USING DHCP SERVER LEASE AS A TOOL FOR NETWORK ADMINISTRATION

A SIMPLE GUIDE FOR NETWORK ADMINISTRATORS TO USE THE DHCP SERVER LEASES TO MONITOR, ADD RATE LIMIT AND ADDRESS LISTING TO THE DHCP CLIENT.

MUM PH 2018

BULLET

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USING DHCP SERVER LEASES AS A TOOL FOR NETWORK ADMINISTRATION

A SIMPLE GUIDE FOR NETWORK ADMINISTRATORS TO USE THE DHCP SERVER LEASES TO MONITOR, ADD RATE LIMIT AND ADDRESS LISTING TO THE DHCP CLIENT.

OBJECTIVE

- For the Network Administrator
  - To be able to monitor all the device client who is connected to the network.
  - To set a Dynamic IP Address to Static within Mikrotik.
  - To enable Use Source Mac Address option to lock the device IP to the device mac.
  - To add the Rate Limit to the device client.
  - To use Address Listing option to be able to add the client to a certain firewall rule.

REFERENCE:

wiki.mikrotik.com

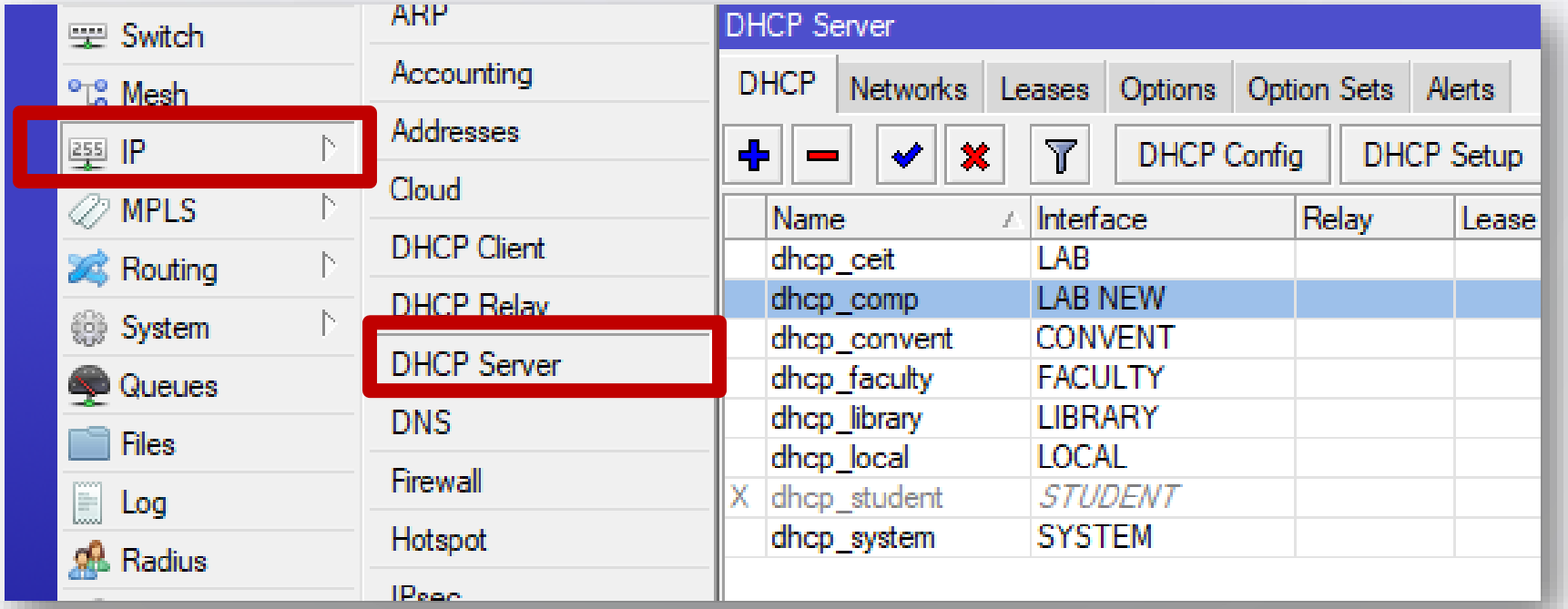
forum.mikrotik.com

ROUTEROS: DHCP SERVER

Dynamic Host Configuration Protocol

- For easy distribution of IP in a network
- IP Assignment
- Obtaining IP Settings

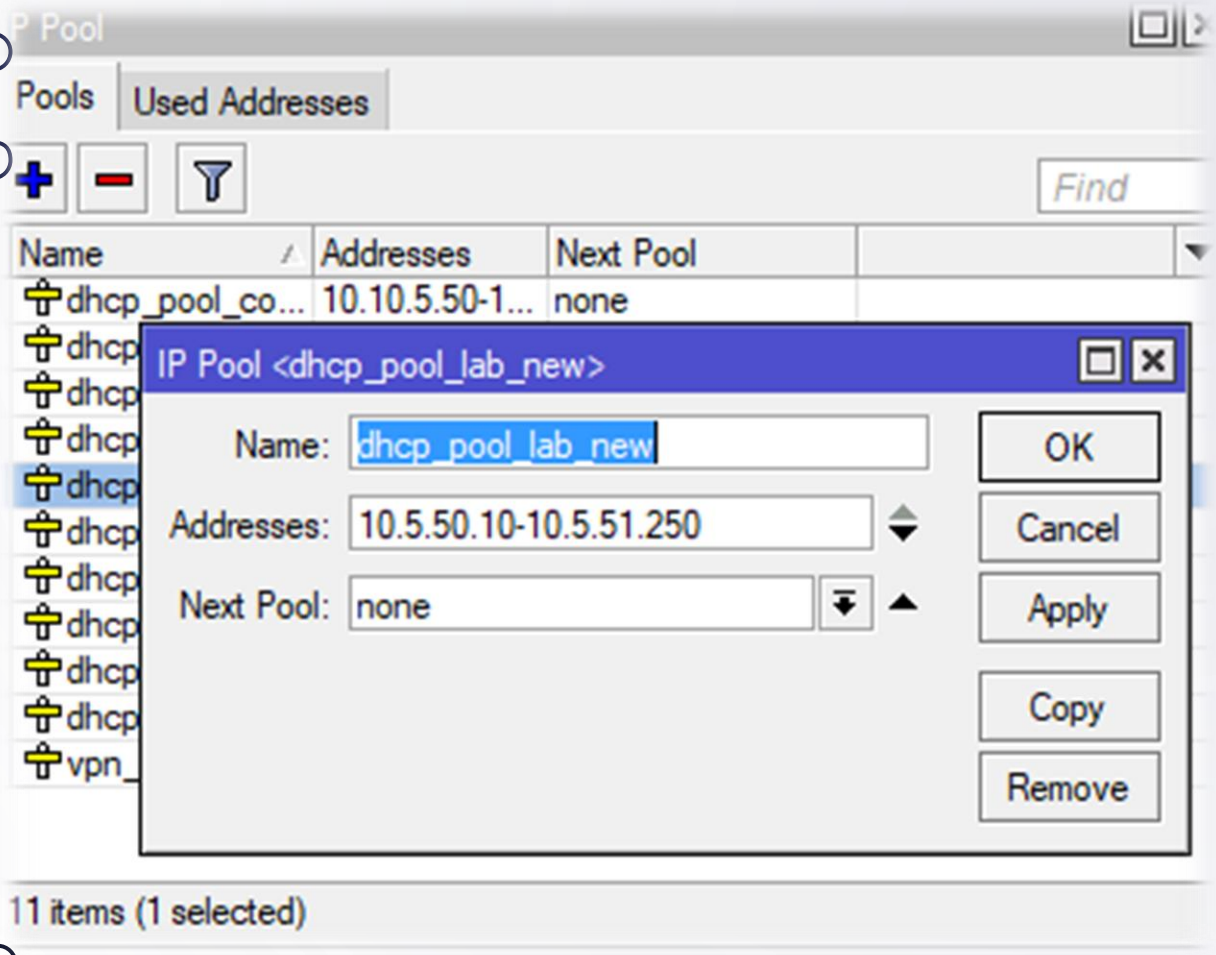
ROUTEROS: DHCP SERVER




```
/ip dhcp-server
```

PRE-REQUISITE:

- DHCP Server should be configured.
- There should be an IP Pool.
- IPv4 for the devices should be set to obtain an IP address automatically.
  - Note: Devices with manually configured IP cannot be probed in the DHCP lease.



