WITHARANA A.D.S.

2022/E/008

| **Department** | **Device Type** | **Total Devices** | **Future Growth (30%)** | **Required Hosts** | **Subnet Mask** | **Network Address** | **Usable IP Range** | **Broadcast Address** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Computer Eng** | Students | 250 | 325 | 512 | 255.255.254.0 (/23) | 192.168.0.0 | 192.168.0.1 - 192.168.1.254 | 192.168.1.255 |
|  | Staff | 50 | 65 | 128 | 255.255.255.128 (/25) | 192.168.2.0 | 192.168.2.1 - 192.168.2.126 | 192.168.2.127 |
|  | Other Devices | 27 | 35 | 64 | 255.255.255.192 (/26) | 192.168.2.128 | 192.168.2.129 - 192.168.2.190 | 192.168.2.191 |
| **EE Eng** | Students | 150 | 195 | 256 | 255.255.255.0 (/24) | 192.168.3.0 | 192.168.3.1 - 192.168.3.254 | 192.168.3.255 |
|  | Staff | 50 | 65 | 128 | 255.255.255.128 (/25) | 192.168.4.0 | 192.168.4.1 - 192.168.4.126 | 192.168.4.127 |
|  | Other Devices | 17 | 22 | 32 | 255.255.255.224 (/27) | 192.168.4.128 | 192.168.4.129 - 192.168.4.158 | 192.168.4.159 |
| **Civil Eng** | Students | 75 | 98 | 128 | 255.255.255.128 (/25) | 192.168.5.0 | 192.168.5.1 - 192.168.5.126 | 192.168.5.127 |
|  | Staff | 25 | 33 | 64 | 255.255.255.192 (/26) | 192.168.5.128 | 192.168.5.129 - 192.168.5.190 | 192.168.5.191 |
|  | Other Devices | 7 | 10 | 16 | 255.255.255.240 (/28) | 192.168.5.192 | 192.168.5.193 - 192.168.5.206 | 192.168.5.207 |
| **Mech Eng** | Students | 75 | 98 | 128 | 255.255.255.128 (/25) | 192.168.6.0 | 192.168.6.1 - 192.168.6.126 | 192.168.6.127 |
|  | Staff | 25 | 33 | 64 | 255.255.255.192 (/26) | 192.168.6.128 | 192.168.6.129 - 192.168.6.190 | 192.168.6.191 |
|  | Other Devices | 12 | 16 | 32 | 255.255.255.224 (/27) | 192.168.6.192 | 192.168.6.193 - 192.168.6.222 | 192.168.6.223 |
| **IDS** | Students | 15 | 20 | 32 | 255.255.255.224 (/27) | 192.168.7.0 | 192.168.7.1 - 192.168.7.30 | 192.168.7.31 |
|  | Staff | 25 | 33 | 64 | 255.255.255.192 (/26) | 192.168.7.32 | 192.168.7.33 - 192.168.7.94 | 192.168.7.95 |
|  | Other Devices | 7 | 10 | 16 | 255.255.255.240 (/28) | 192.168.7.96 | 192.168.7.97 - 192.168.7.110 | 192.168.7.111 |
| **Administration** | Staff | 25 | 33 | 64 | 255.255.255.192 (/26) | 192.168.8.0 | 192.168.8.1 - 192.168.8.62 | 192.168.8.63 |
|  | Printers | 5 | 7 | 16 | 255.255.255.240 (/28) | 192.168.8.64 | 192.168.8.65 - 192.168.8.78 | 192.168.8.79 |
| **CCTV System** | CCTV Cameras | 50 | 65 | 128 | 255.255.255.128 (/25) | 192.168.9.0 | 192.168.9.1 - 192.168.9.126 | 192.168.9.127 |

**VLAN & Subnet Table**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Department** | **VLAN ID** | **Device Type** | **Subnet** | **Subnet Mask** | **Network Address** |
| **Computer Eng** | **10** | **Students** | 192.168.0.0/23 | 255.255.254.0 | 192.168.0.0 |
|  | **20** | **Staff** | 192.168.2.0/25 | 255.255.255.128 | 192.168.2.0 |
|  | **30** | **Other Devices** | 192.168.2.128/26 | 255.255.255.192 | 192.168.2.128 |
| **EEE** | **40** | **Students** | 192.168.3.0/24 | 255.255.255.0 | 192.168.3.0 |
|  | **50** | **Staff** | 192.168.4.0/25 | 255.255.255.128 | 192.168.4.0 |
|  | **60** | **Other Devices** | 192.168.4.128/27 | 255.255.255.224 | 192.168.4.128 |
| **Civil Eng** | **70** | **Students** | 192.168.5.0/25 | 255.255.255.128 | 192.168.5.0 |
|  | **80** | **Staff** | 192.168.5.128/26 | 255.255.255.192 | 192.168.5.128 |
|  | **90** | **Other Devices** | 192.168.5.192/28 | 255.255.255.240 | 192.168.5.192 |
| **Mech Eng** | **100** | **Students** | 192.168.6.0/25 | 255.255.255.128 | 192.168.6.0 |
|  | **110** | **Staff** | 192.168.6.128/26 | 255.255.255.192 | 192.168.6.128 |
|  | **120** | **Other Devices** | 192.168.6.192/27 | 255.255.255.224 | 192.168.6.192 |
| **IDS** | **130** | **Students** | 192.168.7.0/27 | 255.255.255.224 | 192.168.7.0 |
|  | **140** | **Staff** | 192.168.7.32/26 | 255.255.255.192 | 192.168.7.32 |
|  | **150** | **Other Devices** | 192.168.7.96/28 | 255.255.255.240 | 192.168.7.96 |
| **Admin** | **160** | **Staff** | 192.168.8.0/26 | 255.255.255.192 | 192.168.8.0 |
|  | **170** | **Printers** | 192.168.8.64/28 | 255.255.255.240 | 192.168.8.64 |
| **CCTV** | **180** | **CCTV Cameras** | 192.168.9.0/25 | 255.255.255.128 | 192.168.9.0 |

