

MikroTik Centralized User Manager on Cloud

Presented by Michael Takeuchi

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About Michael Takeuchi

- Using MikroTik RouterOS (v5.20) Since 14 December 2014
 - RouterOS x86 at PC
- Was MikroTik Certified on MTCNA, MTCRE, MTCINE, MTCUME, MTCWE, MTCTCE, MTCIPv6E
- Student of Vocational High School Taruna Bhakti Depok
- MikroTik Certified Consultant

What is User Manager?

- User Manager or Userman is a RADIUS (**R**emote **A**uthentication **D**ial In **U**ser) Server
- User Manager can be installed on MikroTik Only using userman.npk
- RADIUS is a network protocol that provides centralized **authentication, authorization, accounting** or we can say Triple A (AAA)
 - Authentication = only registered user can access (username & password)
 - Authorization = define right or privileged for a user (access control & other policy)
 - Accounting = recording what user doing (useful for billing, log, usage, session & reporting)

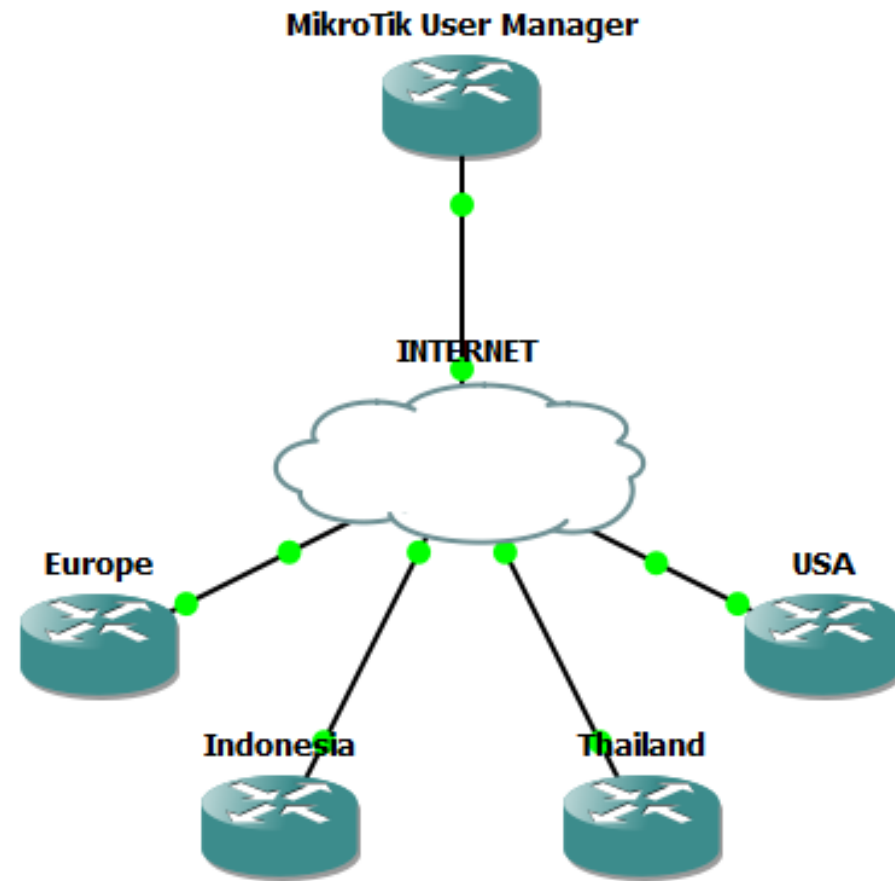
What is User Manager?

- User manager is a management system that can be used for:
 - HotSpot users (will be our focus)
 - PPP (PPtP/PPPoE) users
 - DHCP users
 - Wireless users
 - RouterOS users
- User Manager Requirement:
 - You should have the same version for RouterOS and the User Manager package.
 - The MikroTik User Manager works on x86, MIPS, PowerPC and TILE processor based routers and CHR devices
 - The router should have at least 32MB RAM and 2MB free HDD space.

What is Cloud (computing)?



Topology



The Story

- Once upon time Michael have a Internet Caffe on Europe, Indonesia, Thailand & USA
- Michael need to manage the hotspot user and monitor it easier and want it centralized
- And **MikroTik** come with a **solution** 😊 the solution called User Manager, now Michael can manage hotspot user easily with MikroTik
- How MikroTik Do That? See my presentation below 😊

1. Build Router Connectivity over VPN

- Every Router Got Private IP Address via VPN and configured with static IP on ppp profile, **but assume we have VPN Ready** 😊

```
[admin@USERMAN] > int pr
Flags: D - dynamic, X - disabled, R - running, S - slave
#      NAME                TYPE          ACTUAL-MTU  L2MTU
0  R  ether1                  ether         1500
1  R  ether2                  ether         1500
2  R  ether3                  ether         1500
3  R  ether4                  ether         1500
4  R  ether5                  ether         1500
5  DR <l2tp-user-europe>    l2tp-in      1450
6  DR <l2tp-user-indonesia> l2tp-in      1450
7  DR <l2tp-user-thailand>  l2tp-in      1450
8  DR <l2tp-user-usa>     l2tp-in      1450

[admin@USERMAN] > ip address print
Flags: X - disabled, I - invalid, D - dynamic
#      ADDRESS                NETWORK      INTERFACE
0  172.16.10.1/24          172.16.10.0  ether1
1  100.100.150.1/24       100.100.150.0 ether5
2  D 10.10.0.1/32           10.10.10.1  <l2tp-user-europe>
3  D 10.10.0.2/32           10.10.10.2  <l2tp-user-indonesia>
4  D 10.10.0.3/32           10.10.10.3  <l2tp-user-thailand>
5  D 10.10.0.4/32           10.10.10.4  <l2tp-user-usa>

[admin@USERMAN] >
```


1. Build Router Connectivity over VPN

- You can compare what VPN type suitable with your network on:

<http://rickfreyconsulting.com/mikrotik-vpns/>

- But in this case you need Layer 3 VPN (I am using L2TP + IPSec Here) because RADIUS contact your router with IP Address

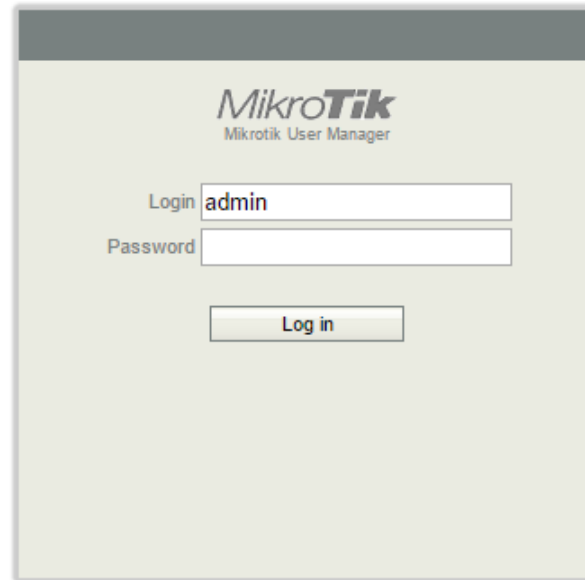
2. Download & Install Userman on MikroTik

