

Commands Manual

INDE
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1. Preface. 01 2. Prerequisites. 02 a. For Block Producers. 03 b. For DApp
Developers. 04 c. For Voters. 05 3. Block Producer Environment Setup 06 4.
DApp Developer Environment Setup 12 5. Voter Environment Setup 16

1. PREFACE

alacrity is the revolutionary DApp store which will make an impression on the DApp developers with its easier functionalities. alacrity is a Blockchain Platform for financially rewarding businesses and community. It is natively first dapp store where DApp developers will be rewarded. alacrity has a unique token economics model which will ensure to reward all the stakeholders involved

alacrity is a network that will impact anything which needs to operate in a decentralized

environment. It is a new approach to how applications are managed over the internet. Alacrity provides the capacities that applications use on the internet and brings them to a decentralized network

The Alacrity network creates new Alacrity tokens per year to reward block producers, DApp developers, and users who will vote for the Block Producers for showing their active participation in elections. During the first year, the network will feature 5% new coin inflation and this amount will decrease by 1% per year until it reaches 2%. Additionally, New inflated tokens would be divided into two equal parts. 50% of new inflated tokens would go to the network part and remaining would go to the infrastructure side. From the 50% of network Alacrity has distributed tokens among various parties. 60% would go to the top 21 Block producers, 15% would go to the top 50 witnesses, 25% would go to the DApp developers, 5% would go to the voters. In Alacrity network Voters will also be rewarded for the voters for showing their active participation in the elections. From the 50% of Infrastructure Alacrity has distributed tokens among the Community Development Team with 65% of tokens, Marketing Team with 10% of tokens and Founding Team with 25% of tokens. The start of the year would also see Block Producer also getting reward of 44% from the community development.

In The Alacrity Network all the parties have to meet the prerequisites to become a member of the Alacrity Network.

1

2. Prerequisites

To prerequisites to use Alacrity Network are as follows:

- OS: Ubuntu 18.04
- RAM: 16GB - 1TB

- CPUs: 4vCPUs - 8vCPUs
- SSD: 30GB - 500GB

These are the minimum to average hardware prerequisites to setup the alacrity network and use some set of commands of alacrity.

One producing node and multiple fully redundant backups in a fail-over model comprise our core layer. The main producing node is the workhorse of the operation. A backup is activated during system upgrades. Following specification is for the Core Layer of alacrity Network

- 80 GBs - 3 TBs of RAM (as needed)
- 4-8 vCPUs
- 1 TB of SSD Storage

The most important resource is RAM with a need of around 3TB for the OS, but most BP prefer Linux.

As alacrity can be used by multiple parties, they have to meet hardware requirements and some software prerequisites as well. Block Producers, DApp Developers and Voters are the main parties of the alacrity network, they all have to set up different kind of environment setup with the given prerequisites.

Following command manual presuming that all parties have met all types of hardware/software requirements with ALAIO, ALAIO.CDT, ALAIO.Contracts installed on their machines. ALA: <https://github.com/alacrityIO/ala.git> ALAIO.CDT:

<https://github.com/alacrityIO/alaio.cdt.git> ALAIO.Contracts:

<https://github.com/alacrityIO/alaio.contracts.git> All the parties must have to set alias in

their machines: alias alacli=**ABSOLUTE_ALA_PATH**/build/bin/alacli' alias

alanode=**ABSOLUTE_ALA_PATH**/build/bin/alanode' alias

kalad=**ABSOLUTE_ALA_PATH**/build/bin/kalad'

2

a. For Block Producer

Block Producers are an essential part of the alacrity network, They have to meet the hardware requirements to set up their nodes for the alacrity network and meet some software requirements as well, Software requirements are as follows:

- alaio v1.7.0 deb package installed in their machine
- alaio.cdt v1.5.0 deb package installed in their machine
- alaio.contracts v1.6.0 deb package installed in their machine.
- Clang-4.0, lldb-4.0, libclang-4.0-dev, cmake, make, automake, libbz2-dev, libssl-dev, libgmp3-dev, autotools-dev, build-essential, libicu-dev, python2.7-dev, python3-dev, autoconf, libtool, curl, zlib1g-dev, doxygen,graphviz

alacrity provides Contract Development Toolkit, If Block Producer has a fresh machine they would need to download the source code of the alaio.cdt package, build and install the package from the source so that they don't need to download all the required packages separately. alacrity CDT package will download all the required packages.

