



# CFG NINJA AUDITS

Security Assessment

**AI BUNNY Token**

February 9, 2023

**AI BUNNY**



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# Assessment Summary

This report has been prepared for AI BUNNY Token on the Binance Smart Chain network. CFGNINJA provides both client-centered and user-centered examination of the smart contracts and their current status when applicable. This report represents the security assessment made to find issues and vulnerabilities on the source code along with the current liquidity and token holder statistics of the protocol.

A comprehensive examination has been performed, utilizing Cross Referencing, Static Analysis, In-House Security Tools, and line-by-line Manual Review.

The auditing process pays special attention to the following considerations:

- Testing the smart contracts against both common and uncommon attack vectors.
- Inspecting liquidity and holders statistics to inform the current status to both users and client when applicable.
- Assessing the codebase to ensure compliance with current best practices and industry standards.
- Verifying contract functions that allow trusted and/or untrusted actors to mint, lock, pause, and transfer assets.
- Cross referencing contract structure and implementation against similar smart contracts produced by industry leaders
- Thorough line-by-line manual review of the entire codebase by industry experts.



# Project Overview

## Token Summary

Parameter	Result
Address	0xfb8afC8724dd517401ad98f8d7aD0F62Ca008DA9
Name	AI BUNNY
Token Tracker	AI BUNNY (AIB)
Decimals	18
Supply	1,000,000,000,000
Platform	Binance Smart Chain
compiler	v0.8.7+commit.e28d00a7
Contract Name	AIBUNNY
Optimization	Yes with 200 runs
LicenseType	MIT
Language	Solidity
Codebase	<a href="https://bscscan.com/address/0xfb8afC8724dd517401ad98f8d7aD0F62Ca008DA9#code">https://bscscan.com/address/0xfb8afC8724dd517401ad98f8d7aD0F62Ca008DA9#code</a>
Payment Tx	Corporate



# Project Overview

## Risk Analysis Summary

Parameter	Result
Buy Tax	0%
Sale Tax	3%
Is honeypot?	Possible
Can edit tax?	Yes
Is anti whale?	Yes
Is blacklisted?	Yes
Is whitelisted?	No
Holders	0
Confidence Level	High Risk

The following quick summary it's added to the project overview; however, there are more details about the audit and its results. Please read every detail.



# Project Overview

## Simulation Summary

Parameter	Result
Transfer From Owner	Pass
Transfer From Holder	Pass
Add Liquidity	Pass
Buy from Owner	Pass
Buy from Holder	Pass
Remove Liquidity	Pass
SwapAndLiquify	Pass
RemoveLiquidity	Pass
LaunchPad	PinkSale

The following quick summary it's added to the project overview; however, there are more details about the audit and its results. Please read every detail.



