**TEZOS**

***TEZOS ?***

Tezos -> Self-amending blockchain network

consensus -> PoS

Token -> tez (or) tezzies (or) XTZ

Langugae -> OCaml, michelson, python

Use a library to integrate Tezos with your application -> Conseiljs, eztz, sotez

Mainnet = Main chain with real funds

Carthagenet = Testnet running a stable version of the current protocol

Zeronet = Testnet that runs a version as close as possible to the master branch of the repository, could be bumpy

Sandbox = Local test network

Babylon = The old protocol before Carthage

Alphanet = Deprecated, use Carthagenet

***PROTOCOL CHANGES :***

**Protocol 003\_PsddFKi3**

1. Add RPCs for voting

2. Fees and cost model (for newly creating account -> buring 0.257)

3. fees >= (minimal\_fees + minimal\_nanotez\_per\_byte \* size + minimal\_nanotez\_per\_gas\_unit \* gas)

**Protocol 004\_Pt24m4xi Athens**

1. Increase gas limit

2. Reduces roll size (from 10,000XTZ to 8,000XTZ)

3. Increase of gas limits per operation and per block

4.fees >= minimal\_fees +

minimal\_nanotez\_per\_byte \* size +

minimal\_nanotez\_per\_gas\_unit \* gas (the required fees have changed)

**Protocol 005\_PsBabyM1 Babylon**

1. Implemets michelson smart contract language

2. Protocol 004 implements a consensus algorithm nick-named Emmy.

Protocol 005 introduces several improvements to this algorithm, regrouped under the name Emmy+

3. Replace KT1 accounts with manager.tz script

**Protocol 006\_PsCARTHA Carthage**

1. Improvements to the Michelson smart contract language.

2. Changes in RPCs

***INSTALLATION GUIDES :***

<https://tezos.gitlab.io/introduction/howtoget.html> (Build from source)

***RUN SANDBOX NODE :***

**1st Tab :**

1) ./tezos-node run --rpc-addr 127.0.0.1 ------> 8732 port

*Note* – This port runs for carthagenet

2) ubuntu@ip-172-31-35-209:~/Sandbox/tezos$ DATA\_DIR=/home/ubuntu/tezos\_node ./src/bin\_node/tezos-sandboxed-node.sh 1

3) ubuntu@ip-172-31-35-209:~/sandbox-client/bin$ ./tezos-baker-006-PsCARTHA -P 18731 run with local node "/home/ubuntu/tezos-node" "bootstrap1"

**2nd Tab :**

1) ./tezos-client rpc get /network/version -> to check network

2) ./src/bin\_node/tezos-sandboxed-node.sh 1 --connections 1

*Note* – This port runs for sandbox

**3rd Tab :**

1) eval `./src/bin\_client/tezos-init-sandboxed-client.sh 1`

2) tezos-client rpc get /chains/main/blocks/head/metadata

3) tezos-activate-alpha

4) tezos-autocomplete

5) tezos-client rpc get /chains/main/blocks/head/metadata

6) tezos-client list known addresses

7) tezos-client transfer 2 from bootstrap2 to bootstrap3 &

8) tezos-client bake for bootstrap1

9) tezos-client get balance for bootstrap1

10) tezos-client activate account alice with \commitments/tz1igsLuw9MTJps8atVkvod2GmioLTNaAAEb.json

(or)

11) tezos-client import secret key user unencrypted:edsk31vznjHSSpGExDMHYASz45VZqXN4DPxvsa4hAyY8dHM28cZzp6

10.1) tezos-client transfer 42 from bootstrap1 to alice --burn-cap 0.257 &

10.2) tezos-client bake for bootstrap1

10.3) tezos-client get balance for alice

12) tezos-client show address alice

**Generate keys**

tezos-client gen keys <name>

**To view secret key**

tezos-client show address <name> -S

**To import account**

tezos-client import secret key <name> unencrypted:edsk42zyYmVRmZEcexL2Ej1VQvASg3W547PJH437Jhzx2RQ3ursZuW

