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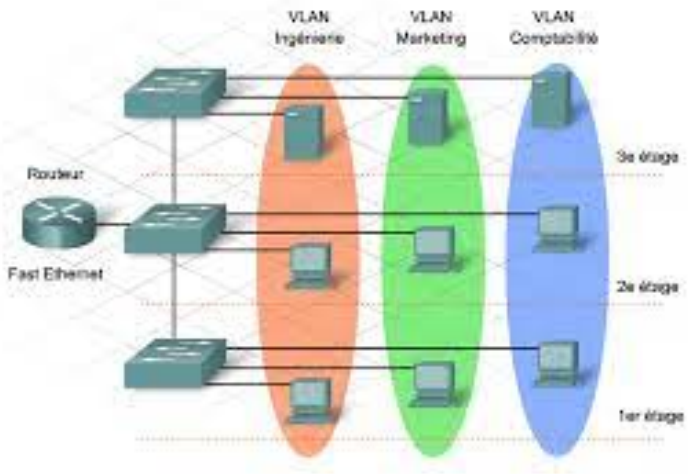
Le 07/02/2024



TP3 - Configuration d’un switch et segmentation d’un réseau

Sommaire

I - Mise en oeuvre de VLAN statiques

1) Etape 1

Configuration du switch :

```
hostname Switch_A
enable secret 5 $1$rp6k$NJqFdCCQLzDdJXREEa8F..
interface Vlan1
 ip address 192.168.100.2 255.255.255.0
ip default-gateway 192.168.100.1
ip http server
ip http secure-server
!
line con 0
 password cisco
 login
line vty 0 4
 password cisco
 login
line vty 5 15
 password cisco
 login
!
```

2) Etape 2

```
  GNU nano 7.2                  /etc/network/interfaces
# This file describes the network interfaces available on your system
# and how to activate them. For more information, see interfaces(5).

source /etc/network/interfaces.d/*

# The loopback network interface
auto enp0s3
iface enp0s3 inet static
address 192.168.100.10
netmask 255.255.255.0
gateway 192.168.100.1

#iface enp0s3.10 inet static
#vlan-raw-device enp0s3
#address 192.168.111.1
#netmask 255.255.255.192

#iface enp0s3.20 inet static
#vlan-raw-device enp0s3
#address 192.168.111.65
                        [ Lecture de 26 lignes ]
^G Aide       ^O Écrire     ^W Chercher   ^K Couper     ^T Exécuter   ^C Emplacement
^X Quitter    ^R Lire fich. ^\ Remplacer  ^U Coller     ^J Justifier  ^/ Aller ligne
```

```
root@deb1-b319:/home/administrateur# ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group defaul
t qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host noprefixroute
       valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP gr
oup default qlen 1000
    link/ether 08:00:27:af:02:c9 brd ff:ff:ff:ff:ff:ff
    inet 192.168.100.10/24 brd 192.168.100.255 scope global enp0s3
       valid_lft forever preferred_lft forever
    inet6 fe80::a00:27ff:feaf:2c9/64 scope link
       valid_lft forever preferred_lft forever
root@deb1-b319:/home/administrateur#
```

```
  GNU nano 7.2                  /etc/network/interfaces
# This file describes the network interfaces available on your system
# and how to activate them. For more information, see interfaces(5).

source /etc/network/interfaces.d/*

# The loopback network interface
auto enp0s3
iface enp0s3 inet static
address 192.168.100.15
netmask 255.255.255.0
gateway 192.168.100.1

                        [ Lecture de 11 lignes ]
^G Aide       ^O Écrire     ^W Chercher   ^K Couper     ^T Exécuter   ^C Emplacement
^X Quitter    ^R Lire fich. ^\ Remplacer  ^U Coller     ^J Justifier  ^/ Aller ligne
```

```
root@Debian-12-Bookworm:/home/administrateur# nano /etc/network/interfaces
root@Debian-12-Bookworm:/home/administrateur# sudo ifdown enp0s3
RTNETLINK answers: No such process
RTNETLINK answers: Cannot assign requested address
root@Debian-12-Bookworm:/home/administrateur# sudo ifdown enp0s3
ifdown: interface enp0s3 not configured
root@Debian-12-Bookworm:/home/administrateur# sudo ifup enp0s3
root@Debian-12-Bookworm:/home/administrateur# ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group defaul
t qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host noprefixroute
       valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP gr
oup default qlen 1000
    link/ether 08:00:27:49:1b:65 brd ff:ff:ff:ff:ff:ff
    inet 192.168.100.15/24 brd 192.168.100.255 scope global enp0s3
       valid_lft forever preferred_lft forever
    inet6 fe80::a00:27ff:fe49:1b65/64 scope link tentative
       valid_lft forever preferred_lft forever
```

PC1 : 192.168.100.10 (adresse ipv4) 255.255.255.0 (masque) 192.168.100.1 (gateway)
PC2 : 192.168.100.15 (adresse ipv4) 255.255.255.0 (masque) 192.168.100.1 (gateway)

3) Etape 3

Vérification de la connectivité entre les ordinateurs et le switch :

```
root@deb1-b319:/home/administrateur# ping 192.168.100.2
PING 192.168.100.2 (192.168.100.2) 56(84) bytes of data.
64 bytes from 192.168.100.2: icmp_seq=2 ttl=255 time=4.10 ms
64 bytes from 192.168.100.2: icmp_seq=3 ttl=255 time=2.29 ms
64 bytes from 192.168.100.2: icmp_seq=4 ttl=255 time=2.99 ms
64 bytes from 192.168.100.2: icmp_seq=5 ttl=255 time=4.43 ms
64 bytes from 192.168.100.2: icmp_seq=6 ttl=255 time=2.68 ms
64 bytes from 192.168.100.2: icmp_seq=7 ttl=255 time=1.54 ms
^C
--- 192.168.100.2 ping statistics ---
7 packets transmitted, 6 received, 14.2857% packet loss, time 6017ms
rtt min/avg/max/mdev = 1.543/3.004/4.431/0.998 ms
root@deb1-b319:/home/administrateur#
```

```
root@Debian-12-Bookworm:/home/administrateur# ping 192.168.100.2
PING 192.168.100.2 (192.168.100.2) 56(84) bytes of data.
64 bytes from 192.168.100.2: icmp_seq=1 ttl=255 time=2.15 ms
64 bytes from 192.168.100.2: icmp_seq=2 ttl=255 time=2.16 ms
64 bytes from 192.168.100.2: icmp_seq=3 ttl=255 time=3.25 ms
64 bytes from 192.168.100.2: icmp_seq=4 ttl=255 time=2.11 ms
64 bytes from 192.168.100.2: icmp_seq=5 ttl=255 time=1.82 ms
64 bytes from 192.168.100.2: icmp_seq=6 ttl=255 time=2.18 ms
^C
--- 192.168.100.2 ping statistics ---
6 packets transmitted, 6 received, 0% packet loss, time 5005ms
rtt min/avg/max/mdev = 1.822/2.277/3.246/0.449 ms
root@Debian-12-Bookworm:/home/administrateur#
```

Les pings entre les deux ordinateurs et le commutateur ont été réussi !

