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Smart Contract Security Audit

MULTINET TOKEN



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Audit Result

MULTINET TOKEN has successfully PASSED the smart contract security audit and fully meets SAFU CONTRACT criteria.

(Other unknown security vulnerabilities are not included in the audit responsibility scope)

Audit Result: PASSED

Ownership: Not renounced yet

KYC Verification: NA at the date of report edition

Audit Date: September 25, 2022

Audit Team: CONTRACTCHECKER

Findings_ Privileges of Ownership

▲ Owner can exclude accounts from rewards

Owner can exclude an account from paying fees

▲ There is 2% fee, and it cannot be changed

Trading must be enabled by the owner

♠ Owner can change swap settings

Important Notice for Investors

As Contract Checker team we are mainly auditing the contract code to find out how it will be functioning, and risks which are hidden in the code if any.

There are many factors must be taken into consideration before investing to a project, like: ownership status, project team approach, marketing, general market condition, liquidity, token holdings etc.

Investors must always do their own research and manage their risk considering different factors which can affect the success of a project.



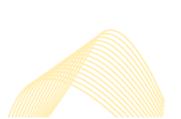
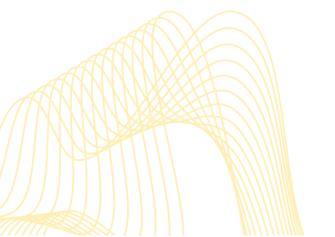




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SUMMARY

CONTRACTCHECKER received an application for smart contract security audit of MULTINET TOKEN on September 24, 2022, from the project team to discover if any vulnerability in the source codes of the MULTINET TOKEN as well as any contract dependencies. Detailed test has been performed using Static Analysis and Manual Review techniques.

The auditing process focuses to the following considerations with collaboration of an expert team

- Functionality test of the Smart Contract to determine if proper logic has been followed throughout the whole process.
- Manually detailed examination of the code line by line by experts.
- Live test by multiple clients using Testnet.
- Analysing failure preparations to check how the Smart Contract performs in case of any bugs and vulnerabilities.
- Checking whether all the libraries used in the code are on the latest version.
- Analysing the security of the on-chain data.

Project Summary

Token Name MULTINET TOKEN

Web Site https://multinet.finance/

Twitter https://twitter.com/MultinetFi

Telegram https://t.me/MultiNetChannel

Platform Binance Smart Chain

Token Type BEP20

Language Solidity

Platforms & Tools Remix IDE, Truffle, Truffle Team, Ganache, Solhint, VScode, Mythril, Contract Library

Contract Link https://bscscan.com/token/0xbceaaa6a74679c376b7eb9a1094d1484160d5795

Test Link https://testnet.bscscan.com/address/0xd0de11e573a59d6c33d5b88656e9163ca50c3bf2





OVERVIEW

This Audit Report mainly focuses on overall security of MULTINET TOKEN smart contract. Contract Checker team scanned the contract and assessed overall system architecture and the smart contract codebase against vulnerabilities, exploitations, hacks, and back-doors to ensure its reliability and correctness.

Auditing Approach and Applied Methodologies

Contract Checker team has performed rigorous test procedures of the project

- ➤ Code design patterns analysis in which smart contract architecture is reviewed to ensure it is structured according to industry standards and safe use of third-party smart contracts and libraries.
- Line-by-line inspection of the Smart Contract to find any potential vulnerability like race conditions, transaction-ordering dependence, timestamp dependence, and denial of service attacks.
- Unit testing Phase, we coded/conducted custom unit tests written for each function in the contract to verify that each function works as expected.
- Automated Test performed with our in-house developed tools to identify vulnerabilities and security flaws of the Smart Contract.

The focus of the audit was to verify that the Smart Contract System is secure, resilient, and working according to the specifications. The audit activities can be grouped in the following three categories:

Security

Identifying security related issues within each contract and the system of contract.

Sound Architecture

Evaluation of the architecture of this system through the lens of established smart contract best practices and general software best practices.

Code Correctness and Quality

A full review of the contract source code. The primary areas of focus include:

- Accuracy
- Readability
- Sections of code with high complexity
- Quantity and quality of test coverage

Risk Classification

Vulnerabilities are classified in 3 main levels as below based on possible effect to the contract.



High level vulnerability

Vulnerabilities on this level must be fixed immediately as they might lead to fund and data loss and open to manipulation. Any High-level finding will be highlighted with **RED** text

Medium level vulnerability

Vulnerabilities on this level also important to fix as they have potential risk of future exploit and manipulation. Any Medium-level finding will be highlighted with **ORANGE** text

Low level vulnerability

Vulnerabilities on this level are minor and may not affect the smart contract execution. Any Low-level finding will be highlighted with **BLUE** text

Vulnerability Checklist

•	
Description.	Result
Compiler warnings.	Passed
Race conditions and Re-entrancy. Cross-function race conditions.	Passed
Possible delays in <mark>dat</mark> a delivery.	Passed
Oracle calls.	Passed
Front running.	Passed
Timestamp dependence.	Passed
Integer Overflow and Underflow.	Passed
DoS with Revert.	Passed
DoS with block gas limit.	Passed
Methods execution permissions.	Passed
Economy model.	Passed
The impact of the exchange rate on the logic.	Passed
Private user data leaks.	Passed
Malicious Event log.	Passed
Scoping and Declarations.	Passed
Uninitialized storage pointers.	Passed
Arithmetic accuracy.	Passed
Design Logic.	Passed
Cross-function race conditions.	Passed
Safe Zeppelin module.	Passed
Fallback function security.	Passed
	Compiler warnings. Race conditions and Re-entrancy. Cross-function race conditions. Possible delays in data delivery. Oracle calls. Front running. Timestamp dependence. Integer Overflow and Underflow. DoS with Revert. DoS with block gas limit. Methods execution permissions. Economy model. The impact of the exchange rate on the logic. Private user data leaks. Malicious Event log. Scoping and Declarations. Uninitialized storage pointers. Arithmetic accuracy. Design Logic. Cross-function race conditions. Safe Zeppelin module.

