
sphinxcontrib-httpdomain

Documentation

Release 0.10.0

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The Elephant node is mainly used for the elephant wallet, the Elephant node itself contains the main chain node of the ELA and the ID chain node. Elephant Node extends features which Elephant wallet requires.

Warning: Since software is written by humans, it can have bugs. Thus, if you have questions you are always welcome to issue your problem.

CHAPTER 1

useful links

1.1 General

- [Elastos](#)
- [Source Code](#)

Keyword Index, Search Page

2.1 System Requirements and Installation Guide

2.1.1 Installation

Following is how we build elephant node in ubuntu.

Ubuntu

Install elephant for linux

```
$ apt-get install build-essential
$ adduser elephant
$ usermod -aG sudo elephant
$ su - elephant
$ sh -c "$(curl -fsSL https://raw.githubusercontent.com/Linuxbrew/install/master/
→install.sh)"
$ echo 'eval $(/home/linuxbrew/.linuxbrew/bin/brew shellenv)' >> ~/.profile
$ source ~/.profile
$ brew tap elephantapp/elephant
$ brew install elephant
```

update config.json similar to the following content:

```
{
  "Configuration": {
    "ActiveNet": "mainnet",
    "HttpInfoPort": 20333,
    "HttpInfoStart": true,
    "HttpRestPort": 20334,
```

```
"HttpRestStart": true,
"HttpWsPort": 20335,
"HttpWsStart": true,
"HttpJsonPort": 20336,
"EnableRPC": true,
"NodePort": 20338,
"PrintLevel": 1,
"PowConfiguration": {
  "PayToAddr": "EeEkSiRMZqg5rd9a2yPaWnvdPcikFtsrjE",
  "MinerInfo": "ELA",
  "MinTxFee": 100
},
"RpcConfiguration": {
  "User": "clark",
  "Pass": "123456",
  "WhiteIPList": [
    "127.0.0.1"
  ]
}
}
```

Extra feature configure:

```
{
  // Whether or not earn node reward , if set to false , your node will not receive_
  ↪ transaction reward
  "EarnReward": true,
  // How many utxo we bundle together to create multi-transaction
  "BundleUtxoSize": 700
}
```

if you only want to syncing the node to the current height, you can run:

```
$ elaphant --pure
```

after fulling synced . you can stop the node and restart it with more startup options

```
$ elaphant --key "{private key}" --password "{keystore password}"
```

Nginx config Example:

```
server { # simple reverse-proxy
    server_name  exmaple.com;
    access_log   /var/log/nginx/node.access.log;

    # pass requests for dynamic content to rails/turbogears/zope, et al

    location ~ ^/api/[v]?1/wrap/rpc {
        if ($request_method = OPTIONS ) {
            add_header "Access-Control-Allow-Origin"  *;
            add_header "Access-Control-Allow-Methods" "GET, POST, OPTIONS, HEAD";
            add_header "Access-Control-Allow-Headers" "Authorization, Origin, X-
            ↪ Requested-With, Content-Type, Accept";
            return 200;
        }
        proxy_pass http://localhost:20336;
        proxy_connect_timeout 120s;
    }
}
```

```

    proxy_read_timeout 120s;
    proxy_send_timeout 120s;
    proxy_set_header Host $host;
    proxy_set_header X-Forwarded-For $remote_addr;
    proxy_set_header X-Real-IP $remote_addr;
}

location ~ ^/api/[v]?1/node {
    if ($request_method = OPTIONS ) {
        add_header "Access-Control-Allow-Origin" *;
        add_header "Access-Control-Allow-Methods" "GET, POST, OPTIONS, HEAD";
        add_header "Access-Control-Allow-Headers" "Authorization, Origin, X-
↪Requested-With, Content-Type, Accept";
        return 200;
    }
    proxy_pass http://localhost:20334;
    proxy_connect_timeout 120s;
    proxy_read_timeout 120s;
    proxy_send_timeout 120s;
    proxy_set_header Host $host;
    proxy_set_header X-Forwarded-For $remote_addr;
    proxy_set_header X-Real-IP $remote_addr;
}

location ~ ^/api/[v]?1/block {
    if ($request_method = OPTIONS ) {
        add_header "Access-Control-Allow-Origin" *;
        add_header "Access-Control-Allow-Methods" "GET, POST, OPTIONS, HEAD";
        add_header "Access-Control-Allow-Headers" "Authorization, Origin, X-
↪Requested-With, Content-Type, Accept";
        return 200;
    }
    proxy_pass http://localhost:20334;
    proxy_connect_timeout 120s;
    proxy_read_timeout 120s;
    proxy_send_timeout 120s;
    proxy_set_header Host $host;
    proxy_set_header X-Forwarded-For $remote_addr;
    proxy_set_header X-Real-IP $remote_addr;
}

location ~ ^/api/[v]?1/transaction {
    if ($request_method = OPTIONS ) {
        add_header "Access-Control-Allow-Origin" *;
        add_header "Access-Control-Allow-Methods" "GET, POST, OPTIONS, HEAD";
        add_header "Access-Control-Allow-Headers" "Authorization, Origin, X-
↪Requested-With, Content-Type, Accept";
        return 200;
    }
    proxy_pass http://localhost:20334;
    proxy_connect_timeout 120s;
    proxy_read_timeout 120s;
    proxy_send_timeout 120s;
    proxy_set_header Host $host;
    proxy_set_header X-Forwarded-For $remote_addr;
    proxy_set_header X-Real-IP $remote_addr;
}

```

```
location ~ ^/api/[v]?1/asset {
    if ($request_method = OPTIONS ) {
        add_header "Access-Control-Allow-Origin" *;
        add_header "Access-Control-Allow-Methods" "GET, POST, OPTIONS, HEAD";
        add_header "Access-Control-Allow-Headers" "Authorization, Origin, X-
↪Requested-With, Content-Type, Accept";
        return 200;
    }
    proxy_pass http://localhost:20334;
    proxy_connect_timeout 120s;
    proxy_read_timeout 120s;
    proxy_send_timeout 120s;
    proxy_set_header Host $host;
    proxy_set_header X-Forwarded-For $remote_addr;
    proxy_set_header X-Real-IP $remote_addr;
}

location ~ ^/api/[v]?1/transactionpool {
    if ($request_method = OPTIONS ) {
        add_header "Access-Control-Allow-Origin" *;
        add_header "Access-Control-Allow-Methods" "GET, POST, OPTIONS, HEAD";
        add_header "Access-Control-Allow-Headers" "Authorization, Origin, X-
↪Requested-With, Content-Type, Accept";
        return 200;
    }
    proxy_pass http://localhost:20334;
    proxy_connect_timeout 120s;
    proxy_read_timeout 120s;
    proxy_send_timeout 120s;
    proxy_set_header Host $host;
    proxy_set_header X-Forwarded-For $remote_addr;
    proxy_set_header X-Real-IP $remote_addr;
}

location ~ ^/api/[v]?1/balance {
    if ($request_method = OPTIONS ) {
        add_header "Access-Control-Allow-Origin" *;
        add_header "Access-Control-Allow-Methods" "GET, POST, OPTIONS, HEAD";
        add_header "Access-Control-Allow-Headers" "Authorization, Origin, X-
↪Requested-With, Content-Type, Accept";
        return 200;
    }
    proxy_pass http://localhost:20334;
    proxy_connect_timeout 120s;
    proxy_read_timeout 120s;
    proxy_send_timeout 120s;
    proxy_set_header Host $host;
    proxy_set_header X-Forwarded-For $remote_addr;
    proxy_set_header X-Real-IP $remote_addr;
}

location ~ ^/api/[v]?1/createTx {
    if ($request_method = OPTIONS ) {
        add_header "Access-Control-Allow-Origin" *;
        add_header "Access-Control-Allow-Methods" "GET, POST, OPTIONS, HEAD";
        add_header "Access-Control-Allow-Headers" "Authorization, Origin, X-
↪Requested-With, Content-Type, Accept";
```

```

        return 200;
    }
    proxy_pass http://localhost:20334;
    proxy_connect_timeout 120s;
    proxy_read_timeout 120s;
    proxy_send_timeout 120s;
    proxy_set_header Host $host;
    proxy_set_header X-Forwarded-For $remote_addr;
    proxy_set_header X-Real-IP $remote_addr;
}

location ~ ^/api/[v]?1/createVoteTx {
    if ($request_method = OPTIONS ) {
        add_header "Access-Control-Allow-Origin" *;
        add_header "Access-Control-Allow-Methods" "GET, POST, OPTIONS, HEAD";
        add_header "Access-Control-Allow-Headers" "Authorization, Origin, X-
↪Requested-With, Content-Type, Accept";
        return 200;
    }
    proxy_pass http://localhost:20334;
    proxy_connect_timeout 120s;
    proxy_read_timeout 120s;
    proxy_send_timeout 120s;
    proxy_set_header Host $host;
    proxy_set_header X-Forwarded-For $remote_addr;
    proxy_set_header X-Real-IP $remote_addr;
}

location ~ ^/api/[v]?1/history {
    if ($request_method = OPTIONS ) {
        add_header "Access-Control-Allow-Origin" *;
        add_header "Access-Control-Allow-Methods" "GET, POST, OPTIONS, HEAD";
        add_header "Access-Control-Allow-Headers" "Authorization, Origin, X-
↪Requested-With, Content-Type, Accept";
        return 200;
    }
    proxy_pass http://localhost:20334;
    proxy_connect_timeout 120s;
    proxy_read_timeout 120s;
    proxy_send_timeout 120s;
    proxy_set_header Host $host;
    proxy_set_header X-Forwarded-For $remote_addr;
    proxy_set_header X-Real-IP $remote_addr;
}

location ~ ^/api/[v]?2/history {
    if ($request_method = OPTIONS ) {
        add_header "Access-Control-Allow-Origin" *;
        add_header "Access-Control-Allow-Methods" "GET, POST, OPTIONS, HEAD";
        add_header "Access-Control-Allow-Headers" "Authorization, Origin, X-
↪Requested-With, Content-Type, Accept";
        return 200;
    }
    proxy_pass http://localhost:20334;
    proxy_connect_timeout 120s;
    proxy_read_timeout 120s;
    proxy_send_timeout 120s;
    proxy_set_header Host $host;

```

```
    proxy_set_header X-Forwarded-For $remote_addr;
    proxy_set_header X-Real-IP $remote_addr;
}

location ~ ^/api/[v]?3/history {
    if ($request_method = OPTIONS ) {
        add_header "Access-Control-Allow-Origin" *;
        add_header "Access-Control-Allow-Methods" "GET, POST, OPTIONS, HEAD";
        add_header "Access-Control-Allow-Headers" "Authorization, Origin, X-
↪Requested-With, Content-Type, Accept";
        return 200;
    }
    proxy_pass http://localhost:20334;
    proxy_connect_timeout 120s;
    proxy_read_timeout 120s;
    proxy_send_timeout 120s;
    proxy_set_header Host $host;
    proxy_set_header X-Forwarded-For $remote_addr;
    proxy_set_header X-Real-IP $remote_addr;
}

location ~ ^/api/[v]?1/sendRawTx {
    if ($request_method = OPTIONS ) {
        add_header "Access-Control-Allow-Origin" *;
        add_header "Access-Control-Allow-Methods" "GET, POST, OPTIONS, HEAD";
        add_header "Access-Control-Allow-Headers" "Authorization, Origin, X-
↪Requested-With, Content-Type, Accept";
        return 200;
    }
    proxy_pass http://localhost:20334;
    proxy_connect_timeout 120s;
    proxy_read_timeout 120s;
    proxy_send_timeout 120s;
    proxy_set_header Host $host;
    proxy_set_header X-Forwarded-For $remote_addr;
    proxy_set_header X-Real-IP $remote_addr;
}

location ~ ^/api/[v]?1/pubkey {
    if ($request_method = OPTIONS ) {
        add_header "Access-Control-Allow-Origin" *;
        add_header "Access-Control-Allow-Methods" "GET, POST, OPTIONS, HEAD";
        add_header "Access-Control-Allow-Headers" "Authorization, Origin, X-
↪Requested-With, Content-Type, Accept";
        return 200;
    }
    proxy_pass http://localhost:20334;
    proxy_connect_timeout 120s;
    proxy_read_timeout 120s;
    proxy_send_timeout 120s;
    proxy_set_header Host $host;
    proxy_set_header X-Forwarded-For $remote_addr;
    proxy_set_header X-Real-IP $remote_addr;
}

location ~ ^/api/[v]?1/currHeight {
    if ($request_method = OPTIONS ) {
        add_header "Access-Control-Allow-Origin" *;
```

```

        add_header "Access-Control-Allow-Methods" "GET, POST, OPTIONS, HEAD";
        add_header "Access-Control-Allow-Headers" "Authorization, Origin, X-
↪Requested-With, Content-Type, Accept";
        return 200;
    }
    proxy_pass http://localhost:20334;
    proxy_connect_timeout 120s;
    proxy_read_timeout 120s;
    proxy_send_timeout 120s;
    proxy_set_header Host $host;
    proxy_set_header X-Forwarded-For $remote_addr;
    proxy_set_header X-Real-IP $remote_addr;
}

location ~ ^/api/[v]?1/dpos {
    if ($request_method = OPTIONS ) {
        add_header "Access-Control-Allow-Origin" *;
        add_header "Access-Control-Allow-Methods" "GET, POST, OPTIONS, HEAD";
        add_header "Access-Control-Allow-Headers" "Authorization, Origin, X-
↪Requested-With, Content-Type, Accept";
        return 200;
    }
    proxy_pass http://localhost:20334;
    proxy_connect_timeout 120s;
    proxy_read_timeout 120s;
    proxy_send_timeout 120s;
    proxy_set_header Host $host;
    proxy_set_header X-Forwarded-For $remote_addr;
    proxy_set_header X-Real-IP $remote_addr;
}

location ~ ^/api/[v]?1/fee {
    if ($request_method = OPTIONS ) {
        add_header "Access-Control-Allow-Origin" *;
        add_header "Access-Control-Allow-Methods" "GET, POST, OPTIONS, HEAD";
        add_header "Access-Control-Allow-Headers" "Authorization, Origin, X-
↪Requested-With, Content-Type, Accept";
        return 200;
    }
    proxy_pass http://localhost:20334;
    proxy_connect_timeout 120s;
    proxy_read_timeout 120s;
    proxy_send_timeout 120s;
    proxy_set_header Host $host;
    proxy_set_header X-Forwarded-For $remote_addr;
    proxy_set_header X-Real-IP $remote_addr;
}

location ~ ^/api/[v]?1/node/reward/address {
    if ($request_method = OPTIONS ) {
        add_header "Access-Control-Allow-Origin" *;
        add_header "Access-Control-Allow-Methods" "GET, POST, OPTIONS, HEAD";
        add_header "Access-Control-Allow-Headers" "Authorization, Origin, X-
↪Requested-With, Content-Type, Accept";
        return 200;
    }
    proxy_pass http://localhost:20334;
    proxy_connect_timeout 120s;

