

CAPsMAN Quick Setup Guide, Latest version new features , How to maintain a failover controller(CAPsMAN)



Georgios Argyrides

MUM Middle East - Dubai

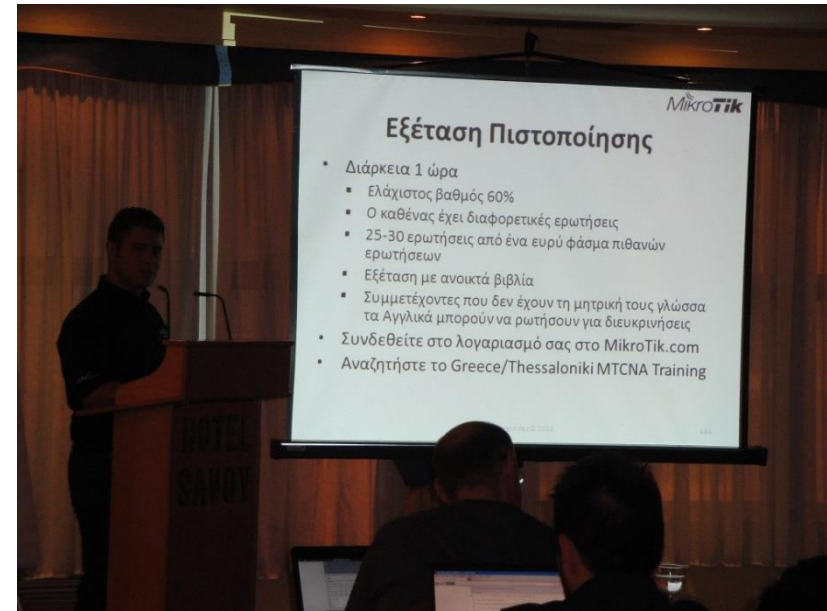
17th October 2016

About Me

My Name:

Georgios Argyrides

➤ You can call me “George”
(its easier)



About Me

- Born in Cyprus
(Europe, Near Greece)
 - Can Speak English & Greek

Experience:

- Computer Technician
 - Satellite TV & Aerial Engineer
 - VoIP Consultant / Voice Engineer
 - Systems / Network Administrator
 - Server Infrastructure Engineer
 - Internet Security Consultant
 - ISP / WISP Consultant
- 1st MikroTik Certified Consultant in Greece since 2011
 - 1st MikroTik Certified Trainer in Greece since 2012



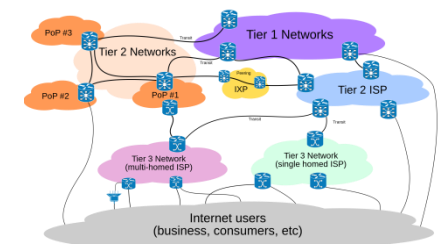
About Me

Education: Academic & Professional Qualifications

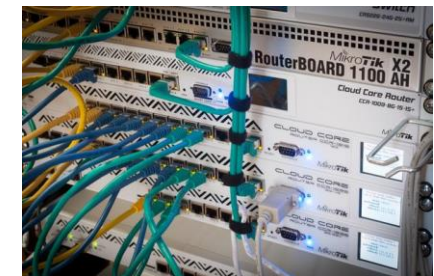
- BSc (Hon) Applied Computing (UK)
- All MikroTik Certificates
 - MTCNA,MTCRE,MTCWE,MTCTCE,MTCUME,MTCINE
- MikroTik Certified Trainer
- Cyberoam Certified Network & Security Professional (CCNSP)
- RIPE Database Expert Course

About Me

- Providing MikroTik Training (On-Site)
- Providing On-Demand/Long Term worldwide:
 - Consultancy Services
 - Network Architecture Services
 - Project Management Services



➤ My contact details at the end of this Presentation



This Presentation Objective

- CAPsMAN Quick Setup
- Latest CAPsMAN new features
- Some Wireless-rep new features
- How to maintain a failover controller (CAPsMAN)

CAPsMAN Features

- Centralized management of RouterOS APs
- Dual Band AP support
- Provisioning of APs
- MAC and IP Layer communication with APs
- Certificate support for AP communication
- Full and Local data forwarding mode
- RADIUS MAC authentication
- Custom configuration support

Definitions

?CAP?? CAPs? CAPsMAN? AP? Router?

CAPsMAN

- Controlled **A**ccess **P**oint
system **M**anager

➤ **CAPsMAN** = a MikroTik router

CAP

- Controlled **A**ccess **P**oint

➤ **CAP** = a MikroTik router

➤ **CAPs** = many Mikrotik routers

Requirements

CAPsMAN

1. x86 or RouterBOARD based device
2. RouterOS v6.11+ version (Use Latest!)
3. Wireless-fp package installed and enabled

CAPs

1. X86 or RouterBOARD based device
2. RouterOS v6.11+ version(Use Latest!)
3. Atheros chipset (a/b/g/n/ac) wireless card
4. Wireless-fp package installed and enabled
5. At least Level4 RouterOS license

CAPsMAN v1 & v2

- ❖ Wireless-fp package introduces CAPsMAN v1 (2014 ROS v6.11+)
- ❖ Wireless-cm2 package introduces CAPsMAN v2 (2015 ROS 6.23+)
 - Improvements
 - Some new features

Name	Version	Build Time	Scheduled
routeros-mipsbe	6.33	Nov/06/2015 12:49:27	
advanced+	6.33	Nov/06/2015 12:49:27	
dhcp	6.33	Nov/06/2015 12:49:27	
hotspot	6.33	Nov/06/2015 12:49:27	
ipv6	6.33	Nov/06/2015 12:49:27	
mpls	6.33	Nov/06/2015 12:49:27	
ppp	6.33	Nov/06/2015 12:49:27	
routing	6.33	Nov/06/2015 12:49:27	
security	6.33	Nov/06/2015 12:49:27	
system	6.33	Nov/06/2015 12:49:27	
wireless-cm2	6.33	Nov/06/2015 12:49:27	scheduled for enable
wireless-fp	6.33	Nov/06/2015 12:49:27	

- ❖ CAPsMAN v2 is already stable and is widely used
- ⊗ Warning: CAPsMAN/CAP v1 is not compatible with v2!
 - Upgrade or downgrade everything in the network

CAPsMAN v2 New features

- CAPsMAN automatic upgrade of all CAP clients (configurable)
- Improved CAP<->CAPsMAN data connection protocol
- Added "Name Format, Name Prefix Identity/CommonName Regexp, IP Address Ranges" setting for Provision rules
- Improved logging entries when client roams between the CAPs
- Added L2 Path MTU discovery

RouterOS 6.37 wireless-rep

Today 17th October 2016

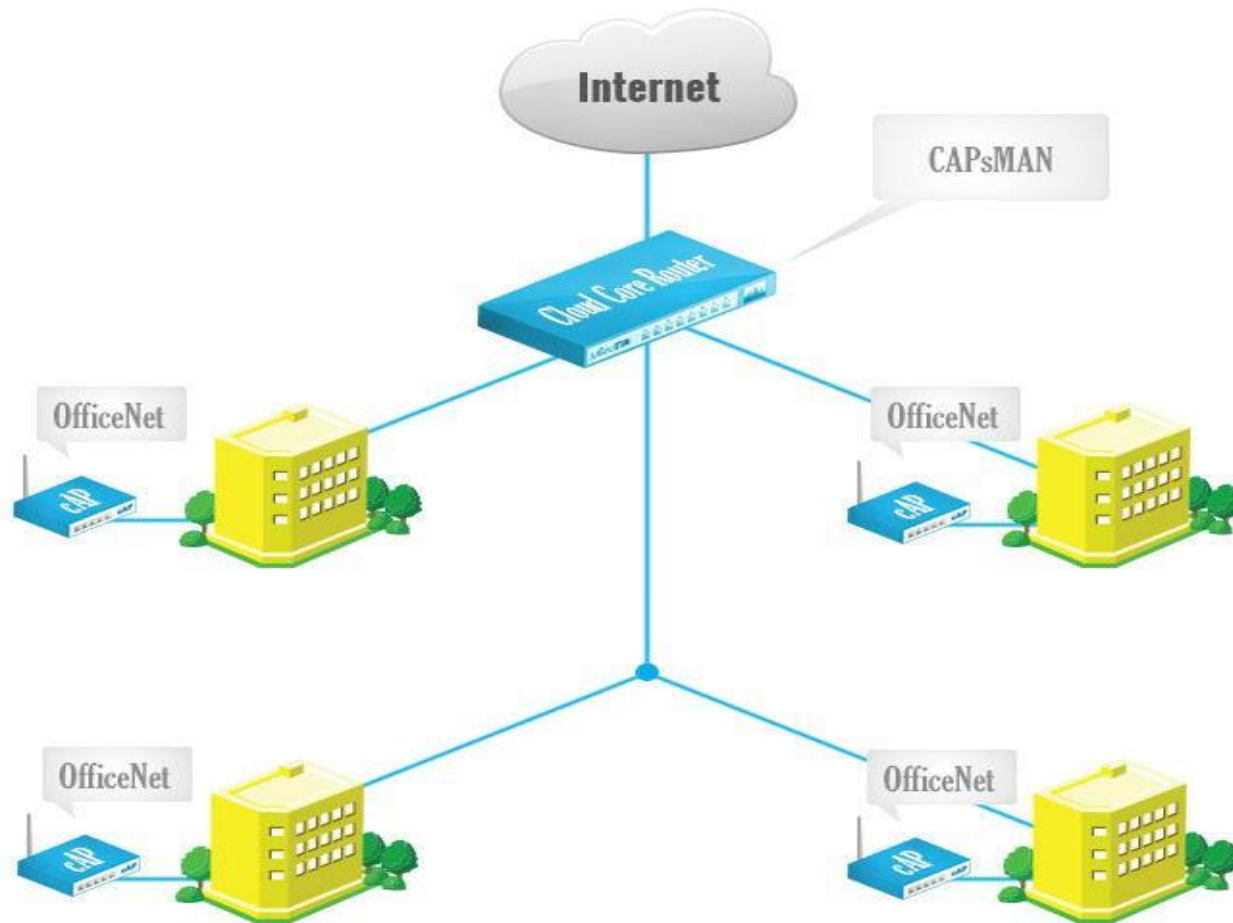
❖ Wireless package for RouterOS 6.37:

