

IP Addressing

Base Network:172.16.1.0

First Floor

Department	Network Address	Subnet Mask	Host address Range	Broadcast Address
Sales & Marketing	172.16.1.0/25	255.255.255.128	172.16.1.1 – 172.16.1.126	172.16.1.127
HR & Logistics	172.16.1.128/25	255.255.255.128	172.16.1.129 – 172.16.1.254	172.16.1.255

Second Floor

Department	Network Address	Subnet Mask	Host address Range	Broadcast Address
Finance & Accounts	172.16.2.0/25	255.255.255.128	172.16.2.1 – 172.16.2.126	172.16.2.127
Admin & Public Relations	172.16.2.128/25	255.255.255.128	172.16.2.129 – 172.16.2.254	172.16.2.255

Third Floor

Department	Network Address	Subnet Mask	Host address Range	Broadcast Address
ICT	172.16.3.0/25	255.255.255.128	172.16.3.1 – 172.16.3.126	172.16.3.127
Server Room	172.16.3.128/28	255.255.255.240	172.16.1.129 – 172.16.1.141	172.16.3.142

Between the Router & Layer-3 Switches

	Network address	Subnet Mask	Host Address Range	Broadcast Address
R1-MLSW1	172.16.3.144/30	255.255.255.252	172.16.3.145 to 172.16.3.146	172.16.3.147
R1-MLSW2	172.16.3.148/30	255.255.255.252	172.16.3.149 to 172.16.3.150	172.16.3.151
R2-MLSW1	172.16.3.152/30	255.255.255.252	172.16.3.153 to 172.16.3.154	172.16.3.155
R2-MLSW2	172.16.3.156/30	255.255.255.252	172.16.3.157 to 172.16.3.158	172.16.3.159

Between the Router & Layer-3 Switches

Public IP addresses 195.136.17.0/30, 195.136.17.4/30, 195.136.17.8/30 and 195.136.17.12/30

enable

conf t

hostname CORE-R2

line console 0

password cisco

login

exit

enable password cisco

no ip domain-lookup

banner motd #NO Unauthorised Access!!!#

service password-encryption

do wr

ip domain name cisco.net

username admin password cisco

crypto key generate rsa

1024

line vty 0 15

login local

transport input ssh

exit

do wr

int range fa0/1-2

switchport mode trunk

exit

vlan 60

name ServerRoom

vlan 99

name BlackHole

exit

int range fa0/3-24

switchport mode access

switchport access vlan 60

exit

int range gig0/1-2

switchport mode access

switchport access vlan 99

exit

do wr

Mlt-sw1,sw2

int range gig1/0/3-8

switchport mode trunk

vlan 10

name Sales

vlan 20

name HR

vlan 30

name Finance

vlan 40

name Admin

vlan 50

name ICT

vlan 60

name ServerRoom

MLTSW1

int ran gig1/0/1-2

no switchport

int ran gig1/0/1

ip add 172.16.3.145 255.255.255.252

no shutdown

```
int ran gig1/0/2
```

```
ip add 172.16.3.149 255.255.255.252
```

```
no shutdown
```

OSPF

```
ip routing
```

```
router ospf 10
```

```
router-id 1.1.1.1
```

```
network 172.16.1.0 0.0.0.127 area 0
```

```
network 172.16.1.128 0.0.0.127 area 0
```

```
network 172.16.2.0 0.0.0.127 area 0
```

```
network 172.16.2.128 0.0.0.127 area 0
```

```
network 172.16.3.0 0.0.0.127 area 0
```

```
network 172.16.3.128 0.0.0.15 area 0
```

```
network 172.16.3.152 0.0.0.3 area 0
```

```
network 172.16.3.156 0.0.0.3 area 0
```

```
exit
```

```
do wr
```

```
ip routing
```

```
router ospf 10
```

```
router-id 2.2.2.2
```

```
network 172.16.1.0 0.0.0.127 area 0
```

```
network 172.16.1.128 0.0.0.127 area 0
```

```
network 172.16.2.0 0.0.0.127 area 0
```

```
network 172.16.2.128 0.0.0.127 area 0
```

```
network 172.16.3.0 0.0.0.127 area 0
```

```
network 172.16.3.128 0.0.0.15 area 0
```

```
network 172.16.3.144 0.0.0.3 area 0
```

```
network 172.16.3.148 0.0.0.3 area 0
```

```
exit
```

```
do wr
```

```
router ospf 10
```

router-id 3.3.3.3

network 172.16.3.144 0.0.0.3 area 0

network 172.16.3.152 0.0.0.3 area 0

network 195.136.17.0 0.0.0.3 area 0

network 195.136.17.4 0.0.0.3 area 0

exit

do wr

router ospf 10

router-id 4.4.4.4

network 172.16.3.148 0.0.0.3 area 0

network 172.16.3.156 0.0.0.3 area 0

network 195.136.17.8 0.0.0.3 area 0

network 195.136.17.12 0.0.0.3 area 0

exit

do wr

router ospf 10

router-id 5.5.5.5

network 195.136.17.0 0.0.0.3 area 0

network 195.136.17.8 0.0.0.3 area 0

exit

do wr

router ospf 10

router-id 6.6.6.6

network 195.136.17.12 0.0.0.3 area 0

network 195.136.17.4 0.0.0.3 area 0

exit

do wr

static route

dhcp ip- 172.16.3.130

sub mask- 255.255.255.240

gateway- 172.16.3.129

dns - 172.16.3.131

inter-vlan

int vlan 10

no shutdown

ip add 172.16.1.1 255.255.255.128

ip helper-address 172.16.3.130

exit

int vlan 20

no shutdown

ip add 172.16.1.129 255.255.255.128

ip helper-address 172.16.3.130

exit

int vlan 30

no shutdown

ip add 172.16.2.1 255.255.255.128

ip helper-address 172.16.3.130

exit

int vlan 40

no shutdown

ip add 172.16.2.129 255.255.255.128

ip helper-address 172.16.3.130

exit

int vlan 50

no shutdown

ip add 172.16.3.1 255.255.255.128

ip helper-address 172.16.3.130

exit

int vlan 60

no shutdown

ip add 172.16.3.129 255.255.255.240

ip helper-address 172.16.3.130

exit

ip nat inside source list 1 int se0/1/0 overload

ip nat inside source list 1 int se0/1/1 overload

int range gig0/0-1

ip nat inside

int se0/1/0

ip nat outside

int se0/1/1

ip nat outside

access-list 1 permit 172.16.1.0 0.0.0.127

access-list 1 permit 172.16.1.128 0.0.0.127

access-list 1 permit 172.16.2.0 0.0.0.127

access-list 1 permit 172.16.2.128 0.0.0.127

access-list 1 permit 172.16.3.0 0.0.0.127

access-list 1 permit 172.16.3.128 0.0.0.15

default route SW1-2

ip route 0.0.0.0 0.0.0.0 gig1/0/1

ip route 0.0.0.0 0.0.0.0 gig1/0/2 70

do wr

default route R1-2

R1-2

ip route 0.0.0.0 0.0.0.0 se0/1/0

ip route 0.0.0.0 0.0.0.0 se0/1/1 70

do wr