

## # Mansoura University Campus Network Configuration

### 1. General Setup and Security Configuration

```
license boot module c2900 technology-package securityk9
Switch>en
Switch#config t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname MU-SW
MU-SW(config)#enable password mansoura123
MU-SW(config)#no ip domain lookup
MU-SW(config)#banner motd #Unauthorized Access to Mansoura University Network Prohibited!#
MU-SW(config)#line console 0
MU-SW(config-line)#password consolePass
MU-SW(config-line)#login
MU-SW(config-line)#exit
MU-SW(config)#service password-encryption
```

# Explanation:

# - Hostname set to "MU-SW".

# - Enables secure access with encrypted passwords, and MOTD warning.

### 2. SSH Configuration

```
ip domain name mansoura.edu
username admin password strongPassword
crypto key generate rsa
1024
line vty 0 15
login local
transport input ssh
exit
do wr
```

# SSH setup:

# - Domain name "mansoura.edu", creates user "admin" for SSH login.

# - RSA key generation for SSH encryption, restricts VTY lines to SSH.

### 3. VLAN Configuration and Trucking

```
vlan 10
name Administration
vlan 20
name Engineering
vlan 30
name IT
int range fa0/1-2
switchport mode trunk
int range fa0/3-24
switchport mode access
switchport access vlan 10
```

# VLANs 10-30 created for departments. Trunk ports on fa0/1-2, VLAN 10 assigned to access ports fa0/3-24.

### 4. Additional VLAN Setup

```
vlan 40
```

```
vlan 50
int range gig1/0/1-4
switchport mode trunk
do wr
```

# Additional VLANs 40-50 created, trunking configured on gigabit ports 1/0/1-4.

## 5. Routing Setup with OSPF and Static Routes

```
ip routing
router ospf 30
network 10.1.0.0 0.0.0.255 area 0
network 10.2.0.0 0.0.0.255 area 0
do wr
```

# Configures OSPF process ID 30 for networks 10.1.0.0/24 and 10.2.0.0/24 in area 0.

## 6. VLAN IP Address Configuration

```
int vlan 10
ip address 10.1.1.1 255.255.255.0
ip helper-address 10.1.1.10
int vlan 20
ip address 10.2.1.1 255.255.255.0
ip helper-address 10.2.1.10
```

# VLAN interfaces assigned IPs for routing, with DHCP helper addresses to forward DHCP requests.

## 7. Route Aggregation

```
ROUTE AGGREGATION for Core Network
10.1.0.0/24
10.2.0.0/24
10.3.0.0/24
--- Summarized to 10.0.0.0/22.
```

--- End of Mansoura University Campus Network Configuration ---