

# Introduction to On-Chain Analysis

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# Why Learn On-Chain Analysis?

Imagine this scenario: you hear about a coin being shilled on social media. You go to their Telegram chat, are greeted by a chorus of "up only" and "smart money is buying". You ape in. But it doesn't go "up only". It starts to drop, first slowly, then quickly. Insiders are cashing out. There was no "smart money".

Now imagine this alternative scenario: you hear about this same coin. Using a blockchain explorer, you check the largest holders and see that the supply is heavily concentrated among insiders. Instead of buying this coin, you review a list of "smart money" wallets you've created and see that several of them are accumulating a new DEX listing. You buy that instead.

This is the power of on-chain analysis.

If I had to pick one skill that separates the pros from the amateurs in crypto, it would be on-chain analysis.

This guide will focus on making you proficient in on-chain analysis, by teaching you 5 things:

- 1. How to use Etherscan to find information on addresses, transactions, and tokens
- 2. How to find whale wallets
- 3. How to track whale wallets
- 4. How to find and quickly evaluate new DEX listings
- 5. How to use a large variety of on-chain analysis tools



# Introduction to Etherscan

<u>Etherscan</u> is the foundational tool for on-chain analysis. It's the Ethereum blockchain explorer, which can be used to find information about anything that's on-chain on Ethereum: Addresses, Transactions, Tokens, and more.

You can find a list of other blockchain explorers for other chains on my free <u>Crypto Tool List</u>. This guide will focus on Etherscan, but in most cases, other blockchain explorers will look and work nearly identical to Etherscan.

## Addresses on Etherscan

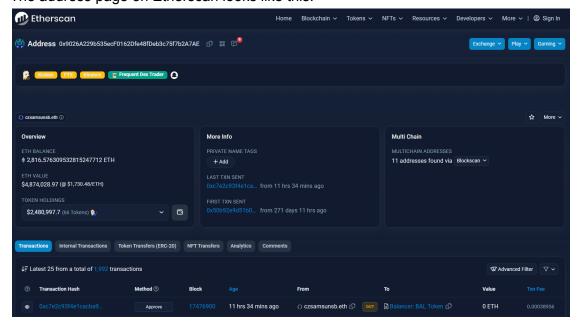
Etherscan allows you to look up Ethereum Addresses to view their:

- Holdings
- Transaction history
- Analytics

Later on in this guide we'll go through some more advanced tools for analyzing wallets, but Etherscan is where everything begins.

For this example, we'll use the wallet: **0x9026a229b535ecf0162dfe48fdeb3c75f7b2a7ae**. This wallet is the most followed address in DeBank's "Web 3 Social Ranking" and has a total portfolio of over \$57 million (more about using DeBank to find whale wallets in the "How to Find Whale Wallets" section below).

The address page on Etherscan looks like this:





Note the Overview, which contains the wallet's total ETH balance and value and total value of that wallet's tokens.

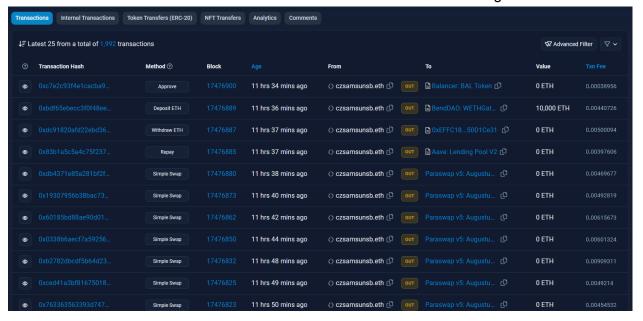
This wallet has 2,816 ETH, valued at \$4.874 million and \$2.481 Million of other tokens. These numbers don't include tokens locked in smart contracts, which is why this is substantially different from the \$57 million I mentioned above.

At the bottom of the address page, there are 6 tabs:

Transactions - ETH transfers to and from this wallet

Use this tab to see ETH transactions made by this wallet. Note that this tab does NOT show you ERC-20 or NFT transfers. In other words, if this wallet transferred USDC to another wallet, it won't show up here.

In this example, we can see that 11 hrs 36 mins ago, this wallet transferred 10,000 ETH to a BendDAO smart contract. You could select this transaction's hash to investigate further.

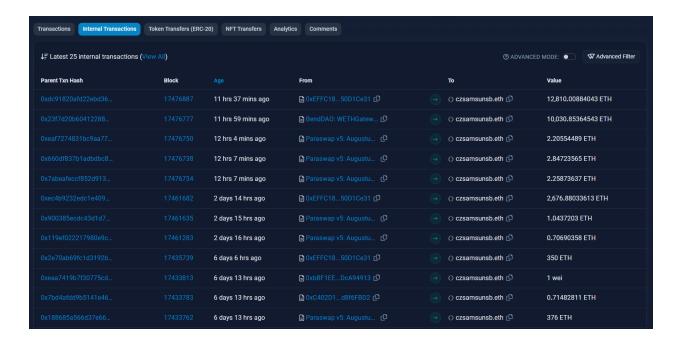


Internal Transactions - ETH smart contract interactions from this wallet

Internal transactions occur within smart contracts. Depending on the wallet and what you're looking for, this tab can be as important to check as the main Transactions tab.

In this example, you can see a Paraswap contract sending 2.2 ETH to the wallet 12 hrs 4 mins ago.

