关于

> **《TGIC 核心API的使用参考指南》**

接口类型：

- Public REST API

- Webhook API

- Exchange JSON-RPC

- Crypto JSON-RPC

- Elasticsearch API

如何使用?

1、安装 `docsify`

bash

```
npm i docsify-cli -g
```

2、本地预览

bash

```
docsify serve tgic-api-docs
```

3 、访问 http://localhsot:3000

开始

使用前的注意事项

> 前请务必在每个请求的 `Header` 里添加 `Content-Type: application/json`

区块链（Blockchain）

获取整个区块链的最新区块和供应

请求接口

```
GET /api/v2/blockchain
```

请求示例

```
curl https://api.ark.io/api/blockchain
```

返回结果

```json
{
  "data": {
    "block": {
      "height": 8051250,
      "id": "16024042256653583473"
    },
    "supply": 14095130200000004
  }
}
```

区块链（Blockchain）

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请求接口

```
GET /api/v2/blockchain
```

请求示例

```shell
curl https://api.ark.io/api/blockchain
```

返回结果

```json
{
  "data": {
    "block": {
      "height": 8051250,
      "id": "16024042256653583473"
    },
    "supply": 14095130200000004
  }
}
```

区块（Blocks）

获取所有区块

请求接口

```
GET /api/v2/blocks
```

查询参数

名称	类型	描述	是否必填
page	int	页面编号	否
limit	int	每页的数量	否
id	string	区块ID	否

| height | int | 区块高度 | 否 |

请求示例1

shell

```shell
curl https://api.ark.io/api/v2/blocks?limit=2
```

返回结果1

json

```json
{
    "meta": {
        "count": 2,
        "pageCount": 640426,
        "totalCount": 1280852,
        "next": "/api/v2/blocks?limit=2&page=2",
        "previous": null,
        "self": "/api/v2/blocks?limit=2&page=1",
        "first": "/api/v2/blocks?limit=2&page=1",
        "last": "/api/v2/blocks?limit=2&page=640426"
    },
    "data": [{
        "id": "10630141091355819109",
        "version": 0,
        "height": 1283476,
        "previous": "14573972898629373888",
        "forged": {
            "reward": 200000000,
            "fee": 0,
            "total": 200000000,
            "amount": 0
        },
        "payload": {
            "hash": "e3b0c44298fc1c149afbf4c8996fb92427ae41e4649b934ca495991b7852b855",
            "length": 0
        },
        "generator": {
            "username": "song006",
            "address": "MQfXycApLLteAcAGJguAm687Wk4oJPPQbq",
            "publicKey": "028e6d39a454339f93f2c7d2254bc73443936a81ebd0363dd74249ceb4b665fa23"
```

```
        },
        "signature": "3045022100a5130aab3ac27e50912164bc4836c8520b72d181c2919507cf81e918bb4074
        "transactions": 0,
        "timestamp": {
            "epoch": 11098456,
            "unix": 1577172376,
            "human": "2019-12-24T07:26:16.000Z"
        }
    }, {
        "id": "14573972898629373888",
        "version": 0,
        "height": 1283475,
        "previous": "79287564161900771000",
        "forged": {
            "reward": 200000000,
            "fee": 0,
            "total": 200000000,
            "amount": 0
        },
        "payload": {
            "hash": "e3b0c44298fc1c149afbf4c8996fb92427ae41e4649b934ca495991b7852b855",
            "length": 0
        },
        "generator": {
            "username": "shan",
            "address": "MAT3pSecw3zufHcPjfLvbBWRkd8u6TT7kW",
            "publicKey": "0216309a945c44b6552d5d003157f6ae6c634068548610e0c2e8527b4761213256"
        },
        "signature": "3045022100b6a60bf55ea969c073489b212e8a9360661eec5ab22db614c3c9747517e856
        "transactions": 0,
        "timestamp": {
            "epoch": 11098448,
            "unix": 1577172368,
            "human": "2019-12-24T07:26:08.000Z"
        }
    }]
}
```

请求示例2

```
curl https://api.ark.io/api/v2/blocks?height=1283475
```

返回结果2

json

```json
{
    "meta": {
        "count": 1,
        "pageCount": 2,
        "totalCount": 101,
        "next": "/api/v2/blocks?height=1283475&page=2&limit=100",
        "previous": null,
        "self": "/api/v2/blocks?height=1283475&page=1&limit=100",
        "first": "/api/v2/blocks?height=1283475&page=1&limit=100",
        "last": "/api/v2/blocks?height=1283475&page=2&limit=100"
    },
    "data": [{
        "id": "14573972898629373888",
        "version": 0,
        "height": 1283475,
        "previous": "7928756416190771000",
        "forged": {
            "reward": 200000000,
            "fee": 0,
            "total": 200000000,
            "amount": 0
        },
        "payload": {
            "hash": "e3b0c44298fc1c149afbf4c8996fb92427ae41e4649b934ca495991b7852b855",
            "length": 0
        },
        "generator": {
            "username": "shan",
            "address": "MAT3pSecw3zufHcPjfLvbBWRkd8u6TT7kW",
            "publicKey": "0216309a945c44b6552d5d003157f6ae6c634068548610e0c2e8527b4761213256"
        },
        "signature": "3045022100b6a60bf55ea969c073489b212e8a9360661eec5ab22db614c3c9747517e85(
        "transactions": 0,
        "timestamp": {
            "epoch": 11098448,
```

```json
        "unix": 1577172368,
        "human": "2019-12-24T07:26:08.000Z"
      }
    }]
  }
```

获取单个区块

根据区块ID或区块高度查询区块。

请求接口

<div align="right">text</div>

```text
GET /api/blocks/{id|height}
```

请求参数

名称	类型	描述	是否必填
{id|height}	string	要检索的区块ID或高度	是

请求示例

<div align="right">shell</div>

```shell
curl https://api.ark.io/api/v2/blocks/14573972898629373888
```

<div align="right">shell</div>

```shell
curl https://api.ark.io/api/v2/blocks/1283475
```

返回结果

<div align="right">json</div>

```json
{
    "data": {
```

        "id": "14573972898629373888",
        "version": 0,
        "height": 1283475,
        "previous": "7928756416190771000",
        "forged": {
            "reward": 200000000,
            "fee": 0,
            "total": 200000000,
            "amount": 0
        },
        "payload": {
            "hash": "e3b0c44298fc1c149afbf4c8996fb92427ae41e4649b934ca495991b7852b855",
            "length": 0
        },
        "generator": {
            "username": "shan",
            "address": "MAT3pSecw3zufHcPjfLvbBWRkd8u6TT7kW",
            "publicKey": "0216309a945c44b6552d5d003157f6ae6c634068548610e0c2e8527b4761213256"
        },
        "signature": "3045022100b6a60bf55ea969c073489b212e8a9360661eec5ab22db614c3c9747517e85(
        "transactions": 0,
        "timestamp": {
            "epoch": 11098448,
            "unix": 1577172368,
            "human": "2019-12-24T07:26:08.000Z"
        }
    }
}

获取区块的交易

接口

text

```
GET /api/blocks/{id|height}/transactions
```

路径参数

名称	类型	描述	是否必填
{id|height}	string	区块ID或高度	是

查询参数

名称	类型	描述	是否必填
page	int	页面编号	否
limit	int	每页数量	否

请求示例

shell

```shell
curl https://api.ark.io/api/v2/blocks/2773147314821565087/transactions
```

