

Configuration of a Layer 3 Dual-Core Switch



Overview

This video was associated with the source search result. Verify technical details against current product documentation and project requirements.

Key Takeaways

A Layer 3 dual-core switch can be configured using SVIs for inter-VLAN routing, routed ports for point-to-point links, and enabling IP routing to forward traffic between VLANs and external networks.

Step 1: Enable Layer 3 Routing

Before configuring interfaces, ensure the switch is operating in Layer 3 mode. On Cisco switches, this is typically done with the global configuration command `ip routing` to enable IPv4 routing. For Meraki switches, navigate to Switching > Configure > Routing & DHCP and initialize Layer 3 routing.

Step 2: Create VLANs

Define the VLANs that will segment your network. For example:

```
vlan 10 name Data  
vlan 20 name Voice  
vlan 30 name Management
```

Verify VLAN creation using `show vlan brief`.

Step 3: Configure Switched Virtual Interfaces (SVIs)

SVIs act as Layer 3 gateways for each VLAN. Assign an IP address to each SVI:

```
interface vlan 10 ip address 192.168.10.1 255.255.255.0 no shutdown
interface vlan 20 ip address 192.168.20.1 255.255.255.0 no shutdown
interface vlan 30 ip address 192.168.30.1 255.255.255.0 no shutdown
```

Each SVI should be in a unique subnet, and the line protocol must be up for routing to function .

Step 4: Configure Access and Trunk Ports

Assign access ports to VLANs for end devices:

```
interface fastEthernet 0/1 switchport mode access switchport access vlan 10
interface fastEthernet 0/2 switchport mode access switchport access vlan 20
```

Configure uplink ports as trunks to carry multiple VLANs between switches:

```
interface gigabitEthernet 1/1 switchport mode trunk switchport trunk allowed vlan 10,20,30
```

Ensure VLAN consistency across all connected switches .

Step 5: Configure Routed Ports (Optional)

For point-to-point links between Layer 3 devices, convert a Layer 2 port to a routed port:

```
interface gigabitEthernet 1/2 no switchport ip address 10.1.1.1 255.255.255.252 no shutdown
```

Routed ports create separate Layer 3 segments and are ideal for inter-switch or router connections .

Step 6: Configure Default Gateway and Routing

Set a default route for traffic leaving the switch:

```
ip route 0.0.0.0 0.0.0.0 192.168.30.254
```

For dynamic routing, enable protocols like OSPF or EIGRP on the SVIs or routed ports as needed .

Step 7: Verification

- Test inter-VLAN connectivity using ping between hosts in different VLANs.
 - Verify SVI status with show ip interface brief.
 - Confirm routing table entries with show ip route .
- Best Practices for Dual-Core Switches
- Use redundant uplinks and configure ECMP for load balancing.
 - Keep management VLAN separate from data and voice VLANs.

- Monitor CPU and memory usage to ensure dual-core resources are optimized.
 - Apply access control lists (ACLs) on SVIs or routed ports to segment traffic securely.
- By following these steps, a Layer 3 dual-core switch can efficiently handle inter-VLAN routing, point-to-point connections, and scalable enterprise traffic management.

Article Content

Configuring Layer 3 Interfaces

All Ethernet ports are switched interfaces by default. You can change this default behavior with the CLI setup script or through the

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