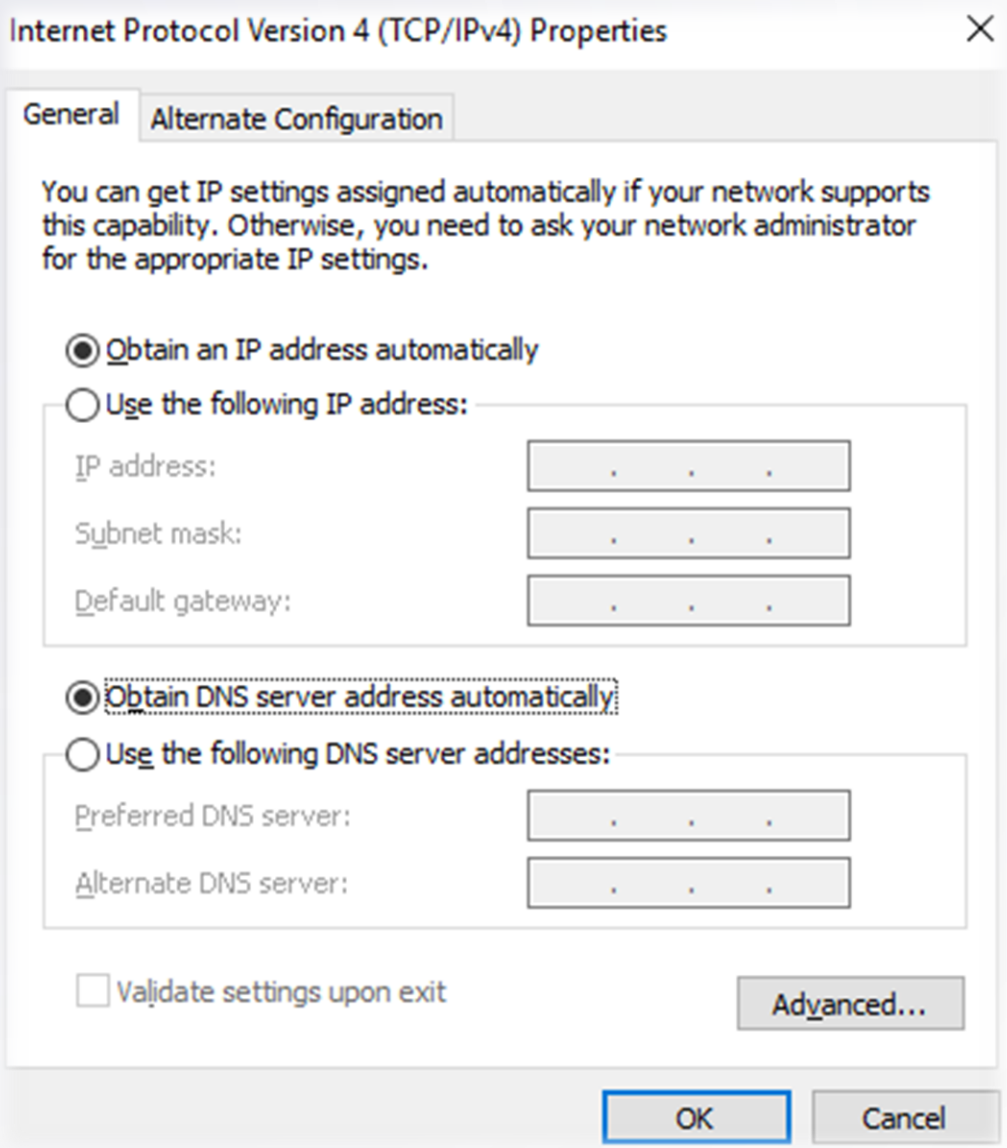
PRE-REQUISITE:

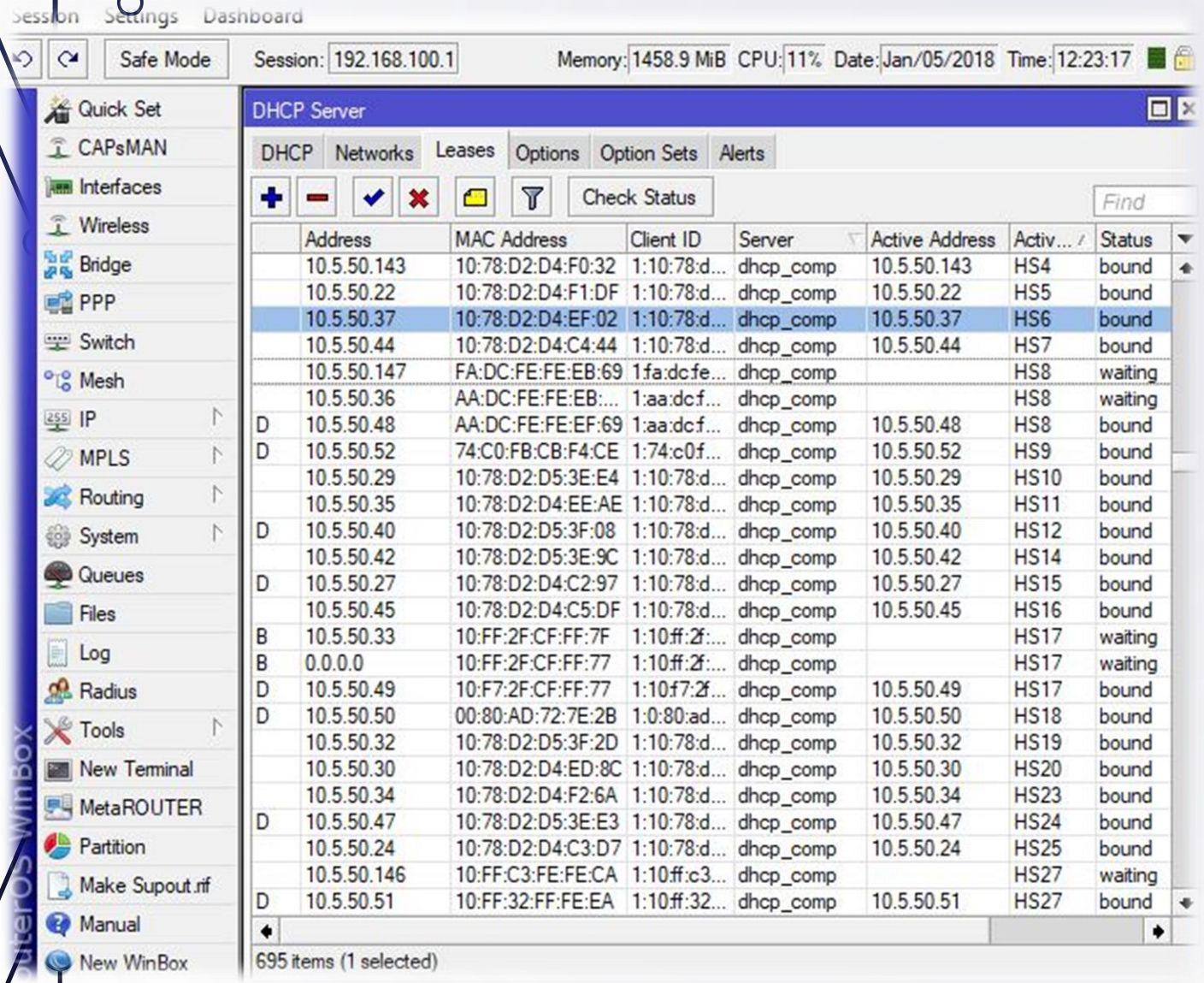
There should be an IP Pool.

