

ioeX.Utilities.Java

ioeX.Utilities.Java is a tool for generating transaction signature, there are two forms of signature, one is to call the API , the other one is the web request

Configuration - java-config.json

java-config.json		
java-config.json file need to be placed in the same level directory of the Java program to connect nodes		
name	type	description
Host	string	Server IP and RPC ports where the node program resides
Fee	string	The single output or multiple input and output fees of a transaction are the same
Confirmation	string	Number of block confirmation transactions
Configuration		
<pre>{ "Host": "127.0.0.1:20336", "Fee":"0.0001", "Confirmation":"16" }</pre>		

Account API:

Method		Description
createaccount		create account
Parameter Description		
name	type	description
password	string	account password
Request		
<pre>{ "method":"createaccount", "id":0, "params":{"account":[{ "password":"12345" }]} }</pre>		
Response		
<pre>{ "result": [{ "address": "EQPJ8sfFvWhCTUuyxMypK9H3iqshmHbk5Y", "encryptedPrivateKey": "4YI3NxrXgkoXmGnYgDJYMmEaUCRAzaFTLGnsA3udUfzpmnXNkwHcCOSI7jim24Xx", "salt": "kas+nHNj13mtFSVhT5P68A==", "scrypt": { "dkLen": 64, "n": 16384, "p": 8, "r": 8 }, "version": "1.0" }], "id": null, "jsonrpc": "2.0", "error": null }</pre>		

Method		Description	
importaccount		Import account	
Parameter Description			
name	type	description	
password	string	account password	
privatekey	string	import privateKey	
Request			

```
{
  "method": "importaccount",
  "params": {
    "account": [
      {
        "password": "12345",

"privatekey": "5FA927E5664E563F019F50DCD4D7E2D9404F2D5D49E31F9482912E23D6D7B9EB"
      }
    ]
  }
}
```

Response

```
{
  "result": [
    {
      "address": "Eby3aa39hc33dF4RfKCP7iaFnDuNDhRHB",
      "encryptedPrivateKey":
"55y15OPIQxVkvHjI5Gsl+UzE9KdpmJXzM1z5Mda2JlLuCEvmQhjTBLbumtLqqV8B",
      "salt": "4yE1lSiNpolckdvdBAbg9g==",
      "script": {
        "dkLen": 64,
        "n": 16384,
        "p": 8,
        "r": 8
      },
      "version": "1.0"
    },
  ],
  "id": null,
  "jsonrpc": "2.0",
  "error": null
}
```

Method		Description
removeaccount		remove account
Parameter Description		
name	type	description
password	string	account password
address	string	remove account
Request		
<pre>{ "method":"removeaccount", "params":{ "account":[{ "password":"12345", "address":"EQSpUzE4XYJhBSx5j7Tf2cteaKdFdixfVB"</pre>		

```
    }
  ]
}

Response
{
  "result": [
    {
      "address": "Eby3aa39hc33dF4RfKCP7iaFnrDuNDhRHB",
      "encryptedPrivateKey":
"55y15OPIQxVkvHjI5Gsl+UzE9KdpmJXzM1z5Mda2JILuCEvmQhjTBLbumtLqqV8B",
      "salt": "4yE1ISiNpolckdvdBAbg9g==",
      "script": {
        "dkLen": 64,
        "n": 16384,
        "p": 8,
        "r": 8
      },
      "version": "1.0"
    }
  ],
  "id": null,
  "jsonrpc": "2.0",
  "error": null
}
```

Method		Description
exportprivatekey		Export privatekey
Parameter Description		
name	type	description
password	string	account password
address	string	export account
Request		
{ "method":"exportprivatekey", "params":{ "account":[{ "password":"12345", "address":"Eby3aa39hc33dF4RfKCP7iaFnrDuNDhRHB" }] } }		
Response		
{ "result": ["883d7a9d52359252cfbb75352765963e80edc822de9e0879baafb7952a7cda87"] }		

```
    ],
    "id": null,
    "jsonrpc": "2.0",
    "error": null
}
```

