SECURITY AUDIT

BUSDBANKER1

0xc5bc8E114c802245855D9199B877CDdBA4E12B6D

16th May 2022

https://kalianalytics.com

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Introduction

KaliAnalytics is a 3rd party auditing company that works on audits based on client requests. KaliAnalytics was contracted by the **BUSD Banker.Farm** team to perform the security audit of the **BUSDBANKER1** Token smart contract code. The audit has been performed using manual analysis as well as using automated tools. This report presents all the findings regarding the audit completed on **May 16th, 2022.**

The purpose of this audit was to focus on the overall security of the smart contract, reduce residual risk and verify functions and functionality. Furthermore, the KaliAnalytics' audit team focused to identify any security vulnerabilities that may be present and providing feedback based on the findings.

Audited project

Audited project name: BUSD Banker / Banker.Farm

Language(s): Solidity

Client contact(s): BUSD Banker.Farm Team

Project website: https://busd.banker.farm

Audit team: KaliAnalytics Solidity Audit Team / NEO

Audit completed: 16th May 2022

Audit result: **P A S S E D**

Token Info

Blockchain: Binance Smart Chain (BSC)

Type: BEP20

Contract address: 0xc5bc8E114c802245855D9199B877CDdBA4E12B6D

Contract Source Code Verified: Yes (Exact Match)

Token name: BusdBanker1

Token ticker: BUSDBANKER1

Total supply: 1.000.000

Decimals: 18

Creator address: 0xd1B19fa48539991f79Aa130d7F4dB083bC0CC51F

Optimization Enabled: Yes with 200 runs

Compiler Version: v0.5.8+commit.23d335f2

Circulating supply as of the date of audit: 10.000

Holders as of the date of the audit: 1

Total transactions as of the date of the audit: 1

Project Overview

BUSDBANKER1 smart contract provides a standard BEP20 token. Users can stake BUSD to receive **BUSDBANKER1** tokens, which they can stake to receive BUSDBANKER1 as interest. Users can sell **BUSDBANKER1** for BUSD. Principal BUSD deposits cannot be withdrawn. Users can get a referral commission in BUSD. Dividends are paid from deposits of other users. Liquidity is owned by the smart contract. Users can interact with the smart contract through the project's website. Worth noting, that the team said in correspondence **BUSDBANKER1** is not meant for long-term holding, the token is part of the Banker.Farm ecosystem consisting rounds, each having a unique token meant only for short-term speculative holding. Its value will reach zero the moment the TVL reaches the minimum.

Audit Summary

We found 0 critical, 2 high, 0 medium and 2 low, and 0 very low-level issues. The BUSDBANKER1 smart contract is considered SECURE, and the audit is PASSED.

According to the standard audit assessment, the customer`s solidity smart contract is technically secure and there are no flaws on functional correctness. The contract includes owner functions (please refer to the Solidity UML Diagram of the smart contract) reducing level of decentralization. Thus, the project team must execute those functions as per their business plan.

The KaliAnalytics' Solidity Audit Team used various software tools such as MythX, Slither, and Remix IDE to analyze the smart contract. Furthermore, the team performed a manual audit at a general level.

All issues found during automated analysis were manually reviewed and application vulnerabilities are presented in the Code Analysis Results section which is presented AS-IS. Identified issues are described at a more detailed level with recommendations in the Findings and Recommendations section.

Code Quality

This audit scope has one smart contract. It contains Libraries, Smart contract inherits, and Interfaces. The scope does not include a business plan, website, team, etc.

The KaliAnalytics' Solidity Audit Team received **BUSDBANKER1** Token smart contract code in the form of a BscScan web link.

The **BUSDBANKER1** smart contract is compact and professionally written. However, the code is partially not well commented.

Documentation

Comments are extremely helpful in understanding the overall architecture of the protocol. The code is partially not well commented. Therefore, it is or may be difficult to form a general understanding of the logic However, this does not affect functionality or security.

