HackSafe

Smart Contract Security Audit Report

Biswap

July 2022

Security Status

★★★★½

www.hacksafe.io

Audit Details

Audited project
Biswap

Deployer address
0xc6aF770101dA859d680E0829380748CCcD8F7984

Client contacts
Biswap team

Blockchain
Binance Smart Chain

Website
https://biswap.org/

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.

Procedure

Step 1 - In-Depth Manual Review

Manual line-by-line code reviews to ensure the logic behind each function is sound and safe from various attack vectors. This is the most important and lengthy portion of the audit process (as automated tools often cannot find the nuances that lead to exploits such as flash loan attacks).

Step 2 - Automated Testing

Simulation of a variety of interactions with your Smart Contract on a test blockchain leveraging a combination of automated test tools and manual testing to determine if any security vulnerabilities exist.

Step 3 – Leadership Review

The engineers assigned to the audit will schedule meetings with our leadership team to review the contracts, any comments or findings, and ask questions to further apply adversarial thinking to discuss less common attack vectors.

Step 4 - Resolution of Issues

Consulting with the team to provide our recommendations to ensure the code's security and optimize its gas efficiency, if possible. We assist project team's in resolving any outstanding issues or implementing our recommendations.

Step 5 - Published Audit Report

Boiling down results and findings into an easy-to-read report tailored to the project. Our audit reports highlight resolved issues and any risks that exist to the project or its users, along with any remaining suggested remediation measures. Diagrams are included at the end of each report to help users understand the interactions which occur within the project.

Background

HackSafe was commissioned by Biswap to perform an audit of smart contracts:

- https://bscscan.com/address/0x965f527d9159dce6288a2219db51fc6eef120dd1#code

The purpose of the audit was to achieve the

- Ensutre that the smart contract functions as intended.
- Identify potential security issues with the smart contract.

The information in this report should be 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.

Contract Details

Token contract details for 28.07.2022

Token Type	: BEP20
Contract name	: BSWToken
Contract address	: 0x965F527D9159dCe6288a2219DB51fc6Eef120dD1
Compiler version	: v0.6.12+commit.27d51765
Total supply	: 373,140,075.214453
Max supply	: 70,00,00,000
Token Ticker	: BSW
Decimals	: 18
Token Holders	: 140,974
Top 100 token holder's	: 97.62 %
Transactions count	: 21,292,773
Contract deployer address	: 0xc6aF770101dA859d680E0829380748CCcD8F7984
Owner address	: 0xf5d6fed0f4735ff2036ce4be535bd32e77dae9fe

Social profiles

Twitter Profile	: https://twitter.com/Biswap_DEX
Telegram Profile	: https://t.me/biswap
Coinmarketcap profile	: https://coinmarketcap.com/currencies/biswap/
Coingecko profile	: https://www.coingecko.com/en/coins/biswap/

Audit Summary

According to the standard audit assessment, Customer`s solidity smart contracts are “Secure”. This token contract does contain owner control, which do not make it fully decentralized as owner does have control over smart contract.

