

LAPORAN UJI KOMPETENSI KEAHLIAN (UKK)  
Teknologi Layanan Jaringan

## Konfigurasi WiFi Router

### 1. Setting DNS

DNS Settings

Servers: 192.168.200.1  
8.8.8.8  
192.168.43.1

Dynamic Servers: 192.168.43.1

Use DoH Server: Static

☐ Verify DoH Certificate

☒ Allow Remote Requests

Max UDP Packet Size: 4096

Query Server Timeout: 2.000 s

Query Total Timeout: 10.000 s

Max. Concurrent Queries: 100

Max. Concurrent TCP Sessions: 20

Cache Size: 2048 KiB

Cache Max TTL: 7d 00:00:00

Cache Used: 122 KiB

OK  
Cancel  
Apply  
Static  
Cache

### 2. Setting NTP : YES

NTP Client

☒ Enabled

Mode: unicast

Primary NTP Server: 0.0.0.0

Secondary NTP Server: 0.0.0.0

Dynamic Servers:

OK

Cancel

Apply

started

NTP Server

☒ Enabled

☐ Broadcast

☐ Multicast

☒ Multicast

☒ Multicast

Broadcast Addresses:

OK

Cancel

Apply

### 3. Web Proxy dengan Cache Administrator

Web Proxy Settings

General Status Lookups Inserts Refreshes

☒ Enabled

Src. Address: ::

Port: 8080

☐ Anonymous

Parent Proxy:

Parent Proxy Port:

Cache Administrator: gusnanda@smkn3singaraja.sch.id

Max. Cache Size: unlimited KiB

Max Cache Object Size: 2048 KiB

☒ Cache On Disk

Max. Client Connections: 600

Max. Server Connections: 600

Max Fresh Time: 3d 00:00:00

☐ Serialize Connections

☐ Always From Cache

Cache Hit DSCP (TOS): 4

Cache Path: web-proxy

running

OK

Cancel

Apply

Clear Cache

Reset HTML

Access

Cache

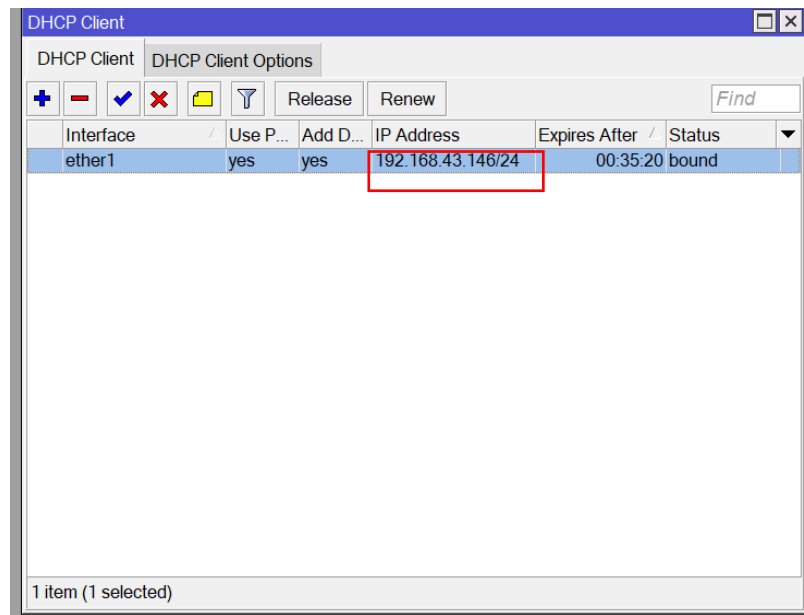
Direct

Connections

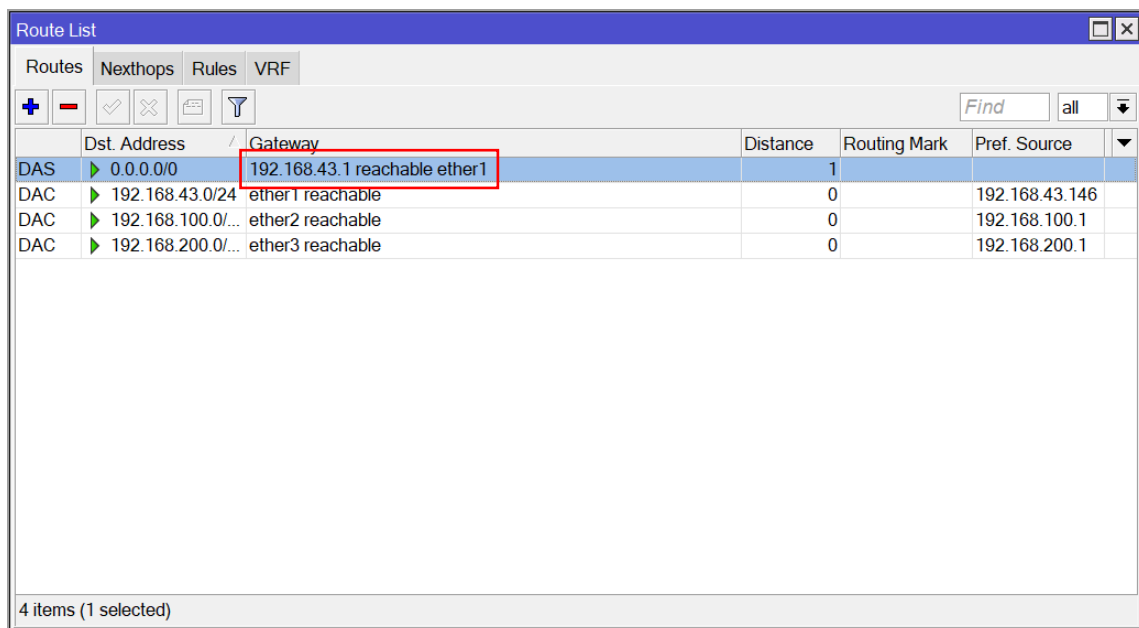
Cache Contents

## Konfigurasi Jaringan Internet

1. IP Address ISP (DHCP Client)



## 2. Gateway ISP (DHCP Client)



## Konfigurasi Jaringan Lokal

1. IP Address Ether 2 = 192.168.100.1/25

Address	Network	Interface
192.168.43.146/24	192.168.43.0	ether1
192.168.100.1/25	192.168.100.0	ether2
192.168.200.1/24	192.168.200.0	ether3

3 items

## 2. DHCP Pool 99 Client

Name	Interface	Relay	Lease Time	Address Pool	Add AR...
dhcp1	ether2		00:10:00	dhcp_pool0	no
dhcp2	ether3		00:10:00	dhcp_pool1	no

Name	Addresses	Next Pool
dhcp_pool0	192.168.100.2-192.168.100.100	none
dhcp_pool1	192.168.200.2-192.168.200.100	none

## 3. Firewall agar IP 192.168.100.2-192.168.100.50 tidak dapat ping ke router.

Firewall Rule <192.168.100.2-192.168.100.50>

General Advanced Extra Action Statistics

Chain:

Src. Address:

Dst. Address:

Protocol: ☐

Src. Port:

Dst. Port:

Any. Port:

In. Interface: ☐

Out. Interface:

In. Interface List:

Firewall Rule <192.168.100.2-192.168.100.50>

General Advanced Extra Action Statistics

Action:

☐ Log

Log Prefix:

4. Firewall agar IP 192.168.100.51-192.168.100.100 tidak dapat ping ke client wireless

Firewall Rule <192.168.100.51-192.168.100.100->192.168.200.0/24>

General	Advanced	Extra	Action	Statistics
Chain: <input type="text" value="forward"/>				
Src. Address: <input type="checkbox"/> 192.168.100.51-192.168.100.100				
Dst. Address: <input type="checkbox"/> 192.168.200.0/24				
Protocol: <input type="checkbox"/> 1 (icmp)				
Src. Port: <input type="text"/>				
Dst. Port: <input type="text"/>				
Any. Port: <input type="text"/>				
In. Interface: <input type="text"/>				
Out. Interface: <input type="text"/>				
In. Interface List: <input type="text"/>				
Out. Interface List: <input type="text"/>				

Firewall Rule <192.168.100.51-192.168.100.100->192.168.200.0/24>

General	Advanced	Extra	Action	Statistics
Action: <input type="text" value="drop"/>				
<input type="checkbox"/> Log				
Log Prefix: <input type="text"/>				

5. Rule agar setiap akses ke Router tercatat di LOGGING dan tersimpan di Disk

Firewall Rule <>

General Advanced Extra Action Statistics

Chain: input

Src. Address:

Dst. Address:

Protocol:

Src. Port:

Dst. Port:

Any. Port:

In. Interface:

Out. Interface:

In. Interface List:

Out. Interface List:

Session: 00.00.29.D0.00.00

Firewall Rule <>

General Advanced Extra Action Statistics

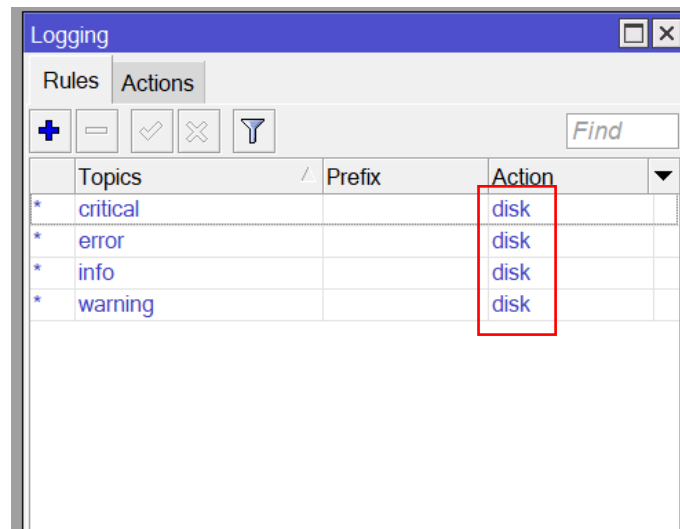
Action: log

☒ Log

Log Prefix: Akses ke Router



Kemudian pada menu System → Logging, ubah semua Action pada Topics tersebut menjadi Disk, agar logging yang masuk tersimpan permanen pada disk.

