DOKUMENTASI PROJECT 2 KELAS XII
KONSENTRASI KEAHLIAN TKJ XI 2024

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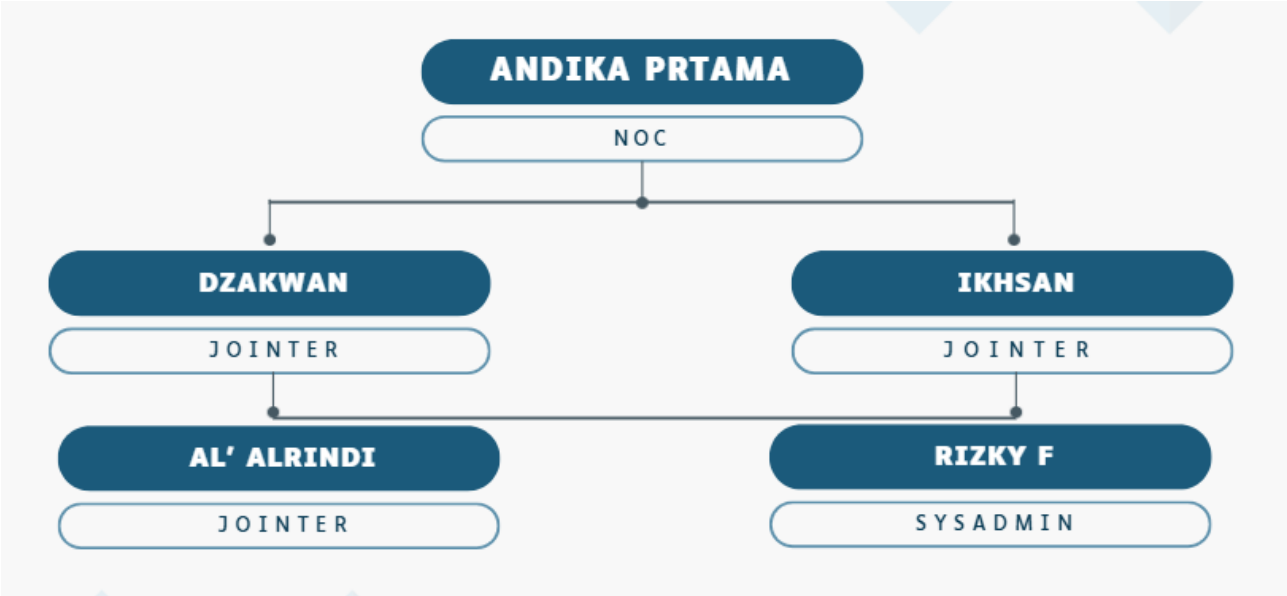
TJKT XII-3



I. Membuat Daftar Perangkat Jaringan dan Rancangan

No	Nama Perangkat	Spesifikasi	Jumlah	Harga	Total	Keterangan
1	Mikrotik RB2011iL-RM	CPU AR9344** 600MHz— RAM 64MB LAN PORTS 5 SWITCH CHIP 2 GIGABIT 5 Dimentions 250x250x90mm	1	Rp. 907.500	Rp. 907.500	Kami menggunakan tipe router ini karena router ini suda sanggup untuk mencukupi hingga 150 client secara bersamaan dan dengan harga terjangkau.
2	Kabel drop core	Standar Telkom Fiber Core G657A2 3 sling 1 core Jacket LSZH	1	Rp 650.000	Rp 650.000	Untuk saat ini hanya perlu memerlukan 1 core saja karena start up.
3	Laptop	OS : Windows 11 Pro Processor : AMD Ryzen 7 5800H Mobile Processor (8-core/16-thread, 20MB cache, up to 4.4 GHz max boost)	1	Rp. 11.000.000	Rp. 11.000.000	Laptop hanya sebagai administrator dan pengetesan saja.

		Intergrated GPU : AMD Radeon Graphics On board memory : 16GB DDR4 on board Storage : 512GB M.2 NVMe PCIe 3.0 SSD Wireless : Wi-Fi 6(802.11ax) (Dual band) 2x2				
4	ZTE AC1200 Dual-Band Wi-Fi 5 GPON ONT — ZXHN F670L	GPON 2 x 2 802.11b/g/n Wi-Fi @ 2.4 GHz 2 x 2 802.11a/n/ac Wi-Fi @ 5 GHz 4 100/1000 Mbps LAN Ports	1	Rp322.000	Rp322.000	Agar Ngacir
5	BELDEN 7814A CAT 6 50M	CAT 6 Speed up to 1000Mbps Frequency Max. Delay Max. Delay Skew Nom. Velocity of Prop. 100 MHz 538 ns/100m 45 ns/100m 70%	1	Rp360.000	Rp360.000	Agar awet

6	ODP	Spesifikasi : -Tipe : SC -Brand : PAZ -Kapasitas : 16 Core -Dimensi : 275mm x 345mm x 75mm -Unit : 1 set -Kelengkapan : 1.Passive Splitter Lengkap Untuk ODP Solid 2.Kunci Atas 3.Pigtail SC UPC 4.Protection Sleeve 5.Isolasi 6.Buku Manual 7.Klem Tiang 8.Selang Spiral	1	Rp 95.000	Rp 95.000	Untuk penyebaran suatu wilayah

		9.Kabel Grounding 10.Klem Kabel 11.Kabel Ties				
7	Hioso GEpon Olt Ha7302 Cst	2 SFP PON ports 2 1000M RJ45 ports + 2 Gigabit SFP port uplink port, AC 100-240V	1	Rp3.174.000	Rp3.174.000	Hemat-hemat dulu
	Gpon OLT Module SFP C++ 8db HSGQ-SFP	. SFP with SC/PC interface . 1490nm continuous mode 2.5Gbps . 1310nm burst mode 1.25Gbps . Support DDM 20KM . Compliance with SFP MSA . Compliance with SFF-8472 . RoHS compliant, FDA compliant	1	Rp287.804	Rp287.804	Hemat-hemat dulu

II. Membuat Desain Jaringan

III. Merancang Pengalamatan Jaringan

Divisi	Network	Prefix/CIDR	Range	Broadcast
Network Router	172.16.247.0	255.255.255.0/24	172.16.247.2-172.16.247.254	172.16.247.255
PPPoE	10.247.12.128	255.255.255. 128/25	10.247.12. 130-10.247.12.166	10.247.12.255
Hotspot	10.247.12.0	255.255.255.192/26	10.247.12.1-10.247.12.110	10.247.12.127
Lan Konfig	10.3.12.0	255.255.255.192/26	10.3.12.2-10.3.12.254	10.3.12.255

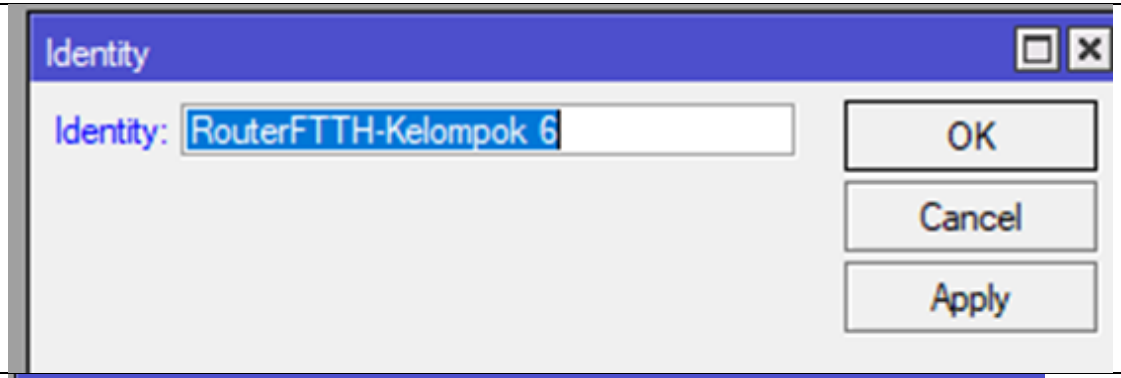
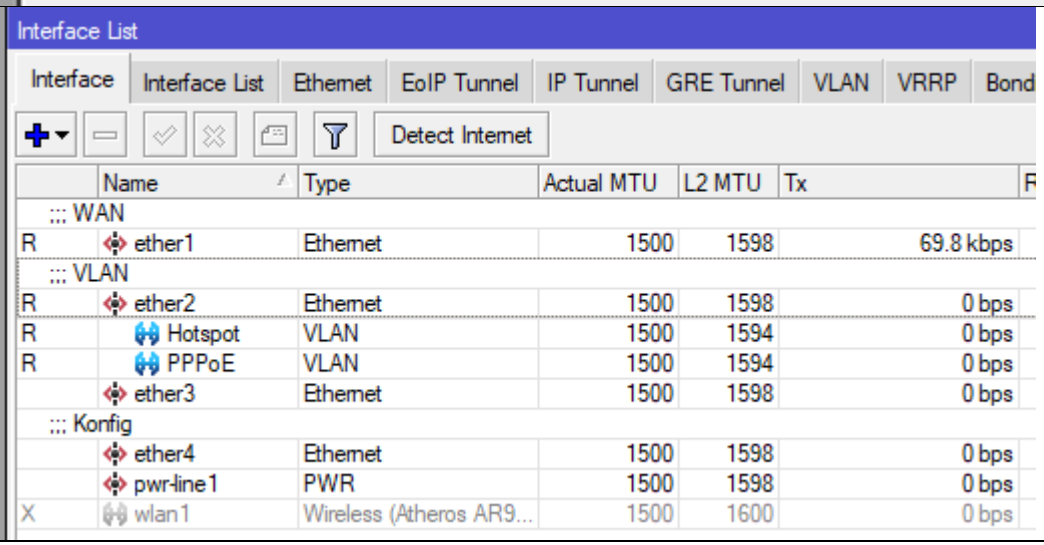
IV. Menentukan Pengalamatan Jaringan

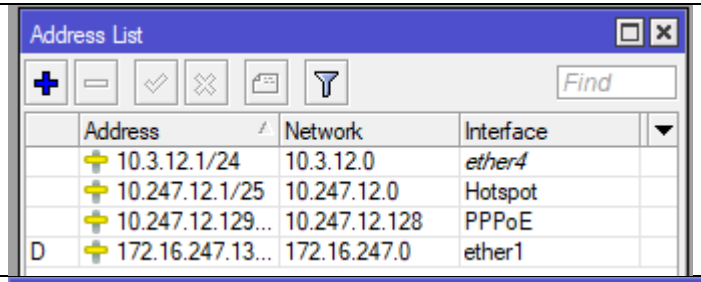
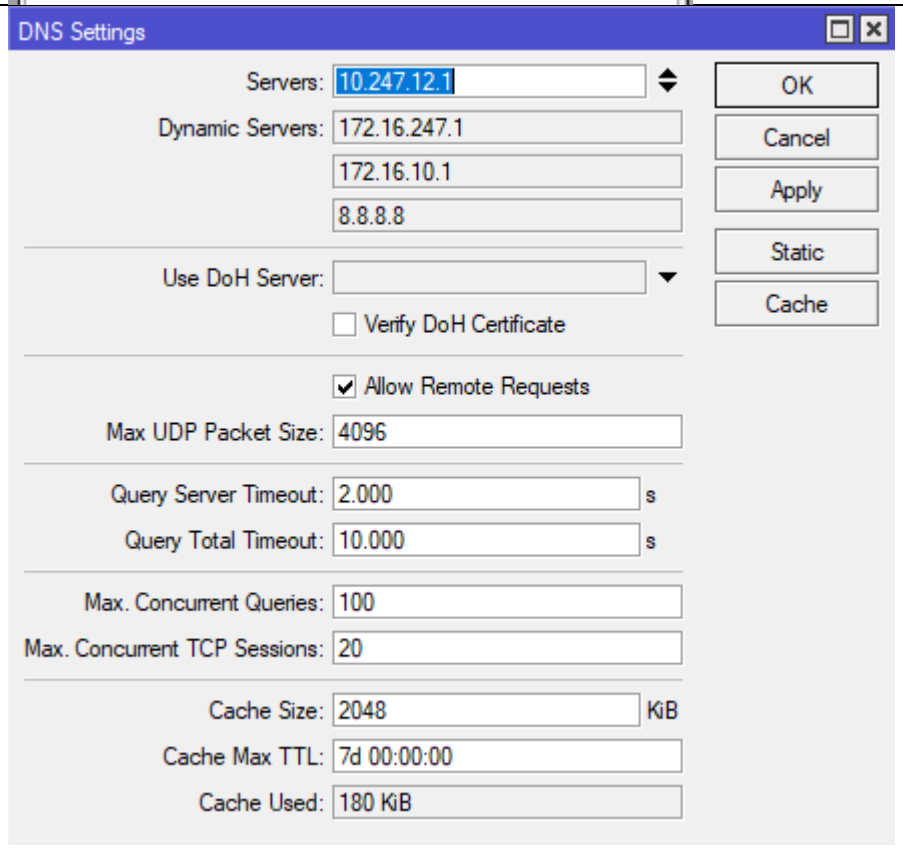
Device	Interface	Mac Address	IP Address	Subnet Mask	Gateway
Router 1	Ether-1	18:FD:74:A7:2B:6C	172.16.247.132/24	255.255.255.0	172.16.247.1
	Ether-2	18:FD:74:A7:2B:6D	-	-	-
	Ether-3	18:FD:74:A7:2B:6E	-	-	-
	Ether4	18:FD:74:A7:2B:6F	10.3.12.1/24	255.255.255.0	10.3.12.1
Hotspot	VLAN-PPPoE	18:FD:74:A7:2B:6D	10.247.12.129/26	255.255.255.192	10.247.12.129
PPPoE	VLAN-Hotspot	18:FD:74:A7:2B:6D	10.247.12.1/25	255.255.255.128	10.247.12.1

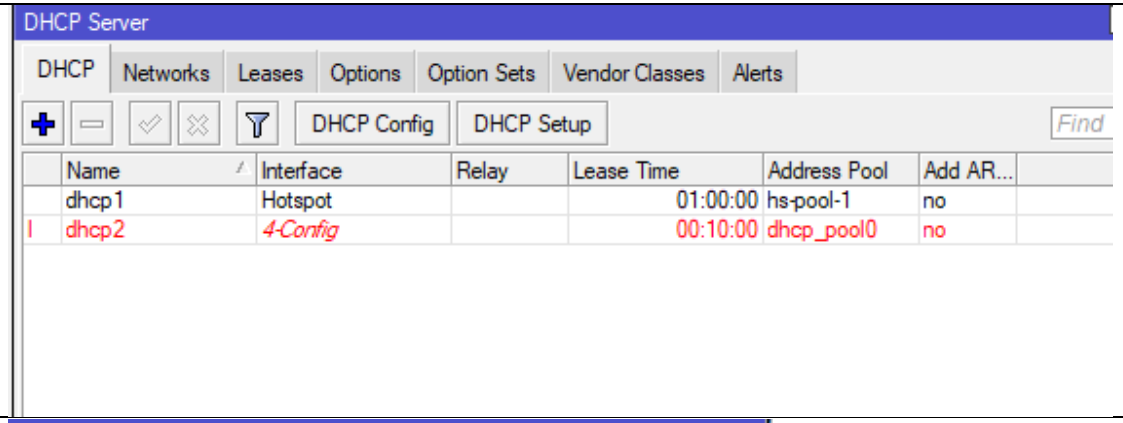
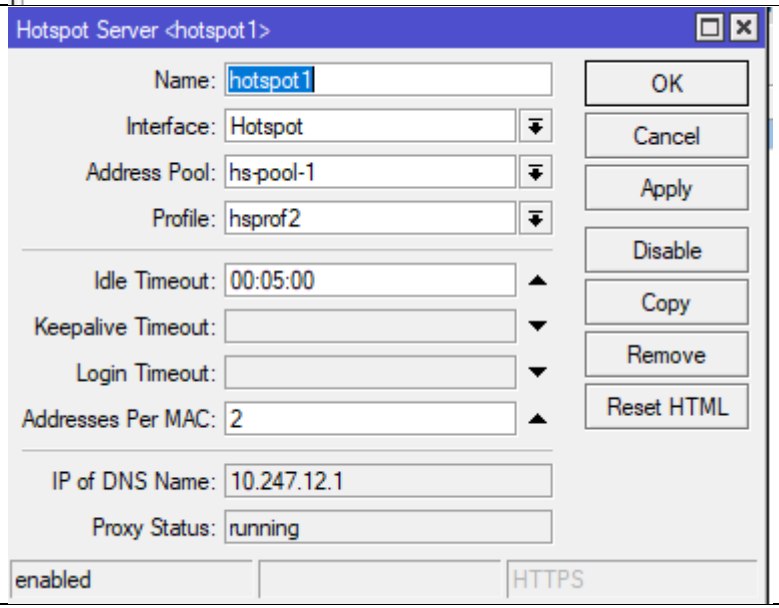
VI. Implementasi

