

以太坊学习：第十天

学不动了，好多都听不懂，而且对端口网络连接的一点办法都没有，乱撞，以太坊学习就到这吧，有了基础再深入学习

web3.js 1.0中文手册 / web3.eth.getCoinbase - 返回挖矿收益账户 - 汇智网

node控制台进入web3

```
var Web3 = require('web3')
Web3
var web3 = new Web3(new Web3.providers.HttpProvider('http://localhost:8545'))
web3
```

web3.js

```
1 {
2   admin: {
3     datadir: "/usr/local/GethProjects",
4     nodeInfo: {
5       enode: "enode://1c2193bd16d2ffa085950163852ac3b7e995529aa93ec6b30edda84aa530f500e13308e1707ed0914d859d07081188",
6       enr: "enr:-Je4QBgi7y0_M2-4d-jdaqS0sRv-hEHG6AvEsHxZ6FZP4gXrcx3fNdrIMH8_B3pC8p0dp0a0kdqZjGArSrBZQnVpbEWg2V0aMfGf",
7       id: "2890073dc31178da9117784a10af010f17b008b299aeaeba210a7f6370952632",
8       ip: "127.0.0.1",
9       listenAddr: "[::]:30303",
10      name: "Geth/v1.9.8-stable-d62e9b28/linux-amd64/go1.13.4",
11      ports: {
12        discovery: 30303,
13        listener: 30303
14      },
15      protocols: {
16        eth: {...}
17      }
18    },
19    peers: [{
20      caps: [...],
21      enode: "enode://fe27ccc5a34d6625ad124eaf8f7b1d1fc0e9aede3b86bd387eaf1247c1aaeb612d6ba5e6e36f41b637d63f941e551",
22      id: "82f1363499c7910a0138357e98016a5291cf046f568b1d44de0bef0d9e1e2d17",
23      name: "Geth/RoseliBak/v1.10.0-stable(quorum-v22.1.0)/linux-amd64/go1.17.5",
24      network: {...},
25      protocols: {...}
26    }, {
27      caps: [...],
28      enode: "enode://3232d616cceb22fc6bc5bb34f24ad00386134acb384eb423f9bab6a19066c4c3d8921e3de6b672530c5803fd3905",
29      id: "837c063ac26ca22e355ebc8fd413a5a76ce6e1139d76a54085df6a2c4a8f2eb6",
30      name: "Geth/Offline/v1.10.0-stable(quorum-v22.1.0)/linux-amd64/go1.18.1",
31      network: {...},
32      protocols: {...}
33    }],
34    addPeer: function(),
35    addTrustedPeer: function(),
36    clearHistory: function(),
37    exportChain: function(),
38    getDatadir: function(callback),
39    getNodeInfo: function(callback),
40    getPeers: function(callback),
41    importChain: function(),
42    removePeer: function(),
43    removeTrustedPeer: function(),
44    sleep: function github.com/ethereum/go-ethereum/console.(*bridge).Sleep-fm(),
45    sleepBlocks: function github.com/ethereum/go-ethereum/console.(*bridge).SleepBlocks-fm(),
46    startRPC: function(),
47    startWS: function(),
48    stopRPC: function(),
49    stopWS: function()
50  },
```



