

Infrastructure Multi Sites

ATELIER U6 SISR

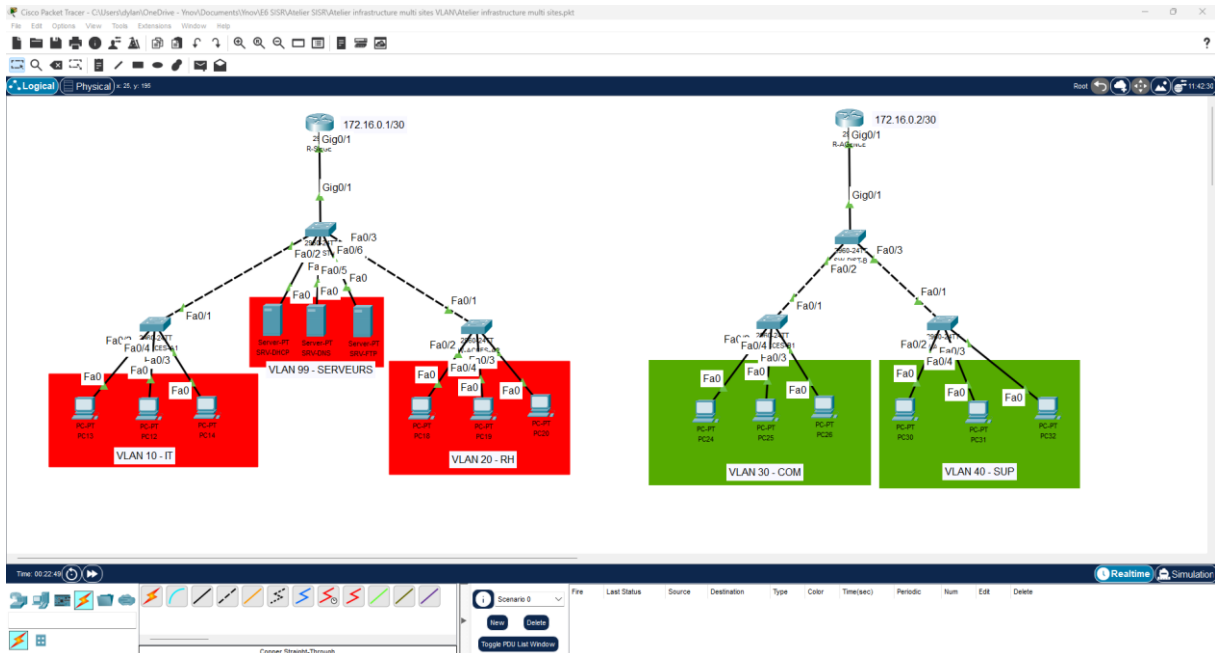
SPINELLI Dylan
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Table des matières

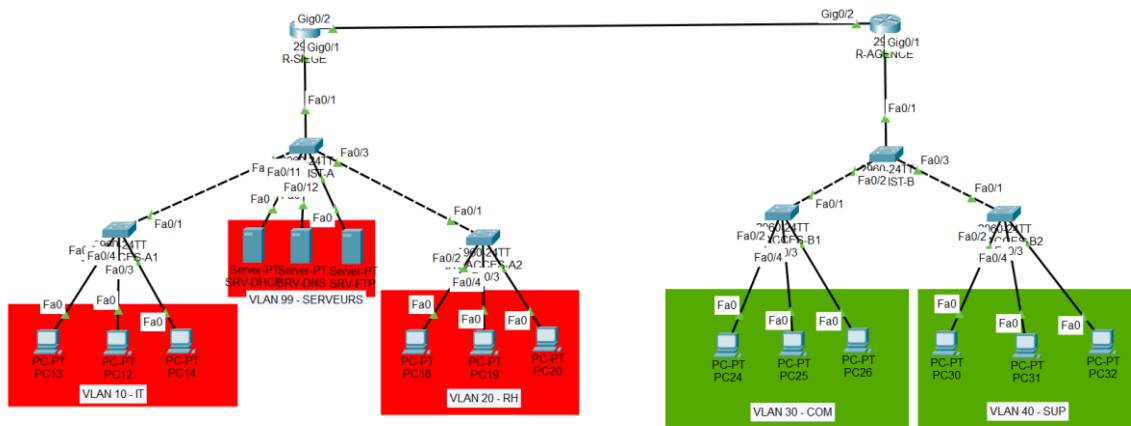
1-	Introduction	2
2-	Plan d'adressage VLSM	3
	2.1 Tableau d'adressage	3
	2.2 Tableau des interfaces routeurs	4
3-	Configuration des VLANs et switches	5
	3.1 Création des VLANs.....	5
	3.2 Configuration des ports	7
4-	Routage inter-VLAN et routage statique	9
	4.1 Routage inter-VLAN (Router on a Stick).....	9
	4.2 Routage statique	10
5-	Service DHCP	12
	5.1 Configuration du serveur DHCP	12
	5.2 DHCP Relay Agent	12
6-	Services DNS et FTP	15
	6.1 Serveur DNS	15
	6.2 Serveur FTP	15
7-	Administration SSH.....	17
	7.1 Checklist de configuration SSH	17

1-Introduction

On réalise la maquette suivante dans Cisco :



En pratique, les deux sites peuvent communiquer entre eux grâce à un VPN. Dans cet exercice, nous allons relier les deux réseaux entre eux avec un câble car le VPN n'a pas encore été abordé lors de notre formation :



2-Plan d'adressage VLSM

2.1 Tableau d'adressage

L'entreprise dispose du bloc IP : 172.16.0.0/16

On cherche à remplir le plan d'adressage suivant :

Réseau / VLAN	Hôtes requis	Adresse réseau	Masque CIDR	Plage utilisable	Passerelle
VLAN 10 – IT (A)	20 postes	172.16.0.0	/27	172.16.0.1 - 172.16.0.30	172.16.0.30
VLAN 20 – RH (A)	15 postes	172.16.0.32	/27	172.16.0.33 – 172.16.0.62	172.16.0.62
VLAN 30 – COM (B)	15 postes	172.16.0.64	/27	172.16.0.65 – 172.16.0.94	172.16.0.94
VLAN 40 – SUP (B)	10 postes	172.16.0.96	/28	172.16.0.97 – 172.16.0.110	172.16.0.110
VLAN 99 – SRV (A)	10 serveurs	172.16.0.112	/28	172.16.0.113 – 172.16.0.126	172.16.0.126
Lien inter-sites	2 interfaces	172.16.0.128	/30	172.16.0.129 – 172.16.0.130	N/A

/27 : 255.255.255.224

/28 : 255.255.255.240

On cherche le masque minimum pour un réseau de 20 hôtes :

$$2^n - 2 > 20$$

$$2^4 - 2 = 16 - 2 = 14$$

$$2^5 - 2 = 32 - 2 = 30$$

Il nous faut donc 5 bits pour avoir 30 adresses utilisables sur le réseau

$$32 - 5 = /27$$

Le masque sera donc un /27

Pour le lien inter-sites, on peut utiliser un /30 car cela signifie qu'il y aura 2 bits réservés pour la partie machine et $2^2 - 2 = 2$ adresses utilisables

Avec 2 bits, il y aura 2 adresses utilisables ce qui est suffisant car nous avons que 2 sites.

2.2 Tableau des interfaces routeurs

Suite au tableau d'adressage, on peut en déduire le plan d'adressage des routeurs :

