Sovryn Token Bridge

Introduction

The bridge enables the transfer of ERC20 tokens across any two EVM-based chains.

It does so using the following components:

- arbitrary message bridge (AMB)
- AMB validators
- AMB live monitoring (ALM) app
- token bridge AMB extension
- token bridge dapp

Arbitrary Message Bridge

The AMB is able to relay any data between two EVM-based chains.

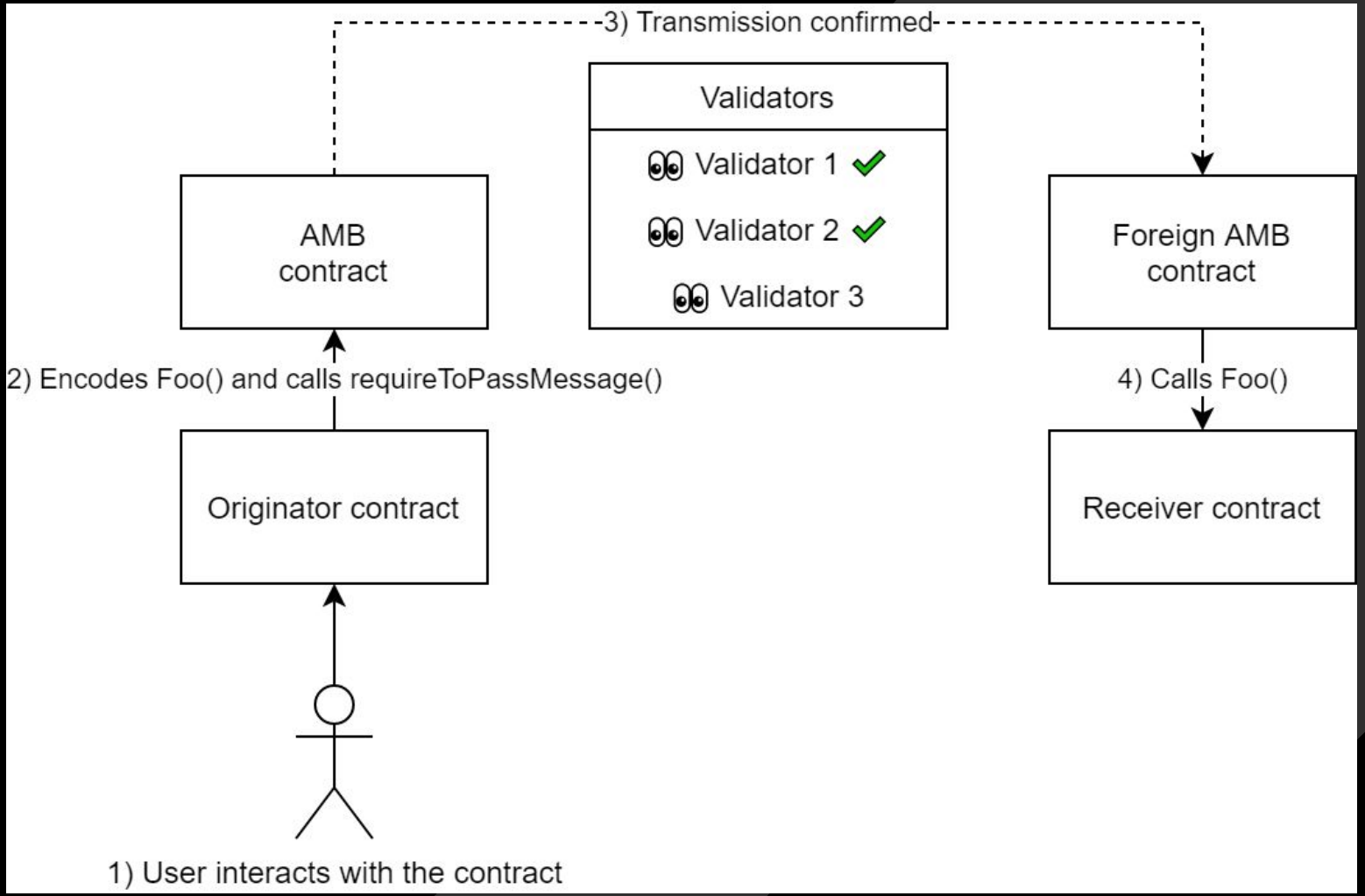
The originating contract encodes data in the form of an arbitrary method call, which can include or exclude parameters.

