

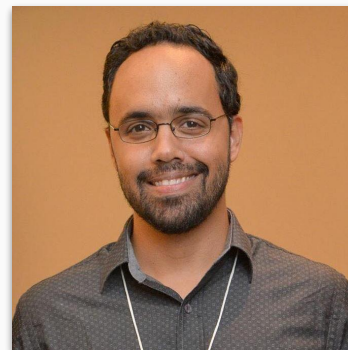
MikroTik, antes e depois

Por Leonardo Rosa, BRAUSER, Brasil

Apresentação

Leonardo Rosa

Baiano, pai de 2 meninos,
mora atualmente em Valinhos, SP.



Tem experiência com FreeBSD, Linux, Cisco, Juniper e MikroTik RouterOS.
Atualmente ministra treinamentos das certificações MikroTik e outros.



Quem é a MikroTik



Quem é a MikroTik

- Fabricante de software e hardware para routers e switches com interface amigável e mundialmente conhecida.
- Ativa no mercado de WISP desde **1995**.
- Fundada em **1996** em Riga, capital da Letônia.
- Desenvolve software para x86 desde **1997** e hardware desde **2002**.
- Promove o MUM ao redor do mundo desde **2006**.

Mais info em [perfil da MikroTik online](#)

QUEM É A MIKROTIK

- Mais de **500** distribuidores e revendas em **145** países.
- Alguns dos grandes clientes da MikroTik:



RouterOS vs SwitchOS

O que é o RouterOS

Sistema multifuncional

- roteamento dedicado
- firewall avançado
- wireless robusto
- controle de tráfego
- túneis e vpn
- muito mais



O que o RouterOS não é

UTM, Anti-DDOS, SD-WAN

- antivírus
- web-cache
- servidor dns
- controle de aplicação



INTERFACES DE GERENCIAMENTO

Winbox

File Tools

Connect To:

Login:

Password:

Session: 

Note:

Group: 

RoMON Agent: 

☒ Keep Password
☒ Autosave Session
☐ Open In New Window

Managed Neighbors

MAC Address	IP Address	Identity	Version	Board	Uptime	

INTERFACES DE GERENCIAMENTO

Winbox

Session Settings Dashboard

Safe Mode Session

Quick Set
CAPsMAN
Interfaces
Wireless
Bridge
PPP
Mesh
IP
MPLS
Routing
System
Queues
Files
Log
Radius
Tools
New Terminal
LCD
Partition
Make Supout.rif

User List

Users Groups SSH Keys SSH Private Keys

+ - ✓ ✗ [icon] AAA

Name	Group	Last Logged
::: system default user		
admin	demo	
demo	demo	
martins	full	
root	demo	
sergejs	full	
test	demo	

Log

Freeze

Time	Memory	Firewall	Info
Nov/19/2018 18:35:05	memory	firewall, inf	
Nov/19/2018 18:35:05	memory	firewall, inf	
Nov/19/2018 18:35:10	memory	firewall, inf	
Nov/19/2018 18:35:10	memory	firewall, inf	
Nov/19/2018 18:35:10	memory	firewall, inf	
Nov/19/2018 18:35:10	memory	firewall, inf	
Nov/19/2018 18:35:20	memory	firewall, inf	
Nov/19/2018 18:35:20	memory	firewall, inf	
Nov/19/2018 18:35:20	memory	firewall, inf	
Nov/19/2018 18:35:20	memory	firewall, inf	
Nov/19/2018 18:35:58	memory	system, info,	account: user demo logged in from 177.189.58.146 via winbox
Nov/19/2018 18:37:02	memory	system, info,	account: user demo logged in from 177.189.58.146 via telnet

Terminal

```
add action=drop chain=virus comment="Drop Beagle.B" dst-port=8866 protocol=tcp
add action=drop chain=virus comment="Drop Dabber.A-B" dst-port=9898 protocol=tcp
add action=drop chain=virus comment="Drop Dumar.Y" dst-port=10000 protocol=tcp
add action=drop chain=virus comment="Drop MyDoom.B" dst-port=10080 protocol=tcp
add action=drop chain=virus comment="Drop NetBus" dst-port=12345 protocol=tcp
add action=drop chain=virus comment="Drop Kuang2" dst-port=17300 protocol=tcp
add action=drop chain=virus comment="Drop SubSeven" dst-port=27374 protocol=tcp
add action=drop chain=virus comment="Drop PhatBot, Agobot, Gaobot" dst-port=65506
tcp
add action=accept chain=demo comment="Allow WinBox for demo purposes" dst-port=829
protocol=tcp
add action=accept chain=demo comment="Allow Web for demo purposes" dst-port=80 pro
add action=accept chain=demo comment="Allow Telnet for demo purposes" dst-port=23
tcp
add action=accept chain=demo comment="Allow SSH for demo purposes" dst-port=22 pro
add action=accept chain=demo comment="Allow FTP for demo purposes" dst-port=21 pro
add chain=output connection-state=established,related
add chain=output protocol=icmp
add action=accept chain=output comment="allow NTP" dst-port=123 protocol=udp
add action=accept chain=output comment="allow DNS" dst-address=194.19.240.34 dst-p
protocol=udp
add action=accept chain=output comment="allow mail sending" dst-address=159.148.14
dst-port=25 protocol=tcp
add action=accept chain=output dst-address-list=upgrade-list dst-port=80 protocol=
add action=drop chain=output log-prefix=output
[demo@demo.mt.lv] /ip firewall filter>
```

INTERFACES DE GERENCIAMENTO

WebFig

← → ↻ 🏠 ⓘ Não seguro | demo.mt.lv/webfig/

RouterOS v6.43.6 (stable)

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

Add New ▼ Detect Internet

10 items

		▲ Name	Type	Actual MTU	L2 MTU	Tx	Rx
D	R	ether1	Ethernet	1500	1580	142.4 kbps	14.7 kbps
D		ether2	Ethernet	1500	1580	0 bps	0 bps
D		ether3	Ethernet	1500	1580	0 bps	0 bps
D		ether4	Ethernet	1500	1580	0 bps	0 bps
D		ether5	Ethernet	1500	1580	0 bps	0 bps
D		ether6	Ethernet	1500	1580	0 bps	0 bps
D		ether7	Ethernet	1500	1580	0 bps	0 bps
D		ether8	Ethernet	1500	1580	0 bps	0 bps
D		sfp-sfpplus1	Ethernet	1500	1580	0 bps	0 bps
D		sfp-sfpplus2	Ethernet	1500	1580	0 bps	0 bps

Left sidebar menu:

- CAPsMAN
- Wireless
- Interfaces
- Bridge
- PPP
- Mesh
- IP
 - ARP
 - Accounting
 - Addresses
 - Cloud
 - DHCP Client
 - DHCP Relay
 - DHCP Server
 - DNS
 - Firewall
 - Hotspot
 - IPsec
 - Kid Control

O que é o SwitchOS

Sistema Smart Switch

- recursos de switching
- **sem** recursos de routing
- interface web simplificada



INTERFACE DE GERENCIAMENTO

MikroTik SwOS

[Login](#)[Link](#) [SFP](#) [SFP Status](#) [Port Isolation](#) [LAG](#) [Forwarding](#) [RSTP](#) [Stats](#) [Errors](#) [Hist.](#) [VLAN](#) [VLANs](#) [Static Hosts](#) [Hosts](#) [SNMP](#) [ACL](#) [System](#) [Upgrade](#)

	Enabled	Name	Link Status	Auto Negotiation	Speed	Full Duplex	Flow Control
Port1	☒	Port1	link on	☒	1G	yes	☒
Port2	☒	Port2	link on	☒	1G	yes	☒
Port3	☒	Port3-computer#1	link on	☒	1G	yes	☒
Port4	☒	Port4	no link	☒		no	☒
Port5	☒	Port5-computer#2	link on	☒	100M	yes	☒
Port6	☒	Port6	link on	☐	10M	☒	☒
Port7	☒	Port7	no link	☒		no	☒
Port8	☒	Port8	no link	☒		no	☒
Port9	☒	Port9-NAS	link on	☒	1G	yes	☒
Port10	☒	Port10	no link	☒		no	☒

INTERFACE DE GERENCIAMENTO

MikroTik SwOS

Logout

[Link](#) [SFP](#) [SFP Status](#) [Port Isolation](#) [LAG](#) [Forwarding](#) [RSTP](#) [Stats](#) [Errors](#) [Hist.](#) [VLAN](#) [VLANs](#) [Static Hosts](#) [Hosts](#) [SNMP](#) [ACL](#) [System](#) [Upgrade](#)

