




Ethereum - Solidity

Interfacing Solidity code with Blockchain(testnet) using MetaMask



Dr. Sarwan Singh
NIELIT Chandigarh

← → ↻ 🏠 🔒 metamask.io ☆ 🌙 🔍 📁 🐯 👤 ⋮

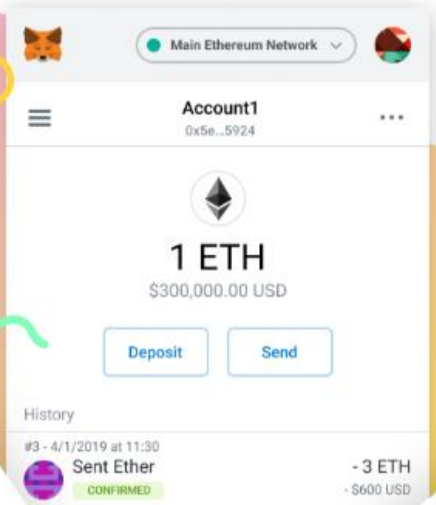
 **METAMASK**

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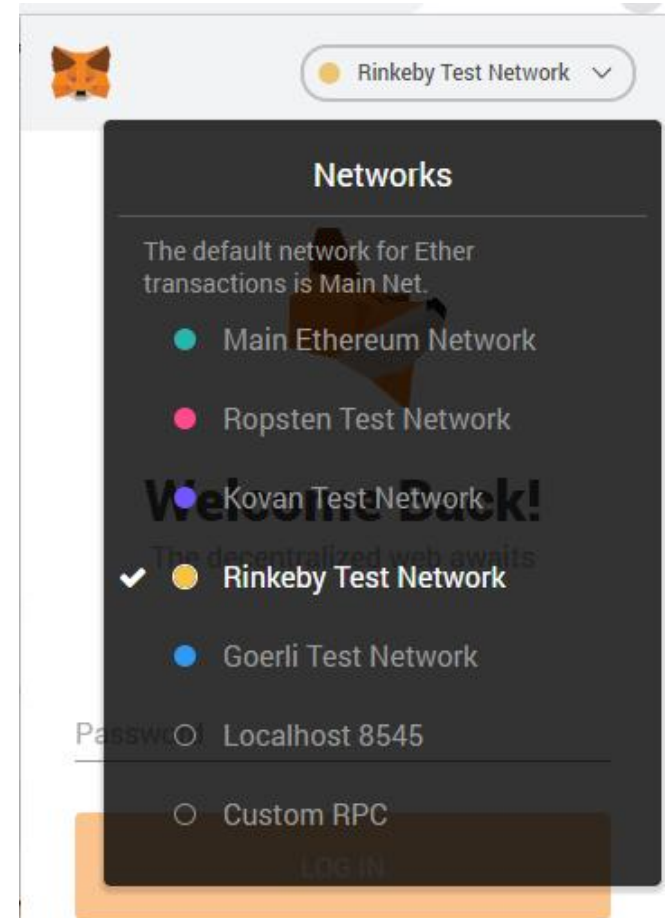
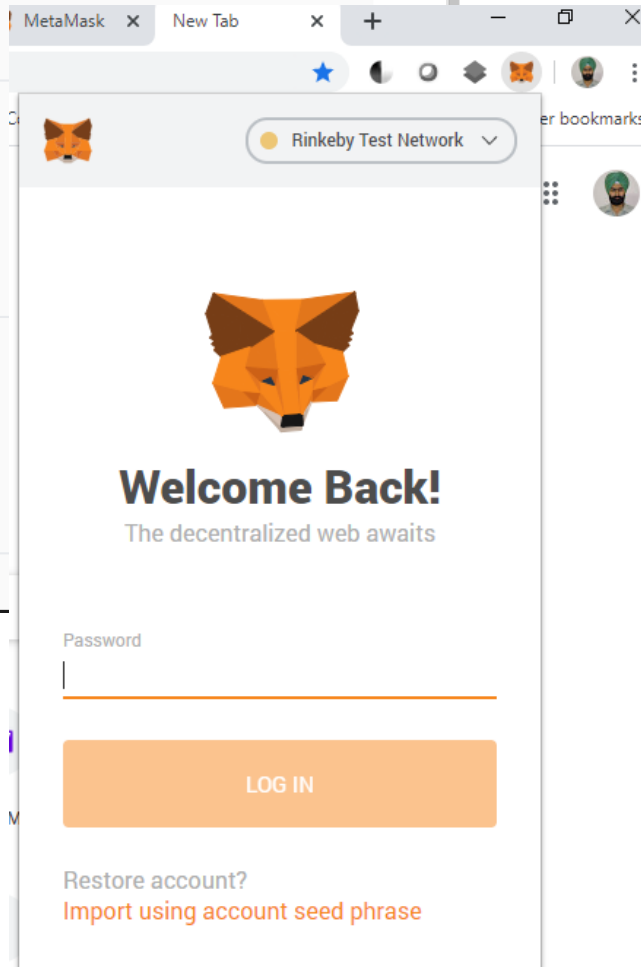
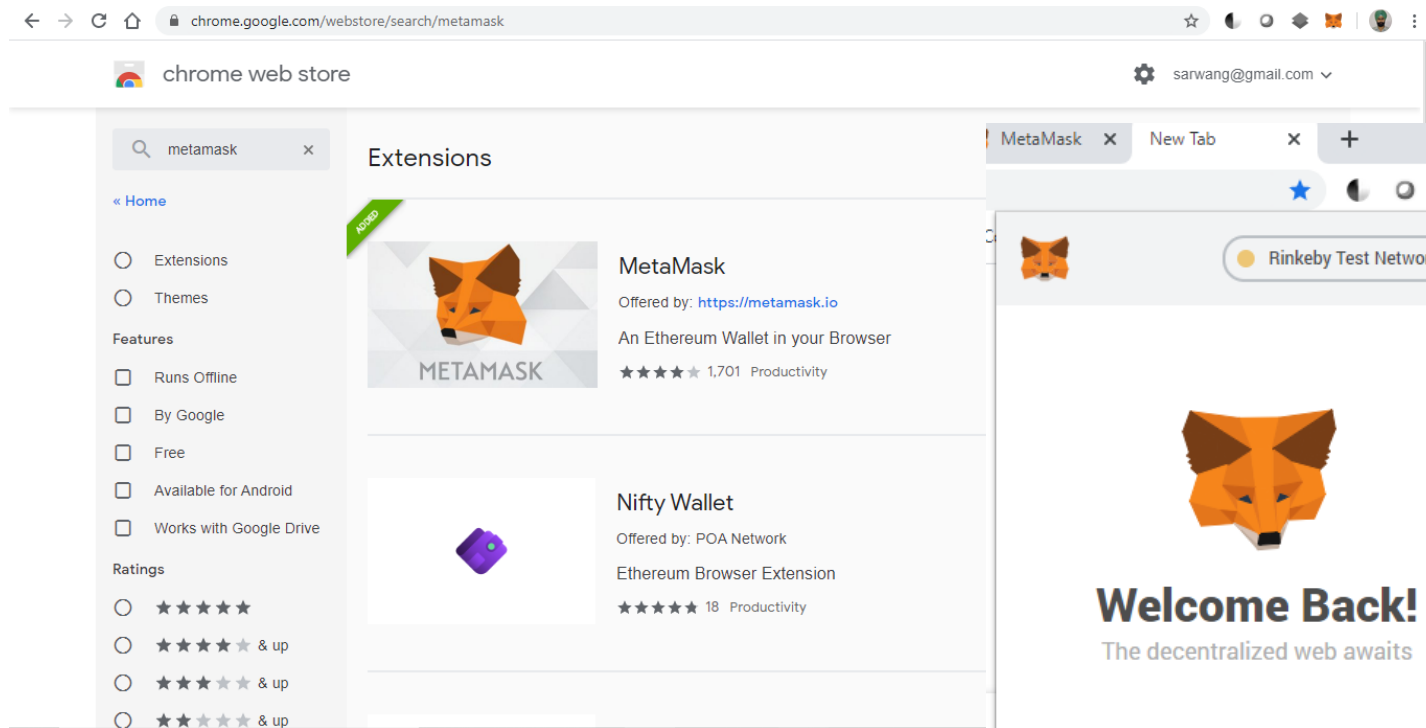
Account1
0x5e...5924

