How to upload a sketch with the Arduino IDE 2

In the Arduino environment, we write ***sketches*** that can be uploaded to Arduino boards. In this tutorial, we will go through how to select a board connected to your computer, and how to upload a sketch to that board, using the Arduino IDE 2.

Verify VS Upload

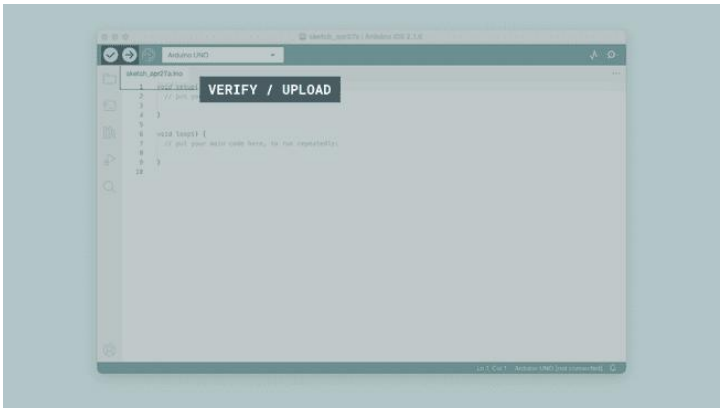
There are two main tools when uploading a sketch to a board: ***v***erify and upload. The verify tool simply goes through your sketch, checks for errors and compiles it. The upload tool does the same, but when it finishes compiling the code, it also uploads it to the board.

A good practice is to use the verifying tool before attempting to upload anything. This is a quick way of spotting any errors in your code, so you can fix them before actually uploading the code.

Uploading a Sketch

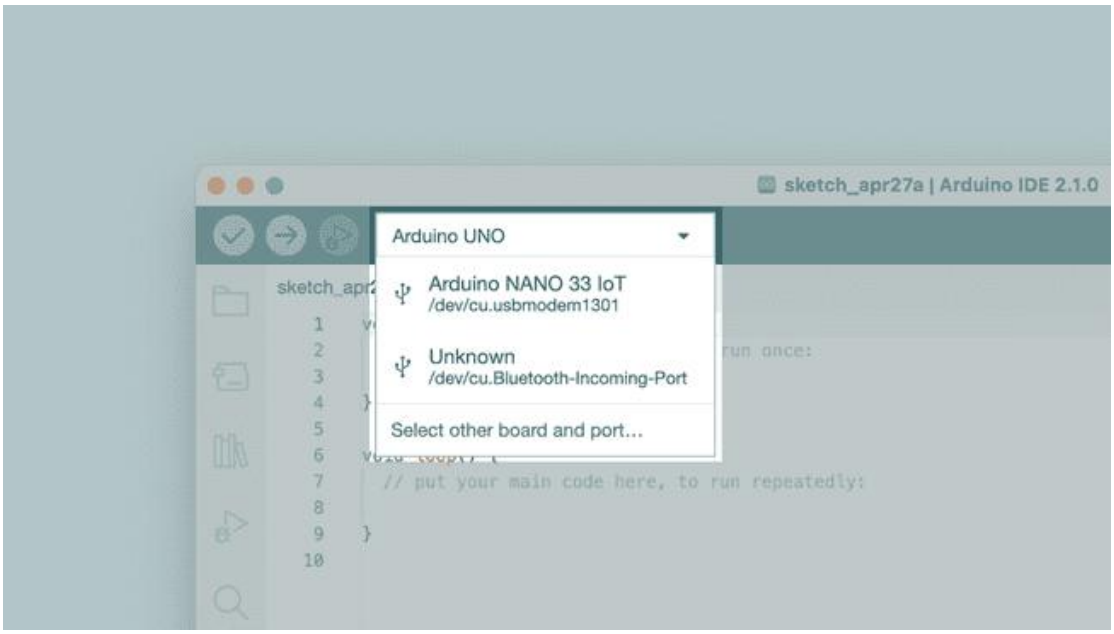
Uploading a sketch is quick and easy, but let's take a look at what we need to do.

