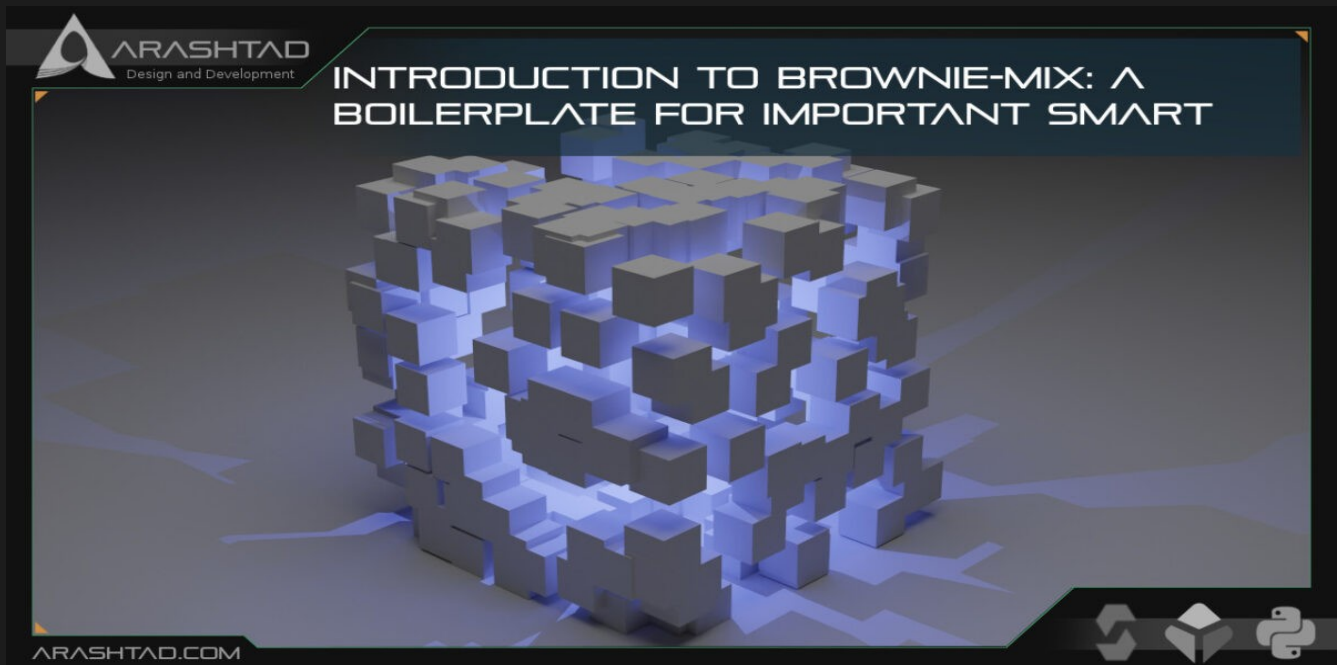




Title	INTRODUCTION TO BROWNIE-MIX: A BOILERPLATE FOR IMPORTANT SMART CONTRACT PROJECTS
Description	Tutorial
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In this tutorial-based article, we are going to set up the dependencies for running Local Terra. So, you will be guided through all the installations and commands necessary to start your interaction with [local Terra smart contracts](#). Installing Go, Docker, Terrad, and git cloning local Terra, as well as terra-core repositories, are some of the main steps we are going to take in this tutorial.

