Framework

Wi-Fi Aware

Securely pair and connect to external devices over peer-to-peer Wi-Fi.

iOS 26.0+ | iPadOS 26.0+

Overview

Wi-Fi Aware™ (also known as Neighbor Awareness Networking or NAN) is a Wi-Fi Alliance™ standard specification that enables devices to securely discover, pair, and communicate with nearby devices without an internet connection or access point. Your app can use the Wi-Fi Aware framework to connect with Wi-Fi Aware certified accessories. The framework offers a secure and standardized way to establish peer-to-peer (P2P) connections between Wi-Fi devices, providing networking capabilities such as:

- High-bandwidth and low-latency data transfers
- Connections to paired devices that are authenticated and encrypted at the Wi-Fi layer
- Simultaneous connections to multiple Wi-Fi Aware devices
- Simultaneous use of Wi-Fi Aware devices and a Wi-Fi infrastructure network
- Fully peer-to-peer topology, allowing peers to come and go without breaking connections to other peers

The Wi-Fi Aware technology works without the need for Wi-Fi infrastructure networks, cellular links, internet connections, or cloud servers. Your app can pair Wi-Fi Aware devices using AccessorySetupKit or DeviceDiscoveryUI. When paired, your app can create secure, authenticated, and encrypted peer-to-peer connections between paired devices on-demand, using the Wi-Fi Aware and Network frameworks.

Your app may connect to paired Wi-Fi Aware devices whenever it's running, in both foreground and background states. Your app may get runtime using any of the existing mechanisms on the platform, such as with the BackgroundTasks API.

If you are building a hardware device or accessory that uses Wi-Fi Aware, refer to the Wi-Fi Aware chapter of the Accessory Guide for the requirements to work well with Apple devices.

Important

The following Apple devices support the Wi-Fi Aware framework:

- iPhone 12 and later
- iPad (10th generation) and later
- iPad Air (4th generation) and later
- iPad Pro 11-inch (3rd generation) and later
- iPad Pro 12.9-inch (5th generation) and later
- iPad mini (6th generation) and later

Topics

Essentials

{} Building peer-to-peer apps

Communicate with nearby devices over a secure, high-throughput, low-latency connection by using Wi-Fi Aware.

Connecting devices for peer-to-peer Wi-Fi

Make outgoing and accept incoming secure connections with paired devices.

Adopting Wi-Fi Aware

Add entitlements and declare your app's services.

`com.apple.developer.wifi-aware`

The entitlement the system requires for an app to use the Wi-Fi Aware framework.

`WiFiAwareServices`

Dictionaries of Wi-Fi Aware services that the app can publish or subscribe to.

Host capabilities

`struct WACapabilities`

A structure that checks the host device's supported features and capabilities.

`enum Feature`

Features that your app's current host device can support.

Services to discover

`protocol WAService`

A protocol that defines a service that a device can publish or subscribe to.

`struct WASubscribableService`

A service your app discovers on remote devices and can connect to.

`struct WAPublishableService`

A service, hosted by your app, that remote devices can connect to.

Paired devices

`struct WAPairedDevice`

A known Wi-Fi Aware device that your app can connect to.

`typealias Devices`

A dictionary holding a snapshot of currently paired devices accessible and known to your app.

`struct DevicesSequence`

A sequence that vends updates to a paired device list, as the list changes.

`struct PairingInfo`

A collection of unauthenticated information the system receives from a device before it's paired for the first time.

Subscriber

`struct WASubscriberBrowser`

The structure that configures a network browser to subscribe to a Wi-Fi Aware service and make outgoing connections to paired devices.

`struct Action`

The structure that configures the Wi-Fi Aware subscriber operation the network browser performs.

`struct` **Devices**

The structure that determines the devices to connect to.

Publisher

`struct` **WAPublisherListener**

Configures a network listener to publish a service over Wi-Fi Aware and accept incoming connections from paired devices.

`struct` **Action**

The structure that configures the Wi-Fi Aware publisher operation that the network listener performs.

`struct` **Devices**

The structure that determines the devices to connect to.

`struct` **DatapathParameters**

The parameter that sets the initial Wi-Fi Aware data path configuration for any devices that are connected.

Parameters

`final class` **NWParameters**

An object that stores the protocols to use for connections, options for sending data, and network path constraints.

`struct` **NWParametersBuilder**`<Top, each P> where Top : NetworkProtocolOptions, repeat each P : NetworkProtocolOptions`

An opaque class that is responsible for creating and configuring NWParameters based on the parameterized protocol stack.

`struct` **WAParameters**

Parameters configuring a Wi-Fi Aware data path connection.

Connections

`struct` **WAEndpoint**

The endpoint of a Wi-Fi Aware connection.

Connection performance

`struct` NWPath

An object that contains information about the properties of the network that a connection uses, or that are available to your app.

`struct` WAPath

A representation of the current Wi-Fi Aware path.

`enum` WAPerformanceMode

The performance mode that indicates what performance criterion to prioritize.

`enum` WAAccessCategory

The underling quality-of-service (QoS) the Wi-Fi layer uses to transmit data packets from a connection over the air.

`struct` WAPerformanceReport

The current performance state of the data path.

Errors

`enum` NWError

The errors returned by objects in the Network framework.

`enum` WAError

An error in Wi-Fi Aware.