

## Navigating on Etherscan

### INITIAL NOTE

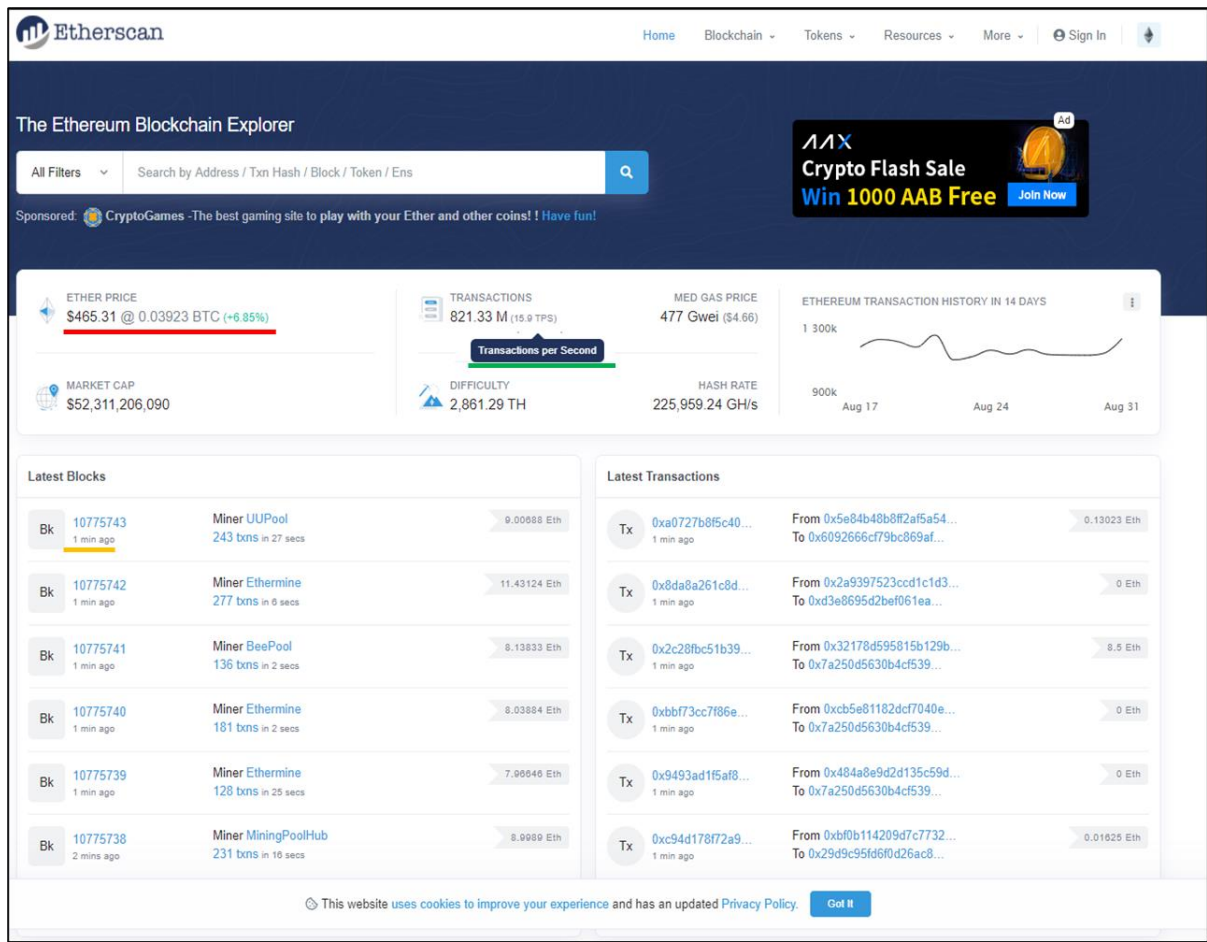
*The digital environment is a very dynamic and agile environment where updates and changes occur on a constant basis. In this program, we will use web resources and external software in order to carry out the practical activities and provide a real vision of the tools available in the market.*

*This means that, although we strive to keep the guides updated, sometimes some of the environments we will be showing you in the activities may suffer some small differences from the images reflected in these guides. Normally, it is possible to follow the development of the activity by easily interpreting the differences between the guide and the real environment, if any. In case this is not possible, please let your facilitator know by sending a message through the program's platform inbox.*

### 1. Etherscan home page

As mentioned above, blockchain browsers are tools that can help us start navigating blockchains, especially when it comes to searching for information about transactions. Remember, blockchain browsers are connected to a node, which has a copy of all the transactions that are part of the blockchain.

