IUS
INSTITUT
UNIVERSITAIRE
DES SCIENCES

FACULTÉ DES SCIENCES ET DES TECHNOLOGIES

(FST)

Troisième année

RAPPORT

Sur le Travail de Laboratoire N°_3

COURS

Réseaux II

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SEMESTRE

II

Le 25/04/2025

1. **Reproduction de cette topologie en configurant le protocole Telnet.**

- **Configuration des routeurs**

R1

```
R1#1.895: %LINK-5-CHANGED: Interface FastEthernet0/0, changed state to administr
atively down
R1#en
R1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#hostname routeur1
routeur1(config)#int f0/0
routeur1(config-if)#ip address 192.168.1.1 255.255.255.0
routeur1(config-if)#no sh
routeur1(config-if)#exit
*Apr 25 12:39:21.399: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state t
o up
*Apr 25 12:39:22.399: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
et0/0, changed state to up
routeur1(config-if)#exit
```

R2

```
Copyright (c) 1986-2011 by Cisco Systems, Inc.
Compiled Fri 04-Mar-11 06:49 by prod_rel_team
*Apr 25 12:37:50.659: %SNMP-5-COLDSTART: SNMP agent on host R2 is undergoing a c
old start
*Apr 25 12:37:50.735: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
et0/0, changed state to down
*Apr 25 12:37:50.755: %CRYPTO-6-ISAKMP_ON_OFF: ISAKMP is OFF
*Apr 25 12:37:50.755: %CRYPTO-6-GDOI_ON_OFF: GDOI is OFF
*Apr 25 12:37:52.015: %LINK-5-CHANGED: Interface FastEthernet0/0, changed state
to administratively down
R2#en
R2#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R2(config)#hostname routeur2
routeur2(config)#int f0/0
routeur2(config-if)#ip address 192.168.1.2 255.255.255.0
routeur2(config-if)#no sh
routeur2(config-if)#exit
routeur2(config)#
*Apr 25 12:40:12.127: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state t
o up
*Apr 25 12:40:13.215: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
et0/0, changed state to up
```

- **Configuration du protocole Telnet sur le routeur 1**

```
routeur1(config-if)#exit
routeur1(config)#line vty 0 4
routeur1(config-line)#password 1234
routeur1(config-line)#login
routeur1(config-line)#transport input telnet
routeur1(config-line)#exit
routeur1(config)#show running-config | include line vty
                  ^
% Invalid input detected at '^' marker.

routeur1(config)#exit
```

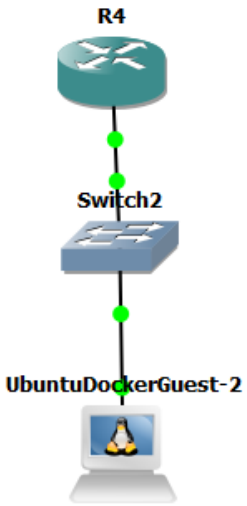
- **Testez la connectivité sur le routeur 2**

```
routeur2#ping 192.168.1.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.1, timeout is 2 seconds:
.!!!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 64/83/92 ms
routeur2#telnet 192.168.1.1
Trying 192.168.1.1 ... Open


User Access Verification

Password:
routeur1>
[Connection to 192.168.1.1 closed by foreign host]
routeur2#
```

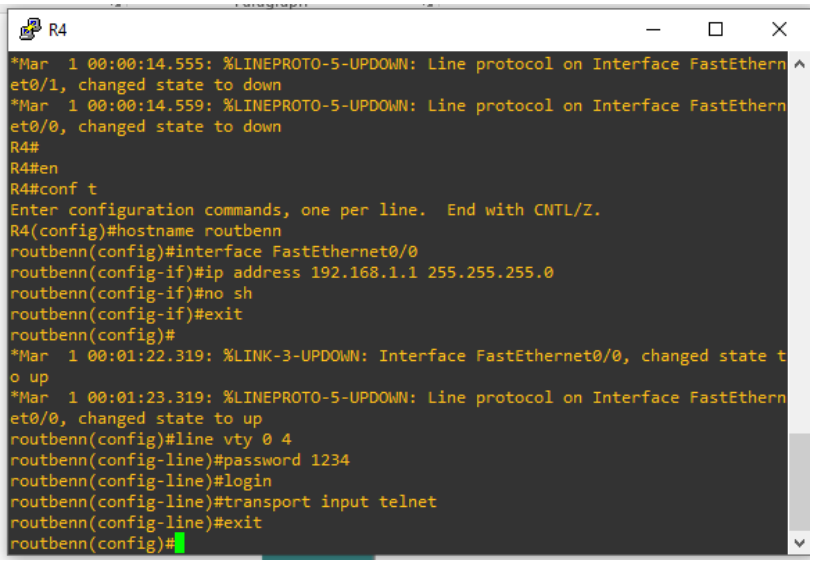
- **Vérification du protocole Telnet**

```
routeur1#show running-config | include line vty
line vty 0 4
routeur1#
```

