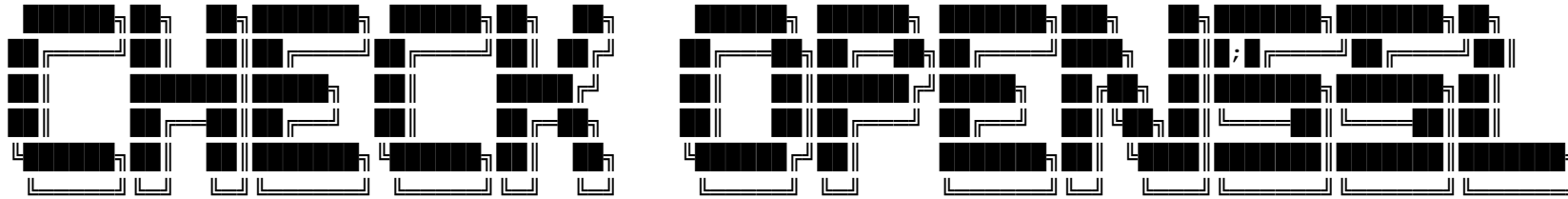


```
fisco@FISCO01:~$ cd fisco
```

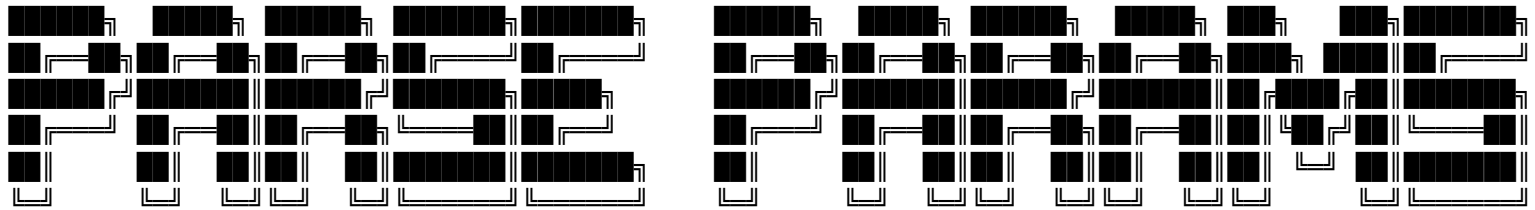
```
fisco@FISCO01:~/fisco$ sudo bash build_chain.sh -l "127.0.0.1:4" -p 30300,20200,8545
```



```
[INFO] global: removed nodes
```

```
[INFO] global: check_env...
```

```
[INFO] check_env: checking if openssl installed
```



```
[INFO] global: parse_params...
```

```
[INFO] parse_params: ip_file=127.0.0.1:4, use_ip_param=true
```

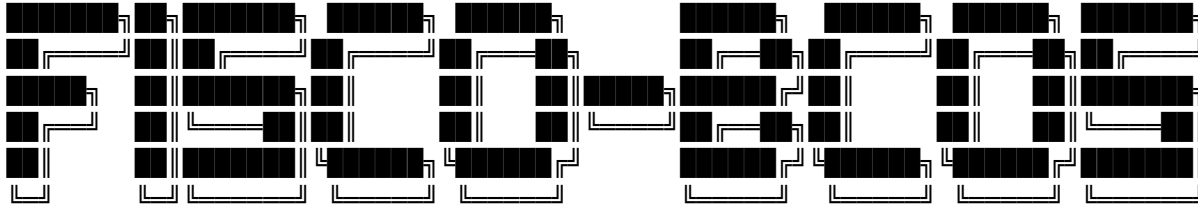
Usage:

-l <IP list>	[Required] "ip1:nodeNum1,ip2:nodeNum2" e.g:"192.168.0.1:2,192.168.0.2:3"
-f <IP list file>	[Optional] split by line, every line should be "ip:nodeNum agencyName groupList". eg "127.0.0.1:4 agency1 1,2"
-e <FISCO-BCOS binary path>	Default download fisco-bcos from GitHub. If set -e, use the binary at the specified location
-o <Output Dir>	Default ./nodes/
-p <Start Port>	Default 30300,20200,8545 means p2p_port start from 30300, channel_port from 20200, jsonrpc_port from 8545
-i <Host ip>	Default 127.0.0.1. If set -i, listen 0.0.0.0
-v <FISCO-BCOS binary version>	Default get version from https://github.com/FISCO-BCOS/FISCO-BCOS/releases . If set use specified version binary
-s <DB type>	Default rocksdb. Options can be rocksdb / mysql / external, rocksdb is recommended
-d <docker mode>	Default off. If set -d, build with docker
-c <Consensus Algorithm>	Default PBFT. If set -c, use Raft
-m <MPT State type>	Default storageState. if set -m, use mpt state
-C <Chain id>	Default 1. Can set uint.

```

-g <Generate guomi nodes>          Default no
-z <Generate tar packet>           Default no
-t <Cert config file>              Default auto generate
-T <Enable debug log>              Default off. If set -T, enable debug log
-F <Disable log auto flush>        Default on. If set -F, disable log auto flush
-h Help

```



```

[INFO] global: main
[INFO] main: started
[INFO] main: mk dir for /home/fisco/fisco/nodes
[INFO] main: download fisco-bcos from 2.1.0
[INFO] main: run func download_bin
[INFO] download_bin: Downloading fisco-bcos binary from
https://github.com/FISCO-BCOS/FISCO-BCOS/releases/download/v2.1.0/fisco-bcos.tar.gz ...

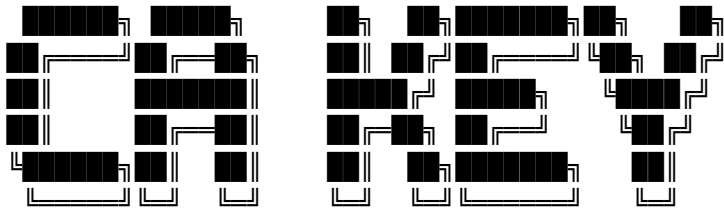
```

% Total	% Received	% Xferd	Average Speed	Time	Time	Time	Current
			Dload Upload	Total	Spent	Left	Speed
100	608	0	608	0	0	671	671
100	8026k	100	8026k	0	0	1961k	2969k

```

[INFO] download_bin: tar -zxvf fisco-bcos.tar.gz && mv fisco-bcos /home/fisco/fisco/nodes/fisco-bcos && rm fisco-bcos.tar.gz

```



```

[INFO] main: run func generate_cert_conf
[INFO] generate_cert_conf: generated to cert.cnf

```

```

=====
main: Generating CA key...

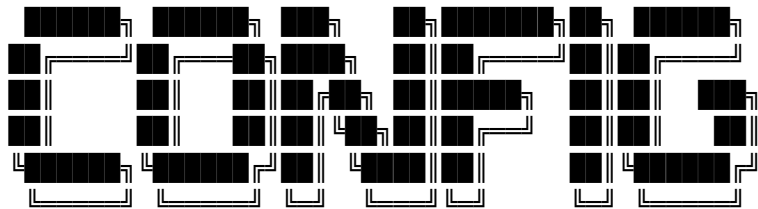
```

```

[INFO] main: Generating CA key...
[INFO] main: run func for gen_chain_cert /home/fisco/fisco/nodes/chain to /home/fisco/fisco/build.log
[INFO] main: mv /home/fisco/fisco/nodes/chain /home/fisco/fisco/nodes/cert

```

```
[INFO] main: gen_agency_cert /home/fisco/fisco/nodes/cert /home/fisco/fisco/nodes/cert/agency >/home/fisco/fisco/build.log 2>&1
[INFO] main: =====
[INFO] main: Generating keys ...
[INFO] main: Processing IP:127.0.0.1 Total:4 Agency:agency Groups:1
[INFO] main: Processing IP:127.0.0.1 Total:4 Agency:agency Groups:1
[INFO] main: Processing IP:127.0.0.1 ID:0 node's key
[INFO] main: gen_cert /home/fisco/fisco/nodes/cert/agency /home/fisco/fisco/nodes/127.0.0.1/node0 node
[INFO] main: mk_dir -p conf
[INFO] main: Processing IP:127.0.0.1 ID:1 node's key
[INFO] main: gen_cert /home/fisco/fisco/nodes/cert/agency /home/fisco/fisco/nodes/127.0.0.1/node1 node
[INFO] main: mk_dir -p conf
[INFO] main: Processing IP:127.0.0.1 ID:2 node's key
[INFO] main: gen_cert /home/fisco/fisco/nodes/cert/agency /home/fisco/fisco/nodes/127.0.0.1/node2 node
[INFO] main: mk_dir -p conf
[INFO] main: Processing IP:127.0.0.1 ID:3 node's key
[INFO] main: gen_cert /home/fisco/fisco/nodes/cert/agency /home/fisco/fisco/nodes/127.0.0.1/node3 node
[INFO] main: mk_dir -p conf
[INFO] main: sdk_path=/home/fisco/fisco/nodes/127.0.0.1/sdk
=====
```



