

Smart Contract Security Audit V1

Dung Token Smart Contract Audit

<https://dungtoken.com/>

April 16, 2023



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Background

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 used 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.

Project Information

- **Website:** <https://dungtoken.com/>
- **Twitter:** <https://twitter.com/TokenDung>
- **Telegram:** https://t.me/Dung_Token
- **Whitepaper:** https://dungtoken.com/assets/dungtoken_whitepaper.c3827862.pdf
- **discord:** <https://discord.io/dung>
- **reddit:** https://www.reddit.com/u/Dung_Token
- **Platform:** Polygon
- **Contract Address:** 0x231886fdC790C09b4d7A8d9D8d87e167f0b46612
- **Code Source:** <https://polygonscan.com/address/0x231886fdC790C09b4d7A8d9D8d87e167f0b46612#code>
- **Audit Report:** <https://github.com/Saferico/Dung-Token-Smart-Contract-Security-Audit>

Token Information:

- **Name:** DUNG
- **Symbol:** DUNG
- **Total supply:** 21.000.000.000.000

Contracts address deployed to test net (Polygon)

Dung Token smart contracts on Polygon test-net by the auditor to test every function .

<https://mumbai.polygonscan.com/address/0x525e4c287389d9d75d099a77cf7ff99b88099060>

Executive Summary

According to our assessment, the customer`s solidity smart contract is **Secured**.

Secured	✓
Poor Secured	
Insecure	

Automated checks are with remix IDE. All issues were performed by the team, which included the analysis of code functionality, manual audit found during automated analysis were manually reviewed and applicable vulnerabilities are presented in the audit overview section. The general overview is presented in the Project Information section and all issues found are located in the audit overview section.

Team found 0 critical, 0 high, 0 medium, 1 low, 0 very low-level issues and 1 note in all solidity files of the contract

The files:

DungToken.sol

File and Function Level Report

File in Scope:

Contract Name	SHA 256 hash	Contract Address
DungToken.sol	319debea64c7d6872f0a9211a99009f5a49c2ce	0x231886fdC790C09b4d7A8d9D8d87e167f0b46612

- Contract: DungToken
- Inherit: ERC20, Ownable
- Observation: All passed including security check
- Test Report: passed
- Score: passed
- Conclusion: passed

Function	Test Result	Type / Return Type	Score
name	✓	Read / public	Passed
symbol	✓	Read / public	Passed
decimals	✓	Read / public	Passed
totalSupply	✓	Read / public	Passed
allowance	✓	Read / public	Passed
balanceOf	✓	Read / public	Passed
decimals	✓	Read / public	Passed
checksPoints	✓	Read / public	Passed
delegates	✓	Read / public	Passed
DELEGATION_TYPE HASH	✓	Read / public	Passed
DOMAIN_TYPEHASH	✓	Read / public	Passed
getCurrentVotes	✓	Read / public	Passed

getPriorVotes	✓	Read / public	Passed
nonces	✓	Read / public	Passed
numCheckpoints	✓	Read / public	Passed
approve	✓	Write / public	Passed
transferFrom	✓	Write / public	Passed
transfer	✓	Write / public	Passed
transferOwnership	✓	Write / public	Passed
decreaseAllowance	✓	Write / public	Passed
increaseAllowance	✓	Write /public	Passed
delegateBySig	✓	Write / public	Passed
delegate	✓	Write / public	Passed
renounceOwnership	✓	Write / public	Passed

Issues Checking Status

No.	Issue Description	Checking Status
1	Compiler warnings.	Passed
2	Race conditions and Reentrancy. Cross-function race conditions.	Passed
3	Possible delays in data delivery.	Passed
4	Oracle calls.	Passed
5	Design Logic.	Passed
6	Timestamp dependence.	Passed with notes
7	Integer Overflow and Underflow.	Passed
8	DoS with Revert.	Passed
9	DoS with block gas limit.	Passed with notes
10	Methods execution permissions.	Passed
11	Economy model. If application logic is based on an incorrect economic model, the application would not function correctly and participants would incur financial losses. This type of issue is most often found in bonus rewards systems, Staking and Farming contracts, Vault and Vesting contracts, etc.	Passed
12	The impact of the exchange rate on the logic.	Passed
13	Private user data leaks.	Passed
14	Malicious Event log.	Passed
15	Scoping and Declarations.	Passed
16	Uninitialized storage pointers.	Passed
17	Arithmetic accuracy.	Passed

Severity Definitions

Risk Level	Description
Critical	Critical vulnerabilities are usually straightforward to exploit and can lead to tokens loss etc.
High	High-level vulnerabilities are difficult to exploit; however, they also have 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 tokens lose
Low	Low-level vulnerabilities are mostly related to outdated, unused etc. code snippets, that can't have significant impact on execution
Note	Lowest-level vulnerabilities, code style violations and info statements can't affect smart contract execution and can be ignored.