Insecure	Poor	Secure	Well-secured

You are here 

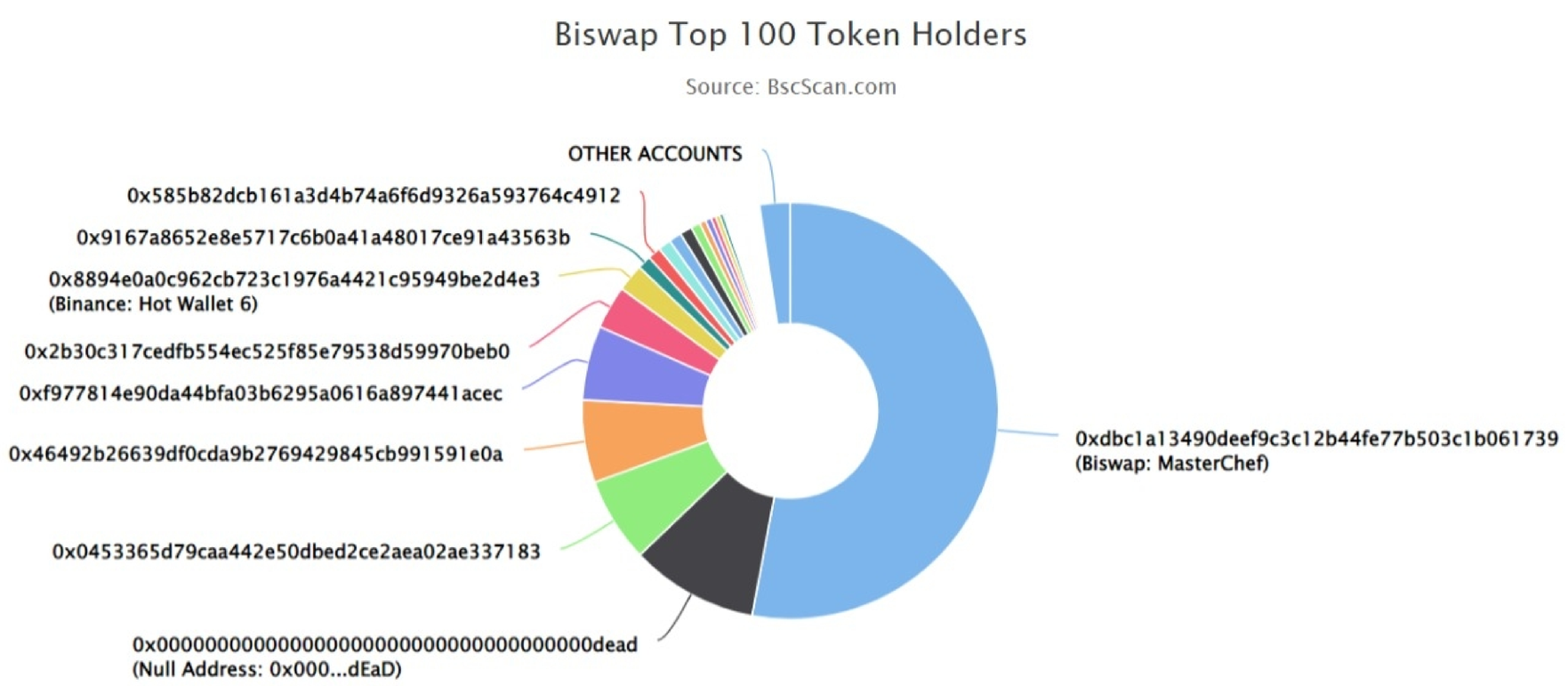
We used various tools like Slither, Mythril and Remix IDE. At the same time this finding is based on critical analysis of the manual audit. All issues found during automated analysis were manually reviewed and applicable vulnerabilities are presented in the issues checking status.

We found 0 critical, 0 high, 0 medium and 2 low and some very low-level issues. These issues are not critical ones.

