

# What you need to install

## Git

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Git is a popular version control system (VCS) for developing software. If you are interested in becoming a Software Engineer or writing code in general, learning to use git is an extremely important skill. You can [download git here](#). When installing, just choose all the default recommended options.

We use GitHub to host and collaborate on our software projects, so you will need to make a GitHub account on [github.com](#). Once you have an account, post your GitHub username in the #controls channel of our discord and we can add you to our GitHub organization which you can find [here](#) along with every software project our team has ever worked on.

## WPILib

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WPILib is the suite of software, known as a library that we use to actually control the components on the robots. [WPILib has their own guide](#) for setting up your development environment, however since their guide is designed for everybody across FRC, it has a lot of information not relevant to our team. Following the guide below should get you set up for developing robot programs for YETI. If you run into any issues in your setup, you can ask questions in the #controls channel of the YETI discord, and check out the WPILib guide as it may have the solution to your problem.

**NOTE:** This guide is for Windows, macOS, and Linux computers. You will **NOT** be able to write robot programs with ChromeOS.

Download the latest version of the installer from the [WPILib Github](#). Scroll down to Downloads and download the appropriate installer for your operating system.

### Read this if you use a mac

Before installing WPILib, mac users will need to install XCode Command Line Tools. These are tools developed by Apple for C++ development which WPILib requires to

run. To do so, open the Terminal app on your mac and run the following command

```
xcode-select --install
```

You may need to run this command administrator privileges, in which case run the following command and enter your password when prompted. **Note:** When typing in your password in the terminal, it will look like nothing is happening, but this is just the terminal version of how websites show dots instead of letters in password fields.

```
sudo xcode-select --install
```

Next, you need to install the appropriate installer for the processor your mac uses, either an Intel or M series (arm64) chip. If you are unsure which your mac uses, do the following:

1. Click the apple logo menu in the top left of your screen
2. Click about this mac
3. If it says you have an Apple M1/M2/etc. chip or an Apple A18 chip, download the arm64 installer. otherwise download the Intel version

1. Open the file you downloaded
2. Run the WPILibInstaller
3. Click **Start**
4. Choose **Everything**
5. Select the top right option that says **Skip and don't use VS Code**

### Why the option that says not recommended?

Selecting **Everything** will install all the development tools you need to code an FRC robot. The way you actually use those tools to write your code is up to you. All the other options will install a dedicated instance of VS Code, a very popular code editor that can be used to write just about any kind of program. If you already have VS Code installed, it will still install a new version. This is one reason I do not recommend this path, as it can be confusing what version of VS Code you are using.

The other reason is because here on Yeti, we use IntelliJ to write our robot code. This is because IntelliJ is specifically designed for developing Java programs, and so

has many useful features that VS Code lacks out of the box. Additionally, I have found that Java development in VS Code is simply much buggier because it is not specifically designed for it while IntelliJ is.

### **Install for this User or Install for all Users? (doesn't apply to mac)**

If you share your computer with anyone else, for example a parent, you should install for this user. If your computer is just yours, you should install for all users. The reason being is that installing for all users requires administrator privileges, which you may not have if this is not your computer. The difference does not matter too much, but installing for all users may create less problems in the future in terms of other software dependencies or updates.

## **IntelliJ**

Here on YETI, we use IntelliJ to write our robot code. This is because IntelliJ is specifically designed for developing Java programs, and so has many useful features that VS Code lacks out of the box. Additionally, I have found that Java development in VS Code is simply much buggier because it is not specifically designed for it while IntelliJ is.

### **Install**

1. **Download IntelliJ Community Edition (NOT Ultimate)**
  1. Scroll down a little on this page to get to the community edition install
  2. Run the installer and install IntelliJ
  3. Open IntelliJ
    1. When you open IntelliJ, it will begin processing your workspace. The progress bar is in the bottom left.

### **Setup**

#### **Java**

**Note that this part requires you to have a Gradle project open at the moment. Read this if you don't have one open.**

If you don't have a Gradle project open, you can use YETI's sim-sandbox.

Go to the sim-sandbox repository on the YETI GitHub, or use this link:

<https://github.com/yeti-robotics/sim-sandbox>. Then, click on the "Use this template" button in the top right hand corner. Click "Create new repository," and pick a name for it. Make sure to check the box that includes all branches! This will create your own repository with all of the template files to start.

Next, open up IntelliJ and head over to File > New > Project from Version Control. Select the Git option, and then paste in the URL of your repository, which you'd get from pressing the green "Code" button when you go to the repository in your browser, and copying the URL that you find in the little dropdown beneath it. It should look something like this:

```
https://github.com/YOUR_GITHUB_USERNAME/REPO_NAME.git
```

`YOUR_GITHUB_USERNAME` should be replaced with your GitHub username, and the `REPO_NAME` should be replaced with whatever you decided to name the repository when creating it. Once you hit the "Clone" button, this will download everything onto your device.

1. Open settings
2. Expand **Build, Execution, and Deployment** on the left
3. Expand **Build Tools**
4. Select **Gradle**
5. Set **Distribution** to **Wrapper**
6. If on Mac, follow this:
  1. In the **Gradle JVM** dropdown, select **Download JDK**
  2. Set **Version** to **17**
  3. Set **Vendor** to **Amazon Corretto**
  4. Click **Download**
7. If on Windows, follow this:
  1. In the **Gradle JVM** dropdown, select **Add JDK from Disk**
  2. Navigate to C:\Users\Public\wplib\(\your WPLib version)\jdk
  3. Select that jdk folder
  4. Hit **OK**

## FRC Plugin

1. Open settings
2. Select **Plugins** on the left
3. Select the **Marketplace** tab at the top
4. Search for and install the FRC plugin

## Next steps

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You can view a list of [additional resources here](#), including links to learn Java. For a guide for learning robot code, we have a roadmap for the [FRC Ladder series here](#).

If you are interested in getting started developing for a Romi robot to practice robot code, we have a guide for setting that up [here](#).

If you are interested in continuing sim-sandbox development and finishing the full simulation setup, follow [this guide](#).

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