

TP8 : Routage et sous-réseaux

I. Visualisation des tables de routage.

- Vérification de la configuration IP des interfaces de PC11 et R11 :

The screenshot shows the configuration window for PC11 in a network simulator. The window has a title bar with a magnifying glass icon and the text 'PC11'. Below the title bar is a tabbed interface with four tabs: 'Physical', 'Config', 'Desktop' (which is selected and highlighted), 'Programming', and 'Attributes'. The 'Desktop' tab contains the 'IP Configuration' section, which is highlighted with a blue header. Under 'IP Configuration', the 'Interface' is set to 'FastEthernet0'. There are two main sections: 'IP Configuration' and 'IPv6 Configuration'. In the 'IP Configuration' section, the 'DHCP' radio button is unselected, and the 'Static' radio button is selected. The fields for 'IPv4 Address', 'Subnet Mask', 'Default Gateway', and 'DNS Server' are filled with the values '194.2.16.17', '255.255.255.240', '194.2.16.30', and '0.0.0.0' respectively. In the 'IPv6 Configuration' section, the 'Automatic' radio button is unselected, and the 'Static' radio button is selected. The fields for 'IPv6 Address', 'Link Local Address', 'Default Gateway', and 'DNS Server' are empty. Below these sections is the '802.1X' section, which has a checkbox for 'Use 802.1X Security' that is unchecked. The 'Authentication' dropdown is set to 'MD5'. The 'Username' and 'Password' fields are empty.

Section	Option	Value
IP Configuration	DHCP	☐
	Static	☒
	IPv4 Address	194.2.16.17
	Subnet Mask	255.255.255.240
IPv6 Configuration	Automatic	☐
	Static	☒
	IPv6 Address	
	Link Local Address	
802.1X	Use 802.1X Security	☐
	Authentication	MD5
	Username	
	Password	

```
R11>show ip interface brief
Interface          IP-Address      OK? Method Status        Protocol
FastEthernet0/0    194.2.16.33     YES manual up             up
FastEthernet0/1    194.2.16.30     YES manual up             up
Vlan1              unassigned      YES unset  administratively down down
R11>
```

- Vérification de la table de routage de chacun des routeurs (R1 et R11) :

```
R11>show ip route
Codes: C - connected, S - static, I - IGRP, 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

S    192.168.2.0/24 [1/0] via 194.2.16.35
    194.2.16.0/28 is subnetted, 10 subnets
C      194.2.16.16 is directly connected, FastEthernet0/1
C      194.2.16.32 is directly connected, FastEthernet0/0
D      194.2.16.48 [90/30720] via 194.2.16.34, 00:25:50, FastEthernet0/0
D      194.2.16.96 [90/2172416] via 194.2.16.35, 00:25:50, FastEthernet0/0
D      194.2.16.112 [90/30720] via 194.2.16.35, 00:25:50, FastEthernet0/0
D      194.2.16.128 [90/2172416] via 194.2.16.35, 00:25:50, FastEthernet0/0
D      194.2.16.144 [90/2174976] via 194.2.16.35, 00:25:49, FastEthernet0/0
D      194.2.16.192 [90/35840] via 194.2.16.35, 00:25:49, FastEthernet0/0
D      194.2.16.208 [90/33280] via 194.2.16.35, 00:25:50, FastEthernet0/0
D      194.2.16.224 [90/35840] via 194.2.16.35, 00:25:49, FastEthernet0/0
R11>
```

```
R1>show ip route
Codes: C - connected, S - static, I - IGRP, 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

    194.2.16.0/28 is subnetted, 10 subnets
D      194.2.16.16 [90/2174976] via 194.2.16.97, 00:28:05, Serial0/0/0
D      194.2.16.32 [90/2172416] via 194.2.16.97, 00:28:05, Serial0/0/0
D      194.2.16.48 [90/2174976] via 194.2.16.97, 00:28:05, Serial0/0/0
C      194.2.16.96 is directly connected, Serial0/0/0
D      194.2.16.112 [90/2172416] via 194.2.16.97, 00:28:05, Serial0/0/0
       [90/2172416] via 194.2.16.146, 00:28:05, Serial0/0/1
D      194.2.16.128 [90/2681856] via 194.2.16.97, 00:28:05, Serial0/0/0
       [90/2681856] via 194.2.16.146, 00:28:05, Serial0/0/1
C      194.2.16.144 is directly connected, Serial0/0/1
D      194.2.16.192 [90/2174976] via 194.2.16.146, 00:28:05, Serial0/0/1
D      194.2.16.208 [90/2172416] via 194.2.16.146, 00:28:05, Serial0/0/1
D      194.2.16.224 [90/2174976] via 194.2.16.146, 00:28:05, Serial0/0/1
R1>
```

- Vérification de la connectivité de chacun des 4 PC avec les 3 autres.

