# 井通Websocket命令总结

## Websocket测试相关链接

井通节点websocket地址： wss://hc.jingtum.com:5020 wss://c05.jingtum.com:5020

在线websocket测试工具： <http://ws.douqq.com/>

## 获取当前节点服务器信息 server\_info

说明：通过此命令可以获知当前节点服务器包含哪些账本，当前服务器启动时间，手续费回收账号等。

命令：

{

"id": 1,

"command": "server\_info"

}

执行此命令后返回的json：

{"id":1,"result":{"info":{"build\_version":"0.28.1","complete\_ledgers":"266955-7199391,7199488,7199732-7199744,7200000,7200512,7201024,7201254-7201494,7201498-7206567,7206570-7208120,7208124-10273967","hostid":"EST","io\_latency\_ms":1,"last\_close":{"converge\_time\_s":2.002,"proposers":6},"load\_factor":1,"peers":13,"pubkey\_node":"n9MifW8PFpLCAWbMAhZp6e7ZN6bd8saA7Q3Wv95FLjypcEFQDRfv","server\_state":"full 56:00:45","startup\_time":"2018-May-03 23:31:54","validated\_ledger":{"age":5,"base\_fee\_swt":1e-05,"fee\_account\_swt":"jEoSyfChhUMzpRDttAJXuie8XhqyoPBYvV","hash":"C7E0DA114CC05906C224BC31ADE0E5172C562685188D5A13BA085F623D419C8E","issuerop\_account":"jhyXdawKCnhCVLkgqzTnNRrdMvGt1yqzwd","manager\_account":"jpcBnGpPjYjHv5wyqa62zLgDmWa7hxV1wP","reserve\_base\_swt":20,"reserve\_inc\_swt":5,"seq":10273967},"validation\_quorum":3}},"status":"success","type":"response"}

result说明：

|  |  |
| --- | --- |
| info |  |
| build\_version | 运行的井通服务程序的版本 |
| complete\_ledgers | 当前服务器包含的账本数据(账本号区间) |
| hostid | 运行井通服务程序的主机名 |
| io\_latency\_ms | 输入输出延时 |
| last\_close | 最后关闭 |
| converge\_time\_s |  |
| proposers |  |
| load\_factor |  |
| peers | 目前服务器连接的对等节点的个数 |
| pubkey\_node |  |
| server\_state | 服务状态 |
| startup\_time | 启动时间 |
| validated\_ledger | 已确认的账本 |
| age | 距离该账本关闭的时间，单位秒 |
| base\_fee\_swt | 基础费用，手续费,gas费 |
| fee\_account\_swt | 手续费账户 |
| hash | HASH |
| issuerop\_account |  |
| manager\_account |  |
| reserve\_base\_swt | 冻结的SWT数量？ |
| reserve\_inc\_swt |  |
| seq | 序号，账本号 |
| validation\_quorum | 完成共识需要的最小节点数 |
| status | 状态 success/error |
| type | 类型 |

## 获取账本信息 ledger

说明：通过此命令可以同时获得最新账本和当前账本。

命令：

{

"id": 1,

"command": "ledger",

"full": false,

"expand": false,

"transactions": true,

"accounts": true

}

执行此命令后返回的json：

{"id":1,"result":{"closed":{"ledger":{"accepted":true,"account\_hash":"62273A374AEA2242EFD8191BAF5AFECDA91B2745797779C07BA68A1EA68E826B","close\_time":585900600,"close\_time\_human":"2018-Jul-26 06:10:00","close\_time\_resolution":10,"closed":true,"hash":"EF245C3E3492DA18907D5F3DCD47A6F05899950933EC948B4F3D368FF6E33955","ledger\_hash":"EF245C3E3492DA18907D5F3DCD47A6F05899950933EC948B4F3D368FF6E33955","ledger\_index":"10274232","parent\_hash":"549727FC3B4A37E30DAD318F1E4F499D3BC5A31C4B16994B6E973701F7C6F965","seqNum":"10274232","totalCoins":"599999999999460713","total\_coins":"599999999999460713","transaction\_hash":"A22DD729B518B1E27A5C1BDFA2F69C12D54CE26FDB63C3D3D7942D728425952F"}},"open":{"ledger":{"closed":false,"ledger\_index":"10274233","parent\_hash":"EF245C3E3492DA18907D5F3DCD47A6F05899950933EC948B4F3D368FF6E33955","seqNum":"10274233"}}},"status":"success","type":"response"}

Result说明

|  |  |
| --- | --- |
| closed | 已生成(已关闭)的账本信息，最后一个已生成的账本 |
| ledger | 账本信息 |
| accepted | 是否已认可 |
| account\_hash | 账号HASH |
| close\_time | 关闭时间 |
| close\_time\_human | 关闭时间 |
| close\_time\_resolution | 时间间隔？ |
| closed | 是否已关闭 |
| hash | HASH |
| ledger\_hash | 账本HASH |
| ledger\_index | 账本号 |
| parent\_hash | 上一账本HASH |
| seqNum | 序号 |
| totalCoins | 总量 |
| total\_coins | 总量 |
| transaction\_hash | 交易HASH |
| open | 正在生成的账本信息 |
| ledger | 账本信息 |
| closed | 是否已关闭 |
| ledger\_index | 账本号 |
| parent\_hash | 上一账本HASH |
| seqNum | 序号 |
| status | 状态 |
| success | 类型 |

## 3、获取最新账本 ledger\_closed

说明：最新账本指的是最后一次已确认(已生成)的账本，最后一个已写入区块的账本

命令：

{

"id": 1,

"command": "ledger\_closed"

}

执行此命令后返回的json：

{"id":1,"result":{"ledger\_hash":"A2EBC4DF83D179D76186F92099C73220FDAAD1546A36BBBCA10CD796B6745179","ledger\_index":10276476},"status":"success","type":"response"}

Result 说明：

|  |  |
| --- | --- |
| ledger\_hash | 账本hash |
| ledger\_index | 账本号 |
| status | 状态 |
| type | 类型 |

## 4、获取当前账本 ledger\_current

说明：当前账本指的是正在确认(正在生成)的账本，还没有写入区块的账本。

命令：

{

"id": 1,

"command": "ledger\_current"

}

执行此命令后返回的json：

{"id":1,"result":{"ledger\_current\_index":10276480},"status":"success","type":"response"}

Result说明：

|  |  |
| --- | --- |
| ledger\_current\_index | 当前账本号，还没确认的账本 |
| status | 状态 |
| type | 类型 |

## 5、获得指定账本信息的交易记录(根据账本hash) ledger

说明：根据账本hash可以获得此区块所包含的所有交易的hash

命令：

{ "id": 1, "command": "ledger", "transactions": true, "ledger\_hash":"35D5EC723F5A69A8BA56E00F484DBC6526A7F6680DB4FEB7A0325A81C5F2F660" }

执行此命令后返回的json：

{"id":1,"result":{"ledger":{"accepted":true,"account\_hash":"7AA5CE15020AFD3C282DCA8BA98775CF1ACC4AFFDC68A9A8ED216D56EA29AA9D","close\_time":584715570,"close\_time\_human":"2018-Jul-12 12:59:30","close\_time\_resolution":10,"closed":true,"hash":"35D5EC723F5A69A8BA56E00F484DBC6526A7F6680DB4FEB7A0325A81C5F2F660","ledger\_hash":"35D5EC723F5A69A8BA56E00F484DBC6526A7F6680DB4FEB7A0325A81C5F2F660","ledger\_index":"10155729","parent\_hash":"0DF2550D7B5EC962B88E74A1D9EF1694A3C55365304554A7076EFA153D38FD7A","seqNum":"10155729","totalCoins":"599999999999460713","total\_coins":"599999999999460713","transaction\_hash":"B7046843420F9845771369F58F670EE890B45853450E81E916C9BA384F7EF730","transactions":["42DE1114A3D6F8E46E6C5AD70756CDE01FCE7BF925CF0BAF44BC0172EA000107","566BE2552997C4C6E59320AC5C364F3E1C7CD09651DAD3E7CC212C169D6E734F","8D8C2095A54B55D7279A7B454FBE5CDF26029BE15C11FB1EC55E72F9D3230EF2"]},"ledger\_hash":"35D5EC723F5A69A8BA56E00F484DBC6526A7F6680DB4FEB7A0325A81C5F2F660","ledger\_index":10155729,"validated":true},"status":"success","type":"response"}

Result说明

|  |  |
| --- | --- |
| ledger | 账本信息 |
| accepted | 是否已确认 |
| account\_hash | 状态哈希树根 |
| close\_time | 账本关闭时间 |
| close\_time\_human | 账本关闭时间 |
| close\_time\_resolution | 账本关闭时间间隔？ |
| closed | 是否已关闭 |
| hash | 当前账本哈希 |
| ledger\_hash | 当前账本哈希 |
| ledger\_index | 当前账本号 |
| parent\_hash | 上一区块哈希值 |
| seqNum | 当前账本号，账本高度 |
| totalCoins | 总量 |
| total\_coins | 总量 |
| transaction\_hash | 交易哈希树根 |
| transactions | 当前账本包含的交易哈希字符串数组，遍历这些hash可以查询具体交易信息 |
| ledger\_hash | 账本HASH |
| ledger\_index | 账本号 |
| validated | 是否已确认 |

## 6、获得指定账本信息及交易记录(根据账本号) ledger

说明：根据账本号可以获得此区块所包含的所有交易的hash

相关命令：

{

"id": 1,

"command": "ledger",

"transactions": true,

"ledger\_index":10155729

}

执行此命令后返回的json：

{"id":1,"result":{"ledger":{"accepted":true,"account\_hash":"7AA5CE15020AFD3C282DCA8BA98775CF1ACC4AFFDC68A9A8ED216D56EA29AA9D","close\_time":584715570,"close\_time\_human":"2018-Jul-12 12:59:30","close\_time\_resolution":10,"closed":true,"hash":"35D5EC723F5A69A8BA56E00F484DBC6526A7F6680DB4FEB7A0325A81C5F2F660","ledger\_hash":"35D5EC723F5A69A8BA56E00F484DBC6526A7F6680DB4FEB7A0325A81C5F2F660","ledger\_index":"10155729","parent\_hash":"0DF2550D7B5EC962B88E74A1D9EF1694A3C55365304554A7076EFA153D38FD7A","seqNum":"10155729","totalCoins":"599999999999460713","total\_coins":"599999999999460713","transaction\_hash":"B7046843420F9845771369F58F670EE890B45853450E81E916C9BA384F7EF730","transactions":["42DE1114A3D6F8E46E6C5AD70756CDE01FCE7BF925CF0BAF44BC0172EA000107","566BE2552997C4C6E59320AC5C364F3E1C7CD09651DAD3E7CC212C169D6E734F","8D8C2095A54B55D7279A7B454FBE5CDF26029BE15C11FB1EC55E72F9D3230EF2"]},"ledger\_hash":"35D5EC723F5A69A8BA56E00F484DBC6526A7F6680DB4FEB7A0325A81C5F2F660","ledger\_index":10155729,"validated":false},"status":"success","type":"response"}

