



Security Assessment BITBAMA

Vital Block Security **Verified** on March 21st, 2024

 @Vital-Block

 @VB_Audit

 info@vitalblock.org

 www.vitalblock.org



PREPARED FOR:

BITBAMA






TABLE OF CONTENTS

TABLE OF CONTENTS	3
DOCUMENT PROPERTIES	4
ABOUT VBS	5
SCOPE OF WORK	6
AUDIT METHODOLOGY	7
AUDIT CHECKLIST	9
EXECUTIVE SUMMARY	10
CENTRALIZED PRIVILEGES	11
RISK CATEGORIES	12
AUDIT SCOPE	13
AUTOMATED ANALYSIS	14
KEY FINDINGS	19
MANUAL REVIEW	20
VULNERABILITY SCAN	28
REPOSITORY	29
INHERITANCE GRAPH	30
PROJECT BASIC KNOWLEDGE	31
AUDIT RESULT	32
REFERENCES	37



INTRODUCTION

Auditing Firm	 VITAL BLOCK SECURITY
Client Firm	 BITBAMA
Methodology	Automated Analysis, Manual Code Review
Language	Solidity
Contract	0x375Da692C2743E3AA18c51fDCE139d08490BfA42
Source Code Light	Verified
License	MIT
Centralization	Active ownership
Compiler Version	v0.8.20+commit.a1b79de6
Blockchain	 Arbitrum
Website	https://www.bitbama.io/
Telegram	https://t.me/Bitbama_io
Twitter	https://x.com/Bitbama_io
Medium	https://bitbama.medium.com/
GitHub	https://github.com/bitbama
Prelim Report Date	March 20 th 2023
Final Report Date	March 21 st 2023

 Verify the authenticity of this report on our GitHub Repo: <https://www.github.com/vital-block>



Document Properties


Client	Bitbama
Title	Smart Contract Audit Report
Target	Bitbama
Audit Version	1.0
Author	Akhmetshin Marat
Auditors	Akhmetshin Marat, James BK, Benny Matin
Reviewed by	Dima Meru
Approved by	Prince Mitchell
Classification	Public

Version Info

Version	Date	Author(s)	Description
1.0	March 21 st , 2024	James BK	Final Released
1.0-AP	March 21 st , 2024	Benny Matin	Release Candidate

Contact

For more information about this document and its contents, please contact Vital Block Security Inc.

Name	Akhmetshin Marat
Phone 	+44 7944 248057
Email	info@vitalblock.org

In the following, we show the specific pull request and the commit hash value used in this audit.

- <https://arbiscan.io/token/0x375Da692C2743E3AA18c51fDCE139d08490BfA42#code> (BAMA87221)
- <https://github.com/bitbama/web3-contracts/blob/main/contracts/BamaToken.sol> (BAMA8702)

About Vital Block Security

Vital Block Security provides professional, thorough, fast, and easy-to-understand smart contract security audit. We do in-depth and penetrative static, manual, automated, and intelligent analysis of the smart contract. Some of our automated scans include tools like ConsenSys MythX, Mythril, Slither, Surya. We can audit custom smart contracts, DApps, Rust, NFTs, etc (including the service of smart contract auditing). We are reachable at Telegram (https://t.me/vital_block), Twitter (http://twitter.com/Vb_Audit), or Email (info@vitalblock.org).

Table 1.2: Vulnerability Severity Classification

Impact	High	Medium	Low
	Critical	High	Medium
	High	Medium	Low
	Medium	Low	Low
Likelihood			
High Medium Low			

Methodology (1)

To standardize the evaluation, we define the following terminology based on the OWASP Risk Rating Methodology [4]:

- Likelihood represents how likely a particular vulnerability is to be uncovered and exploited in the wild;
- Impact measures the technical loss and business damage of a successful attack;
- Severity demonstrates the overall criticality of the risk.

AUDIT METHODOLOGY

Smart contract audits are conducted using a set of standards and procedures. Mutual collaboration is essential to performing an effective smart contract audit. Here's a brief overview of Vital Block

Security auditing process and methodology:

CONNECT

- **The onboarding team gathers source codes, and specifications to make sure we understand the size, and scope of the smart contract audit.**

AUDIT

- **Automated analysis is performed to identify common contract vulnerabilities. We may use the following third-party frameworks and dependencies to perform the automated analysis:**
 - **Remix IDE Developer Tool**
 - **Open Zeppelin Code Analyzer**
 - **SWC Vulnerabilities Registry**
 - **DEX Dependencies, e.g., Pancakeswap, Uniswap**
- **Simulations are performed to identify centralized exploits causing contract and/or trade locks.**
- **A manual line-by-line analysis is performed to identify contract issues and centralized privileges.**

