Reference Manual

Device Onboarding: Ayla Registration Methods

Ayla Networks

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1. Introduction

Ayla Networks provides OEM customers with a choice of five different registration methods. The registration methods bind the device to the user application based on the priorities and conditions that the OEM defined for the product (devices). These methods serve as an additional level of security for connected devices. Prior to registering a device, you must implement the Wi-Fi Setup process, which provides a solid, basic level of security. The registration methods then ensure secure access to the device through specific requirements, such as physical proximity or the use of a secret token. You should refer to these requirements when selecting the most suitable registration method for your use cases and market segment.

1.1 About this Document

This document provides an overview of the Wi-Fi setup and registration processes, both of which are critical components when onboarding your device to the Ayla Device Service (ADS). The overview includes the major steps in these processes and a description of each of the five Ayla Registration Methods.

The document is designed as a reference to facilitate your understanding of:

- The Wi-Fi setup process

- The five Ayla Registration Methods

You may also refer to this document to select the most appropriate registration method based on the use cases and market segment for your device.

1.2 Intended Audience

This document is written for technical personnel at OEM customers of Ayla Networks who need to improve their understanding of the Wi-Fi setup and Ayla registration processes.

Additionally, anyone responsible for selecting an appropriate registration method may want to refer to this document for assistance with that decision.

1.3 Related Documentation

For additional information related to Wi-Fi Setup and the Ayla Registration Methods, refer to the following documents (which are available on support.aylanetworks.com):

- *Wireless Connectivity Troubleshooting Guide,* AY006TWT1-1.0

- *Ayla Module Command Line Interface Reference Guide,* AY006UCL3-7.0

- *Ayla Getting Started Guide,* AY006AIO02-3

- *Ayla Service API Specification,* AY006USA0

1.4 Document Conventions

Ayla user documentation follows these conventions:

- Text that you type (such as commands) and the contents of downloaded files are shown as:

```
cd wmsdk_bundle-3.1.16.1
tar xfz ada-wmsdk-src-1.0.tgz
```

- File names, scripts, names of commands, properties in a file, code, and the like are also in `Courier New` font, for example:

> Use the `psm-dump` command to …

- Words or phrases that are specifically defined and could potentially be misunderstood are initially in "quotes" the first time they appear in the document.

- Names of buttons, keys on the keyboard, links on a website, and the like are written as is; for example, press the Reset button.

- The route to navigate network and file paths are separated by the back slash, "\."

- Menu options on the user interface (UI) are shown in `Courier New` font and each point that you have to click to navigate to the next is separated by the vertical bar, "|."

- Ancillary information that is important to emphasize is shown as:

NOTE   The commands provided in the example assume your evaluation board is `mw300_rd` and your chip is `mw300`. If otherwise, make the appropriate substitutions.

- Information describing system failures or hazards that could damage a product, including data loss, is shown as:

CAUTION   Make sure that the appropriate data buffering is accounted for in deployed devices, especially where the loss of data is critical to the core functionality or the services provided by the systems.

1.5 Abbreviations and Acronyms

Most abbreviations and acronyms are spelled out the first time that they are used in the document and are not always listed in the following table. However, abbreviations and acronyms that are frequently used in Ayla user documentation or commonly known by the intended audience of the document may also or only be spelled out in this table.

AP	Access Point
SSID	Service Set Identifier
UUID	Universally Unique Identifier
DSN	Device Serial Number

2. Device Onboarding: Wi–Fi Setup

When registering your device, the first process is the Wi-Fi Setup. This is essential when connecting the device and the mobile user to the Ayla Device Service (ADS) and making the device a registerable candidate for any of the five Ayla Registration Methods.

NOTE	Before getting started, OEMs have to create an account to sign on to the ADS using https://developer.aylanetworks.com/. Mobile users must also create an account with the Ayla user database on the mobile application. Refer to the *Ayla Getting Started Guide,* AY006AIO02-3, for information on how to create these accounts.

This section provides an overview and important details on the Wi-Fi Setup process.

2.1 The Wi–Fi Setup Process

Wi-Fi Setup starts when you power-on the device. During the Wi-Fi setup, the device connects to the Wi-Fi network and the ADS and then obtains a registration token. However, the device is not ready for any of the Ayla Registration Methods until OEM Authentication is complete, and the ADS marks the device as registerable.

NOTE	As discussed in Section 3, AP-Mode is the only registration method that does not require you to complete the Wi-Fi Setup prior to the registration process. This is because the Wi-Fi Setup and the AP-Mode Method are done in one process.

Before initiating the Wi-Fi Setup process, you must do the following :

- Create the appropriate Ayla accounts.
- Make sure that you have a properly working Internet connection.

⚠ CAUTION	Though many customers are familiar with the Wi-Fi Protected Setup (WPS), which is an industry standard Wi-Fi protocol, it cannot be used with the AP-Mode Method. We prefer you follow the Wi-Fi Setup process described in this section.

Figure 1 is a process flow diagram of the Wi-Fi Setup process for device onboarding. Based on this diagram, we explain Wi-Fi Setup in this section.

The diagram is organized using the three main components of the system:

1. Ayla Device Service, ADS, (cloud)

2. Device (hardware)

3. Mobile (application)

The order of the components is different from the flow diagrams for the registration methods in Section 3. For Wi-Fi Setup, "Device" is in the middle because most of the interaction during the Wi-Fi Setup is between the Device and the Mobile.
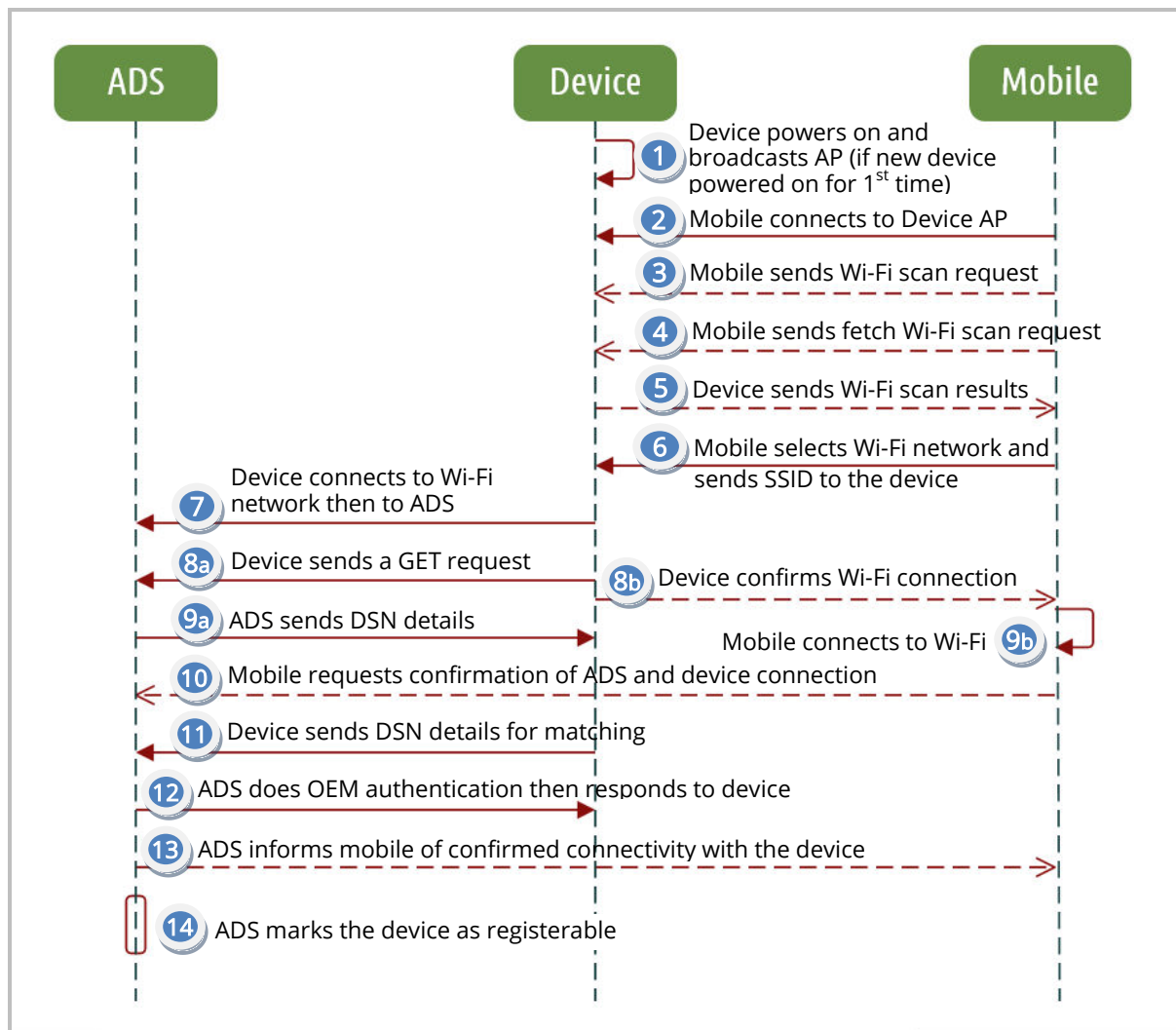

Figure 1: Device Onboarding: Wi-Fi Setup

The following steps provide an overview with some details on the Wi-Fi Setup process. Each step number corresponds to the same step in the flow diagram (Figure 1).

NOTE	Customers should know and follow the Wi-Fi industry standards and protocols to avoid issues with Wi-Fi setup that are related to noncompliance. A common problem that arises, for example, is because the location of the device is outside an acceptable range from the Wi-Fi router.

1. If a new device is powered on for the first time, it starts broadcasting its Access Point (AP). When broadcasting the AP, the device is sending its SSID (the name of the wireless LAN network). The mobile application should recognize the SSID format to connect to the Device AP.

NOTE	You can protect this AP with a password. If you choose to do this, you need to enter the password that comes with the AP (usually noted on the label). Refer to the *Ayla Module Command Line Interface Reference Guide,* AY006UCL3-7.0, for more information*.*

   If this is not the first time that the device is powered on, it does not start in AP mode; the user must manually start the AP mode. For example, some devices have a button that the user pushes to start AP mode.

2. The mobile application connects to the Device AP by finding the Device AP (SSID) in the Wi-Fi settings and then connecting to this AP.

3. The mobile application sends a Wi-Fi scan request to the device. This is a similar process to your mobile phone scanning for surrounding APs to display a list of Wi-Fi networks to which you may be able to connect.

4. The mobile application sends a fetch Wi-Fi scan request to the device to obtain the results of the Wi-Fi scan.

5. Based on the fetch Wi-Fi scan request, the device sends the Wi-Fi scan results to the mobile application. These scan results are similar to the list of networks that you receive when trying to connect your mobile phone to a surrounding Wi-Fi network, as explained in Step 3. Figure 2 shows an example of this list.
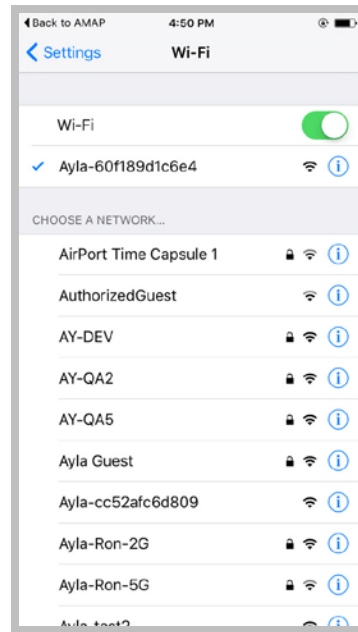
Figure 2: Example of a Wi-Fi Scan Results

6. The mobile application selects the Wi-Fi network from the Wi-Fi scan results and sends the SSID and password to the device.

7. The device verifies the SSID and password from the mobile application, and connects to that Wi-Fi network and then to the ADS.