Basics API

Method	Description
genprivatekey	generate private key
Request	
{ "method":"genprivatekey" }	
Response	
{ "result": "32A78B9FA6792310AAB5093DE8FDD915426832EA1C0844B789013192B0AA42B1", "id": null, "jsonrpc": "2.0", "error": null }	

Method		Description
genpublickey		obtain the public key based on the private key
Parameter Description		
name	type	description
privatekey	string	private key
Request		
{ "method":"genpublickey", "params": { "privatekey":"4EA80EDBFC783A19FAC1072D15893AC7A20B4EDE1402FD57DE76D02EA61E28E4"} }		
Response		
{ "result": "03B462F4DB3F67A6A71E51BF3034A183022F092E8E6ED0C91F139E4871F5BA0B57", "id": null, "jsonrpc": "2.0", "error": null }		

Method		Description
genaddress		obtain the address based on the private key
Parameter Description		
name	type	description
privatekey	string	private key
Request		

<pre>{ "method": "genaddress", "params": {"privatekey": "bddeadcdef4391dd95e3f48de69c607fa4c84ebf9452baf816e2311520ee9344"} }</pre>
Response
<pre>{ "result": "ERfBqxDFty7NMj6ZVLrVtmbfCKtKgF5jmz", "id": null, "jsonrpc": "2.0", "error": null }</pre>

Method	Description
genprivpubaddr	generate private key and public key and address
Request	
<pre>{ "method": "genprivpubaddr" }</pre>	
Response	
<pre>{ "result": { "privatekey": "B9A74F7C3F134D92932379CEDA431B3D52BC8D2800F1995803BE970A6727E4FA", "publickey": "02218B25A023D1C4BAF8857BFF7D13D6C83F48767DB02C6519ABF681E6FC5D54C2", "address": "EaupPuQPhcWvHDUDWdL9RUmAjCQZp637F1" }, "id": null, "jsonrpc": "2.0", "error": null }</pre>	

Method		Description
checkaddress		verify that the address is IOEX address
Parameter Description		
name	type	description
addresses	string array	IOEX address array
Request		
<pre>{ "method":"checkaddress", "params":{ "addresses":["EXgtxGg4ep6vM6uCqWuxkP9KG4AGFyufZzz", "1C1mCxRukix1KfegAY5zQQJV7samAciZpv", "8Frmgg4KMudMEPc5Wow5tYXH8XBgctT8QT", "XQd1DCi6H62NQdWZQhJCRnrPn7sF9CTjaU"] } }</pre>		
Response		

```
{
  "result": {
    "EXgtxGg4ep6vM6uCqWuxkP9KG4AGFyufZzz": false,
    "1C1mCxRukix1KfegAY5zQQJV7samAciZpv": false,
    "8Frmgg4KMudMEPc5Wow5tYXH8XBgctT8QT": true,
    "XQd1DCi6H62NQdWZQhJCRnrPn7sF9CTjaU": false
  },
  "id": null,
  "jsonrpc": "2.0",
  "error": null
}
```