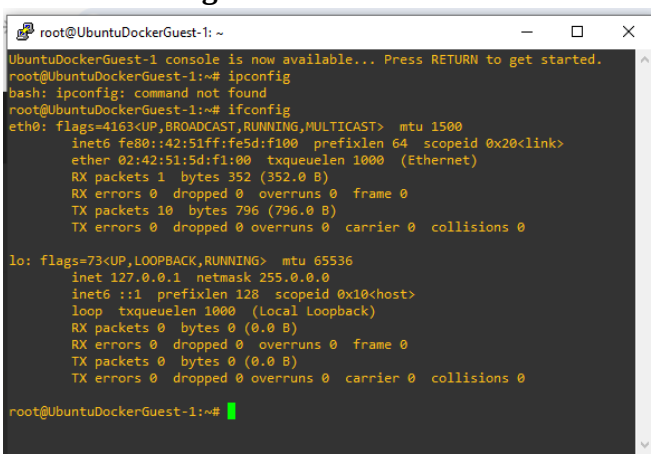
- **Deuxième Topologies**

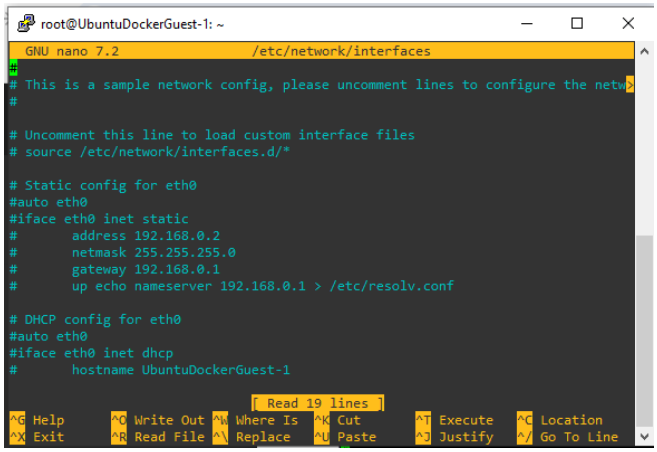


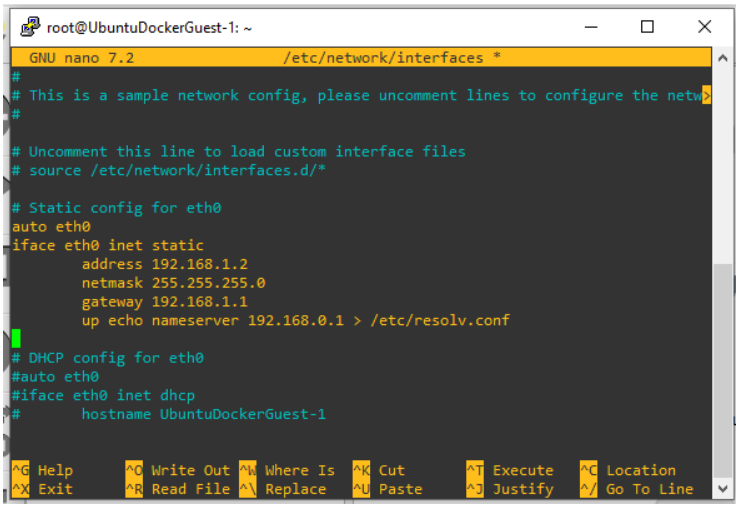
- **Configuration du routeur**

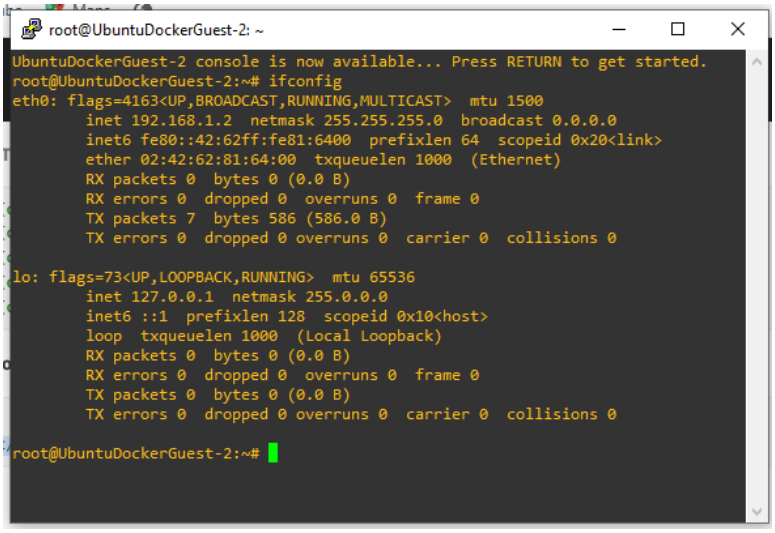


- **Configuration du PC**

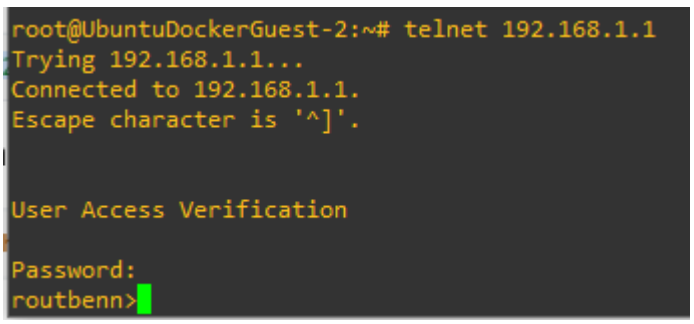








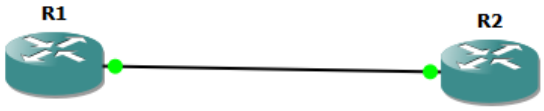
- **Commande Telnet sur le PC**



- **Vérifier la configuration Telnet**

```
routbenn(config)#exit
routbenn#en
*Mar  1 00:23:11.279: %SYS-5-CONFIG_I: Configured from console by console
routbenn#show running-config | include line vty
line vty 0 4
routbenn#
```

