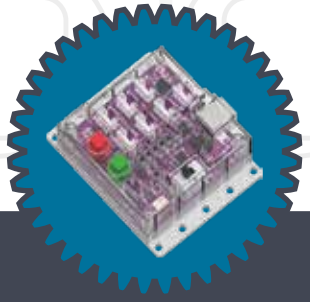
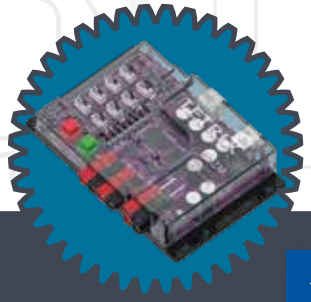
PITSCO

TETRIX®





Arduino Web Editor Instructions

PITSCO EDUCATION

79003

Written by Aaron Locke.

Desktop publishing by Todd McGeorge.

©2019 Pitsco, Inc., 915 E. Jefferson, Pittsburg, KS 66762

All rights reserved. This product and related documentation are protected by copyright and are distributed under licenses restricting their use, copying, and distribution. No part of this product or related documentation may be reproduced in any form by any means without prior written authorization of Pitsco, Inc.

All other product names mentioned herein might be the trademarks of their respective owners.

V1.0
03/19

Contents

Things to Know Before You Start....2
Getting Started....3-4
Uploading TETRIX® Libraries....5-7
Configuring USB Communication....8
Using the Arduino Web Editor....9-12

Things to Know Before You Start

The Arduino Web Editor is an online tool that is accessed through a web browser. Google Chrome is the recommended web browser, but you can also use Mozilla Firefox, Apple Safari, and Microsoft Edge. Using the Arduino Web Editor, you can program Arduino boards, including the TETRIX® PRIZM® and PULSE™ Robotics Controllers.

Advantages and Disadvantages of the Web Editor

There are a few advantages of using the Arduino Web Editor over the standard Arduino Software (IDE), which is downloaded to your machine. First, the web editor is always up to date with the latest features. You don't have to worry about checking, downloading, and installing software updates. Second, because the Arduino Web Editor is online, all your sketches (programs) are saved to the cloud and can be accessed from multiple devices. This also means that you'll always have a backup of your sketches.

There are also some disadvantages to using the Arduino Web Editor over the standard Arduino Software (IDE). Chromebook users will likely have to pay a monthly subscription fee to use the Arduino Create Chrome App. Another disadvantage is that, with the web editor, you have limited storage space on the cloud. Arduino limits you to 100 megabytes of storage space or 100 sketches, whichever you use up first.

Note: The Arduino Web Editor might not be supported on older operating systems and browsers. Use this link to read about supported platforms: **arduino.cc/en/Main/Create**

Arduino Web Editor with TETRIX Curriculum and Activity Guides

TETRIX curricula and activity guides such as the *PRIZM Programming Guide*, Coding Essentials, and Competition in a Box were written around the Arduino Software (IDE). Because the Arduino Web Editor looks and operates differently from the IDE, the screenshots and software instructions in these guides do not match the web editor exactly. While the basics of programming and uploading are the same in both environments, some elements are slightly different. For students using the web editor with TETRIX, it is recommended that they go through the short Using the Arduino Web Editor tutorial at the end of this document.

Devices

The Arduino Web Editor can be accessed from any device that can access the Internet via a browser. However, in order to upload programs from the web editor to your TETRIX PRIZM, TETRIX PULSE, or other Arduino board, your device needs a USB port.

The TETRIX PRIZM and PULSE come with a USB cable for connecting the controller to a USB Type A port. If your device has a different type of USB port, you will need a USB adapter cable to adapt your port to a Type A port.

Accounts

Individual Student User Accounts – Each student user needs an Arduino Create account. This allows students to sign in to the web editor to have access to the sketches/programs that they have created. Instructions for creating student accounts depends on the classroom implementation and devices that are being used to access the web editor. More information on creating accounts is detailed in the Getting Started section.

School Accounts – In the specific situation where you are using Chromebooks (or devices running the Chrome OS) in a classroom environment, you need to set up a school account. This school account is used to manage the Arduino Create Chrome app subscription and to invite students to create their accounts. If you are not using Chromebooks or other devices that use the Chrome OS, you won't need to go through this process. More information on creating a school account is found later.

Getting Started

Chromebook or Chrome OS Users

Chromebook users will need access to the Arduino Create Chrome app. The Arduino Create Chrome app is an extension for the Chrome web browser and must be installed in order for the TETRIX PRIZM or PULSE to communicate with the Arduino Web Editor. Use of the Arduino Create Chrome app is on a subscription basis.

