



Smart Contract Security Audit Report

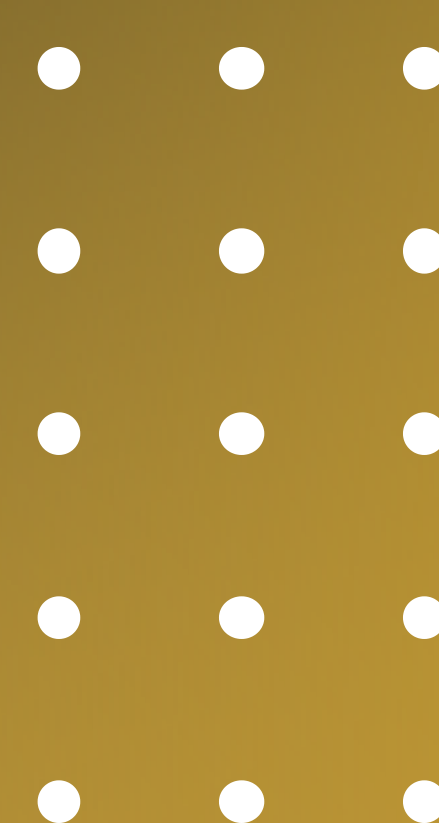
Black Box

July 2022

Security Status



www.hacksafe.io



Audit Details



Audited project

Black Box



Deployer address

0xeC9956ADD9ad6007A5DEb1599d192dDaF8c2186B



Client contacts

Black Box team



Blockchain

Binance Smart Chain



Website

<https://www.blackboxbsc.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.

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 Black Box to perform an audit of smart contracts:

- <https://bscscan.com/address/0x74EE86C1B4f0b400f5fbC606152497f21b11c508#code>

The purpose of the audit was to achieve the

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

The information in this report should be understood 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.

Contract Details

Token contract details for 21.07.2022

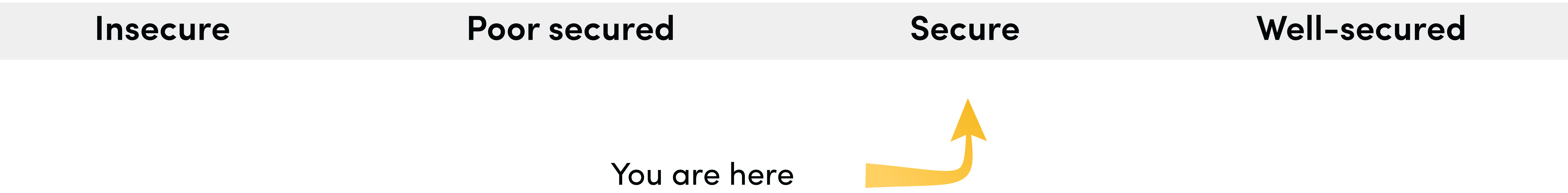
Token Type	: BEP20
Contract name	: BLACKBOX
Contract address	: 0x74EE86C1B4f0b400f5fbC606152497f21b11c508
Compiler version	: v0.8.7+commit.e28d00a7
Total supply	: 10,000,000
Token Ticker	: BBox
Decimals	: 18
Token Holders	: 1,394
Top 100 token holder's dominance	: 89.33%
Transactions count	: 28,385
Contract deployer address	: 0xC9956ADD9ad6007A5DEb1599d192dDaF8c2186B
Owner address	: 0xC9956ADD9ad6007A5DEb1599d192dDaF8c2186B

Social profiles

Twitter Profile	: https://twitter.com/BlackBoxBsc
Telegram Profile	: https://t.me/BlackBoxEn
Coinmarketcap profile	: https://coinmarketcap.com/currencies/black-box/

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.



