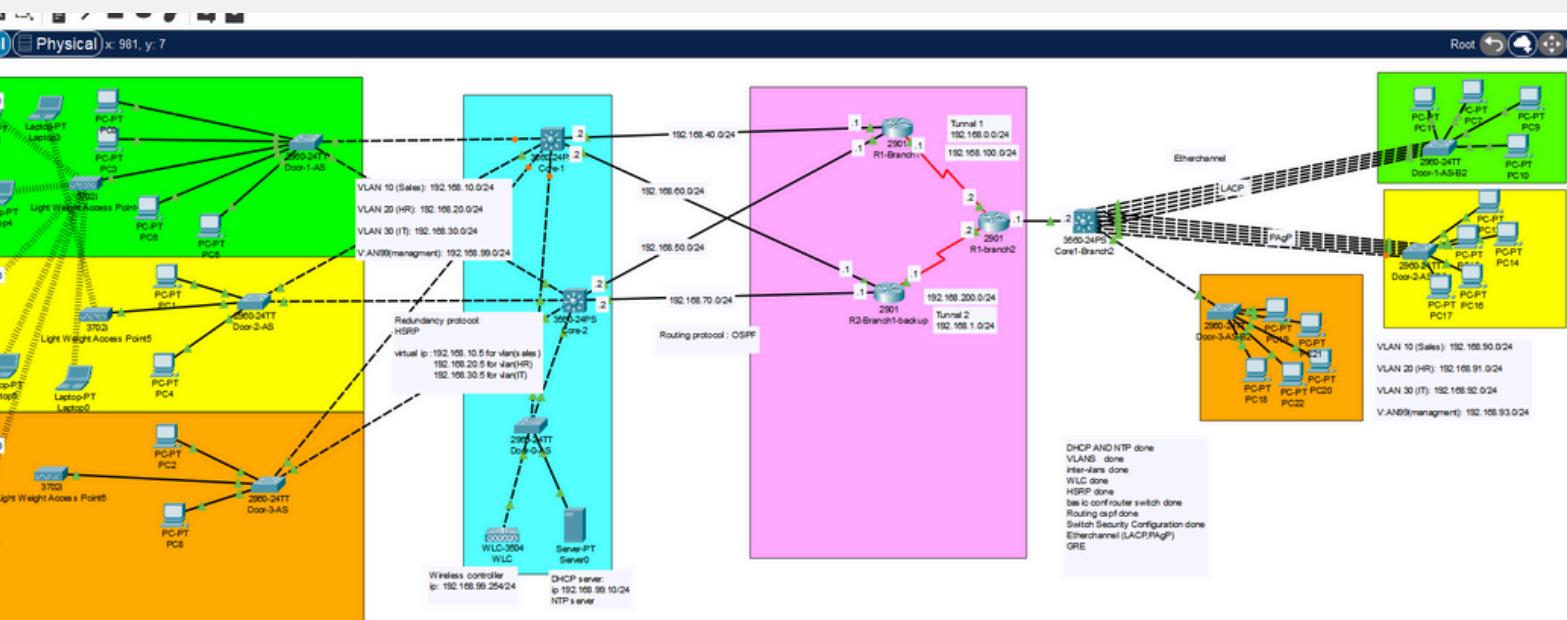


# Design and Implementation of a company System



# Topology



# Addressing Table

Device	Interface	IP Address
R1-Branch1	G0/0	192.168.40.1
	G0/1	192.168.50.1
	S0/3/0	192.168.100.1
R2-Branch1-Backup	G0/0	192.168.60.1
	G0/1	192.168.70.1
	S0/3/0	192.168.200.1
R1-Branch2	G0/0	192.168.80.1
	S0/3/0	192.168.100.2
	S0/3/1	192.168.200.2
Core-1	G0/1	192.168.40.2
	G0/2	192.168.60.2
	INT VLAN 10	192.168.10.1
	INT VLAN 20	192.168.20.1
	INT VLAN 30	192.168.30.1
	INT VLAN 99	192.168.99.1
Core-2-Backup	G0/1	192.168.50.2
	G0/2	192.168.70.2
	INT VLAN 10	192.168.10.2
	INT VLAN 20	192.168.20.2
	INT VLAN 30	192.168.30.2
	INT VLAN 99	192.168.99.2
Core-1-Branch2	G0/1	192.168.80.2
	INT VLAN 10	192.168.90.3
	INT VLAN 20	192.168.91.3
	INT VLAN 30	192.168.92.3
	INT VLAN 99	192.168.93.3
Door-0-AS	VLAN1	192.168.99.253
Door-1-AS	VLAN1	192.168.10.253

Door-2-AS	VLAN1	192.168.20.253
Door-3-AS	VLAN1	192.168.30.253
DHCP	NIC	192.168.99.10
WLC	NIC	192.168.99.254
ALL Devices	NIC	Dynamic From DHCP

Branch	VLANS	Network
Branch1	VLAN 10 (Sales) VLAN 20 (HR) VLAN 30 (IT) VLAN99 (management)	192.168.10.0/24 192.168.20.0/24 192.168.30.0/24 192.168.99.0/24
Branch2	VLAN 10 (Sales) VLAN 20 (HR) VLAN 30 (IT) VLAN99 (management)	192.168.90.0/24 192.168.91.0/24 192.168.92.0/24 192.168.93.0/24

Redundancy protocol: HSRP virtual IP	VLAN	IP Address
	VLAN 10 (Sales) VLAN 20 (HR) VLAN 30 (IT) VLAN99 (management)	192.168.10.5 192.168.20.5 192.168.30.5 192.168.99.5

GRE Tunnel	Tunnel IP
Tunnel 1 R1-Branch1 R1-Branch2	192.168.0.1 192.168.0.2
Tunnel 2 R2-Branch1-Backup R1-Branch2	192.168.1.1 192.168.1.2

# **Objectives**

## **Part 1: VLAN Configuration**

- **Step 1:** Create a VLAN.
- **Step 2:** Assign a port to the VLAN.

## **Part 2: Inter-VLAN Routing**

- **Step 1:** Create a sub-interface for each VLAN on a core switch
- **Step 2:** Enable routing between VLANs by setting IP addresses for each vlan-interface.

## **Part3: DHCP Configuration**

- **Step 1:** Create the DHCP pool for each vlan.
- **Step 2:** Exclude IP addresses from the pool.
- **Step3:** put default gateway and DNS server.

## **Part4: HSRP Configuration**

- **Step 1:** Configure HSRP on each core switch interface vlan.
- **Step 2:** Set a higher priority on the primary core switch.

## **Part5: WLC Configuration**

- **Step 1:** Configure the management interface on the Wireless LAN Controller (WLC).
- **Step 2:** Create interface for each vlan and configure a new WLAN.

## **Part6: Basic Router and Switch Configuration**

- **Step 1:** Configure the hostname.
- **Step 2:** Set up passwords and enable login.
- **Step 3:** Assign IP addresses to router interfaces.

## **Part7: OSPF Configuration**

- **Step 1:** Enter OSPF configuration mode.
- **Step 2:** Assign network statements.
- **Step 3:** Set router ID (optional).

## **Part8: Switch Security Configuration**

- **Step 1:** Create a Secure Trunk
- **Step 2:** Secure Unused Switchports
- **Step 3:** Implement Port Security
- **Step 4:** Configure Rapid PVST PortFast and BPDU Guard

## **Part9: Ether Channel Configuration**

- **Step 1:** Verify the Pre-requisites
- **Step 2:** Choose Ether Channel Protocol
- **Step 3:** Enter Interface Range Mode
- **Step 4:** Configure Ether Channel Mode
- **Step 5:** Verify Ether Channel Configuration

## **Part10: GRE Tunnel**

- **Step 1:** Create the tunnel interface
- **Step 2:** Assign an IP address
- **Step 3:** Set the tunnel source and destination

# Configuration

## **Door-1-AS,Door-2-AS,Door-3-AS**

```
hostname (Door-1-AS,Door-2-AS,Door-3-AS)
```

```
enable secret 5 $1$mERr$oQAVh6m3ZXpHg1a4H7bsa.
```

```
ip ssh version 2
```

```
ip domain-name Mj.com
```

```
username Mahmoud secret 5 $1$mERr$oQAVh6m3ZXpHg1a4H7bsa.
```

```
spanning-tree mode pvst
```

```
spanning-tree extend system-id
```

```
interface range F0/1-2,F0/6-24,G0/1-2
```

```
switchport mode access
```

```
switchport access vlan (10,20,30)
```

```
spanning-tree portfast
```

```
spanning-tree bpduguard enable
```

```
switchport port-security mac-address sticky
```

```
switchport port-security violation restrict
```

```
switchport port-security mac-address sticky 0001.6461.23A0
```

```
interface range F0/3-5
```

```
switchport trunk native vlan 99
```

```
switchport mode trunk
```

```
switchport nonegotiate
```

```
interface Vlan1
```

```
#each IP for each vlan 10,20,30)
```

```
ip address (192.168.10.253,192.168.20.253,192.168.30.253) 255.255.255.0
```

```
line con 0
```

```
logging synchronous
```

```
login local
```

```
exec-timeout 0 0
```

```
line vty 0 4
```

```
login local
```

```
transport input ssh
```

```
line vty 5 15
```

```
login local
```

```
transport input ssh
```

```
end
```

## Door-0-AS

```
hostname Door-0-AS
enable secret 5 $1$mERr$oQAVh6m3ZXpHg1a4H7bsa.
ip ssh version 2
ip domain-name mj.com
username Mahmoud secret 5 $1$mERr$oQAVh6m3ZXpHg1a4H7bsa.
```

```
spanning-tree mode pvst
spanning-tree extend system-id
```

```
interface range FastEthernet0/1-5
switchport trunk native vlan 99
switchport mode trunk
switchport nonegotiate
```

```
interface FastEthernet0/6-24,G0/1-2
shutdown
```

```
line con 0
logging synchronous
login local
exec-timeout 0 0
```

```
line vty 0 4
login local
transport input ssh
line vty 5 15
login local
transport input ssh
end
```

# Core-1

```
hostname Core-1
enable secret 5 $1$mERr$oQAVh6m3ZXpHg1a4H7bsa.
ip routing
username Mahmoud secret 5 $1$mERr$oQAVh6m3ZXpHg1a4H7bsa.
ip ssh version 2
ip domain-name Mj.com
spanning-tree mode pvst
interface FastEthernet0/1
switchport trunk native vlan 99
switchport trunk encapsulation dot1q
interface FastEthernet0/2
switchport trunk native vlan 99
switchport trunk encapsulation dot1q
interface FastEthernet0/3
switchport trunk native vlan 99
switchport trunk encapsulation dot1q
interface FastEthernet0/4
switchport trunk native vlan 99
switchport trunk encapsulation dot1q
switchport mode trunk
interface FastEthernet0/5
switchport trunk native vlan 99
switchport trunk encapsulation dot1q
switchport mode trunk
interface FastEthernet0/6-24
shutdown
interface GigabitEthernet0/1
no switchport
ip address 192.168.40.2 255.255.255.0
duplex auto
speed auto
interface GigabitEthernet0/2
no switchport
ip address 192.168.60.2 255.255.255.0
ip ospf 1 area 0
duplex auto
speed auto
interface Vlan1
no ip address
shutdown
```

```
interface Vlan10
mac-address 000b.bee3.6001
ip address 192.168.10.1 255.255.255.0
ip helper-address 192.168.99.10
standby 10 ip 192.168.10.5
standby 10 priority 110
standby 10 preempt
```

```
interface Vlan20
mac-address 000b.bee3.6002
ip address 192.168.20.1 255.255.255.0
ip helper-address 192.168.99.10
standby 20 ip 192.168.20.5
standby 20 priority 110
standby 20 preempt
```

```
interface Vlan30
mac-address 000b.bee3.6003
ip address 192.168.30.1 255.255.255.0
ip helper-address 192.168.99.10
standby 30 ip 192.168.30.5
standby 30 priority 110
standby 30 preempt
```

```
interface Vlan99
mac-address 000b.bee3.6004
ip address 192.168.99.1 255.255.255.0
ip helper-address 192.168.99.10
standby 99 ip 192.168.99.5
standby 99 priority 110
standby 99 preempt
```

```
router ospf 1
router-id 2.2.2.2
log-adjacency-changes
network 192.168.10.0 0.0.0.255 area 0
network 192.168.20.0 0.0.0.255 area 0
network 192.168.30.0 0.0.0.255 area 0
network 192.168.99.0 0.0.0.255 area 0
network 192.168.40.0 0.0.0.255 area 0
network 192.168.50.0 0.0.0.255 area 0
network 192.168.60.0 0.0.0.255 area 0
ip classless
```

```
ip flow-export version 9
```

```
line con 0
exec-timeout 0 0
logging synchronous
login local
```

```
line aux 0
line vty 0 4
login local
transport input ssh
line vty 5 15
login local
transport input ssh
```

```
ntp server 192.168.99.10
ntp master 1
end
```

