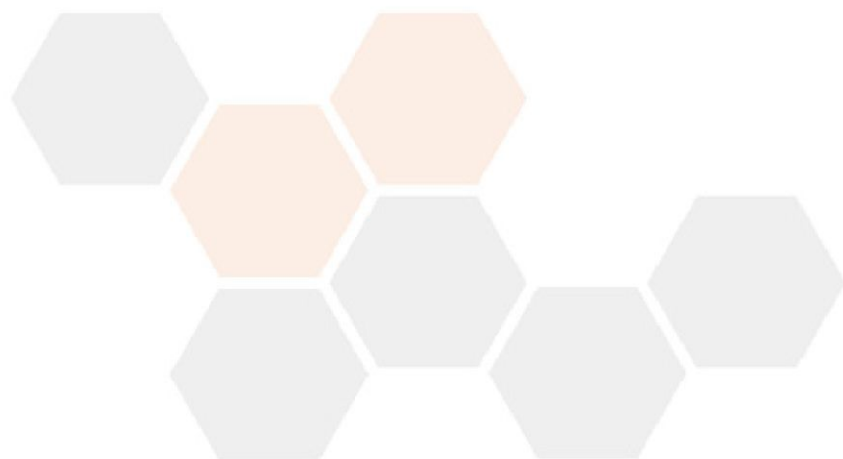


南宁用易网络科技有限公司

陈家龙

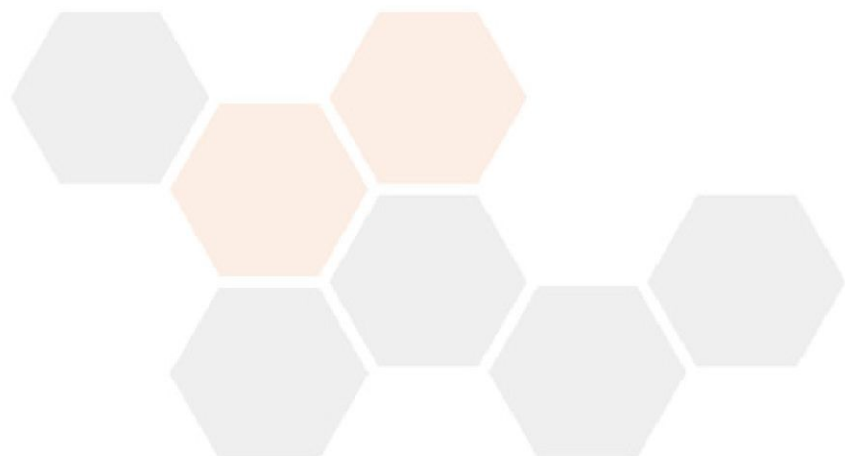
QQ:61565118

手机：13077766825



我与Mikrotik

- 2004年第一次接触ROS 2.7.14
- 2005年1月创建中国首家ROS软路由技术的网站(www.router.com.cn)
- 2005年8月组装第一台ROS软路由整机
- 2006年3月成立南宁用易公司，正式成为Mikrotik官方代理商
- 2016年3月止，我们生产的软路由整机销量超过2万台
- 2016年3月止，我们服务过的客户超过5万个



感谢，Thank You Mikrotik！ 感谢，参加今天MUM的朋友

- Mikrotik如此优秀，需要支持，请自觉支持正版
- 尊重技术，请不要把ROS当青菜卖
- 尊重同行，互不拆台，共同成长，把Mikrotik做大（大家好，才是真的好）
- Mikrotik一辈子的事业

Hotspot+ capsman酒店应用

蓝慧妮

MTCNA

MTCTCE

QQ:61565123

南宁用易网络科技有限公司

目录

一、CAPsMAN、hotspot简介

二、实例演示

三、实例对比

四、CAPsMAN其他功能

无线AP的特性

- 提供了无线上网环境
- 使用Pre-Shared-key身份验证和AES加密，保证无线传输的安全性
- 访问限制列表可支持MAC限制
- 使用RADIUS集中管理客户端
- 适用于多个环境：公寓、家庭、酒店、公园、机场、餐馆等

管理多个AP时，会遇到下列麻烦

- 一 在处理默认配置上耗时间
- 二 给每个AP分配管理地址
- 三 无法统一管理接入的客户端
- 四 无法做到无缝漫游
- 五 规划频段麻烦

CAPsMAN的优势

集中管理RouterOS AP

支持双频AP

可在二层或者三层环境中管理AP

优势

支持证书

本地转发

Radius 身份验证

自定义配置

对设备的要求

CAPsman

- X86,CHR或者routerboard设备
- Wireless-fp包需要安装V6.11以上系统
- Wireless-cm2包需要安装v6.22rc7以上系统
- 安装Wireless-fp/ cm2的包，并启用

CAP

- X86或者routerboard设备
- Wireless-fp包需要安装V6.11以上系统
- Wireless-cm2包需要安装v6.22rc7以上系统
- Atheros的芯片 (A / B/ G / N/ AC) 无线网卡
- 安装Wireless-fp/ cm2的包，并启用
- L4授权以上

hotspot

Hotspot是一种通过要求用户认证来访问某些网络资源的方法。

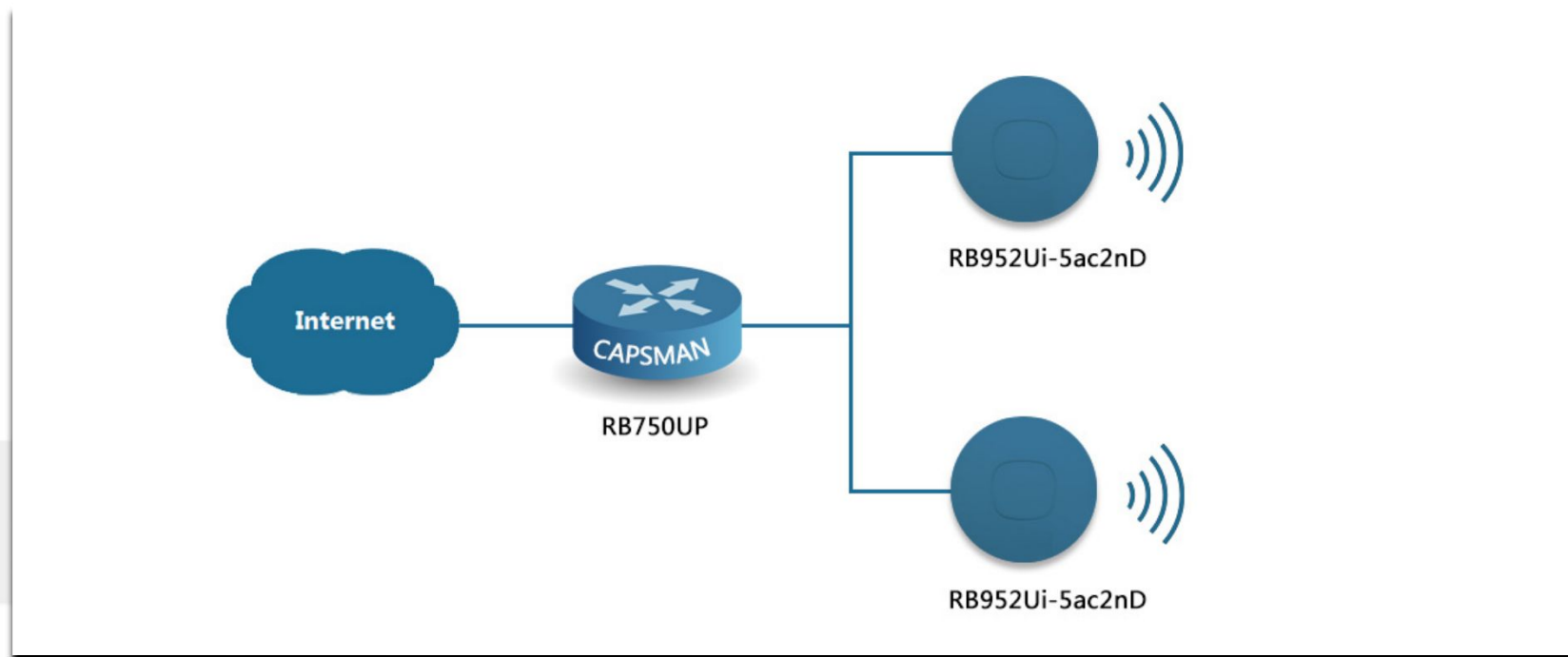
系统将自动要求未认证的用户打开认证网页，认证成功后，便可连接到互联网，未认证的用户无论输入任何一个网站地址，都会被强制到认证界面要求认证。

自带试用、mac cookie功能

支持自定义认证界面，您可以根据自己的需求设计认证界面

实例一

本地主路由管理



需求

- 2.4G与5.8G两个频段同时无缝漫游

- 各AP之间频段最小干扰

- 优化无线网卡的接入量

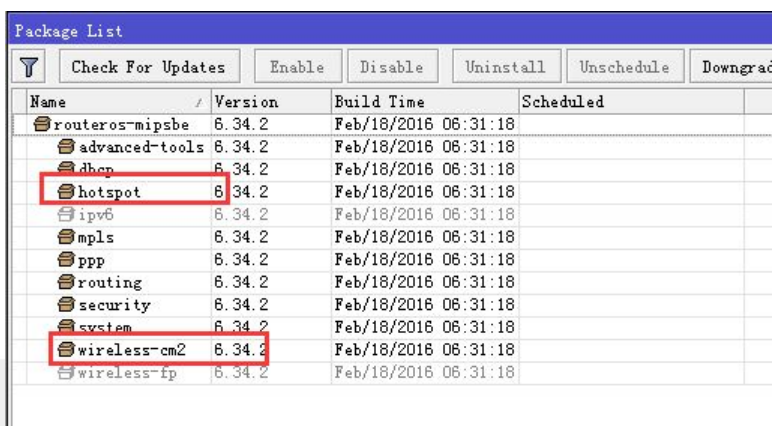
- 用户每天可免费上网30分钟

- 特殊网站无需验证也可访问

- 开启VIP通道，VIP用户可免认证上网

需要的功能包

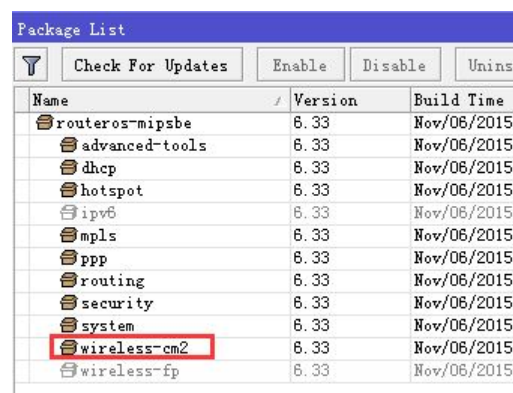
CAPsMAN



A screenshot of the Mikrotik Package List interface for a CAPsMAN control plane. The interface shows a table of installed packages. The 'hotspot' and 'wireless-cm2' packages are highlighted with red boxes. The table columns are Name, Version, Build Time, and Scheduled.