In this document, we will analyze the different elements of the Etherscan page, and how to use the information that is presented to us. When navigating through <https://etherscan.io>, the login page will appear very similar to this one.



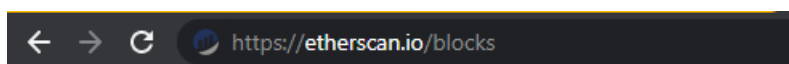
Img 01. The Etherscan login page.

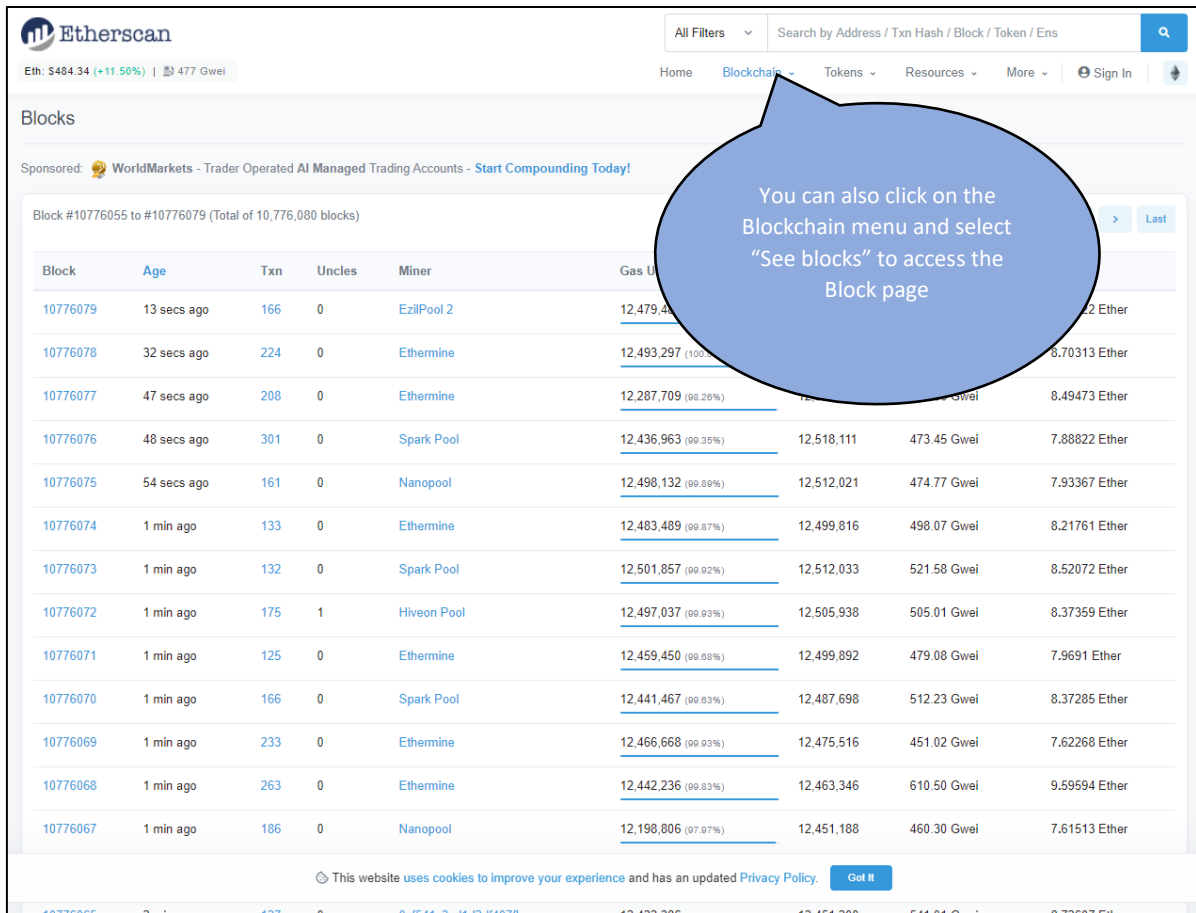
In this page, we can already extract important information. For example, we can see what the current price of the ether is. At the time the image was captured, the ether was valued at approximately 465 USD. We can also see when the last block was completed. A practical way to think about a block is to imagine a sheet of paper where all our transactions are recorded. That sheet of paper is finished and converted into a format that can no longer be edited.

Other important information that we can obtain from this page is the current number of transactions per second, which, in the image, is set at fifteen.

