

Buenas Prácticas[®] para Segurizar un Router de Fábrica

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Buenos Aires
Argentina



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- ✓ Tareas dentro del *OutSourcing*:

Relevamiento - Optimización - Mantenimiento

- ✓ La idea de esta charla es mostrar en base a mi experiencia, los *descuidos más comunes que uno encuentra al relevar la configuración de los equipos*, que dejan expuesto al router a posibles ataques.
- ✓ Los ataques tienen principalmente 2 objetivos: *tomar el control del router* o simplemente *provocarle una denegación de servicios* (CPU al 100%).



- ✓ No hay una única manera de prevenir los ataques.
- ✓ No todos los routers sufren los mismos ataques ni de la misma manera.
- ✓ Se asume que el usuario tiene un mínimo conocimiento del uso del firewall de **RouterOS** (uso de clasificadores, cadenas y acciones).



Al no tener un firewall por defecto, todos los servicios están disponibles por todas sus interfaces, incluso la pública.

✓ **SSH** y **Telnet** son los más usados para conseguir contraseñas por fuerza bruta.

✓ **WEB** y **Winbox** son menos frecuentes, pero también puede ocurrir el mismo ataque.

all		
Jan/09/1970 23:08:56	system error critical	login failure for user identd from 187.141.13.251 via ssh
Jan/09/1970 23:08:59	system error critical	login failure for user gnats from 187.141.13.251 via ssh
Jan/09/1970 23:09:01	system error critical	login failure for user jeff from 187.141.13.251 via ssh
Jan/09/1970 23:09:04	system error critical	login failure for user irc from 187.141.13.251 via ssh
Jan/09/1970 23:09:09	system error critical	login failure for user list from 187.141.13.251 via ssh
Jan/09/1970 23:09:12	system error critical	login failure for user eleve from 187.141.13.251 via ssh
Jan/09/1970 23:09:16	system error critical	login failure for user proxy from 187.141.13.251 via ssh
Jan/09/1970 23:09:20	system error critical	login failure for user sys from 187.141.13.251 via ssh
Jan/09/1970 23:09:23	system error critical	login failure for user zzz from 187.141.13.251 via ssh
Jan/09/1970 23:09:27	system error critical	login failure for user tech from 187.141.13.251 via ssh
Jan/09/1970 23:09:30	system error critical	login failure for user frank from 187.141.13.251 via ssh

Torch (Running)

Interface: wan

Entry Timeout: 00:00:03 s

Filters

Src. Address: 0.0.0.0/0

Dst. Address: 0.0.0.0/0

Src. Address6: ::/0

Dst. Address6: ::/0

MAC Protocol: all

Protocol: any

Port: dns

VLAN Id: any

Start

Stop

Close

New Window

Collect

Src. Address

Dst. Address

MAC Protocol

Protocol

Src. Address6

Dst. Address6

Port

VLAN Id

Et...	Prot...	Src.	Dst.	VLAN Id	Tx Rate	Rx Rate	Tx Pack...	Rx Pack...
800 (ip)		115.238.184.126:12633	:53 (dns)		6.0 kbps	344 bps	0	0
800 (ip)		115.238.184.125:26701	:53 (dns)		6.0 kbps	344 bps	0	0
800 (ip)		115.238.184.126:43549	:53 (dns)		6.0 kbps	344 bps	0	0
800 (ip)		115.238.184.125:16379	:53 (dns)		6.0 kbps	344 bps	0	0
800 (ip)		101.71.74.109:17231	:53 (dns)		6.0 kbps	344 bps	0	0
800 (ip)		101.71.74.110:20153	:53 (dns)		6.0 kbps	344 bps	0	0
800 (ip)		115.238.184.125:50075	:53 (dns)		6.0 kbps	344 bps	0	0
800 (ip)		115.238.184.126:55531	:53 (dns)		6.0 kbps	344 bps	0	0
800 (ip)		115.238.184.126:62555	:53 (dns)		6.0 kbps	344 bps	0	0
800 (ip)		115.238.184.126:34379	:53 (dns)		6.0 kbps	344 bps	0	0
800 (ip)		115.238.184.126:48267	:53 (dns)		6.0 kbps	344 bps	0	0
800 (ip)		101.71.74.109:58126	:53 (dns)		6.0 kbps	344 bps	0	0
800 (ip)		101.71.74.110:24377	:53 (dns)		6.0 kbps	344 bps	0	0
800 (ip)		115.238.184.126:26973	:53 (dns)		6.0 kbps	344 bps	0	0
800 (ip)		115.238.184.126:43181	:53 (dns)		6.0 kbps	344 bps	0	0
800 (ip)		115.238.184.126:48380	:53 (dns)		6.0 kbps	344 bps	0	0
800 (ip)		101.71.74.109:14222	:53 (dns)		6.0 kbps	344 bps	0	0
800 (ip)		115.238.184.126:17981	:53 (dns)		6.0 kbps	344 bps	0	0
800 (ip)		115.238.184.125:49099	:53 (dns)		6.0 kbps	344 bps	0	0
800 (ip)		101.71.74.109:9467	:53 (dns)		6.0 kbps	344 bps	0	0
800 (ip)		101.71.74.109:42021	:53 (dns)		6.0 kbps	344 bps	0	0
800 (ip)		101.71.74.109:62197	:53 (dns)		6.0 kbps	344 bps	0	0

Total Tx: 724.7 kbps Total Rx: 176.6 kbps Total Tx Packet: 2 Total Rx Packet: 2

Google Sorry...

We're sorry...

... but your computer or network may be sending automated queries. To protect our users, we can't process your request right now.

See [Google Help](#) for more information.

