

Wi-Fi User Management With Limited Resources

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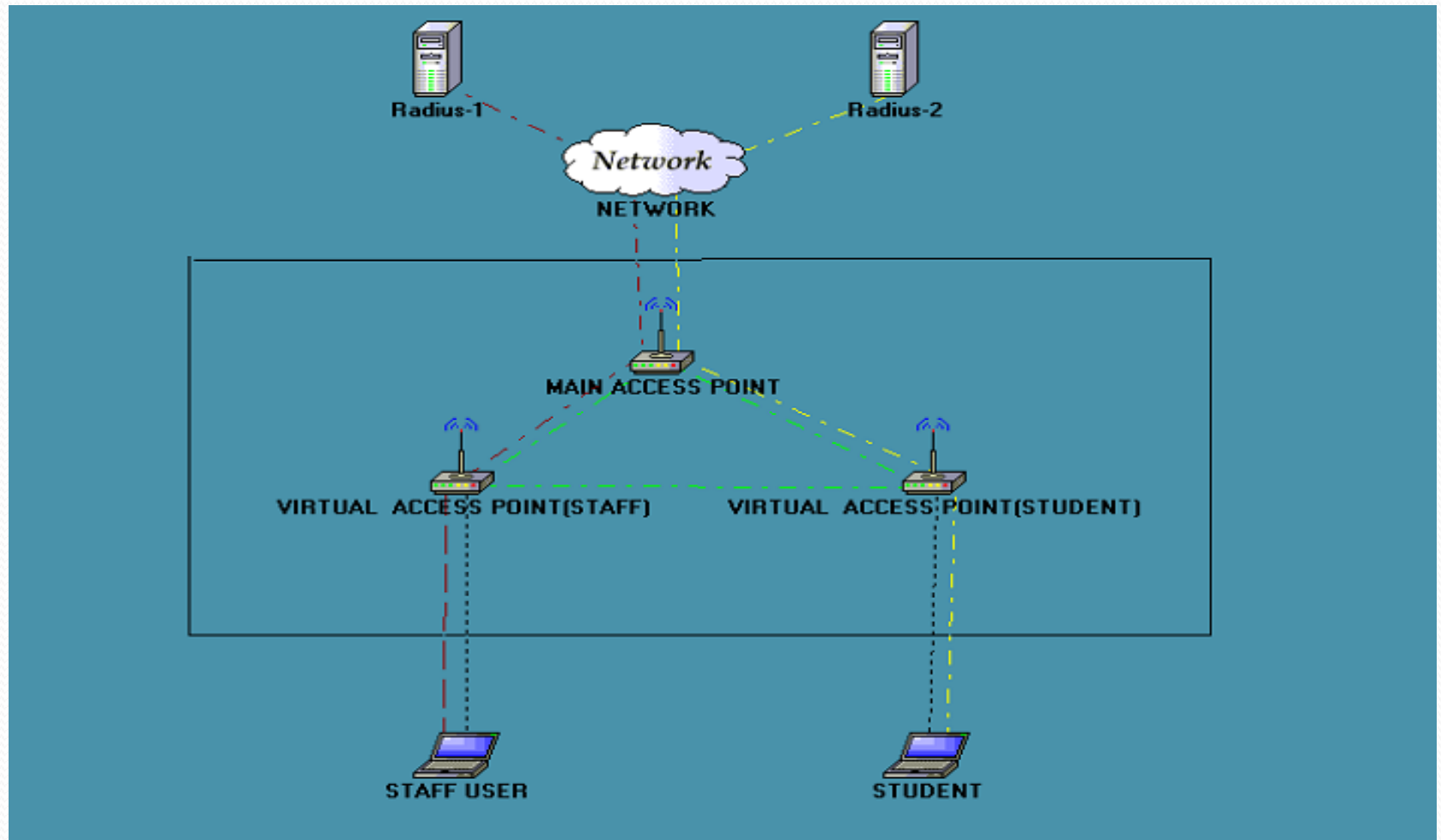
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Solutions & Services


- Wireless Networking Solutions
- Wi-Fi Hotspot Solution
- Mikrotik Consultancy
- ISP Consultancy
- Network Consultancy
- IP Surveillance System
- Hardware Sales & Services

Diagram

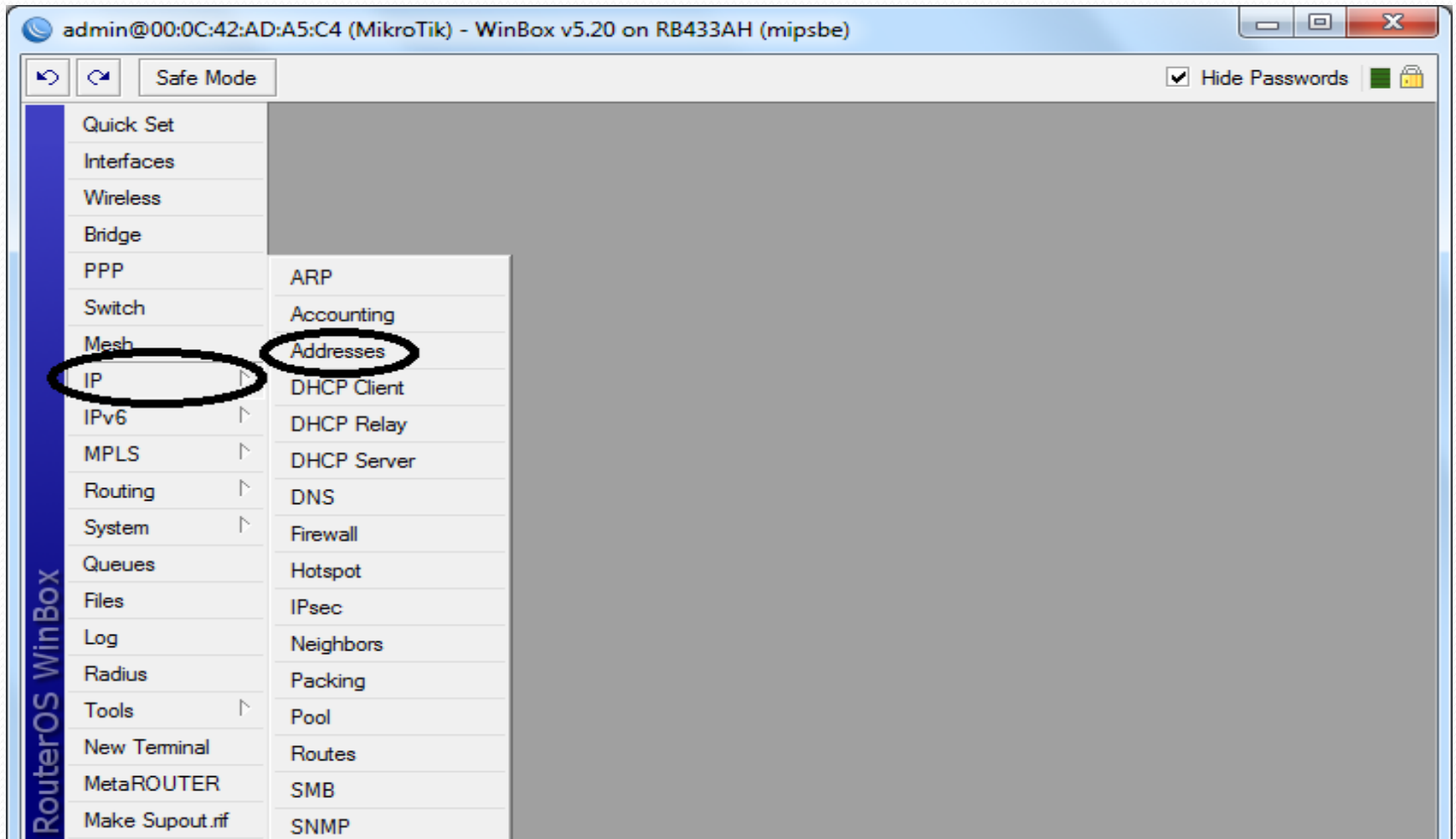


What we will Learn?

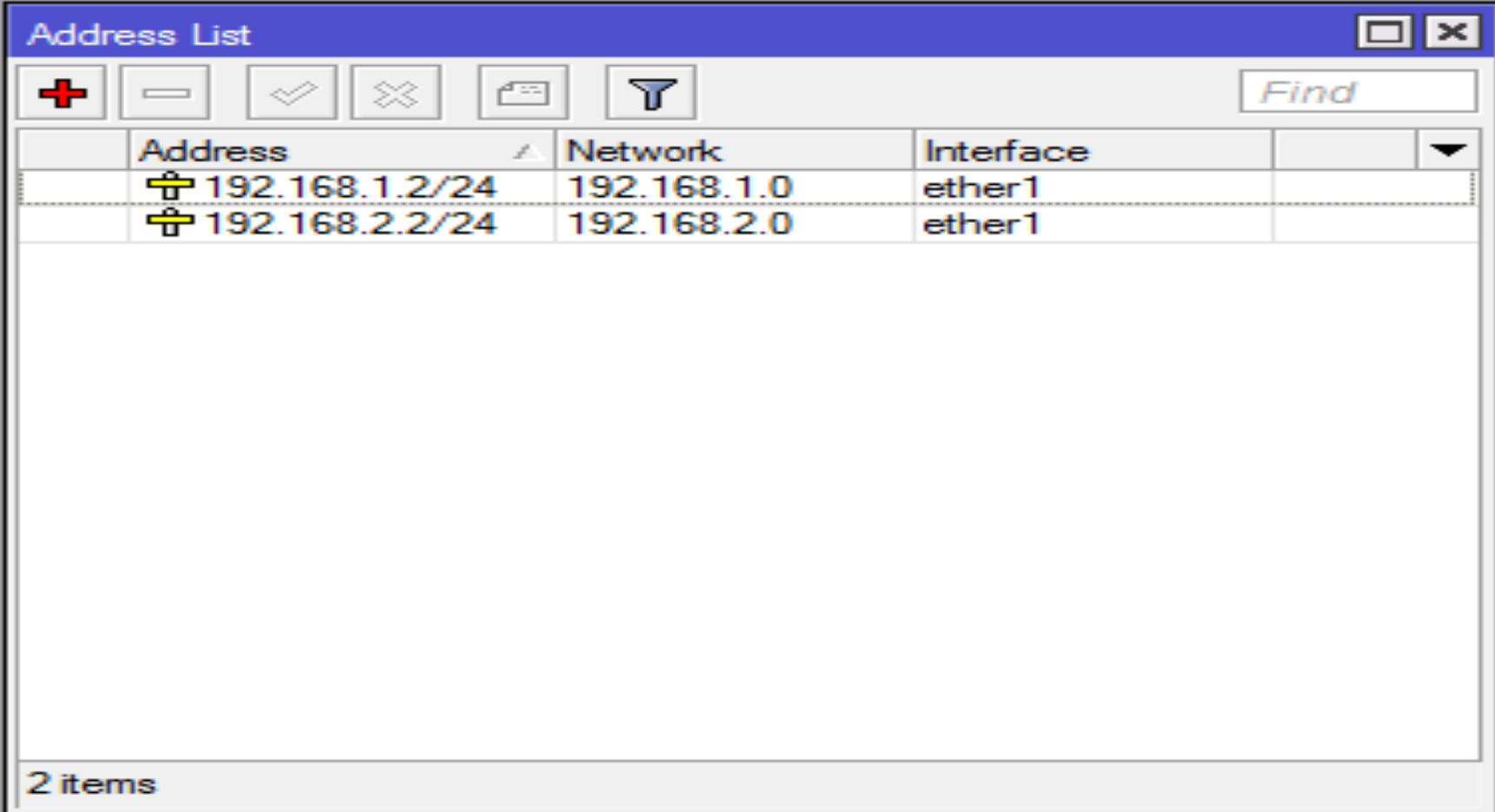
- Virtual Access Point.
- Hotspot Configuration.
- Radius Configuration.
- User Manager Configuration.

- 
- Give Necessary IP address on Interfaces.
 - Configure wlan1 as AP.
 - First of all we will create 2 VAP as per the diagram.
 - We will set Name, SSID & Master Interface.



Go to IP-Address



IP Address Configuration



The screenshot shows a window titled "Address List" with a toolbar containing icons for adding (+), removing (-), checking (✓), deleting (✗), saving (floppy disk), and filtering (funnel). A "Find" search box is also present. The main area is a table with columns for Address, Network, and Interface. Two entries are listed, both assigned to the "ether1" interface. The status bar at the bottom indicates "2 items".

	Address	Network	Interface
	192.168.1.2/24	192.168.1.0	ether1
	192.168.2.2/24	192.168.2.0	ether1

2 items

Access Point Configuration

Interface <wlan1>

General Wireless **Data Rates** Advanced HT ...