Result说明

|  |  |
| --- | --- |
| ledger | 账本信息 |
| accepted | 是否已确认 |
| account\_hash | 状态哈希树根 |
| close\_time | 账本关闭时间 |
| close\_time\_human | 账本关闭时间 |
| close\_time\_resolution | 账本关闭时间间隔？ |
| closed | 是否已关闭 |
| hash | 当前账本哈希 |
| ledger\_hash | 当前账本哈希 |
| ledger\_index | 当前账本号 |
| parent\_hash | 上一区块哈希值 |
| seqNum | 当前账本号，账本高度 |
| totalCoins | 总量 |
| total\_coins | 总量 |
| transaction\_hash | 交易哈希树根 |
| transactions | 当前账本包含的交易哈希字符串数组，遍历这些hash可以查询具体交易信息 |
| ledger\_hash | 账本HASH |
| ledger\_index | 账本号 |
| validated | 是否已确认 |

## 7、获取账号可发送和接收的货币account\_currencies

说明：获得指定账户可以发送和接收的货币种类

命令：

{

"id": 1,

"command": "account\_currencies",

"account": "jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP",

"strict": true,

"ledger\_index": "validated"

}

执行此命令后返回的json：

{"id":1,"result":{"ledger\_hash":"D5A8146E1FE9F9D5BEE874A7AC86081065546B1E6CB4EEBE6DA2F72323D67E0B","ledger\_index":10292508,"receive\_currencies":["CNY","ECP","JBIZ","JEKT","JETH","JJCC","JSTM","JCALL","JDABT","JMOAC"],"send\_currencies":["CNY","ECP","JBIZ","JEKT","JETH","JJCC","JSTM","JCALL","JDABT","JMOAC"],"validated":true},"status":"success","type":"response"}

Result说明：

|  |  |
| --- | --- |
| ledger\_hash | 账本HASH |
| ledger\_index | 账本号 |
| receive\_currencies | 可接收的币种 |
| send\_currencies | 可发送的币种 |
| validated | 是否已确认 |
| status | 状态 |
| type | 类型 |

## 8、获取账号详细信息 account\_info

说明：获得指定账户信息，SWT余额和最后交易hash

命令：

{

"id": 1,

"command": "account\_info",

"account": " jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP "

}

执行此命令后返回的json：

{"id":1,"result":{"account\_data":{"Account":"jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP","Balance":"1032301292869","Flags":0,"LedgerEntryType":"AccountRoot","OwnerCount":16,"PreviousTxnID":"89F66FEFE4B3D8A17DB7542851CAFDEEE04D0129D7F8A835AD8F45979FA3A75E","PreviousTxnLgrSeq":10241033,"Sequence":168,"index":"F381758E2D6A113D07840DD182CFB144C94732E90A3E73E73432051B9A0371F3"},"ledger\_current\_index":10292532,"validated":false},"status":"success","type":"response"}

Result说明：

|  |  |
| --- | --- |
| account\_data | 根据当前命令查询出的账号数据 |
| Account | 账号 |
| Balance | SWTC余额 |
| Flags | 账号设置的能执行功能标志。暂不考虑 |
| LedgerEntryType | 账号在区块中存储的账本类型 |
| OwnerCount | 该账户在区块中拥有的对象（账户的挂单和设置的  信任）的数目。 |
| PreviousTxnID | 上一次交易的HASH |
| PreviousTxnLgrSeq | 上一次交易所在的账本号 |
| Sequence | 交易的序号 |
| index | 账本HASH |
| ledger\_current\_index | 当前最新账本号， |
| validated | 是否已确认 |
| status | 命令执行结果状态 |
| type | 类型 |

## 9、获取账号信任线信息 account\_lines

说明：获得指定账户的信任线信息

命令：

{

"id": 1,

"command": "account\_lines",

"account": " jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP ",

"ledger": "current"

}

执行此命令后返回的json：

{"id":1,"result":{"account":"jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP","ledger\_current\_index":10292590,"lines":[{"account":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","balance":"0.047569880989","currency":"CNY","limit":"10000000000","limit\_peer":"0","no\_skywell":true,"quality\_in":0,"quality\_out":0},{"account":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","balance":"0.001","currency":"JETH","limit":"10000000000","limit\_peer":"0","no\_skywell":true,"quality\_in":0,"quality\_out":0},{"account":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","balance":"0.1","currency":"JDABT","limit":"10000000000","limit\_peer":"0","no\_skywell":true,"quality\_in":0,"quality\_out":0},{"account":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","balance":"46","currency":"JCALL","limit":"10000000000","limit\_peer":"0","no\_skywell":true,"quality\_in":0,"quality\_out":0},{"account":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","balance":"47.1","currency":"JBIZ","limit":"10000000000","limit\_peer":"0","no\_skywell":true,"quality\_in":0,"quality\_out":0},{"account":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","balance":"0.1","currency":"JJCC","limit":"10000000000","limit\_peer":"0","no\_skywell":true,"quality\_in":0,"quality\_out":0},{"account":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","balance":"0.2","currency":"JEKT","limit":"10000000000","limit\_peer":"0","no\_skywell":true,"quality\_in":0,"quality\_out":0},{"account":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","balance":"0.1","currency":"ECP","limit":"10000000000","limit\_peer":"0","no\_skywell":true,"quality\_in":0,"quality\_out":0},{"account":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","balance":"0.1","currency":"JMOAC","limit":"10000000000","limit\_peer":"0","no\_skywell":true,"quality\_in":0,"quality\_out":0},{"account":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","balance":"8","currency":"JSTM","limit":"10000000000","limit\_peer":"0","no\_skywell":true,"quality\_in":0,"quality\_out":0}],"validated":false},"status":"success","type":"response"}

Result说明：

|  |  |
| --- | --- |
| account | 账户 |
| ledger\_current\_index | 当前账本 |
| lines | 信任线 |
| account | 发行方 |
| balance | 余额 |
| currency | 币种名称 |
| limit | 表示该命令查询账号能够亏欠该信任线对等账号的最大数额 |
| limit\_peer | 表示信任线对等账号能够亏欠该命令查询账号的最大数额 |
| no\_skywell | 为真时，表示账号可以设置该信任线的 noskywell\_flag,缺省和为假  的效果相同。 |
| quality\_in | 表示账户基于该条信任线收入资产时的利率，单位是十亿，5 亿表  示 0.5:1。0 表示 1:1。 |
| quality\_out | 表示账户基于该条信任线流出资产时的利率，单位是十亿，5 亿表  示 0.5:1。  0 表示 1:1。 |
| validated | 是否已确认 |
| status | 状态 |
| type | 类型 |

## 10、获取账号挂单(委托单)信息 account\_offers

说明：获得指定账户的委托单信息。

命令：

{

"id": 1,

"command": "account\_offers",

"account": "jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP",

"ledger": "current"

}

执行此命令后返回的json：

{"id":1,"result":{"account":"jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP","ledger\_current\_index":10276522,"offers":[{"flags":131072,"seq":152,"taker\_gets":"1000000","taker\_pays":{"currency":"CNY","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"1.1"}},{"flags":131072,"seq":158,"taker\_gets":"1000000","taker\_pays":{"currency":"CNY","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"0.9268"}},{"flags":131072,"seq":159,"taker\_gets":"1000000","taker\_pays":{"currency":"CNY","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"0.93"}},{"flags":0,"seq":160,"taker\_gets":{"currency":"CNY","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"0.0006"},"taker\_pays":"1000000"},{"flags":131072,"seq":161,"taker\_gets":"1000000","taker\_pays":{"currency":"CNY","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"0.92584"}},{"flags":0,"seq":167,"taker\_gets":"1000000","taker\_pays":{"currency":"JJCC","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"1"}}],"validated":false},"status":"success","type":"response"}

Result说明

|  |  |
| --- | --- |
| account | 账户 |
| ledger\_current\_index | 当前 |
| offers | 委托单 |
| flags | 131072卖单，0买单 |
| seq | 序号 |
| taker\_gets | 如果不是json则是SWT的数量，卖单：卖出币种信息，买单：买入的单价币种信息 |
| currency | 币种 |
| issuer | 发行方 |
| value | 数量 |
| taker\_pays | 如果不是json则是SWT的数量，卖单：卖出单价币种信息，买单：买入的币种数量 |
| currency | 币种 |
| issuer | 发行方 |
| value | 数量 |
| validated | 是否已确认 |
| status | 状态 |
| type | 类型 |

## 11、获取账号交易信息 account\_tx

说明：查询指定账户的交易信息

命令：

### 倒序

{

"id": 1,

"command": "account\_tx",

"account": "jJHdzzHwrPggaBKBZZWbC6snJneSvzip5C",

"ledger\_index\_min": -1,

"ledger\_index\_max": -1,

"binary": false,

"count": false,

"limit": 5

}

### 正序

{

"id": 1,

"command": "account\_tx",

"account": "jJHdzzHwrPggaBKBZZWbC6snJneSvzip5C",

"ledger\_index\_min": -1,

"ledger\_index\_max": -1,

"limit": 5

}

执行此命令后返回的json：

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Result说明

|  |  |
| --- | --- |
| account | 账户 |
| ledger\_index\_max | 最大账本 |
| ledger\_index\_min | 最小账本 |
| limit | 返回行数 |
| marker |  |
| ledger | 账本号，当前查询到此账本号，下次可以根据这个账本号继续查询 |
| Seq |  |
| transactions | 交易数据 |
| meta | 原数据 |
| AffectedNodes | 受影响节点 |
| ModifiedNode |  |
| FinalFields |  |
| Account |  |
| Balance |  |
| Flags |  |
| OwnerCount |  |
| Sequence |  |
| LedgerEntryType |  |
| LedgerIndex |  |
| PreviousFields |  |
| Balance |  |
| Sequence |  |
| PreviousTxnID |  |
| PreviousTxnLgrSeq |  |
| CreatedNode |  |
| LedgerEntryType |  |
| LedgerIndex |  |
| NewFields |  |
| Account |  |
| Balance |  |
| Sequence |  |
| TransactionIndex |  |
| TransactionResult |  |
| Tx (TransactionType =Payment) | 转账 |
| Account | 转出账户 |
| Amount | 数量，可能是对象(包含币种、发行方、数量 |
| Destination | 对方账号) |
| Fee | 手续费 |
| Flags | 标识 |
| Sequence | 序号 |
| SigningPubKey | 公钥 |
| Timestamp | 时间 |
| TransactionType | 交易类型 |
| TxnSignature | 公钥 |
| date | 时间 |
| hash | hash |
| inLedger | 所在的账本号 |
| ledger\_index | 账本号 |
| Tx(TransactionType= OfferCreate) | 创建挂单 |
| Account | 发起人账户，也可能是对方账号 |
| Fee | 手续费 |
| Flags | 标识 524288，0 |
| Sequence | 序号 |
| SigningPubKey | 公钥 |
| TakerGets | 对方获得(我方付出) |
| TakerPays | 对方付出(我方将得到) |
| Timestamp | 时间 |
| TransactionType | 交易类型 |
| TxnSignature | 公钥 |
| date | 时间 |
| hash | hash |
| inLedger | 所在的账本号 |
| ledger\_index | 账本号 |
| Tx(TransactionType= OfferCancel) | 取消挂单 |
| Account | 账户 |
| Fee | 手续费 |
| Flags | 标识 |
| OfferSequence | 委托序号 |
| Sequence | 序号 |
| SigningPubKey | 公钥 |
| TransactionType | 交易类型 |
| TxnSignature | 公钥 |
| date | 时间 |
| hash | hash |
| inLedger | 所在的账本号 |
| ledger\_index | 账本号 |