Para continuar, ingresa los siguientes caracteres:



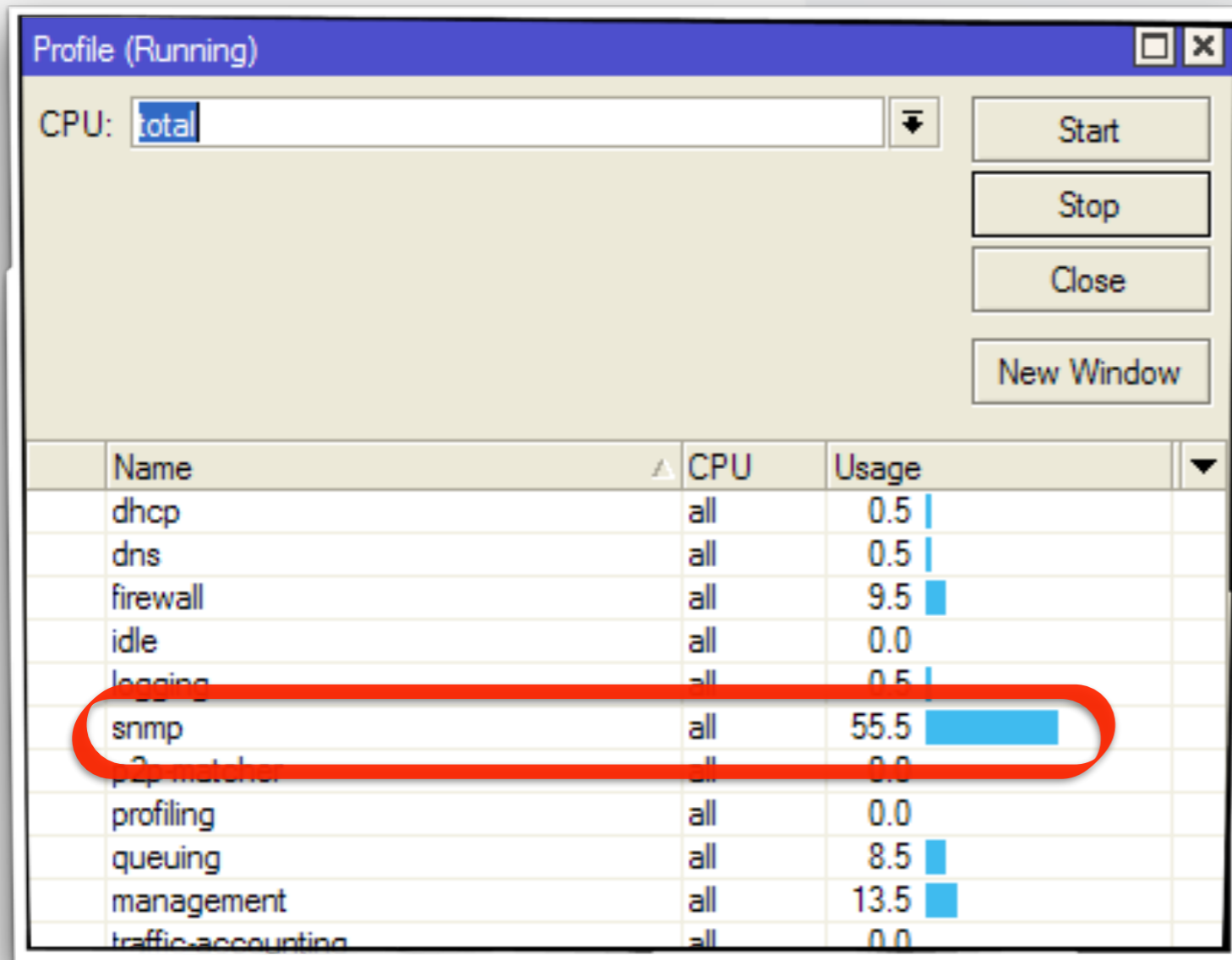
Enviar

Acerca de esta página

Nuestros sistemas han detectado un tráfico inusual en tu red de equipo. Esta página verifica si realmente eres tú el que envía las solicitudes y no un robot. [¿Por qué sucedió esto?](#)

Ataques por SNMP

Al habilitar el servicio de **SNMP**, por defecto el router queda expuesto a cualquier consulta por cualquiera de sus interfaces.



SNMP Community <public>

Name: public

Addresses: 0.0.0.0/0

Security: none

Read Access

Write Access

Authentication Protocol: MD5

Encryption Protocol: DES

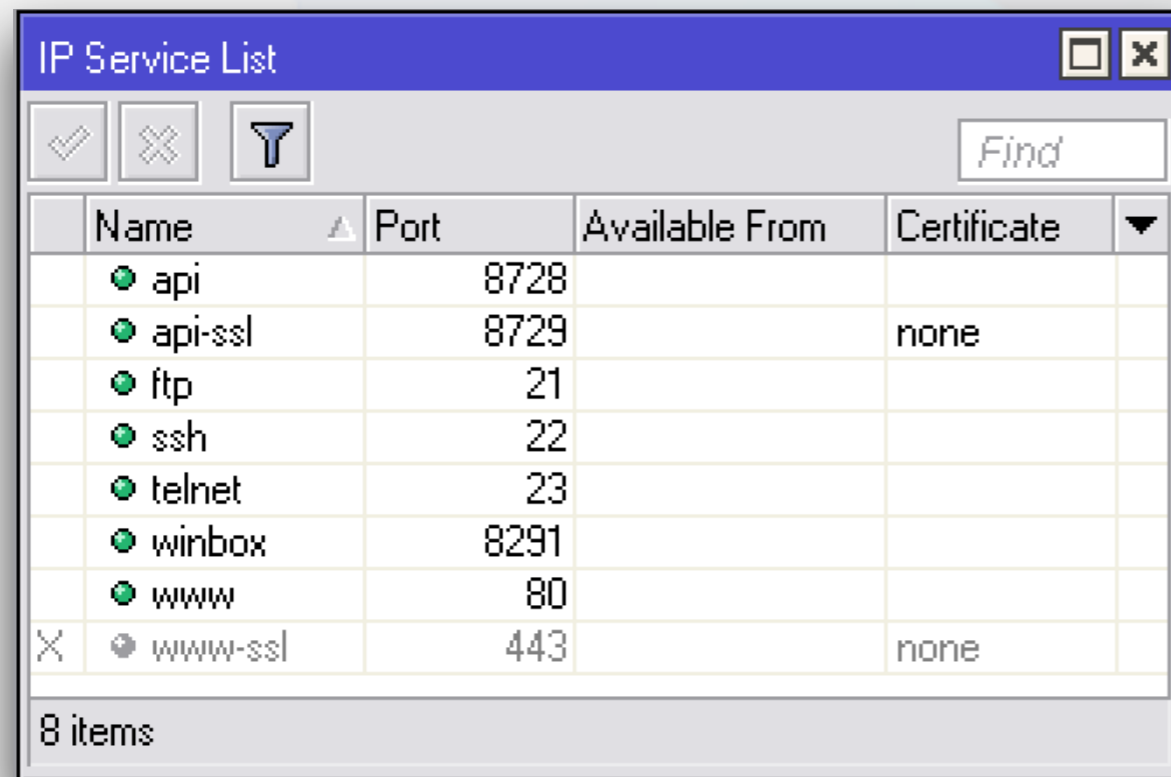
Authentication Password:

Encryption Password:

default

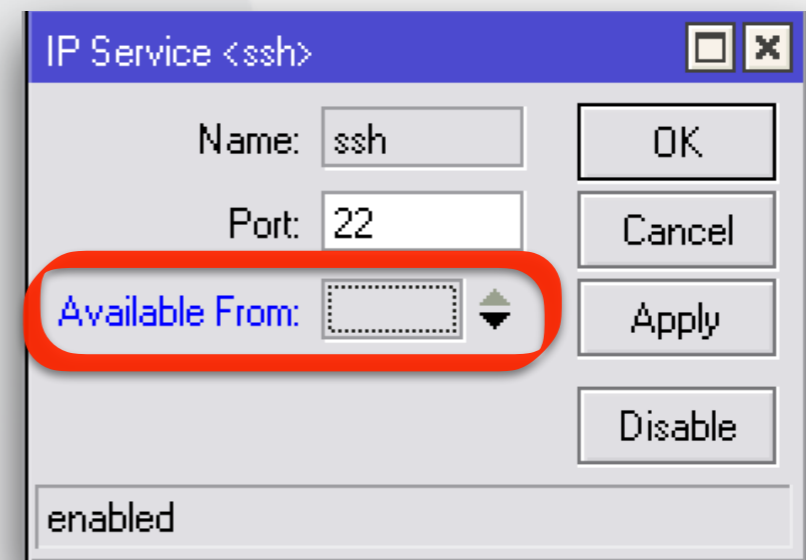
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Una manera simple de protegerse, es deshabilitando los servicios que no se usen y proteger los demás con reglas de *firewall* o desde la opción de *IP > Service*



Name	Port	Available From	Certificate
api	8728		
api-ssl	8729		none
ftp	21		
ssh	22		
telnet	23		
winbox	8291		
www	80		
www-ssl	443		none

8 items



IP Service <ssh>

Name: ssh

Port: 22

Available From: [dropdown menu]

enabled

OK

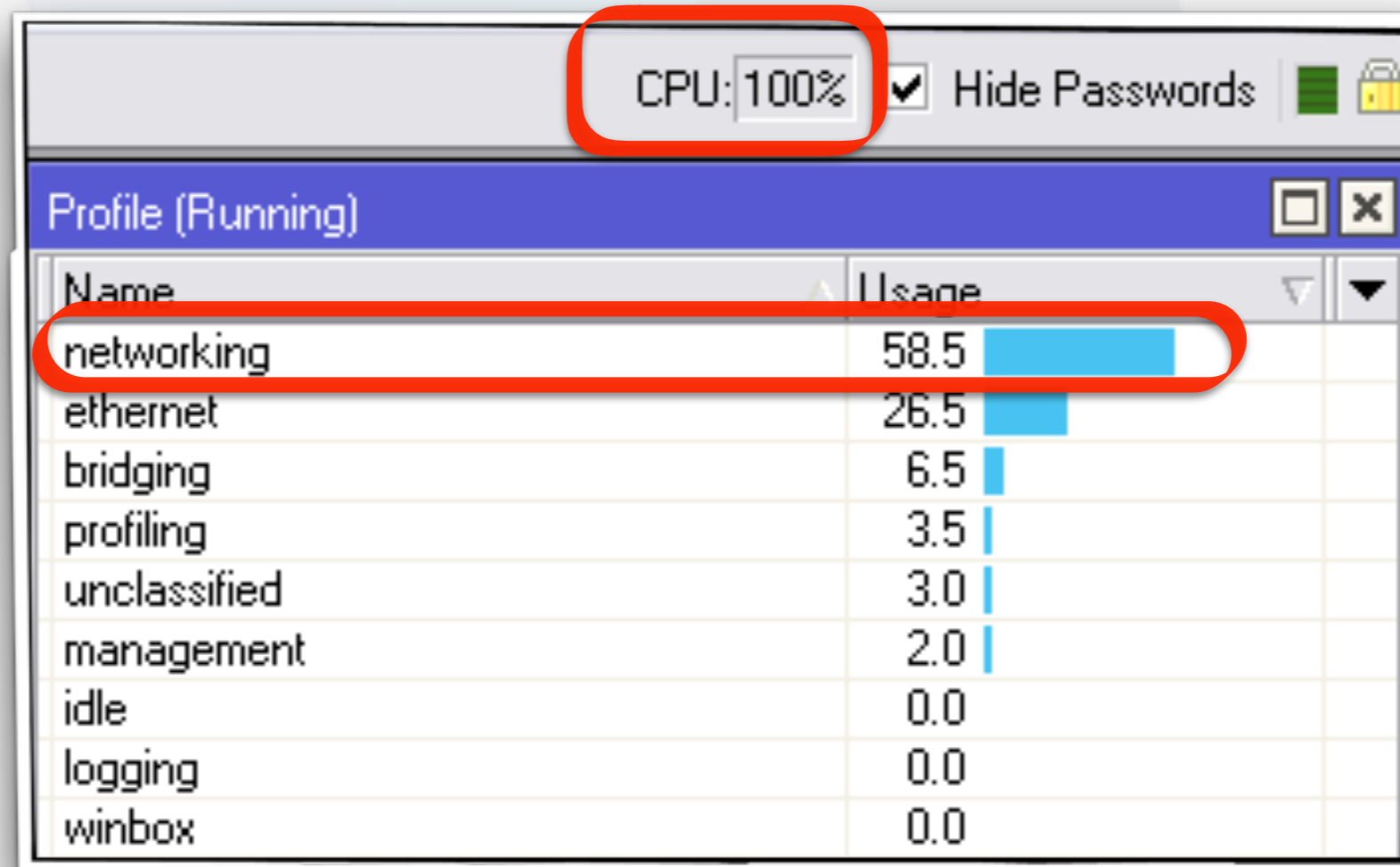
Cancel

Apply

Disable

Tener deshabilitados todos los servicios no garantiza que el router esté 100% protegido.

✓ El protocolo **ICMP** mal usado, puede elevar el consumo del CPU y provocar denegación de servicio > **Ping Flooding**.



