MikroTik

MUM Central America (Guatemala)

January 2017

More than 140 MUMs all around the world



MikroTik

- Established 1996
- RouterOS created in 1997
- RouterBOARD created in 2002
- First MUM event in Prague 2006
- Biggest MUM in 2015, Indonesia - 2500+ people


MikroTik
Latvia
Iceland
Sweden
Finland
Russia
Estonia
Lithuania
Belarus
Ireland
United Kingdom
Den-mark
Nether-lands
Belgium
Germany
Poland
Luxembourg
Czech Republic
Slovakia
Ukraine
Mol-dova
France
Switzer-land
Liecht.
Austria
Hungary
Romania
Georgia
Slove-nia
Croatia
Bosnia and Herzego-vina
Serbia
Monaco
San Marino
Andorra
Portugal
Spain
Italy
Vatican City
Monte-negro
Bulgaria
Mace-donia
Al-ba-nia
Turkey
Greece
Syria

MikroTik at the MUM

- Edmunds Aperans (sales)
- Kaspars Krampis (training)
- Sergejs Boginskis (support)



Horario

09:00	Presentaciones
12:15	Almuerzo (con vouchers)
13:45 - 16:00	Presentaciones
16:00	Sorteo

mt.lv/agenda

MUM live

www.youtube.com/mikrotik

Special thanks!

RedyTec

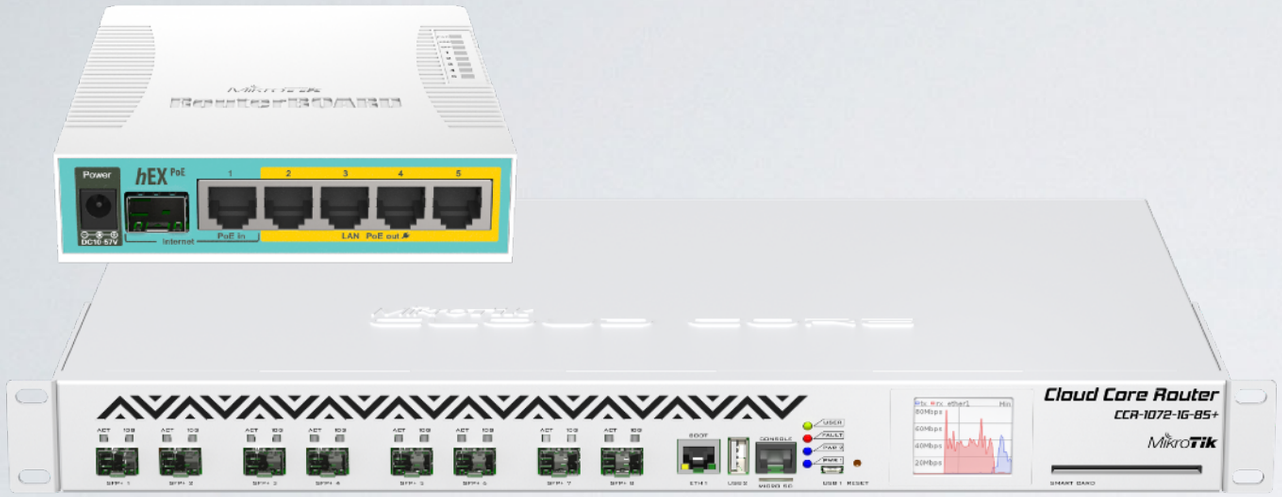
REDES Y TECNOLOGÍA S.A.

