



# Smart Contract Security Audit Report

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## **BATMAN**

December 2022

Security Status



[www.hacksafe.io](https://www.hacksafe.io)



# Audit Details



## Audited project

BATMAN



## Deployer address

0xf2737058c34f46588c0190c54c3a681081d1869e



## Client contacts

BATMAN Team



## Blockchain

Ethereum



## Website

Not provided



# Disclaimer

This is a limited report on our findings based on our analysis, in accordance with good industry practice as at the date of this report, in relation to cybersecurity vulnerabilities and issues in the framework and algorithms based on smart contracts, the details of which are set out in this report. In order to get a full view of our analysis, it is crucial for you to read the full report. While we have done our best in conducting our analysis and producing this report, it is important to note that you should not rely on this report and cannot claim against us on the basis of what it says or doesn't say, or how we produced it, and it is important for you to conduct your own independent investigations before making any decisions. We go into more detail on this in the below disclaimer below – please make sure to read it in full.

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The analysis of the security is purely based on the smart contracts alone. No applications or operations were reviewed for security. No product code has been reviewed.



# Procedure

## **Step 1 - In-Depth Manual Review**

Manual line-by-line code reviews to ensure the logic behind each function is sound and safe from various attack vectors. This is the most important and lengthy portion of the audit process (as automated tools often cannot find the nuances that lead to exploits such as flash loan attacks).

## **Step 2 - Automated Testing**

Simulation of a variety of interactions with your Smart Contract on a test blockchain leveraging a combination of automated test tools and manual testing to determine if any security vulnerabilities exist.

## **Step 3 – Leadership Review**

The engineers assigned to the audit will schedule meetings with our leadership team to review the contracts, any comments or findings, and ask questions to further apply adversarial thinking to discuss less common attack vectors.

## **Step 4 - Resolution of Issues**

Consulting with the team to provide our recommendations to ensure the code's security and optimize its gas efficiency, if possible. We assist project team's in resolving any outstanding issues or implementing our recommendations.

## **Step 5 - Published Audit Report**

Boiling down results and findings into an easy-to-read report tailored to the project. Our audit reports highlight resolved issues and any risks that exist to the project or its users, along with any remaining suggested remediation measures. Diagrams are included at the end of each report to help users understand the interactions which occur within the project.

# Background

HackSafe was commissioned by BATMAN to perform an audit of smart contracts:

- <https://etherscan.io/address/0x8b2ca226f78a8F35e97e944a5468AF85c0a6C616#code>

The purpose of the audit was to achieve the following:

- Ensure that the smart contract functions as intended.
- Identify potential security issues with the smart contract.

The information in this report should be understood to understand the risk exposure of the smart contract, and as a guide to improve the security posture of the smart contract by remediating the issues that were identified.

# Contract Details

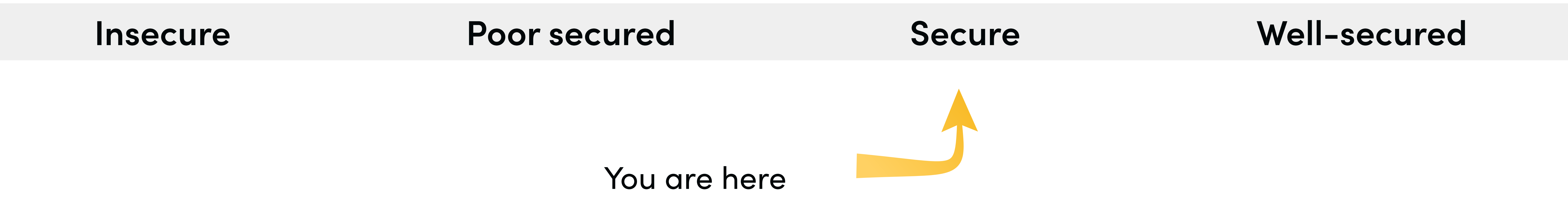
## Token contract details for 17.12.2022