获取账户的交易信息，循环transactions下面的tx,根据 TransactionType判断是转账还是创建挂单(包含已成交)、取消挂单

## 12、获取账号关系信息 account\_relation

说明：获取指定账号关系信息

命令：

{

"id": 1,

"command": "account\_relation",

"account": " jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP",

"relationtype": 1

}

执行此命令后返回的json：

{"id":1,"result":{"account":"jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP","ledger\_current\_index":10276549,"lines":[],"validated":false},"status":"success","type":"response"}

Result说明：

|  |  |
| --- | --- |
| account | 账户 |
| ledger\_current\_index | 当前账本号 |
| lines |  |
| validated | 是否已确认 |
| status | 状态 |
| type | 类型 |

## 13、获取交易对买单列表 book\_offers

说明：获取指定交易对的买单挂单列表，可以指定返回行数limit，列表按单价排序

命令：

{ "id": 1, "command": "book\_offers", "taker": "", "taker\_gets": { "currency": "CNY", "issuer": "jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or" }, "taker\_pays": { "currency": "SWT" }, "limit": 1 }

执行此命令后返回的json：

{"id":1,"result":{"ledger\_current\_index":10164317,"offers":[{"Account":"jfWQW8M6jYwrAZu1Hfnb3auCKftzu7EPj8","BookDirectory":"51603377F758E3C8FA007C77312DDA06A737A1395CD5FC435C0D9DFD5A7E4EA5","BookNode":"0000000000000000","Flags":0,"LedgerEntryType":"Offer","OwnerNode":"0000000000000000","PreviousTxnID":"BF68725047603C3BCF37159B6C3721F03618CFF2C3FCE83559A3DDAE18F8B223","PreviousTxnLgrSeq":10164289,"Sequence":45,"TakerGets":{"currency":"CNY","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"6000.39474"},"TakerPays":"229988300000","index":"78D80926D778A81F673FA2B2D8C55DAF5BB004F030DF635B8125AAA1E2A6BF5B","owner\_funds":"6000.396","quality":"38328861.67752357"}],"validated":false},"status":"success","type":"response"}

Result说明：

|  |  |
| --- | --- |
| 名称 | 说明 |
| ledger\_current\_index | 当前账本号 |
| offers | 挂单信息，数组 |
| Account | 挂单方钱包地址 |
| BookDirectory |  |
| BookNode |  |
| Flags | 标识，0买单，131072卖单 |
| LedgerEntryType | 账本类型 |
| OwnerNode |  |
| PreviousTxnID | 当前账号买单最后成交的HASH，挂单HASH |
| PreviousTxnLgrSeq | 当前账号买单最后成交的记录的账本号 |
| Sequence | 交易序号 |
| TakerGets |  |
| currency | 币种：CNY人民币 |
| issuer | 发行方 |
| value | CNY数量/买入金额 |
| TakerPays | 买入SWT数量，需要/1000000 |
| index | hash |
| owner\_funds |  |
| quality | 挂单成交利率，takerpays 除以 takergets.相同比例的挂单，最  老的挂单先成交 |
| validated | 是否已确认 |
| status | 状态 |
| type | 类型 |

买一价= TakerGets.value/( TakerPays/1000000)=1206.12222/44971=0.02682

## 14、获取交易对卖单列表 book\_offers

说明：获取指定交易对的卖单挂单列表，可以指定返回行数limit，列表按单价排序

命令：

{ "id":1, "command":"book\_offers", "taker":"", "taker\_gets":{ "currency":"SWT" }, "taker\_pays":{ "currency":"CNY", "issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or" }, "limit":1 }

执行此命令后返回的json：

{"id":1,"result":{"ledger\_current\_index":10164334,"offers":[{"Account":"jaABNnesG4DBfBCeUwEusH9PgUHaM7wbzb","BookDirectory":"494FB30D9606C4D2741B349EB1B178099B51EE17EFA9D6DB4D0944DF26381000","BookNode":"0000000000000000","Flags":131072,"LedgerEntryType":"Offer","OwnerNode":"0000000000000000","PreviousTxnID":"B8C7EC8445024C0FF01EE89BD8B4D4479AB3C44B8608CA784F921FDCDEA1B468","PreviousTxnLgrSeq":10164308,"Sequence":919,"TakerGets":"15211800000","TakerPays":{"currency":"CNY","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"396.875862"},"index":"AB05F763A1BB061B67BD4E5B7278AB173B2A151FF43B2C8577C4B0FE0578601C","owner\_funds":"1196156835000","quality":"0.00000002609"}],"validated":false},"status":"success","type":"response"}

Result说明：

|  |  |
| --- | --- |
| 名称 | 说明 |
| id |  |
| result |  |
| ledger\_current\_index | 当前区块高度 |
| offers | 挂单信息 |
| Account | 挂单方钱包地址 |
| BookDirectory |  |
| BookNode |  |
| Flags | 标识，0买单，131072卖单 |
| LedgerEntryType | 账本类型？ |
| OwnerNode |  |
| PreviousTxnID | 当前账号卖单最后成交的HASH |
| PreviousTxnLgrSeq | 当前账号卖单最后成交的记录的账本号 |
| Sequence | 交易序号 |
| TakerGets | SWT数量，需要/1000000，卖出数量 |
| TakerPays |  |
| currency | 币种：CNY人民币 |
| issuer | 发行方 |
| value | CNY数量,卖出金额 |
| index | hash |
| owner\_funds |  |
| quality | 挂单成交利率，takerpays 除以 takergets.相同比例的挂单，最  老的挂单先成交 |
| validated | 是否已确认 |
| status | 状态 |
| type | 类型 |

卖一价= TakerPays.value/( TakerGets /1000000)= 355.68882/13203=0.02694

## 15、获取交易详细信息(根据hash) tx

根据hash获取的交易信息根据TransactionType分为以下几种情况

|  |  |
| --- | --- |
| TransactionType | 说明 |
| Payment | 转账 |
| OfferCancel | 挂单(买单、卖单)取消 |
| OfferCreate | 创建挂单，买单、卖单，未成交，全部成交、部分成交 |
| TrustSet |  |
| RelationDel |  |
| AccountSet |  |
| SetRegularKey |  |
| RelationSet |  |
| SignSet |  |
| Operation |  |
| ConfigContract | 智能合约？ |

### 15.1、转账（支付和收款）

命令：

{ "id": 1, "command": "tx", "transaction": "47A6D7DE49F1F7DAC3951AE7510CE73B7CCE8F3AC3F4D9449855914F4238EC0B" }

转账TransactionType":"Payment"代表转账

执行此命令后返回的json：

{"id":1,"result":{"Account":"jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP","Amount":"1000000","Destination":"jGP6wvSWKb4TgqQ4b2gkgjv3uaFFBFvpKe","Fee":"10000","Flags":0,"Memos":[{"Memo":{"MemoData":"E689B9E9878FE8BDACE8B4A6E6B58BE8AF95"}}],"Sequence":95,"SigningPubKey":"036CC9C7AAF521B4AE4A6F55ACC10438E1DF3EEC5C53D05848DD0C930E2204957B","Timestamp":580654268,"TransactionType":"Payment","TxnSignature":"304402206F866A94EB28AD43ADE33006B1BEDC2674CE67E6F181D0094AD079D29DC6D0F10220073543B3700F12195512C891C9B5B3D6184D4DDE3DED884635B2011C6A4D80AE","date":580654280,"hash":"47A6D7DE49F1F7DAC3951AE7510CE73B7CCE8F3AC3F4D9449855914F4238EC0B","inLedger":9749600,"ledger\_index":9749600,"meta":{"AffectedNodes":[{"ModifiedNode":{"FinalFields":{"Account":"jEoSyfChhUMzpRDttAJXuie8XhqyoPBYvV","Balance":"388294596831","Flags":0,"OwnerCount":0,"Sequence":12064465},"LedgerEntryType":"AccountRoot","LedgerIndex":"109E80FB8CC6D82D4F7F7D77248C2C3C116ECCD4520B3D2A88421FFF94A57B1E","PreviousFields":{"Balance":"388294586831","Sequence":12064464},"PreviousTxnID":"9BBFC774A732762D77E635AD8E8EE35462F2F059D76C1061D27ED25205F10D32","PreviousTxnLgrSeq":9749599}},{"ModifiedNode":{"FinalFields":{"Account":"jGP6wvSWKb4TgqQ4b2gkgjv3uaFFBFvpKe","Balance":"316330000","Flags":0,"OwnerCount":1,"Sequence":8},"LedgerEntryType":"AccountRoot","LedgerIndex":"6D2628AEC8B00113A1591932C7EFFDF0A7C74189BA8103857CFCFFC298DE5C69","PreviousFields":{"Balance":"315330000"},"PreviousTxnID":"00D71B4570EB2617134DB22D62C0B839794738BB19233ED4B2790247E5295EB0","PreviousTxnLgrSeq":9749450}},{"ModifiedNode":{"FinalFields":{"Account":"jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP","Balance":"902435935979","Flags":0,"OwnerCount":2,"Sequence":96},"LedgerEntryType":"AccountRoot","LedgerIndex":"F381758E2D6A113D07840DD182CFB144C94732E90A3E73E73432051B9A0371F3","PreviousFields":{"Balance":"902436945979","Sequence":95},"PreviousTxnID":"00D71B4570EB2617134DB22D62C0B839794738BB19233ED4B2790247E5295EB0","PreviousTxnLgrSeq":9749450}}],"TransactionIndex":0,"TransactionResult":"tesSUCCESS"},"validated":true},"status":"success","type":"response"}

|  |  |
| --- | --- |
| Account | 交易发起方，转出方 |
| Amount | 转账数量，如果是SWTC,这里是string类型的数量，如为其他币种则这里是json,如  "Amount": {  "currency": "JBIZ",  "issuer": "jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or",  "value": "1"  }, |
| Destination | 对方钱包地址 |
| Fee | 手续费 |
| Memos | 备注 utf8.decode(hexToString(memo[property])) |
| Sequence | 序号 |
| Timestamp | 交易发起时间 |
| TransactionType | 类型Payment=支付 |
| date | 账本时间，写入区块时间 |
| inLedger | 当前转账所在的账本号 |
| AffectedNodes | 受影响节点 |
| ModifiedNode | 一般受到影响的节点(账号)为3个，手续费、接收方、转出方，如为其他币种，节点为：手续费、转出方、接收方、转出方的SWTC余额，最后一个ModifiedNode,里面显示转出方的SWTC的余额，当前余额和最后一次交易后的余额 |
| ModifiedNode(0) |  |
| FinalFields | 当前交易后的余额 |
| Account | 账户 |
| Balance | 余额 |
| Flags | 标识 |
| OwnerCount |  |
| Sequence | 序号 |
| LedgerEntryType | 账本类型 |
| LedgerIndex | 账本hash |
| PreviousFields | 上一交易后的余额 |
| Balance | 余额 |
| Sequence | 序号 |
| PreviousTxnID | 上一交易hash |
| PreviousTxnLgrSeq | 上一交易账本序号 |
| TransactionIndex | 交易索引 |
| TransactionResult | 交易结果 |
| validated | 状态 |
| status | 类型 |