Use the following link to set up your Arduino Create Chrome app subscription:

Pitsco.com/c-ArduinoWebEditor-ChromeApp

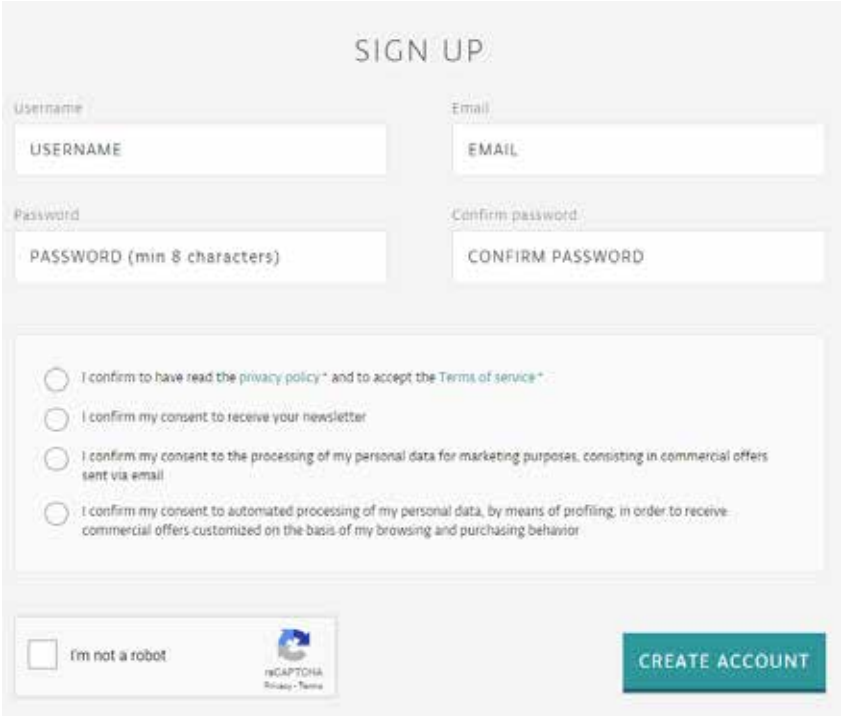
Follow the instructions in the tutorial to subscribe, set up accounts, manage accounts, and access the web editor.

Note: The Arduino Web Editor might not be supported on older operating systems and browsers. Use this link to read about supported platforms: **arduino.cc/en/Main/Create**

Windows, Mac, or Linux Users

For Windows, Mac, or Linux users, the Arduino Create Chrome app is not necessary. However, you will need to download and install the Arduino Web Editor plug-in so that your TETRIX PRIZM, TETRIX PULSE, or other Arduino board can communicate with the Arduino Web Editor. You will not need to pay a monthly subscription, but each user will need his or her own email address to create an account. Every student using the Arduino Web Editor should follow these instructions for setting up the Arduino Web Editor on a Windows, Mac, or Linux device.

1. Create an Arduino account. Use this URL to set up an account: **auth.arduino.cc/register**



2. You will receive an email with a link to activate your account. Use the link to finish your account setup.
3. When your account is set up, log in to the Arduino Web Editor using your account information. You can access the web editor at this link: **create.arduino.cc/editor**

4. Next, you will be directed to install the Arduino Web Editor plug-in. This plug-in enables you to upload sketches from the browser to your TETRIX PRIZM, TETRIX PULSE, or other Arduino boards. Choose your operating system and follow the on-screen instructions to install the correct plug-in. You can download the plug-in from this link: **Pitsco.com/c-ArduinoWebEditor-Plug-in**

Note: You might need to turn off any firewalls or antivirus software to install the plug-in.

For troubleshooting the Arduino Web Editor plug-in install process, use the following link: **Pitsco.com/c-ArduinoWebEditor-GettingStarted**

5. When you go to install the plug-in, if you are not currently logged in, you might be redirected to the Arduino login page to log in with the account you created.
6. The Arduino Web Editor should now be ready to use on your device. However, you'll still need to follow the instructions for installing the TETRIX libraries before you can use the web editor with your TETRIX robotics sets. Follow the instructions in the Uploading TETRIX Libraries section of this document.