## 2. Recent blocks

Now, we can go on to see a list of all recent blocks, simply by typing "/blocks" at the end of the URL





**Etherscan**

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Block #10776055 to #10776079 (Total of 10,776,080 blocks)

Block	Age	Txn	Uncles	Miner	Gas Used	Gas Price	Block Reward	Total Ether
<a href="#">10776079</a>	13 secs ago	166	0	<a href="#">EzilPool 2</a>	12,479,400	100.5%	3.125	8.22 Ether
<a href="#">10776078</a>	32 secs ago	224	0	<a href="#">Ethermine</a>	12,493,297	100.5%	3.125	8.70313 Ether
<a href="#">10776077</a>	47 secs ago	208	0	<a href="#">Ethermine</a>	12,287,709	(99.26%)	3.125	8.49473 Ether
<a href="#">10776076</a>	48 secs ago	301	0	<a href="#">Spark Pool</a>	12,436,963	(99.35%)	3.125	7.88822 Ether
<a href="#">10776075</a>	54 secs ago	161	0	<a href="#">Nanopool</a>	12,498,132	(99.89%)	3.125	7.93367 Ether
<a href="#">10776074</a>	1 min ago	133	0	<a href="#">Ethermine</a>	12,483,489	(99.87%)	3.125	8.21761 Ether
<a href="#">10776073</a>	1 min ago	132	0	<a href="#">Spark Pool</a>	12,501,857	(99.92%)	3.125	8.52072 Ether
<a href="#">10776072</a>	1 min ago	175	1	<a href="#">Hiveon Pool</a>	12,497,037	(99.93%)	3.125	8.37359 Ether
<a href="#">10776071</a>	1 min ago	125	0	<a href="#">Ethermine</a>	12,459,450	(99.88%)	3.125	7.9691 Ether
<a href="#">10776070</a>	1 min ago	166	0	<a href="#">Spark Pool</a>	12,441,467	(99.83%)	3.125	8.37285 Ether
<a href="#">10776069</a>	1 min ago	233	0	<a href="#">Ethermine</a>	12,466,668	(99.93%)	3.125	7.62268 Ether
<a href="#">10776068</a>	1 min ago	263	0	<a href="#">Ethermine</a>	12,442,236	(99.83%)	3.125	9.59594 Ether
<a href="#">10776067</a>	1 min ago	186	0	<a href="#">Nanopool</a>	12,198,806	(97.97%)	3.125	7.61513 Ether

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Img 02. Block list page.

On the left side of the page, we can see the **"Block"** column (sometimes called "block height" or simply "height"). This is a unique identifier for each block. Note that, in the search bar in the field in the upper right corner, we could search for different types of data by choosing different parameters, including the block number.

The **"Miner"** column shows us who the miner was for each block.

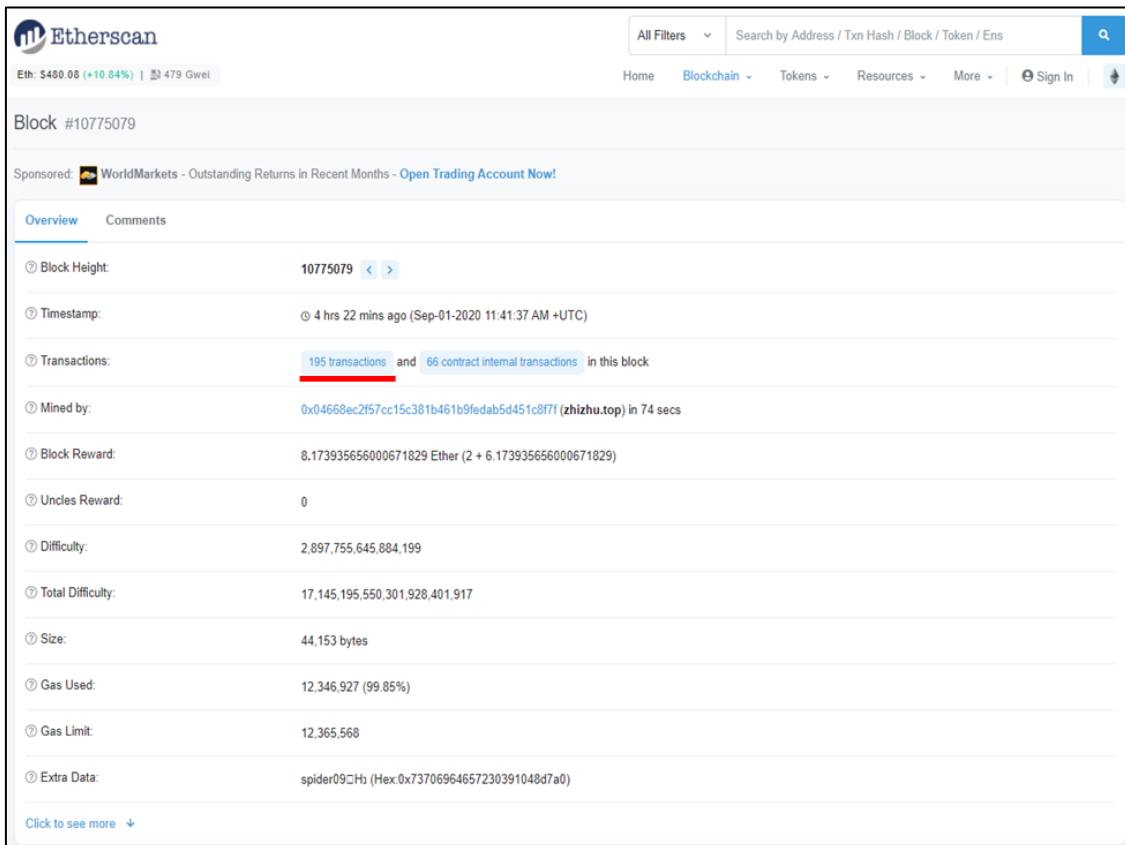
The **"Reward"** column, which is the last one on the right, indicates how much ether the miner receives in return for completing the mining of a particular block. To attract participants to the network, the block chain gives rewards for mining blocks.

