

Local Area Networks Practical Exam Marking Sheet						
Name: Masroor Ul Hassan Khan		Student ID: 12				
		S1	S2	S3	R1	General
Addressing Table	10					3.00
Task 1: Prepare the Network	5					5.00
Task 2: Basic Configuration						
Hostname	1.25	0.31	0.31	0.31	0.31	
Disable DNS Lookup	1.25	0.31	0.31	0.31	0.31	
EXEC password	1.25	0.31	0.31	0.31	0.31	
MOTD	1.25	0.31	0.31	0.31	0.31	
Line Con 0	1.25	0.31	0.31	0.31	0.31	
Synchronous Logging	1.25	0.31	0.31	0.31	0.31	
Line VTY	1.25	0.31	0.31	0.31	0.31	
Password Encryption	1.25	0.31	0.31	0.31	0.31	
Task 3: Router + Switch Config Instructions						
VTP Srv Client	5	2.00	1.50	1.50		
EtherChannel	5	1.67	1.67	1.67		
VLANs	5			5.00		
Port Assignment	5	2.50	2.50			
RSTP or PVST+	5	1.67	1.67	1.67		
S3 Primary root + S1 Secondary	5	2.50		2.50		
Portfast + BPDU Guard	5	2.50	2.50			
DHCP Srv	5	2.50				
Mgm. IP Add (VLAN 99)	5	0.00	0.00	0.00	0.00	
R1 Routing Tbl.	5				0.00	
R1 Sub interfaces	5				0.00	
Task 4: ipconfig						
PC1	7.5					3.00
PC2	7.5					3.00
Task 5: Documentation	5					5.00
TOTAL (each device) =		17.84	12.34	14.84	2.50	19.00
Sub Total		66.52				
Total %		100				
1 st Marker						
2 nd Marker						



Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

LOCATION: LONDON

LLEOLIAD: LLUNDAIN

LEVEL 5

LEFEL 5

EXAMINATION PERIOD
MAY 2016

CYFNOD ARHOLIADAU
MAY 2016

MODULE CODE: ACCC5002
LOCAL AREA NETWORKS

TIME: 2 HOURS

66.5
100

✓



Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

Local Area Networks
(ACCC5002)

Practical Lab Assessment
Year 2/Level 5
May 2016

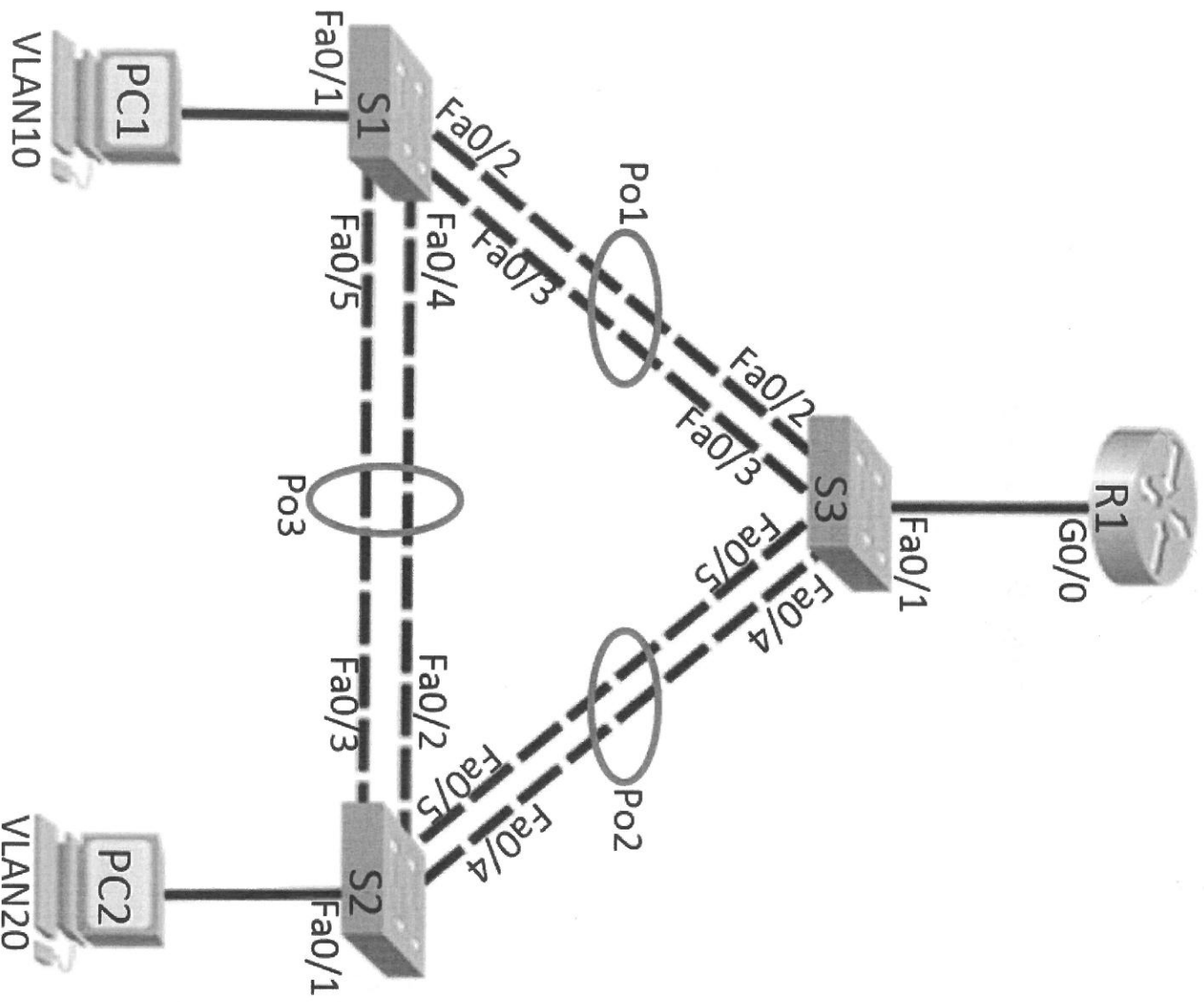
Name : MASPROB
Student ID : 1204399
Date & Time : 12 May 2016

