**Banking and Insurance Company Network Design and Implementation**

**Problem:**

Radeon Company Ltd. is a US-owned company that deals with Banking and Insurance. The company is intending to expand its services across the African continent having the first branch to be located in Nairobi, Kenya. The company has secured a four-story building to operate within the Kenyan capital city. Therefore, the company would like to allow sourcing the knowledge from a group of final-year students from the local university to design and implement their company network. Assume you are among the students to take over this role, carefully read down the requirements then model the design and implement the network based on the company's needs. Each floor has departments as provided in the table below.

|  |  |  |  |
| --- | --- | --- | --- |
| First Floor | | | |
| No. | **Department** | **No. of PC** | **No. of Printer** |
| 1 | Management | 20 | 4 |
| 2 | Research | 20 | 4 |
| 3 | Human Resource | 20 | 4 |

|  |  |  |  |
| --- | --- | --- | --- |
| Second Floor | | | |
| No. | **Department** | **No. of PC** | **No. of Printer** |
| 1 | Marketing | 20 | 4 |
| 2 | Accounting | 20 | 4 |
| 3 | Finance | 20 | 4 |

|  |  |  |  |
| --- | --- | --- | --- |
| Third Floor | | | |
| No. | **Department** | **No. of PC** | **No. of Printer** |
| 1 | Logistics and Store | 20 | 4 |
| 2 | Customer Care | 20 | 4 |
| 3 | Guest Area | 40 | 2 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Fourth Floor | | | | |
| No. | **Department** | **No. of PC** | **No. of Printer** | **No. of Server** |
| 1 | Administrator | 20 | 2 | 0 |
| 2 | ICT | 20 | 2 | 0 |
| 3 | Server Room | 2 | 0 | 3 (DHCP, HTTP, Email) |

**Requirements:**

1. Use a software modelling tool to visualize the network topology (consider requirement 3)

* Software Modelling Tools: MS Visio, Visual Paradigm, or Draw.io for modelling network design.

2. Use any of the following network simulation software to implement the above topology:

* Simulation software: Cisco Packet tracer or GNS3 for design and implementation.
* There should be one router on each floor. The router should be connecting switches on that floor.
* Use OSPF as the routing protocol to advertise routes.
* Each department is required to have a wireless network for the users.
* Each department except the server room will be anticipated to have around 60 users both wired and wireless users.
* Host devices in the network are required to obtain IPv4 addresses automatically.
* Devices in all the departments are required to communicate with each other.
* All devices in the network are expected to obtain an IP address dynamically from the dedicated DHCP servers located at the server room.
* Create HTTP and E-mail servers
* Configure SSH in all the routers for remote login.

3. Use hierarchical network design with redundancy included:

* Having core, distribution, and access layers.

4. Configure the basic configuration of the devices:

* Hostnames
* Line Console and VTY passwords
* Banner messages
* Disable domain IP lookup

5. Each department should be in a different VLAN

* Create VLANs in every department
* VLANs you will use in your case, including VLANI also e.g. 10, 20, 30... etc.
* Each VLAN should be a different subnetwork.

6. Planning of IP Addresses:

* You have been given 192.168.10.0, 192.168.11.0, 192.168.12.0 as the base address for this network.
* Do subnetting based on the number of hosts in every department as provided above.
* Identify subnet mask, useable IP address range, and broadcast address for each subnet.

7. End Device Configurations:

* Configure all the end devices in the network with the appropriate IP address based on the calculations above.

8. Configure port-security:

* Use sticky command to obtain MAC Address.
* Violation mode of the shutdown.

9. Test Communication:

* Do devices in the same VLAN communicate?
* Do the devices in different VLANs communicate?

10. Document the project design and implementation

**Solution:**

**Note:**

**Base Network Address:** 192.168.10.0, 192.168.11.0, 192.168.12.0

**Calculate the Subnet Mask:**

* Number of IPs Needed: 60 users + 2 additional IPs for the network address and broadcast address.
* So, we need at least 62 usable IP addresses per subnet.
* The next power of 2 greater than or equal to 62 is 64. So, we need a subnet that provides at least 64 IP addresses.
* The default subnet mask for a 192.168.10.0/24 network is 255.255.255.0 [11111111.11111111.11111111.00000000] (which provides 256 IPs).
* To subnet it for 64 IP addresses per subnet, we need to borrow 2 bits from the host portion.
* The formula to determine the number of IP addresses for a subnet is: Number of IPs = 2^Number of host bits
* If you borrow 2 bits for subnetting, you get: 2^6 = 64 IPs (62 usable)
* This means the new subnet mask will be /26 or 255.255.255.192 [11111111.11111111.11111111.11000000].

**Floor Wise and Department Wise Addressing**

1. **First-Floor:**
2. **Department:** Management

* **VLAN:** 10
* **Network ID:** 192.168.10.0/26
* **Usable IP:** 192.168.10.1-62
* **Broadcast Address:** 192.168.10.63
* **Subnet Mask:** 255.255.255.192

1. **Wi-Fi**

* **SSID:** Management\_WiFi
* **Password:** Management@123

1. **Department:** Research

* **VLAN:** 20
* **Network ID:** 192.168.10.64/26
* **Usable IP:** 192.168.10.65-126
* **Broadcast Address:** 192.168.10.127
* **Subnet Mask:** 255.255.255.192

1. **Wi-Fi**

* **SSID:** SSID: Research\_WiFi
* **Password:** Research@123

1. **Department:** HR

* **VLAN:** 30
* **Network ID:** 192.168.10.128/26
* **Usable IP:** 192.168.10.129-190
* **Broadcast Address:** 192.168.10.191
* **Subnet Mask:** 255.255.255.192

1. **Wi-Fi**

* **SSID:** HR\_WiFi
* **Password:** HR@12345

1. **Second Floor:**
2. **Department:** Marketing

* VLAN: 40
* **Network ID:** 192.168.10.192/26
* **Usable IP:** 192.168.10.193-254
* **Broadcast Address:** 192.168.10.255
* **Subnet Mask:** 255.255.255.192

1. **Wi-Fi**

* **SSID:** Marketing\_WiFi
* **Password:** Marketing@123

1. **Department:** Accounting

* **VLAN:** 50
* **Network ID:** 192.168.11.0/26
* **Usable IP:** 192.168.11.1-62
* **Broadcast Address:** 192.168.11.63
* **Subnet Mask:** 255.255.255.192

1. **Wi-Fi**

* **SSID:** Accounting\_WiFi
* **Password:** Accounting@123

1. **Department:** Finance

* **VLAN:** 60
* **Network ID:** 192.168.11.64/26
* **Usable IP:** 192.168.11.65-126
* **Broadcast Address:** 192.168.11.127
* **Subnet Mask:** 255.255.255.192

1. **Wi-Fi**

* **SSID:** Finance\_WiFi
* **Password:** Finance@123

1. **Third Floor:**
2. **Department:** L&S

* **VLAN:** 70
* **Network ID:** 192.168.11.128/26
* **Usable IP:** 192.168.11.129-190
* **Broadcast Address:** 192.168.11.191
* **Subnet Mask:** 255.255.255.192

1. **Wi-Fi**

* **SSID:** L&S\_WiFi
* **Password:** L&S@12345

1. **Department:** Customer Care

* **VLAN:** 80
* **Network ID:** 192.168.11.192/26
* **Usable IP:** 192.168.11.193-254
* **Broadcast Address:** 192.168.11.255
* **Subnet Mask:** 255.255.255.192

1. **Wi-Fi**

* **SSID:** Custome\_Care\_WiFi
* **Password:** CustomerCare@123

1. **Department:** Guest Area

* **VLAN:** 90
* **Network ID:** 192.168.12.0/26
* **Usable IP:** 192.168.12.1-62
* **Broadcast Address:** 192.168.12.63
* **Subnet Mask:** 255.255.255.192

1. **Wi-Fi**

* **SSID: SSID:** Guest\_Area\_WiFi
* **Password:** GuestArea@123

1. **Fourth Floor:**
2. **Department:** Administrator

* **VLAN:** 100
* **Network ID:** 192.168.12.64/26
* **Usable IP:** 192.168.12.65-126
* **Broadcast Address:** 192.168.12.127
* **Subnet Mask:** 255.255.255.192

1. **Wi-Fi**

* **SSID:** Administrator\_WiFi
* **Password:** Administrator@123

1. **Department:** ICT

* **VLAN:** 110
* **Network ID:** 192.168.12.128/26
* **Usable IP:** 192.168.12.129-190
* **Broadcast Address:** 192.168.12.191
* **Subnet Mask:** 255.255.255.192

1. **Wi-Fi**

* **SSID:** ICT\_WiFi
* **Password:** ICT@12345

1. **Department:** Server Room

* **VLAN:** 120
* **Network ID:** 192.168.12.192/26
* **Usable IP:** 192.168.12.193-254
* **Broadcast Address:** 192.168.12.255
* **Subnet Mask:** 255.255.255.192

**Addressing Between Router and Layer-3 Switch**

**Base Network Address:** 10.10.10.0

1.

* Network ID: 10.10.10.0/30
* Usable IP: 10.10.10.1-2
* Broadcast Address: 10.10.10.3
* Subnet Mask: 255.255.255.252

2.

* Network ID: 10.10.10.4/30
* Usable IP: 10.10.10.5-6
* Broadcast Address: 10.10.10.7
* Subnet Mask: 255.255.255.252

3.

* Network ID: 10.10.10.8/30
* Usable IP: 10.10.10.9-10
* Broadcast Address: 10.10.10.11
* Subnet Mask: 255.255.255.252

4.

* Network ID: 10.10.10.12/30
* Usable IP: 10.10.10.13-14
* Broadcast Address: 10.10.10.15
* Subnet Mask: 255.255.255.252

5.

* Network ID: 10.10.10.16/30
* Usable IP: 10.10.10.17
* Broadcast Address: 10.10.10.18-19
* Subnet Mask: 255.255.255.252

6.

* Network ID: 10.10.10.20/30
* Usable IP: 10.10.10.21-22
* Broadcast Address: 10.10.10.23
* Subnet Mask: 255.255.255.252

7.

* Network ID: 10.10.10.24/30
* Usable IP: 10.10.10.25-26
* Broadcast Address: 10.10.10.27
* Subnet Mask: 255.255.255.252

8.

* Network ID: 10.10.10.28/30
* Usable IP: 10.10.10.29-30
* Broadcast Address: 10.10.10.31
* Subnet Mask: 255.255.255.252

9.

* Network ID: 10.10.10.32/30
* Usable IP: 10.10.10.33-34
* Broadcast Address: 10.10.10.35
* Subnet Mask: 255.255.255.252

10.

* Network ID: 10.10.10.36/30
* Usable IP: 10.10.10.37-38
* Broadcast Address: 10.10.10.39
* Subnet Mask: 255.255.255.252

11.

* Network ID: 10.10.10.40/30
* Usable IP: 10.10.10.41-42
* Broadcast Address: 10.10.10.43
* Subnet Mask: 255.255.255.252

12.

* Network ID: 10.10.10.44/30
* Usable IP: 10.10.10.45-46
* Broadcast Address: 10.10.10.47
* Subnet Mask: 255.255.255.252

13.

* Network ID: 10.10.10.48/30
* Usable IP: 10.10.10.49-50
* Broadcast Address: 10.10.10.51
* Subnet Mask: 255.255.255.252

14.