To become a Block Producer on alacrity Network, Block Producer needs to follow some steps to setup a node and started producing the blocks. Top 21 Block Producers can be elected by the voters and based on the number of votes, Block Producer is assigned the number between 1 to 21. alacrity has top 50 Block Producers, so Top 21 will be producing the blocks and from 22nd to 50th producers will be known as Witnesses. alacrity has reward distribution for the witnesses with at least 0.5% of votes. The reward would be distributed equally amongst those.

Token Economics model of alacrity distributes 15% of witness rewards equally to the top 50 Block Producers, means irrespective of their position or votes top 50 will always get 15% of witness rewards equally, but they all have to at least 0.5% of votes in their account.

alacrity has set some restrictions on the Block Producers as well for choosing the genuine Block Producers to run the network. Block Producers has to have at least 100'000 ALA staked tokens in their account then they will be eligible to become the Block Producers and Block Producer can not vote to other Block Producers.

The Payout period of Block Producers and witnesses would be once per day.

3

b. For DApp Developers

On alacrity platform DApp developers from around the globe can come and host their dapps on the network which is based on Delegated Proof of Stake (DPoS) consensus. alacrity Network categorize all the DApps in two categories, 1. Number of users onboard on the DApp, 2. The total monetary volume of incoming transactions on the DApp.

alacrity provides the functionality of built in universal oracle for the DApp developers, It's all up to the DApp developer to make the DApp of their own choice. If Developer wants to use the feature of universal oracle then the requirements will be a little bit different.

→ **DApps which will be having the feature of oracle:** DApp Developer will have to follow the standard provided by alacrity while making the smart contracts for their DApps as oracle will be taking some arguments from the smart contracts so alacrity expect from the DApp developer to maintain the standard of the smart contracts.

→ **DApps which will not be having the feature of oracle:** If DApp developer chooses to not use the functionality of oracle then DApp developer can write the smart contract as per their requirements.

Smart contracts are programmed using C++, which boosts programming flexibility. alacrity smart contracts are implemented onto the blockchain in the form of pre-compiled Web Assembly (WASM), which promotes faster execution of contracts when compared to other platforms which supports smart contracts. WASM is compiled with C/C++ via means of clang and LLVM. DApp Developers have to have knowledge of C/C++ in order to be able to code smart contracts on alacrity's blockchain. Even though C can be used to create contracts, it is highly recommended to use the ALAIO C++ API, which strengthens contract's safety and renders its code easily readable.

When DApp Developer will onboard themselves on alacrity Platform, alacrity will ask to submit the preference and based on their preference DApp Developer will be rewarded the ALA tokens at the end of the 30 days.

DApp Developers payout period would be once per month.

4

c. For Voters

alacrity Network will always be looking for active participation of the users for the election of the Block Producer and this makes alacrity different from other Blockchain Platforms, as alacrity has different tokenomics model in which voters will be rewarded with 5% of tokens allocated to the Network.

On alacrity Network the user would need to stake some coins

Voters has to stake minimum amount of tokens to give the votes to the block producers, If user does not have the staked tokens in their account then he is not eligible for the voting as well as can not claim reward. If User has staked more than 1000 then alacrity restricts user to vote not more than 1000 it means it does not matter if user has more than 1000 staked tokens in his account but at a time user can vote only 1000 that makes more participation of the voters on the election and on the basis of the number of votes a user has voted to the block producers, user will be rewarded ALA token at the end of the 30 days.

For voting user must have to meet the bare minimum hardware requirements and installed the required version of **alaccli** on his node/machine. Users/Voters can communicate with any API endpoint provided by the Block Producers.

5

3. Block Producer Environment Setup

All Block producers must have common genesis file which indicates the information of the genesis node and the public key of genesis node of alacrity. Block Producer has to build and install the ALAIO, ALAIO.CDT and ALAIO.Contracts package. Block Producer will receive their mnemonic code in their email when they register themselves on alacrity Platform. They will have to execute a command to receive the private key and import that into wallet.

