

Institut Universitaire des Sciences(IUS)

FACULTÉ DES SCIENCES ET TECHNOLOGIES (FST)

TROISIÈME ANNÉE

Rapport de travail du Laboratoire No 8

Cours : Réseaux I

Étudiante : Christy Gérys LAMBERT

Professeur : Ismaël SAINT AMOUR

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L'objectif de ce TD est de :

1. Créer et gérer des VLAN sur des switches
2. Comprendre le rôle des VLAN pour segmenter un réseau.
3. Apprendre à créer des VLAN et à affecter des ports aux VLAN correspondants.
4. Configurer le routage inter-VLAN sur un routeur (Router-on-a-Stick)
5. Comprendre comment un routeur peut permettre aux VLAN de communiquer entre eux.
6. Configurer des sous-interfaces avec encapsulation 802.1Q.
7. Configurer les trunks entre switches et vers le routeur
8. Apprendre à utiliser les trunks pour transporter plusieurs VLAN sur une seule liaison physique.
9. Comprendre le concept de VLAN natif et VLAN autorisés sur les trunks.
10. Attribuer des adresses IP et des gateways aux hôtes
11. Configurer les PCs dans différents VLAN avec des IP correctes.
12. Vérifier la communication intra-VLAN (même VLAN) et inter-VLAN (différents VLAN).

Vérification des vlans sur :

Switch0

Physical Config **CLI** Attributes

IOS Command Line Interface

```
Switch>show vlan brief
```

VLAN Name	Status	Ports
1 default	active	Gig0/1, Gig0/2
10 Ventes	active	Fa0/2, Fa0/3, Fa0/4, Fa0/5 Fa0/6, Fa0/7
20 Marketing	active	Fa0/8, Fa0/9, Fa0/10, Fa0/11 Fa0/12, Fa0/13, Fa0/14, Fa0/15
30 IT	active	Fa0/16, Fa0/17, Fa0/18, Fa0/19 Fa0/20, Fa0/21, Fa0/22, Fa0/23 Fa0/24
1002 fddi-default	active	
1003 token-ring-default	active	
1004 fddinet-default	active	
1005 trnet-default	active	

```
Switch>show vlan
```

VLAN Name	Status	Ports
1 default	active	Gig0/1, Gig0/2
10 Ventes	active	Fa0/2, Fa0/3, Fa0/4, Fa0/5 Fa0/6, Fa0/7
20 Marketing	active	Fa0/8, Fa0/9, Fa0/10, Fa0/11 Fa0/12, Fa0/13, Fa0/14, Fa0/15
30 IT	active	Fa0/16, Fa0/17, Fa0/18, Fa0/19 Fa0/20, Fa0/21, Fa0/22, Fa0/23 Fa0/24
1002 fddi-default	active	
1003 token-ring-default	active	
1004 fddinet-default	active	
1005 trnet-default	active	

VLAN Type	SAID	MTU	Parent	RingNo	BridgeNo	Stp	BrdgMode	Trans1	Trans2
1	10000000000000000000	1500				STP	Trans1	Trans2	
10	10000000000000000000	1500				STP	Trans1	Trans2	
20	10000000000000000000	1500				STP	Trans1	Trans2	
30	10000000000000000000	1500				STP	Trans1	Trans2	
1002	10000000000000000000	1500				STP	Trans1	Trans2	
1003	10000000000000000000	1500				STP	Trans1	Trans2	
1004	10000000000000000000	1500				STP	Trans1	Trans2	
1005	10000000000000000000	1500				STP	Trans1	Trans2	