Another source of information was the project's official website **https://busd.banker.farm**. Following standard practice, the audit team went through also projects on social media channels, which included **Twitter, Facebook, Telegram, and Discord**. The information provided on the website and other channels are standard.

Furthermore, the audit team examined the project's white paper which included all the necessary information about the project including tokenomics, ways to contact the team as well as instructions on how to use the dApp.

Conclusion

The **BUSDBANKER1** Smart-Contract was found not to contain technically severe vulnerabilities, no backdoors, no suspicious functions, or no suspicious functionality.

All libraries which were used for calculation and the token in the contract are standard and safe.

The audit team assessed the code with compatible compilers and simulated and manually reviewed for all commonly known and specific vulnerabilities.

Therefore, KaliAnalytics' Solidity Audit team concludes the **BUSDBANKER1** Smart-Contract is technically safe for use in the **Binance Smart Chain** main network.

Code Analysis Results

Assertions and Property Checking

Detector	Analyses Type	SWC-ID	STATUS
Solidity assert violation	Symbolic analysis, fuzzing (bytecode)	SWC-110	PASSED
MythX assertion violation (AssertionFailed event)	Symbolic analysis, fuzzing (bytecode)	SWC-110	PASSED

Byte-code Safety

Detector	Analyses Type	SWC-ID	STATUS
Integer overflow in arithmetic operation	Symbolic analysis, fuzzing (bytecode)	SWC-101	FAIL
Integer underflow in arithmetic operation	Symbolic analysis, fuzzing (bytecode)	SWC-101	PASSED
Caller can redirect execution to arbitrary locations	Symbolic analysis, fuzzing (bytecode)	SWC-127	PASSED
Caller can write to arbitrary storage locations	Symbolic analysis, fuzzing (bytecode)	SWC-124	PASSED

Dangerous use of uninitialized storage variables	Solidity code analysis	SWC-109	PASSED

Authorization Controls

Detector	Analyses Type	SWC-ID	STATUS
Any sender can withdraw ETH from the contract account	Symbolic analysis, fuzzing (bytecode)	SWC-105	PASSED
Any sender can trigger SELFDESTRUCT	Symbolic analysis, fuzzing (bytecode)	SWC-106	PASSED
Use of "tx.origin" as a part of authorization control	Solidity code analysis	SWC-115	PASSED

Control Flow

Detector	Analyses Type	SWC-ID	STATUS
Delegatecall to a user-supplied address	Symbolic analysis (bytecode)	SWC-112	PASSED
Call to a user-supplied address	Symbolic analysis (bytecode)	SWC-107	PASSED
Unchecked return value from external call	Solidity code analysis	SWC-104	PASSED
Block timestamp influences a control flow decision	Taint analysis (bytecode)	SWC-116	PASSED
Environment variables influence a control flow decisions	Taint analysis (bytecode)	SWC-120	PASSED
Loop over unbounded data structure	Solidity code analysis	SWC-128	PASSED
Implicit loop over unbounded data structure	Solidity code analysis	SWC-128	PASSED
Usage of "continue" in "do-while"	Solidity code analysis	N/A	PASSED
Multiple calls are executed in the same transaction	Static analysis (bytecode)	SWC-113	PASSED
Persistent state read following external call	Static analysis, fuzzing (bytecode)	SWC-107	PASSED
Persistent state write following external call	Static analysis, fuzzing (bytecode)	SWC-107	PASSED
Account state accessed after call to user-defined address	Symbolic analysis (bytecode)	SWC-107	PASSED

Return value of an external call is not checked	Static analysis (bytecode)	SWC-104	PASSED
Potential weak source of randonmness	Solidity code analysis	SWC-120	PASSED
Requirement violation	Fuzzing (bytecode)	SWC-123	PASSED
Call with hardcoded gas amount	Solidity code analysis	SWC-134	PASSED

ERC Standards

Detector	Analyses Type	SWC-ID	STATUS
Incorrect ERC20 implementation	Solidity code analysis	N/A	PASSED