Biswap Token Distribution

The top 100 holders collectively own 97.62% (364,276,033.67 Tokens) of Biswap

Token Total Supply: 373,148,243.01 Token | Total Token Holders: 140,974



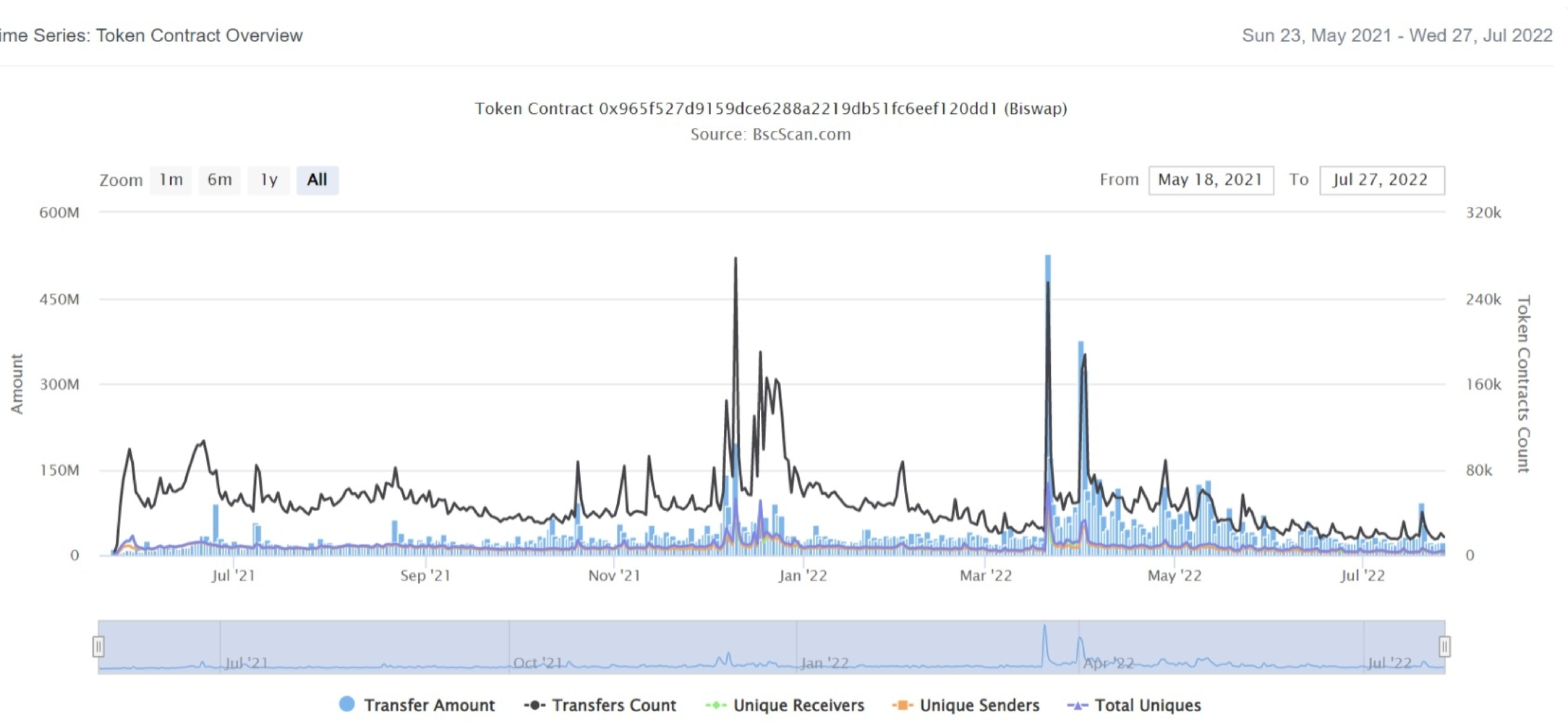
Biswap Top 20 Token Holders

(A total of 364,276,033.67 tokens held by the top 100 accounts from the total supply of 373,148,243.01 token)

Rank	Address	Quantity (Token)	Percentage
1	Biswap: MasterChef	197,609,772.846187834501702509	52.9574%
2	Null Address: 0x000...dEaD	36,938,270.319252096602280066	9.8991%
3	0x0453365d79caa442e50dbed2ce2aea02ae337183	24,568,529.90623236	6.5841%
4	0x46492b26639df0cda9b2769429845cb991591e0a	23,872,407.560112260701159787	6.3976%
5	0xf977814e90da44bfa03b6295a0616a897441acec	21,571,183.507702805176134244	5.7809%
6	0x2b30c317cedfb554ec525f85e79538d59970beb0	12,522,668.774108231936993011	3.3560%
7	Binance: Hot Wallet 6	7,923,821.963889120603903492	2.1235%
8	0x9167a8652e8e5717c6b0a41a48017ce91a43563b	3,924,144.036118562893055583	1.0516%
9	0x585b82dcb161a3d4b74a6f6d9326a593764c4912	3,819,349.644426316486761402	1.0235%
10	0x5a98314b9a1a1d344aeb3442d336927b1974169f	3,739,634.09294343453387015	1.0022%
11	0xee734788205231fcda4d411767d24265e4012c32	3,679,103.514415876523154783	0.9860%
12	0x413853d6ba767c1c8c4b3e745d4a3f65c52c7996	3,482,251.502134228180646708	0.9332%
13	0xfad18d5c75c1e8885be672a92a8dbcaa063fbe19	2,727,137.5410402	0.7308%
14	0x35da79bae5fffec0ff2e10e2c3bf3c224e05108c	1,888,344.229166666297596639	0.5061%
15	0x88d483697f8e3fc8f5674f322d3a59ce786accd5	1,631,905.927901439893774287	0.4373%
16	0x128b736385317de401414b3f42442281e7b81164	1,372,248	0.3677%
17	0x82ab40ac27a134e2a8b385528c04e8e6938f5388	1,300,001	0.3484%
18	Binance: Hot Wallet 7	1,056,329.456736358475348148	0.2831%
19	0xd28752800899d81a7d6614a73d3601963c4bba96	600,000	0.1608%
20	0x7606c784e4aa8c686319c963686d1af04afc5399	596,146.784243710616907446	0.1598%

Biswap Token Distribution

Biswap Contract Overview



Contract functions details

+ Context
    -[Int] <constructor>
    -[Int] _msgSender
    -[Int] _msgData

+ Ownable (Context)
    -[Int]<constructor>
    -[Pub] owner
    -[Pub] renounceOwnership
      -modifiers: onlyOwner
    -[Pub] transferOwnership
      -modifiers: onlyOwner
    -[Int] _transferOwnership

+ [Int] IBEP20
    -[Ext] totalSupply
    -[Ext] preMineSupply
    -[Ext] maxSupply
    -[Ext] decimals
    -[Ext] symbol
    -[Ext] name
    -[Ext] getOwner
    -[Ext] balanceOf
    -[Ext] transfer
    -[Ext] allowance
    -[Ext] approve
    -[Ext] transferFrom

