

Question How blockchain can transform existing DDoS protection platforms? Using the following tools to prove your concept:

Install Truffle (for smart contracts)

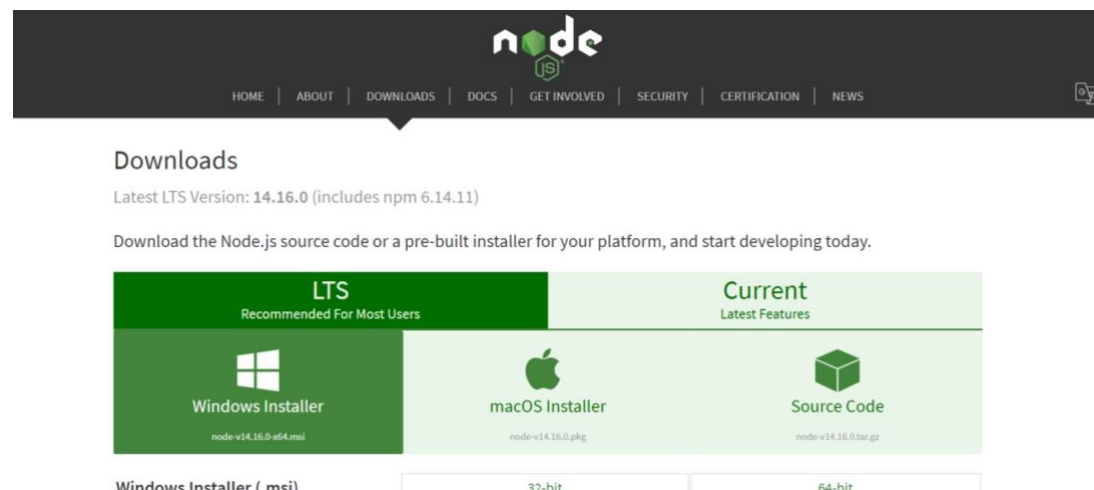
Install Ganache (for a personal Blockchain)

Configure Truffle and Ganache Step

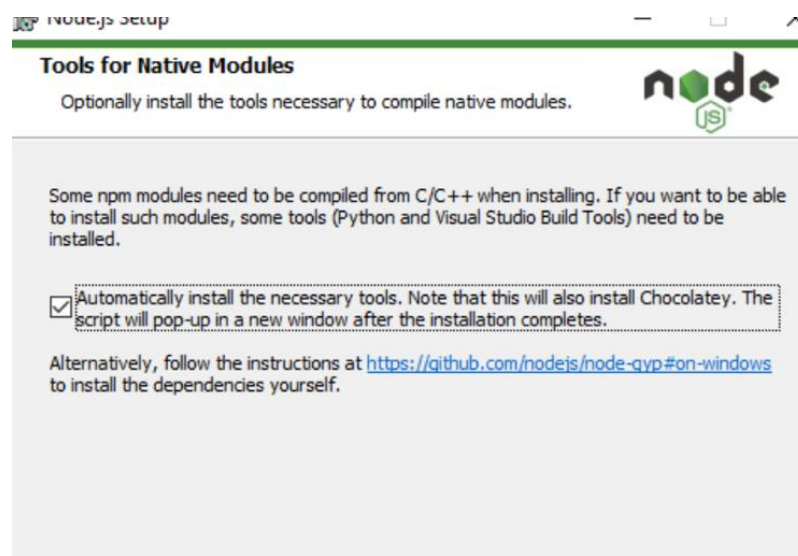
Install Gladius (protection against DDoS Attack)