## Core-2-Backup

```
hostname Core-2
enable secret 5 $1$mERr$oQAVh6m3ZXpHg1a4H7bsa.

ip routing
username Mahmoud secret 5 $1$mERr$oQAVh6m3ZXpHg1a4H7bsa.

ip ssh version 2
ip domain-name Mj.com

spanning-tree mode pvst

interface FastEthernet0/1
switchport trunk native vlan 99
switchport trunk encapsulation dot1q
switchport mode trunk

interface FastEthernet0/2
switchport trunk native vlan 99
switchport trunk encapsulation dot1q
switchport mode trunk

interface FastEthernet0/3
switchport trunk native vlan 99
switchport trunk encapsulation dot1q
switchport mode trunk

interface FastEthernet0/4
switchport trunk native vlan 99
switchport trunk encapsulation dot1q
switchport mode trunk

interface range FastEthernet0/5-24
shutdown

interface GigabitEthernet0/1
no switchport
ip address 192.168.50.2 255.255.255.0
duplex auto
speed auto

interface GigabitEthernet0/2
no switchport
ip address 192.168.70.2 255.255.255.0
ip ospf 1 area 0
duplex auto
speed auto

interface Vlan1
no ip address
shutdown
```

```
interface Vlan10
mac-address 0001.9767.ad01
ip address 192.168.10.2 255.255.255.0
ip helper-address 192.168.99.10
standby 10 ip 192.168.10.5
standby 10 preempt
```

```
interface Vlan20
mac-address 0001.9767.ad02
ip address 192.168.20.2 255.255.255.0
ip helper-address 192.168.99.10
standby 20 ip 192.168.20.5
standby 20 preempt
```

```
interface Vlan30
mac-address 0001.9767.ad03
ip address 192.168.30.2 255.255.255.0
ip helper-address 192.168.99.10
standby 30 ip 192.168.30.5
standby 30 preempt
```

```
interface Vlan99
mac-address 0001.9767.ad04
ip address 192.168.99.2 255.255.255.0
ip helper-address 192.168.99.10
standby 99 ip 192.168.99.5
standby 99 preempt
```

```
router ospf 1
router-id 4.4.4.4
log-adjacency-changes
network 192.168.10.0 0.0.0.255 area 0
network 192.168.20.0 0.0.0.255 area 0
network 192.168.30.0 0.0.0.255 area 0
network 192.168.99.0 0.0.0.255 area 0
network 192.168.100.0 0.0.0.255 area 0
network 192.168.50.0 0.0.0.255 area 0
network 192.168.40.0 0.0.0.255 area 0
network 192.168.70.0 0.0.0.255 area 0
```

```
ip classless
```

```
ip flow-export version 9
```

```
line con 0
exec-timeout 0 0
logging synchronous
login local
```

```
line aux 0
```

```
line vty 0 4
login local
transport input ssh
line vty 5 15
login local
transport input ssh
```

```
ntp server 192.168.99.10
ntp master 2
```

```
end
```

## **R1-Branch1**

hostname R1-Branch1

enable secret 5 \$1\$mERr\$oQAVh6m3ZXpHg1a4H7bsa.

username Mahmoud secret 5 \$1\$mERr\$oQAVh6m3ZXpHg1a4H7bsa.

license udi pid CISCO2901/K9 sn FTX1524KE2T-

ip ssh version 2

ip domain-name Mj.com

spanning-tree mode pvst

interface Tunnel1

  ip address 192.168.0.1 255.255.255.0

  mtu 1476

  tunnel source Serial0/3/0

  tunnel destination 192.168.100.2

interface GigabitEthernet0/0

  ip address 192.168.40.1 255.255.255.0

  ip ospf 1 area 0

  ip nat inside

  duplex auto

  speed auto

  shutdown

interface GigabitEthernet0/1

  ip address 192.168.50.1 255.255.255.0

  ip ospf 1 area 0

  duplex auto

  speed auto

  shutdown

interface Serial0/3/0

  ip address 192.168.100.1 255.255.255.0

  ip ospf 1 area 0

  ip nat outside

  clock rate 2000000

  shutdown

interface Serial0/3/1

  no ip address

  clock rate 2000000

  shutdown

interface Vlan1

  no ip address

  shutdown

!

router ospf 1

  router-id 1.1.1.1

  log-adjacency-changes

  network 192.168.40.0 0.0.0.255 area 0

  network 192.168.50.0 0.0.0.255 area 0

  network 192.168.100.0 0.0.0.255 area 0

```
ip nat pool DYNAT40 192.168.100.10 192.168.100.110 netmask 255.255.255.0
ip nat inside source list 40 pool DYNAT40 overload
ip classless
ip flow-export version 9

access-list 40 permit 192.168.40.0 0.0.0.255
line con 0
exec-timeout 0 0
logging synchronous
login local

line aux 0

line vty 0 4
login local
transport input ssh
line vty 5 15
login local
transport input ssh

ntp server 192.168.99.5
ntp update-calendar

end
```

## R2-Branch1-Backup

```
hostname R2-Branch1-Backup
enable secret 5 $1$mERr$oQAVh6m3ZXpHg1a4H7bsa.
no ip cef
no ipv6 cef
username Mahmoud secret 5 $1$mERr$oQAVh6m3ZXpHg1a4H7bsa.
license udi pid CISCO2901/K9 sn FTX1524T11G-
ip ssh version 2
ip domain-name Mj.com
```

```
spanning-tree mode pvst
```

```
interface Tunnel2
ip address 192.168.1.1 255.255.255.0
mtu 1476
tunnel source Serial0/3/0
tunnel destination 192.168.200.2
```

```
interface GigabitEthernet0/0
ip address 192.168.60.1 255.255.255.0
ip ospf 1 area 0
duplex auto
speed auto
```

```
interface GigabitEthernet0/1
ip address 192.168.70.1 255.255.255.0
ip ospf 1 area 0
duplex auto
speed auto
```

```
interface Serial0/3/0
ip address 192.168.200.1 255.255.255.0
ip ospf 1 area 0
```

```
interface Serial0/3/1
no ip address
clock rate 2000000
shutdown
```

```
interface Vlan1
no ip address
shutdown
```

```
router ospf 1
router-id 3.3.3.3
network 192.168.60.0 0.0.0.255 area 0
network 192.168.70.0 0.0.0.255 area 0
network 192.168.200.0 0.0.0.255 area 0
```

```
ip classless
ip flow-export version 9
line con 0
exec-timeout 0 0
logging synchronous
login local
```

```
line aux 0
line vty 0 4
login local
transport input ssh
line vty 5 15
login local
transport input ssh
```

```
ntp server 192.168.99.5
```

```
end
```

## R1-branch2

```
hostname R1-branch2
enable secret 5 $1$mERr$oQAVh6m3ZXpHg1a4H7bsa.

no ip cef
no ipv6 cef

username Mahmoud secret 5 $1$mERr$oQAVh6m3ZXpHg1a4H7bsa.

license udi pid CISCO2901/K9 sn FTX1524L6MZ-

ip ssh version 2
ip domain-name Mj.com

spanning-tree mode pvst

interface Tunnel1
ip address 192.168.0.2 255.255.255.0
mtu 1476
tunnel source Serial0/3/0
tunnel destination 192.168.100.1

interface Tunnel2
ip address 192.168.1.2 255.255.255.0
mtu 1476
tunnel source Serial0/3/1
tunnel destination 192.168.200.1

interface GigabitEthernet0/0
no ip address
duplex auto
speed auto

interface GigabitEthernet0/0.10
encapsulation dot1Q 10
ip address 192.168.10.240 255.255.255.0

interface GigabitEthernet0/0.20
encapsulation dot1Q 20
ip address 192.168.20.240 255.255.255.0

interface GigabitEthernet0/0.30
encapsulation dot1Q 30
ip address 192.168.30.240 255.255.255.0

interface GigabitEthernet0/0.99
encapsulation dot1Q 99
ip address 192.168.99.240 255.255.255.0

interface GigabitEthernet0/1
no ip address
duplex auto
speed auto
shutdown

interface Serial0/3/0
ip address 192.168.100.2 255.255.255.252
ip ospf 1 area 0
clock rate 2000000
```

```
interface Serial0/3/1
ip address 192.168.200.2 255.255.255.0
ip ospf 1 area 0
clock rate 2000000
```

```
interface Vlan1
no ip address
shutdown
```

```
interface Vlan10
mac-address 000a.f395.1a01
no ip address
```

```
interface Vlan20
mac-address 000a.f395.1a02
no ip address
```

```
interface Vlan30
mac-address 000a.f395.1a03
no ip address
```

```
interface Vlan99
mac-address 000a.f395.1a04
no ip address
```

```
router ospf 1
log-adjacency-changes
network 100.100.100.0 0.0.0.3 area 0
network 192.168.200.0 0.0.0.255 area 0
ip classless
ip route 192.168.10.0 255.255.255.0 192.168.100.1
ip route 192.168.20.0 255.255.255.0 192.168.100.1
ip route 192.168.30.0 255.255.255.0 192.168.100.1
ip route 192.168.99.0 255.255.255.0 192.168.100.1
ip flow-export version 9
```

```
line con 0
exec-timeout 0 0
logging synchronous
login local
line aux 0
line vty 0 4
login local
transport input ssh
line vty 5 15
login local
transport input ssh
end
```

## IOS Command Line Interface

```

Core-1#sh ip interface brief
Interface          IP-Address      OK? Method Status       Protocol
FastEthernet0/1    unassigned      YES unset up           up
FastEthernet0/2    unassigned      YES unset up           up
FastEthernet0/3    unassigned      YES unset up           up
FastEthernet0/4    unassigned      YES unset up           up
FastEthernet0/5    unassigned      YES unset down        down
FastEthernet0/6    unassigned      YES unset down        down
FastEthernet0/7    unassigned      YES unset down        down
FastEthernet0/8    unassigned      YES unset down        down
FastEthernet0/9    unassigned      YES unset down        down
FastEthernet0/10   unassigned      YES unset down        down
FastEthernet0/11   unassigned      YES unset down        down
FastEthernet0/12   unassigned      YES unset down        down
FastEthernet0/13   unassigned      YES unset down        down
FastEthernet0/14   unassigned      YES unset down        down
FastEthernet0/15   unassigned      YES unset down        down
FastEthernet0/16   unassigned      YES unset down        down
FastEthernet0/17   unassigned      YES unset down        down
FastEthernet0/18   unassigned      YES unset down        down
FastEthernet0/19   unassigned      YES unset down        down
FastEthernet0/20   unassigned      YES unset down        down
FastEthernet0/21   unassigned      YES unset down        down
FastEthernet0/22   unassigned      YES unset down        down
FastEthernet0/23   unassigned      YES unset down        down
FastEthernet0/24   unassigned      YES unset down        down
GigabitEthernet0/1 192.168.40.2  YES manual up          up
GigabitEthernet0/2  192.168.60.2  YES manual up          up
Vlan1              unassigned      YES unset administratively down down
Vlan10             192.168.10.1  YES manual up          up
Vlan20             192.168.20.1  YES manual up          up
Vlan30             192.168.30.1  YES manual up          up
Vlan99             192.168.99.1  YES manual up          up
Core-1#
Core-1#
Core-1#
Core-1#
Core-1#

```

```

FastEthernet0/10   unassigned      YES unset down        down
FastEthernet0/11   unassigned      YES unset down        down
FastEthernet0/12   unassigned      YES unset down        down
FastEthernet0/13   unassigned      YES unset down        down
FastEthernet0/14   unassigned      YES unset down        down
FastEthernet0/15   unassigned      YES unset down        down
FastEthernet0/16   unassigned      YES unset down        down
FastEthernet0/17   unassigned      YES unset down        down
FastEthernet0/18   unassigned      YES unset down        down
FastEthernet0/19   unassigned      YES unset down        down
FastEthernet0/20   unassigned      YES unset down        down
FastEthernet0/21   unassigned      YES unset down        down

```

Core-1#SH VLAN B

VLAN Name	Status	Ports
1 default	active	Fa0/5, Fa0/6, Fa0/7, Fa0/8 Fa0/9, Fa0/10, Fa0/11, Fa0/12 Fa0/13, Fa0/14, Fa0/15, Fa0/16 Fa0/17, Fa0/18, Fa0/19, Fa0/20 Fa0/21, Fa0/22, Fa0/23, Fa0/24

10 Sales	active
20 HR	active
30 IT	active
99 Mangement	active
1002 fddi-default	active
1003 token-ring-default	active
1004 fddinet-default	active
1005 trnet-default	active

Core-1#sh st  
Core-1#sh stan  
Core-1#sh standby b  
Core-1#sh standby brief

P indicates configured to preempt.