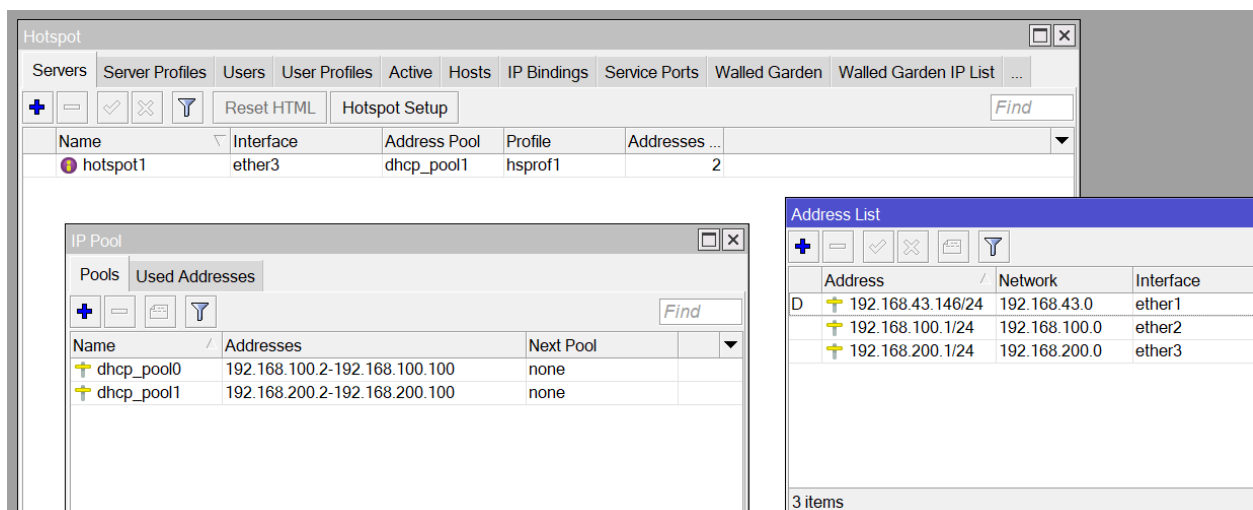


### Konfigurasi Jaringan Wireless Untuk Hotspot

(Di sini saya mengganti jaringan wireless untuk hotspot menggunakan Ether 3 yang memiliki IP Address 192.168.200.1/24, karena jaringan wireless pada Virtual Machine tidak bisa dilakukan.)

(Karena jaringan wireless tidak bisa dilakukan, maka poin nomor 12, 14 dan 15 yaitu membuat SSID Jaringan Wireless, Pembuatan 20 Account Hotspot di Radius (Usermanager), dan Pengaturan Waktu Akses Internet di Usermanager tidak bisa dilakukan.)

1. IP Address dari Ether yang dipakai untuk terhubung ke Hotspot = 192.168.200.1/24



## 2. DHCP Pool 192.168.200.2 – 192.168.200.100 (99 Client)

The screenshot displays the Mikrotik WinBox interface. The main window shows the 'Hotspot' configuration with a table listing the 'hotspot1' configuration. Below this, the 'IP Pool' window is open, showing a table of DHCP pools. The 'dhcp\_pool1' entry is highlighted with a red box, indicating the address range 192.168.200.2-192.168.200.100. To the right, the 'Address List' window is open, showing a table of addresses. The '192.168.200.1/24' entry is highlighted with a red box, indicating the network 192.168.200.0 and interface ether3.

Name	Interface	Address Pool	Profile	Addresses ...
hotspot1	ether3	dhcp_pool1	hsprof1	2

Name	Addresses	Next Pool
dhcp_pool0	192.168.100.2-192.168.100.100	none
dhcp_pool1	192.168.200.2-192.168.200.100	none

Address	Network	Interface
192.168.43.146/24	192.168.43.0	ether1
192.168.100.1/24	192.168.100.0	ether2
192.168.200.1/24	192.168.200.0	ether3

## Konfigurasi Firewall Untuk Pemblokiran Konten

1. Rule Firewall untuk pemblokiran situs linux.org (saya ganti dengan linux.or.id. Karena website linux.org merupakan website HTTPS yang tidak bisa diblokir hanya melalui Rule pada Firewall. Sedangkan website linux.or.id adalah website HTTP dengan port 80 yang bisa diblokir melalui Rule Firewall)

The screenshot displays the Mikrotik WinBox interface for configuring a Firewall Rule. The 'General' tab is selected, and the rule is named 'Firewall Rule <64.140.165.106>'. The 'Chain' is set to 'forward'. The 'Dst. Address' is set to '64.140.165.106'. The 'Protocol' is set to '6 (tcp)'. The 'Out. Interface' is set to 'ether1'. The 'Src. Address', 'Src. Port', 'Dst. Port', 'Any. Port', 'In. Interface', 'In. Interface List', 'Out. Interface List', and 'Packet Mark' fields are empty.

