

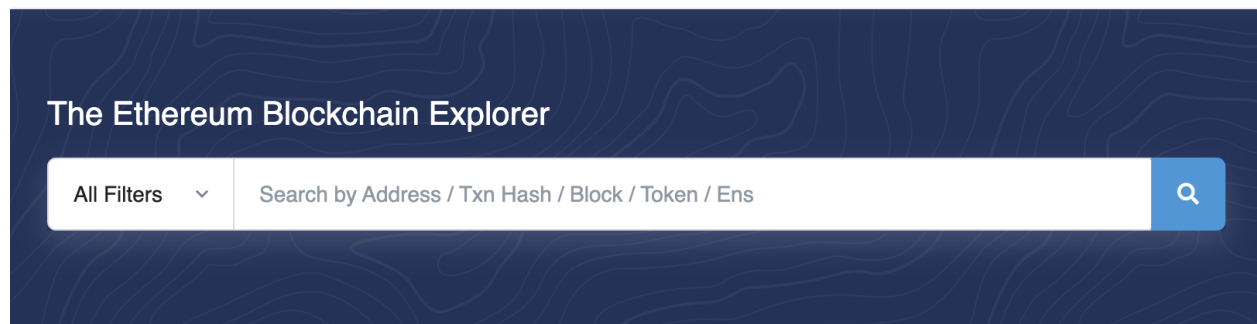
## 7 Blockchain Explorer Basics

When I first got into crypto and began to explore the Ethereum ecosystem, I really had no idea how to interact with the blockchain. Sure, I could fire up my MetaMask and look at the little ETH I had, but it wasn't until I decided to swap some of that ETH for another token that I began to think about what MetaMask was doing.

After swapping that ETH for UNI, I didn't see that token in my wallet. I panicked, thinking that I had done something wrong and had screwed up the transaction and somehow had lost my ETH. I noticed the 'Activity' tab in MetaMask and I clicked on that. From there, it looked like everything worked as expected, and it seemed I could click on that activity, so I did. That brought up another window that showed me new words: "View on block explorer". What was that? It was in blue text like a hyperlink so I clicked on it, and a whole new world opened before me. Hello Etherscan!

### What Is Etherscan?

Simply put, Etherscan is a blockchain explorer. In some ways, you can think about a blockchain explorer as a search engine for blockchains. There's a search bar, and you can use that field to search the blockchain by wallet address, transaction hash, block number, token name, ENS name, contract address, and I'm sure things I haven't listed here.

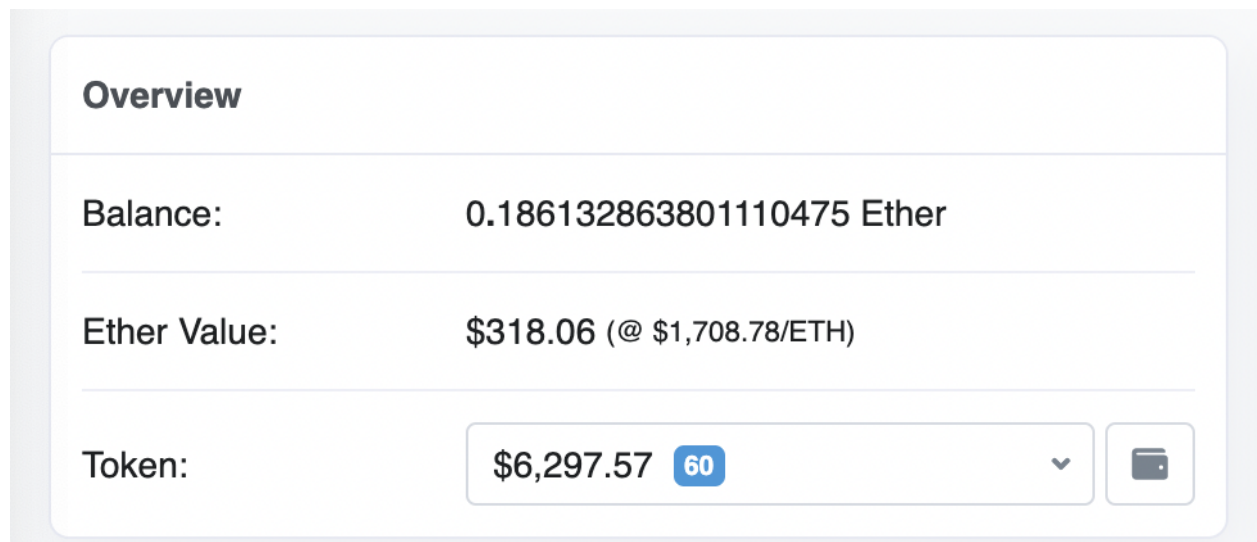


This kind of search functionality is great, but blockchain explorers are so much more than that. They act as makeshift front ends by allowing you to read and write to the blockchain, including interacting directly with smart contracts. This functionality will

prove to be invaluable as governments begin to more heavily regulate our blockchain usage. There's a ton going on under the hood in Etherscan, so let's start with the basics.

