

# kintsugi-stack-rust

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kintsugi-stack-rust

## 1. Getting Started

### 1.1. Installation

```
sudo apt update
sudo apt install -y curl
curl --proto 'https' --tlsv1.2 -sSf https://sh.rustup.rs | sh
```

- Rust Lang: Rust Install <https://doc.rust-lang.org/book/ch01-01-installation.html>
  - Windows
    - Install Linux, Just kidding !!
    - <https://visualstudio.microsoft.com/downloads/>
      - Install VS
      - Install VSC
      - Install Build Tools for Visual Studio
        - then Restart Computer
    - <https://rust-lang.org/tools/install/>
      - Install Rust
    - `rustup toolchain install stable-x86_64-pc-windows-gnu`
    - `rustup default stable-x86_64-pc-windows-gnu`
  - Linux: `$ curl --proto 'https' --tlsv1.2 https://sh.rustup.rs -sSf | sh`
- Rust Server Dev: Rust Analyzer Install <https://marketplace.visualstudio.com/items?itemName=rust-lang.rust-analyzer>

### 1.2. Hello, World!

- rust code file extension `.rs`

```
// 1_2_hello_world.rs
fn main(){
    println!("Hello, World! ")
}
// rustc main.rs && ./main
```

- Compile command

```
rustc main.rs
```

- Rust Binary Run command

```
./main
```

## 1.3. Cargo

```
cargo --version # cargo version check
&& cargo new project_name # create proj.
&& cd project_name
&& cargo build # build executable
&& cargo run # run project
&& cargo check # check for err without any executable
&& cargo help # help

# .
# └─ Cargo.lock
# └─ Cargo.toml
# └─ src
#     └─ main.rs

# .
# └─ Cargo.lock
# └─ Cargo.toml
# └─ src
#     └─ main.rs
# └─ target
#     └─ CACHEDIR.TAG
#     └─ debug
#         └─ build
#         └─ deps
#             └─ libone_three_hello_cargo-f9884884092cd48a.rmeta
#             └─ one_three_hello_cargo-5885dd703046e3fc
#             └─ one_three_hello_cargo-5885dd703046e3fc.d
#             └─ one_three_hello_cargo-f9884884092cd48a.d
#         └─ examples
#         └─ incremental
#             └─ one_three_hello_cargo-10ah7hvr4gzi
#                 └─ s-heho9i1rut-1ysdico-bwbrfy6ptxbomf5iwqz5vt3f0
#                     └─ dep-graph.bin
#                     └─ query-cache.bin
#                     └─ work-products.bin
#                 └─ s-heho9i1rut-1ysdico.lock
#             └─ one_three_hello_cargo-3dgwin0zbxstr
#                 └─ s-heho98ij63-039vdoh-143bk3qfw5zxnyx5otl9s0tja
#                     └─ 00ylhni9avwle6wyqpyzm6par.o
#                     └─ 19k6gm7hj98zo0jv2b5mu1std.o
#                     └─ 1jqdhkz0e02p777bbobcmna2j.o
#                     └─ 5fgvfmdk1vtvncsc4ze5a0wi9.o
#                     └─ 8z1o97dthkm4wl9qy6anckmmy.o
#                     └─ 9fwica1fdmiqw5oux5l4cedjc.o
```

```
#
#
#
#
#
#
├── dep-graph.bin
├── query-cache.bin
├── work-products.bin
├── s-heho98ij63-039vdoh.lock
├── one_three_hello_cargo
└── one_three_hello_cargo.d
```

- Cargo:
  - Rust's Build System
  - ▪ Package manager
  - ▪ Builtin When we Install Rust ( Painpoint of other prog. lang.)
- Compile command

```
rustc main.rs
```

- Rust Binary Run command

```
./main
```

- Cargo version check

```
cargo --version
```

- Create New Cargo Project

```
cargo new one_three_hello_cargo
```

- File Organisation
  - **Cargo.toml**
    - package config file
  - **.gitignore**
    - default code ver. ignore file
    - ignore flags for git ver.
  - **\src**
    - contains actual code
    - **main.rs**
      - Starter code

```
.
├── Cargo.lock
└── Cargo.toml
```

```
└─ src
   └─ main.rs
```

- Build command
  - Build
    - Create `Cargo.lock`
    - contain dependencies
  - Create `\target`
    - contain `\debug`
      - contain our actual executable
      - other supporting stuff

```
cargo build
```

- run command

```
cargo run
```

- help command
  - to view all commands

```
cargo help
```

- check command
  - check your prog. for err.
  - without producing any executable
  - faster than running the prog.

```
cargo check
```

```
bali-king@war-machine:~/BaliGit/kintsugi-stack-rust/one_three_hello_cargo$
cargo run
  Compiling one_three_hello_cargo v0.1.0 (/home/bali-
king/BaliGit/kintsugi-stack-rust/one_three_hello_cargo)
  Finished `dev` profile [unoptimized + debuginfo] target(s) in 0.10s
  Running `target/debug/one_three_hello_cargo`
Hello, world!
bali-king@war-machine:~/BaliGit/kintsugi-stack-rust/one_three_hello_cargo$
cargo build
  Finished `dev` profile [unoptimized + debuginfo] target(s) in 0.00s
bali-king@war-machine:~/BaliGit/kintsugi-stack-rust/one_three_hello_cargo$
```

```
cargo check
```

```
Checking one_three_hello_cargo v0.1.0 (/home/bali-king/BaliGit/kintsugi-stack-rust/one_three_hello_cargo)
```

```
Finished `dev` profile [unoptimized + debuginfo] target(s) in 0.02s
```

```
bali-king@war-machine:~/BaliGit/kintsugi-stack-rust/one_three_hello_cargo$
```

```
.
├── Cargo.lock
├── Cargo.toml
├── src
│   └── main.rs
├── target
│   ├── CACHEDIR.TAG
│   └── debug
│       ├── build
│       ├── deps
│       │   ├── libone_three_hello_cargo-f9884884092cd48a.rmeta
│       │   ├── one_three_hello_cargo-5885dd703046e3fc
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│       │   │   ├── s-heho9i1rut-1ysdico-bwbrfy6ptxbomf5iwqz5vt3f0
│       │   │   │   ├── dep-graph.bin
│       │   │   │   ├── query-cache.bin
│       │   │   │   └── work-products.bin
│       │   │   └── s-heho9i1rut-1ysdico.lock
│       │   └── one_three_hello_cargo-3dgwin0zbxstr
│       │       ├── s-heho98ij63-039vdoh-143bk3qfw5zxnyx5otl9s0tja
│       │       │   ├── 00ylhni9avwle6wyqpyzm6par.o
│       │       │   ├── 19k6gm7hj98zo0jv2b5mu1std.o
│       │       │   ├── 1jqdhkz0e02p777bbobcmna2j.o
│       │       │   ├── 5fgvfmdk1vtvncsc4ze5a0wi9.o
│       │       │   ├── 8z1o97dthkm4wl9qy6anckmmy.o
│       │       │   ├── 9fwica1fdmiqw5oux5l4cedjc.o
│       │       │   ├── dep-graph.bin
│       │       │   ├── query-cache.bin
│       │       │   └── work-products.bin
│       │       └── s-heho98ij63-039vdoh.lock
│       ├── one_three_hello_cargo
│       └── one_three_hello_cargo.d
```