

Soft Rugpull Attack Analysis

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Author: Nicolas Melendez



Description

- The Attack consists in tricking the user to exchange his assets for a fake token (DZOO) that looks like the original one and then suddenly remove all the liquidity from the pool so the victim holds the fake token and the attacker the funds. It targets victims the lunch day of the real token, it does also token spam, engage via twitter and probably others social networks and also uses bots to increase the volume of the token pair WETH/DZOO, creates pump and bumps, increases the number of holders, increases the number of transactions and with a large amount of funds to make it look like some whales are holding the token and trading

Fake DZOO Token Attack Campaign

Detailed Analysis

On Mar-15-2023 04:42:59 AM +UTC a fake token campaign started and finished on Mar-17-2023 04:42:59 PM +UTC, it ran for 3 days and had 20 victims. It tricked users to exchange his assets for the fake token and then suddenly removing all the liquidity from the pool with the result of the victims holding the fake token and the attacker getting all the valuable assets. The attacker selected the same day of launch of the real token to capture the hype. The real DZOO token is part of a NFT game called Degen Zoo where players have to grow an NFT animal and stake DZOO to get benefits.

First the Attacker funded a wallet with a huge amount of ethereum 450 ETH and after that 280 ETH, then it created the Fake ERC20 DZOO token 6 hours before the real one was created and a liquidity pool in uniswaps v2. It will distribute Fake DZOO token and ethereum to another 30 addresses owned by the attacker's bot that then will execute operations to convince the victim that it is the real token with a lot of transfers, trade volume, pump and bump that shows a trend and that whales hold the token and a big number of holders.

The attacker uses many techniques to trick the victim into believing it is a real token: After having the attacker EOA 2 with 280 ETH and another 35 addresses with a small amount of DZOO fake token and ethereum, it will execute several operations to fool the victims. It will use the 35 addresses to do small transfer of token and to execute many trades of DZOO/ETH and then ETH/DZOO to increase the volume traded of the token so victims will see that the token is not dead and actually pretty alive as it is being traded constantly and showing bump and dump with a raising trend to attract the victim.

The attacker address 2 will do huge trades of 150 ETH and 160 ETH so it looks like whales are interested in the token so it creates social proof and FOMO in the victims. Also it will create contracts that will trade the pair many times to create volume.

The attacker address EOA 2 also will spam 145 addresses using Disperse.app with 11 Fake DZOO token and will use a smart criteria: it will target users that use mexc exchange because is where the real DZOO token is traded and they know that because will list all the addresses that holds the mexc token and therefore use the exchange.

It will launch the same day as the real one, 6 hours before.

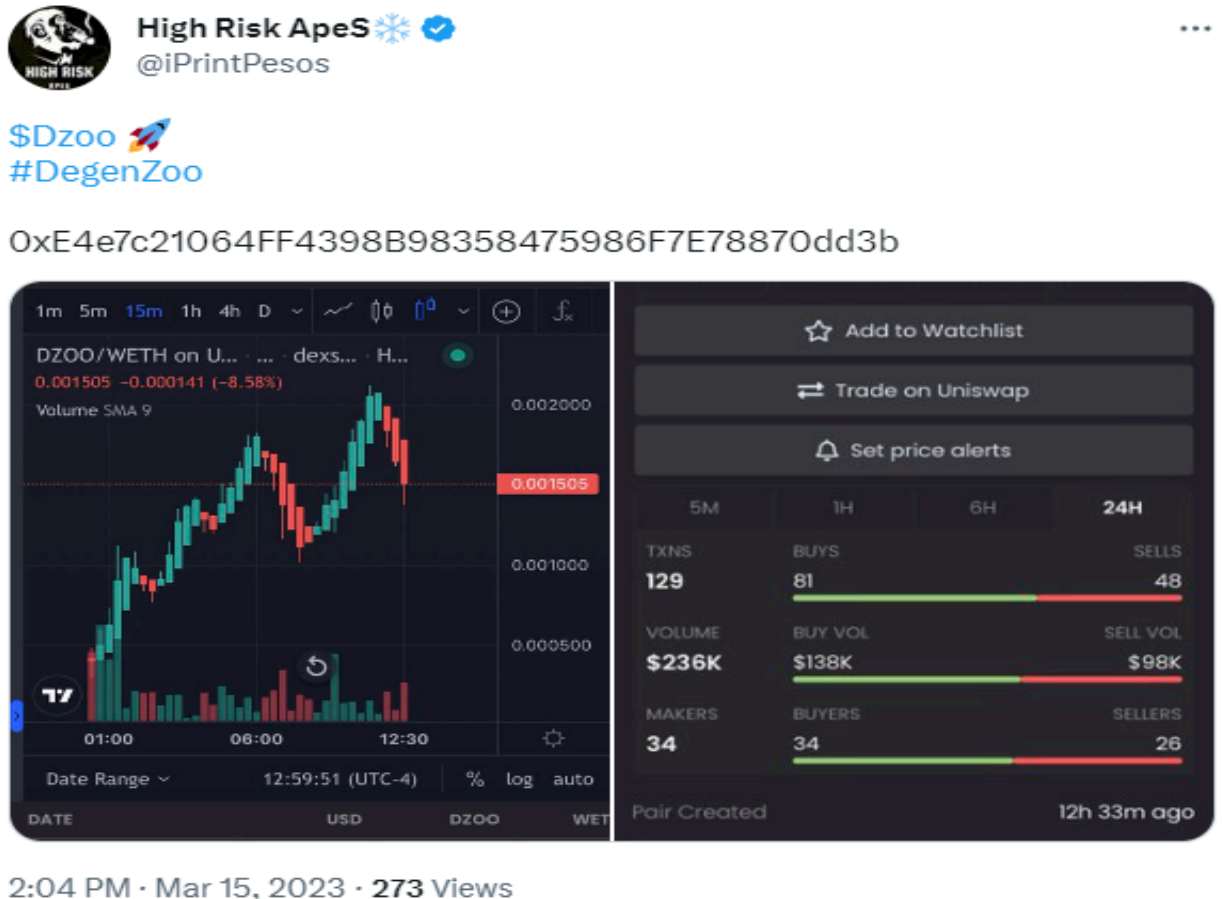
After 3 days of starting the campaign, the 30 addresses will transfer their ETH to Attacker EOA 2 and the attacker EOA 1 will remove all the liquidity from the pool and transfer the funds to attacker EOA 2. All the remaining holders of DZOO are victims or bots.

After collecting all the funds in the attacker EOA 2 and will send them to EOA 3 then it repays a loan and continues moving stables to several addresses with huge amounts of funds.

We can also see that the list of token spam in appendix 3 also received fake scam tokens like oSHIB or [oDOGE](#) that are campaigns of the same scammer.

