



MikroTik

Hotspot with User-Manager



April 21, 2015
MUM Phnom Penh, Cambodia

By Sarpich RATH (Peter)

Phnom Penh Informatics Center (PPIC)



- Qualified and Vocational IT Training Center
- Found in late 2013. Offer service in June 2014
- MikroTik Academy partner
- All Instructors are Authorized and Certified
- Training Service
 - Mikrotik
 - Linux LPI
 - VoIP & PABX
 - Cisco
 - Microsoft



About Me



- Sarpich RATH (Peter)
- First used RouterOS since 2008
- MTCNA, MTCRE, Academy Trainer
- Trainer @PPIC and AEU

Content



- Mikrotik Hotspot
- Modify hotspot login page
- Hotspot with User Manager

MikroTik Hotspot



Hotspot



- Tool for Instant Plug-and-Play Internet access
- Hotspot provides authentication of clients before access to public network
- It also provides User Accounting

Hotspot Usage



- Open Access Points, Internet Cafes, Airports, universities campuses, etc.
- Different ways of authorization
- Flexible accounting

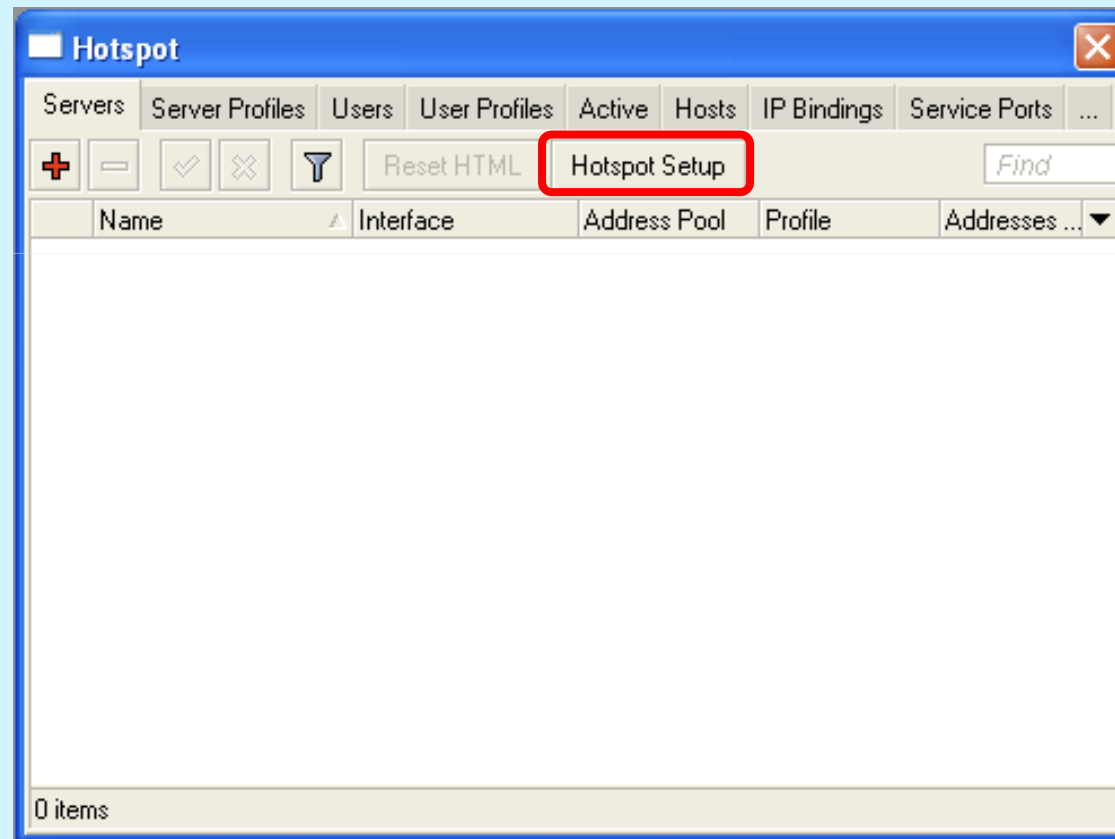
Hotspot Requirements



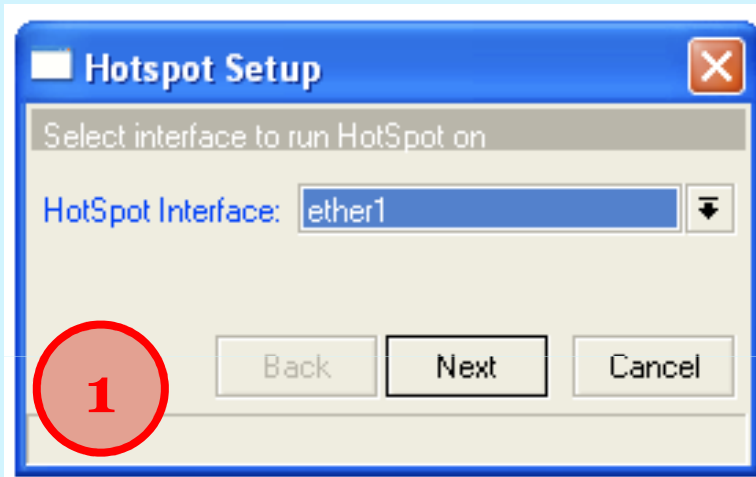
- Hotspot package
- Valid IP addresses on Internet and Local Interfaces
- DNS servers addresses added to **ip dns**
- At least one Hotspot user

