What's new in wireless since RouterOS v6.37

by Lorenzo Busatti

ROUTING & WIRELESS ACADEMY

Welcome to Italy!

About me

Lorenzo Busatti

- Founder of Grifonline S.r.l. [ISP] 1997
- A user of MikroTik since 2006
- Founder of Linkwave [WISP] 2006
- MikroTik Trainer 2010
- Member of RIPE, AMS-IX, MIX-IT


linkwave
2006 2016
10 anni di wireless!

About me


Suisse
Svizzera
Switzerland
Liechtenstein
Graz
Klagenfurt am Wörthersee
Maribor
Slovenija
Slovenia
Zagreb
Pécs
Karlovac
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Verona
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Parma
Bologna
Genova
Ravenna
Hrvatska
Croatia
Bosna i Hercegovi
Босна и Херцегови
Bosnia an Herzegovi
Zadar
Šibenik
Mostar
San Marino
Monaco
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Toulon
Livorno
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Pescara
Viterbo
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Roma
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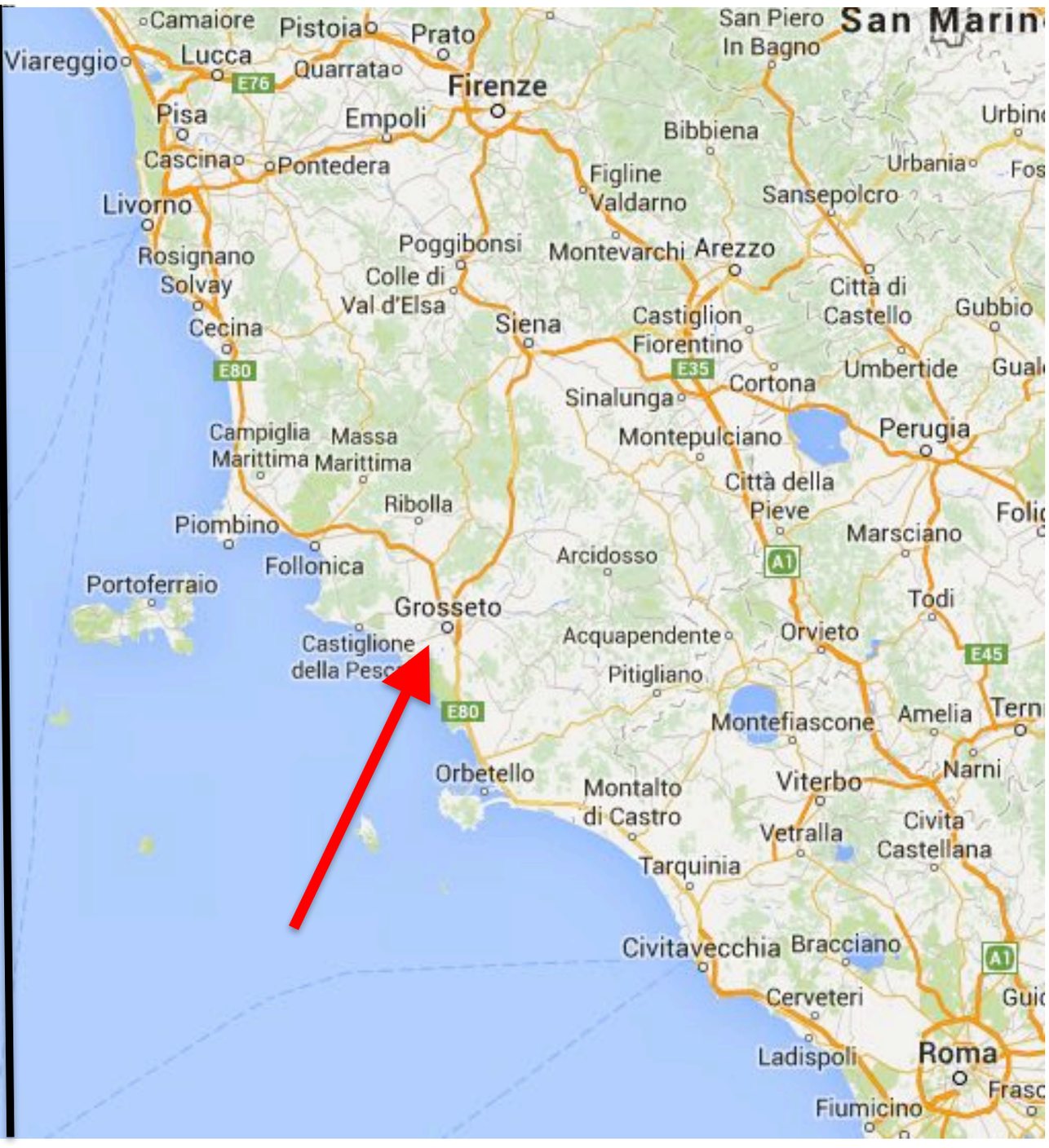
Adriatic Sea
Cosenza
Catanzaro
Palermo
Messina
Trapani
Marsala
Catania
Agrigento
Gela
Siracusa
Ragusa
Annaba
Tunis
Google


Camaiore
Pistoia
Prato
Viareggio
Lucca
E76
Quarrata
Firenze
San Piero In Bagno
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Empoli
Bibbiena
Cascina
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Arezzo
Colle di Val d'Elsa
Città di Castello
Gubbio
Cecina
Siena
Castiglion Fiorentino
E80
E35
Umbertide
Cortona
Sinalunga
Campiglia Marittima
Massa Marittima
Montepulciano
Perugia
Città della Pieve
Ribolla
Piombino
Follonica
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Todi
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Orvieto
Castiglione della Pesc
Pitigliano
E45
E80
Montefiascone
Amelia
Orbetello
Viterbo
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Civita Castellana
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Civitavecchia
Bracciano
A1
Cerveteri
Ladispoli
Roma
Fiumicino

I'm a MikroTik *enthusiast*

I'm a MikroTik *enthusiast*

I'm a MikroTik *evangelist*

About me

- Founder (2016) of the

ROUTING & WIRELESS® ACADEMY

Non Profit Organization for

High Quality Training Partners

Dedicated to Max

About the mAP lite

One of the smartest MikroTik wireless router

The mAP lite

Wireless Devices

All the MikroTik wireless devices are using **the same wireless package**: from the mAP lite up to the Netmetals.

Wireless Devices

The new wireless package

The new Wireless (wireless-rep since 6.35) package, with the features:

- The DFS “settings”
- Background scan
- Wireless Scan features
- Station Roaming
- Repeater function
- New Virtual Wireless Interfaces
- Future features?

The DFS settings

- **The DFS option is removed**

- Why the DFS should be implemented?

- How the DFS really work?

