

Justin Sterlacci
Professor Cannistra
5-7-2023
Internetworking

Challenge Lab: Lab Report

1. VLANs:

```
PoughSI#sh vlan
```

VLAN Name	Status	Ports
1 default	active	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 Fa0/20, Fa0/21, Fa0/22, Fa0/23 Fa0/24, Gig0/1, Gig0/2
63 PCP1+PCP3	active	
95 PCP2+PCP4	active	
127 httpsrver	active	
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	Transl	Trans2
1	enet	100001	1500	-	-	-	-	-	0	0
63	enet	100063	1500	-	-	-	-	-	0	0
95	enet	100095	1500	-	-	-	-	-	0	0
127	enet	100127	1500	-	-	-	-	-	0	0
1002	fddi	101002	1500	-	-	-	-	-	0	0
1003	tr	101003	1500	-	-	-	-	-	0	0
1004	fdnet	101004	1500	-	-	-	ieee	-	0	0
1005	trnet	101005	1500	-	-	-	ibm	-	0	0

VLAN	Type	SAID	MTU	Parent	RingNo	BridgeNo	Stp	BrdgMode	Transl	Trans2
1	enet	100001	1500	-	-	-	-	-	0	0
63	enet	100063	1500	-	-	-	-	-	0	0
95	enet	100095	1500	-	-	-	-	-	0	0
127	enet	100127	1500	-	-	-	-	-	0	0
1002	fddi	101002	1500	-	-	-	-	-	0	0
1003	tr	101003	1500	-	-	-	-	-	0	0
1004	fdnet	101004	1500	-	-	-	ieee	-	0	0
1005	trnet	101005	1500	-	-	-	ibm	-	0	0

Remote SPAN VLANs

Primary	Secondary	Type	Ports
---------	-----------	------	-------

2. STP:

```
PoughSI#sh spanning-tree
```

VLAN0001

Spanning tree enabled protocol rstp

Root ID Priority 24577
 Address 0001.43D2.EBD7
 This bridge is the root
 Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 24577 (priority 24576 sys-id-ext 1)
 Address 0001.43D2.EBD7
 Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
 Aging Time 20

Interface	Role	Sts	Cost	Prio.Nbr	Type
Fa0/19	Desg	FWD	19	128.19	P2p
Fa0/18	Desg	FWD	19	128.18	P2p

VLAN0063

Spanning tree enabled protocol rstp

Root ID Priority 24639
 Address 0001.43D2.EBD7
 This bridge is the root
 Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 24639 (priority 24576 sys-id-ext 63)
 Address 0001.43D2.EBD7
 Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
 Aging Time 20

Interface	Role	Sts	Cost	Prio.Nbr	Type
Fa0/19	Desg	FWD	19	128.19	P2p
Fa0/18	Desg	FWD	19	128.18	P2p

VLAN0095

Spanning tree enabled protocol rstp

Root ID Priority 24671
 Address 0001.43D2.EBD7
 This bridge is the root
 Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 24671 (priority 24576 sys-id-ext 95)
 Address 0001.43D2.EBD7
 Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
 Aging Time 20

Interface	Role	Sts	Cost	Prio.Nbr	Type
Fa0/19	Desg	FWD	19	128.19	P2p
Fa0/18	Desg	FWD	19	128.18	P2p

3. Ether Channel:

```
PoughS3#sh ether summ
Flags:  D - down          P - in port-channel
        I - stand-alone  s - suspended
        H - Hot-standby (LACP only)
        R - Layer3       S - Layer2
        U - in use       f - failed to allocate aggregator
        u - unsuitable for bundling
        w - waiting to be aggregated
        d - default port

Number of channel-groups in use: 1
Number of aggregators:          1

Group  Port-channel  Protocol    Ports
-----+-----+-----+-----
1      Pol(SU)          LACP        Fa0/22(P) Fa0/23(P) Fa0/24(P)
```