Hotspot Setup

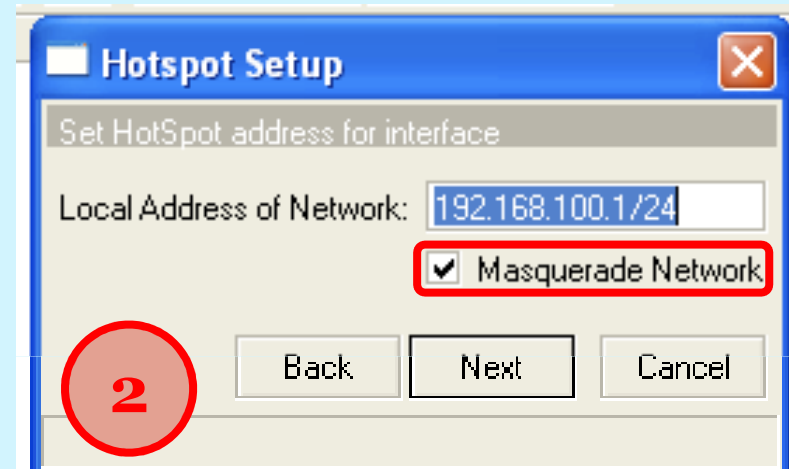
- IP-> Hotspot -> Hotspot setup



Hotspot Setup

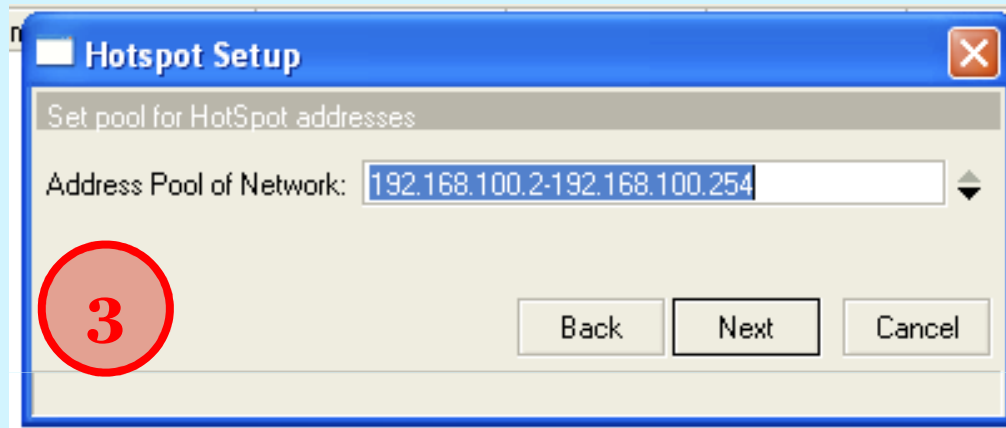


Select **Interface** to run Hotspot **on**

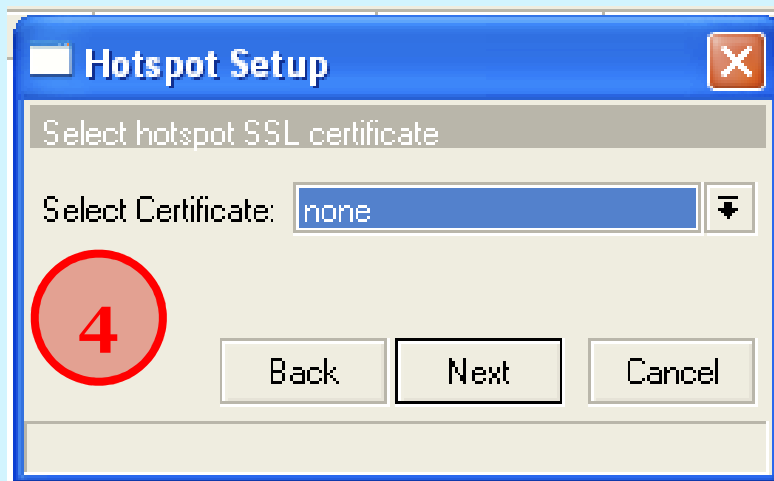


Hotspot **address** will be selected **automatically**

Hotspot Setup

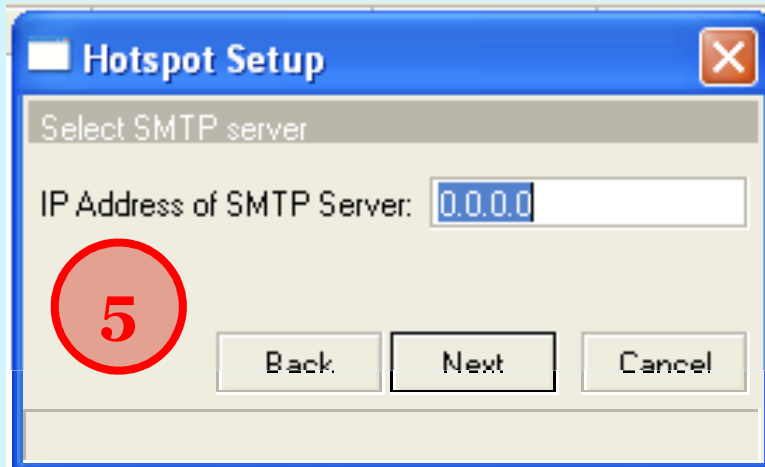


Addresses that will be assigned to Hotspot clients

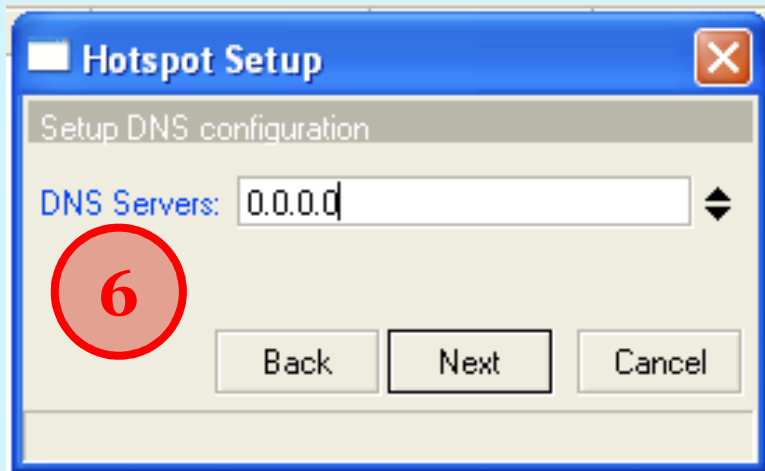


Whether to use certificate together with Hotspot or not

Hotspot Setup



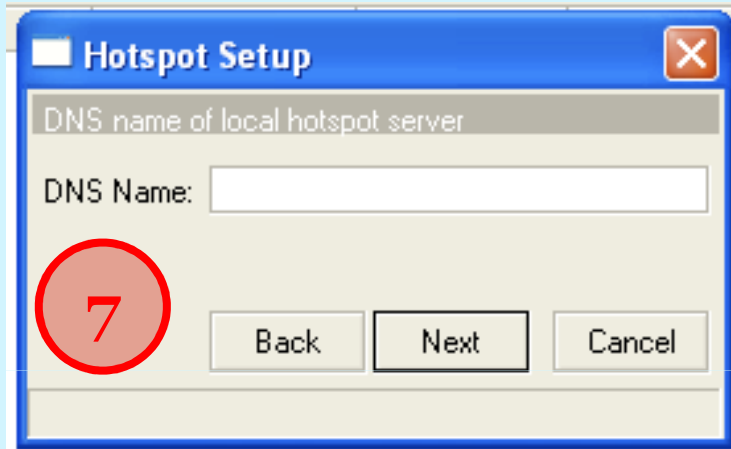
IP address to redirect SMTP
(e-mails) to your SMTP server



DNS servers address
for Hotspot clients

- local DNS IP
- DNS IP get from ISP

Hotspot Setup



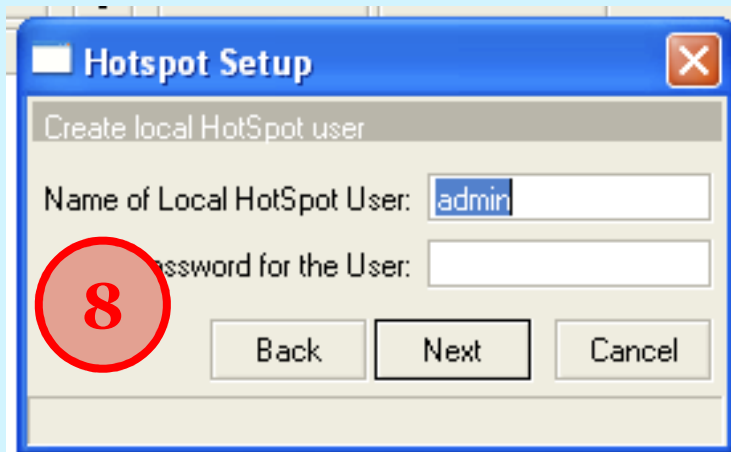
The dialog box is titled "Hotspot Setup" and has a close button (X) in the top right corner. The main heading is "DNS name of local hotspot server". Below this, there is a label "DNS Name:" followed by a text input field. A red circle with the number "7" is overlaid on the left side of the dialog box. At the bottom, there are three buttons: "Back", "Next", and "Cancel".

DNS name for Hotspot server

Ex:

- login.mikortik.com

- hotspot.ppic-training.com



The dialog box is titled "Hotspot Setup" and has a close button (X) in the top right corner. The main heading is "Create local HotSpot user". Below this, there are two labels: "Name of Local HotSpot User:" followed by a text input field containing the text "admin", and "Password for the User:" followed by a text input field. A red circle with the number "8" is overlaid on the left side of the dialog box. At the bottom, there are three buttons: "Back", "Next", and "Cancel".

