

MikroTik

THE DUDE ***gestión y monitoreo***

MUM COSTA RICA

Julio 20, 2018



Presentador



www.incom.co.cr

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Cursos Oficiales

MikroTik **CERTIFIED TRAINER**

MikroTik

MTCNA

MikroTik

MTCWE

MikroTik

MTCRE

MikroTik

MTCTCE

MikroTik

MTCUME

MikroTik

MTCIPv6E

MikroTik

MTCINE

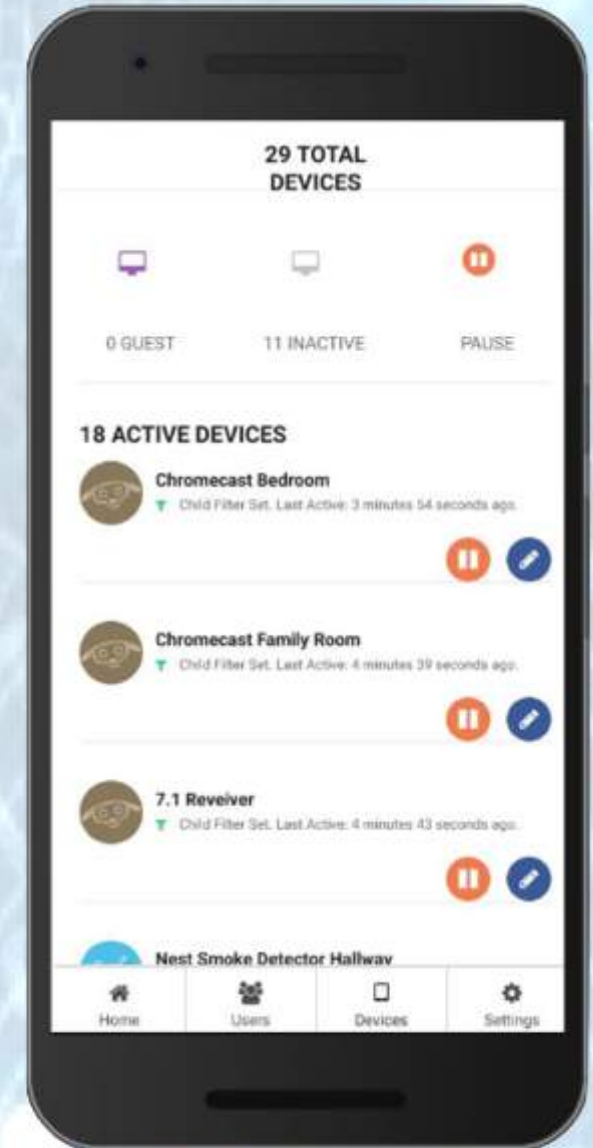
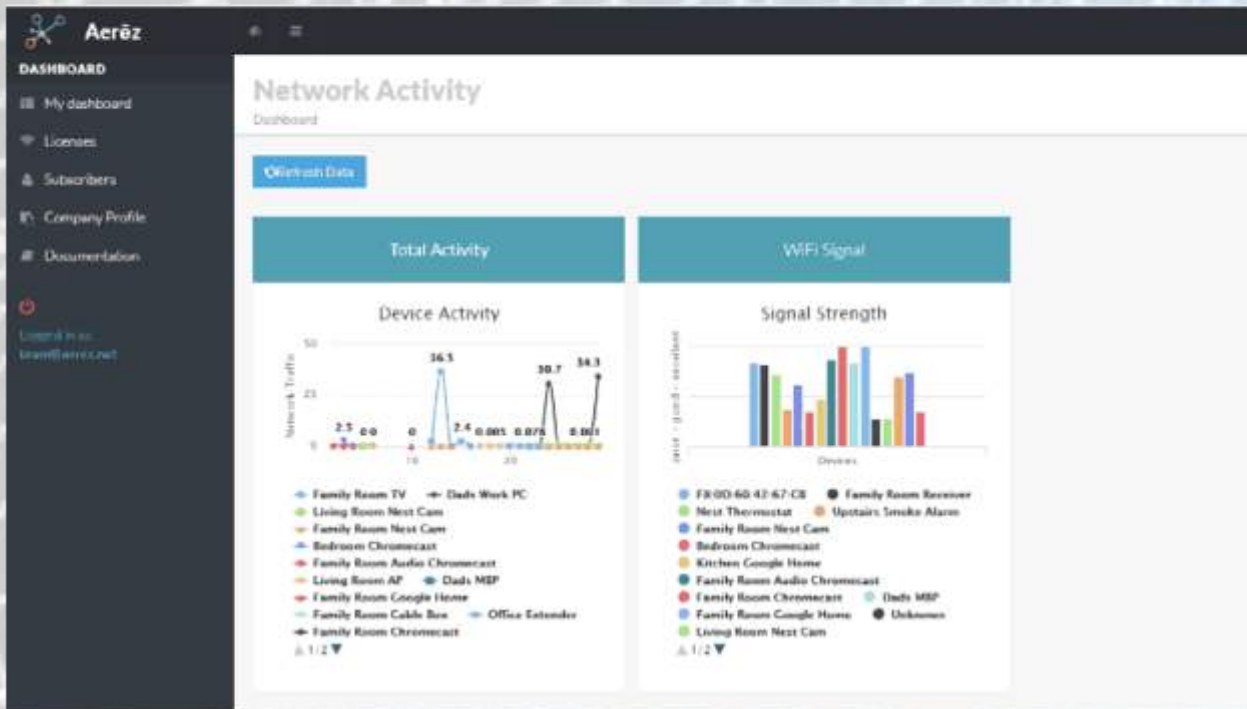


Talleres Prácticos

- DUDE – anunciado por página MikroTik
- CAPsMAN – anunciado por página MikroTik
- Switching
- HotSpot & WiFi
- Monitoreo
- Colas
- VPNs



MCP Networks

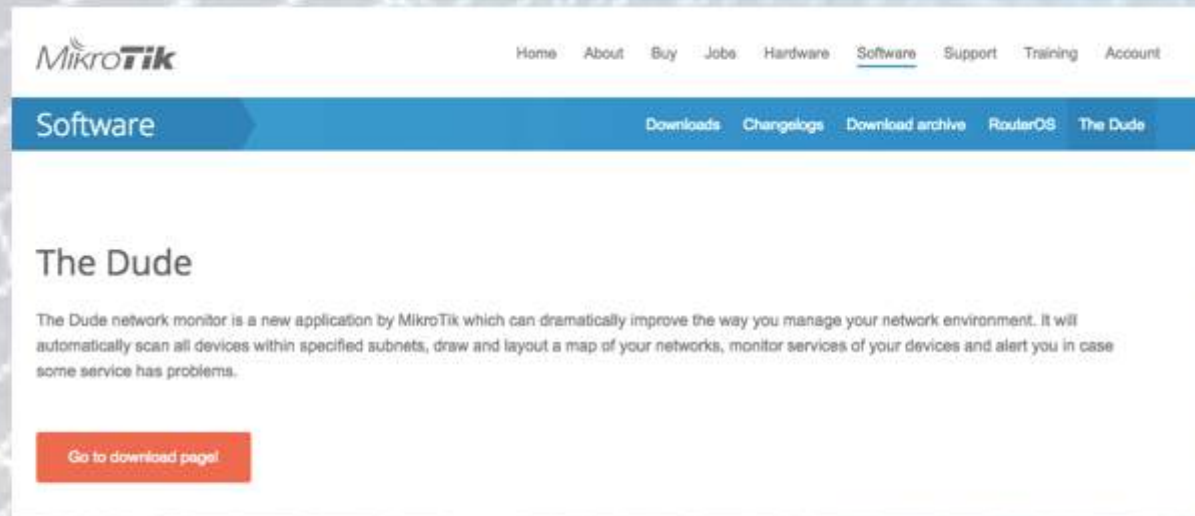


www.aerez.net



Objetivos

- Brindar una vista general del sistema de monitoreo y gestión de MikroTik: THE DUDE
- Guiar los primeros pasos para iniciar su uso



The screenshot shows the MikroTik website's 'Software' section. The MikroTik logo is in the top left. The navigation menu includes Home, About, Buy, Jobs, Hardware, Software (highlighted), Support, Training, and Account. Below the navigation, there are sub-links for Downloads, Changelogs, Download archive, RouterOS, and The Dude. The main content area is titled 'The Dude' and contains a paragraph describing the network monitor application. A red button labeled 'Go to download page!' is positioned at the bottom of the text block.

https://wiki.mikrotik.com/wiki/Manual:The_Dude





















¿Qué es el DUDE?

Software...

- Paquete npk ROS (server)
- Aplicación Windows (cliente)

Cloud Hosted Router

	6.40.6 (Bugfix only)	6.41.3 (Current)
Images	vmdk, vhdx, vdi, ova, img	
VHDX image		
VMDK image		
VDI image		
OVA template		
Raw disk image		
Extra packages		
The Dude server		
The Dude client		
Changelog		
Checksum	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>



¿Qué hace el DUDE?

- Monitoreo y gestión de dispositivos RouterOS
- Monitoreo genérico



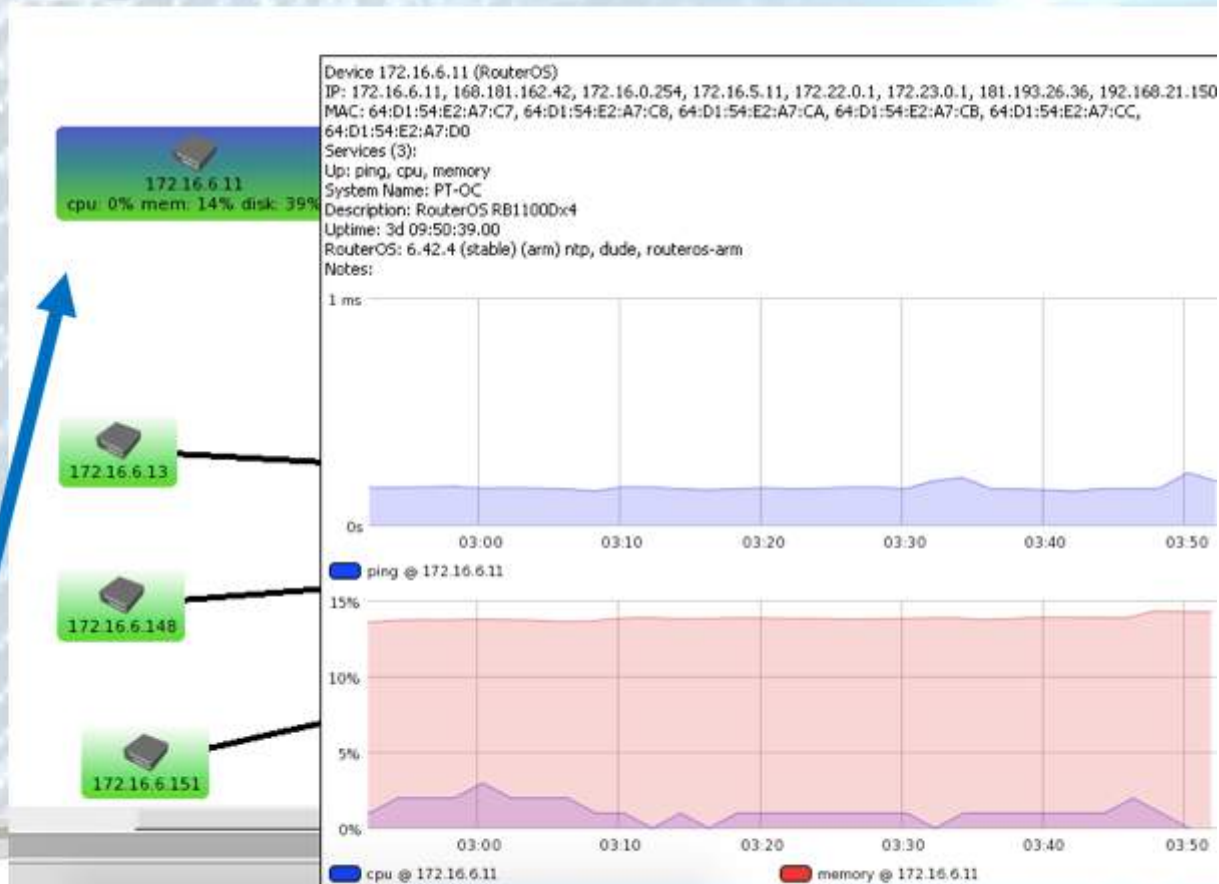
GENERALIDADES

- SNMP genérico
- SYSLOG genérico
- ICMP, DNS, TCP y otros preconfigurados
- Gráficas
- Mapas
- Alertas
- Servicio a la medida



EJEMPLO:

- Visualización de interconexión de equipos y su estado actual
- Información histórica



MONITOREO

- Registra y grafica cualquier valor obtenido por SNMP, RouterOS, o de manera directa con pruebas ICMP, TCP, DNS, etc
- CPU
- MEMORIA
- LATENCIA
- DISCO
- TEMPERATURA
- TRÁFICO
- VOLTAJE
- SSID
- UPTIME
- ETC...



¿Qué lo hace maravilloso?

ES GRATIS !!!!!



REQUISITOS

- DUDE SERVER: Máquina virtual / router
- DUDE CLIENT: Aplicación Windows (WINE)
- Interconexión con otros equipos
 - ROS
 - NO-ROS



DUDE SERVER

RouterOS: v6.34rc13 ó superior

Hardware:

Tile - CCR (Cloud Core Router)

ARM - RB3011, RB1100AHx4 Dude Edition
(RB1100Dx4), hAP AC2*

mmips - hEX (RB750Gr3)*, M33*

Software:

RouterOS x86 – CHR (64bit)



PASO A PASO EN CHR

Manos a la obra...