We may inspect below mentioned common contract vulnerabilities, and centralized exploits:

Centralized Exploits	<ul style="list-style-type: none">○ Token Supply Manipulation○ Access Control and Authorization○ Assets Manipulation○ Ownership Control○ Liquidity Access○ Stop and Pause Trading○ Ownable Library Verification
-----------------------------	--



Common Contract Vulnerabilities

- Integer Overflow
- Lack of Arbitrary limits
- Incorrect Inheritance Order
- Typographical Errors
- Requirement Violation
- Gas Optimization
- Coding Style Violations
- Re-entrancy
- Third-Party Dependencies
- Potential Sandwich Attacks
- Irrelevant Codes
- Divide before multiply
- Conformance to Solidity Naming Guides
- Compiler Specific Warnings
- Language Specific Warnings

REPORT

- The auditing team provides a preliminary report specifying all the checks which have been performed and the findings thereof.
- The client's development team reviews the report and makes amendments to the codes.
- The auditing team provides the final comprehensive report with open and unresolved issues.

PUBLISH

- The client may use the audit report internally or disclose it publicly.

 It is important to note that there is no pass or fail in the audit, it is recommended to view the audit as an unbiased assessment of the safety of solidity codes.



SCOPE OF WORK

Vital Block was consulted by **BITBAMA** to conduct the smart contract audit of its. Sol source code.
The audit scope of work is strictly limited to mentioned .Sol file only:

O.Bitbama.sol

 External contracts and/or interfaces dependencies are not checked due to being out of scope.

Verify audited contract's contract address and deployed link below:

Public Contract Address	
https://arbiscan.io/token/0x375Da692C2743E3AA18c51fDCE139d08490BfA42#code	
Contract Name	BITBAMA
Token Symbol	BAMA
Decimals	18
Total Supply	10,000



Table 1.0 The Full Audit Checklist

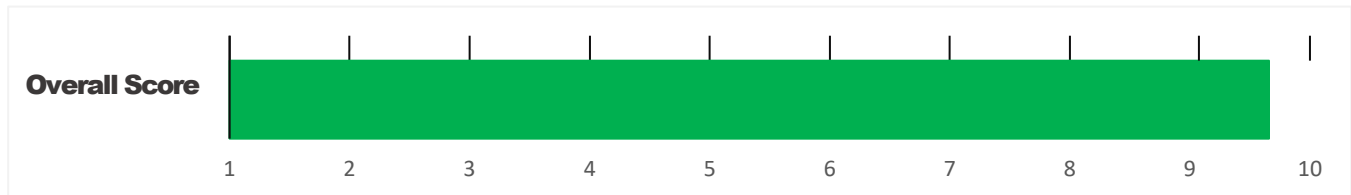
Category	Checklist Items
Basic Coding Bugs	Constructor Mismatch
	Ownership Takeover
	Redundant Fallback Function
	Overflows & Underflows
	Reentrancy
	Money-Giving Bug
	Blackhole
	Unauthorized Self-Destruct
	Revert DoS
	Unchecked External Call
	Gasless Send
	Send Instead Of Transfer
	Costly Loop
	(Unsafe) Use Of Untrusted Libraries
	(Unsafe) Use Of Predictable Variables
	Transaction Ordering Dependence
	Deprecated Uses
Semantic Consistency Checks	Semantic Consistency Checks
Advanced DeFi Scrutiny	Business Logics Review
	Functionality Checks
	Authentication Management
	Access Control & Authorization
	Oracle Security
	Digital Asset Escrow
	Kill-Switch Mechanism
	Operation Trails & Event Generation
	ERC20 Idiosyncrasies Handling
	Frontend-Contract Integration
	Deployment Consistency
	Holistic Risk Management
Additional Recommendations	Avoiding Use of Variadic Byte Array
	Using Fixed Compiler Version
	Making Visibility Level Explicit
	Making Type Inference Explicit
	Adhering To Function Declaration Strictly
	Following Other Best Practices

EXECUTIVE SUMMARY

Vital Block Security has performed the automated and manual analysis of the **BITBAMA** Sol code. The code was reviewed for common contract vulnerabilities and centralized exploits. Here's a quick audit summary:

Status	Critical ! 🔴	Major " 🟡	Medium # 🟡	Minor \$ 🟢	Unknown % 🟤
Open	0	0	0	0	2
Acknowledged	0	0	0	3	0
Resolved	0	0	0	0	1
Noteworthy OnlyOwner Privileges	Set Taxes and Ratios, Airdrop, Set Protection Settings, Set Reward Properties, Set Reflector Settings, Set Swap Settings, Set Pair and Router				

BITBAMA Smart contract has achieved the following score: **97.0**



i Please note that smart contracts deployed on blockchains aren't resistant to exploits, vulnerabilities and/or hacks. Blockchain and cryptography assets utilize new and emerging technologies. These technologies present a high level of ongoing risks. For a detailed understanding of risk severity, source code vulnerability, and audit limitations, kindly review the audit report thoroughly.

i Please note that centralization privileges regardless of their inherited risk status - constitute an elevated impact on smart contract safety and security.