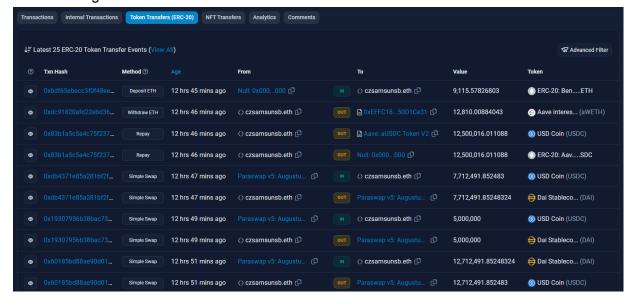




**Token Transfers (ERC-20)** - Transactions involving ERC-20 tokens (as opposed to ETH itself or NFTs)

This tab includes all transactions of any kind that involve an ERC-20 token. What exactly is an ERC-20 token? For the most part, an ERC-20 is any fungible token on ETH. Examples are USDC, UNI, and LDO. Fungible means that each of those tokens is equivalent to every other one of those tokens (1 USDC = 1 USDC). This is in contrast to NFTs, where in a 10,000 piece collection, each of the NFTs is unique.

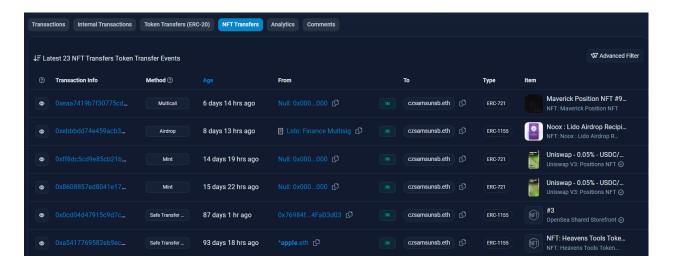
In this example, we can see that this address sent 12,500 USDC to an Aave smart contract 12 hrs 45 min ago.





#### NFT Transfers - Transactions involving NFTs, as opposed to ETH or ERC-20s

Use this tab to see activity from this wallet related to NFTs. Note that with NFTs in particular, there are better interfaces for seeing a wallet's activity. But, as with everything, Etherscan is the place to start understanding how all on-chain activity fits together.



Analytics - Stats for this address, such as ETH balance and transaction volume over time

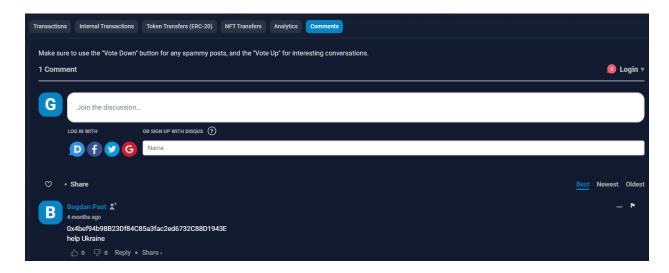
In truth, I don't use this page a ton, but it does have its uses. One use is that certain whale wallets rarely become active or only become active during bull markets—a sudden rise in transactions can be a sign that the whale knows something that you ought to be paying attention to.





### https://debank.com/whales

**Comments** - Comments from other users about this wallet. Usually empty, unless to warn people about a scammer wallet or smart contract.



And what can you do with all of this information?

Broadly speaking, when looking at whale wallets, look for these signals:

- Accumulating a token
- Selling a currently held token
- Using a new DeFi protocol
- Converting stables to tokens or tokens to stables

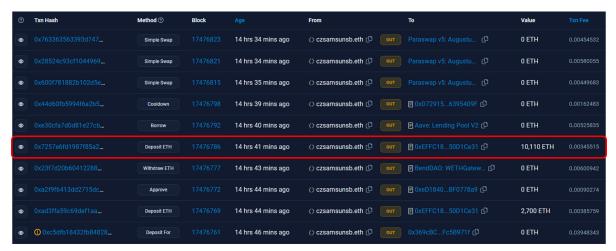
Never blindly copy whale wallets. Instead, use them as a starting point to form a hypothesis. Then, do your own research to investigate that hypothesis.

# Transactions on Etherscan

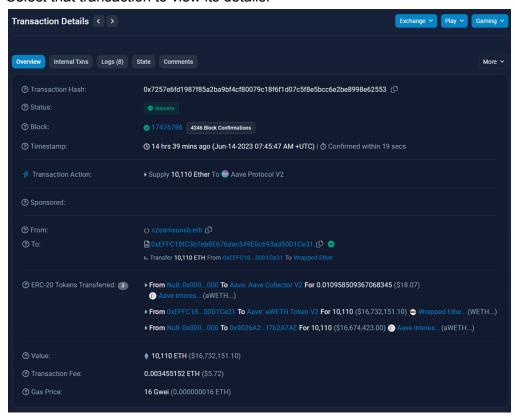
Once you've looked at an address on Etherscan, you'll likely want to dive deeper into that address's specific transactions.

Looking at the address above's transactions, we see one from a day ago involving 10,110 ETH.





Select that transaction to view its details.



This is where you can see all of the details for that transaction. There's a lot to unpack here, so let's highlight a few key fields to understand what we're looking at:

- From: The address sending this transaction
- To: The address receiving this transaction. Note that addresses with an icon of a paper with the corner folded, like we see here, are smart contracts.
- ERC-20 Tokens Transferred: Oftentimes, transactions involve more than just ETH.
  They involve transferring ERC-20 tokens, like USDC, UNI, or even WETH.