**Core Network Connections**

|  |  |  |  |
| --- | --- | --- | --- |
| **Device** | **Port** | **Connected To** | **Port on Other Device** |
| **Core Router** | Fa0/0 | Core L3 Switch | Gig0/1 |
| **Core L3 Switch** | Gig0/1 | Core Router | Fa0/0 |
| **Core L3 Switch** | Fa0/1 | Computer Eng L3 | Gig0/1 |
| **Core L3 Switch** | Fa0/2 | EEE L3 Switch | Gig0/1 |
| **Core L3 Switch** | Fa0/3 | Civil Eng L3 | Gig0/1 |
| **Core L3 Switch** | Fa0/4 | Mech Eng L3 | Gig0/1 |
| **Core L3 Switch** | Fa0/5 | IDS L3 Switch | Gig0/1 |
| **Core L3 Switch** | Fa0/6 | Admin L3 Switch | Gig0/1 |
| **Core L3 Switch** | Fa0/7 | CCTV L2 Switch | Gig0/1 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **L3 Switch** | **L3 Switch Interface** | | **Connected To** | **L2 Switch Interface** |
| **ComEng L3 Switch** | **GigabitEthernet 0/2** | | **ComEng L2 Switch** | **GigabitEthernet 0/1** |
| **EEE L3 Switch** | **GigabitEthernet 0/2** | | **EEE L2 Switch** | **GigabitEthernet 0/1** |
| **Civil L3 Switch** | **GigabitEthernet 0/2** | | **Civil L2 Switch** | **GigabitEthernet 0/1** |
| **Mech L3 Switch** | **GigabitEthernet 0/2** | | **Mech L2 Switch** | **GigabitEthernet 0/1** |
| **IDS L3 Switch** | **GigabitEthernet 0/2** | | **IDS L2 Switch** | **GigabitEthernet 0/1** |
| **Admin L3 Switch** | **GigabitEthernet 0/2** | | **Admin L2 Switch** | **GigabitEthernet 0/1** |
|  |  |  |  |  |
| **Device** | **Connected To** | | **Port (Device Side)** | **Port (Switch Side)** |
| **Com Dept Student PCs** | **Com Department Switch** | | **Fa0** | **Fa0/1 to Fa0/5** |
| **Com Dept Staff PCs** | **Com Department Switch** | | **Fa0** | **Fa0/10, Fa0/11** |
| **Com Dept Printer** | **Com Department Switch** | | **Fa0** | **Fa0/15** |
| **Com Dept Other Devices** | **Com Department Switch** | | **Fa0** | **Fa0/16, Fa0/17** |
| **EEE Dept Student PCs** | **EEE Department Switch** | | **Fa0** | **Fa0/1 to Fa0/5** |
| **EEE Dept Staff PCs** | **EEE Department Switch** | | **Fa0** | **Fa0/10, Fa0/11** |
| **EEE Dept Printer** | **EEE Department Switch** | | **Fa0** | **Fa0/15** |
| **EEE Dept Other Devices** | **EEE Department Switch** | | **Fa0** | **Fa0/16, Fa0/17** |
| **Civil Dept Student PCs** | **Civil Department Switch** | | **Fa0** | **Fa0/1 to Fa0/5** |
| **Civil Dept Staff PCs** | **Civil Department Switch** | | **Fa0** | **Fa0/10, Fa0/11** |
| **Civil Dept Printer** | **Civil Department Switch** | | **Fa0** | **Fa0/15** |
| **Civil Dept Other Devices** | **Civil Department Switch** | | **Fa0** | **Fa0/16, Fa0/17** |
| **Mech Dept Student PCs** | **Mech Department Switch** | | **Fa0** | **Fa0/1 to Fa0/5** |
| **Mech Dept Staff PCs** | **Mech Department Switch** | | **Fa0** | **Fa0/10, Fa0/11** |
| **Mech Dept Printer** | **Mech Department Switch** | | **Fa0** | **Fa0/15** |
| **Mech Dept Other Devices** | **Mech Department Switch** | | **Fa0** | **Fa0/16, Fa0/17** |
| **IDS Dept Student PCs** | **IDS Department Switch** | | **Fa0** | **Fa0/1 to Fa0/3** |
| **IDS Dept Staff PCs** | **IDS Department Switch** | | **Fa0** | **Fa0/10, Fa0/11** |
| **IDS Dept Printer** | **IDS Department Switch** | | **Fa0** | **Fa0/15** |
| **IDS Dept Other Devices** | **IDS Department Switch** | | **Fa0** | **Fa0/16, Fa0/17** |
| **Admin Dept Staff PCs** | **Admin Department Switch** | | **Fa0** | **Fa0/1 to Fa0/2** |
| **Admin Dept Printer** | **Admin Department Switch** | | **Fa0** | **Fa0/10** |
| **CCTV Camera 1** | **CCTV Switch** | | **Fa0** | **Fa0/1** |
| **CCTV Camera 2** | **CCTV Switch** | | **Fa0** | **Fa0/2** |
| **CCTV Camera 3** | **CCTV Switch** | | **Fa0** | **Fa0/3** |
| **CCTV Camera 4** | **CCTV Switch** | | **Fa0** | **Fa0/4** |

(Core router connected to the Core L3 switch, core l3 switch connected to the departmentwise L3 switches for 6 departments and core L3 switch is also connected to the L2 switch for CCTV, departmentwise L3 switches connected to the corresponding L2 switches, those L2 switches connected to the Student PCs, Staff PCs and other devices)

**1. Core Router Configuration**

The Core Router will handle inter-VLAN routing and provide connectivity to the entire network.

**Commands for Core Router:**

enable

configure terminal

interface FastEthernet0/0

ip address 192.168.255.1 255.255.255.0

no shutdown

exit

ip routing

ip route 192.168.0.0 255.255.254.0 192.168.255.2

ip route 192.168.2.0 255.255.255.0 192.168.255.2

ip route 192.168.3.0 255.255.255.0 192.168.255.2

ip route 192.168.4.0 255.255.255.0 192.168.255.2

ip route 192.168.5.0 255.255.255.0 192.168.255.2

ip route 192.168.6.0 255.255.255.0 192.168.255.2

ip route 192.168.7.0 255.255.255.0 192.168.255.2

ip route 192.168.8.0 255.255.255.0 192.168.255.2

ip route 192.168.9.0 255.255.255.128 192.168.255.2

copy running-config startup-config

exit

**2. Core L3 Switch Configuration**

The Core L3 Switch will connect to all department-wise L3 switches and route traffic between them.

