

1.0 TUJUAN

- 1.1 Tujuan dari pembuatan WI (Work Instruction) ini adalah untuk memudahkan tim IT, baik yang sudah lama atau yang baru bekerja di vOffice dalam setup Mikrotik di Center Baru.

Pada saat vOffice membuka cabang baru, tim IT bisa melakukan konfigurasi jaringan dengan menggunakan Mikrotik sesuai dengan standard yang berlaku, sehingga semua konfigurasinya sesuai dengan apa yang sudah diterapkan selama ini.

2.0 RUANG LINGKUP

- 2.1 Ruang lingkup dalam pekerjaan ini adalah pada Mikrotik milik vOffice

3.0 CATATAN

- 3.1 WI (Work Instruction) ini akan di berikan kepada staff yang diberikan hak akses sebagai tim IT.

4.0 DOKUMEN TERKAIT

- 4.1 Dokumen ini dibuat sebagai referensi ke 2 dalam penggunaan Mikrotik di vOffice, Adapun apabila ada perubahan konfigurasi Mikrotik (atau penambahan) di vOffice maka akan dibuat kembali mengikuti dari referensi ke 2 ini.

5.0 TANGGUNG JAWAB

- 5.1 Divisi IT Support & Helpdesk bertanggung jawab untuk menerapkan semua yang ada pada WI (Work Instruction) ini.

6.0 ALAT & PERLENGKAPAN

- 6.1 Laptop / PC dengan OS Linux/MacOS/Windows
- 6.2 Mikrotik
- 6.3 Aplikasi Winbox untuk akses ke Mikrotik
- 6.4 Kabel LAN
- 6.5 LAN to USB (jika dibutuhkan)
- 6.6 Internet yang sudah aktif pada center baru (IP Static atau PPoE atau Dynamic)

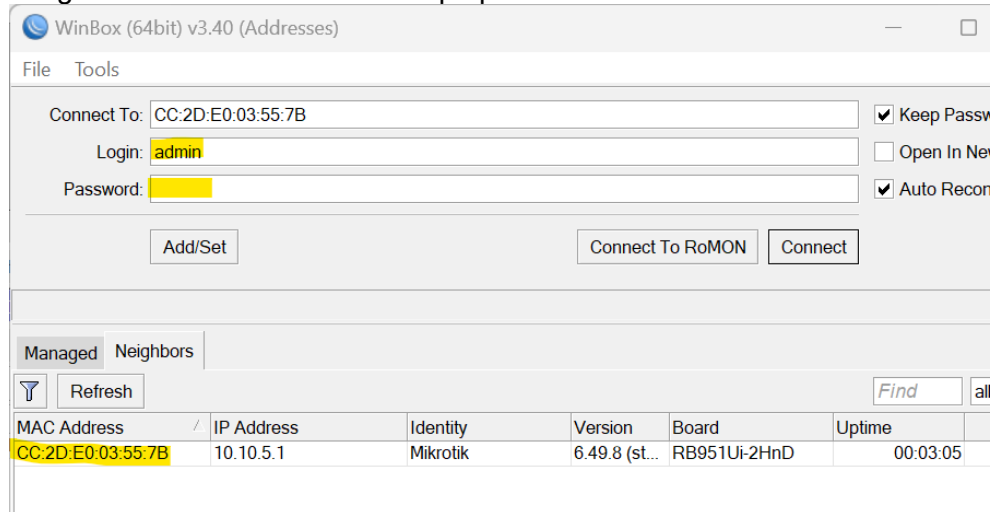
7.0 PERSYARATAN KESELAMATAN

- 7.1 Dalam menjaga keamanan jaringan, client, dan seluruh pengguna internet di vOffice harap terapkan WI (Work Instruction) ini sebaik mungkin dan pastikan tidak ada yang terlewat.

8.0 PETUNJUK

8.1 Setup Keamanan Dasar Mikrotik

- 8.1.1 Setup Kemanan Dasar (sumber: https://citraweb.com/artikel_lihat.php?id=263)
Login ke Mikrotik dengan menggunakan Winbox menggunakan MAC Address, dengan username admin dan tanpa password



WinBox (64bit) v3.40 (Addresses)

File Tools

Connect To: CC:2D:E0:03:55:7B ☒ Keep Passw

Login: admin ☐ Open In Ne

Password: ☒ Auto Recon

Add/Set Connect To RoMON Connect

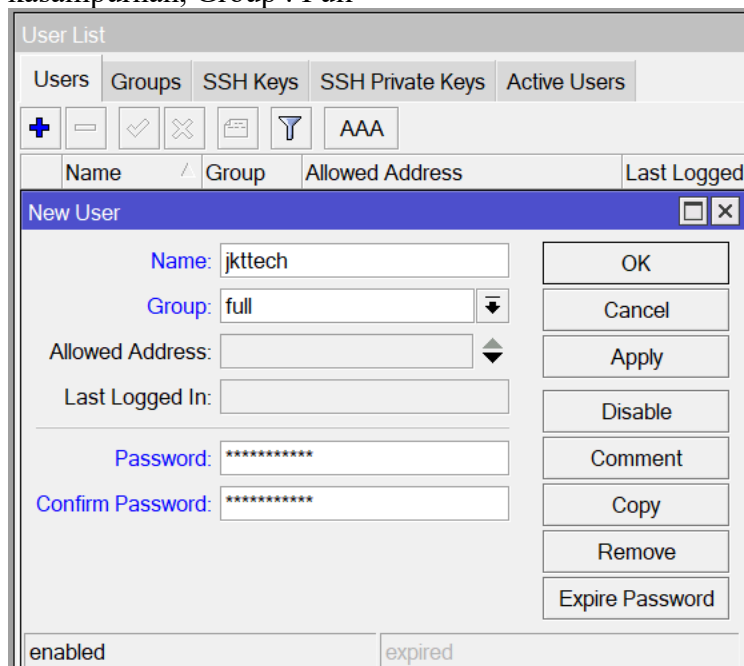
Managed Neighbors

Refresh Find all

MAC Address	IP Address	Identity	Version	Board	Uptime
CC:2D:E0:03:55:7B	10.10.5.1	Mikrotik	6.49.8 (st...	RB951Ui-2HnD	00:03:05

8.1.2 Buat user baru dengan Group Full:

Masuk ke System – Users, lalu buat user baru dengan nama jkttech, password kasampurnan, Group : Full



User List

Users Groups SSH Keys SSH Private Keys Active Users

+ - ✓ ✗ ... AAA

Name	Group	Allowed Address	Last Logged
New User			

Name: jkttech

Group: full

Allowed Address:

Last Logged In:

Password: *****

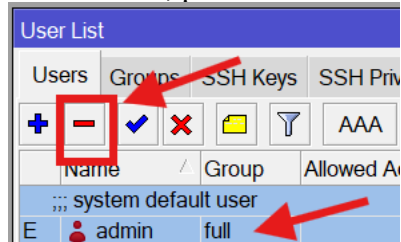
Confirm Password: *****

OK Cancel Apply Disable Comment Copy Remove Expire Password

enabled expired

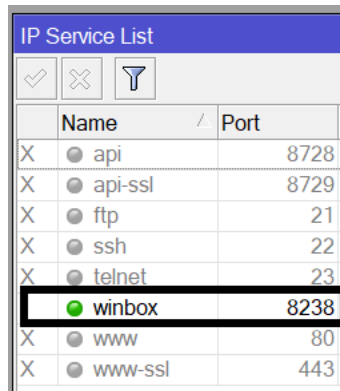
8.1.3 Delete user default Admin:

Pilih Admin, pilih tanda minus merah (-)



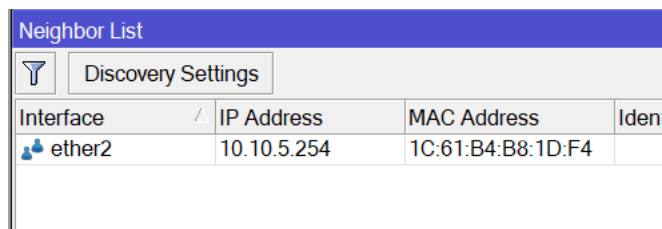
8.1.4 Ubah atau Matikan Service yang Tidak Diperlukan

Kita hanya enable Service Winbox dan ubah port menjadi 8238, lalu services lainnya dimatikan.



8.1.5 Non-Aktifkan Neighbors Discovery

Karena jaringan ini akan diakses oleh umum melalui hotspot, maka fitur ini wajib dimatikan, agar router mikrotik vOffice tidak dapat ditemukan oleh perangkat lain yang mencoba akses ke Mikrotik vOffice. Hal penting yang wajin dilakukan sebelum menonaktifkan Neighbor Discovery adalah mencatat MAC Address pada point 8.1.1 yang bertujuan Ketika kita tidak bisa akses ke Mikrotik dengan cara apapun, kita masih bisa akses via MAC Adress. Klik IP – Neighbors – Discovery Settings – pilih All, dan beri tanda seru pada bagian depannya - OK

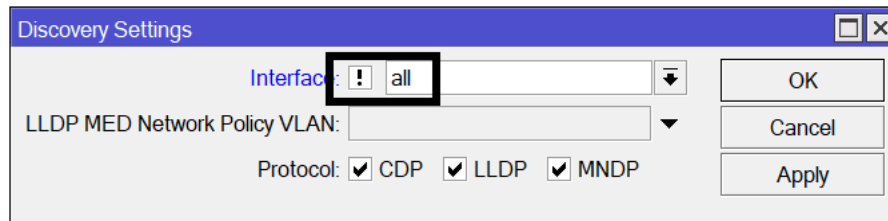


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Discovery Settings

Interface: **all**

LLDP MED Network Policy VLAN: **1**

Protocol: ☒ CDP ☒ LLDP ☒ MNDP

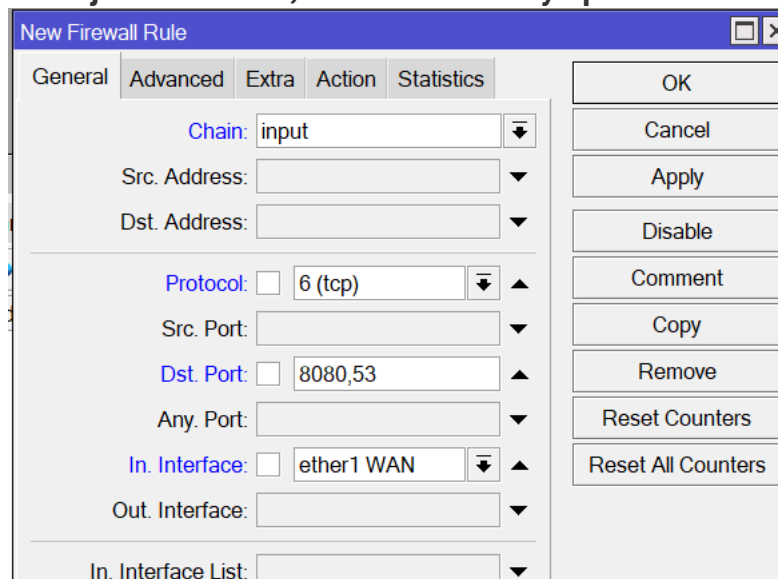
OK Cancel Apply

8.1.6 Aktifkan Firewall Filter Untuk Akses Service Router (DNS dan Web Proxy)

Router Mikrotik yang kita tempatkan sebagai Gateway Utama, sering mengaktifkan fitur Allow-remote-request DNS dan web proxy. Kedua fitur tersebut bisa dimanfaatkan oleh pihak luar terutama web proxy yang kadang membuat trafik international kita sering penuh padahal tidak ada user lokal yang menggunakannya.

