# VLAN CONFIGURATION

Mikrotik Router

2025

SUBASH SUBEDI

**VLAN_CONFIGURATION**

## 1. Create a Bridge and Add All Ports

Step 1: Select "**Bridge**" On that, you will find the "**Bridge**" option.

Step 2: Click on the "**add**" symbol "+".

Step 3: In "**General**" you will find the option "**Name**" if you want to change the name, then change; otherwise, leave it. **&&** Same line of general you will find "**VLAN**" option the "**Enable**" VLAN Filtering.

Step 4: Now we will not change anything; select "**Apply**" & "**OK**"

Step 5: Select "**Bridge**" On that you will find the "**Ports**" option.

Step 6: Click on the "**add**" symbol "+".

Step 7: In "**Interface**" select the "**ethernet**" port, & In "**Bridge**" select the name of bridge In step 3, you have create.

Step 8: Select "**Apply**" & "**OK**" Same process step for other Ethernet port also.

**CMD**

Since multiple VLANs will use the same physical router, we will **bridge all interfaces** and configure VLANs using bridge VLAN filtering.

```
/interface bridge add name=[BRIDGE_NAME] vlan-filtering=yes
/
```

Now, **add all LAN interfaces** to the bridge.

```
/interface bridge port
add bridge=[NAME OF BRIDGE PORT] interface= ether[ether port]
/
```

**VLAN_CONFIGURATION**

**EXAMPLE**

```
/interface bridge add name=bridge1 vlan-filtering=yes
/


/interface bridge port
add bridge=bridge1 interface=ether2
add bridge=bridge1 interface=ether3
add bridge=bridge1 interface=ether4
add bridge=bridge1 interface=ether5
/
```

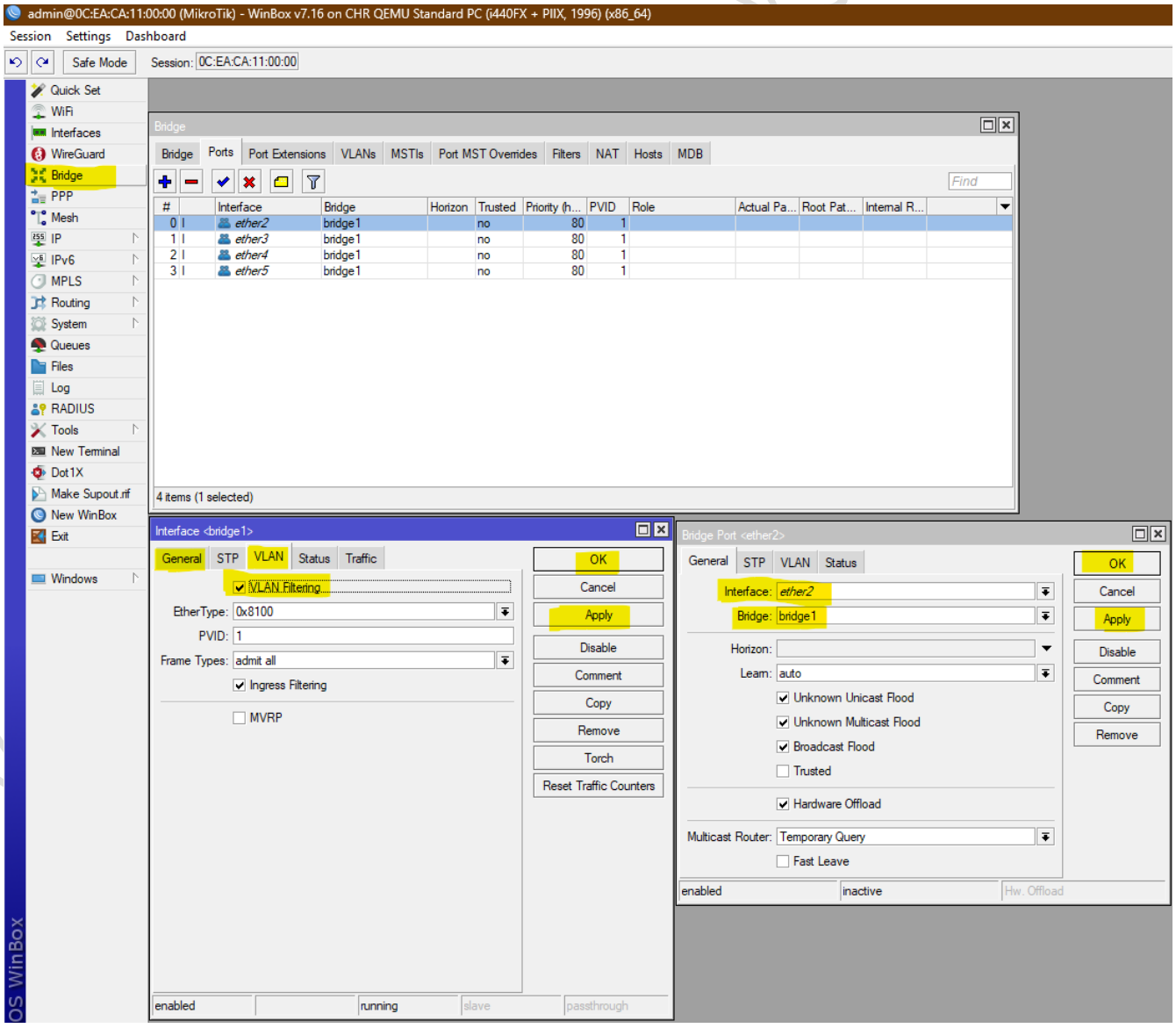


*Figure 1*

## 2. Configure VLANs

Step 1: Select "**Interfaces**" On that, you will find the "**VLAN**" option.

Step 2: Click on the "**add**" symbol "+".

Step 3: In "**Name**" Enter your vlan name **&&** IN "**VLAN ID**" Enter your vlan id number **&&** In "**Interfaces**" select the name of bridge In first, you have create.

Step 4: Now we will not change anything; select "**Apply**" & "**OK**"

**CMD**

We will define VLAN IDs for each department and assign their respective interfaces.

```
/interface vlan
add interface=[BRIDGE_NAME] name=[VLAN_INTERFACE_NAME] vlan-id=[VLAN_NUMBER]
/
```

**EXAMPLE**

```
/interface vlan
add interface=bridge1 name=vlan2 vlan-id=2
add interface=bridge1 name=vlan3 vlan-id=3
add interface=bridge1 name=vlan4 vlan-id=4
add interface=bridge1 name=vlan5 vlan-id=5
/
```

# VLAN_CONFIGURATION

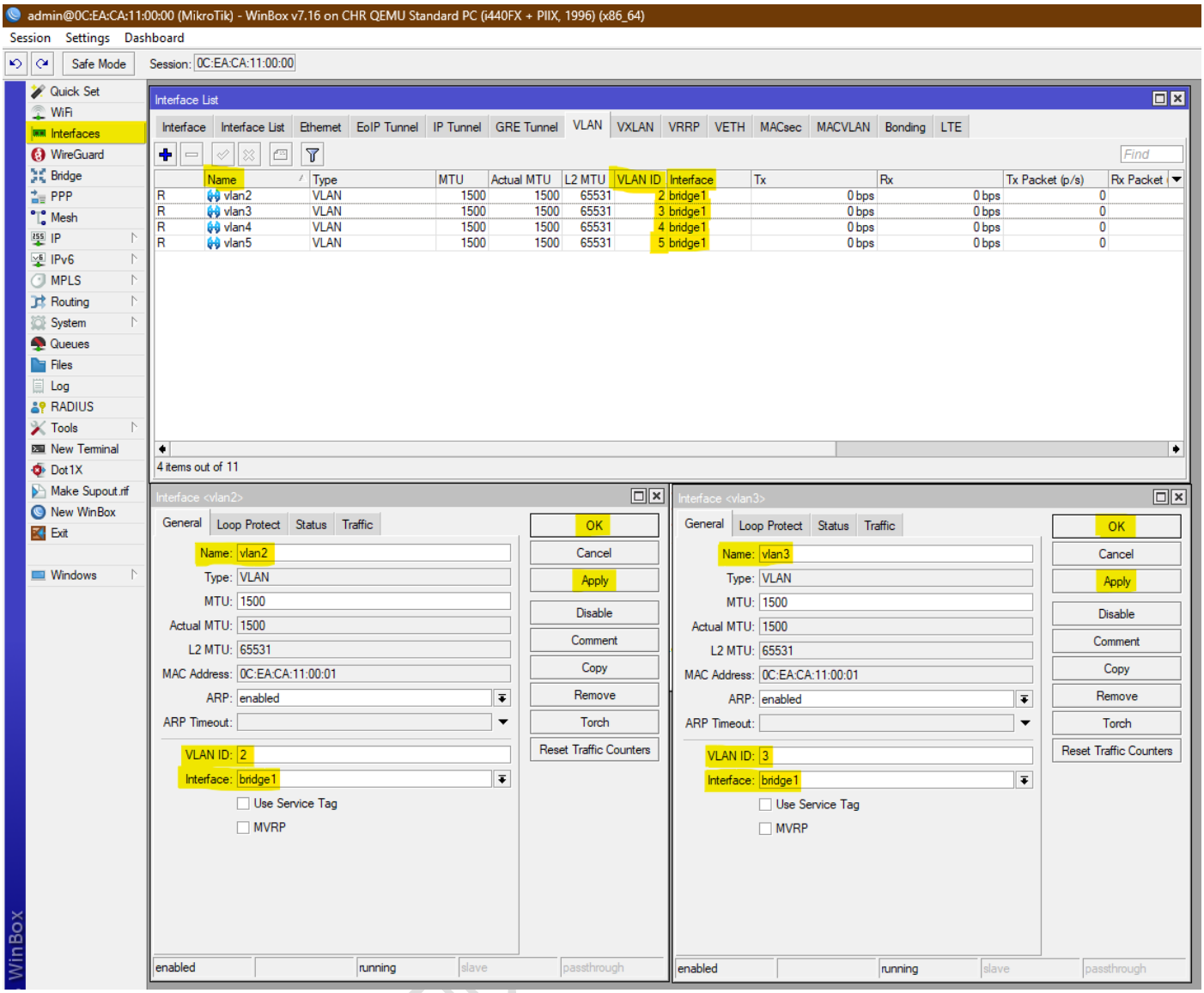


*Figure 2*

## 3. IP ASSIGN

Step 1: Select "**IP**" On that you will find the "**Addresses**" option.

