



Centralized Managed Wireless Network Using Mikrotik CAPsMAN V2

By Shakeel Khan
Dreams Network & Technology Pvt (Ltd)
Pakistan



About Me

- **Name:**

- **Shakeel Khan**

- **Education:**

- **Electronic Engineer**

- **Position:**

- **Technical Product Manager**

- **Native Language:**

- **URDU**

- **Trainings:**

- ▶ MikroTik Trainer (Recently)

- ▶ MTCNA (MikroTik Certified Network Associate)

- ▶ MTCWE (MikroTik Certified Wireless Engineer)

- ▶ MTCTCE (MikroTik Certified Traffic Control Engineer)

- ▶ UBWS (Ubiquiti Broadband Wireless Specialist)

- ▶ UBWA V2 (Ubiquiti Broadband Wireless Admin)

- ▶ UBWE (Ubiquiti Enterprise Wireless Admin Ubiquiti Broadband Wireless Admin)

- ▶ VoIP YEASTAR

About Company

- ▶ Started in 2003
- ▶ Top Wireless/Security & Network Equipment Distributor in Pakistan.
- ▶ We are Master Distributor for:

 MikroTik

 **TOTO LINK**
The Smartest Network Device

 Yeastar

 GRANDSTREAM
CONNECTING THE WORLD

 UBIQUITI[®]
NETWORKS

We Deals in:

- ▶ IT managed services
- ▶ Trainings
- ▶ Security Solutions
- ▶ Electrical & Instrumentation Solutions with SCADA

Presentation Objectives

- ▶ Modes of Wireless Networks
- ▶ Applications of Wireless Networks
- ▶ Centralized Management
- ▶ Mikrotik's CAPsMAN & its Deployment
- ▶ Questions & Answers

Modes Of Wireless Networks

PTP (Point to Point):

- ▶ Required for long distance links
- ▶ High throughput (BACKHUAL PURPOSE)

PTMP (Point to Multi Point):

- ▶ Mostly in WISP's (One To Many)
- ▶ Shared link with multiple users
- ▶ Cheap compared to point to point

Centralized Managed Wireless Network (Enterprise Hotspots)

- ▶ To provide wireless coverage for the roaming/fixed stations
- ▶ Highly managed

Advantage & Disadvantage of Wireless Networks

Advantages:

- ▶ Required minimum time for installation
- ▶ Low cost
- ▶ High availability

Disadvantages / Limitations:

- ▶ Bandwidth limitations
- ▶ Regulatory limitations (Where Applicable)

Mostly Applications of Wireless Network

- ▶ Wireless ISPs
- ▶ Wireless CCTV
- ▶ Wireless VoIP
- ▶ Wireless Advertisements
- ▶ Wireless SCADA
- ▶ Wireless Data Networks

Why We Need Centralized Managed System ?

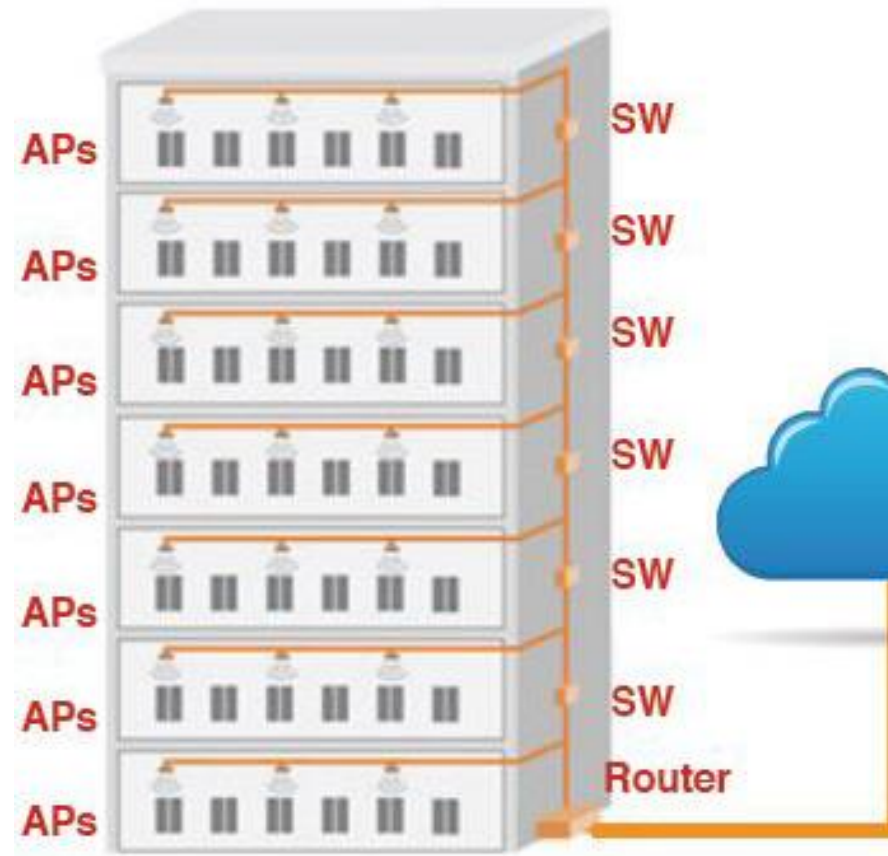
- ▶ For high availability of network
- ▶ One click management
- ▶ One windows statics of network