- Removes **all** existing wireless packages
- Installs **wireless-rep**
- **Wireless-rep** is renamed to **wireless**

❖ Using 6.37+ is strongly suggested for CAPsMAN

- Lets see CAPsMAN Quick Guide ,later we will discuss wireless-rep new features

CAPsMAN Simple Setup



CAPsMAN Simple Setup

- Enable CAPsMAN service
- Create Bridge interface
- Add IP configuration to Bridge interface
- Create CAPsMAN Configuration
- Create Provisioning rule
- Enable CAP mode on the APs

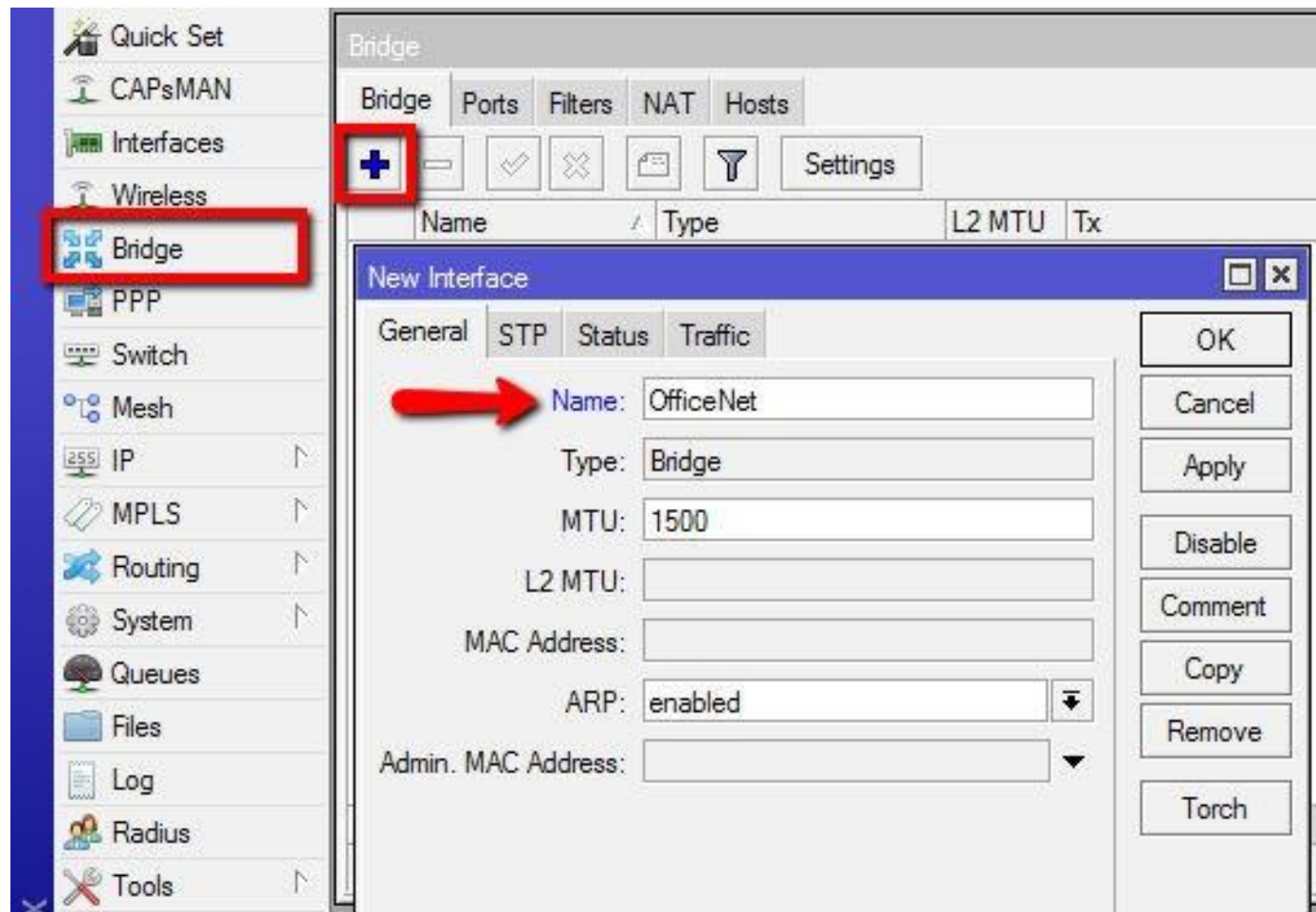
CAPsMAN Simple Setup

- Enable the CAPsMAN service

The screenshot displays the Mikrotik WinBox interface for configuring CAPsMAN. On the left sidebar, the 'CAPsMAN' menu item is highlighted with a red box. The main window shows the 'CAPsMAN' configuration page with several tabs: 'Interfaces', 'Provisioning', 'Configurations', 'Channels', 'Datapaths', and 'Security'. The 'Manager' tab is selected and highlighted with a red box. Below the tabs, there is a table with columns for 'Name', 'Type', 'MTU', and 'L2 MTU'. A red arrow points to the 'Enabled' checkbox, which is checked. Other fields include 'Certificate', 'CA Certificate', 'Require Peer Certificate', 'Generated Certificate', and 'Generated CA Certificate'. Buttons for 'OK', 'Cancel', and 'Apply' are visible on the right side of the configuration window.

CAPsMAN Simple Setup

- Create Bridge Interface



CAPsMAN Simple Setup

1. Add IP address
2. Add DHCP Server
3. Add NAT rule

The screenshot displays the Mikrotik WinBox interface with three main configuration windows open, each with a red box and a number indicating a step:

- Step 1:** The 'Address List' window is open, showing the 'New Address' dialog. The 'Address' field is set to '10.10.10.1/24' and the 'Interface' is 'OfficeNet'. A red box with the number '1' is around the 'New Address' dialog title bar.
- Step 2:** The 'DHCP Server' window is open, showing the 'DHCP Setup' dialog. The 'DHCP Server Interface' is set to 'OfficeNet'. A red box with the number '2' is around the 'DHCP Setup' dialog title bar.
- Step 3:** The 'Firewall' window is open, showing the 'New NAT Rule' dialog. The 'Chain' is set to 'srcnat' and the 'Action' is 'masquerade'. A red box with the number '3' is around the 'New NAT Rule' dialog title bar.

Additional interface elements include a sidebar menu with 'IP' highlighted, and various configuration tabs and buttons throughout the windows.