IP – Firewall – Filter Rules – add

Chain: input, Protocol: 6(TCP), Dst Port: 8080;53, in Interface: Ether yang menuju ke internet, dalam hal ini saya pakai ether 1, action : Drop



New Firewall Rule

General Advanced Extra Action Statistics

Chain: **input**

Src. Address: **0.0.0.0/0**

Dst. Address: **0.0.0.0/0**

Protocol: ☒ 6 (tcp)

Src. Port: **any**

Dst. Port: **8080,53**

Any. Port: **any**

In. Interface: **ether1 WAN**

Out. Interface: **any**

In. Interface List: **any**

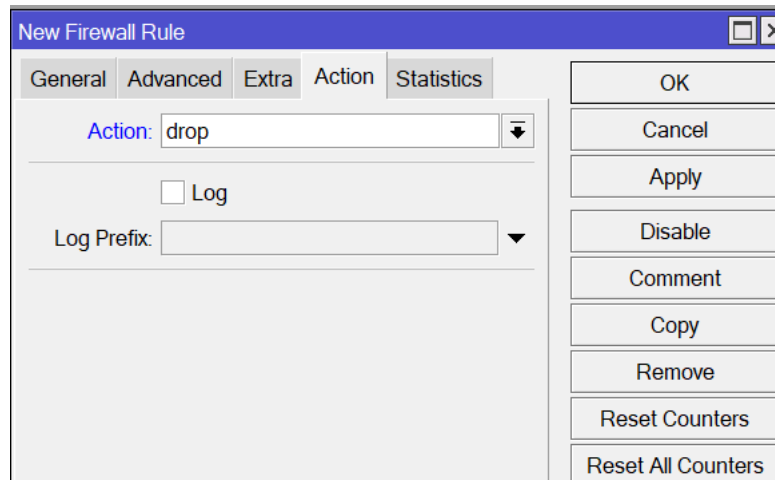
OK Cancel Apply Disable Comment Copy Remove Reset Counters Reset All Counters

SETUP MIKROTIK CENTER BARU

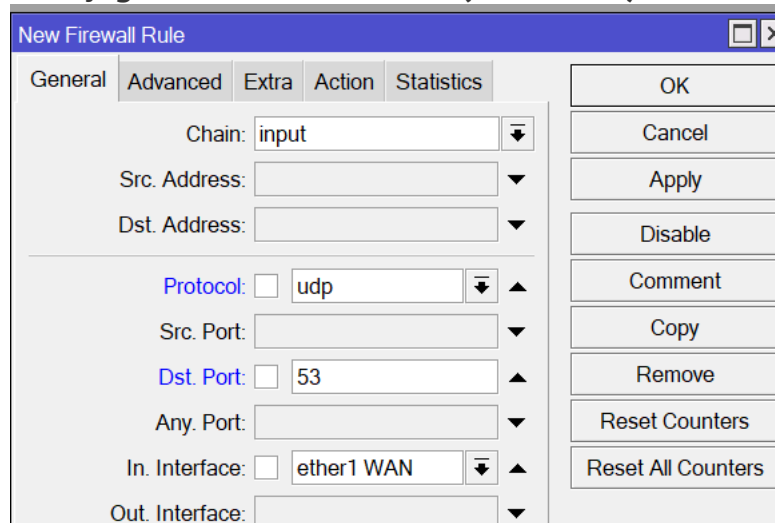
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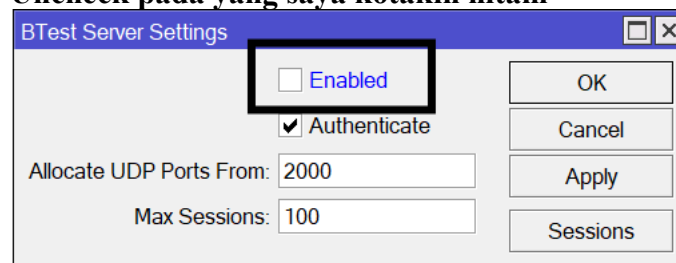
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Buat juga untuk Protocol UDP (Cara Sama)



8.1.7 Non aktifkan BTest Server Uncheck pada yang saya kotakin hitam



8.2 Setup Internet Dasar

- 8.1.1 Ada 3 tipe koneksi dari ISP (Internet Service Provider) yang diberikan kepada Client, yaitu : **Static IP**, **PPoE**, dan **Dynamic**. Dalam WI (Work Instruction) kali ini, akan saya sampaikan dengan metode **Static IP** dan yang telah diimplementasikan pada Center Lavenue dan ISP Maxindo.

IP Address : 103.84.235.10/30

Subnet : 255.255.255.252 (/30)

IP Gateway : 103.84.235.9

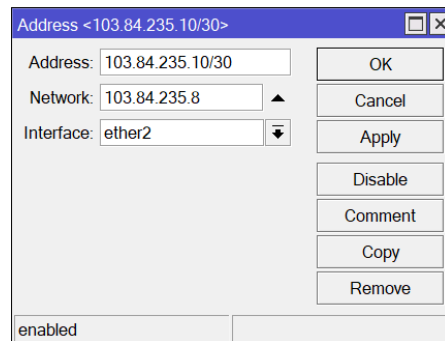
DNS : 122.144.1.1 (Primary), 122.144.2.2 (Secondary)

Interfaces : Port 3 Router Maxindo

8.1.2 Setup IP Address

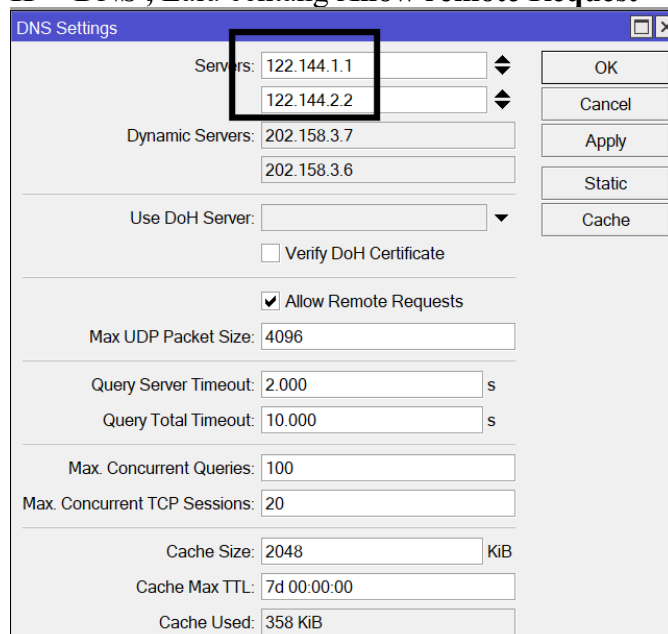
Dalam hal ini baik nya Port 1 dan 2 khusus untuk port WAN, tujuannya agar Ketika ISP utama down, port 2 bisa dipakai untuk link backup.

IP – Address



8.1.3 Setup DNS

IP – DNS , Lalu centang **Allow remote Request**



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8.1.4 Setup NAT IP – Firewall – NAT – add

NAT Rule <>

General

Advanced

Extra

Action

Statistics

Chain: **srcnat**

Src. Address:

Dst. Address:

Protocol:

Src. Port:

Dst. Port:

Any. Port:

In. Interface:

Out. Interface: **ether2**

In. Interface List:

Out. Interface List:

Packet Mark:

Connection Mark:

Routing Mark:

Routing Table:

Connection Type:

OK

Cancel

Apply

Disable

Comment

Copy

Remove

Reset Counters

Reset All Counters

enabled

NAT Rule <>

General

Advanced

Extra

Action

Statistics

Action: **masquerade**

☐ Log

Log Prefix:

To Ports:

OK

Cancel

Apply

Disable

Comment

Copy

Remove

Reset Counters

Reset All Counters

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8.1.5 Test ping ke 8.8.8.8 dan ke google.com dari terminal Mikrotik