```

```
    proxy_read_timeout 120s;
    proxy_send_timeout 120s;
    proxy_set_header Host $host;
    proxy_set_header X-Forwarded-For $remote_addr;
    proxy_set_header X-Real-IP $remote_addr;
}

location ~ ^/api/[v]?1/spend/utxos {
    if ($request_method = OPTIONS ) {
        add_header "Access-Control-Allow-Origin" *;
        add_header "Access-Control-Allow-Methods" "GET, POST, OPTIONS, HEAD";
        add_header "Access-Control-Allow-Headers" "Authorization, Origin, X-
↳Requested-With, Content-Type, Accept";
        return 200;
    }
    proxy_pass http://localhost:20334;
    proxy_connect_timeout 120s;
    proxy_read_timeout 120s;
    proxy_send_timeout 120s;
    proxy_set_header Host $host;
    proxy_set_header X-Forwarded-For $remote_addr;
    proxy_set_header X-Real-IP $remote_addr;
}

location ~ ^/api/[v]?1/tx {
    if ($request_method = OPTIONS ) {
        add_header "Access-Control-Allow-Origin" *;
        add_header "Access-Control-Allow-Methods" "GET, POST, OPTIONS, HEAD";
        add_header "Access-Control-Allow-Headers" "Authorization, Origin, X-
↳Requested-With, Content-Type, Accept";
        return 200;
    }
    proxy_pass http://localhost:20334;
    proxy_connect_timeout 120s;
    proxy_read_timeout 120s;
    proxy_send_timeout 120s;
    proxy_set_header Host $host;
    proxy_set_header X-Forwarded-For $remote_addr;
    proxy_set_header X-Real-IP $remote_addr;
}

location ~ ^/api/[v]?1/crc {
    if ($request_method = OPTIONS ) {
        add_header "Access-Control-Allow-Origin" *;
        add_header "Access-Control-Allow-Methods" "GET, POST, OPTIONS, HEAD";
        add_header "Access-Control-Allow-Headers" "Authorization, Origin, X-
↳Requested-With, Content-Type, Accept";
        return 200;
    }
    proxy_pass http://localhost:20334;
    proxy_connect_timeout 120s;
    proxy_read_timeout 120s;
    proxy_send_timeout 120s;
    proxy_set_header Host $host;
    proxy_set_header X-Forwarded-For $remote_addr;
    proxy_set_header X-Real-IP $remote_addr;
}
```

```

location ~ ^/api/[v]?1/simple {
    if ($request_method = OPTIONS ) {
        add_header "Access-Control-Allow-Origin" *;
        add_header "Access-Control-Allow-Methods" "GET, POST, OPTIONS, HEAD";
        add_header "Access-Control-Allow-Headers" "Authorization, Origin, X-
↳Requested-With, Content-Type, Accept";
        return 200;
    }
    proxy_pass http://localhost:20334;
    proxy_connect_timeout 120s;
    proxy_read_timeout 120s;
    proxy_send_timeout 120s;
    proxy_set_header Host $host;
    proxy_set_header X-Forwarded-For $remote_addr;
    proxy_set_header X-Real-IP $remote_addr;
}

listen 443 ssl; # managed by Certbot
ssl_certificate /etc/letsencrypt/live/exmaple.com/fullchain.pem; # managed by_
↳Certbot
ssl_certificate_key /etc/letsencrypt/live/exmaple.com/privkey.pem; # managed by_
↳Certbot
include /etc/letsencrypt/options-ssl-nginx.conf; # managed by Certbot
ssl_dhparam /etc/letsencrypt/ssl-dhparams.pem; # managed by Certbot
}

server {
    if ($host = exmaple.com) {
        return 301 https://$host$request_uri;
    } # managed by Certbot

    server_name exmaple.com;
    listen 80;
    return 404; # managed by Certbot
}

```

2.2 Restful Guide

maxdepth 3

2.2.1 Basic Api

Inherited basic api from ELA.

Get connected node

GET /api/v1/node/connectioncount

Example request:

```

GET /api/v1/node/connectioncount HTTP/1.1
Host: localhost

```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
  "Error":0,
  "Result":8
}
```

Status Codes

- 200 OK – no error
- 400 Bad Request – bad request
- 404 Not Found – not found request
- 500 Internal Server Error – internal error
- **10001** – process error

Get node statistic**GET /api/v1/node/state****Example request:**

```
GET /api/v1/node/state HTTP/1.1
Host: localhost
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
  "Error":0,
  "Result":{
    "compile":"v0.3.3-3-ge874-dirty",
    "height":584477,
    "version":20000,
    "services":"SFNodeNetwork|SFTxFiltering|SFNodeBloom",
    "port":24338,
    "rpcport":24336,
    "restport":24334,
    "wsport":24335,
    "neighbors":[
      {
        "netaddress":"162.62.21.212:20338",
        "services":"SFNodeNetwork|SFTxFiltering|SFNodeBloom",
        "relaytx":false,
        "lastsend":"2020-02-26 04:47:52 +0000 UTC",
        "lastrecv":"2020-02-26 04:47:54 +0000 UTC",
        "conntime":"2020-02-26 04:41:02.742424016 +0000 UTC m=+2254776.
↪634971872",
        "timeoffset":0,
        "version":20000,
        "inbound":false,
        "startingheight":584473,

```

```

        "lastblock":584476,
        "lastpingtime":"2020-02-26 04:47:32.899397483 +0000 UTC",
↪m=+2255166.791945330",
        "lastpingmicros":155494
    },
    {
        "netaddress":"185.86.106.223:20338",
        "services":"SFNodeNetwork|SFTxFiltering|SFNodeBloom",
        "relaytx":false,
        "lastsend":"2020-02-26 04:47:51 +0000 UTC",
        "lastrecv":"2020-02-26 04:47:54 +0000 UTC",
        "conntime":"2020-02-26 04:07:36.535976089 +0000 UTC m=+2252770.
↪428523938",
        "timeoffset":0,
        "version":20000,
        "inbound":false,
        "startingheight":584459,
        "lastblock":584476,
        "lastpingtime":"2020-02-26 04:47:36.684850417 +0000 UTC",
↪m=+2255170.577398275",
        "lastpingmicros":148309
    },
    {
        "netaddress":"54.183.176.109:20338",
        "services":"SFNodeNetwork|SFTxFiltering|SFNodeBloom",
        "relaytx":false,
        "lastsend":"2020-02-26 04:47:56 +0000 UTC",
        "lastrecv":"2020-02-26 04:47:56 +0000 UTC",
        "conntime":"2020-02-26 04:41:56.067652289 +0000 UTC m=+2254829.
↪960200145",
        "timeoffset":0,
        "version":20000,
        "inbound":false,
        "startingheight":584473,
        "lastblock":584477,
        "lastpingtime":"2020-02-26 04:47:56.130485249 +0000 UTC",
↪m=+2255190.023033121",
        "lastpingmicros":62632
    },
    {
        "netaddress":"3.104.174.31:20338",
        "services":"SFNodeNetwork|SFTxFiltering|SFNodeBloom",
        "relaytx":false,
        "lastsend":"2020-02-26 04:47:58 +0000 UTC",
        "lastrecv":"2020-02-26 04:47:58 +0000 UTC",
        "conntime":"2020-02-26 04:31:33.040417282 +0000 UTC m=+2254206.
↪932965133",
        "timeoffset":0,
        "version":20000,
        "inbound":false,
        "startingheight":584470,
        "lastblock":584476,
        "lastpingtime":"2020-02-26 04:47:33.257087077 +0000 UTC",
↪m=+2255167.149634924",
        "lastpingmicros":216330
    },
    {
        "netaddress":"47.93.230.171:20338",

```

```

        "services": "SFNodeNetwork|SFTxFiltering|SFNodeBloom",
        "relaytx": false,
        "lastsend": "2020-02-26 04:47:58 +0000 UTC",
        "lastrecv": "2020-02-26 04:47:59 +0000 UTC",
        "conntime": "2020-02-26 03:54:56.889807839 +0000 UTC m=+2252010.
↪782355671",
        "timeoffset": 0,
        "version": 20000,
        "inbound": false,
        "startingheight": 584454,
        "lastblock": 584477,
        "lastpingtime": "2020-02-26 04:47:58.81163559 +0000 UTC ↪
↪m=+2255192.704183442",
        "lastpingmicros": 808116
    },
    {
        "netaddress": "35.177.146.116:20338",
        "services": "SFNodeNetwork|SFTxFiltering|SFNodeBloom",
        "relaytx": false,
        "lastsend": "2020-02-26 04:47:56 +0000 UTC",
        "lastrecv": "2020-02-26 04:47:56 +0000 UTC",
        "conntime": "2020-02-26 04:33:26.197146758 +0000 UTC m=+2254320.
↪089694603",
        "timeoffset": 0,
        "version": 20000,
        "inbound": false,
        "startingheight": 584470,
        "lastblock": 584477,
        "lastpingtime": "2020-02-26 04:47:56.295881164 +0000 UTC ↪
↪m=+2255190.188429008",
        "lastpingmicros": 98534
    },
    {
        "netaddress": "39.100.1.118:20338",
        "services": "SFNodeNetwork|SFTxFiltering|SFNodeBloom",
        "relaytx": false,
        "lastsend": "2020-02-26 04:47:57 +0000 UTC",
        "lastrecv": "2020-02-26 04:47:58 +0000 UTC",
        "conntime": "2020-02-26 04:42:57.670616216 +0000 UTC m=+2254891.
↪563164068",
        "timeoffset": 0,
        "version": 20000,
        "inbound": false,
        "startingheight": 584473,
        "lastblock": 584477,
        "lastpingtime": "2020-02-26 04:47:57.913184592 +0000 UTC ↪
↪m=+2255191.805732436",
        "lastpingmicros": 242182
    },
    {
        "netaddress": "45.76.163.153:20338",
        "services": "SFNodeNetwork|SFTxFiltering|SFNodeBloom",
        "relaytx": false,
        "lastsend": "2020-02-26 04:47:56 +0000 UTC",
        "lastrecv": "2020-02-26 04:47:57 +0000 UTC",
        "conntime": "2020-02-26 04:41:25.958005353 +0000 UTC m=+2254799.
↪850553201",
        "timeoffset": 0,

```

```

        "version":20000,
        "inbound":false,
        "startingheight":584473,
        "lastblock":584477,
        "lastpingtime":"2020-02-26 04:47:56.204527199 +0000 UTC",
        "lastpingmicros":304377
    }
}
}

```

Get transactions of specific height

GET /api/v1/block/transactions/height/(int:`height`)

Example request:

```

GET /api/v1/block/transactions/height/500000 HTTP/1.1
Host: localhost

```

Example response:

```

HTTP/1.1 200 OK
Content-Type: application/json

{
  "Error":0,
  "Result":{
    "Hash":"3414e7b4dcd5f005fa86c601a56ae3404446bdb4ddf9cd3c4076d77769d77b07",
    "Height":500000,
    "Transactions":[
      "1cd6756088f3c19726e3f98cf48074d06d44d58988e64a03945d21118ef721e1",
      "7faff260fc90eb28a36469875798ae2109013dc54f8f677b507a632b2e93ddb0",
      "9af3d82ecb43bb3141abfce4844275f537641c6546e13a30afa1e1930372047f"
    ]
  }
}

```

Get block details of specific height

GET /api/v1/block/details/height/(int:`height`)

Example request:

```

GET /api/v1/block/details/height/241762 HTTP/1.1
Host: localhost

```

Example response:

```

HTTP/1.1 200 OK
Content-Type: application/json

{
  "Error":0,
  "Result":{

```

```
    "hash":
    ↪ "8eec0b990b713864b1025438b17cd5567050a032ac18c574f94fcb3a0952f1f0",
      "confirmations":342718,
      "strippedsize":1463,
      "size":1463,
      "weight":5852,
      "height":241762,
      "version":0,
      "versionhex":"00000000",
      "merkleroot":
    ↪ "6862548a0ce7c99a9ec7b8606ed036b98b917d699f85fdaleff5d2b4a6f7bdb1",
      "tx": [
        {
          "txid":
    ↪ "374e452e9f021d381e0ea69a6518456bf25ef8f29cce8d651efa071f38cc46b5",
          "hash":
    ↪ "374e452e9f021d381e0ea69a6518456bf25ef8f29cce8d651efa071f38cc46b5",
          "size":263,
          "vsize":263,
          "version":0,
          "type":0,
          "payloadversion":4,
          "payload":{
            "coinbasedata":"/BTC.com/"
          },
          "attributes": [
            {
              "usage":0,
              "data":"3e6bac9213661a2e"
            }
          ],
          "vin": [
            {
              "txid":
    ↪ "0000000000000000000000000000000000000000000000000000000000000000",
              "vout":65535,
              "sequence":4294967295
            }
          ],
          "vout": [
            {
              "value":"1.50699931",
              "n":0,
              "address":"8VYXVxKKSAXkmRrfmGpQR2Kc66XhG6m3ta",
              "assetid":
    ↪ "a3d0eaa466df74983b5d7c543de6904f4c9418ead5ffd6d25814234a96db37b0",
              "outputlock":0,
              "type":0,
              "payload":null
            },
            {
              "value":"1.75816586",
              "n":1,
              "address":"EMWsrU8XhpQxJ7CvDzgAea1WroJqskPmqd",
              "assetid":
    ↪ "a3d0eaa466df74983b5d7c543de6904f4c9418ead5ffd6d25814234a96db37b0",
              "outputlock":0,
              "type":0,
```

```

        "payload":null
    },
    {
        "value":"1.75816588",
        "n":2,
        "address":"8VYXVxKKSAxkmRrfmGpQR2Kc66XhG6m3ta",
        "assetid":
↪ "a3d0eaa466df74983b5d7c543de6904f4c9418ead5ffd6d25814234a96db37b0",
        "outputlock":0,
        "type":0,
        "payload":null
    }
],
"locktime":241762,
"programs":[

],
"blockhash":
↪ "8eec0b990b713864b1025438b17cd5567050a032ac18c574f94fcb3a0952f1f0",
"confirmations":342718,
"time":1541697961,
"blocktime":1541697961
},
{
    "txid":
↪ "968ff4836325dc8859ab3d35e4dfb593657580a1fd375c3bec026dfeee27057",
    "hash":
↪ "968ff4836325dc8859ab3d35e4dfb593657580a1fd375c3bec026dfeee27057",
    "size":369,
    "vsize":369,
    "version":0,
    "type":5,
    "payloadversion":0,
    "payload":{
        "blockheight":70069,
        "sideblockhash":
↪ "0345241197a42efcaabd0c9b75591b2e77966f28a6f9684d6c79f7876bf2db1a",
        "sidegenesishash":
↪ "a3c455a90843db2acd22554f2768a8d4233fafbf8dd549e6b261c2786993be56",
        "signature":
↪ "05cafd37be63d8f8d7f0c7ee1114748bcbcbcb293c47a08cbb26d155aeae30bc7c306c40993ac9c358aeb9c91c
↪ "
    },
    "attributes":[
        {
            "usage":0,
            "data":"323931313833339383939303638393935373938"
        }
    ],
    "vin":[
        {
            "txid":
↪ "46e4280b2b14a1ab388d2201bf3f8c10b53d044a8da3cc6b44c204f0d885a8fe",
            "vout":0,
            "sequence":0
        }
    ],
    "vout": [

```