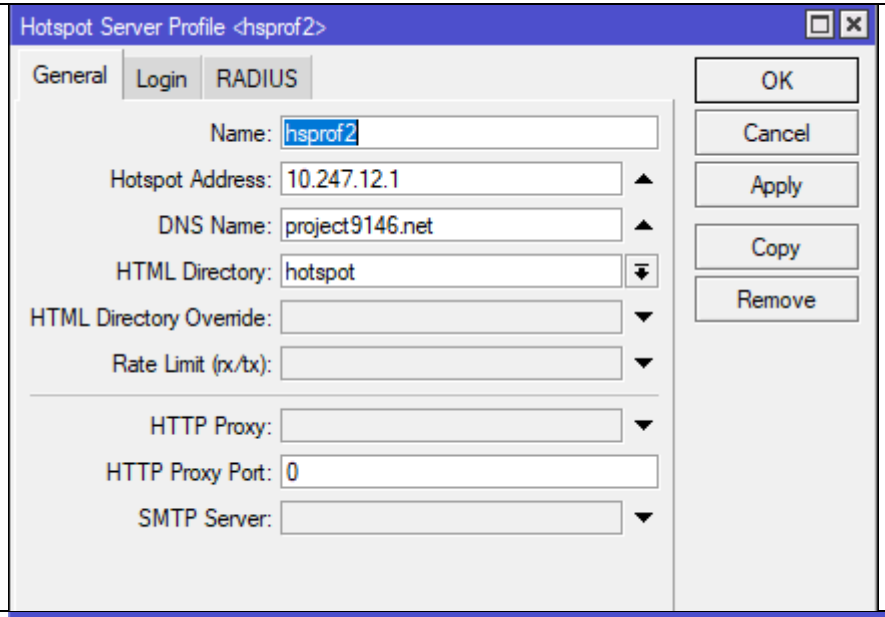
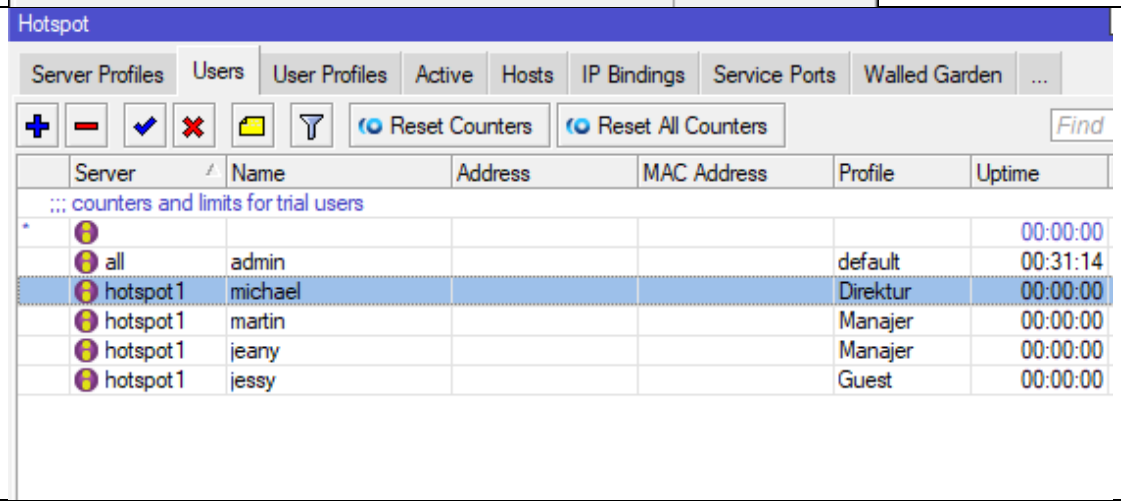
A. HASIL KONFIGURASI

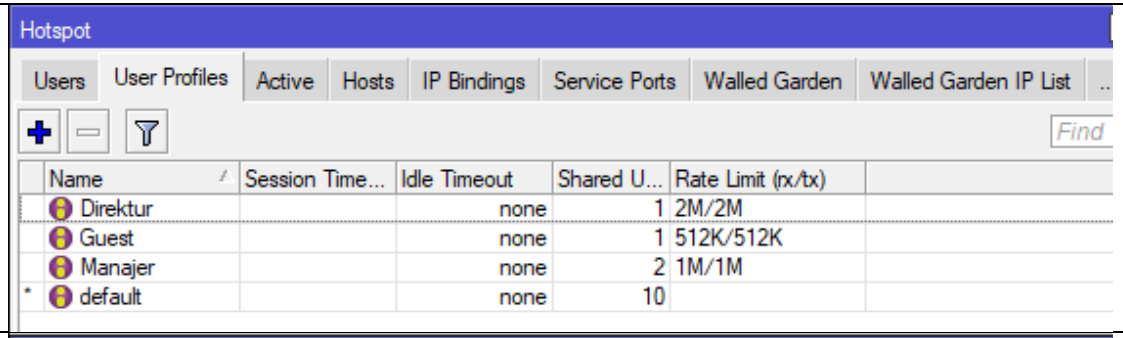
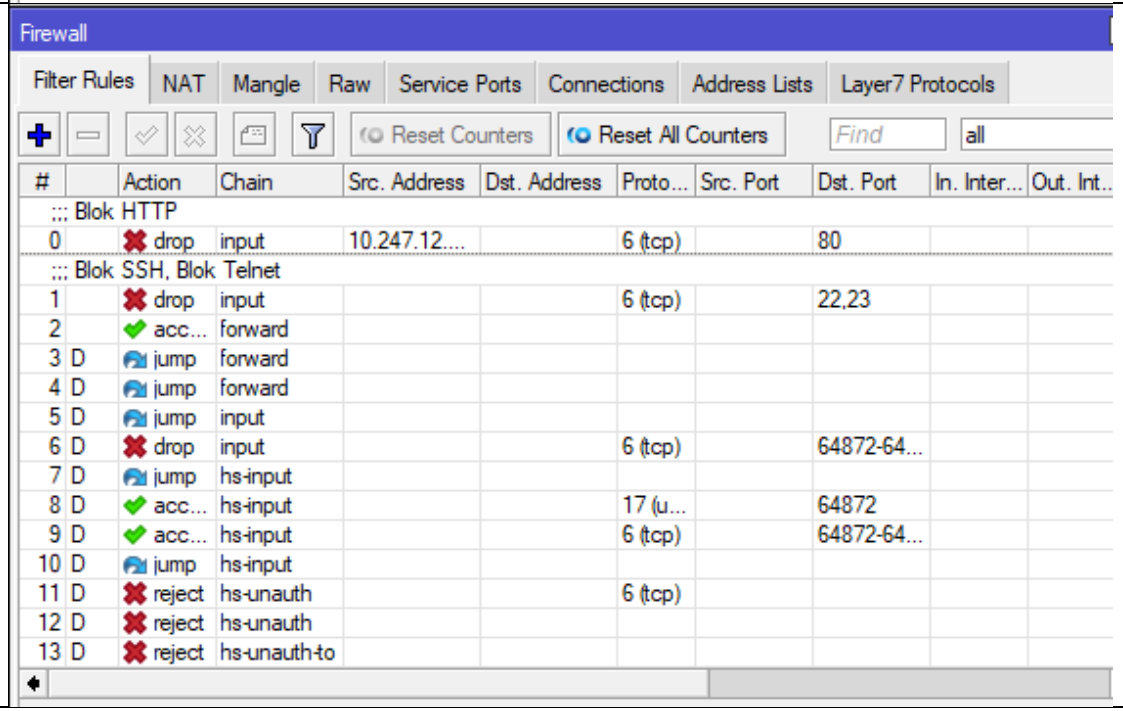
- **Router**

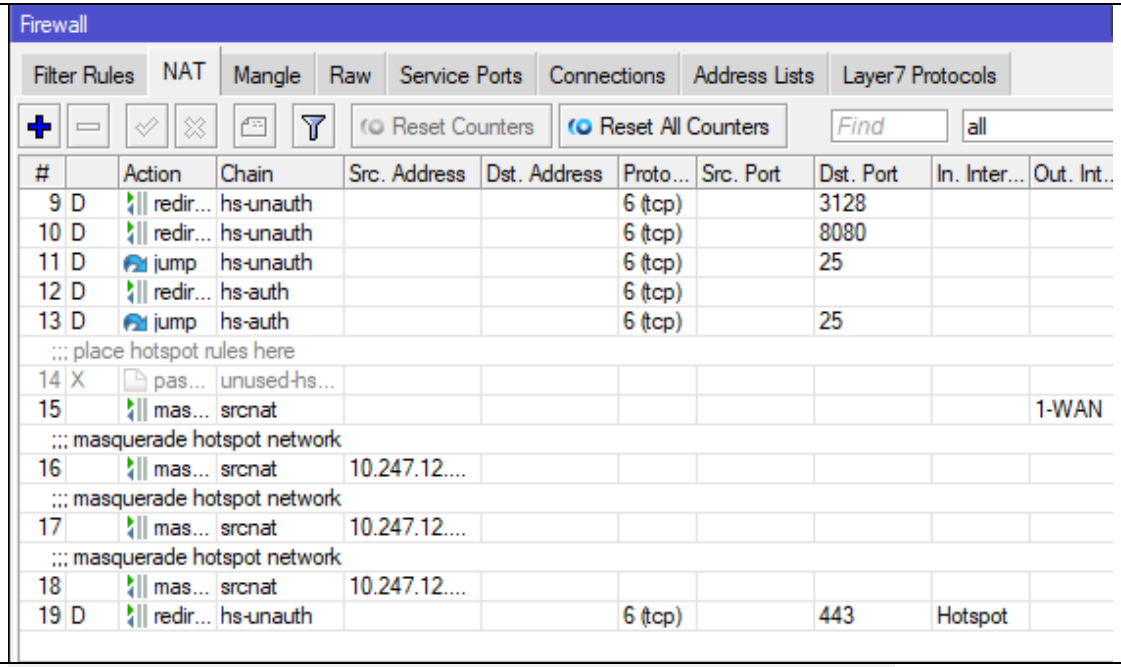
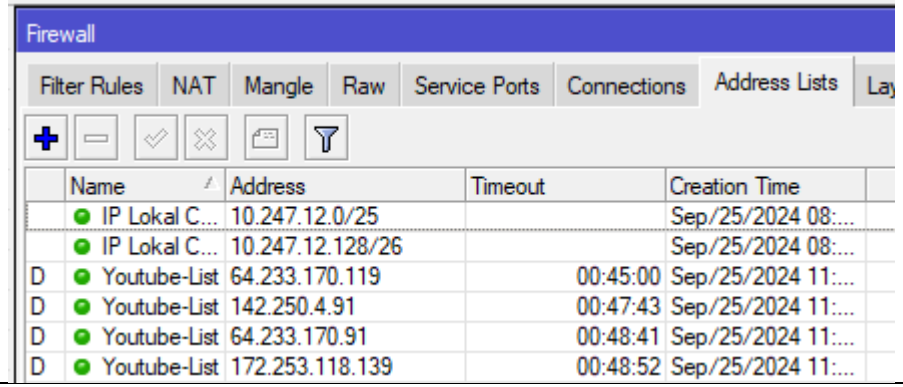
No	Konfigurasi	Hasil/Dokumentasi	Keterangan
1.	Identity		Disini kami membuat Identity untuk Mikrotik, Berhasil
2.	Interface		Selanjutnya kami mengsetting bagian interface (Disini kami memberi nama tiap interface agar tidak tertukar)

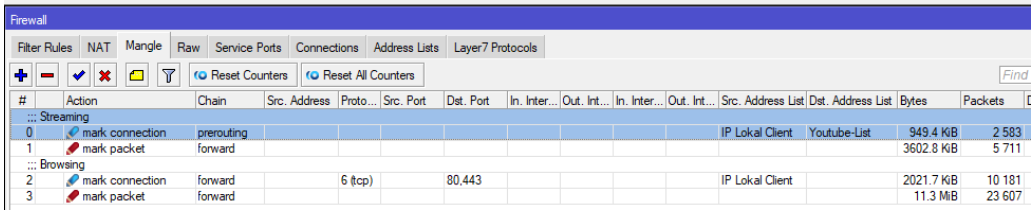
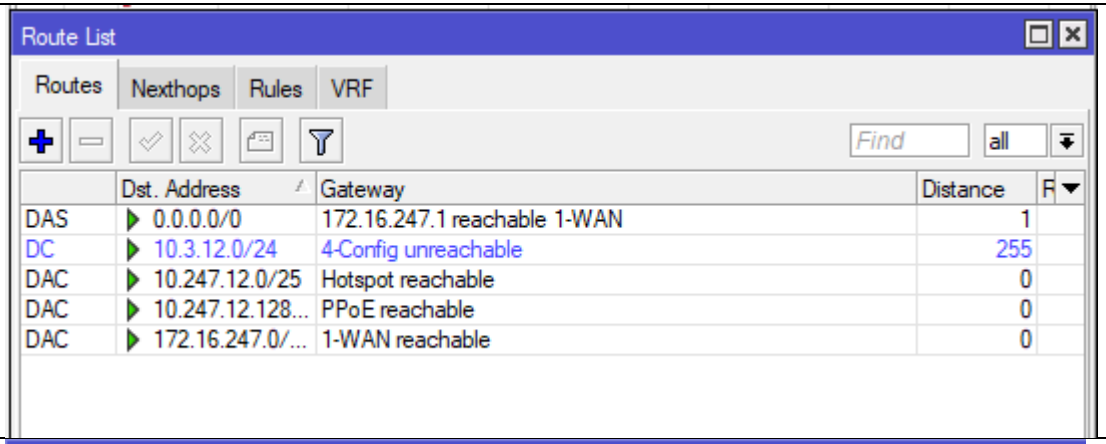
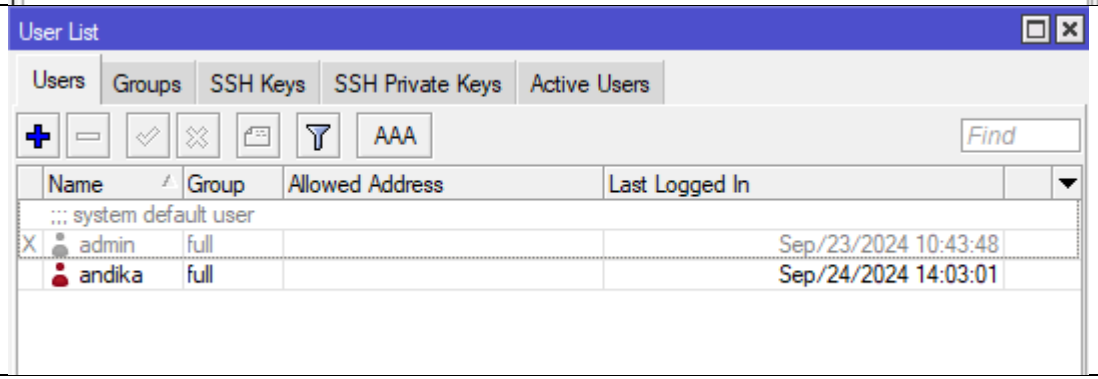
No	Konfigurasi	Hasil/Dokumentasi	Keterangan
3	IP Address		Jangan lupa untuk memberikan IP Address agar bisa terhubung dan jangan sampai bentrok, karena itulah gunanya VLSM.
4	DNS		Disini kami meng-setting Domain Name Server dan centang bagian Allow Remote Requests

No	Konfigurasi	Hasil/Dokumentasi	Keterangan
5	DHCP Server		DHCP server penting untuk di atur karna Sebuah protokol jaringan yang bekerja secara otomatis dalam mengenali perangkat yang terhubung ke jaringan.
6	Server Hotspot		Setelah itu kami mengatur Hostpot Server untuk mengelola jaringan publik.