Internet Access

SSID: MUM

login: MUM

password: MUM2018-



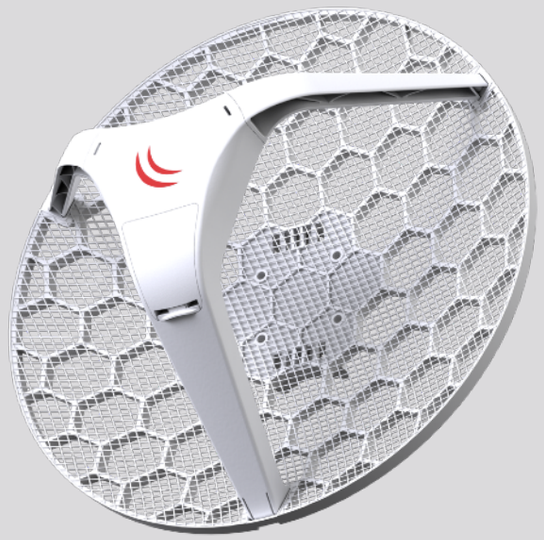
Ethernet



Wireless for home and office





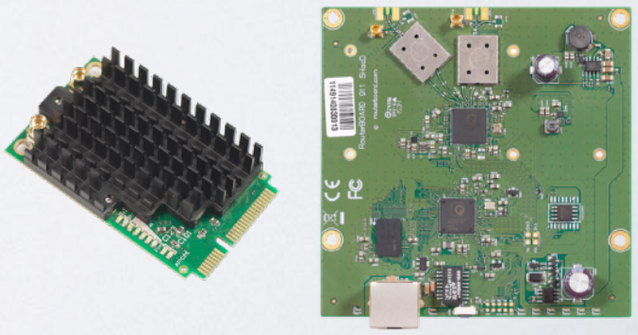


Wireless





Switches



RouterBOARDs

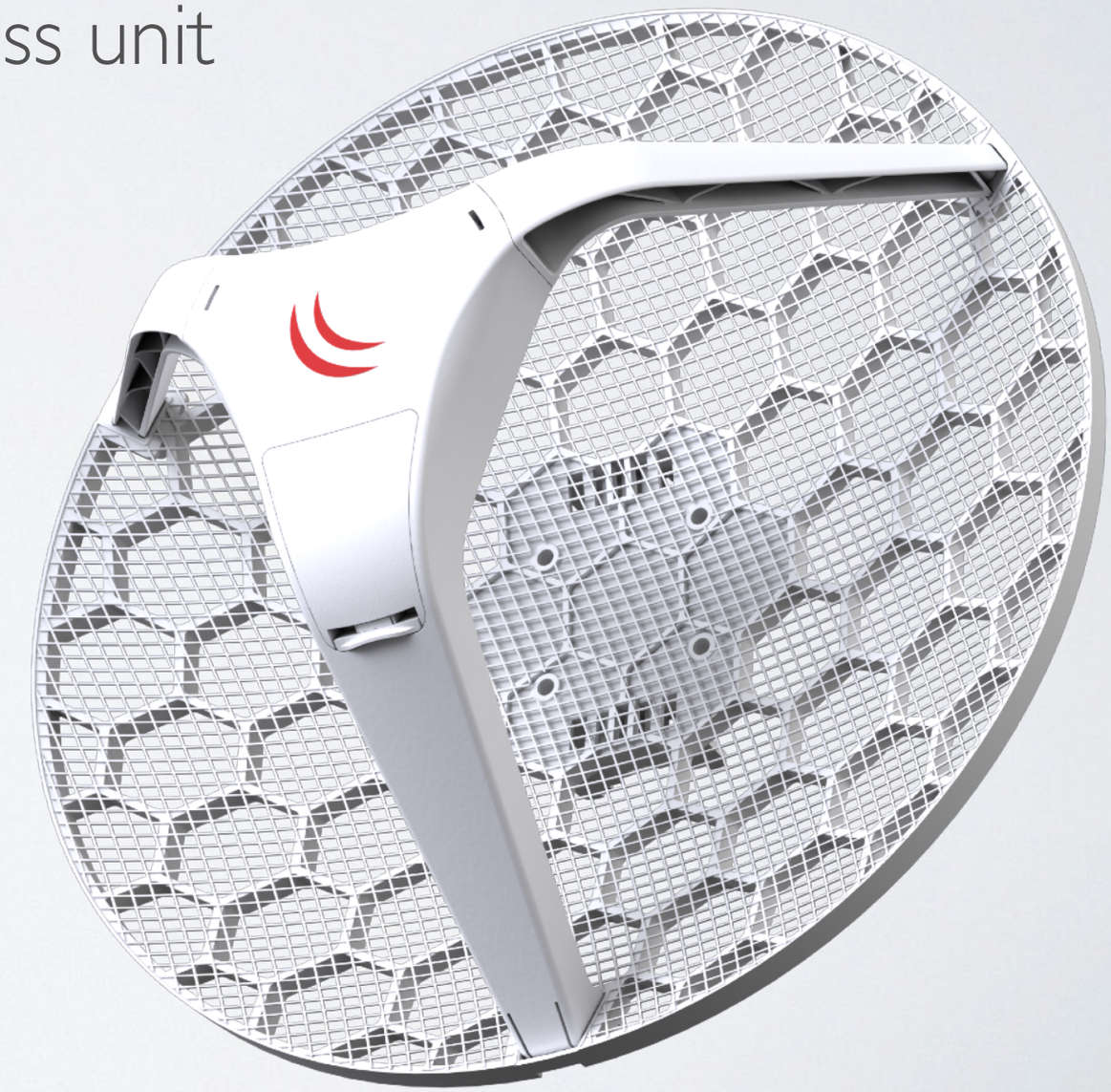
RECENTLY INTRODUCED

now

LHG 5

Light Head Grid

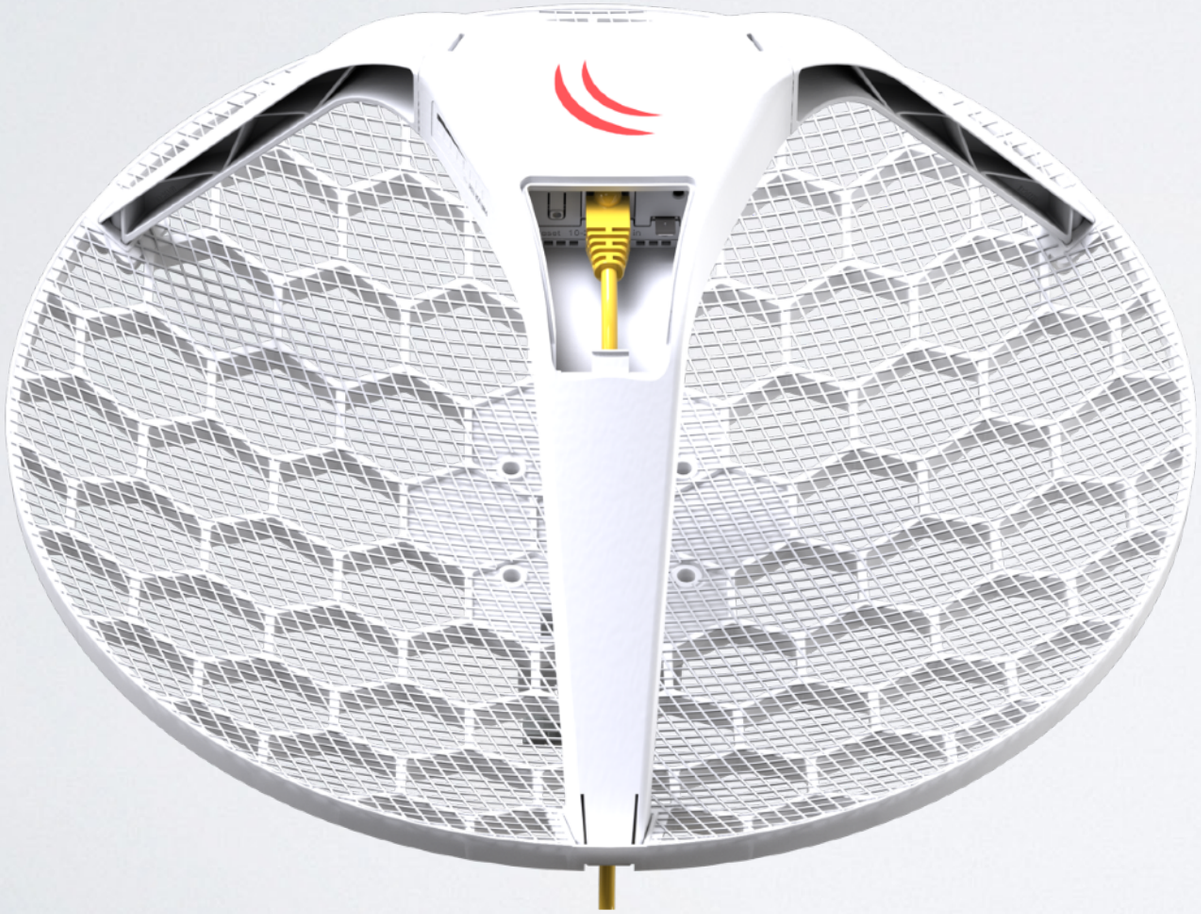
- 24.5 dBi antenna
- Antenna is built into wireless unit
- 802.11a/n dual chain
- Very affordable



now

LHG 5

Light Head Grid





now

quickMOUNT pro LHG

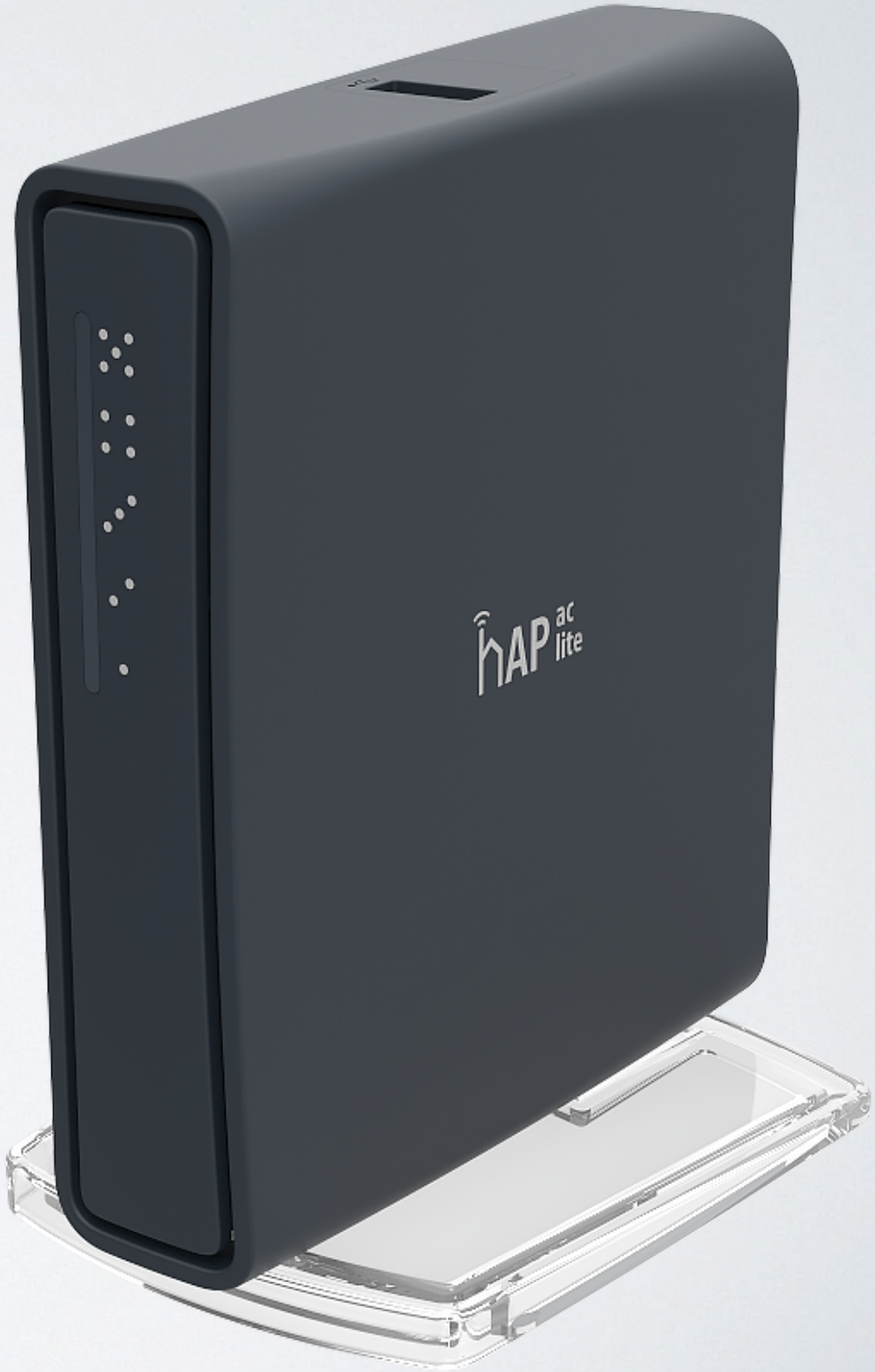
- Wall or pole mount adapter
- ±70° horizontal adjustment
- ±30° vertical adjustment
- Special plastic composite material - anvilNITE (TM)



