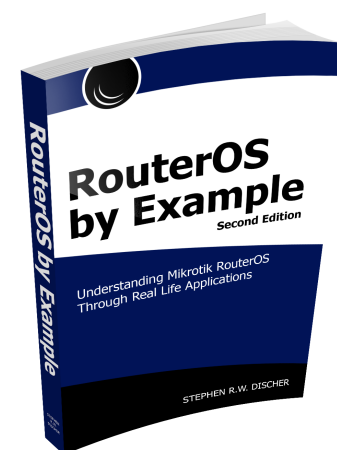


About Me

- Steve Discher, from College Station, Texas, USA
- MikroTik Certified Trainer since 2008 and teach RouterOS classes, LearnMikroTik.com, ISPSupplies.com, and blog at SteveDischer.com
- mikrotikconfig.com, Firewall, QOS, Load Balance and Country IP Block address list generator now updated daily
- Author of RouterOS by Example, 1st and 2nd Editions from ISPSupplies.com and Amazon.
- Thanks Ty Bermea!



Congratulations to 24 Students Completed MTCNA Class This Week



13 Past US MUMs

2007 Orlando

2013 St Louis

2008 Chicago

2014 Pittsburg

2009 Dallas

2015 Miami

2010 Phoenix

2016 Dallas

2011 Las Vegas

2017 Denver

2012 New Orleans

2018 Baltimore

2019 Austin

Top Ten RouterOS HowTo Questions

What & How

What: What are the top ten Google Key word search terms including “MikroTik How to”?

How: Use an SEO tool which displays search suggestions based on volume for the base key phrase “mikrotik how to”

Top Ten Search Phrases

1. mikrotik how to port forward
2. mikrotik how to backup config
3. mikrotik how to install package
4. mikrotik how to export config
5. mikrotik how to reset
6. mikrotik how to block youtube
7. mikrotik how to upgrade
8. mikrotik how to block mac address
9. mikrotik how to upgrade firmware
10. mikrotik how to set up a wireless bridge

Your Brain Is Safe!



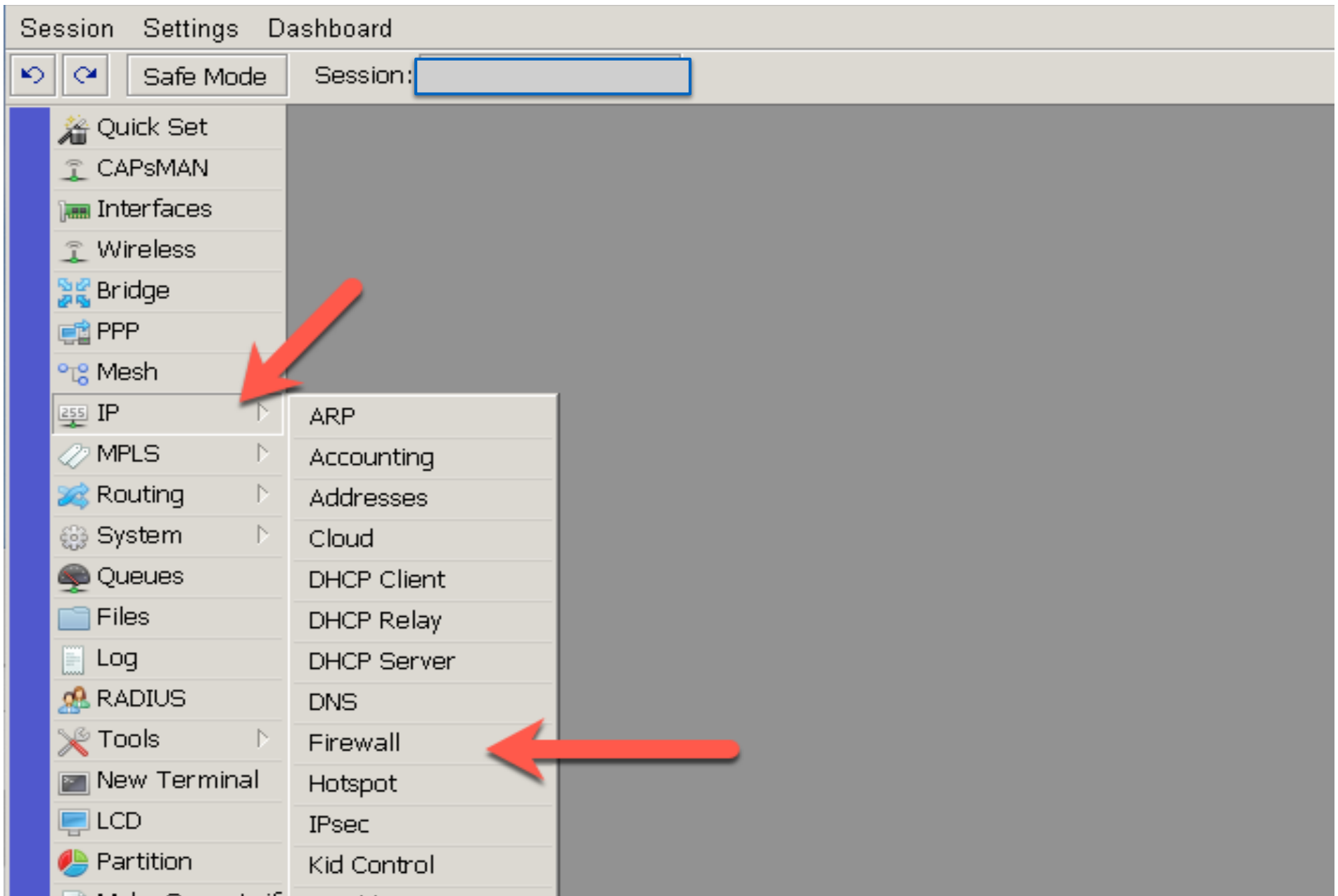
- Greg Sowell
- Kevin Myers
- Thomas Kirnak
- The Brothers WISP
- many more

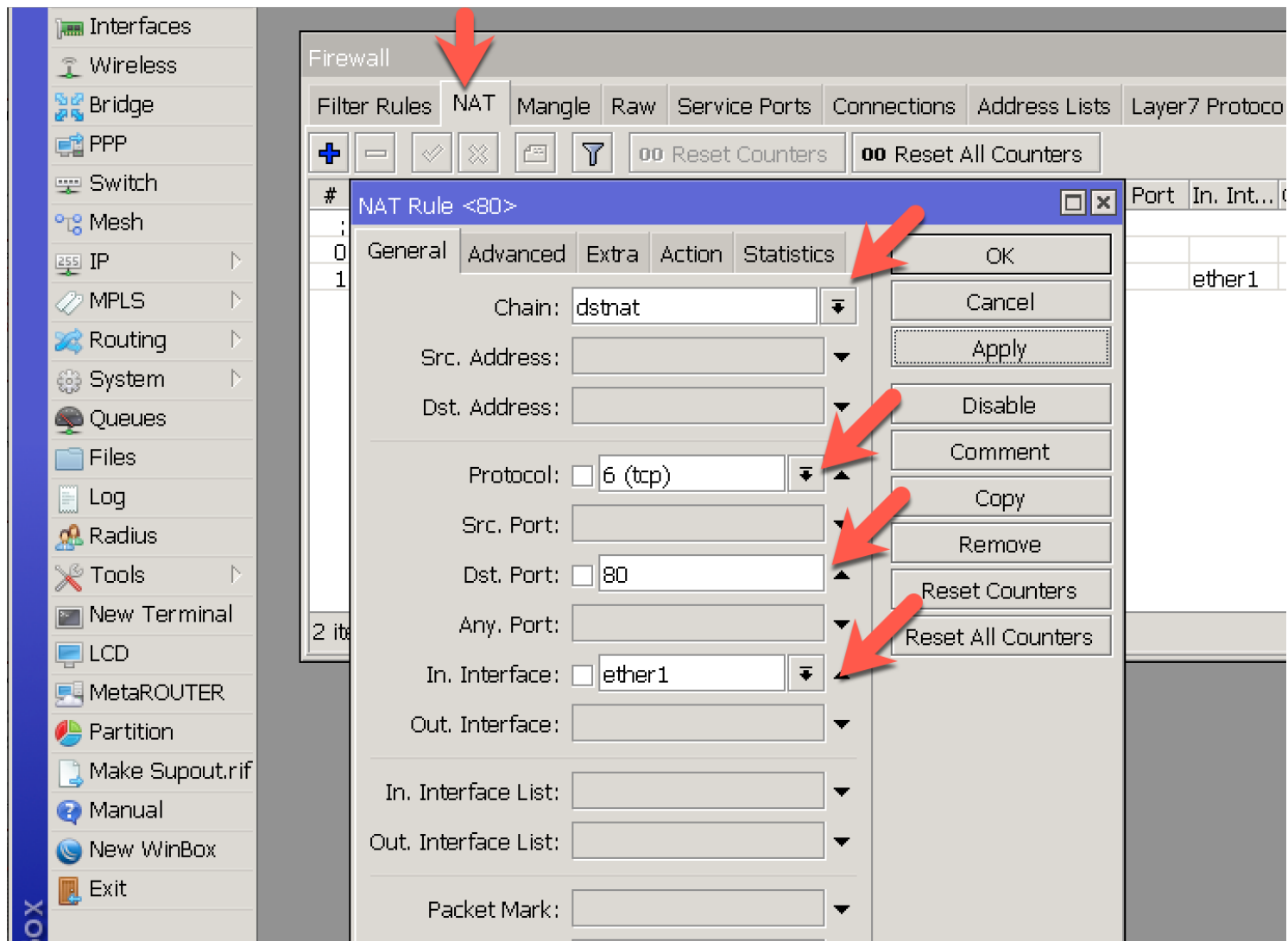
Walk through each of
these processes

I. How to Port Forward

Port Forwarding

- Port forwarding is really “destination NAT”
- Used to allow public access to private resources
- Example: public access to a private web server, IP camera DVR's, etc.





Session Settings Dashboard

Safe Mode Session:

Firewall

Filter Rules NAT Mangle Raw Service Ports Connections Address Lists Layer7 Protocols

+ - ✓ ✗ [icon] [icon] 00 Reset Counters 00 Reset All Counters

NAT Rule <80>

General Advanced Extra Action Statistics

Connection Limit

Limit

Dst. Limit

Nth

Time

Src. Address Type

Dst. Address Type

Address Type: local

Invert

PSD

Hotspot

IP Fragment

OK

Cancel

Apply

Disable

Comment

Copy

Remove

Reset Counters

Reset All Counters

Session Settings Dashboard

Safe Mode Session:

Firewall

Filter Rules NAT Mangle Raw Service Ports Connections Address Lists Layer7 Protocol

+ - ✓ ✗ [Filter Icon] [Reset Counters] [Reset All Counters]

#	Action	Chain	Src. Address	Dst. Address
1	dst-nat	input	192.168.1.2	192.168.1.2
2	dst-nat	input	192.168.1.2	192.168.1.2
3	dst-nat	input	192.168.1.2	192.168.1.2
4	dst-nat	input	192.168.1.2	192.168.1.2
5	dst-nat	input	192.168.1.2	192.168.1.2
6	dst-nat	input	192.168.1.2	192.168.1.2
7	dst-nat	input	192.168.1.2	192.168.1.2
8	dst-nat	input	192.168.1.2	192.168.1.2
9	dst-nat	input	192.168.1.2	192.168.1.2
10	dst-nat	input	192.168.1.2	192.168.1.2

NAT Rule <1.2.3.4:80>

General Advanced Extra Action Statistics

Action:

Log

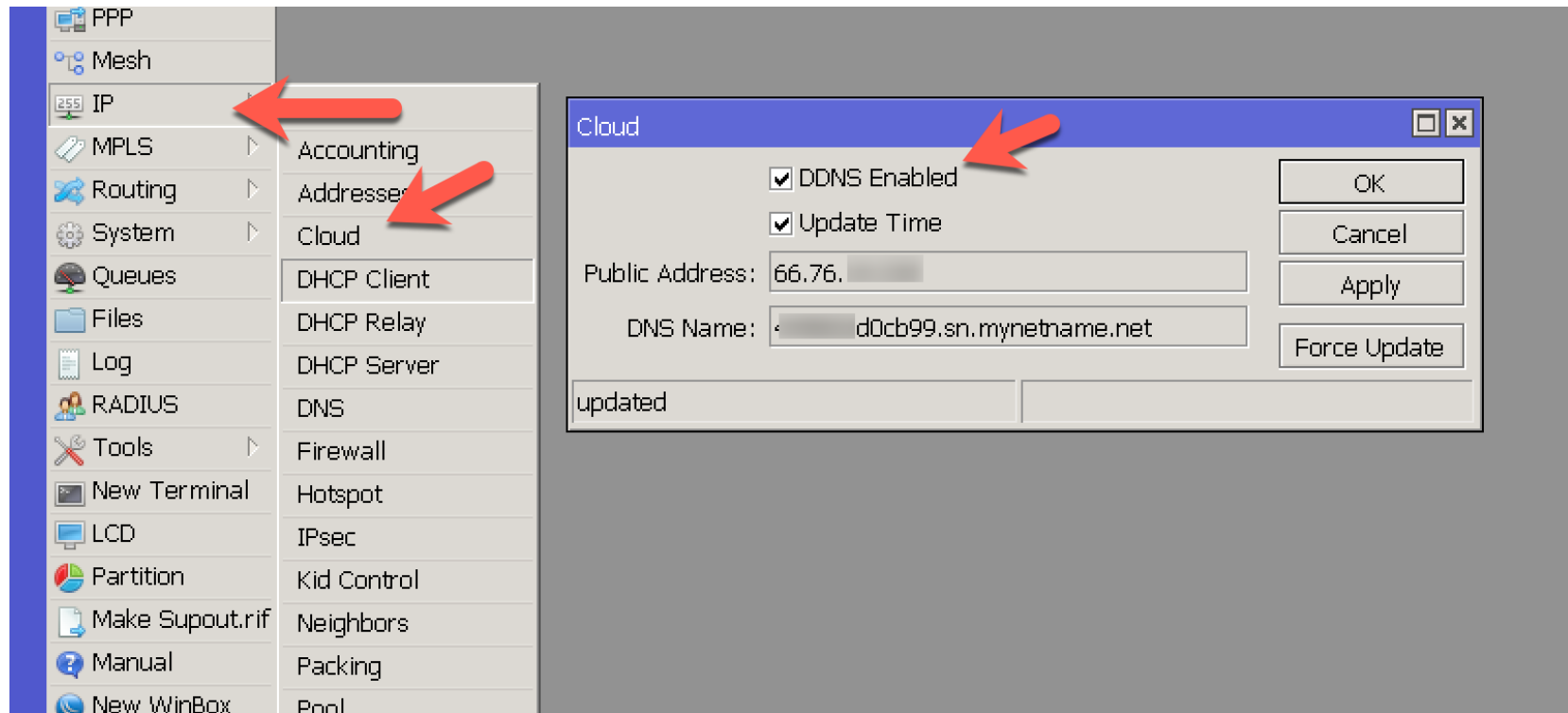
Log Prefix:

To Addresses:

To Ports:

OK
Cancel
Apply
Disable
Comment
Copy
Remove
Reset Counters
Reset All Counters

IP Cloud - Dynamic DNS



Make it even easier by publishing a CNAME

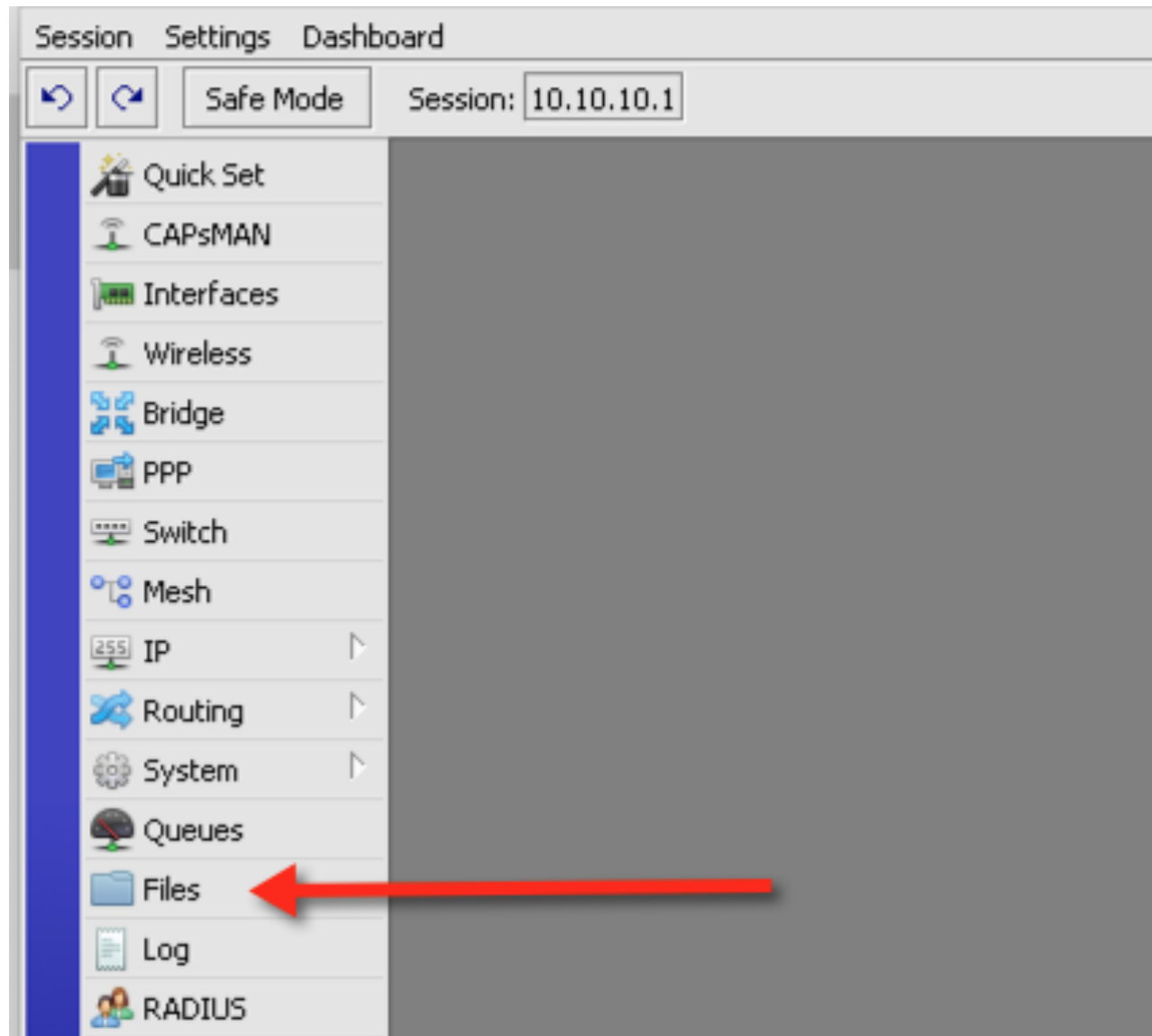
2. How to Backup a Config

How to Backup a Config

- How can I create a snapshot of my router and restore it later?
- How can I clone my router from one device to another, full or partial?

Making backups and storing them
on your router is not a backup
strategy!

Option I - System Backup (Snapshot)



- Quick Set
- CAPsMAN
- Interfaces
- Wireless
- Bridge
- PPP
- Switch
- Mesh
- IP
- Routing
- System
- Queues

File List

Backup Restore Upload...