Audit Findings

Critical:

No Critical severity vulnerabilities were found.

High:

No High severity vulnerabilities were found.

Medium:

No Medium severity vulnerabilities were found.

Low:

#Use of block.timestamp (now)for comparisons

Description

Use of "now": "now" does not mean current time. "now" is an alias for "block.timestamp". "block.timestamp" can be influenced by miners to a certain degree, be careful.

Remediation

Avoid use of block.timestamp

Status: Acknowledged

Very Low:

No Very Low severity vulnerabilities were found.

Notes:

#Compiler version is old

Description

The compiler being used was released 3 years ago. It's recommended to use more recent compiler version, there can be benefits like reduction in bytecode size etc.

Status: Acknowledged.

Automatic Testing

1- SOLIDITY STATIC ANALYSIS

The screenshot displays the 'SOLIDITY STATIC ANALYSIS' interface. It features a 'Run' button and two main sections: 'Security' and 'Gas & Economy'. The 'Security' section includes checks for transaction origin, reentrancy, inline assembly, block timestamp, low level calls, block hash, and selfdestruct. The 'Gas & Economy' section includes checks for gas costs, local calls, dynamic array deletion, for loops over dynamic arrays, and ether transfer in loops. A second panel on the right shows 'ERC' and 'Miscellaneous' checks, including ERC20 decimals, constant/view/pure functions, similar variable names, no return, guard conditions, result not used, string length, delete from dynamic array, and data truncation.

SOLIDITY STATIC ANALYSIS

☒ Select all ☒ Autorun **Run**

Security

☒ Select Security

- ☒ **Transaction origin:**
'tx.origin' used
- ☒ **Check-effects-interaction:**
Potential reentrancy bugs
- ☒ **Inline assembly:**
Inline assembly used
- ☒ **Block timestamp:**
Can be influenced by miners
- ☒ **Low level calls:**
Should only be used by experienced devs
- ☒ **Block hash:**
Can be influenced by miners
- ☒ **Selfdestruct:**
Contracts using destructed contract can be broken

Gas & Economy

☒ Select Gas & Economy

- ☒ **Gas costs:**
Too high gas requirement of functions
- ☒ **This on local calls:**
Invocation of local functions via 'this'
- ☒ **Delete dynamic array:**
Use require/assert to ensure complete deletion
- ☒ **For loop over dynamic array:**
Iterations depend on dynamic array's size
- ☒ **Ether transfer in loop:**
Transferring Ether in a for/while/do-while loop

SOLIDITY STATIC ANALYSIS

ERC

☒ Select ERC

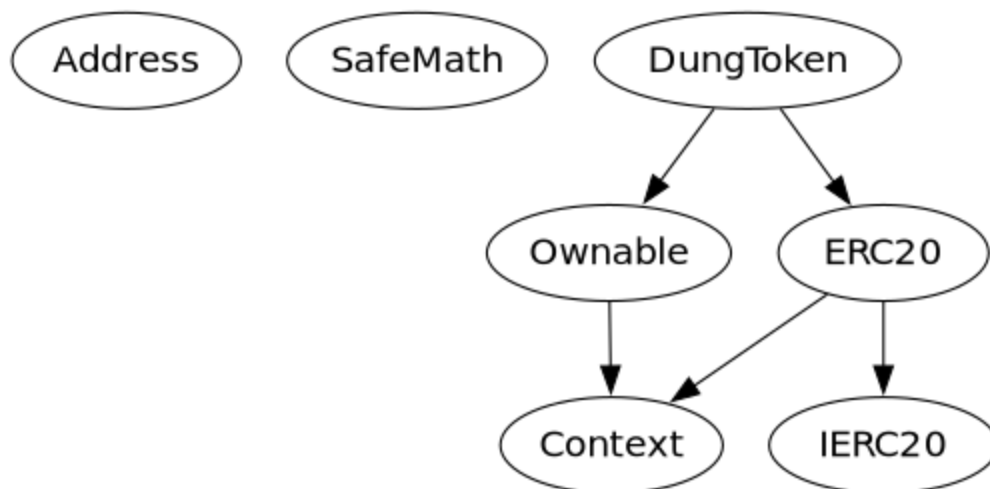
- ☒ **ERC20:**
'decimals' should be 'uint8'