Chain
forward

Dst. Address
64.140.165.106

Protocol
6 (tcp)

Out. Interface
ether1

Firewall Rule <64.140.165.106>

General Advanced Extra Action Statistics

Src. Address List:

Dst. Address List:

Layer7 Protocol:

Content: ☐ linux.or.id

Connection Bytes:

Connection Rate:

Per Connection Classifier:

Src. MAC Address:

Out. Bridge Port:

In. Bridge Port:

Firewall Rule <64.140.165.106>

General Advanced Extra Action Statistics

Action: drop

☐ Log

Log Prefix:

## 2. Pemblokiran File .mp3

Firewall Rule <>

General Advanced Extra Action Statistics

Chain:

Src. Address:

Dst. Address:

Protocol: ☐ 6 (tcp)

Src. Port:

Dst. Port:

Any. Port:

In. Interface:

Out. Interface: ☐ ether1

In. Interface List:

Out. Interface List:

Packet Mark:

Connection Mark:

Routing Mark:

Firewall Rule <>

General Advanced Extra Action Statistics

Src. Address List:

Dst. Address List:

Layer7 Protocol:

Content: ☐ .mp3

Connection Bytes:

Connection Rate:

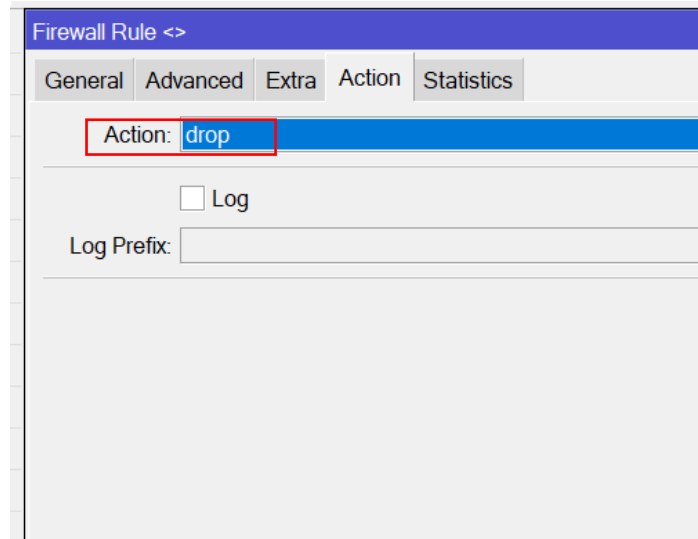
Per Connection Classifier:

Src. MAC Address:

Out. Bridge Port:

In. Bridge Port:

In. Bridge Port List:



### 3. Pemblokiran File .mkv

Firewall Rule <>

General Advanced Extra Action Statistics

Chain:

Src. Address:

Dst. Address:

Protocol: ☐ 6 (tcp)

Src. Port:

Dst. Port:

Any. Port:

In. Interface:

Out. Interface: ☐ ether1

In. Interface List:

Out. Interface List:

Packet Mark:

Firewall Rule <>

General Advanced Extra Action Statistics

Src. Address List:

Dst. Address List:

Layer7 Protocol:

Content: ☐ .mkv

Connection Bytes:

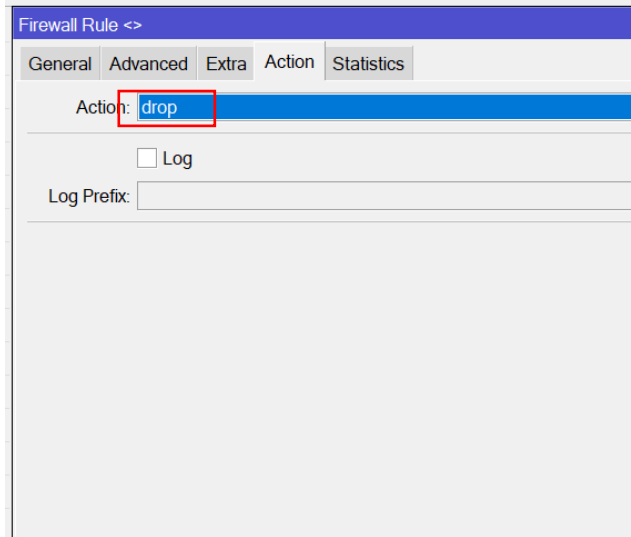
Connection Rate:

Per Connection Classifier:

Src. MAC Address:

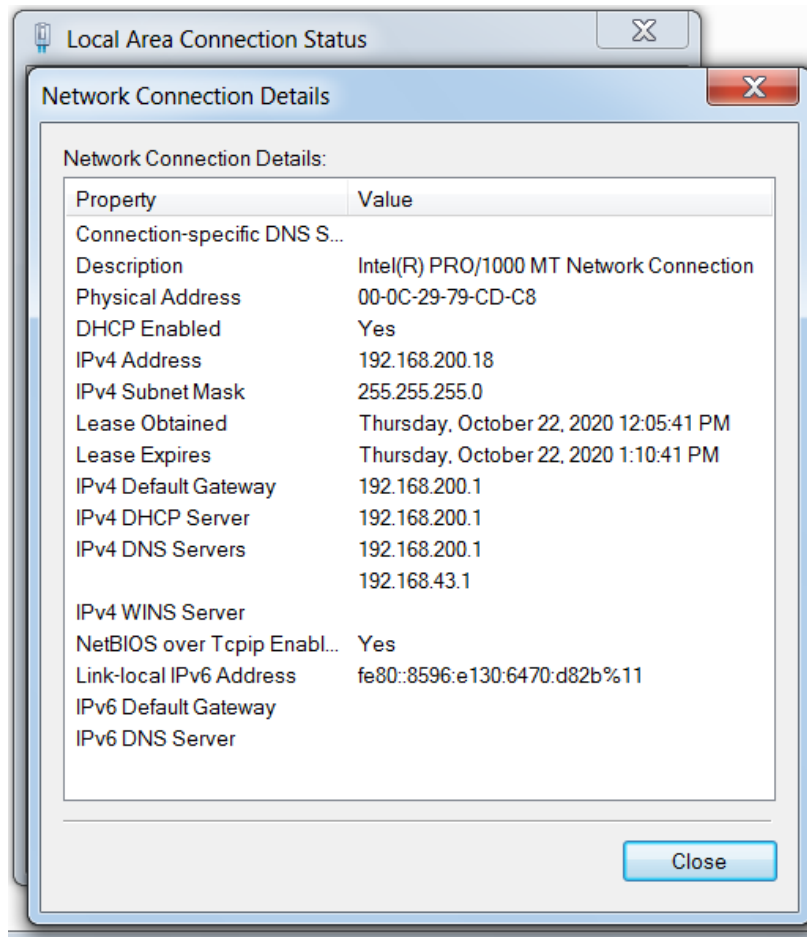
Out. Bridge Port:

In. Bridge Port:

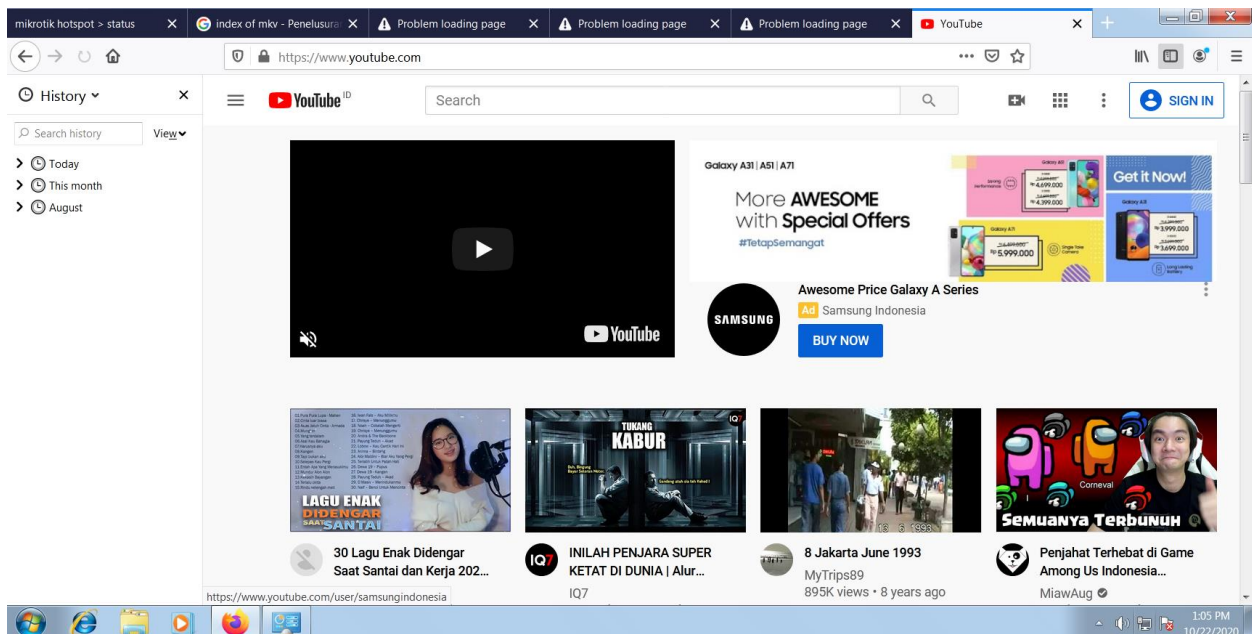


## PENGUJIAN

1. Gambar IP pada adapter PC Client Virtual Windows 7, dengan IPv4 sudah menunjukkan 192.168.200.18 yang artinya Client ini sudah terhubung ke Internet melalui Router Mikrotik Virtual.