INTRODUCTION TO THE BROWNIE-MIX

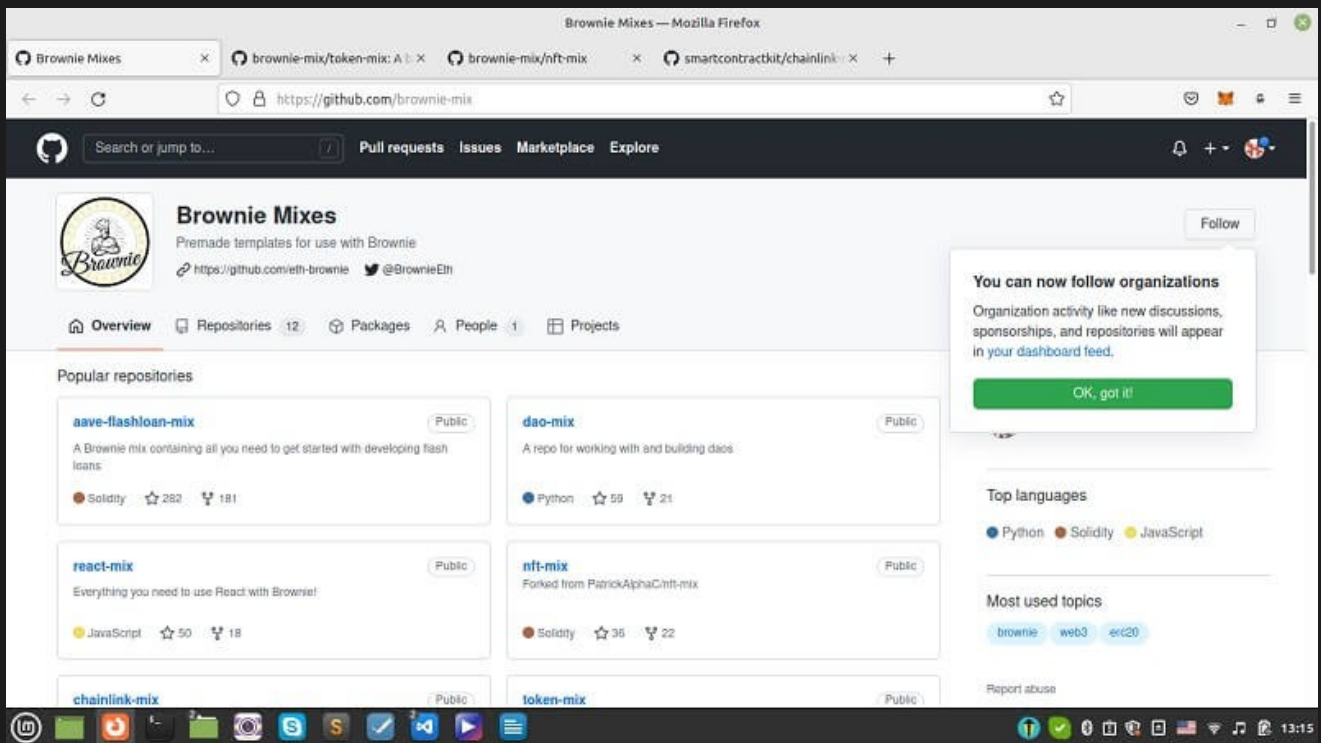
When we were examining how to [deploy a smart contract using python web3 tools](#) among our previous articles, we showed how to use Brownie. It is highly recommended that before you start this tutorial, be familiar with web3 python tools and also [solidity language](#).

So far, we have coded most of our smart contract deployments using Brownie by starting like this in the terminal:

```
brownie init
```

And then some folders would have been created and then the rest of the project. But the hard part was that we needed to copy a lot of dependencies, such as the VRFConsumer.sol and other smart contracts, brownie-config.yaml file, helpful_scripts.py, deploy_mock.py, and a lot of other useful scripts that we need to rewrite every time we created the project.

A Brownie-mix helps us cover this hard task and provides easy boilerplates for every type of project like DAO, NFTs, Token, ChainLink, and so on.