* Network ID: 10.10.10.52/30
* Usable IP: 10.10.10.53-54
* Broadcast Address: 10.10.10.55
* Subnet Mask: 255.255.255.252

**All Configuration**

**Floor1-Router**

Router>en

Router#conf t

**#Set the hostname**

Router(config)#hostname Floor1-Router

**#Set console password**

Floor1-Router(config)#line console 0

Floor1-Router(config-line)#password floor1router

Floor1-Router(config-line)#login

Floor1-Router(config-line)#exit

**#Set enable secret password for privileged EXEC mode**

Floor1-Router(config)#enable secret floor1router

**#Enable password encryption for all passwords**

Floor1-Router(config)#service password-encryption

**#Configure banner for unauthorized access warning**

Floor1-Router(config)#banner motd # Unauthorized access is prohibited. #

**#Disable domain name lookup to prevent delays caused by incorrect commands**

Floor1-Router(config)#no ip domain-lookup

**#Configure SSH**

Floor1-Router(config)#ip domain-name floor1router.com

**#Generate RSA key pairs for SSH encryption**

Floor1-Router(config)#crypto key generate rsa

How many bits in the modulus [512]: 1024

**#Enable SSH version 2**

Floor1-Router(config)#ip ssh version 2

**#Create a local user for SSH access**

Floor1-Router(config)#username floor1router secret floor1router

**#Configure VTY lines to accept only SSH connections**

Floor1-Router(config)#line vty 0 4

Floor1-Router(config-line)#transport input ssh

Floor1-Router(config-line)#login local

Floor1-Router(config-line)#exit

**#Set SSH time-out and retries to improve security**

Floor1-Router(config)#ip ssh time-out 60

Floor1-Router(config)#ip ssh authentication-retries 3

Floor1-Router(config)#do wr

**#Up the link**

Floor1-Router(config)#int gig 0/0

Floor1-Router(config-if)#no shutdown

Floor1-Router(config-if)#do wr

Floor1-Router(config-if)#exit

Floor1-Router(config)#int gig 0/1

Floor1-Router(config-if)#no shutdown

Floor1-Router(config-if)#do wr

Floor1-Router(config-if)#exit

Floor1-Router(config)#int gig 0/2

Floor1-Router(config-if)#no shutdown

Floor1-Router(config-if)#do wr

Floor1-Router(config-if)#exit

Floor1-Router(config)#int se 0/0/0

Floor1-Router(config-if)#no shutdown

Floor1-Router(config-if)#clock rate 64000

Floor1-Router(config-if)#do wr

Floor1-Router(config-if)#exit

Floor1-Router(config)#int se 0/0/1

Floor1-Router(config-if)#no shutdown

Floor1-Router(config-if)#clock rate 64000

Floor1-Router(config-if)#do wr

Floor1-Router(config-if)#exit

Floor1-Router(config)#do wr

**#Assinging IP Address to port**

Floor1-Router(config)#int gig0/0

Floor1-Router(config-if)#ip address 10.10.10.25 255.255.255.252

Floor1-Router(config-if)#exit

Floor1-Router(config)#int gig0/1

Floor1-Router(config-if)#ip address 10.10.10.2 255.255.255.252

Floor1-Router(config-if)#exit

Floor1-Router(config)#int gig0/2

Floor1-Router(config-if)#ip address 10.10.10.10 255.255.255.252

Floor1-Router(config-if)#exit

Floor1-Router(config)#int se 0/0/0

Floor1-Router(config-if)#ip address 10.10.10.17 255.255.255.252

Floor1-Router(config-if)#exit

Floor1-Router(config)#int se 0/0/1

Floor1-Router(config-if)#ip address 10.10.10.21 255.255.255.252

Floor1-Router(config-if)#exit

Floor1-Router(config)#do wr

Floor1-Router(config)#exit

**#Enable Routing Protocol (OSPF)**

Floor1-Router(config)#router ospf 10

Floor1-Router(config-router)#network 10.10.10.0 0.0.0.3 area 0

Floor1-Router(config-router)#network 10.10.10.8 0.0.0.3 area 0

Floor1-Router(config-router)#network 10.10.10.16 0.0.0.3 area 0

Floor1-Router(config-router)#network 10.10.10.20 0.0.0.3 area 0

Floor1-Router(config-router)#network 10.10.10.24 0.0.0.3 area 0

Floor1-Router(config-router)#exit

Floor1-Router(config)#do wr

Floor1-Router(config)#exit

**Floor2-Router:**

Router>en

Router#conf t

**#Set the hostname**

Router(config)#hostname Floor2-Router

**#Set console password**

Floor2-Router(config)#line console 0

Floor2-Router(config-line)#password floor2router

Floor2-Router(config-line)#login

Floor2-Router(config-line)#exit

**#Set enable secret password for privileged EXEC mode**

Floor2-Router(config)#enable secret floor2router

**#Enable password encryption for all passwords**

Floor2-Router(config)#service password-encryption

**#Configure banner for unauthorized access warning**

Floor2-Router(config)#banner motd # Unauthorized access is prohibited. #

**#Disable domain name lookup to prevent delays caused by incorrect commands**

Floor2-Router(config)#no ip domain-lookup

**#Configure SSH**

Floor2-Router(config)#ip domain-name floor2router.com

**#Generate RSA key pairs for SSH encryption**

Floor2-Router(config)#crypto key generate rsa

How many bits in the modulus [512]: 1024

**#Enable SSH version 2**

Floor2-Router(config)#ip ssh version 2

**#Create a local user for SSH access**

Floor2-Router(config)#username floor2router secret floor2router

**#Configure VTY lines to accept only SSH connections**

Floor2-Router(config)#line vty 0 4

Floor2-Router(config-line)#transport input ssh

Floor2-Router(config-line)#login local

Floor2-Router(config-line)#exit

**#Set SSH time-out and retries to improve security**

Floor2-Router(config)#ip ssh time-out 60

Floor2-Router(config)#ip ssh authentication-retries 3

Floor2-Router(config)#do wr

**#Up the link**

Floor2-Router(config)#int gig 0/0

Floor2-Router(config-if)#no shutdown

Floor2-Router(config-if)#do wr

Floor2-Router(config-if)#exit

Floor2-Router(config)#int gig 0/1

Floor2-Router(config-if)#no shutdown

Floor2-Router(config-if)#do wr

Floor2-Router(config-if)#exit

Floor2-Router(config)#int gig 0/2

Floor2-Router(config-if)#no shutdown

Floor2-Router(config-if)#do wr

Floor2-Router(config-if)#exit

Floor2-Router(config)#int se 0/0/0

Floor2-Router(config-if)#no shutdown

Floor2-Router(config-if)#do wr

Floor2-Router(config-if)#exit

Floor2-Router(config)#int se 0/0/1

Floor2-Router(config-if)#no shutdown

Floor2-Router(config-if)#clock rate 64000

Floor2-Router(config-if)#do wr

Floor2-Router(config-if)#exit

Floor2-Router(config)#do wr

**#Assinging IP Address to port**

Floor2-Router(config)#int gig0/0

Floor2-Router(config-if)#ip address 10.10.10.29 255.255.255.252

Floor2-Router(config-if)#exit

Floor2-Router(config)#int gig0/1

Floor2-Router(config-if)#ip address 10.10.10.14 255.255.255.252

Floor2-Router(config-if)#exit

Floor2-Router(config)#int gig0/2

Floor2-Router(config-if)#ip address 10.10.10.6 255.255.255.252

Floor2-Router(config-if)#exit

Floor2-Router(config)#int se 0/0/0

Floor2-Router(config-if)#ip address 10.10.10.18 255.255.255.252

Floor2-Router(config-if)#exit

Floor2-Router(config)#int se 0/0/1

Floor2-Router(config-if)#ip address 10.10.10.33 255.255.255.252

Floor2-Router(config-if)#exit

Floor2-Router(config)#do wr

Floor2-Router(config)#exit

**#Enable Routing Protocol (OSPF)**

Floor2-Router(config)#router ospf 10

Floor2-Router(config-router)#network 10.10.10.4 0.0.0.3 area 0

Floor2-Router(config-router)#network 10.10.10.12 0.0.0.3 area 0

Floor2-Router(config-router)#network 10.10.10.16 0.0.0.3 area 0

Floor2-Router(config-router)#network 10.10.10.28 0.0.0.3 area 0

Floor2-Router(config-router)#network 10.10.10.32 0.0.0.3 area 0

Floor2-Router(config-router)#exit

Floor2-Router(config)#do wr

Floor2-Router(config)#exit

**Floor3-Router:**

Router>en

Router#conf t

**#Set the hostname**

Router(config)#hostname Floor3-Router

**#Set console password**

Floor3-Router(config)#line console 0

Floor3-Router(config-line)#password floor3router

Floor3-Router(config-line)#login

Floor3-Router(config-line)#exit

**#Set enable secret password for privileged EXEC mode**

Floor3-Router(config)#enable secret floor3router

**#Enable password encryption for all passwords**

Floor3-Router(config)#service password-encryption

**#Configure banner for unauthorized access warning**

Floor3-Router(config)#banner motd # Unauthorized access is prohibited. #

**#Disable domain name lookup to prevent delays caused by incorrect commands**

Floor3-Router(config)#no ip domain-lookup

**#Configure SSH**

Floor3-Router(config)#ip domain-name floor3router.com

**#Generate RSA key pairs for SSH encryption**

Floor3-Router(config)#crypto key generate rsa

How many bits in the modulus [512]: 1024

**#Enable SSH version 2**

Floor3-Router(config)#ip ssh version 2

**#Create a local user for SSH access**

Floor3-Router(config)#username floor3router secret floor3router

**#Configure VTY lines to accept only SSH connections**

Floor3-Router(config)#line vty 0 4

Floor3-Router(config-line)#transport input ssh

Floor3-Router(config-line)#login local

Floor3-Router(config-line)#exit

**#Set SSH time-out and retries to improve security**

Floor3-Router(config)#ip ssh time-out 60

Floor3-Router(config)#ip ssh authentication-retries 3

Floor3-Router(config)#do wr

**#Up the link**

Floor3-Router(config)#int gig 0/0

Floor3-Router(config-if)#no shutdown

Floor3-Router(config-if)#do wr

Floor3-Router(config-if)#exit

Floor3-Router(config)#int gig 0/1

Floor3-Router(config-if)#no shutdown

Floor3-Router(config-if)#do wr

Floor3-Router(config-if)#exit

Floor3-Router(config)#int gig 0/2

Floor3-Router(config-if)#no shutdown

Floor3-Router(config-if)#do wr

Floor3-Router(config-if)#exit

Floor3-Router(config)#int se 0/0/0

Floor3-Router(config-if)#no shutdown

Floor3-Router(config-if)#clock rate 64000

Floor3-Router(config-if)#do wr

Floor3-Router(config-if)#exit

Floor3-Router(config)#int se 0/0/1

Floor3-Router(config-if)#no shutdown

Floor3-Router(config-if)#do wr

Floor3-Router(config-if)#exit

Floor3-Router(config)#do wr

**#Assinging IP Address to port**

Floor3-Router(config)#int gig0/0

Floor3-Router(config-if)#ip address 10.10.10.30 255.255.255.252

Floor3-Router(config-if)#exit

Floor3-Router(config)#int gig0/1

Floor3-Router(config-if)#ip address 10.10.10.42 255.255.255.252

Floor3-Router(config-if)#exit

Floor3-Router(config)#int gig0/2

Floor3-Router(config-if)#ip address 10.10.10.50 255.255.255.252

Floor3-Router(config-if)#exit

Floor3-Router(config)#int se 0/0/0

Floor3-Router(config-if)#ip address 10.10.10.37 255.255.255.252

Floor3-Router(config-if)#exit

Floor3-Router(config)#int se 0/0/1

Floor3-Router(config-if)#ip address 10.10.10.22 255.255.255.252