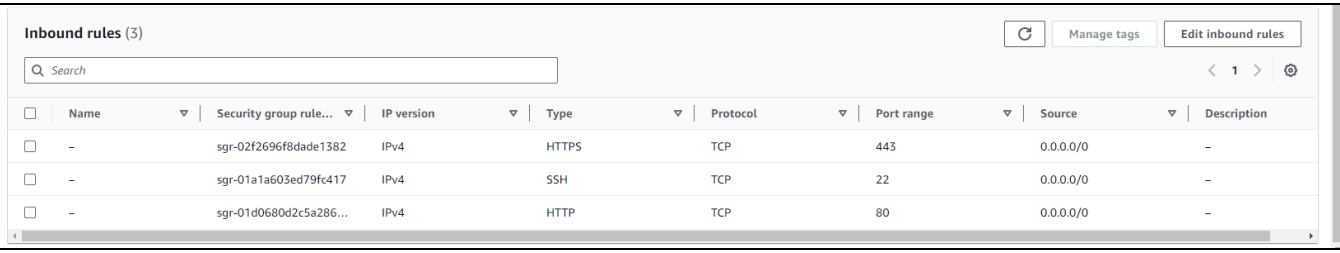
No	Konfigurasi	Hasil/Dokumentasi	Keterangan
7	Server Profile Hotspot		Bagian ini adalah keterangan yang berisi tentang domain untuk hostpot dan web HTML yang sedang dipakai.
8	User Hotspot		Kami menambahkan user untuk memberikan akses masuk kedalam hostpot kita.

No	Konfigurasi	Hasil/Dokumentasi	Keterangan
9	User Profile Hotspot		Disini kami mengatur bandwith untuk user, dan mengatur batas maximum pengguna yang akan mengakses
10	Filter Firewall (Forward dan Blok)		Selanjutnya kami mengatur Filter Firewall, Forward dan Blok. Kami telah menambahkan blok akses HTTP menuju ke router dari network hotspot. Kemudian, kami juga menambahkan blok akses SHH dan Telnet bagi network hotspot dan PPoE.

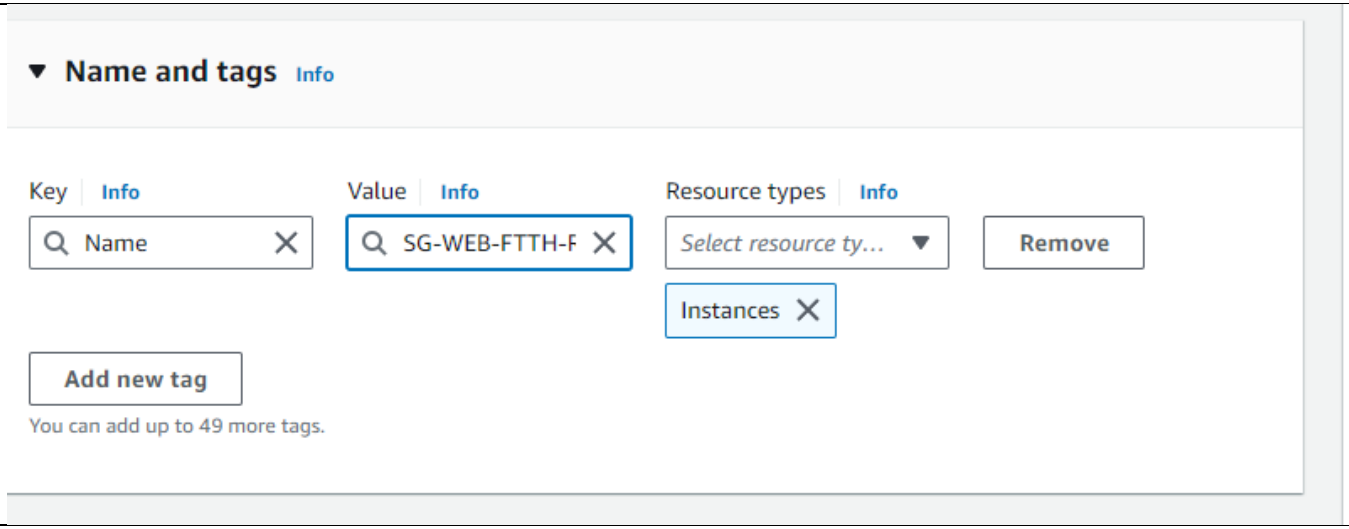
No	Konfigurasi	Hasil/Dokumentasi	Keterangan
11	NAT Firewall		Jangan lupa untuk mengatur di bagian NAT nya juga NAT Firewall di Mikrotik berfungsi untuk mengubah alamat IP, melindungi jaringan internal, dan memungkinkan banyak perangkat menggunakan satu IP publik sambil mengelola lalu lintas masuk dan keluar.
12	Address List Firewall		Address List Firewall di Mikrotik berfungsi untuk mengelompokkan alamat IP (IP address) tertentu agar lebih mudah digunakan dalam aturan firewall.

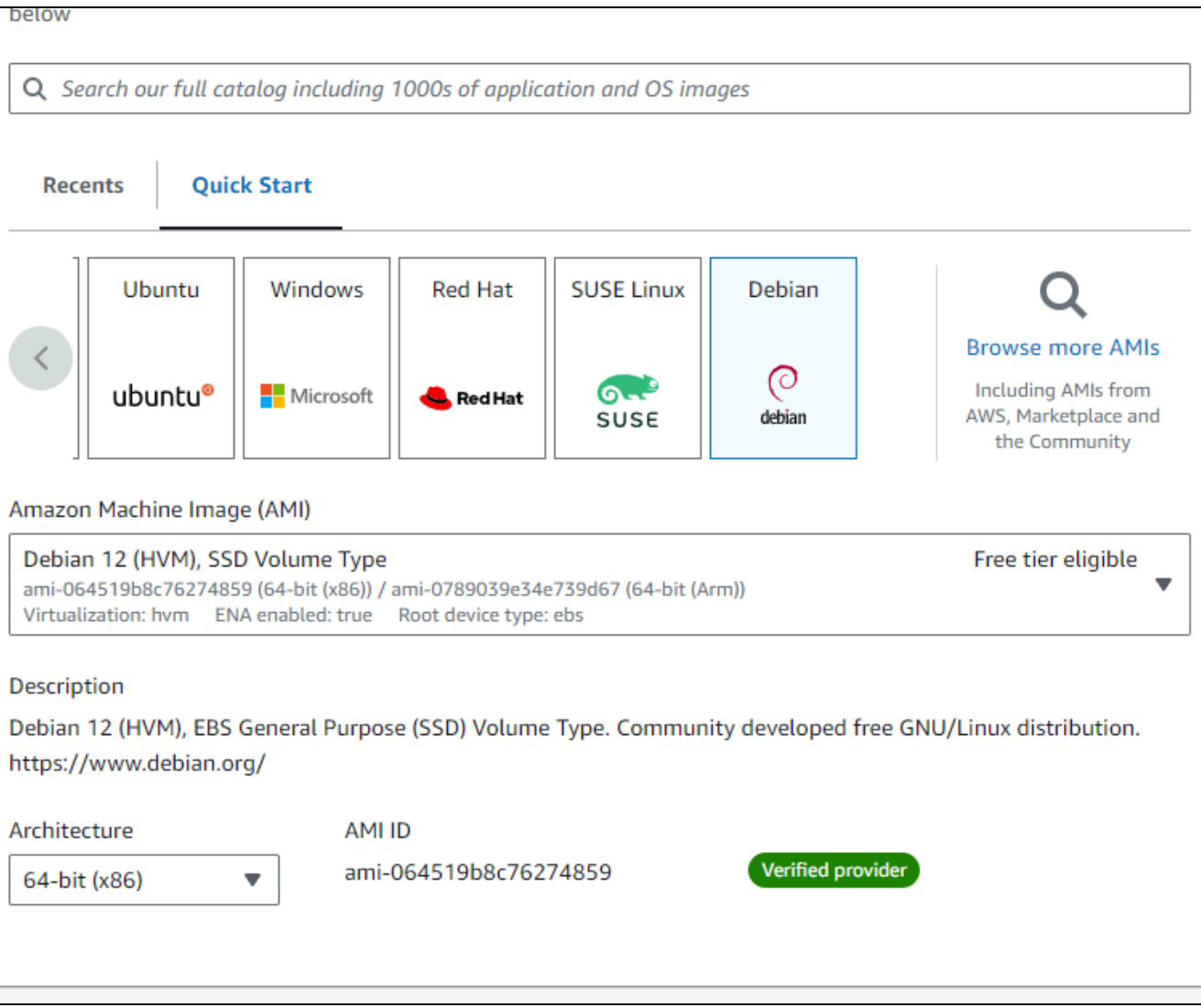
No	Konfigurasi	Hasil/Dokumentasi	Keterangan
13	Mangle Firewall		Disini kami menambah mark connection untuk menandai suatu traffic dan membuat mark packet agar dapat di limit melalui queue.
14	IP Routes		IP Routes/Routing Fungsi Routing pada Mikrotik adalah untuk mengatur jalur lalu lintas data antar jaringan, sehingga paket data dapat dikirim dari satu jaringan ke jaringan lain dengan efisien.
15	Users		Bagian ini kami meng-edit, menambahkan dan menghapus user login Ketika masuk kedalam MikroTik.

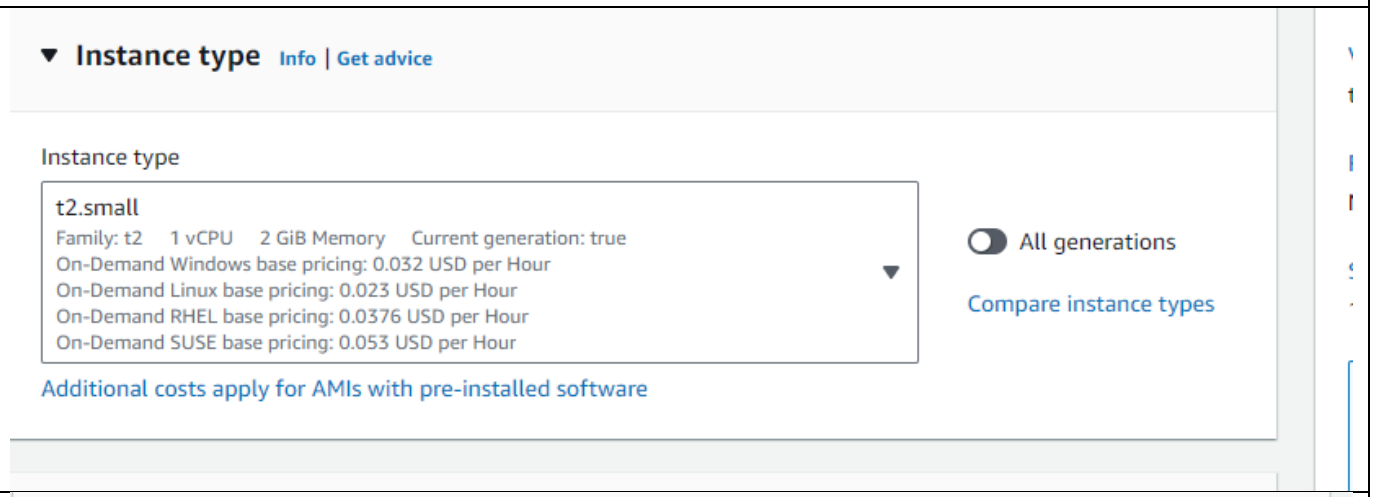
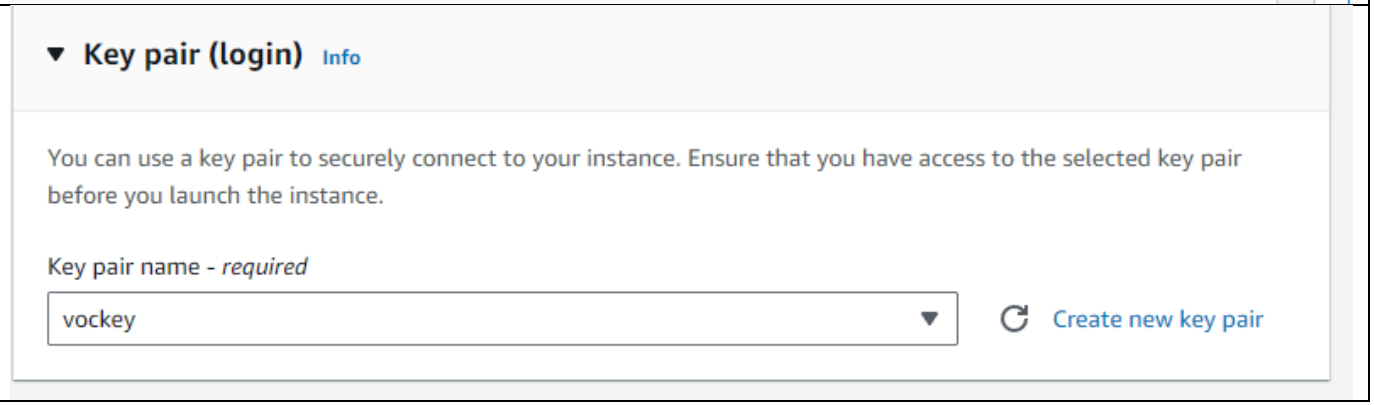
- **Hasil Konfigurasi Security Group**

