

MUM - PRESENTATION

Assembling ODU and IDU + Quick Config

BY

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Overview

Aim:

- Assembling Basebox 5 / LHGXL 5
- Mounting Basebox
- Connecting to Site / Fresnel / Scan
- HaP Mini Setup (AP with DHCP)
- PPPOE Client / L2TP (In Brief)

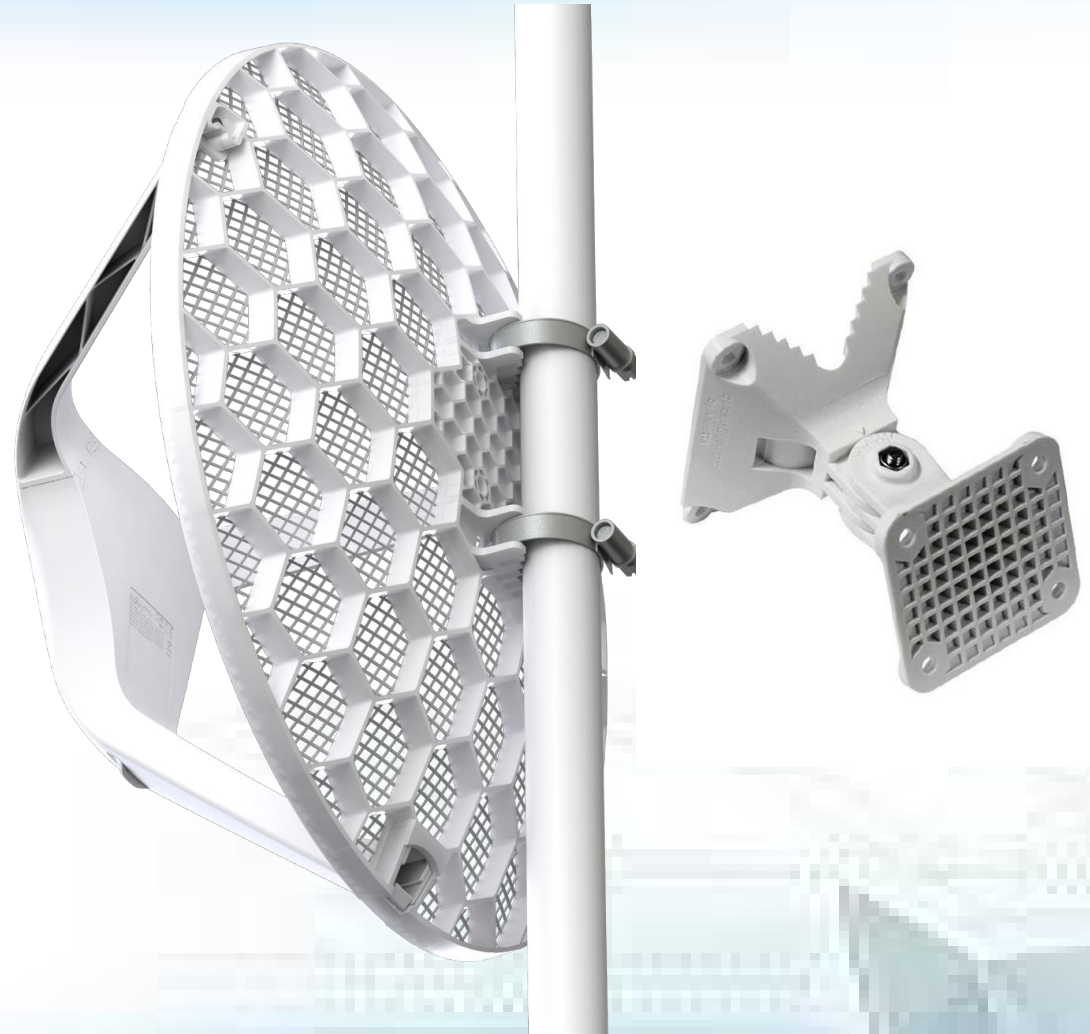
What we will do:

- Establish a connection between the Basebox 5 & MikroTik LHGXL 5

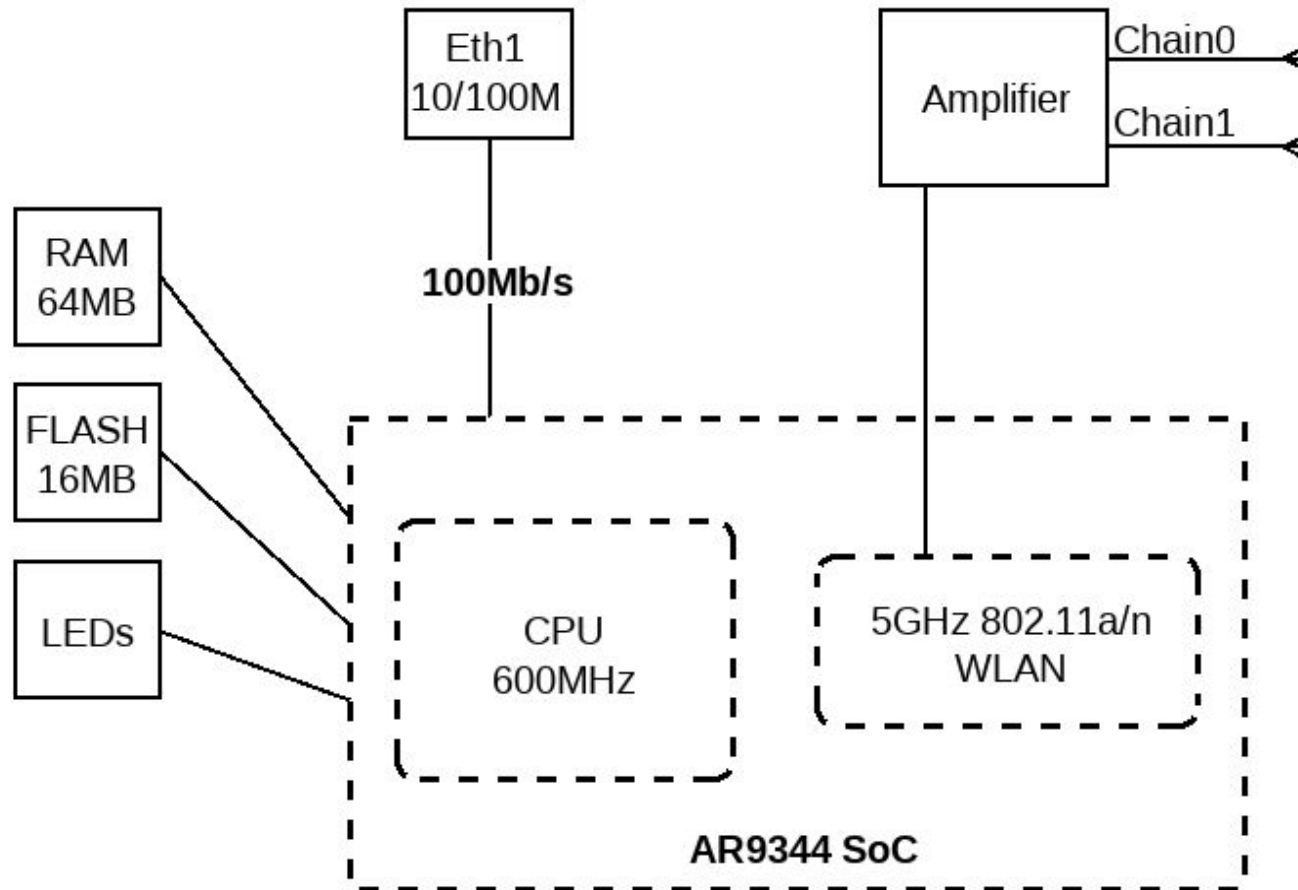
ASSEMBLING LHGXL 5Ghz

The LHG XL HP5 is a 5GHz 802.11 a/n wireless device with an integrated dual polarization 27 dBi grid antenna and high TX output power, designed to reach up to 40 km in point-to-point setups at full speed.

