How to use Stellar Documentation

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Oct 03, 2018

Contents

The goal of this documentation is to guide you to build transactions, sign them, and submit them to the network.

Contents

1.1 Accounts

1.1.1 Create an account

https://www.stellar.org/laboratory/#account-creator This is a web tool that allows you to create and fund accounts. It will also allow you to fund that account on the testnet.

Click to **Generate keypair**:

1. Keypair generator

These keypairs can be used on the Triam network where one is required. For example, it can be used as an account master key, account signer, and/or as a triam-core node key.

Generate keypair

An account is just a **public/private** keypair, like so:

1. Keypair generator

These keypairs can be used on the Triam network where one is required. For example, it can be used as an account master key, account signer, and/or as a triam-core node key.

Generate keypair

Public Key	GCO4G7VSFMP3JVZV6SPUEW5JZCOKSN6MWAWZJZK5ODMH6CHM4W3JQ45X
Secret Key	SBXF5CIUKLDSJNZDUMPXRWMOBLN3BKBJDY6PYXAKSXW4S7S6PBNENJSJ

Account access is controlled by public/private key cryptography. For an account to perform a transaction–e.g., make a payment–the transaction must be signed by the private key that corresponds to that account's public key.

1.1.2 Friendbot: fund a test network account

Make sure that you have "test" selected in the upper right. This is critical!

| test | public |

https://testnet-horizon.arm-system-holdings.com

Then fund it, like so:

2. Friendbot: Fund a test network account

The friendbot is a horizon API endpoint that will fund an account with 10,000 RIA on the test network.

GCO4G7VSFMP3JVZV6SPUEW5JZCOKSN6MWAWZJZK5ODMH6CHM4W3JQ45X

Get test network RIA

Successfully funded GCO4G7VSFMP3JVZV6SPUEW5JZCOKSN6MWAWZJZK5ODMH6CHM4W3JQ45X on the test network

1.1.3 Check balances of an account

Go to Endpoint Explorer

Introduction   Account Creator   Endpoint Explorer   Transaction Builder   Transaction Signer   XDR Viewer

This tool can be used to run queries against the REST API endpoints on the Horizon server. Horizon is the client facing library for the Triam ecosystem.

1. Select a resource   2. Select an endpoint

Accounts
Assets
Effects
Ledger
Offers
Operations
Order Book
Paths
Trade Aggregations
Trades
Payments
Transactions

Single Account

Single Account ⍰

Account ID	GCRGL3FL7XGBGEQDHF3QN5VFYTK2FDIYY3TVDOB7CHRPJV23GWSA2IBV

☐ Server-Sent Events (streaming) mode ⍰

GET https://testnet-horizon.triamnetwork.com/accounts/GCRGL3FL7XGBGEQDHF3QN5VFYTK2FDIYY3TVDOB7CHRPJV23GWSA2IBV

Submit

```
},
"balances": [
  {
    "balance": "20.0000000",
    "limit": "1000.0000000",
    "asset_type": "credit_alphanum4",
    "asset_code": "TEC",
    "asset_issuer": "GDEOWSTRKOKKZYGFSACSCXKONNB6W7V4ZEPBW7H7DUXJ3Y7ZJHYDBHZQ"
  },
  {
    "balance": "999.9990000",
    "asset_type": "native"
  }
],
```

1.2 Transactions

1.2.1 Active an account

This operation creates and funds a new account with the specified starting balance.

Go to Transaction Builder, this is what that operation looks like:

- **Source Account**: Your public address
- **Operation Type**: Create Account
- **Destination**: New public key that you want to create
- **Starting Balance**: e.g. 40

Source Account ⓘ	GCMEG42CGJTXMTIEP5IERFG7X4VSVTA4VZBJHQ7XW2

If you don't have an account yet, you can create and fund a test net account with the account creator.

Transaction Sequence Number ⓘ	4750817944928260

The transaction sequence number is usually one higher than current account sequence number.

Fetch next sequence number for account starting with "GCMEG42CGJ"

Base Fee ⓘ (optional)	10000

Memo ⓘ (optional)	None Text ID Hash Return

Time Bounds ⓘ (optional)	Lower time bound unix timestamp. Example: 147915171
	Upper time bound unix timestamp. Example: 14791517

Enter unix timestamp values of time bounds when this transaction will be valid.

1

Operation Type ⓘ	Create Account ▾

Creates and funds a new account with the specified starting balance.

See documentation for Create Account

Destination	GAW7MCHSQMTNFLTCEN2E7LKDUD4IP2GTMZX...

Starting Balance	40

Then sign transaction with your private key:

Signatures ❓

Add Signer	SAKLFIFRMO6ZW2~~...~~
	Secret key (starting with S) or hash preimage (in hex)

Ledger Wallet	44'/148'/0'
	Sign with BIP Path

Transaction signed!
1 signature(s) added; 1 signature(s) total

AAAAAJhDc0IyZ3ZNBH9QSJTfvysqzByuQpPD97azLmcEi5gkAAAnEAAQ4NgAAAAEAAAAAAAAAAAAAABAAAAAAAAAAAAAALf
YI8oMm0q5iI3RPrUOg+Ifo02Zuywv+rb7MuRK0ugcAAAAAF9eEAAAAAAAAAABBIuYJAAAAEAKygPDdXMCoxUDbjuojHGXPSvh
XOCA8WH6x0JkW9F3NkhLhfXuNII92Ur9AWc0J899/VtWrQyf1kpMxThkGiMA

Now that this transaction is signed, you can submit it to the network. Horizon provides an endpoint called Post Transaction that will relay your transaction to the network and inform you of the result.