8a. The device sends a GET request (also referred to as a GET DSN) to the ADS for device details (or more specifically details of the DSN, like information on the OEM, location details on where the device was connected, etc.).

    At this point, the mobile is polling for the connectivity of the device.

8b. In addition to sending the GET request to the ADS, the device sends the mobile application a confirmation that the device is connected to the Wi-Fi network.

9a. In response to the GET request from the device (Step 8a), the ADS sends the device the DSN details (location of the device connection, reg token, etc.).

9b. After receiving confirmation that the device is connected to the Wi-Fi network (Step 8b), the mobile application connects to the Wi-Fi network.

10. The mobile application sends a request to the ADS to confirm connectivity between the device and the ADS.

11. The device sends the ADS details on the OEM and the device to ensure that the device details previously sent from the ADS (in step 9a) match the existing device details.

    If the response from the ADS (in step 9a) does not match the existing device details, the device sends a PUT request along with OEM details.

12. The ADS performs the OEM Authentication and responds to the device (based on step 11).

    After the OEM authentication, the ADS associates a template with the same OEM model as the device. A template is specifically defined for each OEM model; therefore, a template can only be associated with one OEM model. For more information on template association, refer to the user manual entitled, *The Ayla Developer's Portal,* AY006UDP3-1.1 (available on <u>support.aylanetworks.com</u>).

13. The ADS responds to the mobile application, confirming connectivity between the device and the ADS. The confirmation includes details, such as the OEM, OEM model, LAN IP, registration type, etc.

14. The ADS marks the device as registerable. This concludes a successful Wi-Fi setup.

NOTE   If you are experiencing problems completing the Wi-Fi setup, refer to the *Wireless Connectivity Troubleshooting Guide,* AY006TWT1-1.0. This document covers common issues, like timeouts and not being able to connect to the ADS because of a security protocol, etc.

As stated already, once the ADS marks your device as a registerable candidate, you can proceed to the Ayla registration method of your choice to complete the onboarding process.

3. Ayla Registration Methods

The purpose of the Ayla registration process is to define ownership and control of the device. By controlling access to the device, you significantly reduce the possibility of exposing details about the device to unauthorized users, thereby avoiding issues ranging from device malfunctions to complete system failures. The Wi-Fi Setup process adds the first level of security to the device; the Ayla Registration process then adds an additional layer of security through user authentication. This process establishes a close association between the ADS and the user device, thus protecting against interference from rogue users.

We provide five different registration methods so that you can choose the method that best fits the user requirements and key characteristics of your device. These methods are:

1. Same LAN Method
2. Button-Push Method
3. AP-Mode Method
4. Display Method
5. DSN Method

This section provides the requirements and an overview with important details on each of the five registration methods.

3.1 Registration Prerequisites

Before proceeding to the registration method for your device, there are several requirements to consider:

- You must successfully complete the Wi-Fi Setup process, which is covered in Section 2 of this document.

NOTE   The AP-Mode Method does not require that you complete the Wi-Fi Setup prior to the registration process. As explained in Section 3.4, the AP-Mode Method includes Wi-Fi Setup in the registration process.

- Once the device is a registerable candidate, you must register the device within a specific timeframe if you choose the Same LAN, Button-Push, or AP-Mode methods. The amount of time allowed before it is too late to register the device differs for each of these three registration methods. Refer to Table 1 for the maximum time you have to register the devices using these methods.

NOTE   If you do not register your device within the time requirement of the registration method, the reg token on the device becomes invalid. The device, however, does not delete the existing reg token. The device must re-connect to the ADS, and obtain a new reg token through a GET DSN. (This is step 8a in the Wi-Fi Setup process outlined in Section 2.1 of this document). At this point, all of the connectivity steps described in the Wi-Fi Setup from 8a to 14 are performed again to mark the device as a registerable candidate with the new reg token.

- If you plan on giving your registered device to another user, you must unregister and re-register the device when you choose the Same LAN or DSN methods.

NOTE   Mobile users have to unregister the device through the mobile application. Refer to the *Ayla Service API Specification,* AY006USA0, for an example of the API call to unregister devices.

- For the Same LAN and Button-Push methods, the device and the mobile application must be on the same local area network (LAN). An important step in these registration processes is for the ADS to confirm that the device and the mobile application are on and reachable through the same LAN before associating the mobile user with this device.

- For the Same LAN, Button-Push, or AP-Mode methods, the mobile user must be near the device.

NOTE   Customers should know and follow the Wi-Fi industry standards and protocols to avoid issues with Wi-Fi setup that are related to noncompliance. A common problem that arises, for example, is because the location of the device is outside an acceptable range from the Wi-Fi router.

- The AP-Mode method is only for Wi-Fi devices and requires a setup token. The setup token is an 8-character alphanumeric random string that is generated by the mobile application.

- You can have more than one device on the same LAN. The ADS provides information on all of the registration candidates (specifically the DSN of each of the devices), not just for one device. This capability is an important part of the verification process to confirm that the device and the mobile application are on the same LAN, which is required to complete the Same LAN and Button-Push methods successfully.

- The Same LAN and Display methods require a reg token. The reg token is a 6-character alphanumeric random string (e.g. azAZ09) that is generated by the ADS.

For your convenience, Table 1 provides a summary of the major requirements for each registration method. You may use this table to select the best registration method for your device and use cases.

Table 1: Summary of the Requirements for the Ayla Registration Methods

	Same LAN	Button-Push	AP-Mode	Display	DSN
Same LAN Requirement?	Yes	Yes	No	No	No
Physical Proximity Requirement?	Yes	Yes	Yes	No	No
Same Remote IP Requirement?	Yes	Yes	No	No	No
Requirement to explicitly unregister the device when changing ownership?	Yes	No	No	No	Yes
Wi-Fi Device Requirement?	No	No	Yes	No	No
Requirement for a list of registration candidates?	Yes	Yes	—	—	—
Device Serial Number (DSN) Requirement	Yes	Yes	Yes	—	Yes
Setup Token Requirement	—	—	Yes	—	—
Reg Token Requirement	Yes	—	—	Yes	—
Time requirement before registration expires?	1 hour	2 minutes	1 hour	—	—
Requirement to support Wi-Fi Protected Setup (WPS)	Yes	Yes	No	Yes	Yes

NOTE   As a best practice, initiate the registration process as soon as possible after completing the Wi-Fi setup. If you cannot proceed to the registration process in a timely manner, it is best to complete the Wi-Fi Setup again when you are ready to register the device. As specified in Table 1, some of the registration methods have a mandatory time requirement.

