



SINGLE-HOP MESH

INTRODUCTION	2
BENEFITS (Left hand column, first sheet)	2
FEATURES	2
TERMINOLOGY	3
CONFIGURATION	3
Step 1: Configure Root AP.....	3
Step 2: Configure Mesh AP	4
Step 3: Disconnect Mesh AP from network	5
Step 4: Check Mesh connectivity.....	5
RESTRICTIONS	5
RECOMMENDATIONS	5

INTRODUCTION

With CloudManager 1.4, Xclaim Wireless introduces support for Single-Hop Mesh, which is a new approach to building high-performance WLANs. It reduces cumbersome RF planning and costly cable backhaul by lowering the need to run Ethernet wiring to individual Xclaim APs.

With single-hop mesh support, businesses can simply plug Xclaim APs into any convenient power source and walk away. With one Root AP, configure up to 5 Mesh APs.

In a single-hop mesh network a mesh AP can only form a mesh connection with a Root AP.

Single-hop mesh provides 3 main advantages:

- **High performance:** The Xclaim APs that support single-hop mesh (Xi-3 and Xo-1) use a secure 802.11ac link between each other, which ensures high performance in terms of throughput.
- **Reliable connectivity:** Our self-healing algorithms ensure that the MESH APs choose the best path back to the wired network. Also, self-healing capability allows the Mesh APs to dynamically detect Root AP issues and switch to backup options.
- **Ultra Simple Deployment:** Provisioning a single-hop mesh network through CloudManager is extremely simple.

BENEFITS (Left hand column, first sheet)

- **Lowers Deployment costs:** Eliminates costly Ethernet cabling to every Xclaim AP.
- **Extends Range:** Cover previously inaccessible areas with Wi-Fi due to MESH technology.
- **Highly Secure:** All mesh backhaul links between Xclaim APs are encrypted and hidden to ensure safe and secure operation

FEATURES

- Real-time interference avoidance and automatic interference rejection
- Best path signal selection to clients
- Self-forming network topology
- Self-healing around Root AP failures/environmental problems
- Secure encrypted backhaul links
- Secure Recovery mode

- Up to 5 Mesh APs per Root AP
- Supported on the Xi-3 and Xo-1 models.

TERMINOLOGY

- **Root AP (RAP):** This is a Mesh AP that is connected to the Internet via an Ethernet connection. Upto 5 Mesh APs can connect to this Root AP via Mesh Backhaul links.
- **Mesh AP (MAP):** This is a Mesh AP that does not have an Ethernet connection to the Internet. Instead, it forms a mesh connection with the Root AP and uses this Mesh backhaul to pass client and other control traffic to/from the Internet.
- **Mesh Backhaul:** This refers to the 5GHz 802.11ac link that is formed between a Root AP and a Mesh AP. This is a secure link that is used to “ferry” all control traffic (Mesh AP<->CloudManager) and client data traffic to & from the Internet.

CONFIGURATION

These are the steps to follow when configuring Single-Hop mesh:

Note #1: Please ensure that all the APs in your network are running the latest firmware version (2.2.0.0.27) to ensure that they support Single-Hop mesh.

Note #2: Single-Hop mesh is only supported on the Xi-3 and Xo-1 APs.

Step 1: Configure Root AP

As mentioned earlier, the Root AP will act as the “anchor” point for all the mesh APs to connect to. The Root AP must have an Ethernet connection to the Internet.

Here are the steps to configure the Root AP:

- Add the Root AP to CloudManager. Please ensure that the AP is running the latest firmware version.
- In the Access Points page, click on the AP to open up the access point’s configuration slider
- Scroll down to the bottom of the slider to the “Mesh Networking” section
- Select the AP Mesh Mode as “Root” from the dropdown.
- Configure the Root SSID. Please note that the SSID name and Passphrase that you will be entering in the Root AP configuration must be also configured on all the Mesh APs.

- Set a Passphrase for the Mesh backhaul link. The PSK configured will ensure that the Mesh Backhaul link is secure and data is encrypted.
- Click on Save. The configuration will now be applied and the AP will reboot. Once the AP comes back up, it is ready to act as a Root AP and accept MAP connections.