4. InterVLAN Routing with SVIs:

```
PoughS1#sh ip int brief
Interface                IP-Address      OK? Method Status  Protocol
FastEthernet0/1          192.168.90.250  YES manual up      up
FastEthernet0/2          unassigned      YES unset  down    down
FastEthernet0/3          unassigned      YES unset  down    down
FastEthernet0/4          unassigned      YES unset  down    down
FastEthernet0/5          unassigned      YES unset  down    down
FastEthernet0/6          unassigned      YES unset  down    down
FastEthernet0/7          unassigned      YES unset  down    down
FastEthernet0/8          unassigned      YES unset  down    down
FastEthernet0/9          unassigned      YES unset  down    down
FastEthernet0/10         unassigned      YES unset  down    down
FastEthernet0/11         unassigned      YES unset  down    down
FastEthernet0/12         unassigned      YES unset  down    down
FastEthernet0/13         unassigned      YES unset  down    down
FastEthernet0/14         unassigned      YES unset  down    down
FastEthernet0/15         unassigned      YES unset  down    down
FastEthernet0/16         unassigned      YES unset  down    down
FastEthernet0/17         unassigned      YES unset  down    down
FastEthernet0/18         unassigned      YES unset  up       up
FastEthernet0/19         unassigned      YES unset  up       up
FastEthernet0/20         unassigned      YES unset  down    down
FastEthernet0/21         unassigned      YES unset  down    down
FastEthernet0/22         unassigned      YES unset  down    down
FastEthernet0/23         unassigned      YES unset  down    down
FastEthernet0/24         unassigned      YES unset  down    down
GigabitEthernet0/1       unassigned      YES unset  down    down
GigabitEthernet0/2       unassigned      YES unset  down    down
Vlan1                    192.168.90.11  YES manual up       up
Vlan63                   192.168.90.33  YES manual up       up
Vlan95                   192.168.90.65  YES manual up       up
Vlan127                  192.168.90.97  YES manual up       down
```

5. Default Static Route:

```
Pough#sh ip route static
S*    0.0.0.0/0 [1/0] via 197.197.197.161
```

6. Dynamic Routing:

```
Pough#sh ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
        D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
        N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
        E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
        i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
        * - candidate default, U - per-user static route, o - ODR
        P - periodic downloaded static route

Gateway of last resort is 197.197.197.161 to network 0.0.0.0

192.168.90.0/24 is variably subnetted, 12 subnets, 4 masks
O    192.168.90.0/27 [110/2] via 192.168.90.250, 00:05:07, FastEthernet0/0
O    192.168.90.32/27 [110/2] via 192.168.90.250, 00:05:07, FastEthernet0/0
O    192.168.90.64/27 [110/2] via 192.168.90.250, 00:05:07, FastEthernet0/0
O    192.168.90.96/27 [110/3] via 192.168.90.250, 00:05:07, FastEthernet0/0
O    192.168.90.128/28 [110/65] via 192.168.90.201, 00:05:37, Serial0/1/0
C    192.168.90.192/30 is directly connected, Serial0/0/1
L    192.168.90.193/32 is directly connected, Serial0/0/1
O    192.168.90.196/30 [110/128] via 192.168.90.201, 00:05:37, Serial0/1/0
C    192.168.90.200/30 is directly connected, Serial0/1/0
L    192.168.90.202/32 is directly connected, Serial0/1/0
C    192.168.90.248/30 is directly connected, FastEthernet0/0
L    192.168.90.249/32 is directly connected, FastEthernet0/0
192.168.100.0/32 is subnetted, 3 subnets
C    192.168.100.100/32 is directly connected, Loopback0
O    192.168.100.101/32 [110/129] via 192.168.90.201, 00:05:37, Serial0/1/0
O    192.168.100.102/32 [110/65] via 192.168.90.201, 00:05:37, Serial0/1/0
197.197.197.0/24 is variably subnetted, 2 subnets, 2 masks
C    197.197.197.160/28 is directly connected, Serial0/0/0
L    197.197.197.162/32 is directly connected, Serial0/0/0
S*   0.0.0.0/0 [1/0] via 197.197.197.161
```

