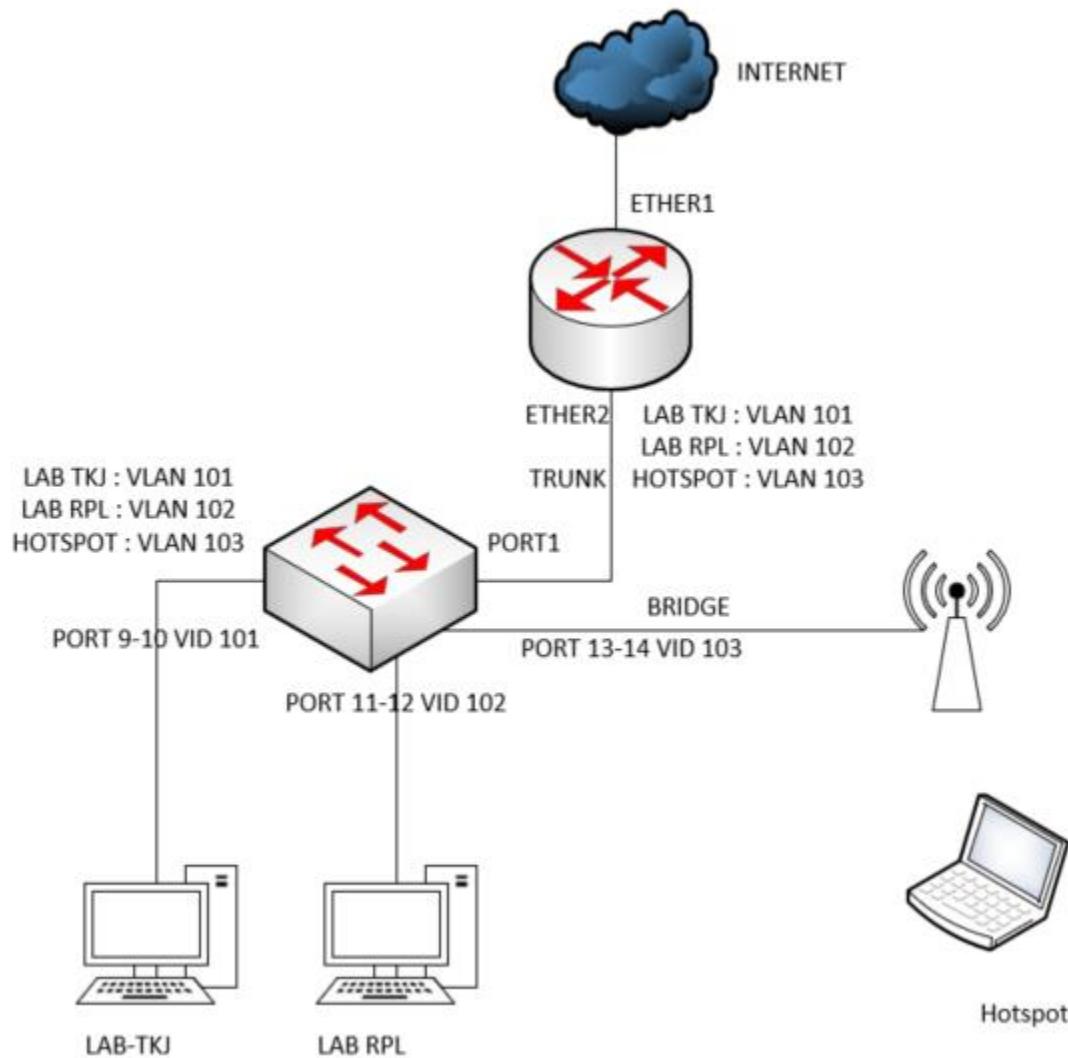
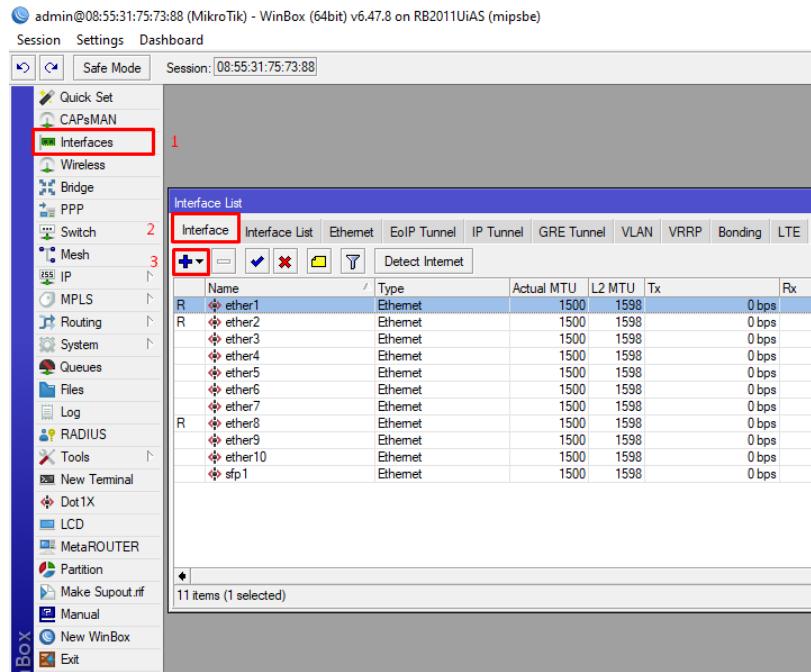


TOPOLOGI



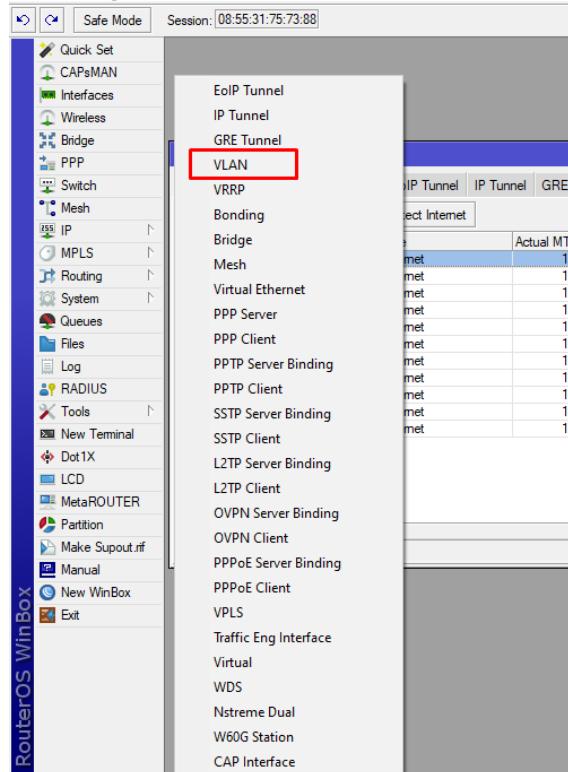
SETTING ROUTER

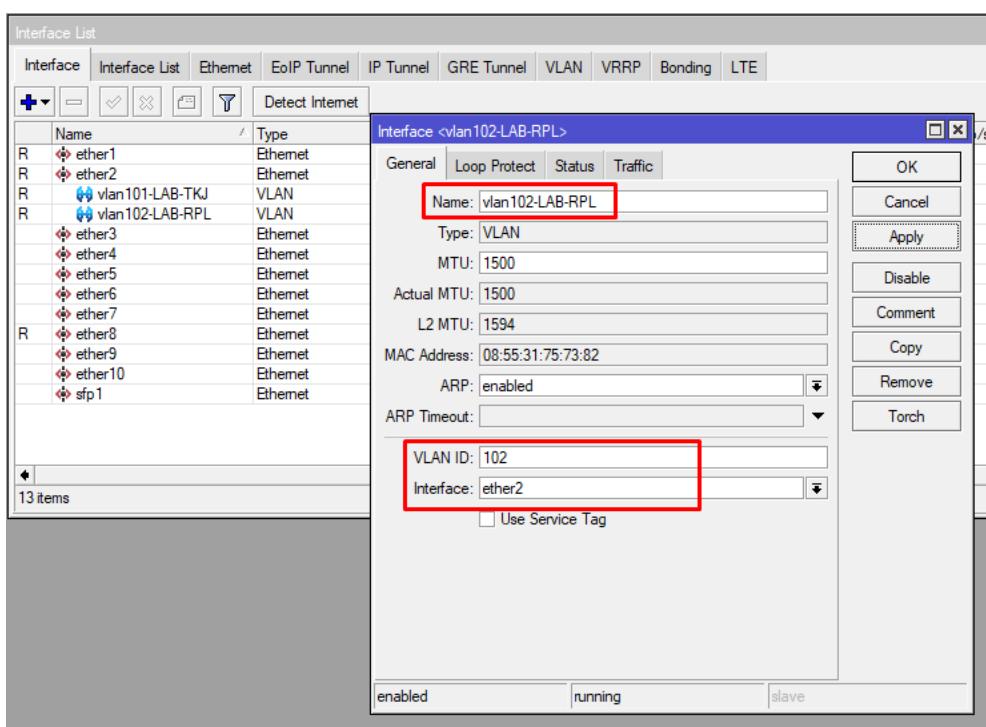
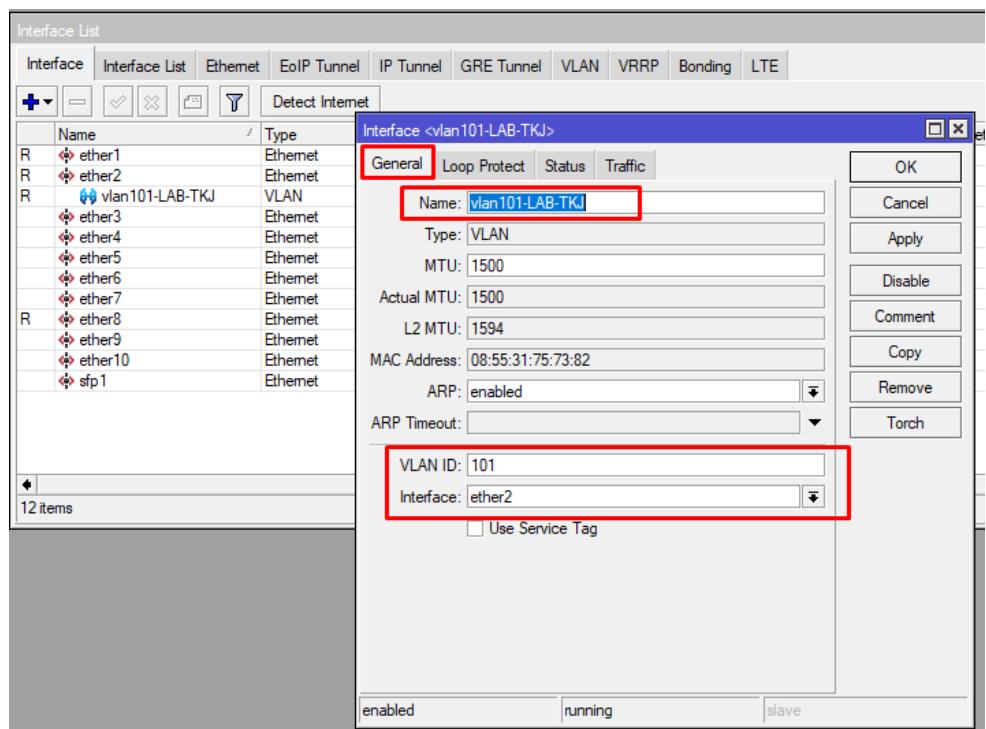
1. Setting Interface dan VLAN

