

## 1.5 – ENSA – Training - PacketKnows – Configuring VLANs

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Addressing Table

Device	Interface	IP Address	Subnet Mask	Switch Port	VLAN
PC1	NIC	172.17.10.21	255.255.255.0	S2 F0/11	10
PC2	NIC	172.17.20.22	255.255.255.0	S2 F0/18	20
PC3	NIC	172.17.30.23	255.255.255.0	S2 F0/6	30
PC4	NIC	172.17.10.24	255.255.255.0	S3 F0/11	10
PC5	NIC	172.17.20.25	255.255.255.0	S3 F0/18	20
PC6	NIC	172.17.30.26	255.255.255.0	S3 F0/6	30

### Objectives

- **Part 1: Verify VLANs**
- **Part 2: Configure Trunks**
- **Step 3: Verify connectivity.**

## NOTE

- **Power all the devices first by clicking the triangle button on the upper navbar.**
- **Right click the device then click the web console first to configure on the device**
- **Always type “save” when configuring IP addresses of PC’s**

## Background

VLANs are helpful in the administration of logical groups, allowing members of a group to be easily moved, changed, or added. This activity focuses on creating and naming VLANs, and assigning access ports to specific VLANs.

### Part 1: View the Default VLAN Configuration

#### **Step 1: Display the current VLANs.**

On S1, issue the command that displays all VLANs configured. By default, all interfaces are assigned to VLAN 1.

#### **Step 2: Verify connectivity between PCs on the same network.**

Notice that each PC can ping the other PC that shares the same network.

- PC1 can ping PC4
- PC2 can ping PC5
- PC3 can ping PC6

Pings to PCs in other networks fail.

What benefit will configuring VLANs provide to the current configuration?

The primary benefits of using VLANs are as follows: security, cost reduction, higher performance, broadcast storm mitigation, improved IT staff efficiency, and simpler project and application management.

### Part 2: Configure VLANs

#### **Step 1: Create and name VLANs on S1.**

Create the following VLANs. Names are case-sensitive:

- VLAN 10: Faculty/Staff
- VLAN 20: Students
- VLAN 30: Guest(Default)
- VLAN 99: Management&Native

```
S1#(config)# vlan 10
```

```
S1#(config-vlan)# name Faculty/Staff
```

```
S1#(config-vlan)# vlan 20
```

```
S1#(config-vlan)# name Students
```

```
S1#(config-vlan)# vlan 30
```

```
S1#(config-vlan)# name Guest(Default)
```

```
S1#(config-vlan)# vlan 99
```

```
S1#(config-vlan)# name Management&Native
```

### **Step 2: Verify the VLAN configuration.**

Which command will only display the VLAN name, status, and associated ports on a switch?

```
S1# show vlan brief
```

### **Step 3: Create the VLANs on S2 and S3.**

Using the same commands from Step 1, create and name the same VLANs on S2 and S3.

### **Step 4: Verify the VLAN configuration.**

## Part 3: Assign VLANs to Ports

### **Step 1: Assign VLANs to the active ports on S1.**

Configure the interfaces as access ports and assign the VLANs as follows:

- VLAN 10: Ethernet0/0
- VLAN 20: Ethernet0/1

- VLAN 30: Ethernet0/2

```
S1(config)# interface e0/0
```

```
S1(config-if)# switchport mode access
```

```
S1(config-if)# switchport access vlan 10
```

```
S1(config-if)# interface e0/1
```

```
S1(config-if)# switchport mode access
```

```
S1(config-if)# switchport access vlan 20
```

```
S1(config-if)# interface e0/2
```

```
S1(config-if)# switchport mode access
```

```
S1(config-if)# switchport access vlan 30
```

**Step 2: Assign VLANs to the active ports on S3.**

S3 uses the same VLAN access port assignments as S1. Configure the interfaces as access ports and assign the VLANs as follows:

- VLAN 10: Ethernet0/0
- VLAN 20: Ethernet0/1
- VLAN 30: Ethernet0/2

```
S3(config)# interface e0/0
```

```
S3(config-if)# switchport mode access
```

```
S3(config-if)# switchport access vlan 10
```

```
S3(config-if)# interface e0/1
```

```
S3(config-if)# switchport mode access
```

```
S3(config-if)# switchport access vlan 20
```

```
S3(config-if)# interface e0/2
```

```
S3(config-if)# switchport mode access
```

```
S3(config-if)# switchport access vlan 30
```

#### **Step 4: Verify loss of connectivity.**

Previously, PCs that shared the same network could ping each other successfully.

Try pinging between PC1 and PC4. Although the access ports are assigned to the appropriate VLANs, were the pings successful? Why?

**No, the pings failed because the ports between the switches are in VLAN 1 and PC1 and PC4 are in VLAN 10.**

What could be done to resolve this issue?

Configure the ports between the switches as trunk ports.