CAPsMAN Simple Setup

- Add new CAPsMAN Configuration

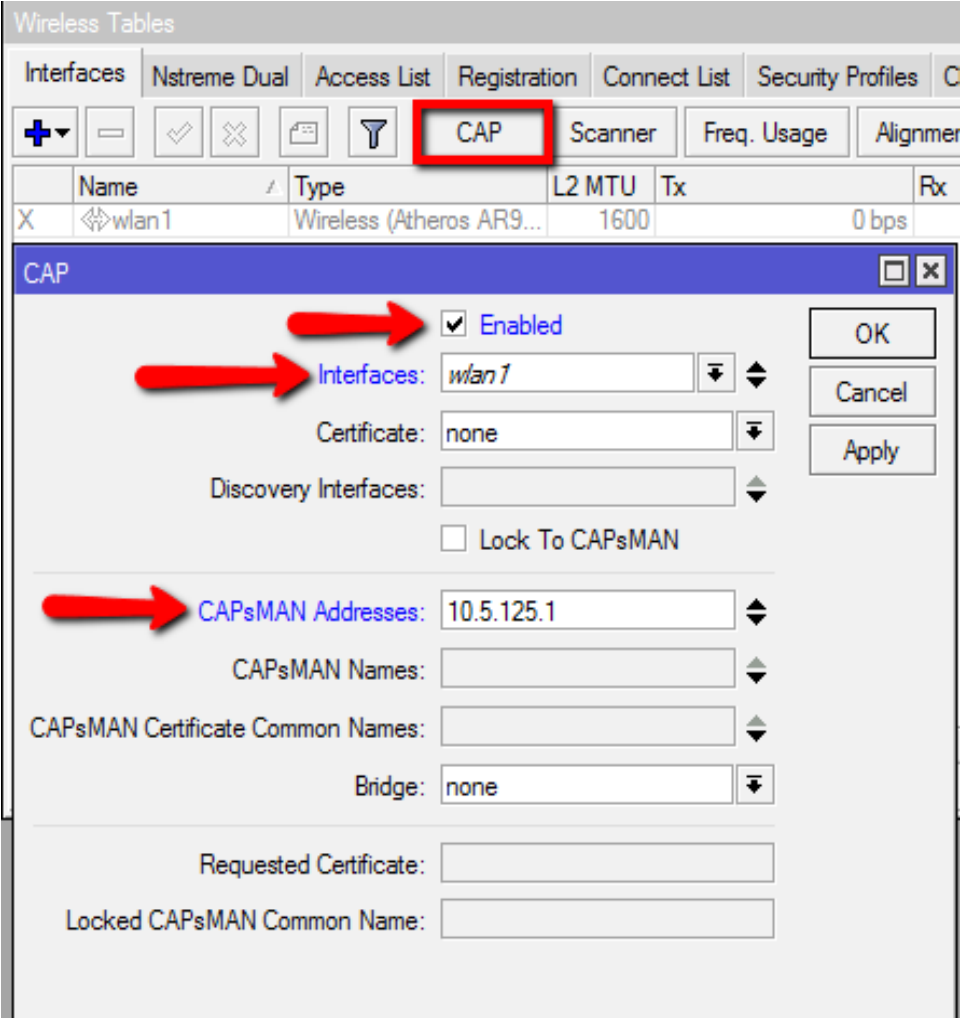
The screenshot displays the CAPsMAN configuration interface. At the top, the 'Configurations' tab is selected and highlighted with a red box. Below the tab bar, a toolbar contains a plus sign icon, also highlighted with a red box. The main area is divided into three panels, each representing a different configuration tab: 'Wireless', 'Datapath', and 'Security'. Each tab title is highlighted with a red box. The 'Wireless' tab shows fields for Name (OfficeNet), Mode, SSID (Office), Hide SSID, Load Balancing Group, Country (united states), Max Station Count, Multicast Helper, HT Tx Chains, HT Rx Chains, and HT Guard Interval. The 'Datapath' tab shows fields for Bridge (OfficeNet), Bridge Cost, Bridge Horizon, Local Forwarding, Client To Client Forwarding, VLAN Mode, and VLAN ID. The 'Security' tab shows a Security dropdown menu, Authentication Type (WPA PSK and WPA2 PSK checked), Encryption (aes ccm checked), Group Encryption (aes ccm), Passphrase (OfficeNet), and EAP Methods.

CAP to CAPsMAN IP Based Connection

IP (UDP) Layer3

- CAP communicates CAPsMAN using IP protocol
- ✓ Can traverse NAT when required
- Management connection between CAP and CAPsMAN is secured using DTLS
- CAP client data traffic is not secured
 - If encryption is required IPsec or encrypted tunnels can be used

Specify IP on The CAP



The screenshot shows the Mikrotik WinBox interface for configuring a CAP (Client Access Point). The 'CAP' tab is selected and highlighted with a red box. The configuration window is titled 'CAP' and contains the following fields:

- Enabled:** A checkbox that is checked, with a red arrow pointing to it.
- Interfaces:** A dropdown menu showing 'wlan1', with a red arrow pointing to it.
- Certificate:** A dropdown menu showing 'none'.
- Discovery Interfaces:** An empty dropdown menu.
- Lock To CAPsMAN:** An unchecked checkbox.
- CAPsMAN Addresses:** A text field containing '10.5.125.1', with a red arrow pointing to it.
- CAPsMAN Names:** An empty dropdown menu.
- CAPsMAN Certificate Common Names:** An empty dropdown menu.
- Bridge:** A dropdown menu showing 'none'.
- Requested Certificate:** An empty text field.
- Locked CAPsMAN Common Name:** An empty text field.

Buttons for 'OK', 'Cancel', and 'Apply' are visible on the right side of the window.

CAPsMAN and CAP in one board

- Does your CAPsMAN router has a wireless interface too?
- ✓ Enable CAP & Connect it to it self (127.0.0.1) for central management



Wireless Tables

Interfaces Nstreme Dual Access List Registration Connect List Sec

+ - ✓ ✕ [CAP] Scanner Freq. Usa

Name	Type	L2 MTU	Tx
CAP			
		<input checked="" type="checkbox"/> Enabled	
Interfaces:	wlan7		
Certificate:	none		
Discovery Interfaces:			
		<input type="checkbox"/> Lock To CAPsMAN	
CAPsMAN Addresses:	127.0.0.1		
CAPsMAN Names:			
CAPsMAN Certificate Common Names:			
Bridge:	none		
Requested Certificate:			
Locked CAPsMAN Common Name:			

CAPsMAN Simple Setup

- Add new Provisioning rule

The screenshot shows the CAPsMAN interface with the 'Provisioning' tab selected. A red box highlights the 'Provisioning' tab and the '+' icon in the toolbar. Below the toolbar is a table with columns: #, Radio MAC, Action, Master Configurati..., and Slave C. A dialog box titled 'New CAPs Provisioning' is open, containing the following fields and buttons:

#	Radio MAC	Action	Master Configurati...	Slave C
	00:00:00:00:00:00	create dynamic enabled	OfficeNet	

Dialog box 'New CAPs Provisioning' fields:

- Radio MAC: 00:00:00:00:00:00
- Action: create dynamic enabled
- Master Configuration: OfficeNet
- Slave Configuration: (empty)
- Name Prefix: OfficeAP

Buttons: OK, Cancel, Apply, Disable, Comment, Copy, Remove

enabled

CAPsMAN Simple Setup

- Check the “Interface” status on:

CAPsMAN

The screenshot shows the CAPsMAN configuration interface. The 'Interfaces' tab is selected, displaying a table with columns for Name, Type, MTU, and L2 MTU. The entry 'OfficeAP1' is highlighted, showing it is of type 'Interfaces' with an MTU of 1500 and L2 MTU of 1600. Below the table, the configuration for 'Interface <OfficeAP1>' is shown, including tabs for General, Wireless, Channel, Datapath, Security, Status, and Traffic. The 'Status' tab is active, showing the current state as 'running-ap', current channel as '2427/20-Ce/gn(30dBm)', current rate set as 'CCK:1-11 OFDM:6-54 BW:1x-2x HT:0-7', and current basic rate set as 'OFDM:6 BW:1x HT:0-7'.

Name	Type	MTU	L2 MTU
OfficeAP1	Interfaces	1500	1600

Interface <OfficeAP1>

Current State:	running-ap
Current Channel:	2427/20-Ce/gn(30dBm)
Current Rate Set:	CCK:1-11 OFDM:6-54 BW:1x-2x HT:0-7
Current Basic Rate Set:	OFDM:6 BW:1x HT:0-7

CAP

The screenshot shows the Wireless Tables configuration interface. The 'Interfaces' tab is selected, displaying a table with columns for Name, Type, L2 MTU, and Tx. The entry 'wlan1' is highlighted, showing it is of type 'Wireless (Atheros AR9...)' with an L2 MTU of 1600. Red text indicates that the interface is managed by CAPsMAN and provides channel and SSID information: '--- managed by CAPsMAN' and '--- channel: 2427/20-Ce/gn(30dBm), SSID: Office, CAPsMAN forwarding'.

