FACULTÉ DES SCIENCES ET DES TECHNOLOGIES

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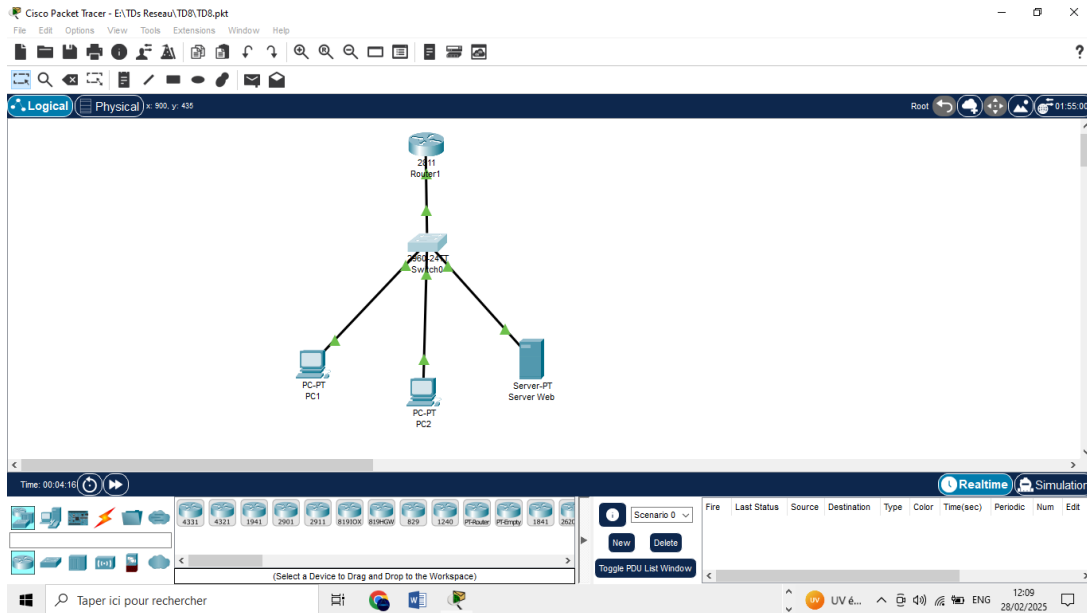**Année :**   **2024-2025**