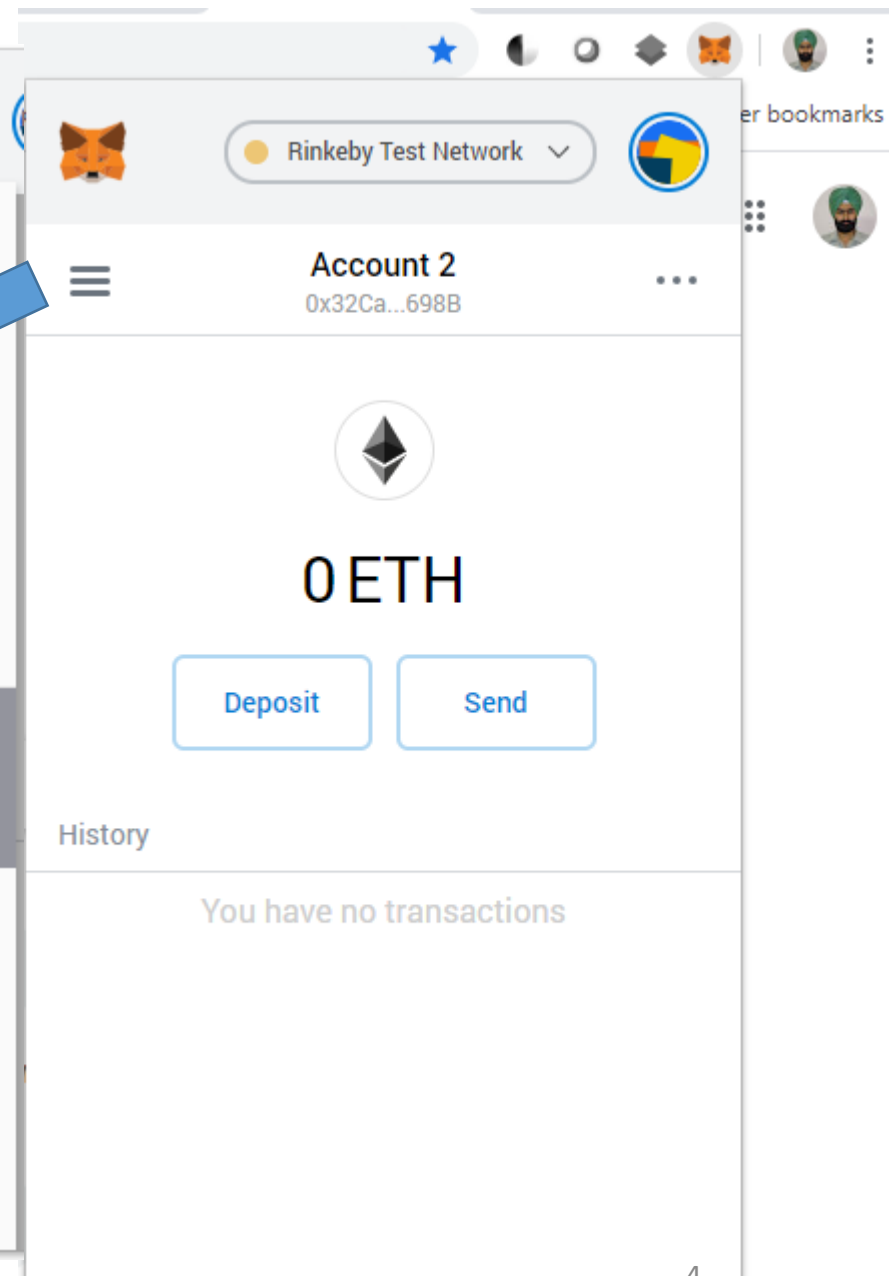
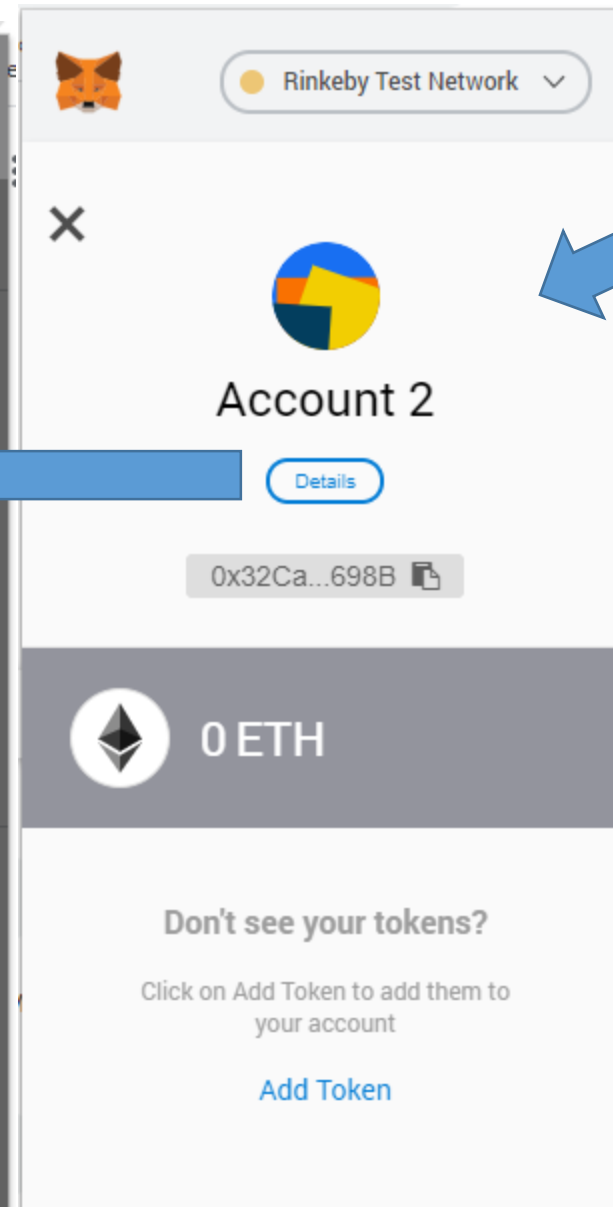