GUIAS EN LÍNEA

https://wiki.mikrotik.com/wiki/Manual:CHR_VMWare_installation

https://wiki.mikrotik.com/wiki/Manual:CHR#Installing_CHR



SERVER VIRTUAL

Requisitos mínimos en CHR:

- RouterOS versión 6.34rc13 o superior
- CPU 64bit con soporte para virtualización
- 128 MB o más de RAM
- 128 MB o más de disco
 - Imagen de tamaño máximo: 16GB



VIRTUALIZADORES

Plataformas probadas:

VirtualBox 5 en Linux y OS X

VMWare Fusion 7 y 8 en OS X

VMWare ESXi 6.5

Qemu 2.4.0.1 en Linux y OS X

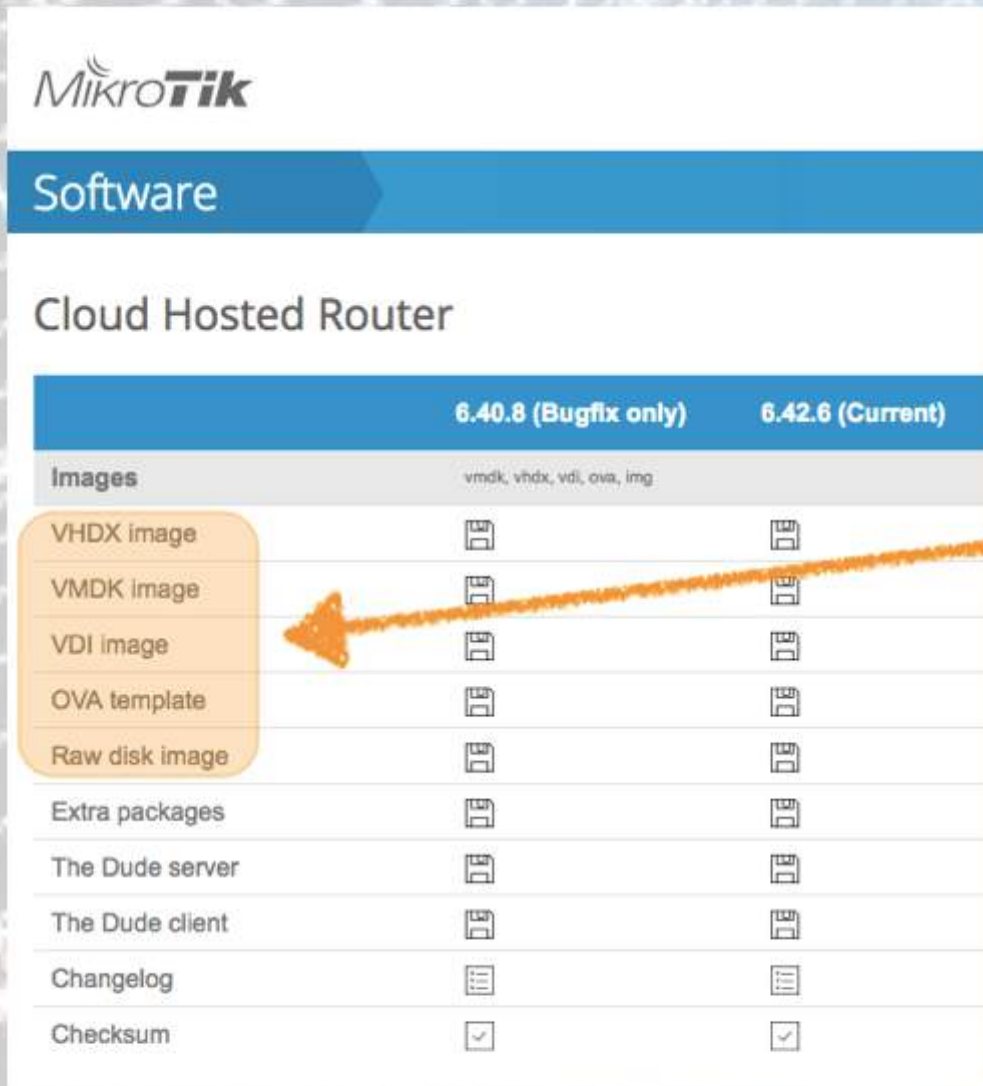
Hyper-V en Windows Server 2008r2, 2012 y Windows 10 (*Sólo es soportada la primera generación de Hyper-V*)

Xen Project 4.6.5 / Server 7.1

**** AMAZON (AWS) ****



DESCARGA



The screenshot shows the Mikrotik website's download page for Cloud Hosted Router. The page is titled 'Software' and 'Cloud Hosted Router'. It features a table with two columns for versions: '6.40.8 (Bugfix only)' and '6.42.6 (Current)'. The table lists various download options under the 'Images' category, including VHDX image, VMDK image, VDI image, OVA template, and Raw disk image. An orange arrow points to the 'VDI image' row. Below the table, there are links for 'Extra packages', 'The Dude server', 'The Dude client', 'Changelog', and 'Checksum'.

	6.40.8 (Bugfix only)	6.42.6 (Current)
Images	vmdk, vhdx, vdi, ova, img	
VHDX image		
VMDK image		
VDI image		
OVA template		
Raw disk image		
Extra packages		
The Dude server		
The Dude client		
Changelog		
Checksum		

VMWare:

- Bajar .vmdk

Virtual Box:

- Bajar .vdi

Hyper-V:

- Bajar .vhdx

<https://mikrotik.com/download>



INSTALACIÓN

SIMILAR EN TODAS LAS PLATAFORMAS:

- Crear other 64bit linux
- Quitar DVD, sonido, etc
- Ajustar RAM, HDD, CPU, NICs
- Agregar 2do HDD
- Iniciar



LICENCIA

LICENCIA:

- Free - 1Mbit
- Demo
- P1, P10, P-unlimited

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

Licence

System ID: 6IR1ZP/utuJ

Level: free

Next Renewal At:

Deadline At:

Limited Upgrades

OK

Generate New ID

Renew Licence

Renew Licence

Account: mymikrotikcomaccount

Password: *****

Level: P1

Start

Stop

Close

done

Licence

System ID: 6IR1ZP/utuJ

Level: P1

Next Renewal At: Jan/10/2016 21:59:59

Deadline At: Feb/09/2016 21:59:59

Limited Upgrades

OK

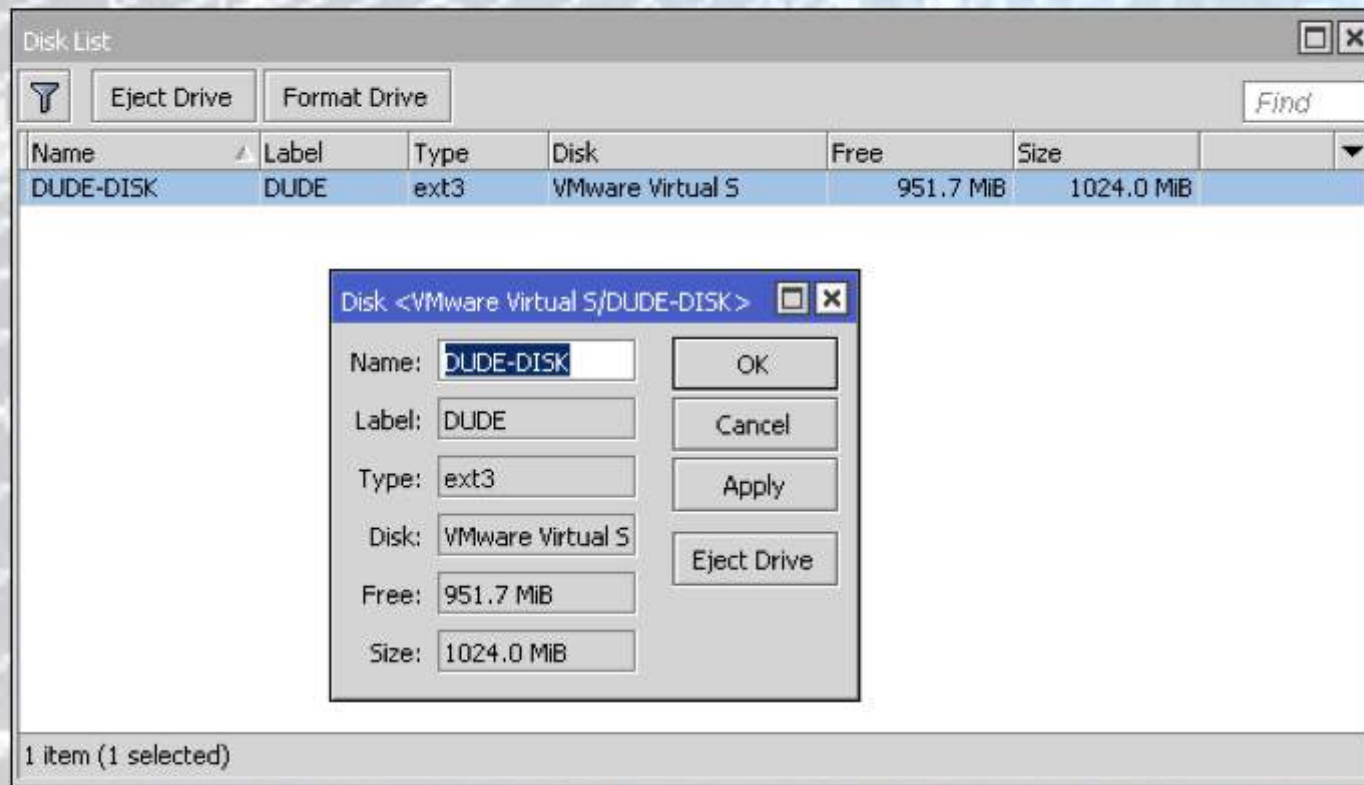
Generate New ID

Renew Licence



ALMACENAMIENTO (BD)

Se recomienda crear disco exclusivo y formatear...

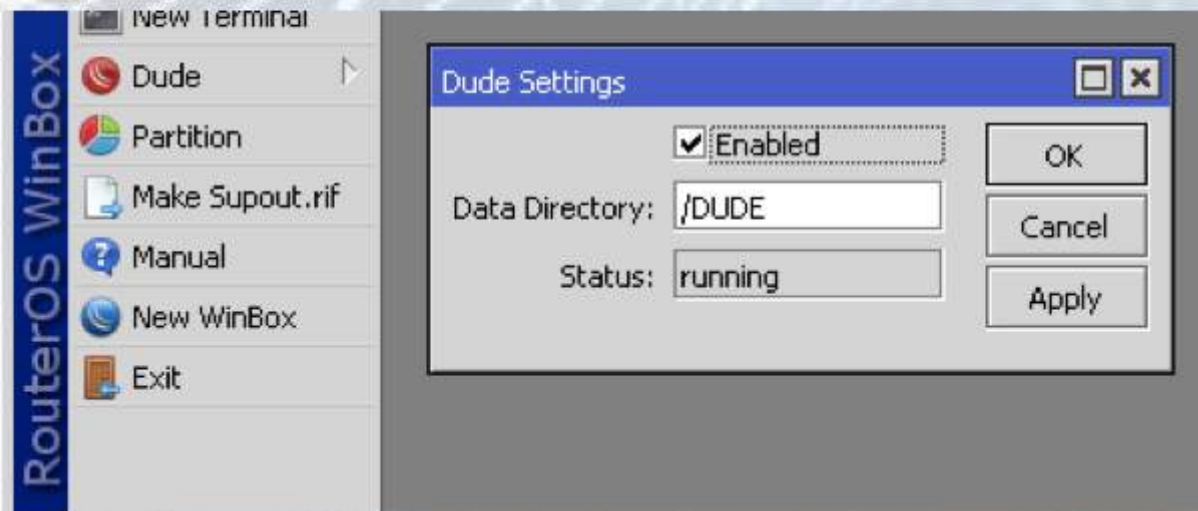


Se recomienda ext3



INICIAR DUDE SERVER

`/dude set data-directory=/DUDE enabled=yes`



LISTO EL SERVER

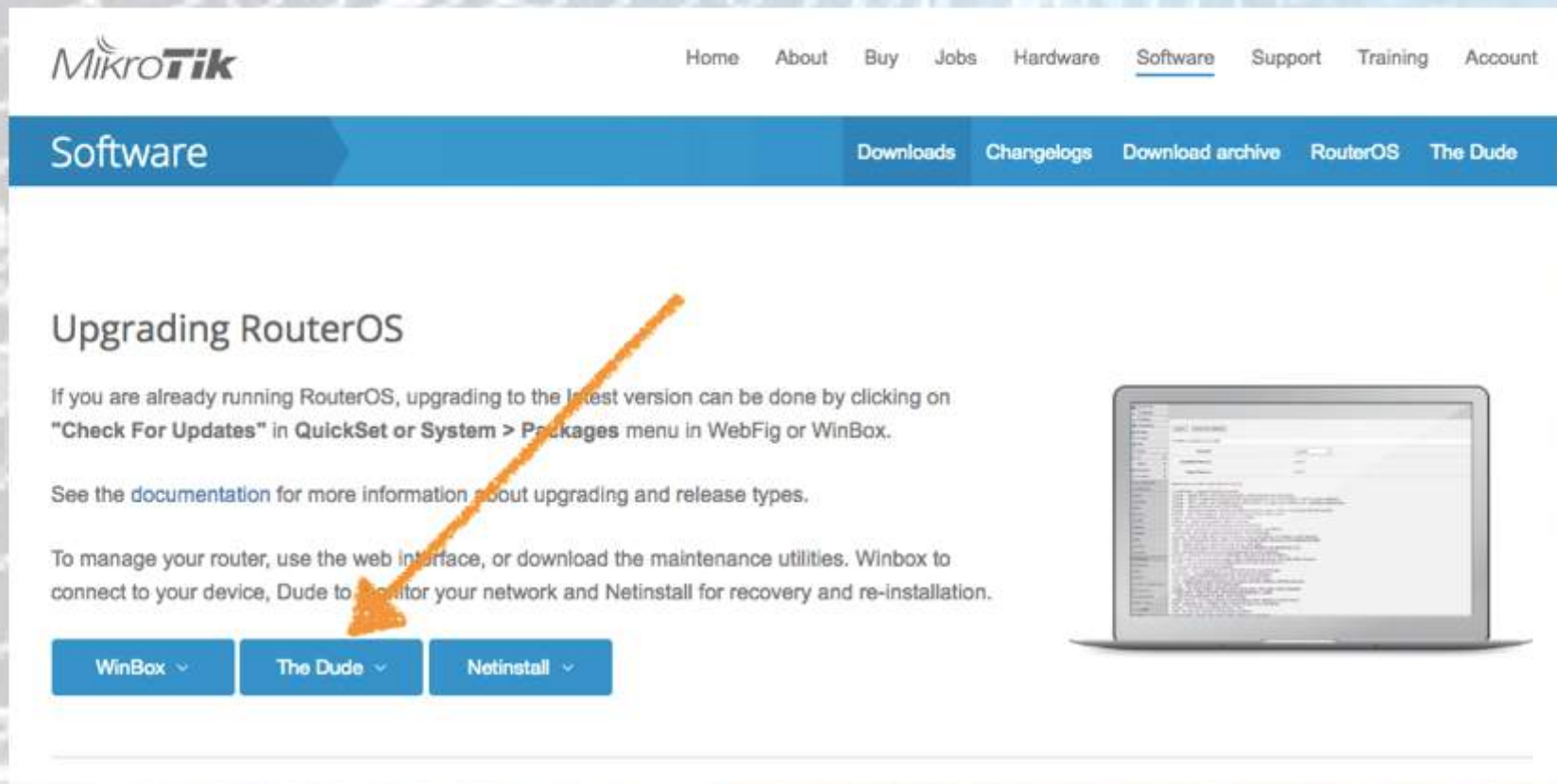


Sigue el cliente...



