ROUTING STATIS 2 ROUTER MIKROTIK

A. Teori

Routing static adalah menambahkan jalur routing tertentu secara manual. Mikrotik secara default akan membuat jalur routing otomatis (dynamic route) ketika menambahkan ip address pada interface

1. Instlasi Jaringan

- Pasang 2 Router Mikrotik R951Ui-2HND,
- 3 kabel straight UTP
- Hubungkan ether1 Router 1, ke ether1 Router2
- Hubungkan masing-masing **ethernet2** ke jaringan lokal atau ke PC, seperti pada gambar berikut:



2. Konfigurasi ROUTER 1

- Menggunakan ether3 untuk melakukan konfigurasi, menggunakan ip 192.168.88.1
- Seperti pada gambar berikut:

🔘 MikroTik V	VinBox Loader v2.2	.18	_		×
Connect To:	192.168.88.1			Conne	ect
Login:	admin				
Password:				-	
Г	Save	e			
٦	<u>R</u> emo	ve			
٦.	Load Previous Ses	sion		Tools	
<u>N</u> ote:	MikroTik				
Address 🛆	User	Note			
74:4D:28:ED:23	:E8 admin	MikroTik			

3. Hapus Bridge port

Ether2 secara default berfungsi sebagai bridge, karena akan difungsikan sebagai router maka hapus interface ether2, dari bagian bridge.

- Klik Bridge
- Klik Ports
- Klik ether2
- Klik 🗙 dan 💻
- seperti pada gambar berikut:

Bridge							
Bridge	Ports VLANs	MSTIs Port MST O	verrides	Filters NAT	Hosts MD	ЭB	
+ -	• \star 🗙 (Find
#	Interface	Bridge	Horiz	on Trusted	Priority (h	Path Cost	Role 🔻
;;; def	fconf						
0 XI	44ether2	bridge		no	80	10	
::: def	fconf						
1 H	12tether3	bridge		no	80	10	designated port
::: def	conf						
2 IH	11 ether4	bridge		no	80	10	disabled port
::: def	fconf						
3 IH	44 ether5	bridge		no	80	10	disabled port
::: def	fconf						
41	1⊈twlan1	bridge		no	80	10	disabled port
•							•
5 items (1 selected)						

4. Hapus IP, Firewall

- Pilih IP
- Klik Firewall
- Klik Filter Rules
- Lakukan blok
- Klik X dan 💻
- seperti pada gambar berikut:

Firewa	I												
Filter	Rules	NAT	Mangle	Raw	Service P	orts	Connect	ions A	ddress Lists	Layer7 Pro	otocols		
+	-	~ >	۳	T	oo Rese	t Cou	Inters	oo Rese	et All Counter	s	Find	all	₹
#	Act	tion	Chain	Sro	. Address	Dst.	Address	Proto	Src. Port	Dst. Port	In. Inter	. Out. Int	In 🔻
3	- 🗸	acc	input					1 (ic					+
::: 0	lefcont	f: drop a	all not com	ing fror	n LAN								
4		drop	input										!L
::: 0	lefcont	: acce	pt in ipsec	policy									_
5		acc	forward										
::: 0	lefcont	: acce	pt out ipse	c policy	/								
6	_ ~	acc	forward										
	lefcont	: fasttra	ack										_
		tastt	forward										
::: 0	letcont	: acce	pt establish	ned,rela	ited, untrac	ked							_
8	~	acc	forward										
::: 0		r: arop i	nvalid										-
3		urop . door	norward	ANInot		_							
10		drop	forward	ANTIOL	DOTINATE	u							M
10		urop	TOIWAIU										+
•													•
11 iten	ns (11	selecte	d)										

• Ini untuk menghindari tidak bisa login/konek munkin ada yang terblokir

5. Menambahkan IP address ether1 dan ether2

- Klik New Terminal,
- Isikan skrip berikut:

```
[admin@MikroTik] > ip address add address=192.168.3.1/24 interface=ether1
[admin@MikroTik] > ip address add address=10.10.10.1/24 interface=ether2
```

6. Routing Statik

Perintah route statis ip route add dst-address=<ip tujuan/mask> geteway=<ip gateway>, seperti pada skrip berikut:

[admin@MikroTik] > *ip route add dst-address=20.20.20.0/24 gateway=192.168.3.2*

7. Melihat Hasil Routing

Menggunakan menu IP -> Routes amati, seperti pada gambar berikut.