### 15.2、交易

#### 15.2.1、取消挂单

类型："TransactionType":"OfferCancel"

命令(取消卖单)：

{

"id": 1,

"command": "tx",

"transaction": "4B6E76633A6208970BBD0C7AEDCB15C8A594C621529C02116E055E282F3232E1"

}

执行此命令后返回的json：

{"id":1,"result":{"Account":"jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP","Fee":"10000","Flags":0,"OfferSequence":151,"Sequence":153,"SigningPubKey":"036CC9C7AAF521B4AE4A6F55ACC10438E1DF3EEC5C53D05848DD0C930E2204957B","Timestamp":583854379,"TransactionType":"OfferCancel","TxnSignature":"304402203554DC88424BD580CFBBA1568647E56C1071110C8A2390BE4AAB2EC0D59553CD0220096FFB4B4DB3D48EC08F985A3E5E212942DE0EF352072B77F2D2B5B1FD261B99","date":583854390,"hash":"4B6E76633A6208970BBD0C7AEDCB15C8A594C621529C02116E055E282F3232E1","inLedger":10069611,"ledger\_index":10069611,"meta":{"AffectedNodes":[{"ModifiedNode":{"FinalFields":{"Account":"jEoSyfChhUMzpRDttAJXuie8XhqyoPBYvV","Balance":"396511106990","Flags":0,"OwnerCount":0,"Sequence":13015872},"LedgerEntryType":"AccountRoot","LedgerIndex":"109E80FB8CC6D82D4F7F7D77248C2C3C116ECCD4520B3D2A88421FFF94A57B1E","PreviousFields":{"Balance":"396511096990","Sequence":13015871},"PreviousTxnID":"AEA14831A01CDB97DEF2D957E5E754CD4EAE5D5693EC8B87CEDACCB75371182A","PreviousTxnLgrSeq":10069610}},{"DeletedNode":{"FinalFields":{"Account":"jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP","BookDirectory":"494FB30D9606C4D2741B349EB1B178099B51EE17EFA9D6DB4F038D7EA4C68000","BookNode":"000000000000000E","Flags":131072,"OwnerNode":"0000000000000000","PreviousTxnID":"C7A4B0020371FCF1ECF80B40D5D90075F82850F916F56F9C813324BE7FC80299","PreviousTxnLgrSeq":10069584,"Sequence":151,"TakerGets":"1000000","TakerPays":{"currency":"CNY","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"1"}},"LedgerEntryType":"Offer","LedgerIndex":"7EB97F9BC61232B407BA641FE6850E33774655C858C84B0C07600A5DC12A7AF5"}},{"ModifiedNode":{"FinalFields":{"Flags":0,"Owner":"jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP","RootIndex":"BA683A4AB1C98AB6398E91FB0984154DA2DE5FB8C170083F3DEA9DBDB4E8F1A7"},"LedgerEntryType":"DirectoryNode","LedgerIndex":"BA683A4AB1C98AB6398E91FB0984154DA2DE5FB8C170083F3DEA9DBDB4E8F1A7"}},{"ModifiedNode":{"FinalFields":{"ExchangeRate":"4F038D7EA4C68000","Flags":0,"IndexPrevious":"000000000000000D","RootIndex":"494FB30D9606C4D2741B349EB1B178099B51EE17EFA9D6DB4F038D7EA4C68000","TakerGetsCurrency":"0000000000000000000000000000000000000000","TakerGetsIssuer":"0000000000000000000000000000000000000000","TakerPaysCurrency":"000000000000000000000000434E590000000000","TakerPaysIssuer":"A582E432BFC48EEDEF852C814EC57F3CD2D41596"},"LedgerEntryType":"DirectoryNode","LedgerIndex":"E8681835268E53734AA5629DF059C9B155040E0C4398094F0F74CB3D9A91726B"}},{"ModifiedNode":{"FinalFields":{"Account":"jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP","Balance":"466689622879","Flags":0,"OwnerCount":10,"Sequence":154},"LedgerEntryType":"AccountRoot","LedgerIndex":"F381758E2D6A113D07840DD182CFB144C94732E90A3E73E73432051B9A0371F3","PreviousFields":{"Balance":"466689632879","OwnerCount":11,"Sequence":153},"PreviousTxnID":"0D3A4868CAB69A9DF88B7321CA101D19364E7FE7336E1CB363F1FBB79D669830","PreviousTxnLgrSeq":10069585}}],"TransactionIndex":0,"TransactionResult":"tesSUCCESS"},"validated":true},"status":"success","type":"response"}

|  |  |
| --- | --- |
| Account | 交易发起方 |
| Fee | 手续费 |
| Flags | 标识 |
| OfferSequence | 委托序号 |
| Sequence | 序号 |
| Timestamp | 交易发起时间 |
| TransactionType | 类型Payment=支付 |
| date | 账本时间，写入区块时间 |
| inLedger | 当前转账所在的账本号 |
| AffectedNodes | 受影响节点 |
| ModifiedNode | 一般受到影响的节点(账号)为3个，手续费、接收方、转出方，如为其他币种，节点为：手续费、转出方、接收方、转出方的SWTC余额，最后一个ModifiedNode,里面显示转出方的SWTC的余额，当前余额和最后一次交易后的余额 |
| ModifiedNode(0) |  |
| FinalFields | 当前交易后的余额 |
| Account | 账户 |
| Balance | 余额 |
| Flags | 标识 |
| OwnerCount |  |
| Sequence | 序号 |
| LedgerEntryType | 账本类型 |
| LedgerIndex | 账本hash |
| PreviousFields | 上一交易后的余额 |
| Balance | 余额 |
| Sequence | 序号 |
| PreviousTxnID | 上一交易hash |
| PreviousTxnLgrSeq | 上一交易账本序号 |
| TransactionIndex | 交易索引 |
| TransactionResult | 交易结果 |
| validated | 状态 |
| status | 类型 |
| Account | 交易发起方，转出方 |
| Amount | 转账数量，如果是SWTC,这里是string类型的数量，如为其他币种则这里是json,如  "Amount": {  "currency": "JBIZ",  "issuer": "jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or",  "value": "1"  }, |
| Destination | 对方钱包地址 |
| Fee | 手续费 |
| Memos | 备注 utf8.decode(hexToString(memo[property])) |
| Sequence | 序号 |
| Timestamp | 交易发起时间 |

取消挂单的ModifiedNode有5个，

第一个是手续费，

第二个是取消挂单的详情，DeletedNode，"LedgerEntryType":"Offer"

第三第四是目录节点，

第五个是取消挂单后账号的余额信息。

在遍历AffectedNodes的时候可以根据LedgerEntryType来，只取Offer，其他暂时可以忽略

取消买单和取消卖单格式一样，类型一样，但是TakerGets和TakerPays是反的

#### 15.2.2、创建挂单

**新创建的挂单(买单和卖单)，分为未成交，已成交，已成交又分为部分成交和全部成交**

**部分成交和全部成交可能是一条记录也可能是多条。**

##### 创建卖单--未成交

命令：

{

"id": 1,

"command": "tx",

"transaction": "F36B84BA48AFBE06EA3237C6657269F6498ADBD3DB4298D855B7A6DA1E41A2D8"

}

执行此命令后返回的json：

{"id":1,"result":{"Account":"jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP","Fee":"10000","Flags":524288,"Sequence":158,"SigningPubKey":"036CC9C7AAF521B4AE4A6F55ACC10438E1DF3EEC5C53D05848DD0C930E2204957B","TakerGets":"1000000","TakerPays":{"currency":"CNY","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"0.9268"},"Timestamp":584892863,"TransactionType":"OfferCreate","TxnSignature":"3045022100C598A949EF9777DBC9942F7C64AB2A54B364E854C4A5DADB83F8380F1B091D1902204A64368B281AAFCBF89DDF270295E0D950D33E1A0E87A9667882A1F1CF680AB3","date":584892870,"hash":"F36B84BA48AFBE06EA3237C6657269F6498ADBD3DB4298D855B7A6DA1E41A2D8","inLedger":10173459,"ledger\_index":10173459,"meta":{"AffectedNodes":[{"ModifiedNode":{"FinalFields":{"Account":"jEoSyfChhUMzpRDttAJXuie8XhqyoPBYvV","Balance":"398953922370","Flags":0,"OwnerCount":0,"Sequence":13324945},"LedgerEntryType":"AccountRoot","LedgerIndex":"109E80FB8CC6D82D4F7F7D77248C2C3C116ECCD4520B3D2A88421FFF94A57B1E","PreviousFields":{"Balance":"398953912370","Sequence":13324944},"PreviousTxnID":"E13AF3D0C9D366062F16BEF51E4A2DB07F7F588516417820A98493710789FC4F","PreviousTxnLgrSeq":10173459}},{"CreatedNode":{"LedgerEntryType":"Offer","LedgerIndex":"3B37937FF8D2AF9A04544A29A9F46552F07ECC7794CF7294FE3EBD1F06519FD1","NewFields":{"Account":"jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP","BookDirectory":"494FB30D9606C4D2741B349EB1B178099B51EE17EFA9D6DB4E20ED3267C74000","Flags":131072,"Sequence":158,"TakerGets":"1000000","TakerPays":{"currency":"CNY","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"0.9268"}}}},{"CreatedNode":{"LedgerEntryType":"DirectoryNode","LedgerIndex":"494FB30D9606C4D2741B349EB1B178099B51EE17EFA9D6DB4E20ED3267C74000","NewFields":{"ExchangeRate":"4E20ED3267C74000","RootIndex":"494FB30D9606C4D2741B349EB1B178099B51EE17EFA9D6DB4E20ED3267C74000","TakerPaysCurrency":"000000000000000000000000434E590000000000","TakerPaysIssuer":"A582E432BFC48EEDEF852C814EC57F3CD2D41596"}}},{"ModifiedNode":{"FinalFields":{"Flags":0,"Owner":"jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP","RootIndex":"BA683A4AB1C98AB6398E91FB0984154DA2DE5FB8C170083F3DEA9DBDB4E8F1A7"},"LedgerEntryType":"DirectoryNode","LedgerIndex":"BA683A4AB1C98AB6398E91FB0984154DA2DE5FB8C170083F3DEA9DBDB4E8F1A7"}},{"ModifiedNode":{"FinalFields":{"Account":"jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP","Balance":"466689372879","Flags":0,"OwnerCount":11,"Sequence":159},"LedgerEntryType":"AccountRoot","LedgerIndex":"F381758E2D6A113D07840DD182CFB144C94732E90A3E73E73432051B9A0371F3","PreviousFields":{"Balance":"466689382879","OwnerCount":10,"Sequence":158},"PreviousTxnID":"299D615E7CBE01F360A82BE5C273A26E53938FA417FDD913F2F98E1C3B805F73","PreviousTxnLgrSeq":10121444}}],"TransactionIndex":2,"TransactionResult":"tesSUCCESS"},"validated":true},"status":"success","type":"response"}

Result说明：

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创建卖单未成交流程：

1. 手续费账号的余额增加，LedgerEntryType=AccountRoot
2. 挂单信息写入节点CreatedNode，LedgerEntryType=Offer
3. 写入了两个目录节点，干什么用还不清楚
4. 挂单创建方的余额减少(扣除手续费) LedgerEntryType=AccountRoot