1. Open the Arduino IDE 2.

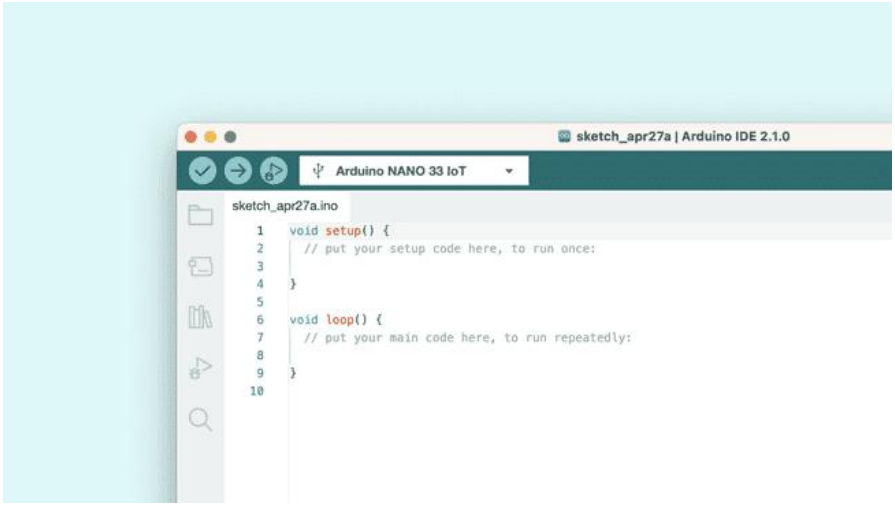


2. With the editor open, let's take a look at the toolbar at the top. At the very left, there is a checkmark and an arrow pointing right. The checkmark is used to verify, and the arrow is used to upload.

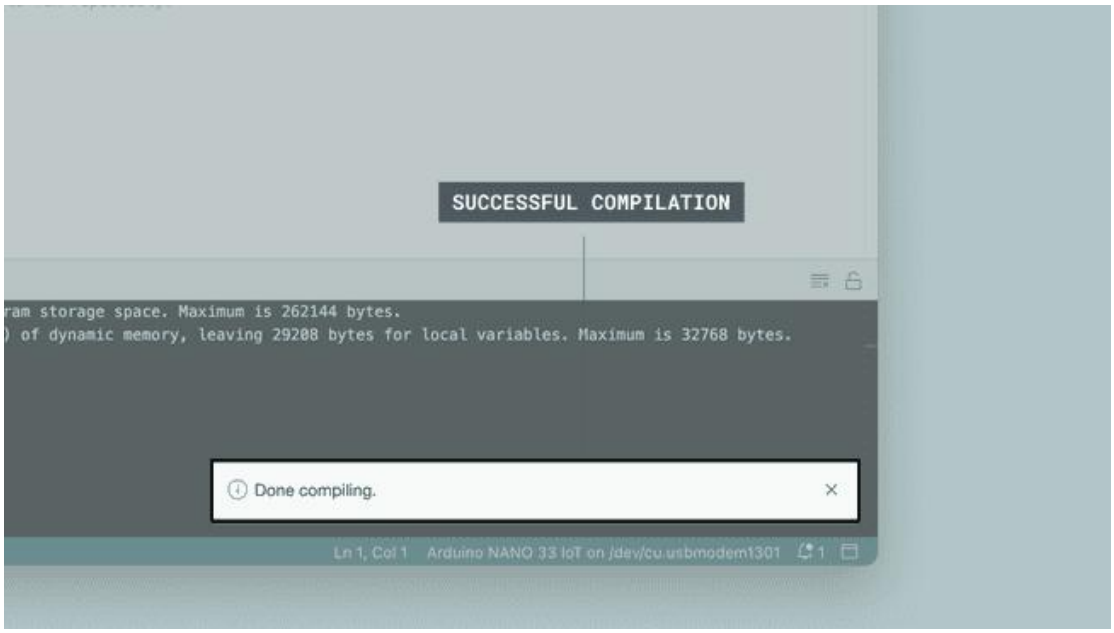
3. But before doing any of that, we should choose what board we are uploading to. Beside the verify and upload button you should see a a drop down menu, this will, in most cases, display Arduino boards that are connected to your computer. If your board is not automatically detected, you can either press "Select other board and port..." in the drop-down and follow the instructions, or go to **Tools** > **Board** and **Tools** > Port in the toolbar menu to select the board and port manually.