返回结果

json

```json
{
    "meta": {
        "count": 1,
        "pageCount": 2,
        "totalCount": 101,
        "next": "/api/v2/blocks/2773147314821565087/transactions?page=2&limit=100",
        "previous": null,
        "self": "/api/v2/blocks/2773147314821565087/transactions?page=1&limit=100",
        "first": "/api/v2/blocks/2773147314821565087/transactions?page=1&limit=100",
        "last": "/api/v2/blocks/2773147314821565087/transactions?page=2&limit=100"
    },
    "data": [{
        "id": "c2499fb8d65c34282e0da2facf43255f7e73cee86bfcff69ed55dd14be299dd8",
        "blockId": "2773147314821565087",
        "version": 1,
        "type": 0,
        "amount": 5106790000000,
        "fee": 10000000,
        "sender": "MS2RnsMmrPk6UGnnc5nJ59EtVDr9GUSoDP",
        "recipient": "M9mey7hRk3z93UtyYPXw3KYVd2rFgcUm5o",
        "signature": "30440220378f3e46459bc1948eb4d8a5d976a45b25abe2eb2c1f6eb831b05fc2ebfb008!
```

```
        "confirmations": 240,
        "timestamp": {
            "epoch": 11097158,
            "unix": 1577171078,
            "human": "2019-12-24T07:04:38.000Z"
        }
    }]
  }
```

搜索所有区块

可以使用搜索资源过滤特定区块。在节点端过滤区块要比大负载请求并在客户端过滤有效负载有效得多。

请求接口

text

```
POST /api/v2/blocks/search
```

查询参数

名称	类型	描述	是否必填
page	int	将返回页的编号	否
limit	int	每页的资源数量	否

内容参数

名称	类型	描述	是否必填
id	string	区块ID	否
version	int	区块版本	否
previousBlock	int	前一个区块ID	否
payloadHash	string	payload的哈希值	否
generatorPublicKey	string	区块制造者的公钥	否
blockSignature	string	区块签名	否

timestamp	object	区块创建的时间戳范围。从第一块区块创建的秒数来计算。	否
timestamp.from	int	区块创建时间起始	否
timestamp.to	int	区块创建时间截止	否
height	object	区块的高度范围，第一个区块的高度是1	否
height.from	int	区块高度起始	否
height.to	int	区块高度截止	否
numberOfTransactions	object	区块交易数量	否
numberOfTransactions.from	int	区块交易数量起始	否
numberOfTransactions.to	int	区块交易数量截止	否
totalAmount	object	区块内交易总额，包括区块奖励、交易费用和交易金额	否
totalAmount.from	int	区块交易总额起始	否
totalAmount.to	int	区块交易总额截止	否
totalFee	object	区块内所有交易费用总和	否
totalFee.from	int	区块内所有交易费用总和起始	否
totalFee.to	int	区块内所有交易费用总和截止	否
reward	object	区块交易奖励	否
reward.from	int	区块奖励范围起始	否
reward.to	int	区块奖励范围截止	否
payloadLength	object	payload长度	否
payloadLength.from	int	区块有效payload长度必须大于或等于这个值	否
payloadLength.to	int	区块有效payload长度必须小于或等于这个值	否

请求示例

shell

```
curl --data 'numberOfTransactions={ "from": 2, "to": 5 }' https://api.ark.io/api/v2/blocks/sea
```

返回结果

```json
{
    "meta": {
        "count": 2,
        "pageCount": 2583,
        "totalCount": 5165,
        "next": "/api/v2/blocks/search?limit=2&page=2",
        "previous": null,
        "self": "/api/v2/blocks/search?limit=2&page=1",
        "first": "/api/v2/blocks/search?limit=2&page=1",
        "last": "/api/v2/blocks/search?limit=2&page=2583"
    },
    "data": [{
        "id": "5316954617032410169",
        "version": 0,
        "height": 1271863,
        "previous": "4610935101755089936",
        "forged": {
            "reward": 200000000,
            "fee": 50000000,
            "total": 250000000,
            "amount": 399322300000000
        },
        "payload": {
            "hash": "edd826880b1fee53022435c04b845d39ff4bc374caf96ce5f6105787351deb04",
            "length": 160
        },
        "generator": {
            "username": "tgic3",
            "address": "MUGv35V4KL43riiyyyfvFhSXiT3EdZ5LRt",
            "publicKey": "025e18c537633b629a8598aefc21cf10ab72e632e306d0af1e30726a99232e96de"
        },
        "signature": "3045022100fe95ddcff1c39fa6bfdaf914f49479ed45788b1a67a8965e28982738d762f3",
        "transactions": 5,
        "timestamp": {
            "epoch": 11005000,
            "unix": 1577078920,
            "human": "2019-12-23T05:28:40.000Z"
        }
    }, {
        "id": "3005306188126403981",
        "version": 0,
        "height": 1266038,
```

```
            "previous": "14465704379557346327",
            "forged": {
                "reward": 200000000,
                "fee": 20000000,
                "total": 220000000,
                "amount": 50000000000
            },
            "payload": {
                "hash": "38459ae09515f8b4a9c86e8389f2eb8d3596cd6c33230a7888a3e41e3a19a9ba",
                "length": 64
            },
            "generator": {
                "username": "bingo",
                "address": "MTNf8k3jUpnzJA6zbkC7meGZW8FgesAjY5",
                "publicKey": "02e3bed151c131a9b518994ee1ceb05780a585d8c63017fbaf636bb92ed4ce86ee"
            },
            "signature": "30440220020561405eba2832bc78f0da66b63cc2a6f596ccd841f226513e63711605b92(
            "transactions": 2,
            "timestamp": {
                "epoch": 10957552,
                "unix": 1577031472,
                "human": "2019-12-22T16:17:52.000Z"
            }
        }]
    }
```

交易(Transactions)

创建交易

请求接口

text

```
POST /api/v2/transactions
```

参数内容

名称	类型	描述	是否必填
transactions	array	要创建的交易列表	是

请求示例

shell

```shell
curl -d "" https://api.ark.io/api/v2/transactions
```

返回结果

json

```json
{
  "data": {
    "accept": [
      "15d4b3e933b79e5172bbf14c2bd3f92d927394cd8ebd102f18dcc2203af363ca",
      "c48862c4df75a8b0859b559658c757c1c289088488630494fe51613db0747e57",
      "bd10b25444363252e0787e46f5cac90797d08a0c34d507a10d064c94cccf6226"
    ],
    "broadcast": [
      "15d4b3e933b79e5172bbf14c2bd3f92d927394cd8ebd102f18dcc2203af363ca",
      "c48862c4df75a8b0859b559658c757c1c289088488630494fe51613db0747e57",
      "bd10b25444363252e0787e46f5cac90797d08a0c34d507a10d064c94cccf6226"
    ],
    "excess": [],
    "invalid": []
  },
  "errors": null
}
```

获取单个交易

请求接口

text

```text
GET /api/v2/transactions/{id}
```

路径参数

名称	类型	描述	是否必填
id	string	交易ID	是

请求示例

shell

```
curl https://api.ark.io/api/v2/transactions/5a8fbca13bd6cbdd1dc5508598a4c33eeb3c8260a1fe224088
```

