

# INK TOKEN CROSS-CHAIN TRANSFER GUIDE

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# **DECLARATION**

1. Ink Labs Foundation does not recommend beginner users to follow this guide for INK token cross-chain transfer as it requires users to have advance knowledge of blockchain development. Beginner users are recommended to perform cross-chain transfer on our partner exchange platform.

Partnered Exchange: <a href="https://gate.io/">https://gate.io/</a> <a href="https://gate.io/">https://gate.io/</a> <a href="https://gate.io/">https://gate.io/</a>

- 2. Please read <INK Token Cross-chain Transfer Guide> and make sure to complete the preliminary requirements before proceeding the transfer.
- 3. The minimum amount for a single cross-chain token transfer is 10000 INK.
- 4. Ink Labs Foundation will assume no responsibility for issues, such as token loss, token cross-chain transfer failure and token abnormal state, that are caused by users who do not follow the <INK Token Cross-chain Transfer Guide>



# **Preparatory Work**

This file guides users to perform INK token transfer between Qtum, INKchain, and Ethereum through existing wallet and some other tools.



#### Qtum

#### Wallet

#### https://qtumeco.io/wallet



Note: This file uses Qtum Core as an example, while users can choose any other wallets which support Qtum contract.

## **Explorer**

https://explorer.qtum.org or https://qtum.info

#### **Contract Information**

INK Token Address. fe59cbc1704e89a698571413a81f0de9d8f00c69

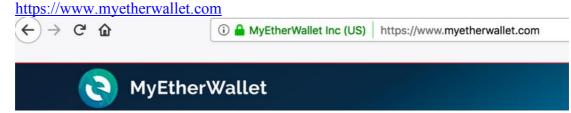
XCPlugin Address. a86608f3bd6e65e7ecd2f473735191756abab48e



XC Address. 494feee4a07450102799ffe179ea3d2eca8d1a9b

#### Ethereum

#### Wallet



Note: This file uses MyEtherWallet as an example, while users can choose any other wallets which support Ethereum contract.

## **Explorer**

https://etherscan.io

#### **Contract Information**

INK Token Address. 0xf4c90e18727c5c76499ea6369c856a6d61d3e92e

XCPlugin Address. 0x15782cc68d841416f73e8f352f27cc1bc5e76e11

XC Address. 0x28f1135e43e61ebf303c8f1f9beef4f6a00dcb34

#### **INKchain**







#### **Create New Account**

Enter the cross-chain transfer page of INK chain Explorer:

#### 1.User Notification:

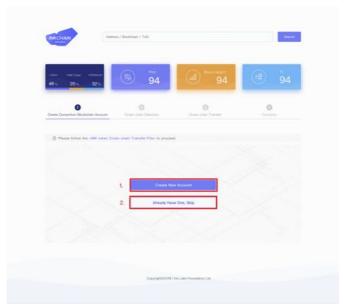
After entering the cross-chain transfer page of INKCHAIN EXPLORER, you will see the Cross-Chain Operation Guide on the homepage. Please read the guide carefully before proceeding the transfer.

We provide access to "File Download" and "Proceed to Cross-chain Operation", as shown below.



#### 2. Create New Account

Before proceeding cross-chain operation, you must have your own Ink account. If you don't have an account yet, click "Create New Account". If you already have one, click "Already Have One, Skip".



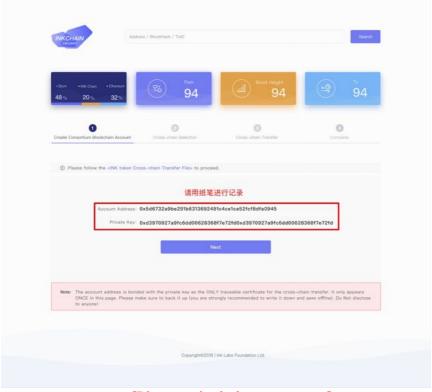


Click "Create New Account," there will be a prompt reminding you to write down the private key and account address (not recommended to use the screenshot or online notebook as backup). After 10 seconds, you will receive your account address and private key.



[User notifications, please read carefully]

This page will display your account address and private key. You are strongly recommended to write them down on paper.



[Please write it down on paper]



Please double-check that you have saved your INK consortium blockchain address and private key offline. Click 'I have read...' to proceed to the cross-chain operation page.



[After confirmation, proceed to cross-chain selection]

## **Account Enquiry**

...