So connect your board to the computer and select it from the drop down menu. You'll know that there is a connection to the board when the board name appears in bold.



4. Click on the verify tool (checkmark). Since we are verifying an empty sketch, we can be sure it is going to compile. After a few seconds, we can see the result of the action in the console (black box in the bottom).



5.With the board selected, we are good to go! Click on the upload button, and it will start uploading the sketch to the board.

6. When it is finished, a notification pops up in the bottom right of your IDE window. Of course, sometimes there are some complications when uploading, and these errors will be listed here as well.

Installing libraries

A large part of the Arduino programming experience is the use of libraries. There are thousands of libraries that can be found online,

and the best documented ones can be found and installed directly through the editor.

In this tutorial, we will go through how to install a library using the library manager in the Arduino IDE 2. We will also show how to access examples from a library that you have installed.

Why Use Libraries?

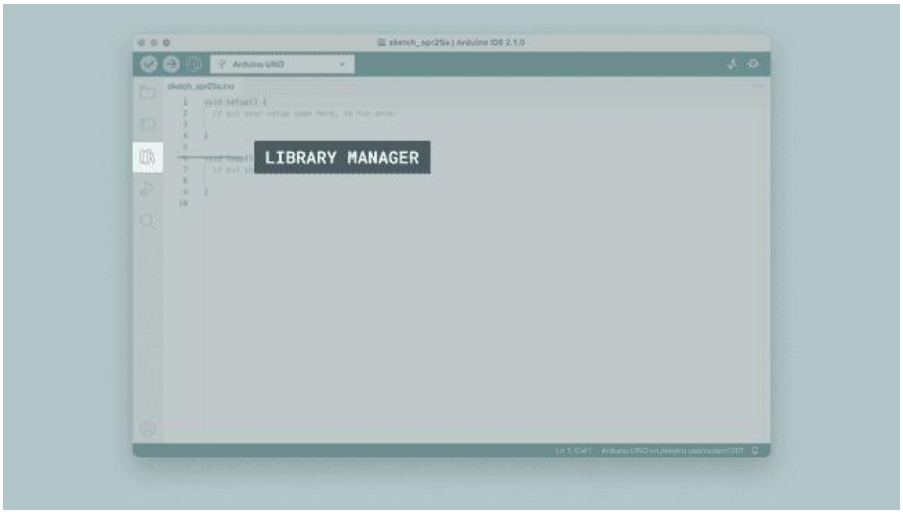
Libraries are incredibly useful when creating a project of any type. They make our development experience much smoother, and there almost an infinite amount out there. They are used to interface with many different sensors, RTCs, Wi-Fi modules, RGB matrices and of course with other components on your board.

Arduino has many official libraries, but the real heroes are the Arduino community, who develop, maintain and improve their libraries on a regular basis.