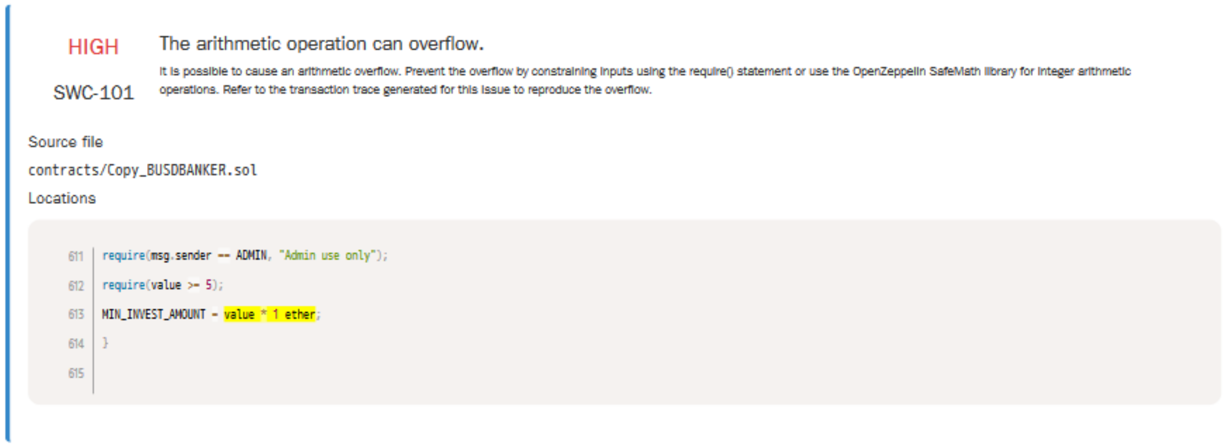
Solidity Coding Best Practices

Detector	Analyses Type	SWC-ID	STATUS
Outdated compiler version	Solidity code analysis	SWC-102	PASSED
No or floating compiler version set	Solidity code analysis	SWC-103	PASSED
Use of right-to-left-override control character	Solidity code analysis	SWC-130	PASSED
Shadowing of built-in symbol	Solidity code analysis	SWC-119	PASSED
Incorrect constructor name	Solidity code analysis	SWC-118	PASSED
State variable shadows another state variable	Solidity code analysis	SWC-119	PASSED
Local variable shadows a state variable	Solidity code analysis	SWC-119	PASSED
Function parameter shadows a state variable	Solidity code analysis	SWC-119	PASSED
Named return value shadows a state variable	Solidity code analysis	SWC-119	PASSED
Unary operation without effect	Solidity code analysis	SWC-129	PASSED
Unary operation directly after assignment	Solidity code analysis	SWC-129	PASSED
Unused state variable	Solidity code analysis	SWC-131	PASSED
Unused local variable	Solidity code analysis	SWC-131	PASSED
Function visibility is not set	Solidity code analysis	SWC-100	PASSED
State variable visibility is not set	Solidity code analysis	SWC-108	FAIL

Use of deprecated functions: callcode(), sha3(), ...	Solidity code analysis	SWC-111	PASSED
Use of deprecated global variables (msg.gas, ...)	Solidity code analysis	SWC-111	PASSED
Use of deprecated keywords (throw, var)	Solidity code analysis	SWC-111	PASSED
Incorrect function state mutability	Solidity code analysis	N/A	PASSED

Findings and recommendations

It is possible to cause an arithmetic overflow. Prevent the overflow by constraining inputs using the require() statement or use the OpenZeppelin SafeMath library for integer arithmetic operations. Refer to the transaction trace generated for this issue to reproduce the overflow.[SWC-101]



HIGH

SWC-101

The arithmetic operation can overflow.

It is possible to cause an arithmetic overflow. Prevent the overflow by constraining inputs using the require() statement or use the OpenZeppelin SafeMath library for integer arithmetic operations. Refer to the transaction trace generated for this issue to reproduce the overflow.

