集成信息接口： https://github.com/openscenegraphexchange/issues/20

```
ERC20-Bridge-合集.txt
27.2 KB
```

提交注册cosmos-evm区块链信息

1. 创建区块链cosmos-evm区块链信息 ip:port http://38.91.168.72:26657

```
./bechainid tx gov submit-proposal register-coin --evm-chain-id=1 --from=hyt --gas-prices 1000aibnt --deposit 1000aibnt --title="coin" --summary="coin" --description="The native staking and governance token of the BM Chain" --gas 9000027

Bev.v0.20_linux20, 每个节点注册区块链信息bevmm_metadata的一部分
{
  "description": "The native token of BitMart Chain.",
  "denoms_array": [
    {
      "denom": "bev",
      "exponent": 0,
      "aliases": ["ttokens"]
    },
    {
      "denom": "ibev",
      "exponent": 18
    }
  ],
  "base": "ibev",
  "display": "bev",
  "name": "BitMart Chain",
  "symbol": "BM"
}

查看提案信息

./bechainid tx gov proposal 2
{
  "Msg": [{"evmchain.v2.v1.RegisterCoinProposal",
  description": "The native staking and governance token of the BM Chain",
  "metadata": {
    "base": ebmm
    "denom_units":
      - aliases:
        - ttokens
        denom: ebmm
        exponent: 0
      - aliases:
        - mbev
        denom: bev
        exponent: 18
    "description": "The native token of BitMart Chain.",
    "display": bev
    "name": BitMart Chain
    "symbol": BM
    "uri": "",
    "uri_hash": ""
  deposit_end_time": "2025-05-18T10:12:02.3891082"
  final_tally_result:
    abstain: "0"
    no: "0"
    no_with_veto: "0"
    "yes": "0"
  id": "2"
  voting_end_time": "2025-05-18T10:12:02.3891082"
  voting_period_start": "2025-05-12T08:12:02.3891082"
  status": "PROPOSAL_STATUS_VOTING_PERIOD"
  submit_time": "2025-05-12T08:12:02.3891082"
  total_deposit:
    - amount: "1000000000000000000"
    denom: ebmm
  voting_end_time": "2025-05-18T10:12:02.3891082"
  voting_start_time": "2025-05-12T08:12:02.3891082"
}

查看投票
./bechainid tx gov vote 2 yes --from hyt --gas-prices 1000aibnt

查看投票统计
./bechainid tx gov tally 2
{
  abstain": "0"
  "no": "0"
  no_with_veto": "0"
  "yes": "1000000000000000000"
}

投票通过之后查看cosmos注册的token pair
./bechainid tx erc20 token-pairs
token_pairs:
  - contract_owner: OWNER_MODULE
    denom: ebmm
    enabled: true
    erc20_address: 0x8dcc1D24F4B3D2a8B4F29C95D3f83f88fb8d

2. convert-coin 查看cosmos-coin和erc20-token的余额
./bechainid tx erc20 convert-coin 111111111ebmm --from hyt --gas-prices 1000aibnt --gas 9000215

区块浏览器查看注册信息
./bechainid tx erc20 token-pairs
  - key: gender
    value: 0x1ba3a2a7jfwtaxdcqf2ruvxFgcpu5xrlxdwy /* hyt注册erc20合约地址*/

    - key: receiver
    value: 0xe23d1dFcEeab78dc1b7b2b51c4c9F9BC1c5f6 /* hyt注册erc20合约地址的owner*/

    - key: amount
    value: "111111111"    /* hyt注册erc20合约地址owner的余额
    - key: cosmos_coin