Jika sampai tahap ini router mikrotik sudah berhasil Ping ke IP dan domain, maka Mikrotik sudah dapat terkoneksi ke internet dengan baik.

```
Terminal <1>
[Tab]          Completes the command/word. If the input is ambiguous,
                a second [Tab] gives possible options

/              Move up to base level
..            Move up one level
/command      Use command at the base level
[jkttech@vOffice-LAvenue] > ping 8.8.8.8
  SEQ HOST                                SIZE TTL TIME  STATUS
  0 8.8.8.8                                56 116 22ms
  1 8.8.8.8                                56 116 18ms
  2 8.8.8.8                                56 116 18ms
  3 8.8.8.8                                56 116 22ms
  sent=4 received=4 packet-loss=0% min-rtt=18ms avg-rtt=20ms max-rtt=22ms

[jkttech@vOffice-LAvenue] > ping google.com
  SEQ HOST                                SIZE TTL TIME  STATUS
  0 216.239.38.120                          56 116 18ms
  1 216.239.38.120                          56 116 33ms
  2 216.239.38.120                          56 116 18ms
  3 216.239.38.120                          56 116 16ms
  sent=4 received=4 packet-loss=0% min-rtt=16ms avg-rtt=21ms max-rtt=33ms

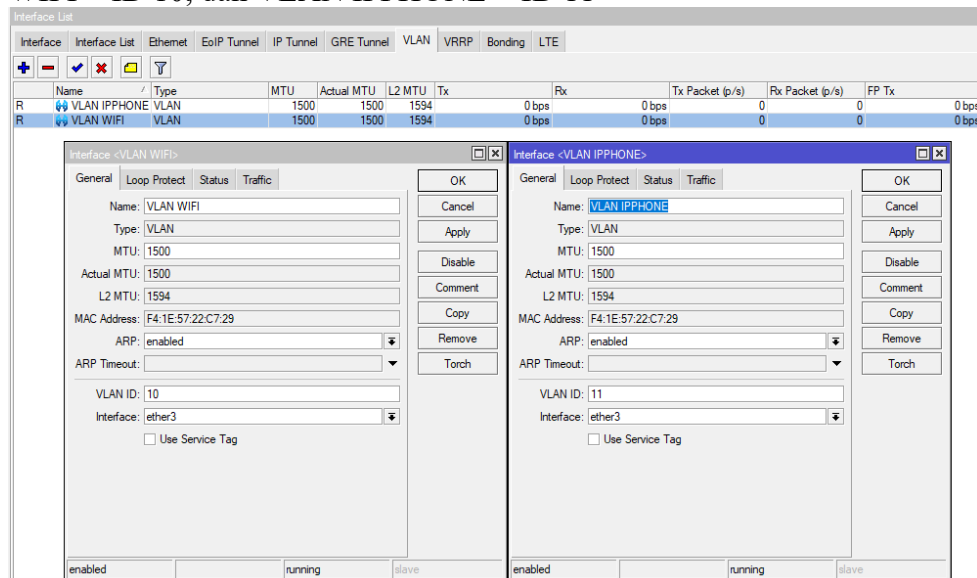
[jkttech@vOffice-LAvenue] >
```

8.3 Setup koneksi client

Setelah Mikrotik berhasil konek ke internet dengan sempurna, Langkah selanjutnya kita setup internet untuk ke sisi client atau LAN. Dalam hal ini akan dibuat 2 buah VLAN

8.1.1 SETUP VLAN Pada Mikrotik

Interface – Interface lists – VLAN – klik tanda + - Buat 2 buah VLAN, yaitu VLAN WIFI = ID 10, dan VLAN IPPHONE = ID 11



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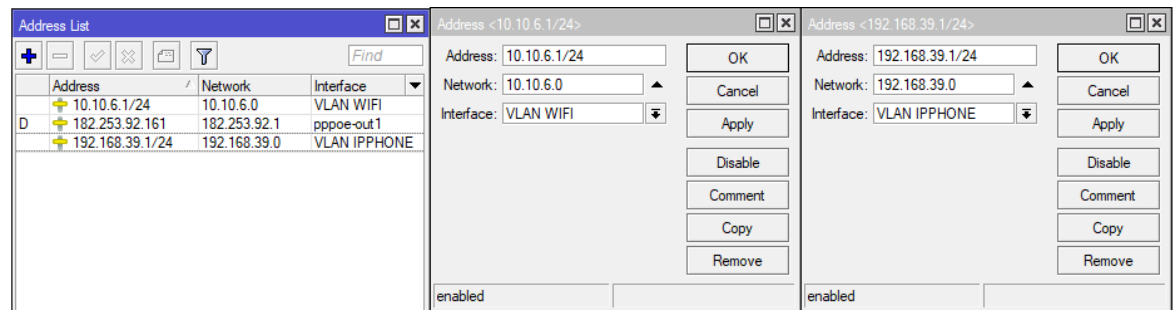
8.1.2 SETUP IP VLAN

Untuk mengecek berapa IP yang harus digunakan, pakai acuan sharedoc list IP VLAN, untuk VLAN kami buat standard sbb:

VLAN WIFI : 10.10.6.0/24 (IP Address disesuaikan)

VLAN IPPHONE : 192.168.39.0/24 (IP Address disesuaikan)

Caranya klik **IP – Addressess - + -** Isi IP yang sesuai, dalam contoh ini di Ecos Bali
Buat IP Address untuk VLAN Wifi dan VLAN IPPHONE



The screenshot shows three windows in Mikrotik WinBox:

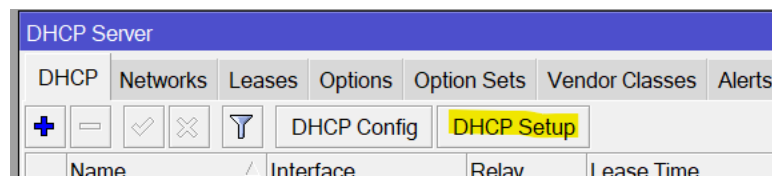
- Address List:** A table showing the configured IP addresses.

Address	Network	Interface
10.10.6.1/24	10.10.6.0	VLAN WIFI
182.253.92.161	182.253.92.1	pppoe-out 1
192.168.39.1/24	192.168.39.0	VLAN IPPHONE
- Address <10.10.6.1/24>:** Configuration window for the first IP address.
 - Address: 10.10.6.1/24
 - Network: 10.10.6.0
 - Interface: VLAN WIFI
- Address <192.168.39.1/24>:** Configuration window for the second IP address.
 - Address: 192.168.39.1/24
 - Network: 192.168.39.0
 - Interface: VLAN IPPHONE

8.1.3 SETUP DHCP SERVER

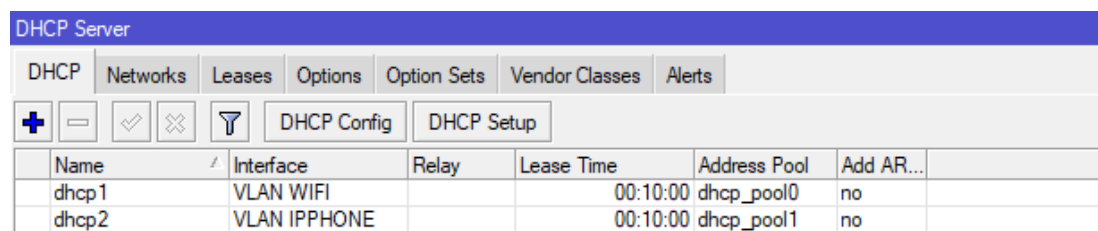
Agar client bisa terhubung ke internet dengan baik, maka kita harus setup DHCP server agar client bisa mendapatkan IP dari router mikrotik, tahapannya adalah tentukan port LAN nya, jika ethernet 1&2 sudah ditetapkan untuk WAN, maka untuk LAN nya bisa buat bridge dengan port ether3&4, atau tanpa bridge juga tidak apa-apa. Dalam dokumentasi ini menggunakan **Ether 3 untuk VLAN WIFI dan VLAN IPPHONE**

IP – DHCP Server – DHCP Setup – Next dan sesuai interface nya, jika VLAN Wifi, maka Interface nya pilih VLAN Wifi, dst



The screenshot shows the DHCP Server configuration page in Mikrotik WinBox. The 'DHCP Setup' tab is selected. The table below shows the configuration for two DHCP servers.

Name	Interface	Relay	Lease Time
dhcp1	VLAN WIFI		00:10:00 dhcp_pool0
dhcp2	VLAN IPPHONE		00:10:00 dhcp_pool1



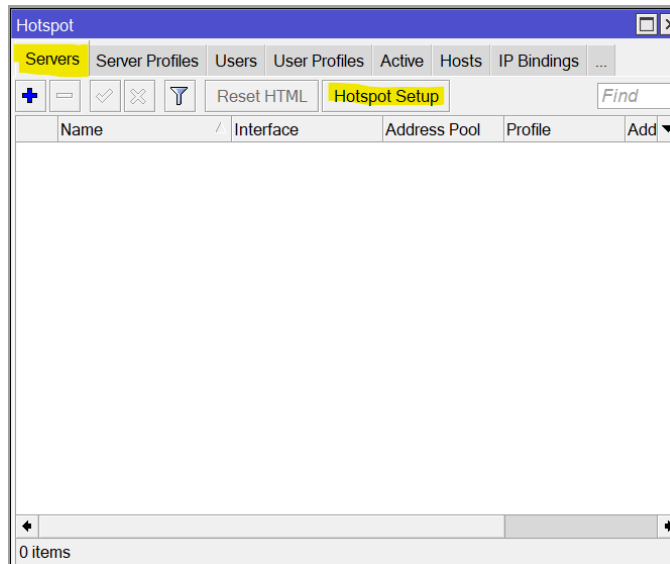
The screenshot shows the DHCP Server configuration page in Mikrotik WinBox. The 'DHCP Setup' tab is selected. The table below shows the configuration for two DHCP servers.