Name	Type	L2 MTU	Tx
wlan1	Wireless (Atheros AR9...)	1600	

--- managed by CAPsMAN
--- channel: 2427/20-Ce/gn(30dBm), SSID: Office, CAPsMAN forwarding

CAPsMAN Registration table

CAPsMAN

Interfaces Provisioning Configurations Channels Datapaths Security Cfg. Access List Remote CAP Radio **Registration Table**

Interface	MAC Address	Tx Rate	Rx Rate	Tx Signal	Rx Signal	Uptime	Tx/Rx Packets	Tx/Rx Bytes
OfficeAP3	18:34:51:41:75:CD	65Mbps-...	65Mbps-...	0	-44	00:03:17...	31 395/33 212	29.8 MiB/29.5 MiB

1 item

CAPs AP Client <18:34:51:41:75:CD>

Interface: OfficeAP3

MAC Address: 18:34:51:41:75:CD

Tx Rate: 65Mbps-20MHz/1S

Rx Rate: 65Mbps-20MHz/1S

Tx Rate Set: CCK:1-11 OFDM:6-54 BW:1x HT:0-7

Tx Signal: 0

Rx Signal: -44

Uptime: 00:03:17.70

Tx/Rx Packets: 31 395/33 212

Tx/Rx Bytes: 29.8 MiB/29.5 MiB

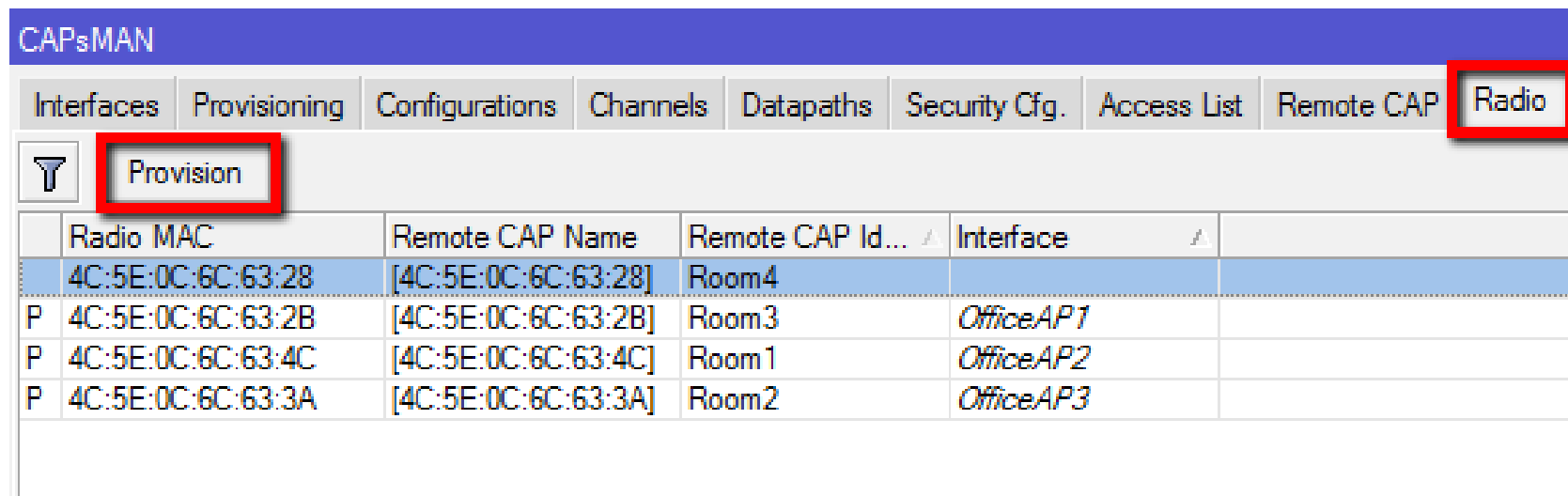
OK

Remove

Copy to Access List

Manual Provisioning

- Changing Provisioning rules doesn't effect already configured CAPs, manual Provisioning required:
 - Remove CAP interface
 - Initiate Provision command on the CAP

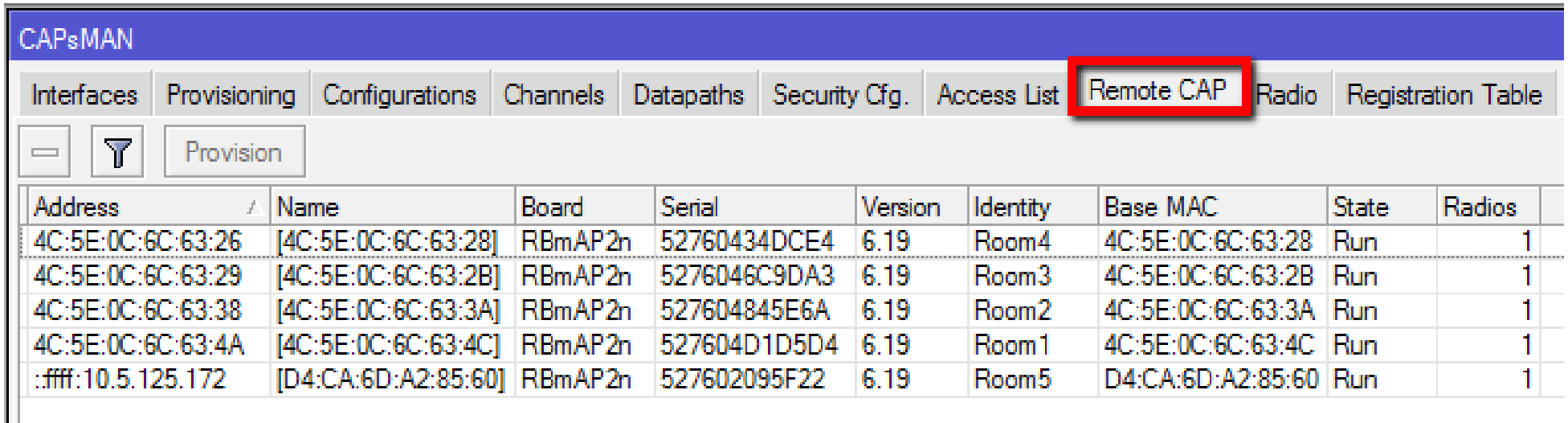


The screenshot shows the CAPsMAN web interface. The 'Radio' tab is selected and highlighted with a red box. Below the tabs, the 'Provision' button is also highlighted with a red box. A table displays the following data:

	Radio MAC	Remote CAP Name	Remote CAP Id...	Interface	
	4C:5E:0C:6C:63:28	[4C:5E:0C:6C:63:28]	Room4		
P	4C:5E:0C:6C:63:2B	[4C:5E:0C:6C:63:2B]	Room3	OfficeAP1	
P	4C:5E:0C:6C:63:4C	[4C:5E:0C:6C:63:4C]	Room1	OfficeAP2	
P	4C:5E:0C:6C:63:3A	[4C:5E:0C:6C:63:3A]	Room2	OfficeAP3	

CAP Identification

- MAC/IP address
- RouterBoard model
- Serial Number of the Board
- RouterOS version
- System Identity
- Main wireless MAC
- State of the CAP
- Radio count