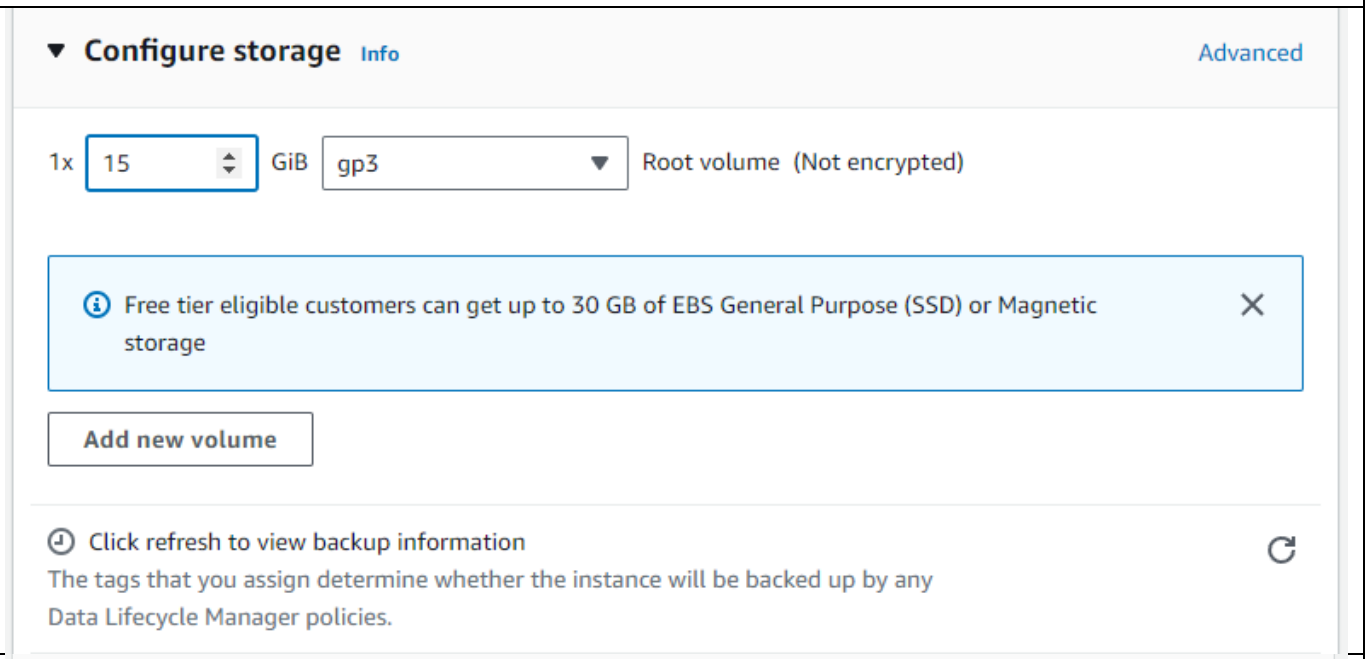
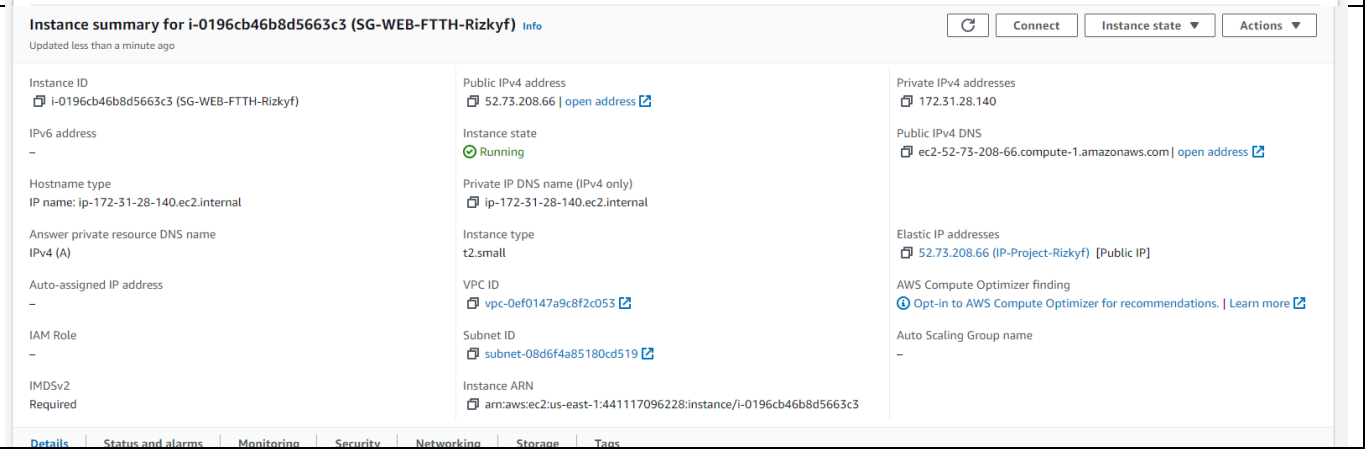
No	Konfigurasi	Screenshot Hasil Konfigurasi
1	Inbound rules SG-1	

- **Hasil Konfigurasi EC2 Instance**

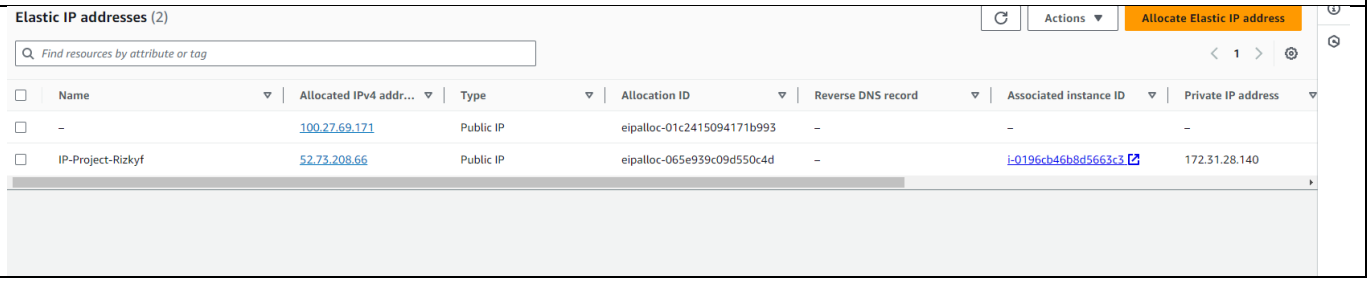
No	Konfigurasi	Screenshot Hasil Konfigurasi
1	Nama Instance	

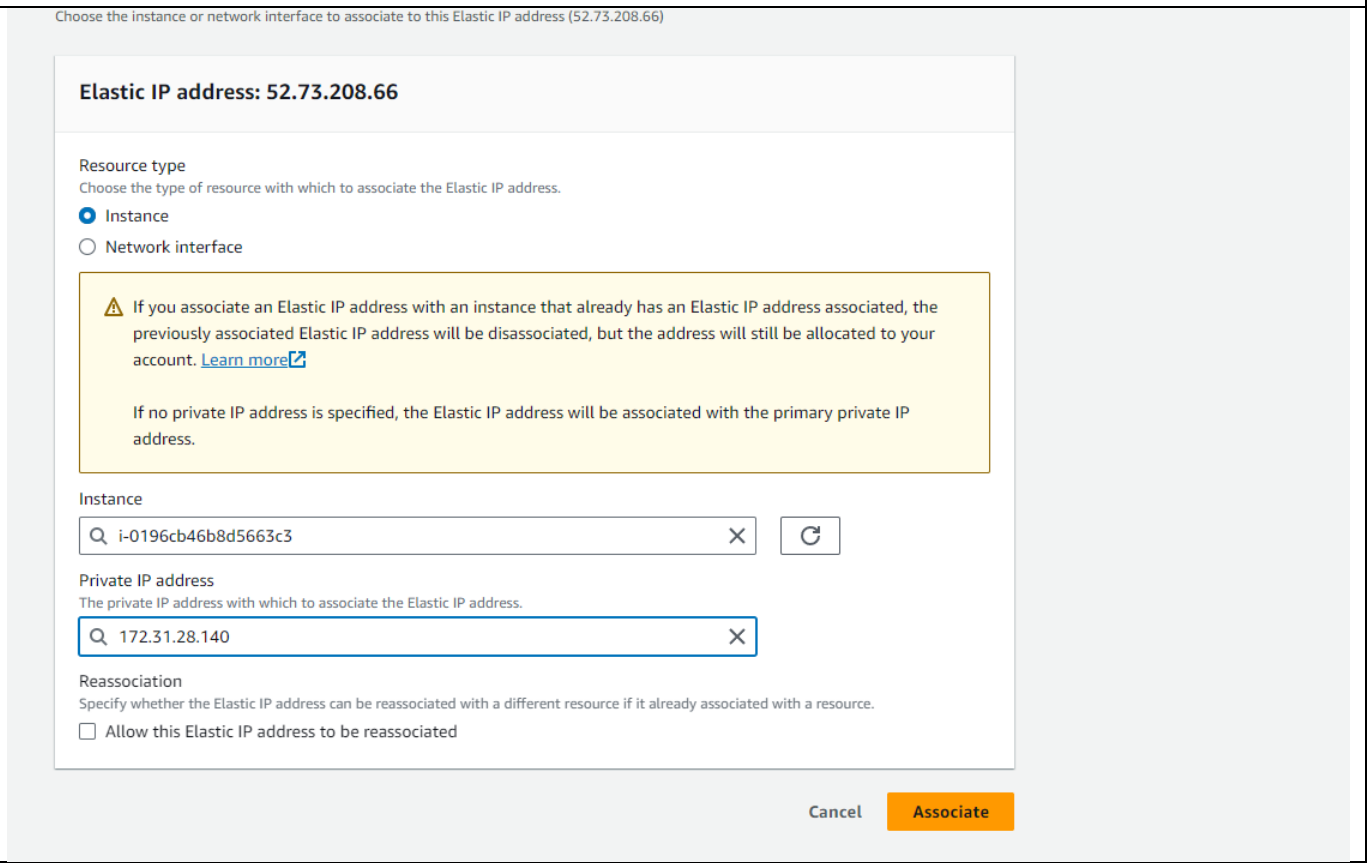
No	Konfigurasi	Screenshot Hasil Konfigurasi
2	OS / AMI	

No	Konfigurasi	Screenshot Hasil Konfigurasi
3	Instance type	
4	Key Pair	

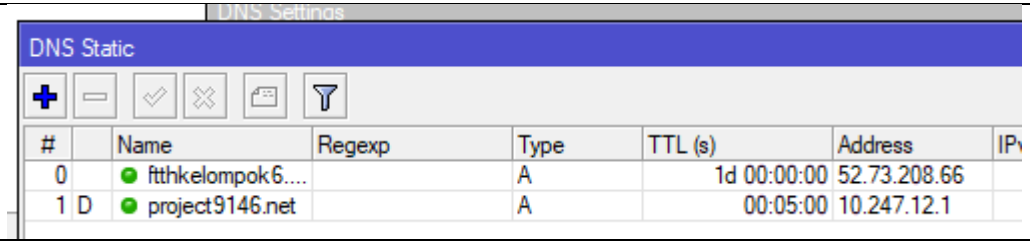
No	Konfigurasi	Screenshot Hasil Konfigurasi
5	Storage	
6	Instance Details	

- **Hasil Konfigurasi Elastic IP Address**

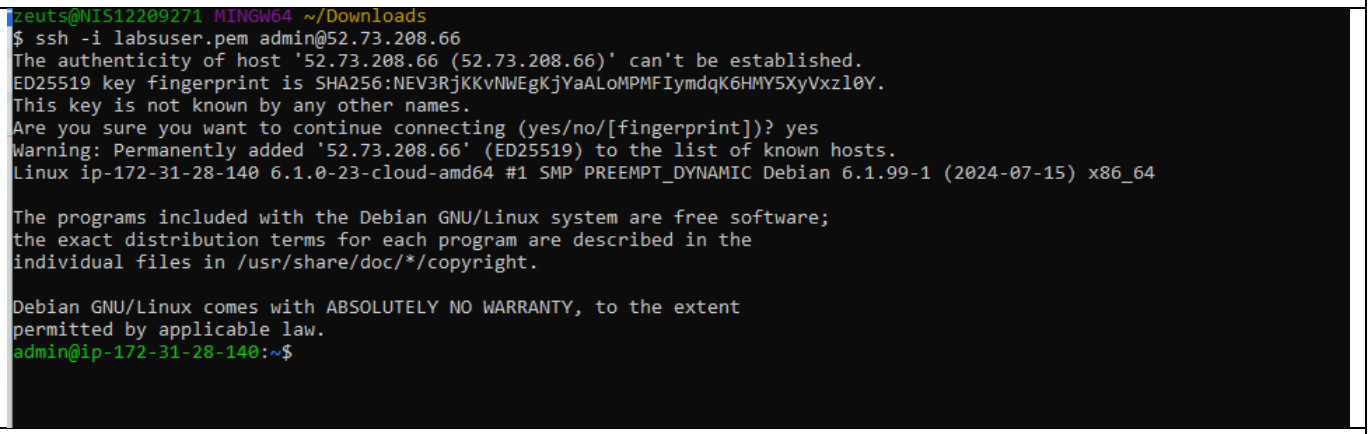
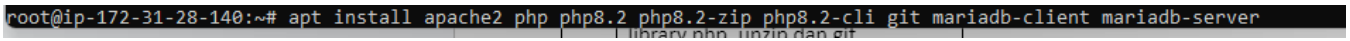
No	Konfigurasi	Screenshot Hasil Konfigurasi
1	Buat / Alokasikan Elastic IP	

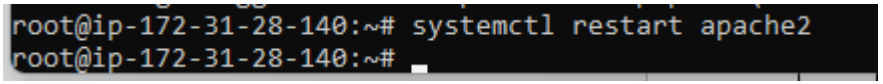
No	Konfigurasi	Screenshot Hasil Konfigurasi
2	Associate Elastic IP to EC2 Instance (Pasang Elastic IP ke EC2 Instance)	

- **Hasil Konfigurasi DNS Lokal di MikroTik**

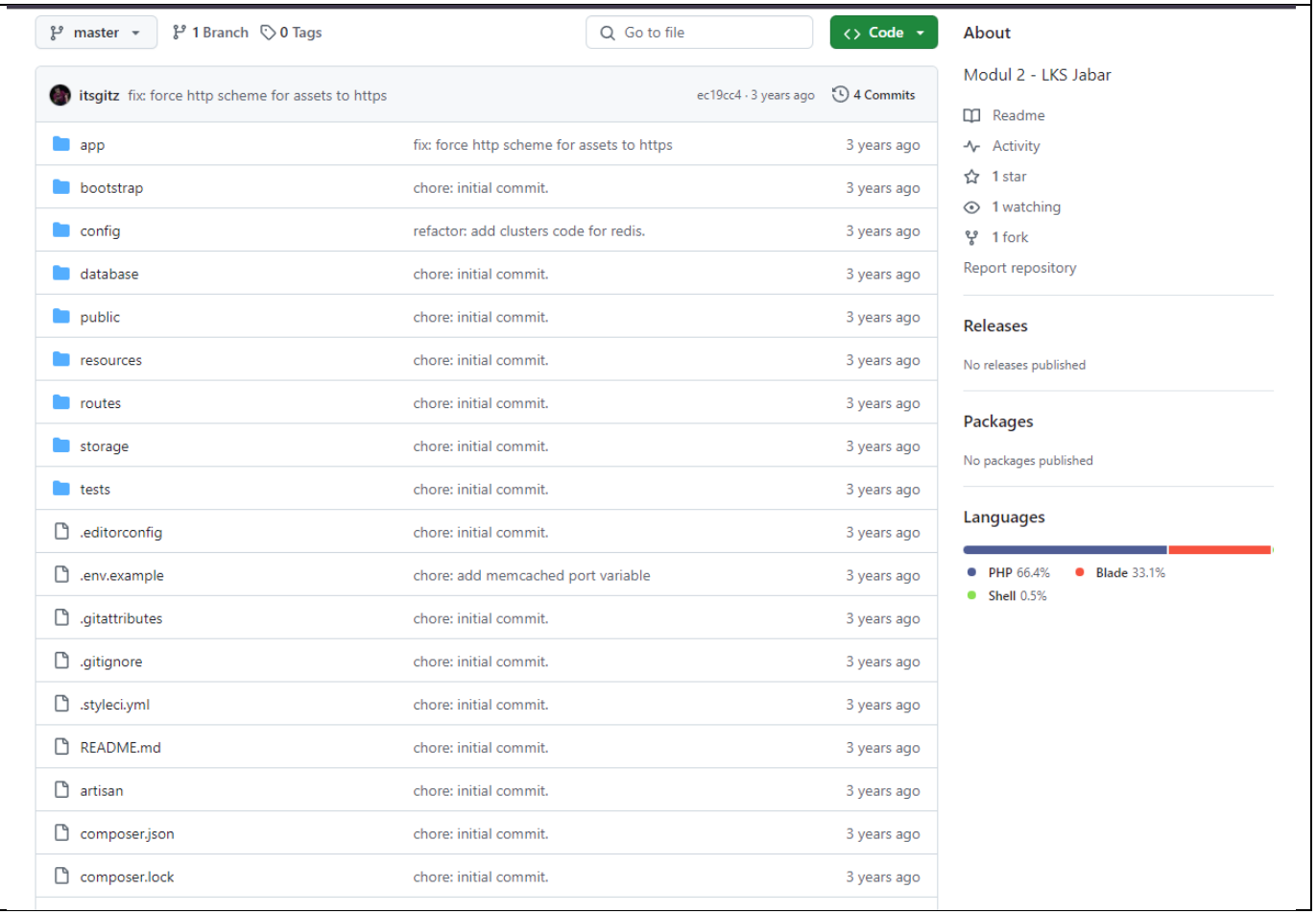
No	Konfigurasi	Screenshot Hasil Konfigurasi
1	Tampilan tabel DNS Lokal di router MikroTik	