Name	Version	Build Time	Scheduled
routeros-mipsbe	6.34.2	Feb/18/2016 06:31:18	
advanced-tools	6.34.2	Feb/18/2016 06:31:18	
dhcp	6.34.2	Feb/18/2016 06:31:18	
hotspot	6.34.2	Feb/18/2016 06:31:18	
ipv6	6.34.2	Feb/18/2016 06:31:18	
mpls	6.34.2	Feb/18/2016 06:31:18	
ppp	6.34.2	Feb/18/2016 06:31:18	
routing	6.34.2	Feb/18/2016 06:31:18	
security	6.34.2	Feb/18/2016 06:31:18	
system	6.34.2	Feb/18/2016 06:31:18	
wireless-cm2	6.34.2	Feb/18/2016 06:31:18	
wireless-fp	6.34.2	Feb/18/2016 06:31:18	

CAP



A screenshot of the Mikrotik Package List interface for a CAP access point. The interface shows a table of installed packages. The 'wireless-cm2' package is highlighted with a red box. The table columns are Name, Version, and Build Time.

Name	Version	Build Time
routeros-mipsbe	6.33	Nov/06/2015
advanced-tools	6.33	Nov/06/2015
dhcp	6.33	Nov/06/2015
hotspot	6.33	Nov/06/2015
ipv6	6.33	Nov/06/2015
mpls	6.33	Nov/06/2015
ppp	6.33	Nov/06/2015
routing	6.33	Nov/06/2015
security	6.33	Nov/06/2015
system	6.33	Nov/06/2015
wireless-cm2	6.33	Nov/06/2015
wireless-fp	6.33	Nov/06/2015

CAPsMAN控制端与AP使用的包必须一样

CAPsMAN

- 设置联网
- 建立桥接口，配置IP、DHCP服务器
- 建立并配置hotspot服务器

server profile开启免费试用

users 建立用户账号

ip bindings 设置免认证用户

walled garden免认证访问的网站

- 配置CAPsMAN

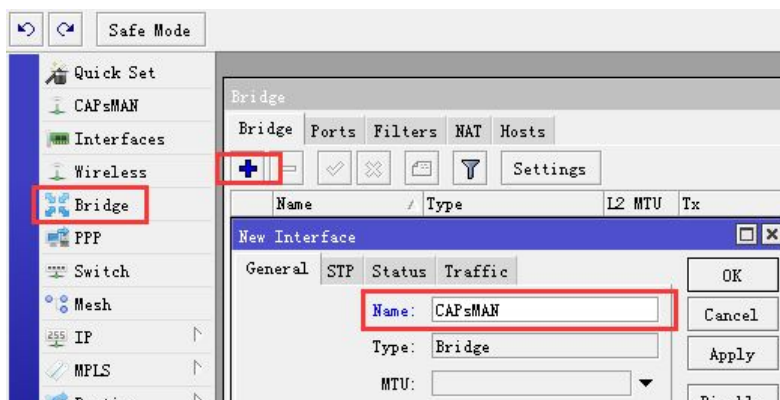
开启capsman功能

建立配置模板

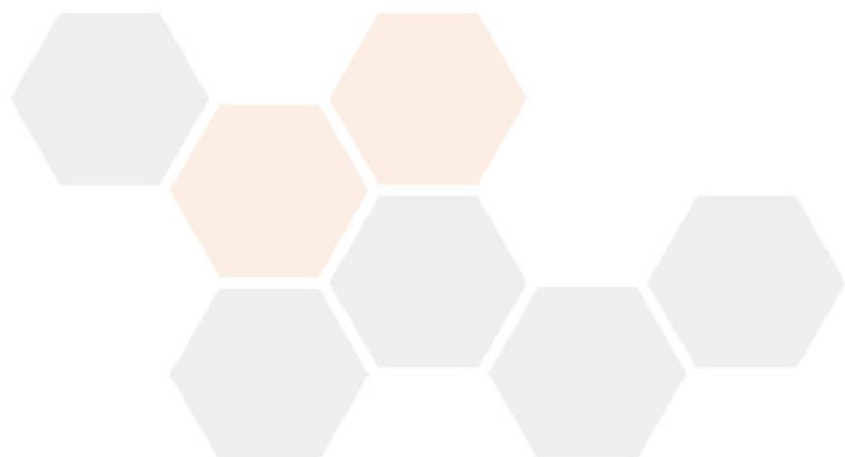
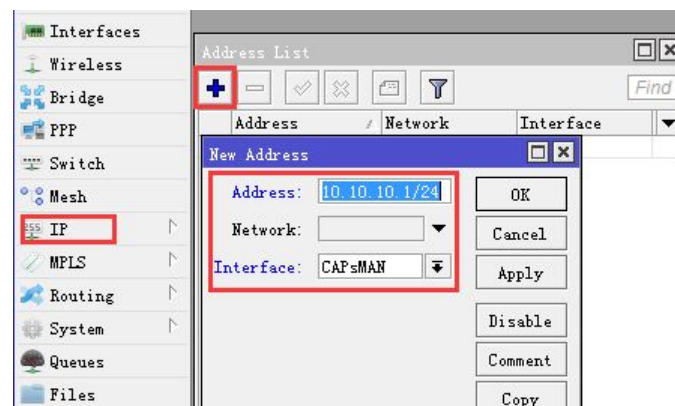
创建应用配置规则

优化AP

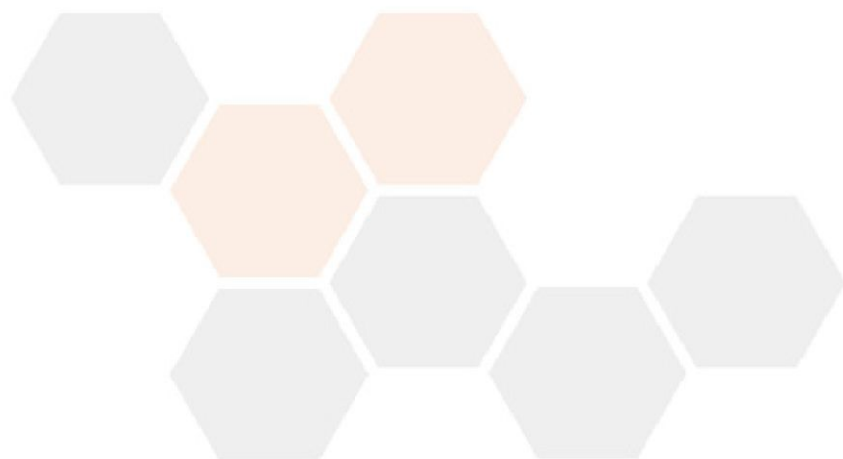
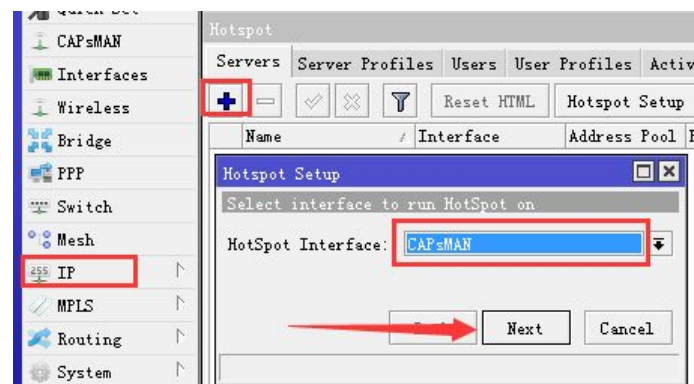
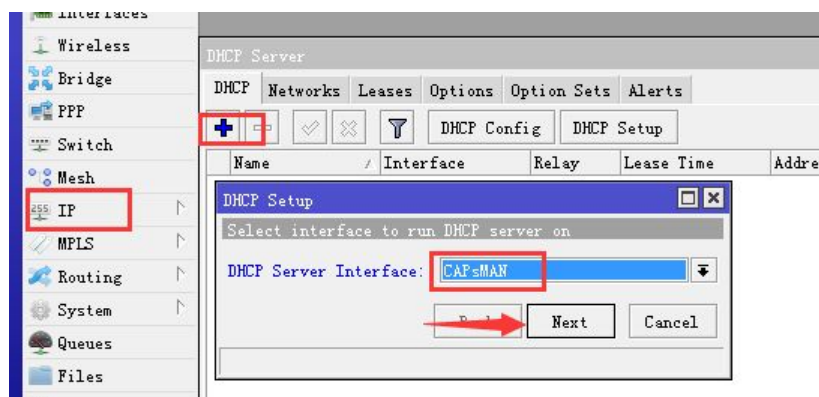
创建一个桥