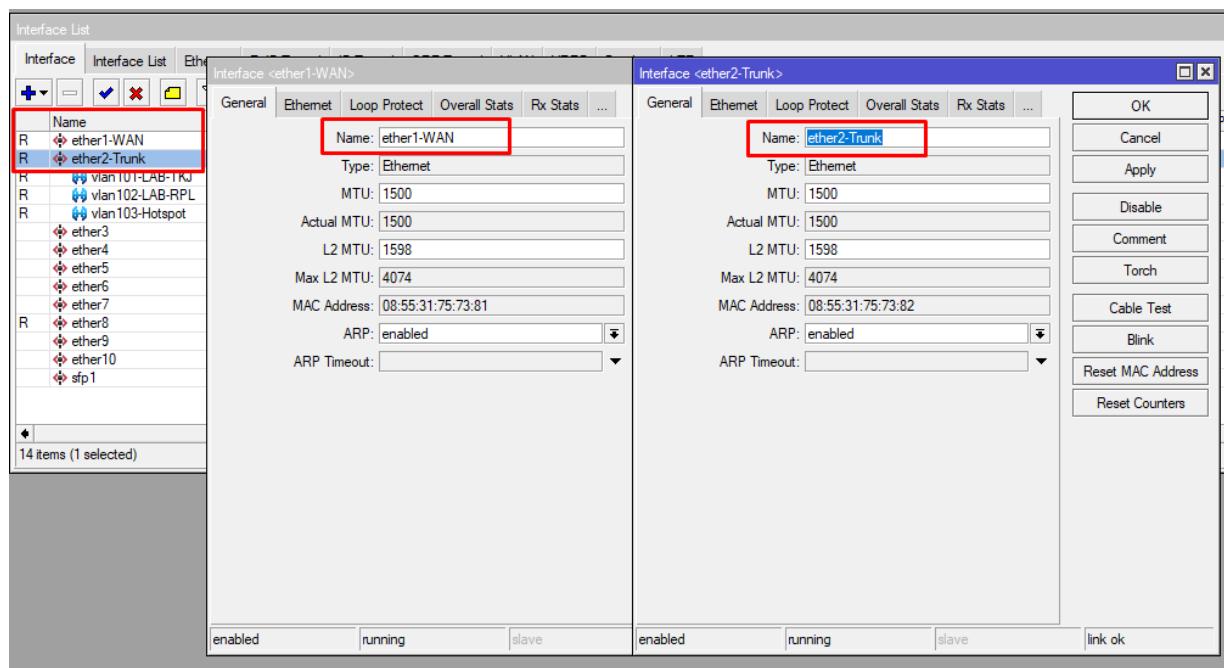
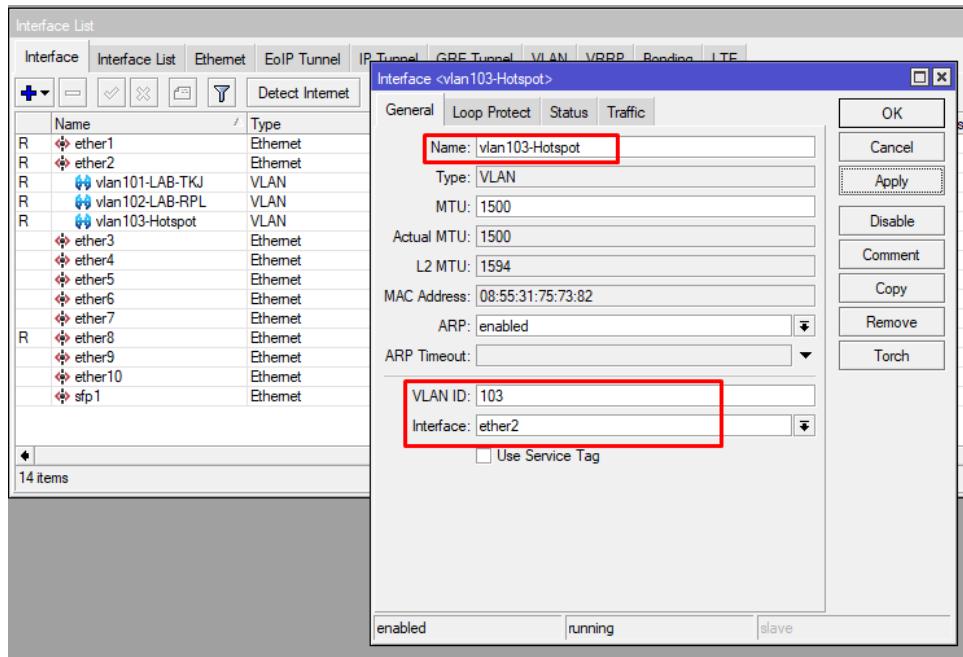


admin@08:55:31:75:73:88 (MikroTik) - WinBox (64bit) v6.47.8 on RB2011UiAS (mipsbe)

