



LTE On MikroTik

MUM Portugal
Setembro 20, 2019

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- RouterOS desde 2014
- Networks desde 2014
- Officelan 2015
- MTCNA 2015
- MTCWE / Trainer 2019 (TR0652)
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officelan



História

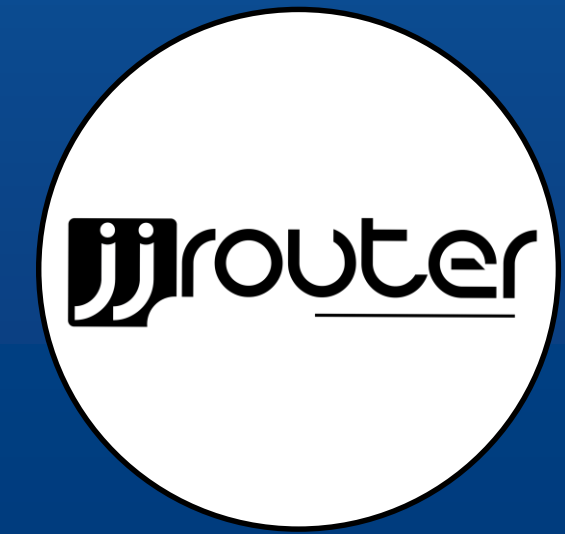
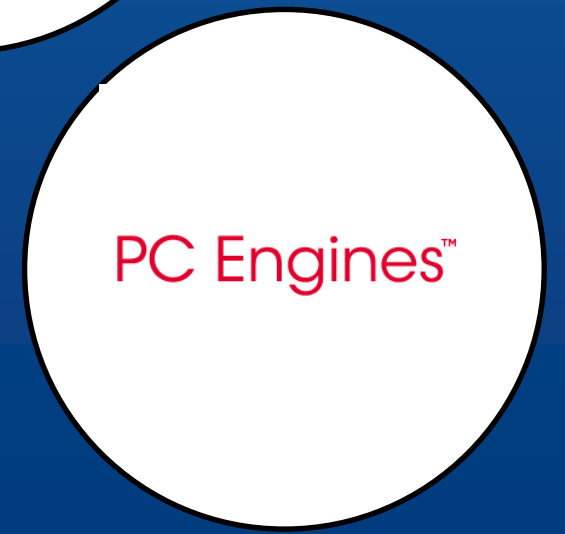
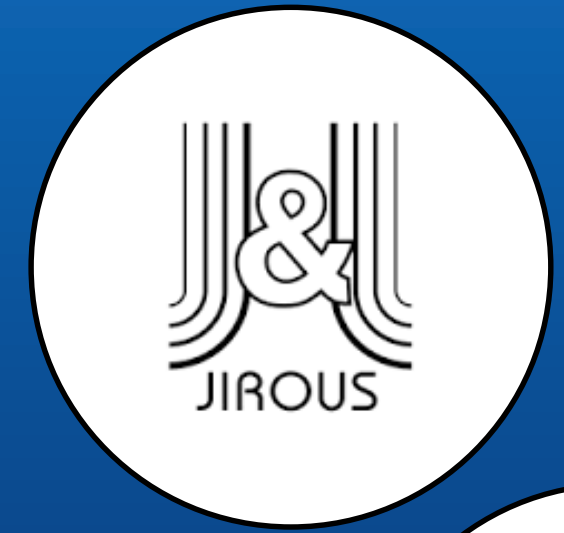
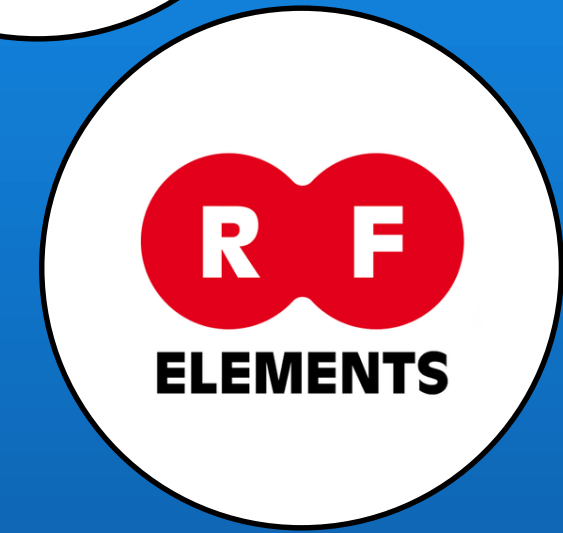


O que fazemos

- Venda e instalação de produtos e soluções de redes
- Desenho e produção de equipamentos (JJRouter)
- Projetos de redes (arquitetura, implementação e gestão)
- Formação MikroTik, Ubiquiti, Wireless e Network
- Coberturas Wifi alta densidade em eventos temporários