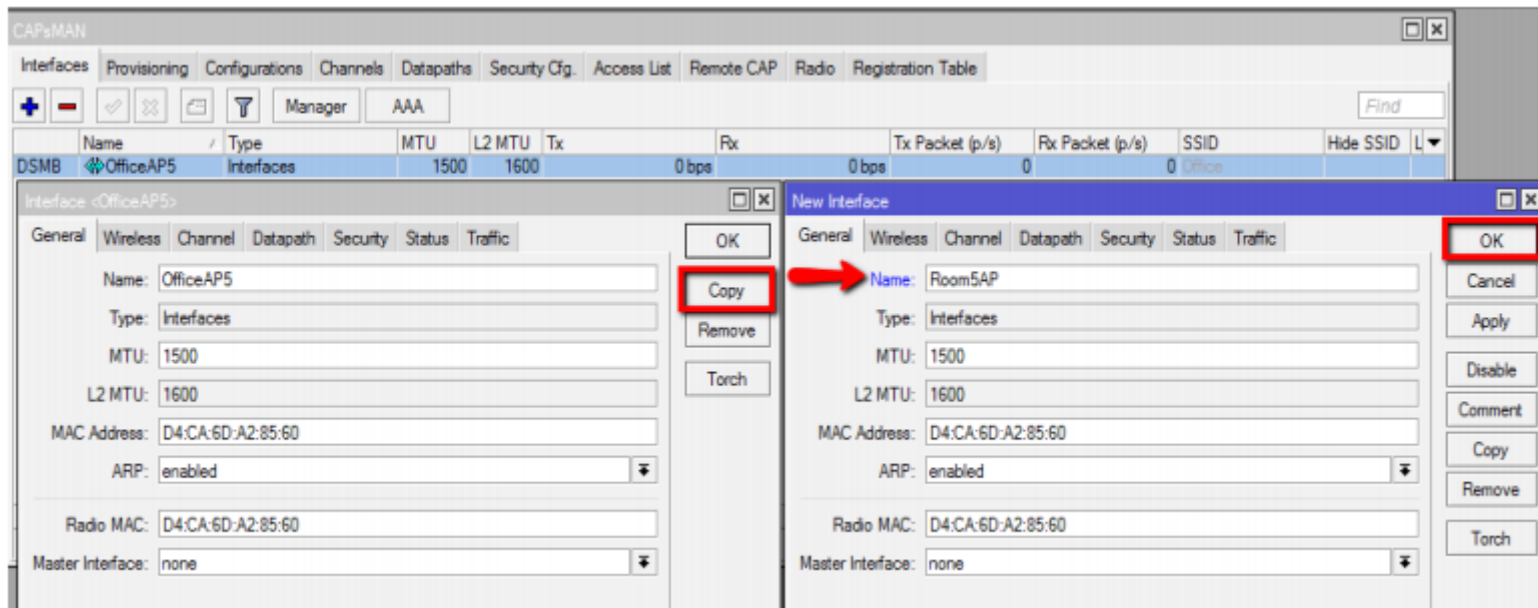


The screenshot shows the Mikrotik CAPsMAN web interface. The 'Remote CAP' tab is selected and highlighted with a red box. Below the navigation tabs, there are buttons for 'Provision' and a filter icon. The main content area displays a table with the following columns: Address, Name, Board, Serial, Version, Identity, Base MAC, State, and Radios. The table contains five rows of data representing different CAPs.

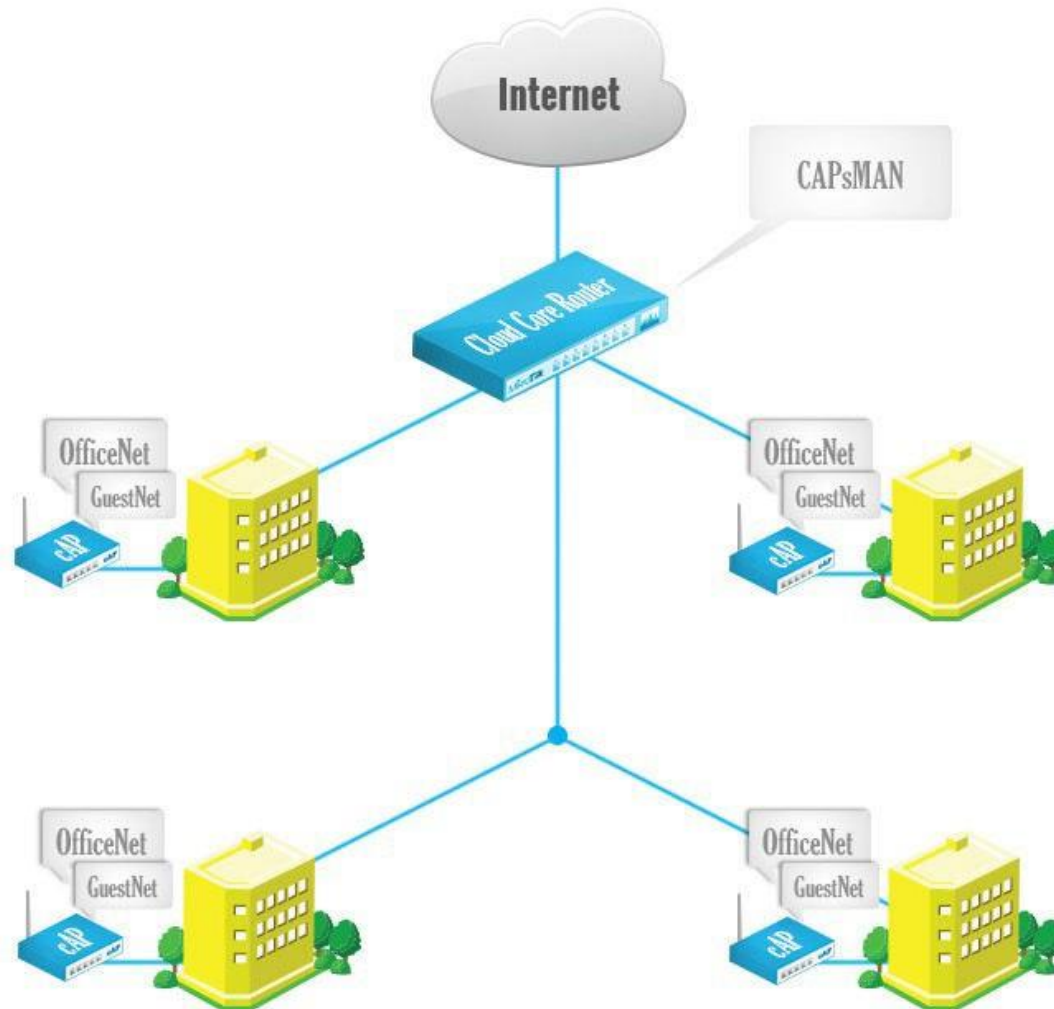
Address	Name	Board	Serial	Version	Identity	Base MAC	State	Radios
4C:5E:0C:6C:63:26	[4C:5E:0C:6C:63:28]	RBmAP2n	52760434DCE4	6.19	Room4	4C:5E:0C:6C:63:28	Run	1
4C:5E:0C:6C:63:29	[4C:5E:0C:6C:63:2B]	RBmAP2n	5276046C9DA3	6.19	Room3	4C:5E:0C:6C:63:2B	Run	1
4C:5E:0C:6C:63:38	[4C:5E:0C:6C:63:3A]	RBmAP2n	527604845E6A	6.19	Room2	4C:5E:0C:6C:63:3A	Run	1
4C:5E:0C:6C:63:4A	[4C:5E:0C:6C:63:4C]	RBmAP2n	527604D1D5D4	6.19	Room1	4C:5E:0C:6C:63:4C	Run	1
::ffff:10.5.125.172	[D4:CA:6D:A2:85:60]	RBmAP2n	527602095F22	6.19	Room5	D4:CA:6D:A2:85:60	Run	1

CAPsMAN static CAP interface

- Interface name or setting does not change after a reboot
- Additional manual setting override
- Copy dynamic interface to make static interface



CAPsMAN Virtual AP



CAPsMAN VirtualAP Configuration

- Create new Bridge interface and IP configuration for the VirtualAPs
 - Or use the same bridge interface used for Master AP
- Create a new configuration for the VirtualAP
- Specify the new configuration in Provisioning rule as Slave Configuration
- Remove all CAP interfaces
- Initiate Manual Provisioning on all the CAPs

CAPsMAN VirtualAP Setup

The screenshot displays the CAPsMAN web interface. At the top, the 'Configurations' tab is highlighted with a red box. Below the navigation bar, a table lists existing configurations, with a '+' icon in a red box to the left. Two configuration panels are shown below:

- New CAPs Configuration (Left Panel):** The 'Wireless' tab is highlighted with a red box. Fields include: Name: GuestNet, Mode: (empty), SSID: Guest, Hide SSID: (empty), Load Balancing Group: (empty), Country: (empty), Max Station Count: (empty), Multicast Helper: (empty), HT Tx Chains: (empty), HT Rx Chains: (empty), and HT Guard Interval: (empty).
- New CAPs Configuration (Right Panel):** The 'Datapath' tab is highlighted with a red box. Fields include: Datapath: (dropdown), Bridge: GuestNet, Bridge Cost: (dropdown), Bridge Horizon: (dropdown), Local Forwarding: (dropdown), Client To Client Forwarding: (dropdown), VLAN Mode: (dropdown), and VLAN ID: (dropdown).