3.2 Same LAN Method

The major characteristic and requirement of the Same LAN Method is that the device and the mobile application have to be on the same local area network (LAN), and the ADS has to be able to verify and confirm this. Same LAN is considered the most secure registration process based on its requirements. For example, you would already have a certain level of trust in the mobile user since you and the user have access to the same network. Also, this method provides secure access control over the device because the owner of the device has to unregister before a new user can assume ownership. Same LAN is the default registration method if you didn't choose a method when defining the template for your device.

NOTE	For more information on template definition, refer to the user manual entitled, *The Ayla Developer's Portal,* AY006UDP3-1.1.

The ADS verifies the following three conditions before the Same LAN registration process can successfully complete:

1. The device and the mobile application are on the same LAN. The ADS confirms this by comparing the remote IP of the device with that of the mobile application.

2. The device has to connect to the ADS (the cloud) within one hour of being marked as a registerable candidate (after a successful Wi-Fi setup). The ADS verifies that the device is initiating the Same LAN registration within the one-hour requirement.

3. The ADS verifies that the reg token from the mobile application is the same as the reg token given to the device earlier in the Same LAN registration process (Step 2 of the process outlined in this section).

These three conditions are further explained in the appropriate steps of the Same LAN process described in this section. The conditions are also included in the requirements for the Same LAN Method, which are outlined in Section 3.1.

NOTE	If you own a device with a Same LAN registration and you want another mobile user to gain access to this device, you must unregister the device before the mobile user can register it and assume ownership (as stated in the beginning of this section).

Figure 3 is a process flow diagram of the Same LAN Registration Method. Based on this diagram, we explain the Same LAN registration process in this section.

NOTE Notice the difference in the order of the components in the process flow diagrams in Figure 2 (Wi-Fi Setup) and Figure 3 (Same LAN). The ADS has changed places with the Device in Figure 3. In the Same LAN process, the majority of interaction is between the mobile application and the ADS. The entire process is about the ADS confirming that the device and the mobile application are on and reachable through the same LAN before associating the mobile user with this device.
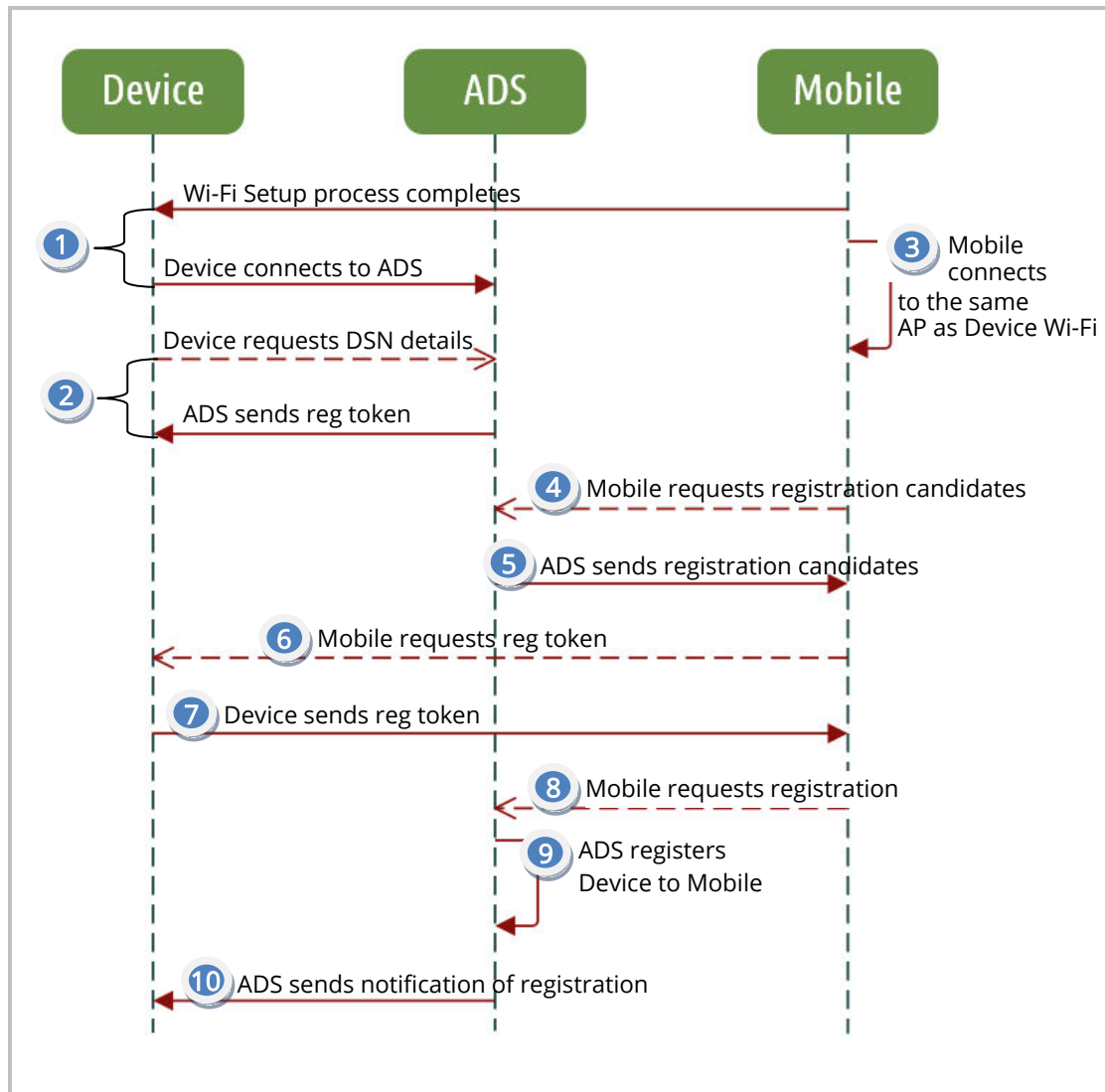

Figure 3: Same LAN Registration Method

1. The Wi-Fi Setup process must be completed as outlined in Section 2 to make the device a registerable candidate.

   During the Wi-Fi Setup, the device connects to the ADS, as shown in Figure 3.