CENTRALIZED PRIVILEGES

Centralization risk is the most common cause of cryptography asset loss. When a smart contract has a privileged role, the risk related to centralization is elevated.

There are some well-intended reasons have privileged roles, such as:

- **Privileged roles can be granted the power to `pause()` the contract in case of an external attack.**
- **Privileged roles can use functions like, `include()`, and `exclude()` to add or remove wallets from fees, swap checks, and transaction limits. This is useful to run a presale and to list on an exchange.**

Authorizing privileged roles to externally-owned-account (EOA) is dangerous. Lately, centralization-related losses are increasing in frequency and magnitude.

- **The client can lower centralization-related risks by implementing below mentioned practices:**
- **Privileged role's private key must be carefully secured to avoid any potential hack.**
- **Privileged role should be shared by multi-signature (multi-sig) wallets.**
- **Authorized privilege can be locked in a contract, user voting, or community DAO can be introduced to unlock the privilege.**
- **Renouncing the contract ownership, and privileged roles.**
- **Remove functions with elevated centralization risk.**

 Understand the project's initial asset distribution. Assets in the liquidity pair should be locked.

Assets outside the liquidity pair should be locked with a release schedule.



RISK CATEGORIES

Smart contracts are generally designed to hold, approve, and transfer tokens. This makes them very tempting attack targets. A successful external attack may allow the external attacker to directly exploit. A successful centralization-related exploit may allow the privileged role to directly exploit. All risks which are identified in the audit report are categorized here for the reader to review:

Risk Type	Definition
Critical 🚫	These risks could be exploited easily and can lead to asset loss, data loss, asset, or data manipulation. They should be fixed right away.
Major 🟡	These risks are hard to exploit but very important to fix, they carry an elevated risk of smart contract manipulation, which can lead to high-risk severity.
Medium 🟠	These risks should be fixed, as they carry an inherent risk of future exploits, and hacks which may or may not impact the smart contract execution. Low-risk re-entrancy-related vulnerabilities should be fixed to deter exploits.
Minor 🟢	These risks do not pose a considerable risk to the contract or those who interact with it. They are code-style violations and deviations from standard practices. They should be highlighted and fixed nonetheless.
Unknown 🟤	These risks pose uncertain severity to the contract or those who interact with it. They should be fixed immediately to mitigate the risk uncertainty.

All statuses which are identified in the audit report are categorized here for the reader to review:

Status Type	Definition
Open	Risks are open.
Acknowledged	Risks are acknowledged, but not fixed.
Resolved	Risks are acknowledged and fixed.



Key Findings






Overall, these contracts are well-designed and engineered, though the implementation can be improved by resolving the identified issues (shown in Table 2.1), 0 medium-severity vulnerabilities, 3 low-severity vulnerabilities, and 1 informational recommendations.

Table 2.1: Key **BITBAMA** Audit Findings

ID	Severity	Title	Category	Status
BN-01	Low	In updateForToken , the following equation is used inside an unchecked block	Coding Practice	Acknowledged
BN-002	Informational	In updateForMinter , the following equation is used inside an unchecked block	Business Logic	Fixed
BN-03	Low	In updateForaddress , the following equation is used inside an unchecked block	Status Mathematical Operations	Acknowledged
BN-04	Low	Not Mintable: A large amount of this token can not be minted by a private wallet or contract.	Inconsistency	Acknowledged

Beside the identified issues, we emphasize that for any user-facing applications and services, it is always important to develop necessary risk-control mechanisms and make contingency plans, which may need to be exercised before the mainnet deployment. The risk-control mechanisms should kick in at the very moment when the contracts are being deployed on mainnet. Please refer to page 10 for details...

