

Class Activity

Command and task

1. Create chain with command `multichain-util create chain12`
✓ Fetch the Detail of Blockchain configuration

Attribute Details in Tabular Form

Attribute	Description
<code>version</code>	MultiChain software version (2.3.3).
<code>nodeversion</code>	Internal version number of the MultiChain node (20303901).
<code>edition</code>	Type of MultiChain edition (Community or Enterprise).
<code>protocolversion</code>	Blockchain protocol version used (20013).
<code>chainname</code>	Name of the blockchain (chain12).
<code>description</code>	Custom description of the blockchain (MultiChain chain12).
<code>protocol</code>	Blockchain protocol in use (multichain).
<code>port</code>	Network port used for peer-to-peer communication (9245).
<code>setupblocks</code>	Number of initial setup blocks (60).
<code>nodeaddress</code>	Address format for other nodes to connect (chain12@192.168.56.1:9245).
<code>burnaddress</code>	Address where coins/assets are burned (destroyed permanently).
<code>incomingpaused</code>	Indicates whether incoming connections are paused (<code>false</code> means active).
<code>miningpaused</code>	Shows if mining is paused or active (<code>false</code> means active).
<code>offchainpaused</code>	Indicates whether off-chain transactions are paused (<code>false</code> means off-chain is allowed).
<code>walletversion</code>	Version number of the wallet (60000).
<code>balance</code>	Native currency balance in the wallet (0).
<code>walletdbversion</code>	Version of the wallet database (3).
<code>reindex</code>	Indicates if the blockchain is being reindexed (<code>false</code> means no reindexing).
<code>blocks</code>	Total number of blocks in the blockchain (6).
<code>chainrewards</code>	Total mining rewards earned (0).
<code>streams</code>	Number of active data streams (1).
<code>timeoffset</code>	Difference between local and blockchain time (0 means synchronized).

Attribute	Description
connections	Number of connected peers (0 means no other nodes connected).
proxy	Shows if a network proxy is used (" " means no proxy).
difficulty	Mining difficulty level ($5.96e-8$, very low for private chains).
testnet	Indicates whether the chain is a testnet (<code>false</code> means mainnet/private).
keypoololdest	Timestamp of the oldest unused key (1741361939).
keypoolsize	Number of pre-generated wallet keys available (2).
paytxfee	Transaction fee per KB (0, no fees in private chains).
relayfee	Minimum fee required for relaying transactions (0).
errors	Any errors in the node (" " means no errors).



Understanding the listwalletransactions Command in MultiChain

The multichain-cli chain12 listwalletransactions command retrieves all transactions related to the wallet, including:

- ✓ Sent & received transactions
- ✓ Asset transfers
- ✓ Permission changes
- ✓ Blockchain interactions



Command Syntax

multichain-cli chain12 listwalletransactions



Example Output (MultiChain JSON Response)

```
[
  {
    "txid": "abcd1234txid...",
    "valid": true,
    "amount": -500,
    "asset": "PakCoin",
    "confirmations": 5,
    "blockhash": "0000abc...",
    "blockheight": 120,
    "time": 1741312008
  },
  {
    "txid": "efgh5678txid...",
    "valid": true,
    "amount": 1000,
    "asset": "PakCoin",
    "confirmations": 10,
    "blockhash": "0000xyz...",
    "blockheight": 125,
    "time": 1741313008
  }
]
```

✦ Explanation of Each Field

Field	Meaning
Txid	Unique Transaction ID for tracking.
Valid	true if the transaction is valid, false if rejected.
Amount	Positive (+) if received, Negative (-) if sent.
Asset	The name of the asset (e.g., PakCoin).
confirmations	Number of times the transaction was confirmed by new blocks.
Blockhash	The hash of the block containing the transaction.
blockheight	The block number where the transaction is recorded.
Time	The timestamp of when the transaction was confirmed.

✦ How to Filter Transactions

You can filter transactions using parameters:

Get Transactions for a Specific Address

```
multichain-cli chain12 listaddresstransactions <address>
```

✅ Example

```
multichain-cli chain12 listaddresstransactions 1MwalletAddressXYZ
```

✓ Shows transactions only related to 1MwalletAddressXYZ.

