

### **Access Switches (lan1) Running config:**

```
Building configuration...
Current configuration : 5343 bytes
!
version 15.0
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Access-SW1
!
enable secret 5 $1$mERr$kym/hWmWrJHQirPTzUhSK0
!
!
!
ip domain-name cisco.com
!
username admin secret 5 $1$mERr$kym/hWmWrJHQirPTzUhSK0
!
!
!
lldp run
!
spanning-tree mode pvst
spanning-tree extend system-id
!
interface Port-channel1
switchport trunk allowed vlan 10,20,30
switchport mode trunk
!
interface Port-channel2
switchport trunk allowed vlan 10,20,30
switchport mode trunk
!
interface FastEthernet0/1
switchport access vlan 10
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
```

```
interface FastEthernet0/2
switchport access vlan 10
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/3
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/4
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/5
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/6
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/7
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/8
```

```
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/9
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/10
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/11
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/12
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/13
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/14
switchport mode access
switchport port-security
```

```
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/15
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/16
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/17
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/18
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/19
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/20
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
```

```
spanning-tree bpduguard enable
!
interface FastEthernet0/21
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/22
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/23
switchport trunk allowed vlan 10,20,30
switchport mode trunk
channel-group 2 mode active
!
interface FastEthernet0/24
switchport trunk allowed vlan 10,20,30
switchport mode trunk
channel-group 2 mode active
!
interface GigabitEthernet0/1
switchport trunk allowed vlan 10,20,30
switchport mode trunk
channel-group 1 mode active
!
interface GigabitEthernet0/2
switchport trunk allowed vlan 10,20,30
switchport mode trunk
channel-group 1 mode active
!
interface Vlan1
no ip address
shutdown
!
interface Vlan10
ip address 192.168.10.4 255.255.255.0
!
interface Vlan20
```

```
no ip address
!
interface Vlan30
no ip address
!
!
!
```

**Access SW (Lan2 [remote lan]) running config:**

Building configuration...

```
Current configuration : 5174 bytes
!
version 15.0
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Switch
!
enable secret 5 $1$mERr$kym/hWmWrJHQirPTzUhSK0
!
!
!
!
ip arp inspection vlan 10
!
ip dhcp snooping vlan 10
ip dhcp snooping
!
spanning-tree mode pvst
spanning-tree extend system-id
!
interface FastEthernet0/1
switchport access vlan 10
switchport mode access
switchport port-security
switchport port-security mac-address sticky
switchport port-security mac-address sticky 000D.BD64.5EA9
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/2
```

```
switchport access vlan 10
ip arp inspection trust
ip dhcp snooping trust
switchport mode access
switchport port-security
switchport port-security mac-address sticky
switchport port-security mac-address sticky 0002.17AD.249E
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/3
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/4
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/5
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/6
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/7
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
```

```
!
interface FastEthernet0/8
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/9
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/10
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/11
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/12
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/13
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/14
```

```
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/15
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/16
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/17
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/18
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/19
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/20
switchport mode access
switchport port-security
```

```
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/21
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/22
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/23
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/24
switchport mode access
switchport port-security
switchport port-security mac-address sticky
spanning-tree portfast
spanning-tree bpduguard enable
!
interface GigabitEthernet0/1
switchport trunk allowed vlan 10
ip arp inspection trust
ip dhcp snooping trust
switchport mode trunk
!
interface GigabitEthernet0/2
!
interface Vlan1
no ip address
shutdown
!
```

```
!
!
!
line con 0
!
line vty 0 4
 login
line vty 5 15
 login
!
!
!
!
end
```