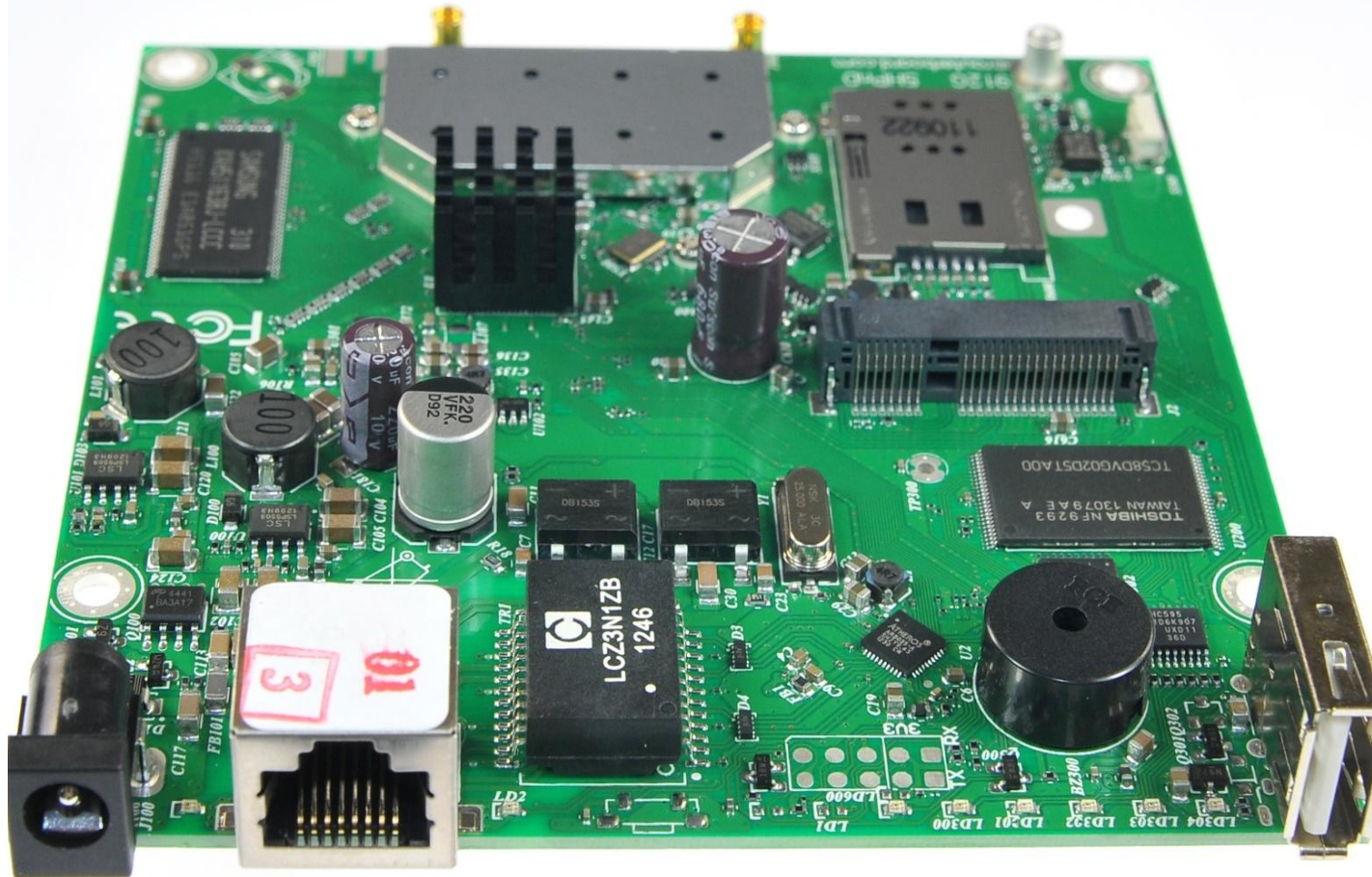
Quick Mount Bracket Comes Separate from the original LHG package, but can be purchased from various outlets.



