



Configuración de CAPsMAN

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- Certificaciones Obtenidas: [MTCNA](#) – [MTCTCE](#) – [MTCWE](#) – [MTCUME](#) – [MTCRE](#) – [MTCIPv6E](#)



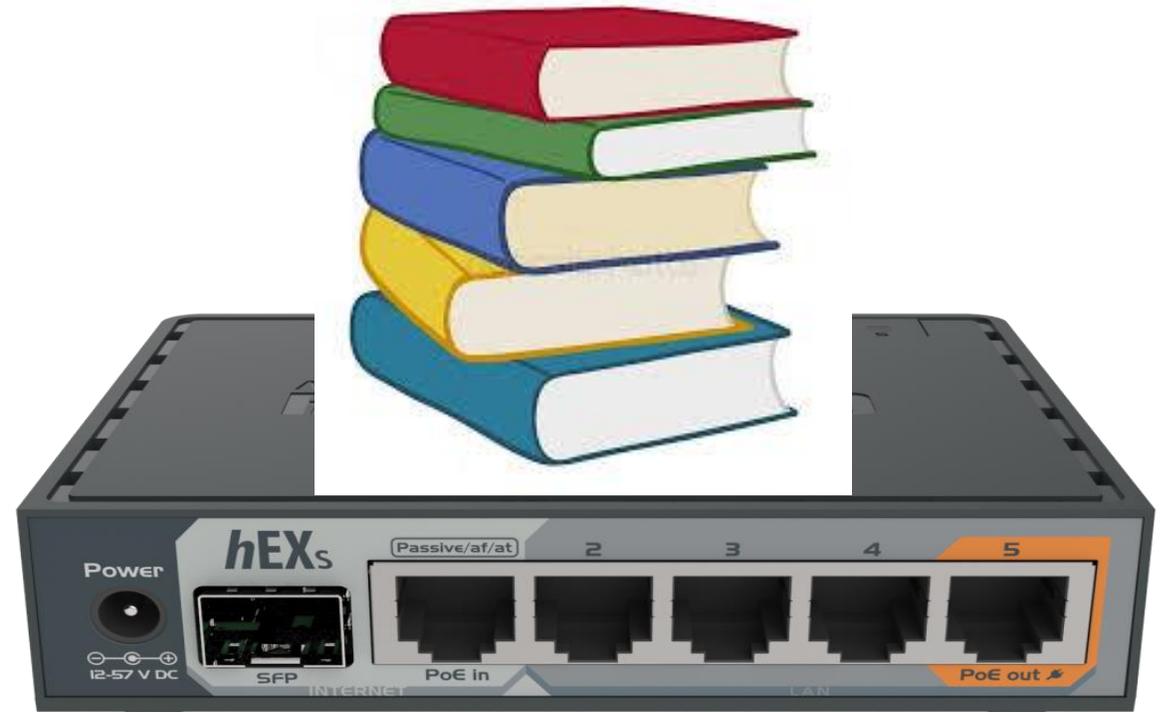
QUIENES SOMOS



Tacnatel Perú es una empresa de telecomunicaciones emergente, brindamos capacitación, soporte, distribución a nivel nacional, implementación de soluciones e integración de tecnologías en Perú.

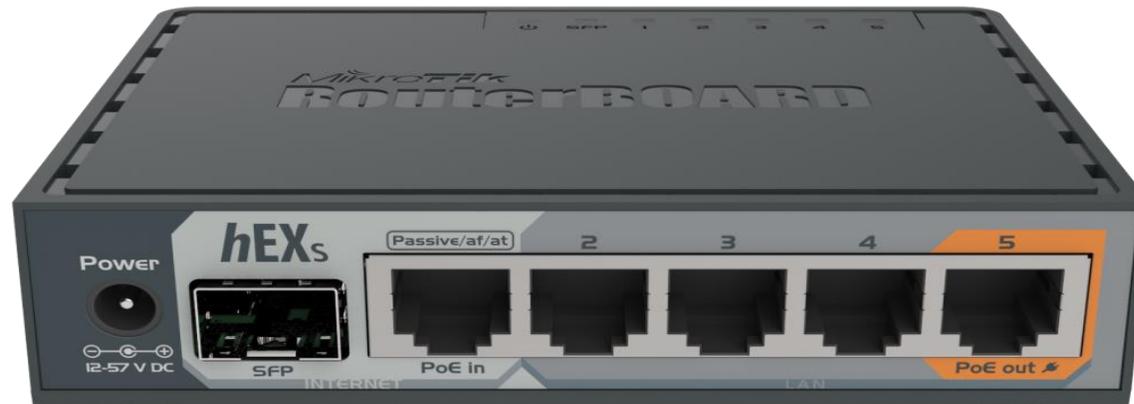
TEMARIO:

- ¿Qué es CAPsMAN y CAP?
- Evolución de CAPsMAN
- Configuración de CAPsMAN L2 y L3
- Certificados
- Configuraciones del CAP
 - Configuración Security
 - Configuración Datapath
 - Configuración Channel
- Aprovisionamiento Automático
- Lista de acceso centralizado
- Tabla de registro centralizada
- Set Identity
- Actualización automática de CAP



OBJETIVO:

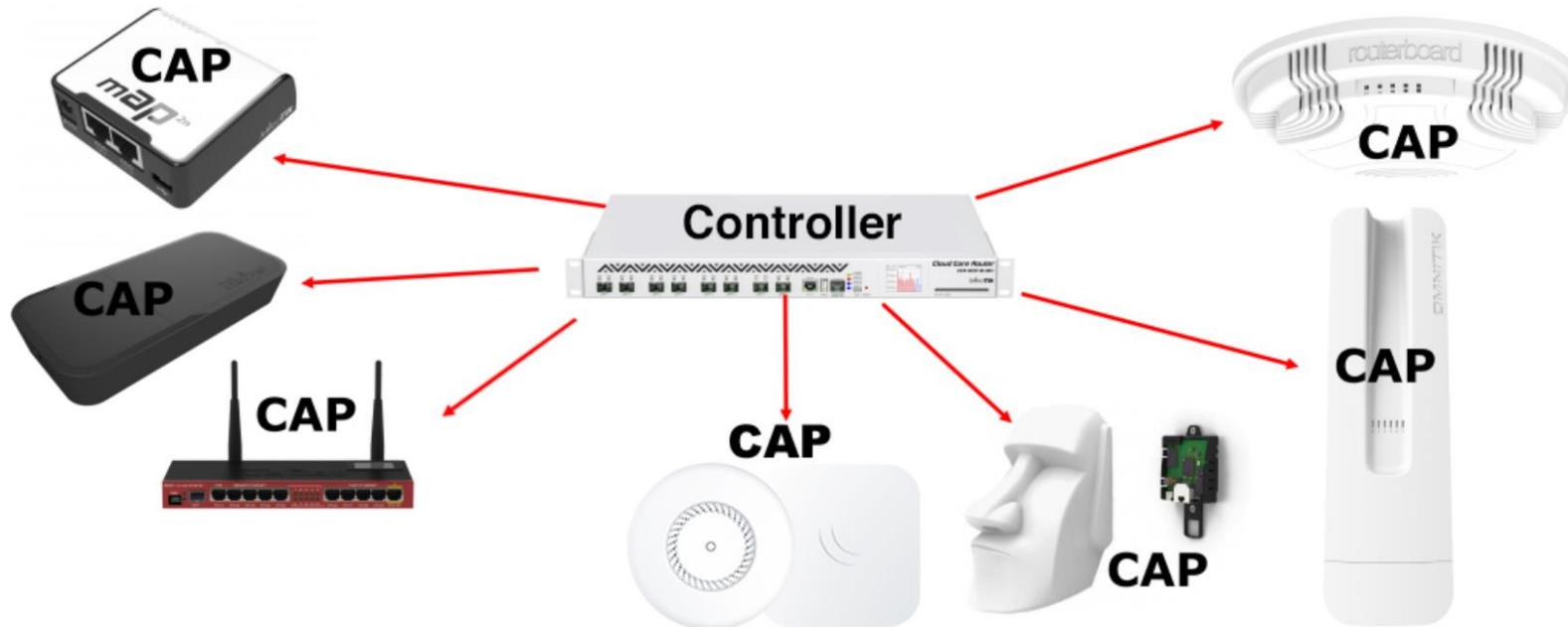
! Configuración del CAPsMAN y el CAPs !



¿ Qué es CAPsMAN ?

Es un potente software que te permite controlar y gestionar los dispositivos inalámbricos MikroTik desde una única ubicación sin ningún software adicional o costes de licencias adicionales.

“Administrador de sistema de punto de acceso controlado”



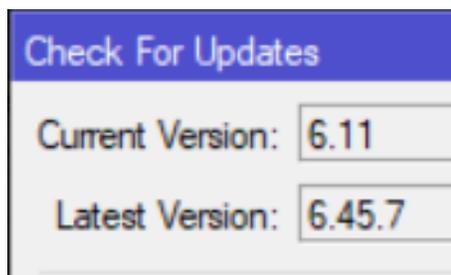
¿Qué es CAP?

Es un equipo MikroTik controlado por el CAPsMAN. El CAP puede ser cualquier equipo MikroTik, que tenga una tarjeta inalámbrica y RouterOS Lv4.