```
{
  "value": "0.88000000",
  "n": 0,
  "address": "Ee6QKDdppJVFPsBbi7fDUGexB63Fhojq4x",
  "assetid":
→ "a3d0eaa466df74983b5d7c543de6904f4c9418ead5ffd6d25814234a96db37b0",
  "outputlock": 0,
  "type": 0,
  "payload": null
}
],
"locktime": 173080,
"programs": [
{
  "code":
→ "210283f3669665aae4fbcf449a40711bef79738d310148072be2c3c693521f6388cfac
→ ",
  "parameter":
→ "40494702c2e01d55122e50fa78e93efb7b45e9815a32188085832c220b2f54e8db755694b95a5535d5357d8f5
→ "
}
],
"blockhash":
→ "8eec0b990b713864b1025438b17cd5567050a032ac18c574f94fcb3a0952f1f0",
  "confirmations": 342718,
  "time": 1541697961,
  "blocktime": 1541697961
}
],
"time": 1541697961,
"mediantime": 1541697961,
"nonce": 0,
"bits": 407586820,
"difficulty": "33636174024461",
"chainwork": "00053abd",
"previousblockhash":
→ "82b9995b83661b6948c12e9f4753408de78f0c19777b3c2315ca0225ae00c2d0",
  "nextblockhash":
→ "712f9148b995b6cc805cdf1a90559bef8cc66b7563ab6dc0c9af222817e4a818",
  "auxpow":
→ "020000000100000000000000000000000000000000000000000000000000000000ffffffffff4b03ab6
→ ",
  "minerinfo": "/BTC.com/"
}
```

Get block details through block hash

```
GET /api/v1/block/details/hash/ (String: `hash`)
```

Example request:

```
GET /api/v1/block/details/hash/  
82b9995b83661b6948c12e9f4753408de78f0c19777b3c2315ca0225ae00c2d0 HTTP/1.1  
Host: localhost
```

Example response:

```
GET /api/v1/block/height
```

```
GET /api/v1/block/height HTTP/1.1
Host: localhost
```

```
HTTP/1.1 200 OK
Content-Type: application/json

{
  "Error":0,
  "Result":584480
}
```

Get block hash by height

GET /api/v1/block/hash/(int:`height`)

Example request:

```
GET /api/v1/block/hash/100 HTTP/1.1
Host: localhost
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
  "Error": 0,
  "Result": "e0fd5ca06bd36959edd20b8b63b87dcb09938d09583371c1e0a54f82ca6f22dc"
}
```

Get transaction through hash

GET /api/v1/transaction/(string:`hash`)

Example request:

```
GET /api/v1/transaction/
↳ 7faff260fc90eb28a36469875798ae2109013dc54f8f677b507a632b2e93ddb0 HTTP/1.1
Host: localhost
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
  "Error": 0,
  "Result": {
    "txid": "7faff260fc90eb28a36469875798ae2109013dc54f8f677b507a632b2e93ddb0
↳ ",
    "hash": "7faff260fc90eb28a36469875798ae2109013dc54f8f677b507a632b2e93ddb0
↳ ",
    "size": 368,
    "vsize": 368,
    "version": 0,
    "type": 5,
    "payloadversion": 0,
    "payload": {
      "blockheight": 117531,
      "sideblockhash":
↳ "5648292748989e38c66b4b0b49a1a84254a46cfd9a0780ea8857929cc0aec2db",
      "sidegenesishash":
↳ "0e739a2b87774ef2266a3cab79a8e1201732fe409cfe50bd4125efb1d1169b5",
      "signature":
↳ "214746352fe525aadb37963c1f13676ebe1aaf2ef799640b9a5593402a195ae17453e78a35861c1ef012f61932b6
↳ "
    },
    "attributes": [
      {
        "usage": 0,

```

```

        "data": "313735303232373736313639353432333437"
    },
    "vin": [
        {
            "txid":
↪ "0d59c1a66866c2bb89bc7680d6a2b8d5b065a588e770939b7dc9c611a4c0c9ad",
            "vout": 0,
            "sequence": 0
        }
    ],
    "vout": [
        {
            "value": "0.00950000",
            "n": 0,
            "address": "EXeog2edenqtrJM3wnWHmWZzmyataX6pgh",
            "assetid":
↪ "a3d0eaa466df74983b5d7c543de6904f4c9418ead5ffd6d25814234a96db37b0",
            "outputlock": 0,
            "type": 0,
            "payload": null
        }
    ],
    "locktime": 499998,
    "programs": [
        {
            "code":
↪ "21035f8dae2962cf3938e7e7d07931640078e9cb1a11e9e82e9b97ecf98bbd1891a9ac",
            "parameter":
↪ "401df0443c1e8d2a953e94b5eb9aa9cd683356e0196a926244d79165c150a8d6bfcd88900fee18ba1692de725aa26"
↪ ""
        }
    ],
    "blockhash":
↪ "3414e7b4dcd5f005fa86c601a56ae3404446bdb4ddf9cd3c4076d77769d77b07",
    "confirmations": 84483,
    "time": 1572553853,
    "blocktime": 1572553853
}
}

```

Get asset

GET /api/v1/asset/ (String: `hash`)

Example request:

```

GET api/v1/asset/a3d0eaa466df74983b5d7c543de6904f4c9418ead5ffd6d25814234a96db37b0
↪ HTTP/1.1
Host: localhost

```

Example response:

```

HTTP/1.1 200 OK
Content-Type: application/json

{

```

```
    "Error":0,
    "Result":{
        "Name":"ELA",
        "Description":"",
        "Precision":8,
        "AssetType":0,
        "RecordType":0
    }
}
```

Get balance of address

GET /api/v1/asset/balances/ (String:`addr`)

Example request:

```
GET /api/v1/asset/balances/EbKEBwgbRGbn6AWbZBS1WjsZXWeNLnJYnb HTTP/1.1
Host: localhost
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
    "Error":0,
    "Result":"407.31173027"
}
```

Get balance of specific asset

GET /api/v1/asset/balance/ (String:`addr`) / (String:`assetid`)

Example request:

```
Get /api/v1/asset/balance/EbKEBwgbRGbn6AWbZBS1WjsZXWeNLnJYnb/
↪a3d0eaa466df74983b5d7c543de6904f4c9418ead5ffd6d25814234a96db37b0 HTTP/1.1
Host: localhost
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
    "Error":0,
    "Result":"407.31173027"
}
```

Get utxos of address

GET /api/v1/asset/utxos/ (String:`addr`)

Example request:


```
"Error":0,
"Result":"c9fdcfaac3372015e9f574e1617bf6275af747a14c2cb901c01097e38e006711"
}
```

Get transaction pool

GET /api/v1/transactionpool

Example request:

```
Get /api/v1/transactionpool HTTP/1.1
Host: localhost
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
  "Error":0,
  "Result":[
    {
      "txid":
↪"24abd1b4dfd7f5a1bc51a21c0eb5ae4d4af63e49f015e8f3b62d8dfeade9f634",
      "hash":
↪"24abd1b4dfd7f5a1bc51a21c0eb5ae4d4af63e49f015e8f3b62d8dfeade9f634",
      "size":369,
      "vsize":369,
      "version":0,
      "type":5,
      "payloadversion":0,
      "payload":{
        "blockheight":175178,
        "sideblockhash":
↪"92f7dbcd41cadaa1fcc246b8231c9444f611a8ac5a64d9102dcc9c3cd04cc8c9",
        "sidegenesishash":
↪"0e739a2b87774ef2266a3cab79a8e1201732fe409cfe50bd4125efb1d1169b5",
        "signature":
↪"6d44dd7762f5ec5e333b521e02fcbb0c1ceda075530ae20742ac9b92b1d87a2d583e01c1389457a149bdd77a2f3d5"
↪"
      },
      "attributes":[
        {
          "usage":0,
          "data":"31363539333930323737353837373732353138"
        }
      ],
      "vin":[
        {
          "txid":
↪"45796056d9f9bc86278413ee34cbbe0c7234c532fbb481154e525405b598fbca",
          "vout":0,
          "sequence":0
        }
      ],
      "vout":[
        {
```

```

        "value": "0.00850000",
        "n": 0,
        "address": "EYwEjpoQ3nxXUWEDEe4wfBq1ZxaQF7Xahc",
        "assetid":
↪ "a3d0eaa466df74983b5d7c543de6904f4c9418ead5ffd6d25814234a96db37b0",
        "outputlock": 0,
        "type": 0,
        "payload": null
    }
],
    "locktime": 584487,
    "programs": [
        {
            "code":
↪ "210259f4cc2bc141f53cd8136fea3551857354962e601f83c279bf48e4d7d4f72219ac",
            "parameter":
↪ "403238917660902d643589856c068a0f83c337d64b15a64e10fb6876ea60aa4a963e672a4b15ee31ffbee5b518a33"
↪ ""
        }
    ],
    "blockhash": "",
    "confirmations": 0,
    "time": 0,
    "blocktime": 0
},
{
    "txid":
↪ "69b03c2aa1a06bd8c2194fdb5518cd0347cdc5d0e5dbf94a2f6a3ab1dcaee3ff",
    "hash":
↪ "69b03c2aa1a06bd8c2194fdb5518cd0347cdc5d0e5dbf94a2f6a3ab1dcaee3ff",
    "size": 369,
    "vsize": 369,
    "version": 0,
    "type": 5,
    "payloadadversion": 0,
    "payload": {
        "blockheight": 302549,
        "sideblockhash":
↪ "4e726e726c986a400c36b4858cbb3caf5447075371ca82a3b4e5f51dd862d815",
        "sidegenesishash":
↪ "a3c455a90843db2acd22554f2768a8d4233fafbf8dd549e6b261c2786993be56",
        "signature":
↪ "5f61270d5e61dc52819ff49c18f70c3db0d857c02cb36072f77389a3a41bc8d69670c07aa47b2016dc70d4a253831"
↪ ""
    },
    "attributes": [
        {
            "usage": 0,
            "data": "32333034373734313030343338343537343535"
        }
    ],
    "vin": [
        {
            "txid":
↪ "926d7690fc71845ca56020f742037243bf4a4eab07427f09dba2fde4c89c6bc2",
            "vout": 0,
            "sequence": 0
        }
    ]
}

```

```
    ],
    "vout": [
      {
        "value": "0.00650000",
        "n": 0,
        "address": "EeThPu5NKyp6xeY4YKbN4wneybHhLw8LVV",
        "assetid":
↪ "a3d0eaa466df74983b5d7c543de6904f4c9418ead5ffd6d25814234a96db37b0",
        "outputlock": 0,
        "type": 0,
        "payload": null
      }
    ],
    "locktime": 584487,
    "programs": [
      {
        "code":
↪ "210308ed9ec322ce8baa19d9b0936500016c063f4ce3d9fc5b3d0ad7f3957e2b6084ac",
        "parameter":
↪ "400c70fa3663876d40c3ed511b0fe6e87cd49676c1d295cf82a860d10b399ae0188f8e28344f9d6fe6b8e81612e63
↪ "
      }
    ],
    "blockhash": "",
    "confirmations": 0,
    "time": 0,
    "blocktime": 0
  }
]
```

2.2.2 Enhancement Api

Much more powerful api you might be need .

Get dpos producer vote statistics

producer's vote statistics of specific height

GET /api/v1/dpos/producer/(string:`producer\_public\_key`)/(int:`height`)

Example request:

```
GET /api/v1/dpos/producer/
↪ 03330ee8520088b7f578a9afabaef0c034fa31fe1354cb3a14410894f974132800/9999999 HTTP/
↪ 1.1
Host: localhost
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
  "result": [
    {
```

```

        "Producer_public_key":
        ↪ "03330ee8520088b7f578a9afabaef0c034fa31fe1354cb3a14410894f974132800",
        "Vote_type": "Delegate",
        "Txid":
        ↪ "2638f858000dd118015daa7b1ee23c86e1c0738b5e641265d52f6612c527c672",
        "N": 0,
        "Value": "4999",
        "Outputlock": 0,
        "Address": "EbeD11dua88L9VQtNmJuEez8aVYX294CML",
        "Block_time": 1551800055,
        "Height": 233745
    },
    {
        "Producer_public_key":
        ↪ "03330ee8520088b7f578a9afabaef0c034fa31fe1354cb3a14410894f974132800",
        "Vote_type": "Delegate",
        "Txid":
        ↪ "82fce02fb0e835102eb37633e513e78c825a534d46146962391866e25bf8005c",
        "N": 0,
        "Value": "9999",
        "Outputlock": 0,
        "Address": "EKmp4dqTSMVW2f2H3x5H2A6vQf7FJV8Frj",
        "Block_time": 1551838308,
        "Height": 234056
    },
    {
        "Producer_public_key":
        ↪ "03330ee8520088b7f578a9afabaef0c034fa31fe1354cb3a14410894f974132800",
        "Vote_type": "Delegate",
        "Txid":
        ↪ "74f2beb77f15fcc6f36e43533aec254fc17b84edbb7e2b3a625c9ac2867a7435",
        "N": 0,
        "Value": "123",
        "Outputlock": 0,
        "Address": "EWHEoukFBK6AyMjuS9ucxhQ2twS7BKQEv8",
        "Block_time": 1551838618,
        "Height": 234058
    },
    {
        "Producer_public_key":
        ↪ "03330ee8520088b7f578a9afabaef0c034fa31fe1354cb3a14410894f974132800",
        "Vote_type": "Delegate",
        "Txid":
        ↪ "1a71b89c5e6c1b9baf31884f075f5e3ea159d8edfe5d665a2f5182d0c715ff91",
        "N": 0,
        "Value": "9999",
        "Outputlock": 0,
        "Address": "EYZt2Xk76NNFEHiihqkyBhyzuwlabcheXF",
        "Block_time": 1551850832,
        "Height": 234161
    },
    {
        "Producer_public_key":
        ↪ "03330ee8520088b7f578a9afabaef0c034fa31fe1354cb3a14410894f974132800",
        "Vote_type": "Delegate",
        "Txid":
        ↪ "71083736e824c73e4b327a8b958dbbd00aec879768a96963cbdfc5008e1bd393",
        "N": 0,

```

```
        "Value": "0.01111111",
        "Outputlock": 0,
        "Address": "ELbKQrj8DTYn2gU7KBejcNWb4ix4EAGDmy",
        "Block_time": 1551851053,
        "Height": 234163
    },
    {
        "Producer_public_key":
↪ "03330ee8520088b7f578a9afabaef0c034fa31fe1354cb3a14410894f974132800",
        "Vote_type": "Delegate",
        "Txid":
↪ "fbc81da6db6db5cb09c76fe405cf238353a8e837dda5acacd137ba43a9da1d02",
        "N": 0,
        "Value": "9999",
        "Outputlock": 0,
        "Address": "ENaaqePNBtrZsNbs9uc35CPqTbvn8oaYL9",
        "Block_time": 1551853616,
        "Height": 234180
    },
    {
        "Producer_public_key":
↪ "03330ee8520088b7f578a9afabaef0c034fa31fe1354cb3a14410894f974132800",
        "Vote_type": "Delegate",
        "Txid":
↪ "82529a764fd1bbdd4ae39e9bb791d029ecb3010b7db48a7b5d1edfe8be71f36e",
        "N": 0,
        "Value": "9999",
        "Outputlock": 0,
        "Address": "Ea3XHVqFiAjYA4sSCTQSmrWQafGkbaYxe",
        "Block_time": 1551853616,
        "Height": 234180
    }
],
"status": 200
}
```

Status Codes

- 200 OK – no error
- 400 Bad Request – bad request
- 404 Not Found – not found request
- 500 Internal Server Error – internal error
- **10001** – process error

Get dpos voter's statistics

voter's statistics

GET /api/v1/dpos/address/(string: `address`) ?pageSize=(int: `pageSize`) &pageNum=(int: `pageNum`)

Example request:

```
GET /api/v1/dpos/address/ENaaqePNBtrZsNbs9uc35CPqTbvn8oaYL9?pageSize=1&pageNum=1_
↪ HTTP/1.1
Host: localhost
```

Example response:

```

HTTP/1.1 200 OK
Content-Type: application/json

{
  "result": [
    {
      "Vote_Header": {
        "Value": "199.99935700",
        "Node_num": 1,
        "Txid":
↪ "5a0d7958ff9677eef0fa7194db788add8722cf91fdaedc28c12acb677a58f8b3",
        "Height": 266138,
        "Nodes": [
↪ "033c495238ca2b6bb8b7f5ae172363caea9a55cf245ffb3272d078126b1fe3e7cd"
        ],
        "Block_time": 1555574076,
        "Is_valid": "NO"
      },
      "Vote_Body": [
        {
          "Producer_public_key":
↪ "033c495238ca2b6bb8b7f5ae172363caea9a55cf245ffb3272d078126b1fe3e7cd",
          "Value": "313289.9935201299",
          "Address": "Eb8UHkQ2bJ4Ljux4yBePFdxB5Yp77VYHyt",
          "Rank": 2,
          "Ownerpublickey":
↪ "033c495238ca2b6bb8b7f5ae172363caea9a55cf245ffb3272d078126b1fe3e7cd",
          "Nodepublickey":
↪ "03c18abb98f6679064bd44121f3b0a3f25dea1a8b8cb0e1b51dc9c26729f07ddc9",
          "Nickname": "",
          "Url": "www.douniwan.com",
          "Location": 263,
          "Active": false,
          "Votes": "311315.30210000",
          "Netaddress": "8.8.8.8",
          "State": "Activate",
          "Registerheight": 232288,
          "Cancelheight": 0,
          "Inactiveheight": 0,
          "Illegalheight": 0,
          "Index": 1,
          "Reward": "0",
          "EstRewardPerYear": "47013.01092436"
        }
      ]
    }
  ],
  "status": 200
}

```

Get producers of specific transactions

POST /api/v1/dpos/transaction/producer

Example request:

```
POST /api/v1/dpos/transaction/producer HTTP/1.1
Host: localhost

{
  "txid":[
    "59b6b468f75856b7980525ad7a1278e4998959211f57d81755e4248982fd18b8"
  ]
}
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
  "result":[
    {
      "Producer":[
        {
          "Ownerpublickey":
            ↪"02b28266ff709f4764374c0452e379671e47d66713efb4cce7812b3c9f4a12b2bc",
          "Nodepublickey":
            ↪"02b28266ff709f4764374c0452e379671e47d66713efb4cce7812b3c9f4a12b2bc",
          "Nickname":"DHG()",
          "Url":"www.eladhg.com",
          "Location":86,
          "Active":false,
          "Votes":"263036.79130980",
          "Netaddress":"",
          "State":"Activate",
          "Registerheight":361360,
          "Cancelheight":0,
          "Inactiveheight":0,
          "Illegalheight":0,
          "Index":6
        },
        {
          "Ownerpublickey":
            ↪"025220c50d7ba72c8f5a78972b4d157339d5a02d3ed8639f01dbae6c14de5585cb",
          "Nodepublickey":
            ↪"02c29d33e3caf772f153c5d866ee799d5d4ad38d5efe402d3d5fa980ae5fb5f9a1",
          "Nickname":"greengang",
          "Url":"www.ptcent.com",
          "Location":86,
          "Active":false,
          "Votes":"239143.67333523",
          "Netaddress":"",
          "State":"Activate",
          "Registerheight":360878,
          "Cancelheight":0,
          "Inactiveheight":0,
          "Illegalheight":0,
          "Index":14
        },
        {
          "Ownerpublickey":
            ↪"02f2101d918e95b9df92e58322f7b7d70a134dd0bf441c25758fe8a9a64e712ebd",
          "Nodepublickey":
            ↪"02f2101d918e95b9df92e58322f7b7d70a134dd0bf441c25758fe8a9a64e712ebd",
```

```

        "Nickname": "ZDJ",
        "Url": "www.zhidianjia.com",
        "Location": 86,
        "Active": false,
        "Votes": "103658.61704950",
        "Netaddress": "",
        "State": "Activate",
        "Registerheight": 360618,
        "Cancelheight": 0,
        "Inactiveheight": 0,
        "Illegalheight": 0,
        "Index": 42
    },
    {
        "Ownerpublickey":
        ↪ "0279d982cda37fa7edc1906ec2f4b3d8da5af2c15723e14f368f3684bb4a1e0889",
        "Nodepublickey":
        ↪ "0279d982cda37fa7edc1906ec2f4b3d8da5af2c15723e14f368f3684bb4a1e0889",
        "Nickname": "ELA.SYDNEY",
        "Url": "www.ela.sydney",
        "Location": 61,
        "Active": false,
        "Votes": "46492.26739977",
        "Netaddress": "",
        "State": "Activate",
        "Registerheight": 372790,
        "Cancelheight": 0,
        "Inactiveheight": 0,
        "Illegalheight": 0,
        "Index": 53
    }
],
    "Txid":
    ↪ "59b6b468f75856b7980525ad7a1278e4998959211f57d81755e4248982fd18b8"
}
],
    "status": 200
}

```

Get dpos super node rank list

rank list of producer , state can be active , inactive , pending , canceled , illegal , returned

GET /api/v1/dpos/rank/height/(int:`height`)?state=active

Example request:

```
GET /api/v1/dpos/rank/height/241762 HTTP/1.1
Host: localhost
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
    "result": [
        {

```

```
        "Producer_public_key":
↪ "03330ee8520088b7f578a9afabae0c034fa31fe1354cb3a14410894f974132800",
        "Value": "357051",
        "Address": "EX4eQnSSBG2CuhkSvaJHxrwtxS12Lxwy3M",
        "Rank": 1,
        "Ownerpublickey":
↪ "03330ee8520088b7f578a9afabae0c034fa31fe1354cb3a14410894f974132800",
        "Nodepublickey": "16fffcff2affd4c7fffdcfccffccffff4ff",
        "Nickname": "",
        "Url": "www.elastos.org",
        "Location": 86,
        "Active": false,
        "Votes": "357029",
        "Netaddress":
↪ "5JdHqndX1NyyTJnnRnAAKNsoJ9qBwcMYtvRduxHyGGdhzHwxPZo",
        "State": "Activate",
        "Registerheight": 233734,
        "Cancelheight": 0,
        "Inactiveheight": 0,
        "Illegalheight": 0,
        "Index": 0,
        "Reward": "",
        "EstRewardPerYear": "66741.53520809"
    },
    {
        "Producer_public_key":
↪ "033c495238ca2b6bb8b7f5ae172363caea9a55cf245ffb3272d078126b1fe3e7cd",
        "Value": "311337.3",
        "Address": "Eb8UHkQ2bJ4Ljux4yBePFdxB5Yp77VYHyt",
        "Rank": 2,
        "Ownerpublickey":
↪ "033c495238ca2b6bb8b7f5ae172363caea9a55cf245ffb3272d078126b1fe3e7cd",
        "Nodepublickey":
↪ "03c18abb98f6679064bd44121f3b0a3f25dea1a8b8cb0e1b51dc9c26729f07ddc9",
        "Nickname": "",
        "Url": "www.douniwan.com",
        "Location": 263,
        "Active": false,
        "Votes": "311315.30000000",
        "Netaddress": "8.8.8.8",
        "State": "Activate",
        "Registerheight": 232288,
        "Cancelheight": 0,
        "Inactiveheight": 0,
        "Illegalheight": 0,
        "Index": 1,
        "Reward": "",
        "EstRewardPerYear": "58196.53038233"
    },
    {
        "Producer_public_key":
↪ "0337e6eaabfab6321d109d48e135190560898d42a1d871bfe8fecc67f4c3992250",
        "Value": "309866",
        "Address": "EdhP9lWcY2WhyV8N6dCnBxbjAnGd2izrzy",
        "Rank": 3,
        "Ownerpublickey":
↪ "0337e6eaabfab6321d109d48e135190560898d42a1d871bfe8fecc67f4c3992250",
        "Nodepublickey": "ff",
```

```

        "Nickname": "",
        "Url": "www.helloworld.com",
        "Location": 44,
        "Active": false,
        "Votes": "309844",
        "Netaddress": "1.2.3.4",
        "State": "Activate",
        "Registerheight": 234800,
        "Cancelheight": 0,
        "Inactiveheight": 0,
        "Illegalheight": 0,
        "Index": 2,
        "Reward": "",
        "EstRewardPerYear": "57921.50854861"
    },
    {
        "Producer_public_key":
↪ "03c78467b91805c95ada2530513069bef1f1f1e7b756861381ab534efa6d94e40a",
        "Value": "218140.55555",
        "Address": "EdfJA92nN9X4T9cKqkvyrUnVuBWfF1Mumm",
        "Rank": 4,
        "Ownerpublickey":
↪ "03c78467b91805c95ada2530513069bef1f1f1e7b756861381ab534efa6d94e40a",
        "Nodepublickey": "ffffff3fffffffffffffffffbff1affffffec",
        "Nickname": "2",
        "Url": "1.4.7.9",
        "Location": 672,
        "Active": false,
        "Votes": "218115.55555000",
        "Netaddress": "1.12.3.4",
        "State": "Activate",
        "Registerheight": 233035,
        "Cancelheight": 0,
        "Inactiveheight": 0,
        "Illegalheight": 0,
        "Index": 3,
        "Reward": "",
        "EstRewardPerYear": "40775.78712439"
    },
    {
        "Producer_public_key":
↪ "021d59a84d2243111e39e8c2af0a5089127d142d52b18c3e4bf744e0c6f8af44e0",
        "Value": "147232",
        "Address": "ESpTiKXgLCYkzxdD7MuCmL9y9fbWrnH591",
        "Rank": 5,
        "Ownerpublickey":
↪ "021d59a84d2243111e39e8c2af0a5089127d142d52b18c3e4bf744e0c6f8af44e0",
        "Nodepublickey": "ffff1230ffff",
        "Nickname": "www.12306.cn",
        "Url": "www.12306.cn",
        "Location": 244,
        "Active": false,
        "Votes": "147210",
        "Netaddress": "www.12306.cn",
        "State": "Activate",
        "Registerheight": 232899,
        "Cancelheight": 0,
        "Inactiveheight": 0,

```

```
        "Illegalheight":0,
        "Index":4,
        "Reward":"","
        "EstRewardPerYear":"27521.24965833"
    },
    {
        "Producer_public_key":
↪ "036417ab256114a32bcff38f3e10f0384cfa9238afa41a163017687b3ce1fa17f2",
        "Value":"139881",
        "Address":"ETKVMhhQCjttNAjrbqmkAAYuYshLdaDnjm",
        "Rank":6,
        "Ownerpublickey":
↪ "036417ab256114a32bcff38f3e10f0384cfa9238afa41a163017687b3ce1fa17f2",
        "Nodepublickey":
↪ "03e5b45b44bb1e2406c55b7dd84b727fad608ba7b7c11a9c5ffbfefee60e427bd1da",
        "Nickname":"3",
        "Url":"225.7.3",
        "Location":672,
        "Active":false,
        "Votes":"139850",
        "Netaddress":"1.1.1.8",
        "State":"Activate",
        "Registerheight":233537,
        "Cancelheight":0,
        "Inactiveheight":0,
        "Illegalheight":0,
        "Index":5,
        "Reward":"","
        "EstRewardPerYear":"26147.16857380"
    },
    {
        "Producer_public_key":
↪ "02e578a6f4295765ad3be4cdac9be15de5aedaflae76e86539bb54c397e467cd5e",
        "Value":"125906",
        "Address":"EHdSBUH3nxkcAk9evU4HrENzEm8MHirkkN",
        "Rank":7,
        "Ownerpublickey":
↪ "02e578a6f4295765ad3be4cdac9be15de5aedaflae76e86539bb54c397e467cd5e",
        "Nodepublickey":"ffffeffddffffffffff2ffffffffffbffffffffff",
        "Nickname":"","
        "Url":"www.yilaiyun.com",
        "Location":244,
        "Active":false,
        "Votes":"125884",
        "Netaddress":"www.yilaiyun.com",
        "State":"Activate",
        "Registerheight":233680,
        "Cancelheight":0,
        "Inactiveheight":0,
        "Illegalheight":0,
        "Index":6,
        "Reward":"","
        "EstRewardPerYear":"23534.90042574"
    },
    {
        "Producer_public_key":
↪ "02ddd829f3495a2ce76d908c3e6e7d4505e12c4718c5af4b4cbff309cfd3aeab88",
        "Value":"108968",
```

```

        "Address": "EevRwpP5GYz5s8fuMboUnhsAQVVKbyJSph",
        "Rank": 8,
        "Ownerpublickey":
↪ "02ddd829f3495a2ce76d908c3e6e7d4505e12c4718c5af4b4cbff309cfd3aeab88",
        "Nodepublickey": "ffffffffffffffffffffffffffffffff",
        "Nickname": "",
        "Url": "www.bightbc.com",
        "Location": 86,
        "Active": false,
        "Votes": "108946",
        "Netaddress": "EfSkh3e9uaVN5iMdU7oUPYPmyMxrMsrDut",
        "State": "Activate",
        "Registerheight": 234283,
        "Cancelheight": 0,
        "Inactiveheight": 0,
        "Illegalheight": 0,
        "Index": 7,
        "Reward": "",
        "EstRewardPerYear": "20368.77535297"
    },
    {
        "Producer_public_key":
↪ "03c7b1f234d5d16472fcdd24d121e4cd224e1074f558a3eb1a6a146aa91dcf9c0d",
        "Value": "108186",
        "Address": "EQR8f9y2Sd5gFG3LWEeC57qXc2yEnDhgm2",
        "Rank": 9,
        "Ownerpublickey":
↪ "03c7b1f234d5d16472fcdd24d121e4cd224e1074f558a3eb1a6a146aa91dcf9c0d",
        "Nodepublickey": "350181ff",
        "Nickname": "",
        "Url": "1.8.5.8",
        "Location": 86,
        "Active": false,
        "Votes": "108164",
        "Netaddress": "HTTP//HUANGBINGBING.COM",
        "State": "Activate",
        "Registerheight": 233676,
        "Cancelheight": 0,
        "Inactiveheight": 0,
        "Illegalheight": 0,
        "Index": 8,
        "Reward": "",
        "EstRewardPerYear": "20222.60049131"
    },
    {
        "Producer_public_key":
↪ "03b688e0124580de452c400e01c628a690527e8742b6fa4645026dbc70155d7c8b",
        "Value": "107863",
        "Address": "EQHz2jPpgW8trYD4ejYgfi4sE4JSTf7m9N",
        "Rank": 10,
        "Ownerpublickey":
↪ "03b688e0124580de452c400e01c628a690527e8742b6fa4645026dbc70155d7c8b",
        "Nodepublickey": "ffffffffffff",
        "Nickname": "",
        "Url": "1.4.7.9",
        "Location": 672,
        "Active": false,
        "Votes": "107841",

```

