

MIKROTIK QUALITY OF SERVICE IN WIRELESS BRIDGE PTP LINK

By

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OUTLINES

1. Wireless Problems in Congested Environment.
2. Solution with MikroTik ROS
3. How does it work in MikroTik?
4. Configuration to be used
5. My Successful Project Story
6. MikroTik ROS Configuration Steps
7. Conclusion

WIRELESS BRIDGE PTP LINK

????



Wireless point to point links are widely used as

- quick-to-deploy
- cost effective
- Less Maintenance Time
- Troubleshoot free
- More..

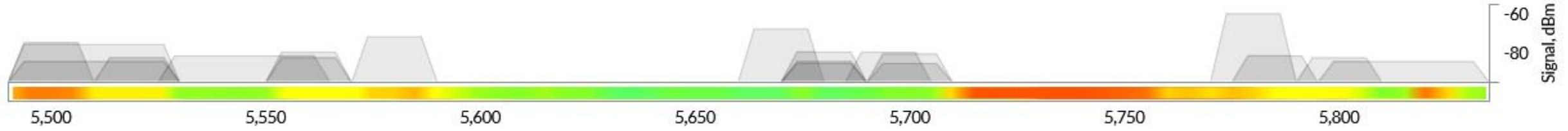


CONGESTED ENVIRONMENT



Scanned Frequencies >

Graphical View ▾



MAC ADDRESS ↑	SSID	DEVICE NAME	RADIO MODE	ENCRYPTION	SIGNAL/NOISE, dBm	FREQUENCY, GHz
00:15:6D:63:F6:EE	MTY		802.11a	NONE	-84 / -103	5.68
00:27:22:F4:73:A2	K-S-B		802.11n	NONE	-85 / -103	5.7
04:18:D6:38:E9:16	netsat.1		802.11n	NONE	-59 / -94	5.78
04:18:D6:58:82:9C	SC TW Levis2		802.11n	NONE	-81 / -96	5.785
04:18:D6:58:84:A2	AP5642		802.11n	NONE	-82 / -99	5.52
04:18:D6:A6:65:F7	Trafco		802.11n	NONE	-79 / -102	5.695
04:18:D6:E8:9A:BD	AP150		802.11n	NONE	-79 / -100	5.56
24:A4:3C:66:69:2F	AMCO Paints		802.11n	WPA	-84 / -100	5.805
24:A4:3C:6E:2F:E9	PCSIR-Sect-3		802.11n	NONE	-85 / -103	5.68
24:A4:3C:9E:66:E3	saddam1234		802.11n	NONE	-67 / -102	5.67
24:A4:3C:D6:RR:96			802.11n	NONE	-71 / -99	5.58

SCAN

WIRELESS PROBLEMS IN CONGESTED ENVIRONMENT

SPEED TEST

SELECT DESTINATION IP: 192.168.15.237

REMOTE WEB PORT: 80

DIRECTION: Duplex

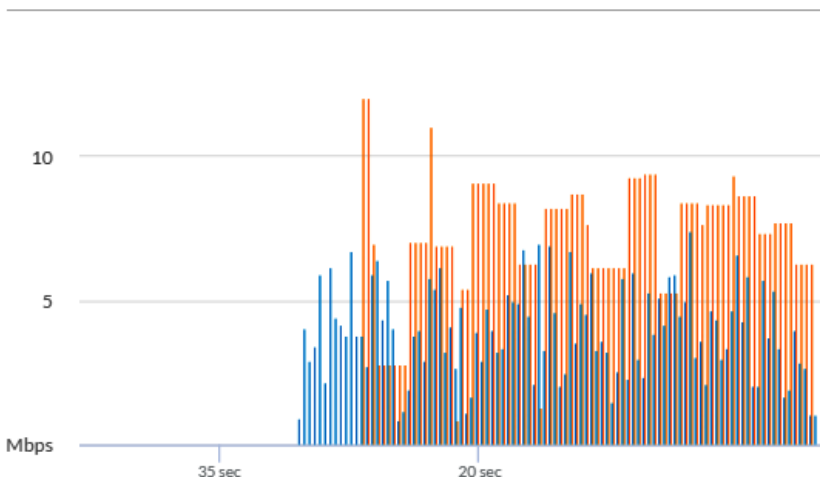
DURATION: 30 seconds

USER: ubnt

PASSWORD:

REMEMBER CREDENTIALS FOR THIS SESSION

STOP



STARTED 00:30:000

PING 802.81 ms

TX 6.28 Mbps
avg. 6.32 Mbps

RX 1.05 Mbps
avg. 3.98 Mbps

NETWORK PING

SELECT DESTINATION IP: 192.168.15.10

PACKET COUNT: 50

PACKET SIZE: 56

HOST	TIME	TTL	RESULTS
192.168.15.10	311.13	64	
192.168.15.10	344	64	
192.168.15.10	311.55	64	
192.168.15.10	333.62	64	
192.168.15.10	333.83	64	
192.168.15.10	Request timeout		
192.168.15.10	Request timeout		
192.168.15.10	Request timeout		
192.168.15.10	Request timeout		
192.168.15.10	Request timeout		
192.168.15.10	Request timeout		

PACKET LOSS 82 %
10 OF 50 PACKETS RECEIVED

MIN 233.62 ms

AVG 802.81 ms

MAX 1446.89 ms

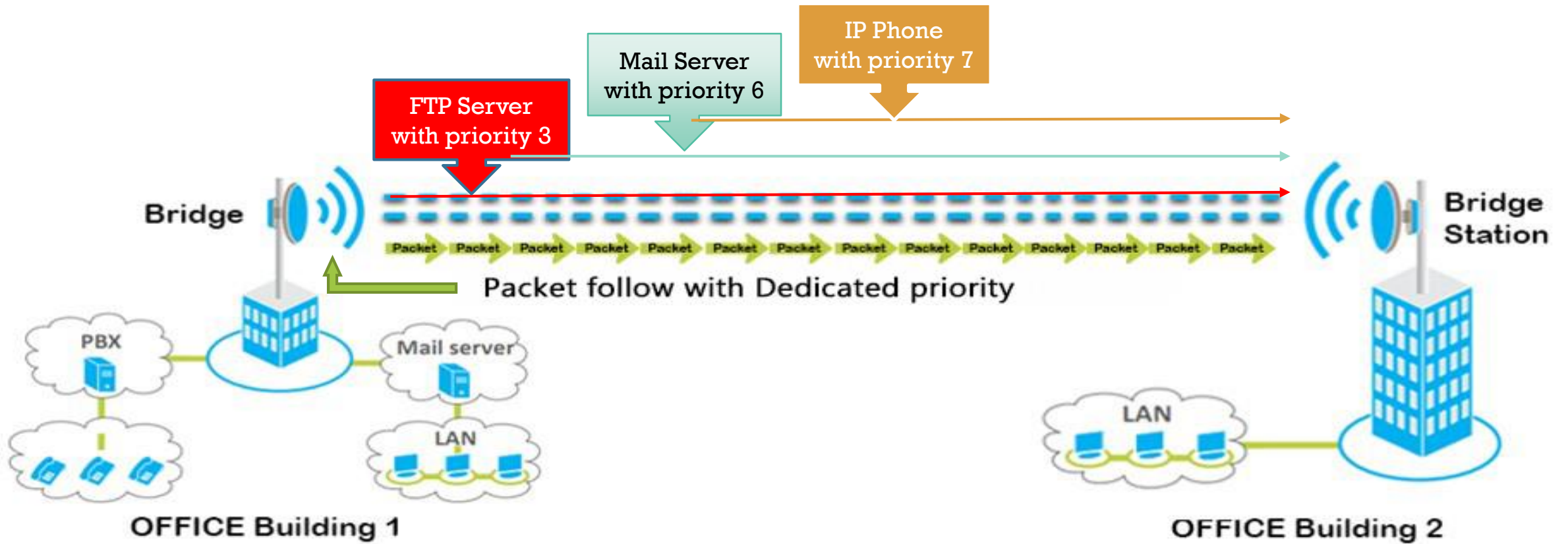
START

SOLUTION WITH MIKROTIK OS

MikroTik Router OS offer a very powerful and extremely flexible QoS in wireless environment.