File Name	Type	Size	Cr
disk1	disk		
disk1/US-subnets.rsc	script	3490.4 KiB	
disk1/USA-IP-Aggrigated.rsc	script	800.3 KiB	
disk1/dude.db	.db file	4192.0 KiB	
disk1/dude.db-shm	.db-shm file	32.0 KiB	
disk1/dude.db-wal	.db-wal file	5.6 MiB	
disk1/files	directory		
disk1/files/default	disk		
disk1/files/default/Vera.ttf	.ttf file	64.4 KiB	
disk1/files/default/VeraMono.ttf	.ttf file	48.1 KiB	
disk1/files/default/certificate.p...	.pem file	3406 B	
disk1/files/default/done.wav	.wav file	9.8 KiB	
disk1/files/default/images	directory		

ir/13/2016 05:56:28

ir/13/

ir/13/

ir/13/

ir/13/

ir/13/

ir/13/

ir/13/

ir/13/

ir/13/

ir/13/2016 05:56:28

Backup

Name:

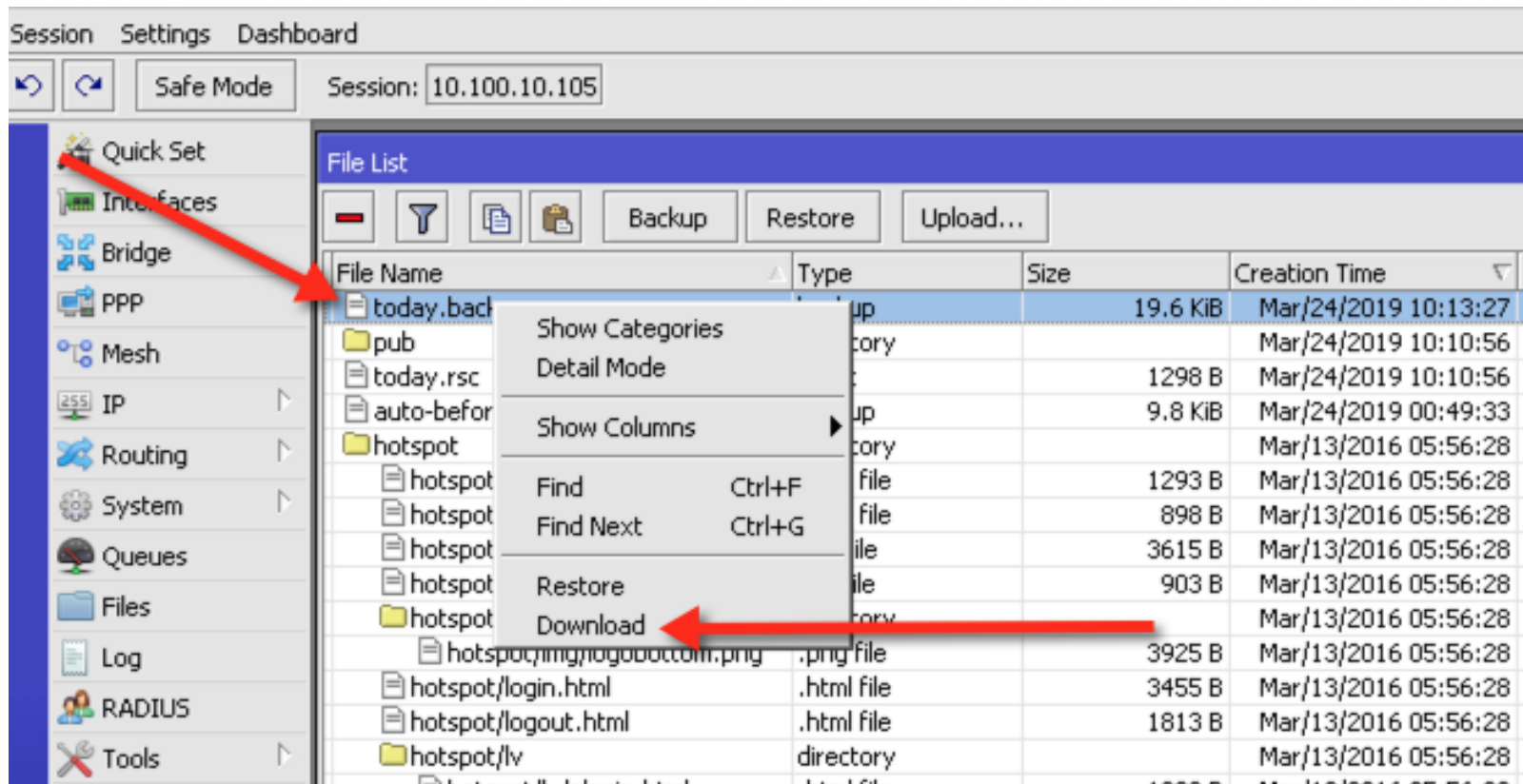
Password:

Encryption:

Don't Encrypt

Backup

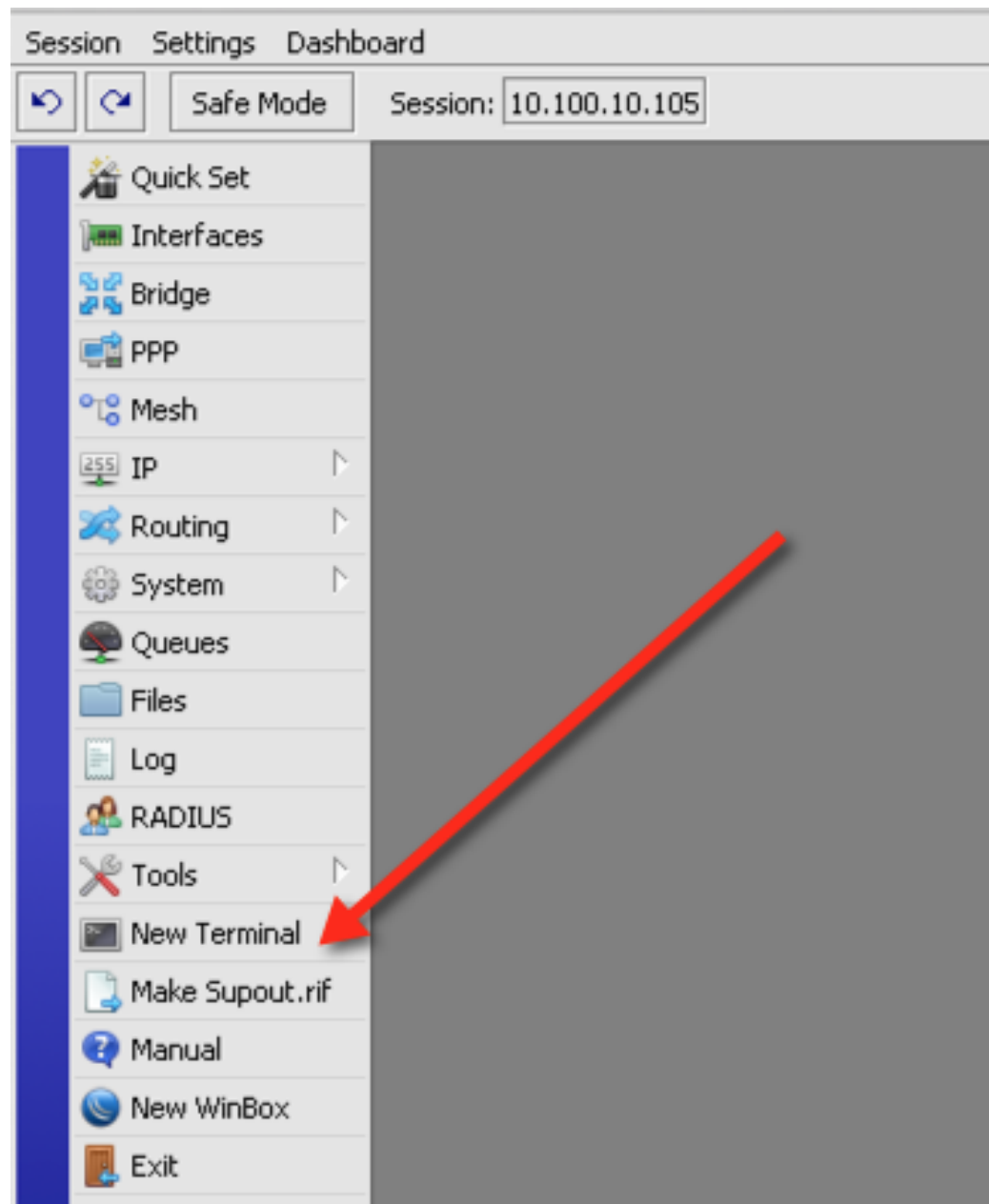
Cancel



- Best for saving a router state at a point in time such as before a major configuration change
- Not good for cloning

Option 2 - Backup Using an Export

(portable, for cloning)



Session Settings Dashboard

Safe Mode Session: 10.100.10.105

- Quick Set
- Interfaces
- Bridge
- PPP
- Mesh
- IP
- Routing
- System
- Queues
- Files
- Log
- RADIUS
- Tools
- New Terminal
- Make Supout.rif
- Manual
- New WinBox
- Exit

Terminal

```

MMM      MMM      KKK      TTTTTTTTTTT      KKK
MMMM     MMMM     KKK      TTTTTTTTTTT      KKK
MMM MMMM MMM III KKK KKK RRRRRR 000000 TTT III KKK KKK
MMM MM  MMM III KKKKK RRR RRR 000 000 TTT III KKKKK
MMM     MMM III KKK KKK RRRRRR 000 000 TTT III KKK KKK
MMM     MMM III KKK KKK RRR RRR 000000 TTT III KKK KKK

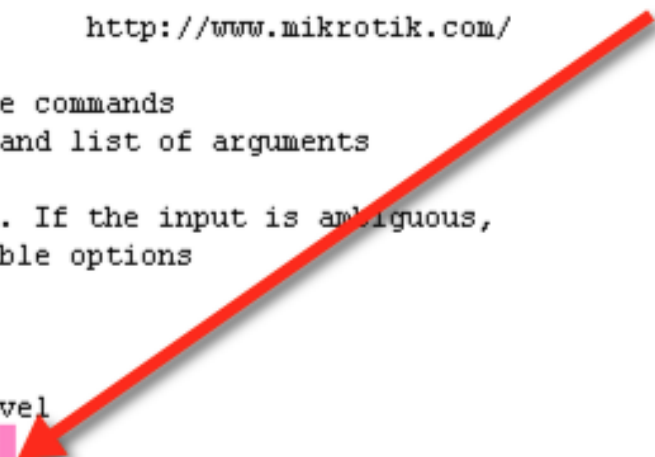
MikroTik RouterOS 6.44.1 (c) 1999-2019 http://www.mikrotik.com/

[?] Gives the list of available commands
command [?] Gives help on the command and list of arguments

[Tab] Completes the command/word. If the input is ambiguous,
a second [Tab] gives possible options

/ Move up to base level
.. Move up one level
/command Use command at the base level
[bermeajt@Virtual] > export file=today.rsc

```



Session Settings Dashboard

Safe Mode Session: 10.100.10.105

File List

Backup Restore Upload...

File Name	Type	Size	Creation Time
pub	directory		Mar/24/2019 10:10:56
today.rsc	sprint	1298 B	Mar/24/2019 10:10:56
auto-before	file	9.8 KiB	Mar/24/2019 00:49:33
hotspot	directory		Mar/13/2016 05:56:28
hotspot/	file	1293 B	Mar/13/2016 05:56:28
hotspot/	file	898 B	Mar/13/2016 05:56:28
hotspot/	file	3615 B	Mar/13/2016 05:56:28
hotspot/	file	903 B	Mar/13/2016 05:56:28
hotspot/	directory		Mar/13/2016 05:56:28
hotspot/	file	3925 B	Mar/13/2016 05:56:28
hotspot/	file	3455 B	Mar/13/2016 05:56:28
hotspot/	file	1813 B	Mar/13/2016 05:56:28
hotspot/lv	directory		Mar/13/2016 05:56:28
hotspot/lv/login.html	.html file	1303 B	Mar/13/2016 05:56:28
hotspot/lv/errors.txt	.txt file	3810 B	Mar/13/2016 05:56:28
hotspot/lv/logout.html	.html file	3408 B	Mar/13/2016 05:56:28
hotspot/lv/logout.html	.html file	1843 B	Mar/13/2016 05:56:28

Navigation menu items: Quick Set, Interfaces, Bridge, PPP, Mesh, IP, Routing, System, Queues, Files, Log, RADIUS, Tools, New Terminal, Make Supout.rif

Context menu items: Show Categories, Detail Mode, Show Columns, Find (Ctrl+F), Find Next (Ctrl+G), Restore, Download


```
Terminal

MMM      MMM      KKK                      TTTTTTTTTT      KKK
MMMM     MMMM     KKK                      TTTTTTTTTT      KKK
MMM MMMM MMM III  KKK KKK RRRRRR      OOOOOO      TTT      III  KKK KKK
MMM MM  MMM III  KKKKKK RRR RRR  OOO OOO  TTT      III  KKKKK
MMM     MMM III  KKK KKK RRRRRR      OOO OOO  TTT      III  KKK KKK
MMM     MMM III  KKK KKK RRR RRR  OOOOOO      TTT      III  KKK KKK

MikroTik RouterOS 6.43.2 (c) 1999-2018      http://www.mikrotik.com/

[?]          Gives the list of available commands
command [?]  Gives help on the command and list of arguments

[Tab]       Completes the command/word. If the input is ambiguous,
            a second [Tab] gives possible options

/           Move up to base level
..         Move up one level
/command    Use command at the base level
apr/04/2019 00:58:43 system,error,critical login failure for user admin from 10.0.
40.238 via ssh
apr/04/2019 00:58:45 system,error,critical login failure for user sdischer from 10
.0.40.238 via ssh
[admin@10.0.0.3-To-TBB-VPN-Router] > import file=today.rsc
```

- To restore the file, use import command
- Best done with an un-configured router

```

ktop/backup.rsc
terOS 6.44

#
# model = RB760iGS
# serial number = 976C09C6E129
/interface bridge
add fast-forward=no name=LAN
add fast-forward=no name=loopback
/interface ethernet
set [ find default-name=ether1 ] comment="Office Switch" speed=100Mbps
set [ find default-name=ether2 ] disabled=yes speed=100Mbps
set [ find default-name=ether3 ] disabled=yes speed=100Mbps
set [ find default-name=ether4 ] comment="Verizon Fios" mac-address=\

```

4. How to Install Package














How to Install Package

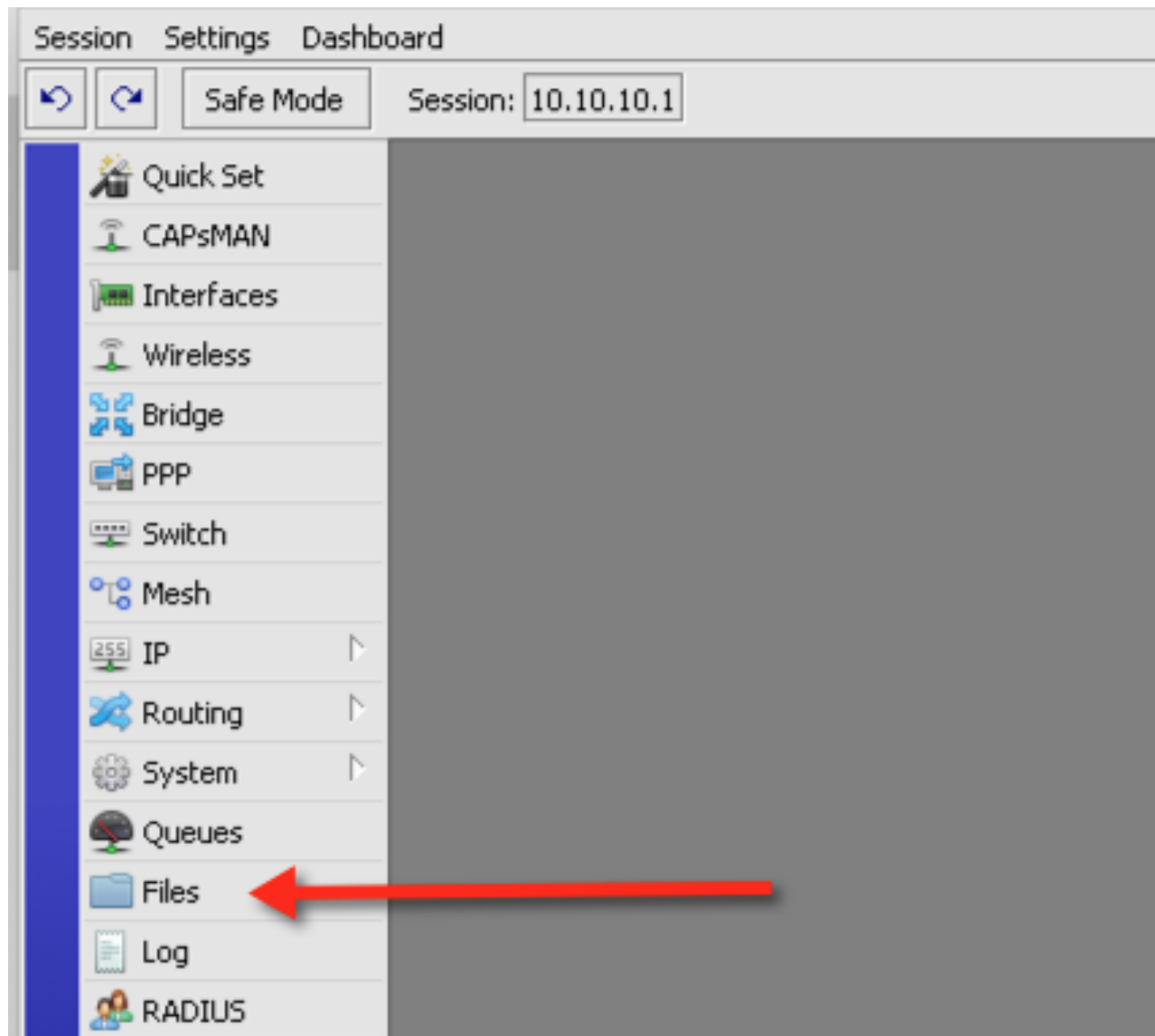
- All functions in RouterOS are controlled by packages
- If you are missing a functionality like wireless, maybe you are missing a package

What Packages Do I Have?

The screenshot shows the Mikrotik WinBox interface. On the left, the 'System' menu is open, with a red arrow pointing to it. The 'Packages' option in the System menu is also highlighted with a red arrow. On the right, the 'Package List' window is displayed, showing a table of installed packages. The table has columns for Name, Version, Build Time, and Scheduled. The packages listed are: routeros-tile, advance..., dhcp, hotspot, ipv6, mpls, ppp, routing, security, system, and wireless, all with version 6.43.12 and build time Feb/08/2019 11:4... Below the table, it indicates '11 items'.

Name	Version	Build Time	Scheduled
routeros-tile	6.43.12	Feb/08/2019 11:4...	
advance...	6.43.12	Feb/08/2019 11:4...	
dhcp	6.43.12	Feb/08/2019 11:4...	
hotspot	6.43.12	Feb/08/2019 11:4...	
ipv6	6.43.12	Feb/08/2019 11:4...	
mpls	6.43.12	Feb/08/2019 11:4...	
ppp	6.43.12	Feb/08/2019 11:4...	
routing	6.43.12	Feb/08/2019 11:4...	
security	6.43.12	Feb/08/2019 11:4...	
system	6.43.12	Feb/08/2019 11:4...	
wireless	6.43.12	Feb/08/2019 11:4...	