Miscellaneous

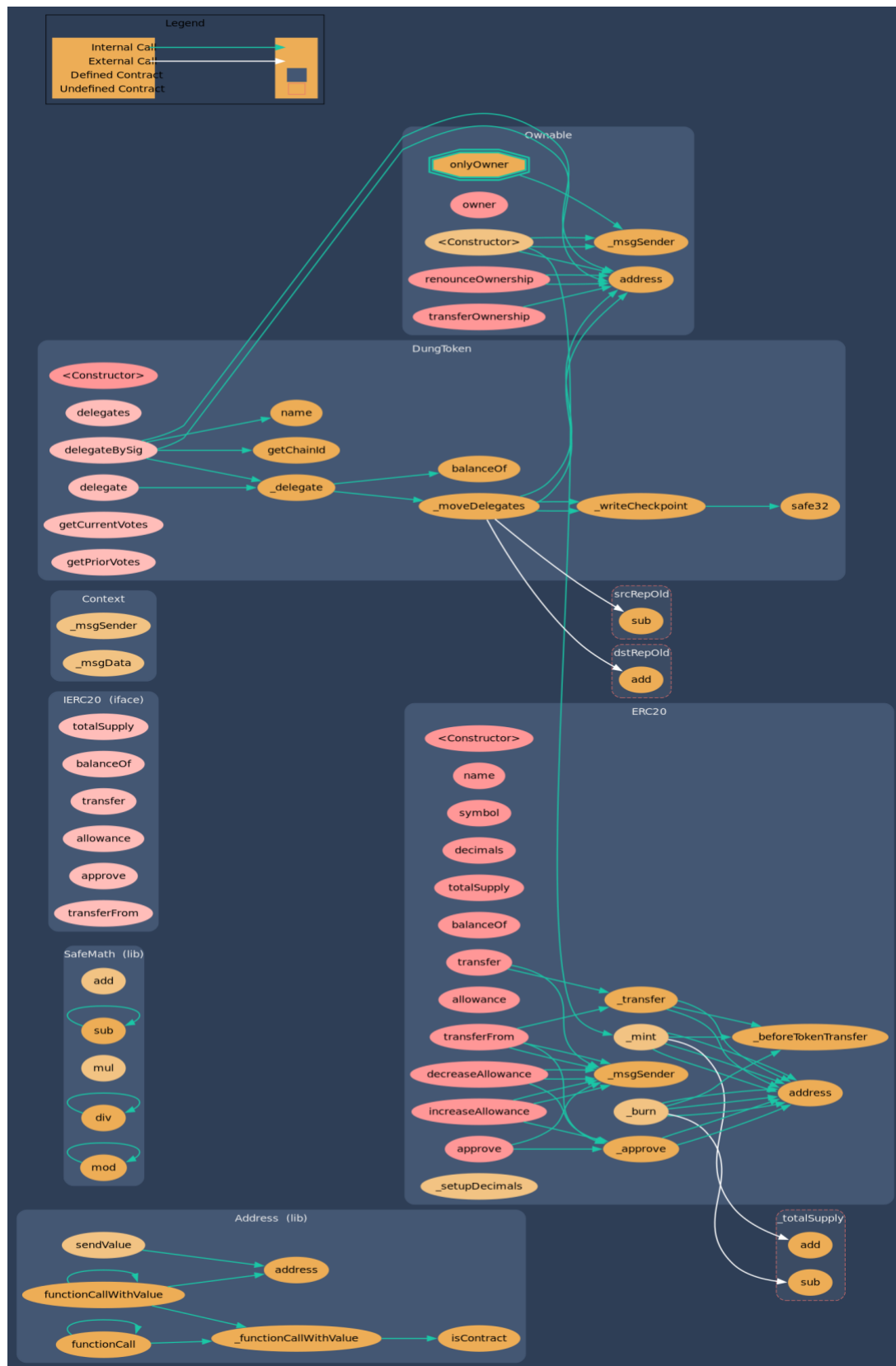
☒ Select Miscellaneous

- ☒ **Constant/View/Pure functions:**
Potentially constant/view/pure functions
- ☒ **Similar variable names:**
Variable names are too similar
- ☒ **No return:**
Function with 'returns' not returning
- ☒ **Guard conditions:**
Ensure appropriate use of require/assert
- ☒ **Result not used:**
The result of an operation not used
- ☒ **String length:**
Bytes length != String length
- ☒ **Delete from dynamic array:**
'delete' leaves a gap in array
- ☒ **Data truncated:**
Division on int/uint values truncates the result