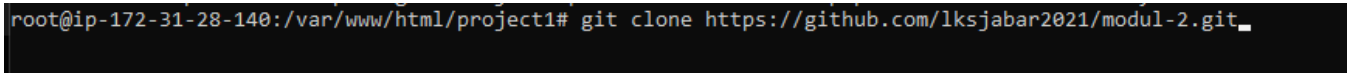
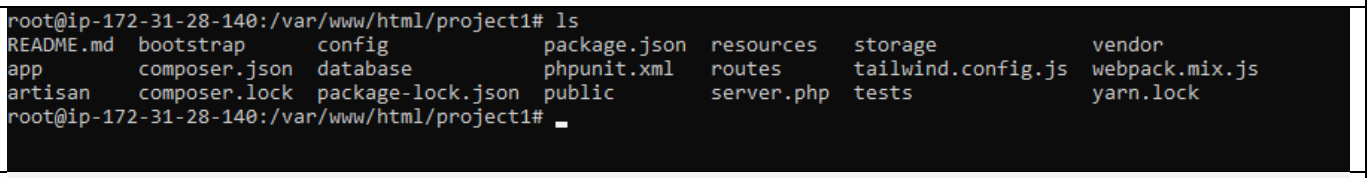
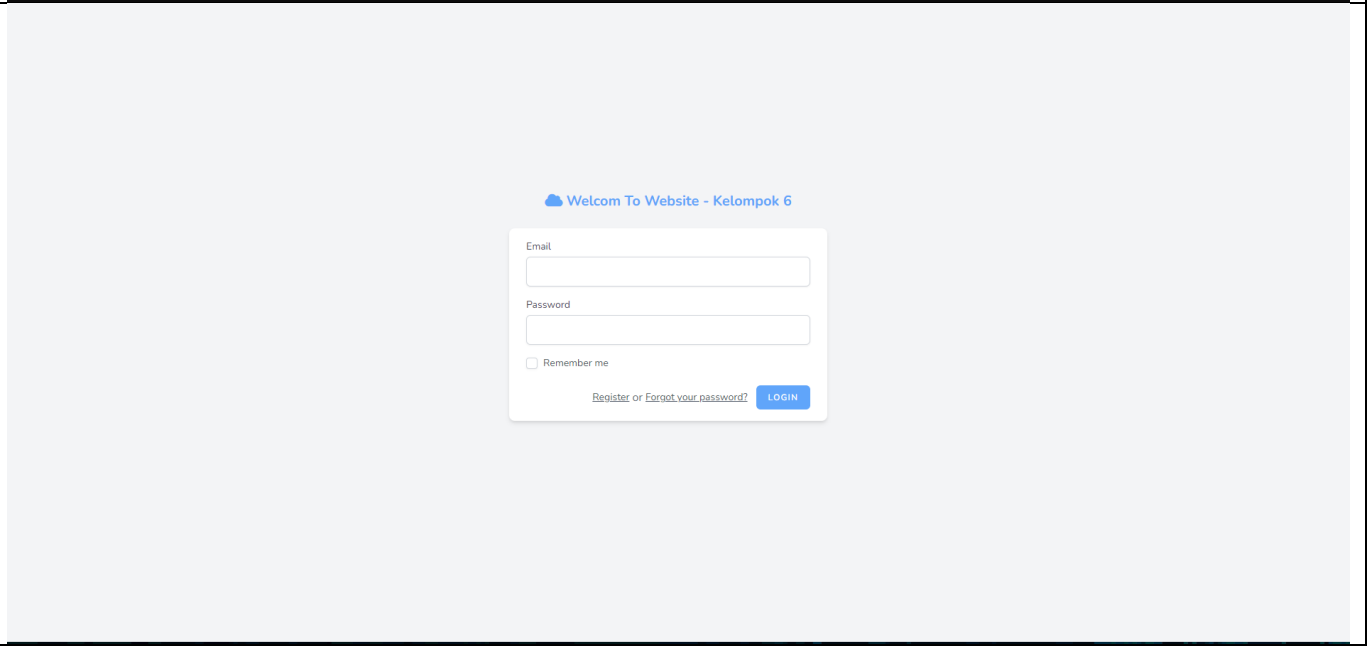
- **Hasil Konfigurasi Web Server (Apache2 atau NGINX) dan Clone Sources-Code**

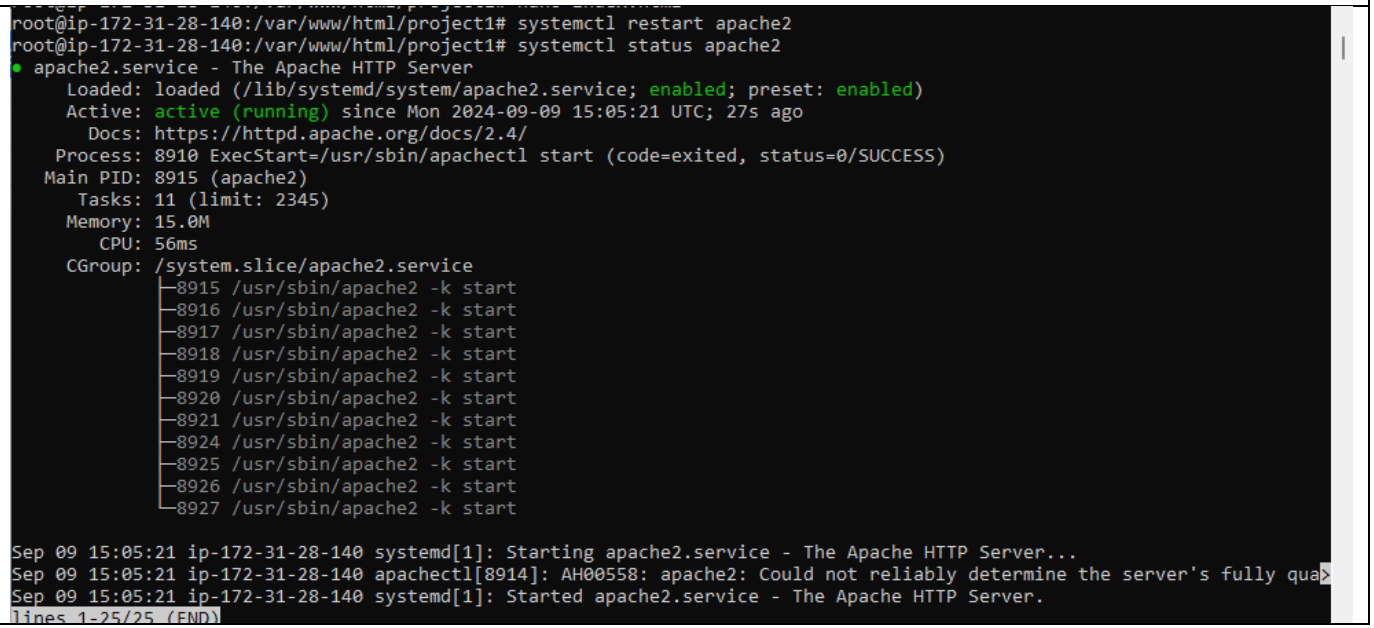
No	Konfigurasi	Screenshot Hasil Konfigurasi
1	Remote server menggunakan SSH Client	
2	Install services apache2, php, library php, unzip dan git	

No	Konfigurasi	Screenshot Hasil Konfigurasi
3	Restart service web server	

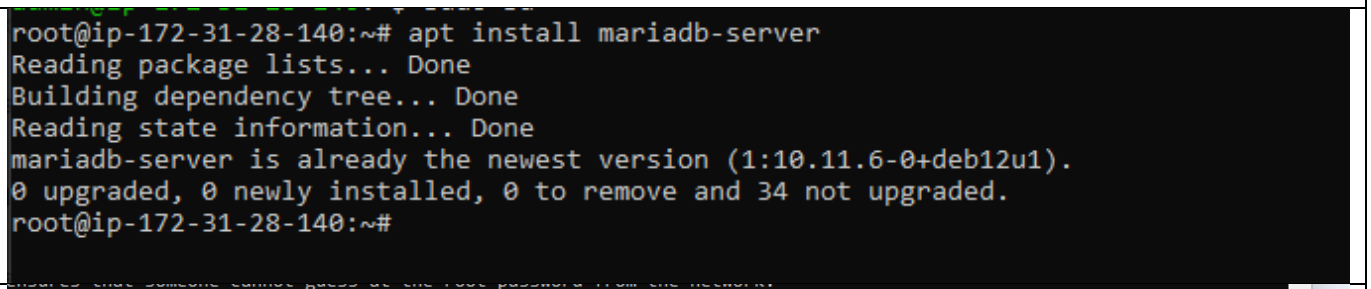
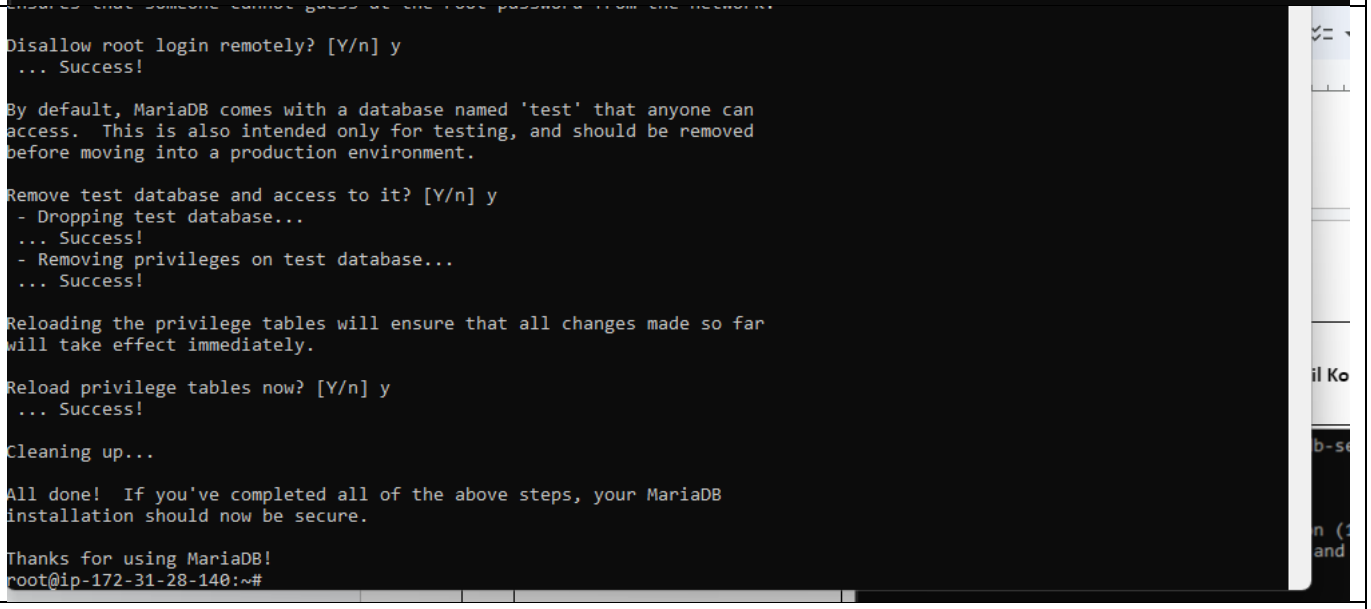
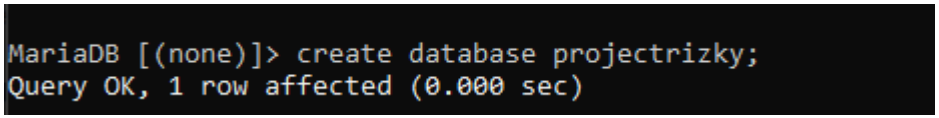
- **Hasil Konfigurasi Clone Sourcescode Web Statis dari Github**

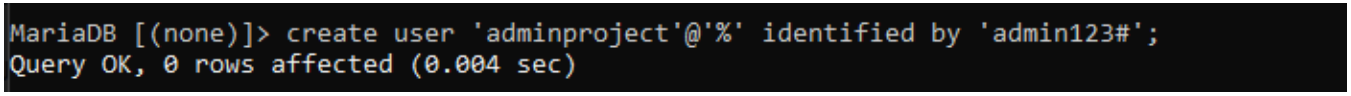
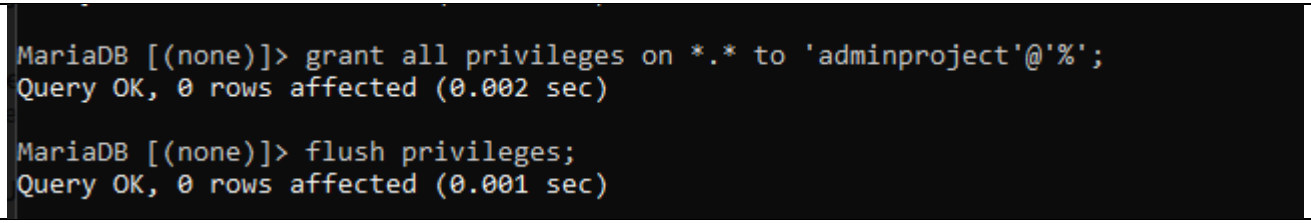
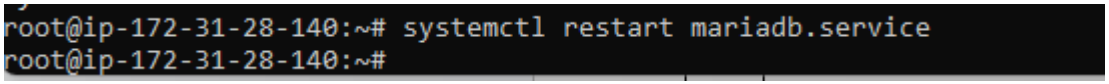
No	Konfigurasi	Screenshot Hasil Konfigurasi
1	Buat direktori baru /var/www/html/project1	
2	1 link sourcecode / screenshot tampilan repository github ***** Sertakan 3 screenshot***	

No	Konfigurasi	Screenshot Hasil Konfigurasi
1	Buat direktori baru /var/www/html/project1	
3	Clone source code ***** Sertakan 3 screenshot***	
4	Cek isi direktori project1 ***** Sertakan 1 screenshot***	
5	Edit tampilan website : project1	

No	Konfigurasi	Screenshot Hasil Konfigurasi
1	Buat direktori baru /var/www/html/project1	
6	Restart dan cek status service web server	