In this particular transaction, we see a few things going on:



- 1. Address czsamsunsb.eth transfers 10,110 ETH to a smart contract with address 0xEFF...
- 2. This address automatically converts the ETH to Wrapped Ether (ETH wrapped as an ERC-20 for use in DeFi applications).
- 3. This WETH is deposited into Aave.
- 4. The sender (czsamsunsb.eth) receives Aave interest bearing WETH (aWETH) to represent their position.

Transactions on Etherscan can range from simple transfers to DEX swaps to other interactions with DeFi protocols (like this example). Another way to think about Transactions are the actions taken by Addresses you track.

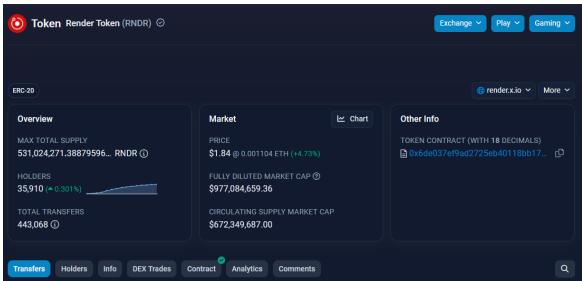
## Tokens on Etherscan

Etherscan also provides a wealth of information about specific ERC-20 tokens. Etherscan's token pages can tell you:

- Basic tokenomics
- Largest holders
- Recent transactions
- The token contract

If you frequent Crypto circles on Twitter, Telegram and Discord, you probably hear people talk about the number of holders of their favorite token increasing. You might even hear claims about "whales accumulating," or, more commonly, "whales selling." You can find all of this information and more on Etherscan's token pages

To demonstrate, I searched RNDR on Etherscan to find the page for Render Token, a decentralized GPU network. At a glance, <u>Etherscan's token page for RNDR</u> looks like this:





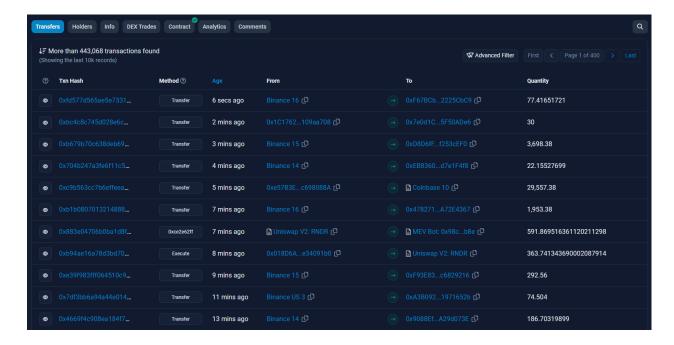
The Overview and Market sections include basic information about the token's tokenomics and stats:

- Max Total Supply Total supply of the token, including locked tokens.
- Holders Number of addresses that hold this token. More generally means that a community is larger and less centralized (though this can be faked).
- **Total Transfers** Number of transfers of this token. More generally means more economic activity related to this token is going on. On old projects this can be highly stagnant.
- Price Current price of this token.
- Fully Diluted Market Cap The market cap of this token based on total supply.
- Circulating Supply Market Cap The market cap of this token based on circulating supply

Scrolling down on this page, we can see other useful information about RNDR:

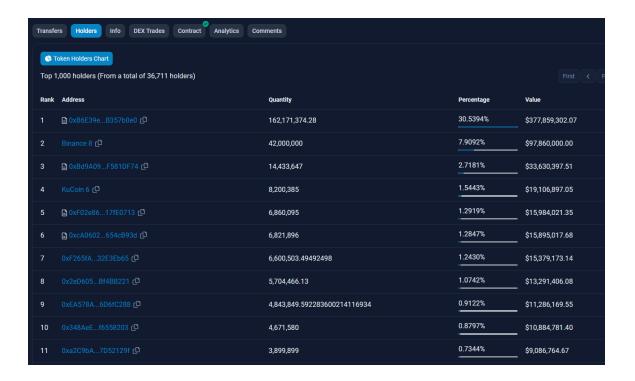
#### **Transfers**

Here, we see a list of all recent transactions for this token, big and small. To filter to only large transactions, use the 'Advanced Filter' option.



#### **Holders**





The Holders section shows the largest holders of that token. This is a simple way to start finding whale wallets (more methods below). Here for example we can see several wallets that hold over 1% of the RNDR supply.

A few notes about special types of addresses here:

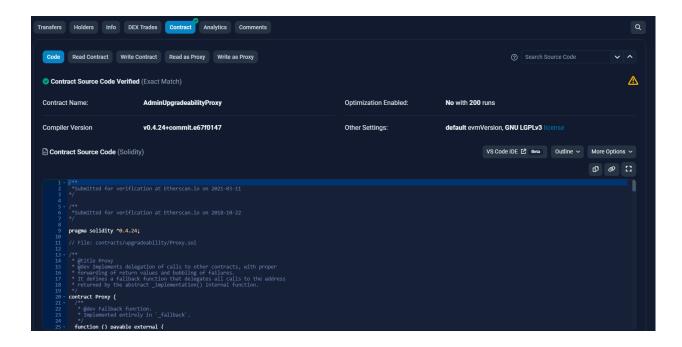
First, addresses that feature the icon of a piece of paper with the corner folded are smart contracts, such as a liquidity pool.

