

WELCOME TO MUM INDIA 2015

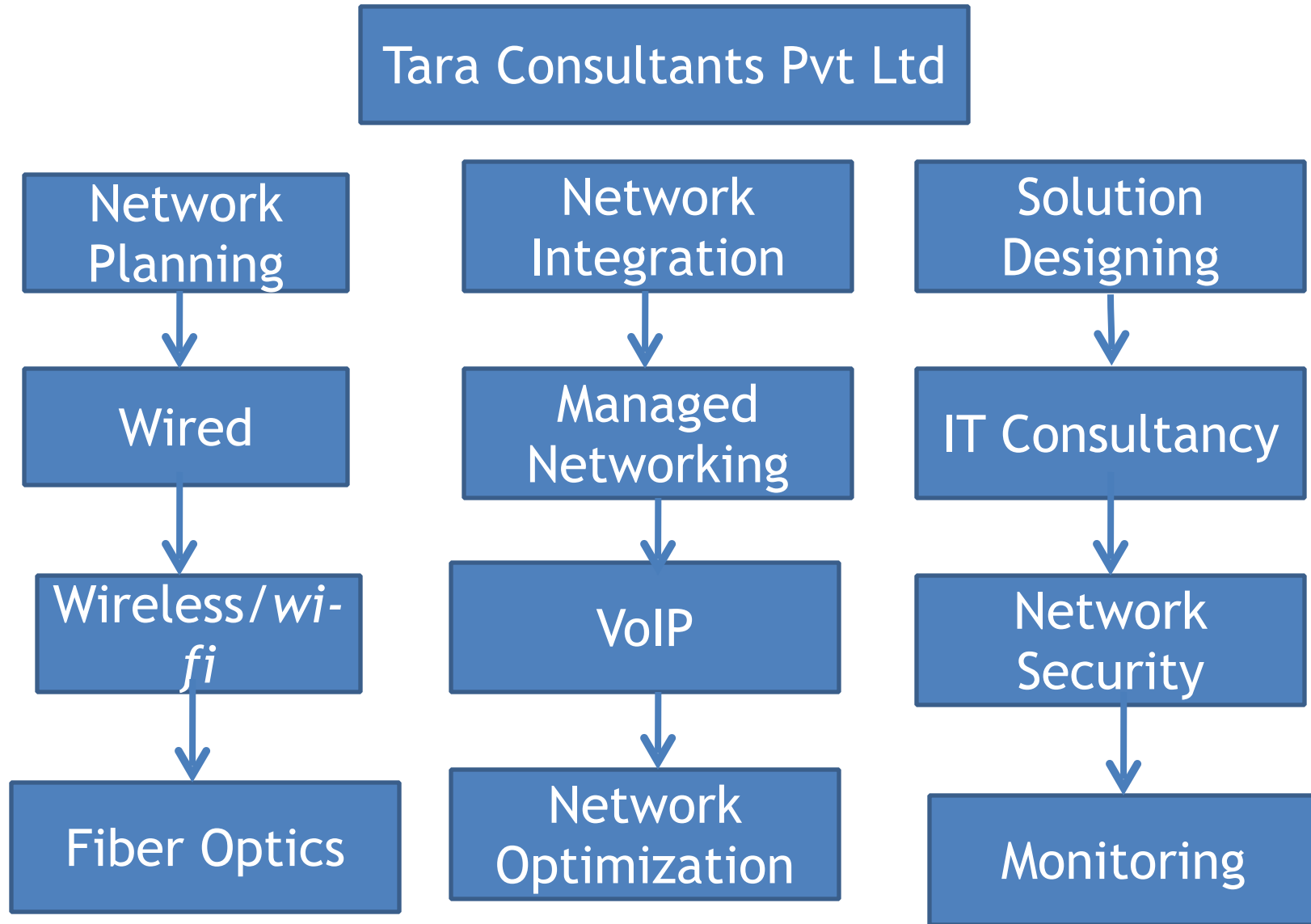
TARA CONSULTANTS PVT LTD



About Us

Tara Consultants Pvt Ltd, a multi-faceted and multi-activity Group, a trusted name in developing Mass Marketing Concepts, Software Development. Networking Solutions – Wired and Wireless and Target based mass Marketing, TCPL is also commended and known for meticulous and time scheduled planning, implementation, Delivery and completion of large-scale solutions and projects. TCPL is energized and managed by a team of Professionals.

What We Do



Agenda

User's Self Service Portal

- For PPPoE Users
- For Hotspot Users

Internet Load Balancing

- PCC(Per Connection Classifier)
- Routing Policy
- Spillover



By Vikas Kumar Gupta

Why User's Self Service Portal

- ❑ Are you frustrated with client's/User's daily calls for asking data usage or password change requests
- ❑ Does it irritates you when client asks that he/she haven't login, how there data consumes so much.



Here is the Answer

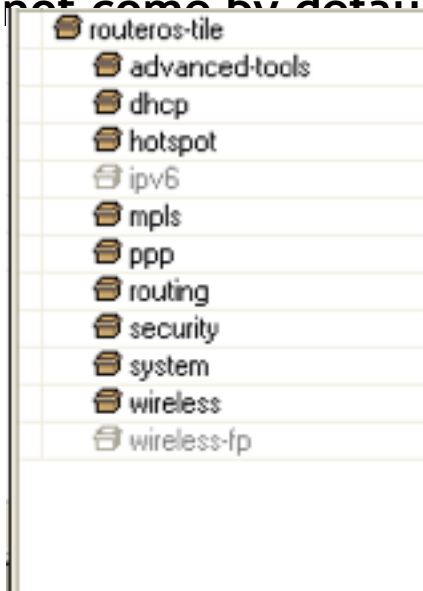
MikroTik User Manager

A Radius manager package for Mikrotik, to enable Centralized authentication of Users