2- Inheritance graph



3- Call graph





Functions signature

Sighash		Function Signature
=====		
16279055	=>	isContract (address)
39509351	=>	increaseAllowance (address,uint256)
24a084df	=>	sendValue (address,uint256)
a0b5ffb0	=>	functionCall (address,bytes)
241b5886	=>	functionCall (address,bytes,string)
2a011594	=>	functionCallWithValue (address,bytes,uint256)
d525ab8a	=>	functionCallWithValue (address,bytes,uint256,string)
36455e42	=>	_functionCallWithValue (address,bytes,uint256,string)
771602f7	=>	add (uint256,uint256)
b67d77c5	=>	sub (uint256,uint256)
e31bdc0a	=>	sub (uint256,uint256,string)
c8a4ac9c	=>	mul (uint256,uint256)
a391c15b	=>	div (uint256,uint256)
b745d336	=>	div (uint256,uint256,string)
f43f523a	=>	mod (uint256,uint256)
71af23e8	=>	mod (uint256,uint256,string)
18160ddd	=>	totalSupply ()
70a08231	=>	balanceOf (address)
a9059cbb	=>	transfer (address,uint256)
dd62ed3e	=>	allowance (address,address)
095ea7b3	=>	approve (address,uint256)
23b872dd	=>	transferFrom (address,address,uint256)
119df25f	=>	_msgSender ()
8b49d47e	=>	_msgData ()
8da5cb5b	=>	owner ()
715018a6	=>	renounceOwnership ()
f2fde38b	=>	transferOwnership (address)
06fdde03	=>	name ()
95d89b41	=>	symbol ()
313ce567	=>	decimals ()
a457c2d7	=>	decreaseAllowance (address,uint256)
30e0789e	=>	_transfer (address,address,uint256)
4e6ec247	=>	_mint (address,uint256)
6161eb18	=>	_burn (address,uint256)
104e81ff	=>	_approve (address,address,uint256)
61e9edb2	=>	_setupDecimals (uint8)
cad3be83	=>	_beforeTokenTransfer (address,address,uint256)
587cde1e	=>	delegates (address)
5c19a95c	=>	delegate (address)
c3cda520	=>	delegateBySig (address,uint256,uint256,uint8,bytes32,bytes32)
b4b5ea57	=>	getCurrentVotes (address)
782d6fe1	=>	getPriorVotes (address,uint256)
a28a42b3	=>	_delegate (address,address)
955f9fd8	=>	_moveDelegates (address,address,uint256)
ee59e77f	=>	_writeCheckpoint (address,uint32,uint256,uint256)
869d1f83	=>	safe32 (uint256,string)
3408e470	=>	getChainId ()

Automatic general report

Files Description Table

```
| File Name | SHA-1 Hash |
|-----|-----|
| /Users/macbook/Desktop/smart contracts/DungToken.sol |
319debea64c7d6872f0a92111a99009f5a49c2ce |
```

Contracts Description Table

Contract	Type	Bases																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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ERC20		Implementation	Context	IERC20
L	<Constructor>	Public		NO
L	name	Public		NO
L	symbol	Public		NO
L	decimals	Public		NO
L	totalSupply	Public		NO
L	balanceOf	Public		NO
L	transfer	Public		NO
L	allowance	Public		NO
L	approve	Public		NO
L	transferFrom	Public		NO
L	increaseAllowance	Public		NO
L	decreaseAllowance	Public		NO
L	_transfer	Internal		
L	_mint	Internal		
L	_burn	Internal		
L	_approve	Internal		
L	_setupDecimals	Internal		
L	_beforeTokenTransfer	Internal		

DungToken		Implementation	ERC20	Ownable
L	<Constructor>	Public		ERC20
L	delegates	External		NO
L	delegate	External		NO
L	delegateBySig	External		NO
L	getCurrentVotes	External		NO
L	getPriorVotes	External		NO
L	_delegate	Internal		
L	_moveDelegates	Internal		
L	_writeCheckpoint	Internal		
L	safe32	Internal		
L	getChainId	Internal		

Legend

Symbol	Meaning
	Function can modify state
	Function is payable

Conclusion

The contracts are written systematically. Team found no critical issues. So, it is good to go for production.

Since possible test cases can be unlimited and developer level documentation (code flow diagram with function level description) not provided, for such an extensive smart contract protocol, we provide no such guarantee of future outcomes. We have used all the latest static tools and manual observations to cover maximum possible test cases to scan Everything.

Security state of the reviewed contract is “Secured”.

- ✓ No mint function.
- ✓ No volatile code.
- ✓ No high severity issues were found.

Disclaimer

This is a limited report on our findings based on our analysis, in accordance with good industry practice as of 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 the team on the basis of what it says or doesn't say, or how team produced it, and it is important for you to conduct your own independent investigations before making any decisions. team go into more detail on this in the below disclaimer below – please make sure to read it in full.

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