Generating configurations...

```
[INFO] main: Processing IP:127.0.0.1 Total:4 Agency:agency Groups:1
[INFO] main: Processing IP:127.0.0.1 ID:0 config files...
[INFO] generate_config_ini: generated to /home/fisco/fisco/nodes/127.0.0.1/node0/config.ini
[INFO] main: /home/fisco/fisco/nodes/127.0.0.1/node0/conf/group.1.genesis 1

node.0=0c716dfc2649a8c98d583ada09de8c4dff48baa96ac1c7f7a359bfce3d39999fdeed82393283e152f4489843a8fc565f6e8b94d7d34eb95f680abef25c51
6af6
node.1=
c14e7e6e91c19158282bd125a741aa3ec205a7fac794bba1c8ecf9701a3165772dc5931aef0dcd3be3b38f8d978796cbcd41a7405be8f07e7edce189cd9cec29
node.2=
cff49c03d8379ec0c09b3759fd8c996b91d0ce03d30ed9f18e3e66181b34401ddc8d71a1a340697c88ba50a22358406e6daf7562542da7e0e491954d2edf413f
node.3=
```

32a4e8884236c8159262be8675cac5b95df7c7f9305e80325a764e497f491f801ed0ec7e1e06950938de0474d08bed7211c7989ee2b849a445e481fa27802431

```
[INFO] main: /home/fisco/fisco/nodes/127.0.0.1/node0/conf/group.1.ini
[INFO] generate_group_genesis: generated to /home/fisco/fisco/nodes/127.0.0.1/node0/conf/group.1.genesis
[INFO] generate_group_ini: generated to /home/fisco/fisco/nodes/127.0.0.1/node0/conf/group.1.ini
[INFO] generate_script_template: generated to /home/fisco/fisco/nodes/127.0.0.1/node0/start.sh
[INFO] generate_node_scripts: generated to /home/fisco/fisco/nodes/127.0.0.1/node0 / start.sh
[INFO] generate_node_scripts: generated to /home/fisco/fisco/nodes/127.0.0.1/node0 / stop.sh
[INFO] generate_script_template: generated to /home/fisco/fisco/nodes/127.0.0.1/node0/stop.sh
[INFO] generate_node_scripts: generated to /home/fisco/fisco/nodes/127.0.0.1/node0 / scripts / load_new_groups.sh
[INFO] generate_script_template: generated to /home/fisco/fisco/nodes/127.0.0.1/node0/scripts/load_new_groups.sh
[INFO] generate_node_scripts: generated to /home/fisco/fisco/nodes/127.0.0.1/node0/scripts / reload_whitelist.sh
[INFO] generate_script_template: generated to /home/fisco/fisco/nodes/127.0.0.1/node0/scripts/reload_whitelist.sh
[INFO] main: Processing IP:127.0.0.1 ID:1 config files...
[INFO] generate_config_ini: generated to /home/fisco/fisco/nodes/127.0.0.1/node1/config.ini
[INFO] main: /home/fisco/fisco/nodes/127.0.0.1/node1/conf/group.1.genesis 1
```

```
node.0=0c716dfc2649a8c98d583ada09de8c4dff48baa96ac1c7f7a359bfce3d39999fdeed82393283e152f4489843a8fc565f6e8b94d7d34eb95f680abef25c51
6af6
node.1=
c14e7e6e91c19158282bd125a741aa3ec205a7fac794bba1c8ecf9701a3165772dc5931aef0dcd3be3b38f8d978796cbcd41a7405be8f07e7edce189cd9cec29
node.2=
cff49c03d8379ec0c09b3759fd8c996b91d0ce03d30ed9f18e3e66181b34401ddc8d71a1a340697c88ba50a22358406e6daf7562542da7e0e491954d2edf413f
node.3=
32a4e8884236c8159262be8675cac5b95df7c7f9305e80325a764e497f491f801ed0ec7e1e06950938de0474d08bed7211c7989ee2b849a445e481fa27802431
```

```
[INFO] main: /home/fisco/fisco/nodes/127.0.0.1/node1/conf/group.1.ini
[INFO] generate_group_genesis: generated to /home/fisco/fisco/nodes/127.0.0.1/node1/conf/group.1.genesis
