



**MICROSYSTEM**

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SMART WI-FI PLATFORM





- ✓ What is Microsystem Smart WI-FI Platform.
- ✓ What is Mikrotik Load Balancing (PCC Method).
- ✓ What are the difficulties in (PCC Method).
- ✓ How to connect Mikrotik with a Microsystem Smart WI-FI Platform .
- ✓ How to Skip all difficulties in (PCC Method) using Microsystem Smart WI-FI Platform .
- ✓ LIVE DEMO



# Microsystem Smart WI-FI Platform



**Microsystem Smart WI-FI Platform is web platform multi tenant, using for WiFi marketing, monetization solutions and automated internet management.**





## Introduction

PCC matcher will allow you to divide traffic into equal streams with ability to keep packets with specific set of options in one particular stream (you can specify this set of options from src-address, src-port, dst-address, dst-port)

## Theory

PCC takes selected fields from IP header, and with the help of a hashing algorithm converts selected fields into 32-bit value. This value then is divided by a specified *Denominator* and the remainder then is compared to a specified *Remainder*, if equal then packet will be captured. You can choose from src-address, dst-address, src-port, dst-port from the header to use in this operation.

```
per-connection-classifier=
PerConnectionClassifier ::= [!]ValuesToHash:Denominator/Remainder
Remainder ::= 0..4294967295 (integer number)
Denominator ::= 1..4294967295 (integer number)
ValuesToHash ::= both-addresses|both-ports|dst-address-and-port|
src-address|src-port|both-addresses-and-ports|dst-address|dst-port|src-address-and-port
```

## Example

This configuration will divide all connections into 3 groups based on source address and port

```
/ip firewall mangle add chain=prerouting action=mark-connection \
new-connection-mark=1st_conn per-connection-classifier=src-address-and-port:3/0
/ip firewall mangle add chain=prerouting action=mark-connection \
new-connection-mark=2nd_conn per-connection-classifier=src-address-and-port:3/1
/ip firewall mangle add chain=prerouting action=mark-connection \
new-connection-mark=3rd_conn per-connection-classifier=src-address-and-port:3/2
```



```
new-connection-mark=3rd_conn per-connection-classifier=src-address-and-port:3/2
/ip firewall mangle add chain=prerouting action=mark-connection \
new-connection-mark=1st_conn per-connection-classifier=src-address-and-port:3/0
/ip firewall mangle add chain=prerouting action=mark-connection \
new-connection-mark=2nd_conn per-connection-classifier=src-address-and-port:3/1
/ip firewall mangle add chain=prerouting action=mark-connection \
new-connection-mark=3rd_conn per-connection-classifier=src-address-and-port:3/2
```



```

/ ip address
add address=192.168.0.1/24 network=192.168.0.0 broadcast=192.168.0.255 interface=LAN
add address=10.111.0.2/24 network=10.111.0.0 broadcast=10.111.0.255 interface=ISP1
add address=10.112.0.2/24 network=10.112.0.0 broadcast=10.112.0.255 interface=ISP2
    
```

```

/ 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 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=LAN connection-mark=no-mark dst-address-type=!local \
    per-connection-classifier=both-addresses:2/0 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:2/1 action=mark-connection new-connection-mark=ISP2_conn
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=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
    
```

```

/ 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
    
```

```

/ ip firewall nat
add chain=srcnat out-interface=ISP1 action=masquerade
add chain=srcnat out-interface=ISP2 action=masquerade
    
```



```

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
    
```



The screenshot displays the MikroTik WinBox interface with several windows and menu items highlighted by red arrows:

- System Identity:** The 'Identity' menu item in the left sidebar is highlighted with a red arrow.
- Reset Configuration:** The 'Reset Configuration' window is open, showing options: 'Keep User Configuration', 'CAPS Mode', 'No Default Configuration', and 'Do Not Backup'. The 'Run After Reset' dropdown is set to 'default configuration1\_5\_0 .rsc'. The 'Reset Configuration' button is highlighted with a red arrow.
- File List:** The 'File List' window shows a directory structure. The 'hotspot' directory is highlighted with a red arrow. The file list is as follows:

File Name	Type	Size	Created
default configuration1_5_0 .rsc	script	20.2 KiB	
hotspot	directory		
hotspot/alogin.html	.html file	1307 B	
hotspot/error.html	.html file	898 B	
hotspot/errors.txt	.txt file	3615 B	
hotspot/favicon.ico	.ico file	903 B	
hotspot/img	directory		
hotspot/img/logobottom.png	.png file	3925 B	
hotspot/login.html	.html file	93 B	
hotspot/logout.html	.html file	1813 B	
hotspot/lv	directory		
hotspot/lv/alogin.html	.html file	1303 B	
hotspot/lv/errors.txt	.txt file	3810 B	
hotspot/lv/login.html	.html file	3408 B	
- Routerboard:** The 'Routerboard' window is open, showing the 'Serial Number' field with the value '6433053C8827' highlighted by a blue box. Other fields include Model (951Ui-2HnD), Firmware Type (ar9344), Factory Firmware (3.24), Current Firmware (6.43), and Upgrade Firmware (6.43). Buttons for 'OK', 'Upgrade', 'Settings', and 'PoE Settings' are visible.





url = [http://"your company".microsystem.com.eg/branches](http://yourcompany.microsystem.com.eg/branches)

## Basic settings

Hardware Type

Mikrotik

Mikrotik Username

username

Mikrotik Password

password

Radius Secret



Serial

6433053C8827

IP Address

000.000.000.000

Device Mac

00:00:00:00:00

Monthly Quota GB

300

Renew day

15





url = <http://your company.microsystem.com.eg/branches>

## Internet Connection

Connection type

Load balancing



IP/Gateway

Speed

IP

192.168.1.10

Gateway

192.168.1.1

2 M



IP

192.168.2.10

Gateway

192.168.2.1

4 M











THANK YOU