Floor3-Router(config-if)#exit

Floor3-Router(config)#do wr

Floor3-Router(config)#exit

**#Enable Routing Protocol (OSPF)**

Floor3-Router(config)#router ospf 10

Floor3-Router(config-router)#network 10.10.10.20 0.0.0.3 area 0

Floor3-Router(config-router)#network 10.10.10.28 0.0.0.3 area 0

Floor3-Router(config-router)#network 10.10.10.36 0.0.0.3 area 0

Floor3-Router(config-router)#network 10.10.10.40 0.0.0.3 area 0

Floor3-Router(config-router)#network 10.10.10.48 0.0.0.3 area 0

Floor3-Router(config-router)#exit

Floor3-Router(config)#do wr

Floor3-Router(config)#exit

**Floor4-Router:**

Router>en

Router#conf t

**#Set the hostname**

Router(config)#hostname Floor4-Router

**#Set console password**

Floor4-Router(config)#line console 0

Floor4-Router(config-line)#password floor4router

Floor4-Router(config-line)#login

Floor4-Router(config-line)#exit

**#Set enable secret password for privileged EXEC mode**

Floor4-Router(config)#enable secret floor4router

**#Enable password encryption for all passwords**

Floor4-Router(config)#service password-encryption

**#Configure banner for unauthorized access warning**

Floor4-Router(config)#banner motd # Unauthorized access is prohibited. #

**#Disable domain name lookup to prevent delays caused by incorrect commands**

Floor4-Router(config)#no ip domain-lookup

**#Configure SSH**

Floor4-Router(config)#ip domain-name floor4router.com

**#Generate RSA key pairs for SSH encryption**

Floor4-Router(config)#crypto key generate rsa

How many bits in the modulus [512]: 1024

**#Enable SSH version 2**

Floor4-Router(config)#ip ssh version 2

**#Create a local user for SSH access**

Floor4-Router(config)#username floor4router secret floor4router

**#Configure VTY lines to accept only SSH connections**

Floor4-Router(config)#line vty 0 4

Floor4-Router(config-line)#transport input ssh

Floor4-Router(config-line)#login local

Floor4-Router(config-line)#exit

**#Set SSH time-out and retries to improve security**

Floor4-Router(config)#ip ssh time-out 60

Floor4-Router(config)#ip ssh authentication-retries 3

Floor4-Router(config)#do wr

**#Up the link**

Floor4-Router(config)#int gig 0/0

Floor4-Router(config-if)#no shutdown

Floor4-Router(config-if)#do wr

Floor4-Router(config-if)#exit

Floor4-Router(config)#int gig 0/1

Floor4-Router(config-if)#no shutdown

Floor4-Router(config-if)#do wr

Floor4-Router(config-if)#exit

Floor4-Router(config)#int gig 0/2

Floor4-Router(config-if)#no shutdown

Floor4-Router(config-if)#do wr

Floor4-Router(config-if)#exit

Floor4-Router(config)#int se 0/0/0

Floor4-Router(config-if)#no shutdown

Floor4-Router(config-if)#do wr

Floor4-Router(config-if)#exit

Floor4-Router(config)#int se 0/0/1

Floor4-Router(config-if)#no shutdown

Floor4-Router(config-if)#do wr

Floor4-Router(config-if)#exit

Floor4-Router(config)#do wr

**#Assinging IP Address to port**

Floor4-Router(config)#int gig0/0

Floor4-Router(config-if)#ip address 10.10.10.26 255.255.255.252

Floor4-Router(config-if)#exit

Floor4-Router(config)#int gig0/1

Floor4-Router(config-if)#ip address 10.10.10.54 255.255.255.252

Floor4-Router(config-if)#exit

Floor4-Router(config)#int gig0/2

Floor4-Router(config-if)#ip address 10.10.10.46 255.255.255.252

Floor4-Router(config-if)#exit

Floor4-Router(config)#int se 0/0/0

Floor4-Router(config-if)#ip address 10.10.10.38 255.255.255.252

Floor4-Router(config-if)#exit

Floor4-Router(config)#int se 0/0/1

Floor4-Router(config-if)#ip address 10.10.10.34 255.255.255.252

Floor4-Router(config-if)#exit

Floor4-Router(config)#do wr

Floor4-Router(config)#exit

**#Enable Routing Protocol (OSPF)**

Floor4-Router(config)#router ospf 10

Floor4-Router(config-router)#network 10.10.10.24 0.0.0.3 area 0

Floor4-Router(config-router)#network 10.10.10.32 0.0.0.3 area 0

Floor4-Router(config-router)#network 10.10.10.36 0.0.0.3 area 0

Floor4-Router(config-router)#network 10.10.10.44 0.0.0.3 area 0

Floor4-Router(config-router)#network 10.10.10.52 0.0.0.3 area 0

Floor4-Router(config-router)#exit

Floor4-Router(config)#do wr

Floor4-Router(config)#exit

**Floor1-Switch:**

Switch>en

Switch#conf t

**#Set the hostname**

Switch(config)#hostname Floor1-Switch

**#Set console password**

Floor1-Switch(config)#line console 0

Floor1-Switch(config-line)#password floor1switch

Floor1-Switch(config-line)#login

Floor1-Switch(config-line)#exit

**#Set enable secret password for privileged EXEC mode**

Floor1-Switch(config)#enable secret floor1switch

**#Enable password encryption for all passwords**

Floor1-Switch(config)#service password-encryption

**#Configure banner for unauthorized access warning**

Floor1-Switch(config)#banner motd # Unauthorized access is prohibited. #

**#Disable domain name lookup to prevent delays caused by incorrect commands**

Floor1-Switch(config)#no ip domain-lookup

**#Configure SSH**

Floor1-Switch(config)#ip domain-name floor1switch.com

**#Generate RSA key pairs for SSH encryption**

Floor1-Switch(config)#crypto key generate rsa

How many bits in the modulus [512]: 1024

**#Enable SSH version 2**

Floor1-Switch(config)#ip ssh version 2

**#Create a local user for SSH access**

Floor1-Switch(config)#username floor1switch secret floor1switch

**#Configure VTY lines to accept only SSH connections**

Floor1-Switch(config)#line vty 0 4

Floor1-Switch(config-line)#transport input ssh

Floor1-Switch(config-line)#login local

Floor1-Switch(config-line)#exit

**#Set SSH time-out and retries to improve security**

Floor1-Switch(config)#ip ssh time-out 60

Floor1-Switch(config)#ip ssh authentication-retries 3

Floor1-Switch(config)#do wr

Floor1-Switch(config)#exit

**#Configure trunk ports to carry VLAN traffic also Enable PortFast**

Floor1-Switch(config)#int range gig1/0/3-8

Floor1-Switch(config-if-range)#switchport mode trunk

Floor1-Switch(config-if-range)#spanning-tree portfast

Floor1-Switch(config-if-range)#exit

Floor1-Switch(config)#do wr

Floor1-Switch(config)#exit

**#Assinging IP Address to port**

Floor1-Switch(config)#int range gig1/0/1-2

Floor1-Switch(config-if-range)#no switchport

Floor1-Switch(config-if-range)#exit

Floor1-Switch(config)#int gig1/0/1

Floor1-Switch(config-if)#ip address 10.10.10.1 255.255.255.252

Floor1-Switch(config-if)#exit

Floor1-Switch(config)#int gig1/0/2

Floor1-Switch(config-if)#ip address 10.10.10.5 255.255.255.252

Floor1-Switch(config-if)#exit

Floor1-Switch(config)#do wr

Floor1-Switch(config)#exit

**#Enable Routing Protocol (OSPF)**

Floor1-Switch(config)#ip routing

Floor1-Switch(config)#router ospf 10

Floor1-Switch(config-router)#network 10.10.10.0 0.0.0.3 area 0

Floor1-Switch(config-router)#network 10.10.10.4 0.0.0.3 area 0

Floor1-Switch(config-router)#network 192.168.10.0 0.0.0.63 area 0

Floor1-Switch(config-router)#network 192.168.10.64 0.0.0.63 area 0

Floor1-Switch(config-router)#network 192.168.10.128 0.0.0.63 area 0

Floor1-Switch(config-router)#network 192.168.10.192 0.0.0.63 area 0

Floor1-Switch(config-router)#network 192.168.11.0 0.0.0.63 area 0

Floor1-Switch(config-router)#network 192.168.11.64 0.0.0.63 area 0

Floor1-Switch(config-router)#exit

Floor1-Switch(config)#do wr

Floor1-Switch(config)#exit

**#Create VLANs**

Floor1-Switch(config)#vlan 10

Floor1-Switch(config-vlan)#name Management

Floor1-Switch(config-vlan)#exit

Floor1-Switch(config)#vlan 20

Floor1-Switch(config-vlan)#name Research

Floor1-Switch(config-vlan)#exit

Floor1-Switch(config)#vlan 30

Floor1-Switch(config-vlan)#name HR

Floor1-Switch(config-vlan)#exit

Floor1-Switch(config)#vlan 40

Floor1-Switch(config-vlan)#name Marketing

Floor1-Switch(config-vlan)#exit

Floor1-Switch(config)#vlan 50

Floor1-Switch(config-vlan)#name Accounting

Floor1-Switch(config-vlan)#exit

Floor1-Switch(config)#vlan 60

Floor1-Switch(config-vlan)#name Finance

Floor1-Switch(config-vlan)#exit

Floor1-Switch(config)#do wr

Floor1-Switch(config)#exit

**#Inter-Vlan Routing + IP DHCP Helper Address**

Floor1-Switch(config)#interface vlan 10

Floor1-Switch(config-if)#no shutdown

Floor1-Switch(config-if)#ip address 192.168.10.1 255.255.255.192

Floor1-Switch(config-if)#ip helper-address 192.168.12.197

Floor1-Switch(config-if)#exit

Floor1-Switch(config)#interface vlan 20

Floor1-Switch(config-if)#no shutdown

Floor1-Switch(config-if)#ip address 192.168.10.65 255.255.255.192

Floor1-Switch(config-if)#ip helper-address 192.168.12.197

Floor1-Switch(config-if)#exit

Floor1-Switch(config)#interface vlan 30

Floor1-Switch(config-if)#no shutdown

Floor1-Switch(config-if)#ip address 192.168.10.129 255.255.255.192

Floor1-Switch(config-if)#ip helper-address 192.168.12.197

Floor1-Switch(config-if)#exit

Floor1-Switch(config)#interface vlan 40

Floor1-Switch(config-if)#no shutdown

Floor1-Switch(config-if)#ip address 192.168.10.193 255.255.255.192

Floor1-Switch(config-if)#ip helper-address 192.168.12.197

Floor1-Switch(config-if)#exit

Floor1-Switch(config)#interface vlan 50

Floor1-Switch(config-if)#no shutdown

Floor1-Switch(config-if)#ip address 192.168.11.1 255.255.255.192

Floor1-Switch(config-if)#ip helper-address 192.168.12.197

Floor1-Switch(config-if)#exit

Floor1-Switch(config)#interface vlan 60

Floor1-Switch(config-if)#no shutdown

Floor1-Switch(config-if)#ip address 192.168.11.65 255.255.255.192

Floor1-Switch(config-if)#ip helper-address 192.168.12.197

Floor1-Switch(config-if)#exit

Floor1-Switch(config)#do wr

Floor1-Switch(config)#exit

**Floor2-Switch:**

Switch>en

Switch#conf t

**#Set the hostname**

Switch(config)#hostname Floor2-Switch

**#Set console password**

Floor2-Switch(config)#line console 0

Floor2-Switch(config-line)#password floor2switch

Floor2-Switch(config-line)#login

Floor2-Switch(config-line)#exit

**#Set enable secret password for privileged EXEC mode**

Floor2-Switch(config)#enable secret floor2switch

**#Enable password encryption for all passwords**

Floor2-Switch(config)#service password-encryption

**#Configure banner for unauthorized access warning**

Floor2-Switch(config)#banner motd # Unauthorized access is prohibited. #

**#Disable domain name lookup to prevent delays caused by incorrect commands**

Floor2-Switch(config)#no ip domain-lookup

**#Configure SSH**

Floor2-Switch(config)#ip domain-name floor2switch.com