This is an individual practical lab-test, held under examination conditions. You will be assigned three Switches and a Router; you should configure these devices based on the given specifications.

This paper is marked out of 100.

You will have 2 hours to complete this task.

TOPOLOGY DIAGRAM



VLAN 10 – Students: 172.16.10.0/24
VLAN 20 – Staff: 172.16.20.0/24
VLAN 99 – Management: 172.16.99.0/24

Addressing Table

(10 marks)

Device	Interface	IP Address	Subnet Mask	Default Gateway
R1	Ge0/0.10	192.168.0.1	255.255.255.0	N/A
	Ge0/0.20	192.168.0.5	255.255.255.0	N/A
	Ge0/0.99	192.168.10.10	255.255.255.0	N/A
S1	VLAN99	172.16.99.1	255.255.255.0	172.16.99.254
S2	VLAN99	172.16.99.2	255.255.255.0	172.16.99.254
S3	VLAN99	172.16.99.3	255.255.255.0	172.16.99.254
PC1	NIC	169.254.181.37	255.255.0.0	
PC2	NIC	169.254.235.104	255.255.0.0	

Port Assignments

S1

Ports	Assignment	Network
Fa0/2 – 0/5	802.1q Trunks (Native VLAN 99)	172.16.99.0
Fa0/1	VLAN 10 (Students)	172.16.10.0

S2

Ports	Assignment	Network
Fa0/2 – 0/5	802.1q Trunks (Native VLAN 99)	172.16.99.0
Fa0/1	VLAN 20 (Staff)	172.16.20.0

S3

Ports	Assignment	Network
Fa0/1 – 0/5	802.1q Trunks (Native VLAN 99)	172.16.99.0

Task 1: Prepare the Network (5 marks)

Step 1: Cable a network that is similar to the one in the topology diagram.

Step 2: Clear any existing configurations on the devices.

Task 2: Perform Basic Device Configurations (10 marks)

Configure the S1, S2, and S3 switches and R1 router according to the following guidelines:

- ✓ Configure the hostname. ✓
- ✓ Disable DNS lookup. ✓
- ✓ Configure an EXEC mode password. ✓
- ✓ Configure a message-of-the-day banner. ✓
- ✓ Configure a password for console connections. ✓
- ✓ Configure synchronous logging. ✓
- ✓ Configure a password for vty connections. ✓
- ✓ Enable service password encryption. ✓

Task 3: Router and Switch configuration instructions (50 marks)

1. ✓ Configure S3 as a VTP server, and S1 & S2 as VTP clients in the **example.com** domain. ✓
Set the VTP password to 'cisco'. ✓
2. ✓ Configure EtherChannel between the switches as per the topology diagram. ✓
3. ✓ Create VLANs 10, 20 & 99, and name as required. ✓
4. ✓ Assign ports to appropriate VLANs as shown in the Port Assignments table. ✓
5. ✓ Configure RSTP PVST+ on all switches. ✓
6. ✓ Configure S3 to be the primary root for all VLANs and S1 to be secondary. ✓
7. ✓ Configure PortFast and BPDU Guard on the interface connected to PC1 and PC2. ✓
8. ✓ Configure S1 as a DHCP server to provide IP addresses and default gateways to users on VLAN 10 & 20. Verify all PCs receive IP address details. ✓
9. ✓ Configure management IP addresses for all network switches in VLAN 99, and configure them for Telnet access. ✓

Only one wrong range - 2.5
No address. - 5

37.5
55

10. Configure router-on-a-stick inter-VLAN routing.

11. Configure subinterfaces on R1 to operate on VLAN 10, 20, and 99 with the address from the Address table.

Task 4: After configuring each host computer, record the host network settings with the ipconfig/all command.
(15 marks)

Host PC1 Network Configuration	
Description	Broadcom NetLink DMGFE
Physical Address	78-2B-CB-8D-61-4F
IP Address	161.254.235.195
Subnet Mask	255.255.0.0
Default Gateway	—

Host PC2 Network Configuration	
Description	Broadcom NetLink TMGE
Physical Address	78-2B-CB-AE-91-04
IP Address	161.254.181.27
Subnet Mask	255.255.255.0.0
Default Gateway	—

Host PC3 Network Configuration	
Description	
Physical Address	
IP Address	
Subnet Mask	
Default Gateway	

Task 5: Document the Configurations (10 marks)

All documentation for your solution should be submitted. Your name should be clearly printed on the documents.

