

Fastlane+ Frequently Asked Questions

Q. What is Fastlane+?

A. Cisco's and Apple's Fastlane+ is a solution that significantly improves the experience of any Wi-Fi 6 capable Apple iPhones or iPads connected to a Cisco Wireless Wi-Fi 6 network. By leveraging Wi-Fi 6's OFDMA technology, Fastlane+ provides users with an incredible voice and video streaming quality for iOS 14 and above clients under even the most congested RF environments. As a background, Fastlane+ enhances the existing Fastlane solution, optimizing iOS client roaming with adaptive 802.11r and allowing users to prioritize specific voice and video applications.

Q. How does Fastlane+ work?

A. When a Wi-Fi 6 capable iOS 14 and above iPhone or iPad decides to use a voice or video application in a network environment with 60% or above channel utilization, the client devices will first send an ASR (Advanced Scheduling Request) trigger (802.11 Action Frame) to the access point. This ASR trigger consists of information such as 1.) the periodicity of traffic, and 2.) the traffic bit rate. At this point, an ASR session will form between the network and the client. Using information from this ASR trigger and the fact that Voice and video traffic typically operate at predictable bit rates, traffic patterns, bandwidth, and latency requirements allows the network to intelligently estimate the clients' buffer status report (BSR). Fastlane+ is enabled at 60% channel utilization because the network is always trying to maximize airtime efficiency. At around 60% channel utilization is where a regular OFDMA's BSR polling becomes less effective and where Fastlane+ can begin to benefit the user.

Q. How does Fastlane+ enhance Wi-Fi 6 and OFDMA

A. OFDMA is BSR (buffer status report) based, meaning the access point must periodically poll for the BSR from the joined client devices to understand the type of traffic they plan to send next. In a high channel utilization environment, polling becomes a large overhead and increases the already high latency of the network. In the case of Fastlane+, rather than having the access point poll for the BSR, the iOS client will automatically send an ASR trigger that provides the access point with information allowing it to estimate these BSRs instead, lowering latency and improving user experience.

Q. What Cisco WLC hardware and software supports Fastlane+?

A. All Catalyst 9800 controllers and Embedded Wireless Controllers on IOS-XE 17.4.1 or later software, and all AireOS controllers and Mobility Express supporting 8.10.142.0 or later software.

Q. What Cisco Access Point(s) supports Fastlane+?

A. Today, only the Catalyst 9130 access point supports Fastlane+; however, additional access points may support this solution in the future.

Q. What Apple hardware and software supports Fastlane+?

A. All Wi-Fi 6 capable iPhones (i.e., iPhone 11, iPhone 11 Pro, iPhone 11 Pro Max, iPhone SE, iPhone 12, iPhone 12 Pro, iPhone 12 Mini) and iPads (i.e., iPad Pro, iPad Air) running iOS 14 or later software.

Q. What's the difference between Fastlane+ and Fastlane?

A. The use case of the original Fastlane solution has two prominent use cases:

1. Optimized roaming for iOS devices with Adaptive 802.11r

2. The ability to prioritize business applications on iOS devices using the Apple configurator app or Meraki's device management software to whitelist an application.

Rather than needing to whitelist specific applications as done in the original Fastlane solution, Fastlane+ improves the experience of all voice and video applications in general for Wi-Fi 6 capable iOS devices on a high channel utilization network environment.

Q. What are the benefits of Fastlane+?

A. The following are the benefits of a Fastlane+ enabled network:

- A 40% increase in the MOS (mean opinion score) score for the VoIP traffic, providing users with higher quality voice and video content.
- A 30% decrease in latency and a 10% decrease in jitter optimizing the wireless network to be more reliable.
- A 20% increase in throughput, allowing users to stream high-definition voice and video content.

Q. What are examples of voice & video applications that will trigger Fastlane+?

A. Any voice and video application should trigger Fastlane+. The list of application includes but are not limited to Cisco WebEx and Apple FaceTime.

Q. What are some key deployment considerations for Fastlane+?

A. The following are three key deployment considerations for Fastlane+:

1. The benefits of Fastlane+ are best observed in a network environment with 60% channel utilization and above.
2. For Fastlane+ to be effective, the network environment must have a significant number of Fastlane+ supported Apple clients (Wi-Fi 6 capable iPhones and iPads on iOS 14 and above).
3. Fastlane+ optimizes the user experience of voice and video application traffic.