Configure Gladius

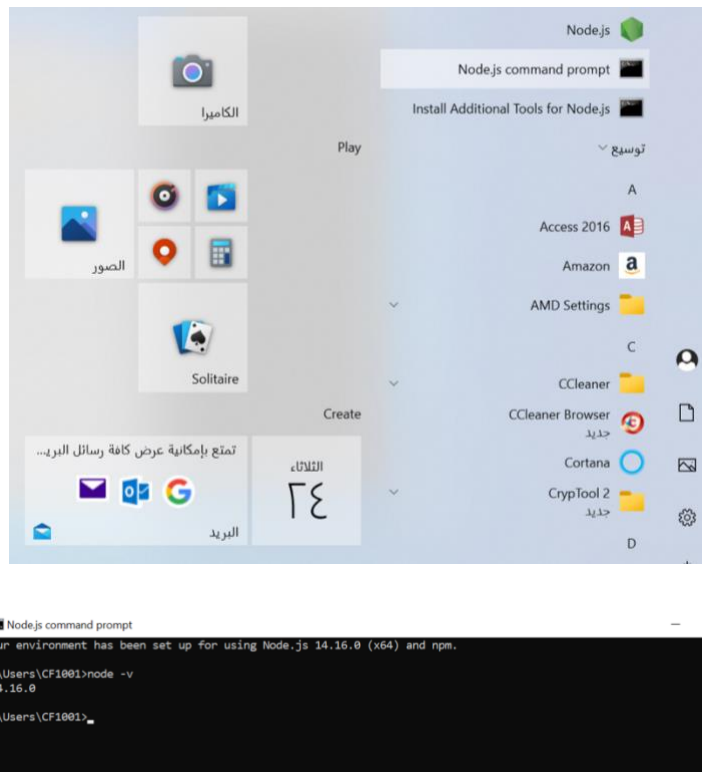
1- First one download Install Node.js and (npm) it's package manager



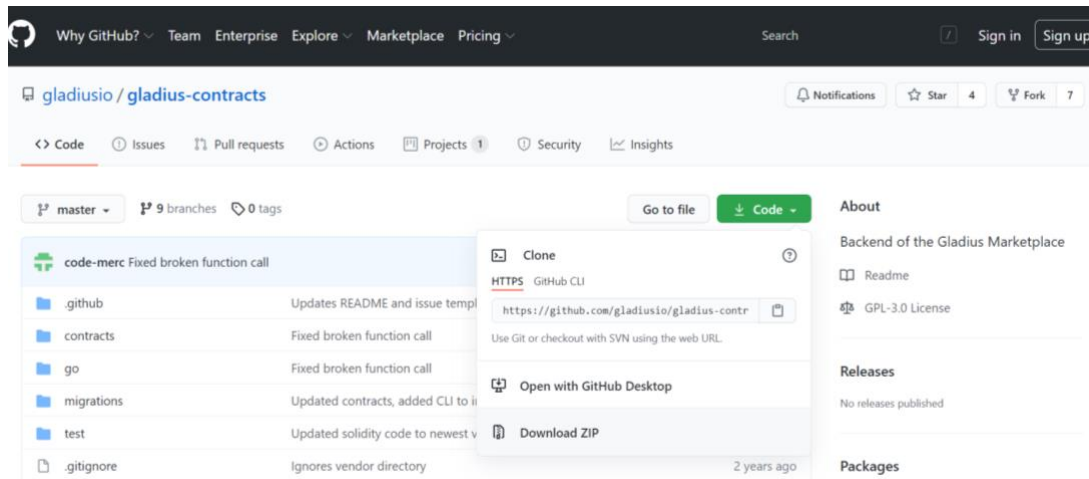
2- Second It will start playing the file and choose the specific installation process.



3- After completing the installation, open a Node terminal to execute lab commands.
If you are
Want to check the Nodejs and npm package version, type the following commands



4- Use the an existing blockchain project to defend a network from a DDoS attack.
To set up the project
Go to the website <https://github.com/gladiusio/gladius-contracts> and
download the.zip file.
than, unzip this file to the folder