- Download Extra Packages on <https://www.mikrotik.com/download>
- Adjust your router architecture
- Unzip extra packages and search for userman.npk
- Upload userman.npk to your router
- Reboot your router
- You're Done !

```
[admin@USERMAN] > sys pack print
Flags: X - disabled
#  NAME
0  user-manager
1  dude
2  routeros-x86
3  system
```

3. Accessing Userman

- <http://router-ip/userman>
- Default Username : admin
- Default Password : none (don't fill with none)



The image shows a screenshot of the Mikrotik User Manager login interface. At the top, the Mikrotik logo is displayed with the text "MikroTik" in a stylized font and "Mikrotik User Manager" below it. Below the logo, there are two input fields: "Login" with the text "admin" entered, and "Password" which is empty. A "Log in" button is positioned below the password field.

Add Hotspot Router (For Authentication)

- Go To Routers Menu and Add Routers then Set:
 - Router IP
 - Router Log
 - Router Name
 - Router Password
 - Router Local Time Zone

- See Picture on Next Slide for Steps

Add Hotspot Router (For Authentication)

The screenshot displays the Mikrotik User Manager web interface. The browser address bar shows `172.16.10.1/userman`. The left sidebar contains navigation options: Routers (highlighted with a '1'), Users, Sessions, Customers, Logs, Payments, Profiles, Settings, Reports, 0 A sessions, 0 A users, Advanced search, Maintenance, and Logout. The main content area shows a table of routers with columns for Name, IP address, and Shared secret. A '2.' is placed above the table. Two 'Router details' pop-up windows are open, showing configuration for 'Router Europe' and 'Router Indonesia'.

<input type="checkbox"/>	Name	IP address	Shared secret
<input type="checkbox"/>	Router Europe	10.10.10.1	europe
<input type="checkbox"/>	Router Indonesia	10.10.10.2	indonesia
<input type="checkbox"/>	Router Thailand	10.10.10.3	thailand
<input type="checkbox"/>	Router USA	10.10.10.4	usa

Router details (Left):

- Name: Router Europe
- Owner: admin
- IP address: 10.10.10.1
- Shared secret: europe
- Time zone: +01:00
- Disabled:
- Log events: Authorization success, Authorization failure, Accounting success, Accounting failure

Router details (Right):

- Name: Router Indonesia
- Owner: admin
- IP address: 10.10.10.2
- Shared secret: indonesia
- Time zone: +07:00
- Disabled:
- Log events: Authorization success, Authorization failure, Accounting success, Accounting failure

Add Hotspot Router (For Authentication)

The screenshot displays the Mikrotik User Manager web interface. The browser address bar shows '172.16.10.1/userman'. The left sidebar contains a navigation menu with 'Routers' highlighted. The main content area shows a table of routers with columns for Name, IP address, and Shared secret. Two pop-up windows, 'Router details', are open, showing configuration for 'Router Thailand' and 'Router USA' respectively. The 'Router Thailand' window shows Name: Router Thailand, Owner: admin, IP address: 10.10.10.3, Shared secret: thailand, Time zone: +07:00, and checked log events for Authorization success, Authorization failure, Accounting success, and Accounting failure. The 'Router USA' window shows Name: Router USA, Owner: admin, IP address: 10.10.10.4, Shared secret: usa, Time zone: -05:00, and checked log events for Authorization success, Authorization failure, Accounting success, and Accounting failure. A 'Save' button is visible at the bottom of each pop-up window.

<input type="checkbox"/>	Name	IP address	Shared secret
<input type="checkbox"/>	Router Europe	10.10.10.1	europe
<input type="checkbox"/>	Router Indonesia	10.10.10.2	indonesia
<input type="checkbox"/>	Router Thailand	10.10.10.3	thailand
<input type="checkbox"/>	Router USA	10.10.10.4	usa

Router details (Router Thailand):

- Name: Router Thailand
- Owner: admin
- IP address: 10.10.10.3
- Shared secret: thailand
- Time zone: +07:00
- Disabled:
- Log events: Authorization success, Authorization failure, Accounting success, Accounting failure

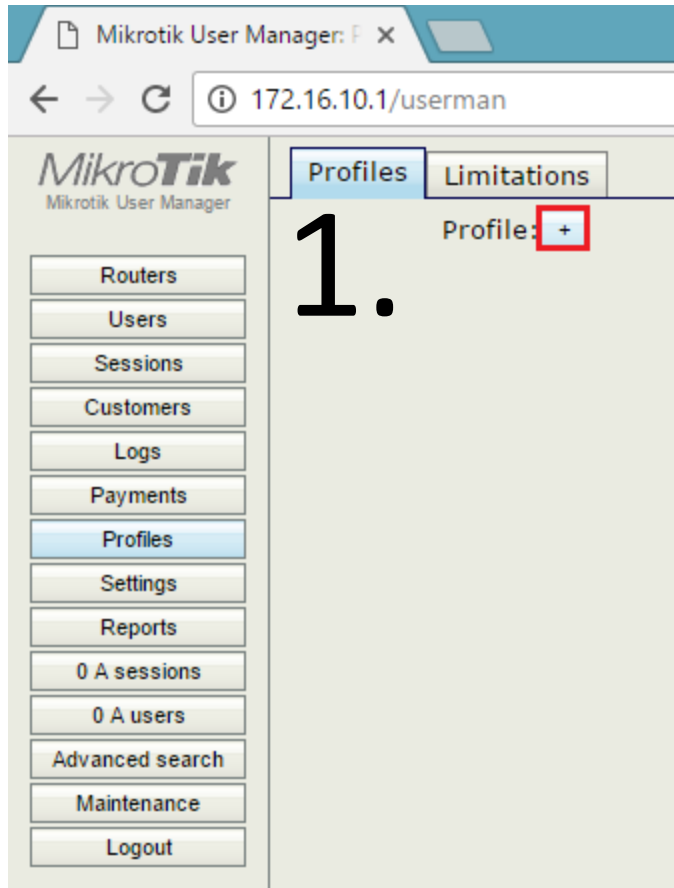
Router details (Router USA):

- Name: Router USA
- Owner: admin
- IP address: 10.10.10.4
- Shared secret: usa
- Time zone: -05:00
- Disabled:
- Log events: Authorization success, Authorization failure, Accounting success, Accounting failure

Add Profile For Each Router

- Go To Profiles Menu and Add Profiles then Set:
 - Router Profile Name
 - Voucher Price
 - User Limit
 - QoS

Add Profile For Each Router (Name & Price)



1.