Applications:

- ▶ Hospitals
- ▶ Universities
- ▶ Industries
- ▶ Malls and cafe
- ▶ Homes / Apartments
- ▶ Ports and container terminals

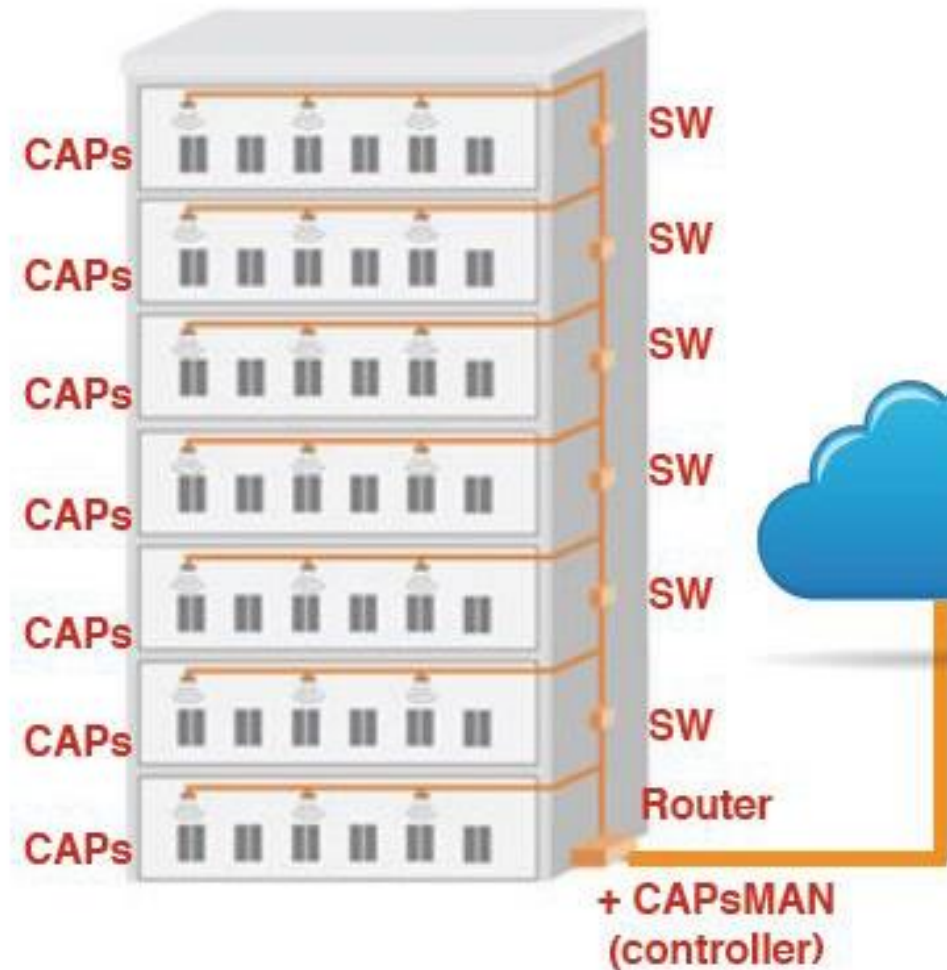
Conventional problems

- ▶ Conventionally, administering Wireless Access Point is done Individually one by one.
- ▶ Administrator has to make sure That the configurations are the Same for all APs like SSID, Security, Access List, Policy, etc.
- ▶ That needs more time and Manpower if we need to changes something for the enterprise WLAN Setups i.e Apartment As Shown.



Solution

- ▶ Using Mikrotik Capsman
It Shall Fix All conventional Problems.