    value: ebmm
    - key: erc20_token
    value: 0x8dcc1D24F4B3D2a8B4F29C95D3f83f88fb8d /* erc20-ebmm合约产生的代币地
    type: convert_coin

    - key: recipient
    value: 0xc0Ff0ZHrvqvvAuqqRXWqwYwkwJ4qZNuqWk /* erc20-ebmm合约产生的代币的接收地址
    - key: sender
    value: 0x1ba3a2a7jfwtaxdcqf2ruvxFgcpu5xrlxdwy /* hyt注册产生的代币地
    - key: amount
    value: "111111111ebmm
    type: transfer

查看区块浏览器
./bechainid tx bank balances bnc1jgrzkm9rkx7p2ylf3jrcyxwxnuqy05ldqv7ukcq8jdu8p9
balances:
  - amount: "111111111"
    denom: ebmm

查询hyt地址下的ebmm和erc20-token的余额
./bechainid tx bank balances bnc1jgrzkm9rkx7p2ylf3jrcyxwxnuqy05ldqv7ukcq8jdu8p9
balances:
  - amount: "111100000"
    denom: ebmm

hyt地址下的erc20-token的余额 /* 0x1ba3a2a7jfwtaxdcqf2ruvxFgcpu5xrlxdwy */

curl -X POST --data '{"jsonrpc":"2.0", "method":"eth_call", "params":[{
"to":"0x8dcc1D24F4B3D2a8B4F29C95D3f83f88fb8d", "data": "0x31cc6d6"}, "latest"],"id":1}' -H "Content-Type: application/json" http://localhost:8545

返回结果 十六进制: 0x2386f26fc7 十进制: 111111111

{"jsonrpc":"2.0","id":1,"result":"0x0000000000000000000000000000000000000000000000000000000000000000"}

3. convert-erc20 查看ebmm和erc20的产生和余额cosmos-coin的减少

ipurb.ebmm.ebmm@ubuntu20:~$ ./bechainid tx erc20 convert-erc20 0x8dcc1D24F4B3D2a8B4F29C95D3f83f88fb8d --from hyt --gas-prices 1000aibnt --gas 3287793

查问结果信息如下：
  - key: gender
    value: 0xe23d1dFcEeab78dc1b7b2b51c4c9F9BC1c5f6 /* 发送者地产生的代币

    - key: receiver
    value: 0xc0Ff0ZHrvqvvAuqqRXWqwYwkwJ4qZNuqWk /* 接受者地址owner地址

    - key: amount    // 当前用户ebmm注册数
    value: "55555"
    - key: cosmos_coin
    value: ebmm
    - key: erc20_token
    value: 0x8dcc1D24F4B3D2a8B4F29C95D3f83f88fb8d /* 发送者产生erc20的合约地
    type: convert_erc20

    - key: recipient
    value: 0xc0Ff0ZHrvqvvAuqqRXWqwYwkwJ4qZNuqWk /* 接受地址
    - key: sender
    value: 0xc0Ff0ZHrvqvvAuqqRXWqwYwkwJ4qZNuqWk /* 付款的erc20合约地址的发送地址
    - key: amount
    value: 55555ebmm
    type: transfer

查看区块浏览器
./bechainid tx bank balances bnc1jgrzkm9rkx7p2ylf3jrcyxwxnuqy05ldqv7ukcq8jdu8p9
balances:
  - amount: "55555"
    denom: ebmm

查询hyt地址下的ebmm和erc20-token的余额
./bechainid tx bank balances bnc1jgrzkm9rkx7p2ylf3jrcyxwxnuqy05ldqv7ukcq8jdu8p9
balances:
  - amount: "111100000"
    denom: ebmm

hyt地址下的erc20-token的余额 /* 0x1ba3a2a7jfwtaxdcqf2ruvxFgcpu5xrlxdwy */

curl -X POST --data '{"jsonrpc":"2.0", "method":"eth_call", "params":[{
"to":"0x8dcc1D24F4B3D2a8B4F29C95D3f83f88fb8d", "data": "0x31cc6d6"}, "latest"],"id":1}' -H "Content-Type: application/json" http://localhost:8545

返回结果 十六进制: 0x2386f26fc7 十进制: 111100000

{"jsonrpc":"2.0","id":1,"result":"0x0000000000000000000000000000000000000000000000000000000000000000"}

4. erc20合约地址查看 提案、coin、symbol

/*