Interface	Grp	Pri	P	State	Active	Standby	Virtual IP
Vl10	10	110	P	Active	local	192.168.10.2	192.168.10.5
Vl20	20	110	P	Active	local	192.168.20.2	192.168.20.5
Vl30	30	110	P	Active	local	192.168.30.2	192.168.30.5
Vl99	99	110	P	Active	local	192.168.99.2	192.168.99.5

Core-1#

**SERVICES**

DHCP

Interface	FastEthernet0	Service	<input checked="" type="radio"/> On	<input type="radio"/> Off			
Pool Name	vlan10						
Default Gateway	192.168.10.5						
DNS Server	8.8.8.8						
Start IP Address :	192	168	10	20			
Subnet Mask:	255	255	255	0			
Maximum Number of Users :	236						
TFTP Server:	0.0.0.0						
WLC Address:	192.168.99.254						
<a href="#">Add</a>		<a href="#">Save</a>		<a href="#">Remove</a>			
Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
VLAN20B2	192.168.91.3	8.8.8.8	192.168.9...	255.255.2...	236	0.0.0.0	192.168.9...
VLAN99B2	192.168.93.3	8.8.8.8	192.168.9...	255.255.2...	236	0.0.0.0	192.168.9...
VLAN30B2	192.168.92.3	8.8.8.8	192.168.9...	255.255.2...	236	0.0.0.0	192.168.9...
VLAN10B2	192.168.90.3	8.8.8.8	192.168.9...	255.255.2...	236	0.0.0.0	192.168.9...
vlan10	192.168.10.5	8.8.8.8	192.168.1...	255.255.2...	236	0.0.0.0	192.168.9...
vlan20	192.168.20.5	8.8.8.8	192.168.2...	255.255.2...	236	0.0.0.0	192.168.9...
vlan99	192.168.99.5	8.8.8.8	192.168.9...	255.255.2...	236	0.0.0.0	192.168.9...
vlan30	192.168.30.5	8.8.8.8	192.168.3...	255.255.2...	236	0.0.0.0	192.168.9...
serverPool	0.0.0.0	0.0.0.0	192.168.99.0	255.255.2...	512	0.0.0.0	0.0.0.0

**SERVICES**

NTP

Service	<input checked="" type="radio"/> On	<input type="radio"/> Off				
Authentication						
<input type="radio"/> Enable	<input checked="" type="radio"/> Disable					
Key:		Password:				
<span style="color: green;">◀</span> <span style="color: blue;">October 2024</span> <span style="color: green;">▶</span> <span style="float: right;">09:14:03PM <span style="border: 1px solid black; padding: 2px;"> </span></span>						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
29	30	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19

```

Core1-Branch2#
Core1-Branch2#sh etherchannel summary
Flags: D - down P - in port-channel
      I - stand-alone S - suspended
      H - Hot-standby (LACP only)
      R - Layer3 S - Layer2
      U - in use f - failed to allocate aggregator
      u - unsuitable for bundling
      w - waiting to be aggregated
      d - default port

Number of channel-groups in use: 2
Number of aggregators: 2

Group Port-channel Protocol Ports
-----+-----+-----+
1      Po1 (SU)        LACP   Fa0/20(P) Fa0/21(P) Fa0/22(P) Fa0/23(P) Fa0/24(P)
2      Po2 (SU)        PAgP   Fa0/15(P) Fa0/16(P) Fa0/17(P) Fa0/18(P) Fa0/19(P)

```

Core1-Branch2#

Core1-Branch2#

Core1-Branch2#

Core1-Branch2#sh ip od

Core1-Branch2#sh ip o

Core1-Branch2#sh ip ospf n

Core1-Branch2#sh ip ospf neighbor

Neighbor ID	Pri	State	Dead Time	Address	Interface
192.168.200.2	1	FULL/DR	00:00:31	192.168.80.1	GigabitEthernet0/1

Core1-Branch2#sh ip r  
Core1-Branch2#sh ip ro  
Core1-Branch2#sh ip route o  
Core1-Branch2#sh ip route ospf  
O 192.168.10.0 [110/67] via 192.168.80.1, 00:50:35, GigabitEthernet0/1  
O 192.168.20.0 [110/67] via 192.168.80.1, 00:50:35, GigabitEthernet0/1  
O 192.168.30.0 [110/67] via 192.168.80.1, 00:50:35, GigabitEthernet0/1  
O 192.168.40.0 [110/66] via 192.168.80.1, 00:50:35, GigabitEthernet0/1  
O 192.168.50.0 [110/66] via 192.168.80.1, 00:50:35, GigabitEthernet0/1  
O 192.168.60.0 [110/66] via 192.168.80.1, 00:50:35, GigabitEthernet0/1

ri - OSPF NSSA external type 1, re - OSPF NSSA external type 2  
E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP  
i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area  
\* - candidate default, U - per-user static route, o - ODR  
P - periodic downloaded static route

Gateway of last resort is not set

C 192.168.10.0/24 is directly connected, Vlan10  
C 192.168.20.0/24 is directly connected, Vlan20  
C 192.168.30.0/24 is directly connected, Vlan30  
C 192.168.40.0/24 is directly connected, GigabitEthernet0/1  
O 192.168.50.0/24 [110/2] via 192.168.10.2, 21:39:06, Vlan10  
 [110/2] via 192.168.20.2, 21:39:06, Vlan20  
 [110/2] via 192.168.30.2, 21:39:06, Vlan30  
 [110/2] via 192.168.99.2, 21:39:06, Vlan99  
 [110/2] via 192.168.40.1, 21:39:06, GigabitEthernet0/1  
C 192.168.60.0/24 is directly connected, GigabitEthernet0/2  
O 192.168.70.0/24 [110/2] via 192.168.10.2, 00:10:14, Vlan10  
 [110/2] via 192.168.20.2, 00:10:14, Vlan20  
 [110/2] via 192.168.30.2, 00:10:14, Vlan30  
 [110/2] via 192.168.99.2, 00:10:14, Vlan99  
 [110/2] via 192.168.60.1, 00:10:14, GigabitEthernet0/2  
O 192.168.80.0/24 [110/66] via 192.168.40.1, 21:39:06, GigabitEthernet0/1  
 [110/66] via 192.168.60.1, 21:39:06, GigabitEthernet0/2  
O 192.168.90.0/24 [110/67] via 192.168.40.1, 21:39:06, GigabitEthernet0/1  
 [110/67] via 192.168.60.1, 21:39:06, GigabitEthernet0/2  
O 192.168.91.0/24 [110/67] via 192.168.40.1, 21:39:06, GigabitEthernet0/1  
 [110/67] via 192.168.60.1, 21:39:06, GigabitEthernet0/2  
O 192.168.92.0/24 [110/67] via 192.168.40.1, 21:39:06, GigabitEthernet0/1  
 [110/67] via 192.168.60.1, 21:39:06, GigabitEthernet0/2  
O 192.168.93.0/24 [110/67] via 192.168.40.1, 21:39:06, GigabitEthernet0/1  
 [110/67] via 192.168.60.1, 21:39:06, GigabitEthernet0/2  
C 192.168.99.0/24 is directly connected, Vlan99  
O 192.168.100.0/24 [110/65] via 192.168.40.1, 21:39:06, GigabitEthernet0/1  
O 192.168.200.0/24 [110/65] via 192.168.60.1, 21:39:06, GigabitEthernet0/2

```
R1-Branch1#show ip interface brief | include Tunnel
Tunnell           192.168.0.1      YES manual up
                           up

R1-branch2
Physical Config CLI Attributes
IOS Command Line Interface

Gateway of last resort is not set

192.168.0.0/24 is variably subnetted, 2 subnets, 2 masks
C   192.168.0.0/24 is directly connected, Tunnell
L   192.168.0.2/32 is directly connected, Tunnell
     192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C     192.168.1.0/24 is directly connected, Tunnel2
L     192.168.1.2/32 is directly connected, Tunnel2
O     192.168.10.0/24 [110/66] via 192.168.200.1, 00:54:31, Serial0/3/1
          [110/66] via 192.168.100.1, 00:54:31, Serial0/3/0
O     192.168.20.0/24 [110/66] via 192.168.200.1, 00:54:31, Serial0/3/1
          [110/66] via 192.168.100.1, 00:54:31, Serial0/3/0
O     192.168.30.0/24 [110/66] via 192.168.200.1, 00:54:31, Serial0/3/1
          [110/66] via 192.168.100.1, 00:54:31, Serial0/3/0
O     192.168.40.0/24 [110/65] via 192.168.100.1, 00:54:31, Serial0/3/0
O     192.168.50.0/24 [110/65] via 192.168.100.1, 00:54:31, Serial0/3/0
O     192.168.60.0/24 [110/65] via 192.168.200.1, 00:55:39, Serial0/3/1
O     192.168.70.0/24 [110/65] via 192.168.200.1, 01:04:20, Serial0/3/1
     192.168.80.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.80.0/24 is directly connected, GigabitEthernet0/0
L       192.168.80.1/32 is directly connected, GigabitEthernet0/0
O     192.168.90.0/24 [110/2] via 192.168.80.2, 01:04:20, GigabitEthernet0/0
O     192.168.91.0/24 [110/2] via 192.168.80.2, 01:04:20, GigabitEthernet0/0
O     192.168.92.0/24 [110/2] via 192.168.80.2, 01:04:20, GigabitEthernet0/0
O     192.168.93.0/24 [110/2] via 192.168.80.2, 01:04:20, GigabitEthernet0/0
O     192.168.99.0/24 [110/66] via 192.168.200.1, 00:54:31, Serial0/3/1
          [110/66] via 192.168.100.1, 00:54:31, Serial0/3/0
     192.168.100.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.100.0/30 is directly connected, Serial0/3/0
L       192.168.100.2/32 is directly connected, Serial0/3/0
     192.168.200.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.200.0/24 is directly connected, Serial0/3/1
--More--
01:05:13: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.80.2 on GigabitEthernet0/0 from LOADING to FULL,
Loading Done

L       192.168.200.2/32 is directly connected, Serial0/3/1

R1-branch2#
```