"LedgerEntryType":"Offer"并且，AffectedNodes =CreatedNode，则为创建挂单，Flags":131072为卖单。

##### 挂单成交，卖单创建并且成交：

命令：

{

"id": 1,

"command": "tx",

"transaction": "AF24FE8111046002385A39C79E39568AC3147F8E64CDC9006C607900E1D11665"

}

执行此命令后返回的json：

{"id":1,"result":{"Account":"jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP","Fee":"10000","Flags":524288,"Sequence":101,"SigningPubKey":"036CC9C7AAF521B4AE4A6F55ACC10438E1DF3EEC5C53D05848DD0C930E2204957B","TakerGets":"1000000","TakerPays":{"currency":"CNY","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"0.03115"},"Timestamp":581516987,"TransactionType":"OfferCreate","TxnSignature":"3045022100DB32FACCB8532417D2530FB6F51229CE30C81F137B83AA1158B3047CC8445D6C02201DB626CF60C6D1729EDFCA9FF56061CF481C625A2C53E3FAA1DE729720DACF05","date":581517000,"hash":"AF24FE8111046002385A39C79E39568AC3147F8E64CDC9006C607900E1D11665","inLedger":9835872,"ledger\_index":9835872,"meta":{"AffectedNodes":[{"ModifiedNode":{"FinalFields":{"Account":"jEoSyfChhUMzpRDttAJXuie8XhqyoPBYvV","Balance":"390638382659","Flags":0,"OwnerCount":0,"Sequence":12332288},"LedgerEntryType":"AccountRoot","LedgerIndex":"109E80FB8CC6D82D4F7F7D77248C2C3C116ECCD4520B3D2A88421FFF94A57B1E","PreviousFields":{"Balance":"390638372659","Sequence":12332287},"PreviousTxnID":"5AA3867E30C62F62AF6C1BED8A741158E0757EF4A9BBB52F4F88D9060571561E","PreviousTxnLgrSeq":9835872}},{"ModifiedNode":{"FinalFields":{"Account":"j4XZndtmDCUqqtzyZxf5EivPq7b1oXtqa5","BookDirectory":"51603377F758E3C8FA007C77312DDA06A737A1395CD5FC435C0B65DA4DBD4D73","BookNode":"0000000000000000","Flags":0,"OwnerNode":"0000000000000000","Sequence":53580,"TakerGets":{"currency":"CNY","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"3116.96883"},"TakerPays":"99999000000"},"LedgerEntryType":"Offer","LedgerIndex":"49C8041DAC5E716111DAA7DD55274618B397D25DA890B40BA4DE700EBD39EA6F","PreviousFields":{"TakerGets":{"currency":"CNY","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"3117"},"TakerPays":"100000000000"},"PreviousTxnID":"5AA3867E30C62F62AF6C1BED8A741158E0757EF4A9BBB52F4F88D9060571561E","PreviousTxnLgrSeq":9835872}},{"ModifiedNode":{"FinalFields":{"Balance":{"currency":"CNY","issuer":"jjjjjjjjjjjjjjjjjjjjBZbvri","value":"-8019.96058460348"},"Flags":2228224,"HighLimit":{"currency":"CNY","issuer":"j4XZndtmDCUqqtzyZxf5EivPq7b1oXtqa5","value":"10000000000"},"HighNode":"0000000000000000","LowLimit":{"currency":"CNY","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"0"},"LowNode":"0000000000000B24"},"LedgerEntryType":"SkywellState","LedgerIndex":"6476CBB5EF1A68223543F32E929FE85B5E7FB3AE3BE566E8AB9A5A8D6D87B279","PreviousFields":{"Balance":{"currency":"CNY","issuer":"jjjjjjjjjjjjjjjjjjjjBZbvri","value":"-8019.99175460348"}},"PreviousTxnID":"713525418BA5B0BF7FF5CA84A9F6D904BBD6A59AF794EBA44A1C6673B684D20A","PreviousTxnLgrSeq":9835668}},{"ModifiedNode":{"FinalFields":{"Account":"j4XZndtmDCUqqtzyZxf5EivPq7b1oXtqa5","Balance":"4640197991741","Flags":0,"OwnerCount":6,"Sequence":53581},"LedgerEntryType":"AccountRoot","LedgerIndex":"BB12E9F824104DDD822049A5BC1532566F2902F53458DC4DAB59AC79970C0C87","PreviousFields":{"Balance":"4640196991741"},"PreviousTxnID":"5AA3867E30C62F62AF6C1BED8A741158E0757EF4A9BBB52F4F88D9060571561E","PreviousTxnLgrSeq":9835872}},{"ModifiedNode":{"FinalFields":{"Account":"jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP","Balance":"902430642879","Flags":0,"OwnerCount":2,"Sequence":102},"LedgerEntryType":"AccountRoot","LedgerIndex":"F381758E2D6A113D07840DD182CFB144C94732E90A3E73E73432051B9A0371F3","PreviousFields":{"Balance":"902431652879","Sequence":101},"PreviousTxnID":"41D0B11D94B62843E9F6221FB1F836794AF2F4B8BEC94F633B049D2DA5E2FDFD","PreviousTxnLgrSeq":9757803}},{"ModifiedNode":{"FinalFields":{"Balance":{"currency":"CNY","issuer":"jjjjjjjjjjjjjjjjjjjjBZbvri","value":"0.051919880989"},"Flags":1114112,"HighLimit":{"currency":"CNY","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"0"},"HighNode":"00000000000015A4","LowLimit":{"currency":"CNY","issuer":"jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP","value":"10000000000"},"LowNode":"0000000000000000"},"LedgerEntryType":"SkywellState","LedgerIndex":"FB61375E1B612C266209505339901ECE621AD028799F35858AAFB0902F00DA04","PreviousFields":{"Balance":{"currency":"CNY","issuer":"jjjjjjjjjjjjjjjjjjjjBZbvri","value":"0.020749880989"}},"PreviousTxnID":"5EE465D6A8836FFF72827168D2D094EEC4921646065BE7F23331EF320C9BFCF0","PreviousTxnLgrSeq":9718665}}],"TransactionIndex":1,"TransactionResult":"tesSUCCESS"},"validated":true},"status":"success","type":"response"}

Result说明：

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SWTC卖单创建并且成交：

创建卖单并且成交流程：

1. 手续费账号的余额增加，LedgerEntryType=AccountRoot
2. 挂单信息写入节点ModifiedNode，LedgerEntryType=Offer,买方的挂单信息发生了变化，买方有剩余未成交的信息。
3. 买方CNY余额变化，SkywellState
4. 买方的SWTC余额增加。LedgerEntryType=AccountRoot
5. 卖方余额变化SWTC减少(扣除手续费和成交数量) LedgerEntryType=AccountRoot
6. 卖方的CNY余额增加LedgerEntryType= SkywellState

遍历，LedgerEntryType=Offer,，flags=0是买单，PreviousFields- FinalFields为成交的数据。

##### 创建买单多笔成交：

命令：

{

"id": 1,

"command": "tx",

"transaction": "539256D79D3069BFE7C8C5A58D9C14890AE876FC487B376180C763B2CE710EF0"