Mode: ap bridge ▾

Band: 2GHz-B/G ▾

Channel Width: 20MHz ▾

Frequency: 2412 ▾ MHz

SSID: MikroTik ▲

Radio Name: D4CA6D1120EB

Scan List: default ▾ ▲

Wireless Protocol: unspecified ▾

Security Profile: default ▾

Frequency Mode: manual txpower ▾

Country: no_country_set ▾

Antenna Gain: 0 dBi

DFS Mode: none ▾

Proprietary Extensions: post-2.9.25 ▾

WMM Support: disabled ▾

Bridge Mode: enabled ▾

Default AP Tx Rate: ▾ bps

OK

Cancel

Apply

Disable

Comment

Torch

Scan...

Freq. Usage...

Align...

Sniff...

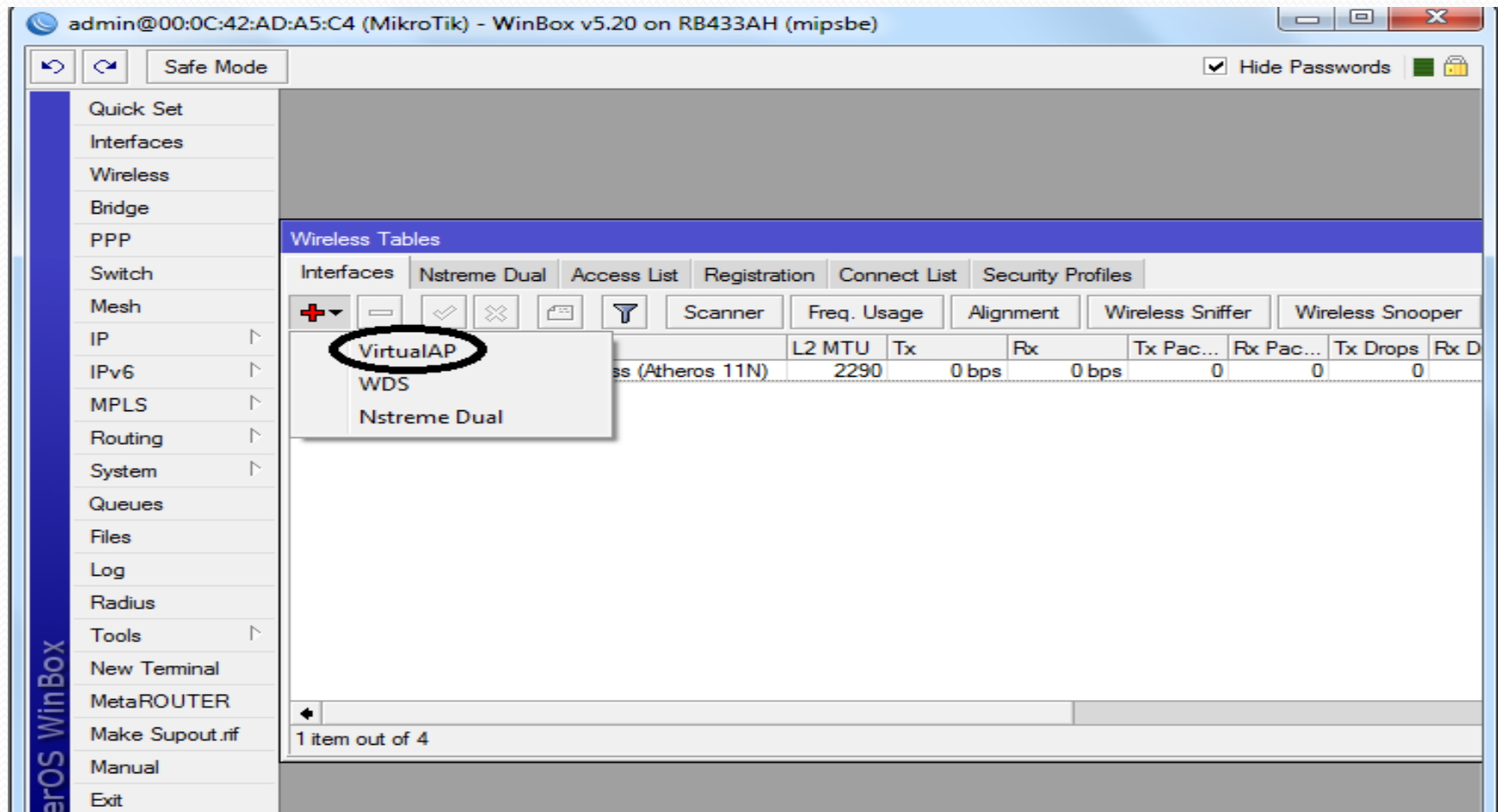
Snooper...

Reset Configuration

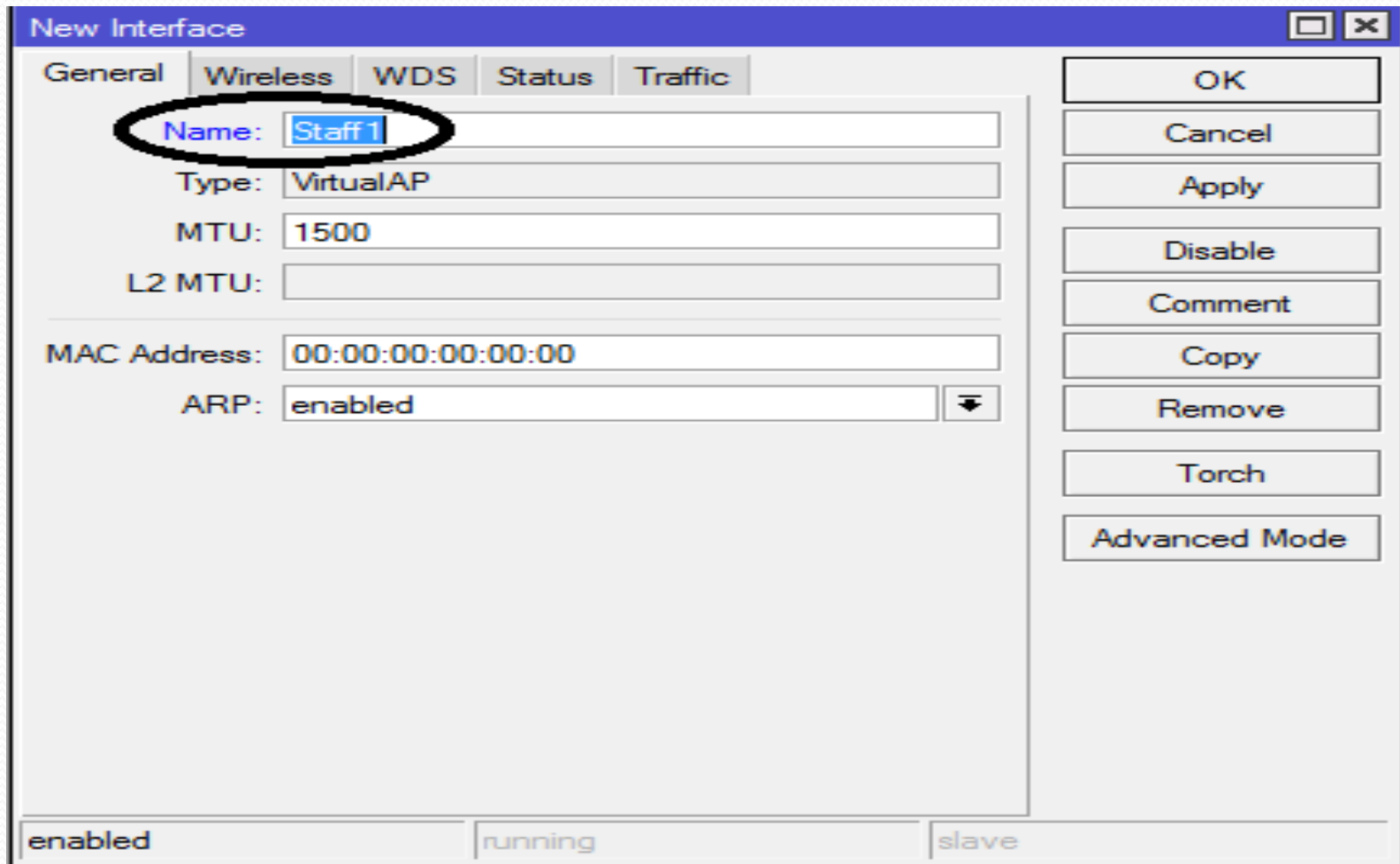
Simple Mode

enabled running slave running ap

Virtual Access Point Configuration



Set Name



The screenshot shows a 'New Interface' dialog box with a blue title bar and standard window controls. It features five tabs: 'General', 'Wireless', 'WDS', 'Status', and 'Traffic'. The 'General' tab is active. In this tab, the 'Name' field is highlighted with a red oval and contains the text 'Staff1'. Other fields include 'Type' (VirtualAP), 'MTU' (1500), 'L2 MTU' (empty), 'MAC Address' (00:00:00:00:00:00), and 'ARP' (enabled). A vertical stack of buttons on the right includes 'OK', 'Cancel', 'Apply', 'Disable', 'Comment', 'Copy', 'Remove', 'Torch', and 'Advanced Mode'. At the bottom, there are three status indicators: 'enabled', 'running', and 'slave'.

New Interface

General Wireless WDS Status Traffic

Name: Staff1

Type: VirtualAP

MTU: 1500

L2 MTU:

MAC Address: 00:00:00:00:00:00

ARP: enabled

OK

Cancel

Apply

Disable

Comment

Copy

Remove

Torch

Advanced Mode

enabled running slave

Set SSID, Master Interface

The screenshot shows a 'New Interface' configuration window with a purple title bar and standard window controls. It features five tabs: 'General', 'Wireless', 'WDS', 'Status', and 'Traffic'. The 'General' tab is active. In this tab, the 'SSID' field is set to 'staff' and the 'Master Interface' dropdown is set to 'wlan1'. Both fields are circled in black. The 'Security Profile' dropdown is set to 'default'. Below these, there are two rate settings: 'Default AP Tx Rate' and 'Default Client Tx Rate', both with empty input boxes and a 'bps' unit selector. At the bottom of the tab, there are three checkboxes: 'Default Authenticate' (checked), 'Default Forward' (checked), and 'Hide SSID' (unchecked). On the right side of the window, there is a vertical stack of buttons: 'OK', 'Cancel', 'Apply', 'Disable', 'Comment', 'Copy', 'Remove', 'Torch', and 'Advanced Mode'. At the very bottom of the window, there are three status indicators: 'enabled', 'running', and 'slave'.