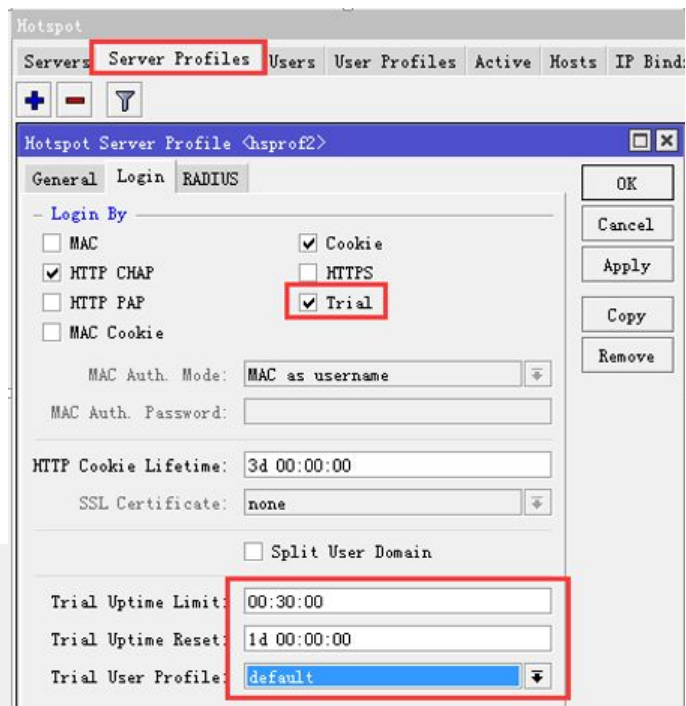
给桥添加IP地址



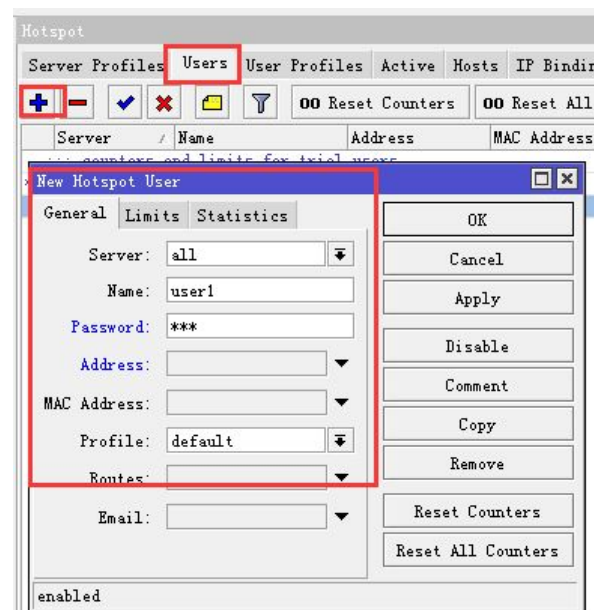
快速建立DHCP服务器与hotspot服务器



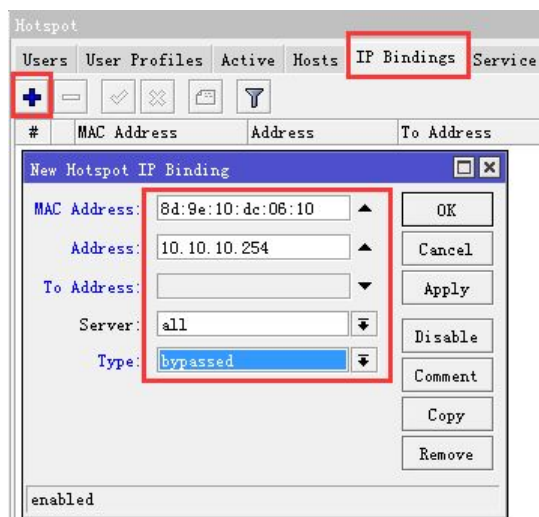
server profile开启免费试用



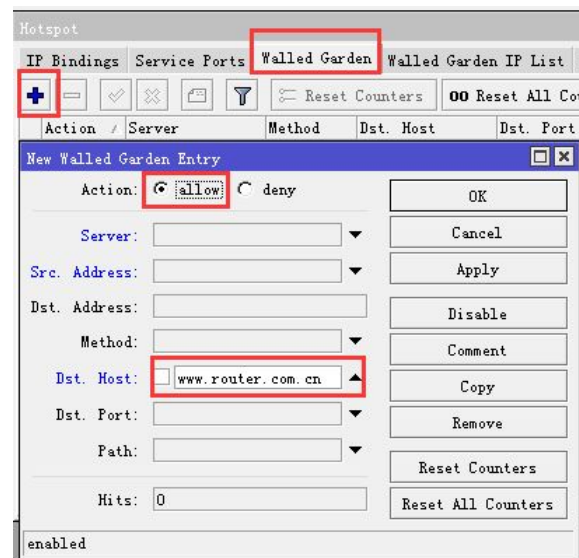
Users 里面添加账号以及密码



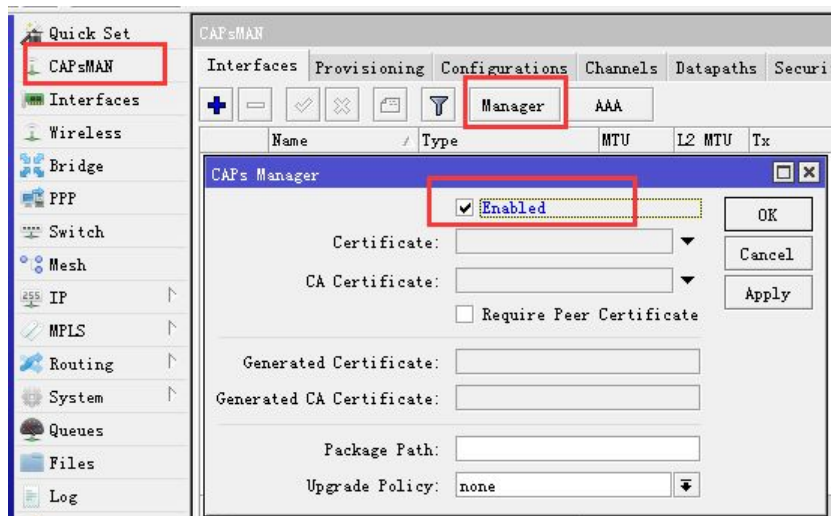
ip bindings 设置免认证用户



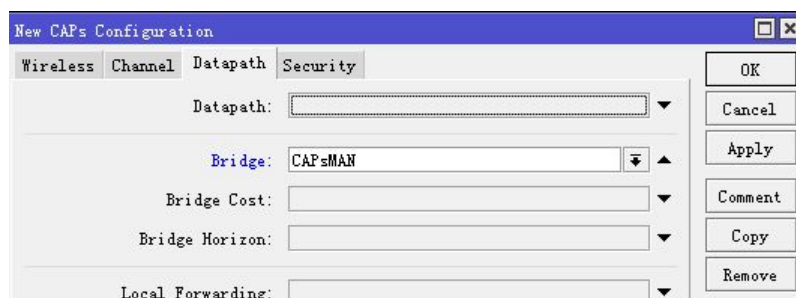
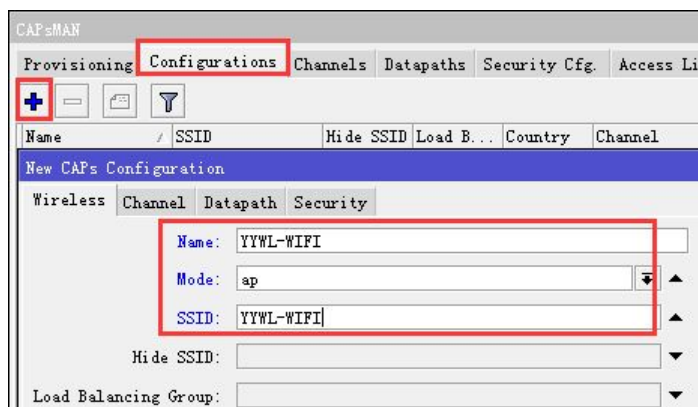
walled garden免认证访问的网站