**#Generate RSA key pairs for SSH encryption**

Floor2-Switch(config)#crypto key generate rsa

How many bits in the modulus [512]: 1024

**#Enable SSH version 2**

Floor2-Switch(config)#ip ssh version 2

**#Create a local user for SSH access**

Floor2-Switch(config)#username floor2switch secret floor2switch

**#Configure VTY lines to accept only SSH connections**

Floor2-Switch(config)#line vty 0 4

Floor2-Switch(config-line)#transport input ssh

Floor2-Switch(config-line)#login local

Floor2-Switch(config-line)#exit

**#Set SSH time-out and retries to improve security**

Floor2-Switch(config)#ip ssh time-out 60

Floor2-Switch(config)#ip ssh authentication-retries 3

Floor2-Switch(config)#do wr

Floor2-Switch(config)#exit

**#Configure trunk ports to carry VLAN traffic also Enable PortFast**

Floor2-Switch(config)#int range gig1/0/3-8

Floor2-Switch(config-if-range)#switchport mode trunk

Floor2-Switch(config-if-range)#spanning-tree portfast

Floor2-Switch(config-if-range)#exit

Floor2-Switch(config)#do wr

Floor2-Switch(config)#exit

**#Assinging IP Address to port**

Floor2-Switch(config)#int range gig1/0/1-2

Floor2-Switch(config-if-range)#no switchport

Floor2-Switch(config-if-range)#exit

Floor2-Switch(config)#int gig1/0/1

Floor2-Switch(config-if)#ip address 10.10.10.13 255.255.255.252

Floor2-Switch(config-if)#exit

Floor2-Switch(config)#int gig1/0/2

Floor2-Switch(config-if)#ip address 10.10.10.9 255.255.255.252

Floor2-Switch(config-if)#exit

Floor2-Switch(config)#do wr

Floor2-Switch(config)#exit

**#Enable Routing Protocol (OSPF)**

Floor2-Switch(config)#ip routing

Floor2-Switch(config)#router ospf 10

Floor2-Switch(config-router)#network 10.10.10.8 0.0.0.3 area 0

Floor2-Switch(config-router)#network 10.10.10.12 0.0.0.3 area 0

Floor2-Switch(config-router)#network 192.168.10.0 0.0.0.63 area 0

Floor2-Switch(config-router)#network 192.168.10.64 0.0.0.63 area 0

Floor2-Switch(config-router)#network 192.168.10.128 0.0.0.63 area 0

Floor2-Switch(config-router)#network 192.168.10.192 0.0.0.63 area 0

Floor2-Switch(config-router)#network 192.168.11.0 0.0.0.63 area 0

Floor2-Switch(config-router)#network 192.168.11.64 0.0.0.63 area 0

Floor2-Switch(config-router)#exit

Floor2-Switch(config)#do wr

Floor2-Switch(config)#exit

**#Create VLANs**

Floor2-Switch(config)#vlan 10

Floor2-Switch(config-vlan)#name Management

Floor2-Switch(config-vlan)#exit

Floor2-Switch(config)#vlan 20

Floor2-Switch(config-vlan)#name Research

Floor2-Switch(config-vlan)#exit

Floor2-Switch(config)#vlan 30

Floor2-Switch(config-vlan)#name HR

Floor2-Switch(config-vlan)#exit

Floor2-Switch(config)#vlan 40

Floor2-Switch(config-vlan)#name Marketing

Floor2-Switch(config-vlan)#exit

Floor2-Switch(config)#vlan 50

Floor2-Switch(config-vlan)#name Accounting

Floor2-Switch(config-vlan)#exit

Floor2-Switch(config)#vlan 60

Floor2-Switch(config-vlan)#name Finance

Floor2-Switch(config-vlan)#exit

Floor2-Switch(config)#do wr

Floor2-Switch(config)#exit

**#Inter-Vlan Routing + IP DHCP Helper Address**

Floor2-Switch(config)#interface vlan 10

Floor2-Switch(config-if)#no shutdown

Floor2-Switch(config-if)#ip address 192.168.10.1 255.255.255.192

Floor2-Switch(config-if)#ip helper-address 192.168.12.197

Floor2-Switch(config-if)#exit

Floor2-Switch(config)#interface vlan 20

Floor2-Switch(config-if)#no shutdown

Floor2-Switch(config-if)#ip address 192.168.10.65 255.255.255.192

Floor2-Switch(config-if)#ip helper-address 192.168.12.197

Floor2-Switch(config-if)#exit

Floor2-Switch(config)#interface vlan 30

Floor2-Switch(config-if)#no shutdown

Floor2-Switch(config-if)#ip address 192.168.10.129 255.255.255.192

Floor2-Switch(config-if)#ip helper-address 192.168.12.197

Floor2-Switch(config-if)#exit

Floor2-Switch(config)#interface vlan 40

Floor2-Switch(config-if)#no shutdown

Floor2-Switch(config-if)#ip address 192.168.10.193 255.255.255.192

Floor2-Switch(config-if)#ip helper-address 192.168.12.197

Floor2-Switch(config-if)#exit

Floor2-Switch(config)#interface vlan 50

Floor2-Switch(config-if)#no shutdown

Floor2-Switch(config-if)#ip address 192.168.11.1 255.255.255.192

Floor2-Switch(config-if)#ip helper-address 192.168.12.197

Floor2-Switch(config-if)#exit

Floor2-Switch(config)#interface vlan 60

Floor2-Switch(config-if)#no shutdown

Floor2-Switch(config-if)#ip address 192.168.11.65 255.255.255.192

Floor2-Switch(config-if)#ip helper-address 192.168.12.197

Floor2-Switch(config-if)#exit

Floor2-Switch(config)#do wr

Floor2-Switch(config)#exit

**Floor3-Switch:**

Switch>en

Switch#conf t

**#Set the hostname**

Switch(config)#hostname Floor3-Switch

**#Set console password**

Floor3-Switch(config)#line console 0

Floor3-Switch(config-line)#password floor3switch

Floor3-Switch(config-line)#login

Floor3-Switch(config-line)#exit

**#Set enable secret password for privileged EXEC mode**

Floor3-Switch(config)#enable secret floor3switch

**#Enable password encryption for all passwords**

Floor3-Switch(config)#service password-encryption

**#Configure banner for unauthorized access warning**

Floor3-Switch(config)#banner motd # Unauthorized access is prohibited. #

**#Disable domain name lookup to prevent delays caused by incorrect commands**

Floor3-Switch(config)#no ip domain-lookup

**#Configure SSH**

Floor3-Switch(config)#ip domain-name floor3switch.com

**#Generate RSA key pairs for SSH encryption**

Floor3-Switch(config)#crypto key generate rsa

How many bits in the modulus [512]: 1024

**#Enable SSH version 2**

Floor3-Switch(config)#ip ssh version 2

**#Create a local user for SSH access**

Floor3-Switch(config)#username floor3switch secret floor3switch

**#Configure VTY lines to accept only SSH connections**

Floor3-Switch(config)#line vty 0 4

Floor3-Switch(config-line)#transport input ssh

Floor3-Switch(config-line)#login local

Floor3-Switch(config-line)#exit

**#Set SSH time-out and retries to improve security**

Floor3-Switch(config)#ip ssh time-out 60

Floor3-Switch(config)#ip ssh authentication-retries 3

Floor3-Switch(config)#do wr

Floor3-Switch(config)#exit

**#Configure trunk ports to carry VLAN traffic also Enable PortFast**

Floor3-Switch(config)#int range gig1/0/3-8

Floor3-Switch(config-if-range)#switchport mode trunk

Floor3-Switch(config-if-range)#spanning-tree portfast

Floor3-Switch(config-if-range)#exit

Floor3-Switch(config)#do wr

Floor3-Switch(config)#exit

**#Assinging IP Address to port**

Floor3-Switch(config)#int range gig1/0/1-2

Floor3-Switch(config-if-range)#no switchport

Floor3-Switch(config-if-range)#exit

Floor3-Switch(config)#int gig1/0/1

Floor3-Switch(config-if)#ip address 10.10.10.41 255.255.255.252

Floor3-Switch(config-if)#exit

Floor3-Switch(config)#int gig1/0/2

Floor3-Switch(config-if)#ip address 10.10.10.45 255.255.255.252

Floor3-Switch(config-if)#exit

Floor3-Switch(config)#do wr

Floor3-Switch(config)#exit

**#Enable Routing Protocol (OSPF)**

Floor3-Switch(config)#ip routing

Floor3-Switch(config)#router ospf 10

Floor3-Switch(config-router)#network 10.10.10.40 0.0.0.3 area 0

Floor3-Switch(config-router)#network 10.10.10.44 0.0.0.3 area 0

Floor3-Switch(config-router)#network 192.168.11.128 0.0.0.63 area 0

Floor3-Switch(config-router)#network 192.168.11.192 0.0.0.63 area 0

Floor3-Switch(config-router)#network 192.168.12.0 0.0.0.63 area 0

Floor3-Switch(config-router)#network 192.168.12.64 0.0.0.63 area 0

Floor3-Switch(config-router)#network 192.168.12.128 0.0.0.63 area 0

Floor3-Switch(config-router)#network 192.168.12.192 0.0.0.63 area 0

Floor3-Switch(config-router)#exit

Floor3-Switch(config)#do wr

Floor3-Switch(config)#exit

**#Create VLANs**

Floor3-Switch(config)#vlan 70

Floor3-Switch(config-vlan)#name L&S

Floor3-Switch(config-vlan)#exit

Floor3-Switch(config)#vlan 80

Floor3-Switch(config-vlan)#name Customer\_Care

Floor3-Switch(config-vlan)#exit

Floor3-Switch(config)#vlan 90

Floor3-Switch(config-vlan)#name Guest\_Area

Floor3-Switch(config-vlan)#exit

Floor3-Switch(config)#vlan 100

Floor3-Switch(config-vlan)#name Administrator

Floor3-Switch(config-vlan)#exit

Floor3-Switch(config)#vlan 110

Floor3-Switch(config-vlan)#name ICT

Floor3-Switch(config-vlan)#exit

Floor3-Switch(config)#vlan 120

Floor3-Switch(config-vlan)#name Server\_Room

Floor3-Switch(config-vlan)#exit

Floor3-Switch(config)#do wr

Floor3-Switch(config)#exit

**#Inter-Vlan Routing + IP DHCP Helper Address**

Floor3-Switch(config)#interface vlan 70

Floor3-Switch(config-if)#no shutdown

Floor3-Switch(config-if)#ip address 192.168.11.129 255.255.255.192

Floor3-Switch(config-if)#ip helper-address 192.168.12.197

Floor3-Switch(config-if)#exit

Floor3-Switch(config)#interface vlan 80

Floor3-Switch(config-if)#no shutdown

Floor3-Switch(config-if)#ip address 192.168.11.193 255.255.255.192

Floor3-Switch(config-if)#ip helper-address 192.168.12.197

Floor3-Switch(config-if)#exit

Floor3-Switch(config)#interface vlan 90

Floor3-Switch(config-if)#no shutdown

Floor3-Switch(config-if)#ip address 192.168.12.1 255.255.255.192

Floor3-Switch(config-if)#ip helper-address 192.168.12.197

Floor3-Switch(config-if)#exit

Floor3-Switch(config)#interface vlan 100

Floor3-Switch(config-if)#no shutdown

Floor3-Switch(config-if)#ip address 192.168.12.65 255.255.255.192

Floor3-Switch(config-if)#ip helper-address 192.168.12.197

Floor3-Switch(config-if)#exit

Floor3-Switch(config)#interface vlan 110

Floor3-Switch(config-if)#no shutdown

Floor3-Switch(config-if)#ip address 192.168.12.129 255.255.255.192

Floor3-Switch(config-if)#ip helper-address 192.168.12.197

Floor3-Switch(config-if)#exit

Floor3-Switch(config)#interface vlan 120

Floor3-Switch(config-if)#no shutdown

Floor3-Switch(config-if)#ip address 192.168.12.193 255.255.255.192

Floor3-Switch(config-if)#exit

Floor3-Switch(config)#do wr

Floor3-Switch(config)#exit

**Floor4-Switch:**

Switch>en

Switch#conf t

**#Set the hostname**

Switch(config)#hostname Floor4-Switch

**#Set console password**

Floor4-Switch(config)#line console 0

Floor4-Switch(config-line)#password floor4switch

Floor4-Switch(config-line)#login

Floor4-Switch(config-line)#exit

**#Set enable secret password for privileged EXEC mode**

Floor4-Switch(config)#enable secret floor4switch