## Main Contract Assessed Contract Name

Name	Contract	Live
AI BUNNY	0xfb8afC8724dd517401ad98f8d7aD0F62Ca008DA9	Yes

## TestNet Contract Assessed Contract Name

Name	Contract	Live
AI BUNNY	0x4F9E3c468774F5125EEB92d60954957486eC9C04	Yes

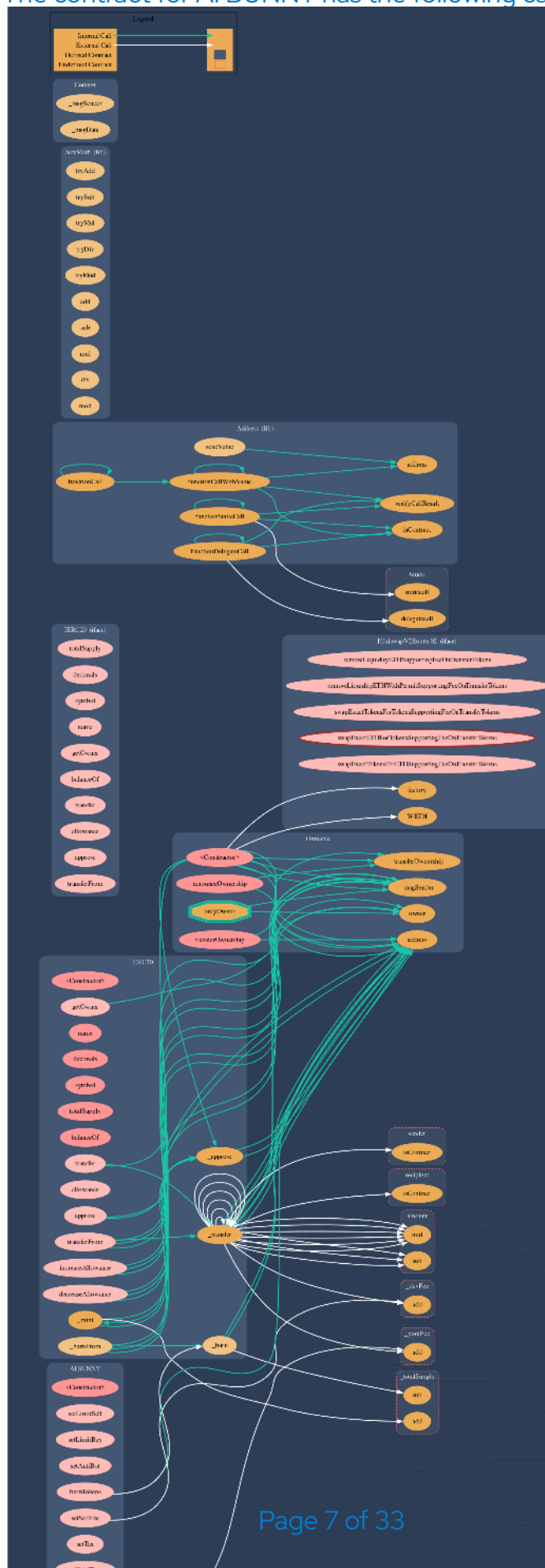
## Solidity Code Provided

SolID	File Sha-1	FileName
AlBunny	307af33dd8ff7e3d448f4c637910ecb7bf17e305	contract.sol



# Call Graph

The contract for AI BUNNY has the following call graph structure.





# KYC Information

The Project Owners of AI BUNNY is not KYC.

KYC Information Notes:

Auditor Notes:

Project Owner Notes:



# Smart Contract Vulnerability Checks

The Smart Contract Weakness Classification Registry (SWC Registry) is an implementation of the weakness classification scheme proposed in EIP-1470. It is loosely aligned to the terminologies and structure used in the Common Weakness Enumeration (CWE) while overlaying a wide range of weakness variants that are specific to smart contracts.

ID	Severity	Name	File	location
SWC-100	Pass	Function Default Visibility	contract.sol	L: 0 C: 0
SWC-101	Pass	Integer Overflow and Underflow.	contract.sol	L: 0 C: 0
SWC-102	Pass	Outdated Compiler Version file.	contract.sol	L: 0 C: 0
SWC-103	Low	A floating pragma is set.	contract.sol	L: 7 C: 0
SWC-104	Pass	Unchecked Call Return Value.	contract.sol	L: 0 C: 0
SWC-105	Pass	Unprotected Ether Withdrawal.	contract.sol	L: 0 C: 0
SWC-106	Pass	Unprotected SELFDESTRUCT Instruction	contract.sol	L: 0 C: 0
SWC-107	Pass	Read of persistent state following external call.	contract.sol	L: 0 C: 0
SWC-108	Pass	State variable visibility is not set..	contract.sol	L: 0 C: 0
SWC-109	Pass	Uninitialized Storage Pointer.	contract.sol	L: 0 C: 0
SWC-110	Pass	Assert Violation.	contract.sol	L: 0 C: 0



ID	Severity	Name	File	location
SWC-111	Pass	Use of Deprecated Solidity Functions.	contract.sol	L: 0 C: 0
SWC-112	Pass	Delegate Call to Untrusted Callee.	contract.sol	L: 0 C: 0
SWC-113	Pass	Multiple calls are executed in the same transaction.	contract.sol	L: 0 C: 0
SWC-114	Pass	Transaction Order Dependence.	contract.sol	L: 0 C: 0
SWC-115	Pass	Authorization through tx.origin.	contract.sol	L: 0 C: 0
SWC-116	Pass	A control flow decision is made based on The block.timestamp environment variable.	contract.sol	L: 0 C: 0
SWC-117	Pass	Signature Malleability.	contract.sol	L: 0 C: 0
SWC-118	Pass	Incorrect Constructor Name.	contract.sol	L: 0 C: 0
SWC-119	Pass	Shadowing State Variables.	contract.sol	L: 0 C: 0
SWC-120	Pass	Potential use of block.number as source of randommness.	contract.sol	L: 0 C: 0
SWC-121	Pass	Missing Protection against Signature Replay Attacks.	contract.sol	L: 0 C: 0
SWC-122	Pass	Lack of Proper Signature Verification.	contract.sol	L: 0 C: 0
SWC-123	Pass	Requirement Violation.	contract.sol	L: 0 C: 0
SWC-124	Pass	Write to Arbitrary Storage Location.	contract.sol	L: 0 C: 0
SWC-125	Pass	Incorrect Inheritance Order.	contract.sol	L: 0 C: 0