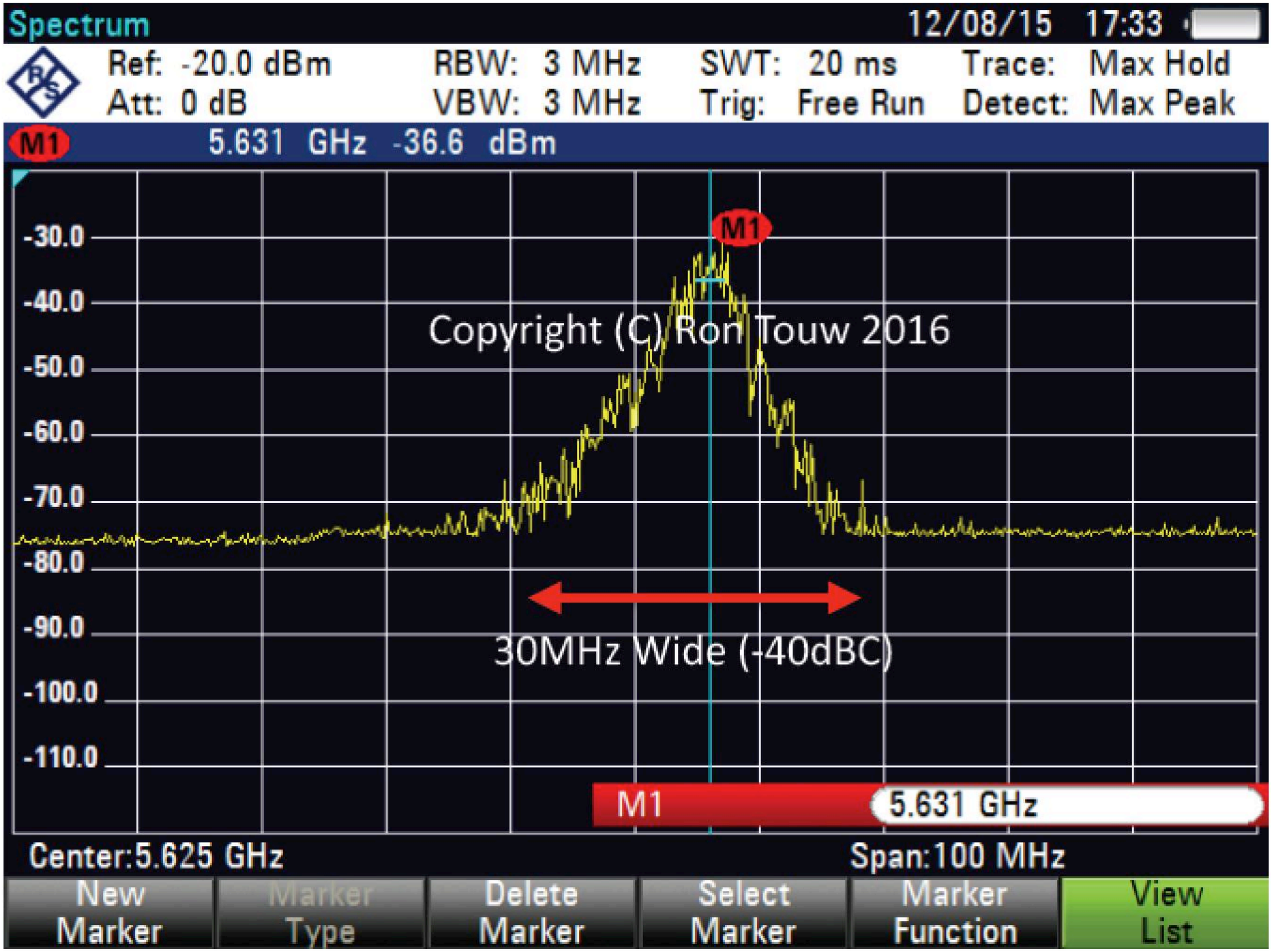
The DFS settings

Radar Detection and DFS on MikroTik

MikroTik User Meeting
London 2016

By Ron Touw
LinITX

The DFS settings

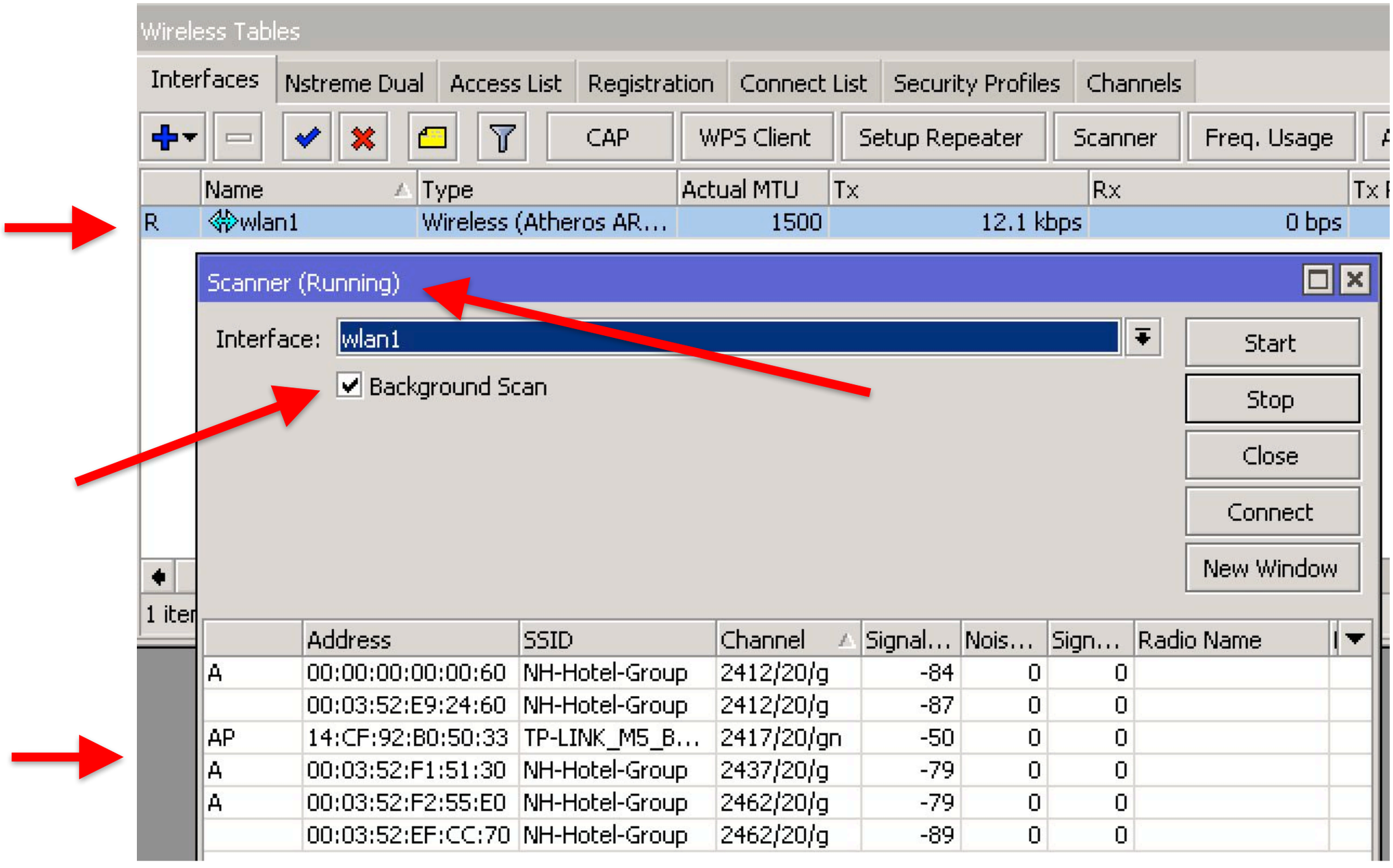


Background scan

Is now possible to do a wireless scan in "Background":

- Without losing the connection
- It is slow but "safe"
- Will work in 802.11 only (as AP if enabled, as station if connected)