Uploading TETRIX Libraries

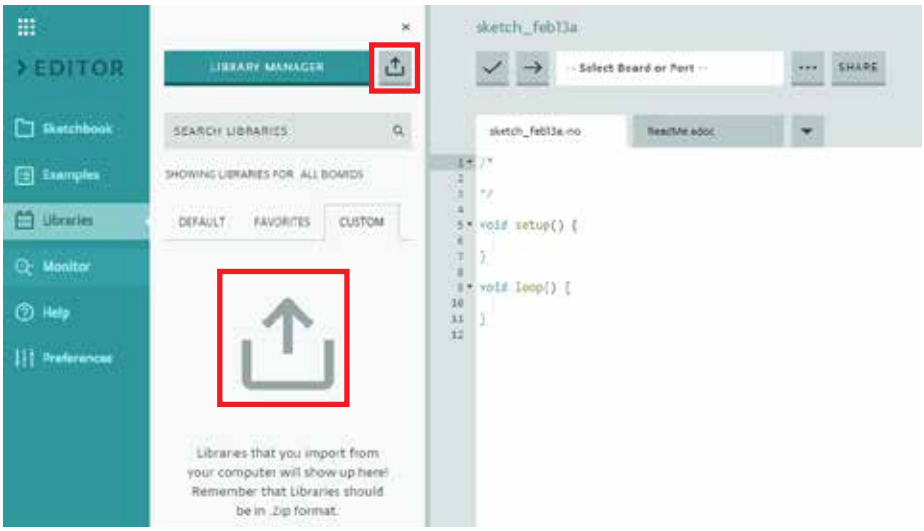
After you have created your Arduino accounts and installed the extension for Chrome or the plug-in for Windows, Mac, and Linux, you are ready to import the TETRIX libraries for PRIZM, PULSE, the Tele-Op module, or any other custom Arduino libraries.

1. Download the TETRIX libraries. Use the following links to access the Pitsco website and find each library in the Downloads section.
   - PRIZM library – **Pitsco.com/TETRIX-PRIZM-Robotics-Controller#downloads**
   - PULSE library – **Pitsco.com/TETRIX-PULSE-Robotics-Controller#downloads**
   - Tele-Op library – **Pitsco.com/TETRIX-Tele-Op-Control-Module#downloads**

   Each library will download as a zip file to your device's Downloads folder. If you download the zip file to another location, note the location.

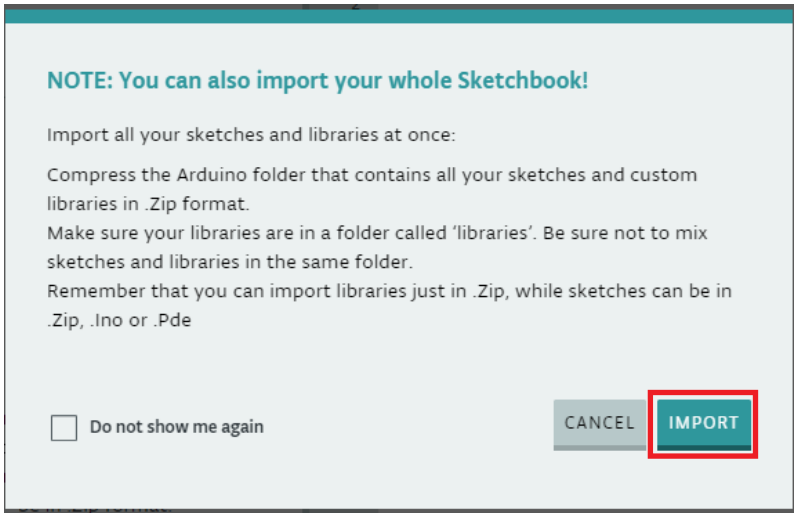
2. Log in to the Arduino Web Editor and click **Libraries** in the first column. In the second column, click **Custom**.

3. To import a library, click either of the Import buttons. **Note:** After you've imported your first library, the large Import button will disappear. However, the Import button next to the Library Manager button will still be available.

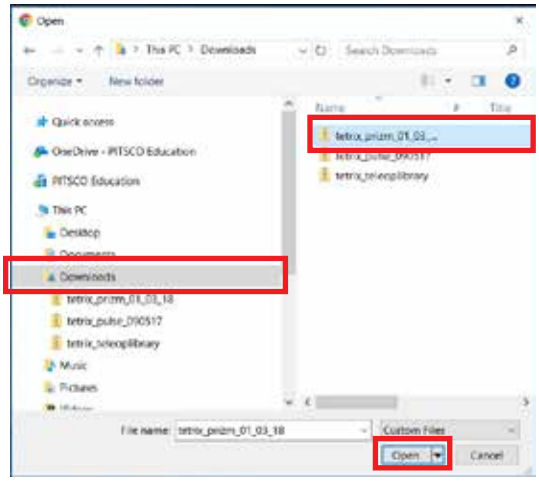


Note: Imported Arduino libraries are tied to the user's account, not to the device. This means that a library needs to be imported only one time. It also means that when a library has been imported for a user's account, the user is able to use that library no matter what device is used as long as the user logs on with the same account.