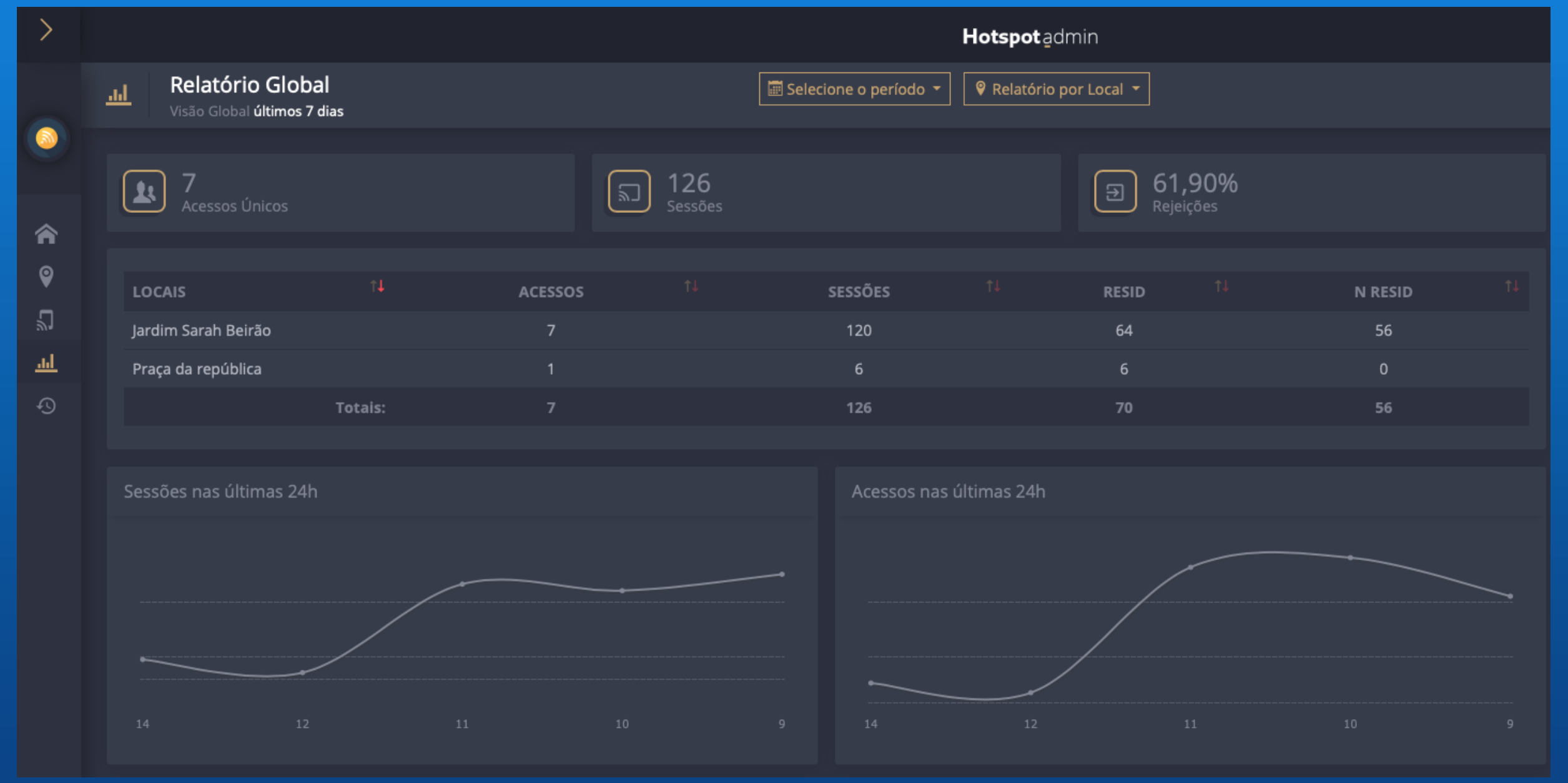
Parcerias

Distribuidores



VAR





Projetos



Survey para levantamento das necessidades