LHG 5 (RBLHG-5nD)

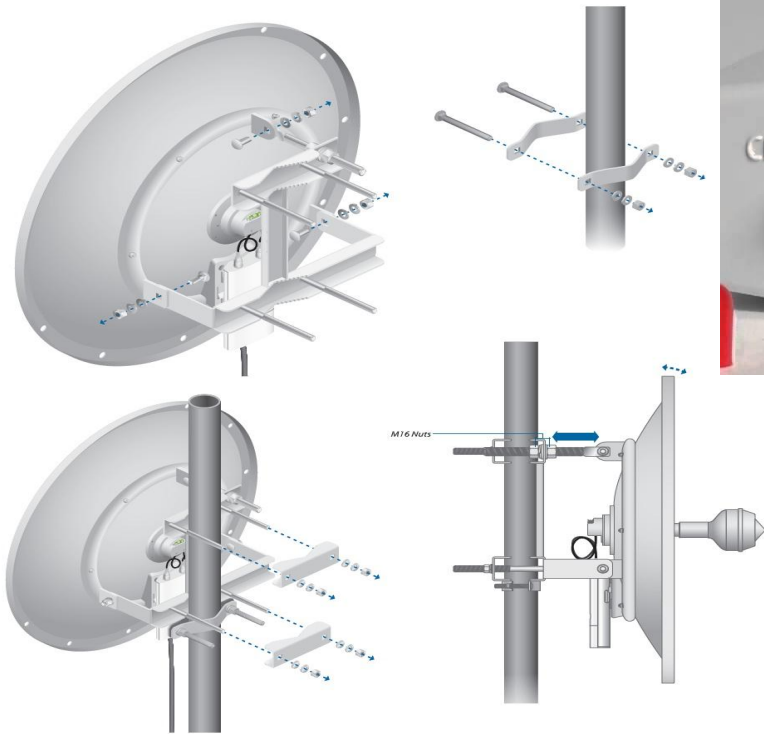


BASEBOX 5 RB

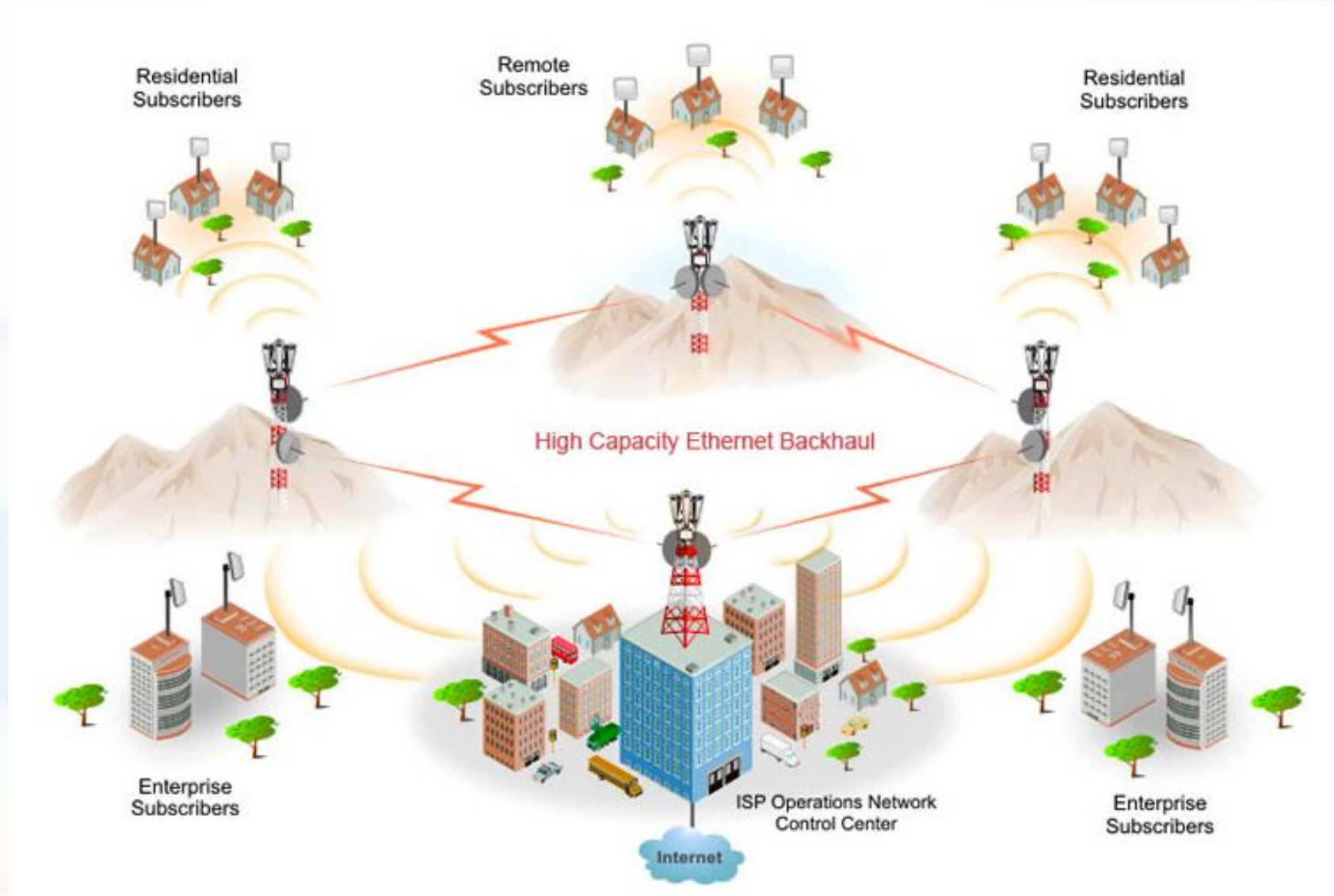


5Ghz Wireless Card
3G Dongle Slot
Beep Alert
Gigabit ETHER SOCKET
CPU
Mini PCI Slot
Power Input

