

# Introduction and Setup

The following instructions were created for setting up the original 4GB or 2GB versions of the NVIDIA® Jetson Nano™ Developer Kit. To run the course on an NVIDIA® Jetson Orin Nano Developer Kit or NVIDIA® Jetson AGX Orin Developer Kit, please begin on the [Setting Up Your Jetson Orin](#) course page .

[NVIDIA® Jetson Nano™ Developer Kit](#) is a small AI computer for makers, learners, and developers. After following along with this guide, you'll be ready to start building practical AI applications, cool AI robots, and more.



## Items For Getting Started

To get started, you'll need to set up a microSD card for your operating system and main storage. Follow the NVIDIA instructions for either the [original 4GB Jetson Nano Developer Kit](#) or the [Jetson Nano 2GB Developer Kit](#) to download and flash the latest JetPack image for your system. To specifically run this DLI course, which includes deep learning training with PyTorch on your Jetson Nano, you'll need to make the following modifications and additions to the items listed in the general setup instructions:

- ***64GB MicroSD Card***

We recommend a larger microSD card to ensure there is plenty of room for your applications and data.

- ***Internet Connection For Your Jetson Nano***

You'll need an Internet connection through either the Ethernet port or a compatible Wi-Fi device the first time you run the course notebooks. You'll execute a command that downloads a Docker image from the NVIDIA NGC cloud. After that, as long as the Docker image is not deleted from your microSD card, you won't need the Internet connection on the Jetson Nano to run the course notebooks.

- ***USB Webcam***

You'll need a camera to capture images in the course projects. As an example of a compatible camera, NVIDIA has verified that the [Logitech C270 USB Webcam](#) works with these projects. The ability to position the camera easily for capturing images hands-free makes this a great choice. Some other USB webcams may also work with the projects. If you already have one on hand, you could test it as an alternative.

- ***USB Data Cable (Micro-B To Type-A)***

You'll also need a [Micro USB to USB-A](#) cable to directly connect your computer to the Jetson Nano Developer Kit's Micro USB port. The cable must be capable of data transfers, rather than only designed to power a device. This is a common cable available at many outlets if you don't already have one on hand.

- **Original 4GB Version Only: Alternate Power Supply**

*For this course, the 5V 4A DC barrel jack power supply is required. Although it is possible to power the original 4GB Jetson Nano with a smaller microUSB supply, this is not robust enough for the high GPU compute load we require for our projects. In addition, you will need the microUSB port available as a direct connection to your computer for this course.*

- **5V 4A Power Supply with 2.1mm DC barrel connector**

The barrel jack must be 5.5mm OD x 2.1mm ID x 9.5mm length, center-positive. As an example of a good power supply, NVIDIA has validated [Adafruit's 5V 4A \(4000mA\) switching power supply - UL Listed](#).

- **2-pin Jumper**

To specify use of the barrel-type power supply on the Jetson Nano Developer Kit, a [2-pin jumper](#) is required. This is an inexpensive item available at many outlets.

## Additional Notes About Setup

- The course will run JupyterLab in "headless device mode", which does not require a monitor, keyboard, or mouse. However, you may wish to use these items for the initial Jetson Nano Developer Kit setup procedure, as described in the instructions for the graphical "display" setup. The "headless" setup instructions are also provided in the devkit setup instructions. There is also a [video from JetsonHacks](#) about headless setup.
- The course runs best if there is a "swap" file of size 4GB, so that if the Jetson Nano is a little short of RAM it can extend a bit by swapping with some of the (slower) disk space. After setting up the microSD card and booting the system, check your memory and swap values with this command, which shows the values in megabytes. You should see 4071 as the size of the swap if you have 4GB configured:

```
free -m
```

If you don't have the right amount of swap, or want to change the value, use the following procedure to do so (from a terminal):

```
# Disable ZRAM:
sudo systemctl disable nvzramconfig

# Create 4GB swap file
sudo fallocate -l 4G /mnt/4GB.swap
sudo chmod 600 /mnt/4GB.swap
sudo mkswap /mnt/4GB.swap

# Append the following line to /etc/fstab
sudo su
echo "/mnt/4GB.swap swap swap defaults 0 0" >> /etc/fstab
exit

# REBOOT!
```

## Warning!

The "fins" on the passive heat sink attached to the Jetson Nano Developer Kit can become very hot and should not be used as a handle to pick up the kit until completely cooled.