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```
51  bzz: { //bzz: solc相关的组件的对象
52      hive: undefined,
53      info: undefined,
54      blockNetworkRead: function(),
55      download: function(),
56      get: function(),
57      getHive: function(callback),
58      getInfo: function(callback),
59      modify: function(),
60      put: function(),
61      retrieve: function(),
62      store: function(),
63      swapEnabled: function(),
64      syncEnabled: function(),
65      upload: function()
66  },
67  currentProvider: {
68      newAccount: function(),
69      openWallet: function(),
70      send: function github.com/ethereum/go-ethereum/console.(*bridge).Send-fm(),
71      sendAsync: function github.com/ethereum/go-ethereum/console.(*bridge).Send-fm(),
72      sign: function(),
73      unlockAccount: function()
74  },
75  db: { //db: 操作区块链底层数据库
76      getHex: function(),
77      getString: function(),
78      putHex: function(),
79      putString: function()
80  },
81  debug: {
82      backtraceAt: function(),
83      blockProfile: function(),
84      chaindbCompact: function(),
85      chaindbProperty: function(),
86      cpuProfile: function(),
87      dumpBlock: function(),
88      freeOSMemory: function(),
89      freezeClient: function(),
90      gcStats: function(),
91      getBadBlocks: function(),
92      getBlockRlp: function(),
93      getModifiedAccountsByHash: function(),
94      getModifiedAccountsByNumber: function(),
95      goTrace: function(),
96      memStats: function(),
97      mutexProfile: function(),
98      preimage: function(),
99      printBlock: function(),
100     seedHash: function(),
101     setBlockProfileRate: function(),
102     setGCPercents: function(),
103     setHead: function(),
104     setMutexProfileFraction: function(),
105     stacks: function(),
106     standardTraceBadBlockToFile: function(),
107     standardTraceBlockToFile: function(),
108     startCPUTProfile: function(),
109     startGoTrace: function(),
110     stopCPUTProfile: function(),
111     stopGoTrace: function(),
112     storageRangeAt: function(),
113     testSignCliqueBlock: function(),
114     traceBadBlock: function(),
115     traceBlock: function(),
116     traceBlockByHash: function(),
117     traceBlockByNumber: function(),
118     traceBlockFromFile: function(),
119     traceTransaction: function(),
120     verbosity: function(),
121     vmodule: function(),
```



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```

122 | writeBlockProfile: function(),
    | 123 | writeMemProfile: function(),
124 | writeMutexProfile: function()
125 | },
126 | eth: { //eth: 最重要的
127 |   accounts: ["0x22592dc0a2c474272f364e1b084db58bad0cdd53"],
128 |   blockNumber: 15,
129 |   coinbase: "0x22592dc0a2c474272f364e1b084db58bad0cdd53",
130 |   compile: {
131 |     lll: function(),
132 |     serpent: function(),
133 |     solidity: function()
134 |   },
135 |   defaultAccount: undefined,
136 |   defaultBlock: "latest",
137 |   gasPrice: 1000000000,
138 |   hashrate: 0,
139 |   mining: false,
140 |   pendingTransactions: [],
141 |   protocolVersion: "0x40",
142 |   syncing: false,
143 |   call: function(),
144 |   chainId: function(),
145 |   contract: function(abi),
146 |   estimateGas: function(),
147 |   fillTransaction: function(),
148 |   filter: function(options, callback, filterCreationErrorCallback),
149 |   getAccounts: function(callback),
150 |   getBalance: function(),
151 |   getBlock: function(),
152 |   getBlockByHash: function(),
153 |   getBlockByNumber: function(),
154 |   getBlockNumber: function(callback),
155 |   getBlockTransactionCount: function(),
156 |   getBlockUncleCount: function(),
157 |   getCode: function(),
158 |   getCoinbase: function(callback),
159 |   getCompilers: function(),
160 |   getGasPrice: function(callback),
161 |   getHashrate: function(callback),
162 |   getHeaderByHash: function(),
163 |   getHeaderByNumber: function(),
164 |   getMining: function(callback),
165 |   getPendingTransactions: function(callback),
166 |   getProof: function(),
167 |   getProtocolVersion: function(callback),
168 |   getRawTransaction: function(),
169 |   getRawTransactionFromBlock: function(),
170 |   getStorageAt: function(),
171 |   getSyncing: function(callback),
172 |   getTransaction: function(),
173 |   getTransactionCount: function(),
174 |   getTransactionFromBlock: function(),
175 |   getTransactionReceipt: function(),
176 |   getUncle: function(),
177 |   getWork: function(),
178 |   iban: function(iban),
179 |   icapNamereg: function(),
180 |   isSyncing: function(callback),
181 |   namereg: function(),
182 |   resend: function(),
183 |   sendIBANTransaction: function(),
184 |   sendRawTransaction: function(),
185 |   sendTransaction: function(),
186 |   sign: function(),
187 |   signTransaction: function(),
188 |   submitTransaction: function(),
189 |   submitWork: function()
190 | },
191 | ethash: {
192 |   getHashrate: function(),

