# CLOUD

# Bring your IoT projects to life quickly

The all-in-one IoT platform fueled by the trusted Arduino Community

## What Arduino Cloud is

### Develop from anywhere

- **NO CODE**
  Ready-to-use templates that can be deployed with one click on the hardware
- **LOW-CODE**
  Automatically generated sketches
- **FULL ARDUINO EXPERIENCE** (ONLINE/ OFFLINE)
  Develop applications either offline with the Arduino IDE2 or online with the Cloud Editor
- **STORE YOUR SKETCHES ONLINE**
  Keep your code online and use it in your favourite Arduino development environment

### Program & Deploy

- **CABLE**
  Traditional USB programming
- **OVER-THE-AIR (OTA) UPDATES**
  Deploy your firmware wirelessly to your devices
- **MASS SCALE & AUTOMATION**
  Perform mass-scale or automated updates using the command line with the Arduino Cloud CLI

### Monitor & Control

- **CUSTOM DASHBOARDS**
  User-friendly dashboard creation based on drag and drop widgets
- **INSIGHTFUL WIDGETS**
  Interact with the devices and get real-time and historical data through a wide widget catalog
- **MOBILE APP**
  Dashboards accessible from anywhere at any time from your mobile phone

## Glossary

**PHYSICAL BOARD:** A physical microcontroller board that can be connected to Arduino Cloud.

**KIT:** A product that contains several components. Typically a microcontroller board plus sensors, buttons, etc.

**DEVICE:** The abstraction that handles the information necessary to connect to a physical device.

**THING:** Virtual representations of the application running on a ***device***. They include the code (sketch), the variables that will be stored in the Cloud and network configuration.

**VARIABLE (PROPERTY):** A variable/property in Arduino Cloud is a piece of data that is associated with a ***Thing***. ***Things*** can have many ***variables/properties***, such as temperature, humidity, light level, or the state of a switch.

**SKETCH:** A program or code written in the Arduino programming language specifically designed to be run on an Arduino or ESP-based microcontroller. They consist of a set of instructions that tell the board what actions to perform and how to interact with external components, sensors and devices.

**DASHBOARD:** Visual user interface for interacting with the boards over the Cloud. They can be customized using drag and drop widgets to visualize and control the devices.

**WIDGET:** A small, self-contained graphical user interface (GUI) element that provides specific functionality to visualize and control your devices. There are a variety of different widgets available, including charts, gauges, buttons, switches and more. They are associated to one or more variables.

**CLOUD EDITOR:** The online editor of the Arduino Cloud accessible using your browser.

**WEBHOOKS:** A feature that allows users to integrate the Arduino Cloud projects with external services and applications by sending HTTP requests.

**TRIGGERS:** Events that can trigger an action based on a condition configured in the Cloud.

**NOTIFICATIONS:** A kind of action that consists of a message sent to the user when a trigger is activated.

**OVER-THE-AIR (OTA) UPDATE:** A software update that is delivered to a device wirelessly.

**TEMPLATE:** Self-contained ready-to-use project that includes the definition of the ***device***, the ***Thing*** (variables and code) and the ***dashboard*** and can be deployed with 1-click on a physical board.

**IOT CLOUD REMOTE APP:** Mobile app to control and monitor Arduino Cloud devices from a smartphone or tablet. The app is available for iOS and Android devices.

**ARDUINO CREATE AGENT:** It is a desktop application that allows users to connect your boards (connected physically to the PC) to the Arduino Cloud platform.

**ARDUINO CLOUD API:** Application programming interface to access Arduino Cloud functions via HTTP requests.

**DEVICE API:** Send and recieve ***variables*** data.

**APPLICATION API:** Create and manage IoT resources like ***dashboards, devices, Things,*** and ***variables,*** along with the retrieval and handling of historical data.

