





Defaults – Disabled = no or Enabled = yes ?

According to ...

Barry Higgins

Presenter bio...

Name: Barry Higgins.

DoB: I am a child of the hippy generation

Country of Origin: England (UK)

Trainer: TR0372 (Feb 2016)

Likes: Ice Cream – That's why I'm at MTPC!

Dislikes: PEOPLE WHO TYPE IN CAPITALS

Hobbies: Hiking



Shameless plug #1 - Consultancy

MikroTik Consultant since 2015

- Consultancy available – Email me.
- If you try to call I am most likely already in a call anyway!
(leave a message or see above – email me)
- Details at <https://www.allness.net>

Shameless plug #2 - Training

MikroTiK Trainer : Since 2016

- **Public sessions held in the UK and Ireland**
- **Private sessions can be arranged!**
- **All countries covered so long as you want it in English!**

Shameless plug #2 cont... New Training Center!

Opened December 2024



Shameless plug #2 – Training Center continued



Shameless plug #3 cont... bootcamp 2025

Yes there is one...

... and I was sworn to secrecy as to the date until now

12-20th June 2025

Shameless plug #3 cont... bootcamp 2025

The gang!



Shameless plug #3 cont...

Plus for 2025...
Introducing
Guilherme Ramires



Shameless plug #3 – Riga BootCamp

Riga Bootcamp summer 2025...

<https://mikrotik.camp/>

12-20 June 2025

And finally.. The Bus

Many of you are aware of ‘The Bus’

And finally.. The Bus



And finally.. The Bus



Coming up...

Should you disable with a yes...

...or enable with a no?

v7 defaults

In early versions of v7

- Default values were not always shown in Winbox
- Even had to specify them in CLI!

v7 defaults

Now...

Thankfully most defaults are either visible or included in a CLI command configuration without the need to type them

There are many default values within RouterOS.

Defaults

Over the years I have come to appreciate that most of the default values will at least make whatever it is you are configuring, work.

Defaults

However

Sometimes they need tweaking but more often they need to be left the \$%&* alone!

A short journey through some of the defaults that over the years have either caught me out or more often, the clients that contact me.

PPP - Profiles

Ever diagnosed the two default PPP profiles supplied in RouterOS?

No?

What are the default protocols set to?
(IPv6/MPLS/Compression/Encryption)

PPP - Profiles

Well if you have never checked them out...

PPP - Profiles

The image shows two side-by-side configuration windows for PPP profiles. The left window is titled 'PPP Profile <default>' and the right is 'PPP Profile <default-encryption>'. Both windows have a tabbed interface with 'General', 'Protocols', 'Limits', 'Queue', and 'Scripts' tabs. The 'General' tab is active in both. In the 'General' tab, there are four sections: 'Use IPv6', 'Use MPLS', 'Use Compression', and 'Use Encryption'. Each section has four radio button options: 'no', 'yes', 'required', and 'default'. In the 'PPP Profile <default>' window, the 'yes' option for 'Use IPv6' and the 'default' option for 'Use MPLS' are selected. In the 'PPP Profile <default-encryption>' window, the 'yes' option for 'Use IPv6' and the 'default' option for 'Use MPLS' are also selected. The 'Use Encryption' section in both windows has the 'default' option selected. A red arrow points to the 'Use Encryption' section in the left window, and another red arrow points to the 'Use Encryption' section in the right window. The right window also has buttons for 'OK', 'Cancel', 'Apply', 'Copy', and 'Remove' on the right side.

Profile	Use IPv6	Use MPLS	Use Compression	Use Encryption
PPP Profile <default>	<input checked="" type="radio"/> yes	<input checked="" type="radio"/> default	<input checked="" type="radio"/> default	<input checked="" type="radio"/> default
PPP Profile <default-encryption>	<input checked="" type="radio"/> yes	<input checked="" type="radio"/> default	<input checked="" type="radio"/> default	<input checked="" type="radio"/> default

PPP - Profiles

They are set to default!

