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Cpre 489 – Lab 7 Report

Lab 7 Report

Summary:

This lab was interesting to me because I've used many of the tools already since I work in the network communications branch of Information Technology Services here on campus. This lab really showed me how in depth you can make your network. I also learned about some of the commands available in the configuration mode that let you alter the connection status of each port any way you would like.

Exercises:

Task 1a:

```
co2061-9300-03#show vlan
VLAN Name
                                                                  Status
                                                                                   Ports
                                                                                   Gil/0/3, Gil/0/4, Gil/0/5
Gil/0/6, Gil/0/7, Gil/0/8
Gil/0/9, Gil/0/10, Gil/0/11
Gil/0/12, Gil/0/13, Gil/0/14
Gil/0/15, Gil/0/16, Gil/0/17
Gil/0/18, Gil/0/19, Gil/0/20
Gil/0/21, Gil/0/22, Gil/0/23
Gil/0/24, Apl/0/1
                                                                  active
       default
50 lab7
1002 fddi-default
1003 token-ring-default
1004 fddinet-default
1005 trnet-default
                                                                  active
                                                                  act/unsup
act/unsup
                                                                  act/unsup
                                     MTU Parent RingNo BridgeNo Stp BrdgMode Trans1 Trans2
VLAN Type SAID
1 enet 100001 1500 -
50 enet 100050 1500 -
1002 fddi 101002 1500 -
1003 tr 101003 1500 -
VLAN Type SAID
                                     MTU Parent RingNo BridgeNo Stp BrdgMode Trans1 Trans2
1004 fdnet 101004 1500 - - ieee - 1005 trnet 101005 1500 - - - iee
Remote SPAN VLANs
Primary Secondary Type
                                                              Ports
co2061-9300-03#show run
Current configuration: 9862 bytes
.
Last configuration change at 18:10:05 UTC Wed Nov 10 2021 by admin
version 16.12
no service pad
service timestamps debug datetime msec
service timestamps log datetime msec
service timestamps log datetime msec
service password-encryption
service call-home
no platform punt-keepalive disable-kernel-core
hostname co2061-9300-03
vrf definition Mgmt-vrf
 address-family ipv4
exit-address-family
  !
address-family ipv6
exit-address-family
--More--
```

Task 1b:

```
interface Vlan1
  no ip address
  shutdown
!
interface Vlan50
  ip address 10.0.50.1 255.255.255.0
!
ip default-gateway 192.168.254.254
ip forward-protocol nd
ip http server
ip http authentication local
ip http secure-server
ip ssh authentication-retries 2
ip ssh version 2
!
!
```

Task 2:

```
Building configuration...
Current configuration : 9883 bytes
! Last configuration change at 18:21:26 UTC Wed Nov 10 2021 by admin
version 16.12
no service pad
service timestamps debug datetime msec
service timestamps log datetime msec
service password-encryption
service call-home
no platform punt-keepalive disable-kernel-core
hostname co2061-9300-03
vrf definition Mgmt-vrf
 address-family ipv4
 exit-address-family
 address-family ipv6 exit-address-family
aaa new-model
aaa authorization exec default local
aaa authorization network default local
aaa session-id common
switch 1 provision c9300-24t
call-home
Latt-nome
! If contact email address in call-home is configured as sch-smart-licensing@cisco.com
! the email address configured in Cisco Smart License Portal will be used as contact email address to send SCH notifications.
contact-email-addr sch-smart-licensing@cisco.com
profile "CiscoTAC-1"
  active
  destination transport-method http
  no destination transport-method email
ip domain name ece.iastate.edu
login on-success log
no device-tracking logging theft
.
crypto pki trustpoint TP-self-signed-2942035203
 enrollment selfsigned
 subject-name cn=IOS-Self-Signed-Certificate-2942035203
 revocation-check none
rsakeypair TP-self-signed-2942035203
.
crypto pki trustpoint SLA-TrustPoint
enrollment pkcs12
 revocation-check crl
```