As soon as the data is relayed from Rinkeby to RSK Testnet by the AMB validators, the bridge contract on RSK Testnet passes the method call to the target contract.

Calling a method cross-chain via AMB

function requireToPassMessage(address **_contract**, bytes **_data**, uint256 **_gas**) external;

- ➔ **_contract**: address of the contract on the other network
- ➔ **_data**: encoded bytes of the method selector and the parameters that will be called in the contract on the other network
- ➔ **_gas**: gas to be provided in execution of the method call in the contract on the other network

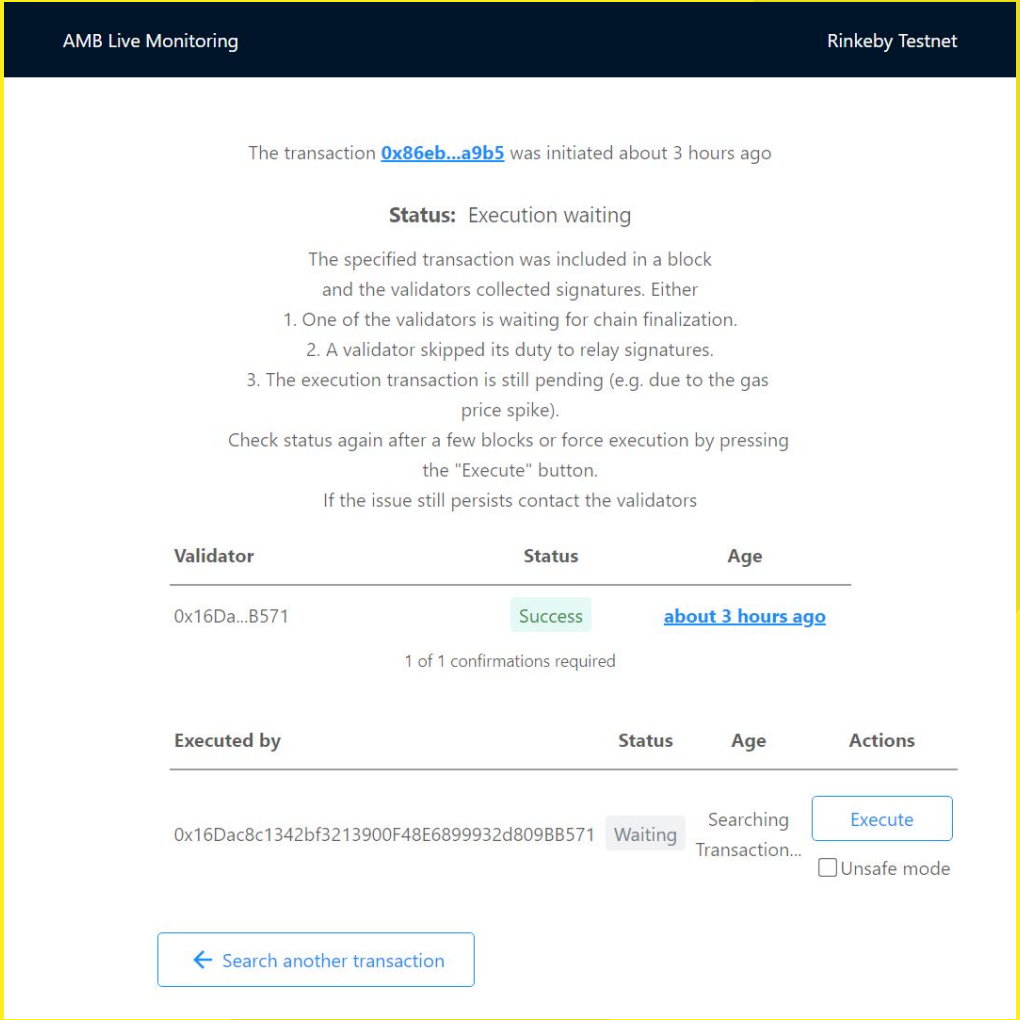

3) Transmission confirmed
Validators
Validator 1
Validator 2
Validator 3
AMB contract
Foreign AMB contract
2) Encodes Foo() and calls requireToPassMessage()
4) Calls Foo()
Originator contract
Receiver contract
1) User interacts with the contract

AMB Validators

- Provide 100% uptime to relay transactions
- Listen for **UserRequestForSignature** events on the Home side and sign an approval to relay messages on the Foreign side
- Listen for **CollectedSignatures** events on the Home side. Once enough signatures are collected, they transfer all collected signatures to the Foreign side.

AMB Live Monitoring App

- Shows confirmations and the transaction status for each Arbitrary Message Bridge validator, and can monitor transactions in both directions
- Used to track the status of user requests sent though AMB mediators