Solution with MIKROTIK CAPsMAN (Success Story)



Reason to use MIKROTIK CAPsMAN

- ▶ **Highly flexible**
- ▶ **Reliable**
- ▶ **No additional license required (Comes Free With Routerboard Hardware)**
- ▶ **Highly scalable**
- ▶ **CAP can be any MIKROTIK hardware with at least one wireless interface**
- ▶ **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**
- ▶ **Easy availability**
- ▶ **Low cost**

Component of CAPs Management System

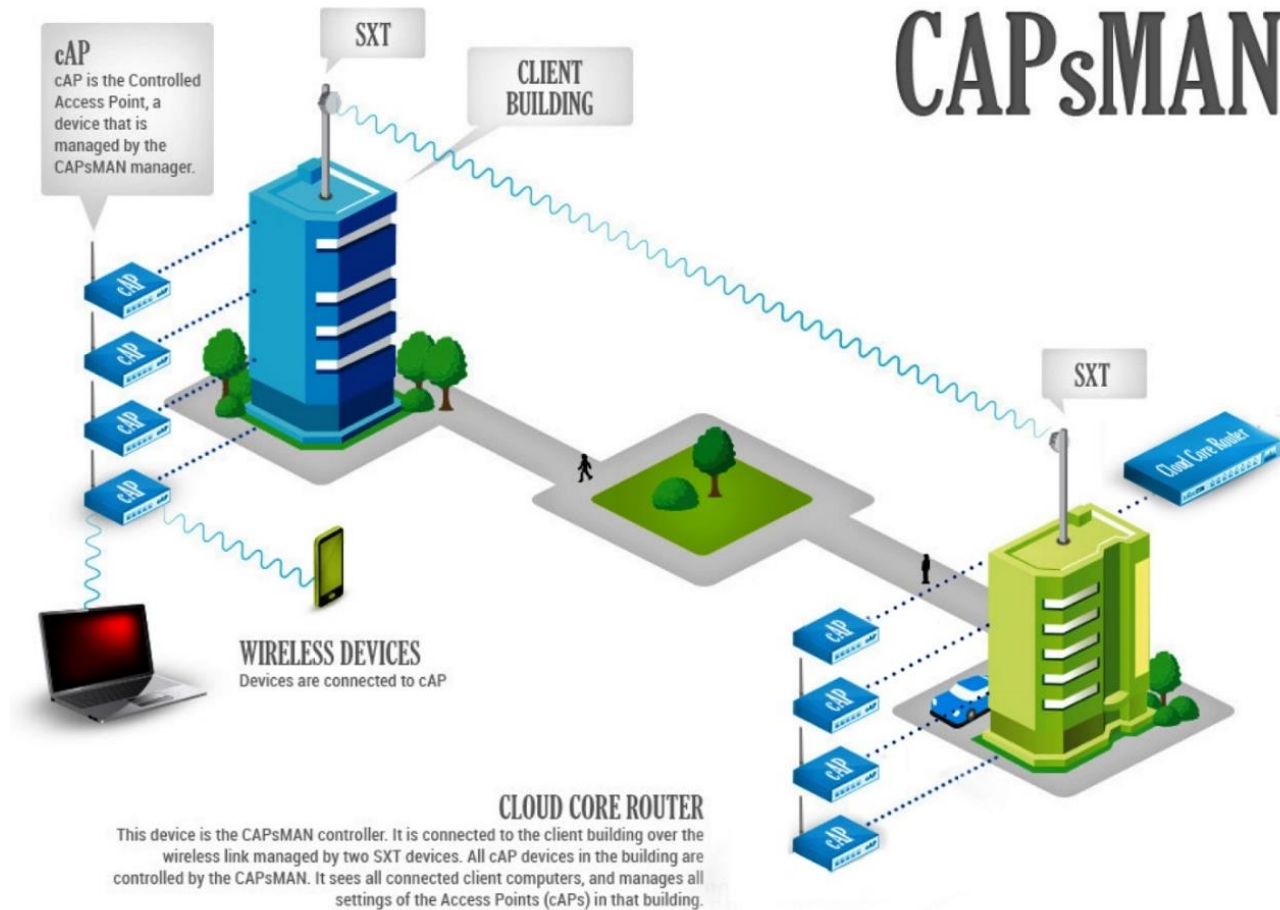
▶ **CAPsMAN**

- x86 or RouterBOARD based device
- Newest RouterOS v6 version
- Wireless-cm2 package installed and enabled

▶ **CAP**

- X86 or RouterBOARD based device
- Newest RouterOS v6 version
- Atheros chipset (a/b/g/n/ac) wireless card
- Wireless-cm2 package installed and enabled
- At least Level4 RouterOS license

CAPsMAN Simple Setup



CAPsMAN v2 features

- ▶ CAPsMAN automatic upgrade of all CAP clients (configurable)
- ▶ Improved CAP<->CAPsMAN data connection protocol
- ▶ Added "Name Format" and "Name Prefix" setting for Provision rules
- ▶ Improved logging entries when client roams between the CAPs
- ▶ Added L2 Path MTU discovery

CAPsMAN v2 compatibility

- ▶ CAPsMAN v2 is NOT compatible with current CAPsMAN v1 (CAPsMAN v1 CAP devices will not be able to connect to CAPsMAN v2 and CAPsMAN v2 CAP devices will not be able to connect to CAPsMAN v1).
- ▶ Both CAPsMAN and CAP devices should have wireless-cm2 package installed in order to make CAPsMAN v2 system to work.