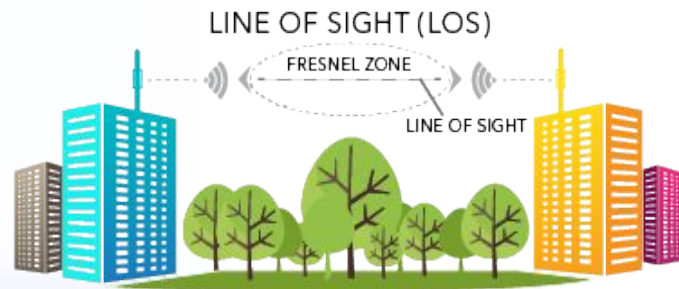
Mounting the Basebox 5



Connecting to a High Site

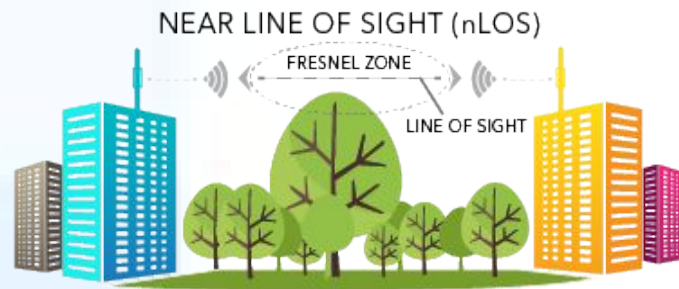


LINE OF SIGHT



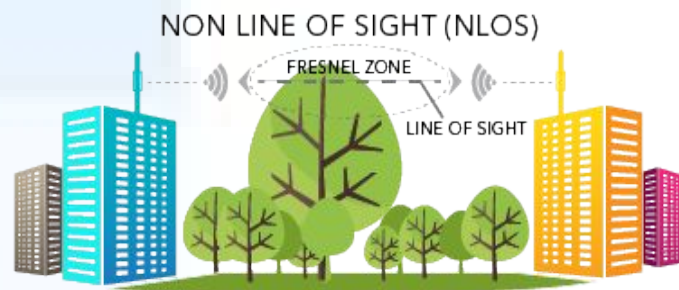
LOS – Clear line of sight

Clear line of sight must be established to ensure that the customer has fast and stable internet speed.



nLOS - Near line of sight

The near Line of Sight is when the transmission line can reach the provider's high site, but there are obstructions present in the Fresnel zone. These obstructions will cause the internet to be slow and unstable.



NLOS - Non-line of sight

There is No Line Of Sight because of too many obstructions in the Fresnel zone causing weak to no signal for an internet connection.

SETUP OF LHG 5

MODE = STATION

In this Section we will setup our LHG 5 as Station to be able to connect to the BASEBOX which will be in AP Mode.

Setup Done Via WINBOX

Interface <wlan1>

General

Wireless

Data Rates

Advanced

HT

HT MCS

WDS

...

Mode station

Band 5GHz-A/N

Channel Width 20/40MHz Ce

Frequency 5180

MHz

SSID: Liberty Bwanali

Radio Name: Liberty@MUM

Scan List default

Wireless Protocol any

Security Profile Liberty

Frequency Mode superchannel

Country: south africa

Antenna Gain 0

dB

OK

Cancel

Apply

Disable

Comment

Simple Mode

Torch

Scan...

Freq. Usage...

Align...

Sniff...

Snooper...

Reset Configuration

General

Wireless

Data Rates

Advanced

HT

HT MCS

WDS

...

Mode: ap bridge

Band: 5GHz-A/N

Channel Width: 20/40MHz Ce

Frequency: 5180

MHz

SSID: Liberty Bwanali

Radio Name: Liberty@MUM

Scan List: default

Wireless Protocol: any

Security Profile: Liberty

Frequency Mode: superchannel

Country: south africa

Antenna Gain: 0

dB

OK

Cancel

Apply

Disable

Comment

Simple Mode

Torch

Scan...

Freq. Usage...

Align...

Sniff...

Snooper...

SETUP OF BASEBOX 5

MODE = AP BRIDGE (Access Point Bridge)

In this Section we will setup our BASEBOX 5 as AP to be able to accept connection from LHG 5 which is in STATION Mode.