MikroTik User Manager: F x
172.16.10.1/userman

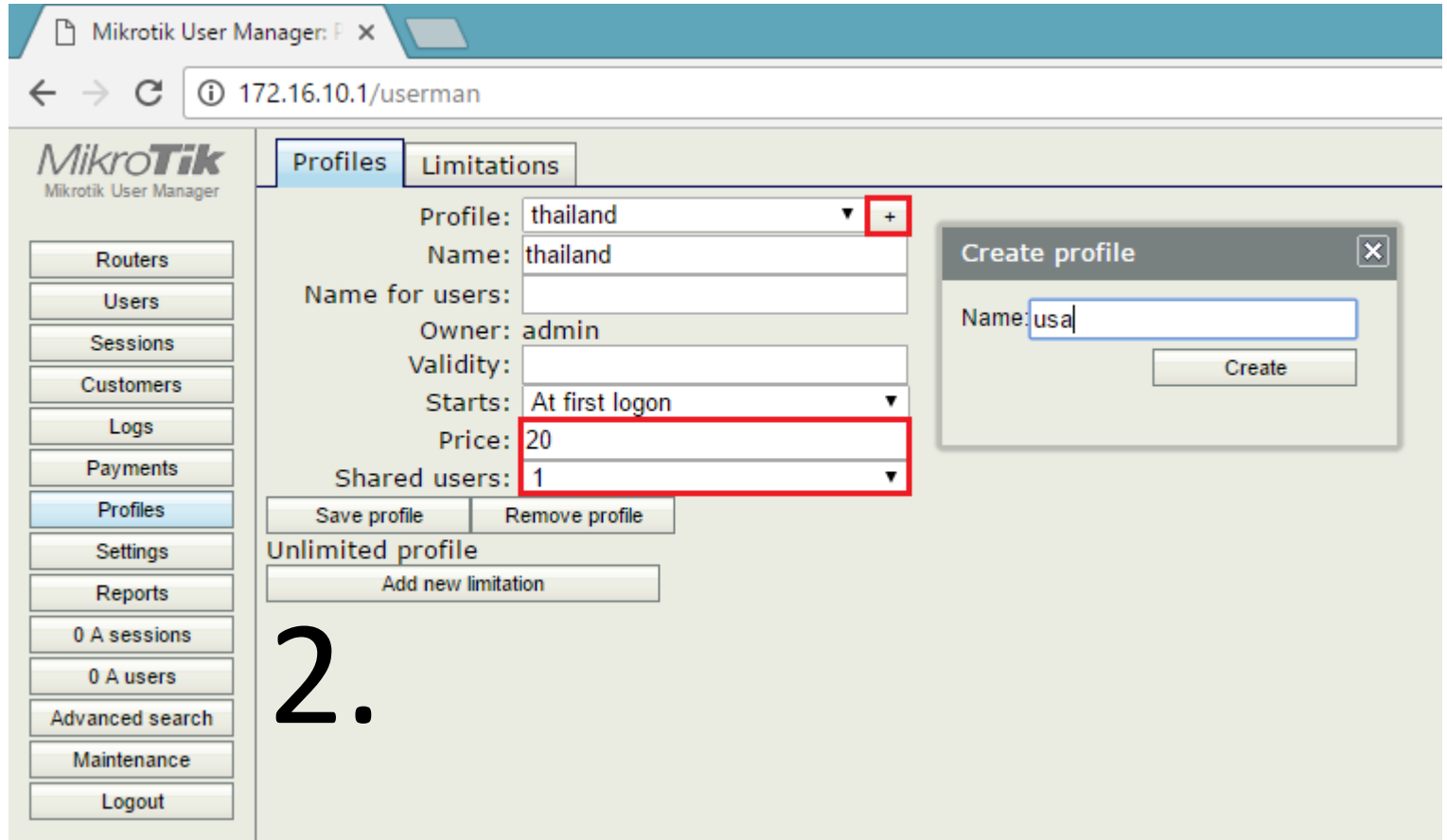
MikroTik MikroTik User Manager

Profiles Limitations

Profile: +

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

This screenshot shows the MikroTik User Manager web interface. The 'Profiles' tab is selected. A large number '1.' is overlaid on the left side. The 'Profile:' field has a red box around the '+' icon, indicating the next step in the process.



2.

MikroTik User Manager: F x
172.16.10.1/userman

MikroTik MikroTik User Manager

Profiles Limitations

Profile: thailand +

Name: thailand

Name for users:

Owner: admin

Validity:

Starts: At first logon

Price: 20

Shared users: 1

Save profile Remove profile

Unlimited profile

Add new limitation

Create profile

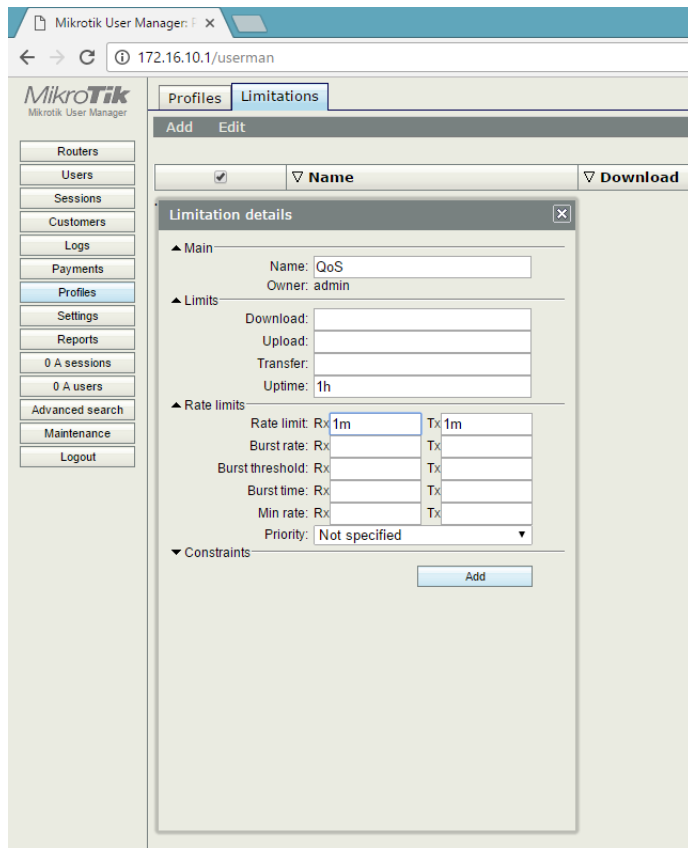
Name: usa

Create

This screenshot shows the MikroTik User Manager web interface with the profile configuration form. A large number '2.' is overlaid on the left side. The 'Profile:' dropdown is set to 'thailand' and has a red box around the '+' icon. The 'Price' field is set to '20' and has a red box around it. A 'Create profile' dialog box is open on the right, with 'Name: usa' entered and a 'Create' button.

