

Smart Bank

BY KAOUTAR AQECHMAR

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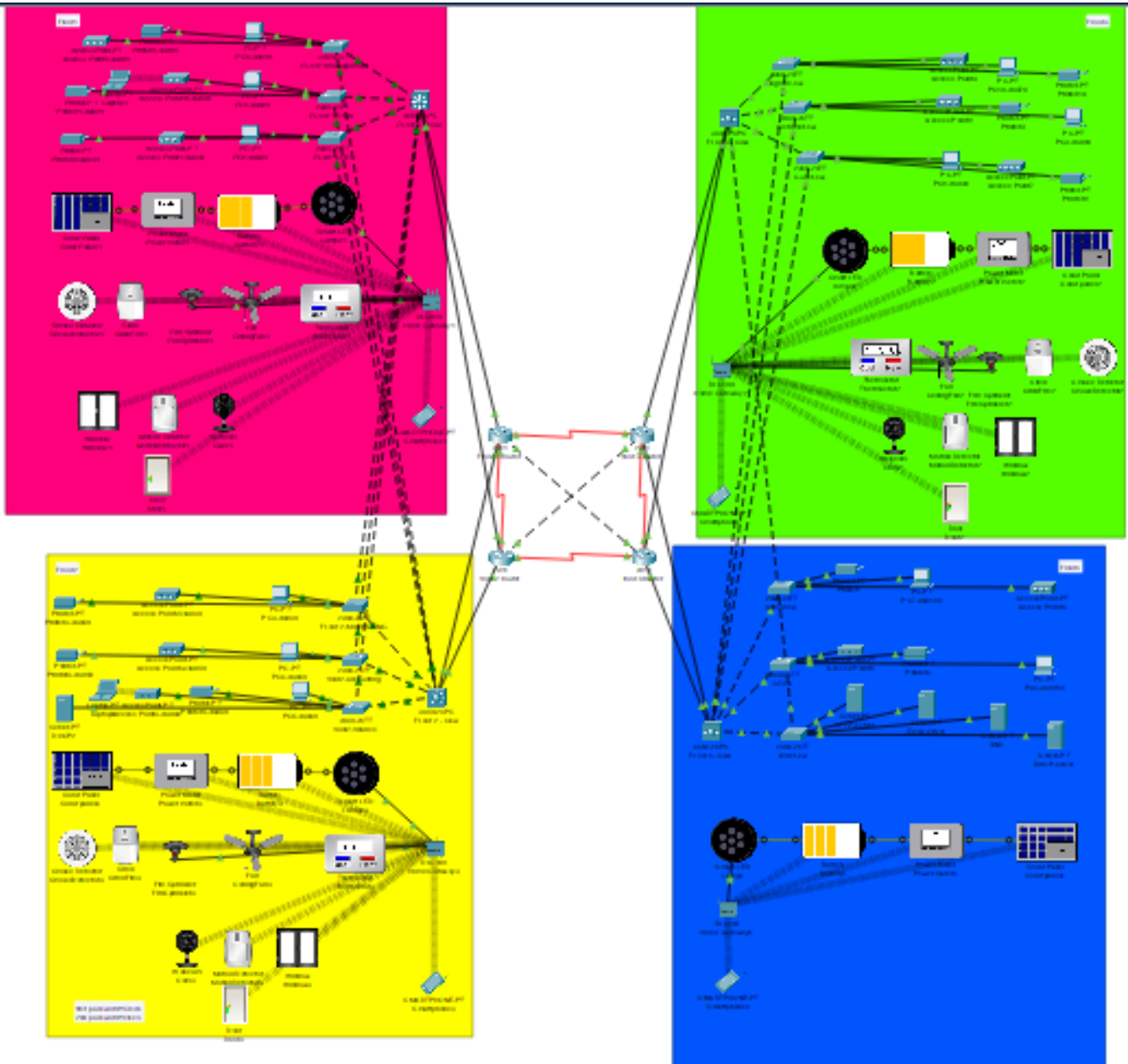
la configuration de la bank:

Introduction:

Notre projet est la combinaison entre le système bancaire et lot technologie .

La bank :