Setup Done Via WINBOX

SETUP OF HAP MINI

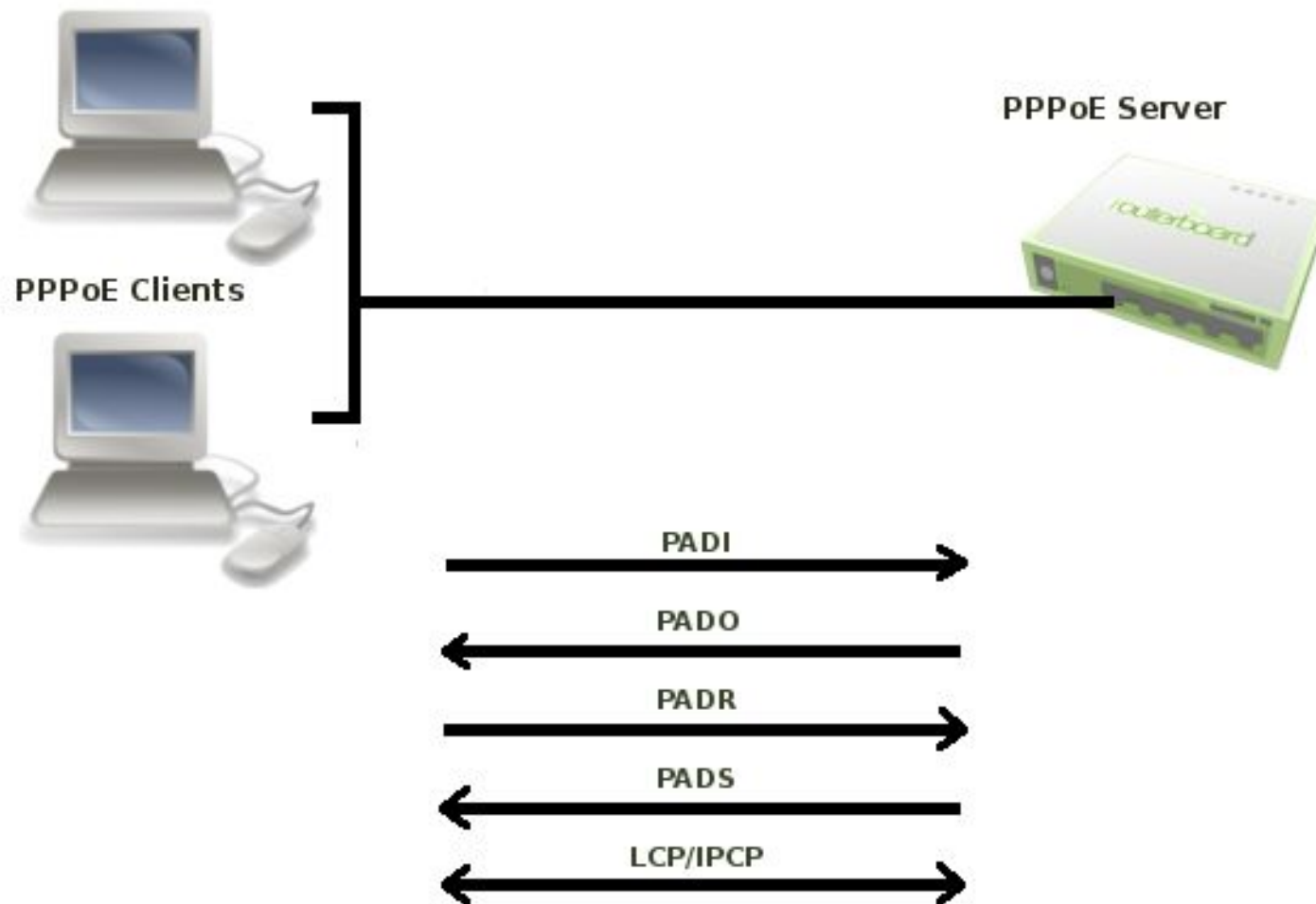
MODE = AP (Access Point)

DHCP = Dynamic Host Configuration Protocol

In this Section we will setup our HaP Mini as AP to be able to accept connection from Various Devices in 2.4ghz Frequency

Setup Done Via WINBOX

PPPoE CLIENT



Used Packet Types

Packet	Description
PADI	PPPoE Active Discovery Initialization The PPPoE client sends out a PADI packet to the broadcast address. This packet can also populate the "service-name" field if a service name has been entered in the dial-up networking properties of the PPPoE client. If a service name has not been entered, this field is not populated
PADO	PPPoE Active Discovery Offer The PPPoE server, or Access Concentrator, should respond to the PADI with a PADO if the Access Concentrator is able to service the "service-name" field that had been listed in the PADI packet. If no "service-name" field had been listed, the Access Concentrator will respond with a PADO packet that has the "service-name" field populated with the service names that the Access Concentrator can service. The PADO packet is sent to the unicast address of the PPPoE client
PADR	PPPoE Active Discovery Request When a PADO packet is received, the PPPoE client responds with a PADR packet. This packet is sent to the unicast address of the Access Concentrator. The client may receive multiple PADO packets, but the client responds to the first valid PADO that the client received. If the initial PADI packet had a blank "service-name" field filed, the client populates the "service-name" field of the PADR packet with the first service name that had been returned in the PADO packet.
PADS	PPPoE Active Discovery Session confirmation When the PADR is received, the Access Concentrator generates a unique session identification (ID) for the Point-to-Point Protocol (PPP) session and returns this ID to the PPPoE client in the PADS packet. This packet is sent to the unicast address of the client.
PADT	PPPoE Active Discovery Terminate can be sent anytime after a session is established to indicate that a PPPoE session terminated. It can be sent by either server or client.

