



# **AWS IoT Implementation**

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Account Setup, Configuration, and Implementation

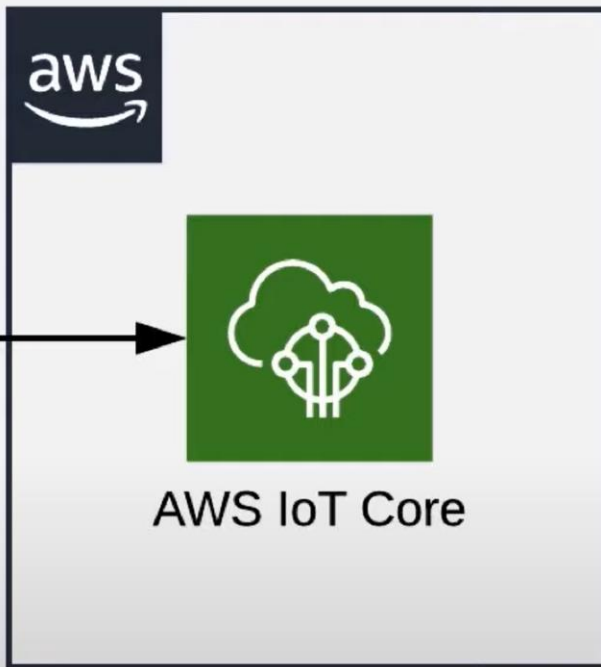
# AWS IoT Overview

- Brief introduction to AWS IoT Core.
- Share AWS IoT Core Resources.
- Mention the ESP AWS IoT SDK.
- Provide the link for setting up the AWS Account setup and related details.
- Steps that we'll take to for the publish/subscribe implementation & testing with the MQTT Test Client → which is the practical goal of this section.



IoT Thing

mqtt





# **AWS IoT Core Basics & Resources**

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# AWS IoT Core Resources

- About AWS IoT

- The AWS IoT Core is a platform that connects IoT devices to AWS IoT services. [AWS IoT Getting Started](#) and [Learn More About AWS IoT](#).
- AWS IoT Core includes the device gateway, which hosts the message broker, which connects and processes messages between your IoT devices and the cloud. [AWS IoT How it Works](#).

- About MQTT & AWS IoT

- MQTT: is a lightweight, publish-subscribe network protocol that transports messages between devices. [AWS IoT Device Communication Protocols](#).
  - More about [AWS IoT & MQTT](#).

The background features a complex network of thin, light-colored lines connecting small circular nodes, primarily concentrated on the left side. Scattered across the entire background are various geometric shapes, including triangles and polygons, some of which are outlined in a light yellow or green color. The overall aesthetic is technical and modern.

# **Enabling AWS IoT Core Communication on the ESP32**

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# ESP32 AWS IoT Cloud Framework

- ESP32 Cloud Frameworks

- ESP32 Supports multiple cloud frameworks using agents built on top of the ESP-IDF: <https://docs.espressif.com/projects/esp-idf/en/latest/esp32/libraries-and-frameworks/cloud-frameworks.html>

- AWS IoT

- Open-source repository for ESP32 based on Amazon Web Services' AWS IoT Device SDK Embedded-C: <https://github.com/espressif/esp-aws-iot>

The background features a complex network of thin, light-colored lines and dots, forming various triangular shapes. Some triangles are solid, while others are outlines. The lines and dots are concentrated on the left side, creating a dense web, and become sparser towards the right. The overall color palette is light, with shades of gray, white, and pale yellow.

# Account Setup

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[Register for AWS Account](#)




# AWS Account Setup

- Sign up for Amazon Web Services

- Go here, <https://aws.amazon.com/iot-core/>, to set up your account.
  - Give your email address, account name, confirm it, create a password, enter your name, phone number and address, credit card information (for identity verification purposes) and verify your identity with a phone number as well.



## Secure verification

-  We will not charge you for usage below AWS Free Tier limits. We may temporarily hold up to \$1 USD (or an equivalent amount in local currency) as a pending transaction for 3-5 days to verify your identity.

## Sign up for AWS

### Billing Information

Credit or Debit card number



AWS accepts all major credit and debit cards. To learn more about payment options, review our [FAQ](#)

Expiration date

Month ▼

Year ▼




# AWS Account Setup

- Choose Basic Support – Free Plan

Sign up for AWS

## Select a support plan

Choose a support plan for your business or personal account. [Compare plans and pricing examples](#)  
[🔗](#). You can change your plan anytime in the AWS Management Console.

<p><input checked="" type="radio"/> <b>Basic support - Free</b></p> <ul style="list-style-type: none"><li>• Recommended for new users just getting started with AWS</li><li>• 24x7 self-service access to AWS resources</li><li>• For account and billing issues only</li><li>• Access to Personal Health Dashboard &amp; Trusted Advisor</li></ul> 	<p><input type="radio"/> <b>Developer support - From \$29/month</b></p> <ul style="list-style-type: none"><li>• Recommended for developers experimenting with AWS</li><li>• Email access to AWS Support during business hours</li><li>• 12 (business)-hour response times</li></ul> 	<p><input type="radio"/> <b>Business support - From \$100/month</b></p> <ul style="list-style-type: none"><li>• Recommended for running production workloads on AWS</li><li>• 24x7 tech support via email, phone, and chat</li><li>• 1-hour response times</li><li>• Full set of Trusted Advisor best-practice recommendations</li></ul> 
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- Once you're done, you can get to your management console here, <https://aws.amazon.com/console/>, and go to 'IoT Core'.

The background features a complex network of thin, light-colored lines and dots, forming various triangular shapes. Some triangles are solid, while others are outlined. The overall effect is a technical or mathematical aesthetic. 

# **Configuration & Implementation**

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# AWS IoT Configuration Steps

- Clone ESP AWS IoT and update the CMakeLists.txt file under the project directory.
- Add template files "aws\_iot.c" and "aws\_iot.h" and update CMakeLists.txt file under 'main'.
- Create a "Thing" in AWS.
- Create a policy and attach it to the device ("Thing") certificate.
- Generate certificates, public key, and private key using AWS IoT's certificate authority.
- Add the certificates and private key as embedded components.
- Update the source code to accommodate the 'aws\_iot\_task'.
- Adjust the partition table to accommodate the increased application size.
- Adjust the sdkconfig to include the 'Device Data Endpoint' from your AWS account.
- Subscribe and publish data to and from the AWS Dashboard.

# Our Implementation

- Further Details

- Start the AWS IoT FreeRTOS task from our connected event callback function in the main.c file.
- Get the RSSI value of the WiFi connection using [esp\\_wifi\\_sta\\_get\\_ap\\_info\(wifi\\_ap\\_record\\_t \\*ap\\_info\)](#) and publish it to AWS IoT.
- Publish the temperature and humidity.

The background features a complex network of thin, light-colored lines and small circles, creating a web-like or molecular structure. Scattered throughout are various triangles of different sizes and orientations, some of which are filled with a light blue or yellow color. The overall aesthetic is clean, modern, and technical.

**Let's get started!**