	As specified in Section 3.1, for the Same LAN method, you must register your device within one hour of completing the Wi-Fi Setup and successfully marking the device as a registerable candidate. If you don't do this, the mobile application is not able to find a registerable candidate and the Same LAN registration process does not complete successfully. Refer to Section 3.1 for the appropriate actions to take.
CAUTION	

2. The device requests the DSN details from the ADS, and the ADS responds by sending the reg token to the device.

   In this step, the device sends a GET DSN request to obtain information in case anything has changed, such as location details. In response, the ADS sends the reg token to the device, which is an important detail in successfully completing the Same LAN registration process. (not all registration methods require a reg token, as outlined in Table 1 of Section 3.1).

NOTE	The reg token is a 6-character alphanumeric random string (e.g. azAZ09) that is generated by the ADS. The reg token is one of the main factors that the Same LAN and Display methods use to identify the correct device during the registration process. Each reg token can only be used one time; therefore, no other user can enter it.

3. The mobile application connects to the same AP as the Device Wi-Fi.

   When the mobile application selects the Wi-Fi network (similar to Step 6 of the Wi-Fi Setup), this must be the same Wi-Fi network to which the device is connected. Even though there may be several available access points (APs), the device and the mobile must be connected to the same AP (Wi-Fi network) and the ADS must verify and confirm this to complete the Same LAN registration process successfully.

4. The mobile application requests the registration candidates from the ADS.

NOTE	It is crucial that when the mobile application reaches the ADS in this step, the remote IP (which is the IP of the network to which the mobile is connected) is the same as the remote IP of the device, which the ADS received when the device connected to and communicated with the ADS in Step 3.

5. The ADS sends the mobile application the list of registration candidates with the DSN and LAN IP details.

   If you have more than one device on the same LAN, the ADS sends the registration candidates and DSNs of all of the devices, not just one.

6. The mobile application sends a request for the reg token to the device, using the LAN IP and the DSN.

   Once the mobile application receives the LAN IP (along with the DSN details) from the ADS and confirms that the device is on the same LAN, the mobile application performs a GET reg token to query the device directly for the reg token sent to it from the ADS (Step 2 above).

7. The device responds by sending the reg token to the mobile application.

8. The mobile application requests the ADS to register the device with the reg token from Step 7.

   As soon as the mobile application receives the reg token from the device and makes the final confirmation that they are on the Same LAN, the mobile application uses that reg token to request that the ADS registers the device to the mobile application.

9. The ADS registers the device to the mobile application.

   When the ADS receives the request from the mobile application to register it with the device, the ADS verifies that the three main conditions for the Same LAN registration are met (refer to this list in the beginning of this section) and then completes the Same LAN registration.

10. The ADS sends a notification to the device regarding its registration.

3.3 Button–Push Method

The Button-Push Method provides users with a registration option to re-assign a registered device quickly and easily. If the user wants to re-assign the ownership of a device to another user, the user just pushes the button on the device to initiate the registration process for the new user. The only major requirement for this method is that the registration process must be complete within 2 minutes. The timer starts almost immediately after pushing the button on the device.

Figure 4 is a process flow diagram of the Button-Push Method. Based on this diagram, we explain in the Button-Push registration process in this section.
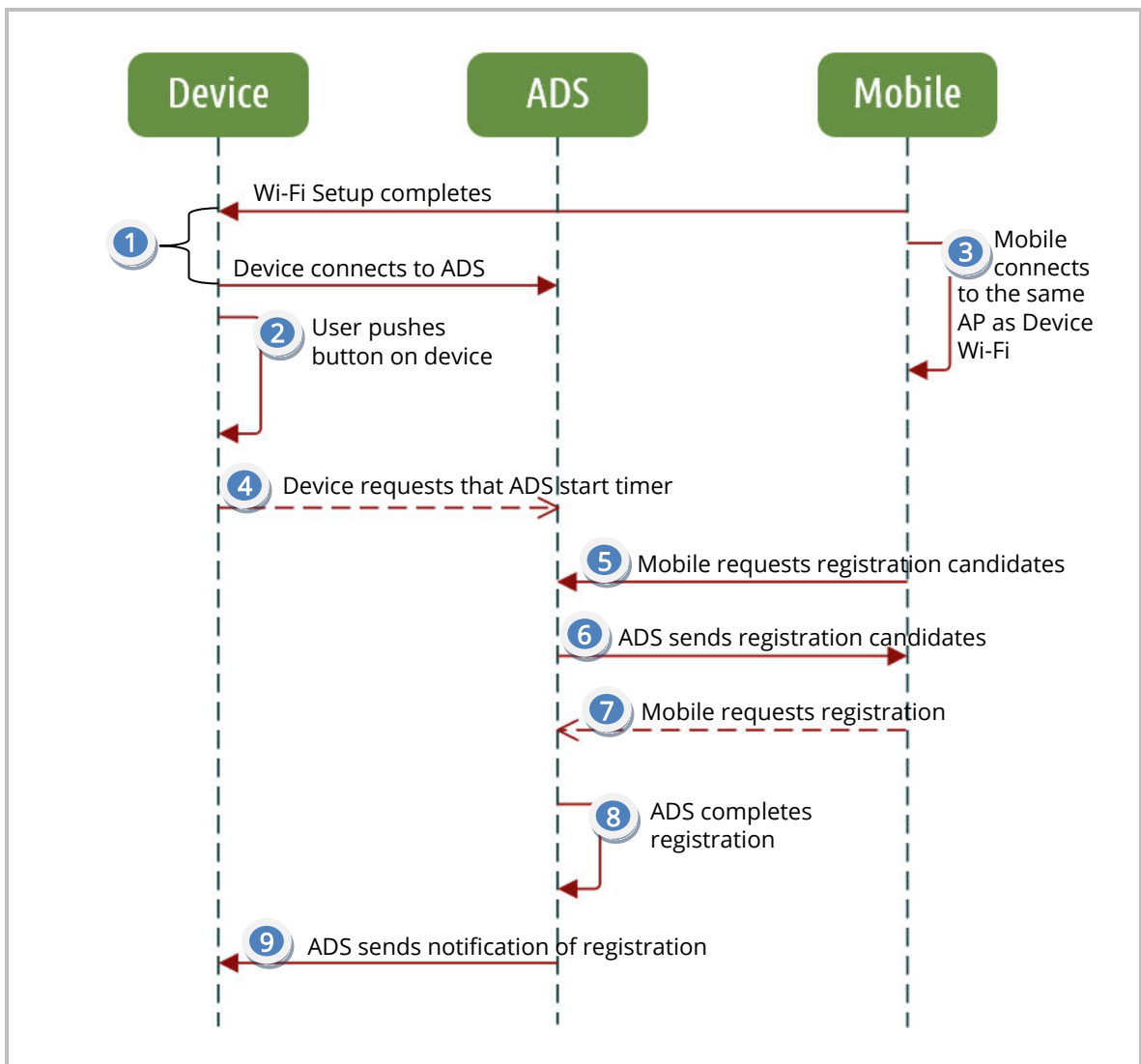