PPP:

In PPP you can pass credentials for authentication using

- **PAP** - Password authentication protocol
- **CHAP** - challenge handshake authentication protocol
- On the interface, issue the encapsulation **ppp** command. Enable the use of **CHAP** authentication on both routers with the **ppp authentication chap** command. Configure the usernames and passwords

hboard

Session: 64:D1:54:7C:DB:50

Interface <pppoe-out1>

General Dial Out Status Traffic

Service

AC Name

User: example@isp.co.za

Password: *****

Profile default

Keepalive Timeout 10

☐ Dial On Demand☒ Use Peer DNS☒ Add Default Route

Default Route Distance 0

Allow ☒ mschap2 ☒ mschap1☒ chap ☒ pap

- Quick Set
- CAPsMAN
- Interfaces
- Wireless
- Bridge
- PPP
- Switch
- Mesh
- IP
- MPLS
- Routing
- System
- Queues
- Files
- Log
- Radius

NAT Rule <>

GeneralAdvancedExtraActionStatistics

Chainsrcnat

Src. Address

Dst. Address

Protocol

Src. Port:

Dst. Port:

Any. Port:

In. Interface

Out. Interface☐PPPOE-InternetConnection

In. Interface Lis

Out. Interface Lis

OK

Cancel

Apply

Disable

Comment

Copy

Remove

Reset Counters

Reset All Counters

 Quick Set

 CAPsMAN

 Interfaces

 Wireless

 Bridge

 PPP

 Switch

 Mesh

 IP

 MPLS

 Routing

 System

NAT Rule <>

General

Advanced

Extra

Action

Statistics

Action **masquerade**

☐ Log

Log Prefix

OK

Cancel

Apply

Disable

Comment

Copy

Remove

Reset Counters

Reset All Counters

L2TP

- Layer 2 Tunneling Protocol

Consists of 3 parts:

- USER
- LAC - L2TP Access Concentrator
- LNS - L2TP Network Server

User establish a PPP call which pass through the LAC to LNS
for access to the PRIVATE NETWORK

Interface <l2tp-out1>



General Dial Out Status Traffic

Connect To 192.168.10.1

User: lib_0001

Password: *****

Profile default-encryption

Keepalive Timeout 60

☐ Use IPsec

IPsec Secret

☐ Allow Fast Path

☐ Dial On Demand

☒ Add Default Route

Default Route Distance

0

Allow ☒ mschap2 ☒ mschap1
☒ chap ☒ pap

OK

Cancel

Apply

Disable

Comment

Copy

Remove

Torch

DNS Settings

Servers: 8.8.8.8

Dynamic Servers:

☒ Allow Remote Requests

Max UDP Packet Size: 4096

Query Server Timeout: 2.000 s

Query Total Timeout: 10.000 s

Max. Concurrent Queries: 100

Max. Concurrent TCP Sessions: 20

Cache Size: 2048 KiB

Cache Max TTL: 7d 00:00:00

Cache Used: 10 KiB

OK

Cancel

Apply

Static

Cache

For L2TP session to be able to function correctly we will need to add:

Default Route and Gateway

Setup Static DNS

Firewall = src - output = L2TP - Action = Masquerade

Question & Answers

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