REDES MESH

MUM – Ecuador – Noviembre de 2013

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REDES MESH

IMPLEMENTACION DE REDES MESH UTILIZANDO MIKROTIK RouterOS

HWMP

WDS + RSTP

Requerimientos para MESH

- RouterOS v3.x - v4.x - v5.x – v6.x enabled package Wireless.
- Una o dos wireless cards chipset Atheros r52hn.
- Antennas (Omni, sector, directional) Para la Banda – 2.4Ghz - 5Ghz.
- RouterBoard 435G.

Wireless Mesh Network WDS HWMP

Mesh Network es una topología que permite tener conectividad bidireccional completa entre sus nodos .

En este modo, todos los nodos de la red (son punto de acceso).

En Mesh tienen algunos modos como (Full Mesh , Mesh parcial o Hybird Mesh).

La Redes Mesh Tienen alguna ventaja como: capacidad Roaming, cobertura total , redundancia y tolerancia a fallos entre algunos enlaces etc ...

En Router Mikrotik aconsejo que se puede configurar en dos modelos :

Modelo 1 : MESH WDS inalámbrico con MESH Interface

Modelo 2 : MESH WDS inalámbrico con BRIDGE Interface

Modelo 1

En este modelo tenemos que configurar la red inalámbrica de todos nuestros RouterBoard , con los mismos parametros (Modo, banda , frecuencia, seguridad , ...)

Mi RouterBoard tiene esta configuración :