[INFO] generate_group_ini: generated to /home/fisco/fisco/nodes/127.0.0.1/node1/conf/group.1.ini
[INFO] generate_script_template: generated to /home/fisco/fisco/nodes/127.0.0.1/node1/start.sh
[INFO] generate_node_scripts: generated to /home/fisco/fisco/nodes/127.0.0.1/node1 / start.sh
[INFO] generate_node_scripts: generated to /home/fisco/fisco/nodes/127.0.0.1/node1 / stop.sh
[INFO] generate_script_template: generated to /home/fisco/fisco/nodes/127.0.0.1/node1/stop.sh
[INFO] generate_node_scripts: generated to /home/fisco/fisco/nodes/127.0.0.1/node1 / scripts / load_new_groups.sh
[INFO] generate_script_template: generated to /home/fisco/fisco/nodes/127.0.0.1/node1/scripts/load_new_groups.sh
[INFO] generate_node_scripts: generated to /home/fisco/fisco/nodes/127.0.0.1/node1/scripts / reload_whitelist.sh
[INFO] generate_script_template: generated to /home/fisco/fisco/nodes/127.0.0.1/node1/scripts/reload_whitelist.sh
[INFO] main: Processing IP:127.0.0.1 ID:2 config files...
[INFO] generate_config_ini: generated to /home/fisco/fisco/nodes/127.0.0.1/node2/config.ini
```

```
[INFO] main: /home/fisco/fisco/nodes/127.0.0.1/node2/conf/group.1.genesis 1

node.0=0c716dfc2649a8c98d583ada09de8c4dff48baa96ac1c7f7a359bfce3d39999fdeed82393283e152f4489843a8fc565f6e8b94d7d34eb95f680abef25c51
6af6
node.1=
c14e7e6e91c19158282bd125a741aa3ec205a7fac794bba1c8ecf9701a3165772dc5931aef0dcd3be3b38f8d978796cbcd41a7405be8f07e7edce189cd9cec29
node.2=
cff49c03d8379ec0c09b3759fd8c996b91d0ce03d30ed9f18e3e66181b34401ddc8d71a1a340697c88ba50a22358406e6daf7562542da7e0e491954d2edf413f
node.3=
32a4e8884236c8159262be8675cac5b95df7c7f9305e80325a764e497f491f801ed0ec7e1e06950938de0474d08bed7211c7989ee2b849a445e481fa27802431
[INFO] main: /home/fisco/fisco/nodes/127.0.0.1/node2/conf/group.1.ini
[INFO] generate_group_genesis: generated to /home/fisco/fisco/nodes/127.0.0.1/node2/conf/group.1.genesis
[INFO] generate_group_ini: generated to /home/fisco/fisco/nodes/127.0.0.1/node2/conf/group.1.ini
[INFO] generate_script_template: generated to /home/fisco/fisco/nodes/127.0.0.1/node2/start.sh
[INFO] generate_node_scripts: generated to /home/fisco/fisco/nodes/127.0.0.1/node2 / start.sh
[INFO] generate_node_scripts: generated to /home/fisco/fisco/nodes/127.0.0.1/node2 / stop.sh
[INFO] generate_script_template: generated to /home/fisco/fisco/nodes/127.0.0.1/node2/stop.sh
[INFO] generate_node_scripts: generated to /home/fisco/fisco/nodes/127.0.0.1/node2 / scripts / load_new_groups.sh
[INFO] generate_script_template: generated to /home/fisco/fisco/nodes/127.0.0.1/node2/scripts/load_new_groups.sh
[INFO] generate_node_scripts: generated to /home/fisco/fisco/nodes/127.0.0.1/node2/scripts / reload_whitelist.sh
[INFO] generate_script_template: generated to /home/fisco/fisco/nodes/127.0.0.1/node2/scripts/reload_whitelist.sh
[INFO] main: Processing IP:127.0.0.1 ID:3 config files...
[INFO] generate_config_ini: generated to /home/fisco/fisco/nodes/127.0.0.1/node3/config.ini