Background scan




```
/interface wireless scan wlan1 background=yes
```

Wireless Scan features

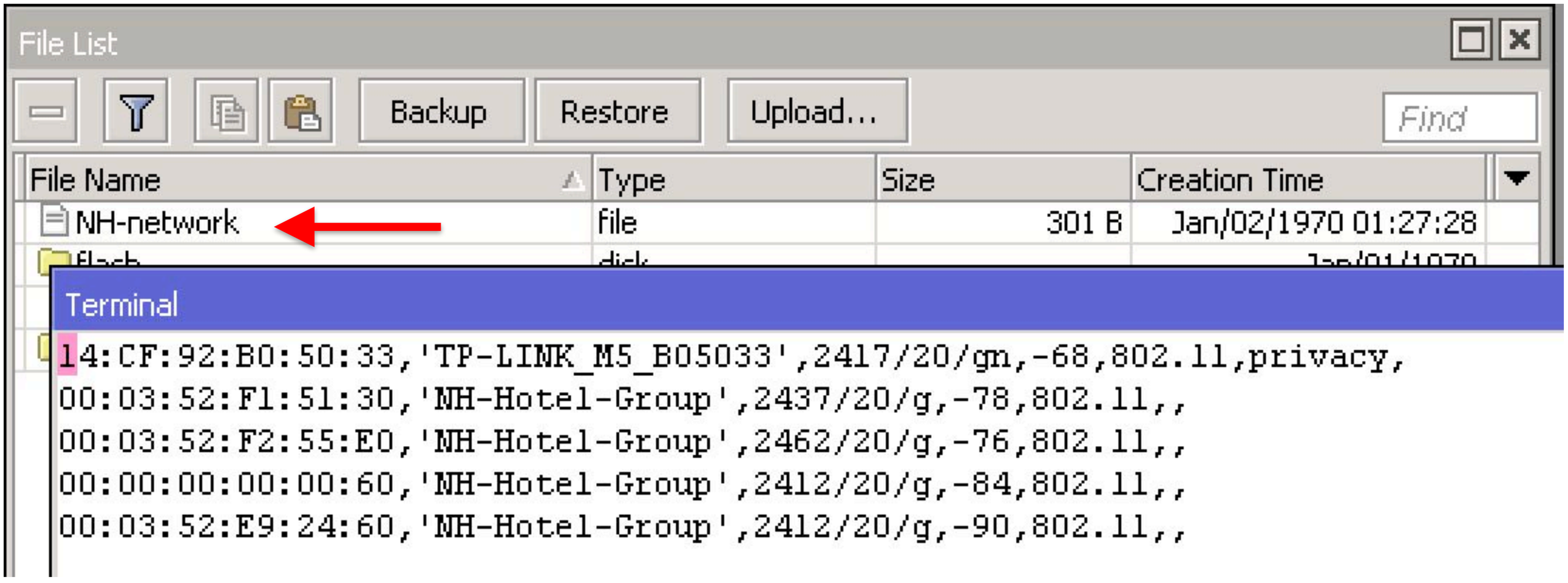
- The **Scan-to-file**: a dream that become true!
- The usage of the **scan** (**rounds** and **save-file**)
- **Limits** of the scan in the **virtual interfaces**

Wireless Scan features

```
/interface wireless scan wlan1 rounds=5 save-file=FileName
```

```
[admin@mAP lite] > /interface wireless scan wlan1 rounds=10 save-file=NH-network
Flags: A - active, P - privacy, R - routeros-network, N - nstreme, T - tdma,
W - wds, B - bridge
      ADDRESS           SSID        CHANNEL    SIG   NF SNR RADIO-NAME ROUTERO...
AP    14:CF:92:B0:50:33 TP-LINK_... 2417/20/gn -55 -107  52
A     00:03:52:F1:51:30 NH-Hotel... 2437/20/g  -82 -102  20
A     00:03:52:F2:55:E0 NH-Hotel... 2462/20/g  -79 -106  27
      00:00:00:00:00:60 NH-Hotel... 2412/20/g  -84 -109  25
A     00:03:52:E9:24:60 NH-Hotel... 2412/20/g  -90 -109  19
-- [Q quit|D dump|C-z pause]
```

Wireless Scan features



Can be done in “background” also.

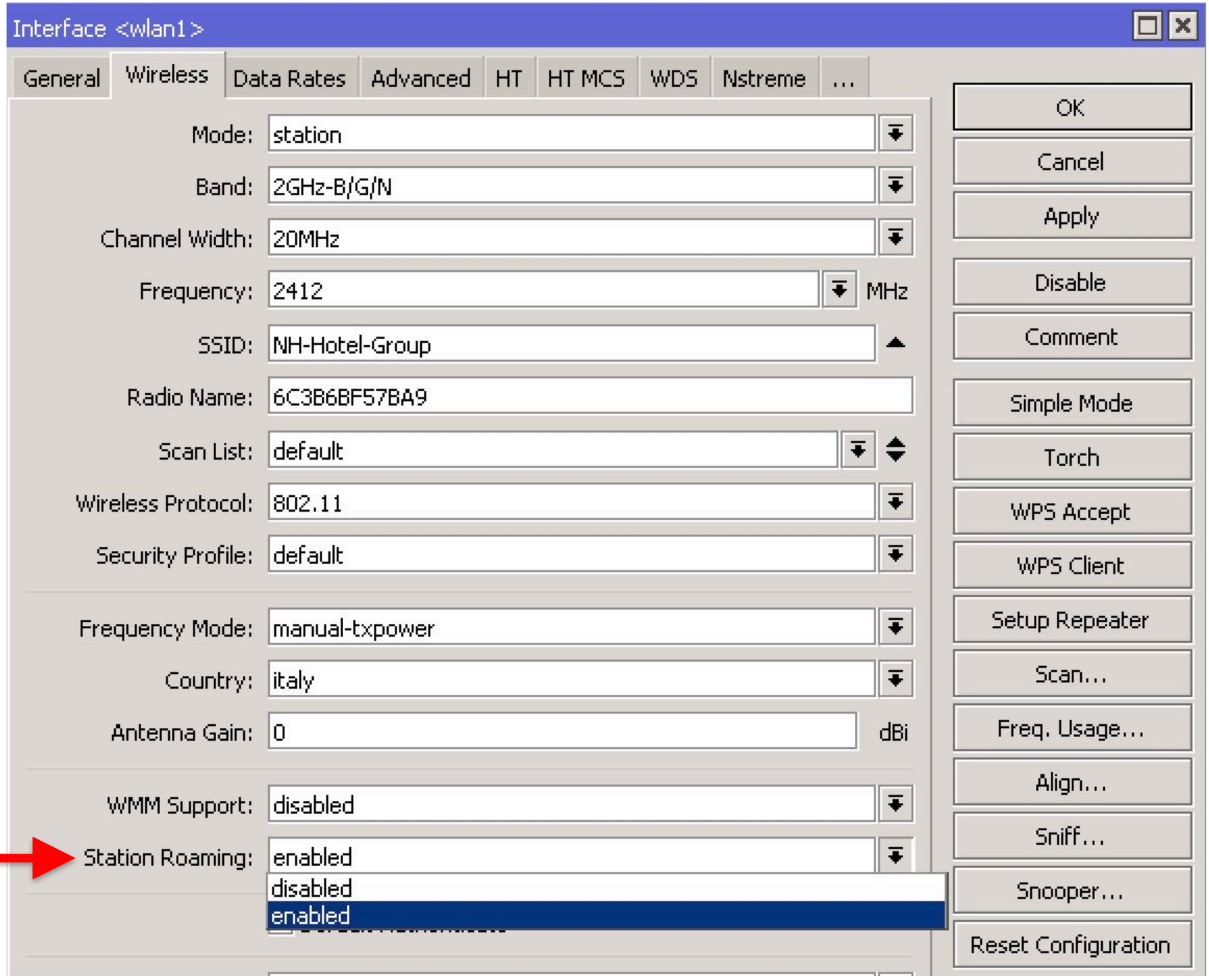
Wireless Scan features

- Scan command is supported also on the Virtual wireless interfaces, if the master interface is running.
- It is always in "background"

Station Roaming

- Introduced in the version 6.38.3
- Available only for the 802.11
- Only for the station mode

Station Roaming



Station Roaming

- Will periodically perform background scan
- When find an AP with better signal it will try to roam to that AP
- These intervals will become shorter when the wireless signal become worse