Figure 4: Button-Push Registration Method

> **CAUTION**
>
> If there are multiple candidates attempting to register with the same remote IP, all of the candidates are invalidated, and the ADS sends a failure status to the mobile application.

1. The Wi-Fi Setup process must be completed as outlined in Section 2 to make the device a registerable candidate.

   During the Wi-Fi Setup, the device connects to the ADS, as shown in Figure 4. At this time, the ADS records the Wi-Fi (AP) to which the device is connected.

2. The user pushes the connection button on the device.

   This initiates the Button-Push registration process on the device.

3. The mobile application connects to the same AP (Wi-Fi) as the Device Wi-Fi.

   Even though there may be several access points (APs) available, the device and the mobile must be connected to the same AP (Wi-Fi network).

4. The device requests that the ADS start the timer for the registration process.

   Per this request, the ADS starts the 2-minute timer for the DSN.

5. Now that the 2-minute registration process has started, the mobile application sends a request to the ADS for a list of the registerable candidates.

6. The ADS responds to the request by sending the list of devices that have the 2-minute timer on, including their LAN IP and DSN details.

   This information also confirms that the device(s) and the mobile application are on and reachable through the same LAN.

7. The mobile application uses the DSN and sends a request to the ADS to register the device.

8. Upon receiving the request from the mobile application, the ADS completes the Button-Push registration process.

> **CAUTION**
>
> Steps 5-8 must be completed within the 2-minute requirement to complete the Button-Push Method successfully.

9. The ADS sends a notification to the device regarding its registration.

3.4 AP–Mode Method

The AP-Mode Method is considered the easiest registration process because it includes Wi-Fi Setup. Both processes are done in one step. Another advantage of this method is that you do not have to unregister the device to re-assign ownership to another user. The only requirement for re-registration is that the device stays in AP-Mode. Refer to Table 1 for other basic requirements of the AP-Mode Method. As implied in the description of this process below, the setup token is a key characteristic of this method.

NOTE	The AP-Mode Method does not support the Wi-Fi Protected Setup (WPS). If you have to follow WPS instead of the Wi-Fi Setup process outlined in this document, you cannot register your device using the AP-Mode Method.

Figure 5 is a process flow diagram of the AP-Mode Method. Based on this diagram, we explain the AP-Mode registration process in this section.
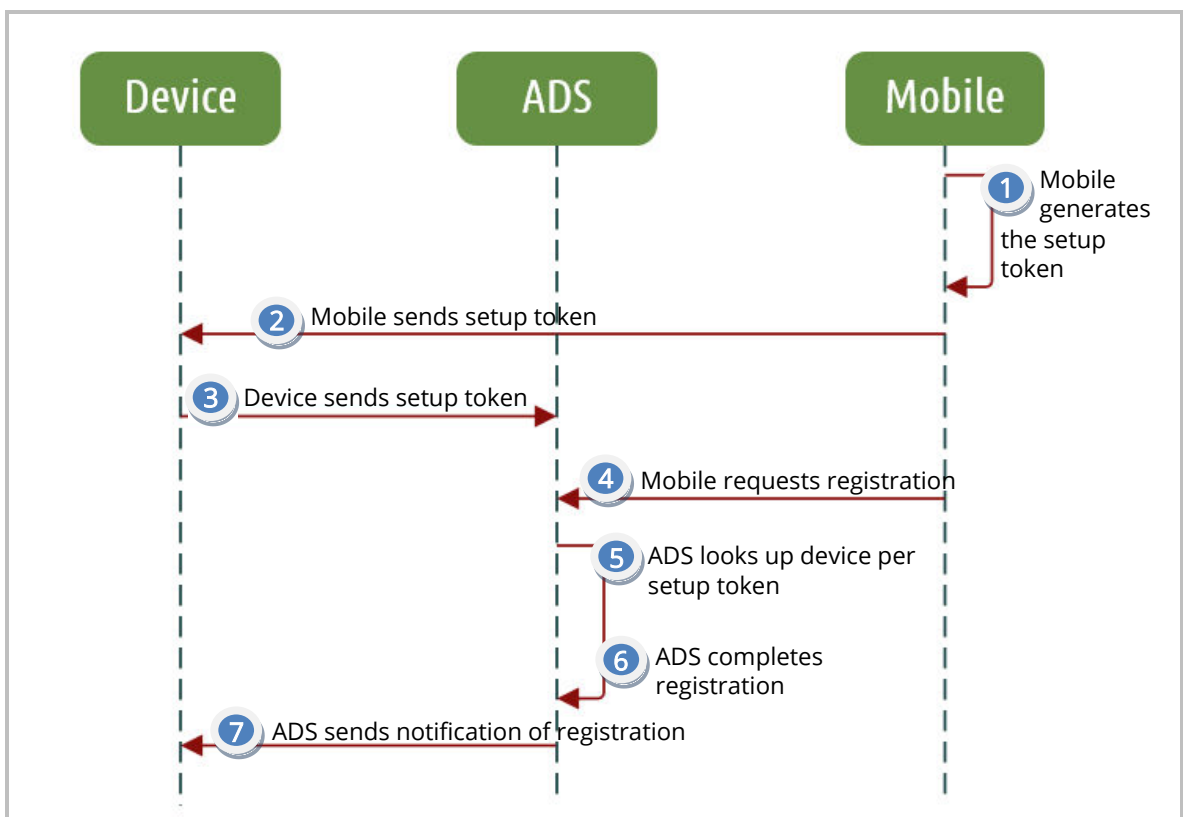

Figure 5: AP-Mode Registration Method

1. At the start of the Wi-Fi Setup process, the mobile application generates a setup token around the same time that the application searches for the Device AP (SSID) in the Wi-Fi settings and connects to that AP.

The mobile application generates the setup token every time this step is completed (for all of the registration methods). However, the other registration methods do not use the setup token. (This is similar to Step 2 in the Wi-Fi Setup process.)

NOTE   The setup token is an 8-character alphanumeric random string that is generated by the mobile application.

2. The mobile application sends a setup token along with SSID and password to the device.

3. The device sends the setup token while connecting to the ADS.

    In this step, the device connects to the Wi-Fi LAN and the ADS, and in making this connection, it sends along the setup token to the ADS.

4. The mobile application sends the registration request along with the setup token to the ADS.

    The mobile application is able to recall that it sent this same setup token to the device during the Wi-Fi Setup process (in Step 2 above). Once the mobile application acknowledges this, it sends the setup token along with a request to register the device.

5. The ADS looks up the device using the setup token sent from the mobile application (step 4).

    Since the ADS only received a setup token from the device during the Wi-Fi setup process, the ADS needs to compare that setup token from the device with this setup token from the mobile application.

6. If ADS determines that the setup token from the mobile application matches the setup token from the device, the ADS completes the registration.

7. The ADS sends a notification to the device regarding its registration.

3.5 Display Method

The Display Method is a relatively simple and fast registration process. This method also allows users to re-register devices easily with a new reg token. The reg token must be unique across devices and is generated dynamically. The reg token is the key characteristic of this method, and the only major requirements are that the reg token displays on the device and is entered properly on the mobile application.

NOTE   If you would like to choose this method, but do not want to display the reg token, contact your Ayla Customer Support Representative to discuss alternative options for sending the reg token to the mobile application.

Figure 6 is a process flow diagram of the Display Method. Based on this diagram, we explain the Display registration process in this section.
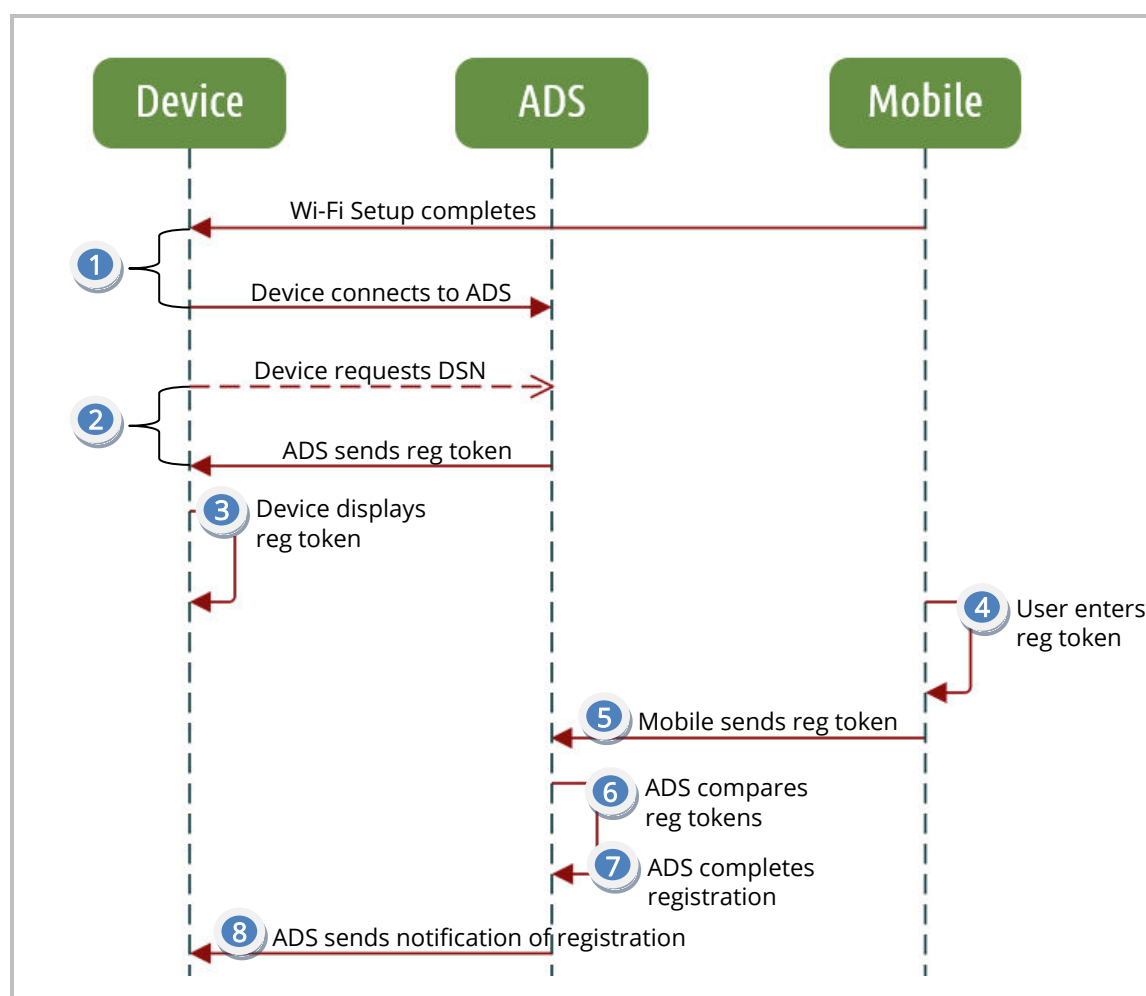

Figure 6: Display Registration Method

> **NOTE** Even though users must be near the device if they choose to display the reg token, the Display Method does not require the device and the mobile to be on the same LAN.

