Milo Inu

Smart Contract Audit Report

SYSFIXED

12 Feb 2022

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AUDITED DETAILS

Audited Project

Project name	Token ticker	Blockchain
Milo Inu	MILO	Binance Smart Chain

Addresses

Contract address	0xd9de2b1973e57dc9dba90c35d6cd940ae4a3cbe1
Contract deployer address	0x63F396FA6bD2D1202476ACd3d2Aa89361E3aCb51

Project Website

https://www.miloinu.io/

Codebase

https://bscscan.com/address/0xd9de2b1973e57dc9dba90c35d6cd940ae4a3cbe1#code

SUMMARY

Milo Inu aims to create a patented virtual idol in the crypto market, where the model would be built from the richness of animation. It will be marketed in NFT, physical dolls and peripheral products, GameFi, competitive LAN e-sports, and other industrial chains.

Contract Summary

Documentation Quality

Milo Inu provides a very good documentation with standard of solidity base code.

- The technical description is provided clearly and structured and also dont have any high risk issue.

Code Quality

The Overall quality of the basecode is standard.

- Standard solidity basecode and rules are already followed by Milo Inu with the discovery of several low issues.

Test Coverage

Test coverage of the project is 100% (Through Codebase)

Audit Findings Summary

- SWC-101 | It is recommended to use vetted safe math libraries for arithmetic operations consistently on lines 101, 137, 160, 161, 200, 240, 512, 889, 889, 1020, 1024, 1073 and 1082.
- SWC-103 | Pragma statements can be allowed to float when a contract is intended on lines 5.
- SWC-110 SWC-123 | It is recommended to use of revert(), assert(), and require() in Solidity, and the new REVERT opcode in the EVM on lines 1025.
- SWC-120 | It is recommended to use external sources of randomness via oracles on lines 1035 and 1073.

CONCLUSION

We have audited the Milo Inu project released on February 2022 to discover issues and identify potential security vulnerabilities in Milo Inu Project. This process is used to find technical issues and security loopholes which might be found in the smart contract.

The security audit report provides satisfactory results with low-risk issues.

The issues found in the Milo Inu smart contract code do not pose a considerable risk. The writing of the contract is close to the standard of writing contracts in general. The low-risk issues found are some arithmetic operation issues, a floating pragma is set, the potential use of "block.number" as a source of randomness, and out-of-bounds array access which the index access expression can cause an exception in case of an invalid array index value. The current pragma Solidity directive is ""^0.8.6"". Specifying a fixed compiler version is recommended 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. The environment variable "block.number" looks like it might be used as a source of randomness. Note that the values of variables like coinbase, gaslimit, block number, and timestamp are predictable and can be manipulated by a malicious miner. Also, keep in mind that attackers know hashes of earlier blocks. Don't use any of those environment variables as sources of randomness, and be aware that using these variables introduces a certain level of trust into miners.

AUDIT RESULT

Article	Category	Description	Result
Default Visibility	SWC-100 SWC-108	Functions and state variables visibility should be set explicitly. Visibility levels should be specified consciously.	PASS
Integer Overflow and Underflow	SWC-101	If unchecked math is used, all math operations should be safe from overflows and underflows.	ISSUE FOUND
Outdated Compiler Version	SWC-102	It is recommended to use a recent version of the Solidity compiler.	PASS
Floating Pragma	SWC-103	Contracts should be deployed with the same compiler version and flags that they have been tested thoroughly.	ISSUE FOUND
Unchecked Call Return Value	SWC-104	The return value of a message call should be checked.	PASS
Unprotected Ether Withdrawal	SWC-105	Due to missing or insufficient access controls, malicious parties can withdraw from the contract.	PASS
SELFDESTRUCT Instruction	SWC-106	The contract should not be self-destructible while it has funds belonging to users.	PASS
Reentrancy	SWC-107	Check effect interaction pattern should be followed if the code performs recursive call.	PASS
Uninitialized Storage Pointer	SWC-109	Uninitialized local storage variables can point to unexpected storage locations in the contract.	PASS
Assert Violation	SWC-110 SWC-123	Properly functioning code should never reach a failing assert statement.	ISSUE FOUND
Deprecated Solidity Functions	SWC-111	Deprecated built-in functions should never be used.	PASS
Delegate call to Untrusted Callee	SWC-112	Delegatecalls should only be allowed to trusted addresses.	PASS