	Port Lock	Lock On First	Mirror Ingress	Mirror Egress	Mirror To	Storm Rate (%)	Limit Unknown Unicast	Ingress Rate
Port1	☐	☐	☐	☐		100	☐	
Port2	☐	☐	☐	☐	☐	100	☐	
Port3	☐	☐	☐	☐	☐	100	☐	
Port4	☐	☐	☐	☐	☐	100	☐	
Port5	☐	☐	☐	☐	☐	100	☐	
Port6	☐	☐	☐	☐	☐	100	☐	
Port7	☐	☐	☐	☐	☐	100	☐	
Port8	☐	☐	☐	☐	☐	100	☐	
Port9	☐	☐	☐	☐	☐	100	☐	
Port10	☐	☐	☐	☐	☐	100	☐	

INTERFACE DE GERENCIAMENTO

MikroTik SwOS

Logout

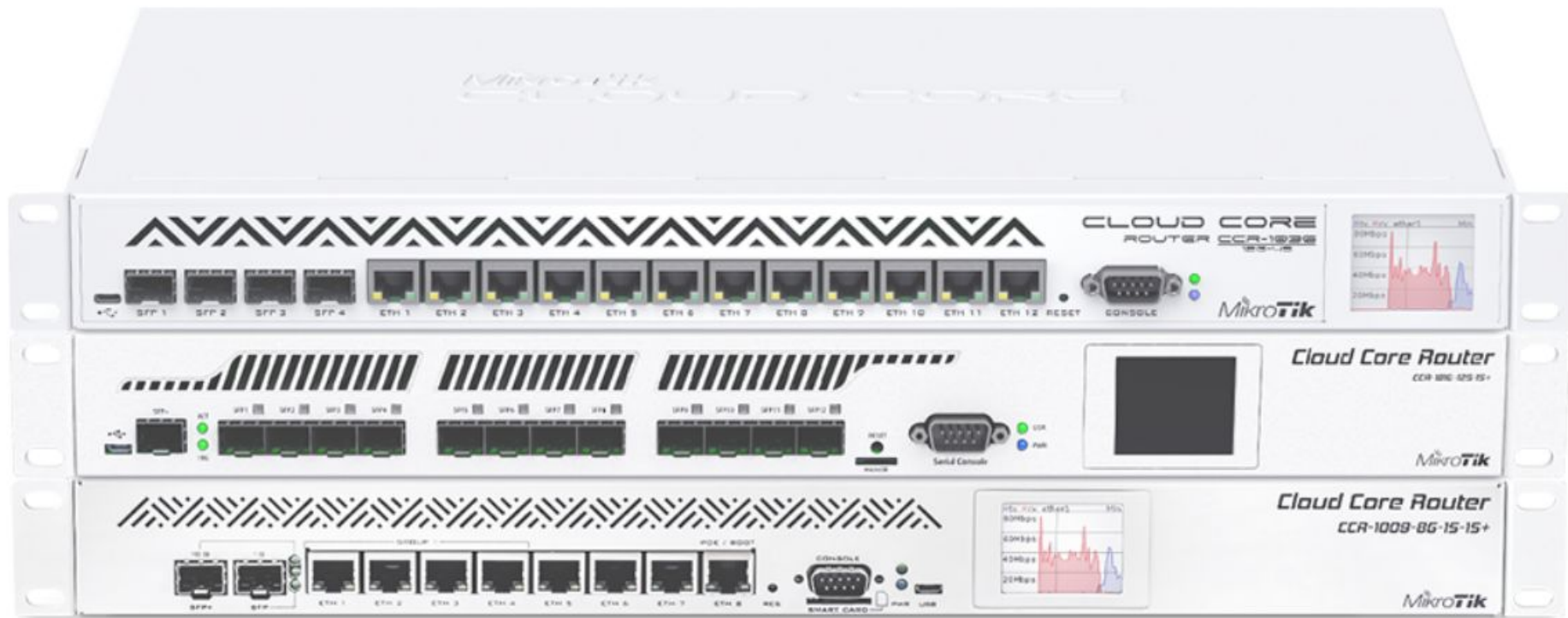
LinkSFP SFP StatusPort IsolationLAGForwardingRSTPStatsErrorsHist.VLANVLANsStatic HostsHostsSNMPACLSystemUpgrade

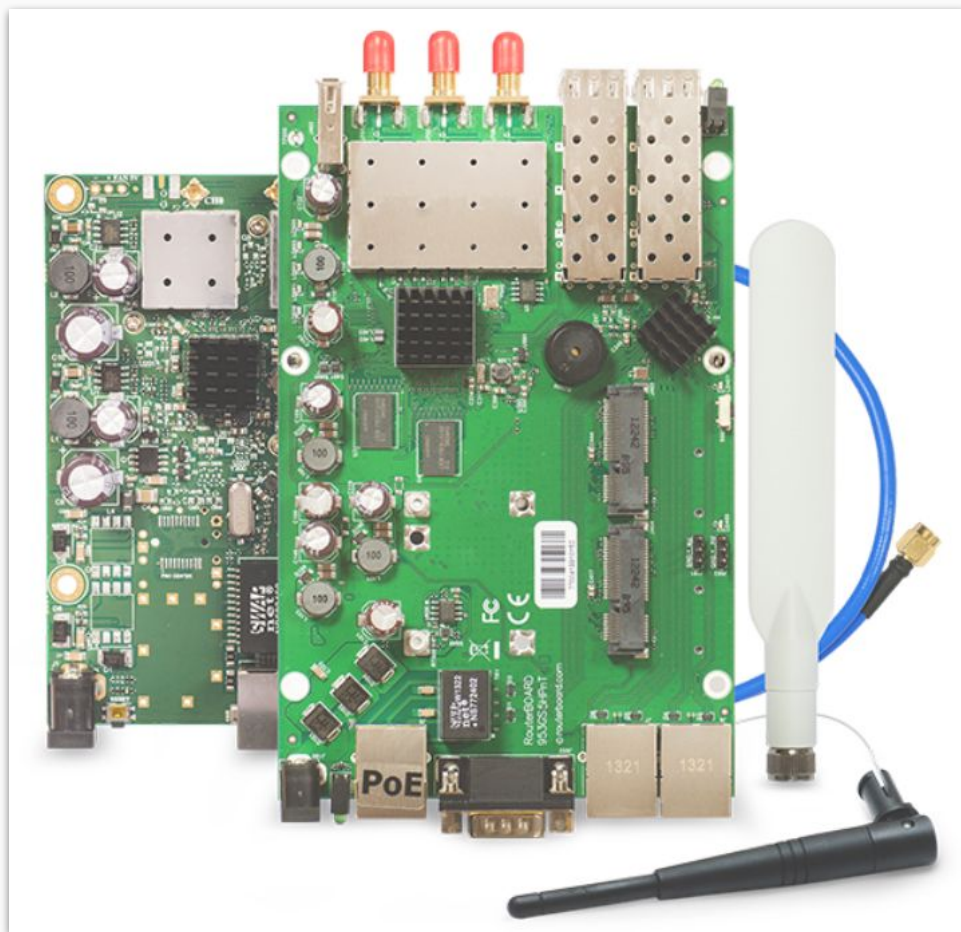
	RSTP	Mode	Role	Root Path Cost	Type	State
SFP1	☒	RSTP	designated		point-to-point	discarding
SFP2	☒	RSTP	designated		point-to-point	discarding
SFP3	☒	RSTP	designated		point-to-point	discarding
SFP4	☒	RSTP	designated		point-to-point	discarding
SFP5	☒	RSTP	designated		point-to-point	discarding
SFP6	☒	RSTP	designated		point-to-point	discarding
SFP7	☒	RSTP	designated		point-to-point	discarding
SFP8	☒	RSTP	designated		point-to-point	discarding
SFP9	☒	RSTP	designated		point-to-point	discarding
SFP10	☒	RSTP	designated		point-to-point	discarding