***CREDENTIALS :***

**23/05/2020**

ssh Tezos@45.76.11.112 -p 22518

pwd - YDNSbsnsbs

ssh -i tezos\_wfh.pem ubuntu@54.159.37.220

**27/05/2020**

ssh Tezosmain@45.76.11.112 –p 22651

TdnAosmdnswte

ssh -i tezos\_mainnet.pem ubuntu@54.209.116.93

ssh -i tezos\_miner.pem [ubuntu@54.227.128.241](mailto:ubuntu@54.227.128.241)

***FULL NODE*** *:*

./tezos-node run --rpc-addr 127.0.0.1

./tezos-client bootstrapped

./tezos-client get timestamp

./tezos-client rpc get /chains/main/blocks/head/ | jq -r '.header.level, .header.timestamp';date --iso-8601=seconds 🡪 to check the level and timestamp of the block

./tezos-client rpc get /chains/main/checkpoint

***ROLLING NODE :***

./tezos-node run --rpc-addr 127.0.0.1 --history-mode experimental-rolling

***RPC CALL :***

0) tezos-client -A localhost -P 187321 bootstrapped

1) tezos-client rpc get http://127.0.0.1:18731/chains/main/blocks/head/hash

"BLBK6bgTjFjmmQanPEFj25kyEqgyK5Y3Jkz6tXjWnZs16EC4e59"

2) tezos-client rpc get http://127.0.0.1:18731/chains/main/chain\_id

"NetXjD3HPJJjmcd"

3) tezos-client rpc get http://127.0.0.1:18731/chains/NetXjD3HPJJjmcd/blocks/BLBK6bgTjFjmmQanPEFj25kyEqgyK5Y3Jkz6tXjWnZs16EC4e59/context/delegates/tz1ddb9NMYHZi5UzPdzTZMYQQZoMub195zgv/delegated\_balance

0

4) tezos-client rpc get http://127.0.0.1:18731/chains/main/blocks/head/context/contracts/tz1KqTpEZ7Yob7QbPE4Hy4Wo8fHG8LhKxZSx/manager\_key

"edpkuBknW28nW72KG6RoHtYW7p12T6GKc7nAbwYX5m8Wd9sDVC9yav"

5) tezos-client rpc get http://127.0.0.1:18731/chains/main/blocks/head/context/contracts/tz1KqTpEZ7Yob7QbPE4Hy4Wo8fHG8LhKxZSx/counter

0

6) tezos-client --addr 127.0.0.1 --port 18731 -l transfer 100 from bootstrap1 to bootstrap2

***REFERENCE LINKS :***

0) https://tezos.gitlab.io/introduction/howtouse.html

1) https://www.dailambda.jp/blog/2019-09-03-tezos-handson-kit/

2) http://www.ocamlpro.com/2018/11/15/an-introduction-to-tezos-rpcs-a-basic-wallet/

3) https://medium.com/@Tezzigator/permanent-tezos-sandboxing-509368945c4a

4) https://blog.nomadic-labs.com/how-to-write-a-tezos-protocol.html

5) https://medium.com/cryptium/deploying-a-custom-protocol-in-tezos-9eded624e91f

6) https://cryptonomic.github.io/ConseilJS/#/?id=api-key

7) <https://medium.com/@tezbaker.io/home-baking-installing-and-setting-up-a-tezos-node-3a04c78528ac>

8) <https://stephenandrews.github.io/eztz/> [for key generation online]

9) <https://tezos.stackexchange.com/questions/2024/how-to-convert-ed25519-bytes-to-tezos-public-key>

10) <https://tezos.stackexchange.com/questions/183/base58-encoding-decoding-of-addresses-in-micheline>

11) <https://askubuntu.com/questions/344506/permission-denied-when-running-make-install>

**Git**

1. mkdir coin
2. cd coin
3. git init
4. git remote add origin “<git url>”
5. git remote -v
6. git pull origin <branchname>
7. git status
8. git add .
9. git status
10. git commit –m “<Message>”
11. git push origin <branchname>
12. git checkout -b <branchname>
13. git push -u origin <branchname>

**Symbol change:**

1. Src/proto\_005\_babylon/lib\_client/client\_proto\_args.ml -> tez\_sym(line number 126)
2. Src/proto\_006\_cartha/lib\_client/client\_proto\_args.ml -> tez\_sym(line number 126)