开启capsman功能

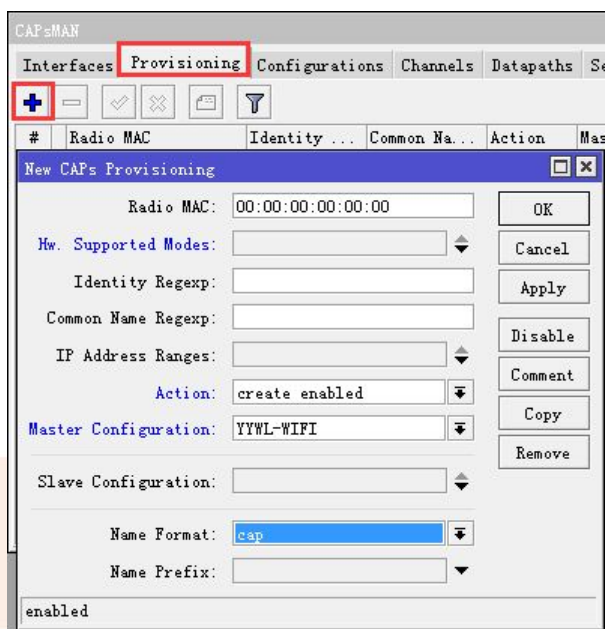


新建配置模板，设置模板名称、模式、SSID，选择桥接口

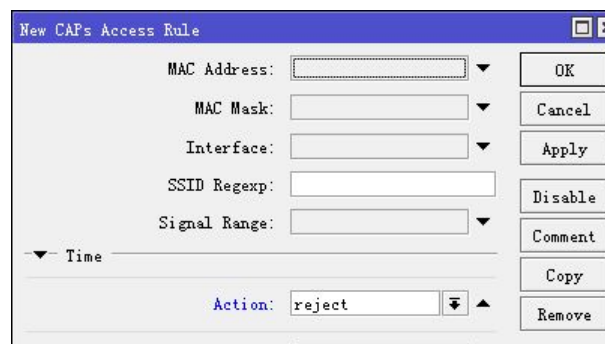
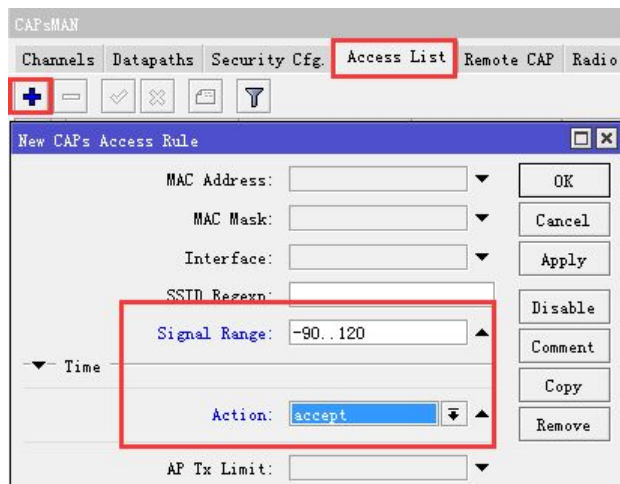


注：如对无线频率无要求，建议channel留空，ROS会自动选择网卡支持且干扰较少的频段

创建应用配置规则

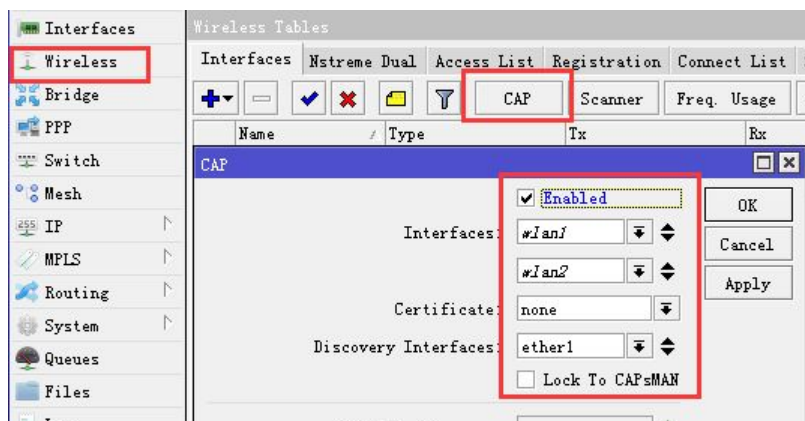


新建access list 调整信号范围

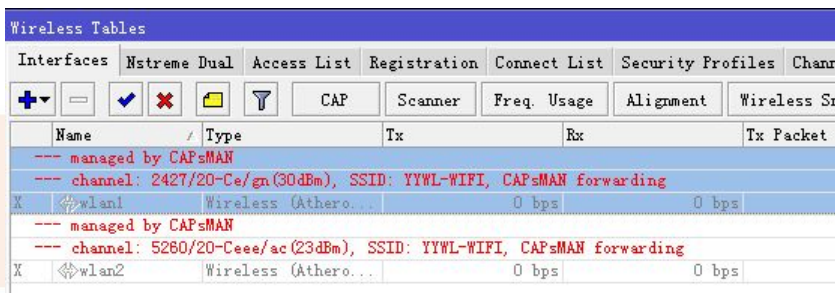


允许-90..120的信号范围通过，其他的全部丢掉

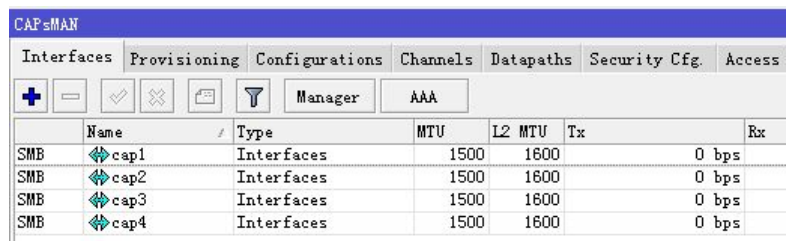
Cap开启CAP功能选择无线网卡选择发现的接口



连接上CPAsMAN后，显示当前配置

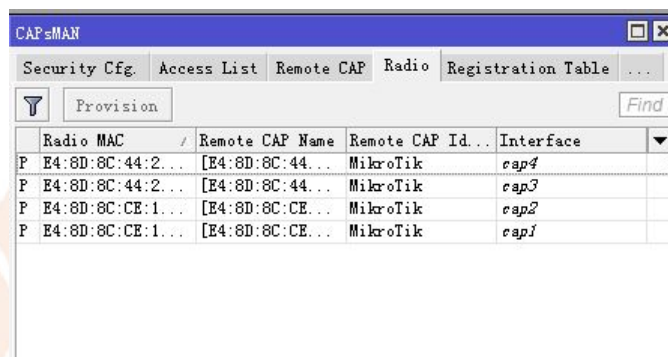


CAPsMAN端也出现了AP的连接信息



The screenshot shows the CAPsMAN configuration interface, specifically the 'Interfaces' tab. It displays a table with columns for Name, Type, MTU, L2 MTU, Tx, and Rx. Four interfaces are listed: cap1, cap2, cap3, and cap4, all of type 'Interfaces' with an MTU of 1500 and L2 MTU of 1600. Tx and Rx rates are shown as 0 bps.

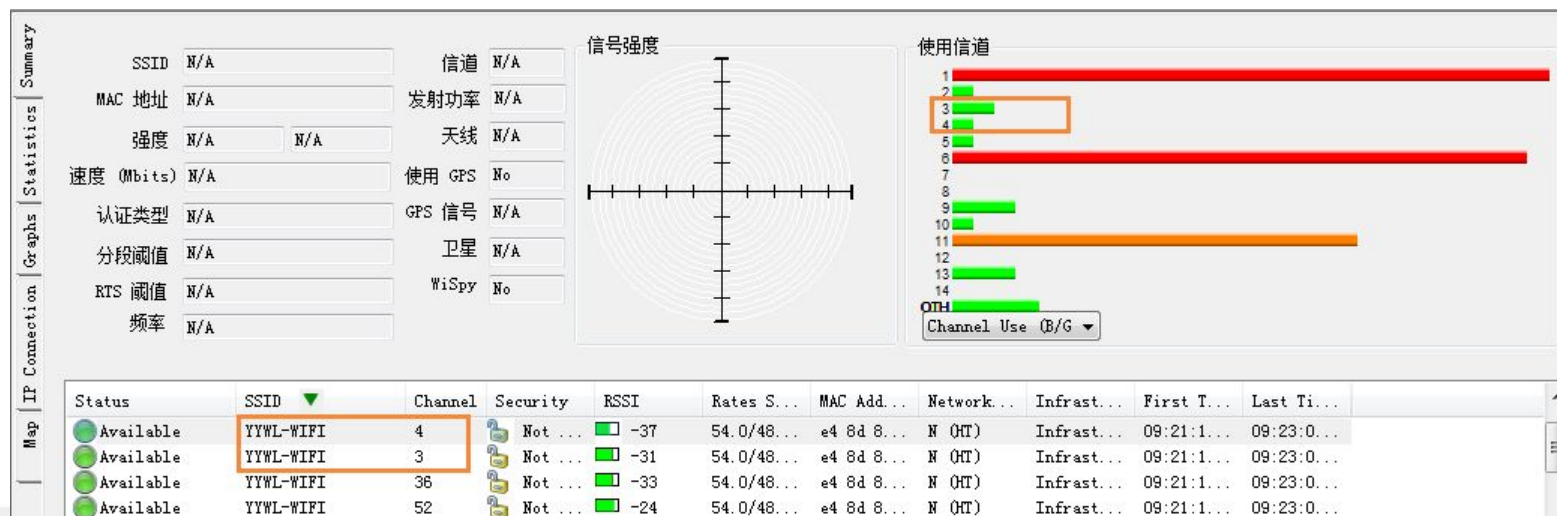
Name	Type	MTU	L2 MTU	Tx	Rx
cap1	Interfaces	1500	1600	0 bps	
cap2	Interfaces	1500	1600	0 bps	
cap3	Interfaces	1500	1600	0 bps	
cap4	Interfaces	1500	1600	0 bps	



The screenshot shows the CAPsMAN configuration interface, specifically the 'Security Cfg' tab. It displays a table with columns for Radio MAC, Remote CAP Name, Remote CAP Id..., and Interface. Four entries are listed, each showing a MikroTik AP connected to a specific CAP interface (cap4, cap3, cap2, cap1).