Sub-menu: `/ip pool`

PRE-REQUISITE:

IPv4 for the devices should be set to obtain an IP address automatically.





DHCP SERVER LEASE

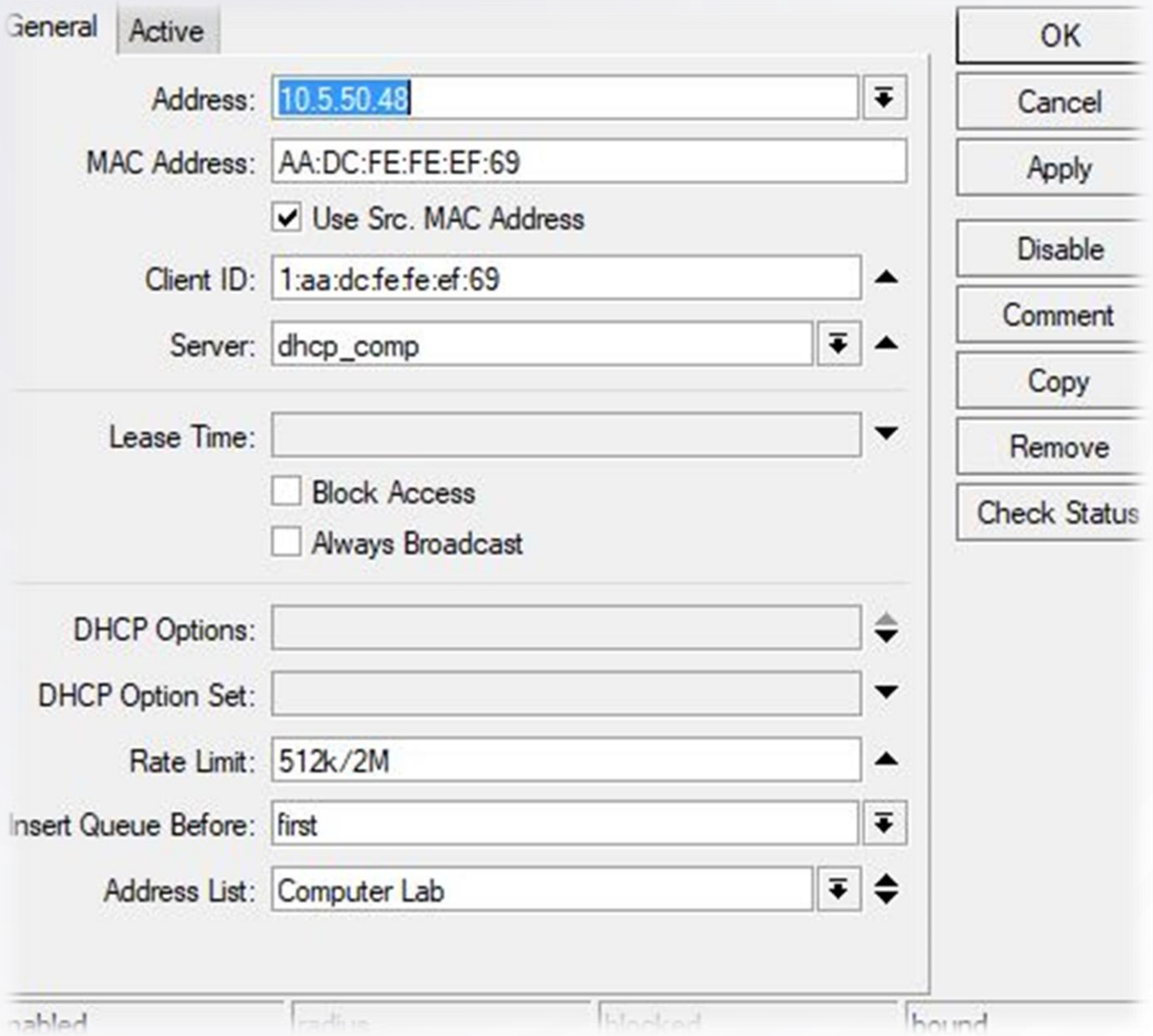
DHCP server lease submenu is used to monitor and manage server's leases.

Sub-menu: `/ip dhcp-server lease`

DHCP SERVER LEASE

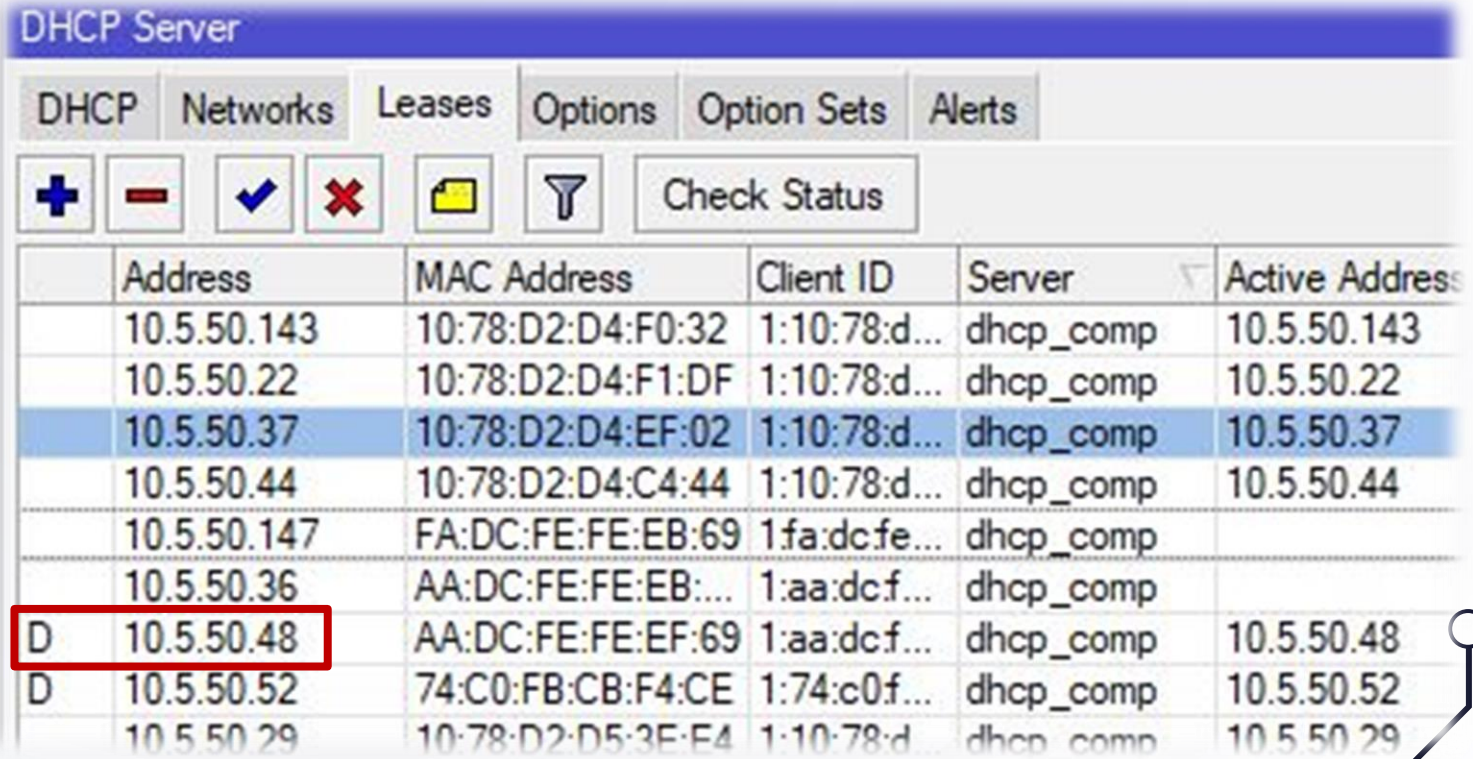
Options:

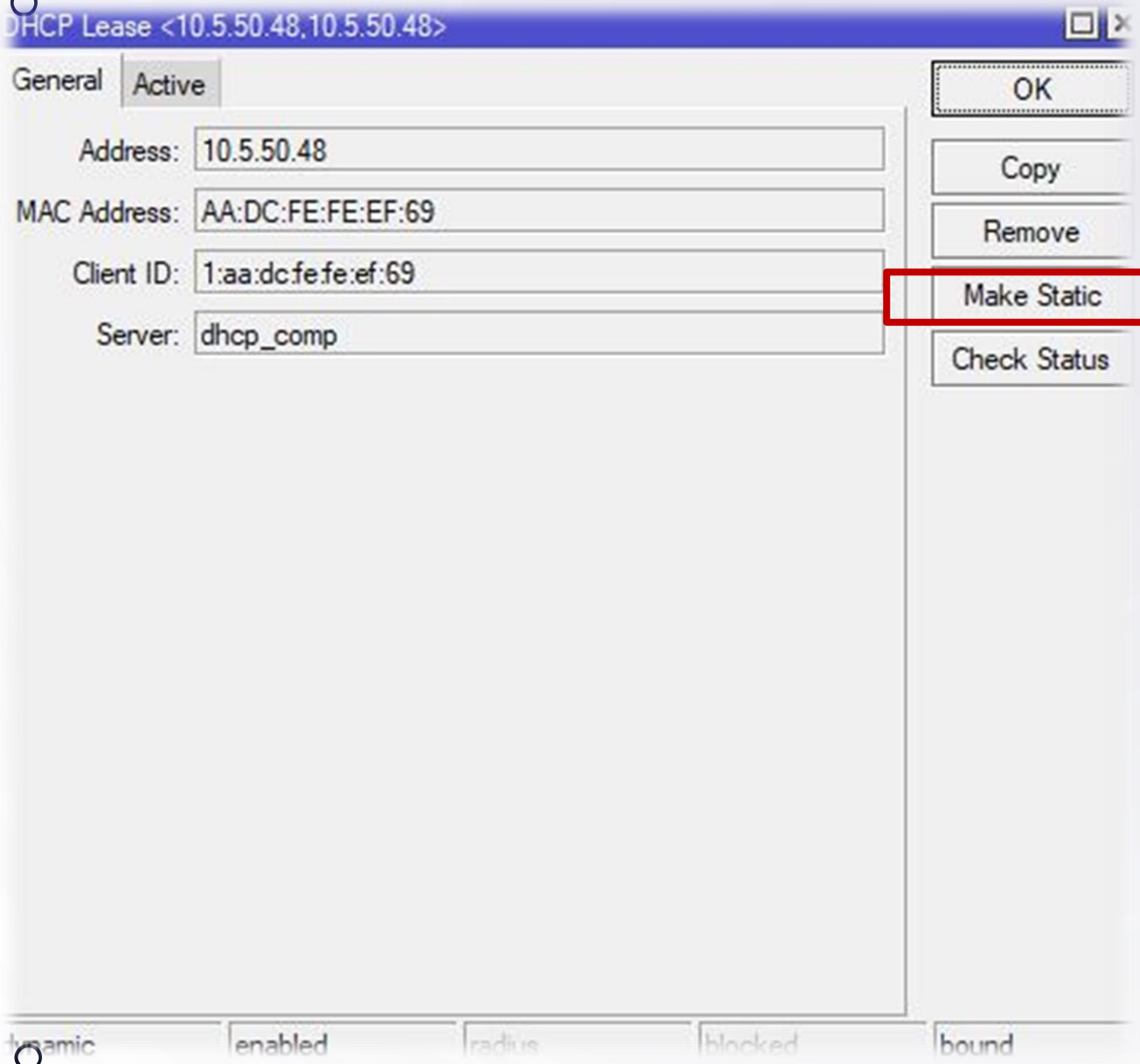
- Assign IP
- Bind IP to MAC Address
- Client ID
- Assign Server
- Lease Time
- Block Access
- Always Broadcast
- DHCP Options
- Rate Limit
- Queue
- Address List



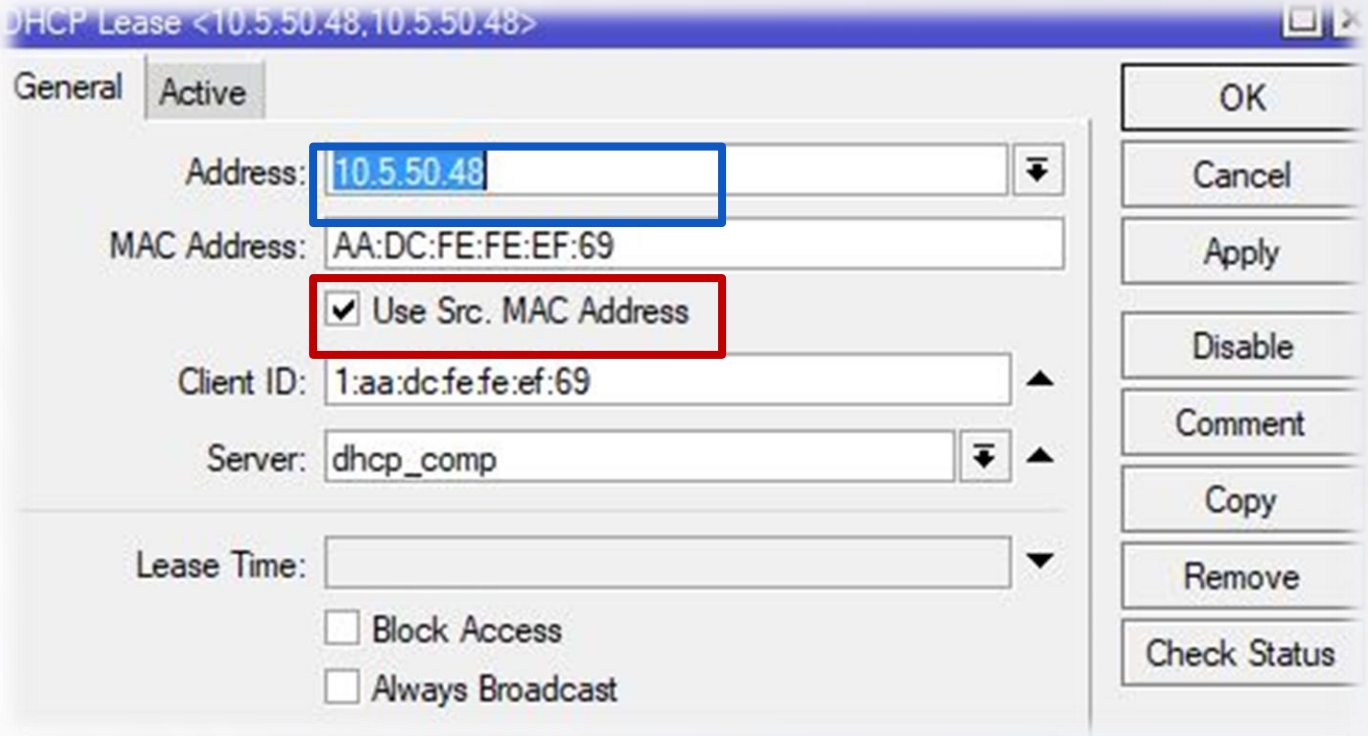
DYNAMIC TO STATIC

- Double click on any dynamically assigned IP to view the DHCP Lease options.