返回结果

json

```json
{
    "data": {
        "id": "5a8fbca13bd6cbdd1dc5508598a4c33eeb3c8260a1fe2240887fc1752b47bb51",
        "blockId": "16723676184022346306",
        "version": 1,
        "type": 0,
        "amount": 20000000000,
        "fee": 10000000,
        "sender": "MGQS8VpKBwvS5ML4kahMJd7GGHq3xcwnB6",
        "recipient": "MWcVtmEZpFdPYM7SxdBHhbG4diuJdAN6M6",
        "signature": "304402207dee40f2b093adb1cbd0f1b667c7207a377a70913a0eccdd1427fe3035abeab
        "confirmations": 141,
        "timestamp": {
            "epoch": 11102694,
            "unix": 1577176614,
            "human": "2019-12-24T08:36:54.000Z"
        }
    }
}
```

获取交易列表

请求接口

查询参数

名称	类型	描述	是否必填
page	int	页面编号	否
limit	int	每页数量	否
type	int	交易类型	否
blockId	int	区块ID	否
id	int	交易ID	否

请求示例

shell

```shell
curl https://api.ark.io/api/v2/transactions?limit=2
```

返回结果

json

```json
{
    "meta": {
        "count": 2,
        "pageCount": 13560,
        "totalCount": 27119,
        "next": "/api/v2/transactions?limit=2&page=2",
        "previous": null,
        "self": "/api/v2/transactions?limit=2&page=1",
        "first": "/api/v2/transactions?limit=2&page=1",
        "last": "/api/v2/transactions?limit=2&page=13560"
    },
    "data": [{
        "id": "5a8fbca13bd6cbdd1dc5508598a4c33eeb3c8260a1fe2240887fc1752b47bb51",
        "blockId": "16723676184022346306",
        "version": 1,
        "type": 0,
```

```json
        "amount": 20000000000,
        "fee": 10000000,
        "sender": "MGQS8VpKBwvS5ML4kahMJd7GGHq3xcwnB6",
        "recipient": "MWcVtmEZpFdPYM7SxdBHhbG4diuJdAN6M6",
        "signature": "304402207dee40f2b093adb1cbd0f1b667c7207a377a70913a0eccdd1427fe3035abeab
        "confirmations": 175,
        "timestamp": {
            "epoch": 11102694,
            "unix": 1577176614,
            "human": "2019-12-24T08:36:54.000Z"
        }
    }, {
        "id": "10c32159034b7f4c2af636e98df6c56833e7bfa2cd16f530ef147710d73cfe39",
        "blockId": "13443407091764644740",
        "version": 1,
        "type": 0,
        "amount": 20000000000,
        "fee": 10000000,
        "sender": "MGQS8VpKBwvS5ML4kahMJd7GGHq3xcwnB6",
        "recipient": "MBjF16Eg1HAyEndT1HFSVdQeKaTNBs2HZA",
        "signature": "304402203cc015a575d9cee1813af84f0116814770855b1266a37862bb2b83574c042c5
        "confirmations": 247,
        "timestamp": {
            "epoch": 11102117,
            "unix": 1577176037,
            "human": "2019-12-24T08:27:17.000Z"
        }
    }]
}
```

列出所有未确认的交易

未经确认的交易在尚未纳入区块链之前会驻留在内存池中。 通常情况下，会在数分钟内清除内存池，但是在网络负载较高的情况下，低费用的交易将在此处停留相当长的时间。 如果您将交易费用设置为接近零，则代表可能不会接收该交易，并且超时。

接口

text

```
GET /api/transactions/unconfirmed/
```

查询参数

名称	类型	描述	是否必填
page	int	将返回页面编号	否
limit	int	每页的资源数量	否

请求示例

<div align="right">shell</div>

```shell
curl https://api.ark.io/api/v2/transactions/unconfirmed?limit=5&page=1
```

返回结果

<div align="right">json</div>

```json
{
  "meta": {
    "count": 5,
    "pageCount": 8,
    "totalCount": 40,
    "next": "/api/v2/transactions/unconfirmed?limit=5&page=2",
    "previous": null,
    "self": "/api/v2/transactions/unconfirmed?limit=5&page=1",
    "first": "/api/v2/transactions/unconfirmed?limit=5&page=1",
    "last": "/api/v2/transactions/unconfirmed?limit=5&page=8"
  },
  "data": [
    {
      "id": "c94504293d23e3be535a049fdfacba95147f2a87a4ef6682c56801da96befce0",
      "version": 1,
      "type": 0,
      "amount": 70866123,
      "fee": 344000,
      "sender": "MGQS8VpKBwvS5ML4kahMJd7GGHq3xcwnB6",
      "recipient": "MGQS8VpKBwvS5ML4kahMJd7GGHq3xcwnB6",
      "signature": "30450221008adeff8eb2a780168704d9e210368d81edff79b81aa7b995e43486f3b1e0096!
      "vendorField": "Yooooooloooooo",
      "confirmations": 0,
```

```json
      "timestamp": {
        "epoch": 56388424,
        "unix": 1546489624,
        "human": "2019-01-03T04:27:04.000Z"
      }
    }
    ...
  ]
}
```

获取未确认的交易详情

与查询确认交易一样，您可以直接查询未确认交易。

请求接口

```text
GET /api/v2/transactions/unconfirmed/{id}
```

路径参数

名称	类型	描述	是否必填
id	string	要检索的交易的标识符	是

请求示例

shell

```shell
curl https://api.ark.io/api/v2/transactions/unconfirmed/5a8fbca13bd6cbdd1dc5508598a4c33eeb3c8
```

返回结果

json

```json
{
    "data": {
```

```
        "id": "5a8fbca13bd6cbdd1dc5508598a4c33eeb3c8260a1fe2240887fc1752b47bb51",
        "blockId": "16723676184022346306",
        "version": 1,
        "type": 0,
        "amount": 20000000000,
        "fee": 10000000,
        "sender": "MGQS8VpKBwvS5ML4kahMJd7GGHq3xcwnB6",
        "recipient": "MWcVtmEZpFdPYM7SxdBHhbG4diuJdAN6M6",
        "signature": "304402207dee40f2b093adb1cbd0f1b667c7207a377a70913a0eccdd1427fe3035abeab
        "confirmations": 0,
        "timestamp": {
            "epoch": 11102694,
            "unix": 1577176614,
            "human": "2019-12-24T08:36:54.000Z"
        }
    }
}
```

搜索交易

请求接口

text

```
POST /api/v2/transactions/search
```

查询参数

名称	类型	描述	是否必填
page	int	页面编号	否
limit	int	每页的数量	否

参数内容

名称	类型	描述	是否必填
orderBy	string	排序	否
id	string		

		交易ID	否
blockId	string	区块ID	否
type	int	交易类型	否
version	int	版本	否
senderPublicKey	string	发送人公钥	否
senderId	string	发送人ID	否
recipientId	string	接收者ID	否
ownerId	string	拥有者ID	否
vendorFieldHex	string	备注字段HEX	否
timestamp	object	时间戳	否
timestamp.from	int	时间戳起始	否
timestamp.to	int	时间戳截止	否
amount	object	数量	否
amount.from	int	数量起始	否
amount.to	int	数量截止	否
fee	object	费用	否
fee.from	int	费用起始	否
fee.to	int	费用截止	否

请求示例

shell

```shell
curl --data 'amount={ "from": 100000000000000,"to":100000100000000 }' https://api.ark.io/api/v
```

