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**
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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**

a) 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.

b) 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.

c) 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**

a) 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])

b) 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

c) 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**

a) 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 [#])

b) 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.

c) 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**

a) 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

b) 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

c) 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)

d) 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)