AUTOMATED ANALYSIS

Symbol	Definition
	Function modifies state
	Function is payable
	Function is internal
	Function is private
	Function is important

```

**BITBAMA** | Interface | |||
| L | totalSupply | External ! | ! | NO ! |
| L | decimals | External ! | ! | NO ! |
| L | symbol | External ! | ! | NO ! |
| L | name | External ! | ! | NO ! |
| L | getOwner | External ! | | NO ! |
| L | balanceOf | External ! | ! | NO ! |
| L | transfer | External ! | " ! ! | NO ! |
| L | allowance | External ! | ! | NO ! |
| L | approve | External ! | " ! ! | NO ! |
| L | transferFrom | External ! | " | NO ! |
|||||
**IFactoryV2** | Interface | |||
| L | getPair | External ! | | NO ! |
| L | createPair | External ! | " | NO ! |
|||||
**IV2Pair** | Interface | |||
| L | factory | External ! | | NO ! |
| L | getReserves | External ! | | NO ! |
| L | sync | External ! | " | NO ! |

```



|||||

| ****IRouter01**** | Interface | |||

| L | factory | External ! | |NO!|

| L | Sol | External ! | |NO!|

| L | addLiquidityETH | External ! | # |NO!|

| L | addLiquidity | External ! | " |NO!|

| L | swapExactETHorTokens | External ! | # |NO!|

| L | getAmountsOut | External ! | |NO!|

| L | getAmountsIn | External ! | |NO!|

|||||

| ****IRouter02**** | Interface | IRouter01 |||

| L | swapExactTokensForETHSupportingFeeOnTransferTokens | External ! | " |NO!|

| L | swapExactETHForTokensSupportingFeeOnTransferTokens | External ! | # |NO!|

| L | swapExactTokensForTokensSupportingFeeOnTransferTokens | External ! | " ! |NO!|

| L | swapExactTokensForTokens | External ! | " |NO!|

|||||

| ****Protections**** | Interface | |||

| L | checkUser | External ! | " ! |NO!|

| L | setLaunch | External ! | " |NO!|

| L | setLpPair | External ! | " |NO!|

| L | **BAMA** | External ! | " |NO!|

| L | removeSniper | External ! | " |NO!|

|||||

| ****Cashier**** | Interface | |||

| L | setRewardsProperties | External ! | " |NO!|

| L | tally | External ! | " |NO!|

| L | load | External ! | # |NO!|

| L | cashout | External ! | " |NO!|

| L | giveMeWelfarePlease | External ! | " |NO!|

| L | getTotalDistributed | External ! | |NO!|

| L | getUserInfo | External ! | |NO!|

| L | getUserRealizedRewards | External ! | |NO!|



```

| L | getPendingRewards | External ! | | NO! |
| L | initialize | External ! | " | NO! |
| L | getCurrentReward | External ! | | NO! |
|||||
| **SOL** | Implementation | SafeMath |||
| L | <Constructor> | Public ! | # | NO! |
| L | transferOwner | External ! | " | onlyOwner |
| L | renounceOwnership | External ! | " | NO! |
| L | setOperator | Public ! | " | NO! |
| L | renounceOriginalDeployer | External ! | " | NO! |
| L | <Receive ETH> | External ! | # | NO! |
| L | totalSupply | External ! | | NO! |
| L | decimals | External ! | | NO! |
| L | symbol | External ! | | NO! |
| L | name | External ! | | NO! |
| L | getOwner | External ! | ! | NO! |
| L | balanceOf | Public ! | ! | NO! |
| L | allowance | External ! | ! | NO! |
| L | approve | External ! | " ! 🚫 | NO! |
| L | _approve | Internal $ | " 🚫 🚫 | |
| L | approveContractContingency | Public ! | " ! 🚫 | onlyOwner |
| L | transfer | External ! | " | NO! |
| L | transferFrom | External ! | " | NO! |
| L | setNewRouter | External ! | " | onlyOwner |
| L | setLpPair | External ! | " | onlyOwner |
| L | setInitializers | External ! | " | onlyOwner |
| L | isExcludedFromFees | External ! | | NO! |
| L | isExcludedFromDividends | External ! | | NO! |
| L | isExcludedFromProtection | External ! | | NO! |
| L | setDividendExcluded | Public ! | " | onlyOwner |
| L | setExcludedFromFees | Public ! | " | onlyOwner |

```


BTV-01 POSSIBLE OVERFLOW

Category	Severity ●	Location	Status
Suboptimal	Minor	Contract/code/BamaToken.sol#90-92	Acknowledged

Description

In `updateForToken`, the following equation is used inside an unchecked block

```
getOwner() should be declared external:  
- BamaToken.getOwner() ()  
  
function getOwner() public view returns (address) { return i_owner; }  
getMintedBamaAmount() should be declared external:  
- BamaToken.getMintedBamaAmount() (BamaToken.sol#94-96)
```

Where parameters. Block `Token` Out Used is a this and override In is a this.
As these two are multiplied together in an unchecked block, they may overflow.

Recommendation

We recommend either checking for overflow in this case, or ensuring that the PairsIn is close enough it will never cause an overflow.