co2061-9300-03#show vlan

VLAN	Name				Sta	tus P	us Ports				
50	Gil/0/6, Gil/0 Gil/0/9, Gil/0 Gil/0/12, Gil/0 Gil/0/15, Gil/0 Gil/0/15, Gil/0 Gil/0/18, Gil/0 Gil/0/21, Gil/0 Gil/0/24, Apl/ 50 lab7 active Gil/0/1							Gil/0/7, Gil/0/16 2, Gil/0/1 5, Gil/0/1 8, Gil/0/1	/7, Gi1/0/8 /10, Gi1/0/11 0/13, Gi1/0/14 0/16, Gi1/0/17 0/19, Gi1/0/20 0/22, Gi1/0/23		
		default -ring-defau	lt			/unsup /unsup	·				
1004	fddine	et-default -default			act	/unsup /unsup					
		SAID	MTU	Parent	RingNo	BridgeN		BrdgMode		Trans2	
1	enet	100001	1500		-	-	-	-	0	0	
50		100050		-			-		0	0	
		101002	1500		-	-	-	-	0	0	
1003	tr	101003	1500	-	-	-	-	-	0	0	
VLAN	Туре	SAID	MTU	Parent	RingNo	BridgeN	o Stp	BrdgMode	Trans1	Trans2	
1004	£	101004	1500								
			1500		-	-	ieee		0 0	0	
1005 trnet 101005 1500 ibm - 0 0 Remote SPAN VLANS											
Prima	Primary Secondary Type Ports										

co2061-9300-03#

Task 3:

```
[489labuser@co2061-06 ~]$ ping 10.0.50.1
PING 10.0.50.1 (10.0.50.1) 56(84) bytes of data.
64 bytes from 10.0.50.1: icmp seq=2 ttl=254 time=1.00 ms
64 bytes from 10.0.50.1: icmp seq=3 ttl=254 time=1.00 ms
64 bytes from 10.0.50.1: icmp seq=4 ttl=254 time=1.05 ms
64 bytes from 10.0.50.1: icmp seq=5 ttl=254 time=1.19 ms
64 bytes from 10.0.50.1: icmp seq=6 ttl=254 time=1.11 ms
64 bytes from 10.0.50.1: icmp seq=7 ttl=254 time=1.07 ms
64 bytes from 10.0.50.1: icmp seq=8 ttl=254 time=1.09 ms
64 bytes from 10.0.50.1: icmp_seq=9 ttl=254 time=1.00 ms
64 bytes from 10.0.50.1: icmp seq=10 ttl=254 time=0.860 ms
64 bytes from 10.0.50.1: icmp seq=11 ttl=254 time=1.10 ms
64 bytes from 10.0.50.1: icmp seq=12 ttl=254 time=1.14 ms
64 bytes from 10.0.50.1: icmp seq=13 ttl=254 time=1.13 ms
64 bytes from 10.0.50.1: icmp seq=14 ttl=254 time=1.24 ms
64 bytes from 10.0.50.1: icmp seq=15 ttl=254 time=1.04 ms
64 bytes from 10.0.50.1: icmp seq=16 ttl=254 time=1.22 ms
^c
--- 10.0.50.1 ping statistics ---
16 packets transmitted, 15 received, 6% packet loss, time 15018ms
rtt min/avg/max/mdev = 0.860/1.086/1.243/0.102 ms
[489labuser@co2061-06 ~]$
```

Each device was able to reach each other. The switch also sends packets much quicker than the PC.