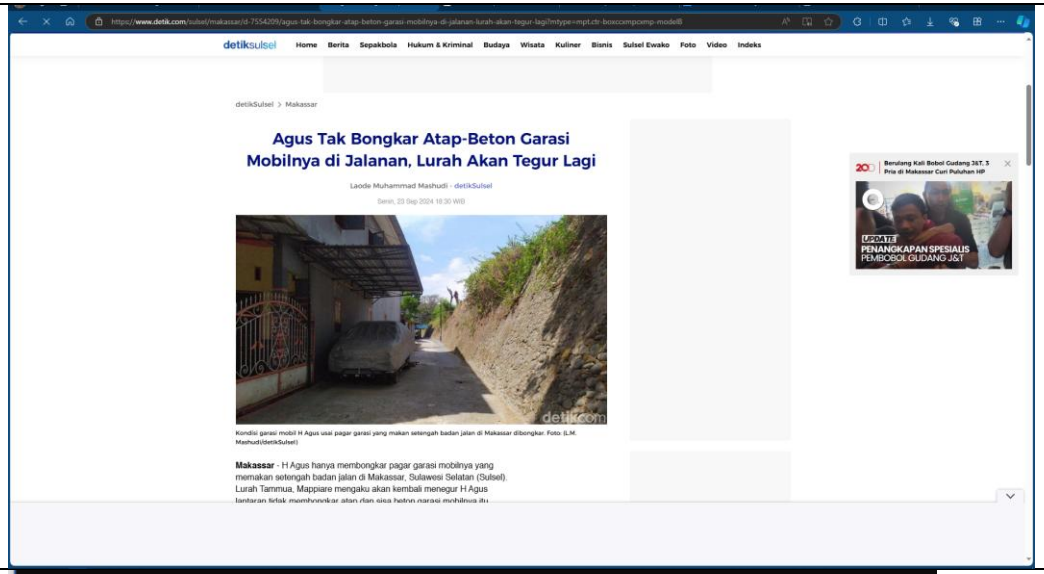
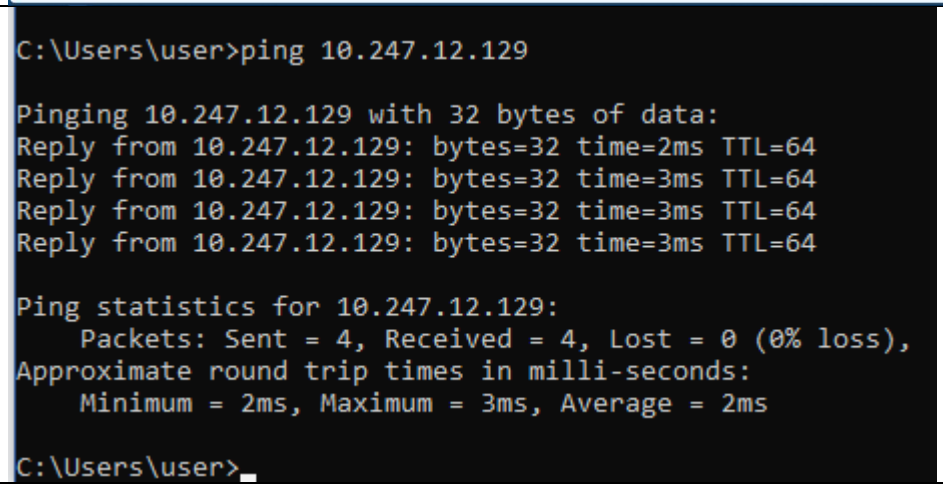
- **Hasil Konfigurasi DBMS MariaDB**

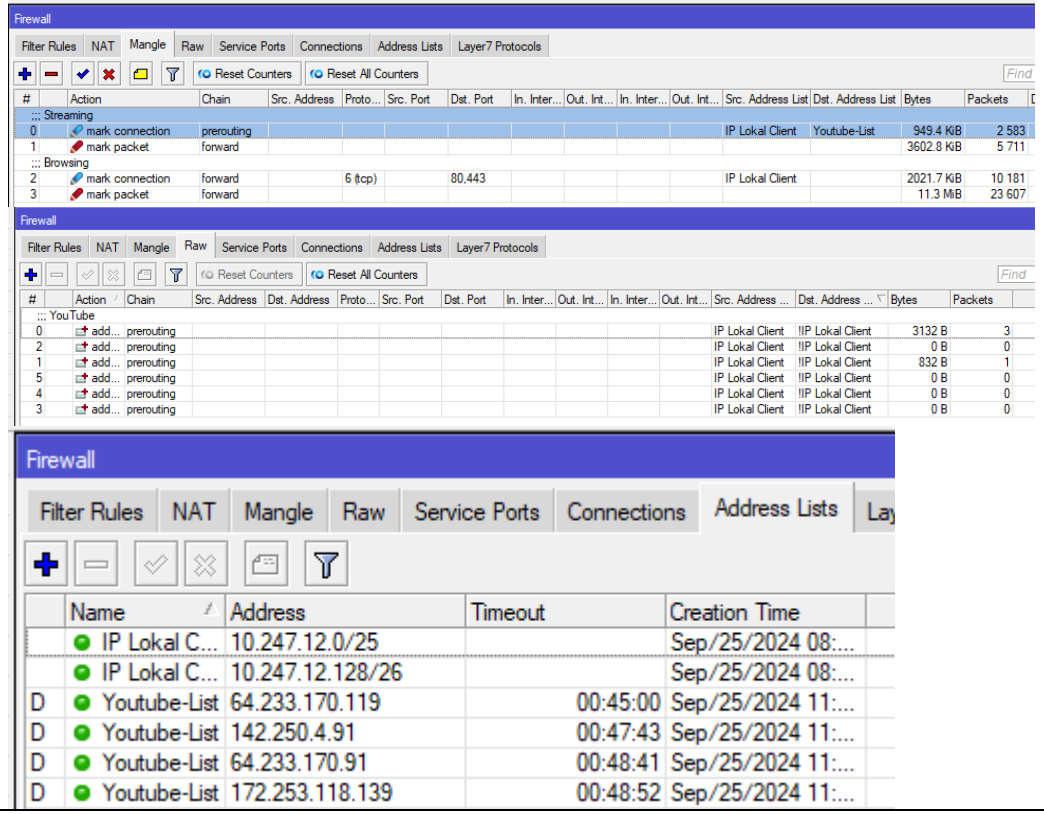
No	Konfigurasi	Screenshot Hasil Konfigurasi
1	Install mariadb-server	
2	Konfigurasi instalasi aman mysql (mysql secure installation)	
3	Membuat database baru	

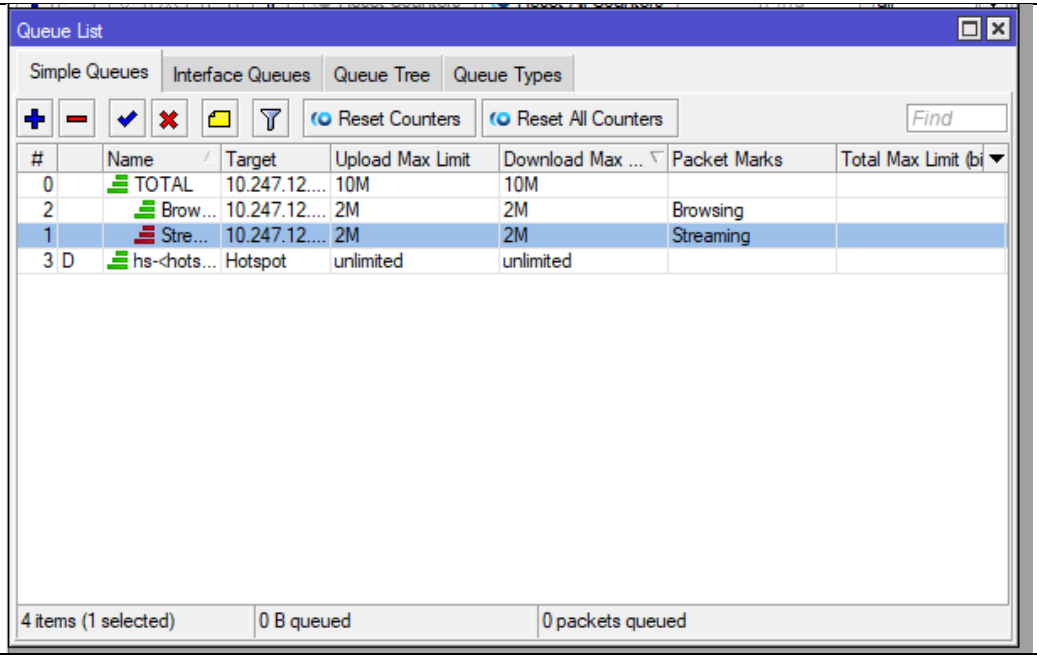
No	Konfigurasi	Screenshot Hasil Konfigurasi
4	Membuat user database baru	
5	Konfigurasi privileges untuk user baru	
6	Restart dan cek status service mysql	

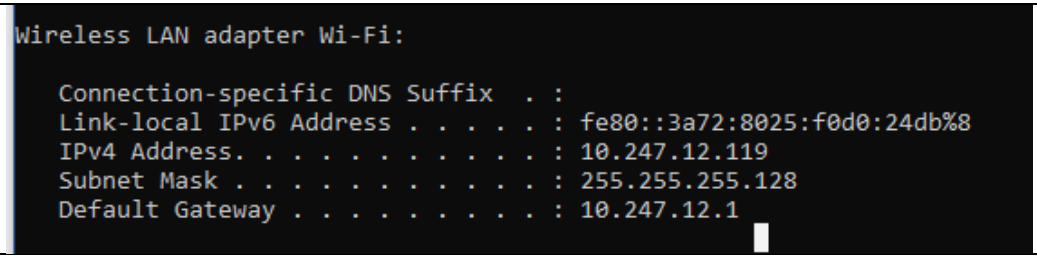
B. HASIL UJI KONFIGURASI

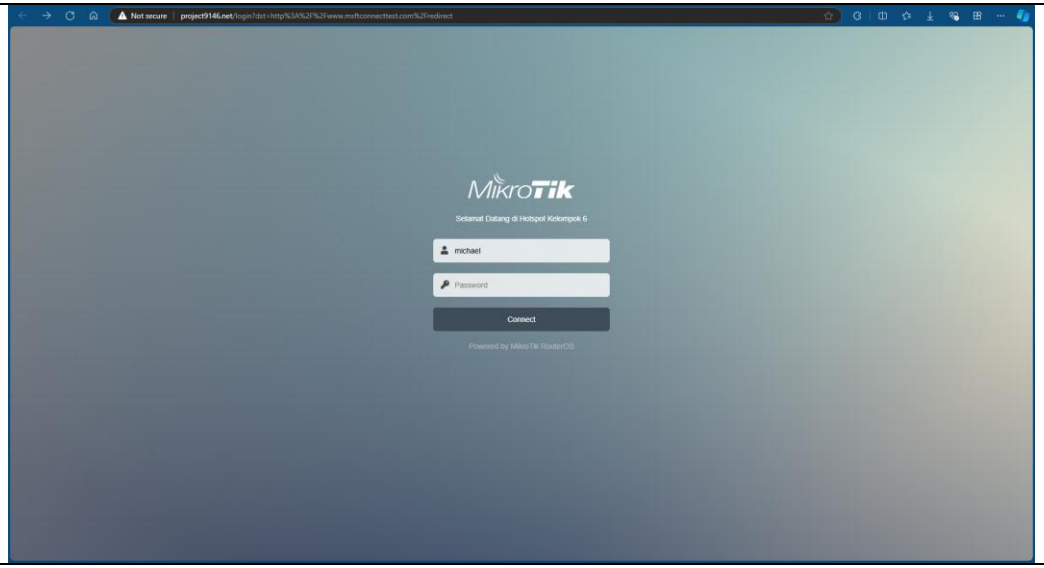
No	Pengecekan	Hasil/Dokumentasi	Keterangan
Uji Coba Client jaringan PPPoE			
1.	IP Address PPPoE		PPoE server melalui VLAN telah berhasil tembus ke ONT tanpa gangguan dari Ormas.
2.	Browsing Internet		Internet lancar jaya!!!

No	Pengecekan	Hasil/Dokumentasi	Keterangan
			
3.	Ping ke IP Gateway Router		Alhamdulillah tembus tanpa hambatan.

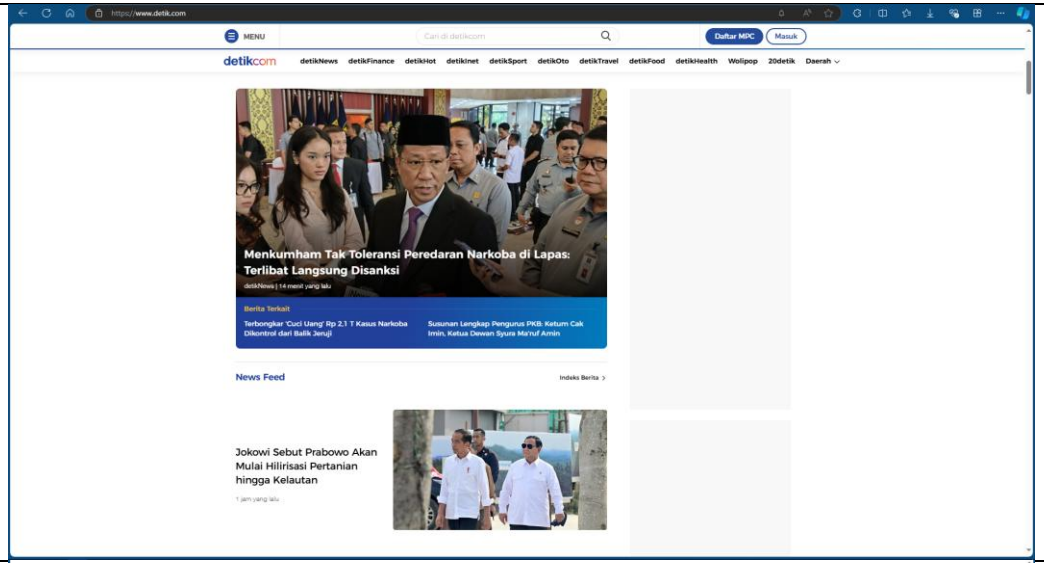
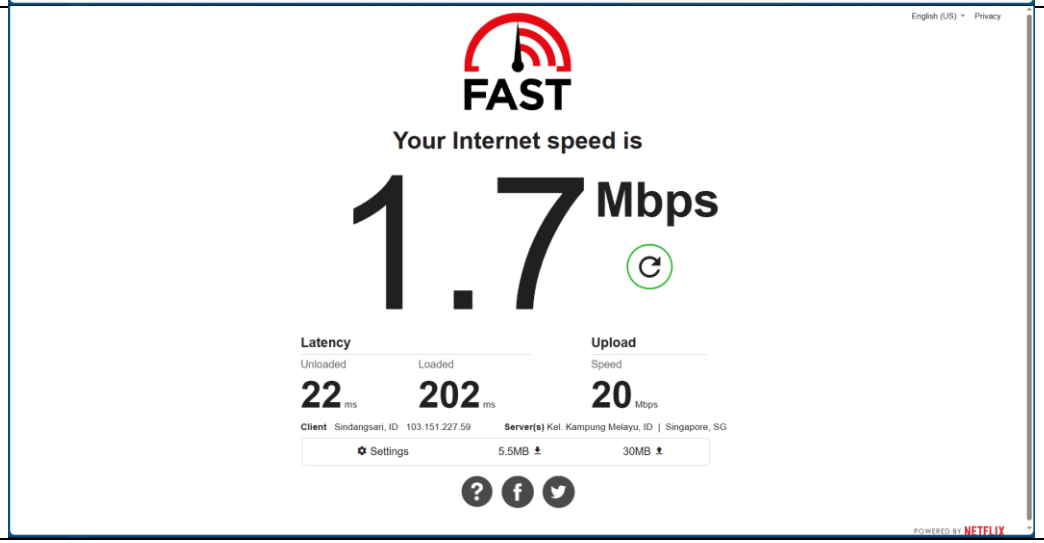
No	Pengecekan	Hasil/Dokumentasi	Keterangan
4	Hasil Pemisahan Traffic ***(Sertakan lebih dari 1 ss)***		Disini bisa dilihat hasil dari pemisahan traffic sudah berhasil/sukses semua. Untuk limitasi streaming dan browsing seimbang.