# **Cross-chain Transfer**

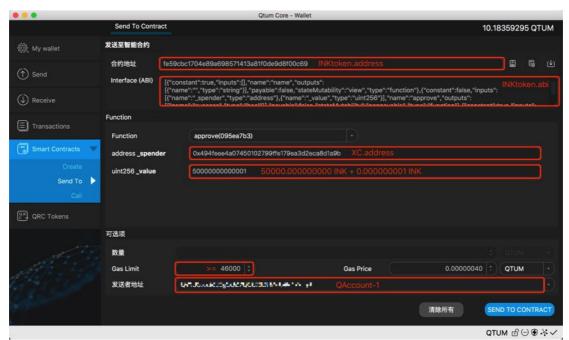
Qtum

#### Cross-chain transfer out

Qtum account "QAccount-1" transfers 50000 000000000 (50,000 INK tokens) to INKchain account "IAccount-1"

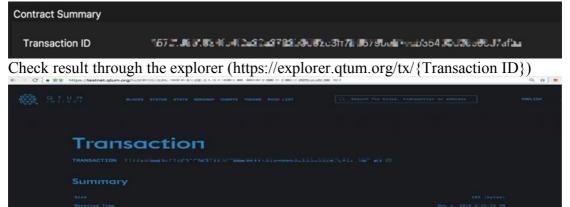


 QAccount-1 approves transfer amount to XC contract. It requires extra
 0.000000001 INKtoken (50000.000000001 totally) due to the function limit of INKtoken contract



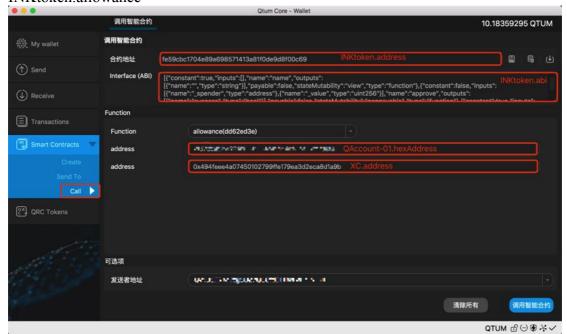
[发送至智能合约:Send to Smart Contract 合约地址:Contract Address 可选项:Optional 数量:Amount 发送者地址:Sender Address]

Click SEND TO CONTRACT, you will receive the Transaction ID as shown below:





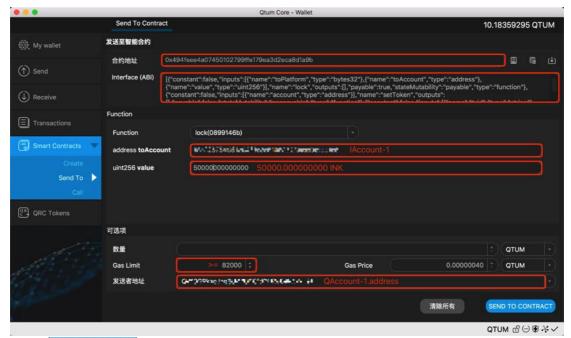
If the result is "Success", you can check the approved amount through INKtoken.allowance



(调用智能合约: Call Contract 清除所有: Clear)

click 调用智能合约 "Call Contract" to check result.

2. Start a cross-chain transfer-out transaction (lock)

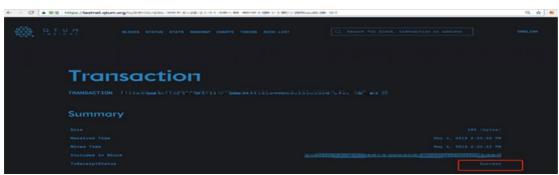


Click SEND TO CONTRACT, you will receive your Transaction ID as shown below:

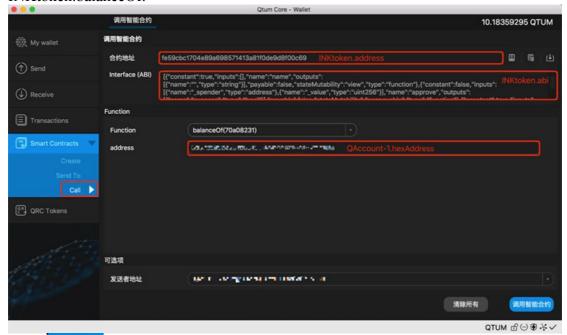


Check result through the explorer (https://explorer.qtum.org/tx/{Transaction ID})





If the result is "Success", you can check the balance of QAccount-1through INKtoken.balanceOf.