Linhas de Produtos



<https://mikrotik.com/products>





<https://mikrotik.com/products>



hAP mini

HOME-OFFICE



hAP ac²

HOME-OFFICE



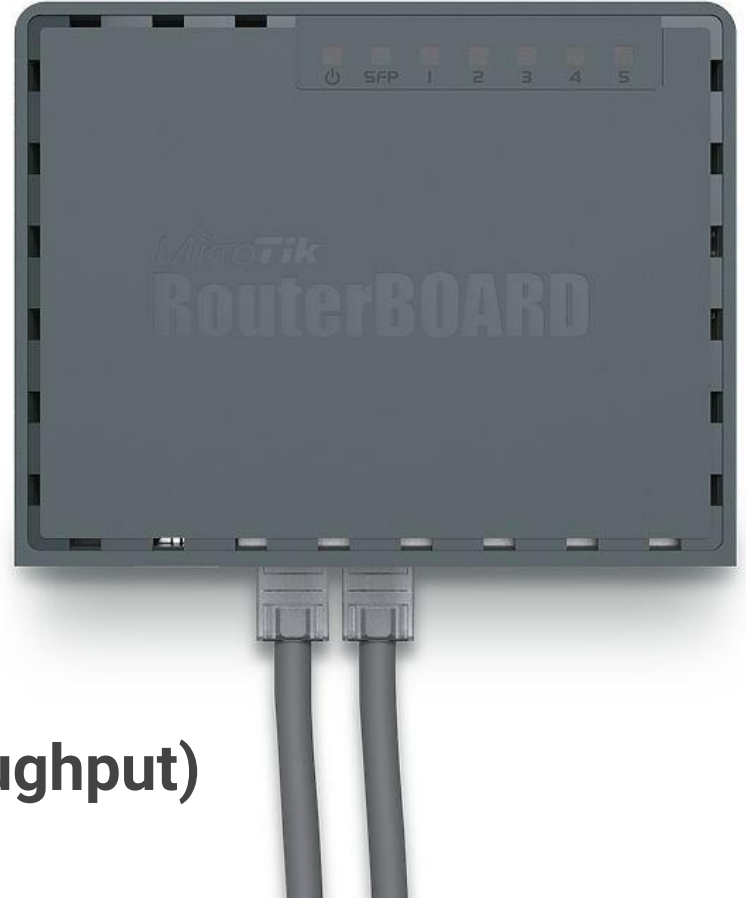
RB4011iGS+5HacQ2HnD-IN

(9,8Gbps throughput)

ETHERNET ROUTERS



hEX S (470Mbps IPSec throughput)



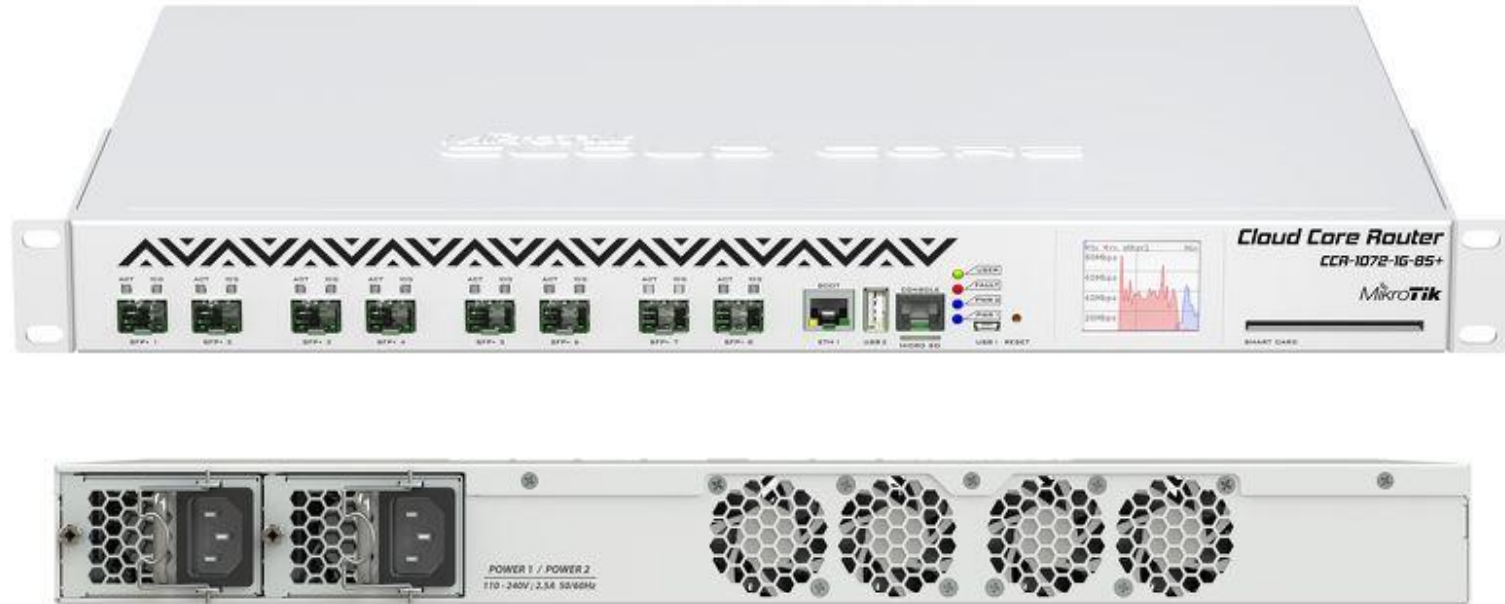
ETHERNET ROUTERS



RB1100AHx4 Dude Edition

(2Gbps IPSec throughput)

ETHERNET ROUTERS



CCR1072-1G-8S+ (80Gbps throughput)

WIRELESS OUTDOOR



mANTBox, SXTsq e LHG

Wireless systems

WIRELESS OUTDOOR



Groove e Metal

Wireless systems

WIRELESS OUTDOOR



Wireless Wire e Wireless Wire Dish
(2Gbps throughput agregado)

Wireless systems

DISTRIBUIDORES E REVENDA MIKROTIK

Latin America —

Argentina
Bolivia
Brazil
Chile
Colombia
Costa Rica
Dominican Republic
Ecuador
El Salvador
Guatemala
Honduras
Mexico
Nicaragua
Panama
Paraguay
Peru
Puerto Rico

OIW Telecom Solutions

Taquari - RS, **Brazil**
Tel: +55 51 3653-6800
[Write an e-mail](#)

WDC Networks

São Paulo, **Brazil**
RouterBOARD components
Tel: +55 11 - 3035-3777
[Write an e-mail](#)

All Networks

Sao Paulo, **Brazil**
Tel: + 55(11)26262512,
+55(11)26263875
[Write an e-mail](#)

Dicomp Distribuidora de Eletrônicos Ltda.

Maringa, **Brazil**
Tel: (44) 4009-2826
[Write an e-mail](#)

MGN Tecnologia

SÃO PAULO, **Brazil**
Tel: 55 11 2976-0305
[Write an e-mail](#)

Wireless Connect

Campinas-SP, **Brazil**
Tel: +55(19)3395-0819, +55(19)3368-0819
[Write an e-mail](#)

IspShop

Goioere-PR, **Brazil**
Tel: +55 44 3838 1030
[Write an e-mail](#)