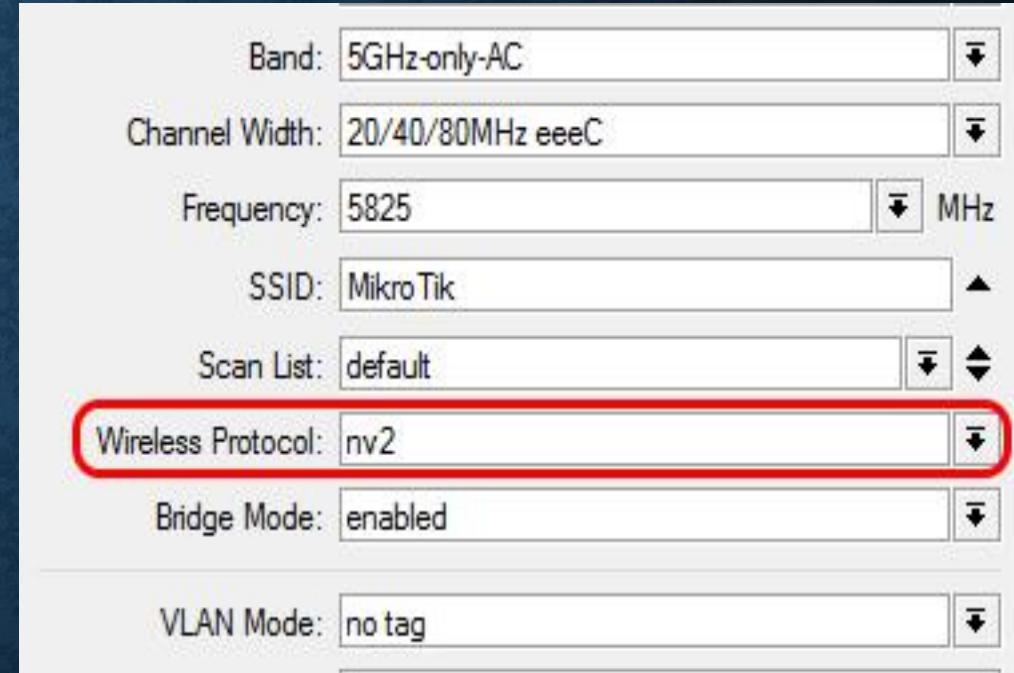
- **Nstream v2 (NV2) Protocol**
- **Queues Management**
- **Frame-Priority**

HOW DOES IT WORKS IN MIKROTIK



NV2 PROTOCOL

- **Nstream v2 (NV2) is TDMA technology (Time Division Multiple Access) based Wireless PROTOCOL**
- **You can configure Nv2 in the Wireless menu.**
- **The most important benefits of Nv2 are:**
 - **Increased speed**
 - **More client connections in Point to multi point environments**
 - **Lower latency**
 - **No distance limitations**
 - **No penalty for long distances.**



The image shows a screenshot of a wireless configuration interface. The settings are as follows:

Band:	5GHz-only-AC	↓
Channel Width:	20/40/80MHz eeeC	↓
Frequency:	5825	↓ MHz
SSID:	MikroTik	▲
Scan List:	default	↓ ▲
Wireless Protocol:	nv2	↓
Bridge Mode:	enabled	↓
VLAN Mode:	no tag	↓

The 'Wireless Protocol' field is highlighted with a red border.

NV2 WITH QUEUES

- By default (*nv2-qos=default*) NV2 use two queues (*nv2-queue=2*).
- In this mode, all outgoing packets are handled by the integrated QoS algorithm based on packet type and size.

Interface <wlan2>

Wireless HT HT MCS WDS Nstreme NV2 Status Traffic ...

TDMA Period Size: 2ms

Cell Radius: 30 km

Security

Preshared Key:

Mode: dynamic downlink

Downlink Ratio: 50 %

Sync Secret:

Queue Count: 2

QoS: default

QoS settings are only done on the AP!
There is no need at station end

NV2 QUEUES MANAGEMENT


- We can use 2 (RouterOS default), 4 or 8 separate queues inside a NV2 link for individual traffic classes.
- **'Packet to queue'** depends on the selected number of available NV2 queues (2, 4 or 8 queues)

nv2-queue=2	nv2-queue=4	nv2-queue=8
priority 0,1,2,3 -> queue 0	priority 0,3 -> queue 0	priority 1 -> queue 0
priority 4,5,6,7 -> queue 1	priority 1,2 -> queue 1	priority 2 -> queue 1
	priority 4,5 -> queue 2	priority 0 -> queue 2
	priority 6,7 -> queue 3	priority 3 -> queue 3
		priority 4 -> queue 4
		priority 5 -> queue 5
		priority 6 -> queue 6
		priority 7 -> queue 7

QUEUES BEHAVIOR

To understand this behavior, we have to take a deeper look in the IEEE Standard for 802.1D-2004 Bridge definitions!

User Priority	Acronym	Traffic Type
1	BK	Background
2	./.	Spare
0 (Default)	BE	Best Effort
3	EE	Excellent Effort
4	CL	Controlled Load
5	VI	Video
6	VO	Voice
7	NC	Network Control



THE FRAME-PRIORITY OPTION

- If the built-in rules do not apply, also in this mode the queuing mechanism use the Frame-Priority field.

Interface <wlan2>

Wireless HT HT MCS WDS Nstreme NV2 Status Traffic ...

TDMA Period Size: 2ms

Cell Radius: 30 km

Security

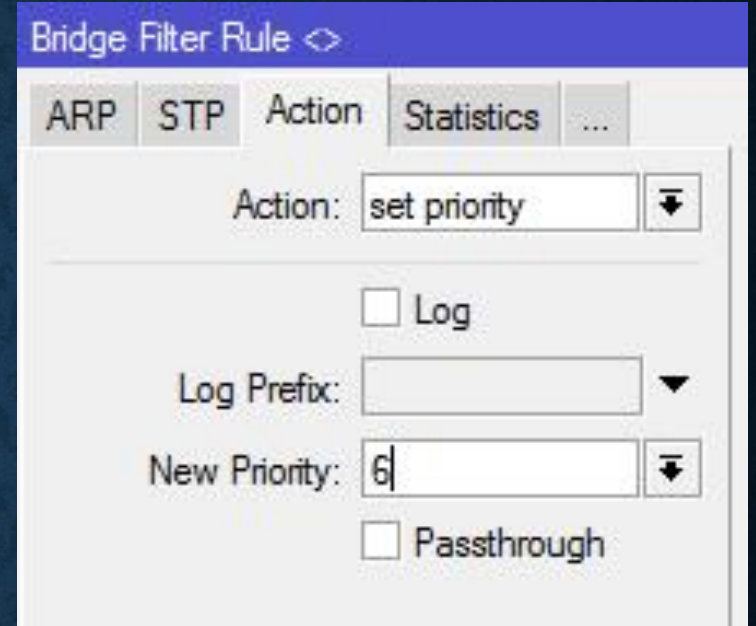
Preshared Key:

Queue Count: 2

QoS: frame priority

THE FRAME-PRIORITY FIELD

- This can easily be done using the 'action=set-priority' functionality inside the powerful firewall subsystem of RouterOS which is available for
 - Layer2 (in Bridge Filter)
 - Layer3 (in IP Firewall Mangle)



Bridge Filter Rule <>

ARP STP Action Statistics ...

