

Getting Started

Ayla Product Development Overview

The Flow to Create IoT Products



Version: 2.0

Date Released: February 16, 2016

Document Number: AY006GOV2-2



Copyright Statement

© 2017 Ayla Networks, Inc. All rights reserved. Do not make printed or electronic copies of this document, or parts of it, without written authority from Ayla Networks.

The information contained in this document is for the sole use of Ayla Networks personnel, authorized users of the equipment, and licensees of Ayla Networks and for no other purpose. The information contained herein is subject to change without notice.

Trademarks Statement

Ayla™ and the Ayla Networks logo are registered trademarks and service marks of Ayla Networks. Other product, brand, or service names are trademarks or service marks of their respective holders. Do not make copies, show, or use trademarks or service marks without written authority from Ayla Networks.

Referenced Documents

Ayla Networks does not supply all documents that are referenced in this document with the equipment. Ayla Networks reserves the right to decide which documents are supplied with products and services.

Contact Information

Ayla Networks TECHNICAL SUPPORT and SALES

Contact Technical Support: <https://support.aylanetworks.com>
or via email at support@aylanetworks.com

Contact Sales: <https://www.aylanetworks.com/company/contact-us>

Ayla Networks REGIONAL OFFICES

GREATER CHINA

Shenzhen
Room 310-311
City University of Hong Kong
Research Institute Building
No. 8 Yuexing 1st Road
High-Tech Industrial Park
Nanshan District
Shenzhen, China
Phone: 0755-86581520

HEADQUARTERS

Silicon Valley
4250 Burton Drive, Suite 100
Santa Clara, CA 95054
United States
Phone: +1 408 830 9844
Fax: +1 408 716 2621

EUROPE

London
30 Great Guildford St
London SE1 0HS
United Kingdom

TAIWAN

Taipei
5F No. 250 Sec. 1
Neihu Road, Neihu District
Taipei 11493, Taiwan

JAPAN

Wise Next Shin
Yokohama, 2-5-14
Shnyokohama, Kohokuku
Yokohama-shi, Kanagawa-ken
Yokohoma, 222-0033 Japan

For a Complete Contact List of Our Offices in the US, China, Europe, Taiwan, and Japan:
<https://www.aylanetworks.com/company/contact-us>

Table of Contents

1	Introduction.....	1
2	Development Process	3
	Step 1: Proof of Concept (POC) (Prototype)	3
	Required Activities	3
	Required resources	3
	Advancing.....	4
	Step 2: Product Design and Development	5
	Required Activities	5
	Required resources	5
	Advancing.....	6
	Step 3: System Test and QA (Pre-Production to Production)	7
	Required Activities	7
	Pre-Production: Required resources.....	7
	Production: Required resources.....	8
	Advancing.....	8
	Step 4: Deploy, Analyze, Maintain	9
	Possible Activities.....	9

1 Introduction

Welcome to Ayla Networks! We at Ayla believe that customer success and Ayla's success are directly related. This document and its companion documentation have been written to provide an overview of the high-level development steps to enable an IoT product on the Ayla Platform.

The Ayla Agile IoT Platform™ (Ayla's Agile Internet of Things Platform), reduces complexity, expense and time to market for our customers by providing a proven, highly scalable Platform as a Service (PaaS).