INSTALACIÓN CLIENTE

Bajar aplicativo de Windows e instalar



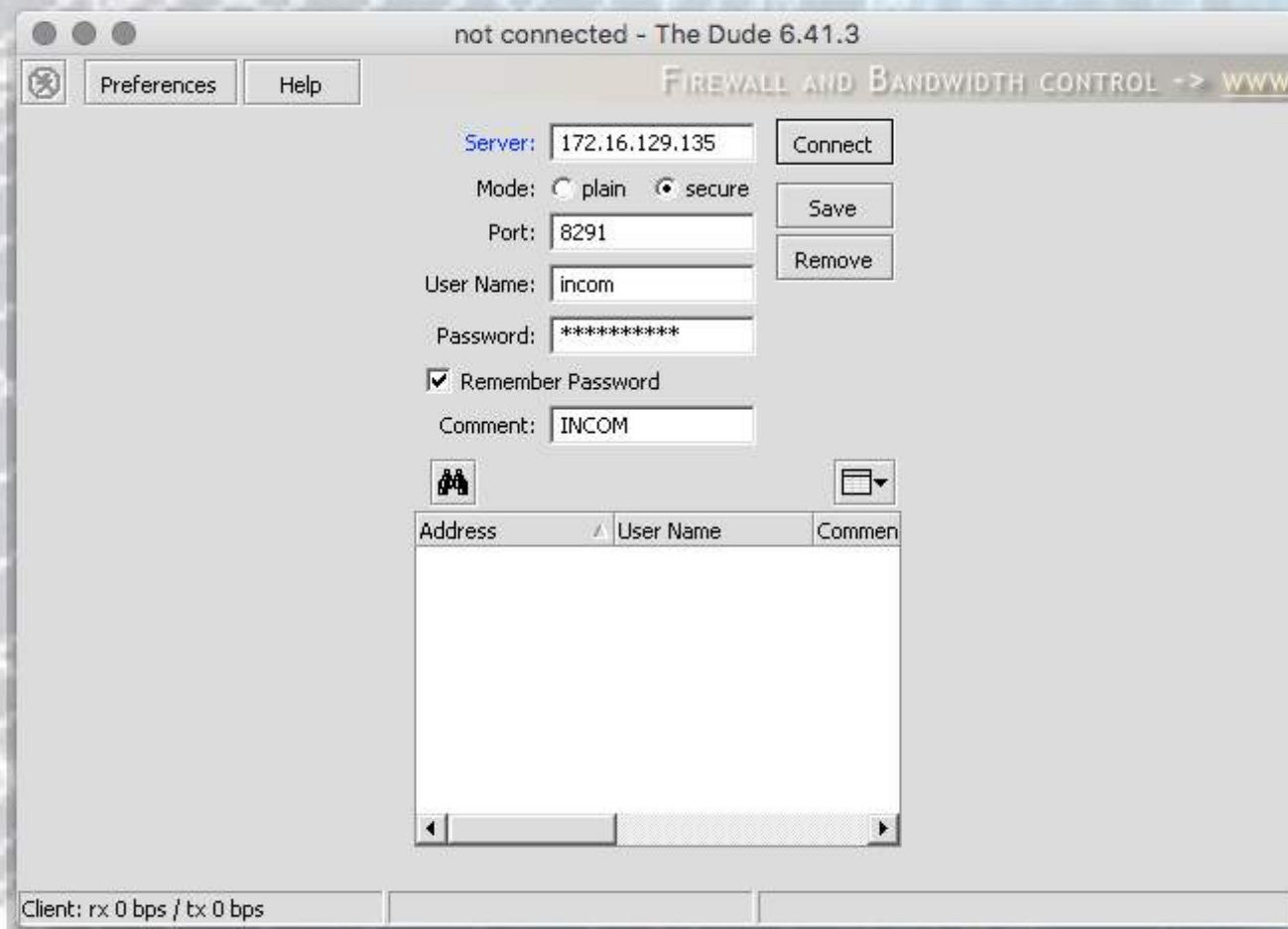
The screenshot shows the MikroTik website's 'Software' section. The navigation bar includes 'Home', 'About', 'Buy', 'Jobs', 'Hardware', 'Software' (underlined), 'Support', 'Training', and 'Account'. Below the navigation bar, there are sub-sections: 'Software', 'Downloads', 'Changelogs', 'Download archive', 'RouterOS', and 'The Dude'. The main content area is titled 'Upgrading RouterOS'. It contains the following text: 'If you are already running RouterOS, upgrading to the latest version can be done by clicking on "Check For Updates" in QuickSet or System > Packages menu in WebFig or WinBox.' Below this, it says 'See the documentation for more information about upgrading and release types.' Further down, it states 'To manage your router, use the web interface, or download the maintenance utilities. Winbox to connect to your device, Dude to monitor your network and Netinstall for recovery and re-installation.' At the bottom of this section, there are three buttons: 'WinBox', 'The Dude', and 'Netinstall'. An orange arrow points from the text 'Dude to monitor your network' to the 'The Dude' button. To the right of the text is an image of a laptop displaying a network monitoring interface.

*La versión debe coincidir con la del CHR / ROS



CLIENTE

Ejecutar aplicativo de Windows, e iniciar sesión con usuario de CHR/ROS



CONFIG INICIAL

PRIMERO: parámetros GLOBALES

The screenshot shows the Mikrotik WinBox interface. The title bar reads 'incom@172.16.129.135 - The Dude 6.41.3'. The top toolbar includes 'Preferences', 'Help', and 'Settings'. A red arrow points to the 'Settings' button. The 'Contents' pane on the left shows a tree view with 'Network Maps' expanded to 'Local'. The 'Server Configuration' dialog box is open, showing the 'SNMP' tab. The dialog title is 'Server Configuration' and it has tabs for 'SNMP', 'Polling', 'Agents', 'Syslog', 'Map', 'Chart', 'Report', 'Discover', 'RouterOS', and 'Misc'. The 'SNMP' tab is active, showing 'Default options for Simple Network Management Protocol (SNMP)'. The 'Default:' dropdown is set to 'v1-public'. Below this is a table of SNMP configurations:

Name	Vers...	Community	Port	Notes
v1-public	1	public	161	
v2-public	2c	public	161	
no-snmp	none			

Buttons for '+', '-', 'Print', 'CSV', and 'Apply' are visible at the bottom of the dialog. The 'Apply' button is highlighted.



SNMP

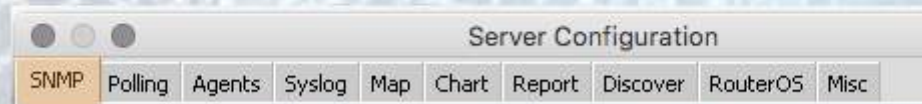


SNMP - simple network monitoring protocol

- Permite consultar cualquier dispositivo que soporte este protocolo... desde switches hasta impresoras
- Obtenemos datos tanto del momento como acumulados
- Todo tipo de datos: nombre de dispositivos y tipo, número de serie, tráfico en interfaces, temperatura, etc



SNMP



Versiones soportadas:

V1 – original

V2c – agrega función inform (acknowledge)

V3 – autenticación y privacidad (encriptación)

Típicamente utiliza UDP 161-162



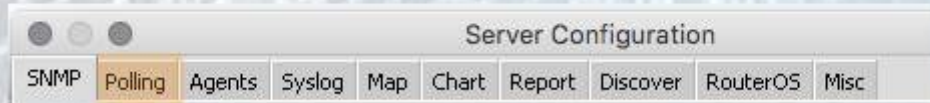
SNMP



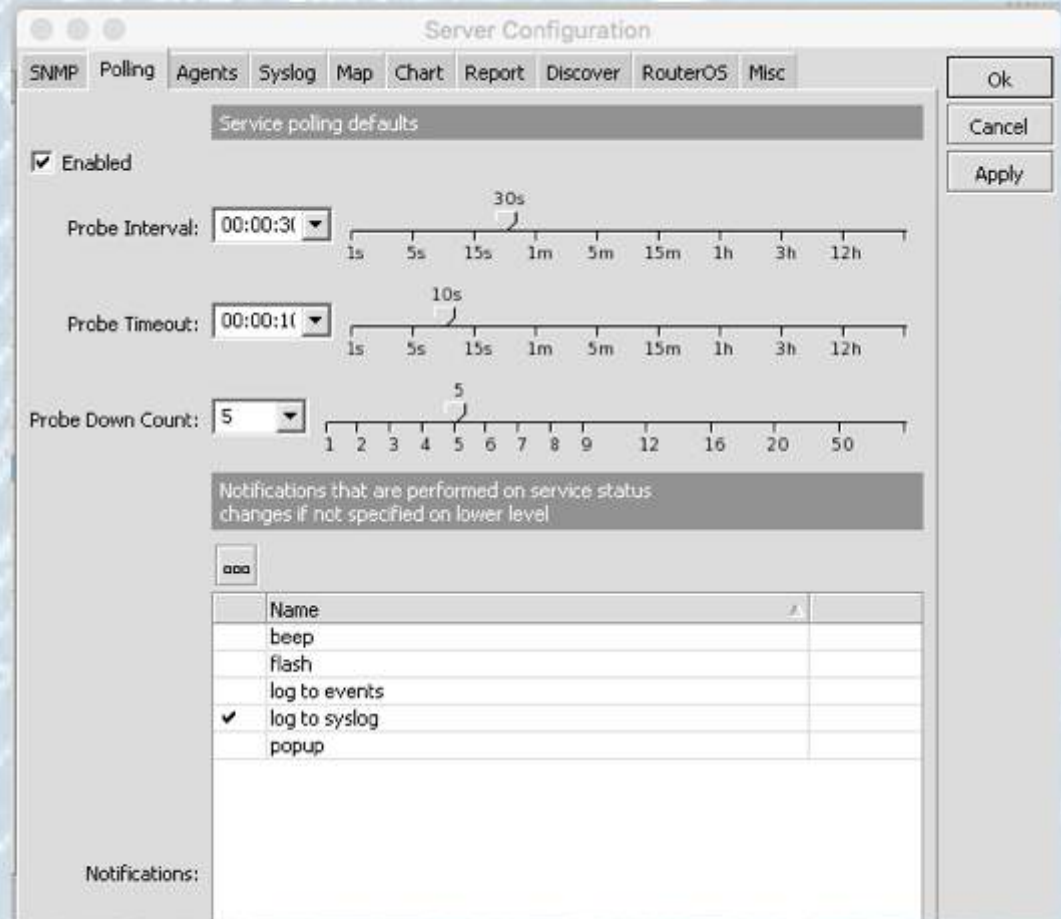
- Los datos recolectados serán clave para determinar el estado del equipo
- Se visualiza la información de manera inmediata
- Se guarda la información para mantener históricos de falla, valores promedio, crear gráficos



POLLING (consultas)



- Intérvalo / frecuencia
- Tiempo espera
- Contador de caídas
- Notificaciones



The image shows the 'Server Configuration' window with the 'Polling' tab selected. The configuration options are as follows:

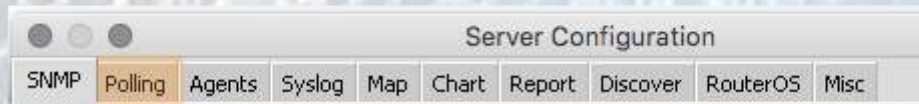
- Enabled
- Service polling defaults
- Probe Interval: 00:00:30 (30s)
- Probe Timeout: 00:00:10 (10s)
- Probe Down Count: 5
- Notifications that are performed on service status changes if not specified on lower level
- Notifications table:

Name	
beep	
flash	
log to events	
<input checked="" type="checkbox"/> log to syslog	
popup	

Notifications:



POLLING (consultas)