At the end of the test a pen drive will be given to you, the configuration files for all routers should be copied to the media and handed in to your instructor. It is your responsibility that you copy the files correctly.

On each device, issue the following commands and capture the configurations. Save the file as **devicename_surname_Pno.txt**

```
show run
sh ip int brief
sh ip route
sh vlan
sh int trunk
sh spanning-tree
sh etherchannel summary
sh vtp status
```

A handwritten mark, possibly a signature or initials, enclosed in a hand-drawn circle.


```
!  
!  
!  
!  
!  
interface Embedded-Service-Engine0/0  
no ip address  
shutdown  
!  
interface GigabitEthernet0/0  
no ip address  
shutdown  
duplex auto  
speed auto  
!  
interface GigabitEthernet0/1  
ip address dhcp  
duplex auto  
speed auto  
!  
interface Serial0/0/0  
no ip address  
shutdown  
clock rate 2000000  
!  
interface Serial0/0/1  
no ip address  
shutdown  
clock rate 2000000  
!  
ip forward-protocol nd  
!  
no ip http server  
no ip http secure-server  
!  
!  
!  
!  
!  
control-plane  
!  
!  
banner motd ^C  
Unauthorized access prohibited^C  
!  
line con 0  
password 7 01100F175804  
login  
line aux 0  
line 2  
no activation-character  
no exec  
transport preferred none  
transport output pad telnet rlogin lapb-ta mop udptn v120 ssh  
stopbits 1
```

```

R1#
R1#
R1#
R1#
R1#
R1#
R1#
R1#
R1#
R1#
R1#
R1#sh ip int br
Interface                IP-Address    OK? Method Status          Protocol
Embedded-Service-Engine0/0 unassigned    YES unset  administratively down down
GigabitEthernet0/0       unassigned    YES unset  administratively down down
GigabitEthernet0/1       unassigned    YES manual down           down
Serial0/0/0              unassigned    YES unset  administratively down down
Serial0/0/1              unassigned    YES unset  administratively down down
R1#
R1#
R1#
R1#
R1#
R1#
R1#
R1#
R1#
R1#
R1#
R1#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
       i - IS-IS, su - IS-IS summary, 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, H - NHRP, l - LISP
       a - application route
       + - replicated route, % - next hop override

Gateway of last resort is not set

R1#

```

R1#
R1#
R1#
R1#

```
S1#sh run
Building configuration...

Current configuration : 2310 bytes
!
! Last configuration change at 01:31:07 UTC Mon Mar 1 1993
!
version 15.0
no service pad
service timestamps debug datetime msec
service timestamps log datetime msec
service password-encryption
!
hostname S1
!
boot-start-marker
boot-end-marker
!
enable secret 5 $1$l9Rq$agn/yOIUo1S9LvDV4fn9S0
!
no aaa new-model
system mtu routing 1500
ip dhcp excluded-address 172.16.99.1
!
ip dhcp pool dhcp1
 network 192.168.1.0 255.255.255.0
 default-router 192.168.1.1
 dns-server 192.168.1.9
 lease 3
!
!
no ip domain-lookup
!
!
!
!
!
!
!
!
!
!
!
!
!
spanning-tree mode rapid-pvst
spanning-tree extend system-id
spanning-tree vlan 1,10,20,99 priority 28672
!
vlan internal allocation policy ascending
!
!
!
!
!
```

```
interface Port-channel1
  switchport trunk native vlan 99
  switchport mode trunk
!
interface Port-channel3
  switchport trunk native vlan 99
  switchport mode trunk
!
interface FastEthernet0/1
  switchport mode access
  spanning-tree portfast
  spanning-tree bpduguard enable
!
interface FastEthernet0/2
  switchport trunk native vlan 99
  switchport mode trunk
  channel-group 1 mode auto
!
interface FastEthernet0/3
  switchport trunk native vlan 99
  switchport mode trunk
  channel-group 1 mode auto
!
interface FastEthernet0/4
  switchport trunk native vlan 99
  switchport mode trunk
  channel-group 3 mode desirable
!
interface FastEthernet0/5
  switchport trunk native vlan 99
  switchport mode trunk
  channel-group 3 mode desirable
!
interface FastEthernet0/6
!
interface FastEthernet0/7
!
interface FastEthernet0/8
!
interface FastEthernet0/9
!
interface FastEthernet0/10
!
interface FastEthernet0/11
!
interface FastEthernet0/12
!
interface FastEthernet0/13
!
interface FastEthernet0/14
!
interface FastEthernet0/15
!
interface FastEthernet0/16
```

```
!  
interface FastEthernet0/17  
!  
interface FastEthernet0/18  
!  
interface FastEthernet0/19  
!  
interface FastEthernet0/20  
!  
interface FastEthernet0/21  
!  
interface FastEthernet0/22  
!  
interface FastEthernet0/23  
!  
interface FastEthernet0/24  
!  
interface GigabitEthernet0/1  
!  
interface GigabitEthernet0/2  
!  
interface Vlan1  
  no ip address  
!  
ip http server  
ip http secure-server  
!  
banner motd ^C  
Unauthorized access prohibited^C  
!  
line con 0  
  password 7 02050D480809  
  logging synchronous  
  login  
line vty 0 4  
  password 7 02050D480809  
  logging synchronous  
  login  
line vty 5 15  
  login  
!  
end
```

```
S1#  
S1#  
S1#  
S1#  
S1#  
S1#  
S1#  
S1#  
S1#  
S1#  
S1#
```

