

Building Blocks: MESH Node Construction

PRESENTED TO OC HEART

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Review

MESH is a network comprised of wireless networks

Nodes are self-configuring, self-discovering and fault tolerant

Commercial off-the-self (COTS) devices

Serves as transportation for email, chat, file and other data over radio frequencies

Introducing Node Construction

Types of Nodes:

- All-in-one
 - Stationary
 - Portable
- Point-to-Point (PtP)
- Sector

Recommending to build an all-in-one first..

Why An All-In-One?

- Provides
 - 2.2 GHz MESH Node
 - 5.8 GHz Wireless Access Point
 - Tunneling capability
 - Ability to connect to home network
 - Ability to power or DtD link to another node

What If...

What if there're no nodes you can connect to locally

- Use a tunnel – a virtual private network (VPN) for MESH
 - Allows access to the MESH network via internet
 - Cons:
 - Relies on internet
 - Must reinstall the tunnel client or server software with every firmware upgrade though the configuration remains

Building An All-In-One

Node Hardware

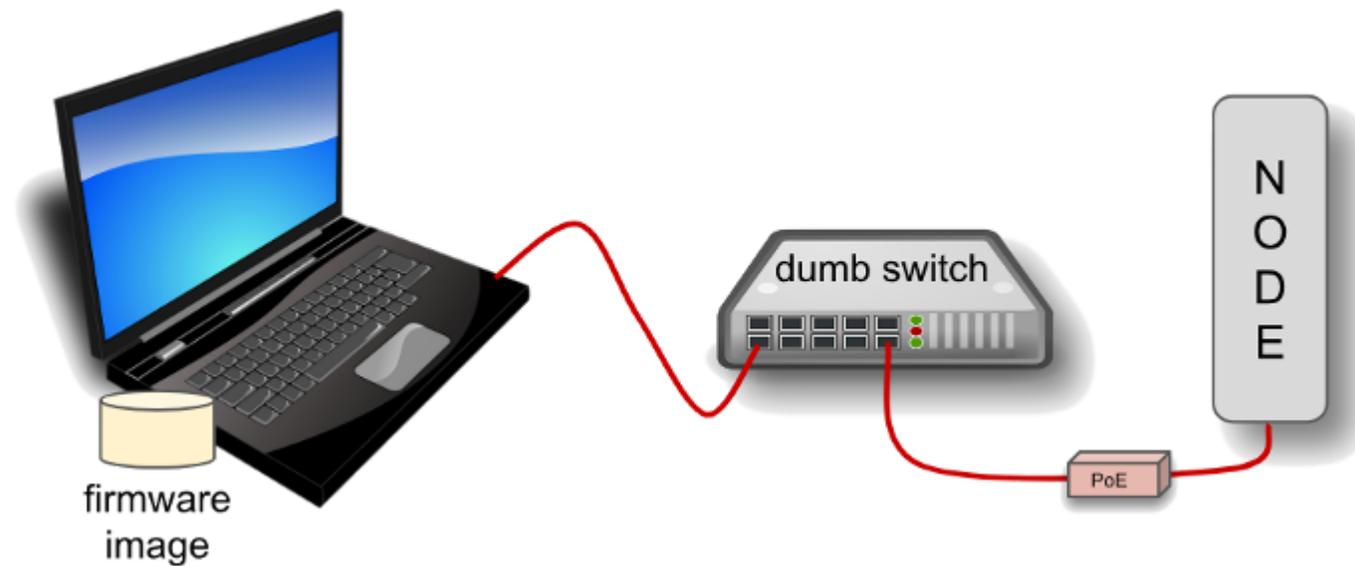
- [MikroTik hAP ac lite Dual-concurrent Access Point \(RB952Ui-5ac2nD-US\)](#)

Additional Construction Hardware Needed

- [NETGEAR 5-Port Gigabit Ethernet Smart Managed Plus Switch \(GS105Ev2\) - Desktop, and ProSAFE Limited Lifetime Protection](#)
- [Cable Matters 5-Pack Snagless Short Cat6 Ethernet Cable \(Cat6 Cable, Cat 6 Cable\) in Black 3 ft](#)

Installation Instructions

[Installing Mikrotik Firmware Instructions](#)



Tips And Tricks

- Sometimes between the 'Final Configuration Steps' Step 1 and Step 2 Windows does not recognize the gateway even after flushing the DNS cache. If this happens to you, disconnect the ethernet to Windows, wait a minute, then reconnect.

Hands On At Home

Procure a MikroTik hAP Lite model as identified here

Install the firmware using the instructions

Get on the MESH...

Elmering

If you run into a small problem, reach out to me @ kk6lzb@gmail.com

If you really run into issues, we can Zoom or Google Meet.

If that doesn't solve the issue, then can have a socially distanced hands-on

Summary

Building an all-in-one

Can connect to the outside world via tunneling if an island

Following the AREDN instructions for Mikrotik you can build a working MESH node in an hour