CAPsMAN/Cap Setup Step By Step

- ▶ **Enable CAPsMAN service**
- ▶ **Create Bridge interface**
- ▶ **Add IP configuration to Bridge interface**
- ▶ **Run DHCP Server with NAT**
- ▶ **Create CAPsMAN Configuration**
- ▶ **Create Provisioning rule**
- ▶ **Enable CAP mode on the Aps**
- ▶ **Efficient Roaming Configuration TIP**
- ▶ **Specific Brand Allow Only Without Authentication**

CAPsMAN Setup LAB

The screenshot shows the WinBox interface for a CAPsMAN controller. The main window title is "admin@192.168.1.1 (CAPsMAN CONTROLLER) - WinBox v6.30.4 on RB2011UiAS (mipsbe)". The interface includes a sidebar with navigation options like Quick Set, CAPsMAN, Interfaces, Wireless, Bridge, PPP, Switch, Mesh, IP, MPLS, Routing, System, Queues, Files, Log, Radius, Tools, New Terminal, LCD, MetaROUTER, Partition, and Make Supout.rif.

The main content area is divided into several sections:

- Package List:** A table showing installed packages. The "wireless-cm2" package is highlighted with a red box.
- CAPsMAN:** A section with tabs for Interfaces, Provisioning, Configurations, Channels, Datapaths, Security Cfg., Access List, Remote CAP, Radio, and Registration Table. The "Manager" tab is selected.
- CAPs Manager:** A configuration window for the CAPs Manager, showing options like Enabled, Certificate, CA Certificate, and Generated Certificate.

Name	Version	Build Time	Scheduled
routing	6.30.4	Aug/25/2015 12:59:46	
security	6.30.4	Aug/25/2015 12:59:46	
system	6.30.4	Aug/25/2015 12:59:46	
wireless-cm2	6.30.4	Aug/25/2015 12:59:46	
wireless-fp	6.30.4	Aug/25/2015 12:59:46	

CAPs Manager Configuration:

- Enabled:
- Certificate: auto
- CA Certificate: auto
- Require Peer Certificate:
- Generated Certificate: CAPsMAN-E48D8C0D8C06
- Generated CA Certificate: CAPsMAN-CA-E48D8C0D8C06
- Package Path: [Empty]
- Upgrade Policy: none

CAPsMAN Setup LAB

admin@E4:8D:8C:0D:8C:0A (CAPsMAN CONTROLLER) - WinBox v6.30.4 on RB2011UiAS (mipsbe)

Sessions Settings Dashboard

Safe Mode Session: E4:8D:8C:0D:8C:0A

Bridge Ports Filters NAT Hosts

Name	Type	MTU	Tx
R bridge1	Bridge	1598	

1

Address List

Address	Network	Interface
192.168.1.1/24	192.168.1.0	bridge1

2

DHCP Server

DHCP Networks Leases Options Option Sets Alerts

Name	Interface	Relay	Lease Time
dhcp1	bridge1		

3

Firewall

Filter Rules **NAT** Mangle Service Ports Connections Address Lists Layer7 Protocols

#	Action	Chain	Src. Address	Dst. Address	Proto...	Src. Port	Dst. Port	In. Inter...	Out. In...
0	mas...	srcnat							

4

OS WinBox

New Terminal LCD MetaROUTER Partition Make Supout.tif

CAPsMAN Setup LAB

The screenshot displays the Mikrotik WinBox interface for CAPsMAN configuration. The main window title is "admin@192.168.1.1 (CAPsMAN CONTROLLER) - WinBox v6.30.4 on RB2011UiAS (mipsbe)". The interface includes a sidebar with navigation options like Quick Set, CAPsMAN, Interfaces, Wireless, Bridge, PPP, Switch, Mesh, IP, MPLS, Routing, System, Queues, Files, Log, and Radius. The main area shows the CAPsMAN configuration tabs: Interfaces, Provisioning, Configurations, Channels, Datapaths, Security Cfg, Access List, Remote CAP, Radio, and Registration Table. The Channels, Datapaths, and Security Cfg tabs are highlighted with red boxes. Below the tabs, there are three configuration windows:

- CAPs Channel <channel1>**: Name: channel1, Frequency: 2412 MHz, Width: 20 MHz, Band: 2ghz-b/g/n, Extension Channel: disabled, Tx. Power: [empty].
- CAPs Datapath Configuration <datapath1>**: Name: datapath1, Bridge: bridge 1, Bridge Cost: [empty], Bridge Horizon: [empty], Local Forwarding: , Client To Client Forwarding: , VLAN Mode: [empty], VLAN ID: [empty].
- CAPs Security Configuration <LAB SECURITY>**: Name: LAB SECURITY, Authentication Type: WPA PSK, WPA2 P, Encryption: aes ccm, tkip, Group Encryption: aes ccm, Passphrase: 987654321, EAP Methods: [empty], TLS Mode: [empty], TLS Certificate: [empty].

CAPsMAN Setup LAB

The screenshot displays the WinBox interface for CAPsMAN configuration. The main window title is "admin@192.168.1.1 (CAPsMAN CONTROLLER) - WinBox v6.30.4 on RB2011UiAS (mipsbe)". The navigation menu on the left includes "Quick Set", "CAPsMAN", "Interfaces", "Wireless", "Bridge", "PPP", "Switch", "Mesh", "IP", "MPLS", "Routing", "System", "Queues", "Files", "Log", "Radius", "Tools", "New Terminal", "LCD", "MetaROUTER", "Partition", and "Make Supout.rf".

The "CAPsMAN" section is active, with the "Configurations" tab selected. The "New CAPs Configuration" dialog is open, showing the following fields:

- Name: MUM-CONFIGURATION
- Mode: ap
- SSID: MUM-USA-2016
- Country: pakistan
- Max Station Count: [empty]
- Multicast Helper: [empty]
- HT Tx Chains: [empty]
- HT Rx Chains: [empty]
- HT Guard Interval: [empty]

Three sub-dialogs are also visible, each with a red box highlighting a specific tab:

- Wireless** dialog: Shows "Channel" tab with "Channel" set to "channel1".
- Datapath** dialog: Shows "Datapath" tab with "Datapath" set to "datapath1", "Bridge" set to "bridge1", and "VLAN ID" set to [empty].
- Security** dialog: Shows "Security" tab with "Security" set to "LAB SECURITY".

CAPsMAN Setup LAB Complete

admin@192.168.1.1 (CAPsMAN CONTROLLER) - WinBox v6.30.4 on RB2011UiAS (mipsbe)

Sessions Settings Dashboard

Safe Mode Session: 192.168.1.1

Quick Set
CAPsMAN
Interfaces
Wireless
Bridge
PPP
Switch
Mesh
IP
MPLS
Routing
System
Queues
Files
Log
Radius
Tools
New Terminal
LCD
MetaROUTER

CAPsMAN

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

+ - ✓ ✗ 📄 🔍

#	Radio MAC	Identity Regexp	Common Nam...	Action	Master Configurati...	Slave Configuration
0	00:00:00:00:00:00			create dy...	MUM-CONFIGUR...	

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

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

Hw. Supported Modes: Cancel

Identity Regexp: Apply

Common Name Regexp: Disable

IP Address Ranges: Comment

Action: create dynamic enabled Copy

Master Configuration: MUM-CONFIGURATION Remove

Slave Configuration:

Name Format: prefix

Name Prefix: MUM-USA

enabled

CAP to CAPsMAN Connection

▶ **MAC Layer2:**

- No IP configuration required
- CAP and CAPsMAN must be in the same Layer 2 network

▶ **IP (UDP) Layer3:**

- CAP must reach the CAPsMAN using IP protocol
- Can traverse NAT if necessary

- **Management connection between CAP and CAPsMAN is secured using DTLS.**
- **CAP client data traffic is not secured – if necessary additional encryption by using IPsec or encrypted tunnels is needed**

How Cap Selects CAPSMAN

- ▶ **CAP attempts to contact CAPsMAN and build available CAPsMAN list:**
 - List of CAPsMAN IPs,.
 - List of CAPsMAN IPs obtained from DHCP.
 - Broadcasting on configured interfaces using IP and MAC Layer.
- ▶ **CAP selects the CAPsMAN based on such rules:**
 - If CAPsMAN names setting is matched it will prefer that CAPsMAN earlier in the list
 - MAC layer connectivity to CAPsMAN is preferred over IP connectivity
 - If list is empty it will connect to any available CAPsMAN

CAP Configuration on AP LAB

The screenshot displays the WinBox configuration interface for a MikroTik device. The interface is divided into several panes:

- Bridge Pane (1):** Shows the configuration for a bridge named 'bridge1'. The table below summarizes the bridge configuration:

Name	Type	L2 MTU	Tx	Rx
bridge1	Bridge	1598		51.9 kbps

- DHCP Client Pane (2):** Shows the configuration for a DHCP client on the 'ether1' interface. The table below summarizes the DHCP client configuration:

Interface	Use P...	Add D...	IP Address	Expires After	Status
ether1	yes	yes	192.168.1.24...	00:08:56	bound

- CAP Pane (3):** Shows the configuration for a CAP (Client Authentication Profile). The configuration includes:
 - Enabled:
 - Interfaces: wlan1
 - Certificate: none
 - Discovery Interfaces: bridge1
 - Lock To CAPsMAN:
 - CAPsMAN Addresses: 192.168.1.1
 - CAPsMAN Names: (empty)
 - CAPsMAN Certificate Common Names: (empty)
- Wireless Tables Pane (4):** Shows the configuration for the wireless interface 'wlan1'. The table below summarizes the wireless interface configuration:

Name	Type	Tx
wlan1	Wireless (Atheros AR9...)	4.0 kbps

The interface also shows the following configuration details for the wireless interface:

- Managed by CAPsMAN:
- Channel: 2412/20/gn(20dBm)
- SSID: MUM-USA-2016, local forwarding

CAP Configuration on AP LAB

- ▶ Make sure that the latest package of firmware should be updated

The screenshot displays the WinBox v6.33.3 interface. The 'Package List' window is open, showing a table of installed packages. The 'wireless-cm2' package is highlighted with a red box, indicating it is the latest version (6.33.3) and should be updated. The 'CAP' configuration dialog is also open, showing the 'Enabled' checkbox checked, 'Interfaces' set to 'wlan1', 'Certificate' set to 'none', 'Discovery Interfaces' set to 'bridge1', 'CAPsMAN Addresses' set to '192.168.1.1', and 'Bridge' set to 'bridge1'.

Name	Version	Build Time	Scheduled
advanced-t...	6.33.3	Dec/03/2015 16:08:10	
dhcp	6.33.3	Dec/03/2015 16:08:10	
hotspot	6.33.3	Dec/03/2015 16:08:10	
ipv6	6.33.3	Dec/03/2015 16:08:10	
mpls	6.33.3	Dec/03/2015 16:08:10	
ppp	6.33.3	Dec/03/2015 16:08:10	
routing	6.33.3	Dec/03/2015 16:08:10	
security	6.33.3	Dec/03/2015 16:08:10	
system	6.33.3	Dec/03/2015 16:08:10	
wireless-cm2	6.33.3	Dec/03/2015 16:08:10	
wireless-fp	6.33.3	Dec/03/2015 16:08:10	

Name	Type	Tx
XS wlan1	Wireless (Atheros AR9...	0 bps

CAP Connected with CAPsMAN LAB

The image displays three screenshots of Mikrotik WinBox, illustrating the configuration of CAP (Client Authentication Protocol) on different devices. Each screenshot shows the 'Wireless Tables' configuration page, which is used to manage wireless interfaces and their associated CAP settings.

Top Left Screenshot: Shows the configuration for a WAP device (WinBox v6.33.3 on WAP (mipsbe)). The session ID is 00:0C:42:8D:08:3E. The 'Wireless Tables' table shows a single entry for 'wlan1' with a Tx rate of 5.2 kbps. The configuration includes the following details:

- managed by CAPsMAN
- channel: 2412/20/gn(20dBm), SSID: MUM-USA-2016, local forwarding

Name	Type	Tx
RS wlan1	Wireless (Atheros AR9...	5.2 kbps

Top Right Screenshot: Shows the configuration for a MikroTik device (WinBox v6.32.4 on cAP (mi...)). The session ID is E4:8D:8C:F4:7B:92. The 'Wireless Tables' table shows a single entry for 'wlan1' with a Tx rate of 4. The configuration includes the following details:

- managed by CAPsMAN
- channel: 2412/20/gn(20dBm), SSID: MUM-USA-2016, local fo..