	6.43.13 (Long-term)	6.44.1 (Stable)
MIPSBE	CRS1xx, CRS2xx, DISC, FiberBox, hAP, hAP ac, hAP ac lite, LDF, LHG, ItAP mini, mANTBox, mAP, NetBox, NetM Lite, RB4xx, wAP, BaseBox, DynaDish, RB2011, SXT, OmniTik, Groove, Metal, Sextant, RB7xx	
Main package		
Extra packages		
X86	RB230, X86	
Main package		
Extra packages		 
CD Image		
The Dude server		

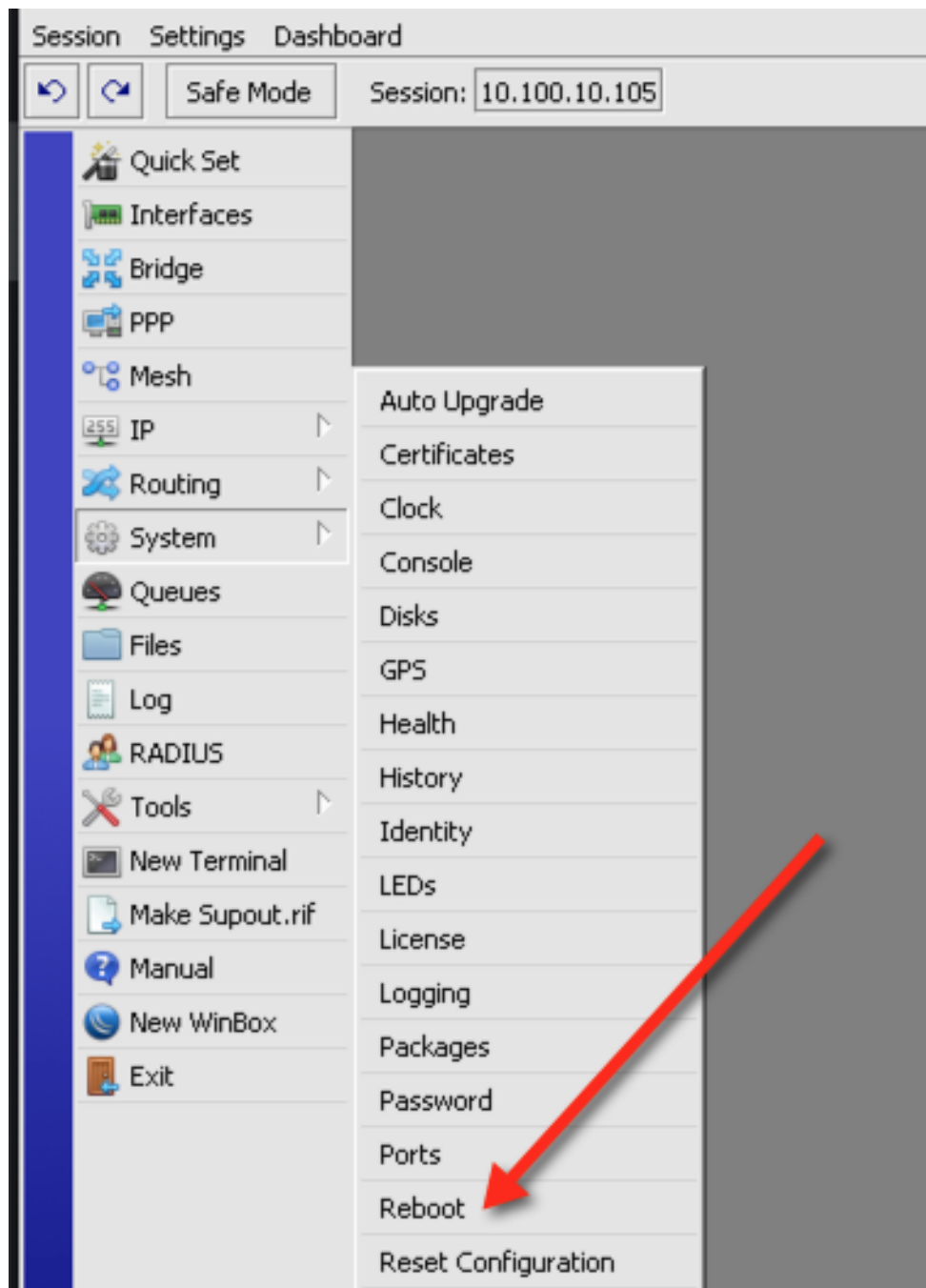


- Quick Set
- Interfaces
- Bridge
- PPP
- Mesh
- IP
- Routing
- System
- Queues
- Files
- Log

File List

Backup Restore Upload...

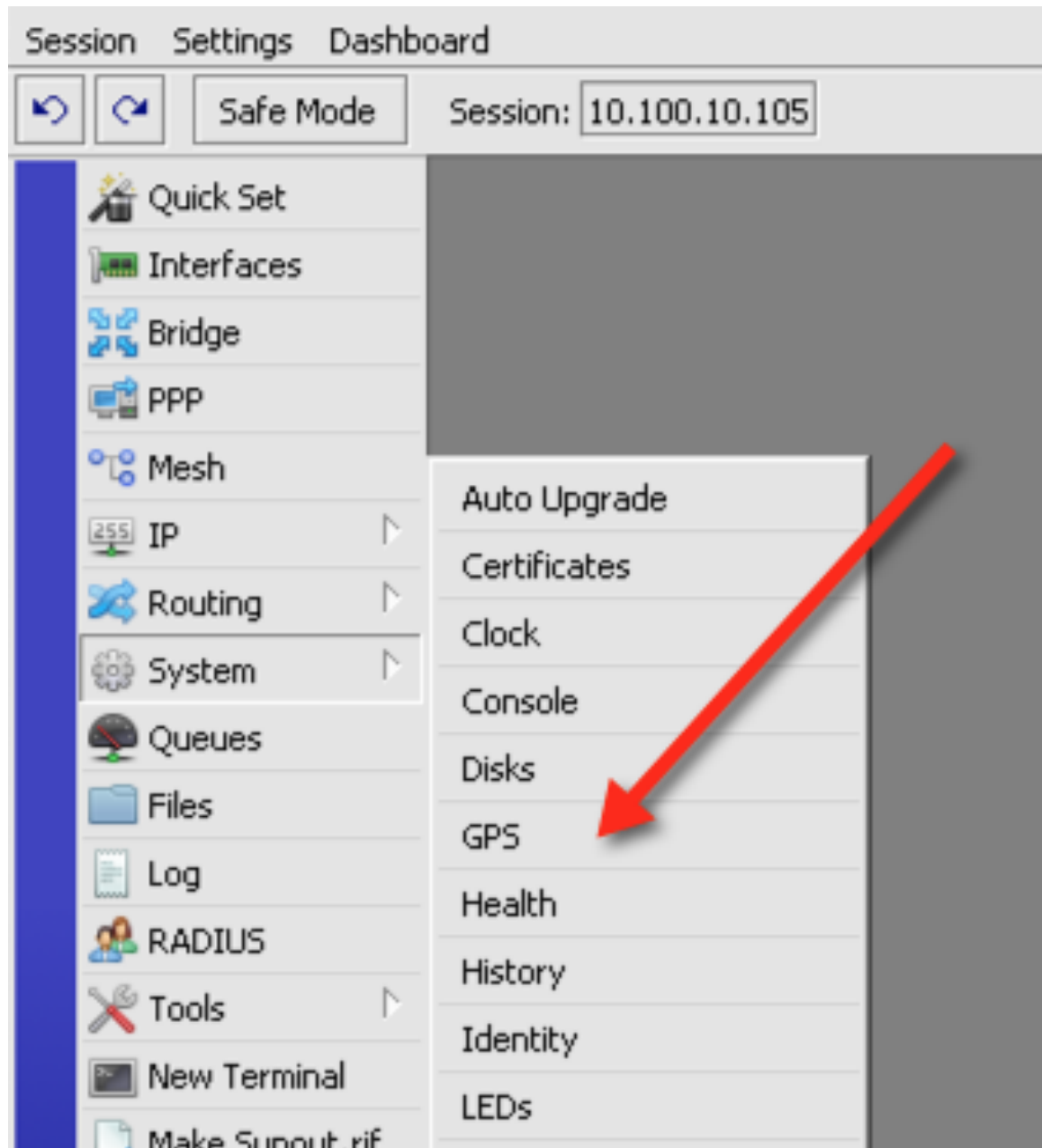
File Name	Type	Size	Creation Time
gps-6.44.1.npk	package	52.1 KiB	Mar/24/2019 10:15:30
today.backup	backup	19.6 KiB	Mar/24/2019 10:13:27
pub	directory		Mar/24/2019 10:10:56
today.rsc	script	1298 B	Mar/24/2019 10:10:56
auto-before-reset.backup	backup	9.8 KiB	Mar/24/2019 00:49:33
hotspot	directory		Mar/13/2016 05:56:28
hotspot/alogin.html	.html file	1293 B	Mar/13/2016 05:56:28
hotspot/error.html	html file	898 B	Mar/13/2016 05:56:28
hotspot/errors.txt	.txt file	3615 B	Mar/13/2016 05:56:28
hotspot/favicon.ico	.ico file	903 B	Mar/13/2016 05:56:28
hotspot/ima	directory		Mar/13/2016 05:56:28



Package List

Name	Version	Build Time	Scheduled
calea	6.44.1	Mar/13/2019 08:38:51	
gps	6.44.1	Mar/13/2019 08:38:51	
multicast	6.44.1	Mar/13/2019 08:38:51	
ntp	6.44.1	Mar/13/2019 08:38:51	
openflow	6.44.1	Mar/13/2019 08:38:51	
routeros-x86	6.44.1	Mar/13/2019 08:38:51	
advanced-...	6.44.1	Mar/13/2019 08:38:51	
dhcp	6.44.1	Mar/13/2019 08:38:51	
hotspot	6.44.1	Mar/13/2019 08:38:51	
ipv6	6.44.1	Mar/13/2019 08:38:51	
mpls	6.44.1	Mar/13/2019 08:38:51	
ppp	6.44.1	Mar/13/2019 08:38:51	
routing	6.44.1	Mar/13/2019 08:38:51	
security	6.44.1	Mar/13/2019 08:38:51	
system	6.44.1	Mar/13/2019 08:38:51	

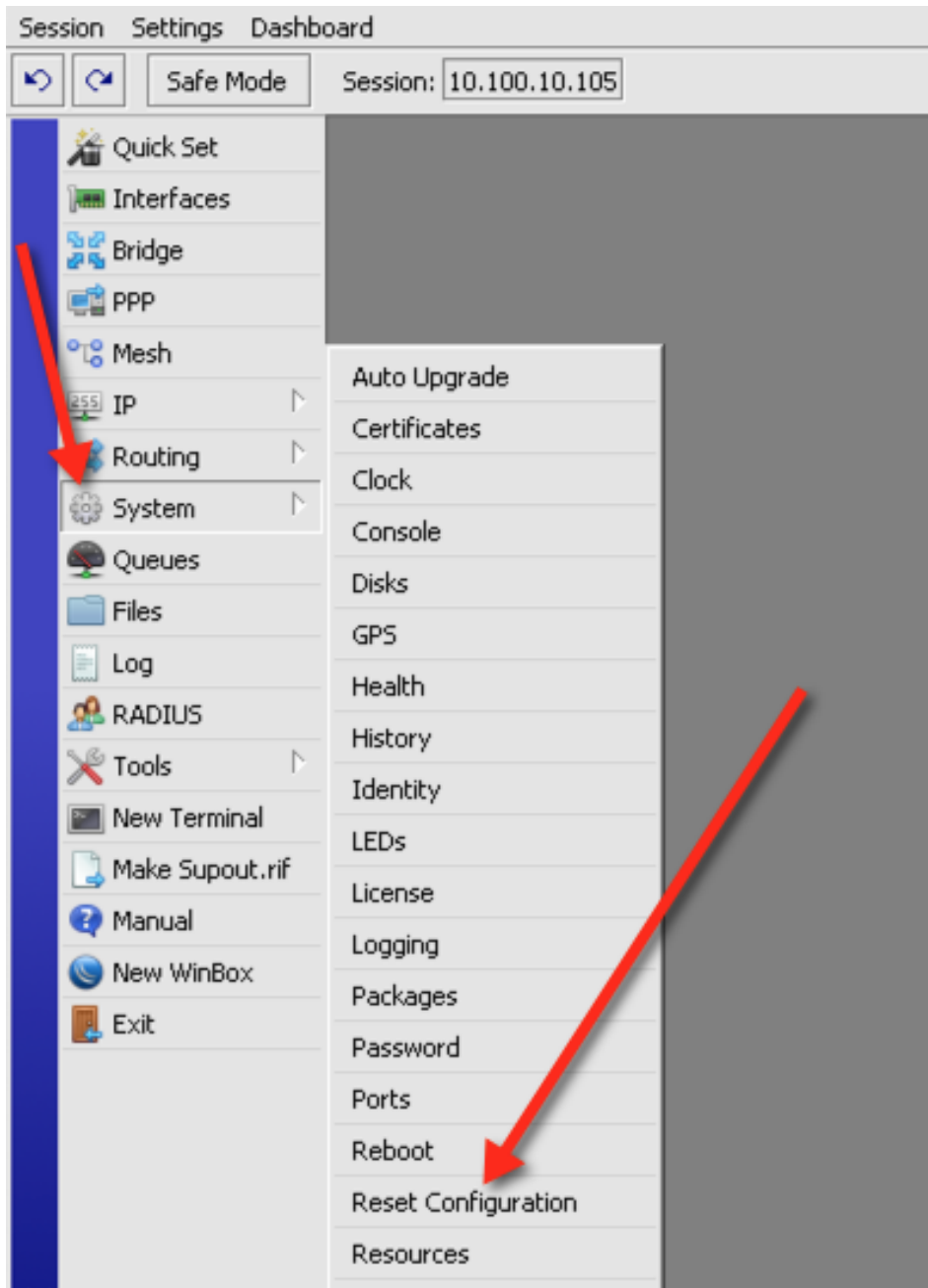
18 items



5. How to Reset Your Router

How to Reset Your Router

- Resetting lets you “start over”
- Allow access to the original default configuration or to clear all configurations



Session Settings Dashboard

Safe Mode Session: 10.100.10.105

- Quick Set
- Interfaces
- Bridge
- PPP
- Mesh
- IP
- Routing
- System
- Queues
- Files
- Log
- RADIUS
- Tools
- New Terminal

Reset Configuration

Keep User Configuration

CAPS Mode

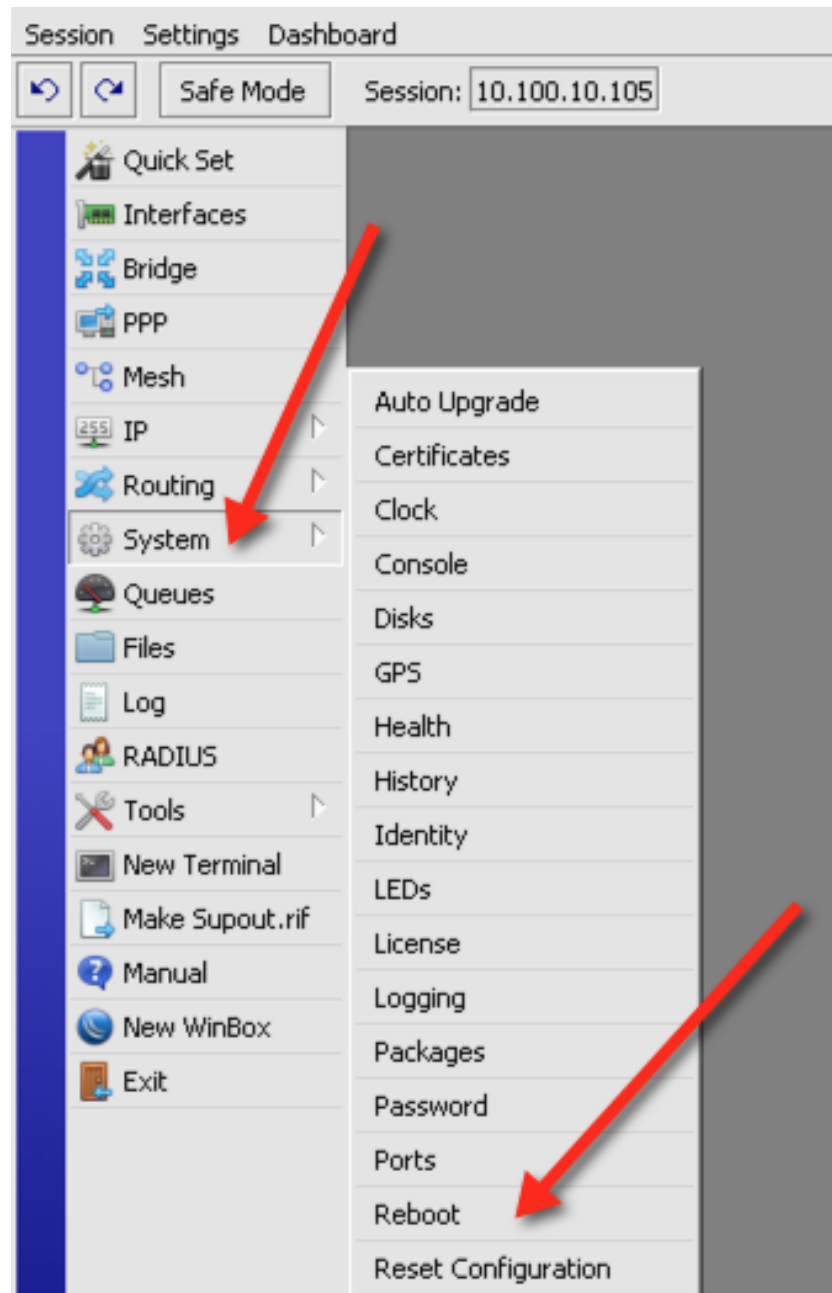
No Default Configuration

Do Not Backup

Run After Reset:

Reset Configuration

Cancel



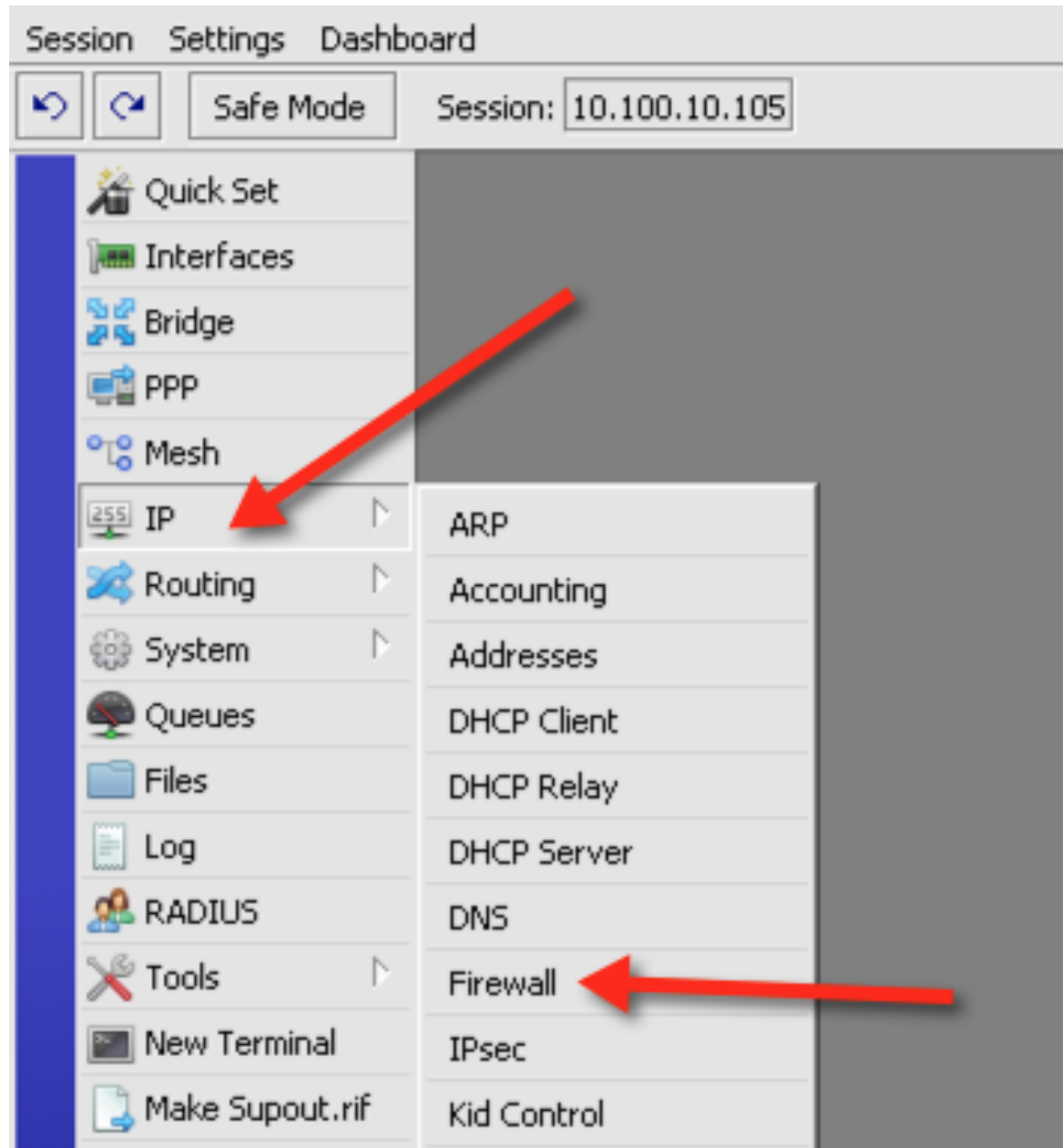
6. How to Block YouTube

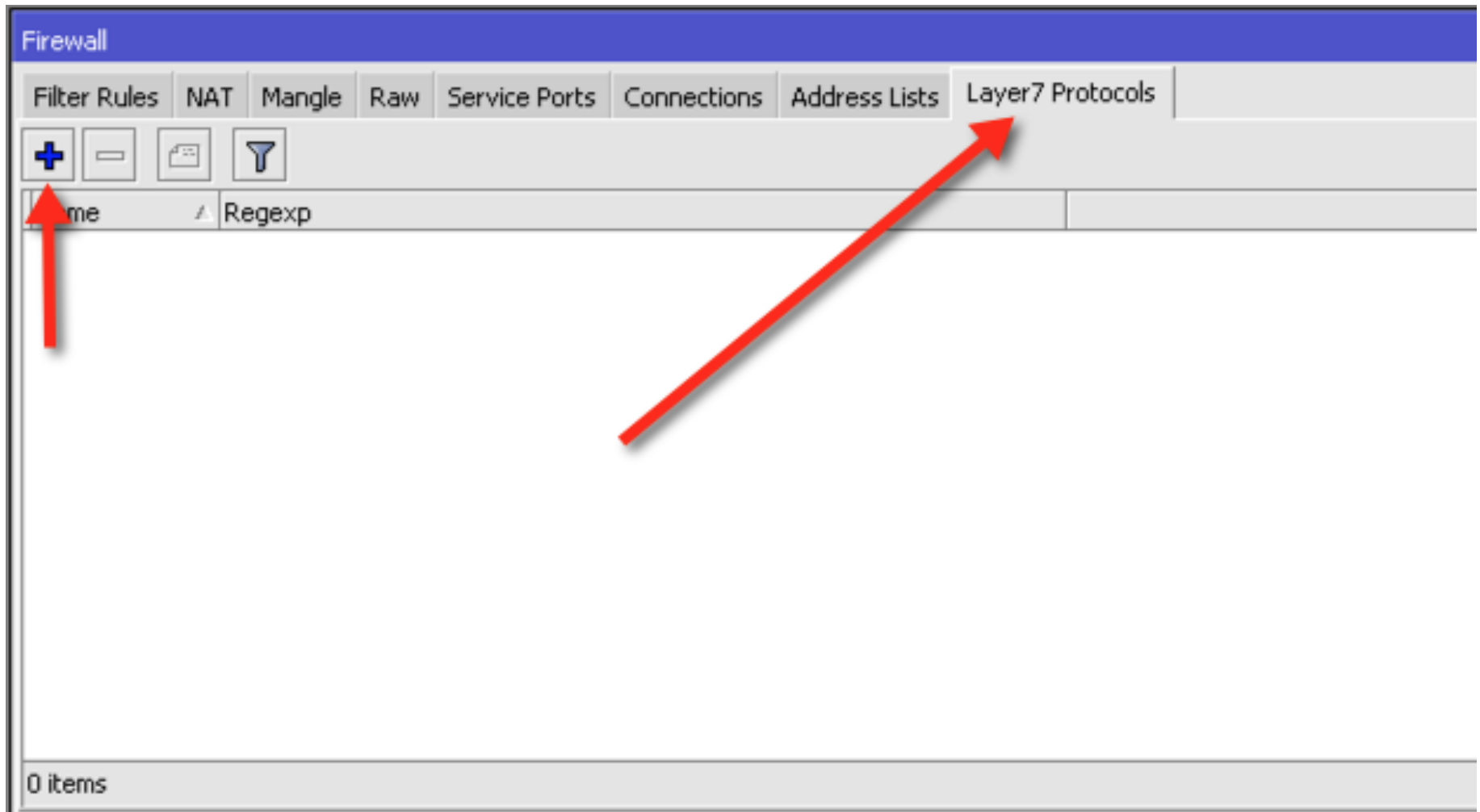
How to Block YouTube

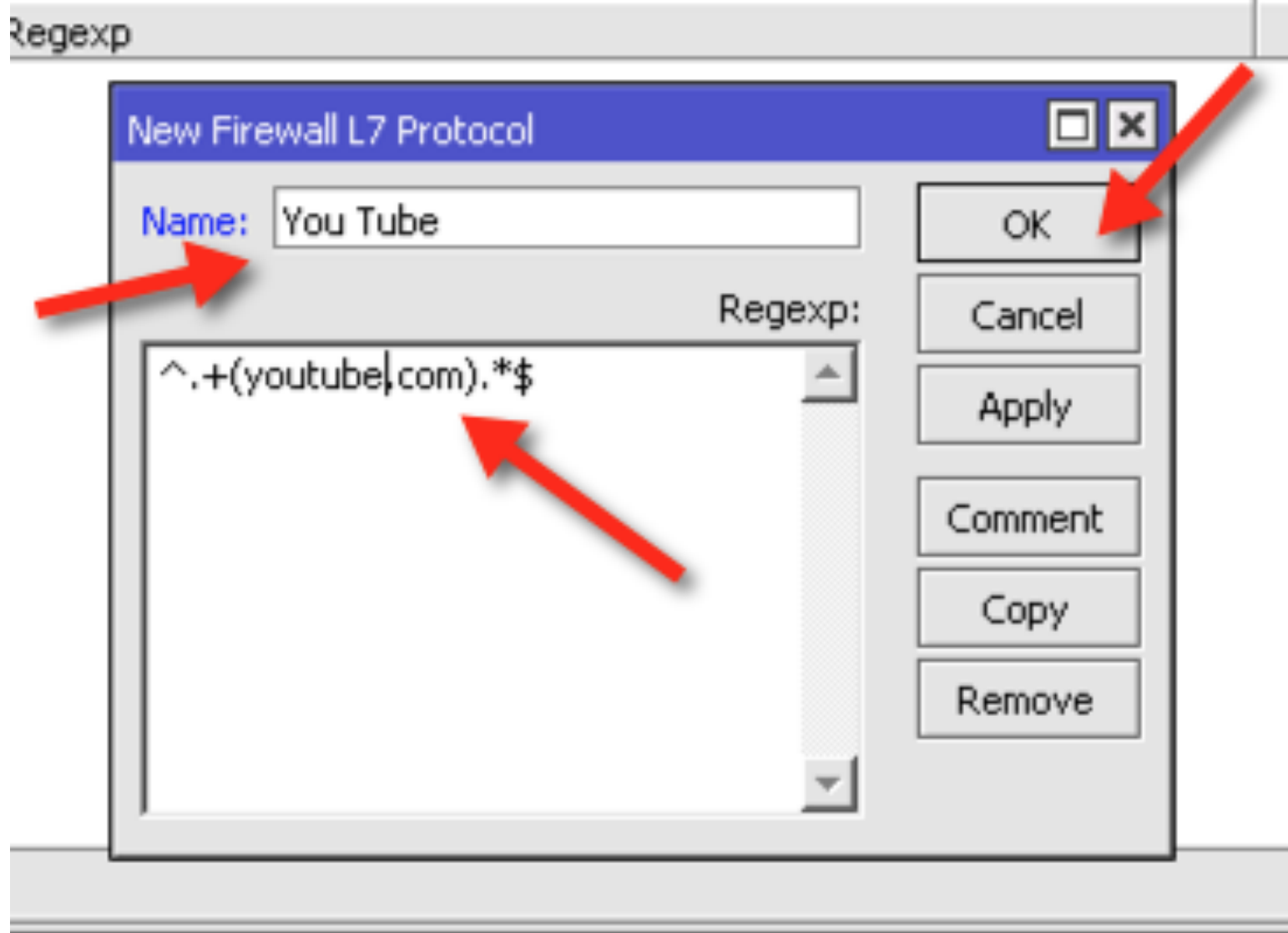
- Some sites and protocols can be blocked with reasonable effectiveness
- There are many strategies, I will show you two because they are the most reliable and the most expandable

Option 1 - Layer7

(can be processor intensive for large implementations so use with caution)







Firewall

Filter Rules NAT Mangle Raw Service Ports Connections Address Lists Layer7 Protocols

+ - [Icon] [Icon]

Name	Regexp
● You Tube	^.+(youtube.com).*\$

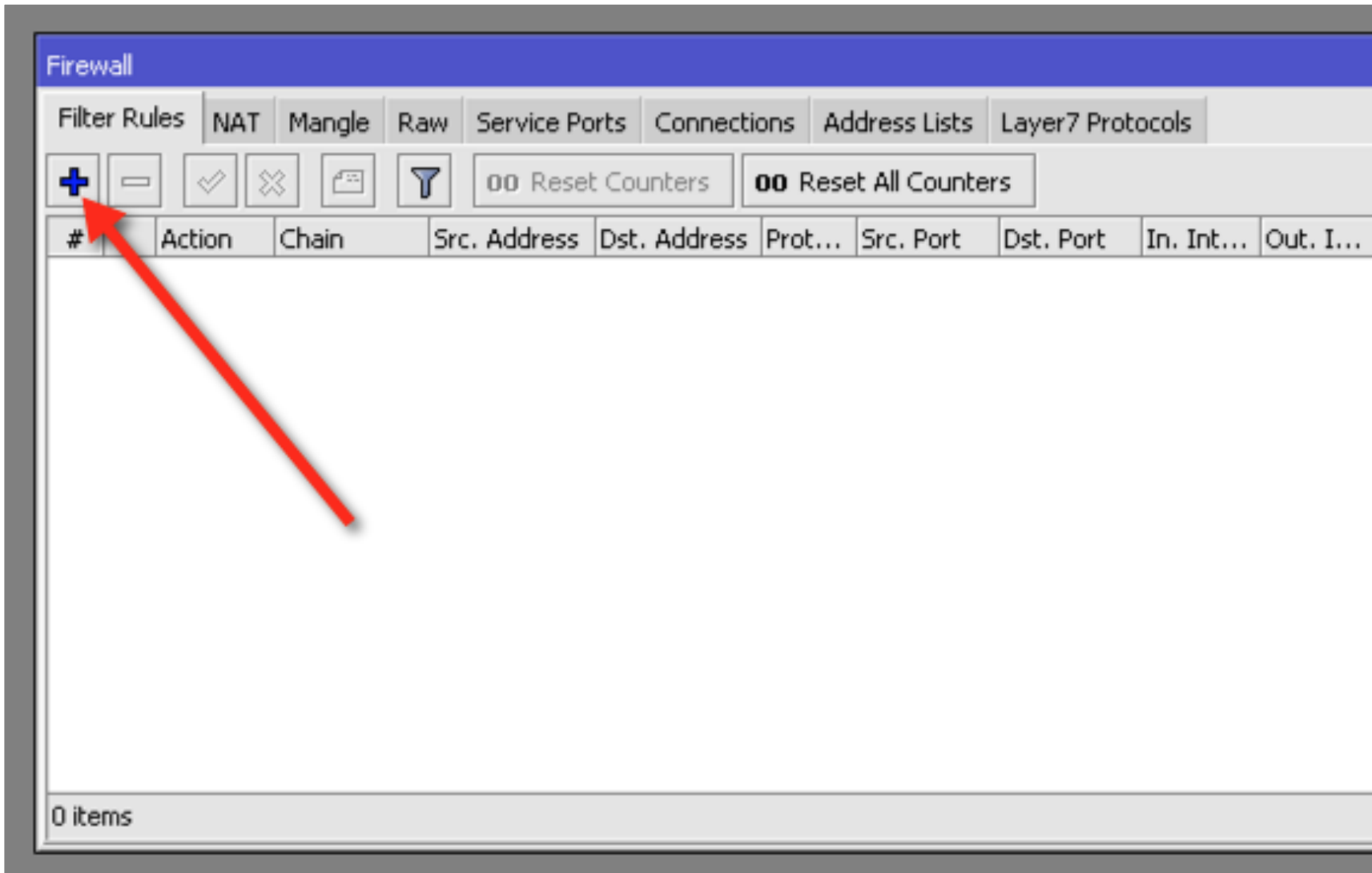
Firewall

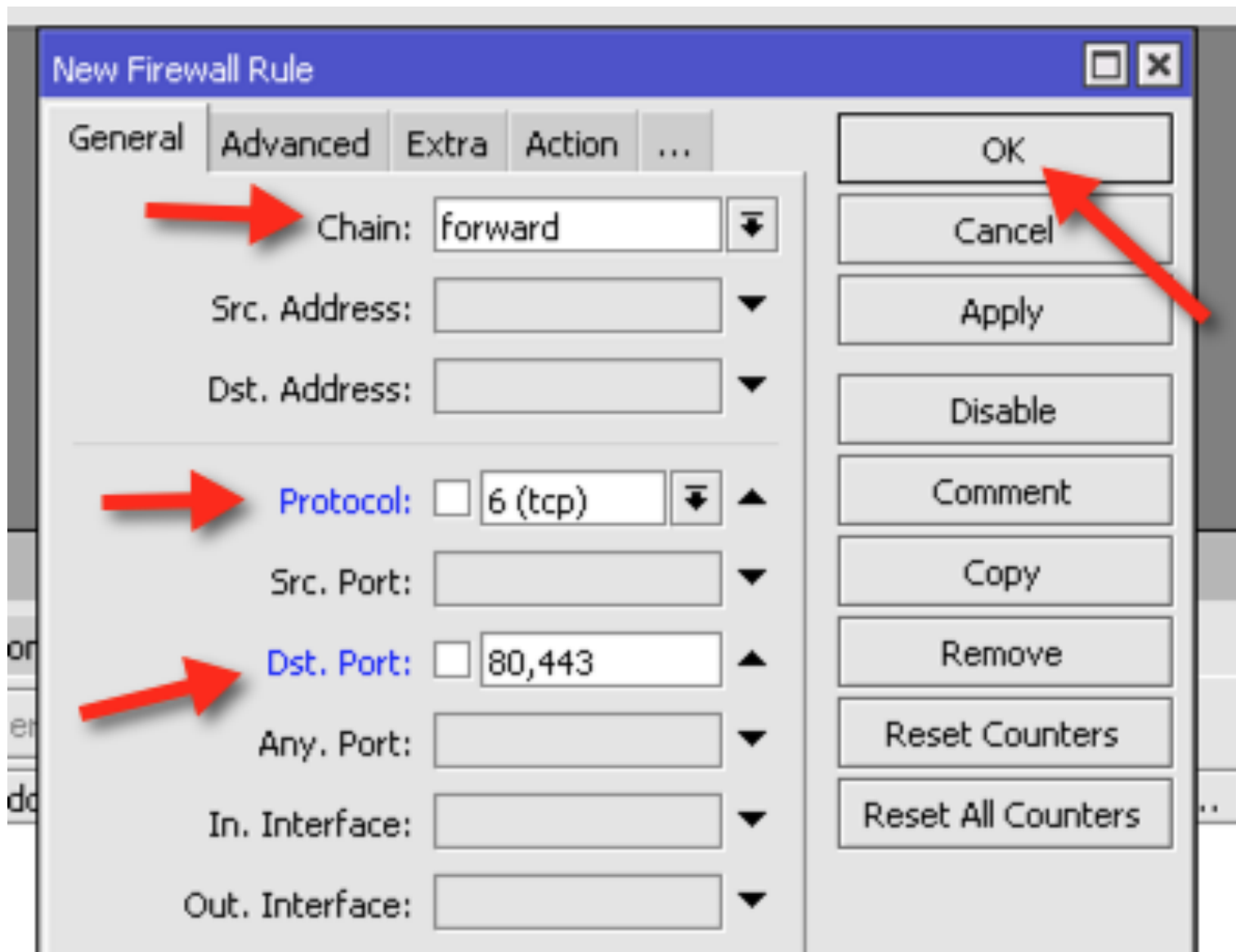
Filter Rules NAT Mangle Raw Service Ports Connections Address Lists Layer7 Protocols

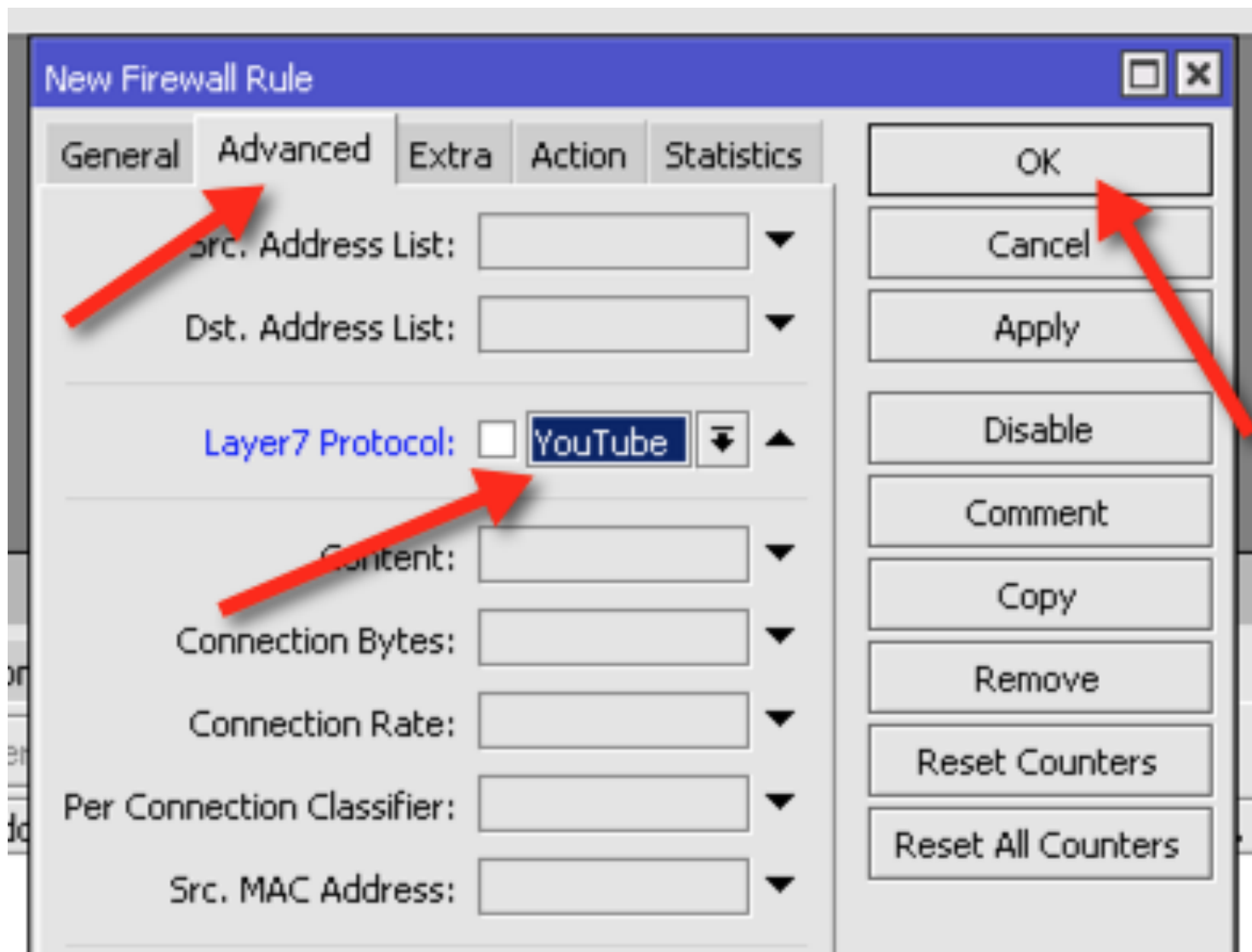
+ - ✓ ✗ 📄 ⚙️ 00 Reset Counters 00 Reset All Counters

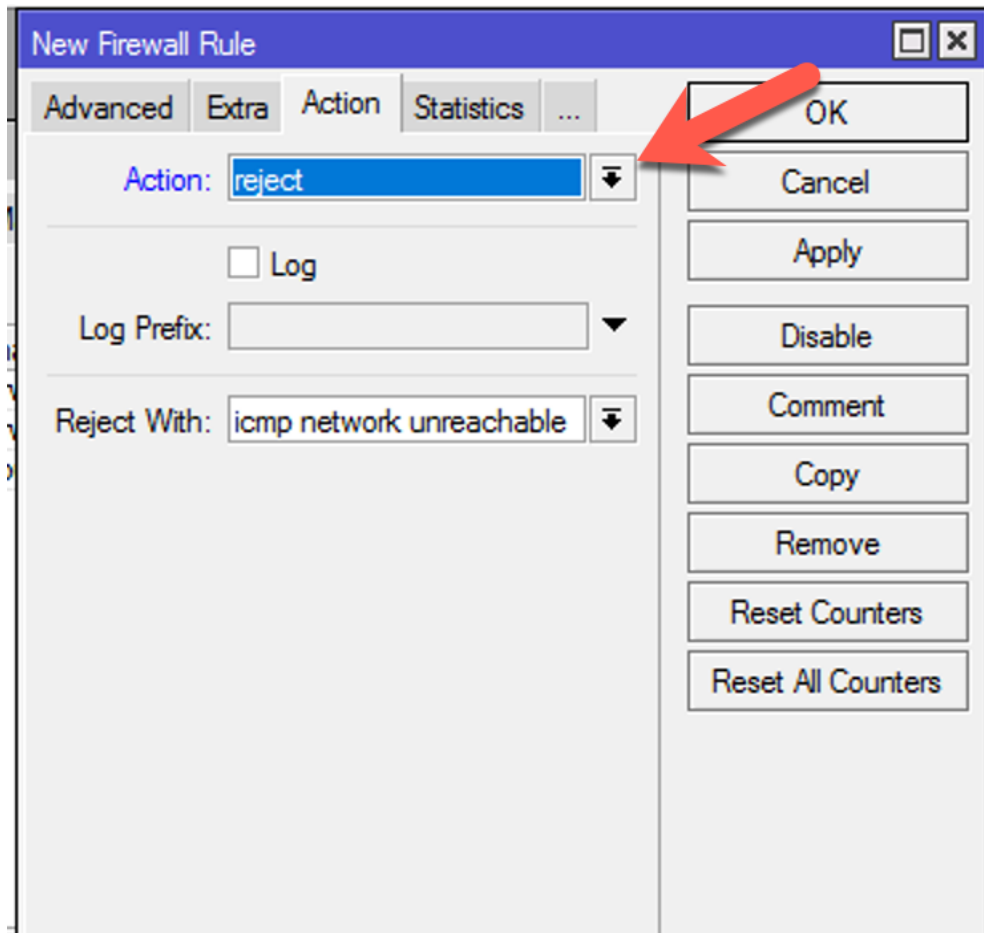
#	Action	Chain	Src. Address	Dst. Address	Prot...	Src. Port	Dst. Port	In. Int...	Out. I...
---	--------	-------	--------------	--------------	---------	-----------	-----------	------------	-----------

0 items









Reject or Drop



This site can't be reached

www.youtube.com refused to connect.

