1. Basic Settings to all devices plus SSH on the router and L3 Switches.

Let’s begin with L2 Switches

en

conf t

hostname F1-MGT-SW

banner motd #This is Floor 1 Management Switch#

service password encryption

enable password cisco

line console 0

password cisco

login

exit

line vty 0 15

password cisco

login

exit

no ip domain-lookup

exec-timeout 3 0

logging synchronous

exit

do wr

**Continue this same configuration with the appropriate value to the remaining L2 switches**

Move to the basic configuration part of the L3 Switches along with the SSH Configuration

en

conf t

hostname F1-L3-SW

banner motd #This Floor 1 is L3 Switch#

service password-encryption

enable password cisco

line console 0

password cisco

login

exit

ip domain-name ashraful.com

username Admin password admin123

crypto key generate rsa

1024

line vty 0 15

login local

transport input ssh

exit

no ip domain-lookup

do wr

And finally do the basic configuration to the Core Layer Router along the SSH

en

conf t

hostname F1-Core-Router

banner motd #This Floor 1 is Core Router#

service password-encryption

enable password cisco

line console 0

password cisco

login

exit

ip domain-name ashraful.com

username Admin password admin123

crypto key generate rsa

1024

line vty 0 15

login local

transport input ssh

exit

no ip domain-lookup

do wr

1. Assigning the VLANs and Configuring the Access and Trunks ports an on the L2 and L3 Switches and Switchport security to the Access Port

Let’s Begin with L2 Switches

en

conf t

int range g0/1-2

switchport mode trunk

exit

vlan 10

name Management

exit

int range f0/1-24

switchport mode access

switchport access vlan 10

switchport port-security

switchport port-security maximum 2

switchport port-security mac-address sticky

switchport port-security violation shutdown

exit

do wr

Next, Configure the Trunk Port on L3 Switches

en

conf t

int range g1/0/3-8

switchport mode trunk

exit

do wr

1. Configure the Static IP addresses to the L3 switches interfaces and Core Router interfaces

Let’s do for L3 Switches first

To assign the ip address on a layer 3 switch interface we have to convert to L3 switches from L2 port