Radio MAC	Remote CAP Name	Remote CAP Id...	Interface
E4:8D:8C:44:2...	[E4:8D:8C:44...	MikroTik	cap4
E4:8D:8C:44:2...	[E4:8D:8C:44...	MikroTik	cap3
E4:8D:8C:CE:1...	[E4:8D:8C:CE...	MikroTik	cap2
E4:8D:8C:CE:1...	[E4:8D:8C:CE...	MikroTik	cap1

使用无线分析工具

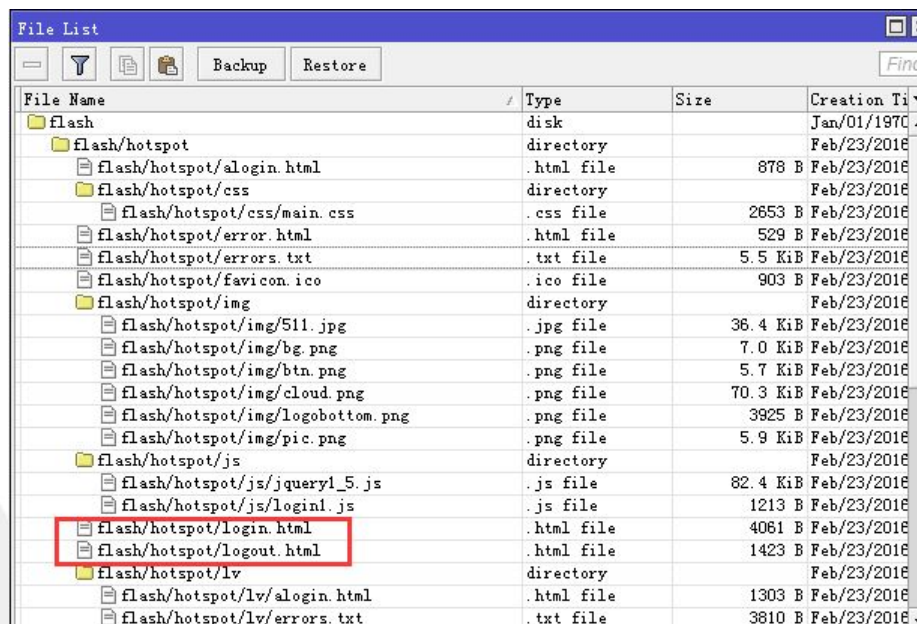


The screenshot shows the WirelessMon Professional software interface. At the top, the title bar reads "WirelessMon Professional" with a menu bar containing "文件", "配置", and "帮助". Below the menu bar is a toolbar with various icons. The main window is divided into several sections:

- 选择网卡 (Select Network Adapter):** A dropdown menu shows "Broadcom 802.11ac Network Adapter" and a "重新加载卡" (Reload Card) button.
- Summary:** A grid of fields for network details, all currently showing "N/A":
 - SSID: N/A, 信道 (Channel): N/A
 - MAC 地址: N/A, 发射功率 (Transmit Power): N/A
 - 强度 (Strength): N/A, 天线 (Antenna): N/A
 - 速度 (Mbps): N/A, 使用 GPS: No
 - 认证类型 (Auth Type): N/A, GPS 信号: N/A
 - 分段阈值 (Segment Threshold): N/A, 卫星: N/A
 - RTS 阈值 (RTS Threshold): N/A, WiSpy: No
 - 频率 (Frequency): N/A
- 信号强度 (Signal Strength):** A circular radar chart with concentric circles and a vertical scale on the right.
- 使用信道 (Channel Use):** A bar chart showing channel usage. The y-axis lists channels: 36, 40, 44, 48, 52, 56, 60, 64, 149, 153, 157, 161, 165, and OTH. Channels 36 and 52 are highlighted with orange arrows. A red bar at the bottom represents OTH usage. A "Channel Use (A)" dropdown is at the bottom.
- Table:** A table with columns: Status, SSID, Channel, Security, RSSI, Rates S..., MAC Add..., Network..., Infrast..., First T..., Last Ti... The table contains four rows of data, with the third row highlighted in orange:

Status	SSID	Channel	Security	RSSI	Rates S...	MAC Add...	Network...	Infrast...	First T...	Last Ti...
Available	YYWL-WIFI	7	Not ...	-35	54.0/48...	e4 8d 8...	N (HT)	Infrast...	14:32:5...	14:35:0...
Available	YYWL-WIFI	7	Not ...	-24	54.0/48...	e4 8d 8...	N (HT)	Infrast...	14:33:0...	14:35:0...
Available	YYWL-WIFI	36	Not ...	-41	54.0/48...	e4 8d 8...	N (HT)	Infrast...	14:33:0...	14:35:0...
Available	YYWL-WIFI	52	Not ...	-34	54.0/48...	e4 8d 8...	N (HT)	Infrast...	14:34:0...	14:35:0...

可修改login.html等文件，以设计自己的登陆界面



The screenshot shows a 'File List' window with a table of files and directories. The table has columns for File Name, Type, Size, and Creation Time. The file 'flash/hotspot/login.html' is highlighted with a red box.

File Name	Type	Size	Creation Time
flash	disk		Jan/01/1970
flash/hotspot	directory		Feb/23/2016
flash/hotspot/alogin.html	.html file	878 B	Feb/23/2016
flash/hotspot/css	directory		Feb/23/2016
flash/hotspot/css/main.css	.css file	2653 B	Feb/23/2016
flash/hotspot/error.html	.html file	529 B	Feb/23/2016
flash/hotspot/errors.txt	.txt file	5.5 KiB	Feb/23/2016
flash/hotspot/favicon.ico	.ico file	903 B	Feb/23/2016
flash/hotspot/img	directory		Feb/23/2016
flash/hotspot/img/511.jpg	.jpg file	36.4 KiB	Feb/23/2016
flash/hotspot/img/bg.png	.png file	7.0 KiB	Feb/23/2016
flash/hotspot/img/btn.png	.png file	5.7 KiB	Feb/23/2016
flash/hotspot/img/cloud.png	.png file	70.3 KiB	Feb/23/2016
flash/hotspot/img/logobottom.png	.png file	3925 B	Feb/23/2016
flash/hotspot/img/pic.png	.png file	5.9 KiB	Feb/23/2016
flash/hotspot/js	directory		Feb/23/2016
flash/hotspot/js/jquery1_5.js	.js file	82.4 KiB	Feb/23/2016
flash/hotspot/js/login1.js	.js file	1213 B	Feb/23/2016
flash/hotspot/login.html	.html file	4061 B	Feb/23/2016
flash/hotspot/logout.html	.html file	1423 B	Feb/23/2016
flash/hotspot/lv	directory		Feb/23/2016
flash/hotspot/lv/alogin.html	.html file	1303 B	Feb/23/2016
flash/hotspot/lv/errors.txt	.txt file	3610 B	Feb/23/2016

登陆界面



和颐酒店

深圳华强北和颐酒店 欢迎您



免费无线网络

如家优选 用心甄选
东西还是家里的好



youxuan.homeinns.com

前台现付 与房费同时结算 | 在线支付 更加省时便捷

欢迎使用酒店无线网络

房间号

姓名

登 录

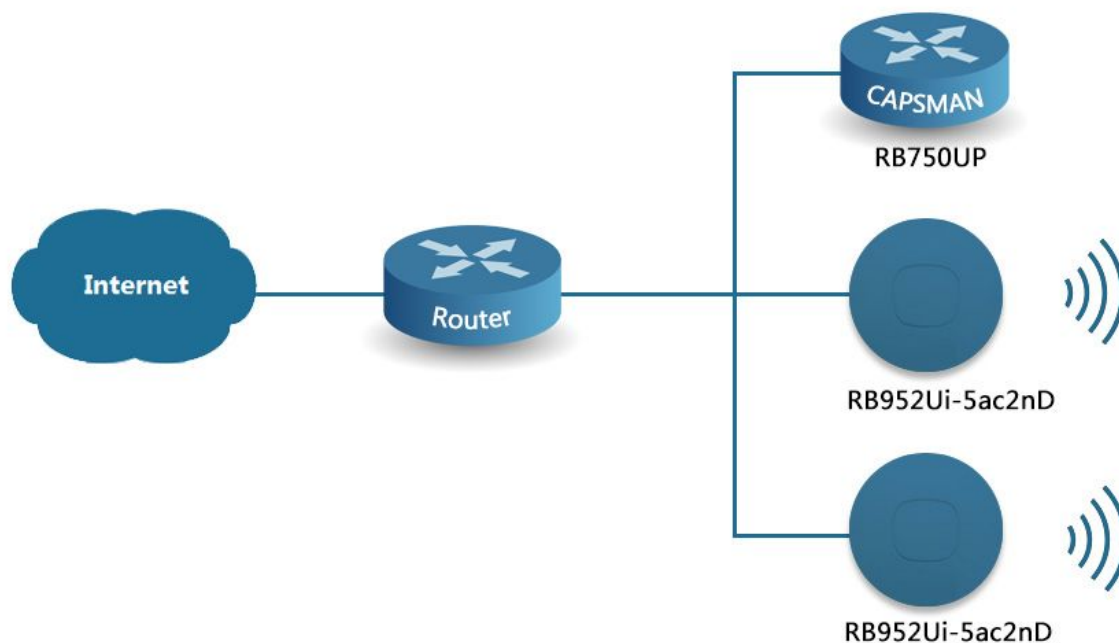


全国订房电话：400-821-3333

© Yitel 和颐酒店管理有限公司 版权所有

实例二 旁路管理

在不改变当前网络结构的情况下也可以管理到AP



CAPsMAN

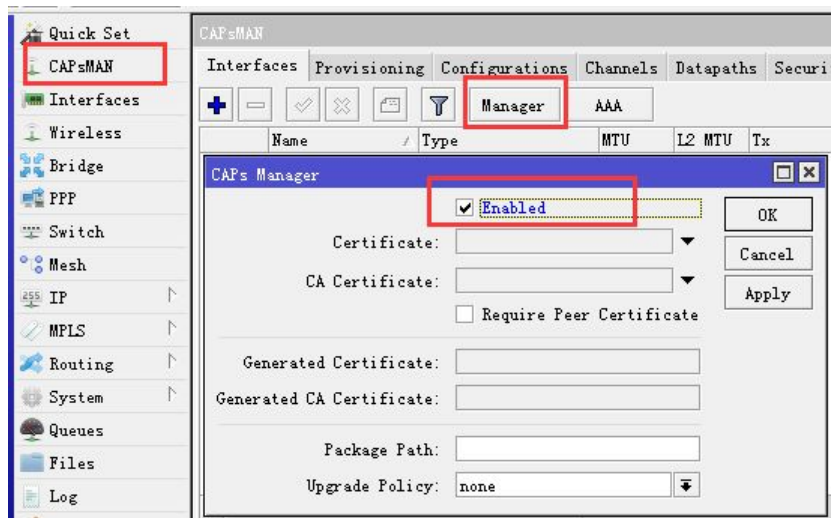
- 如无需要，可不联网
- 配置CAPsMAN
 - 开启capsman功能
 - 建立配置模板
 - 创建应用配置规则