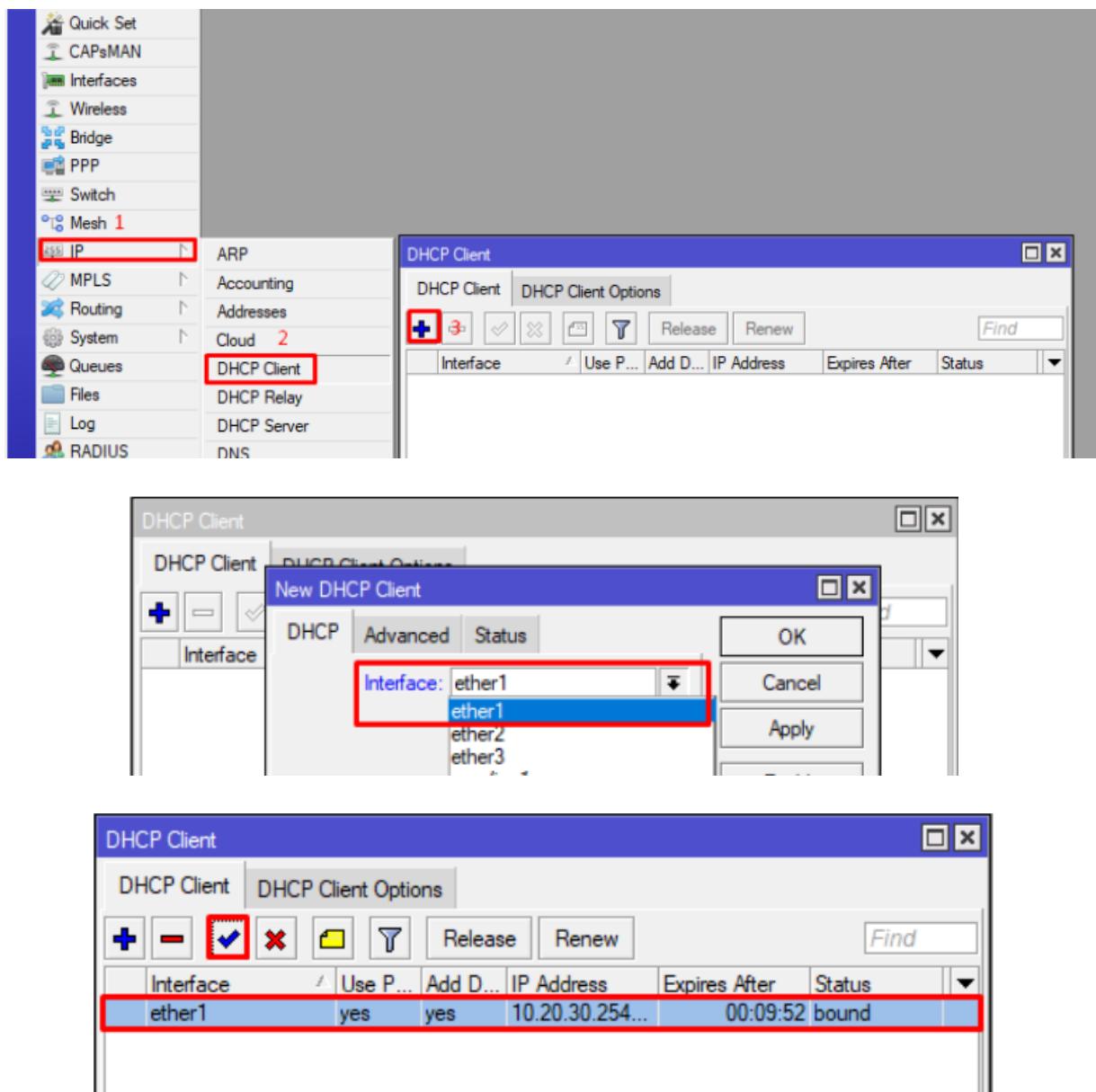
Session Settings Dashboard







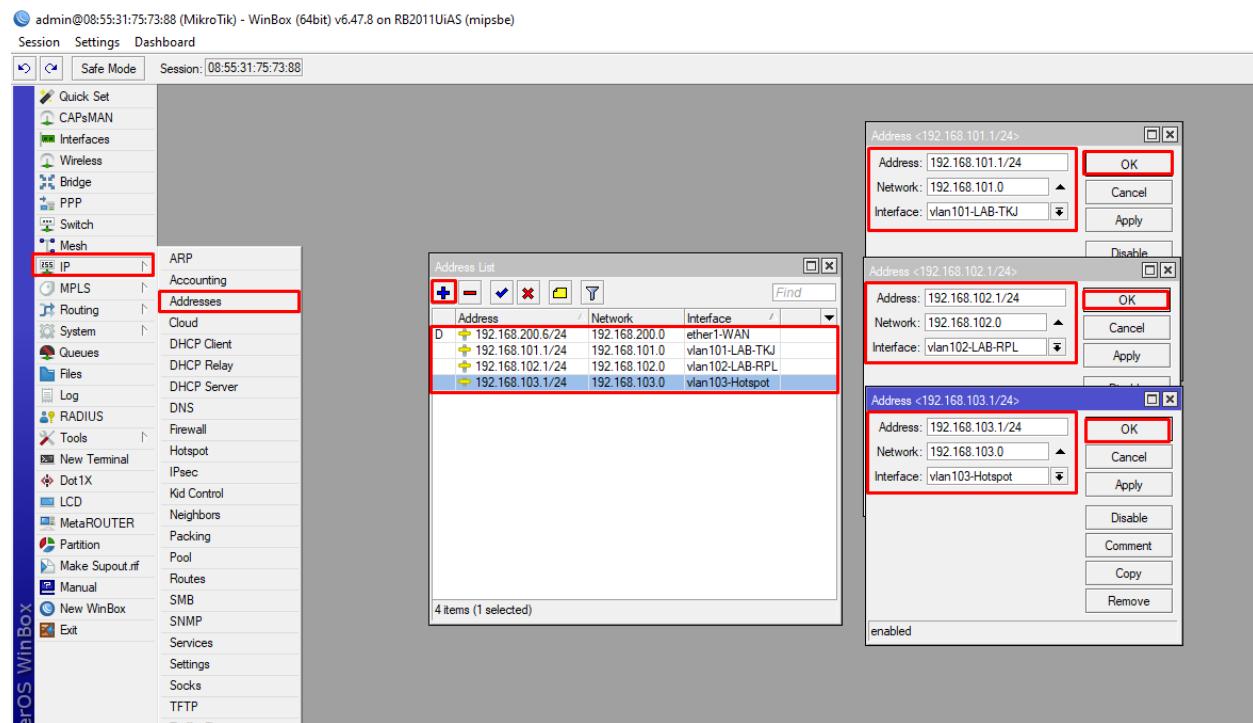
2. Setting DHCP Client



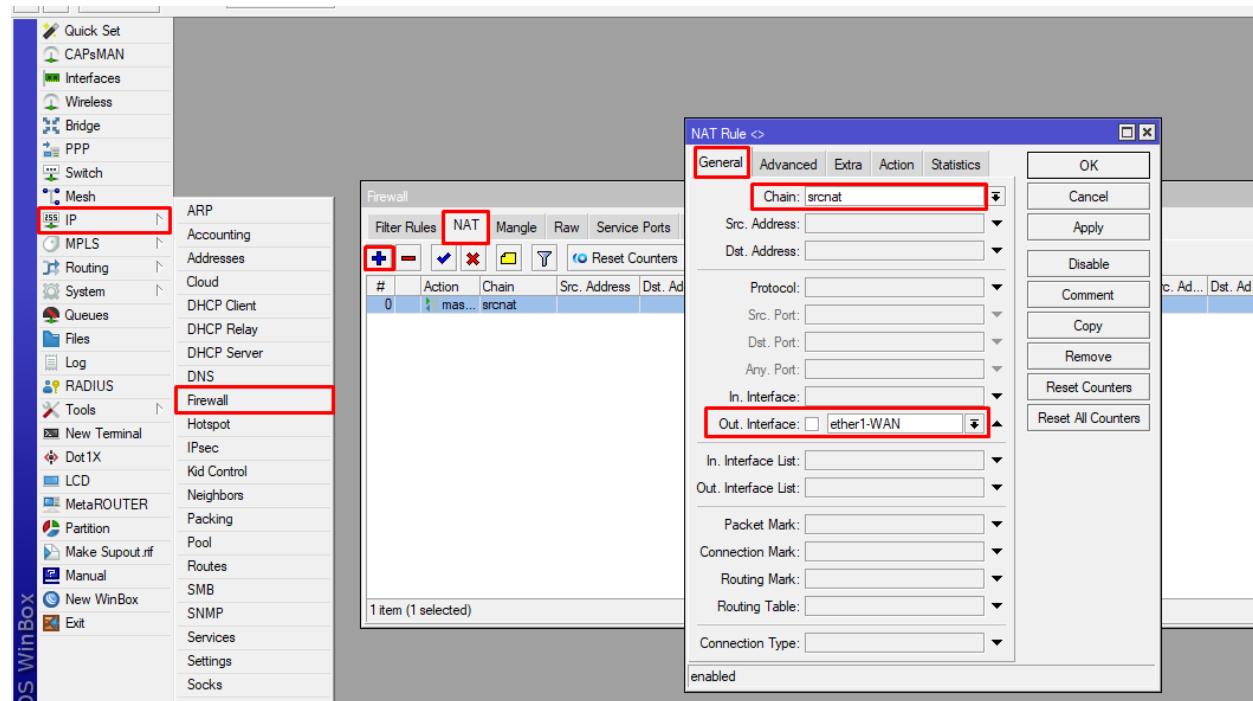
3. Cek Koneksi Internet

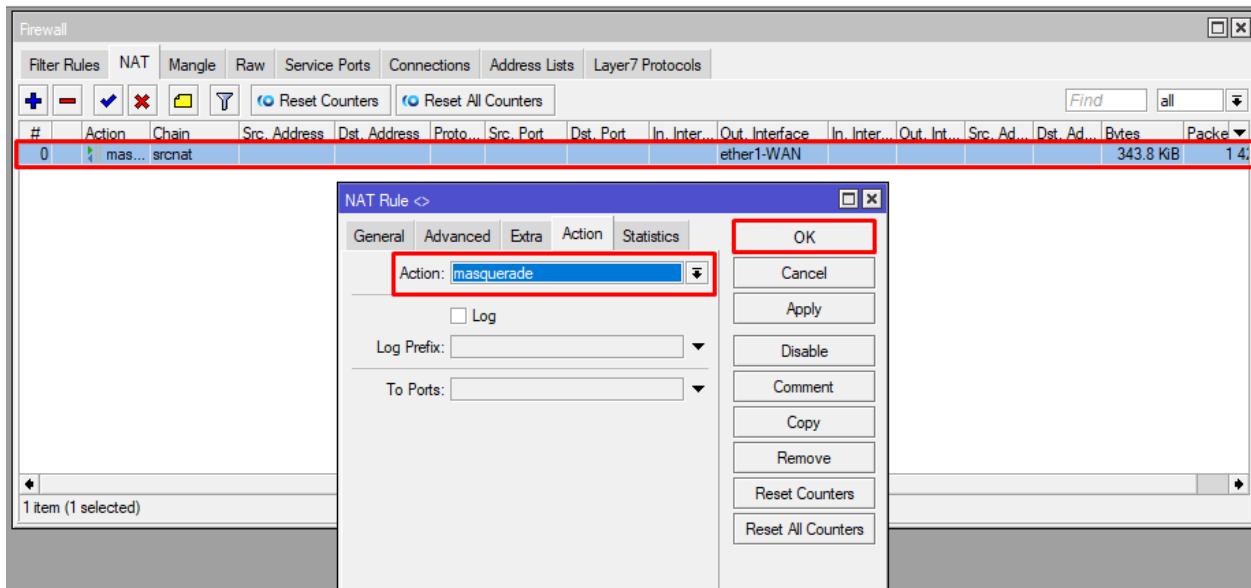


4. Setting IP Address

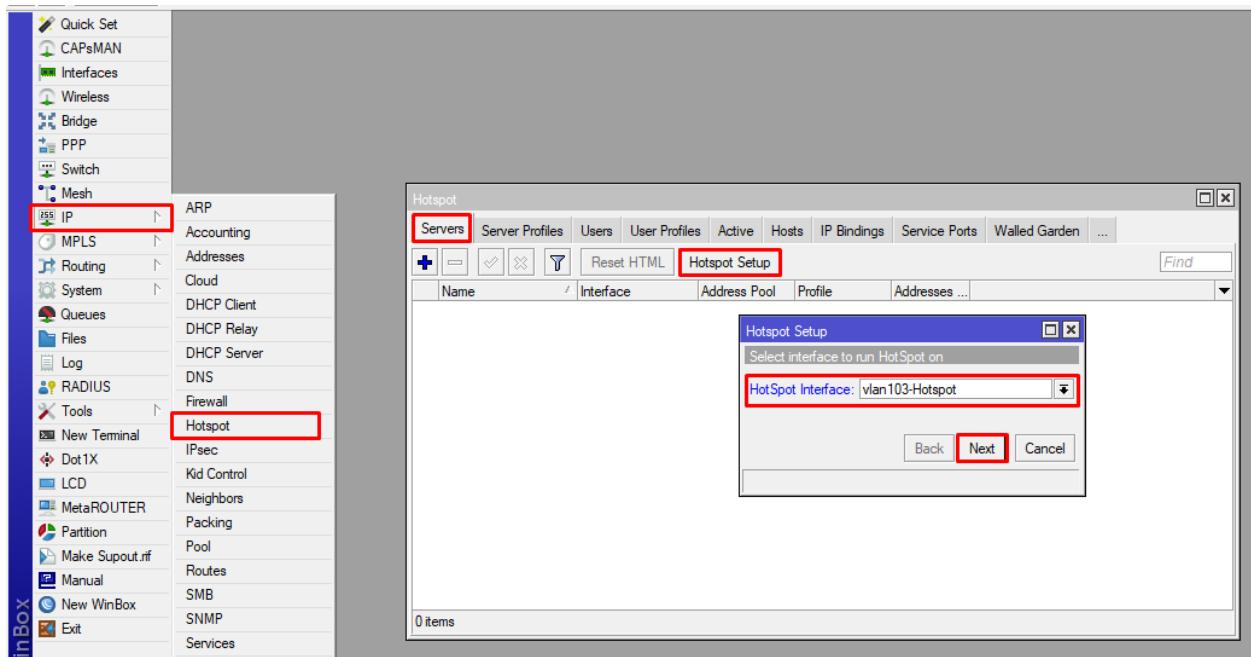


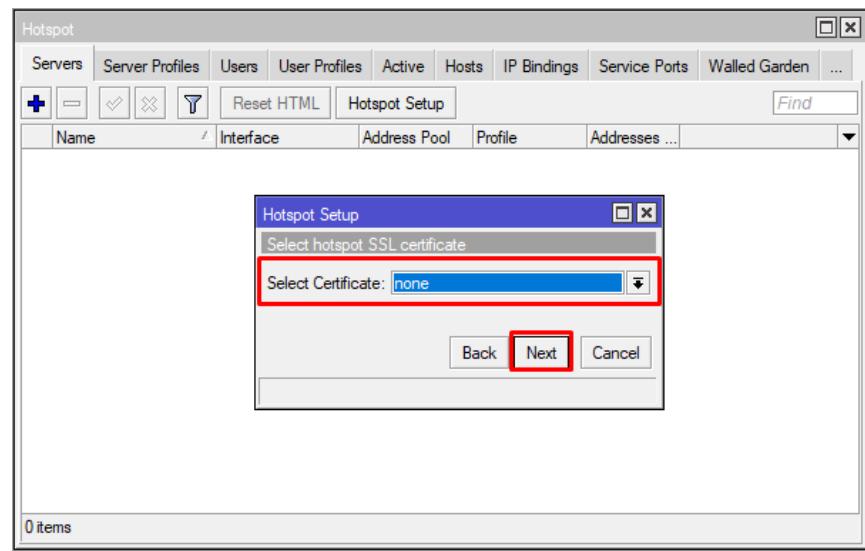
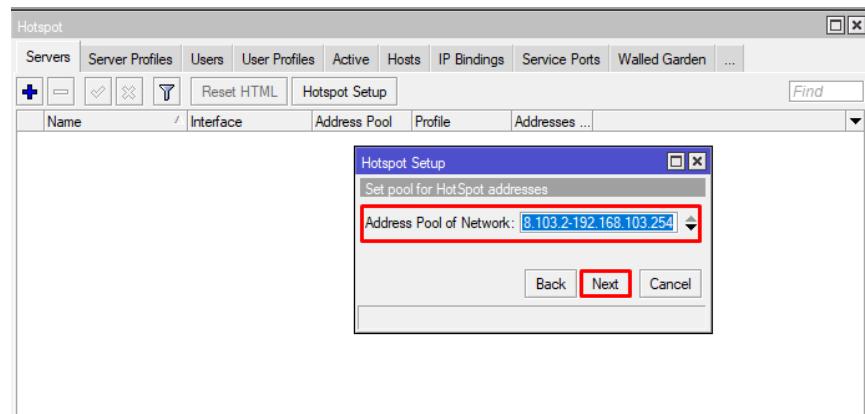
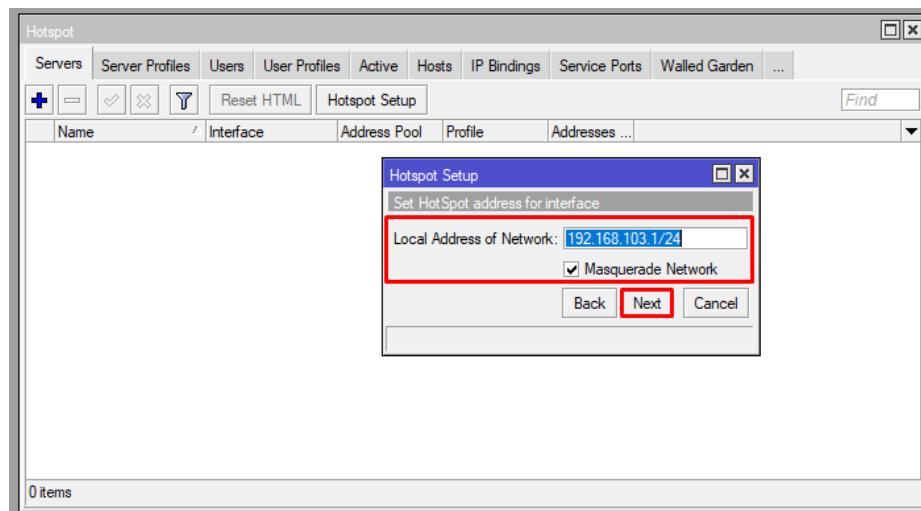
5. Setting NAT