New Interface

General Wireless WDS Status Traffic

SSID: staff

Master Interface: wlan1

Security Profile: default

Default AP Tx Rate: bps

Default Client Tx Rate: bps

☒ Default Authenticate

☒ Default Forward

☐ Hide SSID

OK

Cancel

Apply

Disable

Comment


Copy

Remove

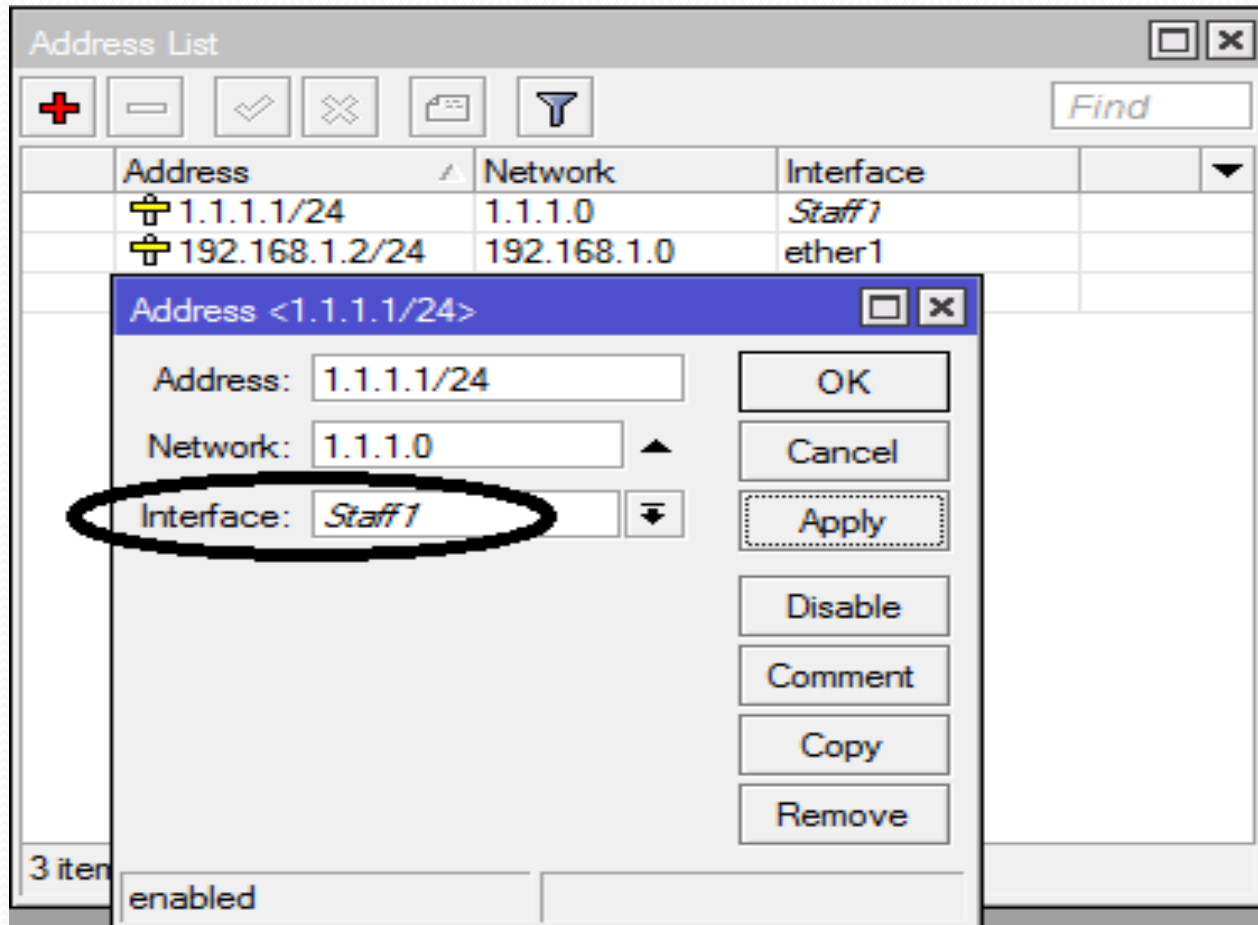
Torch

Advanced Mode

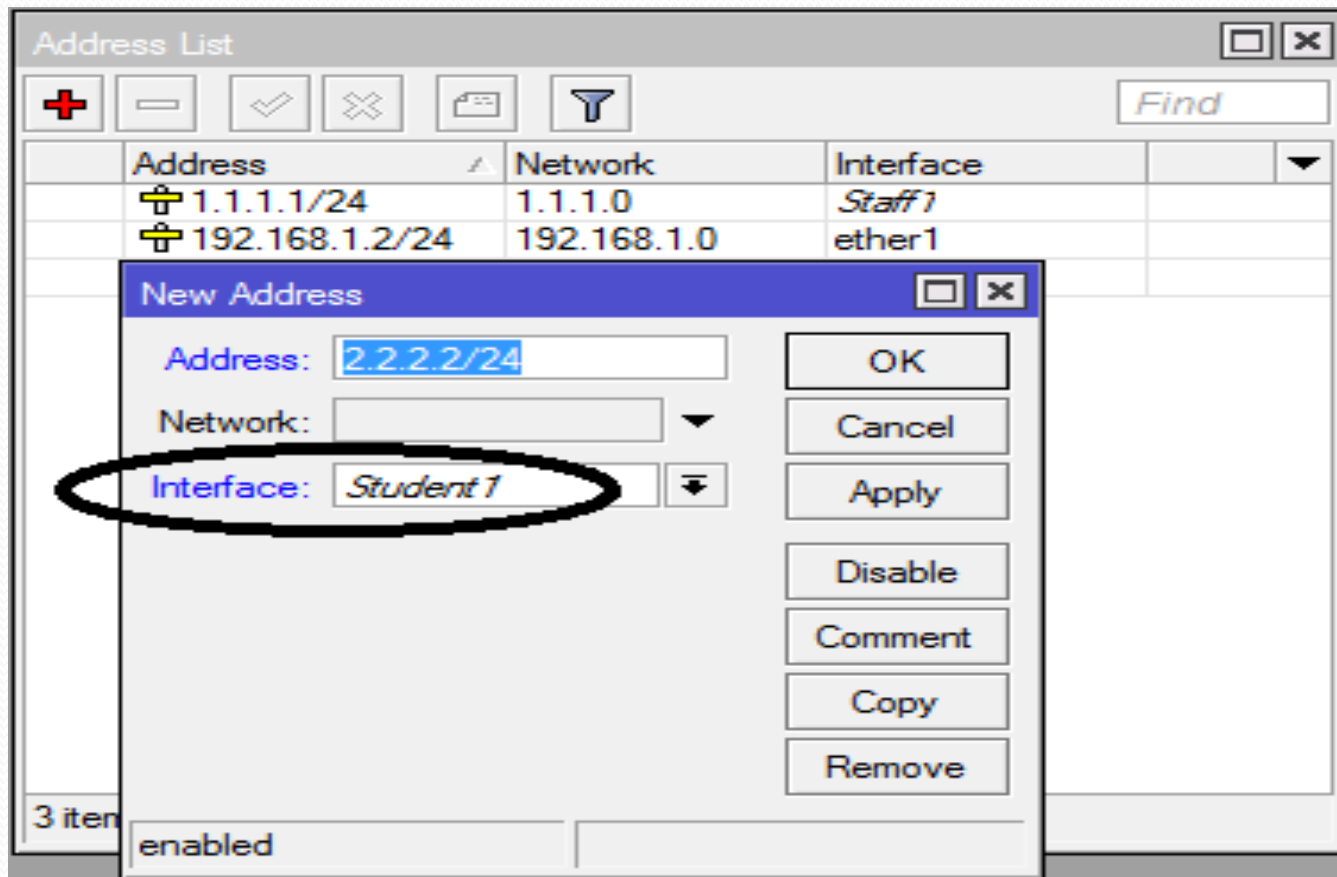
enabled running slave

- 
- Now we will assign IP address on our VAP Interface.
 - We will also create Hotspot on VAP interface.
 - Why Hotspot?

IP Address Configuration on VAP



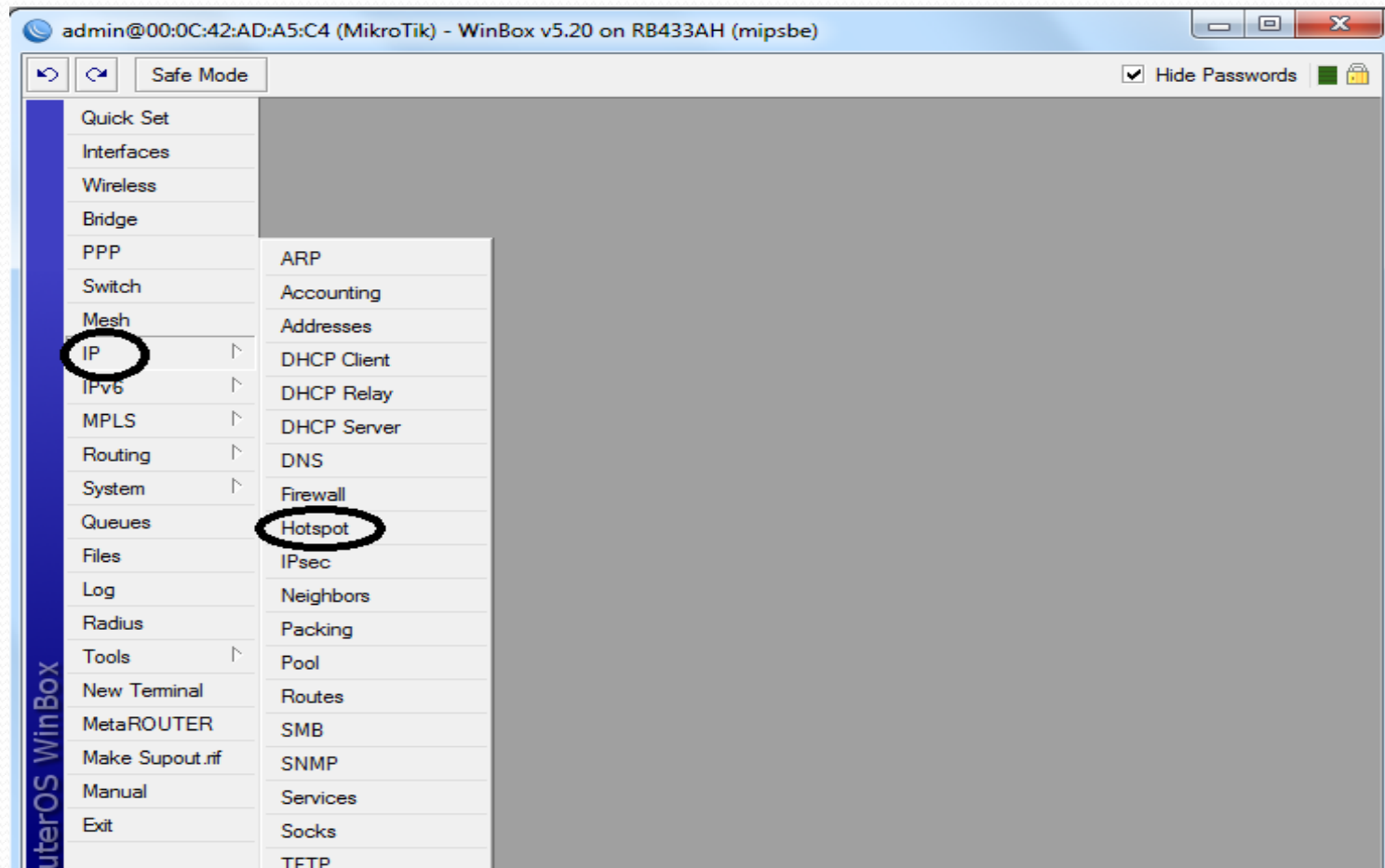
IP Address Configuration on VAP2



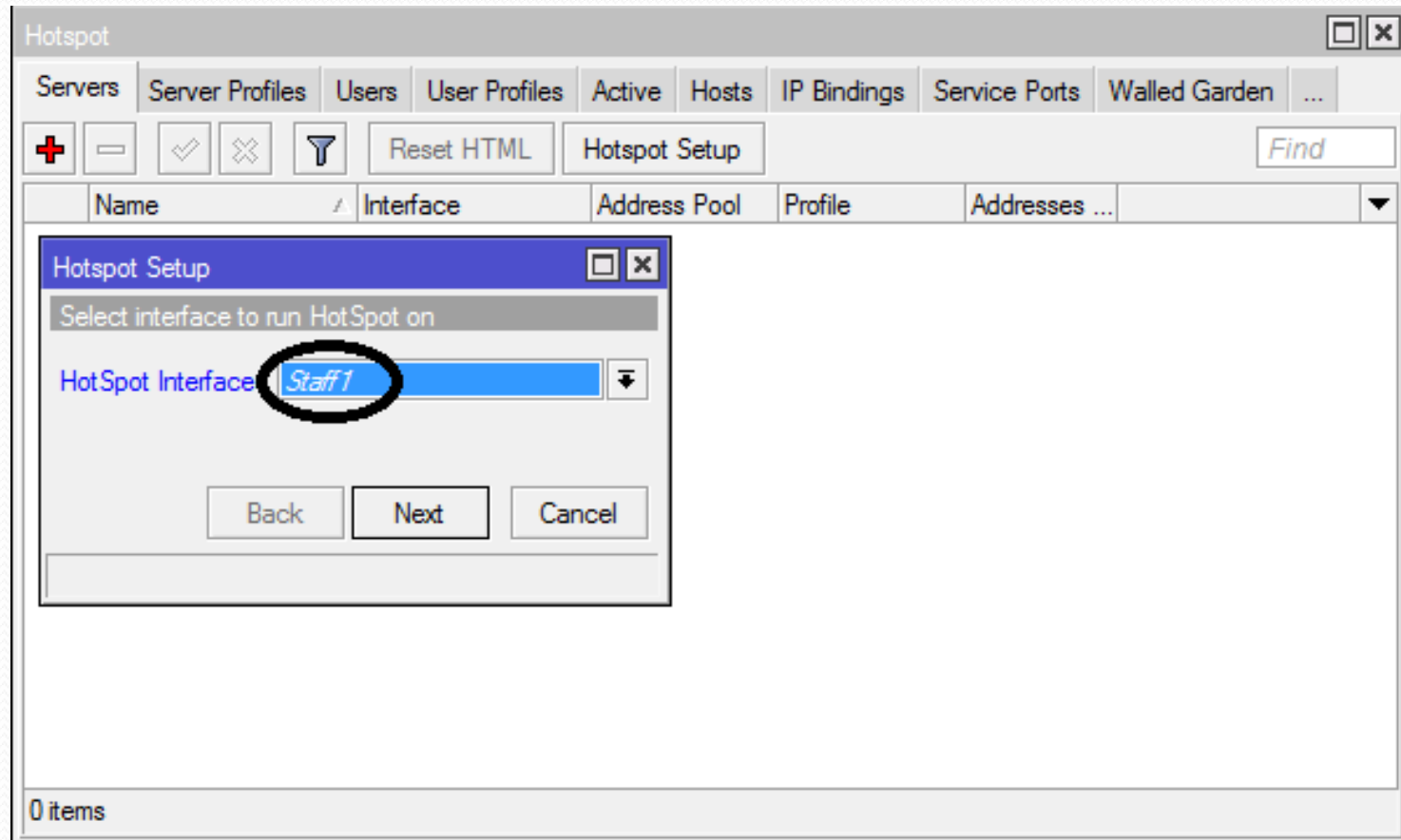
Hotspot Coffiguration

- Now We will configure hotspot on VAP interface for Authentication.