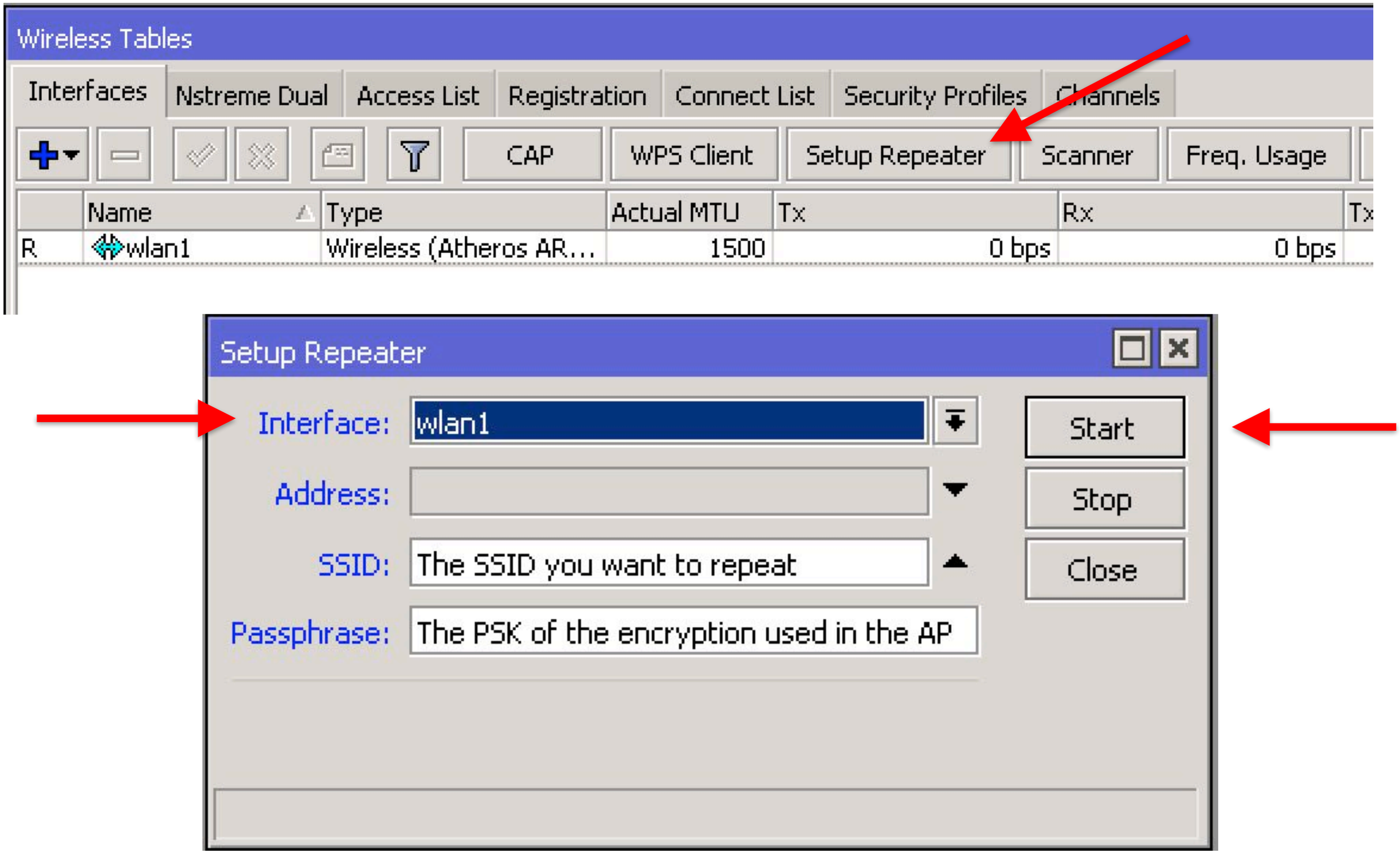
Repeater function

- The new “Repeater” function – 1click operation.

- (Was) the “name” of this wireless package (wireless-**rep**)

- The difference between the station-bridge and the station-pseudobridge.

Repeater function



Repeater function

- Wireless repeater will receive the signal from the AP and repeat it
- Using the **same** physical interface
- For extending the wireless service for the wireless clients
- Will configure the wireless interface to connect to the AP (in station-bridge or station-pseudobridge)
- Will create a virtual AP interface, a bridge and add both interfaces (main and the virtual) to this bridge