Try:

- Checking the connection
- [Checking the proxy and the firewall](#)

ERR_CONNECTION_REFUSED

Details

Option 2 - Block YouTube Using DNS

The screenshot illustrates the configuration of a DHCP server in WinBox to block YouTube using DNS. The interface is divided into a left sidebar and a main configuration area. The sidebar contains a tree view of configuration categories, with 'IP' selected. The main area shows the 'DHCP Server' configuration for a specific network.

Numbered red circles and arrows indicate the following steps:

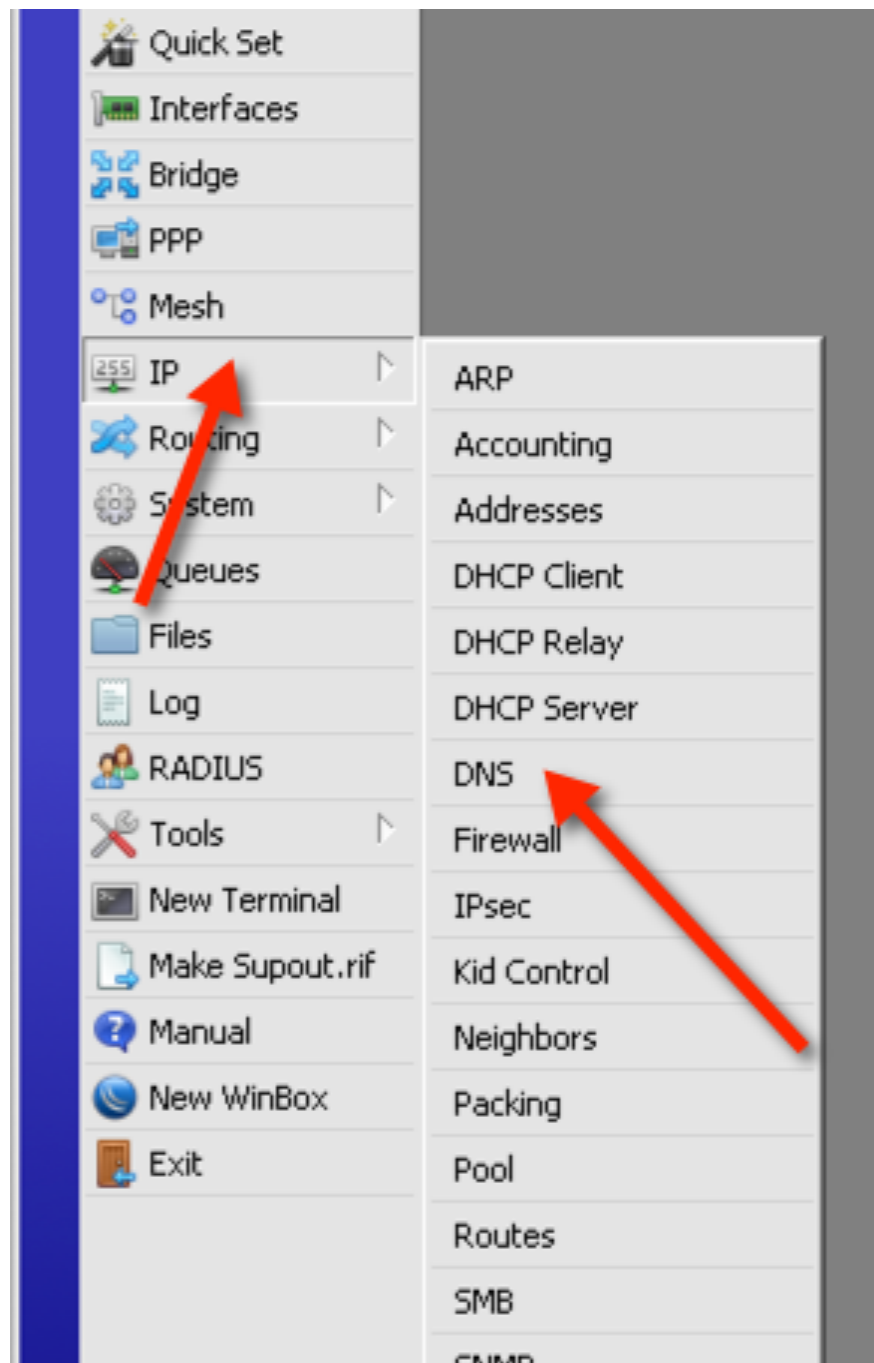
1. Select 'IP' in the left sidebar.
2. Select 'DHCP Server' in the left sidebar.
3. Select the 'Networks' tab in the DHCP Server configuration.
4. Select the network '192.168.1.0/24' in the table.
5. Click on the 'DNS Servers' field in the 'DHCP Network <192.168.1.0/24>' dialog box.
6. Click the 'OK' button in the dialog box.

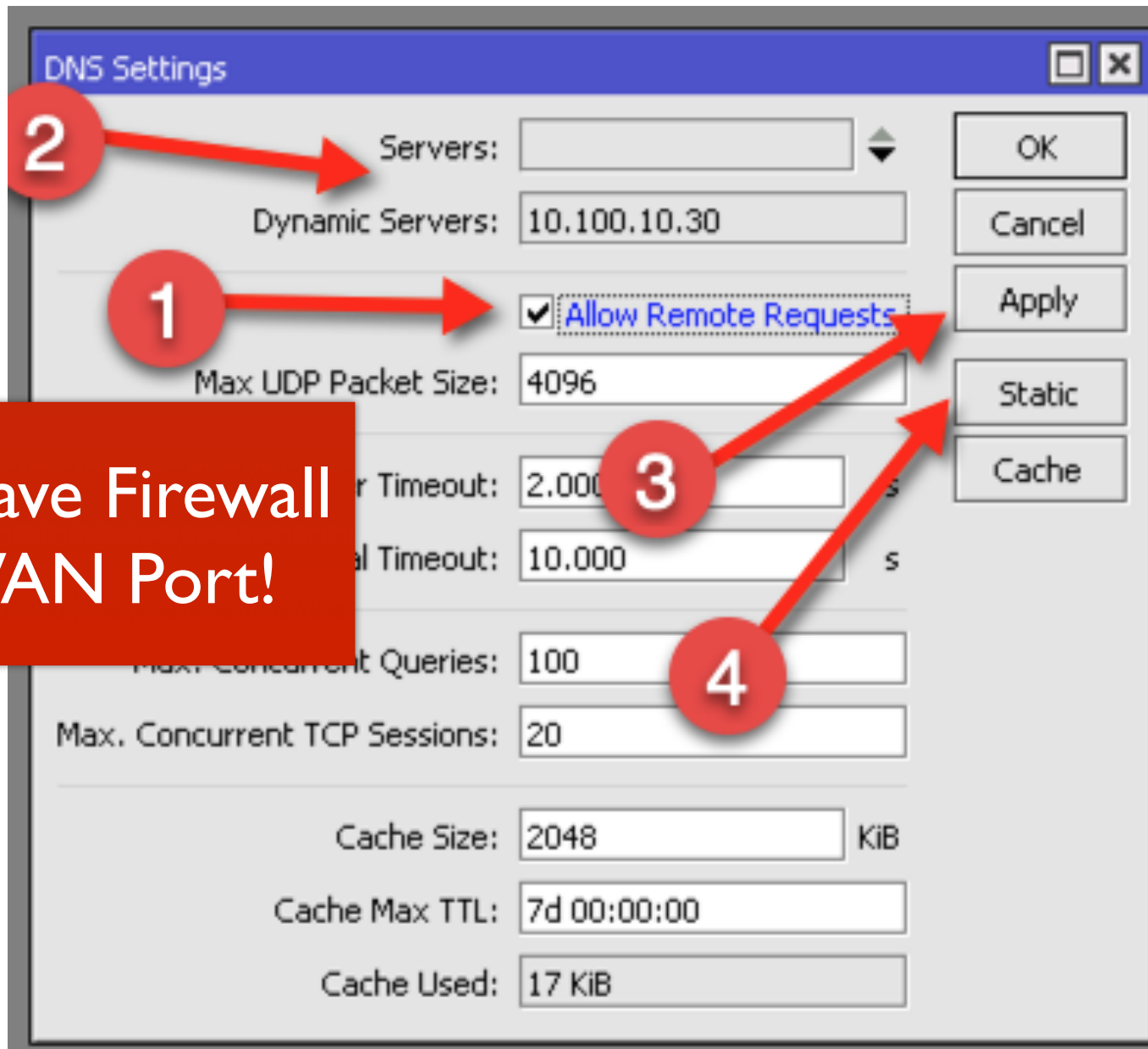
Address	Gateway	DNS Servers	Domain	WINS Servers	Next
192.168.1.0/24		192.168.1.1			

DHCP Network <192.168.1.0/24>

Address: 192.168.1.0/24
Gateway:
Netmask:
 No DNS
DNS Servers: 192.168.1.1
Domain:
WINS Servers:

OK
Cancel
Apply
Comment
Copy
Remove





Must have Firewall
on WAN Port!

The screenshot shows the Mikrotik RouterOS DNS settings interface. A table lists two static entries:

#	Name	Regexp	Address	TTL (s)
0	www.youtube....		127.0.0.1	1d 00
1	youtube.com		127.0.0.1	1d 00

A dialog box titled "DNS Static Entry <www.youtube.com>" is open, showing the configuration for the selected entry:

- Name: www.youtube.com
- Regexp: (empty)
- Address: 127.0.0.1
- TTL: 1d 00:00:00 s

Buttons on the right include OK, Cancel, Apply, Disable, Comment, Copy, and Remove. A red box on the left contains the text "localhost, web request goes nowhere!" with an arrow pointing to the entry in the table.

DNS Static

#	Name	Regexp	Address
0	googlevideo.com		127.0.0.1
1	yting.com		127.0.0.1
2	youtube.com		127.0.0.1
3	youtube-ui.l.google.com		127.0.0.1
4	yting.l.google.com		127.0.0.1
5	ytstatic.l.google.com		127.0.0.1
6	youtubei.googleapis.com		127.0.0.1

Static DNS

DNS Cache

Name	Type	Data
1.0.0.127.in-addr.arpa	PTR	googlevideo.com
1.0.0.127.in-addr.arpa	PTR	yting.com
1.0.0.127.in-addr.arpa	PTR	youtube.com
1.0.0.127.in-addr.arpa	PTR	youtube-ui.l.google.com
1.0.0.127.in-addr.arpa	PTR	yting.l.google.com
1.0.0.127.in-addr.arpa	PTR	ytstatic.l.google.com
1.0.0.127.in-addr.arpa	PTR	youtubei.googleapis.com
googlevideo.com	A	127.0.0.1
updates-hermes-mb-prod-4872374...	A	35.169.41.170
updates-hermes-mb-prod-4872374...	A	54.86.251.59
updates-hermes-mb-prod-4872374...	A	54.236.152.62
updates-hermes-mb-prod-4872374...	A	34.226.221.200
www.youtube.com	CNAME	youtube-ui.l.google.com
youtube-ui.l.google.com	A	127.0.0.1
youtube.com	A	127.0.0.1
youtubei.googleapis.com	A	127.0.0.1
yting.com	A	127.0.0.1
yting.l.google.com	A	127.0.0.1
ytstatic.l.google.com	A	127.0.0.1

Reverse

Forward



This site can't be reached

www.youtube.com refused to connect.

Try:

- Checking the connection
- [Checking the proxy and the firewall](#)

ERR_CONNECTION_REFUSED

Tip: Force your router to proxy DNS by using dst-nat rule for port 53, TCP and UDP with redirect action

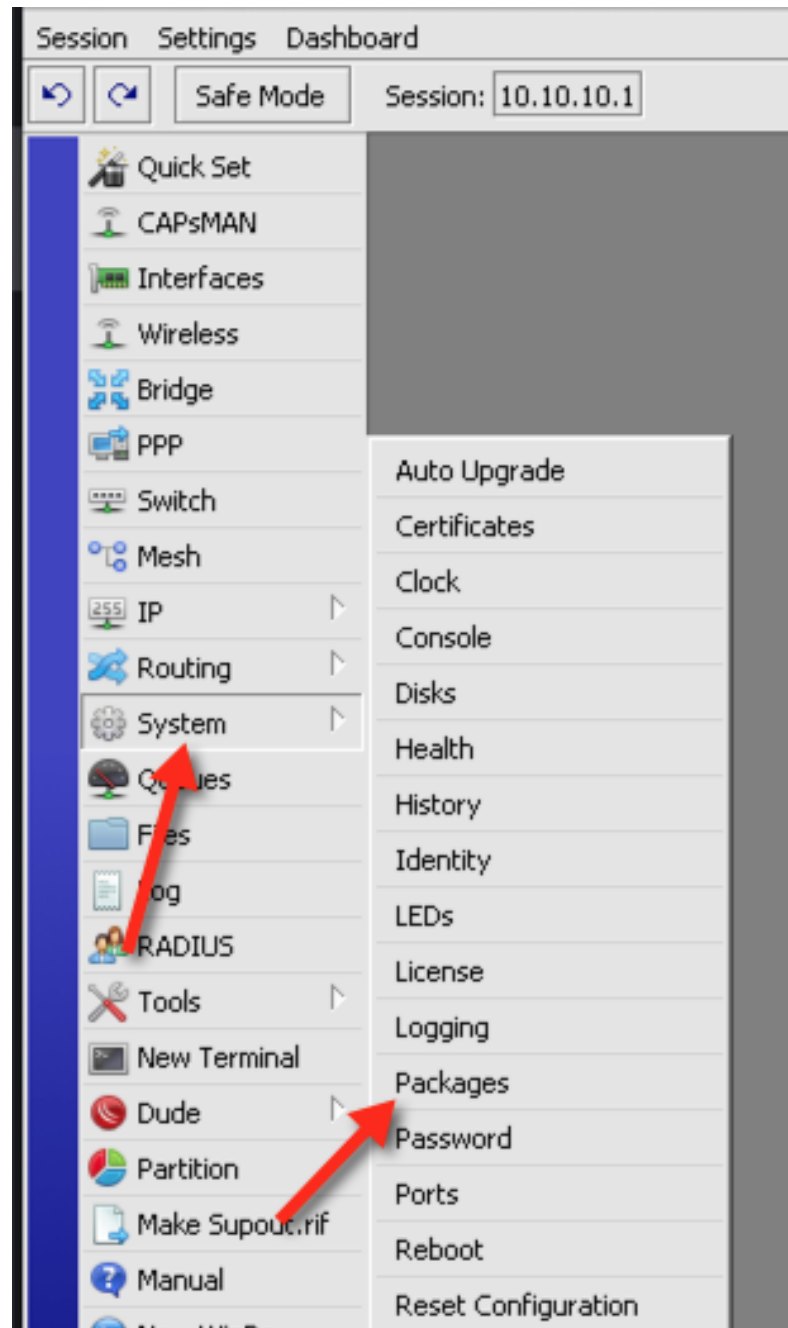
Why Not Use the TLS-Host Matcher?

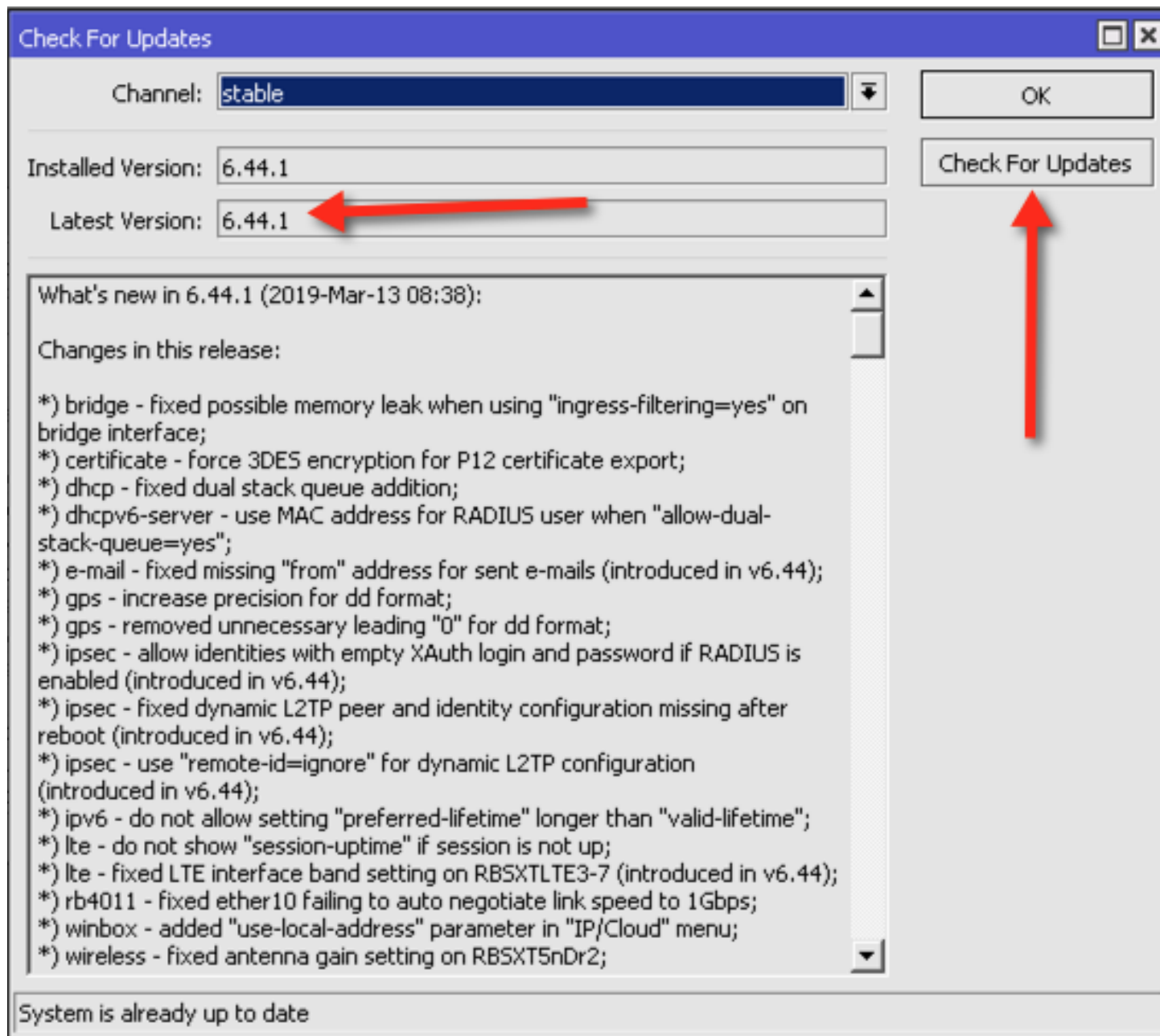
- TLS-Host matcher was made available in 6.41 to easily match TLS traffic (https, formerly SSL)
- Google began implementing **QUIC** (Quick UDP Internet Connections) in Chrome, a new encrypted-by-default Internet transport protocol, that provides a number of improvements designed to accelerate HTTP traffic as well as make it more secure, with the intended goal of eventually replacing TCP and TLS on the web.
- This makes TLS-Host hit or miss right now