Submit to Post Transaction endpoint **View in XDR Viewer**

If all goes well, you'll see a successful transaction like so:

Post Transaction ⓘ

Transaction Envelope XDR

AAAAAJhDcOIyZ3ZNBH9QSJTfvysqzByuQpPD97azLmcEi5gkAAAnEAAQ4NgAAAAEAAAAAAAAA AAAAABAAAAAAAAAAAAAAAALfYI8oMm0q5iI3RPrUOg+Ifo02Zuywv+rb7MuRKOugcAAAAAF9eE AAAAAAAAAABBIuYJAAAAEAKygPDdXMCoxUDbjuojHGXPSvhXOCA8WH6xOJkW9F3NkhLhfXuNI I92Ur9AWc0J899/VtWrQyf1kpMxThkGiMA

POST   https://testnet-horizon.triamnetwork.com/transactions

tx=AAAAAJhDcOIyZ3ZNBH9QSJTfvysqzByuQpPD97azLmcEi5gkAAAnEAAQ4NgAAAAEAAAAAAAAAAAAAAAABAAAAAAAAAAAAAAAALfY I8oMm0q5iI3RPrUOg%2BIfo02Zuywv%2Brb7MuRKOugcAAAAAF9eEAAAAAAAAAABBIuYJAAAAEAKygPDdXMCoxUDbjuojHGXPSvhX OCA8WH6xOJkW9F3NkhLhfXuNII92Ur9AWc0J899%2FVtWrQyf1kpMxThkGiMA

Submit

JSON Response

{
  "_links": {
    "transaction": {
      "href": "http://13.251.6.120:8000/transactions/7a8a77f1ddb4e86cc3820aa4516299ce871fe157
    }
  },
  "hash": "7a8a77f1ddb4e86cc3820aa4516299ce871fe15788d9bb3c6c70919b33ac3d00",
  "ledger": 1195268,
  "envelope_xdr": "AAAAAJhDcOIyZ3ZNBH9QSJTfvysqzByuQpPD97azLmcEi5gkAAAnEAAQ4NgAAAAEAAAAAAAAA
  "result_xdr": "AAAAAAAAJxAAAAAAAAAAQAAAAAAAAAAAAAAAAA=",
  "result_meta_xdr": "AAAAAAAAAEAAAACAAAAAASPQQAAAAAAAAC32CPKDJtKuYiN0T61DoPiH6NNmbssL/q2
}

Now you can check the balance of new user here

1.2.2 Send and Receive Money

Now that you have an account, you can send and receive funds through the Triam network. If you haven't created an account yet, please follow this.

Most of the time, you'll be sending money to someone else who has their own account.

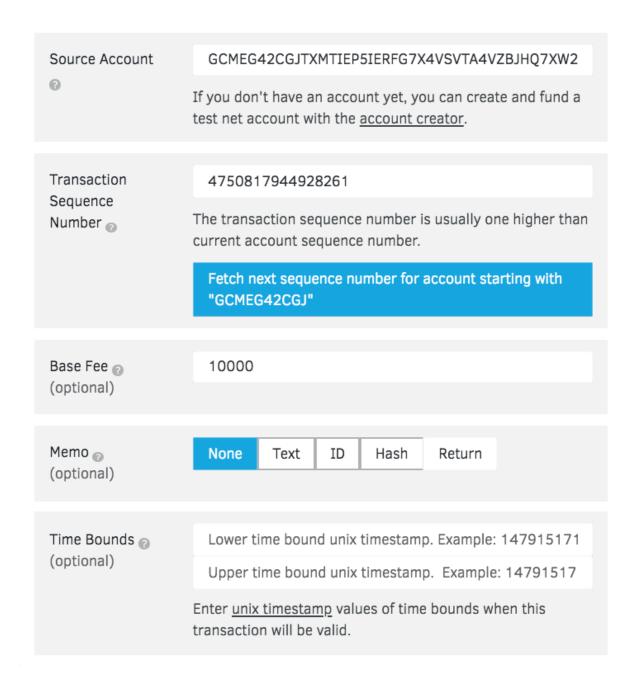Go to Transaction Builder, this is what that operation looks like:

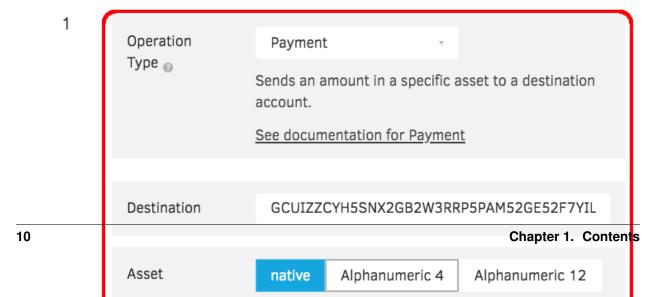- **Source Account**: Your public address
- **Operation Type**: Payment
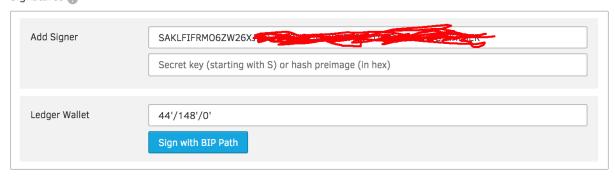- **Destination**: Your destination public address
- **Asset**: Native
- **Amount**: e.g. 20

Source Account ⑦

GCMEG42CGJTXMTIEP5IERFG7X4VSVTA4VZBJHQ7XW2

If you don't have an account yet, you can create and fund a test net account with the account creator.

Transaction Sequence Number ⑦

4750817944928261

The transaction sequence number is usually one higher than current account sequence number.

Fetch next sequence number for account starting with "GCMEG42CGJ"

Base Fee ⑦ (optional)

10000

Memo ⑦ (optional)

| None | Text | ID | Hash | Return |

Time Bounds ⑦ (optional)

Lower time bound unix timestamp. Example: 147915171

Upper time bound unix timestamp. Example: 14791517

Enter unix timestamp values of time bounds when this transaction will be valid.

1

Operation Type ⑦

Payment ▾

Sends an amount in a specific asset to a destination account.

See documentation for Payment

Destination

GCUIZZCYH5SNX2GB2W3RRP5PAM52GE52F7YIL

Asset

| native | Alphanumeric 4 | Alphanumeric 12 |

Then sign transaction with your private key:

Signatures ⑦

| Add Signer | SAKLFIFRMO6ZW26X~~...~~ |
| | Secret key (starting with S) or hash preimage (in hex) |

| Ledger Wallet | 44'/148'/0' |
| | Sign with BIP Path |

Transaction signed!
1 signature(s) added; 1 signature(s) total

AAAAAJhDc0IyZ3ZNBH9QSJTfvysqzByuQpPD97azLmcEi5gkAAAnEAAQ4NgAAAAFAAAAAAAAAAAAABAAAAAAAAAEAAAAqI
zkWD9k2+jB1bcYv68DO6MTui/whdHybMn2QtjZ28MAAAAAAAAAAvrwgAAAAAAAAAAQSLmCQAAABAjqbLL9bhacY9KlJnFPYm
OJXBiBUCAUJqzUNJpqPnusheIHAvE5u7/ZrGrtPNtS1BiYa1SqyBv2K4HB56SQgODw==

Now that this transaction is signed, you can submit it to the network. Horizon provides an endpoint called Post Transaction that will relay your transaction to the network and inform you of the result.