7. Default Route Injections:

```
Dallas#sh ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
        D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
        N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
        E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
        i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
        * - candidate default, U - per-user static route, o - ODR
        P - periodic downloaded static route

Gateway of last resort is 192.168.90.198 to network 0.0.0.0

192.168.90.0/24 is variably subnetted, 13 subnets, 4 masks
O    192.168.90.0/27 [110/130] via 192.168.90.198, 00:13:05, Serial0/1/1
O    192.168.90.32/27 [110/130] via 192.168.90.198, 00:13:05, Serial0/1/1
O    192.168.90.64/27 [110/130] via 192.168.90.198, 00:13:05, Serial0/1/1
O    192.168.90.96/27 [110/131] via 192.168.90.198, 00:13:05, Serial0/1/1
O    192.168.90.128/28 [110/65] via 192.168.90.198, 00:13:40, Serial0/1/1
C    192.168.90.144/28 is directly connected, FastEthernet0/0
L    192.168.90.145/32 is directly connected, FastEthernet0/0
C    192.168.90.192/30 is directly connected, Serial0/0/1
L    192.168.90.194/32 is directly connected, Serial0/0/1
C    192.168.90.196/30 is directly connected, Serial0/1/1
L    192.168.90.197/32 is directly connected, Serial0/1/1
O    192.168.90.200/30 [110/128] via 192.168.90.198, 00:13:40, Serial0/1/1
O    192.168.90.248/30 [110/129] via 192.168.90.198, 00:13:05, Serial0/1/1
192.168.100.0/32 is subnetted, 3 subnets
O    192.168.100.100/32 [110/129] via 192.168.90.198, 00:13:40, Serial0/1/1
C    192.168.100.101/32 is directly connected, Loopback0
O    192.168.100.102/32 [110/65] via 192.168.90.198, 00:13:40, Serial0/1/1
O*E2 0.0.0.0/0 [110/1] via 192.168.90.198, 00:13:40, Serial0/1/1
```

shown from Dallas Router

11. DNS Server:

No.	Name	Type	Detail
0	dns	CNAME	inetchallengelab.com
1	inetchallengelab.com	A Record	192.168.90.103
2	pca2	A Record	192.168.90.131
3	pcd2	A Record	192.168.90.147
4	pcp2	A Record	192.168.90.72
5	pcp4	A Record	192.168.90.74

14. Routed Switch Interfaces:

```
Vlan1          192.168.90.11  YES manual up
Vlan63         192.168.90.33  YES manual up
Vlan95         192.168.90.65  YES manual up
Vlan127        192.168.90.97  YES manual up
PoughS1#
```

15. VTP:

```
PoughS1#sh vtp status
VTP Version capable      : 1 to 2
VTP version running      : 1
VTP Domain Name          : PUGHHS
VTP Pruning Mode         : Disabled
VTP Traps Generation     : Disabled
Device ID                : 0005.5E43.ED00
Configuration last modified by 0.0.0.0 at 3-1-93 00:00:00
Local updater ID is 192.168.90.11 on interface Vll (lowest numbered VLAN interface found)

Feature VLAN :
-----
VTP Operating Mode       : Server
Maximum VLANs supported locally : 1005
Number of existing VLANs : 8
Configuration Revision   : 20
MD5 digest               : 0x78 0xF2 0xDE 0x10 0x18 0x84 0x00 0xD6
                        : 0x8F 0x72 0x88 0xDE 0x7A 0x3B 0x6F 0xEE
```

16. IPv6:

```
Pough#sh ipv6 int br
FastEthernet0/0      [up/up]
    FE80::202:4AFF:FEEC:A7C8
    2022::248:192:168:90:249
FastEthernet0/1      [administratively down/down]
    unassigned
Serial0/0/0          [up/up]
    FE80::290:CFF:FEBC:C479
    2022::197:197:197:197:162
Serial0/0/1          [up/up]
    FE80::2E0:F7FF:FEB7:7487
    2022::192:192:168:90:193
Serial0/1/0          [up/up]
    FE80::2D0:58FF:FE49:A7A5
    2022::200:192:168:90:202
Serial0/1/1          [administratively down/down]
    unassigned
Loopback0            [up/up]
    FE80::201:C7FF:FE9A:CB12
    2022::100:192:168:100:100
Vlan1                [administratively down/down]
    unassigned
```

I understand that I was not able to complete every single part of the challenge lab, as I had trouble trying to get the remaining things working, even after hours of troubleshooting.