now

hAP ac lite





now

hAP ac lite

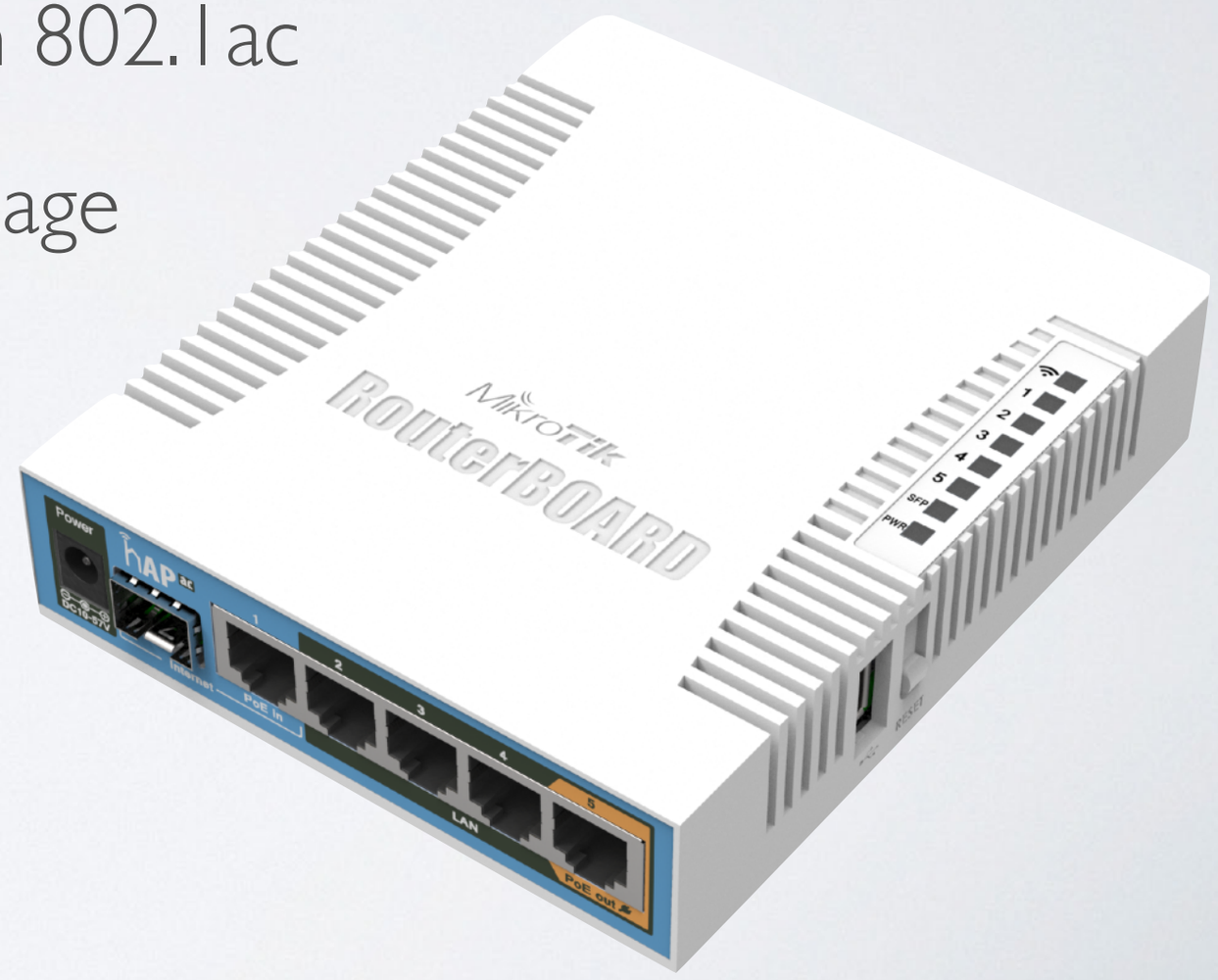
- Dual concurrent home AP
- 2.4GHz high power 2 chain 802.11n
- 5GHz high power 1 chain 802.1ac
- 5x100Mbps ports
- 650MHz CPU
- USB port for 3G/4G



now

hAP ac

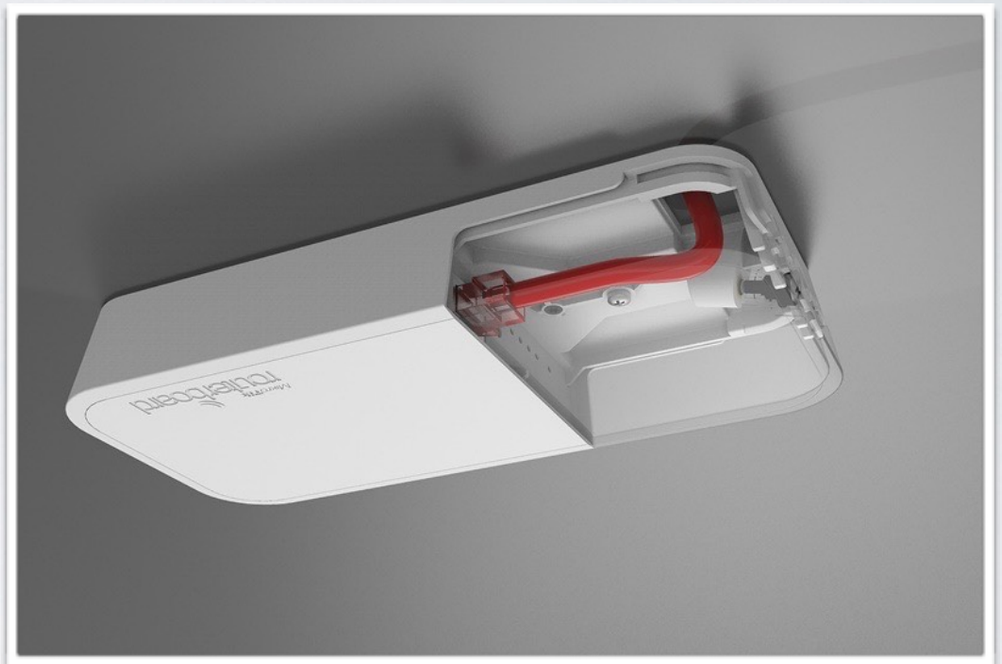
- Gigabit dual concurrent home AP
- 2.4GHz high power 3 chain 802.11n
- 5GHz high power 3 chain 802.1ac
- 5x1Gbps ports & 1 SFP cage
- 720MHz CPU
- PoE-out on port 5



now

wAP ac





- Wall or ceiling mountable
- Use for hotel, office, etc.
- Gigabit and 802.11ac
- Dual band (simultaneous 2.4GHz and 5GHz)

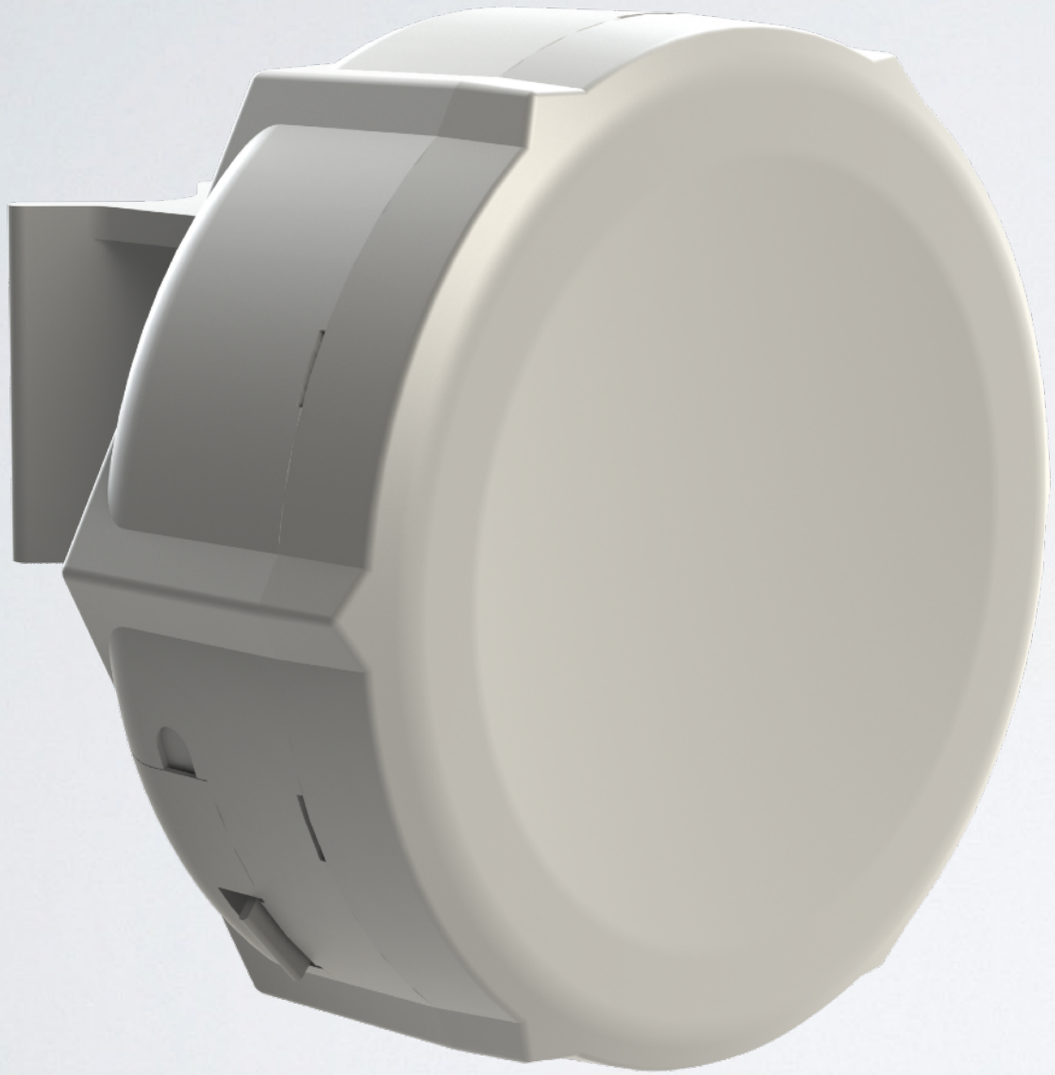
wAP LTE kit

- 2GHz wireless
- LTE antennas
- LTE modem within miniPCI-e slot
- Weatherproof case
- Indoor, outdoor, mobile operation