Level number	0 (Trial mode)	1 (Free Demo)	3 (WISP CPE)	4 (WISP)	5 (WISP)	6 (Controller)
User manager active sessions	24h trial	1	10	20	50	Unlimited

MikroTik User Manager does not come by default in packages

System > Packages

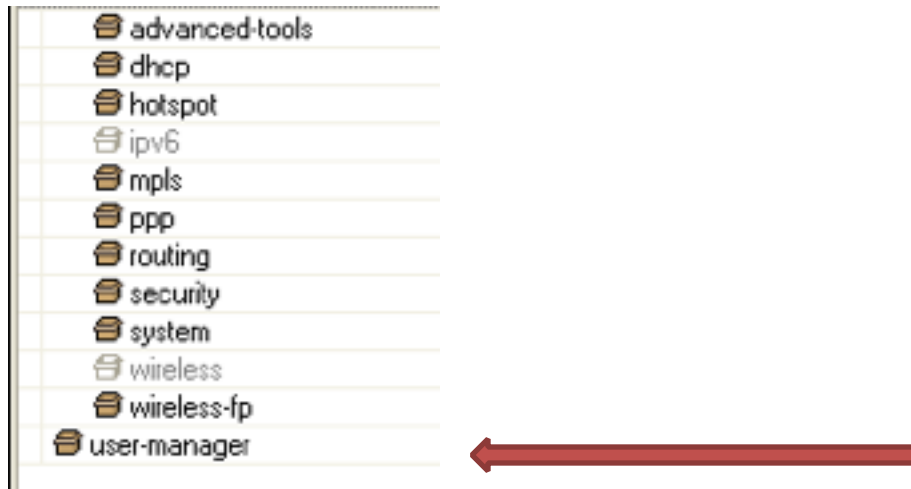


Install User Manager available in Extra Package from MikroTik Download Page

<http://www.mikrotik.com/download>



After adding user manager



Note: Download User manager version according to the ROS version and ROS architecture.

Configure RouterOS to enable authentication of Users from User Manager

The screenshot displays the RouterOS configuration interface. On the left is a sidebar menu with options: Wireless, PPP, Switch, Mesh, IP, MPLS, Routing, System, Queues, Files, Log, Radius, Tools, New Terminal, LCD, MetaROUTER, Partition, Make Supout.tif, Manual, and Exit. An arrow labeled "Click Radius" points to the "Radius" option in this menu.

The main window shows the "Radius" configuration for a "Radius Server <127.0.0.1>". It has tabs for "General" and "Status". The "General" tab is active, showing the following settings:

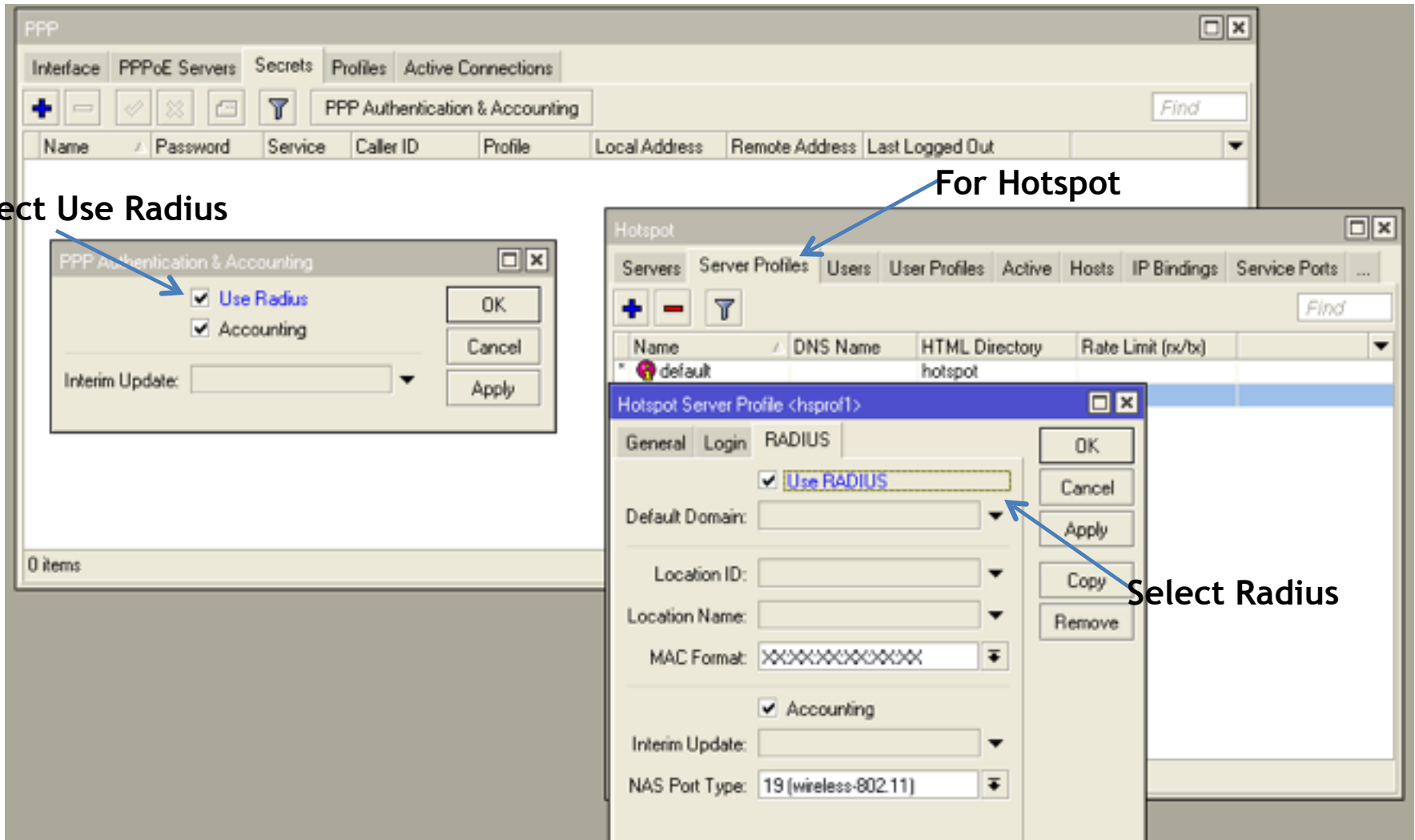
- Service:** A list with checkboxes for "ppp", "hotspot", and "dhcp".
 - An arrow labeled "Add Radius" points to the "+" button at the top of the window.
 - An arrow labeled "For PPPoE Users" points to the "ppp" checkbox, which is checked.
 - An arrow labeled "For Hotspot Users" points to the "hotspot" checkbox, which is also checked.
- Called ID:** A text field.
- Domain:** A dropdown menu.
- Address:** A text field containing "127.0.0.1". An arrow labeled "Use LHost Address" points to this field.
- Secret:** A text field containing "vajra@123". An arrow labeled "Secret" points to this field.
- Authentication Port:** A text field containing "1812".
- Accounting Port:** A text field containing "1813".
- Timeout:** A text field containing "300" with "ms" next to it. An arrow labeled "Change Timeout accordingly" points to this field.
- Accounting Backup:** An unchecked checkbox.
- Realm:** A dropdown menu.
- Src. Address:** A text field containing "0.0.0.0".