**Commands for Core L3 Switch:**

enable

configure terminal

! Configure VLANs for each department

vlan 10

name Computer\_Eng\_Students

vlan 20

name Computer\_Eng\_Staff

vlan 30

name Computer\_Eng\_Other\_Devices

vlan 40

name EEE\_Students

vlan 50

name EEE\_Staff

vlan 60

name EEE\_Other\_Devices

vlan 70

name Civil\_Eng\_Students

vlan 80

name Civil\_Eng\_Staff

vlan 90

name Civil\_Eng\_Other\_Devices

vlan 100

name Mech\_Eng\_Students

vlan 110

name Mech\_Eng\_Staff

vlan 120

name Mech\_Eng\_Other\_Devices

vlan 130

name IDS\_Students

vlan 140

name IDS\_Staff

vlan 150

name IDS\_Other\_Devices

vlan 160

name Admin\_Staff

vlan 170

name Admin\_Printers

vlan 180

name CCTV\_Cameras

exit

! Configure interface to Core Router

interface GigabitEthernet0/1

description Link to Core Router

no switchport

ip address 192.168.255.2 255.255.255.0

no shutdown

exit

! Configure interfaces to department-wise L3 switches

interface FastEthernet0/1

description Link to Computer Eng L3 Switch

switchport trunk encapsulation dot1q

switchport mode trunk

no shutdown

exit

interface FastEthernet0/2

description Link to EE Eng L3 Switch

switchport trunk encapsulation dot1q

switchport mode trunk

no shutdown

exit

interface FastEthernet0/3

description Link to Civil Eng L3 Switch

switchport trunk encapsulation dot1q

switchport mode trunk

no shutdown

exit

interface FastEthernet0/4

description Link to Mech Eng L3 Switch

switchport trunk encapsulation dot1q

switchport mode trunk

no shutdown

exit

interface FastEthernet0/5

description Link to IDS L3 Switch

switchport trunk encapsulation dot1q

switchport mode trunk

no shutdown

exit

interface FastEthernet0/6

description Link to Admin L3 Switch

switchport trunk encapsulation dot1q

switchport mode trunk

no shutdown

exit

! Configure interface to CCTV L2 Switch

interface FastEthernet0/7

description Link to CCTV L2 Switch

switchport mode access

switchport access vlan 180

no shutdown

exit

! Save configuration

write memory

exit

**FIX ERROR: %CDP-4-NATIVE\_VLAN\_MISMATCH: Native VLAN mismatch discovered on FastEthernet0/7 (180), with Switch GigabitEthernet0/1 (1) :**

interface FastEthernet0/7

description Link to CCTV L2 Switch

switchport mode access

switchport access vlan 180

switchport trunk native vlan 1

no shutdown

exit

write memory

exit

! Configure SVIs (Switch Virtual Interfaces) for inter-VLAN routing

interface Vlan10

ip address 192.168.0.1 255.255.254.0

exit

interface Vlan20

ip address 192.168.2.1 255.255.255.128

exit

interface Vlan30

ip address 192.168.2.129 255.255.255.192

exit

interface Vlan40

ip address 192.168.3.1 255.255.255.0

exit

interface Vlan50

ip address 192.168.4.1 255.255.255.128

exit

interface Vlan60

ip address 192.168.4.129 255.255.255.224

exit

interface Vlan70

ip address 192.168.5.1 255.255.255.128

exit

interface Vlan80

ip address 192.168.5.129 255.255.255.192

exit

interface Vlan90

ip address 192.168.5.193 255.255.255.240

exit

interface Vlan100

ip address 192.168.6.1 255.255.255.128

exit

interface Vlan110

ip address 192.168.6.129 255.255.255.192

exit

interface Vlan120

ip address 192.168.6.193 255.255.255.224

exit

interface Vlan130

ip address 192.168.7.1 255.255.255.224

exit

interface Vlan140

ip address 192.168.7.33 255.255.255.192

exit

interface Vlan150

ip address 192.168.7.97 255.255.255.240

exit

interface Vlan160

ip address 192.168.8.1 255.255.255.192

exit

interface Vlan170

ip address 192.168.8.65 255.255.255.240

exit

interface Vlan180

ip address 192.168.9.1 255.255.255.128

exit

! Enable IP routing

ip routing

! Configure default gateway

ip default-gateway 192.168.255.1

! Save configuration

write memory

exit

**3. Department L3 Switch Configuration**

Each Department L3 Switch will handle VLANs and inter-VLAN routing for its respective department.

**Commands for Computer Engineering L3 Switch:**

**Com Eng L3 Switch Configuration**

**Step 1: Create VLANs**

enable

configure terminal

! Create VLANs for Com Eng Department

vlan 10

name Com\_Eng\_Students

vlan 20

name Com\_Eng\_Staff

vlan 30

name Com\_Eng\_Other\_Devices

exit

**Step 2: Configure Trunk Ports**

! Configure trunk port to Core L3 Switch

interface GigabitEthernet0/1

description Link to Core L3 Switch

switchport trunk encapsulation dot1q

switchport mode trunk

no shutdown

exit

! Configure trunk port to Com Eng L2 Switch

interface GigabitEthernet0/2

description Link to Com Eng L2 Switch

switchport trunk encapsulation dot1q

switchport mode trunk

no shutdown

exit

**Step 3: Configure SVIs for Inter-VLAN Routing**

plaintext

Copy

! Configure SVI for Com Eng Students (VLAN 10)

interface Vlan10

description Com Eng Students

ip address 192.168.0.1 255.255.254.0

no shutdown

exit

! Configure SVI for Com Eng Staff (VLAN 20)

interface Vlan20

description Com Eng Staff

ip address 192.168.2.1 255.255.255.128

no shutdown

exit

! Configure SVI for Com Eng Other Devices (VLAN 30)

interface Vlan30

description Com Eng Other Devices

ip address 192.168.2.129 255.255.255.192

no shutdown

exit

**Step 4: Enable IP Routing**

plaintext

Copy

! Enable IP routing on the L3 Switch

ip routing

**Step 5: Configure Default Gateway**

plaintext

Copy

! Set the default gateway to the Core L3 Switch

ip default-gateway 192.168.255.2

**Step 6: Save Configuration**

plaintext

Copy

! Save the configuration

write memory

exit

**Explanation of Key Configurations:**

1. **VLANs**:
   * VLAN 10: Com Eng Students (192.168.0.0/23)
   * VLAN 20: Com Eng Staff (192.168.2.0/25)
   * VLAN 30: Com Eng Other Devices (192.168.2.128/26)
2. **Trunk Ports**:
   * GigabitEthernet0/1: Connects to the Core L3 Switch.
   * GigabitEthernet0/2: Connects to the Com Eng L2 Switch.
   * Both ports are configured as **trunk ports** to carry traffic for multiple VLANs.
3. **SVIs**:
   * Each VLAN has an SVI configured with the appropriate IP address and subnet mask.
   * These SVIs act as the default gateway for devices in their respective VLANs.
4. **IP Routing**:
   * The ip routing command enables inter-VLAN routing on the L3 Switch.
5. **Default Gateway**:
   * The ip default-gateway command ensures that the L3 Switch can route traffic to other networks via the Core L3 Switch.