➔ Pour le PC11 :

```
C:\>ping 194.2.16.49

Pinging 194.2.16.49 with 32 bytes of data:

Reply from 194.2.16.49: bytes=32 time<1ms TTL=126
Reply from 194.2.16.49: bytes=32 time<1ms TTL=126
Reply from 194.2.16.49: bytes=32 time<1ms TTL=126
Reply from 194.2.16.49: bytes=32 time<1ms TTL=126

Ping statistics for 194.2.16.49:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 194.2.16.193

Pinging 194.2.16.193 with 32 bytes of data:

Reply from 194.2.16.193: bytes=32 time=10ms TTL=124
Reply from 194.2.16.193: bytes=32 time<1ms TTL=124
Reply from 194.2.16.193: bytes=32 time=10ms TTL=124
Reply from 194.2.16.193: bytes=32 time=10ms TTL=124

Ping statistics for 194.2.16.193:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 10ms, Average = 7ms

C:\>ping 194.2.16.225

Pinging 194.2.16.225 with 32 bytes of data:

Reply from 194.2.16.225: bytes=32 time=10ms TTL=124
Reply from 194.2.16.225: bytes=32 time=10ms TTL=124
Reply from 194.2.16.225: bytes=32 time=10ms TTL=124
Reply from 194.2.16.225: bytes=32 time=10ms TTL=124

Ping statistics for 194.2.16.225:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 10ms, Maximum = 10ms, Average = 10ms
```

➔ Pour le PC12 :

```
PC12