New Firewall Rule

General Advanced Extra Action Statistics

Chain: **input**

Src. Address:

Dst. Address:

Protocol: 6 (tcp)

Src. Port:

Dst. Port:

Any. Port:

P2P:

In. Interface: Publica

- ✓ *SSH*: TCP 22
- ✓ *Telnet*: TCP 23
- ✓ *WEB*: TCP 80
- ✓ *Winbox*: TCP 8291
- ✓ *WebProxy*: TCP 8080
- ✓ *DNS*: UDP 53
- ✓ *SNMP*: UDP 161

New Firewall Rule

General Advanced Extra Action Statistics

Action: **drop**

Log

Log Prefix:

Ping Flooding

1)

Firewall Rule <>

General | Advanced | Extra | Action | Statist

Chain: input

Src. Address:

Dst. Address:

Protocol: 1 (icmp)

Src. Port:

Firewall Rule <>

General | Advanced | Extra | Action | Statist

Connection Limit

Limit

Rate: 10 / sec

Burst: 5

Dst. Limit

Nth

Time

Src. Address Type

Firewall Rule <>

General | Advanced | Extra | Action | Statist

Action: accept

Log

Log Prefix:

2)

Firewall Rule <>

General | Advanced | Extra | Action | Statist

Chain: input

Src. Address:

Dst. Address:

Protocol: 1 (icmp)

Src. Port:

Firewall Rule <>

General | Advanced | Extra | Action

Action: drop

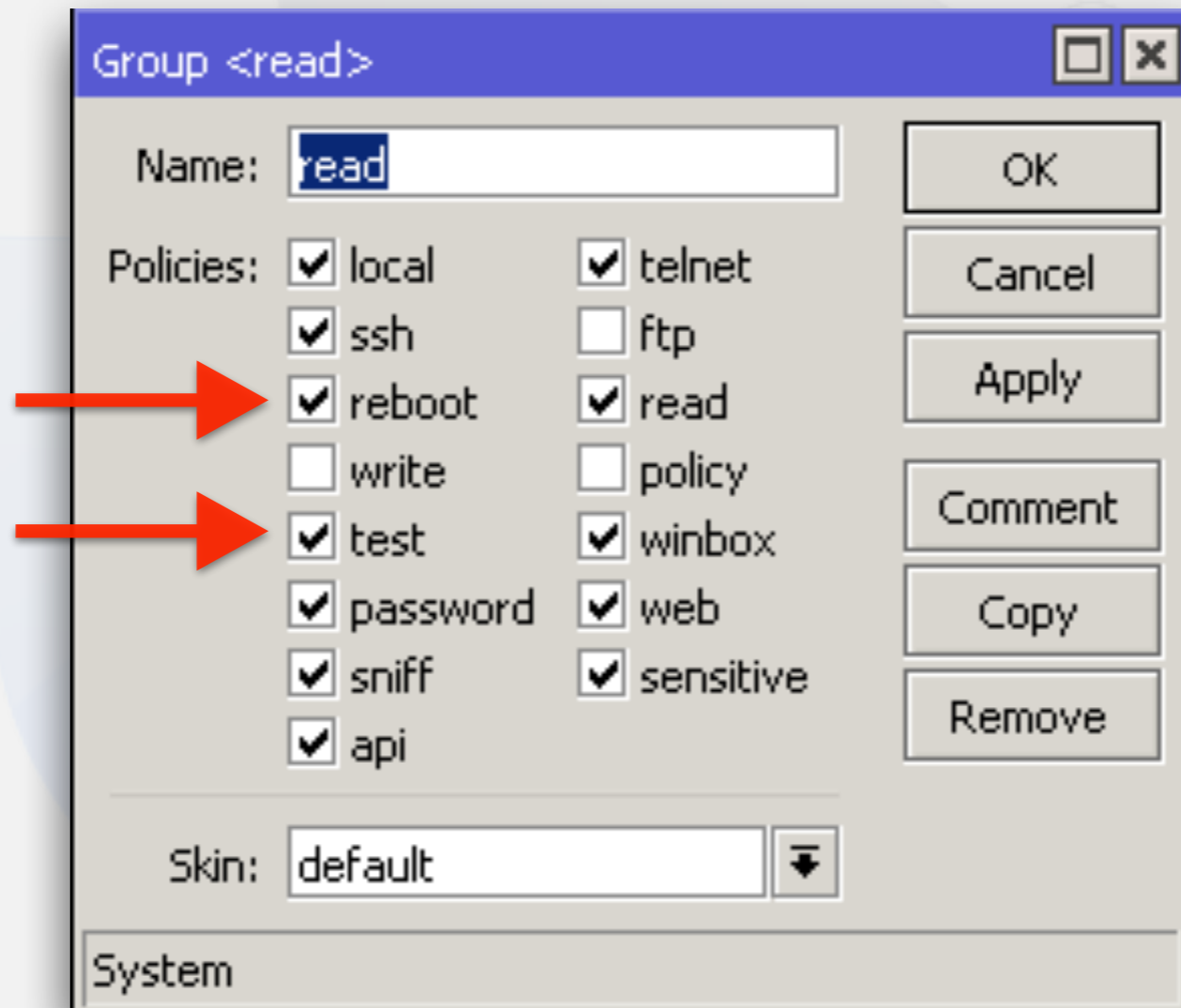
Firewall

Filter Rules | NAT | Mangle | Service Ports | Connec

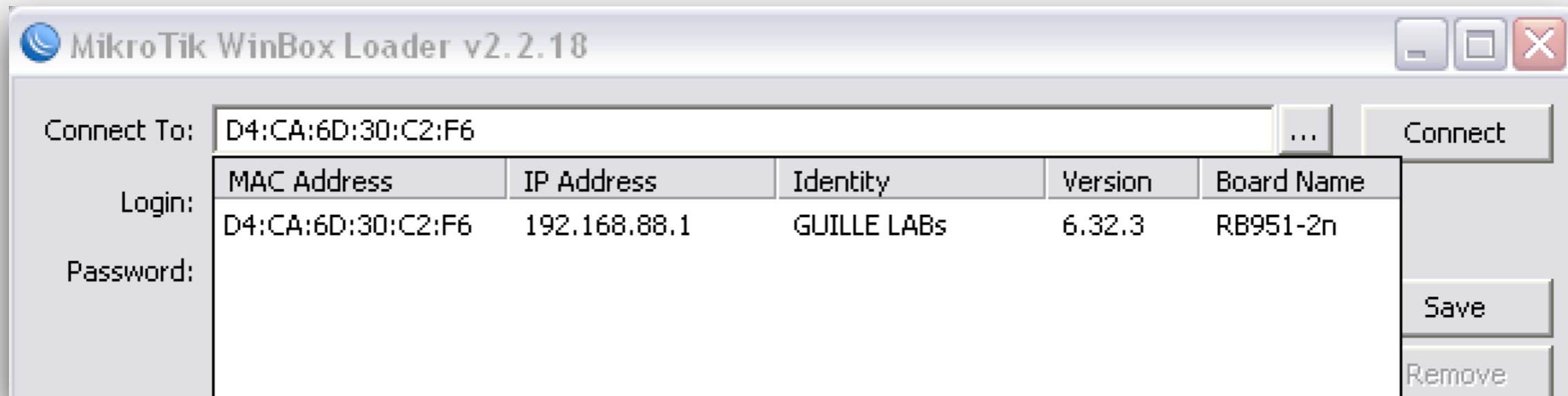
+ - ✓ ✗ [icon] [icon] Reset Count

#	Action	Chain	Protocol
0	✓ accept	input	1 (icmp)
1	✗ drop	input	1 (icmp)

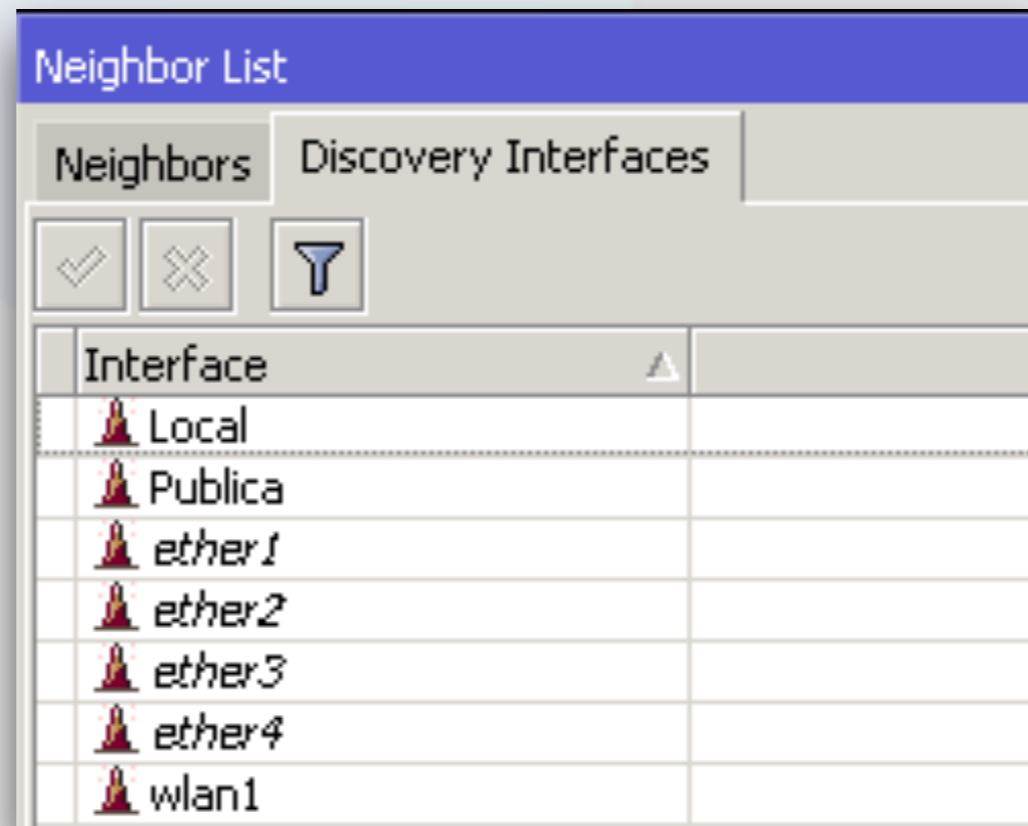
- ✓ El grupo **READ** por defecto puede hacer fetch y reboot!



✓ *MNDP* está habilitado en todas sus interfaces.