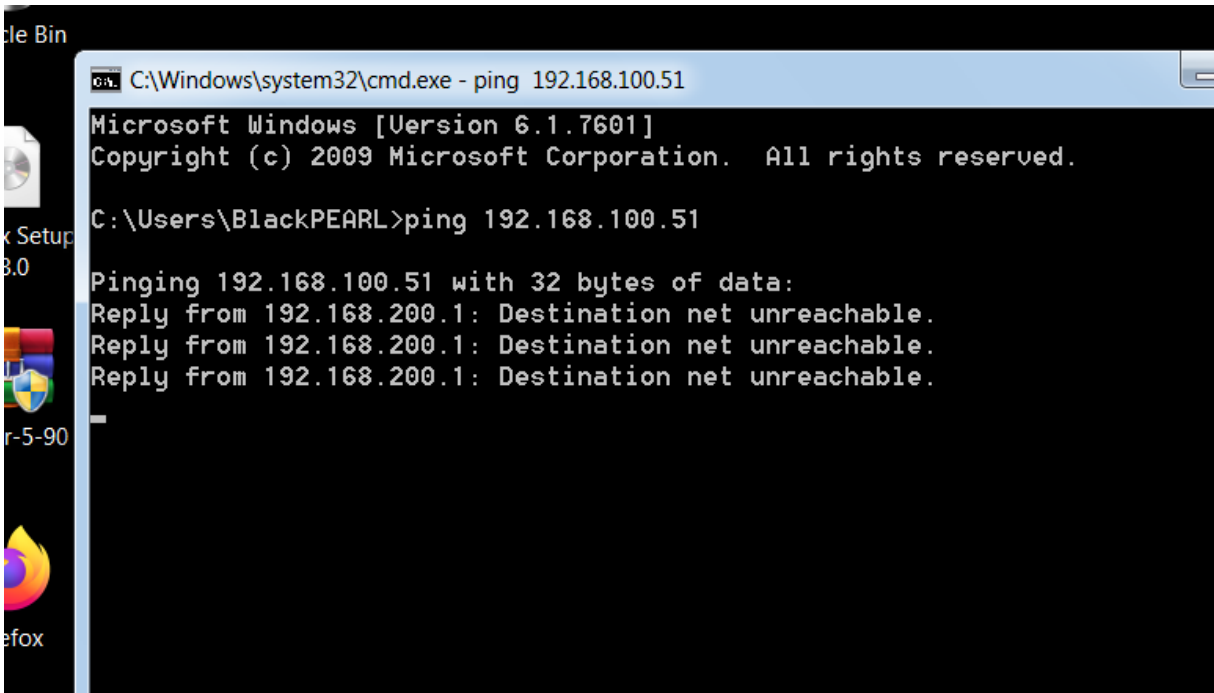


2. Kemudian Dari PC Virtual, akses Internet sudah masuk karena browser pada PC Client Virtual sudah bisa mengakses Youtube.