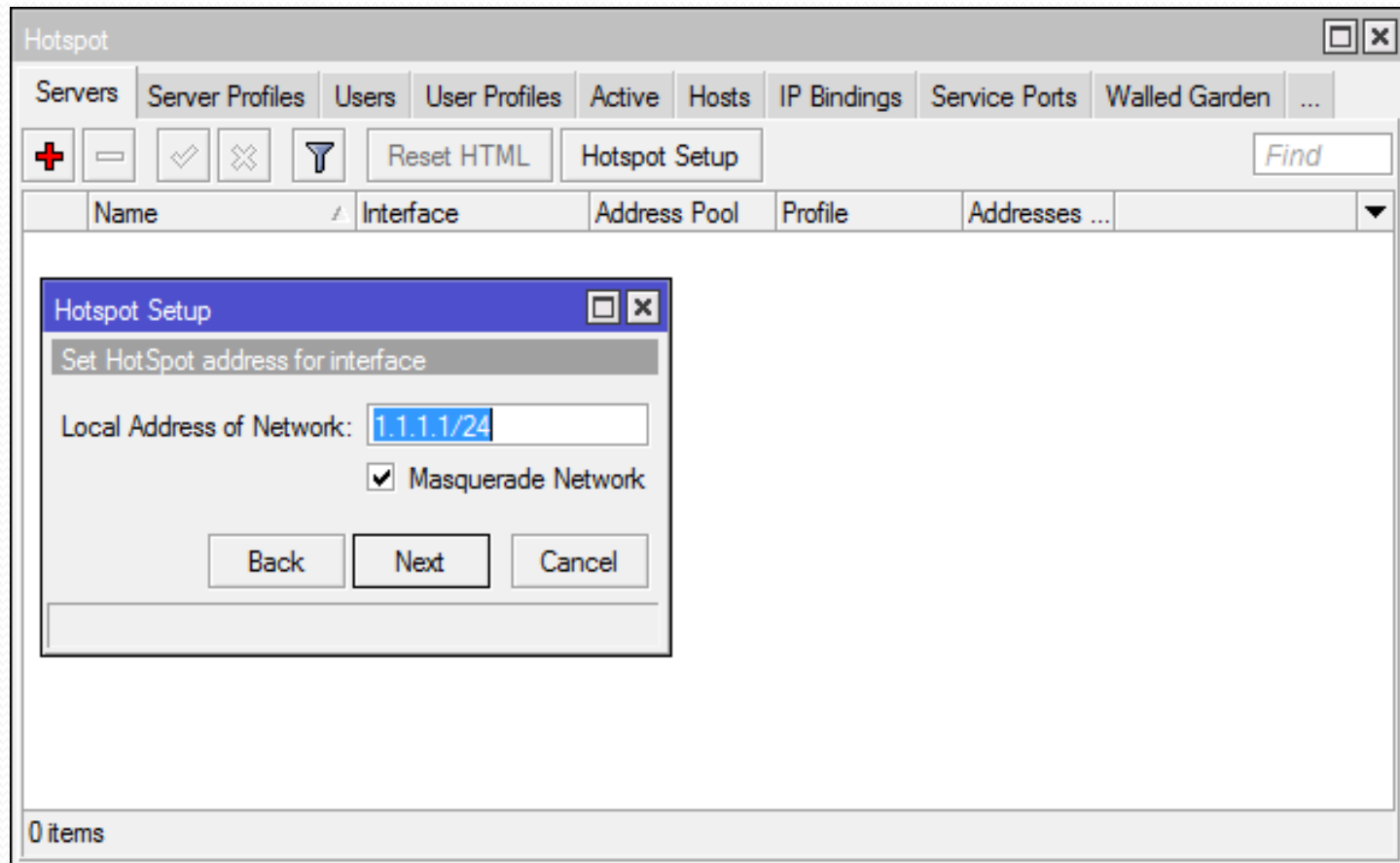
Go to IP-Hotspot



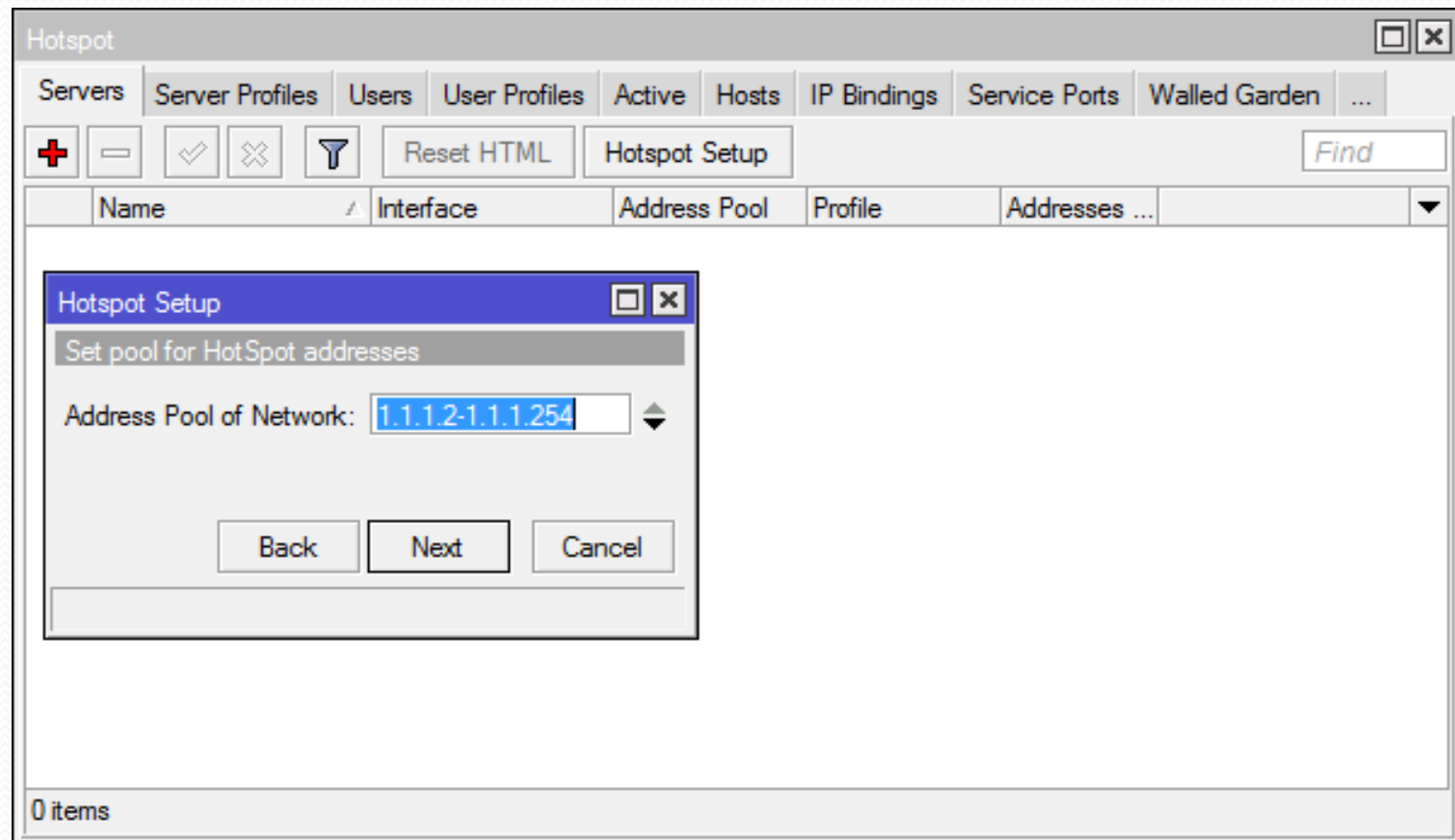
Hotspot Configuration on VAP Interface



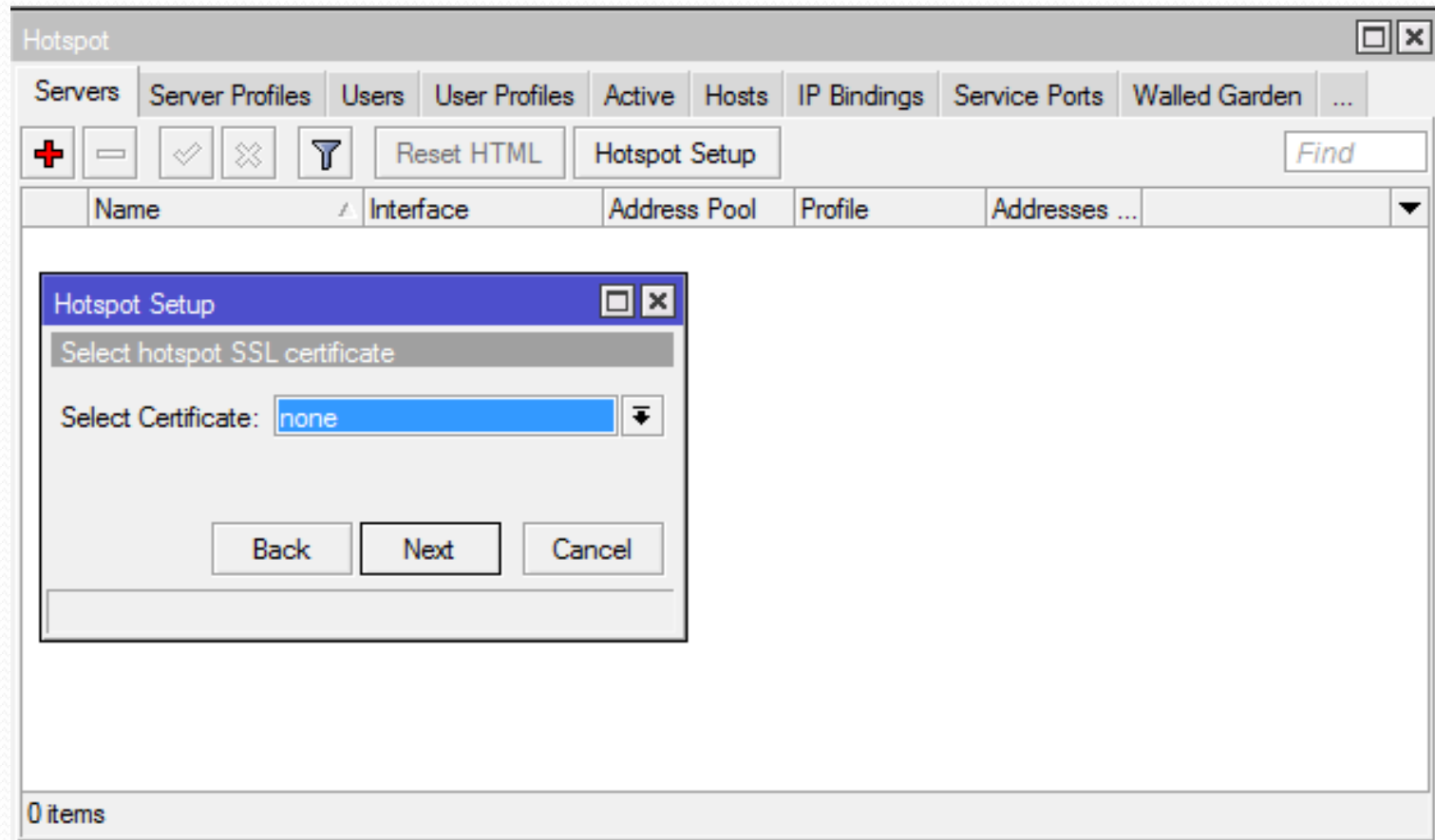
Cont..