PPP - Profiles

So if they are set to default...

...What is the value of default?

For those in the room that were not aware -

And now for those watching on
tiktoktubesnapwhatbookreels
The answer is

default

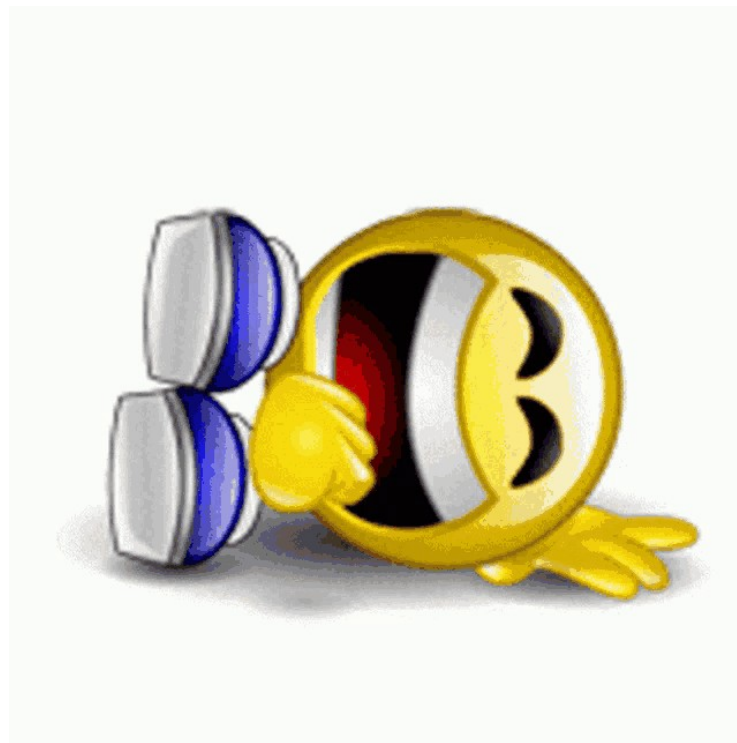
PPP - PPPoE Server

So you were brave and decided you wanted to upgrade your main ISP PPPoE server/concentrator to v7

“help! I’ve lost all the PPPoE clients to my network!!”

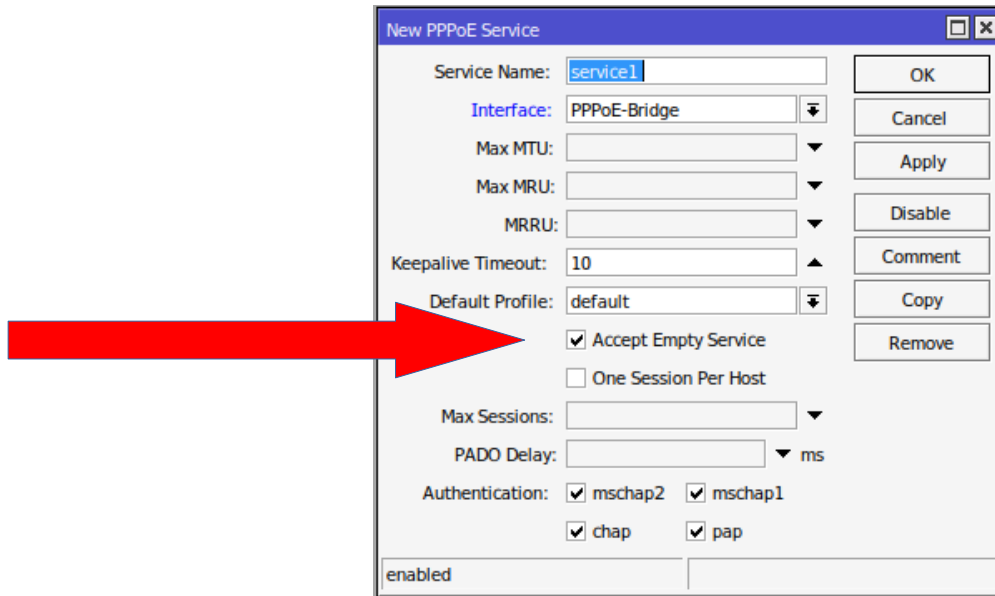
PPP – PPPoE Server

oops



PPP – PPPoE Server

V7 PPPoE server now has the following option



The screenshot shows a 'New PPPoE Service' dialog box. A large red arrow points to the 'Accept Empty Service' checkbox, which is checked. The dialog box contains the following fields and options:

- Service Name: service1
- Interface: PPPoE-Bridge
- Max MTU: [empty]
- Max MRU: [empty]
- MRRU: [empty]
- Keepalive Timeout: 10
- Default Profile: default
- ☒ Accept Empty Service
- ☐ One Session Per Host
- Max Sessions: [empty]
- PADO Delay: [empty] ms
- Authentication: ☒ mschap2 ☒ mschap1 ☒ chap ☒ pap
- enabled

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

PPP – PPPoE Server

In early versions of v7 the default was disabled/unticked for


“Accept Empty Service”

Thankfully it is enabled/ticked by default for a new PPPoE service

RADIUS

V7.15 saw a new attribute to the RADIUS settings

RADIUS



New RADIUS Server

General Status

Service: ☐ ppp ☐ login
☐ hotspot ☐ wireless
☐ dhcp ☐ ipsec
☐ dot1x

Called ID:

Domain:

Address:

Protocol:

Secret:

Authentication Port:

Accounting Port:

Timeout: ms

☐ Accounting Backup

Realm:

Certificate:

Require Message Auth:

Src. Address:

enabled

OK
Cancel
Apply
Disable
Comment
Copy
Remove
Reset Status

This “Require Message Auth” can catch you out if your configuration did not require or supply it.

The default is on/required.

Not so useful defaults

Quite a few not so useful defaults -

Do we really need telnet enabled even if reset with
no-defaults=yes ?

Not so useful defaults

It could be argued that a new router being commissioned does not need telnet, winbox, api, ftp or ssh enabled

Not so useful defaults

Are you really going to install a brand new router with the defaults into your network or are you going to;
`reset no-defaults=yes?`

Not so useful defaults

Chances are you are resetting with no-defaults and you have direct layer 2 access to it meaning you could just log in via mac-telnet/winbox

Not so useful defaults

Configure basics e.g remove admin and add a new username and password combination and only then start to add your router/switch config.

Not so useful defaults (IMO)

Why is Routerboot auto-upgrade not enable by default?

Not so useful defaults (IMO)

```
[user@demo] /system routerboard settings set auto-upgrade=yes
```

Not so useful default (IMO)

At least this then survives a system reset even with
no-defaults=yes... go figure??

Not so useful defaults (IMO)

SNMP Community :

Public community set to 'read'