2. **Reproduction de cette topologie en configurant le protocole SSH.**



- **Configuration du Routeur**

```
R1
R1#en
R1#
R1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#hostname R1peter
R1peter(config)#int f0/0
R1peter(config-if)#ip address 192.168.1.1 255.255.255.0
R1peter(config-if)#Routeur1(config-if)# no shutdown
                   ^
% Invalid input detected at '^' marker.

R1peter(config-if)#Routeur1(config-if)# exit
                   ^
% Invalid input detected at '^' marker.

R1peter(config-if)#ip address 192.168.1.1 255.255.255.0
R1peter(config-if)#no sh
R1peter(config-if)#exit
*Apr 26 07:11:56.455: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state t
o up
*Apr 26 07:11:57.455: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
et0/0, changed state to up
R1peter(config-if)#exit
R1peter(config)#
```

- **Configuration du protocole SSH sur le Routeur**

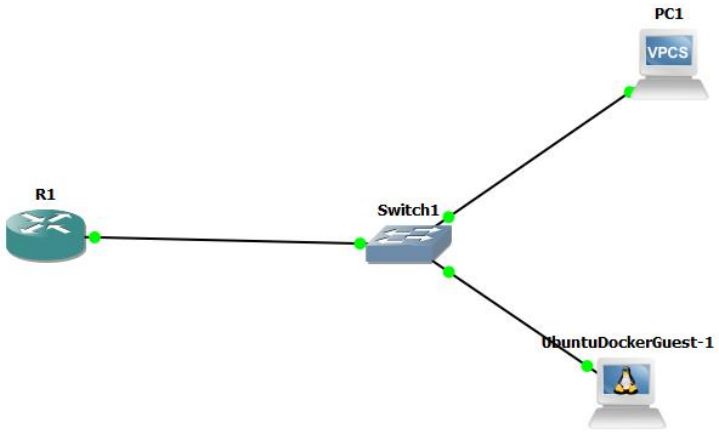
R1

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

R1peter(config)#ip domain-name petergraphic.com
R1peter(config)#crypto key generate rsa
The name for the keys will be: R1peter.petergraphic.com
Choose the size of the key modulus in the range of 360 to 2048 for your
  General Purpose Keys. Choosing a key modulus greater than 512 may take
  a few minutes.

How many bits in the modulus [512]: 2048
% Generating 2048 bit RSA keys, keys will be non-exportable...
*Apr 26 07:27:31.859: %SYS-3-CPUHOG: Task is running for (2020)msecs, more than
(2000)msecs (0/0),process = crypto sw pk proc.
-Traceback= 0x63086DDCz 0x6392B88Cz 0x6395448Cz 0x63954B04z 0x63951FE0z 0x639524
04z 0x63952640z 0x639536F0z 0x6307E640z 0x6307E624z
*Apr 26 07:27:32.987: %SYS-3-CPUYLD: Task ran for (3148)msecs, more than (2000)m
secs (0/0),process = crypto sw pk proc[OK]

R1peter(config)#
*Apr 26 07:27:39.731: %SSH-5-ENABLED: SSH 1.99 has been enabled
R1peter(config)#username admin secret 1234
R1peter(config)#line vty 0 4
R1peter(config-line)#transport input ssh
R1peter(config-line)#login local
R1peter(config-line)#exit
R1peter(config)#ip ssh version 2
R1peter(config)#ssh time-out 60
                  ^
% Invalid input detected at '^' marker.

R1peter(config)#ssh authentification-retries 5
                  ^
% Invalid input detected at '^' marker.

R1peter(config)#end
R1peter#
*Apr 26 07:38:20.203: %SYS-5-CONFIG_I: Configured from console by console
R1peter#wr
Building configuration...
[OK]
```

R2

```
R2(config)#hostname R2peter
R2peter(config)#int f0/0
R2peter(config-if)#ip address 192.168.1.1 255.255.255.0
R2peter(config-if)#no sh
R2peter(config-if)#
*Apr 26 09:19:30.183: %IP-4-DUPADDR: Duplicate address 192.168.1.1 on FastEthern
et0/0, sourced by ca01.14f4.0000
R2peter(config-if)#exit
*Apr 26 09:19:32.135: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state t
o up
*Apr 26 09:19:33.135: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
et0/0, changed state to up
R2peter(config-if)#exit
R2peter(config)#ssh admin@192.168.1.1
                  ^
% Invalid input detected at '^' marker.