ID	Severity	Name	File	location
SWC-126	Pass	Insufficient Gas Griefing.	contract.sol	L: 0 C: 0
SWC-127	Pass	Arbitrary Jump with Function Type Variable.	contract.sol	L: 0 C: 0
SWC-128	Pass	DoS With Block Gas Limit.	contract.sol	L: 0 C: 0
SWC-129	Pass	Typographical Error.	contract.sol	L: 0 C: 0
SWC-130	Pass	Right-To-Left-Override control character (U+202E).	contract.sol	L: 0 C: 0
SWC-131	Pass	Presence of unused variables.	contract.sol	L: 0 C: 0
SWC-132	Pass	Unexpected Ether balance.	contract.sol	L: 0 C: 0
SWC-133	Pass	Hash Collisions with Multiple Variable Length Arguments.	contract.sol	L: 0 C: 0
SWC-134	Pass	Message call with hardcoded gas amount.	contract.sol	L: 0 C: 0
SWC-135	Pass	Code With No Effects (Irrelevant/Dead Code).	contract.sol	L: 0 C: 0
SWC-136	Pass	Unencrypted Private Data On-Chain.	contract.sol	L: 0 C: 0

We scan the contract for additional security issues using MYTHX and industry-standard security scanning tools.



# Smart Contract Vulnerability Details

## SWC-103 - Floating Pragma.

### CWE-664: Improper Control of a Resource Through its Lifetime.

#### References:

#### Description:

Contracts should be deployed with the same compiler version and flags that they have been tested with thoroughly. Locking the pragma helps to ensure that contracts do not accidentally get deployed using, for example, an outdated compiler version that might introduce bugs that affect the contract system negatively.

#### Remediation:

Lock the pragma version and also consider known bugs (<https://github.com/ethereum/solidity/releases>) for the compiler version that is chosen.

Pragma statements can be allowed to float when a contract is intended for consumption by other developers, as in the case with contracts in a library or EthPM package. Otherwise, the developer would need to manually update the pragma in order to compile locally.

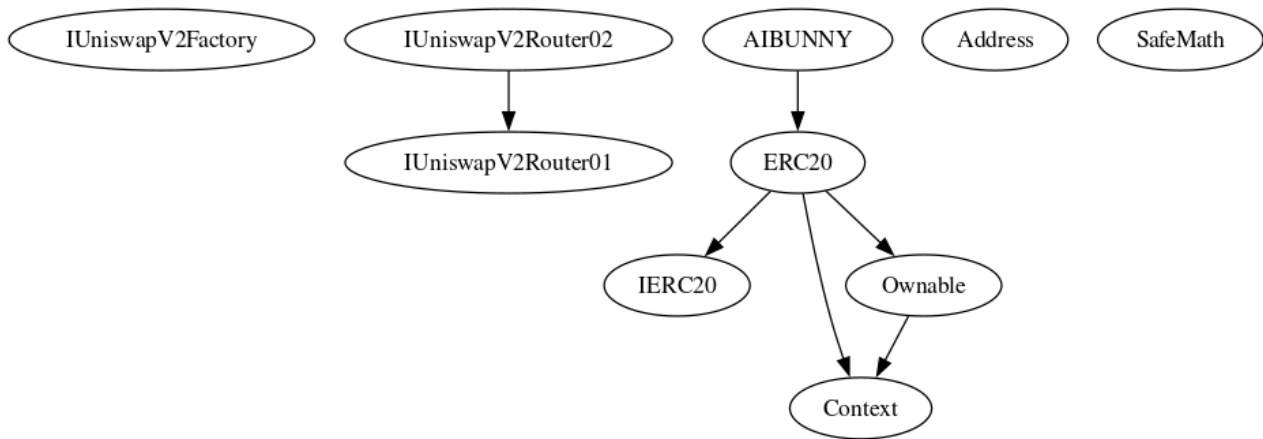
#### References:

Ethereum Smart Contract Best Practices - Lock pragmas to specific compiler version.



# Inheritance

The contract for AI BUNNY has the following inheritance structure.



## Privileged Functions (onlyOwner)

Please Note if the contract is Renounced none of this functions can be executed.