5- Use the command **npm install -g truffle** , install truffle in test the environment.

```
Node.js command prompt
Your environment has been set up for using Node.js 14.16.0 (x64) and npm.

C:\Users\CF1001>cd Downloads\gladius-contracts-master
The system cannot find the path specified.

C:\Users\CF1001>npm install -g truffle
npm WARN deprecated mkdirp-promise@5.0.1: This package is broken and no longer maintained. 'mkdirp' itself supports promises now, please switch to that.
npm WARN deprecated request@2.88.2: request has been deprecated, see https://github.com/request/request/issues/3142
npm WARN deprecated har-validator@5.1.5: this library is no longer supported
npm WARN deprecated multicodec@0.5.7: stable api reached
npm WARN deprecated unix@0.1.0: Please see https://github.com/lydell/unix#deprecated
npm WARN deprecated resolve-url@0.2.1: https://github.com/lydell/resolve-url#deprecated
npm WARN deprecated mkdirp@0.5.1: Legacy versions of mkdirp are no longer supported. Please update to mkdirp 1.x. (Note that the API surface has changed to use Promises in 1.x.)
npm WARN deprecated node-pre-gyp@0.11.0: Please upgrade to @mapbox/node-pre-gyp: the non-scoped node-pre-gyp package is deprecated and only the @mapbox scoped package will recieve updates in the future
npm WARN deprecated redux-devtools-core@0.2.1: Package moved to @redux-devtools/app.
npm WARN deprecated redux-devtools-instrument@1.10.0: Package moved to @redux-devtools/instrument.
npm WARN deprecated remotedev-serialize@0.1.9: Package moved to @redux-devtools/serialize.
npm WARN deprecated core-js@2.6.12: core-js@<3 is no longer maintained and not recommended for usage due to the number of issues. Please, upgrade your dependencies to the actual version of core-js@3.
npm WARN deprecated circular-json@0.5.9: CircularJSON is in maintenance only, flattened is its successor.
npm WARN deprecated debug@4.1.1: Debug versions >=3.2.0 <3.2.7 || >=4 <4.3.1 have a low-severity ReDos regression when used in a Node.js environment. It is recommended you upgrade to 3.2.7 or 4.3.1. (https://github.com/visionmedia/debug/issues/797)
npm WARN deprecated faevents@2.1.3: "Please update to latest v2.3 or v2.2"
C:\Users\CF1001\AppData\Roaming\npm\truffle -> C:\Users\CF1001\AppData\Roaming\npm\node_modules\truffle\build\cli.bundled.js

> iso-constants@0.1.2 install C:\Users\CF1001\AppData\Roaming\npm\node_modules\truffle\node_modules\iso-constants
> node build.js > index.browser.js

> bufferutil@4.0.3 install C:\Users\CF1001\AppData\Roaming\npm\node_modules\truffle\node_modules\bufferutil
> node-gyp-build

> keccak@3.0.1 install C:\Users\CF1001\AppData\Roaming\npm\node_modules\truffle\node_modules\keccak
> node-gyp-build || exit 0

> secp256k1@4.0.2 install C:\Users\CF1001\AppData\Roaming\npm\node_modules\truffle\node_modules\secp256k1
> node-gyp-build || exit 0
```

Truffle version

```
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C:\Users\CF1001>truffle version
Truffle v5.3.0 (core: 5.3.0)
Solidity v0.5.16 (solc-js)
Node v14.16.0
Web3.js v1.2.9

C:\Users\CF1001>
```

6- Use the command **npm install -g ganache-cli**.

```
Node.js command prompt

C:\Users\CF1001>npm install -g ganache-cli
C:\Users\CF1001\AppData\Roaming\npm\ganache-cli -> C:\Users\CF1001\AppData\Roaming\npm\node_modules\ganache-cli\cli.js

> keccak@3.0.1 install C:\Users\CF1001\AppData\Roaming\npm\node_modules\ganache-cli\node_modules\keccak
> node-gyp-build || exit 0

> secp256k1@4.0.2 install C:\Users\CF1001\AppData\Roaming\npm\node_modules\ganache-cli\node_modules\secp256k1
> node-gyp-build || exit 0

+ ganache-cli@6.12.2
added 101 packages from 182 contributors in 13.113s

C:\Users\CF1001>
```