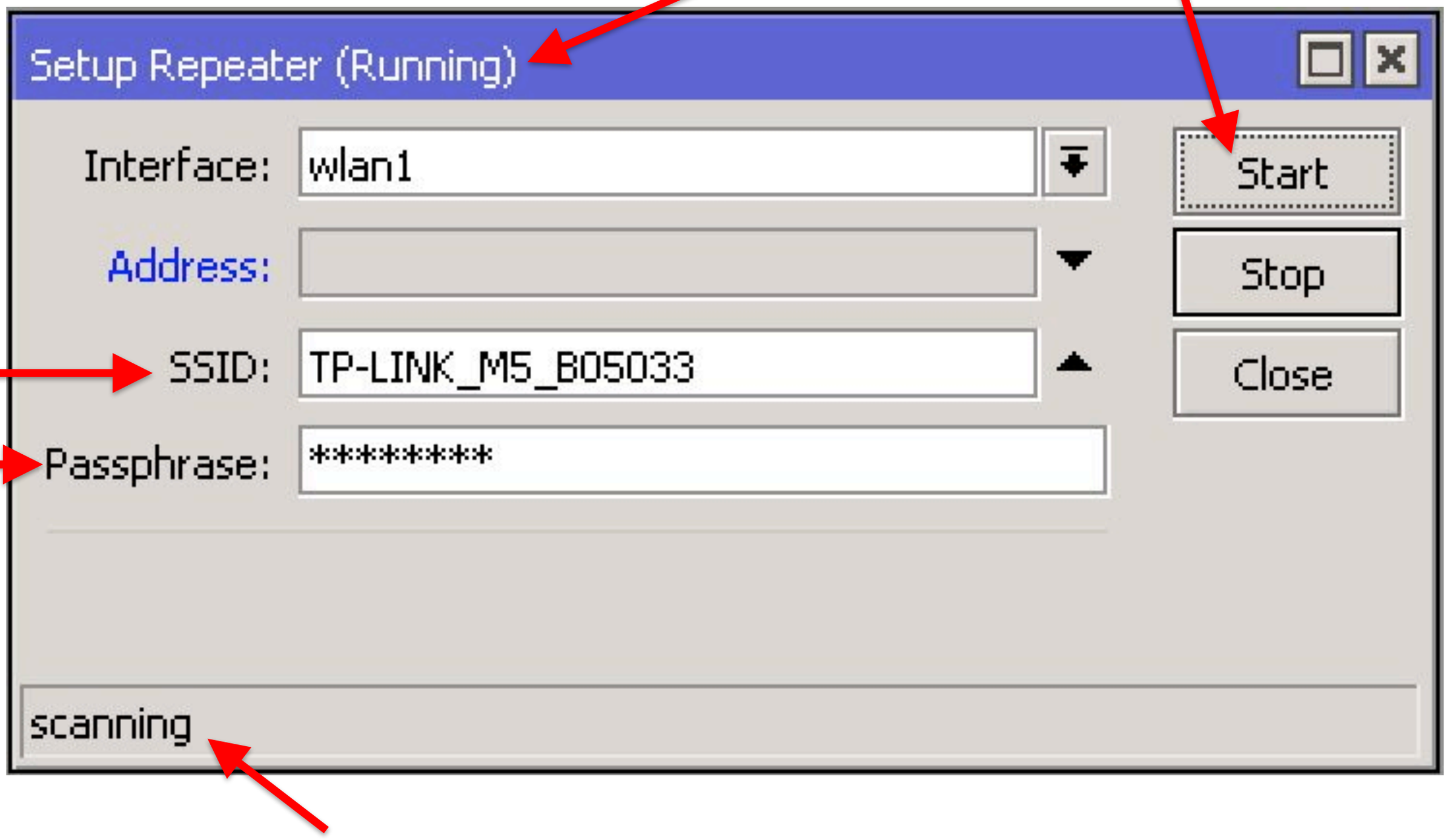
Repeater function

If the AP is WPS enabled, you don’t need to specify the wireless password ☺

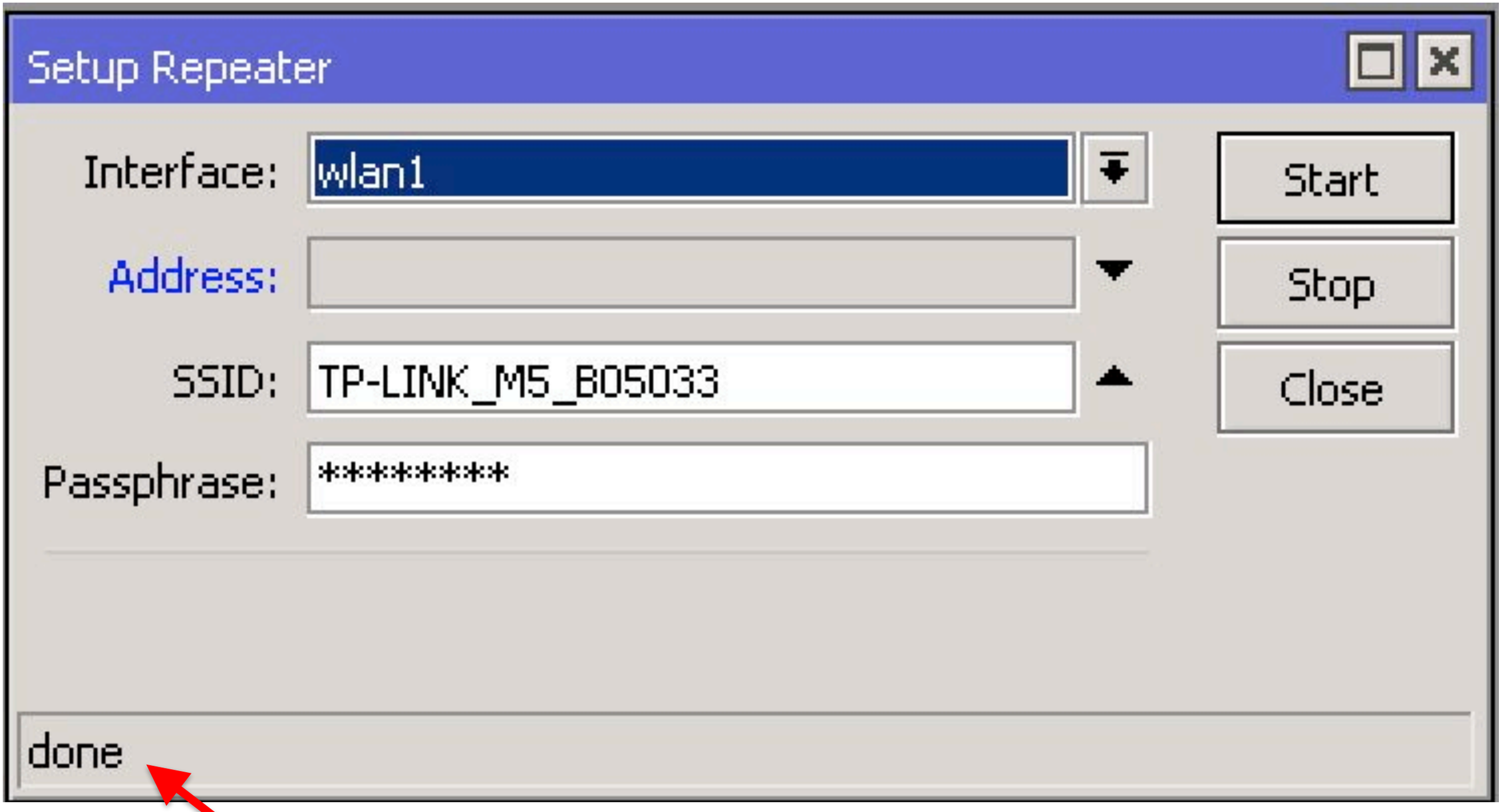
```
/interface wireless setup-repeater wlan1
```

If the password si NOT specified, will do WPS to find out passphrase.