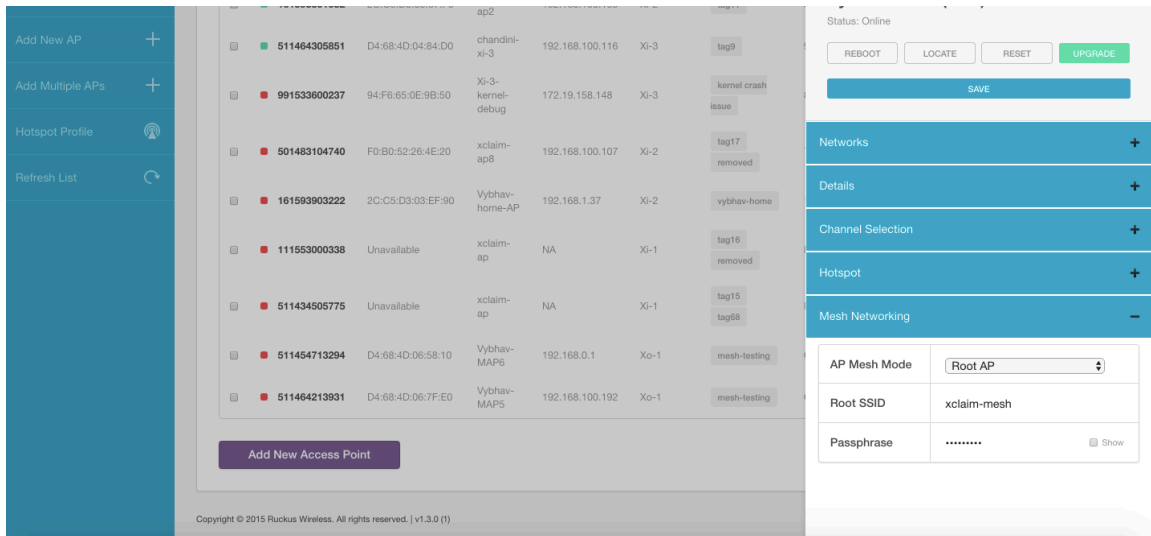


Figure 1: Root AP Configuration

Step 2: Configure Mesh AP

- For the configuration, please connect the Mesh AP to an Ethernet connection and wait for it to come online in CloudManager.
- In the “Access Points” page, please click on the mesh AP and wait for the AP configuration slider to open on the right.
- Scroll down to the “Mesh Networking” section.
- Select the AP Mesh Mode as “Mesh”
- Set the Mesh SSID to match the SSID configured in the Root AP
- Set the Passphrase to match the Passphrase configured in the Root AP.
- Click on Save. The configuration will now be applied and the AP will reboot.

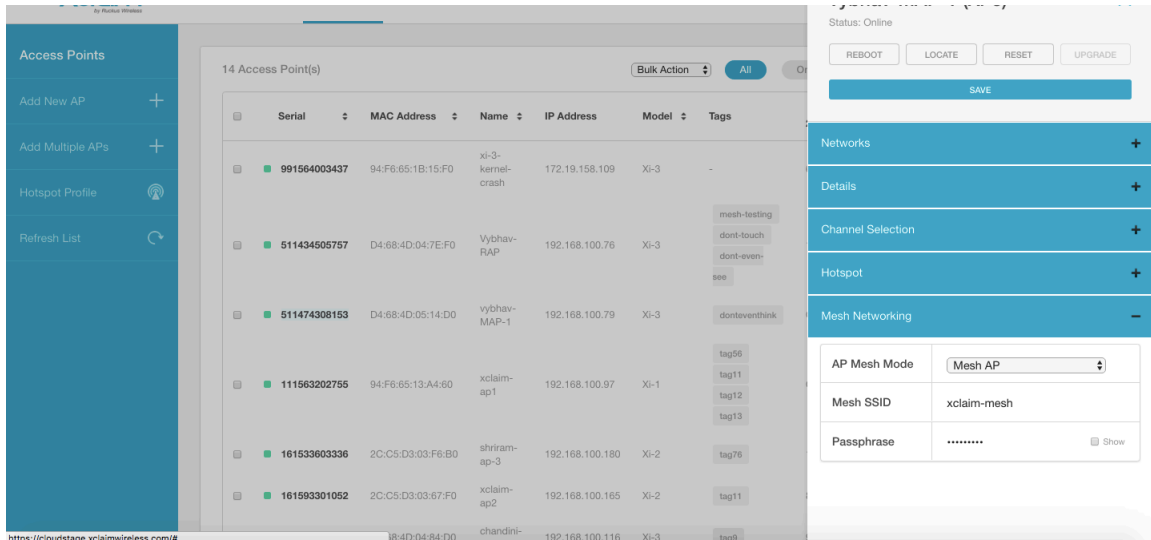


Figure 2: Mesh AP Configuration

Step 3: Disconnect Mesh AP from network

- Now, disconnect the Ethernet connection from the Mesh AP and place the AP in its desired location.
- Please wait for 1-5 minutes for the mesh connection to come up.

Step 4: Check Mesh connectivity.

- Once the mesh connection is up, the LED on the Mesh AP should be SOLID GREEN, indicating that the Mesh AP is able to reach cloud manager via the Mesh Backhaul Link.
- The Mesh AP will now come online in CloudManager. You will now be able to configure this AP like any regular Xclaim AP.

RESTRICTIONS

- One Root AP supports a maximum of 5 Mesh APs.
- Only single-hop mesh is supported. Mesh APs cannot be connected to one another to extend the range further. A mesh AP can only connect to a Root AP.
- This feature is only supported on Xi-3 and Xo-1 APs.

RECOMMENDATIONS

- Please set the 5GHz channels on the root AP to static values to ensure that channel changes caused by the auto-channel algorithm do not cause the Mesh link to fluctuate.