4) Etape 4

```
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
                                                 Gi0/1, Gi0/2
2    ndf                               active
1002 fddi-default                      act/unsup
1003 token-ring-default                act/unsup
1004 fddinet-default                   act/unsup
1005 trnet-default                     act/unsup
```

Par défaut, tous les ports du switch appartiennent au vlan 1 (qui est le vlan créé par défaut).

5) Etape 5

Création et nomination des VLANS :

```
Switch_A#vlan database
% Warning: It is recommended to configure VLAN from config mode,
  as VLAN database mode is being deprecated. Please consult user
  documentation for configuring VTP/VLAN in config mode.

Switch_A(vlan)#vlan 2 name VLAN2
VLAN 2 modified:
    Name: VLAN2
Switch_A(vlan)#vlan 3 name VLAN3
VLAN 3 added:
    Name: VLAN3
Switch_A(vlan)#exit
APPLY completed.
Exiting....
```

Vérification de la création des VLANS :

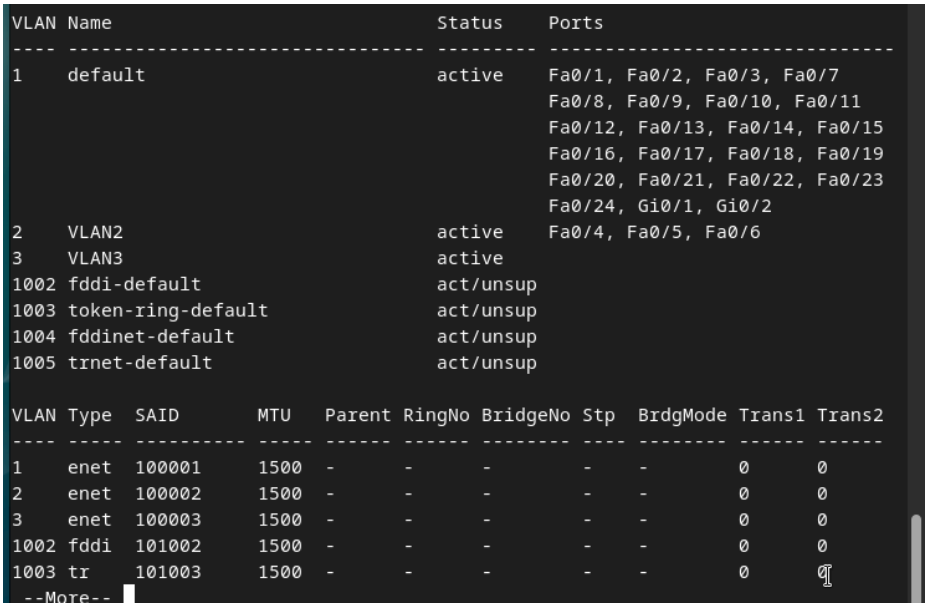
```
VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    Fa0/1, Fa0/2, Fa0/3, Fa0/4
                                                Fa0/5, Fa0/6, Fa0/7, Fa0/8
                                                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
                                                Gi0/1, Gi0/2
2    VLAN2                            active
3    VLAN3                            active
1002 fddi-default                     act/unsup
1003 token-ring-default               act/unsup
1004 fddinet-default                  act/unsup
1005 trnet-default                    act/unsup

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
1    enet  100001     1500  -      -      -        -    -        0      0
2    enet  100002     1500  -      -      -        -    -        0      0
3    enet  100003     1500  -      -      -        -    -        0      0
1002 fddi  101002     1500  -      -      -        -    -        0      0
 --More--
```

6) Etape 6

Affectation des ports FastEthernet 4,5,6 au VLAN 2 :

```
Switch_A#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch_A(config)#interface fastethernet 0/4
Switch_A(config-if)#switchport mode access
Switch_A(config-if)#exit
Switch_A(config)#interface range fastethernet 0/4 - 6
Switch_A(config-if-range)#switchport mode access
Switch_A(config-if-range)#switchport access vlan 2
Switch_A(config-if-range)#end
Switch_A#
```

7) Etape 7

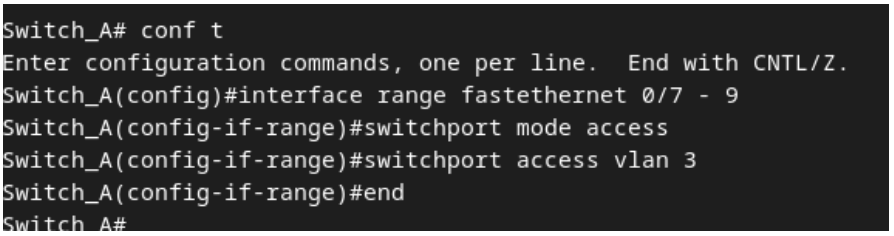


```
VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    Fa0/1, Fa0/2, Fa0/3, Fa0/7
                                                Fa0/8, Fa0/9, Fa0/10, Fa0/11
                                                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, Gi0/1, Gi0/2
2    VLAN2                            active    Fa0/4, Fa0/5, Fa0/6
3    VLAN3                            active
1002 fddi-default                     act/unsup
1003 token-ring-default               act/unsup
1004 fddinet-default                  act/unsup
1005 trnet-default                    act/unsup

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
1    enet  100001     1500  -      -      -        -    -        0      0
2    enet  100002     1500  -      -      -        -    -        0      0
3    enet  100003     1500  -      -      -        -    -        0      0
1002 fddi  101002     1500  -      -      -        -    -        0      0
1003 tr    101003     1500  -      -      -        -    -        0      ¶
 --More--
```

Les ports 4, 5, 6 sont bien affectés au VLAN 2 !