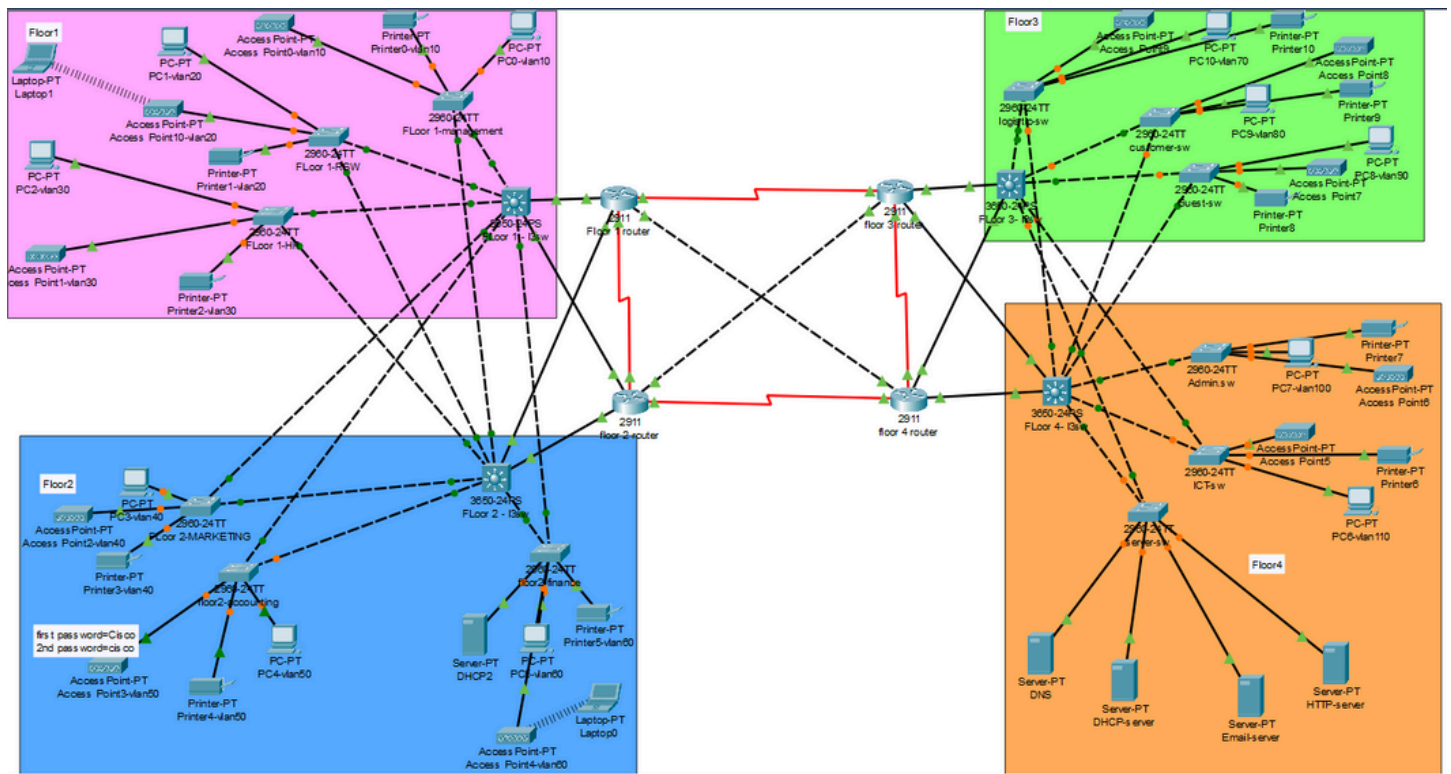
- Topologie :



c'est notre tologie ou vision de notre projet qui contient un office et des iot technologies ; ici on a just utiliser panneaux solaire , mouvement detection et Fire/smock detection.

- la configuration de la bank

comme il est montré dans l'image , la bank est constituée de 3 étages , t chaque etage contient 3 départements .



C'est la bank sans l'lot , chaque etage contient son router , core switch , et les departements; les routers sont conecetée avec eux en utilisant le cable serial qui nous avons ajouter aux router.

```
##### CONFIG STEPS #####

1. Basic settings to all devices plus ssh on the routers and 13 switches.
2. VLANs assignment plus all access and trunk ports.
3. Switchport security to all 12 switches.
4. Subnetting and IP addressing
5. OSPF on the routers and 13 switches.
6. Static IP address to serverRoom devices.
7. DHCP server device configuratiuons.
8. Inter-VLAN routing on the 13 switches plus ip dhcp helper addresses.
9. Wireless network configurations.
10. Verifying and testing configurations.
```

C'est ce que on a concentrée de le faire dans la bank .

+ on a commencée par la configuration de la sécurité et l'état du port (Access ou trunk) dans les routers , core switches et L2 switches :

Physical Config CLI Attributes

IOS Command Line Interface

```
management-sw(config)#int range
%LINK-3-UPDOWN: Interface GigabitEthernet0/2, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/2, changed state to down

%LINK-5-CHANGED: Interface GigabitEthernet0/2, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/2, changed state to up

% Incomplete command.
management-sw(config)#int range g0/1-2
management-sw(config-if-range)#switchport mode trunk

management-sw(config-if-range)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/2, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/2, changed state to up

management-sw(config-if-range)#ex
management-sw(config)#vlan 10
management-sw(config-vlan)#name MGT
management-sw(config-vlan)#EX
management-sw(config)#
management-sw(config)#int range f0/1-3
management-sw(config-if-range)#switchport mode access
management-sw(config-if-range)#switchport access vlan 10
management-sw(config-if-range)#
management-sw(config-if-range)#switchport port-security maximum 2
management-sw(config-if-range)#switchport port-security mac-address sticky
management-sw(config-if-range)#switchport port-security violation shutdown
management-sw(config-if-range)#
management-sw(config-if-range)#do wr
Building configuration...
[OK]
management-sw(config-if-range)#ex
management-sw(config)#
management-sw(config)#
```