7- Use command in the Terminal: **ganache-cli** , will be start test network.

```
Node.js command prompt - ganache-cli

C:\Users\CF1001\Desktop\gladius-contracts-master>ganache-cli
ganache CLI v6.12.2 (ganache-core: 2.13.2)

Available Accounts
=====
(0) 0x29E44Bc0e87309E949421e8A2177c6b0E22A7de7 (100 ETH)
(1) 0x9419B1E1EDc75714DFE39CDfa7fcFE29F1FD805 (100 ETH)
(2) 0x76b09Cf607a6AE374930E07155C5a5b8583124AA (100 ETH)
(3) 0xf32c5996383a740f39835c6a5249211998846879 (100 ETH)
(4) 0x09c610f4A505220bfC21fc79584372e9f0477a9d (100 ETH)
(5) 0x20A5704378364A09c5E1b08481E7adE220808E9 (100 ETH)
(6) 0x44c1076bfc0825AA3109B20700438F0918c055 (100 ETH)
(7) 0xfE8B101666c83F685c28851D36CF4ef83844c07 (100 ETH)
(8) 0xdac5d036A86230f93aC3fD5b58E0ACD0b6521c4c (100 ETH)
(9) 0x00D48745B830c12643Df0d7FABc06b5C2df1D32a (100 ETH)

Private Keys
=====
(0) 0x51a43fc485081e922888e5e9955378a5d7428abb7b4cbf212dfb1e035edd52d
(1) 0xb07902504024592e4c13f2d9891e0238cb87ff4d18d4cc0193c1663512c5cbac
(2) 0x1e7ab8067c062bf89a8152f6f07a44f0dbd048d8e5c87fbfac3103c50f8b9bf
(3) 0x0f787495d97f677f762c5c5451654248202a3d3a6abb54a2d6c8770f5cf80bb
(4) 0x02fd88f1aa4479c5f65b7432883d57ccf7b83ef454942a85cf7824d877d01963
(5) 0x6759b4308aff156519fb3e5252540d7130e663f13eead8ae4a00c5643e01affb
(6) 0x983bd7f59815e90f4623d80a624ef61862ddfb290baa9a833ddca08b962e2b
(7) 0x36f97f2e35c5706be9898e77b7ef0bb66f0e14d8f6bba66763b950ece0b9dae7
(8) 0x750cb538e1fcc5738dba91926f9d331f1f1beacaddc3125a140a226a8b6c389d0
(9) 0x8ae2be4ae5f1f3d7d17b644388b0006fad88428e2378b87f34bc54847ebee1ce

HD Wallet
=====
Mnemonic: bounce arm garlic border remember column bacon episode furnace minimum tonight tragic
Base HD Path: m/44'/0'/0'/{account_index}

Gas Price
=====
2000000000

Gas Limit
=====
6721975

Call Gas Limit
=====
9007199254740991

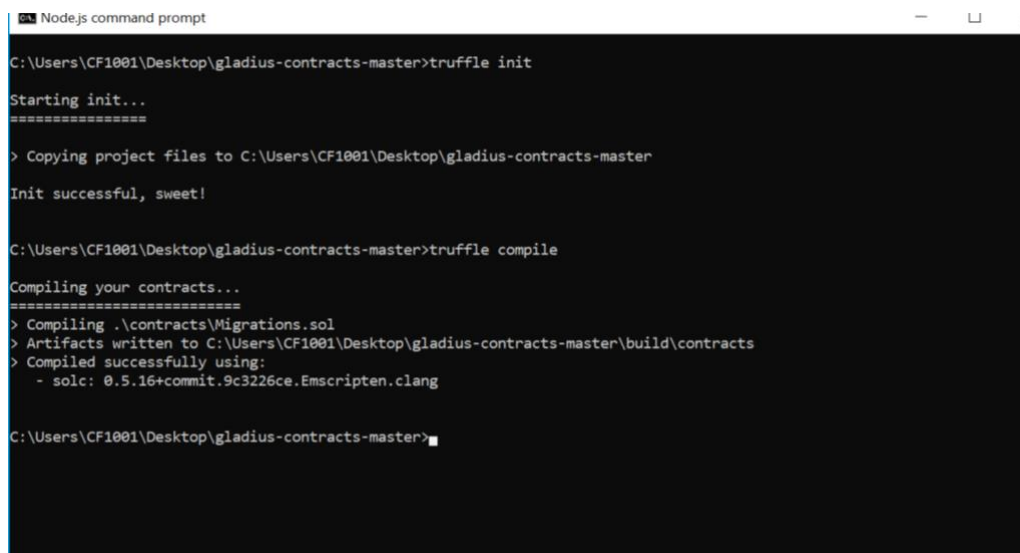
listening on 127.0.0.1:8545
```

8- Open gladius-Contract-master and replace the code in truffle-config.js with the file
The following code

```
const HDWalletProvider = require('truffle-hdwallet-provider')
const auth = require('auth.json')
const infuraKey = auth.infuraKey
const mnemonic = auth.mnemonic

module.exports = {
  networks: {
    development: {
      localhost: {
        default: 'none', // "localhost"
        host: 'localhost',
        port: 8545,
        network_id: 0,
      },
      test: {
        host: 'localhost',
        port: 8545,
        network_id: 0,
      },
      truffle: {
        localhost: {
          default: 'none', // "localhost"
          host: 'localhost',
          port: 8545,
          network_id: 0,
        },
        ropsten: {
          mnemonic: mnemonic,
          HDWalletProvider: new HDWalletProvider(mnemonic, 'https://ropsten.infura.io/v3/' + infuraKey),
          Ropsten's id // 3
          Ropsten has a lower block limit than mainnet // 5000000 :gas
          of confs to wait between deployments. (default: 0) # // 1 :confirmations
          of blocks before a deployment times out (minimum/default:50) # // 100 :timeoutBlocks
          Skip dry run before migrations? (default: false for public nets) // true :skipDryRun
        },
      },
    },
  },
  compilers: {
    solc: {
      version: '0.5.16',
    },
  },
}
```

