

Momonosuke

Smart Contract Audit Report





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AUDITED DETAILS

| Audited Project

Project name	Token ticker	Blockchain	
Momonosuke	МОМО	Ethereum	

Addresses

Contract address	0xa48f3422A740Db4135F83d7Bb186ccdAe22919C5
Contract deployer address	0x0567dd5F09a6F696d2BEC8E855901721435E5Dd4

Project Website

https://momothereum.com/

Codebase

https://etherscan.io/address/0xa48f3422A740Db4135F83d7Bb186ccdAe22919C5#code



SUMMARY

\$MOMO is a token inspired by an anime character in the Onepiece series written by mangaka Eiichiro Oda, we plan to combine anime and current technologies for development such as multi-swap platforms, games, and nft

Contract Summary

Documentation Quality

Momonosuke 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 Momonosuke with the discovery of several low issues.

Test Coverage

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

Audit Findings Summary

- SWC-100 SWC-108 | Explicitly define visibility for all state variables on lines 132, 133, 139, 142, 143, 145, 146, 148, 149, 150, 151 and 160.
- SWC-101 | It is recommended to use vetted safe math libraries for arithmetic operations consistently on lines 20, 29, 36, 37, 45, 139, 139, 140, 140, 150, 159, 159, 214, 311, 311 and 317.
- SWC-103 | Pragma statements can be allowed to float when a contract is intended on lines 17.
- 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 259, 260, 295 and 296.



CONCLUSION

We have audited the Momonosuke project released on January 2023 to discover issues and identify potential security vulnerabilities in Momonosuke 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 a satisfactory result with some low-risk issues.

The issues found in the Momonosuke 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, a state variable visibility is not set, and out of bounds array access which the index access expression can cause an exception in case of the use of an invalid array index value. We recommend specifying 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.



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.		
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.		
Floating Pragma	SWC-103	Contracts should be deployed with the same compiler version and flags that they have been tested thoroughly.		
Unchecked Call Return Value	SWC-104	The return value of a message call should be checked.		
Unprotected Ether Withdrawal	SWC-105	Due to missing or insufficient access controls, malicious parties can withdraw from the contract.		
SELFDESTRUCT Instruction	SWC-106	The contract should not be self-destructible while it has funds belonging to users.		
Reentrancy	SWC-107	Check effect interaction pattern should be followed if the code performs recursive call.		
Uninitialized Storage Pointer	SWC-109	Uninitialized local storage variables can point to unexpected storage locations in the contract.		
Assert Violation	SWC-110 SWC-123	Properly functioning code should never reach a failing assert statement.		
Deprecated Solidity Functions	SWC-111	Deprecated built-in functions should never be used. PAS		
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.	
Race Conditions	SWC-114	Race Conditions and Transactions Order Dependency should not be possible.	
Authorization through tx.origin	SWC-115	tx.origin should not be used for authorization.	
Block values as a proxy for time	SWC-116	Block numbers should not be used for time calculations.	
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.	
Incorrect Constructor Name	SWC-118	Constructors are special functions that are called only once during the contract creation.	
Shadowing State Variable	SWC-119	State variables should not be shadowed.	
Weak Sources of Randomness	SWC-120	Random values should never be generated from Chain Attributes or be predictable.	
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.	
Incorrect Inheritance Order	SWC-125		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.	
Arbitrary Jump Function	SWC-127	As Solidity doesnt support pointer arithmetics, it is impossible to change such variable to an arbitrary value.	



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.	
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.	
Unused variables	SWC-131 SWC-135	Unused variables are allowed in Solidity and they do not pose a direct security issue.	
Unexpected Ether balance	SWC-132	Contracts can behave erroneously when they strictly assume a specific Ether balance.	
Hash Collisions Variable	SWC-133	Using abi.encodePacked() with multiple variable length arguments can, in certain situations, lead to a hash collision.	
Hardcoded gas amount	SWC-134	The transfer() and send() functions forward a fixed amount of 2300 gas.	
Unencrypted Private Data	SWC-136	It is a common misconception that private type variables cannot be read.	



SMART CONTRACT ANALYSIS

Started	Saturday Jan 21 2023 00:35:13 GMT+0000 (Coordinated Universal Time)		
Finished	Sunday Jan 22 2023 01:19:20 GMT+0000 (Coordinated Universal Time)		
Mode	Standard		
Main Source File	Momothereum.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-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-108	STATE VARIABLE VISIBILITY IS NOT SET.	low	acknowledged
SWC-108	STATE VARIABLE VISIBILITY IS NOT SET.	low	acknowledged
SWC-108	STATE VARIABLE VISIBILITY IS NOT SET.	low	acknowledged
SWC-108	STATE VARIABLE VISIBILITY IS NOT SET.	low	acknowledged
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SWC-108	STATE VARIABLE VISIBILITY IS NOT SET.	low	acknowledged
SWC-108	STATE VARIABLE VISIBILITY IS NOT SET.	low	acknowledged
SWC-108	STATE VARIABLE VISIBILITY IS NOT SET.	low	acknowledged
SWC-108	STATE VARIABLE VISIBILITY IS NOT SET.	low	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged



SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 20

low SEVERITY

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

Source File

- Momothereum.sol

```
function add(uint256 a, uint256 b) internal pure returns (uint256) {
  uint256 c = a + b;
  require(c >= a, "SafeMath: addition overflow");
  return c;
}
```



SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 29

low SEVERITY

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

Source File

- Momothereum.sol

```
require(b <= a, errorMessage);
uint256 c = a - b;
return c;
}

function mul(uint256 a, uint256 b) internal pure returns (uint256) {
}</pre>
```



SWC-101 | ARITHMETIC OPERATION "*" DISCOVERED

LINE 36

low SEVERITY

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

Source File

- Momothereum.sol

```
35  }
36  uint256 c = a * b;
37  require(c / a == b, "SafeMath: multiplication overflow");
38  return c;
39  }
40
```



SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 37

low SEVERITY

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

Source File

- Momothereum.sol

```
uint256 c = a * b;
require(c / a == b, "SafeMath: multiplication overflow");
return c;
}
function div(uint256 a, uint256 b) internal pure returns (uint256) {
41
```



SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 45

low SEVERITY

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

Source File

- Momothereum.sol

```
44  require(b > 0, errorMessage);
45  uint256 c = a / b;
46  return c;
47  }
48  }
49
```



SWC-101 | ARITHMETIC OPERATION "*" DISCOVERED

LINE 139

low SEVERITY

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

Source File

- Momothereum.sol

```
138
139    uint256    _totalSupply = 1_000_000 * (10 ** _decimals);
140    uint256    public _maxWalletAmount = (_totalSupply * 100) / 100;
141
142    mapping (address => uint256)    _balances;
143
```



SWC-101 | ARITHMETIC OPERATION "**" DISCOVERED

LINE 139

low SEVERITY

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

Source File

- Momothereum.sol

```
138
139    uint256    _totalSupply = 1_000_000 * (10 ** _decimals);
140    uint256    public _maxWalletAmount = (_totalSupply * 100) / 100;
141
142    mapping (address => uint256)    _balances;
143
```



SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 140

low SEVERITY

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

Source File

- Momothereum.sol

```
uint256 _totalSupply = 1_000_000 * (10 ** _decimals);
uint256 public _maxWalletAmount = (_totalSupply * 100) / 100;

umapping (address => uint256) _balances;

mapping (address => mapping (address => uint256)) _allowances;

address => mapping (address => uint256)) _allowances;
```



SWC-101 | ARITHMETIC OPERATION "*" DISCOVERED

LINE 140

low SEVERITY

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

Source File

- Momothereum.sol

```
uint256 _totalSupply = 1_000_000 * (10 ** _decimals);
uint256 public _maxWalletAmount = (_totalSupply * 100) / 100;

141

142  mapping (address => uint256) _balances;

143  mapping (address => mapping (address => uint256)) _allowances;

144
```



SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 150

low SEVERITY

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

Source File

- Momothereum.sol

```
uint256 marketingFee = 3;
uint256 totalFee = liquidityFee + marketingFee;
uint256 feeDenominator = 100;

152
address private marketingFeeReceiver = 0xB5A9CED8d3A8B9364a25C579f99d22EC6cA62579;
154
```



SWC-101 | ARITHMETIC OPERATION "*" DISCOVERED

LINE 159

low SEVERITY

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

Source File

- Momothereum.sol

```
bool public swapEnabled = true;

159  uint256 public swapThreshold = _totalSupply / 1000 * 2; //

160  bool inSwap;

161  modifier swapping() { inSwap = true; _; inSwap = false; }

162

163
```



SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 159

low SEVERITY

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

Source File

- Momothereum.sol

```
bool public swapEnabled = true;

159  uint256 public swapThreshold = _totalSupply / 1000 * 2; //

160  bool inSwap;

161  modifier swapping() { inSwap = true; _; inSwap = false; }

162

163
```



SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 214

low SEVERITY

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

Source File

- Momothereum.sol

```
if (recipient != pair && recipient != DEAD) {
   require(isTxLimitExempt[recipient] || _balances[recipient] + amount <=
   _maxWalletAmount, "Transfer amount exceeds the bag size.");
}

if (shouldSwapBack()) { swapBack(); }

218</pre>
```



SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 311

low SEVERITY

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

Source File

- Momothereum.sol



SWC-101 | ARITHMETIC OPERATION "*" DISCOVERED

LINE 311

low SEVERITY

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

Source File

- Momothereum.sol



SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 317

low SEVERITY

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

Source File

- Momothereum.sol

```
316 marketingFee = _marketingFee;
317 totalFee = liquidityFee + marketingFee;
318 }
319
320 event AutoLiquify(uint256 amountETH, uint256 amountBOG);
321
```



SWC-103 | A FLOATING PRAGMA IS SET.