BST-02 POSSIBLE OVERFLOW

Category	Severity ●	Location	Status
Status Mathematical Operations	Minor	Contract/code/Bitbama.sol 263-269	Acknowledged

Description

In `updateForMinter`, the following equation is used inside an unchecked block

```
contract ERC20 is Context, IERC20, IERC20Metadata, IERC20Errors {
    mapping(address account => uint256) private _balances;
    mapping(address account => mapping(address spender => uint256)) private _allowances;
    uint256 private _totalSupply;
    string private _name;
    string private _symbol;
    /**
```

Minter can not issue more **BAMA** tokens indefinitely.

Note that as of the date of publishing, the above review reflects the current understanding of known security patterns as they relate to the **BAMA** contract.

Recommendation

We recommend either checking for overflow in this case, or ensuring that the **PairsIn** is close enough it will never cause an overflow.

BZT-03 POSSIBLE OVERFLOW

Category	Severity ●	Location	Status
Inconsistency	Informational	Contract/code/Bitbama.sol	Acknowledged

Description

In `updateForaddress`, the following equation is used inside an unchecked block






```
function transferFrom(address from, address to, uint256 value) public virtual returns (bool) {  
    address spender = _msgSender();  
    _spendAllowance(from, spender, value);  
    _transfer(from, to, value);  
    return true;  
}
```

The function `address ()` does not have the override specifier. It should be noted that since `price0 > a` function that overrides only a single interface function does not require the override specifier (see doc). However, all other instances of this in the code base contain the override specifier.

Recommendation

We recommend either checking for overflow in this case, or ensuring that the `PairsIn` is close enough it will never cause an overflow.

OPTIMIZATIONS | BITBAMA

ID	Title	Category	Status
FTV	Logarithm Refinement Optimization	Gas Optimization	Acknowledged 
FOP	Checks Can Be Performed Earlier	Gas Optimization	Acknowledged 
FDP	Unnecessary Use Of SafeMath	Gas Optimization	Acknowledged 
FWY	Struct Optimization	Gas Optimization	Acknowledged 
FGT	Unused State Variable	Gas Optimization	Acknowledged 

General Detectors

Missing Zero Address Validation

Some functions in this contract may not appropriately check for zero addresses being used.



Attention
Required

Uninitialized Local Variables

This contract's local variables are not all initialized, potentially resulting in lost funds or other exploits.



Attention
Required

- ✓ No compiler version inconsistencies found
- ✓ No unchecked call responses found
- ✓ No vulnerable self-destruct functions found
- ✓ No assertion vulnerabilities found
- ✓ No old solidity code found
- ✓ No external delegated calls found
- ✓ No external call dependency found
- ✓ No vulnerable authentication calls found
- ✓ No invalid character typos found
- ✓ No RTL characters found
- ✓ No dead code found
- ✓ No risky data allocation found
- ✓ No uninitialized state variables found
- ✓ No uninitialized storage variables found
- ✓ No vulnerable initialization functions found
- ✓ No risky data handling found
- ✓ No number accuracy bug found
- ✓ No out-of-range number vulnerability found
- ✓ No map data deletion vulnerabilities found
- ✓ No tautologies or contradictions found
- ✓ No faulty true/false values found
- ✓ No inaccurate divisions found
- ✓ No redundant constructor calls found
- ✓ No vulnerable transfers found
- ✓ No vulnerable return values found
- ✓ No uninitialized local variables found
- ✓ No default function responses found
- ✓ No missing arithmetic events found
- ✓ No missing access control events found
- ✓ No redundant true/false comparisons found
- ✓ No state variables vulnerable through function calls found
- ✓ No buggy low-level calls found
- ✓ No expensive loops found
- ✓ No bad numeric notation practices found
- ✓ No missing constant declarations found
- ✓ No missing external function declarations found
- ✓ No vulnerable payable functions found
- ✓ No vulnerable message values found



Vulnerability Scan

REENTRANCY

✓ No reentrancy risk found

Severity Minor

Confidence Parameter Certain

✗ **Not Mintable:** A large amount of this token can not be minted by a private wallet or contract.

Vulnerability Description

Scanning Line:

```
function _update(address from, address to, uint256
value) internal virtual {
    if (from == address(0)) {
        // Overflow check required: The rest of the
code assumes that totalSupply never overflows
        _totalSupply += value;
    } else {
        uint256 fromBalance = _balances[from];
        if (fromBalance < value) {
            revert ERC20InsufficientBalance(from,
fromBalance, value);
        }
        unchecked {
            // Overflow not possible: value <=
fromBalance <= totalSupply.
            _balances[from] = fromBalance - value;
        }
    }
    if (to == address(0)) {
        unchecked {
```

Identifier	Definition	Severity
CEN-02	Initial asset distribution	Minor 

```
function _transfer(address from, address to, uint256 value)
internal {
    if (from == address(0)) {
        revert ERC20InvalidSender(address(0));
    }
    if (to == address(0)) {
        revert ERC20InvalidReceiver(address(0));
    }
    _update(from, to, value);
}
```

Description:

Floating point calculations can vary across different architectures.

