unicast
evpn

```

```
NVE interface:
```

```
interface nve1
no shutdown
source-interface loopback0
host-reachability protocol bgp
```

## Day Zero Configuration—Cisco Nexus 9300 or Cisco Nexus 9500 or Cisco Nexus 5600 or Cisco Nexus 7000 as Spine

```
hostname SolTB1-Spine1

vdc SolTB1-Spine1 id 1
  allocate interface Ethernet1/1-48
  allocate interface Ethernet2/1-12
  limit-resource vlan minimum 16 maximum 4094
  limit-resource vrf minimum 2 maximum 4096
  limit-resource port-channel minimum 0 maximum 512
  limit-resource u4route-mem minimum 248 maximum 248
  limit-resource u6route-mem minimum 96 maximum 96
  limit-resource m4route-mem minimum 58 maximum 58
  limit-resource m6route-mem minimum 8 maximum 8

feature telnet
feature nxapi
feature bash-shell
cfs eth distribute
nv overlay evpn
feature ospf
feature bgp
feature pim
feature isis
feature interface-vlan
feature vn-segment-vlan-based
feature lacp
feature vpc
feature vtp
feature lldp
feature nv overlay
username admin password cisco123 role network-admin
no password strength-check
ip domain-lookup
snmp-server user admin network-admin auth md5 cisco123 priv cisco123
localizedkey
rmon event 1 log trap public description FATAL(1) owner PMON@FATAL
rmon event 2 log trap public description CRITICAL(2) owner PMON@CRITICAL
rmon event 3 log trap public description ERROR(3) owner PMON@ERROR
rmon event 4 log trap public description WARNING(4) owner PMON@WARNING
rmon event 5 log trap public description INFORMATION(5) owner PMON@INFO
ip pim rp-address 2.2.2.2 group-list 224.0.0.0/4
ip pim ssm range 232.0.0.0/8
vlan 1
vrf context management
  ip route 0.0.0.0/0 172.20.98.193
interface Ethernet1/1
  Description ***Interface connected to XRVR1 G0/0/0/0***
  no switchport
```

```

        ip address 10.6.45.1/24
        no shutdown
interface Ethernet1/2
  Description ***Interface connected to XRVR2 G0/0/0/0***
  no switchport
  ip address 10.6.46.1/24
  no shutdown
interface Ethernet2/1
  Description ***Interface connected to ToR1 eth2/1***
  no switchport
  ip address 11.1.1.1/24
  ip router ospf 100 area 0.0.0.0
  ip pim sparse-mode
  no shutdown
interface Ethernet2/2
  Description ***Interface connected to ToR2 eth2/1***

  no switchport
  ip address 12.1.1.1/24
  ip router ospf 100 area 0.0.0.0
  ip pim sparse-mode
  no shutdown
interface Ethernet2/3
  Description ***Interface connected to ToR3 DC GW eth2/1***
  no switchport
  ip address 13.1.1.1/24
  ip router ospf 100 area 0.0.0.0
  ip pim sparse-mode
  no shutdown
interface mgmt0
  vrf member management
  ip address 172.20.98.206/26
interface loopback0
  ip address 5.5.5.5/32
  ip router ospf 100 area 0.0.0.0
  ip pim sparse-mode
line console
line vty
boot nxos bootflash:/n9000-dk9.6.1.2.I3.1.bin
router ospf 100
  router-id 5.5.5.5
  area 0.0.0.0 default-cost 10

```

## Day Zero Configuration—Cisco ASR 9000 as DCI—VRF Peering Mode

```

service unsupported-transceiver
hostname asr9k1
telnet ipv4 server max-servers 5
username admin
  password cisco123
  group root-system
  group cisco-support
interface MgmtEth0/0/CPU0/0
  ipv4 address 172.29.128.10 255.255.255.0
interface GigabitEthernet0/0/1/19
  description to peer node DC GW ToR3 eth1/2

```



---