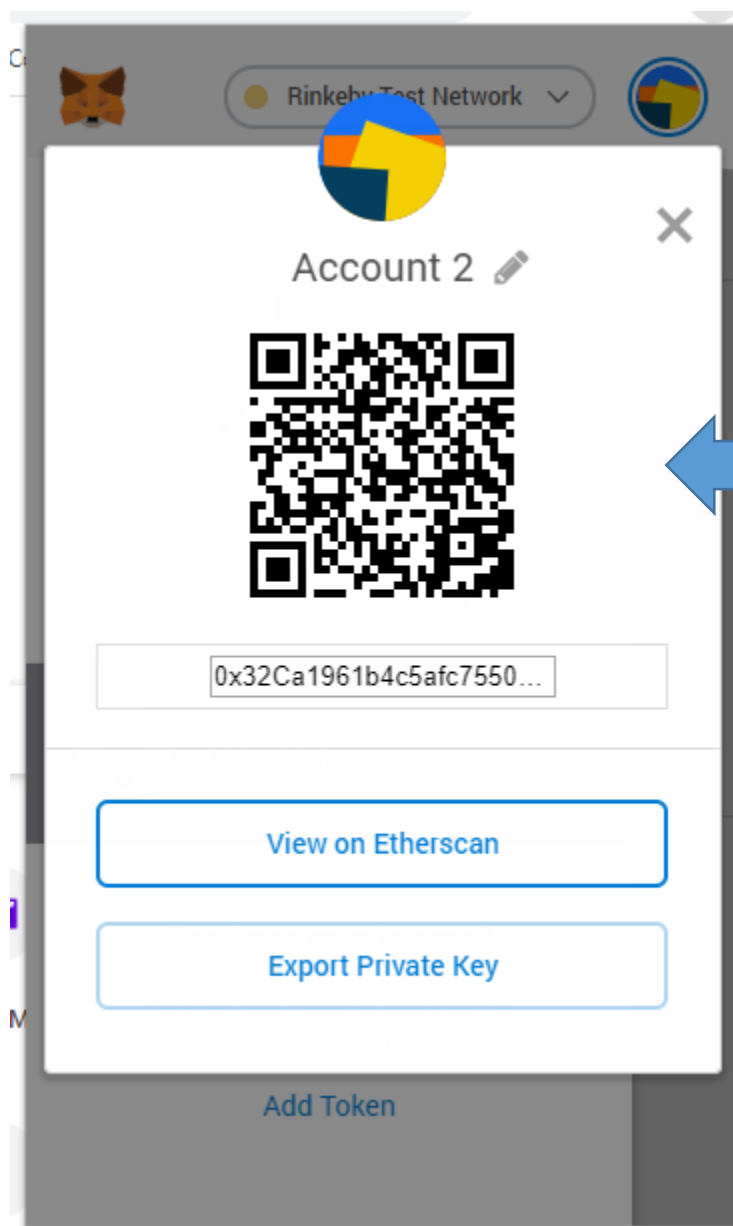
1 ETH
\$300,000.00 USD