Step 2: Click on the "**add**" symbol "+".

Step 3: In "**Address**" enter the public IP & In "**Network**" enter the gateways of that IP.

Step 4: In "**Interface**" select which interface you want to assign.

Step 5: Select "**Apply**" & "**OK**".

Step 2: Click on the "**add**" symbol "+".

Step 6: In "**Address**" enter the local IP & In "**Network**" enter the gateways of that IP.

Step 7: In "**Interface**" select which VLAN interface you want to assign.

Step 8: Select "**Apply**" & "**OK**"

**CMD**

Assign IP addresses to VLAN interfaces:

```
/ip address

add address=[PUBLIC_IP/NETMASK] interface=[NAME_OF_ETHERNET]

add address=[LOCAL_IP_RANGE/NETMASK] interface=[NAME_OF_VLAN_INTERFACE]

/
```

**EXAMPLE**

```
/ip address

add address=192.168.2.1/24 interface=vlan2
add address=192.168.3.1/24 interface=vlan3
add address=192.168.4.1/24 interface=vlan4
add address=192.168.5.1/24 interface=vlan5

/
```

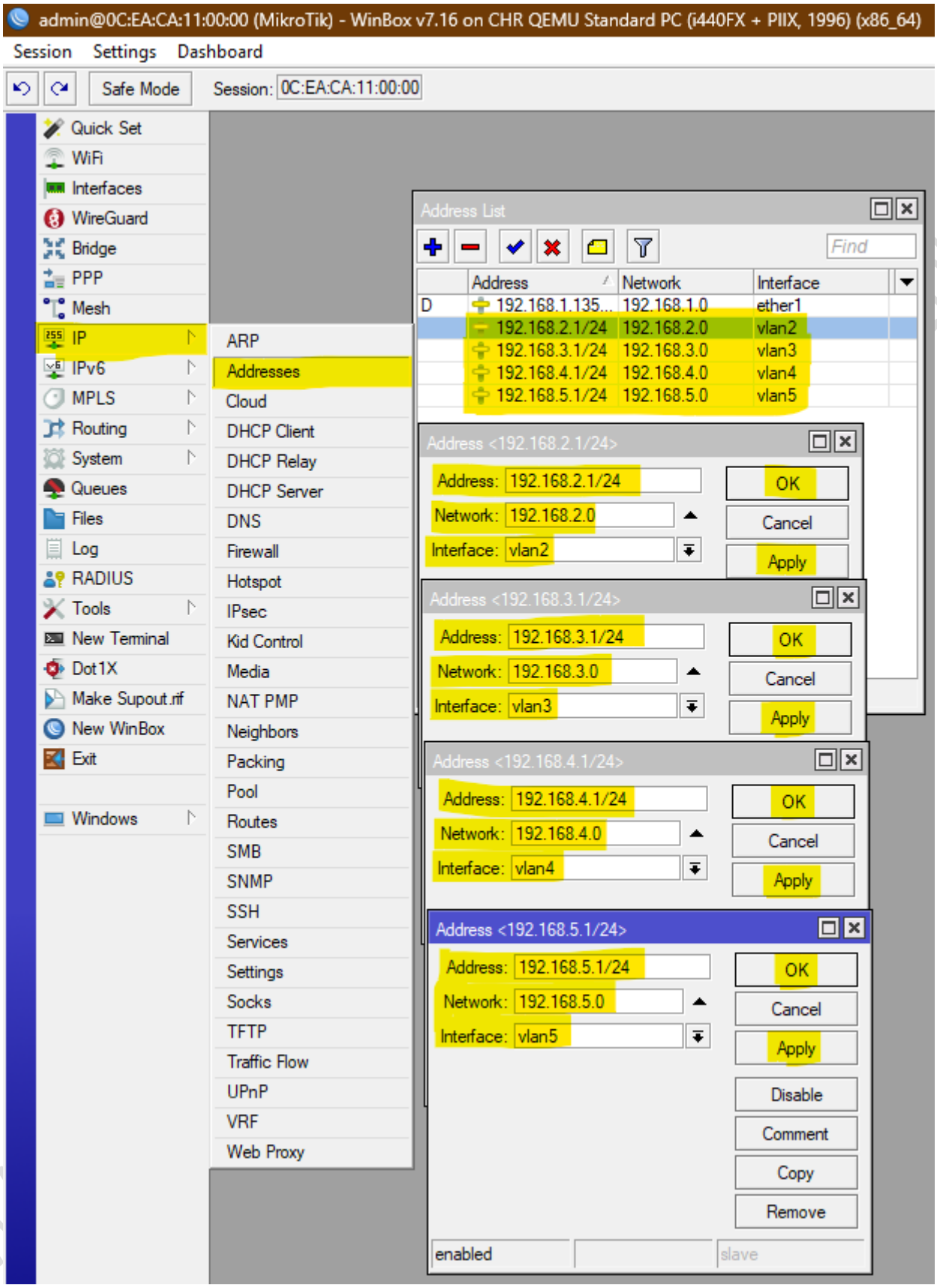
admin@0C:EA:CA:11:00:00 (MikroTik) - WinBox v7.16 on CHR QEMU Standard PC (i440FX + PIIX, 1996) (x86_64)
Session Settings Dashboard
Safe Mode
Session: 0C:EA:CA:11:00:00
Quick Set
WiFi
Interfaces
WireGuard
Bridge
PPP
Mesh
IP
IPv6
MPLS
Routing
System
Queues
Files
Log
RADIUS
Tools
New Terminal
Dot1X
Make Supout.rif
New WinBox
Exit
Windows
ARP
Addresses
Cloud
DHCP Client
DHCP Relay
DHCP Server
DNS
Firewall
Hotspot
IPsec
Kid Control
Media
NAT PMP
Neighbors
Packing
Pool
Routes
SMB
SNMP
SSH
Services
Settings
Socks
TFTP
Traffic Flow
UPnP
VRF
Web Proxy
Address List
Find
Address
Network
Interface
D 192.168.1.135... 192.168.1.0 ether1
192.168.2.1/24 192.168.2.0 vlan2
192.168.3.1/24 192.168.3.0 vlan3
192.168.4.1/24 192.168.4.0 vlan4
192.168.5.1/24 192.168.5.0 vlan5
Address <192.168.2.1/24>
Address: 192.168.2.1/24
Network: 192.168.2.0
Interface: vlan2
OK
Cancel
Apply
Address <192.168.3.1/24>
Address: 192.168.3.1/24
Network: 192.168.3.0
Interface: vlan3
OK
Cancel
Apply
Address <192.168.4.1/24>
Address: 192.168.4.1/24
Network: 192.168.4.0
Interface: vlan4
OK
Cancel
Apply
Address <192.168.5.1/24>
Address: 192.168.5.1/24
Network: 192.168.5.0
Interface: vlan5
OK
Cancel
Apply
Disable
Comment
Copy
Remove
enabled
slave

*Figure 3*

## 4. Configure VLAN Filtering on the Bridge

We need to **define which ports are assigned to each VLAN**.

Step 1: Select "**Bridge**" On that, you will find the "**VLANs**" option.

Step 2: Click on the "**add**" symbol "+".

Step 3: In "**Bridge**" select the name of bridge In first, you have create. && In "**VLAN IDs**" enter the vlan number. && In "**Tagged**" select the name of bridge In first, you have create. && In "**Untagged**" select the "**ether interface**"

Step 4: Now we will not change anything; select "**Apply**" & "**OK**"

CMD

```
/interface bridge vlan
add bridge=[BRIDGE_NAME] vlan-ids=[VLAN_NUMBER] tagged=[BRIDGE_NAME] untagged=[PHYSICAL_PORT]
/
```

EXAMPLE

```
/interface bridge vlan
add bridge=bridge1 vlan-ids=2 tagged=bridge1 untagged=ether2
add bridge=bridge1 vlan-ids=3 tagged=bridge1 untagged=ether3
add bridge=bridge1 vlan-ids=4 tagged=bridge1 untagged=ether4
add bridge=bridge1 vlan-ids=5 tagged=bridge1 untagged=ether5
/
```