now

SXT 6GHz



- 5940-6500 MHz range
- 802.11 a/n
- Antenna gain 16dBi
- Antena beam width 28

now

OmniTIK 5 ac

- 802.11ac, 2 chains
- 5x1Gbit Ethernet ports
- 7.5 dBi
- PoE in





now

OmniTIK 5 PoE ac

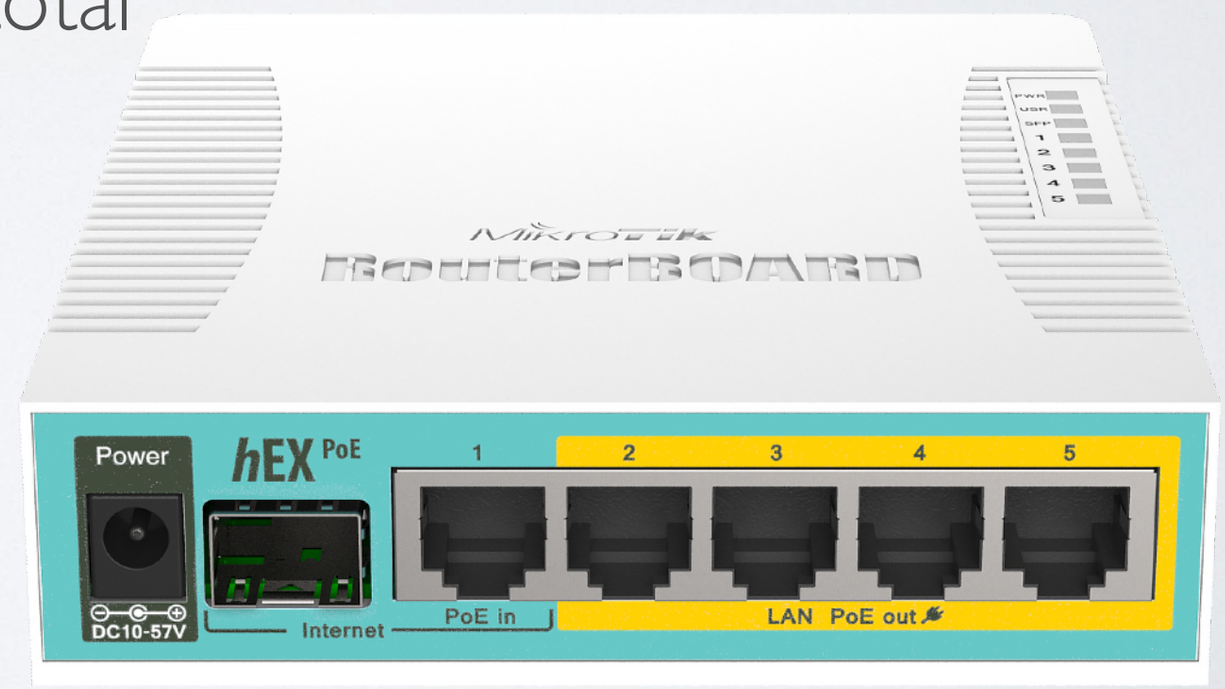
- 802.11ac, 2 chains
- 5x1Gbit Ethernet ports
- 7.5 dBi
- PoE in
- PoE out (ports 2-5)



now

hEX PoE

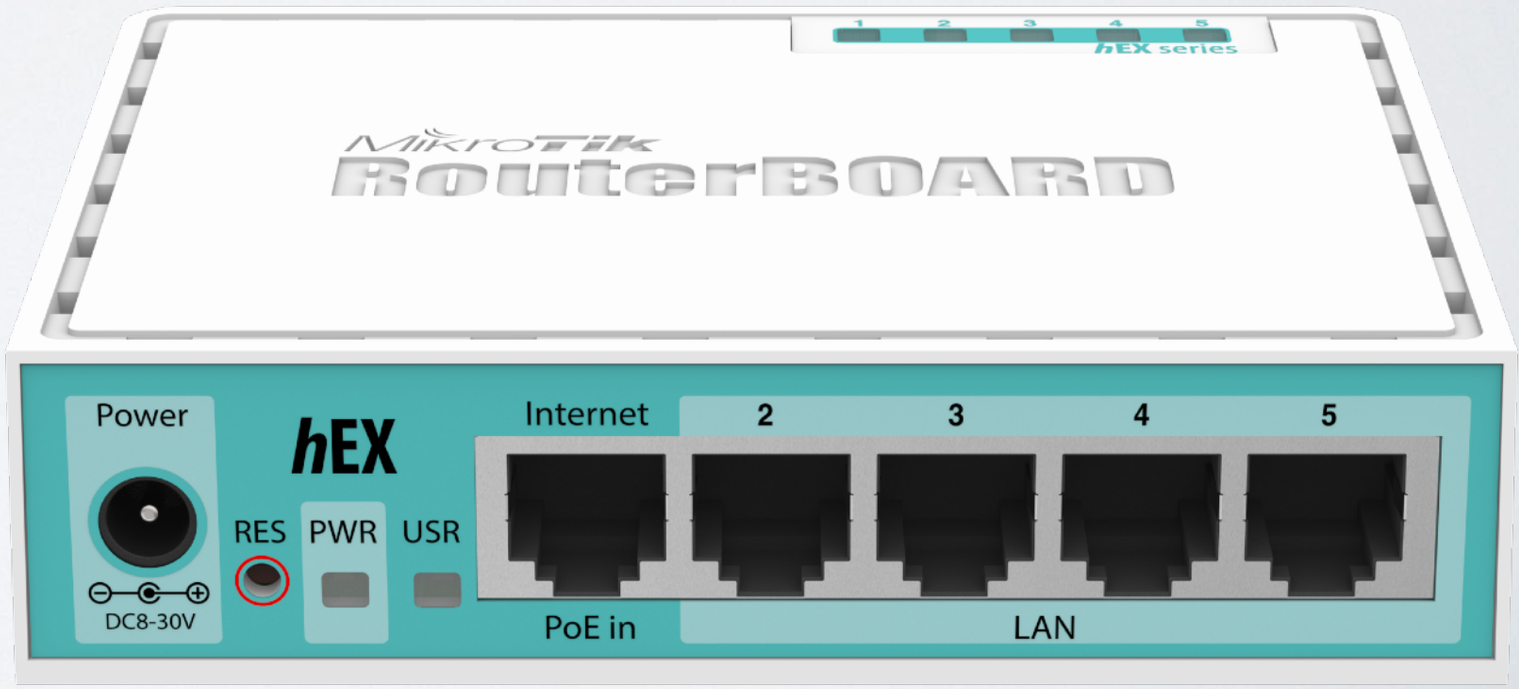
- Small Ethernet device
- Five Gbps ports
- Power over Ethernet out on ports 2-5
- Max 1A per port, 2A total



now

hEX

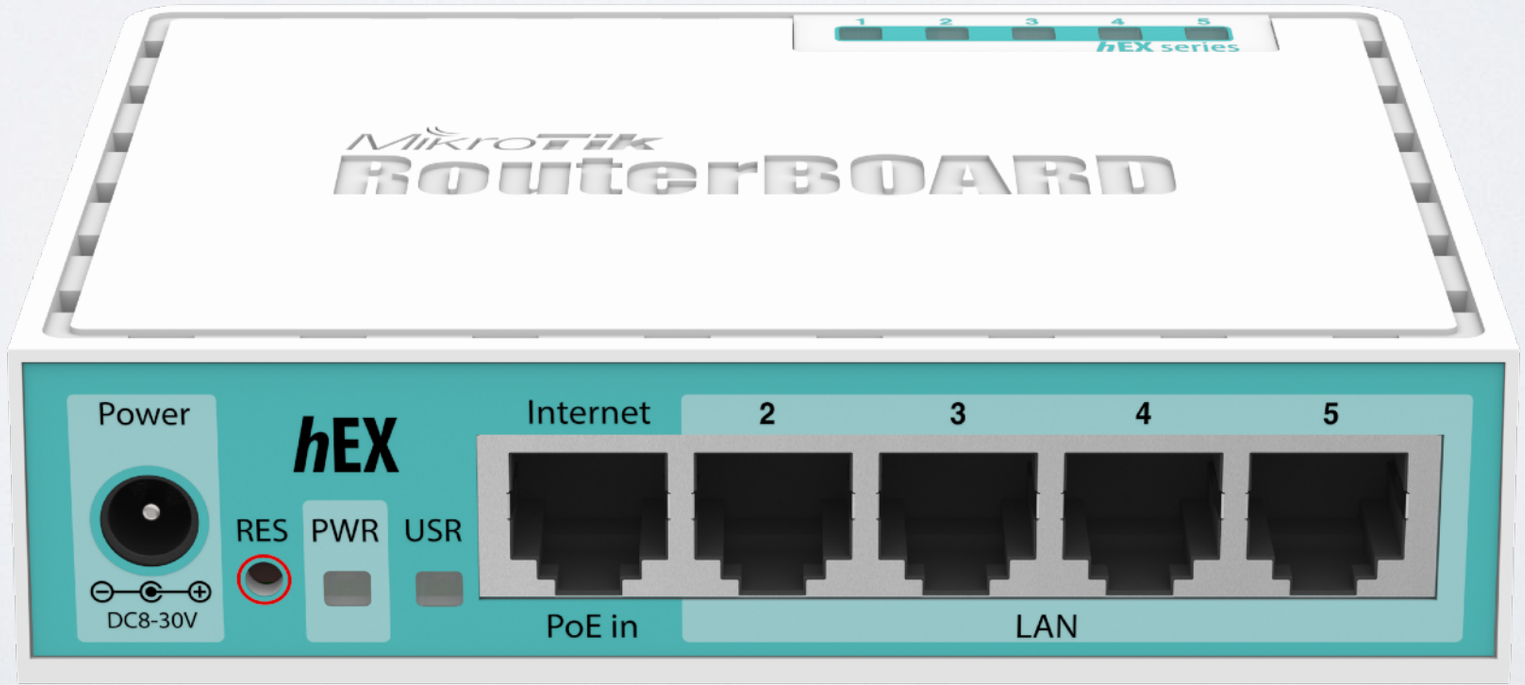
- new hEXr3
- very affordable!
- 880 MHz, 2 cores and 4 threads
- hardware acceleration ~470mbps
- same form factor
- same price



now

hEX

previous r2	new r3
396 Mbps, bridging 64 bytes	**590 Mbps**
986 Mbps, bridging 1518 bytes	**1955 Mbps**
373 Mbps, routing 64 bytes	**520 Mbps**
396 Mbps, routing 1518 bytes	**1961 Mbps**
40 Mbps, AES-128 1400 bytes	**472 Mbps**



now

CCR1009 update

- new CCR1009 available!
- no switch chip!
- 100Mbps support over SFP!
- combo port
- more throughput



now

CCR1009 update

CCR1009-8G-1S+PC - 6Gbps (old)