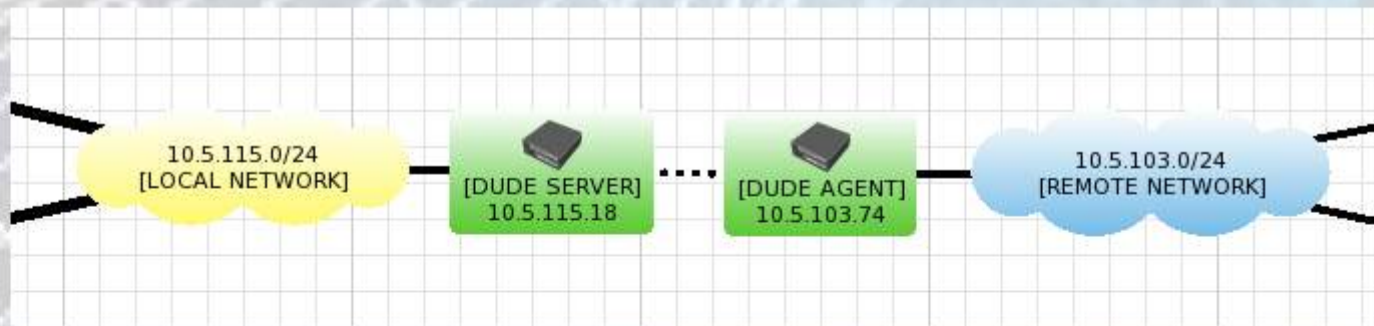
- Es importante tener claro el objetivo del monitoreo para configurar acorde a las necesidades
- Entre más frecuentes las consultas mayor consumo de CPU, almacenamiento y recursos en general



AGENTS



Agentes de monitoreo remoto



Dan visibilidad en áreas no conectadas directamente con el recolector principal

Son otros DUDE servers



AGENTS



En arquitecturas distribuidas como sucursales resulta conveniente para:

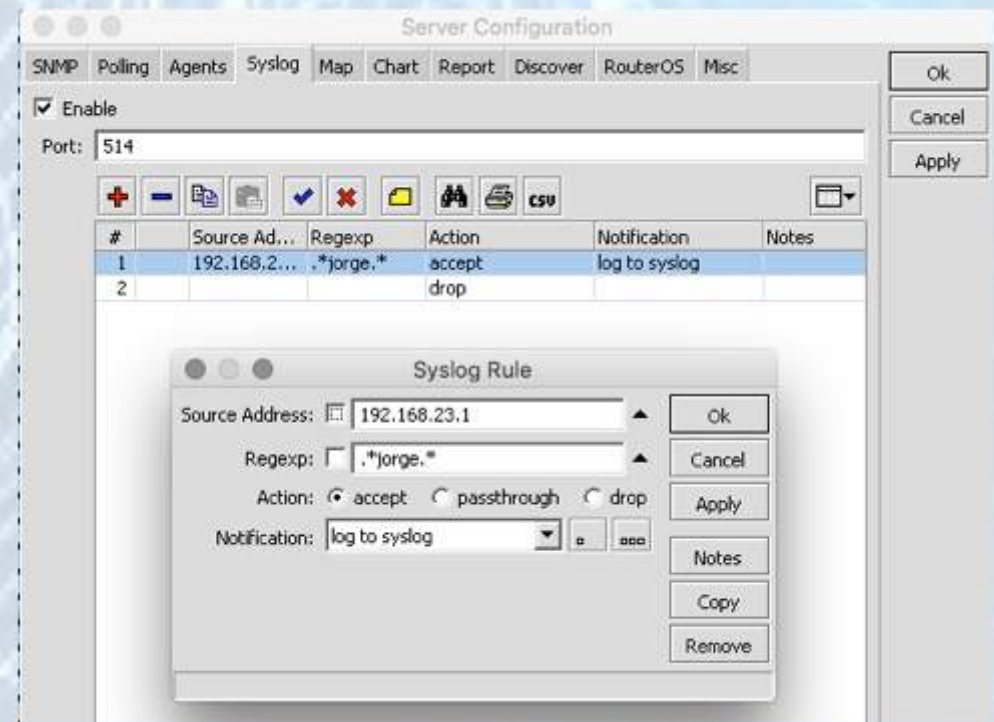
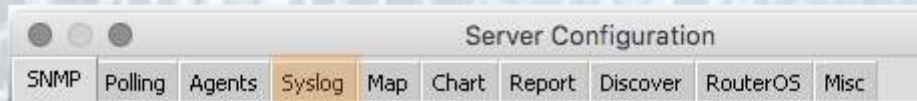
- No dejar de obtener información a pesar de la caída de algún recolector DUDE
- Visualizar elementos que están lejos del alcance directo del servidor DUDE central
- Tener distintas perspectivas



SYSLOG

Bitácora centralizada

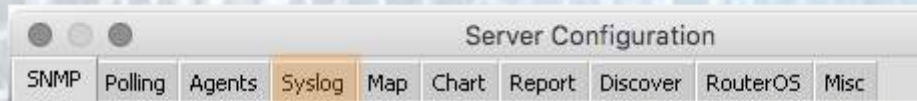
- Acepta
- Rechaza
- Filtra usando regex
- Ajusta prefijos



01:54:42	syslog: 192.168.23.130: system,error,critical login failure for user dude3 from 192.168.23.73 via winbox	
01:54:43	syslog: 192.168.23.130: system,error,critical login failure for user dude3 from 192.168.23.73 via winbox	
01:56:27	syslog: 192.168.23.1: system,error,critical login failure for user jorge from 192.168.23.73 via winbox	
01:56:30	syslog: 192.168.23.1: system,error,critical login failure for user jorge from 192.168.23.73 via winbox	
01:58:04	dude syslog 2: 192.168.23.130: system,error,critical login failure for user jorge from 192.168.23.73 via winbox	
02:00:07	192.168.23.1: dns done query: #44681 cloud.mikrotik.com 81.198.87.240	
02:00:07	192.168.23.1: dns local query: #44681 cloud.mikrotik.com. A	
02:00:14	192.168.23.1: system,info,account user incom logged out from 192.168.23.73 via winbox	



SYSLOG



Conveniente para:

- Tener información de múltiples dispositivos centralizada
- Guardar registros fuera de cada dispositivo en caso de falla
- Filtrar eventos para obtener únicamente los más relevantes



MAP

Server Configuration

SNMP Polling Agents Syslog **Map** Chart Report Discover RouterOS Misc

incom@192.168.23.130 - The Dude 6.41.3

Mikrotik Routers and Wireless -> WWW

Network Map

Contents

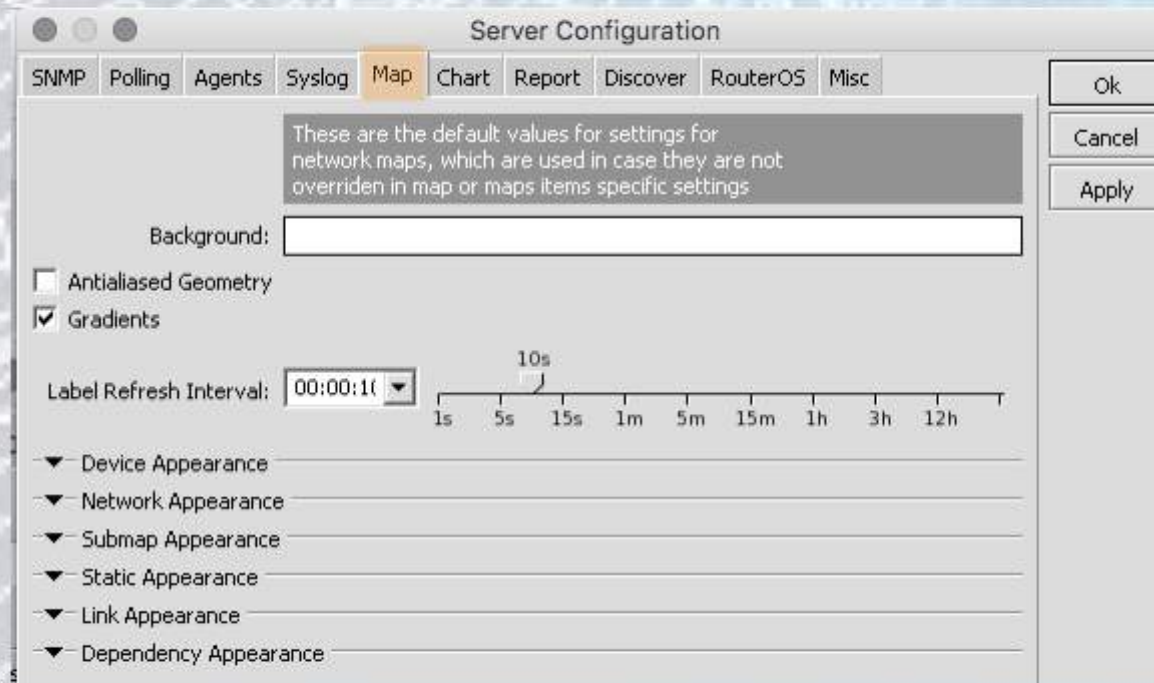
- Charts
- DEMO
- Devices
- Files
- Functions
- History Actions
- Links
- Log
- Mib Nodes
- Network Maps
 - Network Map
- Networks
- Notifications
- Panels
- incom ::ffff:192....
- Probes
- Root
- Services
- Tools

Layer: links Zoom: 100%

Client: rx 2.06 kbps / tx 207 bps Server: rx 0 bps / tx 0 bps connected



MAP



- Imágen de fondo
- Tiempo entre consultas
- Colores de elementos según su estado
- Etiquetas dinámicas
- Enlaces entre elementos
- Dependencias - jerarquía



CHART



- Define cantidad de muestras a conservar en el tiempo
- Define cada cuánto agruparlas
- Indica tamaño aproximado de almacenamiento
- Colores de los gráficos





CHART

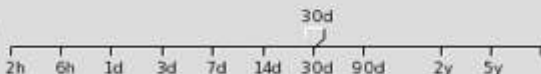
Server Configuration


SNMP Polling Agents Syslog Map **Chart** Report Discover RouterOS Misc

Settings that control how much detail is stored for how long time

Raw Value Keep Time: 02:00:00 

10 Min Value Keep Time: 2d 00:00:00 

2 Hour Value Keep Time: 30d 00:00:00 

1 Day Value Keep Time: 365d 00:00:00 

Approximate Storage Size: 122.9 kB


Default chart appearance settings

Background:

Grid:

Text:

Font: Bitstream Vera Sans 9 N B / X

Line Colors: 

Ok
Cancel
Apply



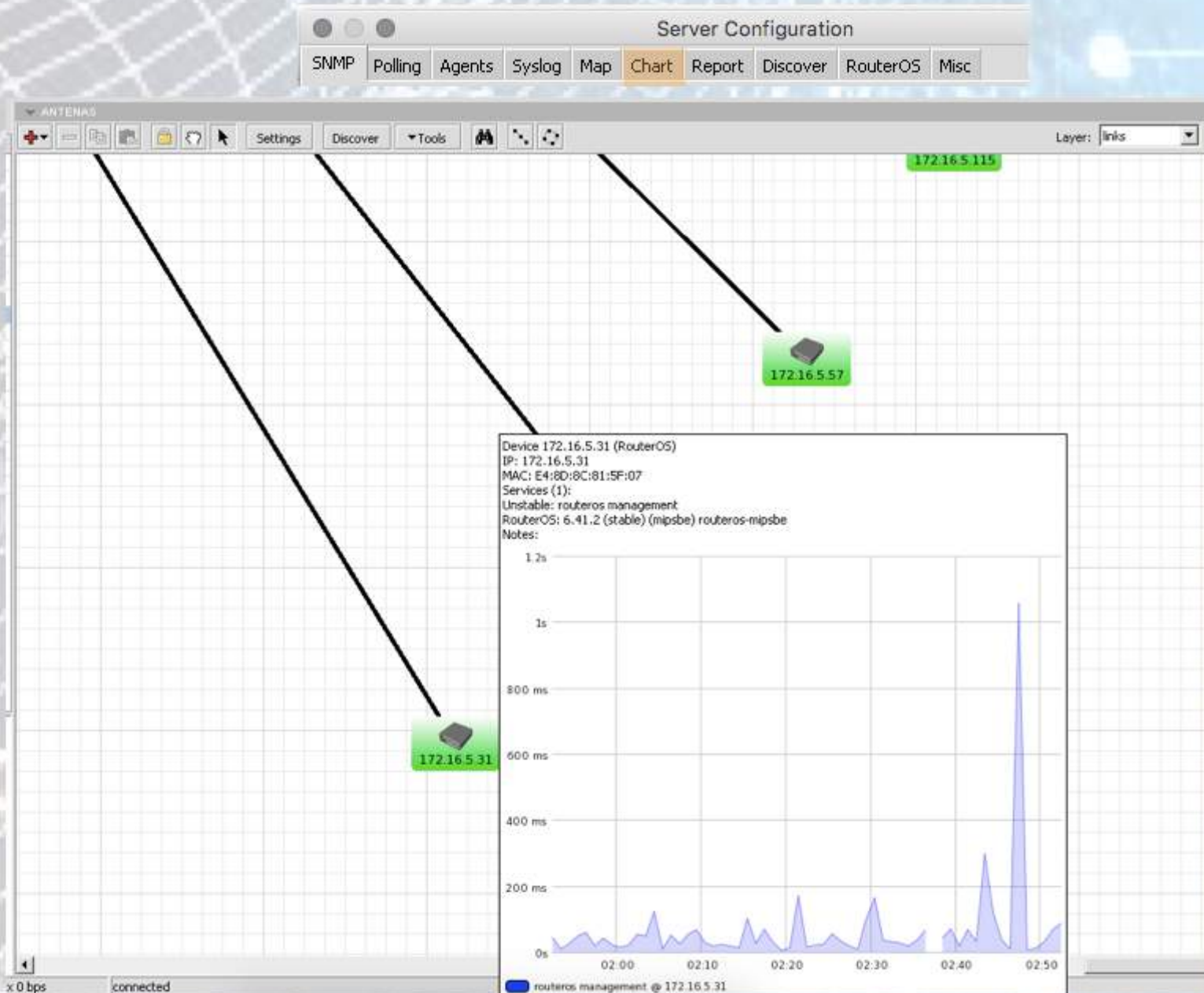
CHART



- Los parámetros configurados en CHART definen las gráficas estándar para cada servicio que se monitorea de cada dispositivo agregado al DUDE
- Se puede además luego cruzar estos datos con los de otros elementos y crear gráficas propietarias



CHART



DISCOVER



- Parámetros con los que se ejecuta el descubrimiento de elementos alcanzables por el DUDE server
- Nombre a usar
- Elementos excluidos
- Cantidad de saltos e intensidad de búsqueda
- Servicios a buscar
- Dispositivos a buscar
- Acomodo gráfico



DISCOVER

Server Configuration

SNMP Polling Agents Syslog Map Chart Report **Discover** RouterOS Misc

These are the default values for device discovery which are going to be used for new discoveries.