```
        "Netaddress": "www.vogue.com",
        "State": "Activate",
        "Registerheight": 233684,
        "Cancelheight": 0,
        "Inactiveheight": 0,
        "Illegalheight": 0,
        "Index": 9,
        "Reward": "",
        "EstRewardPerYear": "20162.22391801"
    },
    {
        "Producer_public_key":
        ↪ "03bc2c2b75009a3a551e98bf206730501ecdf46e71b0405840ff1d5750094bd4ff",
        "Value": "105047",
        "Address": "ENxPtTR7Jn1kxhdTXedF28s3iz6djYfRaS",
        "Rank": 11,
        "Ownerpublickey":
        ↪ "03bc2c2b75009a3a551e98bf206730501ecdf46e71b0405840ff1d5750094bd4ff",
        "Nodepublickey": "ffffffffd29fffffffffa8fa8fffdfffa",
        "Nickname": "",
        "Url": "www.baidu.com",
        "Location": 376,
        "Active": false,
        "Votes": "105025",
        "Netaddress": "",
        "State": "Activate",
        "Registerheight": 232892,
        "Cancelheight": 0,
        "Inactiveheight": 0,
        "Illegalheight": 0,
        "Index": 10,
        "Reward": "",
        "EstRewardPerYear": "19635.84487651"
    },
    {
        "Producer_public_key":
        ↪ "0230d383546d154d67cfafc6091c0736c0b26a8c7c16e879ef8011d91df976f1fb",
        "Value": "104256",
        "Address": "EMyStHAvvy1VLsLyow8uMRW4kUYLeGXF17",
        "Rank": 12,
        "Ownerpublickey":
        ↪ "0230d383546d154d67cfafc6091c0736c0b26a8c7c16e879ef8011d91df976f1fb",
        "Nodepublickey": "fffffffffffffffffffbfcffffff",
        "Nickname": "",
        "Url": "www.ela.com",
        "Location": 86,
        "Active": false,
        "Votes": "104234",
        "Netaddress": "www.ela.com",
        "State": "Activate",
        "Registerheight": 233612,
        "Cancelheight": 0,
        "Inactiveheight": 0,
        "Illegalheight": 0,
        "Index": 11,
        "Reward": "",
        "EstRewardPerYear": "19487.98769547"
    },
    },
    {

```

```

    {
      "Producer_public_key":
↪ "028fb1a85f6a30a516b9e3516d03267403a3af0c96d73b0284ca0c1165318531ff",
      "Value": "104066",
      "Address": "ESqyiCizgyNNLKdVQhhtxtR5v5eCnkk3Qh",
      "Rank": 13,
      "Ownerpublickey":
↪ "028fb1a85f6a30a516b9e3516d03267403a3af0c96d73b0284ca0c1165318531ff",
      "Nodepublickey": "ffff9262",
      "Nickname": "",
      "Url": "www.7234.cn",
      "Location": 86,
      "Active": false,
      "Votes": "101045",
      "Netaddress": "www.7234.cn",
      "State": "Activate",
      "Registerheight": 235373,
      "Cancelheight": 0,
      "Inactiveheight": 0,
      "Illegalheight": 0,
      "Index": 12,
      "Reward": "",
      "EstRewardPerYear": "19452.47206412"
    },
    {
      "Producer_public_key":
↪ "02db921cfb4bf504c83038212aafe52cc1d0a07eb71a399a0d2162fe0cd4d47720",
      "Value": "99051",
      "Address": "ERbFZNj5bukyRQe5G4gdXnbDqVyxcTNeFT",
      "Rank": 14,
      "Ownerpublickey":
↪ "02db921cfb4bf504c83038212aafe52cc1d0a07eb71a399a0d2162fe0cd4d47720",
      "Nodepublickey": "1234567890ffdfcccccccccccccccccccc",
      "Nickname": "ios_us01",
      "Url": "www.ios_us01.com",
      "Location": 684,
      "Active": false,
      "Votes": "99029",
      "Netaddress": "192.168.1.22:25339",
      "State": "Activate",
      "Registerheight": 233672,
      "Cancelheight": 0,
      "Inactiveheight": 0,
      "Illegalheight": 0,
      "Index": 13,
      "Reward": "",
      "EstRewardPerYear": "18515.04632082"
    },
    {
      "Producer_public_key":
↪ "033fb33f39276b93d3474cf7999887bed16c3211ee7f904399eeead4c480d7d592",
      "Value": "98859",
      "Address": "EXQZMbKMcmVmwv25AYbrzWPhFRSfqKcfKM",
      "Rank": 15,
      "Ownerpublickey":
↪ "033fb33f39276b93d3474cf7999887bed16c3211ee7f904399eeead4c480d7d592",
      "Nodepublickey": "19ffffffe9dfffffffffffbcaffffff",
      "Nickname": "-",

```

```
        "Url": "www.pingcj.com",
        "Location": 86,
        "Active": false,
        "Votes": "98837",
        "Netaddress": "Ed846C7M9Ax8x1qaftjSR53RZmfSvp8CpN",
        "State": "Activate",
        "Registerheight": 235077,
        "Cancelheight": 0,
        "Inactiveheight": 0,
        "Illegalheight": 0,
        "Index": 14,
        "Reward": "",
        "EstRewardPerYear": "18479.15684072"
    },
    {
        "Producer_public_key":
        ↪ "030e4b487daf8e14dbd7023e3f6f475d00145a1f1cc87be4b8d58a4291ab0a3b1a",
        "Value": "25974",
        "Address": "EVFSvWoxiyvGLka4V6Wt394LEoUu8mDhk4",
        "Rank": 16,
        "Ownerpublickey":
        ↪ "030e4b487daf8e14dbd7023e3f6f475d00145a1f1cc87be4b8d58a4291ab0a3b1a",
        "Nodepublickey":
        ↪ "0241db65a4da2cdcb648a881ced2a5ed64646ecc3a2cc9a75cec2853de61dbed1",
        "Nickname": "ELASuperNode",
        "Url": "www.ELASuperNode.com",
        "Location": 86,
        "Active": false,
        "Votes": "25952",
        "Netaddress": "54.64.220.165",
        "State": "Activate",
        "Registerheight": 237877,
        "Cancelheight": 0,
        "Inactiveheight": 0,
        "Illegalheight": 0,
        "Index": 15,
        "Reward": "",
        "EstRewardPerYear": "4855.17373007"
    },
    {
        "Producer_public_key":
        ↪ "0210694f4ab518037bc2dcc3f5e1a1030e8a36821ab019c10f29d4a894b8034498",
        "Value": "55",
        "Address": "ESwKtu2aYSHHfdWUPdg4b3PtibfaEcJEvT",
        "Rank": 17,
        "Ownerpublickey":
        ↪ "0210694f4ab518037bc2dcc3f5e1a1030e8a36821ab019c10f29d4a894b8034498",
        "Nodepublickey":
        ↪ "024babfecea0300971a6f0ad13b27519faff0ef595faf9490dc1f5f4d6e6d7f3fb",
        "Nickname": "adr_us01",
        "Url": "www.adr_us01_9.com",
        "Location": 93,
        "Active": false,
        "Votes": "33",
        "Netaddress": "node-regtest-509.eadd.co:26339",
        "State": "Activate",
        "Registerheight": 238437,
        "Cancelheight": 0,
```

```

        "Inactiveheight":0,
        "Illegalheight":0,
        "Index":16,
        "Reward":"","
        "EstRewardPerYear":"10.28084065"
    },
    {
        "Producer_public_key":
↪ "0210cd8407f70b26dbb77039cdce61a526168d04b83885844294038759f57c525c",
        "Value":"20",
        "Address":"EdUn345wvDWj3knsYsquEkZsqhRRXYSdnK",
        "Rank":18,
        "Ownerpublickey":
↪ "0210cd8407f70b26dbb77039cdce61a526168d04b83885844294038759f57c525c",
        "Nodepublickey":
↪ "0210cd8407f70b26dbb77039cdce61a526168d04b83885844294038759f57c525c",
        "Nickname":"ios_us05",
        "Url":"www.ios_us05.com",
        "Location":244,
        "Active":false,
        "Votes":"20",
        "Netaddress":"172.31.40.70:25339",
        "State":"Activate",
        "Registerheight":244762,
        "Cancelheight":0,
        "Inactiveheight":0,
        "Illegalheight":0,
        "Index":17,
        "Reward":"","
        "EstRewardPerYear":"3.73848751"
    },
    {
        "Producer_public_key":
↪ "03325ce52add7a799a61a305973b3d84aa4f622358ab3eb9f010f1175e2dab6b13",
        "Value":"20",
        "Address":"Eb9mkpHC787UGqeqNvXs7j4Thh6fX6rF9D",
        "Rank":19,
        "Ownerpublickey":
↪ "03325ce52add7a799a61a305973b3d84aa4f622358ab3eb9f010f1175e2dab6b13",
        "Nodepublickey":
↪ "03325ce52add7a799a61a305973b3d84aa4f622358ab3eb9f010f1175e2dab6b13",
        "Nickname":"ios_us06",
        "Url":"www.ios_us06.com",
        "Location":54,
        "Active":false,
        "Votes":"20",
        "Netaddress":"172.31.45.130:25339",
        "State":"Activate",
        "Registerheight":244768,
        "Cancelheight":0,
        "Inactiveheight":0,
        "Illegalheight":0,
        "Index":18,
        "Reward":"","
        "EstRewardPerYear":"3.73848751"
    }
],
"status":200

```

```
}
```

Get dpos total vote of specific height

total vote of specific height

GET /api/v1/dpos/vote/height/(int:`height`)

Example request:

```
GET /api/v1/dpos/vote/height/241762 HTTP/1.1
Host: localhost
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
  "result":2468878.85555,
  "status":200
}
```

Get transaction history , version 1

GET /api/v1/history/(string:`addr`)?pageSize=(int:`pageSize`)&pageNum=(int:`pageNum`)&order=

Example request:

```
GET /api/v1/history/EHCGDgxxRTj4rTSmZESmVqDHfYPZZWPpFQ HTTP/1.1
Host: localhost
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
  "Desc": "Success",
  "Error": 0,
  "Result": {
    "History": [
      {
        "Address": "EHCGDgxxRTj4rTSmZESmVqDHfYPZZWPpFQ",
        "Txid":
        ↪ "d6cdabe9a26073c3d4c13d1963250883b3656ba572b7a3bc8f44418b84c0fa12",
        "Type": "income",
        "Value": 175834086,
        "CreateTime": 1544862227,
        "Height": 181860,
        "Fee": 0,
        "Inputs": [
          "0000000000000000000000000000000000000000"
        ],
        "Outputs": [
          "8ZNizBf4KhhPjeJRGpox6rPcHE5Np6tFx3",
          "EHCGDgxxRTj4rTSmZESmVqDHfYPZZWPpFQ"
        ]
      }
    ]
  }
}
```

```

    ],
    "TxType": "CoinBase",
    "Memo": ""
  },
  {
    "Address": "EHCGDgxxRTj4rTsmZESmVqDHfYPZZWPpFQ",
    "Txid":
    ↪ "8989a93356ba6a514c3d6afcf27c67cd9d85eea78c045c945cf1ebafcd9d099",
    "Type": "income",
    "Value": 175834086,
    "CreateTime": 1544862297,
    "Height": 181861,
    "Fee": 0,
    "Inputs": [
      "00000000000000000000000000000000"
    ],
    "Outputs": [
      "8ZNizBf4KhhPjeJRGpox6rPcHE5Np6tFx3",
      "EHCGDgxxRTj4rTsmZESmVqDHfYPZZWPpFQ"
    ],
    "TxType": "CoinBase",
    "Memo": ""
  },
  {
    "Address": "EHCGDgxxRTj4rTsmZESmVqDHfYPZZWPpFQ",
    "Txid":
    ↪ "275bd1afbd612d064e872d5cdcb7c095b9c6f693b4c393611f6ae903ae6f6a1b",
    "Type": "income",
    "Value": 175837586,
    "CreateTime": 1544862487,
    "Height": 181862,
    "Fee": 0,
    "Inputs": [
      "00000000000000000000000000000000"
    ],
    "Outputs": [
      "8ZNizBf4KhhPjeJRGpox6rPcHE5Np6tFx3",
      "EHCGDgxxRTj4rTsmZESmVqDHfYPZZWPpFQ"
    ],
    "TxType": "CoinBase",
    "Memo": ""
  },
  {
    "Address": "EHCGDgxxRTj4rTsmZESmVqDHfYPZZWPpFQ",
    "Txid":
    ↪ "5099e59c7186dd85259d52a33ca61614bd6118896e3a0806ce8be8d9a277afe7",
    "Type": "income",
    "Value": 175834086,
    "CreateTime": 1544862607,
    "Height": 181863,
    "Fee": 0,
    "Inputs": [
      "00000000000000000000000000000000"
    ],
    "Outputs": [
      "8ZNizBf4KhhPjeJRGpox6rPcHE5Np6tFx3",
      "EHCGDgxxRTj4rTsmZESmVqDHfYPZZWPpFQ"
    ],
  },

```

```
        "TxType": "CoinBase",
        "Memo": ""
    },
    {
        "Address": "EHCGDgxxRTj4rTsmZESmVqDHfYPZZWPpFQ",
        "Txid":
↪ "b3acf06712e44e7be0163ccc16a658f9dcd82af78a208613f38987441a3f6722",
        "Type": "income",
        "Value": 175834086,
        "CreateTime": 1544862647,
        "Height": 181864,
        "Fee": 0,
        "Inputs": [
            "00000000000000000000000000000000"
        ],
        "Outputs": [
            "8ZNizBf4KhhPjeJRGpox6rPcHE5Np6tFx3",
            "EHCGDgxxRTj4rTsmZESmVqDHfYPZZWPpFQ"
        ],
        "TxType": "CoinBase",
        "Memo": ""
    },
    {
        "Address": "EHCGDgxxRTj4rTsmZESmVqDHfYPZZWPpFQ",
        "Txid":
↪ "53cbd4308ab981229a7dadfb9ddfe2052d318ad16885f425f54422fb5f9fe1cb",
        "Type": "income",
        "Value": 175834086,
        "CreateTime": 1544862798,
        "Height": 181865,
        "Fee": 0,
        "Inputs": [
            "00000000000000000000000000000000"
        ],
        "Outputs": [
            "8ZNizBf4KhhPjeJRGpox6rPcHE5Np6tFx3",
            "EHCGDgxxRTj4rTsmZESmVqDHfYPZZWPpFQ"
        ],
        "TxType": "CoinBase",
        "Memo": ""
    },
    {
        "Address": "EHCGDgxxRTj4rTsmZESmVqDHfYPZZWPpFQ",
        "Txid":
↪ "ac27ea649c3f818bc80b70c09c267613ac0d10dbc32905e799940614319f8fa4",
        "Type": "income",
        "Value": 175834086,
        "CreateTime": 1544862838,
        "Height": 181866,
        "Fee": 0,
        "Inputs": [
            "00000000000000000000000000000000"
        ],
        "Outputs": [
            "8ZNizBf4KhhPjeJRGpox6rPcHE5Np6tFx3",
            "EHCGDgxxRTj4rTsmZESmVqDHfYPZZWPpFQ"
        ],
        "TxType": "CoinBase",
```