R2peter(config)#
*Apr 26 09:20:01.103: %IP-4-DUPADDR: Duplicate address 192.168.1.1 on FastEthern
et0/0, sourced by ca01.14f4.0000
R2peter(config)#exit
R2peter#en
*Apr 26 09:20:11.035: %SYS-5-CONFIG_I: Configured from console by console
R2peter#ssh admin@192.168.1.1
% No user specified nor available for SSH client
R2peter#
*Apr 26 09:20:31.339: %IP-4-DUPADDR: Duplicate address 192.168.1.1 on FastEthern
et0/0, sourced by ca01.14f4.0000
R2peter#
*Apr 26 09:21:01.355: %IP-4-DUPADDR: Duplicate address 192.168.1.1 on FastEthern
et0/0, sourced by ca01.14f4.0000
R2peter#
*Apr 26 09:21:31.371: %IP-4-DUPADDR: Duplicate address 192.168.1.1 on FastEthern
et0/0, sourced by ca01.14f4.0000
R2peter#
*Apr 26 09:22:01.627: %IP-4-DUPADDR: Duplicate address 192.168.1.1 on FastEthern
et0/0, sourced by ca01.14f4.0000
R2peter#
*Apr 26 09:22:31.631: %IP-4-DUPADDR: Duplicate address 192.168.1.1 on FastEthern
et0/0, sourced by ca01.14f4.0000
R2peter#
*Apr 26 09:23:01.639: %IP-4-DUPADDR: Duplicate address 192.168.1.1 on FastEthern
et0/0, sourced by ca01.14f4.0000
R2peter#
*Apr 26 09:23:33.367: %IP-4-DUPADDR: Duplicate address 192.168.1.1 on FastEthern
et0/0, sourced by ca01.14f4.0000
```

3. **Reproduction de cette topologie en configurant le protocole SSH.**



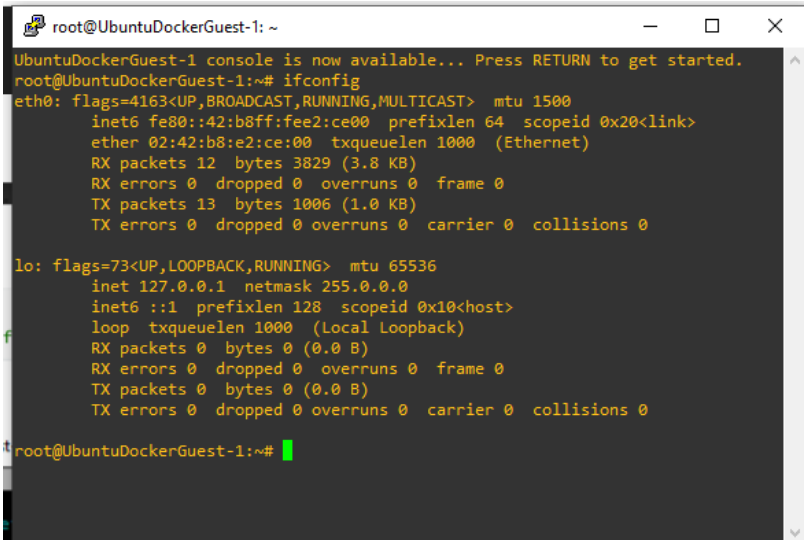
- **Configuration du routeur**

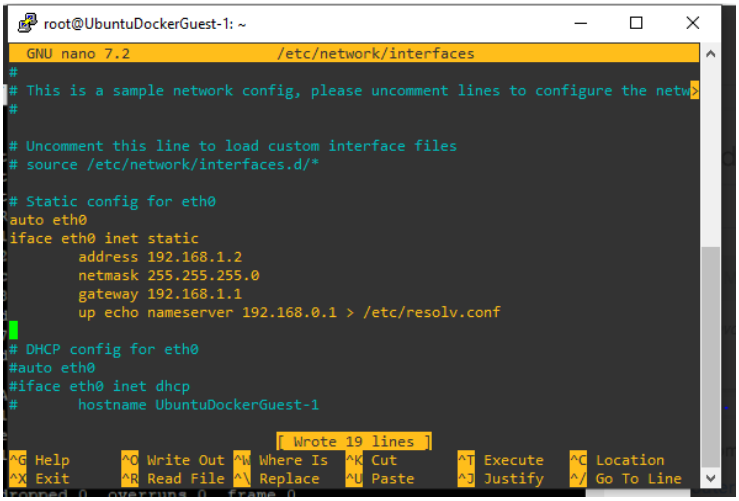
```
R1
et0/1, changed state to down
R1#en
R1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#hostname R1graphic
R1graphic(config)#int f0/0
R1graphic(config-if)#ip address 192.168.1.1 255.255.255.0
R1graphic(config-if)#no sh
R1graphic(config-if)#exit
R1graphic(config)#
*Mar  1 00:01:56.751: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state t
o up
*Mar  1 00:01:57.751: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
et0/0, changed state to up
R1graphic(config)#ip domain-name petergraphic.com
```

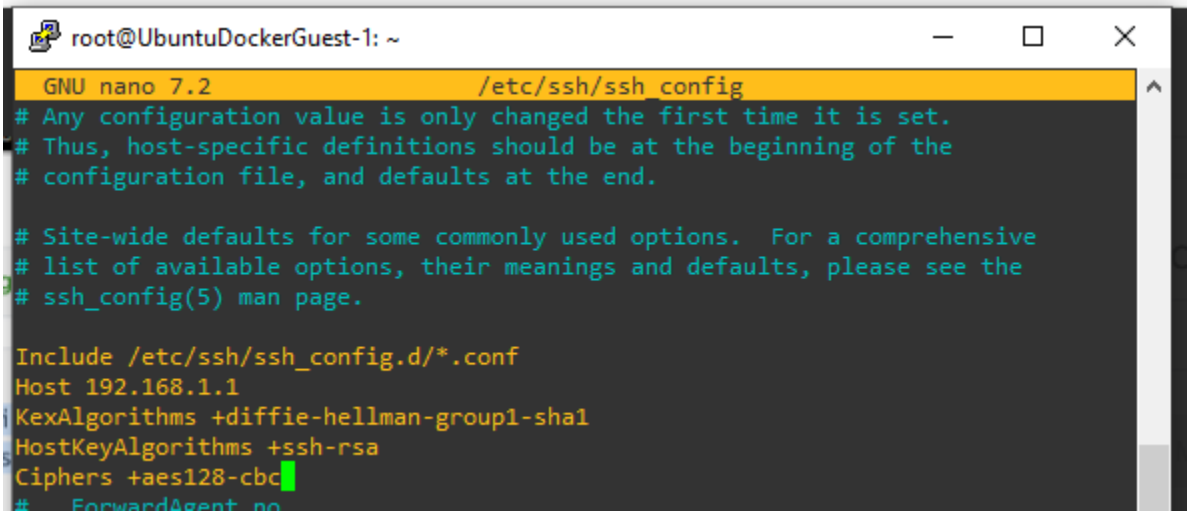
- **Configuration du protocole SSH routeur**