Switch1

PhysicalConfigCLIAttributes

IOS Command Line Interface

SW-R2>show vlan brief

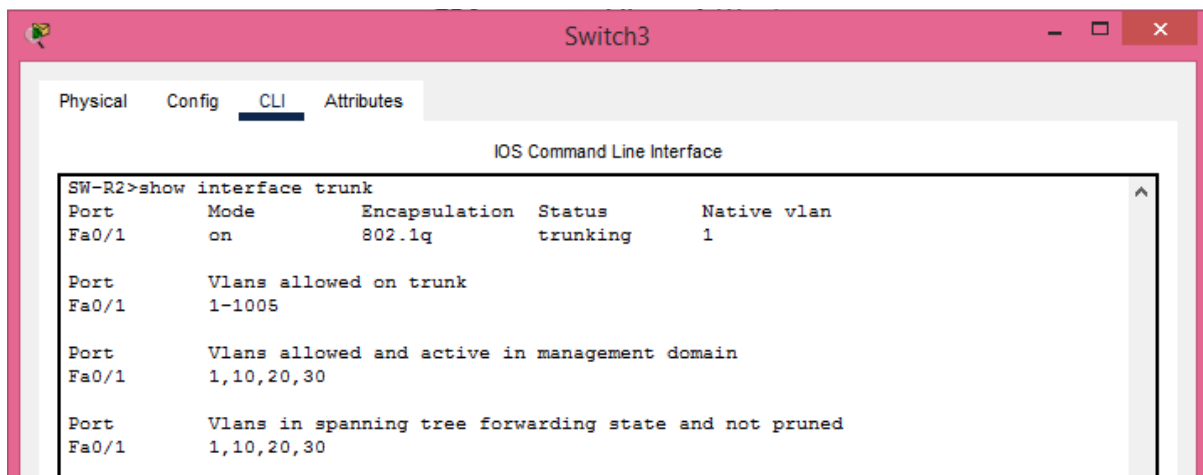
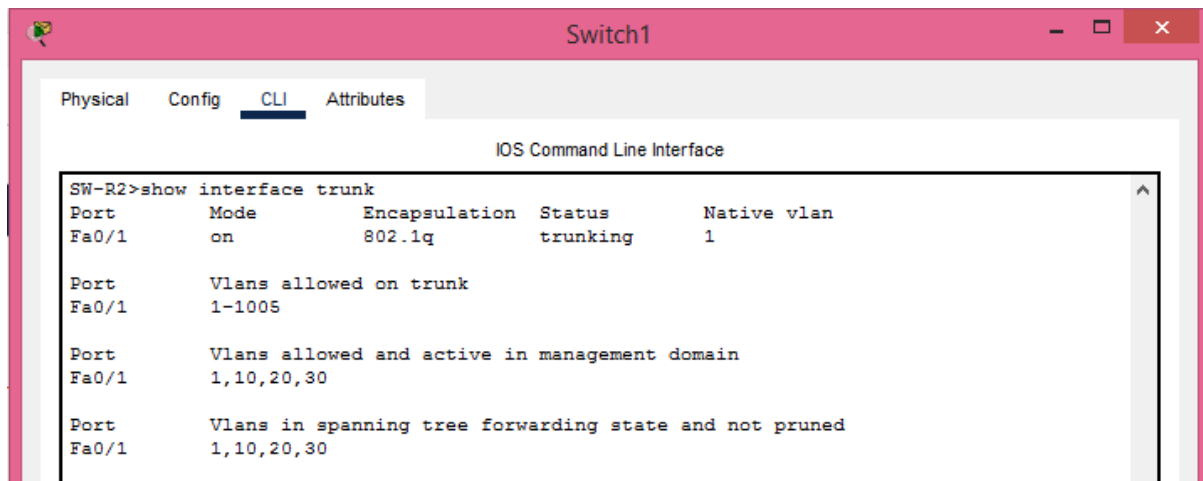
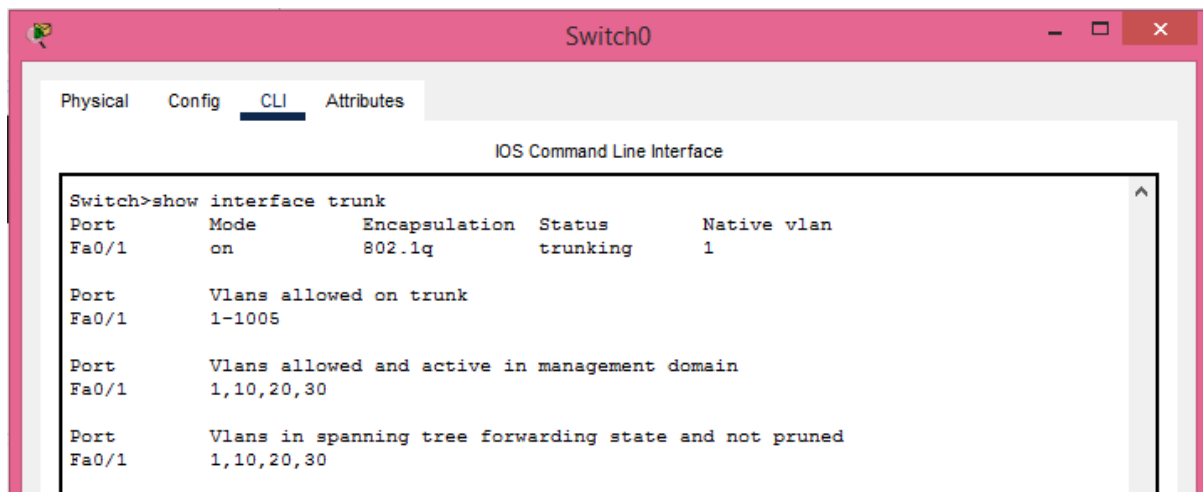
VLAN	Name	Status	Ports
1	default	active	Gig0/1, Gig0/2
10	Ventes	active	Fa0/2, Fa0/3, Fa0/4, Fa0/5 Fa0/6, Fa0/7
20	Marketing	active	Fa0/8, Fa0/9, Fa0/10, Fa0/11 Fa0/12, Fa0/13, Fa0/14, Fa0/15
30	IT	active	Fa0/16, Fa0/17, Fa0/18, Fa0/19 Fa0/20, Fa0/21, Fa0/22, Fa0/23 Fa0/24
1002	fddi-default	active	
1003	token-ring-default	active	
1004	fddinet-default	active	
1005	trnet-default	active	