```

        "Memo": ""
    },
    {
        "Address": "EHCGDgxxRTj4rTsmZESmVqDHfYPZZWPpFQ",
        "Txid":
↪ "489bf2550b4f199bace74f56814092f2728ab8f87af796d3f38a9bd20d5f8dd3",
        "Type": "income",
        "Value": 175834086,
        "CreateTime": 1544862958,
        "Height": 181867,
        "Fee": 0,
        "Inputs": [
            "00000000000000000000000000000000"
        ],
        "Outputs": [
            "8ZNizBf4KhhPjeJRGpox6rPcHE5Np6tFx3",
            "EHCGDgxxRTj4rTsmZESmVqDHfYPZZWPpFQ"
        ],
        "TxType": "CoinBase",
        "Memo": ""
    },
    {
        "Address": "EHCGDgxxRTj4rTsmZESmVqDHfYPZZWPpFQ",
        "Txid":
↪ "34ae0fb243b82d9e2fd8edddd1d10d5ad3bbe3e2e9f0edce957164bb438530f2",
        "Type": "income",
        "Value": 175799086,
        "CreateTime": 1544863028,
        "Height": 181868,
        "Fee": 0,
        "Inputs": [
            "00000000000000000000000000000000"
        ],
        "Outputs": [
            "8ZNizBf4KhhPjeJRGpox6rPcHE5Np6tFx3",
            "EHCGDgxxRTj4rTsmZESmVqDHfYPZZWPpFQ"
        ],
        "TxType": "CoinBase",
        "Memo": ""
    },
    {
        "Address": "EHCGDgxxRTj4rTsmZESmVqDHfYPZZWPpFQ",
        "Txid":
↪ "1e149c5b3b44c3d21b20725e829c48e45fb2ddc722b8baf413bcf5f065c72e26",
        "Type": "income",
        "Value": 175834086,
        "CreateTime": 1544863188,
        "Height": 181869,
        "Fee": 0,
        "Inputs": [
            "00000000000000000000000000000000"
        ],
        "Outputs": [
            "8ZNizBf4KhhPjeJRGpox6rPcHE5Np6tFx3",
            "EHCGDgxxRTj4rTsmZESmVqDHfYPZZWPpFQ"
        ],
        "TxType": "CoinBase",
        "Memo": ""
    }
]

```

```
    },
    {
      "Address": "EHCGDgxxRTj4rTsmZESmVqDHfYPZZWPpFQ",
      "Txid":
↪ "1b65f050dd5a0da971601831fe04585c6c3e67a7fba442f11214c5aeebc2e608",
      "Type": "income",
      "Value": 175834086,
      "CreateTime": 1544863218,
      "Height": 181870,
      "Fee": 0,
      "Inputs": [
        "00000000000000000000000000000000"
      ],
      "Outputs": [
        "8ZNizBf4KhhPjeJRGpox6rPcHE5Np6tFx3",
        "EHCGDgxxRTj4rTsmZESmVqDHfYPZZWPpFQ"
      ],
      "TxType": "CoinBase",
      "Memo": ""
    },
    {
      "Address": "EHCGDgxxRTj4rTsmZESmVqDHfYPZZWPpFQ",
      "Txid":
↪ "df0e4dad249c7c63e0fbb4fed3d4575ba14cf6f8905f3c9958fd75157dc5e4db",
      "Type": "income",
      "Value": 175834086,
      "CreateTime": 1544863288,
      "Height": 181871,
      "Fee": 0,
      "Inputs": [
        "00000000000000000000000000000000"
      ],
      "Outputs": [
        "8ZNizBf4KhhPjeJRGpox6rPcHE5Np6tFx3",
        "EHCGDgxxRTj4rTsmZESmVqDHfYPZZWPpFQ"
      ],
      "TxType": "CoinBase",
      "Memo": ""
    },
    {
      "Address": "EHCGDgxxRTj4rTsmZESmVqDHfYPZZWPpFQ",
      "Txid":
↪ "a56d992517b99f89fa7b0aa1559db7ac1221ffad92abd1c04cc91c49b8680197",
      "Type": "income",
      "Value": 175834086,
      "CreateTime": 1544863368,
      "Height": 181872,
      "Fee": 0,
      "Inputs": [
        "00000000000000000000000000000000"
      ],
      "Outputs": [
        "8ZNizBf4KhhPjeJRGpox6rPcHE5Np6tFx3",
        "EHCGDgxxRTj4rTsmZESmVqDHfYPZZWPpFQ"
      ],
      "TxType": "CoinBase",
      "Memo": ""
    }
  ],
}
```

```

    {
      "Address": "EHCGDgxxRTj4rTsmZESmVqDHfYPZZWPpFQ",
      "Txid":
      ↪ "99d94184ae09d5c085379fc41921a0bf6a5b1f5e7345a6480ca6c391e42669d9",
      "Type": "income",
      "Value": 175869086,
      "CreateTime": 1544863518,
      "Height": 181873,
      "Fee": 0,
      "Inputs": [
        "00000000000000000000000000000000"
      ],
      "Outputs": [
        "8ZNizBf4KhhPjeJRGpox6rPcHE5Np6tFx3",
        "EHCGDgxxRTj4rTsmZESmVqDHfYPZZWPpFQ"
      ],
      "TxType": "CoinBase",
      "Memo": ""
    },
    {
      "Address": "EHCGDgxxRTj4rTsmZESmVqDHfYPZZWPpFQ",
      "Txid":
      ↪ "097a00c466e62e1b3f59fd88f5b78b0473bb0008b94336f622e0a559b362dc2c",
      "Type": "income",
      "Value": 175837586,
      "CreateTime": 1544863648,
      "Height": 181874,
      "Fee": 0,
      "Inputs": [
        "00000000000000000000000000000000"
      ],
      "Outputs": [
        "8ZNizBf4KhhPjeJRGpox6rPcHE5Np6tFx3",
        "EHCGDgxxRTj4rTsmZESmVqDHfYPZZWPpFQ"
      ],
      "TxType": "CoinBase",
      "Memo": ""
    }
  ],
  "TotalNum": 69180
}

```

Get transaction history , version 2

Increase fields : NodeOutputIndex (indicate which output is the node reward output), NodeFee (Node reward fee)

Changed meaning : Fee now is the total spending fee , contains the node reward fee

GET /api/v2/history/(string: `addr`) ?pageSize=(int: `pageSize`) &pageNum=(int: `pageNum`) &order

Example request:

```

GET /api/v2/history/EHCGDgxxRTj4rTsmZESmVqDHfYPZZWPpFQ HTTP/1.1
Host: localhost

```

Example response:

```

HTTP/1.1 200 OK
Content-Type: application/json

{
  "Desc": "Success",
  "Error": 0,
  "Result": {
    "History": [
      {
        "Address": "EHCGDgxxRTj4rTsmZESmVqDHfYPZZWPpFQ",
        "Txid":
↪ "d6cdabe9a26073c3d4c13d1963250883b3656ba572b7a3bc8f44418b84c0fa12",
        "Type": "income",
        "Value": 175834086,
        "CreateTime": 1544862227,
        "Height": 181860,
        "Fee": 0,
        "Inputs": [
          "0000000000000000000000000000000000000000000000000000000"
        ],
        "Outputs": [
          "8ZNizBf4KhhPjeJRGpox6rPcHE5Np6tFx3",
          "EHCGDgxxRTj4rTsmZESmVqDHfYPZZWPpFQ"
        ],
        "TxType": "CoinBase",
        "Memo": "",
        "NodeOutputIndex": -1,
        "NodeFee": 0
      },
      {
        "Address": "EHCGDgxxRTj4rTsmZESmVqDHfYPZZWPpFQ",
        "Txid":
↪ "8989a93356ba6a514c3d6afcf27c67cd9d85eea78c045c945cf1ebafcd9d099",
        "Type": "income",
        "Value": 175834086,
        "CreateTime": 1544862297,
        "Height": 181861,
        "Fee": 0,
        "Inputs": [
          "0000000000000000000000000000000000000000000000000000000"
        ],
        "Outputs": [
          "8ZNizBf4KhhPjeJRGpox6rPcHE5Np6tFx3",
          "EHCGDgxxRTj4rTsmZESmVqDHfYPZZWPpFQ"
        ],
        "TxType": "CoinBase",
        "Memo": "",
        "NodeOutputIndex": -1,
        "NodeFee": 0
      },
      {
        "Address": "EHCGDgxxRTj4rTsmZESmVqDHfYPZZWPpFQ",
        "Txid":
↪ "097a00c466e62e1b3f59fd88f5b78b0473bb0008b94336f622e0a559b362dc2c",
        "Type": "income",
        "Value": 175837586,
        "CreateTime": 1544863648,
        "Height": 181874,

```

```

        "Fee": 0,
        "Inputs": [
            "0000000000000000000000000000000000000000000000000000000",
        ],
        "Outputs": [
            "8ZNizBf4KhhPjeJRGpox6rPcHE5Np6tFx3",
            "EHCGDgxxRTj4rTsmZESmVqDHfYPZZWPpFQ"
        ],
        "TxType": "CoinBase",
        "Memo": "",
        "NodeOutputIndex": -1,
        "NodeFee": 0
    }
},
    "TotalNum": 69180
}
}

```

Get transaction history , version 3

Now you can get the pending transaction, which is now only stored in transaction pool, add one more field *status* it can be *pending* or *confirmed*

GET /api/v3/history/(string:`addr`)?pageSize=(int:`pageSize`)&pageNum=(int:`pageNum`)&order=

Example request:

```
GET /api/v3/history/EXuF9pAnZ8pwyGjJvvDrx73kfpi4oNeqyW HTTP/1.1
Host: localhost
```

Example response:

```

HTTP/1.1 200 OK
Content-Type: application/json

{
  "result": {
    "History": [
      {
        "Address": "EXuF9pAnZ8pwyGjJvvDrx73kfpi4oNeqyW",
        "Txid":
        ↪ "4a074853554c51a5c2ca08aa0a2a88ceddb9f82565aa7b57c323c2af8f46ff18",
        "Type": "spend",
        "Value": 409036,
        "CreateTime": 0,
        "Height": 0,
        "Fee": 100,
        "Inputs": [
          "EXuF9pAnZ8pwyGjJvvDrx73kfpi4oNeqyW"
        ],
        "Outputs": [
          "Ed57c3wF3J1u8vEYE9cjGUpqGPkEJC69v8",
          "EXuF9pAnZ8pwyGjJvvDrx73kfpi4oNeqyW"
        ],
        "TxType": "transferAsset",
        "Memo": "type:text,msg:From ELABank,ThaiEla Super Node Reward_
        ↪Distribution",
        "NodeOutputIndex": -1,

```

```
        "NodeFee": 0,
        "Status": "pending"
    },
    {
        "Address": "EXuF9pAnZ8pwyGjJvvDrx73kfpi4oNeqyW",
        "Txid":
        ↪ "87921fc5d840d40ec331cb23a47d58fb7a18b246c2fa793144747578725759e3",
        "Type": "income",
        "Value": 2000000,
        "CreateTime": 1560699457,
        "Height": 402147,
        "Fee": 0,
        "Inputs": [
            "EVSvGly3zQBKu6H8yCXVTDVqBDGhGDgSXh"
        ],
        "Outputs": [
            "EXuF9pAnZ8pwyGjJvvDrx73kfpi4oNeqyW"
        ],
        "TxType": "transferAsset",
        "Memo": "type:text,msg:ELABANK Share",
        "NodeOutputIndex": -1,
        "NodeFee": 0,
        "Status": "confirmed"
    },
    {
        "Address": "EXuF9pAnZ8pwyGjJvvDrx73kfpi4oNeqyW",
        "Txid":
        ↪ "34822a4b4c2c7efd559d395febb1c898f965c36d415d64296930361713be280f",
        "Type": "income",
        "Value": 3000000,
        "CreateTime": 1560711311,
        "Height": 402260,
        "Fee": 0,
        "Inputs": [
            "ETWvTCV7Gf7bngSeWEYveZ79qmcy4mvpu8"
        ],
        "Outputs": [
            "EXuF9pAnZ8pwyGjJvvDrx73kfpi4oNeqyW"
        ],
        "TxType": "transferAsset",
        "Memo": "type:text,msg:ThaiEla share",
        "NodeOutputIndex": -1,
        "NodeFee": 0,
        "Status": "confirmed"
    }
],
    "TotalNum": 2993
},
    "status": 200
}
```

Get spending address public key

GET /api/v1/pubkey/(string:`addr`)

If we can get the public key of this address. Example request:

```
GET /api/v1/pubkey/ELbKQrj8DTYn2gU7KBejcNWb4ix4EAGDmy HTTP/1.1
Host: localhost
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
  "result": "02eda087df202cfc8904ec8f933bf20920251b3964b117c984a576c6fd9047073c
↪",
  "status": 200
}
```

If we can not get the public key of this adress. Example request:

```
GET /api/v1/pubkey/EbxU18T3M9ufnrkRY7NLt6sKyckDW4VAsA HTTP/1.1
Host: localhost
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
  "result": "Can not find pubkey of this address, please using this address.
↪send a transaction first",
  "status": 200
}
```

Calculate UTXO that is about to spend

POST /api/v1/createTx

Example request:

```
POST /api/v1/createTx HTTP/1.1
Host: localhost

{
  "inputs": [
    "ER1ouzeLNKQTqPrDHxgAGw2eiCXPhgznVy",
    "EbxU18T3M9ufnrkRY7NLt6sKyckDW4VAsA"
  ],
  "outputs": [
    {
      "addr": "EQNJEA8XhraX8a6SBq98ENU5QSW6nvgSHJ",
      "amt": 1091460300
    }
  ]
}
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json
```

