Wi-Fi Roaming Guide

Introduction

Wireless deployments that consist of more than one Access Point (AP) broadcasting a wireless network will likely include roaming clients. Since the AX83H can only be associated with one AP at a time, roaming from AP to AP must be quick for the user to have a seamless experience.

Why Does Roaming Occur?

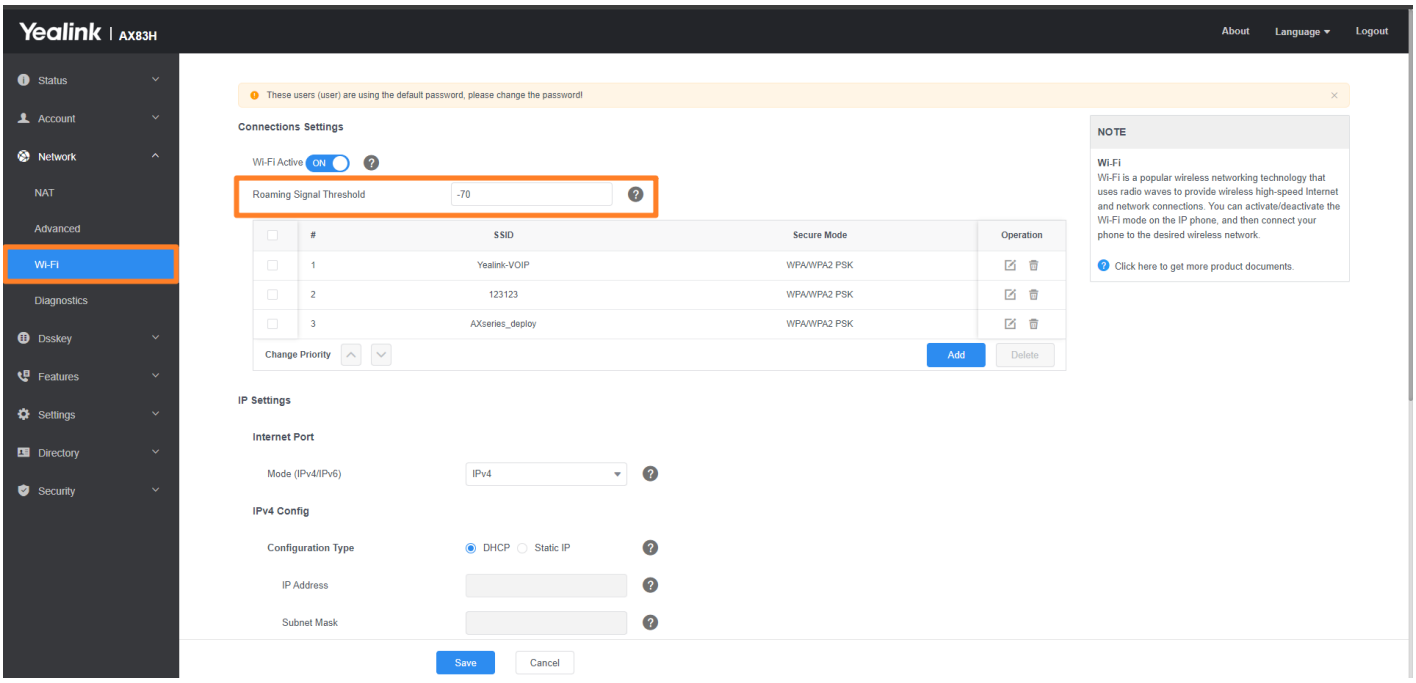
The AX83H will decide to roam when it detects a better signal from a new AP than the one it is currently associated with.

Wi-Fi Roaming Mode Configuration

You can log in to the web user interface or use the CFG parameter to set the Wi-Fi Roaming configuration.

Set via the Web User Interface

On the web user interface, go to **Network** > **Wi-Fi** > **Roaming Signal Threshold**.



Auto Provisioning

Parameter	Permitted Value	Default	Description

static.network.wifi.roaming_threshold	Integer from -100 to -30	-70	When the Wi-Fi signal strength of the device drops below this configured value, the device will scan for a hotpot above the threshold value and connect to it.

Roaming and Connectivity Decisions Explained

Roaming in 802.11 Wi-Fi is a decision made by the client side. Client devices actively search for Access Points (APs) that are advertising the desired SSID by listening to beacon frames or sending probe requests. The client's driver evaluates the signal strength of the received beacons or probe responses to determine whether to switch to a different AP or maintain the connection with the current AP.

The final roaming working mechanism is as follows:

1. AP decisions take priority over terminal device decisions.
2. If the AP does not make a decision, the terminal device determines: when the signal strength of AP1 is below the roaming threshold and the strongest signal is above the threshold, switch to the strongest signal AP2 (with anti-flutter function).

Scenario Description

Scenario

AC-based Layer 2 fast roaming (including dual-band and 2.4GHz/5GHz roaming systems) within the Access Controller (AC).

> ⓘ **NOTE**
> Prioritize 5GHz connection when operating in dual-band mode.

Prerequisites

1. The same AC manages wireless AP1 and AP2, both of which support 802.11k/802.11r/802.11v and broadcast the same SSID.
2. The APs before and after roaming are within the same subnet (belonging to VLAN X).

Fast Roaming for Idle Status

When the AX83H connects to AP1 and registers at least one account, if the AX83H is idle, it can move from the coverage area of AP1 to the coverage area of AP2. The fast roaming is triggered by a dual decision logic involving both the AP and the STA. The AX83H roams out from AP1 and roams into AP2 while keeping the same account and IP address. The entire switching process takes less than 100ms.

Fast Roaming for Voice and Other Real-time Services

When the AX83H connects to AP1 and registers at least one account, it can move from the coverage area of AP1 to the coverage area of AP2. The fast roaming is triggered by a dual decision logic involving both the AP and the STA. The AX83H roams out from AP1 and roams into AP2 while ensuring uninterrupted service, maintaining the same

state of upper-layer applications. Voice calls continue without any loss of audio or stuttering, and the entire switching process takes less than 100ms.