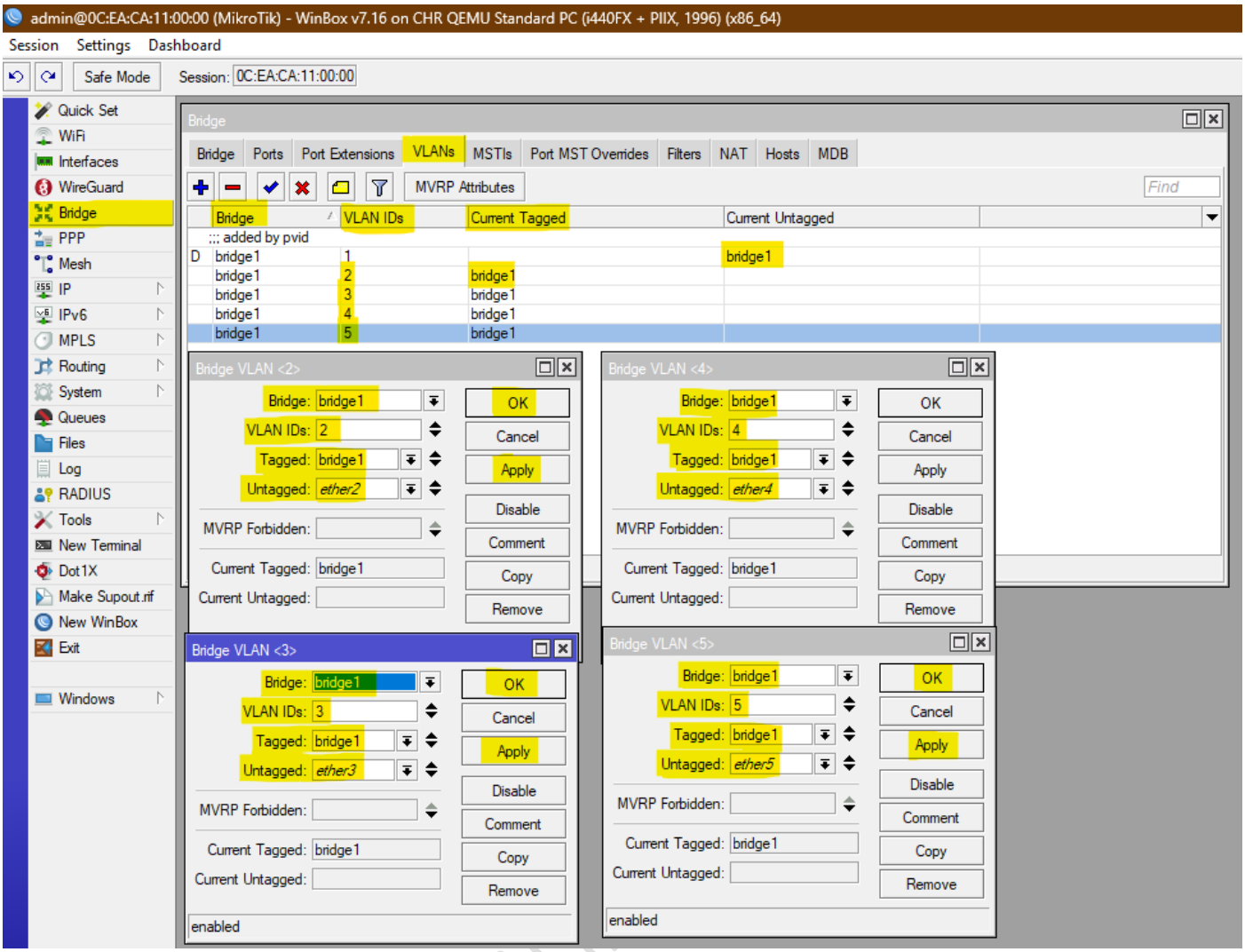


*Figure 4*

*Ensure that **each VLAN is untagged on the correct port** and **tagged on the bridge** (so the router can process VLAN traffic).*

## 5. Configure Port VLAN IDs (PVIDs) on Bridge Port Interface

Set **Port VLAN IDs (PVIDs)** to make sure untagged traffic entering the port gets assigned the correct VLAN:

Step 1: Select "**Bridge**" On that, you will find the "**Port**" option.

Step 2: There you will find "**Bridge ether Interface**" && Double click on one option && In top you will find "**VLAN**" option select that option.

Step 3: In "**PVID**" you have insert the VLAN number According to interface

Step 4: Now we will not change anything; select "**Apply**" & "**OK**"

**CMD**

```
/interface bridge port
set [find interface=ether[NUMBER]] pvid=[VLAN_NUMBER]
/
```

**Example**

```
/interface bridge port
set [find interface=ether2] pvid=2
set [find interface=ether3] pvid=3
set [find interface=ether4] pvid=4
set [find interface=ether5] pvid=5
/
```

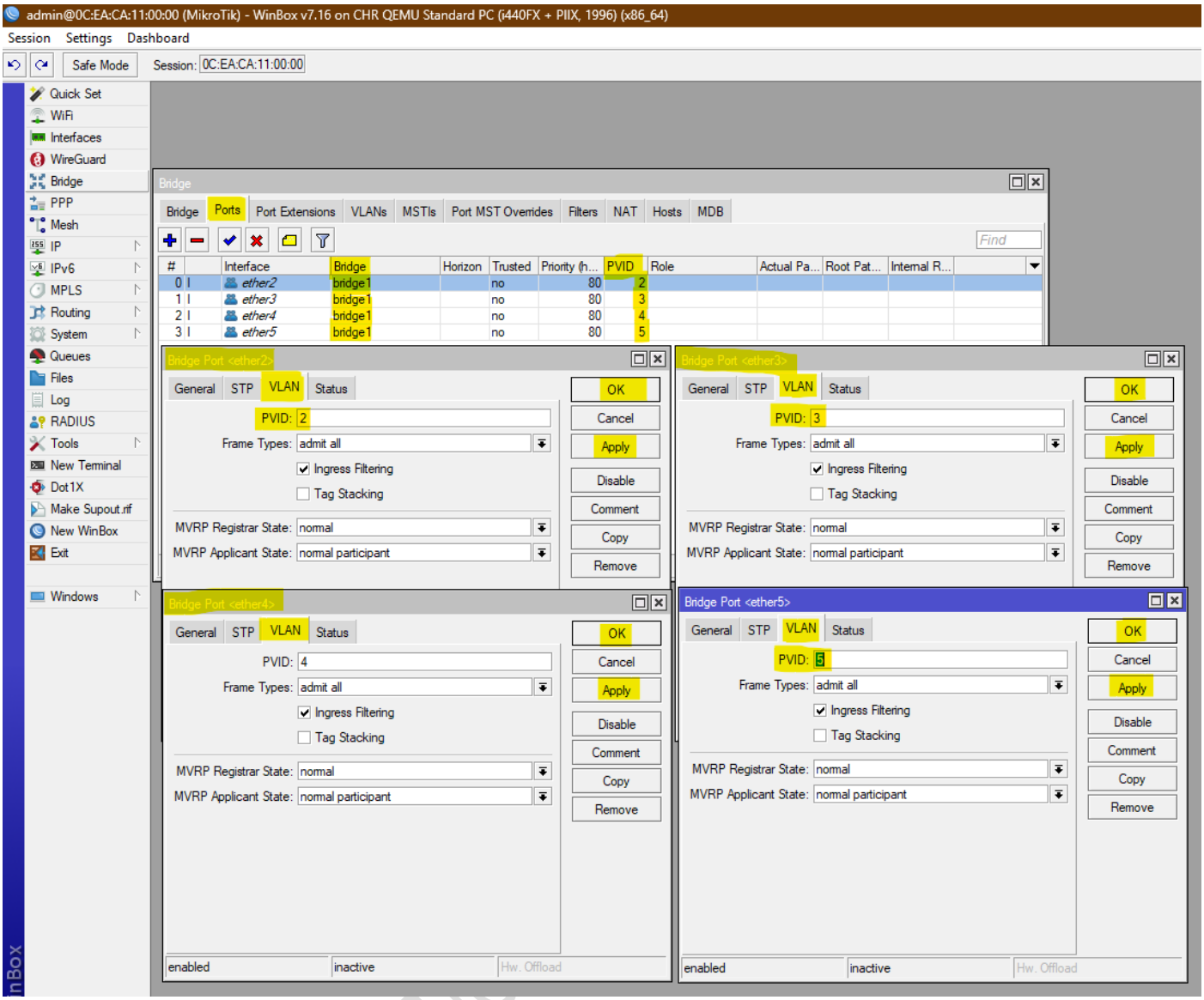


*Figure 5*

## 6. Configure DHCP for Each VLAN

Step 1: Select "**IP**" On that you will find the "**DHCP SERVER**" option.

Step 2: In "**DHCP**" there you will find "**DHCP Setup**" Click on that option. Then a popup setup will come.

Step 3: In "**DHCP Server Interface**" Select the "**VLAN**" name that you have created and "**Next**".

Step 4: In "**DHCP Address Space**" insert the local IP and their subnet as required, or it will come automatically and "**Next**".

Step 5: In "**Gateway for DHCP Network**" provide the local IP gateways, or it will come automatically and "**Next**".

Step 6: In the "**Addresses to Give Out**" range of IP addresses, or it will come automatically and "**Next**".

Step 7: In "**DNS Servers**" enter the ISP DNS that we have given Google for now; it will come automatically and "**Next**".