```
{
  "result": {
    "Transactions": [
      {
        "Fee": 100,
        "Total_Node_Fee": 4800,
        "Outputs": [
          {
            "address": "EN8A9xHUNCJ9XEtaVFWa8xsrxewH88fMUf",
            "amount": 4700
          },
          {
            "address": "ERZYCmcd12ctAfdiTMeuLrSdHdNXzYP1kg",
            "amount": 2000000000
          },
          {
            "address": "ERZYCmcd12ctAfdiTMeuLrSdHdNXzYP1kg",
            "amount": 20000010000
          },
          {
            "address": "EYH69rRAfDQ2HRa35bmYRh6UoAZ8u3n7ZJ",
            "amount": 1053883203946
          }
        ],
        "Postmark": {
          "pub":
            ↪ "0257b0a7a0b536d9cdb8ba748accd560dbc1b9e2fb77a7983329f2d0563f7fa144",
          "signature":
            ↪ "2a0ed9fbb93aede771b76c881284ae3e1e6d7523199f52580d3d037b38b52f7b590c307391ad76c3706c15acbd5b4"
            ↪ ""
        },
        "UTXOInputs": [
          {
            "address": "EYH69rRAfDQ2HRa35bmYRh6UoAZ8u3n7ZJ",
            "index": 0,
            "txid":
              ↪ "6752aa24b406c0a80f146398814adf9cc3d5ae018074e4f3dde363e27d8bcc1f"
          },
          {
            "address": "EYH69rRAfDQ2HRa35bmYRh6UoAZ8u3n7ZJ",
            "index": 1,
            "txid":
              ↪ "9460bf460b6b8699cb1c16772295ebe88b1070caf92aeabe93fb4a9799d255ad"
          }
        ]
      }
    ],
    "status": 200
  }
}
```

Calculate UTXO that is about to vote

POST /api/v1/createVoteTx

Example request:

```

POST /api/v1/createVoteTx HTTP/1.1
Host: localhost

{
  "inputs": [
    "ERh7jTzBYiuEZrom9i8XvECqgiDtjSL255"
  ],
  "outputs": [
    {
      "addr": "ERh7jTzBYiuEZrom9i8XvECqgiDtjSL255",
      "amt": "19500"
    }
  ]
}

```

Example response:

```

HTTP/1.1 200 OK
Content-Type: application/json

{
  "result": {
    "Transactions": [
      {
        "Fee": 100,
        "Outputs": [
          {
            "address": "ERh7jTzBYiuEZrom9i8XvECqgiDtjSL255",
            "amount": 19500
          },
          {
            "address": "EQNJEA8XhraX8a6SBq98ENU5QSW6nvgSHJ",
            "amount": 4760
          },
          {
            "address": "ERh7jTzBYiuEZrom9i8XvECqgiDtjSL255",
            "amount": 1238967853
          }
        ],
        "Postmark": {
          "pub":
↪ "03c3a4a137eb63b05e9f14070639e680df78616d70ee1ba52b0759236b4b698cdb",
          "signature":
↪ "f137b4d07e989077f2d36d50e5884f7aad23298abb8cfe2d575b25672858f72975919baf5c56a351f403ec21f9456"
↪ ""
        },
        "Total_Node_Fee": 4860,
        "UTXOInputs": [
          {
            "address": "ERh7jTzBYiuEZrom9i8XvECqgiDtjSL255",
            "index": 1,
            "txid":
↪ "433e361b80c4f8191b73f1f94a36307581b2f3408f515801952ac284dbc44e4e"
          },
          {
            "address": "ERh7jTzBYiuEZrom9i8XvECqgiDtjSL255",
            "index": 1,
            "txid":
↪ "405cca6796d181df6bef75834c273b73694da3c004962ced7d697380042976a2"

```

```
        }
      ]
    },
    "status": 200
  }
```

SendRawTx Support multi transaction

GET /api/v1/sendRawTx

Example request:

```
POST /api/v1/sendRawTx HTTP/1.1
Host: localhost

{
  "data":
  ↪ "02000100053136383037017785d35417054e1f8551a944931f7add31a12b1435db90ae257aade7ff4189370000000
  ↪ "
}
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
  "result": "a0ccbef0e7bfb00b452efd1e3c329ea16de1ed4523216c197ad27b3cb85505e7
  ↪ ",
  "status": 200
}
```

Example request:

```
POST /api/v1/sendRawTx HTTP/1.1
Host: localhost

{
  "data": [
  ↪ "0200018116747970653A746578742C6D73673A68656C6C6F31323301BCD8BBBB3B0C825EB2B83A4794B5B318418D9
  ↪ ",
  ↪ "0200018116747970653A746578742C6D73673A68656C6C6F31323301AB3FAE66DDA8E0520D625CF32176EA5102385
  ↪ "
  ]
}
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
  "result": [
```

```
        "a0ccbef0e7bfb00b452efd1e3c329ea16de1ed4523216c197ad27b3cb85505e7",
        "e1a228df7b1c6c747d83827835e1551435e7fcaa12115f1d6cdda5bf94121b02"
    ],
    "status": 200
}
```

node fee

GET /api/v1/fee

Example request:

```
Get /api/v1/fee HTTP/1.1
Host: localhost
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
    "result": 4860,
    "status": 200
}
```

node reward address

GET /api/v1/node/reward/address

Example request:

```
Get /api/v1/node/reward/address HTTP/1.1
Host: localhost
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
    "result": "EZLPHvHDNvUe8uTjs9iAUoPY2R1FLpBNH2",
    "status": 200
}
```

summary of all spend utxo value

POST /api/v1/spend/utxos

Example request:

```
POST /api/v1/spend/utxos HTTP/1.1
Host: localhost

{
    "UTXOInputs": [
        {
```

```
        "address": "EYH69rRAfDQ2HRa35bmYRh6UoAZ8u3n7ZJ",
        "index": 45,
        "txid":
↪ "4fa997c7d1211e5a4631d879f35b31d2fa4914891ec9ce4c27bf25d5d789b3fe"
    },
    {
        "address": "EYH69rRAfDQ2HRa35bmYRh6UoAZ8u3n7ZJ",
        "index": 46,
        "txid":
↪ "a10456d680780d8700550cff99e36050f91f7f4c3747880503a99a6a88f12cf9"
    },
    {
        "address": "EYH69rRAfDQ2HRa35bmYRh6UoAZ8u3n7ZJ",
        "index": 59,
        "txid":
↪ "79fa3a649a41895c67bff8c60a55d07388dff69c5a35612eedd7fa4a787315c8"
    },
    {
        "address": "EYH69rRAfDQ2HRa35bmYRh6UoAZ8u3n7ZJ",
        "index": 1,
        "txid":
↪ "35ddfbcb848c337b5ac8e20f6d584da565361b9b2aa79f601b0d0bbdfa37f72e1"
    },
    {
        "address": "EYH69rRAfDQ2HRa35bmYRh6UoAZ8u3n7ZJ",
        "index": 45,
        "txid":
↪ "4915e1e5e8bff3b2d483c5ba3a5dafef1fa9d9692d2d97feffa9c4151a02dfb42"
    },
    {
        "address": "EYH69rRAfDQ2HRa35bmYRh6UoAZ8u3n7ZJ",
        "index": 1,
        "txid":
↪ "7aa2017e158e45e13daeb203416faa0fa3aeef217fd3c00c3a5ee3fbbfea66bf"
    },
    {
        "address": "EYH69rRAfDQ2HRa35bmYRh6UoAZ8u3n7ZJ",
        "index": 2,
        "txid":
↪ "7d1471d87334c6c50a4891eece57bfd99630b62774550535dbd1ceb2ea98cc89"
    }
  ]
}
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
    "result": 1066042996951,
    "status": 200
}
```

Get transaction

return transaction if it exists in transaction pool or confirmed on a block

GET /api/v1/tx/(string:`hash`)

Example request:

```
Get /api/v1/tx/90151759b2ce3bf87970a0b3e2aa2456ad61ee27a60a02089758d6061e7af74a
↪ HTTP/1.1
Host: localhost
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
  "txid": "90151759b2ce3bf87970a0b3e2aa2456ad61ee27a60a02089758d6061e7af74a",
  "hash": "90151759b2ce3bf87970a0b3e2aa2456ad61ee27a60a02089758d6061e7af74a",
  "size": 369,
  "vsize": 369,
  "version": 0,
  "locktime": 484501,
  "vin": [
    {
      "txid": "8d85f0ef4cf0097fd980fcfe81d0c5741a0276af586d9ded31089b7f3d79126e
↪ ",
      "vout": 0,
      "sequence": 0
    }
  ],
  "vout": [
    {
      "value": "0.00150000",
      "n": 0,
      "address": "EauXy6q4fPXr5THDxQ6MwnhMdDxF7tJUAA",
      "assetid":
↪ "a3d0eaa466df74983b5d7c543de6904f4c9418ead5ffd6d25814234a96db37b0",
      "outputlock": 0,
      "type": 0,
      "payload": null
    }
  ],
  "blockhash": "",
  "confirmations": 0,
  "time": 0,
  "blocktime": 0,
  "type": 5,
  "payloadversion": 0,
  "payload": {
    "blockheight": 107567,
    "sideblockhash":
↪ "21f40da0dcee3a568c8557ef03797fa5c4546bf52d4396823dba8f499c75915b",
    "sidegenesishash":
↪ "0e739a2b87774ef2266a3cab79a8e1201732fe409cfe50bd4125efb1d1169b5",
    "signature":
↪ "f4f4327c98a735309544a37273d373bf9c879218022a51c809deb884fe881a3f683a79082c9418d09bc51b0634078
↪ "
  },
  "attributes": [
    {
      "usage": 0,
      "data": "33383635333434373239393435313330363032"
```

```
    }
  ],
  "programs": [
    {
      "code":
↪ "21021d2a6d4ec309609ebe27f8c138d14bb28da2634ca63cf6582cbf4b8a59f719bdac",
      "parameter":
↪ "40e53759af1d0fd85d07195a636c538881c791db0e419d60ca90c03d9947aaba50fed5d27a75a8c40ad8c5073c5b7"
↪ ""
    }
  ]
}
```

Get cr candidate vote statistics

cr candidate vote statistics of specific height

GET /api/v1/crc/did/(string:`did`)/(int:`height`)

Example request:

```
GET /api/v1/crc/did/iZAanbDCpnQxXEcan2hXgJ9hwvXj8dx8NX/9999999 HTTP/1.1
Host: localhost
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
  "result": [
    {
      "Did": "iZAanbDCpnQxXEcan2hXgJ9hwvXj8dx8NX",
      "Vote_type": "CRC",
      "Txid": "f3f8bb556133ca6549738344999b02cf95113ed8e2674f0655bc5571634a9a49"
↪ ",
      "Value": "0.10000000",
      "Address": "Eak7wVrSY9G8K2L253PrwHCr5AMv226Ge5",
      "Block_time": 1573477535,
      "Height": 317152
    },
    {
      "Did": "iZAanbDCpnQxXEcan2hXgJ9hwvXj8dx8NX",
      "Vote_type": "CRC",
      "Txid": "e05bcbbc6985f53ee1343420bbf4a389d2e125823434c218926bdb53bc4eeae9"
↪ ",
      "Value": "0.10000000",
      "Address": "ERZxGjEfi4KBDyocvQArgCUf9tcGYRQ7K8",
      "Block_time": 1573532655,
      "Height": 317627
    },
    {
      "Did": "iZAanbDCpnQxXEcan2hXgJ9hwvXj8dx8NX",
      "Vote_type": "CRC",
      "Txid": "918e572aab3f8402b61de70fa3ced01459410616ec13b012e23caf4a5996a8df"
↪ ",
      "Value": "0.10000000",
      "Address": "EXoX1raHYb2bzDh4UXhsgfCC2WXEXvypNn",
```

```

        "Block_time": 1573550915,
        "Height": 317776
    },
    {
        "Did": "iZAanbDCpnQxXEcan2hXgJ9hvwXj8dx8NX",
        "Vote_type": "CRC",
        "Txid": "81d5fe9a3b585c34b0f93914d9974c40b7eb22db5400304b65575d222f4d631a
↪",
        "Value": "0.10000000",
        "Address": "EYRi9SodjCmE9nJt5nn1Jao3KYPVHfjJBW",
        "Block_time": 1573558912,
        "Height": 317849
    },
    {
        "Did": "iZAanbDCpnQxXEcan2hXgJ9hvwXj8dx8NX",
        "Vote_type": "CRC",
        "Txid": "4f67e3d6c69b6655af62f188a19dc280329ecd1bdf7bdc4fdde114ad88642379
↪",
        "Value": "0.10000000",
        "Address": "EbTRRTPhD6k1VTLU31mVPhpzutVRh5sh4p",
        "Block_time": 1573631364,
        "Height": 318279
    },
    {
        "Did": "iZAanbDCpnQxXEcan2hXgJ9hvwXj8dx8NX",
        "Vote_type": "CRC",
        "Txid": "4c3737a6ebaad991442514b6cbe7061235d2edef3b56a6ed4c73785084d45d9c
↪",
        "Value": "0.10000000",
        "Address": "EYY4nVRnKLP8fsc8L4sPeNyeJkwx5NEjov",
        "Block_time": 1573631920,
        "Height": 318280
    },
    {
        "Did": "iZAanbDCpnQxXEcan2hXgJ9hvwXj8dx8NX",
        "Vote_type": "CRC",
        "Txid": "d375eca3a1367932ecbf5464b002edb8b5be04ab16a4d48c92b1d4192a4dd752
↪",
        "Value": "0.10000000",
        "Address": "EK11jSk42jJ5iRwSWYSb2XyvZHL6iEESbd",
        "Block_time": 1573631920,
        "Height": 318280
    }
],
"status": 200
}

```

Get cr candidates voter's statistics

cr candidates voter's statistics

GET /api/v1/crc/address/(string:`address`)?pageSize=(int:`pageSize`)&pageNum=(int:`pageNum`)

Example request:

```

GET /api/v1/crc/address/EbxU18T3M9ufnrkRY7NLt6sKyckDW4VAsA?pageNum=1&pageSize=2
↪ HTTP/1.1
Host: localhost

```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
  "result": [
    {
      "Vote_Header": {
        "Value": "3149.00000000",
        "Candidate_num": 5,
        "Txid":
        ↪ "7ed36f3021dff4e376e289dbfcbeeac7465f3ef34d1b043d54d323b6349b2766",
        "Height": 606176,
        "Candidates": [
          {
            "Did": "iiw7RvgaYJKqpnREuLGmDrs5dQmBBWylIG",
            "Value": "625"
          },
          {
            "Did": "icaJrj8zbbECzPTF5wGScktq5ce56mRPee",
            "Value": "700"
          },
          {
            "Did": "icS954DGsXXuYJCUBRKiC8JAcokxaeQVZg",
            "Value": "700"
          },
          {
            "Did": "ibdkX3PQHwKAu6vRaeDVyo8VU9mXW2Wm8R",
            "Value": "625"
          },
          {
            "Did": "iVSBp5ocfrLnAwDTS7C9LUKvyo4SY7f67B",
            "Value": "499"
          }
        ],
        "Block_time": 1585319751,
        "Is_valid": "YES"
      },
      "Vote_Body": [
        {
          "Did": "iiw7RvgaYJKqpnREuLGmDrs5dQmBBWylIG",
          "Value": "16316.92336823",
          "Rank": 8,
          "Code":
          ↪ "2103b07d9c916e797cf6b118cf7db7e272f78b6f771c80ea28d7b55bc5820fb84a69ac",
          "Nickname": "Bitwork Council Committee",
          "Url": "www.cyberrepublic.org/cr-regions",
          "Location": 852,
          "State": "Active",
          "Votes": "33318.26967387",
          "Index": 12
        },
        {
          "Did": "icaJrj8zbbECzPTF5wGScktq5ce56mRPee",
          "Value": "11337.32973863",
          "Rank": 12,
```

```

        "Code":
→ "2103ab0e09ca450a9fc619b12750eb76db7393321c6f935f817d0cdd81543065aa89ac",
        "Nickname": "Alex Shipp",
        "Url": "twitter.com/AlexShippELA",
        "Location": 1001,
        "State": "Active",
        "Votes": "28338.67604427",
        "Index": 13
    },
    {
        "Did": "icS954DGsXXuYJCUbRKiC8JAcoxaeQVZg",
        "Value": "94285.12308166",
        "Rank": 1,
        "Code":
→ "2102073cdb080e3d3c545039195040f82f8fe026ded3506730dbce02c8e0ddd13b7bac",
        "Nickname": "The Strawberry Council",
        "Url": "strawberrysupernodes.org/council",
        "Location": 1001,
        "State": "Active",
        "Votes": "99138.08391183",
        "Index": 2
    },
    {
        "Did": "ibdkX3PQHwKAu6vRaeDVyo8VU9mXW2Wm8R",
        "Value": "31899.26830899",
        "Rank": 5,
        "Code":
→ "21027f574bfd3a4497ed9dcc41ee5b0503c1aa8083cd765c98ccf6be9158bb2ea5dcac",
        "Nickname": "Michael S",
        "Url": "https://twitter.com/Elastos_Houston?s=09",
        "Location": 1001,
        "State": "Active",
        "Votes": "31904.15598133",
        "Index": 5
    },
    {
        "Did": "iVSBp5ocfrLnAwDTS7C9LUKvyo4SY7f67B",
        "Value": "13853.32924318",
        "Rank": 9,
        "Code":
→ "2103d2066d7aaf04cf209885b77985f9fef5217595dfb5da3e73672d9209138e3aa9ac",
        "Nickname": "Orchard Trinity",
        "Url": "https://www.elastosorchard.eu/orchardcouncil",
        "Location": 44,
        "State": "Active",
        "Votes": "28700.06162124",
        "Index": 11
    }
]
},
{
    "Vote_Header": {
        "Value": "3149.00000000",
        "Candidate_num": 5,
        "Txid":
→ "3538cb55a6b0bfbd816d6073c6d4294a35c6c8a50d2e824f4bdf2ee4a00450e",
        "Height": 599876,
        "Candidates": [

```

```
        {
            "Did": "iiw7RvgaYJKqpnrEuLGmDrs5dQmBBwylig",
            "Value": "625"
        },
        {
            "Did": "icaJrj8zbbECzPTF5wGScktq5ce56mRPee",
            "Value": "700"
        },
        {
            "Did": "icS954DGsXXuYJCUBRKiC8JAcoxaeQVZg",
            "Value": "700"
        },
        {
            "Did": "ibdkX3PQHwKAu6vRaeDVyo8VU9mXW2Wm8R",
            "Value": "625"
        },
        {
            "Did": "iVSBp5ocfrLnAwDTS7C9LUKvyo4SY7f67B",
            "Value": "499"
        }
    ],
    "Block_time": 1584561600,
    "Is_valid": "NO"
},
"Vote_Body": [
    {
        "Did": "iiw7RvgaYJKqpnrEuLGmDrs5dQmBBwylig",
        "Value": "2644.13275111",
        "Rank": 14,
        "Code":
        ↪ "2103b07d9c916e797cf6b118cf7db7e272f78b6f771c80ea28d7b55bc5820fb84a69ac",
        "Nickname": "Bitwork Council Committee",
        "Url": "www.cyberrepublic.org/cr-regions",
        "Location": 852,
        "State": "Active",
        "Votes": "33318.26967387",
        "Index": 12
    },
    {
        "Did": "icaJrj8zbbECzPTF5wGScktq5ce56mRPee",
        "Value": "9242.77551718",
        "Rank": 12,
        "Code":
        ↪ "2103ab0e09ca450a9fc619b12750eb76db7393321c6f935f817d0cdd81543065aa89ac",
        "Nickname": "Alex Shipp",
        "Url": "twitter.com/AlexShippELA",
        "Location": 1001,
        "State": "Active",
        "Votes": "28338.67604427",
        "Index": 13
    },
    {
        "Did": "icS954DGsXXuYJCUBRKiC8JAcoxaeQVZg",
        "Value": "92529.41144443",
        "Rank": 1,
        "Code":
        ↪ "2102073cdb080e3d3c545039195040f82f8fe026ded3506730dbce02c8e0ddd13b7bac",
        "Nickname": "The Strawberry Council",
```

```

        "Url": "strawberrysupernodes.org/council",
        "Location": 1001,
        "State": "Active",
        "Votes": "99138.08391183",
        "Index": 2
    },
    {
        "Did": "ibdkX3PQHwKAu6vRaeDVyo8VU9mXW2Wm8R",
        "Value": "30345.20862991",
        "Rank": 6,
        "Code":
↪ "21027f574bfd3a4497ed9dcc41ee5b0503c1aa8083cd765c98ccf6be9158bb2ea5dcac",
        "Nickname": "Michael S",
        "Url": "https://twitter.com/Elastos_Houston?s=09",
        "Location": 1001,
        "State": "Active",
        "Votes": "31904.15598133",
        "Index": 5
    },
    {
        "Did": "iVSBp5ocfrLnAwDTS7C9LUKvyo4SY7f67B",
        "Value": "13913.93044388",
        "Rank": 8,
        "Code":
↪ "2103d2066d7aaf04cf209885b77985f9fef5217595dfb5da3e73672d9209138e3aa9ac",
        "Nickname": "Orchard Trinity",
        "Url": "https://www.elastosorchard.eu/orchardcouncil",
        "Location": 44,
        "State": "Active",
        "Votes": "28700.06162124",
        "Index": 11
    }
]
},
{
    "status": 200
}

```

Get voted cr candidates of specific transactions

POST /api/v1/crc/transaction/producer

Example request:

```

POST /api/v1/crc/transaction/producer HTTP/1.1
Host: localhost

{
    "txid": [
        "ce75839c0dd20692d09e1aacff69f04cdbc04a5da48588467527d2abda7e45",
        "eb64cee1c62d4665ff19a5933bf8b246fcda8d40949a77ee5d1569141a0e8e7c"
    ]
}

```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
  "result": [
    {
      "Producer": [
        {
          "Code":
↪ "2103d69fe4f0348db20916848ba638355c2752e791ef0ab16722b5ba12ee6c93c01bac",
          "Did": "ih1kcYd76SvHPsUrBM72xkAk5Htkhz7xv8",
          "Nickname": "r_adr_us51",
          "Url": "www.r_adr_us51.com",
          "Location": 86,
          "State": "Active",
          "Votes": "7615.61967020",
          "Index": 53
        },
        {
          "Code":
↪ "2103df458c3c68624e5fac2c4fdae8fec47f612d69a8217575ddc4ad49135286c70fac",
          "Did": "iXuss6uqEdaSB6aho9SpnLouu3EEaiBfsE",
          "Nickname": "r_adr_us00",
          "Url": "https://54.223.244.60/bpinfo.json",
          "Location": 1441,
          "State": "Active",
          "Votes": "7336.57647854",
          "Index": 159
        }
      ],
      "Txid":
↪ "ce75839c0dd20692d09e1aacff69f04cdbccc04a5da48588467527d2abda7e45"
    },
    {
      "Producer": [
        {
          "Code":
↪ "2103d69fe4f0348db20916848ba638355c2752e791ef0ab16722b5ba12ee6c93c01bac",
          "Did": "ih1kcYd76SvHPsUrBM72xkAk5Htkhz7xv8",
          "Nickname": "r_adr_us51",
          "Url": "www.r_adr_us51.com",
          "Location": 86,
          "State": "Active",
          "Votes": "7615.61967020",
          "Index": 53
        },
        {
          "Code":
↪ "2103df458c3c68624e5fac2c4fdae8fec47f612d69a8217575ddc4ad49135286c70fac",
          "Did": "iXuss6uqEdaSB6aho9SpnLouu3EEaiBfsE",
          "Nickname": "r_adr_us00",
          "Url": "https://54.223.244.60/bpinfo.json",
          "Location": 1441,
          "State": "Active",
          "Votes": "7336.57647854",
          "Index": 159
        }
      ]
    }
  ],
}
```

```

        "Txid":
        ↪ "eb64cee1c62d4665ff19a5933bf8b246fcda8d40949a77ee5d1569141a0e8e7c"
      },
      "status": 200
    }
  }
}

```

Get all cr voters address list of specific height

GET /api/v1/crc/voter/list/(int:`height`)

Example request:

```

GET /api/v1/crc/voter/list/100000000 HTTP/1.1
Host: localhost

```

Example response:

```

HTTP/1.1 200 OK
Content-Type: application/json

{
  "result": [
    {
      "Address": "EHAujPsi2u48wD9kZ1ji2g5DDNihLCN9ta"
    },
    {
      "Address": "EHCjAMd77sK5tQduLoAh3Jcw2YGbGKBCCU"
    },
    {
      "Address": "EHFgKWpMdluvsyGR4diXHVGrnAq2LqT4j7"
    },
    {
      "Address": "EgPJr1q2GZNqcTYNqJDbkV1uQ4QiP8oAXo"
    },
    {
      "Address": "EgQX4bgYNH493HUBAi8ZvUd9h2weewoZah"
    },
    {
      "Address": "EgR1DNB6Ab6q2kWWdVBLKjdzo6yu5y9jj3"
    },
    {
      "Address": "EgUC1qbXPPnPawZq4NFw3oFXDbY8xBisdH"
    }
  ],
  "status": 200
}

```

Get cr candidates rank list

rank list of cr candidates , state can be active , pending , canceled , returned , all

GET /api/v1/crc/rank/height/(int:`height`)?state=all

Example request:

```
GET /api/v1/crc/rank/height/99999999 HTTP/1.1
Host: localhost
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
  "result": [
    {
      "Did": "ih1kcYd76SvHPsUrBM72xkAk5Htkhz7xv8",
      "Value": "7615.6196702",
      "Rank": 1,
      "Code":
↪ "2103d69fe4f0348db20916848ba638355c2752e791ef0ab16722b5ba12ee6c93c01bac
↪ ",
      "Nickname": "r_adr_us51",
      "Url": "www.r_adr_us51.com",
      "Location": 86,
      "State": "Active",
      "Votes": "7615.61967020",
      "Index": 116
    },
    {
      "Did": "iXuss6uqEdaSB6aho9SpnLouu3EEaiBfsE",
      "Value": "7336.57647854",
      "Rank": 2,
      "Code":
↪ "2103df458c3c68624e5fac2c4fdae8fec47f612d69a8217575ddc4ad49135286c70fac
↪ ",
      "Nickname": "r_adr_us00",
      "Url": "https://54.223.244.60/bpinfo.json",
      "Location": 1441,
      "State": "Active",
      "Votes": "7336.57647854",
      "Index": 49
    },
    {
      "Did": "ic4MGQoJAcDMiv9LeqfnucPyNvVgaNQBBE",
      "Value": "7035.21015465",
      "Rank": 3,
      "Code":
↪ "2103b4957e9d55012fcec8f8b476bbe3b2243fe71ddfc858117ca26fee177d253a63ac
↪ ",
      "Nickname": "crregisetrZjcwN2NmYz",
      "Url": "https://blockchain.elastos.org",
      "Location": 100083,
      "State": "Active",
      "Votes": "7035.21015465",
      "Index": 5
    },
    {
      "Did": "ij9EiAgPbfsCK46VzYDqqWZfYUro6k7Ufi",
      "Value": "0",
      "Rank": 188,
      "Code":
↪ "2103a988e73eaca4b434361d33e92fbe7470f14b9e6ba21272e33363c47a7d5b54daac
↪ ",

```

```

        "Nickname": "r_adr_us41",
        "Url": "www.r_adr_us41.com",
        "Location": 86,
        "State": "Returned",
        "Votes": "0",
        "Index": 183
    }
],
    "status": 200
}

```

Get cr candidates total vote of specific height

total cr candidates vote of specific height

GET /api/v1/crc/vote/height/(int:`height`)

Example request:

```

GET /api/v1/crc/vote/height/241762 HTTP/1.1
Host: localhost

```

Example response:

```

HTTP/1.1 200 OK
Content-Type: application/json

{
    "result": 2468878.85555,
    "status": 200
}

```

Get simplified transaction record (including pending transaction)

GET /api/v1/simple/tx/(string:`txid`)

Example request:

```

GET /api/v1/simple/tx/
↪ d0f826ca7e7da50dee8fd37b39c7aa5014d5630d0c178f724bdb492b18a45706 HTTP/1.1
Host: localhost

```

Example response:

```

HTTP/1.1 200 OK
Content-Type: application/json

{
    "result": [
        {
            "Address": "Ed57c3wF3J1u8vEYE9cjGUppqGPkEJC69v8",
            "Txid":
↪ "d0f826ca7e7da50dee8fd37b39c7aa5014d5630d0c178f724bdb492b18a45706",
            "Type": "income",
            "Value": 425211,
            "CreateTime": 1580431843,
            "Height": 565675,

```

```
        "Fee": 0,
        "Inputs": [
            "EXuF9pAnZ8pwyGjJvvDrx73kfpi4oNeqyW"
        ],
        "Outputs": [
            "Ed57c3wF3J1u8vEYE9cjGUpqGPkEJC69v8"
        ],
        "TxType": "TransferAsset",
        "Memo": "type:text,msg:From ELABank,ThaiEla Super Node Reward_
↪Distribution",
        "Status": "confirmed"
    },
    {
        "Address": "EXuF9pAnZ8pwyGjJvvDrx73kfpi4oNeqyW",
        "Txid":
↪"d0f826ca7e7da50dee8fd37b39c7aa5014d5630d0c178f724bdb492b18a45706",
        "Type": "spend",
        "Value": 425311,
        "CreateTime": 1580431843,
        "Height": 565675,
        "Fee": 100,
        "Inputs": [
            "EXuF9pAnZ8pwyGjJvvDrx73kfpi4oNeqyW"
        ],
        "Outputs": [
            "Ed57c3wF3J1u8vEYE9cjGUpqGPkEJC69v8",
            "EXuF9pAnZ8pwyGjJvvDrx73kfpi4oNeqyW"
        ],
        "TxType": "TransferAsset",
        "Memo": "type:text,msg:From ELABank,ThaiEla Super Node Reward_
↪Distribution",
        "Status": "confirmed"
    }
],
    "status": 200
}
```

Get Balance

GET /api/v1/balance/ (string: `address`)

Example request:

```
GET /api/v1/balance/EXuF9pAnZ8pwyGjJvvDrx73kfpi4oNeqyW HTTP/1.1
Host: localhost
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
    "result": "219.87897023",
    "status": 200
}
```

Get Current Height

GET /api/v1/currHeight

Example request:

```
GET /api/v1/currHeight HTTP/1.1
Host: localhost
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
  "result":569218,
  "status":200
}
```

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