Task 4: There doesn't appear to be a difference.

```
29 10.54500920:10.0.50.2
                                                                         98 Echo (ping) request id=0x5658, seq=10/2560, ttl=64
    30 10.54613716:10.0.50.1
                                                                         98 Echo (ping) reply id=0x5658, seq=10/2560, ttl=254 (request in 29)
                                        10.0.50.2
                                                             ICMP
    31 11.54656512(10.0.50.2
                                       10.0.50.1
                                                             ICMP
                                                                         98 Echo (ping) request id=0x5658, seq=11/2816, ttl=64 (reply in 32)
    32 11.54744665:10.0.50.1
                                                                        98 Echo (ping) reply id=0x5658, seq=11/2816, ttl=254 (request in 31)
                                       10.0.50.2
                                                             ICMP
    34 12.54787332!10.0.50.2
                                        10.0.50.1
                                                             ICMP
                                                                         98 Echo (ping) request id=0x5658, seq=12/3072, ttl=64
    35 12.54889516:10.0.50.1
                                       10.0.50.2
                                                             ICMP
                                                                         98 Echo (ping) reply id=0x5658, seq=12/3072, ttl=254 (request in 34)
    36 13.06215428:10.0.50.1
                                       10.0.50.2
                                                                        114 Echo (ping) request id=0x009f, seq=0/0, ttl=254 (reply in 37)
                                                             ICMP
    37 13.06222702!10.0.50.2
                                        10.0.50.1
                                                                        114 Echo (ping) reply id=0x009f, seq=0/0, ttl=64 (request in 36)
    38 13.06355378 10.0.50.1
                                        10.0.50.2
                                                                        114 Echo (ping) request id=0x009f, seq=1/256, ttl=254 (reply in 39)
    39 13 06360915:10 0 50 2
                                       10.0.50.1
                                                             TCMP
                                                                       114 Echo (ping) reply id=0x009f, seq=1/256, ttl=64 (request in 38)
    40 13.06475624:10.0.50.1
                                                                       114 Echo (ping) request id=0x009f, seq=2/512, ttl=254 (reply in 41)
                                       10.0.50.2
                                                             ICMP
    41 13.06479130;10.0.50.2
                                        10.0.50.1
                                                                        114 Echo (ping) reply id=0x009f, seq=2/512, ttl=64 (request in 40)
    42 13.06591818(10.0.50.1
                                                                        114 Echo (ping) request id=0x009f, seq=3/768, ttl=254 (reply in 43)
                                        10.0.50.2
                                                             ICMP
    43 13.06595255[10.0.50.2
                                       10.0.50.1
                                                             ICMP
                                                                        114 Echo (ping) reply \, id=0x009f, seq=3/768, ttl=64 (request in 42)
    44 13.06716191110.0.50.1
                                        10.0.50.2
                                                             ICMP
                                                                        114 Echo (ping) request id=0x009f, seq=4/1024, ttl=254 (reply in 45)
    45 13.06721815:10.0.50.2
                                                                        114 Echo (ping) reply id=0x009f, seq=4/1024, ttl=64 (request in 44)
    46 13.54932270:10.0.50.2
                                                                         98 Echo (ping) request id=0x5658, seq=13/3328, ttl=64 (reply in 47)
                                        10.0.50.1
                                                             ICMP
    47 13.55021929:10.0.50.1
                                       10.0.50.2
                                                             ICMP
                                                                        98 Echo (ping) reply id=0x5658, seq=13/3328, ttl=254 (request in 46)
    49 14.55064701(10.0.50.2
                                                                         98 Echo (ping) request id=0x5658, seq=14/3584, ttl=64 (reply in 50)
                                                             ICMP
    50 14.55184614(10.0.50.1
                                                                         98 Echo (ping) reply id=0x5658, seq=14/3584, ttl=254 (request in 49)
                                        10.0.50.2
    51 15 55230692410 0 50 2
                                       10.0.50.1
                                                             TCMP
                                                                         98 Echo (ping) request id=0x5658, seg=15/3840, ttl=64 (reply in 52)
    52 15.55329111(10.0.50.1
                                                                        98 Echo (ping) reply id=0x5658, seq=15/3840, ttl=254 (request in 51)
                                       10.0.50.2
                                                             ICMP
    54 16.55371886:10.0.50.2
                                       10.0.50.1
                                                             TCMP
                                                                         98 Echo (ping) request id=0x5658, seq=16/4096, ttl=64 (reply in 55)
    55 16.55471827 10.0.50.1
                                       10.0.50.2
                                                             ICMP
                                                                         98 Echo (ping) reply id=0x5658, seq=16/4096, ttl=254 (request in 54)
    56 16.94524869!10:b3:c6:32:5e:81
                                       10:b3:c6:32:5e:81
                                                             L00P
                                                                         60 Reply
    57 17.55509147:10.0.50.2
                                                                         98 Echo (ping) request id=0x5658, seg=17/4352, ttl=64
    58 17.55621631:10.0.50.1
                                                                         98 Echo (ping) reply id=0x5658, seq=17/4352, ttl=254 (request in 57)
                                       10.0.50.2
                                                             ICMP
    60 18.55664397;10.0.50.2
                                                                         98 Echo (ping) request id=0x5658, seq=18/4608, ttl=64 (reply in 61)
                                       10.0.50.1
                                                                         98 Echo (ping) reply id=0x5658, seq=18/4608, ttl=254 (request in 60)
Frame 1: 60 bytes on wire (480 bits), 60 bytes captured (480 bits) on interface 0
▶ IEEE 802.3 Ethernet
 Logical-Link Control
Spanning Tree Protocol
```