al Config Desktop Programming Attributes

and Prompt

```
statistics for 192.168.90.21:
?Packets: Sent = 3, Received = 3, Lost = 0 (0% loss),
approximate round trip times in milli-seconds:
Minimum = 1ms, Maximum = 22ms, Average = 8ms

col-C

tracert 192.168.90.21

Tracing route to 192.168.90.21 over a maximum of 30 hops:
  0 ms      0 ms      0 ms      192.168.10.1
  0 ms      0 ms      0 ms      192.168.40.1
  1 ms      8 ms      0 ms      192.168.100.2
  1 ms      1 ms      0 ms      192.168.80.2
  1 ms      1 ms      1 ms      192.168.90.21

Trace complete.

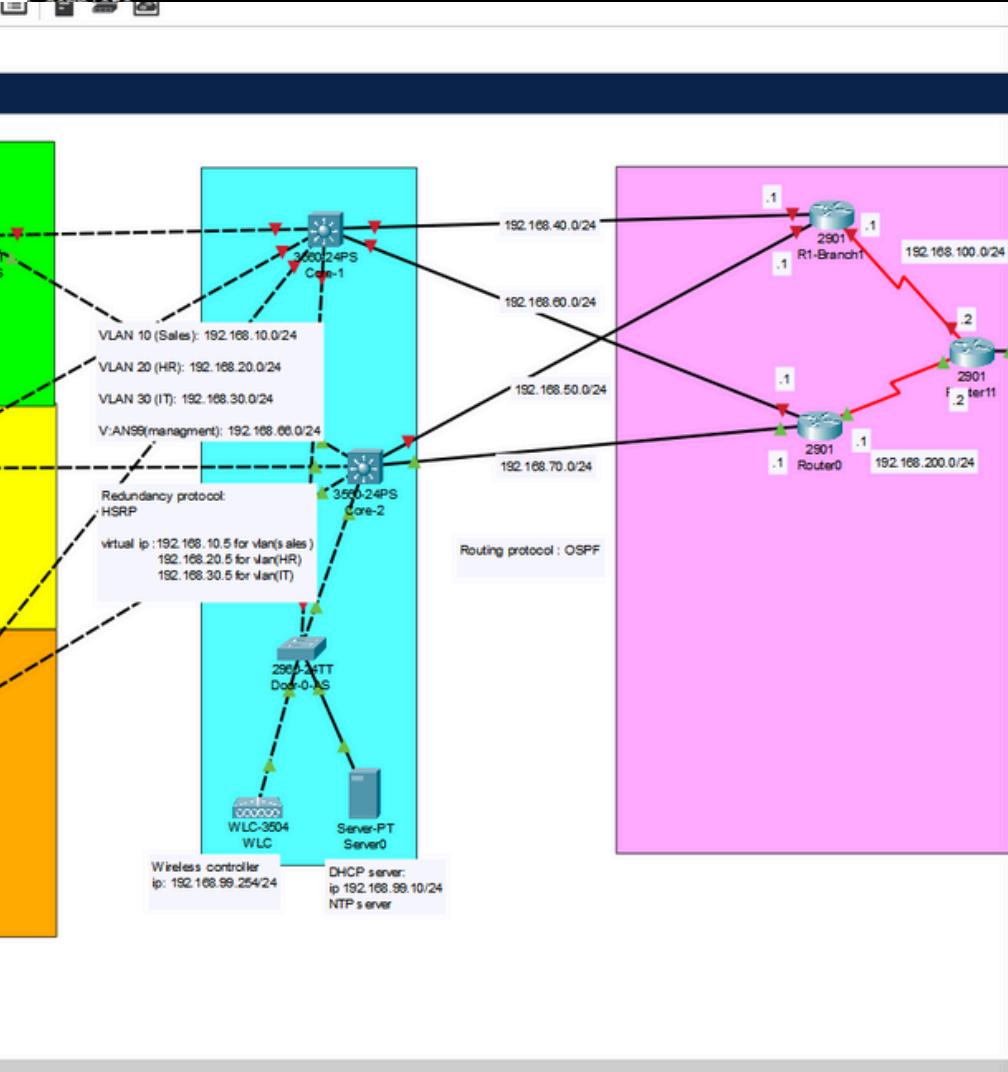
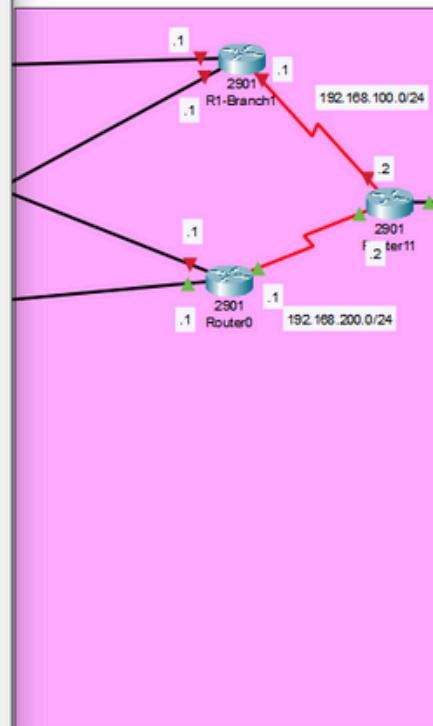
tracert 192.168.91.21

Tracing route to 192.168.91.21 over a maximum of 30 hops:
  0 ms      10 ms      0 ms      192.168.10.1
  0 ms      0 ms      0 ms      192.168.40.1
  1 ms      0 ms      2 ms      192.168.200.2
  0 ms      1 ms      0 ms      192.168.80.2
  *      0 ms      0 ms      192.168.91.21

Trace complete.

tracert 192.168.91.21

Tracing route to 192.168.91.21 over a maximum of 30 hops:
  0 ms      0 ms      0 ms      192.168.10.1
  0 ms      1 ms      0 ms      192.168.60.1
  1 ms      0 ms      0 ms      192.168.200.2
  1 ms      1 ms      2 ms      192.168.80.2
  0 ms      1 ms      0 ms      192.168.91.21
```



Physical Config Desktop Programming Attributes

Command Prompt

```
2 0 ms      0 ms      0 ms      192.168.90.1
3 1 ms      8 ms      0 ms      192.168.100.2
4 1 ms      1 ms      0 ms      192.168.80.2
5 1 ms      1 ms      1 ms      192.168.90.21

Trace complete.

C:\>tracert 192.168.91.21

Tracing route to 192.168.91.21 over a maximum of 30 hops:
  1 0 ms      10 ms      0 ms      192.168.10.1
  2 0 ms      0 ms      0 ms      192.168.40.1
  3 1 ms      0 ms      2 ms      192.168.200.2
  4 1 ms      1 ms      0 ms      192.168.80.2
  5 *      0 ms      0 ms      192.168.91.21

Trace complete.

C:\>tracert 192.168.91.21

Tracing route to 192.168.91.21 over a maximum of 30 hops:
  1 0 ms      0 ms      0 ms      192.168.10.1
  2 0 ms      1 ms      0 ms      192.168.60.1
  3 1 ms      0 ms      0 ms      192.168.200.2
  4 1 ms      1 ms      2 ms      192.168.80.2
  5 0 ms      1 ms      0 ms      192.168.91.21

Trace complete.

C:\>tracert 192.168.91.21

Tracing route to 192.168.91.21 over a maximum of 30 hops:
  1 0 ms      0 ms      0 ms      192.168.10.1
  2 0 ms      0 ms      0 ms      192.168.70.1
  3 1 ms      0 ms      1 ms      192.168.200.2
  4 1 ms      1 ms      0 ms      192.168.80.2
  5 1 ms      1 ms      1 ms      192.168.91.21

Trace complete.

C:\>
```

Web Browser < > URL: https://192.168.99.254/frameMonitor.html Go Stop

Save Configuration | Ping | Logout | Refresh | Home

**CISCO** MONITOR WLANs CONTROLLER WIRELESS SECURITY MANAGEMENT COMMANDS HELP FEEDBACK

**Monitor**

- Summary
- Access Points
- Cisco CleanAir
- Statistics
- CDP
- Rogues
- Clients
- Sleeping Clients
- Multicast
- Applications
- Local Profiling

**Controller Summary**

Management IP Address	192.168.99.254, ::/128
Software Version	8.3.111.0
Field Recovery Image Version	7.6.101.1
System Name	WLC
Up Time	14 minutes, 8 seconds
System Time	Tue Oct 15 21:31:51 2024
Redundancy Mode	N/A
Internal Temperature	+31 C
802.11a Network State	Enabled
802.11b/g Network State	Enabled
Local Mobility Group	
CPU(s) Usage	0%
Individual CPU Usage	0%/1%, 0%/0%
Memory Usage	46%
Fan Status	3800 rpm

**Access Point Summary**

	Total	Up	Down	
802.11a/n/ac Radios	3	3	0	<a href="#">Detail</a>
802.11b/gn Radios	3	3	0	<a href="#">Detail</a>
Dual-Band Radios	0	0	0	<a href="#">Detail</a>
All APs	3	3	0	<a href="#">Detail</a>

**Client Summary**

Current Clients	7	<a href="#">Detail</a>
Excluded Clients	0	<a href="#">Detail</a>
Disabled Clients	0	<a href="#">Detail</a>

**Rogue Summary**

Active Rogue APs	0	<a href="#">Detail</a>
Active Rogue Clients	0	<a href="#">Detail</a>
Adhoc Rogues	0	<a href="#">Detail</a>
Rogues on Wired Network	0	

**Top WLANs**

Profile Name	# of Clients

**Most Recent Traps**

[View All](#)

**Top Applications**

Application Name	Packet Count	Byte Count

[View All](#)

**CISCO** MONITOR WLANs CONTROLLER WIRELESS SECURITY MANAGEMENT COMMANDS HELP FEEDBACK

## WLANS

### WLANS

Entries 1 - 3 of 3

#### WLANS

WLANS

#### Advanced

AP Groups

### WLANS

Current Filter: [\[Change Filter\]](#) [\[Clear Filter\]](#)

[Create New](#) [Go](#)

<input type="checkbox"/>	WLAN ID	Type	Profile Name	WLAN SSID
<input type="checkbox"/>	1	WLAN	WLAN10	Sales
<input type="checkbox"/>	2	WLAN	WLAN20	HR
<input type="checkbox"/>	3	WLAN	WLAN30	IT

**CISCO** MONITOR WLANs CONTROLLER WIRELESS SECURITY MANAGEMENT COMMANDS HELP FEEDBACK

## Controller

### Interfaces

#### General

#### Inventory

#### Interfaces

#### Interface Groups

#### Multicast

#### Internal DHCP Server

#### Mobility Management

#### Ports

#### NTP

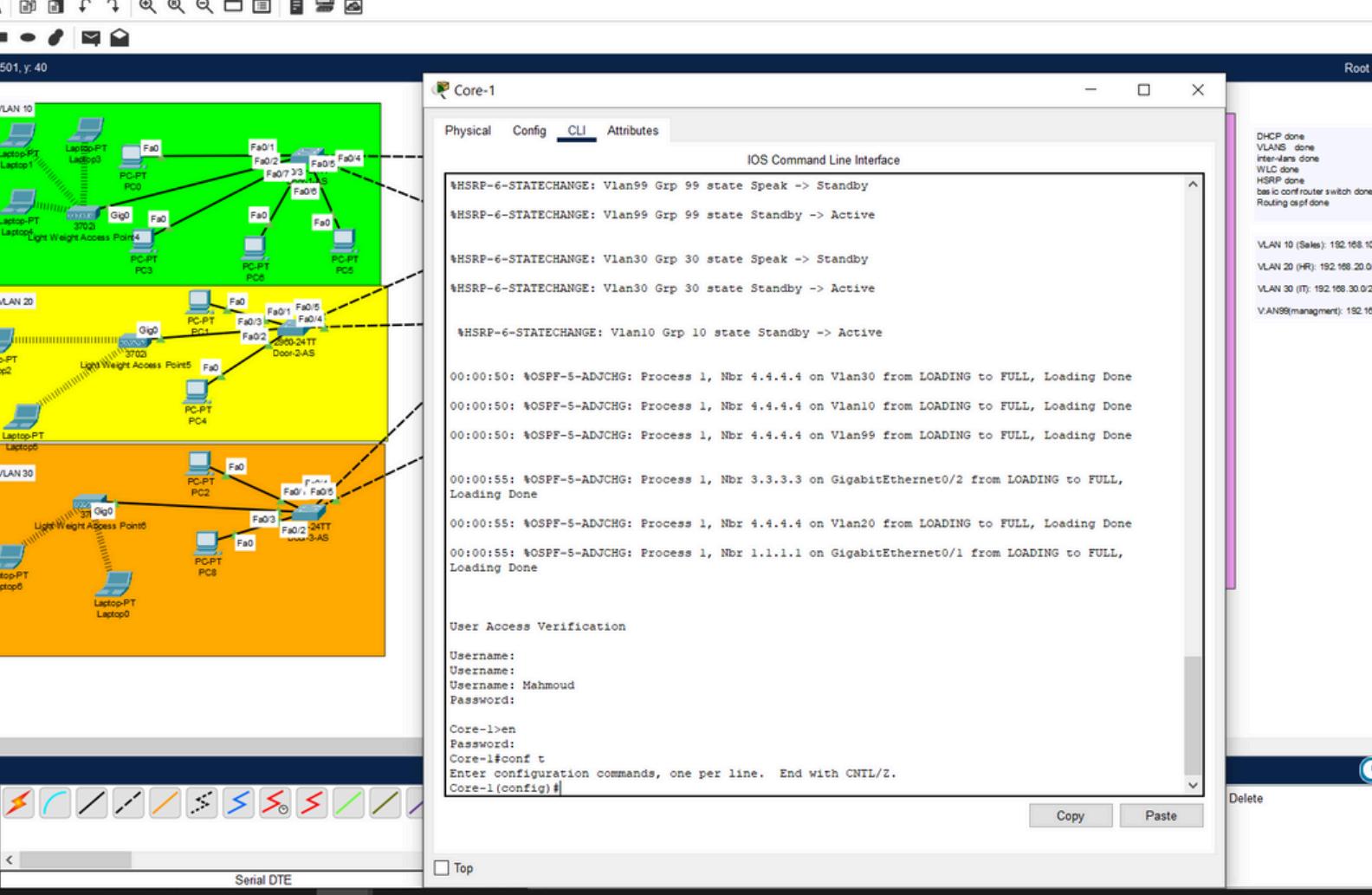
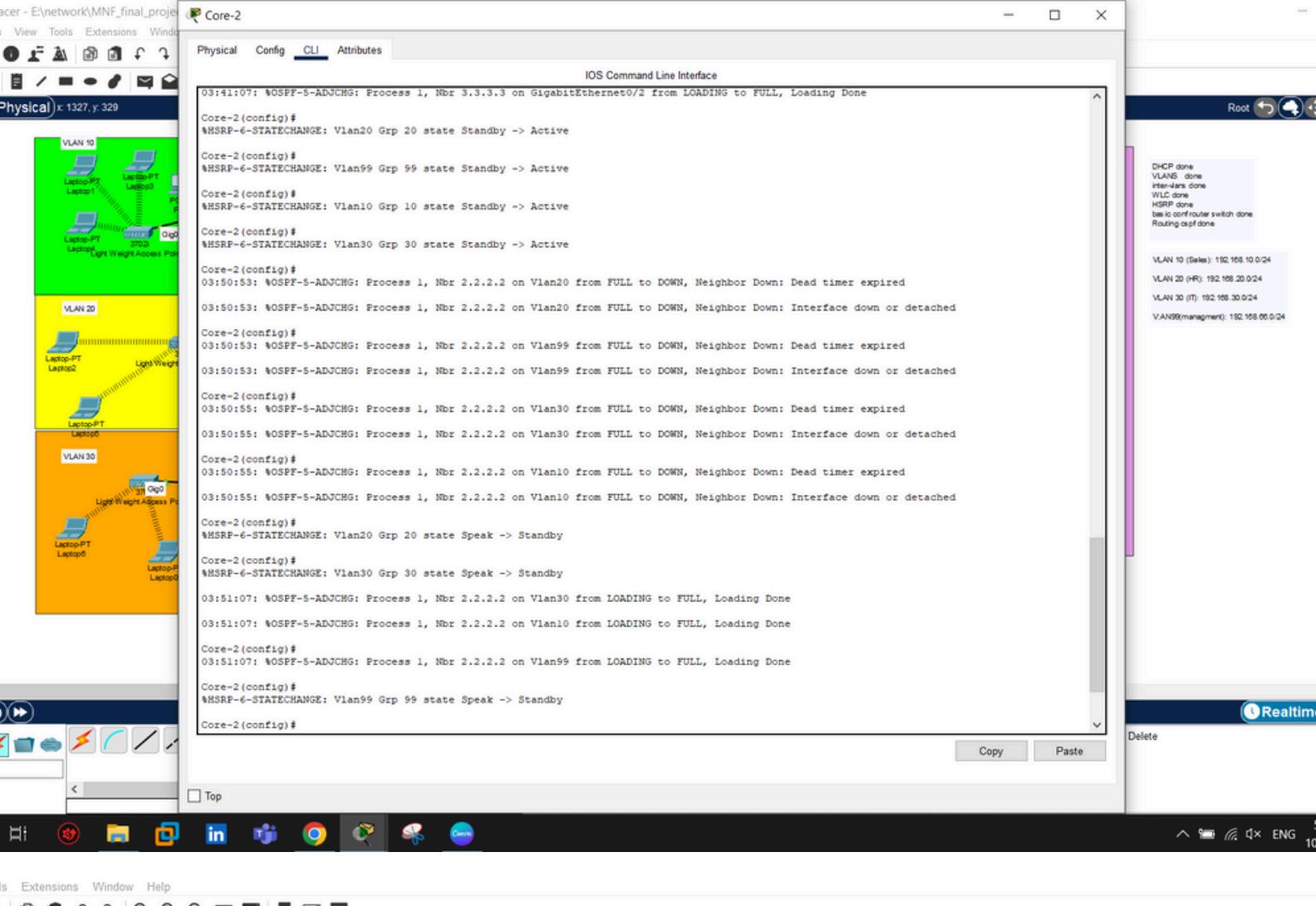
#### CDP