Step 8: In "**Lease Time**" set as default and click "**Next**"

**CMD**

```
/ip pool add name=[NAME OF DHCP POOL] ranges=[RANGE OF IP]

/ip dhcp-server add name=[NAME OF DHCP SERVER] interface=[ASSIGN VLAN INTERFACE] address-pool=[NAME OF DHCP POOL] disabled=no

/ip dhcp-server network add address=[VLAN IP ADDRESS WITH SUBNET] gateway=[GATEWAY OF LOCAL IP] dns-server=[DNS OF ISP]

/ip dhcp-server enable [NAME OF DHCP SERVER]
```

**VLAN_CONFIGURATION**

**EXAMPLE**

To assign IPs automatically to devices in each VLAN, create **DHCP servers**:

```
/ip pool
add name=pool_vlan2 ranges=192.168.2.2-192.168.2.200
add name=pool_vlan3 ranges=192.168.3.2-192.168.3.200
add name=pool_vlan4 ranges=192.168.4.2-192.168.4.200
add name=pool_vlan5 ranges=192.168.5.2-192.168.5.200

/


/ip dhcp-server
add interface=vlan2 address-pool=pool_vlan2 name=dhcp_vlan2 disabled=no
add interface=vlan3 address-pool=pool_vlan3 name=dhcp_vlan3 disabled=no
add interface=vlan4 address-pool=pool_vlan4 name=dhcp_vlan4 disabled=no
add interface=vlan5 address-pool=pool_vlan5 name=dhcp_vlan5 disabled=no

/


/ip dhcp-server network
add address=192.168.2.0/24 gateway=192.168.2.1 dns-server=8.8.8.8
add address=192.168.3.0/24 gateway=192.168.3.1 dns-server=8.8.8.8
add address=192.168.4.0/24 gateway=192.168.4.1 dns-server=8.8.8.8
add address=192.168.5.0/24 gateway=192.168.5.1 dns-server=8.8.8.8
```