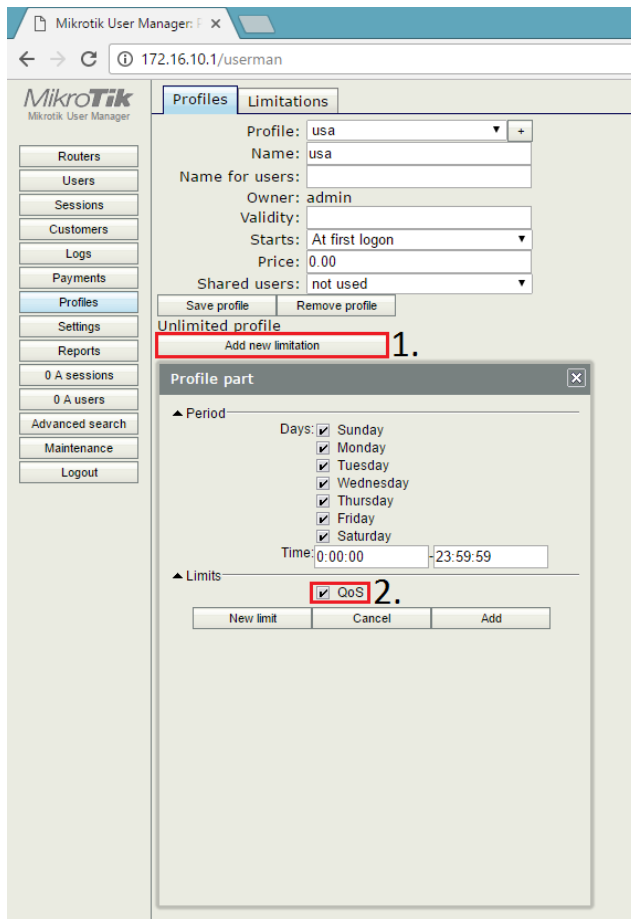
Add Profile For Each Router (QoS & Uptime)

- Go to Limitations Tab and Add New Limitations



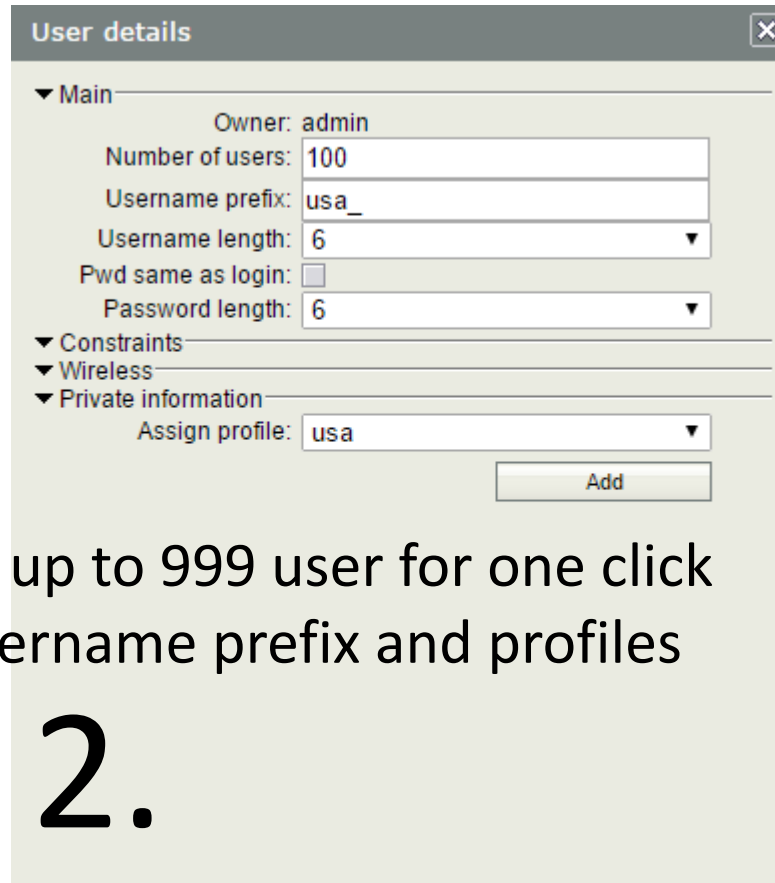
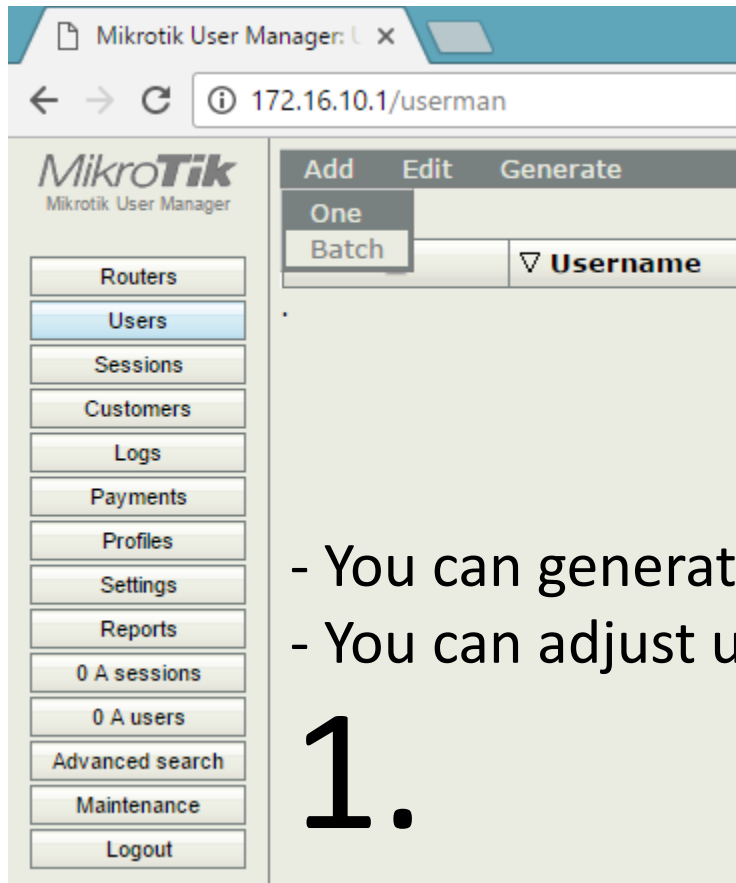
1. Each user will get 1mbps upload
2. Each user will get 1mbps download
3. Each user can use voucher for 1 hours