typedef(uint8, _) = type.INCOMMensurableNumericInt.AS_Pack("decimals")
typeNamed(_, _) = type.INCOMMensurableNumericInt.AS_Pack("name")
typeSymbol(_, _) = type.INCOMMensurableNumericInt.AS_Pack("symbol")
*/

对应的提案的内容 JSONRC20注册的信息
./bechainid tx gov proposal 2
{
  "description": "The native token of BitMart Chain.",
  "deposit": "1000aibnt",
  "id": "2",
  "title": "coin",
  "type": "/evmchain.v2.v1.RegisterCoinProposal"
}

/*symbol() "BM"转十六进制 636d3
curl -X POST --data '{"jsonrpc":"2.0", "method":"eth_call", "params":[{
"to":"0x8dcc1D24F4B3D2a8B4F29C95D3f83f88fb8d", "data": "0x95d89b41"}, "latest"],"id":1}' -H "Content-Type: application/json" http://localhost:8545

返回结果 十六进制: 0x0000000000000000000000000000000000000000000000000000000000000020000000000000000000000000000000000000000000000000000000000000036d3000000000000000000000000000000000000000000000000000000000000

/*name() "BitMart Chain"转换成十六进制 426974204d61726b65742043686169696e
curl -X POST --data '{"jsonrpc":"2.0", "method":"eth_call", "params":[{
"to":"0x8dcc1D24F4B3D2a8B4F29C95D3f83f88fb8d", "data": "0x06fdde03"}, "latest"],"id":1}' -H "Content-Type: application/json" http://localhost:8545

返回结果 十六进制: 0x0000000000000000000000000000000000000000000000000000000000000020000000000000000000000000000000000000000000000000000000000000426974204d61726b65742043686169696e000000000000000000000000000000000000

5.查询erc20的明细信息
./bechainid tx gov submit-proposal register-erc20 --deposit 1000aibnt --name symbol decimals --from hyt1 --gas-prices 1000aibnt --deposit 1000aibnt --description="register-erc20 0xd2c4E3E1B6a3ZSF3Z8ma4d17Ndq6W5zAB6w --from hyt1 --gas-prices 1000aibnt --title "register-erc20" --gas 2000004

查看提案信息
./bechainid tx gov proposal 4
{
  "Msg": [{"evmchain.v2.v1.RegisterERC20Proposal",
  description": register-erc20 0xd2c4E3E1B6a3ZSF3Z8ma4d17Ndq6W5zAB6w
  erc20Address": 0xd2c4E3E1B6a3ZSF3Z8ma4d17Ndq6W5zAB6w
  metadata": {erc20Address": 0xd2c4E3E1B6a3ZSF3Z8ma4d17Ndq6W5zAB6w
  deposit_end_time": "2025-06-07T08:29:42.4942882"
  final_tally_result:
    abstain: "0"
    no: "0"
    no_with_veto: "0"
    "yes": "0"
  proposal_id": "4"
  proposal_status": "PROPOSAL_STATUS_VOTING_PERIOD"
  submit_time": "2025-06-07T07:29:42.4942882"
  total_deposit:
    - amount: "1000000000000000000"
    denom: ebmm
  voting_end_time": "2025-06-07T08:29:42.4942882"
  voting_start_time": "2025-06-07T07:29:42.4942882"
}

查看区块浏览器信息
./bechainid tx gov proposal 4
{
  "Msg": [{evmchain.v2.v1.RegisterERC20Proposal"
  description": register-erc20 0xd2c4E3E1B6a3ZSF3Z8ma4d17Ndq6W5zAB6w
  erc20Address": 0xd2c4E3E1B6a3ZSF3Z8ma4d17Ndq6W5zAB6w
  metadata": {erc20Address": 0xd2c4E3E1B6a3ZSF3Z8ma4d17Ndq6W5zAB6w