At the bottom of the window, the status is "enabled". On the right side of the "General" tab are buttons: OK, Cancel, Apply, Disable, Comment, Copy, Remove, and Reset Status.

Configure RouterOS to enable authentication of Users from User Manager

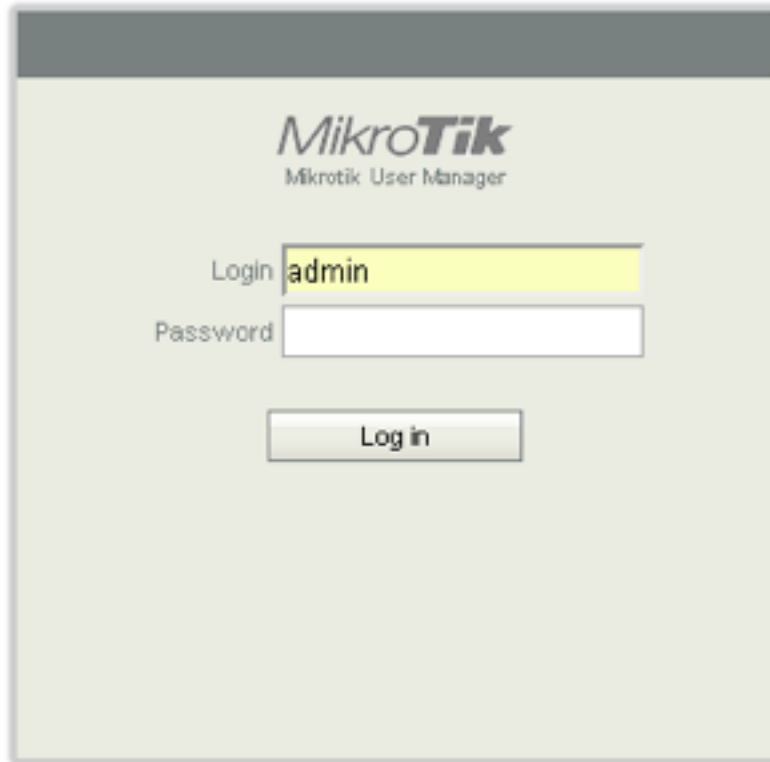
Select Use Radius

For Hotspot



Time to Configure User Manager for Self Service Portal

1. Open Web browser and type address http://Router_IP/userman



The screenshot shows the MikroTik User Manager login interface. At the top, the MikroTik logo is displayed above the text "Mikrotik User Manager". Below this, there are two input fields: a "Login" field containing the text "admin" and a "Password" field which is currently empty. A "Log in" button is positioned below the password field.

1. Default Username is “admin” with no password.

2. Add Router

MikroTik
Vajra Telecom User database

Add Edit

☒	▽ Name	▽ IP address
-------------------------------------	--------	--------------

Router details

▲ Main

Name: TCPL

Owner: admin

IP address: 127.0.0.1

Shared secret: vajra@123

Time zone: Parent time zone ▼

Disabled: ☐

Log events:

- ☒ Authorization success
- ☒ Authorization failure
- ☒ Accounting success
- ☒ Accounting failure

3. Add Customers

MikroTik
Vajra Telecom User database

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

	▼ Login	▼ Parent
☐	admin	

Customer details

▲ Main

Login: admin

Password: ← Add Password

Disabled: ☐

Parent: admin

Permissions: Owner ▼

Public ID: clients ← Client will access this

Public host:

Backup allowed: ☒

▲ 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

Save

4. Change Appearance of User's Self Service Portal

The screenshot shows the MikroTik Vajra Telecom User database interface. The 'Appearance' tab is selected, showing options for Style, Templates, Language, Payment gateways, and Signup. The 'Table columns' section has 'Users' selected in the 'Table' list. The 'Visible' list contains: Password, First name, Last name, Email, Download Used, Upload Used, Uptime Used, Start time, End time, Username, Till time, and Total time left. The 'Hidden' list contains: IP address, Caller ID, Shared users, Preshared key, Enc key, Enc algo, Last used IP, Last used MAC, Time left, Download limit, Upload limit, and Transfer limit. A 'First page' dropdown is set to 'Users', and a 'Save' button is at the bottom. A blue arrow points to the 'Settings' button in the left sidebar. Another blue arrow points to the 'Users' entry in the 'Table' list. A third blue arrow points to the 'Start time' entry in the 'Visible' list.