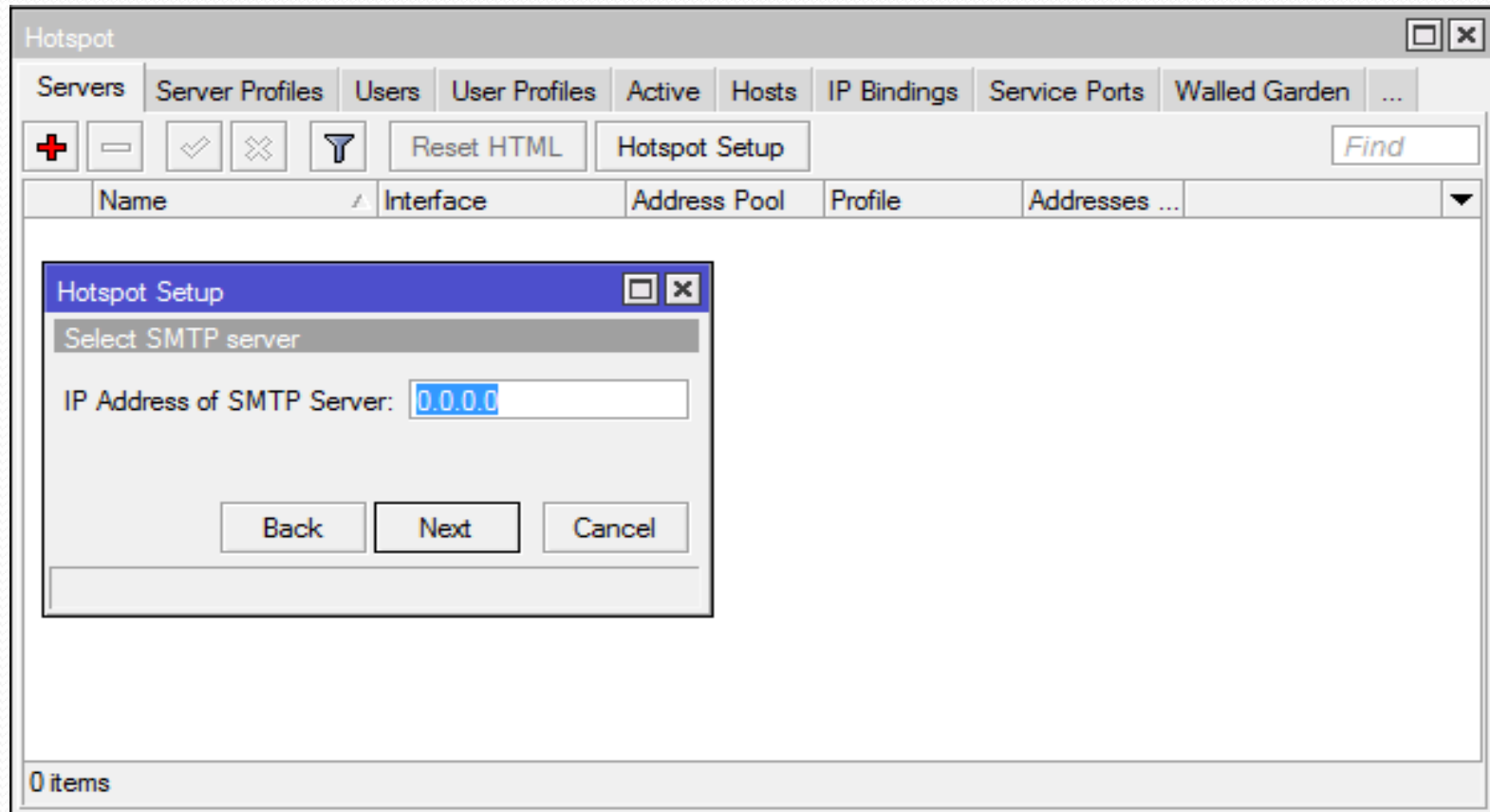
Cont...



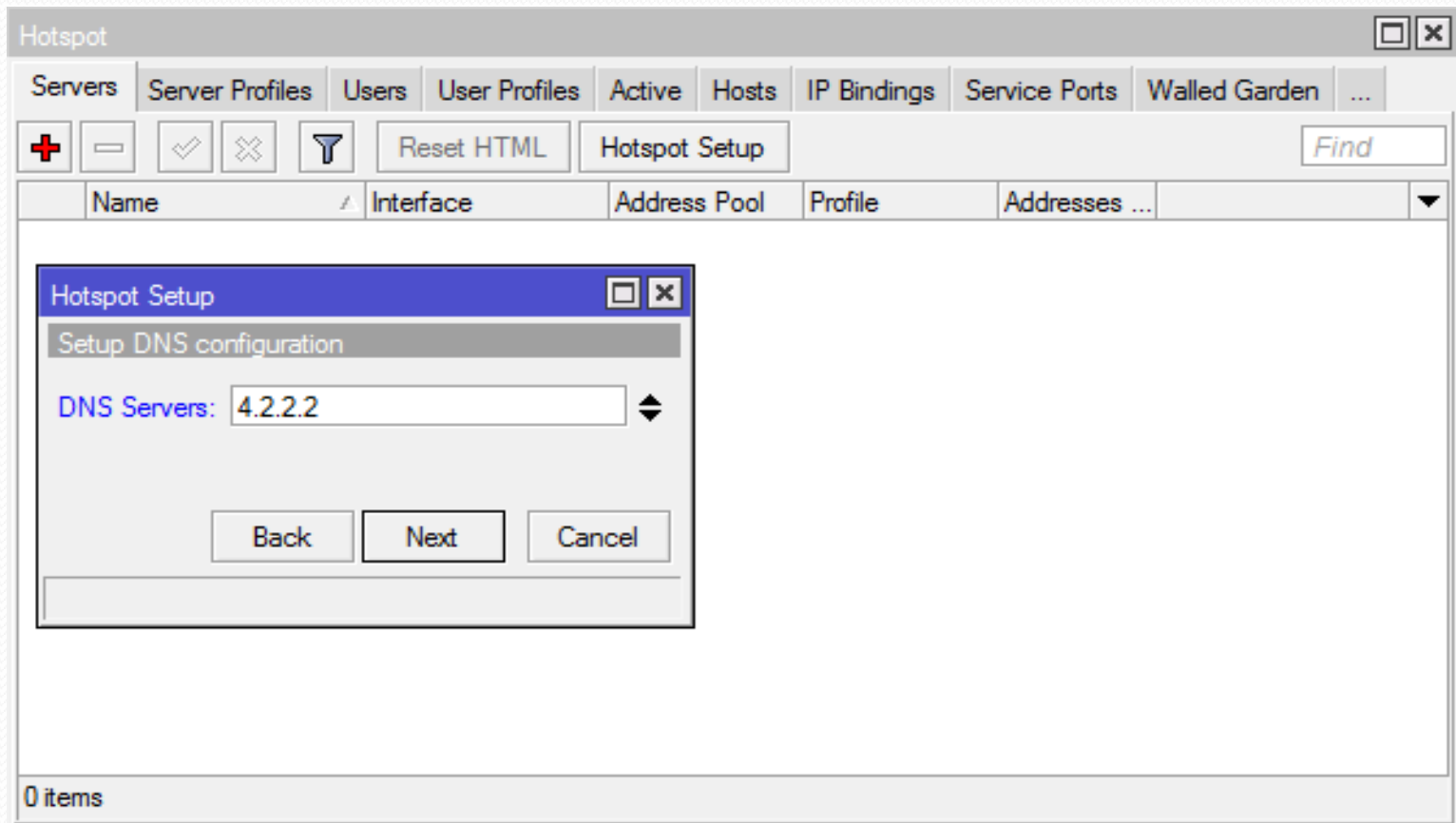
Cont...



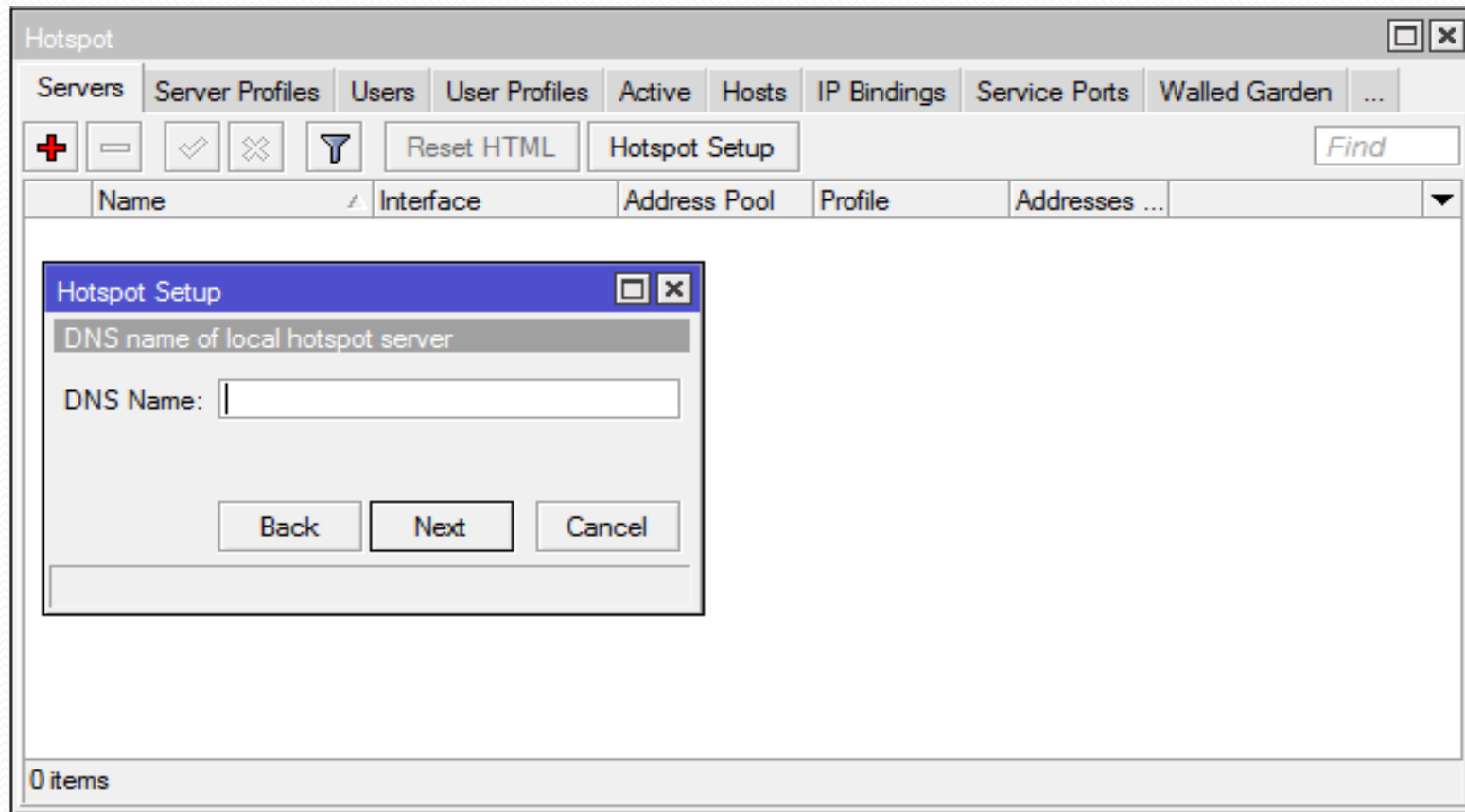
Cont...



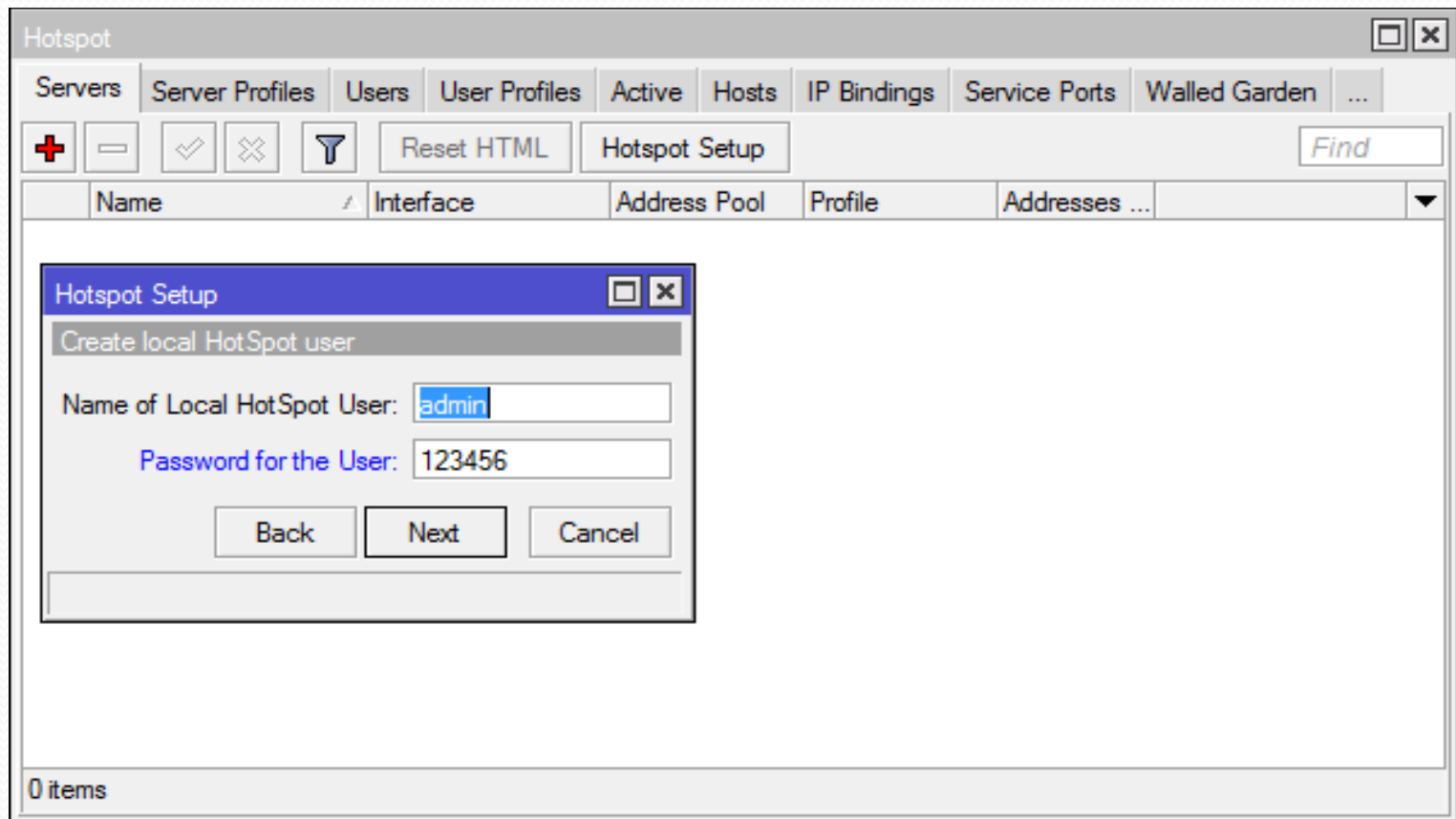
Cont...