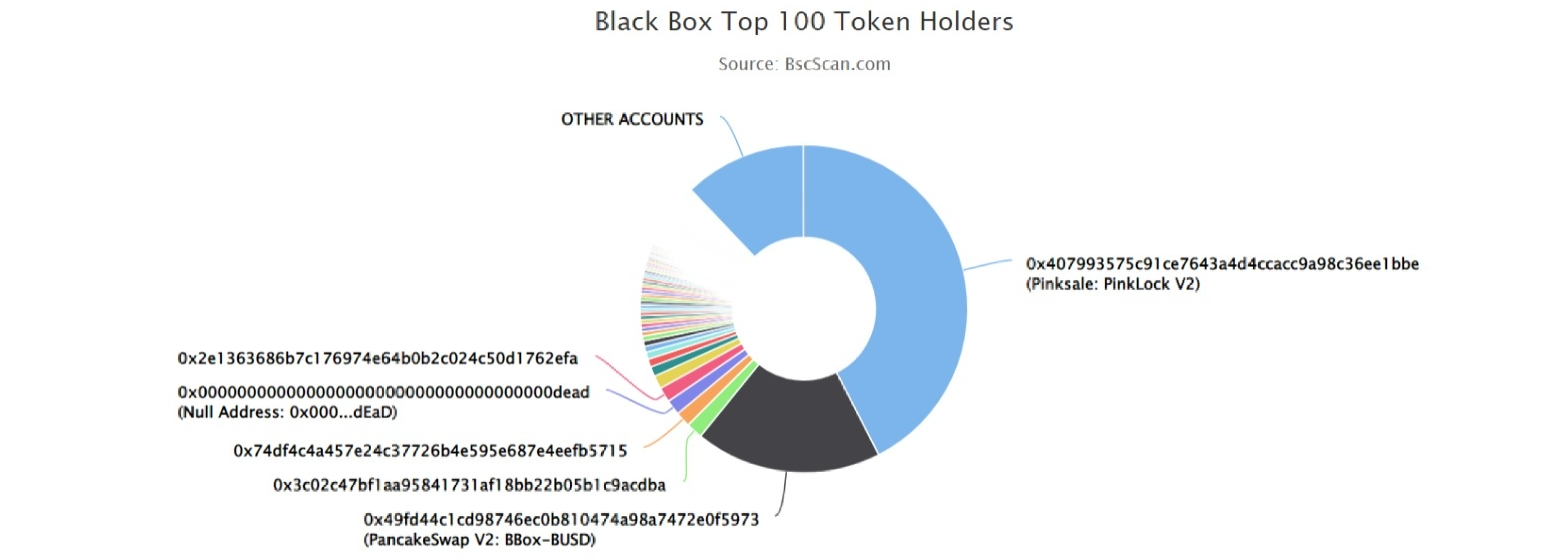
We used various tools like Slither, Mythril and Remix IDE. At the same time this finding is based on critical analysis of the manual audit. All issues found during automated analysis were manually reviewed and applicable vulnerabilities are presented in the issues checking status.

We found 0 critical, 0 high, 0 medium and 1 low and some very low-level issues. These issues are not critical ones.