Get Transactions With More Details

To get detailed blockchain-level information on a transaction:

```
multichain-cli chain12 getrawtransaction <txid> 1
```

✅ Example

```
multichain-cli chain12 getrawtransaction abcd1234txid... 1
```

✓ Returns full input-output (VIN/VOOUT) details of the transaction.

Example

C:\>multichain-cli chain12 listwallettransactions

```
{"method":"listwallettransactions","params":[],"id":"88041016-1741362389","chain_name":"chain12"}
```

```
[
  {
    "balance" : {
      "amount" : 0,
      "assets" : [
      ]
    },
    "myaddresses" : [
      "1QYBRPLYsQPs4KnNKaG8vL1okmezwtyrW3TzNL"
    ],
    "addresses" : [
    ],
    "permissions" : [
    ],
    "items" : [
    ],
    "data" : [
      "53504b62473045022100953c0df4619136911684e1bc55b712214fb390d3ef5258b989f49cba48a3fe8802206d6f1f7186e9851a7abaabb507bc578ac1bbf68457e93d756648fda9775080dc032103afd124221d2ec6a7fe4ec1255ece4a229651fd0fd6fc81b7558eacc2ca64915c"
    ],
    "confirmations" : 31,
    "generated" : true,
    "blockhash" :
      "006f626dd84632c531549f745e9b17c9b37b73266a51f6d01d101bdc281256f6",
    "blockheight" : 1,
    "blockindex" : 0,
    "blocktime" : 1741361940,
    "txid" : "a52685bdea967759675bf63154b1433ff72a1c38a0b6f5d5a325f83902c66d62",
    "valid" : true,
    "time" : 1741361939,
    "timereceived" : 1741361939
  }
]
```

]

getblock Command Output in MultiChain

The command:
multichain-cli chain12 getblock
006f626dd84632c531549f745e9b17c9b37b73266a51f6d01d101bdc281256f6
retrieves **detailed block information** for block **hash** 006f626d....

🔍 Breakdown of the Block Details

Field	Description
Hash	The unique block hash (006f626d...) that identifies this block.
Miner	The address of the node that mined this block (1QYBRPLY...).
confirmations	Number of new blocks added after this one (59).
Size	The block size in bytes (299 bytes).
Height	The position of the block in the blockchain (1).
Version	The block version (3), used to track protocol changes.
merkleroot	The Merkle root hash (a52685bdc...), summarizing all transactions in this block.
Tx	The list of transactions in this block (only 1 transaction: "a52685bdc...").
Time	The timestamp when the block was mined (1741361940).
Nonce	A random number used in mining (23).
Bits	The difficulty target for mining (2000ffff).
Difficulty	The mining difficulty (5.96e-8, very low since this is a private chain).
chainwork	A measure of cumulative proof-of-work done on the chain (0000...0200).
previousblockhash	The hash of the previous block (008086de...).
nextblockhash	The hash of the next block (00ee1159...).

🔍 Key Insights

Block Hash & Link to Previous Blocks

- Each block has a **unique hash (hash)**.
- It also **links to the previous block (previousblockhash)** and next block (nextblockhash).

Merkle Root Explanation

- "merkleroot": "a52685bdea96..."
- This **hash summarizes all transactions** in the block.
- **If any transaction changes, the Merkle root will change.**

Mining & Confirmations

- **Mined by:** 1QYBRPLYsQPs4KnNKaG8vL1okmezwtyrW3TzNL

- **59 confirmations** mean that **59 new blocks** were added after this one.

Transactions in the Block

- Only **1 transaction** ("a52685bde...") is included in this block.
- The full transaction details can be retrieved using:

multichain-cli chain12 getrawtransaction

a52685bdea967759675bf63154b1433ff72a1c38a0b6f5d5a325f83902c66d62 1

Summary Table

Concept	Explanation
Block Hash	Unique ID for this block (006f626d...).
Merkle Root	Hash summarizing transactions (a52685bde...).
Mining Info	Mined by 1QYBRPLY..., nonce 23, difficulty 5.96e-8.
Block Height	This is block #1 in the chain.
Confirmations	59 new blocks were added after this one.
Previous Block	Linked to block 0 (008086de...).
Next Block	Next block hash is (00ee1159...).

✓ This block contains 1 transaction and has been confirmed by 59 blocks.

