

Step 1: Install Node js V18

```
$ sudo apt update
```

```
$ sudo apt upgrade
```

```
$ sudo apt install -y curl
```

```
$ curl -fsSL https://deb.nodesource.com/setup\_18.x | sudo -E bash -
```

```
$ sudo apt install -y nodejs
```

```
$ node --version
```

Step 2: Install Truffle

```
$ sudo npm install -g truffle
```

```
$ truffle --version
```

Step 3: Install Ganache

download the ganache:

<https://archive.trufflesuite.com/ganache/>

Create a Folder (Desktop/ganache)

```
$ cd Desktop
```

```
$ cd ganache
```

```
$ chmod +x ganache-2.7.1-linux-x86_64.AppImage
```

```
$ sudo apt install libfuse2
```

```
$ ./ganache-2.7.1-linux-x86_64.AppImage
```

Step 4: Install web3.js

```
$ sudo npm install web3
```

Step 5: Create a Project

```
$ mkdir myproject
```

```
$ cd myproject
```

```
$ truffle init
```

```
$ ls -a
```

```
$ cd contracts
```

```
$ ls -a
```

Step 6: Create a .sol file and compile the program

```
$ sudo apt install gedit
```

```
$ gedit hello.sol
```

```
// SPDX-License-Identifier: MIT
pragma solidity 0.8.21;
contract hello {
function sayHelloWorld() public pure returns (string memory) {
return "Hello World";
}
}
```

```
$ ls -a
```

```
$ truffle compile hello.sol
```

Step 7: Migration

```
$ cd ..
```

```
$ cd migrations
```

```
$ ls -a
```

```
$ gedit 1_deploy_hello.js //create a deploy file
```

```
const hello= artifacts.require('hello.sol');  
module.exports=function(deployer){  
  deployer.deploy(hello);  
};
```

```
$ ls -a
```

```
$ truffle develop
```

```
$ truffle(develop)> migrate
```

```
$ truffle(develop)> .exit
```

Step 8: Add a project to Ganache

```
$ ./ganache-2.7.1-linux-x86_64.AppImage //open Ganache
```

Quickstart---->Setting---->ADD PROJECT----->go to your project add truffle-config.js
(/home/ubuntu/myproject/truffle-config.js)----->save and restart

```
// open terminal
```

```
$ cd myproject
```

```
$ cd contracts
```

```
$ ls -a
```

```
$ truffle compile hello.sol
```

```
$ cd ..
```

```
$ cd migrations
```

```
$ ls -a
```

```
$ truffle develop
```

```
$ truffle(develop)> migrate
```

```
//now go to ganache--->go to contracts tab----> see the project is deployed
```

```
$ truffle(develop)> .exit
```

Step 9: Interacting with Ganache using Web3.js

(<https://web3js.readthedocs.io/en/v1.10.0/>)

<https://www.youtube.com/watch?v=WvEFunrhCtk&list=PLgPmWS2dQHW8Ev0iC0zyBLikUSV-A22rC&index=4&pp=iAQB>

```
//create a folder for web3 under myproject
```

```
$ cd ..
```

```
$ mkdir myweb
```

```
$ cd myweb
```

```
$ node -v
```

```
$ sudo npm init -y

$ ls -a

$ sudo npm install -save web3

$ ls -a

$ gedit package.json

$ node

> console.clear()

undefined

> const {Web3} = require('web3')

>Web3

> const web3 = new Web3(new Web3.providers.HttpProvider('HTTP://127.0.0.1:7545'));

[Remember that the ganache must be running]

//To get the balance of an account in terms of wei

> web3.eth.getBalance("0x3f8a8Cb381fe28c6A093Ad3E692Fc9B188be7E19").then(console.log);

//To get the balance of an account in terms of ether

> web3.eth.getBalance("0x3f8a8Cb381fe28c6A093Ad3E692Fc9B188be7E19").then(function(result)
{console.log(web3.utils.fromWei(result,"ether"))});)

//To transfer ether from one account to another

>
web3.eth.sendTransaction({from:"0x3f8a8Cb381fe28c6A093Ad3E692Fc9B188be7E19",to:"0x5e5b0E6C5
10232a3756fa8fE6feD7526DDFe1027",value:web3.utils.toWei("1","ether")});
```

Step 10: Interacting with Smart Contract using Web3.js

```
> const {Web3} = require('web3')
```

```
> const web3 = new Web3(new Web3.providers.HttpProvider('HTTP://127.0.0.1:7545'));
```