Add first Hotspot user

Important Notes



- Users connected to Hotspot interface will be disconnected from the Internet
- Client will have to authorize in Hotspot to get access to Internet



Important Notes



Hotspot default setup creates additional configuration:

- DHCP-Server on Hotspot Interface
- Pool for Hotspot Clients
- Dynamic Firewall rules (Filter and NAT)

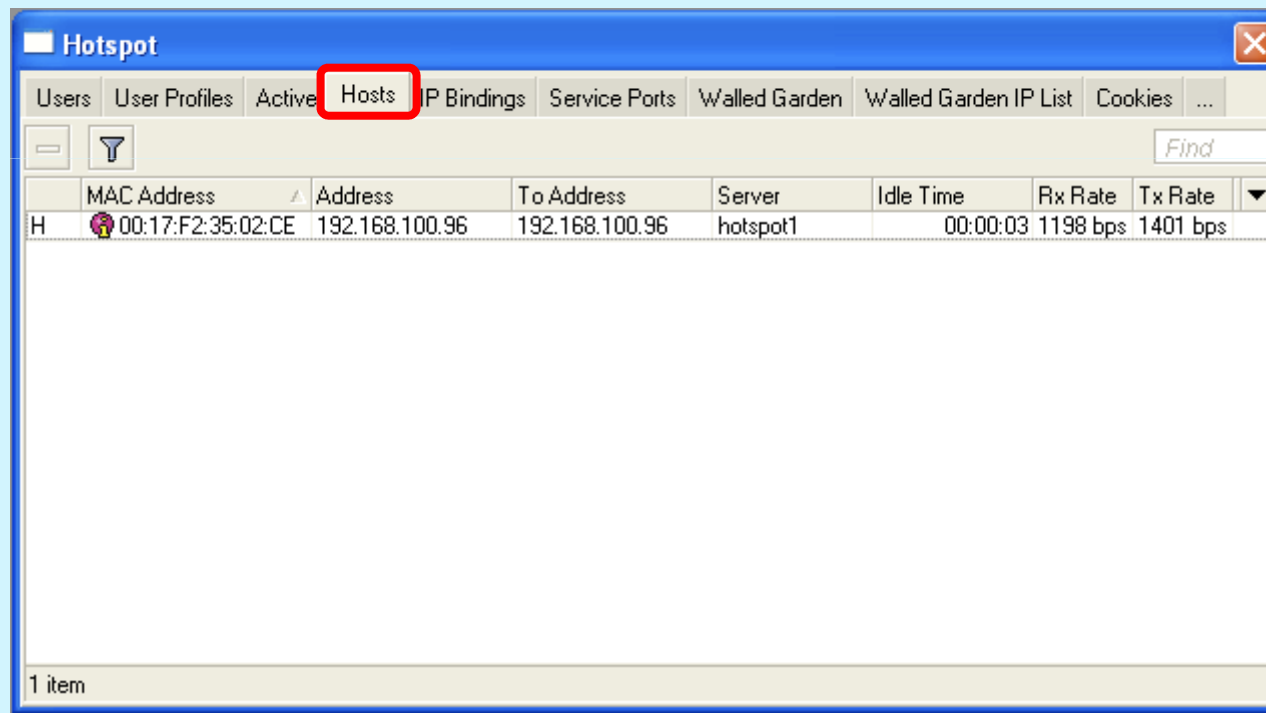
Hotspot Help



- Hotspot login page is provided when user tries to access any web-page
- To logout from Hotspot you need to go to
- http://Router_IP
 - <http://192.168.88.1/>
- http://Hotspot_DNS
 - <http://login.mikortik.com>

Hotspot Network Hosts

- Information about clients connected to Hotspot router



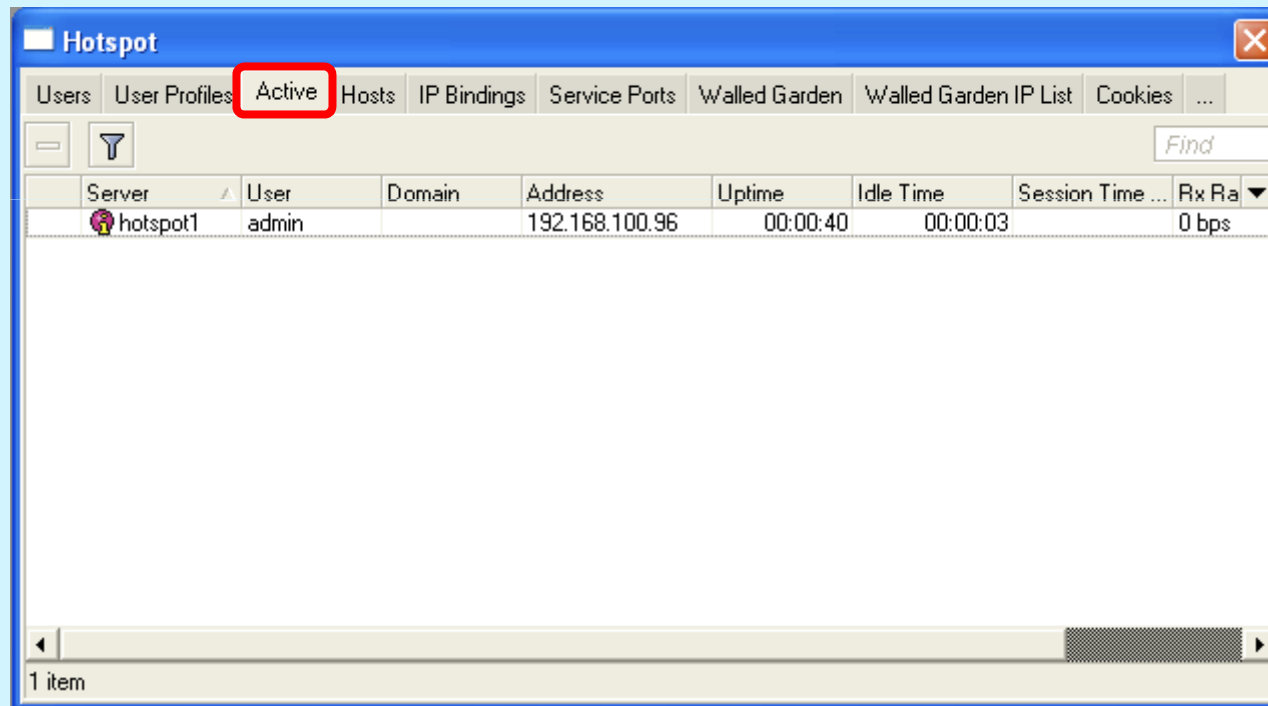
The screenshot shows the 'Hotspot' application window with the 'Hosts' tab selected. The tab is highlighted with a red rectangle. Below the tabs, there is a table with columns: MAC Address, Address, To Address, Server, Idle Time, Rx Rate, and Tx Rate. A single row of data is visible, representing a connected client. The status bar at the bottom indicates '1 item'.

	MAC Address	Address	To Address	Server	Idle Time	Rx Rate	Tx Rate
H	00:17:F2:35:02:CE	192.168.100.96	192.168.100.96	hotspot1	00:00:03	1198 bps	1401 bps