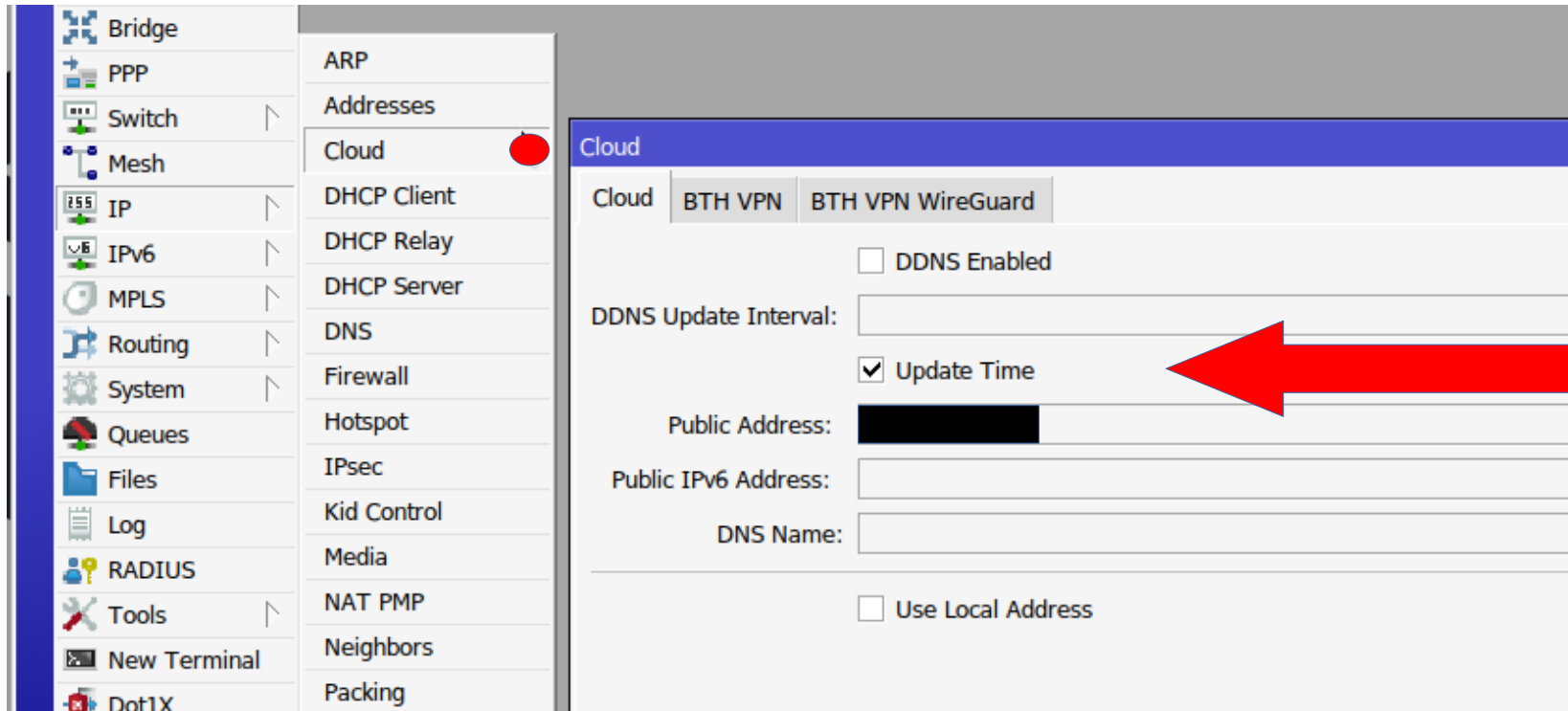
If I had my way I'd also ask for v1 and v2 to be removed!