Copy

Paste

```
management-sw(config)#do sh start
Using 1709 bytes
!
version 15.0
no service timestamps log datetime msec
no service timestamps debug datetime msec
service password-encryption
!
hostname management-sw
!
enable password 7 0822455D0A16
!
!
!
no ip domain-lookup
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!
interface FastEthernet0/1
 switchport access vlan 10
 switchport mode access
 switchport port-security maximum 2
 switchport port-security mac-address sticky
!
interface FastEthernet0/2
 switchport access vlan 10
 switchport mode access
 switchport port-security maximum 2
 switchport port-security mac-address sticky
!
interface FastEthernet0/3
 switchport access vlan 10
 switchport mode access
 switchport port-security maximum 2
 switchport port-security mac-address sticky
!
```

```
RSW-sw>en
RSW-sw#conf t
Enter configuration commands, one per line. End with CNTL/Z.
RSW-sw(config)#banner motd #this is floor 1 RSW#
RSW-sw(config)#line console 0
RSW-sw(config-line)#password cisco
RSW-sw(config-line)#login
RSW-sw(config-line)#exit
RSW-sw(config)#line vty 0 15
RSW-sw(config-line)#password cisco
RSW-sw(config-line)#login
RSW-sw(config-line)#exit
RSW-sw(config)#no ip domain-lookup
RSW-sw(config)#enable password cisco
RSW-sw(config)#
RSW-sw(config)#service password-encryption
RSW-sw(config)#
RSW-sw(config)#do wr
Building configuration...
[OK]
RSW-sw(config)#
```

```

floor1(config)#
floor1(config)#no ip domain-lookup
floor1(config)#enable password cisco
floor1(config)#service password-encryption
floor1(config)#
floor1(config)#do wr
Building configuration...
Compressed configuration from 7383 bytes to 3601 bytes[OK]
[OK]
floor1(config)#ip domain-name cisco.net
floor1(config)#username cisco password cisco
floor1(config)#crypto key generate rsa
The name for the keys will be: floor1.cisco.net
Choose the size of the key modulus in the range of 360 to 4096 for your
  General Purpose Keys. Choosing a key modulus greater than 512 may take
  a few minutes.

```

```

How many bits in the modulus [512]: 1024
% Generating 1024 bit RSA keys, keys will be non-exportable...[OK]

```

```

floor1(config)#
*Mar 1 0:18:12.928: %SSH-5-ENABLED: SSH 1.99 has been enabled
floor1(config)#line vty 0 15
floor1(config-line)#login local
floor1(config-line)#transport input ssh
floor1(config-line)#exit
floor1(config)#do wr
Building configuration...
Compressed configuration from 7383 bytes to 3601 bytes[OK]

```

```

Guest-sw(config-if-range)#do sh port-security
Secure Port MaxSecureAddr CurrentAddr SecurityViolation Security Action
              (Count)          (Count)          (Count)
-----
    Fa0/1         2             0             0      Shutdown
    Fa0/2         2             0             0      Shutdown
    Fa0/3         2             0             0      Shutdown
    Fa0/4         2             0             0      Shutdown
    Fa0/5         2             0             0      Shutdown
    Fa0/6         2             0             0      Shutdown
    Fa0/7         2             0             0      Shutdown
    Fa0/8         2             0             0      Shutdown
    Fa0/9         2             0             0      Shutdown
    Fa0/10        2             0             0      Shutdown
-----