1 item

Hotspot Active Table

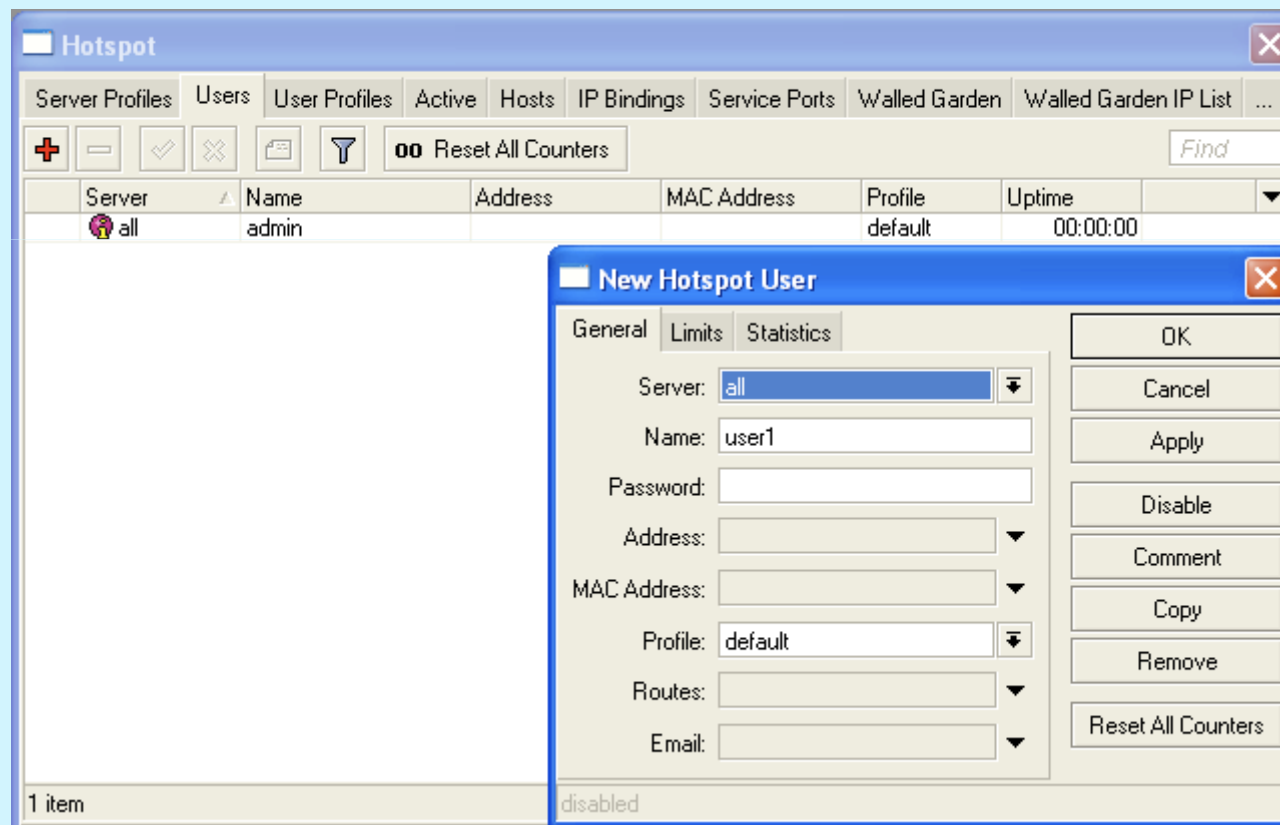
- Information about authorized Hotspot clients



Server	User	Domain	Address	Uptime	Idle Time	Session Time ...	Rx Ra
hotspot1	admin		192.168.100.96	00:00:40	00:00:03		0 bps

User Management

- Add/Edit/Remove Hotspot users



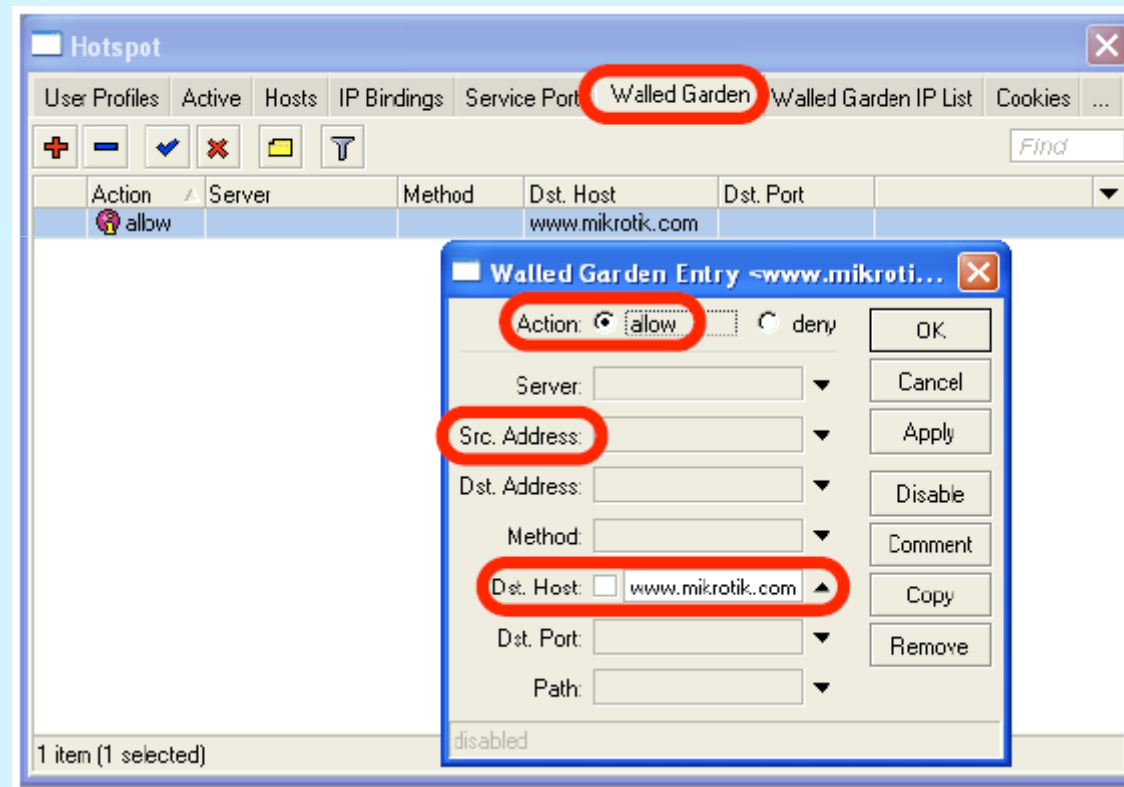
Hotspot Walled-Garden



- Tool to get access to specific resources without Hotspot authorization
- Walled-Garden for HTTP and HTTPS
- Walled-Garden IP for other resources (Telnet, SSH, Winbox, etc.)

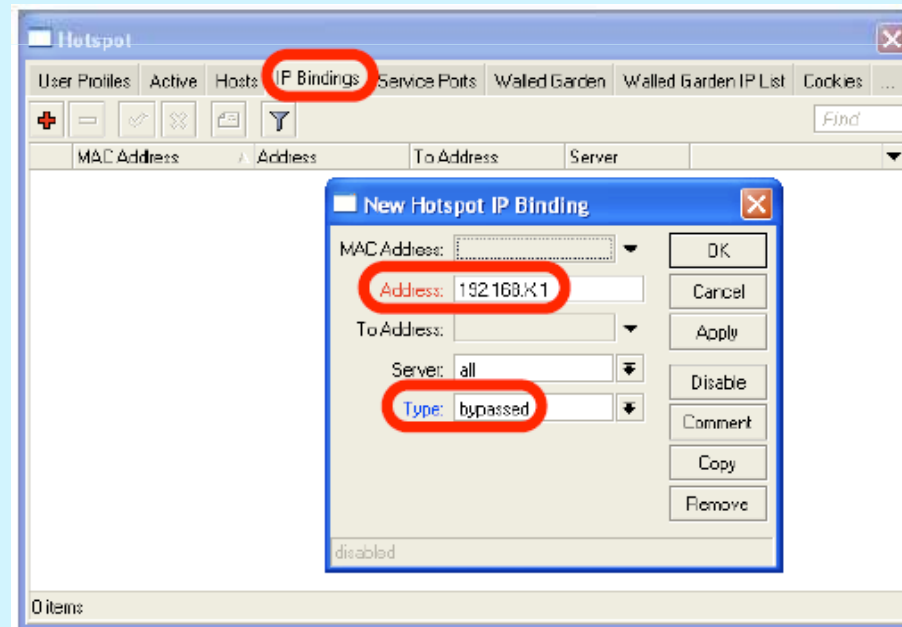
Hotspot Walled-Garden

- Allow access to mikrotik.com



Bypass Hotspot

- Bypass specific clients over Hotspot
- VoIP phones, printers, superusers
- IP-binding is used for that