Physical Config Desktop Programming Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 194.2.16.17

Pinging 194.2.16.17 with 32 bytes of data:

Reply from 194.2.16.17: bytes=32 time<1ms TTL=126
Reply from 194.2.16.17: bytes=32 time<1ms TTL=126
Reply from 194.2.16.17: bytes=32 time<1ms TTL=126
Reply from 194.2.16.17: bytes=32 time=1ms TTL=126

Ping statistics for 194.2.16.17:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 194.2.16.193

Pinging 194.2.16.193 with 32 bytes of data:

Reply from 194.2.16.193: bytes=32 time<1ms TTL=124
Reply from 194.2.16.193: bytes=32 time=11ms TTL=124
Reply from 194.2.16.193: bytes=32 time<1ms TTL=124
Reply from 194.2.16.193: bytes=32 time<1ms TTL=124

Ping statistics for 194.2.16.193:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 11ms, Average = 2ms

C:\>ping 194.2.16.225

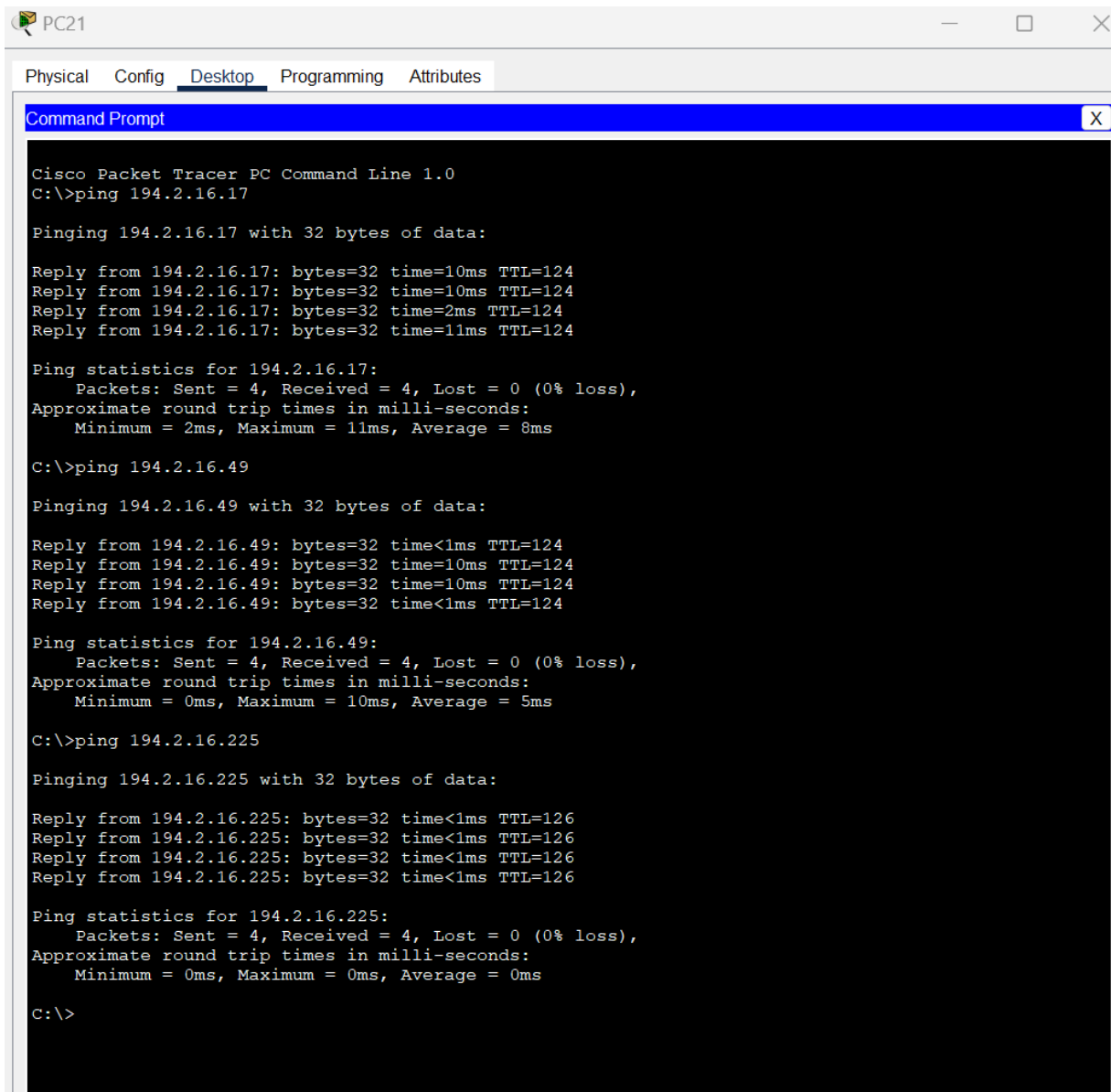
Pinging 194.2.16.225 with 32 bytes of data:

Reply from 194.2.16.225: bytes=32 time=10ms TTL=124
Reply from 194.2.16.225: bytes=32 time=10ms TTL=124
Reply from 194.2.16.225: bytes=32 time=10ms TTL=124
Reply from 194.2.16.225: bytes=32 time=10ms TTL=124

Ping statistics for 194.2.16.225:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 10ms, Maximum = 10ms, Average = 10ms

C:\>
```