```
    ipv4 address 10.5.55.2 255.255.255.0
interface loopback0
    ipv4 address 6.6.6.6/32
router static
    address-family ipv4 unicast
    0.0.0.0/0 172.29.128.1
rd-set auto
end-set
route-policy vts-route-policy
    pass
end-policy
lldp
```

## Day Zero Configuration—Cisco Nexus 7000 as DCI—VRF Peering Mode

```
hostname dci-tb19
no system admin-vdc
install feature-set fabricpath
install feature-set fabric
vdc dci-tb19 id 1
    limit-resource module-type f3
    allow feature-set fabricpath
    allow feature-set fabric
    cpu-share 5
    allocate interface Ethernet3/1-12
feature-set fabricpath
feature-set fabric
feature telnet
feature scp-server
cfs eth distribute

feature fabric forwarding
nv overlay evpn
feature ospf
feature bgp
feature pim
feature fabric multicast
feature interface-vlan
feature lacp
feature vpc
feature lldp
feature vtp
feature nv overlay
feature nxapi
feature vni
ip pim rp-address 11.1.1.1 group-list 224.0.0.0/4
ip pim ssm range 232.0.0.0/8
    bridge-domain 1001-2000
vrf context management
    ip route 0.0.0.0/0 172.20.100.1
hardware forwarding unicast trace
encapsulation vni dynamic dot1q 2-3967

interface mgmt0
    vrf member management
    ip address 172.20.100.199/24

interface Vlan1

interface Ethernet3/3
    description to peer node DC GW ToR3 eth1/2
    no switchport
    ip address 10.5.55.2 255.255.255.0
    no shutdown
interface loopback0
    ip address 12.1.1.1/32
    ip router ospf 100 area 0.0.0.0
    ip pim sparse-mode

line console
line vty
boot kickstart bootflash:/n7000-s2-kickstart.7.3.0.D1.0.64.gbin sup-1
```

```
boot system bootflash:/n7000-s2-dk9.7.3.0.D1.0.64.gbin sup-1
router ospf 100
    router-id 12.1.1.1
    area 0.0.0.0 default-cost 10
fabricpath domain default
no system default switchport shutdown
no system auto-upgrade epld
```

### Day Zero Configuration—Cisco ASR 9000 as Integrated DCI (DCI and DC Gateway)

```
service unsupported-transceiver
hostname asr9k1
telnet ipv4 server max-servers 5
username admin
    password cisco123
    group root-system
    group cisco-support
interface MgmtEth0/0/CPU0/0
    ipv4 address 172.29.128.10 255.255.255.0
interface GigabitEthernet0/0/1/19
    description Interface connected to Spine
    ipv4 address 20.0.1.3/24
    no shutdown
interface loopback0
    ipv4 address 6.6.6.6/32
router ospf 100
    router-id 6.6.6.6
    address-family ipv4 unicast
        area 0
            interface loopback0
            interface GigabitEthernet0/0/1/19
router static
    address-family ipv4 unicast
        0.0.0.0/0 172.29.128.1
rd-set auto
end-set
lldp
```

### Day Zero Configuration—Cisco Nexus 7000 as Integrated DCI (DCI and DC Gateway)

```
hostname dci-tb19
no system admin-vdc
install feature-set fabricpath
install feature-set fabric
vdc dci-tb19 id 1
    limit-resource module-type f3
    allow feature-set fabricpath
    allow feature-set fabric
    cpu-share 5
    allocate interface Ethernet3/1-12
feature-set fabricpath
feature-set fabric
feature telnet
feature scp-server
cfs eth distribute
```