1. The Wi-Fi Setup process must be completed as outlined in Section 2 to make the device a registerable candidate.

    During the Wi-Fi Setup, the device connects to the ADS, as shown in Figure 6.

2. The device sends a GET DSN request to the ADS, and the ADS responds by sending the reg token.

    The device sends the GET DSN to obtain information in case anything is different, such as location details. In response to the GET DSN, the ADS sends the reg token. This is a crucial step for the Display registration process because this reg token will actually display on the device.

> **NOTE** The reg token is a 6-character alphanumeric random string (e.g. azAZ09) that is generated by the ADS. The reg token is one of the main factors that the Same LAN and Display methods use to identify the correct device during the registration process. Each reg token can only be used one time; therefore, no other user can enter it.

3. The device displays the reg token.

    The device receives the reg token, which includes a request to start displaying it; the application on the device is programmed to expect the reg token and display it.

4. The user enters the reg token on the mobile application.

    The best practice is to enter the reg token on the mobile application as soon as the reg token displays on the device.

5. The mobile application sends the reg token to the ADS.

6. The ADS compares the reg token sent to the device (in Step 2) with the reg token sent from the mobile application (in Step 5).

7. If the ADS approves the comparison in Step 6, the registration completes successfully.

8. The ADS sends a notification to the device regarding its registration.

3.6 DSN Method

The device serial number (DSN) is a universally unique identifier (UUID) for the device. Every device has a unique DSN. Although the DSN Method is straightforward and fast, we do not recommend this registration process unless the other four methods are not a good fit for your device. This is because it is the least secure of all the registration methods. By simply knowing the DSN of the device, another user can complete the registration. Also, the device and mobile application are not required to be on the same LAN. This method is mainly used by OEMs on virtual devices while the actual devices are being manufactured.

Figure 7 is a process flow diagram of the DSN Method. Based on this diagram, we explain the DSN registration process in this section.

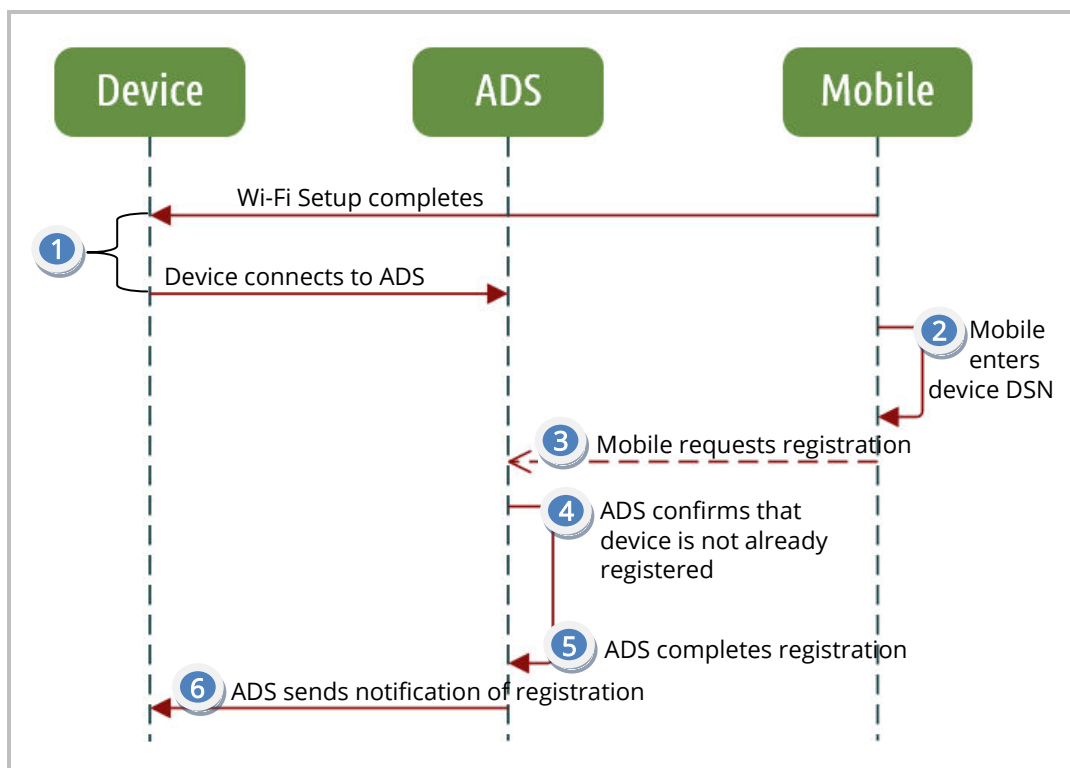NOTE   The DSN Method does not permit re-registration of a device.

Figure 7: DSN Registration Method

1. The Wi-Fi Setup process must be completed as outlined in Section 2 to make the device a registerable candidate.

   During the Wi-Fi Setup, the device connects to the ADS, as shown in Figure 7.

2. The mobile application enters the DSN of the device.

3. As soon as the DSN is entered in the mobile application, it sends the registration request to the ADS.

4. The ADS searches its database for the DSN, and confirms that the device is not already registered.

5. The ADS verifies the DSN, confirms that the device is not registered yet, and then completes the DSN registration process.

6. The ADS sends a notification to the device regarding its registration.

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