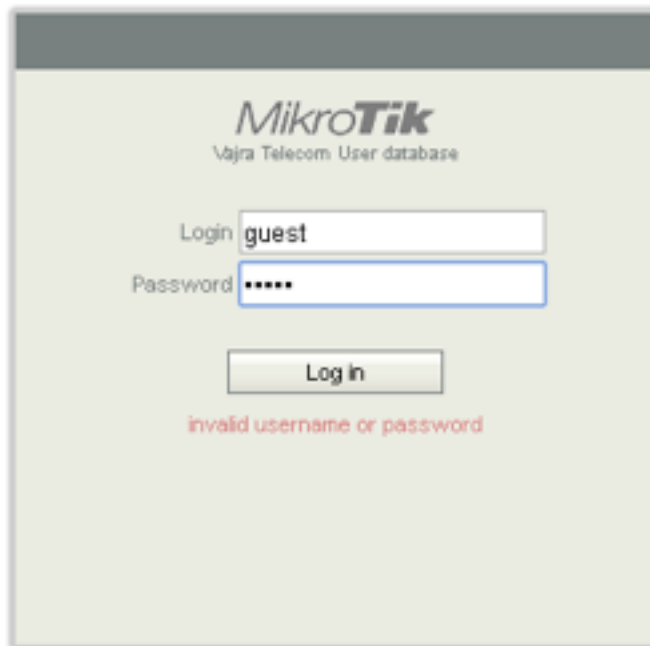
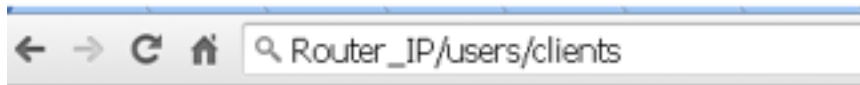
Select Users

These Options will be available in User's Self Service Portal

5. Now Add Profiles and Users Accordingly

6. Now its time to check User's Self Service Portal

- Type http://Router_IP/users/clients in Address Bar

A screenshot of a web login page for MikroTik Vajra Telecom. The page has a light beige background with a dark grey header. The MikroTik logo is centered at the top, with 'Vajra Telecom User database' below it. There are two input fields: 'Login' with the text 'guest' and 'Password' with masked characters '*****'. Below these fields is a 'Log in' button. At the bottom, the text 'invalid username or password' is displayed in red.

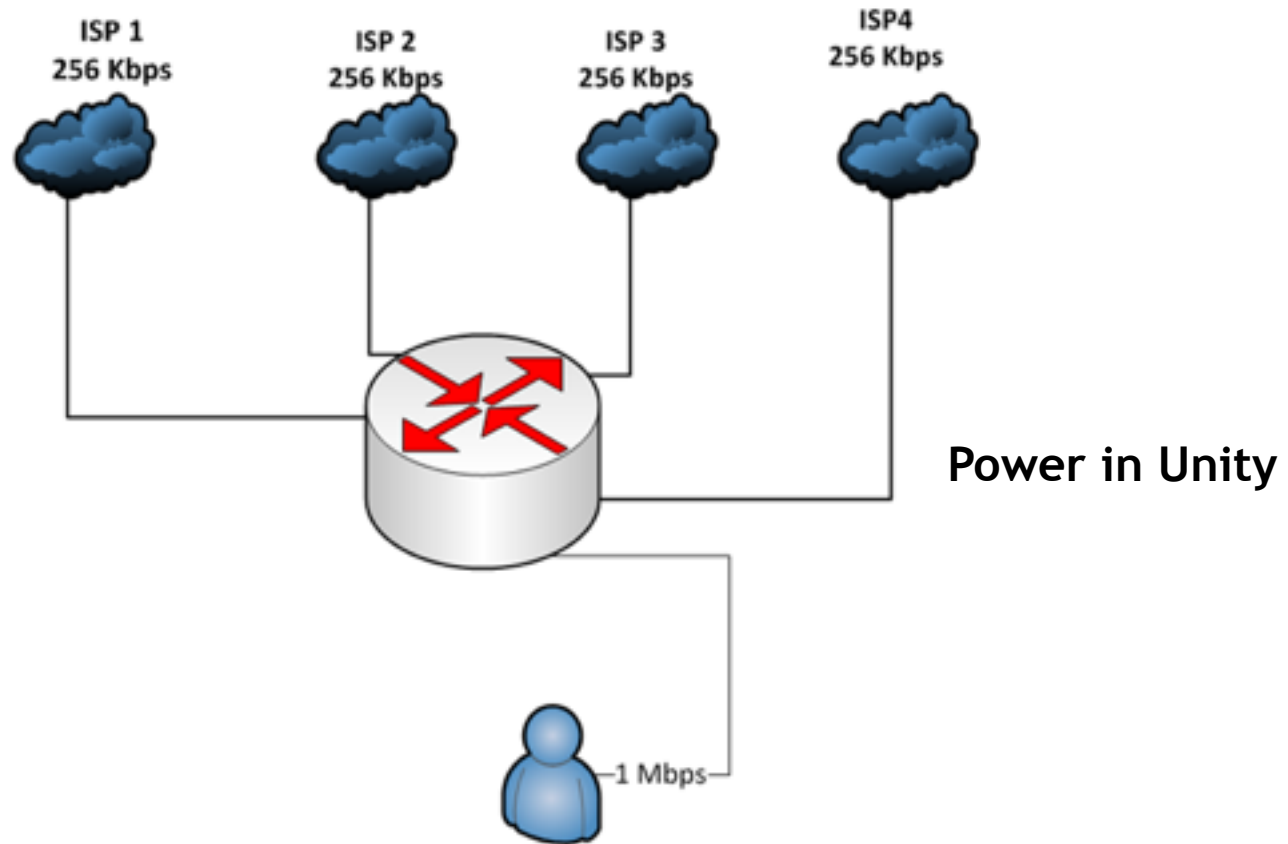
7. Client/User can check the available options provided by admin