Considering that we saw how much the ether was valued, we can determine how much the miner received simply by multiplying the reward in ether, by the market value of the ether. For block **10776079**, the miner received the equivalent of 3,845.55 USD (at the time the ether was valued at 465 USD).

The **"Txn"** column represents the amount of transactions contained in a block.

If we click on the block **10775079**, we can see more details related to that block (Remember, if you want to look at this same block, you can simply type the block number 10775079 in the search bar).

### 3. Block details



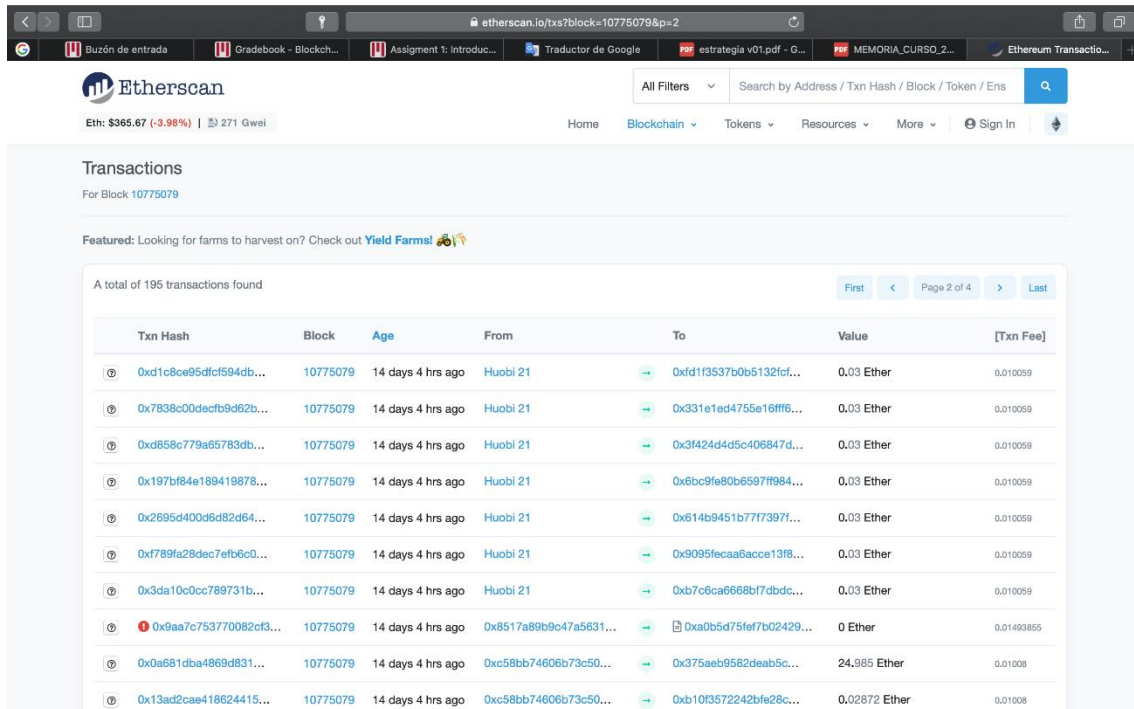
The screenshot shows the Etherscan interface for Block #10775079. The top navigation bar includes the Etherscan logo, a search bar, and links for Home, Blockchain, Tokens, Resources, and More. The main header displays the block number and a sponsored message from WorldMarkets. Below the header, there are tabs for Overview and Comments. The Overview tab is active, showing a list of block details:

- Block Height:** 10775079
- Timestamp:** 4 hrs 22 mins ago (Sep-01-2020 11:41:37 AM +UTC)
- Transactions:** 195 transactions and 66 contract internal transactions in this block
- Mined by:** 0x04668ec2f57cc15c381b461b9fedab5d451c8f7f (zhizhu.top) in 74 secs
- Block Reward:** 8.173935656000671829 Ether (2 + 6.173935656000671829)
- Uncles Reward:** 0
- Difficulty:** 2,897,755,645,884,199
- Total Difficulty:** 17,145,195,550,301,928,401,917
- Size:** 44,153 bytes
- Gas Used:** 12,346,927 (99.85%)
- Gas Limit:** 12,365,568
- Extra Data:** spider09□H (Hex: 0x73706964657230391048d7a0)

At the bottom of the details section, there is a link "Click to see more" with a downward arrow.

Img 03. Details of block 10775079.

For block 10775079, we can see in the image above (by clicking on the "Click to see more" option) when the block was started, the hash that was done (which can be cryptographically verified), and the number of transactions in the block, among other details. If we click on the number of transactions, we will get a detailed list of each of the transactions that belong to that block.



The screenshot shows the Etherscan website interface. At the top, there's a navigation bar with the Etherscan logo, a search bar, and links for Home, Blockchain, Tokens, Resources, and More. Below the navigation bar, the page title is "Transactions" for Block 10775079. A featured message says "Featured: Looking for farms to harvest on? Check out Yield Farms!". Below this, a table lists 195 transactions found. The table has columns for Txn Hash, Block, Age, From, To, Value, and [Txn Fee]. The transactions are listed in a table with 10 rows visible. The first row shows a transaction from Huobi 21 to 0xfdf13537b0b5132cf... for 0.03 Ether. The second row shows a transaction from Huobi 21 to 0x331e1ed4755e16fff6... for 0.03 Ether. The third row shows a transaction from Huobi 21 to 0x3f424d4d5c406847d... for 0.03 Ether. The fourth row shows a transaction from Huobi 21 to 0x6bc9fe80b6597f984... for 0.03 Ether. The fifth row shows a transaction from Huobi 21 to 0x614b9451b77f7397f... for 0.03 Ether. The sixth row shows a transaction from Huobi 21 to 0x9095fecaa6acce13f8... for 0.03 Ether. The seventh row shows a transaction from Huobi 21 to 0xb7c6ca6668b7dbdc... for 0.03 Ether. The eighth row shows a transaction from 0x8517a89b9c47a5631... to 0xa0b5d75ef7b02429... for 0 Ether. The ninth row shows a transaction from 0xc58bb74606b73c50... to 0x375aeb9582deab5c... for 24.985 Ether. The tenth row shows a transaction from 0xc58bb74606b73c50... to 0xb10f3572242bfe28c... for 0.02872 Ether.