```
R1graphic(config)#ip domain-name petergraphic.com
R1graphic(config)#crypto key generate rsa
The name for the keys will be: R1graphic.petergraphic.com
Choose the size of the key modulus in the range of 360 to 2048 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]

R1graphic(config)#
*Mar  1 00:02:46.379: %SSH-5-ENABLED: SSH 1.99 has been enabled
R1graphic(config)#username admin secret 1234
R1graphic(config)#line vty 0 4
R1graphic(config-line)#transport input ssh
R1graphic(config-line)#login local
R1graphic(config-line)#exit
R1graphic(config)#ip ssh version 2
R1graphic(config)#ssh time-out 50
                   ^
% Invalid input detected at '^' marker.

R1graphic(config)#ssh time-out 60
                   ^
% Invalid input detected at '^' marker.

R1graphic(config)#ssh authentification-retries 5
                   ^
% Invalid input detected at '^' marker.

R1graphic(config)#end
R1graphic#
*Mar  1 00:04:19.243: %SYS-5-CONFIG_I: Configured from console by console
R1graphic#wr
Building configuration...
[OK]
R1graphic#
```

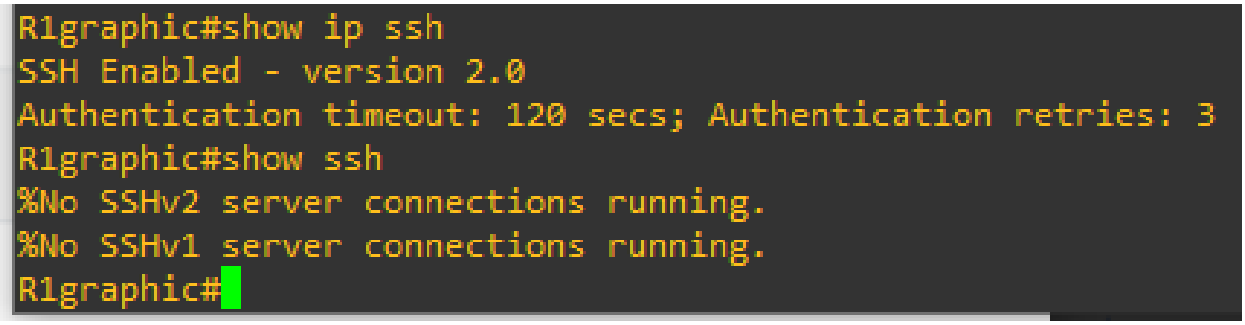
- **Configuration du PC Ubuntu**



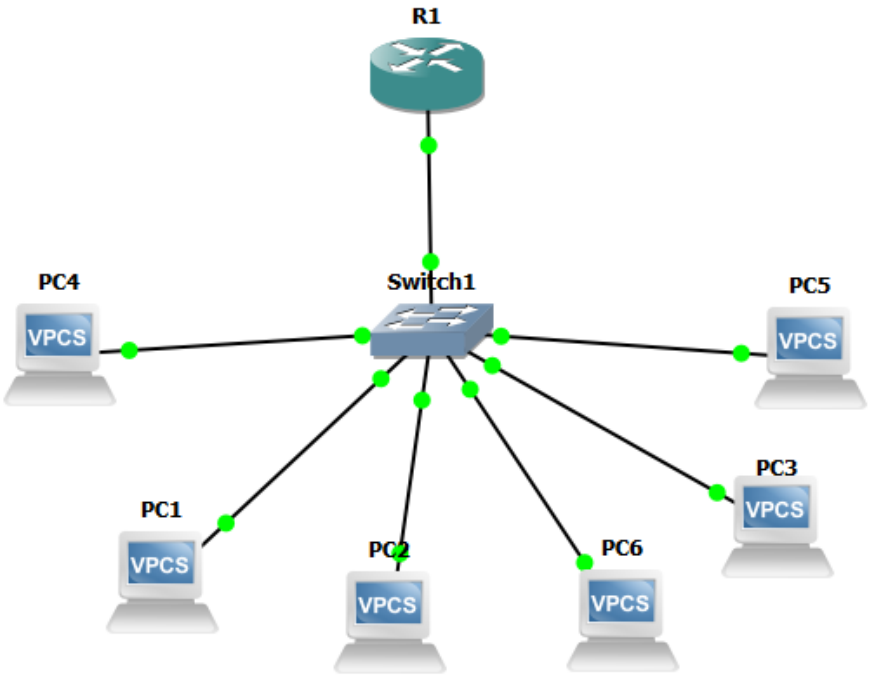




- **Vérification la configuration Ssh**



4. **Reproduction d'une topologie en configurant le serveur DNS.**



- **Configuration du routeur**