Submit to Post Transaction endpoint   View in XDR Viewer

If all goes well, you'll see a successful transaction like so:

Post Transaction ⓘ

Transaction Envelope XDR	AAAAAJhDcOIyZ3ZNBH9QSJTfvysqzByuQpPD97azLmcEi5gkAAAnEAAQ4NgAAAAFAAAAAAAAA AAAAABAAAAAAAAAAEAAAAAqIzkWD9k2+jB1bcYv68DO6MTui/whdHybMn2QtjZ28MAAAAAAAA AAAvrwgAAAAAAAAAAAQSLmCQAAABAjqbLL9bhacY9KlJnFPYmOJXBiBUCAUJqzUNJpqPnusheIH AvE5u7/ZrGrtPNtS1BiYa1SqyBv2K4HB56SQgODw==

POST   https://testnet-horizon.triamnetwork.com/transactions

tx=AAAAAJhDcOIyZ3ZNBH9QSJTfvysqzByuQpPD97azLmcEi5gkAAAnEAAQ4NgAAAAFAAAAAAAAAAAAAABAAAAAAAAAAEAAAAAqIz
kWD9k2%2BjB1bcYv68DO6MTui%2FwhdHybMn2QtjZ28MAAAAAAAAAAAvrwgAAAAAAAAAAAQSLmCQAAABAjqbLL9bhacY9KlJnFPY
mOJXBiBUCAUJqzUNJpqPnusheIHAvE5u7%2FZrGrtPNtS1BiYa1SqyBv2K4HB56SQgODw%3D%3D

[Submit]

JSON Response

```
{
  "_links": {
    "transaction": {
      "href": "http://13.251.6.120:8000/transactions/fe38914716929e985e91051fc0b2c89471b79cd7…
    }
  },
  "hash": "fe38914716929e985e91051fc0b2c89471b79cd734db56bbcd3e61e06e360b6a",
  "ledger": 1195511,
  "envelope_xdr": "AAAAAJhDc0IyZ3ZNBH9QSJTfvysqzByuQpPD97azLmcEi5gkAAAnEAAQ4NgAAAAFAAAAAAAAA…
  "result_xdr": "AAAAAAAAJxAAAAAAAAAAQAAAAAAAABAAAAAAAAA=",
  "result_meta_xdr": "AAAAAAAAAEAAAADAAAAAQASPfcAAAAAAAAAJhDc0IyZ3ZNBH9QSJTfvysqzByuQpPD97a…
}
```

Now you can check the balance of new user here

1.2.3 Create a trustline

When you hold assets in Triam, you're actually holding credit from a particular issuer. The issuer has agreed that it will trade you its credit on the Stellar network for the corresponding asset–e.g., fiat currency, precious metal–outside of Stellar. Let's say that Scott issues oranges as credit on the network. If you hold orange credits, you and Scott have an agreement based on trust, or a trustline: you both agree that when you give Scott an orange credit, he gives you an orange.
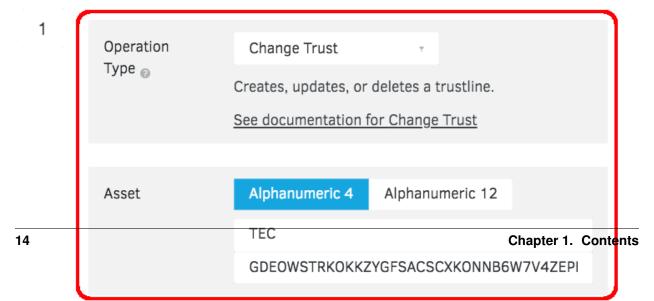
When you hold an asset, you must trust the issuer to properly redeem its credit. Since users of Triam will not want to trust just any issuer, accounts must explicitly trust an issuing account before they're able to hold the issuer's credit. In the example above, you must explicitly trust Scott before you can hold orange credits.

To trust an issuing account, you create a trustline. Trustlines are entries that persist in the Triam ledger. They track the limit for which your account trusts the issuing account and the amount of credit from the issuing account that your account currently holds.
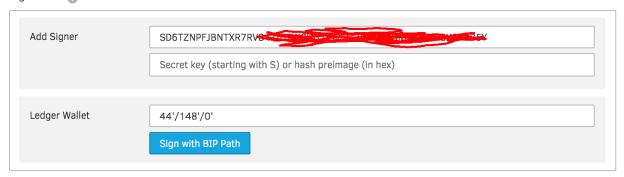
Now go to Transaction Builder to create a trust line:

Source Account

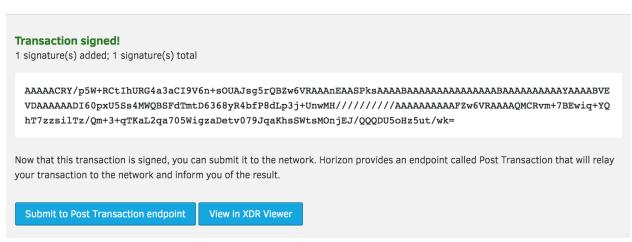GASFR7U6K34RBLJCCUIRXBVXNARD2V5J72YOKABGZA

If you don't have an account yet, you can create and fund a test net account with the account creator.

Transaction Sequence Number

5135041424261121

The transaction sequence number is usually one higher than current account sequence number.

Fetch next sequence number for account starting with "GASFR7U6K3"

Base Fee (optional)

10000

Memo (optional)

| None | Text | ID | Hash | Return |

Time Bounds (optional)

Lower time bound unix timestamp. Example: 147915171

Upper time bound unix timestamp. Example: 14791517

Enter unix timestamp values of time bounds when this transaction will be valid.

1

Operation Type

Change Trust ▾

Creates, updates, or deletes a trustline.

See documentation for Change Trust

Asset

| Alphanumeric 4 | Alphanumeric 12 |

TEC

GDEOWSTRKOKKZYGFSACSCXKONNB6W7V4ZEPI

Then sign transaction with your private key:

If all goes well, you'll see a successful transaction like so:

Post Transaction ?