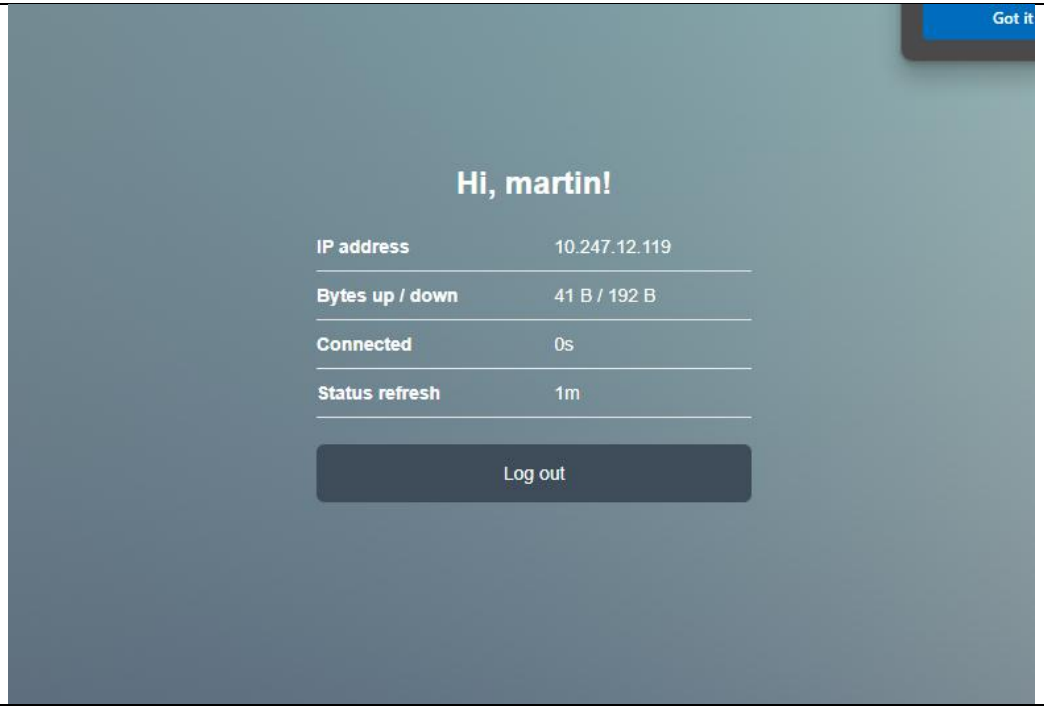
No	Pengecekan	Hasil/Dokumentasi	Keterangan
			

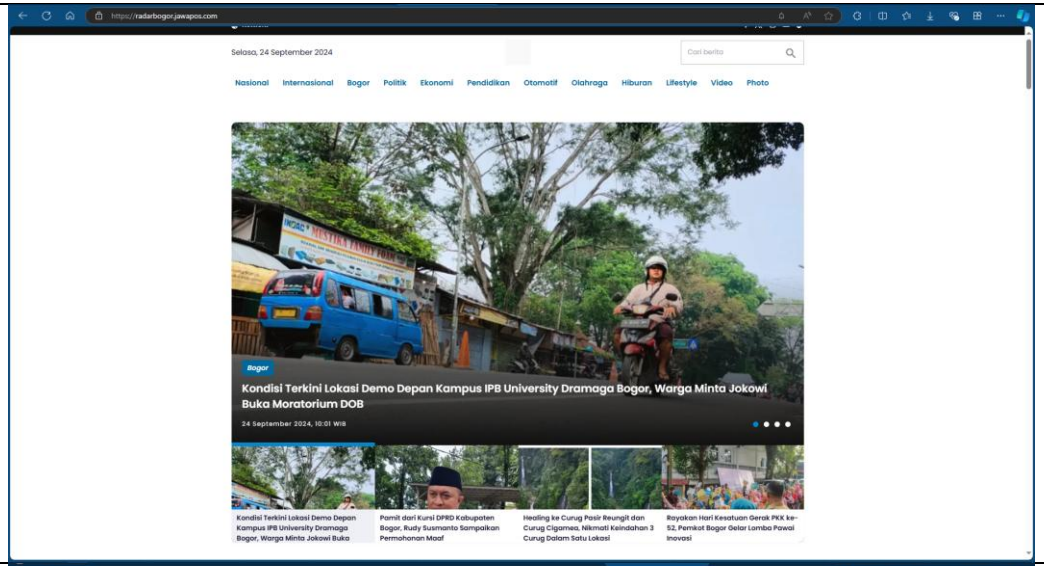
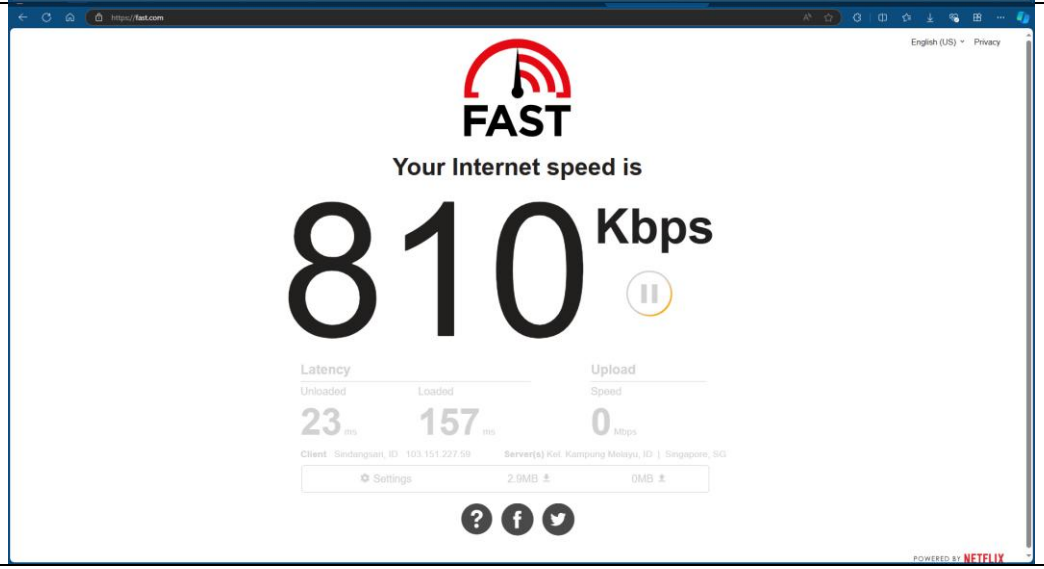
No	Pengecekan	Hasil/Dokumentasi	Keterangan
Uji Coba Client Hotspot			
1.	IP Address Client Hotspot		IP dari router sudah tembus ke client yang terhubung melalui ONT.

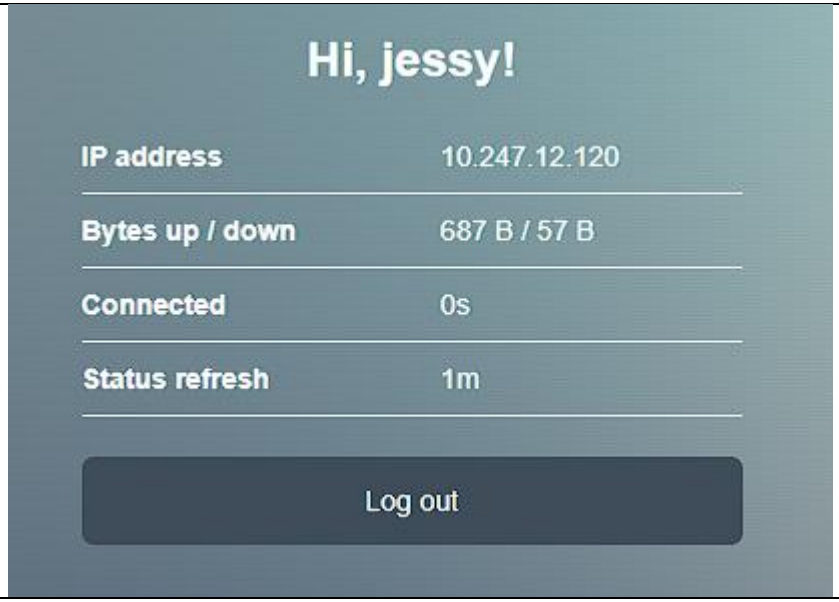
No	Pengecekan	Hasil/Dokumentasi	Keterangan
2.	Tampilan Login Hotspot		Tampilan login nembus Gan

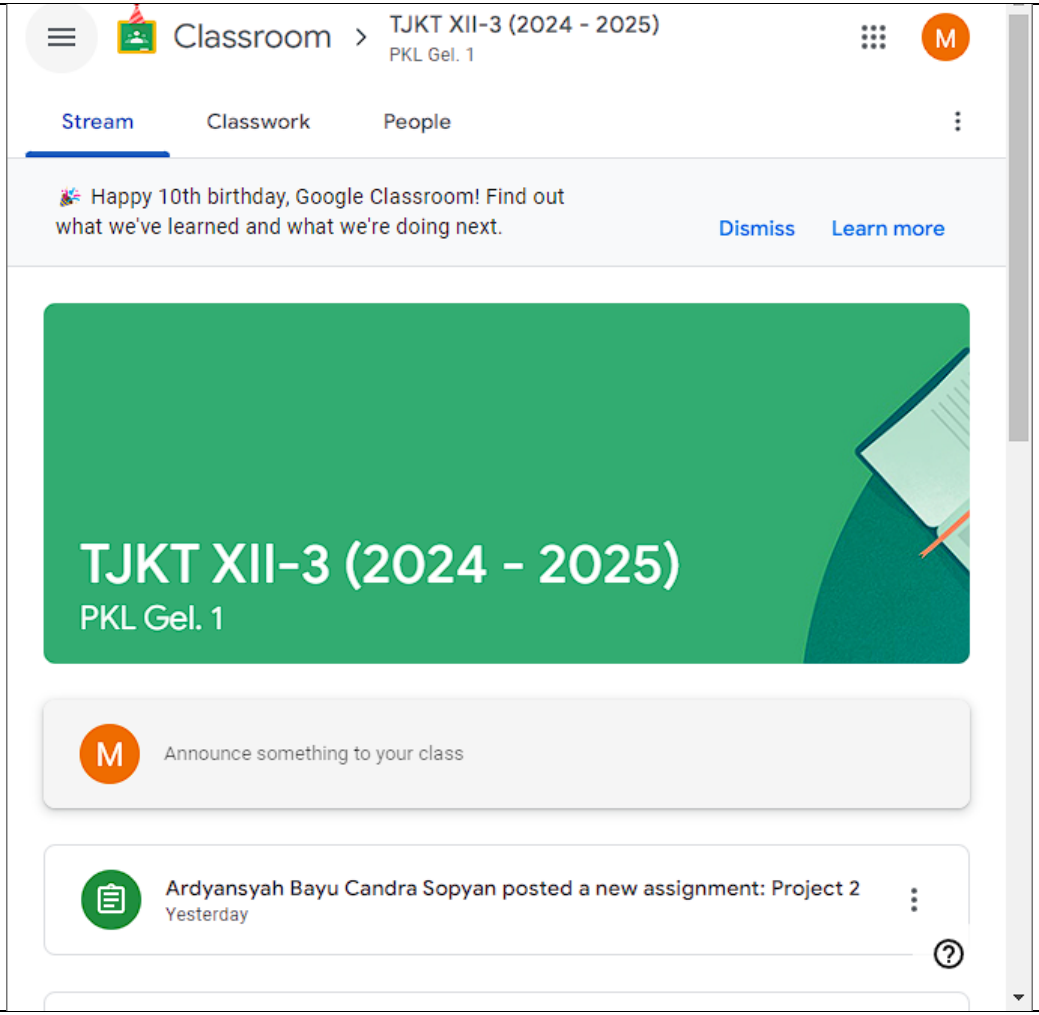
No	Pengecekan	Hasil/Dokumentasi	Keterangan
3.	Login Hotspot Direktur		Berhasil
4.	Browsing User Direktur		berhasil

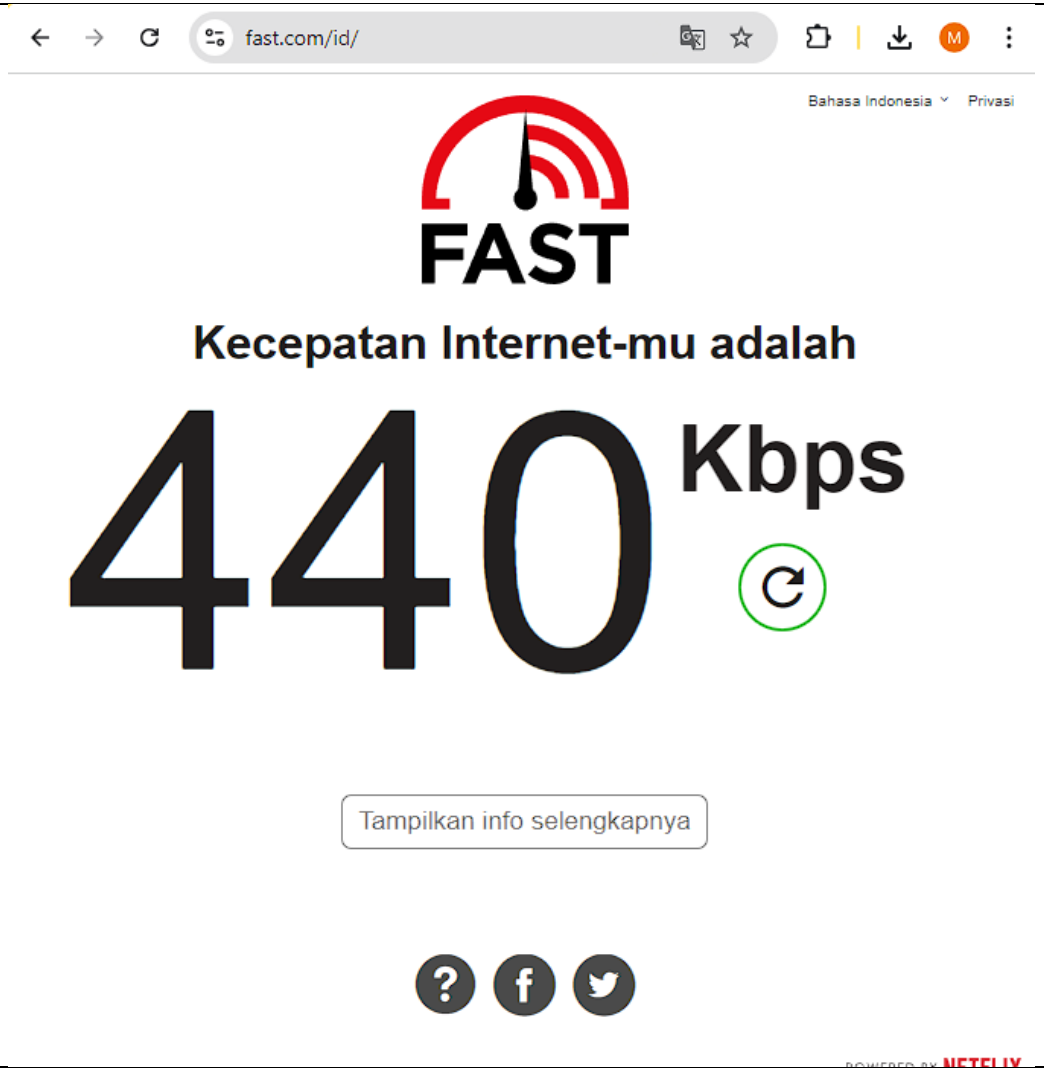
No	Pengecekan	Hasil/Dokumentasi	Keterangan
			
5.	Speedtest User Direktur		ncieee

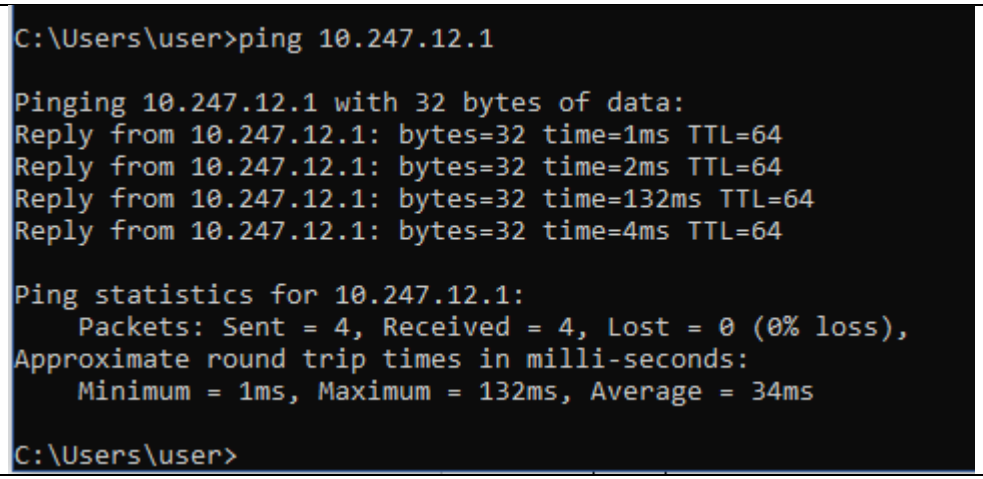
No	Pengecekan	Hasil/Dokumentasi	Keterangan
6.	Login Hotspot Manajer		berhasil

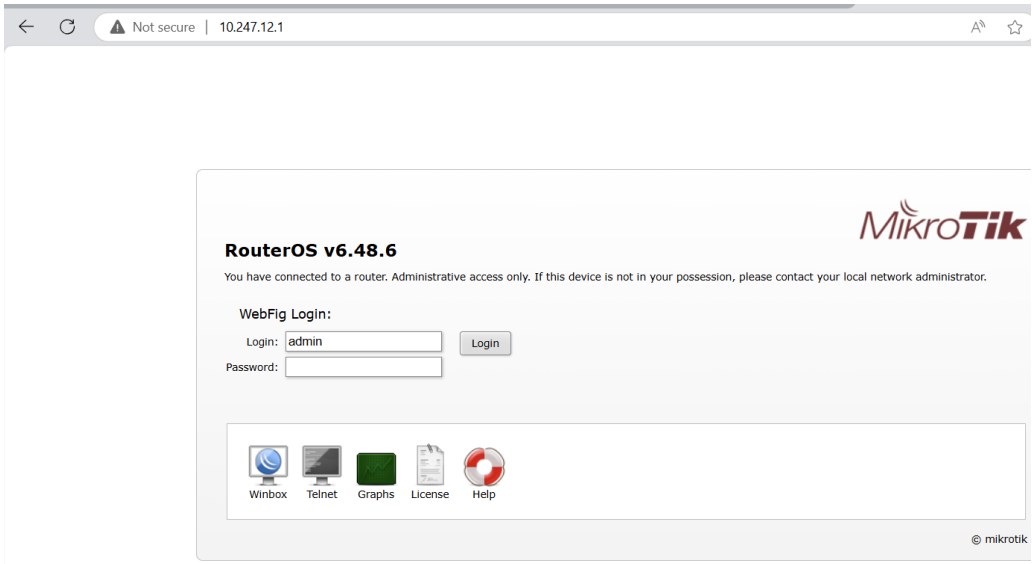
No	Pengecekan	Hasil/Dokumentasi	Keterangan
7.	Browsing User Manajer		berjasil
8.	Speedtest User Manajer		mayanlahh

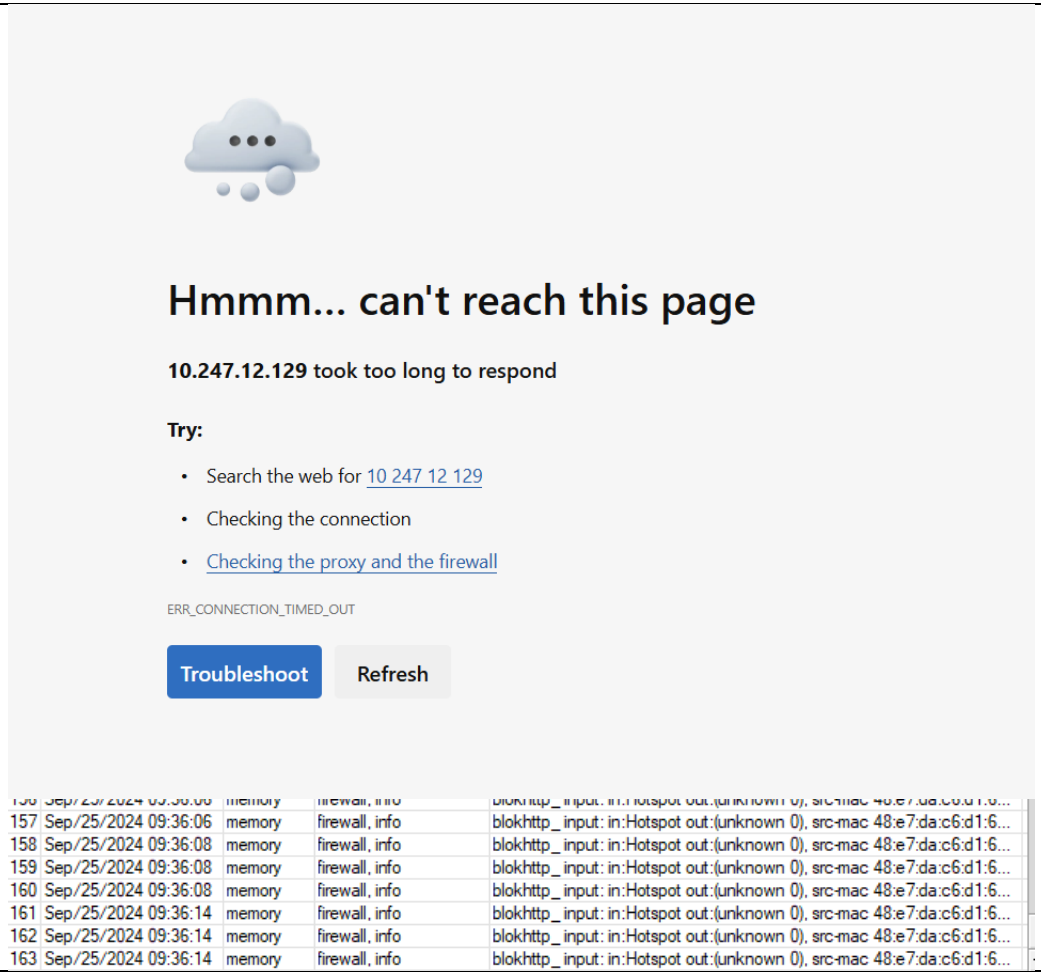
No	Pengecekan	Hasil/Dokumentasi	Keterangan
9.	Login Hotspot Guest		berhasil

No	Pengecekan	Hasil/Dokumentasi	Keterangan
10.	Browsing User Guest		berhasil

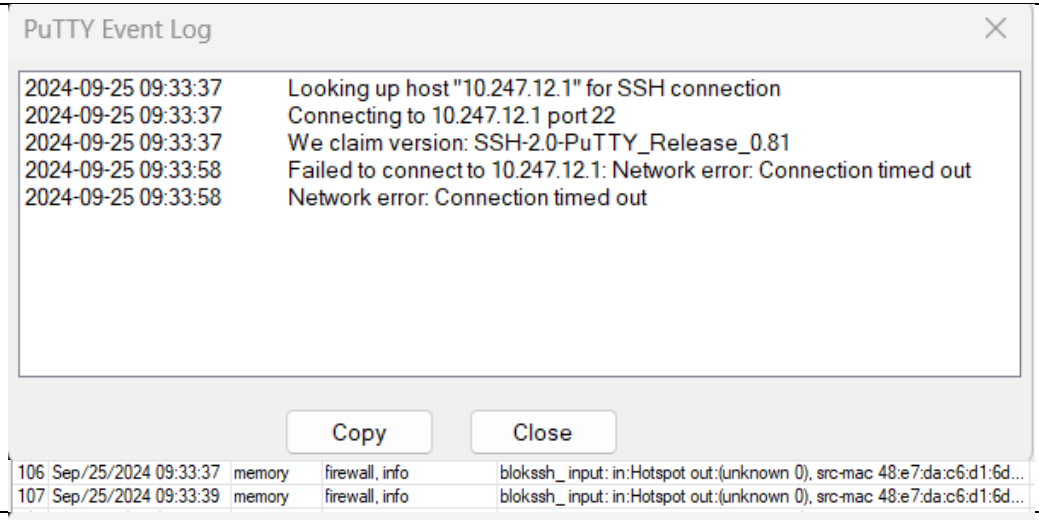
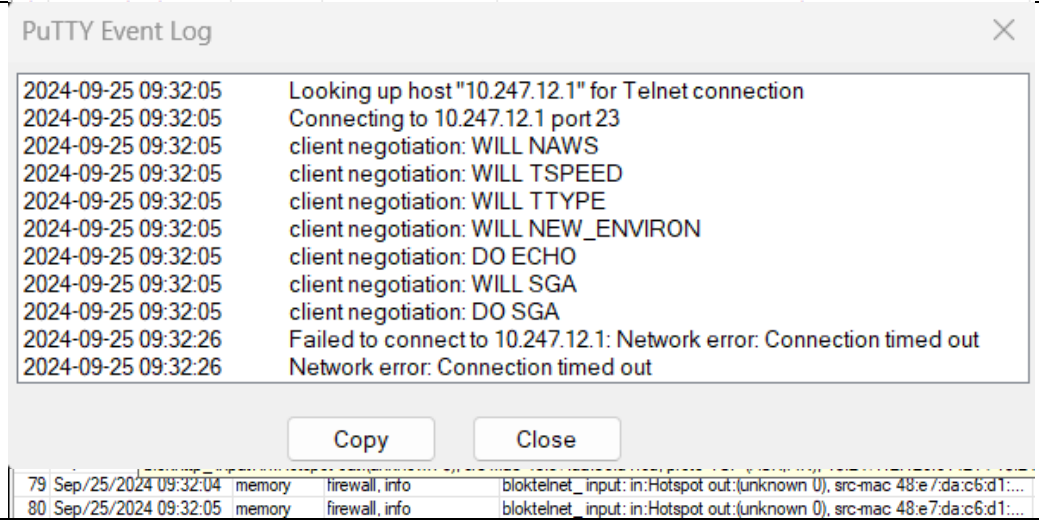
No	Pengecekan	Hasil/Dokumentasi	Keterangan
11.	Speedtest User Guest		oke sip

No	Pengecekan	Hasil/Dokumentasi	Keterangan
12.	Ping ke IP Gateway Router		berhasil

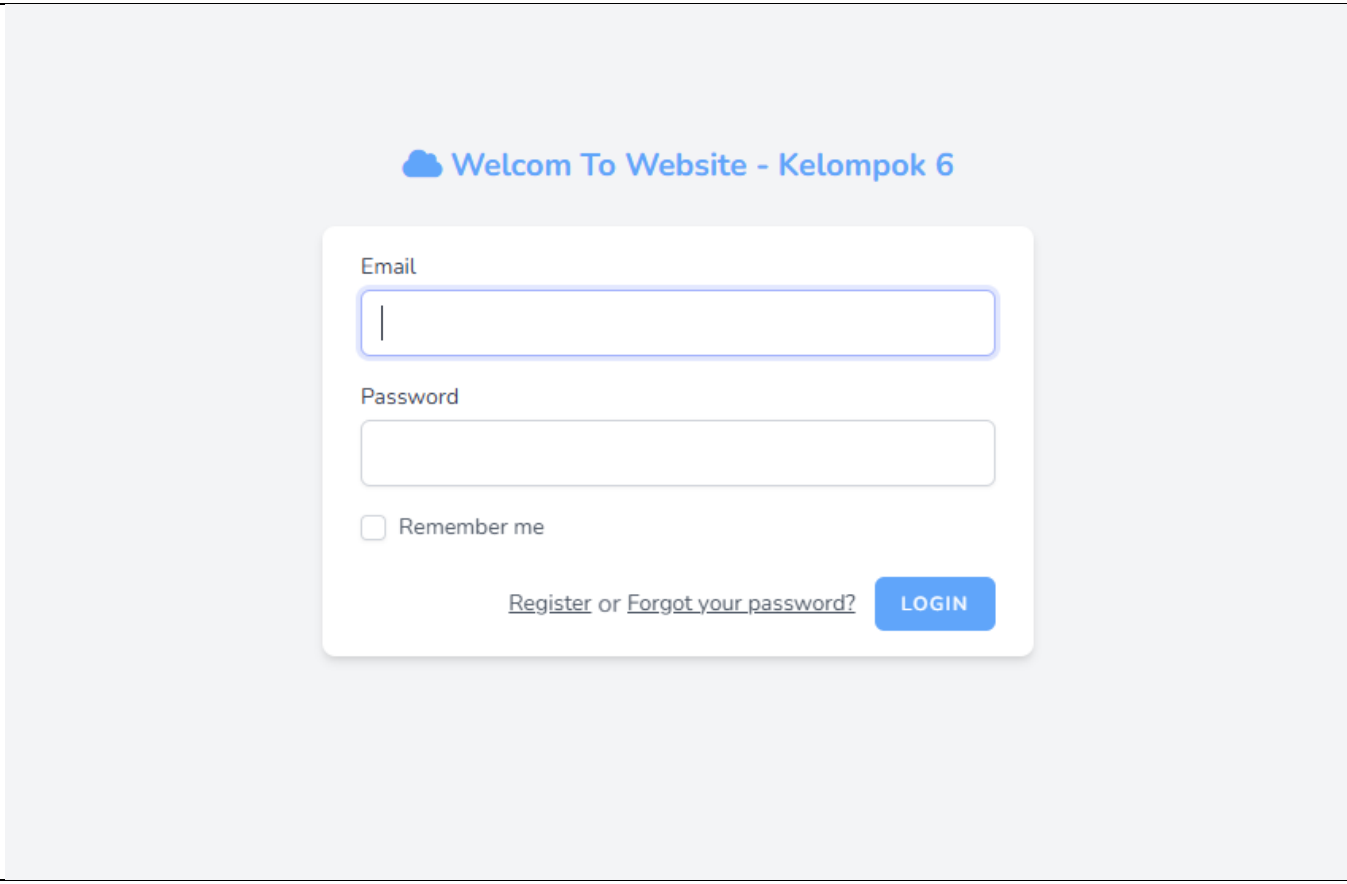
No	Pengecekan	Hasil/Dokumentasi	Keterangan
Uji Coba Blok Akses			
1.	Log akses blok port 80 dari PPPoE		Kami hanya blok http di network hotspot, jadi pada saat menggunakan network PPPoE tetap bisa diakses.

No	Pengecekan	Hasil/Dokumentasi	Keterangan
2.	Log akses blok port 80 dari Hotspot		berhasil

157	Sep/25/2024 09:36:06	memory	firewall, info	blokhttp_ input: in:Hotspot out:(unknown 0), src-mac 48:e7:da:c6:d1:6...
158	Sep/25/2024 09:36:08	memory	firewall, info	blokhttp_ input: in:Hotspot out:(unknown 0), src-mac 48:e7:da:c6:d1:6...
159	Sep/25/2024 09:36:08	memory	firewall, info	blokhttp_ input: in:Hotspot out:(unknown 0), src-mac 48:e7:da:c6:d1:6...
160	Sep/25/2024 09:36:08	memory	firewall, info	blokhttp_ input: in:Hotspot out:(unknown 0), src-mac 48:e7:da:c6:d1:6...
161	Sep/25/2024 09:36:14	memory	firewall, info	blokhttp_ input: in:Hotspot out:(unknown 0), src-mac 48:e7:da:c6:d1:6...
162	Sep/25/2024 09:36:14	memory	firewall, info	blokhttp_ input: in:Hotspot out:(unknown 0), src-mac 48:e7:da:c6:d1:6...
163	Sep/25/2024 09:36:14	memory	firewall, info	blokhttp_ input: in:Hotspot out:(unknown 0), src-mac 48:e7:da:c6:d1:6...

No	Pengecekan	Hasil/Dokumentasi	Keterangan
2.	Log akses blok port 22 dari PPPoE dan Hotspot		berhasil
3.	Log akses blok port 23 dari PPPoE dan Hotspot		berhasil

Hasil Ujicoba Server

No	Ujicoba	Screenshot Hasil Ujicoba
1	Akses website : projecttjktnama.net/project1	

No	Ujicoba	Screenshot Hasil Ujicoba