## DHCP-VLAN2

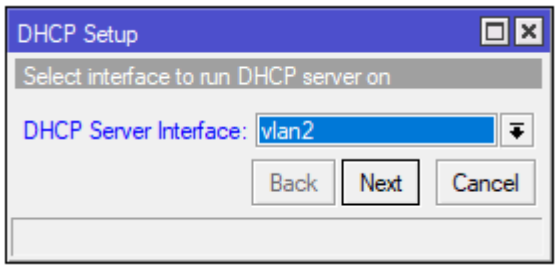


*Figure 6*

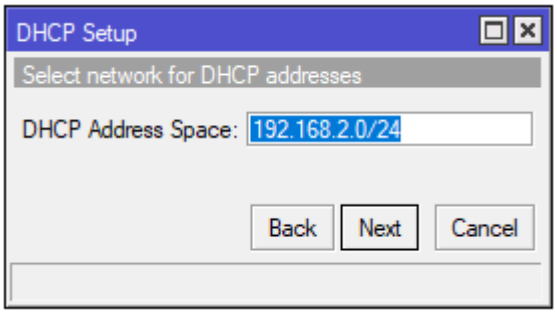


*Figure 7*

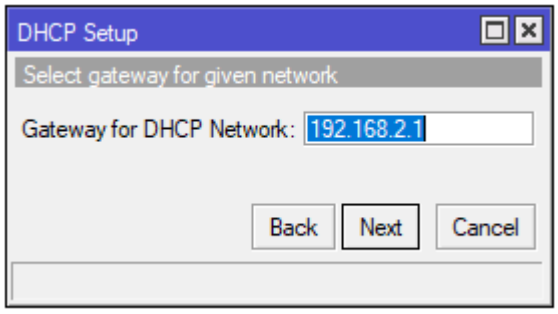


*Figure 8*

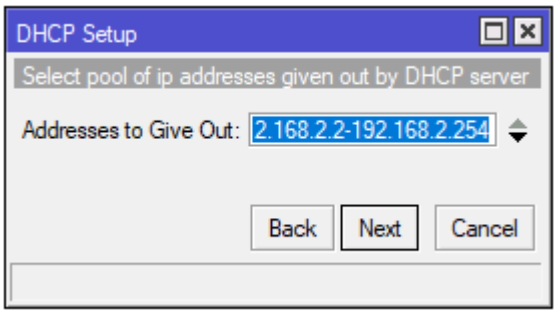


*Figure 9*

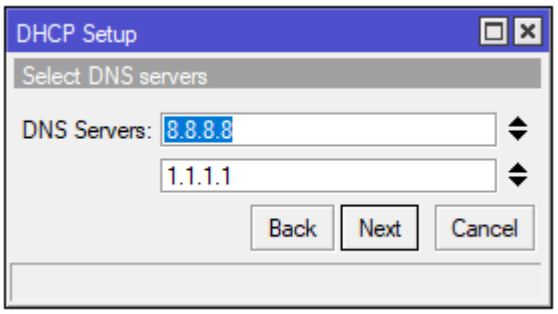


*Figure 10*

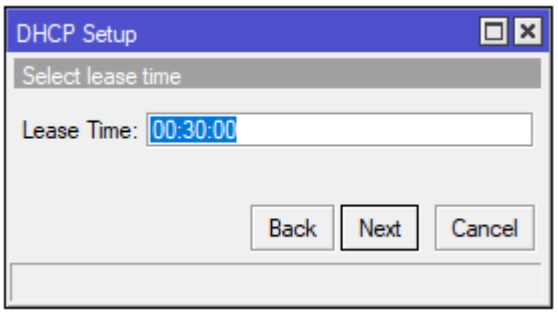


*Figure 11*

## DHCP-VLAN3

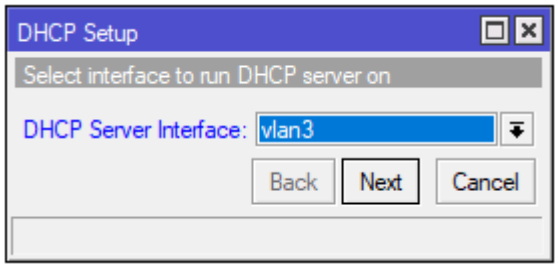


*Figure 12*

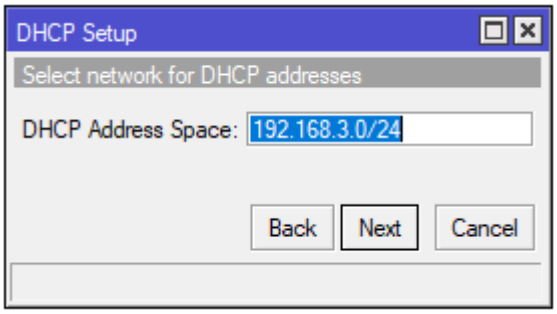


*Figure 13*

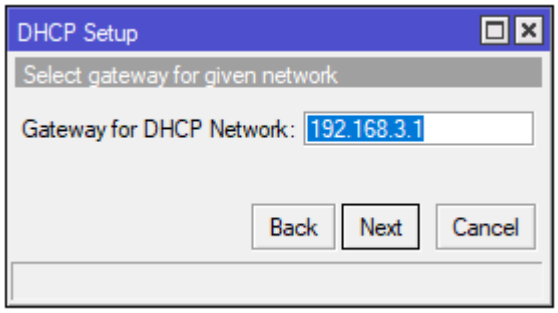


*Figure 14*

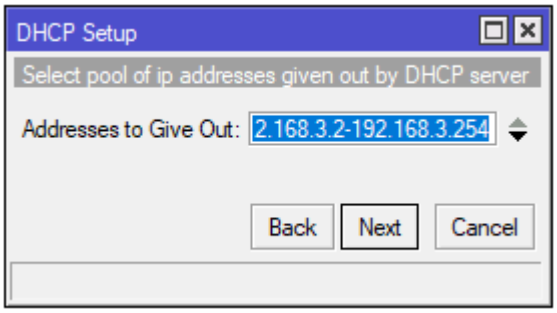


*Figure 15*

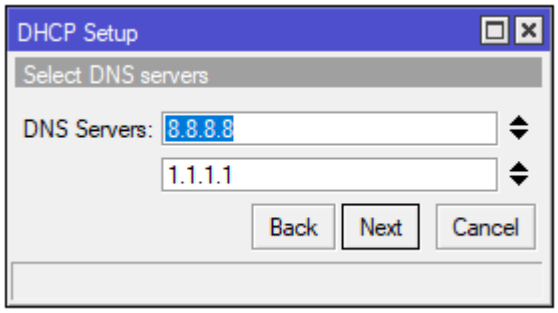


*Figure 16*

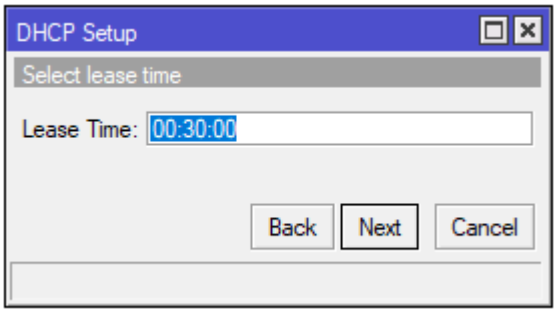


*Figure 17*

## DHCP-VLAN4

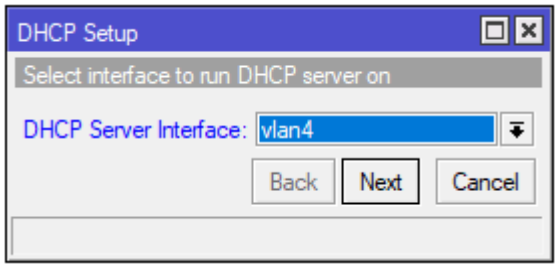


*Figure 18*

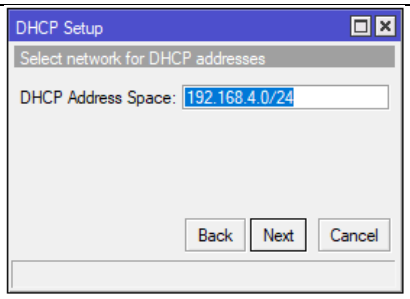


*Figure 19*

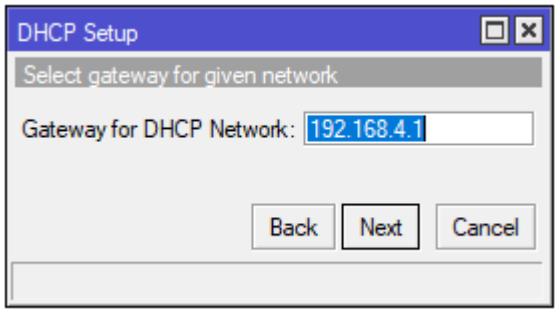


*Figure 20*

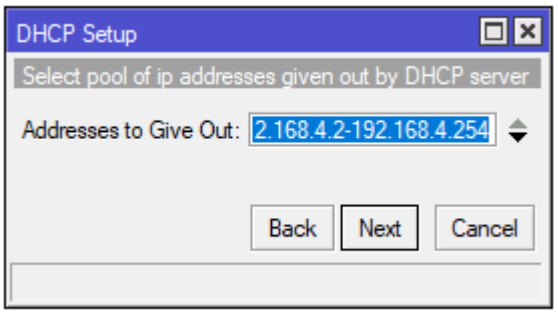


*Figure 21*

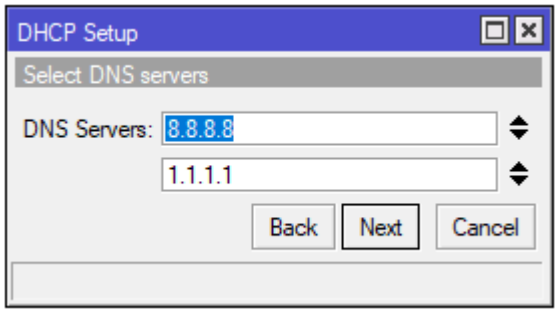


*Figure 22*

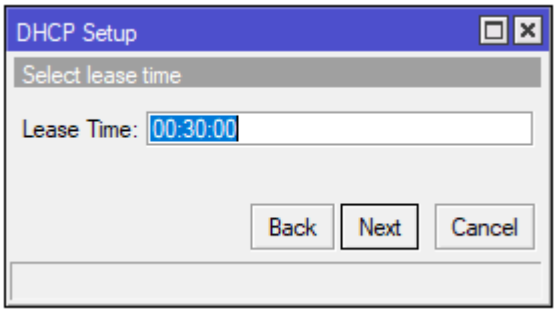


*Figure 23*

## DHCP-VLAN5

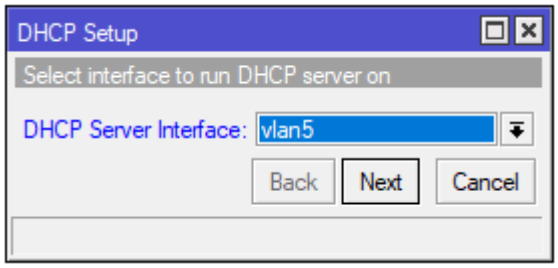


*Figure 24*

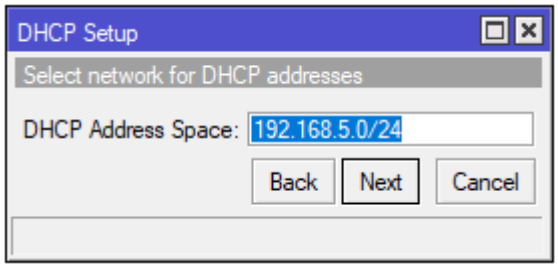


*Figure 25*

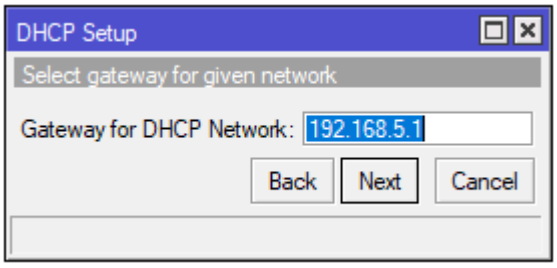


*Figure 26*

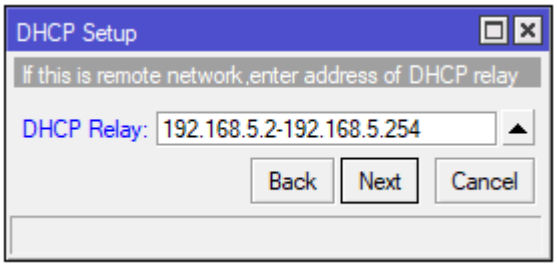


*Figure 27*

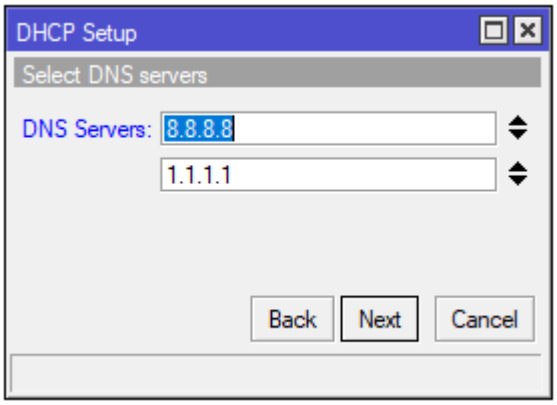


*Figure 28*

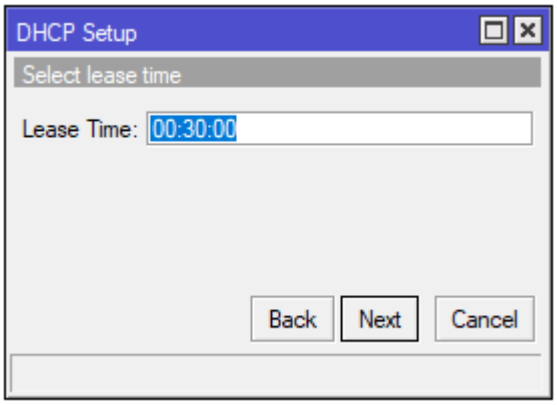


*Figure 29*

## 7. Configure DNS && Route to WAN (LAN1 - ether1)

### 7.1.DNS

Step 1: Select "**IP**" On that you will find the "**DNS**" option.

Step 2: In "**Servers**" enter the DNS of your ISP.

Step 3: Select "**Apply**" & "**OK**"

**CMD**

```
ip dns/

set servers=[Enter your ISP DNS]

/
```

**Example**

```
ip dns/ set servers=8.8.8.8,1.1.1.1

/
```

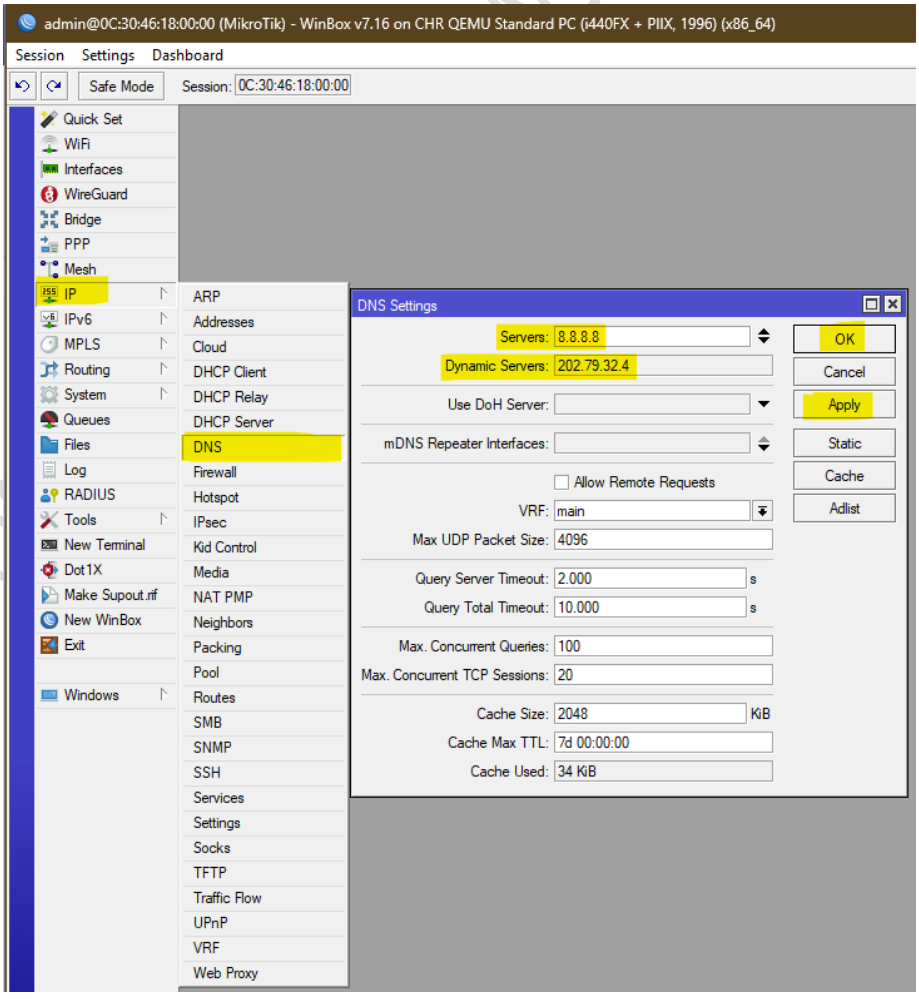


*Figure 30*

### 7.2.Route

We assume **LAN1 (ether1) is connected to the internet with PUBLIC IP**.

Step 1: Select "**IP**" On that you will find the "**Routes**" option.

Step 2: Click on the "**add**" symbol "+".