**Verification Commands**

After configuring the Com Eng L3 Switch, use the following commands to verify the configuration:

1. **Check VLANs**:

plaintext

Copy

show vlan brief

1. **Check Trunk Ports**:

plaintext

Copy

show interfaces trunk

1. **Check SVIs**:

plaintext

Copy

show ip interface brief

1. **Check Routing Table**:

plaintext

Copy

show ip route

1. **Check CDP Neighbors**:

plaintext

Copy

show cdp neighbors

**EEE L3 Switch Configuration**

**Step 1: Create VLANs**

plaintext

Copy

enable

configure terminal

! Create VLANs for EEE Department

vlan 40

name EEE\_Students

vlan 50

name EEE\_Staff

vlan 60

name EEE\_Other\_Devices

exit

**Step 2: Configure Trunk Ports**

plaintext

Copy

! Configure trunk port to Core L3 Switch

interface GigabitEthernet0/1

description Link to Core L3 Switch

switchport trunk encapsulation dot1q

switchport mode trunk

no shutdown

exit

! Configure trunk port to EEE L2 Switch

interface GigabitEthernet0/2

description Link to EEE L2 Switch

switchport trunk encapsulation dot1q

switchport mode trunk

no shutdown

exit

**Step 3: Configure SVIs for Inter-VLAN Routing**

plaintext

Copy

! Configure SVI for EEE Students (VLAN 40)

interface Vlan40

description EEE Students

ip address 192.168.3.1 255.255.255.0

no shutdown

exit

! Configure SVI for EEE Staff (VLAN 50)

interface Vlan50

description EEE Staff

ip address 192.168.4.1 255.255.255.128

no shutdown

exit

! Configure SVI for EEE Other Devices (VLAN 60)

interface Vlan60

description EEE Other Devices

ip address 192.168.4.129 255.255.255.224

no shutdown

exit

**Step 4: Enable IP Routing**

plaintext

Copy

! Enable IP routing on the L3 Switch

ip routing

**Step 5: Configure Default Gateway**

plaintext

Copy

! Set the default gateway to the Core L3 Switch

ip default-gateway 192.168.255.2

**Step 6: Save Configuration**

plaintext

Copy

! Save the configuration

write memory

exit

**Explanation of Key Configurations:**

1. **VLANs**:
   * VLAN 40: EEE Students (192.168.3.0/24)
   * VLAN 50: EEE Staff (192.168.4.0/25)
   * VLAN 60: EEE Other Devices (192.168.4.128/27)
2. **Trunk Ports**:
   * GigabitEthernet0/1: Connects to the Core L3 Switch.
   * GigabitEthernet0/2: Connects to the EEE L2 Switch.
   * Both ports are configured as **trunk ports** to carry traffic for multiple VLANs.
3. **SVIs**:
   * Each VLAN has an SVI configured with the appropriate IP address and subnet mask.
   * These SVIs act as the default gateway for devices in their respective VLANs.
4. **IP Routing**:
   * The ip routing command enables inter-VLAN routing on the L3 Switch.
5. **Default Gateway**:
   * The ip default-gateway command ensures that the L3 Switch can route traffic to other networks via the Core L3 Switch.

**Verification Commands**

After configuring the EEE L3 Switch, use the following commands to verify the configuration:

1. **Check VLANs**:

plaintext

Copy

show vlan brief

1. **Check Trunk Ports**:

plaintext

Copy

show interfaces trunk

1. **Check SVIs**:

plaintext

Copy

show ip interface brief

1. **Check Routing Table**:

plaintext

Copy

show ip route

1. **Check CDP Neighbors**:

plaintext

Copy

show cdp neighbors

**Civil Eng L3 Switch Configuration**

**Step 1: Create VLANs**

plaintext

Copy

enable

configure terminal

vlan 70

name Civil\_Eng\_Students

vlan 80

name Civil\_Eng\_Staff

vlan 90

name Civil\_Eng\_Other\_Devices

exit

**Step 2: Configure Trunk Ports**

interface GigabitEthernet0/1

description Link to Core L3 Switch

switchport trunk encapsulation dot1q

switchport mode trunk

no shutdown

exit

interface GigabitEthernet0/2

description Link to Civil Eng L2 Switch

switchport trunk encapsulation dot1q

switchport mode trunk

no shutdown

exit

**Step 3: Configure SVIs for Inter-VLAN Routing**

interface Vlan70

description Civil Eng Students

ip address 192.168.5.1 255.255.255.128

no shutdown

exit

interface Vlan80

description Civil Eng Staff

ip address 192.168.5.129 255.255.255.192

no shutdown

exit

interface Vlan90

description Civil Eng Other Devices

ip address 192.168.5.193 255.255.255.240

no shutdown

exit

**Step 4: Enable IP Routing**

ip routing

**Step 5: Configure Default Gateway**

ip default-gateway 192.168.255.2

**Step 6: Save Configuration**

write memory

exit

**Explanation of Key Configurations:**

1. **VLANs**:
   * VLAN 70: Civil Eng Students (192.168.5.0/25)
   * VLAN 80: Civil Eng Staff (192.168.5.128/26)
   * VLAN 90: Civil Eng Other Devices (192.168.5.192/28)
2. **Trunk Ports**:
   * GigabitEthernet0/1: Connects to the Core L3 Switch.
   * GigabitEthernet0/2: Connects to the Civil Eng L2 Switch.
   * Both ports are configured as **trunk ports** to carry traffic for multiple VLANs.
3. **SVIs**:
   * Each VLAN has an SVI configured with the appropriate IP address and subnet mask.
   * These SVIs act as the default gateway for devices in their respective VLANs.
4. **IP Routing**:
   * The ip routing command enables inter-VLAN routing on the L3 Switch.
5. **Default Gateway**:
   * The ip default-gateway command ensures that the L3 Switch can route traffic to other networks via the Core L3 Switch.