Deposit Send


History


#3 - 4/1/2019 at 11:30
Sent Ether - 3 ETH
- \$600 USD
CONFIRMED








Getting Ethers from Rinkeby Faucet















Network Stats

Block Explorer





Crypto Faucet

Connect Yourself

About Puppeth


 Rinkeby Authenticated Faucet


Give me Ether ▾

 7 peers  6118298 blocks  9.046256971865328e+56 Ethers  344358 funded

How does this work?

This Ether faucet is running on the Rinkeby network. To prevent malicious actors from exhausting all available funds or accumulating enough Ether to mount long running spam attacks, requests are tied to common 3rd party social network accounts. Anyone having a Twitter or Facebook account may request funds within the permitted limits.

 To request funds via Twitter, make a [tweet](#) with your Ethereum address pasted into the contents (surrounding text doesn't matter). Copy-paste the [tweets URL](#) into the above input box and fire away!

 To request funds via Facebook, publish a new public post with your Ethereum address embedded into the content (surrounding text doesn't matter). Copy-paste the [posts URL](#) into the above input box and fire away!

You can track the current pending requests below the input field to see how much you have to wait until your turn comes.

The faucet is running invisible reCaptcha protection against bots.

Getting Ethers from Rinkeby Faucet

Network Stats

Block Explorer

Crypto Faucet

Connect Yourself

About Puppeth

Funding request accepted for
imsarwansingh@twitter into
0x32Ca1961b4c5afc7550Ebed34Eb0C88FEEfA

Rinkeby Authenticated Faucet

Give me Ether ▾

0x32ca1961b4c5afc7550ebed34eb0c88feefa698b

a few seconds ago

6 peers

8183007 blocks

9.046256971865328e+58 Ethers

345567 funded

How does this work?

This Ether faucet is running on the Rinkeby network. To prevent malicious actors from exhausting all available funds or accumulating enough Ether to mount long running spam attacks, requests are tied to common 3rd party social network accounts. Anyone having a Twitter or Facebook account may request funds within the permitted limits.

To request funds via Twitter, make a [tweet](#) with your Ethereum address pasted into the contents (surrounding text doesn't matter). Copy-paste the [tweets URL](#) into the above input box and fire away!