Step 3: In "**Dst. Address**" Enter "0.0.0.0/0" & In "**Gateway**" Public IP that is provided by ISP

Step 4: Select "**Apply**" & "**OK**"

**CMD**

```
/ip route add dst-address=0.0.0.0/0 gateway=[Gateway_IP]
```

**Example**

```
/ip route add dst-address=0.0.0.0/0 gateway=192.168.1.254
```

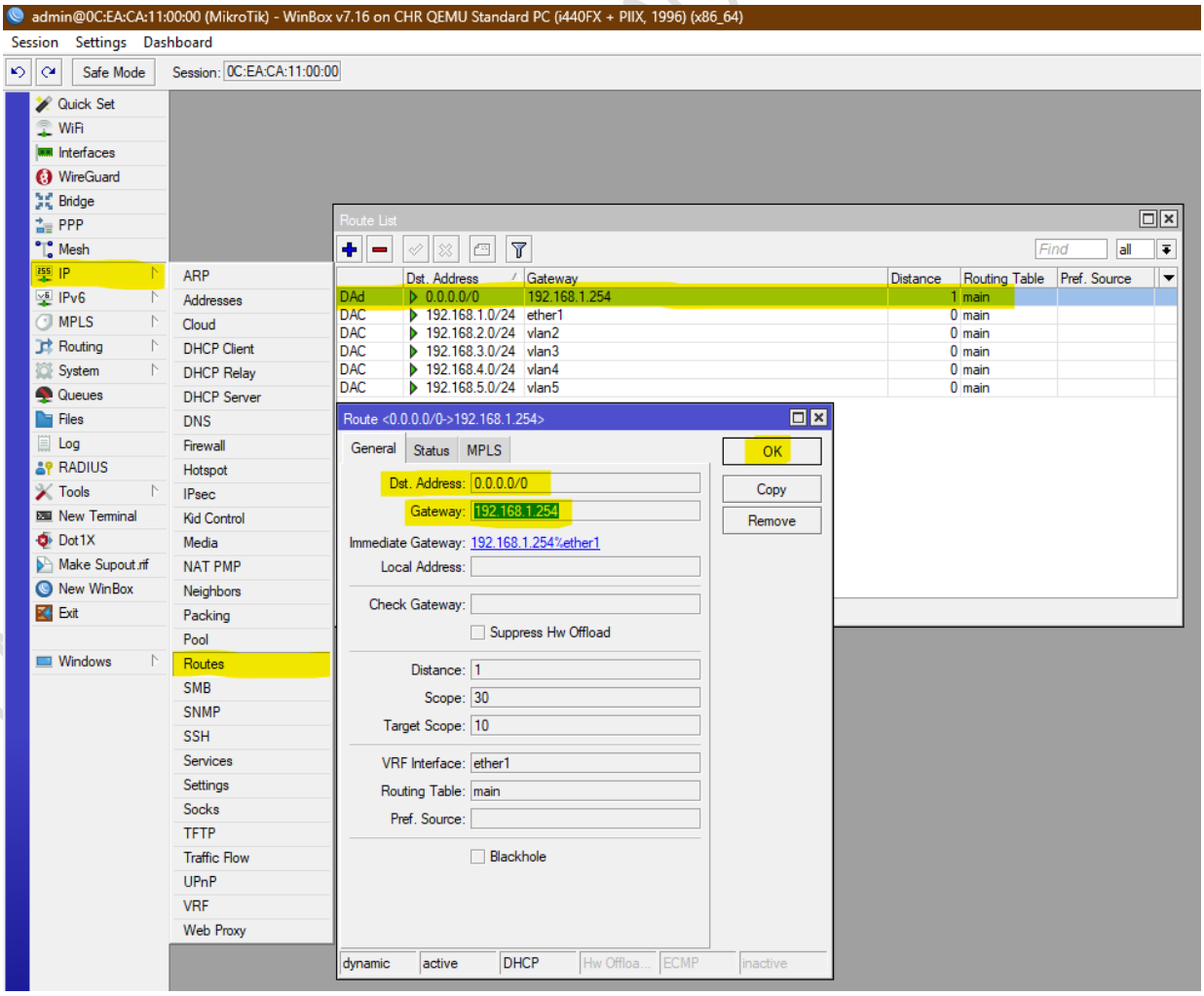


*Figure 31*

# 8. Enable NAT (*Masquerade*) for Internet Access && Block traffic from Vlan

## 8.1.Enable NAT (*Masquerade*) for Internet Access

Step 1: Select "**IP**" On that you will find the "**FireWall**" Option.

Step 2: Click on the "**add**" symbol "+".

Step 3: In "**General**" you will find "**Chain**" leave it default "**srcnat**"

Step 4: Select "**Action**" you will find "Action" in that select "**masquerade**"

Step 5: Select "**Apply**" & "**OK**"

**CMD**

```
/ip firewall nat

add chain=srcnat out-interface=[Uplink_Interface] action=masquerade

/
```

**Example**

```
/ip firewall nat
add chain=srcnat out-interface=ether1 action=masquerade

/
```

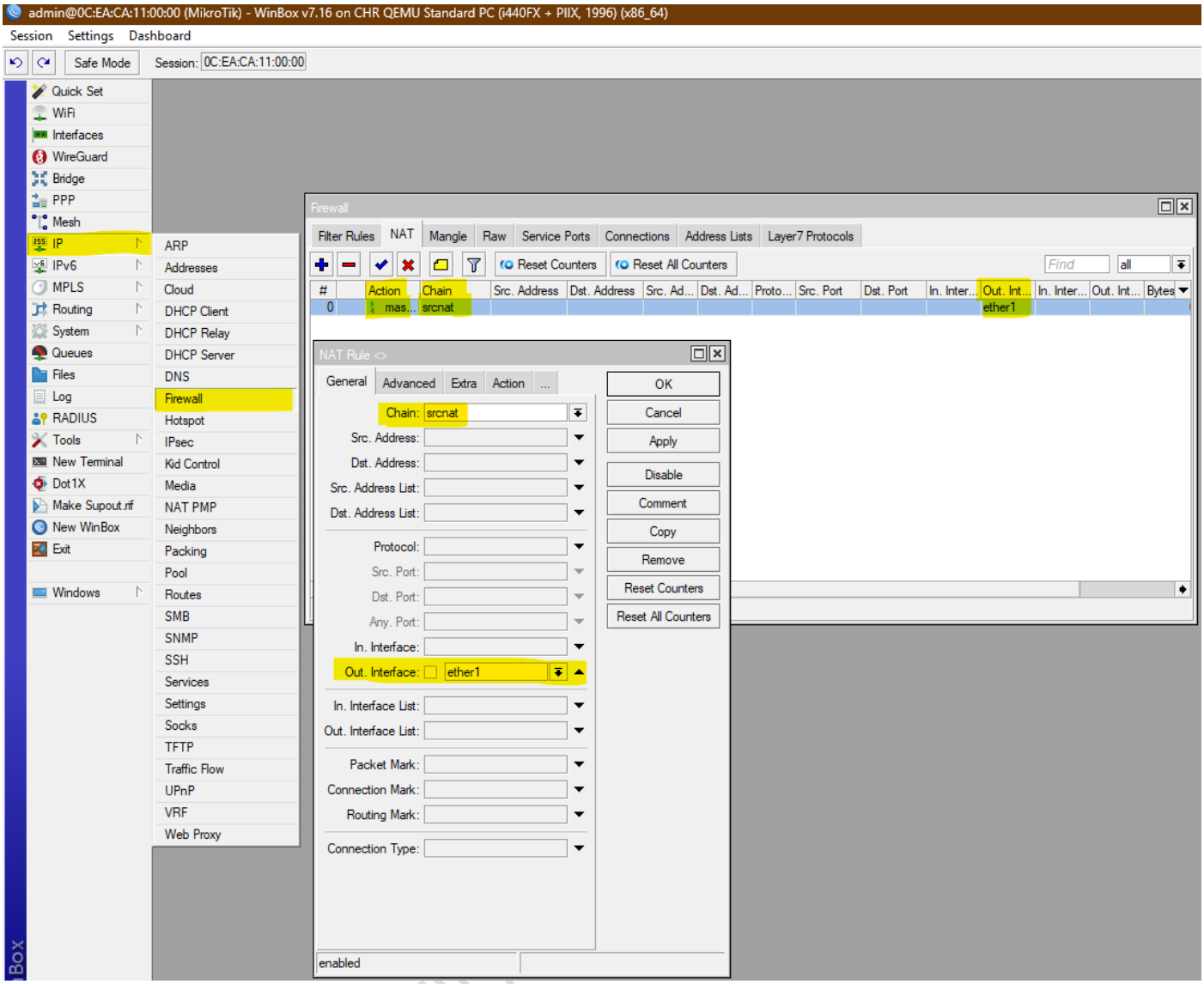


*Figure 32*

### 8.2. Block traffic from VLAN

Step 1: Select "**IP**" On that you will find the "**FireWall**" Option.

Step 2: Select "**Fliter Rules**" && Click on the "**add**" symbol "+".

Step 3: In "**General**" you will find "**chain**" there you have to select "**forward**" && In "**In. Interface**" and "**Out. Interface**" you have selected "**Ether interface 1 / Uplink**" also check box.