```
feature fabric forwarding
nv overlay evpn
feature ospf
feature bgp
feature pim
feature fabric multicast
feature interface-vlan
feature lacp
feature vpc
feature lldp
feature vtp
feature nv overlay
feature nxapi
feature vni
ip pim rp-address 11.1.1.1 group-list 224.0.0.0/4
ip pim ssm range 232.0.0.0/8
    bridge-domain 1001-2000
vrf context vrf-tenant-profile
vrf context management
    ip route 0.0.0.0/0 172.20.100.1
hardware forwarding unicast trace
encapsulation vni dynamic dot1q 2-3967

interface mgmt0
    vrf member management
    ip address 172.20.100.199/24

interface Vlan1

interface Ethernet3/3
    Description ***Interface connected to Spine***
    no switchport
    ip address 20.0.1.3/24
    ip router ospf 100 area 0.0.0.0
    ip pim sparse-mode
    no shutdown
interface loopback0
    ip address 12.1.1.1/32
    ip router ospf 100 area 0.0.0.0
    ip pim sparse-mode

line console
line vty
boot kickstart bootflash:/n7000-s2-kickstart.7.3.0.D1.0.64.gbin sup-1
boot system bootflash:/n7000-s2-dk9.7.3.0.D1.0.64.gbin sup-1
router ospf 100
    router-id 12.1.1.1
    area 0.0.0.0 default-cost 10
fabricpath domain default
no system default switchport shutdown
no system auto-upgrade epld
```

## Day Zero Configuration Changes Required on IOS XRv

### Basic IGP Neighbor-ship for BGP EVPN Advertisement

```
interface GigabitEthernet0/0/0/0
  ipv4 address 10.29.128.12 255.255.255.0
interface Loopback0
  ipv4 address 20.1.0.4 255.255.255.255
!
router ospf 100
router-id 20.1.0.4
address-family ipv4 unicast
area 0.0.0.0
  default-cost 10
  interface Loopback0
  !
  interface GigabitEthernet0/0/0/0
  !
  interface GigabitEthernet0/0/0/1
  !
!
```

### Corresponding Day 0 Configuration on Leaf/Spine

```
router ospf 100
  router-id 4.4.4.4
  area 0.0.0.0 default-cost 10
interface loopback0
  ip address 4.4.4.4/32
  ip router ospf 100 area 0.0.0.0
  ip pim sparse-mode

vlan 800
no shutdown

interface Vlan800
  no shutdown
  ip address 10.29.128.1/24
  ip router ospf 100 area 0.0.0.0
  ip pim sparse-mode