➔ Pour le PC21 :



```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 194.2.16.17

Pinging 194.2.16.17 with 32 bytes of data:

Reply from 194.2.16.17: bytes=32 time=10ms TTL=124
Reply from 194.2.16.17: bytes=32 time=10ms TTL=124
Reply from 194.2.16.17: bytes=32 time=2ms TTL=124
Reply from 194.2.16.17: bytes=32 time=11ms TTL=124

Ping statistics for 194.2.16.17:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 11ms, Average = 8ms

C:\>ping 194.2.16.49

Pinging 194.2.16.49 with 32 bytes of data:

Reply from 194.2.16.49: bytes=32 time<1ms TTL=124
Reply from 194.2.16.49: bytes=32 time=10ms TTL=124
Reply from 194.2.16.49: bytes=32 time=10ms TTL=124
Reply from 194.2.16.49: bytes=32 time<1ms TTL=124

Ping statistics for 194.2.16.49:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 10ms, Average = 5ms

C:\>ping 194.2.16.225

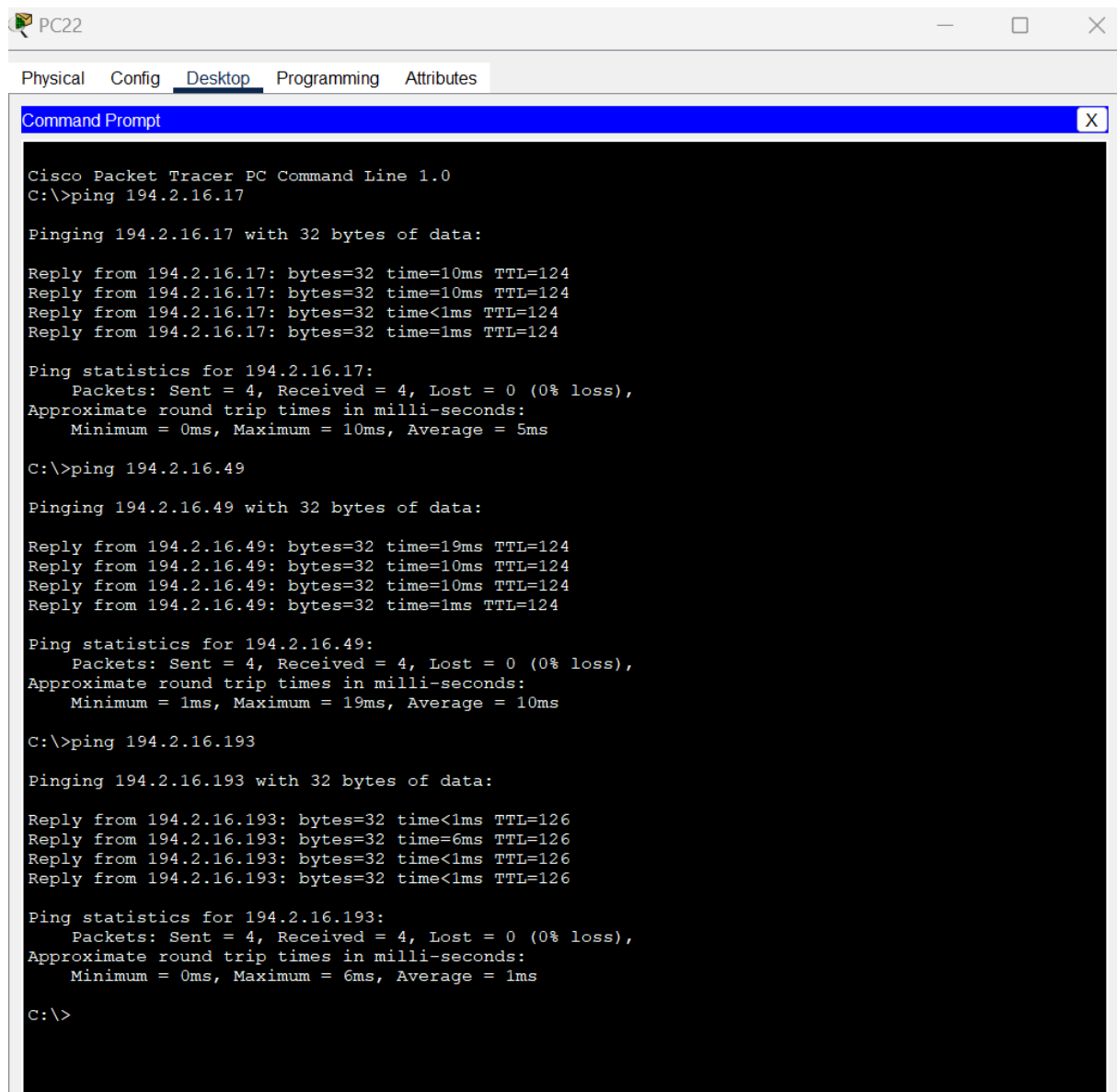
Pinging 194.2.16.225 with 32 bytes of data:

Reply from 194.2.16.225: bytes=32 time<1ms TTL=126
Reply from 194.2.16.225: bytes=32 time<1ms TTL=126
Reply from 194.2.16.225: bytes=32 time<1ms TTL=126
Reply from 194.2.16.225: bytes=32 time<1ms TTL=126

Ping statistics for 194.2.16.225:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

➔ Pour le PC 22 :