Evolución de CAPsMAN

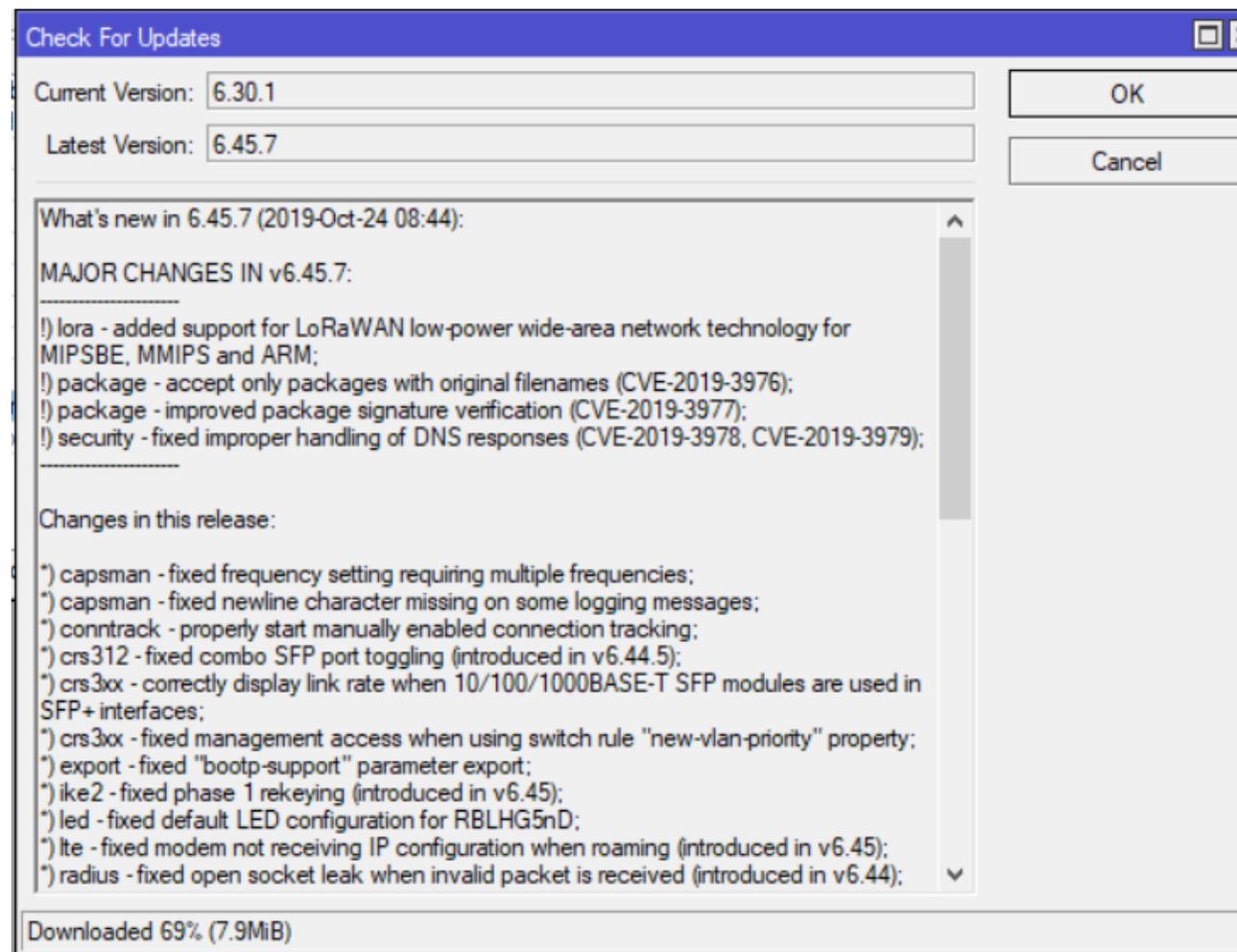
- ✓ No te compliques la vida
- ✓ Actualiza a la última versión



! EMPEZEMOS !

1. Actualiza el CAPsMAN
2. Actualiza los CAPs

¿Qué?



Evolución de CAPsMAN

- Solo habrá un paquete “ **wireless** ” RouterOS v6.37

wireless-fp
~~wireless-em2~~

admin@D4:CA:6D:92:54:32 (Tacnatel) - WinBox v6.37.2 on RB750 (mipsbe)

Session Settings Dashboard

Safe Mode Session: D4:CA:6D:92:54:32

Package List		CAPsMAN	
Name	Version	Interfaces	Provisioning
routeros-mipsbe	6.37.2	DSMB	↔ 2-ALAMACEN-1
advancedt...	6.37.2	DSB	↔ 2-ALAMAC...
dhcp	6.37.2	DSB	↔ 2-ALAMAC...
hotspot	6.37.2	DSMB	↔ 2-TIENDA-1
ipv6	6.37.2	DSB	↔ 2-TIENDA-...
mpls	6.37.2	DSB	↔ 2-TIENDA-...
ppp	6.37.2	DSMB	↔ 5-TIENDA-1
routing	6.37.2	DSB	↔ 5-TIENDA-...
security	6.37.2	DSB	↔ 5-TIENDA-...
system	6.37.2	DSB	↔ 5-TIENDA-...
wireless	6.37.2		

¿ Qué puedo hacer con CAPsMAN ?

Administrar y gestionar la red WI-FI de forma segura y centralizada.

- Manejo del tráfico de clientes
- Monitoreo de conexiones de clientes
- Autenticación y control de acceso de clientes
- Controla interfaces físicas y Aps virtuales
- Es capaz de gestionar AP de doble banda
- Gestión manual o automática de frecuencias
- Aprovisionamiento (configuración) de puntos de acceso
- Modo de reenvío de datos completo y local

¿ Qué seguridad ofrece CAPsMAN ?

- ✓ Conexión entre CAPsMAN y CAP es segura usando DTLS
- ✓ Conectividad en L2 o L3 entre CAPs y CAPsMAN
- ✓ Permite usar certificados para autenticar la conexión entre CAPs y CAPsMAN.
- ✓ CAPsMAN puede pedir actualizar la versión RouterOS del CAP.
- ✓ Lock to CAPsMAN
 - Fijación del CAP a un determinado CAPsMAN.
- ✓ Autenticación RADIUS MAC

Ventajas

- ✓ Bajo costo
- ✓ Fácil instalación
- ✓ Altamente escalable
- ✓ No se requiere licencia adicional
- ✓ Actualizaciones Automáticas

Ventajas

- ✓ Puede gestionar un número ilimitado de CAPs.
- ✓ Roaming de usuarios
- ✓ Cambios en tiempo real
- ✓ Puede atravesar NAT si es necesario
- ✓ Soporte de configuración personalizada

Desventajas

Si el CAP pierde la comunicación con su CAPsMAN, pierde la configuración de sus interfaces wireless.



Recomendaciones

- ✓ Mikrotik alojado en la nube – CHR
- ✓ Tener un sistema de contingencia aprueba de fallas
 - Crear copias de seguridad
 - Equipo de respaldo
 - Generar alertar por correo o sms
 - Etc.

¿Qué necesitamos para implementar CAPsMAN?

1. RouterOS superior a la versión 6.37
2. CAPsMAN no se requiere interfaces inalámbricas
 - RouterBoard
 - CHR
 - x86
3. CAP debe tener licencia de RouterOS Lv4
4. CAP debe tener 1 interfaz inalámbrica

Configuración en layer 2

- Configuración del **CAPsMAN**
 1. Haga click en **Enabled**

The screenshot shows the Mikrotik WinBox interface for configuring CAPsMAN. The top bar indicates the user is 'admin@D4:CA:6D:92:54:31 (Tacnatel)' on a WinBox v6.45.7 interface connected to an RB750. The main menu on the left includes options like Quick Set, CAPsMAN, Interfaces, Wireless, Bridge, PPP, Switch, Mesh, IP, MPLS, Routing, System, Queues, Files, Log, and RADIUS. The CAPsMAN configuration window is open, showing the 'CAPs Manager' tab. The 'Enabled' checkbox is checked and circled in red. Below it, there are fields for 'Certificate', 'CA Certificate', and 'Require Peer Certificate'. At the bottom, there are fields for 'Generated Certificate', 'Generated CA Certificate', 'Package Path', and 'Upgrade Policy' (set to 'none'). Buttons for 'OK', 'Cancel', 'Apply', and 'Interfaces' are visible on the right side of the configuration window.

Configuración en layer 2

- Configuración del **CAP**

1. Haga click en **Enabled**
2. Seleccione las interfaces Inalámbricas
3. Seleccione la interfaz de comunicación con el CAPsMAN

The screenshot shows the WinBox interface for configuring a CAP. The main window displays the 'Wireless Tables' section with a table of CAPs. A 'CAP' configuration dialog is open, showing the following settings:

- Enabled
- Interfaces: wlan1, wlan2
- Certificate: none
- Discovery Interfaces: ether1

The 'Enabled' checkbox and the 'Discovery Interfaces' field are highlighted with red boxes. The 'Interfaces' field is also highlighted with a red box. The 'CAP' configuration dialog is also highlighted with a red box.