✓ The Merkle Root ensures transaction integrity.

```
{>multichain-cli chain12 getblock 006f626dd84632c531549f745e9b17c9b37b73266a51f6d01d101bdc281256f6
method:"getblock","params":[{"006f626dd84632c531549f745e9b17c9b37b73266a51f6d01d101bdc281256f6"}],"id":"26389355-1741362948","chain_name":"chain12"}

{"hash": "006f626dd84632c531549f745e9b17c9b37b73266a51f6d01d101bdc281256f6",
"miner": "1QYBRPLYsQP54KnNKA68vL1okmezwtYrW3TzNL",
"confirmations": 59,
"size": 299,
"height": 1,
"version": 3,
"merkleroot": "a52685bdea967759675bf63154b1433ff72a1c38a0b6f5d5a325f83902c66d62",
"tx": [
  "a52685bdea967759675bf63154b1433ff72a1c38a0b6f5d5a325f83902c66d62"
],
"time": 1741361940,
"nonce": 23,
"bits": "2000ffff",
"difficulty": 5.96045447753906e-8,
"chainwork": "0000000000000000000000000000000000000000000000000000000000000000",
"previousblockhash": "008086de4daa4a6b85db5714ce55cb3e26bf38f33ed9b1dbe4afa336f2782be8",
"nextblockhash": "00ee115954056e9233d915db238bc165a8aade5bd85a7a71eb1e8568b74dc2e9"}
```

a52685bdea967759675bf63154b1433ff72a1c38a0b6f5d5a325f83902c66d62 1

```
{
  "hex":
    "0100000001000000000000000000000000000000000000000000000ffff
    ffff0a510101062f503253482ffffff0200000000000000001976a914ae271e8f8af80e8487856ac3
    0abcedd1fe601fb6988ac00000000000000000726a4c6f53504b62473045022100953c0df461913691
    1684ebc55b712214fb390d3ef5258b989f49cba48a3fe8802206d6f1f7186e9851a7abaabb507bc5
    78ac1bbf68457e93d756648fda9775080dc032103afd124221d2ec6a7fe4ec1255ece4a229651fd0f
    d6fc81b7558eacc2ca64915c00000000",
```

```

"txid" : "a52685bdea967759675bf63154b1433ff72a1c38a0b6f5d5a325f83902c66d62",
"version" : 1,
"locktime" : 0,
"vin" : [
  {
    "coinbase" : "510101062f503253482f",
    "sequence" : 4294967295
  }
],
"vout" : [
  {
    "value" : 0,
    "n" : 0,
    "scriptPubKey" : {
      "asm" : "OP_DUP OP_HASH160 ae271e8f8af80e8487856ac3a0bcdd1fe601fb69
OP_EQUALVERIFY OP_CHECKSIG",
      "hex" : "76a914ae271e8f8af80e8487856ac3a0bcdd1fe601fb6988ac",
      "reqSigs" : 1,
      "type" : "pubkeyhash",
      "addresses" : [
        "1QYBRPLYsQPs4KnNKaG8vL1okmezwtyrW3TzNL"
      ]
    }
  },
  {
    "value" : 0,
    "n" : 1,

```



```
    "scriptPubKey" : {
      "asm" : "OP_RETURN
53504b62473045022100953c0df4619136911684e1bc55b712214fb390d3ef5258b989f49cba48a3
fe8802206d6f1f7186e9851a7abaabb507bc578ac1bbf68457e93d756648fda9775080dc032103afd
124221d2ec6a7fe4ec1255ece4a229651fd0fd6fc81b7558eacc2ca64915c",
      "hex" :
"6a4c6f53504b62473045022100953c0df4619136911684e1bc55b712214fb390d3ef5258b989f49
cba48a3fe8802206d6f1f7186e9851a7abaabb507bc578ac1bbf68457e93d756648fda9775080dc03
2103afd124221d2ec6a7fe4ec1255ece4a229651fd0fd6fc81b7558eacc2ca64915c",
      "type" : "nulldata"
    },
    "data" : [

"53504b62473045022100953c0df4619136911684e1bc55b712214fb390d3ef5258b989f49cba48a
3fe8802206d6f1f7186e9851a7abaabb507bc578ac1bbf68457e93d756648fda9775080dc032103af
d124221d2ec6a7fe4ec1255ece4a229651fd0fd6fc81b7558eacc2ca64915c"

]
  },
  "blockhash" : "006f626dd84632c531549f745e9b17c9b37b73266a51f6d01d101bdc281256f6",
  "confirmations" : 59,
  "time" : 1741361940,
  "blocktime" : 1741361940
}
```

🚀 How to Create an Asset in MultiChain (Transaction-Based Asset Creation)

In **MultiChain**, creating an asset **requires a transaction** that issues the asset to an address. This transaction records the **asset name, total supply, divisibility, and restrictions** in the blockchain.