+[Lib] SafeMath
    -[Int] add
    -[Int] sub
    -[Int] sub
    -[Int] mul
    -[Int] div
    -[Int] div
    -[Int] mod
    -[Int] mod
    -[Int] min
    -[Int] sqrt

Contract functions details

+ [Lib] Address
    -[Int] isContract
    -[Int] sendValue
    -[Int] functionCall
    -[Int] functionCall
    -[Int] functionCallWithValue
    -[Int] functionCallWithValue
    -[Pvt] _functionCallWithValue

+BEP20 (Context, IBEP20, Ownable)
    - [Pub]<constructor> #
    -[Pub] getOwner
    -[Pub] name
    -[Pub] decimals
    -[Pub] symbol
    -[Pub] totalSupply
    -[Pub] preMineSupply
    -[Pub] maxSupply
    -[Pub] balanceOf
    -[Pub] transfer #
    -[Pub] allowance
    -[Pub] approve #
    -[Pub] transferFrom #
    -[Pub] increaseAllowance
    -[Pub] decreaseAllowance
    -[Pub] mint #
      -modifiers: onlyOwner
    -[Int] _transfer #
    -[Int] _mint#
    -[Int] _burn #
    -[Int] _approve #
    -[Int] _burnFrom #

+ [Lib] EnumerableSet
    -[Pvt] _add
    -[Pvt] _remove
    -[Pvt] _contains
    -[Pvt] _length
    -[Pvt] _at

Contract functions details

-[Int] add
-[Int] remove
-[Int] contains
-[Int] length
-[Int] at

  -[Int] add
  -[Int] remove
  -[Int] contains
  -[Int] lenght
  -[Int] at

+ BSWToken (BEP20)
  -[Pub] mint #
    -modifiers: onlyMinter
  -[Ext] delegates
  -[Ext] delegate
  -[Ext] delegateBySig
  -[Ext] getCurrentVotes
  -[Ext] getPriorVotes
  -[Int] _delegate
  -[Int] _moveDelegates
  -[Int] _writeCheckpoint
  -[Int] safe32
  -[Int] getChainId
  -[Pub] addMinter #
    -modifiers: onlyOwner
  -[Pub] delMinter #
    -modifiers: onlyOwner
  -[Pub] getMinterLength
  -[Pub] isMinter
  -[Pub] getMinter
    -modifiers: onlyOwner
  -[Int] safe32

($) = payable function
= non-constant function

Issues Checking Status

No.	Title	Status
1.	Unlocked Compiler Version	Passed
2.	Missing Input Validation	Passed
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.	Low issue
18.	Safe Open Zeppelin contracts implementation and usage.	Passed
19.	Incorrect Naming State Variable	Passed
20.	Too old version	Low issue

Severity Definitions

Risk Level	Description
Critical	Critical vulnerabilities are usually straightforward to exploit and can lead to assets loss or data manipulations.
High	High-level vulnerabilities are difficult to exploit; however, they also have a significant impact on smart contract execution, e.g., public access to crucial functions
Medium	Medium-level vulnerabilities are important to fix; however, they can't lead to assets loss or data manipulations.
Low	Low-level vulnerabilities are mostly related to outdated, unused, etc. code snippets that can't have a significant impact on execution.

Security Issues

Critical Severity Issues

No critical severity issue found.

High Severity Issues

No high severity issue found.

Medium Severity Issues

No medium severity issues found.

Low Severity Issues

Two low severity issue found.

1. Design logic

Unused function.

- **Description**

  The contract has few functions which is unused.

- **Location**

  Functions sendValue, functionCall, functionCall, functionCallWithValue, _ functionCallWithValue

- **Recommendation**

  It is advisable to remove unused code for better coding style and it will save some computational power too.

2. Too old compiler version

- **Description**

  The contract has been deployed using very much old solidity compiler version.

- **Recommendation**

  The contract deployment should be done using the any of the newest solidity compiler versions.

Centralization

Owner privileges :

- Biswap Contract:
    - Owner can transfer and renounce ownership.
    - Owner can mint tokens.
    - Owner can add and delete minter.
    - Owner can get minter address by index.

This smart contract has some functions which can be executed by the Admin (Owner) only. If the admin wallet private key would be compromised, then it would create trouble as smart contract ownership has not been renounced. Following are Admin functions:

- Renounceownership
- Transferownership
- Mint
- Getminter

Conclusion

Smart contract contains low severity issues! The further transfer and operations with the fund raised are not related to this particular contract.

HackSafe note: Please check the disclaimer above and note, the audit makes no statements or warranties on business model, investment attractiveness or code sustainability. The report is provided for the only contract mentioned in the report and does not include any other potential contracts deployed by Owner.