```

+ puis on configure les ports trunk et les ips address des ports:

```

Enter configuration commands, one per line.  End with CNTL/Z.
Floor1_core1(config)#interface GigabitEthernet0/1
Floor1_core1(config-if)#ip add 10.10.10.2 255.255.255.252
Floor1_core1(config-if)#ex
Floor1_core1(config)#int g0/2
Floor1_core1(config-if)#ip add 10.10.10.6 255.255.255.252
Floor1_core1(config-if)#do wr
Building configuration...
[OK]
Floor1_core1(config-if)#Floor1_core1(config-if)#
Floor1_core1(config-if)#exit
Floor1_core1(config)#interface GigabitEthernet0/1
Floor1_core1(config-if)#
Floor1_core1(config-if)#exit
Floor1_core1(config)#interface GigabitEthernet0/2
Floor1_core1(config-if)%% Bad secrets

Floor1_core1(config-if)#
Floor1_core1(config-if)#exit
Floor1_core1(config)#interface GigabitEthernet0/0
Floor1_core1(config-if)#ip address 10.10.10.29 255.255.255.252
Floor1_core1(config-if)#ip address 10.10.10.29 255.255.255.252
Floor1_core1(config-if)#
Floor1_core1(config-if)#exit
Floor1_core1(config)#interface Serial0/2/0
Floor1_core1(config-if)#ip address 10.10.10.33 255.255.255.252
Floor1_core1(config-if)#ip address 10.10.10.33 255.255.255.252
Floor1_core1(config-if)#
Floor1_core1(config-if)#exit
Floor1_core1(config)#interface Serial0/2/1
Floor1_core1(config-if)#ip address 10.10.10.17 255.255.255.252
Floor1_core1(config-if)#clock rate 64000
Floor1_core1(config-if)#ex
Floor1_core1(config)#int s0/2/0
Floor1_core1(config-if)#clock rate 64000
Floor1_core1(config-if)#
Floor1_core1(config-if)#ex
Floor1_core1(config)#
Floor1_core1(config)#do wr
Building configuration...
[OK]
Floor1_core1(config)#

```

```

floor1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
floor1(config)#int range g1/0/3-8
floor1(config-if-range)#switchport mode trunk
floor1(config-if-range)#exit
floor1(config)#do wr
Building configuration...
Compressed configuration from 7383 bytes to 3601 bytes[OK]
[OK]

```

+ puis on active le protocole OSPF pour un meilleur routage et ses networks apres avoir faire le subnetting de l'ensemble : (entre les router 10.10.10.x et dans les etages (les departements) 192.168.10-12.x)


```
Floor1_core1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Floor1_core1(config)#router ospf 10
Floor1_core1(config-router)#network 10.10.10.0 0.0.0.3 area 0
Floor1_core1(config-router)#network 10.10.10.4 0.0.0.3 area 0
Floor1_core1(config-router)#network 10.10.10.16 0.0.0.3 area 0
Floor1_core1(config-router)#network 10.10.10.28 0.0.0.3 area 0
Floor1_core1(config-router)#network 10.10.10.32 0.0.0.3 area 0
Floor1_core1(config-router)#ex
Floor1_core1(config)#do wr
Building configuration...
[OK]
Floor1_core1(config)#
```

```
floor3(config-router)#ex
floor3(config)#ip routing
floor3(config)#router ospf 10
floor3(config-router)#network 10.10.10.42 0.0.0.3 area 0
floor3(config-router)#network 10.10.10.40 0.0.0.3 area 0
floor3(config-router)#
floor3(config-router)#network 192.168.11.128 0.0.0.63 area 0
floor3(config-router)#network 192.168.11.192 0.0.0.63 area 0
floor3(config-router)#network 192.168.12.0 0.0.0.63 area 0
floor3(config-router)#network 192.168.12.64 0.0.0.63 area 0
floor3(config-router)#network 192.168.12.128 0.0.0.63 area 0
floor3(config-router)#network 192.168.12.192 0.0.0.63 area 0
floor3(config-router)#do wr
Building configuration...
Compressed configuration from 7383 bytes to 3601 bytes[OK]
[OK]
floor3(config-router)#
07:15:14: %OSPF-5-ADJCHG: Process 10, Nbr 10.10.10.50 on GigabitEthernet1/0/1 from LOADING to FULL,
Loading Done
```



```

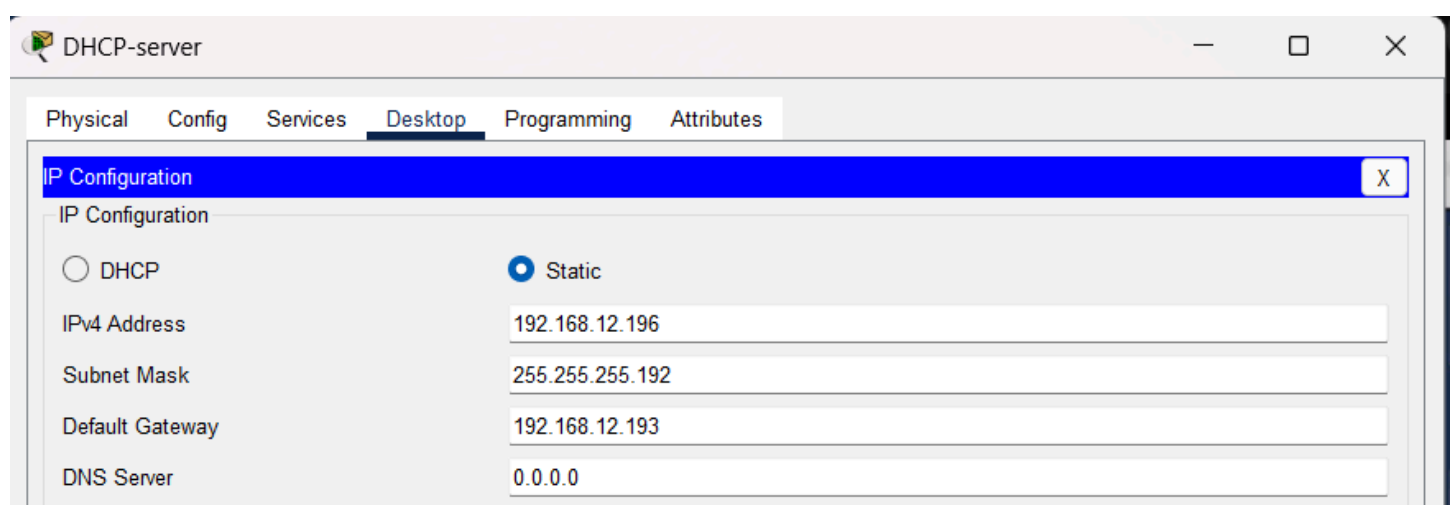
Password:
floor4_core4>enable
Password:
Password:
floor4_core4#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
floor4_core4(config)#interface GigabitEthernet0/0
floor4_core4(config-if)#ex
floor4_core4(config)#router ospf 10
floor4_core4(config-router)#network 10.10.10.24 0.0.0.3 area 0
floor4_core4(config-router)#
07:01:19: %OSPF-5-ADJCHG: Process 10, Nbr 10.10.10.25 on Serial0/2/0 from LOADING to FULL, Loading
Done

floor4_core4(config-router)#network 10.10.10.28 0.0.0.3 area 0
floor4_core4(config-router)#network 10.10.10.24 0.0.0.3 area 0
07:01:44: %OSPF-5-ADJCHG: Process 10, Nbr 10.10.10.33 on GigabitEthernet0/0 from LOADING to FULL,
Loading Done

floor4_core4(config-router)#network 10.10.10.36 0.0.0.3 area 0
floor4_core4(config-router)#network 10.10.10.24 0.0.0.3 area 0
07:02:06: %OSPF-5-ADJCHG: Process 10, Nbr 10.10.10.50 on Serial0/2/1 from LOADING to FULL, Loading
Don
% Incomplete command.
floor4_core4(config-router)#network 10.10.10.44 0.0.0.3 area 0
floor4_core4(config-router)#network 10.10.10.52 0.0.0.3 area 0
floor4_core4(config-router)#
floor4_core4(config-router)#
floor4_core4(config-router)#
floor4_core4(config-router)#
floor4_core4(config-router)#
floor4_core4(config-router)#
floor4_core4(config-router)#
floor4_core4(config-router)#
floor4_core4(config-router)#ex
floor4_core4(config)#do wr
Building configuration...
[OK]
floor4_core4(config)#

