# Group Assignment 2 - Group Lab Activity 2

TNE10006/TNE60006 S2 2022

**Assignment Weight:**   
7.5%

**Assignment Points:**   
50

**Submission Due Date:**

Before Week 12 Lab Session

**Reference Material:**

* Sample Final Practical Assessment (available in Canvas Lab Sessions page, Week 11 tab)

**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 60 minutes of the lab session in Collaborate Ultra, Breakout groups.
3. Discuss and answer the questions in Group Assignment 3 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 3
6. Submit Group Assignment 3, in the Canvas shell, under the Group Lab Activity 3
7. Late penalties will apply for submission after the due date.

**Group Assignment 3 Questions:**

* Section 1: Sample Final Practical Assessment Configuration (30 marks)
* Section 2: Sample Final Practical Assessment Verification and Troubleshooting (20 marks)

**Group Assignment 3:**

|  |  |
| --- | --- |
| **Group Members** | |
| **Name** | **Student Id:** |
| **Kayes Ahmed Koushik** | **103832293** |
| **Vivek Saini** | **103828056** |
| Sadikin Ahmed Seam | **103838767** |
| **Eshmam Nawar** | **103808171** |

**Section 1: Sample Final Practical Assessment Configuration   
(30 marks)**

Refer to the Sample Final Practical Assessment.

Q1. List the configuration commands required to complete **Task 1: Configure Device Names and MOTD**. For each command, specify the device(s) and operation mode.(1 mark)

**Ans.**

**Switch(config)#conf t**

**Switch(config)#hostname Tokyo**

**Tokyo(config)#banner motd $ KAYES 103832293 $**

**Tokyo(config)#end**

**Switch(config)#conf t**

**Switch(config)#hostname Lisbon**

**Lisbon(config)#banner motd $ KAYES 103832293 $**

**Lisbon(config)#end**

Q2. List the configuration commands required to complete **Task 2: Configure VLANs and VLAN membership**. For each command, specify the device(s) and operation mode. (4 marks)

**Ans.**

**Tokyo(config)#vlan 15**

**Tokyo(config-vlan) #name Centralbank**

**Tokyo(config-vlan) #vlan 50**

**Tokyo(config-vlan) #name Royalmint**

**Tokyo(config-vlan) #vlan 150**

**Tokyo(config-vlan) #name Management**

**Tokyo(config-vlan) #end**

**Lisbon(config)#vlan 15**

**Lisbon(config-vlan) #name Centralbank**

**Lisbon(config-vlan) #vlan 50**

**Lisbon(config-vlan) #name Royalmint**

**Lisbon(config-vlan) #vlan 150**

**Lisbon(config-vlan) #name Management**

**Lisbon(config-vlan) #end**

**Lisbon(config)#int range g1/0/1 - 3**

**Lisbon(config-if-range) #switchport mode access**

**Lisbon(config-if-range) #switchport access vlan 15**

**Lisbon(config-if-range) #end**

**Lisbon(config)#int range g1/0/11 - 13**

**Lisbon(config-if-range) #switchport mode access**

**Lisbon(config-if-range) #switchport access vlan 50**

**Lisbon(config-if-range) #end**

Q3. List the configuration commands required to complete **Task 3: Configure Router-on-a-Stick**. For each command, specify the device(s) and operation mode. (6 marks)

**Ans.**

Last Usable:

Centralbank: 213.17.144.254

Royalmint: 165.45.191.254

Management: 55.252.16.254

**Tokyo# conf t   
Tokyo(config)# int g1/0/11   
Tokyo(config-if)# switchport mode trunk**

**Tokyo(config-if)#no shutdown  
Tokyo(config-if)# exit**

**Tokyo(config)# int range g1/0/5 - 6  
Tokyo(config-if-range)# switchport mode trunk**

**Tokyo(config-if-range)# no shutdown**

**Tokyo(config)# ip default-gateway 55.252.16.254  
Tokyo(config-if-range)# exit**

**Lisbon(config)# int range g1/0/5-6**

**Lisbon(config-if)# switchport mode trunk**

**Lisbon(config-if)# no shutdown**

**Lisbon(config)# ip default-gateway 55.252.16.254**

**Lisbon(config)#exit**

**Nairobi# conf t  
Nairobi(config)# int g0/0/1  
Nairobi(config-if)# no shutdown  
Nairobi(config-if)# exit**

**Nairobi# conf t  
Nairobi(config)# int loopback 0  
Nairobi(config-if)# description INTERNET HOST SIMULATION   
Nairobi(config-if)# ip address 53.15.30.33 255.255.255.248  
Nairobi(config-if)# exit**

**Nairobi# conf t  
Nairobi(config)# int g0/0/1.15  
Nairobi(config-if)# description TO VLAN 15**

**Nairobi(config-if)# encapsulation dot1Q 15  
Nairobi(config-if)# ip address 213.17.144.254 255.255.255.128  
Nairobi(config-if)# exit**