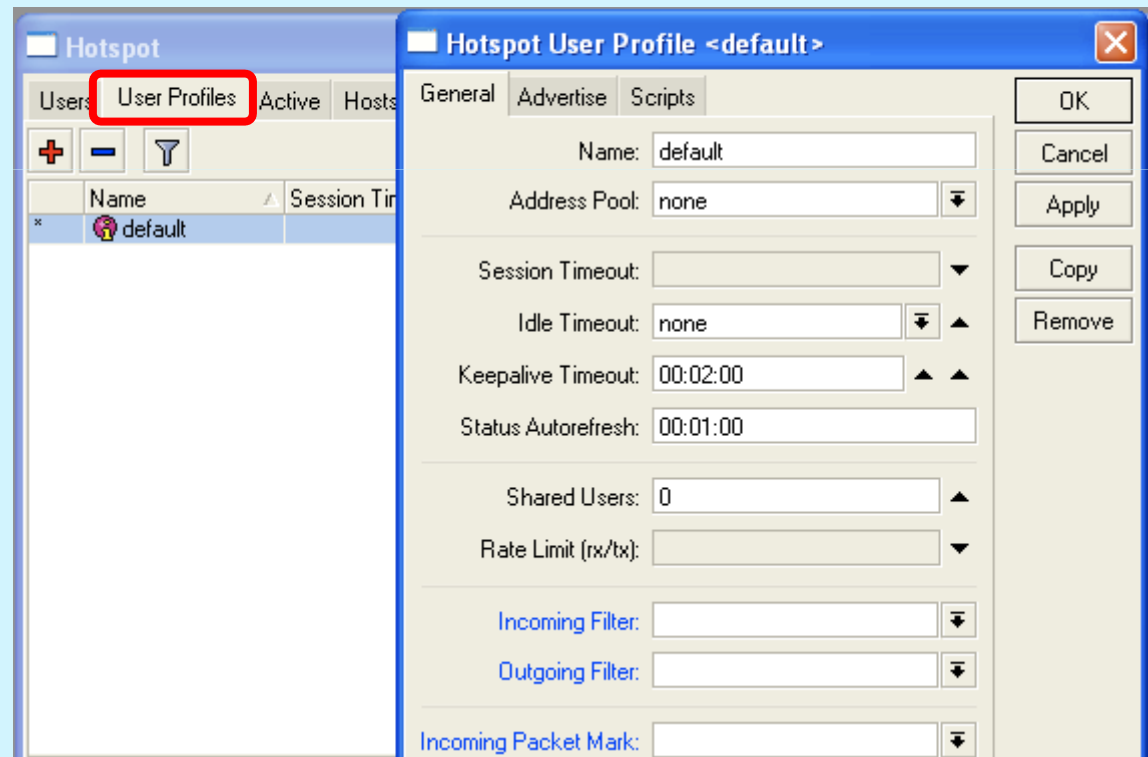
Hotspot Bandwidth Limits



- It is possible to set every Hotspot user with automatic bandwidth limit
- Dynamic queue is created for every client from profile

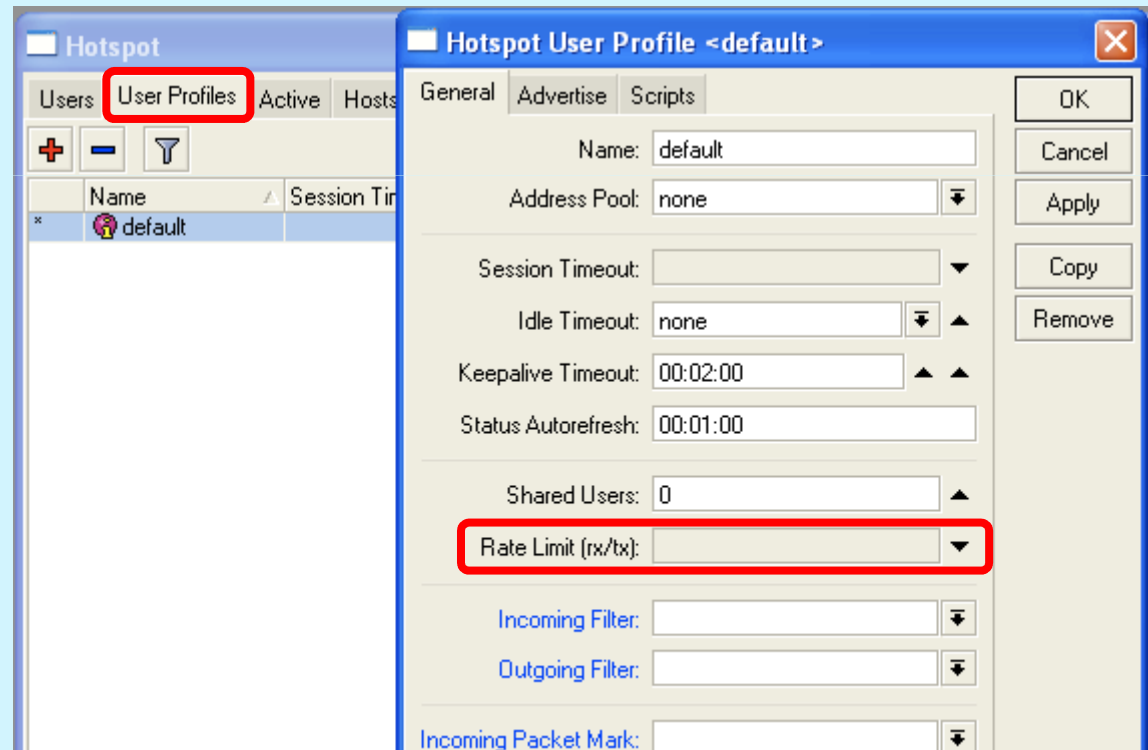
Hotspot User Profile

- User Profile -set of options used for specific group of Hotspot clients



Hotspot Advanced Lab

- To give each client 64k upload and 128k download, set **Rate Limit**



Modify Hotspot login page



Why we need to modify default login page?



- Promote your company
- Promote your products & services
- Provide some useful information
- Etc.

Default hotspot login page



Please log on to use the mikrotik's hotspot service

login

password

MikroTik

Powered by mikrotik hotspot © 2005 mikrotik

The image is a screenshot of a web-based login interface for Mikrotik's hotspot service. It features a light blue background. At the top, there is a text prompt: "Please log on to use the mikrotik's hotspot service". Below this, there are two input fields: one labeled "login" and another labeled "password". The "password" field is a standard password input with a masked character. Below the input fields is a square button with the text "OK". At the bottom of the form area, the Mikrotik logo is displayed in a stylized font. Below the logo, there is a small line of text: "Powered by mikrotik hotspot © 2005 mikrotik".

Sample modified login page



A collage for the Golden Sand Hotel login page. It features a large image of the hotel's exterior at night, a smaller inset of a hotel room, and another of a restaurant dish. A login form is overlaid on the bottom left of the collage.

Username : Password :
guest2 •••••n Login

Daily Breakfast, Lunch & Dinner
are Available at Our Golden Sand Restaurant
Call: +855 (0) 12 622 229, www.goldensandhotel.com.kh

Credit: Golden Sand Hotel

Credit: EFG Co., Ltd



An advertisement for EFG (Express Food Group) Co., Ltd. featuring logos for various food brands and a collage of food items.

EFG (Express Food Group) Co., Ltd.

Logos: PIZZA, BQ, SWENSEN'S, DQ.

Food items: Pizza, BQ chicken, Swensen's ice cream, DQ ice cream.