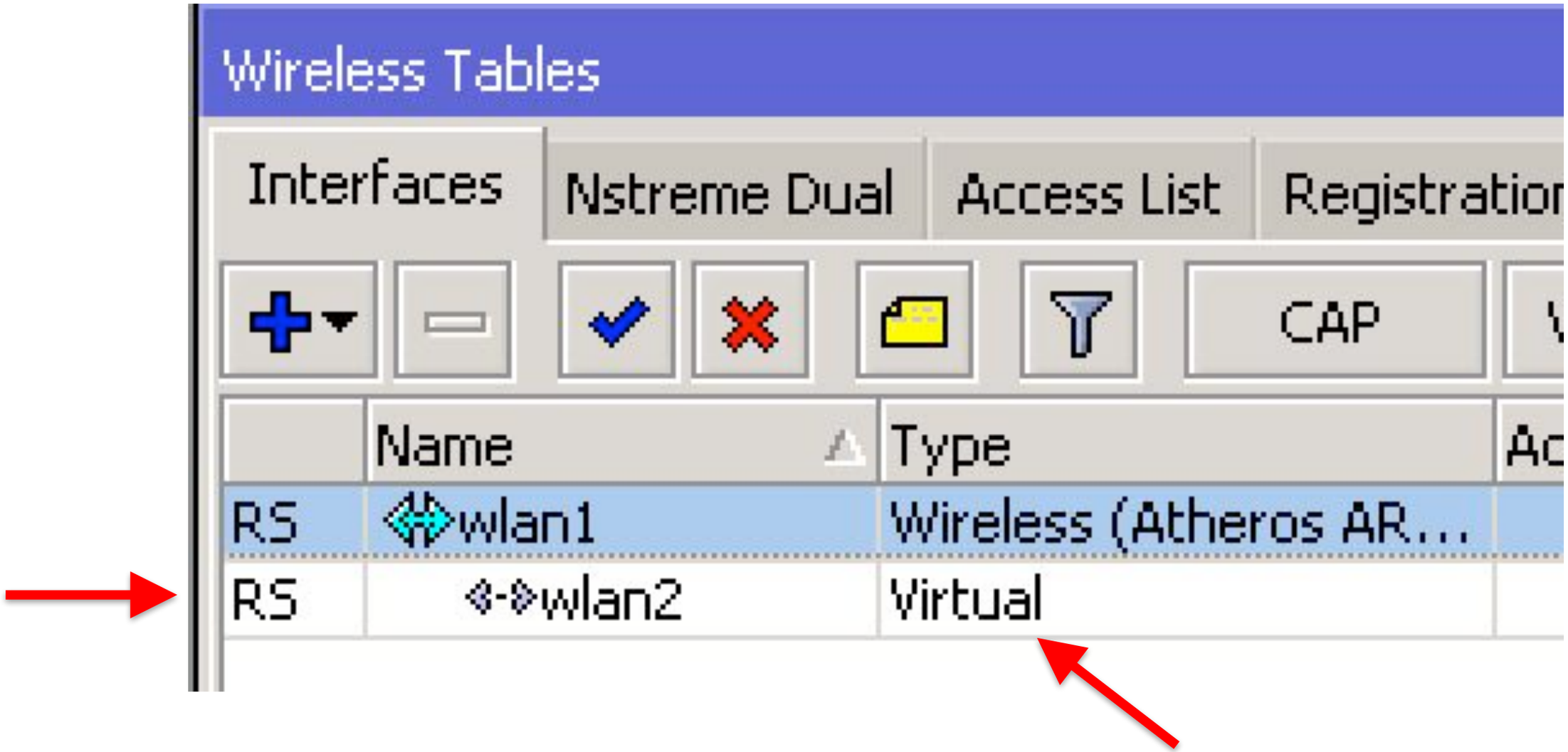
Repeater function



Repeater function

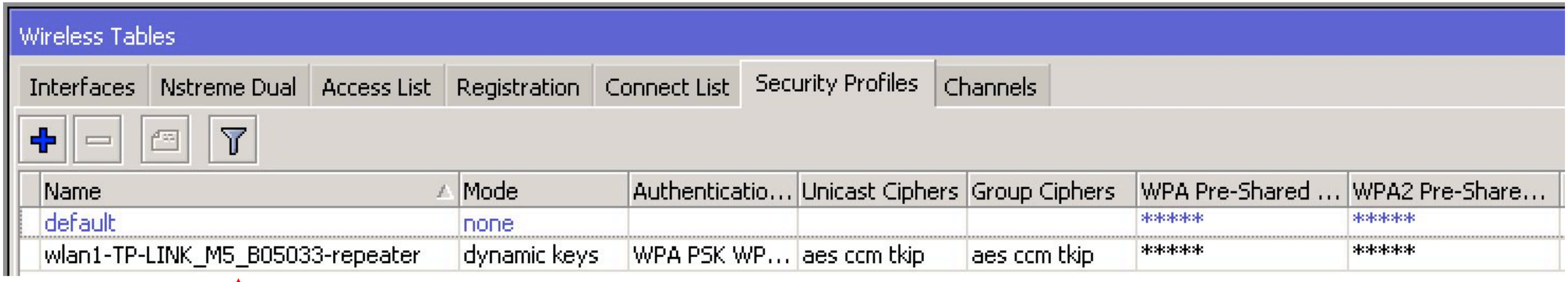


Repeater function



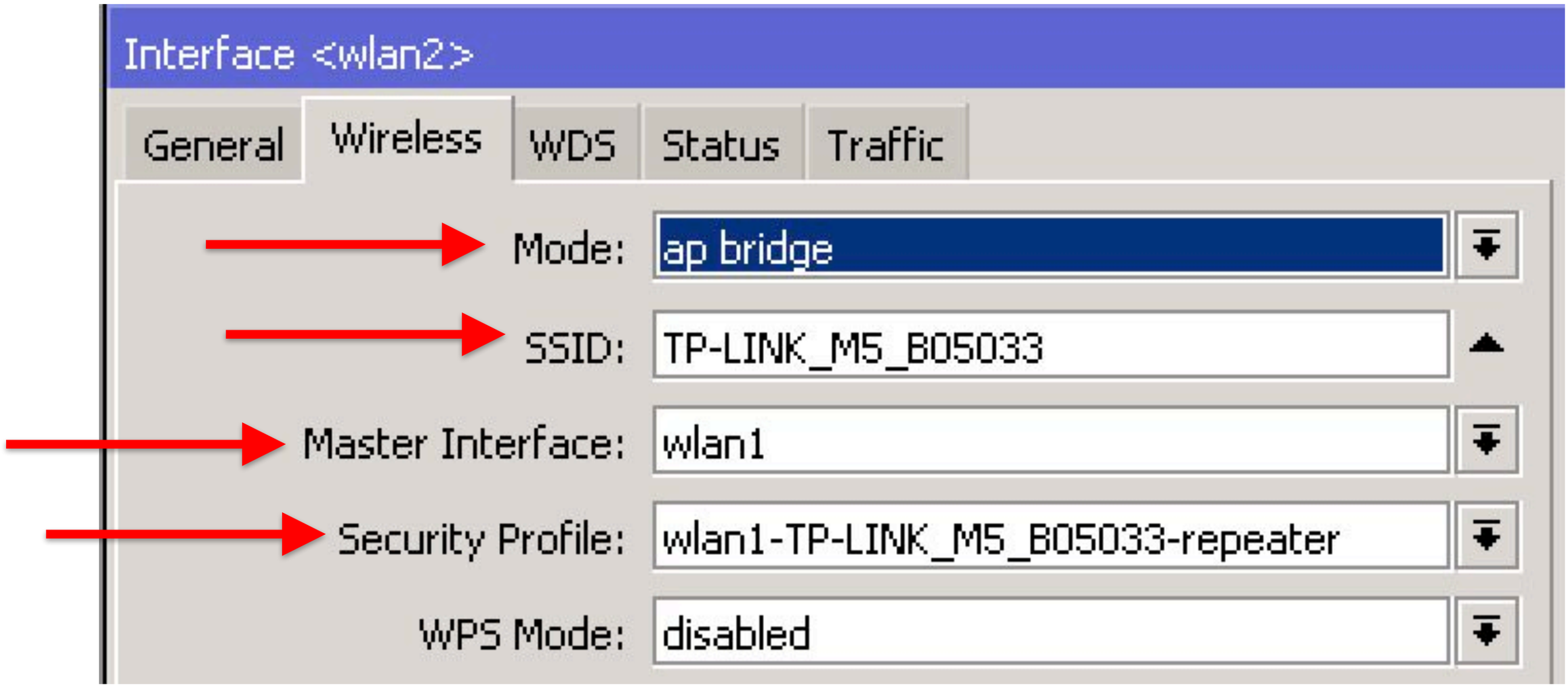
Virtual AP: created.

Repeater function



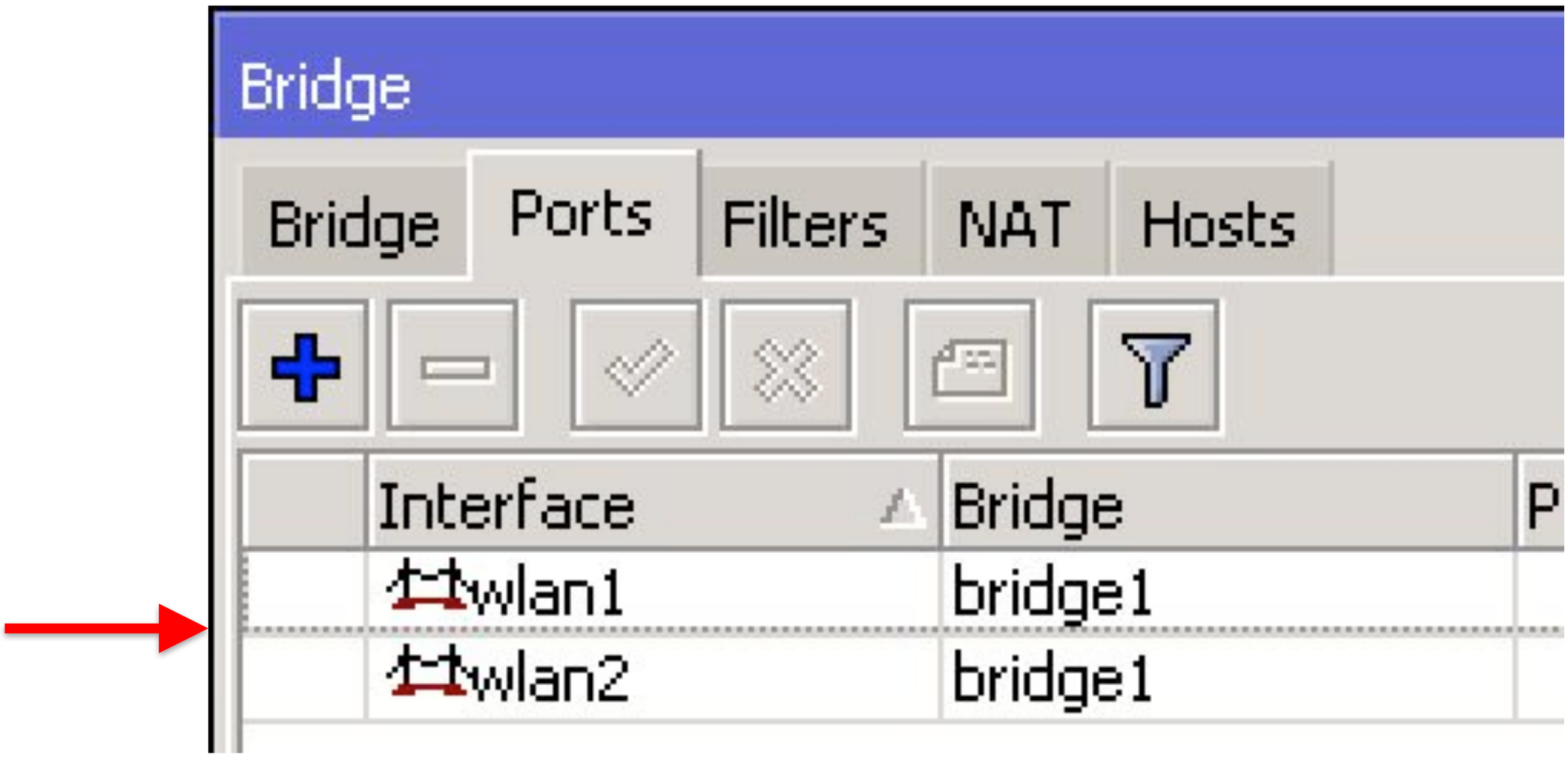
Security Profile: created.