- Click Make Static.
- Close the DHCP Lease window and re-open it again.

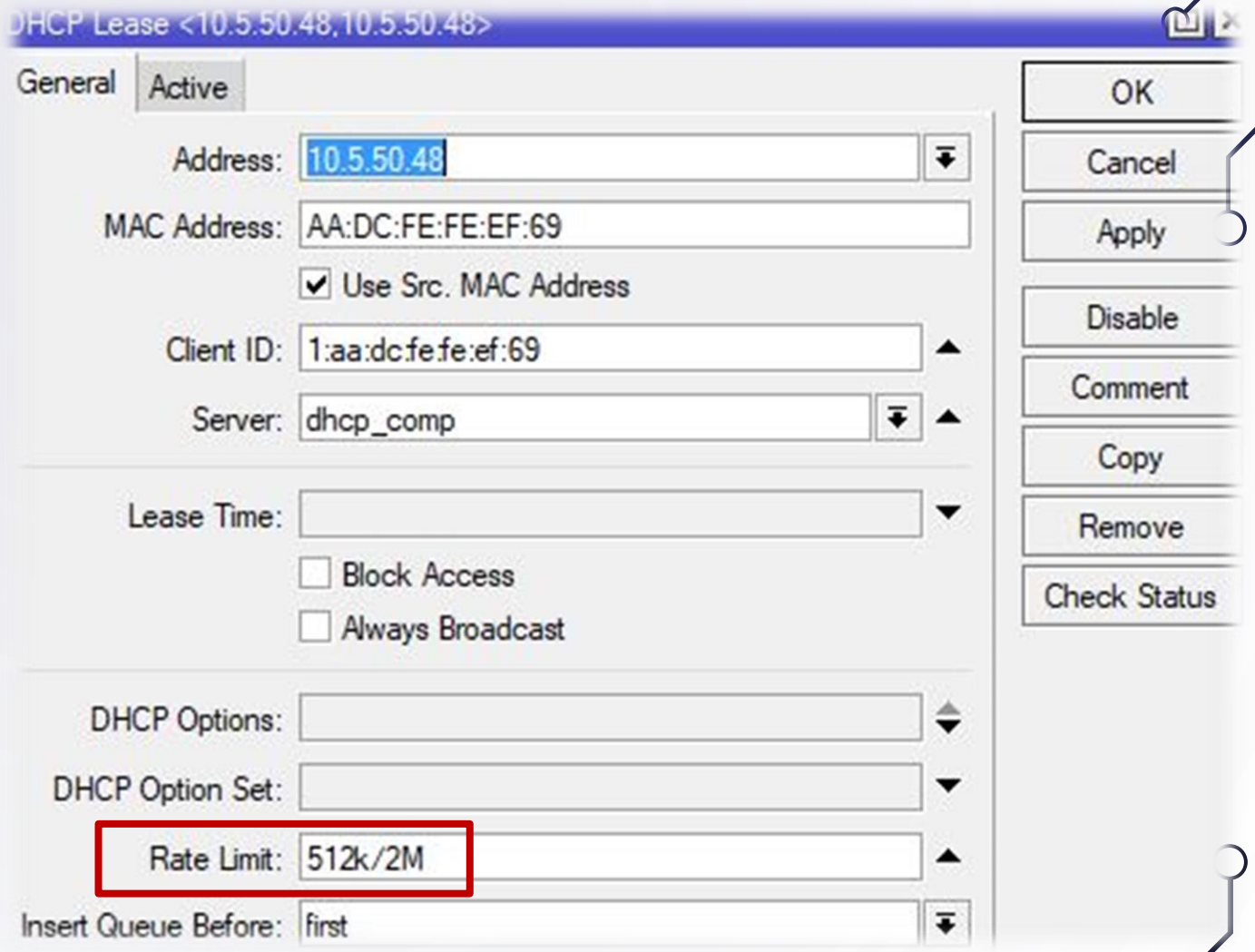


- Type the IP address that will be assigned to the client.
- Tick the box of Use Src. MAC Address to bind the IP to the MAC Address