Apply The Limitations



I was apply the limitations to usa profiles, you can apply the limitations on other profile too and customize your limitations, it's depends on your policy

Generate Batch User

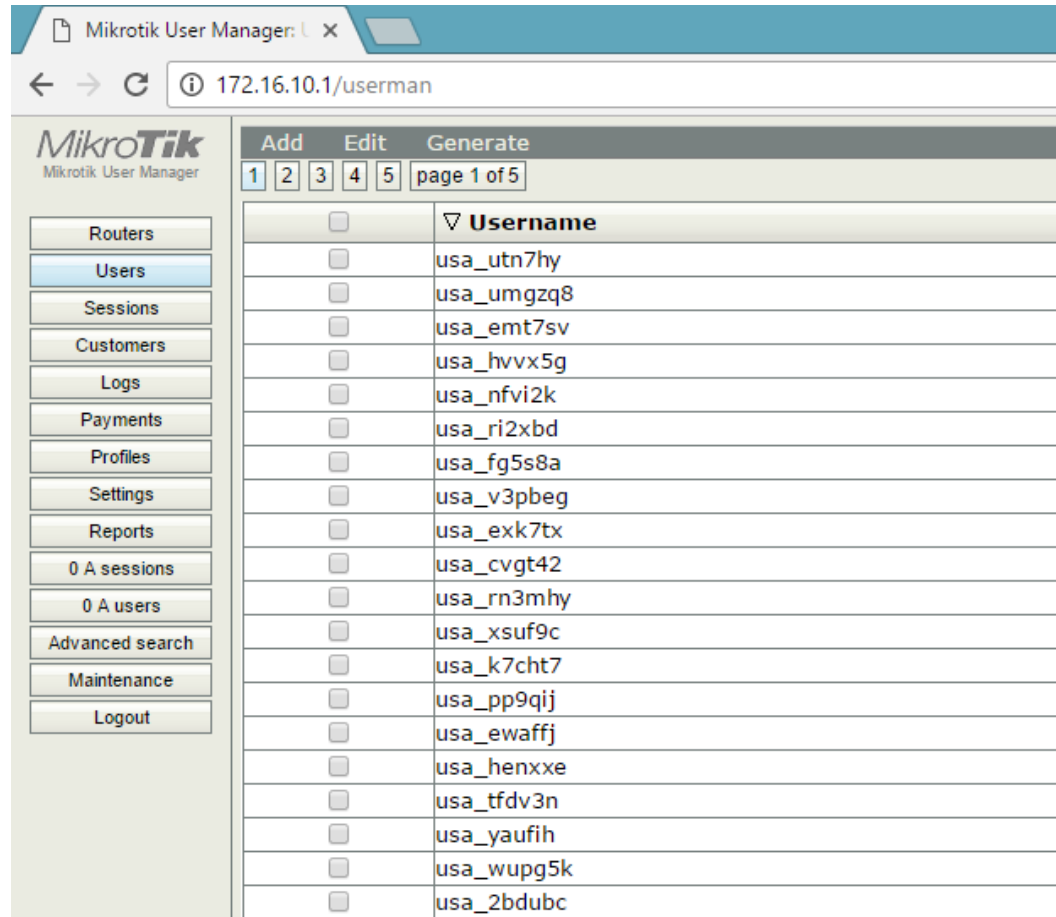


- You can generate up to 999 user for one click
- You can adjust username prefix and profiles

1.

2.