IOEX Transaction API

Method		Description
genrawtx		constructing single sign transaction
Parameter Description		
name	type	description
txid	string	transaction where the available balance of address is located
vout	int	the serial number of the tx in which the balance is available
privatekey	string	Utxo address corresponds to the private key
address	string	arrival address
amount	string	the unit is IOEX
Request		
<pre>{ "method": "genrawtx", "params": { "transaction": { "inputs": [{ "txid": "28cb087f7feabb9ff2fc34fb541946e4052e7d0aba50ebbc0773a69c9ca952fe", "vout": 0, "privatekey": "5FA927E5664E563F019F50DCD4D7E2D9404F2D5D49E31F9482912E23D6D7B9EB" }], "outputs": [{ "address": "ENvYuRCpY42hX8gYAcdbwiD2GNZmUWWSix", "amount": "2" }, { "address": "ENvYuRCpY42hX8gYAcdbwiD2GNZmUWWSix", "amount": "2" }] } } }</pre>		
Response		
<pre>{ "result": { "rawtx": "02000100142D3233373338323136323931343236333631343501FE52A99C9CA67307BCEB50BA0A7D2E05E4 461954FB34FCF29FBBEA7F7F08CB28000000000000002B037DB964A231458D2D6FFD5EA18944C4F90E63D547 C5D3B9874DF66A4EAD0A300C2EB0B0000000000000000213F4A290A0337A43B5B1473ECD5E7697608E8B84 DB037DB964A231458D2D6FFD5EA18944C4F90E63D547C5D3B9874DF66A4EAD0A300C2EB0B000000000000 0000213F4A290A0337A43B5B1473ECD5E7697608E8B84D000000000141403A1D92C100A5BE406465B7B3B4 0CAD8FB182B9DDA9101D8CBA7A862C59ED3C2EA7CFCC72F662949807466AF63FFC1DFA220A1A5BA5A1A62</pre>		


```
3F9A06C821451337C2321037F3CAEDE72447B6082C1E8F7705FFD1ED6E24F348130D34CBC7C0A35C9E993F5
AC",
    "txhash": "4382093E71F362AF07E3D5157503E687BBA007D3A974EC27A6A832C785B4D2B0"
  },
  "id": null,
  "jsonrpc": "2.0",
  "error": null
}
```

Method		Description
genrawtxbyprivatekey		constructing single sign transaction
Parameter Description		
name	type	description
privatekey	string	Utxo address corresponds to the private key , Automatic acquisition of utxo
address	string	arrival address
amount	string	the unit is IOEX
changeaddress	string	Change address
Request		
{ "method":"genrawtxbyprivatekey", "params":{ "transaction":{ "privatekeys":[{ "privatekey":"5FA927E5664E563F019F50DCD4D7E2D9404F2D5D49E31F9482912E23D6D7B9EB" }], "outputs":[{ "address":"Eazj14ifau5eH1SP5F8MJRuiSsPMiGbJV1", "amount":"0.01" }], "changeaddress":"Eazj14ifau5eH1SP5F8MJRuiSsPMiGbJV1" } } }		
Response		
{ "result": { "rawtx": "020001001334383430383731313636353333332393832303901BAD4926FAA46F0EC32C7195C6840EDD5D9B6149731A8C0F7EB281C0EE680A8AF000000000000002B037DB964A231458D2D6FFD5EA18944C4F90E63D547C5D3B9874DF66A4EAD0A340420F00000000000000000021C3B5C32D6FE7CAC86A855276D087C443FB12178BB037DB964A231458D2D6FFD5EA18944C4F90E63D547C5D3B9874DF66A4EAD0A38B23030000000000000000000021C3B5C32D6FE7CAC86A855276D087C443FB12178B00000000001414067ABA5E897F183F155A3DFB62D1B" } }		

```
F1CE6002CE07CE999DBC1CDDAD391486631BD1F9BF9191F0F48813186727EC0EDF3ED38EDFD38EB793A9FA
EE0F18F42D69D32321037F3CAEDE72447B6082C1E8F7705FFD1ED6E24F348130D34CBC7C0A35C9E993F5AC"
,
    "txhash": "CE0285BC67E040057D5EBC4B3E14D02DC2326DA8ABB2D209965EE5D8463812A7"
},
"id": null,
"jsonrpc": "2.0",
"error": null
}
```

IOEX Node API

Method	Description
getblockcount	get block count
Request	
{ "method":"getblockcount" }	
Response	
{ "result": 171454 "id": null, "error": null, "jsonrpc": "2.0", }	