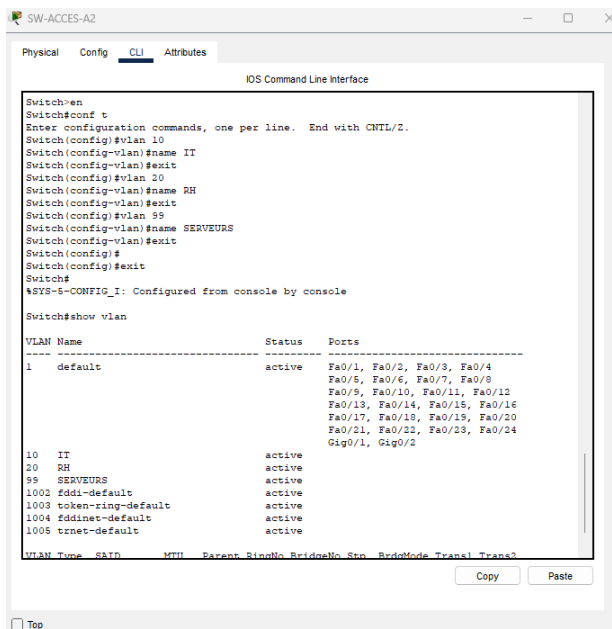
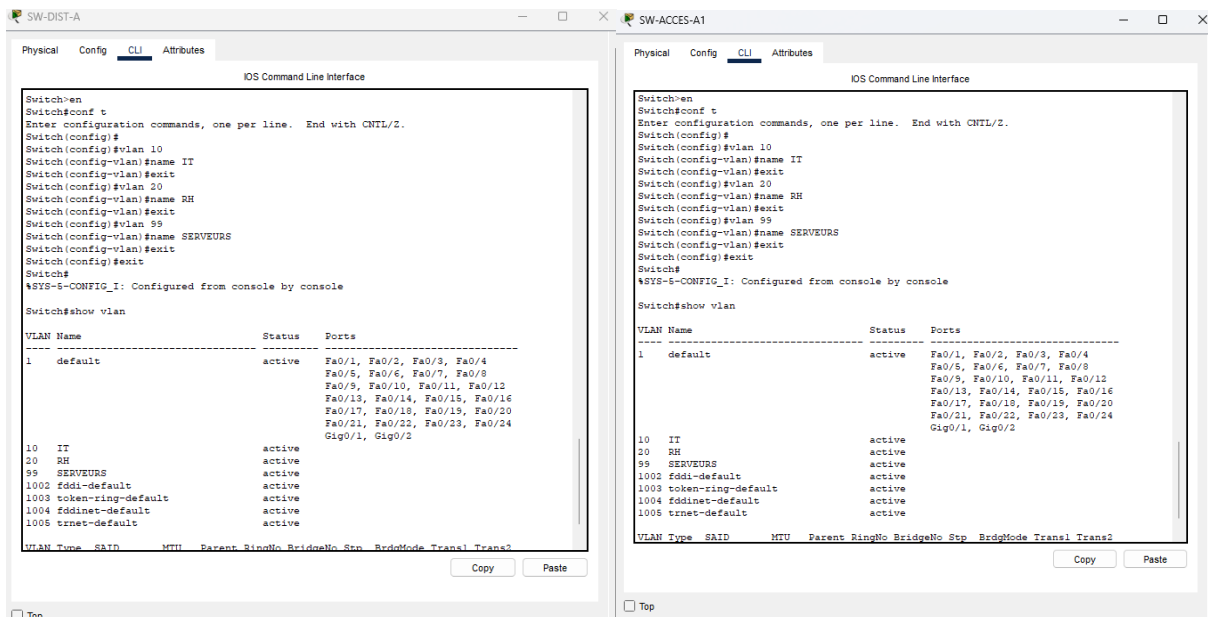
Equipement	Interface	VLAN / Rôle	Adresse IP	Description
R-SIEGE	G0/0.10	VLAN 10 - IT	172.16.0.30	Sous-Interface
R-SIEGE	G0/0.20	VLAN 20 - RH	172.16.0.62	Sous-Interface
R-AGENCE	G0/0.30	VLAN 30 – COM	172.16.0.94	Sous-Interface
R-AGENCE	G0/0.40	VLAN 40 – SUP	172.16.0.110	Sous-Interface
R-SIEGE	G0/0.99	VLAN 99 – SRV	172.16.0.126	Sous-Interface
R-SIEGE	G0/1	Lien inter-sites	172.16.0.129	
R-AGENCE	G0/1	Lien inter-sites	172.16.0.130	

3-Configuration des VLANs et switches

3.1 Création des VLANs

Nous allons désormais créer les VLANs sur chaque switch de distribution et d'accès

On commence par créer les VLANs 10,20,99 sur les switches du réseau SIEGE (A) :



On crée ensuite tous les VLANs 30,40 pour le réseau AGENCE (B) :

The first two screenshots show the configuration and status of VLANs on switches SW-DIST-B and SW-ACCES-B1. Both switches have been configured with the same set of VLANs: 1 (default), 30 (COMMERCIAL), 40 (SUPPORT), and several default protocols (1002, 1003, 1004, 1005). The status of all VLANs is 'active'.

SW-DIST-B - show vlan

VLAN Name	Status	Ports
1 default	active	Fa0/1, Fa0/2, Fa0/3, Fa0/4 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 Gig0/1, Gig0/2
30 COMMERCIAL	active	
40 SUPPORT	active	
1002 fddi-default	active	
1003 token-ring-default	active	
1004 fddinet-default	active	
1005 trnet-default	active	

SW-ACCES-B1 - show vlan

VLAN Name	Status	Ports
1 default	active	Fa0/1, Fa0/2, Fa0/3, Fa0/4 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 Gig0/1, Gig0/2
30 COMMERCIAL	active	
40 SUPPORT	active	
1002 fddi-default	active	
1003 token-ring-default	active	
1004 fddinet-default	active	
1005 trnet-default	active	

The third screenshot shows the configuration and status of VLANs on switch SW-ACCES-B2. The configuration is identical to the previous switches, with VLANs 1, 30, 40, and default protocols. The status of all VLANs is 'active'.

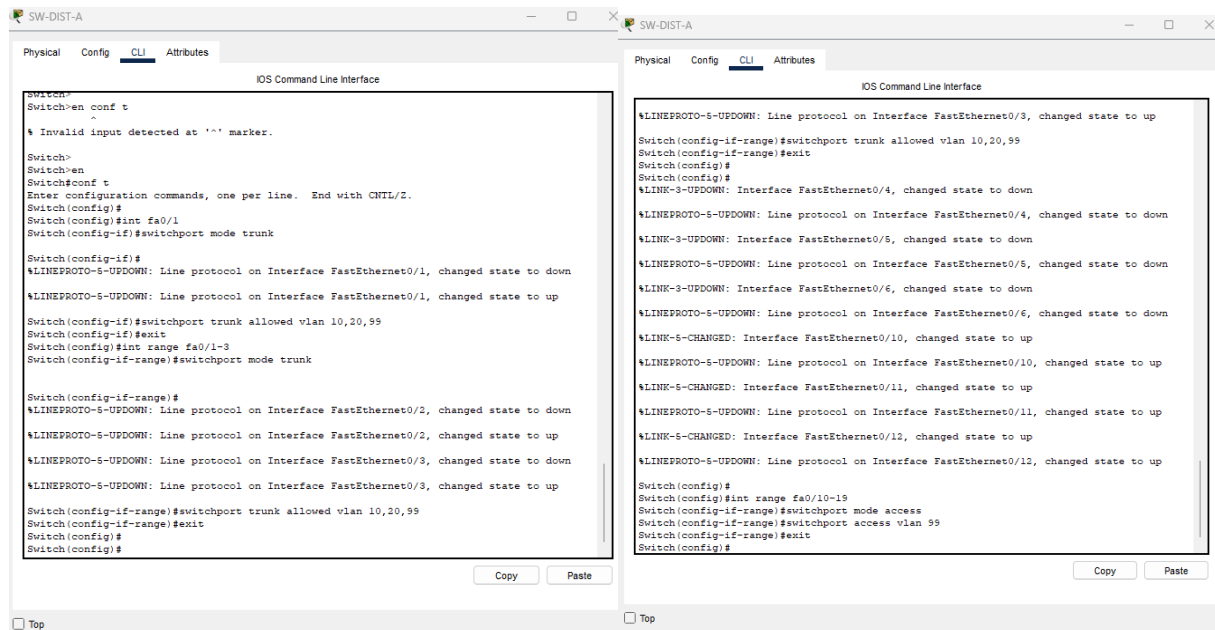
SW-ACCES-B2 - show vlan

VLAN Name	Status	Ports
1 default	active	Fa0/1, Fa0/2, Fa0/3, Fa0/4 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 Gig0/1, Gig0/2
30 COMMERCIAL	active	
40 SUPPORT	active	
1002 fddi-default	active	
1003 token-ring-default	active	
1004 fddinet-default	active	
1005 trnet-default	active	

3.2 Configuration des ports

On configure désormais les ports sur chaque switch :

Réseau SIEGE :