Modo: Ap -Bridge

Band : 2 Ghz - Sólo N

Ancho de canal : 20 Mhz

SSID: UNIVISA

Frecuencia: 2474

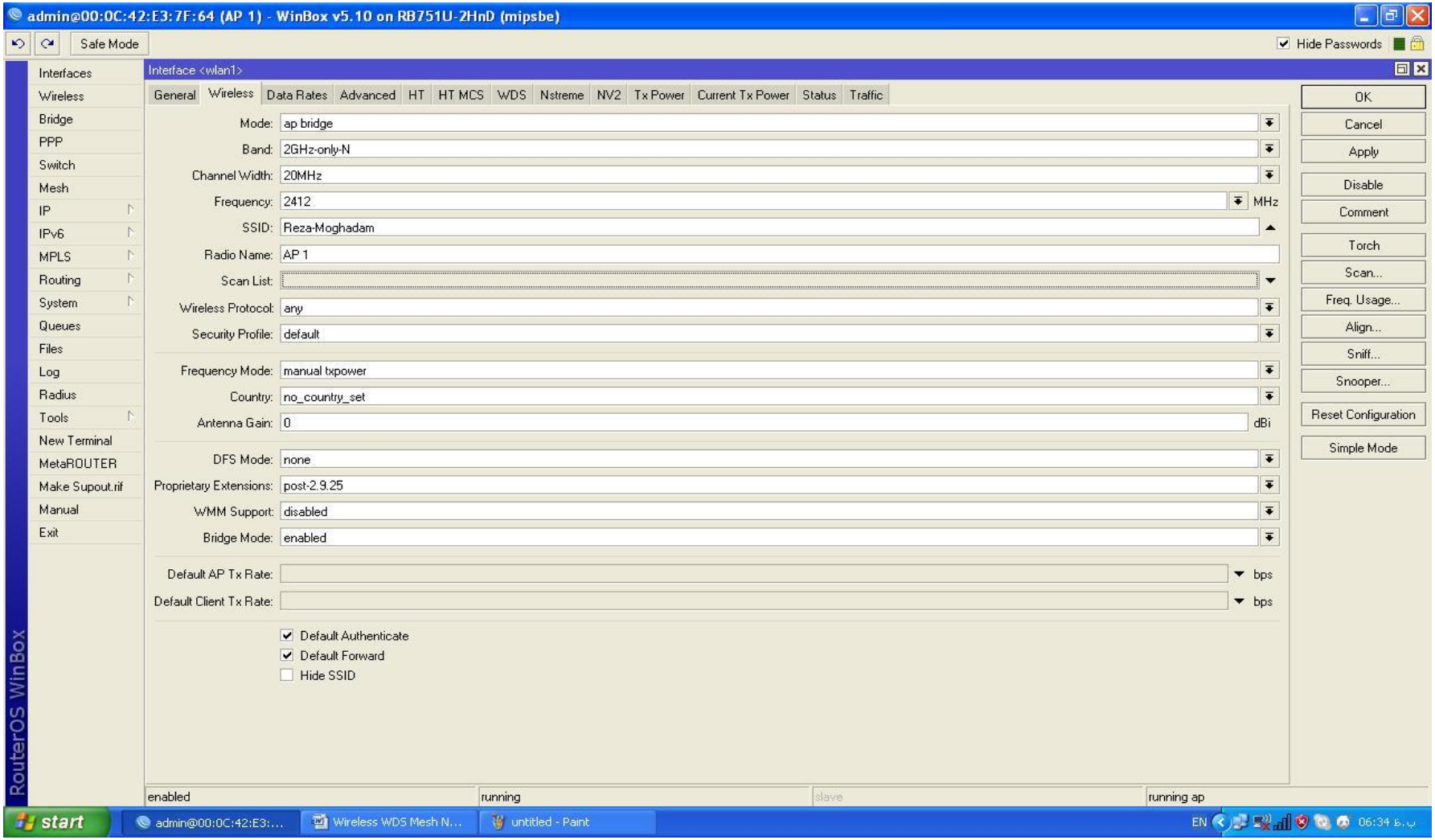
Modo WDS : Acoplamiento dinámico Mesh

WDS Puente defecto: Mesh -Interface

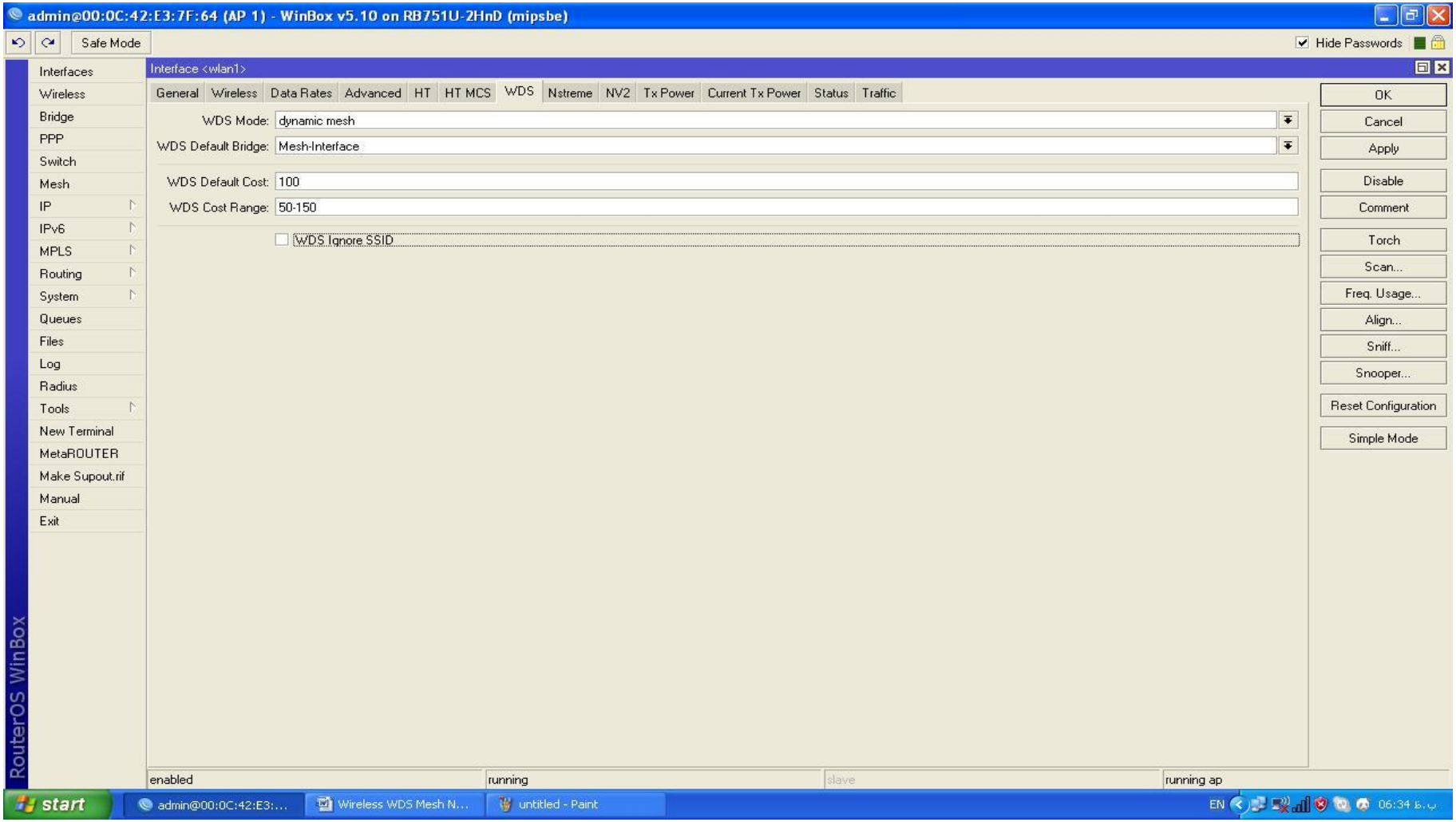
Mesh : Mesh -Interface

Mesh puerto: Ether1 - Wlan1 - Wlan2

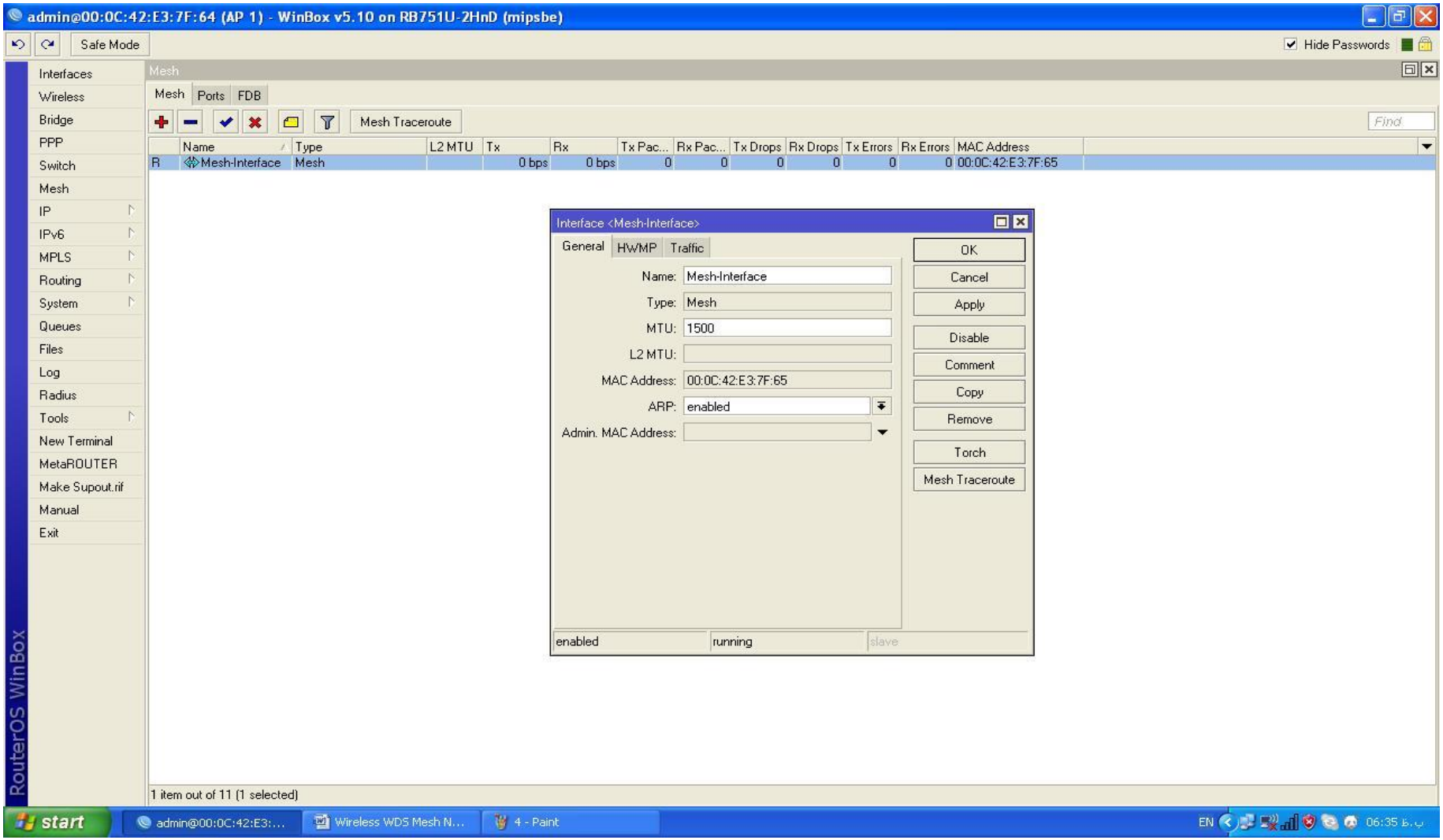
Mesh Network HWMP