→ **For generating a Private key from mnemonic code**

```
curl -X POST 'https://api.alacritynetwork.org/users/getKeys' -H "accept: multipart/form-data" -H "Content-Type: application/x-www-form-urlencoded" --data-urlencode "mnemonicCode=CODE_RECIEVED_IN_EMAIL" --data-urlencode "password=PASSWORD_USED_AT_REGISTRATION_TIME"
```

→ **For creating a wallet**

```
alaccli wallet create --to-console
```

When this command executes successfully it will give the password of the wallet, Block Producer has to store the password in a safe place so whenever their wallet is locked BP can unlock their wallet with the help of this password. By default "default" wallet is created but BP can create the wallet with specific name.

```
alaccli create wallet --name=YOUR_WALLET_NAME --to-console
```

With the "--name" parameter block producer can create the wallet with specific name.

6

→ **For unlocking a wallet**

```
alaccli wallet  
unlock
```

When this command executes it will ask for the wallet password, Block producer has to enter their password and then wallet will be unlocked. If Block Producer has set up their wallet with the specific name then there will be a little bit difference in unlock command


```
alacli wallet unlock  
--name=YOUR_WALLET_NAME
```

→ **For creating a pair of Public and Private key**

```
alacli create key --to-console
```

When this command executes it will give you the Public and Private key. The prefix of Public key would be **ALA**. Once Block Producer has generated the pair of keys then BP has to import their private key into their wallet.

→ **For importing private key into the Wallet**

```
alacli wallet import
```

It will ask for the private key, Block Producer has to enter the private key in the console and once done, Block producer can see his public key as output. For cross verification

```
alacli wallet keys  
list
```

It will display all the public key which is present in the wallet. Block Producer can find the relative public key. If Block Producer has a wallet with specific name then the command would be a little bit different.

```
alacli wallet import --name=YOUR_WALLET_NAME
```

7

→

genesis.json {

 "initial_timestamp": "**TIMESTAMP_OF_THE_GENESIS_NODE**"

 , "initial_key": "**GENESIS_NODE_PUB_KEY**",

 "initial_configuration": {

 "max_block_net_usage": 1048576, "target_block_net_usage_pct": 1000,

 "max_transaction_net_usage": 524288, "base_per_transaction_net_usage": 12,

 "net_usage_leeway": 500, "context_free_discount_net_usage_num": 20,

 "context_free_discount_net_usage_den": 100, "max_block_cpu_usage": 100000,

 "target_block_cpu_usage_pct": 500, "max_transaction_cpu_usage": 50000,

 "min_transaction_cpu_usage": 100, "max_transaction_lifetime": 3600,

 "deferred_trx_expiration_window": 600, "max_transaction_delay": 3888000,

 "max_inline_action_size": 4096, "max_inline_action_depth": 4, "max_authority_depth": 6

 }} Every Block Producer has to create their own node with required plugins enabled and pass their pair of public key and private key, their producer name and all the p2p-peer-addresses with whom they want to connect. Generally, top 21 will connect with each other to sync the blockchain. Block producer needs to create a wallet for storing the private keys and they will have to create their own public private key pair and store them into a safe place

8

→ **block-producer's genesis_script file:**

```
#!/bin/bash
DATADIR="./blockchain"
if [ ! -d $DATADIR ]; then
    mkdir -p $DATADIR;
fi
alanode \
    --genesis-json $DATADIR"GENESIS.JSON_PATH" \
    --signature-provider BP_PUB_KEY=KEY:BP_PRIV_KEY \
    --plugin alaio::producer_plugin \ --plugin
    alaio::chain_plugin \ --plugin alaio::chain_api_plugin \
    --plugin alaio::history_plugin \ --data-dir $DATADIR"/data"
    \ --blocks-dir $DATADIR"/blocks" \ --config-dir
    $DATADIR"/config" \ --producer-name
PRODUCER_NAME \ --http-server-address 0.0.0.0:8888 \
    --p2p-listen-endpoint 0.0.0.0:4444 \
    --access-control-allow-origin=* \ --contracts-console true \
    --http-validate-host=false \ --verbose-http-errors \
    --chain-state-db-size-mb 8192 \ --enable-stale-production \
    --p2p-peer-address OTHER_BP_ENDPOINT:4444 \
    --p2p-peer-address OTHER_BP_ENDPOINT:4444 \ >>
    $DATADIR"/alanode.log" 2>&1 & \ echo $! >
    $DATADIR"/alad.pid"
```

Block Producer can make the script and copy above contents in the script and run the

script, If Block Producer wants to stop producing blocks for sometime then he should stop the alacode process. Then he can again start producing the blocks again for that he needs to start his node from the last when he has stopped their node and again sync the blockchain again.