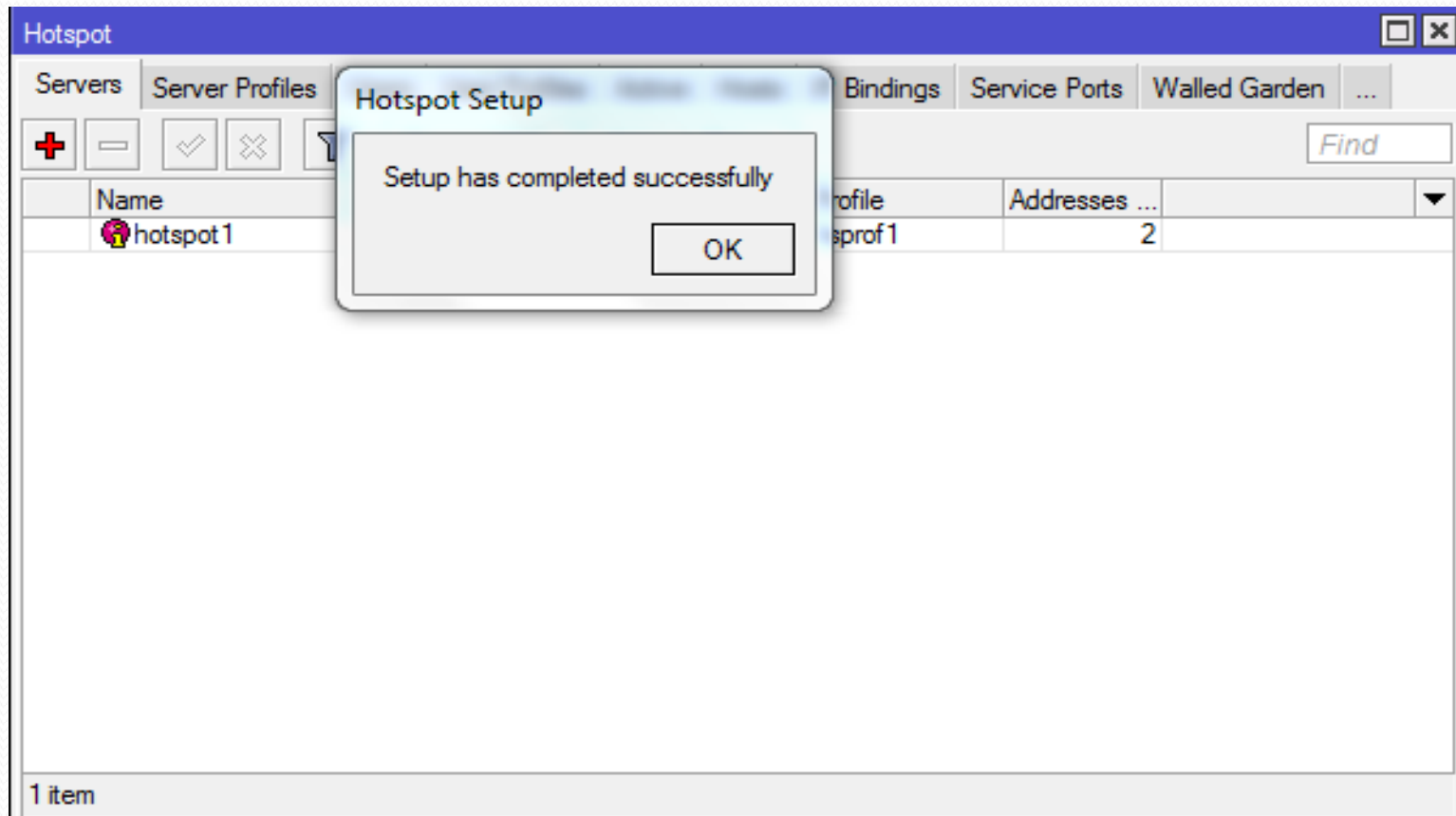
Cont...



Cont...



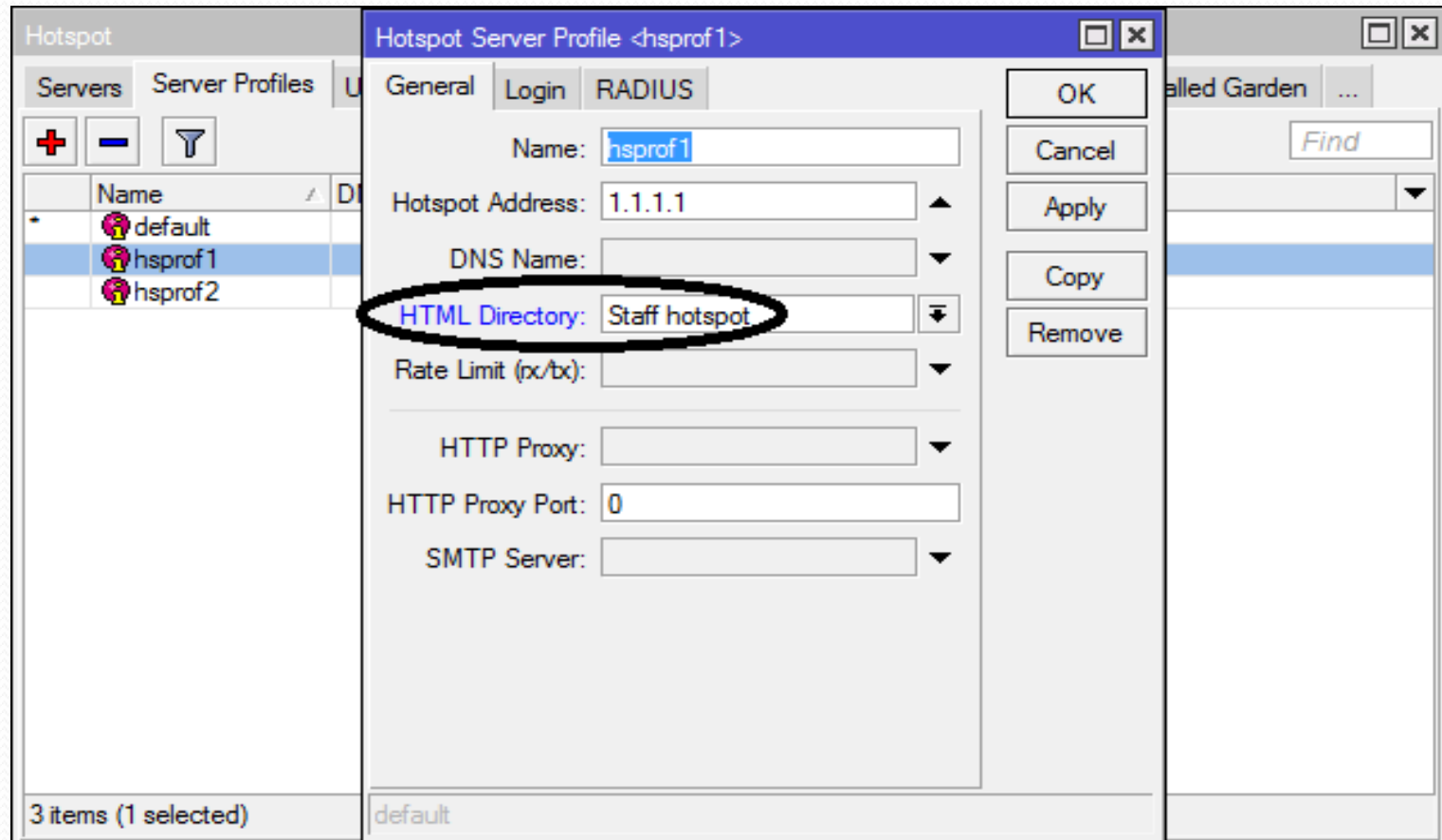
Cont...



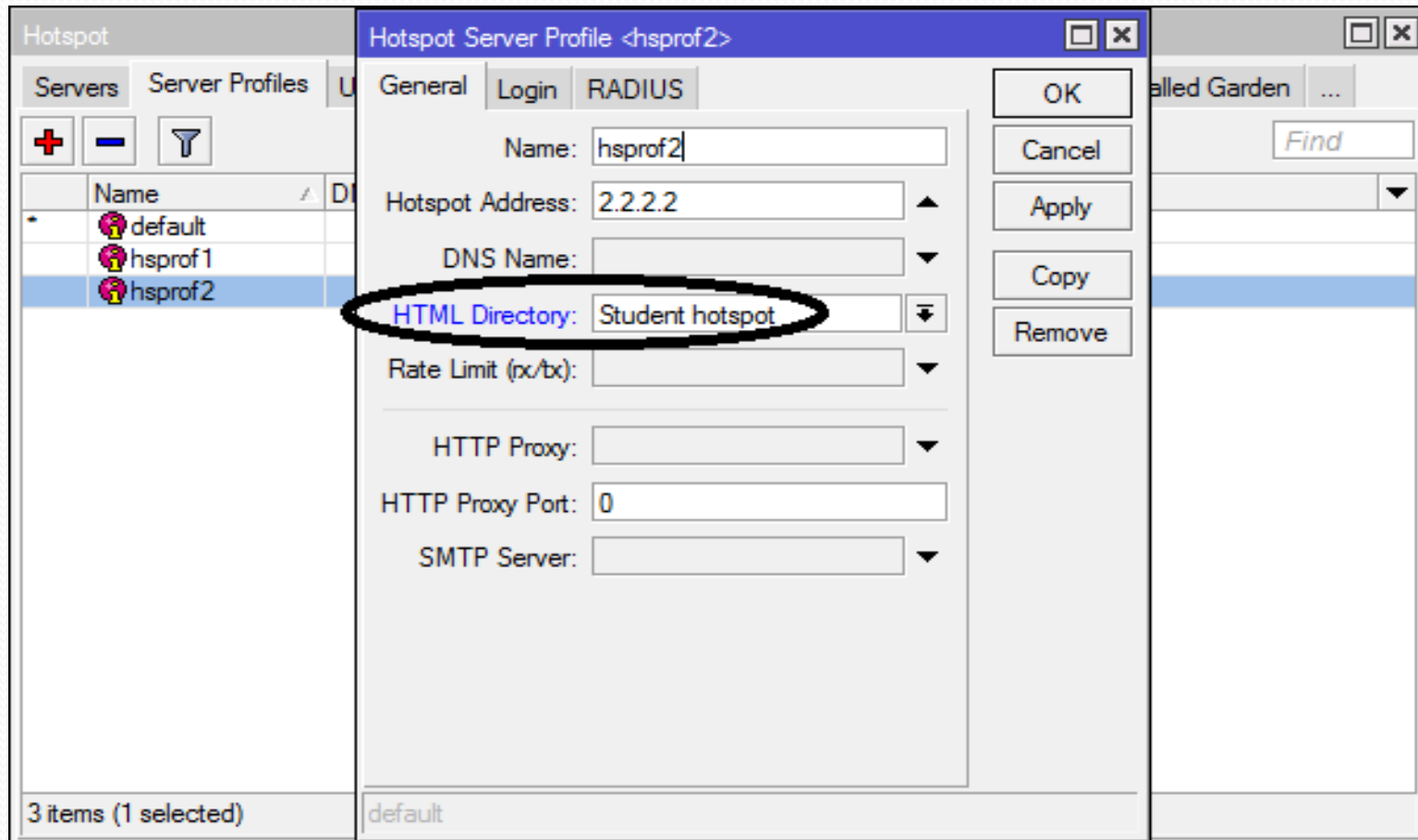
- As per the diagram we can create another Hotspot on student VAP Interface.
- we will try to connect and Login on both VAP one by one.
- We will see same Authentication page on both VAP.
- We can also login through same Username & password.