9- open a new Terminal window and need to jump into the working directory
'gladius contracts-master'. We will go to the folder named gladius-contracts-master
through the Terminal and
compile contracts with the following command: **truffle init ,and truffle compile**



```
Node.js command prompt
C:\Users\CF1001\Desktop\gladius-contracts-master>truffle init

Starting init...
=====
> Copying project files to C:\Users\CF1001\Desktop\gladius-contracts-master
Init successful, sweet!

C:\Users\CF1001\Desktop\gladius-contracts-master>truffle compile

Compiling your contracts...
=====
> Compiling .\contracts\Migrations.sol
> Artifacts written to C:\Users\CF1001\Desktop\gladius-contracts-master\build\contracts
> Compiled successfully using:
  - solc: 0.5.16+commit.9c3226ce.Emscripten.clang

C:\Users\CF1001\Desktop\gladius-contracts-master>
```

10- Develop the truffle through command: **truffle develop** to get accounts and
private keys.

```

Nodejs command prompt - truffle develop
C:\Users\CF1001\Desktop\gladius-contracts-master>truffle develop
Truffle Develop started at http://127.0.0.1:9545/

Accounts:
(0) 0xbf384f5a3202def7bd955fd2031cd12d79f18a14
(1) 0x66be73ebc41ea100a8bf51a417d1341ab9636d58
(2) 0x4ca540733fe3b8d06bf3e7325bd81aef1aa339ef
(3) 0x4fbb84f2681b684a09afac3ad6b638eb64754a35
(4) 0x99ae6c1f4b39c96933f37bdf6d5a22667ddea12f
(5) 0x51b41952c358580676426083b45e683c71ddb620
(6) 0x4796a8f954ea95af1dfff99a4c0ada0394adf119b
(7) 0x073b4cdc460a6e4d44bfc2cfd1f58e49e881efc0
(8) 0x08888bfc45dfafaf2342299c94a2100fcb695f18
(9) 0xabafb54706251c008904ba7994f1b6c13a33ec1f

Private Keys:
(0) be2889a55595895a43649a053fc03380f0e9ed1ff8c2e5604d2b677154ad0d3b
(1) ec92f9ebe2b930896bfd59b4ed69a6f372df43f409a8208ccb60be20e2fd91c
(2) 05d6f795513ec0eb362db9d56baeb0ef9bf805d1d556c914f070b31fa25e2181
(3) c7afeaa458e243148a5760d82950ca55e9ef11bcbe979eb05eeaf84821a62c
(4) ea2fce6c9e029501d14f062b98fcaed6b4cd64967342108e277a6c3d65052653
(5) 1c1e1bfe607f4f66d694f7d8e510aedc49e97fe2adb8354a1fd208efdc27c24
(6) ab2fa3a9ea27bc8924ed4587d676dbfc5aaeca61ae31ace9e00ef1de9f0fb17d
(7) 17aab54ca27547e1d2ce55170671c97a9ea1b669ff834e8cd957ed8d40db97b8
(8) 925c76e4f689b39fbbf8027d0a12704233c069ce5b0eb97f69bed510cdd5e5c8
(9) 6dbaa943a0206c0dea285856a81d30aa2c7c9ab6e5e82f98549eeb02f4b13fc

Mnemonic: tunnel next together debate diet dry search height shy peasant belt forward

Important : This mnemonic was created for you by Truffle. It is not secure.
Ensure you do not use it on production blockchains, or else you risk losing funds.

truffle(develop)>

```

11- We will deploy our contracts to the ganache-cli local blockchain with the following command :

truffle migrate --reset

```

Select Nodejs command prompt - truffle develop
truffle(develop)> truffle migrate --reset

Compiling your contracts...
=====
> Everything is up to date, there is nothing to compile.

Starting migrations...
=====
> Network name: 'develop'
> Network id: 5777
> Block gas limit: 6721975 (0x6691b7)

1_initial_migration.js
=====

Deploying 'Migrations'
-----
> transaction hash: 0x9944c062adba42e2fe221237b1c990d8dc6f2ee8a87fd8fdb851a9fd9c92bdd8
> Blocks: 0
> contract address: 0xAdA6869bAD6c842f39A33E403df237a3f002f9f6
> block number: 1
> block timestamp: 1617754447
> account: 0xbf384f5a3202def7BD955fd2031CD12d79F18a14
> balance: 99.99616114
> gas used: 191943 (0x2edc7)
> gas price: 20 gwei
truffle(develop)>
> total cost: 0.00383886 ETH

> Saving migration to chain.
> Saving artifacts
-----
> Total cost: 0.00383886 ETH

Summary
=====