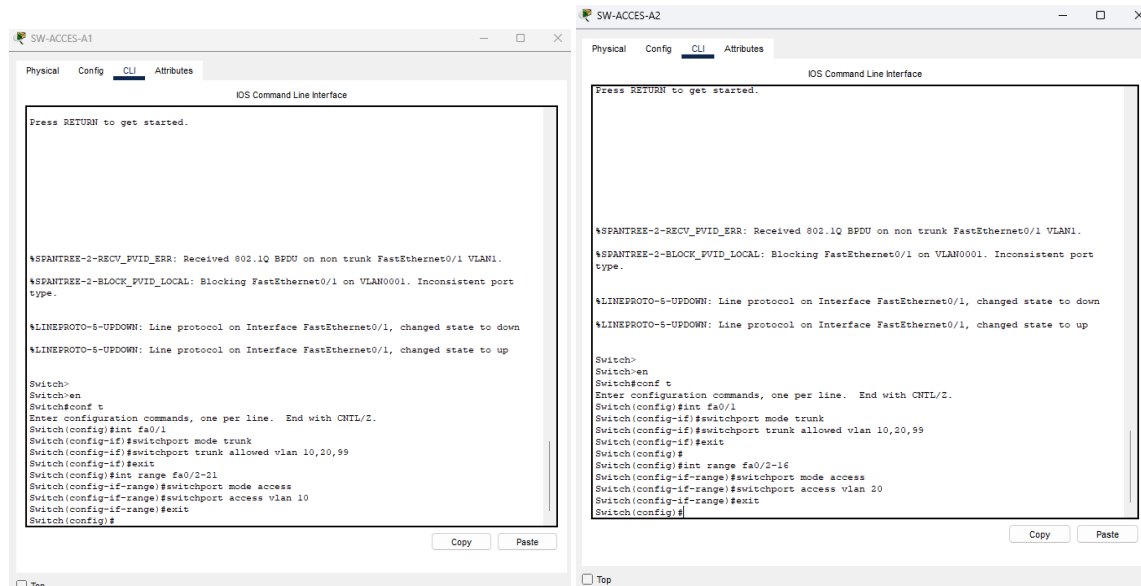


```
SW-DIST-A
Physical Config CLI Attributes
IOS Command Line Interface

Switch>
Switch>en conf t
% Invalid input detected at '^' marker.
Switch>
Switch>en
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#
Switch(config)#int fa0/1
Switch(config-if)#switchport mode trunk
Switch(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
Switch(config-if)#switchport trunk allowed vlan 10,20,99
Switch(config-if)#exit
Switch(config)#int range fa0/1-3
Switch(config-if-range)#switchport mode trunk
Switch(config-if-range)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state to up
Switch(config-if-range)#switchport trunk allowed vlan 10,20,99
Switch(config-if-range)#exit
Switch(config)#
Switch(config)#

SW-DIST-A
Physical Config CLI Attributes
IOS Command Line Interface

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state to up
Switch(config-if-range)#switchport trunk allowed vlan 10,20,99
Switch(config-if-range)#exit
Switch(config)#
%LINK-3-UPDOWN: Interface FastEthernet0/4, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/4, changed state to down
%LINK-3-UPDOWN: Interface FastEthernet0/5, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/5, changed state to down
%LINK-3-UPDOWN: Interface FastEthernet0/6, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/6, changed state to down
%LINK-5-CHANGED: Interface FastEthernet0/10, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/10, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/11, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/11, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/12, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/12, changed state to up
Switch(config)#
Switch(config)#int range fa0/10-19
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 99
Switch(config-if-range)#exit
Switch(config)#
```



```
SW-ACCES-A1
Physical Config CLI Attributes
IOS Command Line Interface

Press RETURN to get started.

%SPANTREE-2-RECV_PVID_ERR: Received 802.1Q BPDU on non trunk FastEthernet0/1 VLAN1.
%SPANTREE-2-BLOCK_PVID_LOCAL: Blocking FastEthernet0/1 on VLAN0001. Inconsistent port type.
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
Switch>
Switch>en
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#int fa0/1
Switch(config-if)#switchport mode trunk
Switch(config-if)#switchport trunk allowed vlan 10,20,99
Switch(config-if)#exit
Switch(config)#int range fa0/2-21
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 10
Switch(config-if-range)#exit
Switch(config)#

SW-ACCES-A2
Physical Config CLI Attributes
IOS Command Line Interface

Press RETURN to get started.

%SPANTREE-2-RECV_PVID_ERR: Received 802.1Q BPDU on non trunk FastEthernet0/1 VLAN1.
%SPANTREE-2-BLOCK_PVID_LOCAL: Blocking FastEthernet0/1 on VLAN0001. Inconsistent port type.
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
Switch>
Switch>en
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#int fa0/1
Switch(config-if)#switchport mode trunk
Switch(config-if)#switchport trunk allowed vlan 10,20,99
Switch(config-if)#exit
Switch(config)#
Switch(config)#int range fa0/2-16
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 20
Switch(config-if-range)#exit
Switch(config)#
```

Réseau AGENCE :

The image shows two screenshots of network switch CLI configurations. The left screenshot is for SW-DIST-8 and the right is for SW-ACCES-B1. Both show the configuration of interfaces Fa0/1, Fa0/2, and Fa0/3, including setting them to trunk mode and allowing VLANs 30 and 40. The SW-ACCES-B1 configuration also includes a configuration for Fa0/2-16 as an access port for VLAN 40.

```
SW-DIST-8:
Switch#
Switch#en
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#int fa 0/1
Switch(config-if)#switchport mode trunk

Switch(config-if)#
Switch(config-if)#switchport trunk allowed vlan 30,40
Switch(config-if)#exit
Switch(config)#int range fa0/1-3
Switch(config-if-range)#switchport mode trunk

Switch(config-if-range)#
Switch(config-if-range)#switchport trunk allowed vlan 30,40
Switch(config-if-range)#exit
Switch(config)#

SW-ACCES-B1:
Switch#
Switch#en
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#int fa 0/1
Switch(config-if)#switchport mode trunk
Switch(config-if)#switchport trunk allowed vlan 30?
WORD
Switch(config-if)#switchport trunk allowed vlan 30,40
Switch(config-if)#exit
Switch(config)#int range fa0/2-16
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 30
Switch(config-if-range)#exit
Switch(config)#
```

The image shows a screenshot of network switch CLI configuration for SW-ACCES-B2. It shows the configuration of interfaces Fa0/1, Fa0/2-11, and Fa0/2-16, including setting them to trunk mode and allowing VLANs 30 and 40. The SW-ACCES-B2 configuration also includes a configuration for Fa0/2-16 as an access port for VLAN 40.

```
SW-ACCES-B2:
Switch#
Switch#en
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#int fa 0/1
Switch(config-if)#switchport mode trunk
Switch(config-if)#switchport trunk allowed vlan 30,40
Switch(config-if)#exit
Switch(config)#
Switch(config)#int range fa0/2-11
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 40
Switch(config-if-range)#exit
Switch(config-if-range)#exit
Switch(config)#
```

Les liens entre switches et routeurs doivent être configurées en mode trunk afin d'assurer la communication entre les VLANs.

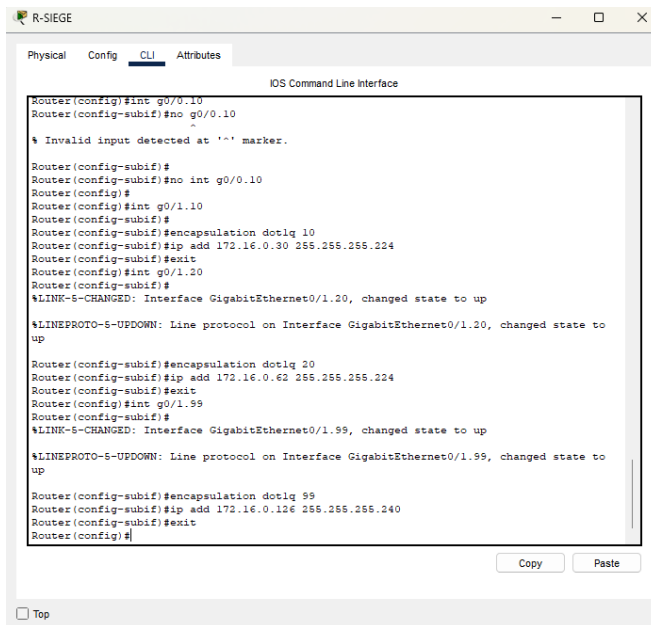
Si on oublie d'autoriser un VLAN sur un trunk, alors ce VLAN ne pourra pas communiquer avec le réseau.

4-Routage inter-VLAN et routage statique

4.1 Routage inter-VLAN (Router on a Stick)

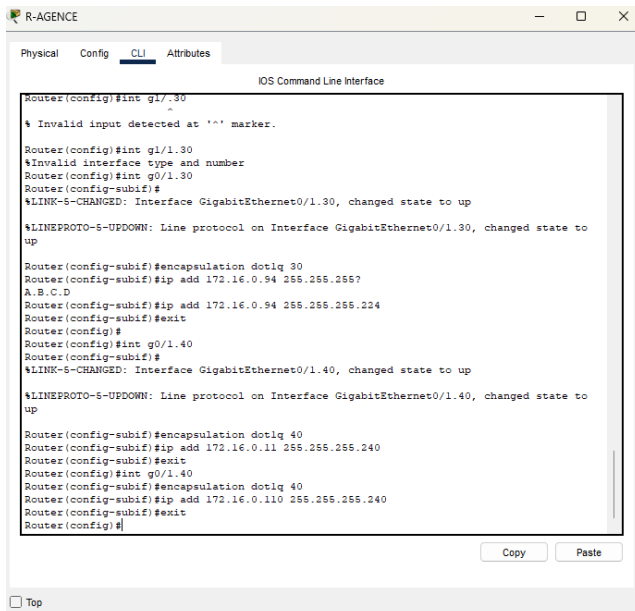
On configure désormais les interfaces (passerelles) pour chaque VLAN sur les deux routeurs :