**Nairobi# conf t  
Nairobi(config)# int g0/0/1.50  
Nairobi(config-if)# description TO VLAN 50**

**Nairobi(config-if)# encapsulation dot1Q 50  
Nairobi(config-if)# ip address 165.45.191.254 255.255.224.0  
Nairobi(config-if)# exit**

**Nairobi# conf t   
Nairobi(config)# int g0/0/1.150  
Nairobi(config-if)# description TO VLAN 150**

**Nairobi(config-if)# encapsulation dot1Q 150  
Nairobi(config-if)# ip address 55.252.16.254 255.255.255.240  
Nairobi(config-if)# exit**

Q4. List the configuration commands required to complete **Task 4: Configure Switch Management**. For each command, specify the device(s) and operation mode. (6 marks)

**Ans.**

**Lisbon# conf t  
Lisbon(config)# int vlan 150  
Lisbon(config-if)# ip address 55.252.16.252 255.255.255.240  
Lisbon(config-if)# exit**

**Tokyo# conf t   
Tokyo(config)# int vlan 150  
Tokyo(config-if)# ip address 55.252.16.253 255.255.255.240  
Tokyo(config-if)# exit**

*SSH*

**Lisbon(config)#ip domain-name ccna.lab**

**Lisbon(config)# crypto key generate rsa general-keys modulus 1024**

**Lisbon(config)# username cisco priv 15 secret cisco**

**Lisbon(config)# line vty 0 15**

**Lisbon(config-line)# login local**

**Lisbon(config-line)# transport input ssh**

**Lisbon(config-line)# exit**

Q5. List the configuration commands required to complete **Task 5: Fine-tune STP**. For each command, specify the device(s) and operation mode. (4 marks)

**Ans.**

**Tokyo# conf t   
Tokyo(config)# spanning-tree vlan 50 root primary   
Tokyo(config)#exit**

**Lisbon# conf t   
Lisbon(config)# spanning-tree vlan 15 root primary   
Lisbon(config)#exit**

**Lisbon# conf t  
Lisbon(config)# spanning-tree portfast default   
Lisbon(config)#exit**

Q6. List the configuration commands required to complete **Task 6: Configure Port-Security.** For each command, specify the device(s) and operation mode. (4 marks)

**Ans.**

**Lisbon# conf t  
Lisbon(config)# int g1/0/3  
Lisbon(config-if)# switchport port-security violation protect  
Lisbon(config-if)# switchport port-security mac-address sticky   
Lisbon(config-if)# switchport port-security maximum 2  
Lisbon(config-if)# switchport port-security**

**Lisbon(config-if)# exit**

Q7. List the configuration commands required to complete **Task 7: Configure EtherChannel**. For each command, specify the device(s) and operation mode. (4 marks)

**Ans.**

**Lisbon(config)# int range g1/0/5-6**

**Lisbon(config-if)# shutdown**

**Lisbon(config-if)#switchport mode trunk**

**Lisbon(config-if)# channel-group 1 mode active**

**Lisbon(config-if)# switchport trunk native vlan 150**

**Lisbon(config-if)#no shutdown**

**Tokyo(config)# int range g1/0/5-6**

**Tokyo(config-if)# shutdown**

**Tokyo(config-if)#switchport mode trunk**

**Tokyo(config-if)# channel-group 1 mode active**

**Tokyo(config-if)# switchport trunk native vlan 150**

**Tokyo(config-if)#no shutdown**

Q8. List the configuration commands required to complete **Task 8: Additional Settings.** For each command, specify the device(s) and operation mode. (1 mark)

**Ans.**

**Lisbon# conf t   
 Lisbon(config)# no ip domain-lookup  
 Lisbon(config)# exit**

**Tokyo# conf t  
 Tokyo (config)# no ip domain-lookup  
 Tokyo (config)# exit**

**Nairobi# conf t  
 Nairobi (config)# no ip domain-lookup  
 Nairobi (config)# exit**

**Lisbon# conf t  
 Lisbon(config)# line console 0  
 Lisbon(config-line)# logging synchronus  
 Lisbon(config-line)# exit**

**Tokyo # conf t  
 Tokyo (config)# line console 0  
 Tokyo (config-line)# logging synchronus  
 Tokyo (config-line)# exit**

**Nairobi # conf t  
 Nairobi (config)# line console 0  
 Nairobi (config-line)# logging synchronous**

**Nairobi (config-line)#exit**

**Section 2: Sample Final Practical Assessment Validation and Troubleshooting   
(20 marks)**

Refer to the Sample Final Practical Assessment.