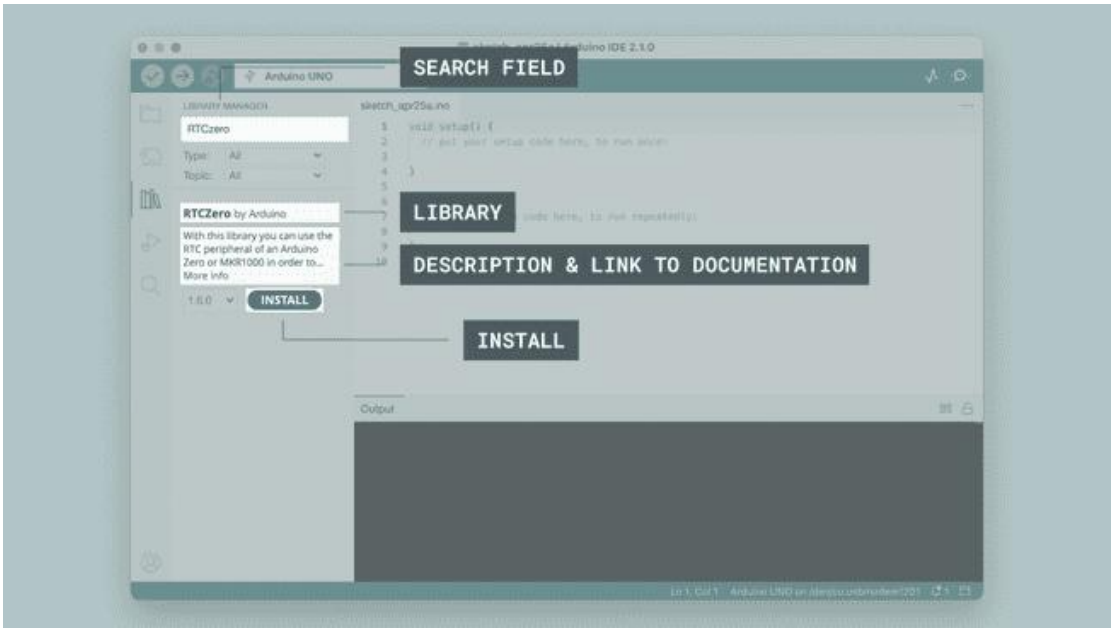
Installing a Library

1. Open the Arduino IDE 2.

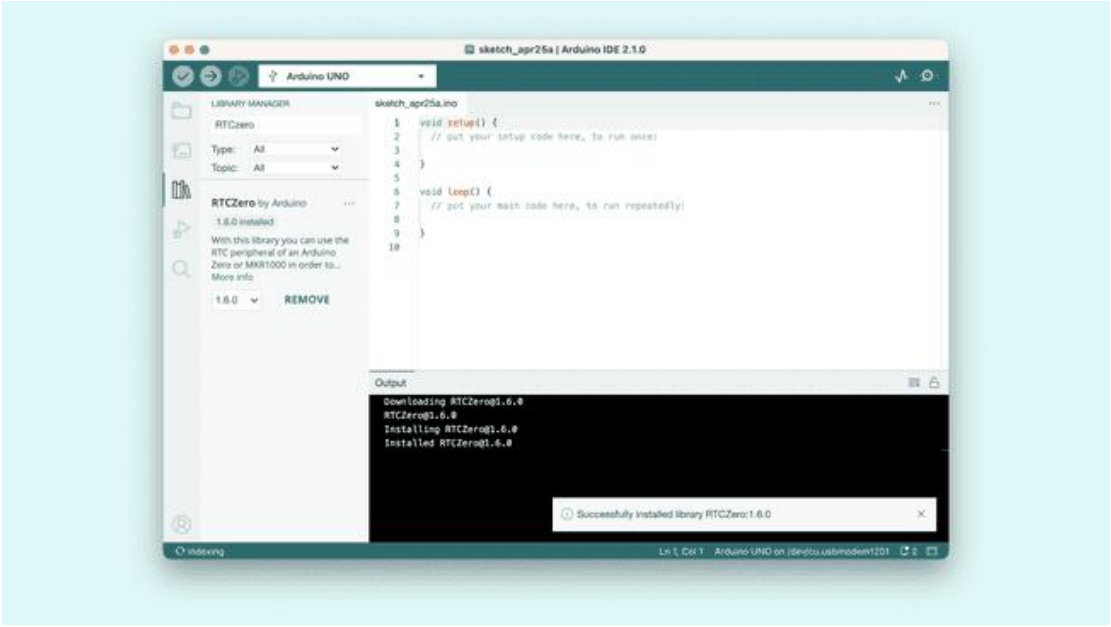
2. With the editor open, let's take a look at the left column. Here, we can see a couple of icons. Let's click the on the "library" icon.



3. A list will now appear of all available libraries, where we can also search for the library we want to use. In this example, we are going to install the RTCZero library. Click on the "INSTALL" button to install the library.



4. This process should not take too long, but allow up to a minute to install it.



5. When it is finished, we can take a look at the library in the library manager column, where it should say "INSTALLED".