**First Floor L3 Switch**

en

conf t

int range g1/0/1-2

no switchport

exit

int g1/0/1

ip address 10.10.10.1 255.255.255.252

exit

int g1/0/2

ip address 10.10.10.9 255.255.255.252

exit

do wr

**Second Floor L3 Switch**

en

conf t

int range g1/0/1-2

no switchport

exit

int g1/0/1

ip address 10.10.10.13 255.255.255.252

exit

int g1/0/2

ip address 10.10.10.5 255.255.255.252

exit

do wr

**Third Floor L3 Switch**

en

conf t

int range g1/0/1-2

no switchport

exit

int g1/0/1

ip address 10.10.10.41 255.255.255.252

exit

int g1/0/2

ip address 10.10.10.45 255.255.255.252

exit

do wr

**Fourth Floor L3 Switch**

en

conf t

int range g1/0/1-2

no switchport

exit

int g1/0/1

ip address 10.10.10.53 255.255.255.252

exit

int g1/0/2

ip address 10.10.10.49 255.255.255.252

exit

do wr

Move on to the configuration of IP address on Core Router

**First Floor Core Router**

en

conf t

int g0/1

ip address 10.10.10.2 255.255.255.252

exit

int g0/2

ip address 10.10.10.6 255.255.255.252

exit

int g0/0

ip address 10.10.10.29 255.255.255.252

exit

int se0/0/0

ip address 10.10.10.33 255.255.255.252

exit

int se0/0/1

ip address 10.10.10.17 255.255.255.252

clock rate 64000

exit

do wr

**Second Floor Core Router**

en

conf t

int g0/1

ip address 10.10.10.14 255.255.255.252

exit

int g0/2

ip address 10.10.10.10 255.255.255.252

exit

int g0/0

ip address 10.10.10.21 255.255.255.252

exit

int se0/0/0

ip address 10.10.10.25 255.255.255.252

exit

int se0/0/1

ip address 10.10.10.18 255.255.255.252

exit

do wr

**Third Floor Core Router**

en

conf t

int g0/1

ip address 10.10.10.42 255.255.255.252

exit

int g0/2

ip address 10.10.10.50 255.255.255.252

exit

int g0/0

ip address 10.10.10.22 255.255.255.252

exit

int se0/0/0

ip address 10.10.10.34 255.255.255.252

clock rate 64000

exit

int se0/0/1

ip address 10.10.10.37 255.255.255.252

clock rate 64000

exit

do wr

**Fourth Floor Core Router**

en

conf t

int g0/1

ip address 10.10.10.54 255.255.255.252

exit

int g0/2

ip address 10.10.10.46 255.255.255.252

exit

int g0/0

ip address 10.10.10.30 255.255.255.252

exit

int se0/0/0

ip address 10.10.10.26 255.255.255.252

clock rate 64000

exit

int se0/0/1

ip address 10.10.10.38 255.255.255.252

exit

do wr

1. Configure the Dynamic Routing Protocol (OSPF) to the Core Router and L3 Switches

Let’s do the Core Router First

**First Floor Core Router**

en

conf t

router ospf 10

network 10.10.10.0 0.0.0.3 area 0

network 10.10.10.4 0.0.0.3 area 0

network 10.10.10.16 0.0.0.3 area 0

network 10.10.10.28 0.0.0.3 area 0

network 10.10.10.32 0.0.0.3 area 0

do wr

**Second Floor Core Router**

en

conf t

router ospf 10

network 10.10.10.12 0.0.0.3 area 0

network 10.10.10.8 0.0.0.3 area 0

network 10.10.10.16 0.0.0.3 area 0

network 10.10.10.20 0.0.0.3 area 0

network 10.10.10.24 0.0.0.3 area 0

do wr

**Third Floor Core Router**

en

conf t

router ospf 10

network 10.10.10.32 0.0.0.3 area 0

network 10.10.10.20 0.0.0.3 area 0

network 10.10.10.36 0.0.0.3 area 0

network 10.10.10.48 0.0.0.3 area 0

network 10.10.10.40 0.0.0.3 area 0

do wr

**Fourth Floor Core Router**

en

conf t

router ospf 10

network 10.10.10.24 0.0.0.3 area 0

network 10.10.10.28 0.0.0.3 area 0

network 10.10.10.36 0.0.0.3 area 0

network 10.10.10.44 0.0.0.3 area 0

network 10.10.10.52 0.0.0.3 area 0

do wr

Next Configure the OSPF for the L3 Switches

**First Floor L3 Switch**

en

conf t

ip routing

router ospf 10

network 10.10.10.0 0.0.0.3 area 0

network 10.10.10.8 0.0.0.3 area 0

network 192.168.10.0 0.0.0.63 area 0

network 192.168.10.64 0.0.0.63 area 0

network 192.168.10.128 0.0.0.63 area 0

network 192.168.10.192 0.0.0.63 area 0

network 192.168.11.0 0.0.0.63 area 0

network 192.168.11.64 0.0.0.63 area 0

do wr

**Second Floor L3 Switch**

en

conf t

ip routing

router ospf 10