Q1. Answer the following questions regarding validating and troubleshooting **VLANs and VLAN membership**

* + 1. What command(s) can be used on **Tokyo** to validate VLANs and VLAN membership configuration? For each command, describe the expected output. (2 marks)

**Ans.**

**To Validate Tokyo VLANs and VLAN membership**

**#Show vlan brief**

**Lists all VLANS, and the ports assigned to them**

**– Tokyo has 4 active VLANS**

**– the 3 set & default 1 and all ports are assigned to 1.**

* + 1. What command(s) can be use on **Lisbon** to validate VLANs and VLAN membership configuration? For each command, describe the expected output. (2 marks)

**Ans.**

**To Validate Lisbon VLANs and VLAN membership**

**#Show vlan brief**

**Lists all vlans and ports assigned to them**

**– Lisbon has 4 active vlans**

**– the 3 set & the default vlan 1.**

**Vlan 15 has ports 1/0/1 - 3 assigned & vlan 50 has ports 1/0/11 - 13 assigned.**

**Remaining ports allocated to vlan 1.**

* + 1. What command(s) can be use on **Lisbon** to validate that all unused ports have been disabled? For each command, describe the expected output. (1 marks)

**Ans.**

**To validate Lisbon’s all unused ports that have been disabled**

**#Show ip interface brief**

**Lists all ports, and their status.**

**It should show that all unused ports have been set to administratively down.**

**All ports administratively down except; Gi1/0/5, Gi1/0/6 and Gi1/0/3 being up**

Q2. Answer the following question regarding validating and troubleshooting **Router-on-a-Stick**

* + 1. What command(s) can be used on **Nairobi** to validate Router-on-a-Stick configuration? List at least 2. For each command, describe the expected output. (4 marks)

**Ans.**

**On Nairobi to validate Router-on-a-Stick configuration**

**#show int trunk**

**It shows current trunk configurations on the router**

**– G0/0/1 is configured to trunk traffic between the 3 vlans**

**#show ip route**

**It shows the route the traffic travels from one location to another.**

**#show ip int br**

**It shows the sub-interfaces configured to best practices (e.g., 0/0/1.15 for vlan 15)**

**#show run br**

**It shows the encapsulation set of the sub-interfaces (e.g. encapsulation dot1Q [vlan number])**

* + 1. What command(s) can be used on **Tokyo** to validate Router-on-a-Stick configuration? For each command, describe the expected output. (1 mark)

**Ans.**

**#Sh ip interface brief**

**Confirms the port connecting to the router (Gi1/0/11 port) will be is up**

**#Show run brief**

**Shows that the interfaces connected to the other devices are configured to trunk, and that the etherchannel has been successfully configured on the Tokyo device**

* + 1. Troubleshooting Scenario: The routing table on **Nairobi** is not displaying all the correct connected (C) routes and their exit interfaces.

What are the possible configuration issues? List at least 3 possible issues. (3 marks)

**Ans.**

**- Cabling is incorrect**

**- Router interface still set as administratively down, must be manually put to a up state**

**- Gi 1/0/11 not set to trunk on Tokyo**

Q3. Answer the following questions regarding validating and troubleshooting **Switch Management**

* + 1. What command(s) can be used on **Tokyo** to validate that the Management IP has been correctly configured? For each command, describe the expected output. (1 mark)

**Ans.**

**Tokyo#show switch ip int**

**This will display the management ip address, along with its interface name (interface Vlan [#])**

* + 1. What command(s) can be used on **Tokyo** to test SSH access to **Lisbon**? (1 mark)

**Ans.**

**Tokyo#ssh -l cisco 55.252.16.252**

**This establishes an SSH connection into the Lisbon switch, which will show whether or not the settings have been properly configured by whether or not the connection is successful.**

* + 1. Troubleshooting Scenario: **Tokyo** and **Lisbon** can ping each other. **Tokyo** can ping all IP addresses configured on **Nairobi**. However, **Lisbon** can only ping the IP address configured on **Nairobi’s** Management sub-interface; it cannot ping any other router IP.

What is the most likely configuration issue? (1 mark)

**Ans.**

**The vlans in Lisbon of Royalmint & Centralbank have not been created.**

Q4. Answer the following questions regarding validating and troubleshooting **STP, Port-Security and EtherChannel**

* + 1. Using the ***show spanning-tree*** command, how do we validate that **Tokyo** has been correctly configured as the root bridge for the Royalmint VLAN? (1 mark)

**Ans.**

**The show spanning-tree command shows the current STP configuration, also each interface’s role. Under the “VLAN0050” section, the Root ID configuration should state “This bridge is the root”**

**For Example:**

**VLAN0050**

**Spanning tree enabled protocol rstp**

**Root ID Priority 24626**

**Address 4c77.6d22.5c80**

**This bridge is the root**

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

* + 1. What command can be used on **Lisbon** to validate the current Port-Security status of interface Gi1/0/3? (1 mark)

**Ans.**

**Lisbon#show port-security int g1/0/3**

* + 1. If the Port-Channel between **Tokyo** and **Lisbon** has been correctly configured and is fully operational; what should be the status flag(s) next to the Port-Channel interface on the ***show etherchannel summary*** output? (1 mark)

**Ans.**

**(SU)**

* + 1. If the Port-Channel between **Tokyo** and **Lisbon** has been correctly configured and is fully operational; what should be the status flag(s) next to the member interfaces on the ***show etherchannel summary*** output? (1 mark)

**Ans.**

**(P)**