Comercial Brazil Distribudora

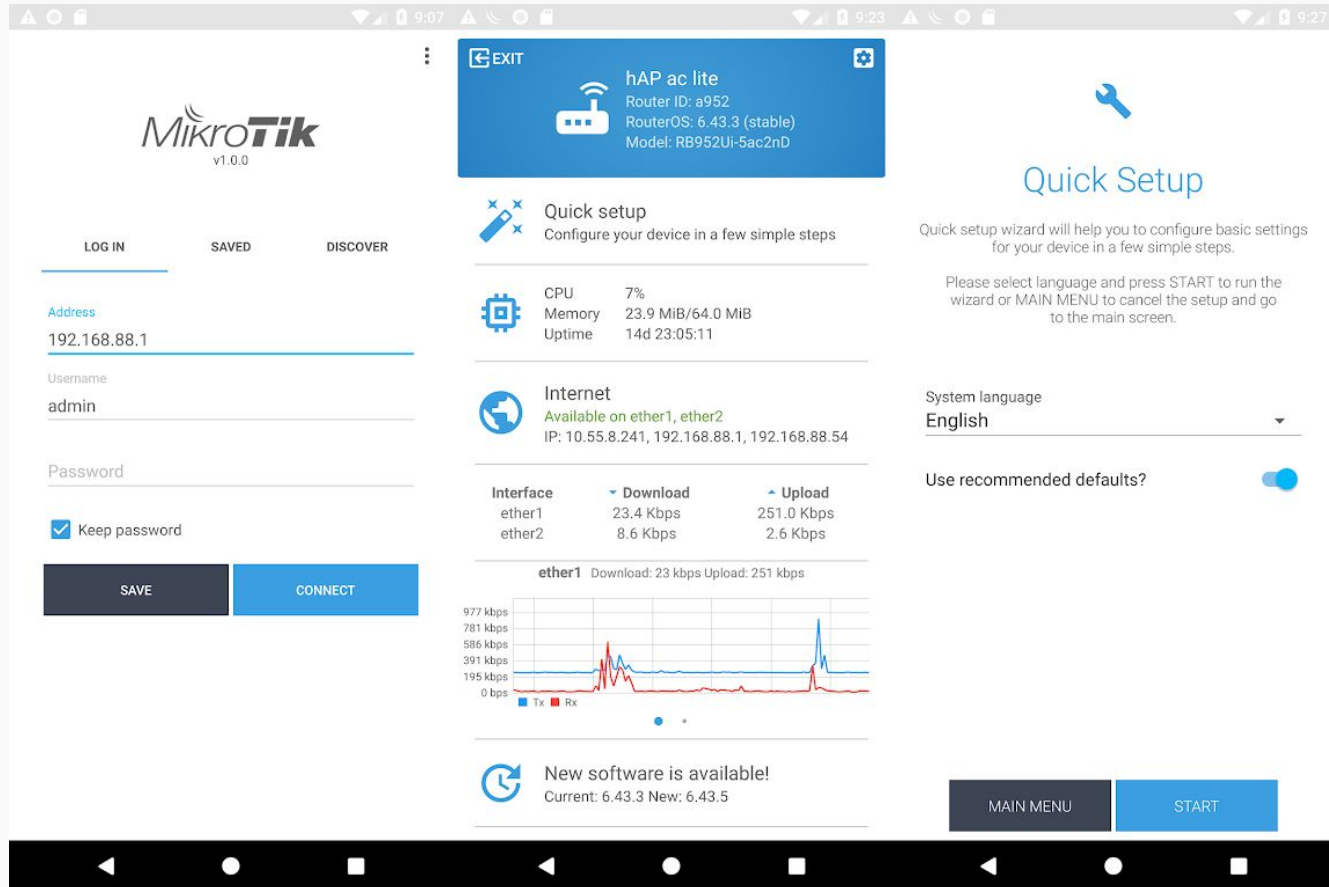
Fortaleza, **Brazil**
Tel: 85 3253.1376
[Write an e-mail](#)

Computech Tecnologia Ltda.

Porto Alegre, **Brazil**
Tel: +55 51 3230-0900
[Write an e-mail](#)

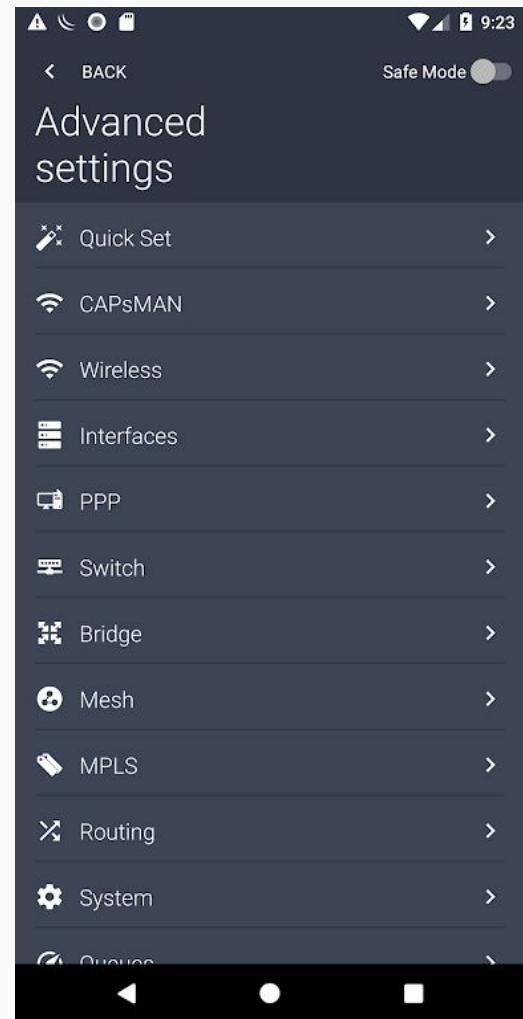
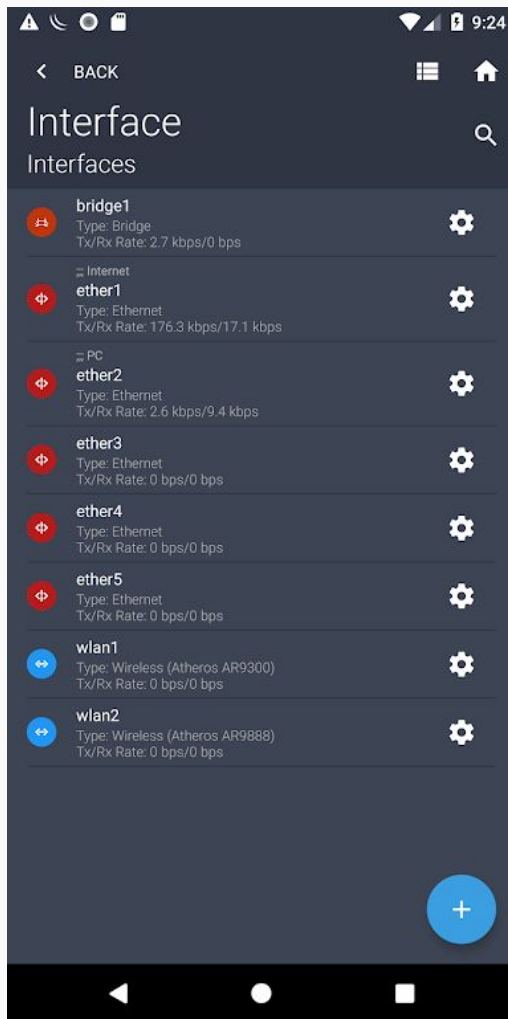
MikroTik App para Android

MIKROTIK APP para Android (TikApp)



[Google Play Store](#)

MIKROTIK APP para Android (TikApp)



Academia MikroTik

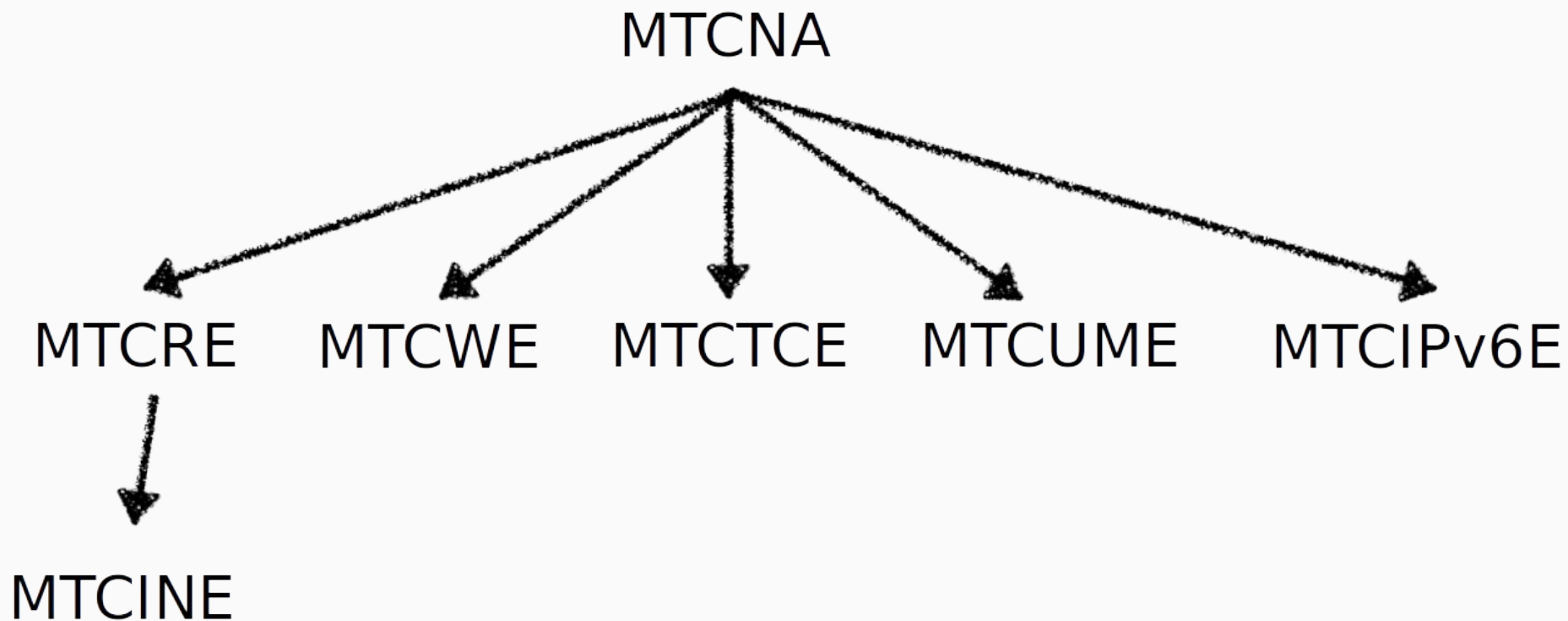


Instituições elegíveis:

- ★ Universidades
- ★ Escolas técnicas
- ★ Colégios de ensino médio
- ★ Outras

Treinamentos MikroTik

GRADE DE CERTIFICAÇÕES



Latin America —

Argentina
Bolivia
Brazil
Chile
Colombia
Costa Rica
Dominican Republic
Ecuador
Mexico
Paraguay
Peru
Puerto Rico
Venezuela

Africa +

Asia +

Oceania +

Europe +

Anderson M. Matozinhos / Alive Solutions

Rating: ★★★★★ 5/5 (257 votes)
Average student result: 70%
MTCNA, MTCRE, MTCWE, MTCTCE, MTCUME, MTCINE, MTCIPv6E
Belo Horizonte - MG, **Brazil**
Tel: 55-31-97112-1998
[Write an e-mail](#)

Guilherme Ramires, Alive Solutions

Rating: ★★★★★ 4.9/5 (233 votes)
Average student result: 68%
MTCNA, MTCRE, MTCWE, MTCTCE, MTCUME, MTCINE, MTCIPv6E
João Pessoa/PB, Brazil, **Brazil**
Tel: +55 (83) 9119-0832
[Write an e-mail](#)

Leonardo Rosa, BRAUSER

Rating: ★★★★★ 4.8/5 (136 votes)
Average student result: 72%
MTCNA, MTCRE, MTCWE, MTCTCE, MTCINE, MTCIPv6E
Campinas, Sao Paulo, **Brazil**
Tel: +55 19 3090 3600 | 19 98166 1728
[Write an e-mail](#)

Francisco Neto, Redes Brasil

Rating: ★★★★★ 5/5 (224 votes)
Average student result: 72%
MTCNA, MTCRE, MTCWE, MTCTCE, MTCUME, MTCINE, MTCIPv6E
Goiânia, Goiás, **Brazil**
Tel: +55 62 3275-5786
[Write an e-mail](#)

Eng. Flavio Camacho / GrupoVipnet

Rating: ★★★★★ 5/5 (44 votes)
Average student result: 86%
MTCNA, MTCRE, MTCWE, MTCTCE, MTCUME, MTCINE, MTCIPv6E
Duque de Caxias - RJ, **Brazil**
Tel: +55 21 3799-8299 / 97959-2225
[Write an e-mail](#)

Ademir Vida

Rating: ★★★★★ 5/5 (16 votes)
Average student result: 74%
MTCNA, MTCRE, MTCWE, MTCTCE, MTCUME, MTCIPv6E
Florianópolis / SC, **Brazil**
Tel: +1 (754) 444-1835
[Write an e-mail](#)

Edielson Pantoja Santana, MyRouter Soluções e Treinamentos

Rating: ★★★★★ 5/5 (232 votes)
Average student result: 71%
MTCNA, MTCRE, MTCWE, MTCTCE, MTCUME, MTCINE, MTCIPv6E
Brasília, **Brazil**
Tel: +55 (61) 98203-6581
[Write an e-mail](#)

Leonardo Vieira, CONTRACT TI

Rating: ★★★★★ 4.9/5 (55 votes)
Average student result: 75%
MTCNA, MTCRE, MTCWE, MTCTCE, MTCUME, MTCINE, MTCIPv6E
Belo Horizonte, MG, **Brazil**
Tel: +55 31 3347-0627
[Write an e-mail](#)

João Krieger - Academia MT

Rating: ★★★★★ 4.9/5 (92 votes)
Average student result: 75%
MTCNA, MTCRE, MTCTCE, MTCIPv6E
Florianópolis / SC, **Brazil**
Tel: +55 48 9-9982-8707
[Write an e-mail](#)

2018-11-23	2018-11-25	MTCNA	Brazil, Fortaleza	 BRAUSER Gatre Treinamentos	Portuguese
2018-11-24	2018-11-26	MTCINE	Brazil, Sao Paulo	 Redes Brasil - MTCINE Pós MUM	Portuguese
2018-11-26	2018-11-27	MTCRE	Brazil, Fortaleza	 BRAUSER Gatre Treinamentos	Portuguese
2018-11-27	2018-11-29	MTCRE	Brazil, Florianópolis	 MyRouter Soluções e Treinamentos	Portuguese
2018-11-30	2018-12-02	MTCINE	Brazil, Florianópolis	 MyRouter Soluções e Treinamentos	Portuguese
2018-11-30	2018-12-02	MTCRE	Brazil, Sinop	 Redes Brasil	Portuguese
2018-12-01	2018-12-03	MTCRE	Brazil, Salvador	 BRAUSER F5 Núcleo de Treinamentos	Portuguese
2018-12-06	2018-12-07	MTCRE	Brazil, Manaus	 AmazoniaSat - Sidi Technology & Telecom	Portuguese
2018-12-07	2018-12-09	Introduction, MTCNA	Brazil, Ribeirao Preto	 REDES BRASIL + CONTRACT TI	Portuguese
2018-12-07	2018-12-09	CAPsMAN, MTCWE	Brazil, Belo Horizonte	 Alive Solutions	 Portuguese
2018-12-07	2018-12-09	MTCNA	Brazil, Florianopolis	 ACADEMIA MT	 Portuguese
2018-12-07	2018-12-09	MTCINE	Brazil, Salvador	 BRAUSER F5 Núcleo de Treinamentos	Portuguese
2018-12-07	2018-12-09	Introduction, MTCNA	Brazil, Alagoinhas	 Redes Brasil e Argo Consultoria	Portuguese
2018-12-08	2018-12-10	MTCINE	Brazil, Manaus	 MyRouter Soluções / Redes Brasil	 Portuguese
2018-12-10	2018-12-12	MTCRE	Brazil, Ribeirao Preto	 CONTRACT TI + Redes Brasil	Portuguese
2018-12-10	2018-12-11	MTCTCE	Brazil, Florianopolis	 ACADEMIA MT	 Portuguese
2018-12-10	2018-12-12	MTCRE	Brazil, Alagoinhas	 Redes Brasil e Argo Consultoria	Portuguese
2018-12-14	2018-12-16	Introduction, MTCNA	Brazil, Belo Horizonte	 CONTRACT TI	Portuguese

Consultores MikroTik



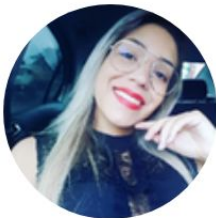
Leonardo C. Rosa MUM Presenter

MTCRE, MTCWE, MTCTCE, MTCIPv6E, MTCINE

Valinhos, Sao Paulo, **Brazil**

Consultor desde 2006 e instrutor oficial desde 2012 com experiência em Inter-networking, Segurança e Qualidade na área de TIC. Especialista em BGP, Firewall, IPv6 e QoS. *English* Consultant since 2006 and official trainer since 2012 with experience on Inter-networking, Security and Quality in ICT. Specialist on BGP, Firewall, IPv6 and QoS.