Alleviation:

This exhibit was acknowledged and ultimately discarded by the **BITBAMA** team due to low severity. We consider the exhibit fully attended to as it doesn't impose any meaningful security concerns.

RECOMMENDATION

Project stakeholders should be consulted during the initial asset distribution process.



Contract Owner Address:

<https://arbiscan.io/address/0x02cb75f592fc5bdc52106e28b9fedd42bc99b0b2>

Audited Files

BITBAMA.SOL

Contracts:

Contract :

BAMA : 0x375Da692C2743E3AA18c51fDCE139d08490BfA42

Creator TXN Hash:

Txn : <https://arbiscan.io/tx/0xf46977e0dfbc3c66e1442cc0901200c6d6945d05d24e16717cfe747bfed44b28>



Vulnerability Run check

Risk Analysis

✔ Contract source code verified

This token contract is open source. You can check the contract code for details. Unsourced token contracts are likely to have malicious functions to defraud their users of their assets.

✔ No mint function

Mint function is transparent or non-existent. Hidden mint functions may increase the amount of tokens in circulation and effect the price of the token.

✔ Owner cant change balance

The contract owner does not have the authority to modify the balance of tokens at other addresses.

✔ No Proxy

There is no proxy in the contract. The proxy contract means contract owner can modify the function of the token and possibly effect the price.

✔ No function to retrieve ownership

If this function exists, it is possible for the project owner to regain ownership even after relinquishing it.



Honeypot Risk

✔ This does not appear to be a honeypot

We are not aware of any code that prevents the sale of tokens.

✔ No trading cooldown

The token contract has no trading cooldown function. If there is a trading cooldown function, the user will not be able to sell the token within a certain time or block after buying.

✔ No Anti Whale

There is no limit to the number of token transactions. The number of scam token transactions may be limited (honeypot risk).

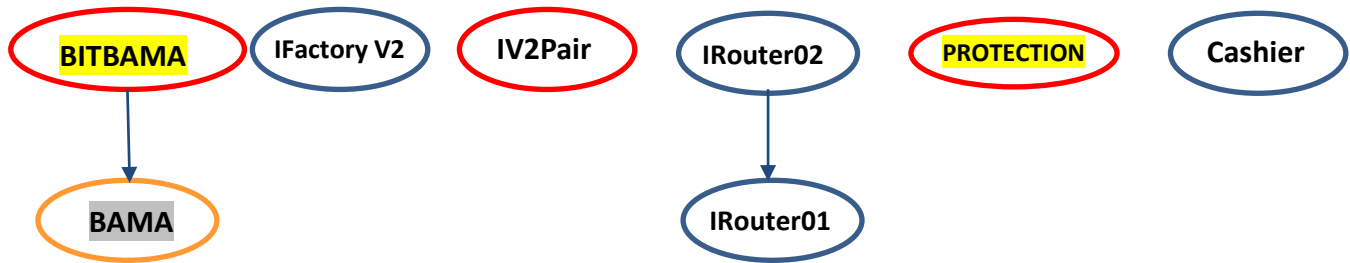
✔ No blacklist function

No blacklist function is included.