```

12- We have to start unit testing with the truffle test order to make sure of this Functional contracts:

Truffle test

```
Node.js command prompt - truffle develop

Summary
=====
> Total deployments: 1
> Final cost: 0.00383886 ETH

- Blocks: 0          Seconds: 0
- Saving migration to chain.

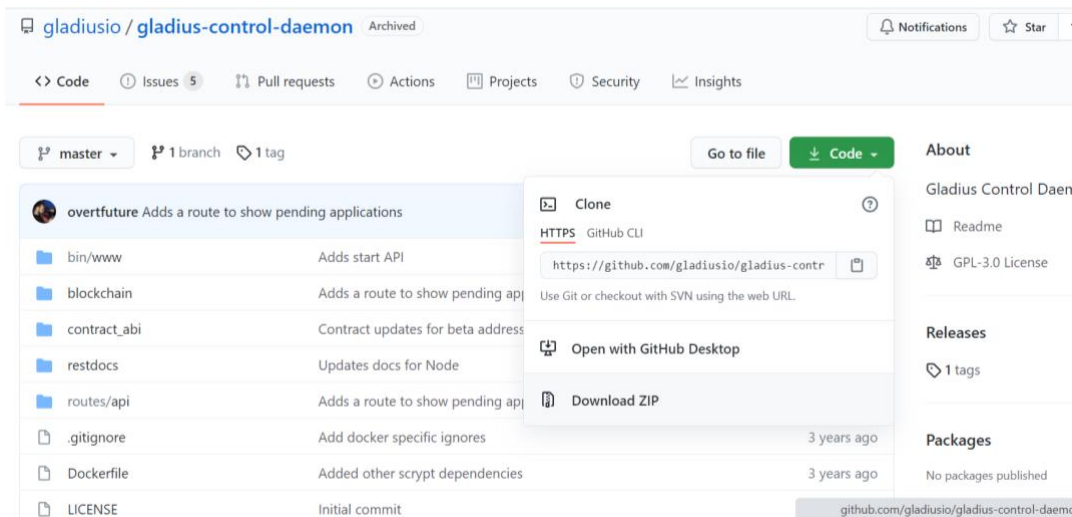
truffle(develop)> truffle test
Using network 'develop'.

Compiling your contracts...
=====
> Everything is up to date, there is nothing to compile.

0 passing (0ms)

truffle(develop)> _
```

13- Go to <https://github.com/gladiusio/gladius-control-daemon>, download the .zip, and unzip it to the same folder as 'gladius-contracts-master'



14- Next, we locate the gladius-control-daemon-master folder in Terminal and bind the nodes

Binary Application Interface (ABI). ABI is an interface between two program modules, one of

It is at the level of machine code:

mklink / j c: \ Users \ DMG-DT \ Desktop \ gladius-Contract-master \ gladius-control-daemon-master \ build

```
Microsoft Windows [Version 10.0.19042.867]
(c) 2020 Microsoft Corporation. All rights reserved.

C:\Users\CF1001>cd desktop
C:\Users\CF1001\Desktop>cd gladius-contracts-master
C:\Users\CF1001\Desktop\gladius-contracts-master>mklink / J c:\Users\CF1001\Desktop\gladius-contracts-master\gladius-control-daemon-master\build c:\Users\CF1001\Desktop\gladius-contracts-master\build
Junction created for c:\Users\CF1001\Desktop\gladius-contracts-master\gladius-control-daemon-master\build <==> c:\Users\CF1001\Desktop\gladius-contracts-master\build
C:\Users\CF1001\Desktop\gladius-contracts-master>
```