## See Everything Associated With A Wallet

When I swapped ETH for UNI, I didn't realize you had to import tokens to be able to view them (recent upgrades to MetaMask have better token detection defaults). Once I got into Etherscan, I could see my UNI, which is when I really understood that while MetaMask was a wallet, its functionality was really quite limited. With Etherscan, I could see everything that was attached to my wallet address on the blockchain.



If you click on the dropdown menu under Token, you can see everything associated with your wallet address on the Ethereum network. Sixty tokens, really? Well.....

## Etherscan Shows You Scams

Let's be clear - I don't have 60 tokens, at least not ones I actively sought. One great thing about Etherscan is that it not only shows you all the tokens you have, it helps you to understand which of those tokens may be scams or otherwise malicious.

 akSwap.io (akSwap...)  
250,000 akSwap.io

 ApeCoinV2.co... (ApeCoi...)  
10,254 ApeCoinV2.com


Let's take these two for example. If you click on ApeCoinv2, Etherscan will display a message letting you know it's not a real token.

 This is a fake ApeCoin token.

For akSwap.io, it's even a starker warning:

Warning! Exercise caution when interacting with this token contract

And next to the Token address, you see this:

 **Token** 0x82dfdb2ec1aa6003ed4acba663403d7c2127ff67  
**Phish / Hack**

As a general rule, if you don't know what something is in your wallet, it's a scam, phish, or malicious contract that could steal your legitimate crypto. Etherscan helps you understand this.

## Etherscan Shows Transaction History

Say you sent your friend an NFT for her birthday. That's very nice of you. So you send your NFT over, but your friend says they haven't received it. This is another great use of Etherscan. Since Etherscan tracks all blockchain activity, you can show your friend that the NFT was indeed sent to her correct wallet address.

Overview

Logs (2)

State

Comments

Transaction Hash:

0x22a7f7ca639a9fbc569997956776e92d95347003cb4f3f6f7debebfdde8128f5

Status:

Success

Block:


14796272

518114 Block Confirmations

Timestamp:


84 days 10 hrs ago (May-18-2022 02:37:53 AM +UTC) | Confirmed within 3 secs

Transaction Action:

Transfer of  Newsies (NEWSIE) From 0x958c20a43f5206f186b... To 0x6dd6934452eb4e6d87...

1 of Token ID [29]

From:


 hirokenelly.eth

Interacted With (To):

Contract 0xe2646cb7ef0443a41b0a7a6d9f542bde2503d973

Tokens Transferred:

From 0x958c20a43f520... To 0x6dd6934452eb4...

For ERC-721 Token ID [29]  Newsies (NEWSIE)

## Etherscan Has a Gas Tracker

Although gas isn't what it was during the bull market, it's still great to have a sense of what a transaction may cost. Ethereum's [gas tracker](#) shows you estimated gas costs to interact with Ethereum in different ways.

Next update in 2s

Wed, 10 Aug 2022 12:49:05 UTC



😊 Low

51 gwei

Base: 50 | Priority: 1  
\$1.80 | ~ 10 mins: 0 secs

😊 Average

52 gwei

Base: 50 | Priority: 2  
\$1.83 | ~ 3 mins: 0 secs

😊 High

56 gwei

Base: 50 | Priority: 6  
\$1.87 | ~ 30 secs

#### Estimated Cost of Transaction Actions:

[View API](#)







Action	Low	Average	High
🔗 OpenSea: Sale	\$6.13	\$6.26	\$6.38
🔗 Uniswap V3: Swap	\$15.79	\$16.12	\$16.44
🔗 USDT: Transfer	\$4.63	\$4.73	\$4.82

## Etherscan Shows You Live Action



Etherscan lets you see both the latest transactions and the newest blocks.

