

**LOMBA KETERAMPILAN SISWA
SEKOLAH MENENGAH KEJURUAN
TINGKAT NASIONAL XXIV 2016**



**IT NETWORK SYSTEMS
ADMINISTRATION**

LKS2016_ITNSA_MODUL2

**MODUL 4
PACKET TRACER CHALLENGE 2**

**KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN
DIREKTORAT JENDERAL PENDIDIKAN MENENGAH
DIREKTORAT PEMBINAAN SEKOLAH MENENGAH KEJURUAN**

MODUL 4 – PACKET TRACER CHALLENGE 2

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This Test Project proposal consists of the following document/file:

LKSN2016_ITNSA_MODUL4_PT.pka

INTRODUCTION

The competition has a fixed start and finish time. You must decide how to best divide your time.

Please **carefully** read the following instructions!

Before the competition time start, please rename file LKSN2016_ITNSA_MODUL4_PT.pka to M4_“SEATNUMBER”_“FULLNAME”.pka (ex. **M4_A1_ANGGA FRIYANTO.pka**).

DO NOT FORGET TO SAVE YOUR PACKET TRACER FILE REGULARLY!

(The Cisco Packet Tracer program may crash and you could lose marks!)

PART I

NETWORK TROUBLESHOOTING

You are network engineer that has been asked to troubleshoot the network because after recent network upgrades there was a major power outage in the area so there are many devices that no longer work on the network. The IT-team did not have time to test the upgrades before the power outage.

All PC, Laptop and ip phone must be able to connect and call each other. You have two hours to fix as many of the network errors that you can.

Good Luck,

1. Make sure router and switch on A Building able to communicate with B Building. IP Address on both site describe as following:

Hostname	Interface	IP Address	Subnet mask	Gateway
RB-A	Serial 0/0/0	172.20.110.134	255.255.255.252	
	FastEthernet 0/0.31	192.168.31.1	255.255.255.0	
	FastEthernet 0/0.32	192.168.32.1	255.255.255.0	
	FastEthernet 0/0.33	192.168.33.1	255.255.255.0	
	FastEthernet 0/0.99	192.168.99.1	255.255.255.0	
RB-B	Serial 0/0/1	172.20.110.130	255.255.255.252	
	FastEthernet 0/0.21	10.21.0.1	255.255.255.0	
	FastEthernet 0/0.22	10.22.0.1	255.255.255.0	
	FastEthernet 0/0.99	10.99.0.1	255.255.255.0	
SW-A1	Vlan 99	192.168.99.101	255.255.255.0	192.168.99.1
SW-A2	Vlan 99	192.168.99.102	255.255.255.0	192.168.99.1
SW-B1	Vlan 99	10.99.0.101	255.255.255.0	10.99.0.1
SW-B2	Vlan 99	10.99.0.102	255.255.255.0	10.99.0.1

On RB-A and RB-B using routing protocol OSPF with Proses ID 100 to exchange routing information of all network, except VLAN 99.

2. Make sure VLAN Configuration in SW-A and SW-B as follows:
 - SW-A1 and SW-A2
 - VLAN 31 (VOICE) : VLAN VOICE -> Fa0/1 - fa0/24
 - VLAN 32 (DATA1) : VLAN ACCESS -> Fa0/1 - Fa0/18
 - VLAN 33 (DATA2) : VLAN ACCESS -> Fa0/19 – Fa0/24
 - VLAN 99 (MANAGEMENT)
 - SW-B1 and SW-B2
 - VLAN 21 : (VOICE) : : VLAN VOICE -> Fa0/1 – Fa0/24
 - VLAN 22 : (DATA1) : VLAN ACCESS -> Fa0/1 – Fa0/24
 - VLAN 99 : (MANAGEMENT)

3. There are 3 dhcp pool in RB-A:

- Pool name VOICE
 - o Network 192.168.31.0/24
 - o Gateway 192.168.31.1
 - o Option 150 IP 192.168.31.1
- Pool name DATA1
 - o Network 192.168.32.0/24
 - o Gateway 192.168.32.1
 - o Option 150 IP 192.168.31.1
- Pool name DATA2
 - o Network 192.168.33.0/24
 - o Gateway 192.168.33.1
 - o Option 150 IP 192.168.31.1

4. There are 2 dhcp pool in RB-B:

- Pool name VOICE
 - o Network 10.21.0.0/24
 - o Gateway 10.21.0.1
 - o Option 150 IP 10.21.0.1
- Pool name DATA1
 - o Network 10.22.0.0/24
 - o Gateway 10.22.0.1
 - o Option 150 IP 10.21.0.1

5. Configure Cisco Call Manager Express on RB-A and RB-B. Use IP 192.168.31.1 port 2000 in RB-A and IP 10.21.0.1 port 2000 in RB-B for Service IP. Ensure directory number as following:

CME at	Ephone-dn	Number
RB-A	1	1101
RB-A	2	1102
RB-A	3	1103
RB-A	4	1104
RB-A	5	1105
RB-A	6	1106
RB-B	1	2101
RB-B	2	2102
RB-B	3	2103
RB-B	4	2104
RB-B	5	2105
RB-B	6	2106

Make sure Ephone in router RB-A and RB-B is configured as follows

CME at	Ephone	Device	Mac Address of IP Phone / Softphone	Button
RB-A	1	IP Phone-A3	0001.9726.50D3	1:1
RB-A	2	IP Phone-A2	00E0.A303.EED0	1:2
RB-A	3	IP Phone-A4	000A.41D5.623B	1:3
RB-A	4	IP Phone-A1	000B.BEC8.2312	1:4
RB-A	5	Laptop-A1	0001.6381.50AE	1:5
RB-A	6	Laptop-A2	0090.2B59.9EB3	1:6
RB-B	1	IP Phone-B2	000A.F32A.298C	1:1
RB-B	2	IP Phone-B1	0006.2AD6.CC00	1:2
RB-B	3	IP Phone-B4	00D0.FF42.0676	1:3
RB-B	4	IP Phone-B3	000A.F3D9.06CE	1:4
RB-B	5	Laptop-B2	000C.CF20.B424	1:5
RB-B	6	Laptop-B1	00E0.B048.7808	1:6

6. Configure dial peer on RB-A and RB-B, so IP phone or Softphone in Building A can dial all phone number in Building B, and otherwise. Use IP VLAN Voice as target IPv4.
7. On both switch enable port security in all interface connected to IP Phone with allow maximum 3 mac address and violation shutdown.
8. Router and Switch on both building able to remote only use SSH with login username **admin** and password **Secret1234**