Independent University, Bangladesh (IUB)
Department of Computer Science & Engineering
Data Communication & Networking (CSE 316)

EXPERIMENT#2: LAN SWITCHING (PART I)

Objective:

Your task is to configure the network in Figure 1. All the router interfaces on the switch and router are in VLAN 2. If you do not wish to use routers, you can use PCs and configure the IP address on the Ethernet card instead.

1. Configure the switch to use VLAN 2 name "Cisco".
2. Place two interfaces on the switch in VLAN 2.
3. Configure the PCs Ethernet interfaces.
4. Ping across the LAN on VLAN 2.

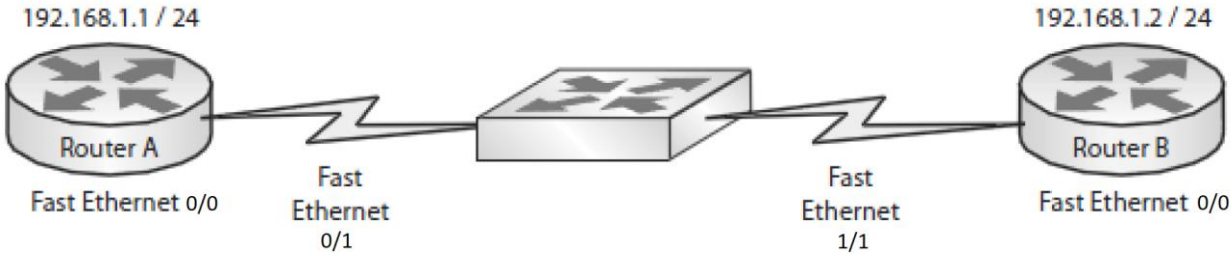

Figure 1

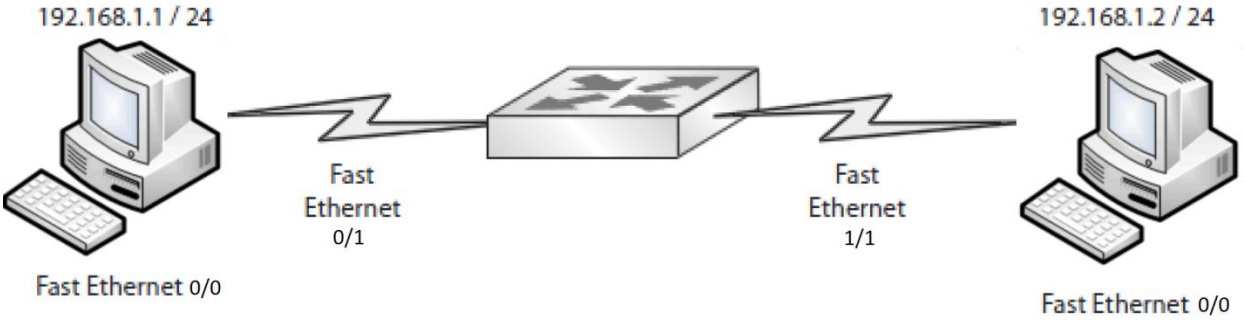

Figure 2

Tools and Materials:

In a real life Scenario:
Two Workstations with terminal Program (such as putty), Cisco switch, two Straight-through RJ45 cables

For Lab Purpose:
Cisco Packet Tracer Software

Instructions:

1. To configure the IP address on the routers do the following:

RouterA:

```
Router>enable
Router#configure terminal
Router(config)#hostname RouterA
RouterA(config)#interface fastethernet 0/0
RouterA(config)#ip address 192.168.1.1  255.255.255.0
RouterA(config-if)#no shut
RouterA(config-if)#^Z
RouterA#
```

RouterB:

```
Router>enable
Router#config t
Router#hostname RouterB
RouterB(config)#interface fastethernet 0/0
RouterB(config)#ip address 192.168.1.2  255.255.255.0
RouterB(config-if)#no shut
RouterB(config-if)#^Z
RouterB#
```

If you have plugged directly into the switch, you will be able to ping from router to router. This is because the switch will use VLAN 1 by default.

```
RouterA#ping 192.168.1.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 4/4/4 ms
RouterA#
```

2. To configure both the routers to connect to VLAN 2 on the switch, enter the following commands:

```
Switch#config t
Switch(config)#vlan 2 « Create VLAN 2
Switch(config-vlan)#name Cisco
Switch(config-vlan)#^z
```

Switch#
3. To configure the interfaces on the switch to use VLAN 2, use the following commands:

Switch#config t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#interface fastethernet 0/1
Switch(config-if)#
Switch(config-if)#description ToRouterA **« Set the description**
Switch(config-if)#switchport mode access **« On, by default**
Switch(config-if)#switchport access vlan 2 **« Add to VLAN 2**
Switch(config-if)#^z
Switch#

4. We can try to ping from router B to router A now. Since we have only put one interface into VLAN 2 (router A), the second (router B) remains in VLAN 1 (by default).

RouterB#ping 192.168.1.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.1, timeout is 2 seconds:
.....
Success rate is 0 percent (0/5)

5. We now put the Ethernet interface connecting to router B into VLAN 2.

Switch#config t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#interface fastethernet 1/1
Switch(config-if)#description ToRouterB
Switch(config-if)#switchport mode access « You can omit this.
Switch(config-if)#switchport access vlan 2
Switch(config-if)#^z

6. We can now ping across the LAN from router A to router B. The first one or two pings will fail until the switch has built up a database of which MAC addresses are connected to which ports.

RouterA#ping 192.168.1.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.2, timeout is 2 seconds:
.....
Success rate is 0 percent (0/5)
RouterA#ping 192.168.1.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.2, timeout is 2 seconds:
.!!!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 4/4/4 ms

RouterA#ping 192.168.1.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 4/4/4 ms
RouterA#

7. Reload the switch.

Switch#erase ?
startup-config Erase contents of configuration memory

Switch#erase startup-config
Erasing the nvram filesystem will remove all files! Continue?
[confirm]
[OK]
Erase of nvram: complete`
Switch#reload
System configuration has been modified. Save? [yes/no]:no
Proceed with reload? [confirm]
PT3000 Boot Loader (PT3000-HBOOT-M) Version 12.1(11r)EA1, RELEASE SOFTWARE (fc1)
Compiled Mon 22-Jul-02 18:57 by miwang
Cisco WS-CSwitch-PT (RC32300) processor (revision C0) with 21039K bytes of memory.
Switch-PT starting...
Base ethernet MAC Address: 0010.1165.BCE7
Xmodem file system is available.
Initializing Flash...
flashfs[0]: 2 files, 0 directories
flashfs[0]: 0 orphaned files, 0 orphaned directories
flashfs[0]: Total bytes: 64016384
flashfs[0]: Bytes used: 3118006
flashfs[0]: Bytes available: 60898378
flashfs[0]: flashfs fsck took 1 seconds.
...done Initializing Flash.

Boot Sector Filesystem (bs:) installed, fsid: 3
Parameter Block Filesystem (pb:) installed, fsid: 4