



# Smart Contract Audit

FOR

Happy

DATED : 30 May 23'



# AUDIT SUMMARY

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**Project name – Happy**

**Date:** 30 May, 2023

**Scope of Audit-** Audit Ace was consulted to conduct the smart contract audit of the solidity source codes.

**Audit Status:** **Passed**

## Issues Found

Status	Critical	High	Medium	Low	Suggestion
Open	0	0	0	0	0
Acknowledged	0	0	0	0	0
Resolved	0	0	0	0	0

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# USED TOOLS

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## Tools:

### 1- Manual Review:

A line by line code review has been performed by audit ace team.

**2- BSC Test Network:** All tests were conducted on the BSC Test network, and each test has a corresponding transaction attached to it. These tests can be found in the "Functional Tests" section of the report.

### 3- Slither :

The code has undergone static analysis using Slither.

### Testnet version:

The tests were performed using the contract deployed on the BSC Testnet, which can be found at the following address:

<https://testnet.bscscan.com/token/0x32ac41dCE80eb383E71E94dD203082177ecBD0f2>

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# Token Information

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**Token Name :** Happy

**Token Symbol:** HAPPY

**Decimals:** 9

**Token Supply:** 888.8888888888

**Token Address:**

0xdA58db98b138a6Eb5683cb89Ef3464C20621D893

**Checksum:**

84c0a8f3e6360e9a865371f9db56e473a4832d1a

**Owner:**

0xE65d5CdCc1BeB2A54Cfc49A561DC3AC766331353  
(at time of writing the audit)

**Deployer:**

0xE65d5CdCc1BeB2A54Cfc49A561DC3AC766331353

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# TOKEN OVERVIEW

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## **Fees:**

Buy Fees: 0-10%

Sell Fees: 0-10%

Transfer Fees: 0-10%

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**Fees Privilege:** Owner

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**Ownership:** yes

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**Minting:** No mint function

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**Max Tx Amount/ Max Wallet Amount:** No

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**Blacklist:** No

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**Other Privileges:**Initial distribution of the tokens

- excluding from fees
  - including in fees
  - modyfting fees
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# AUDIT METHODOLOGY

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The auditing process will follow a routine as special considerations by Auditace:

- Review of the specifications, sources, and instructions provided to Auditace to make sure the contract logic meets the intentions of the client without exposing the user's funds to risk.
  - Manual review of the entire codebase by our experts, which is the process of reading source code line-by-line in an attempt to identify potential vulnerabilities.
  - Specification comparison is the process of checking whether the code does what the specifications, sources, and instructions provided to Auditace describe.
  - Test coverage analysis determines whether the test cases are covering the code and how much code is exercised when we run the test cases.
  - Symbolic execution is analysing a program to determine what inputs cause each part of a program to execute.
  - Reviewing the codebase to improve maintainability, security, and control based on the established industry and academic practices.
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# VULNERABILITY CHECKLIST

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- |                                    |                               |
|------------------------------------|-------------------------------|
| ✓ Return values of low-level calls | ✓ Gasless Send                |
| ✓ Private modifier                 | ✓ Using block.timestamp       |
| ✓ Multiple Sends                   | ✓ Re-entrancy                 |
| ✓ Using Suicide                    | ✓ Tautology or contradiction  |
| ✓ Gas Limitand Loops               | ✓ Timestamp Dependence        |
| ✓ Address hardcoded                | ✓ Revert/require functions    |
| ✓ Exception Disorder               | ✓ Use of tx.origin            |
| ✓ Using inline assembly            | ✓ Integer overflow/underflow  |
| ✓ Divide before multiply           | ✓ Dangerous strict equalities |
| ✓ Missing Zero Address Validation  | ✓ Using SHA3                  |
| ✓ Compiler version not fixed       | ✓ Using throw                 |
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# CLASSIFICATION OF RISK

## Severity

## Description

◆ Critical	These vulnerabilities could be exploited easily and can lead to asset loss, data loss, asset, or data manipulation. They should be fixed right away.
◆ High-Risk	A vulnerability that affects the desired outcome when using a contract, or provides the opportunity to use a contract in an unintended way.
◆ Medium-Risk	A vulnerability that could affect the desired outcome of executing the contract in a specific scenario.
◆ Low-Risk	A vulnerability that does not have a significant impact on possible scenarios for the use of the contract and is probably subjective.
◆ Gas Optimization / Suggestion	A vulnerability that has an informational character but is not affecting any of the code.