Name	Type	Tx
RS wlan1	Wireless (Atheros AR9...	4

Bottom Screenshot: Shows the configuration for a MikroTik device (WinBox v6.34.2 on RB Groove A-52HPn (mipsbe)). The session ID is D4:CA:6D:BF:6E:80. The 'Wireless Tables' table shows a single entry for 'wlan1' with a Tx rate of 5.2 kbps and an Rx rate of 0 bps. The configuration includes the following details:

- managed by CAPsMAN
- channel: 2412/20/gn(20dBm), SSID: MUM-USA-2016, local forwarding

Name	Type	Tx	Rx	Tx Pa
RS wlan1	Wireless (Atheros AR9...	5.2 kbps	0 bps	

CAP Radio Table on CAPsMAN

The screenshot shows the WinBox interface for a CAPsMAN controller. The window title is "admin@192.168.1.1 (CAPsMAN CONTROLLER) - WinBox v6.30.4 on RB2011UiAS (mipsbe)". The main menu includes "Sessions", "Settings", and "Dashboard". The "Session" is set to "192.168.1.1". The left sidebar contains various configuration categories: Quick Set, CAPsMAN, Interfaces, Wireless, Bridge, PPP, Switch, Mesh, IP, MPLS, Routing, System, and Queues. The main panel is titled "CAPsMAN" and has several tabs: Interfaces, Provisioning, Configurations, Channels, Datapaths, Security Cfg., Access List, Remote CAP, Radio, and Registration Table. The "Radio" tab is selected and highlighted with a red box. Below the tabs is a "Provision" filter and a "Find" search box. The main table displays the following data:

	Radio MAC	Remote CAP Name	Remote CAP Iden...	Interface
P	00:0C:42:8D:08:3E	[00:0C:42:8D:08:...	WAP CAP 1	MUM-USA1
P	D4:CA:6D:BF:6E:81	[D4:CA:6D:BF:6E:...	Mikro Tik	MUM-USA2
P	E4:8D:8C:F4:7B:93	[E4:8D:8C:F4:7B:...	Mikro Tik	MUM-USA3

At the bottom of the table, it indicates "3 items (3 selected)".

CAP Identification On Capsman

- ▶ MAC / IP Address
- ▶ RouterBoard model
- ▶ Serial Number of the Board
- ▶ RouterOS version
- ▶ System Identity
- ▶ Main wireless MAC
- ▶ State of the CAP
- ▶ Provided radio count

CAPsMAN									
Interfaces	Provisioning	Configurations	Channels	Datapaths	Security Cfg.	Access List	Remote CAP	Radio	Registration Table
[-]	[Y]	Provision	Upgrade	Set Identity					
Address	Name	Board	Serial	Version	Identity	Base MAC	State	Radios	
00:0C:42:8D:08:3E	[00:0C:42:8D:...	RBwAP2nD	5D470150508A	6.33.3	MikroTik	00:0C:42:8D:08:3D	Run	1	
D4:CA:6D:BF:6E:80	[D4:CA:6D:B...	RB Groove A...	448C0290B31C	6.34.2	MikroTik	D4:CA:6D:BF:6E:80	Run	1	
E4:8D:8C:F4:7B:92	[E4:8D:8C:F4...	RBcAP2n	654705BD7E...	6.32.4	MikroTik	E4:8D:8C:F4:7B:92	Run	1	

Station Registered on CAPsMAN

admin@192.168.1.1 (CAPsMAN CONTROLLER) - WinBox v6.30.4 on RB2011UiAS (mipsbe)

Sessions Settings Dashboard

Safe Mode Session: 192.168.1.1

Quick Set CAPsMAN Interfaces Wireless Bridge PPP Switch Mesh IP MPLS Routing System

CAPsMAN

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

Find

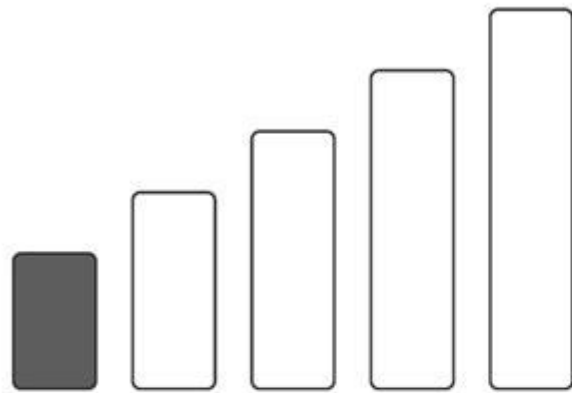
Interface	SSID	MAC Address	Tx Rate	Rx Rate	Tx Signal	Rx Signal	Uptime	Tx/F
MUM-USA1	MUM-USA-2016	2C:33:7A:50:F2:33	52Mbps...	65Mbps...	0	-65	00:40:01...	27 051/
MUM-USA1	MUM-USA-2016	00:73:8D:8B:ED:CC	65Mbps...	65Mbps...	0	-43	00:38:58...	9 760/7
MUM-USA3	MUM-USA-2016	90:8D:6C:AF:9E:11	65Mbps...	65Mbps...	0	-60	00:14:54...	27 930/