Token Type	: MEME
Contract name	: batman
Contract address	: 0x8b2ca226f78a8F35e97e944a5468AF85c0a6C616
Total supply	: 75,000,000,000
Token ticker	: BATMAN
Decimals	: 9
Token Holders	: 1,743
Transactions count	: 7,370
Compiler version	: v0.8.4+commit.c7e474f2
Contract deployer address	: 0xf2737058c34f46588c0190c54c3a681081d1869e
Owner address	: 0x00



# Audit Summary

According to the standard audit assessment, Customer`s solidity smart contracts are **“Secure”**. This token contract does not contain owner control as ownership has been renounced, which do make it fully decentralized.




We used various tools like Slither, Mythril and Remix IDE. At the same time this finding is based on critical analysis of the manual audit. All issues found during automated analysis were manually reviewed and applicable vulnerabilities are presented in the issues checking status.

We found 0 critical, 0 high, 0 medium and 1 low.

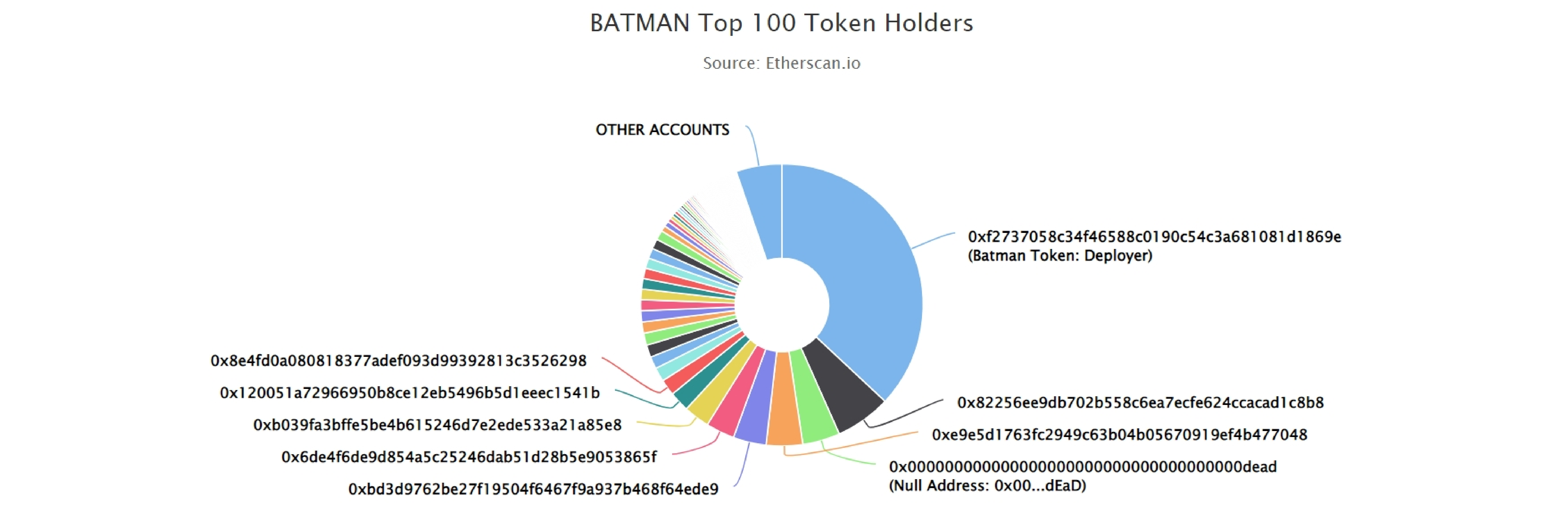
# BATMAN Token Distribution

 The top 100 holders collectively own 94.76% (71,067,253,692.10 Tokens) of BATMAN

 Token Total Supply: 75,000,000,000.00 Token


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Total Token Holders: 1,743



## BATMAN Top 20 Token Holders

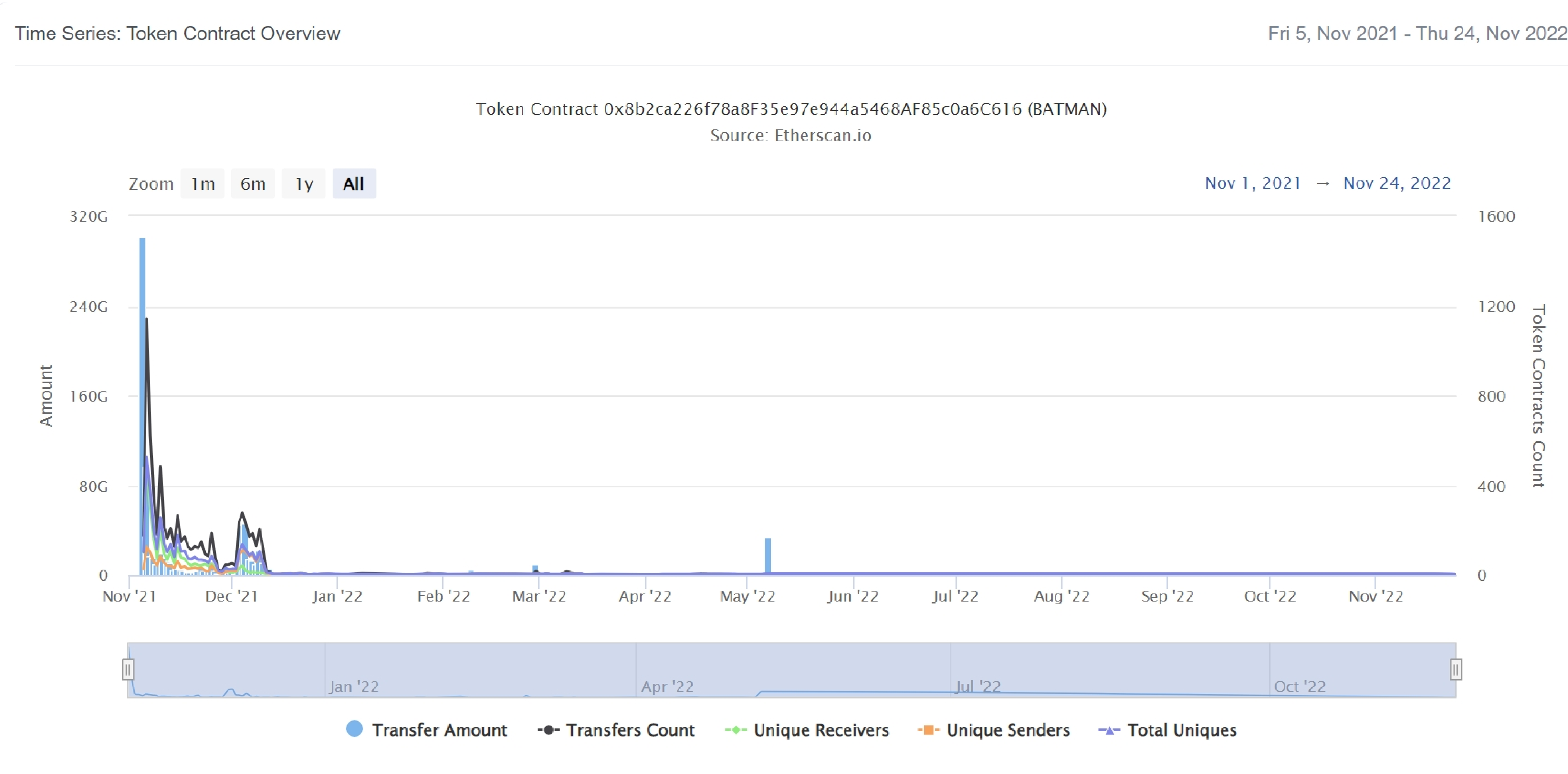
(A total of 71,067,253,692.10 tokens held by the top 100 accounts from the total supply of 75,000,000,000.00 token)