返回结果

json

```json
{
    "meta": {
        "count": 4,
        "pageCount": 2,
        "totalCount": 104,
        "next": "/api/v2/transactions/search?page=2&limit=100",
```

```
        "previous": null,
        "self": "/api/v2/transactions/search?page=1&limit=100",
        "first": "/api/v2/transactions/search?page=1&limit=100",
        "last": "/api/v2/transactions/search?page=2&limit=100"
    },
    "data": [{
        "id": "3bbf6d58fb8469feaa85c5334ac0e7b6a4555e511c33926aad2501ce71caa41a",
        "blockId": "3005435412133744444",
        "version": 1,
        "type": 0,
        "amount": 100000000000000,
        "fee": 10000000,
        "sender": "MA2wSg7gnx2yusWFYkmkZvBYoJKBWymejb",
        "recipient": "MKMAaFjCNhUiD51ZZQ7AovLLzHAXTbwbqH",
        "signature": "3045022100c1e0a25ee879e31a6e788323a786565de179316ce618e8f3c2cb8e775c8ef
        "confirmations": 110997,
        "timestamp": {
            "epoch": 10226809,
            "unix": 1576300729,
            "human": "2019-12-14T05:18:49.000Z"
        }
    }
    ...
    ]
}
```

获取交易类型

交易类型是特定于网络的。ARK目前支持八种不同的类型，但如果出于业务目的需要，BridgeChains可以定义更多或更少的内容。

请求接口

text

```
GET /api/v2/transactions/types
```

请求示例

```shell
curl https://api.ark.io/api/v2/transactions/types
```

返回结果

```json
{
  "data": {
    "Transfer": 0,
    "SecondSignature": 1,
    "DelegateRegistration": 2,
    "Vote": 3,
    "MultiSignature": 4,
    "Ipfs": 5,
    "TimelockTransfer": 6,
    "MultiPayment": 7,
    "DelegateResignation": 8
  }
}
```

获取交易费用（非动态）

静态交易费用高于动态交易费用

请求接口

```text
GET /api/v2/transactions/fees
```

请求示例

```shell
curl https://api.ark.io/api/v2/transactions/fees
```

返回结果

```json
{
  "data": {
    "transfer": 10000000,
    "secondSignature": 500000000,
    "delegateRegistration": 2500000000,
    "vote": 100000000,
    "multiSignature": 500000000,
    "ipfs": 0,
    "timelockTransfer": 0,
    "multiPayment": 0,
    "delegateResignation": 0
  }
}
```

钱包（Wallets）

钱包列表

获取所有钱包，包括空钱包。

请求接口

```text
GET /api/wallets
```

查询参数

名称	类型	描述	是否必填
page	int	将返回页面编号	否
limit	int	每页的资源数量	否

请求示例

```
curl https://api.ark.io/api/v2/wallets?page=5&limit=2
```

返回结果

json

```json
{
    "meta": {
        "count": 2,
        "pageCount": 7717,
        "totalCount": 15433,
        "next": "/api/v2/wallets?page=6&limit=2",
        "previous": "/api/v2/wallets?page=4&limit=2",
        "self": "/api/v2/wallets?page=5&limit=2",
        "first": "/api/v2/wallets?page=1&limit=2",
        "last": "/api/v2/wallets?page=7717&limit=2"
    },
    "data": [{
        "address": "MFwkVTQon6G6xp4pnHAqmniqbagmxryAQf",
        "publicKey": "0204c7035db946028b0ab5f1e27dae50c8cf89f9ee55907bdf114bcc9f9147a89b",
        "username": null,
        "secondPublicKey": null,
        "balance": 265835500000000,
        "isDelegate": false,
        "vote": null
    }, {
        "address": "MUzMKJ6t4zs265My5yhy15EdG6cSQL8Cup",
        "publicKey": "02ac2e3c6e4da33542b2a62a0651db127109502ae90dceb6d1a37f9fcf9bdb5d1a",
        "username": null,
        "secondPublicKey": null,
        "balance": 264840000000000,
        "isDelegate": false,
        "vote": null
    }]
}
```

获取单个钱包

请求接口

```
GET /api/v2/wallets/{id}
```

查询参数

名称	类型	描述	是否必填
id	string	钱包ID（地址）	是

请求示例

```shell
curl https://api.ark.io/api/v2/wallets/MKUq3eooqqAxvLyHjT4Keq3fuRrXS7iptf
```

返回结果

json

```json
{
    "data": {
        "address": "MKUq3eooqqAxvLyHjT4Keq3fuRrXS7iptf",
        "publicKey": "0326b38d0fc0fe8f6b9bdaba84ca765bf321ec601ab049285a0a363435bc1348de",
        "username": null,
        "secondPublicKey": null,
        "balance": 39000000,
        "isDelegate": false,
        "vote": "032370229ca464d1b6c1265c998dbdae5c7c4a7212e771df987dc1eca2247308a3"
    }
}
```

获取钱包全部交易列表

获取钱包的所有交易（包含交易和发送）

请求接口

```
GET /api/v2/wallets/{id}/transactions
```

路径参数

名称	类型	描述	是否必填
id	string	钱包ID（地址）	是

查询参数

名称	类型	描述	是否必填
page	int	页面编号	否
limit	int	每页的数量	否

请求示例

```shell
curl https://api.ark.io/api/v2/wallets/MKUq3eooqqAxvLyHjT4Keq3fuRrXS7iptf/transactions
```

返回结果

```json
{
    "meta": {
        "count": 42,
        "pageCount": 1,
        "totalCount": 42,
        "next": null,
        "previous": null,
        "self": "/api/v2/wallets/MKUq3eooqqAxvLyHjT4Keq3fuRrXS7iptf/transactions?page=1&limit
        "first": "/api/v2/wallets/MKUq3eooqqAxvLyHjT4Keq3fuRrXS7iptf/transactions?page=1&limi
        "last": "/api/v2/wallets/MKUq3eooqqAxvLyHjT4Keq3fuRrXS7iptf/transactions?page=1&limi
    },
    "data": [{
```

```
        "id": "2cd81e2a8c88d1daf88ddb1ff0a32dc9f819a603a84bf9d74adf493db394a8c3",
        "blockId": "15171999033203642825",
        "version": 1,
        "type": 0,
        "amount": 10509000000000,
        "fee": 10000000,
        "sender": "MKUq3eooqqAxvLyHjT4Keq3fuRrXS7iptf",
        "recipient": "MJPFqsVfCtWaNsMa8R3MUsxzCvfi7QwfDM",
        "signature": "304402202da1d303452a405e31fdb56a4cbad3ac4819a8e7fae95f543b706524540583a
        "confirmations": 129538,
        "timestamp": {
            "epoch": 10074362,
            "unix": 1576148282,
            "human": "2019-12-12T10:58:02.000Z"
        }
    }
  ...
  ]
}
```

获取钱包已接收的交易列表

请求接口

text

    GET /api/v2/wallets/{id}/transactions/received

查询路径

名称	类型	描述	是否必填
id	string	钱包ID（地址）	是

查询参数

名称	类型	描述	是否必填
page	int	页面编号	否

limit	int	每页的资源数量	否

请求示例

```shell
curl https://api.ark.io/api/v2/wallets/MKUq3eooqqAxvLyHjT4Keq3fuRrXS7iptf/transactions/receiv
```