Generate Batch User

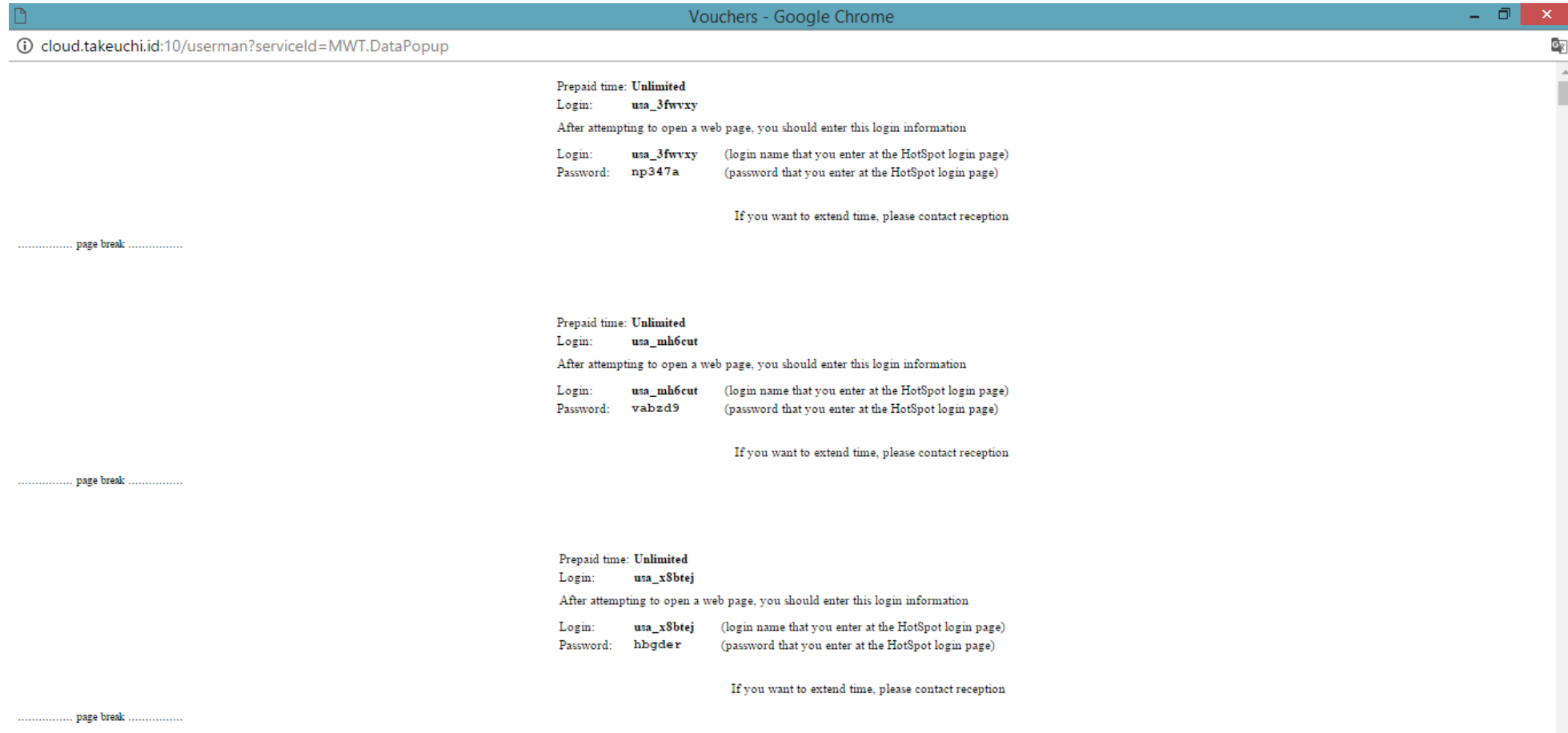


The screenshot shows the Mikrotik User Manager web interface. The browser address bar displays '172.16.10.1/userman'. The left sidebar contains navigation buttons for 'Routers', 'Users', 'Sessions', 'Customers', 'Logs', 'Payments', 'Profiles', 'Settings', 'Reports', '0 A sessions', '0 A users', 'Advanced search', 'Maintenance', and 'Logout'. The main content area has a table with columns 'Add', 'Edit', and 'Generate'. The 'Add' column contains buttons numbered 1 through 5. The 'Generate' column shows 'page 1 of 5'. The table lists 20 generated usernames, each with a checkbox in the 'Add' column.

Add	Edit	Generate			
1	2	3	4	5	page 1 of 5
<input type="checkbox"/>		▽ Username			
<input type="checkbox"/>		usa_utn7hy			
<input type="checkbox"/>		usa_umgzq8			
<input type="checkbox"/>		usa_emt7sv			
<input type="checkbox"/>		usa_hvvx5g			
<input type="checkbox"/>		usa_nfvi2k			
<input type="checkbox"/>		usa_ri2xbd			
<input type="checkbox"/>		usa_fg5s8a			
<input type="checkbox"/>		usa_v3pbeg			
<input type="checkbox"/>		usa_exk7tx			
<input type="checkbox"/>		usa_cvgt42			
<input type="checkbox"/>		usa_rn3mhy			
<input type="checkbox"/>		usa_xsuf9c			
<input type="checkbox"/>		usa_k7cht7			
<input type="checkbox"/>		usa_pp9qij			
<input type="checkbox"/>		usa_ewaffj			
<input type="checkbox"/>		usa_henxe			
<input type="checkbox"/>		usa_tfdv3n			
<input type="checkbox"/>		usa_yaufih			
<input type="checkbox"/>		usa_wupg5k			
<input type="checkbox"/>		usa_2bdubc			

USER GENERATED !

Generate Voucher



The screenshot shows a Google Chrome browser window with the title "Vouchers - Google Chrome". The address bar contains the URL "cloud.takeuchi.id:10/userman?serviceId=MWT.DataPopup". The page content displays three voucher entries, each with the following structure:

- Prepaid time:** Unlimited
- Login:** [username]
- After attempting to open a web page, you should enter this login information**
- Login:** [username] (login name that you enter at the HotSpot login page)
- Password:** [password] (password that you enter at the HotSpot login page)
- If you want to extend time, please contact reception

Each voucher entry is separated by a horizontal line labeled "..... page break".

Voucher 1:
Prepaid time: **Unlimited**
Login: **usa_3fwvxy**
After attempting to open a web page, you should enter this login information
Login: **usa_3fwvxy** (login name that you enter at the HotSpot login page)
Password: **np347a** (password that you enter at the HotSpot login page)
If you want to extend time, please contact reception

..... page break

Voucher 2:
Prepaid time: **Unlimited**
Login: **usa_mh6cut**
After attempting to open a web page, you should enter this login information
Login: **usa_mh6cut** (login name that you enter at the HotSpot login page)
Password: **vabzd9** (password that you enter at the HotSpot login page)
If you want to extend time, please contact reception

..... page break

Voucher 3:
Prepaid time: **Unlimited**
Login: **usa_x8btej**
After attempting to open a web page, you should enter this login information
Login: **usa_x8btej** (login name that you enter at the HotSpot login page)
Password: **hbqder** (password that you enter at the HotSpot login page)
If you want to extend time, please contact reception

..... page break

Create The Hotspot Service

```
[admin@MikroTik] > ip address add address=192.168.1.1/24 interface=wlan1
[admin@MikroTik] > ip dns set servers=8.8.8.8,8.8.4.4 allow-remote-requests=yes
[admin@MikroTik] > ip hotspot setup
Select interface to run HotSpot on

hotspot interface: wlan1
Set HotSpot address for interface

local address of network: 192.168.1.1/24
masquerade network: no
Set pool for HotSpot addresses

address pool of network: 192.168.1.2-192.168.1.254
Select hotspot SSL certificate

select certificate: none
Select SMTP server

ip address of smtp server: 0.0.0.0
Setup DNS configuration

dns servers: 192.168.1.1,8.8.8.8
DNS name of local hotspot server

dns name: id-hotspot.takeuchi.id
Create local hotspot user

name of local hotspot user: admin
password for the user: michael_takeuchi
[admin@MikroTik] > interface wireless set wlan1 mode=ap-bridge ssid=MikroTik-Hotspot band=2ghz-b/g/n disabled=no
```

Apply RADIUS to Hotspot Router

The screenshot displays the MikroTik WinBox v6.36 interface. The top bar shows the user 'mict@' and the system '(MikroTik) - WinBox v6.36 on x86 (x86)'. The main window is titled 'Session Settings Dashboard' and includes a 'Safe Mode' button and a 'Session:' field. A left sidebar contains a navigation menu with categories like Quick Set, CAPsMAN, Interfaces, Wireless, Bridge, PPP, Mesh, IP, IPv6, MPLS, Routing, System, Queues, Files, Log, Radius, Tools, New Terminal, KVM, Make Supout.rf, Manual, New WinBox, and Exit. The 'Radius' section is active, showing a table of RADIUS services and a configuration dialog for a specific server.