SW-R2>show vlan

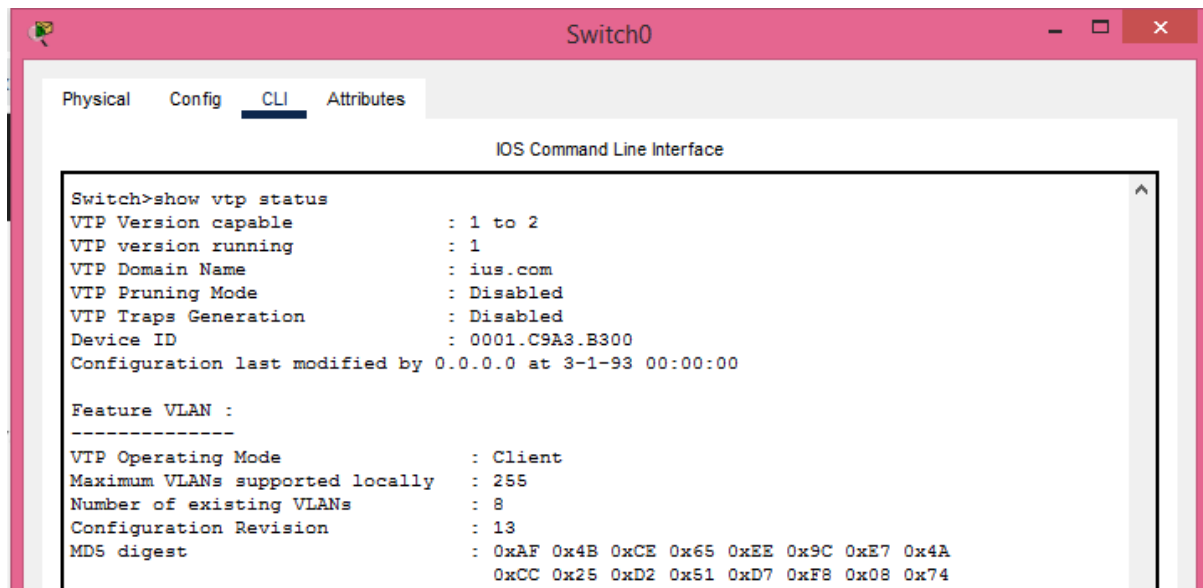
VLAN	Name	Status	Ports
1	default	active	Gig0/1, Gig0/2
10	Ventes	active	Fa0/2, Fa0/3, Fa0/4, Fa0/5 Fa0/6, Fa0/7
20	Marketing	active	Fa0/8, Fa0/9, Fa0/10, Fa0/11 Fa0/12, Fa0/13, Fa0/14, Fa0/15
30	IT	active	Fa0/16, Fa0/17, Fa0/18, Fa0/19 Fa0/20, Fa0/21, Fa0/22, Fa0/23 Fa0/24
1002	fddi-default	active	
1003	token-ring-default	active	
1004	fddinet-default	active	
1005	trnet-default	active	

VLAN Type	SAID	MTU	Parent	RingNo	BridgeNo	Stp	BrdgMode	Trans1	Trans2
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Vérification des trunks :



Vérification VTP :