TO USE BROWNIE-MIX: STARTING THE BROWNIE TEMPLATE

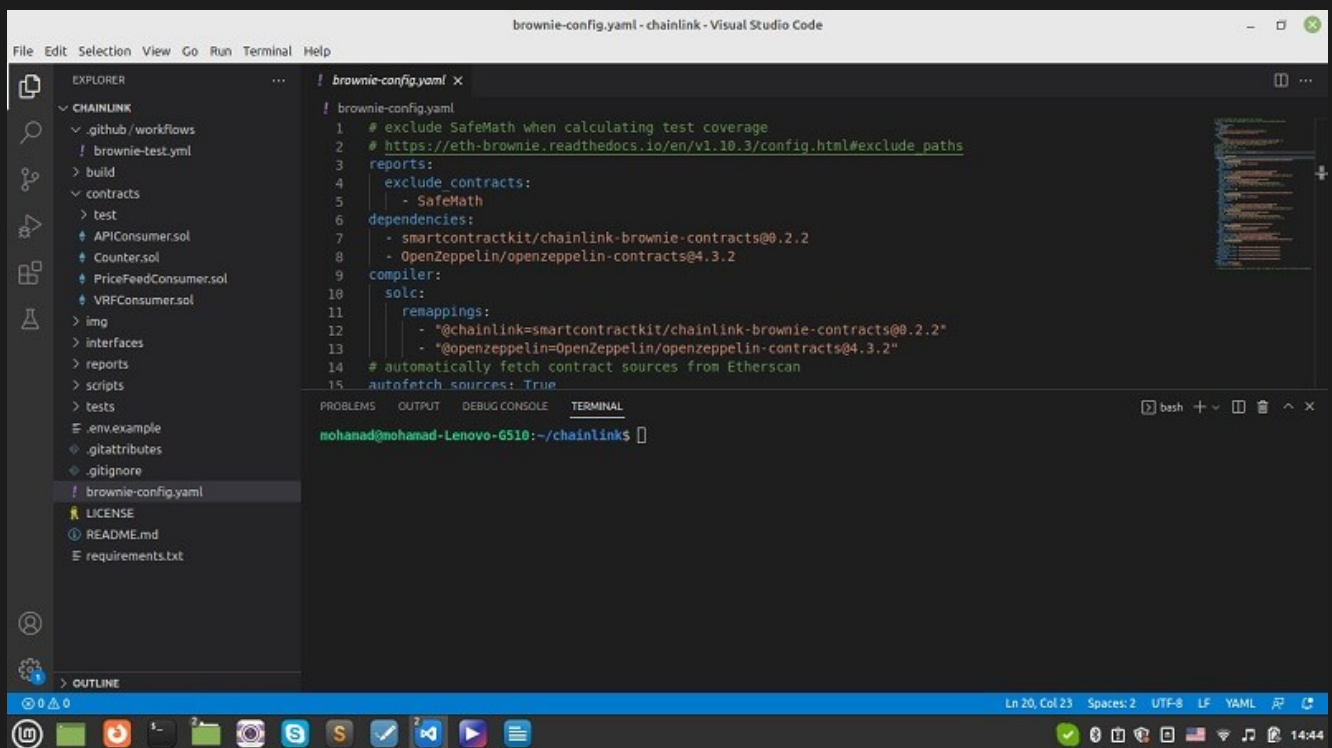
In order to use Brownie-mix boilerplates, we should first write the following command in the terminal:

```
brownie bake
```

In our case, for example, we want chainlink-mix (using which we have managed to write and deploy our contracts, so far).

```
brownie bake chainlink-mix  
cd chainlink
```

And you will see that all the folders and files alongside all the necessary routine codes are provided for you in your directory called chainlink.



MODIFYING BROWNIE_CONFIG.YAML

Notice that in the brownie-config.yaml, you should modify some parts:

```
# exclude SafeMath when calculating test coverage
#
https://eth-brownie.readthedocs.io/en/v1.10.3/config.html#exclude_paths
reports:
  exclude_contracts:
    - SafeMath
dependencies:
  - smartcontractkit/chainlink-brownie-contracts@0.2.2
  - OpenZeppelin/openzeppelin-contracts@4.3.2
compiler:
  solc:
    remappings:
      - "@chainlink=smartcontractkit/chainlink-brownie-contracts@0.2.2"
      - "@openzeppelin=OpenZeppelin/openzeppelin-contracts@4.3.2"
# automatically fetch contract sources from Etherscan
autofetch_sources: True
# Uncomment to use the .env file
# dotenv: .env
# set a custom mnemonic for the development network
networks:
  default: development
  development:

keyhash: "0x6c3699283bda56ad74f6b855546325b68d482e983852a7a82979cc4807b641f4"
  fee: 1000000000000000000
  jobId: "29fa9aa13bf1468788b7cc4a500a45b8"
  update_interval: 60
  verify: False
```

