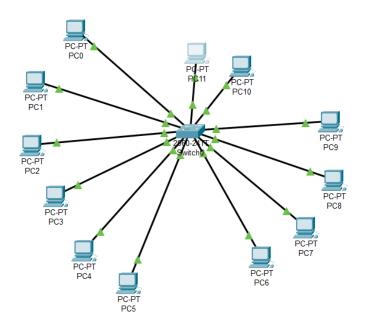
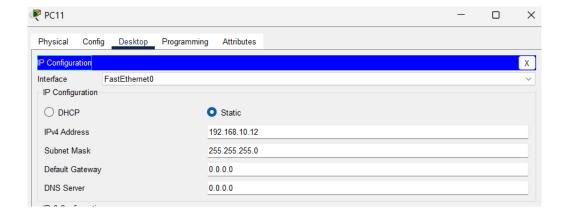
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Marwadi Chandarana Group	Department of Information and Communication Technology	
Subject: Computer	Aim: Simulate VLAN and verify the VLAN concepts the	
Networks (01CT0503)	results.	
Experiment No: 10	Date: 12-09-2024	Enrolment No: 92200133029

Aim: Simulate VLAN and verify the VLAN concepts the results.

Step -1: Set up a switch and connect different PCs to it, assigning each PC an IP address. Ensure all the devices are part of the same network by using the same subnet mask.



Step-2: Here we gave the ip address from 192.168.11.1 to 192.169.11.12 to all 12 PCs.



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Step-3: Open the switch's CLI command prompt and run show vlan brief. This will display the current VLANs on the switch, where you'll notice that all the ports are currently assigned to the default VLAN.

Switch>

Switch>sh vlan br VLAN Name Status Ports 1 default active Fa0/1, 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, Fa0/18, Fa0/19, Fa0/20 Fa0/21, Fa0/22, Fa0/23, Fa0/24 Gig0/1, Gig0/2 1002 fddi-default active 1003 token-ring-default active 1004 fddinet-default active 1005 trnet-default active

Step-4To create a new VLAN, go into Global Configuration mode and type vlan <VLAN number>. Then, to assign a name to the new VLAN, enter name <VLAN name> in the next command line.

Switch>en
Switch#config t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#vlan 2
Switch(config-vlan)#name students

Step-5: To verify the newly created VLAN, run the show vlan brief command again. You should now see the new VLAN named "Students" listed in the output.



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Switch(config)#exit

Switch#

%SYS-5-CONFIG_I: Configured from console by console

Switch#sh vlan br

VLAN	Name	Status	Ports
1	default	active	Fa0/1, 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, Fa0/18, Fa0/19, Fa0/20 Fa0/21, Fa0/22, Fa0/23, Fa0/24 Gig0/1, Gig0/2
2	students	active	
1002	? fddi-default	active	
1003	token-ring-default	active	
1004	fddinet-default	active	
1005	trnet-default	active	

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VLAN Name

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Step-6: In global configuration mode, type int f0/1 to select Ethernet port 1. Then, enter switchport mode access to set the port to access mode, followed by switchport access vlan 2 to assign it to the Students VLAN. This will add port 1 to the VLAN 2 network.

Status

Ports

Switch(config) #int f0/1 Switch(config-if) #switchport mode access Switch(config-if) #switchport access vlan 2 Switch(config-if) #do sh vlan br

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
			Fa0/18, Fa0/19, Fa0/20, Fa0/21
			Fa0/22, Fa0/23, Fa0/24, Gig0/1
			GigO/2
2	students	active	-
_	fddi-default	active	PAO/I
	token-ring-default	active	
	fddinet-default		
	trnet-default	active active	
1003	trnet-derault	active	
	ch(config-if) #switchport access : ch(config-if) #do sh vlan br	vlan 2	
VLAN	I Name	Status	
			Fa0/3, Fa0/4, Fa0/5, Fa0/6
			Fa0/3, Fa0/4, Fa0/5, Fa0/6 Fa0/7, Fa0/8, Fa0/9, Fa0/10
			Fa0/3, Fa0/4, Fa0/5, Fa0/6 Fa0/7, Fa0/8, Fa0/9, Fa0/10 Fa0/11, Fa0/12, Fa0/13, Fa0/14
			Fa0/3, 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, Fa0/18
			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, Fa0/18 Fa0/19, Fa0/20, Fa0/21, Fa0/22
1	default	active	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, Fa0/18 Fa0/19, Fa0/20, Fa0/21, Fa0/22 Fa0/23, Fa0/24, Gig0/1, Gig0/2
1	default	active	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, Fa0/18 Fa0/19, Fa0/20, Fa0/21, Fa0/22
2 1002	default students fddi-default	active active active active	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, Fa0/18 Fa0/19, Fa0/20, Fa0/21, Fa0/22 Fa0/23, Fa0/24, Gig0/1, Gig0/2
2 1002 1003	default students fddi-default token-ring-default	active active active active	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, Fa0/18 Fa0/19, Fa0/20, Fa0/21, Fa0/22 Fa0/23, Fa0/24, Gig0/1, Gig0/2
2 1002 1003 1004	default students fddi-default	active active active active	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, Fa0/18 Fa0/19, Fa0/20, Fa0/21, Fa0/22 Fa0/23, Fa0/24, Gig0/1, Gig0/2

Step - 7: To add multiple devices one VLAN in one command line use – to define range of ports or use , to add different port in any VLAN.