Victim Information

There are 20 victims that bought Fake DZOO at different prices. The Attacker did a token spam targeting MEXC exchange users but non of them fall but there do exist some twitter messages during the scam campaign that shows the pump and dump in a chart and some vanity numbers like the volume, transactions and number of makers. All those numbers are artificial created by the attacker.



<https://twitter.com/iPrintPesos>

Doing some research around the followers and who is following the account seems like a network of twitter bots that promote fake tokens showing with some vanity numbers that the victim can do a good trade there.

Also the campaign started the same day of the launch of the real token so is using the token hype

Loss Information

The attacker campaign took 3 days and had 20 victims with a **loss of 4.4313 ETH (8757.14 USD)**. In the appendix 5 there is a breakdown of addresses and losses.

Used etherscan token tracker, DEX trades, downloaded the CSV and did some operations in google sheets and checked one address by one as was only a few using etherscan

Indicators

List of all the indicators associated with the attack

Indicator	Type	Chain	Notes
0x63B7E54fb2f91751B424236D80171896cDcDfC9c	Attacker EOA 1	Mainnet	Owns the token, manage the ERC20 token contract, manage the liquidity pool
0xE4e7c21064FF4398B98358475986F7E78870dd3b	Attacker Contract 1	Mainnet	DZOO fake token. It is a ERC20 contract
0x5b8cbb49117d53823e705cf49107c2008e86a4ef	Attacker EOA 2	Mainnet	Spam DZOO token to other addresses. it creates transaction volume in DZOO/WETH pair
List of address of appendix 1 and appendix 2	35 attacker EOA addresses	Mainnet	Attacker distribute small amounts of ETH and DZOO to the list of addresses. Appendix 1 and Appendix 2 share most of the addresses except 5 addresses
0xbd001acb4f7608c41accfab5f90d3c9285140606	Attacker Contract 2	Mainnet	Attacker EOA 2 creates Attacker Contract 2 but it does nothing and is listed in appendix 1
0xc97d6C52F3ADD91Fa1c5287a453d7444aECBca83	Real DZOO ERC20 token contract	Mainnet	The real DZOO token verified contract

0x0e90b2e2c5978edcf4363317f01d67e4bdae8d2a	Attacker EOA 3	Mainnet	Attacker EOA that will collect all funds.
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Timeline

Attack Timeline of Block Explorer Tx (color coded red) and Forta Alerts (color coded green)

DataTime in UTC	Link	Stage	Notes
Jan-29-2023 12:46:47 PM +UTC	https://etherscan.io/tx/0x85b0dfc0727abd4832e33eac7a5ea6e21cd28ab9dcafd59962b176f568fdcab3	Funding	Attacker EOA 1 gets funded with 425 ETH (862k USD) from binance
Sun, 29 Jan 2023 12:46:47 GMT	https://explorer.forta.network/alert/0x103a41d7c7b3290a8f7ced0ca9db5e49371823831ad2f236f10307ac48bf4ea4	Funding	Alert: NETHFORTA-2 AD: 0.01 Value: 425 ETH
Jan-29-2023 12:48:23 PM +UTC	https://etherscan.io/tx/0x323749789ab09a6a58c658dae3d775010bb058765edb162f3d895ab1c99bfd72	Funding	Attacker EOA 1 transfer 425 ETH to other address that seems to be creating other tokens for soft rug pull
Sun, 29 Jan 2023 12:48:23 GMT	https://explorer.forta.network/alert/0x8aef1671614f24872ed0a8897f83fb3677217a1bc13c0224620bbe459482b5f5	Funding	Alert: NETHFORTA-2 AD: 0.01 Value: 425 ETH
Mar-15-2023 04:24:11 AM +UTC	https://etherscan.io/tx/0x727316e440c6db3e1ec4cd8cbcc90da81315b8a503aa85fc5de80686cf729872	Funding	Attacker EOA 1 gets funded with 299 ETH
Wed, 15 Mar 2023 04:24:11 GMT	https://explorer.forta.network/alert/0xc9c6479d75da5443883d4910cd0a452fc512c8af5bd829c5c39c4db4b11d59d9	Funding	Alert: NETHFORTA-2 AD: 0.0031 Value: 299 ETH

Mar-15-2023 04:26:35 AM +UTC	https://etherscan.io/tx/0xa09eb58351650fa1b467594b126700c007526fa9e37ca7e3b096b0264b21dc7	Funding	Attacker EOA 1 transfer 280 ETH to Attacker EOA 2
Wed, 15 Mar 2023 04:26:35 GMT	https://explorer.forta.network/alert/0xc537bb9a6f36e6d8fc4321d11caa464eabed80bbeb1e13ce2fcd6e5e398b0d6c	Funding	Alert: ENTITY-CLUSTER Entity of 2: Attacker EOA 1 Attacker EOA 2
Wed, 15 Mar 2023 04:26:35 GMT	https://explorer.forta.network/alert/0x17653a2759f52a0307fe9ec6e2542523b4466ce7d5a2907b3a392355d32a520d	Funding	Alert: NETHFORTA-2 AD: 0.0031 Value: 280 ETH
Mar-15-2023 04:26:59 AM +UTC	https://etherscan.io/tx/0xdfe3dc2ebf7b4b63377bfb43f9049b8ff4a18d99cff23cfe773cc0ebcb3ee348	Preparation	Attacker created a ERC20 token called DZOO with 1M supply. The name is the same as the one that Degens zoo https://www.degenzo.co/
Wed, 15 Mar 2023 04:26:59 GMT	https://explorer.forta.network/alert/0x757be7ff885b5910901d127ddef84ff6cb00f835b81f47afa65b97fb4411da73	Preparation	Alert: SUSPICIOUS-CONT RACT-CREATION AD: 0.99924
Wed, 15 Mar 2023 04:26:59 GMT	https://explorer.forta.network/alert/0x6e40b1d5dd3203a11d7a1024d2cd9b0877588601bd3d6dbff3ddec86395c9d3	Preparation	Alert: OZ-GNOSIS-EVENT S Transfer: 1M DZOO to attacker EOA 1
Mar-15-2023 04:27:23 AM +UTC	https://etherscan.io/tx/0x98e2942edadf43eb493059281610851aef4f356e215bca097b7157b6f0f22b82	Preparation	Approve DZOO token for trade in uniswap v2
Wed, 15 Mar 2023 04:27:23 GMT	https://explorer.forta.network/alert/0x33d8cc3a1751e12b4bc982	Preparation	Alert: OZ-GNOSIS-EVENT S