R-SIEGE :



```
Router(config)#int g0/0.10
Router(config-subif)#no g0/0.10
^
% Invalid input detected at '^' marker.
Router(config-subif)#
Router(config-subif)#no int g0/0.10
Router(config)#
Router(config)#int g0/1.10
Router(config-subif)#
Router(config-subif)#encapsulation dot1q 10
Router(config-subif)#ip add 172.16.0.30 255.255.255.224
Router(config-subif)#exit
Router(config)#int g0/1.20
Router(config-subif)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1.20, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1.20, changed state to up
Router(config-subif)#encapsulation dot1q 20
Router(config-subif)#ip add 172.16.0.62 255.255.255.224
Router(config-subif)#exit
Router(config)#int g0/1.99
Router(config-subif)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1.99, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1.99, changed state to up
Router(config-subif)#encapsulation dot1q 99
Router(config-subif)#ip add 172.16.0.126 255.255.255.240
Router(config-subif)#exit
Router(config)#
```

R-AGENCE :

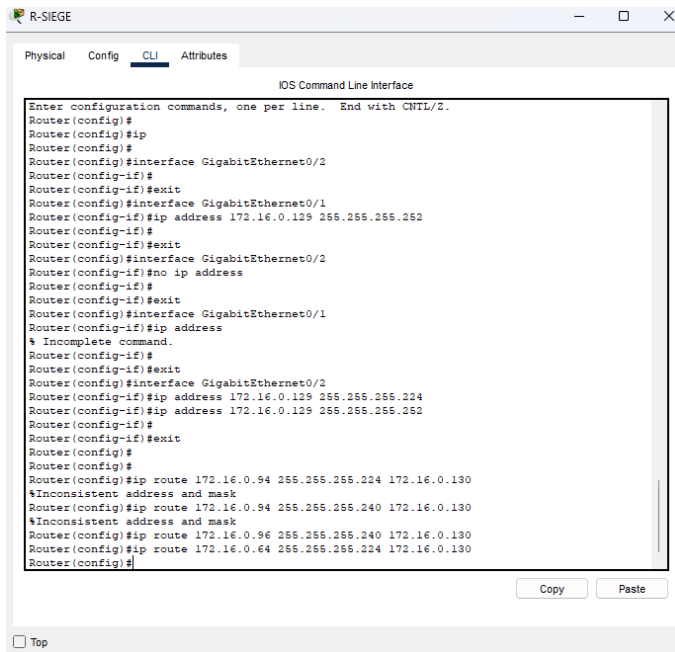


```
Router(config)#int g1/.30
^
% Invalid input detected at '^' marker.
Router(config)#int g1/1.30
%Invalid interface type and number
Router(config)#int g0/1.30
Router(config-subif)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1.30, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1.30, changed state to up
Router(config-subif)#encapsulation dot1q 30
Router(config-subif)#ip add 172.16.0.94 255.255.255.255?
A.B.C.D
Router(config-subif)#ip add 172.16.0.94 255.255.255.224
Router(config-subif)#exit
Router(config)#
Router(config)#int g0/1.40
Router(config-subif)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1.40, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1.40, changed state to up
Router(config-subif)#encapsulation dot1q 40
Router(config-subif)#ip add 172.16.0.11 255.255.255.240
Router(config-subif)#exit
Router(config)#int g0/1.40
Router(config-subif)#encapsulation dot1q 40
Router(config-subif)#ip add 172.16.0.110 255.255.255.240
Router(config-subif)#exit
Router(config)#
```

4.2 Routage statique

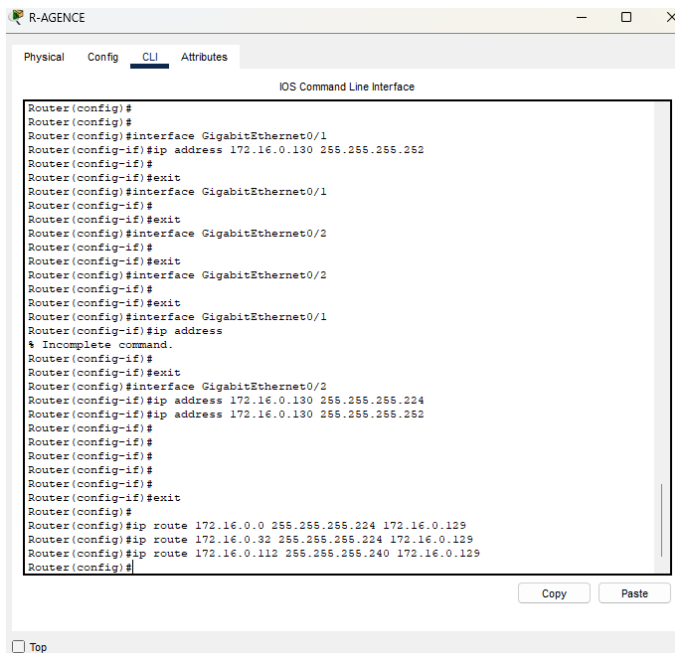
Configurons les routes statiques afin que les réseaux se rejoignent :

R-SIEGE :



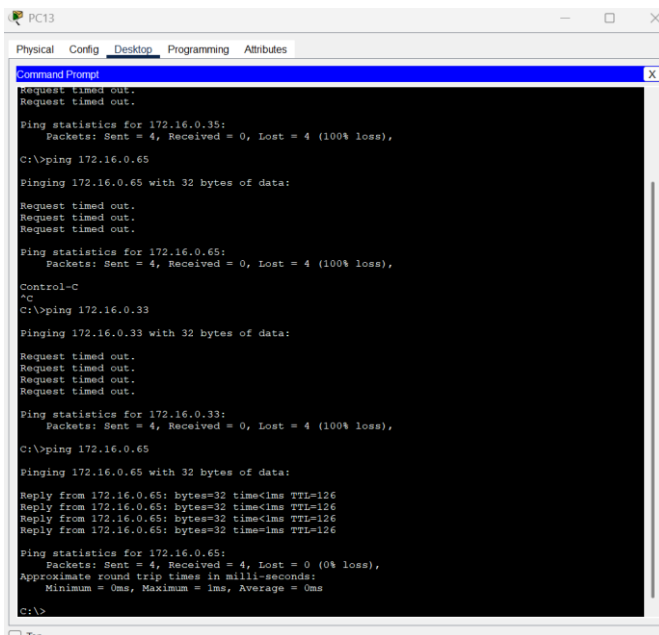
```
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#
Router(config)#ip
Router(config)#
Router(config)#interface GigabitEthernet0/2
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/1
Router(config-if)#ip address 172.16.0.129 255.255.255.252
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/2
Router(config-if)#no ip address
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/1
Router(config-if)#ip address
% Incomplete command.
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/2
Router(config-if)#ip address 172.16.0.129 255.255.255.224
Router(config-if)#ip address 172.16.0.129 255.255.255.252
Router(config-if)#
Router(config-if)#exit
Router(config)#
Router(config)#
Router(config)#ip route 172.16.0.94 255.255.255.224 172.16.0.130
%Inconsistent address and mask
Router(config)#ip route 172.16.0.94 255.255.255.240 172.16.0.130
%Inconsistent address and mask
Router(config)#ip route 172.16.0.96 255.255.255.240 172.16.0.130
Router(config)#ip route 172.16.0.64 255.255.255.224 172.16.0.130
Router(config)#
```

R-AGENCE :



```
Router(config)#
Router(config)#
Router(config)#interface GigabitEthernet0/1
Router(config-if)#ip address 172.16.0.130 255.255.255.252
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/1
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/2
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/2
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/1
Router(config-if)#ip address
% Incomplete command.
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/2
Router(config-if)#ip address 172.16.0.130 255.255.255.224
Router(config-if)#ip address 172.16.0.130 255.255.255.252
Router(config-if)#
Router(config-if)#
Router(config-if)#
Router(config-if)#
Router(config-if)#exit
Router(config)#
Router(config)#ip route 172.16.0.0 255.255.255.224 172.16.0.129
Router(config)#ip route 172.16.0.32 255.255.255.224 172.16.0.129
Router(config)#ip route 172.16.0.112 255.255.255.240 172.16.0.129
Router(config)#
```