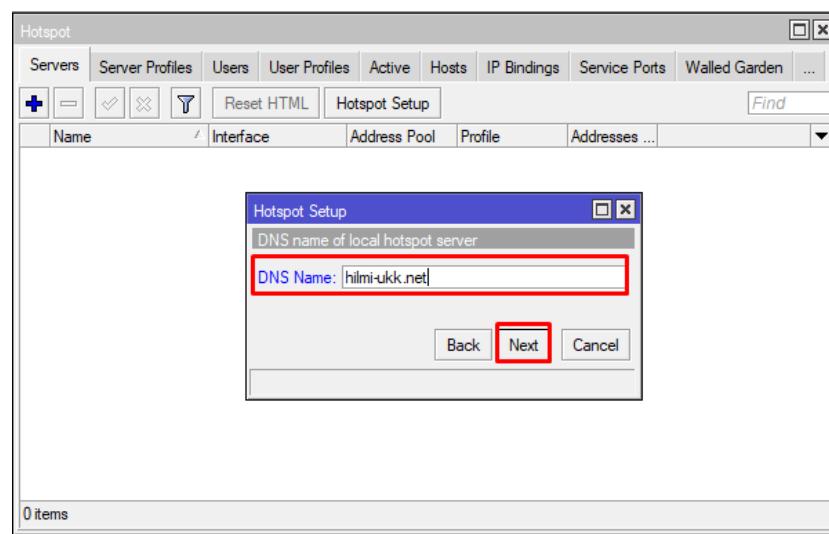
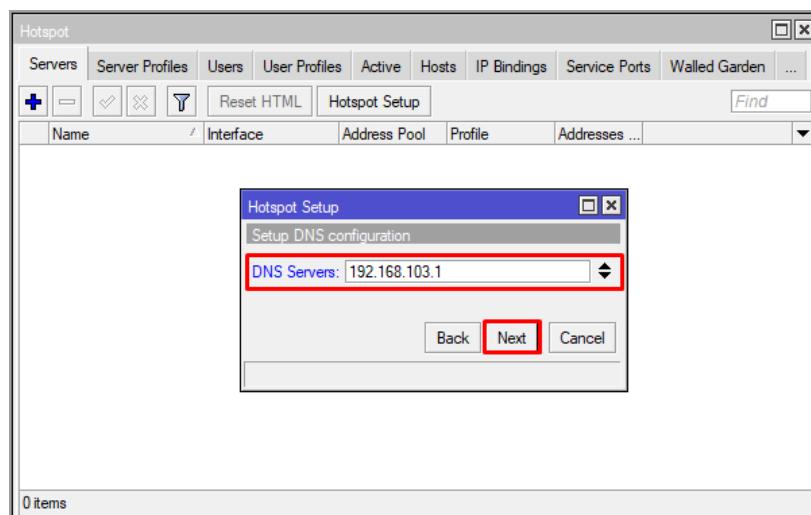
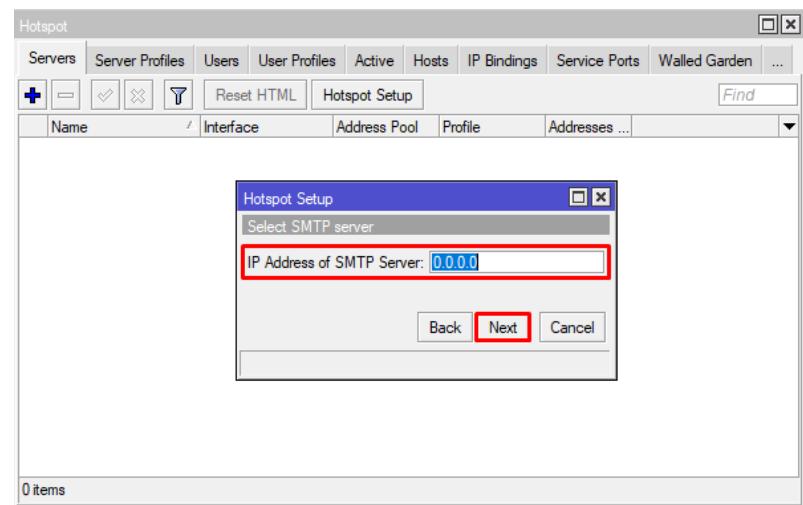