interface ethernet 1/1 This is the interface where the IOS XRv connects to
leaf or spine
no shutdown
switchport mode access
switchport access vlan800
```

## Underlay Day Zero Routing to Advertise for VTF and IOSXRv n/w to all Devices in Data Center Topology

The VTF IP address needs to be routed via the underlay network so that the VTF endpoint is advertised to all

the physical Leaf and Spine in the Data Center network.

**Table 1) OSPF as Underlay Routing Protocol**

Sample OSPF Configuration on Leaf 1	
SVI for VTF n/w	interface Vlan800 no shutdown ip address 10.29.128.1/24 ip router ospf 100 area 0.0.0.0
OSPF Configuration	router ospf 100 router-id 4.4.4.4 area 0.0.0.0 default-cost 10 interface Vlan800 ip router ospf 100 area 0.0.0.0
Interface Configuration	interface ethernet 1/1 switchport access vlan 800
Sample OSPF Configuration on Leaf 2	
SVI for VTF n/w	vlan 800 interface Vlan800 no shutdown ip address 20.29.128.1/24 ip router ospf 100 area 0.0.0.0
OSPF Configuration	router ospf 100 router-id 5.5.5.5 area 0.0.0.0 default-cost 10 interface Vlan800 ip router ospf 100 area 0.0.0.0
Interface Configuration	interface ethernet 1/1 switchport access vlan 800
Verification of Routes	OSPF Process ID 100 VRF default, Routing Table (D) denotes route is directly attached (R) denotes route is in RIB 4.4.4.4/32 (intra)(D) area 0.0.0.0 via 4.4.4.4/Lo0* , cost 1 distance 110 7.7.7.7/32 (intra)(R) area 0.0.0.0 via 21.0.0.3/Eth1/13 , cost 5 distance 110 8.8.8.8/32 (intra)(R) area 0.0.0.0 via 5.1.1.10/Eth1/7 , cost 41 distance 110 9.9.9.9/32 (intra)(R) area 0.0.0.0 via 21.0.0.3/Eth1/13 , cost 9 distance 110 10.6.45.0/24 (intra)(D) area 0.0.0.0 via 10.6.45.0/Eth1/15* , cost 40 distance 110 10.29.128.0/24 (intra)(D) area 0.0.0.0 via 10.29.128.0/Vlan800* , cost 40 distance 110  OSPF Process ID 200 VRF default, Routing

	<p>Table</p> <p>(D) denotes route is directly attached</p> <p>(R) denotes route is in RIB</p> <p>5.5.5.5/32 (intra) (D) area 0.0.0.0 via 5.5.5.5/Lol* , cost 1 distance 110</p>
--	---

BGP helps scale routes through the data center. For an extensive large data center, BGP provides better scalable control plane to route tenant VM based traffic. BGP protocol can also be used to scale and route VTF underlay network.

**Table 2) BGP as Protocol for Routing VTF n/w Advertisements**

Sample BGP Configuration	
<p>Note: Use this as the Day0 BGP configuration if Route Reflectors are in your system.</p>	<pre>interface Vlan800 no shutdown ip address 10.29.128.1/24  router bgp 23 router-id 4.4.4.4 address-family ipv4 unicast network 10.29.128.56/32 network 10.29.128.57/32 nexthop route-map vts-subnet-policy address-family l2vpn evpn retain route-target all</pre>

**VTF - Day Zero Configuration on Non-VTEP Devices**

<pre>vlan 1,800 interface Vlan800 no shutdown ip address 10.29.128.1/24 interface Ethernet1/10 This is the interface from the compute to VTF. switchport mode trunk switchport trunk allowed vlan 800</pre>
---



## VTS L3 High Availability Day Zero Configuration

```
vrf VTS-MGMT
  address-family ipv4 unicast
  !
  !
interface Loopback0
  ipv4 address 8.8.8.8 255.255.255.255
  no shut
  !
interface GigabitEthernet0/0/0/1
no ipv4 address 60.60.60.4 255.255.255.0
  vrf VTS-MGMT
  ipv4 address 60.60.60.4 255.255.255.0
  !
router static
  maximum path ipv4 30000
  address-family ipv4 unicast
    0.0.0.0/0 60.60.60.1
  !
  vrf VTS-MGMT
    address-family ipv4 unicast
      0.0.0.0/0 60.60.60.1
  !
  !
  !
router ospf 100
  router-id 8.8.8.8
  address-family ipv4 unicast
  area 0.0.0.0
    default-cost 10
    interface Loopback0
      !
    interface GigabitEthernet0/0/0/0
      !
    !
    !
    !

vrf VTS-MGMT
  address-family ipv4 unicast
  !
  !
interface Loopback0
  ipv4 address 52.52.52.52 255.255.255.255
  no shut
  !
interface GigabitEthernet0/0/0/1
no ipv4 address 70.70.70.4 255.255.255.0
  vrf VTS-MGMT
  ipv4 address 70.70.70.4 255.255.255.0
  !
router static
  maximum path ipv4 30000
  address-family ipv4 unicast
    0.0.0.0/0 70.70.70.1
```

---

```
!  
vrf VTS-MGMT  
  address-family ipv4 unicast  
    0.0.0.0/0 70.70.70.1  
  !  
!  
!  
router ospf 100  
  router-id 52.52.52.52  
  address-family ipv4 unicast  
  area 0.0.0.0  
    default-cost 10  
  interface Loopback0  
  !  
  interface GigabitEthernet0/0/0/0  
  !  
!  
!
```