CCR1009-7G-1C-PC - 8Gbps (new)

CCR1009-8G-1S-1S+PC - 16Gbps (old)

CCR1009-7G-1C-1S+PC - 18Gbps (new)



NEW PRODUCTS

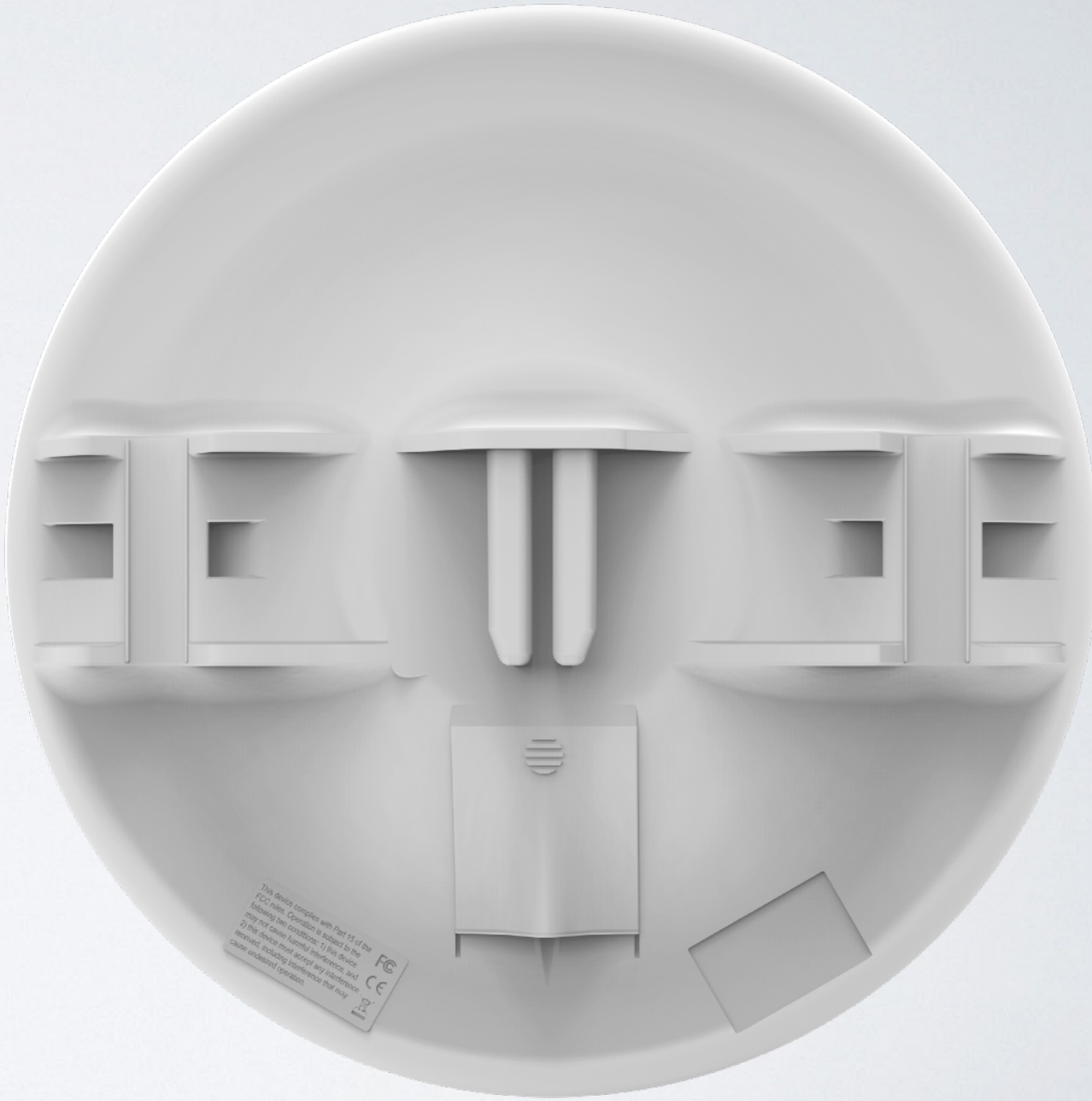
Disc 5

- High gain CPE at disruptive price!
- 21 dBi dual chain, 802.11n
- 600MHz CPU
- Kit recommended price $48



Disc 5




This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: 1) this device may not cause harmful interference, and 2) this device must accept any interference received, including interference that may cause undesired operation.

LDF 5

Light Dish Feed

- For satellite offset dish antennas
- Offset mount 40mm
- 100cm dish gives 33dBi
- RouterOS inside
- Tiny package



LDF 5

Light Dish Feed





cAP lite

- Small and elegant 2.4GHz AP
- 802.11n, dual chain
- Two different cases
- Custom 3D design cases

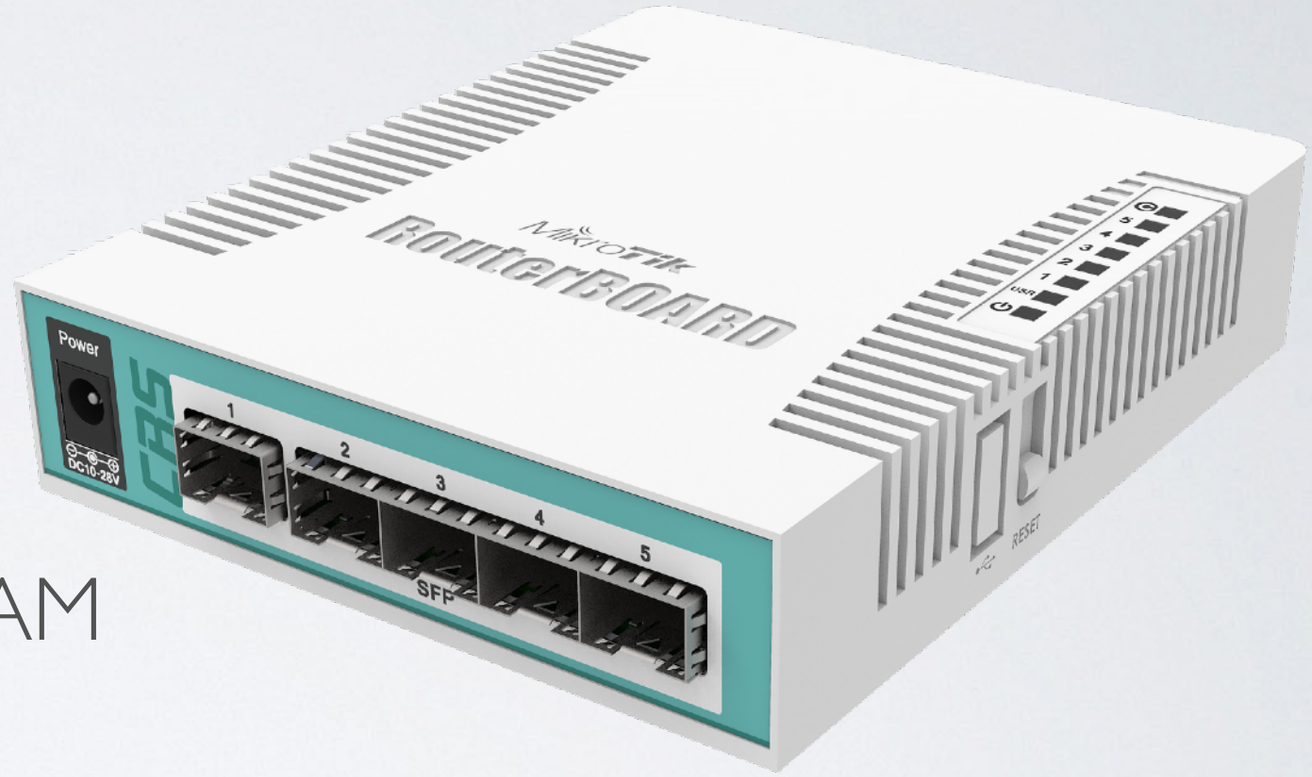


cAP lite



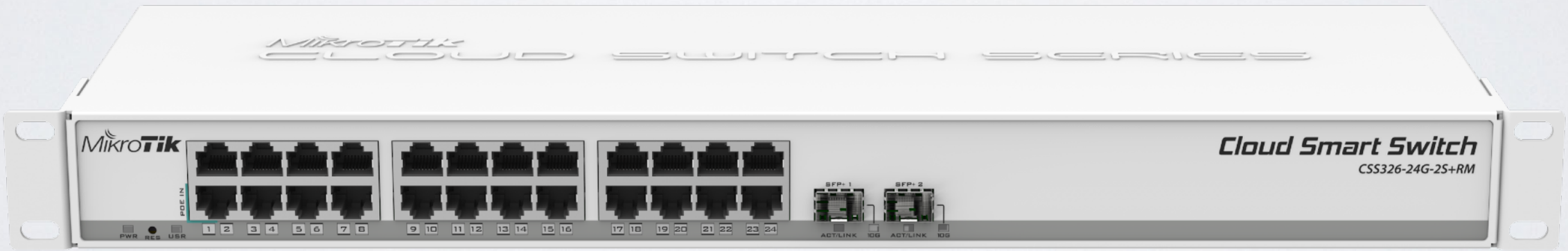
CRS106-1C-5S

- Desktop size smart switch
- 1 combo port Ethernet/SFP
- 5 SFP cages
- 400MHz CPU and 128MB RAM