**ARDUINO CLOUD API CLIENTS:** Libraries programmed in different languages to access the Arduino Cloud API.

**ARDUINO IOT CLOUD:** The section inside the Arduino Cloud dedicated to monitor and control your devices.

## Supported hardware

ARDUINO® CLOUD

CREATE DEVICES THAT CAN BE MONITORED AND CONTROLLED DIRECTLY FROM ARDUINO CLOUD

**Direct**

**WITHIN ARDUINO DEVELOPMENT ENVIRONMENTS**

ARDUINO

ESP32/ESP8266

Cloud Applications can be developed using the Arduino Cloud Editor or Arduino IDE 2.

**OUTSIDE ARDUINO DEVELOPMENT ENVIRONMENTS**

Use your favourite programming environment and language to connect your devices to the Cloud

CONNECT ALMOST ANYTHING TO THE CLOUD INDIRECTLY, BY LEVERAGING THE DIRECT DEVICES AS A MIDDLEWARE

**Indirect**

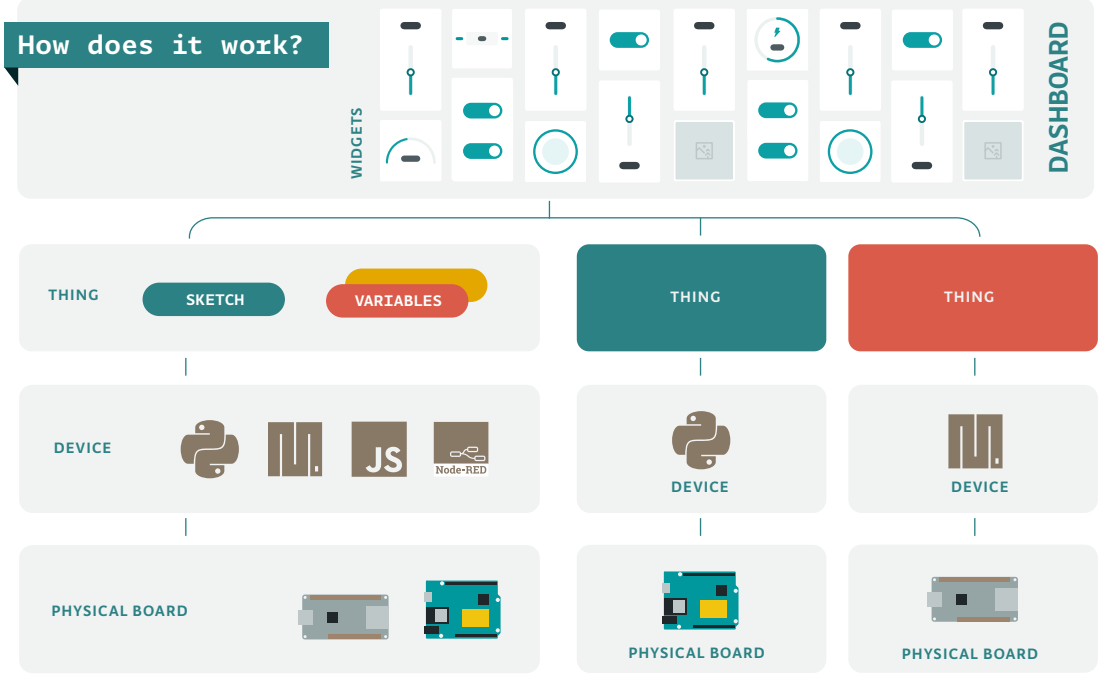
**HARDWARE, APPLIANCES, MACHINERY**

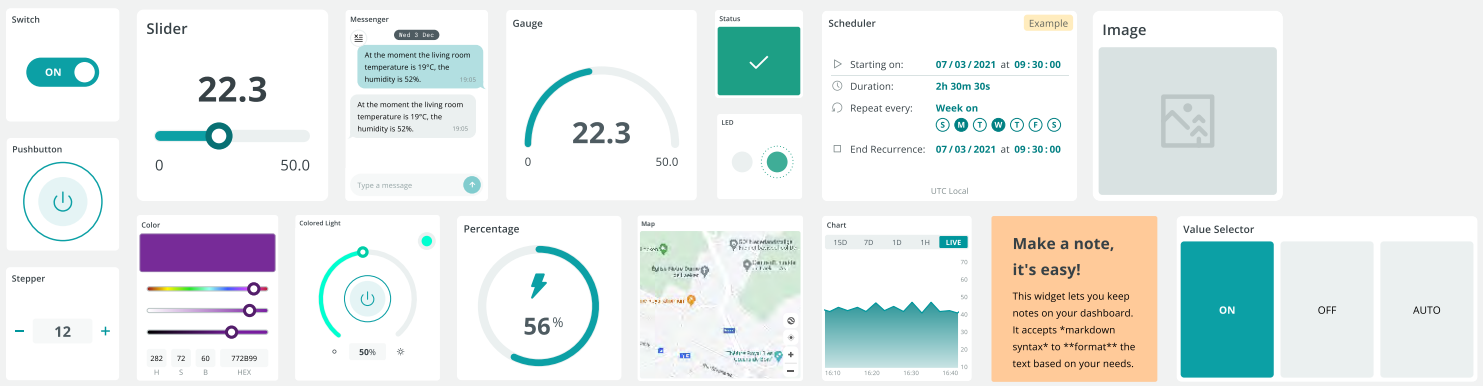
Program an Arduino or ESP* board to interface with any kind of device or appliance and connect them to the Cloud. Examples: Bluetooth® LE, IR, Modbus, Serial, GPIOs

**THIRD PARTY PLATFORMS**

Use Arduino Cloud as a central hub to control all your systems connecting them through a device running Node-RED or develop your own middleware with JS or Python®

## How does it work?




## Dashboard

- **CUSTOMIZE YOUR DASHBOARD**
  Customize your dashboard using drag-and-drop widgets linked to Things' variables, crafting tailor-made control panels.
- **GET INSIGHTFUL DATA**
  Get comprehensive view of your devices' data with widgets providing both real-time and historical data.
- **OFFLINE ANALYSIS**
  Download your historical data for offline analysis.
- **SHARE IT WITH ANYONE**
  Collaborate effortlessly with friends, team members, or the entire world by granting them acces to dashboards