Manual Audit:

For this section the code was tested/read line by line by our developers. Additionally, Remix IDE's JavaScript VM and Kovan networks used to test the contract functionality.



Smart Contract SWC Attack Test

SWC ID	Description		
SWC-100	Function Visibility	Passed	
SWC-101	Integer Overflow and Underflow	Passed	
SWC-102	Outdated Compiler Version	Passed	
SWC-103	Floating Pragma	LOW	
SWC-104	Unchecked Call Return Value	Passed	
SWC-105	Unprotected Ether Withdrawal	Passed	
SWC-106	Unprotected SELFDESTRUCT Instruction	Passed	
SWC-107	Re-entrancy	Passed	
SWC-108	State Variable Default Visibility	LOW	
SWC-109	Uninitialized Storage Pointer	Passed	
SWC-110	Assert Violation	Passed	
SWC-111	Use of Deprecated Solidity Functions	Passed	
SWC-112	Delegate Call to Untrusted Callee	Passed	
SWC-113	DoS with Failed Call	Passed	
SWC-114	Transaction Order Dependence	Passed	
SWC-115	Authorization through tx.origin	Passed	
SWC-116	Block values as a proxy for time	Passed	
SWC-117	Signature Malleability	Passed	
SWC-118	Incorrect Constructor Name	Passed	
SWC-119	Shadowing State Variables	Passed	
SWC-120	Weak Sources of Randomness from Chain Attributes	Passed	
SWC-121	Missing Protection against Signature Replay Attacks	Passed	
SWC-122	Lack of Proper Signature Verification	Passed	
SWC-123	Requirement Violation	Passed	
SWC-124	Write to Arbitrary Storage Location	Passed	
SWC-125	Incorrect Inheritance Order	Passed	
SWC-126	Insufficient Gas Griefing	Passed	
SWC-127	Arbitrary Jump with Function Type Variable	Passed	
SWC-128	DoS With Block Gas Limit	Passed	
SWC-129	Typographical Error	Passed	
SWC-130	Right-To-Left-Override control character (U+202E)	Passed	
SWC-131	Presence of unused variables	Passed	
SWC-132	Unexpected Ether balance	Passed	
SWC-133	Hash Collisions with Multiple Variable Length Arguments	Passed	
SWC-134	Message call with hardcoded gas amount	Passed	
SWC-135	Code With No Effects (Irrelevant/Dead Code)	Passed	
SWC-136	Unencrypted Private Data On-Chain	Passed	





> SWC-103: A floating pragma is set

The current pragma Solidity directive is ""^0.8.15"". It is recommended to specify a fixed compiler version to ensure that the bytecode produced does not vary between builds. This is especially important if you rely on bytecode-level verification of the code.

```
5 //SPDX-License-Identifier:Unlicensed
6 
7 pragma solidity ^0.8.15
```

SWC-108: State variable visibility is not set

It is best practice to set the visibility of state variables explicitly. The default visibility for "_saleTaxFee" is internal. Other possible visibility settings are public and private.

```
402 uint256 public totalSwapableFee = _liquidityFee + _burnFee ;

402 uint256 _saleTaxFee = 5;
```

The default visibility for "_saleLiquidityFee" is internal. Other possible visibility settings are public and private.

The default visibility for "_saleBurnFee" is internal. Other possible visibility settings are public and private.

```
403  uint256 _saleTaxFee = 5;
404  uint256 _saleLiquidityFee = 5;
405  uint256 _saleBurnFee = 10;
```

The default visibility for "inSwapAndLiquify" is internal. Other possible visibility settings are public and private.

```
416 address public immutable uniswapV2Pair;
417 bool inSwapAndLiquify;
```





Automated Audit

Manual test results verified with automated Hardhat test

Solc version: 0.8.4		 • Optimizer enabled: false				
Methods					'	
Contract			Max			usd (avg)
IgorRouter	· addLiquidityETH	297246	297266	297255	• 9	· -
IgorRouter	swapExactETHForTokensSupportingFeeOnTransferTokens	221324	308710	250453	3	-
IgorRouter	swapExactTokensForETHSupportingFeeOnTransferTokens		 	474413	2	· -
Multinet	- approve	47221	47233	47232	18	-
Multinet	enableTrading	-	· -	45989	9	-
Multinet	• excludeFromReward	-	· -	· 93276	1	
Multinet	includeInFee	-	· -	- 27040 	1	· -
Multinet	includeInReward	-	· -	- 34862 	1	· -
Multinet	· lock	-	· -	· 68436	1	· -
Multinet	renounceOwnership	-	· -	· 23445	1	· -
Multinet	• setExcludeFromFee	49204	49216	- 49210 	2	· -
Multinet	- setNumTokensSellToAddToLiquidity			· 31517	1	
Multinet	setSwapAndLiquifyEnabled	-		- 30164	1	
Multinet	transferOwnership	-	 	· 29023	1	
Deployments				 	% of limit	
IgorFactory		-		· 4186161	14 %	
IgorRouter		5806051	5806063	5806062	19.4 %	
Multinet		8420443	8420465	8420458	28.1 %	· -
WIGOR		-		799493	2.7 %	

Remix Compiler Warnings

It throws warnings by Solidity's compiler. No issues found.





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. 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 based on 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. If you have any doubt about the Genuity for this document, please check QR code:

