

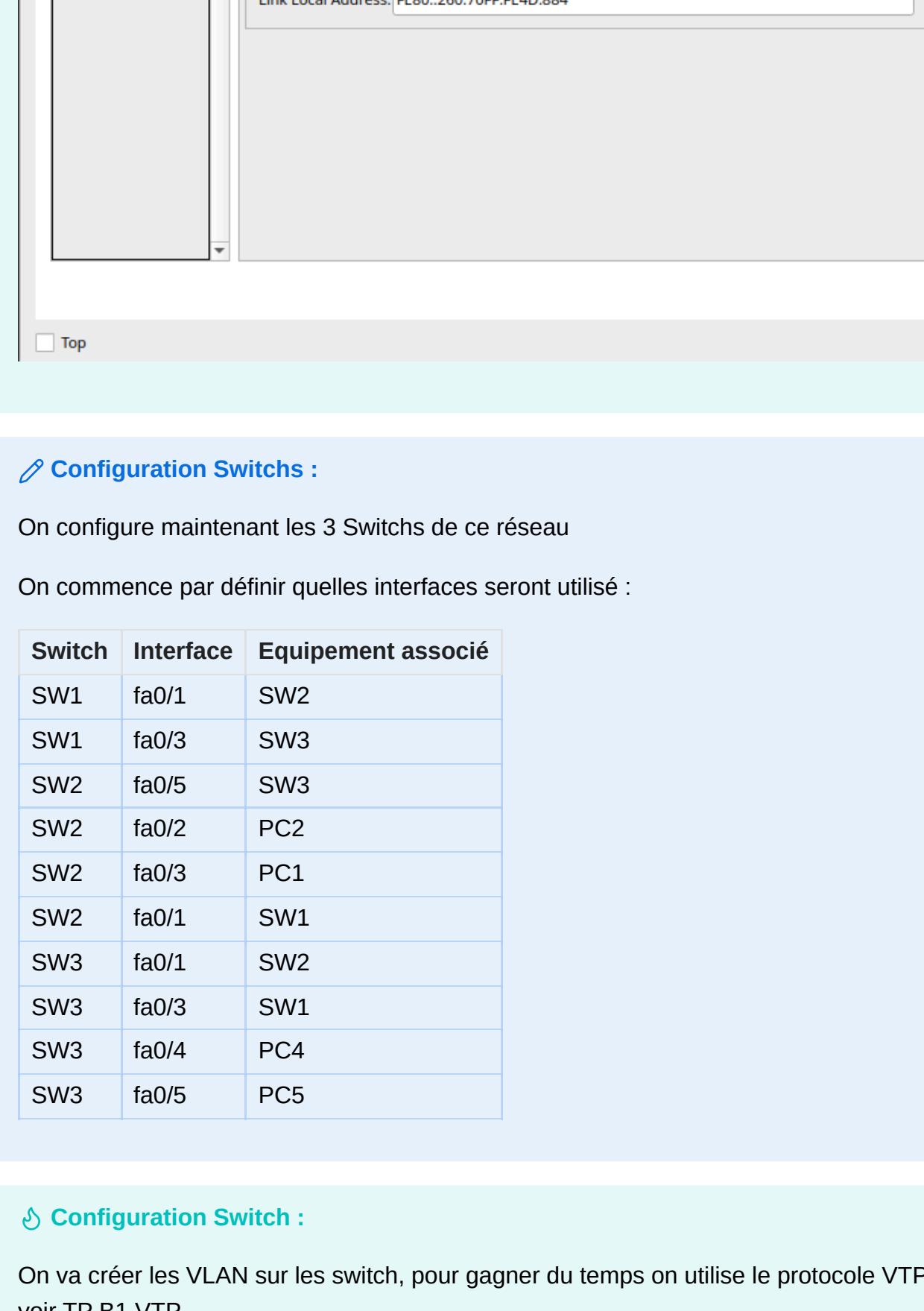
## Spanning Tree Protocol

### Objectif :

Au cours de ce TP, on cherche à mettre en oeuvre le protocole Spanning Tree afin d'avoir un lien de secours qui prendra le relais en cas de coupure.

### Réseau :

On commence par réaliser la maquette du réseau sur lequel on veut mettre en place une redondance.



On configure les équipements réseaux en suivant ce tableau :

Équipement	Adresse IP	VLAN
PC 1	192.168.20.2/24	20
PC 2	192.168.10.2/24	10
PC 4	192.168.20.4/24	20
PC 5	192.168.10.5/24	10

### Exemple :

Configuration IP PC1 :



### Configuration Switch :

On configure maintenant les 3 Switchs de ce réseau

On commence par définir quelles interfaces seront utilisées :

Switch	Interface	Équipement associé
SW1	fa0/1	SW2
SW1	fa0/3	SW3
SW2	fa0/5	SW3
SW2	fa0/2	PC2
SW2	fa0/3	PC1
SW2	fa0/1	SW1
SW3	fa0/1	SW2
SW3	fa0/3	SW1
SW3	fa0/4	PC4
SW3	fa0/5	PC5

### Configuration Switch :

On va créer les VLAN sur les switch, pour gagner du temps on utilise le protocole VTP, voir TP B1 VTP.

On crée les deux vlan 10 et 20 puis on attribuent les ports PC aux VLAN.

Enfin, on fait les liaisons Trunk entre les switch, entre le SW1 et SW2 ainsi que SW1 et SW3 ont autorisé le VLAN 20 et entre SW2 et SW3 on autorise le VLAN 10.

### Problème :

Le réseau est défini mais on fait face à une tempête de broadcast. Pour y remédier on va utiliser le STP.

On remarque le problème avec le point orange sur ce schéma réseau :

### Configuration VSTP :

Pour remédier au problème, on configure le VLAN STP :

On commence par effacer toutes les traces d'éventuels STP existant :

```
Switch(config)#no spanning-tree vlan 1-1000
```

Puis on entre cette commande pour la mise en place du protocole :

```
Switch(config)#spanning-tree mode pvst
```

Enfin on déclare chaque VLAN au protocole avec cette commande :

```
Switch(config)#spanning-tree vlan 10,20
```

## Tests :

### Question :

Est ce que le STP fonctionne ? Comment le prouvez-vous ?

### Réponse :

Le STP fonctionne, pour le prouver, on utilise la commande show spanning-tree :

```
Switch#show spanning-tree
```

```
VLAN0010
Spanning tree enabled protocol ieee
Root ID Priority 3278
Address 0000.0C7D.E423
This bridge is the root
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
```

```
Bridge ID Priority 32778 (priority 32768 sys-id-ext 10)
Address 0000.0C7D.E423
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Aging Time 2 sec
```

```
Interface Role Sts Cost Prio.Nbr Type
-----
```

```
Fa0/1 Desg FWD 19 128.1 P2p
```

```
Fa0/2 Desg FWD 19 128.2 P2p
```

```
VLAN0020
Spanning tree enabled protocol ieee
Root ID Priority 32788
Address 0000.0C7D.E423
This bridge is the root
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
```

```
Bridge ID Priority 32788 (priority 32768 sys-id-ext 20)
Address 0000.0C7D.E423
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Aging Time 2 sec
```

```
Interface Role Sts Cost Prio.Nbr Type
-----
```

```
Fa0/3 Desg FWD 19 128.3 P2p
```

```
Fa0/5 Desg FWD 19 128.4 P2p
```

```
Switch#show spanning-tree
```

```
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