```

+ puis on a donné statiquement les ip @ aux serveurs puis activer le DHCP dans les 2 serveurs .



DHCP-server

Physical

Config

Services

Desktop

Programming

Attributes

SERVICES

HTTP

DHCP

DHCPv6

TFTP

DNS

SYSLOG

AAA

NTP

EMAIL

FTP

IoT

VM Management

Radius EAP

DHCP

Interface

FastEthernet0

Service

On

Off

Pool Name

serverPool

Default Gateway

0.0.0.0

DNS Server

0.0.0.0

Start IP Address :

192

168

12

192

Subnet Mask:

255

255

255

192

Maximum Number of Users :

64

TFTP Server:

0.0.0.0

WLC Address:

0.0.0.0

Add

Save

Remove

| Pool Name | Default Gateway | DNS Server | Start IP Address | Subnet Mask | Max User | TFTP Server | WLC Address |
|----------------|-----------------|----------------|------------------|----------------|----------|-------------|-------------|
| MGT-Pool | 192.168.10.1 | 192.168.12.... | 192.168.10.7 | 255.255.255... | 57 | 0.0.0.0 | 0.0.0.0 |
| Res-Pool | 192.168.10.65 | 192.168.12.... | 192.168.10.70 | 255.255.255... | 57 | 0.0.0.0 | 0.0.0.0 |
| HR-Pool | 192.168.10.... | 192.168.12.... | 192.168.10.... | 255.255.255... | 57 | 0.0.0.0 | 0.0.0.0 |
| Marketing-Pool | 192.168.10.... | 192.168.12.... | 192.168.10.... | 255.255.255... | 57 | 0.0.0.0 | 0.0.0.0 |
| Finance-Pool | 192.168.11.65 | 192.168.12.... | 192.168.11.70 | 255.255.255... | 57 | 0.0.0.0 | 0.0.0.0 |
| Accounts-Pool | 192.168.11.1 | 192.168.12.... | 192.168.11.5 | 255.255.255... | 57 | 0.0.0.0 | 0.0.0.0 |
| LOG-Pool | 192.168.11.... | 192.168.12.... | 192.168.11.... | 255.255.255... | 57 | 0.0.0.0 | 0.0.0.0 |
| customer-Pool | 192.168.11.... | 192.168.12.... | 192.168.11.... | 255.255.255... | 57 | 0.0.0.0 | 0.0.0.0 |
| Guest-Pool | 192.168.12.1 | 192.168.12.... | 192.168.12.5 | 255.255.255... | 57 | 0.0.0.0 | 0.0.0.0 |
| Admin-Pool | 192.168.12.65 | 192.168.12.... | 192.168.12.70 | 255.255.255... | 57 | 0.0.0.0 | 0.0.0.0 |
| ICT-Pool | 192.168.12.... | 192.168.12.... | 192.168.12.... | 255.255.255... | 57 | 0.0.0.0 | 0.0.0.0 |
| serverPool | 0.0.0.0 | 0.0.0.0 | 192.168.12.... | 255.255.255... | 64 | 0.0.0.0 | 0.0.0.0 |