	48dd2e947d19be6da 545f82529bf4c2f75d8 e45171		Approve to uniswap v2
Mar-15-2023 04:27:59 AM +UTC	https://etherscan.io/tx/0xff6fb9e6f8246fed566c6faa8d837a643624d6ded47ddd6eacf2a82db6773139	Preparation	Supply 19 WETH and 1M DZOO liquidity to uniswap v2
Wed, 15 Mar 2023 04:27:59 GMT	https://explorer.forta.network/alert/0x007edcc7744b683a0b516d1b471494a101c3b61923037dd4eb206d673959e7ab	Preparation	Alert: NORMAL-TOKEN-T RANSFERS-TX WETH_value: 19 DZOO_value: 100000000
Wed, 15 Mar 2023 04:27:59 GMT	https://explorer.forta.network/alert/0x1d05a7bd5e733d0a9d688fa290022b26b44b2a5e046925eb3318d9b14141bd63	Preparation	Alert: NETHFORTA-9 Uniwap v2 factory contract deployed Uniswap v2: DZOO 0xbcbe24dc878a193f 9c609087403779d74 efe5a4e
Mar-15-2023 04:29:59 AM +UTC	https://etherscan.io/tx/0x4d975f14cc2b0a2235f6d13e7da6a99023ab9e62a04de6e4bf469b2ad277add9	Preparation	Attacker EOA 2 creates an attacker contract 2
Wed, 15 Mar 2023 04:29:59 GMT	https://explorer.forta.network/alert/0xe518b5fa4529a0e8bedc388dc91a93e53a088b1e3772a9d50c8636185a56966f	Preparation	Alert: SUSPICIOUS-CONT RACT-CREATION AD: 0.0231
Mar-15-2023 04:30:47 AM +UTC	https://etherscan.io/tx/0x3cb4f3d218516ff631b0419e70905898ce1fbf7c4b5cf18d38cf90c8b01b4fb8	Preparation	Distribute DZOO to 33 addresses using a method of the DZOO ERC20 contract. See appendix 1 for list of addresses
Mar-15-2023	https://etherscan.io/tx	Preparation	Transfer 900k DZOO

04:32:35 AM +UTC	/0xbe129fc8709264027a5e65f249d2e07cf a5107d2b9d0a3801c ca178e027966cc		to Attacker EOA 2 ans the campaign to trick users start
Wed, 15 Mar 2023 04:32:35 GMT	https://explorer.fortanetwork/alert/0x7e6c42930834f0b4feb328246b812948debcbed8853b0689a3b0f0e5173390ee	Preparation	Alert: OZ-GNOSIS-EVENTS Transfer 900k DZOO
Mar-15-2023 04:35:47 AM +UTC	<a href="https://etherscan.io/tx/0x086b56a4bc78da2839594095026b48fe92d2c940643b49faf
e1a688b53d681d">https://etherscan.io/tx/0x086b56a4bc78da2839594095026b48fe92d2c940643b49faf e1a688b53d681d	Preparation	Attacker EOA 2 use <u>Disperse.App</u> to distribute 2.316 ETH each to 30 different addresses. See list of addresses in appendix 2
Wed, 15 Mar 2023 04:35:47 GMT	https://explorer.fortanetwork/alert/0x061f95c6f1d830531c20958776a5b64704cd98d8c8a821d0bf491cc43d41905b	Preparation	Alert: LARGE-TRANSFER-OUT Transfer 69.48 ETH AD: 0.00329 Disperse project
Mar-15-2023 04:42:59 AM +UTC	https://etherscan.io/tx/0xda60f55b0f5cbe698db3bb11709765e8a8d50fcd1b764de6d351c0669f7f15e	Exploitation	Attacker EOA 2 distributes 143 addresses using <u>Disperse.App</u> , 11 DZOO each. See appendix 3 to see the list of addresses The Campaign start here in will take 3 days
Wed, 15 Mar 2023 04:42:59 GMT	https://explorer.fortanetwork/alert/0x2196c1c1c4f98cae1e2e3435028a945c01eac2af4a43a117c8f87ff17dc7f2f9	Exploitation	Alert: OZ-GNOSIS-EVENTS Event: Transfer 1573 DZOO to 143 addresses
Mar-15-2023 04:51:59 AM +UTC	https://etherscan.io/tx/0x44cb7d77c0318e12c699fc5b522ff671c73d57119c1e14f726ce	Exploitation	One example of ~180 that swap ETH for DZOO

	5ba0b4ae8122		
Wed, 15 Mar 2023 04:51:59 GMT	https://explorer.forta.network/alert/0xf4d90fde46a5fd36f61b8b019af807db5624635ca8719eb767eeef6733aa3d80	Exploitation	Alert: OZ-GNOSIS-EVENT S Transfer Event Value: 11547800000000000000
Mar-15-2023 04:58:23 AM +UTC	https://etherscan.io/tx/0x266c10cbd2bf8bcd1a48575cdc49a6a92a2ba87f2fd282baa27d08b72d23345	Exploitation	One example of ~180 that swap DZOO for ETH
Wed, 15 Mar 2023 04:58:23 GMT	https://explorer.forta.network/alert/0xe65045806867012bfb6765751a826656f7db0bf973d8e24ca2df2d6eeb326f8d	Exploitation	Alert: OZ-GNOSIS-EVENT S Transfer Event Value: 3824965638515218
Mar-15-2023 11:08:35 AM +UTC	https://etherscan.io/tx/0xec379175f6d0e83d7110e9f04379d5c264d75486fdb6410611e2f42293fa7e4a	Various	The real token DZOO ERC20 token is created after 6 hours of having the fake one in mainnet
Mar-16-2023 02:22:23 AM +UTC	https://etherscan.io/tx/0x96aa428c1a339f65b22b233a9dd9d33d015041f30a4a5c11d5f83a68c2f57511	Exploitation	One example of ~180 that swap ETH for DZOO
Thu, 16 Mar 2023 02:22:23 GMT	https://explorer.forta.network/alert/0xf18dddcf541421b1fde403d7e8694b43ee9922a7f45bf6c39809b8118ba4d2b3	Exploitation	Alert: OZ-GNOSIS-EVENT S Transfer Event Value: 71620000000000000000
Mar-16-2023 03:13:11 AM +UTC	https://etherscan.io/tx/0x0e3f1afcca9173362f74f9deebf8814f0d568fdef2d24f92306128d297e968b6	Exploitation	One example of ~180 that swap DZOO for ETH