The screenshot shows a Cisco Packet Tracer PC Command Line window for a device named PC22. The window has tabs for Physical, Config, Desktop, Programming, and Attributes, with Desktop selected. The Command Prompt shows the following output:

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 194.2.16.17

Pinging 194.2.16.17 with 32 bytes of data:

Reply from 194.2.16.17: bytes=32 time=10ms TTL=124
Reply from 194.2.16.17: bytes=32 time=10ms TTL=124
Reply from 194.2.16.17: bytes=32 time<1ms TTL=124
Reply from 194.2.16.17: bytes=32 time=1ms TTL=124

Ping statistics for 194.2.16.17:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 10ms, Average = 5ms

C:\>ping 194.2.16.49

Pinging 194.2.16.49 with 32 bytes of data:

Reply from 194.2.16.49: bytes=32 time=19ms TTL=124
Reply from 194.2.16.49: bytes=32 time=10ms TTL=124
Reply from 194.2.16.49: bytes=32 time=10ms TTL=124
Reply from 194.2.16.49: bytes=32 time=1ms TTL=124

Ping statistics for 194.2.16.49:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 19ms, Average = 10ms

C:\>ping 194.2.16.193

Pinging 194.2.16.193 with 32 bytes of data:

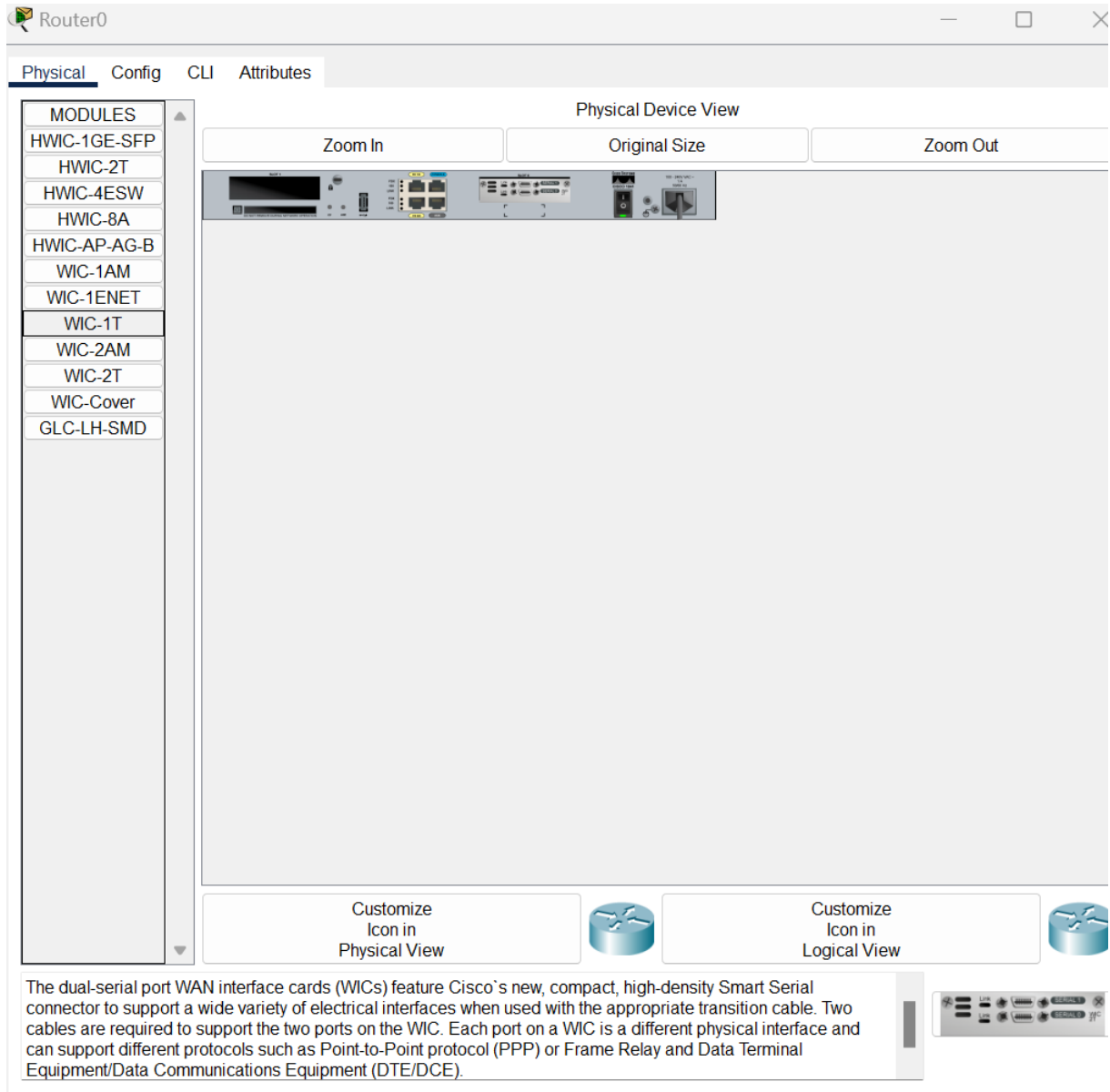
Reply from 194.2.16.193: bytes=32 time<1ms TTL=126
Reply from 194.2.16.193: bytes=32 time=6ms TTL=126
Reply from 194.2.16.193: bytes=32 time<1ms TTL=126
Reply from 194.2.16.193: bytes=32 time<1ms TTL=126

Ping statistics for 194.2.16.193:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 6ms, Average = 1ms

C:\>
```

