



# CFG NINJA AUDITS

Security Assessment

## Happy Cat Token Token

November 27, 2023

Audit Status: Pass





Audit Edition: Standard













POWERED BY  
**BLADE POOL**

# Risk Analysis

















## Classifications of Manual Risk Results

Classification	Description
 Critical	Danger or Potential Problems.
 High	Be Careful or Fail test.
 Low	Pass, Not-Detected or Safe Item.
 Informational	Function Detected

## Manual Code Review Risk Results

Contract Privilege	Description
 Buy Tax	4%
 Sale Tax	6%
 Cannot Buy	Pass
 Cannot Sale	Pass
 Max Tax	10%
 Modify Tax	Yes
 Fee Check	Pass
 Is HoneyPot?	Not Detected
 Trading Cooldown	Not Detected
 Can Pause Trade?	Not Detected



Contract Priviledge	Description
 Pause Transfer?	Not Detected
 Max Tx?	Fail
 Is Anti Whale?	Detected
 Is Anti Bot?	Not Detected
 Is Blacklist?	Not Detected
 Blacklist Check	Pass
 is Whitelist?	No Detected
 Can Mint?	Pass
 Is Proxy?	Not Detected
 Can Take Ownership?	Not Detected
 Hidden Owner?	Not Detected
 Owner	0xcD84598ea7813387371f99A83395cE7436F81c6d
 Self Destruct?	Not Detected
 External Call?	Not Detected
 Other?	Not Detected
 Holders	4
 Auditor Confidence	Medium
 KYC Completed	No

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

## Token Summary

Parameter	Result
Address	0x3a713C19131667F4e9A56c44f896844A9845764c
Name	Happy Cat Token
Token Tracker	Happy Cat Token (HCT)
Decimals	18
Supply	88,000,000,000
Platform	Binance Smart Chain
compiler	v0.8.1+commit.df193b15
Contract Name	HappyCatToken
Optimization	Yes with 200 runs
LicenseType	MIT
Language	Solidity
Codebase	<a href="https://bscscan.com/token/0x3a713C19131667F4e9A56c44f896844A9845764c#code">https://bscscan.com/token/0x3a713C19131667F4e9A56c44f896844A9845764c#code</a>
Payment Tx	Corporate



## Main Contract Assessed Contract Name

Name	Contract	Live
Happy Cat Token	0x3a713C19131667F4e9A56c44f896844A9845764c	Yes

## TestNet Contract Assessed Contract Name

Name	Contract	Live
Happy Cat Token	0x873265ab51bc11684a84c8f0927af6385e26feca	Yes

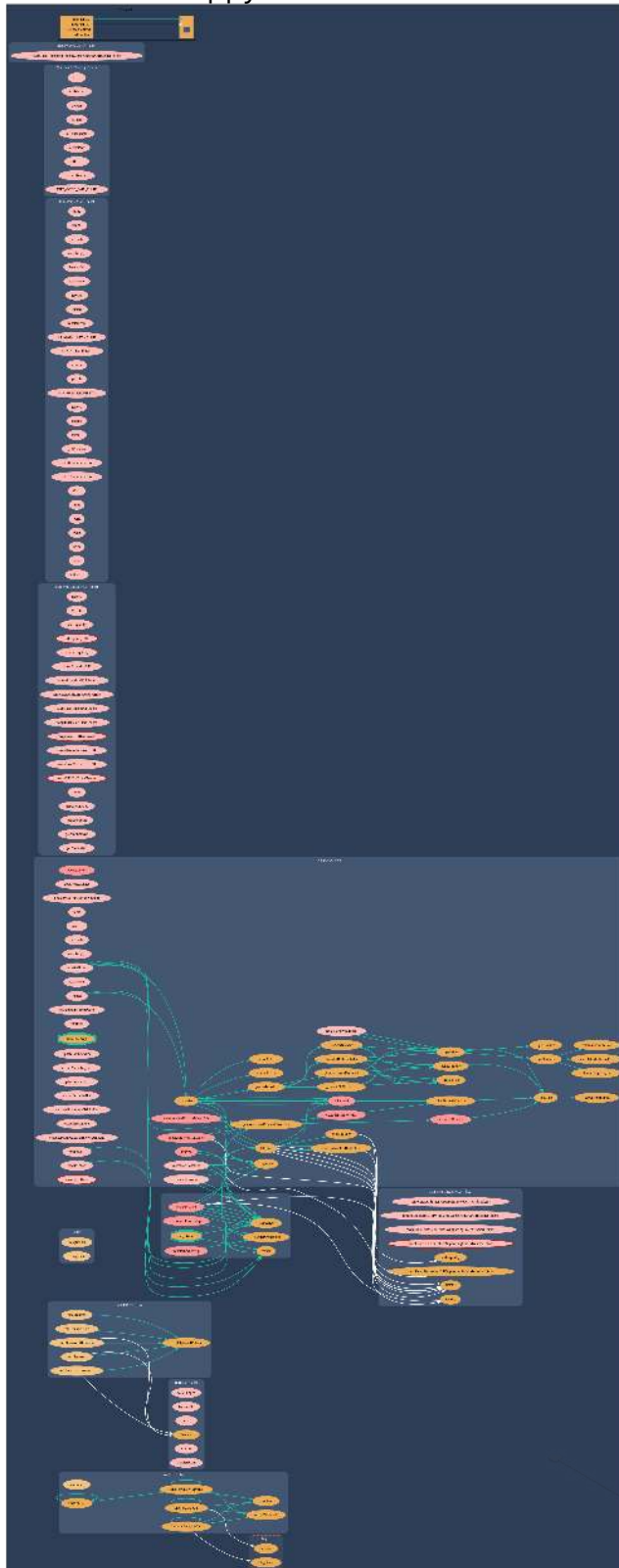
## Solidity Code Provided

SolID	File Sha-1	FileName
HCT	da39a3ee5e6b4b0d3255bfef95601890afd80709	HCT.sol



# Call Graph

The contract for Happy Cat Token has the following call graph structure.