**Verification Commands**

After configuring the Civil Eng L3 Switch, use the following commands to verify the configuration:

1. **Check VLANs**:

plaintext

Copy

show vlan brief

1. **Check Trunk Ports**:

plaintext

Copy

show interfaces trunk

1. **Check SVIs**:

plaintext

Copy

show ip interface brief

1. **Check Routing Table**:

plaintext

Copy

show ip route

1. **Check CDP Neighbors**:

plaintext

Copy

show cdp neighbors

**Mech Eng L3 Switch Configuration**

**Step 1: Create VLANs**

enable

configure terminal

vlan 100

name Mech\_Eng\_Students

vlan 110

name Mech\_Eng\_Staff

vlan 120

name Mech\_Eng\_Other\_Devices

exit

**Step 2: Configure Trunk Ports**

interface GigabitEthernet0/1

description Link to Core L3 Switch

switchport trunk encapsulation dot1q

switchport mode trunk

no shutdown

exit

interface GigabitEthernet0/2

description Link to Mech Eng L2 Switch

switchport trunk encapsulation dot1q

switchport mode trunk

no shutdown

exit

**Step 3: Configure SVIs for Inter-VLAN Routing**

interface Vlan100

description Mech Eng Students

ip address 192.168.6.1 255.255.255.128

no shutdown

exit

interface Vlan110

description Mech Eng Staff

ip address 192.168.6.129 255.255.255.192

no shutdown

exit

interface Vlan120

description Mech Eng Other Devices

ip address 192.168.6.193 255.255.255.224

no shutdown

exit

**Step 4: Enable IP Routing**

ip routing

**Step 5: Configure Default Gateway**

plaintext

Copy

ip default-gateway 192.168.255.2

**Step 6: Save Configuration**

plaintext

Copy

write memory

exit

**Explanation of Key Configurations:**

1. **VLANs**:
   * VLAN 100: Mech Eng Students (192.168.6.0/25)
   * VLAN 110: Mech Eng Staff (192.168.6.128/26)
   * VLAN 120: Mech Eng Other Devices (192.168.6.192/27)
2. **Trunk Ports**:
   * GigabitEthernet0/1: Connects to the Core L3 Switch.
   * GigabitEthernet0/2: Connects to the Mech Eng L2 Switch.
   * Both ports are configured as **trunk ports** to carry traffic for multiple VLANs.
3. **SVIs**:
   * Each VLAN has an SVI configured with the appropriate IP address and subnet mask.
   * These SVIs act as the default gateway for devices in their respective VLANs.
4. **IP Routing**:
   * The ip routing command enables inter-VLAN routing on the L3 Switch.
5. **Default Gateway**:
   * The ip default-gateway command ensures that the L3 Switch can route traffic to other networks via the Core L3 Switch.

**Verification Commands**

After configuring the Mech Eng L3 Switch, use the following commands to verify the configuration:

1. **Check VLANs**:

plaintext

Copy

show vlan brief

1. **Check Trunk Ports**:

plaintext

Copy

show interfaces trunk

1. **Check SVIs**:

plaintext

Copy

show ip interface brief

1. **Check Routing Table**:

plaintext

Copy

show ip route

1. **Check CDP Neighbors**:

plaintext

Copy

show cdp neighbors

**IDS L3 Switch Configuration**

**Step 1: Create VLANs**

enable

configure terminal

vlan 130

name IDS\_Students

vlan 140

name IDS\_Staff

vlan 150

name IDS\_Other\_Devices

exit

**Step 2: Configure Trunk Ports**

interface GigabitEthernet0/1

description Link to Core L3 Switch

switchport trunk encapsulation dot1q

switchport mode trunk

no shutdown

exit

interface GigabitEthernet0/2

description Link to IDS L2 Switch

switchport trunk encapsulation dot1q

switchport mode trunk

no shutdown

exit

**Step 3: Configure SVIs for Inter-VLAN Routing**

interface Vlan130

description IDS Students

ip address 192.168.7.1 255.255.255.224

no shutdown

exit

interface Vlan140

description IDS Staff

ip address 192.168.7.33 255.255.255.192

no shutdown

exit

interface Vlan150

description IDS Other Devices

ip address 192.168.7.97 255.255.255.240

no shutdown

exit

**Step 4: Enable IP Routing**

ip routing

**Step 5: Configure Default Gateway**

ip default-gateway 192.168.255.2

**Step 6: Save Configuration**

write memory

exit

**Admin L3 Switch Configuration**

**Step 1: Create VLANs**

enable

configure terminal

vlan 160

name Admin\_Staff

vlan 170

name Admin\_Printers

exit

**Step 2: Configure Trunk Ports**

interface GigabitEthernet0/1

description Link to Core L3 Switch

switchport trunk encapsulation dot1q

switchport mode trunk

no shutdown

exit

interface GigabitEthernet0/2

description Link to Admin L2 Switch

switchport trunk encapsulation dot1q

switchport mode trunk

no shutdown

exit

**Step 3: Configure SVIs for Inter-VLAN Routing**

interface Vlan160

description Admin Staff

ip address 192.168.8.1 255.255.255.192

no shutdown

exit

interface Vlan170

description Admin Printers

ip address 192.168.8.65 255.255.255.240

no shutdown

exit

**Step 4: Enable IP Routing**

ip routing

**Step 5: Configure Default Gateway**

ip default-gateway 192.168.255.2

**Step 6: Save Configuration**

write memory

exit

**Com Eng L2 Switch Configuration**

**Step 1: Create VLANs**

enable

configure terminal

vlan 10

name Com\_Eng\_Students

vlan 20

name Com\_Eng\_Staff

vlan 30

name Com\_Eng\_Other\_Devices

exit

**Step 2: Configure Trunk Port to Com Eng L3 Switch**

interface GigabitEthernet0/1

description Link to Com Eng L3 Switch

switchport mode trunk

no shutdown

exit

**Step 3: Assign Access Ports to VLANs**

interface range FastEthernet0/1 - 5

description Com Eng Student PCs

switchport mode access

switchport access vlan 10

no shutdown

exit

interface range FastEthernet0/10 - 11

description Com Eng Staff PCs

switchport mode access

switchport access vlan 20

no shutdown

exit

interface FastEthernet0/15

description Com Eng Printer

switchport mode access

switchport access vlan 30

no shutdown

exit

interface range FastEthernet0/16 - 17

description Com Eng Other Devices

switchport mode access

switchport access vlan 30

no shutdown

exit

**Step 4: Save Configuration**

exit

write memory

**EEE L2 Switch Configuration**

**Step 1: Create VLANs**

enable

configure terminal

vlan 40

name EEE\_Students

vlan 50

name EEE\_Staff

vlan 60

name EEE\_Other\_Devices

exit

**Step 2: Configure Trunk Port to EEE L3 Switch**

interface GigabitEthernet0/1

description Link to EEE L3 Switch

switchport mode trunk

no shutdown

exit

**Step 3: Assign Access Ports to VLANs**

interface range FastEthernet0/1 - 5

description EEE Student PCs

switchport mode access

switchport access vlan 40

no shutdown

exit

interface range FastEthernet0/10 - 11

description EEE Staff PCs

switchport mode access

switchport access vlan 50

no shutdown

exit

interface FastEthernet0/15

description EEE Printer

switchport mode access

switchport access vlan 60

no shutdown

exit

interface range FastEthernet0/16 - 17

description EEE Other Devices

switchport mode access

switchport access vlan 60

no shutdown

exit

**Step 4: Save Configuration**

exit

write memory

**Civil Eng L2 Switch Configuration**

**Step 1: Create VLANs**

enable

configure terminal

vlan 70

name Civil\_Eng\_Students

vlan 80

name Civil\_Eng\_Staff

vlan 90

name Civil\_Eng\_Other\_Devices

exit

**Step 2: Configure Trunk Port to Civil Eng L3 Switch**

interface GigabitEthernet0/1

description Link to Civil Eng L3 Switch

switchport mode trunk

no shutdown

exit

**Step 3: Assign Access Ports to VLANs**

interface range FastEthernet0/1 - 5

description Civil Eng Student PCs

switchport mode access

switchport access vlan 70

no shutdown

exit

interface range FastEthernet0/10 - 11

description Civil Eng Staff PCs

switchport mode access

switchport access vlan 80

no shutdown

exit

interface FastEthernet0/15

description Civil Eng Printer

switchport mode access

switchport access vlan 90

no shutdown

exit

interface range FastEthernet0/16 - 17

description Civil Eng Other Devices

switchport mode access

switchport access vlan 90

no shutdown

exit

**Step 4: Save Configuration**

exit

write memory

**Mech Eng L2 Switch Configuration**

**Step 1: Create VLANs**

enable

configure terminal

vlan 100

name Mech\_Eng\_Students

vlan 110

name Mech\_Eng\_Staff

vlan 120

name Mech\_Eng\_Other\_Devices

exit

**Step 2: Configure Trunk Port to Mech Eng L3 Switch**

interface GigabitEthernet0/1

description Link to Mech Eng L3 Switch

switchport mode trunk

no shutdown

exit

**Step 3: Assign Access Ports to VLANs**

interface range FastEthernet0/1 - 5

description Mech Eng Student PCs

switchport mode access

switchport access vlan 100

no shutdown

exit

interface range FastEthernet0/10 - 11

description Mech Eng Staff PCs

switchport mode access

switchport access vlan 110

no shutdown

exit

interface FastEthernet0/15

description Mech Eng Printer

switchport mode access

switchport access vlan 120

no shutdown

exit

interface range FastEthernet0/16 - 17

description Mech Eng Other Devices

switchport mode access

switchport access vlan 120

no shutdown

exit

**Step 4: Save Configuration**

exit

write memory

**IDS L2 Switch Configuration**

enable

configure terminal

vlan 130

name IDS\_Students

vlan 140

name IDS\_Staff

vlan 150

name IDS\_Other\_Devices

exit

interface GigabitEthernet0/1

description Link to IDS L3 Switch

switchport mode trunk

no shutdown

exit