3 items (1 selected)

CAPsMAN Access List Features

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

Efficient Roaming Configuration TIP



Efficient Roaming Configuration TIP

admin@E4:8D:8C:ED:CB:37 (CAPSMAN) - WinBox v6.35 on RB951Ui-2HnD (mipsbe)

Session Settings Dashboard

Safe Mode Session: E4:8D:8C:ED:CB:37

CAPsMAN

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

#	MAC Address	MAC Mask	Interface	Signal Ra...	Action	Client To Clie...	VLAN Mo...	VLAN ID
0			all	-60..120	accept	yes		
1			all	-120..-61	reject	yes		

2 items (1 selected)

CAPs Access Rule <>

MAC Address: OK

MAC Mask: Cancel

Interface: all Apply

SSID Regexp: Disable

Signal Range: -60..120 Comment

Time

Action: accept Copy

Remove

AP Tx Limit:

Client Tx Limit:

Private Passphrase:

Client To Client Forwarding:

RADIUS Accounting:

VLAN Mode:

VLAN ID:

enabled

CAPs Access Rule <>

MAC Address: OK

MAC Mask: Cancel

Interface: all Apply

SSID Regexp: Disable

Signal Range: -120..-61 Comment

Time

Action: reject Copy

Remove

AP Tx Limit:

Client Tx Limit:

Private Passphrase:

Client To Client Forwarding:

RADIUS Accounting:

VLAN Mode:

VLAN ID:

enabled

RouterOS WinBox

MAC Authentication

- By using this rule you can reject the undesired stations only

The screenshot displays the Mikrotik WinBox interface for configuring CAPsMAN. The main window shows the 'Access List' tab with a table of rules. A dialog box titled 'CAPs Access Rule <90:8D:6C:AF:9E:11>' is open, showing the configuration for a specific rule.

#	MAC Address	MAC Mask	Interface	Signal Ra...	Action	Client To Clie...	VLAN Mo...	VLAN ID
0	90:8D:6C:AF:9E:11				reject			
1			all	-60..120	accept	yes		
2			all	-120..61	reject	yes		

CAPs Access Rule <90:8D:6C:AF:9E:11>

MAC Address: 90:8D:6C:AF:9E:11

MAC Mask:

Interface:

SSID Regexp:

Signal Range:

Time

Action: reject

AP Tx Limit:

Client Tx Limit:

Private Passphrase:

Client To Client Forwarding:

RADIUS Accounting:

VLAN Mode:

VLAN ID:

enabled

3 items (1 selected)

Brand Based Authentication

- By using this rule you can allow selected Brands Via Mac Orders

The screenshot displays the Mikrotik WinBox CAPsMAN configuration interface. The main window shows a table of access rules with the following data:

#	MAC Address	MAC Mask	Interface	Signal Ra...	Action	Client To Clie...	VLAN Mo...	VLAN ID	Comment
3	90:8D:6C:00:00:00	FF:FF:FF:00:00:00			accept				Brand Allow
4					reject				Deny All

Below the table, two configuration panels are shown for a selected rule (MAC Address: 90:8D:6C:00:00:00):

- Left Panel (CAPs Access Rule <90:8D:6C:00:00:00>):** Shows fields for MAC Address (90:8D:6C:00:00:00), MAC Mask (FF:FF:FF:00:00:00), Interface, SSID Regexp, and Signal Range. The Time field is set to 00:00:00 - 1d 00:00:00, and Days are checked for all days of the week. The Action is set to 'accept'.
- Right Panel (CAPs Access Rule <>):** Shows fields for MAC Address, MAC Mask, Interface, SSID Regexp, and Signal Range. The Action is set to 'reject'.

The interface also includes a sidebar with navigation options like Quick Set, CAPsMAN, Interfaces, Wireless, Bridge, PPP, Switch, Mesh, IP, MPLS, Routing, System, Queues, Files, Log, Radius, Tools, New Terminal, MetaROUTER, Partition, Make Supout.rif, Manual, New WinBox, and Exit.

Our Contact details

▶ **Official Address: C-89 2nd Floor Gulshan-e-Hadeed Phase-I, Karachi, Pakistan-75010**

▶ **Lahore**

▶ **Official Phone: 021-34710763 Ext : 301**

▶ **Private Cell: +923018212944**

▶ **Official Website: www.dreamsnw.com**

▶ **Official E-mail: info@dreamnw.com**

▶ **Facebook :**

<https://www.facebook.com/DreamsNetworkTechnology>

Questions & Answers

<http://wiki.mikrotik.com/wiki/Manual:CAPsMAN>