WITH OUR 24/7 SERVICES

GUARANTEED SUPPORT ANYTIME OF THE DAY

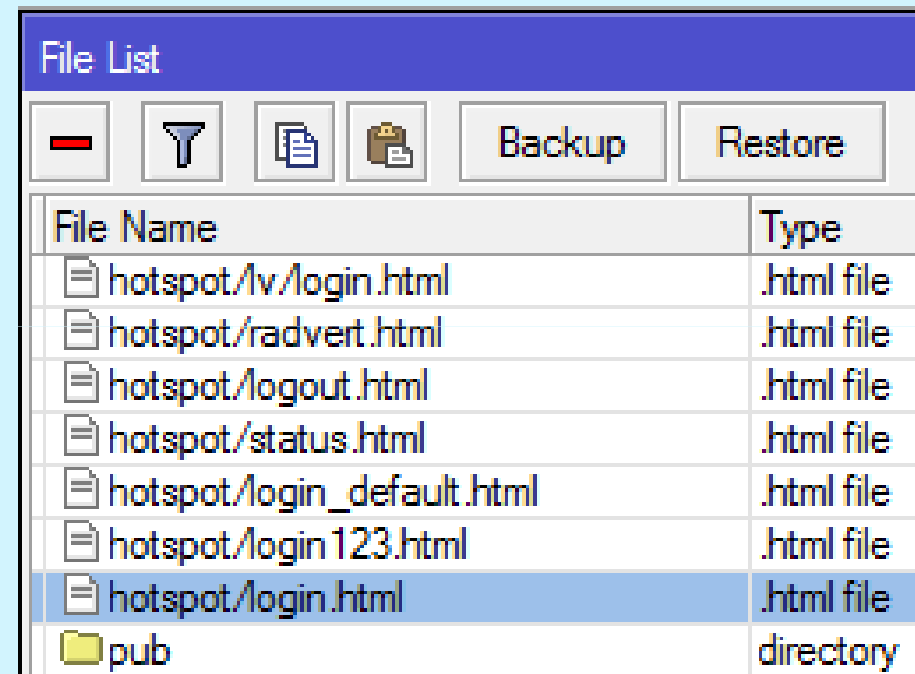
More info:
T: 023/081 72 72 72
E: ss@online.com.kh
W: www.online.com.kh

Enter page

Powered by **ONLINE** IN TOUCH WITH YOUR WORLD

How to modify it?

- Under Files Menu
- Look for **login.html** under Hotspot folder
- Download it to your PC
- Modify it with knowledge of **HTML language**
- Upload back to router
(you may upload the image to router as well)



The screenshot shows a 'File List' window with a toolbar containing icons for file operations and buttons for 'Backup' and 'Restore'. Below the toolbar is a table listing files and directories.

File Name	Type
hotspot/iv/login.html	.html file
hotspot/radvert.html	.html file
hotspot/logout.html	.html file
hotspot/status.html	.html file
hotspot/login_default.html	.html file
hotspot/login123.html	.html file
hotspot/login.html	.html file
pub	directory

Hotspot with User Manager



What is User Manager?



- A RADIUS server application
- A management System that can used for
 - HotSpot Users
 - PPP (PPtP/PPPoE) Users
 - DHCP Users
 - Wireless Users
 - RouterOS Users
- Separate package for RouterOS

Requirements



- Should have the same version for RouterOS and the User Manger package
- Work on x86, MIPS, PowerPC and TILE processor base routers
- Minimum 32MB of RAM and 2MB of free space HDD

Support Browsers

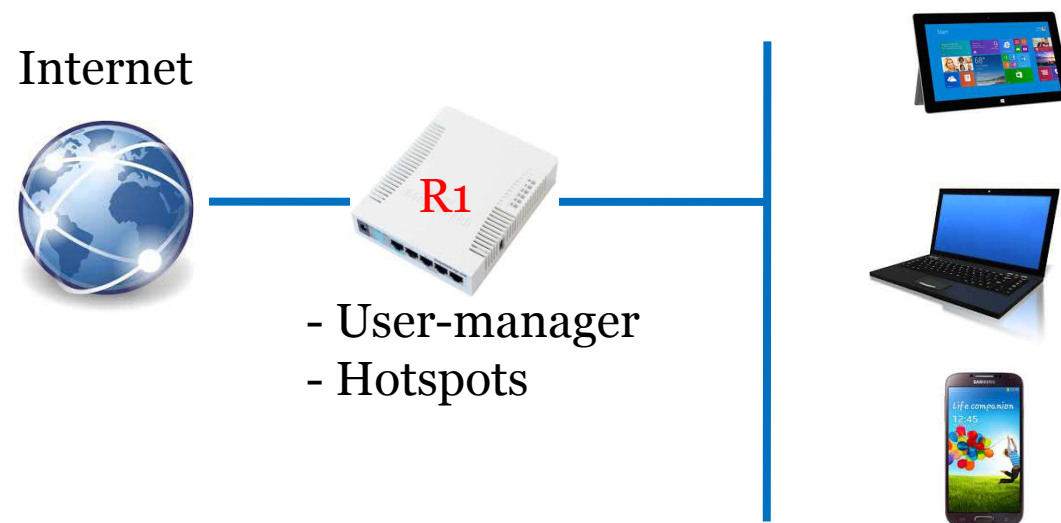


- Opera (≥ 9)
- Mozilla Firefox (≥ 1.5)
- IE (≥ 6.0)
- Safari (≥ 2)
- Chrome (?)



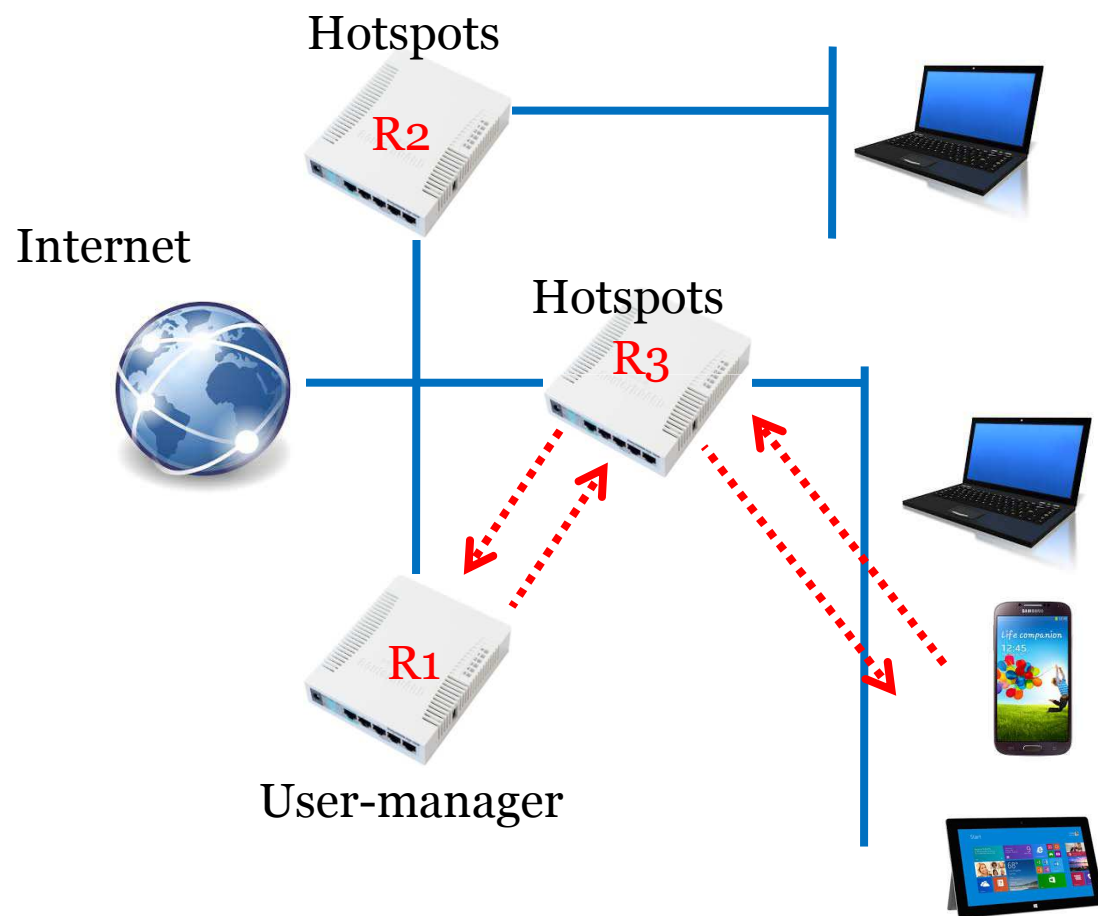
Network Diagram

Scenario 1



Network Diagram

Scenario 2



HotSpot configuration

- Set HotSpot to use User Manager for HotSpot server profile
- IP->Hotspot
-> Server Profile