Defaults

Here comes another one of those defaults that survives the
no-defaults=yes

Cloud NTP

Defaults



Not so useful defaults

From a security PoV

Neighbor Discovery

Not so useful defaults

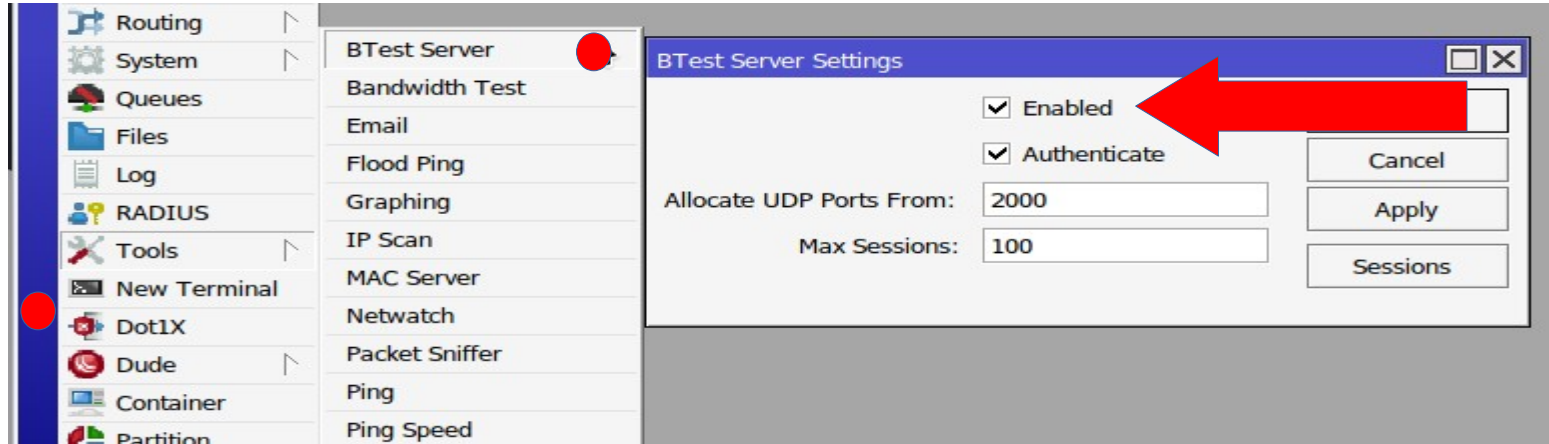
From a security PoV

Configure it to stop bleeding information into the wrong hands

Not so useful defaults

Bandwidth server

Not so useful defaults



```
[user@demo] /tool/bandwidth-server/set enabled=no
```


When it all goes wrong

There are times when defaults need to be adjusted

I get that..

I really do..

But...

I have occasion had to investigate MTU issues and more often than not the cause of a clients network problem has been a mix of MTU values being manually set between devices.

There are many opinions and best practices in what should the MTU should be set to.

Just remember this if you are communicating with a wider area network -

- It is likely to be 1500.
- Do the same. (in other words – leave it alone!)

Bridge - MAC

There is a 'gotcha' in how MAC's are generated for bridge interfaces.

Example: 8 identical routers.

No-defaults=yes.

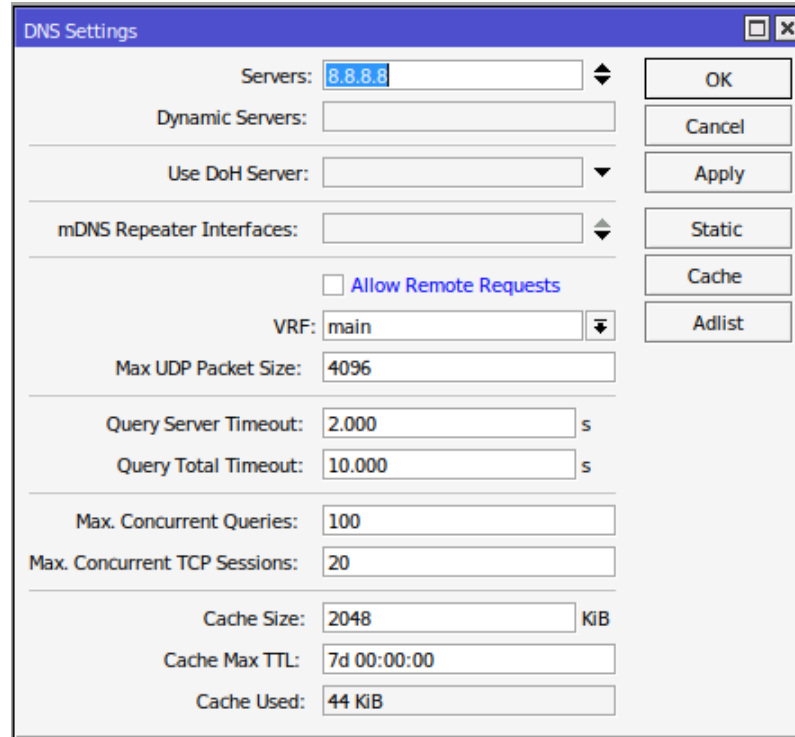
Create a bridge and apply. Chances are the bridge interface MAC will be the same on all of them.

If you copy and paste this 'randomly' generated MAC and set it as the 'admin-MAC'... Oops

DNS timings / sessions / queries

I have never had to touch these settings.