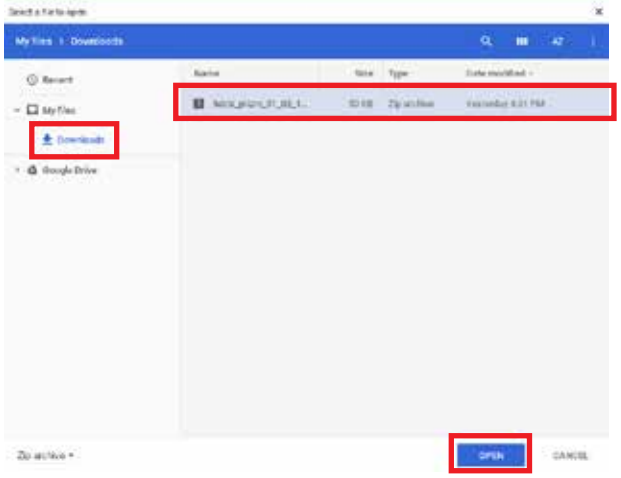
4. After you click the Import button, a pop-up window will appear, notifying you that you can also import your whole sketchbook. For now, continue through this notification by clicking **Import**.



5. A File Explorer window will appear. Navigate to your **Downloads** folder (or wherever the zipped TETRIX library is located) and select the zipped TETRIX library. Click **Open**.

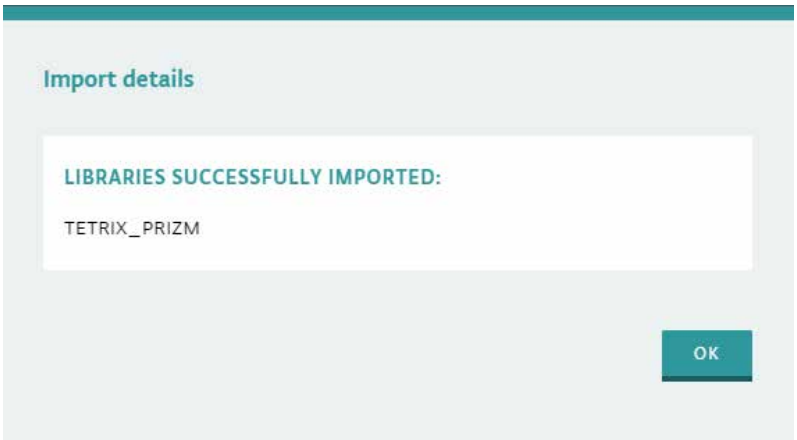


Windows File Explorer

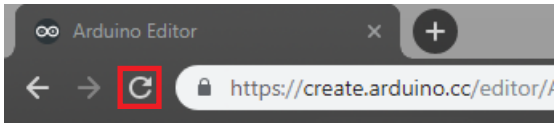


Chrome OS File Explorer

6. When you open the TETRIX library zip file, the import process will begin. When it is completed, you will get a pop-up message telling you that the library has successfully imported.

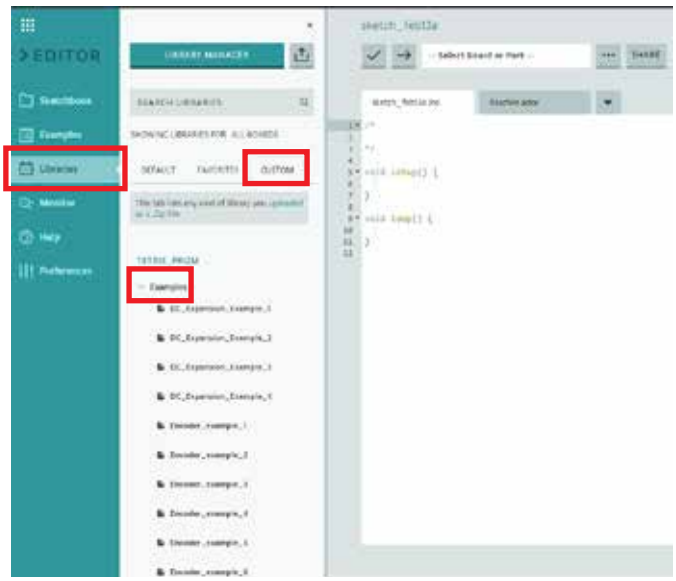


7. After a library is imported, you'll need to refresh your browser to use that library. Click **Refresh** in your browser to reload the Arduino Web Editor.