返回结果

```json
{
    "meta": {
        "count": 21,
        "pageCount": 1,
        "totalCount": 21,
        "next": null,
        "previous": null,
        "self": "/api/v2/wallets/MKUq3eooqqAxvLyHjT4Keq3fuRrXS7iptf/transactions/received?pag
        "first": "/api/v2/wallets/MKUq3eooqqAxvLyHjT4Keq3fuRrXS7iptf/transactions/received?pag
        "last": "/api/v2/wallets/MKUq3eooqqAxvLyHjT4Keq3fuRrXS7iptf/transactions/received?pag
    },
    "data": [{
        "id": "5935cf9536f4fcedfc452db4d3e90c7557d09e57cf94df957b58d97e232119c1",
        "blockId": "10119752929100693652",
        "version": 1,
        "type": 0,
        "amount": 20600000000,
        "fee": 10000000,
        "sender": "MR7E7tr2M4tQ3PdV8JcpSefiyDw8SdeeNv",
        "recipient": "MKUq3eooqqAxvLyHjT4Keq3fuRrXS7iptf",
        "signature": "304402206a4e1f053f36f0c23687780625b0091de7495d7a0187fbb02d29c6cf3414690
        "confirmations": 180566,
        "timestamp": {
            "epoch": 9631203,
            "unix": 1575705123,
            "human": "2019-12-07T07:52:03.000Z"
        }
    }
    ...
```

```
        ]
    }
```

获取钱包已发送的交易列表

> 请注意，如果钱包地址是代表，那么钱包的余额不等于总输入-总输出。必须把交易费用和伪造块的总报酬加到他们的余额中。

接口

```text
GET /api/v2/wallets/{id}/transactions/sent
```

查询路径

名称	类型	描述	是否必填
id	string	要检索的钱包标识符	是

查询参数

名称	类型	描述	是否必填
page	int	将返回页面编号	否
limit	int	每页的资源数量	否

请求示例

```shell
curl https://api.ark.io/api/v2/wallets/MKUq3eooqqAxvLyHjT4Keq3fuRrXS7iptf/transactions/sent
```

返回结果

```json
{
    "meta": {
        "count": 24,
        "pageCount": 1,
        "totalCount": 24,
        "next": null,
        "previous": null,
        "self": "/api/v2/wallets/MKUq3eooqqAxvLyHjT4Keq3fuRrXS7iptf/transactions/sent?page=1&
        "first": "/api/v2/wallets/MKUq3eooqqAxvLyHjT4Keq3fuRrXS7iptf/transactions/sent?page=1&
        "last": "/api/v2/wallets/MKUq3eooqqAxvLyHjT4Keq3fuRrXS7iptf/transactions/sent?page=1&
    },
    "data": [{
        "id": "2cd81e2a8c88d1daf88ddb1ff0a32dc9f819a603a84bf9d74adf493db394a8c3",
        "blockId": "15171999033203642825",
        "version": 1,
        "type": 0,
        "amount": 10509000000000,
        "fee": 10000000,
        "sender": "MKUq3eooqqAxvLyHjT4Keq3fuRrXS7iptf",
        "recipient": "MJPFqsVfCtWaNsMa8R3MUsxzCvfi7QwfDM",
        "signature": "304402202da1d303452a405e31fdb56a4cbad3ac4819a8e7fae95f543b706524540583a
        "confirmations": 129419,
        "timestamp": {
            "epoch": 10074362,
            "unix": 1576148282,
            "human": "2019-12-12T10:58:02.000Z"
        }
    }
    ...
    ]
}
```

获取钱包的投票列表

请求接口

```text
GET /api/v2/wallets/{id}/votes
```

查询路径

名称	类型	描述	是否必填
id	string	钱包ID（地址）	是

查询参数

名称	类型	描述	是否必填
page	int	页面编号	否
limit	int	每页的数量	否

请求示例

shell

```
curl https://api.ark.io/api/v2/wallets/top?page=5&limit=2
```

###返回结果

json

```
{
    "meta": {
        "count": 3,
        "pageCount": 1,
        "totalCount": 3,
        "next": null,
        "previous": null,
        "self": "/api/v2/wallets/MKUq3eooqqAxvLyHjT4Keq3fuRrXS7iptf/votes?page=1&limit=100",
        "first": "/api/v2/wallets/MKUq3eooqqAxvLyHjT4Keq3fuRrXS7iptf/votes?page=1&limit=100",
        "last": "/api/v2/wallets/MKUq3eooqqAxvLyHjT4Keq3fuRrXS7iptf/votes?page=1&limit=100"
    },
    "data": [{
        "id": "b27834b2378baabab4296c6f7193d9f6c17fb0862ee18c1e100fcc1686e6cc2c",
        "blockId": "9236870716921448156",
        "version": 1,
        "type": 3,
        "amount": 0,
        "fee": 100000000,
        "sender": "MKUq3eooqqAxvLyHjT4Keq3fuRrXS7iptf",
```

        "recipient": "MKUq3eooqqAxvLyHjT4Keq3fuRrXS7iptf",
        "signature": "304402206507e0c3ccd56400efb1e81d2bf6264816924ed4aa4f872bc3d1b47189239d0|
        "asset": {
            "votes": ["+032370229ca464d1b6c1265c998dbdae5c7c4a7212e771df987dc1eca2247308a3"]
        },
        "confirmations": 819267,
        "timestamp": {
            "epoch": 4273427,
            "unix": 1570347347,
            "human": "2019-10-06T07:35:47.000Z"
        }
    }
    ...
    ]
}

获取热门钱包

请求接口

text

```
GET /api/v2/wallets/top
```

查询参数

名称	类型	描述	是否必填
page	int	将返回页面编号	否
limit	int	每页的资源数量	否

请求示例

shell

```
curl https://api.ark.io/api/v2/wallets/top?page=5&limit=2
```

返回结果

```json
{
    "meta": {
        "count": 2,
        "pageCount": 7716,
        "totalCount": 15432,
        "next": "/api/v2/wallets/top?page=6&limit=2",
        "previous": "/api/v2/wallets/top?page=4&limit=2",
        "self": "/api/v2/wallets/top?page=5&limit=2",
        "first": "/api/v2/wallets/top?page=1&limit=2",
        "last": "/api/v2/wallets/top?page=7716&limit=2"
    },
    "data": [{
        "address": "MFwkVTQon6G6xp4pnHAqmniqbagmxryAQf",
        "publicKey": "0204c7035db946028b0ab5f1e27dae50c8cf89f9ee55907bdf114bcc9f9147a89b",
        "username": null,
        "secondPublicKey": null,
        "balance": 265835500000000,
        "isDelegate": false,
        "vote": null
    }, {
        "address": "MUzMKJ6t4zs265My5yhy15EdG6cSQL8Cup",
        "publicKey": "02ac2e3c6e4da33542b2a62a0651db127109502ae90dceb6d1a37f9fcf9bdb5d1a",
        "username": null,
        "secondPublicKey": null,
        "balance": 264840000000000,
        "isDelegate": false,
        "vote": null
    }]
}
```

搜索钱包

请求接口

```text
POST /api/v2/wallets/search
```

查询参数

名称	类型	描述	是否必填
page	int	页面编号	否
limit	int	每页的数量	否

参数内容

名称	类型	描述	是否必填
address	string	钱包地址	否
publicKey	string	钱包公钥	否
secondPublicKey	string	钱包二次公钥	否
vote	string	投票	否
username	string	用户名	否
balance	object	余额	否
balance.from	int	余额起始	否
balance.to	int	余额截止	否
votebalance	object	投票余额	否
votebalance.from	int	投票余额起始	否
votebalance.to	int	投票余额截止	否

请求示例

shell

```shell
curl --data 'balance={"from":100000000000,"to":100100000000}' https://api.ark.io/api/v2/wall
```