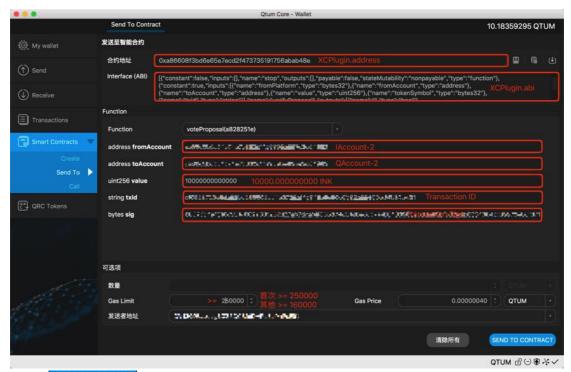
Click 调用智能合约 (Call Contract) to check result.

## **Cross-Chain Transfer In**

INKchain account IAccount-2 transfers 10000 000000000 INKtokens (10,000 INKtokens) to Qtum account QAccount-2, which requires users to collect enough Transaction Signs.



#### 1. Start a voteProposal



Click SEND TO CONTRACT to acquire Transaction ID, shown as below:

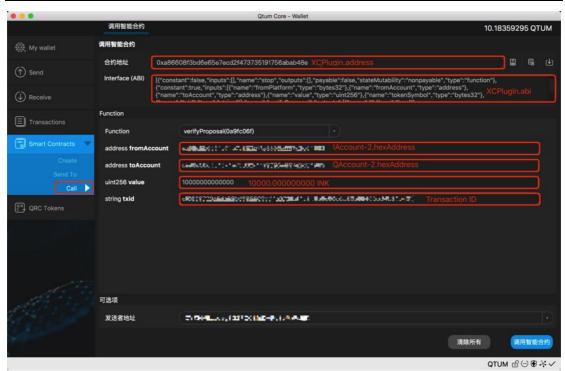


Check result through the explorer (https://explorer.qtum.org/tx/{Transaction ID})



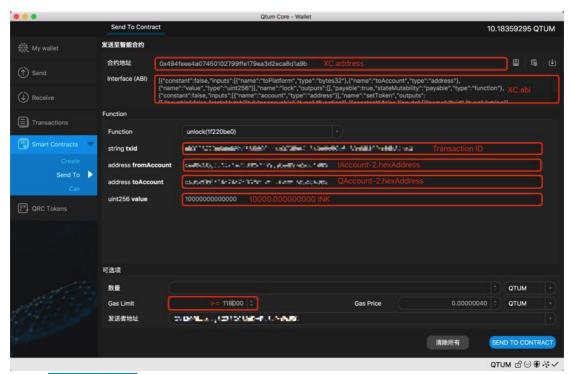
If the result is "Success" (after "n" votes), you can check the voting result (whether or not the transaction is approved) through XCPlugin.verifyProposal.





If the resule is (false, true), you can proceed transfer-in operation. The first bool result is whether the transfer-in operation is completed, and the second bool result is whether the vote proposal is effective.

#### 2) Cross-chain Transfer-In Operation (unlock)



Click SEND TO CONTRACT to acquire Transaction ID, shown as below:

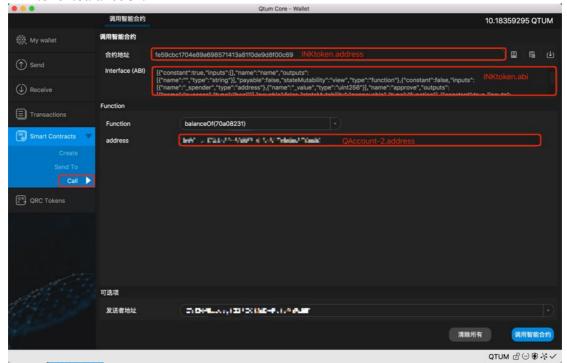


Check result through the explorer (https://explorer.qtum.org/tx/{Transaction ID})





If the result is "Success", you can check the balance change of QAccount-2 through INKtoken.balanceOf.



Click 调用智能合约 (Call Contract) to check result.