🔴 Step 1: Create an Asset (Issue Transaction)

```
multichain-cli chain12 issue <recipient_address> <asset_name> <quantity> <units>
<custom_fields>
```

✅ Example: Create 1,000,000 PakCoin, each divisible by 0.01

```
multichain-cli chain12 issue 1MwalletAddressXYZ "PakCoin" 1000000 0.01
'{"description":"Pakistani digital currency"}'
```

✓ This creates **1,000,000 PakCoin** in 1MwalletAddressXYZ, each divisible up to 2 decimal places (0.01).

✓ The transaction also stores **metadata** (description).

🔴 Step 2: Verify the Asset Creation Transaction

Once the asset is created, check if the transaction was recorded:

```
multichain-cli chain12 listwallettransactions
```

✅ Example Output:

```
[
  {
    "txid": "abc123...",
    "valid": true,
    "balance": {
      "amount": 0,
      "assets": [
        {
          "name": "PakCoin",
          "assetref": "60-265-39449",
          "qty": 1000000
        }
      ]
    },
    "confirmations": 5,
    "blockhash": "0000abc...",
    "blockheight": 120
  }
]
```

✓ **Transaction ID (txid: abc123...)** confirms asset creation.

✓ **confirmations: 5** → Asset issuance is now part of the blockchain.

🔴 Step 3: View Asset Details

To see more details about the asset:

```
multichain-cli chain12 getassetinfo "PakCoin"
```

✅ Example Output:

```
{
  "name": "PakCoin",
  "issuetxid": "abc123...",
  "assetref": "60-265-39449",
  "multiple": 0.01,
  "open": false,
  "restrict": {
    "send": false,
    "receive": false,
    "issue": true
  },
  "fungible": true,
  "canopen": false,
  "canclose": false,
  "totallimit": null,
  "issuelimit": null
}
```

✓ Asset is recorded under **issuetxid: abc123... (Transaction ID)**.

✓ It is **fungible**, meaning it can be divided and transferred.

🔴 Step 4: Retrieve the Asset Creation Transaction

To see the **full details of the transaction** that created the asset:

```
multichain-cli chain12 getrawtransaction abc123... 1
```

✅ Example Output:

```
{
  "txid": "abc123...",
  "vin": [],
  "vout": [
    {
      "n": 0,
      "scriptPubKey": {
        "addresses": ["1MwalletAddressXYZ"]
      },
      "assets": [
        {
          "name": "PakCoin",
          "issuetxid": "abc123...",

```

```

        "assetref": "60-265-39449",
        "qty": 1000000,
        "type": "issuefirst"
    }
  ]
}
]
}

```

✓ VIN is empty because this is a new asset issuance.

✓ VOUT confirms PakCoin was assigned to 1MwalletAddressXYZ.

Why Is "amount": 0?

In MultiChain, the "amount" field represents **native blockchain currency**, which is disabled by default.

✓ **MultiChain is asset-based**, meaning most transactions only involve **custom assets** (like PakCoin).

✓ The **default native currency (like Bitcoin)** is disabled, so "amount" remains **0** in all transactions.

✓ Instead, **asset balances** are stored separately under "assets".

```

C:\>multichain-cli chain12 issue 1QYBRPLYsQP54KnNKaG8vL1okmezwtYrW3TzNL "PakCoin" 1000000 0.01
{"method":"issue","params":["1QYBRPLYsQP54KnNKaG8vL1okmezwtYrW3TzNL","PakCoin",1000000,0.01],"id":"72912381-1741364389","chain_name":"chain12"}
1e3d06a8d0ee4858fd18f7d1a4ffc86b9e489d92f4c67b0b438785f10dc7fa7