15- We will install dependencies with the **npm install** command from the folder 'gladius-control daemon-master'

```
Nodejs command prompt
> node-gyp-build || exit 0

> utf-8-validate@5.0.4 install C:\Users\CF1001\Desktop\gladius-contracts-master\gladius-control-daemon-master\node_modules\utf-8-validate
> node-gyp-build

> web3-shh@1.3.5 postinstall C:\Users\CF1001\Desktop\gladius-contracts-master\gladius-control-daemon-master\node_modules\web3-shh
> echo "WARNING: the web3-shh api will be deprecated in the next version"
"WARNING: the web3-shh api will be deprecated in the next version"

> web3-bzz@1.3.5 postinstall C:\Users\CF1001\Desktop\gladius-contracts-master\gladius-control-daemon-master\node_modules\web3-bzz
> echo "WARNING: the web3-bzz api will be deprecated in the next version"
"WARNING: the web3-bzz api will be deprecated in the next version"

> web3@1.3.5 postinstall C:\Users\CF1001\Desktop\gladius-contracts-master\gladius-control-daemon-master\node_modules\web3
> echo "WARNING: the web3-shh and web3-bzz api will be deprecated in the next version"
"WARNING: the web3-shh and web3-bzz api will be deprecated in the next version"
added 944 packages from 994 contributors and audited 944 packages in 73.911s

54 packages are looking for funding
  run 'npm fund' for details

found 125 vulnerabilities (75 low, 10 moderate, 40 high)
  run 'npm audit fix' to fix them, or 'npm audit' for details
C:\Users\CF1001\Desktop\gladius-contracts-master\gladius-control-daemon-master>
```

16- We'll start the script with the **node index.js** command


```
Node.js command prompt - node index.js
C:\Users\CF1001\Desktop\gladius-contracts-master\gladius-control-daemon-master>node index.js
(node:9200) Warning: Accessing non-existent property 'b2u' of module exports inside circular dependency
(Use 'node --trace-warnings ...' to show where the warning was created)
(node:9200) Warning: Accessing non-existent property 'u2b' of module exports inside circular dependency
(node:9200) Warning: Accessing non-existent property 'Pair' of module exports inside circular dependency
Running at http://localhost:3000
```

17- Let's install gladius binaries in a new terminal window using the following command **npm install -g gladius-cli**.

```
Node.js command prompt
Your environment has been set up for using Node.js 14.16.0 (x64) and npm.

C:\Users\CF1001>npm install -g gladius-cli
npm WARN deprecated axios@0.16.2: Critical security vulnerability fixed in v0.21.1. For more information, see https://github.com/axios/axios/pull/3410
C:\Users\CF1001\AppData\Roaming\npm\gladius-node -> C:\Users\CF1001\AppData\Roaming\npm\node_modules\gladius-cli\index.js
npm WARN optional SKIPPING OPTIONAL DEPENDENCY: fsevents@2.1.3 (node_modules\gladius-cli\node_modules\external-ip\node_modules\fsevents):
npm WARN notsup SKIPPING OPTIONAL DEPENDENCY: Unsupported platform for fsevents@2.1.3: wanted {"os":"darwin","arch":"any"} (current: {"os":"win32","arch":"x64"})

+ gladius-cli@0.2.4-beta
added 192 packages from 112 contributors in 16.985s

C:\Users\CF1001>
```

18- next install gladius-control and gladius-control using the following 2 commands:
npm install -g gladius-edge-daemon
npm install -g gladius-control-daemon

```
Microsoft Windows [Version 10.0.19042.867]
(c) 2020 Microsoft Corporation. All rights reserved.

C:\Users\CF1001>npm install -g gladius-edge-daemon
C:\Users\CF1001\AppData\Roaming\npm\gladius-edge -> C:\Users\CF1001\AppData\Roaming\npm\node_modules\gladius-edge-daemon\index.js
+ gladius-edge-daemon@0.1.3-beta
added 628 packages from 895 contributors in 45.721s

C:\Users\CF1001>
```

```
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C:\Users\CF1001>npm install -g gladius-control-daemon
npm WARN deprecated mkdirp-promises@5.0.1: This package is broken and no longer maintained. 'mkdirp' itself supports promises now, please switch to that.
npm WARN deprecated request@2.88.2: request has been deprecated, see https://github.com/request/request/issues/3142
npm WARN deprecated har-validator@5.1.5: this library is no longer supported
npm WARN deprecated multicodec@0.5.7: stable api reached
C:\Users\CF1001\AppData\Roaming\npm\gladius-control -> C:\Users\CF1001\AppData\Roaming\npm\node_modules\gladius-control\index.js
> bufferutil@4.0.3 install C:\Users\CF1001\AppData\Roaming\npm\node_modules\gladius-control-daemon\node_modules\bufferutil
> node-gyp-build

> keccak@3.0.1 install C:\Users\CF1001\AppData\Roaming\npm\node_modules\gladius-control-daemon\node_modules\keccak
> node-gyp-build || exit 0

> secp256k1@4.0.2 install C:\Users\CF1001\AppData\Roaming\npm\node_modules\gladius-control-daemon\node_modules\secp256k1> node-gyp-build || exit 0

> utf-8-validate@5.0.4 install C:\Users\CF1001\AppData\Roaming\npm\node_modules\gladius-control-daemon\node_modules\utf-8-validate
> node-gyp-build

> web3-shh@1.3.5 postinstall C:\Users\CF1001\AppData\Roaming\npm\node_modules\gladius-control-daemon\node_modules\web3-shh
> echo "WARNING: the web3-shh api will be deprecated in the next version"

"WARNING: the web3-shh api will be deprecated in the next version"

> web3-bzz@1.3.5 postinstall C:\Users\CF1001\AppData\Roaming\npm\node_modules\gladius-control-daemon\node_modules\web3-bzz
> echo "WARNING: the web3-bzz api will be deprecated in the next version"

"WARNING: the web3-bzz api will be deprecated in the next version"

> web3@1.3.5 postinstall C:\Users\CF1001\AppData\Roaming\npm\node_modules\gladius-control-daemon\node_modules\web3
> echo "WARNING: the web3-shh and web3-bzz api will be deprecated in the next version"

"WARNING: the web3-shh and web3-bzz api will be deprecated in the next version"
+ gladius-control-daemon@0.1.6
added 945 packages from 995 contributors in 88.397s
C:\Users\CF1001>
```