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





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





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

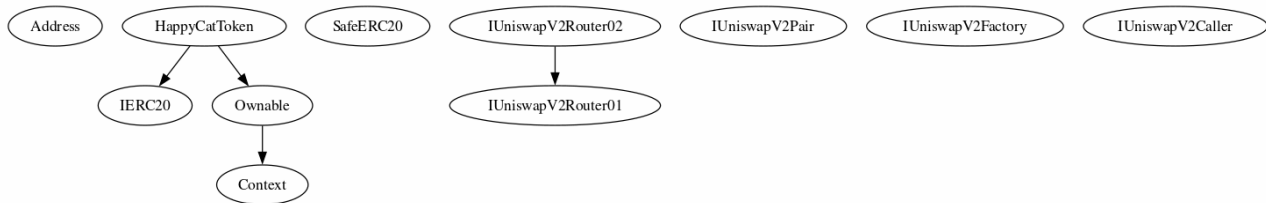
#### References:

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





# Inheritance

The contract for Happy Cat Token has the following inheritance structure.



## HCT-02 | Function Visibility Optimization.

Category	Severity	Location	Status
Gas Optimization	 Informational	HCT.sol: L: 950 C: 14, L: 1377 C: 14, L: 1390 C: 14, L: 1513 C: 14	 Detected

### Description

The following functions are declared as public and are not invoked in any of the contracts contained within the projects scope:

Function Name	Parameters	Visibility
updateUniswapV2Router	address newAddress	public
excludeFromReward	address account	public
includeInReward	address account	public
setAutomatedMarketMakerPair	address account	public

The functions that are never called internally within the contract should have external visibility

### Recommendation

We advise that the function's visibility specifiers are set to external, and the array-based arguments change their data location from memory to calldata, optimizing the gas cost of the function.



### Mitigation

### References:

external vs public best practices.



## HCT-03 | Lack of Input Validation.

Category	Severity	Location	Status
Volatile Code	 Low	HCT.sol: L: 1513 C: 14, L: 1701 C: 14	 Detected

### Description

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

The given input is missing the check for the onlyOwners need to be revisited for require..

### Recommendation

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. onlyOwners need to be revisited for require..



### Mitigation

### References:

Zero Address check. The danger!!!



## HCT-05 | Missing Event Emission.

Category	Severity	Location	Status
Volatile Code	 Low	HCT.sol: L: 1513 C: 14, L: 1701 C: 14	 Detected

### 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.

### Recommendation

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



### Mitigation

### References:

Understanding Events in Smart Contracts



## HCT-11 | updateOrionWallet.

Category	Severity	Location	Status
Optimizati on	 High	HCT.sol: L: 1491 C: 14	 Detected

### Description

There seems to be a second wallet for tokens.

### Recommendation

### Mitigation



### References:

Writing Clean Code for Solidity: Best Practices for Solidity Development





## HCT-19 | Centralization Privileges of HCT

Category	Severity	Location	Status
Coding Style	 Medium	HCT.sol: L: 0 C: 0	 Detected

### Description

Centralized Privileges are found on the following functions.

Function Name	Parameters	Visibility
renounceOwnership		Public
transferOwnership	address newOwner	Public
updateUniswapV2Router	address newAddress	public
updateMaxWallet	uint256 _maxWallet	external
updateMaxTransactionAmount	uint256 _maxTransactionAmount	external
excludeFromReward	address account	public
includeInReward	address account	public
updateLiquidityFee	uint16 _sellLiquidityFee, uint16 _buyLiquidityFee	external
updateMarketingFee	uint16 _sellMarketingFee, uint16 _buyMarketingFee	external
updateRewardFee	uint16 _sellRewardFee, uint16 _buyRewardFee	external
updateOrionWallet	address _orionWallet, bool _isMarketingFeeBaseToken	external
updateMinAmountToTakeFee	uint256 _minAmountToTakeFee	external
setAutomatedMarketMakerPair	address account	public



Function Name	Parameters	Visibility
excludeFromFee	address account, bool isEx	external
excludedFromMaxTransactionAmount	address account, bool isEx	external
rescueETH		external
rescueToken	address token	external

## Recommendation

Inheriting from Ownable and calling its constructor on yours ensures that the address deploying your contract is registered as the owner. The onlyOwner modifier makes a function revert if not called by the address registered as the owner. It is important that deployer or owner secure the credentials that has owner privilege to ensure the security of the project.

## Mitigation

### References:






[Guide to Ownership and Access Control in Solidity](#)

[Writing Clean Code for Solidity: Best Practices for Solidity Development](#)








# 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.
 High	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
 Low	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	0	0	0
 High	0	0	0
 Medium	2	0	0
 Low	2	0	0
 Informational	1	0	0
Total	5	0	0



# Social Media Checks

Social Media	URL	Result
Twitter	http://twitter.com/HappyCat_Token	Pass
Other		Fail
Website	http://happycattoken.com/	Pass
Telegram	http://twitter.com/HappyCat_Token	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	81/100
Auditor Score	80/100
Review by Section	Score
Manual Scan Score	20
SWC Scan Score	35
Advance Check Score	26

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 Passed



## Assessment Results

### Important Notes:

- No issues or vulnerabilities were found.
- The contract has buy and sale tax as well as max wallet holding.
- Always DYOR, project code needs some improvements as described in the assessment.

**Auditor Score =80**  
**Audit Passed**



# 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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