## Findings

### Severity

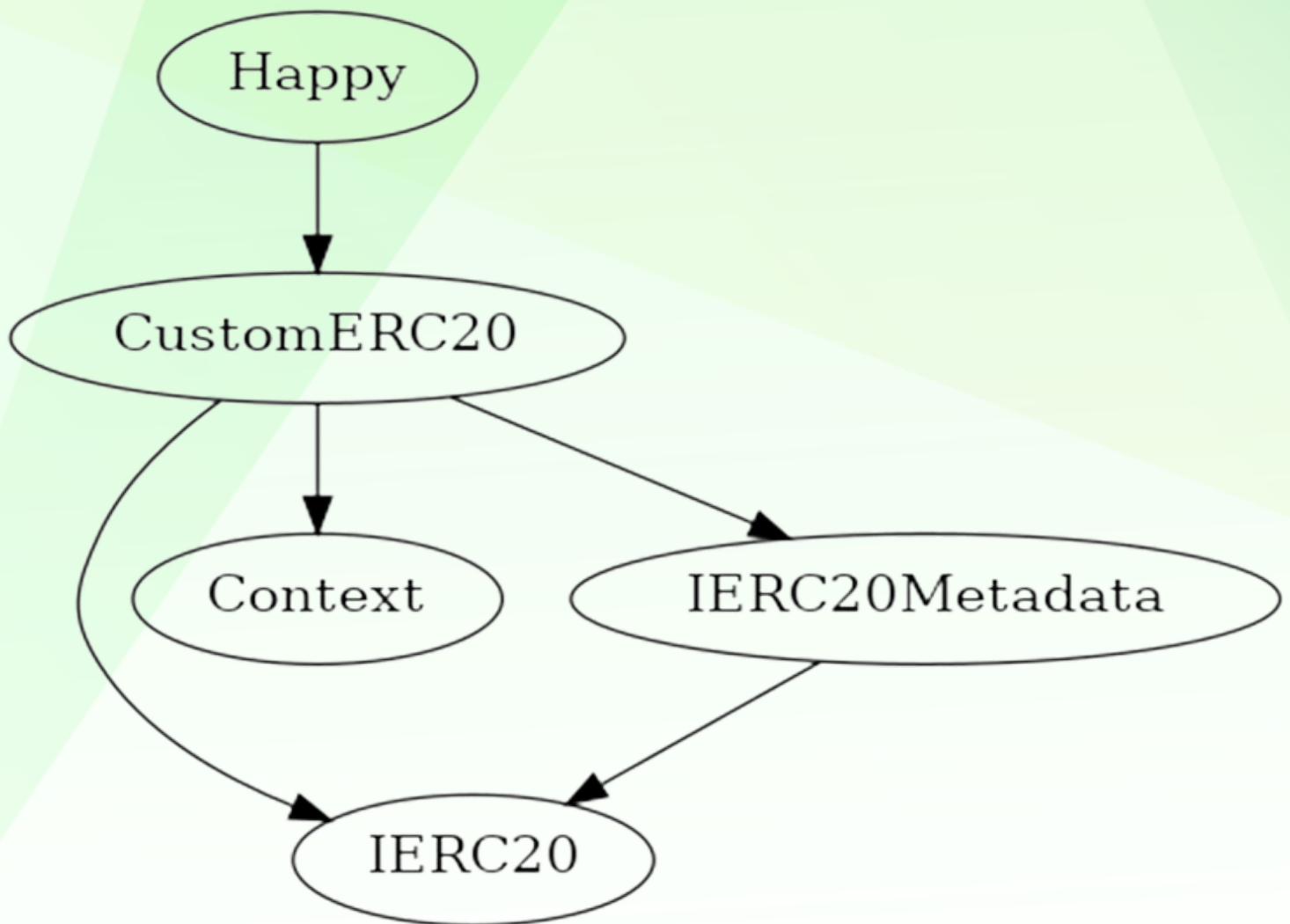
### Found

◆ Critical	0
◆ High-Risk	0
◆ Medium-Risk	0
◆ Low-Risk	0
◆ Gas Optimization / Suggestions	0



# INHERITANCE TREE

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# POINTS TO NOTE

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- Owner is not able to change buy/sell/transfer fees higher than 10%
  - Owner is not able to blacklist an arbitrary address
  - Owner is not able to disable trades
  - Owner is not able to limit buy/sell/transfer/wallet amounts
  - Owner is not able to mint new tokens
-

# CONTRACT ASSESMENT

Contract	Type	Bases			
└─	**Function Name**	**Visibility**	**Mutability**	**Modifiers**	
**IERC20**   Interface					
└─	totalSupply	External	!	NO	!
└─	balanceOf	External	!	NO	!
└─	transfer	External	!	NO	!
└─	allowance	External	!	NO	!
└─	approve	External	!	NO	!
└─	transferFrom	External	!	NO	!
**Context**   Implementation					
└─	_msgSender	Internal	🔒		
└─	_msgData	Internal	🔒		
**IERC20Metadata**   Interface   IERC20					
└─	name	External	!	NO	!
└─	symbol	External	!	NO	!
└─	decimals	External	!	NO	!
**CustomERC20**   Implementation   Context, IERC20, IERC20Metadata					
└─	changeMarketingAddress	Public	!	NO	!
└─	changeMarketingFee	Public	!	NO	!
└─	excludeFromFee	Public	!	NO	!
└─	rescueETH	Public	!	NO	!
└─	rescueAnyerc20Tokens	Public	!	NO	!
└─	<Constructor>	Public	!	NO	!
└─	name	Public	!	NO	!
└─	symbol	Public	!	NO	!
└─	decimals	Public	!	NO	!
└─	totalSupply	Public	!	NO	!
└─	balanceOf	Public	!	NO	!
└─	transfer	Public	!	NO	!
└─	allowance	Public	!	NO	!
└─	approve	Public	!	NO	!
└─	transferFrom	Public	!	NO	!
└─	increaseAllowance	Public	!	NO	!
└─	decreaseAllowance	Public	!	NO	!
└─	_transfer	Internal	🔒		
└─	_mint	Internal	🔒		
└─	_burn	Internal	🔒		
└─	_approve	Internal	🔒		