To request funds via Facebook, publish a new [public post](#) with your Ethereum address embedded into the content (surrounding text doesn't matter). Copy-paste the [posts URL](#) into the above input box and fire away!

You can track the current pending requests below the input field to see how much you have to wait until your turn comes.

The faucet is running invisible reCaptcha protection against bots.

Etherscan.io Browser

rinkeby.etherscan.io

☆

Etherscan


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Tokens ▾

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Rinkeby

Sponsored:  Solana The worlds first Web-Scale Blockchain [Learn More](#) ⓘ

Rinkeby Testnet Explorer

Quick links: [ERC-20 Quick links](#) [ERC-721 Quick links](#)

All Filters ▾

Search by Address / Txn Hash / Block / Token / Ens

Search

Latest Blocks

Bk	6150877 28 secs ago	Miner 0xb279182d99e657... 7 txns in 15 secs	0 Eth
Bk	6150876 43 secs ago	Miner 0x7ffc57839b00206... 6 txns in 15 secs	0 Eth
Bk	6150875 58 secs ago	Miner 0x6635f83421bf059... 5 txns in 15 secs	0 Eth
Bk	6150874 1 min ago	Miner 0x42eb768f2244c88... 3 txns in 15 secs	0 Eth
Bk	6150873 1 min ago	Miner 0xd6ae8250b8348c... 7 txns in 15 secs	0 Eth

Latest Transactions

Tx	0x0db0257014... 28 secs ago	From 0xe09d493ef62fbd4... To 0xe09d493ef62fbd4...	0.005 Eth
Tx	0x43e201b539... 28 secs ago	From 0x0cb510e2f16c36c... To 0x4eac9a8c7a6c3a...	7 wei
Tx	0x561081892c... 28 secs ago	From 0x0cb510e2f16c36c... To 0x4eac9a8c7a6c3a...	3 wei
Tx	0xe505ef960b... 28 secs ago	From 0xdac817294c0c87... To 0x40897ff6e44ca2e...	0 Eth
Tx	0xd909e55415... 28 secs ago	From 0xf94230d278b36a2... To 0x8cb047585ebd9...	0 Eth

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Got It

2019-20

Bk

1 min ago

[4 txns](#) in 15 secs

IX


28 secs ago

To [0x8cb047585ebd9...](#)

7

Accessing account on Etherscan.io


← → × 🏠 🔒 rinkeby.etherscan.io/address/0x32ca1961b4c5afc7550ebed34eb0c68feefa698b ☆ 🌙 🔄 🦊 🐙



All Filters ▾ Search by Address / Txn Hash / Block / Token / Ens 🔍

Rinkeby Testnet Network Home Blockchain ▾ Tokens ▾ Misc ▾ Rinkeby

Address 0x32ca1961b4c5afc7550ebed34eb0c68feefa698b 📄 🗄

Sponsored:  **Fortmatic** - Build Ethereum web3 dApps without browser extensions or mobile wallets. [Get Started](#) ⓘ