Configuración en layer 3

- Configuración del **CAPsMAN**

- Haga click en **Enabled**
- Asignar un IP 192.168.35.1/24
- Crear un DHCP Server

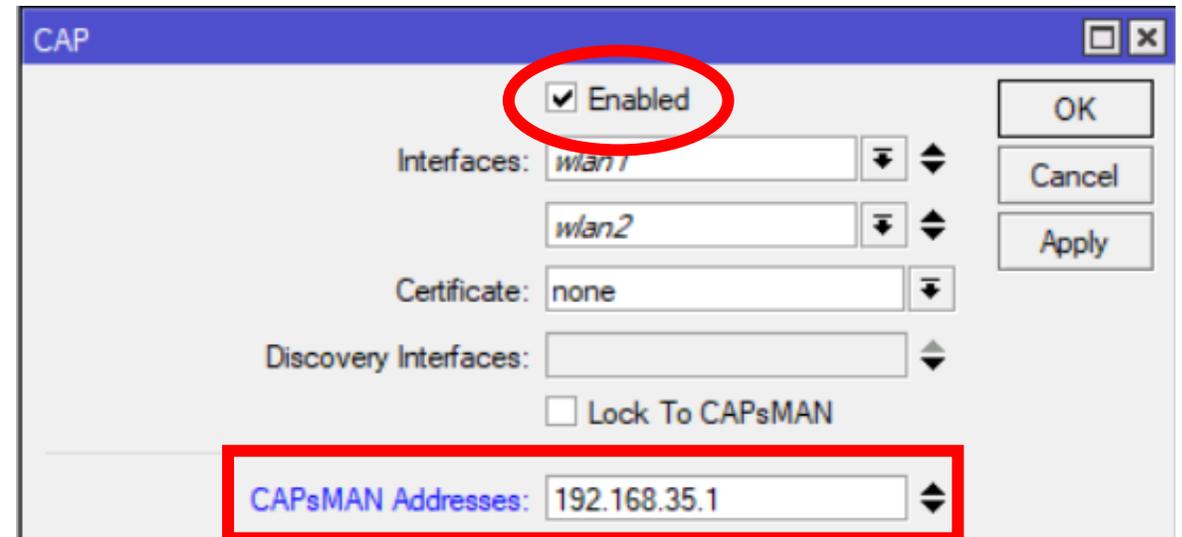
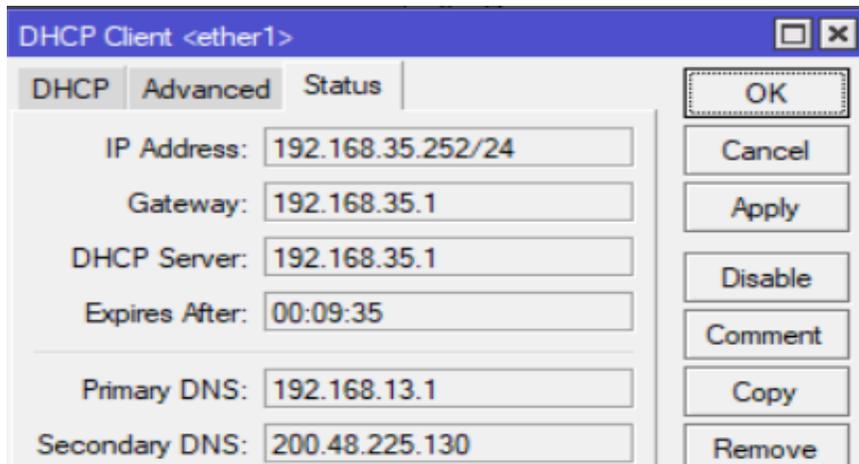
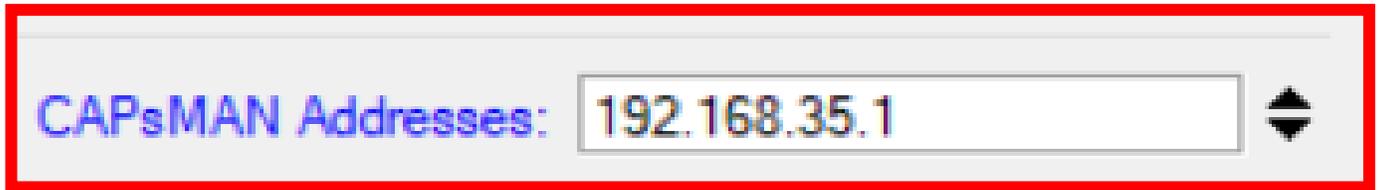
The image shows a screenshot of the Mikrotik WinBox interface. The main window is titled "CAPs Manager" and has a blue header. Below the header, there is a checkbox labeled "Enabled" which is checked and circled in red. Below this, there are fields for "Certificate:" and "CA Certificate:". Overlaid on the right side of the CAPs Manager window is the "Address List" dialog box. It contains a table with columns "Address", "Network", and "Interface". The table has two rows: one for "192.168.13.18/26" on "ether1" and another for "192.168.35.1/24" on "ether5". The second row is selected. Below the table is the "Address <192.168.35.1/24>" dialog box, which has fields for "Address:" (192.168.35.1/24), "Network:" (192.168.35.0), and "Interface:" (ether5). The "Address:" field is circled in red. Below this is the "DHCP Setup" dialog box, which has a dropdown menu for "DHCP Server Interface:" set to "ether5", also circled in red. The "DHCP Setup" dialog has "Back", "Next", and "Cancel" buttons.

Address	Network	Interface
192.168.13.18/26	192.168.13.0	ether1
192.168.35.1/24	192.168.35.0	ether5

Configuración en layer 3

- Configuración del **CAP**

1. Haga click en **Enabled**
2. Seleccione las interfaces Inalámbricas
3. Ingrese la dirección IP del CAPsMAN
4. Crear un DHCP-Client



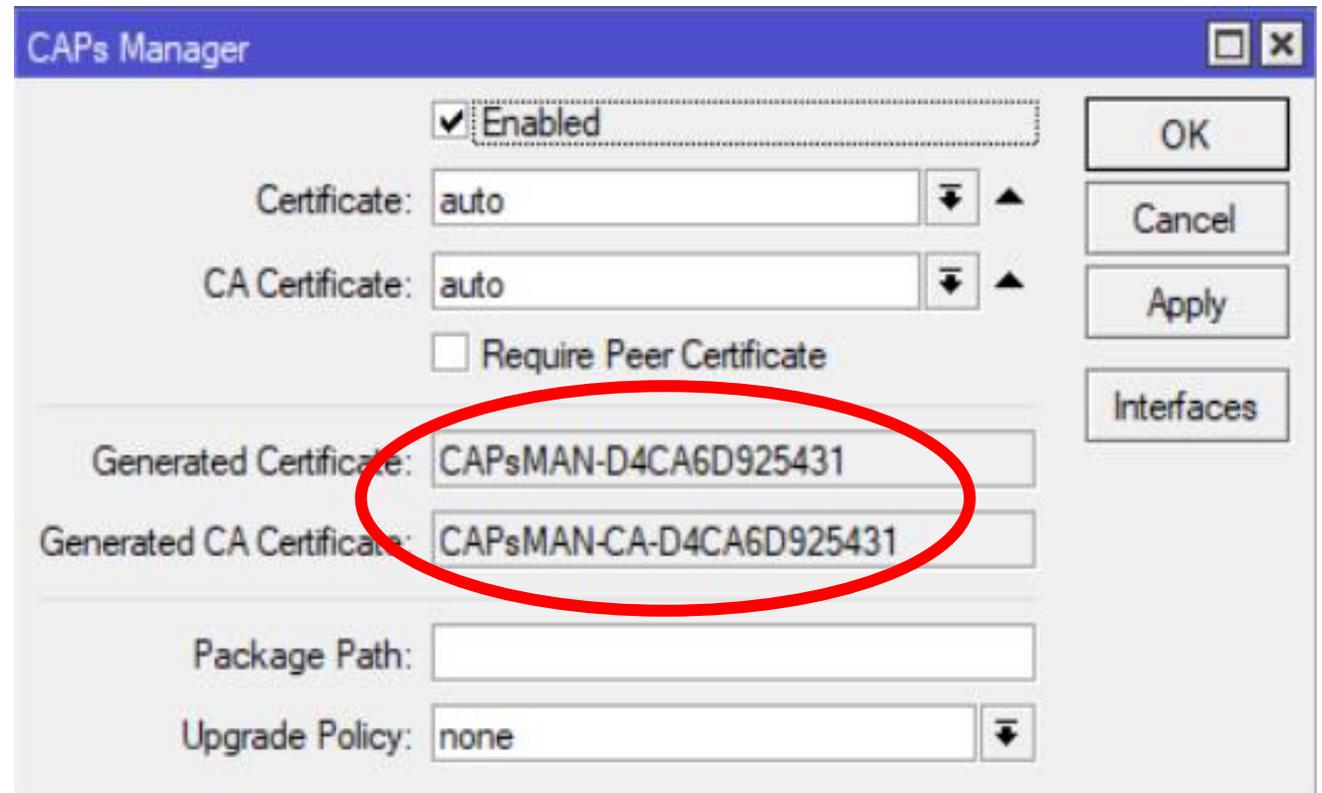
Certificado del CAPsMAN

- Configuración del **CAPsMAN**
 1. **auto** Certificate
 2. **auto** CA Certificate