CSS326-24G-2S+RM

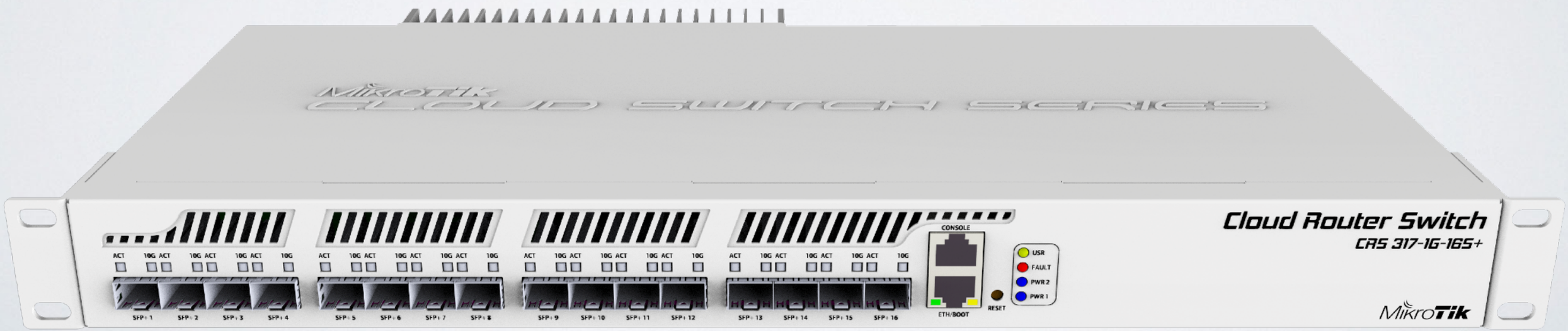
- SwOS powered device
- Wire speed on 24G ports and 2 10G SFP+



CRS317-1G-16S+RM

Q2

- Layer3 switch powered by MikroTik RouterOS
- 16 SFP+ ports and 1G Ethernet



All Products

- Include free software upgrades for life
- Run the same RouterOS software
- For more info see **routerboard.com**

ROUTEROS FEATURES

CHR

Cloud Hosted Router

- RouterOS version tailored for running in virtual environments
- Runs on VMware Workstation and ESXi, VirtualBox, HyperV, KVM, XenServer, etc.
- Cloud services - Amazon, Azure and others

CHR

Use cases

- Firewall for your cloud services
- VPN server in the cloud
- The Dude monitoring server
- Simulate networks for learning or training
- And many more

CHR

Licensing

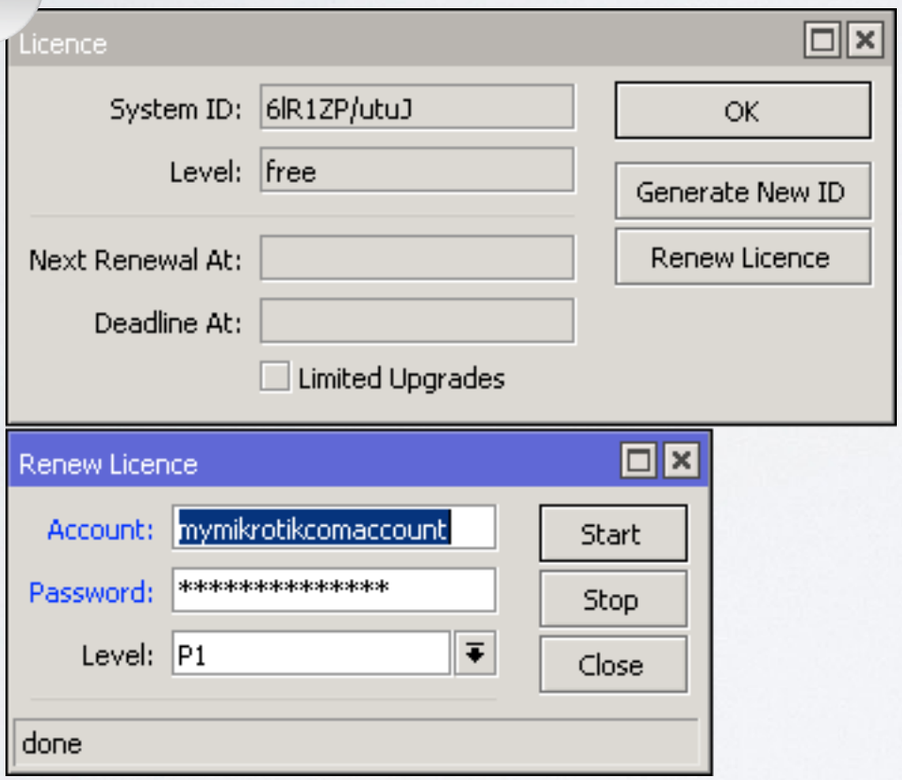
License	Speed limit	Price
Free	1Mbit	FREE
P1	1Gbit	$45
P10	10Gbit	$95
P-Unlimited	Unlimited	$250

- 60 day trial available
- Purchased license can be transferred

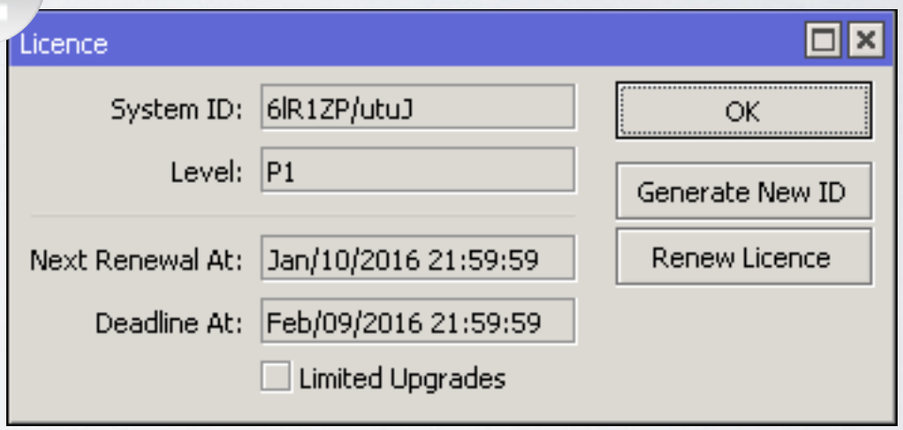
CHR

Licensing

1



2

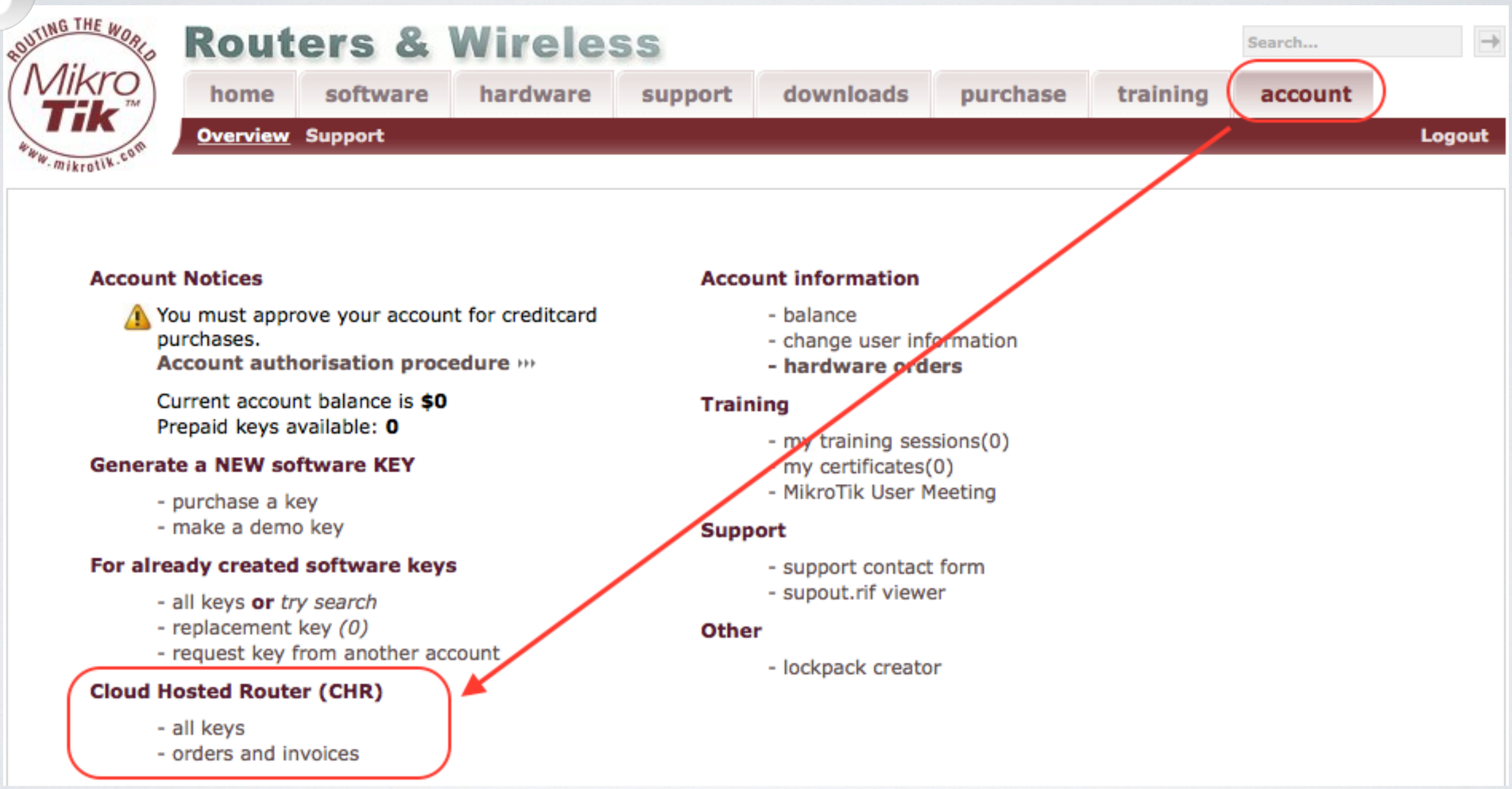


WinBox → System → License

CHR

Licensing

3



www.mikrotik.com

CHR

Licensing

4

[Back To Main Menu]