**#Enable password encryption for all passwords**

Floor4-Switch(config)#service password-encryption

**#Configure banner for unauthorized access warning**

Floor4-Switch(config)#banner motd # Unauthorized access is prohibited. #

**#Disable domain name lookup to prevent delays caused by incorrect commands**

Floor4-Switch(config)#no ip domain-lookup

**#Configure SSH**

Floor4-Switch(config)#ip domain-name floor4switch.com

**#Generate RSA key pairs for SSH encryption**

Floor4-Switch(config)#crypto key generate rsa

How many bits in the modulus [512]: 1024

**#Enable SSH version 2**

Floor4-Switch(config)#ip ssh version 2

**#Create a local user for SSH access**

Floor4-Switch(config)#username floor4switch secret floor4switch

**#Configure VTY lines to accept only SSH connections**

Floor4-Switch(config)#line vty 0 4

Floor4-Switch(config-line)#transport input ssh

Floor4-Switch(config-line)#login local

Floor4-Switch(config-line)#exit

**#Set SSH time-out and retries to improve security**

Floor4-Switch(config)#ip ssh time-out 60

Floor4-Switch(config)#ip ssh authentication-retries 3

Floor4-Switch(config)#do wr

Floor4-Switch(config)#exit

**#Configure trunk ports to carry VLAN traffic also Enable PortFast**

Floor4-Switch(config)#int range gig1/0/3-8

Floor4-Switch(config-if-range)#switchport mode trunk

Floor4-Switch(config-if-range)#spanning-tree portfast

Floor4-Switch(config-if-range)#exit

Floor4-Switch(config)#do wr

Floor4-Switch(config)#exit

**#Assinging IP Address to port**

Floor4-Switch(config)#int range gig1/0/1-2

Floor4-Switch(config-if-range)#no switchport

Floor4-Switch(config-if-range)#exit

Floor4-Switch(config)#int gig1/0/1

Floor4-Switch(config-if)#ip address 10.10.10.53 255.255.255.252

Floor4-Switch(config-if)#exit

Floor4-Switch(config)#int gig1/0/2

Floor4-Switch(config-if)#ip address 10.10.10.49 255.255.255.252

Floor4-Switch(config-if)#exit

Floor4-Switch(config)#do wr

Floor4-Switch(config)#exit

**#Enable Routing Protocol (OSPF)**

Floor4-Switch(config)#ip routing

Floor4-Switch(config)#router ospf 10

Floor4-Switch(config-router)#network 10.10.10.48 0.0.0.3 area 0

Floor4-Switch(config-router)#network 10.10.10.52 0.0.0.3 area 0

Floor4-Switch(config-router)#network 192.168.11.128 0.0.0.63 area 0

Floor4-Switch(config-router)#network 192.168.11.192 0.0.0.63 area 0

Floor4-Switch(config-router)#network 192.168.12.0 0.0.0.63 area 0

Floor4-Switch(config-router)#network 192.168.12.64 0.0.0.63 area 0

Floor4-Switch(config-router)#network 192.168.12.128 0.0.0.63 area 0

Floor4-Switch(config-router)#network 192.168.12.192 0.0.0.63 area 0

Floor4-Switch(config-router)#exit

Floor4-Switch(config)#do wr

Floor4-Switch(config)#exit

**#Create VLANs**

Floor4-Switch(config)#vlan 70

Floor4-Switch(config-vlan)#name L&S

Floor4-Switch(config-vlan)#exit

Floor4-Switch(config)#vlan 80

Floor4-Switch(config-vlan)#name Customer\_Care

Floor4-Switch(config-vlan)#exit

Floor4-Switch(config)#vlan 90

Floor4-Switch(config-vlan)#name Guest\_Area

Floor4-Switch(config-vlan)#exit

Floor4-Switch(config)#vlan 100

Floor4-Switch(config-vlan)#name Administrator

Floor4-Switch(config-vlan)#exit

Floor4-Switch(config)#vlan 110

Floor4-Switch(config-vlan)#name ICT

Floor4-Switch(config-vlan)#exit

Floor4-Switch(config)#vlan 120

Floor4-Switch(config-vlan)#name Server\_Room

Floor4-Switch(config-vlan)#exit

Floor4-Switch(config)#do wr

Floor4-Switch(config)#exit

**#Inter-Vlan Routing + IP DHCP Helper Address**

Floor4-Switch(config)#interface vlan 70

Floor4-Switch(config-if)#no shutdown

Floor4-Switch(config-if)#ip address 192.168.11.129 255.255.255.192

Floor4-Switch(config-if)#ip helper-address 192.168.12.197

Floor4-Switch(config-if)#exit

Floor4-Switch(config)#interface vlan 80

Floor4-Switch(config-if)#no shutdown

Floor4-Switch(config-if)#ip address 192.168.11.193 255.255.255.192

Floor4-Switch(config-if)#ip helper-address 192.168.12.197

Floor4-Switch(config-if)#exit

Floor4-Switch(config)#interface vlan 90

Floor4-Switch(config-if)#no shutdown

Floor4-Switch(config-if)#ip address 192.168.12.1 255.255.255.192

Floor4-Switch(config-if)#ip helper-address 192.168.12.197

Floor4-Switch(config-if)#exit

Floor4-Switch(config)#interface vlan 100

Floor4-Switch(config-if)#no shutdown

Floor4-Switch(config-if)#ip address 192.168.12.65 255.255.255.192

Floor4-Switch(config-if)#ip helper-address 192.168.12.197

Floor4-Switch(config-if)#exit

Floor4-Switch(config)#interface vlan 110

Floor4-Switch(config-if)#no shutdown

Floor4-Switch(config-if)#ip address 192.168.12.129 255.255.255.192

Floor4-Switch(config-if)#ip helper-address 192.168.12.197

Floor4-Switch(config-if)#exit

Floor4-Switch(config)#interface vlan 120

Floor4-Switch(config-if)#no shutdown

Floor4-Switch(config-if)#ip address 192.168.12.193 255.255.255.192

Floor4-Switch(config-if)#exit

Floor4-Switch(config)#do wr

Floor4-Switch(config)#exit

**Management-Switch:**

Switch>en

Switch#conf t

**#Set the hostname**

Switch(config)#hostname Management-Switch

**#Set console password**

Management-Switch(config)#line console 0

Management-Switch(config-line)#password management

Management-Switch(config-line)#login

Management-Switch(config-line)#exit

**#Set VTY password**

Management-Switch(config)#line vty 0 4

Management-Switch(config-line)#password management

Management-Switch(config-line)#login

Management-Switch(config-line)#exit

**#Set enable secret password for privileged EXEC mode**

Management-Switch(config)#enable secret management

**#Enable password encryption for all passwords**

Management-Switch(config)#service password-encryption

**#Configure banner for unauthorized access warning**

Management-Switch(config)#banner motd # Unauthorized access is prohibited. #

**#Disable domain name lookup to prevent delays caused by incorrect commands**

Management-Switch(config)#no ip domain-lookup

Management-Switch(config)#do wr

Management-Switch(config)#exit

**#Create VLAN 10 for Management**

Management-Switch(config)#vlan 10

Management-Switch(config-vlan)#name Management

Management-Switch(config-vlan)#exit

**#Configure trunk ports to carry VLAN traffic**

Management-Switch(config)#int range fa0/1-2

Management-Switch(config-if-range)#switchport mode trunk

Management-Switch(config-if-range)#exit

**#Configure access ports for Management PCs and access point and apply port security**

Management-Switch(config)#int range fa0/3-4,gig 0/1

Management-Switch(config-if-range)#switchport mode access

Management-Switch(config-if-range)#switchport access vlan 10

Management-Switch(config-if-range)#switchport port-security

Management-Switch(config-if-range)#switchport port-security maximum 2

Management-Switch(config-if-range)#switchport port-security mac-address sticky

Management-Switch(config-if-range)#switchport port-security violation shutdown

Management-Switch(config-if-range)#exit

Management-Switch(config)#do wr

Management-Switch(config)#exit

**Research-Switch:**

Switch>en

Switch#conf t

**#Set the hostname**

Switch(config)#hostname Research-Switch

**#Set console password**

Research-Switch(config)#line console 0

Research-Switch(config-line)#password research

Research-Switch(config-line)#login

Research-Switch(config-line)#exit

**#Set VTY password**

Research-Switch(config)#line vty 0 4

Research-Switch(config-line)#password research

Research-Switch(config-line)#login

Research-Switch(config-line)#exit

**#Set enable secret password for privileged EXEC mode**

Research-Switch(config)#enable secret research

**#Enable password encryption for all passwords**

Research-Switch(config)#service password-encryption

**#Configure banner for unauthorized access warning**

Research-Switch(config)#service password-encryption

**#Disable domain name lookup to prevent delays caused by incorrect commands**

Research-Switch(config)#banner motd # Unauthorized access is prohibited. #

Research-Switch(config)#do wr

Research-Switch(config)#exit

**#Create VLAN 20 for Research**

Research-Switch(config)#vlan 20

Research-Switch(config-vlan)#name Research

Research-Switch(config-vlan)#exit

**#Configure trunk ports to carry VLAN traffic**

Research-Switch(config)#int range fa0/1-2

Research-Switch(config-if-range)#switchport mode trunk

Research-Switch(config-if-range)#exit

**#Configure access ports for Research PCs and access point and apply port security**

Research-Switch(config)#int range fa0/3-4,gig 0/1

Research-Switch(config-if-range)#switchport mode access

Research-Switch(config-if-range)#switchport access vlan 20

Research-Switch(config-if-range)#switchport port-security

Research-Switch(config-if-range)#switchport port-security maximum 2

Research-Switch(config-if-range)#switchport port-security mac-address sticky

Research-Switch(config-if-range)#switchport port-security violation shutdown

Research-Switch(config-if-range)#exit

Research-Switch(config)#do wr

Research-Switch(config)#exit

**HR-Switch:**

Switch>en

Switch#conf t

**#Set the hostname**

Switch(config)#hostname HR-Switch

**#Set console password**

HR-Switch(config)#line console 0

HR-Switch(config-line)#password hr

HR-Switch(config-line)#login

HR-Switch(config-line)#exit

**#Set VTY password**

HR-Switch(config)#line vty 0 4

HR-Switch(config-line)#password hr

HR-Switch(config-line)#login

HR-Switch(config-line)#exit

**#Set enable secret password for privileged EXEC mode**

HR-Switch(config)#enable secret hr

**#Enable password encryption for all passwords**

HR-Switch(config)#service password-encryption

**#Configure banner for unauthorized access warning**

HR-Switch(config)#banner motd # Unauthorized access is prohibited. #

**#Disable domain name lookup to prevent delays caused by incorrect commands**

HR-Switch(config)#no ip domain-lookup

HR-Switch(config)#do wr

HR-Switch(config)#exit

**#Create VLAN 30 for Human Resources**

HR-Switch(config)#vlan 30

HR-Switch(config-vlan)#name HR

HR-Switch(config-vlan)#exit

**#Configure trunk ports to carry VLAN traffic**

HR-Switch(config)#int range fa0/1-2

HR-Switch(config-if-range)#switchport mode trunk

HR-Switch(config-if-range)#exit

**#Configure access ports for HR PCs and access point and apply port security**

HR-Switch(config)#int range fa0/3-4,gig 0/1