kovan:

```
vrf_coordinator: "0xdD3782915140c8f3b190B5D67eAc6dc5760C46E9"  
link_token: "0xa36085F69e2889c224210F603D836748e7dC0088"
```

```
keyhash: "0x6c3699283bda56ad74f6b855546325b68d482e983852a7a82979cc480  
7b641f4"
```

```
fee: 1000000000000000000
```

```
oracle: "0xc57b33452b4f7bb189bb5afae9cc4aba1f7a4fd8"
```

```
jobId: "d5270d1c311941d0b08bead21fea7747"
```

```
eth_usd_price_feed:
```

```
"0x9326BFA02ADD2366b30bacB125260Af641031331"
```

```
# Change to True if you have an Etherscan API key and want to  
verify
```

```
verify: True
```

```
update_interval: 60
```

```
ganache:
```

```
keyhash: "0x6c3699283bda56ad74f6b855546325b68d482e983852a7a82979cc480  
7b641f4"
```

```
fee: 1000000000000000000
```

```
jobId: "29fa9aa13bf1468788b7cc4a500a45b8"
```

```
update_interval: 60
```

```
verify: False
```

```
rinkeby:
```

```
vrf_coordinator: "0xb3dCcb4Cf7a26f6cf6B120Cf5A73875B7BBc655B"
```

```
link_token: "0x01be23585060835e02b77ef475b0cc51aa1e0709"
```

```
keyhash: "0x2ed0feb3e7fd2022120aa84fab1945545a9f2ffc9076fd6156fa96eaf  
f4c1311"
```

```
fee: 1000000000000000000
```

```
oracle: "0xc57b33452b4f7bb189bb5afae9cc4aba1f7a4fd8"
```

```
jobId: "6b88e0402e5d415eb946e528b8e0c7ba"
```

```
eth_usd_price_feed:
```

```
"0x8A753747A1Fa494EC906cE90E9f37563A8AF630e"
```

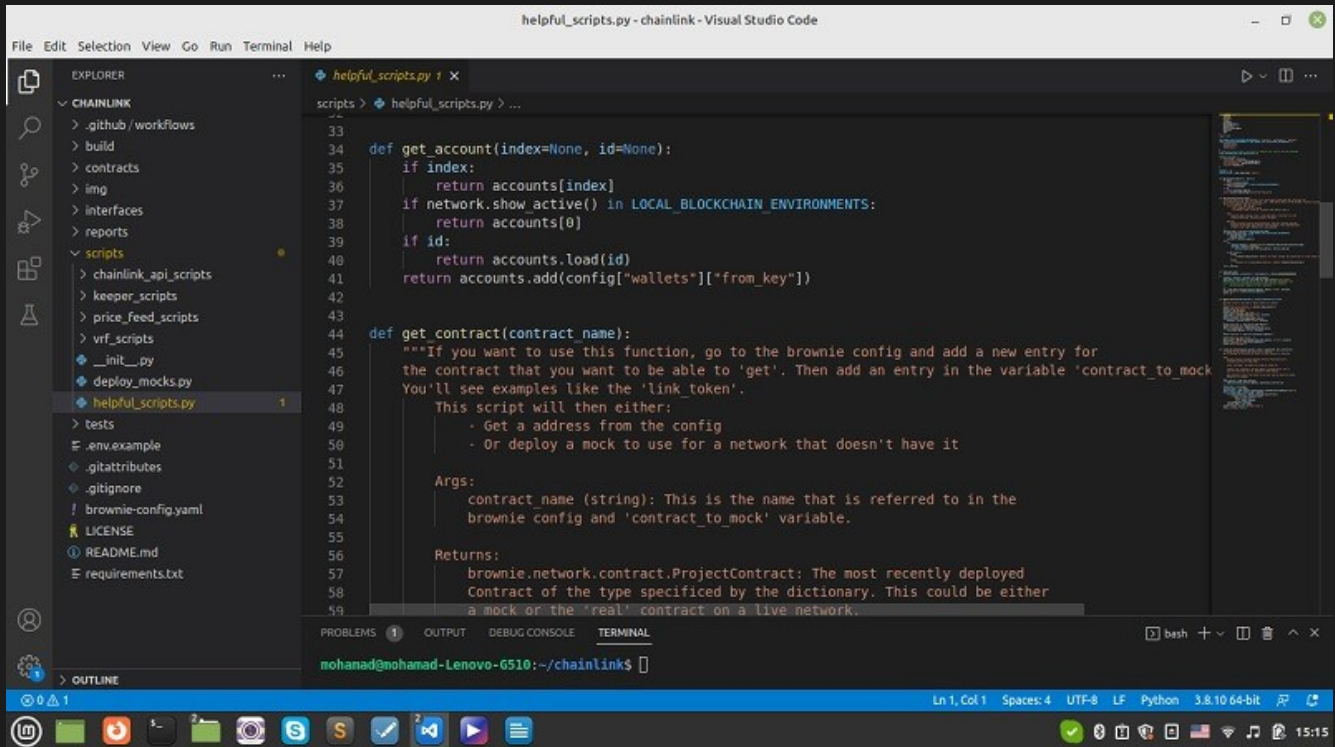
```
# Change to True if you have an Etherscan API key and want to
verify
verify: False
fuji:
  link_token: "0x0b9d5D9136855f6FEc3c0993feE6E9CE8a297846"
  fee: 1000000000000000000
  oracle: "0xcc80934eaf22b2c8dbf7a69e8e0d356a7cac5754"
  jobId: "5ca4fa9b2d64462290abfbda84e38cf4"
mumbai:
  eth_usd_price_feed:
"0x0715A7794a1dc8e42615F059dD6e406A6594651A"
  link_token: "0x326C977E6efc84E512bB9C30f76E30c160eD06FB"
  vrf_coordinator: "0x8C7382F9D8f56b33781fE506E897a4F1e2d17255"

keyhash: "0x6e75b569a01ef56d18cab6a8e71e6600d6ce853834d4a5748b720d06f
878b3a4"
  fee: 1000000000000000000
binance:
  # link_token: ??
  eth_usd_price_feed:
"0x9ef1B8c0E4F7dc8bF5719Ea496883DC6401d5b2e"
  binance-fork:
  eth_usd_price_feed:
"0x9ef1B8c0E4F7dc8bF5719Ea496883DC6401d5b2e"
  mainnet-fork:
  eth_usd_price_feed:
"0x5f4eC3Df9cbd43714FE2740f5E3616155c5b8419"
  matic-fork:
  eth_usd_price_feed:
"0xF9680D99D6C9589e2a93a78A04A279e509205945"
wallets:
  from_key: ${PRIVATE_KEY}
  from_mnemonic: ${MNEMONIC}
```