Source file

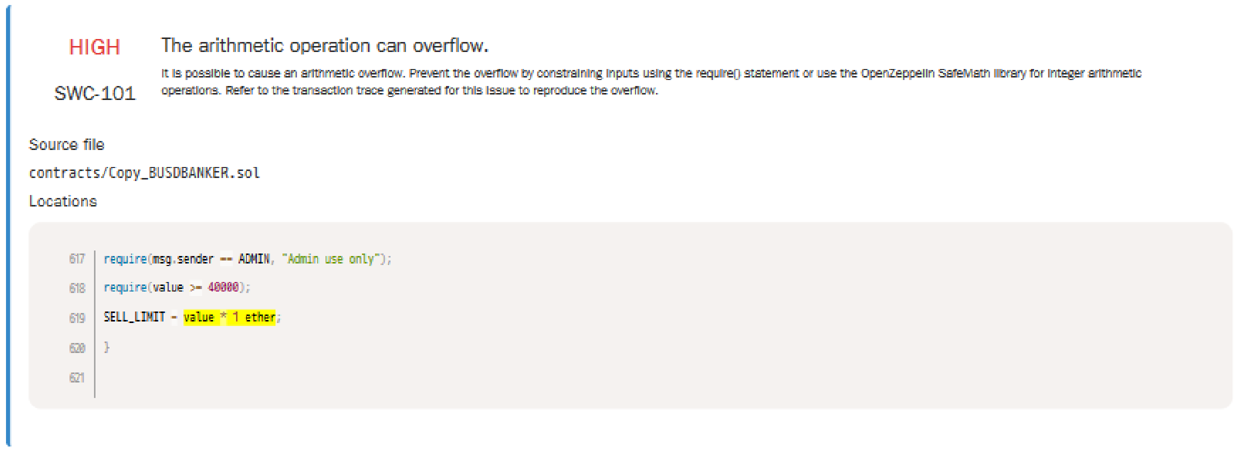
contracts/Copy_BUSDBANKER.sol

Locations

```
require(msg.sender == ADMIN, "Admin use only");
require(value >= 5);
MIN_INVEST_AMOUNT = value * 1 ether;
}

```

It is possible to cause an arithmetic overflow. Prevent the overflow by constraining inputs using the require() statement or use the OpenZeppelin SafeMath library for integer arithmetic operations. Refer to the transaction trace generated for this issue to reproduce the overflow.[SWC-101]



HIGH

SWC-101

The arithmetic operation can overflow.

It is possible to cause an arithmetic overflow. Prevent the overflow by constraining inputs using the require() statement or use the OpenZeppelin SafeMath library for integer arithmetic operations. Refer to the transaction trace generated for this issue to reproduce the overflow.