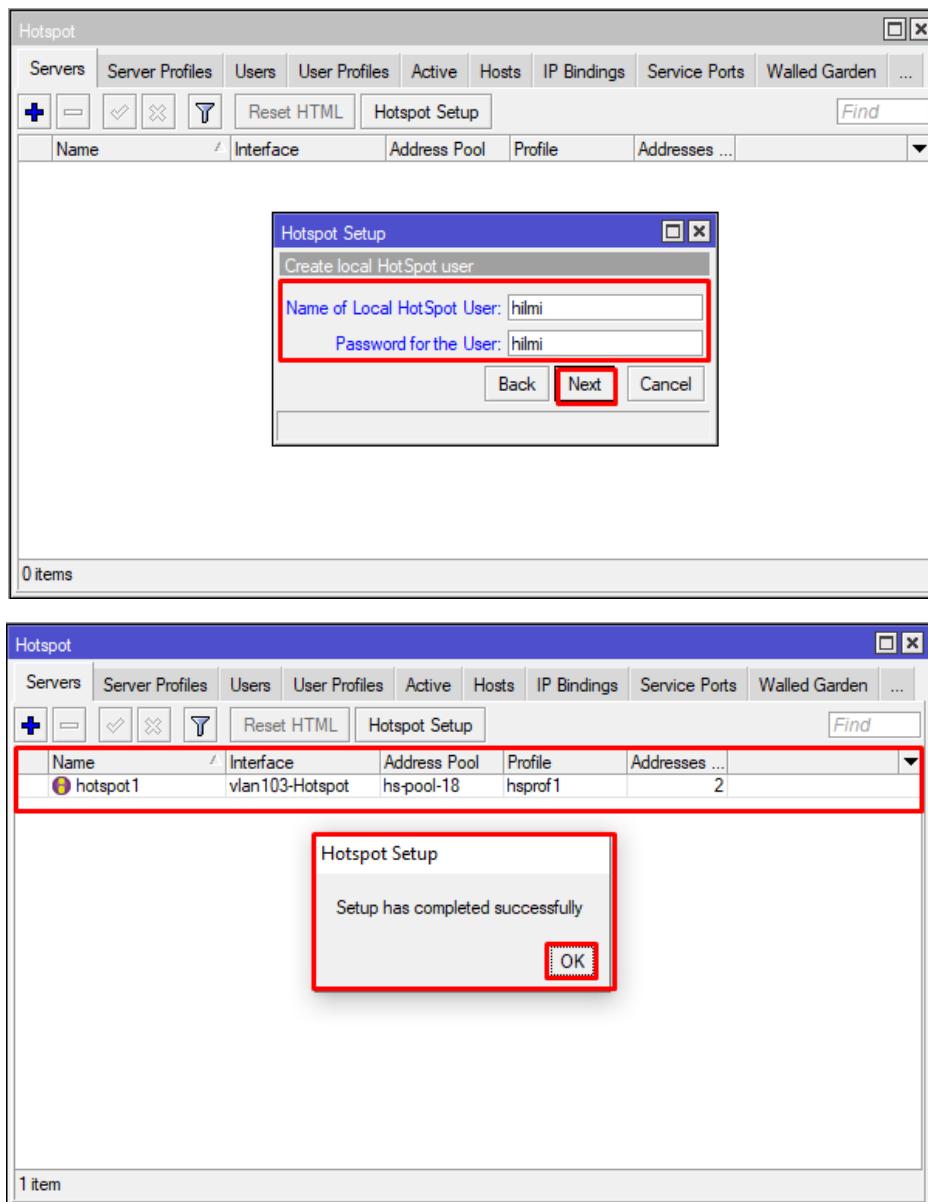


6. Setting Hotspot

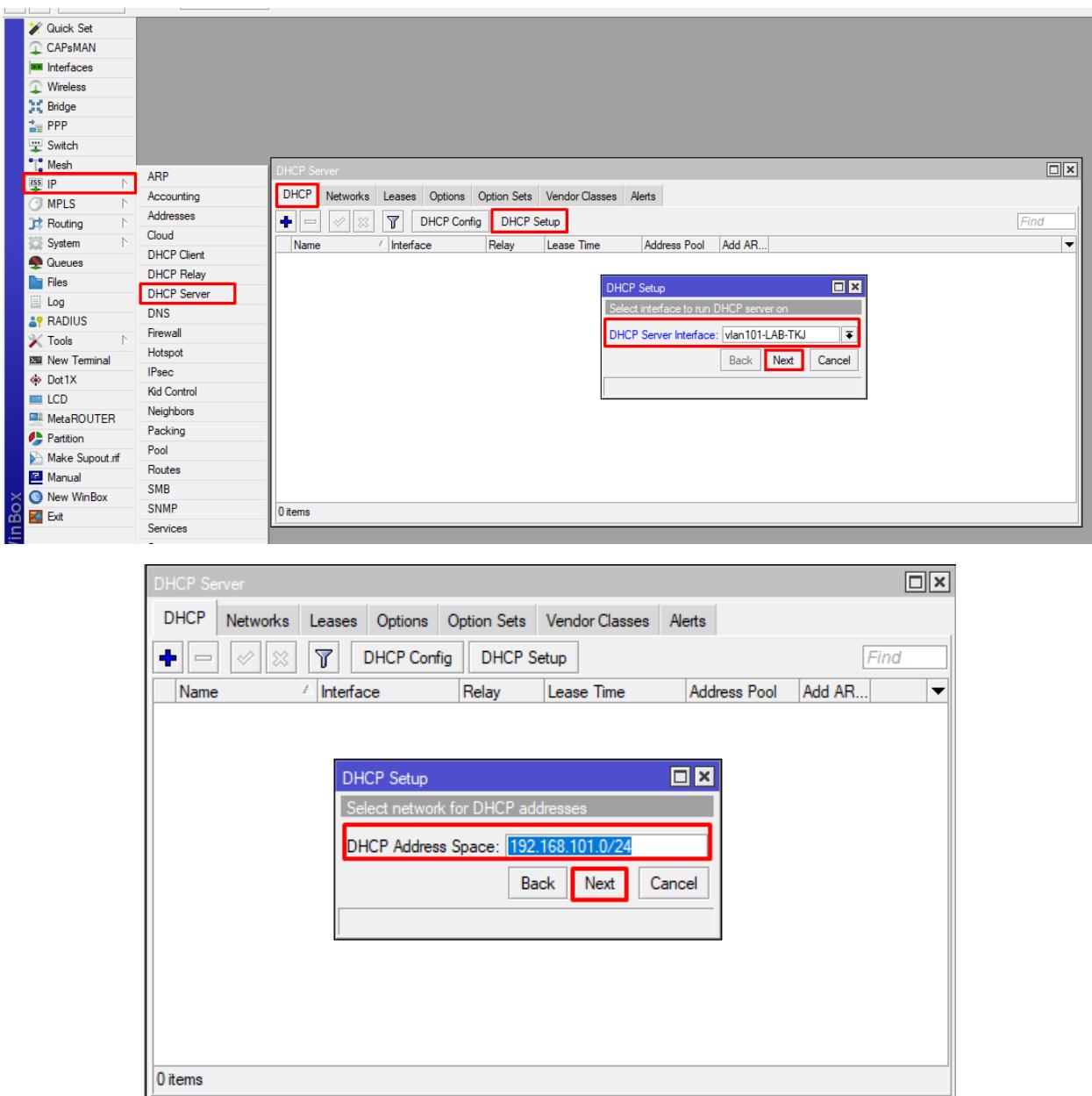


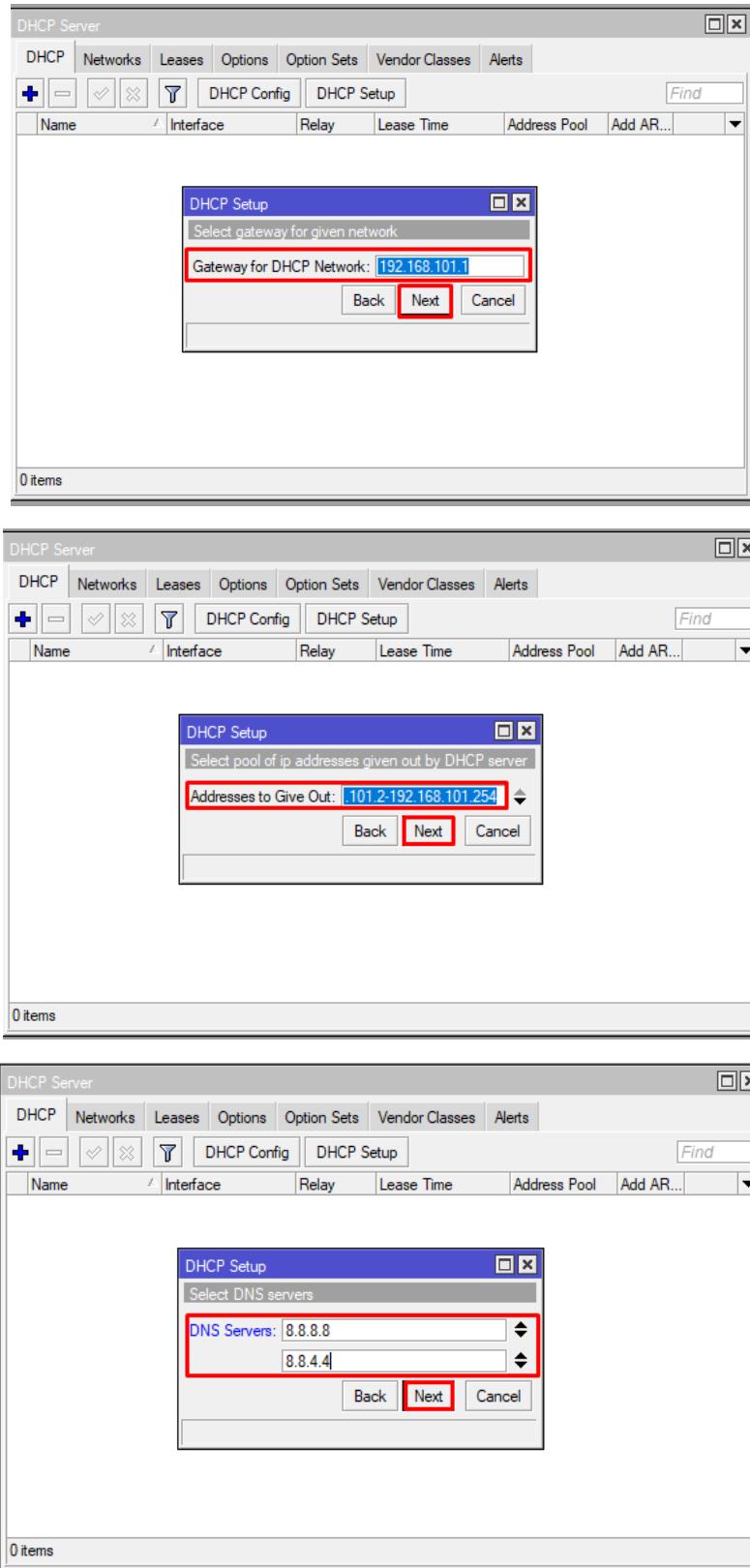


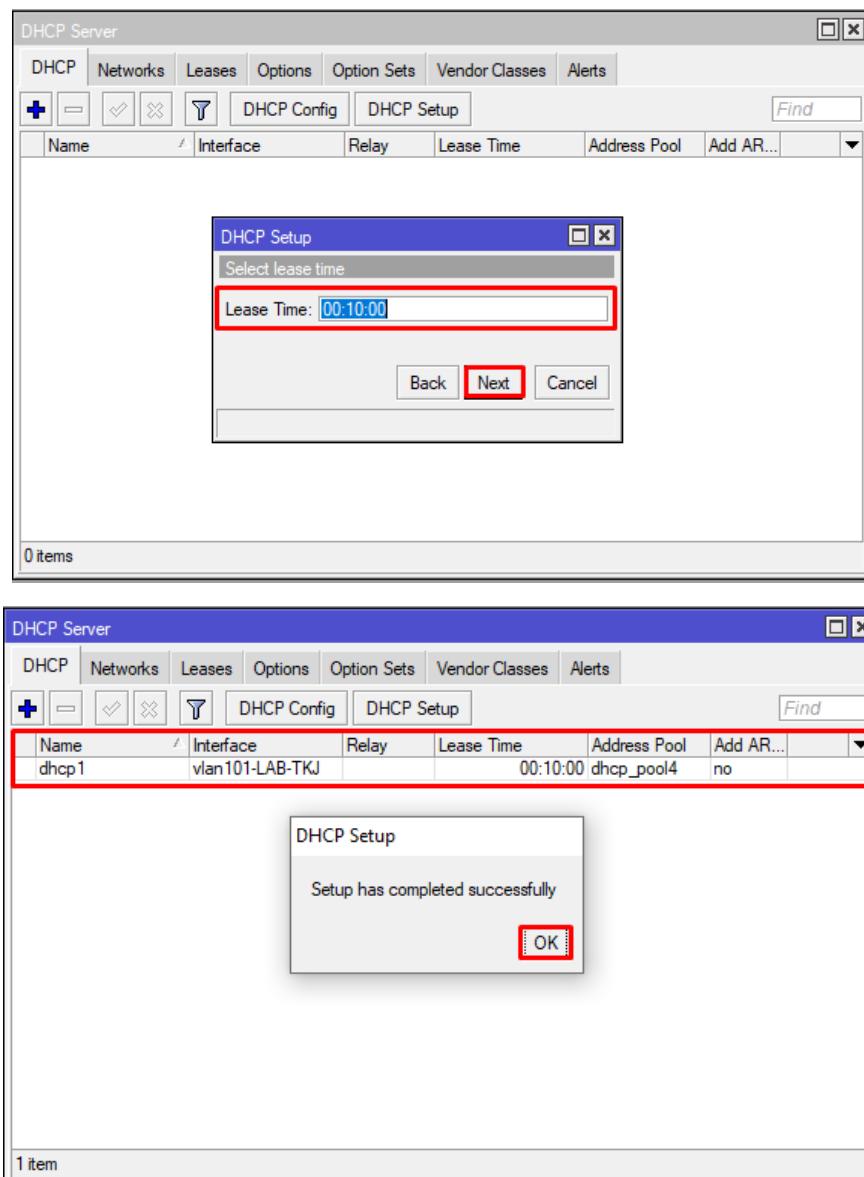




7. DHCP Server

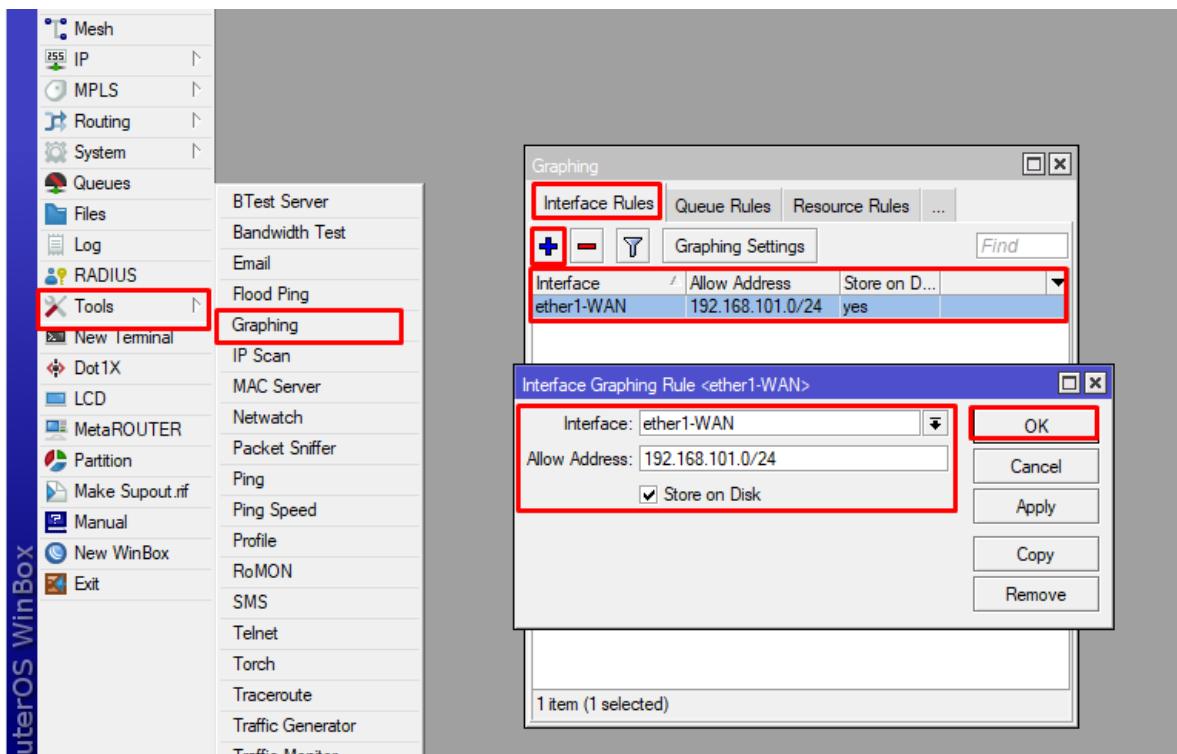




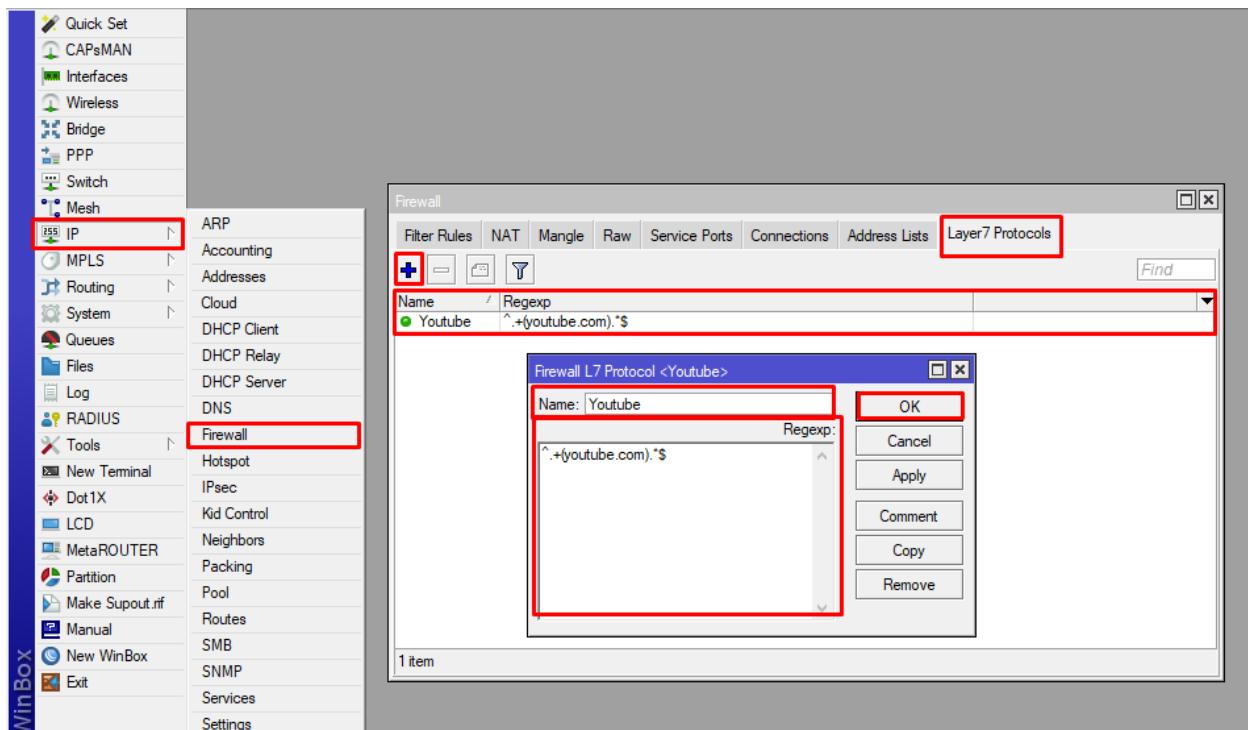