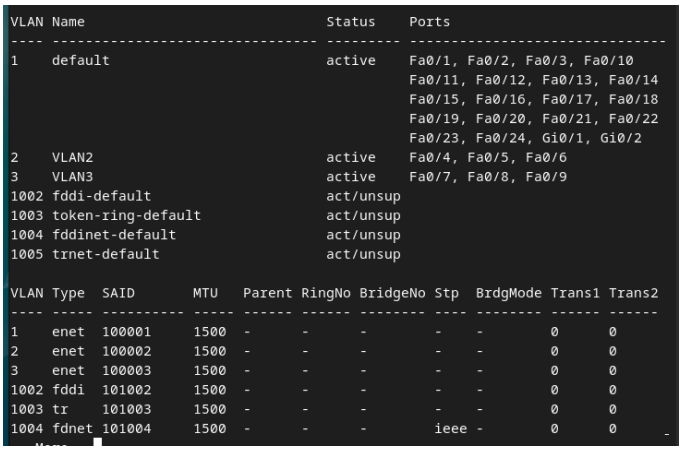
8) Etape 8

Affectation des ports FastEthernet 7,8,9 au VLAN 3 :



```
Switch_A# conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch_A(config)#interface range fastethernet 0/7 - 9
Switch_A(config-if-range)#switchport mode access
Switch_A(config-if-range)#switchport access vlan 3
Switch_A(config-if-range)#end
Switch_A#
```

9) Etape 9



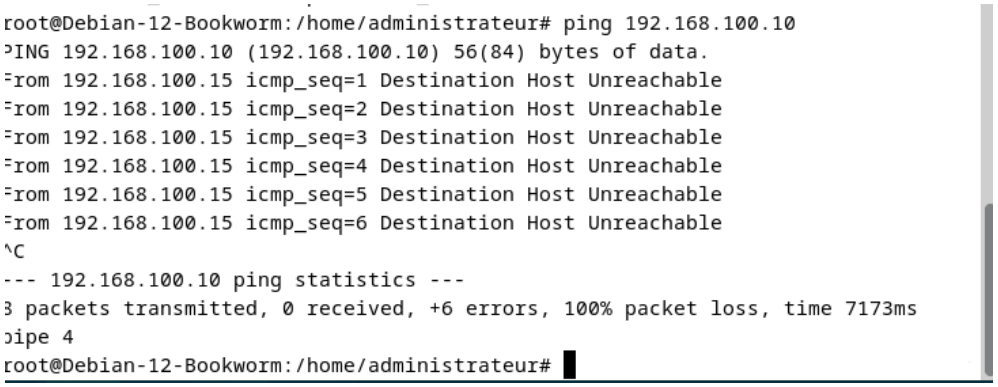
```
VLAN Name                             Status    Ports
---- -------------------------------- --------- -------------------------------
1    default                          active    Fa0/1, Fa0/2, Fa0/3, Fa0/10
                                                Fa0/11, Fa0/12, Fa0/13, Fa0/14
                                                Fa0/15, Fa0/16, Fa0/17, Fa0/18
                                                Fa0/19, Fa0/20, Fa0/21, Fa0/22
                                                Fa0/23, Fa0/24, Gi0/1, Gi0/2
2    VLAN2                            active    Fa0/4, Fa0/5, Fa0/6
3    VLAN3                            active    Fa0/7, Fa0/8, Fa0/9
1002 fddi-default                     act/unsup
1003 token-ring-default               act/unsup
1004 fddinet-default                  act/unsup
1005 trnet-default                    act/unsup

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
1    enet  100001     1500  -      -      -        -    -        0      0
2    enet  100002     1500  -      -      -        -    -        0      0
3    enet  100003     1500  -      -      -        -    -        0      0
1002 fddi  101002     1500  -      -      -        -    -        0      0
1003 tr    101003     1500  -      -      -        -    -        0      0
1004 fdnet 101004     1500  -      -      -        ieee -        0      0
```

Les ports 7, 8, 9 sont bien affectés au VLAN 3 !

10) Etape 10

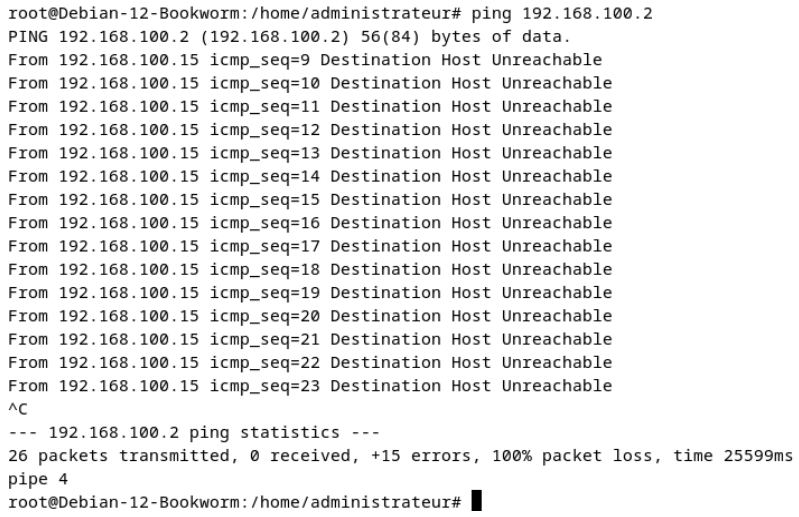
Test des VLANS :

Ping du PC2 au PC1 :



La requête ping n'a pas abouti, car les deux pcs ne sont pas dans le même vlan, donc ils ne peuvent pas communiquer entre eux (PC1 : vlan 1, PC2 : vlan 2)

Ping du PC2 au switch :



La requête ping n'a pas abouti, car on n'a pas attribué une adresse ip au vlan 2 comme le pc2 est connecté au port FastEthernet 0/4 (vlan 2).

Ping du PC1 au switch :

```
root@deb1-b319:/home/administrateur# ping 192.168.100.2
PING 192.168.100.2 (192.168.100.2) 56(84) bytes of data.
64 bytes from 192.168.100.2: icmp_seq=2 ttl=255 time=3.22 ms
64 bytes from 192.168.100.2: icmp_seq=3 ttl=255 time=3.23 ms
64 bytes from 192.168.100.2: icmp_seq=4 ttl=255 time=1.44 ms
64 bytes from 192.168.100.2: icmp_seq=5 ttl=255 time=2.64 ms
```

La requête ping a abouti, car le PC1 est connecté au port FastEthernet 0/1 qui est associé au vlan 1 et on a mis en place l'adresse IP 192.168.100.2 dans le vlan 1.

11) Etape 11

On a maintenant branché le PC2 au port FastEthernet 0/3 !

12) Etape 12

```
root@Debian-12-Bookworm:/home/administrateur# ping 192.168.100.10
PING 192.168.100.10 (192.168.100.10) 56(84) bytes of data.
64 bytes from 192.168.100.10: icmp_seq=1 ttl=64 time=1.56 ms
64 bytes from 192.168.100.10: icmp_seq=2 ttl=64 time=1.43 ms
64 bytes from 192.168.100.10: icmp_seq=3 ttl=64 time=1.99 ms
64 bytes from 192.168.100.10: icmp_seq=4 ttl=64 time=1.74 ms
64 bytes from 192.168.100.10: icmp_seq=5 ttl=64 time=1.52 ms
^C
--- 192.168.100.10 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4012ms
rtt min/avg/max/mdev = 1.429/1.648/1.987/0.197 ms
```

La requête ping a abouti, car les deux ordinateurs sont connectés à des ports du même vlan (vlan 1) avec le PC1 qui est connecté au port FastEthernet 0/1 et le PC2 qui est connecté au port FastEthernet 0/3.

```
root@Debian-12-Bookworm:/home/administrateur# ping 192.168.100.2
PING 192.168.100.2 (192.168.100.2) 56(84) bytes of data.
64 bytes from 192.168.100.2: icmp_seq=2 ttl=255 time=1.29 ms
64 bytes from 192.168.100.2: icmp_seq=3 ttl=255 time=1.16 ms
64 bytes from 192.168.100.2: icmp_seq=4 ttl=255 time=1.67 ms
64 bytes from 192.168.100.2: icmp_seq=5 ttl=255 time=1.29 ms
64 bytes from 192.168.100.2: icmp_seq=6 ttl=255 time=1.18 ms
64 bytes from 192.168.100.2: icmp_seq=7 ttl=255 time=1.18 ms
^C
--- 192.168.100.2 ping statistics ---
7 packets transmitted, 6 received, 14.2857% packet loss, time 6029ms
rtt min/avg/max/mdev = 1.156/1.291/1.670/0.177 ms
```

La requête ping a abouti, car le PC2 est connecté au port FastEthernet 0/3 (vlan1) et le vlan1 du switch est attribué par l'adresse IP 192.168.100.2.