Step 4: Select "**Action**" you will find "Action" in that select "**drop**"

Step 5: Select "**Apply**" & "**OK**"

To **allow internet access but block VLAN-to-VLAN traffic**, use:

**CMD**

```
/ip firewall filter

add chain=forward in-interface=!ether1 out-interface=!ether1 action=drop
```

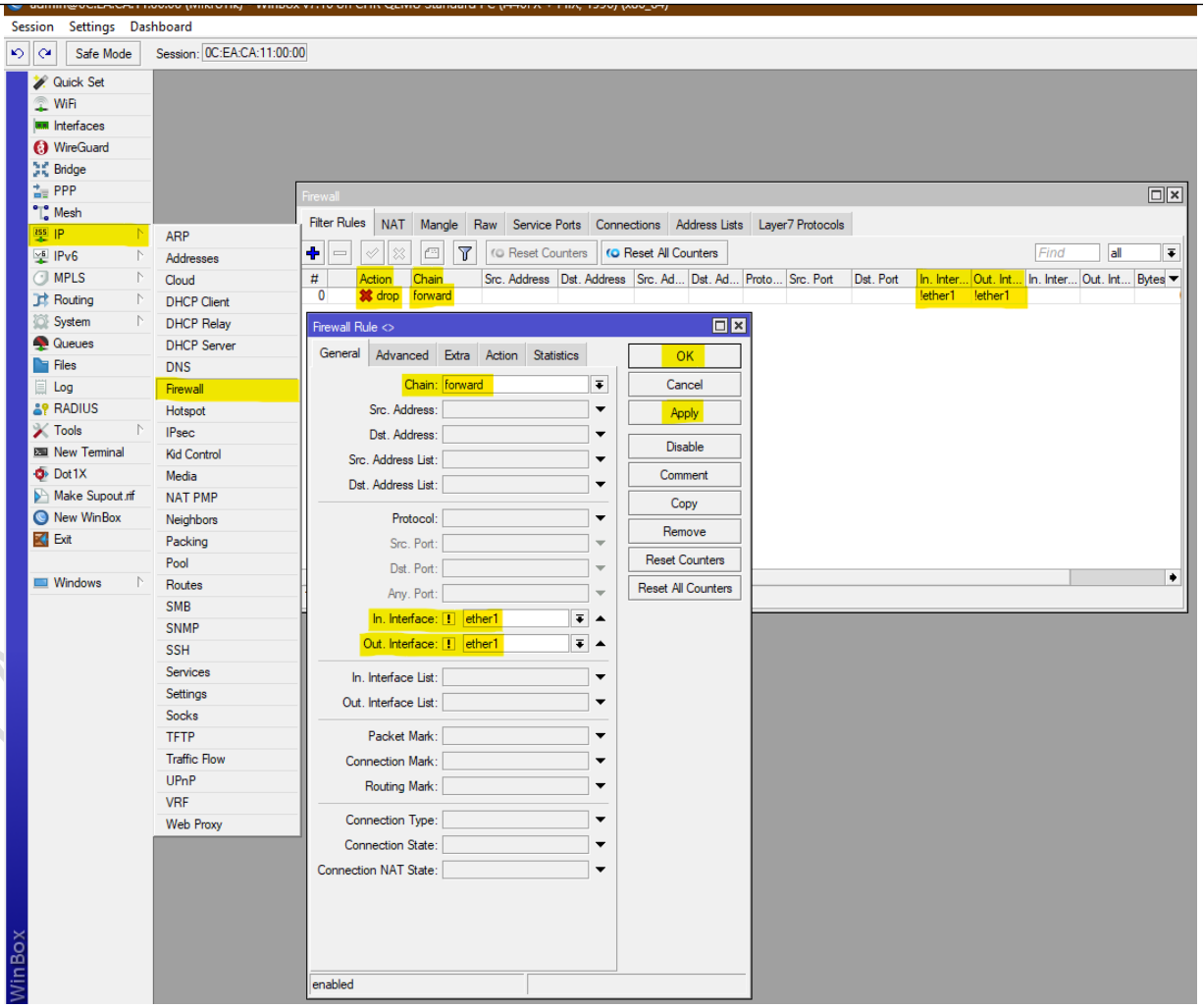


*Figure 33*

**# Block traffic from**

By default, all VLANs can talk to each other. If you want to **block communication between VLANs**, you need firewall rules.

Step 1: Select "**IP**" On that you will find the "**FireWall**" Option.

Step 2: Select "**Fliter Rules**" && Click on the "**add**" symbol "+".

Step 3: In "**General**" you will find "**chain**" there you have to select "**forward**" && In "**In. Interface**" you have to select that "**VLAN**" for traffic pass and In "**Out. Interface**" you have select that "**VLAN**" to block the traffic.

Step 4: Select "**Action**" you will find "Action" in that select "**drop**"

Step 5: Select "**Apply**" & "**OK**"

CMD

```
/ip firewall filter
add chain=forward in-interface=[source-VLAN-interface] out-interface=vlan3 action=[action] comment=[your comment]
```

**VLAN_CONFIGURATION**

**EXAMPLE**

/ip firewall filter

**# Block traffic from VLAN2 to VLAN3, VLAN4, and VLAN5**

add chain=forward in-interface=vlan2 out-interface=vlan3 action=drop comment="Drop VLAN2 -> VLAN3"

add chain=forward in-interface=vlan2 out-interface=vlan4 action=drop comment="Drop VLAN2 -> VLAN4"

add chain=forward in-interface=vlan2 out-interface=vlan5 action=drop comment="Drop VLAN2 -> VLAN5"

**# Block traffic from VLAN3 to VLAN2, VLAN4, and VLAN5**

add chain=forward in-interface=vlan3 out-interface=vlan2 action=drop comment="Drop VLAN3 -> VLAN2"

add chain=forward in-interface=vlan3 out-interface=vlan4 action=drop comment="Drop VLAN3 -> VLAN4"

add chain=forward in-interface=vlan3 out-interface=vlan5 action=drop comment="Drop VLAN3 -> VLAN5"

**# Block traffic from VLAN4 to VLAN2, VLAN3, and VLAN5**

add chain=forward in-interface=vlan4 out-interface=vlan2 action=drop comment="Drop VLAN4 -> VLAN2"

add chain=forward in-interface=vlan4 out-interface=vlan3 action=drop comment="Drop VLAN4 -> VLAN3"

add chain=forward in-interface=vlan4 out-interface=vlan5 action=drop comment="Drop VLAN4 -> VLAN5"