# CONTRACT ASSESMENT

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```
| L | _beforeTokenTransfer | Internal | 🔒 | 🔴 | |  
| L | _afterTokenTransfer | Internal | 🔒 | 🔴 | |  
|||||  
| **Happy** | Implementation | CustomERC20 |||  
| L | <Constructor> | Public | ! | 🔴 | CustomERC20 |
```

## ### Legend

Symbol	Meaning
:-----: -----	
🔴	Function can modify state
💰	Function is payable



# STATIC ANALYSIS

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```
Happy.constructor(string,string,uint256).name (contracts/Token.sol#583) shadows:
- CustomERC20.name() (contracts/Token.sol#238-240) (function)
- IERC20Metadata.name() (contracts/Token.sol#129) (function)
Happy.constructor(string,string,uint256).symbol (contracts/Token.sol#584) shadows:
- CustomERC20.symbol() (contracts/Token.sol#246-248) (function)
- IERC20Metadata.symbol() (contracts/Token.sol#134) (function)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#local-variable-shadowing

CustomERC20._transfer(address,address,uint256) (contracts/Token.sol#424-464) compares to a boolean constant:
-marketingFee == 0 || isExcludedFromFee[sender] == true || isExcludedFromFee[recipient] == true (contracts/Token.sol#443-445)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#boolean-equality

Context._msgData() (contracts/Token.sol#113-115) is never used and should be removed
CustomERC20._burn(address,uint256) (contracts/Token.sol#498-513) is never used and should be removed
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#dead-code

Pragma version^0.8.17 (contracts/Token.sol#8) necessitates a version too recent to be trusted. Consider deploying with 0.6.12/0.7.6/0.8.16
solc-0.8.20 is not recommended for deployment
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#incorrect-versions-of-solidity

Parameter CustomERC20.changeMarketingAddress(address)._newAddr (contracts/Token.sol#184) is not in mixedCase
Parameter CustomERC20.rescueAnyerc20Tokens(address,address,uint256)._tokenAddr (contracts/Token.sol#208) is not in mixedCase
Parameter CustomERC20.rescueAnyerc20Tokens(address,address,uint256)._to (contracts/Token.sol#209) is not in mixedCase
Parameter CustomERC20.rescueAnyerc20Tokens(address,address,uint256)._amount (contracts/Token.sol#210) is not in mixedCase
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#conformance-to-solidity-naming-conventions
```

**Result => A static analysis of contract's source code has been performed using slither,  
No major issues were found in the output**

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# FUNCTIONAL TESTING

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**Router (PCS V2):**

**0xD99D1c33F9fC3444f8101754aBC46c52416550D1**

**1- Adding liquidity (passed):**

<https://testnet.bscscan.com/tx/0x49cfb47bd2ebc94341d7122805dd31cd29a0f818155c51d8d9f5b0b88b4d4a61>

**2- Buying (0% tax) (passed):**

<https://testnet.bscscan.com/tx/0xb94c2fccde903e871038cbb4a922faa57a5a8e95693e926301437ff6e05a60b0>

**3- Selling (0% tax) (passed):**

<https://testnet.bscscan.com/tx/0xbe715f898afbf770c7b9e9b8cbad54d47795ff9c79053ad4481c7de95e8e7e9f>

**4- Transferring 0% tax) (passed):**

<https://testnet.bscscan.com/tx/0x6d2ebf2652891fe1bf3110f2d6798c4356dd6a6a814783506c12b4bd79051c6d>

**5- Buying when not excluded from fees (0-10% tax) (passed):**

<https://testnet.bscscan.com/tx/0x856066f130c2930bc736115bef0089e6b86e416c5290a759c96ebc46d006901d>

**6- Selling when not excluded from fees (0-10% tax) (passed):**

<https://testnet.bscscan.com/tx/0x1553f52f42a4c544d7b8ff8500641dbdc8bcfc9dc276c115acf2c330f904bf14>

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# FUNCTIONAL TESTING

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**7- Transferring when not excluded from fees (0-10% tax) (passed):**

<https://testnet.bscscan.com/tx/0x2099ac860f6e18c235e9b41e68d48f3d8dc5b2ee8421fb90b954723afc9a7eb9>



# MANUAL TESTING

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**No Issues Found**

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# ABOUT AUDITACE

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We specialize in providing thorough and reliable audits for Web3 projects. With a team of experienced professionals, we use cutting-edge technology and rigorous methodologies to evaluate the security and integrity of blockchain systems. We are committed to helping our clients ensure the safety and transparency of their digital assets and transactions.



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