CAPsMAN VirtualAP Setup

CAPsMAN

Interfaces **Provisioning** Configurations Channels Datapaths Sec

#	Radio MAC	Action	Master Configurati...	Slave C
0	00:00:00:00:00:00	create dy...	OfficeNet	

CAPs Provisioning <00:00:00:00:00:00>

Radio MAC: 00:00:00:00:00:00

Action: create dynamic enabled

Master Configuration: OfficeNet

Slave Configuration: GuestNet

Name Prefix: OfficeAP

enabled

CAPsMAN

Interfaces Provisioning Configurations Channels Datapaths

	Name	Type	MTU	L
DSMB	OfficeAP1	Interfaces	1500	
DSB	OfficeAP1-1	Interfaces	1500	
DSMB	OfficeAP2	Interfaces	1500	
DSB	OfficeAP2-1	Interfaces	1500	
DSMB	OfficeAP3	Interfaces	1500	
DSB	OfficeAP3-1	Interfaces	1500	
DSMB	OfficeAP4	Interfaces	1500	
DSB	OfficeAP4-1	Interfaces	1500	
SMB	Room5AP	Interfaces	1500	

CAPsMAN

Interfaces Provisioning Configurations Channels Datapaths Security Cfg. Access List Remote CAP **Radio**

	Radio MAC	Remote CAP Name	Remote CAP Iden...	Interface
P	4C:5E:0C:6C:63:28	[4C:5E:0C:6C:63:...	Room4	OfficeAP1
P	4C:5E:0C:6C:63:2B	[4C:5E:0C:6C:63:...	Room3	OfficeAP3
P	4C:5E:0C:6C:63:3A	[4C:5E:0C:6C:63:...	Room2	OfficeAP5
P	4C:5E:0C:6C:63:4C	[4C:5E:0C:6C:63:...	Room1	OfficeAP2
P	D4:CA:6D:A2:85:60	[D4:CA:6D:A2:85:...	Room5	Room5AP

CAPsMAN static VirtualAP

The screenshot displays the CAPsMAN configuration interface. At the top, there are tabs for 'Interfaces', 'Provisioning', 'Configurations', 'Channels', 'Datapaths', 'Security Cfg.', 'Access List', 'Remote CAP', 'Radio', and 'Registration Table'. Below the tabs is a toolbar with a red box around the '+' icon, followed by a '-' icon, a checkmark, an 'X', a folder icon, a funnel icon, and buttons for 'Manager' and 'AAA'.

	Name	Type	MTU	L2 MTU	Tx	Rx	Tx Packet (p/s)	Rx Packet (p/s)
DSMB	OfficeAP1	Interfaces	1500	1600		0 bps	0 bps	0
DSB	OfficeAP1-1	Interfaces	1500	1600		0 bps	0 bps	0
DSMB	OfficeAP2	Interfaces	1500	1600		0 bps	0 bps	0
DSB	OfficeAP2-1	Interfaces	1500	1600		0 bps	0 bps	0
DSMB	OfficeAP3	Interfaces	1500	1600		0 bps	0 bps	0
DSB	OfficeAP3-1	Interfaces	1500	1600		0 bps	0 bps	0
DSMB	OfficeAP4	Interfaces	1500	1600		0 bps	0 bps	0
DSB	OfficeAP4-1	Interfaces	1500	1600		0 bps	0 bps	0
SMB	Room5AP	Interfaces	1500	1600		0 bps	0 bps	0

Below the table are two 'New Interface' dialog boxes. The left dialog has the 'General' tab selected (indicated by a red box), showing fields for Name (Room5VAP), Type (Interfaces), MTU (1500), L2 MTU, MAC Address (00:00:00:00:00:00), ARP (enabled), Radio MAC (00:00:00:00:00:00), and Master Interface (Room5AP). The right dialog has the 'Wireless' tab selected (indicated by a red box), showing fields for Configuration (GuestNet), Mode, SSID (GuestAP), Hide SSID, Load Balancing Group, Country, and Max Station Count. Both dialogs have buttons for OK, Cancel, Apply, Disable, Comment, Copy, Remove, and Torch.

CAPsMAN Access List Features

- MAC Authentication
- Radius Query support
- MAC Mask support
- Signal Range
- Time
- Private Passphrase
- VLAN ID assignment

CAPsMAN Access List

- Allow Apple devices to connect
- Let RADIUS server decide for the rest of devices

The screenshot shows the CAPsMAN configuration interface with the 'Access List' tab selected. Two 'New CAPs Access Rule' dialog boxes are open. The left dialog box has the following configuration:


- MAC Address: 18:34:51:00:00:00
- MAC Mask: FF:FF:FF:00:00:00
- Interface: (empty)
- Signal Range: (empty)
- Action: accept
- AP Tx Limit: (empty)
- Client Tx Limit: (empty)
- Private Passphrase: (empty)
- Client To Client Forwarding: (empty)
- RADIUS Accounting: (empty)
- VLAN Mode: (empty)
- VLAN ID: (empty)
- enabled

The right dialog box has the following configuration:

- MAC Address: (empty)
- MAC Mask: (empty)
- Interface: (empty)
- Signal Range: (empty)
- Action: query radius
- AP Tx Limit: (empty)
- Client Tx Limit: (empty)
- Private Passphrase: (empty)
- Client To Client Forwarding: (empty)
- RADIUS Accounting: (empty)
- VLAN Mode: (empty)
- VLAN ID: (empty)
- enabled

CAPsMAN Configuration override

- Configuration overrides Channel setting
- Interface overrides Channel and Configuration setting



The image displays three overlapping configuration windows in a network management interface, illustrating the override process:

- New CAPs Channel:** Shows a channel named 'channel1' with a frequency of 2412 MHz.
- New CAPs Configuration:** Shows the 'Channel' dropdown set to 'channel1' and the frequency set to 2437 MHz.
- New Interface:** Shows the 'Channel' dropdown set to 'channel1' and the frequency set to 2462 MHz.
- Interface <cap1>:** Shows the current state of the interface, including 'Current Channel: 2462/20-eC/gn(30dBm)' and 'Current Rate Set: CCK:1-11 OFDM:6-54 BW:1x-2x HT:0-7'.

CAPsMAN Auto Certificate

- Enable Certificate and CA Certificate on CAPsMAN

The screenshot shows the CAPsMAN configuration interface with the 'Manager' tab selected. The 'CAPs Manager' dialog box is open, showing the following settings:

Name	Type	MTU	L2 MTU
CAPs Manager			

Configuration details:

- Enabled
- Certificate: auto
- CA Certificate: auto
- Require Peer Certificate
- Generated Certificate: [Empty]
- Generated CA Certificate: [Empty]

The screenshot shows the CAPsMAN configuration interface with the 'Manager' tab selected. The 'CAPs Manager' dialog box is open, showing the following settings:

Name	Type	MTU	L2 MTU	Tx
CAPs Manager				

Configuration details:

- Enabled
- Certificate: auto
- CA Certificate: auto
- Require Peer Certificate
- Generated Certificate: CAPsMAN-D4CA6D8950A0
- Generated CA Certificate: CAPsMAN-CA-D4CA6D8950A0

CAPsMAN Auto Certificate

- Enable “Request” Certificate on CAP

Wireless Tables

Interfaces Nstreme Dual Access List Registration Connect List Security Pr

+ - ✓ ✕ [CAP] Scanner Freq. Usage

Name	Type	L2 MTU	Tx
CAP			

Enabled

Interfaces: wlan7

Certificate: request

Discovery Interfaces: ether1

Lock To CAPsMAN

CAPsMAN Addresses:

CAPsMAN Names:

CAPsMAN Certificate Common Names:

Bridge: bridgeLocal

Requested Certificate:

Locked CAPsMAN Common Name:

Wireless Tables

Interfaces Nstreme Dual Access List Registration Connect List Security Pr

+ - ✓ ✕ [CAP] Scanner Freq. Usage

Name	Type	L2 MTU	Tx
CAP			

Enabled

Interfaces: wlan7

Certificate: request

Discovery Interfaces: ether1

Lock To CAPsMAN

CAPsMAN Addresses:

CAPsMAN Names:

CAPsMAN Certificate Common Names:

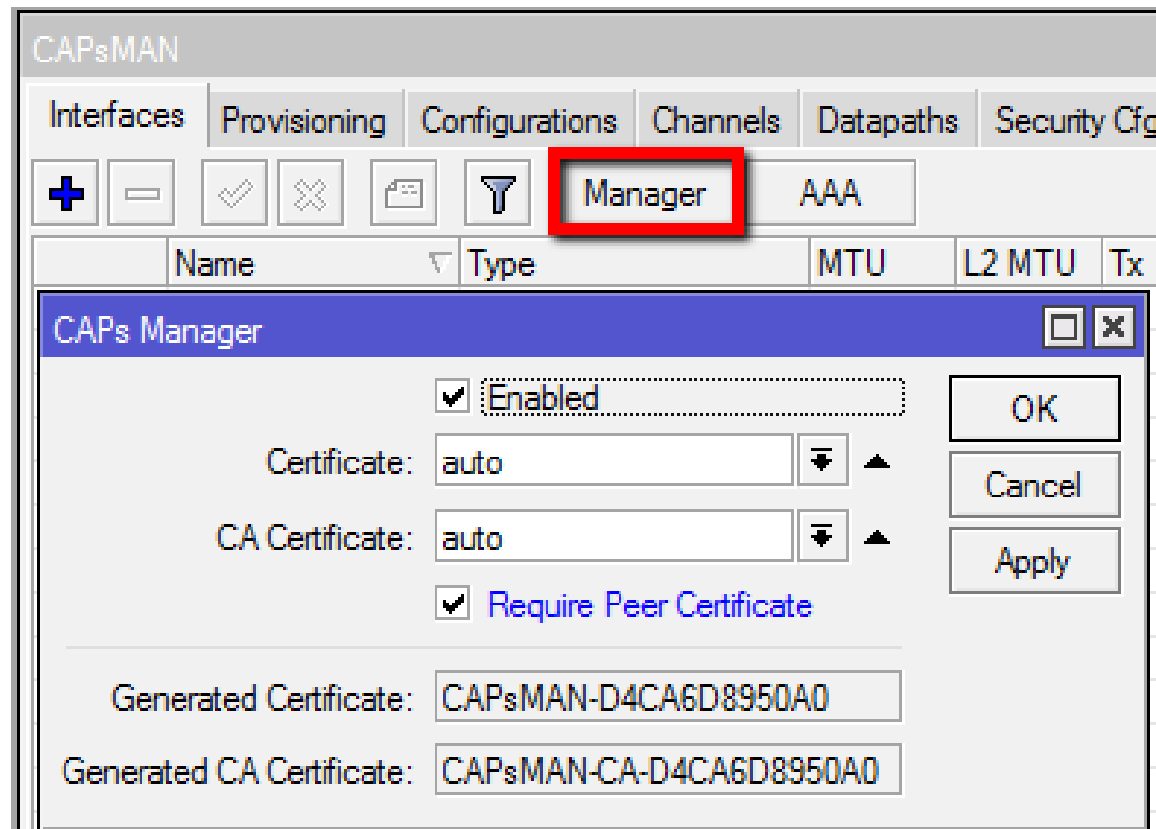
Bridge: bridgeLocal

Requested Certificate: CAP-4C5E0C6C634A

Locked CAPsMAN Common Name:

CAPsMAN Auto Certificate

- Accept connections only from CAPs with valid certificate



CAPsMAN Antenna Gain (Country Regulations)

- Antenna-gain value is taken from the CAP interface
- Must be configured on AP before you enable radio in CAP mode

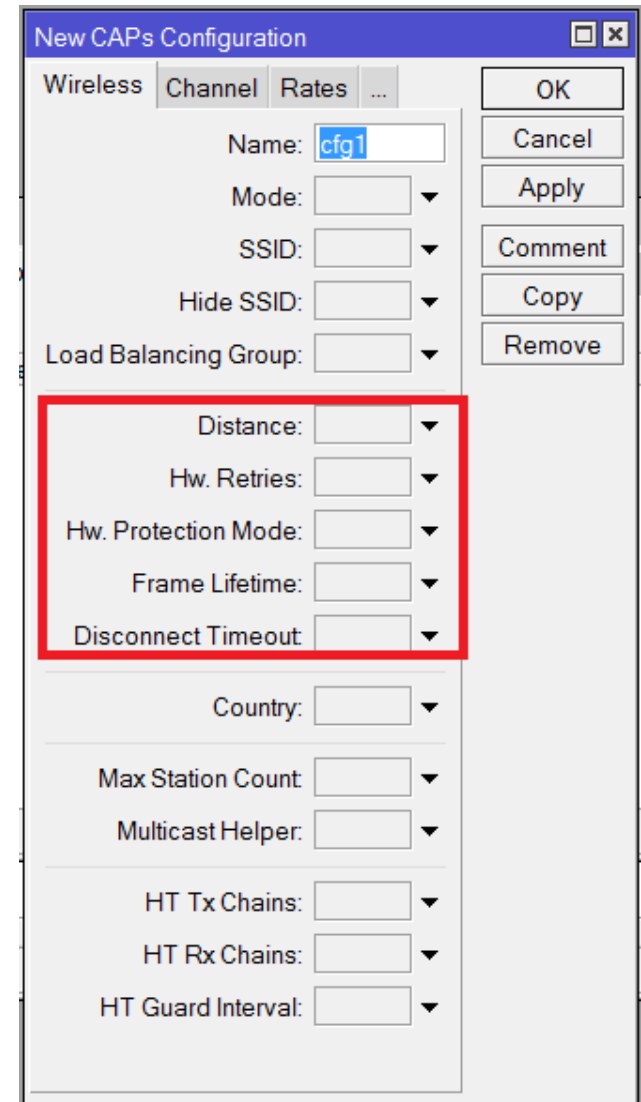
Example

- Antenna-gain: 6dBi
- EIRP: 30dB

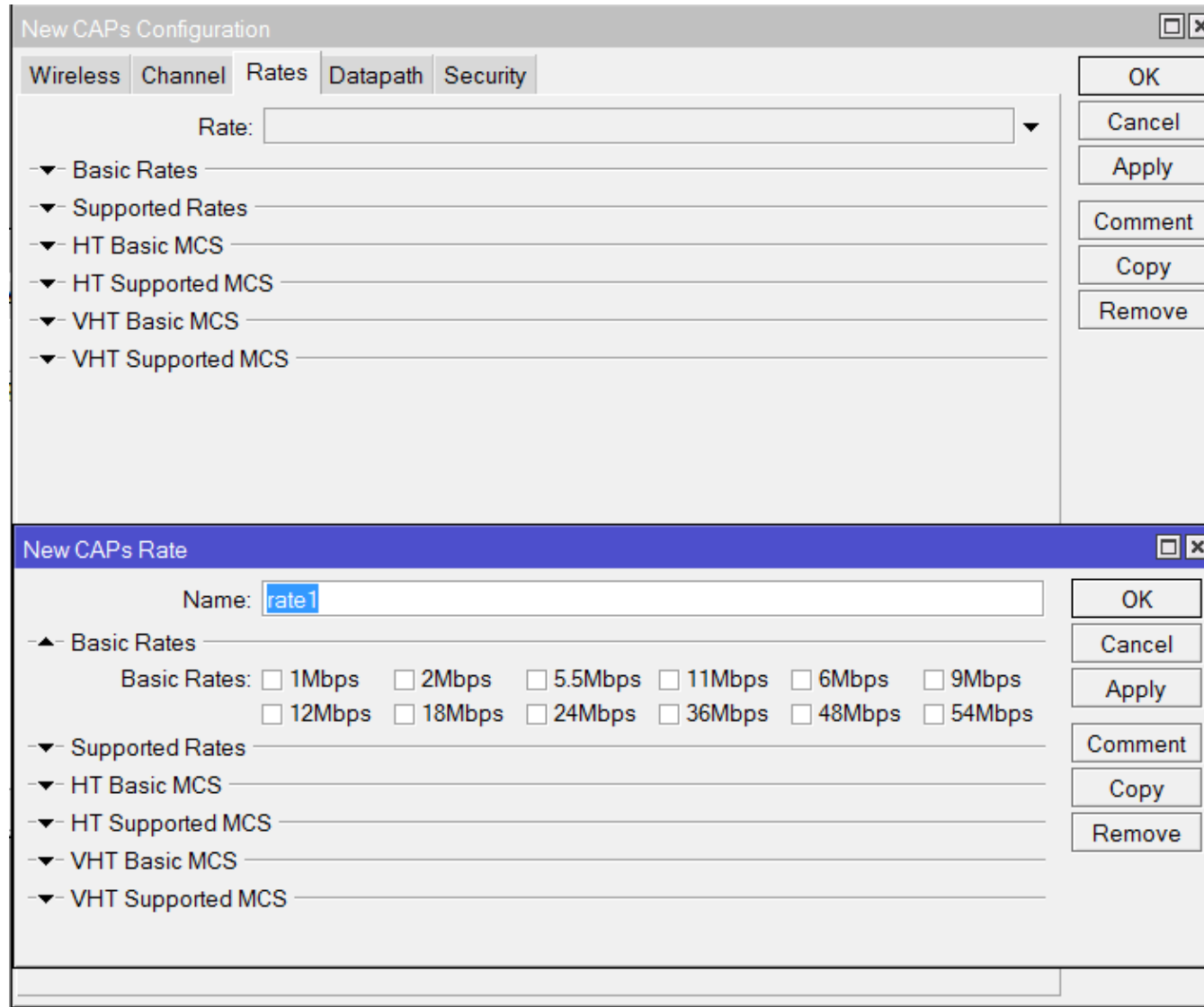
The screenshot displays the CAPsMAN configuration interface. The top section shows the 'Interfaces' tab with a table listing the interface 'cap1' under the 'MB' menu. The table has columns for Name, Type, MTU, L2 MTU, and Tx. Below this, the 'Wireless Tables' section is visible, with a table listing wireless configurations. A red box highlights the entry for 'cap1', showing it is 'managed by CAPsMAN' and has a 'channel: 2442/20-Ce/gn(24dBm), SSID: LocalAP, CAPsMAN forwarding'. The bottom section shows the 'Interface <cap1>' configuration, with a red box highlighting the 'Current Channel' field, which is set to '2442/20-Ce/gn(30dBm)'. Other fields include 'Current State: running-ap', 'Current Rate Set: CCK:1-11 OFDM:6-54 BW:1x-2x HT:0-15', and 'Current Basic Rate Set: OFDM:6 BW:1x HT:0-7'.