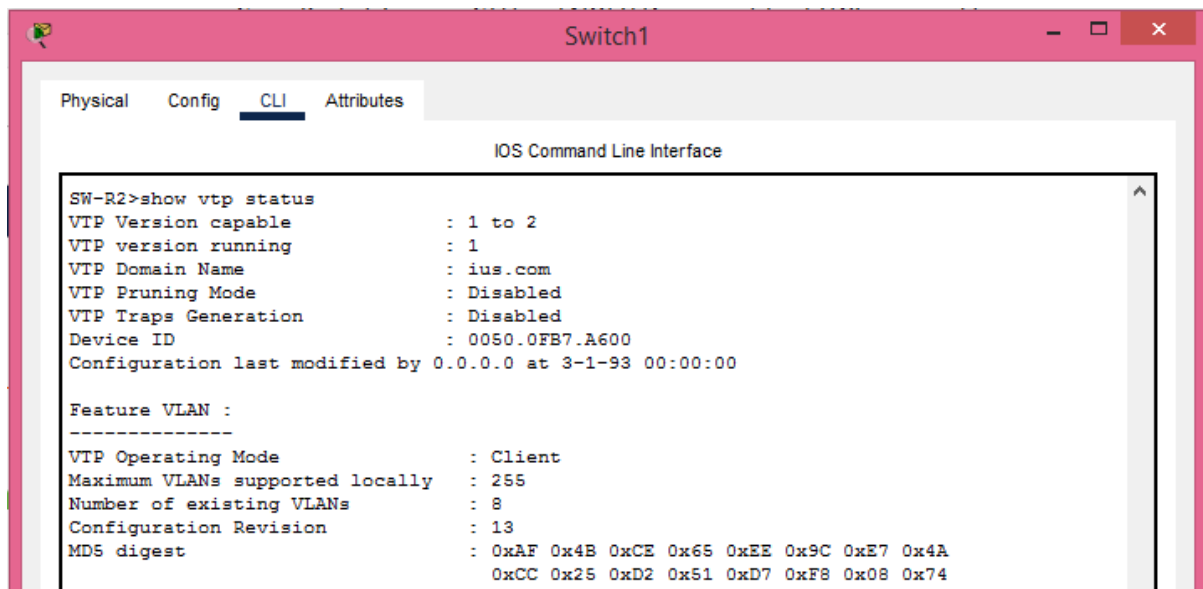


The screenshot shows the CLI of Switch0. The 'CLI' tab is selected. The command 'show vtp status' has been entered, and the output is displayed. The output shows VTP version 1 running, domain name 'ius.com', and various other settings. The configuration was last modified by 0.0.0.0 at 3-1-93 00:00:00.

```
Switch0
Physical Config CLI Attributes
IOS Command Line Interface

Switch>show vtp status
VTP Version capable      : 1 to 2
VTP version running      : 1
VTP Domain Name          : ius.com
VTP Pruning Mode         : Disabled
VTP Traps Generation     : Disabled
Device ID                 : 0001.C9A3.B300
Configuration last modified by 0.0.0.0 at 3-1-93 00:00:00

Feature VLAN :
-----
VTP Operating Mode       : Client
Maximum VLANs supported locally : 255
Number of existing VLANs : 8
Configuration Revision    : 13
MD5 digest                : 0xAF 0x4B 0xCE 0x65 0xEE 0x9C 0xE7 0x4A
                          : 0xCC 0x25 0xD2 0x51 0xD7 0xF8 0x08 0x74
```