- Now we will try to do something different we can make different Authentication page for both VAP.
- For that we have to design different Authentication Page and upload to the Mikrotik.
- We can also create some users for both servers.
- Now we have to edit Hotspot Server Profile of both VAP.

Edit Hotspot Server Profile



Cont...



Create User

The image shows a software interface for creating a new hotspot user. The main window is titled "New Hotspot User" and has three tabs: "General", "Limits", and "Statistics". The "General" tab is active. In the "General" tab, the "Server" dropdown menu is highlighted with a red circle and contains the text "staff". Other fields include "Name" (1), "Password" (masked with **), "Address", "MAC Address", "Profile" (default), "Routes", and "Email". On the right side of the dialog, there are buttons for "OK", "Cancel", "Apply", "Disable", "Comment", "Copy", "Remove", and "Reset All Counters".

Hotspot

Server Profiles Users

Server / Name Address

all

1 item

enabled

New Hotspot User

General Limits Statistics

Server: staff

Name: 1

Password: **

Address:

MAC Address:

Profile: default

Routes:

Email:

OK

Cancel

Apply

Disable

Comment

Copy

Remove

Reset All Counters

Find

ptime

00:00:00

Cont...


The screenshot shows a 'New Hotspot User' dialog box with the following fields and controls:

- Server:** A dropdown menu with 'student' selected. This field is circled in black.
- Name:** A text field containing the value '2'.
- Password:** A text field with a password icon on the left.
- Address:** A text field with a dropdown arrow on the right.
- MAC Address:** A text field with a dropdown arrow on the right.
- Profile:** A dropdown menu with 'default' selected.
- Routes:** A text field with a dropdown arrow on the right.
- Email:** A text field with a dropdown arrow on the right.

On the right side of the dialog, there are several buttons:

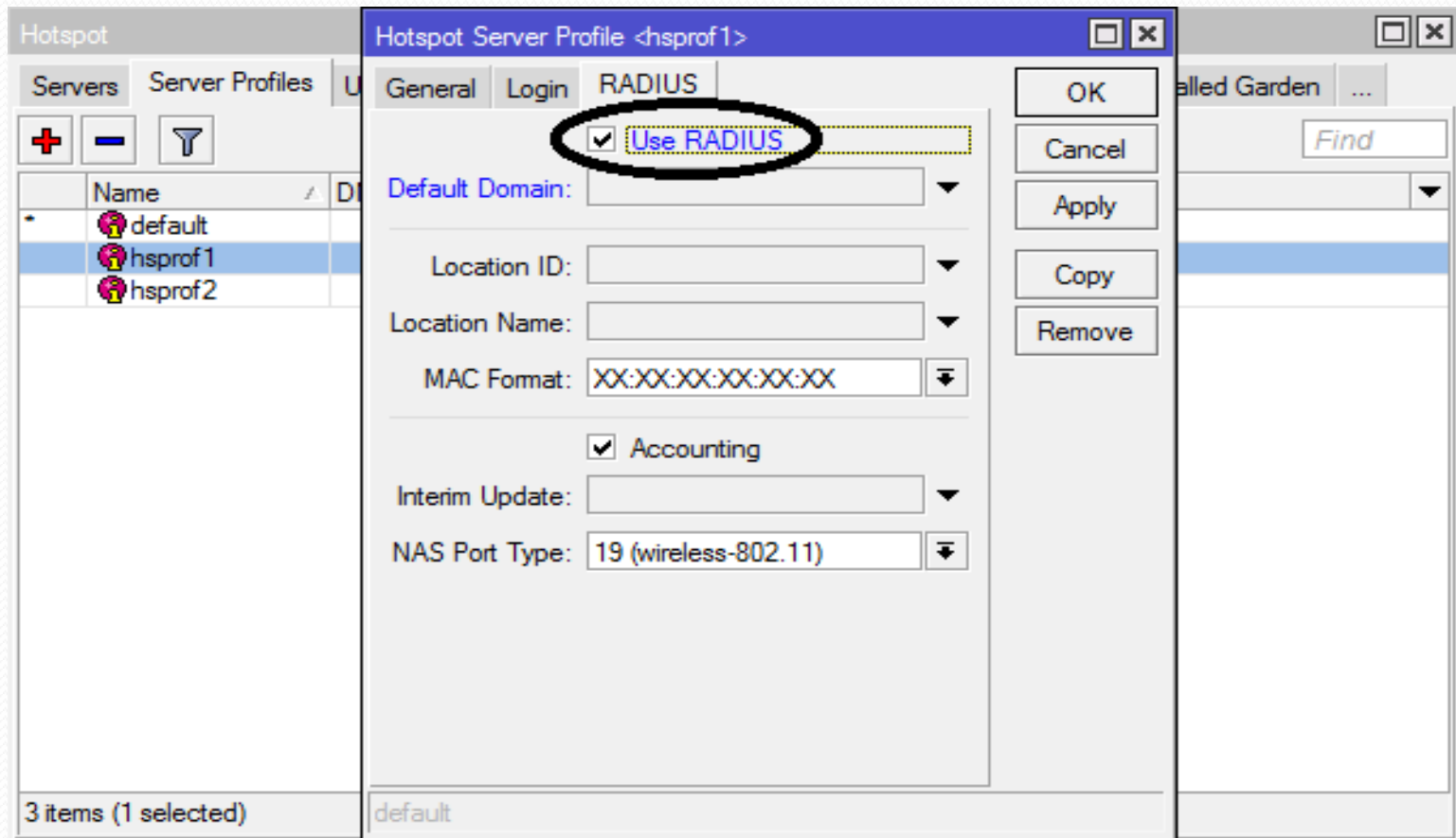
- OK
- Cancel
- Apply
- Disable
- Comment
- Copy
- Remove
- Reset All Counters

In the background, a 'Hotspot' window is visible with a 'Users' tab. It shows a table with columns 'Server' and 'Name'. The 'Server' column has icons for 'all' and 'staff'. The 'Name' column has values 'adr' and '1'. At the bottom, it says '2 items'.

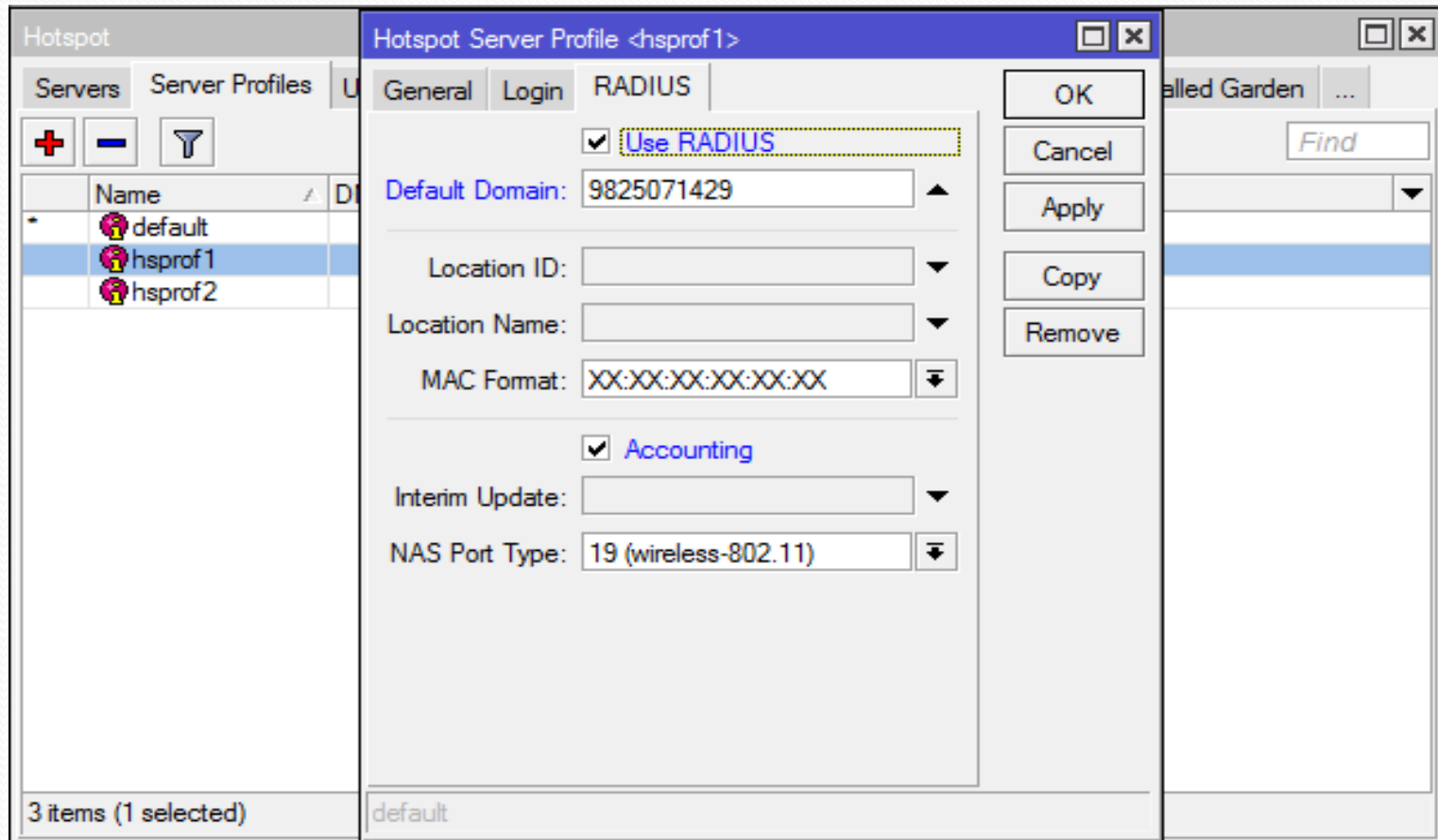
- 
- We can check the results as follows.
 - Try to connect on both VAP and try to Login.
 - We will see Different login page for both VAP.
 - Particular user can only login to selected VAP.

- Guess that two different Database for Student and Staff Authentication is already created in different Radius Server.
- Now we will try to connect two different Radius Server from the same AP which is already configured.
- For that we have to edit Hotspot Server Profile.
- We also have to create Radius Client to link with the Radius Server.