注：要保证被管理的AP在本地可以上网

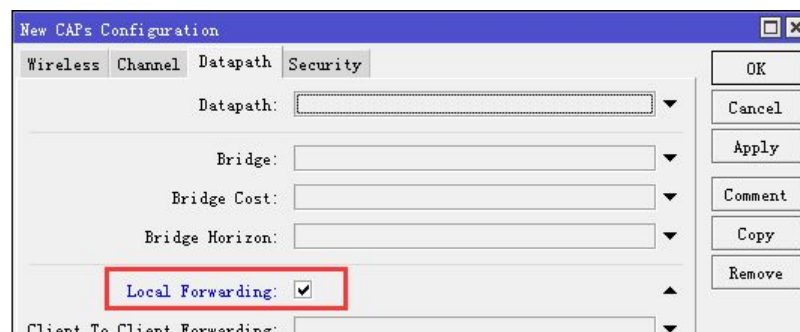
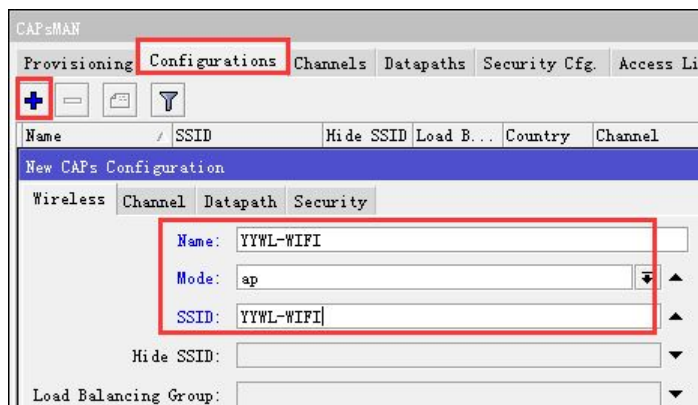
AP

- 新建桥
- 把无线以及上联口添加到同一个桥
- 开启CAP功能

开启capsman功能

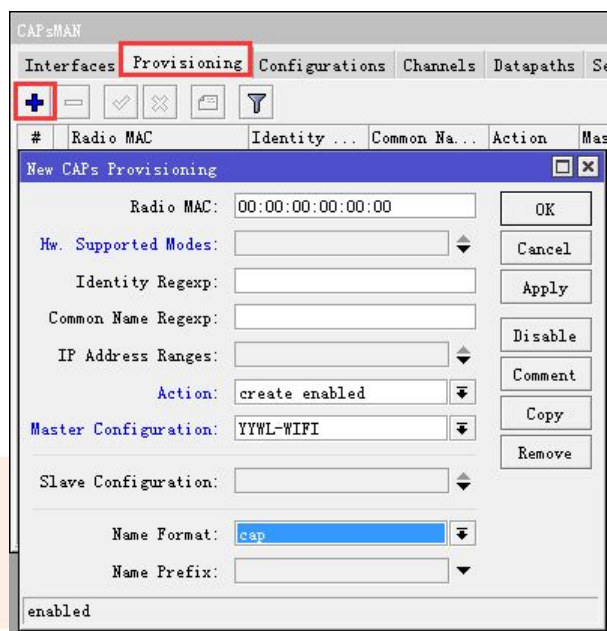


新建配置模板，设置模板名称、模式、SSID，勾选本地转发



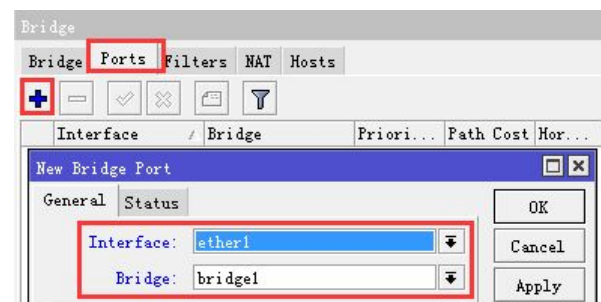
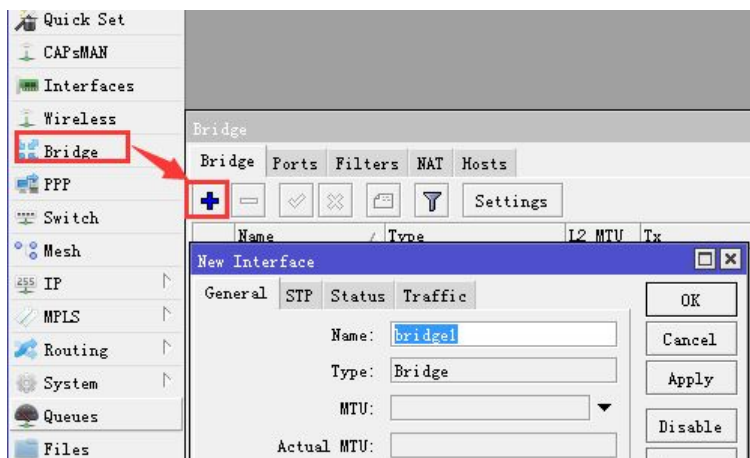
注：如对无线频率无要求，建议channel留空，ROS会自动选择网卡支持且干扰较少的频段

创建应用配置规则



AP

新建一个桥，把本地接口以及无线接口都添加到桥里面

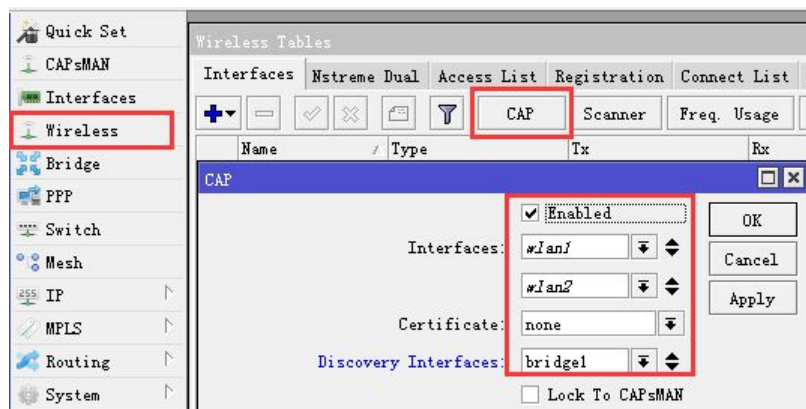


The screenshot shows the 'Bridge' configuration window with the 'Ports' tab selected. The table below shows the configuration for the bridge ports:

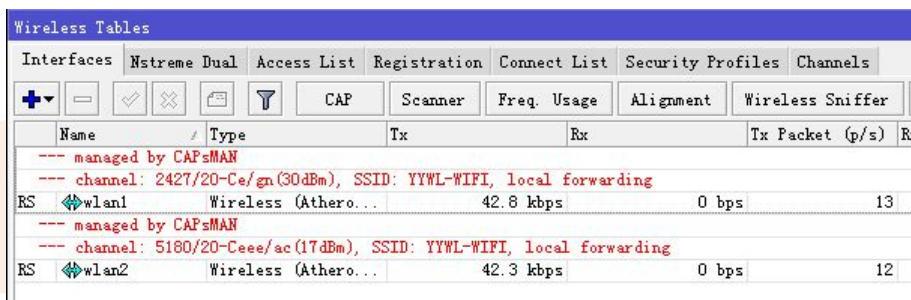
Interface	Bridge	Priori...	Path Cost	Mor...	Role
ether1	bridgel	80	10		root port
lan1	bridgel	80	10		disabled port
lan2	bridgel	80	10		disabled port