Second, some of these are pre-labeled exchange wallets (Binance 8 and Kucoin 6 for example)—when looking for whale wallets, be careful that you don't accidentally look at an exchange wallet.

#### Contract

The Contract tab shows the Contract Source Code for the token if the contract is verified.





Unless you're a developer looking to fork this token or to assess the token yourself, this section likely won't be very useful to you. However, if a contract is not verified, that's definitely a major red flag.



# Whale Wallets

Now that we've covered the basics of Etherscan, onto the good stuff.

Whale wallets are what most people associate with on-chain analysis and I'm sure this is why most of you downloaded this guide.

I've divided this whale wallets section into two subsections:

- 1. How to Find Whale Wallets
- 2. How to Track Whale Wallets

Both sections will heavily involve walkthroughs of various tools. We'll cover DeBank, Watchers Pro by Scope Protocol, Arkham Intel, Bubblemaps, and Zapper.

## How to Find Whale Wallets

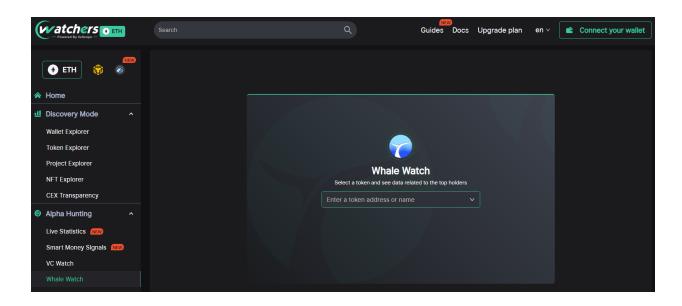
First let's talk about how to find whale and smart money wallets. It's important to note that these aren't necessarily the same thing. Whales could include funds profiting from arbitrage—in that case, positions they have don't necessarily reflect a long-term investment. Smart money could include traders in low 7 figures who ran up an account from next-to-nothing through a series of intelligent trades. Both are helpful to track. But they're not the same.

# Largest Token Holders

Looking at the largest holders of a token can be an effective strategy to find whale wallets. These wallets will include protocol founders, early investors, and other well-connected or intelligent entities.

You can search for a token's largest holders using Etherscan, as demonstrated above, but I find that Watchers Pro has a more intuitive interface for this. To access this page go to Watchers Pro and select Whale Watch on the left-side menu.





One of the crypto success stories of 2023 has been Render Network (RNDR), which has performed well on the back of its alignment with the AI narrative.





Our goal then, is to find whales who invested in RNDR with size **\*before\*** it took off. Searching RNDR, we can see the top addresses, with exchanges and contracts clearly labeled:



If you want to track Whales for this token, any of these addresses are a good place to start. If you're looking for smart money, look at these addresses' transaction history to confirm when they bought the token in question. Going down the list of top wallets for RNDR, I found one (0x2c...) that had over \$3 Million worth and accumulated it prior to 2023. Diving into their transaction history, we can see that they acquired RNDR as far back as January 2022 and continued acquiring it throughout 2022.



We'll start tracking this wallet. See how to do this below.

#### **DeBank Lists**

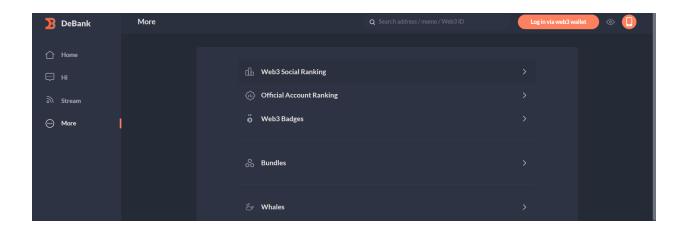
Another great place to start building your smart money list is through DeBank's pre-made lists. These lists are expansive (featuring thousands of addresses), but offer a great starting point.

The first pre-made list on DeBank is their Web3 Social Ranking. This list consists of the most followed addresses on DeBank.

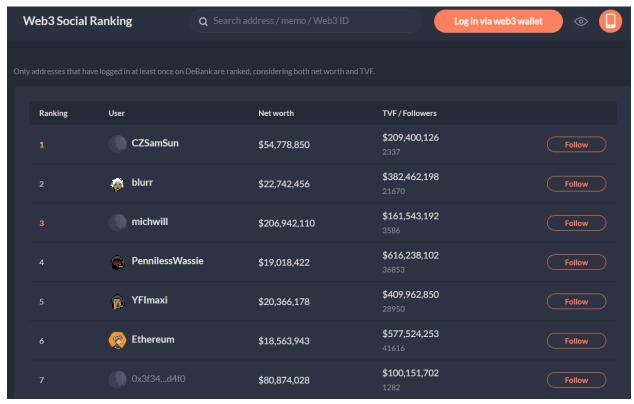
To access DeBank's Web3 Social Ranking:

- 1. Go to DeBank.com
- 2. Select 'More' on the menu
- 3. Select 'Web3 Social Ranking'





You'll be brought to this page. Note the large number of followers on some of these addresses. While I'd wager that the majority of these followers are from the bull market and no longer active, the large follower count means that these addresses won't have as much alpha as under-the-radar addresses will.