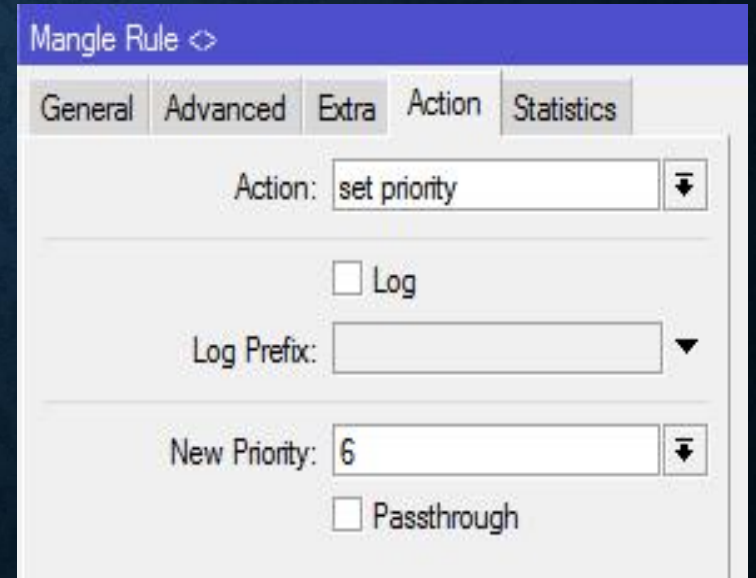
Action: set priority

Log

Log Prefix:

New Priority: 6

Passthrough



Mangle Rule <>

General Advanced Extra Action Statistics

Action: set priority

Log

Log Prefix:

New Priority: 6

Passthrough

CONFIGURATION TO BE USED...



VOIP

FTP



SQL base Software

SQL

MY PROJECT PLACE GULBERG III LAHORE PAKISTAN

Wireless device:	MikroTik SXT 5 AC
Wireless Environment:	Congested & Smoked
WIRELESS PTP LINK	5 km
Data Throughout put:	50 Mbps
Highest priority set:	IP Phone / IP PBX



BRIDGE & BRIDGE STATION LINK STABILITY

Channel: 5765/20-Ceee/ac

Wireless Protocol: nv2

Tx Rate: 433.3Mbps-80MHz/1S/SGL

Rx Rate: 292.5Mbps-80MHz/1S

SSID: Tristar

BSSID: 4C:5E:0C:19:62:E1

Tx/Rx Signal Strength: -59/-60 dBm

Tx/Rx Signal Strength Ch0: -69/-62 dBm

Tx/Rx Signal Strength Ch1:

Tx/Rx Signal Strength Ch2:

Noise Floor: -108 dBm

Signal To Noise: 68 dB

Tx/Rx CCQ: 100/76 %

Overall Tx CCQ:

Distance: 5 km

RouterOS Version: 6.40.4

Last IP: 10.0.0.1

GOAL ACHIEVED

Bandwidth Test (Running)

Test To: 10.0.0.1

Protocol: udp tcp

Local UDP Tx Size: 1500

Remote UDP Tx Size: 1500

Direction: both

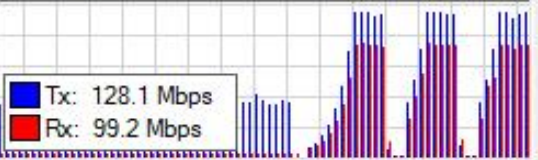
TCP Connection Count: 20

Lost Packets: 877

Tx/Rx Current: 128.1 Mbps/99.2 Mbps

Tx/Rx 10s Average: 84.4 Mbps/65.8 Mbps

Tx/Rx Total Average: 76.5 Mbps/60.0 Mbps



running...

UDP protocol with priority 3

Bandwidth Test (Running)

Test To: 10.0.0.1

Protocol: udp tcp

Local UDP Tx Size: 1500

Remote UDP Tx Size: 1500

Direction: both

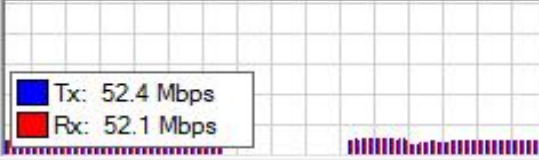
TCP Connection Count: 20

Lost Packets: 0

Tx/Rx Current: 52.4 Mbps/52.1 Mbps

Tx/Rx 10s Average: 49.0 Mbps/49.1 Mbps

Tx/Rx Total Average: 47.5 Mbps/47.1 Mbps



running...

TCP protocol with priority 6

Ping (Running)

General

Ping To: 192.168.15.10

Interface:

ARP Ping

Packet Count:

	Reply Size	TTL	Status
16 192.168.15.10	65000	64	
17 192.168.15.10	65000	64	
18 192.168.15.10	65000	64	
19 192.168.15.10	65000	64	
20 192.168.15.10	65000	64	
21 192.168.15.10	65000	64	
22 192.168.15.10	65000	64	
23 192.168.15.10	65000	64	
24 192.168.15.10	65000	64	
25 192.168.15.10	65000	64	
26 192.168.15.10	65000	64	
27 192.168.15.10	65000	64	
28 192.168.15.10	65000	64	
29 192.168.15.10	65000	64	

30 items 30 of 30 packets received 0% packet loss Min: 5 ms Avg: 5 ms Max: 5 ms

ICMP protocol with priority 7

MIKROTIK OS WIRELESS BRIDGE CONFIGURATION

BRIDGE CONFIGURATION

- First of all make a bridge interface and add ether1 port & wlan1 port on Both Devices one by one

The screenshot illustrates the configuration of a bridge interface in Mikrotik WinBox. The left sidebar shows the 'Interfaces' menu with 'Bridge' selected (1). The main window shows the 'Bridge' configuration page with the 'Ports' tab active (2). A table lists the bridge 'bridge1' (3). An inset window shows the 'Ports' configuration for 'bridge1', where 'ether1' is added as a 'designated port' (6) and 'wlan1' is added as a 'disabled port' (7). The 'Ports' tab is highlighted (4), and the 'Add' icon is circled (5).

Name	Type	L2 MTU	Tx	Rx	Tx Packet (p/s)	Rx Packet (p/s)	FP Tx
R bridge1	Bridge	1598	107.5 kbps	4.5 kbps	10	10	

Interface	Bridge	Priority (h...)	Path Cost	Horizon	Role	Root Pat...
ether1	bridge1	80	10		designated port	
wlan1	bridge1	80	10		disabled port	

AP BRIDGE END CONFIGURATION

The image shows the Mikrotik WinBox configuration interface for an AP Bridge End. The configuration is divided into several sections, with key settings highlighted by red circles and numbered 1 through 16.