Interface	IP-Address	OK?	Method	Status	Protocol
Vlan1	unassigned	YES	unset	up	up
FastEthernet0/1	unassigned	YES	unset	up	up
FastEthernet0/2	unassigned	YES	unset	up	up
FastEthernet0/3	unassigned	YES	unset	up	up
FastEthernet0/4	unassigned	YES	unset	up	up
FastEthernet0/5	unassigned	YES	unset	up	up
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	down	down
FastEthernet0/19	unassigned	YES	unset	down	down
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
Port-channel1	unassigned	YES	unset	up	up
Port-channel3	unassigned	YES	unset	up	up

S1#
S1#
S1#
S1#
S1#

```
S1#
S1#
S1#
S1#
S1#
S1#
S1#
S1#
S1#
S1#
S1#
S1#
S1#
S1#
S1#
S1#
S1#
S1#
S1#sh ip route
```

^
% Invalid input detected at '^' marker.

```
S1#sh vlan
```

VLAN Name	Status	Ports
1 default	active	Fa0/1, 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
10 students	active	
20 staff	active	
99 management	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	
10 enet	100010	1500	-	-	-	-	0	0	
20 enet	100020	1500	-	-	-	-	0	0	
99 enet	100099	1500	-	-	-	-	0	0	

VLAN Type	SAID	MTU	Parent	RingNo	BridgeNo	Stp	BrdgMode	Trans1	Trans2
1002 fddi	101002	1500	-	-	-	-	0	0	
1003 tr	101003	1500	-	-	-	srb	0	0	
1004 fdnet	101004	1500	-	-	-	ieee	0	0	
1005 trnet	101005	1500	-	-	-	ibm	0	0	

S1#sh vlan

VLAN Name	Status	Ports
1 default	active	Fa0/1, 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
10 students	active	
20 staff	active	
99 management	active	
1002 fddi-default	act/unsup	
1003 token-ring-default	act/unsup	

act/unsup
act/unsup

Parent	RingNo	BridgeNo	Stp	BrdgMode	Trans1	Trans2
-	-	-	-	0	0	
-	-	-	-	0	0	
-	-	-	-	0	0	
-	-	-	-	0	0	

Parent	Ring	No Bridge	No Stp	BrdgMode	Trans1	Trans2
-	-	-	-	0	0	
-	-	-	srb	0	0	
-	-	ieee	-	0	0	
-	-	ibm	-	0	0	

Ports

```
S1#
S1#
S1#sh int tru
S1#sh int trunk
```

Port	Mode	Encapsulation	Status	Native vlan
Po1	on	802.1q	trunking	99
Po3	on	802.1q	trunking	99

Port	Vlans allowed on trunk
Po1	1-4094
Po3	1-4094

Port	Vlans allowed and active in management domain
Po1	1,10,20,99
Po3	1,10,20,99

Port	Vlans in spanning tree forwarding state and not pruned
Po1	1,10,20,99
Po3	1,10,20,99

[illegible]

S1#sh sp
S1#sh spanning-tree

VLAN0001

Spanning tree enabled protocol rstp
Root ID Priority 24577
Address 84b5.1773.c200
Cost 12
Port 64 (Port-channel1)
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 28673 (priority 28672 sys-id-ext 1)
Address 84b5.1773.e880
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Aging Time 300 sec

Interface	Role	Sts	Cost	Prio.Nbr	Type

Fa0/1	Desg	FWD	19	128.1	P2p Edge
Po1	Root	FWD	12	128.64	P2p
Po3	Desg	FWD	12	128.80	P2p

VLAN0010

Spanning tree enabled protocol rstp
Root ID Priority 24586
Address 84b5.1773.c200
Cost 12
Port 64 (Port-channel1)
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 28682 (priority 28672 sys-id-ext 10)
Address 84b5.1773.e880
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Aging Time 300 sec