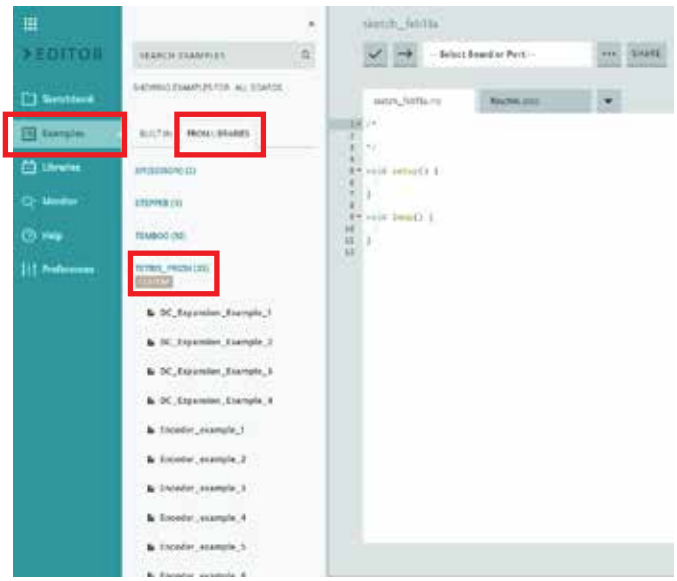


8. After a successful import, the library and its associated example sketches will appear in the Custom libraries tab of the Libraries section of the web editor. You can explore the example sketches by expanding the Examples section under the associated library.

   The library examples can also be accessed by going to the Examples section, choosing the From Libraries tab, and then clicking the imported library.



Accessing Examples in Libraries



Accessing Examples in Examples

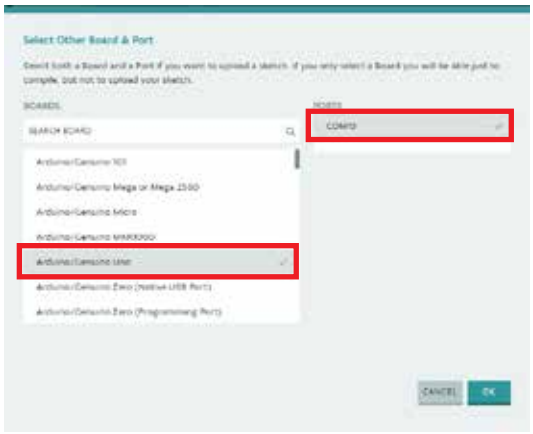
Note: After the web editor has been reloaded, any folder structure that the example sketches were organized in will be lost. All examples for a library will be listed in a single list in alphabetical order. This is different from the Arduino Software (IDE), in which examples are organized into folders associated with different guides or activities.

Configuring USB Communication

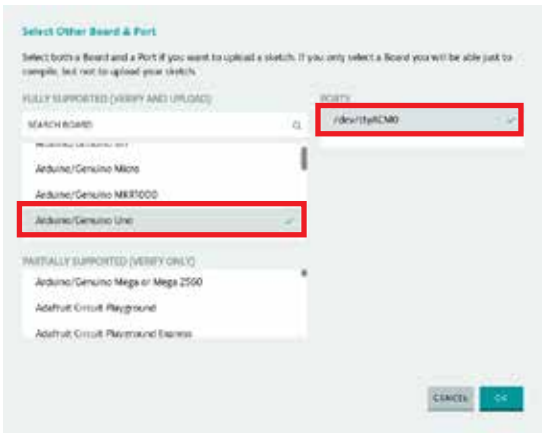
The Arduino Web Editor communicates with the TETRIX PRIZM, TETRIX PULSE, or other Arduino boards through the device's USB port.

1. If you're using a TETRIX PRIZM or TETRIX PULSE controller, power up your board by connecting it to the appropriate battery and turning on the switch.
2. Connect your PRIZM, PULSE, or other Arduino board into the USB port on your device.
3. In the Arduino Web Editor, click the **Select Board or Port** drop-down box and then choose **Select Other Board & Port**. A new pop-up window will appear.