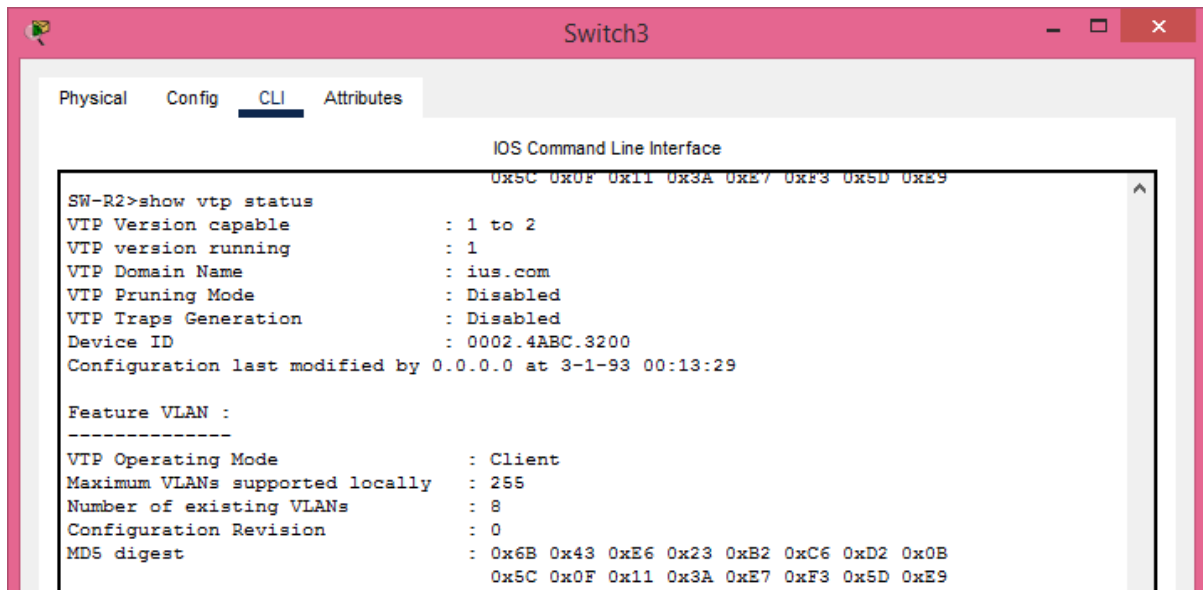


The screenshot shows the CLI of Switch1. The 'CLI' tab is selected. The command 'show vtp status' has been entered, and the output is displayed. The output shows VTP version 1 running, domain name 'ius.com', and various other settings. The configuration was last modified by 0.0.0.0 at 3-1-93 00:00:00.

```
Switch1
Physical Config CLI Attributes
IOS Command Line Interface

SW-R2>show vtp status
VTP Version capable      : 1 to 2
VTP version running      : 1
VTP Domain Name          : ius.com
VTP Pruning Mode         : Disabled
VTP Traps Generation     : Disabled
Device ID                 : 0050.0FB7.A600
Configuration last modified by 0.0.0.0 at 3-1-93 00:00:00

Feature VLAN :
-----
VTP Operating Mode       : Client
Maximum VLANs supported locally : 255
Number of existing VLANs : 8
Configuration Revision    : 13
MD5 digest                : 0xAF 0x4B 0xCE 0x65 0xEE 0x9C 0xE7 0x4A
                          : 0xCC 0x25 0xD2 0x51 0xD7 0xF8 0x08 0x74
```

Vérification STP :

Switch0

Physical Config CLI Attributes

IOS Command Line Interface

```
Switch>show spanning-tree summary
Switch is in pvst mode
Root bridge for: default IT
Extended system ID      is enabled
Portfast Default        is disabled
PortFast BPDU Guard Default is disabled
Portfast BPDU Filter Default is disabled
Loopguard Default       is disabled
EtherChannel misconfig guard is disabled
UplinkFast              is disabled
BackboneFast            is disabled
Configured Pathcost method used is short
```

Name	Blocking	Listening	Learning	Forwarding	STP Active
VLAN0001	0	0	0	1	1
VLAN0010	0	0	0	3	3
VLAN0020	0	0	0	1	1
VLAN0030	0	0	0	1	1
4 vlans	0	0	0	6	6