Thu, 16 Mar 2023 03:13:11 GMT	https://explorer.forta.network/alert/0x2b63c24c3b07fb1699e194c45b423dc853f687f11faca1e007df716ce20a656c	Exploitation	Alert: OZ-GNOSIS-EVENT S Transfer Event Value: 711046818864124
Mar-16-2023 09:56:23 AM +UTC	https://etherscan.io/tx/0x1e717caae2073035206856fe055f61c620874b90089940caf60097436a9183ec	Exploitation	Attacker EOA 2 creates a contract that then will use to increase trading volume
Thu, 16 Mar 2023 09:56:23 GMT	https://explorer.forta.network/alert/0xdfc6207d0c98ce8fabdc8263fd8c01d4a8f6b69ebb102330c5012d9b7be383a1	Exploitation	Alert: SUSPICIOUS-CONTRACT-CREATION AD: 0.018
Mar-16-2023 10:49:23 AM +UTC	https://etherscan.io/tx/0xd6202129a163aa9b2ccf07d32f4f0f5214e9f1add492ca6007949358878a2702	Exploitation	Attacker EOA 2 uses 160 ETH to execute a contract the will swap DZOO/ETH to create artificially trading volume
Thu, 16 Mar 2023 10:49:23 GMT	https://explorer.forta.network/alert/0x28eb6710b8eee043f51ec0faa3bffedf1d8d1684ebe0241ecc94e31e504f9a69	Exploitation	Alert: NETHFORTA-2 AD: 0.00319 Value: 160 ETH
Mar-17-2023 05:19:35 AM +UTC	https://etherscan.io/tx/0xab33261916b313a2c79da4b50cad9e80503e477afea219611fd90050b8af7c79	Exploitation	Attacker EOA 2 uses 150 ETH to execute a contract the will swap DZOO/ETH to create artificially trading volume
Fri, 17 Mar 2023 05:19:35 GMT	https://explorer.forta.network/alert/0x715739c5c9af2148b29ff8aae491b9de3c96f996f95d691a78107f35a5315112	Exploitation	Alert: NETHFORTA-2 AD: 0.0032 Value: 150 ETH
Mar-17-2023 04:42:59 PM +UTC	https://etherscan.io/tx/0x63e6e9c8d11e6fe6465363ed8cc6af4b5260633131d26090cd	Exploitation	Attacker EOA 1 Remove liquidity ETH and DZOO The campaign ends

	5f0cdf4421bb80		here and took 3 days
Fri, 17 Mar 2023 16:42:59 GMT	https://explorer.fortanetwork/alert/0x1ced180433410fb36c2f73f06f86129748b38d39d5b9ad09bb742d048f9408a7	Exploitation	Alert: LARGE-PROFIT Profit: \$123733.03 AD: 0.02
Fri, 17 Mar 2023 16:42:59 GMT	https://explorer.fortanetwork/alert/0x2850154abd47661300748daf1d17d3afad0dd0cfd5179bf477d6ff4f5bf4c57	Exploitation	Alert: FLD_FUNDING Type: DEX Funds: \$128226.07
Fri, 17 Mar 2023 16:42:59 GMT	https://explorer.fortanetwork/alert/0x40d23e1ee77ba0f15ae4e7e52d2155244e4093ffa06ee04c8d79c6df1b7f7937	Exploitation	Alert: NORMAL-TOKEN-TRANSFERS-TX DZOO: 66907668.718 WETH: 74.263
Mar-17-2023 04:43:47 PM +UTC	https://etherscan.io/tx/0x1a2095b41a0baf654e43e4c082e931b1fc17fe92157e820d5f57cbde4dffa9be	Money laundering	Transfer 75.09 ETH to Attacker EOA 2
Fri, 17 Mar 2023 16:43:47 GMT	https://explorer.fortanetwork/alert/0x6b57db47a0654c86bb9016b073cb6fd2fe4ecaa0df59e4670ebae41c4f6a17d7	Money Laundering	Alert: NATIVE-TRANSFER Funds: 0x412154527f8150000
Mar-17-2023 12:50:11 PM +UTC	https://etherscan.io/tx/0xbdd913dd428287f60edca912f21372bed067b6069532b1d42a978f559515e9fa	Money laundering	All addresses of appendix 2 return their funds in ETH to attacker EOA 2. This is one example of many
Fri, 17 Mar 2023 12:50:11 GMT	https://explorer.fortanetwork/alert/0xabdfdcdba652bee55629706867e67edfddabfdb300a334d4f5f88bb80ed73562	Money laundering	Alert: NATIVE-TRANSFER Funds: 0x22b9f76aab123edd

Mar-17-2023 04:47:23 PM +UTC	https://etherscan.io/tx/0xcb17cdb5759534e13bd21e4e6d6246f18e113bac2b6e71d80f6c67512bf630b1	Money laundering	It transfer all fund to attacker EOA 3
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References

Reference	Relevance
https://etherscan.io/address/0x63b7e54fb2f91751b424236d80171896cdcdfc9c	Address that moves huge amount of money. Is the attacker EOA 1

Forta Bots Involved

	Botid	Bot Title	Github
1	0xbf953b115fd214e1eb5c4d6f556ea30f0df47bd86bf35ce1fdae03dc7df5b7	High Value Transaction	https://github.com/NethermindEth/Forta-Agents/tree/main/anomalous-tx-value
2	0xd3061db4662d5b3406b52b20f34234e462d2c275b99414d76dc644e2486be3e9	entity-cluster-bot	https://ipfs.forta.network/ipfs/QmYtG5H1ENjyPHFwVbxoeorQ6FiTZk7Eyg7TNPu9N3Bp3Y
3	0x457aa09ca38d60410c8ffa1761f535f23959195a56c9b82e0207801e86b34d99	suspicious-contract-creation	https://ipfs.forta.network/ipfs/QmQph6eFuz76bKpdvuWpxYr76jtFGhq9T8w8dGHCA1xwjX
4	0x77281ae942ee1fe141d0652e9dad7d001761552f906fb1684b2812603de31049	oz-gnosis-events	https://ipfs.forta.network/ipfs/QmTcCryfeExBjMh1ReXJxVRmtGqnWqhUhgbUKZ1b1EsiFk

5	0xaf9ac4c204eabdd39e9b00f91c8383dc01ef1783e010763cad05cc39e82643bb	large-transfer-out	https://ipfs.forta.network/ipfs/QmZtZKzFEi62t4ny8rPoJRTvp9mXriaXCfuzhQbiTC6mCr
6	0xb18936c33b8f4526f8ed05bc0a36dd55a3424bb80568f6e2cc72846a3a312315	forta-native-transactions	https://github.com/forta-network/forta-bot-sdk/tree/master/starter-project
7	0x2e51c6a89c2dccc16a813bb0c3bf3bbfe94414b6a0ea3fc650ad2a59e148f3c8	Anomalous Token Transfers Detection Machine Learning Bot	https://github.com/forta-network/starter-kits/tree/main/anomalous-token-transfers-ml-py#anomalous-transaction-with-token-transfers
8	0x186f424224eac9f0dc178e32d1af7be39506333783eec9463edd247dc8df8058	Funding Laundering Detector	https://github.com/vennglov/Funding-Laundering-Detector

New Detection Bot Ideas

- Soft Rugpull Bot

- Must detect when a campaign start and finish. It start when the attacker creates a liquidity pool and finish when remove the liquidity
- Must detect the token impersonation, in this example it used DZOO
 - The real DZOO has the token contract verified but the fake one not
 - The real DZOO has more holders than the fake: 6185 vs 194
 - Both has unknown reputation in etherscan, same name, description and supply
 - They has different methods, for example the **AAAAA(address[] newOwners)** that distribute fake DZOO to the helpers addresses
 - The fake token was created before the real one. Fake token created Mar-15-2023 04:26:59 AM +UTC, the real one Mar-15-2023 11:08:35 AM +UTC
 - The attacker used the metadata in test net and is following and monitoring the different crypto projects in the space
- Forta detected Attacker EOA 1 and EOA 2 as cluster but didn't detect the helper addresses. We should detect addresses that one of the addresses of the cluster

distribute the fake token and send ethereum to operate in the network and the trading pair ETH/DZOO. When finishing the campaign return the valuable assets, but keep the fake token.