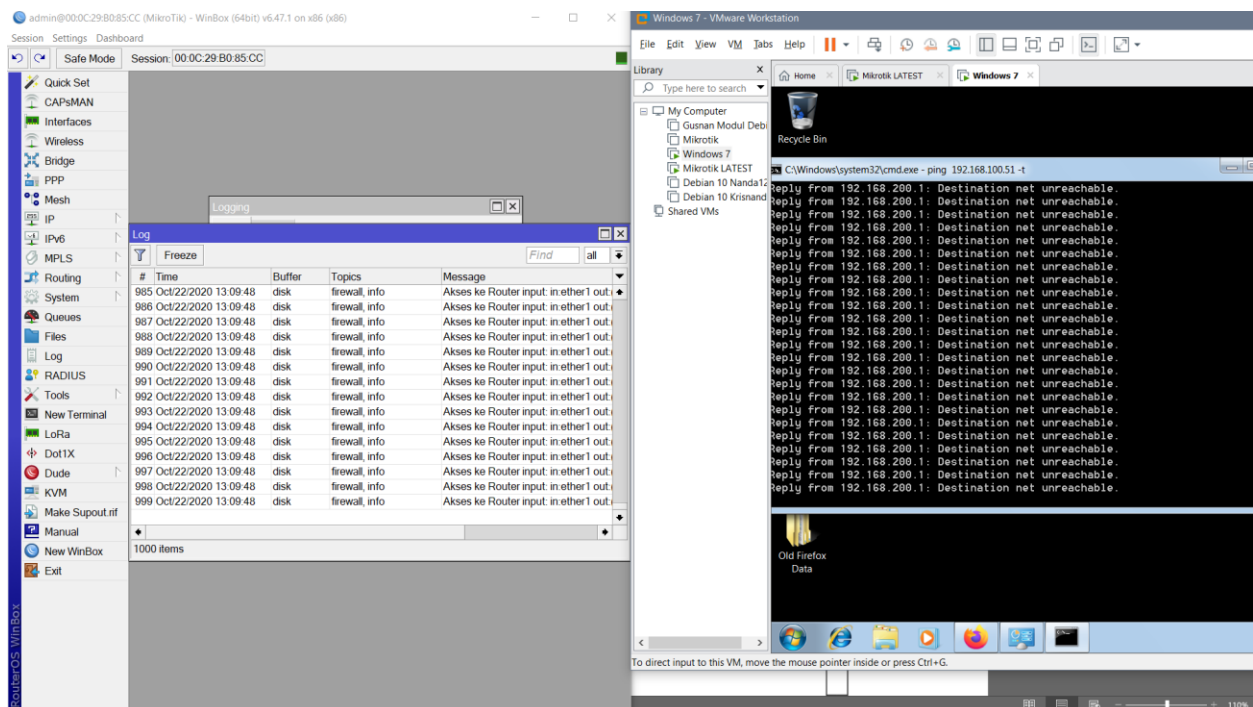




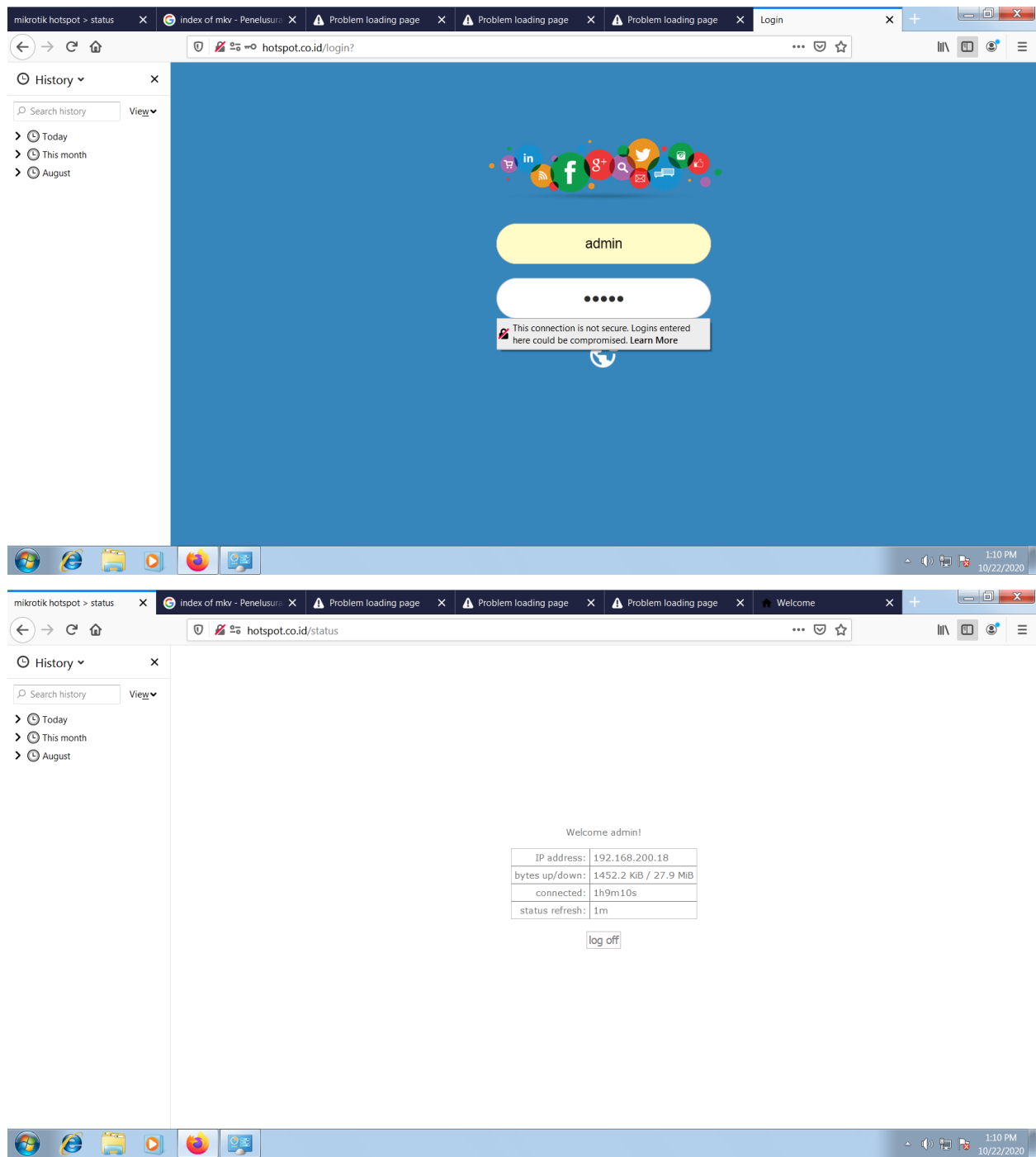
3. Blocking Ping dari Client Hotspot (192.168.200.18) ke IP ether 2 (192.168.100.51-192.168.100.100)