13) Etape 13

On a branché le PC1 au port FastEthernet 0/5 et le PC2 au port FastEthernet 0/4 !

14) Etape 14

Ping du PC2 au PC1 :

```
root@Debian-12-Bookworm:/home/administrateur# ping 192.168.100.10
PING 192.168.100.10 (192.168.100.10) 56(84) bytes of data.
64 bytes from 192.168.100.10: icmp_seq=1 ttl=64 time=1.99 ms
64 bytes from 192.168.100.10: icmp_seq=2 ttl=64 time=1.75 ms
64 bytes from 192.168.100.10: icmp_seq=3 ttl=64 time=1.32 ms
64 bytes from 192.168.100.10: icmp_seq=4 ttl=64 time=1.41 ms
64 bytes from 192.168.100.10: icmp_seq=5 ttl=64 time=1.90 ms
64 bytes from 192.168.100.10: icmp_seq=6 ttl=64 time=1.74 ms
^C
--- 192.168.100.10 ping statistics ---
6 packets transmitted, 6 received, 0% packet loss, time 5009ms
rtt min/avg/max/mdev = 1.323/1.685/1.985/0.241 ms
```

Comme les deux ordinateurs sont connectés sur le même vlan (vlan 2), c'est-à-dire sur les ports FastEthernet 0/4 et 0/5, c'est donc normal que la requête ping soit fonctionnelle !

Ping du PC2 au switch :

```
root@Debian-12-Bookworm:/home/administrateur# ping 192.168.100.2
PING 192.168.100.2 (192.168.100.2) 56(84) bytes of data.
From 192.168.100.15 icmp_seq=9 Destination Host Unreachable
From 192.168.100.15 icmp_seq=10 Destination Host Unreachable
From 192.168.100.15 icmp_seq=11 Destination Host Unreachable
From 192.168.100.15 icmp_seq=12 Destination Host Unreachable
From 192.168.100.15 icmp_seq=13 Destination Host Unreachable
From 192.168.100.15 icmp_seq=14 Destination Host Unreachable
From 192.168.100.15 icmp_seq=15 Destination Host Unreachable
From 192.168.100.15 icmp_seq=16 Destination Host Unreachable
From 192.168.100.15 icmp_seq=17 Destination Host Unreachable
^C
--- 192.168.100.2 ping statistics ---
20 packets transmitted, 0 received, +9 errors, 100% packet loss, time 19441ms
pipe 4
```

La requête ping n'a pas abouti car le pc2 est branché au port FastEthernet 0/4 (vlan 2), donc il ne peut pas communiquer avec le commutateur puisque l'adresse IP saisie est celle du switch sous le vlan 1.

Ping du PC1 au switch :

```
root@deb1-b319:/home/administrateur# ping 192.168.100.2
PING 192.168.100.2 (192.168.100.2) 56(84) bytes of data.
From 192.168.100.10 icmp_seq=9 Destination Host Unreachable
From 192.168.100.10 icmp_seq=10 Destination Host Unreachable
From 192.168.100.10 icmp_seq=11 Destination Host Unreachable
From 192.168.100.10 icmp_seq=12 Destination Host Unreachable
From 192.168.100.10 icmp_seq=13 Destination Host Unreachable
From 192.168.100.10 icmp_seq=14 Destination Host Unreachable
From 192.168.100.10 icmp_seq=15 Destination Host Unreachable
From 192.168.100.10 icmp_seq=16 Destination Host Unreachable
From 192.168.100.10 icmp_seq=17 Destination Host Unreachable
From 192.168.100.10 icmp_seq=18 Destination Host Unreachable
From 192.168.100.10 icmp_seq=19 Destination Host Unreachable
From 192.168.100.10 icmp_seq=20 Destination Host Unreachable
From 192.168.100.10 icmp_seq=21 Destination Host Unreachable
From 192.168.100.10 icmp_seq=22 Destination Host Unreachable
From 192.168.100.10 icmp_seq=23 Destination Host Unreachable
^C
--- 192.168.100.2 ping statistics ---
26 packets transmitted, 0 received, +15 errors, 100% packet loss, time 25592ms
pipe 4
```

La requête ping n'a pas abouti car le pc1 est branché au port FastEthernet 0/5 (vlan 2), donc il ne peut pas communiquer avec le commutateur puisque l'adresse IP saisie est celle du switch sous le vlan 1.

15) Etape 15

Pour supprimer les vlans, on exécute les commandes suivantes dans le switch:

```
Switch_A#vlan database
% Warning: It is recommended to configure VLAN from config mode,
  as VLAN database mode is being deprecated. Please consult user
  documentation for configuring VTP/VLAN in config mode.

Switch_A(vlan)#no vlan 2
Deleting VLAN 2...
Switch_A(vlan)#no vlan 3
Deleting VLAN 3...
Switch_A(vlan)#exit
APPLY completed.
Exiting....
```

```
Switch_A#del flash:vlan.dat
Delete filename [vlan.dat]?
Delete flash:vlan.dat? [confirm]
Switch_A#
```

La dernière commande saisie permet de supprimer les vlans de la mémoire flash du switch !

16) Etape 16

Pour relancer et réinitialiser le switch, il faut taper la commande reload en mode enable !