The screenshot displays the MikroTik user interface. On the left, there is a sidebar with the MikroTik logo and the text "/ajra Telecom User database". Below this are three buttons: "Settings", "Status" (which is highlighted in blue), and "Logout". The main content area has a tabbed interface with four tabs: "Summary" (highlighted in blue), "Profile", "Sessions", and "Payments". Under the "Summary" tab, the following account details are listed:

Till time:	Unknown
Time left:	30m
Money paid:	0.00
Money used:	0.00
Money left:	0.00
Uptime Used:	0:00:00
Download Used:	0 B
Upload Used:	0 B

Why Internet Load Balancing

1. Multiple Slow Speed Internet connections.



How to do that

1. IP Addressing

/ ip address

add address=192.168.0.1/24 network=192.168.0.0 interface=LAN

add address=10.111.0.2/24 network=10.111.0.0 interface=ISP1

add address=10.112.0.2/24 network=10.112.0.0 interface=ISP2

add address=10.113.0.2/24 network=10.113.0.0 interface=ISP3

add address=10.114.0.2/24 network=10.114.0.0 interface=ISP4

Marking Connections

/ ip firewall mangle

add chain=prerouting dst-address=10.111.0.0/24 action=accept in-interface=LAN

add chain=prerouting dst-address=10.112.0.0/24 action=accept in-interface=LAN

add chain=prerouting dst-address=10.113.0.0/24 action=accept in-interface=LAN

add chain=prerouting dst-address=10.114.0.0/24 action=accept in-interface=LAN

add chain=prerouting in-interface=ISP1 connection-mark=no-mark action=mark-connection
new-connection-mark=ISP1_conn

add chain=prerouting in-interface=ISP2 connection-mark=no-mark action=mark-connection
new-connection-mark=ISP2_conn

add chain=prerouting in-interface=ISP2 connection-mark=no-mark action=mark-connection
new-connection-mark=ISP3_conn

add chain=prerouting in-interface=ISP2 connection-mark=no-mark action=mark-connection
new-connection-mark=ISP4_conn

Marking Continued.....

```
add chain=prerouting in-interface=LAN connection-mark=no-mark dst-address-type=!local \
    per-connection-classifier=both-addresses:4/0 action=mark-connection new-connection-
mark=ISP1_conn
```

```
add chain=prerouting in-interface=LAN connection-mark=no-mark dst-address-type=!local \
    per-connection-classifier=both-addresses:4/1 action=mark-connection new-connection-
mark=ISP2_conn
```

```
add chain=prerouting in-interface=LAN connection-mark=no-mark dst-address-type=!local \
    per-connection-classifier=both-addresses:4/2 action=mark-connection new-connection-
mark=ISP3_conn
```

```
add chain=prerouting in-interface=LAN connection-mark=no-mark dst-address-type=!local \
    per-connection-classifier=both-addresses:4/3 action=mark-connection new-connection-
mark=ISP4_conn
```

PCC for 4 Connections



Marking Continued....

```
add chain=prerouting connection-mark=ISP1_conn in-interface=LAN action=mark-routing \
```

```
    new-routing-mark=to_ISP1
```

```
add chain=prerouting connection-mark=ISP2_conn in-interface=LAN action=mark-routing \
```

```
    new-routing-mark=to_ISP2
```

```
add chain=prerouting connection-mark=ISP3_conn in-interface=LAN action=mark-routing \
```

```
    new-routing-mark=to_ISP3
```

```
add chain=prerouting connection-mark=ISP4_conn in-interface=LAN action=mark-routing \
```

```
    new-routing-mark=to_ISP4
```

```
add chain=output connection-mark=ISP1_conn action=mark-routing new-routing-mark=to_ISP1
```

```
add chain=output connection-mark=ISP2_conn action=mark-routing new-routing-mark=to_ISP2
```

```
add chain=output connection-mark=ISP3_conn action=mark-routing new-routing-mark=to_ISP3
```

```
add chain=output connection-mark=ISP4_conn action=mark-routing new-routing-mark=to_ISP4
```

IP Routing

/ip route

add dst-address=0.0.0.0/0 gateway=10.111.0.1 routing-mark=to_ISP1 check-gateway=ping

add dst-address=0.0.0.0/0 gateway=10.112.0.1 routing-mark=to_ISP2 check-gateway=ping

add dst-address=0.0.0.0/0 gateway=10.113.0.1 routing-mark=to_ISP3 check-gateway=ping

add dst-address=0.0.0.0/0 gateway=10.114.0.1 routing-mark=to_ISP4 check-gateway=ping