Hotspot Server Profile <hsprof1>

General Login **RADIUS**

☒ Use RADIUS

Default Domain:

Location ID:

Location Name:

MAC Format:

☒ Accounting

Interim Update:

NAS Port Type:

OK Cancel Apply Copy Remove

```
/ip hotspot profile set hsprof1 use-radius=yes
```

HotSpot configuration

- Add radius client to consult User Manager for HotSpot service
- Radius menu->Add

Radius Server <127.0.0.1>

General Status

Service

☐ ppp ☐ login ☐ wireless

☒ hotspot ☐ drcp

Called ID:

Domain:

Address: 127.0.0.1

Secret: abc123

Authentication Port: 1812

Accounting Port: 1813

Timeout: 300 ms

☐ Accounting Backup

Realm:

Src. Address: 0.0.0.0

enabled

OK Cancel Apply Disable Comment Copy Remove Reset Status

```
/ radius add service=hotspot address=127.0.0.1 secret=abc123
```

User Manager configuration



- Download package from www.mikrotik.com/download, make sure the same version as RouterOS
- Upload the **User-Manager** package to router (root folder)
- Restart your router
- After that, verify the package installed by go to System-> Packages

User Manager configuration

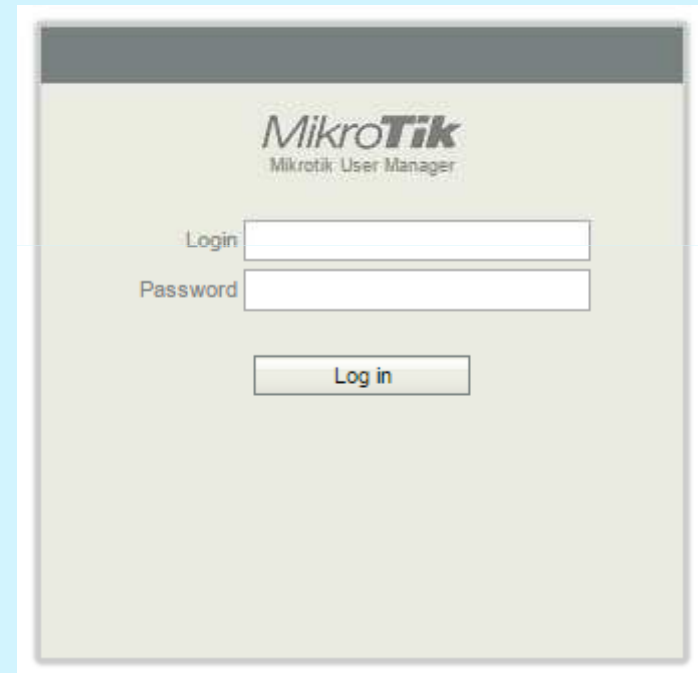


- Access User Manager by type in browser

http://router_ip/userman or

http://router_ip:port/userman

- Default login: admin
- Password: blank



```
/ tool user-manager customer add login="mikrotik" password="123"  
permissions=owner
```


User Manager Mainpage




MikroTik User Manager

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

Add Edit Generate
1 2 3 page 1 of 3

<input type="checkbox"/>	▼ Username	▼ Last name	▼ Actual profile	▼ Till time
<input type="checkbox"/>	34:C0:59:A6:07:EF	SARPICH IPHONE 5	test	Unlimited
<input type="checkbox"/>	7C:C5:37:E1:5E:8D	NIMOL IPHONE 4	1MB	Unlimited
<input type="checkbox"/>	68:A8:6D:4C:BE:C4	SOUR	1MB	Unlimited
<input type="checkbox"/>	B8:76:3F:D0:BE:67	BUNNY	1MB	Unlimited
<input type="checkbox"/>	D0:DF:9A:D8:67:4C	SOPHEAK	1MB	Unlimited
<input type="checkbox"/>	D8:30:62:6C:25:55	SOKUNTHEA IPAD 1	1MB	Unlimited
<input type="checkbox"/>	00:1C:26:49:EB:E9	SAMNANG DELL LAPTOP	1MB	Unlimited
<input type="checkbox"/>	48:60:BC:E7:43:81	KANYKA IPHONE 4	5MB G1	Unlimited
<input type="checkbox"/>	00:22:75:77:55:98	BS DESKTOP HP	1MB	Unlimited
<input type="checkbox"/>	A4:67:06:8C:E0:10	BUNSENG IPAD 2	VoIP G1	Unlimited
<input type="checkbox"/>	48:60:BC:39:E5:35	BUNSENG IPHONE 4	5MB G1	Unlimited
<input type="checkbox"/>	B0:DF:3A:93:75:FB	My Samsung	5MB G1	Unlimited
<input type="checkbox"/>	54:26:96:DA:A7:39	BS MacBook Pro		Unlimited
<input type="checkbox"/>	00:F4:B9:22:37:89	Aunty Ny	1MB	Unlimited
<input type="checkbox"/>	50:FC:9F:E3:8A:D7	Sreylin	256KB	Unlimited
<input type="checkbox"/>	50:FC:9F:0C:41:61	Nita	256KB	Unlimited
<input type="checkbox"/>	093309555	Kab Sovann		12/15/2014 09:38:28
<input type="checkbox"/>	092974092	Koeng Chanborotha		Unlimited
<input type="checkbox"/>	092567800	Chheng Chanrotha		12/15/2014 09:36:11
<input type="checkbox"/>	095747406	Chan Sophannara	MTCNA G1	Unlimited