[INFO] main: /home/fisco/fisco/nodes/127.0.0.1/node3/conf/group.1.genesis 1

node.0=0c716dfc2649a8c98d583ada09de8c4dff48baa96ac1c7f7a359bfce3d39999fdeed82393283e152f4489843a8fc565f6e8b94d7d34eb95f680abef25c51
6af6
node.1=
c14e7e6e91c19158282bd125a741aa3ec205a7fac794bba1c8ecf9701a3165772dc5931aef0dcd3be3b38f8d978796cbcd41a7405be8f07e7edce189cd9cec29
node.2=
cff49c03d8379ec0c09b3759fd8c996b91d0ce03d30ed9f18e3e66181b34401ddc8d71a1a340697c88ba50a22358406e6daf7562542da7e0e491954d2edf413f
node.3=
32a4e8884236c8159262be8675cac5b95df7c7f9305e80325a764e497f491f801ed0ec7e1e06950938de0474d08bed7211c7989ee2b849a445e481fa27802431
[INFO] main: /home/fisco/fisco/nodes/127.0.0.1/node3/conf/group.1.ini
[INFO] generate_group_genesis: generated to /home/fisco/fisco/nodes/127.0.0.1/node3/conf/group.1.genesis
[INFO] generate_group_ini: generated to /home/fisco/fisco/nodes/127.0.0.1/node3/conf/group.1.ini
[INFO] generate_script_template: generated to /home/fisco/fisco/nodes/127.0.0.1/node3/start.sh
[INFO] generate_node_scripts: generated to /home/fisco/fisco/nodes/127.0.0.1/node3 / start.sh
[INFO] generate_node_scripts: generated to /home/fisco/fisco/nodes/127.0.0.1/node3 / stop.sh
```

```
[INFO] generate_script_template: generated to /home/fisco/fisco/nodes/127.0.0.1/node3/stop.sh
[INFO] generate_node_scripts: generated to /home/fisco/fisco/nodes/127.0.0.1/node3 / scripts / load_new_groups.sh
[INFO] generate_script_template: generated to /home/fisco/fisco/nodes/127.0.0.1/node3/scripts/load_new_groups.sh
[INFO] generate_node_scripts: generated to /home/fisco/fisco/nodes/127.0.0.1/node3/scripts / reload_whitelist.sh
[INFO] generate_script_template: generated to /home/fisco/fisco/nodes/127.0.0.1/node3/scripts/reload_whitelist.sh
[INFO] generate_script_template: generated to /home/fisco/fisco/nodes/127.0.0.1/.transTest.sh
[INFO] genTransTest: generated to /home/fisco/fisco/nodes/127.0.0.1/.transTest.sh
[INFO] generate_script_template: generated to /home/fisco/fisco/nodes/127.0.0.1/start_all.sh
[INFO] generate_server_scripts: generated to /home/fisco/fisco/nodes/127.0.0.1/start_all.sh
[INFO] generate_script_template: generated to /home/fisco/fisco/nodes/127.0.0.1/stop_all.sh
[INFO] main: remove log files, path = /home/fisco/fisco/nodes/fisco-bcos
[INFO] global: print_result
```

```
=====
[INFO] Start Port      : 30300 20200 8545
[INFO] Server IP       : 127.0.0.1:4
[INFO] State Type      : storage
[INFO] RPC listen IP    : 127.0.0.1
[INFO] Output Dir       : /home/fisco/fisco/nodes
[INFO] CA Key Path      : /home/fisco/fisco/nodes/cert/ca.key
=====
```

```
[WARN] RPC listens 127.0.0.1 will cause nodes' JSON-RPC and Channel service to be inaccessible form other machines
[INFO] print_result: Execute the following command to get FISCO-BCOS console
bash <(curl -s https://raw.githubusercontent.com/FISCO-BCOS/console/master/tools/download_console.sh)
```

```
=====
[INFO] print_result: All completed. Files in /home/fisco/fisco/nodes
fisco@FISCO01:~/fisco$
```