}

执行此命令后返回的json：

{"id":1,"result":{"Account":"jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP","Fee":"10000","Flags":0,"Sequence":73,"SigningPubKey":"036CC9C7AAF521B4AE4A6F55ACC10438E1DF3EEC5C53D05848DD0C930E2204957B","TakerGets":{"currency":"CNY","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"5296.5"},"TakerPays":"96300000000","Timestamp":574764360,"TransactionType":"OfferCreate","TxnSignature":"3045022100CCA4DB32FFB09D102AEE5FB6CCB53F5561B5F129B355D3DA08B6F72FEAC3164702200EE85329CD21D5D9E29ACF6FCBFB1A1B26F139B02959CE04A74818E4C7DC49B6","date":574764370,"hash":"539256D79D3069BFE7C8C5A58D9C14890AE876FC487B376180C763B2CE710EF0","inLedger":9160651,"ledger\_index":9160651,"meta":{"AffectedNodes":[{"ModifiedNode":{"FinalFields":{"Balance":{"currency":"CNY","issuer":"jjjjjjjjjjjjjjjjjjjjBZbvri","value":"10605.15406999999"},"Flags":1114112,"HighLimit":{"currency":"CNY","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"0"},"HighNode":"00000000000014E7","LowLimit":{"currency":"CNY","issuer":"jN7wNdVhhkLrUByYBJdikfWdcvMt9YZGup","value":"10000000000"},"LowNode":"0000000000000000"},"LedgerEntryType":"SkywellState","LedgerIndex":"098860EACB4F98B442F6ADAA37C9CFD95B7C054E85A1C38FBD30E07631AA5E69","PreviousFields":{"Balance":{"currency":"CNY","issuer":"jjjjjjjjjjjjjjjjjjjjBZbvri","value":"8464.55406999999"}},"PreviousTxnID":"E4F591BFCE1DAE4373D83089FE21716377FFB2C1601CB3E0EFFBDA448C798FA1","PreviousTxnLgrSeq":9160649}},{"ModifiedNode":{"FinalFields":{"Account":"jEoSyfChhUMzpRDttAJXuie8XhqyoPBYvV","Balance":"361978019791","Flags":0,"OwnerCount":0,"Sequence":9151527},"LedgerEntryType":"AccountRoot","LedgerIndex":"109E80FB8CC6D82D4F7F7D77248C2C3C116ECCD4520B3D2A88421FFF94A57B1E","PreviousFields":{"Balance":"361978009791","Sequence":9151526},"PreviousTxnID":"1C9816F2D2F2F673869A7CFEB172071C6F547CC02569A02790D67170360083F5","PreviousTxnLgrSeq":9160651}},{"DeletedNode":{"FinalFields":{"Account":"jN7wNdVhhkLrUByYBJdikfWdcvMt9YZGup","BookDirectory":"494FB30D9606C4D2741B349EB1B178099B51EE17EFA9D6DB4D138A388A43C000","BookNode":"0000000000000000","Flags":131072,"OwnerNode":"0000000000000000","PreviousTxnID":"E4F591BFCE1DAE4373D83089FE21716377FFB2C1601CB3E0EFFBDA448C798FA1","PreviousTxnLgrSeq":9160649,"Sequence":106,"TakerGets":"0","TakerPays":{"currency":"CNY","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"0"}},"LedgerEntryType":"Offer","LedgerIndex":"16FDC0BF6EF1FE8AC0B1116B28A78077222A5E14A3A5AC053F06DFC92E0C131E","PreviousFields":{"TakerGets":"38920000000","TakerPays":{"currency":"CNY","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"2140.600000000001"}}}},{"ModifiedNode":{"FinalFields":{"Account":"jN7wNdVhhkLrUByYBJdikfWdcvMt9YZGup","Balance":"54223660000","Flags":0,"OwnerCount":2,"Sequence":107},"LedgerEntryType":"AccountRoot","LedgerIndex":"189E0037D2DA92A0329148F0E30EB86EAB7CED3DA51FC198F277AAE5B6CDBF7D","PreviousFields":{"Balance":"93143660000","OwnerCount":3},"PreviousTxnID":"E4F591BFCE1DAE4373D83089FE21716377FFB2C1601CB3E0EFFBDA448C798FA1","PreviousTxnLgrSeq":9160649}},{"ModifiedNode":{"FinalFields":{"Flags":0,"Owner":"jN7wNdVhhkLrUByYBJdikfWdcvMt9YZGup","RootIndex":"48C9E1CCD37CAB8B3CDAEF480D38A6196A05925B13BC336F9ADC7A9F62601232"},"LedgerEntryType":"DirectoryNode","LedgerIndex":"48C9E1CCD37CAB8B3CDAEF480D38A6196A05925B13BC336F9ADC7A9F62601232"}},{"DeletedNode":{"FinalFields":{"ExchangeRate":"4D137807ED5E8000","Flags":0,"RootIndex":"494FB30D9606C4D2741B349EB1B178099B51EE17EFA9D6DB4D137807ED5E8000","TakerGetsCurrency":"0000000000000000000000000000000000000000","TakerGetsIssuer":"0000000000000000000000000000000000000000","TakerPaysCurrency":"000000000000000000000000434E590000000000","TakerPaysIssuer":"A582E432BFC48EEDEF852C814EC57F3CD2D41596"},"LedgerEntryType":"DirectoryNode","LedgerIndex":"494FB30D9606C4D2741B349EB1B178099B51EE17EFA9D6DB4D137807ED5E8000"}},{"ModifiedNode":{"FinalFields":{"ExchangeRate":"4D138A388A43C000","Flags":0,"RootIndex":"494FB30D9606C4D2741B349EB1B178099B51EE17EFA9D6DB4D138A388A43C000","TakerGetsCurrency":"0000000000000000000000000000000000000000","TakerGetsIssuer":"0000000000000000000000000000000000000000","TakerPaysCurrency":"000000000000000000000000434E590000000000","TakerPaysIssuer":"A582E432BFC48EEDEF852C814EC57F3CD2D41596"},"LedgerEntryType":"DirectoryNode","LedgerIndex":"494FB30D9606C4D2741B349EB1B178099B51EE17EFA9D6DB4D138A388A43C000"}},{"DeletedNode":{"FinalFields":{"Account":"j91foj7ATsC9jteXcuQYH4oUixSxMYm3UR","BookDirectory":"494FB30D9606C4D2741B349EB1B178099B51EE17EFA9D6DB4D138A388A43C000","BookNode":"0000000000000000","Flags":131072,"OwnerNode":"0000000000000000","PreviousTxnID":"0A105B2ABE3C91ED38FFCDB0983C672230C91DE7C515DB6117F4CF0EFF111023","PreviousTxnLgrSeq":9160649,"Sequence":238,"TakerGets":"0","TakerPays":{"currency":"CNY","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"0"}},"LedgerEntryType":"Offer","LedgerIndex":"4A8D0E330C47B938E0649E2C884F92190A9882B592F6F64B9CCEBC82F7457AE4","PreviousFields":{"TakerGets":"50000000000","TakerPays":{"currency":"CNY","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"2750"}}}},{"DeletedNode":{"FinalFields":{"Account":"jMbvh9ymyqXEPK35EXp1ymVxg5CC6WfSQN","BookDirectory":"494FB30D9606C4D2741B349EB1B178099B51EE17EFA9D6DB4D137807ED5E8000","BookNode":"0000000000000000","Flags":131072,"OwnerNode":"0000000000000000","PreviousTxnID":"1C9816F2D2F2F673869A7CFEB172071C6F547CC02569A02790D67170360083F5","PreviousTxnLgrSeq":9160651,"Sequence":7746,"TakerGets":"0","TakerPays":{"currency":"CNY","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"0"}},"LedgerEntryType":"Offer","LedgerIndex":"68C25754CF8A3B7477035B47AC1B6B716ABABD7E03F3B90778E24EDBA2000D81","PreviousFields":{"TakerGets":"111000000","TakerPays":{"currency":"CNY","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"6.0828000000001"}}}},{"ModifiedNode":{"FinalFields":{"Account":"jp3UiWm4tPNrmL3vYWJseU1hqZ5oCKUCWG","Balance":"482782970000","Flags":0,"OwnerCount":2,"Sequence":61},"LedgerEntryType":"AccountRoot","LedgerIndex":"6FAE2B3E40233B6A74D9F379BDC833EBA14C59FACF8E494CF705B48A0DEA5430","PreviousFields":{"Balance":"490051970000"},"PreviousTxnID":"590E32F1031D4449E4BC696911E23242B93BA156E304C774E47C15D380206412","PreviousTxnLgrSeq":9160650}},{"ModifiedNode":{"FinalFields":{"Account":"jp3UiWm4tPNrmL3vYWJseU1hqZ5oCKUCWG","BookDirectory":"494FB30D9606C4D2741B349EB1B178099B51EE17EFA9D6DB4D138A388A43C000","BookNode":"0000000000000000","Flags":131072,"OwnerNode":"0000000000000000","Sequence":60,"TakerGets":"482731000000","TakerPays":{"currency":"CNY","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"26550.205"}},"LedgerEntryType":"Offer","LedgerIndex":"73681C6127512DB111BB598CA8D695C60D1532E736AE9AEB275768D2CF0FC803","PreviousFields":{"TakerGets":"490000000000","TakerPays":{"currency":"CNY","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"26950"}},"PreviousTxnID":"590E32F1031D4449E4BC696911E23242B93BA156E304C774E47C15D380206412","PreviousTxnLgrSeq":9160650}},{"ModifiedNode":{"FinalFields":{"Account":"jMbvh9ymyqXEPK35EXp1ymVxg5CC6WfSQN","Balance":"1060621236688","Flags":0,"OwnerCount":2,"Sequence":7747},"LedgerEntryType":"AccountRoot","LedgerIndex":"7D3B9BBEF7C83FBD6BE221C4FCB113EC06CC952A9A1BFAF877EFA781C64236BC","PreviousFields":{"Balance":"1060732236688","OwnerCount":3},"PreviousTxnID":"1C9816F2D2F2F673869A7CFEB172071C6F547CC02569A02790D67170360083F5","PreviousTxnLgrSeq":9160651}},{"ModifiedNode":{"FinalFields":{"Flags":0,"Owner":"j91foj7ATsC9jteXcuQYH4oUixSxMYm3UR","RootIndex":"7D78E34084971CDD1000F82B0104FB1385F407958A75D21B442456321A059A04"},"LedgerEntryType":"DirectoryNode","LedgerIndex":"7D78E34084971CDD1000F82B0104FB1385F407958A75D21B442456321A059A04"}},{"ModifiedNode":{"FinalFields":{"Account":"j91foj7ATsC9jteXcuQYH4oUixSxMYm3UR","Balance":"150029620000","Flags":0,"OwnerCount":1,"Sequence":239},"LedgerEntryType":"AccountRoot","LedgerIndex":"A07E24A1225C280078589BABAA2735B710CA195C42A1422CC4527D4FA13C450D","PreviousFields":{"Balance":"200029620000","OwnerCount":2},"PreviousTxnID":"0A105B2ABE3C91ED38FFCDB0983C672230C91DE7C515DB6117F4CF0EFF111023","PreviousTxnLgrSeq":9160649}},{"ModifiedNode":{"FinalFields":{"Balance":{"currency":"CNY","issuer":"jjjjjjjjjjjjjjjjjjjjBZbvri","value":"19981.20257"},"Flags":1114112,"HighLimit":{"currency":"CNY","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"0"},"HighNode":"000000000000185B","LowLimit":{"currency":"CNY","issuer":"j91foj7ATsC9jteXcuQYH4oUixSxMYm3UR","value":"10000000000"},"LowNode":"0000000000000000"},"LedgerEntryType":"SkywellState","LedgerIndex":"B2804D999EBE11F9FF0018BFE135AEFBA999E1DE3AB5C196F60671306F87B9F3","PreviousFields":{"Balance":{"currency":"CNY","issuer":"jjjjjjjjjjjjjjjjjjjjBZbvri","value":"17231.20257"}},"PreviousTxnID":"749E57DED19F0011E00400EDD3AD26E13FE8601BE5A23335125BE7C34AE65369","PreviousTxnLgrSeq":9159281}},{"ModifiedNode":{"FinalFields":{"Flags":0,"Owner":"jMbvh9ymyqXEPK35EXp1ymVxg5CC6WfSQN","RootIndex":"B30B3616359ED596D8DD8A94BA5553A9D855289F2ED588071B72957EDE4EF291"},"LedgerEntryType":"DirectoryNode","LedgerIndex":"B30B3616359ED596D8DD8A94BA5553A9D855289F2ED588071B72957EDE4EF291"}},{"ModifiedNode":{"FinalFields":{"Balance":{"currency":"CNY","issuer":"jjjjjjjjjjjjjjjjjjjjBZbvri","value":"-10993.70095409583"},"Flags":2228224,"HighLimit":{"currency":"CNY","issuer":"jMbvh9ymyqXEPK35EXp1ymVxg5CC6WfSQN","value":"10000000000"},"HighNode":"0000000000000000","LowLimit":{"currency":"CNY","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"0"},"LowNode":"0000000000001567"},"LedgerEntryType":"SkywellState","LedgerIndex":"B4257BEF5A243B9ABFC5682495D50640348929E7829E60D659C827764FB7010E","PreviousFields":{"Balance":{"currency":"CNY","issuer":"jjjjjjjjjjjjjjjjjjjjBZbvri","value":"-10987.61815409583"}},"PreviousTxnID":"1C9816F2D2F2F673869A7CFEB172071C6F547CC02569A02790D67170360083F5","PreviousTxnLgrSeq":9160651}},{"ModifiedNode":{"FinalFields":{"Balance":{"currency":"CNY","issuer":"jjjjjjjjjjjjjjjjjjjjBZbvri","value":"542.53400999999"},"Flags":1114112,"HighLimit":{"currency":"CNY","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"0"},"HighNode":"00000000000016B3","LowLimit":{"currency":"CNY","issuer":"jp3UiWm4tPNrmL3vYWJseU1hqZ5oCKUCWG","value":"10000000000"},"LowNode":"0000000000000000"},"LedgerEntryType":"SkywellState","LedgerIndex":"C44094C4594873DCBD4798854C738002160006F23F3D6C4681A4C540A9E9F907","PreviousFields":{"Balance":{"currency":"CNY","issuer":"jjjjjjjjjjjjjjjjjjjjBZbvri","value":"142.73900999999"}},"PreviousTxnID":"659FC1352C0352610281C86AF37AA648E274CCD5FDAE3E39D1DEE96D4E9F3B14","PreviousTxnLgrSeq":9159325}},{"ModifiedNode":{"FinalFields":{"Account":"jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP","Balance":"666987175979","Flags":0,"OwnerCount":1,"Sequence":74},"LedgerEntryType":"AccountRoot","LedgerIndex":"F381758E2D6A113D07840DD182CFB144C94732E90A3E73E73432051B9A0371F3","PreviousFields":{"Balance":"570687185979","Sequence":73},"PreviousTxnID":"C16D260402A97BCB5E5C2536FDA31B4CF556F1E8206AE945644EB86605120917","PreviousTxnLgrSeq":9160647}},{"ModifiedNode":{"FinalFields":{"Balance":{"currency":"CNY","issuer":"jjjjjjjjjjjjjjjjjjjjBZbvri","value":"3.526969880989"},"Flags":1114112,"HighLimit":{"currency":"CNY","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"0"},"HighNode":"00000000000015A4","LowLimit":{"currency":"CNY","issuer":"jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP","value":"10000000000"},"LowNode":"0000000000000000"},"LedgerEntryType":"SkywellState","LedgerIndex":"FB61375E1B612C266209505339901ECE621AD028799F35858AAFB0902F00DA04","PreviousFields":{"Balance":{"currency":"CNY","issuer":"jjjjjjjjjjjjjjjjjjjjBZbvri","value":"5300.00476988099"}},"PreviousTxnID":"AA922284B42A84C4E2F3988EAE7657F7218D356C591D7B11254927F1C1284642","PreviousTxnLgrSeq":9159857}}],"TransactionIndex":4,"TransactionResult":"tesSUCCESS"},"validated":true},"status":"success","type":"response"}