✔ No whitelist function

Whitelist function found

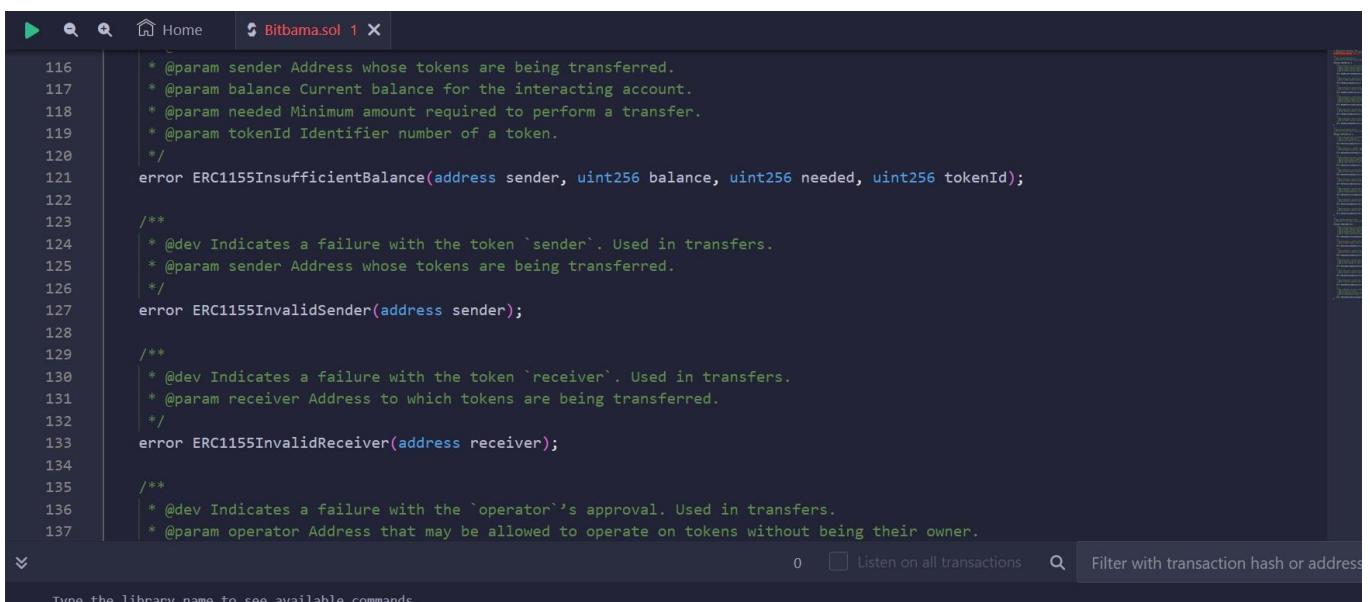
INHERITANCE GRAPH



Identifier	Definition	Severity
CEN-12	Centralization privileges of BITBAMA	Medium # 🟡

Vulnerability 0 : No important security issue detected.

Threat level: Low



```

116  * @param sender Address whose tokens are being transferred.
117  * @param balance Current balance for the interacting account.
118  * @param needed Minimum amount required to perform a transfer.
119  * @param tokenId Identifier number of a token.
120  */
121  error ERC1155InsufficientBalance(address sender, uint256 balance, uint256 needed, uint256 tokenId);
122
123  /**
124   * @dev Indicates a failure with the token `sender`. Used in transfers.
125   * @param sender Address whose tokens are being transferred.
126   */
127  error ERC1155InvalidSender(address sender);
128
129  /**
130   * @dev Indicates a failure with the token `receiver`. Used in transfers.
131   * @param receiver Address to which tokens are being transferred.
132   */
133  error ERC1155InvalidReceiver(address receiver);
134
135  /**
136   * @dev Indicates a failure with the `operator`'s approval. Used in transfers.
137   * @param operator Address that may be allowed to operate on tokens without being their owner.
  
```

MANUAL REVIEW

Bitbama is an innovative Technology that aims to revolutionize the growing education aspect of crypto by combining AI, cutting-edge tech, and Web 3 tools to help in the adoption of cryptocurrency globally.

TOKEN NAME: BITBAMA

Ticker: BAMA

Total Supply: 10,000

Chain/Standard: Arbitrum Network

LAUNGUGE: Solidity



The Bitbama Platform Is Launching On the Arbitrum Network

Build your bama portfolio

Start earning bama daily with these easy steps.



Register your account

Get started with Bitbama by Signing up for an account.



Verify

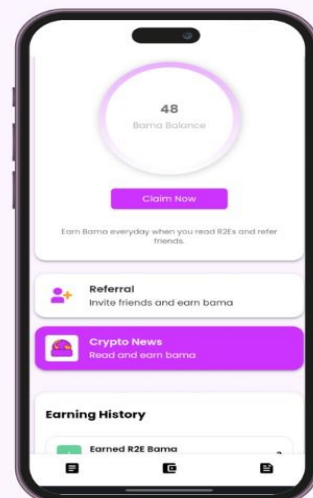
Complete email verification and your profile to secure your account and transactions.



Start claiming

You're good to go! Get bama daily by reading our curated R2Es, and through active referrals.

Get started





ISSUES CHECKING STATUS

Issue Description

Checking Status

1.	Compiler errors.	PASSED
2.	Race Conditions and reentrancy. Cross-Function Race Conditions.	PASSED
3.	Possible Delay In Data Delivery.	PASSED
4.	Oracle calls.	PASSED
5.	Front Running.	PASSED
6.	SOL Dependency.	PASSED
7.	Integer Overflow And Underflow.	PASSED
8.	DoS with Revert.	PASSED
9.	Dos With Block Gas Limit.	PASSED
10.	Methods execution permissions.	PASSED
11.	Economy Model of the contract.	PASSED
12.	The Impact Of Exchange Rate On the sol Logic.	PASSED
13.	Private use 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.	PASSED
19.	Cross-Function race Conditions	PASSED
20.	Save Upon Move contract Implementation and Usage.	PASSED
21.	Fallback Function Security	PASSED