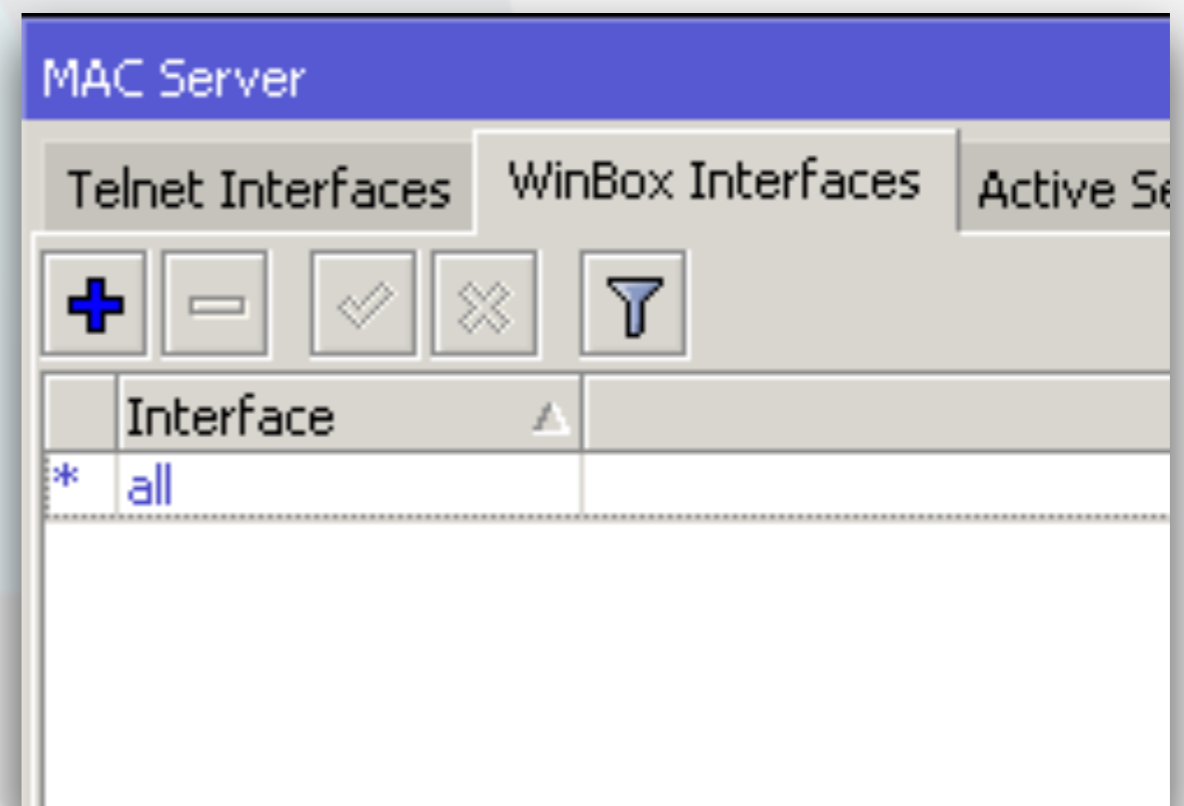
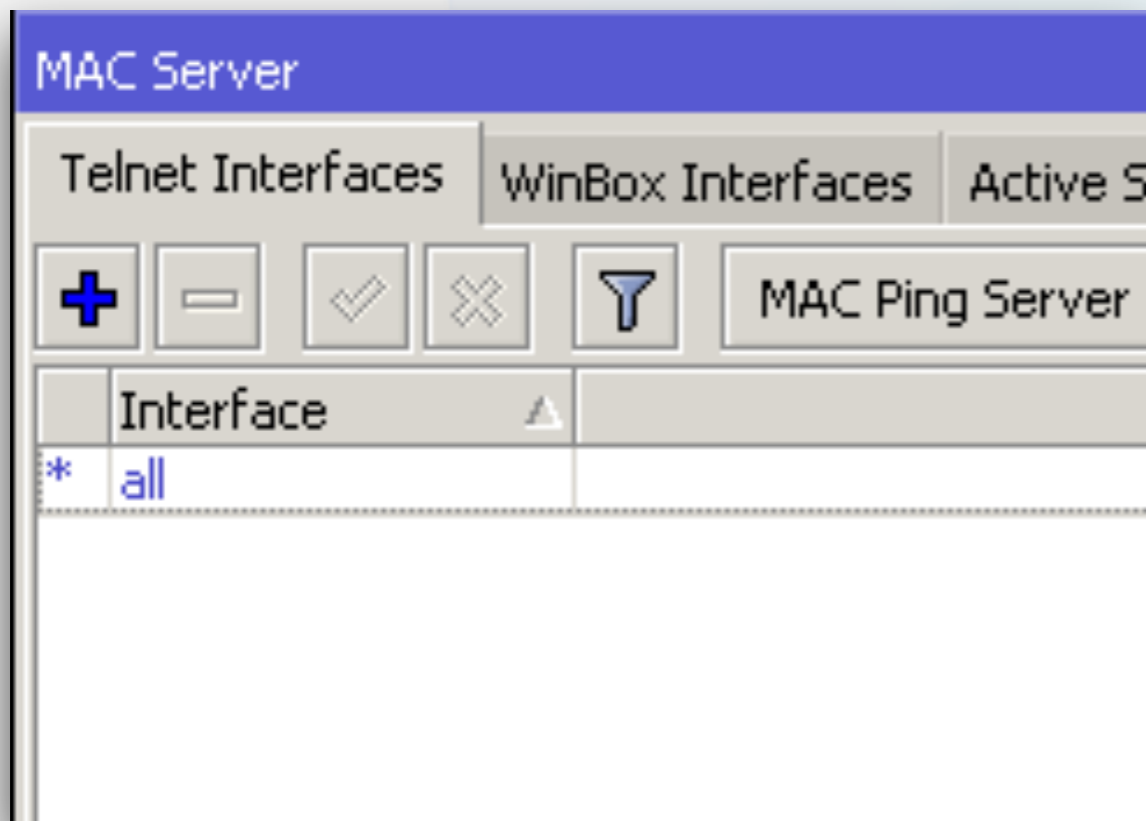