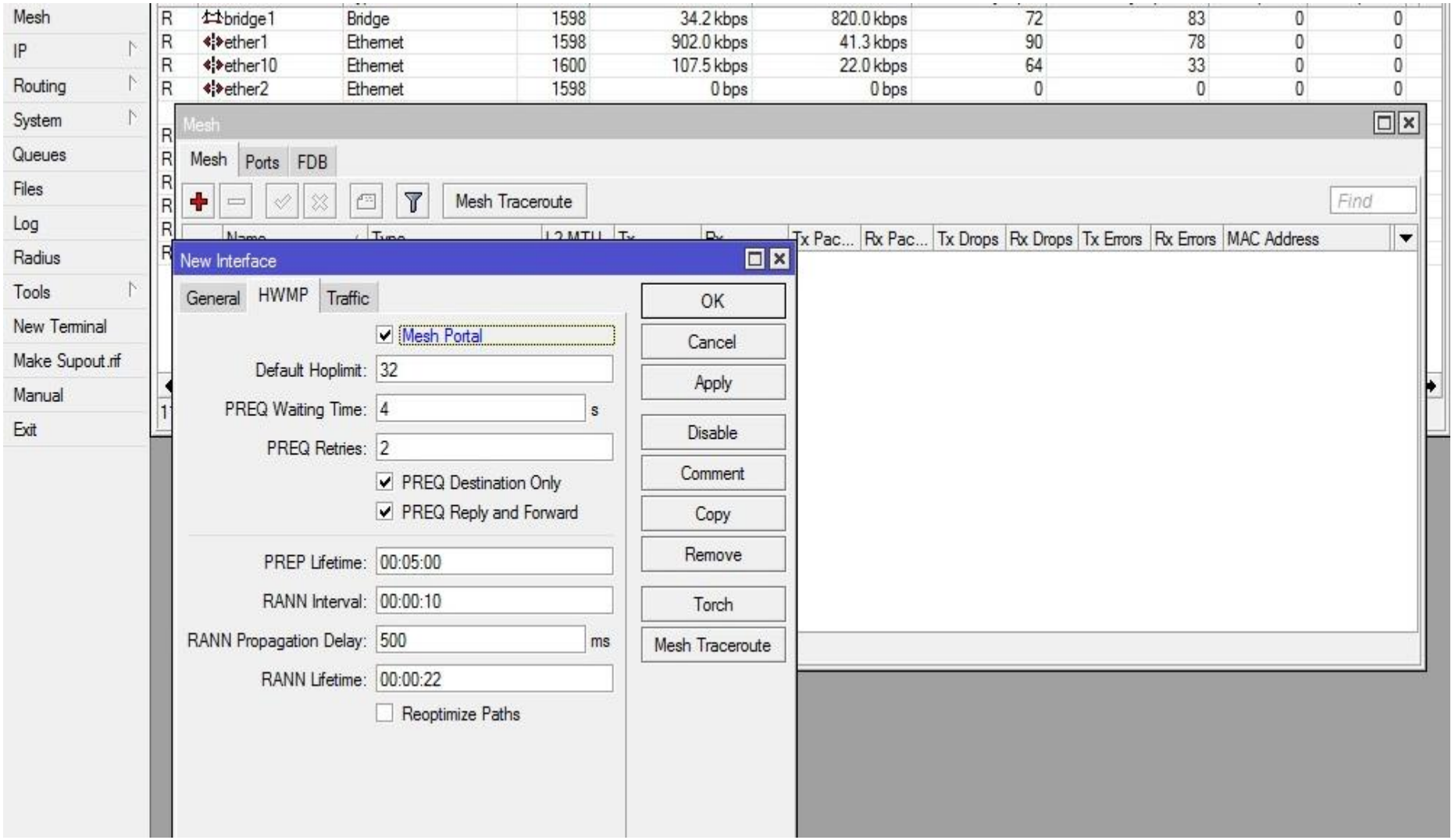
Mesh Network HWMP



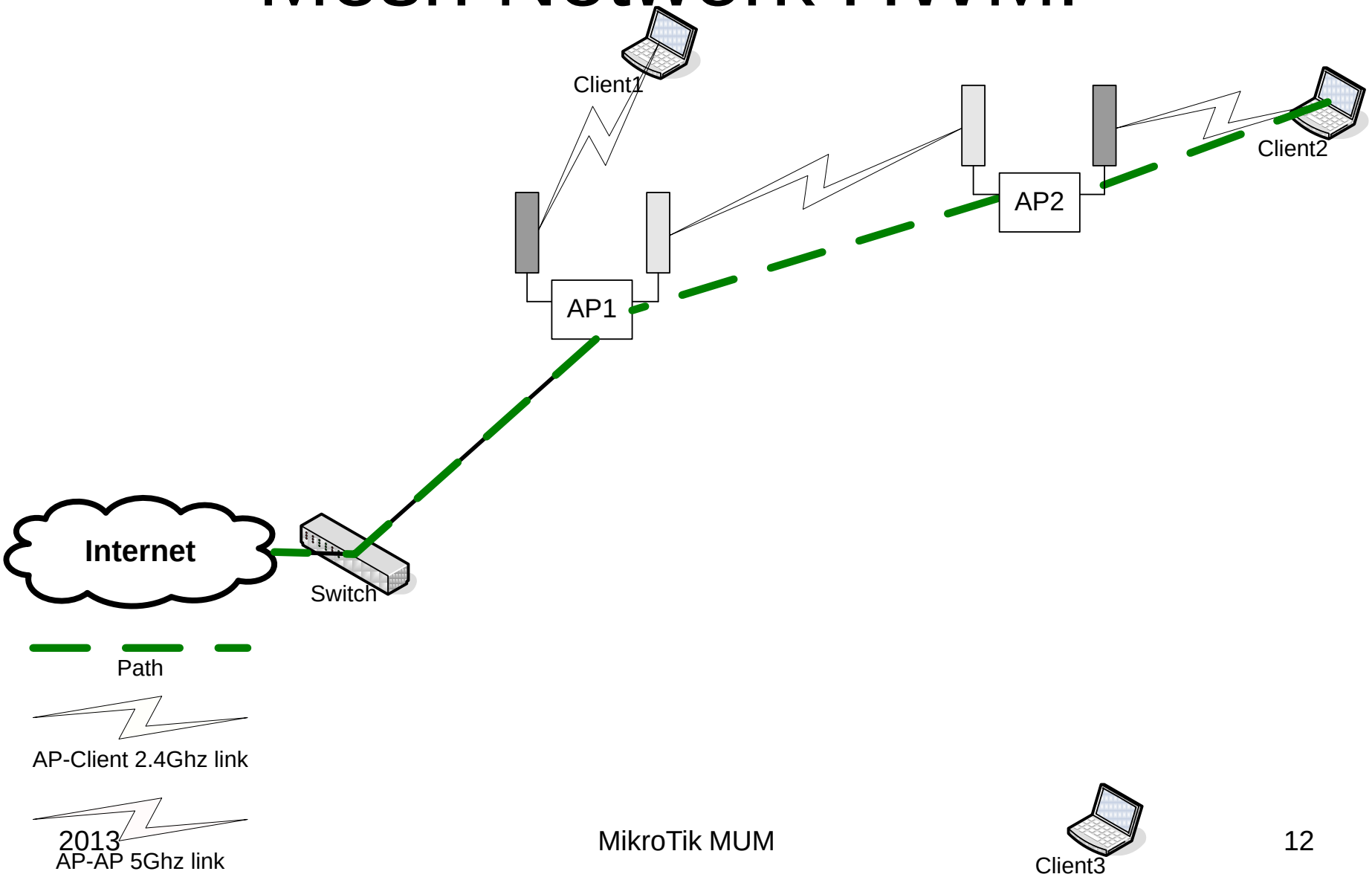
Mesh Network HWMP



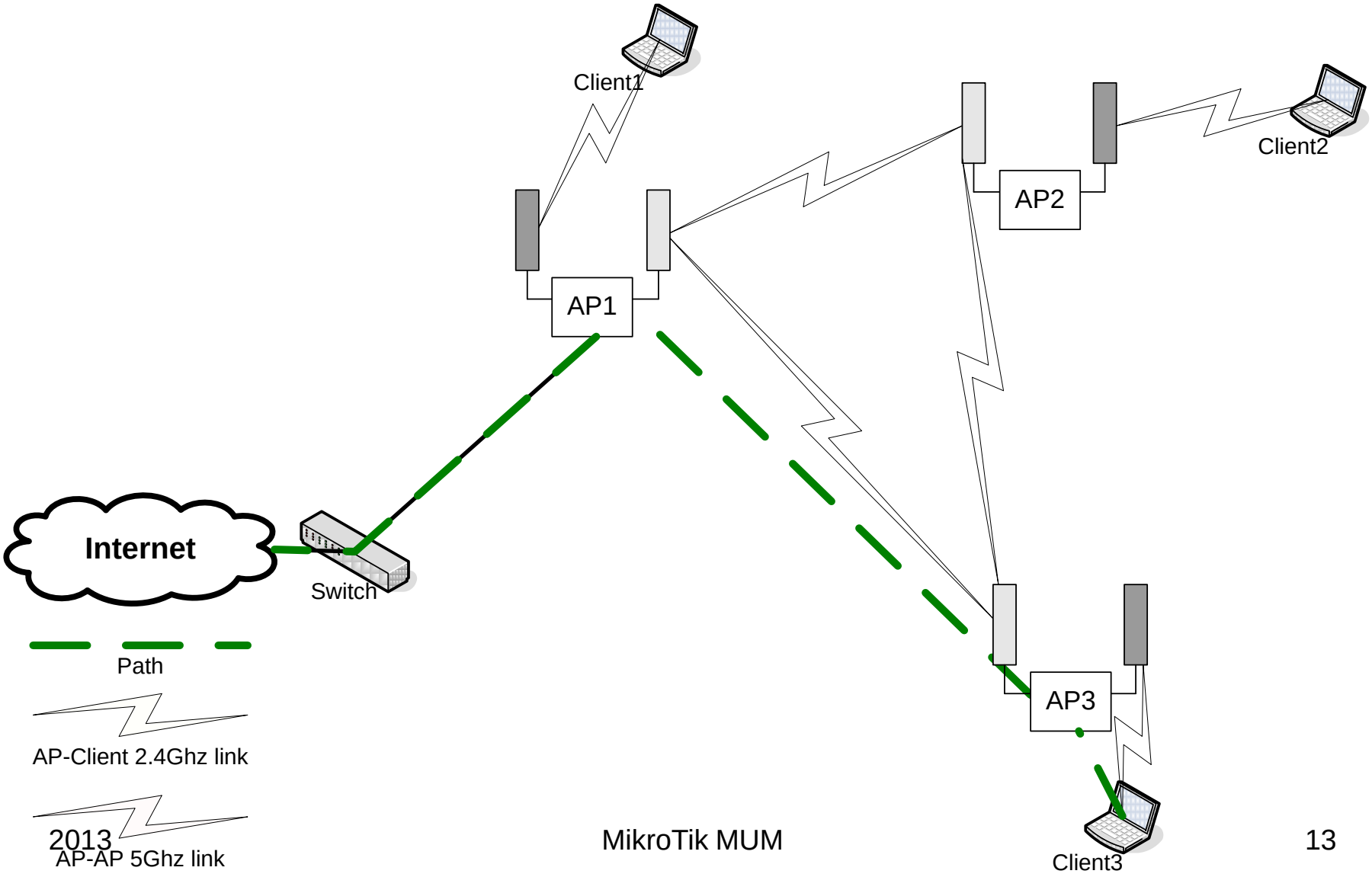
Mesh Network HWMP



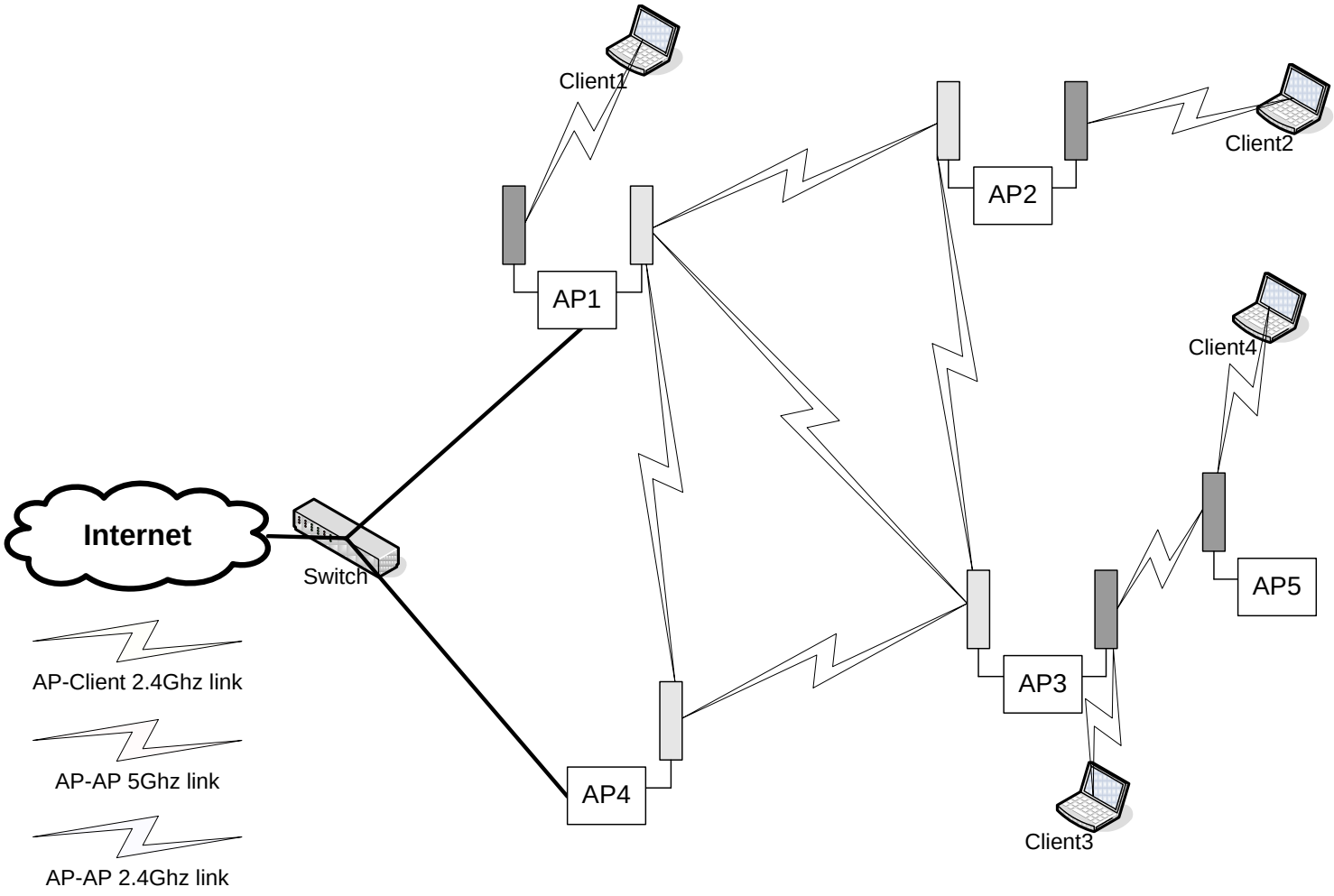
Mesh Network HWMP



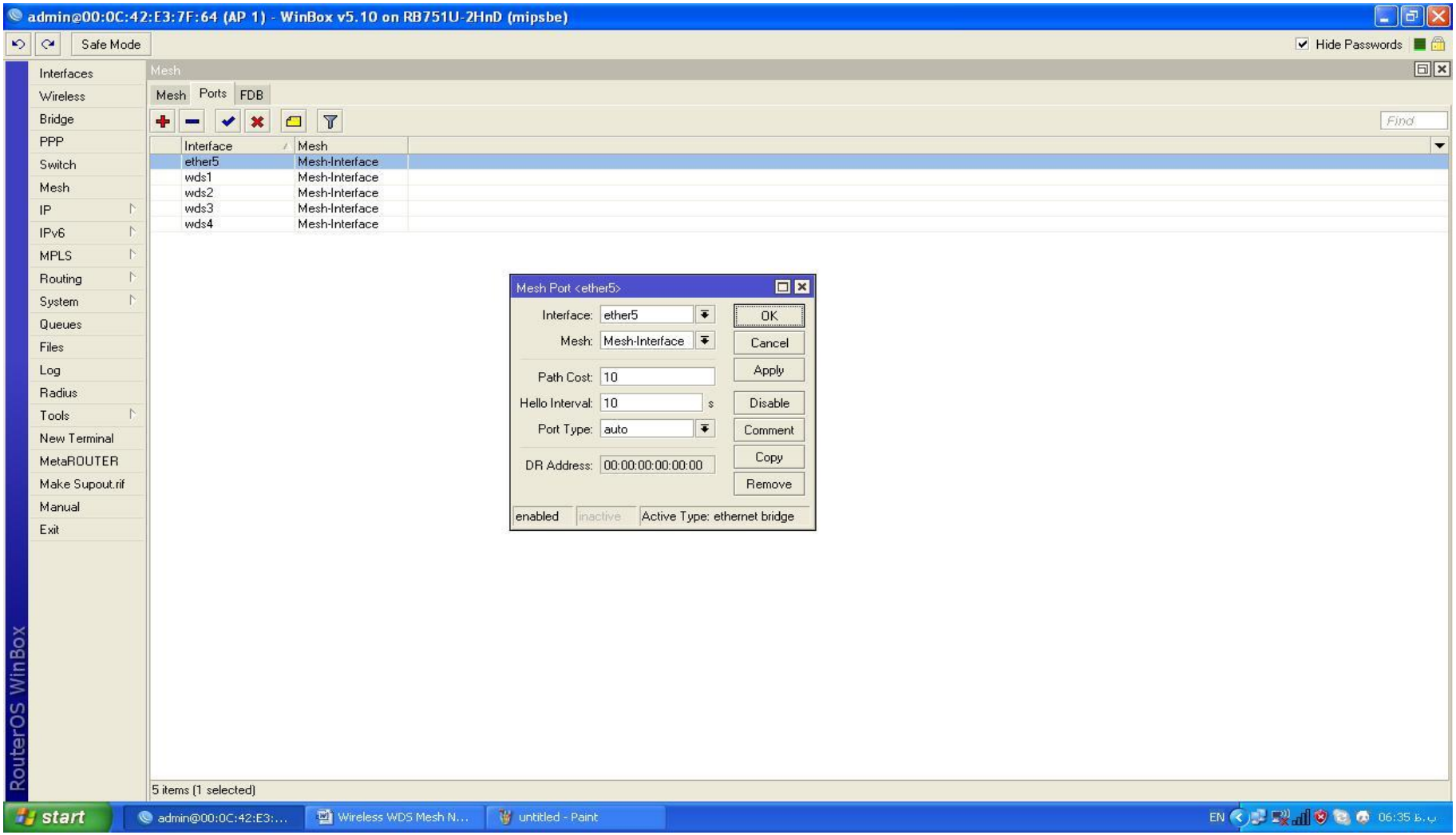
Mesh Network HWMP



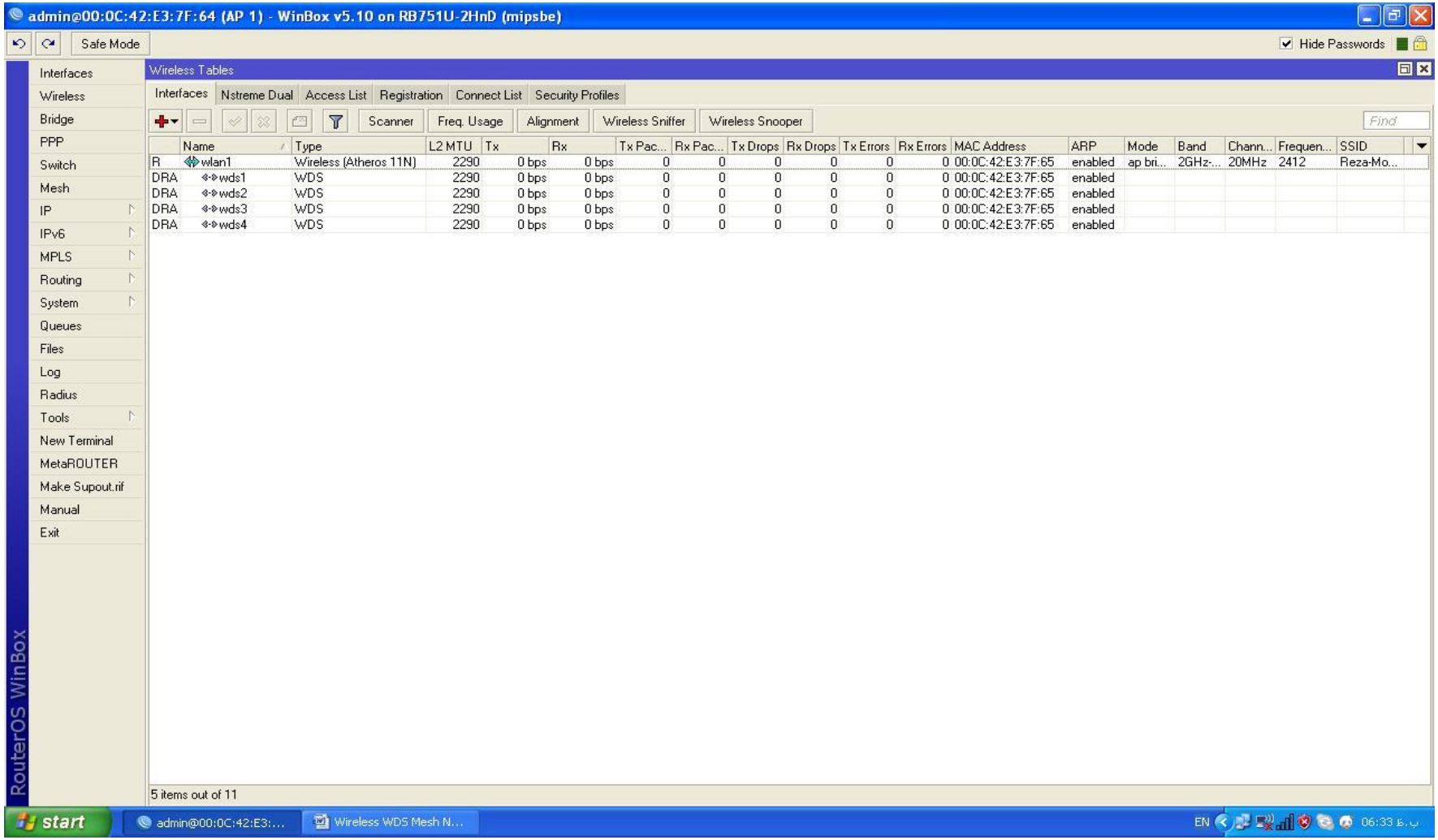
Mesh Network HWMP



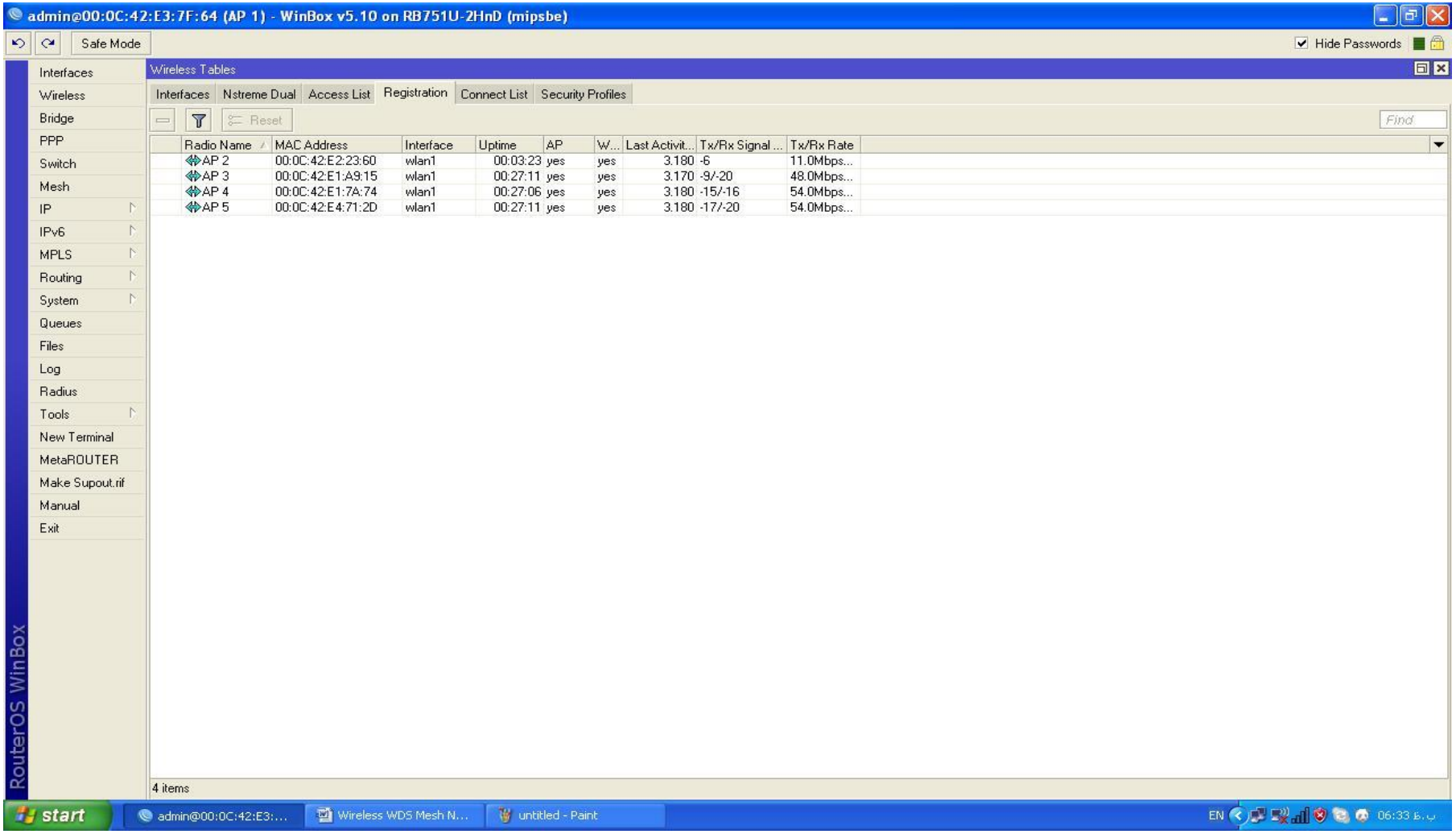