Function Name	Parameters	Visibility
renounceOwnership		public
transferOwnership	newOwner (address)	public
burnTokens	uint256 amount	external
addExcludeFee	address account	external
addBlacklist	address account	external
setHoldTime	bool enable, uint256 _sec	external
setTax	bool enable	external
setBuyFee	uint256 _poolFee, uint256 _lqdtFee, uint256 _mktFee	external
setSellFee	uint256 _devFee, uint256 _adFee, uint256 _mktFee	external
setAntiBot	bool enable	external








Function Name	Parameters	Visibility
setLimitBuy	bool enable	external
setLimitSell	bool enable	external










# Technical Findings Summary

## Classification of Risk

Severity	Description
 Critical	Risks are those that impact the safe functioning of a platform and must be addressed before launch. Users should not invest in any project with outstanding critical risks.
 Major	Risks can include centralization issues and logical errors. Under specific circumstances, these major risks can lead to loss of funds and/or control of the project.
 Medium	Risks may not pose a direct risk to users' funds, but they can affect the overall functioning of a platform
 Minor	Risks can be any of the above but on a smaller scale. They generally do not compromise the overall integrity of the Project, but they may be less efficient than other solutions.
 Informational	Errors are often recommended to improve the code's style or certain operations to fall within industry best practices. They usually do not affect the overall functioning of the code.

## Findings

Severity	Found	Pending	Resolved
 Critical	1	0	0
 Major	2	2	0
 Medium	1	1	0
 Minor	4	4	0
 Informational	1	1	0
Total	9	9	0



# Smart Contract Advance Checks



ID	Severity	Name	Result	Status
AIB-01	Minor	Potential Sandwich Attacks.	Fail	Found
AIB-02	Minor	Function Visibility Optimization	Pass	Not-Found
AIB-03	Minor	Lack of Input Validation.	Fail	Pending
AIB-04	Major	Centralized Risk In addLiquidity.	Fail	Pending
AIB-05	Major	Missing Event Emission.	Fail	Pending
AIB-06	Minor	Conformance with Solidity Naming Conventions.	Fail	Pending
AIB-07	Minor	State Variables could be Declared Constant.	Fail	Pending
AIB-08	Major	Dead Code Elimination.	Pass	Not-Found
AIB-09	Major	Third Party Dependencies.	Pass	Not Found
AIB-10	Major	Initial Token Distribution.	Fail	Pending
AIB-11	Critical	The use of setHoldTime can lead to a pause trade or honeyPot State	Fail	Pending
AIB-12	Major	Centralization Risks In The X Role	Pass	Not Found
AIB-13	Informational	Extra Gas Cost For User..	Fail	Pending
AIB-14	Medium	Unnecessary Use Of SafeMath	Fail	Pending



ID	Severity	Name	Result	Status
AIB-15	Medium	Symbol Length Limitation due to Solidity Naming Standards.	Pass	Not-Found
AIB-16	Medium	Invalid collection of Taxes during Transfer.	Pass	Not-Found



## AIB-01 | Potential Sandwich Attacks.

Category	Severity	Location	Status
Security	 Minor	contract.sol: 0,0	 Found

### Description

A sandwich attack might happen when an attacker observes a transaction swapping tokens or adding liquidity without setting restrictions on slippage or minimum output amount. The attacker can manipulate the exchange rate by frontrunning (before the transaction being attacked) a transaction to purchase one of the assets and make profits by back running (after the transaction being attacked) a transaction to sell the asset. The following functions are called without setting restrictions on slippage or minimum output amount, so transactions triggering these functions are vulnerable to sandwich attacks, especially when the input amount is large:

- swapExactTokensForETHSupportingFeeOnTransferTokens()
- addLiquidityETH()

### Remediation


We recommend setting reasonable minimum output amounts, instead of 0, based on token prices when calling the aforementioned functions.

### References:

What Are Sandwich Attacks in DeFi – and How Can You Avoid Them?.



## AIB-03 | Lack of Input Validation.

Category	Severity	Location	Status
Volatile Code	 Minor	contract.sol: 659,14	 Pending

### Description

The given input is missing the check for the non-zero address.

The given input is missing the check for the addExcludeFee, addBlacklist, burnTokens, addBlacklist, setHoldTime is missing required function.