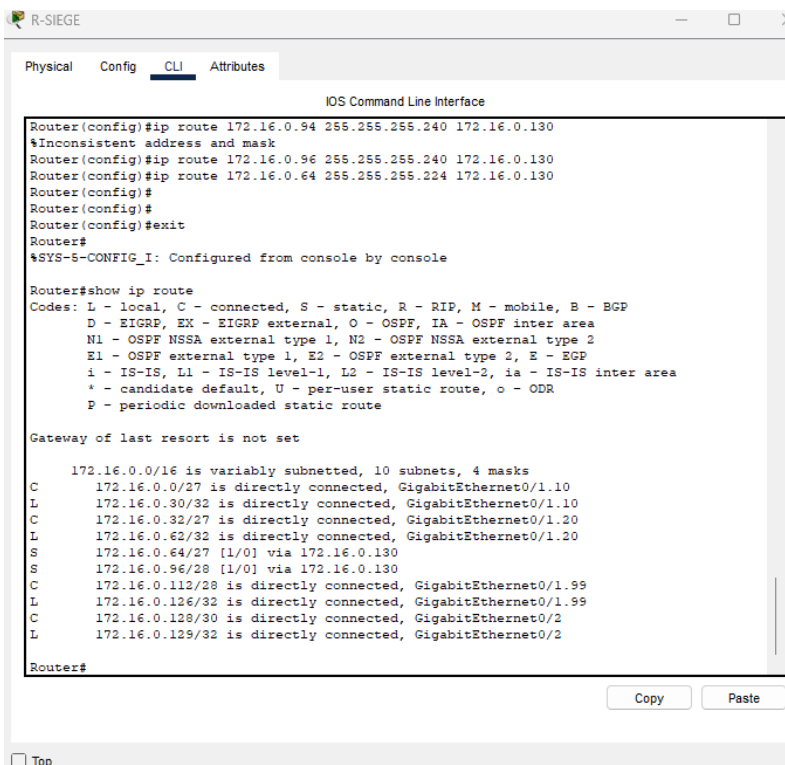
Après avoir configuré les routes statiques, on fait un test ping de VLAN 10 vers VLAN 30 :



```
PC13
Physical Config Desktop Programming Attributes
Command Prompt
Request timed out.
Request timed out.
Ping statistics for 172.16.0.33:
  Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:\>ping 172.16.0.65
Pinging 172.16.0.65 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Ping statistics for 172.16.0.65:
  Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
Control-C
^C
C:\>ping 172.16.0.33
Pinging 172.16.0.33 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Ping statistics for 172.16.0.33:
  Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:\>ping 172.16.0.65
Pinging 172.16.0.65 with 32 bytes of data:
Reply from 172.16.0.65: bytes=32 time<1ms TTL=126
Reply from 172.16.0.65: bytes=32 time<1ms TTL=126
Reply from 172.16.0.65: bytes=32 time<1ms TTL=126
Reply from 172.16.0.65: bytes=32 time<1ms TTL=126
Ping statistics for 172.16.0.65:
  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
  Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
C:\>
```

Les VLANs peuvent désormais communiquer entre eux

Table de routage de R-SIEGE :



```
R-SIEGE
Physical Config CLI Attributes
IOS Command Line Interface
Router(config)#ip route 172.16.0.94 255.255.255.240 172.16.0.130
%Inconsistent address and mask
Router(config)#ip route 172.16.0.96 255.255.255.240 172.16.0.130
Router(config)#ip route 172.16.0.64 255.255.255.224 172.16.0.130
Router(config)#
Router(config)#
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - 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

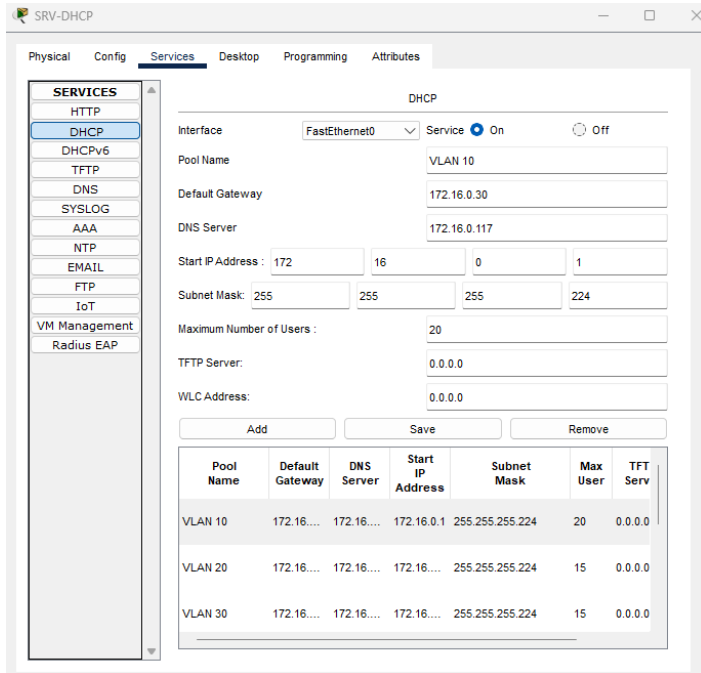
Gateway of last resort is not set

172.16.0.0/16 is variably subnetted, 10 subnets, 4 masks
C       172.16.0.0/27 is directly connected, GigabitEthernet0/1.10
L       172.16.0.30/32 is directly connected, GigabitEthernet0/1.10
C       172.16.0.32/27 is directly connected, GigabitEthernet0/1.20
L       172.16.0.62/32 is directly connected, GigabitEthernet0/1.20
S       172.16.0.64/27 [1/0] via 172.16.0.130
S       172.16.0.96/28 [1/0] via 172.16.0.130
C       172.16.0.112/28 is directly connected, GigabitEthernet0/1.99
L       172.16.0.126/32 is directly connected, GigabitEthernet0/1.99
C       172.16.0.128/30 is directly connected, GigabitEthernet0/2
L       172.16.0.129/32 is directly connected, GigabitEthernet0/2
Router#
```

5-Service DHCP

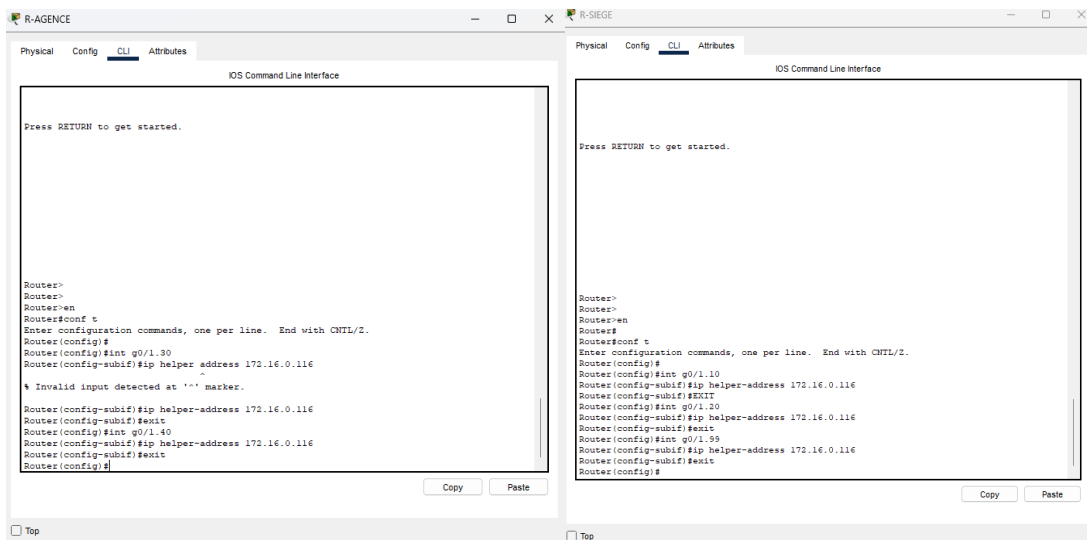
5.1 Configuration du serveur DHCP

Créons un pool d'adresse IP pour chaque VLAN (10,20,30,40) dans le serveur DHCP :



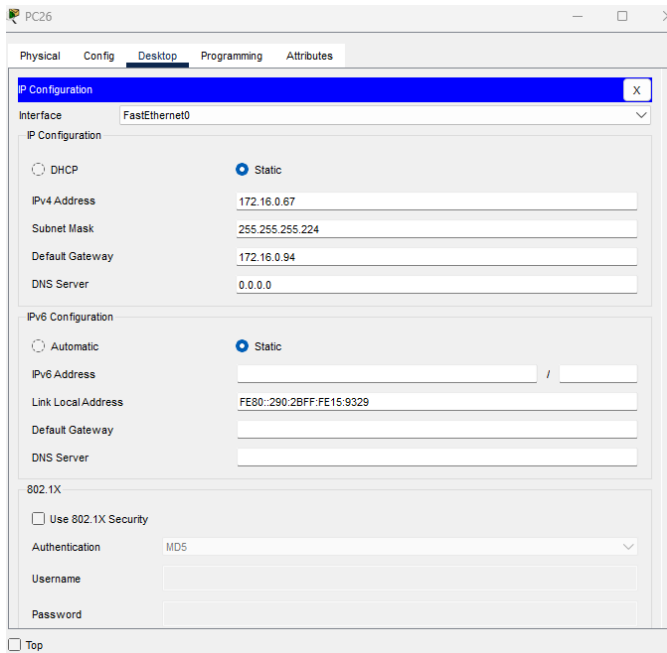
5.2 DHCP Relay Agent

On utilise la commande « ip helper-address » dans les routeurs pour autoriser l'attribution automatique d'adresse IP :