Mesh Network HWMP



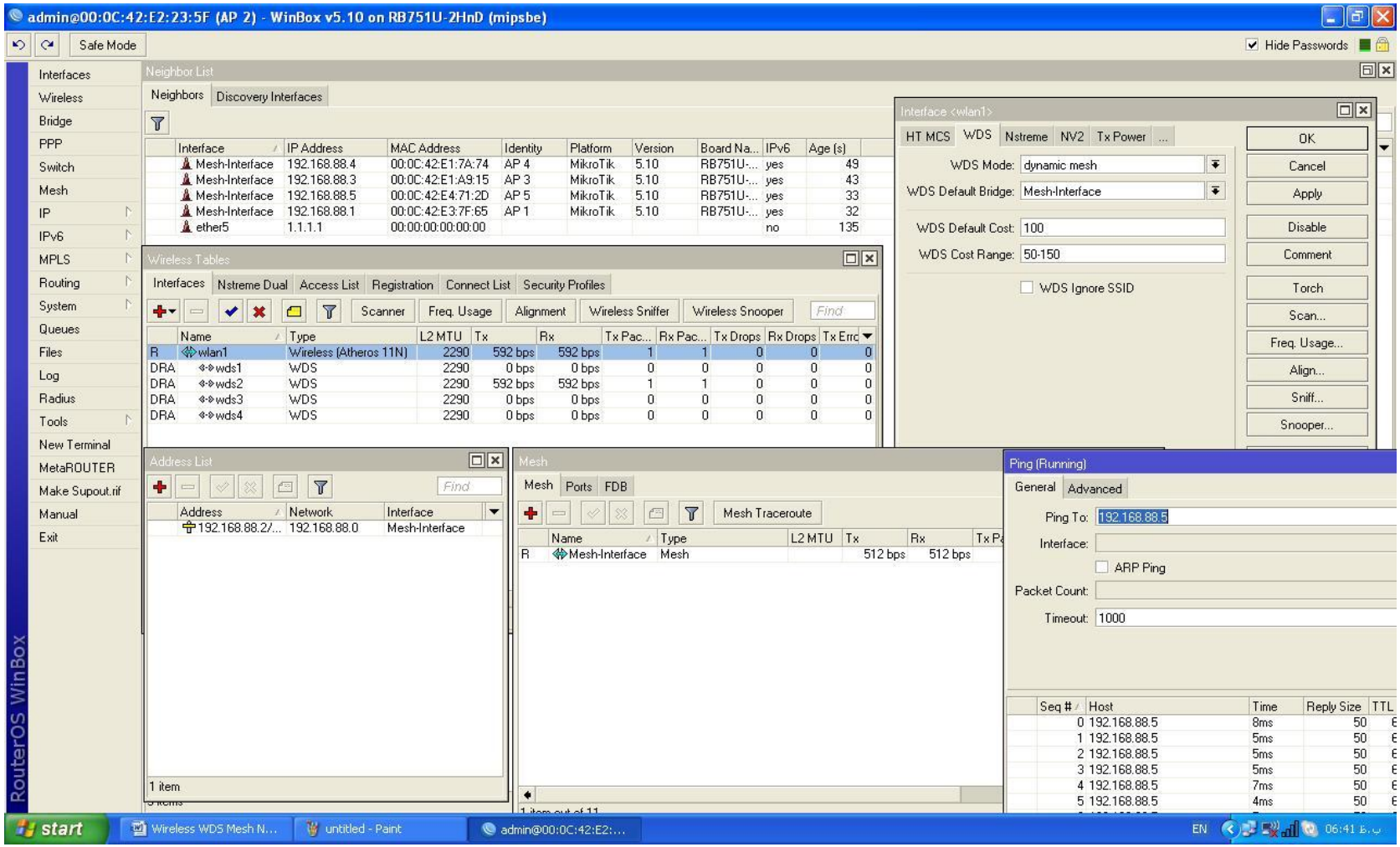
Mesh Network HWMP



Mesh Network HWMP



Mesh Network HWMP



WDS + RSPT

- Modelo 2

- Este modo es similar al MESH , pero tienen una diferencia , la diferencia es que en este modelo utilizamos BRIDGE de interfaz en lugar de MESH de interfaz , y también utilizar STP (Spanning Tree Protocol) tales como (STP , RSTP) .

- STP , RSTP Protocolo que evita los Loop de ruta libre en la capa de red 2 , en esta modalidad a cada RouterBoard le da una prioridad para Actuar como bridge root En la capa 2 de red , el cual permite analizar y supervisar la red de capa 2 con envío y recepción BPDU (Bridge Protocolo Datos Unidad) .

- Si él ve algunas BPDU en la red , Envia un comando para Bloquear a esa ruta (a otra AP) evitando los Loop.