Latest Blocks				Latest Transactions			
Bk	15314402	Miner F2Pool Old	2.47546 Eth	Tx	0x8fd5fa67...	From 0xbfaa76ab1f35444ecdf...	0.3825...
	1 min ago	414 txns in 11 secs			1 min ago	To 0x10b620f9720c0c6460...	
Bk	15314401	Miner F2Pool Old	2.07946 Eth	Tx	0xc80871cd...	From 0x15acab04e2e2f6a2a8...	0.0977...
	1 min ago	172 txns in 2 secs			1 min ago	To 0x0db79bbb99defc2356...	
Bk	15314400	Miner Ethermine	2.03203 Eth	Tx	0x29f92805...	From 0xfc6418e4396b755ea8...	0.1235...
	1 min ago	84 txns in 5 secs			1 min ago	To 0x10b620f9720c0c6460...	
Bk	15314399	Miner Ethermine	2.08307 Eth	Tx	0x6b1074c...	From 0xa8e0e0480d22ab06ee...	0.4281...
	1 min ago	72 txns in 7 secs			1 min ago	To 0x10b620f9720c0c6460...	
Bk	15314398	Miner Poolin 3	2.06937 Eth	Tx	0x7bf3624c...	From 0x5540c3676e14f03b2b...	0.0157...
	1 min ago	115 txns in 23 secs			1 min ago	To 0x10b620f9720c0c6460...	
Bk	15314397	Miner Ethermine	2.24514 Eth	Tx	0xaf9882b7...	From 0xe7095f505aca210570...	0.6166...
	2 mins ago	226 txns in 3 secs			1 min ago	To 0x0dk70khh00d4fc2256...	
<a href="#">View all blocks</a>				<a href="#">View all transactions</a>			

If you click on the transaction hash, it will give you the details. The below is the transaction (Tx) beginning with 0x8fd:

Overview		State	Comments	
Transaction Hash:	0x8fd5fa678a75bbe2cc35cd29dba3683a6f51bf636c6635473ef55d797547d7d9 			
Status:	 Success			
Block:	15314402  41 Block Confirmations			
Timestamp:	 9 mins ago (Aug-10-2022 12:44:38 PM +UTC)			
From:	0xbfaa76ab1f35444ecd42fdb0ebff6198eecd4 			
To:	0x10b620f9720c0c6460484a81c59a6297fa48f817 			
Value:	0.38254297690715 Ether (\$689.78)			
Transaction Fee:	0.000779949698997 Ether (\$1.41)			
Gas Price:	0.000000037140461857 Ether (37.140461857 Gwei)			

That's fun, but looking at blocks is much more interesting, for example the top block 1534402:

Overview	Comments
Block Height:	15314402 < >
Timestamp:	10 mins ago (Aug-10-2022 12:44:38 PM +UTC)
Transactions:	414 transactions and 74 contract internal transactions in this block
Mined by:	0x829bd824b016326a401d083b33d092293333a830 (F2Pool Old) in 11 secs
Block Reward:	2.475466736179401836 Ether (2 + 1.522599769231688099 - 1.047133033052286263)
Uncles Reward:	0
Difficulty:	11,723,855,494,787,787
Total Difficulty:	56,037,669,474,854,454,592,600
Size:	176,385 bytes
Gas Used:	29,997,659 (99.99%)  +100% Gas Target
Gas Limit:	30,000,000
Base Fee Per Gas:	0.000000034907158357 Ether (34.907158357 Gwei)
Burnt Fees:	 1.047133033052286263 Ether
Extra Data:	七彩神仙鱼( ! (Hex:0xe4b883e5bda9e7a59ee4bb99e9b1bc280121)

You can see this block had 414 transactions included within it, including 74 smart contract interactions. It will show you the miner, the block reward, and, among other things, the amount of ETH burned (over 1 ETH!). For those interested in this level of granular blockchain detail, there's no better place to go.

## Etherscan Isn't Limited to Mainnet

Etherscan lets you explore blockchains besides Ethereum mainnet. When you search by wallet address, the top of the result page appears like:





Although it's totally unintuitive, if you click on the 'b' (which stand for 'blockscan'), it takes you to a new pages that has the names of other blockchains:


[Addresses](#) [Transactions](#)


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Address **0x958c20A43F5206F186B0195cCB61AcB724b2EE1E** found in 8 different chains. (0.011 secs)

**Etherscan**  
 <https://etherscan.io> > address > 0x958c20A43F5206F186B0195cCB61AcB724b2EE1E  
[Ethereum](#)

**BscScan**  
 <https://bscscan.com> > address > 0x958c20A43F5206F186B0195cCB61AcB724b2EE1E  
[Binance Smart Chain](#)

**PolygonScan**  
 <https://polygonscan.com> > address > 0x958c20A43F5206F186B0195cCB61AcB724b2EE1E  
[Polygon \(Matic\)](#)