interface range FastEthernet0/1 - 3

description IDS Student PCs

switchport mode access

switchport access vlan 130

no shutdown

exit

interface range FastEthernet0/10 - 11

description IDS Staff PCs

switchport mode access

switchport access vlan 140

no shutdown

exit

interface FastEthernet0/15

description IDS Printer

switchport mode access

switchport access vlan 150

no shutdown

exit

interface range FastEthernet0/16 - 17

description IDS Other Devices

switchport mode access

switchport access vlan 150

no shutdown

exit

exit

write memory

**Admin L2 Switch Configuration**

enable

configure terminal

vlan 160

name Admin\_Staff

vlan 170

name Admin\_Printers

exit

interface GigabitEthernet0/1

description Link to Admin L3 Switch

switchport mode trunk

no shutdown

exit

interface range FastEthernet0/1 - 2

description Admin Staff PCs

switchport mode access

switchport access vlan 160

no shutdown

exit

interface FastEthernet0/10

description Admin Printer

switchport mode access

switchport access vlan 170

no shutdown

exit

exit

write memory

**CCTV L2 Switch Configuration**

**Step 1: Create VLAN for CCTV Cameras**

enable

configure terminal

vlan 180

name CCTV\_Cameras

exit

interface GigabitEthernet0/1

description Link to Core L3 Switch

switchport mode trunk

no shutdown

exit

interface range FastEthernet0/1 - 4

description CCTV Cameras

switchport mode access

switchport access vlan 180

no shutdown

exit

exit

write memory

**Configure DHCP**

**1. Configure DHCP on the Core L3 Switch**

enable

configure terminal

service dhcp

ip dhcp pool Com\_Eng\_Students

network 192.168.0.0 255.255.254.0

default-router 192.168.0.1

dns-server 8.8.8.8

dns-server 8.8.4.4

exit

ip dhcp pool Com\_Eng\_Staff

network 192.168.2.0 255.255.255.128

default-router 192.168.2.1

dns-server 8.8.8.8

dns-server 8.8.4.4

exit

ip dhcp pool Com\_Eng\_Other\_Devices

network 192.168.2.128 255.255.255.192

default-router 192.168.2.129

dns-server 8.8.8.8

dns-server 8.8.4.4

exit

ip dhcp pool EEE\_Students

network 192.168.3.0 255.255.255.0

default-router 192.168.3.1

dns-server 8.8.8.8

dns-server 8.8.4.4

exit

ip dhcp pool EEE\_Staff

network 192.168.4.0 255.255.255.128

default-router 192.168.4.1

dns-server 8.8.8.8

dns-server 8.8.4.4

exit

ip dhcp pool EEE\_Other\_Devices

network 192.168.4.128 255.255.255.224

default-router 192.168.4.129

dns-server 8.8.8.8

dns-server 8.8.4.4

exit

ip dhcp pool Civil\_Eng\_Students

network 192.168.5.0 255.255.255.128

default-router 192.168.5.1

dns-server 8.8.8.8

dns-server 8.8.4.4

exit

ip dhcp pool Civil\_Eng\_Staff

network 192.168.5.128 255.255.255.192

default-router 192.168.5.129

dns-server 8.8.8.8

dns-server 8.8.4.4

exit

ip dhcp pool Civil\_Eng\_Other\_Devices

network 192.168.5.192 255.255.255.240

default-router 192.168.5.193

dns-server 8.8.8.8

dns-server 8.8.4.4

exit

ip dhcp pool Mech\_Eng\_Students

network 192.168.6.0 255.255.255.128

default-router 192.168.6.1

dns-server 8.8.8.8

dns-server 8.8.4.4

exit

ip dhcp pool Mech\_Eng\_Staff

network 192.168.6.128 255.255.255.192

default-router 192.168.6.129

dns-server 8.8.8.8

dns-server 8.8.4.4

exit

ip dhcp pool Mech\_Eng\_Other\_Devices

network 192.168.6.192 255.255.255.224

default-router 192.168.6.193

dns-server 8.8.8.8

dns-server 8.8.4.4

exit

ip dhcp pool IDS\_Students

network 192.168.7.0 255.255.255.224

default-router 192.168.7.1

dns-server 8.8.8.8

dns-server 8.8.4.4

exit

ip dhcp pool IDS\_Staff

network 192.168.7.32 255.255.255.192

default-router 192.168.7.33

dns-server 8.8.8.8

dns-server 8.8.4.4

exit

ip dhcp pool IDS\_Other\_Devices

network 192.168.7.96 255.255.255.240

default-router 192.168.7.97

dns-server 8.8.8.8

dns-server 8.8.4.4

exit

ip dhcp pool Admin\_Staff

network 192.168.8.0 255.255.255.192

default-router 192.168.8.1

dns-server 8.8.8.8

dns-server 8.8.4.4

exit

ip dhcp pool Admin\_Printers

network 192.168.8.64 255.255.255.240

default-router 192.168.8.65

dns-server 8.8.8.8

dns-server 8.8.4.4

exit

ip dhcp pool CCTV\_Cameras

network 192.168.9.0 255.255.255.128

default-router 192.168.9.1

dns-server 8.8.8.8

dns-server 8.8.4.4

exit

ip dhcp excluded-address 192.168.0.1 192.168.0.10

ip dhcp excluded-address 192.168.2.1 192.168.2.10

ip dhcp excluded-address 192.168.2.129 192.168.2.138

ip dhcp excluded-address 192.168.3.1 192.168.3.10

ip dhcp excluded-address 192.168.4.1 192.168.4.10

ip dhcp excluded-address 192.168.4.129 192.168.4.138

ip dhcp excluded-address 192.168.5.1 192.168.5.10

ip dhcp excluded-address 192.168.5.129 192.168.5.138

ip dhcp excluded-address 192.168.5.193 192.168.5.202

ip dhcp excluded-address 192.168.6.1 192.168.6.10

ip dhcp excluded-address 192.168.6.129 192.168.6.138

ip dhcp excluded-address 192.168.6.193 192.168.6.202

ip dhcp excluded-address 192.168.7.1 192.168.7.10

ip dhcp excluded-address 192.168.7.33 192.168.7.42

ip dhcp excluded-address 192.168.7.97 192.168.7.106

ip dhcp excluded-address 192.168.8.1 192.168.8.10

ip dhcp excluded-address 192.168.8.65 192.168.8.74

ip dhcp excluded-address 192.168.9.1 192.168.9.10

exit

write memory

**DHCP Configuration for Com Eng L3 Switch**

enable

configure terminal

service dhcp

ip dhcp pool Com\_Eng\_Students

network 192.168.0.0 255.255.254.0

default-router 192.168.0.1

dns-server 8.8.8.8

dns-server 8.8.4.4

exit

ip dhcp pool Com\_Eng\_Staff

network 192.168.2.0 255.255.255.128

default-router 192.168.2.1

dns-server 8.8.8.8

dns-server 8.8.4.4

exit

ip dhcp pool Com\_Eng\_Other\_Devices

network 192.168.2.128 255.255.255.192

default-router 192.168.2.129

dns-server 8.8.8.8

dns-server 8.8.4.4

exit

ip dhcp excluded-address 192.168.0.1 192.168.0.10

ip dhcp excluded-address 192.168.2.1 192.168.2.10

ip dhcp excluded-address 192.168.2.129 192.168.2.138

exit

write memory

**Optional: Configure DHCP Relay (if DHCP server is on Core L3 Switch)**

enable

configure terminal

interface Vlan10

ip helper-address 192.168.255.2

exit

interface Vlan20

ip helper-address 192.168.255.2

exit

interface Vlan30

ip helper-address 192.168.255.2

exit

exit

write memory

**DHCP configuration commands** for the **EEE L3 Switch**:

enable

configure terminal

service dhcp

ip dhcp pool EEE\_Students

network 192.168.3.0 255.255.255.0