Overview

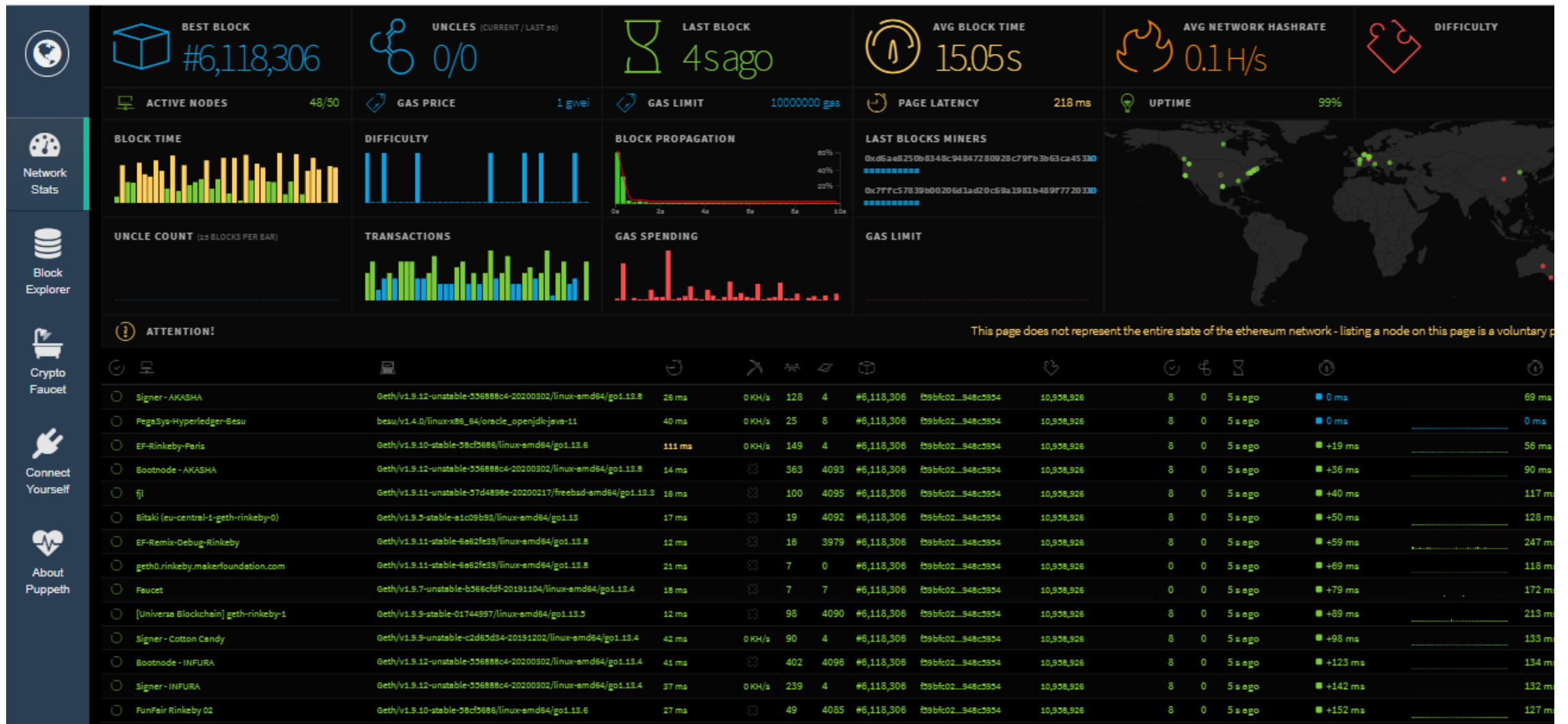
Balance: 0 Ether

More Info ⋮

My Name Tag: Not Available

Transactions

Txn Hash	Block	From ▾	To ▾	Value	[Txn Fee]
There are no matching entries					



Solidity Contract -> selecting Environment

← → ↻ ⚠ Not secure | remix.ethereum.org/#optimize=false&evmVersion=null&version=soljson-v0.4.25+commit.59dbf8f1.js ☆ 🐙 📄

DEPLOY & RUN TRANSACTIONS

Environment: Injected Web3

Account: Injected Web3

Gas limit: 3000000

Value: 0 wei

Bank - browser/Bank.sol

Deploy

or

At Address Load contract from Address

Transactions recorded: 0

Deployed Contracts

Currently you have no contract instances to interact with.

Home Bank.sol


```
1 pragma solidity 0.4.25;
2
3 contract Bank{
4     int bal;
5
6     constructor () public
7     {
8         bal =1;
9     }
10    function getBalance() view public returns (int )
11    {
12        return bal;
13    }
14    function withdraw (int amt) public
15    {
16        bal =bal -amt;
17    }
18    function deposit (int amt ) public
19    {
20        bal = bal +amt;
21    }
22 }
23 }
```

📄 0 ☐ listen on network 🔍 Search with transaction hash or address


CALL [call] from:0xCA35b7d915458EF540aDe6068dFe2F44E8fa733c to:Bank.getBalance() data:0x120...65fe0

> Debug



← → ↻ ⚠ Not secure | remix.ethereum.org/#optimize=false&evmVersion=null&version=solicon-v0.4.25+commit.59dbf8f1.js




DEPLOY & RUN TRANSACTIONS


Environment: Injected Web3 

Rinkeby (4) network

Account:  

Gas limit: 3000000


Value: 0 wei 


Bank - browser/Bank.sol 

Deploy

or

At Address Load contract from Address

Transactions recorded: 0 




Deployed Contracts 

Currently you have no contract instances to interact with.

MetaMask Notification

Rinkeby Test Network

Connect Request




Remix - Ethereum IDE
remix.ethereum.org

Account 1

Remix - Ethereum IDE would like to connect to your account

This site is requesting access to view your current account address. Always make sure you trust the sites you interact with.
[Learn more.](#)

 MetaMask Secure

Cancel Connect

Smart Contract Code

The screenshot displays the Remix IDE interface. The top navigation bar shows the URL `remix.ethereum.org/#optimize=false&evmVersion=null&version=soljson-v0.4.25+commit.59dbf8f1.js` and a 'Not secure' warning. The left sidebar contains icons for deployment, file explorer, console, and settings.

The main interface is divided into two panels. The left panel, titled 'DEPLOY & RUN TRANSACTIONS', contains deployment settings: Environment (Injected Web3), Account (0xf3Ba50649C2403...), Gas limit (3000000), Value (0 wei), and a contract selection dropdown (Bank - browser/Bank.sol). It includes 'Deploy' and 'At Address' buttons. Below this, it shows 'Transactions recorded: 0' and a section for 'Deployed Contracts' with the message 'Currently you have no contract instances to interact with.'