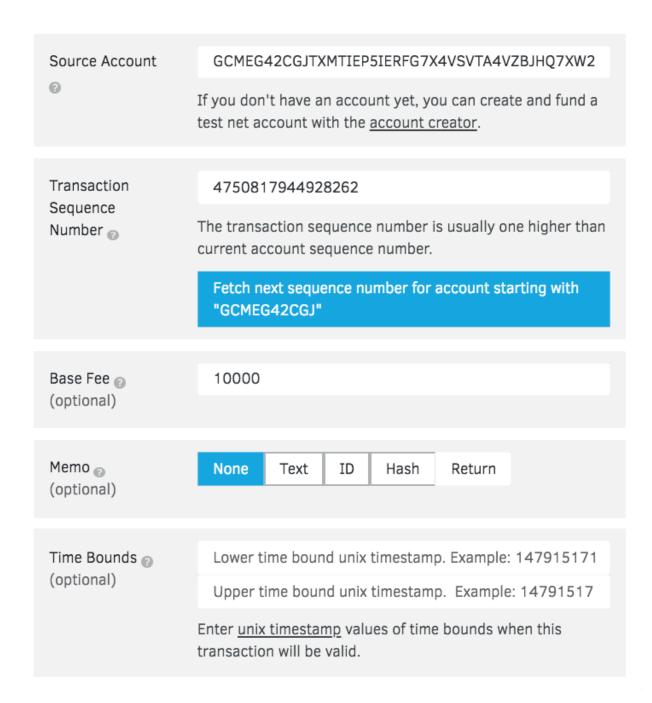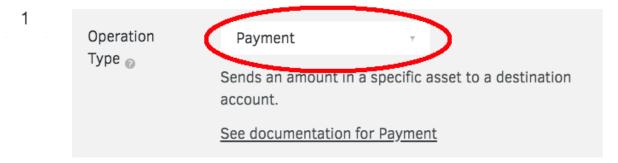Transaction Envelope
XDR

AAAAACRY/p5W+RCtIhURG4a3aCI9V6n+sOUAJsg5rQBZw6VRAAAnEAASPksAAAABAAAAAAAA
AAAAAAABAAAAAAAAAAYAAAABVEVDAAAAAADI6OpxU5Ss4MWQBSFdTmtD6368yR4bfP8dLp3j
+UnwMH//////////AAAAAAAAAFZw6VRAAAAQMCRvm+7BEwiq+YQhT7zzsilTz/Qm+3+qTKaL2
qa705WigzaDetvO79JqaKhsSWtsMOnjEJ/QQQDU5oHz5ut/wk=

POST   https://testnet-horizon.triamnetwork.com/transactions

tx=AAAAACRY%2Fp5W%2BRCtIhURG4a3aCI9V6n%2BsOUAJsg5rQBZw6VRAAAnEAASPksAAAABAAAAAAAAAAAAAAABAAAAAAAAAA
AYAAAABVEVDAAAAAADI6OpxU5Ss4MWQBSFdTmtD6368yR4bfP8dLp3j%2BUnwMH%2F%2F%2F%2F%2F%2F%2F%2F%2F%2F
AAAAAAAAAFZw6VRAAAAQMCRvm%2B7BEwiq%2BYQhT7zzsilTz%2FQm%2B3%2BqTKaL2qa705WigzaDetvO79JqaKhsSWtsMOnj
EJ%2FQQQDU5oHz5ut%2Fwk%3D

Submit

JSON Response

```
{
  "_links": {
    "transaction": {
      "href": "http://13.251.6.120:8000/transactions/1bc8f4d38cb611fd1cf45fde3b88a3b33184edc4
    }
  },
  "hash": "1bc8f4d38cb611fd1cf45fde3b88a3b33184edc4acfebef2d2462e5e7034221f",
  "ledger": 1195715,
  "envelope_xdr": "AAAAACRY/p5W+RCtIhURG4a3aCI9V6n+sOUAJsg5rQBZw6VRAAAnEAASPksAAAABAAAAAAAAA
  "result_xdr": "AAAAAAAJxAAAAAAAAAAQAAAAAAAAGAAAAAAAAAA=",
  "result_meta_xdr": "AAAAAAAAAEAAAACAAAAAASPsMAAAABAAAAACRY/p5W+RCtIhURG4a3aCI9V6n+sOUAJsg
}
```

1.2.4 Transfer a token

Go to Transaction Builder, this is what that operation looks like:

Source Account
❓

GCMEG42CGJTXMTIEP5IERFG7X4VSVTA4VZBJHQ7XW2

If you don't have an account yet, you can create and fund a test net account with the account creator.

Transaction
Sequence
Number ❓

4750817944928262

The transaction sequence number is usually one higher than current account sequence number.

Fetch next sequence number for account starting with "GCMEG42CGJ"

Base Fee ❓
(optional)

10000

Memo ❓
(optional)

| None | Text | ID | Hash | Return |

Time Bounds ❓
(optional)

Lower time bound unix timestamp. Example: 147915171

Upper time bound unix timestamp. Example: 14791517

Enter unix timestamp values of time bounds when this transaction will be valid.

1

Operation
Type ❓

Payment ▾

Sends an amount in a specific asset to a destination account.

See documentation for Payment

Destination

GASFR7U6K34RBLJCCUIRXBVXNARD2V5J72YOK/

Then sign transaction with your private key:

Signatures ?

Add Signer	SAKLFIFRMO6ZW~~...~~
	Secret key (starting with S) or hash preimage (in hex)

Ledger Wallet	44'/148'/0'
	Sign with BIP Path

Transaction signed!
1 signature(s) added; 1 signature(s) total

```
AAAAAJhDc0IyZ3ZNBH9QSJTfvysqzByuQpPD97azLmcEi5gkAAAnEAAQ4NgAAAAGAAAAAAAAAAAAABAAAAAAAAAEAAAAAJF
j+n1b5EK0iFREbhrdoIj1Xqf6w5QAmyDmtAFnDpVEAAAABVEVDAAAAAADI60pxU5Ss4MWQBSFdTmtD6368yR4bfP8dLp3j+Unw
MAAAAAAdzWUAAAAAAAAAAAEEi5gkAAAAQIQKo+CXBycEnEvuTxGE8yS39R1TEk9QBHX9Ypt0Xpa3M7jp80e19mN5sZ612Va74g
nQmWdhddANpnyNZUQ60Qk=
```

Now that this transaction is signed, you can submit it to the network. Horizon provides an endpoint called Post Transaction that will relay your transaction to the network and inform you of the result.