Interface	Role	Sts	Cost	Prio.Nbr	Type

Po1	Root	FWD	12	128.64	P2p
Po3	Desg	FWD	12	128.80	P2p

VLAN0020

Spanning tree enabled protocol rstp
Root ID Priority 24596
Address 84b5.1773.c200
Cost 12
Port 64 (Port-channel1)
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 28692 (priority 28672 sys-id-ext 20)
Address 84b5.1773.e880

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
Aging Time 300 sec

Interface	Role	Sts	Cost	Prio.	Nbr	Type
Po1	Root	FWD	12	128.64		P2p
Po3	Desg	FWD	12	128.80		P2p

VLAN0099

Spanning tree enabled protocol rstp

Root ID Priority 24675

Address 84b5.1773.c200

Cost 12

Port 64 (Port-channel1)

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 28771 (priority 28672 sys-id-ext 99)

Address 84b5.1773.e880

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Aging Time 300 sec

Interface	Role	Sts	Cost	Prio.	Nbr	Type
Po1	Root	FWD	12	128.64		P2p
Po3	Desg	FWD	12	128.80		P2p

S1#

S1#

S1#

S1#

S1#

S1#

S1#

S1#

S1#

S1#

S1#

S1#

S1#

S1#

S1#

S1#

S1#

S1#

S1#

S1#

S1#

S1#

S1#

S1#

S1#

S1#

S1#

S1#

```
S1#
S1#
S1#
S1#
S1#
S1#
S1#
S1#
S1#sh eth
S1#sh etherchannel sum
S1#sh etherchannel summary
Flags: D - down      P - bundled 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

      M - not in use, minimum links not met
      u - unsuitable for bundling
      w - waiting to be aggregated
      d - default port
```

Number of channel-groups in use: 2
Number of aggregators: 2

Group	Port-channel	Protocol	Ports	
-----+-----+-----+-----				
1	Po1(SU)	PAgP	Fa0/2(P)	Fa0/3(P)
3	Po3(SU)	PAgP	Fa0/4(P)	Fa0/5(P)

```
S1#
S1#
S1#
S1#
S1#
S1#
S1#
S1#
S1#
S1#
S1#
S1#sh vtp ser
S1#sh vtp st
S1#sh vtp status
VTP Version capable      : 1 to 3
VTP version running      : 1
VTP Domain Name          : example.com
VTP Pruning Mode          : Disabled
VTP Traps Generation     : Disabled
Device ID                 : 84b5.1773.e880
Configuration last modified by 0.0.0.0 at 3-1-93 00:25:34

Feature VLAN:
```

VTP Operating Mode : Client
Maximum VLANs supported locally : 255
Number of existing VLANs : 8
Configuration Revision : 3
MD5 digest : 0x92 0x7C 0xC1 0x25 0x43 0x32 0x7F 0xCF

S2#sh run

Building configuration...

Current configuration : 2281 bytes

!

! Last configuration change at 01:48:22 UTC Mon Mar 1 1993

!

version 15.0

no service pad

service timestamps debug datetime msec

service timestamps log datetime msec

service password-encryption

!

hostname S2

!

boot-start-marker

boot-end-marker

!

enable secret 5 \$1\$btHb\$AmJTx4SQo43gszmJHxPuQ0

!

username admin password 7 094F471A1A0A

no aaa new-model

system mtu routing 1500

!

!

no ip domain-lookup

ip domain-name cisco.com

!

!

!

!

!

!

!

!

!

spanning-tree mode rapid-pvst

spanning-tree extend system-id

!

vlan internal allocation policy ascending

!

ip ssh version 1

!

!

!

!

!

interface Port-channel2

switchport trunk native vlan 99

switchport mode trunk

!

interface Port-channel3

switchport trunk native vlan 99

```
switchport mode trunk
!
interface FastEthernet0/1
switchport access vlan 20
switchport mode access
spanning-tree portfast
spanning-tree bpduguard enable
!
interface FastEthernet0/2
switchport trunk native vlan 99
switchport mode trunk
channel-group 3 mode auto
!
interface FastEthernet0/3
switchport trunk native vlan 99
switchport mode trunk
channel-group 3 mode auto
!
interface FastEthernet0/4
switchport trunk native vlan 99
switchport mode trunk
channel-group 2 mode auto
!
interface FastEthernet0/5
switchport trunk native vlan 99
switchport mode trunk
channel-group 2 mode auto
!
interface FastEthernet0/6
!
interface FastEthernet0/7
!
interface FastEthernet0/8
!
interface FastEthernet0/9
!
interface FastEthernet0/10
!
interface FastEthernet0/11
!
interface FastEthernet0/12
!
interface FastEthernet0/13
!
interface FastEthernet0/14
!
interface FastEthernet0/15
!
interface FastEthernet0/16
!
interface FastEthernet0/17
!
interface FastEthernet0/18
!
```

```
interface FastEthernet0/19
!
interface FastEthernet0/20
!
interface FastEthernet0/21
!
interface FastEthernet0/22
!
interface FastEthernet0/23
!
interface FastEthernet0/24
!
interface GigabitEthernet0/1
!
interface GigabitEthernet0/2
!
interface Vlan1
no ip address
shutdown
!
ip http server
ip http secure-server
!
banner motd ^C
Unauthorized acces is stricly prohibited^C
!
line con 0
password 7 13061E010803
logging synchronous
login
line vty 0 4
password 7 13061E010803
logging synchronous
login local
transport input ssh
line vty 5 15
login local
transport input ssh
!
end
```

```
S2#
S2#
S2#
S2#
S2#
S2#
S2#
S2#
S2#
S2#
S2#sh ip int br
```

Interface	IP-Address	OK?	Method	Status	Protocol
-----------	------------	-----	--------	--------	----------

% Invalid input detected at '^' marker.