network 10.10.10.12 0.0.0.3 area 0

network 10.10.10.4 0.0.0.3 area 0

network 192.168.10.0 0.0.0.63 area 0

network 192.168.10.64 0.0.0.63 area 0

network 192.168.10.128 0.0.0.63 area 0

network 192.168.10.192 0.0.0.63 area 0

network 192.168.11.0 0.0.0.63 area 0

network 192.168.11.64 0.0.0.63 area 0

do wr

**Third Floor L3 Switch**

en

conf t

ip routing

router ospf 10

network 10.10.10.40 0.0.0.3 area 0

network 10.10.10.44 0.0.0.3 area 0

network 192.168.11.128 0.0.0.63 area 0

network 192.168.11.192 0.0.0.63 area 0

network 192.168.12.0 0.0.0.63 area 0

network 192.168.12.64 0.0.0.63 area 0

network 192.168.12.128 0.0.0.63 area 0

network 192.168.12.192 0.0.0.63 area 0

do wr

**Fourth Floor L3 Switch**

en

conf t

ip routing

router ospf 10

network 10.10.10.52 0.0.0.3 area 0

network 10.10.10.48 0.0.0.3 area 0

network 192.168.11.128 0.0.0.63 area 0

network 192.168.11.192 0.0.0.63 area 0

network 192.168.12.0 0.0.0.63 area 0

network 192.168.12.64 0.0.0.63 area 0

network 192.168.12.128 0.0.0.63 area 0

network 192.168.12.192 0.0.0.63 area 0

do wr

1. Configure the Static IP Address to the Server Room Devices

Base IP address: 192.168.12.192/26

For DHCP

IP Address: 192.168.12.196

Subnet Mask: 255.255.255.192

Default Gateway: 192.168.12.193

DNS: 192.168.12.193

For HTTP

IP Address: 192.168.12.197

Subnet Mask: 255.255.255.192

Default Gateway: 192.168.12.193

DNS: 192.168.12.193

For Email

IP Address: 192.168.12.198

Subnet Mask: 255.255.255.192

Default Gateway: 192.168.12.193

DNS: 192.168.12.193

1. Configuring the DHCP Server

Do the configuration on DHCP Server GUI interface with appropriate Pool name, Default Gateway and Starting IP Address excluding the Server Room. Because we have configured Static IP address on the Server Room Devices.

1. Inter-VLAN routing on the L3 switches and IP DHCP helper address.

Creating VLAN and IP Helper Address for 1st and 2nd Floor L3 Switches

en

conf t

Vlan 10

name Management

Vlan 20

name Reasearch

Vlan 30

name HR

Vlan 40

Name Marketing

Vlan 50

Name Accounts

Vlan 60

Name Finance

int vlan 10

no shutdown

ip address 192.168.10.1 255.255.255.192

ip helper-address 192.168.12.196

exit

int vlan 20

no shutdown

ip address 192.168.10.65 255.255.255.192

ip helper-address 192.168.12.196

exit

int vlan 30

no shutdown

ip address 192.168.10.129 255.255.255.192

ip helper-address 192.168.12.196

exit

int vlan 40

no shutdown

ip address 192.168.10.193 255.255.255.192

ip helper-address 192.168.12.196

exit

int vlan 50

no shutdown

ip address 192.168.11.1 255.255.255.192

ip helper-address 192.168.12.196

exit

int vlan 60

no shutdown

ip address 192.168.11.65 255.255.255.192

ip helper-address 192.168.12.196

exit

do wr

Creating VLAN and IP Helper Address for 3rd and 4th Floor L3 Switches

en

conf t

Vlan 70

name Logistics

Vlan 80

name Customer-Care

Vlan 90

name Guest-Area

Vlan 100

Name Administration

Vlan 110

Name ICT

Vlan 120

Name SVR-Room

Vlan 70

name Logistics

Vlan 80

name Customer-Care

Vlan 90

name Guest-Area

Vlan 100

Name Administration

Vlan 110

Name ICT

Vlan 120

Name SVR-Room

int vlan 70

no shutdown

ip address 192.168.11.129 255.255.255.192

ip helper-address 192.168.12.196

exit

int vlan 80

no shutdown

ip address 192.168.11.193 255.255.255.192

ip helper-address 192.168.12.196

exit

int vlan 90

no shutdown

ip address 192.168.12.1 255.255.255.192

ip helper-address 192.168.12.196

exit

int vlan 100

no shutdown

ip address 192.168.12.65 255.255.255.192

ip helper-address 192.168.12.196

exit

int vlan 110

no shutdown

ip address 192.168.12.129 255.255.255.192

ip helper-address 192.168.12.196

exit

int vlan 120

no shutdown

ip address 192.168.12.193 255.255.255.192

exit

do wr

1. Configure the Access Point on each department with appropriate credentials.
2. Verify the connectivity between the devices.