Le 28/02/2025

Exécution du TD

▪Processus de configuration et d'utilisation du protocole d'un Pare-feu et d'un VPN Site-à-Site sur Cisco Packet Tracer.


```
Press RETURN to get started!


Router>enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname R1
R1(config)#interface FastEthernet0/0
R1(config-if)#ip address 192.168.1.1 255.255.255.0
R1(config-if)#no shutdown

R1(config-if)#exit
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

R1(config)#
```

```
% Invalid input detected at '^' marker.

MonCommutateur(config-if)#vlan 10
MonCommutateur(config-vlan)#name Utilisateurs
MonCommutateur(config-vlan)#
MonCommutateur(config-vlan)## Configuration d'un VLAN pour les voix
                             ^
% Invalid input detected at '^' marker.

MonCommutateur(config-vlan)#vlan 20
MonCommutateur(config-vlan)#name Voix
MonCommutateur(config-vlan)#
MonCommutateur(config-vlan)## Configuration des interfaces pour les VLANs
                             ^
% Invalid input detected at '^' marker.

MonCommutateur(config-vlan)#interface range FastEthernet0/1 - 24
MonCommutateur(config-if-range)#switchport mode access
MonCommutateur(config-if-range)#switchport access vlan 10
MonCommutateur(config-if-range)#
MonCommutateur(config-if-range)#interface range GigabitEthernet0/1 - 2
MonCommutateur(config-if-range)#switchport mode trunk
MonCommutateur(config-if-range)#switchport trunk allowed vlan 10,20
MonCommutateur(config-if-range)#
MonCommutateur(config-if-range)## Configuration des mots de passe de scurit
                                ^
% Invalid input detected at '^' marker.

MonCommutateur(config-if-range)#line console 0
MonCommutateur(config-line)#password cisco
MonCommutateur(config-line)#login
MonCommutateur(config-line)#line vty 0 4
MonCommutateur(config-line)#password cisco
MonCommutateur(config-line)#login
MonCommutateur(config-line)#
MonCommutateur(config-line)## Enregistrement de la configuration
                           ^
% Invalid input detected at '^' marker.

MonCommutateur(config-line)#end
MonCommutateur#write memory
%LINK-5-CHANGED: Interface Vlan1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan1, changed state to down

%SYS-5-CONFIG_I: Configured from console by console

Building configuration...
[OK]
MonCommutateur#
```

```
Cisco Packet Tracer PC Command Line 1.0
C:\> ping 192.168.1.3

Pinging 192.168.1.3 with 32 bytes of data:

Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time=1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 192.168.1.100

Pinging 192.168.1.100 with 32 bytes of data:

Reply from 192.168.1.100: bytes=32 time<1ms TTL=128
Reply from 192.168.1.100: bytes=32 time=1ms TTL=128
Reply from 192.168.1.100: bytes=32 time=1ms TTL=128
Reply from 192.168.1.100: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.1.100:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>
```

```
PC2                                                            —    □

Physical    Config    Desktop    Programming    Attributes

Command Prompt

Cisco Packet Tracer PC Command Line 1.0
C:\> ping 192.168.1.2

Pinging 192.168.1.2 with 32 bytes of data:

Reply from 192.168.1.2: bytes=32 time=8ms TTL=128
Reply from 192.168.1.2: bytes=32 time=1ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 8ms, Average = 2ms

C:\> ping 192.168.1.100

Pinging 192.168.1.100 with 32 bytes of data:

Reply from 192.168.1.100: bytes=32 time<1ms TTL=128
Reply from 192.168.1.100: bytes=32 time<1ms TTL=128
Reply from 192.168.1.100: bytes=32 time<1ms TTL=128
Reply from 192.168.1.100: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.100:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

```
User Access Verification

Password:
Password:

MonCommutateur> enable
MonCommutateur#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
MonCommutateur(config)#access-list 100 deny tcp host 192.168.1.3 host 192.168.1.100 eq 80
MonCommutateur(config)#access-list 100 permit ip any any
MonCommutateur(config)#
```
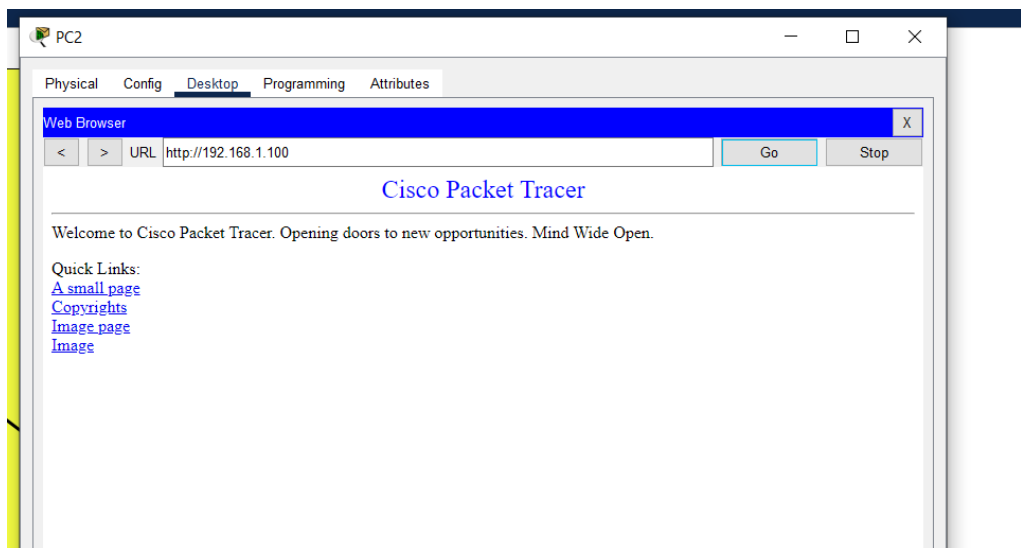   Copy   Paste
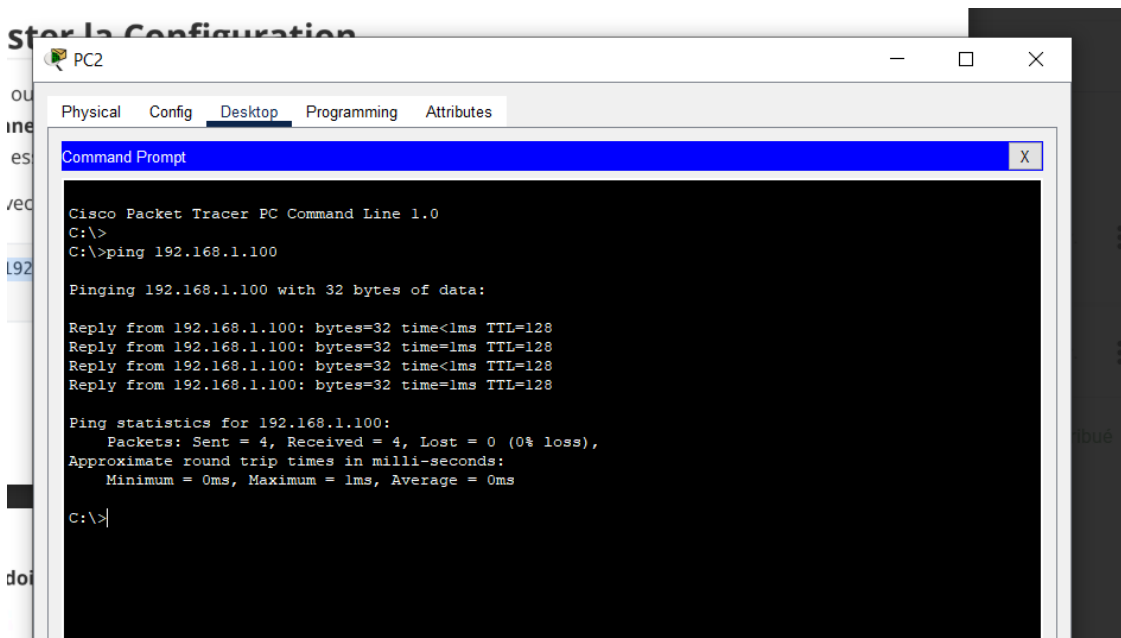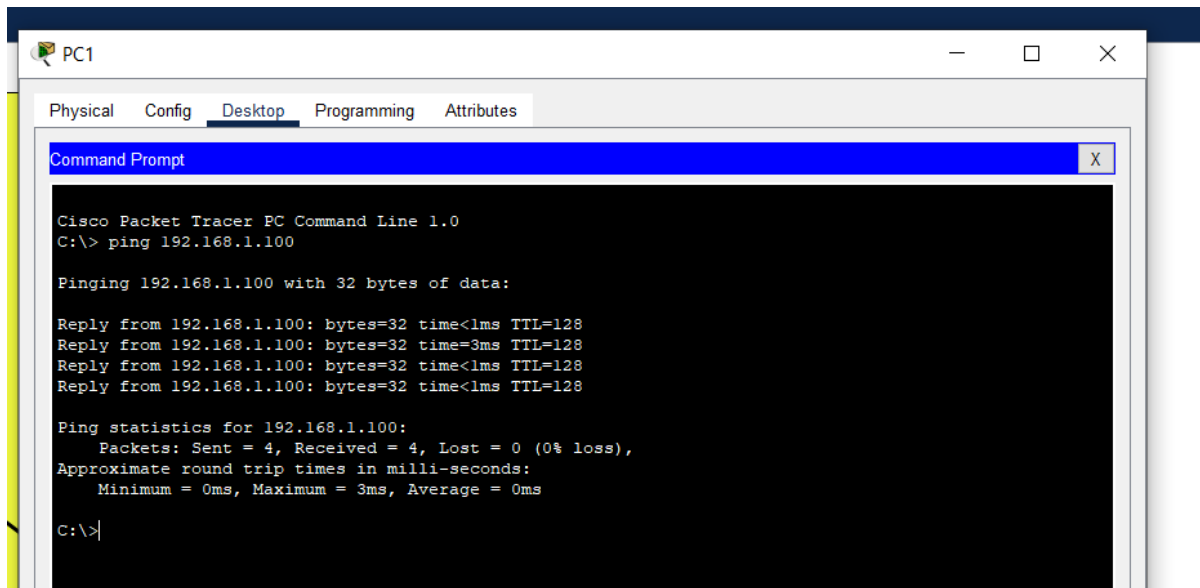
```
R1>enbale
Translating "enbale"...domain server (255.255.255.255)
% Unknown command or computer name, or unable to find computer address