Black List:

Name Preference: SNMP, NETBIOS, DNS, IP

Mode: fast (scan by ping) reliable (scan each service)

Recursive Hops:

Biggest Network Size Allow Hop To:

▼ Advanced

▲ Services

Services To Discover:

Name
<input checked="" type="checkbox"/> cpu
<input type="checkbox"/> disk
<input type="checkbox"/> dns
<input type="checkbox"/> ftp
<input type="checkbox"/> gopher
<input type="checkbox"/> hp jetdirect
<input type="checkbox"/> http
<input type="checkbox"/> imap4
<input checked="" type="checkbox"/> memory

▲ Device Types

Device Types To Discover:

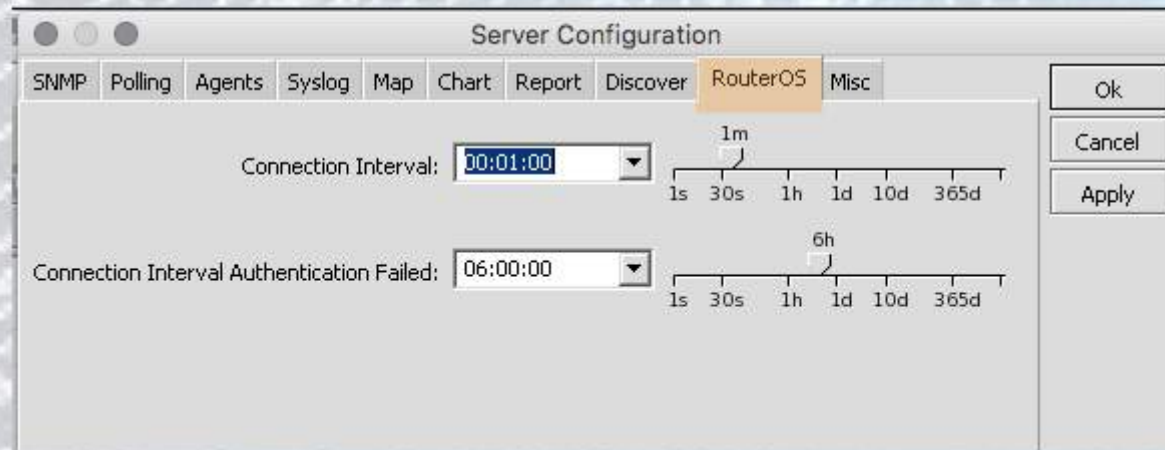
Name
<input type="checkbox"/> Bridge
<input type="checkbox"/> DNS Server
<input type="checkbox"/> FTP Server
<input type="checkbox"/> HP Jet Direct
<input type="checkbox"/> IMAP4 Server
<input type="checkbox"/> Mail Server
<input type="checkbox"/> MikroTik Device
<input type="checkbox"/> News Server
<input type="checkbox"/> POP3 Server

▼ Item Placement Settings

Ok
Cancel
Apply



RouterOS



- Define cada cuánto se conecta a sistemas con RouterOS
- Define periodo de reintento si contraseña no corresponde



LISTO EL CLIENTE



Sigue agregar dispositivos...



BUSQUEDA

- Definir agente
- Definir subredes
- Saltos máximos
- Elementos a excluir

Device Discovery

General Services Device Types Advanced

Enter subnet number you want to scan for devices

Scan Networks: 172.16.5.0/24

Agent: default

Add Networks To Auto Scan

Black List:

Device Name Preference: SNMP, NETBIOS, DNS, IP

Discovery Mode: fast (scan by ping) reliable (scan each service)

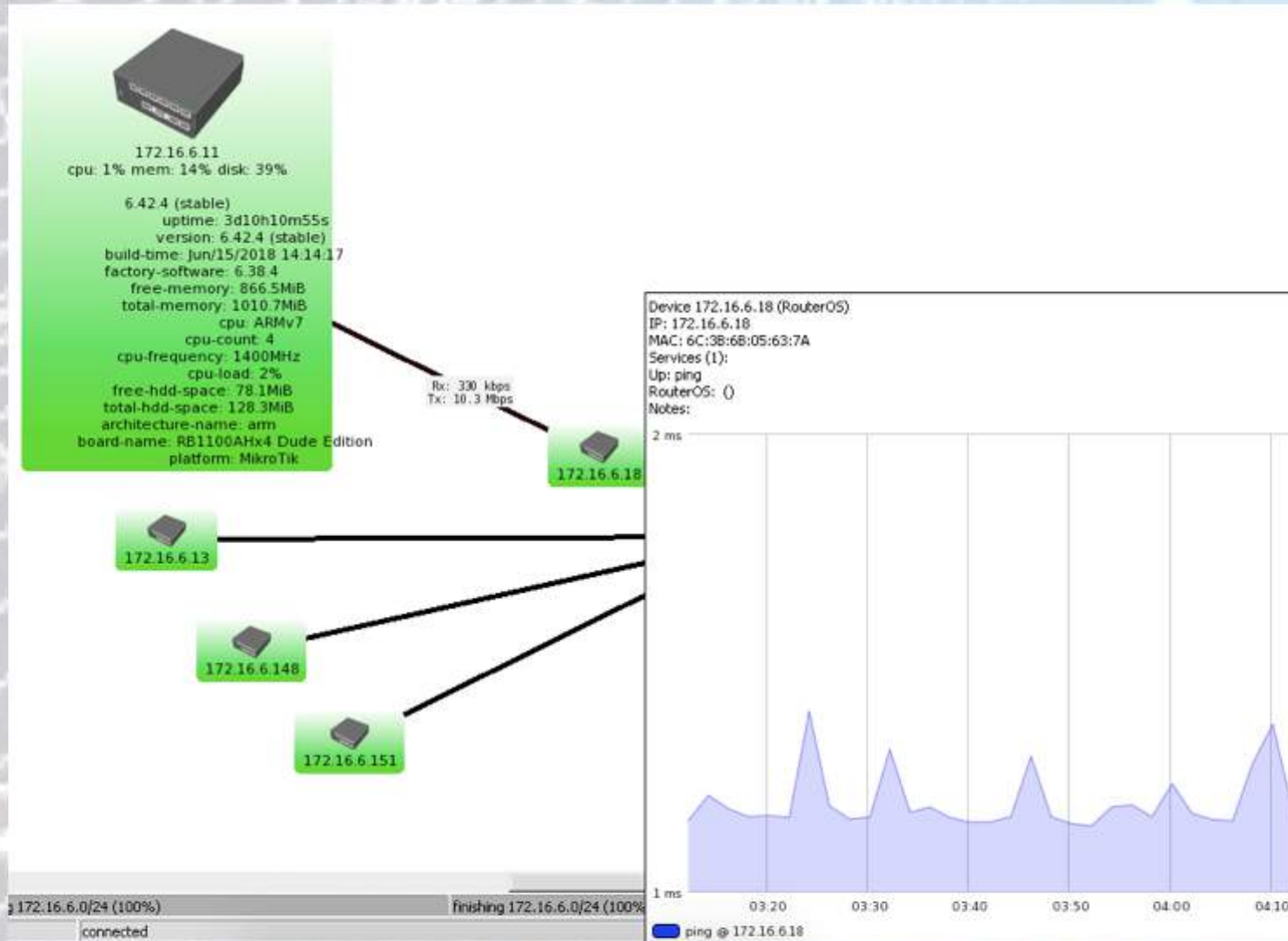
Recursive Hops: 0

Layout Map After Discovery Complete

Discover Cancel



MAPA CON DATOS



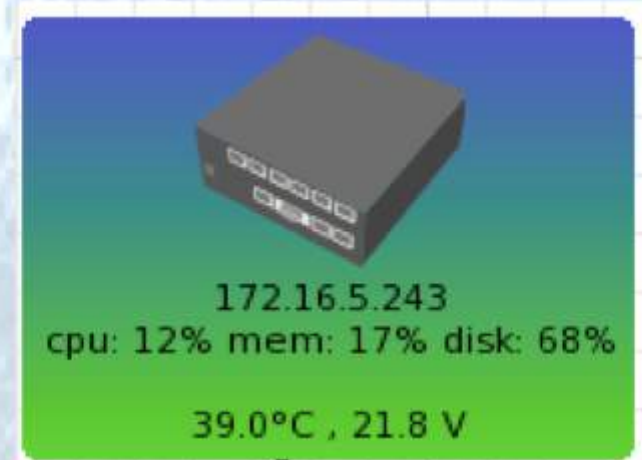
APARIENCIA

[Device.Name]

[device_performance()]

[Device.ServicesDown]

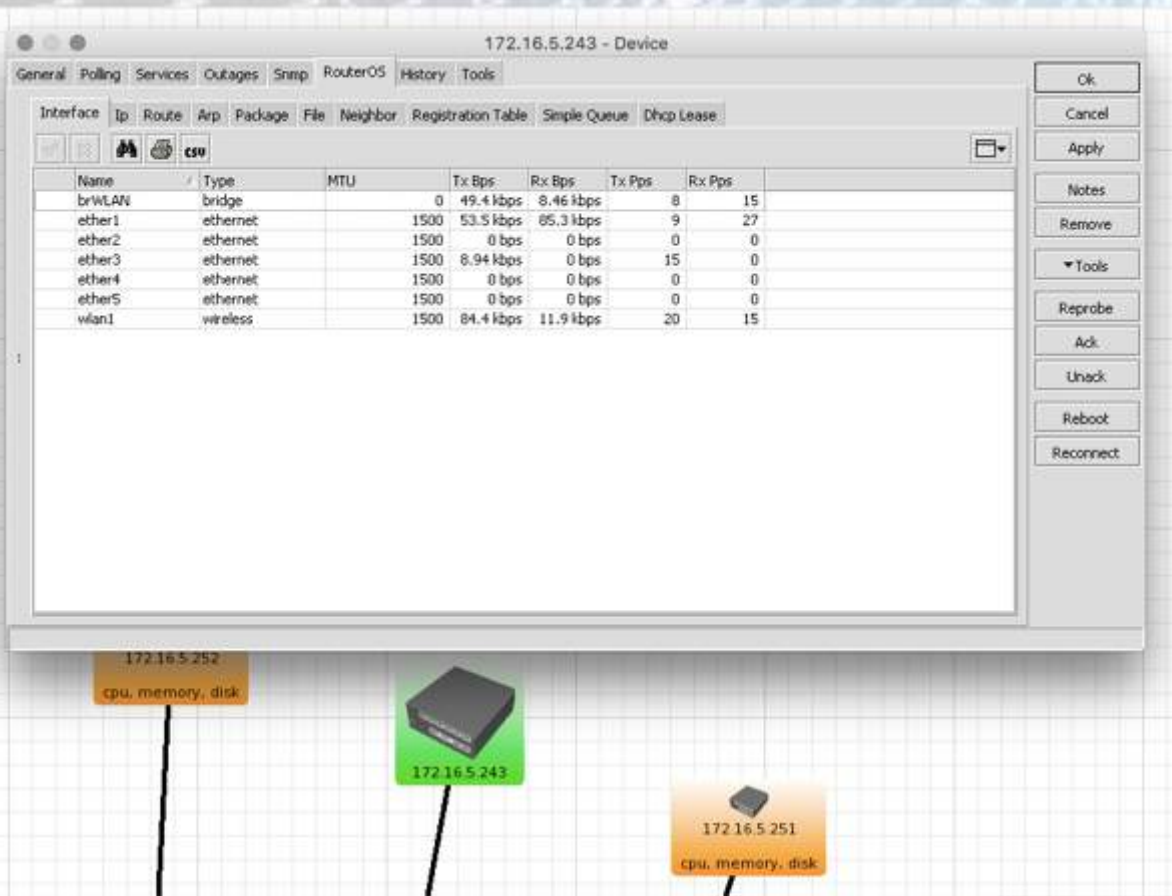
[oid("1.3.6.1.4.1.14988.1.1.3.10.0")][° C] ,
[oid("1.3.6.1.4.1.14988.1.1.3.8.0")] V



Gestión RouterOS

Visualizar y modificar:

- Interfaces
- IPs
- Rutas
- Tabla ARP
- Paquetes
- Archivos
- Neighbors
- Tabla registro Wireless
- Colas simples
- Leases DHCP



172.16.5.243 - Device

General Polling Services Outages Snmp RouterOS History Tools

Interface Ip Route Arp Package File Neighbor Registration Table Simple Queue Dhcp Lease

Name	Type	MTU	Tx Bps	Rx Bps	Tx Pps	Rx Pps
brWLAN	bridge	0	49.4 kbps	8.46 kbps	8	15
ether1	ethernet	1500	53.5 kbps	65.3 kbps	9	27
ether2	ethernet	1500	0 bps	0 bps	0	0
ether3	ethernet	1500	8.94 kbps	0 bps	15	0
ether4	ethernet	1500	0 bps	0 bps	0	0
ether5	ethernet	1500	0 bps	0 bps	0	0
wlan1	wireless	1500	84.4 kbps	11.9 kbps	20	15