Task 5:

```
ip domain name ece.iastate.edu
ip dhcp excluded-address 10.0.50.1
ip dhcp excluded-address 10.0.50.1 10.0.50.3
!
ip dhcp pool VLAN50
  network 10.0.50.0 255.255.255.0
  default-router 10.0.50.1
  dns-server 4.8.9.50
  lease 0 2
```

Task 6:

```
[489labuser@co2061-06 ~]$ sudo /sbin/ifconfig p1p1 dynamic
[sudo] password for 489labuser:
[489labuser@co2061-06 ~]$ nmtui
[489labuser@co2061-06 ~]$ sudo /etc/init.d/network restart
Restarting network (via systemctl):
                                                             [ OK ]
[489labuser@co2061-06 ~]$ sudo /sbin/ifdown plp1
Device 'plp1' successfully disconnected.
[489labuser@co2061-06 ~]$ sudo /sbin/ifup plp1
Connection successfully activated (D-Bus active path: /org/freedesktop/NetworkManager/ActiveConnection/8)
[489labuser@co2061-06 ~]$ /sbin/ifconfig
enp0s31f6: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
        inet 192.168.254.6 netmask 255.255.255.0 broadcast 192.168.254.255
ether 50:9a:4c:47:63:2b txqueuelen 1000 (Ethernet)
        RX packets 348022 bytes 407682078 (388.7 MiB)
        RX errors 0 dropped 0 overruns 0 frame 0
        TX packets 232153 bytes 212165395 (202.3 MiB)
        TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
        device interrupt 16 memory 0xef200000-ef220000
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
        inet 127.0.0.1 netmask 255.0.0.0
        loop txqueuelen 1000 (Local Loopback)
        RX packets 366 bytes 31110 (30.3 KiB)
        RX errors 0 dropped 0 overruns 0 frame 0
        TX packets 366 bytes 31110 (30.3 KiB)
        TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
plp1: flags=-28605<UP,BROADCAST,RUNNING,MULTICAST,DYNAMIC> mtu 1500
        inet 10.0.50.4 netmask 255.255.255.0 broadcast 10.0.50.255
        ether 68:05:ca:4a:94:96 txqueuelen 1000 (Ethernet)
        RX packets 77 bytes 8314 (8.1 KiB)
        RX errors 0 dropped 0 overruns 0 frame 0
        TX packets 168 bytes 23483 (22.9 KiB)
        TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
        device interrupt 16 memory 0xef1c0000-ef1e0000
virbr0: flags=4099<UP, BROADCAST, MULTICAST> mtu 1500
        inet 192.168.122.1 netmask 255.255.255.0 broadcast 192.168.122.255
        ether 52:54:00:db:5b:c6 txqueuelen 1000 (Ethernet)
        RX packets 0 bytes 0 (0.0 B)
        RX errors 0 dropped 0 overruns 0 frame 0 TX packets 0 bytes 0 (0.0 B)
        TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
[489]ahuser@co2061-06 ~1$
```

Task 7: My capture didn't show all 4 DHCP packets. The two shown were DHCP Request and DHCP ACK. Request tells the computer to choose an IP address based on the rules that the switch as created. And ACK tells the switch what IP address the even PC chose.