HR-Switch(config-if-range)#switchport mode access

HR-Switch(config-if-range)#switchport access vlan 30

HR-Switch(config-if-range)#switchport port-security

HR-Switch(config-if-range)#switchport port-security maximum 2

HR-Switch(config-if-range)#switchport port-security mac-address sticky

HR-Switch(config-if-range)#switchport port-security violation shutdown

HR-Switch(config-if-range)#exit

HR-Switch(config)#do wr

HR-Switch(config)#exit

**Marketing-Switch:**

Switch>en

Switch#conf t

**#Set the hostname**

Switch(config)#hostname Marketing-Switch

**#Set console password**

Marketing-Switch(config)#line console 0

Marketing-Switch(config-line)#password marketing

Marketing-Switch(config-line)#login

Marketing-Switch(config-line)#exit

**#Set VTY password**

Marketing-Switch(config)#line vty 0 4

Marketing-Switch(config-line)#password marketing

Marketing-Switch(config-line)#login

Marketing-Switch(config-line)#exit

**#Set enable secret password for privileged EXEC mode**

Marketing-Switch(config)#enable secret marketing

**#Enable password encryption for all passwords**

Marketing-Switch(config)#service password-encryption

**#Configure banner for unauthorized access warning**

Marketing-Switch(config)#banner motd # Unauthorized access is prohibited. #

**#Disable domain name lookup to prevent delays caused by incorrect commands**

Marketing-Switch(config)#no ip domain-lookup

Marketing-Switch(config)#do wr

Marketing-Switch(config)#exit

**#Create VLAN 40 for Marketing**

Marketing-Switch(config)#vlan 40

Marketing-Switch(config-vlan)#name Marketing

Marketing-Switch(config-vlan)#exit

**#Configure trunk ports to carry VLAN traffic**

Marketing-Switch(config)#int range fa0/1-2

Marketing-Switch(config-if-range)#switchport mode trunk

Marketing-Switch(config-if-range)#exit

**#Configure access ports for Marketing PCs and access point and apply port security**

Marketing-Switch(config)#int range fa0/3-4,gig 0/1

Marketing-Switch(config-if-range)#switchport mode access

Marketing-Switch(config-if-range)#switchport access vlan 40

Marketing-Switch(config-if-range)#switchport port-security

Marketing-Switch(config-if-range)#switchport port-security maximum 2

Marketing-Switch(config-if-range)#switchport port-security mac-address sticky

Marketing-Switch(config-if-range)#switchport port-security violation shutdown

Marketing-Switch(config-if-range)#exit

Marketing-Switch(config)#do wr

Marketing-Switch(config)#exit

**Accounting-Switch:**

Switch>en

Switch#conf t

**#Set the hostname**

Switch(config)#hostname Accounting-Switch

**#Set console password**

Accounting-Switch(config)#line console 0

Accounting-Switch(config-line)#password accounting

Accounting-Switch(config-line)#login

Accounting-Switch(config-line)#exit

**#Set VTY password**

Accounting-Switch(config)#line vty 0 4

Accounting-Switch(config-line)#password accounting

Accounting-Switch(config-line)#login

Accounting-Switch(config-line)#exit

**#Set enable secret password for privileged EXEC mode**

Accounting-Switch(config)#enable secret accounting

**#Enable password encryption for all passwords**

Accounting-Switch(config)#service password-encryption

**#Configure banner for unauthorized access warning**

Accounting-Switch(config)#banner motd # Unauthorized access is prohibited. #

**#Disable domain name lookup to prevent delays caused by incorrect commands**

Accounting-Switch(config)#no ip domain-lookup

Accounting-Switch(config)#do wr

Accounting-Switch(config)#exit

**#Create VLAN 50 for Accounting**

Accounting-Switch(config)#vlan 50

Accounting-Switch(config-vlan)#name Accounting

Accounting-Switch(config-vlan)#exit

**#Configure trunk ports to carry VLAN traffic**

Accounting-Switch(config)#int range fa0/1-2

Accounting-Switch(config-if-range)#switchport mode trunk

Accounting-Switch(config-if-range)#exit

**#Configure access ports for Accounting PCs and access point and apply port security**

Accounting-Switch(config)#int range fa0/3-4,gig 0/1

Accounting-Switch(config-if-range)#switchport mode access

Accounting-Switch(config-if-range)#switchport access vlan 50

Accounting-Switch(config-if-range)#switchport port-security

Accounting-Switch(config-if-range)#switchport port-security maximum 2

Accounting-Switch(config-if-range)#switchport port-security mac-address sticky

Accounting-Switch(config-if-range)#switchport port-security violation shutdown

Accounting-Switch(config-if-range)#exit

Accounting-Switch(config)#do wr

Accounting-Switch(config)#exit

**Finance-Switch:**

Switch>en

Switch#conf t

**#Set the hostname**

Switch(config)#hostname Finance-Switch

**#Set console password**

Finance-Switch(config)#line console 0

Finance-Switch(config-line)#password finance

Finance-Switch(config-line)#login

Finance-Switch(config-line)#exit

**#Set VTY password**

Finance-Switch(config)#line vty 0 4

Finance-Switch(config-line)#password finance

Finance-Switch(config-line)#login

Finance-Switch(config-line)#exit

**#Set enable secret password for privileged EXEC mode**

Finance-Switch(config)#enable secret finance

**#Enable password encryption for all passwords**

Finance-Switch(config)#service password-encryption

**#Configure banner for unauthorized access warning**

Finance-Switch(config)#banner motd # Unauthorized access is prohibited. #

**#Disable domain name lookup to prevent delays caused by incorrect commands**

Finance-Switch(config)#no ip domain-lookup

Finance-Switch(config)#do wr

Finance-Switch(config)#exit

**#Create VLAN 60 for Finance**

Finance-Switch(config)#vlan 60

Finance-Switch(config-vlan)#name Finance

Finance-Switch(config-vlan)#exit

**#Configure trunk ports to carry VLAN traffic**

Finance-Switch(config)#int range fa0/1-2

Finance-Switch(config-if-range)#switchport mode trunk

Finance-Switch(config-if-range)#exit

**#Configure access ports for Finance PCs and access point and apply port security**

Finance-Switch(config)#int range fa0/3-4,gig 0/1

Finance-Switch(config-if-range)#switchport mode access

Finance-Switch(config-if-range)#switchport access vlan 60

Finance-Switch(config-if-range)#switchport port-security

Finance-Switch(config-if-range)#switchport port-security maximum 2

Finance-Switch(config-if-range)#switchport port-security mac-address sticky

Finance-Switch(config-if-range)#switchport port-security violation shutdown

Finance-Switch(config-if-range)#exit

Finance-Switch(config)#do wr

Finance-Switch(config)#exit

**L&S-Switch:**

Switch>en

Switch#conf t

**#Set the hostname**

Switch(config)#hostname L&S-Switch

**#Set console password**

L&S-Switch(config)#line console 0

L&S-Switch(config-line)#password l&s

L&S-Switch(config-line)#login

L&S-Switch(config-line)#exit

**#Set VTY password**

L&S-Switch(config)#line vty 0 4

L&S-Switch(config-line)#password l&s

L&S-Switch(config-line)#login

L&S-Switch(config-line)#exit

**#Set enable secret password for privileged EXEC mode**

L&S-Switch(config)#enable secret l&s

**#Enable password encryption for all passwords**

L&S-Switch(config)#service password-encryption

**#Configure banner for unauthorized access warning**

L&S-Switch(config)#banner motd # Unauthorized access is prohibited. #

**#Disable domain name lookup to prevent delays caused by incorrect commands**

L&S-Switch(config)#no ip domain-lookup

L&S-Switch(config)#do wr

L&S-Switch(config)#exit

**#Create VLAN 70 for L&S**

L&S-Switch(config)#vlan 70

L&S-Switch(config-vlan)#name L&S

L&S-Switch(config-vlan)#exit

**#Configure trunk ports to carry VLAN traffic**

L&S-Switch(config)#int range fa0/1-2

L&S-Switch(config-if-range)#switchport mode trunk

L&S-Switch(config-if-range)#exit

**#Configure access ports for L&S PCs and access point and apply port security**

L&S-Switch(config)#int range fa0/3-4,gig 0/1

L&S-Switch(config-if-range)#switchport mode access

L&S-Switch(config-if-range)#switchport access vlan 70

L&S-Switch(config-if-range)#switchport port-security

L&S-Switch(config-if-range)#switchport port-security maximum 2

L&S-Switch(config-if-range)#switchport port-security mac-address sticky

L&S-Switch(config-if-range)#switchport port-security violation shutdown

L&S-Switch(config-if-range)#exit

L&S-Switch(config)#do wr

L&S-Switch(config)#exit

**Customer-Care-Switch:**

Switch>en

Switch#conf t

**#Set the hostname**

Switch(config)#hostname Customer-Care-Switch

**#Set console password**

Customer-Care-Switch(config)#line console 0

Customer-Care-Switch(config-line)#password customercare

Customer-Care-Switch(config-line)#login

Customer-Care-Switch(config-line)#exit

**#Set VTY password**

Customer-Care-Switch(config)#line vty 0 4

Customer-Care-Switch(config-line)#password customercare

Customer-Care-Switch(config-line)#login

Customer-Care-Switch(config-line)#exit

**#Set enable secret password for privileged EXEC mode**

Customer-Care-Switch(config)#enable secret customercare

**#Enable password encryption for all passwords**

Customer-Care-Switch(config)#service password-encryption

**#Configure banner for unauthorized access warning**

Customer-Care-Switch(config)#banner motd # Unauthorized access is prohibited. #

**#Disable domain name lookup to prevent delays caused by incorrect commands**

Customer-Care-Switch(config)#no ip domain-lookup

Customer-Care-Switch(config)#do wr

Customer-Care-Switch(config)#exit

**#Create VLAN 80 for Customer-Care**

Customer-Care-Switch(config)#vlan 80

Customer-Care-Switch(config-vlan)#name Customer-Care

Customer-Care-Switch(config-vlan)#exit

**#Configure trunk ports to carry VLAN traffic**

Customer-Care-Switch(config)#int range fa0/1-2

Customer-Care-Switch(config-if-range)#switchport mode trunk

Customer-Care-Switch(config-if-range)#exit

**#Configure access ports for Customer-Care PCs and access point and apply port security**

Customer-Care-Switch(config)#int range fa0/3-4,gig 0/1

Customer-Care-Switch(config-if-range)#switchport mode access

Customer-Care-Switch(config-if-range)#switchport access vlan 80

Customer-Care-Switch(config-if-range)#switchport port-security

Customer-Care-Switch(config-if-range)#switchport port-security maximum 2

Customer-Care-Switch(config-if-range)#switchport port-security mac-address sticky