User Keys

Show 10 entries Search:

System ID	Key	Issued	Expires	Level	Transfer	Action	Note
6lR1ZP/utuJ	-----BEGIN MIKROTIK SOFTWARE KEY----- ... -----END MIKROTIK SOFTWARE KEY-----	2015-12-09	2016-02-09	P1-Perpetual (Trial version)		Upgrade	

Previous 1 Next

www.mikrotik.com

CHR

Licensing

5

Upgrade system license

System ID **Level**

6lR1ZP/utuJ

- ✓ **Select level**
- **P1-Perpetual ($ 45.00)**
- **P10-Perpetual ($ 95.00)**
- **P-Unlimited ($ 250.00)**

System 6lR1ZP/ut
Perpetual Trial version

You have following prepaid balance keys available to purchase a CHR license:

P1-Perpetual - 4 keys

Back

6

Payment

You have selected: **P1-Perpetual**
System ID **6lR1ZP/utuJ**
Total price: **$ 54.45**

Pay using deposit (left: $ 73.51)

Pay using CC

Pay using PayPal

Pay using Balance key (4)

Note: *Price includes VAT 21% because you have specified EU country as your residence.To avoid this you have to enter your VAT registration number in your account settings.*

Back

www.mikrotik.com

CHR

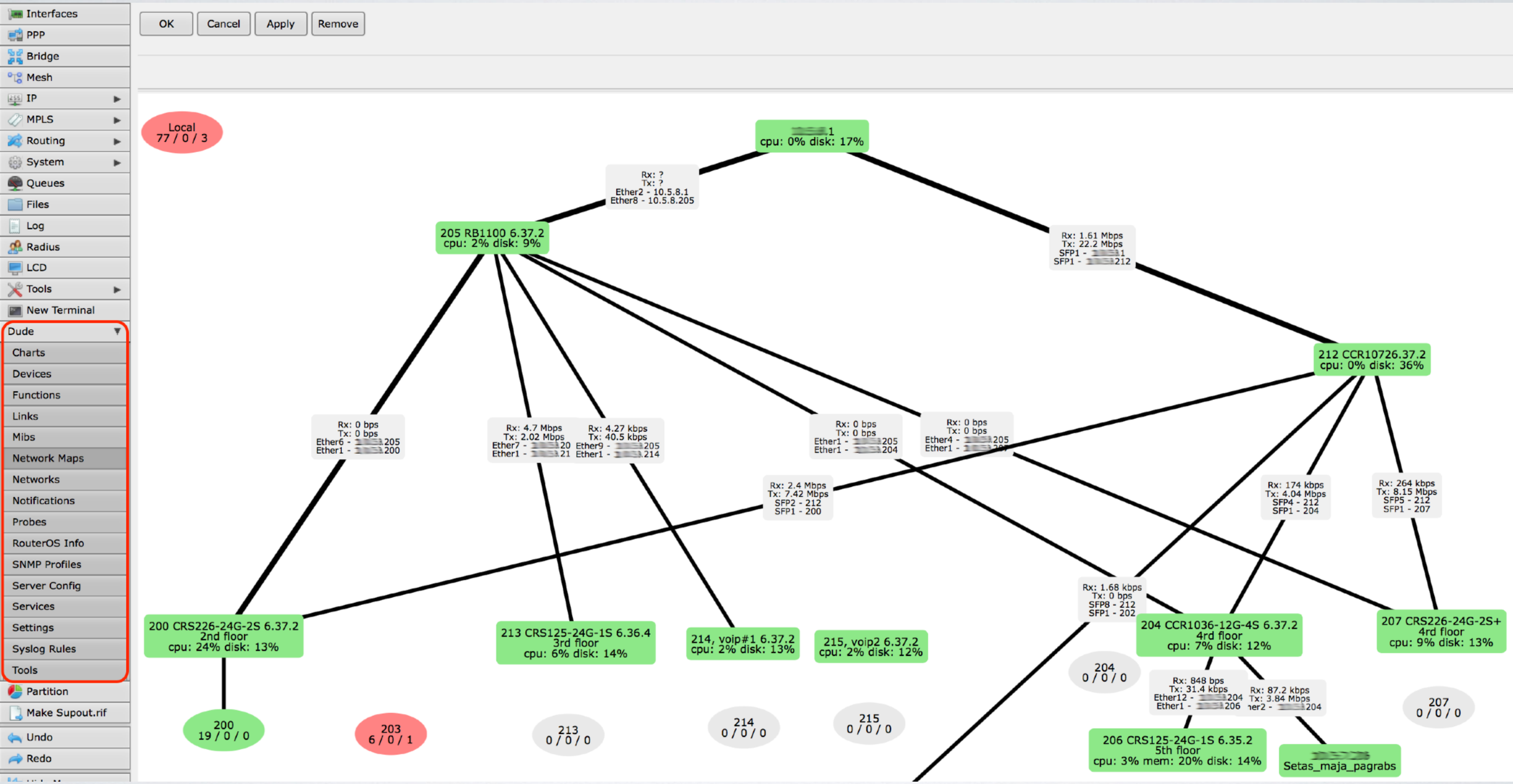
Cloud Hosted Router

- For more info, see the CHR page on our wiki: http://wiki.mikrotik.com/wiki/Manual:CHR
- Available on the download page: http://mikrotik.com/download#chr

The Dude

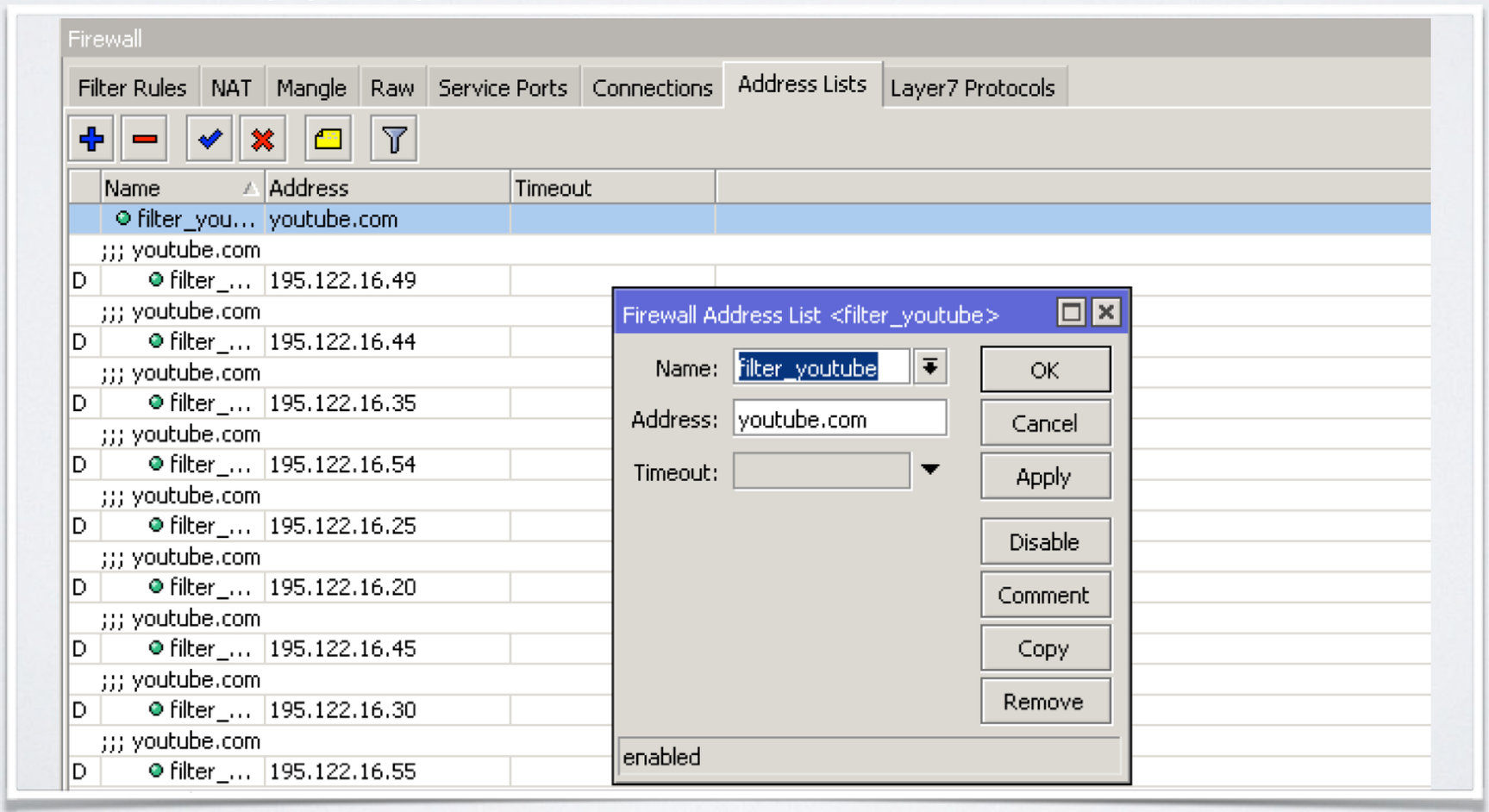
- New features in v6.38
- The Dude configuration interface in WinBox/WebFig
- Viewable maps WinBox/WebFig
- Any RouterOS device can be used as The Dude agent
- And many more - mikrotik.com/dude