Routes	Nexthops Rules VRF				
+	- 🖉 🗶 🖻 🍸		F	ind all	1
	Dst. Address 🕢 Gateway	Distance	Routing Mark	Pref. Source	•
DAC	10.10.10.0/24 bridge reachable	0	_	10.10.10.1	
AS	20.20.20.0/24 192.168.3.2 reachable ether	1 1			
DAC	192.168.3.0/24 ether1 reachable	0		192.168.3.1	
DAC	192.168.88.0/ bridge reachable	0		192.168.88.1	

8. Atau menggunakan command line

New Terminal : ip route print

```
[admin@MikroTik] > ip route print
Flags: X - disabled, A - active, D - dynamic,
C - connect, S - static, r - rip, b - bgp, o - ospf, m - mme,
B - blackhole, U - unreachable, P - prohibit
#
       DST-ADDRESS
                     PREF-SRC
                                         GATEWAY
                                                           DISTANCE
0 ADC 10.10.10.0/24
                         10.10.10.1
                                         bridge
                                                                 0
                                        192.168.3.2
1 A S 20.20.20.0/24
                                                                 1
 2 ADC 192.168.3.0/24 192.168.3.1
                                         ether1
                                                                 0
3 ADC 192.168.88.0/24
                         192.168.88.1
                                        bridge
                                                                 0
```

9. Konfigurasi PC 1

Tambahkan konfigurasi ip statis pada pc1 seperti pada gambar berikut:

Internet Protocol Version 4 (TCP/IPv4) Properties								
General								
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.								
O Obtain an IP address automatically								
• Use the following IP address:								
IP address:	10 . 10 . 10 . 2							
Subnet mask:	255 . 255 . 255 . 0							
Default gateway:	10 . 10 . 10 . 1							
Obtain DNS server address autom	natically							
• Us <u>e</u> the following DNS server add	resses:							
Preferred DNS server:								
Alternate DNS server:								
Validate settings upon exit	Ad <u>v</u> anced							
	OK Cancel							

10. Konfigurasi Router 2

- Menggunakna ether3 untuk melakukan konfigurasi, manggunakan ip 192.168.88.1
- Seperti pada gambar berikut:

S MikroTil	k WinBox Loader v2.2	2.18	_			
Connect To:	192.168.88.1			Connect		
<u>L</u> ogin:	admin					
Password:				Savo		
	Save					
	Secure Mode					
	Load Previous Services	ssion		Tools		
<u>N</u> ote:	MikroTik					
Address	Liner	Nata				
74.4D.29.ED.	22,59 admin	MikroTik				
74,40;20;ED;		MINUTIK				

11. Hapus Bridge port

Ether2 secara default berfungsi sebagai bridge, karena akan difungsikan sebagai router maka hapus interface ether1, dari bagian bridge.

- Klik Bridge
- Klik Ports
- Klik ether2
- Klik 🗙 dan 💻

seperti pada gambar berikut:

Bridge Port	S VLANs	MSTIs	Port MST Overrides	Filters	NAT	Hosts	MDB		
+ - •	/ 🗶	- 7]						Find
	#				Int	erface		Bridge	Ho
;;; defconf									
		0	XI		生	ether2		bridge	
;;; defconf									
		1	H		_ 4≍	ether3		bridge	
;;; defconf									
		2	IH		44	ether4		bridge	
;;; defconf									
		3	IH		44	ether5		bridge	
;;; defconf									
		4			44	wlan 1		bridge	

12. Menambahkan IP address ether1 dan ether2

- Klik New Terminal,
- Isikan skrip berikut:

```
[admin@MikroTik] > ip address add address=192.168.3.2/24 interface=ether1
[admin@MikroTik] > ip address add address=20.20.20.1/24 interface=ether2
```

13. Routing RIP Router 2

Perintah route statis ip route add dst-address=<ip tujuan/mask> geteway=<ip gateway>, seperti pada skrip berikut:

[admin@MikroTik] > ip route add dst-address=10.10.10.0/24 gateway=192.168.3.1

14. Melihat Hasil Routing

Menggunakan menu IP -> Routes amati, seperti pada gambar berikut.