返回结果

json

```json
{
    "meta": {
        "count": 24,
```

```
        "pageCount": 1,
        "totalCount": 24,
        "next": null,
        "previous": null,
        "self": "/api/v2/wallets/search?page=1&limit=100",
        "first": "/api/v2/wallets/search?page=1&limit=100",
        "last": "/api/v2/wallets/search?page=1&limit=100"
    },
    "data": [{
        "address": "MMbPAiZGA7dGWtduLbAJ9x1XDRYht1CfEz",
        "publicKey": null,
        "username": null,
        "secondPublicKey": null,
        "balance": 100100000000,
        "isDelegate": false,
        "vote": null
    }
    ...
    ]
}
```

节点(Node)

获取节点配置

请求接口

```text
GET /api/v2/node/configuration
```

请求示例

```shell
curl https://api.ark.io/api/v2/node/configuration
```

返回结果

```json
{
    "data": {
        "nethash": "7df0ca065f5aaa61986c407507a0fa90a5820d837218fda5807b85229c376ed4",
        "slip44": 1,
        "wif": 198,
        "token": "TGI",
        "symbol": "T",
        "explorer": "http://0.0.0.0:4200",
        "version": 50,
        "ports": {
            "@arkecosystem/core-p2p": 4102,
            "@arkecosystem/core-api": 4103
        },
        "constants": {
            "height": 20000,
            "reward": 200000000,
            "activeDelegates": 23,
            "blocktime": 8,
            "block": {
                "version": 0,
                "maxTransactions": 150,
                "maxPayload": 6291456
            },
            "epoch": "2019-08-17T20:32:00.058Z",
            "fees": {
                "staticFees": {
                    "transfer": 10000000,
                    "secondSignature": 500000000,
                    "delegateRegistration": 2500000000,
                    "vote": 100000000,
                    "multiSignature": 500000000,
                    "ipfs": 0,
                    "timelockTransfer": 0,
                    "multiPayment": 0,
                    "delegateResignation": 0
                }
            },
            "vendorFieldLength": 255
        },
        "feeStatistics": [{
```

```
                    "type": 0,
                    "fees": {
                        "minFee": 10000000,
                        "maxFee": 10000000,
                        "avgFee": 10000000
                    }
                }, {
                    "type": 3,
                    "fees": {
                        "minFee": 100000000,
                        "maxFee": 100000000,
                        "avgFee": 100000000
                    }
                }, {
                    "type": 2,
                    "fees": {
                        "minFee": 2500000000,
                        "maxFee": 2500000000,
                        "avgFee": 2500000000
                    }
                }],
                "transactionPool": {
                    "maxTransactionAge": 21600,
                    "dynamicFees": {
                        "enabled": false
                    }
                }
            }
        }
    }
```

获取节点状态

请求接口

text

```
GET /api/v2/node/status
```

请求示例

```shell
curl https://api.ark.io/api/v2/node/status
```

返回结果

```json
{
  "data": {
    "synced": true,
    "now": 3034451,
    "blocksCount": 0
  }
}
```

获取节点同步状态

与 获取节点状态 接口功能类似，提供节点同步状态信息。

请求接口

```text
GET /api/v2/node/syncing
```

请求示例

```shell
curl https://api.ark.io/api/v2/node/syncing
```

返回结果

```json
{
  "data": {
```

```
    "syncing": true,
    "blocks": -36,
    "height": 3034451,
    "id": "5444078994968869529"
  }
}
```

节点(Peers)

获取所有Peer节点

获取所有已知 `Peer` 节点，仅显示公共节点。

接口

```
GET /api/v2/peers
```

查询参数

名称	类型	描述	是否必填
page	int	将返回页面编号	否
limit	int	每页的资源数量	否
port	int	筛选资源的端口	否
status	string	筛选资源的状态	否
os	string	用于过滤资源的操作系统	否
version	string	筛选资源的节点版本	否
orderBy	string	资源排序所依据的列	否

请求示例

```
curl https://api.ark.io/api/v2/peers?limit=1
```

```json
{
    "meta": {
        "count": 1,
        "pageCount": 26,
        "totalCount": 26,
        "next": "/api/v2/peers?limit=1&page=2",
        "previous": null,
        "self": "/api/v2/peers?limit=1&page=1",
        "first": "/api/v2/peers?limit=1&page=1",
        "last": "/api/v2/peers?limit=1&page=26"
    },
    "data": [{
        "ip": "114.115.141.56",
        "port": 4102,
        "version": "2.3.22",
        "height": 1284086,
        "status": 200,
        "os": "linux",
        "latency": 12
    }]
}
```

获取单个Peer

通过IP地址可以查询到单个 `Peer` 。但是，如果 `Peer` 禁用了其公共API，那么只能通过 `P2P` 内部API才能访问它们。

接口

text

```
GET /api/v2/peers/{ip}
```

查询参数

名称	类型	描述	是否必填
ip	string	要检索的对等点的IP地址	是

请求示例

```shell
curl https://api.ark.io/api/v2/peers/114.115.141.56
```

返回参数

```json
{
    "data": {
        "ip": "114.115.141.56",
        "port": 4102,
        "version": "2.3.22",
        "height": 1284093,
        "status": 200,
        "os": "linux",
        "latency": 8
    }
}
```

代表（Delegates）

获取所有代表

您可以通过这个接口分页获取所有代表。默认会返回所有的代表，而不仅仅是前51个代表。

如果代表节点处于离线状态，则仍然通过此API返回；代表与实际节点无关，只与公链上注册的钱包有关。

请求接口

```text
GET /api/v2/delegates
```

查询参数

名称	类型	描述	是否必填
page	int	将返回的页面编号	否
limit	int	每页的资源数量	否

请求示例1

shell

```shell
curl https://api.ark.io/api/v2/delegates
```

返回结果1

json

```json
{
    "meta": {
        "count": 82,
        "pageCount": 1,
        "totalCount": 82,
        "next": null,
        "previous": null,
        "self": "/api/v2/delegates?page=1&limit=100",
        "first": "/api/v2/delegates?page=1&limit=100",
        "last": "/api/v2/delegates?page=1&limit=100"
    },
    "data": [{
        "username": "liang",
        "address": "MLP6vhdVYD1aodrUWjZWCvzVSzscRqxaE1",
        "publicKey": "025f44882dc97bc50a1df03308bf1226bc09ff8f8b73888feb94148d9d51221c4f",
        "votes": 463665101276020,
        "rank": 1,
        "blocks": {
            "produced": 52014,
            "last": {
                "id": "3615722167853021711",
                "height": 1283624,
                "timestamp": {
                    "epoch": 11099640,
                    "unix": 1577173560,
```

```json
                "human": "2019-12-24T07:46:00.000Z"
            }
        }
    },
    "production": {
        "approval": 0.66
    },
    "forged": {
        "fees": 11400000000,
        "rewards": 10402800000000,
        "total": 10414200000000
    }
},
...
]
}
```