#### Ethereum

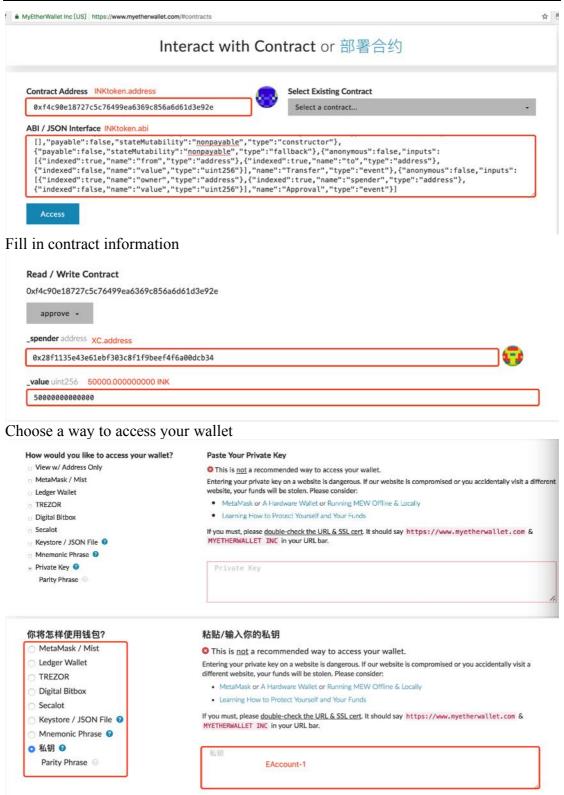
#### **Cross-Chain Transfer Out**

Ethereum account EAccount-1 transfers 50000.00000000 INK tokens to INKchain account IAccount-1

1) EAccount-1 approves XC contract the transfer amount

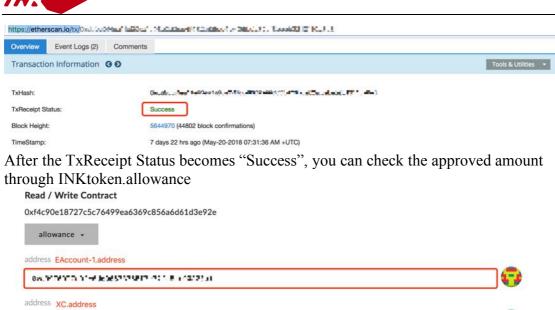
Enter <a href="https://www.myetherwallet.com/#contracts">https://www.myetherwallet.com/#contracts</a> to add contract information





After unlocking the wallet, click to acquire Transaction ID, and you can check result through explorer (https://etherscan.io/tx/{Transaction ID})





Click READ to check result

0x28f1135e43e61ebf303c8f1f9beef4f6a00dcb34

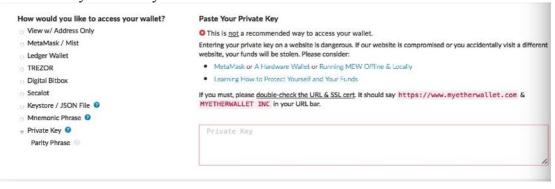
#### 2) Start a cross-chain transfer-out transaction (lock)



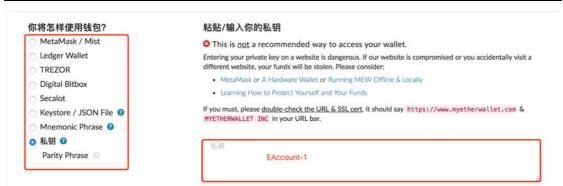
#### Fill in contract information



#### Choose a way to access your wallet







After unlocking the wallet, click to acquire Transaction ID , and you can check result through explorer (https://etherscan.io/tx/ $\{Transaction\ ID\}$ )

Tools & Utilities 💌
Omab
Success
5644970 (44802 block confirmations)
7 days 22 hrs ago (May-20-2018 07:31:36 AM +UTC)

After the TxReceipt Status becomes "Success", you can check the INK token balance of EAccount-1 through INKtoken.balanceOf.



Click READ to check result.

#### **Cross-Chain Transfer In**

INK chain account IAccount-2 transfers 10000 00000000 (10000 INK tokens) to Ethereum account EAccount-2, which requires users to collect enough Transaction Signs

#### 1. Start a voteProposal

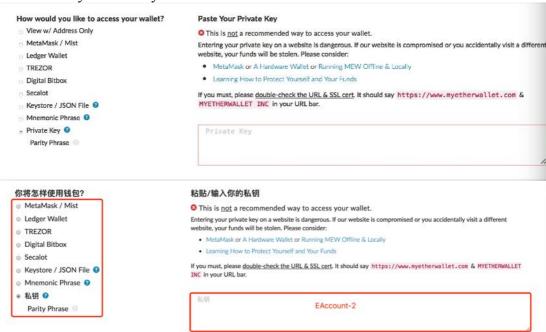




#### Fill in contract information



#### Choose a way to access your wallet



After unlocking the wallet, click to acquire Transaction ID , and you can check result through explorer (https://etherscan.io/tx/ $\{Transaction\ ID\}$ )



If the result is "Success" (after "n" votes), you can check the voting result (whether or not the transaction is approved) through XCPlugin.verifyProposal.