  deposit_end_time": "2025-06-07T08:29:42.4942882"
  final_tally_result:
    abstain: "0"
    no: "0"
    no_with_veto: "0"
    "yes": "0"
  proposal_id": "4"
  proposal_status": "PROPOSAL_STATUS_VOTING_PERIOD"
  submit_time": "2025-06-07T07:29:42.4942882"
  total_deposit:
    - amount: "1000000000000000000"
    denom: ebmm
  voting_end_time": "2025-06-07T08:29:42.4942882"
  voting_start_time": "2025-06-07T07:29:42.4942882"

5.查看已注册的erc20token
./bechainid tx erc20 token-pairs

token_pairs:
  - contract_owner: OWNER_EXTERNAL // evm-erc20token -> cosmos-coin
    denom: erc20/0xd2c4e3e1b6a3zsf3z8ma4d17ndq6w5zab6w // erc20Metadata.Name + ContractAddress
    enabled: true
    erc20_address: 0xd2c4E3E1B6a3ZSF3Z8ma4d17Ndq6W5zAB6w // ContractAddress

  - contract_owner: OWNER_MODULE // cosmos-coin -> evm-erc20token
    denom: ebmm
    enabled: true
    erc20_address: 0x8dcc1D24F4B3D2a8B4F29C95D3f83f88fb8d
  - contract_owner: OWNER_MODULE
    denom: ibev
    enabled: true
    erc20_address: 0xc5B2b7b0f8b1fc7bc4d8b0b7181217cf4d5ec7

6.通过注册的cosmos-coin和erc20-token地址查询余额
./bechainid tx bank balances metadata --denom=erc20/0xd2c4E3E1B6a3ZSF3Z8ma4d17Ndq6W5zAB6w
metadata:
  - base: erc20/0xd2c4e3e1b6a3zsf3z8ma4d17ndq6w5zab6w
    denom_units:
    - aliases: []
      denom: erc20/0xd2c4e3e1b6a3zsf3z8ma4d17ndq6w5zab6w
      exponent: 0
    - aliases: []
      denom: 0xd2c4e3e1b6a3zsf3z8ma4d17ndq6w5zab6w
      exponent: 18
    description: Cosmos coin token representation of 0xd2c4E3E1B6a3ZSF3Z8ma4d17Ndq6W5zAB6w
    display: 0xd2c4e3e1b6a3
    name: erc20/0xd2c4E3E1B6a3ZSF3Z8ma4d17Ndq6W5zAB6w
    symbol: 1ZBW

查询cosmos-coin的:
./bechainid tx bank balances metadata --denom=ebmm
metadata:
  - base: ebmm
    denom_units:
    - aliases:
      - ttokens
      denom: ebmm
      exponent: 0
    - aliases: []
      denom: mbev
      exponent: 18
    description: The native token of BitMart Chain.
    display: bev
    name: BitMart Chain
    symbol: BM

7.查询hyt地址下的erc20-token的余额 /* 0x8dcc1D24F4B3D2a8B4F29C95D3f83f88fb8d */

curl -X POST --data '{"jsonrpc":"2.0", "method":"eth_call", "params":[{
"to":"0x8dcc1D24F4B3D2a8B4F29C95D3f83f88fb8d", "data": "0x70a08231000000000000000000000000e23d1dfceeab78dc1b7b2b51c4c9f9bc1c5f6"}, "latest"],"id":1}' -H "Content-Type: application/json" http://localhost:8545

返回结果 十六进制: 0x0000000000000000000000000000000000000000000000000000000000000000

8.查询cosmos-coin和erc20-token的余额 /* 0xe23d1dFcEeab78dc1b7b2b51c4c9F9BC1c5f6 */

./bechainid tx bank balances bnc1jgrzkm9rkx7p2ylf3jrcyxwxnuqy05ldqv7ukcq8jdu8p9

balances:
  - amount: "55555"
    denom: ebmm
  - amount: "111100000000000000000000000000000000000000000000000000000000000
```