Wireless Tables

Name	Type	Actual MTU	Tx	Rx
wlan1	Wireless (Atheros AR9...	1500		
wlan2	Wireless (Atheros AR9...	1500		

Interface <wlan1> - General

- Mode: bridge (4)
- Band: 2GHz-only-N (5)
- Channel Width: 20/40MHz Ce (6)
- Frequency: 2412 (7) MHz
- SSID: MikroTik_LAB (8)
- Scan List: default
- Wireless Protocol: nv2 (9)
- Bridge Mode: enabled (10)

Interface <wlan1> - WDS

- WDS Mode: dynamic (12)
- WDS Default Bridge: bridge1 (13)
- WDS Ignore SSID

Interface <wlan1> - NV2

- TDMA Period Size: 2ms (14)
- Cell Radius: 30 km
- Security
- Preshared Key:
- Mode: dynamic downlink
- Downlink Ratio: 50 %
- Sync Secret:

Queue Settings

- Queue Count: 8 (15)
- QoS: frame priority (16)

Left Sidebar (1)

- Quick Set
- CAPsMAN
- Interfaces (1)
- Wireless
- Bridge
- PPP
- Switch
- Mesh
- IP
- MPLS
- Routing
- System
- Queues
- Files
- Log
- Radius
- Tools
- New Terminal
- MetaROUTER
- Partition
- Make Supout.tif
- Manual
- New WinBox
- Exit

STATION BRIDGE END CONFIGURATION

Quick Set
CAPsMAN
Interfaces **1**
Wireless
Bridge
PPP
Switch
Mesh
IP
MPLS
Routing
System
Queues
Files
Log
Radius
Tools
New Terminal
MetaROUTER
Partition
Make Supout.rf
Manual
New WinBox
Exit

Interface <wlan1> **2**
General **Wireless** HT HT MCS WDS Nstreme NV2 Advanced Status ...
Mode: station bridge **3**
Band: 2GHz-only-N **4**
Channel Width: 20/40MHz Ce **5**
Frequency: 2412 **6** MHz
SSID: MikroTik_LAB **7**
Scan List: default
Wireless Protocol: nv2 **8**
 Default Authenticate

Interface <wlan1>
HT HT MCS **WDS** **9** Nstreme NV2 Advanced Status Status Traffic ...
WDS Mode: dynamic **10**
WDS Default Bridge: bridge1 **11**
 WDS Ignore SSID

Interface <wlan1> **12**
HT HT MCS WDS Nstreme **NV2** Advanced Status Status Traffic ...
 Security
Preshared Key:
There is no Need to change anything

IP ADDRESS TO BRIDGE INTERFACES

This screenshot shows the Mikrotik WinBox interface. On the left sidebar, the 'IP' menu item is highlighted with a red box and labeled '1'. In the main menu, the 'Addresses' option is highlighted with a red box and labeled '2'. A red box labeled '3' highlights the '+' icon in the 'Address List' window's toolbar. A red box labeled '4' highlights the first entry in the table: '10.0.0.1/24' under the 'Address' column, '10.0.0.0' under the 'Network' column, and 'bridge1' under the 'Interface' column. A green callout box at the bottom contains the text: 'AP bridge End IP address 10.0.0.1/24'.

Address	Network	Interface
10.0.0.1/24	10.0.0.0	bridge1

This screenshot shows the Mikrotik WinBox interface. On the left sidebar, the 'IP' menu item is highlighted with a red box and labeled '1'. In the main menu, the 'Addresses' option is highlighted with a red box and labeled '2'. A red box labeled '3' highlights the '+' icon in the 'Address List' window's toolbar. A red box labeled '4' highlights the first entry in the table: '10.0.0.2/24' under the 'Address' column, '10.0.0.0' under the 'Network' column, and 'bridge1' under the 'Interface' column. A green callout box at the bottom contains the text: 'Station bridge End IP address 10.0.0.2/24'.

Address	Network	Interface
10.0.0.2/24	10.0.0.0	bridge1

METHOD 1

**FRAME PRIORITY WITH
LAYER 2.**

IN BRIDGE FILTERS

UDP FRAME PRIORITY

The image shows the Mikrotik WinBox interface with several components highlighted by red circles and numbers 1 through 14:

- 1**: Bridge menu in the left sidebar.
- 2**: Filters tab in the Bridge configuration window.
- 3**: Plus icon for adding a new filter rule.
- 4**: Hosts tab in the Bridge configuration window.
- 5**: Chain dropdown menu set to 'forward'.
- 6**: MAC Protocol section expanded.
- 7**: MAC Protocol-Num dropdown menu set to '800 (ip)'.
- 8**: IP section expanded.
- 9**: Protocol dropdown menu set to '17 (udp)'.
- 10**: Action tab in the Bridge Filter Rule configuration window.
- 11**: Action dropdown menu set to 'set priority'.
- 12**: New Priority dropdown menu set to '3'.
- 13**: Passthrough checkbox checked.
- 14**: OK button to save the configuration.

The Bridge configuration window shows a table with one rule:

#	Action	Chain	Interfaces...
0	✓ set ...	forward	

The Bridge Filter Rule configuration window shows the following settings:

- Chain: forward
- MAC Protocol-Num: 800 (ip)
- IP: 17 (udp)
- Action: set priority
- New Priority: 3
- Passthrough: checked

TCP FRAME PRIORITY

The image shows the Mikrotik WinBox interface with several components highlighted by red circles and numbers:

- 1**: Bridge menu item in the left sidebar.
- 2**: Bridge Filters tab in the Bridge configuration window.
- 3**: Plus icon for adding a new filter rule.
- 4**: General tab of the Bridge Filter Rule dialog.
- 5**: Chain dropdown menu set to 'forward'.
- 6**: MAC Protocol dropdown menu.
- 7**: MAC Protocol-Num field set to '800 (ip)'.
- 8**: IP protocol dropdown menu.
- 9**: Protocol dropdown menu set to '6 (tcp)'.
- 10**: Action tab of the Bridge Filter Rule dialog.
- 11**: Action dropdown menu set to 'set priority'.
- 12**: New Priority field set to '6'.
- 13**: Passthrough checkbox checked.
- 14**: OK button.

The Bridge Filters table shows two rules:

#	Action	Chain	Interfaces
0	✓ set ...	forward	
1	✓ set ...	forward	

The Bridge Filter Rule configuration is as follows:

- Chain: forward
- MAC Protocol: 800 (ip)
- IP: 6 (tcp)
- Protocol: 6 (tcp)
- Action: set priority
- New Priority: 6
- Passthrough: checked

ICMP (PING) FRAME PRIORITY

The image shows the Mikrotik WinBox interface with several components highlighted by red circles and numbers 1 through 14:

- 1**: Bridge menu item in the left sidebar.
- 2**: Bridge Filters tab in the Bridge configuration window.
- 3**: Plus icon for adding a new filter rule.
- 4**: General tab of the Bridge Filter Rule dialog.
- 5**: Chain dropdown menu set to 'forward'.
- 6**: MAC Protocol dropdown menu.
- 7**: MAC Protocol Num input field set to '800 (ip)'.
- 8**: IP dropdown menu.
- 9**: Protocol dropdown menu set to '1 (icmp)'.
- 10**: Action tab of the Bridge Filter Rule dialog.
- 11**: Action dropdown menu set to 'set priority'.
- 12**: New Priority input field set to '7'.
- 13**: Passthrough checkbox, which is checked.
- 14**: OK button.

The Bridge configuration window shows a table with 3 items, 1 selected:

#	Action	Chain	Interfaces..
0	✓ set ...	forward	
1	✓ set ...	forward	
2	✓ set ...	forward	

The Bridge Filter Rule dialog is currently set to 'enabled'.

LOG SETTING TO CONFIRM ICMP PRIORITY IN BRIDGE FILTER RULE

The image shows the Mikrotik WinBox interface with several components highlighted by red circles and numbers:

- 1**: Bridge menu in the left sidebar.
- 2**: Bridge configuration window, Filters tab.
- 3**: Add button (+) in the Bridge Filters table.
- 4**: Filters tab in the Bridge configuration window.
- 5**: Chain dropdown menu set to 'forward'.
- 6**: MAC Protocol dropdown menu.
- 7**: MAC Protocol-Num input field set to '800 (ip)'.
- 8**: IP protocol dropdown menu.
- 9**: Protocol input field set to '1 (icmp)'.
- 10**: Action tab in the Bridge Filter Rule configuration window.
- 11**: Action dropdown menu set to 'log'.
- 12**: OK button in the Bridge Filter Rule configuration window.