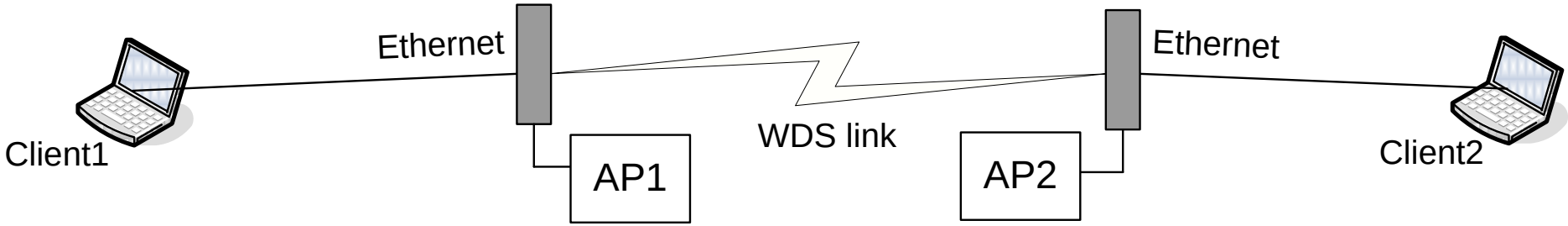
WDS + RSPT

- He configurado mi RouterBoard con esta configuración :
- Modo: Ap -Bridge
- Band : 2 Ghz - Sólo N
- Ancho de canal : 20 Mhz
- SSID: - UNIVISA
- Frecuencia: 2474
- Perfil de seguridad: por defecto

WDS + RSPT

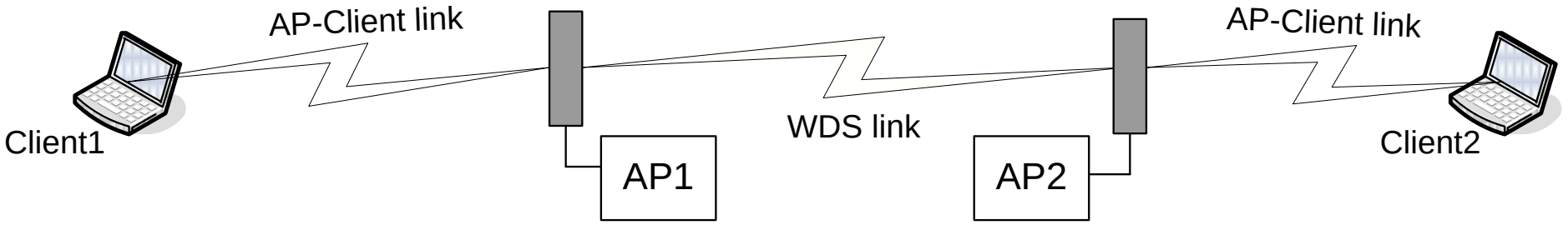
- Modo WDS : Acoplamiento dinámico
- WDS Puente defecto: BRIDGE - Interface
- BRIDGE : BRIDGE - Interface
- BRIDGE Modo STP : Modo RSTP
- BRIDGE - PORT : Ether1 - Wlan1 - Wlan2

AP-AP communication



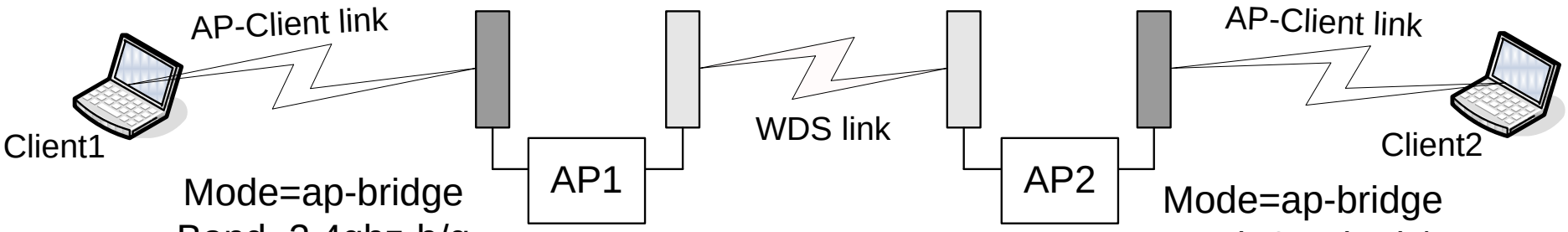
Mode=ap-bridge
Band=2.4ghz-b/g
Freqency=2437Mhz
SSID=MESH
Wds-mode=dynamic
Wds-default-bridge=bridge1
Bridge=Ethernet,Wireless

SIMPLE MESH



Mode=ap-bridge
Band=2.4ghz-b/g
Freqency=2437Mhz
SSID=MESH
Wds-mode=dynamic
Wds-default-bridge=bridge1
Bridge=Wireless