+55 (19) 9 8166 1728 Email leonardoroza +5519981661728



Hemily Alves Lima MUM

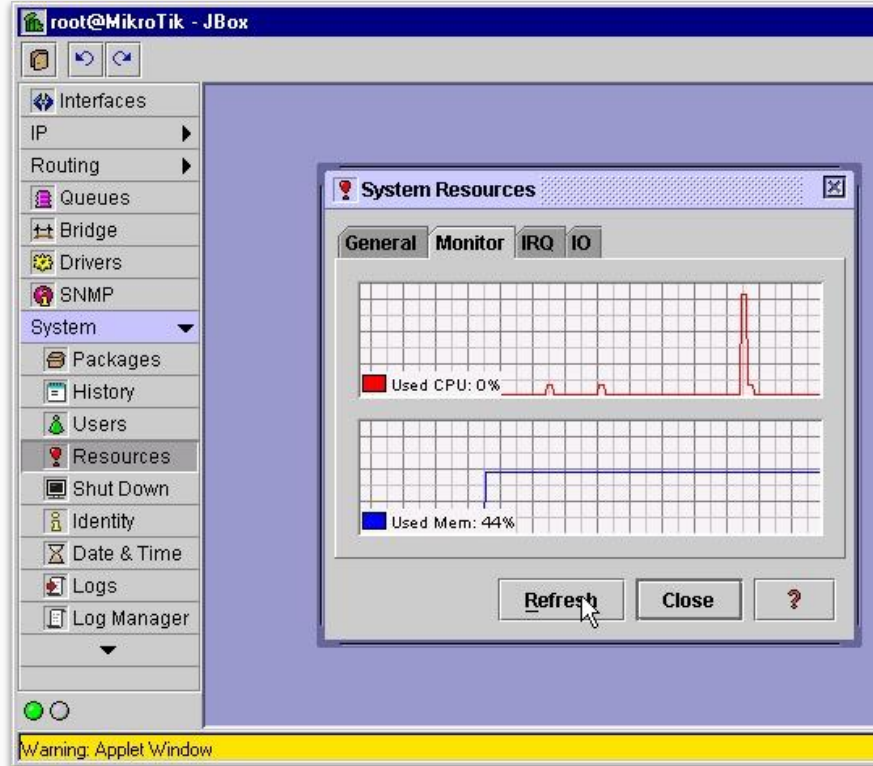
MTCRE, MTCIPv6E

Alexânia, Goiás, **Brazil**

Expert: Wireless networks, Advanced Routing(RIP, OSPF, BGP, MPLS,VPLS), Firewall, Security, HotSpot, PPPoE, Tunnels (EOIP) and VPN, Bonding, Load balancing, Monitoring SNMP, User Manager Integration, Authentication and Accounting with Radius, failover, Bandwidth management and queues, QoS, Caching and webproxy, Dude, Assistance support, Bridge and Filter Bridge, Other advanced configurations

61981033834 www.facebook.com Email

Uma breve história no tempo



- **1997 → Primeiro RouterOS**
- 1999 → RouterOS v2
- 2008 → RouterOS v3
- 2009 → RouterOS v4
- 2011 → RouterOS v5
- 2013 → RouterOS v6

Connect demo.mt.lv ... Connect

Login admin

Password:

☐ Keep Password

☒ Secure Mode

☒ Load Previous Session

Note:

Save Remove Tools...

Address	User	Note
---------	------	------

MAC Address	IP Address	Identity	Version	Board Name
08:00:27:4D:C4:0C	0.0.0.0	MikroTik	4.17	x86
08:00:27:90:33:B1	0.0.0.0	MikroTik	2.9.51	
08:00:27:A4:E2:2D	0.0.0.0	MikroTik	3.30	x86
08:00:27:C8:14:67	0.0.0.0	MikroTik	5.26	x86

- 1997 → Primeiro RouterOS
- **1999 → RouterOS v2**
- 2008 → RouterOS v3
- 2009 → RouterOS v4
- 2011 → RouterOS v5
- 2013 → RouterOS v6

1999 → RouterOS v2

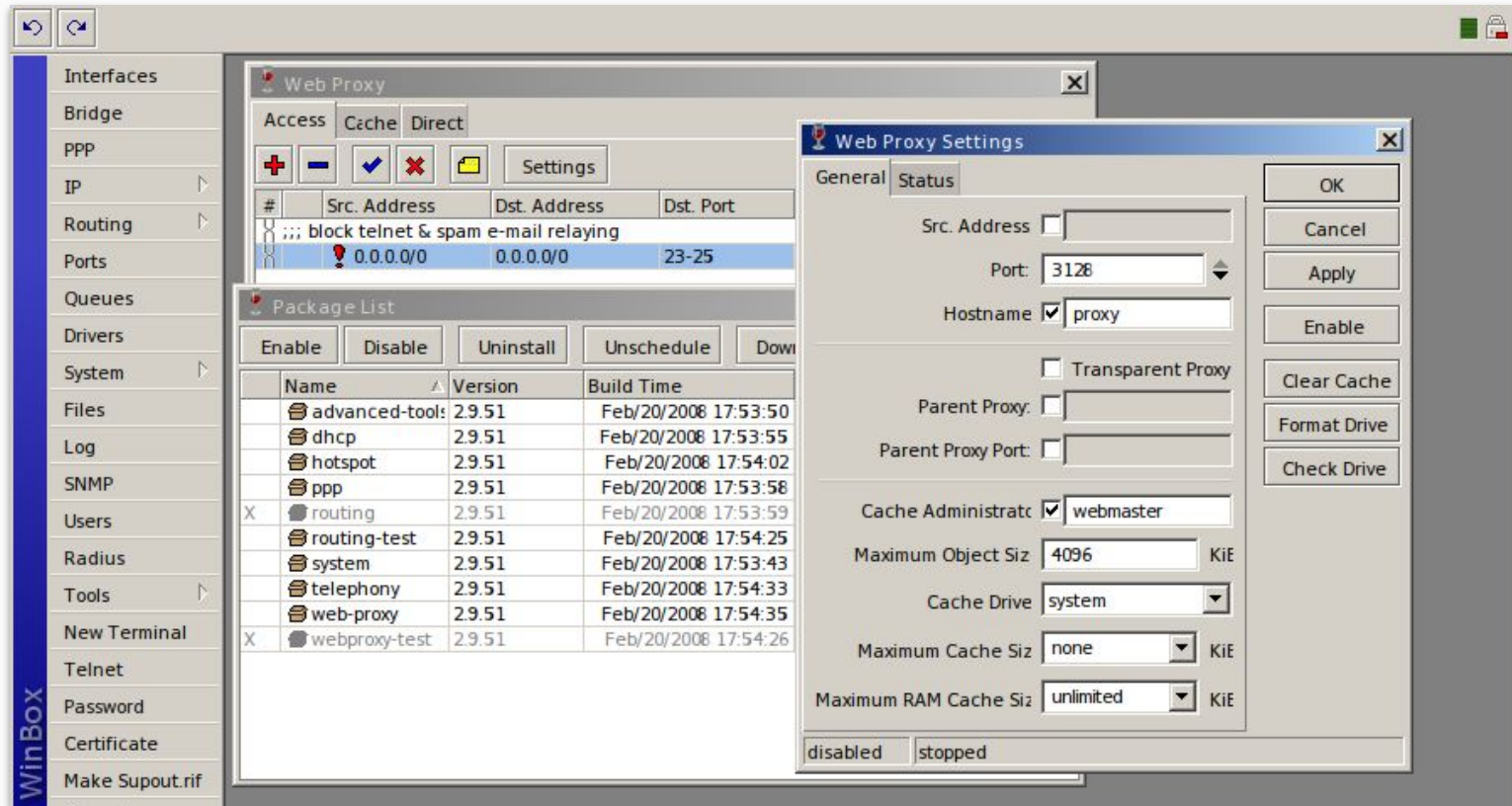
Welcome to MikroTik Router Software installation

Move around menu using 'p' and 'n' or arrow keys, select with 'spacebar'.
Select all with 'a', minimum with 'm'. Press 'i' to install locally or 'r' to
install remote router or 'q' to cancel and reboot.