```

```

C:\>multichain-cli chain12 getassetinfo "PakCoin"
{"method":"getassetinfo","params":["PakCoin"],"id":"81946165-1741364456","chain_name":"chain12"}
{
  "name": "PakCoin",
  "issuetime": "11e3d06a8d0ee4858fd18f7d1a4ffc86b9e489d92f4c67b0b438785f10dc7fa7",
  "assetref": "60-265-58129",
  "multiple": 100,
  "units": 0.01,
  "open": false,
  "restrict": {
    "send": false,
    "receive": false,
    "issue": true
  },
  "fungible": true,
  "canopen": false,
  "canclose": false,
  "totallimit": null,
  "issuelimit": null,
  "details": {
  },
  "issuecount": 1,
  "issueqty": 1000000,
  "issueraw": 100000000
}

```

```

C:\>multichain-cli chain12 getrawtransaction
11e3d06a8d0ee4858fd18f7d1a4ffc86b9e489d92f4c67b0b438785f10dc7fa7 -1
{"method":"getrawtransaction","params":["11e3d06a8d0ee4858fd18f7d1a4ffc86b9e489d92f4c6
7b0b438785f10dc7fa7",-1],"id":"42144230-1741364649","chain_name":"chain12"}

{
  "hex" :
"0100000001626dc60239f825a3d5f5b6a0381c2af73f43b15431f65b67597796eabd8526a500000
0006b483045022100a2f91ff96138d26afd0a25ad09269e1059aedfa2fe8d62a3f5fd141c7ccf27280
22072fca68e1ee221bfe1825cad5457bd6d13929c1adc16e1ad4ab658f113aec7012103afd12422
1d2ec6a7fe4ec1255ece4a229651fd0fd6fc81b7558eacc2ca64915cffffffff030000000000000000000027
76a914ae271e8f8af80e8487856ac3a0bccdd1fe601fb6988ac0c73706b6700e1f5050000000075000
0000000000000191673706b6e0100010750616b436f696e00410464000000756a0000000000000000
0001976a914ae271e8f8af80e8487856ac3a0bccdd1fe601fb6988ac00000000",
  "txid" : "11e3d06a8d0ee4858fd18f7d1a4ffc86b9e489d92f4c67b0b438785f10dc7fa7",
  "version" : 1,
  "locktime" : 0,
  "vin" : [
    {
      "txid" : "a52685bdea967759675bf63154b1433ff72a1c38a0b6f5d5a325f83902c66d62",
      "vout" : 0,
      "scriptSig" : {
        "asm" :
"3045022100a2f91ff96138d26afd0a25ad09269e1059aedfa2fe8d62a3f5fd141c7ccf2728022072fc
a68e1ee221bfe1825cad5457bd6d13929c1adc16e1ad4ab658f113aec701
03afd124221d2ec6a7fe4ec1255ece4a229651fd0fd6fc81b7558eacc2ca64915c",
        "hex" :
"483045022100a2f91ff96138d26afd0a25ad09269e1059aedfa2fe8d62a3f5fd141c7ccf272802207
2fca68e1ee221bfe1825cad5457bd6d13929c1adc16e1ad4ab658f113aec7012103afd124221d2ec
6a7fe4ec1255ece4a229651fd0fd6fc81b7558eacc2ca64915c"
      },
      "sequence" : 4294967295
    }
  ],
  "vout" : [
    {
      "value" : 0,
      "n" : 0,
      "scriptPubKey" : {
        "asm" : "OP_DUP OP_HASH160 ae271e8f8af80e8487856ac3a0bccdd1fe601fb69
OP_EQUALVERIFY OP_CHECKSIG 73706b6700e1f50500000000 OP_DROP",