R1>enable
R1#config t
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#interface FastEthernet0/0
R1(config-if)#ip access-group 100 in
R1(config-if)#exit
R1(config)#
```

PC1

Physical | Config | Desktop | Programming | Attributes

Web Browser — X

< | > | URL | http://192.168.1.100 | Go | Stop

Cisco Packet Tracer

Welcome to Cisco Packet Tracer. Opening doors to new opportunities. Mind Wide Open.

Quick Links:
A small page
Copyrights
Image page
Image

PC2

Physical | Config | Desktop | Programming | Attributes

Web Browser — X

< | > | URL | http://192.168.1.100 | Go | Stop

Cisco Packet Tracer

Welcome to Cisco Packet Tracer. Opening doors to new opportunities. Mind Wide Open.

Quick Links:
A small page
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Image page
Image

PC1

Physical   Config   Desktop   Programming   Attributes

Command Prompt   X

```
Cisco Packet Tracer PC Command Line 1.0
C:\> ping 192.168.1.100

Pinging 192.168.1.100 with 32 bytes of data:

Reply from 192.168.1.100: bytes=32 time<1ms TTL=128
Reply from 192.168.1.100: bytes=32 time=3ms TTL=128
Reply from 192.168.1.100: bytes=32 time<1ms TTL=128
Reply from 192.168.1.100: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.100:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 3ms, Average = 0ms

C:\>
```

ster la Configuration

PC2

Physical   Config   Desktop   Programming   Attributes

Command Prompt   X

```
Cisco Packet Tracer PC Command Line 1.0
C:\>
C:\>ping 192.168.1.100

Pinging 192.168.1.100 with 32 bytes of data:

Reply from 192.168.1.100: bytes=32 time<1ms TTL=128
Reply from 192.168.1.100: bytes=32 time=1ms TTL=128
Reply from 192.168.1.100: bytes=32 time<1ms TTL=128
Reply from 192.168.1.100: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.1.100:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>
```

Bloquer le Trafic HTTPS et ICMP

```
Password:

MonCommutateur>enable
MonCommutateur#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
MonCommutateur(config)#access-list 100 deny tcp any any eq 443
MonCommutateur(config)#access-list 100 deny icmp any any
MonCommutateur(config)#
```

Copy   Paste

```
MonCommutateur(config)#access-list 100 deny tcp any any eq 443
MonCommutateur(config)#access-list 100 deny icmp any any
MonCommutateur(config)#
MonCommutateur(config)#interface FastEthernet0/0
MonCommutateur(config-if)#ip access-group 100 in
MonCommutateur(config-if)#exit
MonCommutateur(config)#
```

Copy   Paste

Sauvegarde de la Configuration