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挂单信息：

TakerGets。

关联账户信息

1. 账户jN7wNdVhhkLrUByYBJdikfWdcvMt9YZGup

PreviousFields-FinalFields

* 1. ModifiedNode，CNY=10605.15406999999-8464.55406999999=2140.6，CNY增加了2140.6，"LedgerEntryType": "SkywellState"
  2. DeletedNode，挂单结束，记录进删除节点DeletedNode?，"LedgerEntryType": "Offer", PreviousFields. TakerGets(38920) TakerPays(CNY )
  3. ModifiedNode,SWTC=54223.66-93143.66=-38920 。SWTC减少了38920，"LedgerEntryType": "AccountRoot",
  4. ModifiedNode，"LedgerEntryType": "DirectoryNode",

2、账户 j91foj7ATsC9jteXcuQYH4oUixSxMYm3UR

PreviousFields-FinalFields

2.1、DeletedNode，挂单结束，记录进删除节点? "LedgerEntryType": "Offer". PreviousFields. TakerGets(50000) TakerPays(CNY 2750)

2.2、ModifiedNode，"LedgerEntryType": "DirectoryNode"

2.3、ModifiedNode，SWTC=150029.62- 200029.62=50000,SWTC减少了50000，"LedgerEntryType": "AccountRoot"

2.4、ModifiedNode，CNY= 19981.20257- 17231.20257=2750,CNY增加了2750 ，"LedgerEntryType": "SkywellState"

3、账户jMbvh9ymyqXEPK35EXp1ymVxg5CC6WfSQN

3.1、DeletedNode，挂单结束，记录进删除节点? "LedgerEntryType": "Offer"。

3.2、ModifiedNode，SWTC= 1060621.236688- 1060732.236688=-111,减少了111，"LedgerEntryType": "AccountRoot"

3.3、ModifiedNode，"LedgerEntryType": "DirectoryNode"

3.4、ModifiedNode，CNY= -10993.70095409583- -10987.61815409583=6.0828,CNY增加了6.0828

4、账户jp3UiWm4tPNrmL3vYWJseU1hqZ5oCKUCWG

4.1、ModifiedNode，SWTC=482782.970000- 490051.970000=-7269,SWTC减少7269, "LedgerEntryType": "AccountRoot"

4.2、ModifiedNode，挂单482731- 490000=7269，减少了7269 ,"LedgerEntryType": "Offer"

4.3、ModifiedNode，CNY= 542.53400999999- 142.73900999999=399.795,CNY增加了399.795，"LedgerEntryType": "SkywellState"

5、交易发起方jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP

5.1、ModifiedNode，SWTC=666987.175979-570687.185979=96299.99(挂单是96300，收付费0.01)，

5.2 ModifiedNode，CNY=3.526969880989-5300.00476988099=5296.4778

##### 创建买单部分成交：

命令：

{

"id": 1,

"command": "tx",

"transaction": "BDF50B4FF9D8C4A1010FB6E1C6A1DB1C01A8D0924C7786663B4E53C197663786"

}

执行此命令后返回的json：

{"id":1,"result":{"Account":"jwSyZU6VnPeDQh7zALkAVgn2EhR1BwRD3F","Fee":"10000","Flags":0,"Sequence":287,"SigningPubKey":"02A678B51B1CD82C96DAEF3C1F805C0E42DFE73340B029CEFCAFC6B7AF67FEA0EA","TakerGets":{"currency":"CNY","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"5280"},"TakerPays":"200000000000","Timestamp":585301284,"TransactionType":"OfferCreate","TxnSignature":"3045022100F46F63AAF0C187D34E2D4E50C0B24E3F90D0CE2F98DFCEE99E7EE1018823A094022027A40CD31D1D8577CC87B49DF31F0A23E8EC7DD6ADBAD76155BF66DC1481C2D5","date":585301290,"hash":"BDF50B4FF9D8C4A1010FB6E1C6A1DB1C01A8D0924C7786663B4E53C197663786","inLedger":10214301,"ledger\_index":10214301,"meta":{"AffectedNodes":[{"ModifiedNode":{"FinalFields":{"Account":"jEoSyfChhUMzpRDttAJXuie8XhqyoPBYvV","Balance":"399894552746","Flags":0,"OwnerCount":0,"Sequence":13469961},"LedgerEntryType":"AccountRoot","LedgerIndex":"109E80FB8CC6D82D4F7F7D77248C2C3C116ECCD4520B3D2A88421FFF94A57B1E","PreviousFields":{"Balance":"399894542746","Sequence":13469960},"PreviousTxnID":"60C70F36A846AFE1195674A79EEF13BD4A8ABF8A09681A93BE73E8F49703A099","PreviousTxnLgrSeq":10214301}},{"ModifiedNode":{"FinalFields":{"Flags":0,"Owner":"jGD555m4gitTk8gZa2UgXY3P5VSK4ywvxm","RootIndex":"32570093DB7F5B7EB22F37D2F181FBD9752B15EFE19BD2D5570CEE4051C62B88"},"LedgerEntryType":"DirectoryNode","LedgerIndex":"32570093DB7F5B7EB22F37D2F181FBD9752B15EFE19BD2D5570CEE4051C62B88"}},{"ModifiedNode":{"FinalFields":{"Balance":{"currency":"CNY","issuer":"jjjjjjjjjjjjjjjjjjjjBZbvri","value":"-41706.15241646099"},"Flags":2228224,"HighLimit":{"currency":"CNY","issuer":"jGD555m4gitTk8gZa2UgXY3P5VSK4ywvxm","value":"10000000000"},"HighNode":"0000000000000000","LowLimit":{"currency":"CNY","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"0"},"LowNode":"0000000000000DD8"},"LedgerEntryType":"SkywellState","LedgerIndex":"45CA1B5A2294B27EFC02E92BD34FFA75C556D193DC8B27856EAFFF56E2680988","PreviousFields":{"Balance":{"currency":"CNY","issuer":"jjjjjjjjjjjjjjjjjjjjBZbvri","value":"-40090.97144990685"}},"PreviousTxnID":"6D898B644B53C8D9396347D647582662D4DF75D4BC06CD5B70D420A7724EDF0C","PreviousTxnLgrSeq":10214295}},{"DeletedNode":{"FinalFields":{"Account":"jGD555m4gitTk8gZa2UgXY3P5VSK4ywvxm","BookDirectory":"494FB30D9606C4D2741B349EB1B178099B51EE17EFA9D6DB4D096110DF0D3BC9","BookNode":"0000000000000000","Flags":131072,"OwnerNode":"0000000000000000","PreviousTxnID":"6D898B644B53C8D9396347D647582662D4DF75D4BC06CD5B70D420A7724EDF0C","PreviousTxnLgrSeq":10214295,"Sequence":4062,"TakerGets":"0","TakerPays":{"currency":"CNY","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"0"}},"LedgerEntryType":"Offer","LedgerIndex":"47B357BAB9419717052C85CE5477C1AE2D93CFC8926DF909A00D94263BD5DC5D","PreviousFields":{"TakerGets":"61181100000","TakerPays":{"currency":"CNY","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"1615.180966554142"}}}},{"DeletedNode":{"FinalFields":{"ExchangeRate":"4D096110DF0D3BC9","Flags":0,"RootIndex":"494FB30D9606C4D2741B349EB1B178099B51EE17EFA9D6DB4D096110DF0D3BC9","TakerGetsCurrency":"0000000000000000000000000000000000000000","TakerGetsIssuer":"0000000000000000000000000000000000000000","TakerPaysCurrency":"000000000000000000000000434E590000000000","TakerPaysIssuer":"A582E432BFC48EEDEF852C814EC57F3CD2D41596"},"LedgerEntryType":"DirectoryNode","LedgerIndex":"494FB30D9606C4D2741B349EB1B178099B51EE17EFA9D6DB4D096110DF0D3BC9"}},{"CreatedNode":{"LedgerEntryType":"DirectoryNode","LedgerIndex":"51603377F758E3C8FA007C77312DDA06A737A1395CD5FC435C0D750E419A8F84","NewFields":{"ExchangeRate":"5C0D750E419A8F84","RootIndex":"51603377F758E3C8FA007C77312DDA06A737A1395CD5FC435C0D750E419A8F84","TakerGetsCurrency":"000000000000000000000000434E590000000000","TakerGetsIssuer":"A582E432BFC48EEDEF852C814EC57F3CD2D41596"}}},{"ModifiedNode":{"FinalFields":{"Account":"jGD555m4gitTk8gZa2UgXY3P5VSK4ywvxm","Balance":"400203605919","Flags":0,"OwnerCount":4,"Sequence":4063},"LedgerEntryType":"AccountRoot","LedgerIndex":"5F5BB8A2BA489E237858B22D960C08F145DC79C204994E667976AFF74AEF70D4","PreviousFields":{"Balance":"461384705919","OwnerCount":5},"PreviousTxnID":"6D898B644B53C8D9396347D647582662D4DF75D4BC06CD5B70D420A7724EDF0C","PreviousTxnLgrSeq":10214295}},{"ModifiedNode":{"FinalFields":{"Account":"jwSyZU6VnPeDQh7zALkAVgn2EhR1BwRD3F","Balance":"151316029999","Flags":0,"OwnerCount":2,"Sequence":288},"LedgerEntryType":"AccountRoot","LedgerIndex":"87F8F99F8DF20A2F55EC9652D7BFF9AAE43C71E72C2CB07D045A5F4D58245F3A","PreviousFields":{"Balance":"90134939999","OwnerCount":1,"Sequence":287},"PreviousTxnID":"E47155FDF94B02BF7DCAFCBE2D72A8AF08965A1E0E6031FAF4BC56B527B2DF99","PreviousTxnLgrSeq":10214293}},{"CreatedNode":{"LedgerEntryType":"Offer","LedgerIndex":"DADECB59FC8E15DA39E5C8EE3F302E909F319A6A566F54F0D98D3E69FC4F749E","NewFields":{"Account":"jwSyZU6VnPeDQh7zALkAVgn2EhR1BwRD3F","BookDirectory":"51603377F758E3C8FA007C77312DDA06A737A1395CD5FC435C0D750E419A8F84","Sequence":287,"TakerGets":{"currency":"CNY","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"3664.81896"},"TakerPays":"138818900000"}}},{"ModifiedNode":{"FinalFields":{"Flags":0,"Owner":"jwSyZU6VnPeDQh7zALkAVgn2EhR1BwRD3F","RootIndex":"F6261D923F38F223BA972FD3C7F95F49310887134597778CC44618E6E209DE81"},"LedgerEntryType":"DirectoryNode","LedgerIndex":"F6261D923F38F223BA972FD3C7F95F49310887134597778CC44618E6E209DE81"}},{"ModifiedNode":{"FinalFields":{"Balance":{"currency":"CNY","issuer":"jjjjjjjjjjjjjjjjjjjjBZbvri","value":"43546.22697388136"},"Flags":1114112,"HighLimit":{"currency":"CNY","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"0"},"HighNode":"0000000000001889","LowLimit":{"currency":"CNY","issuer":"jwSyZU6VnPeDQh7zALkAVgn2EhR1BwRD3F","value":"10000000000"},"LowNode":"0000000000000000"},"LedgerEntryType":"SkywellState","LedgerIndex":"FAE6DD5EA18E164B14414DE467C7165D626C8144D4DFEF1D7C0C3134F4E52EB7","PreviousFields":{"Balance":{"currency":"CNY","issuer":"jjjjjjjjjjjjjjjjjjjjBZbvri","value":"45161.4079404355"}},"PreviousTxnID":"E47155FDF94B02BF7DCAFCBE2D72A8AF08965A1E0E6031FAF4BC56B527B2DF99","PreviousTxnLgrSeq":10214293}}],"TransactionIndex":1,"TransactionResult":"tesSUCCESS"},"validated":true},"status":"success","type":"response"}

|  |  |
| --- | --- |
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"LedgerEntryType": "Offer"的节点有2个，一个是已成交数据，另一个是剩余未成交的