## Third party platform integration

**TRIGGER ACTIONS ON THIRD PARTY PLATFORMS**

Connect your Arduino Cloud devices to external platforms such as IFTTT, Zapier and Google Services using webhooks and unlock endless possibilities.

Seamlessly integrate your IoT devices with over 2 000 apps, enabling tasks like recieving phone notifications, automating social media updates, streamlining data logging to external files, creating calendar events, or sending e-mail alerts.

## IoT Remote App

**FULL CONTROL IN YOUR HANDS**

Use your dashboards on the go, and control projects from anywhere in the world, using the free IoT Cloud Remote app.

**YOUR PHONE AS AN IOT DEVICE**

Use the "Phone as a device" feature to connect your phone's sensors to the Arduino Cloud and turn your mobile phone into an IoT device for your projects.

GET IT ON Google Play

Download on the App Store

## Resources

- FORUM
- DOCUMENTATION
- PROJECT HUB
- TUTORIALS
- YOUTUBE PLAYLIST
- PRE-BUILT TEMPLATES

## Create your devices

**WITHIN ARDUINO DEVELOPMENT ENVIRONMENT**

**DEVELOP OFFLINE**

Use Arduino IDE 2 to have the traditional offline Arduino development experience. Sync your sketches with the Cloud to never lose your code.

**DEVELOP ONLINE FROM ANYWHERE**

Develop from anywhere with the Arduino Cloud Editor. Benefit from the zero-touch configuration to get focus only on your code.

## OUTSIDE ARDUINO DEVELOPMENT ENVIRONMENT

**APPLICATION API**

Create and manage IoT resources like dashboards, devices, Things and variables, along with the retrieval and handling of historical data.

**DEVICE API**

This API helps you create a Cloud-compatible device by implementing the device data communication with the Cloud.

ARDUINO CLOUD

*Get started for free*
***cloud.arduino.cc***