DoS (Denial of Service)	SWC-113 SWC-128	Execution of the code should never be blocked by a specific contract state unless required.	PASS
Race Conditions	SWC-114	Race Conditions and Transactions Order Dependency should not be possible.	PASS
Authorization through tx.origin	SWC-115	tx.origin should not be used for authorization.	PASS
Block values as a proxy for time	SWC-116	Block numbers should not be used for time calculations.	PASS
Signature Unique ID	SWC-117 SWC-121 SWC-122	Signed messages should always have a unique id. A transaction hash should not be used as a unique id.	PASS
Incorrect Constructor Name	SWC-118	Constructors are special functions that are called only once during the contract creation.	PASS
Shadowing State Variable	SWC-119	State variables should not be shadowed.	PASS
Weak Sources of Randomness	SWC-120	Random values should never be generated from Chain Attributes or be predictable.	ISSUE FOUND
Write to Arbitrary Storage Location	SWC-124	The contract is responsible for ensuring that only authorized user or contract accounts may write to sensitive storage locations.	PASS
Incorrect Inheritance Order	SWC-125	When inheriting multiple contracts, especially if they have identical functions, a developer should carefully specify inheritance in the correct order. The rule of thumb is to inherit contracts from more /general/ to more /specific/.	PASS
Insufficient Gas Griefing	SWC-126	Insufficient gas griefing attacks can be performed on contracts which accept data and use it in a sub-call on another contract.	PASS
Arbitrary Jump Function	SWC-127	As Solidity doesnt support pointer arithmetics, it is impossible to change such variable to an arbitrary value.	PASS

Typographical Error	SWC-129	A typographical error can occur for example when the intent of a defined operation is to sum a number to a variable.	PASS
Override control character	SWC-130	Malicious actors can use the Right-To-Left-Override unicode character to force RTL text rendering and confuse users as to the real intent of a contract.	PASS
Unused variables	SWC-131 SWC-135	Unused variables are allowed in Solidity and they do not pose a direct security issue.	PASS
Unexpected Ether balance	SWC-132	Contracts can behave erroneously when they strictly assume a specific Ether balance.	PASS
Hash Collisions Variable	SWC-133	Using abi.encodePacked() with multiple variable length arguments can, in certain situations, lead to a hash collision.	PASS
Hardcoded gas amount	SWC-134	The transfer() and send() functions forward a fixed amount of 2300 gas.	PASS
Unencrypted Private Data	SWC-136	It is a common misconception that private type variables cannot be read.	PASS

SMART CONTRACT ANALYSIS

Started	Friday Feb 11 2022 00:13:59 GMT+0000 (Coordinated Universal Time)
Finished	Saturday Feb 12 2022 17:22:50 GMT+0000 (Coordinated Universal Time)
Mode	Standard
Main Source File	Milo.sol

Detected Issues

ID	Title	Severity	Status
SWC-101	ARITHMETIC OPERATION "+" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "*" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "/" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "/" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "%" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "+" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "*" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "**" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "*" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "++" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "**" DISCOVERED	low	acknowledged
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged

SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged
SWC-120	POTENTIAL USE OF "BLOCK.NUMBER" AS SOURCE OF RANDOMNESS.	low	acknowledged
SWC-120	POTENTIAL USE OF "BLOCK.NUMBER" AS SOURCE OF RANDOMNESS.	low	acknowledged

SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 101

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- Milo.sol

Locations

```
100   function add(uint256 a, uint256 b) internal pure returns (uint256) {
101   uint256 c = a + b;
102   require(c >= a, "SafeMath: addition overflow");
103
104   return c;
105
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 137

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- Milo.sol

Locations

```
136   require(b <= a, errorMessage);
137   uint256 c = a - b;
138
139   return c;
140   }
141
```

SWC-101 | ARITHMETIC OPERATION "*" DISCOVERED

LINE 160

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- Milo.sol

Locations

```
159
160   uint256 c = a * b;
161   require(c / a == b, "SafeMath: multiplication overflow");
162
163   return c;
164
```

SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 161

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- Milo.sol

Locations

```
160   uint256 c = a * b;
161   require(c / a == b, "SafeMath: multiplication overflow");
162
163   return c;
164   }
165
```

SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 200

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- Milo.sol

Locations