BLACKBOX Token Distribution



The top 100 holders collectively own 87.90% (8,789,731.62 Tokens) of Black Box

Token Total Supply: 10,000,000.00 Token | Total Token Holders: 1,515



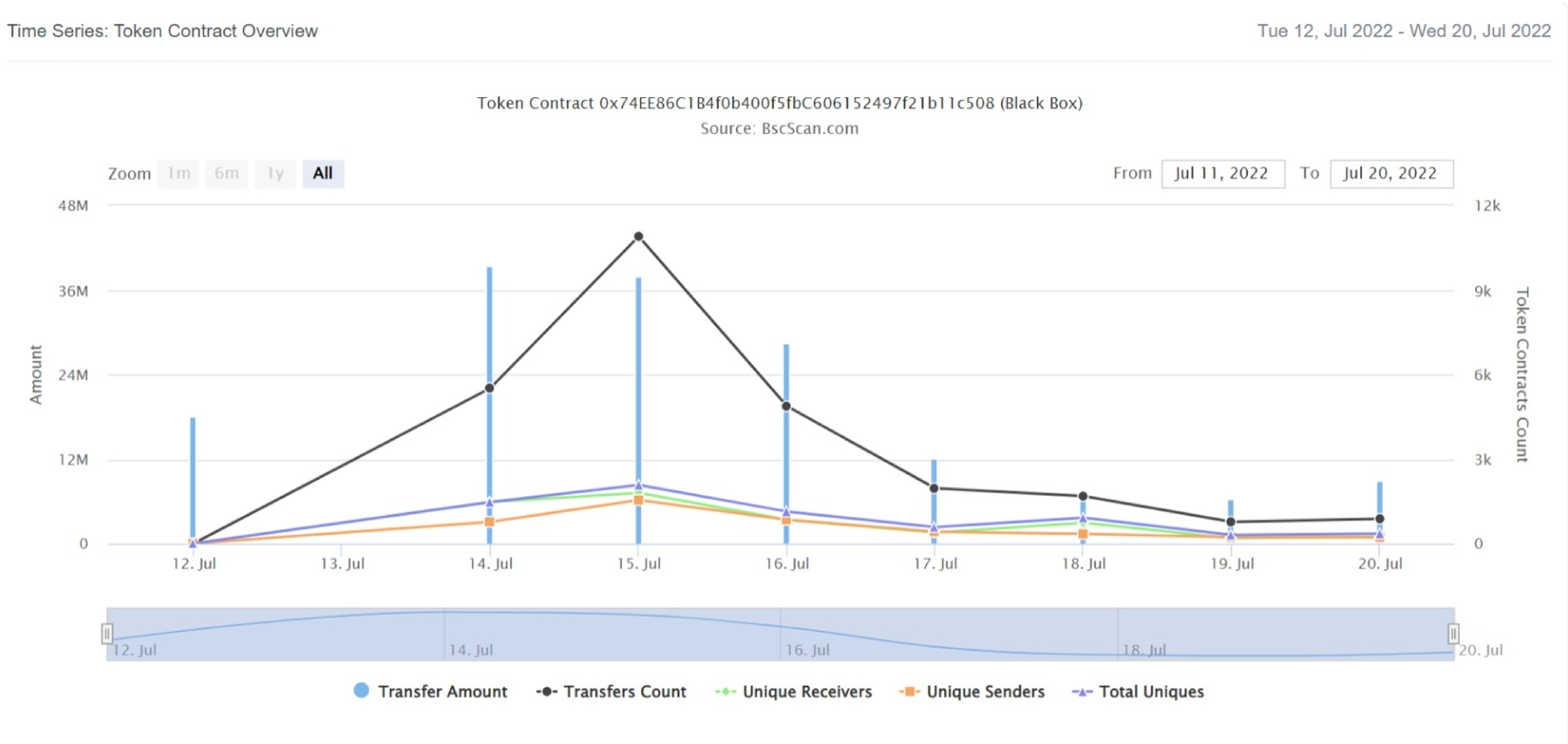
BLACKBOX Top 20 Token Holders

(A total of 8,789,731.62 tokens held by the top 100 accounts from the total supply of 10,000,000.00 token)

Rank	Address	Quantity (Token)	Percentage
1	 Pinksale: PinkLock V2	4,250,000	42.5000%
2	 PancakeSwap V2: BBox-BUSD	1,835,018.838048691745320378	18.3502%
3	0x3c02c47bf1aa95841731af18bb22b05b1c9acdba	163,172.704384835622000916	1.6317%
4	0x74df4c4a457e24c37726b4e595e687e4ee5715	150,842.256252976132845093	1.5084%
5	Null Address: 0x000...dEaD	150,000	1.5000%
6	0x2e1363686b7c176974e64b0b2c024c50d1762efa	150,000	1.5000%
7	0x8af16ba4dae04be5ac3e696de50fc966e12e796	130,537.179764204030087428	1.3054%
8	0xdb56f0007b2ff0d163962b3a3951fca85cde34b5	96,470.5174376956789855	0.9647%
9	0xffcce8b6f33bcb6ca295ac757990e4e028e0a00	78,994.013134359634716375	0.7899%
10	0xf511b120f80237911c4bd682e8565821c39b4e5b	69,953.976881211439926521	0.6995%
11	0x4b04213c2774f77e60702880654206b116d00508	60,000	0.6000%
12	0x21acd215c7e90c1edde1bf9dea80782a4b32d29a	52,948.662670398237468569	0.5295%
13	0x198a49a6d04a98419242f1dec68e5a7018d9540	48,917.444510474576253019	0.4892%
14	0xb0176832bd3a0ec965465623eb6a22c2b6c26efa	41,261.640665571877919098	0.4126%
15	0xcfd4e7b2fc37d2b1e83bd78983723bfe4d2be51b	40,581.847650856165283716	0.4058%
16	0x677e2c62afda432948c1cfebc2211b865ffc3540	39,509.454421870910510164	0.3951%
17	0x7cc9fd9c6890ba187227c049bb01b99566787b8a	37,681	0.3768%
18	0x41ac241c9c5aa625af237f70aa69a24c25ec592a	37,272.956694830929806031	0.3727%
19	0xc9316cfa73cd4890182e379df847f0bded06ed8	37,235.053460094600109093	0.3724%
20	0xe7c8b1d99388e77ba00ab39c99b1ea99eec88888	36,956.058222128624979303	0.3696%

BLACKBOX Token Distribution

BLACKBOX Contract Overview



Contract functions details

+ [Lib] SafeMath

- [Int] add
- [Int] sub
- [Int] sub
- [Int] mul
- [Int] div
- [Int] div
- [Int] mod
- [Int] mod

+ [Lib] Address

- [Int] isContract
- [Int] sendValue
- [Int] functionCall
- [Int] functionCall
- [Int] functionCallWithValue
- [Int] functionCallWithValue
- [Pvt] _functionCallWithValue

+ [Int] IBEP20

- [Ext] totalSupply
- [Ext] balanceOf
- [Ext] transfer
- [Ext] allowance
- [Ext] approve
- [Ext] transferFrom

+ Context

- [Int] _msgSender
- [Int] _msgData

+ Ownable (Context)

- <constructor>
- [Pub] owner
- [Pub] transferOwnership
- modifiers: onlyOwner

+ HasForeignAsset (Ownable)

- [Ext] assetBalance
- [Ext] getAsset
- modifiers: onlyOwner

Contract functions details

+BLACKBOX (IBEP20, HasForeignAsset)

- <constructor> #
- [Pub] name
- [Pub] symbol
- [Pub] decimals
- [Pub] totalSupply
- [Pub] balanceOf
- [Pub] transfer #
- [Pub] allowance
- [Pub] approve #
- [Pub] transferFrom #
- [Pub] increaseAllowance
- [Pub] decreaseAllowance
- [Int] _transfer #
- [Int] _mintOnce #
- [Int] _burn #
- [Int] _approve #
- [Int] _setupDecimals #
- [Int] _beforeTokenTransfer #

(\$) = payable function

= non-constant function

Issues Checking Status

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

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

One 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 `^0.8.2` the contract should contain the following line:

```
pragma solidity 0.8.7;
```

Centralization

Owner privileges :

- BLACKBOX Contract:
 - Owner can transfer ownership.
 - Owner can transfer asset to owner's address.

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:

- Transferownership
- Getasset

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.