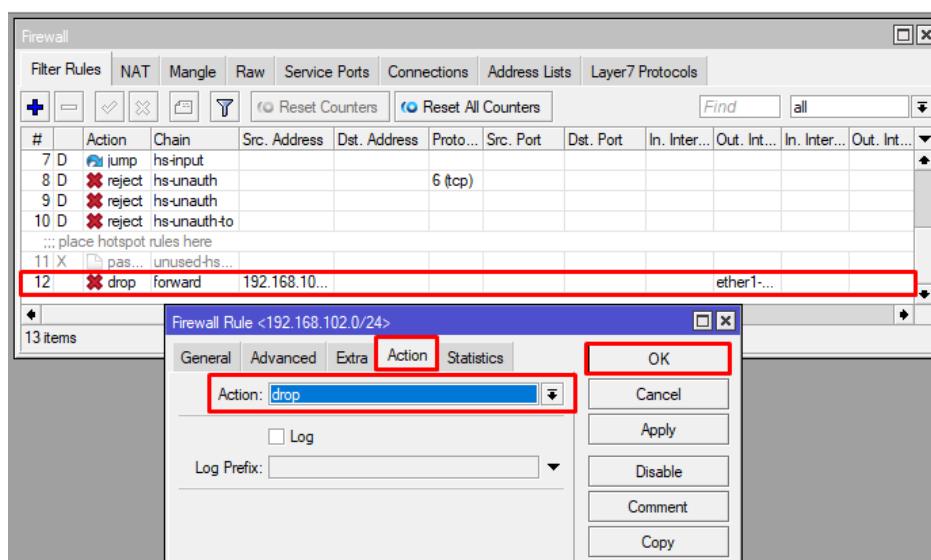
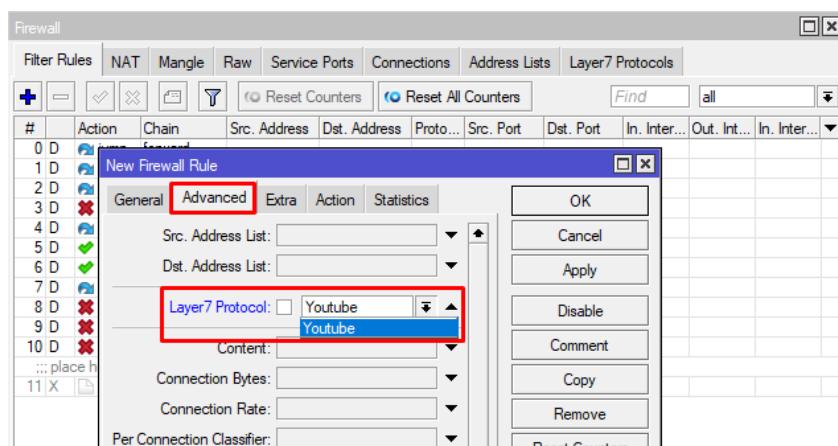
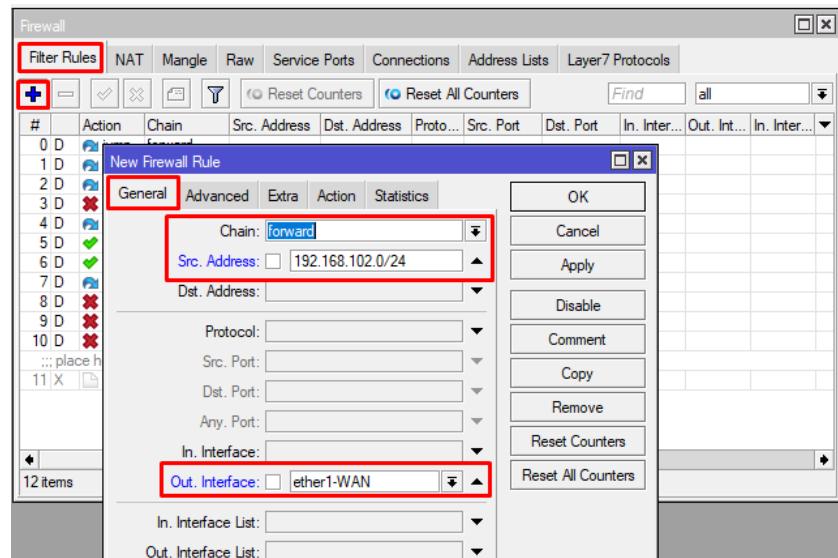
*Lakukan hal yang sama Server DHCP untuk LAB berikutnya, terkecuali untuk jalur Hotspot karna sudah dilakukan pada saat mengkonfigurasi Hotspot.