✓ *Ip > Neighbors*



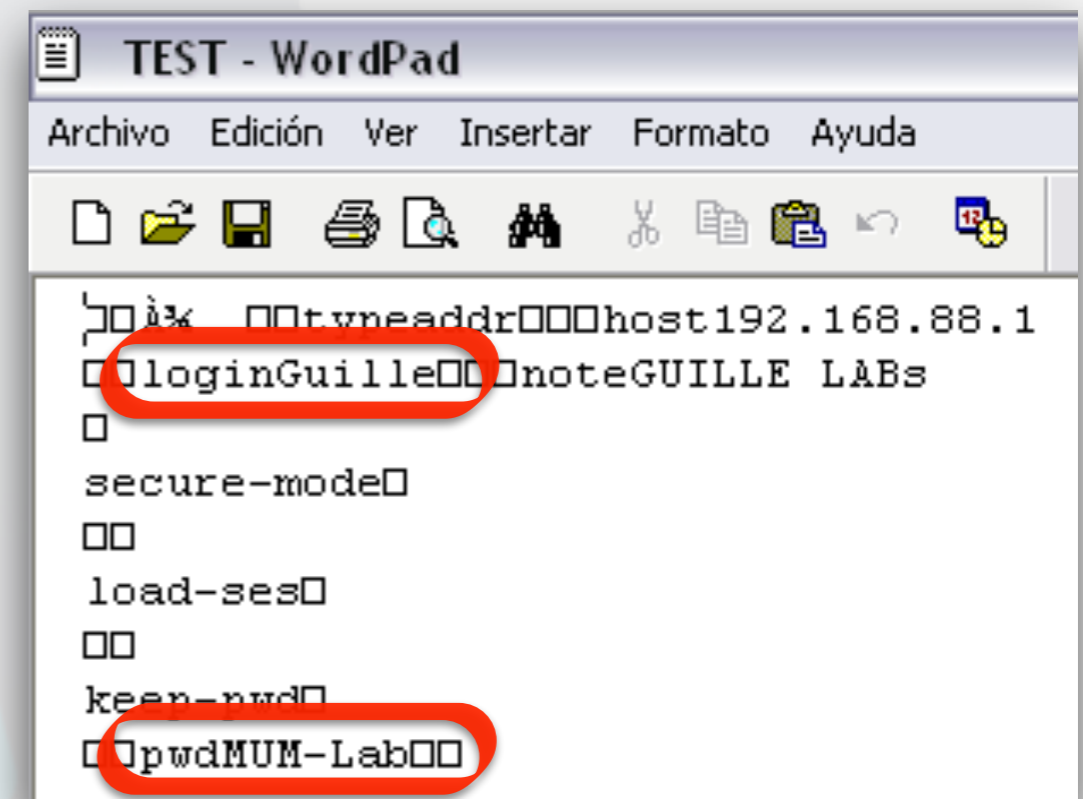
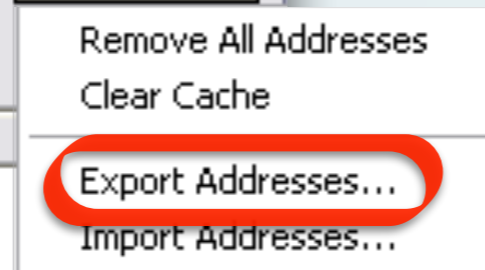
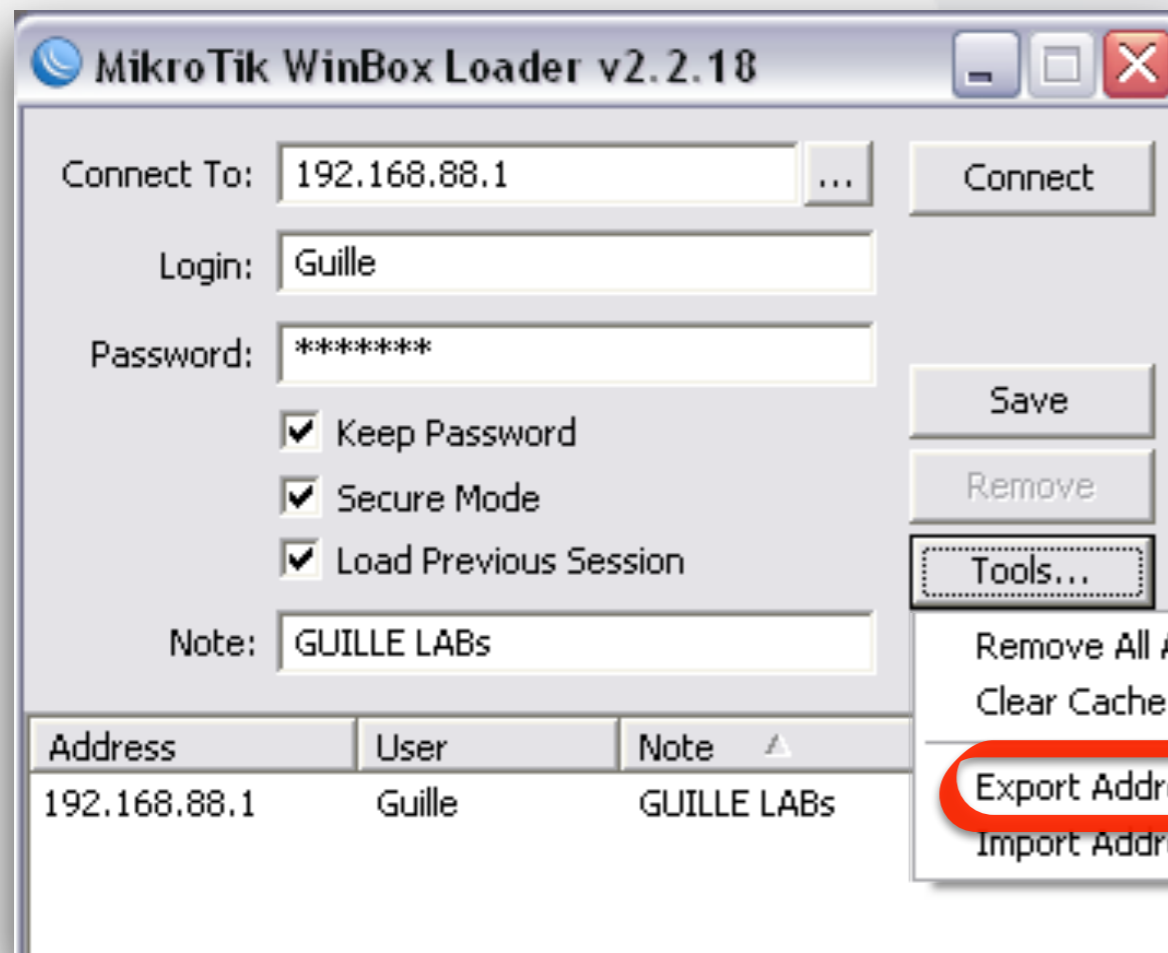
Aún deshabilitando el “Discovery Interface” se puede acceder por *Mac-Telnet* y *Mac-Winbox* sabiendo la *MAC* del equipo.

