# Group Assignment 2 - Group Lab Activity 2

TNE10006/TNE60006 Semester January, 2023

**Assignment Weight:**   
5%

**Assignment Points:**   
50

**Submission Due Date:**

By the start of Lab Session Week 6.

**Reference Material:**

* Lab SU-6a Troubleshooting Inter-VLAN Routing

**Instructions:**

1. Form a group of 3-4 people amongst the students present in the lab session
2. Your group discussion time will be in the last 20 minutes of the lab session in Collaborate Ultra, Breakout groups.
3. Discuss and answer the questions in Group Assignment 2 in your breakout group.
4. Organise for your group to meet again to complete all the questions.
5. Each group will submit one completed Group Assignment 2
6. Submit Group Assignment 2, in the Canvas shell, under the Group Lab Activity 2
7. Late penalties will apply for submission after the due date.

**Group Assignment 2 Questions:**

* Section 1: Troubleshoot Inter-VLAN Routing Configuration (10 marks)
* Section 2: Verify VLAN Configuration, Port Assignment and Trunking (16 marks)
* Section 3: Troubleshooting and Re-configuration Commands (18 marks)
* Section 4: Connectivity Scenarios (6 marks)

**Group Assignment 2:**

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| --- | --- |
| **Group Members** | |
| **Name** | **Student Id** |
| **Ta Quang Tung** | **104222196** |
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**Section 1: Troubleshoot Inter-VLAN Routing Configuration (10 marks)**

Refer to **Part 2 Troubleshoot Inter-VLAN Routing Configuration of Lab SU-6a**

Q1. Regarding R1’s routing table,

* + 1. Were there any networks missing? If so, which networks?   
       (2 marks)

Network 192.168.10.0/24 was missing from the routing table.

* + 1. Were there any networks that should not have been present? If so, which networks?   
       (2 marks)

Network 192.168.11.0/24 should not have been present in the routing table.

Q2. Regarding R1’s interface configuration

1. Were all interfaces, loopback and sub-interfaces configured correctly? If not, list the configuration issues you found.  
   (6 marks)

Sub-interface GigabitEthernet0/0/1.10 was assigned the wrong IP address of 192.168.11.1

**Section 2: Verify VLAN Configuration, Port Assignment and Trunking   
(16 marks)**

Refer to **Part 3 Verify VLAN Configuration and Port Assignments and Trunking of Lab SU-6a**

Q1. Regarding S3’s VLAN Database,

* + 1. Were there any VLANs numbers or names missing in the output? If so, list them.  
       (2 marks)

VLAN 20 – Engineering was missing.

* + 1. Were all access ports assigned to the correct VLANs? If not, list the missing or incorrect assignments.  
       (2 marks)

Port Gi1/0/7 was not correctly assigned to VLAN 10.

Q2. Regarding S4’s VLAN Database,

* + 1. Were there any VLANs numbers or names missing in the output? If so, list them.  
       (2 marks)

VLAN 10 was assigned the wrong name of “VLAN0010”.

* + 1. Were all access ports assigned to the correct VLANs? If not, list the missing or incorrect assignments.  
       (2 marks)

Port Gi1/0/24 was not correctly assigned to VLAN 20. It was assigned to VLAN 10 instead.

Q3. Regarding Trunking configuration,

* + 1. Based on the topology diagram, which port(s) on S3 should operate in trunking mode?   
       (2 marks)

Ports Gi1/0/11 and Gi1/0/5 should operate in trunking mode.

* + 1. Based on the topology diagram, which port(s) on S4 should operate in trunking mode?   
       (2 marks)

Port Gi1/0/5 should operate in trunking mode.

* + 1. Were all ports that should operate in trunking mode configured correctly? If not, list the configuration issues you found  
       (4 marks)

Port Gi1/0/5 on S3 was not configured to be in trunking mode.

**Section 3: Troubleshooting and Re-configuration Commands (18 marks)**

Q1. Use the table provided to list the configuration issues you found in Lab SU-6a. For each issue, list the troubleshooting command(s) that helped you find it and the configuration command(s) you used to fix it.  
(3 marks for each correct issue)

|  |  |  |  |
| --- | --- | --- | --- |
| **Device** | **Configuration Issue** | **Troubleshooting Command(s)** | **Re-Configuration Command(s)** |
| R1 | Network 192.168.11.0/24 appearing in place of network 192.168.10.0/24 | show ip route | config t  interface gigabitEthernet 0/0/1.10  encapsulation dot1Q 10  ip address 192.168.10.1 255.255.255.0  exit |
| R1 | Subinterface GigabitEthernet0/0/1.10 assigned the wrong IP address of 192.168.11.1 instead of 192.168.10.1. | show ip interface brief |
| S3 | VLAN 20 – Engineering missing from Switch 3 | show vlan brief | config t  vlan 20  name Engineering  exit |
| S3 | Port Gi1/0/7 not assigned to VLAN 10. | show vlan brief | config t  interface gi1/0/7  switchport mode access  switchport access vlan 10  exit |
| S4 | VLAN 10 assigned the wrong name (VLAN0010) | show vlan brief | config t  vlan 10  name R&D  exit |
| S4 | Port Gi1/0/24 not assigned to VLAN 20. | show vlan brief | config t  interface gi1/0/24  switchport mode access  switchport access vlan 20  exit |
| S3 | Gi1/0/5 on S3 not in trunk mode. | show interface trunk | config t  interface gi1/0/5  switchport mode trunk  exit |
| R1 | Wrong VLAN encapsulation for sub-interface GigabitEthernet0/0/1.1 | show run  (this reveals “encapsulation dot1q 11”) | config t  interface GigabitEthernet 0/0/1.1  encapsulation dot1q 1  exit |

**Section 4: Connectivity Scenarios (6 marks)**

Q1. After fixing all configuration issues in Lab SU-6a,

* + 1. Can S3 and S4 ping each other? If so, does this traffic traverse R1? Give reasons for your answers.  
       (1 mark)

S3 and S4 can ping each other. The traffic does not traverse R1 because S3 and S4 are on the same network (192.168.1.11 vs. 192.168.1.12)

* + 1. Can S3 ping all router sub-interfaces and loopback interface? Give reasons for your answer.  
       (1 mark)

Yes. Because the default gateway of S3 is the IP address of the sub-interface gi0/0/1.1 of the router, the ping will be sent directly to the default gateway. After that, the router looks up in the routing table and transmits the packet to the sub-interface or loopback interface destination.

* + 1. Can S4 ping all router sub-interfaces and loopback interface? Give reasons for your answer.  
       (1 mark)

Yes. Because the default gateway of S4 is the IP address of the sub-interface gi0/0/1.1 of the router, the ping will be sent directly to the default gateway. After that, the router looks up in the routing table and transmits the packet to the sub-interface or loopback interface destination.

Q2. If you were to connect PC-A and PC-B to the network as shown in the Topology Diagram,

* + 1. What IP address would you configure on PC-A as the Default Gateway?   
       (1 mark)

192.168.10.1

* + 1. What IP address would you configure on PC-B as the Default Gateway?   
       (1 mark)

192.168.20.1

* + 1. Would PC-A and PC-B be able to ping each other? If so, would this traffic traverse R1? Give reasons for your answers.  
       (1 mark)

PC-A and PC-B will be able to ping each other. The traffic will traverse R1 because PC-A and PC-B are on different networks (192.168.10.3 vs 192.168.20.3)