```
R1#en
R1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#hostname R1ismael
R1ismael(config)#int f0/0
R1ismael(config-if)#ip address 192.168.1.1 255.255.255.0
R1ismael(config-if)#no sh
R1ismael(config-if)#ex
*Apr 26 10:02:14.791: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state t
o up
*Apr 26 10:02:15.791: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
et0/0, changed state to up
R1ismael(config-if)#exit
R1ismael(config)#
```

- **Configuration les adresses IP des PC**

```
PC1> ip 192.168.1.2 255.255.255.0 192.168.1.1
Checking for duplicate address...
PC1 : 192.168.1.2 255.255.255.0 gateway 192.168.1.1

PC1>
```

```
PC2> ip 192.168.1.3 255.255.255.0 192.168.1.1
Checking for duplicate address...
PC2 : 192.168.1.3 255.255.255.0 gateway 192.168.1.1

PC2>
```

```
PC3> ip 192.168.1.4 255.255.255.0 192.168.1.1
Checking for duplicate address...
PC3 : 192.168.1.4 255.255.255.0 gateway 192.168.1.1

PC3>
```

```
PC4> ip 192.168.1.5 255.255.255.0 192.168.1.1
Checking for duplicate address...
PC4 : 192.168.1.5 255.255.255.0 gateway 192.168.1.1

PC4>
```

```
PC5> ip 192.168.1.6 255.255.255.0 192.168.1.1
Checking for duplicate address...
PC5 : 192.168.1.6 255.255.255.0 gateway 192.168.1.1

PC5>
```

```
PC6> ip 192.168.1.7 255.255.255.0 192.168.1.1
Checking for duplicate address...
PC6 : 192.168.1.7 255.255.255.0 gateway 192.168.1.1

PC6>
```

- **Configuration du serveur DNS sur le routeur**

```
R1ismael#en
R1ismael#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R1ismael(config)#ip dns server
R1ismael(config)#ip host pc1.local 192.168.1.2
R1ismael(config)#ip host pc2.local 192.168.1.3
R1ismael(config)#ip host pc3.local 192.168.1.4
R1ismael(config)#ip host google.com 8.8.8.8
R1ismael(config)#ip name-server 8.8.8.8
R1ismael(config)#ip domain-lookup
R1ismael(config)#
```

- **Tester la connectivité**

```
PC1> ping 192.168.1.1

84 bytes from 192.168.1.1 icmp_seq=1 ttl=255 time=46.112 ms
84 bytes from 192.168.1.1 icmp_seq=2 ttl=255 time=16.489 ms
84 bytes from 192.168.1.1 icmp_seq=3 ttl=255 time=3.313 ms
84 bytes from 192.168.1.1 icmp_seq=4 ttl=255 time=2.452 ms
84 bytes from 192.168.1.1 icmp_seq=5 ttl=255 time=2.876 ms

PC1>
```

```
PC2> ping 192.168.1.1

84 bytes from 192.168.1.1 icmp_seq=1 ttl=255 time=15.105 ms
84 bytes from 192.168.1.1 icmp_seq=2 ttl=255 time=3.026 ms
84 bytes from 192.168.1.1 icmp_seq=3 ttl=255 time=3.831 ms
84 bytes from 192.168.1.1 icmp_seq=4 ttl=255 time=4.119 ms
84 bytes from 192.168.1.1 icmp_seq=5 ttl=255 time=3.975 ms

PC2>
```

```
PC3> ping 192.168.1.1

84 bytes from 192.168.1.1 icmp_seq=1 ttl=255 time=14.912 ms
84 bytes from 192.168.1.1 icmp_seq=2 ttl=255 time=16.307 ms
84 bytes from 192.168.1.1 icmp_seq=3 ttl=255 time=15.588 ms
84 bytes from 192.168.1.1 icmp_seq=4 ttl=255 time=13.958 ms
84 bytes from 192.168.1.1 icmp_seq=5 ttl=255 time=15.285 ms