注：要保证被管理的AP在本地可以上网

Cap开启CAP功能选择无线网卡选择发现的接口

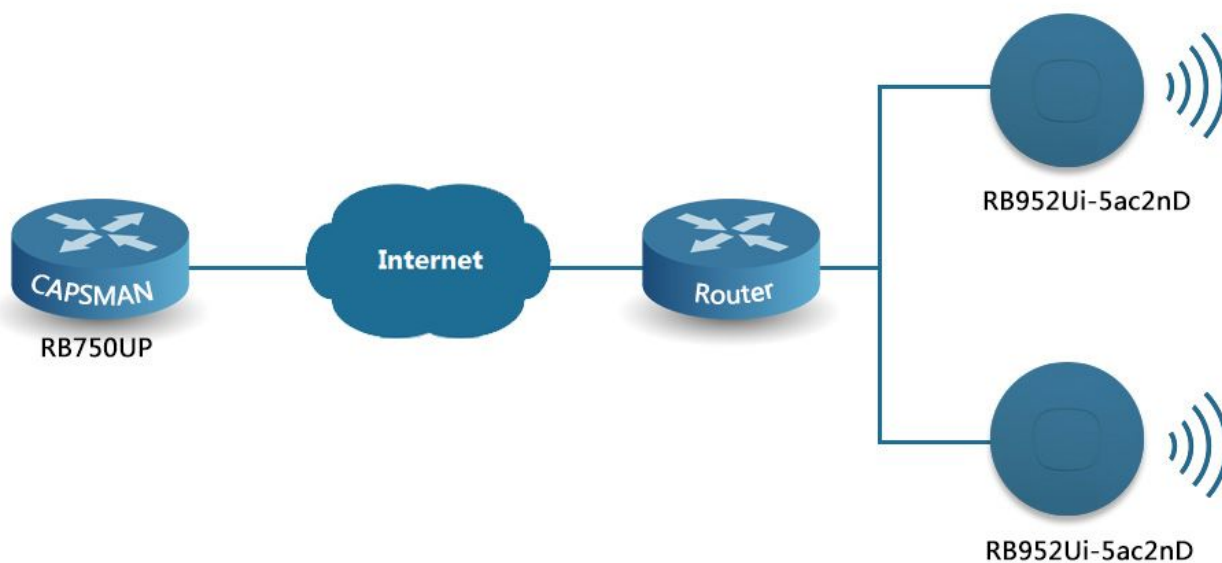


连接上CPAsMAN后，显示当前配置



实例三 远程管理

在不改变当前网络结构且控制端不在本地情况下也可以管理到AP



CAPsMAN

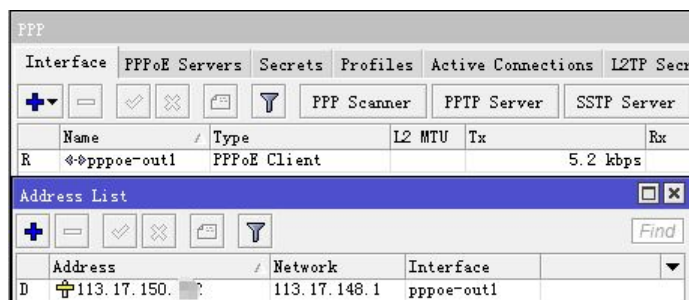
- 配置联网
- 配置CAPsMAN
 - 开启capsman功能
 - 建立配置模板
 - 创建应用配置规则

注：要保证被管理的AP在本地可以上网，且与capsman地址可达

AP

- 新建桥
- 把无线以及上联口添加到同一个桥
- 开启CAP功能
- capsman address为capsman端地址

建立PPPOE账号，获取到公网IP

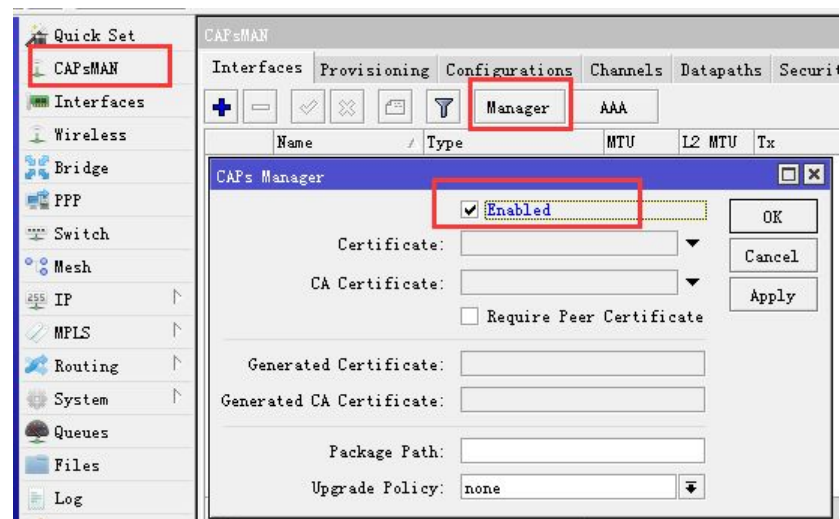


The screenshot shows the PPP configuration page in a network management system. The 'Interface' tab is selected, showing a configuration for 'pppoe-out1'. The 'Type' is 'PPPoE Client'. Below the configuration, an 'Address List' table is visible, containing one entry for the interface 'pppoe-out1' with an address of '113.17.150.1' and a network of '113.17.148.1'.

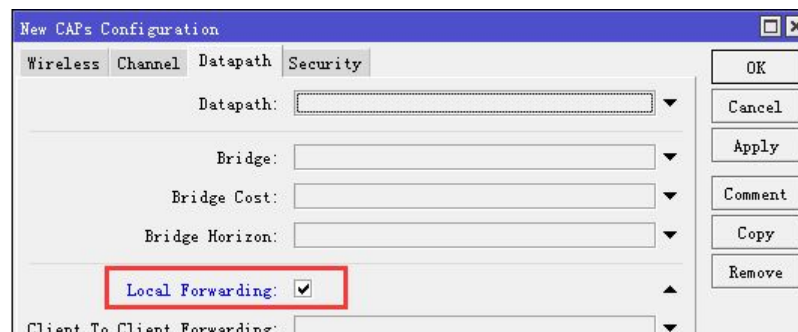
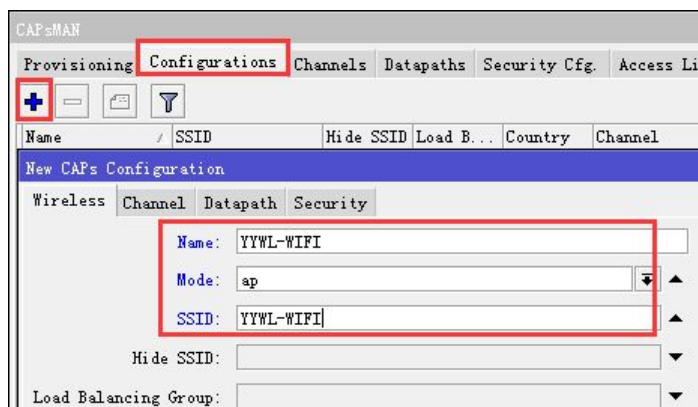
Interface	PPPoE Servers	Secrets	Profiles	Active Connections	L2TP Sec	
				PPP Scanner	PPTP Server	SSTP Server
Name	Type	L2 MTU	Tx	Rx		
R	pppoe-out1	PPPoE Client		5.2 kbps		

Address	Network	Interface	
D	113.17.150.1	113.17.148.1	pppoe-out1

开启capsman功能

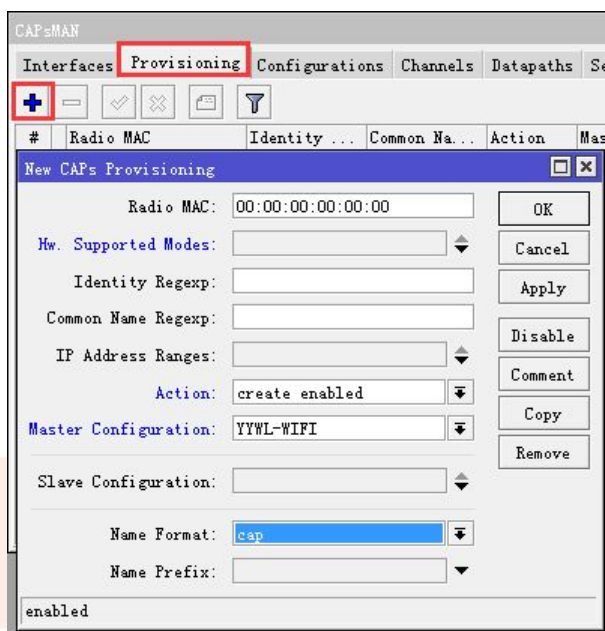


新建配置模板，设置模板名称、模式、SSID，勾选本地转发



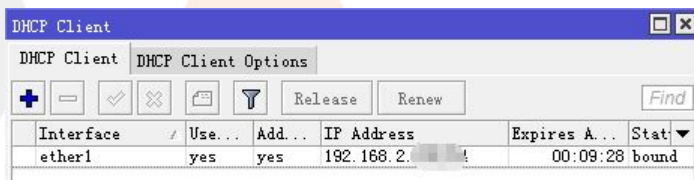
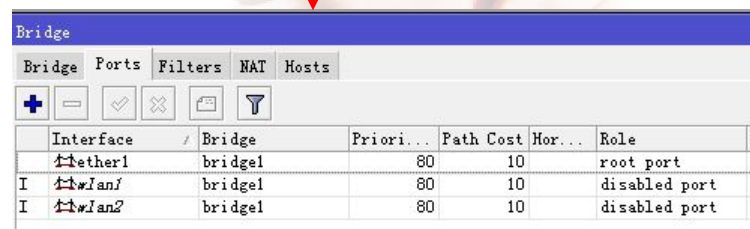
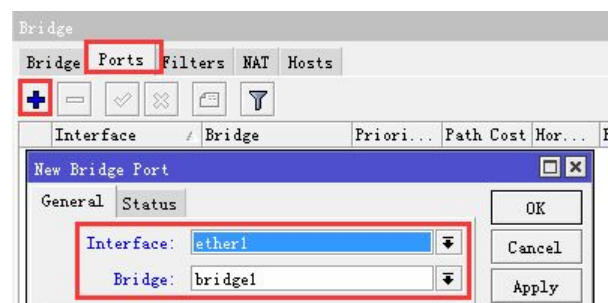
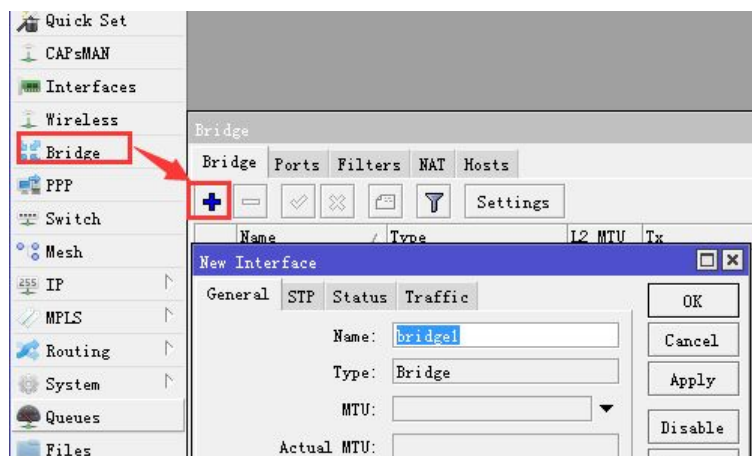
注：如对无线频率无要求，建议channel留空，ROS会自动选择网卡支持且干扰较少的频段