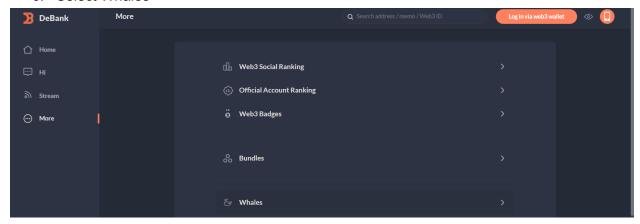


The next address list on DeBank is their list of Whales. This extremely broad list includes 20,000 addresses with over \$1 Million of net worth. In other words, you'll have to do heavy curation yourself to make this usable.

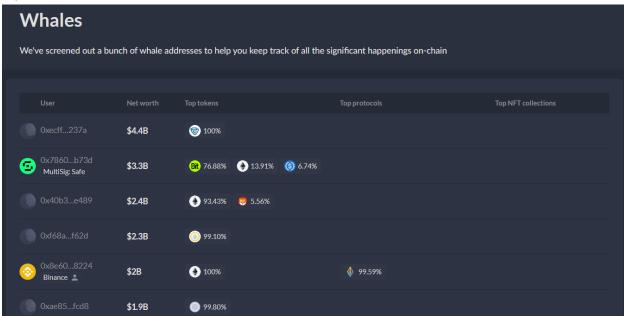
To access DeBank's Whales list:



- 4. Go to DeBank.com
- 5. Select 'More' on the menu
- 6. Select Whales



On <u>this page</u> you'll see thousands of addresses, ranking from \$1 Million to \$4.4 Billion in net worth. This will include everything from protocol treasuries to exchanges, so not all of these are worth tracking; however, if you want a comprehensive list of whales across all EVM chains, this is your place.



In general, when going through either of these DeBank lists, I would look for wallets that fit 3 criteria:

- 1. An individual (not a fund, exchange, treasury, etc)
- 2. Have a similar investing strategy to me (for example, I rarely trade NFTs, so I am not interested in wallets that focus on NFTs, even if they're good at it)
- 3. Wallet net worth has been increasing recently

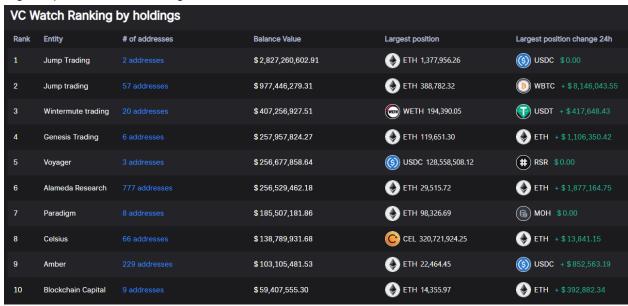


#### **VC** Wallets

Tracking VC and investment fund wallets is another good way to source ideas for potential investments.

Be warned that sometimes these funds get into the seed round of coins at DRASTICALLY lower prices than what is available to the public. For this reason, as with other whales, be sure to research **when** they added a token to their portfolio before you ape in.

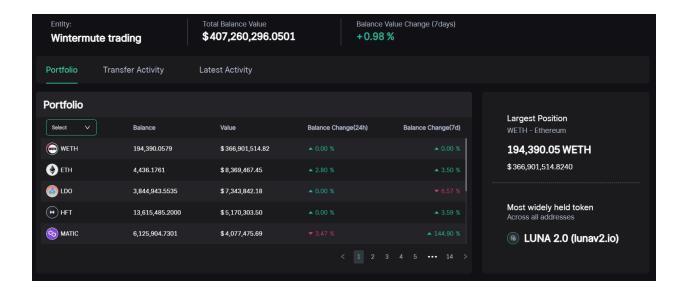
A great place to start finding VC wallets is on Watcher Pro's VC Watch dashboard.



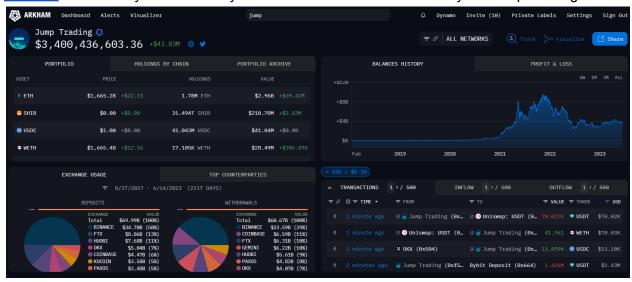
Although you need a premium account to see the specific addresses (I have no affiliation with them by the way), you can see the names of the VCs and their holdings for free. Many of these VCs have dozens or even hundreds of wallets, so, in truth, knowing their specific addresses isn't that important.

Once you see a VC that looks interesting on this list, change to the 'VC Dashboard' tab in Watcher Pro's VC Watch tool and search for the name of the VC you'd like to investigate further. This will bring up a dashboard similar to this with the VC's detailed positions.





For further information, you can take the name of a VC you find on this list and bring it over to Arkham to see if they have an entity for it. Here we see Arkham's entity for Jump Trading:



This Arkham dashboard, in addition to showing you a fund's holdings by token and chain, is especially useful for seeing their exchange usage and top counterparties. In 2022, we saw several industry-wide catastrophes (Terra, 3AC, FTX, etc). Looking at which exchanges funds use and who their counterparties are gives you insight into whether second order consequences from another collapse will affect them.

Arkham is also useful because it already consolidates multiple addresses into named entities (in this case Jump Trading). Rather than track down Jump Trading's individual addresses yourself, you can search for them here and see a consolidated view of their on-chain holdings in one place.