Ca va afficher ceci :

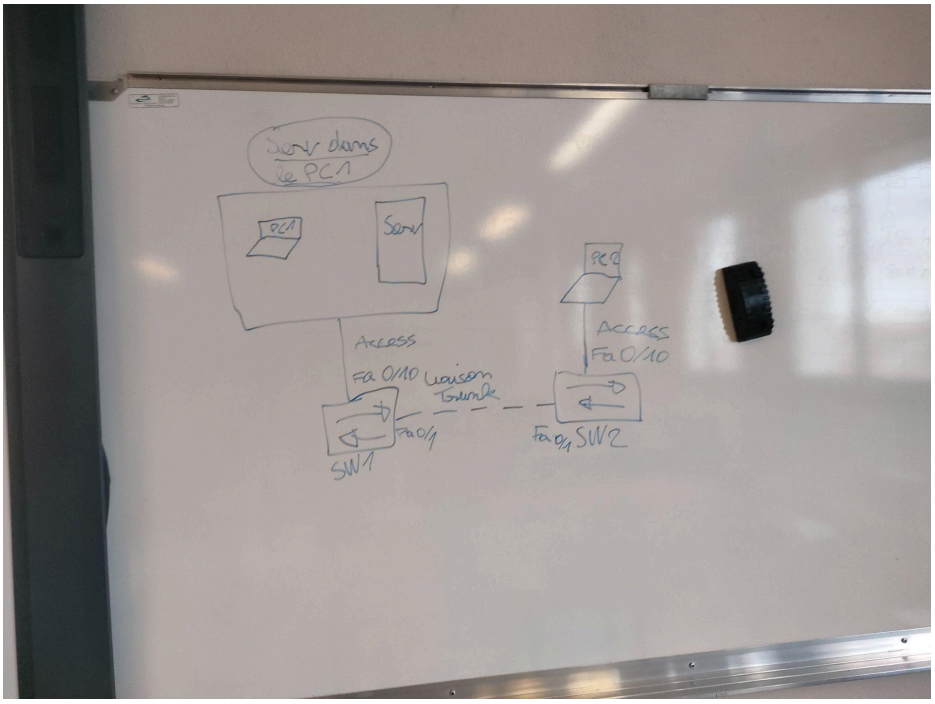
```
Switch_A#reload

System configuration has been modified. Save? [yes/no]: no
Proceed with reload? [confirm]

*Mar  5 00:16:30.513: %SYS-5-RELOAD: Reload requested by console. Reload reasond
Boot Sector Filesystem (bs) installed, fsid: 2
Base ethernet MAC Address: 00:1b:0c:70:e2:00
Xmodem file system is available.
The password-recovery mechanism is enabled.
Initializing Flash...
flashfs[0]: 7 files, 1 directories
flashfs[0]: 0 orphaned files, 0 orphaned directories
flashfs[0]: Total bytes: 32514048
```

Cela permet de ne pas débrancher physiquement le switch !

II - Mise en œuvre de VLAN statiques et d'un serveur multi-valué

On a fait le branchement du matériel !
Après avoir configuré un switch, il faut sauvegarder la config de celui-ci avec "copy running-config startup-config" (très important à savoir !!).

Schéma du réseau :



PC1 : 192.168.2.3
PC2 : 192.168.2.4

1) Etape 1

Pour configurer le nom d'un switch, il faut se mettre en mode privilégié (enable), ensuite se mettre en mode configuration (conf t), enfin taper "hostname (nom de la machine qu'on veut attribuer)".

Configuration du nom du switch SWA :

```
hostname SWA
```

Configuration du nom du switch SWB :

```
hostname SWB
```

2) Etape 2

PC1 : 192.168.2.3, 255.255.255.0

```
root@deb1-b319:/home/administrateur# ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group defaul
t qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host noprefixroute
       valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP gr
oup default qlen 1000
    link/ether 08:00:27:af:02:c9 brd ff:ff:ff:ff:ff:ff
    inet 192.168.2.3/24 brd 192.168.2.255 scope global enp0s3
       valid_lft forever preferred_lft forever
    inet6 fe80::a00:27ff:feaf:2c9/64 scope link
       valid_lft forever preferred_lft forever
```

PC2 : 192.168.2.4, 255.255.255.0

```
root@Debian-12-Bookworm:/home/administrateur# ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group defaul
t qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host noprefixroute
       valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP gr
oup default qlen 1000
    link/ether 08:00:27:49:1b:65 brd ff:ff:ff:ff:ff:ff
    inet 192.168.2.4/24 brd 192.168.2.255 scope global enp0s3
       valid_lft forever preferred_lft forever
    inet6 fe80::a00:27ff:fe49:1b65/64 scope link
       valid_lft forever preferred_lft forever
```

3) Etape 3

Création des VLANS dans SWA :

```
SWA#vlan
*Mar  1 00:45:52.277: %SYS-5-CONFIG_I: Configured from console by console
% Warning: It is recommended to configure VLAN from config mode,
  as VLAN database mode is being deprecated. Please consult user
  documentation for configuring VTP/VLAN in config mode.

SWA(vlan)#vlan 2 name VLAN2
VLAN 2 modified:
    Name: VLAN2
SWA(vlan)#vlan 3 name VLAN3
VLAN 3 added:
    Name: VLAN3
SWA(vlan)#exit
APPLY completed.
Exiting....
```

Attribution des ports dans les VLAN2 et VLAN3 dans SWA :

```
SWA#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
SWA(config)#interface range fastethernet 0/13-15
SWA(config-if-range)#switchport mode access
SWA(config-if-range)#switchport access vlan 3
SWA(config-if-range)#exit
SWA(config)#exit
```

Même chose pour le VLAN2 sauf qu'on doit attribuer les ports 10, 11, 12.

Création des VLANS dans SWB :

Ce sont les mêmes commandes que dans le screen où il y a la création des VLANS dans SWA !

Attribution des ports dans les VLAN2 et VLAN3 dans SWB :

Ce sont les mêmes commandes que dans le screen où il y a l'attribution des ports dans les VLAN2 et VLAN3 dans SWA !

4) Etape 4

Vérification de la configuration des VLANS du switch SWA :

```
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, Fa0/16, Fa0/17, Fa0/18
                                                Fa0/19, Fa0/20, Fa0/21, Fa0/22
                                                Fa0/23, Fa0/24, Gi0/1, Gi0/2
2    VLAN2                            active    Fa0/10, Fa0/11, Fa0/12
3    VLAN3                            active    Fa0/13, Fa0/14, Fa0/15
1002 fddi-default                     act/unsup
1003 token-ring-default               act/unsup
1004 fddinet-default                  act/unsup
1005 trnet-default                    act/unsup

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
1    enet  100001     1500  -      -      -        -    -        0      0
2    enet  100002     1500  -      -      -        -    -        0      0
3    enet  100003     1500  -      -      -        -    -        0      0
1002 fddi  101002     1500  -      -      -        -    -        0      0
1003 tr    101003     1500  -      -      -        -    -        0      0
1004 fdnet 101004     1500  -      -      -        ieee -        0      0
```

Vérification de la configuration des VLANS du switch SWB :

```
SWB#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, Fa0/16, Fa0/17, Fa0/18
                                                Fa0/19, Fa0/20, Fa0/21, Fa0/22
                                                Fa0/23, Fa0/24, Gi0/1, Gi0/2
2    VLAN2                            active    Fa0/10, Fa0/11, Fa0/12
3    VLAN3                            active    Fa0/13, Fa0/14, Fa0/15
10   VLAN0010                         active
1002 fddi-default                     act/unsup
1003 token-ring-default               act/unsup
1004 fddinet-default                  act/unsup
1005 trnet-default                    act/unsup

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
1    enet  100001     1500  -      -      -        -    -        0      0
2    enet  100002     1500  -      -      -        -    -        0      0
3    enet  100003     1500  -      -      -        -    -        0      0
```

La configuration des VLANS des deux switchs a été faite correctement !