Submit to Post Transaction endpoint   **View in XDR Viewer**

If all goes well, you'll see a successful transaction like so:

Post Transaction ⍰

Transaction Envelope
XDR

AAAAAJhDcOIyZ3ZNBH9QSJTfvysqzByuQpPD97azLmcEi5gkAAAnEAAQ4NgAAAAGAAAAAAAAAA
AAAAABAAAAAAAAAAEAAAAAJFj+nlb5EKOiFREbhrdoIj1Xqf6w5QAmyDmtAFnDpVEAAAABVEVDA
AAAAADI6OpxU5Ss4MWQBSFdTmtD6368yR4bfP8dLp3j+UnwMAAAAAAdzWUAAAAAAAAAAAEEi
5gkAAAAQIQKo+CXBycEnEvuTxGE8yS39R1TEk9QBHX9Ypt0Xpa3M7jp80e19mN5sZ6l2Va74gn
QmWdhddANpnyNZUQ60Qk=

POST   https://testnet-horizon.triamnetwork.com/transactions

tx=AAAAAJhDcOIyZ3ZNBH9QSJTfvysqzByuQpPD97azLmcEi5gkAAAnEAAQ4NgAAAAAAAAAAAAAAAABAAAAAAAAAAEAAAAAJF
j%2Bnlb5EKOiFREbhrdoIj1Xqf6w5QAmyDmtAFnDpVEAAAABVEVDAAAAAADI6OpxU5Ss4MWQBSFdTmtD6368yR4bfP8dLp3j%2BUnw
MAAAAAAdzWUAAAAAAAAAAAEEi5gkAAAAQIQKo%2BCXBycEnEvuTxGE8yS39R1TEk9QBHX9Ypt0Xpa3M7jp80e19mN5sZ6l2Va74gn
QmWdhddANpnyNZUQ60Qk%3D

Submit

JSON Response

{
  "_links": {
    "transaction": {
      "href": "http://13.251.6.120:8000/transactions/77efd49889f076794e3e8f2a7fcc377f8f020d76⟩
    }
  },
  "hash": "77efd49889f076794e3e8f2a7fcc377f8f020d76eff50773096359f1b0767590",
  "ledger": 1195836,
  "envelope_xdr": "AAAAAJhDcOIyZ3ZNBH9QSJTfvysqzByuQpPD97azLmcEi5gkAAAnEAAQ4NgAAAAGAAAAAAAAAA⟩
  "result_xdr": "AAAAAAAAJxAAAAAAAAAAQAAAAAAAAABAAAAAAAAAA=",
  "result_meta_xdr": "AAAAAAAAAEAAAAEAAAAwASPsMAAAABAAAAACRY/p5W+RCtIhURG4a3aCI9V6n+sOUAJsg⟩
}

1.3 Make a custom token

1.3.1 Foreword

In this article I'll show you how to issue a token I'm going to call "BLOCKSIMPLE".

Here are the steps involved:

- Step 1: Create 2 accounts (One for Issuance, another for Distribution).
- Step 2: Execute a change of trust transaction from Distribution to Issuance.
- Step 3: Create the token.

1.3.2 Step 1: Create 2 accounts

You will need TWO (2) accounts. One to act as the issuer and one to act as the distributor account.

Create two and save them to your local computer. Make sure you clearly label somehow one as issuer and one as distributor. For me, I saved the data as "issuer-test-account-Stellar.txt" and "distributor-test-account-Stellar.txt".

Using the testnet faucet and fund both accounts with RIA. Make sure that the slider in the top right is set to "test".

Go to Create an account for more details.

1.3.3 Step 2: Change the trust between the two accounts.

For us to issue the token, we need to issue a change trust transaction between the **distribution** account and the **issuance** account. You can do that through this handy web interface.

Using the accounts you have created, change trust using the **distribution account aimed at the issuing account**:

| Source Account ⑦ | GDBCZWKPZ3HY2FFRNSLK3LGW73CCK7YV75MINE2SDHJYJS24KRK5OGRW |

If you don't have an account yet, you can create and fund a test net account with the account creator.

| Transaction Sequence Number ⑦ | 33127340452085761 |

The transaction sequence number is usually one higher than current account sequence number.

    Fetch next sequence number for account starting with "GDBCZWKPZ3"

| Base Fee ⑦ (optional) | Amount in stroops (1 lumen = 10,000,000 stroops) |

The network base fee is currently set to 100 stroops (0.00001 lumens). Transaction fee is equal to base fee times number of operations in this transaction.

| Memo ⑦ (optional) | None | Text | ID | Hash | Return |

| Time Bounds ⑦ (optional) | Lower time bound unix timestamp. Example: 1479151713 |
| | Upper time bound unix timestamp. Example: 1479151713 |

Enter unix timestamp values of time bounds when this transaction will be valid.

1

| Operation Type ⑦ | Change Trust ▼ |

Creates, updates, or deletes a trustline.

See documentation for Change Trust

Asset	Alphanumeric 4	**Alphanumeric 12**
	BLOCKSIMPLE
	GDD5XZCKUTMDC32GRRDUYIAIKIKJ2FGSFZ3I45XRIOPEJXLMMZGZCSL5

| Trust Limit (optional) | 5000 |

Leave empty to default to the max int64.
Set to 0 to remove the trust line.

| Source Account (optional) | Example: GCEXAMPLE5HWNK4AYSTEQ4UWDKHTCKADVS2AHF3UI2ZMO3DPUSM6(|

    + Add Operation

Submit this using your private key

Transaction overview   Clear and import new transaction

Transaction Envelope XDR	AAAAAMIs2U/Oz4OUsWyWrazW/sQlfxX/WIaTUhnThMtcVFXXAAAAZAB1sSQAAAABAAAAA AAAAAAAAABAAAAAAAAAAAYAAAACQkxPQ0tTSU1QTEUAAAAAMfb5Eqk2DFvRoxHTCAIUh SdFNIudo528UOeRN1sZk2RAAAAC6Q7dAAAAAAAAAAAAA==
Transaction Hash	b99dc536102f80fc7b4487981fbefc0a8878a45f2fd97d2198e1301ade6778e9
Source account	GDBCZWKPZ3HY2FFRNSLK3LGW73CCK7YV75MINE2SDHJYJS24KRK5OGRW
Sequence number	33127340452085761
Transaction Fee (stroops)	100
Number of operations	1
Number of existing signatures	0

Signatures ⓘ

Add Signer	SAAPA5KHEXA2CP2~~███████████████████~~
	Secret key (starting with S) or hash preimage (in hex)
Ledger Wallet	44'/148'/0'
	Sign with BIP Path

And you'll come to this final screen:

1. Select a resource

Accounts
Assets
Effects
Ledger
Offers
Operations
Order Book
Paths
Trade Aggregations
Trades
Payments
Transactions

2. Select an endpoint

All Transactions
Single Transaction
Post Transaction
Transactions for Account
Transactions for Ledger