CAPsMAN Latest version new features in configuration - wireless

- 16th October 2014 i have advised MikroTik to include **wireless tuning parameters** also in CAPsMAN:
 - Configurable Basic and Supported Data-Rates
 - hw-retries,
 - disconnect-timeout
 - rts/cts
 - Etc..
- ✓ Today 17th October i am glad that everything is there! 😊 Thanks!
 - Full CAPs control

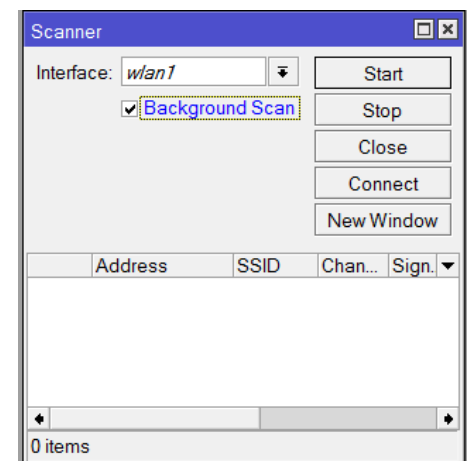
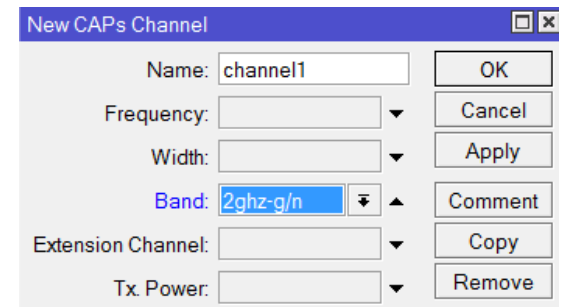
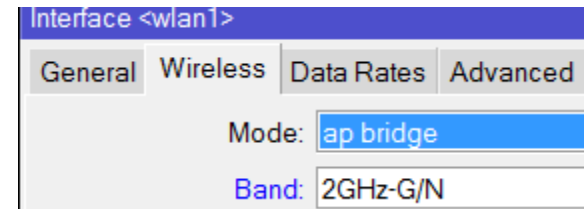


CAPsMAN Latest version new features in configuration - RATES



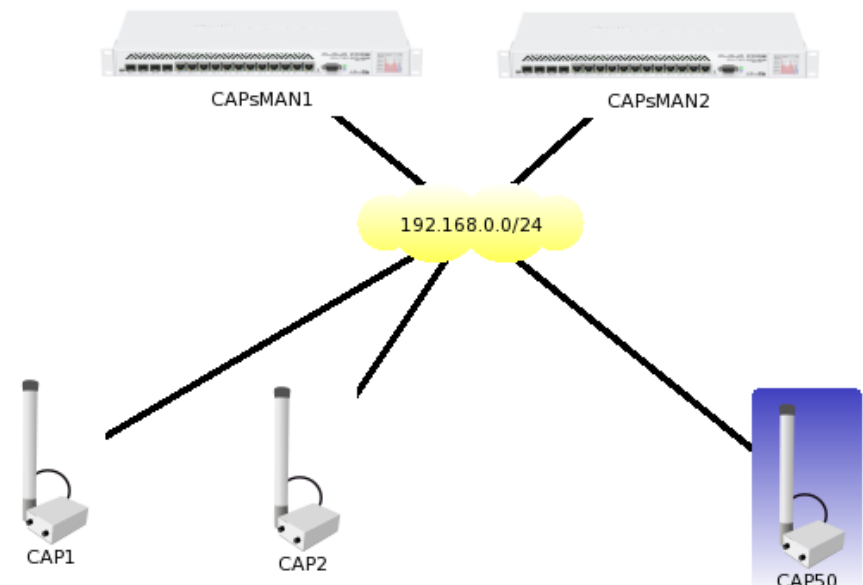
Wireless-rep package – Other new features useful for CAPsMAN

- Regular Wireless Interface and CAPsMAN support '2ghz-g/n' band setting
 - basic-rates – 6-54Mbps
 - supported – 6-54Mbps
 - ht-basic-mcs – None
 - ht-supported-mcs – 0-23
- Background scan
 - Not included in CAPsMAN but it can be used on CAPs



Maintain a failover controller (CAPsMAN)

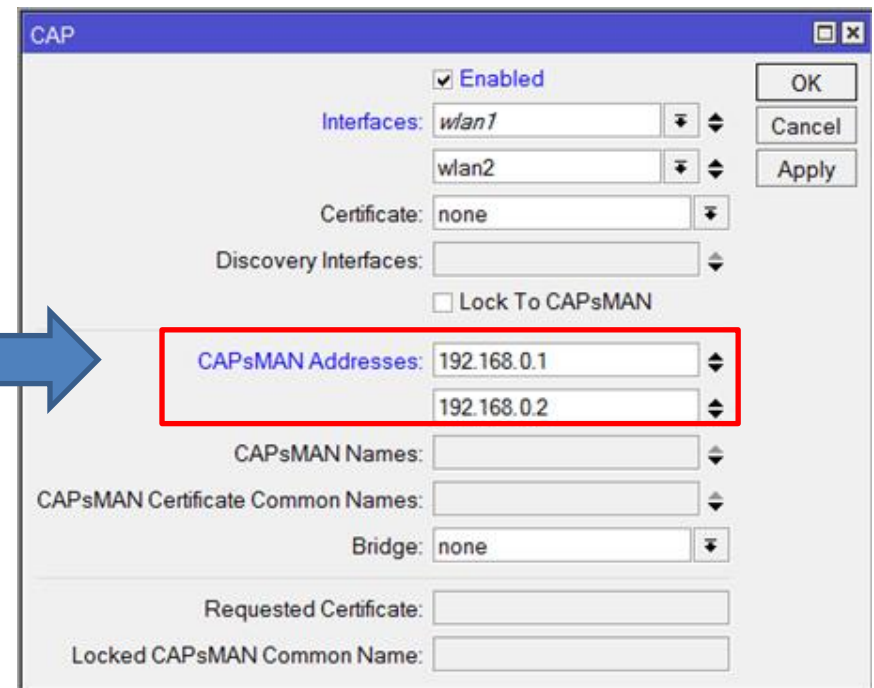
- In big networks you have
 - Many CAPs
 - Many active users
- Most times your customer will require redundancy
 - A bad power supply can take down whole network



Maintain a failover controller (CAPsMAN)

- Its possible to create the same configuration on a second or maybe third router to act as a backup CAPsMAN

➤ Just configure multiple CAPsMAN addresses on **every** CAP



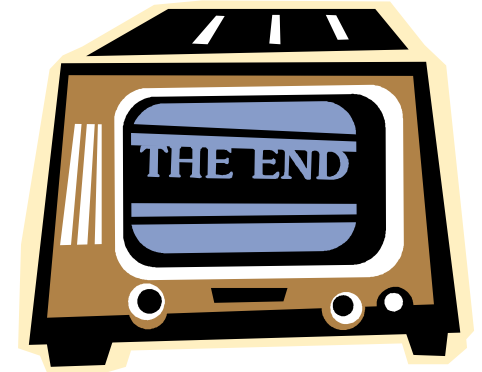
The screenshot shows the configuration window for a CAP (Controlled Access Point). The window is titled "CAP" and has a blue header bar. The configuration is as follows:

- Enabled
- Interfaces: wlan1, wlan2
- Certificate: none
- Discovery Interfaces: (empty)
- Lock To CAPsMAN
- CAPsMAN Addresses:** 192.168.0.1, 192.168.0.2 (highlighted with a red box)
- CAPsMAN Names: (empty)
- CAPsMAN Certificate Common Names: (empty)
- Bridge: none
- Requested Certificate: (empty)
- Locked CAPsMAN Common Name: (empty)

Buttons: OK, Cancel, Apply

Comments? Questions?


Thank You!
Enjoy the Rest of the MUM




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- Telephony-VoIP Solutions (Wholesale or Retail/CallingCard)
- A custom Network/Telecom service or solution
- Long term cooperation for your projects

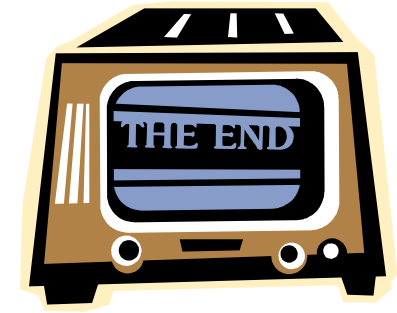
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More Comments? Questions?



Thank You!

Enjoy the Rest of the MUM

Do you like MikroTik? Need to know more?

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