HackSafe

Smart Contract Security Audit Report

Dentist Coin

April **2022**

Security Status

★ ★ ★ ★ ★

www.hacksafe.io

Audit Details

Audited project
DentistCoin

Deployer address
0x0Be359427d9715E3aDC9AAac397b84f4ab42caF1

Client contacts
Dentist Coin team

Blockchain
Binance smartchain

Website
www.dentistcoin.com

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

HeckSafe was commissioned by DentistCoin to perform an audit of smart contracts:

- https://bscscan.com/token/0x7421024f6cd083502742fa4202295fc688567a30

The purpose of the audit was to achieve the following:

- Ensure that the smart contract functions as intended.
- Identify potential security issue 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 03.04.2022

Contract name	: DentistCoin
Contract address	: 0x7421024F6cd083502742FA4202295Fc688567a30
Total supply	: 921 million (Fixed)
Token ticker	: DEN
Decimals	: 9
Network	: BSC
Transactions count	: 13
Token Holders	: 8 addresses
Total fees	: 5 (RefelectionFee= 2%, CharityFees = 3%)
Contract deployer address	: 0x0Be359427d9715E3aDC9AAac397b84f4ab42caF1
Owner address	: 0x0Be359427d9715E3aDC9AAac397b84f4ab42caF1

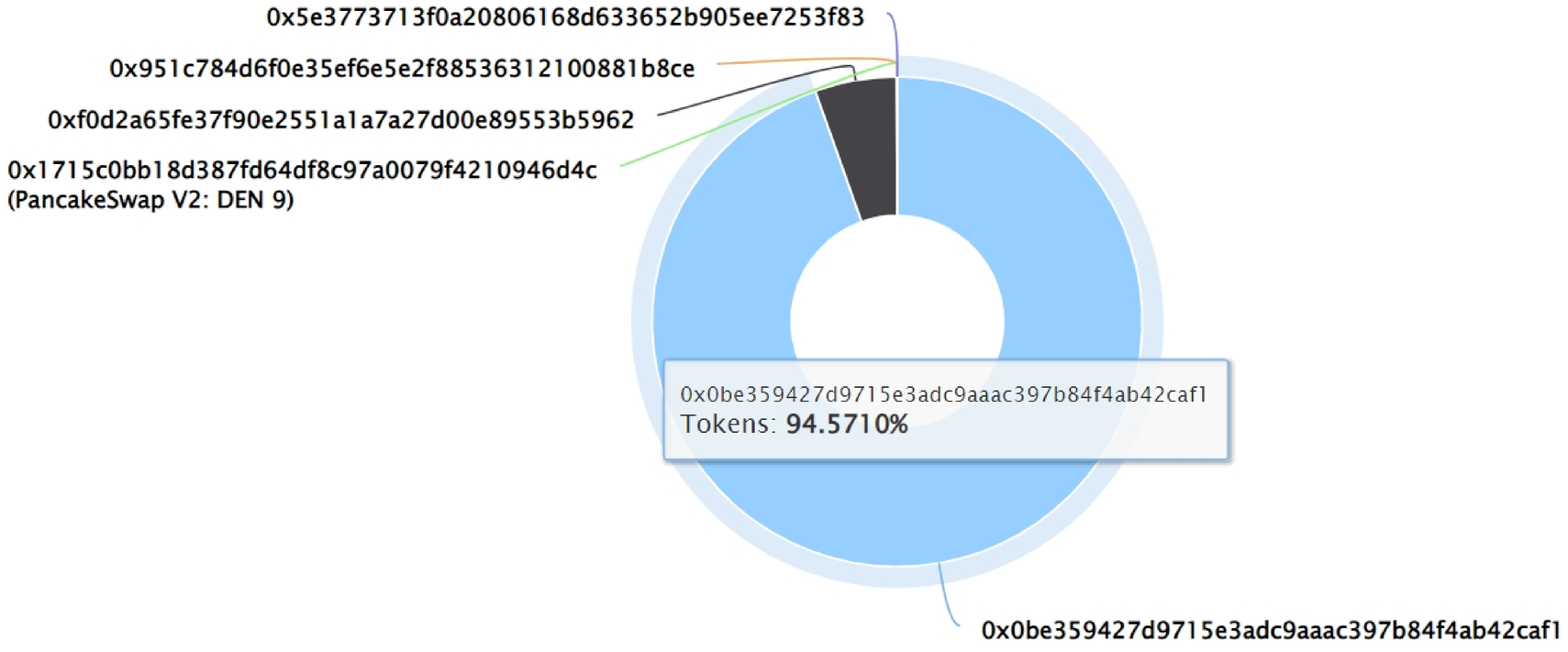
Dentist Coin Token Distribution

The top 100 holders collectively own 100.00% (920,999,990.23 Tokens) of DentistCoin

Token Total Supply: 921,000,000.00 Token | Total Token Holders: 8

DentistCoin Top 100 Token Holders

Source: BscScan.com



Dentist Coin Top 8 Token Holders

(A total of 920,999,990.23 tokens held by the top 100 accounts from the total supply of 921,000,000.00 token)

Rank	Address	Quantity (Token)	Percentage
1	0x0be359427d9715e3adc9aaac397b84f4ab42caf1	870,998,485.05259804	94.5710%
2	0xf0d2a65fe37f90e2551a1a7a27d00e89553b5962	50,000,000	5.4289%
3	PancakeSwap V2: DEN 9	1,416.802212282	0.0002%
4	0x951c784d6f0e35ef6e5e2f88536312100881b8ce	39.037272207	0.0000%
5	0x5e3773713f0a20806168d633652b905ee7253f83	22.492433082	0.0000%
6	0x6d96254e563907d0b73a5cbaadeea761a20cd8cb	14.707508626	0.0000%
7	0x2be87ad70cf11ea294d7c42044b5b8277a3e4874	6.117373617	0.0000%
8	0xcd88d7573818abe26b02f4bf19c4db44aff3c591	6.024320315	0.0000%