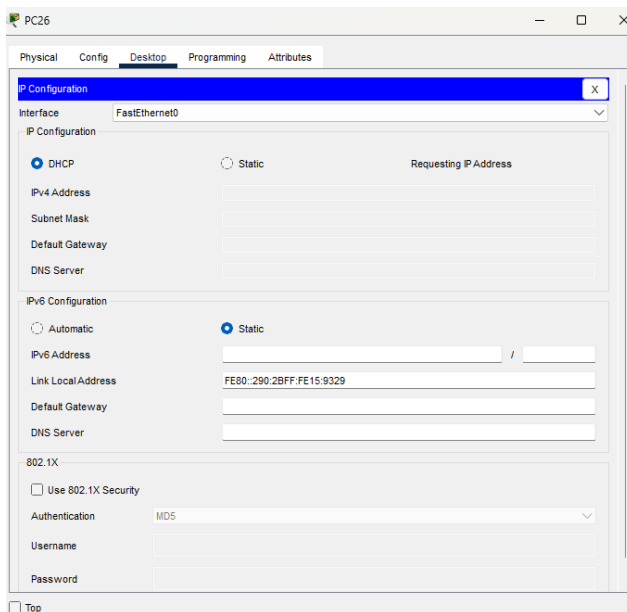


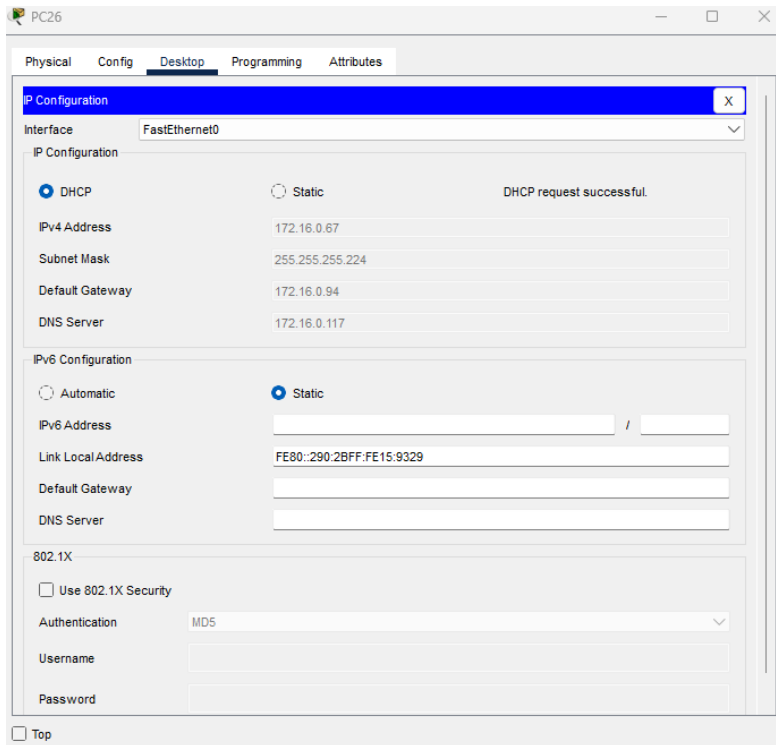
On peut ensuite mettre l'attribution d'adresse IP de manière automatique sur les PC.

Voici l'adresse statique :



Si on choisit DHCP :





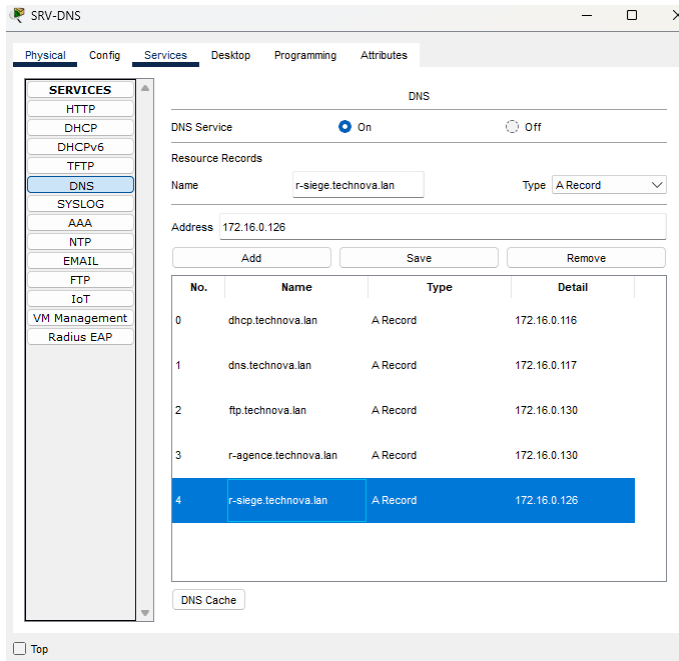
La nouvelle IP a bien été attribuée

Une requête DHCP (Broadcast) ne peut traverser un routeur sans Relay agent car il s'agit d'une requête de niveau 2. Le routeur ne peut traiter que des requêtes de niveau 3.

6-Services DNS et FTP

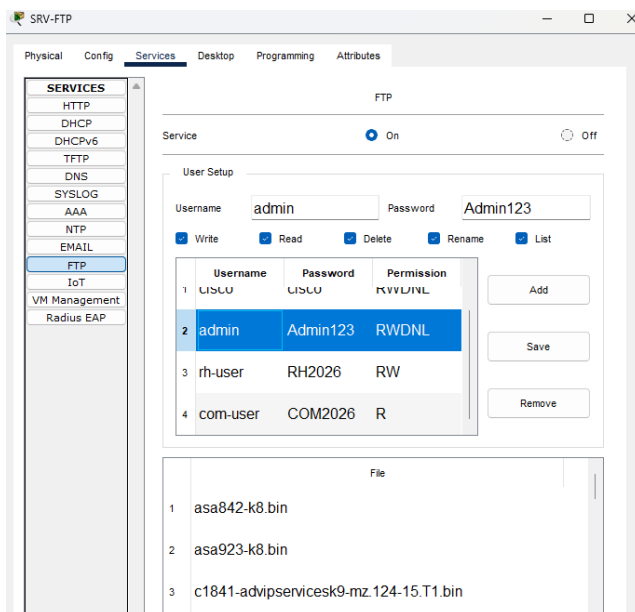
6.1 Serveur DNS

On configure le serveur DNS avec les domaines demandés :

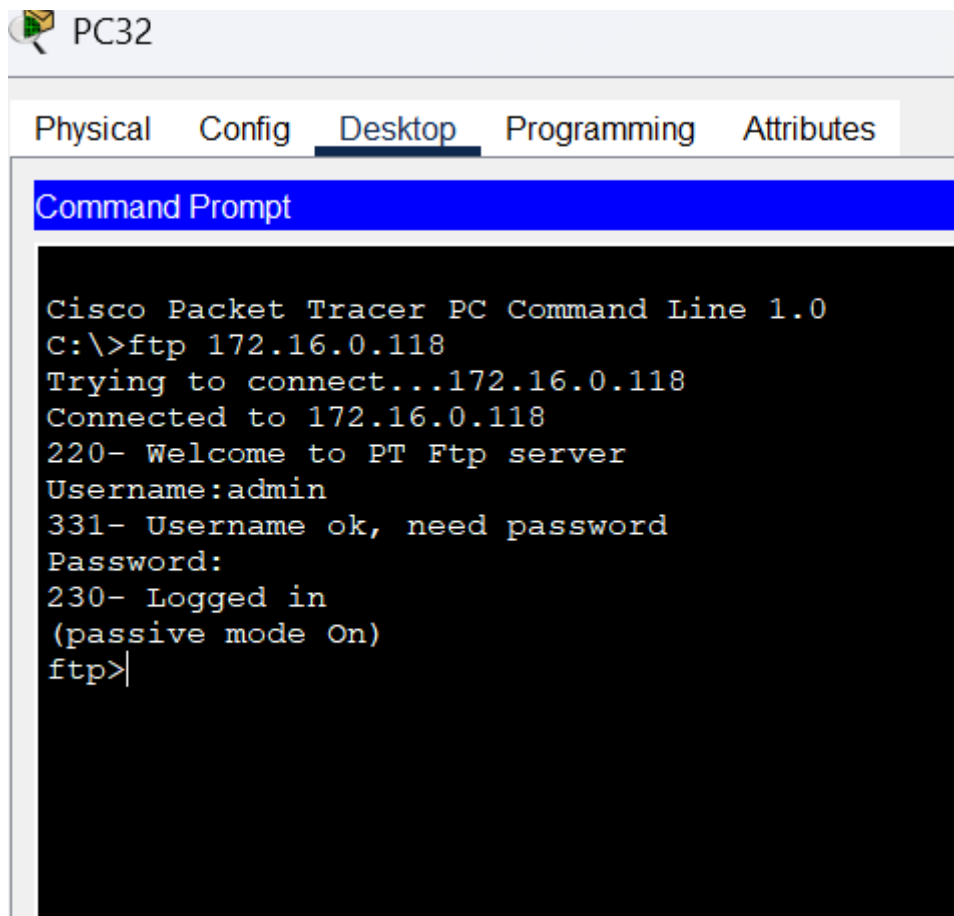


6.2 Serveur FTP

On active le service FTP sur SRV-FTP et on crée les profils utilisateurs demandés :