### **Multilayer Switch config:**

```
Building configuration...
Current configuration : 3189 bytes
!
version 16.3.2
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Dist-SW1
!
!
no profinet
enable secret 5 $1$mERr$kym/hWmWrJHQirPTzUhSK0
!
!
!
!
!
no ip cef
ip routing
!
no ipv6 cef
!
!
```

```
!ldp run
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
spanning-tree mode pvst
spanning-tree vlan 10,20,30 priority 4096
!
!
!
!
!
!
!
!
!
!
!
interface Port-channel1
switchport trunk allowed vlan 10,20,30
switchport mode trunk
!
interface Port-channel2
switchport trunk allowed vlan 10,20,30
switchport mode trunk
!
interface Port-channel3
switchport trunk allowed vlan 10,20,30
switchport mode trunk
!
interface Port-channel4
switchport trunk allowed vlan 10,20,30
switchport mode trunk
!
interface GigabitEthernet1/0/1
switchport trunk allowed vlan 10,20,30
switchport mode trunk
channel-group 1 mode active
!
interface GigabitEthernet1/0/2
switchport trunk allowed vlan 10,20,30
switchport mode trunk
```

```
channel-group 1 mode active
!
interface GigabitEthernet1/0/3
switchport trunk allowed vlan 10,20,30
switchport mode trunk
channel-group 2 mode active
!
interface GigabitEthernet1/0/4
switchport trunk allowed vlan 10,20,30
switchport mode trunk
channel-group 2 mode active
!
interface GigabitEthernet1/0/5
switchport trunk allowed vlan 10,20,30
switchport mode trunk
channel-group 3 mode active
!
interface GigabitEthernet1/0/6
switchport trunk allowed vlan 10,20,30
switchport mode trunk
channel-group 3 mode active
!
interface GigabitEthernet1/0/7
!
interface GigabitEthernet1/0/8
!
interface GigabitEthernet1/0/9
!
interface GigabitEthernet1/0/10
!
interface GigabitEthernet1/0/11
!
interface GigabitEthernet1/0/12
!
interface GigabitEthernet1/0/13
!
interface GigabitEthernet1/0/14
!
interface GigabitEthernet1/0/15
!
interface GigabitEthernet1/0/16
!
interface GigabitEthernet1/0/17
!
```

```
interface GigabitEthernet1/0/18
!
interface GigabitEthernet1/0/19
!
interface GigabitEthernet1/0/20
!
interface GigabitEthernet1/0/21
!
interface GigabitEthernet1/0/22
!
interface GigabitEthernet1/0/23
switchport trunk allowed vlan 10,20,30
switchport mode trunk
channel-group 4 mode active
!
interface GigabitEthernet1/0/24
switchport trunk allowed vlan 10,20,30
switchport mode trunk
channel-group 4 mode active
!
interface GigabitEthernet1/1/1
no switchport
ip address 10.0.0.1 255.255.255.252
!
interface GigabitEthernet1/1/2
!
interface GigabitEthernet1/1/3
!
interface GigabitEthernet1/1/4
!
interface Vlan1
no ip address
shutdown
!
interface Vlan10
mac-address 0010.113c.8701
ip address 192.168.10.3 255.255.255.0
standby 10 ip 192.168.10.1
!
interface Vlan20
mac-address 0010.113c.8702
ip address 192.168.20.3 255.255.255.0
ip helper-address 192.168.10.5
standby 20 ip 192.168.20.1
```

```
!
interface Vlan30
mac-address 0010.113c.8703
ip address 192.168.30.3 255.255.255.0
ip helper-address 192.168.10.5
standby 30 ip 192.168.30.1
!
router ospf 10
router-id 2.2.2.2
log-adjacency-changes
network 10.0.0.0 0.0.0.3 area 1
network 192.168.0.0 0.0.255.255 area 1
!
ip classless
ip route 0.0.0.0 0.0.0.0 10.0.0.2
!
ip flow-export version 9
!
!
!
!
!
!
line con 0
!
line aux 0
!
line vty 0 4
login
!
!
!
!
end
```

### **Edge Router 1 Config:**

Building configuration...

```
Current configuration : 1999 bytes
!
version 15.1
no service timestamps log datetime msec
no service timestamps debug datetime msec
```

```
no service password-encryption
!
hostname Edge-Router-1
!
!
!
enable secret 5 $1$mERr$kym/hWmWrJHQirPTzUhSK0
!
!
!
!
!
no ip cef
no ipv6 cef
!
!
!
!
!
license udi pid CISCO2911/K9 sn FTX15244YN2-
license boot module c2900 technology-package securityk9
!
!
!
crypto isakmp policy 10
encr aes 256
authentication pre-share
group 5
lifetime 3600
!
crypto isakmp key Cisco123! address 203.0.113.5
!
!
!
crypto ipsec transform-set GRE-TS esp-aes 256 esp-sha-hmac
!
crypto map GRE-MAP 10 ipsec-isakmp
set peer 203.0.113.5
set transform-set GRE-TS
match address 101
!
!
!
```

```
!
!
!
!
spanning-tree mode pvst
!
!
!
!
!
!
interface Tunnel1
ip address 10.10.10.1 255.255.255.252
mtu 1476
tunnel source GigabitEthernet0/2/0
tunnel destination 203.0.113.5
!
!
interface GigabitEthernet0/0
no ip address
duplex auto
speed auto
shutdown
!
interface GigabitEthernet0/1
no ip address
duplex auto
speed auto
shutdown
!
interface GigabitEthernet0/2
no ip address
duplex auto
speed auto
shutdown
!
interface GigabitEthernet0/0/0
ip address 10.0.0.2 255.255.255.252
ip ospf cost 90
ip nat inside
!
interface GigabitEthernet0/1/0
ip address 10.0.0.6 255.255.255.252
ip ospf cost 100
```

```
ip nat inside
!
interface GigabitEthernet0/2/0
 ip address 203.0.113.1 255.255.255.252
ip nat outside
crypto map GRE-MAP
!
interface Vlan1
 no ip address
 shutdown
!
router ospf 10
 router-id 3.3.3.3
log-adjacency-changes
network 10.0.0.0 0.0.0.3 area 1
network 10.0.0.4 0.0.0.3 area 1
network 10.10.10.0 0.0.0.3 area 0
!
ip nat inside source list 100 interface GigabitEthernet0/2/0 overload
ip classless
ip route 203.0.113.5 255.255.255.255 203.0.113.2
ip route 0.0.0.0 0.0.0.0 203.0.113.2
!
ip flow-export version 9
!
!
access-list 100 permit ip 192.168.0.0 0.0.255.255 any
access-list 101 permit gre host 203.0.113.1 host 203.0.113.5
!
!
!
!
!
line con 0
!
line aux 0
!
line vty 0 4
 login
!
!
!
end
```