User Manager configuration

- Add HotSpot router information to router list
- Router menu -> Add -> New

Router details

▲ Main

Name: local

Owner: admin

IP address: 127.0.0.1

Shared secret: abc123

Time zone: Parent time zone

Disabled: ☐

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

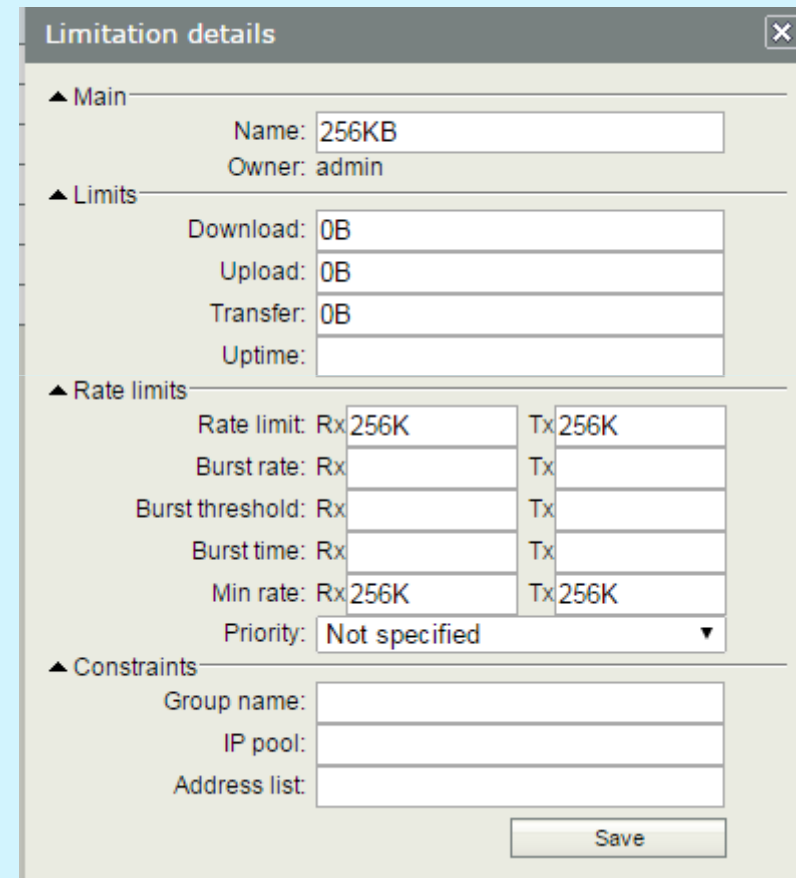
▼ Radius incoming

Save

```
/ tool user-manager router add subscriber=local ip-  
address=127.0.0.1 shared-secret=abc123
```

User Manager configuration

- Create Limitation
- Profile->Limitation->Add



The screenshot shows the 'Limitation details' configuration window. It is divided into several sections: Main, Limits, Rate limits, and Constraints. The 'Main' section has fields for 'Name' (256KB) and 'Owner' (admin). The 'Limits' section has fields for 'Download' (0B), 'Upload' (0B), 'Transfer' (0B), and 'Uptime'. The 'Rate limits' section has fields for 'Rate limit' (Rx 256K, Tx 256K), 'Burst rate' (Rx, Tx), 'Burst threshold' (Rx, Tx), 'Burst time' (Rx, Tx), 'Min rate' (Rx 256K, Tx 256K), and 'Priority' (Not specified). The 'Constraints' section has fields for 'Group name', 'IP pool', and 'Address list'. A 'Save' button is located at the bottom right.

Section	Field	Value
Main	Name	256KB
	Owner	admin
Limits	Download	0B
	Upload	0B
	Transfer	0B
	Uptime	
Rate limits	Rate limit: Rx	256K
	Rate limit: Tx	256K
	Burst rate: Rx	
	Burst rate: Tx	
	Burst threshold: Rx	
	Burst threshold: Tx	
	Burst time: Rx	
Burst time: Tx		
Rate limits	Min rate: Rx	256K
	Min rate: Tx	256K
Rate limits	Priority	Not specified
Constraints	Group name	
	IP pool	
	Address list	

Save

User Manager configuration

- Create Profile & add limitation to profile
- Profile->Add

The screenshot displays the 'Profiles' and 'Limitations' configuration interface. The 'Profiles' tab is active, showing a form for creating a new profile. The 'Profile' dropdown is set to 'MUM PP', and the 'Name' field also contains 'MUM PP'. The 'Owner' is 'admin', 'Validity' is empty, 'Starts' is 'At first login', 'Price' is '0.00', and 'Shared users' is 'not used'. A red box highlights the '+' button next to the 'Profile' dropdown. Below the form are 'Save profile' and 'Remove profile' buttons. The 'Profile limitations' section shows a table with columns for 'Active', 'Constraints', and 'Rate limits'. The 'Add new limitation' button is highlighted with a red box. A red arrow points from this button to the 'Profile part' dialog box on the right.

Profile part

▲ Period

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

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

▼ Limits

☐ 256KB
☐ 512KB
☐ 5MB
☐ 1MB
☐ 10MB
☐ 128KB
☐ 20MB
☐ MTCNA G2 5MB

New limit Cancel Add

User Manager configuration



- **Create User and Assign profile**
 - Single User
 - Batch User: multiple user at a time
- User menu -> Add

A screenshot of a 'User details' configuration window. The window has a title bar with the text 'User details' and a close button (X). The main content area is divided into sections: 'Main' (expanded), 'Constraints', 'Wireless', and 'Private information'. The 'Main' section contains fields for 'Username:', 'Password:', 'Disabled:' (a checkbox), and 'Owner: admin'. The 'Private information' section contains a dropdown menu for 'Assign profile:' with '1MB' selected. An 'Add' button is located at the bottom right of the window.

User details

▲ Main

Username:

Password:

Disabled: ☐

Owner: admin

▼ Constraints

▼ Wireless

▼ Private information

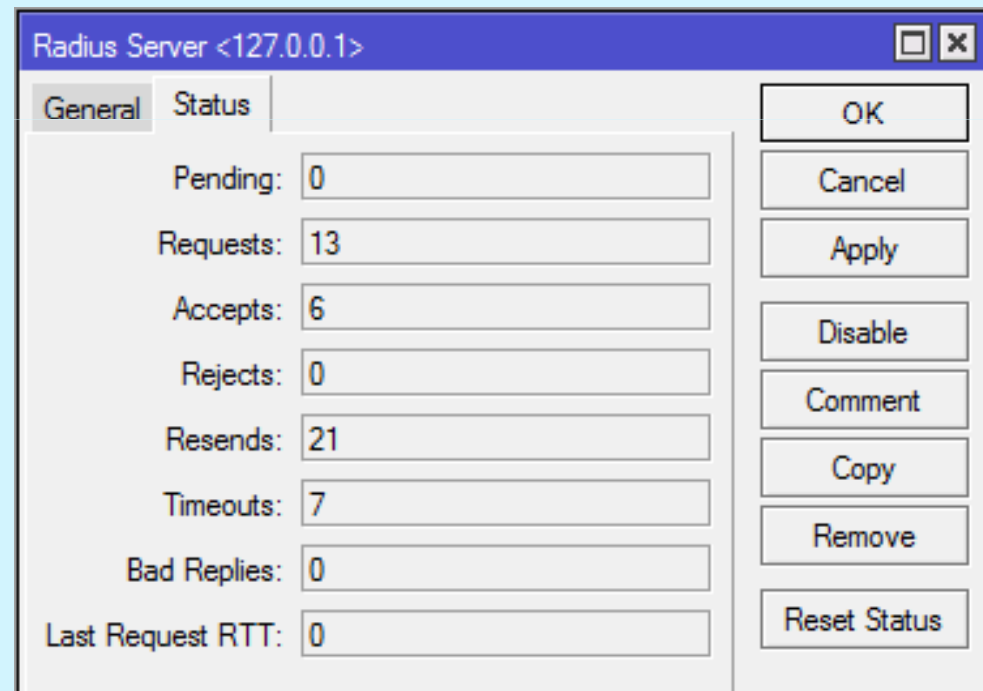
Assign profile: 1MB ▼

Add

Verify Radius Server



1. Click on Radius menu
2. Double click on radius server IP
3. Click on status tab

A screenshot of a Windows-style dialog box titled "Radius Server <127.0.0.1>". It has two tabs: "General" and "Status", with "Status" being the active tab. The dialog displays various statistics for the radius server, each with a label and a text input field containing a number. On the right side, there is a vertical stack of buttons: OK, Cancel, Apply, Disable, Comment, Copy, Remove, and Reset Status.

Label	Value
Pending:	0
Requests:	13
Accepts:	6
Rejects:	0
Resends:	21
Timeouts:	7
Bad Replies:	0
Last Request RTT:	0

Conclusions



- MikroTik hotspot is easy, fast and flexible authentication (user & pass, MAC, bypass, etc)
- Centralized store users account with User-Manager

Question?



Thanks for your Attention 😊



- Website: www.ppic-training.com
- Email: info@ppic-training.com
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- Please [subscribe to our mailing list](#) to receive all update information such as discount and promotion price