9

→ **Block-producer's stop_script file:**

```
#!/bin/bash
DATADIR="./blockchain/" if [ -f
$DATADIR"/alad.pid" ]; then
    pid=`cat
    $DATADIR"/alad.pid"` echo
    $pid kill $pid rm -r
    $DATADIR"/alad.pid" echo -ne
    "Stoping Node" while true; do
[ ! -d "/proc/$pid/fd" ] && break echo -ne "." sleep 1 done echo -ne "\rNode Stopped. \n"
```

fi → **Block-producer's start_script file:** This script would be a replica of the **genesis_script file**, Block Producer needs to remove the line → --genesis-json \$DATADIR"**GENESIS.JSON_PATH**" \ from the **genesis_script file**, rest all content would remain the same. The start script would help the Block Producers from start the chain again from where BP has stopped his node last time.

Once done, Block Producer will see in the log file that all blocks will be started fetching now Block Producer needs to register themselves on alacrity-Network

→ **For registering Block Producers on alacrity Platform**

```
alaccli -u API_ENDPOINT_OF_BP system regproducer BP_ACCOUNT_NAME
BP_PUBLIC_KEY BP_WEBSITE BP_COUNTRY_CODE
```

Block Producer has to follow the country code according to **ISO 3166** format. Block Producer can find their country code in following link:

http://kirste.userpage.fu-berlin.de/diverse/doc/ISO_3166.html

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→ **Block Producer can claim their command with the following command**

```
alaccli -u API_ENDPOINT_OF_BP system claimrewards  
BP_ACCOUNT_NAME
```

alacrity Network facilitates the Block Producers to claim different kinds of rewards as Universal Oracle is one of the most powerful features of alacrity Platform so all the Block Producers has to set up the oracle on their node.

The payout period would be once per day so all Block Producers can claim their rewards once per day. Block Producers will receive the bpay (block rewards), wpay (witness rewards), opay (oracle rewards).

Oracle Rewards is distributed on the basis of successful request each BP makes and a penalty is levied on the Block Producer on the account of missing the request. There could be four possible use cases

1. Oracle would rewarded on the basis of successful request each Block Producer and that would be independent of its block provider provided there isn't any failed request by that BP
2. Penalty would be deducted from the Oracle Reward , for e.g if the Oracle Reward is 10 ALA and penalty imposed on him is 5 ALA hence the net Oracle reward for that BP would be 5 ALA.
3. Penalty would be deducted from the Block reward, if it is greater than the Oracle Reward, for e.g if the penalty is 10 ALA and the Oracle Reward is 5 ALA , the remaining 5 ALA would be deducted from its Block Producer Reward.
4. In a case where the Oracle Penalty is greater then Block and Oracle Reward, the net reward would be negative and would be deducted whenever the Block Producer claims the reward next time

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4. DApp Developer Environment Setup

DApp Developers must be familiar with the alacrity's Command Line Arguments. DApp developer will receive their Public and Private key in their email when they register themselves on alacrity Platform. They will have to execute a command to receive the private key and import that into wallet.

DApp Developer has to build and install ALAIO, ALAIO.CDT and ALAIO.Contracts packages to their node.

→ **For generating a Private key from mnemonic code**

```
curl -X POST 'https://api.alacritynetwork.org/users/getKeys' -H "accept:
multipart/form-data" -H "Content-Type: application/x-www-form-urlencoded"
--data-urlencode "mnemonicCode=CODE_RECIEVED_IN_EMAIL" --data-urlencode
"password=PASSWORD_USED_AT_REGISTRATION_TIME"
```

When this command executes successfully it will give you a private key. They need to create a wallet for storing the private keys and they will have to create their own public private key pair and store them into a safe place.