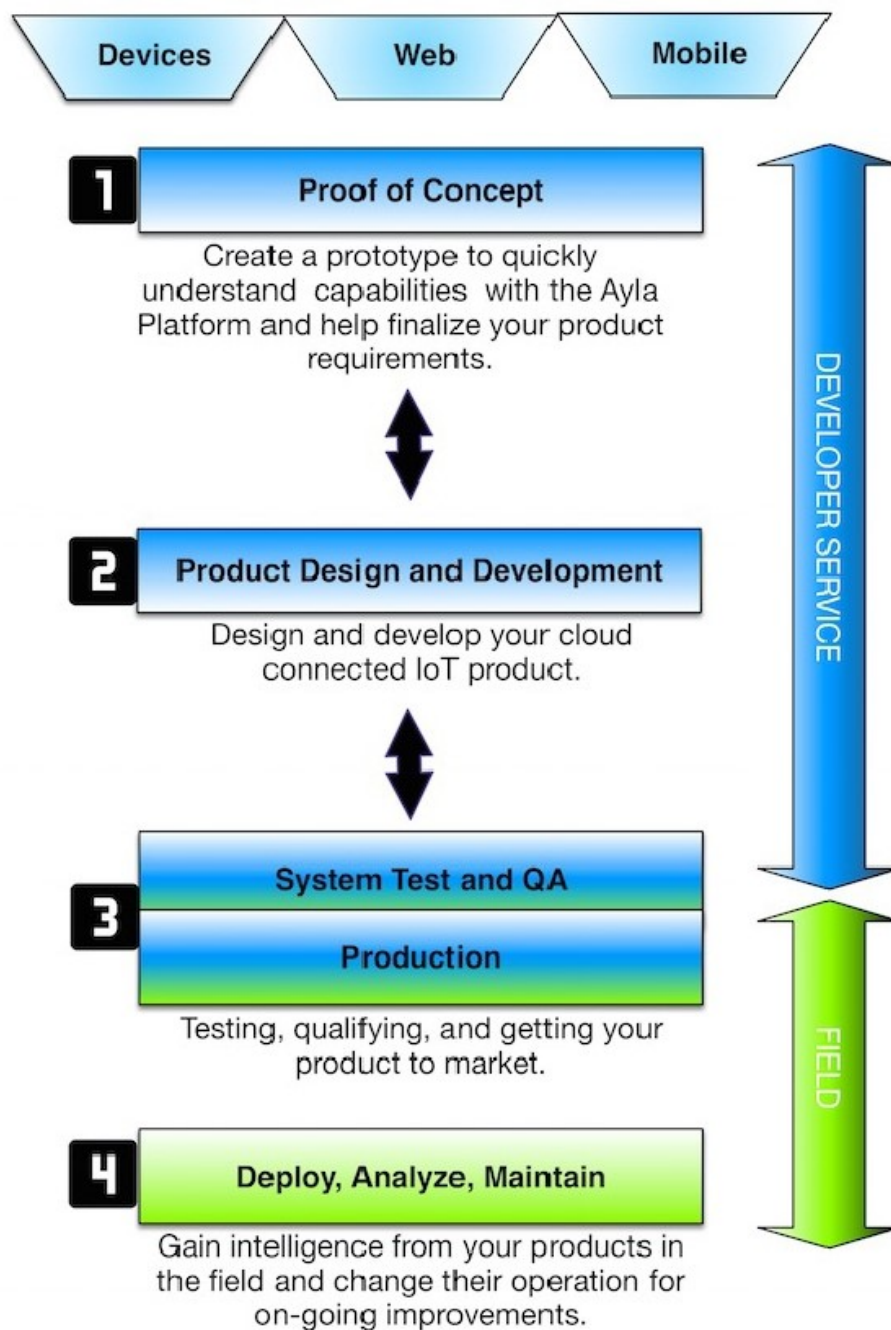
This is the first in a series of documents that cover the four significant stages to develop a successful IoT product. Each stage is supported with a foundation of technical documents, review checklists, FAQ's, and walk-through videos designed to provide the necessary information to successfully develop on the Ayla Platform. Each document and other resources are targeted to a specific audience. This ensures the correct information is available to the correct customer resource, thereby enabling them to be successful.

The four stages are detailed in the following graphic. The rest of this document and a subsequent set of four documents that go into greater detail on the steps will follow this scheme and identify stages this way.

Ayla provides support documentation and resources to help ensure customer success. Some resources that you may interact with during your development cycle are:

- Field Application Engineer (FAE) – responsible for pre-sales use case layout and technology considerations. The FAE is responsible to ensure our customers have a solid grasp of the basics of Ayla's technology
- Applications Engineer (AE) -- responsible for post-sales technical support and issue resolution

Figure 1 – IoT Development Process



2 Development Process

Step 1: Proof of Concept (POC) (Prototype)

OVERALL FLOW			
Step 1: Proof of Concept (POC) (Prototype)	Step 2: Product Design & Development	Step 3: System Test and QA (Pre-production to Production)	Step 4: Deploy, Analyze, Maintain

Initially you want to get an understanding of the Ayla Platform – what it is and how it works for you. Using the Ayla Platform with your company's hardware and/or the Ayla development kit, you gain an understanding of what you can do with Ayla.

To accomplish this step, Ayla provides documentation, support from an Ayla FAE or AE and the Ayla Development Network.

Required Activities

- Define functionality of POC/product
- Determine if you wish to have a custom App for your product
- Determine if you wish to have a custom web portal for your product.
- Determine hardware platform for POC
- Determine Product development time line
- Determine Application development time line
- Create new hardware or modify Ayla Design Kit for POC
- Create account on developer.aylanetworks.com (Developer Portal)
- Port Ayla serial port driver to chosen MCU, if required
- Define Properties to control and report from product
- Create template to implement property instantiation
- Write product application code on host MCU and integrate communications to Ayla driver
- Determine App flow
- Code App to the template, which is your API to the device
- Perform internal trials to gather input for iterative produce development

Required resources

- Ayla Support Documentation
- Internal Engineering development resources
- Project Management resources
- An Ayla Design Kit, or your own prototyping hardware

- An account on the Ayla Developer Portal
- Ayla FAE/AE contact

Advancing

The POC/Prototype stage is considered complete when each element of the Ayla Platform - device, cloud, and mobile - has been evaluated and considered for the final product design.

When you have an understanding of the Ayla technology and how you can use it to enable your connected devices, you have completed this step. You may also use this step to prototype your hardware and software integration.

A project kick-off meeting takes place in this stage when you are ready to begin your product design and development (the next step).

Step 2: Product Design and Development

OVERALL FLOW			
Step 1: Proof of Concept (POC) (Prototype)	Step 2: Product Design & Development	Step 3: System Test and QA (Pre-production to Production)	Step 4: Deploy, Analyze, Maintain

Once you have a basic understanding of the Ayla Platform, you are ready to begin designing and developing your product.