- Must detect the helper addresses operation:
 - Create big amount of transfers
 - Create bump and pump to attract the victims
 - Create volume
 - More buyers than sellers
- Must detect contracts that run several operations in a single transaction to increase the trading volume. In this case was created and run from attacker EOA 2 with huge amount of assets, 2 runs: one 150 ETH and the other 160 ETH
- Must detect token spam to increase the number of holders

Detection Bot Improvement Suggestions

BotId	Bot Title	Issue	Improvement	Link to Github Issue
https://explorer.forta.network/bot/0x9aaa5cd64000e8ba4fa2718a467b90055b70815d60351914cc1cbe89fe1c404c	Malicious Smart Contract ML V3-beta	Bot points to a github page that doesn't exist	Add a working github page link	https://github.com/forta-network/starter-kits/issues/175
0xb18936c33b8f4526f8ed05bc0a36dd55a3424bb80568f6e2cc72846a3a312315	forta-native-transactions	Value in the metadata is in hex	Should be decimal for easy reading	https://github.com/forta-network/forta-bot-sdk/issues/304
0xc537bb9a6f36e6d8fc4321d11caa464eabed80bbeb1e13ce2fcd6e5e398b0d6c	entity-cluster-bot	It detected attacker EOA1 and EOA2	It didn't detect the 30 helper addresses, also was founded by other addresses	No github link

Appendix 1 - Attacker DZOO addresses

List of addresses used to distribute DZOO by Attacker EOA 1 in [transaction](#)

0x47ce5A1517AeA97F04D303955B400c6d51830F67
 0x4bB06B6BD5243dB37Af144A1d436D27dFeCDe947
 0x2ada1083e5e298b9F89FDe63DB44dE388A914D69

0xE7Fb6d6DF50BcdFCF457764D4c4648f56d45De04
0xA4385bf90F6d930c88a0ACBdb2B5E6FE92B64014
0xE22ec9652E96d3730523E0fb068dbfaf9e6605F8
0xC5574AC242D0Ec05ae8F67CB2c8Cd56dFf99D50D
0x495589890Fb4Dd6397965aB0e86b74171dAf63C8
0x11D4FDD564AE1BF3875761606aD0B3A21aF310c5
0x6f1A5a607Ec25567b99947c3471cDE61F3E848AA
0x7De08ABcf75f08aAF6EeFA239fe479d26597Db4E
0xAf33273F0D7D18a87F737De95a8fb00c545F4fF5
0x31612a75F5d646d82b4100D1578019eEfb698DEE
0x77B3DdB51c776bC11Af0D7240A02fE9e46A03340
0xEB60c48a1aeA8a84d3333962d8Fb6529f2A3eF8a
0xDcbA1D220959402eb1Ad903cb6B50aEfB30B03AE
0xa88B2947650c1c45e6Cf97A895E48E0c8dDbF3D7
0xDF2dcF3C6Bb807116d2aD70d0641d1F504903964
0xC864fCa1E9B3f2Bdd0C8206400F3F6530adCdCA3
0x195Ad1daD0525f906D91319FbB22aB0288a6b879
0xFD80E81Df83f34312d966496EA943Cf57070f0Ea
0xbe231b29968b25bbaCB146F9DEBb5e56B443cE7B
0x96E0e0F11A6f1A2C268990067da6d4e0fA851846
0xEC68A45F709735994E5340a73b74A7F53bd7BD47
0x9DD577A45C4daA73ed2cB993740A9953fCa996d2
0xe3Cd01d3372A917986F118161Abc00a5497eb425
0xdfB92fF48aaFA9D4F4Cc6877B8dF0752E063A323
0x4da2FaceE5eB9F40da6FCB86A3264Cc777fFc60f
0x84B8aECa2dadB97A3a7e2CBA0899FE1e13e6152e
0x8908f93A43000A270F9e4F8cbDe6671cCc21fc26
0xeD030549D55B2385d1759FE4879B1FA2a7A07967
0xEa69DF61120F0cBD7CBd7508BA41E72A6a2A2902
0x5b8cBb49117D53823E705CF49107c2008E86a4eF
0xBd001aCB4F7608c41ACcFAB5F90d3c9285140606

Appendix 2 - Attacker addresses with Ethereum (30)

Disperse.app to distribute 2.316 ETH to different attacker EOAs. They are used to create volume, the swap ETH for DZOO and the DZOO for ETH. Also creates a number of holders.

0x47ce5A1517AeA97F04D303955B400c6d51830F67
0x4bB06B6BD5243dB37Af144A1d436D27dFeCDe947
0x2ada1083e5e298b9F89FDe63DB44dE388A914D69
0xE7Fb6d6DF50BcdFCF457764D4c4648f56d45De04
0xA4385bf90F6d930c88a0ACBdb2B5E6FE92B64014

0xE22ec9652E96d3730523E0fb068dbfaf9e6605F8
0xC5574AC242D0Ec05ae8F67CB2c8Cd56dFf99D50D
0x495589890Fb4Dd6397965aB0e86b74171dAf63C8
0x11D4FDD564AE1BF3875761606aD0B3A21aF310c5
0x6f1A5a607Ec25567b99947c3471cDE61F3E848AA
0x7De08ABcf75f08aAF6EeFA239fe479d26597Db4E
0xAf33273F0D7D18a87F737De95a8fb00c545F4fF5
0x31612a75F5d646d82b4100D1578019eEfb698DEE
0x77B3DdB51c776bC11Af0D7240A02fE9e46A03340
0xEB60c48a1aeA8a84d3333962d8Fb6529f2A3eF8a
0xDcbA1D220959402eb1Ad903cb6B50aEfB30B03AE
0xa88B2947650c1c45e6Cf97A895E48E0c8dDbF3D7
0xDF2dcF3C6Bb807116d2aD70d0641d1F504903964
0xC864fCa1E9B3f2Bdd0C8206400F3F6530adCdCA3
0x195Ad1daD0525f906D91319FbB22aB0288a6b879
0xFD80E81Df83f34312d966496EA943Cf57070f0Ea
0xbe231b29968b25bbaCB146F9DEBb5e56B443cE7B
0x96E0e0F11A6f1A2C268990067da6d4e0fA851846
0xEC68A45F709735994E5340a73b74A7F53bd7BD47
0x9DD577A45C4daA73ed2cB993740A9953fCa996d2
0xe3Cd01d3372A917986F118161Abc00a5497eb425
0xdfB92fF48aaFA9D4F4Cc6877B8dF0752E063A323
0x4da2FaceE5eB9F40da6FCB86A3264Cc777fFc60f
0x84B8aECa2dadB97A3a7e2CBA0899FE1e13e6152e
0x8908f93A43000A270F9e4F8cbDe6671cCc21fc26

Appendix 3 - Token Spam Campaign (143)

Distribute 11 DZOO tokens using Disperse.app the criteria to select these addresses is MEXC token holders.

