

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  
!  
!  
!  
!
```

```
lldp 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
```