### Remediation

We advise the client to add the check for the passed-in values to prevent unexpected errors as below:

```
...  
    require(receiver != address(0), "Receiver is the zero address");  
...  
...  
    require(value X limitation, "Your not able to do this function");  
...
```

We also recommend customer to review the following function that is missing a required validation. addExcludeFee, addBlacklist, burnTokens, addBlacklist, setHoldTime is missing required function.



## AIB-04 | Centralized Risk In addLiquidity.

Category	Severity	Location	Status
Coding Style	Major	contract.sol: 78,13	Pending

### Description

`uniswapV2Router.addLiquidityETH{value: ethAmount}(address(this), tokenAmount, 0, 0, owner(), block.timestamp);`

The `addLiquidity` function calls the `uniswapV2Router.addLiquidityETH` function with the `to` address specified as `owner()` for acquiring the generated LP tokens from the AIB-WBNB pool.

As a result, over time the `_owner` address will accumulate a significant portion of LP tokens. If the `_owner` is an EOA (Externally Owned Account), mishandling of its private key can have devastating consequences to the project as a whole.

### Remediation

We advise the `to` address of the `uniswapV2Router.addLiquidityETH` function call to be replaced by the contract itself, i.e. `address(this)`, and to restrict the management of the LP tokens within the scope of the contract's business logic. This will also protect the LP tokens from being stolen if the `_owner` account is compromised. In general, we strongly recommend centralized privileges or roles in the protocol to be improved via a decentralized mechanism or via smart-contract based accounts with enhanced security practices, f.e. Multisignature wallets.

1. Indicatively, here are some feasible solutions that would also mitigate the potential risk:
2. Time-lock with reasonable latency, i.e. 48 hours, for awareness on privileged operations;
3. Assignment of privileged roles to multi-signature wallets to prevent single point of failure due to the private key;

Introduction of a DAO / governance / voting module to increase transparency and user involvement

### Project Action

liquidity is going to `poolAddress = 0xE54c415FE61167468F7EED70C7cBda09Ce995552;`



## AIB-05 | Missing Event Emission.

Category	Severity	Location	Status
Volatile Code	 Major	contract.sol: 659, 14	 Pending

### Description



Detected missing events for critical arithmetic parameters. There are functions that have no event emitted, so it is difficult to track off-chain changes. The linked code does not create an event for the transfer.

### Remediation

Emit an event for critical parameter changes. It is recommended emitting events for the sensitive functions that are controlled by centralization roles.



## AIB-06 | Conformance with Solidity Naming Conventions.

Category	Severity	Location	Status
Coding Style	 Minor	contract.sol: 294,14	 Pending

### Description

Solidity defines a naming convention that should be followed. Rule exceptions: Allow constant variable name/symbol/decimals to be lowercase. Allow \_ at the beginning of the mixed\_case match for private variables and unused parameters.

```
SellFee  
BuyFee
```

### Remediation

Follow the Solidity naming convention.

<https://docs.soliditylang.org/en/v0.4.25/style-guide.html#naming-convention>





## AIB-07 | State Variables could be Declared Constant.

Category	Severity	Location	Status
Coding Style	 Minor	contract.sol: 14,13	 Pending

### Description

Constant state variables should be declared constant to save gas.

```
poolAddress  
maxSupply  
marketingAddress  
airdropAddress  
developmentAddress
```



### Remediation

Add the constant attribute to state variables that never changes.

<https://docs.soliditylang.org/en/latest/contracts.html#constant-state-variables>



## AIB-10 | Initial Token Distribution.

Category	Severity	Location	Status
Centralization / Privilege	 Major	contract.sol: 53,6	 Pending

### Description

All of the AI BUNNY tokens are sent to the contract deployer when deploying the contract. This could be a centralization risk as the deployer can distribute tokens without obtaining the consensus of the community.

### Remediation



We recommend the team to be transparent regarding the initial token distribution process, and the team shall make enough efforts to restrict the access of the private key.

### Project Action

Token Distribution goes to `_mint(_msgSender(), maxSupply);`



## AIB-11 | The use of setHoldTime can lead to a pause trade or honeyPot State.

Category	Severity	Location	Status
Security	 Critical	contract.sol: 103,14	 Pending

### Description

When executed after launch this can lead to a state of honeyPot during the HoldTime. This can be a problem for Investors.



### Remediation

Consider Removing setHoldTime

### Project Action



## AIB-13 | Extra Gas Cost For User.

Category	Severity	Location	Status
Logical Issue	 Informational	contract.sol: 236, 8	 Pending

### Description

The user may trigger a tax distribution during the transfer process, which will cost a lot of gas and it is unfair to let a single user bear it.



