

TechRate
April, 2022



SMART CONTRACTS SECURITY AUDIT REPORT



Techrate_audits



Techrate



Techrate1

Audit Details



Audited project

METAVILL LIFE



Deployer address

0x733fc2f2ec0e3f007c8a7ce6f6693f5bf9e6e98c



Client contacts:

METAVILL LIFE team



Blockchain

Binance Smart Chain



Project 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.

Background

TechRate was commissioned by METAVILL LIFE to perform an audit of smart contracts:

<https://bscscan.com/address/0x0aE3f3E1eb8DB7A289813E4E61b2EEE8E5660a84#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 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.

Contracts Details

Token contract details for 15.04.2022

Contract name METAVILL LIFE

Contract address 0x0aE3f3E1eb8DB7A289813E4E61b2EEE8E5660a84

Token per block 0

Pool length 0

Bonus multiplier 1

Start block 16636380

Maximum harvest interval 1209600

metaVillToken 0xf51903f5b838edfdd4d0ddc8be2145863eaf0032

gMTV 0x63544cc8ae9d9f943a882f57581a43b5266da3a2

Fee address 0x733fc2f2ec0e3f007c8a7ce6f6693f5bf9e6e98c

Dev1 0x733fc2f2ec0e3f007c8a7ce6f6693f5bf9e6e98c

Dev2 0x733fc2f2ec0e3f007c8a7ce6f6693f5bf9e6e98c

Contract deployer address 0x733fc2f2ec0e3f007c8a7ce6f6693f5bf9e6e98c

Owner address 0x733fc2f2ec0e3f007c8a7ce6f6693f5bf9e6e98c

Contract functions details

+ [Lib] SafeMath

- [Int] tryAdd
- [Int] trySub
- [Int] tryMul
- [Int] tryDiv
- [Int] tryMod
- [Int] add
- [Int] sub
- [Int] mul
- [Int] div
- [Int] mod
- [Int] sub
- [Int] div
- [Int] mod

+ [Lib] SafeBEP20

- [Int] safeTransfer #
- [Int] safeTransferFrom #
- [Int] safeApprove #
- [Int] safeIncreaseAllowance #
- [Int] safeDecreaseAllowance #
- [Prv] _callOptionalReturn #

+ ReentrancyGuard

- [Pub] <Constructor> #

+ Ownable (Context)

- [Pub] <Constructor> #
- [Pub] owner
- [Pub] renounceOwnership #
 - modifiers: onlyOwner
- [Pub] transferOwnership #
 - modifiers: onlyOwner
- [Int] _transferOwnership #

+ [Int] IMetaVillToken

- [Ext] transferTaxRate
- [Ext] balanceOf
- [Ext] totalSupply
- [Ext] name
- [Ext] decimals

- [Ext] transfer #
- [Ext] mint #

+ [Int] IBEP20

- [Ext] totalSupply
- [Ext] decimals
- [Ext] symbol
- [Ext] name
- [Ext] getOwner
- [Ext] balanceOf
- [Ext] transfer #
- [Ext] allowance
- [Ext] approve #
- [Ext] transferFrom #

+ gMTVToken (BEP20)

- [Pub] <Constructor> #
 - modifiers: BEP20
- [Int] _transfer #
- [Pub] mint #
- [Pub] burn #
- [Pub] allowMinter #
 - modifiers: onlyOperator
- [Pub] allowCaller #
 - modifiers: onlyOperator
- [Pub] changeOperator #
 - modifiers: onlyOperator

+ Context

- [Int] _msgSender
- [Int] _msgData

+ BEP20 (Context, IBEP20, Ownable)

- [Pub] <Constructor> #
- [Ext] getOwner
- [Pub] name
- [Pub] decimals
- [Pub] symbol
- [Pub] totalSupply
- [Pub] balanceOf
- [Pub] transfer #
- [Pub] allowance
- [Pub] approve #
- [Pub] transferFrom #
- [Pub] increaseAllowance #

- [Pub] decreaseAllowance #
- [Pub] mint #
 - modifiers: onlyOwner
- [Int] _transfer #
- [Int] _mint #
- [Int] _burn #
- [Int] _approve #
- [Int] _burnFrom #

- + [Lib] Address
 - [Int] isContract
 - [Int] sendValue #
 - [Int] functionCall #
 - [Int] functionCall #
 - [Int] functionCallWithValue #
 - [Int] functionCallWithValue #
 - [Int] functionStaticCall
 - [Int] functionStaticCall
 - [Int] functionDelegateCall #
 - [Int] functionDelegateCall #
 - [Int] verifyCallResult

- + MasterChef (Ownable, ReentrancyGuard)
 - [Pub] <Constructor> #
 - [Ext] poolLength
 - [Pub] add #
 - modifiers: onlyOwner
 - [Pub] set #
 - modifiers: onlyOwner
 - [Pub] getMultiplier
 - [Ext] pendingToken
 - [Pub] canHarvest
 - [Pub] massUpdatePools #
 - [Pub] updatePool #
 - [Pub] deposit #
 - modifiers: nonReentrant
 - [Pub] withdraw #
 - modifiers: nonReentrant
 - [Pub] emergencyWithdraw #
 - modifiers: nonReentrant
 - [Pub] getPoolInfo
 - [Int] payOrLockupPendingToken #
 - [Int] safeTokenTransfer #
 - [Pub] setDev1Address #
 - [Pub] setDev2Address #

- [Pub] setFeeAddress #
- [Pub] updateEmissionRate #
 - modifiers: onlyOwner

(\$) = payable function

= non-constant function

Issues Checking Status

Issue description	Checking status
1. Compiler errors.	Passed
2. Race conditions and Reentrancy. Cross-function race conditions.	Passed
3. Possible delays in data delivery.	Passed
4. Oracle calls.	Passed
5. Front running.	Passed
6. Timestamp dependence.	Passed
7. Integer Overflow and Underflow.	Passed
8. DoS with Revert.	Passed
9. DoS with block gas limit.	Low issues
10. Methods execution permissions.	Passed
11. Economy model of the contract.	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
18. Design Logic.	Low issues
19. Cross-function race conditions.	Passed
20. Safe Open Zeppelin contracts implementation and usage.	Passed
21. Fallback function security.	Passed

Security Issues

✓ High Severity Issues

No high severity issues found.

✓ Medium Severity Issues

No medium severity issues found.

✓ Low Severity Issues

1. Out of gas

Issue:

- `add(uint256 _allocPoint, ...)`, `set(uint256 _pid, ...)` and `updateEmissionRate()` could invoke `massUpdatePools()` function, that can fail due to block gas limit if the pool size is too big.

Recommendation:

Be careful about pool length.

2. `add` function issue

Issue:

- If some LP token is added to the contract twice using function `add`, then the total amount of reward in function `updatePool` will be incorrect.

Recommendation:

Add the mapping from address to bool and check that same address will not be added twice.

Owner privileges (In the period when the owner is not renounced)

- Owner can change tokenPerBlock.
- Dev addresses can change dev addresses.
- Fee address can change fee address.
- gMTVToken allowedMinters can mint and burn.
- gMTVToken operator can add minters.

Conclusion

Smart contracts contain low severity issues. The further transfers and operations with the funds raise are not related to this particular contract. Audited only MasterChef of the project

TechRate 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.