1、DeletedNode PreviousFields-FinalFields=已成交数据

2、未成交的写入到节点CreatedNode ，NewFields的TakerGets和TakerPays是未成交的数据。

总结：

1、Result.Flags=524288卖单,0买单

2、时间戳需要+0x386D4380

3、SWT数量需要/1000000

4、AffectedNodes ..Flags=131072,卖出，0买入

1. AffectedNodes共有一下几种：
   1. ModifiedNode
   2. CreatedNode

5.3、 DeletedNode

6、Node下面的字段有：

6.1、PreviousFields

6.2、NewFields

6.3、FinalFields

循环所有AffectedNodes，当LedgerEntryType=offer时取PreviousFields. TakerGets()和TakerPays()，减去FinalFields的TakerGets()和TakerPays()后就是是成交的数据。

## 16、订阅命令 subscribe

订阅最新账本的命令：

{

"id": 1,

"command": "subscribe",

"streams": [

"ledger"

]

}

执行此命令后返回的json：

{"fee\_base":10,"fee\_ref":10,"ledger\_hash":"538C4AC9B4411CEEC6FEAF0C152E940712A5C8F44683FEC85BBCE91A97B6C472","ledger\_index":10310899,"ledger\_time":586267270,"reserve\_base":20000000,"reserve\_inc":5000000,"txn\_count":2,"type":"ledgerClosed","validated\_ledgers":"266955-7201251,7201254-7201494,7201536,7201559-7206567,7206570-7208120,7208124-10310899"}

Result说明：

|  |  |
| --- | --- |
| fee\_base | 交易基本费用 |
| fee\_ref | 交易基本费用 |
| ledger\_hash | 账本HASH |
| ledger\_index | 账本号 |
| ledger\_time | 账本时间 |
| reserve\_base | 账号最少保留值 |
| reserve\_inc | 递增冻结值 |
| txn\_count | 交易数量 |
| type | 类型 |
| validated\_ledgers | 缓存账本区间 |

## 17、取消订阅 unsubscribe

取消订阅最新账本的命令：

{

"id": 1,

"command": "unsubscribe",

"streams": [

"ledger"

]

}

执行此命令后返回的json：

{"id":1,"result":{},"status":"success","type":"response"}

|  |  |
| --- | --- |
| status | 状态 |
| type | 类型 |

## 18、显示 blob 数据 show\_blob

命令：

{

"id": 1,

"command": "show\_blob",

"tx\_blob":

"120003220000000024000000032F2286ABC06840000000000033547321021909EC37BD0D183811EB3330C27A8E79FEF8954DEA8EDB

DC15BE696C8266412174473045022100F2AC668AA80957B90E8E173BAF9191C0206880CCE439F069CC8A7C9DDE3F356C02204A1E1

EFF96CCDEE731870C09818448DD6474692FB546C2DD8D3BA7A5FECBAA358114D2B2D92760BB8FCADF97C6EDBD0297CDFF9D

D4D8

"

}

执行此命令后返回的json：

## 19、路径选择 path\_find

命令：

{

"id": 1,

"command": "path\_find",

"source\_account": "jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP",

"destination\_account": "jB8sAd5TKa944N7ct8NDBPgvLzwt4Cgaun",

"destination\_amount": {

"currency": "JCALL",

"value": "1",

"issuer": "jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or"

},

"subcommand":"create"

}

执行此命令后返回的json：

{"id":1,"result":{"alternatives":[{"paths\_computed":[[{"currency":"JCALL","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","type":48,"type\_hex":"0000000000000030"}]],"source\_amount":"2970000"},{"paths\_computed":[],"source\_amount":{"currency":"JCALL","issuer":"jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP","value":"1"}}],"destination\_account":"jB8sAd5TKa944N7ct8NDBPgvLzwt4Cgaun","destination\_amount":{"currency":"JCALL","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"1"},"id":1,"source\_account":"jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP"},"status":"success","type":"response"}

Result说明：

|  |  |
| --- | --- |
| alternatives |  |
| paths\_computed | 路径 |
| currency | 币种 |
| issuer | 发行方 |
| type | 类型 |
| type\_hex | 类型 |
| source\_amount | 来源数量 |
| paths\_computed | 路径 |
| destination\_account | 对方账户 |
| destination\_amount | 对方数量 |

返回json2：

{"id":1,"result":{"alternatives":[{"paths\_computed":[[{"currency":"JCALL","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","type":48,"type\_hex":"0000000000000030"}]],"source\_amount":"2970000"},{"paths\_computed":[[{"account":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","type":1,"type\_hex":"0000000000000001"},{"currency":"SWT","type":16,"type\_hex":"0000000000000010"},{"currency":"JCALL","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","type":48,"type\_hex":"0000000000000030"}]],"source\_amount":{"currency":"CNY","issuer":"jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP","value":"0.0402732"}},{"paths\_computed":[[{"account":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","type":1,"type\_hex":"0000000000000001"},{"currency":"SWT","type":16,"type\_hex":"0000000000000010"},{"currency":"JCALL","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","type":48,"type\_hex":"0000000000000030"}]],"source\_amount":{"currency":"JBIZ","issuer":"jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP","value":"3.061855670103092"}},{"paths\_computed":[[{"account":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","type":1,"type\_hex":"0000000000000001"},{"currency":"SWT","type":16,"type\_hex":"0000000000000010"},{"currency":"JCALL","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","type":48,"type\_hex":"0000000000000030"}]],"source\_amount":{"currency":"JEKT","issuer":"jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP","value":"0.1141868512110727"}},{"paths\_computed":[[{"account":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","type":1,"type\_hex":"0000000000000001"},{"currency":"SWT","type":16,"type\_hex":"0000000000000010"},{"currency":"JCALL","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","type":48,"type\_hex":"0000000000000030"}]],"source\_amount":{"currency":"JETH","issuer":"jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP","value":"0.00002079"}},{"paths\_computed":[[{"account":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","type":1,"type\_hex":"0000000000000001"},{"currency":"SWT","type":16,"type\_hex":"0000000000000010"},{"currency":"JCALL","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","type":48,"type\_hex":"0000000000000030"}]],"source\_amount":{"currency":"JJCC","issuer":"jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP","value":"0.04316860465116279"}},{"paths\_computed":[[{"account":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","type":1,"type\_hex":"0000000000000001"},{"currency":"SWT","type":16,"type\_hex":"0000000000000010"},{"currency":"JCALL","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","type":48,"type\_hex":"0000000000000030"}]],"source\_amount":{"currency":"JSTM","issuer":"jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP","value":"2.940594059405941"}},{"paths\_computed":[],"source\_amount":{"currency":"JCALL","issuer":"jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP","value":"1"}},{"paths\_computed":[[{"account":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","type":1,"type\_hex":"0000000000000001"},{"currency":"SWT","type":16,"type\_hex":"0000000000000010"},{"currency":"JCALL","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","type":48,"type\_hex":"0000000000000030"}]],"source\_amount":{"currency":"JDABT","issuer":"jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP","value":"0.054"}},{"paths\_computed":[[{"account":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","type":1,"type\_hex":"0000000000000001"},{"currency":"SWT","type":16,"type\_hex":"0000000000000010"},{"currency":"JCALL","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","type":48,"type\_hex":"0000000000000030"}]],"source\_amount":{"currency":"JMOAC","issuer":"jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP","value":"0.00135"}}],"destination\_account":"jB8sAd5TKa944N7ct8NDBPgvLzwt4Cgaun","destination\_amount":{"currency":"JCALL","issuer":"jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or","value":"1"},"id":1,"source\_account":"jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP"},"status":"success","type":"response"}

Result说明：

|  |  |
| --- | --- |
| alternatives |  |
| paths\_computed | 路径 |
| currency | 币种 |
| issuer | 发行方 |
| type | 类型 |
| type\_hex | 类型 |
| source\_amount | 来源数量 |
| paths\_computed | 路径 |

命令：

{

"id": 1,

"command": "path\_find",

"source\_account": "jw9cCVoNFV6gH2YLXHnXWDzDRZEo7NA2vP",

"destination\_account": "jB8sAd5TKa944N7ct8NDBPgvLzwt4Cgaun",

"destination\_amount": {

"currency": "JCALL",

"value": "1",

"issuer": "jGa9J9TkqtBcUoHe2zqhVFFbgUVED6o9or"

},

"subcommand":"close"

}

执行此命令后如果取消成功，则没有信息返回了。

## 20、提交请求 submit

命令：

{

"id": 1,

"command": "submit",

"secret": "ssCXga6r2x398DdLyN3XkLDiT2ZuS",

"tx\_json": {

"Flags": 0,

"TransactionType": "AccountSet",

"Account": "jLDn91zS5J1sCURGZkBGMj6WNt3dq1dery",

"Fee": "13140"

}

}

执行此命令后返回的json：

## 21、Account\_relcp

命令：

{

"id": 1,

"command": "account\_relcp",

"account": " jJHdzzHwrPggaBKBZZWbC6snJneSvzip5C",

"relationtype":1

}

执行此命令后返回的json：

{"id":1,"result":{"account":"jJHdzzHwrPggaBKBZZWbC6snJneSvzip5C","ledger\_current\_index":10276489,"lines":[{"currency":"CCA","issuer":"js7M6x28mYDiZVJJtfJ84ydrv2PthY9W9u","limit":"0.00005","limit\_peer":"jLDn91zS5J1sCURGZkBGMj6WNt3dq1dery","relation\_type":"1"}],"validated":false},"status":"success","type":"response"}

Result说明：

|  |  |
| --- | --- |
| account | 账户 |
| ledger\_current\_index | 当前账本 |
| lines |  |
| currency | 币种 |
| issuer | 发行方 |
| limit | 表示该命令查询账号能够亏欠该信任线对等账号的最大数额 |
| limit\_peer | 表示信任线对等账号能够亏欠该命令查询账号的最大数额 |
| relation\_type |  |
| validated | 是否已确认 |
| status | 状态 |
| type | 类型 |