When the result of "Call Contract" is (false 'true), you can proceed transfer-in operation. The first bool result is whether the transfer-in operation is completed, and the second bool result is whether the vote proposal is effective.

You can proceed to cross-chain transfer-in transaction after collecting enough Transaction Signs

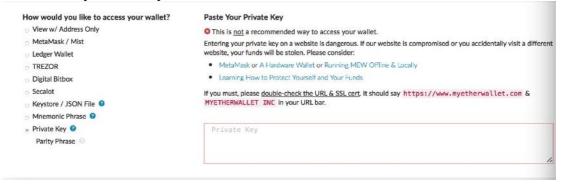
#### 2) Cross-chain Transfer-in (unlock)



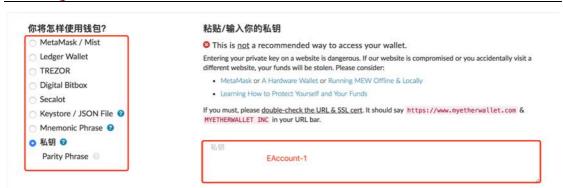
#### Fill in relevant information



#### Choose a way to access your wallet







After unlocking the wallet, click write to acquire Transaction ID , and you can check result through explorer (https://etherscan.io/tx/ $\{Transaction\ ID\}$ )



After the TxReceipt Status becomes "Success", you can check the INK token balance of EAccount-2 through INKtoken.balanceOf.

**INKchain** 

#### **Cross-chain Transfer Out**

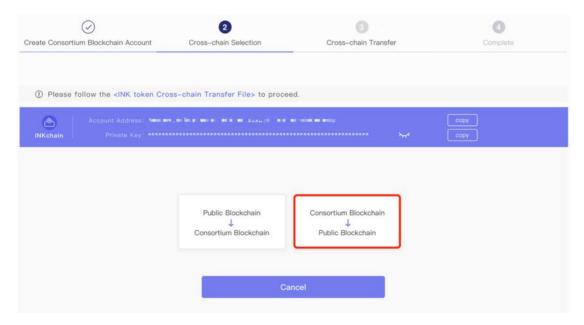
INK chain account IAccount-2 transfers 10000.00000000 INK tokens to Qtum account QAccount-2, which requires users to collect enough Transaction Signs

1) Creat INKchain Account

. . .



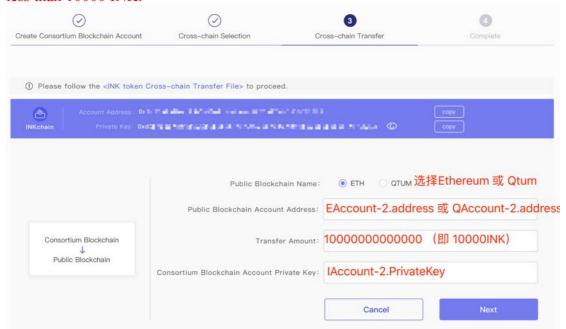
#### 2) Select "Consortium Blockchain => Public Blockchain"



#### 3) Fill in relevant information to proceed transfer-in

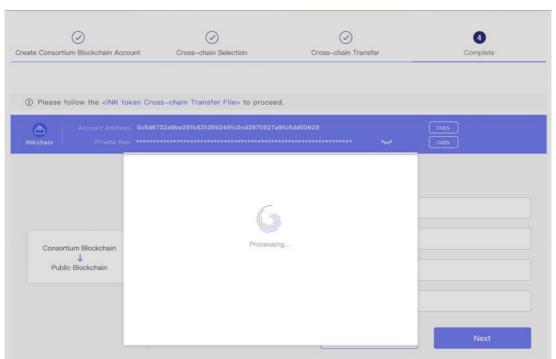
On the information input page, enter the transfer information: including the selection of the public blockchain, the public blockchain account address, the transaction amount, and private key of the consortium blockchain account. To improve your user experience, we will display the address and private key of your INKchain wallet at the top of the page.

Note: We are not supporting any cross-chain transactions with transfer amount of less than 10000 INK.