8. Setting Graphing (Monitoring Bandwidth)



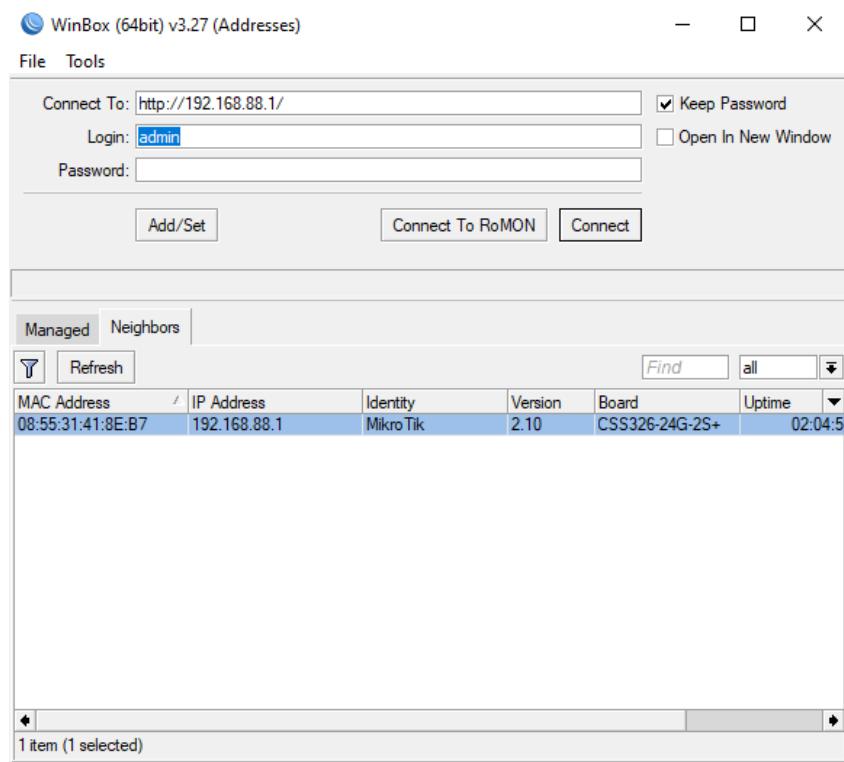
9. Block Akses Youtube pada LAB RPL



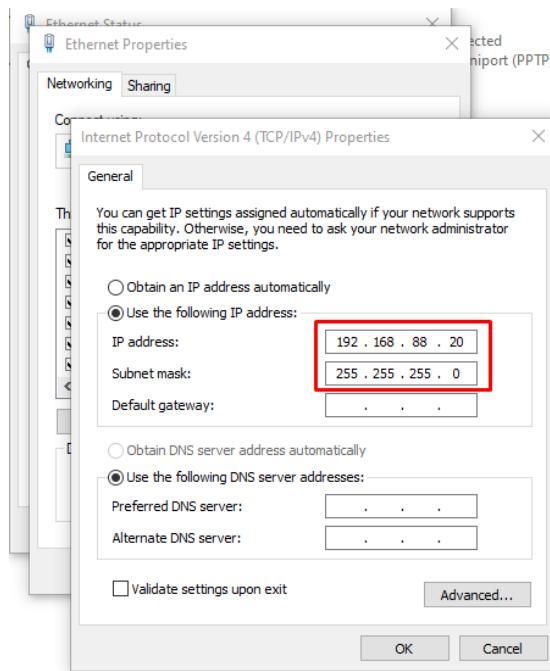


SETTING SWITCH MANAGEABLE

1. Deteksi IP Switch dengan Winbox

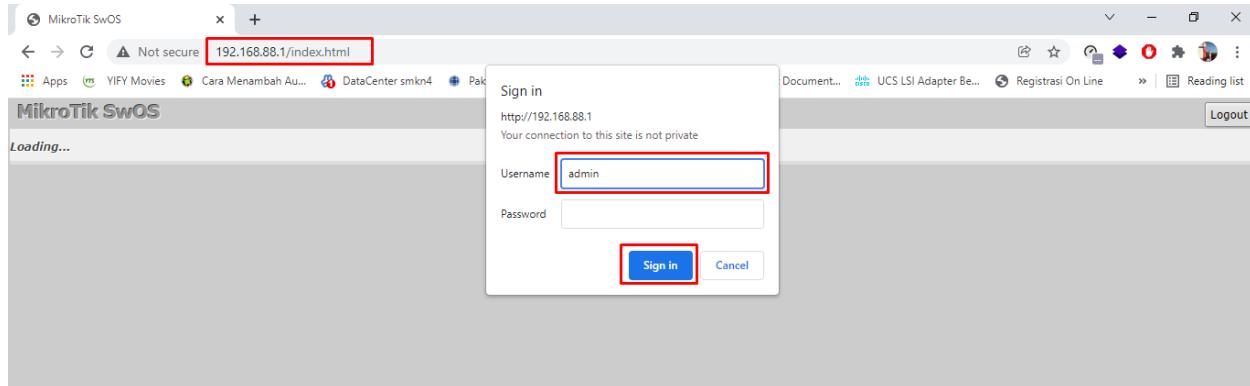


2. Setting IP Komputer sesuaikan dengan jalur IP pada switch



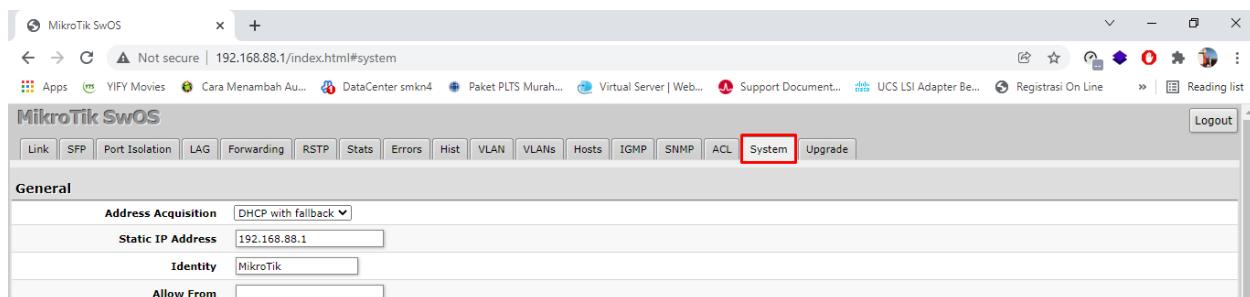
3. Login Switch

User admin dan password kosongkan

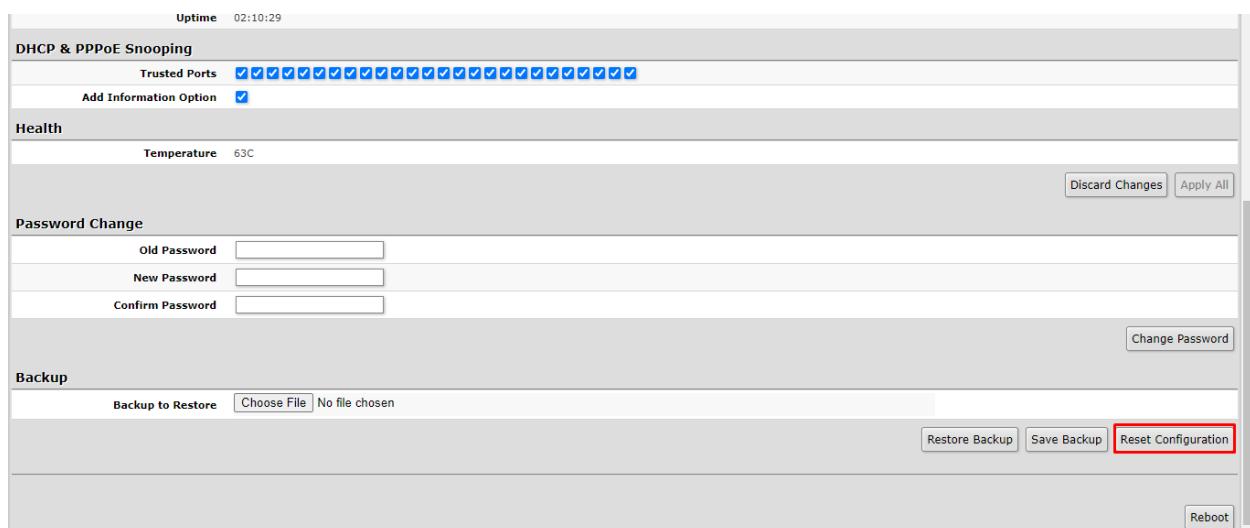


4. Reset System pada Switch

Masuk ke Tab "System"



Scroll kebawah dan klik "Reset Configuration"



Setelah Switch berhasil di reset switch akan merestart tunggu sampai proses restart selesai, jika sudah merestart silahkan login Kembali dengan menggunakan user dan password di atas.

5. Setting Interface Switch

Ketika sudah login silahkan masuk ke Tab Link, dan buat penamaan pada setiap port seperti gambar diabwah ini kemudian scroll kebawah dan klik "Apply All"

The screenshot shows the MikroTik SwOS interface with the 'Link' tab selected. A red box highlights the 'Link' tab in the top navigation bar. Another red box highlights the 'Name' column for Port 1 through Port 14, which have been renamed to Port1-Trunk, Port2, Port3, Port4, Port5, Port6, Port7, Port8, Port9-LAB TKJ, Port10-LAB TKJ, Port11-LAB RPL, Port12-LAB RPL, Port13-Hotspot, and Port14-Hotspot respectively. The bottom right corner of the page contains three buttons: 'Pending changes', 'Discard Changes', and 'Apply All', with 'Apply All' also highlighted by a red box.

Enabled	Name	Link Status	Auto Negotiation	Speed	Full Duplex	Flow Control
<input checked="" type="checkbox"/>	Port1-Trunk	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Port2	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Port3	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Port4	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Port5	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Port6	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Port7	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Port8	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Port9-LAB TKJ	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Port10-LAB TKJ	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Port11-LAB RPL	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Port12-LAB RPL	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Port13-Hotspot	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Port14-Hotspot	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Port15	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Port16	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>
---	---	---	---	1G	yes	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Port20	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Port21	link on	<input checked="" type="checkbox"/>	1G	yes	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Port22	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Port23	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Port24	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	SFP1	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	SFP2	no link	<input checked="" type="checkbox"/>		no	<input checked="" type="checkbox"/>

6. Setting VLAN

Masuk Ke Tab “VLAN”, Silahkan setting VLAN dan Trunk sesuai dengan gambar dibawah ini, jika sudah klik “Apply All”

The screenshot shows the MikroTik SwOS interface for VLAN configuration. The 'VLAN' tab is selected. A red box highlights the configuration for ports Port9-LAB TKJ through Port14-Hotspot. These ports are set to 'optional' mode, receive 'only untagged' traffic, and are assigned to VLAN 101. Other ports like Port1-Trunk through Port8 are also listed but not highlighted. At the bottom right, there are buttons for 'Pending changes', 'Discard Changes', and 'Apply All', with 'Apply All' being highlighted.

7. Setting Trunk

Masuk lagi ke Tab “VLANs” untuk setting Trunking, kemudian klik “Append” untuk menambahkan dan jika sudah selesai klik “Apply All”

The screenshot shows the MikroTik SwOS interface for VLANs configuration. The 'VLANs' tab is selected. At the bottom right, there are buttons for 'Pending changes', 'Append', 'Sort', 'Discard Changes', and 'Apply All'. The 'Append' button is highlighted with a red box.

SETTING ACCESS POINT ROUTER

1. Login AP Router

Hubungkan AP Router ke port vlan Hotspot pada Switch, kemudian login dengan menggunakan winbox cari "Access Point Router"

MAC Address	IP Address	Identity	Version	Board	Uptime
64:D1:54:BA:BD:55	0.0.0.0	MikroTik	6.39.2 (st...)	RB951Ui-2nD	2d 04:30:4
08:55:31:75:73:82	192.168.103.1	MikroTik	6.47.8 (st...)	RB2011UiAS	04:18:1
08:55:31:41:8E:B7	192.168.88.1	MikroTik	2.10	CSS326-24G-2S+	00:56:1

2. Setting Bridge

Setting Mode Bridge pada AP Router untuk interface Ether1 dan Wlan1 seperti gambar dibawah ini

The screenshot shows the WinBox interface for a MikroTik AP Router. The main window displays the 'Bridge' configuration. A red box highlights the 'Bridge' tab in the top navigation bar. Another red box highlights the '+' button used to add new bridge interfaces. The table lists one bridge interface named 'bridge1-Hotspot'.

Name	Type	L2 MTU	Tx	Rx	Tx Packet
bridge1-Hotspot	Bridge	1598	0 bps	8.5 kbps	▼

A detailed configuration dialog for 'Interface <bridge1-Hotspot>' is open. It shows the 'General' tab selected. A red box highlights the 'Name' field containing 'bridge1-Hotspot'. Other fields include Type: Bridge, MTU: (dropdown), Actual MTU: 1500, L2 MTU: 1598, MAC Address: 64:D1:54:BA:BD:55, ARP: enabled, ARP Timeout: (dropdown), and Admin. MAC Address: (dropdown). Buttons on the right include OK, Cancel, Apply, Disable, Comment, Copy, Remove, and Torch.

The main window now shows the 'Ports' tab selected in the top navigation bar. A red box highlights the '+' button used to add new bridge ports. The table lists two bridge ports: 'ether1' and 'wlan1', both associated with the 'bridge1-Hotspot' bridge.

Interface	Bridge	Priority (hex)	Path Cost	Horizon	Role	Root Path
ether1	bridge1-Hotspot	80	10		root port	10
wlan1	bridge1-Hotspot	80	10		disabled port	

Two detailed configuration dialogs are open for the bridge ports. The left dialog is for 'Bridge Port <ether1>' and the right is for 'Bridge Port <wlan1>'. Both dialogs show the 'General' tab selected. A red box highlights the 'Interface' field for ether1 (set to 'ether1') and the 'Bridge' field (set to 'bridge1-Hotspot'). For wlan1, the 'Interface' field is set to 'wlan1' and the 'Bridge' field is also set to 'bridge1-Hotspot'. Other settings like Priority, Path Cost, Edge, and Auto Isolate are visible but not highlighted.

3. Setting Wireless LAN / Hotspot

admin@64:D1:54:BA:BD:55 (MikroTik) - WinBox (64bit) v6.39.2 on hAP (mipsbe)

Session Settings Dashboard

Session: 64:D1:54:BA:BD:55

Quick Set CAPsMAN

Interfaces

Wireless

Bridge PPP Switch Mesh IP MPLS Routing Queues Files Log Radius Tools New Terminal MetaROUTER Partition Manual New WinBox Exit

outerOS WinBox

Wireless Tables

Interfaces Nstreme Dual Access List Registration Connect List Security Profiles Channels

Name Type Actual MTU Tx Rx Tx Packet (n/s) Rx Packet (n/s) FP Tx FP Rx

wlan1 Wireless (Atheros AR9280) 1500 0 bps 0 bps 0 0 0 bps

Interface <wlan1>

General Wireless HT HT MCS WDS Nstreme NV2 Status ...