The Bridge Filters table shows the following configuration:

#	Action	Chain	Interfaces..
0	✓ set ...	forward	
1	✓ set ...	forward	
2	✓ set ...	forward	
3	log	forward	

The Bridge Filter Rule configuration (General tab) shows:

- Chain: forward
- MAC Protocol: 800 (ip)
- IP: 1 (icmp)
- Protocol: 1 (icmp)

The Bridge Filter Rule configuration (Action tab) shows:

- Action: log
- Log:
- Log Prefix: [empty]

LOGS

- Interfaces
- Wireless
- Bridge
- PPP
- Switch
- Mesh
- IP
- MPLS
- Routing
- System
- Queues
- Files
- Log
- Radius
- Tools
- New Terminal
- MetaROUTER

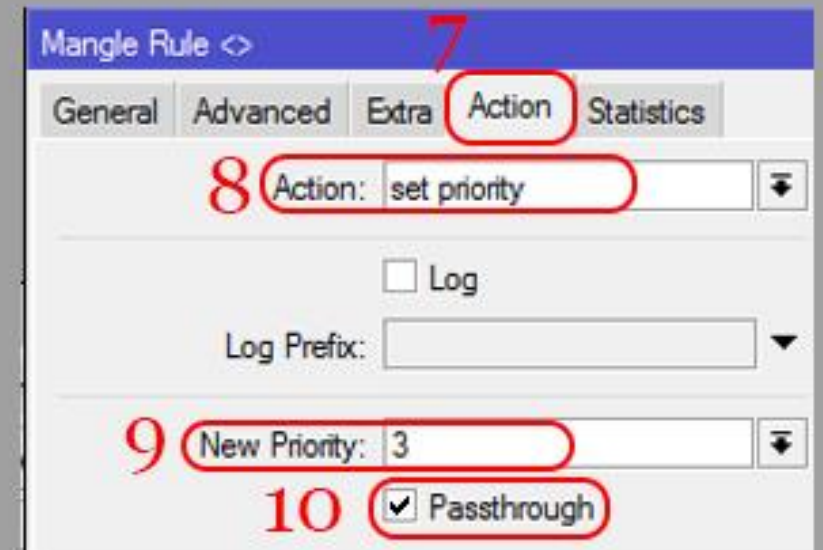
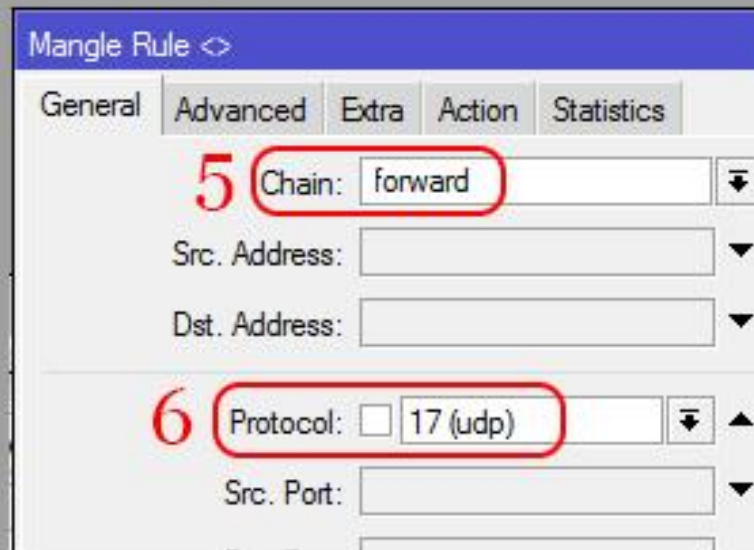
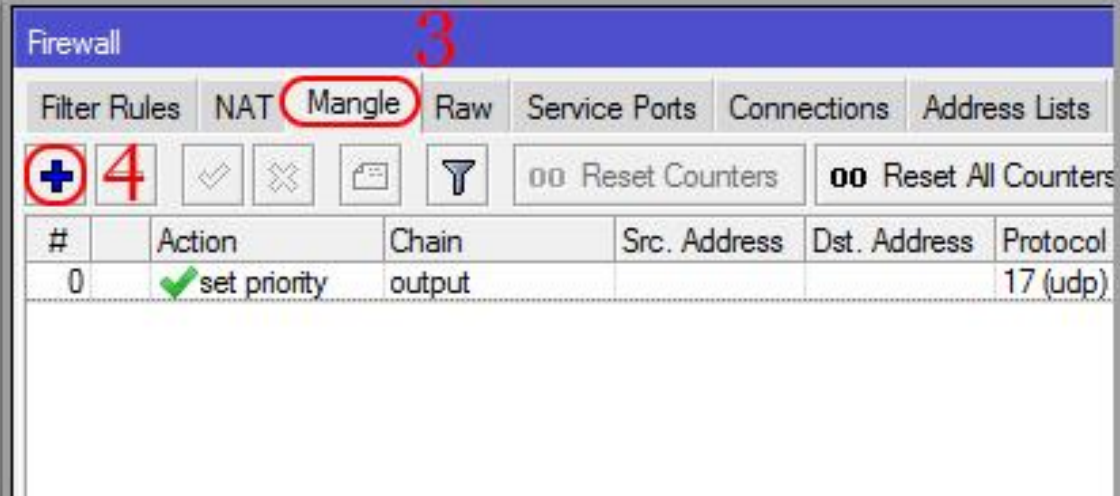
Log			
Freeze		all	
Jan/02/1970 00:00:21	memory	system, error, critical	router was rebooted without proper shutdown
Jan/02/1970 00:00:32	memory	poe-out, info	ether5 detected poe-out status: on
Jan/02/1970 00:00:35	memory	interface, info	ether5 link up (speed 100M, full duplex)
Jan/02/1970 00:00:50	memory	interface, info	ether5 link down
Jan/02/1970 00:00:53	memory	wireless, info	6C:3B:6B:05:C4:23@wlan1: connected
Jan/02/1970 00:01:00	memory	interface, info	ether5 link up (speed 100M, full duplex)
Jan/02/1970 14:02:06	memory	interface, info	ether3 link up (speed 100M, full duplex)
Jan/02/1970 14:03:05	memory	system, info, account	user admin logged in from B8:2A:72:BF:5E:A5 via winbox