comme il est montré dans la photo il ya aux total 11 pools dans le DHCP et pour qu'il travaille on a fait le inter-VLAN et lui donné l'address du ip helper(DNCP serveur)

```
floor2(config)#
floor2(config)#int vlan 10
floor2(config-if)#no shut
floor2(config-if)#ip add 192.168.10.1 255.255.255.192
floor2(config-if)#ip helper-address 192.168.12.196
floor2(config-if)#ex
floor2(config)#
floor2(config)#int vlan 20
floor2(config-if)#no shut
floor2(config-if)#ip add 192.168.10.65 255.255.255.192
floor2(config-if)#ip helper-address 192.168.12.196
floor2(config-if)#ex
floor2(config)#int vlan 30
floor2(config-if)#no shut
floor2(config-if)#ip add 192.168.10.129 255.255.255.192
floor2(config-if)#ip helper-address 192.168.12.196
floor2(config-if)#ex
floor2(config)#
floor2(config)#int vlan 40
floor2(config-if)#no shut
floor2(config-if)#ip add 192.168.10.193 255.255.255.192
floor2(config-if)#ip helper-address 192.168.12.196
floor2(config-if)#ex
floor2(config)#
floor2(config)#int vlan 50
floor2(config-if)#no shut
floor2(config-if)#ip add 192.168.11.1 255.255.255.192
floor2(config-if)#ip helper-address 192.168.12.196
floor2(config-if)#ex
floor2(config)#int vlan 60
floor2(config-if)#no shut
floor2(config-if)#ip add 192.168.11.65 255.255.255.192
floor2(config-if)#ip helper-address 192.168.12.196
floor2(config-if)#ex
floor2(config)#
floor2(config)#do wr
Building configuration...
Compressed configuration from 7383 bytes to 3601 bytes[OK]
[OK]
```

```
floor4(config)#vlan 70
floor4(config-vlan)#vlan 80
floor4(config-vlan)#vlan 90
floor4(config-vlan)#vlan 100
floor4(config-vlan)#vlan 110
floor4(config-vlan)#vlan 120
floor4(config-vlan)#
floor4(config-vlan)#int vlan 70
floor4(config-if)#no shut
floor4(config-if)#ip add 192.168.11.129 255.255.255.192
floor4(config-if)#ip helper-address 192.168.12.196
floor4(config-if)#ex
floor4(config)#
floor4(config)#int vlan 80
floor4(config-if)#no shut
floor4(config-if)#ip add 192.168.11.193 255.255.255.192
floor4(config-if)#ip helper-address 192.168.12.196
floor4(config-if)#ex
floor4(config)#int vlan 90
floor4(config-if)#no shut
floor4(config-if)#ip add 192.168.12.1 255.255.255.192
floor4(config-if)#ip helper-address 192.168.12.196
floor4(config-if)#ex
floor4(config)#
floor4(config)#int vlan 100
floor4(config-if)#no shut
floor4(config-if)#ip add 192.168.12.65 255.255.255.192
floor4(config-if)#ip helper-address 192.168.12.196
floor4(config-if)#ex
floor4(config)#
floor4(config)#int vlan 110
floor4(config-if)#no shut
floor4(config-if)#ip add 192.168.12.129 255.255.255.192
floor4(config-if)#ip helper-address 192.168.12.196
floor4(config-if)#ex
floor4(config)#int vlan 120
floor4(config-if)#no shut
floor4(config-if)#ip add 192.168.12.193 255.255.255.192
floor4(config-if)#ex
floor4(config)#
floor4(config)#do wr
%LINK-5-CHANGED: Interface Vlan70, changed state to up
```

et la photo suivante montre que le DHCP travaille parfaitement.

PC9-vlan80

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☒ DHCP ☐ Static

IPv4 Address 192.168.11.197

Subnet Mask 255.255.255.192

Default Gateway 192.168.11.193

DNS Server 192.168.12.199

IPv6 Configuration

☐ Automatic ☒ Static

+ on passe maintenant aux “wireless conection” pour cela on a utiliser les access points .