Rank	Address	Quantity (Token)	Percentage
1	Batman Token: Deployer	27,739,235,344.189186112	36.9856%
2	0x82256ee9db702b558c6ea7ecfe624ccacad1c8b8	4,777,084,179.742454564	6.3694%
3	Null Address: 0x00....dEaD	3,201,631,815.355668415	4.2688%
4	 0xe9e5d1763fc2949c63b04b05670919ef4b477048	3,134,851,816.488871262	4.1798%
5	0xbd3d9762be27f19504f6467f9a937b468f64ede9	2,841,257,155.300434714	3.7883%
6	0x6de4f6de9d854a5c25246dab51d28b5e9053865f	2,462,268,354.09250257	3.2830%
7	0xb039fa3bffe5be4b615246d7e2ede533a21a85e8	2,219,804,549.113286734	2.9597%
8	0x120051a72966950b8ce12eb5496b5d1eec1541b	1,725,609,558.351626403	2.3008%
9	0x8e4fd0a080818377adef093d99392813c3526298	1,381,448,515.794343026	1.8419%
10	0x32628fbb8fecdc6facdc5cd995df71e1ff3da2c3a	1,205,902,886.468242219	1.6079%
11	0x491d044e8268ee5b47f35f498629320cda6c98dc	1,058,261,915.904651111	1.4110%
12	0xaef13d0bc0f049833903e1fe1d44d898a5c97f07	1,046,207,050.104977192	1.3949%
13	0x88623c03d749f6cb605b47b9e1bc498c2b5c8965	1,032,248,266.845539001	1.3763%
14	0x29a05bcd15d77709d4b07be884556df4b251bd31	972,296,996.547147168	1.2964%
15	0x1011d3e2fd861568cf4abdcedaec941cf20ed96b	955,085,527.339120645	1.2734%
16	0x60aae3549ae70a497d0c7fbc108e14fcafc67270	937,477,422.116921639	1.2500%
17	0x2952e7a4a1d534c058919a107e37fd2da606c3cf	927,946,725.153096093	1.2373%
18	0x9ea0f5a4889589e342dc2f81c4ba4ba84751ab22	893,103,824.745456052	1.1908%
19	0x79c3eeb841800013502c9a48a81037d571824091	890,968,518.372862065	1.1880%
20	0xd5ef193fdd9828d78361ac5c690d667d10af400a	885,200,417.582208193	1.1803%



# BATMAN Token Distribution

## BATMAN Contract Overview



# Contract functions details

## +Context

-[Int] \_msgSender

## + [Int] IERC20

-[Ext] totalSupply

-[Ext] balanceOf

-[Ext] transfer #

-[Ext] allowance

-[Ext] approve #

-[Ext] transferFrom #

## + [Lib] SafeMath

-[Int] add

-[Int] sub

-[Int] sub

-[Int] mul

-[Int] div

-[Int] div

## +Ownable (Context)

-[Pub] <Constructor > #

-[Pub] owner

-[Pub] renounceOwnership #

- modifiers: onlyOwner

## + [Int] IUniswapV2Factory

-[Ext] createPair #

## + [Int] IUniswapV2Router02

-[Ext] swapExactTokensForETHSupportingFeeOnTransferTokens #

-[Ext] factory

-[Ext] WETH

-[Ext] addLiquidityETH (\$)