5) Etape 5

Partie 1 :

Ping du PC2 au Switch SWB :

```
root@Debian-12-Bookworm:/home/administrateur# ping 192.168.2.2
PING 192.168.2.2 (192.168.2.2) 56(84) bytes of data.
64 bytes from 192.168.2.2: icmp_seq=1 ttl=255 time=2.19 ms
64 bytes from 192.168.2.2: icmp_seq=2 ttl=255 time=2.80 ms
64 bytes from 192.168.2.2: icmp_seq=3 ttl=255 time=1.68 ms
64 bytes from 192.168.2.2: icmp_seq=4 ttl=255 time=2.83 ms
64 bytes from 192.168.2.2: icmp_seq=5 ttl=255 time=2.07 ms
^C
--- 192.168.2.2 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4016ms
rtt min/avg/max/mdev = 1.682/2.312/2.827/0.441 ms
```

Ping du PC1 au Switch SWA :

```
root@deb1-b319:/home/administrateur# ping 192.168.2.1
PING 192.168.2.1 (192.168.2.1) 56(84) bytes of data.
64 bytes from 192.168.2.1: icmp_seq=2 ttl=255 time=3.53 ms
64 bytes from 192.168.2.1: icmp_seq=3 ttl=255 time=2.86 ms
64 bytes from 192.168.2.1: icmp_seq=4 ttl=255 time=2.84 ms
64 bytes from 192.168.2.1: icmp_seq=5 ttl=255 time=1.73 ms
64 bytes from 192.168.2.1: icmp_seq=6 ttl=255 time=1.77 ms
^C
--- 192.168.2.1 ping statistics ---
6 packets transmitted, 5 received, 16.6667% packet loss, time 5016ms
rtt min/avg/max/mdev = 1.727/2.546/3.529/0.696 ms
```

Les pings ont bien abouti, car les deux pcs sont connectés à des ports du vlan 2 !

Partie 2 :

Ping du PC2 au PC1 :

```
root@Debian-12-Bookworm:/home/administrateur# ping 192.168.2.3
PING 192.168.2.3 (192.168.2.3) 56(84) bytes of data.
From 192.168.2.4 icmp_seq=1 Destination Host Unreachable
From 192.168.2.4 icmp_seq=2 Destination Host Unreachable
From 192.168.2.4 icmp_seq=3 Destination Host Unreachable
From 192.168.2.4 icmp_seq=4 Destination Host Unreachable
From 192.168.2.4 icmp_seq=5 Destination Host Unreachable
From 192.168.2.4 icmp_seq=6 Destination Host Unreachable
^C
--- 192.168.2.3 ping statistics ---
7 packets transmitted, 0 received, +6 errors, 100% packet loss, time 6129ms
pipe 4
```

Ping du PC1 au PC2 :

```
root@deb1-b319:/home/administrateur# ping 192.168.2.4
PING 192.168.2.4 (192.168.2.4) 56(84) bytes of data.
From 192.168.2.3 icmp_seq=1 Destination Host Unreachable
From 192.168.2.3 icmp_seq=2 Destination Host Unreachable
From 192.168.2.3 icmp_seq=3 Destination Host Unreachable
From 192.168.2.3 icmp_seq=4 Destination Host Unreachable
From 192.168.2.3 icmp_seq=5 Destination Host Unreachable
From 192.168.2.3 icmp_seq=6 Destination Host Unreachable
^C
--- 192.168.2.4 ping statistics ---
7 packets transmitted, 0 received, +6 errors, 100% packet loss, time 6122ms
pipe 4
```

Les pings n’ont pas abouti, car on n’a pas fait la liaison trunk entre les deux switchs !

6) Etape 6

Mise en place du mode trunk sur le port 1 du switch SWA:

```
interface FastEthernet0/1
 switchport mode trunk
```

Mise en place du mode trunk sur le port 1 du switch SWB:

```
interface FastEthernet0/1
 switchport mode trunk
```

On utilise le mode trunk afin de relier deux switchs ! Le mode trunk permet la communication inter-VLANS, c'est-à-dire que les VLANS peuvent communiquer entre eux !

7) Etape 7

Partie 1 :

Ping du PC2 au PC1 :

```
administrateur@Debian-12-Bookworm:~$ su
Mot de passe :
root@Debian-12-Bookworm:/home/administrateur# ping 192.168.2.3
PING 192.168.2.3 (192.168.2.3) 56(84) bytes of data.
64 bytes from 192.168.2.3: icmp_seq=1 ttl=64 time=1.27 ms
64 bytes from 192.168.2.3: icmp_seq=2 ttl=64 time=1.58 ms
64 bytes from 192.168.2.3: icmp_seq=3 ttl=64 time=1.64 ms
64 bytes from 192.168.2.3: icmp_seq=4 ttl=64 time=1.52 ms
64 bytes from 192.168.2.3: icmp_seq=5 ttl=64 time=1.52 ms
^C
--- 192.168.2.3 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4010ms
rtt min/avg/max/mdev = 1.267/1.502/1.638/0.126 ms
root@Debian-12-Bookworm:/home/administrateur#
```

Ping du PC1 au PC2 :

```
root@deb1-b319:/home/administrateur# ping 192.168.2.4
PING 192.168.2.4 (192.168.2.4) 56(84) bytes of data.
64 bytes from 192.168.2.4: icmp_seq=1 ttl=64 time=1.44 ms
64 bytes from 192.168.2.4: icmp_seq=2 ttl=64 time=1.41 ms
64 bytes from 192.168.2.4: icmp_seq=3 ttl=64 time=1.46 ms
64 bytes from 192.168.2.4: icmp_seq=4 ttl=64 time=1.09 ms
64 bytes from 192.168.2.4: icmp_seq=5 ttl=64 time=1.89 ms
64 bytes from 192.168.2.4: icmp_seq=6 ttl=64 time=1.76 ms
^C
--- 192.168.2.4 ping statistics ---
6 packets transmitted, 6 received, 0% packet loss, time 5011ms
rtt min/avg/max/mdev = 1.091/1.509/1.894/0.258 ms
```

Ping du PC2 au switch SWB :

```
administrateur@Debian-12-Bookworm:~$ su
Mot de passe :
root@Debian-12-Bookworm:/home/administrateur# ping 192.168.2.2
PING 192.168.2.2 (192.168.2.2) 56(84) bytes of data.
64 bytes from 192.168.2.2: icmp_seq=1 ttl=255 time=4.70 ms
64 bytes from 192.168.2.2: icmp_seq=2 ttl=255 time=1.26 ms
64 bytes from 192.168.2.2: icmp_seq=3 ttl=255 time=1.14 ms
64 bytes from 192.168.2.2: icmp_seq=4 ttl=255 time=1.35 ms
64 bytes from 192.168.2.2: icmp_seq=5 ttl=255 time=1.28 ms
64 bytes from 192.168.2.2: icmp_seq=6 ttl=255 time=1.18 ms
^C
--- 192.168.2.2 ping statistics ---
6 packets transmitted, 6 received, 0% packet loss, time 5005ms
rtt min/avg/max/mdev = 1.143/1.818/4.701/1.290 ms
```