Post Transaction ⓘ

Transaction Envelope XDR

```
AAAAAMIs2U/Oz4OUsWyWrazW/sQlfxX/WIaTUhnThMtcVFXXAAAAZAB1sSQAAAABAAAAAAAAA
AAAAAABAAAAAAAAAAYAAAACQkxPQ0tTU1QTEUAAAAAAMfb5Eqk2DFvRoxHTCAIUhSdFNIudo
528UOeRN1sZk2RAAAAC6Q7dAAAAAAAAAAAAVxUVdcAAABAcrXfSk9uo/H6fz9vLQ5NNMnfVTm
m0/dwuNHx2WO2RfI1seDhyxQWoVMLlt242m9SDWGWF+ZZmXmtZw9mIHjUCQ==
```

POST https://horizon-testnet.stellar.org/transactions

tx=AAAAAMIs2U%2FOz4OUsWyWrazW%2FsQlfxX%2FWIaTUhnThMtcVFXXAAAAZAB1sSQAAAABAAAAAAAAAAAAAAABAAAAAAAA
AYAAAACQkxPQ0tTU1QTEUAAAAAAMfb5Eqk2DFvRoxHTCAIUhSdFNIudo528UOeRN1sZk2RAAAAC6Q7dAAAAAAAAAAAVxUVdcAA
ABAcrXfSk9uo%2FH6fz9vLQ5NNMnfVTmm0%2FdwuNHx2WO2RfI1seDhyxQWoVMLlt242m9SDWGWF%2BZZmXmtZw9mIHjUCQ%3
D%3D

Submit

JSON Response

```json
{
  "_links": {
    "transaction": {
      "href": "https://horizon-testnet.stellar.org/transactions/b99dc536102f80fc7b4487981fbef
    }
  },
  "hash": "b99dc536102f80fc7b4487981fbefc0a8878a45f2fd97d2198e1301ade6778e9",
  "ledger": 7713147,
  "envelope_xdr": "AAAAAMIs2U/Oz4OUsWyWrazW/sQlfxX/WIaTUhnThMtcVFXXAAAAZAB1sSQAAAABAAAAAAAAAA
  "result_xdr": "AAAAAAAAAGQAAAAAAAAAAQAAAAAAAAAGAAAAAAAAAA=",
  "result_meta_xdr": "AAAAAAAAAEAAAADAAAAAB1sXsAAAABAAAAAMIs2U/Oz4OUsWyWrazW/sQlfxX/WIaTUhn
}
```

If all goes well, you'll see a JSON response similar to above.

1.3.4 Step 3: Creating the Actual Token

This step is not intuitive: the token creation is done by sending a payment from the issuing account to the distribution account, denominated in the new token. This is why we had to change trust to begin with—the distribution account issued a statement of trust that this "BLOCKSIMPLE" thing was the real deal.

Go to Transaction Builder, this is what that operation looks like:

Clear form contents and start over

Source Account ❓ GDD5XZCKUTMDC32GRRDUYIAIKIKJ2FGSFZ3I45XRIOPEJXLMMZGZCSL5

If you don't have an account yet, you can create and fund a test net account with the account creator.

Transaction Sequence Number ❓ 33127035509407745

The transaction sequence number is usually one higher than current account sequence number.

Fetch next sequence number for account starting with "GDD5XZCKUT"

Base Fee ❓ (optional) Amount in stroops (1 lumen = 10,000,000 stroops)

The network base fee is currently set to 100 stroops (0.00001 lumens). Transaction fee is equal to base fee times number of operations in this transaction.

Memo ❓ (optional) None | Text | ID | Hash | Return

Time Bounds ❓ (optional) Lower time bound unix timestamp. Example: 1479151713

Upper time bound unix timestamp. Example: 1479151713

Enter unix timestamp values of time bounds when this transaction will be valid.

1

Operation Type ❓ Payment ▼

Sends an amount in a specific asset to a destination account.

See documentation for Payment

Destination GDBCZWKPZ3HY2FFRNSLK3LGW73CCK7YV75MINE2SDHJYJS24KRK5OGRW

Asset native | Alphanumeric 4 | Alphanumeric 12

BLOCKSIMPLE

GDD5XZCKUTMDC32GRRDUYIAIKIKJ2FGSFZ3I45XRIOPEJXLMMZGZCSL5

Amount 5000

Source Account (optional) Example: GCEXAMPLE5HWNK4AYSTEQ4UWDKHTCKADVS2AHF3UI2ZMO3DPUSM6(

If all goes well, you'll see a successful transaction like so:

1. Select a resource

Accounts
Assets
Effects
Ledger
Offers
Operations
Order Book
Paths
Trade Aggregations
Trades
Payments
Transactions

2. Select an endpoint

All Transactions
Single Transaction
Post Transaction
Transactions for Account
Transactions for Ledger

Post Transaction ⓘ

Transaction Envelope XDR

AAAAAMfb5Eqk2DFvRoxHTCAIUhSdFNIudo528UOeRN1sZk2RAAAAZAB1sN0AAAABAAAAAAAAA
AAAAAABAAAAAAAAAAAEAAAAAwizZT87PjRSxbJatrNb+xCV/Ff9YhpNSGdOEy1xUVdcAAAACQkx
PQOtTSU1QTEUAAAAAAMfb5Eqk2DFvRoxHTCAIUhSdFNIudo528UOeRN1sZk2RAAAAAC6Q7dAAA
AAAAAAAWxmTZEAAABA803q2NZbg4rO0+1dn9s3moZGaO4lTw1pGhpfr5edP9X49GNQLcyq
gTM2oOStwAVi66DxbSQpqExd1bbzSjeYCg==

POST https://horizon-testnet.stellar.org/transactions

tx=AAAAAMfb5Eqk2DFvRoxHTCAIUhSdFNIudo528UOeRN1sZk2RAAAAZAB1sN0AAAABAAAAAAAAAAAAAABAAAAAAAAAAAEAAAAA
wizZT87PjRSxbJatrNb%2BxCV%2FFf9YhpNSGdOEy1xUVdcAAAACQkxPQOtTSU1QTEUAAAAAAMfb5Eqk2DFvRoxHTCAIUhSdFNIudo5
28UOeRN1sZk2RAAAAC6Q7dAAAAAAAAAAWxmTZEAAABA803q2NZbg4rO0%2B1dn9s3moZGaO4lTw1pGhpfr5edP9X49GNQLcyq
gTM2oOStwAVi66DxbSQpqExd1bbzSjeYCg%3D%3D

[Submit]

JSON Response

```
{
  "_links": {
    "transaction": {
      "href": "https://horizon-testnet.stellar.org/transactions/6595d8bd0510ba5a69cc8564633cb
    }
  },
  "hash": "6595d8bd0510ba5a69cc8564633cbe4ceca7118162df570b6c393f6765737477",
  "ledger": 7713225,
  "envelope_xdr": "AAAAAMfb5Eqk2DFvRoxHTCAIUhSdFNIudo528UOeRN1sZk2RAAAAZAB1sN0AAAABAAAAAAAAA
  "result_xdr": "AAAAAAAAGQAAAAAAAAAQAAAAAAAABAAAAAAAAAA=",
  "result_meta_xdr": "AAAAAAAAAEAAAACAAAAwB1sXsAAAABAAAAAMIs2U/Oz40UsWyWrazW/sQlfxX/WIaTUhn
}
```

Ok, so now we have issued 5000 BLOCKSIMPLE tokens on the test net. Woohoo!