Radius Services Table:

#	Service	Called ID	Domain	Address	Secret
0	hotspot			10.10.0.2	indonesia

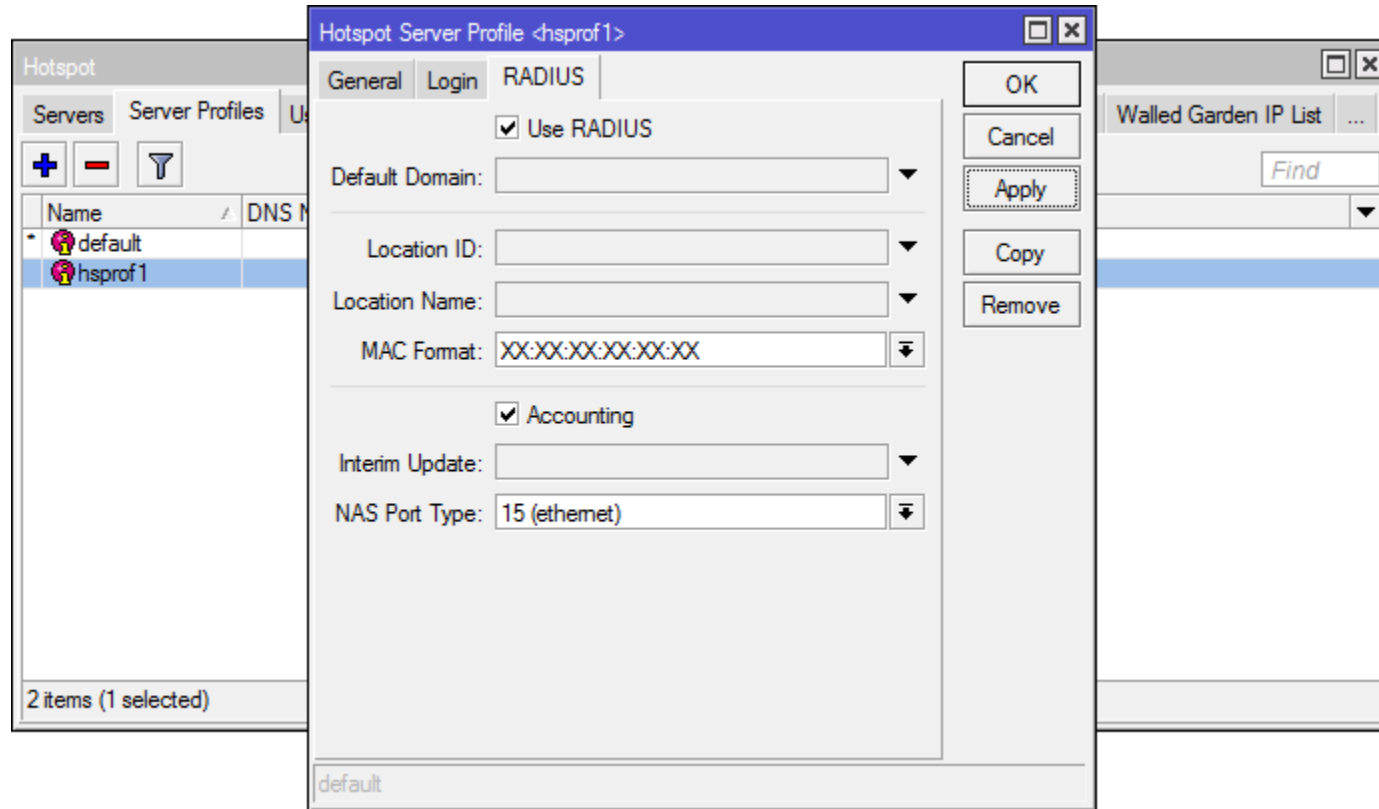
Radius Server <10.10.0.2> Configuration:

- General Tab:**
 - Service: ppp, hotspot, login, wireless, dhcp
 - Called ID: []
 - Domain: []
 - Address: 10.10.0.2
 - Secret: indonesia
- Status Tab:**
 - Authentication Port: 1812
 - Accounting Port: 1813
 - Timeout: 300 ms
 - Accounting Backup
 - Realm: []
 - Src. Address: []

Buttons: OK, Cancel, Apply, Disable, Comment, Copy, Remove, Reset Status.

enabled

Apply RADIUS to Hotspot Router



Testing ! – Login

The screenshot shows a web browser with two tabs. The first tab is titled "internet hotspot > login" and the address bar shows "hotspot.takeuchi.id/login?dst=http%3A%2F%2Fgoogle.". The second tab is titled "mikrotik hotspot > status" and the address bar shows "hotspot.takeuchi.id/status".

Below the browser, the page content is split into two sections:

Left Section (Login Form):

Please log on to use the internet hotspot service

login

password

HOTSPOT GATEWAY
powered by *MikroTik*

Powered by MikroTik RouterOS

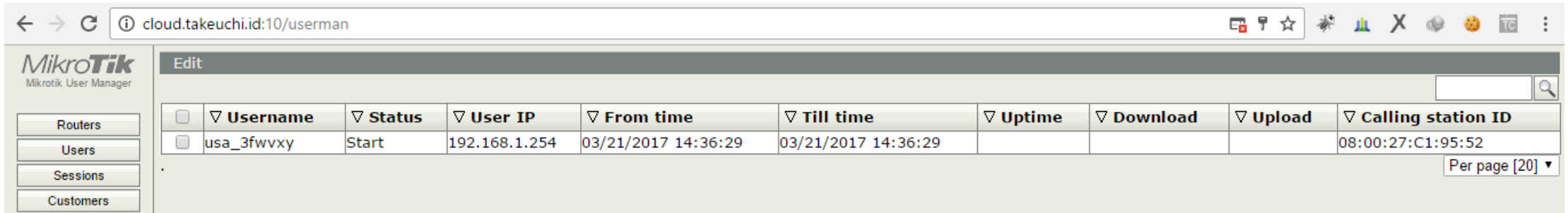
Right Section (Status):

Welcome usa_3fwvxy!

IP address:	192.168.1.254
bytes up/down:	14.2 KiB / 215.9 KiB
connected:	7s
status refresh:	1m

The Windows taskbar at the bottom shows the time as 2:35 PM on 3/21/2017 on the left and 2:36 PM on 3/21/2017 on the right.

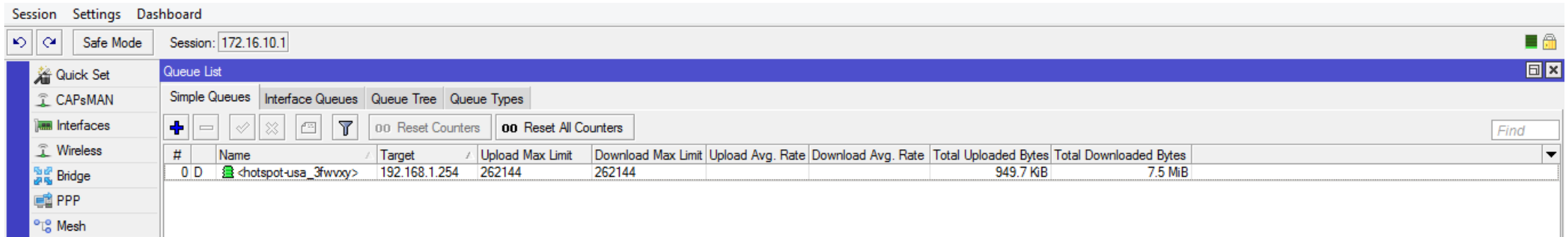
Testing ! – Monitoring



The screenshot shows the Mikrotik User Manager web interface. The browser address bar displays "cloud.takeuchi.id:10/userman". The page title is "Edit". On the left, there is a navigation menu with buttons for "Routers", "Users", "Sessions", and "Customers". The main content area contains a table with the following columns: Username, Status, User IP, From time, Till time, Uptime, Download, Upload, and Calling station ID. A search bar is located at the top right of the table area. The table contains one row of data for the user "usa_3fwvxy".