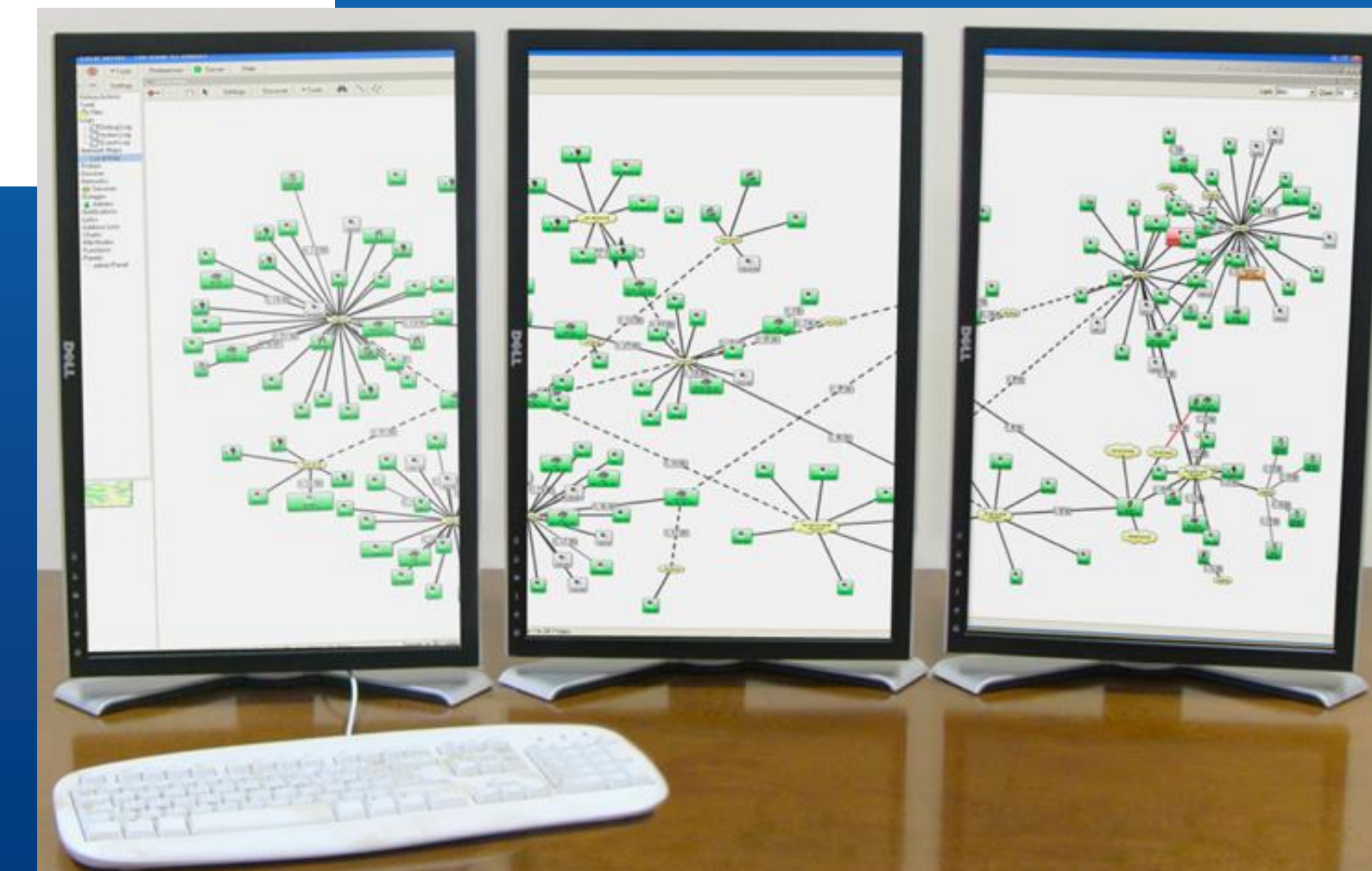
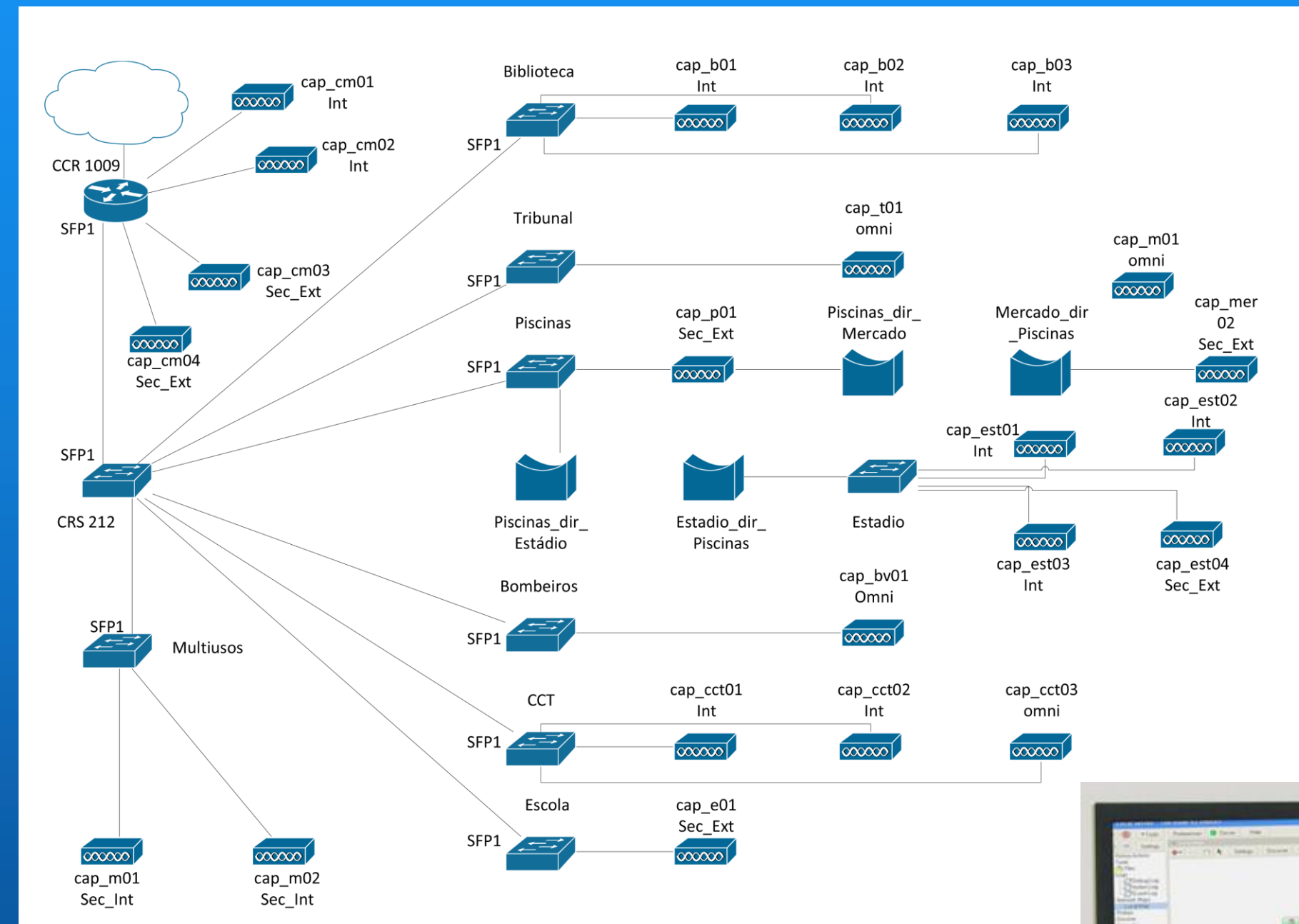
Desenho arquitetura de rede