AUDIT RESULT

PASSED

SMART CONTRACT AUDIT OF BITBAMA

Identifier	Definition	Severity
CEN-02	Initial asset distribution	Minor 

All of the initially minted assets are sent to the contract deployer when deploying the contract. This can be an issue as the deployer and/or contract owner can distribute tokens without consulting the community.

```
function transferFrom(address from, address to, uint256 value) public virtual returns
(bool) {
    address spender = _msgSender();
    _spendAllowance(from, spender, value);
    _transfer(from, to, value);
    return true;
}
```

RECOMMENDATION

Project stakeholders should be consulted during the initial asset distribution process.



RECOMMENDATION

Deployer and/or contract owner private keys are secured carefully.

Please refer to PAGE-09 CENTRALIZED PRIVILEGES for a detailed understanding.

ALLEVIATION

The BITBAMA project team understands the centralization risk. Some functions are provided privileged access to ensure a good runtime behavior in the project



References

- 1 MITRE. CWE-1041: Use of Redundant Code. <https://cwe.mitre.org/data/definitions/1041.html>.
- 2 MITRE. CWE-1099: Inconsistent Naming Conventions for Identifiers. <https://cwe.mitre.org/data/definitions/1099.html>.
- 3 MITRE. CWE-561: Dead Code. <https://cwe.mitre.org/data/definitions/561.html>.
- 4 MITRE. CWE-563: Assignment to Variable without Use. <https://cwe.mitre.org/data/definitions/563.html>.
- 5 MITRE. CWE-663: Use of a Non-reentrant Function in a Concurrent Context. <https://cwe.mitre.org/data/definitions/663.html>.
- 6 MITRE. CWE-837: Improper Enforcement of a Single, Unique Action. <https://cwe.mitre.org/data/definitions/837.html>.
- 7 MITRE. CWE-841: Improper Enforcement of Behavioral Workflow. <https://cwe.mitre.org/data/definitions/841.html>.
- 8 MITRE. CWE CATEGORY: Bad Coding Practices. <https://cwe.mitre.org/data/definitions/1006.html>.
- 9 MITRE. CWE CATEGORY: Business Logic Errors. <https://cwe.mitre.org/data/definitions/840.html>.
- 10 MITRE. CWE CATEGORY: Concurrency. <https://cwe.mitre.org/data/definitions/557.html>.
- 11 MITRE. CWE VIEW: Development Concepts. <https://cwe.mitre.org/data/definitions/699.html>.
- 12 OWASP. Risk Rating Methodology. https://www.owasp.org/index.php/OWASP_Risk_Rating_Methodology.



Identifier	Definition	Severity
COD-10	Third Party Dependencies	Minor 

Smart contract is interacting with third party protocols e.g., Pancakeswap router, cashier contract, protections contract. The scope of the audit treats third party entities as black boxes and assumes their functional correctness. However, in the real world, third parties can be compromised, and exploited. Moreover, upgrades in third parties can create severe impacts, e.g., increased transactional fees, deprecation of previous routers, etc.

RECOMMENDATION

Inspect and validate third party dependencies regularly, and mitigate severe impacts whenever necessary.



CERTIFICATE BY VITAL BLOCK SECURITY



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Vital Block provides the easy-to-understand audit of Solidity, Move and Raw source codes (commonly known as smart contracts).

The smart contract for this particular audit was analyzed for common contract vulnerabilities, and centralization exploits. This audit report makes no statements or warranties on the security of the code. This audit report does not provide any warranty or guarantee regarding the absolute bug-free nature of the smart contract analyzed, nor do they provide any indication of the client's business, business model or legal compliance. This audit report does not extend to the compiler layer, any other areas beyond the programming language, or other programming aspects that could present security risks. Cryptographic tokens are emergent technologies, they carry high levels of technical risks and uncertainty. You agree that your access and/or use, including but not limited to any services, reports, and materials, will be at your sole risk on an as-is, where-is, and as-available basis. This audit report could include false positives, false negatives, and other unpredictable results.

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Vital Block is Dedicated to Making Defi & Web3 A Safer Place. We are Powered by Security engineers, developers, UI experts, and blockchain enthusiasts. Our team currently consists of 5 core members, and 4+ casual contributors.

Website: <https://Vitalblock.org>

Email: info@vitalblock.org

GitHub: <https://github.com/vital-block>

Telegram (Engineering): https://t.me/vital_block

Telegram (Onboarding): https://t.me/vitalblock_cmo





vital-block



info@vitalblock.org



www.Vitalblock.org



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