Q. Does Fastlane+ add extra IEs to the beacons?

A. No, Fastlane+ uses existing Cisco vendor-specific IEs.

Q. Is a Fastlane+ equivalent feature available for other wireless clients?

A. Not at the moment, this feature is currently exclusive between Cisco and Apple.

Q. How is Fastlane+ enabled on a Catalyst 9800 WLC?

A. Fastlane+ is enabled at a per-WLAN basis through the Web GUI, CLI, or Cisco DNA Center.

- Web GUI: Follow the steps below in sequence to enable Fastlane+ (PMF + ASR).
 - a. Navigate to the WLAN page and click on the WLAN you'd like to enable Fastlane+ on.
 - b. Click on the Security tab, set PMF (Protected Management Frame) to either optional or required.
 - c. Click on the advanced tab and click the check box next to Advanced Schedule Request Handling.
- CLI: Run the following commands in sequence to enable Fastlane+ (PMF +ASR).
 - a. `config terminal`
 - b. `wlan <WLAN Profile Name>`

- c. `scheduler asr`
 - i. This command enables ASR.
 - d. `exit`
 - e. `security pmf <optional or required>`
 - i. This command enables PMF
 - f. `show wlan <WLAN ID>`
 - i. This command displays if ASR is enabled or disabled.
- Cisco DNA Center: Follow the steps below to create a template that you can provision to your WLC to enable Fastlane+ (PMF and ASR). (These steps assume you already have a Catalyst 9800 WLC assigned to a site within Cisco DNA Center.)
 - a. Open the menu and navigate to Tools > Template Editor.
 - b. Click on the + button, and click Create Project, then provide a unique project name.
 - c. Click on the + button and click Create Template.
 - d. For Name, input a unique Template Name; for Project Name, input the name of the project created in the previous step; for Tags, input a unique tag name; for Device Type(s), select Cisco Catalyst 9800 Series Wireless Controllers or Cisco Catalyst 9800 Series Wireless Controllers for Cloud (depending on which one you're using), for Software Type, select IOX-XE, and click Update.
 - e. Add the following lines into the template:
 - i. `wlan {{ wlan_name }} {{ wlan_id }} {{ ssid_name }}`
 - ii. `security pmf {{ PMF_required_or_optional }}`
 - iii. `scheduler asr`
 - iv. `{{ shut }}`
 - f. Within the Action drop down menu, click save, then commit.
 - g. Open the menu and navigate to Design > Network Profiles.
 - h. Click Add Profile, select Wireless, click Add next to Attach Template(s).
 - i. For Device Type, select Cisco Catalyst 9800 Series Wireless Controllers or Cisco Catalyst 9800 Series Wireless Controllers for Cloud (depending on which one you're using); for Device Tag, select the tag you've associated to your template created earlier, and under Template, choose your template name created earlier, then click Save.
 - j. Open the menu, navigate to Provision > Inventory, then navigate to the WLC you'd like to provision.
 - k. Select the check box next to the WLC you'd like to provision, click Tag Device at the top, select the tag added to the template earlier, and click Apply.
 - l. Select the check box next to the WLC within the Actions menu, click Provision > Provision Device.
 - m. Click Next > Next > Next > click on the name of the WLC within the Advanced Configurations page.
 - n. Provide the following inputs into the input fields.
 - i. WLAN Name: <Unique WLAN name>
 - ii. WLAN ID Number: <Unique WLAN ID>
 - iii. SSID Name: <Unique SSID name>
 - iv. PMF_required_or_optional: <Input either "required" or "optional">
 - v. shut: no shut
 - o. Click Next, then Provision

Q. How is Fastlane+ on an AireOS WLC?

A. Fastlane+ is enabled at a per-WLAN basis and is done so through the CLI.

- CLI: Run the following commands in sequence to enable Fastlane+ (PMF + ASR).
 - `config wlan asr {enable | disable} <WLAN ID>`
 - This command enables ASR
 - `config wlan security pmf <optional or required>`
 - This command enables PMF
 - `show wlan <WLAN ID>`
 - This command displays if ASR is enabled or disabled.