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Switch(config-if) #int range f0/3-f0/6 Switch(config-if-range) #switchport mode access Switch(config-if-range) #switchport access vlan 2 Switch(config-if-range) #do sh vlan br

VLAN Name	Status	Ports
l default	active	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, Gig0/1, Gig0/2
2 students	active	Fa0/1, Fa0/2, Fa0/3, Fa0/4 Fa0/5, Fa0/6
1002 fddi-default	active	
1003 token-ring-default	active	
1004 fddinet-default	active	
1005 trnet-default	active	

Step-8: Make a VLAN for Admin Staff and assign two ports to them.



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Switch>en
Switch#config t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#vlan 3
Switch(config-vlan)#name adminStaff
Switch(config-vlan)#do sh vlan br

VLAN	Name	Status	Ports
1	default	active	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, Gig0/1, Gig0/2
2	students	active	Fa0/1, Fa0/2, Fa0/3, Fa0/4 Fa0/5, Fa0/6
3	adminStaff	active	
1002	fddi-default	active	
1003	token-ring-default	active	
1004	fddinet-default	active	
	trnet-default ch(config-vlan)‡exit	active	

..-----

Switch(config) #int range f0/11,f0/12 Switch(config-if-range) #switchport mode access Switch(config-if-range) #switchport access vlan 3 Switch(config-if-range) #do sh vlan br

VLAN Name Status default active Fa0/7, Fa0/8, Fa0/9, Fa0/10 Fa0/13, Fa0/14, Fa0/15, Fa0/16 Fa0/17, Fa0/18, Fa0/19, Fa0/20 Fa0/21, Fa0/22, Fa0/23, Fa0/24 Gig0/1, Gig0/2 students Fa0/1, Fa0/2, Fa0/3, Fa0/4 active Fa0/5, Fa0/6 adminStaff active Fa0/11, Fa0/12 1002 fddi-default active 1003 token-ring-default active 1004 fddinet-default active 1005 trnet-default Switch(config-if-range)#

Step -9: Make remaining VLAN for Faculty staff

Switch(config-if-range) #exit Switch(config) #vlan 4 Switch(config-vlan) #name facutyStaff Switch(config-vlan) #do sh vlan br

VLAN	Name	Status	Ports
1	default	active	Fa0/7, Fa0/8, Fa0/9, Fa0/10 Fa0/13, Fa0/14, Fa0/15, Fa0/16 Fa0/17, Fa0/18, Fa0/19, Fa0/20 Fa0/21, Fa0/22, Fa0/23, Fa0/24 Gig0/1, Gig0/2
2	students	active	Fa0/1, Fa0/2, Fa0/3, Fa0/4 Fa0/5, Fa0/6
3	adminStaff	active	Fa0/11, Fa0/12
4	facutyStaff	active	
1002	fddi-default	active	
1003	token-ring-default	active	
1004	fddinet-default	active	
	trnet-default ch(config-vlan)#	active	



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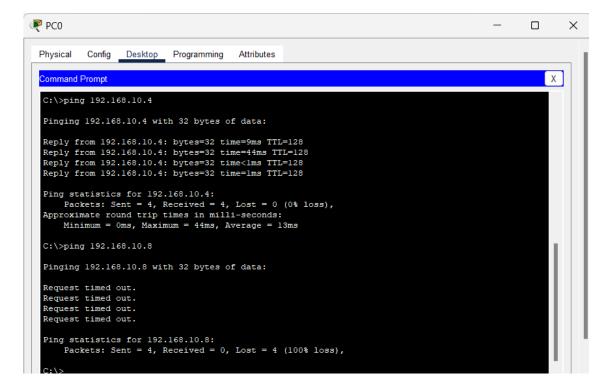
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```
Switch(config-vlan)#exit
Switch(config) #int range f0/7-f0/10
Switch(config-if-range) #switchport access vlan 4
Switch(config-if-range) #switchport mode access
Switch(config-if-range) #switchport access vlan 4
Switch(config-if-range) #do sh vlan br
VLAN Name
                                     Status
                                             Ports
                                    active Fa0/13, Fa0/14, Fa0/15, Fa0/16
    default
1
                                               Fa0/17, Fa0/18, Fa0/19, Fa0/20
                                               Fa0/21, Fa0/22, Fa0/23, Fa0/24
                                               Gig0/1, Gig0/2
                                    active Fa0/1, Fa0/2, Fa0/3, Fa0/4
    students
                                              Fa0/5, Fa0/6
                                             Fa0/11, Fa0/12
                                  active
active
3 adminStaff
    facutyStaff
                                             Fa0/7, Fa0/8, Fa0/9, Fa0/10
1002 fddi-default
                                   active
active
1003 token-ring-default
1004 fddinet-default
                                    active
1005 trnet-default
                                    active
Switch(config-if-range)#
```

Step-10: Check connectivity from same VLAN and different VLAN



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<u>Conclusion:</u> In this experiment, I learned how setting a VLAN port to access mode restricts one PC's access to others on the network, serving as a security measure. This approach improves network security while also helping manage traffic and isolate devices according to specific needs.