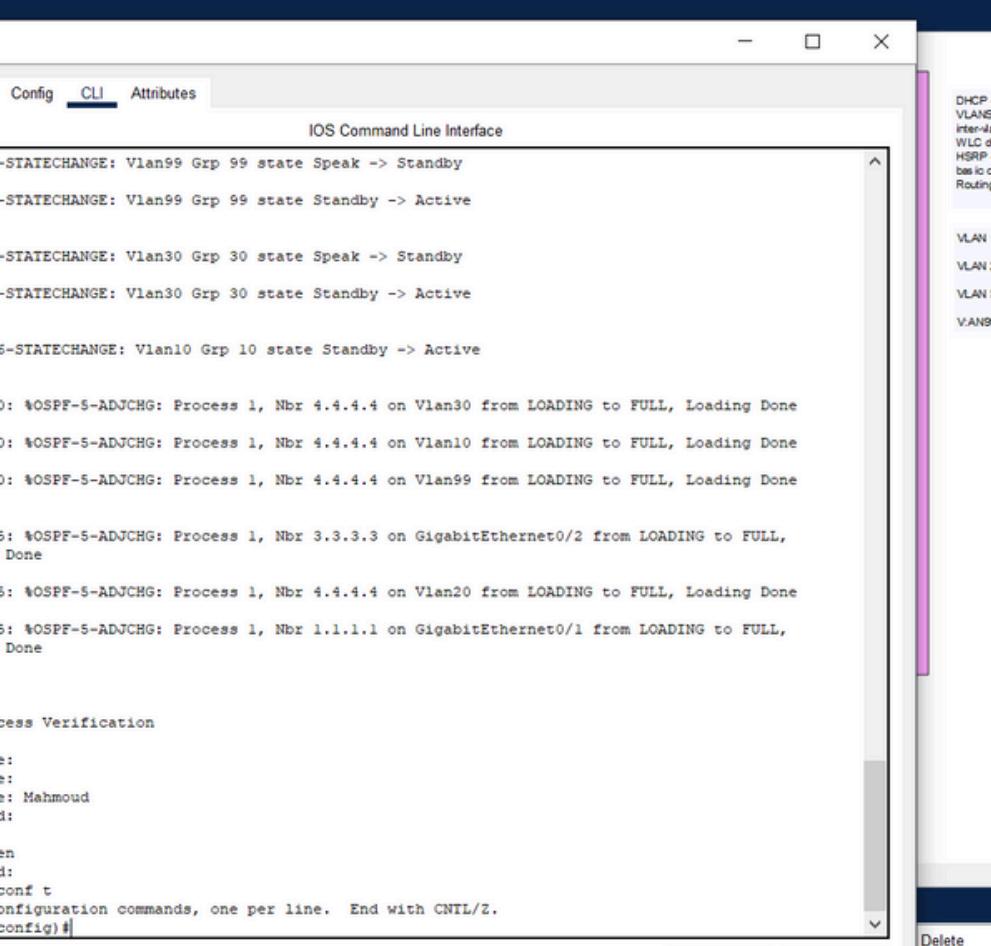
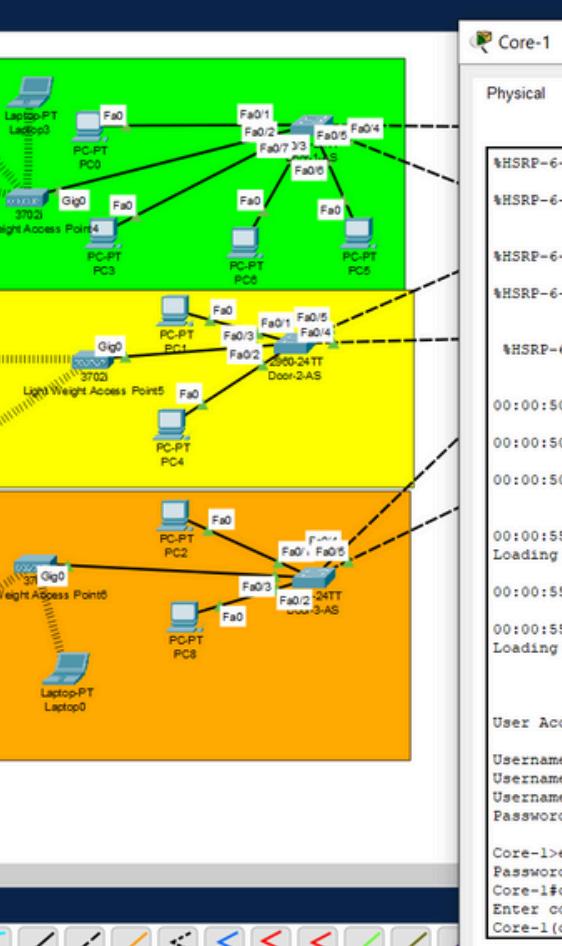
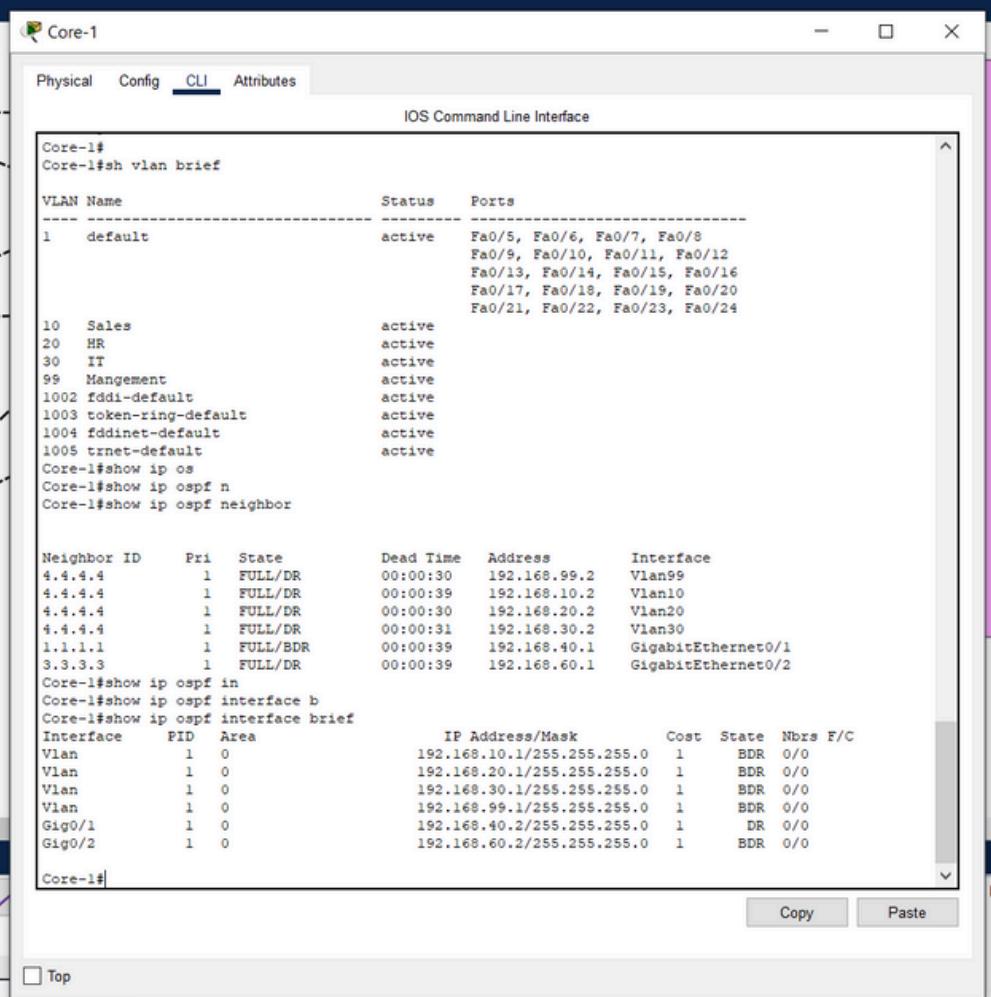
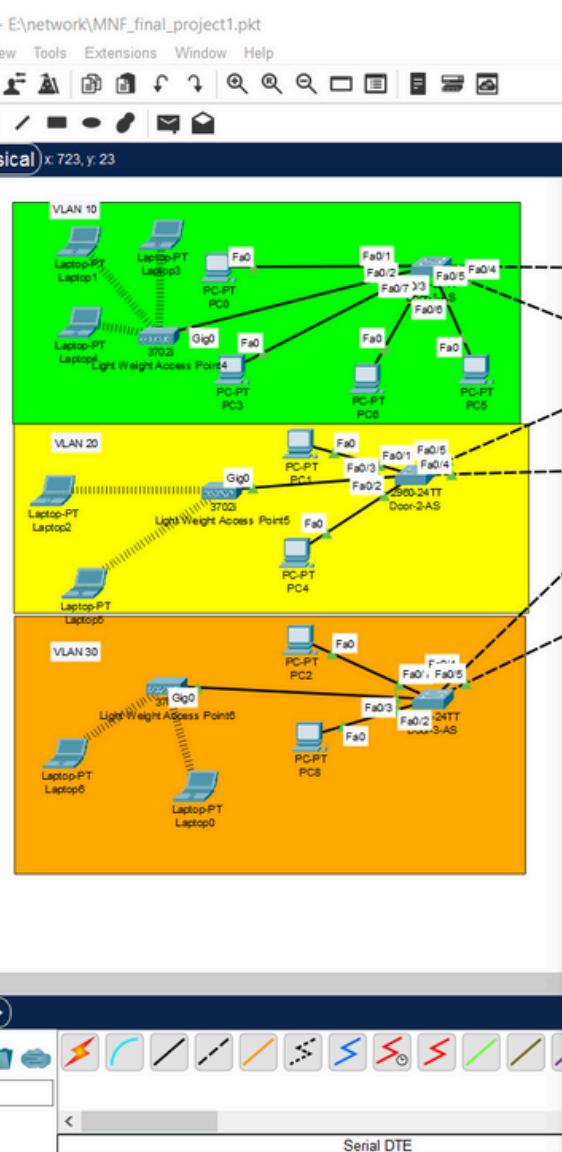
#### Tunneling