PC3>
```

- **Configuration du serveur DNS sur les PC**

```
PC1> ip dns 192.168.1.1

PC1>
```

```
PC2> ip dns 192.168.1.1

PC2>
```

```
PC3> ip dns 192.168.1.1

PC3>
```

- **Tester la résolution DNS**

```
PC1> ping pc2.local
pc2.local resolved to 192.168.1.3

84 bytes from 192.168.1.3 icmp_seq=1 ttl=64 time=0.354 ms
84 bytes from 192.168.1.3 icmp_seq=2 ttl=64 time=0.582 ms
84 bytes from 192.168.1.3 icmp_seq=3 ttl=64 time=0.488 ms
84 bytes from 192.168.1.3 icmp_seq=4 ttl=64 time=0.590 ms
84 bytes from 192.168.1.3 icmp_seq=5 ttl=64 time=0.599 ms

PC1>
```

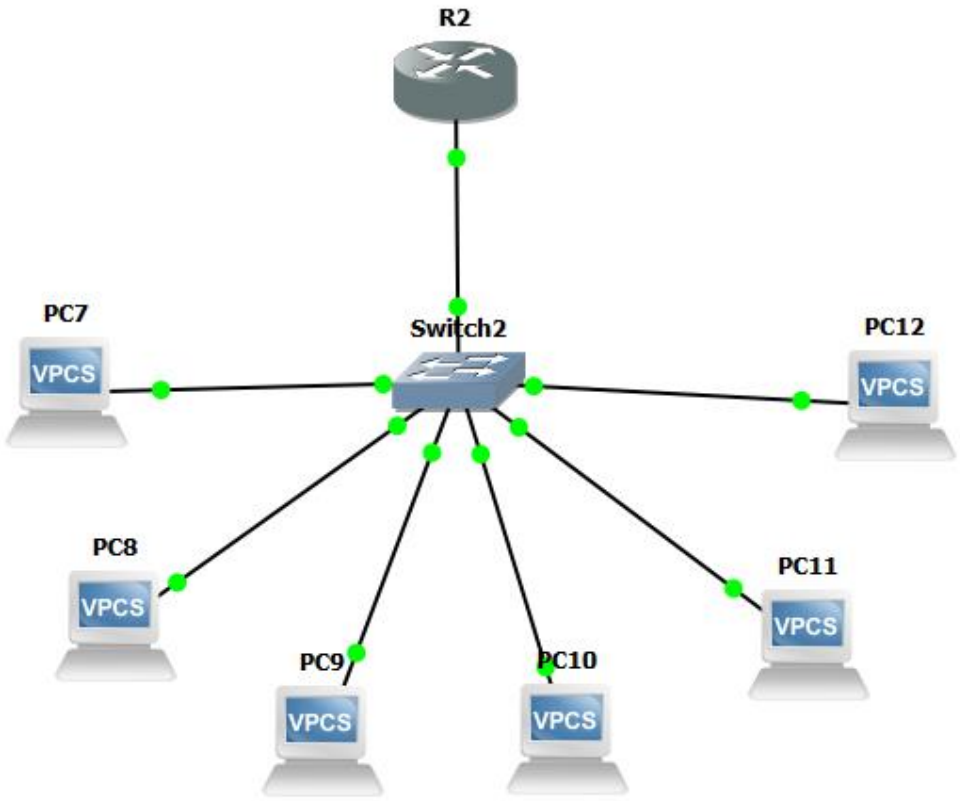
```
PC2> ping pc3.local
pc3.local resolved to 192.168.1.4

84 bytes from 192.168.1.4 icmp_seq=1 ttl=64 time=0.408 ms
84 bytes from 192.168.1.4 icmp_seq=2 ttl=64 time=0.507 ms
84 bytes from 192.168.1.4 icmp_seq=3 ttl=64 time=0.447 ms
84 bytes from 192.168.1.4 icmp_seq=4 ttl=64 time=0.399 ms
84 bytes from 192.168.1.4 icmp_seq=5 ttl=64 time=0.416 ms

PC2>
```

```
PC3> ping pc1.local
pc1.local resolved to 192.168.1.2

84 bytes from 192.168.1.2 icmp_seq=1 ttl=64 time=0.409 ms
84 bytes from 192.168.1.2 icmp_seq=2 ttl=64 time=0.379 ms
84 bytes from 192.168.1.2 icmp_seq=3 ttl=64 time=0.472 ms
84 bytes from 192.168.1.2 icmp_seq=4 ttl=64 time=0.430 ms
84 bytes from 192.168.1.2 icmp_seq=5 ttl=64 time=0.468 ms

PC3>
VPCS1> ping pc2.local
```

- **Vérification de la configuration DNS**

```
R1ismael#show ip dns view
DNS View default parameters:
Logging is off
DNS Resolver settings:
  Domain lookup is enabled
  Default domain name:
  Domain search list:
  Lookup timeout: 3 seconds
  Lookup retries: 2
  Domain name-servers:
    8.8.8.8
DNS Server settings:
  Forwarding of queries is enabled
  Forwarder timeout: 3 seconds
  Forwarder retries: 2
  Forwarder addresses:


R1ismael#
```

5. **Reproduction d'une topologie en configurant le serveur DHCP.**



- **Configuration du routeur**