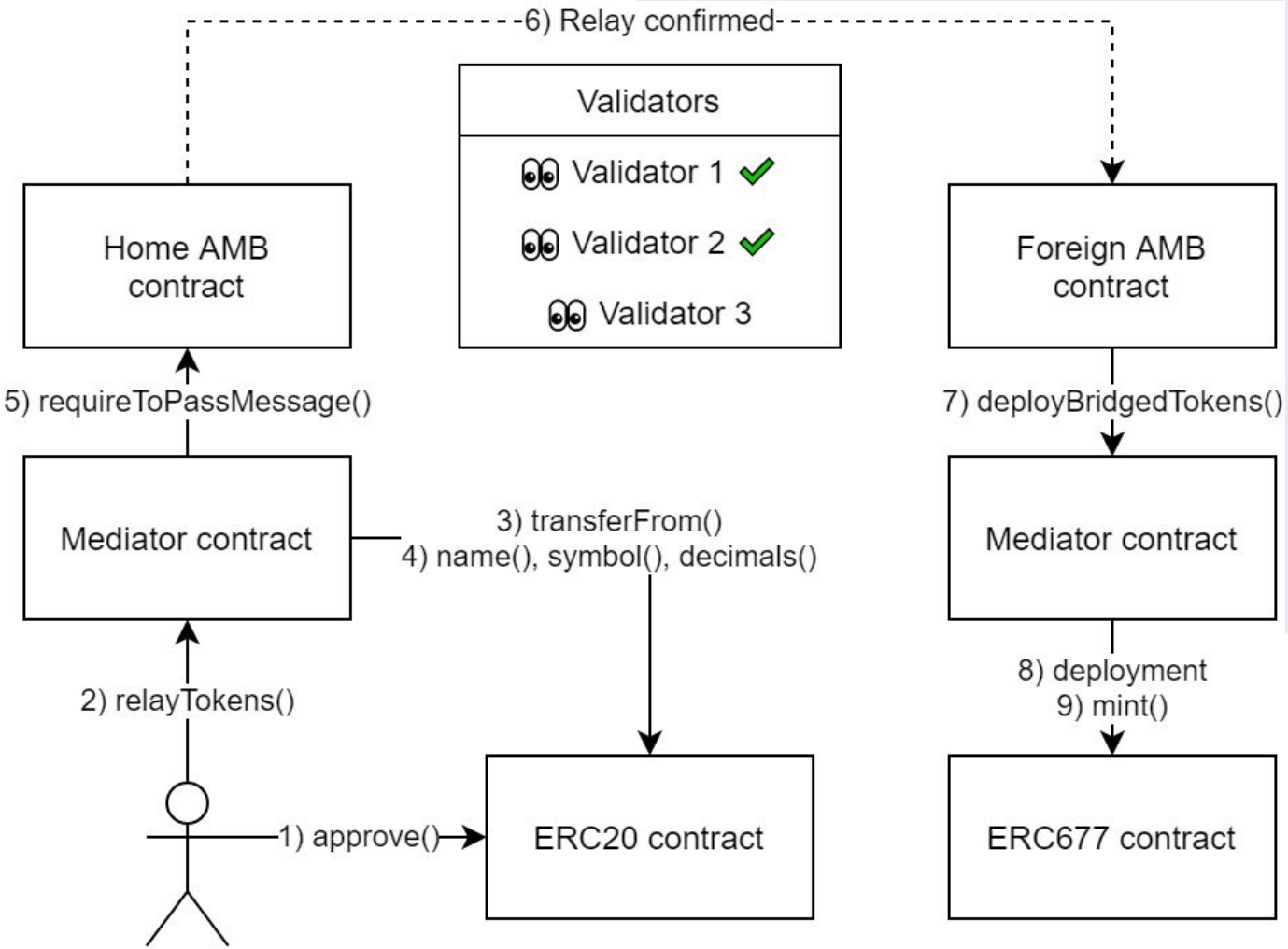

AMB Live Monitoring
Rinkeby Testnet
The transaction 0x86eb...a9b5 was initiated about 3 hours ago
Status: Execution waiting
The specified transaction was included in a block
and the validators collected signatures. Either
1. One of the validators is waiting for chain finalization.
2. A validator skipped its duty to relay signatures.
3. The execution transaction is still pending (e.g. due to the gas price spike).
Check status again after a few blocks or force execution by pressing the "Execute" button.