DUAL BAND MESH

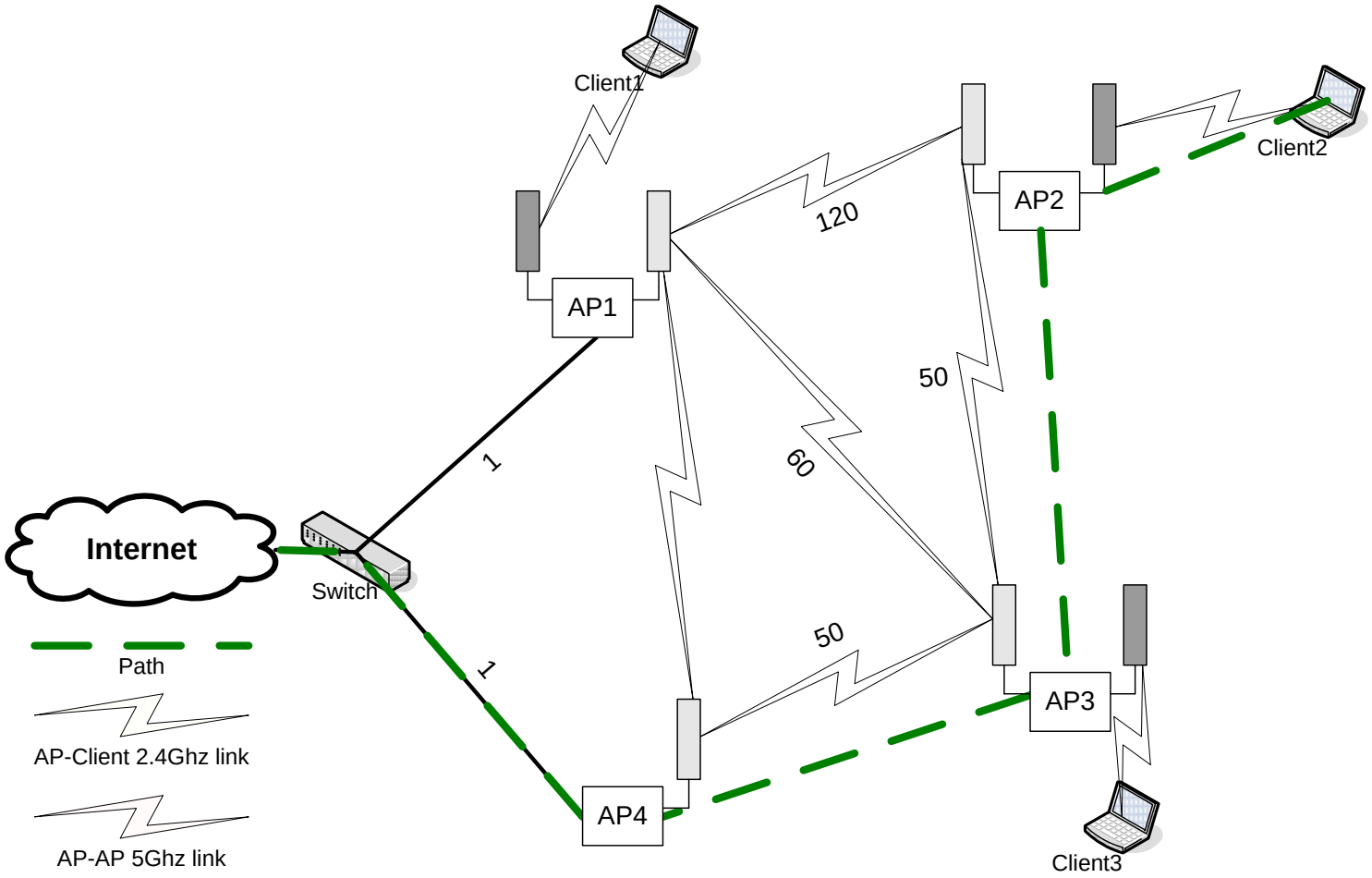


Mode=ap-bridge
Band=2.4ghz-b/g
Freqency=2437Mhz
SSID=MESH

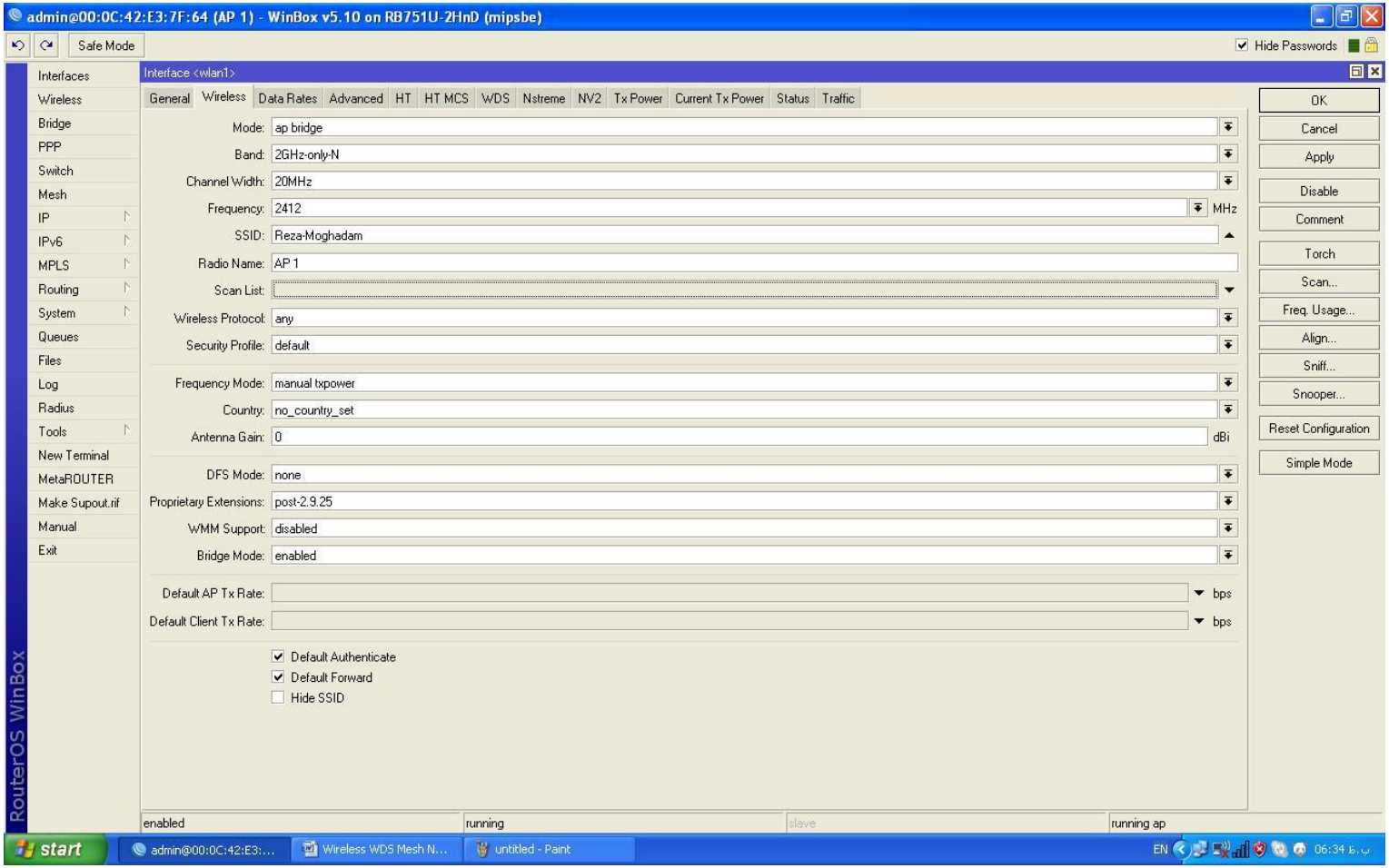
Mode=ap-bridge
Band=5ghz
Freqency=5600Mhz
SSID=MESH
Wds-mode=dynamic
Wds-default-bridge=bridge1
Bridge=Wireless,Wireless

Mode=ap-bridge
Band=2.4ghz-b/g
Freqency=2437Mhz
SSID=MESH

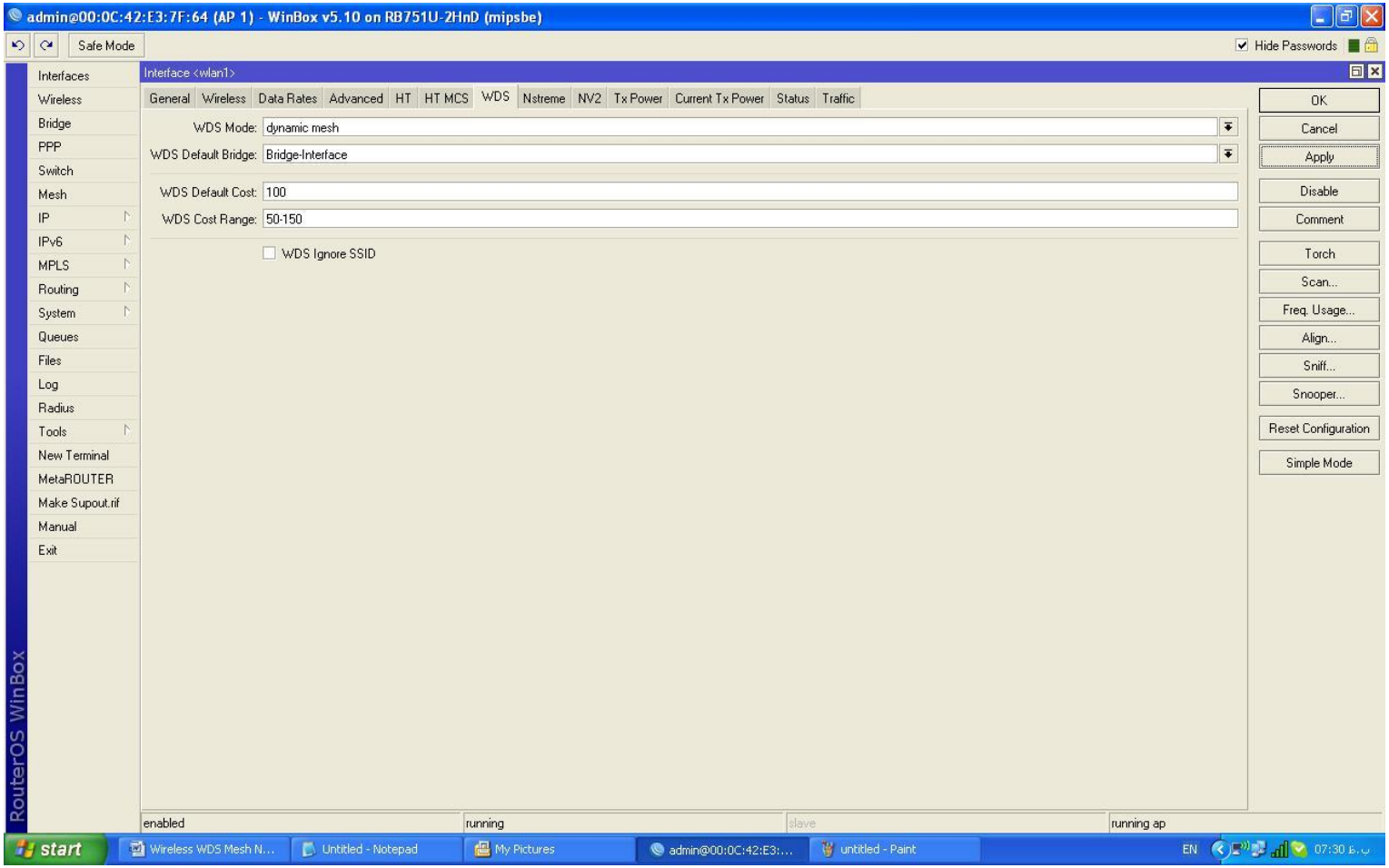
WDS + RSPT


Client1
Client2
AP1
AP2
AP3
AP4
Client3
120
50
60
50
1
1
Internet
Switch
Path
AP-Client 2.4Ghz link
AP-AP 5Ghz link

WDS + RSPT


admin@00:0C:42:E3:7F:64 (AP 1) - WinBox v5.10 on RB751U-2HnD (mipsbe)
Safe Mode
Hide Passwords
Interfaces
Wireless
Bridge
PPP
Switch
Mesh
IP
IPv6
MPLS
Routing
System
Queues
Files
Log
Radius
Tools
New Terminal
MetaROUTER
Make Supout.rif
Manual
Exit
RouterOS WinBox
Interface <wlan1>
General
Wireless
Data Rates
Advanced
HT
HT MCS
WDS
Nstreme
NV2
Tx Power
Current Tx Power
Status
Traffic
Mode: ap bridge
Band: 2GHz-only-N
Channel Width: 20MHz
Frequency: 2412 MHz
SSID: Reza-Moghadam
Radio Name: AP 1
Scan List:
Wireless Protocol: any
Security Profile: default
Frequency Mode: manual txpower
Country: no_country_set
Antenna Gain: 0 dBi
DFS Mode: none
Proprietary Extensions: post-2.9.25
WMM Support: disabled
Bridge Mode: enabled
Default AP Tx Rate: bps
Default Client Tx Rate: bps
Default Authenticate
Default Forward
Hide SSID
OK
Cancel
Apply
Disable
Comment
Torch
Scan...
Freq. Usage...
Align...
Sniff...
Snooper...
Reset Configuration
Simple Mode
enabled
running
slave
running ap
start
admin@00:0C:42:E3:...
Wireless WDS Mesh N...
untitled - Paint
EN
06:34 ب.ظ