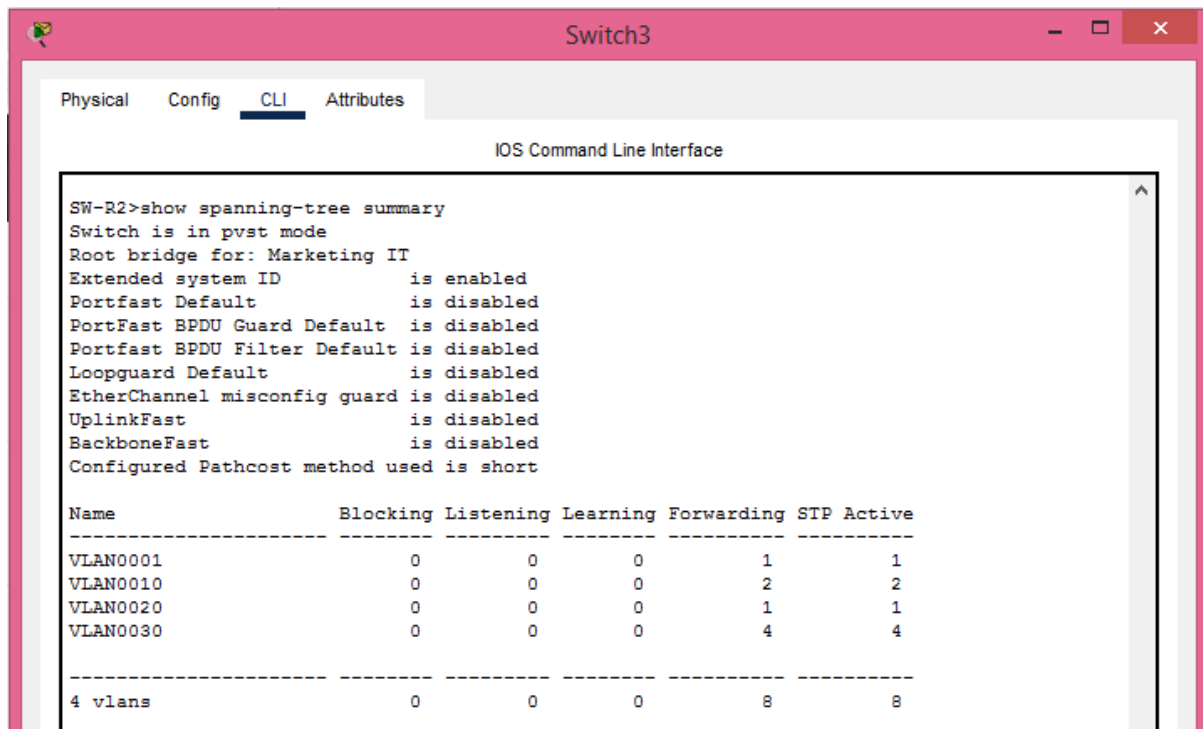
Switch1

Physical Config CLI Attributes

IOS Command Line Interface

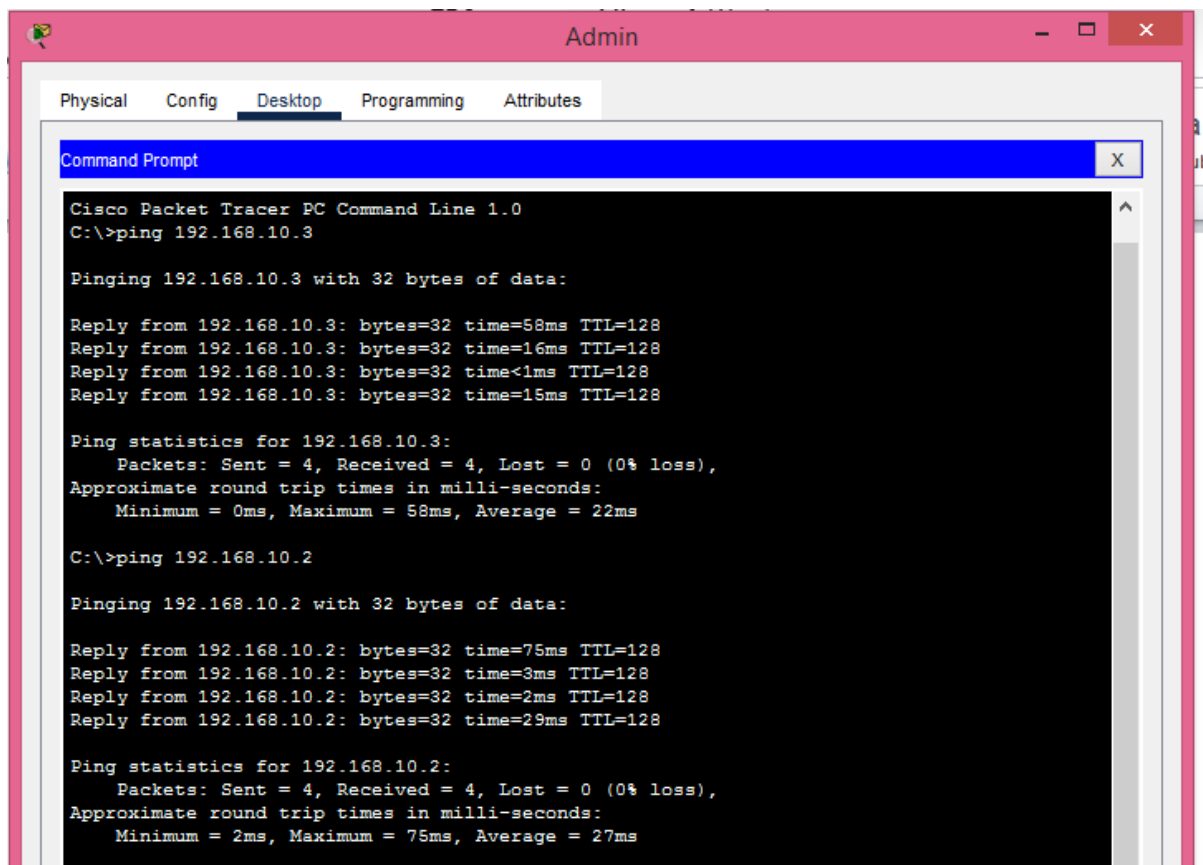
```
SW-R2>show spanning-tree summary
Switch is in pvst mode
Root bridge for:
Extended system ID      is enabled
Portfast Default        is disabled
PortFast BPDU Guard Default is disabled
Portfast BPDU Filter Default is disabled
Loopguard Default       is disabled
EtherChannel misconfig guard is disabled
UplinkFast              is disabled
BackboneFast            is disabled
Configured Pathcost method used is short
```