Certificate: auto

CA Certificate: auto



CAPs Manager

Enabled

Certificate: auto

CA Certificate: auto

Require Peer Certificate

Generated Certificate: CAPsMAN-D4CA6D925431

Generated CA Certificate: CAPsMAN-CA-D4CA6D925431

Package Path:

Upgrade Policy: none

OK

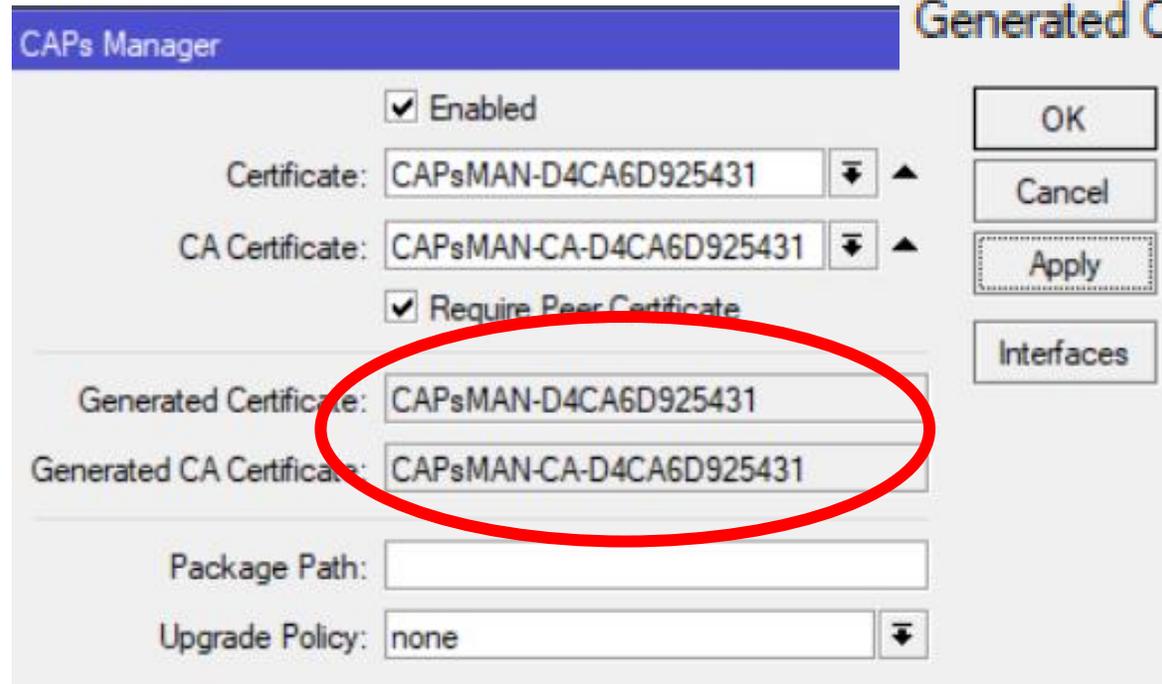
Cancel

Apply

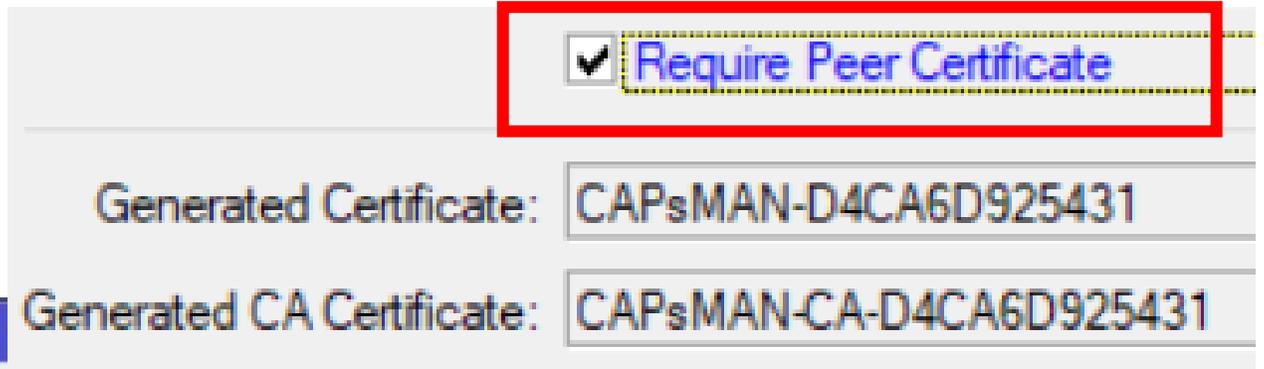
Interfaces

Certificado del CAPsMAN

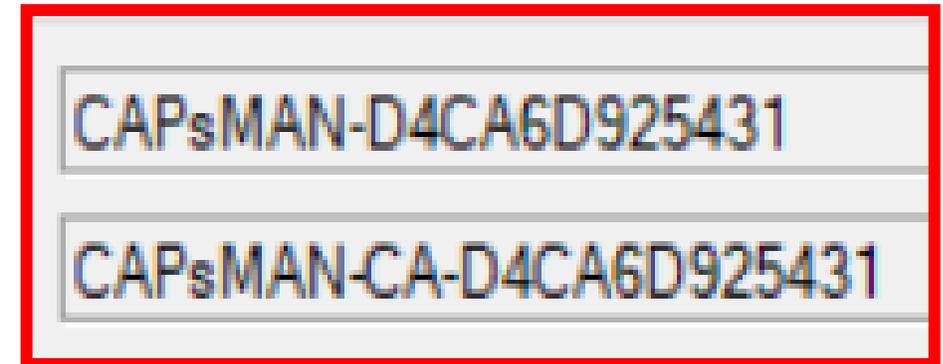
- Configuración del **CAPsMAN**
 1. Acepte conexiones solo de CAP con certificado válido



The screenshot shows the CAPs Manager configuration window. The 'Enabled' checkbox is checked. The 'Certificate' field is set to 'CAPsMAN-D4CA6D925431' and the 'CA Certificate' field is set to 'CAPsMAN-CA-D4CA6D925431'. The 'Require Peer Certificate' checkbox is also checked. The 'Generated Certificate' and 'Generated CA Certificate' fields are both set to their respective values. The 'Package Path' field is empty and the 'Upgrade Policy' is set to 'none'. A red oval highlights the 'Generated Certificate' and 'Generated CA Certificate' fields.



This close-up view shows the 'Require Peer Certificate' checkbox checked. Below it, the 'Generated Certificate' field contains 'CAPsMAN-D4CA6D925431' and the 'Generated CA Certificate' field contains 'CAPsMAN-CA-D4CA6D925431'.



This close-up view shows the 'Generated Certificate' and 'Generated CA Certificate' fields. The 'Generated Certificate' field contains 'CAPsMAN-D4CA6D925431' and the 'Generated CA Certificate' field contains 'CAPsMAN-CA-D4CA6D925431'. Both fields are highlighted with a red border.

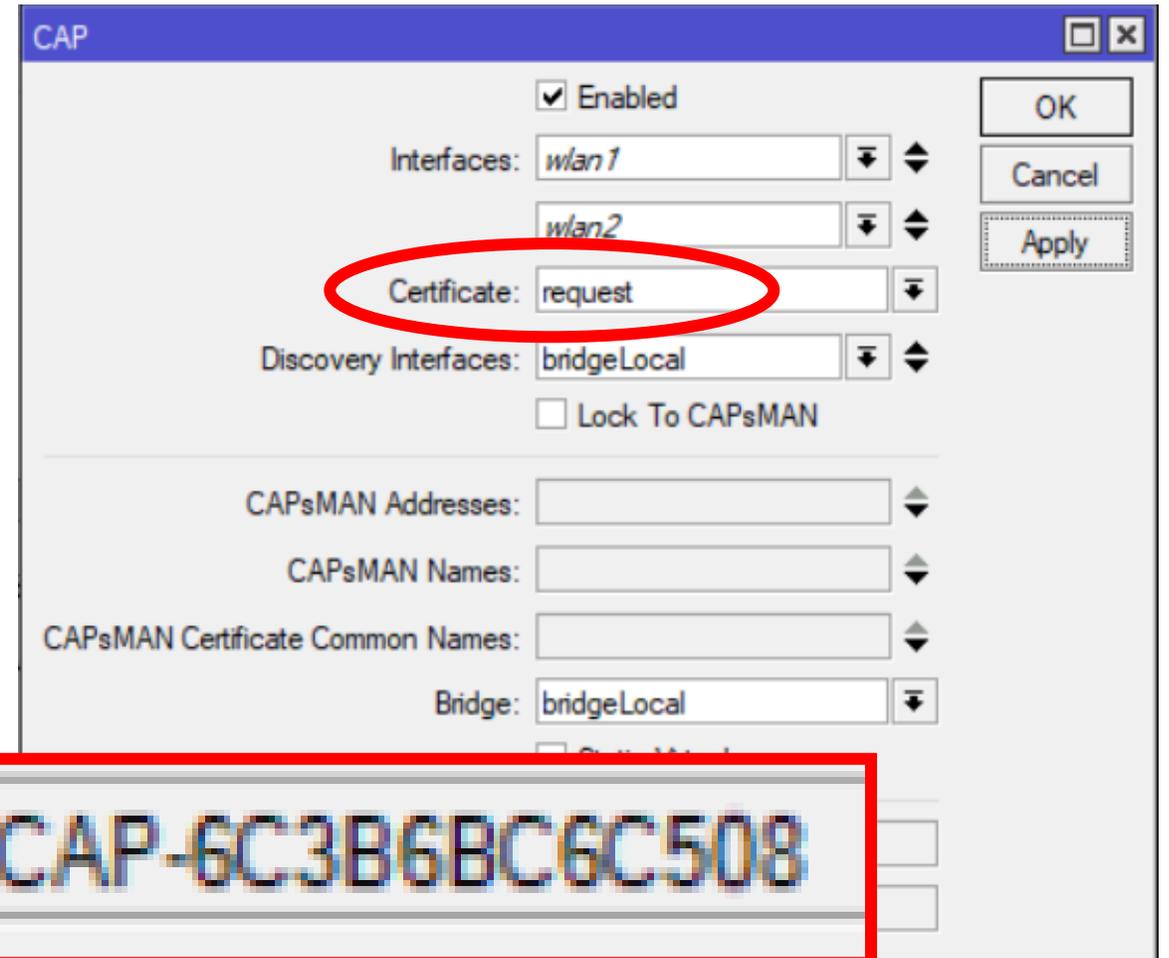
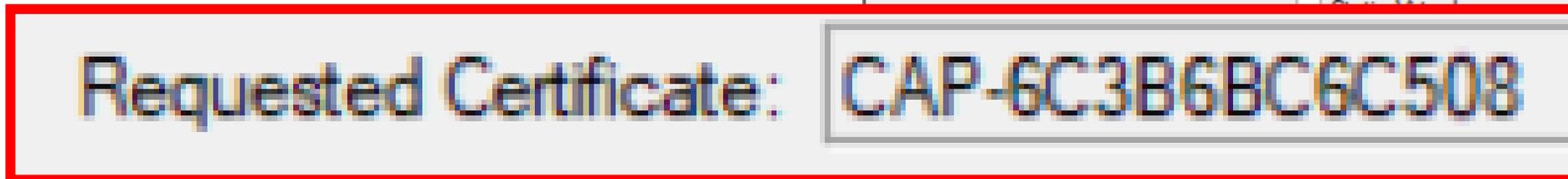
Certificados del CAP