WDS + RSPT


admin@00:0C:42:E3:7F:64 (AP 1) - WinBox v5.10 on RB751U-2HnD (mipsbe)
Safe Mode
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Bridge
PPP
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IPv6
MPLS
Routing
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New Terminal
MetaROUTER
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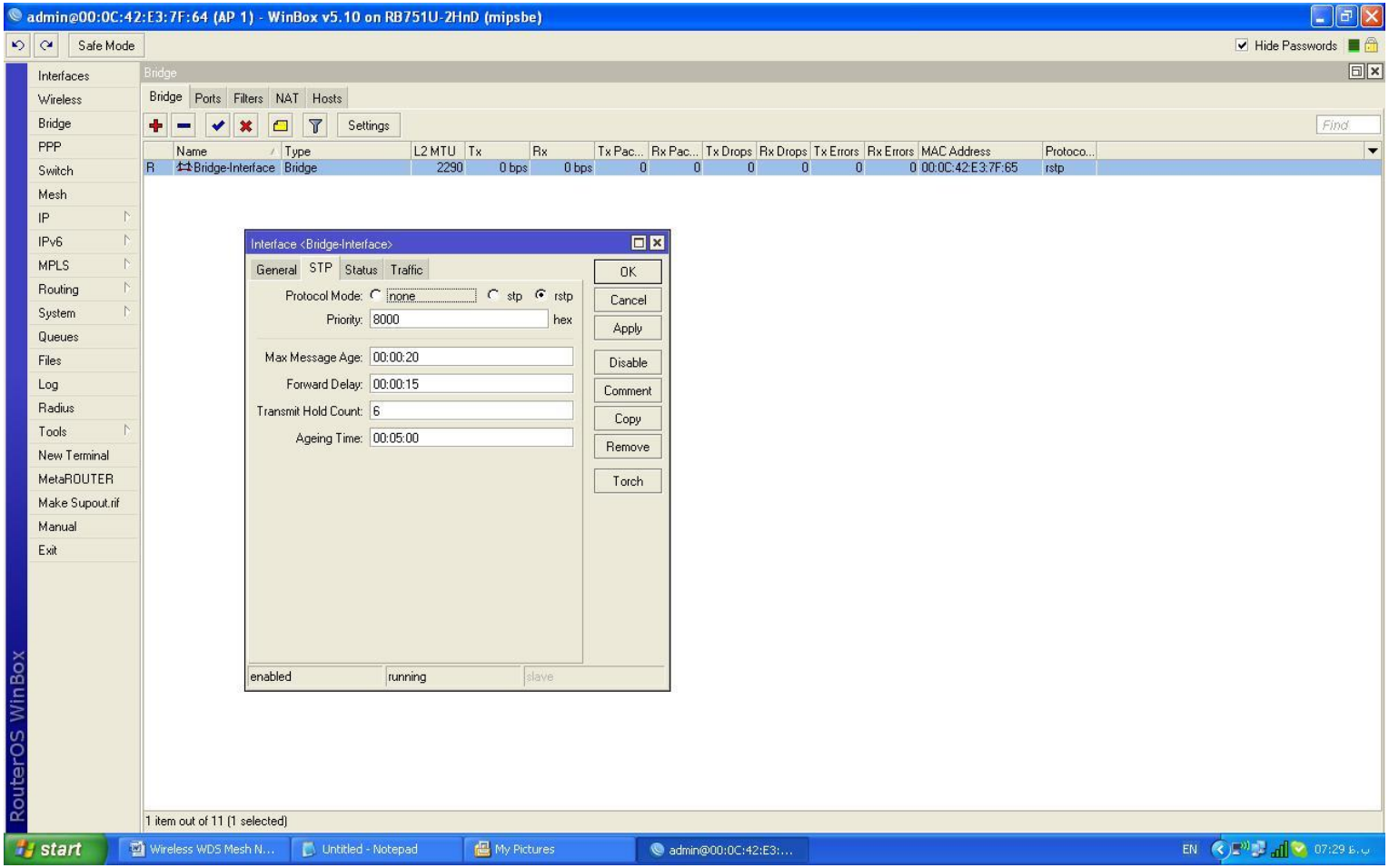
RouterOS WinBox
Interface <wlan1>
General
Wireless
Data Rates
Advanced
HT
HT MCS
WDS
Nstreme
NV2
Tx Power
Current Tx Power
Status
Traffic
WDS Mode: dynamic mesh
WDS Default Bridge: Bridge-Interface
WDS Default Cost: 100
WDS Cost Range: 50-150
WDS Ignore SSID
OK
Cancel
Apply
Disable
Comment
Torch
Scan...
Freq. Usage...
Align...
Sniff...
Snooper...
Reset Configuration
Simple Mode
enabled
running
slave
running ap
start
Wireless WDS Mesh N...
Untitled - Notepad
My Pictures
admin@00:0C:42:E3:...
untitled - Paint
EN
07:30

WDS + RSPT


admin@00:0C:42:E3:7F:64 (AP 1) - WinBox v5.10 on RB751U-2HnD (mipsbe)
Safe Mode
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New Terminal
MetaROUTER
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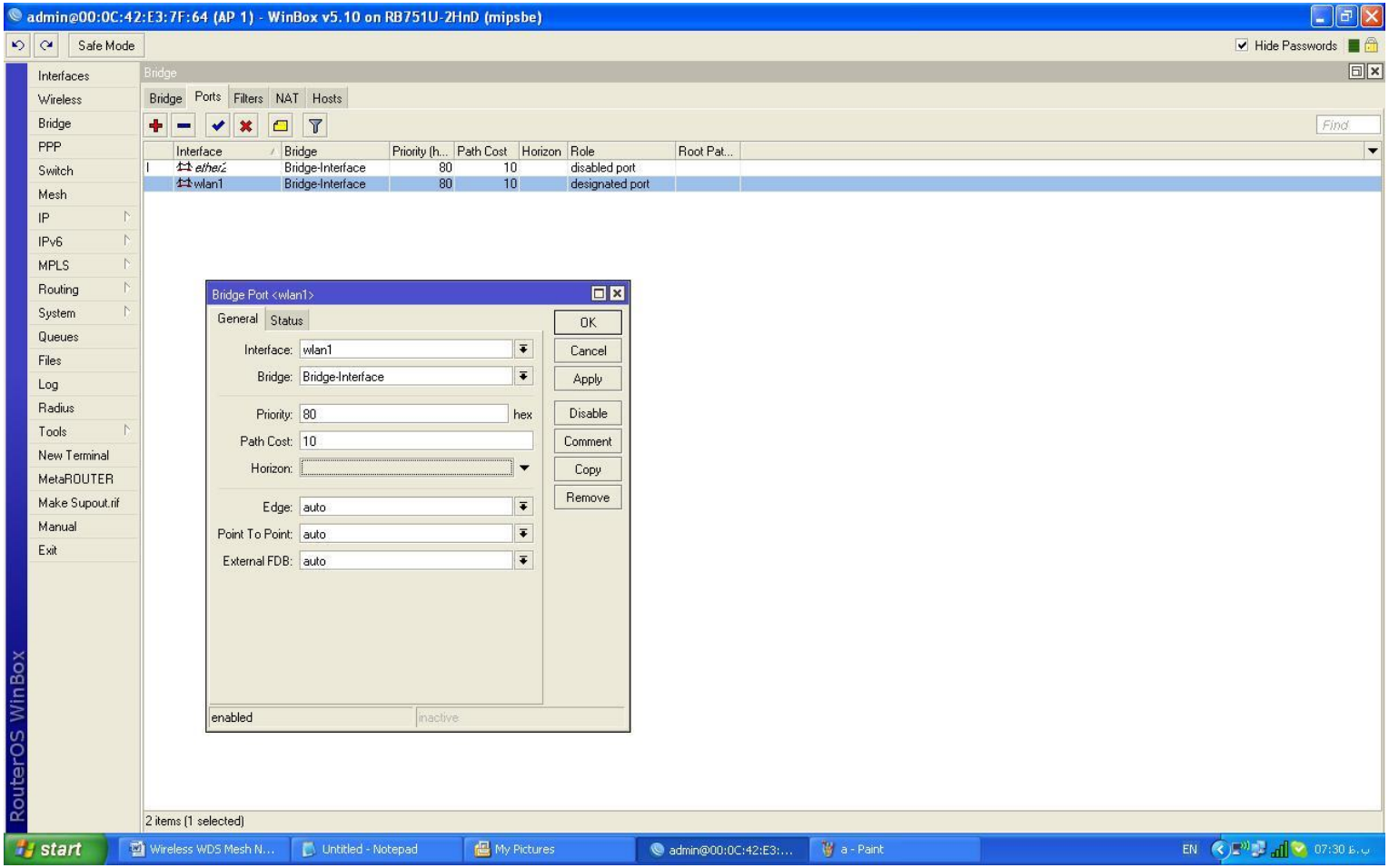
Manual
Exit
RouterOS WinBox
Bridge
Bridge
Ports
Filters
NAT
Hosts
Settings
Find
Name
Type
L2 MTU
Tx
Rx
Tx Pac...
Rx Pac...
Tx Drops
Rx Drops
Tx Errors
Rx Errors
MAC Address
Protoco...
R
Bridge-Interface
Bridge
2290
0 bps
0 bps
0
0
0
0
0
0
00:0C:42:E3:7F:65
rstp
Interface <Bridge-Interface>
General
STP
Status
Traffic
OK
Cancel
Apply
Disable
Comment
Copy
Remove
Torch
Protocol Mode:
none
stp
rstp
Priority:
8000
hex
Max Message Age:
00:00:20
Forward Delay:
00:00:15
Transmit Hold Count:
6
Ageing Time:
00:05:00
enabled
running
slave
1 item out of 11 (1 selected)
start
Wireless WDS Mesh N...
Untitled - Notepad
My Pictures
admin@00:0C:42:E3:...
EN
07:29

WDS + RSPT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Radius
Tools
New Terminal
MetaROUTER
Make Supout.rif
Manual
Exit
RouterOS WinBox
Bridge
Bridge Ports Filters NAT Hosts
Interface Bridge Priority (h... Path Cost Horizon Role Root Pat...
ether2 Bridge-Interface 80 10 disabled port
wlan1 Bridge-Interface 80 10 designated port
Bridge Port <wlan1>
General Status
Interface: wlan1
Bridge: Bridge-Interface
Priority: 80 hex
Path Cost: 10
Horizon:
Edge: auto
Point To Point: auto
External FDB: auto
OK
Cancel
Apply
Disable
Comment
Copy
Remove
enabled
inactive
2 items (1 selected)
start
Wireless WDS Mesh N...
Untitled - Notepad
My Pictures
admin@00:0C:42:E3:...
a - Paint
EN

PREGUNTAS

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