2. Ajout du routeur RO et de l'ordinateur PCO

➔ Ajout du module WIC-2T au routeur 0



➔ Configuration de base du routeur :

```
Would you like to enter the initial configuration dialog? [yes/no]: yes
```

```
Would you like to enter basic management setup? [yes/no]: yes
```

```
Enter host name [Router]: R0
```

```
Enter enable secret: mdp1
```

```
Enter enable password: mdp2
```

```
Enter virtual terminal password: mdp3  
Configure SNMP Network Management? [no]:no
```

```
Enter interface name used to connect to the  
management network from the above interface summary: fastethernet0/0
```

```
Configuring interface FastEthernet0/0:  
Configure IP on this interface? [yes]: yes  
IP address for this interface: 192.168.2.1  
Subnet mask for this interface [255.255.255.0] :
```

```
!  
hostname R0  
enable secret 5 $1$mERr$QnY/64E5ClF2j8H8iL28G0  
enable password mdp2  
line vty 0 4  
password mdp3  
!  
interface Vlan1  
shutdown  
no ip address  
!  
interface FastEthernet0/0  
no shutdown  
ip address 192.168.2.1 255.255.255.0  
!  
interface FastEthernet0/1  
shutdown  
no ip address  
!  
interface Serial0/0/0  
shutdown  
no ip address  
!  
interface Serial0/0/1  
shutdown  
no ip address  
!  
end
```

```
[0] Go to the IOS command prompt without saving this config.
```

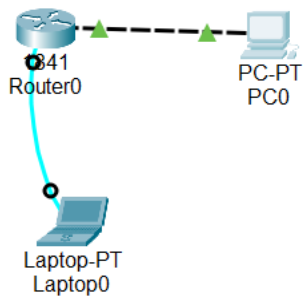
```
[1] Return back to the setup without saving this config.
```

```
[2] Save this configuration to nvram and exit.
```

```
Enter your selection [2]: 2
```

```
Building configuration...
```

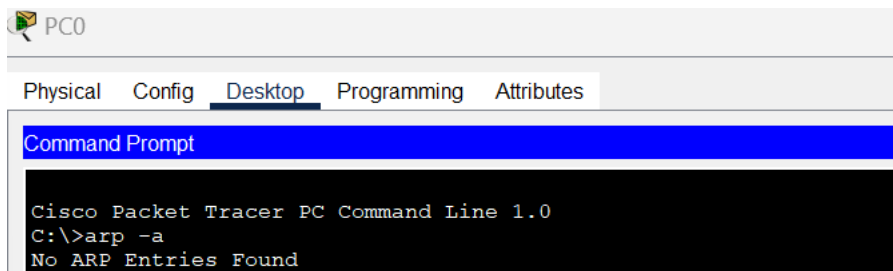
- ➔ On relie l'ordinateur au routeur avec un câble croisé (avec l'interface **FastEthernet** de l'ordinateur à l'interface **FastEthernet0/0** du routeur.



➔ On renseigne la configuration IP :

- On observe le fonctionnement ARP et on vérifie la connectivité entre PC0 et R0.

➔ Depuis l'invite de commandes de PC0 on entre la commande **arp -a**



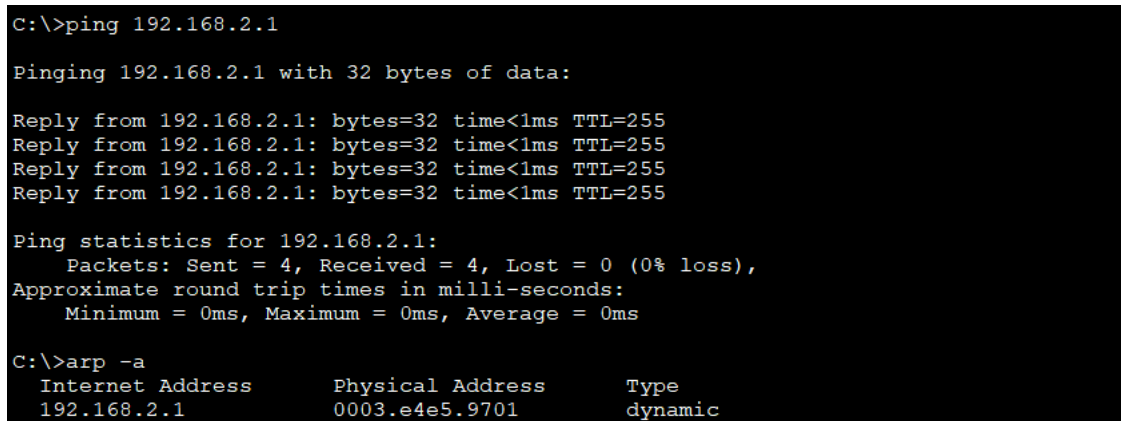
```
PC0
Physical Config Desktop Programming Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>arp -a
No ARP Entries Found
```

➔ On rentre la commande **show arp** sur le routeur R0 à partir de l'émulateur de terminal du portable.

```
R0>show arp
Protocol Address Age (min) Hardware Addr Type Interface
Internet 192.168.2.1 - 0003.E4E5.9701 ARPA FastEthernet0/0
R0>
```

➔ On effectue un ping depuis l'invite de commandes de PC0 :

➔ Ensuite, on rentre la commande **arp -a** :



```
C:\>ping 192.168.2.1

Pinging 192.168.2.1 with 32 bytes of data:

Reply from 192.168.2.1: bytes=32 time<1ms TTL=255
Reply from 192.168.2.1: bytes=32 time<1ms TTL=255
Reply from 192.168.2.1: bytes=32 time<1ms TTL=255
Reply from 192.168.2.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.2.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>arp -a
Internet Address      Physical Address      Type
192.168.2.1           0003.e4e5.9701       dynamic
```

La connectivité entre les deux périphériques est bien effective.