0x627348656A249DA87b8B06A7D7857CE6cC1b4383
0x0E9df2F55303c4946CF7129e4807a46E323Ffe77
0xAd077fb4fc0995AD0040C656D2D1eda93Ab2a457
0x97Ef4B5703457e9A0852Dd833a80Ae2CB95D76E4
0xe80c8732C32cA945B65428Fb524CF2C9B2A8E5f6
0xF36C107F11941c2A7729976Da406e5dAA5a231C8
0xdfc23e830F76772627B51370D56b6c81Fa9e8C67
0x0c0538f2D3677f73d9CfA2a580AF6Eb366aFDD4d
0xdD6470D963720E872f9880e5562A17c67701D480
0xcd030Bc367b46Df6cf6173727E20bDF4776e67Af
0x6aeE69DF0d747D18201484b62a2d8072E7faa973
0x91667bCed6164bEb655A660Fd1e209c704a81a53

0xb429c1Fa7eB7DDB5b558d0A9D05FD56E0a23A71E
0x7262A526Cf3496aD1264372B90Eb9A532DE617E1
0xc3ec4966e71e560fE127E891d9b8172Cb643df1D
0xE0a473e63EE5c5075b594e6C236f0BCb4f76bce9
0xD9F026B65106fCD9940223978AB2cf2397797f01
0xD1bD97e74d7B2f6617645CA5890c4891d0E65bAA
0xf3b97D1E002BaEa6a9c01c5Aa98C50BF6D15Cf04
0x1eefdB10cc943dd2b56f48Ded8f4339e8169EA55
0x7de9813DF3fD6a7091F152B12ab8C176d186C053
0xE0125b3995Ce6971AdC0BF40113bcD09165B585B
0x12B8c1cC850453159D00F33939D27C09981561fb
0x104b60251E40b25F72f70f963c1150FCc4Ee1386
0xeEF00a3E2b41E7Ae5A5C8493b77fAA68005c19ea
0x74a873FA1B77b299742B3a58F555AA976FeC5b63
0x252d7DFcAd682e275ab487fE373F7a9a76313451
0x6191e30BF30d10D30BB3c374E40352C3811Bd985
0x86158B665AA879eEb98Bba3b2a15d6E3f9efbe96
0xA467a0b8dAf0A068a17072967A032880a7642A67
0xa643e9E6eD0ef1C51f87aDF1a70D472afeD26908
0xfaE76E14e8F318CC6b67D3999F0F883e9F32ee67
0xaff536D91E61440937e1fCdc4FaF8D26Dddf4470
0x4B1FC2578158Ee85F820692D29151d6363170B51
0xa688d8b99b71C5F3bb6b42a3874Fa315762Dbe08
0xC91A2E2bf72a894744e5256C4E2196bafCF5eF38
0x00496199aFB7410838c655b1Ec97BD5626D711f5
0xEdC509E6bEeE9ae924232387f06eA184658D3F04
0x93D08cFC77e5126dFc6ee7EC4245bE2c22265f72
0xe96FCd3eaCFa4e304729d2D051C26d27D940E4D6
0x3DdD0756C41cab922f179356Fb782E8b087EFaDa
0xc402FFAB4a836A70717679117eABC68Fce19C7B2
0xa1452E0fC1D37fAE07a0c3C12dC9430e51973C50
0x9D2a6805607e025b0Ae12df4A9FE51913afB0Cd2
0x243dF39E51E61dac8271F2879a8C53d673AAd07e
0xb739086173dCF42f7FdbE33a641F7aBdE26C8B6e
0x387C5728F7f0C2B9e224B00bab0eecC3F222b12d
0x5d8908C379A3E2D46B98bd7C09B77d4e729D16F6
0xD5fb207daaf4667159Ce60e89457619B57C8e3F6
0xd6843b4F1F92b595D529eE305c0891e0C29665ba
0x0725b51DA35CD92ff7A4C9e0FB112A961B2DE631
0x7eC578e74B64Dd77665E8E8c295BF1FA2a3d4726
0x1B654503A748467E5923246B6D15c143A2d0EF11
0x09FFefFabf493E6ce96fA249B221dbed50219194
0x732f500ec27776508149C082D1B963afEf0dDA7E
0x11E84EBcCd220f1AFd273A774A16B03197e1226e
0xB5aea360f99A674460Bd6979a705F280091bf2B0
0x494704D8FD68E64c0D1521eefADE6706717F93a7