172.16.5.252
cpu, memory, disk

172.16.5.243

172.16.5.251
cpu, memory, disk



Gestión RouterOS

Utilitarios:

- Terminal
- Winbox
- Web

- Bandwidth Test
- Spectral Scan
- Torch

- SNMP Walk

- Ping
- Traceroute

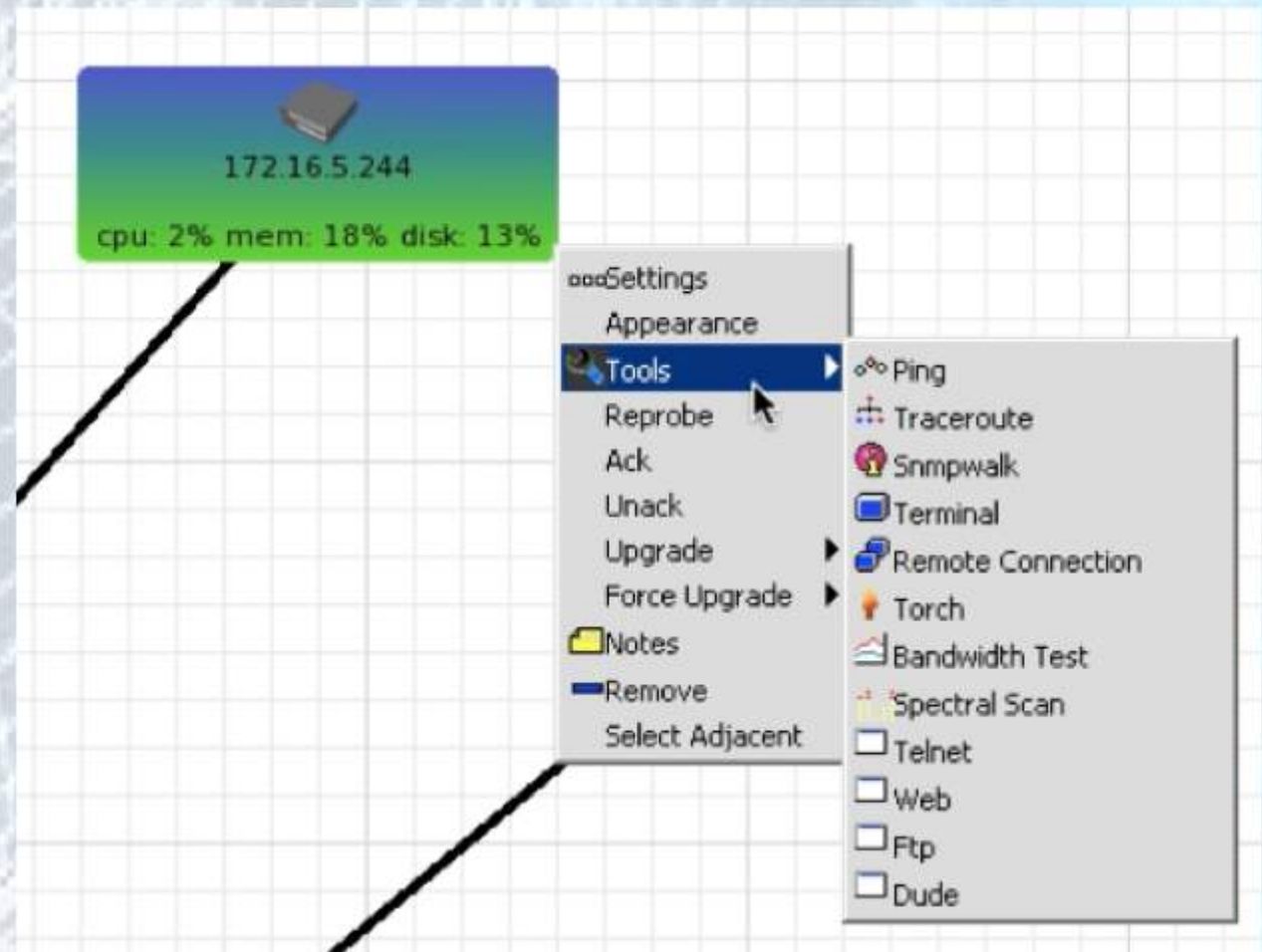


Tabla de registro Wireless

Visualizar registros de clientes inalámbricos en TODOS los dispositivos RouterOS a la vez

Visualizar detalles de cada uno

The screenshot displays the RouterOS Wireless Registration interface. The main window shows a list of wireless clients with columns for Device, MAC, AP, WDS, and Tx/Rx Rate. A secondary window titled 'RouterOS Wireless Registration' provides detailed statistics for a selected device, including signal strength, signal-to-noise ratio, and a list of signal strengths for various rates.

Device	MAC	AP	WDS	Tx/Rx Rate
172.16.5.31	48:8D:36:4D:0C:4E	no	no	144.4Mbps-20MHz/25/5G/11Mbps
172.16.6.147	28:ED:EO:00:82:39	no	no	54Mbps/1Mbps
172.16.6.137	28:ED:EO:0A:33:58	no	no	54Mbps/1Mbps
172.16.6.126	28:ED:EO:0A:46:32	no	no	72.2Mbps-20MHz/15/5G/6Mbps
172.16.6.132	28:ED:EO:00:82:55	no	no	54Mbps/1Mbps
172.16.6.119	28:ED:EO:00:89:35	no	no	72.2Mbps-20MHz/15/5G/6Mbps
172.16.6.124	28:ED:EO:04:B3:CC	no	no	72.2Mbps-20MHz/15/5G/6Mbps
172.16.6.125	28:ED:EO:0A:46:FD	no	no	54Mbps/1Mbps
172.16.5.31	SekoEpson:9E:05:F1	no	no	72.2Mbps-20MHz/15/5G/11Mbps
172.16.6.135	28:ED:EO:00:CC:12	no	no	72.2Mbps-20MHz/15/5G/6Mbps
172.16.6.123	28:ED:EO:0A:47:68	no	no	54Mbps/1Mbps
172.16.6.129	28:ED:EO:0A:45:87	no	no	65Mbps-20MHz/15/6Mbps
172.16.6.140	28:ED:EO:00:CC:31	no	no	65Mbps-20MHz/15/1Mbps
172.16.6.146	28:ED:EO:00:89:6A	no	no	48Mbps/1Mbps
172.16.6.141	28:ED:EO:0A:48:41	no	no	72.2Mbps-20MHz/15/5G/6Mbps
172.16.6.144	28:ED:EO:00:C8:E1	no	no	54Mbps
172.16.6.148	28:ED:EO:0A:44:AD	no	no	54Mbps/1Mbps
172.16.6.143	28:ED:EO:00:82:52	no	no	72.2Mbps-20MHz/15/5G/6Mbps
172.16.6.116	28:ED:EO:04:B2:92	no	no	54Mbps/1Mbps
172.16.6.134	28:ED:EO:0A:45:80	no	no	54Mbps/1Mbps
172.16.6.150	28:ED:EO:0A:46:EF	no	no	54Mbps/1Mbps
172.16.6.133	28:ED:EO:04:B5:2E	no	no	54Mbps/1Mbps
172.16.6.139	28:ED:EO:00:CC:8E	no	no	72.2Mbps-20MHz/15/5G/6Mbps
172.16.6.122	28:ED:EO:00:C8:71	no	no	72.2Mbps-20MHz/15/5G/6Mbps
172.16.5.249	Routerboar:DF:05:4D	no	no	108Mbps-40MHz/25/162Mbps-40MHz/25
172.16.5.249	Routerboar:8D:95:81	no	no	162Mbps-40MHz/25/180Mbps-40MHz/25/5G
172.16.5.243	Routerboar:8D:95:8D	no	no	270Mbps-40MHz/25/5G/240Mbps-40MHz/25/5G
172.16.5.118	Routerboar:8C:26:7D	yes	no	180Mbps-40MHz/25/5G/120Mbps-40MHz/25/5G
172.16.5.131	Routerboar:8C:0D:5D	yes	no	240Mbps-40MHz/25/5G/270Mbps-40MHz/25
172.16.5.119	Routerboar:8C:26:7D	yes	no	162Mbps-40MHz/25/108Mbps-40MHz/25
172.16.5.246	Routerboar:A0:46:92	no	no	175.5Mbps-80MHz/15/108Mbps-40MHz/25
172.16.5.115	64:D1:54:24:21:78	yes	no	162Mbps-40MHz/25/234Mbps-80MHz/15
172.16.5.251	64:D1:54:0C:44:31	no	no	27Mbps-40MHz/25/27Mbps-40MHz/15
172.16.5.113	Routerboar:8D:95:83	yes	no	180Mbps-40MHz/25/5G/270Mbps-40MHz/25/5G
172.16.5.243	Routerboar:4D:85:91	no	no	216Mbps-40MHz/25/6Mbps

RouterOS Wireless Registration details for device 172.16.5.118:

- Last Activity: 0.000 s
- Signal Strength: -54 dBm
- Tx Signal Strength: -51 dBm
- Signal To Noise: 47 dB
- Tx/Rx CQ: 93/83 %
- Signal Strengths table:

#	Rate	Strength
1	6Mbps	-54
2	9Mbps	-51
3	12Mbps	-50
4	18Mbps	-54
5	24Mbps	-53
6	36Mbps	-56
7		-52
8		-53
9		-55
10		-59
11	cc	

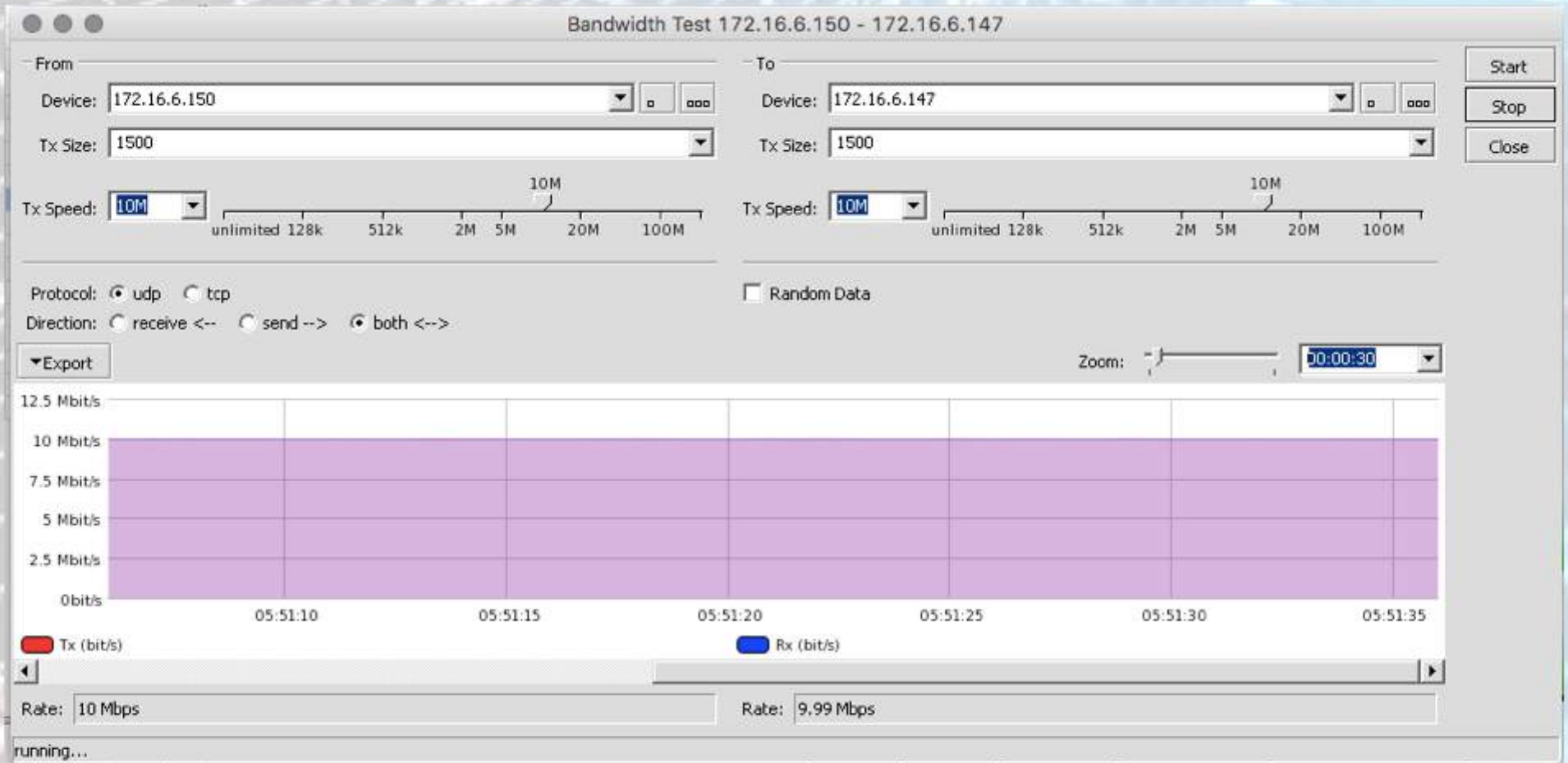


TOOLS

- Bandwidth Test
- Torch
- Spectral Scan
- Ping
- Traceroute
- SNMP Walk
- Actualizaciones RouterOS
- Console
- Winbox



Bandwidth Test



Torch

Torch 172.16.6.11

General

From: 172.16.6.11

Interface: 6-LAN-SWITCH

Average: 00:00:11

Filter

Eth Protocol: any

Vlan ID: any

IP Protocol: any

Src Address: 0.0.0.0/0

Dst Address: 0.0.0.0/0

Port: any

Dscp:

Cpu:

Start

Stop

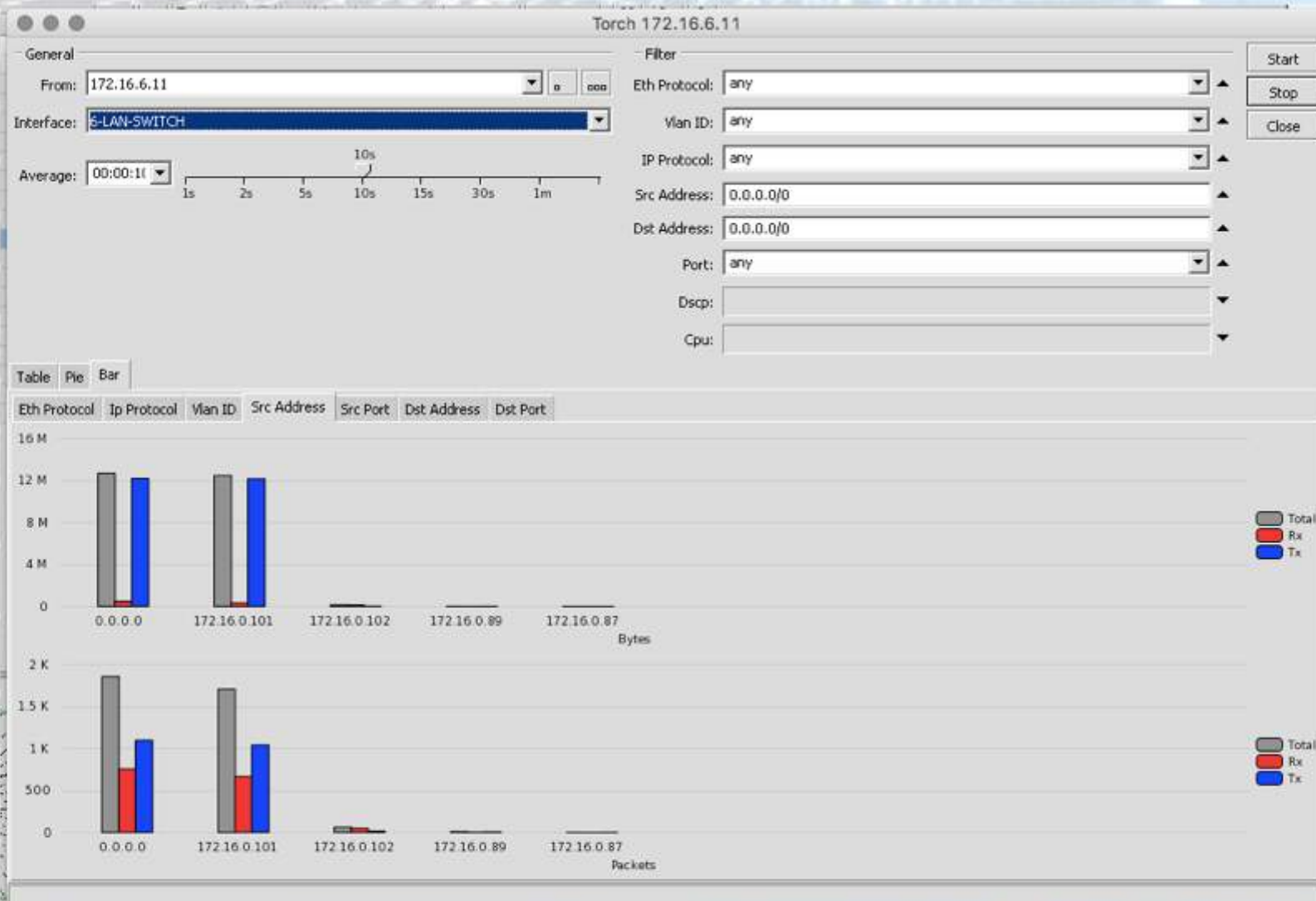
Close

Table Pie Bar

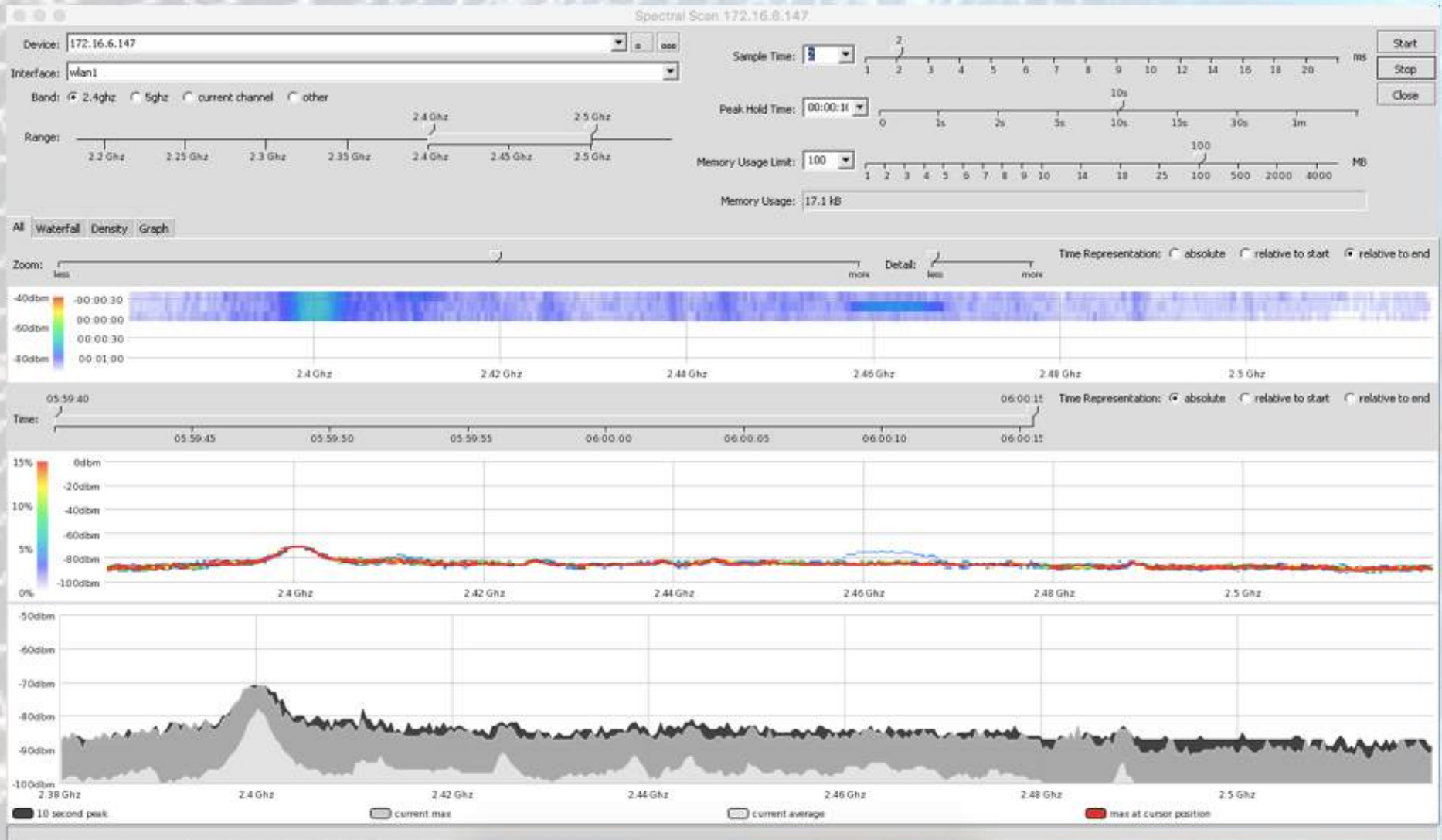
#	Eth Proto	IP Pr...	Vlan ID	Src Address	Src Port	Dst Address	Dst Port	Dscp	Cpu	Tx Bps	Rx Bps	Tx Pps	Rx Pps
...	ip				0		0			12.2 Mbps	422 kbps	1072	743
...	ip	tcp		172.16.0.101	50156	192.168.18.131	rtsp			5.39 Mbps	118 kbps	445	243
...	ip	tcp		172.16.0.101	50160	192.168.18.131	rtsp			2.58 Mbps	74.8 kbps	239	154
...	ip	tcp		172.16.0.101	50148	192.168.18.131	rtsp			1.68 Mbps	47.4 kbps	148	97
...	ip	tcp		172.16.0.101	50152	192.168.18.131	rtsp			1.35 Mbps	48.9 kbps	122	99
...	ip	tcp		172.16.0.101	50154	192.168.18.131	rtsp			807 kbps	23 kbps	78	48
...	ip	tcp		172.16.0.101	50150	192.168.18.131	rtsp			349 kbps	24.5 kbps	51	51
...	ip	udp		172.16.0.102	31144	188.166.94.177	9993			3.79 kbps	0 bps	1	0
...	ip	udp		172.16.0.102	9993	88.19.186.172	37666			3.78 kbps	0 bps	1	0
...	ip	tcp		172.16.0.126	63800	52.114.76.37	https			3.72 kbps	960 bps	2	2
...	ip	tcp		172.16.0.126	63783	81.161.59.86	http			3.1 kbps	1.19 kbps	2	1
...	ip	tcp		172.16.0.89	59479	131.100.1.172	5938			1.26 kbps	824 bps	2	1
...	ip	tcp		172.16.0.101	49473	64.94.18.70	https			1.06 kbps	528 bps	2	1
...	ip	udp		172.16.0.102	31143	85.10.205.126	37022			560 bps	632 bps	1	1
...	arp				0		0			480 bps	2.4 kbps	1	5
...	ip	tcp		172.16.0.88	52141	81.161.59.129	http			432 bps	480 bps	1	1
...	ip	tcp		172.16.0.89	62048	69.25.247.106	12975			432 bps	3.66 kbps	1	1
...	802.2				0		0			0 bps	0 bps	0	0
...	ipv6	udp			546		547			0 bps	0 bps	0	0
...	35007				0		0			0 bps	0 bps	0	0
...	ipv6	udp			56544		3702			0 bps	0 bps	0	0
...	ip	udp		172.16.0.4	56513	255.255.255...	discovery			0 bps	0 bps	0	0



Torch



Spectral Scan



Ping

Ping 172.16.6.147

From: default

To: 172.16.6.147

Interval: 1000 ms

Packet Size: 56 bytes

TTL: 128

Start

Stop

Close

#	Host	Name	Time	Reply Size	TTL	Status
9	172.16.6.147		1 ms	56	64	
10	172.16.6.147		1 ms	56	64	
11	172.16.6.147		1 ms	56	64	
12	172.16.6.147		1 ms	56	64	
13	172.16.6.147		1 ms	56	64	
14	172.16.6.147		1 ms	56	64	
15	172.16.6.147		1 ms	56	64	
16	172.16.6.147		1 ms	56	64	
17	172.16.6.147		1 ms	56	64	
18	172.16.6.147		1 ms	56	64	
19	172.16.6.147		1 ms	56	64	

19 transmitted, 19 received, 0% packet loss, round trip min/avg/max = 1/1.0/1 ms



Traceroute

Traceroute 8.8.8.8

From: default

To: 8.8.8.8

Packet Size: 64

Timeout: 1000

Start Stop Close

#	Hop	Host	Name	Time
1	1	168.181.162.41		< 1ms
2	2	10.9.2.65		1 ms
3	3	10.9.6.9		1 ms
4	4	10.9.0.25		1 ms
5	5	10.9.0.1		1 ms
6	6	168.181.162.1		1 ms
7	7	186.15.254.3	ip3-254-15-186.ct.co.cr	1 ms
8	8	186.15.255.1	ip1-255-15-186.ct.co.cr	2 ms
9	9	190.242.137.17		2 ms
10	10	63.245.107.189	xe-3-1-0.0-pcorozal-panama.pan-cor...	44 ms
11	11	63.245.106.187	xe-4-0-9.0-boca-raton.fl.us.br-x-tera...	46 ms
12	12	63.245.6.182		55 ms
13	13	108.170.253.1		58 ms
14	14	108.170.226.31		48 ms
15	15	8.8.8.8	google-public-dns-a.google.com	59 ms

done



SNMP Walk

The screenshot displays the 'Snmp Walk 192.168.23.1' application window. The main interface includes a configuration area at the top with fields for 'From' (default), 'To' (192.168.23.1), 'Profile' (v1-public), and 'Type' (all). Below this is a tree view of MIB objects, with 'entPhysicalEntry - 1' selected. The 'Value' column for this entry shows 'Linux 3.3.5 ehci_hcd RB400 EHCI' and 'RouterOS 6.41 (stable) on RB2011UAS'. A red arrow points from the 'Code' field in the 'New Data Source' dialog to the selected entry in the tree view.