➔ Enfin, on rentre la commande **show arp** sur le routeur R0.

```
R0>show arp
Protocol Address Age (min) Hardware Addr Type Interface
Internet 192.168.2.1 - 0003.E4E5.9701 ARPA FastEthernet0/0
Internet 192.168.2.2 1 000C.CF5B.74E8 ARPA FastEthernet0/0
R0>
```

Les deux périphériques ont désormais une entrée de l'autre périphérique dans sa table ARP.

- Test de la connexion Telnet au routeur.

➔ À partir du PC0, on test la connexion Telnet au routeur R0 :

```
C:\>telnet 192.168.2.1
Trying 192.168.2.1 ...Open

User Access Verification

Password:
R0>
```

➔ Les résultats des commandes des paragraphes 2.5 et 2.6 sont concluants, donc on supprime le câble console ainsi que le portable.

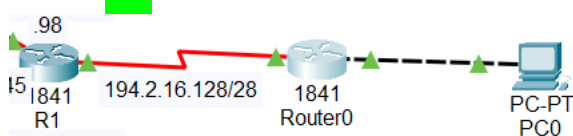
2.7 Connexion du routeur R0 au routeur R1.

➔ On visualise les 4 interfaces série du routeur R1 :

```
R1>show ip interface brief
Interface          IP-Address      OK? Method Status                Protocol
FastEthernet0/0    unassigned      YES unset  administratively down down
FastEthernet0/1    unassigned      YES unset  administratively down down
Serial0/0/0        194.2.16.98     YES manual  up                    up
Serial0/0/1        194.2.16.145   YES manual  up                    up
Serial0/1/0        192.168.1.1     YES manual  down                  down
Serial0/1/1        unassigned      YES unset  administratively down down
Vlan1              unassigned      YES unset  administratively down down
R1>
```

➔ On ajoute un câble série DCE pour connecter l'interface

Serial0/0/0 du routeur R0 à l'interface Serial0/1/0 du routeur R1 :



2.8 Configuration de l'interface série du routeur R0

➔ On configure l'IP de l'interface Serial0/0/0 :

➔ Configuration de la synchronisation :

```
R0>en
Password:
R0#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R0(config)#interface s0/0/0
R0(config-if)#ip address 192.168.1.2 255.255.255.0
R0(config-if)#clock rate 64000
```

```
R0(config-if)#no shutdown
R0(config-if)#^Z
R0#
%SYS-5-CONFIG_I: Configured from console by console
copy run start
```

➔ On quitte le mode de configuration, puis on enregistre :

```
R0#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R0(config)#ip route 194.2.16.0 255.255.255.0 192.168.1.1
R0(config)#^Z
R0#
%SYS-5-CONFIG_I: Configured from console by console
sh ip route
Codes: C - connected, S - static, I - IGRP, 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

C    192.168.1.0/24 is directly connected, Serial0/0/0
C    192.168.2.0/24 is directly connected, FastEthernet0/0
S    194.2.16.0/24 [1/0] via 192.168.1.1
R0#
```

➔ Vérification de la configuration IP des interfaces du routeur R0 :

```

Destination filename [startup-config]?
Building configuration...
[OK]
R0#show ip interface brief

```

Interface	IP-Address	OK?	Method	Status	Protocol
FastEthernet0/0	192.168.2.1	YES	manual	up	up
FastEthernet0/1	unassigned	YES	unset	up	down
Serial0/0/0	192.168.1.2	YES	manual	up	up
Serial0/0/1	unassigned	YES	unset	down	down
Vlan1	unassigned	YES	unset	up	down

```

R0#

```

➔ On effectue ensuite un ping vers l'interface S0/1/0 du routeur R1
à partir de PC0 :

```

C:\>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time=35ms TTL=254
Reply from 192.168.1.1: bytes=32 time=23ms TTL=254
Reply from 192.168.1.1: bytes=32 time=1ms TTL=254
Reply from 192.168.1.1: bytes=32 time=14ms TTL=254

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 35ms, Average = 18ms

C:\>

```

3. Ajout de routes

- On consulte la table de routage des routeurs R1 et R0.

