

kintsugi-stack-rust

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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-10ah7hvrv4gzi
#             │   ├── 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
#                 │   ├── 5fgvfmdk1tvncsc4ze5a0wi9.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
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                │   ├── 1jqdhkz0e02p777bbobcmna2j.o
                │   ├── 5fgvfmdk1vtvnscsc4ze5a0wi9.o
                │   ├── 8z1o97dthkm4wl9qy6anckmmy.o
                │   ├── 9fwica1fdmiqw5oux5l4cedjc.o
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