The right panel displays the Solidity code for `Bank.sol`:

```
1 pragma solidity 0.4.25;
2
3 contract Bank{
4     int bal;
5
6     constructor () public
7     {
8         bal =1;
9     }
10    function getBalance() view public returns (int )
11    {
12        return bal;
13    }
14    function withdraw (int amt) public
15    {
16        bal =bal -amt;
17    }
18    function deposit (int amt ) public
19    {
20        bal = bal +amt;
21    }
22 }
23 }
```

The bottom panel shows the console with a transaction log entry: `[call] from:0xCA35b7d915458EF540aDe6068dFe2F44E8fa733c to:Bank.getBalance() data:0x120..`. The user's email `sarwan@NIELIT` is visible at the bottom right.

Rinkeby Test Network

Account 1 → New Contract

CONTRACT DEPLOYMENT

0

DETAILS DATA

GAS FEE 0.000136
No Conversion Rate Available

TOTAL 0.000136
No Conversion Rate Available

Reject Confirm

2019-20

#optimize=false&evmVersion=null&version=soljson-v0.4.25+commit.59dbf8f1.js

Home Bank.sol

```
1 pragma solidity 0.4.25;
2
3 contract Bank{
4     int bal;
5
6     constructor () public
7     {
8         bal =1;
9     }
10    function getBalance() view public returns (int )
11    {
12        return bal;
13    }
14    function withdraw (int amt) public
15    {
16        bal =bal -amt;
17    }
18    function deposit (int amt ) public
19    {
20        bal = bal +amt;
21    }
22
23 }
```

1 listen on network Search with transaction hash or address

creation of Bank pending...

> sarwan@NIELIT

← → ↻ ⚠ Not secure remix.ethereum.org/#optimize=false&evmVersion=null&version=soljson-v0.4.25+commit.59dbf8f1.js ☆ 🦊 📄 👤 ⋮

DEPLOY & RUN TRANSACTIONS 📄

Environment Injected Web3 ⓘ

Rinkeby (4) network

Account 0xf3B...a6055 (2.99%) ⓘ

Gas limit 3000000

Value 0 wei ▼

Bank - browser/Bank.sol ⓘ

Deploy

or

At Address Load contract from Address

Transactions recorded: 1 ▼

Deployed Contracts

Bank at 0x2f5...B3bDB (blockchain) ⓘ ✕

🔍 🔍 📄 Home Bank.sol ✕ 2 tabs

```
1 pragma solidity 0.4.25;
2
3 contract Bank{
4     int bal;
5
6     constructor () public
7     {
8         bal =1;
9     }
10    function getBalance() view public returns (int )
11    {
12        return bal;
13    }
14    function withdraw (int amt) public
15    {
16        bal =bal -amt;
17    }
18    function deposit (int amt ) public
19    {
20        bal = bal +amt;
21    }
22
23 }
```


📄 0 ☐ listen on network 🔍 Search with transaction hash or address

creation of Bank pending...

<https://rinkeby.etherscan.io/tx/0x993ce3a9d901a034109ef8c5ccb4a8c397a81ee581841bc7c1c0c9968c>

✅ [block: txIndex:] from:0xf3B...a6055 to:Bank.(constructor) value:0 wei data:0x608...90


p12.png ^ p1.jfif ^ p12.jpg ^ p10.jfif ^ p9.pr

 **Confirmed transaction**
Transaction 0 confirmed! View on Etherscan
Google Chrome

Wednesday, March 11, 2020

Accessing Transaction on Etherscan

← → × rinkeby.etherscan.io/tx/0x993ce3a9d901a034109ef8c5ccb4a8c397a81ee581841bc7c1c0c9968c2809f1



 Etherscan

Rinkeby Testnet Network

All Filters ▾ Search by Address / Txn Hash / Block / Token



Home Blockchain ▾ Tokens ▾

Transaction Details

Sponsored:  **Sustain Podcast #27**  Creating Dracula PRO, clipboard.js, and more! [Listen now!](#) ⓘ

[Overview](#) [State Changes](#)

[This is a Rinkeby Testnet transaction only]

Transaction Hash:	0x993ce3a9d901a034109ef8c5ccb4a8c397a81ee581841bc7c1c0c9968c2809f1
Status:	 Success
Block:	6118341 34 Block Confirmations
Timestamp:	8 mins ago (Mar-11-2020 08:51:13 AM +UTC)
From:	0xf3ba50649c2403458c7592effd74dbf84fea6055
To:	[Contract 0x2f5b201228c8d49c4e637b7fd61f55657acb3bdb Created] 

<https://rinkeby.etherscan.io/tx/0xf330119ea442e81dba651066d4a0d44b7b2f719b6514f8cbd863dccaed288ed1>

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2019-20 sarwan@NIELIT 15

Calling methods of Deployed Contract

The screenshot displays a web application for interacting with a deployed contract on the Rinkeby Test Network. The interface is divided into three main sections:

- Left Sidebar (DEPLOY & RUN TRANSACTIONS):** Contains options to 'Deploy' or 'At Address' (Load contract from Address). It shows 'Transactions recorded: 3' and a list of 'Deployed Contracts' including 'Bank at 0x2f5...B3bDB (blockchain)'. Below this are buttons for 'deposit' (100), 'withdraw' (int256 amt), and 'getBalance'. A 'Low level interactions' section includes a 'Calldata' input field and a 'Transact' button.
- Main Area (CONTRACT INTERACTION):** Displays the selected contract 'Bank at 0x2f5...B3bDB (blockchain)'. It shows the 'GAS FEE' as 0.000027 and the 'TOTAL' as 0.000027, both with a note 'No Conversion Rate Available'. At the bottom are 'Reject' and 'Confirm' buttons.
- Right Sidebar:** Contains a code editor showing the contract's source code, including a `public returns (int)` function signature.