METHOD 2

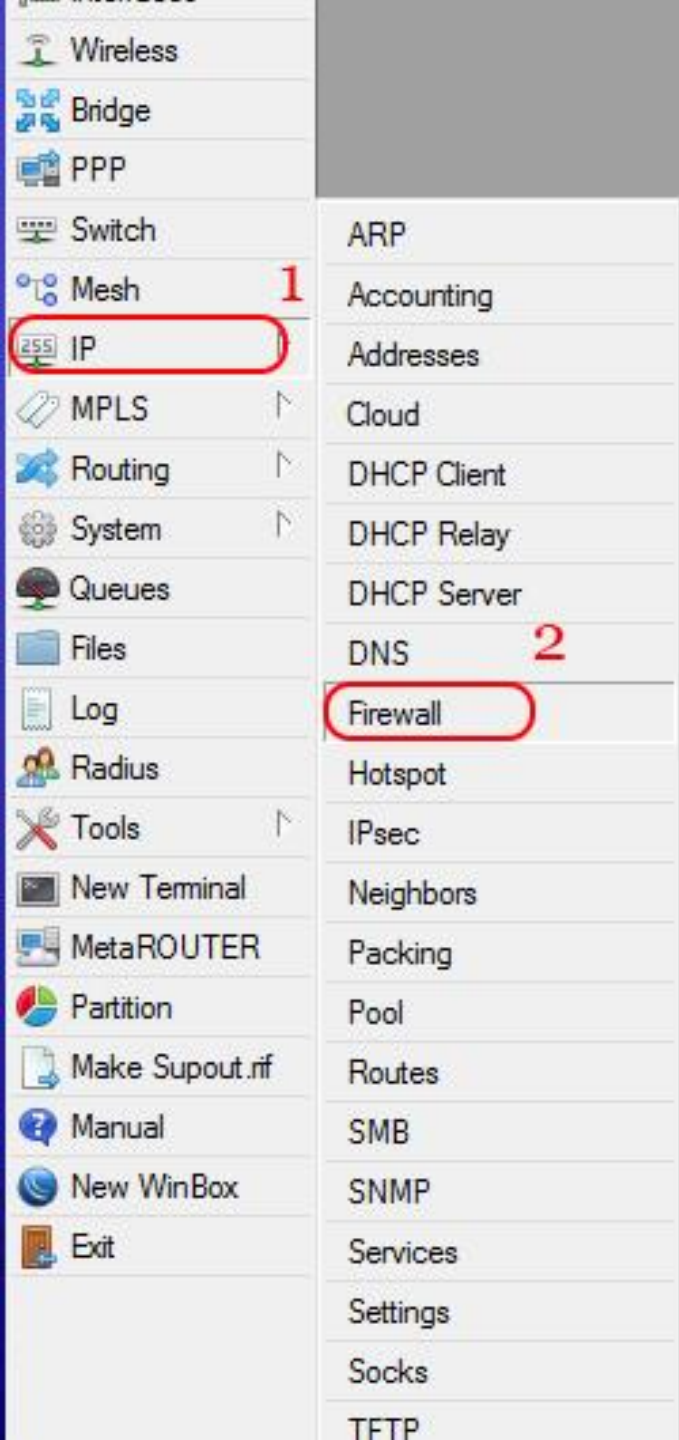
**FRAME PRIORITY WITH
LAYER 3**

IN IP FIREWALL MANGLE

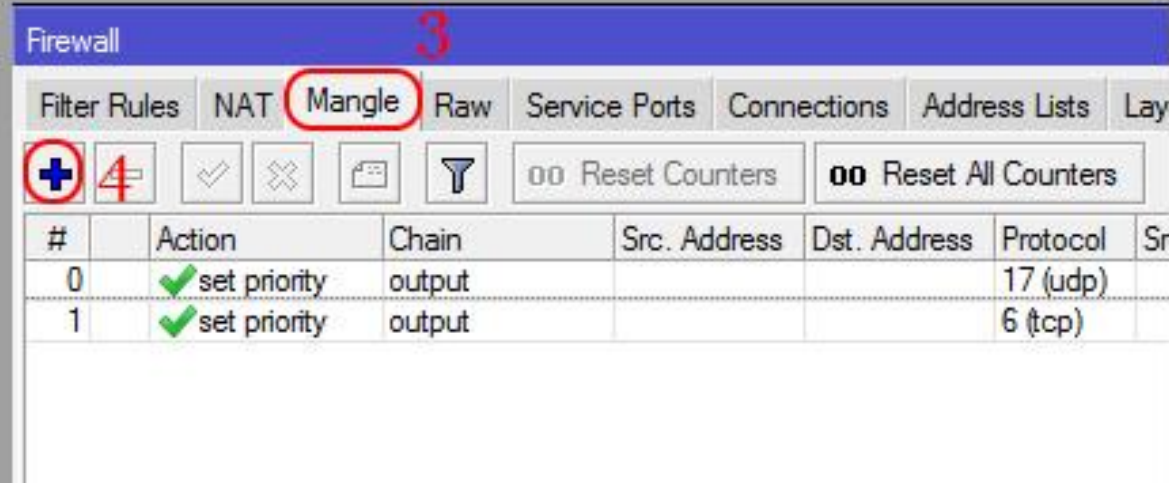
UDP FRAME PRIORITY



TCP FRAME PRIORITY

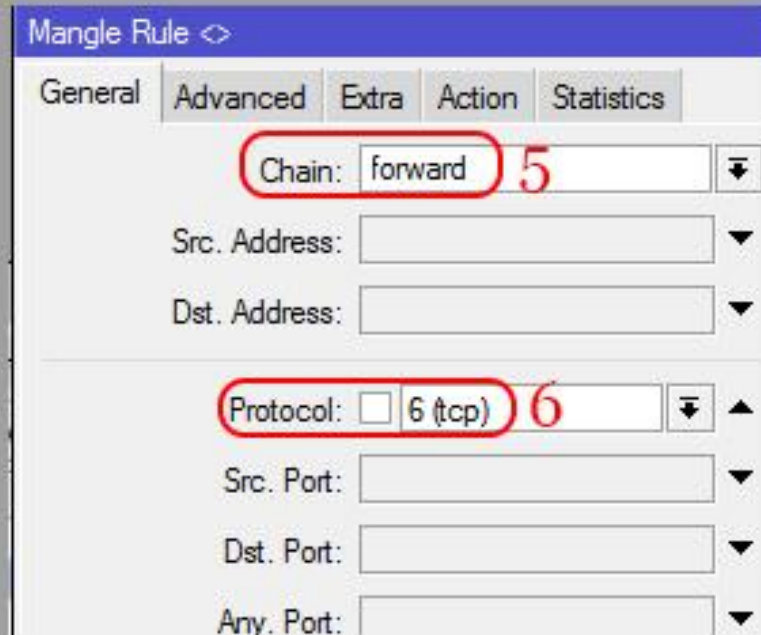


Screenshot of the Mikrotik WinBox menu showing the navigation path: IP (1) > Firewall (2) > Mangle (3).

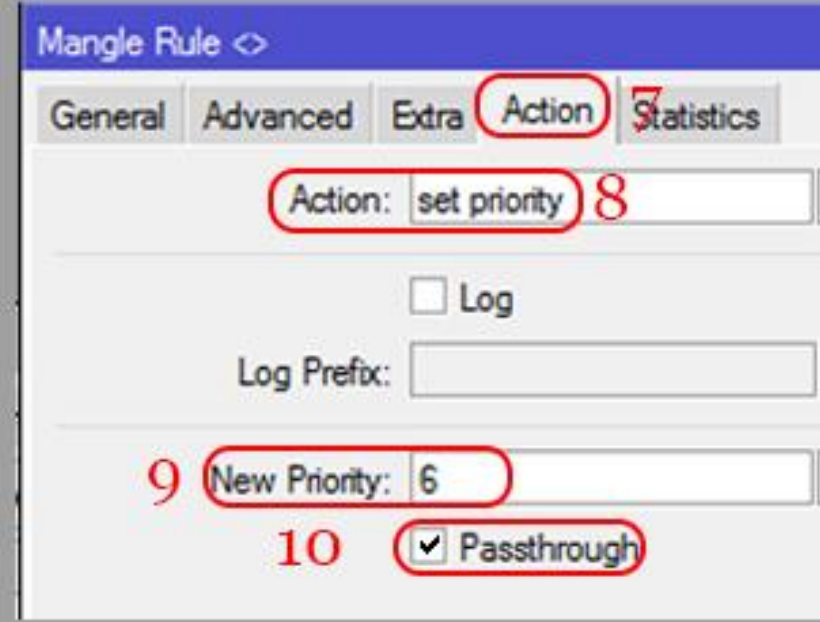


Screenshot of the Mikrotik WinBox Firewall Mangle tab. The 'Mangle' tab is selected (3). A '+' icon (4) is used to add a rule. The table below shows the configured rules:

#	Action	Chain	Src. Address	Dst. Address	Protocol	Sr
0	✓ set priority	output			17 (udp)	
1	✓ set priority	output			6 (tcp)	