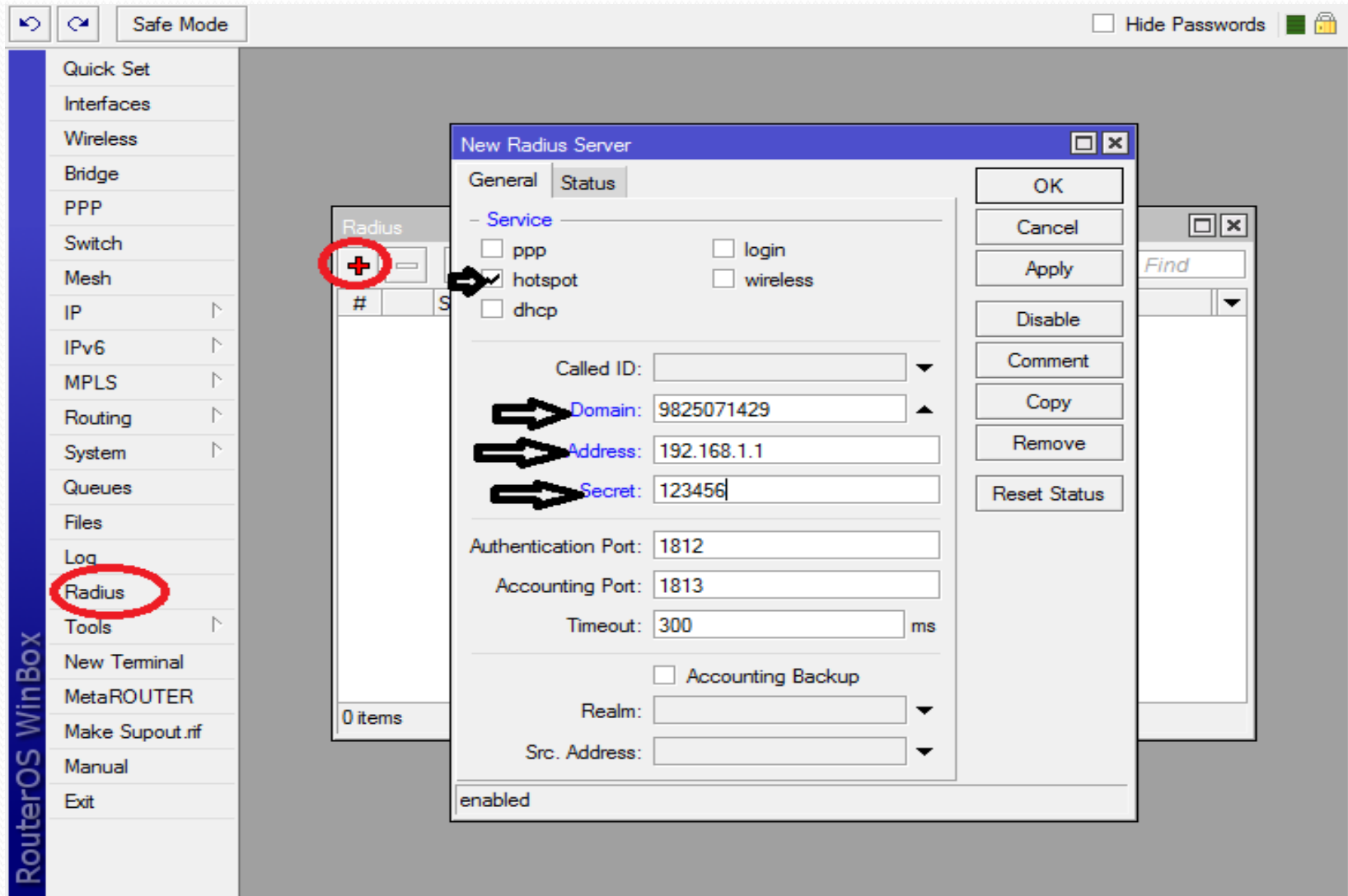
Edit Hotspot Server Profile



Add any string to Domain



Radius Configuration





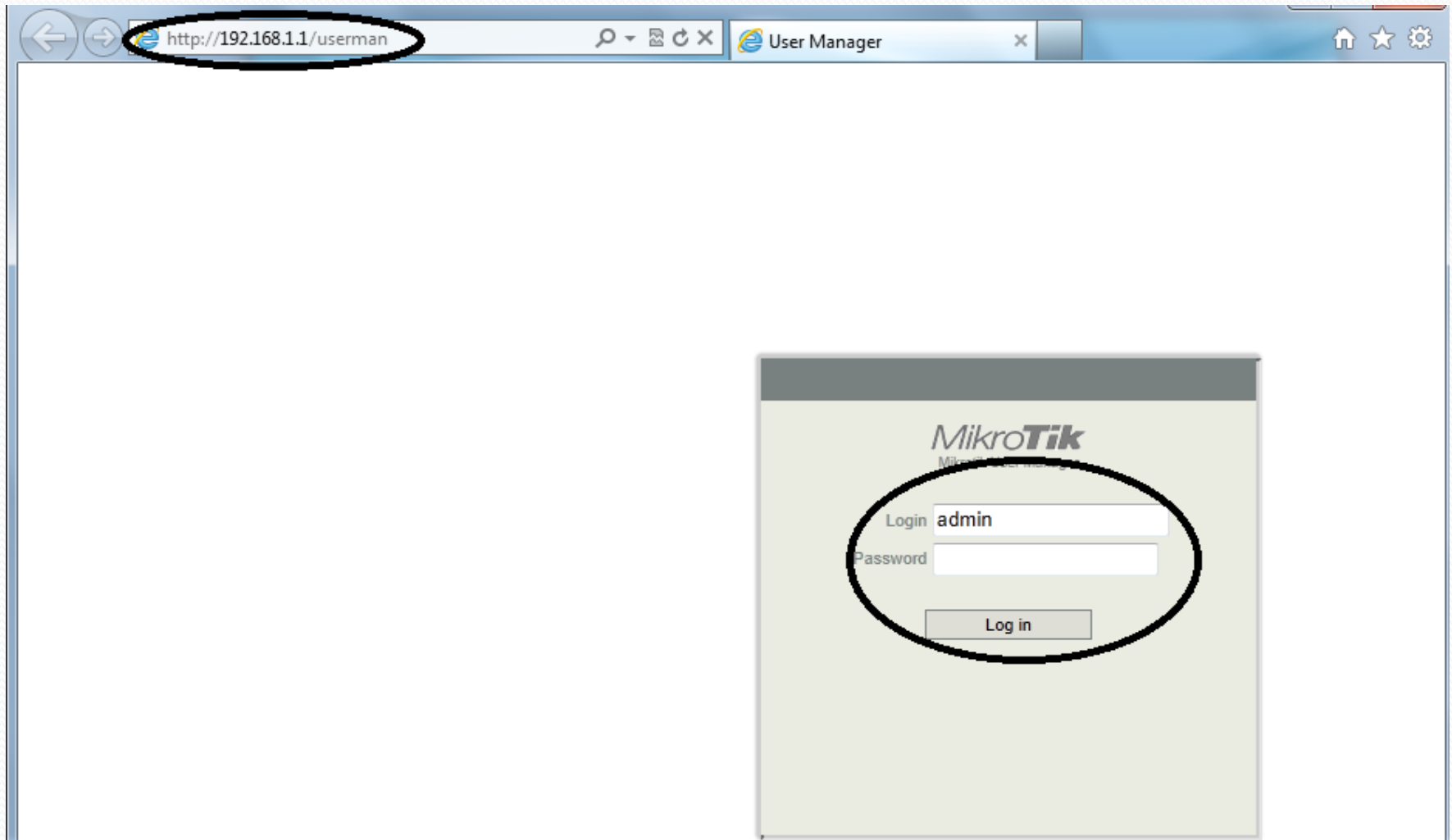
● Radius Server

- We can create Radius server in Mikrotik.
- For that we will configure Usermanager.

Usermanager Configuration

- Add Router IP address & Shared secret
- Add Limitation
- Add Profile
- Add User

Usermanager Login



Add Router

MikroTik
Mikrotik User Manager

Add Edit

Routers Users Sessions Customers Logs Payments Profiles Settings Reports 0 A sessions 0 A users Advanced search Maintenance Logout

<input checked="" type="checkbox"/>	Name	IP address	Shared secret
Per page [20]			

Router details

▲ Main

Name: Nilesht

Owner: admin

IP address: 192.168.1.2

Shared secret: 123456

Time zone: Parent time zone

Disabled: ☐

Log events: ☐ Authorization success ☒ Authorization failure ☐ Accounting success ☐ Accounting failure

▼ Radius incomming

Add

Create Limitation

The screenshot shows the Mikrotik User Manager web interface in a browser window. The address bar displays `http://192.168.1.1/userman`. The page title is "Mikrotik User Manager: Pro...".

On the left sidebar, the "Profiles" menu item is circled. In the main content area, the "Limitations" tab is selected and circled. Below the tab, the "Add" button is circled. A table with one row and one column is visible, with the header "Name" circled.

The "Limitation details" form is displayed on the right. It contains the following fields:

- Main:**
 - Name: 512Kb
 - Owner: admin
- Limits:**
 - Download: 1G
 - Upload: 1G
 - Transfer: 2G
 - Uptime:
- Rate limits:**
 - Rate limit: Rx 1M, Tx 1M
 - Burst rate: Rx, Tx
 - Burst threshold: Rx, Tx
 - Burst time: Rx, Tx
 - Min rate: Rx, Tx
- Constraints:**
 - Priority: Not specified

An "Add" button is located at the bottom right of the form.

Create Profile

MikroTik
Mikrotik User Manager

Routers

Users

Sessions

Customers

Logs

Payments

Profiles

Settings

Reports

0 A sessions

0 A users

Advanced search

Maintenance

Logout

Profiles

Limitations

Profile: 512k

Name: 512k

Name for users:

Owner: admin

Validity:

Starts: At first logon

Price: 0.00

Shared users: not used

Save profile

Remove profile

Unlimited profile

Add new limitation

Set Day and Time

MikroTik
Mikrotik User Manager

Profiles | Limitations

Profile: 512k +
Name: 512k
Name for users:
Owner: admin
Validity:
Starts: At first logon
Price: 0.00
Shared users: not used

Save profile | Remove profile

Unlimited profile
Add new limitation

Profile part

▲ Period
Days: ☒ Sunday
☒ Monday
☒ Tuesday
☒ Wednesday
☒ Thursday
☒ Friday
☒ Saturday
Time: 0:00:00 - 23:59:59

▼ Limits
☐ 512Kb

New limit | Cancel | Add

Check on limit

MikroTik
Mikrotik User Manager

Profiles Limitations

Profile: 512k +

Name: 512k

Name for users:

Owner: admin

Validity:

Starts: At first logon

Price: 0.00

Shared users: not used

Save profile Remove profile

Unlimited profile

Add new limitation

0 A sessions

0 A users

Advanced search

Maintenance

Logout

Profile part

▲ Period

Days: ☒ Sunday
☒ Monday
☒ Tuesday
☒ Wednesday
☒ Thursday
☒ Friday
☒ Saturday

Time: 0:00:00 - 23:59:59

▲ Limits

☒ 512Kb

New limit Cancel Add

Save and Cont...

MikroTik
Mikrotik User Manager

Profiles Limitations

Profile: 512k +

Name: 512k

Name for users:

Owner: admin

Validity:

Starts: At first logon

Price: 0.00

Shared users: not used

Save profile Remove profile

Profile limitations

	Constraints
<input type="checkbox"/> Active	Download limit: 1024.0 Mib Upload limit: 1024.0 Mib Transfer limit: 2.0 Gib Rate limits: 1M/1M 0/0 0/0 0/0 0 1M/1M
<input type="checkbox"/> Always	

Add new limitation Remove selected limitations

Create User

MikroTik
Mikrotik User Manager

Add Edit Generate

☒ Username ☐ Till time ☐ Total time left

User details [X]


▲ Main
➡ Username:
Password:
Disabled: ☐
Owner: admin

▲ Constraints
IP address:
Caller ID:
Bind on first use: ☐
Shared users: ▼

▼ Wireless
▼ Private information
➡ Assign profile: ▼

Add

Router Users Sessions Customers Logs Payments Profiles Settings Reports 0 A sessions 0 A users Advanced search Maintenance Logout

- 
- Same way we can configure another usermanager.
 - we can check the results.
 - We will try to authenticate from both VAP with different user name and password which we have created in our usermanager as per the diagram.

- We will see one more advance configuration of Usermanager.
- We will see number of Administrator can share same Usermanager as their own property.
- They can add their own Routers, Users, Profiles, limitations, etc.
- Nobody can see another Administrators configuration.

Create Customer

- Login-Password-permission

MikroTik
Mikrotik User Manager

Add Edit

<input type="checkbox"/>	▼ Login	▼ Parent	▼ Permissions
<input type="checkbox"/>	admin		Owner

Customer details [X]

▼ Main

Login: staffadmin

→ Password: ••••••

Disabled: ☐

Parent: admin

→ Permissions: Read only (selected)
Read write
Full
Owner

Public ID:

Public host:

Backup allowed:

▼ Access
▼ Private information
▼ Signup options
▼ Format

Add

Set Access

MikroTik
Mikrotik User Manager

Add **Edit**

<input type="checkbox"/>	▼ Login	▼ Parent	▼ Permissions
<input type="checkbox"/>	admin		Owner

Customer details [X]

▼ Main

Login:

Password:

Disabled: ☐

Parent:

Permissions:

Public ID:

Public host:

Backup allowed: ☐

△ Access

Access:

- ☒ Own routers
- ☒ Parents routers
- ☒ Own users
- ☒ Parents users
- ☒ Own profiles
- ☒ Parents profiles
- ☒ Own limitations
- ☒ Parents limitations
- ☒ Configure payment gateways
- ☒ Use parent payment gateways

▼ Private information

▼ Signup options

▼ Format

Set Private Information

MikroTik
Mikrotik User Manager

Routers
Users
Sessions
Customers
Logs
Payments
Profiles
Settings
Reports
0 A sessions
0 A users
Advanced search
Maintenance
Logout

Add **Edit**

<input type="checkbox"/>	▼ Login	▼ Parent	▼ Permissions
<input type="checkbox"/>	admin		Owner

Customer details [X]

▲ Main

Login:

Password:

Disabled: ☐

Parent:

Permissions: ▼

Public ID:

Public host:

Backup allowed: ☐

▼ Access

▲ Private information

Company:

City:

Country:

Email:

▼ Signup options

▼ Format

Add

Customer Created

MikroTik
Mikrotik User Manager

Routers

Users

Sessions

Customers

Logs

Payments

Profiles

Settings

Reports

0 A sessions

0 A users

Advanced search

Maintenance

Logout

AddEdit

<input type="checkbox"/>	▼ Login	▼ Parent	▼ Permissions	▼ Public ID
<input type="checkbox"/>	admin		Owner	
<input type="checkbox"/>	staffadmin	admin	Read write	

Per page [20] ▼

Summary

- We can create 2 different network on one AP.
- We can assign them diff. authentication to avoid confusion.
- User request will authenticate from particular radius server.
- We can create Packages as per our requirement
- We can Limit Data transfer.
- We can Limit speed for download & upload
- We can create separate package for day & night
- User can see his utilization.
- User can pay online
- User can change his password.
- We can make multiple administrator on single server.

Thank you

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