➔ Ajout des routes depuis le routeur R1 :

```
R1> en
R1#sh ip route
Codes: C - connected, S - static, I - IGRP, 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

C    192.168.1.0/24 is directly connected, Serial0/1/0
S    192.168.2.0/24 [1/0] via 192.168.1.2
    194.2.16.0/28 is subnetted, 10 subnets
D      194.2.16.16 [90/2174976] via 194.2.16.97, 01:39:09, Serial0/0/0
D      194.2.16.32 [90/2172416] via 194.2.16.97, 01:39:10, Serial0/0/0
D      194.2.16.48 [90/2174976] via 194.2.16.97, 01:39:09, Serial0/0/0
C      194.2.16.96 is directly connected, Serial0/0/0
D      194.2.16.112 [90/2172416] via 194.2.16.146, 01:39:10, Serial0/0/1
        [90/2172416] via 194.2.16.97, 01:39:10, Serial0/0/0
D      194.2.16.128 [90/2681856] via 194.2.16.146, 01:39:10, Serial0/0/1
        [90/2681856] via 194.2.16.97, 01:39:09, Serial0/0/0
C      194.2.16.144 is directly connected, Serial0/0/1
D      194.2.16.192 [90/2174976] via 194.2.16.146, 01:39:10, Serial0/0/1
D      194.2.16.208 [90/2172416] via 194.2.16.146, 01:39:10, Serial0/0/1
D      194.2.16.224 [90/2174976] via 194.2.16.146, 01:39:10, Serial0/0/1

R1#
```

➔ Ajout des routes depuis le routeur R0

```
R0#sh ip route
Codes: C - connected, S - static, I - IGRP, 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

C    192.168.1.0/24 is directly connected, Serial0/0/0
C    192.168.2.0/24 is directly connected, FastEthernet0/0

R0#
```

```

R0#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R0(config)#ip route 194.2.16.0 255.255.255.0 192.168.1.1
R0(config)#^Z
R0#
%SYS-5-CONFIG_I: Configured from console by console
sh ip route
Codes: C - connected, S - static, I - IGRP, 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

C    192.168.1.0/24 is directly connected, Serial0/0/0
C    192.168.2.0/24 is directly connected, FastEthernet0/0
S    194.2.16.0/24 [1/0] via 192.168.1.1
R0#

```

➔ On test la connectivité entre PC0 et les autres :

```

C:\>ping 194.2.16.49

Pinging 194.2.16.49 with 32 bytes of data:

Reply from 194.2.16.49: bytes=32 time=31ms TTL=124
Reply from 194.2.16.49: bytes=32 time=41ms TTL=124
Reply from 194.2.16.49: bytes=32 time=2ms TTL=124
Reply from 194.2.16.49: bytes=32 time=29ms TTL=124

Ping statistics for 194.2.16.49:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 41ms, Average = 25ms

C:\>ping 194.2.16.17

Pinging 194.2.16.17 with 32 bytes of data:

Reply from 194.2.16.17: bytes=32 time=34ms TTL=124
Reply from 194.2.16.17: bytes=32 time=10ms TTL=124
Reply from 194.2.16.17: bytes=32 time=2ms TTL=124
Reply from 194.2.16.17: bytes=32 time=2ms TTL=124

Ping statistics for 194.2.16.17:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 34ms, Average = 12ms

C:\>ping 194.2.16.225

Pinging 194.2.16.225 with 32 bytes of data:

Reply from 194.2.16.225: bytes=32 time=2ms TTL=124
Reply from 194.2.16.225: bytes=32 time=33ms TTL=124
Reply from 194.2.16.225: bytes=32 time=28ms TTL=124
Reply from 194.2.16.225: bytes=32 time=22ms TTL=124

Ping statistics for 194.2.16.225:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 33ms, Average = 21ms

```

```

C:\>ping 194.2.16.193

Pinging 194.2.16.193 with 32 bytes of data:

Reply from 194.2.16.193: bytes=32 time=39ms TTL=124
Reply from 194.2.16.193: bytes=32 time=28ms TTL=124
Reply from 194.2.16.193: bytes=32 time=27ms TTL=124
Reply from 194.2.16.193: bytes=32 time=25ms TTL=124

Ping statistics for 194.2.16.193:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 25ms, Maximum = 39ms, Average = 29ms

```

➔ Table de routage de R0 :

```

R0#sh ip route
Codes: C - connected, S - static, I - IGRP, 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

C     192.168.1.0/24 is directly connected, Serial0/0/0
C     192.168.2.0/24 is directly connected, FastEthernet0/0
S     194.2.16.0/24 [1/0] via 192.168.1.1

```

➔ On sauvegarde la configuration :

```

R0#copy run start
Destination filename [startup-config]?
Building configuration...
[OK]
R0#

```