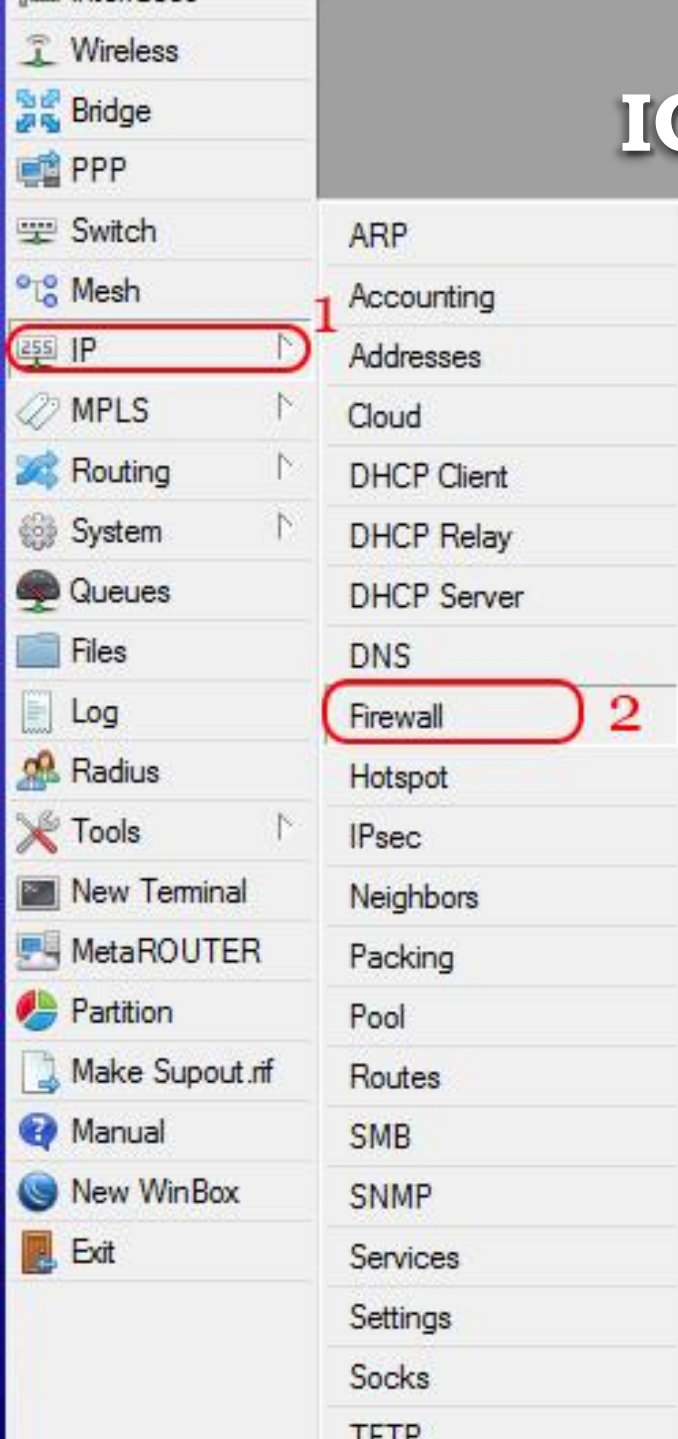


Screenshot of the Mikrotik WinBox Mangle Rule General tab. The 'Chain' is set to 'forward' (5). The 'Protocol' is set to '6 (tcp)' (6).



Screenshot of the Mikrotik WinBox Mangle Rule Action tab. The 'Action' is set to 'set priority' (8). The 'New Priority' is set to '6' (9). The 'Passthrough' checkbox is checked (10).

ICMP (PING) FRAME PRIORITY



Wireless
Bridge
PPP
Switch
Mesh
IP
MPLS
Routing
System
Queues
Files
Log
Radius
Tools
New Terminal
MetaROUTER
Partition
Make Supout.rif
Manual
New WinBox
Exit

ARP
Accounting
Addresses
Cloud
DHCP Client
DHCP Relay
DHCP Server
DNS
Firewall
Hotspot
IPsec
Neighbors
Packing
Pool
Routes
SMB
SNMP
Services
Settings
Socks
TFTP

Firewall

Filter Rules NAT Mangle Raw Service Ports Connections Address Lists La

+ 4 [check] [X] [file] [funnel] 00 Reset Counters 00 Reset All Counters

#	Action	Chain	Src. Address	Dst. Address	Protocol	S
0	✓ set priority	output			17 (udp)	
1	✓ set priority	output			6 (tcp)	
2	✓ set priority	output			1 (icmp)	

Mangle Rule <>

General Advanced Extra Action Statistics

5 Chain: forward

Src. Address: []

Dst. Address: []

6 Protocol: 1 (icmp)

Src. Port: []

Mangle Rule <>

General Advanced Extra Action Statistics

8 Action: set priority

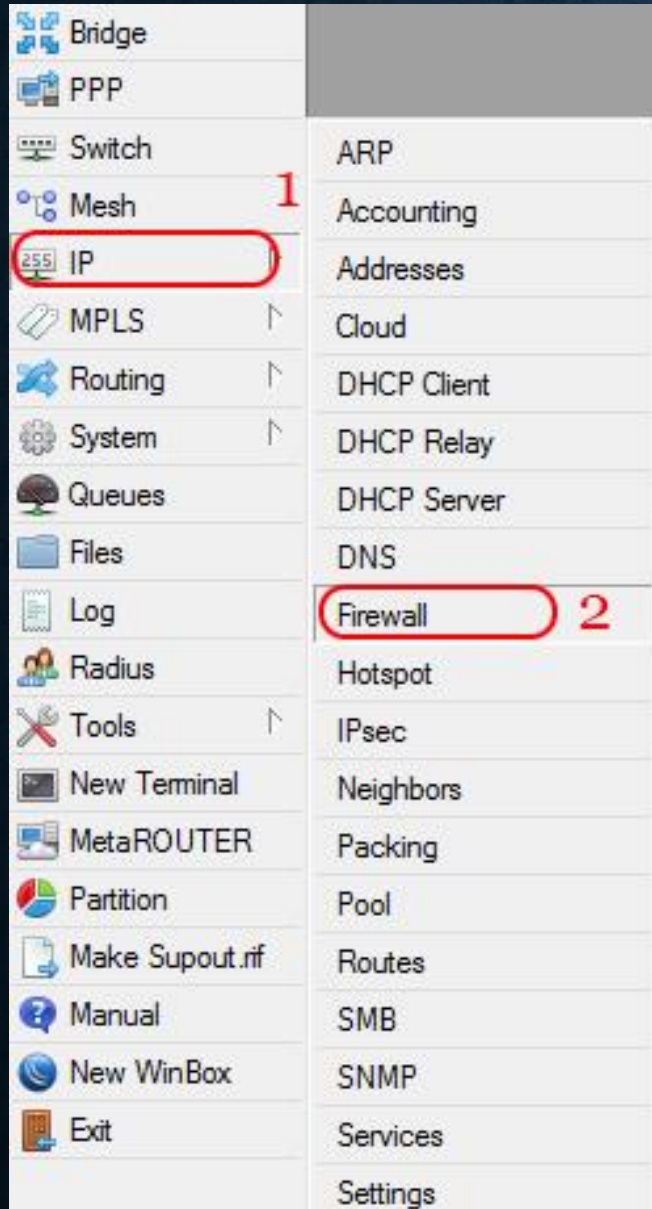
Log

Log Prefix: []