Name	Blocking	Listening	Learning	Forwarding	STP Active
VLAN0001	0	0	0	1	1
VLAN0010	0	0	0	1	1
VLAN0020	0	0	0	5	5
VLAN0030	0	0	0	1	1
4 vlans	0	0	0	8	8

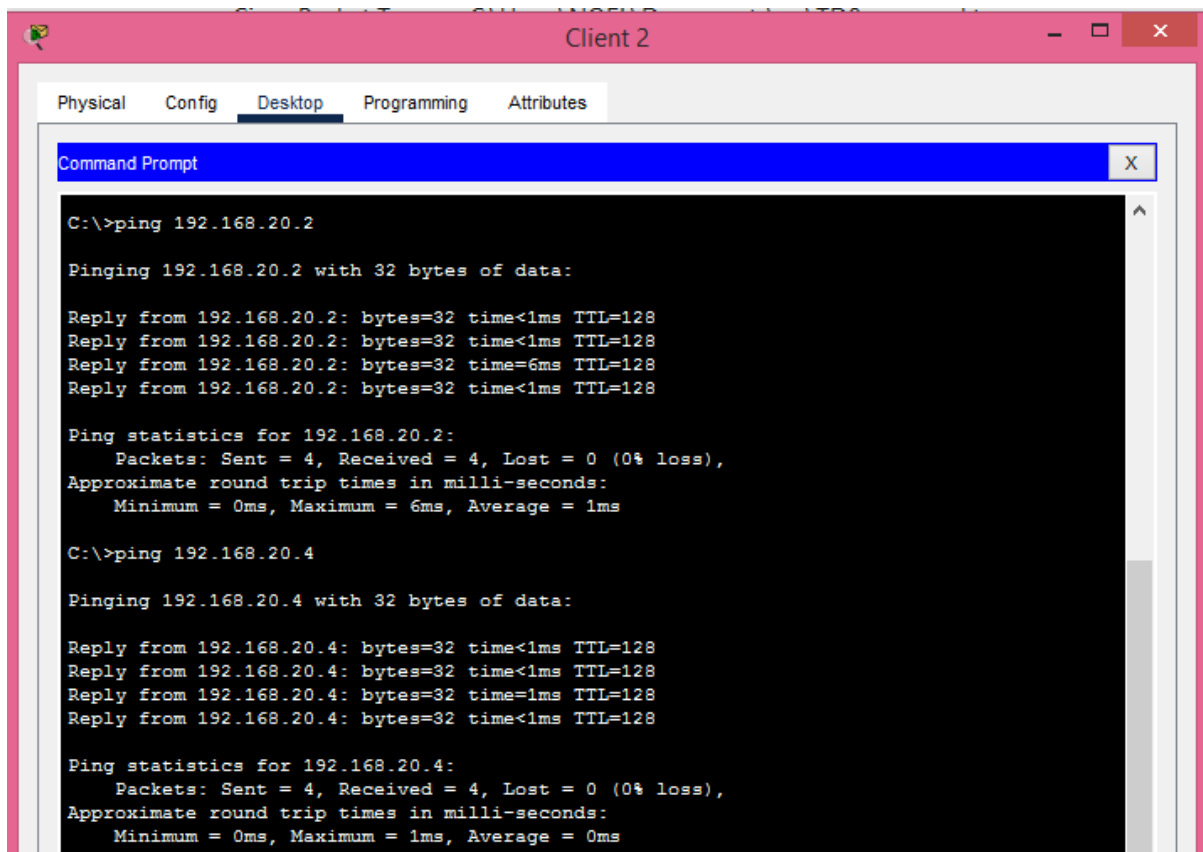


Test de connexion des postes de travail sur :

Vlan 10 :



Vlan 20 :