创建应用配置规则



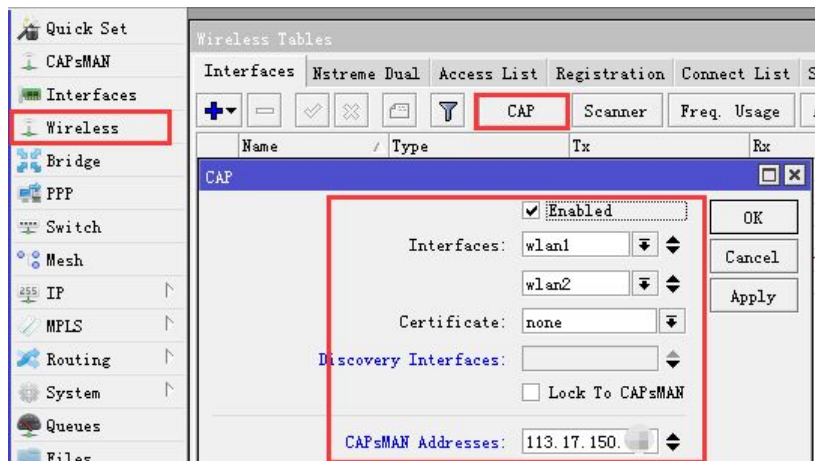
AP

新建一个桥，把本地接口以及无线接口都添加到桥里面，建立dhcp客户端

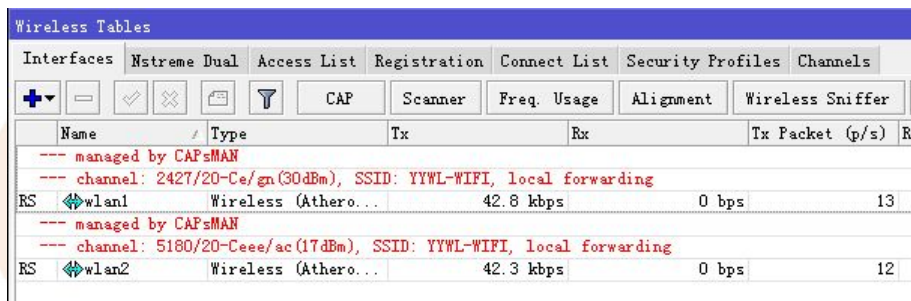


注：要保证被管理的AP在本地可以上网且与capsman地址能通信

Cap开启CAP功能选择无线网卡填写capsman的地址



连接上CPAsMAN后，显示当前配置



三个实例的区别

- 实例一比较常用，在管理AP的同时也可以管理到无线客户端，即管理转发模式。
- 实例二与实例三均是本地转发模式，不能统一管理CAP的数据转发，但是对于已经搭建好网络环境的客户来说更实用。
- 实例三优势是远程管理，适用于连锁企业，用户从一个店面转移到另外店面可直接联网。

CAP连接到CAPsMAN能基于二层与三层建立连接

MAC层连接特性

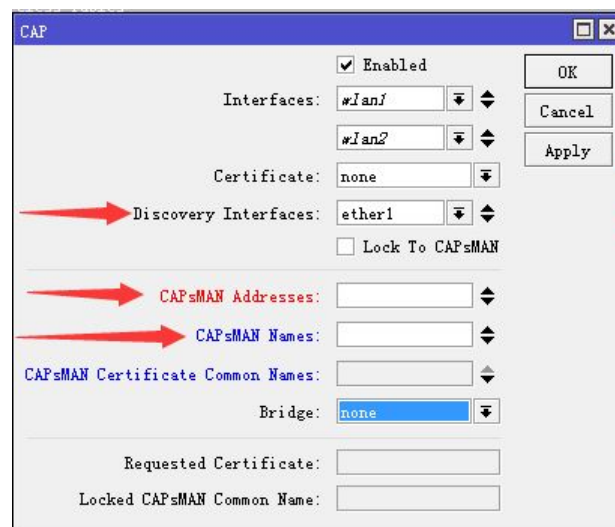
没有IP配置到CAP

CAP与CAPsMAN必须在相同的二层网络

IP层连接特性

可穿透NAT

CAP必须通过IP协议连接到CAPsMAN



如CAP与CAPsMAN在同一台设备，CAPsMAN address 可填127.0.0.1

配置覆盖

Channel

覆盖

Configure

覆盖

Interface



New CAPs Channel

Name:	channel1	OK
Frequency:	2412 MHz ▲	Cancel
Width:		Apply

CAPs Configuration <YYWL-WIFI>

Wireless	Channel	Datapath	Security
Channel: channel1			
Frequency: 2437			
Width:			
Band:			
Retention Channel:			

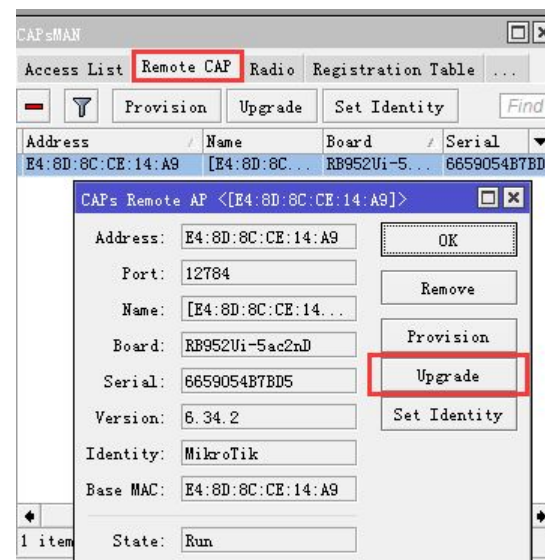
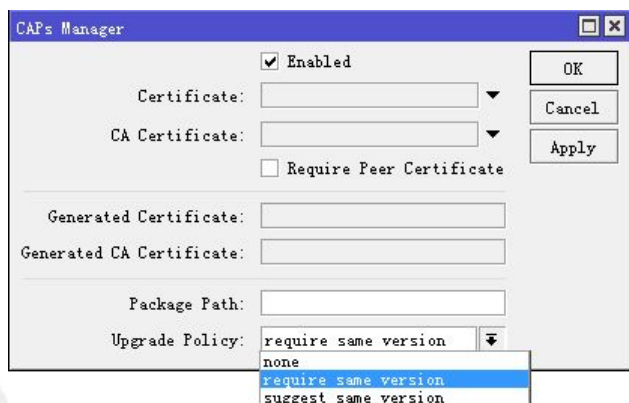
Interface <cap1>

General	Wireless	Channel	Datapath	Security	Stat
Channel: channel1					
Frequency: 2462					
Width:					

Current State:	running-ap
Current Channel:	2462/20-eC/gn(30dBm)
Current Rate Set:	CCK:1-11 OFDM:6-54 BW:1x-2x HT:0-15
Current Basic Rate Set:	CCK:1-11

CAPsMAN v2添加的功能

1. CAPsMAN能自动升级所有的CAP客户端



2. 添加 “Name Format” 和 “Name Prefix” 的名称格式和名称前缀用于规则配置

New CAPs Provisioning

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

Hw. Supported Modes: [dropdown]

Identity Regexp: [text box]

Common Name Regexp: [text box]

IP Address Ranges: [dropdown]

Action: none

Master Configuration: wifi

Slave Configuration: [dropdown]

Name Format: cap

Name Prefix: [dropdown]

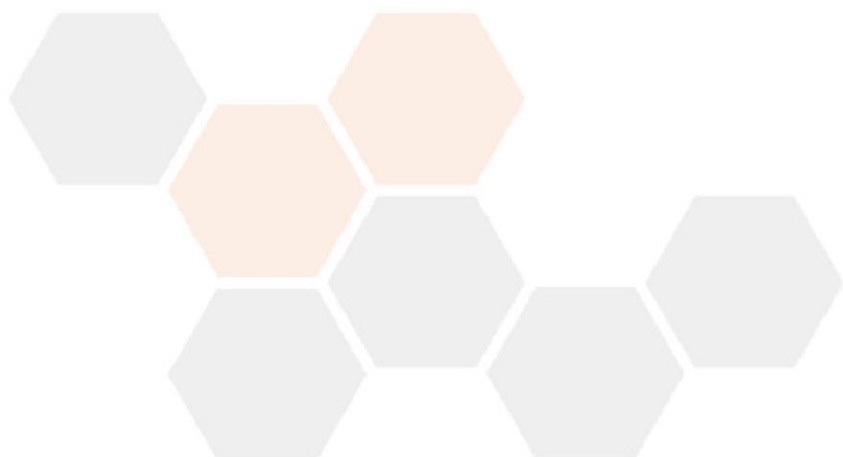
enabled

OK
Cancel
Apply
Disable
Comment
Copy
Remove

3. 改进CAP到CAPsMAN数据连接协议

4. 改进了当客户端在CAPs直接漫游的日志记录

5. 添加二层路径MTU探测



Mikrotik.Taobao.com

谢谢支持！