9 New Priority: 7

10 Passthrough

LOG SETTING TO CONFIRM ICMP PRIORITY IP FIREWALL FILTER

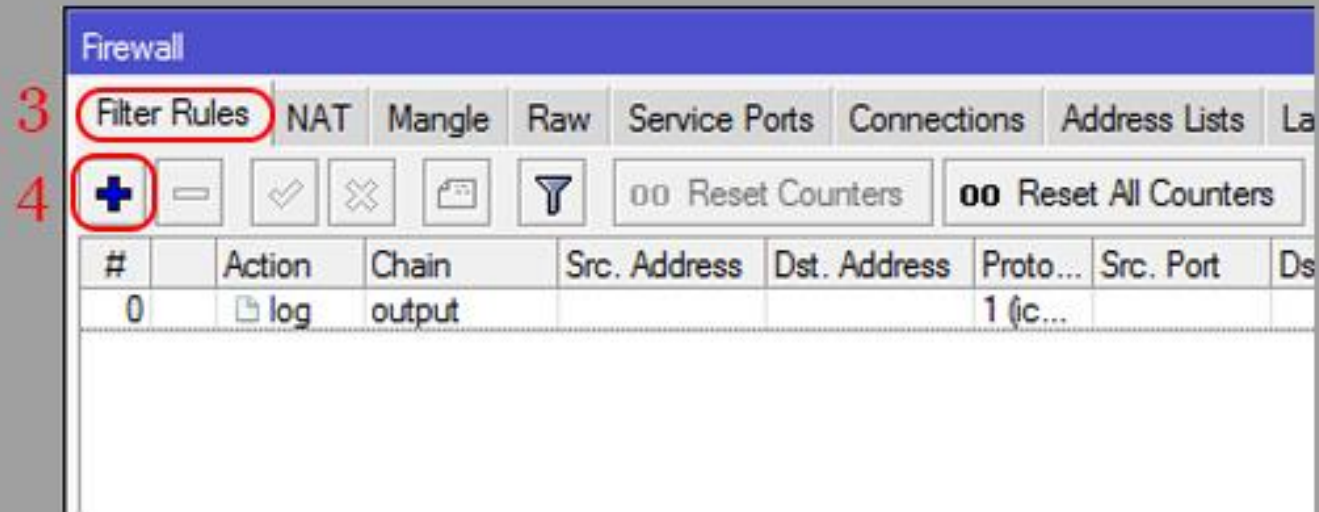


Navigation menu showing the path to Firewall settings:

- Bridge
- PPP
- Switch
- Mesh
- IP** (1)
- MPLS
- Routing
- System
- Queues
- Files
- Log
- Radius
- Tools
- New Terminal
- MetaROUTER
- Partition
- Make Supout.nf
- Manual
- New WinBox
- Exit

Sub-menu under IP:

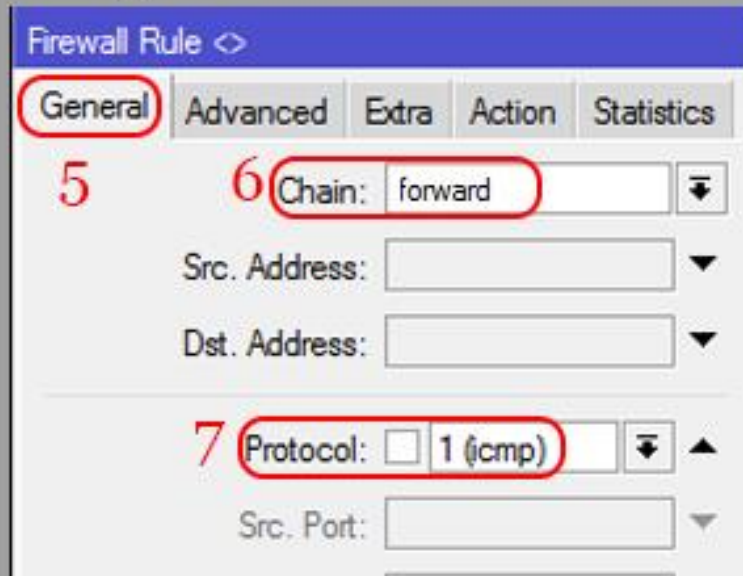
- ARP
- Accounting
- Addresses
- Cloud
- DHCP Client
- DHCP Relay
- DHCP Server
- DNS
- Firewall** (2)
- Hotspot
- IPsec
- Neighbors
- Packing
- Pool
- Routes
- SMB
- SNMP
- Services
- Settings



Firewall Filter Rules configuration window:

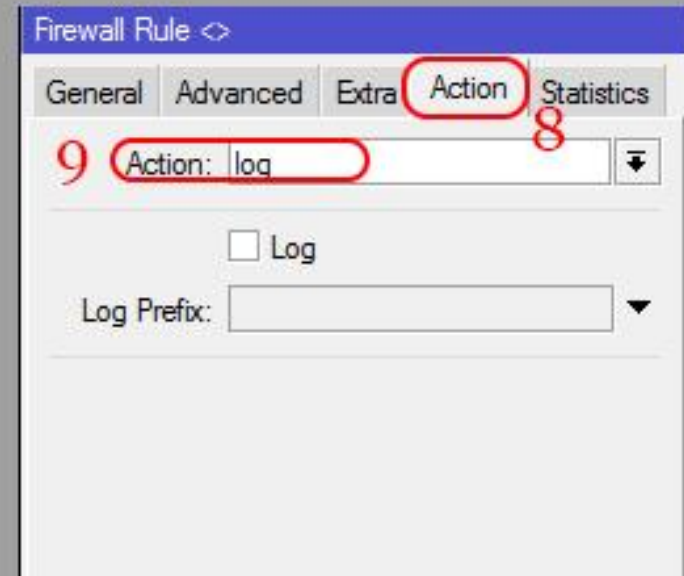
- 3 Filter Rules (tab)
- 4 + (Add button)
- Table with 1 rule:

#	Action	Chain	Src. Address	Dst. Address	Proto...	Src. Port	Ds
0	log	output			1 (ic...		



Firewall Rule configuration - General tab:

- 5 General (tab)
- 6 Chain: forward
- 7 Protocol: 1 (icmp)



Firewall Rule configuration - Action tab:

- 8 Action (tab)
- 9 Action: log
- Log checkbox (unchecked)
- Log Prefix: [empty]

USE OF FIREWALL IN BRIDGE

The screenshot displays the MikroTik WinBox interface. On the left sidebar, the 'Bridge' menu item is highlighted with a red circle. The main window shows the configuration for a bridge named 'bridge1'. The 'Bridge' tab is selected, and the 'Settings' button is also circled in red. A 'Bridge Settings' dialog box is open, showing the following options:

- Use IP Firewall (circled in red)
- Use IP Firewall For VLAN
- Use IP Firewall For PPPoE
- Allow Fast Path
- Bridge Fast Path Active

Below these options, there are two input fields:

- Bridge Fast Path Packets: 0
- Bridge Fast Path Bytes: 0 B

The 'OK' button in the dialog box is also circled in red. The background table shows the bridge configuration:

Name	Type	L2 MTU	Tx	Rx	Tx Packet (p/s)	Rx Packet (p/s)
bridge1	Bridge	1598	0 bps	0 bps	0	0

At the bottom of the interface, it indicates '1 item out of 8'.

LOGS

- Interfaces
- Wireless
- Bridge
- PPP
- Switch
- Mesh
- IP
- MPLS
- Routing
- System
- Queues
- Files
- Log**
- Radius
- Tools
- New Terminal
- MetaROUTER

Log			
Freeze		all	
Jan/02/1970 00:00:21	memory	system, error, critical	router was rebooted without proper shutdown
Jan/02/1970 00:00:32	memory	poe-out, info	ether5 detected poe-out status: on
Jan/02/1970 00:00:35	memory	interface, info	ether5 link up (speed 100M, full duplex)
Jan/02/1970 00:00:50	memory	interface, info	ether5 link down
Jan/02/1970 00:00:53	memory	wireless, info	6C:3B:6B:05:C4:23@wlan1: connected
Jan/02/1970 00:01:00	memory	interface, info	ether5 link up (speed 100M, full duplex)
Jan/02/1970 14:02:06	memory	interface, info	ether3 link up (speed 100M, full duplex)
Jan/02/1970 14:03:05	memory	system, info, account	user admin logged in from B8:2A:72:BF:5E:A5 via winbox

CONCLUSION

MikroTik OS Base Wireless Bridge is more reliable, Stronger & Faster than all existing Wireless PTP Bridge Link in Congested Environment as I`ve Tested

THANK YOU

**ANY QUESTION
PLEASE**