0xAfD72ea53354849Aa64C10D050746AE6220c1070
0xCC78287fe5C6E88504DCaf5655627ac39110fcca
0x02327cD03E9eA4F65A9070F4c42B07754B476eE7
0x3a976977f5d8c15d514Fb9A4107B2467C27a30F8
0x8A84C35f5A4fEc8af082e7040D078e87d8d84657
0x572fE940Fb0E1D4D63eDBfA9950D9E92B2574c71
0x09f1be40E9c156987C48Ab80d7F6Eadf2830C6f7
0xd73Ed64d24042bF40ba4a5c926aF8799Fa7b01a2
0xa977311a9c3105F2D79622A8e0Cf707F1B225c35
0xFF8b606b46BBbdFE62EBd5591f8FEAD00D82F760
0x45d73059e43423402c8996ad3868a9a50aE0d1E6
0xcE84CBa8484DaDEbd1FeBc156De855ac86766d54
0x8204a0EC5F2b68Abbeaa371E7Cae8D24f88a6ce6
0x23dbA865880F31554329107BD79B63C0fC0c4BE6
0xCda10a14736aE9A7Ff7ceB8360b50E4098962E94
0x16058e7a7dFe6Ec083Fb54Ee43B81bDEb81B1E69
0x96FbF259793bA6328fd072359E171A6395230b5d
0x09bFC5b7d4B66B4F6Ffe133cBB19e66fE76659dE
0xFFFe0cB23C63fbDc7Feb2710d7dbBEA70Ba0a004c
0xc91854F6C7dB08888D690ef2d8f49eec45B8f1A9
0xc9aE1Ae17c191Ee61113B1735f2546541751E5bd
0x542cd63D0b8016d45637A61116C33dD9706a7174
0xB0E9C6d18253E41b64b43A22990796D3865d67Ec
0x0C653DCF80af471A766B043AcEe9E4193211AEA3
0x2e08C9590d37ECbd5E3fE216b48ed4e9B2E3101E
0x5961500781F69F4cC69f17D488B551C56695ccb4
0xFd1d325a6656364683ce842C6FCa5e29872c82c2
0xEc293b9C56f06C8f71392269313D7e2Da681D9aC
0x37612528Aa6b800cc0eF7EE1aC66Fd0a9C963A71
0x381286853D60C8d0b86B81ac969d3322326cAbd4
0x9918779a9186110Bf0F7F8717b4421cc1eB8C63b
0xdEd20Ec120B1e892D35d039bbf69D5C9b3D590Eb
0x144B7961cD40DE2FAeA1aE4cb529BAcfCc217F81
0x9B7B07b833eEaDfF9869d82a45f70aF39bEcE0cF
0x0f2870D040057c7d05Be636E6F12d6f26705229b
0xdf2F135f53DcC95b9e2D86D530239A8260FC413C
0x581A3C1EB849d6e6458eAA9C817808E63F483a5E
0x9a2610D0D0cD9f3344cf3b118634582F15bB7D50
0xd809CF9167fE52bb65e7dD51749bC6296d988ccC
0x9E8B1Afe2A80eF52E2e8C985eF0d6a48e64033b2
0xA201a071a6A86EdB9adea077165B72F33Eb17Fd9
0x2A9A1eC9746e9a0bC961777f3C2f3bbbf8460DEe
0x2221B6227975Da67e4e600c9E01bB3D9b6aEfAC1
0x8716Ae7681f2CB0E0E74e0AA641A7A0D89cBAF5d
0x7382D82766A3bEe078C1a0d8FaEC686e67753b3a
0x8E4fd74a3787f19c9592BE9C5D09A3800eCCD597

0x4D485bcb392eFD590fAa63D169e84f35478C7a6f
0x2c304F60F8BB1E7a0B739Efe155D728aDbf1967D
0x50dc8cCf69d7F55500939F5FE57CBc582E188987
0x5D5fAb52823DF81910752f1f5e42cD03C4528a0b
0xce1f1b243C163034e3EDDd8291d930C2663DC83d
0x0FB0b412998EC85Fa93Ed0b4C8466a13c7B170E9
0x64eca99a12f256052ab7D1D55794208754301535
0x65c421995766C15b93C7c46E4ee585E49720Ea6B
0xA0324794fF56ECb258220046034A363D0Da98F51
0xe266DF3E7E287F45070B861ad0881Be079084F90
0x0395c088b09E43b10fd79eD1FcC77DBAB554eA91
0x91F3f49e38C71eF6B1bAF034F55D3fa9E0d63F87
0xee078404433ebD76998D18129679b7A6871B0FBd
0xb2Cc1Dd9dD96D97CEA096415FF921752d15bED3c
0x9775529021C8d7F2C6844663edA0aac898C9CEaE
0xeEFad2F928e15c5C69092fb1c2114365159e9413
0x98F29913fCbb3833FC7f7231E30B298809Be99Ed
0x134fa0CC62Dce294Bc3Ea1E192c6F6Db3E247dEB
0x2C9C940DbcdA45FeF2cb89C05c0D7F9029a51853
0x3810a0F808F53322d8dC1Cb0B3170c19cDa9fe49
0xae8f86ebE951e6d03bD74f3aF8ecaF56753F7e82
0xAf30BcAD9Ce01Af61C5178B2Cd13bDEB1A65D3D4
0xAff1d3167397c4eA24b0D06599e7188e32dBf04B
0xE794922919B2f3d405a823b89d2f62fd1eC64442
0x87FD4e700ee5c3FcE19fC6442CFF28c527c0deEa
0x7344d37F92baD04fE9a550913595c0A36f4b467C
0x6439Aa248750dcC1556150cBE9DfE9928eeb216a
0x63BAfaA5dA21b6b93cC71E2E9776ED41E91e6D4a
0x1a3524BA2893f52797da80660820e88aFE88A674
0xfd63295B85c595a4b392CC5127CA802EB528844f
0x2368deDa212dAd60e6f4D43F6886a24Cd3f11f94
0x8D0177310b8a1D624956d6bDC6F1b92cE05C4181
0x181273DAA2ebCD5E1Ab6D7Bf88e4277044937728
0x9E25c92568b54eF2D9F0F2CB0D042737634658bd
0xF6B4B1E35429AbE17446edc96832D12ad37aC2D8
0x96Eb97CD6c6773c058C31a737a784059E9c7BA08
0x4a0EdFB9311Cf6d3326C11a9228f68d4d43227b5
0xbbf6c6e93b3abd59e5C2A9B8Cc7d5a21718EA12d
0x82d50C422055B250885455F40C891a4a6e7D1Cab

Appendix 4 - DZOO holders (194)

Fake DZOO token holder list. It include victims and bots

0x5b8cbb49117d53823e705cf49107c2008e86a4ef
0x63b7e54fb2f91751b424236d80171896cdcdfc9c
0xec68a45f709735994e5340a73b74a7f53bd7bd47
0xbe231b29968b25bbacb146f9debb5e56b443ce7b
0xdfb92ff48aafa9d4f4cc6877b8df0752e063a323
0xd4d8f31e04dc2a44fe9e6e7d941439d38e3c12af
0x84b8aeca2dad97a3a7e2cba0899fe1e13e6152e
0xe3cd01d3372a917986f118161abc00a5497eb425
0xfd80e81df83f34312d966496ea943cf57070f0ea
0xeb60c48a1aea8a84d3333962d8fb6529f2a3ef8a
0x4da2facee5eb9f40da6fcb86a3264cc777ffc60f
0x2ada1083e5e298b9f89fde63db44de388a914d69
0xc5574ac242d0ec05ae8f67cb2c8cd56dff99d50d
0x31612a75f5d646d82b4100d1578019eefb698dee
0x9dd577a45c4daa73ed2cb993740a9953fca996d2
0x47ce5a1517aea97f04d303955b400c6d51830f67
0xdf2dcf3c6bb807116d2ad70d0641d1f504903964
0x4bb06b6bd5243db37af144a1d436d27dfecde947
0xcf8a6c9d189008d70ad96d2a8a0288c286d39c89
0xaf33273f0d7d18a87f737de95a8fb00c545f4ff5
0x96e0e0f11a6f1a2c268990067da6d4e0fa851846
0x11d4fdd564ae1bf3875761606ad0b3a21af310c5
0x7de08abcf75f08aaf6eefa239fe479d26597db4e
0xc864fca1e9b3f2bdd0c8206400f3f6530adcdca3
0x4b3bdb3b49e04d2f3e65967dd0cb0ed0c4fbd886
0xbe6a3fd244e30f8b14e99f3b721001f20354094c
0x6f1a5a607ec25567b99947c3471cde61f3e848aa
0x195ad1dad0525f906d91319fbb22ab0288a6b879
0x8908f93a43000a270f9e4f8cbde6671ccc21fc26
0x77b3ddb51c776bc11af0d7240a02fe9e46a03340
0xcf9fc44b997d7e94ac95ce2ec81f9ecfa4e94265
0xe7fb6d6df50bcdcf457764d4c4648f56d45de04
0x2a0f51b6e17937b99cbbf42b2599299af74904c9
0xa4385bf90f6d930c88a0acbdb2b5e6fe92b64014
0xe22ec9652e96d3730523e0fb068dbfaf9e6605f8
0xa3366e2ad9782a371a29a7c9f3a0055511f24485
0x686ec7f3833b25be5caf38ab853842dc264eab55
0xb5535e36788abb4da4b002c823448fbace71c85d
0x1e8ebaa6d9bf90ca2800f97c95afedd6a64c91e2
0x495589890fb4dd6397965ab0e86b74171daf63c8
0xb516ab8487e6b751cbfdfe2f196343ca270eadb7
0x133037188371a2a85525899baab674e2efb0ac72