→ **For creating a wallet**

```
alacli wallet create --to-console
```

When this command executes successfully it will give the password of the wallet, Developer has to store the password in a safe place so whenever their wallet is locked they can unlock their wallet with the help of this password. By delinquency “default” wallet is created but dev. can create the wallet with specific name.

```
alacli create wallet --name=YOUR_WALLET_NAME --to-console
```

With the “**--name**” parameter developer can create the wallet with specific name.

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→ **For unlocking a wallet**

```
alacli wallet  
unlock
```

When this command executes it will ask for the wallet password, Developer has to enter their password and then wallet will be unlocked. If Developer has set up their wallet with the specific name then there will be a little bit difference in unlock command.

```
alacli wallet unlock  
--name=YOUR_WALLET_NAME
```

→ **For importing private key into the Wallet**

```
alacli wallet import
```

It will ask for the private key, developer has to enter the private key in the console which they have generated from the first step and once done, Developer can see his public key as output. For cross verification

```
alacli wallet keys  
list
```

It will display all the public key which is present in the wallet. Developer can find the relative public key. If Developer has a wallet with specific name then the command would be a little bit different. `alacli wallet import --name=YOUR_WALLET_NAME`

DApp developer needs to create one additional set of keys for set the custom permission.

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→ **For creating a pair of Public and Private key**

```
alacli create key --to-console
```

When this command executes it will give you the Public and Private key. The prefix of Public key would be **ALA**. Once Developer has generated the pair of keys then he has to import their private key into their wallet. For importing the key into the wallet the steps would be the same as described above.

DApp developer has to follow the following 3 commands to set the permissions.

→ **For set permission to the account**

```
alacli -u API_ENDPOINT_OF_BP set account permission
YOUR_ACCOUNT_NAME custom
'{"threshold":1,"keys":[{"key":"YOUR_NEW_PUB_KEY","weight":1}],"accounts":[{"permission":{"actor":"dapregistry","permission":"alaio.code"},"weight":1}]}' -p
YOUR_ACCOUNT_NAME
```

→ **For set action permission to the account**

```
alacli -u API_ENDPOINT_OF_BP set action permission
YOUR_ACCOUNT_NAME dapregistry ontransfer custom -p
YOUR_ACCOUNT_NAME
```

→ **For set account permission to the dapregistry account.**

```
alacli -u API_ENDPOINT_OF_BP set account permission dapregistry active
--add-code -p dapregistry
```

Once, all these steps done developer must have their application smart contract and they have to set their smart contract on the network.

→ **For set developer's smart contract**

```
alacli -u API_ENDPOINT_OF_BP set contract YOUR_ACCOUNT_NAME
YOUR_CONTRACT_PATH CONTRACT_NAME.wasm --abi CONTRACT_NAME.abi
```

4

→ **For set the DApp on dappregistry**

```
alacli -u API_ENDPOINT_OF_BP push action YOUR_ACCOUNT_NAME  
setdappsacc '['dappregistry']' -p YOUR_ACCOUNT_NAME@active
```

→ **For check whether the registry is set correctly or not**

```
alacli -u API_ENDPOINT_OF_BP get table YOUR_ACCOUNT_NAME  
YOUR_ACCOUNT_NAME config
```

→ **For add apps to DApp
Registry**

```
alacli -u API_ENDPOINT_OF_BP push action dappregistry add  
['YOUR_ACCOUNT_NAME', 'YOUR_DAPP_NAME', 'YOUR_DAPP_PREFERENCE']  
-p dappregistry@active
```

→ **Developer can check that app is added to registry or
not**

```
alacli -u API_ENDPOINT_OF_BP get table dappregistry dappregistry dapps  
--lower YOUR_DAPP_NAME
```

→ **Developer can check that DApp owner account is linked to his app or
not**

```
alacli -u API_ENDPOINT_OF_BP get table dappregistry dappregistry  
dappaccounts -- lower YOUR_ACCOUNT_NAME
```

→ **Developers can claim their rewards with following
command**

```
alacli -u API_ENDPOINT_OF_BP push action alaio claimdapprwd  
['dappregistry', 'YOUR_ACCOUNT_NAME', 'YOUR_DAPP_NAME'] -p  
YOUR_ACCOUNT_NAME@active
```

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5. Voter Environment Setup

Voters must be familiar with the alacrity's Command Line Arguments and for the User/Voter has to build and install the ALAIO package in order to participate in voting, staking and claiming his vote rewards.