# Finding Whale Wallets from Other Resources

While being able to find whale wallets yourself is great, luckily many people have already done this for you. Here are a few good resources to find additional wallets:

### Thor Hartvigsen's Wallet Tracker

My friend Thor Hartvigsen compiled this detailed list of wallets to track. He included funds, largest token holders, protocol treasuries, and other notable wallets.

#### Nansen

<u>Nansen</u> identifies and tags tons of smart money wallets. In fact, they have hundreds of millions of address labels. And while Nansen is quite pricey, they frequently post samples of alpha publicly on <u>their Twitter</u>.

#### Dune

There are many good custom tools on Dune for finding whales. Defi Mochi's <u>Sh\*tcoin Whale Watcher</u> is one of them.

# ┪ Shitcoin Whale Watcher 🐋

This dashboard tracks current token holders that have the highest profit over past [Selected] days

Step 1: Input token address and select chain

Step 2: Enter the t - [Number of days] from current date that you'd like to track profits from.

E.g. If you wanted to track \$PEPE holders from 60 days ago input 60

#### Other Influencers

There are also a number of other solid on-chain analysts who publicly post their work. OnChainWizard and LookOnChain are two solid analysts to follow.

#### How to Track Whale Wallets

Now that you know some strategies to search for and identify whale wallets, you'll need a way to track them.

In this section, I'll go through 3 separate tools for tracking wallets: DeBank, Zapper, and Arkham. Each has their own strengths and weaknesses. You'll likely find that you prefer one of the three; however, I still use each of them from time to time.

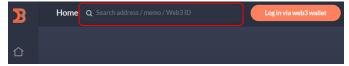


For demonstration purposes, we'll use a whale wallet called analytico.eth (0xa0f75491720835b36edc92d06ddc468d201e9b73) that has over \$50M in funds.

# Tracking Wallets on DeBank

The first site for tracking wallets and my personal favorite is DeBank. DeBank shines by supporting the most comprehensive variety of chains and dapps of any portfolio tracker I've seen. If you're analyzing a wallet that's a power-user of cross-chain DeFi, this is the tracker for you.

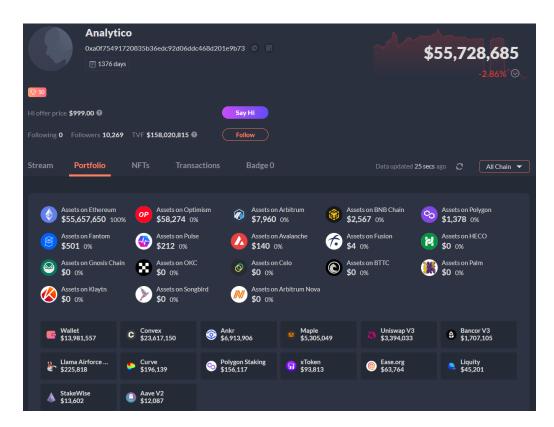
To get started, go to debank.com and type the wallet address or name into the top search bar.



This will bring you to a page like this where you can see all of this wallet's holdings across different chains and applications. Note the wide variety of chains tracked here.

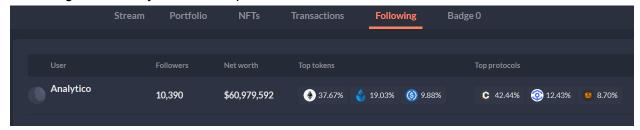
For this particular address, we can see that this whale is heavily farming on Convex. Interestingly, it also has a significant position earning yield on Maple—real world assets anyone?

While DeBank excels at tracking tokens and DeFi deposits across different chains, it tends to be less good at tracking NFT portfolios than other solutions.





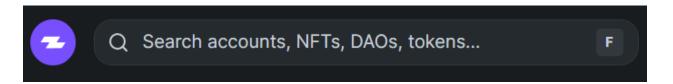
If you've decided that this wallet fits your investing style, you may want to start following them. To follow on DeBank, click the orange "Follow" button. This wallet will now appear in the 'Following' section of your DeBank profile.



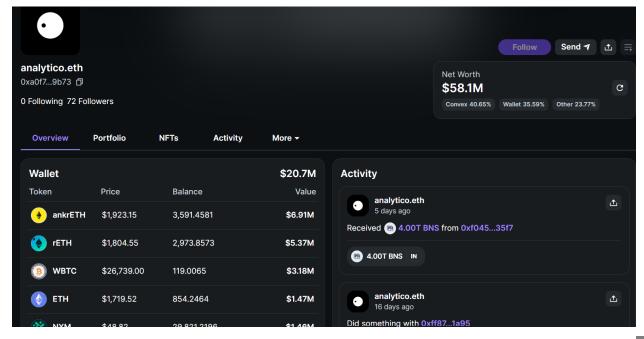
# Tracking Wallets on Zapper

Another great site for tracking wallets is <u>zapper.xyz</u>. While Zapper isn't quite as comprehensive in its support for chains and dapps as DeBank, it excels in its UI for exploring an address's NFTs and DAO memberships.

To search for an address on Zapper, type the name or address into the search bar.