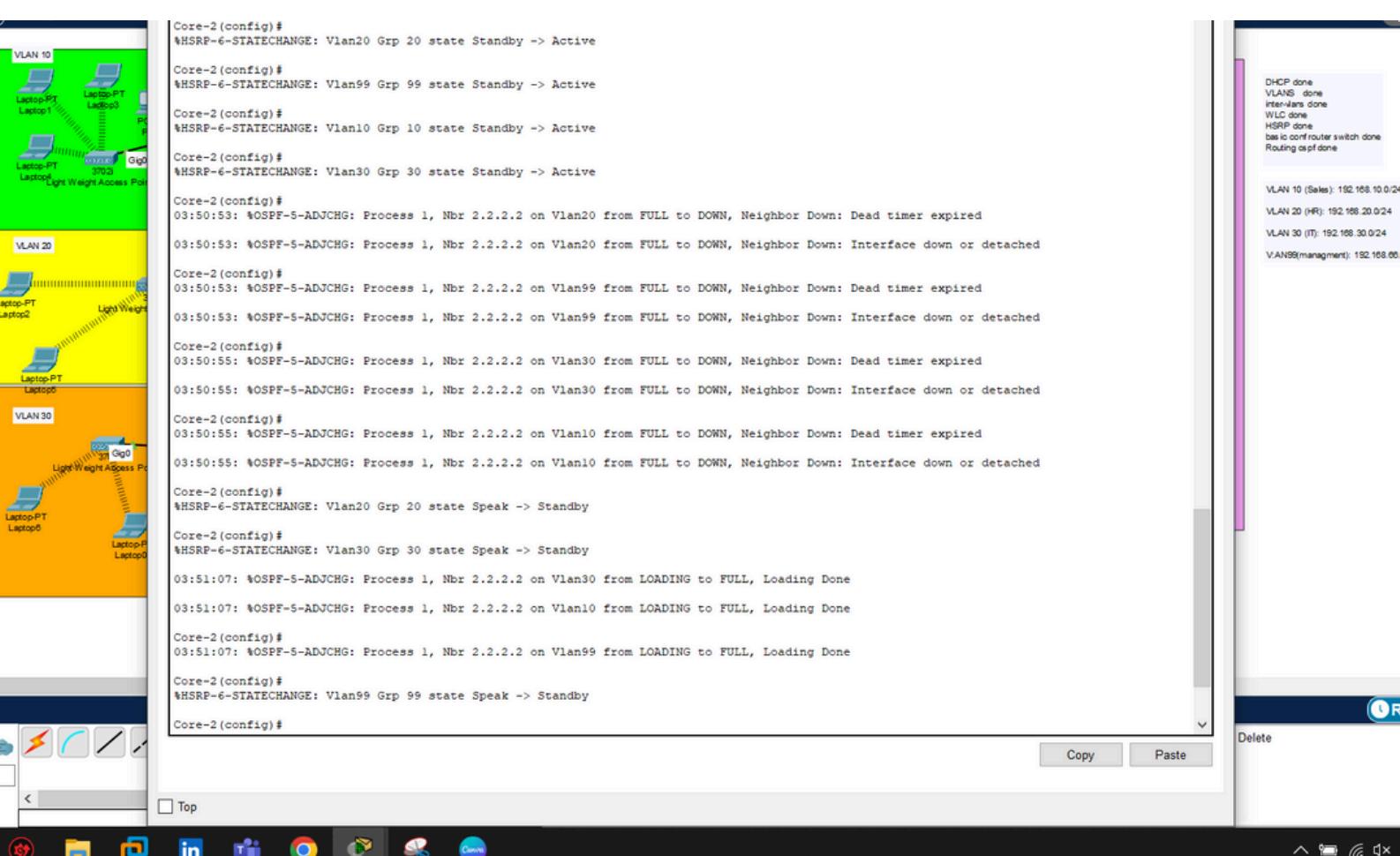
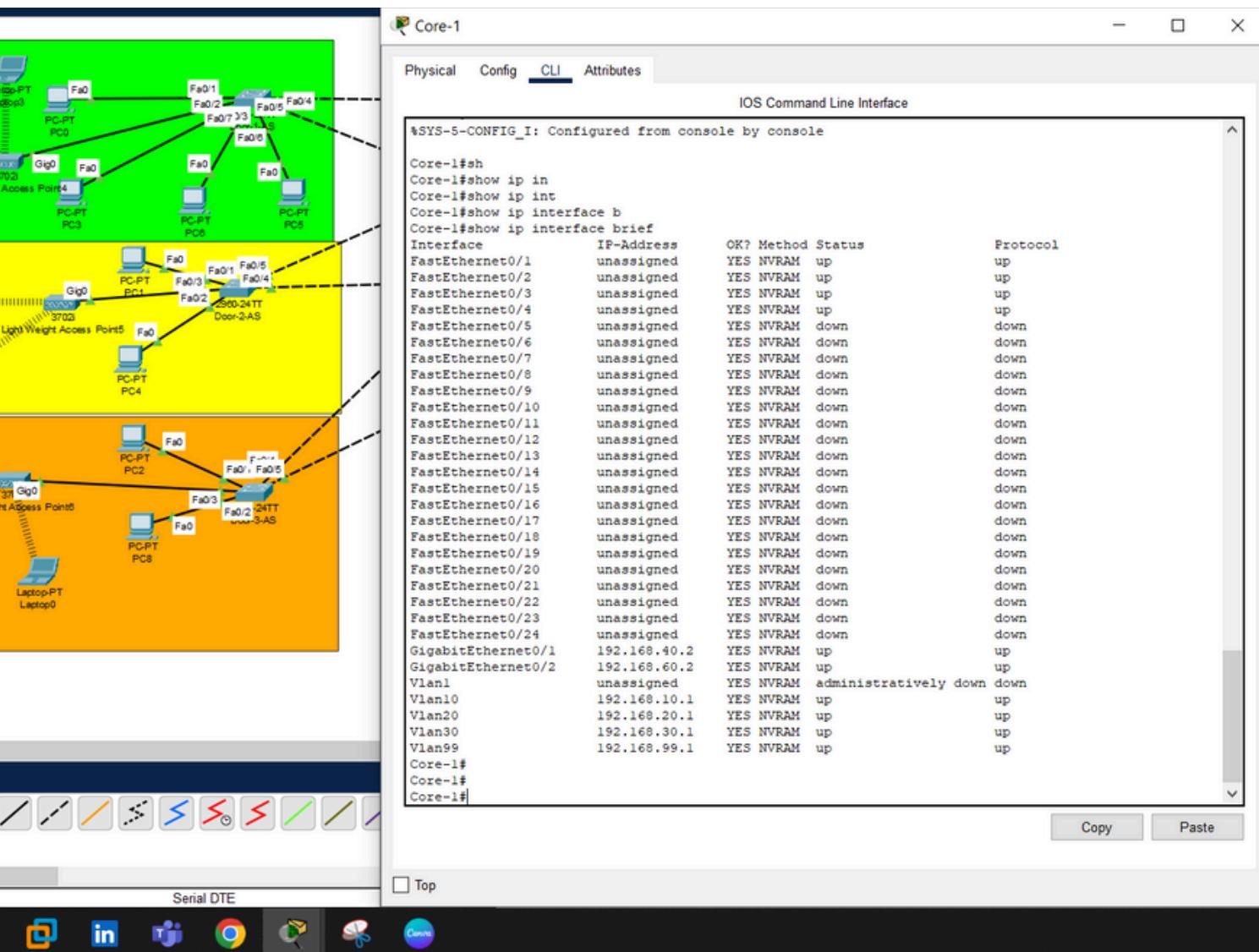
#### IPv6

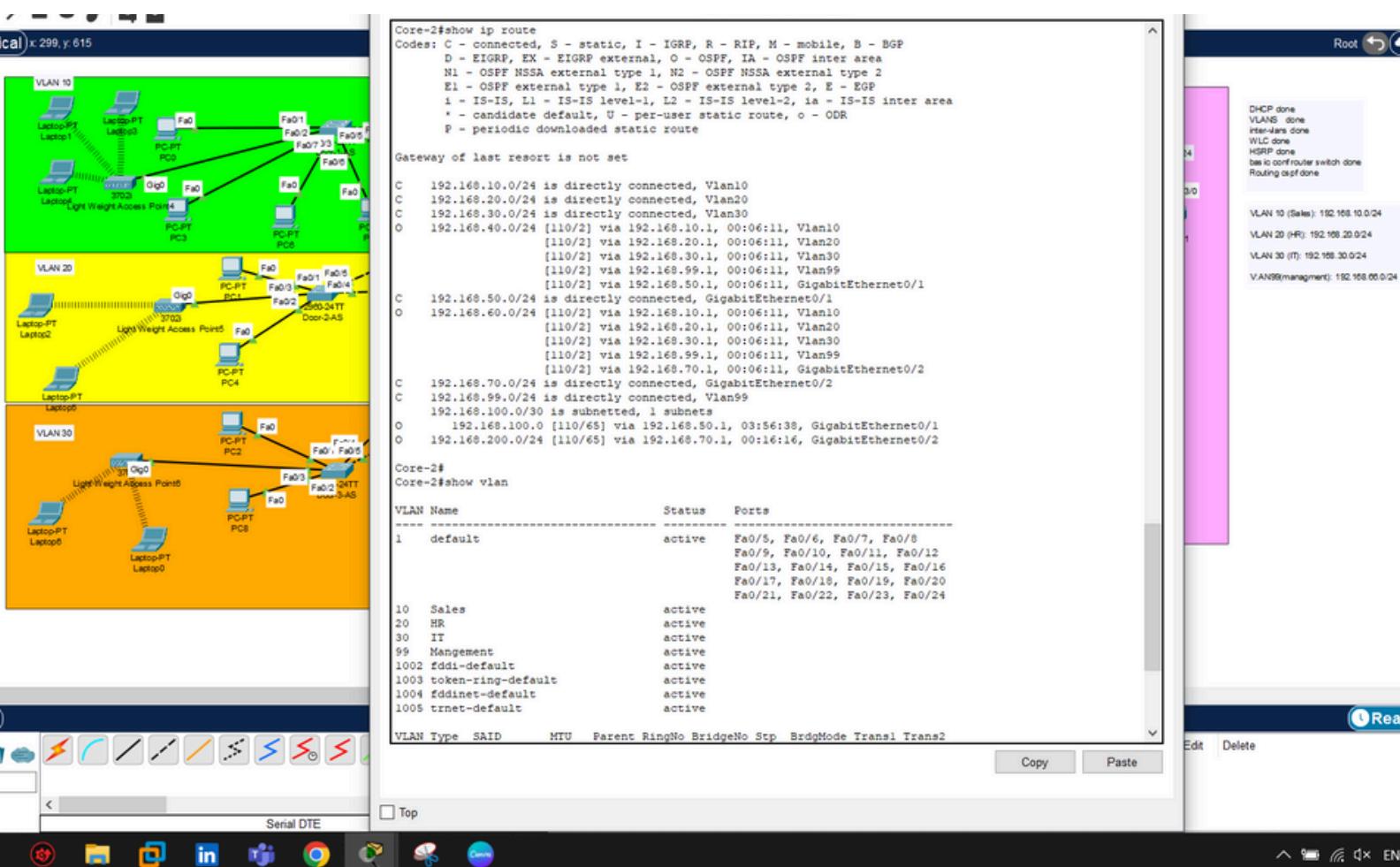
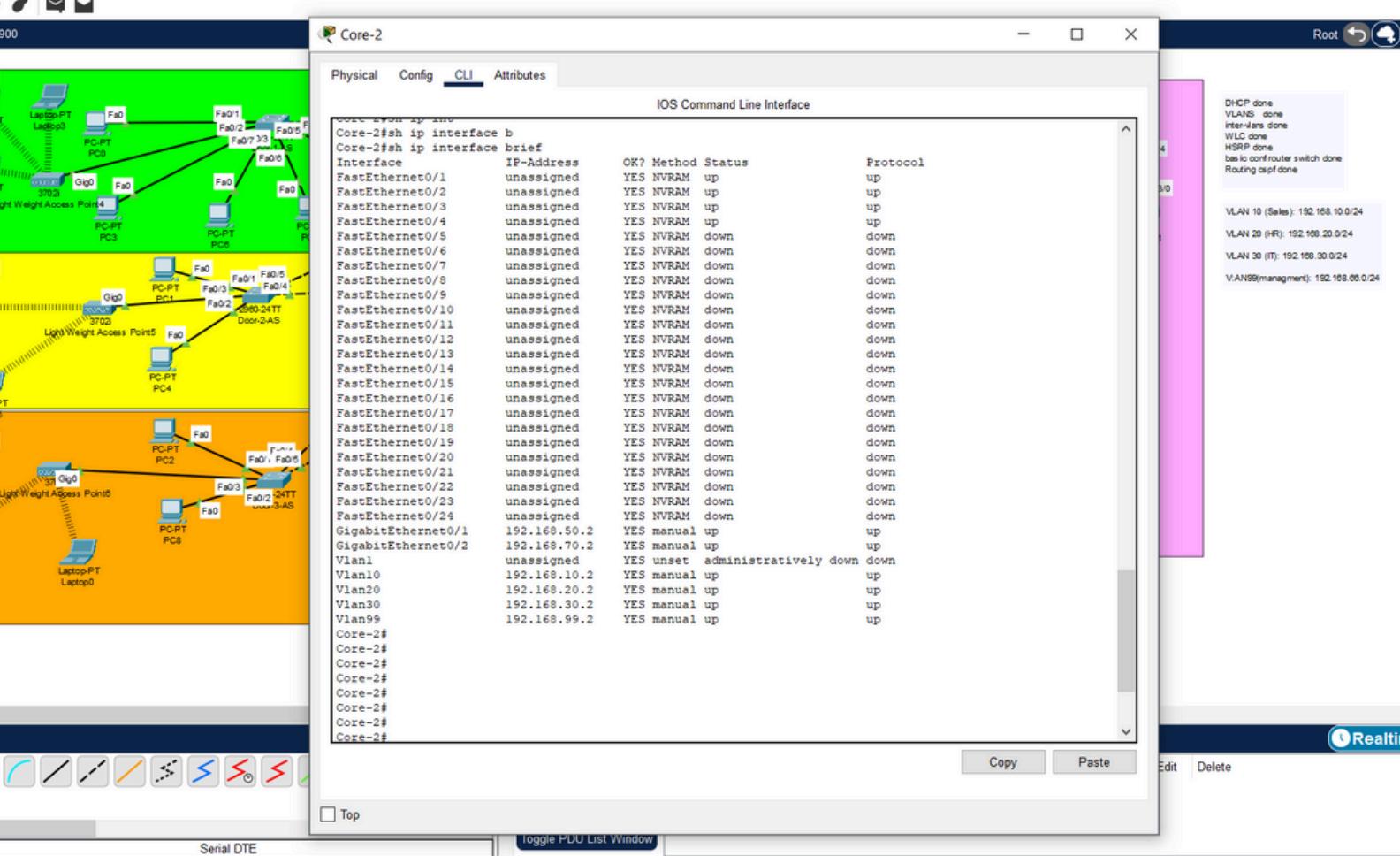
#### mDNS