```
R2#en
R2#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R2(config)#hostname Routeur1
Routeur1(config)#int f0/0
Routeur1(config-if)#ip address 192.168.1.1 255.255.255.0
Routeur1(config-if)#no sh
Routeur1(config-if)#exit
Routeur1(config)#
*Mar  1 00:13:29.227: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state t
o up
*Mar  1 00:13:30.227: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
et0/0, changed state to up
Routeur1(config)#
```

- **Configuration du serveur DHCP**

```
Routeur1(config)#ip dhcp pool LAN_POOL
Routeur1(dhcp-config)#network 192.168.1.0 255.255.255.0
Routeur1(dhcp-config)#default-router 192.168.1.1
Routeur1(dhcp-config)#dns-server 8.8.8.8
Routeur1(dhcp-config)#exit
Routeur1(config)#ip dhcp excluded-address 192.168.1.1 192.168.1.10
Routeur1(config)#
```

- **Configuration des PC pour utiliser DHCP**

```
PC7> ip dhcp
DDORA IP 192.168.1.11/24 GW 192.168.1.1

PC7> show ip

NAME        : PC7[1]
IP/MASK     : 192.168.1.11/24
GATEWAY     : 192.168.1.1
DNS         : 8.8.8.8
DHCP SERVER : 192.168.1.1
DHCP LEASE  : 86134, 86400/43200/75600
MAC         : 00:50:79:66:68:06
LPORT       : 20042
RHOST:PORT  : 127.0.0.1:20043
MTU         : 1500

PC7>
```

```
PC8> ip dhcp
DDORA IP 192.168.1.12/24 GW 192.168.1.1

PC8> show ip

NAME        : PC8[1]
IP/MASK     : 192.168.1.12/24
GATEWAY     : 192.168.1.1
DNS         : 8.8.8.8
DHCP SERVER : 192.168.1.1
DHCP LEASE  : 86122, 86400/43200/75600
MAC         : 00:50:79:66:68:07
LPORT       : 20044
RHOST:PORT  : 127.0.0.1:20045
MTU         : 1500

PC8>
```

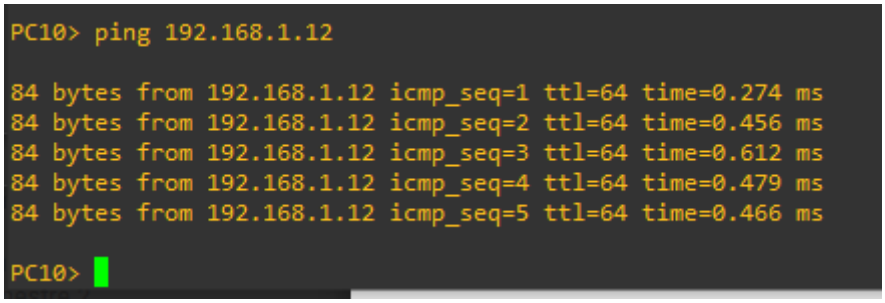
```
PC9> ip dhcp
DDORA IP 192.168.1.13/24 GW 192.168.1.1

PC9> show ip

NAME        : PC9[1]
IP/MASK     : 192.168.1.13/24
GATEWAY     : 192.168.1.1
DNS         : 8.8.8.8
DHCP SERVER : 192.168.1.1
DHCP LEASE  : 86122, 86400/43200/75600
MAC         : 00:50:79:66:68:08
LPORT       : 20046
RHOST:PORT  : 127.0.0.1:20047
MTU         : 1500

PC9>
```

```
PC10> ip dhcp
DDORA IP 192.168.1.14/24 GW 192.168.1.1

PC10> show ip

NAME        : PC10[1]
IP/MASK     : 192.168.1.14/24
GATEWAY     : 192.168.1.1
DNS         : 8.8.8.8
DHCP SERVER : 192.168.1.1
DHCP LEASE  : 86131, 86400/43200/75600
MAC         : 00:50:79:66:68:09
LPORT       : 20048
RHOST:PORT  : 127.0.0.1:20049
MTU         : 1500

PC10>
```

- **Tester les connectivités**

```
PC7> ping 192.168.1.12

84 bytes from 192.168.1.12 icmp_seq=1 ttl=64 time=0.762 ms
84 bytes from 192.168.1.12 icmp_seq=2 ttl=64 time=0.433 ms
84 bytes from 192.168.1.12 icmp_seq=3 ttl=64 time=0.376 ms
84 bytes from 192.168.1.12 icmp_seq=4 ttl=64 time=0.490 ms
84 bytes from 192.168.1.12 icmp_seq=5 ttl=64 time=0.376 ms

PC7>
```

```
PC9> ping 192.168.1.11

84 bytes from 192.168.1.11 icmp_seq=1 ttl=64 time=0.269 ms
84 bytes from 192.168.1.11 icmp_seq=2 ttl=64 time=0.336 ms
84 bytes from 192.168.1.11 icmp_seq=3 ttl=64 time=0.435 ms
84 bytes from 192.168.1.11 icmp_seq=4 ttl=64 time=0.758 ms
84 bytes from 192.168.1.11 icmp_seq=5 ttl=64 time=0.584 ms

PC9>
```



CONCLUSION :

J’ai appris les compétences nécessaires pour Configurer le protocole de Telnet, SSH, DNS et DHCP.