0xf73f12d0490eed19814bf403b7ab483f8dabf844
0x6e8959219fe8ba9830d6ede1a7d7536199f60b55
0x311de266b59c1a9d6a08979c4d7d2fcb8046c173
0x39f38c04f217acc55549d54ce43b0666bb635d54
0x3cc6eeb20cf4756c33e57360a29b1f9f8abfd64b
0xe931a6be427bee95fc5f813c506395cb39fa6e22
0xaa4002db3447d73c9231b7a2d85963691844758f
0x83f119ce6da68f550491851d3c4beeebb628c448
0xc91a2e2bf72a894744e5256c4e2196bafcf5ef38
0xdd6470d963720e872f9880e5562a17c67701d480
0x8716ae7681f2cb0e0e74e0aa641a7a0d89cbaf5d
0x09f1be40e9c156987c48ab80d7f6eadf2830c6f7
0x97ef4b5703457e9a0852dd833a80ae2cb95d76e4
0x2c9c940dbcd45fef2cb89c05c0d7f9029a51853
0xa201a071a6a86edb9adea077165b72f33eb17fd9
0x252d7dfcad682e275ab487fe373f7a9a76313451
0xdf2f135f53dcc95b9e2d86d530239a8260fc413c
0x2368deda212dad60e6f4d43f6886a24cd3f11f94
0x63bafaa5da21b6b93cc71e2e9776ed41e91e6d4a
0x9775529021c8d7f2c6844663eda0aac898c9ceae
0x45d73059e43423402c8996ad3868a9a50ae0d1e6
0x1a3524ba2893f52797da80660820e88afe88a674
0xfd1d325a6656364683ce842c6fca5e29872c82c2
0x16058e7a7dfe6ec083fb54ee43b81bdeb81b1e69
0xa688d8b99b71c5f3bb6b42a3874fa315762dbe08
0x134fa0cc62dce294bc3ea1e192c6f6db3e247deb
0x2a9a1ec9746e9a0bc961777f3c2f3bbb8460dee
0x7de9813df3fd6a7091f152b12ab8c176d186c053
0xff8b606b46bbdbfe62ebd5591f8fead00d82f760
0x387c5728f7f0c2b9e224b00bab0eccc3f222b12d
0xbbf6c6e93b3abd59e5c2a9b8cc7d5a21718ea12d
0x9a2610d0d0cd9f3344cf3b118634582f15bb7d50
0xf3b97d1e002baea6a9c01c5aa98c50bf6d15cf04
0xae8f86ebe951e6d03bd74f3af8ecaf56753f7e82
0x3810a0f808f53322d8dc1cb0b3170c19cda9fe49
0xd73ed64d24042bf40ba4a5c926af8799fa7b01a2
0xb0e9c6d18253e41b64b43a22990796d3865d67ec
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0x74a873fa1b77b299742b3a58f555aa976fec5b63
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0x82d50c422055b250885455f40c891a4a6e7d1cab
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 0xc402ffab4a836a70717679117eabc68fce19c7b2
 0xa977311a9c3105f2d79622a8e0cf707f1b225c35
 0xbcbe24dc878a193f9c609087403779d74efe5a4e

Appendix 5 - victims (20)

victims address	ETH
0x83f119ce6da68f550491851d3c4beeebb628c448	0
0xaa4002db3447d73c9231b7a2d85963691844758f	0
0xe931a6be427bee95fc5f813c506395cb39fa6e22	0.0307
0x3cc6eeb20cf4756c33e57360a29b1f9f8abfd64b	0
0x39f38c04f217acc55549d54ce43b0666bb635d54	0.03297
0x311de266b59c1a9d6a08979c4d7d2fcb8046c173	0.1
0x6e8959219fe8ba9830d6ede1a7d7536199f60b55	0.1
0xf73f12d0490eed19814bf403b7ab483f8dabf844	0.0693875
0x133037188371a2a85525899baab674e2efb0ac72	0.06651
0xb516ab8487e6b751cbfdfe2f196343ca27	0.1

0eadb7	
0x1e8ebaa6d9bf90ca2800f97c95afeddd6a64c91e2	0.12
0xb5535e36788abb4da4b002c823448fbace71c85d	0.2
0x686ec7f3833b25be5caf38ab853842dc264eab55	0.1
0xa3366e2ad9782a371a29a7c9f3a0055511f24485	0.2
0x2a0f51b6e17937b99cdbf42b2599299af74904c9	0.13555
0xcf9fc44b997d7e94ac95ce2ec81f9ecfa4e94265	0.19825
0xbe6a3fd244e30f8b14e99f3b721001f20354094c	0.31
0x4b3bdb3b49e04d2f3e65967dd0cb0ed0c4fbd886	0.59554
0xcf8a6c9d189008d70ad96d2a8a0288c286d39c89	0.59949
0xd4d8f31e04dc2a44fe9e6e7d941439d38e3c12af	1.473
Total	4.4313975

Appendix 6 - Attacker vanity metrics



13:01



Degen Zoo



Liquidity

\$140K

FDV

\$1.5M

Market Cap

\$1.5M

5M
N/A1H
-6.61%6H
30.29%24H
321%

Add to Watchlist

Trade on Uniswap

Set price alerts

5M

1H

6H

24H

TXNS

129

BUYS

81

SELLS

48

VOLUME

\$236K

BUY VOL

\$138K

SELL VOL

\$98K

MAKERS

34

BUYERS

34

SELLERS

26

Pair Created

12h 33m ago

Pooled DZOO

45,335,199 \$69K

Pooled WETH

42.43 \$69K

DZOO

0xE4e7...dd3b

COPY



Info

Chart+Txns

Chart

Txns