Instalação e configuração da infraestrutura



Suporte, monitorização e manutenção técnica



Implementações

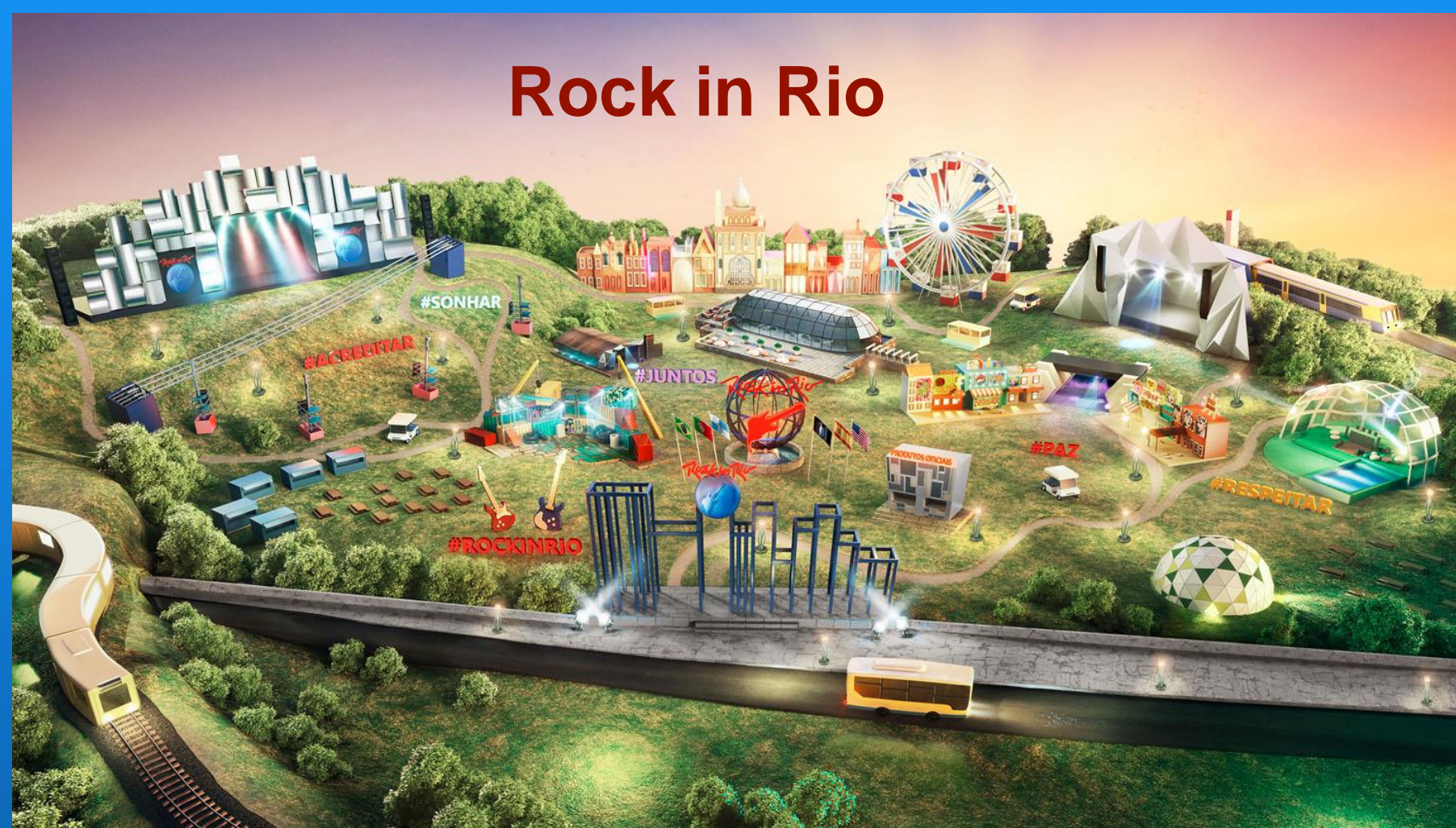
 visit Portugal

WiFi4EU

Smart City Solutions



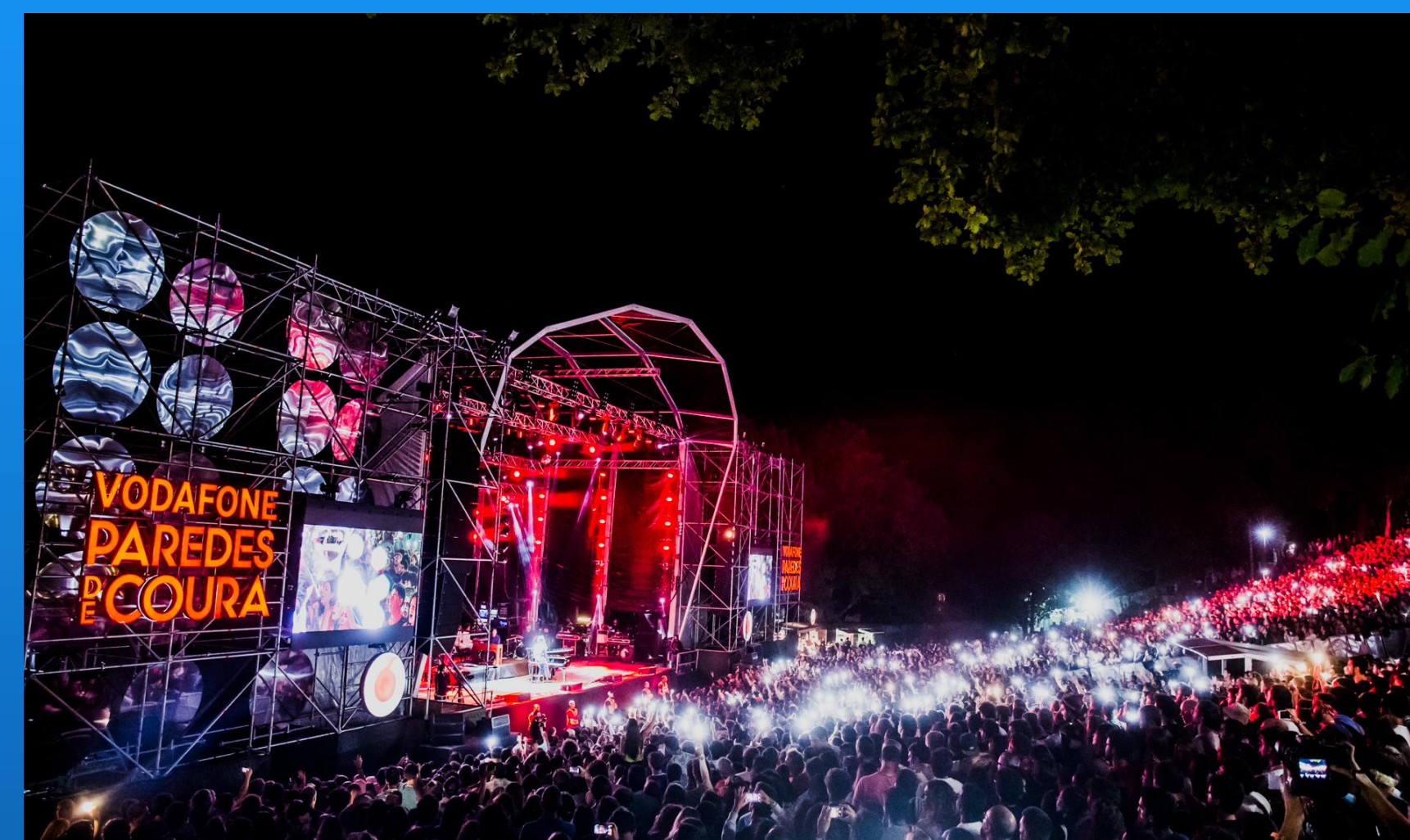
Eventos Temporários



Cobertura Wifi indoor/outdoor
de alta densidade

Transporte IP para múltiplos
sites áudio/vídeo

E MUITOS MAIS...



LTE no MikroTik

LTE

- PEN Lte / Modem USB
- Routerboard's com Modem's incorporados.



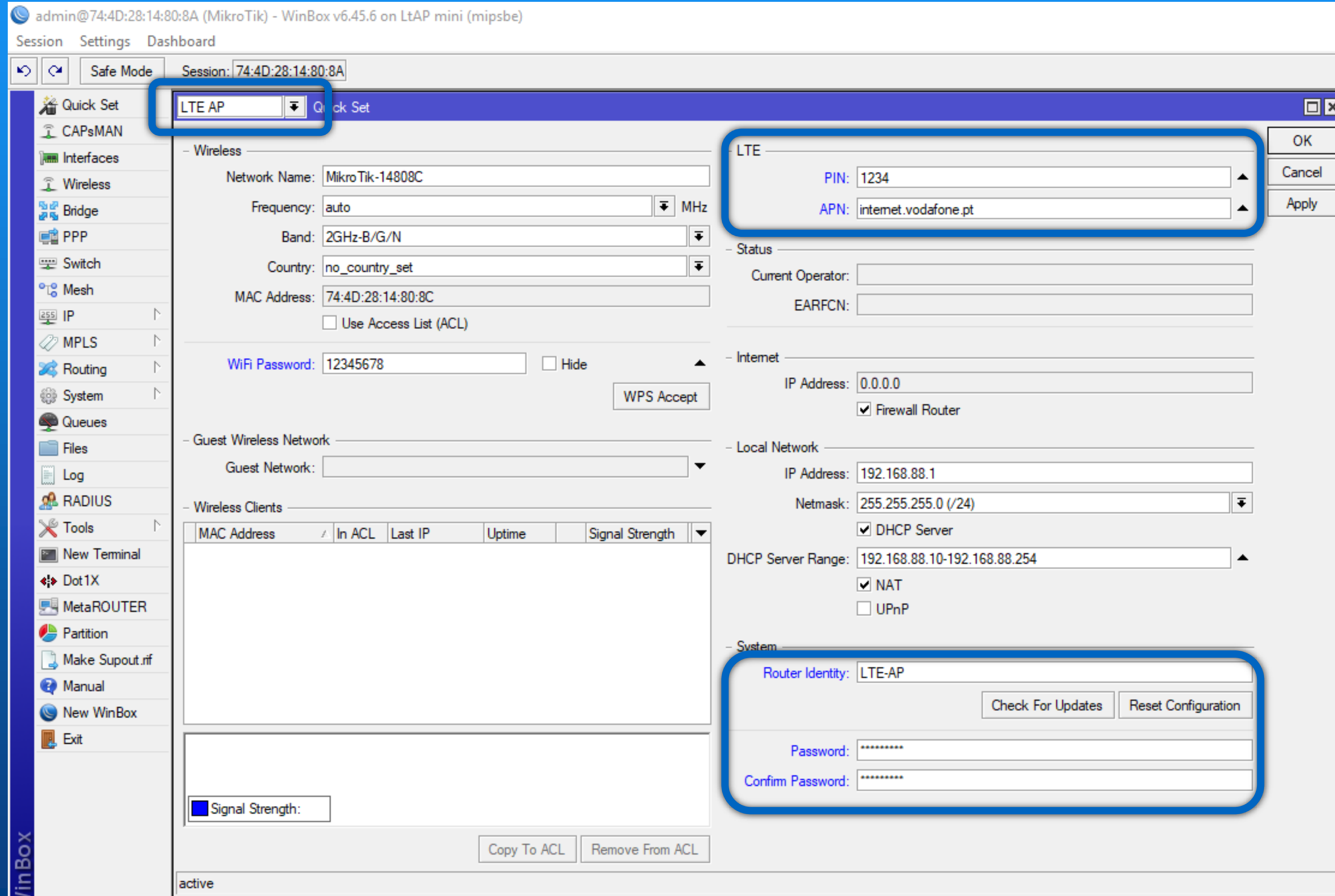
Casos Práticos

- Hotspot para veículos (p.e. LtAP mini)
- Ligação à Internet em sítios remotos (p.e. LHG LTE)
- Backup da ligação à Internet principal
- Gestão outbound

Quick Set - LTE

- Configuração rápida
- Serve para a maior parte dos casos
- LTE AP – Router LTE com Wi-fi
- LTE – Router LTE sem Wi-fi

LTE – AP Quick set



The screenshot shows the MikroTik WinBox interface for configuring an LTE AP. The window title is "admin@74:4D:28:14:80:8A (MikroTik) - WinBox v6.45.6 on LtAP mini (mipsbe)". The "Quick Set" menu is open, and "LTE AP" is selected. The configuration is divided into several sections:

- Wireless:** Network Name: MikroTik-14808C, Frequency: auto, Band: 2GHz-B/G/N, Country: no_country_set, MAC Address: 74:4D:28:14:80:8C. There is a checkbox for "Use Access List (ACL)" and a "WiFi Password" field with the value 12345678 and a "Hide" checkbox. A "WPS Accept" button is also present.
- Guest Wireless Network:** Guest Network: (empty dropdown).
- Wireless Clients:** A table with columns: MAC Address, In ACL, Last IP, Uptime, Signal Strength. The table is currently empty.
- LTE:** PIN: 1234, APN: internet.vodafone.pt. There are "OK", "Cancel", and "Apply" buttons.
- Status:** Current Operator: (empty), EARFCN: (empty).
- Internet:** IP Address: 0.0.0.0, Firewall Router: .
- Local Network:** IP Address: 192.168.88.1, Netmask: 255.255.255.0 (/24), DHCP Server: , DHCP Server Range: 192.168.88.10-192.168.88.254, NAT: , UPnP: .
- System:** Router Identity: LTE-AP, Password: (masked), Confirm Password: (masked). There are "Check For Updates" and "Reset Configuration" buttons.

At the bottom, there are "Copy To ACL" and "Remove From ACL" buttons, and a "Signal Strength" indicator. The status bar at the bottom left shows "active".

LTE Quick set

LTE Quick Set

- LTE -

Band: 1 3 7 20 8 2 38 40

PIN:

APN: internet.vodafone.pt

- Status -

Current Operator:

EARFCN:

SINR:

- Internet -

IP Address: 0.0.0.0

Firewall Router

- Local Network -

IP Address: 192.168.88.1

Netmask: 255.255.255.0 (/24)

DHCP Server

DHCP Server Range: 192.168.88.10-192.168.88.254

NAT

UPnP

- VPN -

VPN Access

VPN Address: 99130acfd80f.sn.mynetname.net

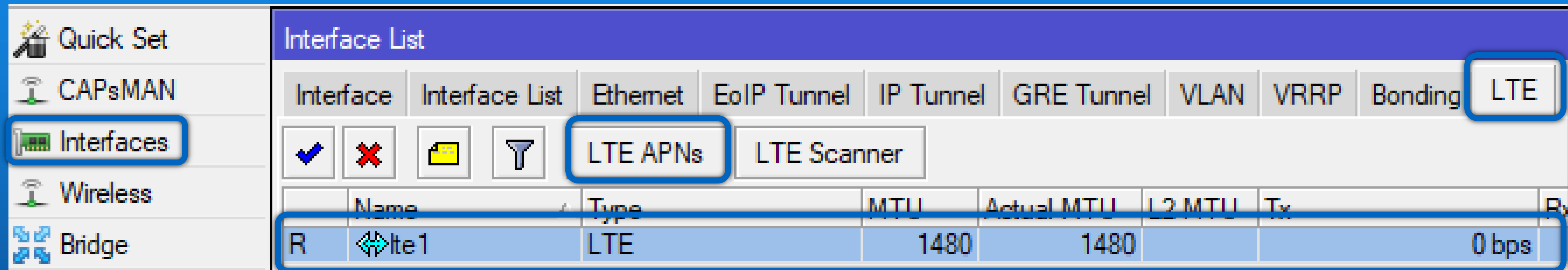
- System -

Router Identity: MikroTik

Password:

Confirm Password:

Interface LTE



The screenshot shows a network configuration interface with a sidebar on the left and a main panel on the right. The sidebar contains the following items: Quick Set, CAPsMAN, Interfaces (highlighted with a blue box), Wireless, and Bridge. The main panel is titled "Interface List" and has several tabs: Interface, Interface List, Ethernet, EoIP Tunnel, IP Tunnel, GRE Tunnel, VLAN, VRRP, Bonding, and LTE (highlighted with a blue box). Below the tabs are two buttons: "LTE APNs" (highlighted with a blue box) and "LTE Scanner". A table below the buttons shows the configuration for the LTE interface:

	Name	Type	MTU	Actual MTU	L2 MTU	Tx	Rx
R	lte1	LTE	1480	1480		0 bps	

LTE APN

LTE APN <default>

Name:

APN:

IP Type: ▾

Use Peer DNS

Add Default Route

Default Route Distance:

IPv6 Interface: ▾

Authentication: ▾

Passthrough Interface: ▾

OK

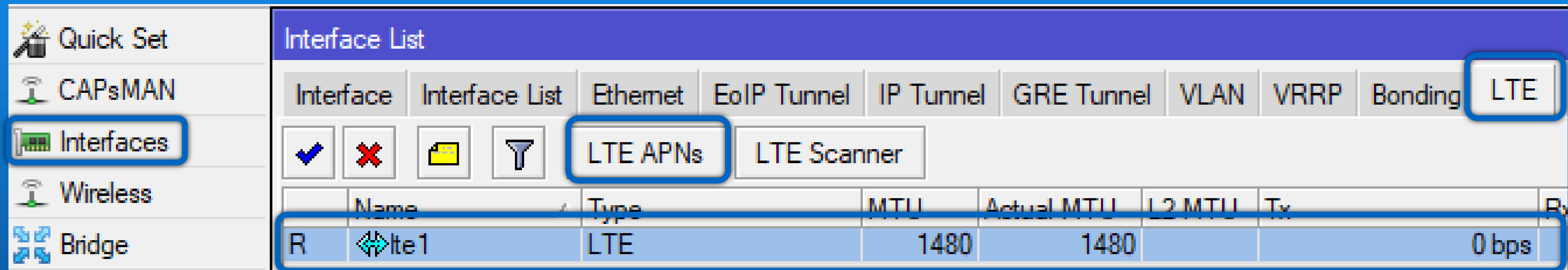
Cancel

Apply

Copy

Remove

Interface LTE



The screenshot shows a network configuration interface with a sidebar on the left and a main panel on the right. The sidebar contains the following items: Quick Set, CAPsMAN, Interfaces (highlighted with a blue box), Wireless, and Bridge. The main panel is titled "Interface List" and has several tabs: Interface, Interface List, Ethernet, EoIP Tunnel, IP Tunnel, GRE Tunnel, VLAN, VRRP, Bonding, and LTE (highlighted with a blue box). Below the tabs are two buttons: "LTE APNs" (highlighted with a blue box) and "LTE Scanner". A table below shows the list of interfaces:

	Name	Type	MTU	Actual MTU	L2 MTU	Tx	Rx
R	lte1	LTE	1480	1480		0 bps	

LTE Status

Interface <lte1>

General Cellular Status Traffic

Current Operator:

LAC:

Current Cell ID:

eNB ID:

Sector ID:

PHY Cell ID:

Access Technology:

IMEI:

IMSI:

UICC:

EARFCN:

Session Uptime:

RSRP:

RSRQ:

SINR:

OK
Cancel
Apply
Disable
Comment
Torch
Scan...

enabled running slave

LTE Passthrough

LTE Passthrough

LTE APN <vodafone>

Name:

APN:

IP Type: ▾

Use Peer DNS

Add Default Route

Default Route Distance:

IPv6 Interface: ▾

Authentication: ▾

Passthrough Interface: ▾

Passthr. MAC Address:

Passthr. Subnet Selection: ▾

OK
Cancel
Apply
Copy
Remove

LTE Passthrough

```
/interface lte apn
```

```
add apn=internet.vodafone.pt default-route-distance=1  
name=vodafone passthrough-interface=ether1 passthrough-  
mac=auto
```

```
/interface lte
```

```
set [ find ] apn-profiles=vodafone mtu=1500 name=wwan
```


LTE Passthrough com Vlan's

Interface List

Interface | Interface List | Ethernet | EoIP Tunnel | IP Tunnel | GRE Tunnel | VLAN | VRRP | Bonding | LTE

+ - ✓ ✗ [icon] [icon] Detect Internet

	Name	Type	Actual MTU	L2 MTU	Tx	Rx
R	ether1	Ethernet	1500	1598	42.4 kbps	4.0 kbps
R	eth1.q306	VLAN	1500	1594	0 bps	0 bps
R	eth1.q69	VLAN	1500	1594	0 bps	0 bps
X	wlan1	Wireless (Atheros AR9...)	1500	1600	0 bps	0 bps
	wwan	LTE	1500		0 bps	0 bps

5 items

LTE Passthrough com Vlan's

LTE APN <vodafone>

Name:

APN:

IP Type: ▾

Use Peer DNS

Add Default Route

Default Route Distance:

IPv6 Interface: ▾

Authentication: ▾

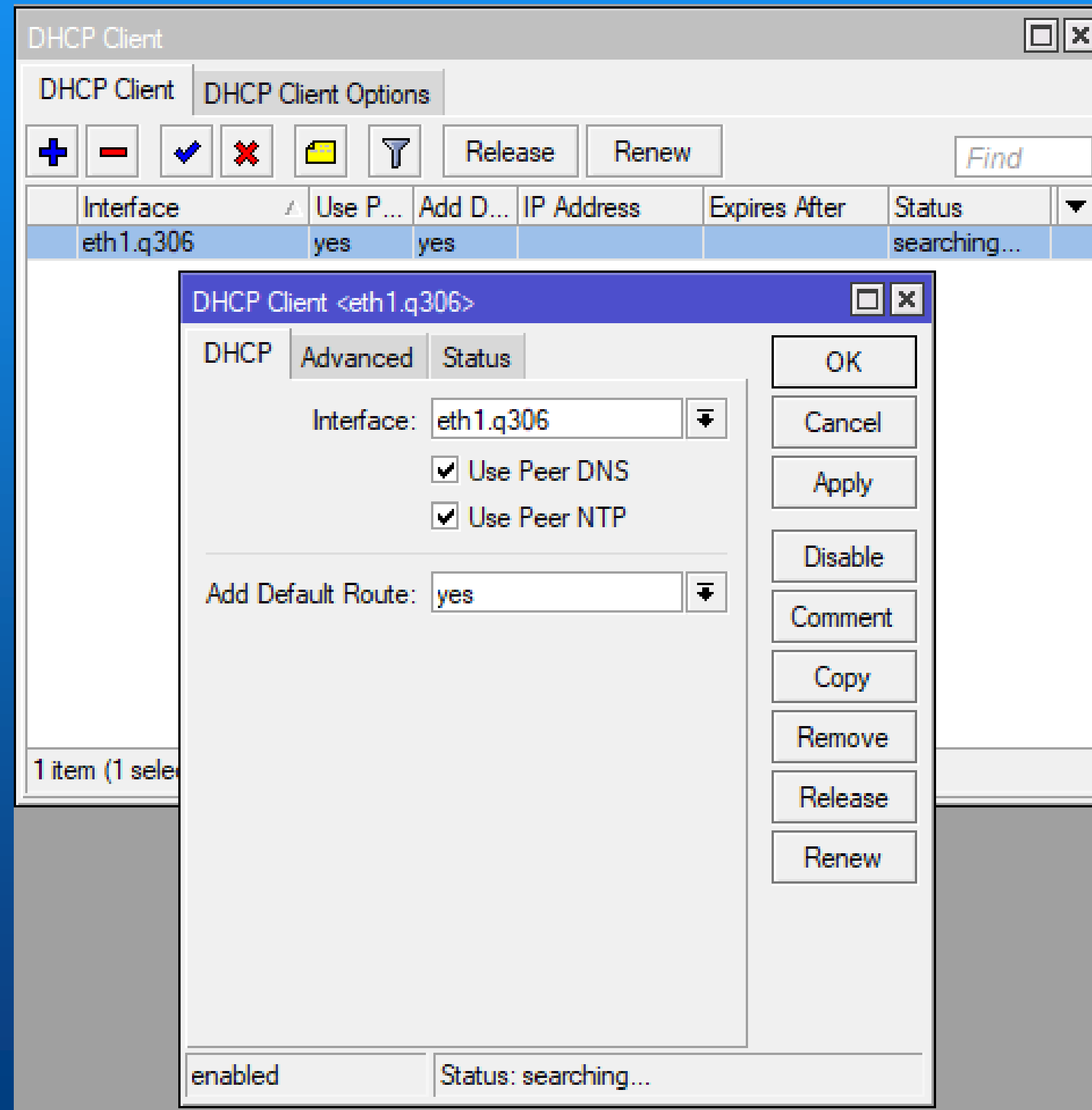
Passthrough Interface: ▾

Passthr. MAC Address:

Passthr. Subnet Selection: ▾

OK
Cancel
Apply
Copy
Remove

LTE Passthrough com vlan's



LTE Passthrough

/interface vlan

```
add interface=ether1 name=eth1.q306 vlan-id=306
```

```
add interface=ether1 name=eth1.q69 vlan-id=69
```

/interface lte apn

```
add apn=internet.vodafone.pt default-route-distance=1
```

```
name=vodafone passthrough-interface=eth1.q69
```

```
passthrough-mac=auto
```

/ip dhcp-client

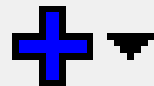





```
add dhcp-options=hostname,clientid disabled=no
```







```
interface=eth1.q306
```

LTE Passthrough com Multiplos APN's

Interface List

Interface | Interface List | Ethernet | EoIP Tunnel | IP Tunnel | GRE Tunnel | VLAN | VRRP | Bonding | LTE

	Name	Type	Actual MTU	L2 MTU	Tx	Rx
::: defconf						
R	 bridge	Bridge	1500	1598	56.3 kbps	
RS	 ether1	Ethernet	1500	1598	56.6 kbps	
R	 eth1.q101	VLAN	1500	1594	0 bps	
R	 eth1.q102	VLAN	1500	1594	0 bps	
S	 wlan1	Wireless (Atheros AR9...)	1500	1600	0 bps	
	 wwan	LTE	1480		0 bps	

LTE Passthrough com Multiplos APN's

LTE APN <netfixa>

Name:

APN:

IP Type:

Use Peer DNS

Add Default Route

Default Route Distance:

IPv6 Interface:

Authentication:

Passthrough Interface:

Passthr. MAC Address:

OK
Cancel
Apply
Copy
Remove

LTE APN <vozfixa>

Name:

APN:

IP Type:

Use Peer DNS

Add Default Route

Default Route Distance:

IPv6 Interface:

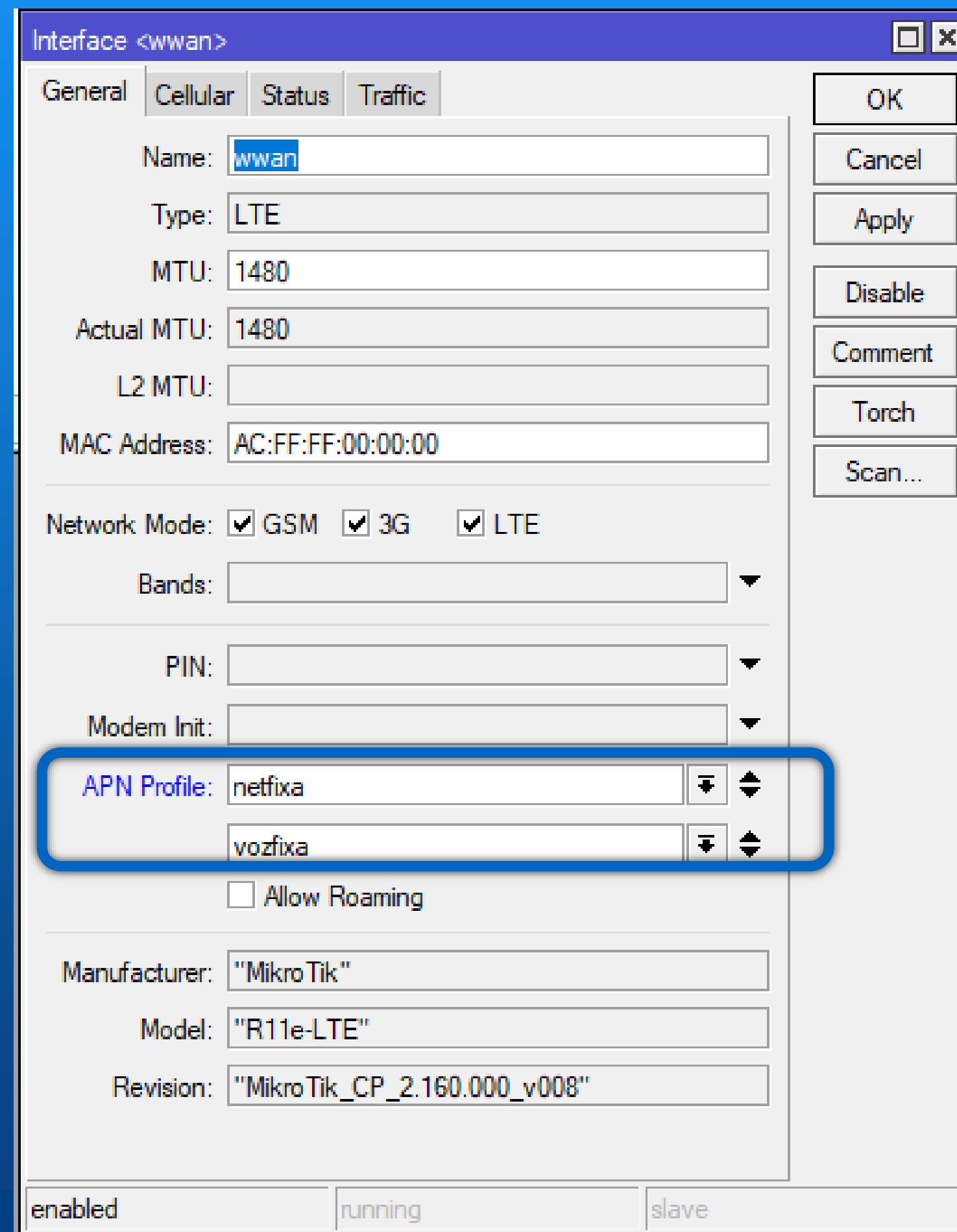
Authentication:

Passthrough Interface:

Passthr. MAC Address:

OK
Cancel
Apply
Copy
Remove

LTE Passthrough com Multiplos APN's



The screenshot shows the 'Interface <wwan>' configuration window with the following settings:

- Name: wwan
- Type: LTE
- MTU: 1480
- Actual MTU: 1480
- L2 MTU: (empty)
- MAC Address: AC:FF:FF:00:00:00
- Network Mode: GSM 3G LTE
- Bands: (empty)
- PIN: (empty)
- Modem Init: (empty)
- APN Profile: netfixa (selected), vozfixa (available)
- Allow Roaming
- Manufacturer: "MikroTik"
- Model: "R11e-LTE"
- Revision: "MikroTik_CP_2.160.000_v008"

Buttons on the right: OK, Cancel, Apply, Disable, Comment, Torch, Scan...

Bottom status: enabled | running | slave

LTE Passthrough com Múltiplos APN's

```
/interface lte
```

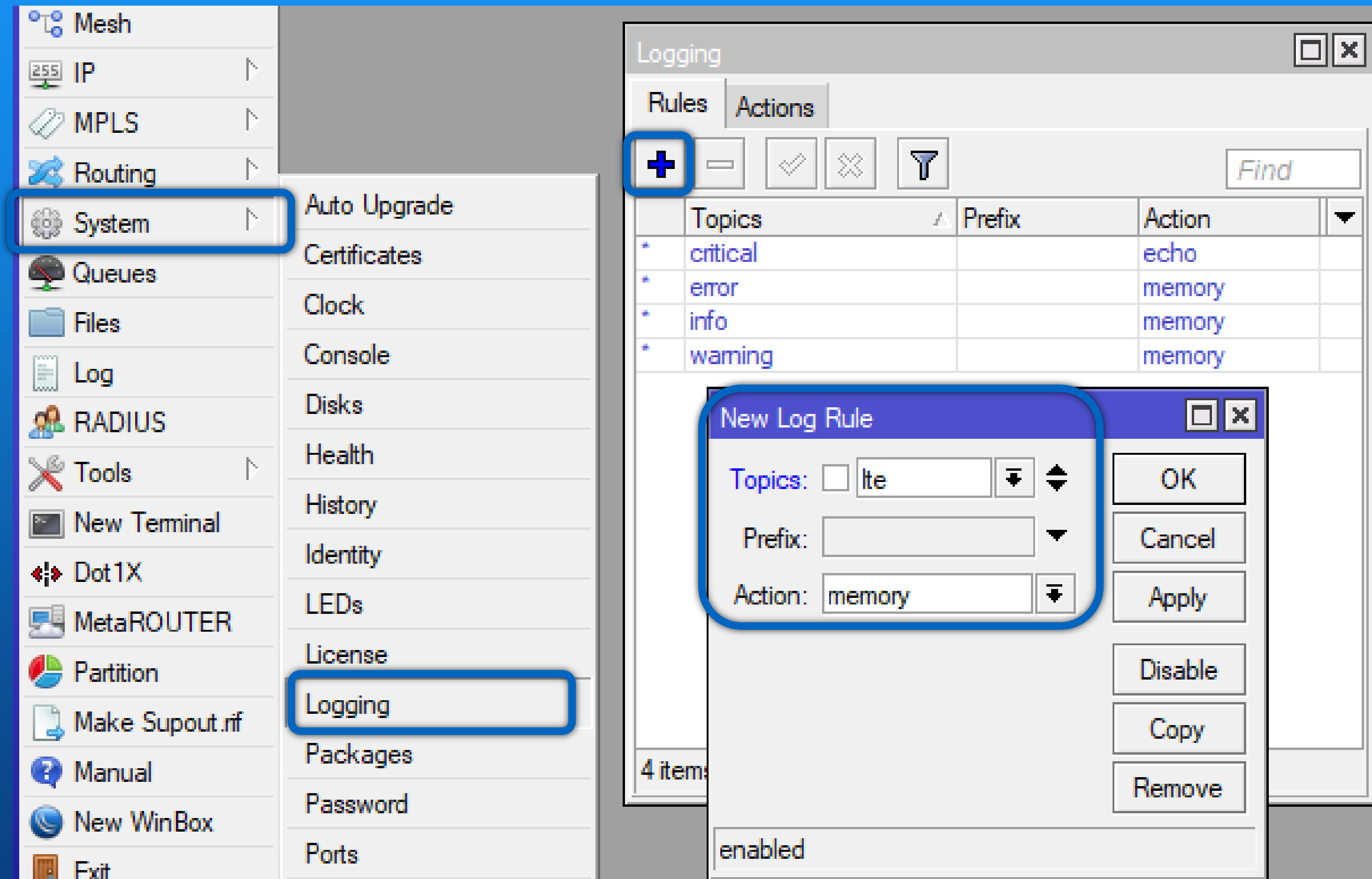
```
set [ find ] apn-profiles=netfixa,vozfixa mac-  
address=AC:FF:FF:00:00:00 name=wwan
```

```
/interface lte apn
```

```
add apn=internetfixa.vodafone.pt default-route-distance=1  
name=netfixa passthrough-interface=eth1.q101 passthrough-  
mac=auto
```

```
add apn=vozfixa.vodafone.pt default-route-distance=1 name=vozfixa  
passthrough-interface=eth1.q102 passthrough-mac=auto
```

Logging



The screenshot shows a network management interface with a sidebar on the left and a main panel on the right. The sidebar contains a tree view with categories like Mesh, IP, MPLS, Routing, System, Queues, Files, Log, RADIUS, Tools, New Terminal, Dot1X, MetaROUTER, Partition, Make Supout.rif, Manual, New WinBox, and Exit. The 'System' category is selected, and a sub-menu is open showing options like Auto Upgrade, Certificates, Clock, Console, Disks, Health, History, Identity, LEDs, License, Logging, Packages, Password, and Ports. The 'Logging' option is highlighted. The main panel displays the 'Logging' configuration window, which has two tabs: 'Rules' and 'Actions'. The 'Rules' tab is active, showing a table with columns for Topics, Prefix, and Action. There are four rows of rules: 'critical' with action 'echo', 'error' with action 'memory', 'info' with action 'memory', and 'warning' with action 'memory'. A '+' button is highlighted in the top left of the 'Rules' tab. A 'New Log Rule' dialog box is open in the foreground, showing fields for Topics (with a dropdown menu), Prefix (with a dropdown menu), and Action (with a dropdown menu). The 'Action' field is set to 'memory'. The dialog has buttons for OK, Cancel, Apply, Disable, Copy, and Remove.

Topics	Prefix	Action
* critical		echo
* error		memory
* info		memory
* warning		memory

New Log Rule

Topics: lte

Prefix:

Action: memory

OK
Cancel
Apply
Disable
Copy
Remove

Contactos

fabio.santos@officelan.pt

comercial@officelan.pt

<https://shop.officelan.pt>

BOA MuM