Customer-Care-Switch(config-if-range)#switchport port-security violation shutdown

Customer-Care-Switch(config-if-range)#exit

Customer-Care-Switch(config)#do wr

Customer-Care-Switch(config)#exit

**Guest-Area-Switch:**

Switch>en

Switch#conf t

**#Set the hostname**

Switch(config)#hostname Guest-Area-Switch

**#Set console password**

Guest-Area-Switch(config)#line console 0

Guest-Area-Switch(config-line)#password guestarea

Guest-Area-Switch(config-line)#login

Guest-Area-Switch(config-line)#exit

**#Set VTY password**

Guest-Area-Switch(config)#line vty 0 4

Guest-Area-Switch(config-line)#password guestarea

Guest-Area-Switch(config-line)#login

Guest-Area-Switch(config-line)#exit

**#Set enable secret password for privileged EXEC mode**

Guest-Area-Switch(config)#enable secret guestarea

**#Enable password encryption for all passwords**

Guest-Area-Switch(config)#service password-encryption

**#Configure banner for unauthorized access warning**

Guest-Area-Switch(config)#banner motd # Unauthorized access is prohibited. #

**#Disable domain name lookup to prevent delays caused by incorrect commands**

Guest-Area-Switch(config)#no ip domain-lookup

Guest-Area-Switch(config)#do wr

Guest-Area-Switch(config)#exit

**#Create VLAN 90 for Guest-Area**

Guest-Area-Switch(config)#vlan 90

Guest-Area-Switch(config-vlan)#name Guest-Area

Guest-Area-Switch(config-vlan)#exit

**#Configure trunk ports to carry VLAN traffic**

Guest-Area-Switch(config)#int range fa0/1-2

Guest-Area-Switch(config-if-range)#switchport mode trunk

Guest-Area-Switch(config-if-range)#exit

**#Configure access ports for Guest-Area PCs and access point and apply port security**

Guest-Area-Switch(config)#int range fa0/3-4,gig 0/1

Guest-Area-Switch(config-if-range)#switchport mode access

Guest-Area-Switch(config-if-range)#switchport access vlan 90

Guest-Area-Switch(config-if-range)#switchport port-security

Guest-Area-Switch(config-if-range)#switchport port-security maximum 2

Guest-Area-Switch(config-if-range)#switchport port-security mac-address sticky

Guest-Area-Switch(config-if-range)#switchport port-security violation shutdown

Guest-Area-Switch(config-if-range)#exit

Guest-Area-Switch(config)#do wr

Guest-Area-Switch(config)#exit

**Administrator-Switch:**

Switch>en

Switch#conf t

**#Set the hostname**

Switch(config)#hostname Administrator-Switch

**#Set console password**

Administrator-Switch(config)#line console 0

Administrator-Switch(config-line)#password administrator

Administrator-Switch(config-line)#login

Administrator-Switch(config-line)#exit

**#Set VTY password**

Administrator-Switch(config)#line vty 0 4

Administrator-Switch(config-line)#password administrator

Administrator-Switch(config-line)#login

Administrator-Switch(config-line)#exit

**#Set enable secret password for privileged EXEC mode**

Administrator-Switch(config)#enable secret administrator

**#Enable password encryption for all passwords**

Administrator-Switch(config)#service password-encryption

**#Configure banner for unauthorized access warning**

Administrator-Switch(config)#banner motd # Unauthorized access is prohibited. #

**#Disable domain name lookup to prevent delays caused by incorrect commands**

Administrator-Switch(config)#no ip domain-lookup

Administrator-Switch(config)#do wr

Administrator-Switch(config)#exit

**#Create VLAN 100 for Administrator**

Administrator-Switch(config)#vlan 100

Administrator-Switch(config-vlan)#name Administrator

Administrator-Switch(config-vlan)#exit

**#Configure trunk ports to carry VLAN traffic**

Administrator-Switch(config)#int range fa0/1-2

Administrator-Switch(config-if-range)#switchport mode trunk

Administrator-Switch(config-if-range)#exit

**#Configure access ports for Administrator PCs and access point and apply port security**

Administrator-Switch(config)#int range fa0/3-4,gig 0/1

Administrator-Switch(config-if-range)#switchport mode access

Administrator-Switch(config-if-range)#switchport access vlan 100

Administrator-Switch(config-if-range)#switchport port-security

Administrator-Switch(config-if-range)#switchport port-security maximum 2

Administrator-Switch(config-if-range)#switchport port-security mac-address sticky

Administrator-Switch(config-if-range)#switchport port-security violation shutdown

Administrator-Switch(config-if-range)#exit

Administrator-Switch(config)#do wr

Administrator-Switch(config)#exit

**ICT-Switch:**

Switch>en

Switch#conf t

**#Set the hostname**

Switch(config)#hostname ICT-Switch

**#Set console password**

ICT-Switch(config)#line console 0

ICT-Switch(config-line)#password ict

ICT-Switch(config-line)#login

ICT-Switch(config-line)#exit

**#Set VTY password**

ICT-Switch(config)#line vty 0 4

ICT-Switch(config-line)#password ict

ICT-Switch(config-line)#login

ICT-Switch(config-line)#exit

**#Set enable secret password for privileged EXEC mode**

ICT-Switch(config)#enable secret ict

**#Enable password encryption for all passwords**

ICT-Switch(config)#service password-encryption

**#Configure banner for unauthorized access warning**

ICT-Switch(config)#banner motd # Unauthorized access is prohibited. #

**#Disable domain name lookup to prevent delays caused by incorrect commands**

ICT-Switch(config)#no ip domain-lookup

ICT-Switch(config)#do wr

ICT-Switch(config)#exit

**#Create VLAN 110 for ICT**

ICT-Switch(config)#vlan 110

ICT-Switch(config-vlan)#name ICT

ICT-Switch(config-vlan)#exit

**#Configure trunk ports to carry VLAN traffic**

ICT-Switch(config)#int range fa0/1-2

ICT-Switch(config-if-range)#switchport mode trunk

ICT-Switch(config-if-range)#exit

**#Configure access ports for ICT PCs and access point and apply port security**

ICT-Switch(config)#int range fa0/3-4,gig 0/1

ICT-Switch(config-if-range)#switchport mode access

ICT-Switch(config-if-range)#switchport access vlan 110

ICT-Switch(config-if-range)#switchport port-security

ICT-Switch(config-if-range)#switchport port-security maximum 2

ICT-Switch(config-if-range)#switchport port-security mac-address sticky

ICT-Switch(config-if-range)#switchport port-security violation shutdown

ICT-Switch(config-if-range)#exit

ICT-Switch(config)#do wr

ICT-Switch(config)#exit

**Server-Room-Switch:**

Switch>en

Switch#conf t

**#Set the hostname**

Switch(config)#hostname Server-Room-Switch

**#Set console password**

Server-Room-Switch(config)#line console 0

Server-Room-Switch(config-line)#password serverroom

Server-Room-Switch(config-line)#login

Server-Room-Switch(config-line)#exit

**#Set VTY password**

Server-Room-Switch(config)#line vty 0 4

Server-Room-Switch(config-line)#password serverroom

Server-Room-Switch(config-line)#login

Server-Room-Switch(config-line)#exit

**#Set enable secret password for privileged EXEC mode**

Server-Room-Switch(config)#enable secret serverroom

**#Enable password encryption for all passwords**

Server-Room-Switch(config)#service password-encryption

**#Configure banner for unauthorized access warning**

Server-Room-Switch(config)#banner motd # Unauthorized access is prohibited. #

**#Disable domain name lookup to prevent delays caused by incorrect commands**

Server-Room-Switch(config)#no ip domain-lookup

Server-Room-Switch(config)#do wr

Server-Room-Switch(config)#exit

**#Create VLAN 120 for Server-Room**

Server-Room-Switch(config)#vlan 120

Server-Room-Switch(config-vlan)#name Server-Room

Server-Room-Switch(config-vlan)#exit

**#Configure trunk ports to carry VLAN traffic**

Server-Room-Switch(config)#int range fa0/1-2

Server-Room-Switch(config-if-range)#switchport mode trunk

Server-Room-Switch(config-if-range)#exit

**#Configure access ports for Server-Room PCs and access point and apply port security**

Server-Room-Switch(config)#int range fa0/3-6

Server-Room-Switch(config-if-range)#switchport mode access

Server-Room-Switch(config-if-range)#switchport access vlan 120

Server-Room-Switch(config-if-range)#switchport port-security

Server-Room-Switch(config-if-range)#switchport port-security maximum 2

Server-Room-Switch(config-if-range)#switchport port-security mac-address sticky

Server-Room-Switch(config-if-range)#switchport port-security violation shutdown

Server-Room-Switch(config-if-range)#exit

Server-Room-Switch(config)#do wr

Server-Room-Switch(config)#exit

**DHCP+DNS-Server:**

**Static IP Configuration:**

* **IP Address:** 192.168.12.197
* **Subnet Mask:** 255.255.255.192
* **Default Gateway:** 192.168.12.193

1. **Management (VLAN 10)**

* **Pool Name:** management\_pool
* **Default Gateway:** 192.168.10.1
* **DNS Server:** 192.168.12.197
* **Starting IP Address:** 192.168.10.5
* **Subnet Mask:** 255.255.255.192
* **Maximum Number of Users:** 58
* **Exclusions:**
* 192.168.10.0 (Network Address)
* 192.168.10.1 (Default Gateway)
* 192.168.10.63 (Broadcast Address)
* 192.168.10.2, 192.168.10.3 (Reserved for Core Network Devices)
* 192.168.10.4 (Reserved for Scalability)