The screenshot shows a window titled "Client 2" with tabs for Physical, Config, Desktop, Programming, and Attributes. The Desktop tab is active, displaying a Command Prompt window. The Command Prompt shows the execution of two ping commands. The first command is "C:\>ping 192.168.20.2", which results in four successful replies from 192.168.20.2 with 32 bytes of data, times ranging from <1ms to 6ms, and a TTL of 128. The second command is "C:\>ping 192.168.20.4", which also results in four successful replies from 192.168.20.4 with 32 bytes of data, times ranging from <1ms to 1ms, and a TTL of 128. Ping statistics for both destinations show 4 packets sent, 4 received, and 0% loss.

```
C:\>ping 192.168.20.2

Pinging 192.168.20.2 with 32 bytes of data:

Reply from 192.168.20.2: bytes=32 time<1ms TTL=128
Reply from 192.168.20.2: bytes=32 time<1ms TTL=128
Reply from 192.168.20.2: bytes=32 time=6ms TTL=128
Reply from 192.168.20.2: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.20.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 6ms, Average = 1ms

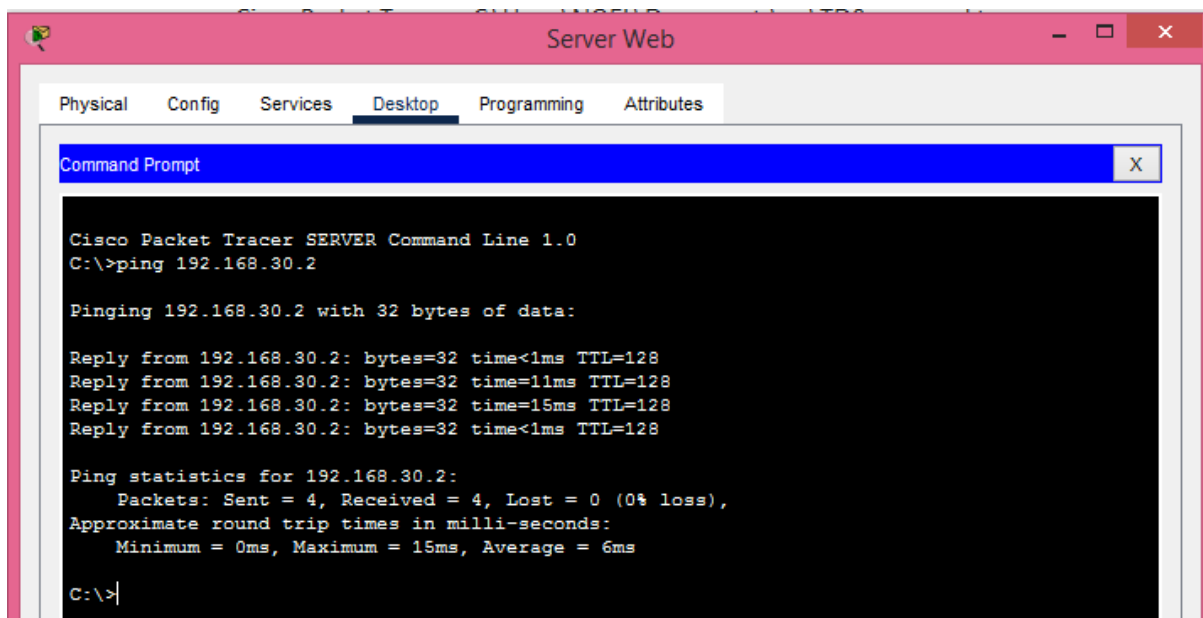
C:\>ping 192.168.20.4

Pinging 192.168.20.4 with 32 bytes of data:

Reply from 192.168.20.4: bytes=32 time<1ms TTL=128
Reply from 192.168.20.4: bytes=32 time<1ms TTL=128
Reply from 192.168.20.4: bytes=32 time=1ms TTL=128
Reply from 192.168.20.4: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.20.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

Vlan 30 :



The screenshot shows a window titled "Server Web" with tabs for Physical, Config, Services, Desktop, Programming, and Attributes. The Desktop tab is active, displaying a Command Prompt window. The Command Prompt shows the execution of a ping command "C:\>ping 192.168.30.2". The results show four successful replies from 192.168.30.2 with 32 bytes of data, times ranging from <1ms to 15ms, and a TTL of 128. Ping statistics for 192.168.30.2 show 4 packets sent, 4 received, and 0% loss.

```
Cisco Packet Tracer SERVER Command Line 1.0
C:\>ping 192.168.30.2

Pinging 192.168.30.2 with 32 bytes of data:

Reply from 192.168.30.2: bytes=32 time<1ms TTL=128
Reply from 192.168.30.2: bytes=32 time=11ms TTL=128
Reply from 192.168.30.2: bytes=32 time=15ms TTL=128
Reply from 192.168.30.2: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.30.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 15ms, Average = 6ms

C:\>|
```

Conclusion

Avec ce laboratoire j'ai appris à créer des VLAN, affecter des ports, configurer des liaisons trunks pour transporter plusieurs VLAN, et assurer le routage inter-VLAN grâce à un routeur.