add dst-address=0.0.0.0/0 gateway=10.111.0.1 distance=1 check-gateway=ping

add dst-address=0.0.0.0/0 gateway=10.112.0.1 distance=2 check-gateway=ping

add dst-address=0.0.0.0/0 gateway=10.113.0.1 distance=3 check-gateway=ping

add dst-address=0.0.0.0/0 gateway=10.114.0.1 distance=4 check-gateway=ping

IP Nating

```
/ ip firewall nat
```

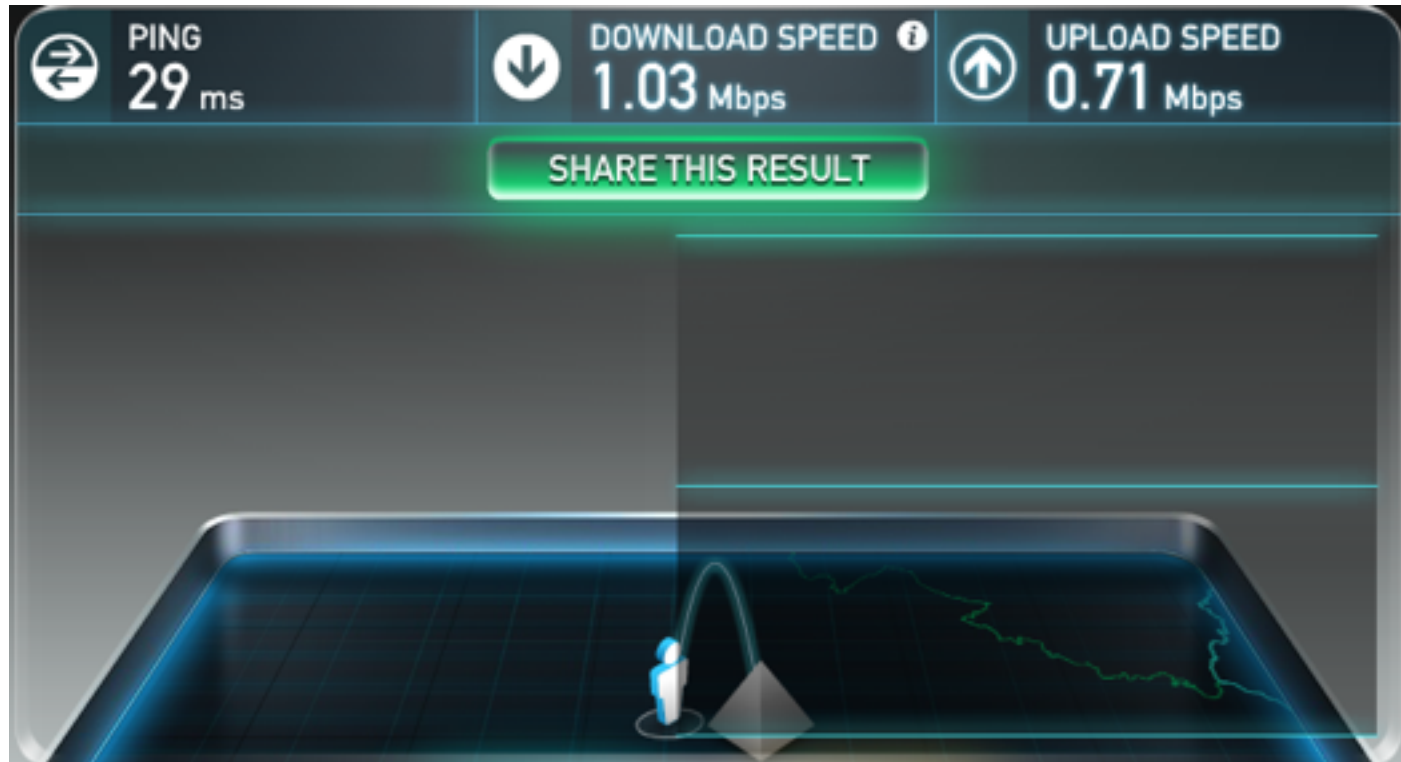
```
add chain=srcnat out-interface=ISP1 action=masquerade
```

```
add chain=srcnat out-interface=ISP2 action=masquerade
```

```
add chain=srcnat out-interface=ISP3 action=masquerade
```

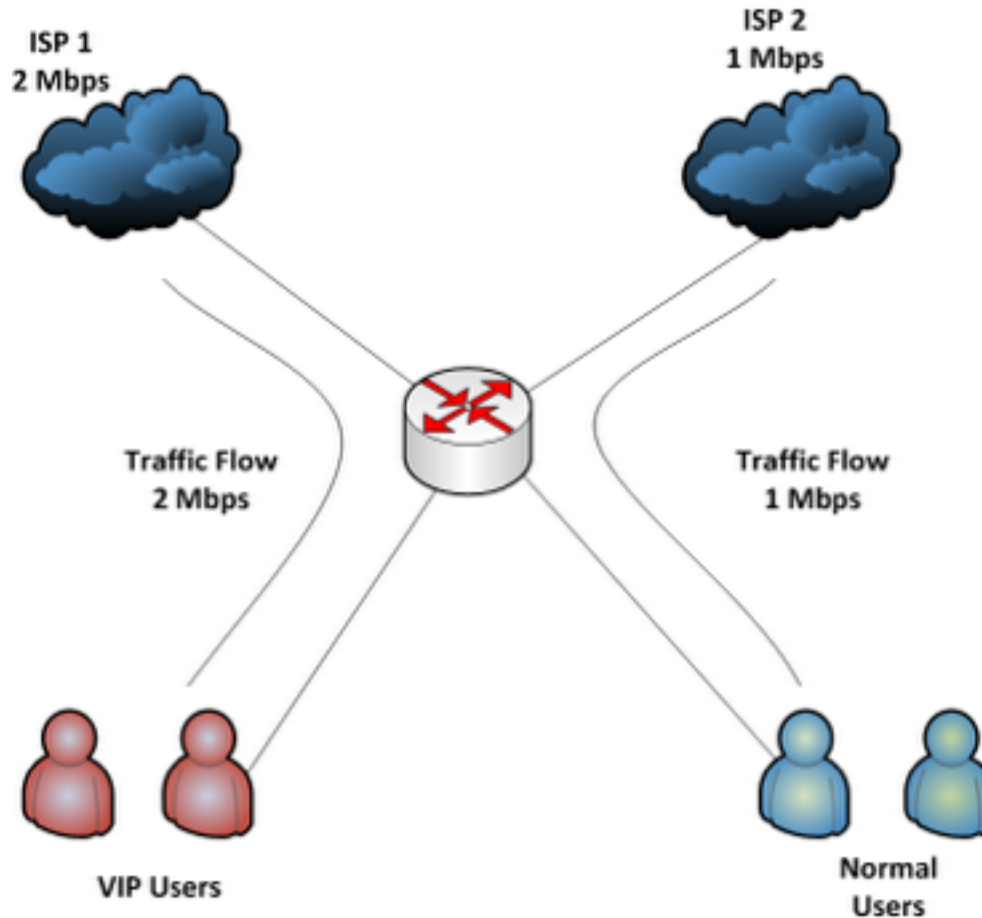
```
add chain=srcnat out-interface=ISP4 action=masquerade
```