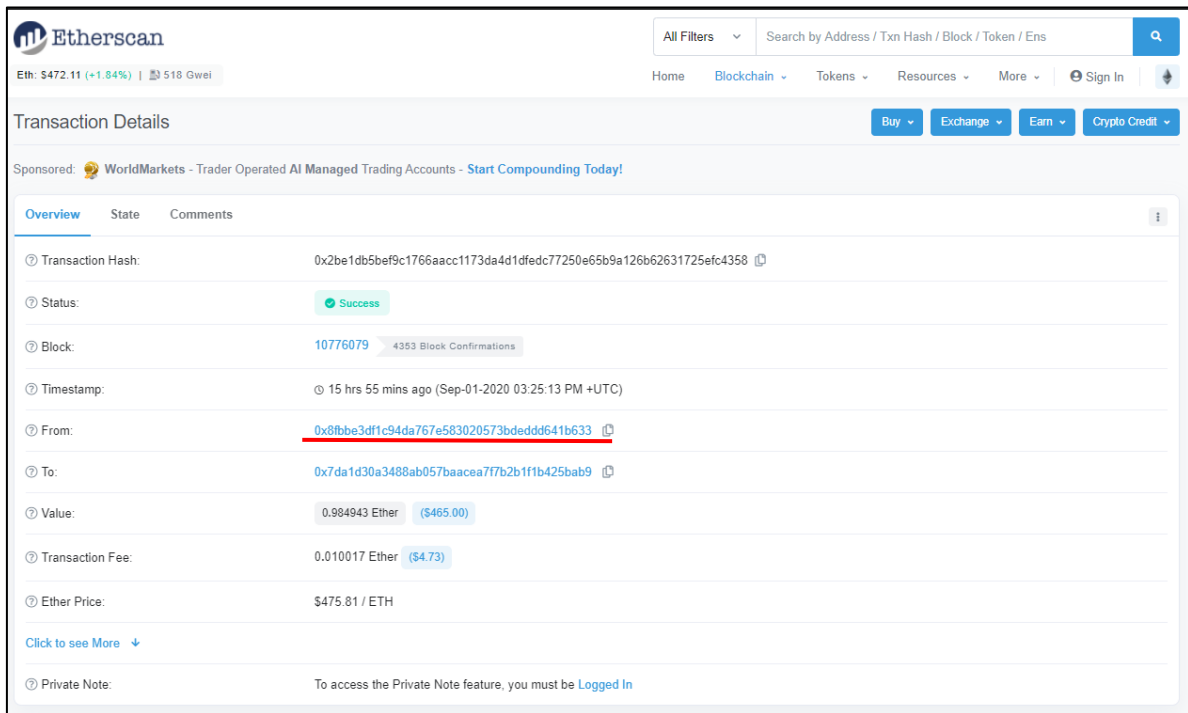
Txn Hash	Block	Age	From	To	Value	[Txn Fee]
0xd1c8e95dfcf594db...	10775079	14 days 4 hrs ago	Huobi 21	0xfdf13537b0b5132cf...	0.03 Ether	0.010059
0x7838c00decb9d62b...	10775079	14 days 4 hrs ago	Huobi 21	0x331e1ed4755e16fff6...	0.03 Ether	0.010059
0xd858c779a85783db...	10775079	14 days 4 hrs ago	Huobi 21	0x3f424d4d5c406847d...	0.03 Ether	0.010059
0x197b84e189419878...	10775079	14 days 4 hrs ago	Huobi 21	0x6bc9fe80b6597f984...	0.03 Ether	0.010059
0x2695d400d6d82d64...	10775079	14 days 4 hrs ago	Huobi 21	0x614b9451b77f7397f...	0.03 Ether	0.010059
0xf789fa28dec7efb6c0...	10775079	14 days 4 hrs ago	Huobi 21	0x9095fecaa6acce13f8...	0.03 Ether	0.010059
0x3da10c0cc789731b...	10775079	14 days 4 hrs ago	Huobi 21	0xb7c6ca6668b7dbdc...	0.03 Ether	0.010059
0x9aa7c753770082cf3...	10775079	14 days 4 hrs ago	0x8517a89b9c47a5631...	0xa0b5d75ef7b02429...	0 Ether	0.01493855
0x0a681dba4869d831...	10775079	14 days 4 hrs ago	0xc58bb74606b73c50...	0x375aeb9582deab5c...	24.985 Ether	0.01008
0x13ad2cae418624415...	10775079	14 days 4 hrs ago	0xc58bb74606b73c50...	0xb10f3572242bfe28c...	0.02872 Ether	0.01008

Img 04. List of transactions included in block 10775079

This list of transactions can be useful if we were trying to verify a transaction and its information, such as: when it took place, the account where the funds originated from, and who the funds went to.

On the left side of the page, we have the "Txn Hash" column. Similar to the block hash, this is also cryptographically verifiable. If we click on any transactions in the list, we can see even more detailed information about that specific transaction.

## 4. Transaction Details



The screenshot shows the Etherscan 'Transaction Details' page for a specific transaction. The transaction hash is 0x2be1db5bef9c1766aacc1173da4d1dfedc77250e65b9a126b62631725efc4358. The status is 'Success'. It belongs to block 10776079, which has 4353 block confirmations. The transaction occurred 15 hours and 55 minutes ago on September 01, 2020, at 03:25:13 PM UTC. The 'From' address is 0x8fbb3dfc94da767e583020573bdeedd641b633, and the 'To' address is 0x7da1d30a3488ab057baacea7f7b2b1f1b425bab9. The value transferred is 0.984943 Ether, equivalent to \$465.00. The transaction fee is 0.010017 Ether, equivalent to \$4.73. The ether price at the time was \$475.81 / ETH. A 'Private Note' section at the bottom indicates that users must be logged in to access this feature.