Name	Interface	Relay	Lease Time	Address Pool	Add AR...
dhcp1	VLAN WIFI		00:10:00	dhcp_pool0	no
dhcp2	VLAN IPPHONE		00:10:00	dhcp_pool1	no

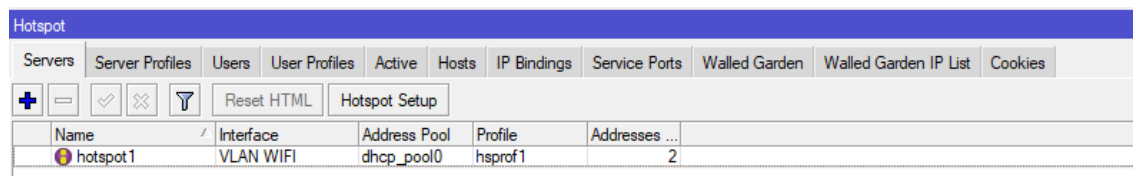
8.1.4 Setup VLAN Pada Switch Manage yang digunakan (WI Terpisah)

8.3 Setup Hotspot

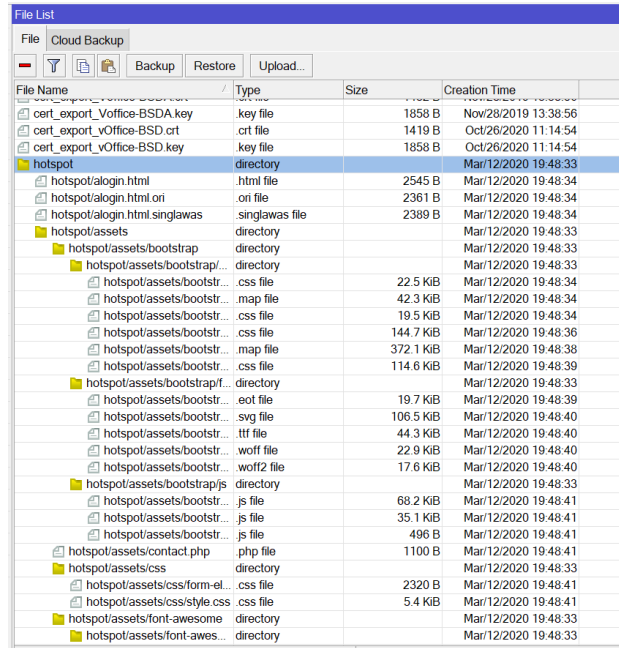
8.1.5 Di vOffice memakai Hotspot login untuk management user nya, Langkah nya sbb:
IP – Hotspot – Hotspot Setup



Sesuaikan Ether berapa yang akan disetup Hotspot, pada contoh ini saya buat di VLAN WIFI

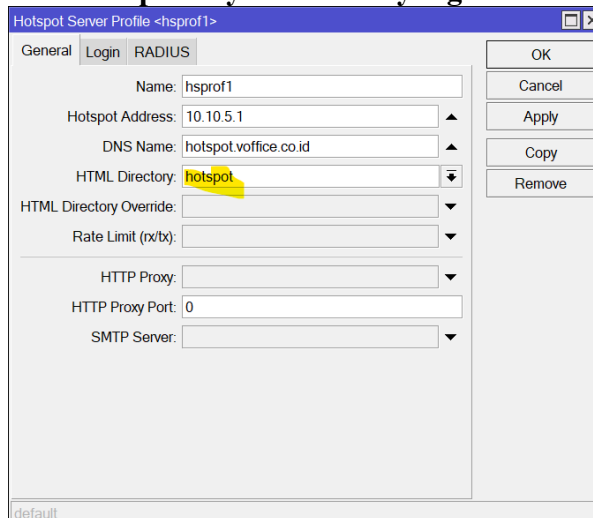


8.1.6 Copy file Hotspot ke dalam Mikrotik (drag and drop) Drag and drop ke File master hotspot [berikut](#) ke Files



File Name	Type	Size	Creation Time
cert_export_vOffice-BSDA.key	key file	1858 B	Nov/28/2019 13:36:56
cert_export_vOffice-BSD.crt	crt file	1419 B	Oct/26/2020 11:14:54
cert_export_vOffice-BSD.key	key file	1858 B	Oct/26/2020 11:14:54
hotspot	directory		Mar/12/2020 19:48:33
hotspot/login.html	html file	2545 B	Mar/12/2020 19:48:34
hotspot/login.html.oni	oni file	2361 B	Mar/12/2020 19:48:34
hotspot/login.html.singlawas	singlawas file	2389 B	Mar/12/2020 19:48:34
hotspot/assets	directory		Mar/12/2020 19:48:33
hotspot/assets/bootstrap	directory		Mar/12/2020 19:48:33
hotspot/assets/bootstrap/...	directory		Mar/12/2020 19:48:33
hotspot/assets/bootstrap/...	css file	22.5 KiB	Mar/12/2020 19:48:34
hotspot/assets/bootstrap/...	map file	42.3 KiB	Mar/12/2020 19:48:34
hotspot/assets/bootstrap/...	css file	19.5 KiB	Mar/12/2020 19:48:34
hotspot/assets/bootstrap/...	css file	144.7 KiB	Mar/12/2020 19:48:36
hotspot/assets/bootstrap/...	map file	372.1 KiB	Mar/12/2020 19:48:38
hotspot/assets/bootstrap/...	css file	114.6 KiB	Mar/12/2020 19:48:39
hotspot/assets/bootstrap/f/...	directory		Mar/12/2020 19:48:33
hotspot/assets/bootstrap/...	eot file	19.7 KiB	Mar/12/2020 19:48:39
hotspot/assets/bootstrap/...	svg file	106.5 KiB	Mar/12/2020 19:48:40
hotspot/assets/bootstrap/...	ttf file	44.3 KiB	Mar/12/2020 19:48:40
hotspot/assets/bootstrap/...	woff file	22.9 KiB	Mar/12/2020 19:48:40
hotspot/assets/bootstrap/...	woff2 file	17.6 KiB	Mar/12/2020 19:48:40
hotspot/assets/bootstrap/js	directory		Mar/12/2020 19:48:33
hotspot/assets/bootstrap/...	js file	68.2 KiB	Mar/12/2020 19:48:41
hotspot/assets/bootstrap/...	js file	35.1 KiB	Mar/12/2020 19:48:41
hotspot/assets/bootstrap/...	js file	496 B	Mar/12/2020 19:48:41
hotspot/assets/contact.php	php file	1100 B	Mar/12/2020 19:48:41
hotspot/assets/css	directory		Mar/12/2020 19:48:33
hotspot/assets/css/form-el...	css file	2320 B	Mar/12/2020 19:48:41
hotspot/assets/css/style.css	css file	5.4 KiB	Mar/12/2020 19:48:41
hotspot/assets/font-awesome	directory		Mar/12/2020 19:48:33
hotspot/assets/font-awes...	directory		Mar/12/2020 19:48:33

8.1.7 Arahkan path nya ke folder yang tadi sudah dicopy



Hotspot Server Profile <hsprof1>

General Login RADIUS

Name: hsprof1

Hotspot Address: 10.10.5.1

DNS Name: hotspot.voffice.co.id

HTML Directory: **hotspot**

HTML Directory Override:

Rate Limit (rx/bx):

HTTP Proxy:

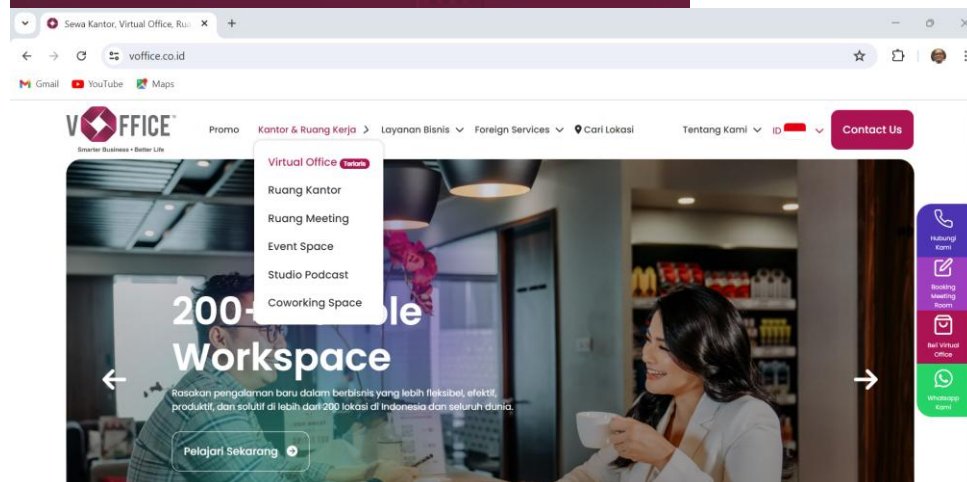
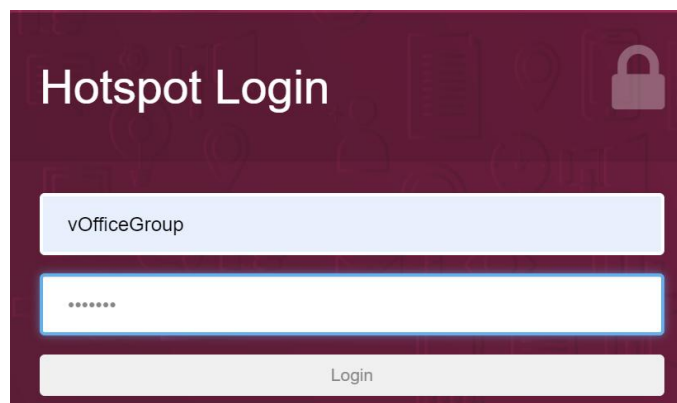
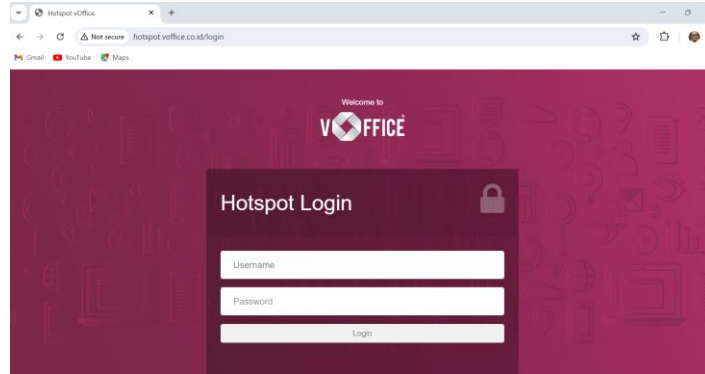
HTTP Proxy Port: 0

SMTP Server:

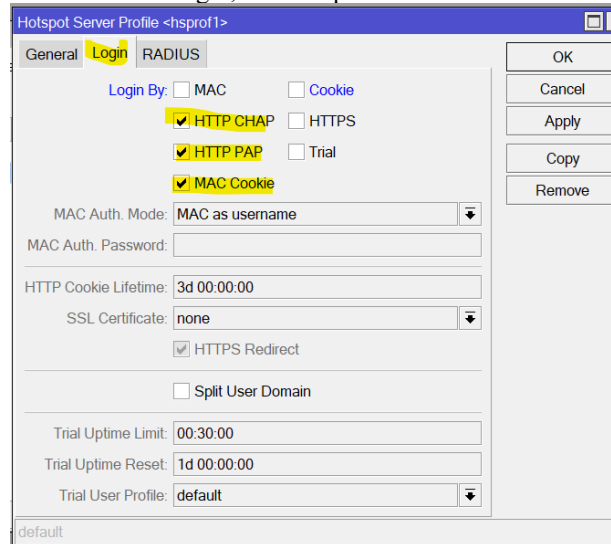
default

OK Cancel Apply Copy Remove

- 8.1.8 Ketik di browser secara manual hotspot.voffice.co.id/login jika tidak muncul otomatis, maka akan muncul halaman login hotspot vOffice, silahkan login dengan user yang sudah dibuat tadi



8.1.9 Beralih ke Tab login, lalu setup sbb



Hotspot Server Profile <hsprof1>

General **Login** RADIUS

Login By: ☐ MAC ☐ Cookie

☒ HTTP CHAP ☐ HTTPS

☒ HTTP PAP ☐ Trial

☒ MAC Cookie

MAC Auth. Mode: MAC as username

MAC Auth. Password:

HTTP Cookie Lifetime: 3d 00:00:00

SSL Certificate: none

☒ HTTPS Redirect

☐ Split User Domain

Trial Uptime Limit: 00:30:00

Trial Uptime Reset: 1d 00:00:00

Trial User Profile: default

default

OK Cancel Apply Copy Remove

8.1.10 Buat user hotspot






Ada 3 kategori user Hotspot di vOffice, yaitu BOD, vOfficeGroup (untuk karyawan), vOfficeSO (client SO), dan vOfficeMember (client VO atau meeting), masing-masing user memiliki properties sendiri-sendiri yang berbeda. Berikut detilnya dan silahkan diikuti:

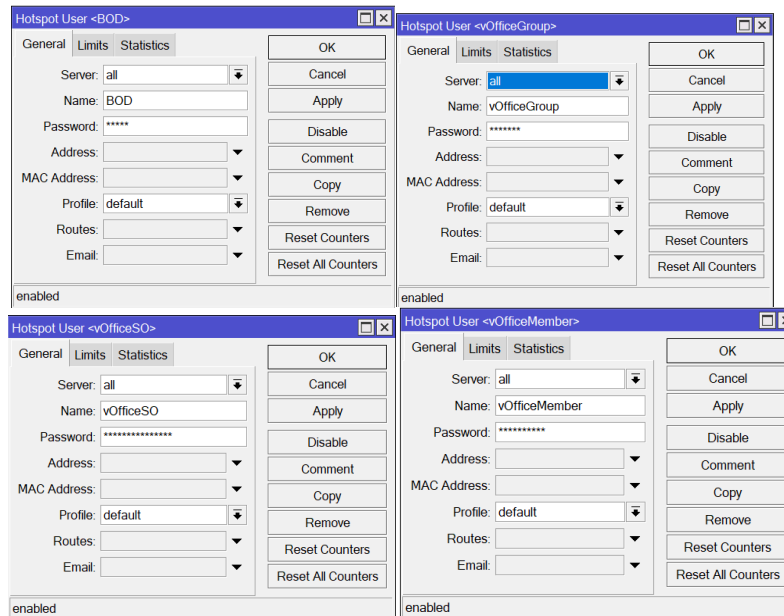
Semua user masih menggunakan profile default, hal ini karena User Profile nya belum disetup

Hotspot

ServersServer ProfilesUsersUser ProfilesActiveHostsIP BindingsService PortsWalled

Reset CountersReset All Counters

Server	Name	Address	MAC Address	Profile
... counters and limits for trial users				
*				
	 all	vOfficeGroup		default
	 all	BOD		default
	 all	vOfficeSO		default
	 all	vOfficeMember		default



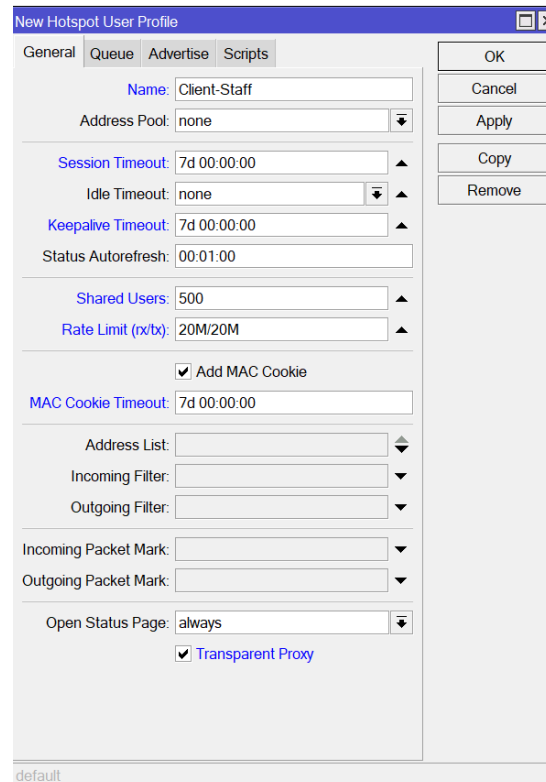
The image displays four screenshots of the Mikrotik WinBox interface, specifically the 'Hotspot User' configuration window for different user groups. Each window has tabs for 'General', 'Limits', and 'Statistics'. The 'General' tab is active in all four.

- Hotspot User <BOD>**: Server: all, Name: BOD, Password: ****, Address: (empty), MAC Address: (empty), Profile: default, Routes: (empty), Email: (empty). Buttons: OK, Cancel, Apply, Disable, Comment, Copy, Remove, Reset Counters, Reset All Counters.
- Hotspot User <vOfficeGroup>**: Server: all, Name: vOfficeGroup, Password: *****, Address: (empty), MAC Address: (empty), Profile: default, Routes: (empty), Email: (empty). Buttons: OK, Cancel, Apply, Disable, Comment, Copy, Remove, Reset Counters, Reset All Counters.
- Hotspot User <vOfficeSO>**: Server: all, Name: vOfficeSO, Password: *****, Address: (empty), MAC Address: (empty), Profile: default, Routes: (empty), Email: (empty). Buttons: OK, Cancel, Apply, Disable, Comment, Copy, Remove, Reset Counters, Reset All Counters.
- Hotspot User <vOfficeMember>**: Server: all, Name: vOfficeMember, Password: *****, Address: (empty), MAC Address: (empty), Profile: default, Routes: (empty), Email: (empty). Buttons: OK, Cancel, Apply, Disable, Comment, Copy, Remove, Reset Counters, Reset All Counters.

8.1.11 Buat 3 User Profile

Masing-masing user akan memiliki profile yang berbeda, berikut penjelasannya

Profile: Client-Staff



The image shows the 'New Hotspot User Profile' configuration window in Mikrotik WinBox. The 'General' tab is active.

- Name:** Client-Staff
- Address Pool:** none
- Session Timeout:** 7d 00:00:00
- Idle Timeout:** none
- Keepalive Timeout:** 7d 00:00:00
- Status Autorefresh:** 00:01:00
- Shared Users:** 500
- Rate Limit (rx/bx):** 20M/20M
- ☒ **Add MAC Cookie**
- MAC Cookie Timeout:** 7d 00:00:00
- Address List:** (empty)
- Incoming Filter:** (empty)
- Outgoing Filter:** (empty)
- Incoming Packet Mark:** (empty)
- Outgoing Packet Mark:** (empty)
- Open Status Page:** always
- ☒ **Transparent Proxy**

Buttons: OK, Cancel, Apply, Copy, Remove.



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Profile BOD:

The screenshot shows the 'New Hotspot User Profile' dialog box in Mikrotik WinBox. The 'General' tab is selected. The profile name is 'BOD'. The address pool is set to 'none'. Session timeout is '7d 00:00:00', idle timeout is 'none', keepalive timeout is '7d 00:00:00', and status autorefresh is '00:01:00'. Shared users are set to 20, and the rate limit is '50M/50M'. The 'Add MAC Cookie' checkbox is checked, with a timeout of '7d 00:00:00'. There are empty fields for address list, incoming and outgoing filters, and packet marks. The 'Open Status Page' is set to 'always', and the 'Transparent Proxy' checkbox is checked. Action buttons on the right include OK, Cancel, Apply, Copy, and Remove.

Profile Guest (vOfficeMember)

The screenshot shows the 'Hotspot User Profile <Guest>' dialog box in Mikrotik WinBox. The 'General' tab is selected. The profile name is 'Guest'. The address pool is set to 'none'. Session timeout is empty, idle timeout is 'none', keepalive timeout is '01:02:00', and status autorefresh is '00:01:00'. Shared users are set to 70, and the rate limit is '7M/7M'. The 'Add MAC Cookie' checkbox is checked, with a timeout of '1d 00:00:00'. There are empty fields for address list, incoming and outgoing filters, and packet marks. The 'Open Status Page' is set to 'always', and the 'Transparent Proxy' checkbox is checked. Action buttons on the right include OK, Cancel, Apply, Copy, and Remove.

