

# Discussion 1

See [https://rust4ds.github.io/ds210-sp26-a1/discussion/00\\_setup.html](https://rust4ds.github.io/ds210-sp26-a1/discussion/00_setup.html) for other codes and common issue solving.

## 1 Install Prerequisite

### 1.1 Windows

1. If you have Visual Studio installed and have configured the C++ environments, then you possibly already installed it.
2. If not, download and install the MSVC Build Tools separately from <https://visualstudio.microsoft.com/downloads/> (Scroll down a bit and click the *Tools for Visual Studio*)

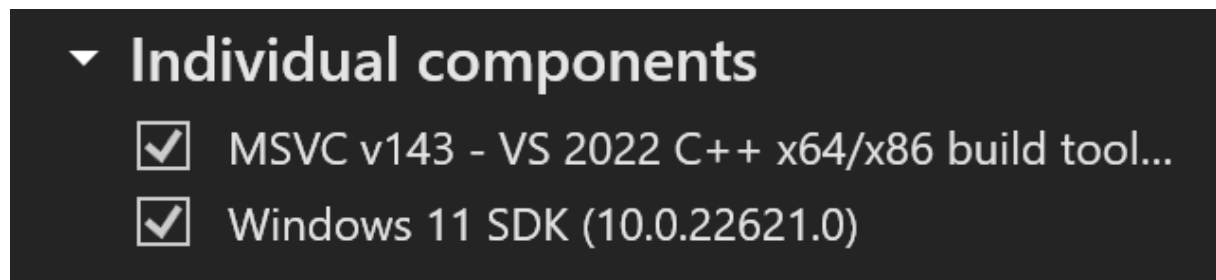
Build Tools for Visual Studio  
2026

These Build Tools allow you to build Visual Studio projects from a command-line interface. Supported projects include: ASP.NET, Azure, C++ desktop, ClickOnce, containers, .NET Core, .NET Desktop, Node.js, Office and SharePoint, Python, TypeScript, Unit Tests, UWP, WCF, and Xamarin. Use of this tool requires a valid Visual Studio license, unless you are building open-source dependencies for your project. See the [Build Tools license](#) for more details.

Download

Are you looking for one of the Visual Studio 2022 [long term servicing baselines \(LTSCs\)](#)? You can find them [here](#).

3. **Alternatively**, install the **Windows (11) SDK** and **MSVC C++ Build Tools** from Visual Studio installer. (You don't need the full version of Visual Studio.)



2. The rustup installer will notify you if it can find the compiler in later step.

### 1.2 Linux

1. Install the development (meta-)packages.
  - For Ubuntu/Debian, it should be `build-essential`. Install it by  

```
sudo apt install build-essential
```
  - For Arch-based distribution,  

```
sudo pacman -S base-devel
```

### 1.3 MacOS

## 2 Install Rust

### 2.1 Windows

1. Go to <https://rust-lang.org/tools/install/> and download the `rustup-init.exe` according to your machine (x32, x64 or arm64).

## Using rustup (Recommended)

It looks like you're running Windows. To start using Rust, download the installer, then run the program and follow the onscreen instructions. You may need to install the [Visual Studio C++ Build tools](#) when prompted to do so. If you are not on Windows see "[Other Installation Methods](#)".

DOWNLOAD RUSTUP-INIT.EXE (32-BIT)

DOWNLOAD RUSTUP-INIT.EXE (X64)

DOWNLOAD RUSTUP-INIT.EXE (ARM64)

2. Run the `rustup-init.exe` for installation.

## 2.2 Linux

- For Ubuntu/Debian, install the packages by running (which is also on the website)

```
curl --proto '=https' --tlsv1.2 -sSf https://sh.rustup.rs | sh
```

- For Arch-based, you can also run the same script or install from the official repo

```
sudo pacman -S rust
```

## 2.3 MacOS

Use the same script as

```
curl --proto '=https' --tlsv1.2 -sSf https://sh.rustup.rs | sh
```

## 3 Test your installation

1. Check your version by

```
rustup check
```

Currently the newest version is 1.92.0 for rust and 1.28.2 for rustup.

2. Open any folder and run the following command to initialize a sample project

```
cargo new sample_rust --bin
# You can omit the --bin which is already the default behaviour now
```

3. Enter the project folder created

```
cd sample_rust
```

4. Try run the project by cargo. You should see an output of Hello, world!

```
cargo run
```

```
> cargo run
   Compiling sample_rust v0.1.0
   Finished `dev` profile [unoptimized + debuginfo] target(s) in 0.12s
     Running `target/debug/sample_rust`
Hello, world!
```

5. Also try to build the project with `--release` flag and run it.

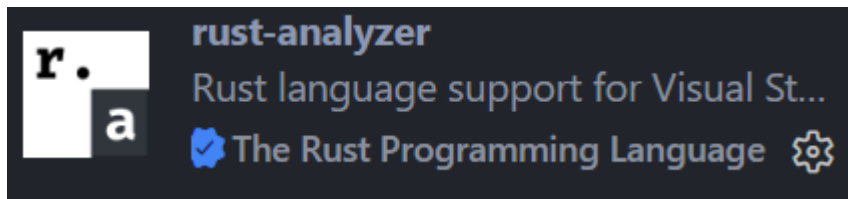
```
cargo build --release
cargo run --release
```

```
> cargo run --release
Finished `release` profile [optimized] target(s) in 0.01s
Running `target\release\sample_rust.exe`
Hello, world!
```

## 4 Install rust-analyzer for VS Code

In Visual Studio Code, install the rust-analyzer for linting, code completion, symbol searching, etc... You will find how powerful it is when writing the codes :)

Open the folder for project

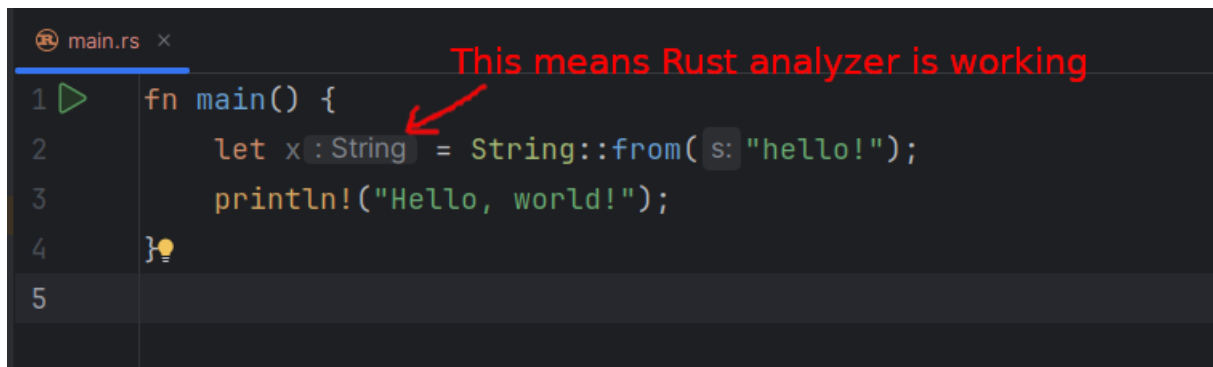


Test your plugin installation:

Write the following codes in your IDE:

```
fn main() {
    let x = String::from("hello!"); // Add this line
    println!("Hello, world!");
}
```

and check if you can see the following variable type deducing:



## 5 More...

Take a look at the official handbook! <https://rust-lang.org/learn/>