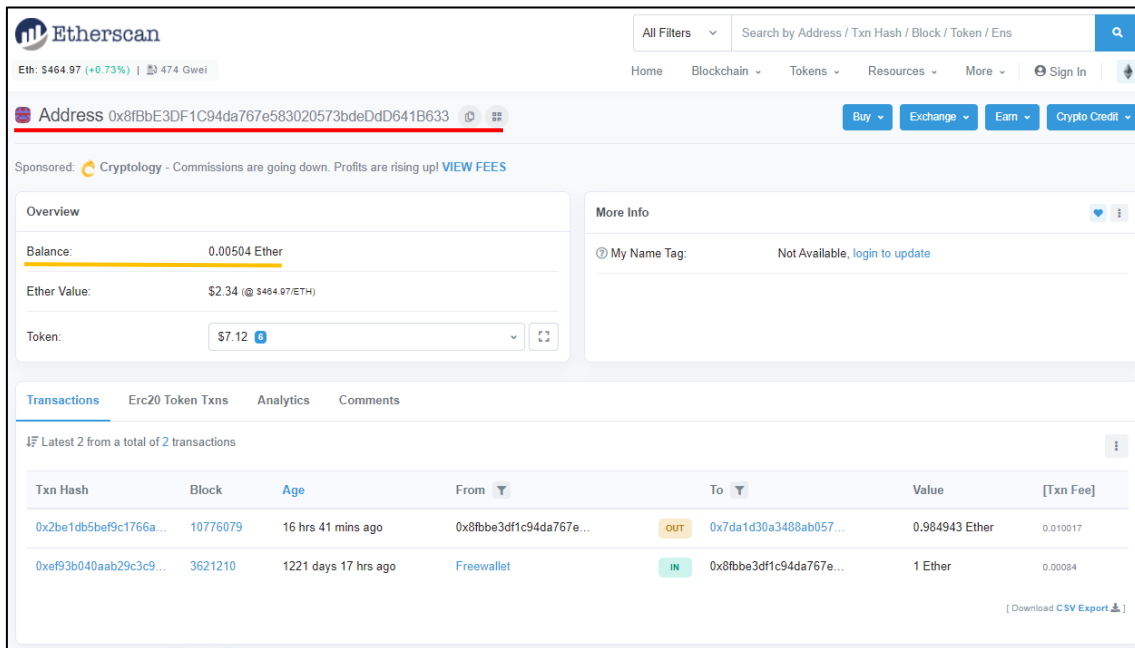
Img 05. Transaction details for transaction hash  
 "0x2be1db5bef9c1766aacc1173da4d1dfedc77250e65b9a126b62631725efc4358"

Once we select a transaction for analysis, the first piece of information we would like to see is whether the transaction was successful or not. Note that, in the image above, the transaction was performed correctly. We can also see which block it belongs to (10776079 is the block we selected earlier), the accounts that participated in the transaction and the value that was transferred from one account to another.

We will address transaction fees in more detail at a later point in the program.

Now, we will click on the account where the funds came from, in order to see more details regarding that account.

## 5. Account details



The screenshot shows the Etherscan interface for a specific Ethereum address. The address is highlighted in red: `0x8fBbE3DF1C94da767e583020573bdeDd641B633`. The interface includes a search bar, navigation links, and a summary of account details.

**Overview:**

- Balance: 0.00504 Ether
- Ether Value: \$2.34 (@ \$464.97/ETH)
- Token: \$7.12

**More Info:**

- My Name Tag: Not Available, login to update

**Transactions:**

Latest 2 from a total of 2 transactions

Txn Hash	Block	Age	From	To	Value	[Txn Fee]
0x2be1db5bef9c1766a...	10776079	16 hrs 41 mins ago	0x8fBbE3DF1C94da767e...	OUT 0x7da1d30a3488ab057...	0.984943 Ether	0.010017
0xf93b040aab29c3c9...	3621210	1221 days 17 hrs ago	Freewallet	IN 0x8fBbE3DF1C94da767e...	1 Ether	0.00084

[Download CSV Export]

Img 06. Account details for the address "0x8fBbE3DF1C94da767e583020573bdeDd641B633" (sender's account for the transaction shown above).

