

How to set up Rustup + Bevy Engine

Installing Rustup:

Follow this link ([rustup](#)) to install the rust toolchain. It will be necessary for writing our programs using the Bevy engine. For those familiar with C++, it is similar, as it has no garbage collector but has specialized rules to ensure memory safety. If you'd like to read more about the rust language, look to the [rust book](#) which is available for free, and it would be beneficial to check out the [ownership](#) section in particular.

Once this package is fully, you should be able to compile and run programs using the cargo package manager. Below are some common cargo commands and their usages:

<code>cargo new <module_name></code>	Creates a new module with the provided name, including a src directory with a hello world program, a cargo.toml file for dependencies, and a git repository with a gitignore.
<code>cargo build</code>	Compiles all programs in the directory and their dependencies. If the files have already been compiled to the build cache, they are skipped. This means only the programs which have recently been changed will be recompiled on a second build.
<code>cargo run</code>	Runs a given rust program using the rustc compiler. Can optionally be provided flags to find a different path to the source file based on contents of the toml file.
<code>cargo add</code>	Add an external package to your

	module
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You can also benefit from installing some extensions for rust if you are using vs-code, so here are some great ones:

- Rust extensions:
<https://marketplace.visualstudio.com/items?itemName=1YiB.rust-bundle>
- Even Better TOML:
<https://marketplace.visualstudio.com/items?itemName=tamasfe.even-better-toml>

Installing the Bevy engine

Bevy is going to be the engine which allows us to use an ECS (Entity Component System) to create our games. Resources for creating a project with it can be found [here](#), but simply it can be imported like a library in any rust repository like so:

1. ">cargo add bevy" in your module
2. Under [dependencies] in your toml file, add "bevy = 0.12"

For the workshop, you should definitely install the bevy repository which can be found on the previous link and includes a few examples which can be run using:

```
> cargo run --example <game_name>
```

Here is a list of the game names to choose from and play around with:

- breakout - a classic game about breaking bricks with a ball and paddle
- Alien_cake_simulator - a snake-like game about snatching cake on a 2d grid
- game_menu - a menu template with volume and quality controls
- contributors - a bouncing simulation featuring many contributors to bevy

We will be going over the ways to create new features using ECS in the workshop, so make sure to attend to learn about it!

Common issues:

1. Missing dependencies

a. If you are running the engine on linux, you may need to install some additional packages (I had to install these manually)

i. Alsa →

```
sudo apt install rustc cargo libasound2-dev libssl-dev  
pkg-config
```

ii. Libudev →

```
sudo apt-get install libudev-dev
```