Result at User's Machine



This is on Broadband Internet Connections

2. Want to provide high speed connections to VIP members only



IP Addressing

/ ip address

add address=192.168.0.1/24 network=192.168.0.0 interface=LAN

add address=10.111.0.2/24 network=10.111.0.0 interface=ISP1 _2Mb

add address=10.112.0.2/24 network=10.112.0.0 interface=ISP2 _1Mb

Marking

/ip firewall mangle

add chain=prerouting src-address=192.168.0.2/32 action=mark-routing
new-routing-mark=vip_2Mb

add chain=prerouting src-address=192.168.0.3/32 action=mark-routing
new-routing-mark=vip_2Mb

add chain=prerouting src-address=192.168.0.11/32 action=mark-routing
new-routing-mark=user_1Mb

add chain=prerouting src-address=192.168.0.12/32 action=mark-routing
new-routing-mark=user_1Mb

Natting

/ ip firewall nat

add chain=srcnat out-interface=ISP1_2Mb action=masquerade

add chain=srcnat out-interface=ISP2_1Mb action=masquerade

Routing

/ip route

add dst-address=0.0.0.0/0 gateway=10.111.0.1 routing-mark=ISP1_2Mb check-gateway=ping

add dst-address=0.0.0.0/0 gateway=10.112.0.1 routing-mark=ISP2_1Mb check-gateway=ping

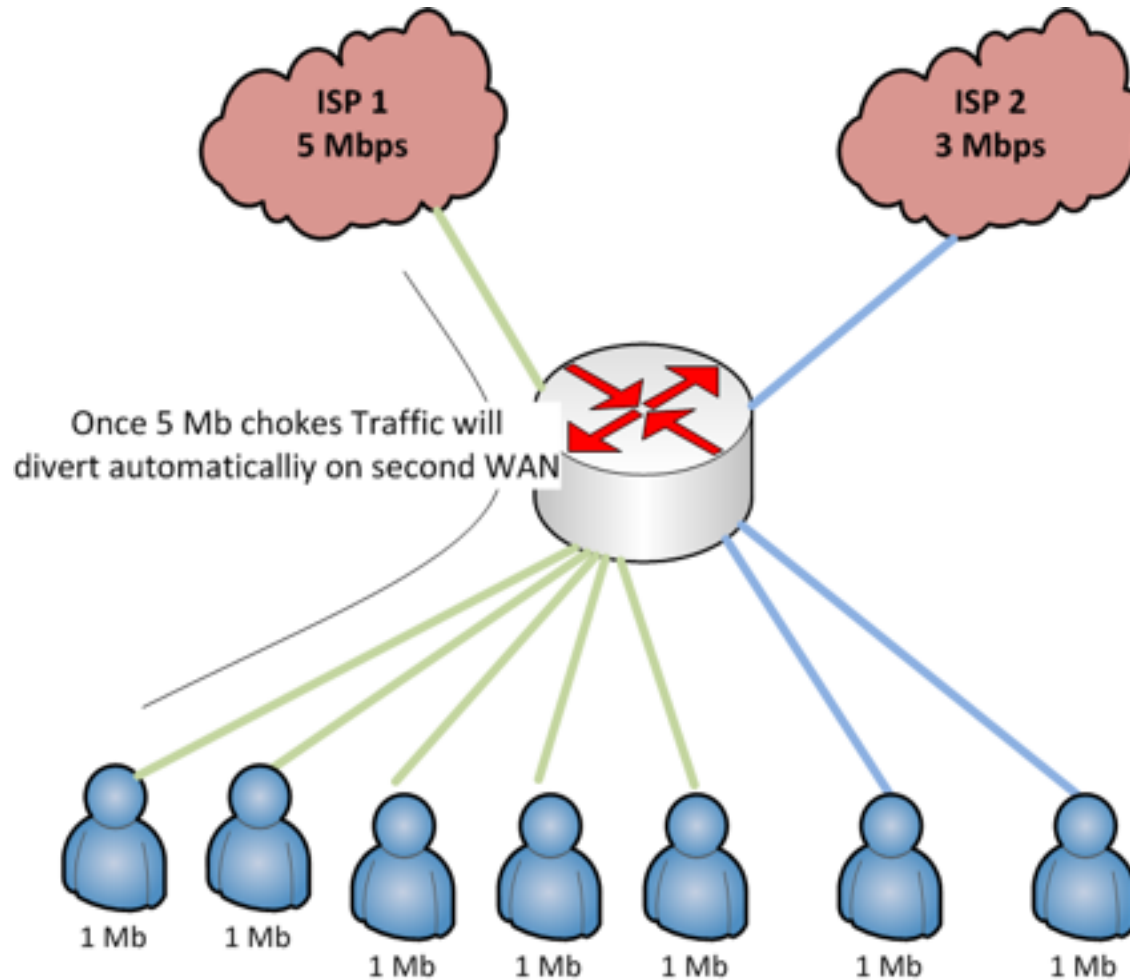
add dst-address=0.0.0.0/0 gateway=10.111.0.1 distance=1 check-gateway=ping