DNS timings / sessions / queries



The screenshot shows a 'DNS Settings' window with the following fields and controls:

- Servers:** 8.8.8.8 (with up/down arrows)
- Dynamic Servers:** (empty field)
- Use DoH Server:** (empty field with dropdown arrow)
- mDNS Repeater Interfaces:** (empty field with up/down arrows)
- ☐ **Allow Remote Requests**
- VRF:** main (with dropdown arrow)
- Max UDP Packet Size:** 4096
- Query Server Timeout:** 2.000 s
- Query Total Timeout:** 10.000 s
- Max. Concurrent Queries:** 100
- Max. Concurrent TCP Sessions:** 20
- Cache Size:** 2048 KiB
- Cache Max TTL:** 7d 00:00:00
- Cache Used:** 44 KiB

On the right side of the window, there are buttons: OK, Cancel, Apply, Static, Cache, and Adlist.

DNS timings / sessions / queries

...except when a client decided that the huge amount of DNS requests hitting the router needing fixing...

DNS timings / sessions / queries

Their fix – They added 000 (3 zeros) to the connections and 000 to the TCP sessions.

... You can guess what happened

DNS timings / sessions / queries

Another client did not see the point of having such a short cache timeout and increased it to 30 days

... You can guess what happened

DNS timings / sessions / queries

They only realised their mistake when the outlying network sites could not be accessed as they were using dynamicDNS to reach them and the dynamic IP's had changed

Defaults

A few more v7 changes regarding defaults

IP route

IP route defaults have visibly disappeared from route creation in winbox.

That does not mean you are not setting scope, target scope, distance etc.

They get filled in automatically!

IP route

Yes... I have had a client not realise that the defaults are inserted automatically and decided to manually set target scope and scope on all their static routes

IP route

Problem was they set target scope to 30 and scope to 10

The problem was compounded as they had OSPF running and the route table had quite a few routes...

Oops!