Ping du PC1 au switch SWA :

```
root@deb1-b319:/home/administrateur# ping 192.168.2.1
PING 192.168.2.1 (192.168.2.1) 56(84) bytes of data.
64 bytes from 192.168.2.1: icmp_seq=1 ttl=255 time=1.02 ms
64 bytes from 192.168.2.1: icmp_seq=2 ttl=255 time=1.18 ms
64 bytes from 192.168.2.1: icmp_seq=3 ttl=255 time=1.34 ms
64 bytes from 192.168.2.1: icmp_seq=4 ttl=255 time=1.08 ms
64 bytes from 192.168.2.1: icmp_seq=5 ttl=255 time=1.34 ms
64 bytes from 192.168.2.1: icmp_seq=6 ttl=255 time=1.32 ms
^C
--- 192.168.2.1 ping statistics ---
6 packets transmitted, 6 received, 0% packet loss, time 5007ms
rtt min/avg/max/mdev = 1.019/1.214/1.341/0.128 ms
```

Les pings ont bien abouti, car on a pu faire la liaison trunk !

Partie 2 :

Ping du PC2 au switch SWA (Interface VLAN2) :

```
root@Debian-12-Bookworm:/home/administrateur# ping 192.168.2.1
PING 192.168.2.1 (192.168.2.1) 56(84) bytes of data.
64 bytes from 192.168.2.1: icmp_seq=1 ttl=255 time=3.25 ms
64 bytes from 192.168.2.1: icmp_seq=2 ttl=255 time=3.02 ms
64 bytes from 192.168.2.1: icmp_seq=3 ttl=255 time=2.20 ms
64 bytes from 192.168.2.1: icmp_seq=4 ttl=255 time=1.68 ms
64 bytes from 192.168.2.1: icmp_seq=5 ttl=255 time=2.69 ms
^C
--- 192.168.2.1 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4004ms
rtt min/avg/max/mdev = 1.679/2.568/3.252/0.569 ms
root@Debian-12-Bookworm:/home/administrateur#
```

Ping du PC1 au switch SWB (Interface VLAN2) :

```
root@deb1-b319:/home/administrateur# ping 192.168.2.2
PING 192.168.2.2 (192.168.2.2) 56(84) bytes of data.
64 bytes from 192.168.2.2: icmp_seq=2 ttl=255 time=3.12 ms
64 bytes from 192.168.2.2: icmp_seq=3 ttl=255 time=1.80 ms
64 bytes from 192.168.2.2: icmp_seq=4 ttl=255 time=1.58 ms
64 bytes from 192.168.2.2: icmp_seq=5 ttl=255 time=3.24 ms
64 bytes from 192.168.2.2: icmp_seq=6 ttl=255 time=2.98 ms
^C
--- 192.168.2.2 ping statistics ---
6 packets transmitted, 5 received, 16.6667% packet loss, time 5019ms
rtt min/avg/max/mdev = 1.580/2.542/3.235/0.704 ms
root@deb1-b319:/home/administrateur#
```

8) Etape 8

Configuration du PC2 :

192.168.3.3 /24 branché à un port FastEthernet 0/15

```
root@Debian-12-Bookworm:/home/administrateur# nano /etc/network/interfaces
root@Debian-12-Bookworm:/home/administrateur# sudo ifdown enp0s3
RTNETLINK answers: Cannot assign requested address
root@Debian-12-Bookworm:/home/administrateur# sudo ifup enp0s3
root@Debian-12-Bookworm:/home/administrateur# ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group defaul
t qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host noprefixroute
       valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP gr
oup default qlen 1000
    link/ether 08:00:27:49:1b:65 brd ff:ff:ff:ff:ff:ff
    inet 192.168.3.3/24 brd 192.168.3.255 scope global enp0s3
       valid_lft forever preferred_lft forever
    inet6 fe80::a00:27ff:fe49:1b65/64 scope link tentative
       valid_lft forever preferred_lft forever
root@Debian-12-Bookworm:/home/administrateur#
```

Ping du PC1 sur le vlan 2 du SWA :

```
root@deb1-b319:/home/administrateur# ping 192.168.2.1
PING 192.168.2.1 (192.168.2.1) 56(84) bytes of data.
64 bytes from 192.168.2.1: icmp_seq=2 ttl=255 time=2.21 ms
64 bytes from 192.168.2.1: icmp_seq=3 ttl=255 time=2.64 ms
64 bytes from 192.168.2.1: icmp_seq=4 ttl=255 time=2.76 ms
64 bytes from 192.168.2.1: icmp_seq=5 ttl=255 time=2.66 ms
64 bytes from 192.168.2.1: icmp_seq=6 ttl=255 time=3.17 ms
^C
--- 192.168.2.1 ping statistics ---
6 packets transmitted, 5 received, 16.6667% packet loss, time 5025ms
rtt min/avg/max/mdev = 2.209/2.687/3.166/0.305 ms
```

Ping du PC2 sur le vlan 3 du SWB :

```
root@Debian-12-Bookworm:/home/administrateur# ping 192.168.3.2
PING 192.168.3.2 (192.168.3.2) 56(84) bytes of data.
64 bytes from 192.168.3.2: icmp_seq=2 ttl=255 time=2.37 ms
64 bytes from 192.168.3.2: icmp_seq=3 ttl=255 time=1.19 ms
64 bytes from 192.168.3.2: icmp_seq=4 ttl=255 time=2.67 ms
64 bytes from 192.168.3.2: icmp_seq=5 ttl=255 time=2.56 ms
64 bytes from 192.168.3.2: icmp_seq=6 ttl=255 time=1.89 ms
^C
--- 192.168.3.2 ping statistics ---
5 packets transmitted, 5 received, 16.6667% packet loss, time 5009ms
rtt min/avg/max/mdev = 1.188/2.133/2.668/0.543 ms
root@Debian-12-Bookworm:/home/administrateur#
```

Ping du PC1 sur le vlan 2 du SWB :

```
root@deb1-b319:/home/administrateur# ping 192.168.2.2
PING 192.168.2.2 (192.168.2.2) 56(84) bytes of data.
64 bytes from 192.168.2.2: icmp_seq=1 ttl=255 time=2.86 ms
64 bytes from 192.168.2.2: icmp_seq=2 ttl=255 time=2.75 ms
64 bytes from 192.168.2.2: icmp_seq=3 ttl=255 time=1.66 ms
64 bytes from 192.168.2.2: icmp_seq=4 ttl=255 time=2.87 ms
64 bytes from 192.168.2.2: icmp_seq=5 ttl=255 time=3.05 ms
^C
--- 192.168.2.2 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4018ms
rtt min/avg/max/mdev = 1.658/2.637/3.052/0.499 ms
root@deb1-b319:/home/administrateur#
```