- Configuración del **CAP**

1. Seleccionar “Request” Certificate



Certificado válido



¿Cómo instalar un CHR?

- Registrarse en:
 - cloud.digitalocean.com
- Descargar la Imagen VMDK
 - <https://download.mikrotik.com/routers/6.45.7/chr-6.45.7.vmdk>

Eliseo@206.81.11.199 (Tacnatel) - WinBox v6.45.7 on CHR (x86_64)

Session Settings Dashboard

Safe Mode Session: MUM BOLIVIA Time: 10:15:32 Memory: 902.9 MiB CPU: 0%

Quick Set CAPsMAN Interfaces Wireless Bridge PPP

CAPsMAN

Channels Datapaths Security Cfg. Access List Rates Remote CAP Radio Registration Table ...

Provision Upgrade Set Identity Find

Address	Name	Board	Serial	Version	Identity	Base MAC
10.10.10.2	[6C:3B:6B:C6...	RB952Ui-5ac...	71B206FD82...	6.45.7	VISITAS	6C:3B:6B:C6:C5:0
179.6.42.103	[74:4D:28:72:...	RBcAPL-2nD	A6080A48208B	6.45.7	C1_ALMACEN	74:4D:28:72:E2:9
179.6.42.103	[B8:69:F4:F7:...	RB931-2nD	94A2097F15C6	6.43.14	VENTAS	B8:69:F4:F7:37:0

Configuración CAP en layer 3

CAPsMAN Addresses: 206.81.11.199

Session: MUM BOLIVIA Time: 10:19:12 Memory: 8.2 MiB CPU: 2%

Wireless Tables

WiFi Interfaces W60G Station

Name	Type
--- managed by CAPsMAN	
--- channel: 2462/20/gn(8dBm)	
R wlan1	Wirel
--- managed by CAPsMAN	
--- SSID: Tacnatel, CAPsMAN	
DX wlan18	Virtua

CAP

Enabled

Interfaces: wlan1

Certificate: none

Discovery Interfaces:

Lock To CAPsMAN

CAPsMAN Address: 206.81.11.199

OK
Cancel
Apply

Configuración CAP con L2TP/IPsec

L2TP Server

Enabled

Max MTU: 1450

Max MRU: 1450

MRRU:

Keepalive Timeout: 30

Default Profile: default-encryption

Max Sessions:

Authentication: mschap2 mschap1
 chap pap

Use IPsec: yes

IPsec Secret: Tacnatel

OK
Cancel
Apply

Use IPsec: yes

IPsec Secret: Tacnatel

CAPsMAN Addresses: 10.10.10.1

Session: MUM BOLIVIA Time: 10:21:48 Memory: 35.9 MiB CPU: 5%

Wireless Tables

WiFi Interfaces W60G Station

	Name	Type
R	wlan1	Wireless
RS	wlan3	Virtual
--- managed by CAPsMAN		
--- channel: 5180/20-Ceee/ac(
X	wlan2	Wireless

CAP

Enabled

Interfaces: wlan2

Certificate: none

Discovery Interfaces:

Lock To CAPsMAN

CAPsMAN Addresses: 10.10.10.1

CAPsMAN Names:

OK
Cancel
Apply

Configuración CAP con EoIP/IPsec

The image displays two screenshots of a network configuration interface for EoIP/IPsec tunnels. Both screenshots are for a session named "MUM BOLIVIA" and show the configuration for an interface named "eoiptunnel1".

Left Screenshot:

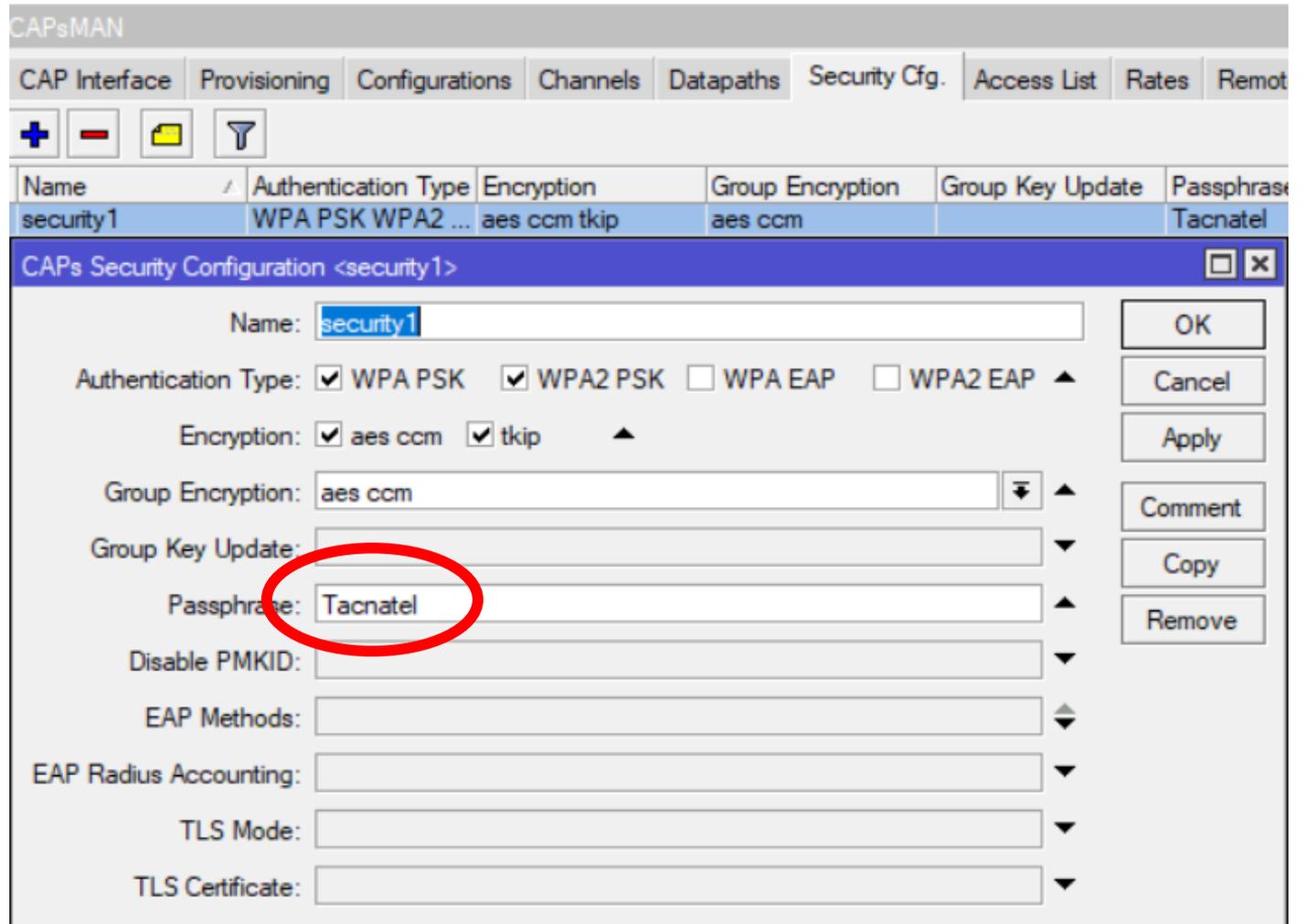
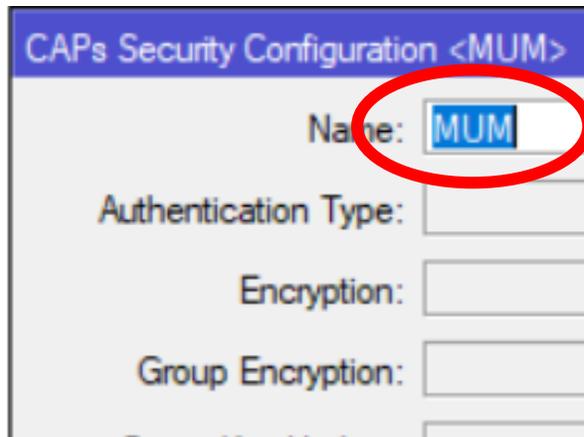
- Interface: <eoiptunnel1>
- Name: eoiptunnel1
- Type: EoIP Tunnel
- MTU: [empty]
- Actual MTU: 1408
- L2 MTU: 65535
- MAC Address: 02:01:93:B3:4E:A6
- ARP: enabled
- ARP Timeout: [empty]
- Local Address: 10.10.10.1
- Remote Address: 10.10.10.2
- Tunnel ID: 2019
- IPsec Secret: Tacnatel