If the issue still persists contact the validators
Validator
Status
Age
0x16Da...B571
Success
about 3 hours ago
1 of 1 confirmations required
Executed by
Status
Age
Actions
0x16Dac8c1342bf3213900F48E6899932d809BB571
Waiting
Searching Transaction...
Execute
Unsafe mode
Search another transaction

Token Bridge AMB Extension

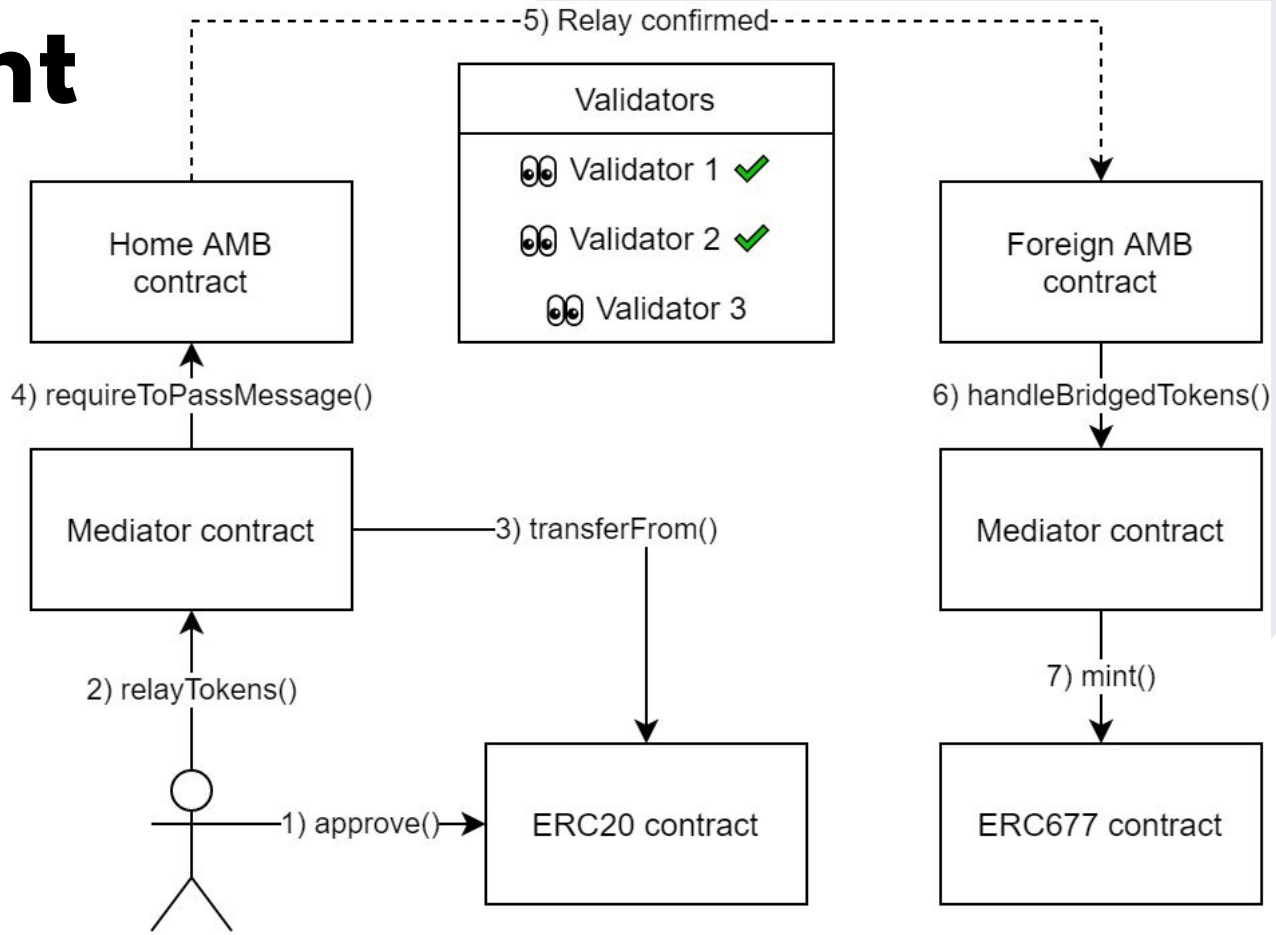
An AMB extension is a pair of mediator contracts associated with a specific pair of AMB contracts.