## +batman (Context, IERC20, Ownable)

-[Pub] <Constructor> #

-[Pub] name

-[Pub] symbol

-[Pub] decimals

-[Pub] totalSupply

-[Pub] balanceOf



# Contract functions details

- [Pub] transfer #
- [Pub] allowance
- [Pub] approve #
- [Pub] transferFrom #
- [Ext] setCooldownEnabled #
  - modifiers: onlyOwner
- [Pvt] tokenFromReflection
- [Pvt] \_approve #
- [Pvt] \_transfer #
- [Pvt] swapTokensForEth #
  - modifiers: lockTheSwap
- [Ext] liftMaxTx #
  - modifiers: onlyOwner
- [Pvt] sendETHToFee #
- [Ext] openTrading #
  - modifiers: onlyOwner
- [Pvt] \_tokenTransfer #
- [Pvt] \_transferStandard #
- [Pvt] \_takeTeam #
- [Pvt] \_reflectFee #
- [Ext] <Fallback > (\$)
- [Ext] manualswap #
- [Ext] manualsend #
- [Pvt] \_getValues
- [Pvt] \_getTValues
- [Pvt] \_getRValues
- [Pvt] \_getRate
- [Pvt] \_getCurrentSupply

(\$ ) = payable function

# = non-constant function

# Issues Checking Status

No.	Title	Status
1.	Unlocked Compiler Version	Low issue
2.	Missing Input Validation	Passed
3.	Race conditions and Reentrancy. Cross-function race conditions.	Passed
4.	Possible delays in data delivery	Passed
5.	Oracle calls.	Passed
6.	Timestamp dependence.	Passed
7.	Integer Overflow and Underflow	Passed
8.	DoS with Revert.	Passed
9.	DoS with block gas limit.	Passed
10.	Methods execution permissions.	Passed
11.	Economy model of the contract.	Passed
12.	Private use data leaks.	Passed
13.	Malicious Event log.	Passed
14.	Scoping and Declarations.	Passed
15.	Uninitialized storage pointers.	Passed
16.	Arithmetic accuracy.	Passed
17.	Design Logic.	Passed
18.	Safe Open Zeppelin contracts implementation and usage.	Passed
19.	Incorrect Naming State Variable	Passed
20.	Too old version	Passed



# Severity Definitions

Risk Level	Description
Critical	Critical vulnerabilities are usually straightforward to exploit and can lead to assets loss or data manipulations.
High	High-level vulnerabilities are difficult to exploit; however, they also have a significant impact on smart contract execution, e.g., public access to crucial functions
Medium	Medium-level vulnerabilities are important to fix; however, they can't lead to assets loss or data manipulations.
Low	Low-level vulnerabilities are mostly related to outdated, unused, etc. code snippets that can't have a significant impact on execution.

# Security Issues

## ✔ Critical Severity Issues

No critical severity issue found.

## ✔ High Severity Issues

No high severity issue found.

## ✔ Medium Severity Issues

No medium severity issue found.

## ✔ Low Severity Issues

One low severity issue found.

### 1. Unlocked Compiler Version.

#### • Description

The contract utilizes an unlocked compiler version. An unlocked compiler version in the contract's source code permits the user to compile it at or above a particular version. This, in turn, leads to differences in the generated bytecode between compilations due to differing compiler version numbers. This can lead to ambiguity when debugging as compiler-specific bugs may occur in the codebase that would be difficult to identify over a span of multiple compiler versions rather than a specific one.

#### • Recommendation

It is advisable that the compiler version is alternatively locked at the lowest version possible so that the contract can be compiled. For example, for version ^0.8.4 the contract should contain the following line:

```
pragma solidity 0.8.4;
```



# Centralization

## Owner privileges :

- BATMAN Contract:
  - Owner can enable cooldown (user to user trading with time offset).
  - Owner can open swap trading.
  - Owner can change max transaction amount.

This smart contract has some functions which can be executed by the admin (Owner) only. If the admin wallet private key would be compromised, then it would not create trouble, as smart contract ownership has been renounced. Following are Admin functions:

- `renounceOwnership`
- `setCooldownEnabled`
- `liftMaxTx`
- `openTrading`

# Conclusion

Smart contract contains low severity issues! The further transfer and operations with the fund raised are not related to this particular contract.

HackSafe note: Please check the disclaimer above and note, the audit makes no statements or warranties on business model, investment attractiveness or code sustainability. The report is provided for the only contract mentioned in the report and does not include any other potential contracts deployed by Owner.