Congratulations! You just issued your first ever custom token!

```
"balances": [
  {
    "balance": "5000.0000000",
    "limit": "5000.0000000",
    "asset_type": "credit_alphanum12",
    "asset_code": "BLOCKSIMPLE",
    "asset_issuer": "GDD5XZCKUTMDC32GRRDUYIAIKIKJ2FGSFZ3I45XRIOPEJXLMMZGZCSL5"
  },
  {
    "balance": "9999.9999900",
    "asset_type": "native"
  }
}
```

Source: https://hackernoon.com/how-to-make-a-custom-token-on-stellar-ae5296512a2e

1.4 Freezing Assets

1.4.1 Foreword

By default, anyone can create a trustline with an asset issuer to accept an asset. However, as an anchor, you can explicitly authorize and revoke user access to your asset by enabling the following flags on your issuing account.

- **AUTHORIZATION REQUIRED**: with this setting, the anchor must approve anyone who wants to hold its asset, allowing it to control who its customers are. Approving is done by the anchor by setting the Authorize flag of an existing trustline to true with the Allow Trust operation.

- **AUTHORIZATION REVOCABLE**: with this setting, the anchor can set Authorize flag of existing trustline to false with the Allow Trust operation, to freeze the asset held by another account. When an asset is frozen for a particular account, that account can't transfer the asset to any other account, not even back to the anchor. This setting allows the issuing account to revoke assets that it accidentally issued or that were obtained improperly. To use this setting, AUTHORIZATION REQUIRED must also be enabled.

Example flow for an account with AUTHORIZATION REQUIRED and AUTHORIZATION REVOCABLE enabled:

1. User decides he/she wants to accept an asset

2. User opens a trust line with this asset's issuing account

3. Issuer authorizes the user's trustline

4. User can accept and send the asset to whomever else has a trustline open with the issuer

5. Issuer wants to freeze user's access to asset

6. Issuer deauthorizes user's trustline

7. User cannot send or accept this asset

Now, let's freeze an asset on test network:

Asset details:

- **Issuer**: GDEOWSTRKOKKZYGFSACSCXKONNB6W7V4ZEPBW7H7DUXJ3Y7ZJHYDBHZQ

- **Asset Code**: TEC

• **Asset Type**: credit_alphanum4

1.4.2 Step 1: Check the flags of Issuer

Make sure issuer's flags: "**auth_required**" and "**auth_revocable**" are TRUE

Now go to Endpoint Explorer

This tool can be used to run queries against the REST API endpoints on the Horizon server. Horizon is the client facing library for the Triam ecosystem.

1. Select a resource

| Accounts |
| Assets |
| Effects |
| Ledger |
| Offers |
| Operations |
| Order Book |
| Paths |
| Trade Aggregations |
| Trades |
| Payments |
| Transactions |

2. Select an endpoint

| Single Account |

Single Account ?

paste Issuer's public key to textbox

Account ID   GDEOWSTRKOKKZYGFSACSCXKONNB6W7V4ZEPBW7H7DUXJ3Y7ZJHYDBHZQ

☐ Server-Sent Events (streaming) mode ?

GET https://testnet-horizon.triamnetwork.com/accounts/GDEOWSTRKOKKZYGFSACSCXKONNB6W7V4ZEPBW7H7DUXJ3Y7ZJHYDBHZQ

Submit —— Then press Submit

GET https://testnet-horizon.triamnetwork.com/accounts/GDEOWSTRKOKKZYGFSACSCXKONNB6W7V4ZEPBW7H7DUXJ3Y7ZJHY
DBHZQ

Submit

JSON Response

```
{
  "_links": {
    "self": {
      "href": "http://testnet-horizon.triamnetwork.com/accounts/GDEOWSTRKOKKZYGFSACSCXKONNB6W
    },
    "transactions": {
      "href": "http://testnet-horizon.triamnetwork.com/accounts/GDEOWSTRKOKKZYGFSACSCXKONNB6W
      "templated": true
    },
    "operations": {
      "href": "http://testnet-horizon.triamnetwork.com/accounts/GDEOWSTRKOKKZYGFSACSCXKONNB6W
      "templated": true
    },
    "payments": {
      "href": "http://testnet-horizon.triamnetwork.com/accounts/GDEOWSTRKOKKZYGFSACSCXKONNB6W
      "templated": true
    },
    "effects": {
      "href": "http://testnet-horizon.triamnetwork.com/accounts/GDEOWSTRKOKKZYGFSACSCXKONNB6W
      "templated": true
    },
    "offers": {
      "href": "http://testnet-horizon.triamnetwork.com/accounts/GDEOWSTRKOKKZYGFSACSCXKONNB6W
      "templated": true
    },
    "trades": {
      "href": "http://testnet-horizon.triamnetwork.com/accounts/GDEOWSTRKOKKZYGFSACSCXKONNB6W
      "templated": true
    },
    "data": {
      "href": "http://testnet-horizon.triamnetwork.com/accounts/GDEOWSTRKOKKZYGFSACSCXKONNB6W
      "templated": true
    }
  },
  "id": "GDEOWSTRKOKKZYGFSACSCXKONNB6W7V4ZEPBW7H7DUXJ3Y7ZJHYDBHZQ",
  "paging_token": "",
  "account_id": "GDEOWSTRKOKKZYGFSACSCXKONNB6W7V4ZEPBW7H7DUXJ3Y7ZJHYDBHZQ",
  "sequence": "4750830829830153",
  "subentry_count": 0,
  "thresholds": {
    "low_threshold": 0,
    "med_threshold": 0,
    "high_threshold": 0
  },
  "flags": {
    "auth_required": false,           ── They're FALSE now, we should set them to TRUE.
    "auth_revocable": false
  },
  "balances": [
    {
      "balance": "999.9910000",
      "asset_type": "native"
    }
```
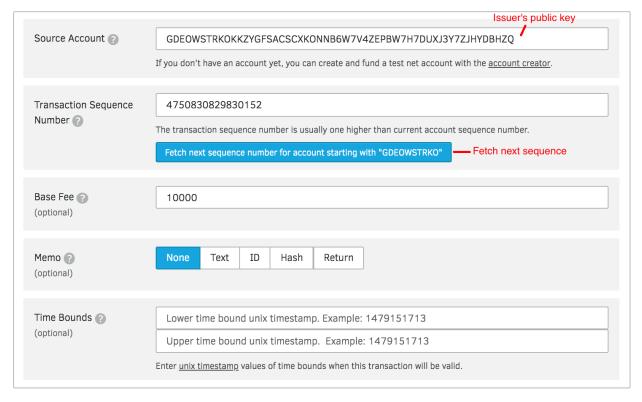
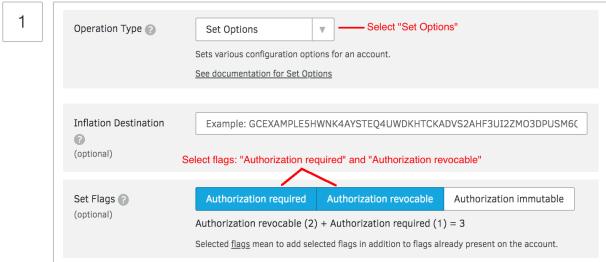### 1.4.3 Step 2: Set flags to *True*