```

Commented [A1]: Note :This is previous Hash Value

Commented [A2]: Signature of the transaction

Commented [A3]: What do you mean by this script

```

    "hex" :
    "76a914ac271e8f8af80e8487856ac3a0bcd1fe601fb6988ac0c73706b6700e1f5050000000075",
    "reqSigs" : 1,
    "type" : "pubkeyhash",
    "addresses" : [
        "1QYBRPLYsQPs4KnNKaG8vL1okmezwtYrW3TzNL"
    ]
},
"assets" : [
    {
        "name" : "PakCoin",
        "issuetxid" :
        "11e3d06a8d0ee4858fd18f7d1a4ffc86b9e489d92f4c67b0b438785f10dc7fa7",
        "assetref" : "60-265-58129",
        "qty" : 1000000,
        "raw" : 100000000,
        "type" : "issuefirst"
    }
],
{
    "value" : 0,
    "n" : 1,
    "scriptPubKey" : {
        "asm" : "73706b6e0100010750616b436f696e00410464000000 OP_DROP
OP_RETURN",
        "hex" : "1673706b6e0100010750616b436f696e00410464000000756a",
        "type" : "nulldata"
    }
},
{
    "value" : 0,
    "n" : 2,
    "scriptPubKey" : {
        "asm" : "OP_DUP OP_HASH160 ac271e8f8af80e8487856ac3a0bcd1fe601fb69
OP_EQUALVERIFY OP_CHECKSIG",
        "hex" : "76a914ac271e8f8af80e8487856ac3a0bcd1fe601fb6988ac",
        "reqSigs" : 1,
        "type" : "pubkeyhash",
        "addresses" : [
            "1QYBRPLYsQPs4KnNKaG8vL1okmezwtYrW3TzNL"
        ]
    }
}

```

Commented [A4]: Upper comment for this

```
    }  
  ],  
  "issue" : {  
    "type" : "issuefirst",  
    "name" : "PakCoin",  
    "multiple" : 100,  
    "open" : false,  
    "restrict" : {  
      "send" : false,  
      "receive" : false,  
      "issue" : true  
    },  
    "fungible" : true,  
    "canopen" : false,  
    "canclose" : false,  
    "totallimit" : null,  
    "issuelimit" : null,  
    "details" : {  
    }  
  },  
  "blockhash" : "006f47218d7ab820e44b80731fe90060aaf564c5ce86b04c03b0380fa6af1ac2",  
  "confirmations" : 11,  
  "time" : 1741364410,  
  "blocktime" : 1741364410  
}
```

Commented [A5]: Important

✦ Transaction Overview

Attribute	Description
hex	The raw hexadecimal representation of the transaction.
txid	Unique Transaction ID (11e3d06a...), used to track this transaction.
version	Transaction version (1), indicating the format of the transaction.
locktime	(0) → The transaction is not time-locked (can be confirmed immediately).
blockhash	The hash of the block containing this transaction (006f4721...).
confirmations	The number of blocks confirming this transaction (11).
time	The timestamp when the transaction was created (1741364410).
blocktime	The timestamp when the transaction was added to a block (1741364410).

✦ Input Section (vin) - What is Being Spent?

This section lists **the previous transaction output that is used as an input**.

Attribute	Description
txid	The previous transaction ID (a52685bdea96...), whose output is being used.
vout	(0) → The output index from the previous transaction being spent.
scriptSig.asm	The unlocking script (signature + public key) to prove ownership.
scriptSig.hex	The hexadecimal version of the unlocking script.
sequence	(4294967295) → Maximum value, meaning this input is not locked .

◆ This means this transaction is using an output from a previous transaction (txid: a52685bd...) as input.

✦ Output Section (vout) - What is Being Created/Transferred?

This section lists **where the transaction output is going**.

Attribute	Description
value	(0) → No native currency is transferred (only an asset is issued).
n	The output index (0, 1, 2) - Each output is numbered.
scriptPubKey.asm	The locking script (who can spend this output) .
scriptPubKey.hex	The hexadecimal version of the script.
reqSigs	(1) → Only one signature is required to spend this output.
type	(pubkeyhash) → A standard Pay-to-PubKey-Hash (P2PKH) transaction .
addresses	The receiving address (1QYBRPLYsQPs4KnNKaG8vL1okmezwtyrW3TzNL).

✦ **Asset Issuance Output (vout[0]) - New Asset Created**

Attribute	Description
assets.name	The asset name (PakCoin).
assets.issuetxid	Transaction ID that created the asset (11e3d06a...).
assets.assetref	Unique asset reference ID (60-265-58129).
assets.qty	Total quantity issued (1,000,000 PakCoin).
assets.raw	Raw quantity representation (100,000,000 → Divisible asset).
assets.type	(issuefirst) → Indicates this is the first issuance of the asset.

- ◆ This confirms that 1,000,000 PakCoin were issued in this transaction.

✦ **Metadata Output (vout[1]) - Additional Data**

Attribute	Description
scriptPubKey.type	(nulldata) → This output contains extra metadata .
scriptPubKey.asm	(OP_RETURN) → Stores PakCoin-related data on-chain .