With this extension, any user can transfer tokens between Rinkeby and RSK Testnet without deploying any additional contracts. The specified token amount is locked in the mediator contract, a new token contract is deployed automatically on RSK Testnet, and the requested token amount is minted.

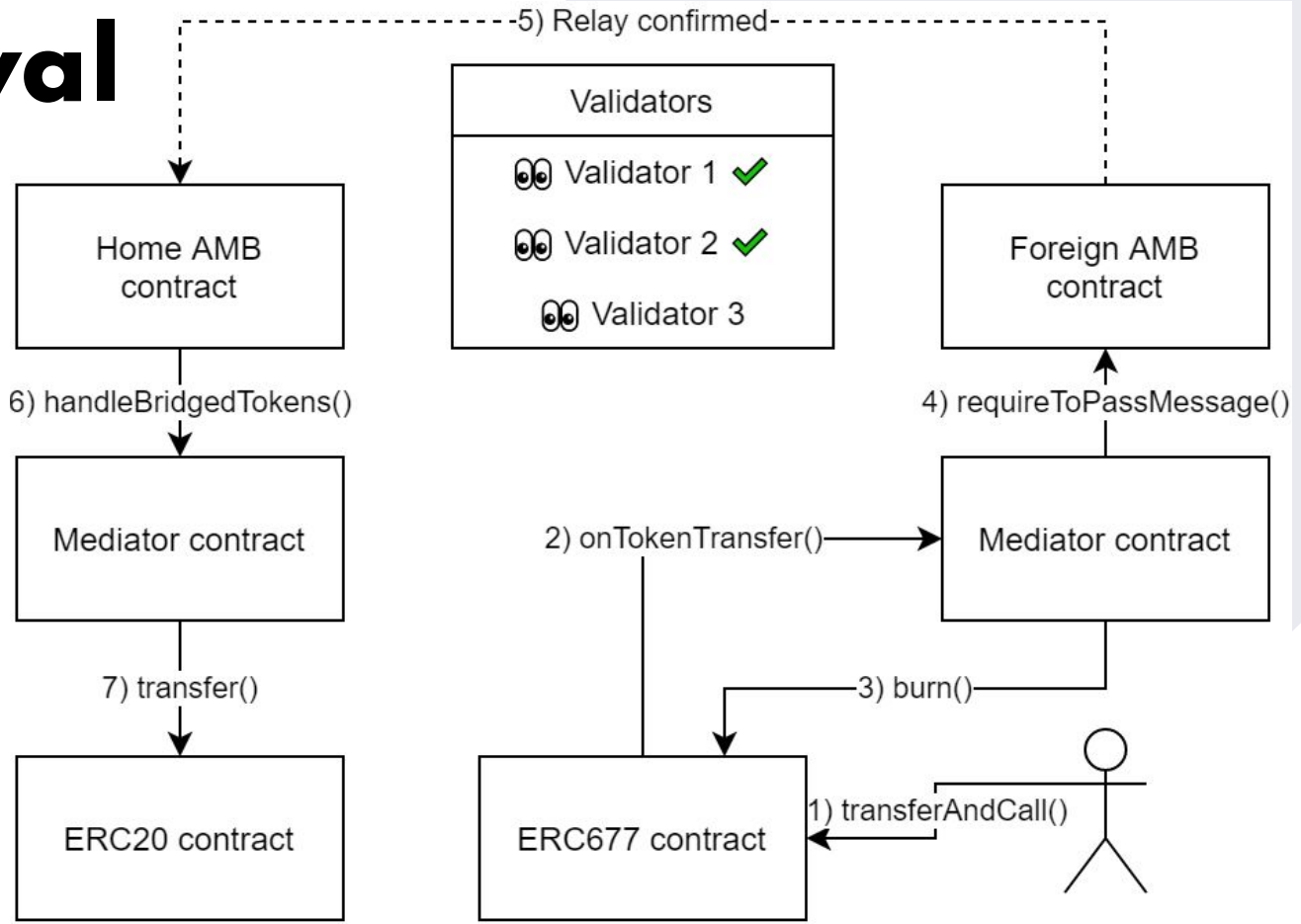
First deposit through AMB



Consequent deposits



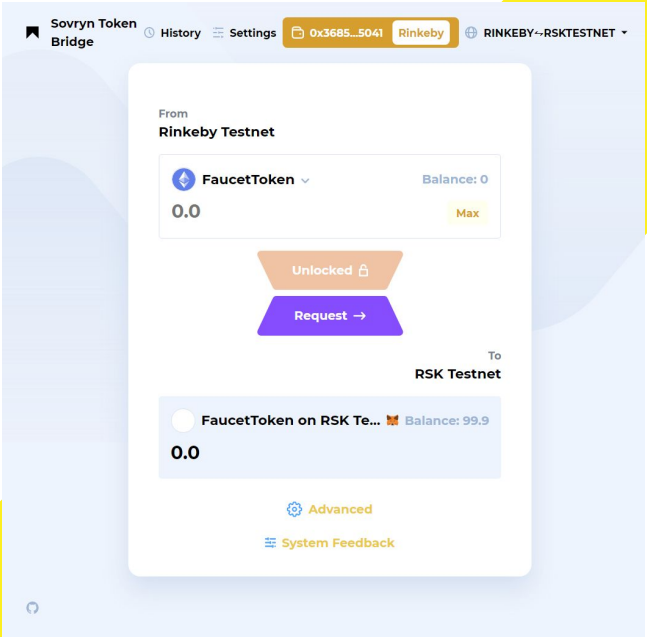
Withdrawal


5) Relay confirmed
Validators
Validator 1
Validator 2
Validator 3
Home AMB contract
Foreign AMB contract
6) handleBridgedTokens()
4) requireToPassMessage()
Mediator contract
2) onTokenTransfer()
Mediator contract
7) transfer()
3) burn()
1) transferAndCall()
ERC20 contract
ERC677 contract

Token Bridge Dapp

Makes it easier for users to utilize the Sovryn Token Bridge.

[Watch video demo]



Thanks!