4. If you're using TETRIX PRIZM or TETRIX PULSE, under Boards, select **Arduino/Genuino Uno**. Otherwise, select the Arduino board that you are using. Under Ports, select the USB serial/com port that corresponds with your PRIZM, PULSE, or other Arduino board. Then, click **OK**.



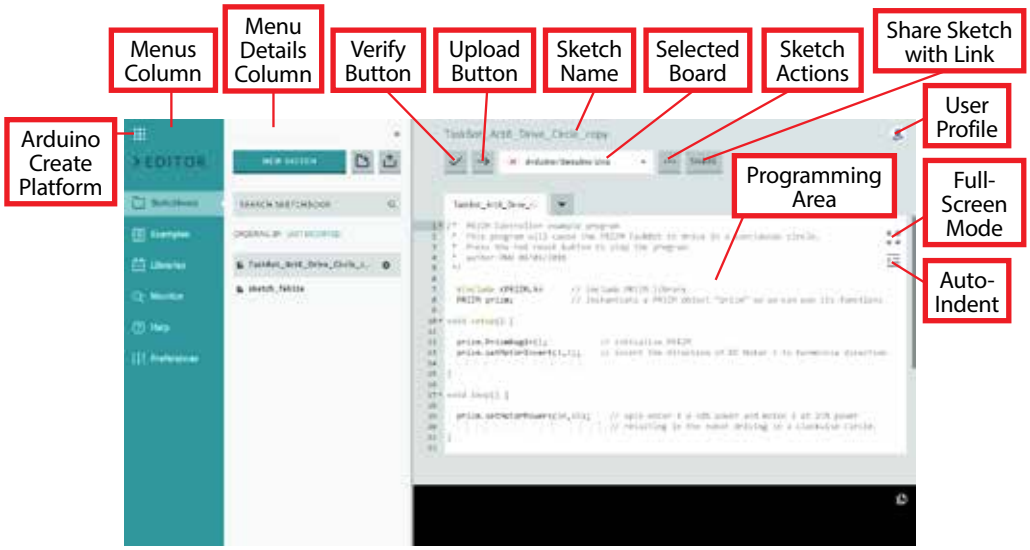
Selecting Board and Port on PC



Selecting Board and Port on Chrome OS

You should now be able to upload sketches to your board.

Using the Arduino Web Editor

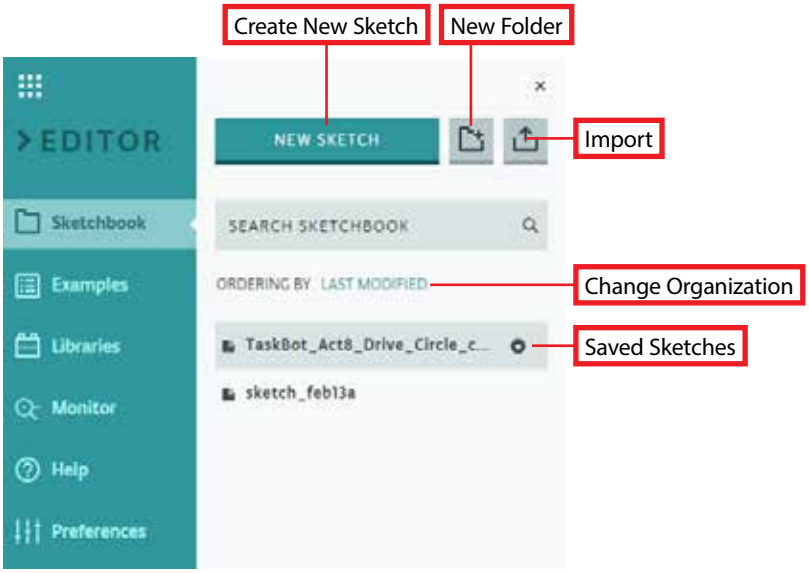


Sketchbook

Any sketches you create in the Arduino Web Editor are saved to your sketchbook. You can also upload sketches you've created in the Arduino Software (IDE). When a sketch is stored in your sketchbook, it will be available for your account no matter the device you are logged in with.

With the Arduino Web Editor, you are limited to a total of 100 sketches or 100 megabytes of data, whichever you use up first. You can check the status of your storage in the Preferences section.