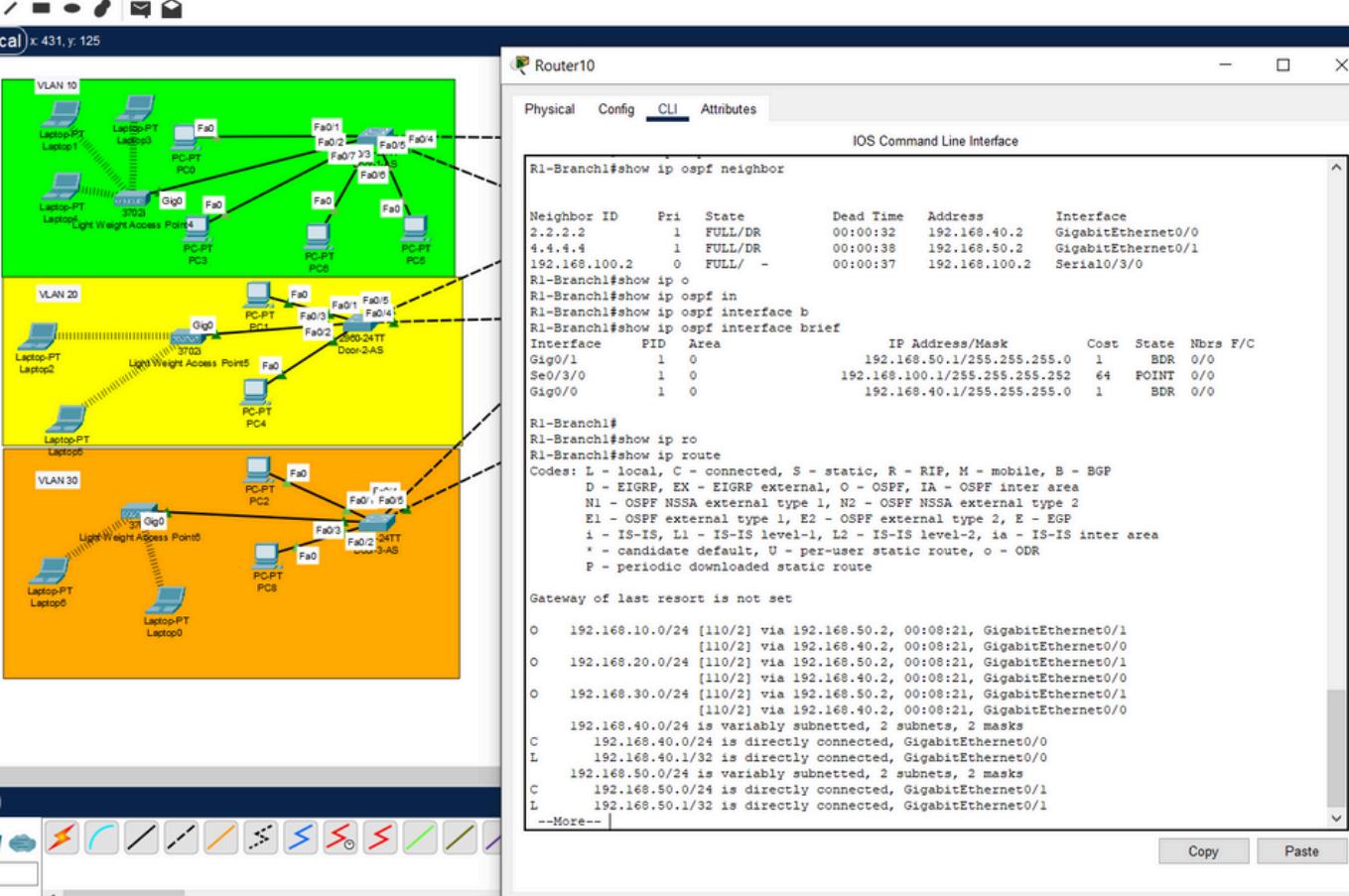
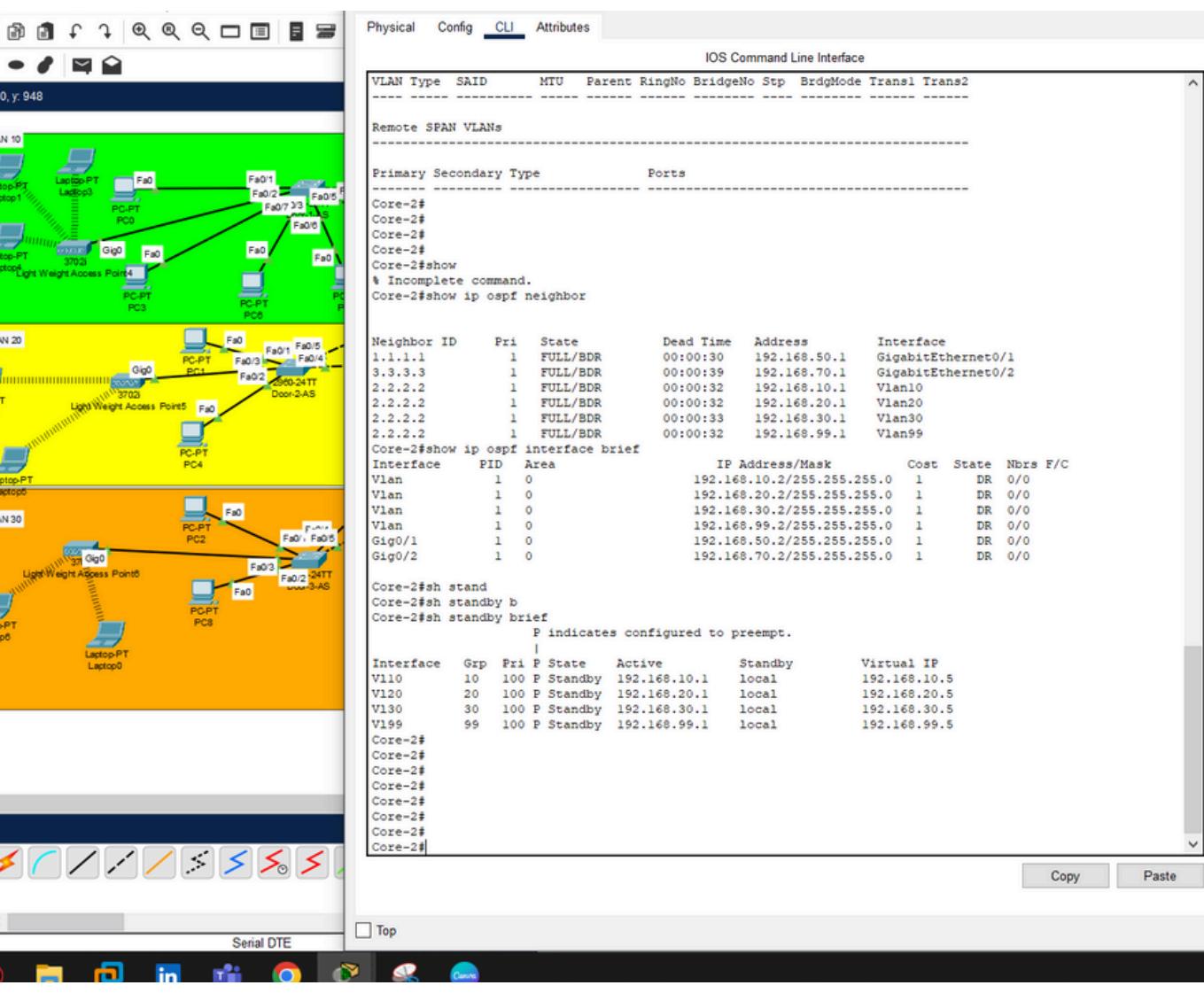
Interface Name	VLAN Identifier	IP Address	Interface Type	Dynamic A Manageme
<a href="#">VLAN10</a>	10	192.168.10.254	Dynamic	Disabled
<a href="#">VLAN20</a>	20	192.168.20.254	Dynamic	Disabled
<a href="#">VLAN30</a>	30	192.168.30.254	Dynamic	Disabled
<a href="#">management</a>	1	192.168.99.254	Static	Enabled
<a href="#">virtual</a>	N/A	192.0.2.1	Static	Not Support