To accomplish this step, you will need mobile, device and cloud engineers. The Ayla platform provides for concurrent development.

Required Activities

The following list of items are typically involved in designing a product using the Ayla Cloud Services. This is not intended to be an exhaustive list, but is an overall guide of items typically required to create a product using Ayla's services.

Note: Some of the activities noted here may have been completed in Step 1.

- Have a thorough product requirements description
- Have a thorough mobile app requirements description
- Determine when field trials will take place, and understand the impact of doing field trials on our development services or on the field services
- Ensure all team members have appropriate Ayla developer accounts
- Create OEM ID
- Have a processor chosen (if not a stand alone module use case)
- Know if you will use SPI or UART interface.
- Port Ayla driver to chosen Host MCU
- Define template
- Implement the device bootloader, so OTA can be used on the Host MCU
- Code application on Host MCU to the property template.
- Code Mobile app to property template.
- Test device application with the Developer Portal
- Test mobile application with the Developer Portal
- Test the mobile application with the device
- Change template and product/app behavior to meet market requirements

Required resources

- Signed contract

- Ayla documentation
- Ayla enabled modules
- Engineering resources
 - Mobile side
 - Device side
 - Cloud side if you are doing some cloud-to-cloud integration
- Project Management resources
- Ayla AE contact
- An account on the Ayla Developer Portal

When the product has been validated for manufacture, consult your Ayla AE to ensure you are properly prepared for the next development step.

Advancing

Before you complete this step you need a plan to support your product and customers in the field. When you established that your product marketing, sales, and support resources are ready to go, you have completed this step.

Step 3: System Test and QA (Pre-Production to Production)

OVERALL FLOW			
Step 1: Proof of Concept (POC) (Prototype)	Step 2: Product Design & Development	Step 3: System Test and QA (Pre-production to Production)	Step 4: Deploy, Analyze, Maintain

Step three involves end-to-end product testing including validating documented use cases and mobile application flow for end users. Preparation for manufacturing should be initiated to ensure procurement and manufacturing line requirements, and production QA tests are considered. This step ensures your product is ready for production.

The transition to Ayla Field Service is a necessary component of this stage. An account on the Ayla Field Service is required to access device information through the Ayla OEM Dashboard, which is used during this stage and going forward for all device visibility, interaction and monitoring. The transition to Ayla Field Service is a critical step to development; additional documentation is available and all of the considerations must be before Ayla will authorize the transition to Ayla Field Service. This will require a product name change so that some trial units will stay on the development servers and not, themselves, be moved to the field servers.

Required Activities

- Product validated sufficiently to be tested
- App validated sufficiently to be tested
- Complete service trials
- Provide OEM script to Contract Manufacturer lined and setup
- Create and Verify log files during module configuration at Contract Manufacturer
- Create method to send log file to Ayla from Contract Manufacturer
- Perform tests to test, exercise and QA product
- Iteratively develop product based on trial feedback
- Clone templates and if necessary, change model name for production of the product
- Configure all new DSN's to be on the field service using the new model name
- Verify that customer support services are in place on field service

Pre-Production: Required resources

- Manufacturing resources
- Engineering resources
- Contract Manufacturer lined up and ready for line bring-up
- Ayla Documentation (from Support Center)
- Ayla AE Contact

- An account on the Ayla Developer Portal
- Field services account
- Pilot devices for trials
- Field trial testers signed up
- Customer support network in place
- Several units in Ayla's hands to assist with debugging, if necessary
- Customer facing documentation

Production: Required resources.

- Manufacturing engineering resources
- Contract Manufacturer is ready for product ramp
- Support engineering resource
- An account on Ayla's Field services in every region you will ship to
- Data analysis strategy
- Customer support network ready to go
- Remote device management system
- Technical writer

Advancing

The output of Step 3 is a product ready for production. You will continue to use the Ayla Networks development service for on-going product management, testing and maintenance, and new product feature management.

The Ayla Developer Portal is where SKUs are created for your devices and properties are assigned.

The Ayla Field Service supports large volumes of data. Here you can see data about your customer's usage and view analytics. Data is aggregated and available through dashboard reports and Ayla Insights to understand product usage.

Step 4: Deploy, Analyze, Maintain

OVERALL FLOW			
Step 1: Proof of Concept (POC) (Prototype)	Step 2: Product Design & Development	Step 3: System Test and QA (Pre-production to Production)	Step 4: Deploy, Analyze, Maintain

The focus during this step is data collection, maintenance and product analysis to continue iterative development of product features. At this step you have your product in the field and you do data collection, analysis, and update products for improvement and maintenance. You can make changes to your product at any time by going back to Step 2 and completing Step 2 and 3 again. Ayla recommends you keep a few units on the developer's site for on-going testing. Maintenance includes Over the Air (OTA) updates to your product as well as using Ayla analytics.

Possible Activities.

- Using OEM Dashboard reports
- Using (optional) Insights
- Changing product templates and updating behavior
- Creating OTA files and uploading into system
- Managing OTA of product, all or subsets



4250 Burton Drive, Santa Clara, CA 95054

Phone: +1 408 830 9844

Fax: +1 408 716 2621