S2#sh vlan

VLAN Name	Status	Ports

1 default	active	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
10 students	active	
20 staff	active	Fa0/1
99 management	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
10 enet	100010	1500	-	-	-	-	-	0	0
20 enet	100020	1500	-	-	-	-	-	0	0
99 enet	100099	1500	-	-	-	-	-	0	0

VLAN Type	SAID	MTU	Parent	RingNo	BridgeNo	Stp	BrdgMode	Trans1	Trans2

1002 fddi	101002	1500	-	-	-	-	-	0	0
1003 tr	101003	1500	-	-	-	-	srb	0	0
1004 fdnet	101004	1500	-	-	-	-	ieee	0	0
1005 trnet	101005	1500	-	-	-	-	ibm	0	0

Remote SPAN VLANs

Primary	Secondary	Type	Ports

S2#
S2#
S2#
S2#
S2#
S2#
S2#
S2#
S2#
S2#
S2#
S2#sh int trunk

Port	Mode	Encapsulation	Status	Native vlan
Fa0/4	on	802.1q	trunking	99
Fa0/5	on	802.1q	trunking	99
Po3	on	802.1q	trunking	99

Port	Vlans allowed on trunk
Fa0/4	1-4094
Fa0/5	1-4094
Po3	1-4094

Port	Vlans allowed and active in management domain
Fa0/4	1,10,20,99
Fa0/5	1,10,20,99
Po3	1,10,20,99

Port	Vlans in spanning tree forwarding state and not pruned
Fa0/4	1,10,20,99
Fa0/5	none
Po3	none

[illegible]

```
VLAN0001
Spanning tree enabled protocol rstp
Root ID  Priority  24577
    Address  84b5.1773.c200
    Cost      19
    Port      4 (FastEthernet0/4)
    Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

Bridge ID  Priority  32769 (priority 32768 sys-id-ext 1)
    Address  84b5.176a.1100
    Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
    Aging Time  300 sec
```

Interface	Role	Sts	Cost	Prio.	Nbr	Type
Fa0/4	Root	FWD	19	128.4		P2p

Fa0/5 Altn BLK 19 128.5 P2p
Po3 Altn BLK 12 128.80 P2p

VLAN0010

Spanning tree enabled protocol rstp
Root ID Priority 24586
 Address 84b5.1773.c200
 Cost 19
 Port 4 (FastEthernet0/4)
 Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 32778 (priority 32768 sys-id-ext 10)
 Address 84b5.176a.1100
 Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
 Aging Time 300 sec

Interface	Role	Sts	Cost	Prio.Nbr	Type

Fa0/4	Root	FWD	19	128.4	P2p
Fa0/5	Altn	BLK	19	128.5	P2p
Po3	Altn	BLK	12	128.80	P2p

VLAN0020

Spanning tree enabled protocol rstp
Root ID Priority 24596
 Address 84b5.1773.c200
 Cost 19
 Port 4 (FastEthernet0/4)
 Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 32788 (priority 32768 sys-id-ext 20)
 Address 84b5.176a.1100
 Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
 Aging Time 300 sec

Interface	Role	Sts	Cost	Prio.Nbr	Type

Fa0/1	Desg	FWD	19	128.1	P2p Edge
Fa0/4	Root	FWD	19	128.4	P2p
Fa0/5	Altn	BLK	19	128.5	P2p
Po3	Altn	BLK	12	128.80	P2p

VLAN0099

Spanning tree enabled protocol rstp
Root ID Priority 24675
 Address 84b5.1773.c200
 Cost 19
 Port 4 (FastEthernet0/4)

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 32867 (priority 32768 sys-id-ext 99)

Address 84b5.176a.1100

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Aging Time 300 sec

Interface	Role	Sts	Cost	Prio.Nbr	Type

Fa0/4	Root	FWD	19	128.4	P2p
Fa0/5	Altn	BLK	19	128.5	P2p
Po3	Altn	BLK	12	128.80	P2p

S2#
S2#
S2#
S2#
S2#
S2#
S2#
S2#
S2#
S2#
S2#
S2#
S2#
S2#
S2#
S2#sh eth
S2#sh etherchannel su
S2#sh etherchannel summary
Flags: D - down P - bundled 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

M - not in use, minimum links not met
u - unsuitable for bundling
w - waiting to be aggregated
d - default port