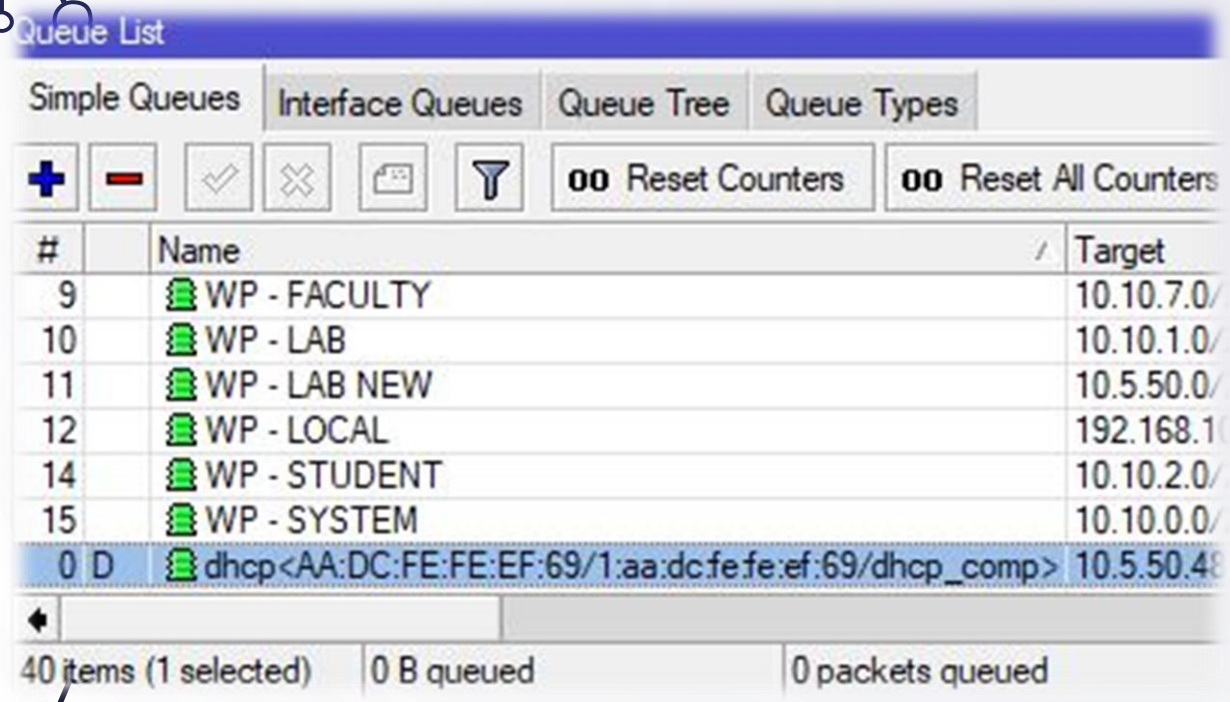
ADDING RATE LIMIT

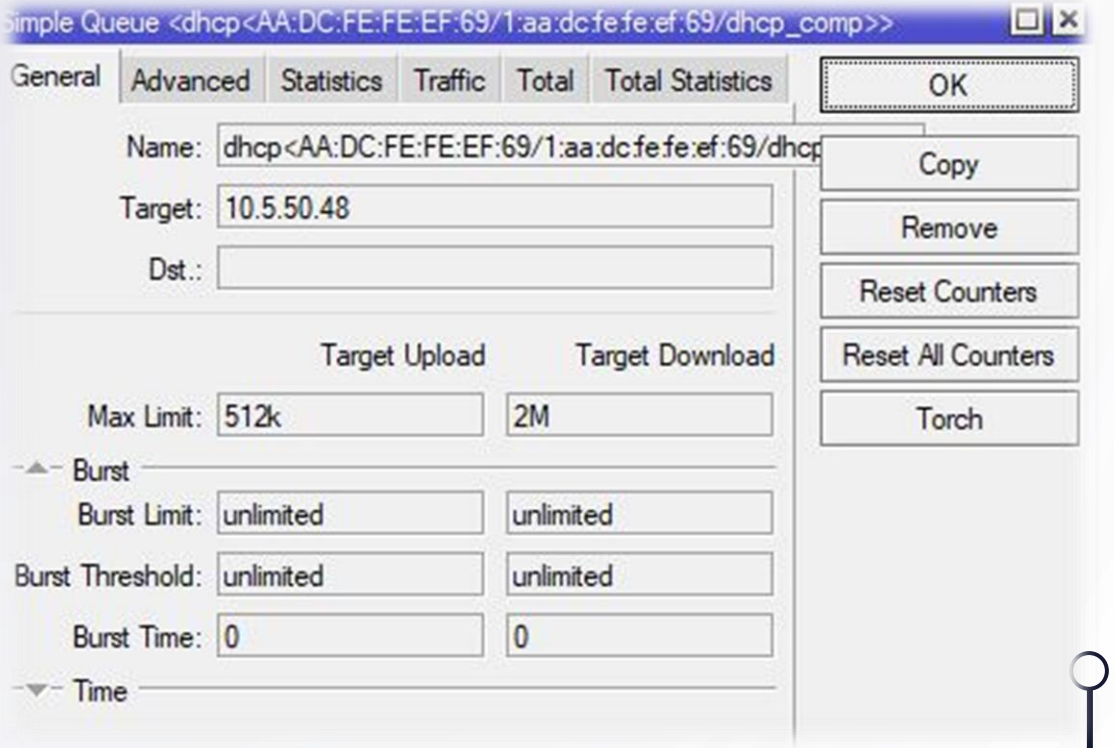
- Type the desired bandwidth limit on the Rate Limit field.