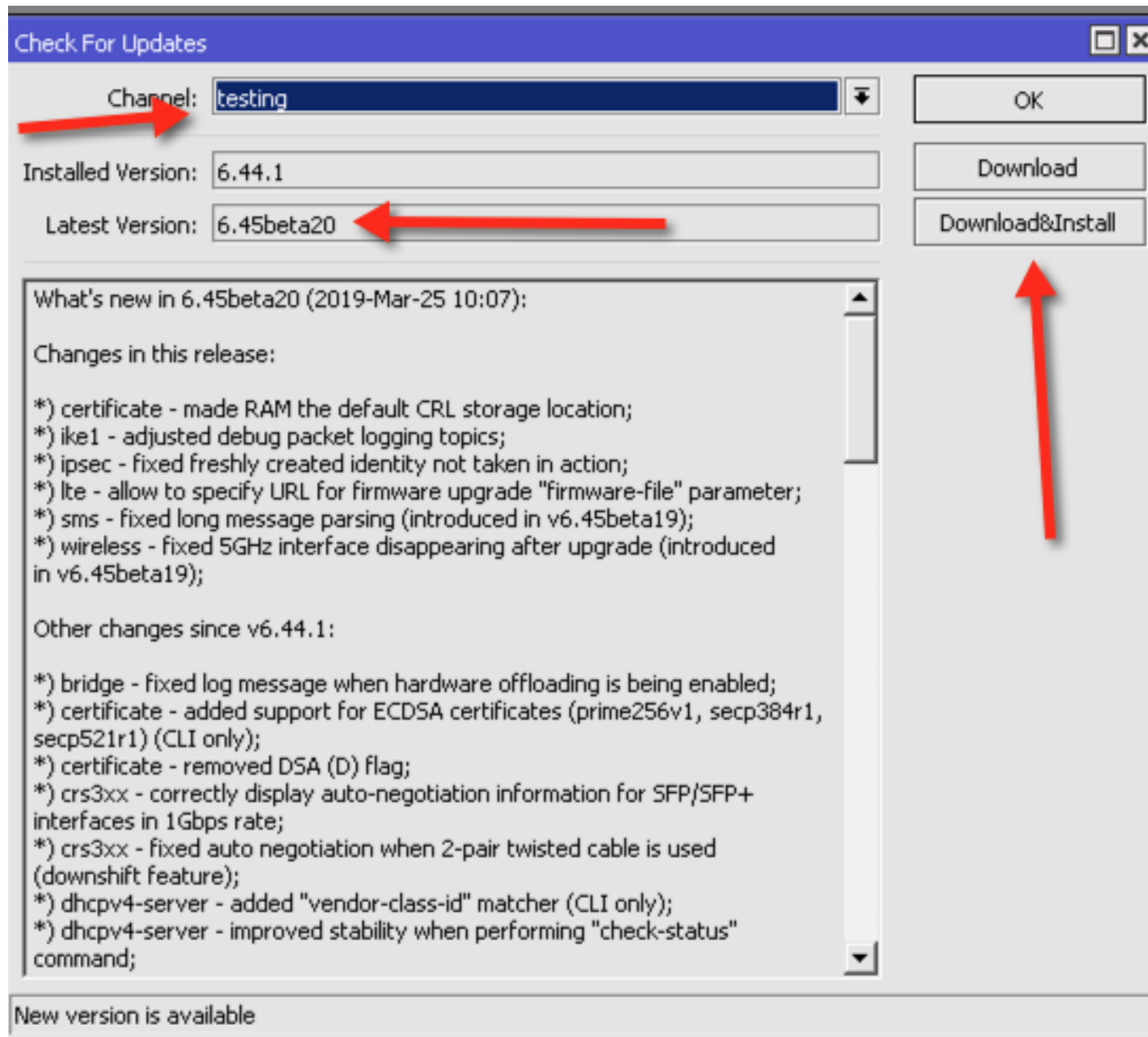
7. How to Upgrade RouterOS

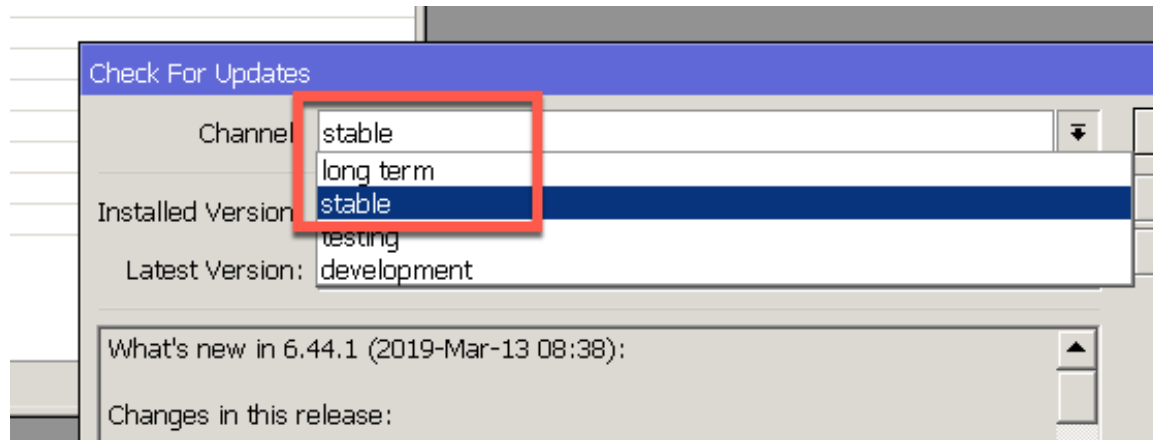
How to Upgrade RouterOS

- Keeping your device current is the best way to ensure safety and security of the network

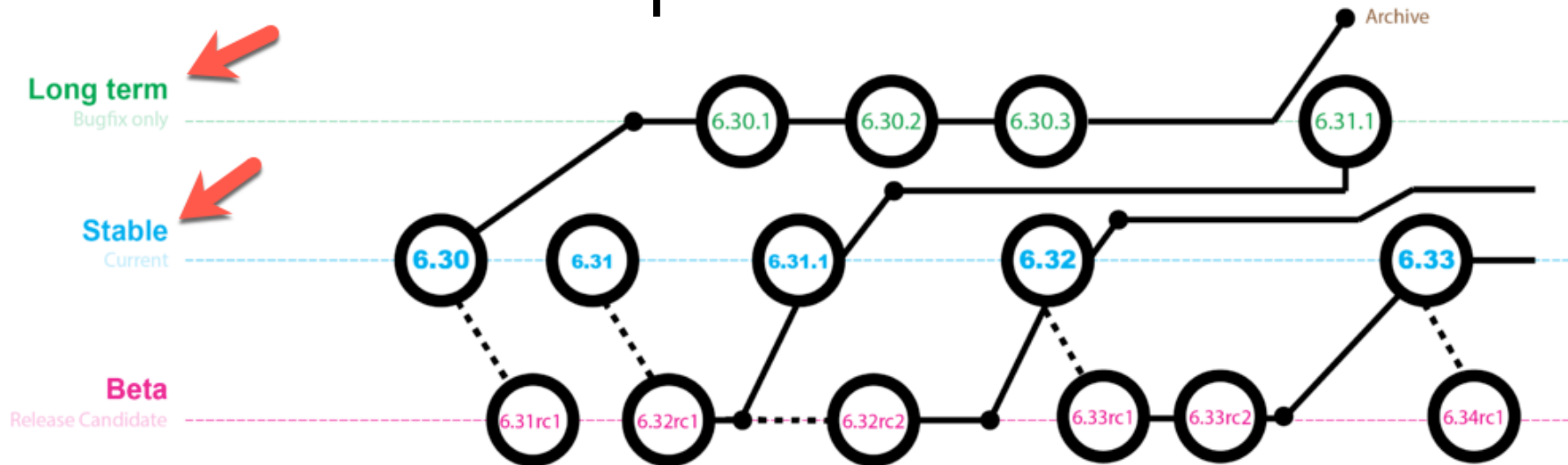








Development Channels



The screenshot shows a list of categories on the left and a detailed list of changes on the right. A red arrow points to the download progress bar at the bottom of the update notes.

Categories (18 items):

- gps
- multicas
- ntp
- openflo
- routero
- adv
- dhcp
- hots
- ipv6
- mpls
- ppp
- rou
- secu
- syst

Changes:

- *) certificate - made RAM the default CRL st
- *) ike1 - adjusted debug packet logging topi
- *) ipsec - fixed freshly created identity not l
- *) lte - allow to specify URL for firmware up
- *) sms - fixed long message parsing (introdu
- *) wireless - fixed 5GHz interface disappear in v6.45beta19);

Other changes since v6.44.1:

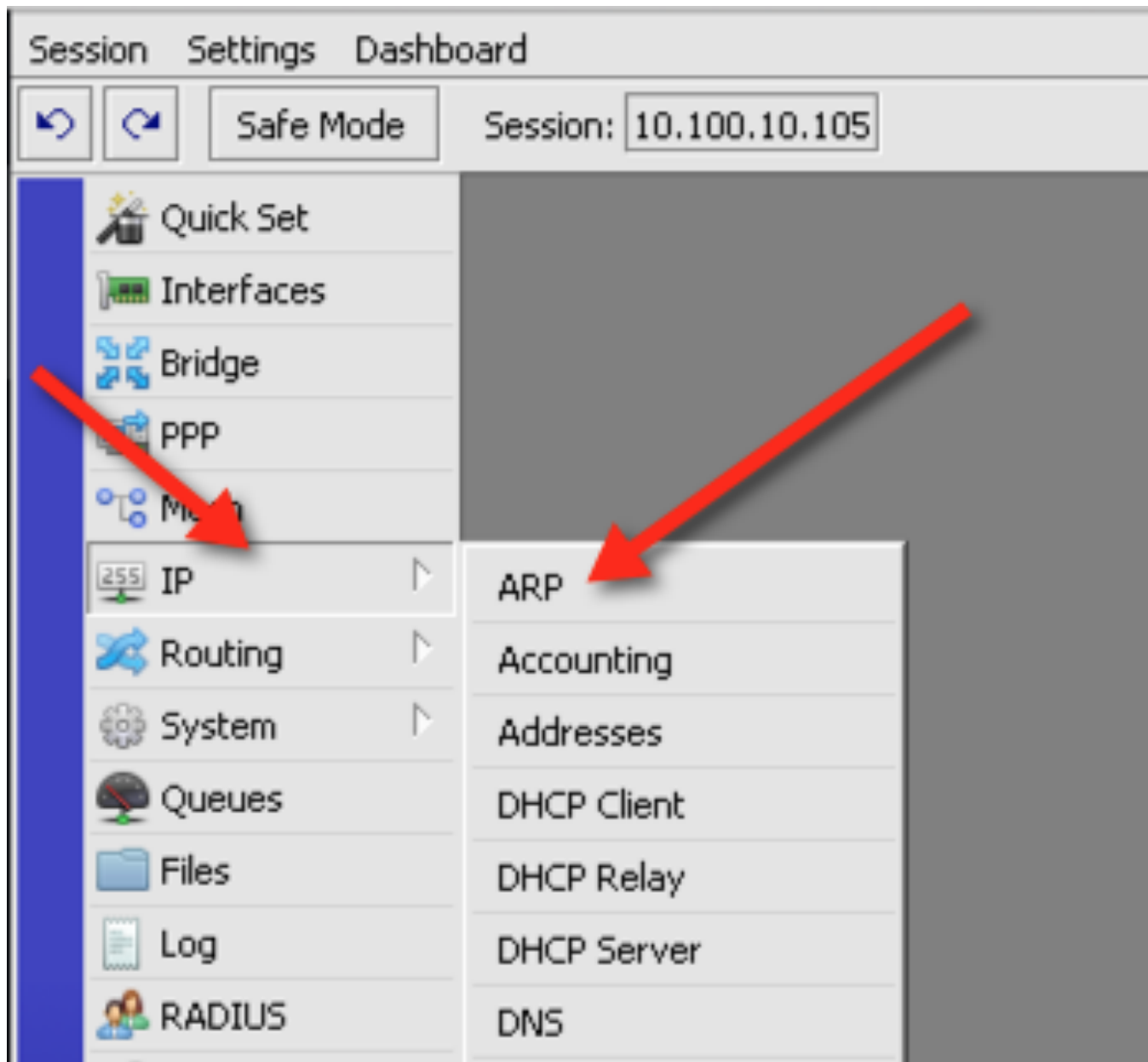
- *) bridge - fixed log message when hardwar
- *) certificate - added support for ECDSA cer secp521r1) (CLI only);
- *) certificate - removed DSA (D) flag;
- *) crs3xx - correctly display auto-negotiatio interfaces in 1Gbps rate;
- *) crs3xx - fixed auto negotiation when 2-p (downshift feature);
- *) dhcpv4-server - added "vendor-class-id"
- *) dhcpv4-server - improved stability when command;

Downloaded 4% (1.0MiB)

8. How to Block MAC Address

How to Block MAC Address

- Regardless of the clients IP address, maybe you want to block a certain MAC




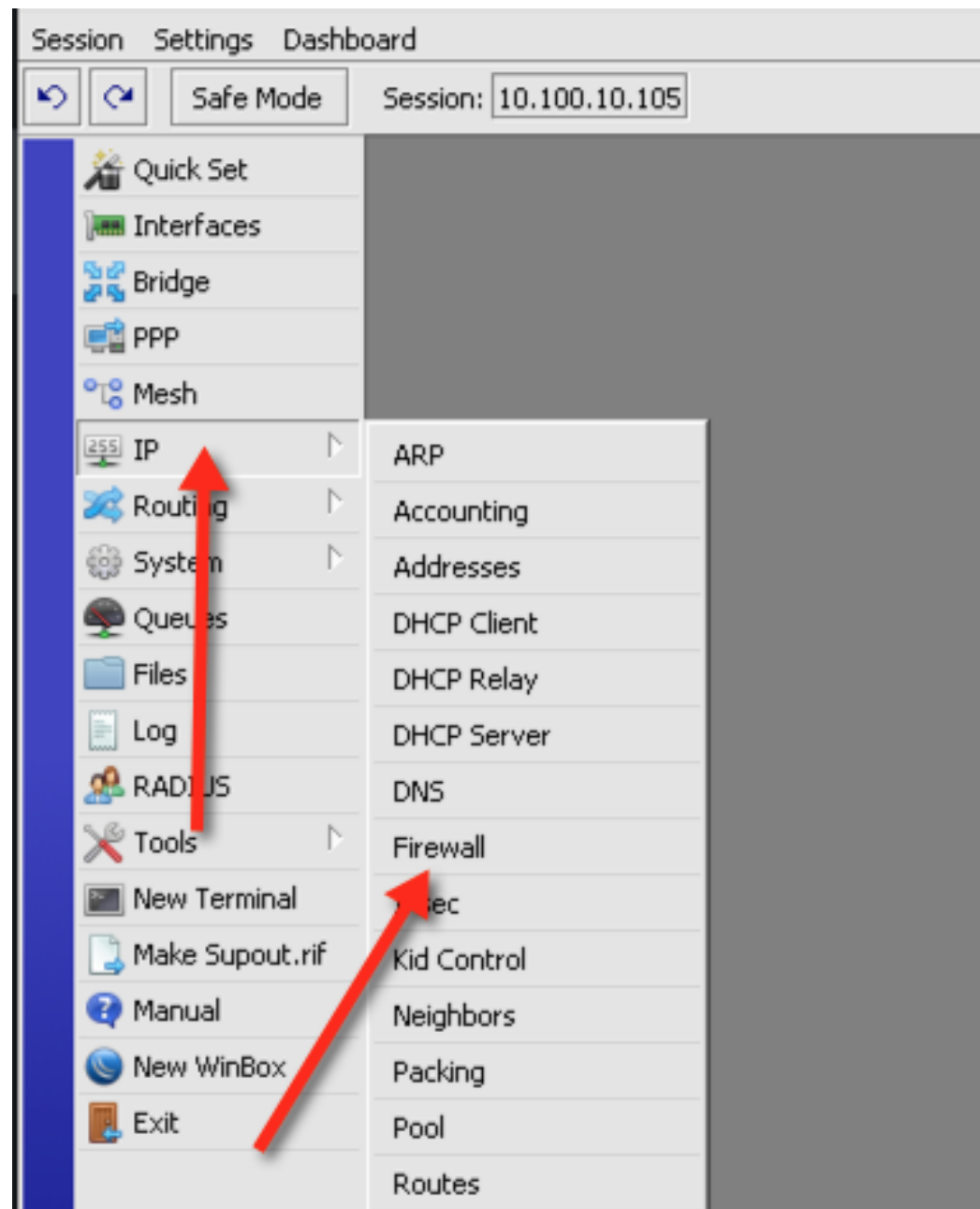
ARP List

+ - ✓ ✗ [Icon] [Filter] Find

	IP Address	MAC Address	Interface	
DC	10.100.10.1	B8:69:F4:01:9A:BB	ether1	
DC	10.100.10.30	B8:27:EB:DC:0A:CD	ether1	
DC	10.100.10.104	38:F9:D3:7D:30:BA	ether1	

3 items





Session Settings Dashboard

Life Mode Session: 10.10.10.1

Firewall

Filter Rules NAT Mangle Raw Service Ports Connections Address Lists Layer7 Protocols

+ - ✓ ✗ [Filter Icon] [Reset Counters] [Reset All Counters]

#	Action	Chain	Src. Address	Dst. Address	Protocol	Src....	Dst. Port
---	--------	-------	--------------	--------------	----------	---------	-----------

New Firewall Rule

General Advanced Extra Action Statistics

Chain: forward

3 Src. Address: []

Dst. Address: []

Protocol: []

Src. Port: []

Dst. Port: []

Any. Port: []

In. Interface: []

Out. Interface: []