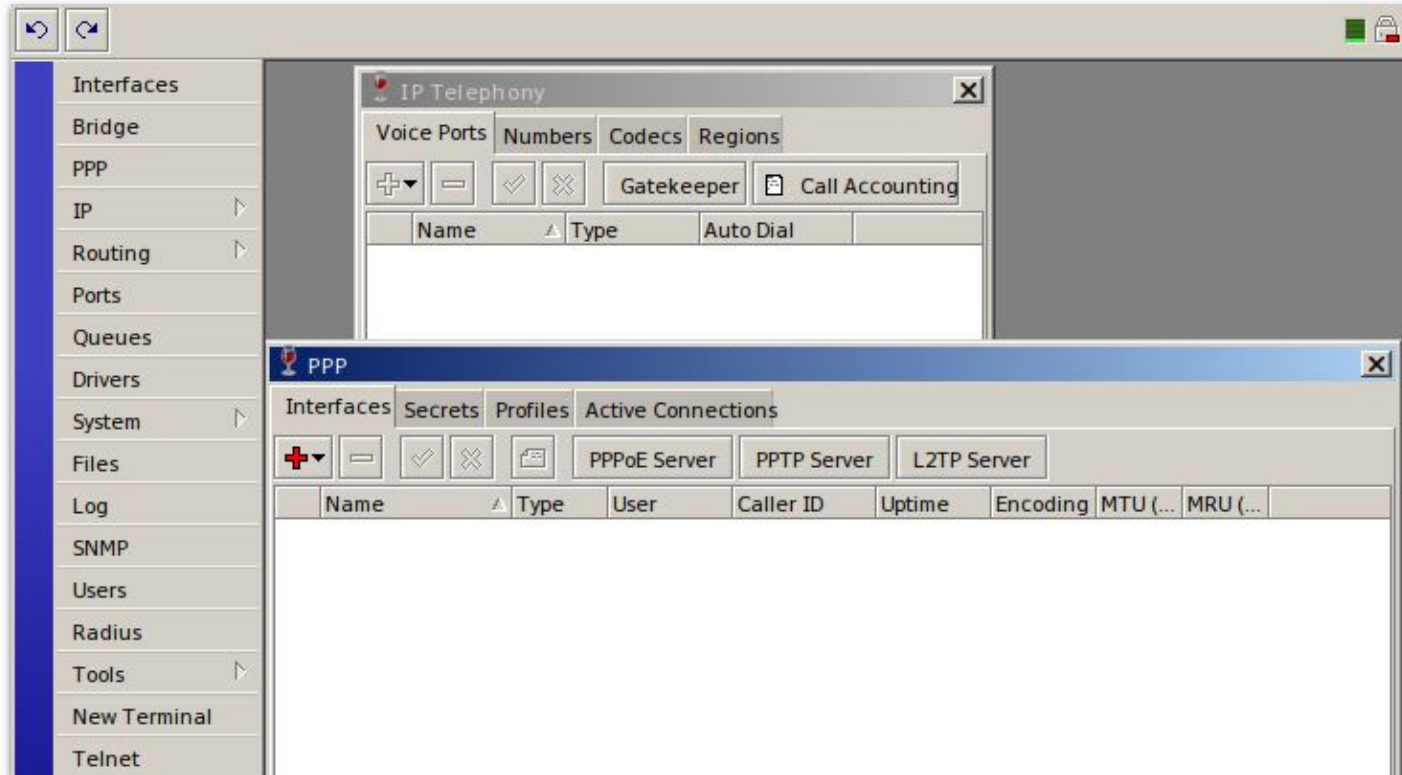
☒ system	☐ lcd	☒ telephony
☒ ppp	☐ ntp	☐ ups
☒ dhcp	☐ radiolan	☐ user-manager
☒ advanced-tools	☐ routerboard	☒ web-proxy
☐ arlan	☒ routing	☒ webproxy-test
☐ calea	☒ routing-test	☐ wireless
☐ gps	☐ rstp-bridge-test	☐ wireless-crd
☒ hotspot	☐ security	☐ wireless-legacy
☐ isdn	☐ synchronous	

telephony (depends on system):
Telephony H.323 package

1999 → RouterOS v2



1999 → RouterOS v2



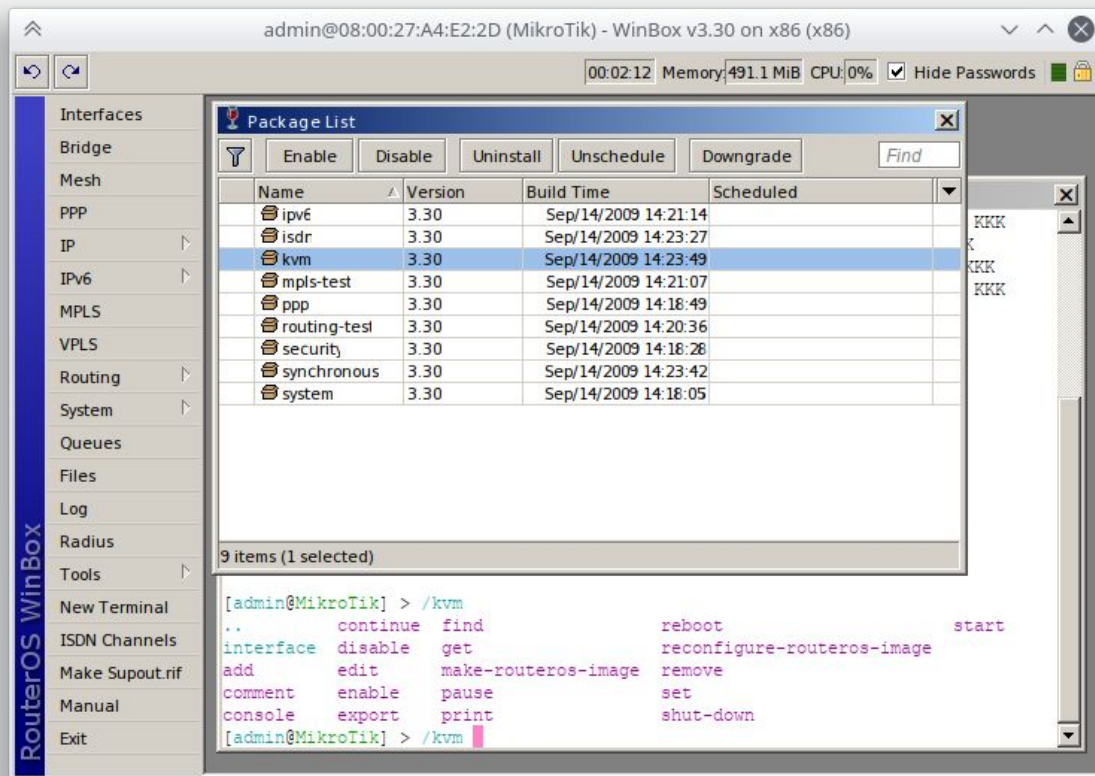
Welcome to MikroTik Router Software installation

Move around menu using 'p' and 'n' or arrow keys, select with 'spacebar'.
Select all with 'a', minimum with 'm'. Press 'i' to install locally or 'q' to
cancel and reboot.

☒ system	☐ isdn	☒ routing-test
☒ ppp	☒ kvm	☐ security
☐ dhcp	☐ lcd	☐ stpbridge-legacy
☐ advanced-tools	☒ mpls-test	☐ synchronous
☐ arlan	☒ multicast	☐ ups
☐ calea	☐ ntp	☐ user-manager
☐ gps	☐ radiolan	☐ wireless
☐ hotspot	☐ routerboard	☐ wireless-test
☒ ipv6	☒ routing	☒ xen

xen (depends on system):
Provides support Xen virtual machines.