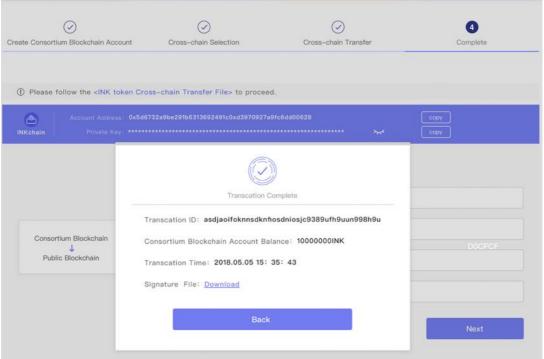


Click "Next" to check if the filled information is correct. During this checking period, there will be a popup showing process.



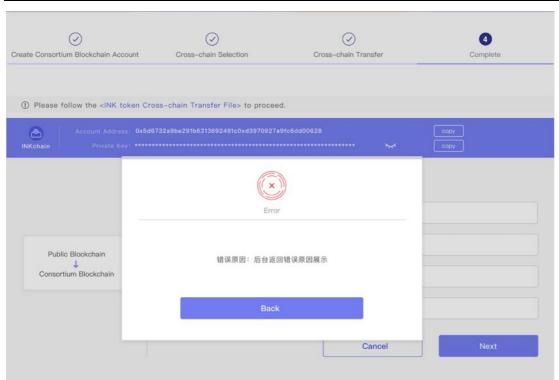


If the transfer is successful, the popup will show your transaction information, including the TxID, transaction amount, transaction time, and signature file, shown as below:



If cross-chain failed, the popup will show the error cause.





[错误原因:后台返回错误原因展示 Cause of the error: Back to the backstage for error cause ]

4) Check the transfer amount of INK token through INKchain EXPLORER

. . .

#### **Cross-chain Transfer In**

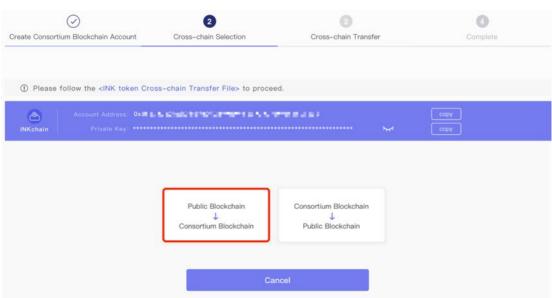
Qtum (Ethereum) account QAccount-1 (EAccount-1) transfers 50000 000000000 (50,000 INK tokens) to INKchain account IAccount-1.

1) Creat INKchain account

. . .

2) Select Public Blockchain => Consortium Blockchain

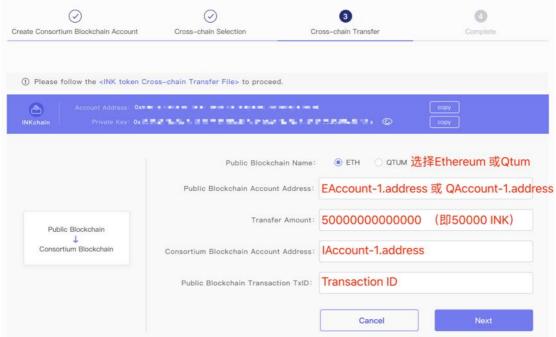




#### 3) Fill in relevant information to proceed transfer-in

On the information input page, enter the transfer-in information: including the selection of the public blockchain, the public blockchain account address, the transactions amount, consortium blockchain account address, and consortium blockchain TxID. To improve your user experience, we will display the address and private key of your INKchain wallet at the top of the page.

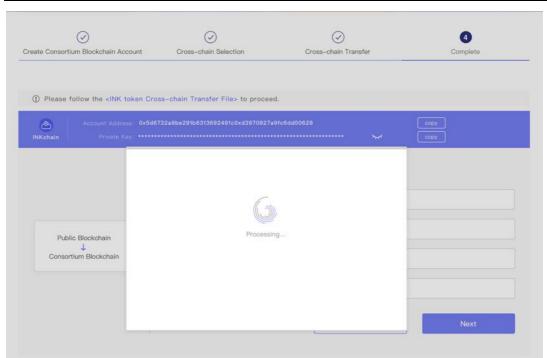
Note: We are not supporting any cross-chain transactions with transfer amount of less than 10000 INK.



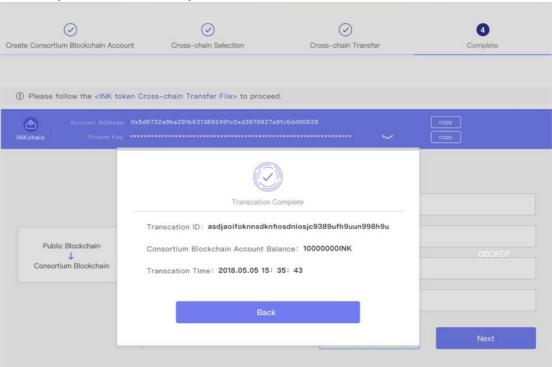
[Choose Ethereum or Qtum]

Click "Next" to check if the filled information is correct. During this checking period, there will be a popup showing process.