### Remediation

We advise the client to make the owner responsible for the gas costs of the tax distribution.

### Project Action



## AIB-14 | Unnecessary Use Of SafeMath

Category	Severity	Location	Status
Logical Issue	 Medium	contract.sol: 32, 11	 Pending

### Description

The SafeMath library is used unnecessarily. With Solidity compiler versions 0.8.0 or newer, arithmetic operations

will automatically revert in case of integer overflow or underflow.

library SafeMath {

An implementation of SafeMath library is found.

using SafeMath for uint256;

SafeMath library is used for uint256 type in contract.

\_balances[recipient] = \_balances[recipient].add(amount);

magnifiedDividendPerShare = magnifiedDividendPerShare.add(  
(amount).mul(magnitude) / totalSupply()

);

Note: Only a sample of 2 SafeMath library usage in this contract (out of 14) are shown above.

### Remediation

We advise removing the usage of SafeMath library and using the built-in arithmetic operations provided by the

Solidity programming language

### Project Action



# Social Media Checks

Social Media	URL	Result
Twitter	<a href="https://twitter.com/BunnyAI6">https://twitter.com/BunnyAI6</a>	Pass
Other	<a href="https://medium.com/@aibunnyfashion/ai-bunny-lite-paper-167aee4da998">https://medium.com/@aibunnyfashion/ai-bunny-lite-paper-167aee4da998</a>	Pass
Website	<a href="https://aibunny.fashion/index.html">https://aibunny.fashion/index.html</a>	Pass
Telegram	<a href="https://t.me/AIBunny_Community">https://t.me/AIBunny_Community</a>	Pass

We recommend to have 3 or more social media sources including a completed working websites.

**Social Media Information Notes:**

**Auditor Notes:** undefined

**Project Owner Notes:**



# Assessment Results

## Score Results

Review	Score
Overall Score	71/100
Auditor Score	50/100
Review by Section	Score
Manual Scan Score	27/35
SWC Scan Score	36 /37
Advance Check Score	8 /28

The Following Score System Has been Added to this page to help understand the value of the audit, the maximum score is 100, however to attain that value the project must pass and provide all the data needed for the assessment. Our Passing Score has been changed to 80 Points, if a project does not attain 80% is an automatic failure. Read our notes and final assessment below.

## Audit Fail



## Assessment Results

### Important Notes:

- Several Issues found on contract.
- During Simulation the HoldTime honeyPot the contract.
- We Recommend review and fix the issues in the contract.

**Auditor Score =50**  
**Audit Fail**





# Appendix

## Finding Categories

### Centralization / Privilege

Centralization / Privilege findings refer to either feature logic or implementation of components that act against the nature of decentralization, such as explicit ownership or specialized access roles in combination with a mechanism to relocate funds.

### Gas Optimization

Gas Optimization findings do not affect the functionality of the code but generate different, more optimal EVM opcodes resulting in a reduction on the total gas cost of a transaction.

### Logical Issue

Logical Issue findings detail a fault in the logic of the linked code, such as an incorrect notion on how block.timestamp works.

### Control Flow

Control Flow findings concern the access control imposed on functions, such as owner-only functions being invoke-able by anyone under certain circumstances.

### Volatile Code

Volatile Code findings refer to segments of code that behave unexpectedly on certain edge cases that may result in a vulnerability.

### Coding Style

Coding Style findings usually do not affect the generated byte-code but rather comment on how to make the codebase more legible and, as a result, easily maintainable.

### Inconsistency

Inconsistency findings refer to functions that should seemingly behave similarly yet contain different code, such as a constructor assignment imposing different requirements on the input variables than a setter function.

### Coding Best Practices

ERC 20 Coding Standards are a set of rules that each developer should follow to ensure the code meets a set of criteria and is readable by all the developers.



## Disclaimer

CFGNINJA has conducted an independent security assessment to verify the integrity of and highlight any vulnerabilities or errors, intentional or unintentional, that may be present in the reviewed code for the scope of this assessment. This report does not constitute agreement, acceptance, or advocacy for the Project, and users relying on this report should not consider this as having any merit for financial advice in any shape, form, or nature. The contracts audited do not account for any economic developments that the Project in question may pursue, and the veracity of the findings thus presented in this report relate solely to the proficiency, competence, aptitude, and discretion of our independent auditors, who make no guarantees nor assurance that the contracts are entirely free of exploits, bugs, vulnerabilities or deprecation of technologies.

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