IP Settings

IP Settings

IP Settings

☒ IP Forward

☒ Send Redirects

☐ Accept Redirects

☒ Secure Redirects

☐ Accept Source Route

☒ Allow Fast Path

☒ Route Cache

RP Filter: no

IPv4 Multipath Hash Policy: l3

☐ TCP SynCookies

Max Neighbor Entries: 16384

ARP Timeout: 00:00:30

ICMP Rate Limit: 10

☐ IPv4 Fast Path Active

IPv4 Fast Path Packets: 0

IPv4 Fast Path Bytes: 0 B

☐ IPv4 Fasttrack Active

IPv4 Fasttrack Packets: 0

IPv4 Fasttrack Bytes: 0 B

OK

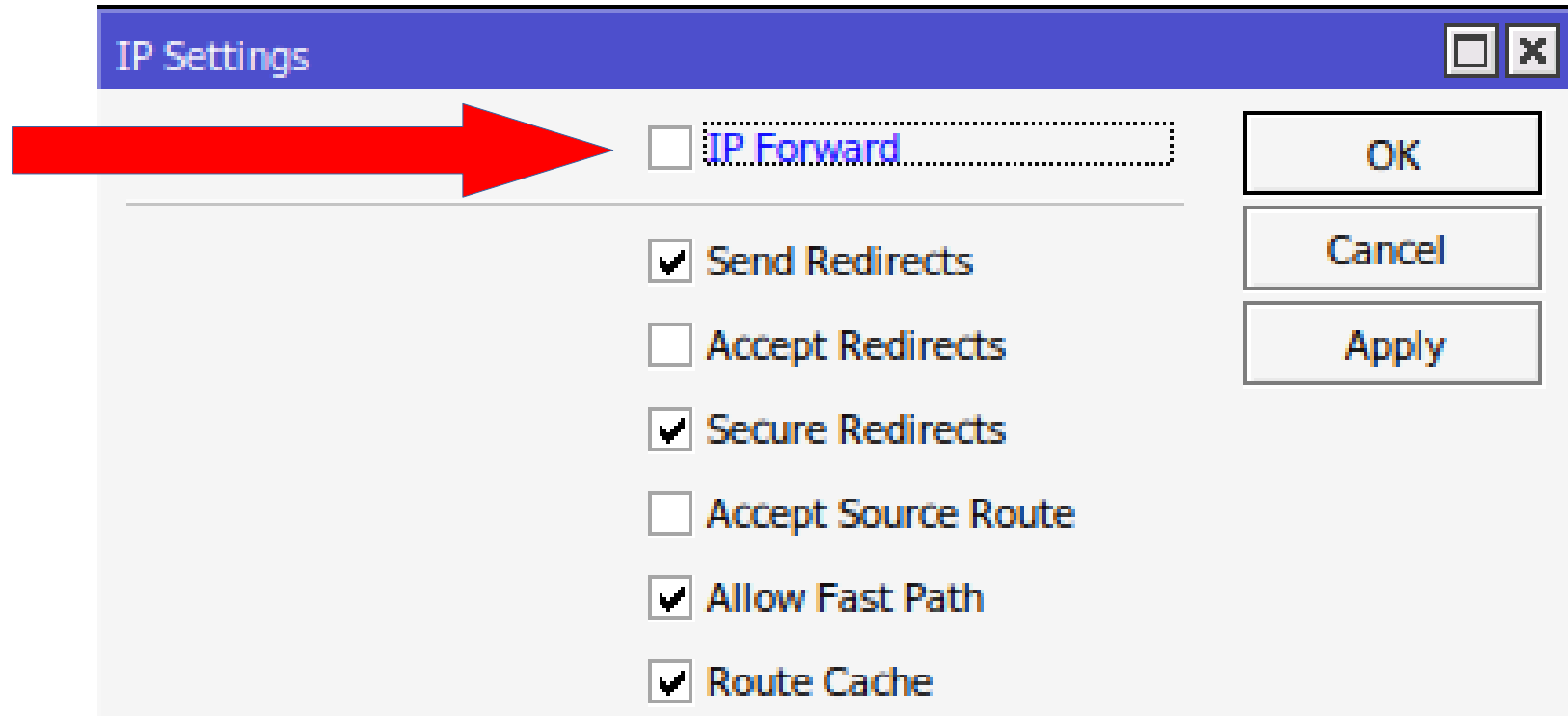
Cancel

Apply

“911 Please state the nature of your emergency”

“I can’t reach facebook. My internet is broken”

IP Settings – IP forward



IP Settings



IP Settings cont...

More IP settings

IP Settings – Max neighbor Entries

Max Neighbor Entries:

ARP Timeout:

IP Settings – Max neighbor Entries

This can cause havoc if played with. Too big a value and you crash the router (memory exhaustion).

Too little causing slow and intermittent network experience to the end user.

IP Settings – ARP timeout

This particular setting is best left alone unless you know it to be causing problems.

Raise it too high and you risk stale information

Lower it too much and risk excessive broadcasting

Routing protocol defaults

If you have jumped straight in to v7 and never used v6 then you can go grab a coffee before the next presentation starts.

Routing protocol defaults

OSPF keep lives and dead times

Routing protocol defaults

These have not changed. In early versions of v7 it was CLI only and the timings had to be entered.

Now the defaults are visible in winbox and there is no cause to panic.

Routing protocol defaults

BGP keep alive / hold time defaults have not changed either. They are not immediately visible but still default to the following:

Hold-time = 3 minutes (180 seconds)

Keep-alive = (if not set) 1/3 of hold-time e.g. 1 minute

Watchdog...

Your router / switch has rebooted due to watchdog
'rebooting' it.

watchdog

Do you...

a) disable watchdog?

b) try to work out why your router locked up?

Watchdog

**“I disabled watchdog and now my router is not reachable.
What do I do?”**

Credits

There is one 'IT guy' that I owe so much to in compiling some of the default edits I have mentioned but he will remain anonymous.

Thank you and I hope to see some of you at bootcamp!

TTFN