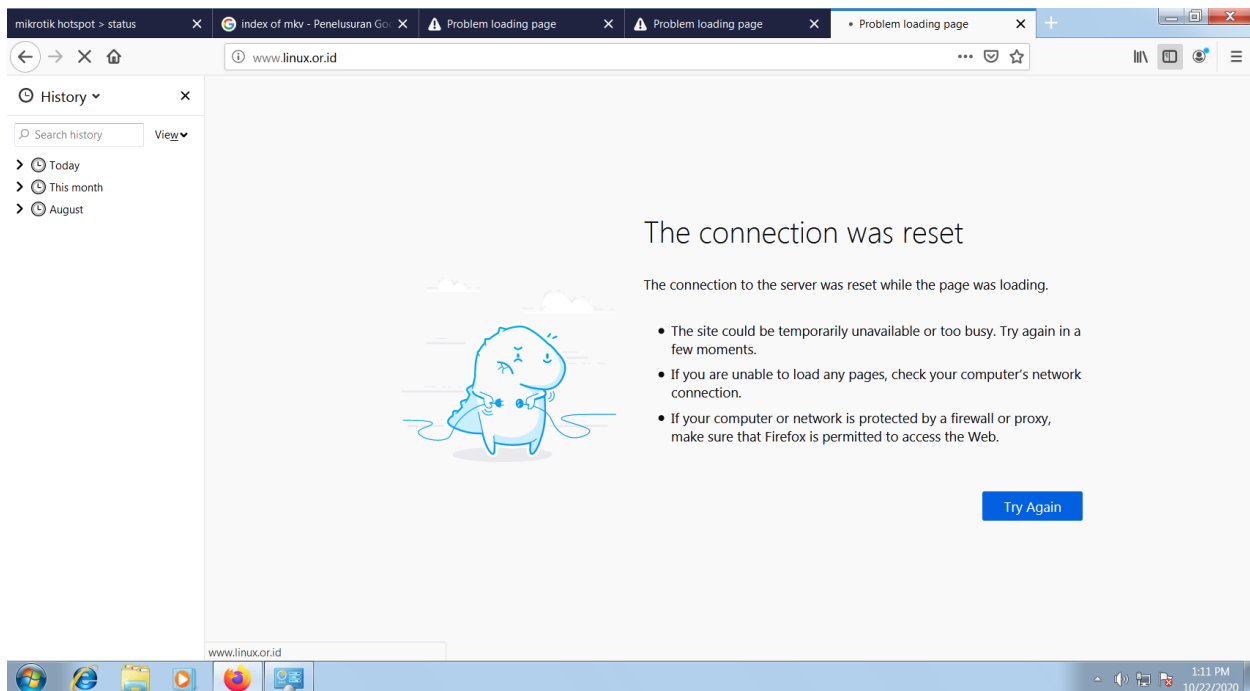
4. Konfigurasi Rule Logging sudah berhasil, bisa dilihat dari menu LOG pada winbox yang ketika kita melakukan Ping ke Router, maka log aktivitasnya akan masuk.



5. Konfigurasi Hotspot sudah berhasil.



6. Hasil dari pemblokiran situs Linux.or.id yang sudah berhasil.



Blokir www.linux.org									
15	✖ drop	forward	64.140.165.106	6 (tcp)			ether1		45.4 KiB

(Rule pemblokiran situs yang sudah berhasil akan menunjukkan perubahan data Bytes dari Rule tersebut).

7. Hasil dari pemblokiran file .mp3 sudah berhasil. Indikasinya berhasil yaitu ketika kita mengklik lagu dan mengunduh, maka tidak akan bisa mengunduh lagu tersebut.



...	Blokir .mp3	16	drop	forward	6 (tcp)	ether1	33.8 KIB
-----	-------------	----	------	---------	---------	--------	----------

(Rule pemblokiran situs yang sudah berhasil akan menunjukkan perubahan data Bytes dari Rule tersebut).

- Hasil dari pemblokiran file .mkv sudah berhasil. Indikasinya sama dengan rule pemblokiran tadi, yaitu angka Bytes pada keterangan Rulanya akan naik yang tandanya Rule tersebut sudah merespon tindakan kita.

Name	Last modified	Size	Description
<a href="#">Parent Directory</a>		-	
<a href="#">1242-small.mkv</a>	2016-03-08 00:16	100K	
<a href="#">codec_delay_opus.mkv</a>	2016-07-28 15:40	9.4K	
<a href="#">flac_channel_layouts.mka</a>	2019-12-08 22:56	1.3K	
<a href="#">lzo.mka</a>	2019-12-29 03:09	6.4K	
<a href="#">prores_bz2.mkv</a>	2019-12-29 03:09	9.1K	
<a href="#">prores_zlib.mkv</a>	2019-12-07 16:19	38K	
<a href="#">spherical.mkv</a>	2016-12-06 19:53	79K	
<a href="#">subtitle_zlib.mks</a>	2019-12-07 18:40	654	
<a href="#">test7_cut.mkv</a>	2013-05-05 12:19	2.0M	
<a href="#">wavpack_missing_codecprivate.mka</a>	2020-03-26 05:38	29K	
<a href="#">xiph_lacing.mka</a>	2019-12-05 03:27	33K	
<a href="#">zero_length_block.mks</a>	2020-04-25 04:39	352	

fate-suite.ffmpeg.org/mkv/1242-small.mkv

...	Blokir .mkv	17	drop	forward	6 (tcp)	ether1	31.6 KIB
-----	-------------	----	------	---------	---------	--------	----------