LINE 17

low SEVERITY

The current pragma Solidity directive is ""^0.8.5"". 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

- Momothereum.sol

```
16  // SPDX-License-Identifier: MIT
17  pragma solidity ^0.8.5;
18  library SafeMath {
19  function add(uint256 a, uint256 b) internal pure returns (uint256) {
20  uint256 c = a + b;
21
```



LINE 132

low SEVERITY

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

Source File

- Momothereum.sol



LINE 133

low SEVERITY

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

Source File

- Momothereum.sol



LINE 139

low SEVERITY

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

Source File

- Momothereum.sol

```
138
139     uint256 _totalSupply = 1_000_000 * (10 ** _decimals);
140     uint256 public _maxWalletAmount = (_totalSupply * 100) / 100;
141
142     mapping (address => uint256) _balances;
143
```



LINE 142

low SEVERITY

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

Source File

- Momothereum.sol

```
141
142 mapping (address => uint256) _balances;
143 mapping (address => mapping (address => uint256)) _allowances;
144
145 mapping (address => bool) isFeeExempt;
146
```



LINE 143

low SEVERITY

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

Source File

- Momothereum.sol

```
mapping (address => uint256) _balances;
mapping (address => mapping (address => uint256)) _allowances;

mapping (address => bool) isFeeExempt;
mapping (address => bool) isTxLimitExempt;

mapping (address => bool) isTxLimitExempt;
```



LINE 145

low SEVERITY

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

Source File

- Momothereum.sol

```
144
145 mapping (address => bool) isFeeExempt;
146 mapping (address => bool) isTxLimitExempt;
147
148 uint256 liquidityFee = 0;
149
```



LINE 146

low SEVERITY

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

Source File

- Momothereum.sol

```
145 mapping (address => bool) isFeeExempt;
146 mapping (address => bool) isTxLimitExempt;
147
148 uint256 liquidityFee = 0;
149 uint256 marketingFee = 3;
150
```



LINE 148

low SEVERITY

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

Source File

- Momothereum.sol

```
147
148  uint256 liquidityFee = 0;
149  uint256 marketingFee = 3;
150  uint256 totalFee = liquidityFee + marketingFee;
151  uint256 feeDenominator = 100;
152
```



LINE 149

low SEVERITY

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

Source File

- Momothereum.sol

```
uint256 liquidityFee = 0;
uint256 marketingFee = 3;
uint256 totalFee = liquidityFee + marketingFee;
uint256 feeDenominator = 100;
152
153
```



LINE 150

low SEVERITY

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

Source File

- Momothereum.sol

```
uint256 marketingFee = 3;
uint256 totalFee = liquidityFee + marketingFee;
uint256 feeDenominator = 100;
address private marketingFeeReceiver = 0xB5A9CED8d3A8B9364a25C579f99d22EC6cA62579;
154
```



LINE 151

low SEVERITY

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

Source File

- Momothereum.sol

```
uint256 totalFee = liquidityFee + marketingFee;
uint256 feeDenominator = 100;
address private marketingFeeReceiver = 0xB5A9CED8d3A8B9364a25C579f99d22EC6cA62579;
154
155
```



LINE 160

low SEVERITY

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

Source File

- Momothereum.sol

```
uint256 public swapThreshold = _totalSupply / 1000 * 2; //
bool inSwap;

modifier swapping() { inSwap = true; _; inSwap = false; }

constructor () Ownable(msg.sender) {

164
```



LINE 259

low SEVERITY

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

Source File

- Momothereum.sol

```
258  address[] memory path = new address[](2);
259  path[0] = address(this);
260  path[1] = router.WETH();
261
262  uint256 balanceBefore = address(this).balance;
263
```



LINE 260

low SEVERITY

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

Source File

- Momothereum.sol

```
259 path[0] = address(this);
260 path[1] = router.WETH();
261
262 uint256 balanceBefore = address(this).balance;
263
264
```



LINE 295

low SEVERITY

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

Source File

- Momothereum.sol

```
294 address[] memory path = new address[](2);
295 path[0] = router.WETH();
296 path[1] = address(this);
297
298 router.swapExactETHForTokensSupportingFeeOnTransferTokens{value: amount}(
299
```



LINE 296

low SEVERITY

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

Source File

- Momothereum.sol

```
path[0] = router.WETH();
path[1] = address(this);

router.swapExactETHForTokensSupportingFeeOnTransferTokens{value: amount}(
    0,
    300
```



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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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