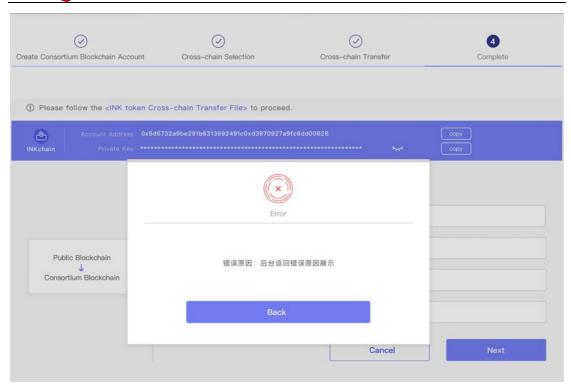


If the transfer is successful, the popup will show your transaction information, including the TxID, transaction amount, and transaction time.



If cross-chain failed, the popup will show the error cause.





4) Check the transfer-in amount of INKtoken through INKchain EXPLORER

...

# **Appendix**

## Recommended gaslimit list

Contract	Function	Gaslimit
Token	approve	>= 46000
XCPlugin	voteProposal	>= 250000 for the first transaction >= 150000 for non-first
XC	lock	>= 82000
XC	unlock	>= 118000

#### **ABI**

#### **Ethereum Contract ABI**

#### INK Token ABI

```
[{"constant":true, "inputs":[], "name": "name", "outputs":[{"name": "", "type": "string"}], "payable":false, "stateMutability": "view", "type": "function"}, {"constant": "view", "type": "function"}, {"constant "view", "type"}, {"c
```



tant":false,"inputs":[{"name":"\_spender","type":"address"},{"name":"\_value"
,"type":"uint256"}],"name":"approve","outputs":[{"name":"success","type":"b ool"}],"payable":false,"stateMutability":"nonpayable","type":"function"},{" constant":true,"inputs":[],"name":"totalSupply","outputs":[{"name":"","type
":"uint256"}],"payable":false,"stateMutability":"view","type":"function"},{ "constant":false, "inputs":[{"name":"\_from", "type": "address"}, {"name": "\_to", "type": "address"}, { "name": "\_value", "type": "uint256"}], "name": "transferFrom" "outputs":[{"name":"success","type":"bool"}],"payable":false,"stateMutabil ity":"nonpayable","type":"function"},{"constant":true,"inputs":[],"name":"d ecimals", "outputs":[{"name":"", "type":"uint8"}], "payable":false, "stateMutab ility":"view","type":"function"},{"constant":true,"inputs":[{"name":"\_owner ant":false,"inputs":[{"name":"\_to","type":"address"},{"name":"\_value","type ":"uint256"}], "name": "transfer", "outputs": [{"name": "success", "type": "bool"} ], "payable": false, "stateMutability": "nonpayable", "type": "function"}, {"const ant":true, "inputs":[{"name":"\_owner", "type":"address"}, {"name":"\_spender", "type":"address"}], "name":"allowance", "outputs":[{"name":"remaining", "type": "uint256"}], "payable": false, "stateMutability": "view", "type": "function"}, {"i nputs":[],"payable":false,"stateMutability":"nonpayable","type":"constructo r"},{"anonymous":false, "inputs":[{"indexed":true, "name":"\_from", "type":"add ress"},{"indexed":true, "name":"\_to", "type":"address"},{"indexed":false, "name e":"\_value", "type":"uint256"}], "name":"Transfer", "type":"event"},{"anonymou s":false, "inputs":[{"indexed":true, "name":"\_owner", "type":"address"},{"indexed":true, "name":"\_value", "type":"address"},{"indexed":false, "name":"\_value", "name":"\_value", "type":"address", "type":"addr ue","type":"uint256"}],"name":"Approval","type":"event"}]