Ping du PC2 sur le vlan 3 du SWA :

```
root@Debian-12-Bookworm:/home/administrateur# ping 192.168.3.1
PING 192.168.3.1 (192.168.3.1) 56(84) bytes of data.
64 bytes from 192.168.3.1: icmp_seq=2 ttl=255 time=2.45 ms
64 bytes from 192.168.3.1: icmp_seq=3 ttl=255 time=1.24 ms
64 bytes from 192.168.3.1: icmp_seq=4 ttl=255 time=2.01 ms
64 bytes from 192.168.3.1: icmp_seq=5 ttl=255 time=1.52 ms
64 bytes from 192.168.3.1: icmp_seq=6 ttl=255 time=4.34 ms
^C
--- 192.168.3.1 ping statistics ---
6 packets transmitted, 5 received, 16.6667% packet loss, time 5028ms
rtt min/avg/max/mdev = 1.242/2.311/4.341/1.095 ms
root@Debian-12-Bookworm:/home/administrateur#
```

9) Etape 9

```
root@deb1-b319:/home/administrateur# dpkg -l vlan
Souhait=inconnU/Installé/suppRimé/Purgé/H=à garder
| État=Non/Installé/fichier-Config/dépaqUeté/échec-conFig/H=semi-installé/W=att>
|/ Err?=(aucune)/besoin Réinstallation (État,Err: majuscule=mauvais)
||/ Nom            Version      Architecture Description
+++-==============-============-============-=================================>
ii  vlan           2.0.5        all          ifupdown integration for vlan conf>
lines 1-6/6 (END)
```

S'il n'est pas présent le package vlan, on fait "apt-get install vlan" et on active le module en faisant "modprobe 8021q". On voit ici qu'il est présent !

Vérification de la liaison des cartes réseaux des deux ordinateurs :

PC1:

```
root@deb1-b319:/home/administrateur# sudo mii-tool enp0s3
enp0s3: no autonegotiation, 1000baseT-FD flow-control, link ok
```

PC2 :

```
root@Debian-12-Bookworm:/home/administrateur# sudo mii-tool enp0s3
enp0s3: no autonegotiation, 1000baseT-FD flow-control, link ok
root@Debian-12-Bookworm:/home/administrateur#
```

Configuration des cartes virtuelles sur le pc serveur : fichier /etc/network/interfaces

```
auto enp0s3
iface enp0s3 inet static
address 192.168.2.3
netmask 255.255.255.0
#gateway 192.168.100.1

iface enp0s3.2 inet static
vlan-raw-device enp0s3
address 192.168.2.10
netmask 255.255.255.0

iface enp0s3.3 inet static
vlan-raw-device enp0s3
address 192.168.3.10
netmask 255.255.255.0
```

Désactivation et activation des cartes virtuelles :

```
root@deb1-b319:/home/administrateur# sudo ifdown enp0s3.2
ifdown: interface enp0s3.2 not configured
root@deb1-b319:/home/administrateur# sudo ifup enp0s3.2
root@deb1-b319:/home/administrateur# sudo ifdown enp0s3.3
ifdown: interface enp0s3.3 not configured
root@deb1-b319:/home/administrateur# sudo ifup enp0s3.3
```

Présence des deux VLANS :

```
root@deb1-b319:/home/administrateur# cat /proc/net/vlan/config
VLAN Dev name    | VLAN ID
Name-Type: VLAN_NAME_TYPE_RAW_PLUS_VID_NO_PAD
enp0s3.2         | 2  | enp0s3
enp0s3.3         | 3  | enp0s3
```

10) Etape 10

Ping du PC2 à la carte virtuelle du vlan 2 au serveur (PC1) :

```
root@Debian-12-Bookworm:/home/administrateur# ping 192.168.2.10
ping: connect: Le réseau n'est pas accessible
root@Debian-12-Bookworm:/home/administrateur# ping 192.168.3.10
PING 192.168.3.10 (192.168.3.10) 56(84) bytes of data.
64 bytes from 192.168.3.10: icmp_seq=1 ttl=64 time=1.39 ms
64 bytes from 192.168.3.10: icmp_seq=2 ttl=64 time=1.34 ms
64 bytes from 192.168.3.10: icmp_seq=3 ttl=64 time=1.64 ms
64 bytes from 192.168.3.10: icmp_seq=4 ttl=64 time=1.28 ms
64 bytes from 192.168.3.10: icmp_seq=5 ttl=64 time=1.51 ms
64 bytes from 192.168.3.10: icmp_seq=6 ttl=64 time=1.66 ms
```

11) Etape 11

Suppression des vlans 2 et 3 sur les switchs SWA et SWB :

SWA :

```
SWA#vlan database
% Warning: It is recommended to configure VLAN from config mode,
  as VLAN database mode is being deprecated. Please consult user
  documentation for configuring VTP/VLAN in config mode.

SWA(vlan)#no vlan 2
Deleting VLAN 2...
SWA(vlan)#no vlan 3
Deleting VLAN 3...
SWA(vlan)#exit
APPLY completed.
Exiting....
SWA#del f
*Mar  1 01:58:03.155: %LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan2, chn
*Mar  1 01:58:03.155: %LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan3, cht
Delete filename [vlan.dat]?
Delete flash:vlan.dat? [confirm]
```

SWB :

```
SWB#vlan database
% Warning: It is recommended to configure VLAN from config mode,
  as VLAN database mode is being deprecated. Please consult user
  documentation for configuring VTP/VLAN in config mode.

SWB(vlan)#no vlan 2
Deleting VLAN 2...
SWB(vlan)#no vlan 3
Deleting VLAN 3...
SWB(vlan)#del flash:vlan.dat
          ^
% Invalid input detected at '^' marker.

SWB(vlan)#exit
APPLY completed.
Exiting....
SWB#exit
*Mar  3 06:58:40.442: %LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan2, chn
*Mar  3 06:58:40.442: %LINEPROTO-5-UPDOWN: Line protocol on Idel flash:vlan.datt
Delete filename [vlan.dat]?
Delete flash:vlan.dat? [confirm]
```

Ces étapes ont bien été réalisées !

12) Etape 12

On réinitialise les deux commutateurs SWA et SWB en faisant “reload” en mode enable !

III - Conclusion

Dans ce TP, nous avons appris à mettre en place des VLANS statiques en les testant par différents tests et un serveur multi-valué en mettant en place des adresses virtuelles dans l’ordinateur-serveur. De plus, nous avons appris le fonctionnement du mode trunk (entre deux switchs et entre un serveur et un switch) et de la communication inter-vlans avec deux switchs.