1. The first configuration we are going to do is enabling the router interface to up state.

Let’s start with the Main-Campus router

en

conf t

int g0/0

no shutdown

int se0/0/0

no shutdown

int se0/0/1

no shutdown

do wr

**Continue the same configuration on the Branch-Campus and Cloud Router also**

**NB: We have used a serial DCE cable and for a serial DCE cable when you connect it to a device there is a part that come up as serial DCE and on that part we have configure a clock rate to enable traffic flow through that cable.**

1. Configuring the clock rate on the router

en

conf t

int se0/0/0

clock rate 64000

int se0/0/1

clock rate 64000

do wr

1. Configure the VLAN on the L2 devices

en

conf t

int range f0/1-24

switchport mode access

switchport access vlan 10

vlan 10

name Admin

do wr

int g0/1

switchport mode access

switchport access vlan 10

**Continue the vlan configuration on the remaining L2 Switches**

1. In Layer 3 switches the port that are connected to the layer 2 switches access port should be also in access mode.

Let’s do that on both of our Layer 3 Switch

en

conf t

int g1/0/2

switchport mode access

switchport access vlan 10

vlan 10

name Admin

exit

int range g1/0/3

switchport mode access

switchport access vlan 20

vlan 20

name HR

exit

int g1/0/4

switchport mode access

switchport access vlan 30

vlan 30

name Finance

exit

int g1/0/5

switchport mode access

switchport access vlan 40

vlan 40

name FBM

exit

int g1/0/6

switchport mode access

switchport access vlan 50

vlan 50

name FICT

exit

int g1/0/7

switchport mode access

switchport access vlan 60

vlan 60

name Engineering

exit

int g1/0/8

switchport mode access

switchport access vlan 70

vlan 70

name Art-Fashion

exit

int g1/0/9

switchport mode access

switchport access vlan 80

vlan 80

name STU-LAB

exit

int g1/0/10

switchport mode access

switchport access vlan 90

vlan 90

name IT-Admin

exit

do wr

**Continue the same configuration on the Branch L3 Switch also**

1. As we know an access port cannot access more than one VLAN. As our L3 switches are connected to several VLAN via L2 switches, for that we have to configure the port that is connected to the router as trunk port.

So let’s do that

en

conf t

int g1/0/1

switchport mode trunk

do wr

**Until we are with the Access Layer and Distribution Configuration.**

**Let’s move on to the core Layer**

1. Let’s assign the static IP address on the router interfaces.

For Main Campus Router

en

conf t

int se0/0/0

ip address 10.10.10.1 255.255.255.252

int se0/0/1

ip address 10.10.10.5 255.255.255.252

do wr

For Branch Campus Router

en

conf t

int se0/0/0

ip address 10.10.10.2 255.255.255.252

For Cloud Router

en

conf t

int se0/0/0

ip address 10.10.10.6 255.255.255.252

1. Assign the Static IP address for the Email Server and Cloud Router

en

conf t

int g0/0

ip address 20.0.0.1 255.255.255.252

do wr

Assign the following address to the Email Server

IP Address: 20.0.0.2

Gateway: 20.0.0.1

Subnet Mask: 255.255.255.252

DNS: 20.0.0.1

1. Configure the Inter-Vlan Routing on the Router

For Main Campus Router

en

conf t

int g0/0.10

encapsulation dot1Q 10

ip address 192.168.1.1 255.255.255.0

exit

int g0/0.20

encapsulation dot1Q 20

ip address 192.168.2.1 255.255.255.0

exit

int g0/0.30

encapsulation dot1Q 30

ip address 192.168.3.1 255.255.255.0

exit

int g0/0.40

encapsulation dot1Q 40

ip address 192.168.4.1 255.255.255.0

exit

int g0/0.50

encapsulation dot1Q 50

ip address 192.168.5.1 255.255.255.0

exit

int g0/0.60

encapsulation dot1Q 60

ip address 192.168.6.1 255.255.255.0

exit

int g0/0.70

encapsulation dot1Q 70

ip address 192.168.7.1 255.255.255.0

exit

int g0/0.80

encapsulation dot1Q 80

ip address 192.168.8.1 255.255.255.0

exit

int g0/0.90

encapsulation dot1Q 90

ip address 192.168.9.1 255.255.255.0

exit

do wr

For Branch Campus Router

en

conf t

int g0/0.100

encapsulation dot1Q 100

ip address 192.168.10.1 255.255.255.0

exit

int g0/0.110

encapsulation dot1Q 110

ip address 192.168.11.1 255.255.255.0

exit

do wr

1. Configure the router as the DHCP Server

For Main Campus Router

en

conf t

service dhcp

ip dhcp pool Admin

network 192.168.1.0 255.255.255.0

default-router 192.168.1.1

dns-server 192.168.1.1

exit

ip dhcp pool HR

network 192.168.2.0 255.255.255.0

default-router 192.168.2.1

dns-server 192.168.2.1

exit

ip dhcp pool Finance

network 192.168.3.0 255.255.255.0

default-router 192.168.3.1

dns-server 192.168.3.1

exit

ip dhcp pool FBM

network 192.168.4.0 255.255.255.0

default-router 192.168.4.1

dns-server 192.168.4.1

exit

ip dhcp pool FICT

network 192.168.5.0 255.255.255.0

default-router 192.168.5.1

dns-server 192.168.5.1

exit

ip dhcp pool Engineering

network 192.168.6.0 255.255.255.0

default-router 192.168.6.1

dns-server 192.168.6.1

exit

ip dhcp pool Art-Fashion

network 192.168.7.0 255.255.255.0

default-router 192.168.7.1

dns-server 192.168.7.1

exit

ip dhcp pool STU-LAB

network 192.168.8.0 255.255.255.0

default-router 192.168.8.1

dns-server 192.168.8.1

exit

ip dhcp pool IT-Admin

network 192.168.9.0 255.255.255.0

default-router 192.168.9.1

dns-server 192.168.9.1

exit

do wr

For Branch Campus Router

en

conf t

service dhcp

ip dhcp pool Health-Science

network 192.168.10.0 255.255.255.0

default-router 192.168.10.1

dns-server 192.168.10.1

exit

ip dhcp pool STU-LAB-HLSC

network 192.168.11.0 255.255.255.0

default-router 192.168.11.1

dns-server 192.168.11.1

exit

do wr

1. Configure the routing protocol RIPv2

Let’s Begin with the Brach Router

en

conf t

router rip

version 2

network 192.168.10.0

network 192.168.11.0

network 10.10.10.0

do wr

For Main Campus Router

en

conf t

router rip

version 2

network 10.10.10.0

network 10.10.10.4

network 192.168.1.0

network 192.168.2.0

network 192.168.3.0

network 192.168.4.0

network 192.168.5.0

network 192.168.6.0

network 192.168.7.0

network 192.168.8.0

network 192.168.9.0

do wr

For Cloud Router

en

conf t

router rip

version 2

network 10.10.10.4

network 20.0.0.0

do wr