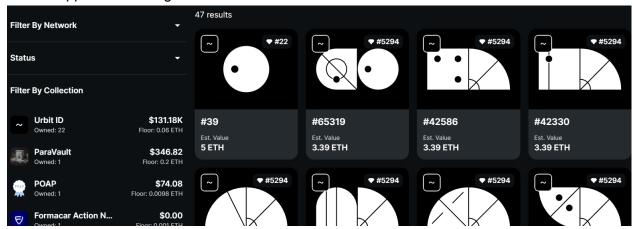


You'll then be brought to the profile page for that address. Our example analytico.eth looks like this:





Moving to the NFT tab on this address, we can see that analytico.eth currently holds 47 NFTs, the most valuable of which are Urbit IDs. Filter these by network, status or collection. This is where Zapper really excels. For wallets with a large proportion of their net worth in NFTs, I tend to use Zapper for tracking.



Going back to the Overview tab and scrolling down, we can see that Zapper shows a breakdown of a wallet's DAO Memberships. This is another unique feature that sets Zapper apart.

DAO Memberships	
Yam DAO	<b>68.6111K YAM</b> 0.4525% shares
Nexus Mutual	<b>29.8212K NXM</b> 0.4412% shares
Silo DAO	<b>582.677K Silo</b> 0.0583% shares
Lido Governance	<b>370.8821K LDO</b> 0.0371% shares
Popcorn	<b>5.9524K POP</b> 0.006% shares



This DAO membership section shows both the raw amount of governance tokens held by the wallet as well as what % of that DAO's voting power this wallet controls. When analyzing Ethereum whales, this can show you which DAOs they have influence in.

# Tracking Wallets on Arkham

If you're looking to dive a bit deeper into the analytics of a wallet or you're looking for information on an entity that contains multiple addresses, Arkham is a great resource to use. Searching for our example wallet (analytico.eth), Arkham's dashboard looks like this:

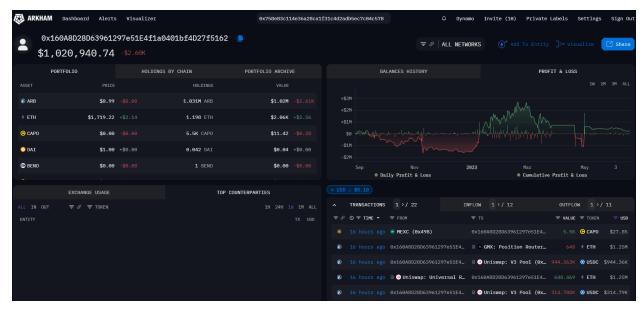


Note that Arkham often struggles to track usage in DeFi applications, which is why they severely understate analytico.eth's net worth. That being said, Arkham really shines in 2 areas:

- 1. Tracking specific entities, such as Binance US, for whom Arkham tracks a collection of wallets.
- 2. Assessing the profitability of wallets that actively trade or flip coins.

For example, Arkham is effective for tracking the profitability of this wallet (0x160A8D28D63961297e51E4f1a0401bf4D27f5162), which made a few highly profitable DEX trades in early 2023.





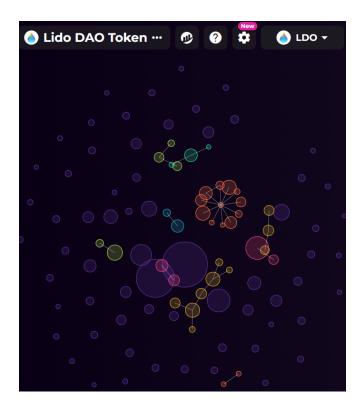
In this case, Arkham is highly effective, because you can see precisely when this wallet turned profitable and ran up a large balance with a few key trades. You can also see how they have faired since then. In this case, it appears that, while they're still profitable overall, they haven't been able to replicate their success.

# Diving Deeper with Bubblemaps

If you want to go a bit deeper into finding and tracking whale wallets, <u>Bubblemaps</u> is an incredible tool for visualizing the connections between different wallets.

Bubblemaps analyzes wallets' transaction history to identify wallets that likely belong to the same entity. Whales often will distribute their funds to multiple wallets to disguise the size of their position or because too many people start following their original wallet. With Bubblemaps, you can easily find groups of related wallets.

Here is a Bubblemaps chart for LDO. As you can see, there are several clusters, where no individual wallet is huge, but the cumulative cluster is.





# Finding and Assessing New DEX Listings

The final use of on-chain analysis that we'll cover in this guide is how to find and quickly assess new DEX listings. Have you ever heard of people brag about getting in on tokens at absurdly low market caps, like under \$100K? Most of the time they're lying, but when they're not, they bought it as a new DEX listing.

You only need a few tools to do this:

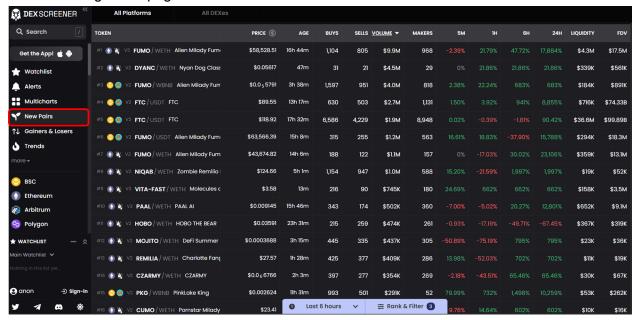
- DEXScreener to view and chart new DEX listings
- De.Fi to check if a new DEX listing is a honeypot scam

This guide won't show you how to do a full analysis of new projects, but it will show you how to find new DEX listings and check whether they're honeypots or have other red flags in their contract code.