Right Screenshot:

- Interface: <eoiptunnel1>
- Name: eoiptunnel1
- Type: EoIP Tunnel
- MTU: [empty]
- Actual MTU: 1408
- L2 MTU: 65535
- MAC Address: 02:D7:89:86:6E:4A
- ARP: enabled
- ARP Timeout: [empty]
- Local Address: 10.10.10.2
- Remote Address: 10.10.10.1
- Tunnel ID: 2019
- IPsec Secret: Tacnatel

Configuración Security

El dispositivo CAP ahora solo tiene que proporcionar el cifrado y descifrado de la capa de enlace inalámbrico.



Datapath

La configuración de la ruta de datos controla los aspectos relacionados con el reenvío de datos.

- ✓ **Modo de reenvío local:** CAP reenvía datos localmente hacia y desde la interfaz inalámbrica. CAPsMAN solo controlará la configuración de la interfaz y el proceso de asociación del cliente.
- ✓ **Modo de reenvío de administrador:** CAP envía todos los datos recibidos por vía inalámbrica a CAPsMAN y solo envía por vía inalámbrica los datos recibidos de CAPsMAN. Incluido el reenvío de cliente a cliente.

Configuración Datapath

CAPsMAN

CAP Interface | Provisioning | Configurations | Channels | Datapaths | Security Cfg. | Access List | Rates | Remote

Local Forwarding:

Name	Bridge	Local For...	Client To ...
datapath1	bridge1		

Bridge

Bridge | Ports | VLANs | MSTIs | Port MST Overrid

#	Interface	Bridge
0	DI 2-CAP-Tacnatel-1	bridge1
1	DI 2-TIENDA-1	bridge1
2	DI 2-TIENDA-1-1	bridge1
3	DI 2-CAP-Tacnatel-1-1	bridge1
4	DI 2-CAP-Tacnatel-1-2	bridge1
5	DI 2-TIENDA-1-2	bridge1

CAPs Datapath Configuration <datapath1>

Name: datapath1

MTU:

L2 MTU:

ARP:

Bridge: bridge1

Bridge Cost:

Bridge Horizon:

Local Forwarding:

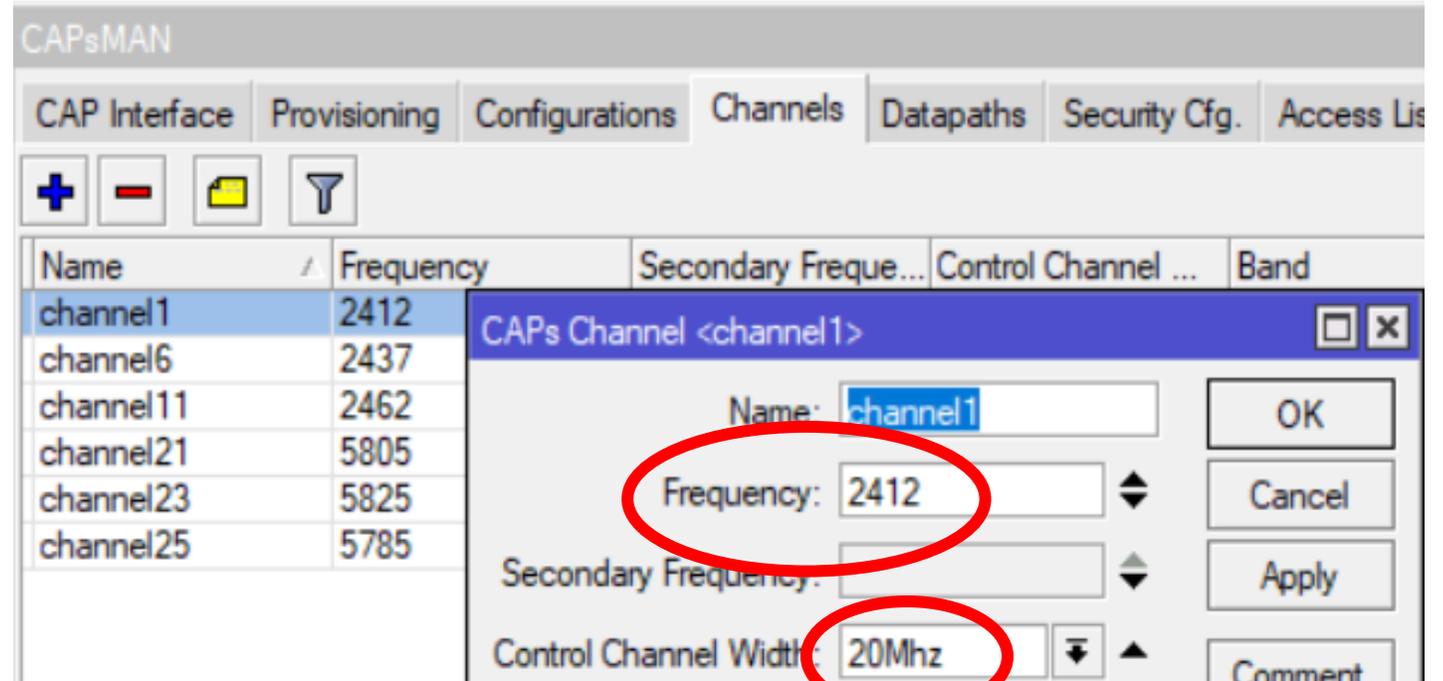
Client Forwarding:

Name	Bridge	Local Forwarding
Data_Tacnatel	B_Tacnatel	no
Data_MUM	B_MUM	yes

Configuración Channel

La configuración del grupo de canales permite la configuración de listas de configuraciones relacionadas:

- ✓ canal de radio
- ✓ banda de radio
- ✓ Frecuencia
- ✓ Tx Power y etc.



Name	Frequency	Secondary Freque...	Control Channel ...	Band
Canal1	2412		20Mhz	2ghz-b/g/n
Canal6	2437		20Mhz	2ghz-b/g/n
Canal11	2462		20Mhz	2ghz-b/g/n
Canal149	5745		20Mhz	5ghz-a/n/ac
Canal157	5785		20Mhz	5ghz-a/n/ac

Configuraciones del CAP

CAPsMAN

CAP Interface Provisioning Configurations Channels Datapaths Security Cfg. Access List Rates Remote CAP Radio Registration Table

+ - [Folder Icon] [Filter Icon]

Name	SSID	Hide SSID	Load Bal.	Country	Install	Channel	Frequency	Secondary Freq.	Band
cfg1	Tacnatel 1								
cfg6	Tacnatel 6								
cfg11	Tacnatel 11								
cfg21	Tacnatel 21								
cfg23	Tacnatel 23								
cfg25	Tacnatel 25								

CAPs Configuration <cfg1>

Wireless Channel Rates Datapath Security

Name:

Mode: [Dropdown] [Up/Down]

SSID:

Hide SSID:

OK Cancel Apply Comment Copy

CAPs Configuration <cfg1>

Wireless Channel Rates Datapath Security

Channel:

CAPs Configuration <cfg1>

Wireless Channel Rates Datapath Security

Datapath:

CAPs Configuration <cfg1>

Wireless Channel Rates Datapath Security

Security:

OK Cancel

Configuraciones del CAP

CAPsMAN

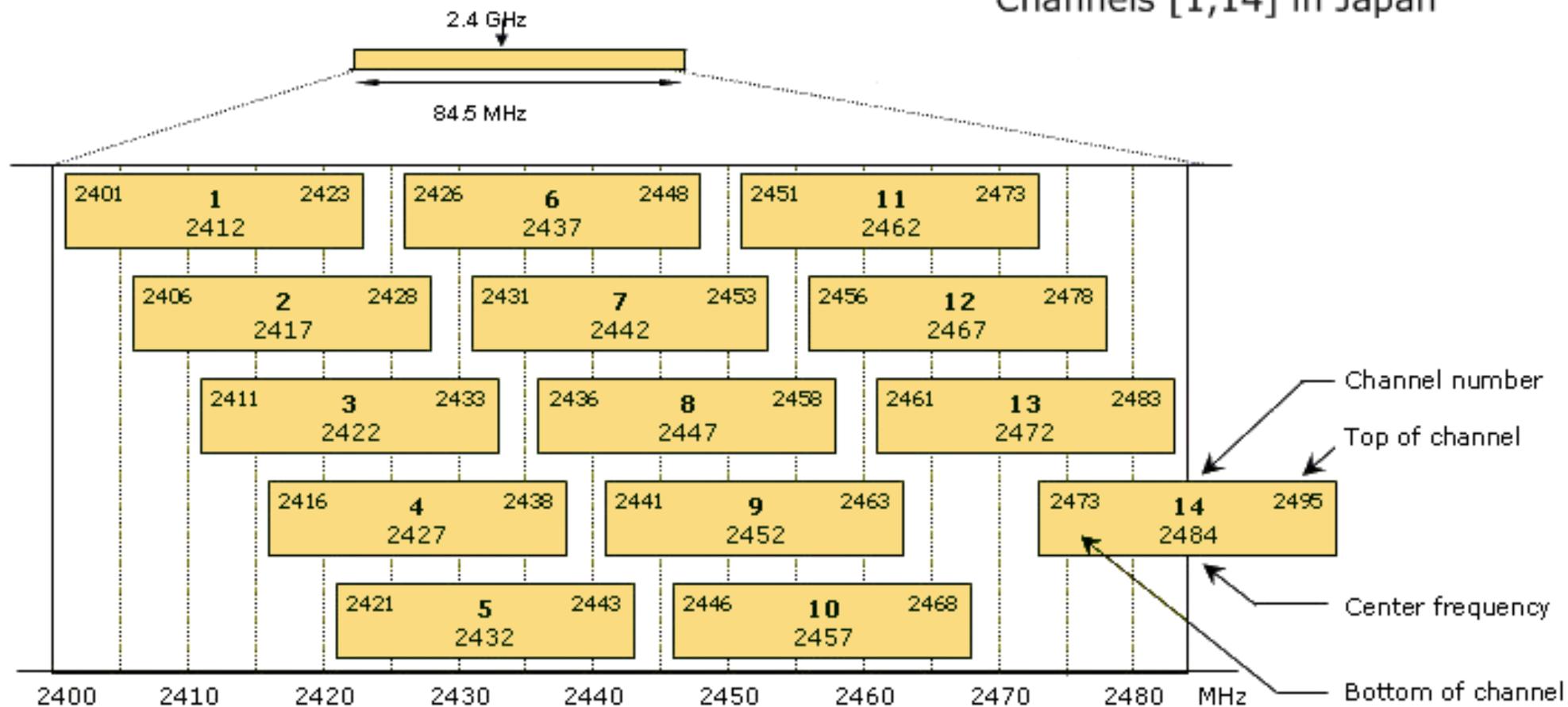
CAP Interface Provisioning Configurations Channels Datapaths Security Cfg. Access List Rates Remote CAP Radio

+ - [] []

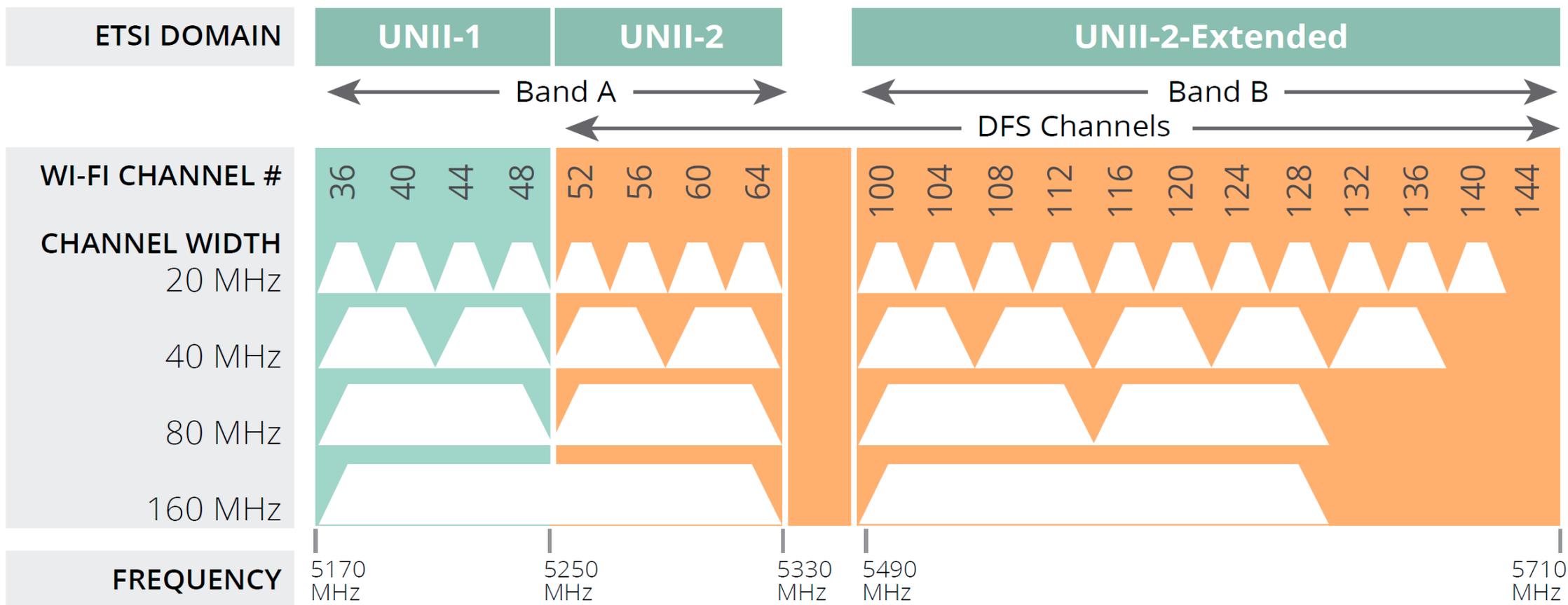
Name	SSID	Country	Install...	Channel	Datapath	Bridge	Security
Intemet21	MUM-Bolivia	bolivia		Canal1	Data_MUM	B_MUM	MUM
Intemet26	MUM-Bolivia	bolivia		Canal6	Data_MUM	B_MUM	MUM
Intemet211	MUM-Bolivia	bolivia		Canal11	Data_MUM	B_MUM	MUM
Intemet5149	MUM-Bolivia	bolivia		Canal149	Data_MUM	B_MUM	MUM
Intemet5157	MUM-Bolivia	bolivia		Canal157	Data_MUM	B_MUM	MUM
Intranet21	Tacnatel	bolivia		Canal1	Data_Tacnatel	B_Tacnatel	Tacnatel
Intranet26	Tacnatel	bolivia		Canal6	Data_Tacnatel	B_Tacnatel	Tacnatel
Intranet211	Tacnatel	bolivia		Canal11	Data_Tacnatel	B_Tacnatel	Tacnatel
Intranet5149	Tacnatel	bolivia		Canal149	Data_Tacnatel	B_Tacnatel	Tacnatel
Intranet5157	Tacnatel	bolivia		Canal157	Data_Tacnatel	B_Tacnatel	Tacnatel

Solapamiento de Canales 2.4Ghz

2.4 GHz ISM Band: Channels [1,11] in North America; Channels [1,13] in Europe
Channels [1,14] in Japan



Solapamiento de Canales 5Ghz



Aprovisionamiento Automático

Si se encuentra la interfaz apropiada:
la radio se configura usando la
configuración de interfaz maestra y
esclava.

- Protocolo
- Identity
- IP Address

También podemos dar formato a los
CAPs

The screenshot shows the CAPsMAN provisioning interface. At the top, there are tabs for 'CAP Interface', 'Provisioning', 'Configurations', 'Channels', 'Datapaths', and 'Sec'. Below the tabs is a toolbar with icons for adding, removing, checking, unchecking, saving, and filtering. A table lists two radio entries with columns for '#', 'Radio MAC', 'Identity Regexp', 'Common Nam...', and 'Action'. Below the table is a dialog box titled 'CAPs Provisioning <00:00:00:00:00:00>'. The dialog contains several fields: 'Radio MAC' (00:00:00:00:00:00), 'Hw. Supported Modes' (an), 'Identity Regexp', 'Common Name Regexp', 'IP Address Ranges', 'Action' (create dynamic enabled), 'Master Configuration' (cfg21), 'Slave Configuration' (cfg23, cfg25), 'Name Format' (prefix identity), and 'Name Prefix' (5). The 'Master Configuration' field is circled in red. The 'Hw. Supported Modes', 'Identity Regexp', 'IP Address Ranges', 'Name Format', and 'Name Prefix' fields are also highlighted with red boxes. The dialog has buttons for 'OK', 'Cancel', 'Apply', 'Disable', 'Comment', 'Copy', and 'Remove'. The status 'enabled' is shown at the bottom left of the dialog.