Example:
512k Upload
2M Download



ADDING RATE LIMIT

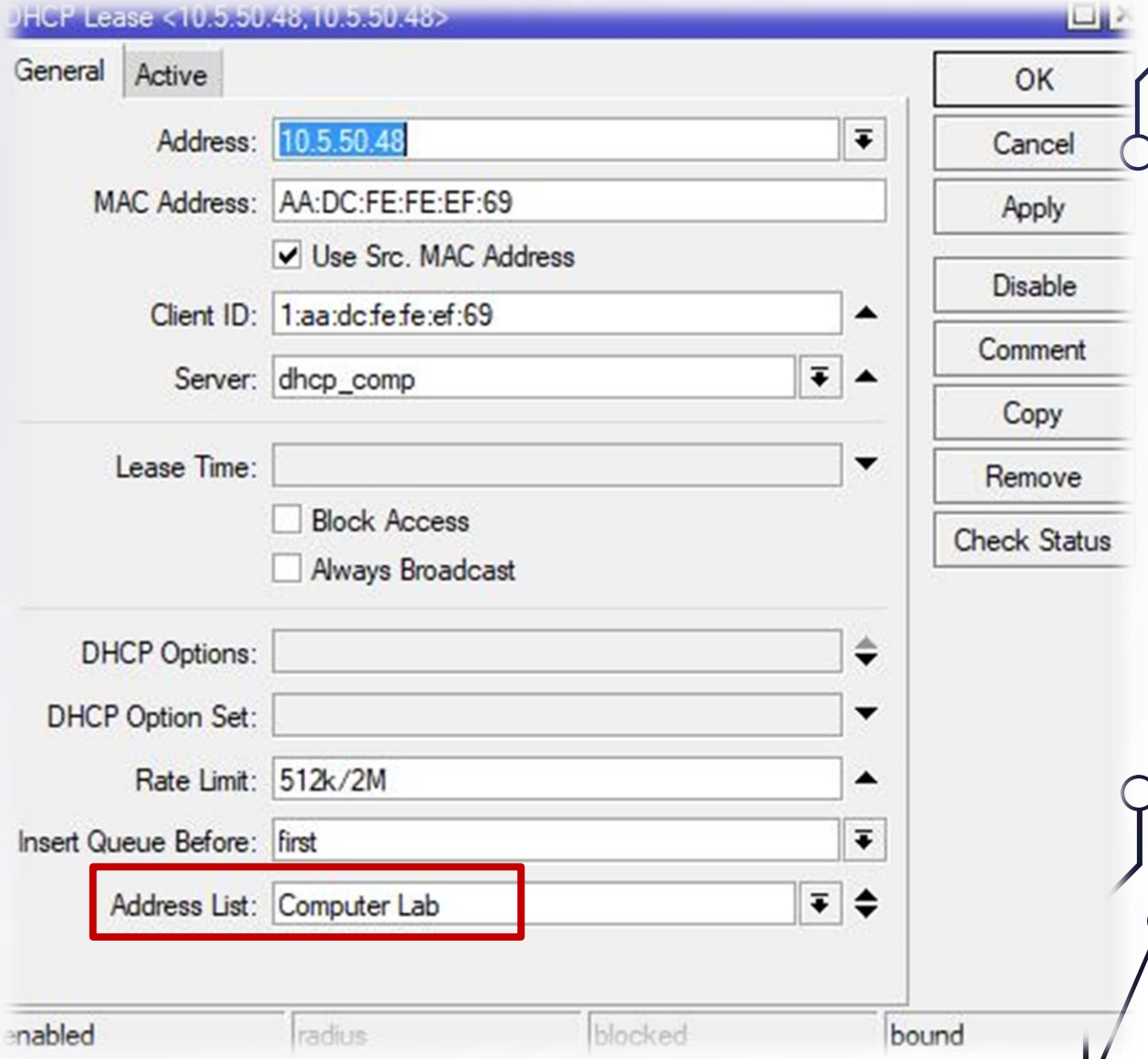




- It will be automatically be added on the Queue List

ASSIGN ADDRESS LIST

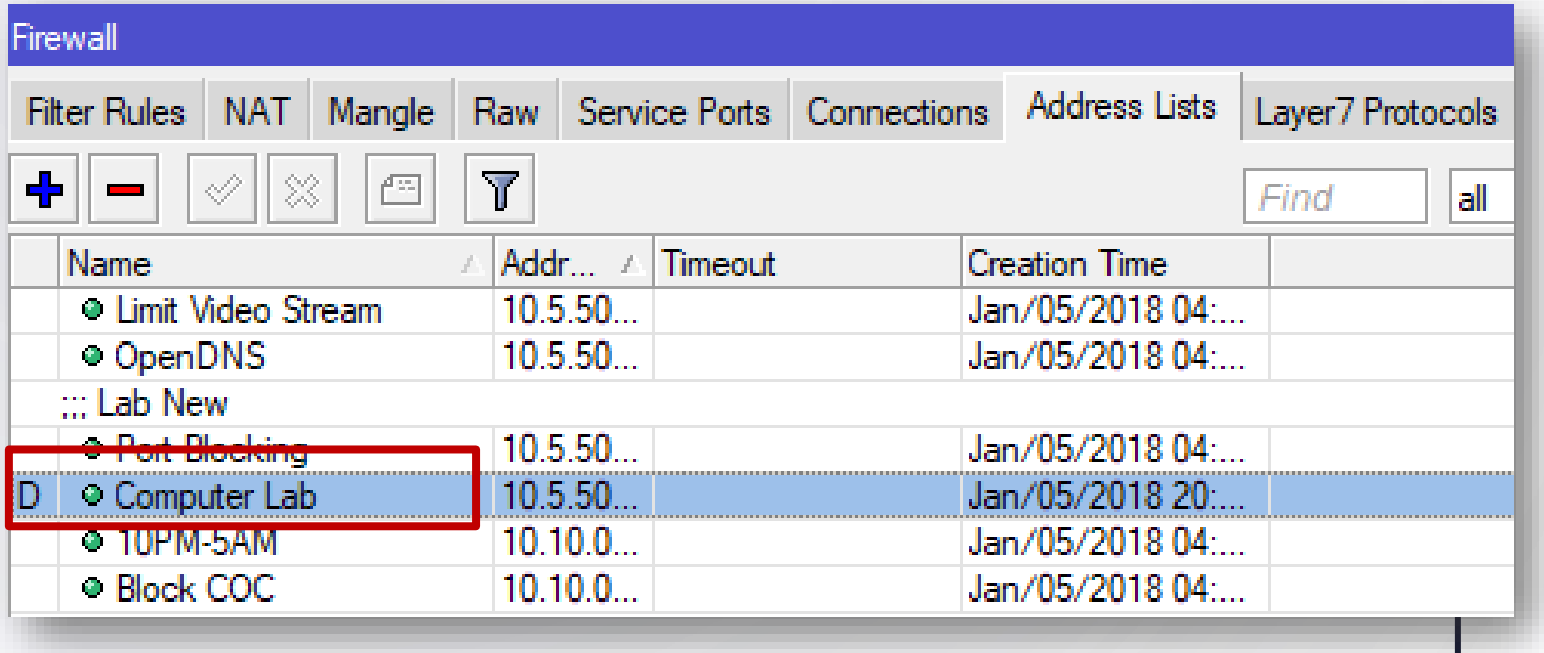
- Type a name/group where the client device will be assigned.



ASSIGN ADDRESS LIST

- It will automatically be added in the Address list which can be used in creating filter rules.

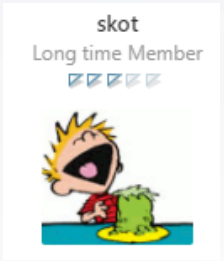
Example:
Filter Rules for Computer Lab Internet Hours



SCRIPT: EXTRACTING LEASES

This script will help you extract the necessary information form the lease that you want to include in your CSV file.

```
/ip dhcp-server lease :foreach i in=[find] do={ :put ([get $i address].",".[get $i mac-address].",".[get $i client-id].",".[get $i server]) }
```



BIG THANKS to **skot** for this post contribution @ Mikrotik Forum

SCRIPT: EXTRACTING LEASES

```
     @SCT RB1100AHx2 Main Router] /ip dhcp-server lease> :foreach i in=[find] do={ :put ([get $i
active-address       address-lists      blocked          disabled           last-seen     server
active-client-id     agent-circuit-id   client-id        dynamic            lease-time    src-mac-address
active-mac-address   agent-remote-id    comment          expires-after      mac-address   status
active-server        always-broadcast   dhcp-option      host-name          radius        use-src-mac
address              block-access       dhcp-option-set  insert-queue-before rate-limit   value-name
```

/ip dhcp-server lease> :foreach I in=[find] do=(:put {[get $i

Note: Typing this script and pressing Tab will show the available options that you may include in the command.

SCRIPT: EXTRACTING LEASES

Here is the script if we want to extract the list of block-access client with client-id and dhcp-server included

```
:foreach i in=[find] do={ :put ([get $i block-access].",".[get $i client-id].",".[get $i server]) }
```

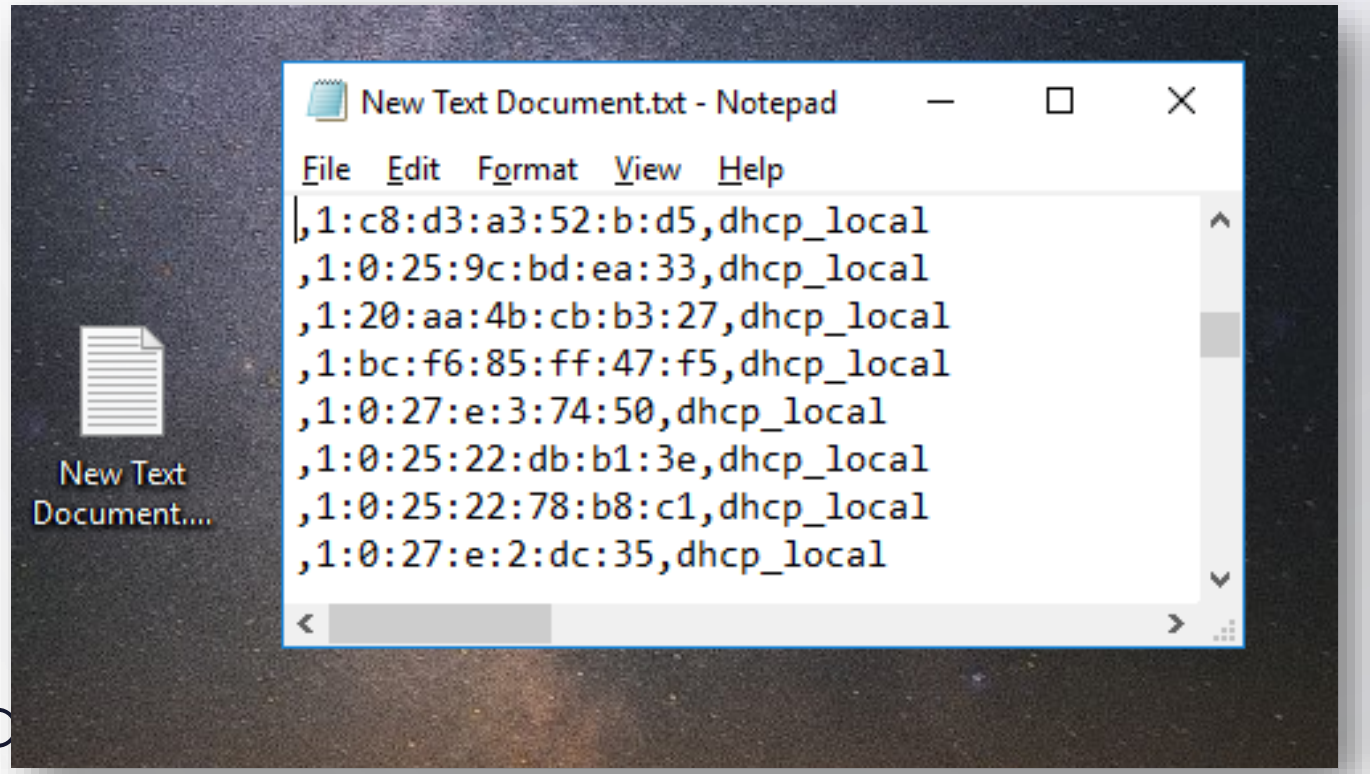
SCRIPT: EXTRACTING LEASES

```
[@SCT RB1100AHx2 Main Router] /ip dhcp-server lease> :foreach i in=[find] do={ :put ([get $i block-access].",".[get $i client-id].",".[get $i server]) }
,1:78:54:2e:a1:ca:7f,dhcp_local
,1:c8:d3:a3:52:b:d5,dhcp_local
,1:0:25:9c:bd:ea:33,dhcp_local
,1:20:aa:4b:cb:b3:27,dhcp_local
,1:bc:f6:85:ff:47:f5,dhcp_local
,1:0:27:e:3:74:50,dhcp_local
,1:0:25:22:db:b1:3e,dhcp_local
,1:0:25:22:78:b8:c1,dhcp_local
```