2008 → RouterOS v3



Welcome to MikroTik Router Software installation

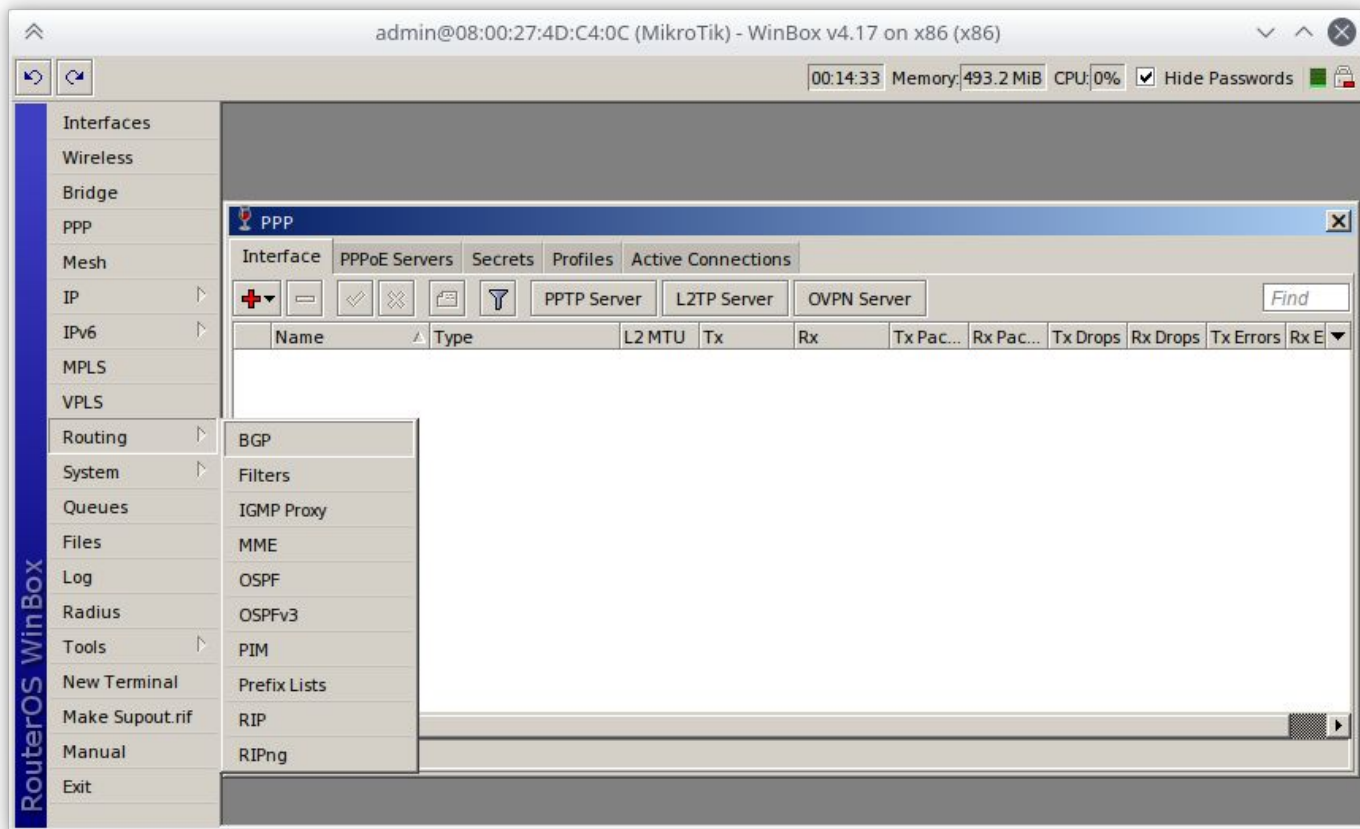
Move around menu using 'p' and 'n' or arrow keys, select with 'spacebar'.
Select all with 'a', minimum with 'm'. Press 'i' to install locally or 'q' to
cancel and reboot.

☒ system	☒ ipv6	☐ routerboard
☒ ppp	☐ isdn	☒ routing
☐ dhcp	☒ kvm	☒ security
☐ advanced-tools	☐ lcd	☐ synchronous
☐ arlan	☒ mpls	☐ ups
☐ calea	☐ multicast	☐ user-manager
☐ gps	☐ ntp	☒ wireless
☐ hotspot	☐ radiolan	☒ wireless-nv2

wireless-nv2 (depends on system):

Provides support for PrismII and Atheros wireless station and AP + NV2.

2009 → RouterOS v4



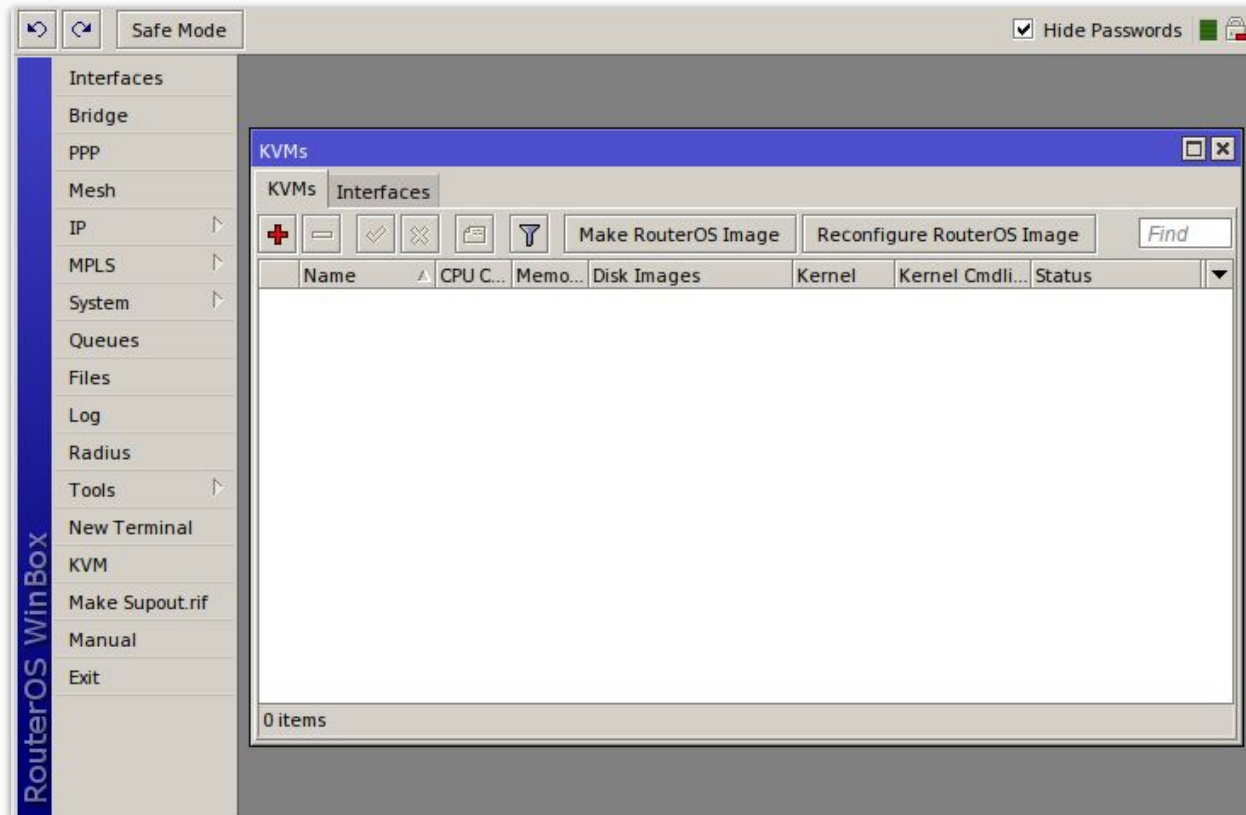
Welcome to MikroTik Router Software installation

Move around menu using 'p' and 'n' or arrow keys, select with 'spacebar'.
Select all with 'a', minimum with 'm'. Press 'i' to install locally or 'q' to
cancel and reboot.

☒ system	☐ ipv6	☐ routerboard
☒ ppp	☐ isdn	☐ routing
☐ dhcp	☒ kvm	☐ security
☐ advanced-tools	☐ lcd	☐ ups
☐ calea	☒ mpls	☐ user-manager
☐ gps	☐ multicast	☐ wireless
☐ hotspot	☐ ntp	

kvm (depends on system):
Provides support KVM virtual machines.

2011 → RouterOS v5



2013 → RouterOS v6

Session Settings Dashboard

Time: 19:23:52 Uptime: 00:06:44 CPU: 0%

Safe Mode Session

Kid Control

Kids Devices

	Name	MAC Address	User
B	celular	00:00:09:00:00:00	filho1
	tablet	00:00:00:00:00:01	filho2

2 items

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	Proto...	Src. Port	Dst. Port	In. Int
---	--------	-------	--------------	--------------	----------	-----------	-----------	---------

0 items

Resources

Uptime: 00:06:44 OK

Free Memory: 954.0 MiB PCI

Total Memory: 976.5 MiB USB

CPU: Intel(R) CPU

CPU Count: 2 IRQ

CPU Frequency: 2396 MHz RPS

CPU Load: 0 % Hardware

Free HDD Space: 69.6 MiB

Total HDD Size: 95.3 MiB

Sector Writes Since Reboot: 3 000

Total Sector Write: 3 001

Architecture Name: x86_64

Board Name: CHR

Version: 6.42.9 (long-term)

Build Time: Sep/27/2018 05:19:48

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

v7





Muito obrigado!

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