Method		Description
listunspent		list all utxo of given addresses
Parameter Description		
name	type	description
addresses	array[string]	addresses
Request		
<pre>{ "method": "listunspent", "params": { "addresses": ["8ZNizBf4KhhPjeJRGpox6rPcHE5Np6tFx3", "EeEkSiRMZqg5rd9a2yPaWnvdPcikFtsrjE"] } }</pre>		
Response		
<pre>{ "error": null, "id": null, "jsonrpc": "2.0", "result": [{ "assetid": "a3d0eaa466df74983b5d7c543de6904f4c9418ead5ffd6d25814234a96db37b0", "txid": "9132cf82a18d859d200c952aec548d7895e7b654fd1761d5d059b91edbad1768", "vout": 0, "address": "8ZNizBf4KhhPjeJRGpox6rPcHE5Np6tFx3", "amount": "33000000", "confirmations": 1102, "outputlock": 0 }, {</pre>		

```
        "assetid": "a3d0eaa466df74983b5d7c543de6904f4c9418ead5ffd6d25814234a96db37b0",
        "txid": "3edbcc839fd4f16c0b70869f2d477b56a006d31dc7a10d8cb49bd12628d6352e",
        "vout": 0,
        "address": "8ZNizBf4KhhPjeJRGpox6rPcHE5Np6tFx3",
        "amount": "0.01255707",
        "confirmations": 846,
        "outputlock": 0
    }
}
]
```

Method		Description
getblock		get block info by hash
Parameter Description		
name	type	description
blockhash	string	the blockchain hash
verbosity	int	the verbosity of result, can be 0, 1, 2
Request		
{ "method":"getblock", "params":{ "blockhash":"e41e9b025cee0b10c895819b83e05c95775e254b221a8ef4b41097423dccaf43", "verbosity":2 } }		
Response		
{ "error": null, "id": null, "jsonrpc": "2.0", "result": { "hash": "3ca6bcc86bada4642fea709731f1653bd34b28ab15b790e102e14e0d7bd138d8", "confirmations": 1, "strippedsize": 498, "size": 498, "weight": 1992, "height": 2001, "version": 0, "versionhex": "00000000", "merkleroot": "219184ea3c0a2973b90b8402c8405b76d7fbe10a268f6de7e4f48e93f5d03df7", "tx": [{ "txid": "219184ea3c0a2973b90b8402c8405b76d7fbe10a268f6de7e4f48e93f5d03df7", "hash": "219184ea3c0a2973b90b8402c8405b76d7fbe10a268f6de7e4f48e93f5d03df7", "size": 192, "vsize": 192, "version": 0, "locktime": 2001, 		

```

        "vin": [
            {
                "txid":
"0000000000000000000000000000000000000000000000000000000000000000",
                "vout": 65535,
                "sequence": 4294967295
            }
        ],
        "vout": [
            {
                "value": "0.01255707",
                "n": 0,
                "address": "8VYXVxKKSAXkmRrfmGpQR2Kc66XhG6m3ta",
                "assetid":
"b037db964a231458d2d6ffd5ea18944c4f90e63d547c5d3b9874df66a4ead0a3",
                "outputlock": 0
            },
            {
                "value": "0.02929985",
                "n": 1,
                "address": "EXca4DJwqCXa6vbJmpovwatHiP8HRTVS1Z",
                "assetid":
"b037db964a231458d2d6ffd5ea18944c4f90e63d547c5d3b9874df66a4ead0a3",
                "outputlock": 0
            }
        ],
        "blockhash":
"3ca6bcc86bada4642fea709731f1653bd34b28ab15b790e102e14e0d7bd138d8",
        "confirmations": 1,
        "time": 1527324355,
        "blocktime": 1527324355,
        "type": 0,
        "payloadversion": 4,
        "payload": {
            "CoinbaseData": "IOEX"
        },
        "attributes": [
            {
                "usage": 0,
                "data": "46444170b0e427d2"
            }
        ],
        "programs": []
    }
],
"time": 1527324355,
"mediantime": 1527324355,
"nonce": 0,
"bits": 545259519,