Mode: ap bridge
Band: 2GHz-B/G/N
Channel Width: 20MHz
Frequency: 2412 MHz
SSID: Hilmi-UKK2022

Scan List: default

Wireless Protocol: any

Security Profile: default

WPS Mode: push button

Bridge Mode: enabled

VLAN Mode: no tag

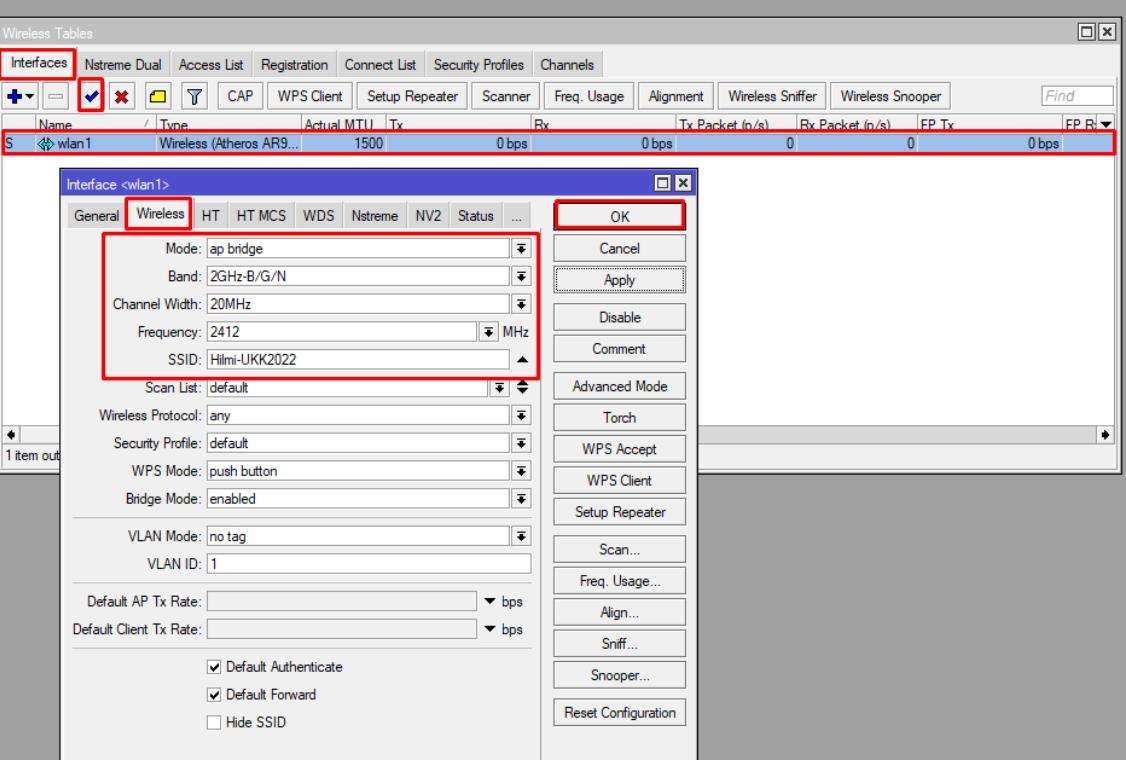
VLAN ID: 1

Default AP Tx Rate: bps

Default Client Tx Rate: bps

Default Authenticate
 Default Forward
 Hide SSID

OK Cancel Apply Disable Comment Advanced Mode Torch WPS Accept WPS Client Setup Repeater Scan... Freq. Usage... Align... Sniff... Snooper... Reset Configuration



missqueen Secured

V2026 Secured

Hilmi-UKK2022 Open

UKK-2021-Riani Open

SFF-ext Secured

realme 3 Open

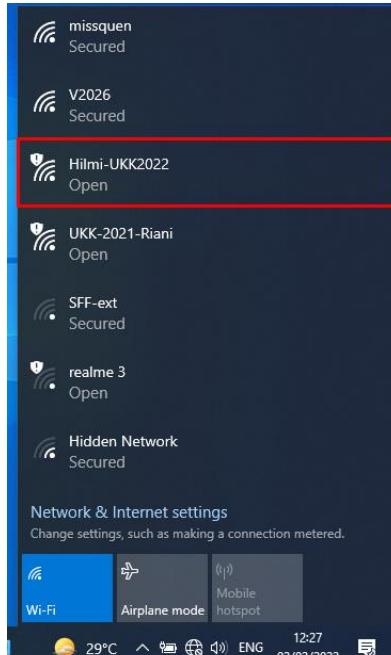
Hidden Network Secured

Network & Internet settings

Change settings, such as making a connection metered.

Wi-Fi Airplane mode Mobile hotspot

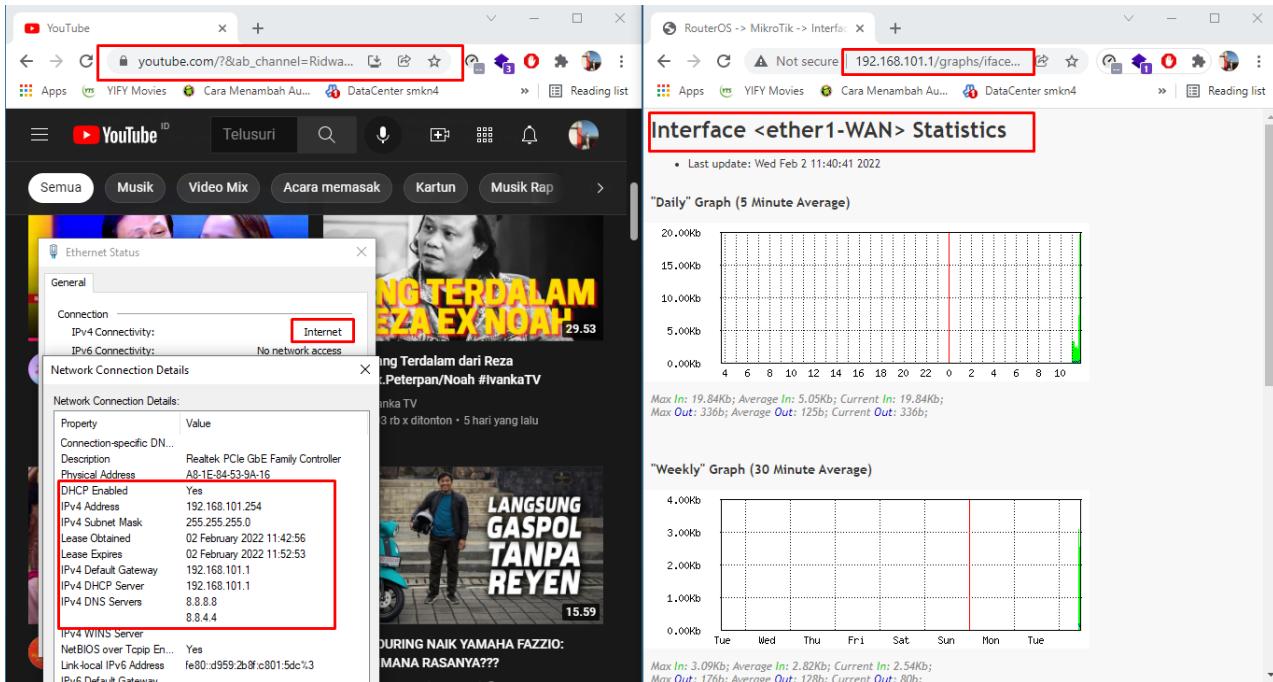
29°C ENG 02/02/2022 12:27



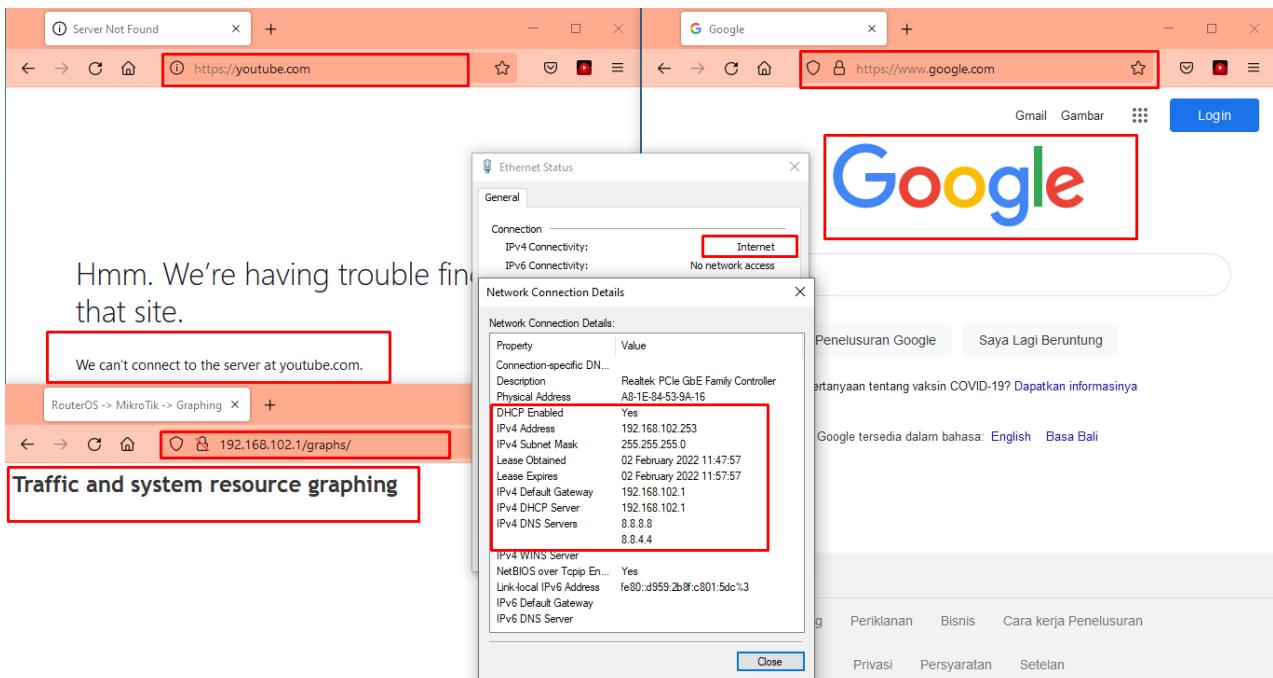
PENGUJIAN

Silahkan lakukan pengujian pada masing masing port dan vlan yang sudah di setting dari switch dan router, untuk pengujian silahkan colokan pada masing-masing port yang sudah di setting vlan pada switch.

*PENGUJIAN LAB TKJ



*PENGUJIAN LAB RPL



*PENGUJIAN HOTSPOT

The figure consists of three screenshots arranged horizontally. The left screenshot shows a MikroTik RouterOS hotspot login page at hilmi-ukk.net/login. It displays a message: "You must log in to this network before you can access the Internet." Below is a form with fields for "Username" and "Password", and a "Connect" button. The middle screenshot shows the "Wi-Fi Status" window with the following details:

Property	Value
Connection-specific DN...	Internet
IPv4 Connectivity:	No Internet access
IPv6 Connectivity:	No network access
Media State:	Enabled
SSID:	Hilmi-UKK2022
Duration:	00:02:21
Speed:	72.2 Mbps
Signal Quality:	[Signal Strength Bar]

The right screenshot shows a browser window at <https://www.google.com> with the message "Connection Failed". Below it is the error message: "A connection to the website could not be established. The address you are trying to view cannot be shown because the authenticity of the received data could not be verified. Please contact the website owners to inform them of this problem." A "Try Again" button is visible.

The bottom row shows the same three windows again, but the browser window now displays the Google homepage with the "Google" logo.

SELESAI