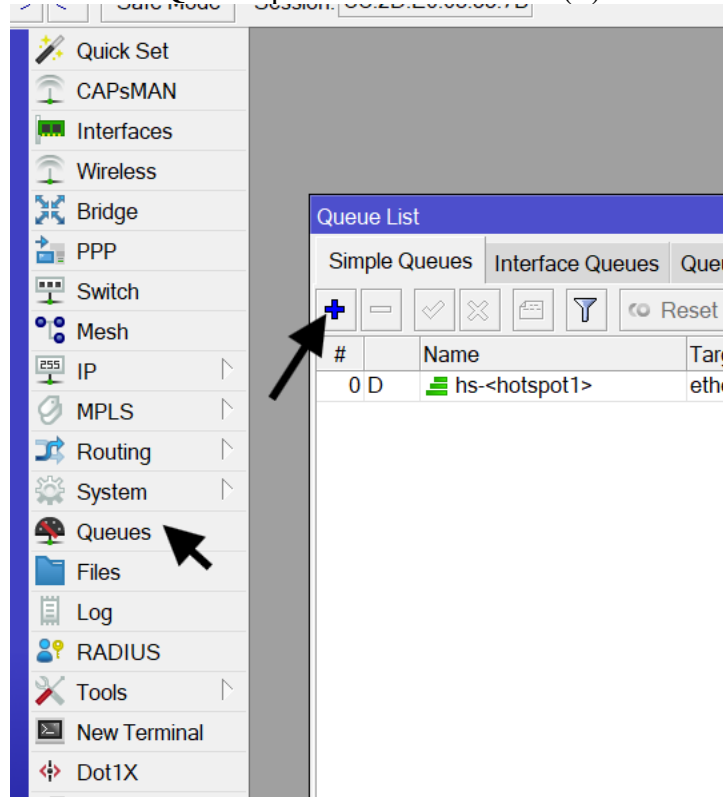
Hasilnya sbb:

	Name	Session Timeo...	Idle Timeout	Shared U...	Rate Limit (rx/tx)
	BOD	7d 00:00:00	none	20	50M/50M
	Client-Staff	7d 00:00:00	none	500	20M/20M
	Guest		none	70	7M/7M
*	default		none	1	

8.4 Bandwidth Management

Dalam proses pembagian bandwidth ke client kita menerapkan Bandwidth Management Simple Queue dan PCQ, hal ini karena jumlah klient yang tidak menentu, sehingga jenis limitasi yg paling tepat adalah Simple Queue dan PCQ, berikut detil step by step nya

8.1.1 Pilih Menu **Queues** pada winbox lalu Add (+)



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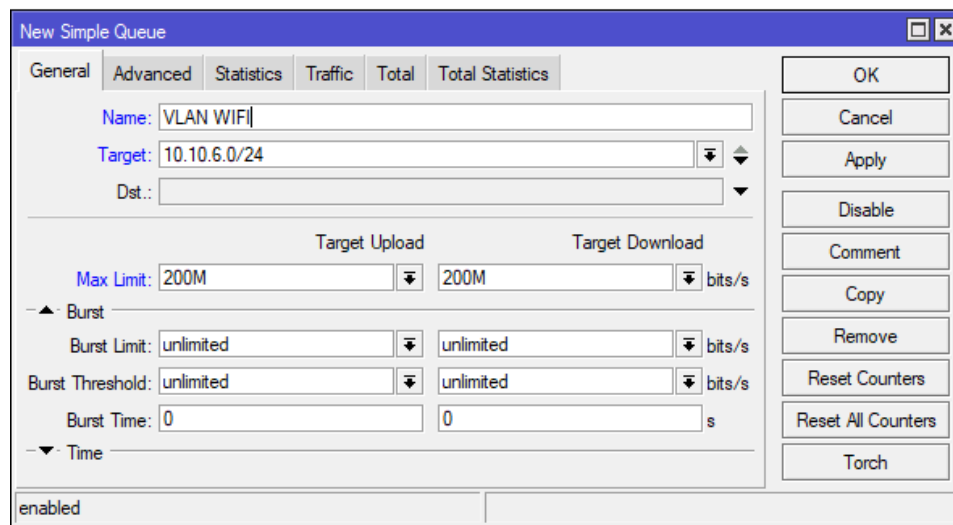
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Ikuti isian spt screen capture berikut

Buat Limitasi untuk VLAN WIFI dan VLAN IPPHONE

Queue VLAN WIFI

Queues > Add > Name (VLAN WIFI) > Target (IP VLAN WIFI) > Max Limit (Total Bandwidth ISP) > General > Queue Type (pcq-upload-default) > (pcq-download-default)



New Simple Queue

General | Advanced | Statistics | Traffic | Total | Total Statistics

Name: VLAN WIFI

Target: 10.10.6.0/24

Dst.:

Target Upload: Max Limit: 200M

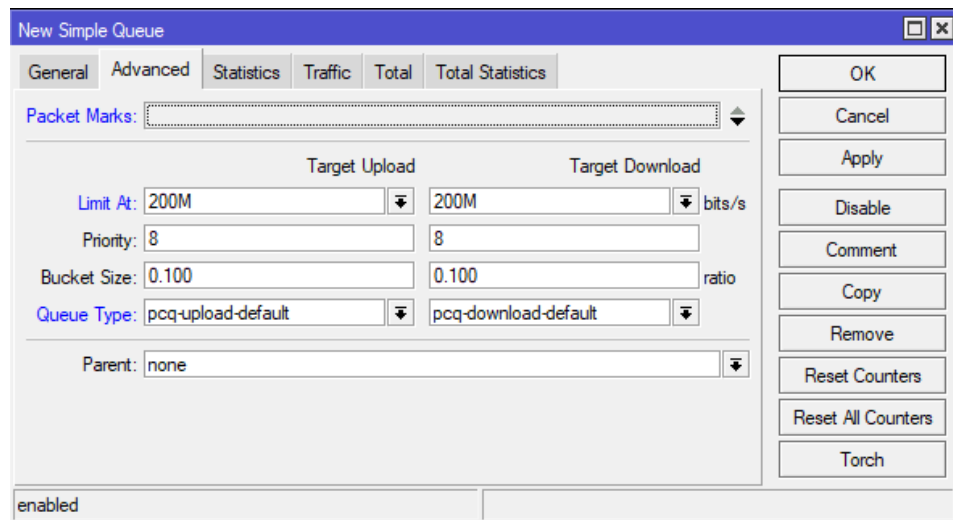
Target Download: Max Limit: 200M bits/s

Burst: Burst Limit: unlimited, Burst Threshold: unlimited, Burst Time: 0 s

Time:

enabled

Buttons: OK, Cancel, Apply, Disable, Comment, Copy, Remove, Reset Counters, Reset All Counters, Torch



New Simple Queue

General | Advanced | Statistics | Traffic | Total | Total Statistics

Packet Marks:

Target Upload: Limit At: 200M

Target Download: Limit At: 200M bits/s

Priority: 8

Bucket Size: 0.100 ratio

Queue Type: pcq-upload-default, pcq-download-default

Parent: none

enabled

Buttons: OK, Cancel, Apply, Disable, Comment, Copy, Remove, Reset Counters, Reset All Counters, Torch



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Queue VLAN IPPHONE

Queues > Add > Name (VLAN IPPHONE) > Target (IP VLAN IPPHONE) > Max Limit (3M) > General > Queue Type (pcq-upload-default) > (pcq-download-default)

New Simple Queue

General Advanced Statistics Traffic Total Total Statistics

Name: VLAN IPPHONE

Target: 192.168.39.0/24

Dst.:

Target Upload Target Download

Max Limit: 3M 3M bits/s

Burst

Burst Limit: unlimited unlimited bits/s

Burst Threshold: unlimited unlimited bits/s

Burst Time: 0 0 s

Time

enabled

OK Cancel Apply Disable Comment Copy Remove Reset Counters Reset All Counters Torch

New Simple Queue

General Advanced Statistics Traffic Total Total Statistics

Packet Marks:

Target Upload Target Download

Limit At: 3M 3M bits/s

Priority: 8 8

Bucket Size: 0.100 0.100 ratio

Queue Type: pcq-upload-default pcq-download-default

Parent: none

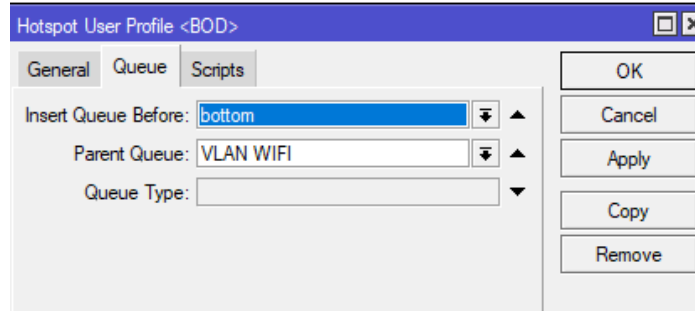
enabled

OK Cancel Apply Disable Comment Copy Remove Reset Counters Reset All Counters Torch

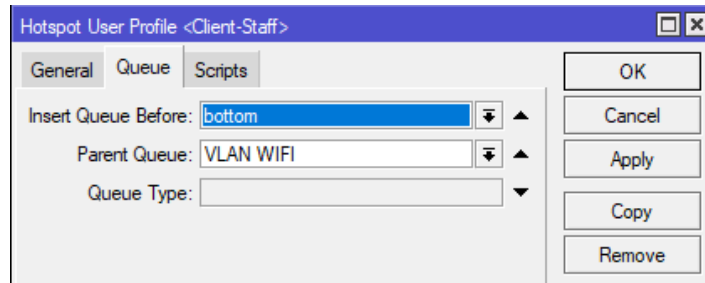
8.5 Setup limitasi user Hotspot

8.1.1 Setup limit per profile Kembali lagi ke Hotspot, kita setup limitasi masing-masing user profile yang sudah kita buat tadi. Setup semua user profile (BOD, Client-Staff, Guest) sbb:

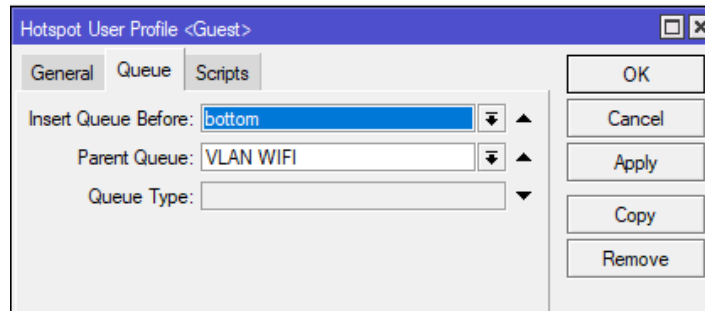
BOD



Staff



Guest





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8.1.2 Assign profile masing-masing user sbb: IP – hotspot

Server	Name
all	vOfficeGroup
all	BOD
all	vOfficeSO
all	vOfficeMember

Hotspot User <vOfficeGroup>

General Limits Statistics

Server: all

Name: vOfficeGroup

Password: *****

Address:

MAC Address:

Profile: Client-Staff

Routes:

Email:

enabled

Hotspot User <BOD>

General Limits Statistics

Server: all

Name: BOD

Password: *****

Address:

MAC Address:

Profile: BOD

Routes:

Email:

enabled

Hotspot User <vOfficeSO>

General Limits Statistics

Server: all

Name: vOfficeSO

Password: *****

Address:

MAC Address:

Profile: Client-Staff

Routes:

Email:

enabled

Hotspot User <vOfficeMember>

General Limits Statistics

Server: all

Name: vOfficeMember

Password: *****

Address:

MAC Address:

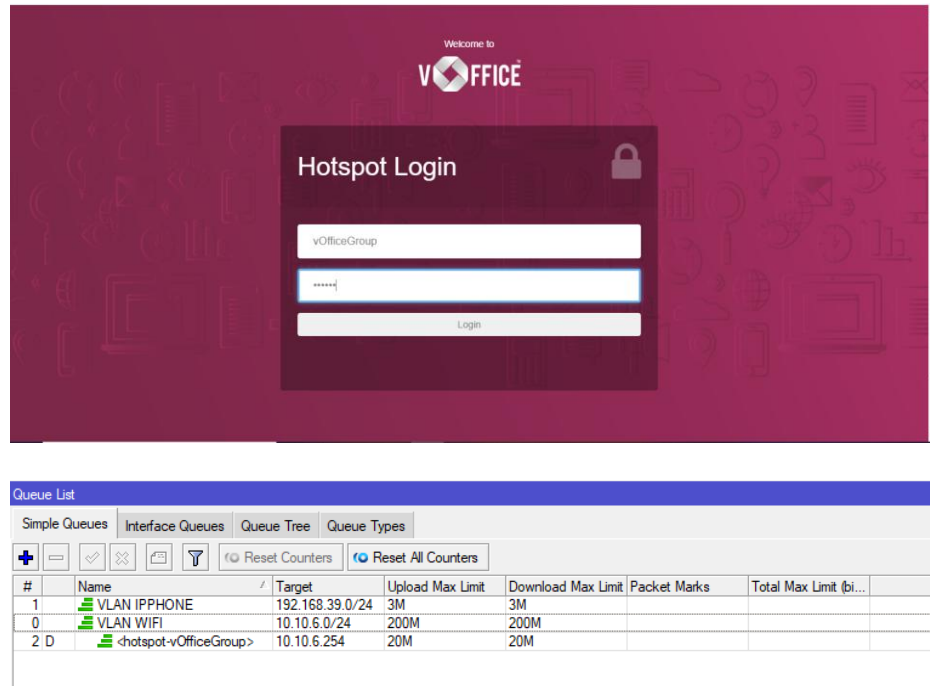
Profile: Guest

Routes:

Email:

enabled

8.1.3 Test Login Hotspot



8.6 Setup Ovpn client

OVPN vOffice New-RWG

Membuat Username dan Password untuk OpenVPN Client, jalankan perintah berikut ini pada terminal mikrotik untuk membuat username dan password untuk OpenVPN Client, username dan passwordnya silahkan disesuaikan :

```
/ppp secret
add name=vOffice-BRI-BDG password=Voffice123# profile=default-encryption
```

```
/certificate
add name=ovpnclient-vOffice-newRWG common-name=ovpnclient-vOffice-newRWG country=ID state=Jakarta
locality=Jakarta organization=Infrastructure unit=IT days-valid=3600 key-size=2048
```

```
/certificate
add name=ovpnclient-BRI-BDG common-name=ovpnclient-BRI-BDG country=ID state=Jabar locality=Bandung
organization=Infrastructure unit=IT days-valid=7300 key-size=2048
```

```
[jkttech@CBN SERVER CENTENNIAL] /certificate> add name=ovpnclient-vOffice-newRWG common-name=ovpnclient-vOffice-newRWG country=ID state=Jakarta locality=Jakarta organization=Infrastructure unit=IT days-valid=3600 key-size=2048
[jkttech@CBN SERVER CENTENNIAL] /certificate>
```

```
/certificate
sign ovpnclient-vOffice-newRWG ca=cacertMR (satu per satu, ini dl, baru baris bawahnya)
set ovpnclient-vOffice-newRWG trusted=yes
```



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/certificate

sign ovpnclient-BRI-BDG ca=cacertMR (satu per satu, ini dl, baru baris bawahnya)

set ovpnclient-BRI-BDG trusted=yes

Certificates	
Certificates	SCEP Servers SCEP RA Re
+ - Import Card Reinstall	
	Name
KLAT	UnionSpace-PIK
KLAT	cacertMR
KLAT	ovpnclient-vOffice-newRWG
KLAT	ovpnserverMR

Export Cert

export-certificate ovpnclient-vOffice-newRWG export-passphrase=ovpnclient-vOffice-newRWG

export-certificate ovpnclient-BRI-BDG export-passphrase= ovpnclient-BRI-BDG

```
[jkttech@CBN SERVER CENTENNIAL] /certificate> export-certificate ovpnclient-vOffice-n  
ewRWG export-passphrase=ovpnclient-vOffice-newRWG  
[jkttech@CBN SERVER CENTENNIAL] /certificate>
```

Download hasil export cer

File List





File

Cloud Backup

Backup

Restore

Upload...

File Name	Type	Size	Creation Time
 cert_export_ovpnclient-vOffice-newRWG.crt	.crt file	1444 B	Feb/22/2023 20:14:40
 cert_export_ovpnclient-vOffice-newRWG.key	key file	1858 B	Feb/22/2023 20:14:40
 console-dump.txt	.txt file	84 B	Feb/22/2023 20:07:39
 autosupout.rif	.rif file	569.8 KiB	Jul/29/2022 15:18:08

Ke Mikrotik client sbg OVPN Client, upload cert ke file

File List				
- Import Backup Restore Upload...				
File Name	Type	Size	Creation Time	
cert_export_ovpnclient-vOffice-newRWG.crt	.crt file	1444 B	Feb/22/2023 21:17:24	
cert_export_ovpnclient-vOffice-newRWG.key	.key file	1858 B	Feb/22/2023 21:17:24	
hotspot	directory		Feb/22/2023 18:59:05	

Import

/Certificates

import file-name=cert_export_ovpnclient-vOffice-newRWG.crt passphrase=ovpnclient-vOffice-newRWG

/Certificates

import file-name=cert_export_ovpnclient-vOffice-BRI-BDG.crt passphrase=ovpnclient-vOffice-BRI-BDG

masih ada error



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```
[jkttech@New-RWG] /certificate> import file-name=cert_export_ovpnclient-vOffice-newRWG. passphrase=vOffice-newRWG
ambiguous value of file-name, more than one possible value matches input
[jkttech@New-RWG] /certificate>
```

Berhasil

```
[jkttech@New-RWG] /certificate> import file-name=cert_export_ovpnclient-vOffice-newRWG.crt passphrase=ovpnclient-vOffice-newRWG
certificates-imported: 1
private-keys-imported: 0
files-imported: 1
decryption-failures: 0
keys-with-no-certificate: 0

[jkttech@New-RWG] /certificate>
```

import file-name=cert_export_ovpnclient-vOffice-newRWG.crt passphrase=ovpnclient-vOffice-newRWG
import file-name=cert_export_ovpnclient-vOffice-BRI-BDG.crt passphrase=ovpnclient-vOffice-BRI-BDG

skeg

key nya

import file-name=cert_export_ovpnclient-vOffice-newRWG.key passphrase=ovpnclient-vOffice-newRWG
import file-name=cert_export_ovpnclient-vOffice-BRI-BDG.key passphrase=ovpnclient-vOffice-BRI-BDG

```
[jkttech@New-RWG] /certificate> import file-name=cert_export_ovpnclient-vOffice-newRWG.key passphrase=ovpnclient-vOffice-newRWG
certificates-imported: 0
private-keys-imported: 1
files-imported: 1
decryption-failures: 0
keys-with-no-certificate: 0

[jkttech@New-RWG] /certificate>
```

Saat nya pengecekan

Certificates		
Certificates	SCEP Servers	SCEP RA
Requests	OTP	CRL
+	-	Import
Card Reinstall	Card Verify	Revoke
Name	Issued	Expires
KAT	cert_export_ovpnclient-vOffice-newRWG.crt_0	C-



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Membuat Interface OpenVPN Client

/interface ovpn-client

add certificate=cert_export_ovpnclient.crt_0 connect-to=IP/DDNS-OpenVPN-Server name=ovpn-out1 password=ovpn1234 user=ovpn1

/interface ovpn-client







add certificate= cert_export_ovpnclient-vOffice-newRWG.crt_0 connect-to=202.158.46.42 name=ovpn-out1 password=Voffice123# user= vOffice-newRWG

/interface ovpn-client

add certificate= cert_export_ovpnclient-vOffice-BRI-BDG.crt_0 connect-to=202.158.46.42 name=ovpn-out1 password=Voffice123# user= vOffice-BRI-BDG

```
[jkttech@New-RWG] /interface ovpn-client> add certificate= cert_export_ovpnclient-vOffice-newRWG.crt_0 connect-to=202.158.46.42 name=ovpn-out1 password=Voffice123# user=vOffice-newRWG
[jkttech@New-RWG] /interface ovpn-client>
```

Cek hasil

PPP				
Interface	PPPoE Servers	Secrets	Profiles	Active Connections
     	PPP Scanner PPTP Server			
Name	Type	Actual MTU	L2 M	
ovpn-out1	OVPN Client			



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```
[jkttech@New-RWG] /ip firewall nat> add comment=nat-openvpn-client chain=srcnat out-i  
nterface=ovpn-out1 action=masquerade  
[jkttech@New-RWG] /ip firewall nat> █
```

Interface <ovpn-out1>

General	Dial Out	Status	Traffic
Connect To: 202.158.46.42			
Port: 1194			
Mode: ip			
User: vOffice-newRWG			
Password: Voffice123#			
Profile: default			
Certificate: cert_export_ovpnclient-vOffice-newRWG.crt_0			
<input type="checkbox"/> Verify Server Certificate			
Auth.: sha1			
Cipher: blowfish 128			
Use Peer DNS: yes			
<input type="checkbox"/> Add Default Route			
enabled running slave Status: connected			

BUAT FIREWALL NAT OVPN

```
/ip firewall nat  
/ip firewall nat>add comment=nat-ovpn-client chain=srcnat out-interface=ovpn-out1 action=masquerade  
[jkttech@ECCOS BALI] > /ip firewall nat  
[jkttech@ECCOS BALI] /ip firewall nat> add comment=nat-ovpn-client chain=srcnat out-interface=ovpn-out1 action=masquerade  
[jkttech@ECCOS BALI] /ip firewall nat> █
```

Hasil



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::: masquerade hotspot network									
16		masquerade	srcnat	10.10.6.0/24					1778.7 Ki
::: masquerade hotspot network									
17		masquerade	srcnat	10.10.6.0/24					0
18	D		redirect	hs-unauth	6 (tcp)	443	VLAN ...		45.2 Ki
::: nat-ovpn-client									
19		masquerade	srcnat				ovpn-o...		0