请求示例2

```shell
curl "https://api.ark.io/api/v2/delegates?page=5&limit=2"
```

请求结果2

```json
{
    "meta": {
        "count": 2,
        "pageCount": 41,
        "totalCount": 82,
        "next": "/api/v2/delegates?page=6&limit=2",
        "previous": "/api/v2/delegates?page=4&limit=2",
        "self": "/api/v2/delegates?page=5&limit=2",
        "first": "/api/v2/delegates?page=1&limit=2",
        "last": "/api/v2/delegates?page=41&limit=2"
    },
    "data": [{
        "username": "microsof",
        "address": "MR7E7tr2M4tQ3PdV8JcpSefiyDw8SdeeNv",
```

```json
        "publicKey": "032370229ca464d1b6c1265c998dbdae5c7c4a7212e771df987dc1eca2247308a3",
        "votes": 140648688242040,
        "rank": 9,
        "blocks": {
            "produced": 42727,
            "last": {
                "id": "5400742734018714186",
                "height": 1283658,
                "timestamp": {
                    "epoch": 11099912,
                    "unix": 1577173832,
                    "human": "2019-12-24T07:50:32.000Z"
                }
            }
        },
        "production": {
            "approval": 0.2
        },
        "forged": {
            "fees": 10880000000,
            "rewards": 8482800000000,
            "total": 8493680000000
        }
    }, {
        "username": "tony",
        "address": "MGwex9hKkCDNuf98pDgzSoCb9YG2EG9EeS",
        "publicKey": "021c775be6d73a8949bb98368a05007f54d6f11fa3ac6dbe2472ce42dbebed47d6",
        "votes": 138963553230980,
        "rank": 10,
        "blocks": {
            "produced": 53593,
            "last": {
                "id": "7755519973188598577",
                "height": 1283653,
                "timestamp": {
                    "epoch": 11099872,
                    "unix": 1577173792,
                    "human": "2019-12-24T07:49:52.000Z"
                }
            }
        },
        "production": {
            "approval": 0.2
        },
```

```
            "forged": {
                "fees": 14820000000,
                "rewards": 10655800000000,
                "total": 10670620000000
            }
        }]
    }
```

获取单个代表

可以通过用户名、地址和公钥查询特定的代表。

请求接口

```
GET /api/v2/delegates/{username|address|publicKey}
```

请求参数

名称	类型	描述	是否必填
{username|address|publicKey}	string	代表标识符（用户名，地址，公钥）	是

请求示例

```
curl https://api.ark.io/api/v2/delegates/microsof
```

```
curl https://api.ark.io/api/v2/delegates/MR7E7tr2M4tQ3PdV8JcpSefiyDw8SdeeNv
```

```
curl https://api.ark.io/api/v2/delegates/032370229ca464d1b6c1265c998dbdae5c7c4a7212e771df987d
```

返回结果

```json
{
    "data": {
        "username": "microsof",
        "address": "MR7E7tr2M4tQ3PdV8JcpSefiyDw8SdeeNv",
        "publicKey": "032370229ca464d1b6c1265c998dbdae5c7c4a7212e771df987dc1eca2247308a3",
        "votes": 140648888242040,
        "rank": 9,
        "blocks": {
            "produced": 42728,
            "last": {
                "id": "4965240926439365075",
                "height": 1283689,
                "timestamp": {
                    "epoch": 11100160,
                    "unix": 1577174080,
                    "human": "2019-12-24T07:54:40.000Z"
                }
            }
        },
        "production": {
            "approval": 0.2
        },
        "forged": {
            "fees": 10880000000,
            "rewards": 8483000000000,
            "total": 8493880000000
        }
    }
}
```

获取代表的区块

请求接口

```text
GET /api/v2/delegates/{username|address|publicKey}/blocks
```

查询参数

名称	类型	描述	是否必填
{username|address|publicKey}	string	要检索的代表标识符	是

路径参数

名称	类型	描述	是否必填
page	int	要返回的页面编号	否
limit	int	每页的资源数量	否

请求示例

```shell
curl "https://api.ark.io/api/v2/delegates/microsof/blocks?page=5&limit=2"
```

返回结果

```json
{
    "meta": {
        "count": 2,
        "pageCount": 20646,
        "totalCount": 41292,
        "next": "/api/v2/delegates/microsof/blocks?page=6&limit=2",
        "previous": "/api/v2/delegates/microsof/blocks?page=4&limit=2",
        "self": "/api/v2/delegates/microsof/blocks?page=5&limit=2",
        "first": "/api/v2/delegates/microsof/blocks?page=1&limit=2",
        "last": "/api/v2/delegates/microsof/blocks?page=20646&limit=2"
    },
    "data": [{
        "id": "6257497957022957519",
        "version": 0,
        "height": 1283511,
        "previous": "8813890528428322941",
        "forged": {
```

            "reward": 200000000,
            "fee": 0,
            "total": 200000000,
            "amount": 0
        },
        "payload": {
            "hash": "e3b0c44298fc1c149afbf4c8996fb92427ae41e4649b934ca495991b7852b855",
            "length": 0
        },
        "generator": {
            "username": "microsof",
            "address": "MR7E7tr2M4tQ3PdV8JcpSefiyDw8SdeeNv",
            "publicKey": "032370229ca464d1b6c1265c998dbdae5c7c4a7212e771df987dc1eca2247308a3"
        },
        "signature": "3045022100ee20e8a78bb3e35200c63062a809a814a01aabd9f240e3b319eb444690586"
        "transactions": 0,
        "timestamp": {
            "epoch": 11098736,
            "unix": 1577172656,
            "human": "2019-12-24T07:30:56.000Z"
        }
    }
}, {
        "id": "746401161285900763",
        "version": 0,
        "height": 1283489,
        "previous": "15336826928577783002",
        "forged": {
            "reward": 200000000,
            "fee": 0,
            "total": 200000000,
            "amount": 0
        },
        "payload": {
            "hash": "e3b0c44298fc1c149afbf4c8996fb92427ae41e4649b934ca495991b7852b855",
            "length": 0
        },
        "generator": {
            "username": "microsof",
            "address": "MR7E7tr2M4tQ3PdV8JcpSefiyDw8SdeeNv",
            "publicKey": "032370229ca464d1b6c1265c998dbdae5c7c4a7212e771df987dc1eca2247308a3"
        },
        "signature": "3044022007b444d55fa2ce1477c84bb72920821c21ed85a79c71a3880a3f3e4798b0067"
        "transactions": 0,
        "timestamp": {

```
        "epoch": 11098560,
        "unix": 1577172480,
        "human": "2019-12-24T07:28:00.000Z"
      }
    }]
  }
```

获取代表的选民

请求接口

```
GET /api/delegates/{username|address|publicKey}/voters
```

查询参数

名称	类型	描述	是否必填
{username|address|publicKey}	string	要检索的代表标识符	是

路径参数

名称	类型	描述	是否必填
page	int	页面编号	否
limit	int	每页的数量	否

请求示例

```
curl https://api.ark.io/api/v2/delegates/MR7E7tr2M4tQ3PdV8JcpSefiyDw8SdeeNv/voters?page=5&lim
```

返回结果

```json
{
    "meta": {
        "count": 2,
        "pageCount": 7,
        "totalCount": 13,
        "next": "/api/v2/delegates/microsof/voters?page=6&limit=2",
        "previous": "/api/v2/delegates/microsof/voters?page=4&limit=2",
        "self": "/api/v2/delegates/microsof/voters?page=5&limit=2",
        "first": "/api/v2/delegates/microsof/voters?page=1&limit=2",
        "last": "/api/v2/delegates/microsof/voters?page=7&limit=2"
    },
    "data": [{
        "address": "MPJNqMbPCgYhkhNjmHYSnnYoGZ6xo7SyLJ",
        "publicKey": "031d7631d5314f023a1402ad9f94789d8bc69376d7457fcbd74d5b0287e951ca59",
        "username": "qss",
        "secondPublicKey": null,
        "balance": 7000000000,
        "isDelegate": true,
        "vote": "032370229ca464d1b6c1265c998dbdae5c7c4a7212e771df987dc1eca2247308a3"
    }, {
        "address": "MKUq3eooqqAxvLyHjT4Keq3fuRrXS7iptf",
        "publicKey": "0326b38d0fc0fe8f6b9bdaba84ca765bf321ec601ab049285a0a363435bc1348de",
        "username": null,
        "secondPublicKey": null,
        "balance": 39000000,
        "isDelegate": false,
        "vote": "032370229ca464d1b6c1265c998dbdae5c7c4a7212e771df987dc1eca2247308a3"
    }]
}
```