```
%SYS-5-CONFIG_I: Configured from console by console

MonCommutateur#write memory
Building configuration...
[OK]
MonCommutateur#
```

Configuration d'un VPN Site-à-Site
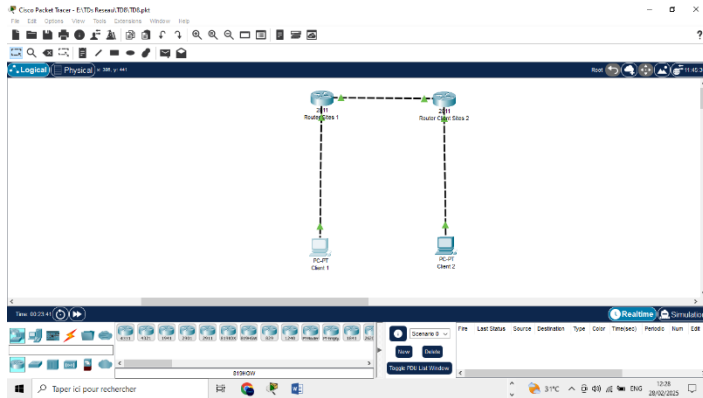
Configuration des Adresses IP

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)## Interface LAN
              ^
% Invalid input detected at '^' marker.

Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 192.168.1.1 255.255.255.0
Router(config-if)#no shutdown

Router(config-if)#exit
Router(config)## Interface WAN (vers Internet)
              ^
% Invalid input detected at '^' marker.

Router(config)#interface FastEthernet0/1
Router(config-if)#ip address 10.0.0.1 255.255.255.252
Router(config-if)#no shutdown

Router(config-if)#exit
Router(config)## Route statique vers le rseau de Site 2 via VPN
              ^
% Invalid input detected at '^' marker.

Router(config)#ip route 192.168.2.0 255.255.255.0 10.0.0.2
Router(config)#exit
Router#write memory
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up

%SYS-5-CONFIG_I: Configured from console by console

Building configuration...
[OK]
Router#
```

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)## Interface LAN
                ^
% Invalid input detected at '^' marker.

Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 192.168.2.1 255.255.255.0
Router(config-if)#no shutdown

Router(config-if)#exit
Router(config)## Interface WAN (vers Internet)
                ^
% Invalid input detected at '^' marker.

Router(config)#interface FastEthernet0/1
Router(config-if)#ip address 10.0.0.2 255.255.255.252
Router(config-if)#no shutdown

Router(config-if)#exit
Router(config)## Route statique vers le rseau de Site 1 via VPN
                ^
% Invalid input detected at '^' marker.

Router(config)#ip route 192.168.1.0 255.255.255.0 10.0.0.1
Router(config)#exit
Router#write memory
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

%SYS-5-CONFIG_I: Configured from console by console

Building configuration...
[OK]
Router#
```

Configuration du VPN IPsec

```
Router>
Router>enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#access-list 100 permit ip 192.168.1.0 0.0.0.255 192.168.2.0 0.0.0.255
Router(config)#crypto isakmp policy 10
Router(config-isakmp)#encryption aes 256
Router(config-isakmp)#hash sha
Router(config-isakmp)#authentication pre-share
Router(config-isakmp)#group 2
Router(config-isakmp)#lifetime 86400
Router(config-isakmp)#exit
Router(config)#crypto isakmp key VPN_SECRET address 10.0.0.2
Router(config)#crypto ipsec transform-set VPN-SET esp-aes 256 esp-sha-hmac
Router(config)#mode tunnel
             ^
% Invalid input detected at '^' marker.

Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#crypto map VPN-MAP 10 ipsec-isakmp
% NOTE: This new crypto map will remain disabled until a peer
        and a valid access list have been configured.
Router(config-crypto-map)#set peer 10.0.0.2
Router(config-crypto-map)#set transform-set VPN-SET
Router(config-crypto-map)#match address 100
Router(config-crypto-map)#exit
Router(config)#interface GigabitEthernet0/1
%Invalid interface type and number
Router(config)#crypto map VPN-MAP
% Incomplete command.
Router(config)#exit
Router#write memory
%SYS-5-CONFIG_I: Configured from console by console

Building configuration...
[OK]
Router#
```

Copy   Paste

```
Router#
Router#enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#access-list 100 permit ip 192.168.2.0 0.0.0.255 192.168.1.0 0.0.0.255
Router(config)#crypto isakmp policy 10
Router(config-isakmp)#encryption aes 256
Router(config-isakmp)#hash sha
Router(config-isakmp)#authentication pre-share
Router(config-isakmp)#group 2
Router(config-isakmp)#lifetime 86400
Router(config-isakmp)#exit
Router(config)#crypto isakmp key VPN_SECRET address 10.0.0.1
Router(config)#crypto ipsec transform-set VPN-SET esp-aes 256 esp-sha-hmac
Router(config)#mode tunnel
                   ^
% Invalid input detected at '^' marker.

Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#crypto map VPN-MAP 10 ipsec-isakmp
Router(config-crypto-map)#set peer 10.0.0.1
Router(config-crypto-map)#set transform-set VPN-SET
Router(config-crypto-map)#match address 100
Router(config-crypto-map)#exit
Router(config)#interface GigabitEthernet0/1
%Invalid interface type and number
Router(config)#crypto map VPN-MAP
% Incomplete command.
Router(config)#exit
Router#write memory
%SYS-5-CONFIG_I: Configured from console by console

Building configuration...
[OK]
Router#
```
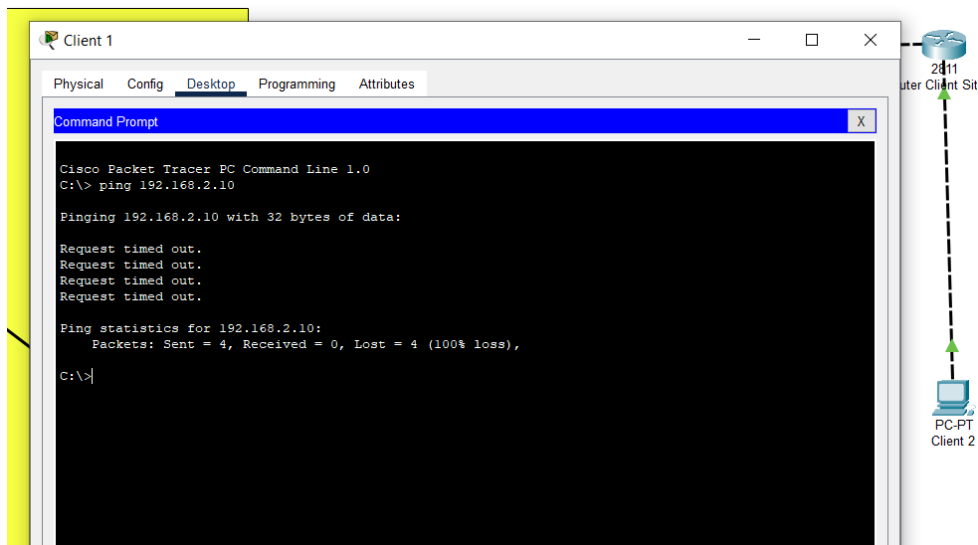)

Vérification du VPN

Tester la connectivité

Vérification de l'établissement du VPN

```
Building configuration...
[OK]
Router#
Router#enable
Router#show crypto isakmp sa
IPv4 Crypto ISAKMP SA
dst             src             state           conn-id slot status

IPv6 Crypto ISAKMP SA

Router#
```

En conclusion, ce cours nous permet de comprendre comment faire une configuration de base de pare-feu, et les bases de la configuration d'un VPN site-à-site dans Cisco Packet Tracer.