Go to Transaction Builder, this is what that operation looks like:

- **Source Account**: Issuer's public address

- **Operation Type**: Set Options

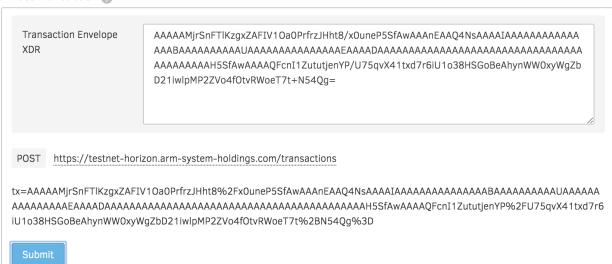- **Set Flags**: "Authorization required" and "Authorization revocable"

Then sign transaction and submit to the network.

If all goes well, you'll see a successful transaction like so:

Post Transaction ⑦

Transaction Envelope
XDR

AAAAAMjrSnFTlKzgxZAFIV1Oa0PrfrzJHht8/x0uneP5SfAwAAAnEAAQ4NsAAAAIAAAAAAAAAAAA
AAABAAAAAAAAAAUAAAAAAAAAAAAAAEAAAADAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAH5SfAwAAAAQFcnI1ZututjenYP/U75qvX41txd7r6iU1o38HSGoBeAhynWWOxyWgZb
D21iwlpMP2ZVo4fOtvRWoeT7t+N54Qg=

POST   https://testnet-horizon.arm-system-holdings.com/transactions

tx=AAAAAMjrSnFTlKzgxZAFIV1Oa0PrfrzJHht8%2Fx0uneP5SfAwAAAnEAAQ4NsAAAAIAAAAAAAAAAAAAAAABAAAAAAAAAUAAAAA
AAAAAAAAAEAAAADAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAH5SfAwAAAAQFcnI1ZututjenYP%2FU75qvX41txd7r6
iU1o38HSGoBeAhynWWOxyWgZbD21iwlpMP2ZVo4fOtvRWoeT7t%2BN54Qg%3D

Submit

JSON Response

```
{
  "_links": {
    "transaction": {
      "href": "http://13.251.6.120:8000/transactions/3099fa01dae7b117826dacc367749c6ba88f4a4b
    }
  },
  "hash": "3099fa01dae7b117826dacc367749c6ba88f4a4b8354427f915f571543079d79",
  "ledger": 1145367,
  "envelope_xdr": "AAAAAMjrSnFTlKzgxZAFIV1Oa0PrfrzJHht8/x0uneP5SfAwAAAnEAAQ4NsAAAAIAAAAAAAAA
  "result_xdr": "AAAAAAAJxAAAAAAAAAQAAAAAAAAFAAAAAAAAAA=",
  "result_meta_xdr": "AAAAAAAAAEAAAABAAAAAQARehcAAAAAAAAMjrSnFTlKzgxZAFIV1Oa0PrfrzJHht8/x0
}
```

Now go to to re-check statuses.

1.4.4 Step 3: Deauthorizes User's Trustline

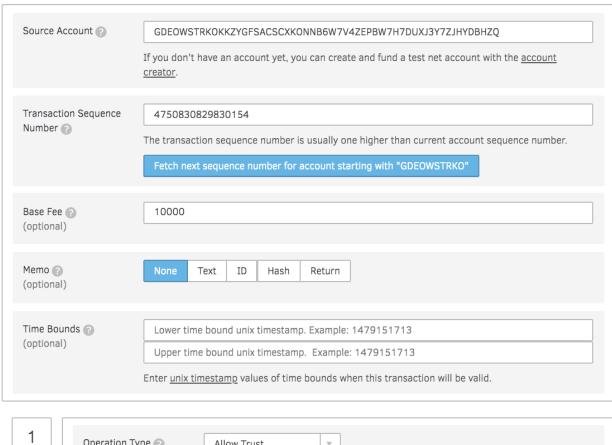Go to Transaction Builder, this is what that operation looks like:

- **Source Account**: Issuer's public address
- **Operation Type**: Allow Trust
- **Trustor**: User's public key that you want to freeze the asset
- **Asset Code**: e.g. TEC
- **Authorize**: false

Then sign transaction and submit to the network.

Finally, User cannot send or accept this asset.

1.5 Un-Freezing Assets

Go to Transaction Builder, this is what that operation looks like:
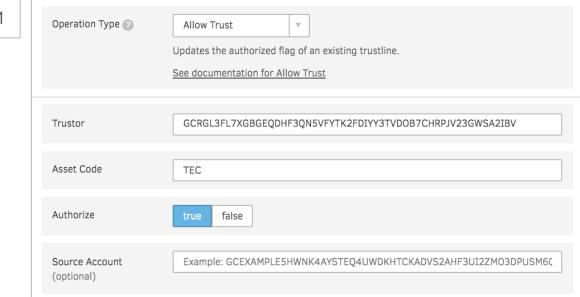
- **Source Account**: Issuer's public address

- **Operation Type**: Allow Trust

- **Trustor**: User's public key that you want to un-freeze the asset

- **Asset Code**: e.g. TEC

- **Authorize**: true

Then sign transaction and submit to the network.

Now, User can send or accept this asset.