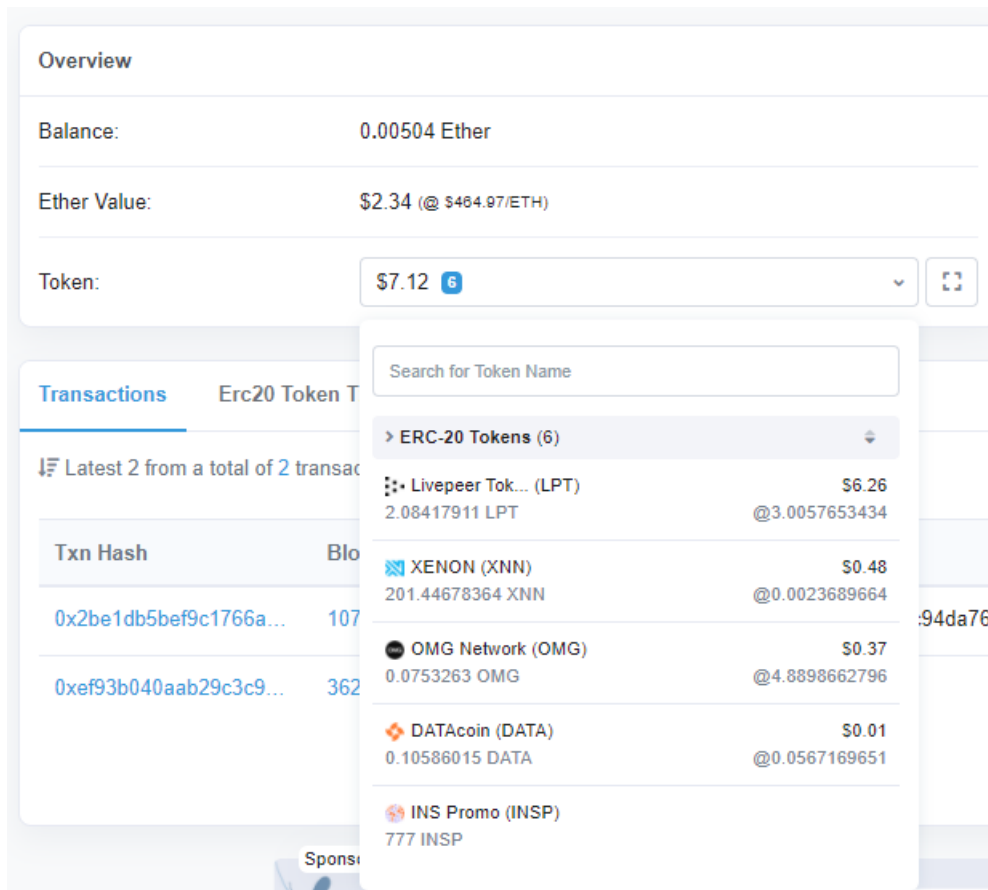
In the upper left corner, we have the address of the account, which was the same as the one we clicked on the previous page to get here.

We can also see the balance of this account, which at the time the image was captured, stood at 0.00504 ether. In the valuation at that time, that represented 2.34 USD. In the following window, the most recent transactions are shown, as well as a general total of transactions for this account. If we were to click on any of these, we would go to the page containing all the transaction details, similar to what we saw in part four of this document.

**NOTE:** You may notice that it is possible to track every movement and piece of information for any given account in the blockchain. For example, if we think of a bank account that we have, we will most likely not be comfortable with every single one of our publicly available transactions and movements. However, given the anonymous nature of blockchain, there is no way of knowing who this account belongs to. There is no personal information related to this account in any way, so it is impossible to trace whether this account belongs to an organization, university or individual.

## 6. Tokens

Apart from Ether, tokens can also be deposited into accounts to make transactions with those tokens. In the "token" drop-down menu, you will find "Ether Value" ...



Img07. List of tokens for the account with the address "0x8fBbE3DF1C94da767e583020573bdeDdD641B633"

...We can see all different types of tokens that this account contains.

## Summary

As mentioned at the beginning, a blockchain browser is a good way to initially interact with the blockchain, to understand how information is collected and organized, and how we can track this information from a block, to a transaction, to an account and verify any information we may need.

We encourage you to navigate through Etherscan while you read this guide to explore and interact with the platform.

## ADDITIONAL INFORMATION

In case you are interested in further expanding your knowledge about the Etherscan tool, and particularly in understanding more about the transactions in the Ethereum, you can consult additional information in these references:

- <https://info.etherscan.com/>
- <https://info.etherscan.com/understanding-an-ethereum-transaction/>