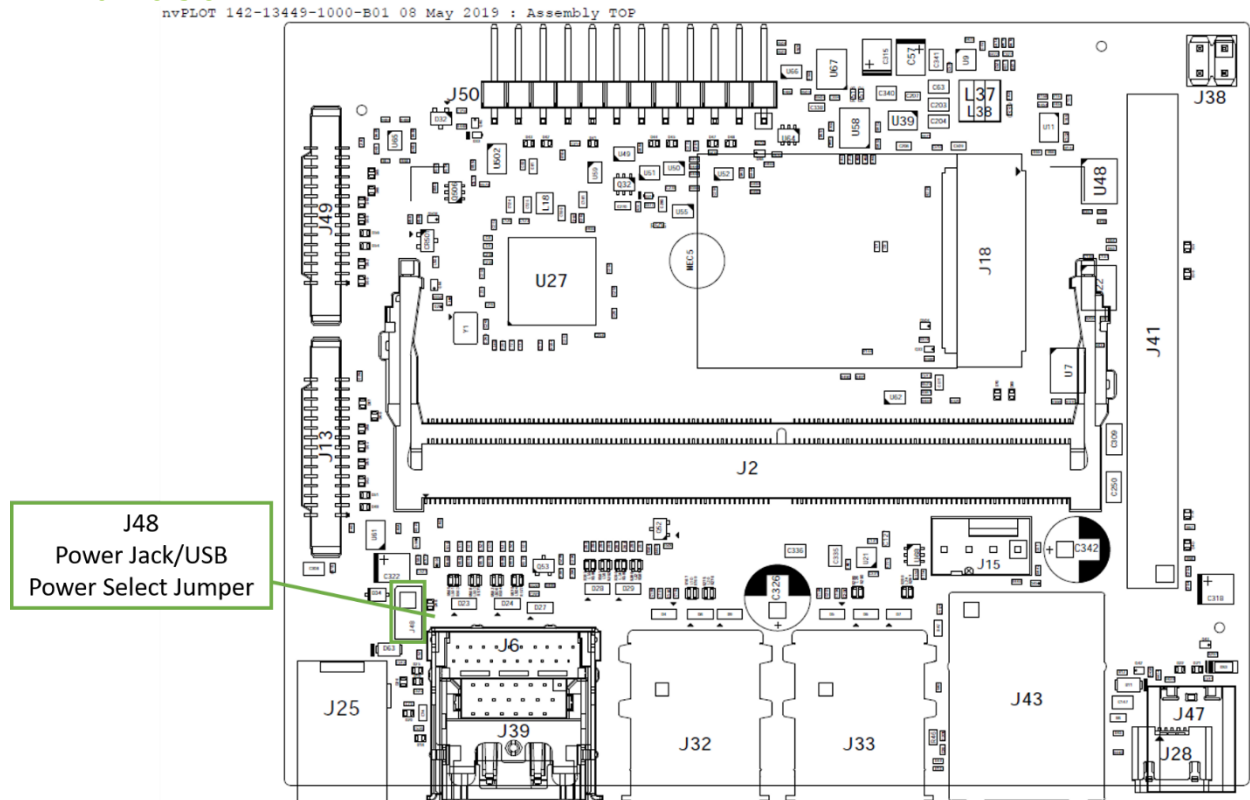
The complete hardware package is also available from Sparkfun either [with the Jetson Nano included](#) or [without the Jetson Nano included](#).

To set up the alternate barrel power supply, use the following steps.

## Barrel Power Supply Setup (Original 4G Kit Only)

1. Insert the 2-pin jumper across the 2-pin connector, **J48**, located next to the MIPI CSI camera connector or behind the barrel power port (B01 version). This enables the DC barrel power supply.

### A02 version



### B01 version

1. Connect your DC barrel jack power supply (5V/4A). The Jetson Nano Developer Kit will power on and boot automatically.
2. A green LED next to the Micro-USB connector will light as soon as the developer kit powers on.