The Dude


Interfaces
PPP
Bridge
Mesh
IP
MPLS
Routing
System
Queues
Files
Log
Radius
LCD
Tools
New Terminal
Dude
Charts
Devices
Functions
Links
Mibs
Network Maps
Networks
Notifications
Probes
RouterOS Info
SNMP Profiles
Server Config
Services
Settings
Syslog Rules
Tools
Partition
Make Supout.rif
Undo
Redo
OK
Cancel
Apply
Remove
Local
77 / 0 / 3
cpu: 0% disk: 17%
Rx: ?
Tx: ?
Ether2 - 10.5.8.1
Ether8 - 10.5.8.205
205 RB1100 6.37.2
cpu: 2% disk: 9%
Rx: 1.61 Mbps
Tx: 22.2 Mbps
SFP1 -
SFP1 -
212 CCR10726.37.2
cpu: 0% disk: 36%
Rx: 0 bps
Tx: 0 bps
Ether6 - 205
Ether1 - 200
Rx: 4.7 Mbps
Tx: 2.02 Mbps
Ether7 - 20
Ether1 - 21
Rx: 4.27 kbps
Tx: 40.5 kbps
Ether9 - 205
Ether1 - 214
Rx: 0 bps
Tx: 0 bps
Ether1 - 205
Ether1 - 204
Rx: 0 bps
Tx: 0 bps
Ether4 - 205
Ether1 -
Rx: 2.4 Mbps
Tx: 7.42 Mbps
SFP2 - 212
SFP1 - 200
Rx: 174 kbps
Tx: 4.04 Mbps
SFP4 - 212
SFP1 - 204
Rx: 264 kbps
Tx: 8.15 Mbps
SFP5 - 212
SFP1 - 207
Rx: 1.68 kbps
Tx: 0 bps
SFP8 - 212
SFP1 - 202
200 CRS226-24G-2S 6.37.2
2nd floor
cpu: 24% disk: 13%
213 CRS125-24G-1S 6.36.4
3rd floor
cpu: 6% disk: 14%
214, voip#1 6.37.2
cpu: 2% disk: 13%
215, voip2 6.37.2
cpu: 2% disk: 12%
204 CCR1036-12G-4S 6.37.2
4rd floor
cpu: 7% disk: 12%
207 CRS226-24G-2S+
4rd floor
cpu: 9% disk: 13%
204
0 / 0 / 0
Rx: 848 bps
Tx: 31.4 kbps
Ether12 - 204
Ether1 - 206
Rx: 87.2 kbps
Tx: 3.84 Mbps
ner2 - 204
207
0 / 0 / 0
200
19 / 0 / 0
203
6 / 0 / 1
213
0 / 0 / 0
214
0 / 0 / 0
215
0 / 0 / 0
206 CRS125-24G-1S 6.35.2
5th floor
cpu: 3% mem: 20% disk: 14%
Setas_maja_pagrabs

DNS at address-list

- Add DNS name to address-list, router will find addresses automatically
- Set appropriate rules at firewall



TR069-Client

- Initial support for TR-069 added
- Based on TR181 issue 2 Data Model
- In addition to DM attributes can push and execute arbitrary RouterOS script file
- Available in RouterOS v6.38
- wiki.mikrotik.com/wiki/Manual:TR069-client

Distance in Km

0.5 1 1.5 2 3 5 8 10 11 12 13 14 15 16 17 20 25 30 35 40 45 50 60



LHG $59

24.5 dBi



SXT Lite5 $59

16 dBi



SXT Lite5 ac $65

16 dBi



SXT 5 ac $109

16 dBi



SEXTANT G $110

18 dBi



SXT HG ac $119

17 dBi



QRT 5 $169

24 dBi



QRT 5 ac $199

24 dBi



Dynadish $179

25 dBi

0.5 1 1.5 2 3 5 8 10 11 12 13 14 15 16 17 20 25 30 35 40 45 50 60

Distance in Km

Distance at max supported 802.11ac data rate (eg. 866Mbit)

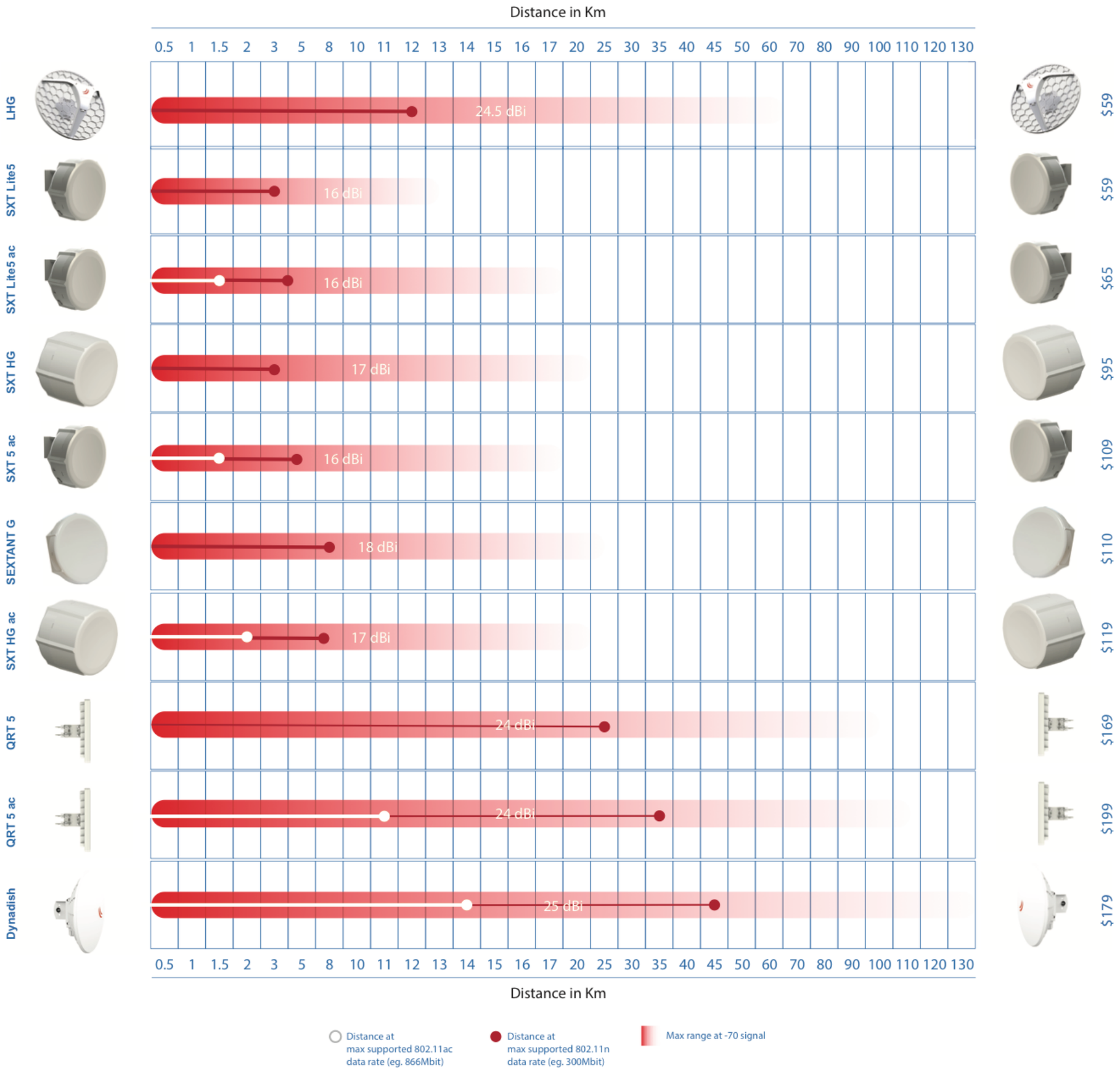
Distance at max supported 802.11n data rate (eg. 300Mbit)

Max range at -70 signal

Note: line of sight, interference, alignment, weather and other outside factors will affect the wireless link performance and possible distance



mANTbox 19S



Note: line of sight, interference, alignment, weather and other outside factors will affect the wireless link performance and possible distance

RouterOS v6.38 changelog

159 entries!

Need help?

- Ask a local **distributor**
- Read the manual **wiki.mikrotik.com**
- Email **support@mikrotik.com**
- Hire a **consultant**
- Attend a training class or join an Academy class in a University

After the MUM

- All presentations - mum.mikrotik.com
- Video - youtube.com/mikrotik
- License will be added to your account

¡Disfrutar el MUM!

MikroTik