Aprovisionamiento Automático

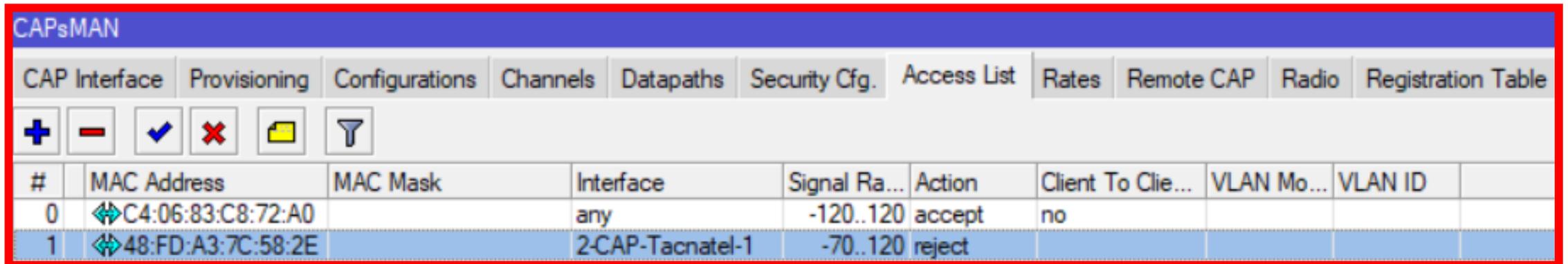
The image displays three screenshots of the 'CAPs Provisioning' configuration window, illustrating different settings for automatic provisioning. Red circles and rectangles highlight specific fields in each screenshot.

- Left Screenshot:** Shows 'Identity Regexp' set to 'C1', 'Action' set to 'create dynamic enabled', 'Master Configuration' set to 'Internet21', 'Slave Configuration' set to 'Intranet21', 'Name Format' set to 'identity', and 'Name Prefix' set to 'C1_'. The 'Hw. Supported Modes' field is empty.
- Middle Screenshot:** Shows 'Identity Regexp' set to 'MikroTik', 'Action' set to 'create dynamic enabled', 'Master Configuration' set to 'Internet26', 'Slave Configuration' set to 'Intranet26', 'Name Format' set to 'prefix identity', and 'Name Prefix' set to 'C6'. The 'Hw. Supported Modes' is set to 'gn'.
- Right Screenshot:** Shows 'Hw. Supported Modes' set to 'an', 'IP Address Ranges' set to '10.10.10.0/29', 'Action' set to 'create dynamic enabled', 'Master Configuration' set to 'Internet5149', 'Slave Configuration' set to 'Intranet5149', 'Name Format' set to 'prefix identity', and 'Name Prefix' set to 'C149'. The 'Identity Regexp' field is empty.

Buttons on the right side of the rightmost window include OK, Cancel, Apply, Disable, Comment, Copy, and Remove.

Access List

- Se utiliza para permitir / denegar a los clientes conectarse a cualquier CAP bajo el control de CAPsMAN.
- Cuando el cliente intenta conectarse a un CAP, este reenvía esa solicitud a CAPsMAN y consulta la lista de acceso para determinar si se debe permitir que el cliente se conecte.



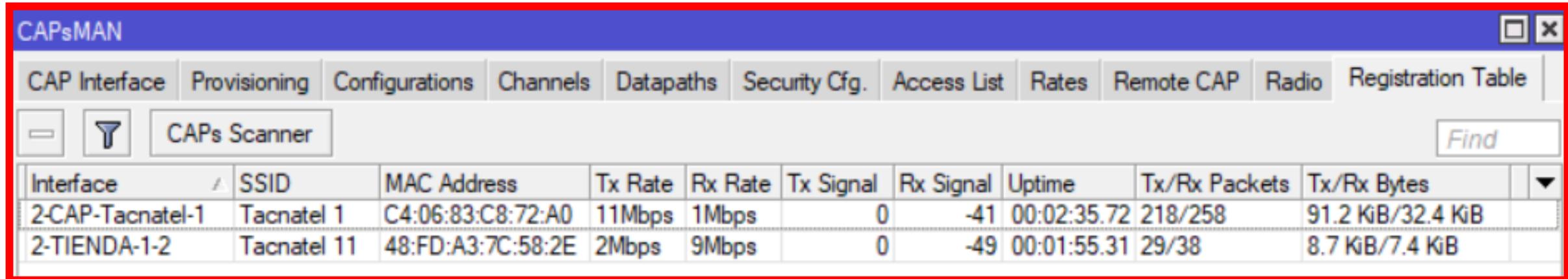
The screenshot shows the CAPsMAN configuration interface. At the top, there is a blue header with the text 'CAPsMAN'. Below the header is a navigation bar with several tabs: 'CAP Interface', 'Provisioning', 'Configurations', 'Channels', 'Datapaths', 'Security Cfg.', 'Access List', 'Rates', 'Remote CAP', 'Radio', and 'Registration Table'. The 'Access List' tab is currently selected. Below the navigation bar is a toolbar with icons for adding (+), deleting (-), saving (checkmark), deleting (X), a folder icon, and a filter icon. Below the toolbar is a table with the following columns: '#', 'MAC Address', 'MAC Mask', 'Interface', 'Signal Ra...', 'Action', 'Client To Clie...', 'VLAN Mo...', and 'VLAN ID'. The table contains two rows of data.

#	MAC Address	MAC Mask	Interface	Signal Ra...	Action	Client To Clie...	VLAN Mo...	VLAN ID
0	↔ C4:06:83:C8:72:A0		any	-120..120	accept	no		
1	↔ 48:FD:A3:7C:58:2E		2-CAP-Tacnatel-1	-70..120	reject			

Registration Table

- La tabla de registro contiene una lista de clientes que están conectados a radios controlados por CAPsMAN.

/caps-man registration-table



Interface	SSID	MAC Address	Tx Rate	Rx Rate	Tx Signal	Rx Signal	Uptime	Tx/Rx Packets	Tx/Rx Bytes
2-CAP-Tacnatel-1	Tacnatel 1	C4:06:83:C8:72:A0	11Mbps	1Mbps	0	-41	00:02:35.72	218/258	91.2 KiB/32.4 KiB
2-TIENDA-1-2	Tacnatel 11	48:FD:A3:7C:58:2E	2Mbps	9Mbps	0	-49	00:01:55.31	29/38	8.7 KiB/7.4 KiB

Set Identity

- Proporciona un nombre de identificación único para cuando el CAP se identifica con otros CAPs de la red.

The screenshot displays the CAPsMAN web interface. A 'Set Identity' dialog box is open, showing the 'Remote AP' field with the MAC address '6C:3B:6B:C6:C5:08' and the 'Identity' field with the name 'MUM-BOLIVIA'. The 'Set Identity' button in the dialog is highlighted with a red circle. In the background, the 'Wireless Tables' section is visible, showing a list of wireless interfaces. The MAC address '6C:3B:6B:C6:C5:08' is circled in red at the top of the interface. The 'Set Identity' button in the main interface is also circled in red.

Address	Name	Board	Serial	Version	Identity
6C:3B:6B:C6:C5:08	[6C:3B:6B:C6...	RB952Ui-5ac...	71B206FD82...	6.45.7	CAP-Tacnatel

Name	Type
wlan1	Wireless (Atheros AR9...
wlan2	Wireless (Atheros AR9...
wlan3	Virtual
wlan4	Virtual
wlan5	Virtual
wlan6	Virtual

Name	Version
routeros-mipsbe	6.45.7
advanced-tools	6.45.7
dhcp	6.45.7
hotspot	6.45.7
ipv6	6.45.7
mpls	6.45.7
ppp	6.45.7
routing	6.45.7
security	6.45.7
system	6.45.7
wireless	6.45.7

Upgrade

La función de actualización automática se conecta a los servidores de descarga de Mikrotik y comprueba si hay una nueva versión de RouterOS para su dispositivo.

The screenshot shows the CAPsMAN interface with the 'Upgrade' button highlighted in red in the main menu. Below the main menu, a 'File List' window is open, showing a file named 'routeros-mipsbe-6.45.7.npk' highlighted in red. The 'CAPs Remote AP' configuration dialog is also open, with the 'Upgrade' button highlighted in red.

Address	Name	Board	Serial	Version	Identity	Base MAC
6C:3B:6B:C6:C5:08	[6C:3B:6B:C6...	RB952Ui-5ac...	71B206FD82...	6.45.7	MUM-BOLIVIA	6C:3B:6B:C6:C5:08

CAPs Remote AP <[6C:3B:6B:C6:C5:08]>

Address:	6C:3B:6B:C6:C5:08	OK
Port:	27949	Remove
Name:	[6C:3B:6B:C6:C5:08]	Provision
Board:	RB952Ui-5ac2nD	Upgrade
Serial:	71B206FD82D3	Set Identity
Version:	6.45.7	
Identity:	MUM-BOLIVIA	
Base MAC:	6C:3B:6B:C6:C5:08	
State:	Run	
Radios:	2	

Aprovisionamiento Automático

1. Aprovisionar equipos MikroTik con Identity=C1* en canal 1 de 2.4Ghz
2. Aprovisionar equipos MikroTik Nuevos al canal 6 de 2.4Ghz
3. Aprovisionar cualquier equipo MikroTik al canal 11 de 2.4Ghz
4. Aprovisionar equipos MikroTik con IP Address=10.10.10.0/29 en Canal 149 de 5Ghz
5. Aprovisionar cualquier equipo MikroTik al Canal 157 de 5Ghz



Gracias...



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