- ◆ This output is used to store extra data in the blockchain, like asset descriptions.

```
C:\>multichain-cli chain12 listwallettransactions
{"method":"listwallettransactions","params":[],"id":"77867366-1741397932","chain_name":"chain12"}
```

```
[
  {
    "balance" : {
      "amount" : 0,
      "assets" : [
      ]
    },
    "myaddresses" : [
      "lQYBRPLYsQPs4KnNKaG8vL1okmezwtyrW3TzNL"
    ],
    "addresses" : [
    ],
    "permissions" : [
    ],
    "items" : [
    ],
    "data" : [
      "53504b62473045022100953c0df4619136911684e1bc55b712214fb390d3ef5258b989f49cba48a3fe8802206d6f1f7186e9851a7abaabb507bc578ac1bbf68457e93d756648fda9775080dc032103afd124221d2ec6a7fe4ec1255ece4a229651fd0fd6fc81b7558eacc2ca64915c"
    ],
    "confirmations" : 70,
    "generated" : true,
    "blockhash" :
      "006f626dd84632c531549f745e9b17c9b37b73266a51f6d01d101bdc281256f6",
    "blockheight" : 1,
    "blockindex" : 0,
    "blocktime" : 1741361940,
    "txid" : "a52685bdea967759675bf63154b1433ff72a1c38a0b6f5d5a325f83902c66d62",
    "valid" : true,
    "time" : 1741361939,
    "timereceived" : 1741361939
  },
  {
    "balance" : {
      "amount" : 0,
      "assets" : [
      ]
    },
    "myaddresses" : [
    ],
    "addresses" : [
    ],
    "permissions" : [
    ],
    "items" : [
    ],
    "data" : [
    ],
    "confirmations" : 0,
    "generated" : false,
    "blockhash" :
      "0000000000000000000000000000000000000000000000000000000000000000",
    "blockheight" : 0,
    "blockindex" : 0,
    "blocktime" : 0,
    "txid" : "",
    "valid" : false,
    "time" : 0,
    "timereceived" : 0
  }
]
```

```
{
  "name" : "PakCoin",
  "assetref" : "60-265-58129",
  "qty" : 1000000
}
],
},
"myaddresses" : [
  "1QYBRPLYsQPs4KnNKaG8vL1okmezwtyrW3TzNL"
],
"addresses" : [
],
"permissions" : [
],
"issue" : {
  "name" : "PakCoin",
  "assetref" : "60-265-58129",
  "multiple" : 100,
  "units" : 0.01,
  "open" : false,
  "restrict" : {
    "send" : false,
    "receive" : false,
    "issue" : true
  },
  "fungible" : true,
  "canopen" : false,
  "canclose" : false,
  "totallimit" : null,
  "issuelimit" : null,
  "details" : {
  },
  "qty" : 1000000,
  "raw" : 100000000,
  "addresses" : [
    "1QYBRPLYsQPs4KnNKaG8vL1okmezwtyrW3TzNL"
  ]
},
"items" : [
],
"data" : [
],
"confirmations" : 11,
```

```
    "blockhash" :  
"006f47218d7ab820e44b80731fe90060aaf564c5ce86b04c03b0380fa6af1ac2",  
    "blockheight" : 60,  
    "blockindex" : 1,  
    "blocktime" : 1741364410,  
    "txid" : "11e3d06a8d0ee4858fd18f7d1a4ffc86b9e489d92f4c67b0b438785f10dc7fa7",  
    "valid" : true,  
    "time" : 1741364389,  
    "timereceived" : 1741364389  
  }  
]
```