Repeater function



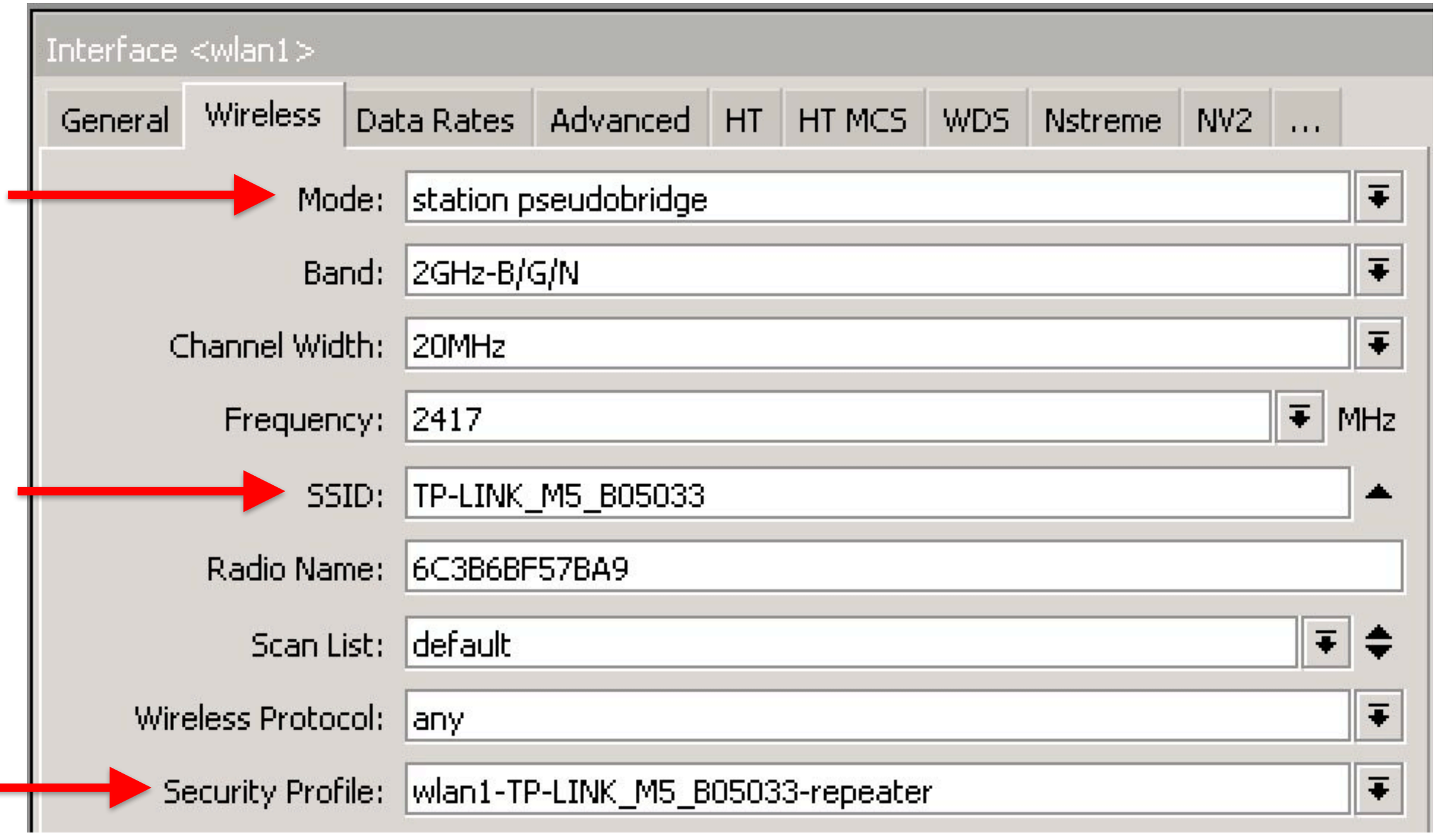
Virtual AP: set-up

Repeater function



Bridge: created

Repeater function



Station: set-up

Repeater function

Station-pseudobridge:

Doing a “masquerade” for the L2 network behind the station, have limitations, but can be done “against” any brand without special settings, like WDS.

Repeater function

Station-bridge:

A MikroTik proprietary protocol, can be done only for connecting to a MikroTik AP.

Will not do any «masquerade», if possibile use this mode ☺

New Virtual Wireless Interfaces

This is the part I like of this presentation: the **multiple configurations** of the new **Virtual Wireless Interfaces** ☺

- **All the modes supported** by the virtual: as **stations** and as **Aps**
- With **mixed configurations**

New Virtual Wireless Interfaces

- In the past RouterOS supported only Virtual AP interfaces, that should have the physical interface setup as AP BRIDGE.
- With the new wireless package you're now able to setup Virtual Wireless in "total" freedom
- Yes, they obviously will share the same frequency and protocol (NO NV2 there!!)

New Virtual Wireless Interfaces

- I Don’t want to bother you with “boring” things
- If you watched my mAP presentation you now what I will show you now ☺

New Virtual Wireless Interfaces

Wireless Tables

Interfaces | Nstreme Dual | Access List | Registration | Connect List | Security Profiles | Channels

CAP | WPS Client | Setup Repeater | Scanner | Freq. Usage | Alignment

	Name	Type	MAC Address	Mode	Band	Chan...	Freque...	SSID
R	wlan1	Wireless (Atheros...	6C:3B:6B:F5:7B:A9	station	2GHz-B/G	20MHz	2462	NH-Hotel-Group
R	wlan2	Virtual	6E:3B:6B:F5:7B:A9	station				NH-Hotel-Group
R	wlan3	Virtual	6E:3B:6B:F5:7B:AA	station				NH-Hotel-Group
R	wlan4	Virtual	6E:3B:6B:F5:7B:AB	station				NH-Hotel-Group
R	wlan5	Virtual	6E:3B:6B:F5:7B:AC	station				NH-Hotel-Group
R	wlan6	Virtual	6E:3B:6B:F5:7B:AD	station				NH-Hotel-Group
R	wlan7	Virtual	6E:3B:6B:F5:7B:AE	station				NH-Hotel-Group
R	wlan8	Virtual	6E:3B:6B:F5:7B:AF	station				NH-Hotel-Group
R	wlan9	Virtual	6E:3B:6B:F5:7B:B0	station				NH-Hotel-Group
R	wlan10	Virtual	6E:3B:6B:F5:7B:B1	station				NH-Hotel-Group

New Virtual Wireless Interfaces

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R	wlan2	Virtual	6E:3B:6B:F5:7B:A9	station				NH-Hotel-Group
R	wlan3	Virtual	6E:3B:6B:F5:7B:AA	station				NH-Hotel-Group
R	wlan4	Virtual	6E:3B:6B:F5:7B:AB	station				NH-Hotel-Group
R	wlan5	Virtual	6E:3B:6B:F5:7B:AC	station				NH-Hotel-Group
R	wlan6	Virtual	6E:3B:6B:F5:7B:AD	station				NH-Hotel-Group
R	wlan7	Virtual	6E:3B:6B:F5:7B:AE	station				NH-Hotel-Group
R	wlan8	Virtual	6E:3B:6B:F5:7B:AF	station				NH-Hotel-Group
R	wlan9	Virtual	6E:3B:6B:F5:7B:B0	station				NH-Hotel-Group
R	wlan10	Virtual	6E:3B:6B:F5:7B:B1	station				NH-Hotel-Group

