

# Wi-Fi Best Practices Guide

Home, small business, and managed Wi-Fi advice with fewer blanket rules and more operational context.

Wi-Fi is local. Channel, power, security, and DNS decisions depend on the environment, clients, and policy.

## Home

- Use WPA2-AES or WPA3 where all clients support it.
- Disable WPS unless you have a specific temporary onboarding need.
- Use 5 GHz or 6 GHz for capable clients, keep 2.4 GHz for range and IoT.
- Place APs high and open, not inside cabinets.

## Business

- Use separate staff, guest, and IoT networks where needed.
- Use central authentication where the business can support it.
- Document SSIDs, VLANs, DHCP scopes, RF profile, and AP placement.
- Plan change windows for controller or firmware updates.

## BAND GUIDANCE

BAND	USE FOR	WATCH
2.4 GHz	Range, IoT, older clients.	Congestion, only three non-overlapping 20 MHz channels in many regions.
5 GHz	Most modern client access.	DFS behavior, channel width, radar events, client support.
6 GHz	Clean spectrum for capable Wi-Fi 6E and Wi-Fi 7 clients.	Regulatory domain, indoor rules, client support, shorter range.

## Security Defaults

- Change default admin credentials.
- Use long unique passphrases.
- Disable legacy TKIP.
- Disable remote admin from the internet unless required and protected.
- Keep firmware current.

## DNS Is Policy

Do not tell every network to use the same public resolver. Homes may prefer a trusted public resolver. Businesses may require internal DNS, filtering, split DNS, logging, or approved secure DNS.

Use the resolver that matches the network policy and threat model.

## CHANNEL AND POWER RULES

- Use 20 MHz on 2.4 GHz.
- Use 40 or 80 MHz on 5 GHz only when the RF environment supports it.
- Do not max transmit power everywhere. Client transmit power matters too.
- Do not copy channel plans across countries. Regulatory domains matter.
- If clients stick to the wrong AP, check RSSI, SNR, minimum data rates, band steering, and roaming support.

## TROUBLESHOOTING QUICK CHECKS

SYMPTOM	CHECK
Slow everywhere	WAN speed, airtime utilization, channel overlap, AP uplink, client count.
Slow in one room	RSSI, SNR, wall material, AP placement, band selection.
Drops during calls	Roaming behavior, minimum data rates, sticky client, voice VLAN/QoS, retries.
Cannot join	Password, security mode, client driver, time/date, RADIUS, DHCP scope.
6 GHz missing	Client support, regulatory domain, AP mode, WPA3/OWE requirements, SSID configuration.

## What To Document

- SSID to VLAN mapping.
- Authentication method.
- Channel width and band plan.
- AP names, locations, switchports, PoE draw.
- Known client exceptions.

## What To Avoid

- Hidden SSIDs as a security control.
- One SSID for every device type.
- Random channel changes during business hours.
- Replacing APs before checking placement and channel plan.