搜索代表

请求接口

```text
POST /api/v2/delegates/search
```

查询参数

名称	类型	描述	是否必填
page	int	页面编号	否
limit	int	每页的数量	否

参数内容

名称	类型	描述	是否必填
address	string	代表地址	否
publicKey	string	代表公钥	否
username	string	代表用户名	否
usernames	array	代表用户名组	否
approval	object	代表批准率	否
approval.from	float	批准率下限	否
approval.to	float	批准率上限	否
forgedFees	object	锻造费用	否
forgedFees.from	int	锻造费用起始	否
forgedFees.to	int	锻造费用截止	否
forgedRewards	object	锻造奖励	否
forgedRewards.from	int	锻造奖励起始	否
forgedRewards.to	int	锻造奖励截止	否
forgedTotal	object	锻造总量	否
forgedTotal.from	int	锻造总量起始	否
forgedTotal.to	int	锻造总量截止	否
producedBlocks	object	生成区块数	否
producedBlocks.from	int	生成区块数的起始	否
producedBlocks.to	int	生成区块数的截止	否
voteBalance	object	投票金额	否
voteBalance.from	int	投票金额下限	否
voteBalance.to	int	投票金额上限	否

请求示例

```shell
curl --data 'producedBlocks={ "from": 60000 }' https://api.ark.io/api/v2/delegates/search
```

返回结果

```json
{
    "meta": {
        "count": 1,
        "pageCount": 1,
        "totalCount": 1,
        "next": null,
        "previous": null,
        "self": "/api/v2/delegates/search?page=1&limit=100",
        "first": "/api/v2/delegates/search?page=1&limit=100",
        "last": "/api/v2/delegates/search?page=1&limit=100"
    },
    "data": [{
        "username": "tgic",
        "address": "MH6UfwP5dc8q9oqPWyDUtR6ZhMVxdeJgNZ",
        "publicKey": "02e25f2a71ece0c45edaa354c09e26177fc72c460e25d17248b015ded70672f92c",
        "votes": 261094516779080,
        "rank": 2,
        "blocks": {
            "produced": 60221,
            "last": {
                "id": "251073909296918343",
                "height": 1283884,
                "timestamp": {
                    "epoch": 11101720,
                    "unix": 1577175640,
                    "human": "2019-12-24T08:20:40.000Z"
                }
            }
        },
        "production": {
            "approval": 0.37
        },
        "forged": {
```

```
        "fees": 23980000000,
        "rewards": 118394000000000,
        "total": 118633800000000
      }
    }]
  }
```

投票（Votes）

投票是一种特定的交易类型。钱包地址可以给代表投票，也可以自己投票。

> 代表不会从他的选民投票中获取币，他们产生的块的数量与他们的投票权重成正比。

获取全部投票

请求接口

```text
GET /api/v2/votes
```

查询参数

名称	类型	描述	是否必填
page	int	页面编号	否
limit	int	每页的数量	否

请求示例

```shell
curl https://api.ark.io/api/v2/votes?page=5&limit=2
```

返回结果

```json
{
    "meta": {
        "count": 2,
        "pageCount": 360,
        "totalCount": 720,
        "next": "/api/v2/votes?page=6&limit=2",
        "previous": "/api/v2/votes?page=4&limit=2",
        "self": "/api/v2/votes?page=5&limit=2",
        "first": "/api/v2/votes?page=1&limit=2",
        "last": "/api/v2/votes?page=360&limit=2"
    },
    "data": [{
        "id": "a414a646e658d9094084e7b29533038657109503b0023dad806e702d338e0e0d",
        "blockId": "1659939974944751299",
        "version": 1,
        "type": 3,
        "amount": 0,
        "fee": 100000000,
        "sender": "MNDUMxj5qoqkK8Kk3wJovjQiMBz2BtKweb",
        "recipient": "MNDUMxj5qoqkK8Kk3wJovjQiMBz2BtKweb",
        "signature": "3045022100a985a5c7353b2c312ad6c574877bb4c272d12e5d218d3d39a1808b3eebcc0:
        "asset": {
            "votes": ["+030e8bfc124ae0e0e4f7999aa35f2d185884540bb4cf29fd9fe4022ce03648cf3a"]
        },
        "confirmations": 27971,
        "timestamp": {
            "epoch": 10944977,
            "unix": 1577018897,
            "human": "2019-12-22T12:48:17.000Z"
        }
    }, {
        "id": "13e83d207a062bbd5ffeba833d285664608e8e20a5fd6caf42d830883aa24f90",
        "blockId": "10185843270403804789",
        "version": 1,
        "type": 3,
        "amount": 0,
        "fee": 100000000,
        "sender": "MEzJ2RUyTtDBRC8HxXCxtzV8d9UwESysFb",
        "recipient": "MEzJ2RUyTtDBRC8HxXCxtzV8d9UwESysFb",
        "signature": "3045022100b7f48183fabdf21e6499841b6fe8ab74ab5bba0502248b691917af5c16361:
        "asset": {
            "votes": ["-036a883d17cae33f1e255fb491c706895669a8e4024dee862f4aa77740b9c176d3"]
```

```
        },
        "confirmations": 27994,
        "timestamp": {
            "epoch": 10944783,
            "unix": 1577018703,
            "human": "2019-12-22T12:45:03.000Z"
        }
    }]
}
```

获取单个投票

可以使用投票的事务ID获取单个投票。投票的信息在 `assets` 字段，数组中每个项的第一个字符表示它是增加投票 +，还是取消投票 -，后跟代表的公钥。

请求接口

```
GET /api/v2/votes/{id}
```

查询参数

名称	类型	描述	是否必填
id	string	投票ID	是

请求示例

```
curl https://api.ark.io/api/v2/votes/13e83d207a062bbd5ffeba833d285664608e8e20a5fd6caf42d830883
```

返回结果

```json
{
    "data": {
        "id": "13e83d207a062bbd5ffeba833d285664608e8e20a5fd6caf42d830883aa24f90",
        "blockId": "10185843270403804789",
        "version": 1,
        "type": 3,
        "amount": 0,
        "fee": 100000000,
        "sender": "MEzJ2RUyTtDBRC8HxXCxtzV8d9UwESysFb",
        "recipient": "MEzJ2RUyTtDBRC8HxXCxtzV8d9UwESysFb",
        "signature": "3045022100b7f48183fabdf21e6499841b6fe8ab74ab5bba0502248b691917af5c16361;
        "asset": {
            "votes": ["-036a883d17cae33f1e255fb491c706895669a8e4024dee862f4aa77740b9c176d3"]
        },
        "confirmations": 28018,
        "timestamp": {
            "epoch": 10944783,
            "unix": 1577018703,
            "human": "2019-12-22T12:45:03.000Z"
        }
    }
}
```

常见问题

为何记录已存在，请求API的时候返回404?

出现这个问题主要是因为当前请求的节点数据未同步导致的,可以在区块浏览器上进行查询。

为何请求列表的时候返回的不是全部的结果?

如果请求的时候不传入 `page` 和 `limit` 参数，默认返回的结果只是第一页的结果， `limit` 的数量是100。

为什么节点运行起来后，请求API总提示 CONNECTION REFUSED ?

请检查防火墙或者安全组配置，是否屏蔽了API端口。