Route L	ist							×	
Routes	Nexthops Rules	VRF							
+ -	- 🖌 🗶 🗖	T				Find	all	₹	
	Dst. Address	Δ.	Gateway	Distance	Routing Mark	Pref. Source		-	
AS	10.10.10.0/24		192.168.3.1 reachable e	1					
DAC	20.20.20.0/24		bridge reachable	0		20.20.20.1			
DAC	192.168.3.0/24		ether1 reachable	0		192.168.3.2			
DAC	192.168.88.0/24		bridge reachable	0		192.168.88.1			
4 items	(1 selected)								

15. Atau menggunakan command line

Melalu New Terminal menggunakan ip route print

```
[admin@MikroTik] > ip route print
Flags: X - disabled, A - active, D - dynamic, C - connect, S - static, r - rip,
b - bgp, o - ospf, m - mme, B - blackhole, U - unreachable, P - prohibit
                          PREF-SRC
                                                              DISTANCE
#
      DST-ADDRESS
                                           GATEWAY
0 A S 10.10.10.0/24
                                           192.168.3.1
                                                                      1
1 ADC20.20.20.0/2420.20.20.12 ADC192.168.3.0/24192.168.3.2
1 ADC 20.20.20.0/24
                                           bridge
                                                                      0
                                           ether1
                                                                      0
3 ADC 192.168.88.0/24
                           192.168.88.1
                                           bridge
                                                                      00
```

16. Konfigurasi PC 2

Tambahkan konfigurasi ip statis pada PC 2, seperti pada gambar berikut:

Internet Protocol Version 4 (TCP/IPv4) Properties								
General								
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.								
ODtain an IP address automatically								
• Use the following IP address:								
IP address:	20 . 20 . 20 . 2							
Subnet mask:	255.255.255.0							
Default gateway:	20 . 20 . 02 . 1							
Obtain DNS server address autom	natically							
• Us <u>e</u> the following DNS server add	resses:							
Preferred DNS server:								
Alternate DNS server:								
Ualidate settings upon exit	Ad <u>v</u> anced							
	OK Cancel	l						

17. Manguji Koneksi dari PC 1

Lakukan pengujian dengan perintah ping PC1 ke PC2, seperti pada gambar berikut:

```
Command Prompt - □ ×
C:\Users>ping 20.20.20.2
Pinging 20.20.20.2 with 32 bytes of data:
Reply from 20.20.20.2: bytes=32 time<1ms TTL=126
Reply from 20.20.20.2: bytes=32 time=1ms TTL=126
Reply from 20.20.20.2: bytes=32 time=1ms TTL=126
Ping statistics for 20.20.20.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
C:\Users>_
```

18. Menguji Koneksi dari PC 2

Lakukan pengujian dengan perintah ping PC2 ke PC3, seperti pada gambar berikut:

```
Select Command Prompt - □ ×
C:\Users\Badi>ping 10.10.10.2
Pinging 10.10.10.2 with 32 bytes of data:
Reply from 10.10.10.2: bytes=32 time=1ms TTL=126
Reply from 10.10.10.2: bytes=32 time=1ms TTL=126
Reply from 10.10.10.2: bytes=32 time=1ms TTL=126
Ping statistics for 10.10.10.2:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 1ms, Maximum = 1ms, Average = 1ms
```

B. Latihan

Tambahkan Jaringan seperti pada gambar berikut:



Buatlah routing static dan ujikan hasilnya.