The bottom of the interface shows a transaction log with a green checkmark and the following details: `[block: txIndex:] from:0xf38...a6055 to:Bank.(constructor) value:0 wei data:0x608...90029 logs:0 hash:0x993...809f1`.

Transactions on Metamask

The screenshot displays the Metamask web interface in a browser. The top bar shows the address bar with the URL 'chrome-extension://nkbihfbeogaeaoehlefnkodbefgpgknn/home.html#'. The Metamask logo and 'Rinkeby Test Network' are visible in the top right. The main content area shows 'Account 1' with a balance of 2.9999 ETH. Below the account name is a 'Details' button and a truncated address '0xf3Ba...6055'. A dark grey box also displays the balance '2.9999 ETH'. A section titled 'Don't see your tokens?' includes a link to 'Add Token'. To the right, a 'History' table lists transactions:

Transaction	Status	Amount
Contract Inter... #1 - 3/11/2020 at 14...	CONFIRMED	-0 ETH
Contract Deplo... #0 - 3/11/2020 at 14...	CONFIRMED	-0 ETH
Deposit 3/11/2020 at 13:41	CONFIRMED	3 ETH

At the bottom right, two notification boxes are visible. The top one says 'Backup your Secret Recovery code to keep your wallet and funds secure.' The bottom one, titled 'Confirmed transaction', states 'Transaction 1 confirmed! View on Etherscan' and 'Google Chrome'. The bottom of the browser shows a tab bar with several open tabs labeled with file names like 'p12.png', 'p1.jfif', 'p12.jpg', 'p10.jfif', and 'p9.pr'.

remix.ethereum.org/

DEPLOY & RUN TRANSACTIONS

Deploy

or

At Address Load contract from Address

Transactions recorded: **4**

Deployed Contracts

Bank at 0x2f5...B3bDB (blockchain)

deposit 100

withdraw 25

getBalance

0:int256: 101

Low level interactions

Calldata **Transact**

MetaMask Notification

Rinkeby Test Network

Account 1 → 0x2f5B...3b...

CONTRACT INTERACTION

0

DETAILS DATA

GAS FEE 0.000027
No Conversion Rate Available

AMOUNT + GAS FEE

TOTAL 0.000027
No Conversion Rate Available

Reject **Confirm**

returns (int)


h with transaction hash or address

F44E8fa733c to:Bank.getBalance() data:0x120...65fe0 **Debug**


4109ef8c5ccb4a8c397a81ee581841bc7c1c0c9968c2809f1


[block: txIndex:] from:0xf3B...a6055 to:Bank.(constructor) value:0 wei data:0x608...90029 logs:0 hash:0x993...809f1 **Debug**

MetaMask | chrome-extension://nkbihfbeogaeaoehlefnkodbefgpgknn/home.html#

 **METAMASK**

Rinkeby Test Network






Account 1

Details


0xf3Ba...6055

 **2.9998 ETH**

Don't see your tokens?

Click on Add Token to add them to your account





[Add Token](#)

 **2.9998 ETH**

Deposit

Send

History

	Contract Intera... #2 - 3/11/2020 at 14...	CONFIRMED	-0 ETH
	Contract Intera... #1 - 3/11/2020 at 14...	CONFIRMED	-0 ETH
	Contract Deplo... #0 - 3/11/2020 at 14...	CONFIRMED	-0 ETH
	Deposit 3/11/2020 at 13:41	CONFIRMED	3 ETH

Backup your Secret Recovery code to keep your wallet and funds secure.

Backup now

2019-20

sarwan@NIELIT

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Transaction in Queue

MetaMask | chrome-extension://nkbihfbeogaeaoehlefnkodbefgpgknn/home.html#

METAMASK Rinkeby Test Network

Account 1
Details
0xf3Ba...6055

2.9996 ETH

Don't see your tokens?
Click on Add Token to add them to your account
Add Token

Queue (1)

Contract Intera... #6 - 3/11/2020 at 16...	PENDING	-0 ETH
---	---------	--------

History

Contract Intera... #5 - 3/11/2020 at 16...	CONFIRMED	-0 ETH
Contract Intera... #4 - 3/11/2020 at 16...	CONFIRMED	-0 ETH
Contract Deplo... #3 - 3/11/2020 at 16...	CONFIRMED	-0 ETH
Contract Intera...	CONFIRMED	-0 ETH

Backup your Secret Recovery code to keep your wallet and funds secure.
Backup now