Test de connexion au serveur FTP depuis VLAN 40 :



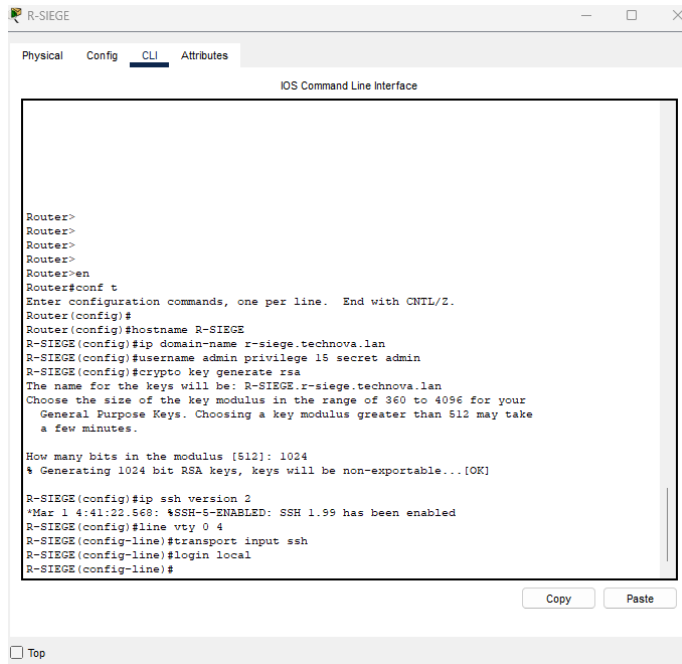
The screenshot shows a window titled "PC32" with tabs for "Physical", "Config", "Desktop", "Programming", and "Attributes". The "Desktop" tab is active, displaying a "Command Prompt" window. The text in the Command Prompt is as follows:

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ftp 172.16.0.118
Trying to connect...172.16.0.118
Connected to 172.16.0.118
220- Welcome to PT Ftp server
Username:admin
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>
```

7-Administration SSH

7.1 Checklist de configuration SSH

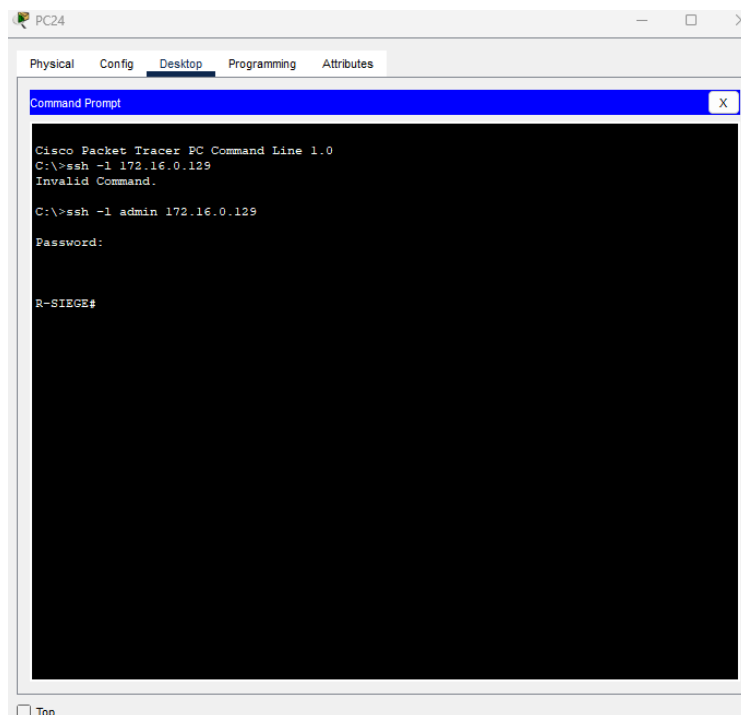
Configuration du SSH sur R-SIEGE :



The screenshot shows the R-SIEGE CLI interface with the following configuration commands:

```
Router>
Router>
Router>
Router>en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#
Router(config)#hostname R-SIEGE
R-SIEGE(config)#ip domain-name r-siege.technova.lan
R-SIEGE(config)#username admin privilege 15 secret admin
R-SIEGE(config)#crypto key generate rsa
The name for the keys will be: R-SIEGE.r-siege.technova.lan
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]
R-SIEGE(config)#ip ssh version 2
*Mar 1 4:41:22.568: %SSH-5-ENABLED: SSH 1.99 has been enabled
R-SIEGE(config-line)#line vty 0 4
R-SIEGE(config-line)#transport input ssh
R-SIEGE(config-line)#login local
R-SIEGE(config-line)#
```

Test de connexion depuis VLAN 30 :

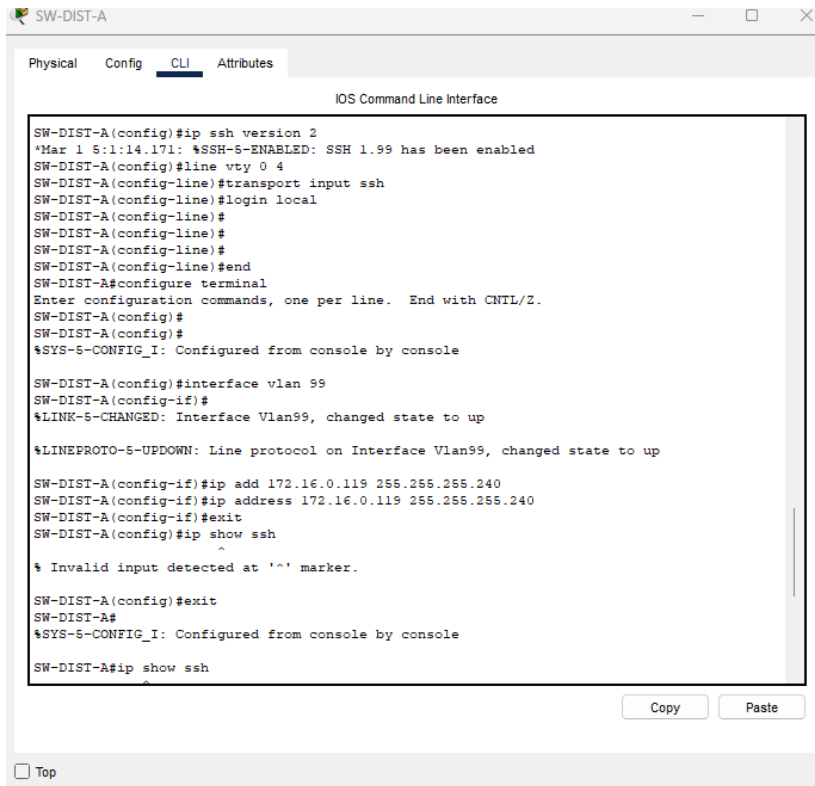


The screenshot shows the PC24 Command Prompt with the following commands and output:

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ssh -l 172.16.0.129
Invalid Command.
C:\>ssh -l admin 172.16.0.129
Password:
R-SIEGE#
```

Pour les switches, il faut configurer une interface en SVI car ils ne possèdent pas d'adresse IP

On crée une interface Vlan 99 avec pour IP = 172.16.0.119



```
SW-DIST-A
Physical Config CLI Attributes
IOS Command Line Interface
SW-DIST-A(config)#ip ssh version 2
*Mar 1 5:1:14.171: %SSH-5-ENABLED: SSH 1.99 has been enabled
SW-DIST-A(config)#line vty 0 4
SW-DIST-A(config-line)#transport input ssh
SW-DIST-A(config-line)#login local
SW-DIST-A(config-line)#
SW-DIST-A(config-line)#
SW-DIST-A(config-line)#
SW-DIST-A(config-line)#end
SW-DIST-A#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
SW-DIST-A(config)#
SW-DIST-A(config)#
%SYS-5-CONFIG_I: Configured from console by console

SW-DIST-A(config)#interface vlan 99
SW-DIST-A(config-if)#
%LINK-5-CHANGED: Interface Vlan99, changed state to up

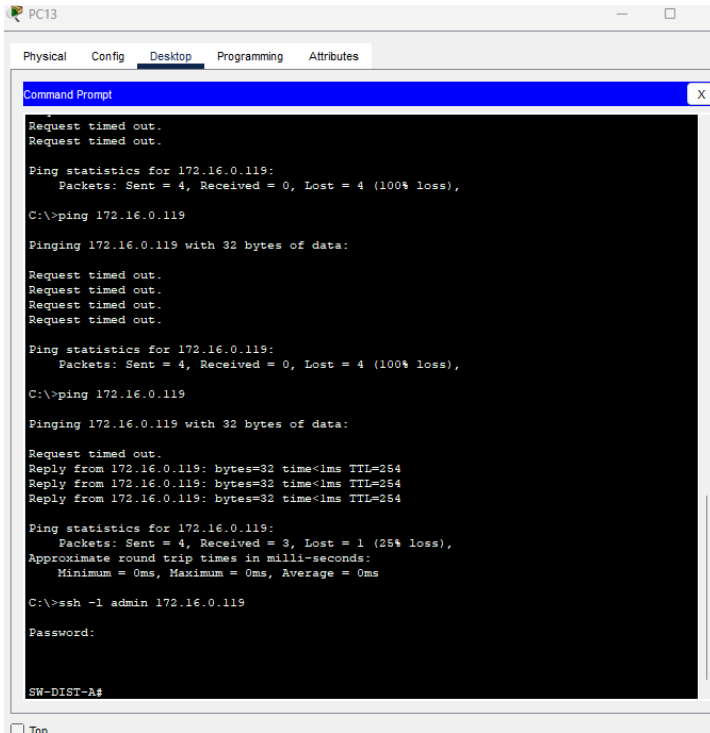
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan99, changed state to up

SW-DIST-A(config-if)#ip add 172.16.0.119 255.255.255.240
SW-DIST-A(config-if)#ip address 172.16.0.119 255.255.255.240
SW-DIST-A(config-if)#exit
SW-DIST-A(config)#ip show ssh
^
% Invalid input detected at '^' marker.

SW-DIST-A(config)#exit
SW-DIST-A#
%SYS-5-CONFIG_I: Configured from console by console
SW-DIST-A#ip show ssh
```

```
SW-DIST-A(config)#ip default-gateway 172.16.0.126
SW-DIST-A(config)#
SW-DIST-A(config)#
```