```



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193 |   getWork: function(),194 |   submitHashRate: function(),
195 |   submitWork: function()
196 | },
197 | isIBAN: undefined,
198 | miner: {
199 |   getHashrate: function(),
200 |   setEtherbase: function(),
201 |   setExtra: function(),
202 |   setGasPrice: function(),
203 |   setRecommitInterval: function(),
204 |   start: function(),
205 |   stop: function()
206 | },
207 | net: {
208 |   listening: true,
209 |   peerCount: 3,
210 |   version: "15",
211 |   getListening: function(callback),
212 |   getPeerCount: function(callback),
213 |   getVersion: function(callback)
214 | },
215 | personal: {
216 |   listAccounts: ["0x22592dc0a2c474272f364e1b084db58bad0cdd53"],
217 |   listWallets: [{
218 |     accounts: [...],
219 |     status: "Locked",
220 |     url: "keystore:///usr/local/GethProjects/keystore/UTC--2022-07-12T14-38-52.834936211Z--22592dc0a2c474272f364e1b084db58bad0cdd53"],
221 |   }],
222 |   deriveAccount: function(),
223 |   ecRecover: function(),
224 |   getListAccounts: function(callback),
225 |   getListWallets: function(callback),
226 |   importRawKey: function(),
227 |   initializeWallet: function(),
228 |   lockAccount: function(),
229 |   newAccount: function github.com/ethereum/go-ethereum/console.(*bridge).NewAccount-fm(),
230 |   openWallet: function github.com/ethereum/go-ethereum/console.(*bridge).OpenWallet-fm(),
231 |   sendTransaction: function(),
232 |   sign: function github.com/ethereum/go-ethereum/console.(*bridge).Sign-fm(),
233 |   signTransaction: function(),
234 |   unlockAccount: function github.com/ethereum/go-ethereum/console.(*bridge).UnlockAccount-fm(),
235 |   unpair: function()
236 | },
237 | providers: {
238 |   HttpProvider: function(host, timeout, user, password),
239 |   IpcProvider: function(path, net)
240 | },
241 | rpc: {
242 |   modules: {
243 |     admin: "1.0",
244 |     debug: "1.0",
245 |     eth: "1.0",
246 |     ethash: "1.0",
247 |     miner: "1.0",
248 |     net: "1.0",
249 |     personal: "1.0",
250 |     rpc: "1.0",
251 |     txpool: "1.0",
252 |     web3: "1.0"
253 |   },
254 |   getModules: function(callback)
255 | },
256 | settings: {
257 |   defaultAccount: undefined,
258 |   defaultBlock: "latest"
259 | },
260 | shh: { //与whisper相关的组件
261 |   addPrivateKey: function(),
262 |   addSymKey: function(),
263 |   deleteKeyPair: function(),

```



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264 deleteSymKey: function(),265 generateSymKeyFromPassword: function(),
266 getPrivateKey: function(),
267 getPublicKey: function(),
268 getSymKey: function(),
269 hasKeyPair: function(),
270 hasSymKey: function(),
271 info: function(),
272 markTrustedPeer: function(),
273 newKeyPair: function(),
274 newMessageFilter: function(options, callback, filterCreationErrorCallback),
275 newSymKey: function(),
276 post: function(),
277 setMaxMessageSize: function(),
278 setMinPoW: function(),
279 version: function()
280 },
281 txpool: {
282   content: {
283     pending: {},
284     queued: {}
285   },
286   inspect: {
287     pending: {},
288     queued: {}
289   },
290   status: {
291     pending: 0,
292     queued: 0
293   },
294   getContent: function(callback),
295   getInspect: function(callback),
296   getStatus: function(callback)
297 },
298 version: {
299   api: "0.20.1",
300   ethereum: "0x40",
301   network: "15",
302   node: "Geth/v1.9.8-stable-d62e9b28/linux-amd64/go1.13.4",
303   whisper: undefined,
304   getEthereum: function(callback),
305   getNetwork: function(callback),
306   getNode: function(callback),
307   getWhisper: function(callback)
308 },
309 BigNumber: function a(e,n),
310 createBatch: function(),
311 fromAscii: function(str),
312 fromDecimal: function(value),
313 fromICAP: function(icap),
314 fromUtf8: function(str),
315 fromWei: function(number, unit),
316 isAddress: function(address),
317 isChecksumAddress: function(address),
318 isConnected: function(),
319 padLeft: function(string, chars, sign),
320 padRight: function(string, chars, sign),
321 reset: function(keepIsSyncing),
322 setProvider: function(provider),
323 sha3: function(string, options),
324 toAscii: function(hex),
325 toBigNumber: function(number),
326 toChecksumAddress: function(address),
327 toDecimal: function(value),
328 toHex: function(val),
329 toUtf8: function(hex),
330 toWei: function(number, unit)
331 }

```



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同步回调：会阻塞进程，有顺序保证 **undefined**

异步回调，序列化：一般web应用都是用异步调用

编译过程：编译sol文件

```
[root@Q1nChanCentos contract]# solcjs --help
Usage: solcjs [options]

Options:
  -V, --version                output the version number
  --version                    Show version and exit.
  --optimize                   Enable bytecode optimizer. (default: false)
  --optimize-runs <optimize-runs> The number of runs specifies roughly how often each opcode o
                                code will be executed across the lifetime of the contract. L
                                will optimize more for initial deployment cost, higher value
                                more for high-frequency usage.
  --bin                        Binary of the contracts in hex.
  --abi                        ABI of the contracts.
  --standard-json              Turn on Standard JSON Input / Output mode.
  --base-path <path>          Root of the project source tree. The import callback will at
                                interpret all import paths as relative to this directory.
  --include-path <path...>    Extra source directories available to the import callback. W
                                package manager to install libraries, use this option to spe
                                directories where packages are installed. Can be used multip
                                provide multiple locations.
  -o, --output-dir <output-directory> Output directory for the contracts.
  -p, --pretty-json            Pretty-print all JSON output. (default: false)
  -v, --verbose                More detailed console output. (default: false)
  -h, --help                   display help for command
```

--bin生成字节码文件，给以太坊去执行



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--abi生成abi文件，供web3去调用

node控制台: js的执行环境, 编写好的js文件, 可以用node直接去运行

```
00080f0033[root@Q1nChanCentos contract]# node
Welcome to Node.js v16.15.0.
Type ".help" for more information.
>
```

创建一个web3对象 (web3是一个名字, 随意)



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```
> web3
Uncaught ReferenceError: web3 is not defined
> var web3 = new Web3(new Web3.providers.HttpProvider('http://localhost:8545'))
undefined
> web3
Web3 {
  currentProvider: [Getter/Setter],
  _requestManager: RequestManager {
    provider: HttpProvider {
      withCredentials: false,
      timeout: 0,
      headers: undefined,
      agent: undefined,
      connected: false,
      host: 'http://localhost:8545',
      httpAgent: [Agent]
    },
    providers: {
      WebsocketProvider: [Function: WebsocketProvider]
    }
  }
}
```