add dst-address=0.0.0.0/0 gateway=10.112.0.1 distance=2 check-gateway=ping

Results : *Appreciation*



3. SpillOver : Want to shift traffic of fully consumed bandwidth of one ISP to Another



IP Addressing

/ ip address

add address=192.168.0.1/24 network=192.168.0.0 interface=LAN

add address=10.111.0.2/24 network=10.111.0.0 interface=ISP1

add address=10.112.0.2/24 network=10.112.0.0 interface=ISP2

Marking

/ip firewall mangle

**add chain=prerouting src-address=192.168.0.0/24 action=mark-routing
new-routing-mark=to_ISP1**

Nating

/ ip firewall nat

add chain=srcnat out-interface=ISP1 action=masquerade

add chain=srcnat out-interface=ISP2 action=masquerade

Routing

/ip route

add dst-address=0.0.0.0/0 gateway=10.111.0.1 routing-mark=to_ISP1 check-gateway=ping

add dst-address=0.0.0.0/0 gateway=10.112.0.1 routing-mark=to_ISP2 check-gateway=ping

add dst-address=0.0.0.0/0 gateway=10.111.0.1 distance=1 check-gateway=ping

add dst-address=0.0.0.0/0 gateway=10.112.0.1 distance=2 check-gateway=ping

Trick 1: Shifting traffic to ISP 2

Traffic Monitor List

Find

Name	Interface	Traffic	Trigger	Threshold	On Event
------	-----------	---------	---------	-----------	----------

New Traffic Monitor

Name:

Interface:

Traffic:

Trigger:

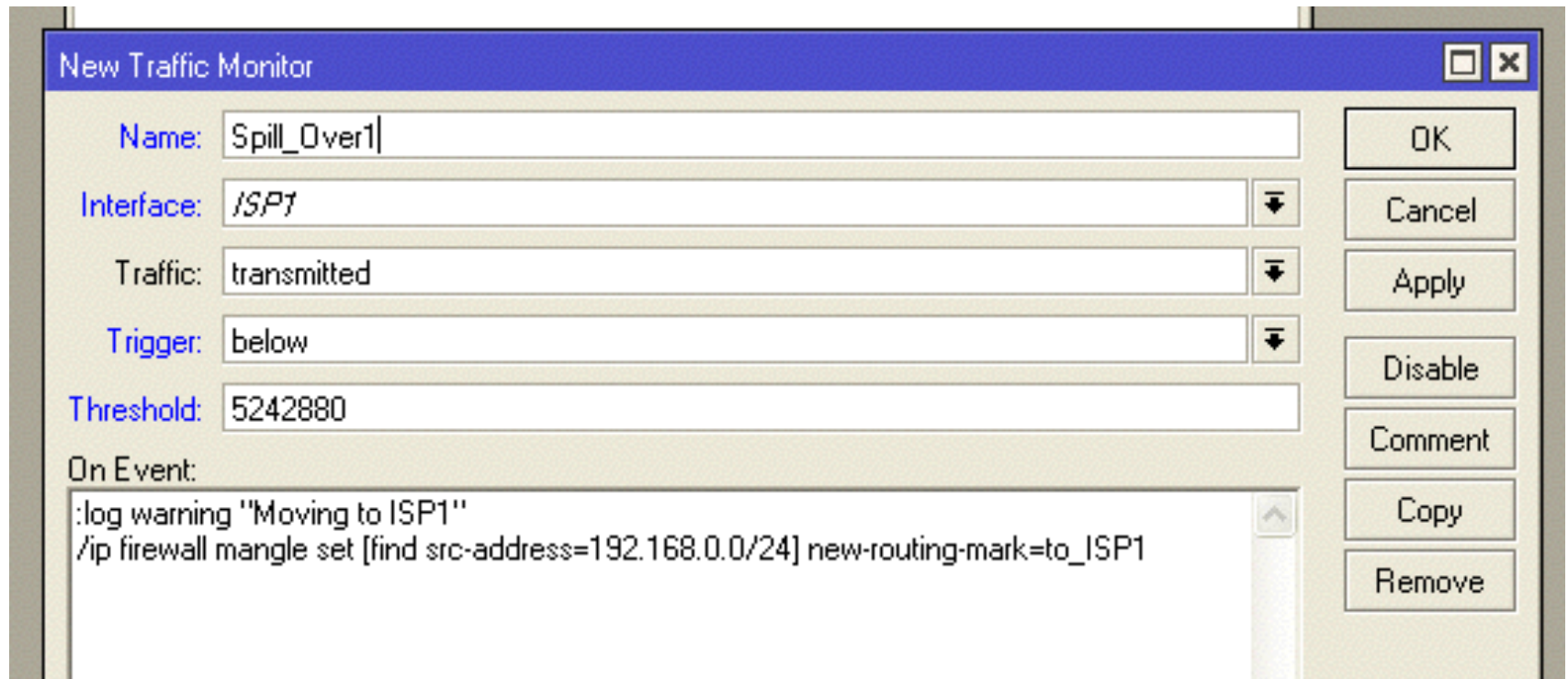
Threshold:

On Event:

```
:log warning "Moving to ISP2"  
/ip firewall mangle set [find src-address=192.168.0.0/24] new-routing-mark=to_ISP2
```

OK
Cancel
Apply
Disable
Comment
Copy
Remove

Trick 2: Shifting traffic back to ISP 1



The image shows a 'New Traffic Monitor' dialog box with the following fields and values:

- Name: Spill_Over1
- Interface: ISP1
- Traffic: transmitted
- Trigger: below
- Threshold: 5242880

On Event:

```
:log warning "Moving to ISP1"  
/ip firewall mangle set [find src-address=192.168.0.0/24] new-routing-mark=to_ISP1
```

Buttons on the right: OK, Cancel, Apply, Disable, Comment, Copy, Remove.

Results :



Questions ?



Thank You for Listening ☺

TARA CONSULTANTS PVT LTD

307, OSIAN BUILDING,
12, NEHRU PLACE,
NEW DELHI-110019

[TEL: 011-46570273](tel:011-46570273)

Ph : +91-9311686026,
+91-9811686026

FAX:011-26448917

www.tcplonline.com

gamma@tcplonline.com