```



```

        "locktime": 0,
        "vin": [
            {
                "txid":
"0000000000000000000000000000000000000000000000000000000000000000",
                "vout": 0,
                "sequence": 0
            }
        ],
        "vout": [
            {
                "value": "33000000",
                "n": 0,
                "address": "EQSpUzE4XYJhBSx5j7Tf2cteaKdFdixfVB",
                "assetid":
"a3d0eaa466df74983b5d7c543de6904f4c9418ead5ffd6d25814234a96db37b0",
                "outputlock": 0,
                "outputtype": 0,
                "outputpayload": null
            }
        ],
        "blockhash":
"451e906b7d30e7d1e226675283432ab34e6a44839078d3ab7ef5bd17d8b38281",
        "confirmations": 1,
        "time": 1513936800,
        "blocktime": 1513936800,
        "type": 0,
        "payloadadversion": 4,
        "payload": {
            "CoinbaseData": ""
        },
        "attributes": [
            {
                "usage": 0,
                "data": "4d65822107fcfd52"
            }
        ],
        "programs": []
    },
    {
        "txid": "a3d0eaa466df74983b5d7c543de6904f4c9418ead5ffd6d25814234a96db37b0",
        "hash": "a3d0eaa466df74983b5d7c543de6904f4c9418ead5ffd6d25814234a96db37b0",
        "size": 47,
        "vsize": 47,
        "version": 0,
        "locktime": 0,
        "vin": [],
        "vout": [],
        "blockhash":

```

[illegible]

Method		Description
getrawtransaction		get transaction info
Parameter Description		
name	type	description
txid	string	transaction hash
verbose	bool	verbose of result
Request		
<pre>{ "method": "getrawtransaction", "params": {</pre>		

<pre> "txid": "2458ecfed403ed69414e0609b5505e54ad588ee679949c7e78865947a7b8a96f", "verbose": true } } </pre>
<p>Response</p> <pre> { "id": null, "error": null, "jsonrpc": "2.0", "result": { "txid": "6864bbf52a3e140d40f1d707bae31d006265efc54dcb58e34037645060ce3e16", "hash": "6864bbf52a3e140d40f1d707bae31d006265efc54dcb58e34037645060ce3e16", "size": 192, "vsize": 192, "version": 0, "locktime": 1000, "vin": [{ "txid": "00", "vout": 65535, "sequence": 4294967295 }], "vout": [{ "value": "0.01255707", "n": 0, "address": "8VYXVxKKSAxkmRrfmGpQR2Kc66XhG6m3ta", "assetid": "b037db964a231458d2d6ffd5ea18944c4f90e63d547c5d3b9874df66a4ead0a3", "outputlock": 0 }, { "value": "0.02929985", "n": 1, "address": "ENTogr92671PKrMmtWo3RLiYXfBTXUe13Z", "assetid": "b037db964a231458d2d6ffd5ea18944c4f90e63d547c5d3b9874df66a4ead0a3", "outputlock": 0 }], "blockhash": "00", "confirmations": 4158, "time": 1524737766, "blocktime": 1524737766, "type": 0, "payloadversion": 4, "payload": { "CoinbaseData": "IOEX" }, "attributes": [</pre>

```
        {
            "usage": 0,
            "data": "b52165c186769037"
        },
        "programs": []
    }
}
```

Method		Description
sendrawtransaction		send a raw transaction to node
Parameter Description		
name	type	description
data	string	raw transaction data in hex
Request		
{ "method":"sendrawtransaction", "params":{"data":"*****"} }		
Response		
{ "result":"764691821f937fd566bcf533611a5e5b193008ea1ba1396f67b7b0da22717c02", "id": null, "jsonrpc": "2.0", "error": null }		

Method		Description
getblockhash		return the hash of the specific blockchain height
Parameter Description		
name	type	description
height	int	the height of blockchain
Request		
{ "method":"getblockhash", "params":{"height":1} }		
Response		
{ "id": null, "jsonrpc": "2.0", "result": "3893390c9fe372eab5b356a02c54d3baa41fc48918bbddfbac78cf48564d9d72", "error": null }		

Method		Description
getreceivedbyaddress		get the balance of an address
Parameter Description		

name	type	description
address	string	account address
Request		
<pre>{ "method": "getreceivedbyaddress", "params": { "address": "8VYXVxKKSAxkmRrfmGpQR2Kc66XhG6m3ta" } }</pre>		
Response		
<pre>{ "error": null, "id": null, "jsonrpc": "2.0", "result": "33000000" }</pre>		