4

OK

Cancel

Apply

Disable

Comment

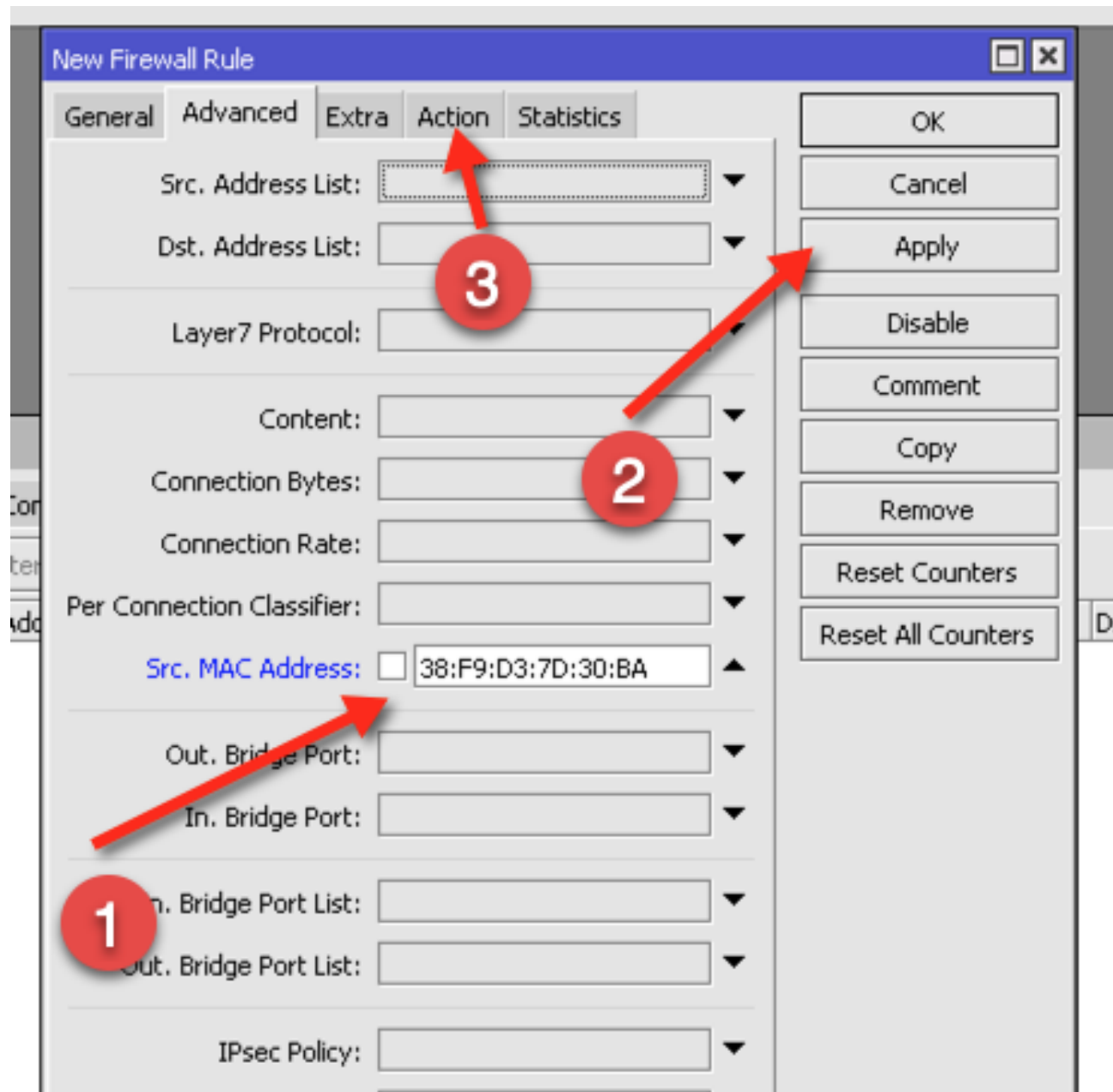
Copy

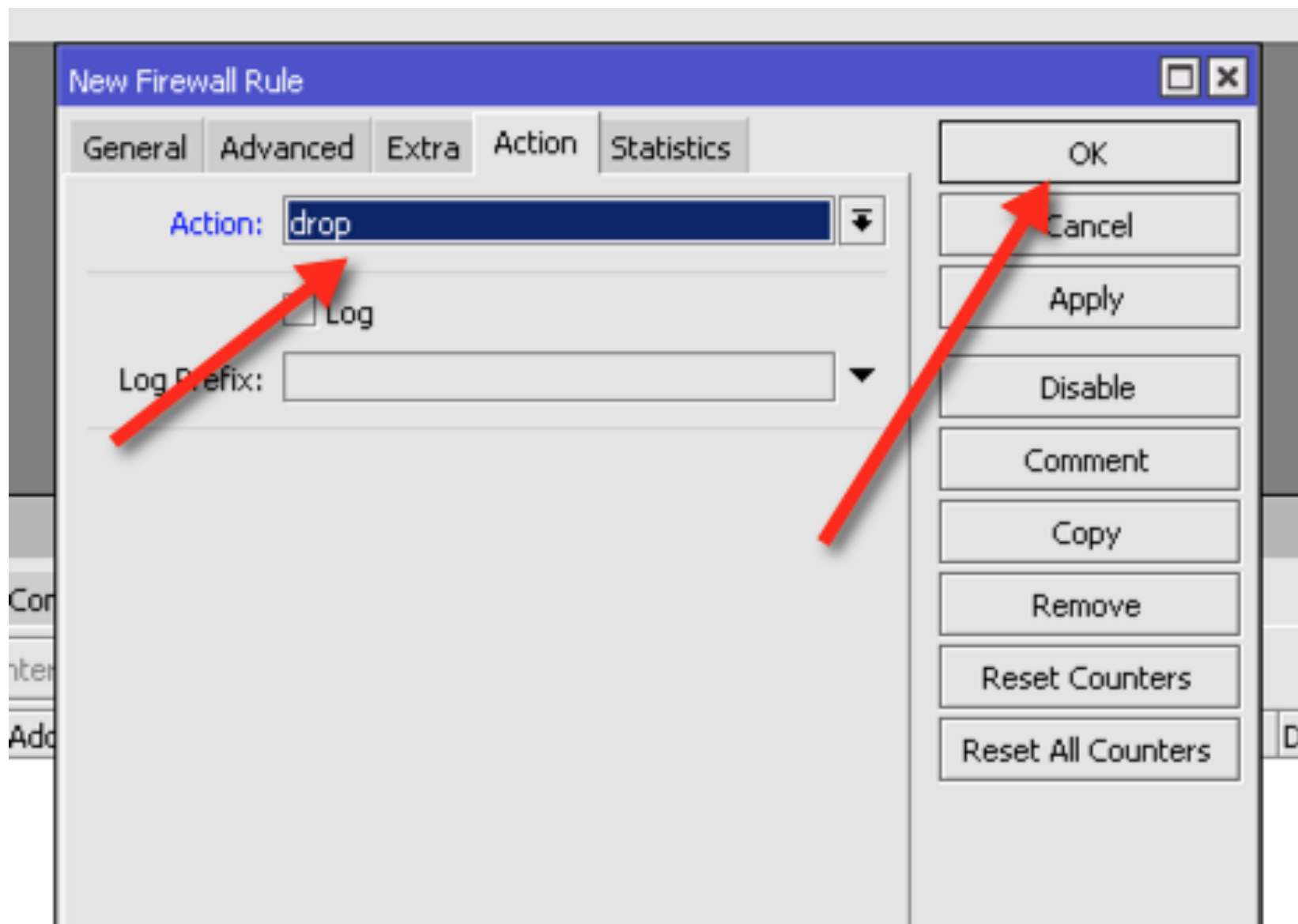
Remove

Reset Counters

Reset All Counters

Detailed description: This is a screenshot of the Mikrotik WinBox interface for configuring a Firewall Rule. The top navigation bar shows 'Session Settings Dashboard' and 'Life Mode' with a session IP of '10.10.10.1'. The left sidebar contains various system settings like 'Quick Set', 'CAPsMAN', 'Interfaces', etc. The main window is titled 'Firewall' and shows a list of 'Filter Rules'. A 'New Firewall Rule' dialog box is open, with the 'General' tab selected. The 'Chain' dropdown is set to 'forward'. The 'Src. Address' field is highlighted with a red circle and arrow labeled '3'. The 'Apply' button in the dialog is highlighted with a red circle and arrow labeled '4'. The 'Chain' dropdown is highlighted with a red circle and arrow labeled '5'. The 'Filter Rules' tab is highlighted with a red circle and arrow labeled '2'. The 'Life Mode' button is highlighted with a red circle and arrow labeled '1'.

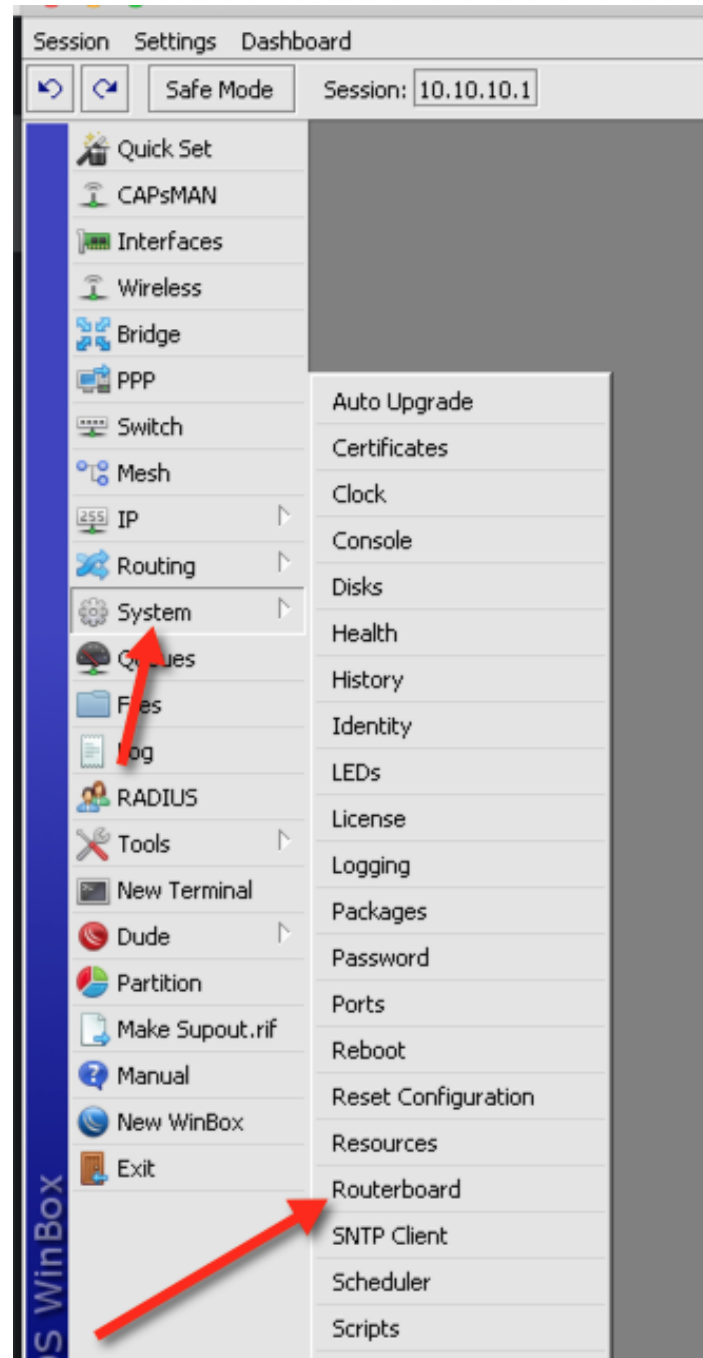


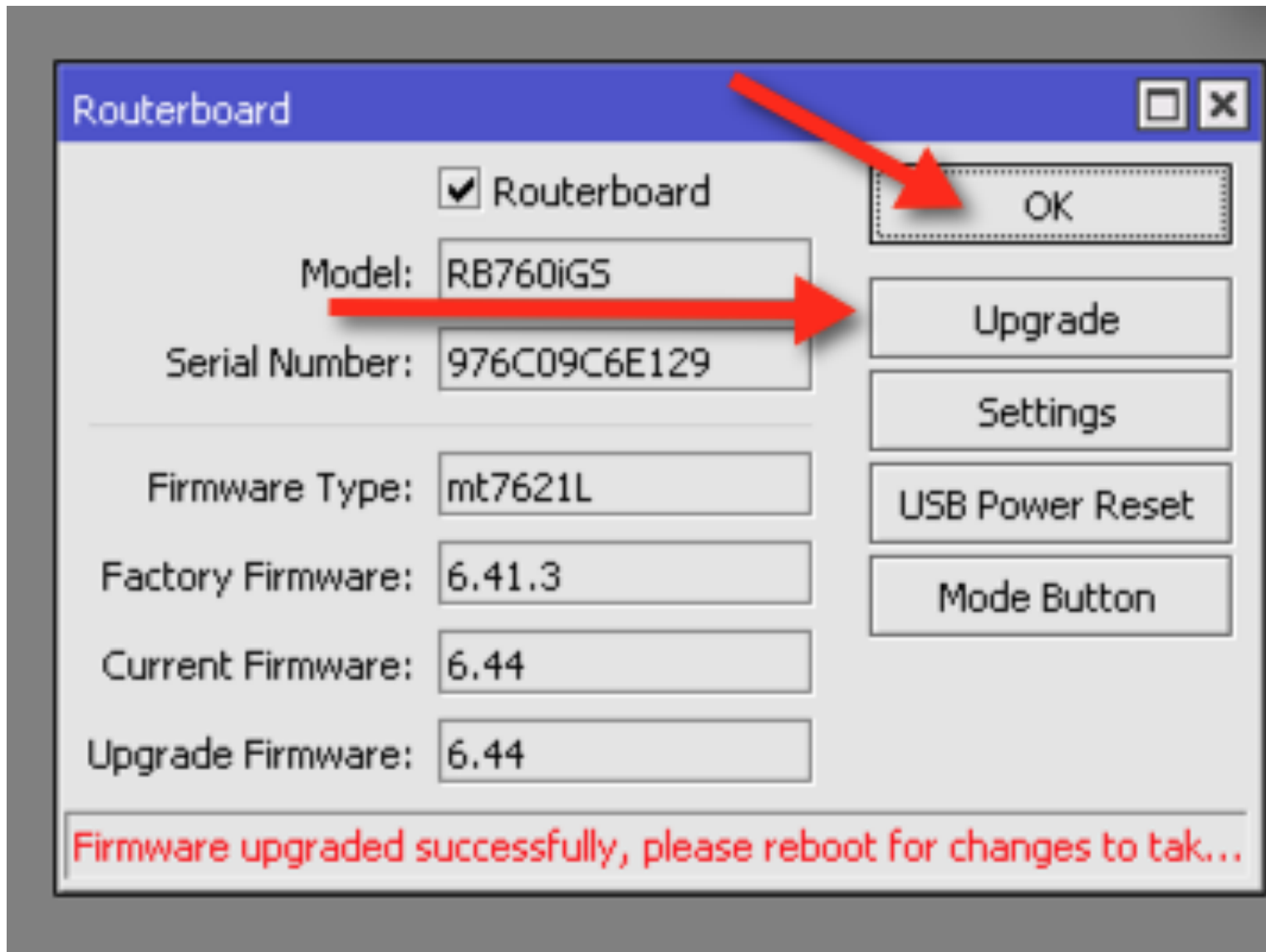


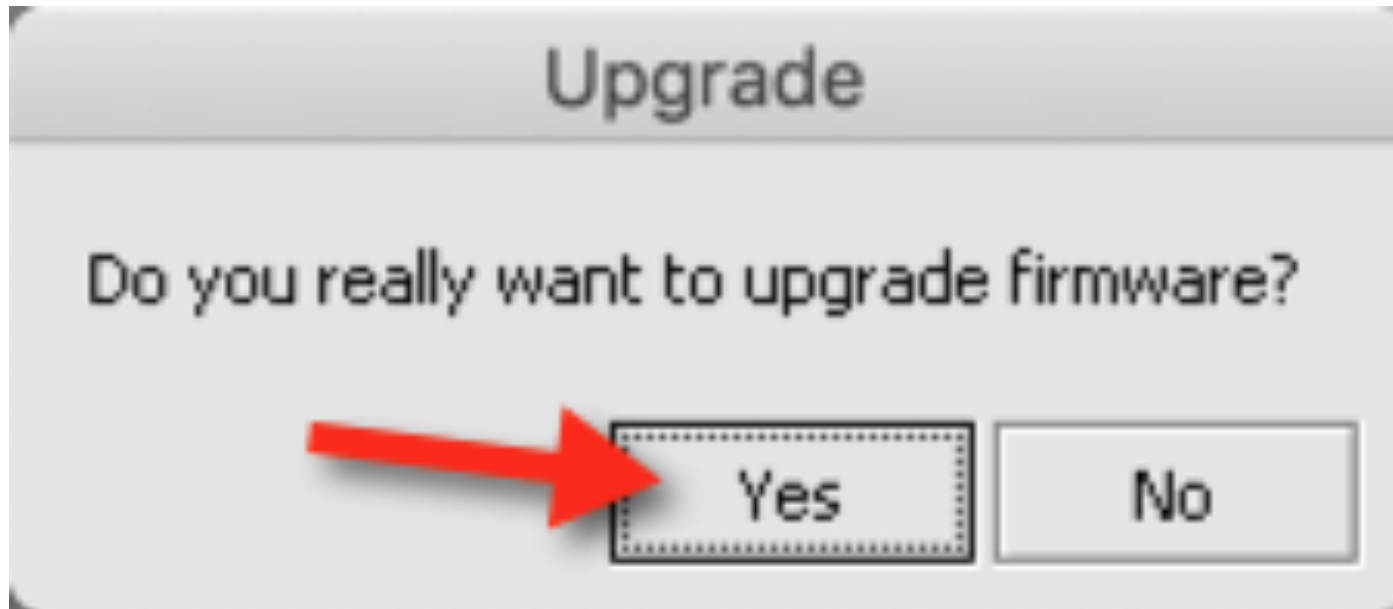
9. How to Upgrade Firmware

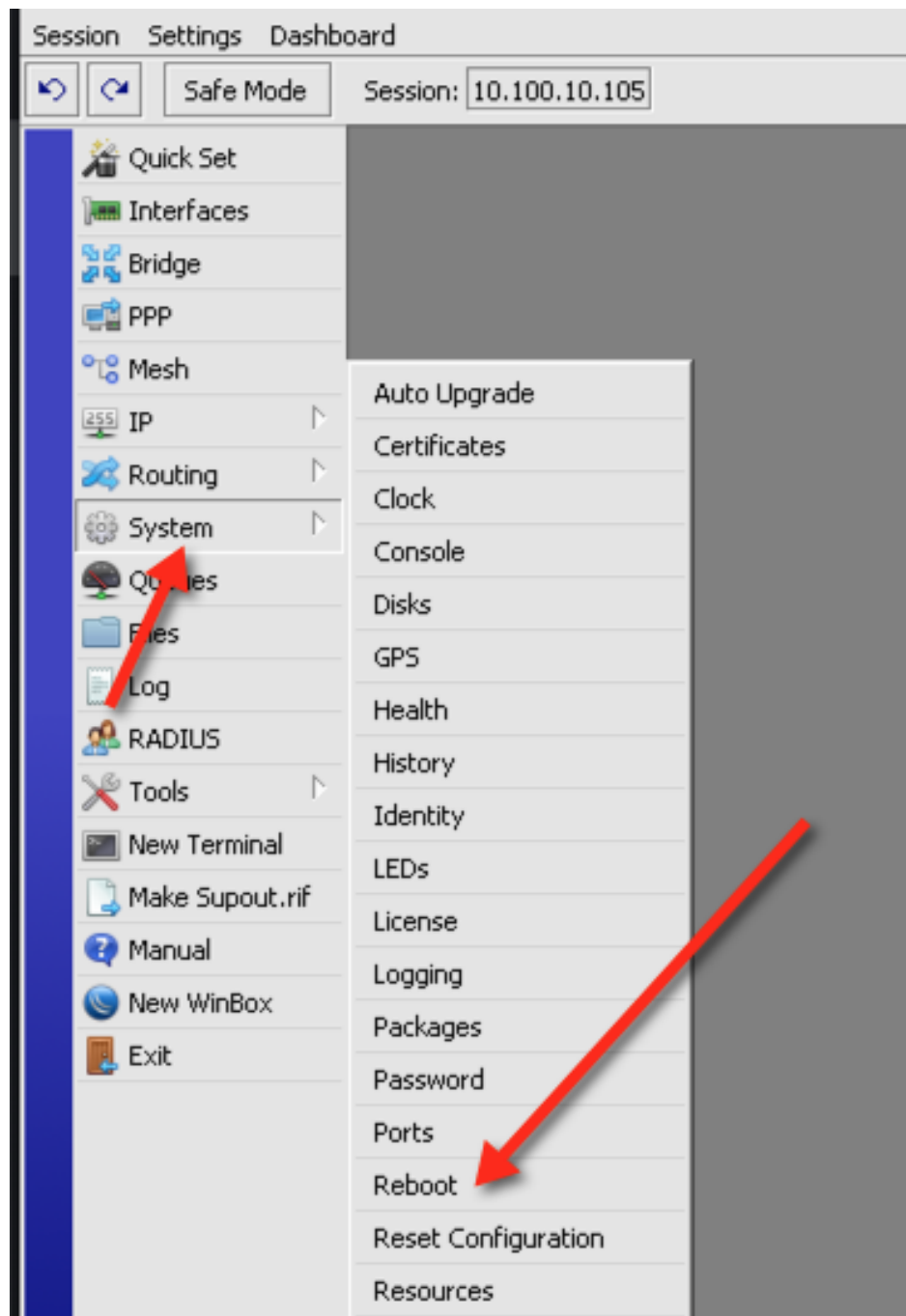
How to Upgrade Firmware

- Keeping the boot loader in sync with the current version helps ensure router stability



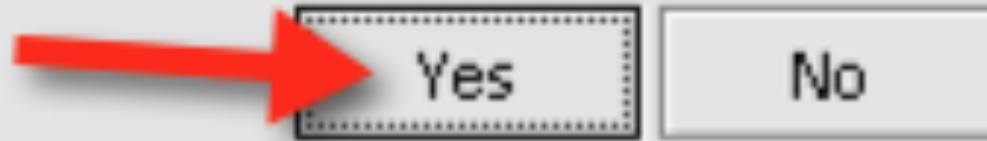






Reboot

Do you want to reboot the router?



10. How to Setup a Wireless Bridge

How to Set Up Wireless Bridge

- Extend Ethernet connectivity from Point A to Point B, no routing required

Session Settings Dashboard

Safe Mode Session: 10.100.20.1

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

Wireless Tables

WiFi Interfaces W60G Station Nstreme Dual Access List Registration Connect List Security Profiles Channels

+ - [Folder Icon] [Filter Icon]

Name	Mode	Authenticatio...	Unicast Ciphers	Group Ciphers	WPA Pre-Shared ...	WPA2 Pre-Share...
Test	dynamic keys	WPA2 PSK	aes ccm	aes ccm	*****	*****
default	none				*****	*****

1 item out of 7 (1 selected)

Wireless Tables

WiFi Interfaces W60G Station Nstreme Dual Access List Registration Connect List Security Profiles Channels



Name	Mode	Authenticatio...	Unicast Ciphers	Group Ciphers	WPA Pre-Shared ...	WPA2 Pre-Share...
Test	dynamic keys	WPA2 PSK	aes ccm	aes ccm	*****	*****
default	none				*****	*****

Security Profile <Test>

General RADIUS EAP Static Keys

1 Name: Test

Mode: dynamic keys

Authentication Types: WPA PSK WPA2 PSK
 WPA EAP WPA2 EAP

Unicast Ciphers: aes ccm tkip

Group Ciphers: aes ccm tkip

WPA Pre-Shared Key:

WPA2 Pre-Shared Key: *****

Supplicant Identity:

Group Key Update: 00:05:00

Management Protection: allowed

Management Protection Key:

4 OK
Cancel
Apply
Comment
Copy
Remove

2

3

The screenshot displays the MikroTik WinBox configuration window for the `wlan1` interface. The `Wireless` tab is selected, showing various configuration options. Red circles and arrows highlight the following settings:

- 1:** The `wlan1` interface is selected in the interface list on the left.
- 2:** The `Mode` is set to `bridge`.
- 3:** The `SSID` is set to `DWG87508`.
- 4:** The `Security Profile` is set to `default`.
- 5:** The `Frequency` is set to `2462` MHz.

