

Port Channels and STP

Rapid PVST+

```
spanning-tree mode rapid-pvst
spanning-tree vlan 1,2,4,6,8 root primary
spanning-tree vlan 3,5,7,9,11 root secondary
```

STP Edge Port

```
Interface Ethernet 2/1
spanning-tree port type edge
```

BPDY Guard

```
interface Ethernet 2/1
spanning-tree bpduguard enable
```

BPDU Filter

```
interface Ethernet 2/1
spanning-tree bpdufilter enable
```

Root Guard

```
interface Ethernet 3/1
spanning-tree guard root
```

Loop Guard

```
interface Ethernet 3/1
spanning-tree guard loop
```

LACP

```
feature lacp
!
interface type ethernet 2/1
channel-group number mode { active | on | passive }
```

Examine Port Channel

```
!
show port-channel summary
```

Examine Load Balancing

```
show port-channel load-balance
```

vPC Configuration

```
!
feature vpc
!
vpc domain 10
peer-keepalive destination 10.10.10.11 source 10.10.10.10 vrf vPC-
VRF
!
interface port-channel 1
vpc peer-link
!
interface port-channel 2
vpc 10
```

vPC Peer Switch

```
Switch(config-vpc-domain)# peer-switch
```

FHRP Commands

HSRP

```
feature hsrp
!
interface vlan 40
ip address 10.40.40.2 255.255.255.0
hsrp 40
priority 100
preempt
preempt delay minimum 60
ip 10.40.40.1
no shutdown
```

Tracking

```
!
track 1 interface eth 1/1 line-protocol
track 2 interface eth 1/2 line protocol
!
interface vlan 40
ip-address 10.40.40.2
hsrp 40
ip 10.40.40.1
priority 100
track 1 decrement 15
track 2 decrement 15
preempt
```

Routing Protocols

OSPV2

```
feature ospf
!
router ospf 1
router-id 1.1.1.1
log-adjacency-changes
auto-cost reference-bandwidth 100 Gbps
!
interface vlan 30,40
ip router ospf 1 area 1
!
interface ethernet 2/1
ip router ospf 1 area 0
ip ospf authentication message-digest
ip ospf message-digest-key 1 md5 cisco
```

OSPF v3

```
feature ospfv3
!
router ospfv3 1
router-id 1.1.1.1
log-adjacency-changes
auto-cost ref-bandwidth 100 Gbps
!
interface vlan 30, 40
ip router ospfv3 1 area 1
!
interface ethernet 2/1
ip router ospfv3 1 area 0
```

BFD

```
!
no hardware ip verify address
!
feature bfd
!
interface ethernet 1/2-4
no ip redirects
!
router ospf 1
bfd
!
interface vlan 10
no ip redirects
no ipv6 redirects
hsrp bfd
```

Show BFD

```
show bfd neighbors detail
```

BGP

```
!  
feature bgp  
!  
router bgp 62000  
router-id 1.1.1.1  
address-family ipv4 unicast  
network 200.100.50.0/21  
  
neighbor 200.100.50.2 remote-as 62001  
description ISP  
address-family ipv4 unicast  
next-hop-self  
neighbor 192.168.1.2 remote-as 62000  
description internal peer N7K-2  
update-source Loopback 0  
address-family ipv4 unicast
```

MP-BGP

```
interface ethernet 1/6  
ipv6 address 2001:00B2::1  
!  
router bgp 62000  
neighbor 192.168.1.2 remote-as 22003  
address-family ipv4 multicast  
address-family ipv6 multicast  
!  
router bgp 61000  
template peer-policy BasePolicy  
maximum-prefix 20  
!  
neighbor 192.168.1.1 remote-as 61001  
address-family ipv4 unicast  
inherit peer-policy BasePolicy
```

IP Multicast

IGMP and MLD

```
Switch(config)# interface interface-name
Switch(config-if)# ip igmp version version
Switch(config-if)# ipv6 mld version version
!
Switch# show ip igmp interface brief
Switch# show ip igmp groups 239.1.1.1
Switch(config)# no ip igmp snooping
Switch(config)# vlan vlan-id
Switch(config-vlan)# no ip igmp snooping
```

PIM-SM

```
SwitchA(config)# feature pim
Switch(config)# interface ethernet 1/1-2
Switch(config-if-range)# ip pim sparse-mode
Switch(config)# ip pim rp-address 10.10.10.10 group-list 224.0.0.0/9
!
SwitchRP(config)# ip pim auto-rp rp-candidate ethernet 2/1 group-
list 239.0.0.0/24
SwitchMA(config)# ip pim auto-rp mapping-agent ethernet 2/1
!
Switch# show ip pim interface brief
Switch# show ip pim neighbor
Switch# show ip pim rp
Switch# show ip pim group-range
Switch# show ip mroute 239.1.1.1
```

Overlay

OTV

```
!
N7K-1(config)# feature otv
N7K-1(config)# otv site-vlan 108
N7K-1(config-site-vlan)# otv site-identifier 1.1.1
N7K-1(config)# interface ethernet 2/1
N7K-1(config-if)# mtu 9000
N7K-1(config-if)# ip igmp version 3
N7K-1(config)# interface overlay 1
N7K-1(config-if-overlay)# otv join-interface ethernet 2/1
N7K-1(config-if-overlay)# otv control-group 239.1.1.1
N7K-1(config-if-overlay)# otv data-group 239.1.1.0/28
N7K-1(config-if-overlay)# otv extend-vlan 100
N7K-1(config-if-overlay)# no shutdown
!
N7K-1# show otv
N7K-1# show otv adjacency
N7K-1# show otv route
N7K-1# copy running-config startup-config
```

VXLAN

```
N7K-1(config)# feature pim
N7K-1(config)# ip pim rp-address 192.168.1.1 group-list 224.0.0.0/4
N7K-1(config)# interface ethernet 3/1
N7K-1(config-if)# ip pim sparse-mode
N7K-1(config-if)# interface loopback 0
N7K-1(config-if)# ip pim sparse-mode
!
N7K-1# show ip pim neighbor
!
N7K-1(config)# feature nv overlay
N7K-1(config)# feature vni
!
N7K-1(config)# system bridge-domain 21
N7K-1(config)# vrf context Tenant
N7K-1(config-vrf)# interface bdi21
N7K-1(config-if)# no shutdown
N7K-1(config-if)# vrf member Tenant
N7K-1(config-if)# ip address 192.168.21.2/24
!
N7K-1(config)# vni 10201
N7K-1(config-if-nve)# bridge-domain 21
N7K-1(config-bdomain)# member vni 10201
!
N7K-1(config)# interface nve 1
N7K-1(config-if-nve)# no shutdown
N7K-1(config-if-nve)# source-interface loopback0
N7K-1(config-if-nve)# member vni 10201 mcast-group 225.1.2.1
!
N7K-1(config)# encapsulation profile vni DC_VXLAN
N7K-1(config-vni-encap-prof)# dot1q 201 vni 10201
!
(N7K-1(config)# interface ethernet 2/1
N7K-1(config-if)# service instance 1 vni
N7K-1(config-if-srv-vni)# encapsulation profile DC_VXLAN default
N7K-1(config-if-srv-vni)# no shutdown

N7K-1# show bridge-domain
```