BUAT ROUTE OVPN (Contoh IP Bali)

Add > Dst.Address (90.80.70.254) > Gateway (ovpn-out1)

Add > Dst.Address (192.168.1.62) > Gateway (ovpn-out1)

Route List					
Routes					
Dest. Address	Gateway		Distance	Routing Mark	Pref. Source
DAS	0.0.0.0		1		
DAC	10.10.6.0/24		0		10.10.6.1
DAC	90.80.70.0/24		0		90.80.70.39
AS	90.80.70.254		1		
DAC	182.253.92.1		0		182.253.92.161
AS	192.168.1.62		1		
DAC	192.168.39.0/24		0		192.168.39.1

TEST PING

Ping Jakarta.voffice.co.id

```
[jkttech@ECCOS BALI] > ping jakarta.voffice.co.id
SEQ HOST                                SIZE TTL TIME STATUS
0 202.158.46.42                        56 58 25ms
1 202.158.46.42                        56 58 25ms
2 202.158.46.42                        56 58 25ms
3 202.158.46.42                        56 58 25ms
4 202.158.46.42                        56 58 25ms
5 202.158.46.42                        56 58 25ms
6 202.158.46.42                        56 58 25ms
7 202.158.46.42                        56 58 25ms
sent=8 received=8 packet-loss=0% min-rtt=25ms avg-rtt=25ms max-rtt=25ms
```

Ping vox.myvios.cloud

```
[jkttech@ECCOS BALI] > ping vox.myvios.cloud
SEQ HOST                                SIZE TTL TIME STATUS
0 159.65.143.151                       56 55 37ms
1 159.65.143.151                       56 55 36ms
2 159.65.143.151                       56 55 36ms
3 159.65.143.151                       56 55 36ms
4 159.65.143.151                       56 55 36ms
5 159.65.143.151                       56 55 36ms
6 159.65.143.151                       56 55 36ms
7 159.65.143.151                       56 55 36ms
8 159.65.143.151                       56 55 36ms
sent=9 received=9 packet-loss=0% min-rtt=36ms avg-rtt=36ms max-rtt=37ms
```

Ping 192.168.1.62



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```
[jkttech@ECCOS BALI] > ping 192.168.1.62
```

SEQ	HOST	SIZE	TTL	TIME	STATUS
0	192.168.1.62	56	63	71ms	
1	192.168.1.62	56	63	27ms	
2	192.168.1.62	56	63	27ms	
3	192.168.1.62	56	63	44ms	
4	192.168.1.62	56	63	37ms	
5	192.168.1.62	56	63	28ms	
6	192.168.1.62	56	63	27ms	
7	192.168.1.62	56	63	28ms	
8	192.168.1.62	56	63	28ms	

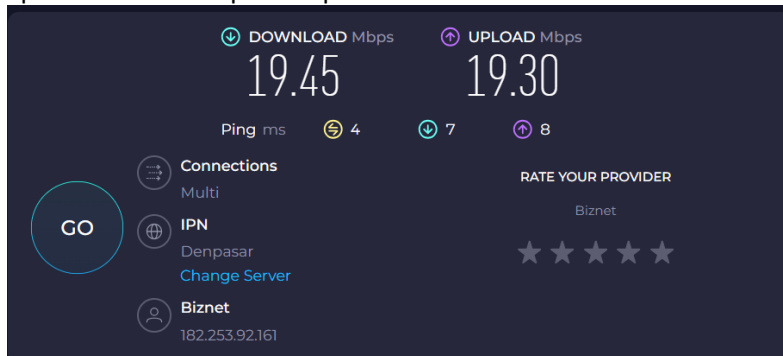
sent=9 received=9 packet-loss=0% min-rtt=27ms avg-rtt=35ms max-rtt=71ms

HASIL SPEEDTEST PER LOGIN

LOGIN vOfficeGroup



Speed vOfficeGroup 20Mbps





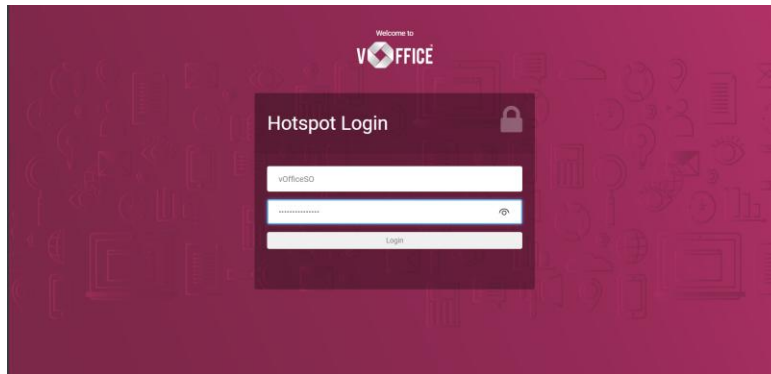
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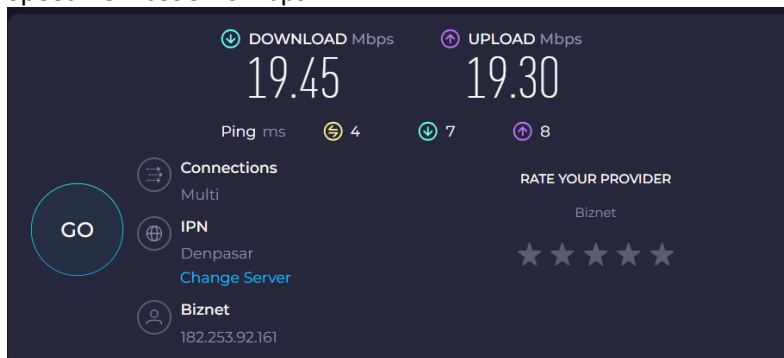
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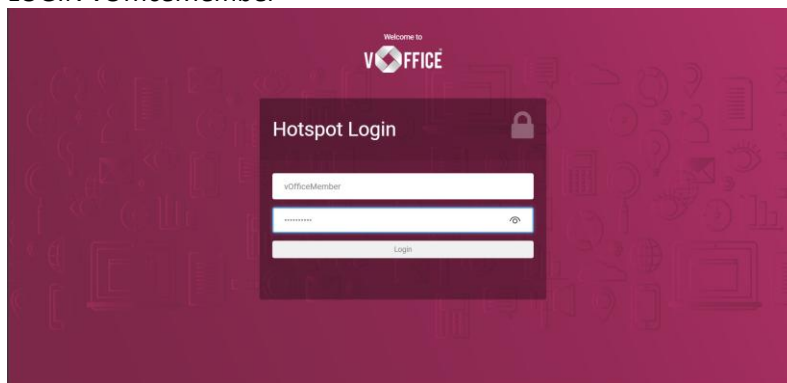
LOGIN vOfficeSO



Speed vOfficeSO 20Mbps



LOGIN vOfficeMember



Speed vOfficeMember 7Mbps

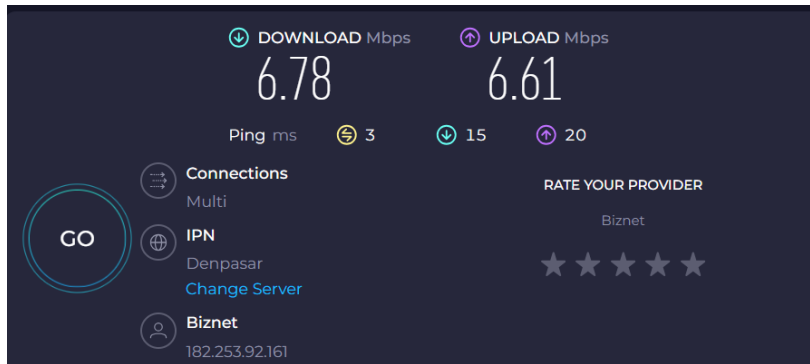


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LOGIN BOD

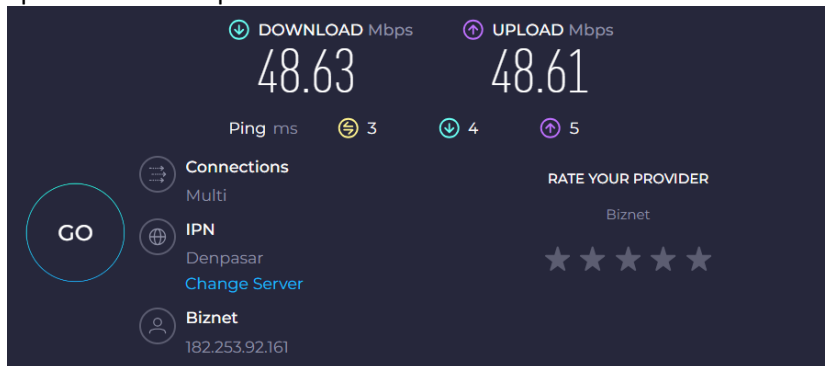
Hotspot Login

BOD

password

Login

Speed BOD 50Mbps





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VLAN IPPHONE

The screenshot displays the Windows 10 network status window and a command prompt window. The network status window shows download and upload speeds of 2.85 Mbps and 2.87 Mbps respectively, with ping times of 107 ms and 227 ms. It lists connections: Multi, IPN (Badung), and Biznet (182.253.219.189). The command prompt window shows the output of the 'ipconfig' command for two Ethernet adapters.

Network Status Window:

- DOWNLOAD Mbps: 2.85
- UPLOAD Mbps: 2.87
- Ping ms: 107
- Connections: Multi, IPN (Badung), Biznet (182.253.219.189)

Command Prompt Output:

```
C:\Windows\system32\cmd.e: X + v

Connection-specific DNS Suffix . : 
Link-local IPv6 Address . . . . . : fe80::6246:75f5:2117:d603%8
IPv4 Address. . . . . : 192.168.39.253
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 192.168.39.1

Ethernet adapter Ethernet:

Connection-specific DNS Suffix . : 
Link-local IPv6 Address . . . . . : fe80::48b9:fabe:88c8:73c9%7
Autoconfiguration IPv4 Address. . : 169.254.192.115
Subnet Mask . . . . . : 255.255.0.0
Default Gateway . . . . . :
```