Access Point10-vlan20

Physical **Config** Attributes

GLOBAL

Settings

INTERFACE

Port 0

Port 1

Port 1

Port Status ☒ On

SSID RSW-WIFI

2.4 GHz Channel 6

Coverage Range (meters) 140,00

Authentication

☐ Disabled ☐ WEP ☒ WPA2-PSK

WEP Key

PSK Pass Phrase kawtar@1234

User ID

Password

Encryption Type AES

WPA2-Personal Needed for Connection

This wireless network has WPA2-Personal enabled. To connect to this network, enter the required passphrase in the appropriate field below. Then click the **Connect** button.

Security WPA2-Personal ▾

Please select the wireless security method used by your existing wireless network.

Pre-shared Key finance@10|

Please enter a Pre-shared Key that is 8 to 63 characters in length.

Cancel

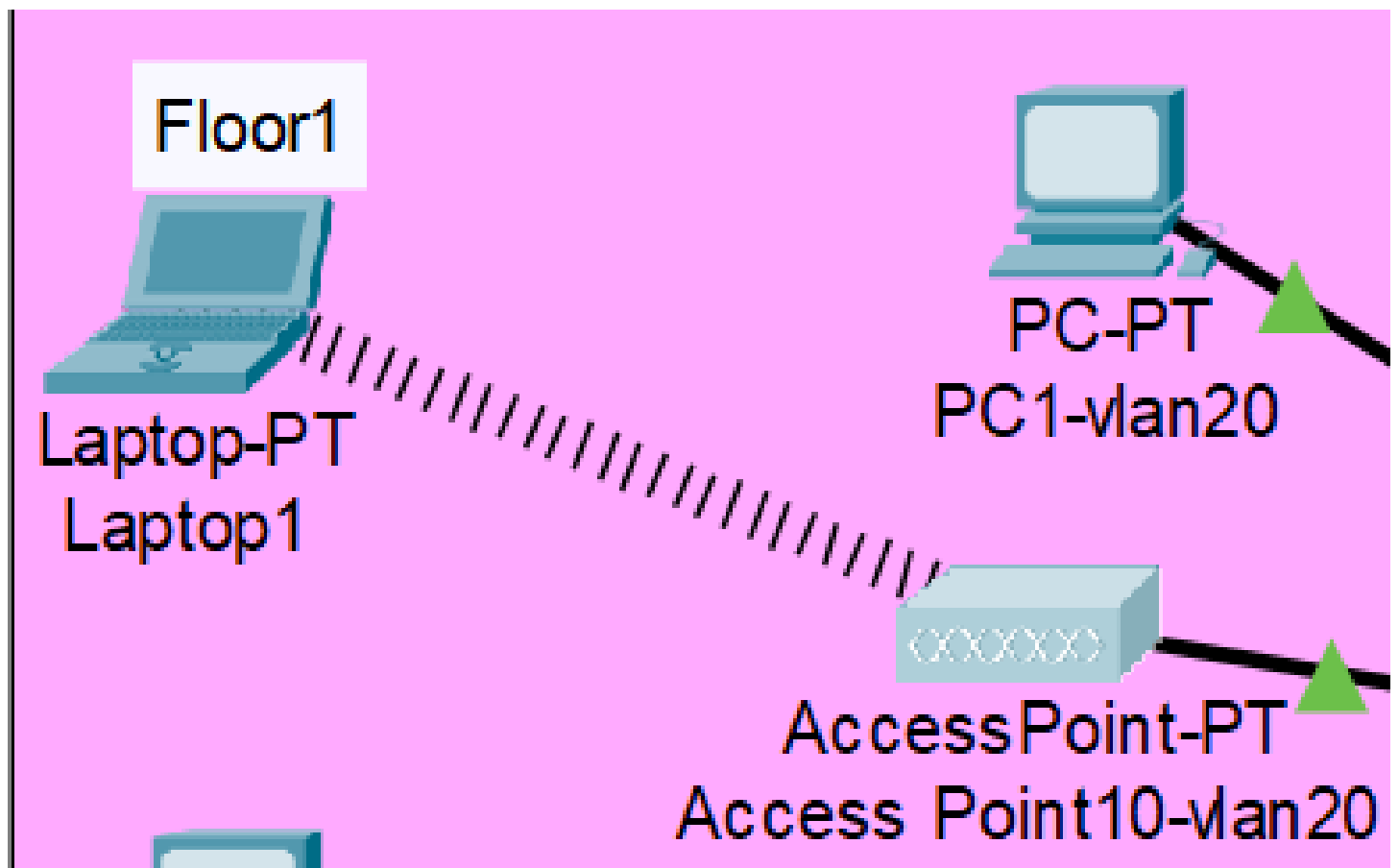
Connect

Active

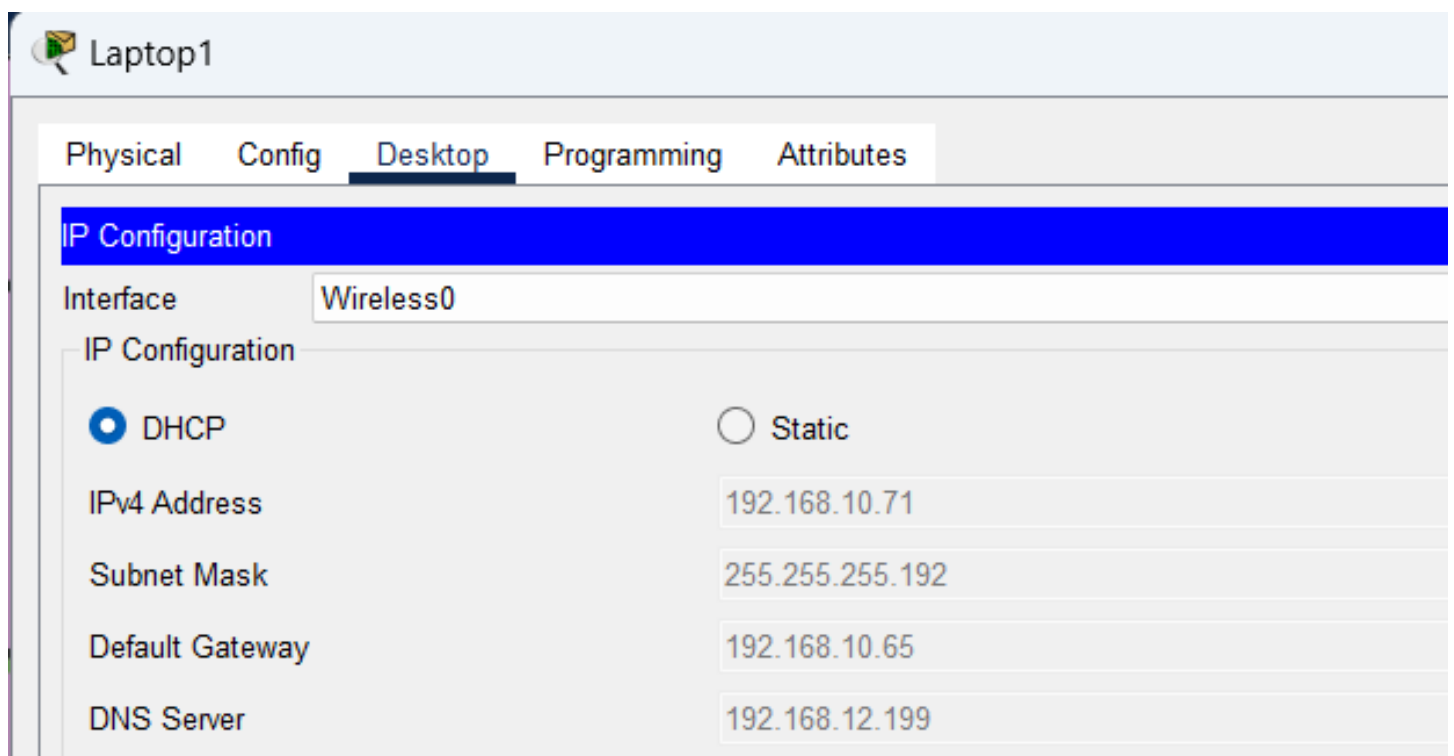
Wireless-N Notebook Adapter

Wireless Network Monitor v1.0

Model No. **WPC300N**



et pour s'assurer que la connexion est bien établie ;



Command Prompt

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.11.71

Pinging 192.168.11.71 with 32 bytes of data:

Request timed out.
Reply from 192.168.11.71: bytes=32 time=33ms TTL=124
Reply from 192.168.11.71: bytes=32 time=22ms TTL=124
Reply from 192.168.11.71: bytes=32 time=14ms TTL=124

Ping statistics for 192.168.11.71:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 14ms, Maximum = 33ms, Average = 23ms

C:\>
```

Command Prompt

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.11.71

Pinging 192.168.11.71 with 32 bytes of data:

Reply from 192.168.11.71: bytes=32 time=40ms TTL=127
Reply from 192.168.11.71: bytes=32 time=8ms TTL=127
Reply from 192.168.11.71: bytes=32 time=15ms TTL=127
Reply from 192.168.11.71: bytes=32 time=31ms TTL=127

Ping statistics for 192.168.11.71:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 8ms, Maximum = 40ms, Average = 23ms

C:\>
```

et Tada , le DHCP et le ping travaille {ce ping on a le fait d'un étage différent et dans le même étage} c'est tous pour la bank maintenant on passe aux lot .