- Yes, 10 different station connected at the same SSID

New Virtual Wireless Interfaces

Wireless Tables

Interfaces | Nstreme Dual | Access List | Registration | Connect List | Security Profiles | Channels

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R	wlan3	Virtual	6E:3B:6B:F5:7B:AA	station				NH-Hotel-Group
R	wlan4	Virtual	6E:3B:6B:F5:7B:AB	station				NH-Hotel-Group
R	wlan5	Virtual	6E:3B:6B:F5:7B:AC	station				NH-Hotel-Group
R	wlan6	Virtual	6E:3B:6B:F5:7B:AD	station				NH-Hotel-Group
R	wlan7	Virtual	6E:3B:6B:F5:7B:AE	station				NH-Hotel-Group
R	wlan8	Virtual	6E:3B:6B:F5:7B:AF	station				NH-Hotel-Group
R	wlan9	Virtual	6E:3B:6B:F5:7B:B0	station				NH-Hotel-Group
R	wlan10	Virtual	6E:3B:6B:F5:7B:B1	station				NH-Hotel-Group

- 10 different clients, by the AP pint of view

New Virtual Wireless Interfaces

- Yes, 10 different station connected at the same SSID

- 10 different clients, by the AP pint of view

- More chance to get bandwidth in “worst” places with horrible policy ☺

New Virtual Wireless Interfaces

Yes, you should setup DHCP clients, masquerade and maybe few mangle rules to “balance” the traffic for port, destination or using the new Dynamic Address List function!

(but these are not the purposes of THIS talk ☺)

New Virtual Wireless Interfaces

- As I told you, you can mix up different Virtual Wireless interfaces
- By default when you create a new Virtual Wireless it will be a “separate” interface, will be not into any bridge.

New Virtual Wireless Interfaces

Name	Type	MAC Address	Mode	Band	Chan...	Frequ...	SSID
wlan1	Wireless (Atheros...	6C:3B:6B:F5:7B:A9	station	2GHz-B/G	20MHz	2462	NH-Hotel-Group
wlan2	Virtual	6E:3B:6B:F5:7B:A9	station				NH-Hotel-Group
wlan3	Virtual	6E:3B:6B:F5:7B:AA	station				NH-Hotel-Group
wlan4	Virtual	6E:3B:6B:F5:7B:AB	station				NH-Hotel-Group
wlan5	Virtual	6E:3B:6B:F5:7B:AC	station				NH-Hotel-Group
wlan6	Virtual	6E:3B:6B:F5:7B:AD	station				NH-Hotel-Group
wlan7	Virtual	6E:3B:6B:F5:7B:AE	station				NH-Hotel-Group
wlan8	Virtual	6E:3B:6B:F5:7B:AF	station				NH-Hotel-Group
wlan9	Virtual	6E:3B:6B:F5:7B:B0	station				NH-Hotel-Group
wlan10	Virtual	6E:3B:6B:F5:7B:B1	station				NH-Hotel-Group
wlan11	Virtual	6E:3B:6B:F5:7B:B2	ap bridge				MyPersonal10Xwlan
wlan12	Virtual	6E:3B:6B:F5:7B:B3	ap bridge				WIFIpremium

New Virtual Wireless Interfaces

Name	Type	MAC Address	Mode	Band	Chan...	Frequ...	SSID
wlan1	Wireless (Atheros...	6C:3B:6B:F5:7B:A9	station	2GHz-B/G	20MHz	2462	NH-Hotel-Group
wlan2	Virtual	6E:3B:6B:F5:7B:A9	station				NH-Hotel-Group
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wlan4	Virtual	6E:3B:6B:F5:7B:AB	station				NH-Hotel-Group
wlan5	Virtual	6E:3B:6B:F5:7B:AC	station				NH-Hotel-Group
wlan6	Virtual	6E:3B:6B:F5:7B:AD	station				NH-Hotel-Group
wlan7	Virtual	6E:3B:6B:F5:7B:AE	station				NH-Hotel-Group
wlan8	Virtual	6E:3B:6B:F5:7B:AF	station				NH-Hotel-Group
wlan9	Virtual	6E:3B:6B:F5:7B:B0	station				NH-Hotel-Group
wlan10	Virtual	6E:3B:6B:F5:7B:B1	station				NH-Hotel-Group
wlan11	Virtual	6E:3B:6B:F5:7B:B2	ap bridge				MyPersonal10Xwlan
wlan12	Virtual	6E:3B:6B:F5:7B:B3	ap bridge				WIFIpremium

Yes!

- One AP for me (encrypted is better)
- One AP to sell with using Hotspot-Usermanager-Paypal ☺


PWR
ETH
map lite

New Virtual Wireless Interfaces

- As I told you, you can mix up different Virtual Wireless interfaces

Future features?

Observing the public changelog:

Other changes since 6.38.3:

*) winbox - added GPS menu;

What's new in 6.37 (2016-Sep-23 08:20):

*) gps - always check NMEA checksum if available;

*) ntp - fixed ntp server when local-clock used (like usb gps module);

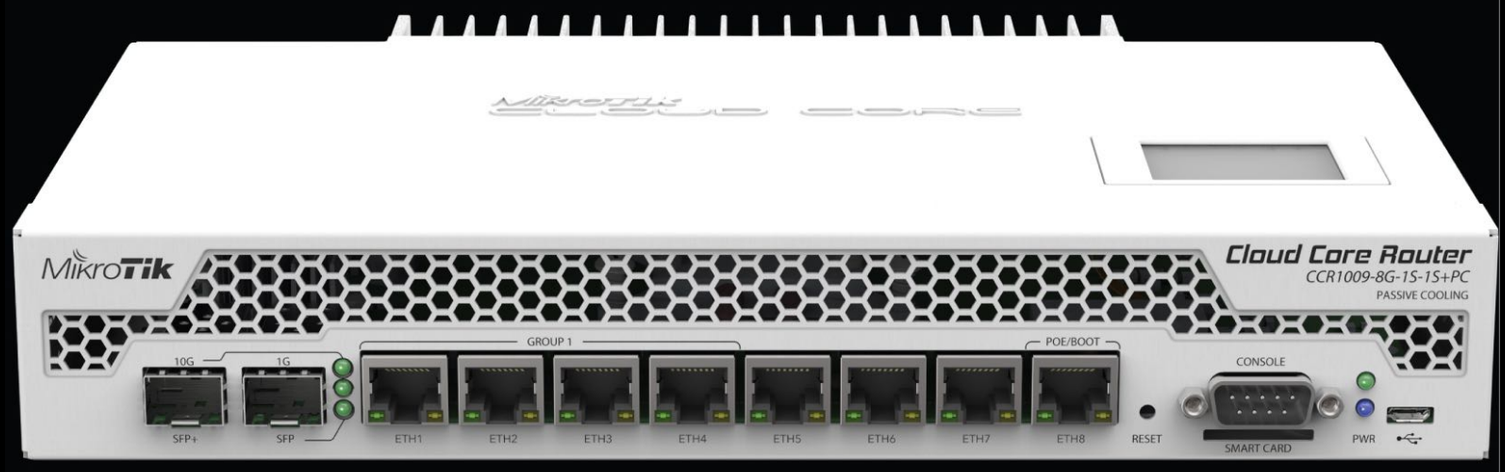
Will MikroTik implement a GPS based TDMA?

Wrap up

- ✓ I hope you enjoyed my presentation and the news in the wireless package since the version 6.37

WIN

Cloud Core Router



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Thank you!

Q & A

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training@grifonline.it