✓ Para cerrar el acceso en capa 2: *Tools > Mac Server*



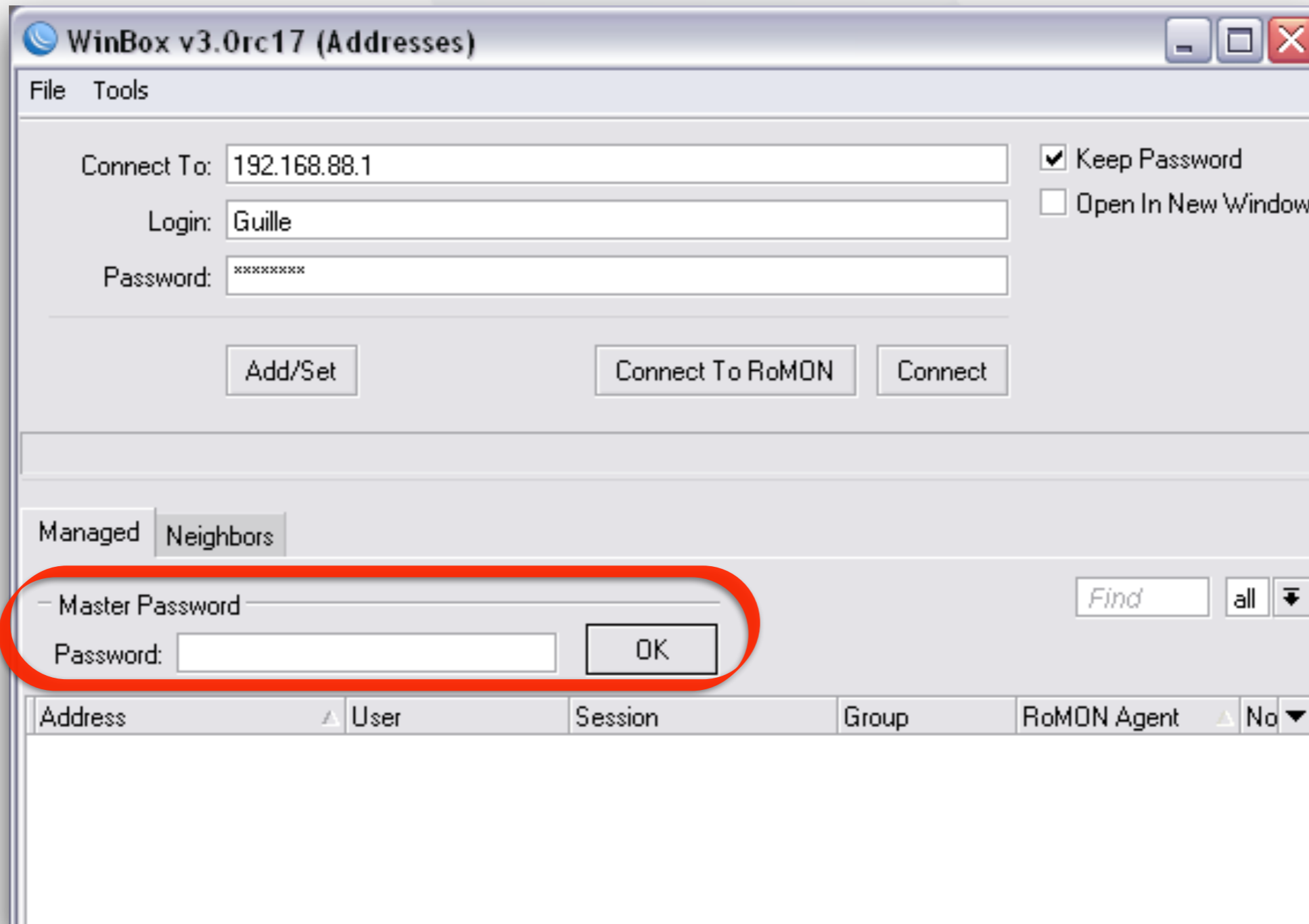
Contraseñas guardadas en Winbox

Si están guardados los accesos dentro del Winbox, fácilmente se puede exportar una lista y ver la contraseña con cualquier editor de texto!!!



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- ✓ En la versión 3, se puede setear un master password para que no muestre la lista y se pueda exportar.



The screenshot shows the WinBox v3.0rc17 (Addresses) window. The main window has a menu bar with 'File' and 'Tools'. Below the menu bar, there are three input fields: 'Connect To:' with the value '192.168.88.1', 'Login:' with the value 'Guille', and 'Password:' with the value 'xxxxxxx'. To the right of these fields are two checkboxes: 'Keep Password' (checked) and 'Open In New Window' (unchecked). Below the input fields are three buttons: 'Add/Set', 'Connect To RoMON', and 'Connect'. Below the buttons, there are two tabs: 'Managed' and 'Neighbors'. Below the tabs, there is a search bar with the text 'Find', a dropdown menu with 'all', and a downward arrow. Below the search bar, there is a red circle highlighting a dialog box with the text '- Master Password' and a 'Password:' input field with an 'OK' button. Below the dialog box, there is a table with the following columns: 'Address', 'User', 'Session', 'Group', 'RoMON Agent', and 'No'. The table is currently empty.

- ✓ Muchos descuidan el acceso al software The DUDE. Si el mismo corre en una IP pública y está con las credenciales por defecto, fácilmente se puede acceder a el y tomar el control de los equipos que esté administrando.

The screenshot shows the 'LONG DISTANCE WIRELESS LINKS' application window. The title bar includes 'LONG DISTANCE WIRELESS LINKS -> WWW'. The interface has a menu bar with 'Preferencias', 'Servidor Local' (indicated by a green dot), and 'Ayuda'. The main area contains the following fields and controls:

- Servidor: 200.200.200.1
- Modo: plain seguro
- Puerto: 2211
- Nombre de usuario: admin (highlighted with a red oval)
- Contraseña: (empty)
- Recordar contraseña

Buttons for 'Conectar', 'Guardar', and 'Eliminar' are visible. At the bottom, there is a table with columns 'Direccion' and 'Nombre de usuario'.

Direccion	Nombre de usuario

Profile (Running)

Name	Usage
idle	76.5
winbox	6.5
management	4.5
networking	3.0
firewall	2.0
ppp	2.0
dns	1.5
queuing	1.5
ethernet	1.0
unclassified	1.0
logging	0.5
bridging	0.0
flash	0.0
graphing	0.0
l2tp	0.0
p2p-matcher	0.0
profiling	0.0
routing	0.0
ssl	0.0
traffic-accounting	0.0

Torch (Running)

Interface: wan

Entry Timeout: 00:00:03 s

Filters

Src. Address: 0.0.0.0/0

Dst. Address: 0.0.0.0/0

Src. Address6: ::/0

Dst. Address6: ::/0

MAC Protocol: all

Protocol: any

Port: any

VLAN Id: any

DSCP: any

Eth. ...	Pro...	Src.	Dst.	VLAN Id	DSCP	Tx Rate	Rx Rate	Tx Pack...	Rx Pack...
800 ...	6 (t...	184.107.141.20:9087				2.6 kbps	148.5 k...	5	14
806 ...						0 bps	39.8 kbps	0	83
800 ...	47	187.189.147.70				1760 bps	5.7 kbps	2	5
800 ...	6 (t...	64.233.186.125:5222				5.8 kbps	5.4 kbps	11	10
4 (8...						0 bps	1856 bps	0	2
800 ...	2 (i...	192.168.0.1			48	0 bps	1440 bps	0	3
800 ...	2 (i...	192.168.0.1			48	0 bps	1440 bps	0	3
800 ...	17 ...	8.8.4.4:53 (dns)				648 bps	1176 bps	1	1
800 ...	17 ...	190.104.143.50:1701 (l2tp)				928 bps	976 bps	2	2
800 ...	47	179.60.254.46				496 bps	976 bps	1	2
800 ...	1 (i...	8.8.8.8				944 bps	944 bps	1	1
800 ...	6 (t...	190.0.22.98:51241				592 bps	624 bps	1	1
800 ...	6 (t...	190.0.22.98:51893				592 bps	624 bps	1	1
800 ...	17 ...	64.233.186.189:443 (htt...				528 bps	600 bps	1	1
800 ...	6 (t...	179.41.15.50:44292				1184 bps	592 bps	2	1

191 items Total Tx: 28.0 kbps Total Rx: 222.0 kbps Total Tx Packet: 50 Total Rx Packet: 152

Oct/30/2015 15:10:21	memory	system, info	changed snmp settings by admin
Oct/30/2015 15:27:05	memory	system, error, critical	login failure for user admin from 192.168.88.179 via winbox
Oct/30/2015 15:44:18	memory	system, info, account	user admin logged out from 192.168.10.4 via winbox
Oct/30/2015 15:47:11	memory	system, info, account	user admin logged in from 192.168.10.4 via winbox

¿Preguntas?[®]

MUCHAS GRACIAS!

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