Contract functions details

+ Context
    -[int]_msgsender

+ [Int] IERC20
    -[Ext]totalSupply
    -[Ext]balanceOf
    -[Ext]transfer#
    -[Ext]allowance
    -[Ext]approve#
    -[Ext]transferFrom#

+ [Lib] SafeMath
    -[Int] add
    -[Int] sub
    -[Int] sub
    -[Int] mul
    -[Int] div
    -[Int] div

+Ownable(Context)
    <Constructor>#
    -[Pub] owner
    -[Pub] renounceOwnership#
        -Modifier: onlyOwner

+Dentistcoin (Context, IERC20, Ownable)
    <Constructor>#
    -[Pub] name
    -[Pub] symbol
    -[Pub] decimals
    -[Pub] totalsupply
    -[Pub] balanceOf
    -[Pub] transfer#
    -[Pub] allowance
    -[Pub] approve#
    -[Ext] updateCharityAddress#
      -Modifier: onlyOwner
    -[Ext] getCharityAddress
    -[Pub] excludeFromFee#
      -Modifer: onlyOwner

Contract functions details

-[Pub] isExcludedFromFee
-[Pub] includeInFee#
  -Modifer: onlyOwner
-[Pub] transferFrom#
-[Pub] reflectionFromToken
-[Ext] setTaxFeePercent#
  -Modifer: onlyOwner
-[Ext] setCharityFeePercent#
  -Modifer: onlyOwner
-[Pvt] tokenFromReflection
-[Pvt] removeAllFee#
-[Pvt] restoreAllFee#
-[Pvt] _approve#
-[Pvt] _transfer#
-[Pvt] _tokenTransfer#
-[Pvt] _transferStandard#
-[Pvt] _takeCharity#
-[Pvt] _reflectFee#
-[Ext] receive $
-[Pvt] _getValues
-[Pvt] _getTValues
-[Pvt] _getRValues
-[Pvt] _getRate
-[Pvt] _getCurrentSupply

($) = payable function
= non-constant function

Issues Checking Status

No.	Title	Status
1.	Unlocked Compiler Version	Low issues
2.	Missing Input Validation	Low issues
3.	Race conditions and Reentrancy. Cross-function race conditions.	Passed
4.	Possible delays in data delivery	Passed
5.	Oracle calls.	Passed
6.	Timestamp dependence.	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.	Private use data leaks.	Passed
13.	Malicious Event log.	Passed
14.	Scoping and Declarations.	Passed
15.	Uninitialized storage pointers.	Passed
16.	Arithmetic accuracy.	Passed
17.	Design Logic.	Passed
18.	Safe Open Zeppelin contracts implementation and usage.	Passed
19.	Incorrect Naming State Variable	Passed

Security Issues

- **High Severity Issues**
  No high severity issue found.
- **Medium Severity Issues**
  No medium severity issue found.
- **Low Severity Issues**
  Two low severity issue found.

1. Unlocked Compiler Version.

- **Description**

  The contract utilizes an unlocked compiler version. An unlocked compiler version in the contract's source code permits the user to compile it at or above a particular version. This, in turn, leads to differences in the generated bytecode between compilations due to differing compiler version numbers. This can lead to ambiguity when debugging as compiler-specific bugs may occur in the codebase that would be difficult to identify over a span of multiple compiler versions rather than a specific one.

- **Recommendation**

  It is advisable that the compiler version is alternatively locked at the lowest version possible so that the contract can be compiled. For example, for version v0.8.0 the contract should contain the following line:

  pragma solidity 0.8.4;

2. Missing input validation

- **Description**

  The given input is missing the check for a non-zero address on locations line no. 145,201, 210,219.

- **Recommendation**

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

Security Issues

```
function excludeFromFee(address account) public onlyOwner() {
    require(address(0) != account, "ERC20: account is initialized to the zero address.");
    _isExcludedFromFee[account] = true;
    emit ExcludeFromFee(account);
}
```

```
constructor(address payable addr1) {
    require(address(0) != addr1, "ERC20: addr1 is initialized to the zero address.");
    _charityAddress = addr1;
    _rOwned[_msgSender()] = _rTotal;
    _isExcludedFromFee[owner()] = true;
    _isExcludedFromFee[address(this)] = true;
    _isExcludedFromFee[_charityAddress] = true;
    emit Transfer(address(0), _msgSender(), _tTotal);
}
```

```
function updateCharityAddress(address payable newCharity) external onlyOwner() returns(bool){
    require(address(0) != newCharity, "ERC20: newCharity is initialized to the zero address.");
    _charityAddress = newCharity;
    return true;
}
```

```
function includeInFee(address account) public onlyOwner() {
    require(address(0) != account, "ERC20: account is initialized to the zero address.");
    _isExcludedFromFee[account] = false;
    emit IncludeInFee(account);
}
```

Owner Privileges

Owner Privileges (in the period when the owner is not renounced) :

- DentistCoin Contract:
    - Owner can exclude or include other users in Fee deduction.
    - Owner can change value of Charity and Tax Fee.
    - Owner can update Charity wallet address.
    - Owner can renounce ownership.

Conclusion

Smart contract contains low severity issues!