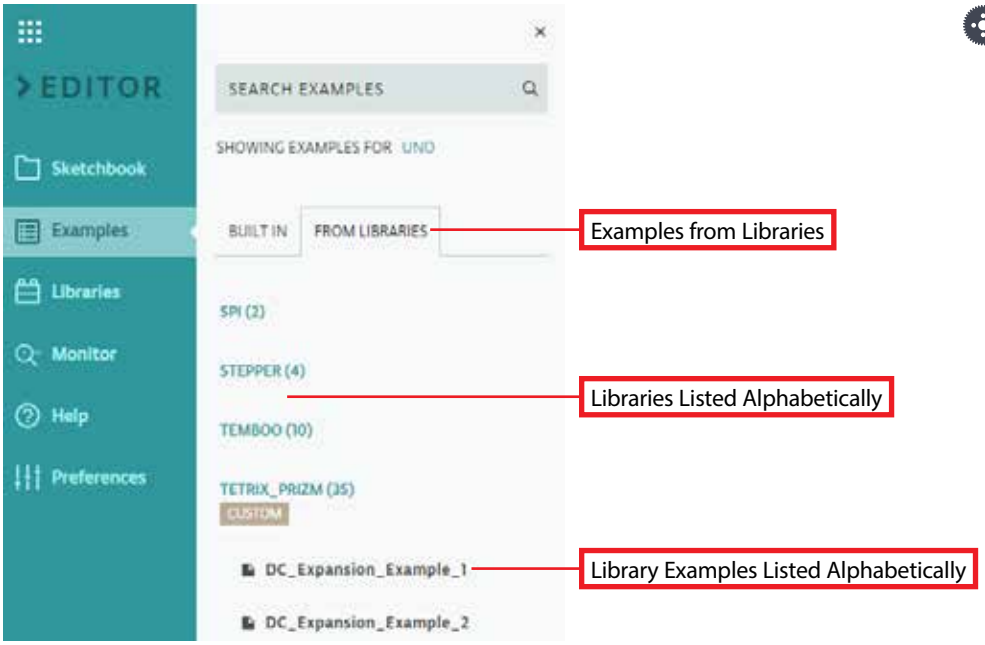
From the Sketchbook details area, you can create new sketches, organize sketches into folders, upload sketches from your device, and search your sketchbook. Folders and sketches in your sketchbook can be ordered by name or by most recently modified.



Note: Example sketches that are included with Arduino libraries that you import do not count against your limit of 100 sketches in your sketchbook.

Examples

It is common for Arduino libraries to contain example sketches. These examples can be accessed by going to the Examples section and then clicking the **From Libraries** tab. Libraries are organized alphabetically, and under each library, examples are listed alphabetically by their name.



Note: In the Arduino Software (IDE), examples are often organized into folders. However, in the web editor there is no folder structure. All examples are grouped together and sorted by name.

Libraries

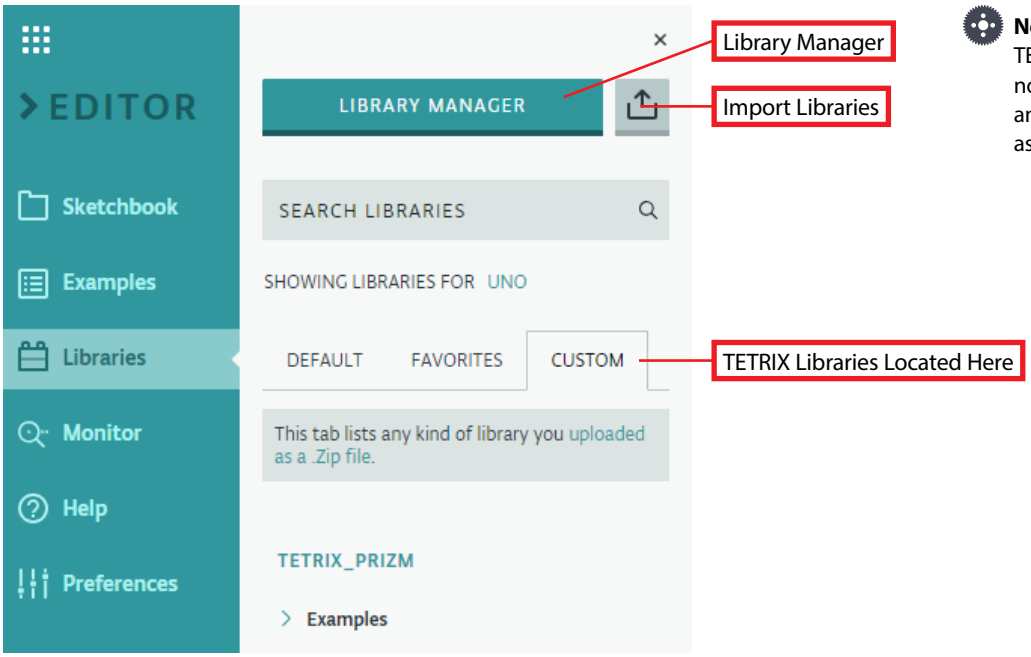
Libraries are packages of code that can be included in your sketch to perform certain functions or tasks specific to the hardware connected to your board.