0.9.000334/21.10:D3:C0:37:26:81	Spanning-tree-tron	-DT.51P	00'K51. K00L = 32/08/50/10:D3:C0:32:50:80
7 9.446889791 192.168.122.1	224.0.0.22	IGMPv3	54 Membership Report / Leave group 224.0.0.251
8 9.536863709 192.168.122.1	224.0.0.22	IGMPv3	54 Membership Report / Leave group 224.0.0.251
9 9.929313478 0.0.0.0	255.255.255.255	DHCP	342 DHCP Request - Transaction ID 0x4536927a
10 9.930747702 10.0.50.1	10.0.50.4	DHCP	342 DHCP ACK - Transaction ID 0x4536927a
11 9.944876548 10.0.50.4	224.0.0.22	IGMPv3	54 Membership Report / Join group 224.0.0.251 for any sources
12 10.00144816-10:b3:c6:32:5e:81	Spanning-tree-(for	-br:STP	60 RST. Root = 32768/50/10:b3:c6:32:5e:80 Cost = 0 Port = 0x8001
13 10.02819205(10.0.50.4	224.0.0.251	MDNS	158 Standard query response 0x0000 PTR_workstationtcp.local PTR co2061-06 [68:05:ca:4a:94:96]workstationtcp.local
14 10.03954263110.0.50.4	224.0.0.251	MDNS	245 Standard query 0x0000 ANY co2061-06 [68:05:ca:4a:94:96]. workstation _tcp.local, "QM" question ANY co2061-06.local, "QM" question ANY 4.50.0.10.in-a
15 10.04395685-10.0.50.4	224.0.0.251	MDNS	160 Standard query 0x0000 PTR _nfstcp.local, "QM" question PTR _ftptcp.local, "QM" question PTR _webdavtcp.local, "QM" question PTR _webdavstcp.
16 10.07091482(10.0.50.4	224.0.0.22	IGMPv3	54 Membership Report / Join group 224.0.0.251 for any sources
17 10.15694296;10:b3:c6:32:5e:81	CDP/VTP/DTP/PAgP/U	DLD CDP	426 Device ID: co2061-9300-03.ece.iastate.edu Port ID: GigabitEthernet1/0/1
18 10.28985719110.0.50.4	224.0.0.251	MDNS	245 Standard query 0x0000 ANY co2061-06 [68:05:ca:4a:94:96]. workstation _tcp.local, "QM" question ANY co2061-06.local, "QM" question ANY 4.50.0.10.in-a
19 10.54103450;10.0.50.4	224.0.0.251	MDNS	245 Standard query 0x0000 ANY co2061-06 [68:05:ca:4a:94:96]. workstation _tcp.local, "QM" question ANY co2061-06.local, "QM" question ANY 4.50.0.10.in-a
20 10.74041182910.0.50.4	224.0.0.251	MDNS	175 Standard query response 0x0000 TXT, cache flush HINFO, cache flush X86_64 LINUX SRV, cache flush 0 0 9 co2061-06.local
21 10.74168168410.0.50.4	224.0.0.251	MDNS	121 Standard query response 0x0000 PTR, cache flush co2061-06.local A, cache flush 10.0.50.4
22 11.04467885(10.0.50.4	224.0.0.251	MDNS	160 Standard query 0x0000 PTR _nfstcp.local, "QM" question PTR _ftptcp.local, "QM" question PTR _webdavtcp.local, "QM" question PTR _webdavstcp.
23 11.07434446{10.0.50.4	224.0.0.251	MDNS	158 Standard query response 0x0000 PTR workstation. tcp.local PTR co2061-06 [68:05:ca:4a:94:96], workstation. tcp.local