# Finding New DEX Listings with DEXScreener

To find new listings, we'll use DEXScreener. This shows listings across a wide variety of chains and DEXes, though you can of course filter. To start, go to <a href="https://dexscreener.com/">https://dexscreener.com/</a> and select New Pairs on the left-hand menu.

You'll be brought to a page like this:



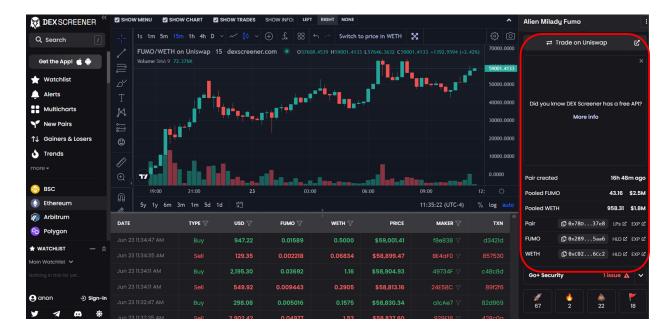
Most of these tokens won't be investable. They have no utility, launched with unreasonable valuations, or are outright scams. But it only takes one big win to make it all worthwhile.



If we select the highest volume-traded pair on this list, we can see that this token, FUMO, has done extremely well since it was created less than 24 hours ago. In fact, that's an understatement, it's gone up nearly 18,000%!



If you we scroll down on the right, we can see a link to 'Trade on Uniswap', as well as contract addresses for this token's liquidity pair (labeled 'Pair') and for the token itself (labeled 'FUMO'). We'll need this for assessing its safety later.



Please note that this is just an example. In general, I'd avoid buying tokens that are up 18,000% in 24 hours.



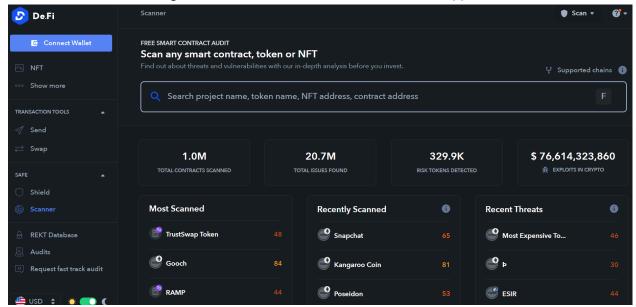
# Avoiding Scams and Assessing the Safety of New DEX Listings

Once you've found a promising new DEX listing, the first thing you'll want to do is to check if it's a honeypot. What is that exactly? Sometimes, malicious token deployers include code in the token's contract that allows them to prevent people (besides them) from selling. In some cases, they disable selling from the start; other times, they allow it at the start, but eventually turn it off.

Honeypot tokens often appear to be doing phenomenal. In fact they can look too good to be real. And they are. Their prices will push higher and higher, until suddenly, in a split-second, they go to 0.

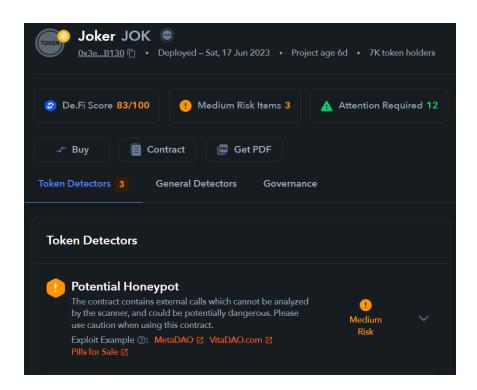
Let's look at how to avoid these tokens.

To assess new DEX listings we'll use the Scanner tool on the De.Fi app.



For example, if we look at a token that rugged within the past 24 hours called JOK on BNB Chain, we can see that, had you run its contract address through the De.Fi scanner, you would have seen that it could be a "Potential Honeypot."





While this method won't prevent you from buying rug-pulls where the team straight-up sells their stake or where a clever dev writes a honeypot contract that avoids detection, it will prevent you from falling prey to easily avoidable scams.



# Taking Things to the Next Level

Maybe some of you have internalized this guide and want to know how you can advance your skills from here. The way I like to view on-chain analysis, as with skills in any field, is as a skill tree. There are different sub-specialties within on-chain analysis that you can build your expertise in.

Broadly speaking, I'd divide on-chain analysis into a few sub-specialties:

- Finding and tracking whale wallets
- On-chain detective work (uncovering rugpulls and hackers)
- Finding and sniping new DEX listings
- On-chain analytics (not covered in this guide, but covered extensively on my Twitter and newsletter)
- Exchange, miner, and smart money flows (this has to do with aggregate patterns of whether smart money and miners are selling, accumulating, send to exchanges, etc)

There are of course more things you can do related to on-chain analysis. The more technical among you may want to learn how to read and write Solidity. Or to create Dune dashboards or perform custom analysis of on-chain data with Alchemy.

The goal of this guide is to give you the tools and foundation to get started. To take your skills to the next level, my best recommendation is that "practice makes perfect." If you want to learn to find and track whale wallets, apply the methods in this guide to find a few. Start watching them and track how their new investments do over time. Doing well? Congrats, you now have your own smart money list. Over time, hone it, test new methods for finding whales, and work on building a more efficient system for tracking new purchases.

In time, you may create your own methods and tools for on-chain analysis. In such a new field, you might even coin new terms and methods. The beauty of being in a still-developing industry is that you, as an individual, can develop your own edge.

