# 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:**

| **Group Members** | |
| --- | --- |
| **Name** | **Student Id:** |
| **Tran Hoang Hai Anh** | **104177513** |
| **Nguyen Tran Yen Binh** | **104188492** |
| **Vu Quang Long** | **104180663** |
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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 is nonexistent.

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

Indeed, the routing table of R1 should not contain the network 192.168.11.0.

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)

R1 sub interface setup error:

Encapsulated to the non-compliant VLAN ID 11, interface g0/0/1.1.

When g0/0/1.10 was encapsulated in VLAN 10, its IP address is 192.168.11.1 rather than the expected 192.168.10.1 since no devices in the topology are connected to network 192.168.11.0.

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

No, S3's Interface g1/0/7 shouldn't be able to access 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 R&D

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

It should have access to VLAN 20 because Interface g1/0/24 was linked to PC-B, which is an interface connected to VLAN 20.

Q3. Regarding Trunking configuration,

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

G1/0/5,G1/0/11

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

G1/0/5

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

No, the S3's g1/0/5 was in access 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 | False  encapsulation | Show running-config | interface g0/0/1.1  encapsulation dot1Q 1 |
| R1 | incorrect IP address of sub-interface g0/0/1.10 | Show ip interface brief | interface g0/0/1.10  ip address 192.168.10.1 255.255.255.0 |
| S3 | Missing VLAN 20 | Show vlan brief | vlan 20  name Engineering |
| S3 | G1/0/5 incorrect mode | Show interface trunk | interface g1/0/5  switchport mode trunk |
| S3 | G1/0/7 hasn’t been configured to vlan 10 | Show vlan brief | interface g1/0/7  switchport mode access  switchport access vlan 10 |
| S4 | G1/0/24 has false VLAN ID | Show vlan brief | interface g1/0/24  switchport mode access  switchport access vlan 20 |
| S4 | Missing VLAN 10 | Show vlan brief | vlan 10  name R&D |

**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)

Sure, as they are connected to the same network and use trunk mode.

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

Sure, as long as S3 is set up properly for the default gateway.

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

Sure, as long as S4 is set up properly for the default gateway.

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)

Yeah, PC-A and PC-B may ping each other, and when they do so, R1 receives the traffic. The packet gets to the default gateway despite PC-A and PC-B being on separate networks (VLAN 10 and 20), which is why this is the case.