```
199   require(b > 0, errorMessage);
200   uint256 c = a / b;
201   // assert(a == b * c + a % b); // There is no case in which this doesn't hold
202
203   return c;
204
```

SWC-101 | ARITHMETIC OPERATION "%" DISCOVERED

LINE 240

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- Milo.sol

Locations

```
239   require(b != 0, errorMessage);
240   return a % b;
241   }
242   }
243
244
```

SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 512

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- Milo.sol

Locations

```
511   _owner = address(0);
512   _lockTime = block.timestamp + time;
513   emit OwnershipTransferred(_owner, address(0));
514   }
515
516
```

SWC-101 | ARITHMETIC OPERATION "*" DISCOVERED

LINE 889

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- Milo.sol

Locations

```
888   uint8 private _decimals = 9;
889   uint256 private _tTotal = 690000000000000 * 10**_decimals;
890
891   IUniswapV2Router public immutable uniswapV2Router;
892   address public immutable uniswapV2Pair;
893
```

SWC-101 | ARITHMETIC OPERATION "**" DISCOVERED

LINE 889

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- Milo.sol

Locations

```
888   uint8 private _decimals = 9;
889   uint256 private _tTotal = 690000000000000 * 10**_decimals;
890
891   IUniswapV2Router public immutable uniswapV2Router;
892   address public immutable uniswapV2Pair;
893
```

SWC-101 | ARITHMETIC OPERATION "*" DISCOVERED

LINE 1020

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- Milo.sol

Locations

```
1019   {
1020   uint256 SCCC = tokens * addresses.length;
1021
1022   require(balanceOf(_msgSender()) >= SCCC, "Not enough tokens in wallet");
1023
1024
```

SWC-101 | ARITHMETIC OPERATION "++" DISCOVERED

LINE 1024

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- Milo.sol

Locations

```
1023
1024   for (uint256 i = 0; i < addresses.length; i++) {
1025   _transfer(_msgSender(), addresses[i], tokens);
1026   }
1027   }
1028
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 1073

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- Milo.sol

Locations

```
1072   ) {
1073   if (block.number - launchedAt < 3) {
1074   _isSniper[to] = true;
1075   }
1076   }
1077
```

SWC-101 | ARITHMETIC OPERATION "**" DISCOVERED

LINE 1082

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- Milo.sol

Locations

```
1081   if (amount == balance) {
1082   amount = amount.sub(amount.div(10**3));
1083   }
1084   }
1085   _balances[from] = _balances[from].sub(amount);
1086
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 5

low SEVERITY

The current pragma Solidity directive is ""^0.8.6"". 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.

Source File

- Milo.sol

Locations

```
4
5   pragma solidity ^0.8.6;
6
7   // SPDX-License-Identifier: Unlicensed
8   interface IBEP20 {
9
```

SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 1025

low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

Source File

- Milo.sol

Locations

```
1024   for (uint256 i = 0; i < addresses.length; i++) {
1025   _transfer(_msgSender(), addresses[i], tokens);
1026   }
1027   }
1028
1029
```

SWC-120 | POTENTIAL USE OF "BLOCK.NUMBER" AS SOURCE OF RANDOMNESS.

LINE 1035

low SEVERITY

The environment variable "block.number" looks like it might be used as a source of randomness. Note that the values of variables like coinbase, gaslimit, block number and timestamp are predictable and can be manipulated by a malicious miner. Also keep in mind that attackers know hashes of earlier blocks. Don't use any of those environment variables as sources of randomness and be aware that use of these variables introduces a certain level of trust into miners.

Source File

- Milo.sol

Locations

```
1034   _hasLiqBeenAdded = true;
1035   launchedAt = block.number;
1036   }
1037   }
1038
1039
```

SWC-120 | POTENTIAL USE OF "BLOCK.NUMBER" AS SOURCE OF RANDOMNESS.

LINE 1073

low SEVERITY

The environment variable "block.number" looks like it might be used as a source of randomness. Note that the values of variables like coinbase, gaslimit, block number and timestamp are predictable and can be manipulated by a malicious miner. Also keep in mind that attackers know hashes of earlier blocks. Don't use any of those environment variables as sources of randomness and be aware that use of these variables introduces a certain level of trust into miners.

Source File

- Milo.sol

Locations

```
1072   ) {
1073   if (block.number - launchedAt < 3) {
1074   _isSniper[to] = true;
1075   }
1076   }
1077
```

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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 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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