Number of channel-groups in use: 2
Number of aggregators: 2

Group	Port-channel	Protocol	Ports
-----+-----+-----+-----			
2	Po2(SD)	PAgP	Fa0/4(I) Fa0/5(I)
3	Po3(SU)	PAgP	Fa0/2(P) Fa0/3(P)

S2#
S2#
S2#

S2#
S2#
S2#
S2#
S2#
S2#
S2#
S2#
S2#sh vtp status
VTP Version capable : 1 to 3
VTP version running : 1
VTP Domain Name : example.com
VTP Pruning Mode : Disabled
VTP Traps Generation : Disabled
Device ID : 84b5.176a.1100
Configuration last modified by 0.0.0.0 at 3-1-93 00:25:34

Feature VLAN:

VTP Operating Mode : Client
Maximum VLANs supported locally : 255
Number of existing VLANs : 8
Configuration Revision : 3
MD5 digest : 0x92 0x7C 0xC1 0x25 0x43 0x32 0x7F 0xCF
0x05 0xB0 0x68 0x95 0xB3 0x76 0x31 0xBC

S2#
S2#
S2#
S2#
S2#
S2#
S2#
S2#
S2#
S2#
S2#
S2#

```
S3#
S3#sh run
Building configuration...

Current configuration : 2244 bytes
!
! Last configuration change at 01:43:03 UTC Mon Mar 1 1993
!
version 15.0
no service pad
service timestamps debug datetime msec
service timestamps log datetime msec
service password-encryption
!
hostname S3
!
boot-start-marker
boot-end-marker
!
enable secret 5 $1$76BL$aEFRkl4UerJ33W5jQVAy4/
!
username admin password 7 030752180500
no aaa new-model
system mtu routing 1500
!
!
no ip domain-lookup
ip domain-name cisco.com
!
!
!
!
!
!
!
!
!
!
spanning-tree mode rapid-pvst
spanning-tree extend system-id
spanning-tree vlan 1,10,20,99 priority 24576
!
vlan internal allocation policy ascending
!
ip ssh version 1
!
!
!
!
!
interface Port-channel1
 switchport trunk native vlan 99
 switchport mode trunk
!
```

```
interface Port-channel2
switchport trunk native vlan 99
switchport mode trunk
!
interface FastEthernet0/1
!
interface FastEthernet0/2
switchport trunk native vlan 99
switchport mode trunk
channel-group 1 mode desirable
!
interface FastEthernet0/3
switchport trunk native vlan 99
switchport mode trunk
channel-group 1 mode desirable
!
interface FastEthernet0/4
switchport trunk native vlan 99
switchport mode trunk
channel-group 2 mode auto
!
interface FastEthernet0/5
switchport trunk native vlan 99
switchport mode trunk
channel-group 2 mode auto
!
interface FastEthernet0/6
!
interface FastEthernet0/7
!
interface FastEthernet0/8
!
interface FastEthernet0/9
!
interface FastEthernet0/10
!
interface FastEthernet0/11
!
interface FastEthernet0/12
!
interface FastEthernet0/13
!
interface FastEthernet0/14
!
interface FastEthernet0/15
!
interface FastEthernet0/16
!
interface FastEthernet0/17
!
interface FastEthernet0/18
!
interface FastEthernet0/19
!
```

```
interface FastEthernet0/20
!
interface FastEthernet0/21
!
interface FastEthernet0/22
!
interface FastEthernet0/23
!
interface FastEthernet0/24
!
interface GigabitEthernet0/1
!
interface GigabitEthernet0/2
!
interface Vlan1
no ip address
!
interface Vlan99
no ip address
!
ip http server
ip http secure-server
!
banner motd ^C
Unauthorized access prohibited
^C
!
line con 0
password 7 02050D480809
logging synchronous
login
line vty 0 4
password 7 02050D480809
logging synchronous
login local
transport input ssh
line vty 5 15
login local
transport input ssh
!
end
```

```
S3#
S3#
S3#
S3#
S3#
S3#
S3#
S3#
S3#
S3#
S3#
S3#
```

```
S3#sh ip int br
```

Interface	IP-Address	OK?	Method	Status	Protocol
Vlan1	unassigned	YES	unset	up	up
Vlan99	unassigned	YES	unset	up	up
FastEthernet0/1	unassigned	YES	unset	down	down
FastEthernet0/2	unassigned	YES	unset	up	up
FastEthernet0/3	unassigned	YES	unset	up	up
FastEthernet0/4	unassigned	YES	unset	up	up
FastEthernet0/5	unassigned	YES	unset	up	up
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	down	down
FastEthernet0/19	unassigned	YES	unset	down	down
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
Port-channel1	unassigned	YES	unset	up	up
Port-channel2	unassigned	YES	unset	down	down

```
S3#
S3#
S3#
S3#
S3#
S3#
S3#
S3#
S3#
S3#
S3#
S3#
S3#
S3#
S3#sh vlan
```

VLAN Name	Status	Ports
1 default	active	Fa0/1, 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

10 students active
20 staff active
99 management 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	Ring	No	Bridge	No	Stp	Brdg	Mode	Trans1	Trans2
1	enet	100001	1500	-	-	-	-	-	0	0			
10	enet	100010	1500	-	-	-	-	-	0	0			
20	enet	100020	1500	-	-	-	-	-	0	0			
99	enet	100099	1500	-	-	-	-	-	0	0			

VLAN	Type	SAID	MTU	Parent	Ring	No	Bridge	No	Stp	Brdg	Mode	Trans1	Trans2
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
-----	-----	-----	-----

S3#
S3#
S3#
S3#
S3#
S3#
S3#
S3#
S3#
S3#
S3#sh int trunk

Port	Mode	Encapsulation	Status	Native vlan
Fa0/4	on	802.1q	trunking	99
Fa0/5	on	802.1q	trunking	99
Po1	on	802.1q	trunking	99

Port	Vlans allowed on trunk
Fa0/4	1-4094
Fa0/5	1-4094
Po1	1-4094

Port	Vlans allowed and active in management domain
Fa0/4	1,10,20,99
Fa0/5	1,10,20,99

Po1 1,10,20,99

Port Vlan in spanning tree forwarding state and not pruned

Fa0/4 1,10,20,99

Fa0/5 1,10,20,99

Po1 1,10,20,99

S3#

S3#

S3#

S3#

S3#

S3#

S3#

S3#

S3#

S3#sh spannin

S3#sh spanning-tree

VLAN0001

Spanning tree enabled protocol rstp

Root ID Priority 24577

Address 84b5.1773.c200

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 84b5.1773.c200

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Aging Time 300 sec

Interface	Role	Sts	Cost	Prio.	Nbr	Type

Fa0/4	Desg	FWD	19	128.4	P2p	
Fa0/5	Desg	FWD	19	128.5	P2p	
Po1	Desg	FWD	12	128.64	P2p	

VLAN0010

Spanning tree enabled protocol rstp

Root ID Priority 24586

Address 84b5.1773.c200

This bridge is the root

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 24586 (priority 24576 sys-id-ext 10)

Address 84b5.1773.c200

Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Aging Time 300 sec

Interface	Role	Sts	Cost	Prio.	Nbr	Type

Fa0/4	Desg	FWD	19	128.4	P2p	

Fa0/5 Desg FWD 19 128.5 P2p
Po1 Desg FWD 12 128.64 P2p

VLAN0020
Spanning tree enabled protocol rstp
Root ID Priority 24596
 Address 84b5.1773.c200
 This bridge is the root
 Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 24596 (priority 24576 sys-id-ext 20)
 Address 84b5.1773.c200
 Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
 Aging Time 300 sec

Interface	Role	Sts Cost	Prio.Nbr	Type

Fa0/4	Desg FWD 19	128.4	P2p	
Fa0/5	Desg FWD 19	128.5	P2p	
Po1	Desg FWD 12	128.64	P2p	

VLAN0099
Spanning tree enabled protocol rstp
Root ID Priority 24675
 Address 84b5.1773.c200
 This bridge is the root
 Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec

Bridge ID Priority 24675 (priority 24576 sys-id-ext 99)
 Address 84b5.1773.c200
 Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
 Aging Time 300 sec

Interface	Role	Sts Cost	Prio.Nbr	Type

Fa0/4	Desg FWD 19	128.4	P2p	
Fa0/5	Desg FWD 19	128.5	P2p	
Po1	Desg FWD 12	128.64	P2p	

S3#
S3#
S3#
S3#
S3#
S3#
S3#
S3#
S3#
S3#

```
S3#
S3#
S3#
S3#
S3#
S3#
S3#sh ether
S3#sh etherchannel sum
Flags: D - down      P - bundled 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

      M - not in use, minimum links not met
      u - unsuitable for bundling
      w - waiting to be aggregated
      d - default port
```

Number of channel-groups in use: 2
Number of aggregators: 2

Group	Port-channel	Protocol	Ports	
-----+-----+-----+-----				
1	Po1(SU)	PAgP	Fa0/2(P)	Fa0/3(P)
2	Po2(SD)	PAgP	Fa0/4(I)	Fa0/5(I)

```
S3#
S3#
S3#
S3#
S3#
S3#
S3#
S3#
S3#
S3#
S3#
S3#
S3#
S3#
S3#
S3#
S3#
S3#
S3#sh vtp stat
VTP Version capable      : 1 to 3
VTP version running      : 1
VTP Domain Name          : example.com
VTP Pruning Mode         : Disabled
VTP Traps Generation     : Disabled
Device ID                : 84b5.1773.c200
Configuration last modified by 0.0.0.0 at 3-1-93 00:25:34
Local updater ID is 0.0.0.0 (no valid interface found)
```

Feature VLAN:

VTP Operating Mode : Server

Maximum VLANs supported locally : 255

Number of existing VLANs : 8

Configuration Revision : 3

MD5 digest : 0x92 0x7C 0xC1 0x25 0x43 0x32 0x7F 0xCF
0x05 0xB0 0x68 0x95 0xB3 0x76 0x31 0xBC

S3#

S3#

S3#

S3#

S3#