1. **Research (VLAN 20)**

* **Pool Name:** research\_pool
* **Default Gateway:** 192.168.10.65
* **DNS Server:** 192.168.12.197
* **Starting IP Address:** 192.168.10.69
* **Subnet Mask:** 255.255.255.192
* **Maximum Number of Users:** 58
* **Exclusions:**
* 192.168.10.64 (Network Address)
* 192.168.10.65 (Default Gateway)
* 192.168.10.127 (Broadcast Address)
* 192.168.10.66, 192.168.10.67 (Reserved for Core Network Devices)
* 192.168.10.68 (Reserved for Scalability)

1. **HR (VLAN 30)**

* **Pool Name:** hr\_pool
* **Default Gateway:** 192.168.10.129
* **DNS Server:** 192.168.12.197
* **Starting IP Address:** 192.168.10.133
* **Subnet Mask:** 255.255.255.192
* **Maximum Number of Users:** 58
* **Exclusions:**
* 192.168.10.128 (Network Address)
* 192.168.10.129 (Default Gateway)
* 192.168.10.191 (Broadcast Address)
* 192.168.10.130, 192.168.10.131 (Reserved for Core Network Devices)
* 192.168.10.132 (Reserved for Scalability)

1. **Marketing (VLAN 40)**

* **Pool Name:** marketing\_pool
* **Default Gateway:** 192.168.10.193
* **DNS Server:** 192.168.12.197
* **Starting IP Address:** 192.168.10.197
* **Subnet Mask:** 255.255.255.192
* **Maximum Number of Users:** 58
* **Exclusions:**
* 192.168.10.192 (Network Address)
* 192.168.10.193 (Default Gateway)
* 192.168.10.255 (Broadcast Address)
* 192.168.10.194, 192.168.10.195 (Reserved for Core Network Devices)
* 192.168.10.196 (Reserved for Scalability)

1. **Accounting (VLAN 50)**

* **Pool Name:** accounting\_pool
* **Default Gateway:** 192.168.11.1
* **DNS Server:** 192.168.12.197
* **Starting IP Address:** 192.168.11.5
* **Subnet Mask:** 255.255.255.192
* **Maximum Number of Users:** 58
* **Exclusions:**
* 192.168.11.0 (Network Address)
* 192.168.11.1 (Default Gateway)
* 192.168.11.63 (Broadcast Address)
* 192.168.11.2, 192.168.11.3 (Reserved for Core Network Devices)
* 192.168.11.4 (Reserved for Scalability)

1. **Finance (VLAN 60)**

* **Pool Name:** finance\_pool
* **Default Gateway:** 192.168.11.65
* **DNS Server:** 192.168.12.197
* **Starting IP Address:** 192.168.11.69
* **Subnet Mask:** 255.255.255.192
* **Maximum Number of Users:** 58
* **Exclusions:**
* 192.168.11.64 (Network Address)
* 192.168.11.65 (Default Gateway)
* 192.168.11.127 (Broadcast Address)
* 192.168.11.66, 192.168.11.67 (Reserved for Core Network Devices)
* 192.168.11.68 (Reserved for Scalability)

1. **L&S (VLAN 70)**

* **Pool Name:** l&s\_pool
* **Default Gateway:** 192.168.11.129
* **DNS Server:** 192.168.12.197
* **Starting IP Address:** 192.168.11.133
* **Subnet Mask:** 255.255.255.192
* **Maximum Number of Users:** 58
* **Exclusions:**
* 192.168.11.128 (Network Address)
* 192.168.11.129 (Default Gateway)
* 192.168.11.191 (Broadcast Address)
* 192.168.11.130, 192.168.11.131 (Reserved for Core Network Devices)
* 192.168.11.132 (Reserved for Scalability)

1. **Customer Care (VLAN 80)**

* **Pool Name:** customer\_care\_pool
* **Default Gateway:** 192.168.11.193
* **DNS Server:** 192.168.12.197
* **Starting IP Address:** 192.168.11.197
* **Subnet Mask:** 255.255.255.192
* **Maximum Number of Users:** 58
* **Exclusions:**
* 192.168.11.192 (Network Address)
* 192.168.11.193 (Default Gateway)
* 192.168.11.255 (Broadcast Address)
* 192.168.11.194, 192.168.11.195 (Reserved for Core Network Devices)
* 192.168.11.196 (Reserved for Scalability)

1. **Guest Area (VLAN 90)**

* **Pool Name:** guest\_area\_pool
* **Default Gateway:** 192.168.12.1
* **DNS Server:** 192.168.12.197
* **Starting IP Address:** 192.168.12.5
* **Subnet Mask:** 255.255.255.192
* **Maximum Number of Users:** 58
* **Exclusions:**
* 192.168.12.0 (Network Address)
* 192.168.12.1 (Default Gateway)
* 192.168.12.63 (Broadcast Address)
* 192.168.12.2, 192.168.12.3 (Reserved for Core Network Devices)
* 192.168.12.4 (Reserved for Scalability)

1. **Administrator (VLAN 100)**

* **Pool Name:** admin\_pool
* **Default Gateway:** 192.168.12.65
* **DNS Server:** 192.168.12.197
* **Starting IP Address:** 192.168.12.69
* **Subnet Mask:** 255.255.255.192
* **Maximum Number of Users:** 58
* **Exclusions:**
* 192.168.12.64 (Network Address)
* 192.168.12.65 (Default Gateway)
* 192.168.12.127 (Broadcast Address)
* 192.168.12.66, 192.168.12.67 (Reserved for Core Network Devices)
* 192.168.12.68 (Reserved for Scalability)

1. **ICT (VLAN 110)**

* **Pool Name:** ict\_pool
* **Default Gateway:** 192.168.12.129
* **DNS Server:** 192.168.12.197
* **Starting IP Address:** 192.168.12.133
* **Subnet Mask:** 255.255.255.192
* **Maximum Number of Users:** 58
* **Exclusions:**
* 192.168.12.128 (Network Address)
* 192.168.12.129 (Default Gateway)
* 192.168.12.191 (Broadcast Address)
* 192.168.12.130, 192.168.12.131 (Reserved for Core Network Devices)
* 192.168.12.132 (Reserved for Scalability)

**DNS Record:**

|  |  |  |  |
| --- | --- | --- | --- |
| No. | Name | Type | Address |
| 1 | [www.radeon.com](http://www.radeon.com) | A Record | 192.168.12.198 |
| 2 | smtp.radeon.com | A Record | 192.168.12.199 |
| 3 | pop.radeon.com | A Record | 192.168.12.199 |

**HTTP-Server:**

**Static IP Configuration:**

* **IP Address:** 192.168.12.198
* **Subnet Mask:** 255.255.255.192
* **Default Gateway:** 192.168.12.193
* **DNS Server:** 192.168.12.197

**Our Web Page:**

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<title>Welcome to Radeon</title>

<style>

body {

font-family: Arial, sans-serif;

background-color: #f4f4f4;

text-align: center;

padding: 50px;

}

h1 {

color: #333;

}

p {

color: #666;

}

.container {

background-color: white;

padding: 30px;

border-radius: 10px;

box-shadow: 0 4px 8px rgba(0, 0, 0, 0.1);

max-width: 600px;

margin: auto;

}

</style>

</head>

<body>

<div class="container">

<h1>Welcome to Radeon</h1>

<p>Your gateway to innovation and technology.</p>

<p>Stay tuned for more updates!</p>

</div>

</body>

</html>

**Email-Server:**

**Static IP Configuration:**

* **IP Address:** 192.168.12.199
* **Subnet Mask:** 255.255.255.192
* **Default Gateway:** 192.168.12.193
* **DNS Server:** 192.168.12.197

**Set the Email Domain:**

* **Domain Name:** radeon.com

**List of Department wise user Email**

|  |  |  |  |
| --- | --- | --- | --- |
| Management | | | |
| No. | **Username** | **Password** | **Email** |
| 1 | management | Mgmt@12345 | management@radeon.com |

|  |  |  |  |
| --- | --- | --- | --- |
| Research | | | |
| No. | **Username** | **Password** | **Email** |
| 1 | research | Research@123 | research@radeon.com |

|  |  |  |  |
| --- | --- | --- | --- |
| HR | | | |
| No. | **Username** | **Password** | **Email** |
| 1 | hr | HR@12345 | hr@radeon.com |

|  |  |  |  |
| --- | --- | --- | --- |
| Marketing | | | |
| No. | **Username** | **Password** | **Email** |
| 1 | marketing | Marketing@123 | marketing@radeon.com |

|  |  |  |  |
| --- | --- | --- | --- |
| Accounting | | | |
| No. | **Username** | **Password** | **Email** |
| 1 | accounting | Accnt@12345 | accounting@radeon.com |

|  |  |  |  |
| --- | --- | --- | --- |
| Finance | | | |
| No. | **Username** | **Password** | **Email** |
| 1 | finance | Finance@12345 | finance@radeon.com |

|  |  |  |  |
| --- | --- | --- | --- |
| L&S | | | |
| No. | **Username** | **Password** | **Email** |
| 1 | ls | LS@12345 | ls@radeon.com |

|  |  |  |  |
| --- | --- | --- | --- |
| Customer Care | | | |
| No. | **Username** | **Password** | **Email** |
| 1 | customercare | CustCare@12345 | customercare@radeon.com |

|  |  |  |  |
| --- | --- | --- | --- |
| Guest Area | | | |
| No. | **Username** | **Password** | **Email** |
| 1 | guest | Guest@12345 | guest@radeon.com |

|  |  |  |  |
| --- | --- | --- | --- |
| Administrator | | | |
| No. | **Username** | **Password** | **Email** |
| 1 | admin | Admin@12345 | admin@radeon.com |

|  |  |  |  |
| --- | --- | --- | --- |
| ICT | | | |
| No. | **Username** | **Password** | **Email** |
| 1 | ict | ICT@12345 | ict@radeon.com |

|  |  |  |  |
| --- | --- | --- | --- |
| Server Room | | | |
| No. | **Username** | **Password** | **Email** |
| 1 | serverroom | Server@12345 | serverroom@radeon.com |

**Client-Side Email Setting:**

**Your Name:** XYZ

**Email Address:** XYZ@radeon.com

**Incoming Server:** pop.radeon.com Port 995 (SSL)

**Outgoing Server:** smtp.radeon.com Port 465 (SSL)

**User Name:** XYZ

**Password:** XYZ@12345

**Access Point Setup**

1. **Management-AP:**

* **SSID:** Management\_WiFi
* **Password:** Management@123

1. **Research-AP:**

* **SSID:** Research\_WiFi
* **Password:** Research@123

1. **4HR-AP:**

* **SSID:** HR\_WiFi
* **Password:** HR@12345

1. **Marketing-AP:**

* **SSID:** Marketing\_WiFi
* **Password:** Marketing@123

1. **Accounting-AP:**

* **SSID:** Accounting\_WiFi
* **Password:** Accounting@123

1. **Finance-AP:**

* **SSID:** Finance\_WiFi
* **Password:** Finance@123

1. **L&S-AP:**

* **SSID:** L&S\_WiFi
* **Password:** L&S@12345

1. **Customer-Care-AP:**

* **SSID:** Custome\_Care\_WiFi
* **Password:** CustomerCare@123

1. **Guest-Area-AP:**

* **SSID:** Guest\_Area\_WiFi
* **Password:** GuestArea@123

1. **Administrator-AP:**

* **SSID:** Administrator\_WiFi
* **Password:** Administrator@123

1. **ICT-AP:**

* **SSID:** ICT\_WiFi
* **Password:** ICT@12345

**Result:**