Test de connexion en SSH depuis VLAN 10 :



```
PC13
Physical Config Desktop Programming Attributes
Command Prompt
Request timed out.
Request timed out.

Ping statistics for 172.16.0.119:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 172.16.0.119

Pinging 172.16.0.119 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 172.16.0.119:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 172.16.0.119

Pinging 172.16.0.119 with 32 bytes of data:

Request timed out.
Reply from 172.16.0.119: bytes=32 time<1ms TTL=254
Reply from 172.16.0.119: bytes=32 time<1ms TTL=254
Reply from 172.16.0.119: bytes=32 time<1ms TTL=254

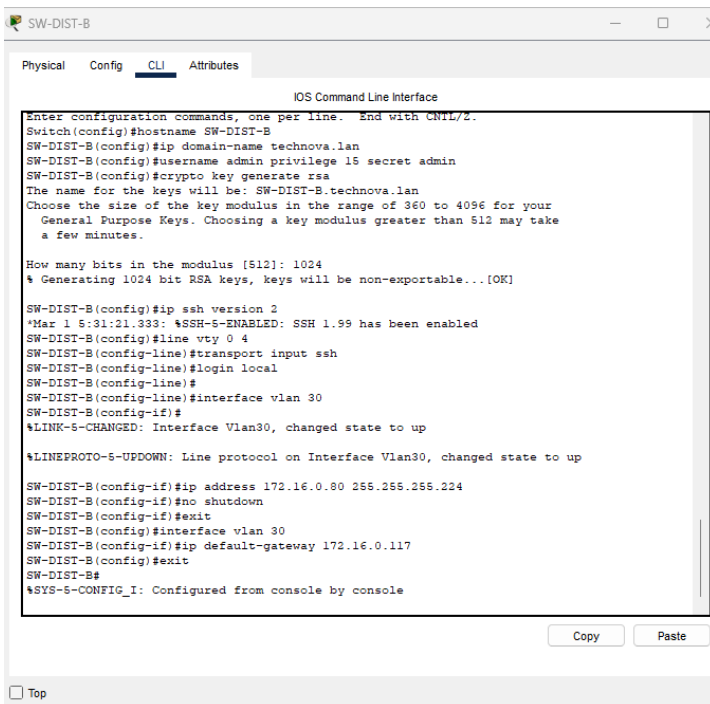
Ping statistics for 172.16.0.119:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ssh -l admin 172.16.0.119

Password:
SW-DIST-A#
```

On arrive bien à se connecter au switch

Configuration du SSH sur SW-DIST-B :



```
SW-DIST-B
Physical Config CLI Attributes
IOS Command Line Interface

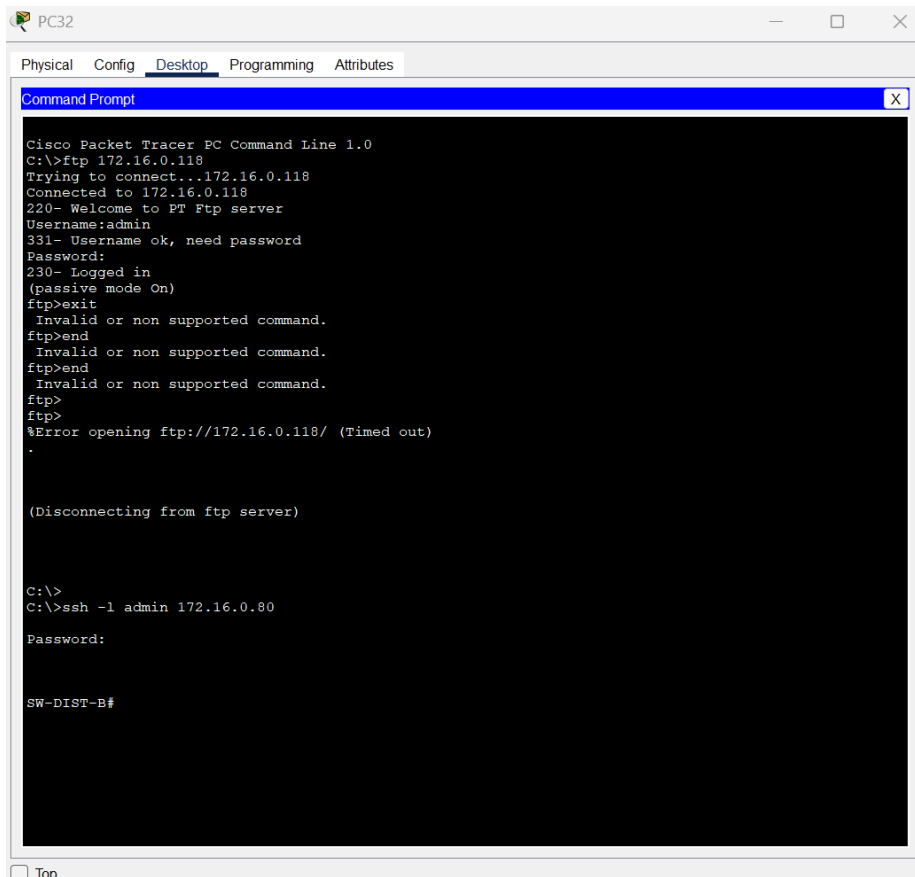
Enter configuration commands, one per line. End with CNTRL-Z.
Switch(config)#hostname SW-DIST-B
SW-DIST-B(config)#ip domain-name technova.lan
SW-DIST-B(config)#username admin privilege 15 secret admin
SW-DIST-B(config)#crypto key generate rsa
The name for the keys will be: SW-DIST-B.technova.lan
Choose 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]

SW-DIST-B(config)#ip ssh version 2
*Mar 1 5:31:21.333: %SSH-5-ENABLED: SSH 1.99 has been enabled
SW-DIST-B(config)#line vty 0 4
SW-DIST-B(config-line)#transport input ssh
SW-DIST-B(config-line)#login local
SW-DIST-B(config-line)#
SW-DIST-B(config-line)#interface vlan 30
SW-DIST-B(config-if)#
%LINK-5-CHANGED: Interface Vlan30, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan30, changed state to up

SW-DIST-B(config-if)#ip address 172.16.0.80 255.255.255.224
SW-DIST-B(config-if)#no shutdown
SW-DIST-B(config-if)#exit
SW-DIST-B(config)#interface vlan 30
SW-DIST-B(config-if)#ip default-gateway 172.16.0.117
SW-DIST-B(config)#exit
SW-DIST-B#
%SYS-5-CONFIG_I: Configured from console by console
```

Test de connexion SSH :



The screenshot shows a window titled "PC32" with a menu bar containing "Physical", "Config", "Desktop", "Programming", and "Attributes". The "Desktop" menu is active, displaying a "Command Prompt" window. The Command Prompt contains the following text:

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ftp 172.16.0.118
Trying to connect...172.16.0.118
Connected to 172.16.0.118
220- Welcome to FT Ftp server
Username:admin
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>exit
Invalid or non supported command.
ftp>end
Invalid or non supported command.
ftp>end
Invalid or non supported command.
ftp>
ftp>
%Error opening ftp://172.16.0.118/ (Timed out)
.

(Disconnecting from ftp server)

C:\>
C:\>ssh -l admin 172.16.0.80

Password:

SW-DIST-B#
```

At the bottom left of the window, there is a small icon and the text "Too".