- Highlight the extracted information and copy paste it in a text file in your desktop.

```
,1:f0:3:8c:26:a1:63,dhcp_faculty
,1:cc:b0:da:8e:9:93,dhcp_faculty
,1:78:fd:94:bb:8d:39,dhcp_library
,1:0:26:82:10:b6:59,dhcp_local
,,dhcp_ceit
,1:c:d2:92:73:f7:21,dhcp_library
,1:40:b8:37:c1:f2:b2,dhcp_faculty
,1:c:8f:ff:83:b8:1c,dhcp_faculty
,1:40:b8:37:c1:f2:b2,dhcp_local
,1:b8:86:87:db:51:f3,dhcp_ceit
,1:c8:38:70:83:86:15,dhcp_library
,,dhcp_local
,1:f8:d0:bd:1:68:3e,dhcp_local
,,dhcp_faculty
```

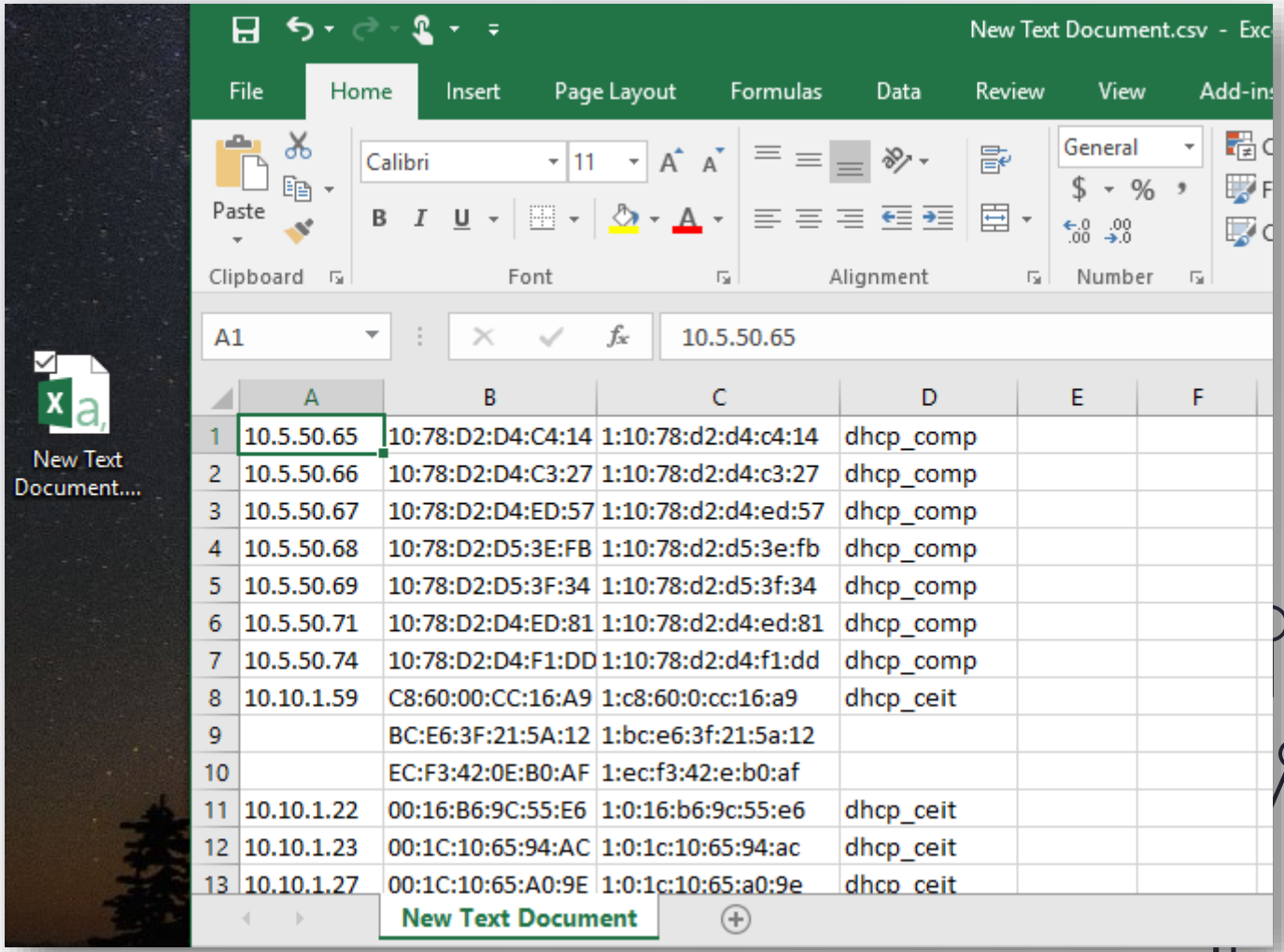
SCRIPT: EXTRACTING LEASES



- Create a text file in your desktop.
- Copy paste the extracted fields from the terminal.

SCRIPT: EXTRACTING LEASES

- Change the extension name to CSV. Open the CSV file.
- You successfully extracted the list in your desktop



	A	B	C	D
1	10.5.50.65	10:78:D2:D4:C4:14	1:10:78:d2:d4:c4:14	dhcp_comp
2	10.5.50.66	10:78:D2:D4:C3:27	1:10:78:d2:d4:c3:27	dhcp_comp
3	10.5.50.67	10:78:D2:D4:ED:57	1:10:78:d2:d4:ed:57	dhcp_comp
4	10.5.50.68	10:78:D2:D5:3E:FB	1:10:78:d2:d5:3e:fb	dhcp_comp
5	10.5.50.69	10:78:D2:D5:3F:34	1:10:78:d2:d5:3f:34	dhcp_comp
6	10.5.50.71	10:78:D2:D4:ED:81	1:10:78:d2:d4:ed:81	dhcp_comp
7	10.5.50.74	10:78:D2:D4:F1:DD	1:10:78:d2:d4:f1:dd	dhcp_comp
8	10.10.1.59	C8:60:00:CC:16:A9	1:c8:60:0:cc:16:a9	dhcp_ceit
9		BC:E6:3F:21:5A:12	1:bc:e6:3f:21:5a:12	
10		EC:F3:42:0E:B0:AF	1:ec:f3:42:e:b0:af	
11	10.10.1.22	00:16:B6:9C:55:E6	1:0:16:b6:9c:55:e6	dhcp_ceit
12	10.10.1.23	00:1C:10:65:94:AC	1:0:1c:10:65:94:ac	dhcp_ceit
13	10.10.1.27	00:1C:10:65:A0:9E	1:0:1c:10:65:a0:9e	dhcp_ceit

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