## # Block traffic from VLAN2 to VLAN3, VLAN4, and VLAN5

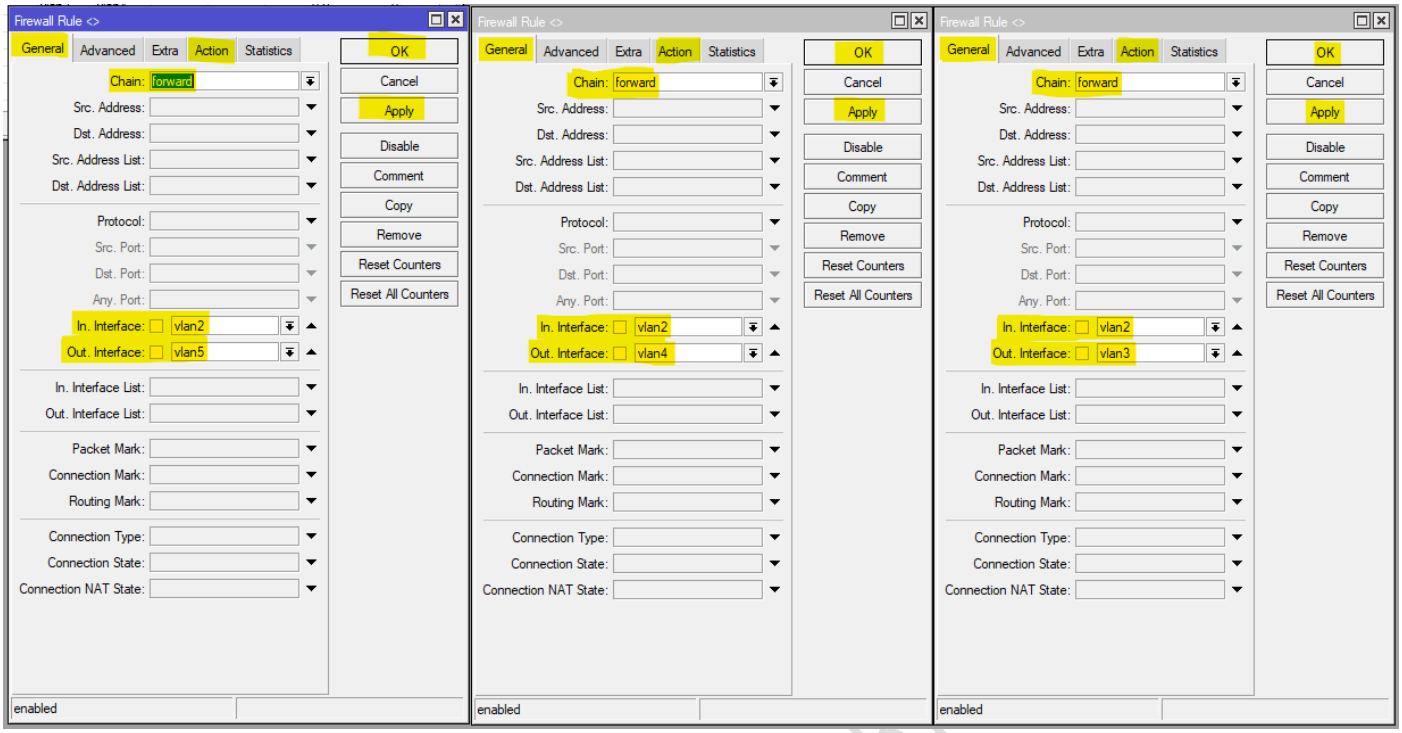


*Figure 34*

## # Block traffic from VLAN3 to VLAN2, VLAN4, and VLAN5

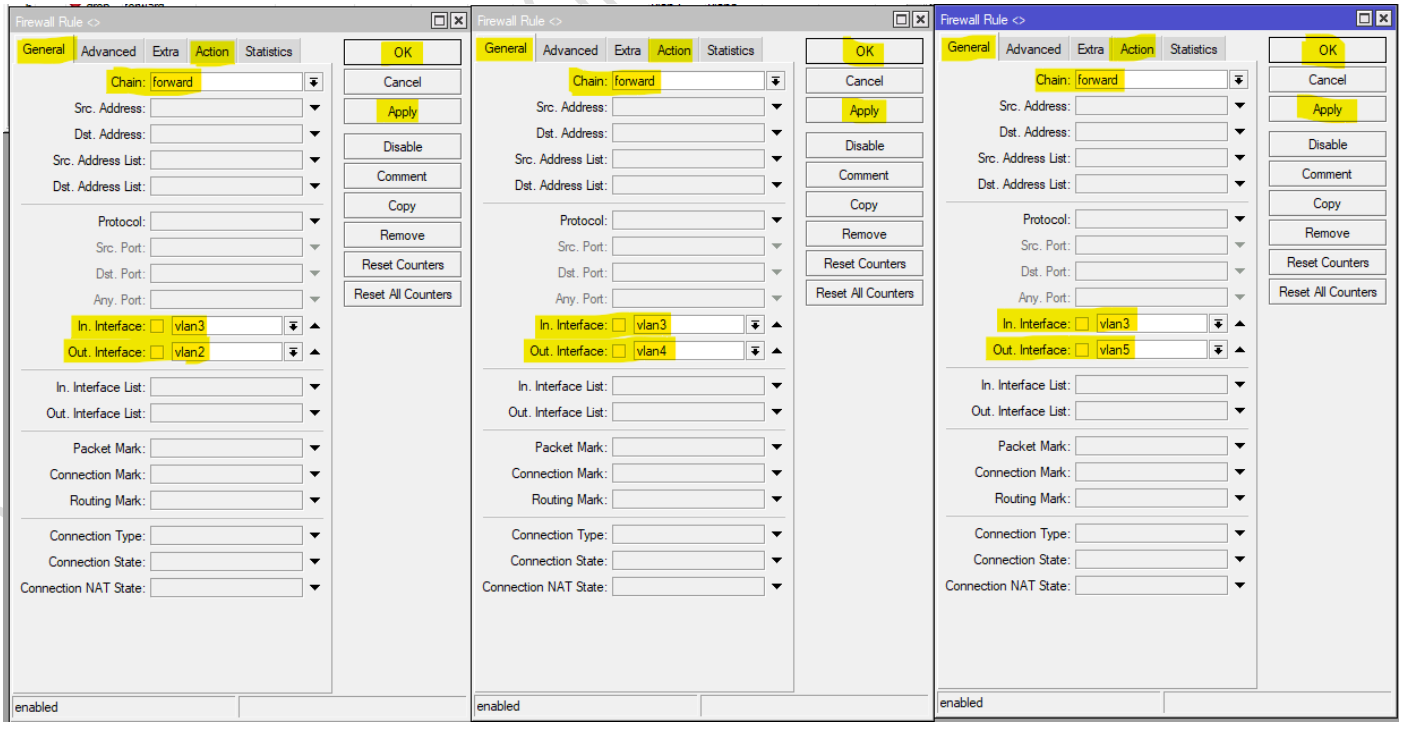


*Figure 35*

## # Block traffic from VLAN4 to VLAN2, VLAN3, and VLAN5

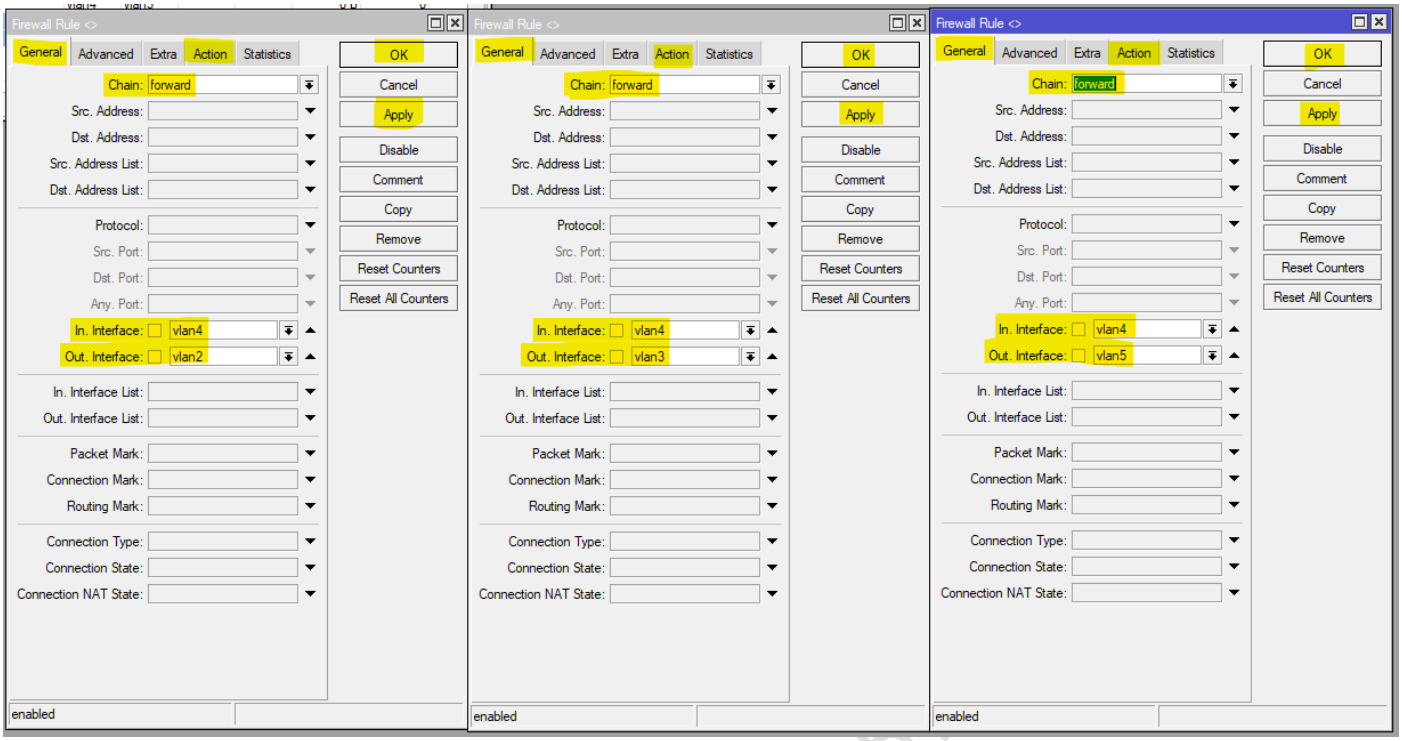


*Figure 36*

## # Block traffic from VLAN4 to VLAN2, VLAN3, and VLAN5

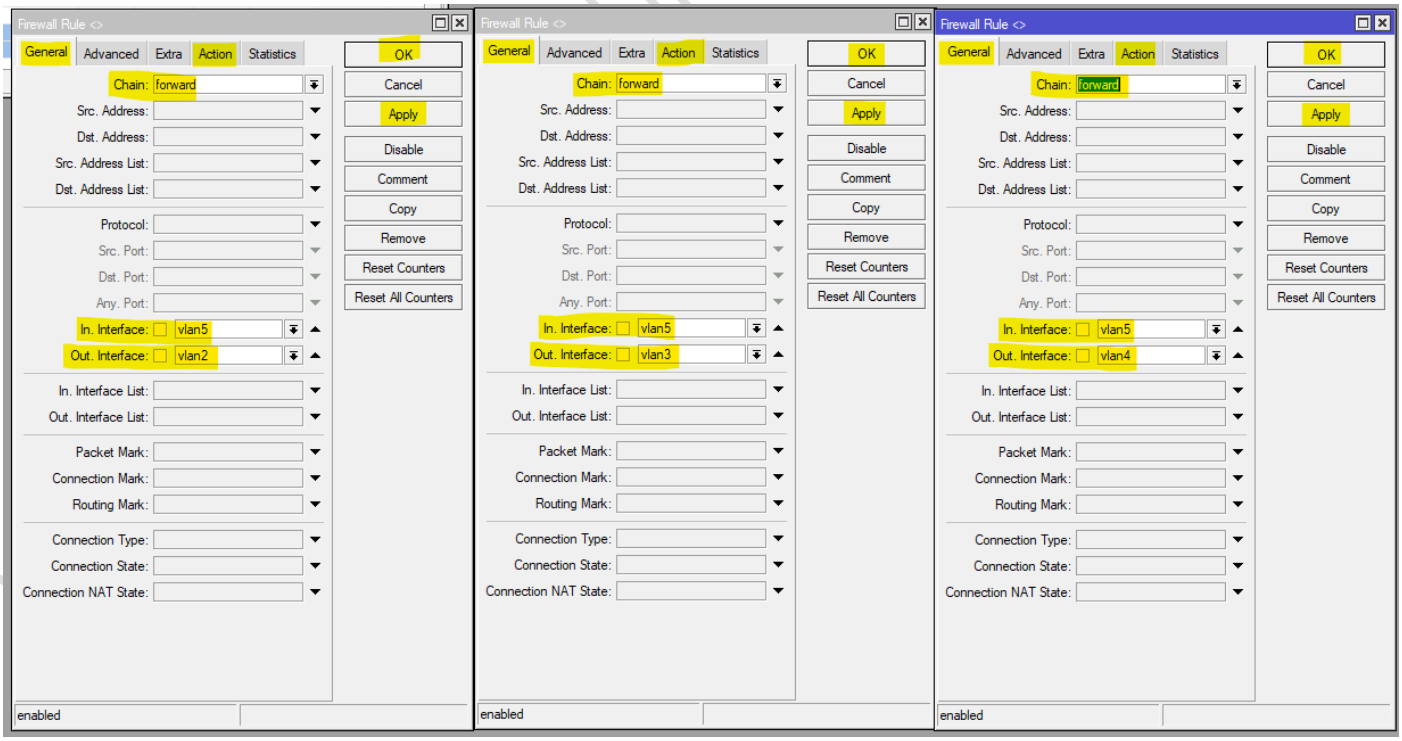


*Figure 37*

***NOW CONNECTED TO YOUR PC and Internet connection will arrive as per VLAN interface port.***