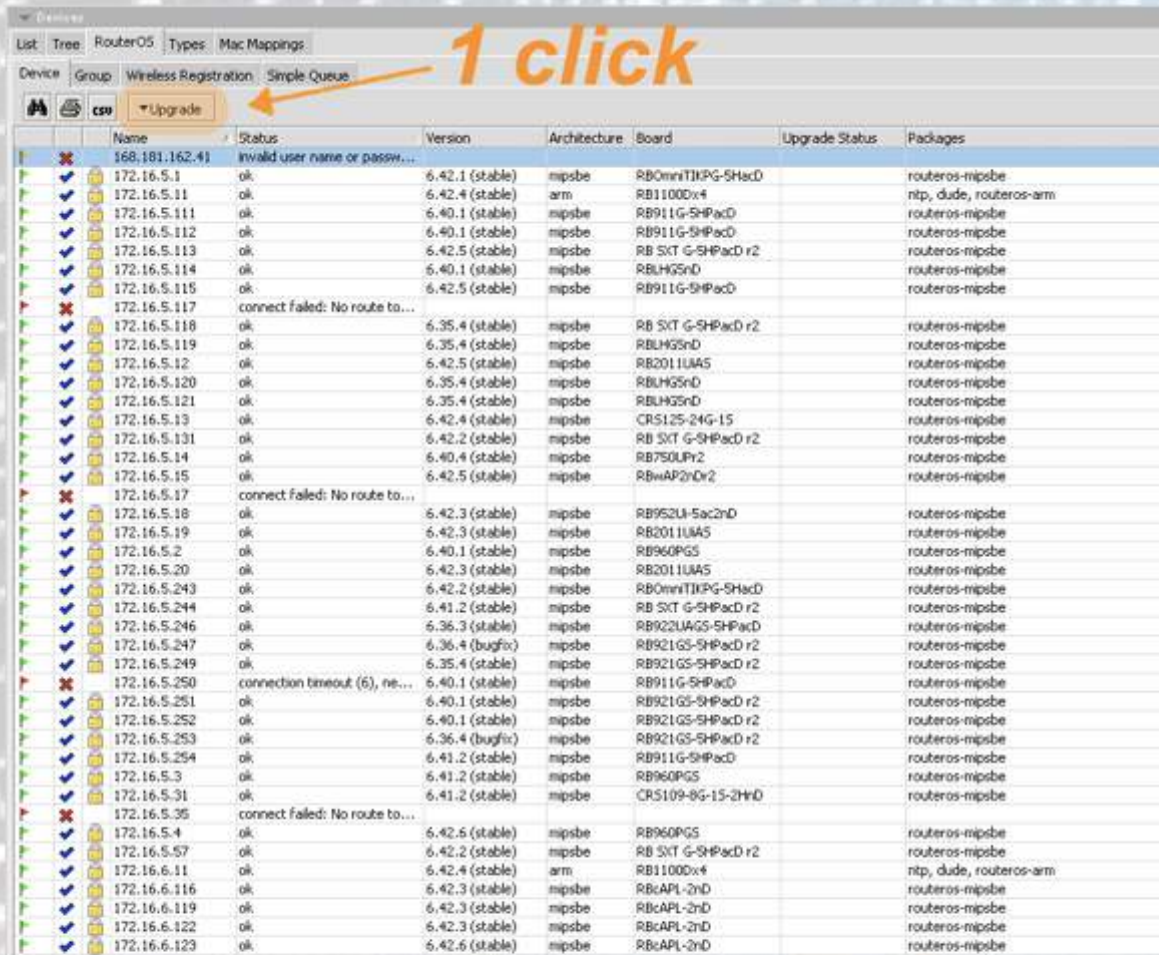
New Data Source Dialog:

- General tab, Enabled
- Name: oid .3.6.1.2.1.47.1.1.1.1.2.65536 on 192.168.23
- Unit: [empty]
- Device: none
- Code: `oid_raw(".3.6.1.2.1.47.1.1.1.1.2.65536", 5, 5, "192.168.23.1", "v1-public")`
- Interval: 00:00:30 (30s)
- Last Value Time: Jan/01/1970 00:00:00
- Last Value: [empty]
- Raw Value Keep Time: default (5m, 6h, 7d, 365d)
- 10 Min Value Keep Time: default (6h, 5d, 30d, 2y)
- 2 Hour Value Keep Time: default (2d, 14d, 180d)
- 1 Day Value Keep Time: default (7d, 30d, 2y)
- Approximate Storage Size: 122.9 kB



Actualización de ROS

1 click



Device	Group	Wireless Registration	Simple Queue	Name	Status	Version	Architecture	Board	Upgrade Status	Packages
				168.181.162.41	invalid user name or passw...					
				172.16.5.1	ok	6.42.1 (stable)	mipsbe	RB0mnTIXPG-SHacD		routeros-mipsbe
				172.16.5.11	ok	6.42.4 (stable)	arm	RB1100Dx4		ntp, dude, routeros-arm
				172.16.5.111	ok	6.40.1 (stable)	mipsbe	RB911G-SHPacD		routeros-mipsbe
				172.16.5.112	ok	6.40.1 (stable)	mipsbe	RB911G-SHPacD		routeros-mipsbe
				172.16.5.113	ok	6.42.5 (stable)	mipsbe	RB SXT G-SHPacD r2		routeros-mipsbe
				172.16.5.114	ok	6.40.1 (stable)	mipsbe	RBLHG5nD		routeros-mipsbe
				172.16.5.115	ok	6.42.5 (stable)	mipsbe	RB911G-SHPacD		routeros-mipsbe
				172.16.5.117	connect failed: No route to...					
				172.16.5.118	ok	6.35.4 (stable)	mipsbe	RB SXT G-SHPacD r2		routeros-mipsbe
				172.16.5.119	ok	6.35.4 (stable)	mipsbe	RBLHG5nD		routeros-mipsbe
				172.16.5.12	ok	6.42.5 (stable)	mipsbe	RB2011UA5		routeros-mipsbe
				172.16.5.120	ok	6.35.4 (stable)	mipsbe	RBLHG5nD		routeros-mipsbe
				172.16.5.121	ok	6.35.4 (stable)	mipsbe	RBLHG5nD		routeros-mipsbe
				172.16.5.13	ok	6.42.4 (stable)	mipsbe	CRS125-24G-15		routeros-mipsbe
				172.16.5.131	ok	6.42.2 (stable)	mipsbe	RB SXT G-SHPacD r2		routeros-mipsbe
				172.16.5.14	ok	6.40.4 (stable)	mipsbe	RB750LPr2		routeros-mipsbe
				172.16.5.15	ok	6.42.5 (stable)	mipsbe	RBwAP2nDr2		routeros-mipsbe
				172.16.5.17	connect failed: No route to...					
				172.16.5.18	ok	6.42.3 (stable)	mipsbe	RB952U-5ac2nD		routeros-mipsbe
				172.16.5.19	ok	6.42.3 (stable)	mipsbe	RB2011UA5		routeros-mipsbe
				172.16.5.2	ok	6.40.1 (stable)	mipsbe	RB960PG5		routeros-mipsbe
				172.16.5.20	ok	6.42.3 (stable)	mipsbe	RB2011UA5		routeros-mipsbe
				172.16.5.243	ok	6.42.2 (stable)	mipsbe	RB0mnTIXPG-SHacD		routeros-mipsbe
				172.16.5.244	ok	6.41.2 (stable)	mipsbe	RB SXT G-SHPacD r2		routeros-mipsbe
				172.16.5.246	ok	6.36.3 (stable)	mipsbe	RB922UA5S-SHPacD		routeros-mipsbe
				172.16.5.247	ok	6.36.4 (bugfix)	mipsbe	RB921GS-SHPacD r2		routeros-mipsbe
				172.16.5.249	ok	6.35.4 (stable)	mipsbe	RB921GS-SHPacD r2		routeros-mipsbe
				172.16.5.250	connection timeout (6), ne...	6.40.1 (stable)	mipsbe	RB911G-SHPacD		routeros-mipsbe
				172.16.5.251	ok	6.40.1 (stable)	mipsbe	RB921GS-SHPacD r2		routeros-mipsbe
				172.16.5.252	ok	6.40.1 (stable)	mipsbe	RB921GS-SHPacD r2		routeros-mipsbe
				172.16.5.253	ok	6.36.4 (bugfix)	mipsbe	RB921GS-SHPacD r2		routeros-mipsbe
				172.16.5.254	ok	6.41.2 (stable)	mipsbe	RB911G-SHPacD		routeros-mipsbe
				172.16.5.3	ok	6.41.2 (stable)	mipsbe	RB960PG5		routeros-mipsbe
				172.16.5.31	ok	6.41.2 (stable)	mipsbe	CRS109-9G-15-2HnD		routeros-mipsbe
				172.16.5.35	connect failed: No route to...					
				172.16.5.4	ok	6.42.6 (stable)	mipsbe	RB960PG5		routeros-mipsbe
				172.16.5.57	ok	6.42.2 (stable)	mipsbe	RB SXT G-SHPacD r2		routeros-mipsbe
				172.16.6.11	ok	6.42.4 (stable)	arm	RB1100Dx4		ntp, dude, routeros-arm
				172.16.6.116	ok	6.42.3 (stable)	mipsbe	RBcAPL-2nD		routeros-mipsbe
				172.16.6.119	ok	6.42.3 (stable)	mipsbe	RBcAPL-2nD		routeros-mipsbe
				172.16.6.122	ok	6.42.3 (stable)	mipsbe	RBcAPL-2nD		routeros-mipsbe
				172.16.6.123	ok	6.42.6 (stable)	mipsbe	RBcAPL-2nD		routeros-mipsbe

- Individual
- Por grupos
- Múltiples arquitecturas
- Múltiples versiones



ACTUALIZACIÓN

Individual:

The screenshot shows the Mikrotik WinBox interface with the 'Devices' tab selected. A table lists various devices with their status, name, version, architecture, and board type. A context menu is open over one of the devices, showing options like 'Device Settings', 'Tools', and 'Upgrade'. The 'Upgrade' option is selected, and a sub-menu is visible showing the available upgrade versions: 6.34rc45, 6.33.5, and 6.32.3.

Status	Name	Version	Architecture	Board
failed	10.5.104.83			
failed	172.16.0.253			
ok	10.5.104.50	6.32.3	x86	x86
ok			x86	x86
ok			x86	CHR
ok			x86	CHR
ok			x86	x86
ok			arm	RB3011UiAS
ok			mipsbe	CRS109-8G-1S-2...
ok				-4S
ok				-2S+
ok				-10S...
ok				S-2S+
ok				S
ok	nine.lan	6.34rc41	tile	CCR1009-8G-1S-...

Por grupos:

The screenshot shows the Mikrotik WinBox interface with the 'Devices' tab selected. A table lists various devices. A context menu is open over a group of devices, showing options like 'Upgrade'. The 'Upgrade' option is selected, and a sub-menu is visible showing the available upgrade versions: 6.32.3, 6.33.5, and 6.34rc45.

Name	Devices	Version
Switch Device Gr...	crs226.lan, crs212.l...	6.32.3
		6.33.5
		6.34rc45





Colas simples

Visualización y edición de colas en una sólo lista

▼ Devices

List Tree RouterOS Types Mac Mappings

Device Group Wireless Registration Simple Queue

+ - ✓ ✗   CSU

Device	Name	Rx Limit Max	Tx Limit Max	Rx Bytes	Tx Bytes	Rx Packets	Tx Packets	Rx Avg. Rate	Tx Avg. Rate
172.16.5.11	qDATOS	15 Mbps	15 Mbps	174.8 GB		176718559		10.7 Mbps	
172.16.5.13	qDATOS	15 Mbps	15 Mbps	1199.4 MB	49.2 GB	26978433	44935351	3.62 kbps	7.46 kbps
172.16.6.11	qDATOS	15 Mbps	15 Mbps	174.8 GB		176718559		10.7 Mbps	
172.16.6.116	qDATOS	15 Mbps	15 Mbps	172.5 MB	87.2 MB	1637251	631511	1.61 kbps	1.06 kbps
172.16.6.119	qDATOS	15 Mbps	15 Mbps	122.6 MB	61.7 MB	1163932	446980	1.55 kbps	1.28 kbps
172.16.6.122	qDATOS	15 Mbps	15 Mbps	252.1 MB	118.7 MB	2363768	899712	1.46 kbps	1.69 kbps
172.16.6.123	qDATOS	15 Mbps	15 Mbps	16.9 MB	8.2 MB	154734	57956	1.77 kbps	1.39 kbps
172.16.6.124	qDATOS	15 Mbps	15 Mbps	323.6 MB	198.9 MB	1453105	681401	944 bps	1.06 kbps
172.16.6.125	qDATOS	15 Mbps	15 Mbps	26.3 MB	12.8 MB	249217	91776	1.23 kbps	1.28 kbps
172.16.6.126	qDATOS	15 Mbps	15 Mbps	249.2 MB	117.6 MB	2343088	886931	1.88 kbps	1.5 kbps
172.16.6.129	qDATOS	15 Mbps	15 Mbps	250.7 MB	117.5 MB	2357414	888706	944 bps	1.06 kbps
172.16.6.130	qDATOS	15 Mbps	15 Mbps	27.2 MB	12.1 MB	237268	88147	1.88 kbps	1.5 kbps
172.16.6.132	qDATOS	15 Mbps	15 Mbps	250.4 MB	118.1 MB	2352699	892475	1.83 kbps	1.28 kbps
172.16.6.133	qDATOS	15 Mbps	15 Mbps	68.4 MB	33.6 MB	649576	244184	1.55 kbps	1.28 kbps
172.16.6.134	qDATOS	15 Mbps	15 Mbps	237.1 MB	121.8 MB	2233459	910102	1.17 kbps	1.29 kbps
172.16.6.135	qDATOS	15 Mbps	15 Mbps	102.5 MB	52.4 MB	958374	388454	1.39 kbps	1.39 kbps
172.16.6.136	qDATOS	15 Mbps	15 Mbps	89.5 MB	45.9 MB	845541	341638	1.06 kbps	1.71 kbps
172.16.6.137	qDATOS	15 Mbps	15 Mbps	249.6 MB	119.1 MB	2345253	888705	1.01 kbps	1.06 kbps
172.16.6.139	qDATOS	15 Mbps	15 Mbps	68.4 MB	33.7 MB	649646	244109	1.34 kbps	1.28 kbps
172.16.6.140	qDATOS	15 Mbps	15 Mbps	232.3 MB	116.1 MB	2197602	846965	1.33 kbps	1.06 kbps
172.16.6.141	qDATOS	15 Mbps	15 Mbps	14.3 MB	7.2 MB	135874	50296	1.23 kbps	1.28 kbps
172.16.6.142	qDATOS	15 Mbps	15 Mbps	59.2 MB	28.8 MB	562491	209812	1.94 kbps	1.28 kbps
172.16.6.143	qDATOS	15 Mbps	15 Mbps	27.8 MB	14.8 MB	277644	124445	1.01 kbps	1.06 kbps
172.16.6.144	qDATOS	15 Mbps	15 Mbps	227.6 MB	114.1 MB	2164176	843557	1.17 kbps	1.28 kbps



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