<input type="checkbox"/>	▼ Username	▼ Status	▼ User IP	▼ From time	▼ Till time	▼ Uptime	▼ Download	▼ Upload	▼ Calling station ID
<input type="checkbox"/>	usa_3fwvxy	Start	192.168.1.254	03/21/2017 14:36:29	03/21/2017 14:36:29				08:00:27:C1:95:52

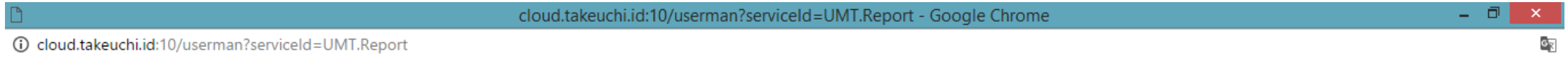
Per page [20] ▼



The screenshot shows the Mikrotik Queue List interface. The top navigation bar includes "Session", "Settings", and "Dashboard". Below the navigation bar, there are buttons for "Safe Mode" and "Session: 172.16.10.1". The left sidebar contains a menu with options: "Quick Set", "CAPsMAN", "Interfaces", "Wireless", "Bridge", "PPP", and "Mesh". The main content area is titled "Queue List" and has tabs for "Simple Queues", "Interface Queues", "Queue Tree", and "Queue Types". There are buttons for adding, deleting, and filtering queues, along with "Reset Counters" and "Reset All Counters" buttons. A search bar is also present. The table below shows the following data:

#	Name	Target	Upload Max Limit	Download Max Limit	Upload Avg. Rate	Download Avg. Rate	Total Uploaded Bytes	Total Downloaded Bytes
0 D	🌐 <hotspot-usa_3fwvxy>	192.168.1.254	262144	262144			949.7 KiB	7.5 MiB

Testing ! – Reporting

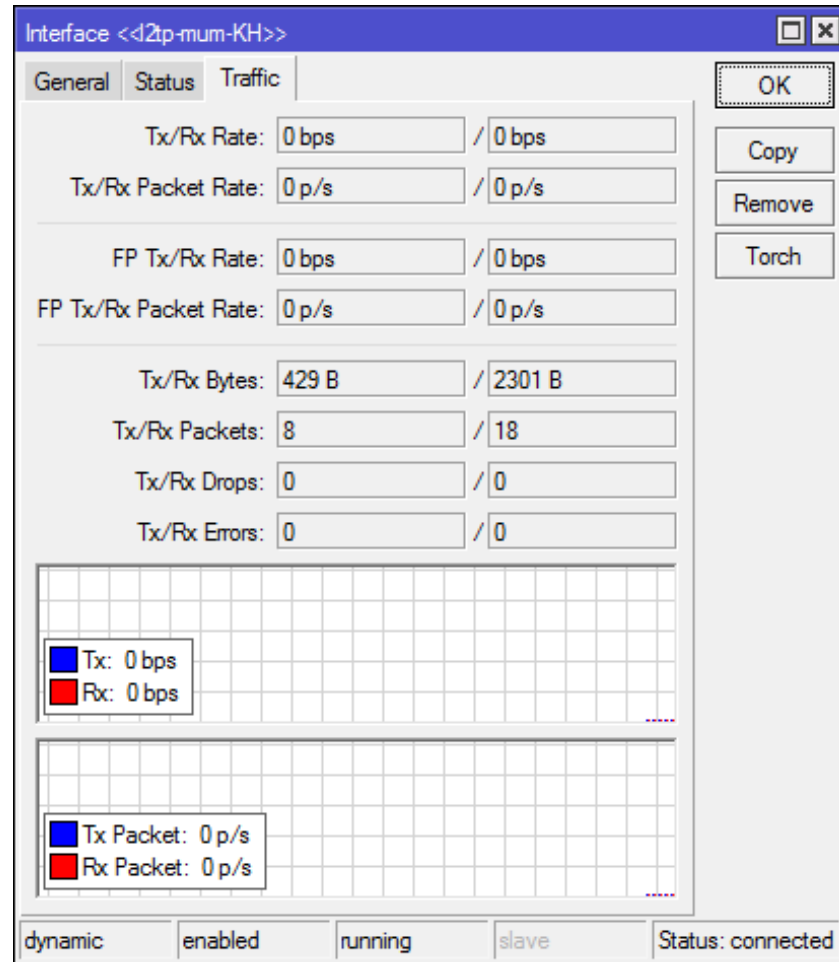


Report

02/21/2017 03/21/2017

User	Profile	Price	From	Until	Session From	Session Until	Uptime	Download	Upload
usa_3fwvxy	usa		03/21/2017 07:36:29	Unlimited	03/21/2017 07:36:29	03/21/2017 07:54:12	17m43s	7.6 MiB	1001.4 KiB
	Total:		03/21/2017 07:36:29	Unlimited	03/21/2017 07:36:29	03/21/2017 07:54:12	17m44s	7.6 MiB	1001.4 KiB
	Total:		03/21/2017 07:36:29	Unlimited	03/21/2017 07:36:29	03/21/2017 07:54:12	17m44s	7.6 MiB	1001.4 KiB

Testing ! – Data Usage (10 Minutes)



Summary Step

1. Build VPN Connectivity
2. Download & Install userman on cloud
3. Add Hotspot Router to User Manager For Authentication
4. Add Hotspot Router Profile to User Manager for Pricing & User Limit
5. Apply QoS or Your Policy to Profiles
6. Apply RADIUS to Hotspot Router
7. Generate Batch User
8. Make Money 😊

Feel So Hard To Build This Awesome Things?

Let Me Help You !

michael@takeuchi.id

<http://www.facebook.com/mict404>

Question & Answer



Question
&
Answer

Thank
you

The image features the words "Thank you" in a white, cursive script font. The text is set against a large, irregular black ink splatter that has a rough, textured appearance. The splatter is centered behind the text, creating a high-contrast, artistic effect. The overall composition is simple and expressive.