24 11.78668381110.0.50.4	224.0.0.251	MDNS	191 Standard query response 0x0000 TXT, cache flush HINFO, cache flush X86_64 LINUX SRV, cache flush 0 0 9 co2061-06.local A, cache flush 10.0.50.4
25 11.78811034(10.0.50.4	224.0.0.251	MDNS	105 Standard query response 0x0000 PTR, cache flush co2061-06.local
26 12.00136388:10:b3:c6:32:5e:81	Spanning-tree-(for	-br:STP	60 RST. Root = 32768/50/10:b3:c6:32:5e:80
27 12.73635461(10:b3:c6:32:5e:81	10:b3:c6:32:5e:81	L00P	60 Reply
28 13.04504506{10.0.50.4	224.0.0.251	MDNS	160 Standard query 0x0000 PTR nfs. tcp.local, "QM" question PTR ftp. tcp.local, "QM" question PTR webday. tcp.local, "QM" question PTR webdays. tcp.
29 13.12129590!10.0.50.4	224.0.0.251	MDNS	217 Standard query response 0x0000 PTR_workstation_tcp.local PTR co2061-06 [68:05:ca:4a:94:96]. workstation_tcp.local TXT, cache flush SRV, ca
30 13.83270428-10.0.50.4	224.0.0.251	MDNS	191 Standard query response 0x0000 TXT, cache flush HINFO, cache flush X86_64 LINUX SRV, cache flush 0 0 9 co2061-06.local A, cache flush 10.0.50.4
31 13.83403656;10.0.50.4	224.0.0.251	MDNS	105 Standard query response 0x0000 PTR, cache flush co2061-06.local
32 14.00086018:10:b3:c6:32:5e:81	Spanning-tree-(for	-br:STP	60 RST. Root = 32768/50/10:b3:c6:32:5e:80
33 16.00142503 10:b3:c6:32:5e:81	Spanning-tree-(for	-br:STP	60 RST. Root = 32768/50/10:b3:c6:32:5e:80
34 17.04653946:10.0.50.4	224.0.0.251	MDNS	160 Standard query 0x0000 PTR nfs. tcp.local, "QM" question PTR ftp. tcp.local, "QM" question PTR webdav. tcp.local, "QM" question PTR webdavs. tcp.
35 18.00141621110:b3:c6:32:5e:81	Spanning-tree-(for	-br:STP	60 RST. Root = 32768/50/10:b3:c6:32:5e:80 Cost = 0 Port = 0x8001
36 20.00282129{10:b3:c6:32:5e:81	Spanning-tree-(for	-br:STP	60 RST. Root = 32768/50/10:b3:c6:32:5e:80
37 22.00441896:10:b3:c6:32:5e:81	Spanning-tree-(for	-br:STP	60 RST. Root = 32768/50/10:b3:c6:32:5e:80 Cost = 0 Port = 0x8001
38 22.73590661{10:b3:c6:32:5e:81	10:b3:c6:32:5e:81	L00P	60 Reply
39 24.00387363:10:b3:c6:32:5e:81	Spanning-tree-(for	-br:STP	60 RST. Root = 32768/50/10:b3:c6:32:5e:80 Cost = 0 Port = 0x8001
40 25.04703068(10.0.50.4	224.0.0.251	MDNS	160 Standard query 0x0000 PTR nfs. tcp.local, "QM" question PTR ftp. tcp.local, "QM" question PTR webdav. tcp.local, "QM" question PTR webdavs. tcp.

Task 8:

Shutdown

No ip dchp pool VLAN50

debug ip dhcp server events

no ip dhcp excluded-address 10.0.50.1 10.0.50.3