19- To start your node, you need to run the following in the new Terminal window

```
C:\Users\CF1001\Desktop>cd gladius-contracts-master

C:\Users\CF1001\Desktop\gladius-contracts-master>gladius-edge
Running - Use "gladius-node start" to start it
```

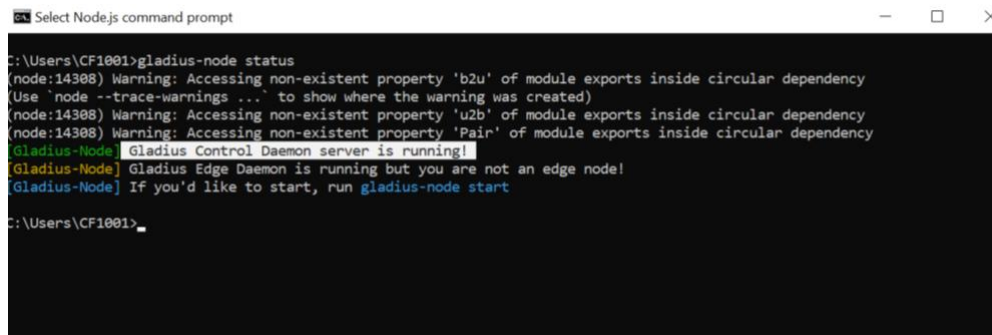
20- Open a new 4th terminal window and start initial the keys
Copy private key , use command **gladius – node init**

```
Node.js command prompt
Your environment has been set up for using Node.js 14.16.0 (x64) and npm.

C:\Users\CF1001>gladius-node init
(node:4608) Warning: Accessing non-existent property 'b2u' of module exports inside circular dependency
(Use 'node --trace-warnings ...' to show where the warning was created)
(node:4608) Warning: Accessing non-existent property 'u2b' of module exports inside circular dependency
(node:4608) Warning: Accessing non-existent property 'Pair' of module exports inside circular dependency
[Gladius-Node] What's your email? (So we can contact you about the beta): dghazzawi@hotmail.com
[Gladius-Node] What's your first name? Dan
[Gladius-Node] Short bio about why you're interested in Gladius: Blockchain
[Gladius-Node] Please make a new ETH wallet and paste your private key (include 0x at the beginning):
[Gladius-Node] Please enter a passphrase for your new PGP keys:
[Gladius-Node] User profile created! You may create a node with gladius-node create
[Gladius-Node] If you'd like to change your information run gladius-node init again

C:\Users\CF1001>
```

21- After we have created the node, we can check its status , use command **gladius – node status**



```
Select Node.js command prompt
C:\Users\CF1001>gladius-node status
(node:14308) Warning: Accessing non-existent property 'b2u' of module exports inside circular dependency
(Use `node --trace-warnings ...` to show where the warning was created)
(node:14308) Warning: Accessing non-existent property 'u2b' of module exports inside circular dependency
(node:14308) Warning: Accessing non-existent property 'Pair' of module exports inside circular dependency
[Gladius-Node] Gladius Control Daemon server is running!
[Gladius-Node] Gladius Edge Daemon is running but you are not an edge node!
[Gladius-Node] If you'd like to start, run gladius-node start
C:\Users\CF1001>
```