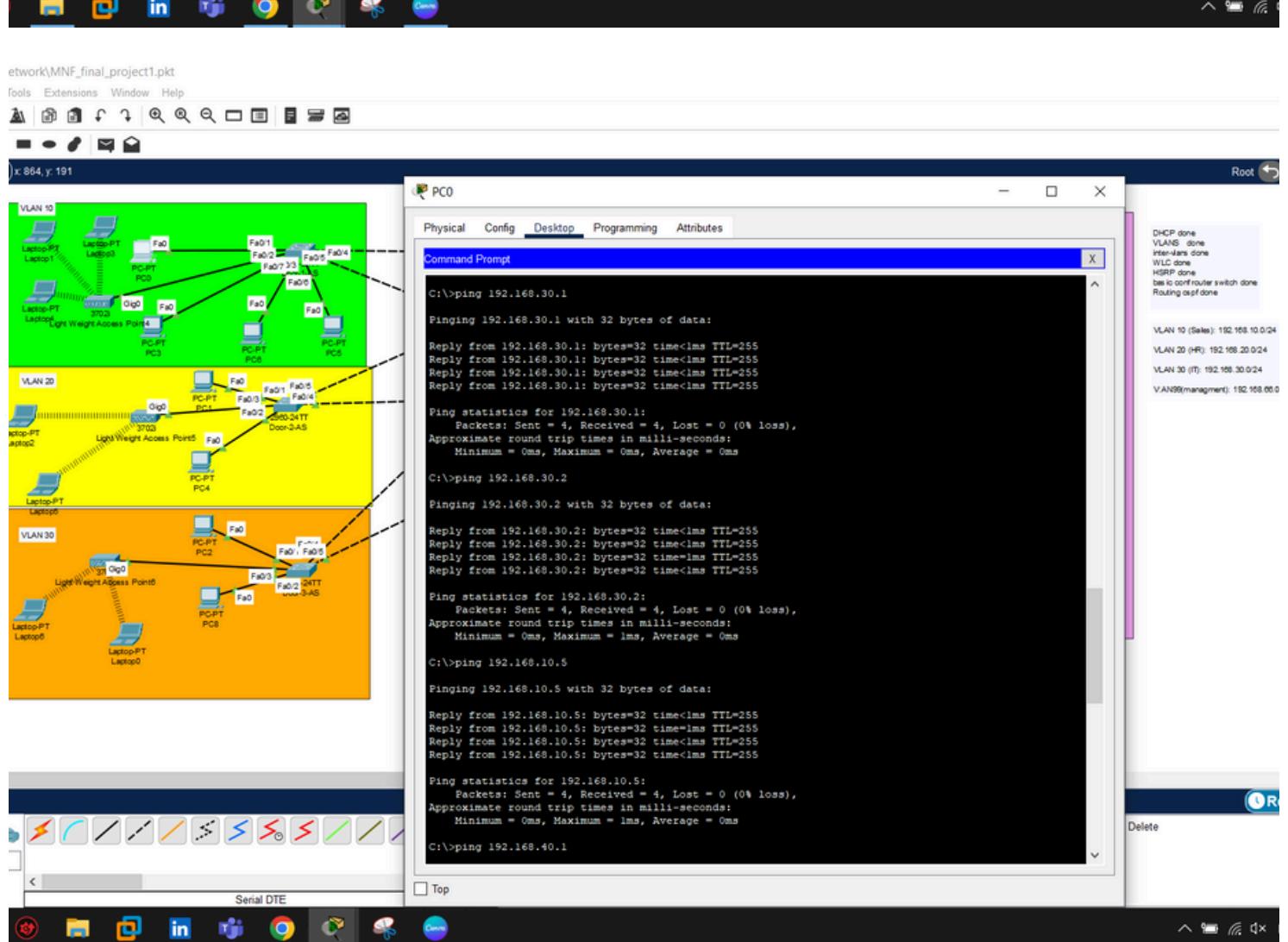
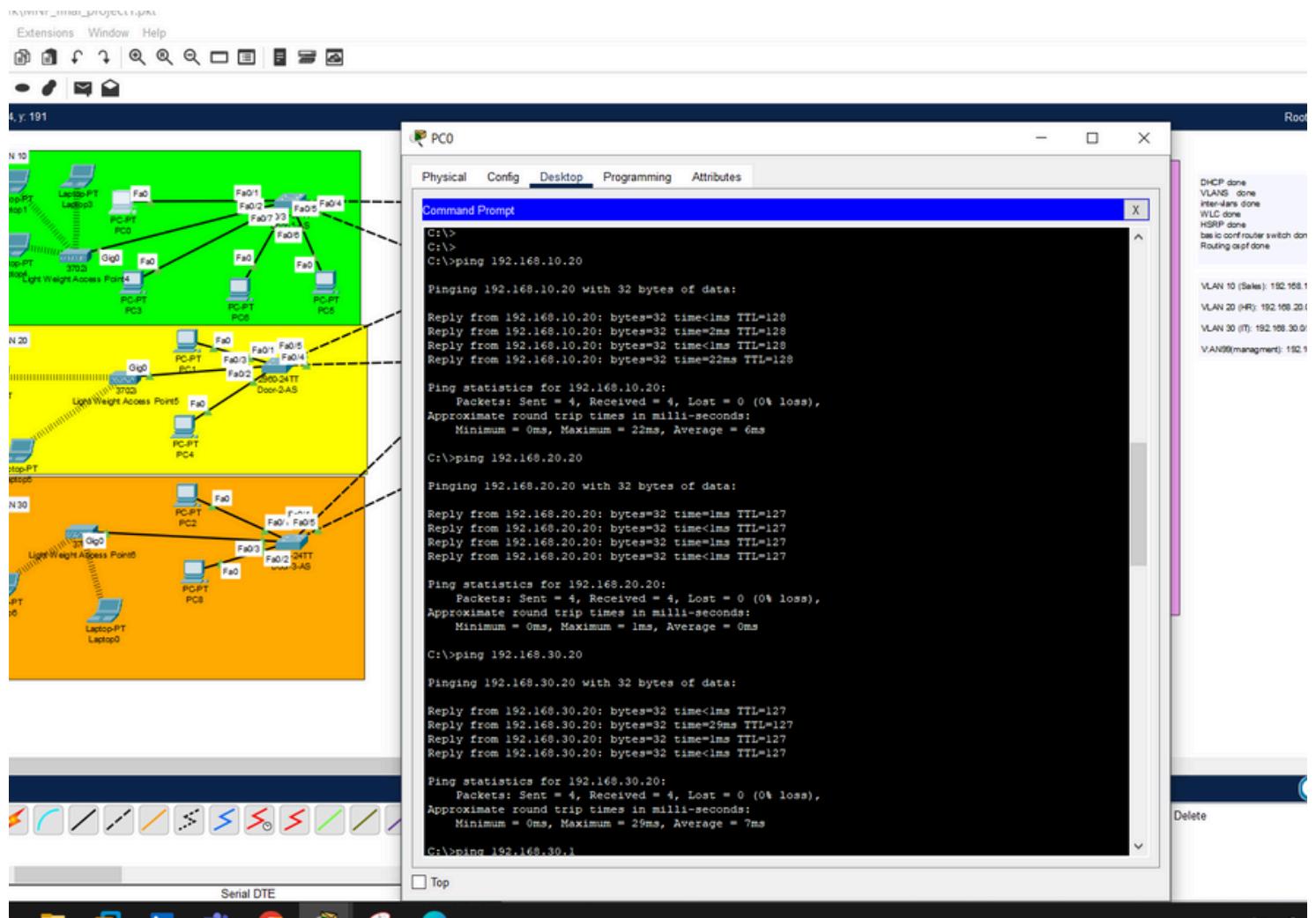


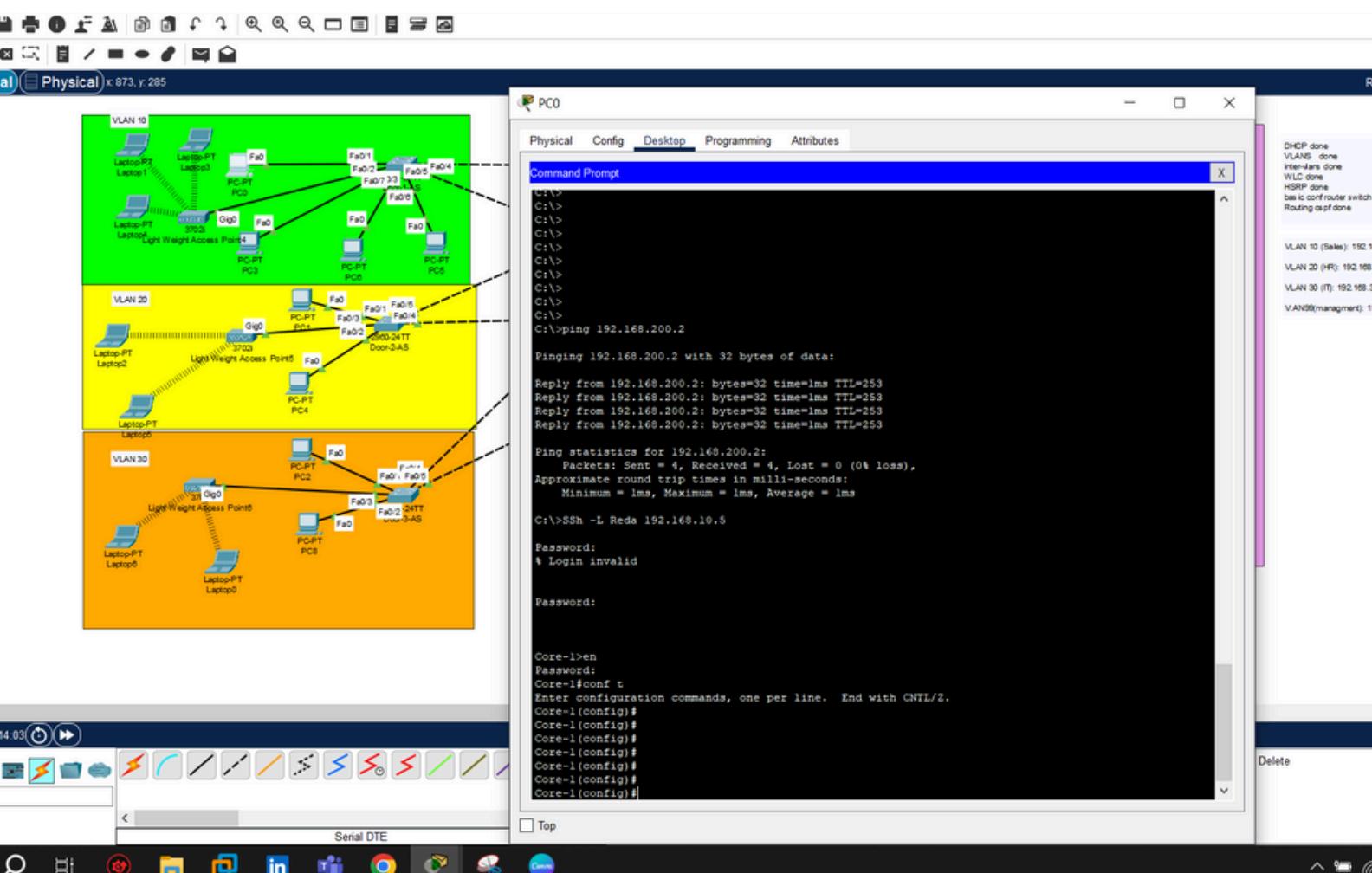
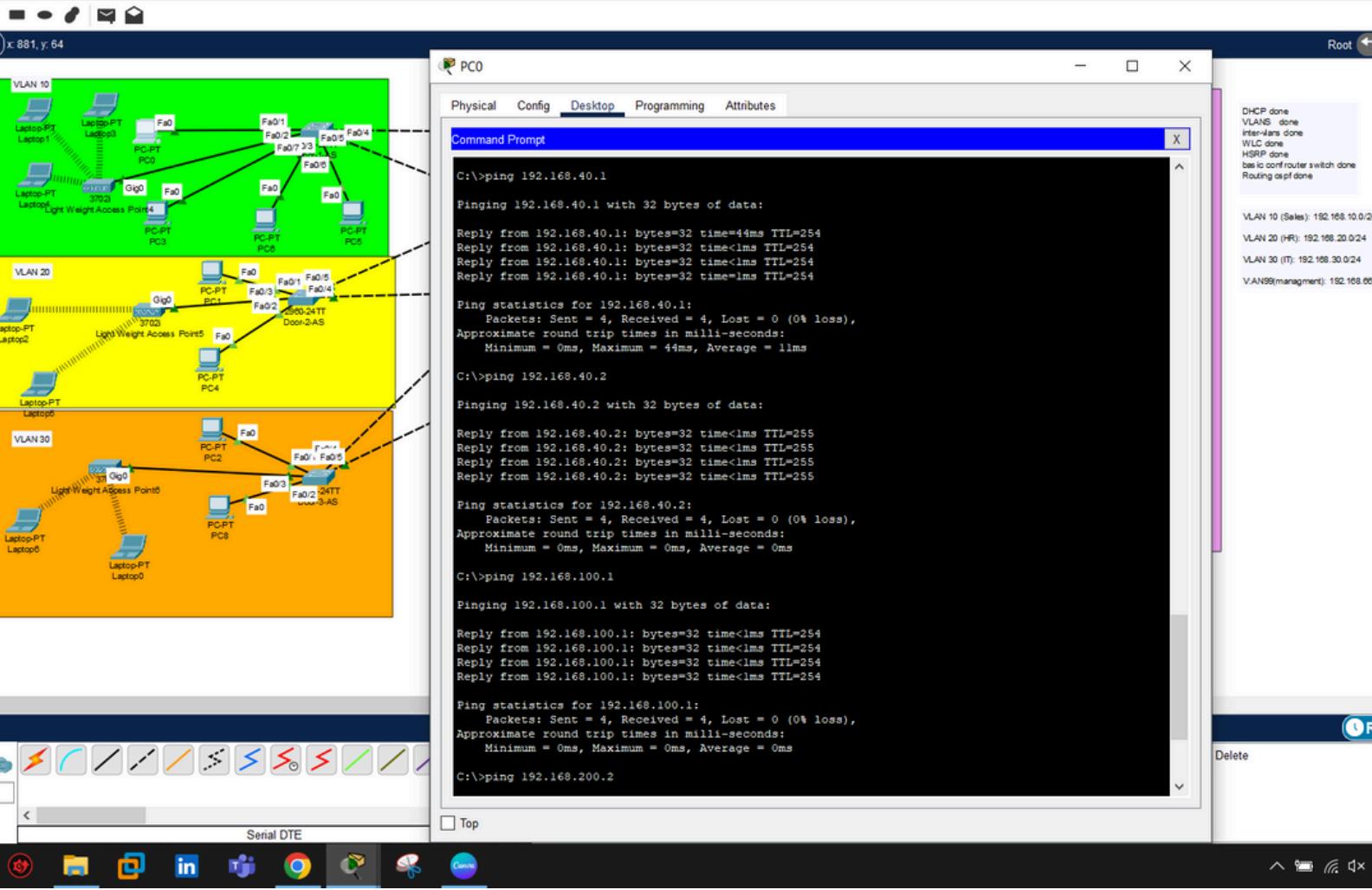












# Reach Out to Me



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📍 Cairo Egypt