Other visible settings include `Band: 2GHz-B/G/N`, `Channel Width: 20MHz`, `Scan List: default`, `Wireless Protocol: any`, `WPS Mode: push button`, `Bridge Mode: enabled`, `VLAN Mode: no tag`, and `VLAN ID: 1`. The right sidebar contains buttons for `OK`, `Cancel`, `Apply`, `Disable`, `Comment`, `Advanced Mode`, `Torch`, `WPS Accept`, `WPS Client`, `Setup Repeater`, `Scan...`, `Freq. Usage...`, `Align...`, and `Sniff...`.

Session Settings Dashboard

Safe Mode Session: 10.100.20.1

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

Bridge

Bridge Ports VLANs MSTIs Port MST Overrides Filters NAT Hosts MDB

+ - ✓ ✗ 📁 📏 Settings

	Name	Type	L2 MTU	Tx	Rx
R	↑↑bridge	Bridge	65535	0 bps	0 bps

Interface <bridge>

General STP VLAN Status Traffic

Name:

Type: Bridge

MTU:

Actual MTU: 1500

L2 MTU: 65535

MAC Address: 7A:11:F2:9E:25:C7

ARP: enabled

ARP Timeout:

Admin. MAC Address:

IGMP Snooping

Fast Forward

OK

Cancel

Apply

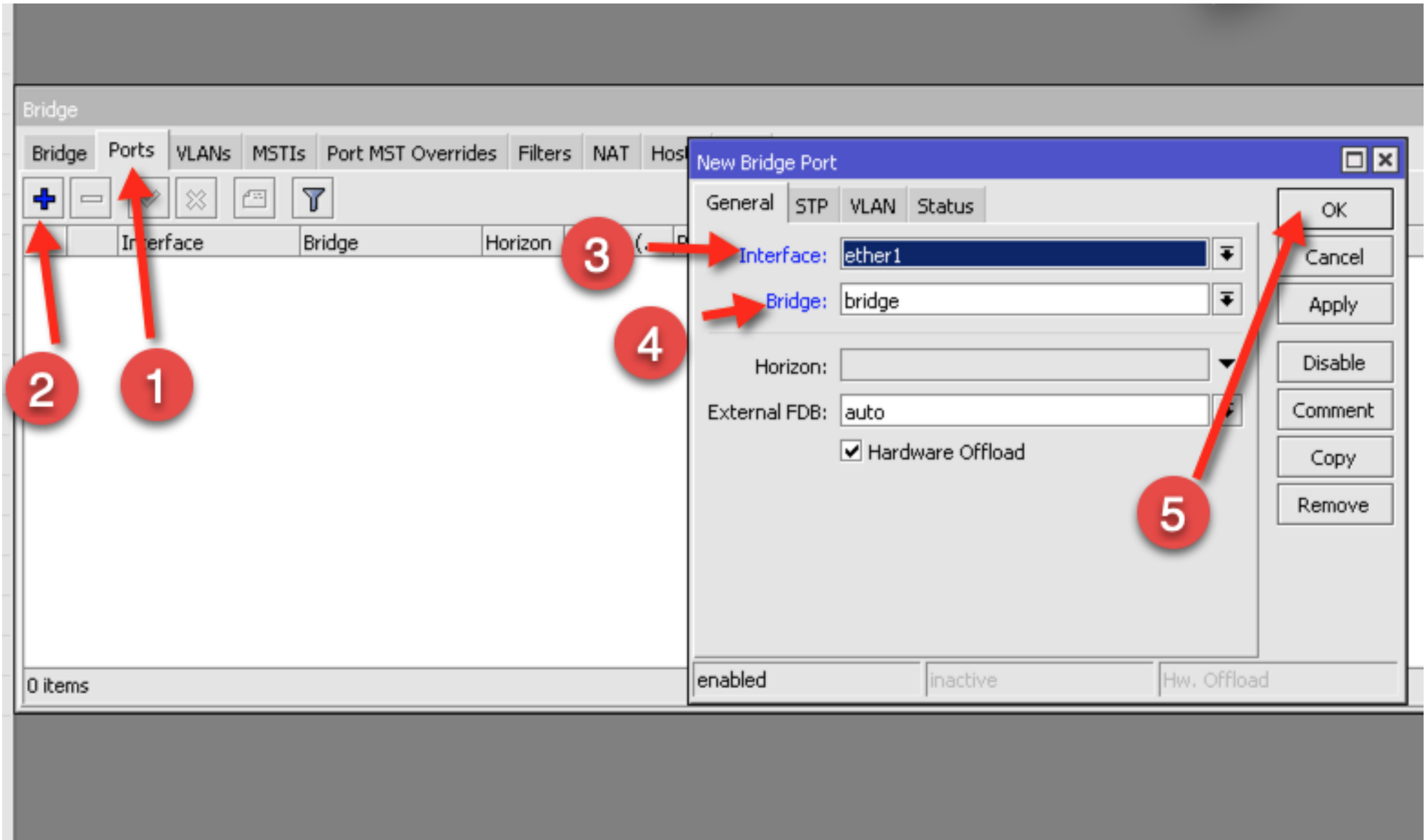
Disable

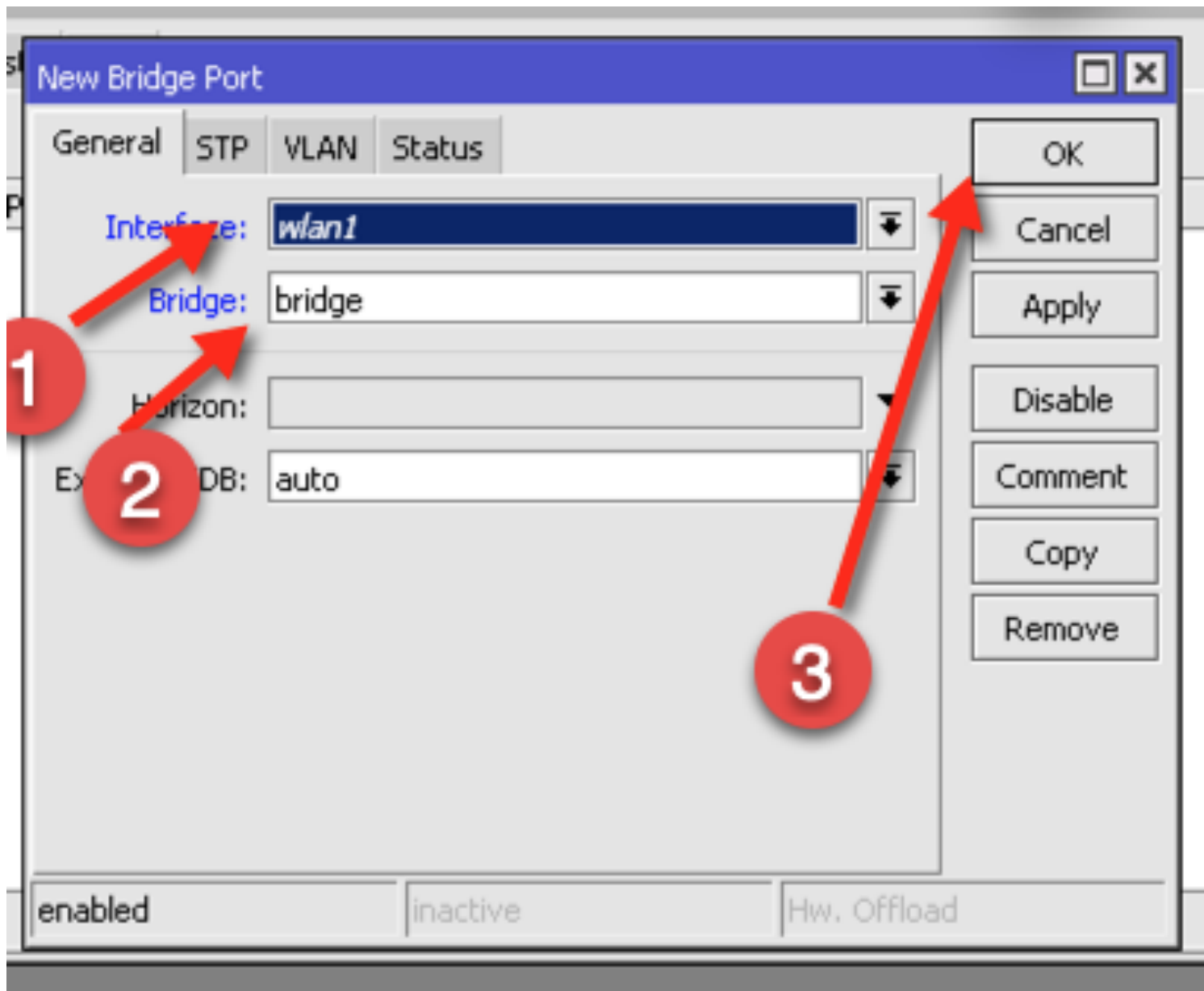
Comment

Copy

Remove

Torch





On the other side of the wireless bridge...

Session Settings Dashboard

Safe Mode Session: 10.100.20.1

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

Wireless Tables

WiFi Interfaces | W60G Station | Nstreme Dual | Access List | Registration | Connect List | Security Profiles | Channels

+ - [Folder Icon] [Filter Icon]

Name	Mode	Authenticatio...	Unicast Ciphers	Group Ciphers	WPA Pre-Shared ...	WPA2 Pre-Share...
Test	dynamic keys	WPA2 PSK	aes ccm	aes ccm	*****	*****
default	none				*****	*****

1 item out of 7 (1 selected)

Wireless Tables

WiFi Interfaces | W60G Station | Nstreme Dual | Access List | Registration | Connect List | **Security Profiles** | Channels



Name	Mode	Authenticatio...	Unicast Ciphers	Group Ciphers	WPA Pre-Shared ...	WPA2 Pre-Share...
Test	dynamic keys	WPA2 PSK	aes ccm	aes ccm	*****	*****
default	none				*****	*****

Security Profile <Test>

General | **RADIUS** | EAP | Static Keys

1 → Name:

Mode:

Authentication Types: WPA PSK WPA2 PSK
 WPA EAP WPA2 EAP

Unicast Ciphers: aes ccm tkip

Group Ciphers: aes ccm tkip

2 →

WPA Pre-Shared Key:

WPA2 Pre-Shared Key: ← 3

Supplicant Identity:

Group Key Update:

Management Protection:

Management Protection Key:

4 → OK
Cancel
Apply
Comment
Copy
Remove

Session Settings Dashboard

Safe Mode Session: 10.100.20.1

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

Wireless Tables

Name	Type
wlan1	Wire

Interface <wlan1>

General Wireless HT HT MCS WDS Nstreme Advanced Status ...

Mode: station bridge

Band: 2GHz-B/G/N

Channel Width: 20MHz

Frequency: auto MHz

SSID: DWG87508

Scan List: default

Wireless Protocol: 802.11

Security Profile: Test

Default Authenticate

OK Cancel Apply Disable Comment Advanced Mode Torch WPS Accept WPS Client Setup Repeater Scan... Freq. Usage... Align...

Session Settings Dashboard

Safe Mode Session: 10.100.20.1

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

Bridge

Bridge Ports VLANs MSTIs Port MST Overrides Filters NAT Hosts MDB

+ - ✓ ✗ 📁 🏠 Settings

	Name	Type	L2 MTU	Tx	Rx
R	↑↑bridge	Bridge	65535	0 bps	0 bps

Interface <bridge>

General STP VLAN Status Traffic

Name:

Type: Bridge

MTU:

Actual MTU: 1500

L2 MTU: 65535

MAC Address: 7A:11:F2:9E:25:C7

ARP: enabled

ARP Timeout:

Admin. MAC Address:

IGMP Snooping

Fast Forward

OK

Cancel

Apply

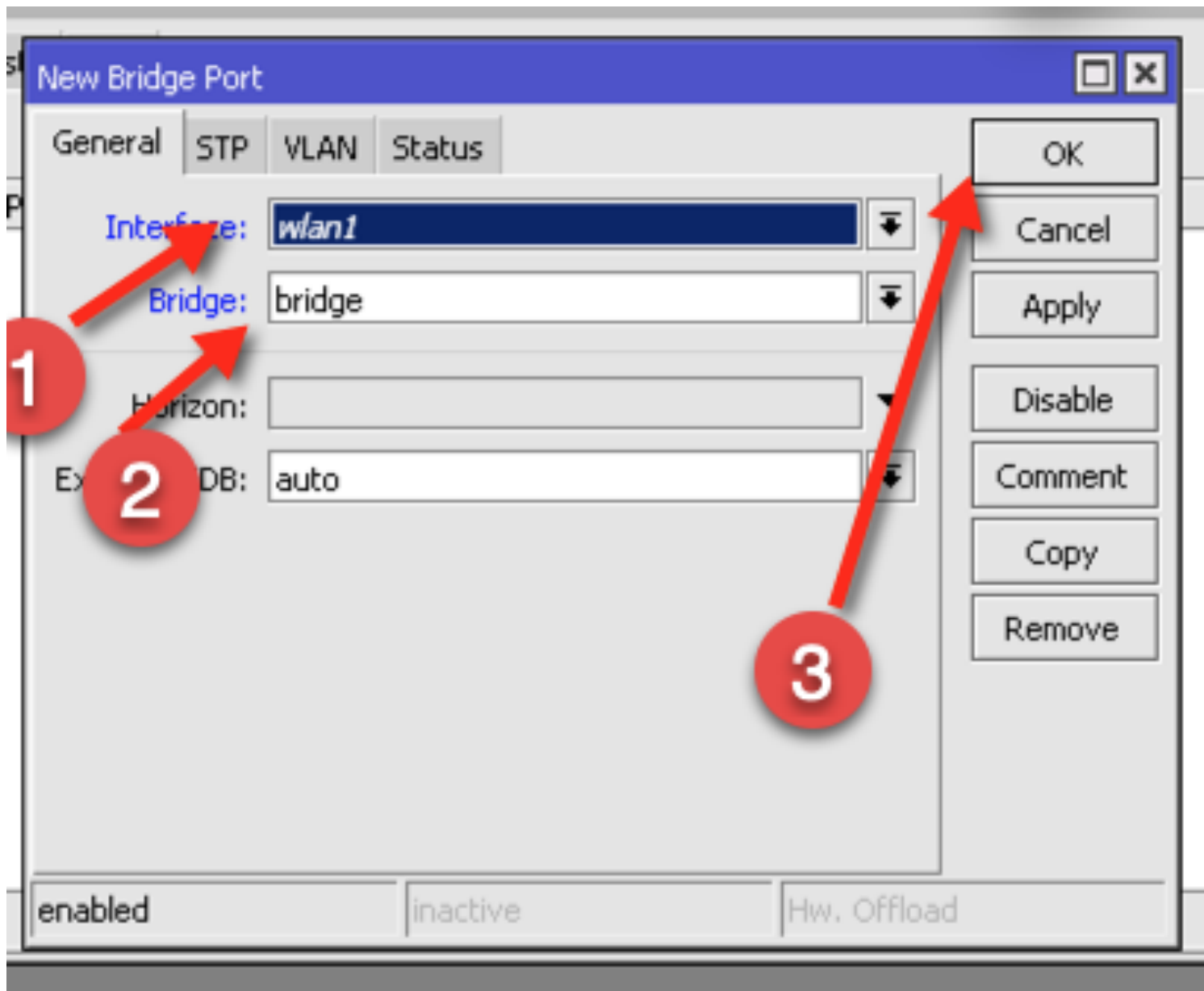
Disable

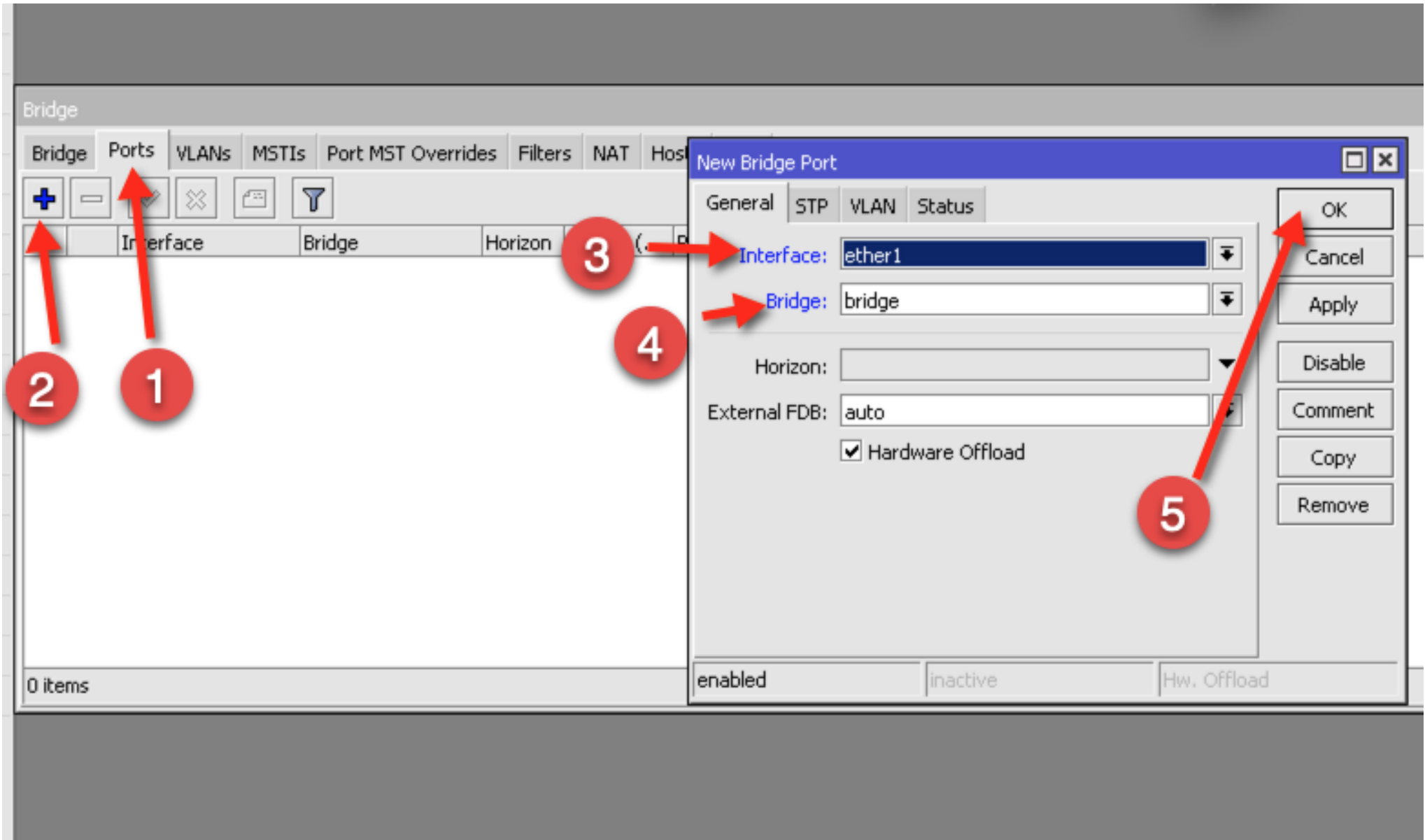
Comment

Copy

Remove

Torch





Questions?

Thank You!

- Steve Discher, from College Station, Texas, USA
- MikroTik Certified Trainer since 2008 and teach RouterOS classes, LearnMikroTik.com, ISPSupplies.com, and blog at SteveDischer.com
- mikrotikconfig.com, Firewall, QOS, Load Balance and Country IP Block address list generator now updated daily
- Author of RouterOS by Example, 1st and 2nd Editions from ISPSupplies.com and Amazon.