default-router 192.168.3.1

dns-server 8.8.8.8

dns-server 8.8.4.4

exit

ip dhcp pool EEE\_Staff

network 192.168.4.0 255.255.255.128

default-router 192.168.4.1

dns-server 8.8.8.8

dns-server 8.8.4.4

exit

ip dhcp pool EEE\_Other\_Devices

network 192.168.4.128 255.255.255.224

default-router 192.168.4.129

dns-server 8.8.8.8

dns-server 8.8.4.4

exit

ip dhcp excluded-address 192.168.3.1 192.168.3.10

ip dhcp excluded-address 192.168.4.1 192.168.4.10

ip dhcp excluded-address 192.168.4.129 192.168.4.138

exit

write memory

enable

configure terminal

interface Vlan40

ip helper-address 192.168.255.2

exit

interface Vlan50

ip helper-address 192.168.255.2

exit

interface Vlan60

ip helper-address 192.168.255.2

exit

write memory

**DHCP configuration commands** for the **Civil Eng L3 Switch**:

enable

configure terminal

service dhcp

ip dhcp pool Civil\_Eng\_Students

network 192.168.5.0 255.255.255.128

default-router 192.168.5.1

dns-server 8.8.8.8

dns-server 8.8.4.4

exit

ip dhcp pool Civil\_Eng\_Staff

network 192.168.5.128 255.255.255.192

default-router 192.168.5.129

dns-server 8.8.8.8

dns-server 8.8.4.4

exit

ip dhcp pool Civil\_Eng\_Other\_Devices

network 192.168.5.192 255.255.255.240

default-router 192.168.5.193

dns-server 8.8.8.8

dns-server 8.8.4.4

exit

ip dhcp excluded-address 192.168.5.1 192.168.5.10

ip dhcp excluded-address 192.168.5.129 192.168.5.138

ip dhcp excluded-address 192.168.5.193 192.168.5.202

exit

write memory

enable

configure terminal

interface Vlan70

ip helper-address 192.168.255.2

exit

interface Vlan80

ip helper-address 192.168.255.2

exit

interface Vlan90

ip helper-address 192.168.255.2

exit

exit

write memory

**DHCP configuration commands** for the **Mech Eng L3 Switch**:

enable

configure terminal

service dhcp

ip dhcp pool Mech\_Eng\_Students

network 192.168.6.0 255.255.255.128

default-router 192.168.6.1

dns-server 8.8.8.8

dns-server 8.8.4.4

exit

ip dhcp pool Mech\_Eng\_Staff

network 192.168.6.128 255.255.255.192

default-router 192.168.6.129

dns-server 8.8.8.8

dns-server 8.8.4.4

exit

ip dhcp pool Mech\_Eng\_Other\_Devices

network 192.168.6.192 255.255.255.224

default-router 192.168.6.193

dns-server 8.8.8.8

dns-server 8.8.4.4

exit

ip dhcp excluded-address 192.168.6.1 192.168.6.10

ip dhcp excluded-address 192.168.6.129 192.168.6.138

ip dhcp excluded-address 192.168.6.193 192.168.6.202

exit

write memory

enable

configure terminal

interface Vlan100

ip helper-address 192.168.255.2

exit

interface Vlan110

ip helper-address 192.168.255.2

exit

interface Vlan120

ip helper-address 192.168.255.2

exit

exit

write memory

**DHCP configuration commands** for the **IDS L3 Switch**:

enable

configure terminal

service dhcp

ip dhcp pool IDS\_Students

network 192.168.7.0 255.255.255.224

default-router 192.168.7.1

dns-server 8.8.8.8

dns-server 8.8.4.4

exit

ip dhcp pool IDS\_Staff

network 192.168.7.32 255.255.255.192

default-router 192.168.7.33

dns-server 8.8.8.8

dns-server 8.8.4.4

exit

ip dhcp pool IDS\_Other\_Devices

network 192.168.7.96 255.255.255.240

default-router 192.168.7.97

dns-server 8.8.8.8

dns-server 8.8.4.4

exit

ip dhcp excluded-address 192.168.7.1 192.168.7.10

ip dhcp excluded-address 192.168.7.33 192.168.7.42

ip dhcp excluded-address 192.168.7.97 192.168.7.106

exit

write memory

enable

configure terminal

interface Vlan130

ip helper-address 192.168.255.2

exit

interface Vlan140

ip helper-address 192.168.255.2

exit

interface Vlan150

ip helper-address 192.168.255.2

exit

exit

write memory

**DHCP configuration commands** for the **Admin L3 Switch**:

enable

configure terminal

service dhcp

ip dhcp pool Admin\_Staff

network 192.168.8.0 255.255.255.192

default-router 192.168.8.1

dns-server 8.8.8.8

dns-server 8.8.4.4

exit

ip dhcp pool Admin\_Printers

network 192.168.8.64 255.255.255.240

default-router 192.168.8.65

dns-server 8.8.8.8

dns-server 8.8.4.4

exit

ip dhcp excluded-address 192.168.8.1 192.168.8.10

ip dhcp excluded-address 192.168.8.65 192.168.8.74

exit

write memory

enable

configure terminal

interface Vlan160

ip helper-address 192.168.255.2

exit

interface Vlan170

ip helper-address 192.168.255.2

exit

exit

write memory

**Steps to Block Students from Accessing Printers and Other Devices**

1. **Identify the VLANs**:
   * Students VLAN: VLAN 10 (Com Eng Students), VLAN 40 (EEE Students), VLAN 70 (Civil Eng Students), VLAN 100 (Mech Eng Students), VLAN 130 (IDS Students).
   * Printers and Other Devices VLAN: VLAN 30 (Com Eng Other Devices), VLAN 60 (EEE Other Devices), VLAN 90 (Civil Eng Other Devices), VLAN 120 (Mech Eng Other Devices), VLAN 150 (IDS Other Devices), VLAN 170 (Admin Printers).
2. **Create ACLs**:
   * Create an ACL to deny traffic from the Students VLAN to the Printers and Other Devices VLAN.
   * Permit all other traffic.
3. **Apply ACLs**:
   * Apply the ACL to the **Students VLAN interface** on the respective Department L3 Switch.

**Commands for Com Eng L3 Switch**

enable

configure terminal

ip access-list extended BLOCK\_STUDENTS

deny ip 192.168.0.0 0.0.1.255 192.168.2.128 0.0.0.63

permit ip any any

exit

interface Vlan10

ip access-group BLOCK\_STUDENTS in

exit

exit

write memory

**Commands for EEE L3 Switch**

enable

configure terminal

ip access-list extended BLOCK\_STUDENTS

deny ip 192.168.3.0 0.0.0.255 192.168.4.128 0.0.0.31

permit ip any any

exit

interface Vlan40

ip access-group BLOCK\_STUDENTS in

exit

exit

write memory

**Commands for Civil Eng L3 Switch**

enable

configure terminal

ip access-list extended BLOCK\_STUDENTS

deny ip 192.168.5.0 0.0.0.127 192.168.5.192 0.0.0.15

permit ip any any

exit

interface Vlan70

ip access-group BLOCK\_STUDENTS in

exit

exit

write memory

**Commands for Mech Eng L3 Switch**

enable

configure terminal

ip access-list extended BLOCK\_STUDENTS

deny ip 192.168.6.0 0.0.0.127 192.168.6.192 0.0.0.31

permit ip any any

exit

interface Vlan100

ip access-group BLOCK\_STUDENTS in

exit

exit

write memory

**Commands for IDS L3 Switch**

enable

configure terminal

ip access-list extended BLOCK\_STUDENTS

deny ip 192.168.7.0 0.0.0.31 192.168.7.96 0.0.0.15

permit ip any any

exit

interface Vlan130

ip access-group BLOCK\_STUDENTS in

exit

exit

write memory