Notice that if you use mnemonic, you should use accounts.from_mnemonic to be able to use from_mnemonic and if you use the private key, you should use accounts.add instead.

Also, make sure to uncomment the dotenv: .env if you want to keep your private data somewhere safe.

By using the above .yaml file, you can use any networks that you want and be sure that there is nothing else needed to add to this file. In the contracts folder, you will also be able to see some useful contracts that work as a dependency. The most important folder is the scripts, inside which we have helpful_scripts.py, deploy_mock.py, and some useful scripts that will help using them in your main deploy.py file.



```
33
34 def get_account(index=None, id=None):
35     if index:
36         return accounts[index]
37     if network.show_active() in LOCAL_BLOCKCHAIN_ENVIRONMENTS:
38         return accounts[0]
39     if id:
40         return accounts.load(id)
41     return accounts.add(config["wallets"]["from_key"])
42
43
44 def get_contract(contract name):
45     """If you want to use this function, go to the brownie config and add a new entry for
46     the contract that you want to be able to 'get'. Then add an entry in the variable 'contract_to_mock'
47     You'll see examples like the 'link token'.
48     This script will then either:
49     - Get a address from the config
50     - Or deploy a mock to use for a network that doesn't have it
51
52     Args:
53         contract name (string): This is the name that is referred to in the
54         brownie config and 'contract_to_mock' variable.
55
56     Returns:
57         brownie.network.contract.ProjectContract: The most recently deployed
58         Contract of the type specified by the dictionary. This could be either
59         a mock or the 'real' contract on a live network.
```

As you can see, some of the important and useful functions of useful_scripts.py are as follows:

```
get_account
get_contract
fund_with_link
deploy_mock
```

Using the above functions, you can write your test files and deploy.py file much easier.



FINAL WORD ON BROWNIE-MIX

In this article, we have introduced Brownie-mixes as a boilerplate (template) for blockchain projects and provided guides on how to quickly modify them so that you can run your desired project instantly. These projects could be creating an ERC-20 token, NFT, Aave protocol, Chainlink, and so on.