C:\>

```

C:\>multichain-cli chain12 getrawtransaction
11e3d06a8d0ee4858fd18f7d1a4ffc86b9e489d92f4c67b0b438785f10dc7fa7 1
{"method":"getrawtransaction","params":["11e3d06a8d0ee4858fd18f7d1a4ffc86b9e489d92f4c6
7b0b438785f10dc7fa7",1],"id":"42526017-1741398178","chain_name":"chain12"}

{
  "hex" :
"0100000001626dc60239f825a3d5f5b6a0381c2af73f43b15431f65b67597796eabd8526a500000
0006b483045022100a2f91ff96138d26afd0a25ad09269e1059aedfa2fe8d62a3f5fd141c7ccf27280
22072fca68e1ee221bfe1825cad5457bd6d13929c1adc16e1ad4ab658f113aec7012103afd12422
1d2ec6a7fe4ec1255ece4a229651fd0fd6fc81b7558eacc2ca64915cffffffff0300000000000000000000
76a914ae271e8f8af80e8487856ac3a0bcdd1fe601fb6988ac0c73706b6700e1f5050000000075000
00000000000000191673706b6e0100010750616b436f696e00410464000000756a00000000000000
0001976a914ae271e8f8af80e8487856ac3a0bcdd1fe601fb6988ac00000000",
  "txid" : "11e3d06a8d0ee4858fd18f7d1a4ffc86b9e489d92f4c67b0b438785f10dc7fa7",
  "version" : 1,
  "locktime" : 0,
  "vin" : [
    {
      "txid" : "a52685bdea967759675bf63154b1433ff72a1c38a0b6f5d5a325f83902c66d62",
      "vout" : 0,
      "scriptSig" : {
        "asm" :
"3045022100a2f91ff96138d26afd0a25ad09269e1059aedfa2fe8d62a3f5fd141c7ccf2728022072fc
a68e1ee221bfe1825cad5457bd6d13929c1adc16e1ad4ab658f113aec701
03afd124221d2ec6a7fe4ec1255ece4a229651fd0fd6fc81b7558eacc2ca64915c",
        "hex" :
"483045022100a2f91ff96138d26afd0a25ad09269e1059aedfa2fe8d62a3f5fd141c7ccf272802207
2fca68e1ee221bfe1825cad5457bd6d13929c1adc16e1ad4ab658f113aec7012103afd124221d2ec
6a7fe4ec1255ece4a229651fd0fd6fc81b7558eacc2ca64915c"
      },
      "sequence" : 4294967295
    }
  ],
  "vout" : [
    {
      "value" : 0,
      "n" : 0,
      "scriptPubKey" : {
        "asm" : "OP_DUP OP_HASH160 ae271e8f8af80e8487856ac3a0bcdd1fe601fb69
OP_EQUALVERIFY OP_CHECKSIG 73706b6700e1f50500000000 OP_DROP",

```

```

        "hex" :
"76a914ac271e8f8af80e8487856ac3a0bcd1fe601fb6988ac0c73706b6700e1f5050000000075",
        "reqSigs" : 1,
        "type" : "pubkeyhash",
        "addresses" : [
            "1QYBRPLYsQPs4KnNKaG8vL1okmezwtyrW3TzNL"
        ]
    },
    "assets" : [
        {
            "name" : "PakCoin",
            "issuetxid" :
"11e3d06a8d0ee4858fd18f7d1a4ffc86b9e489d92f4c67b0b438785f10dc7fa7",
            "assetref" : "60-265-58129",
            "qty" : 1000000,
            "raw" : 100000000,
            "type" : "issuefirst"
        }
    ]
},
{
    "value" : 0,
    "n" : 1,
    "scriptPubKey" : {
        "asm" : "73706b6e0100010750616b436f696e00410464000000 OP_DROP
OP_RETURN",
        "hex" : "1673706b6e0100010750616b436f696e00410464000000756a",
        "type" : "nulldata"
    }
},
{
    "value" : 0,
    "n" : 2,
    "scriptPubKey" : {
        "asm" : "OP_DUP OP_HASH160 ac271e8f8af80e8487856ac3a0bcd1fe601fb69
OP_EQUALVERIFY OP_CHECKSIG",
        "hex" : "76a914ac271e8f8af80e8487856ac3a0bcd1fe601fb6988ac",
        "reqSigs" : 1,
        "type" : "pubkeyhash",
        "addresses" : [
            "1QYBRPLYsQPs4KnNKaG8vL1okmezwtyrW3TzNL"
        ]
    }
}

```

```
    }
  ],
  "issue" : {
    "type" : "issuefirst",
    "name" : "PakCoin",
    "multiple" : 100,
    "open" : false,
    "restrict" : {
      "send" : false,
      "receive" : false,
      "issue" : true
    },
    "fungible" : true,
    "canopen" : false,
    "canclose" : false,
    "totallimit" : null,
    "issuelimit" : null,
    "details" : {
    }
  },
  "blockhash" : "006f47218d7ab820e44b80731fe90060aaf564c5ce86b04c03b0380fa6af1ac2",
  "confirmations" : 11,
  "time" : 1741364410,
  "blocktime" : 1741364410
}
```