#### XCPlugin ABI

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rm","outputs":[{"name":"name","type":"bytes32"}],"payable":false,"stateMuta bility":"view","type":"function"},{"constant":false,"inputs":[{"name":"from Account", "type": "address"}, { "name": "toAccount", "type": "address"}, { "name": "v alue","type":"uint256"},{"name":"txid","type":"string"},{"name":"sig","type ":"bytes"}], "name": "voteProposal", "outputs":[], "payable":false, "stateMutabi lity":"nonpayable","type":"function"},{"constant":true,"inputs":[],"name":" getStatus","outputs":[{"name":"","type":"bool"}],"payable":false,"stateMuta bility":"view","type":"function"},{"constant":true,"inputs":[],"name":"coun tOfPublicKey","outputs":[{"name":"","type":"uint256"}],"payable":false,"sta teMutability":"view", "type":"function"}, {"constant":true, "inputs":[{"name": "publicKey", "type": "address"}], "name": "existPublicKey", "outputs": [{"name": " ","type":"bool"}],"payable":false,"stateMutability":"view","type":"function



"},{"constant":false,"inputs":[{"name":"txid","type":"string"}],"name":"del eteProposal","outputs":[],"payable":false,"stateMutability":"nonpayable","t ype":"function"},{"constant":true,"inputs":[],"name":"getAdmin","outputs":[{"name":"","type":"address"}],"payable":false,"stateMutability":"view","typ e":"function"},{"constant":false,"inputs":[{"name":"account","type":"addres s"}], "name": "setAdmin", "outputs":[], "payable": false, "stateMutability": "nonp ayable", "type": "function"}, {"constant": false, "inputs": [{"name": "caller", "ty pe":"address"}],"name":"addCaller","outputs":[],"payable":false,"stateMutab ility":"nonpayable","type":"function"},{"constant":true,"inputs":[{"name":" caller","type":"address"}],"name":"existCaller","outputs":[{"name":"","type ":"bool"}], "payable":false, "stateMutability": "view", "type": "function"}, {"co nstant":false, "inputs":[{"name":"txid", "type":"string"}], "name":"commitProp osal", "outputs":[{"name":"", "type":"bool"}], "payable":false, "stateMutabilit y":"nonpayable", "type":"function"}, {"constant":true, "inputs":[], "name":"get Weight", "outputs":[{"name":"", "type":"uint256"}], "payable":false, "stateMuta bility":"view","type":"function"},{"constant":false,"inputs":[],"name":"sta rt","outputs":[],"payable":false,"stateMutability":"nonpayable","type":"fun ction"},{"constant":false,"inputs":[{"name":"publicKey","type":"address"}], "name": "addPublicKey", "outputs":[], "payable":false, "stateMutability": "nonpa yable","type":"function"},{"constant":true,"inputs":[],"name":"getPlatformN
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#### XC ABI

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me":"","type":"address"}],"payable":false,"stateMutability":"view","type":" function"},{"constant":false,"inputs":[{"name":"toAccount","type":"address" },{"name":"value","type":"uint256"}],"name":"lock","outputs":[],"payable":f alse,"stateMutability":"nonpayable","type":"function"},{"constant":false,"i nputs":[{"name":"status","type":"uint8"}],"name":"setStatus","outputs":[]," payable":false, "stateMutability": "nonpayable", "type": "function"}, {"constant ":true, "inputs":[], "name": "getXCPlugin", "outputs":[{"name":"", "type": "addre ss"}], "payable":false, "stateMutability": "view", "type": "function"}, {"constant":true, "inputs":[], "name": "getStatus", "outputs":[{"name":"", "type": "uint8" }],"payable":false,"stateMutability":"view","type":"function"},{"constant":
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ue,"inputs":[],"name":"lockBalance","outputs":[{"name":"","type":"uint256"}
],"payable":false,"stateMutability":"view","type":"function"},{"constant":false,"inputs":[{"name":"account","type":"address"},{"name":"value","type":"uint256"}],"name":"withdraw","outputs":[],"payable":false,"stateMutability":"nonpayable","type":"function"},{"inputs":[],"payable":false,"stateMutability":"nonpayable","type":"constructor"},{"anonymous":false,"inputs":[{"indexed":false,"name":"toPlatform","type":"bytes32"},{"indexed":false,"name":"toAccount","type":"address"},{"indexed":false,"name":"tokenSymbol","type":"bytes32"}],"name":"Lock","type":"event"},{"anonymous":false,"inputs":[{"indexed":false,"name":"txid","type":"string"},{"indexed":false,"name":"fromPlatform","type":"bytes32"},{"indexed":false,"name":"tokenSymbol","type":"bytes32"},{"indexed":false,"name":"tokenSymbol","type":"bytes32"},{"indexed":false,"name":"tokenSymbol","type":"bytes32"}],"name":"Unlock","type":"event"}]

#### **Otum Contract ABI**

#### **INK Token ABI**

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#### XCPlugin ABI

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#### XC ABI

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