**Optimistic Ethereum**  
 <https://optimistic.etherscan.io> > address > 0x958c20A43F5206F186B0195cCB61AcB724b2EE1E  
[Optimism](#)

**Arbiscan**  
 <https://arbiscan.io> > address > 0x958c20A43F5206F186B0195cCB61AcB724b2EE1E  
[Arbitrum](#)

In addition to Binance Smart Chain, which, honestly, is a pretty random inclusion (but it is an EVM chain), you'll see three scaling solutions: the Polygon side chain and Layer 2 solutions Optimism and Arbitrum. If you click on any of these, you'll be brought to a block explorer just like you use for Ethereum.



# Etherscan Lets You Interact With Smart Contracts

The final thing we'll cover today is perhaps the most important. Many users don't realize that the dApps we interact with, like Uniswap and PoolTogether, are really just front ends that allow you to interact with the blockchain. Although you need some level of technical sophistication, you can view and interact with any deployed contract directly through Etherscan.

For most people, the most practical use of interacting with contracts is to make sure the contract is legit and verified. Let's take the UNI token contract for example:

The screenshot shows the Etherscan interface for the UNI token contract. The 'Overview' tab is active, displaying the following information:

- PRICE:** \$9.31 @ 0.005061 Eth (+13.16%)
- FULLY DILUTED MARKET CAP:** \$9,310,000,000.00
- Max Total Supply:** 1,000,000,000 UNI
- Holders:** 319,156 (+0.019%)
- Transfers:** 3,572,652

The 'Profile Summary' tab is also visible, showing:

- Contract:** 0x1f9840a85d5af5bf1d1762f925bdaddc4201f984
- Decimals:** 18
- Official Site:** <https://uniswap.org/>
- Social Profiles:** Links to various social media platforms.

So far so good. Everything looks right, but you might be surprised how easy it is to spoof this stuff. A great way to verify that the address you're interacting with is legitimate is to scroll down a bit until you see this:

The screenshot shows the 'Contract' tab selected in the Etherscan interface. The tabs at the top are: Transfers, Holders, Info, DEX Trades, **Contract** (with a green checkmark), Analytics, and Comments. The 'Contract' tab is highlighted, indicating that the contract source code has been verified.

These are tabs you can interact with. The green check mark means the contract source code has been verified, and this tab also allows you to examine the smart contract code.

The screenshot shows the 'Contract Source Code' tab for the UNI token contract. The interface displays the following information:

- Contract Source Code Verified (Exact Match)** (with a green checkmark and a warning icon)
- Contract Name:** Uni
- Optimization Enabled:** Yes with 999999 runs
- Compiler Version:** v0.5.16+commit.9c3226ce
- Other Settings:** default evmVersion, None license

The 'Contract Source Code (Solidity)' section shows the source code of the contract, which is a Solidity smart contract. The code is displayed in a code editor with line numbers and syntax highlighting. The code includes comments and Solidity-specific syntax, such as `pragma solidity ^0.5.16;` and `pragma experimental ABIEncoderV2;`.

While that's over most of our heads, it's awesome to know there is a place where we can review the contract.

Perhaps the most functional part of this “Contract” tab for most people is the read/write functionality, specifically for NFT contracts. Below is the contract for Good Morning News. If you click on “Write Contract”, connect your wallet, and aren’t afraid to learn things from YouTube, it’s a great way to mint during a frenzy when front end applications can go down. Interacting directly with a smart contract to bypass faulty front ends is a web3 superpower.

0x958c20A43F5206F186B0195cCB61AcB724b2EE1E

BALANCE  
1 GMN

Transfers

Inventory

Info

NFT Trades

Contract ✓

0x958c20A43F5206F186B0195c...

x

Q

Code

Read Contract

Write Contract

Connected - Web3 [0x958c...EE1E]

[Expand all] [Reset]

🔔 Descriptions included below are taken from the contract source code [NatSpec](#). Etherscan does not provide any guarantees on their safety or accuracy.

1. approve

↻

→

2. mint

↻

↓

mint

payableAmount (ether)

\_mintAmount (uint256)

+

\_mintAmount (uint256)

Write

# Etherscan Is a Web3 Toolkit

Etherscan can do so much more than what we mentioned, but these basics are a fantastic way to start getting familiar with blockchain explorers. The more you spend time with Etherscan, the more comfortable you'll become and you'll be cruising blocks and minting from contracts before you know it.