If users wants to participate in voting then user must have to stake some amount of staked tokens which will help user to give votes to the Block Producers. Users can give votes upto 30 Block Producers at a time. User has to convert their liquid tokens to the staked tokens so that they can eligible to vote for the Block Producers. User can stake any number of tokens.

User/Voter will receive their Public and Private key in their email when they register themselves on alacrity Platform. User/Voter will have to execute a command to receive the private key and import that into wallet.

→ **For generating a Private key from mnemonic code**

```
curl -X POST 'https://api.alacritynetwork.org/users/getKeys' -H "accept: multipart/form-data" -H "Content-Type: application/x-www-form-urlencoded" --data-urlencode "mnemonicCode=CODE_RECIEVED_IN_EMAIL" --data-urlencode "password=PASSWORD_USED_AT_REGISTRATION_TIME"
```

When this command executes successfully it will give you a public & private key. User needs to create a wallet for storing the private keys and they will have to create their

own public private key pair and store them into a safe place.

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6

→ **For creating a wallet**

`alacli wallet create --to-console` When this command executes successfully it will give the password of the wallet, User has to store the password in a safe place so whenever their wallet is locked they can unlock their wallet with the help of this password. By default "default" wallet is created but user can create the wallet with specific name.

```
alacli create wallet --name=YOUR_WALLET_NAME --to-console
```

With the "**--name**" parameter user can create the wallet with specific name.

→ **For unlocking a wallet**

```
alacli wallet  
unlock
```

When this command executes it will ask for the wallet password, User has to enter their

password and then wallet will be unlocked. If user has set up their wallet with the specific name then there will be a little bit difference in unlock command.

```
alacli wallet unlock  
--name=YOUR_WALLET_NAME
```

→ **For importing private key into the Wallet**

```
alacli wallet import
```

It will ask for the private key, user has to enter the private key in the console which they have generated from the first step and once done, User can see his public key as output. For cross verification

```
alacli wallet keys  
list
```

It will display all the public key which is present in the wallet. User can find the relative public key. If User has a wallet with specific name then the command would be a little bit different.

```
alacli wallet import --name=YOUR_WALLET_NAME
```

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7

→ **User has to stake some tokens to give the votes to the Block Producers**

```
alacli -u API_ENDPOINT_OF_BP system delegatebw  
YOUR_ACCOUNT_NAME YOUR_ACCOUNT_NAME "AMOUNT ALA" "AMOUNT  
ALA"
```

When this command executes successfully user can get their account information and see their liquid tokens will be deducted by the amount they have provided in the above command and that amount will be considered as staked tokens so that user can give

votes to the producers.

→ **For unstaking the staked tokens**

```
alacli -u API_ENDPOINT_OF_BP system undelegatebw  
YOUR_ACCOUNT_NAME YOUR_ACCOUNT_NAME "AMOUNT ALA" "AMOUNT  
ALA"
```

Unstaking will take 3 days so user has to wait for 3 days to convert their stake balance to the liquid balance.

→ **For account information**

```
alacli -u API_ENDPOINT_OF_BP get account YOUR_ACCOUNT_NAME
```

User can check the account information by executing this command. User can see the staked amount and his liquid balance.

→ **For buy more ram resource**

```
alacli -u API_ENDPOINT_OF_BP system buyram YOUR_ACCOUNT_NAME  
YOUR_ACCOUNT_NAME "AMOUNT ALA"
```

When this command executes successfully user will get some RAM resources for their account and whatever AMOUNT of ALA tokens user has passed in the command that value will be deducted from user's liquid balance.

→ **For vote the Block Producers**

```
alaccli -u API_ENDPOINT_OF_BP system voteproducer prods  
YOUR_ACCOUNT_NAME BP_NAME_1 BP_NAME_2.....BP_NAME_30
```

User can vote upto 30 Block Producers at a time. alacrity restricts user not to give more than 1000 votes so even if user has N number of staked tokens but at a time user can vote maximum 1000.

→ **For claiming vote rewards**

```
alaccli -u API_ENDPOINT_OF_BP push action alaio claimvoterwd  
["YOUR_ACCOUNT_NAME"]' -p YOUR_ACCOUNT_NAME
```