At the top of the library details area, there are two buttons:

- Library Manager – This button is used to download and install libraries that are commonly used in the Arduino community. TETRIX users will most likely not need to use the Library Manager.
- Import – The Import button enables you to import custom libraries specific to the hardware you are using. Libraries that are being imported must be in a zipped folder.

In the library details area, Arduino libraries are organized into three tabs:

- Default – These are libraries that come preinstalled with the Arduino Web Editor.
- Favorites – Using the Library Manager, you can favorite libraries that you use most often. Any board that is marked as a favorite will show up in this tab.
- Custom – These are libraries that are not part of the Library Manager and are imported from a zipped folder. The TETRIX PRIZM, PULSE, and Tele-Op libraries are all examples of custom libraries that will appear in this tab after they are imported.

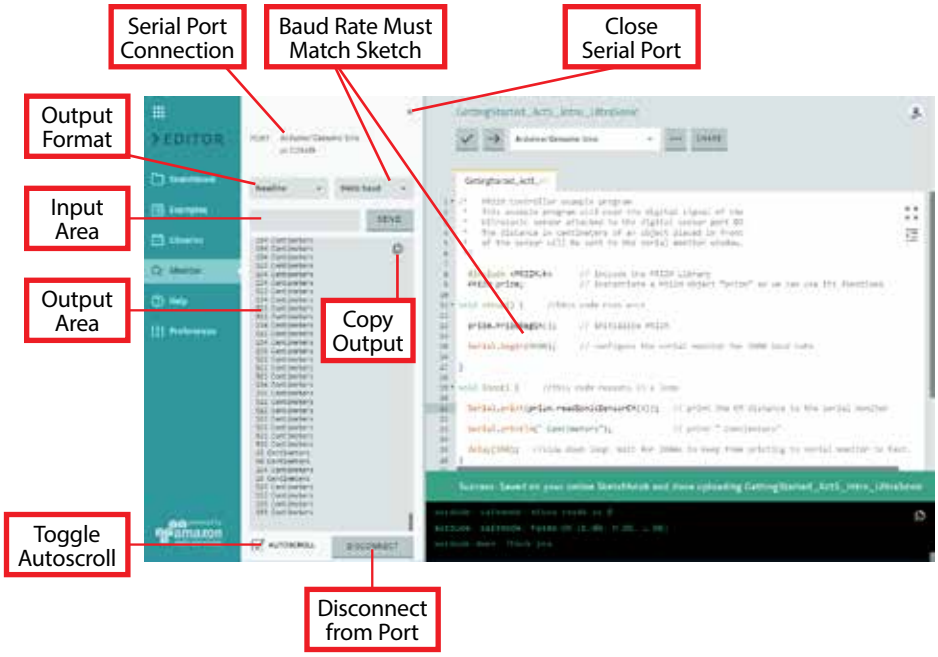


Note: Custom libraries such as the TETRIX PRIZM or PULSE libraries do not appear in the Library Manager and therefore cannot be marked as a favorite.

Monitor

Accessing the serial monitor in the Arduino Web Editor is quite different than in the Arduino Software (IDE). However, the functionality of the serial monitor in both systems is very similar.

To access the serial monitor, you must have a recognized board connection through a valid serial/com port. If you don't, the serial monitor will be grayed out.



Note: The serial plotter is not available in the Arduino Web Editor. It is available in only the Arduino Software (IDE).

Note: Make sure that the baud rate in the serial monitor matches the baud rate set in the sketch.

Help

The Help section contains lots of information, tutorials, and a glossary for using the web editor. This is the first place to go if you're having trouble or if something isn't working.

Preferences

The Preferences section lets you personalize the web editor to your preferences. Here, you can monitor your storage space, change the font size and theme of the editor, change saving preferences, and modify a few other more advanced settings.

PITSCO TETRIX®

Arduino Web Editor Instructions

Call Toll-Free
800•835•0686

Visit Us Online at
Pitsco.com

PITSCO EDUCATION

PE•0319•0000•00 79003