Source file

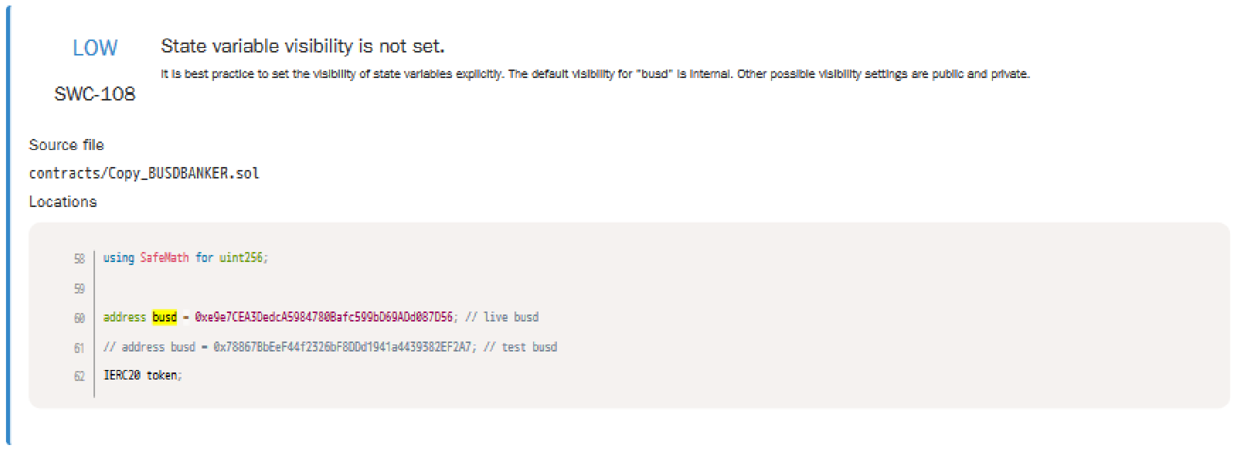
contracts/Copy_BUSDBANKER.sol

Locations

```
require(msg.sender == ADMIN, "Admin use only");
require(value >= 40000);
SELL_LIMIT = value * 1 ether;
}

```

It is best practice to set the visibility of state variables explicitly. The default visibility for "busd" is internal. Other possible visibility settings are public and private.[SWC-108]



LOW

SWC-108

State variable visibility is not set.

It is best practice to set the visibility of state variables explicitly. The default visibility for "busd" is internal. Other possible visibility settings are public and private.

Source file

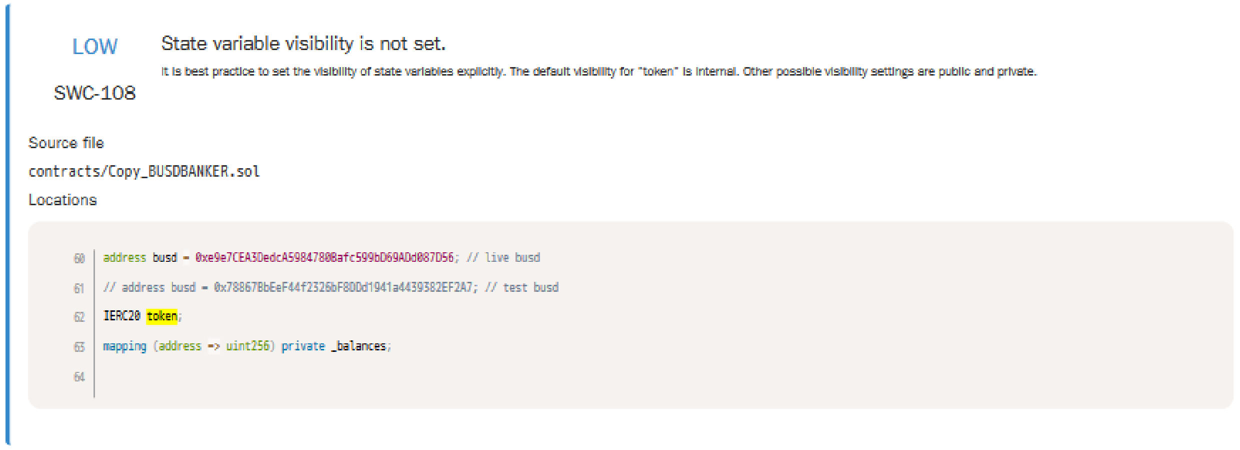
contracts/Copy_BUSDBANKER.sol

Locations

```
using SafeMath for uint256;

address busd = 0xe9e7CEA3DedcA5984780Bafc599bD69ADd087D56; // live busd
// address busd = 0x78867BbEeF44f2326bF8DDd1941a4439382EF2A7; // test busd
IERC20 token;
```

It is best practice to set the visibility of state variables explicitly. The default visibility for "token" is internal. Other possible visibility settings are public and private.[SWC-108]



LOW

SWC-108

State variable visibility is not set.

It is best practice to set the visibility of state variables explicitly. The default visibility for "token" is internal. Other possible visibility settings are public and private.

Source file

contracts/Copy_BUSDBANKER.sol

Locations

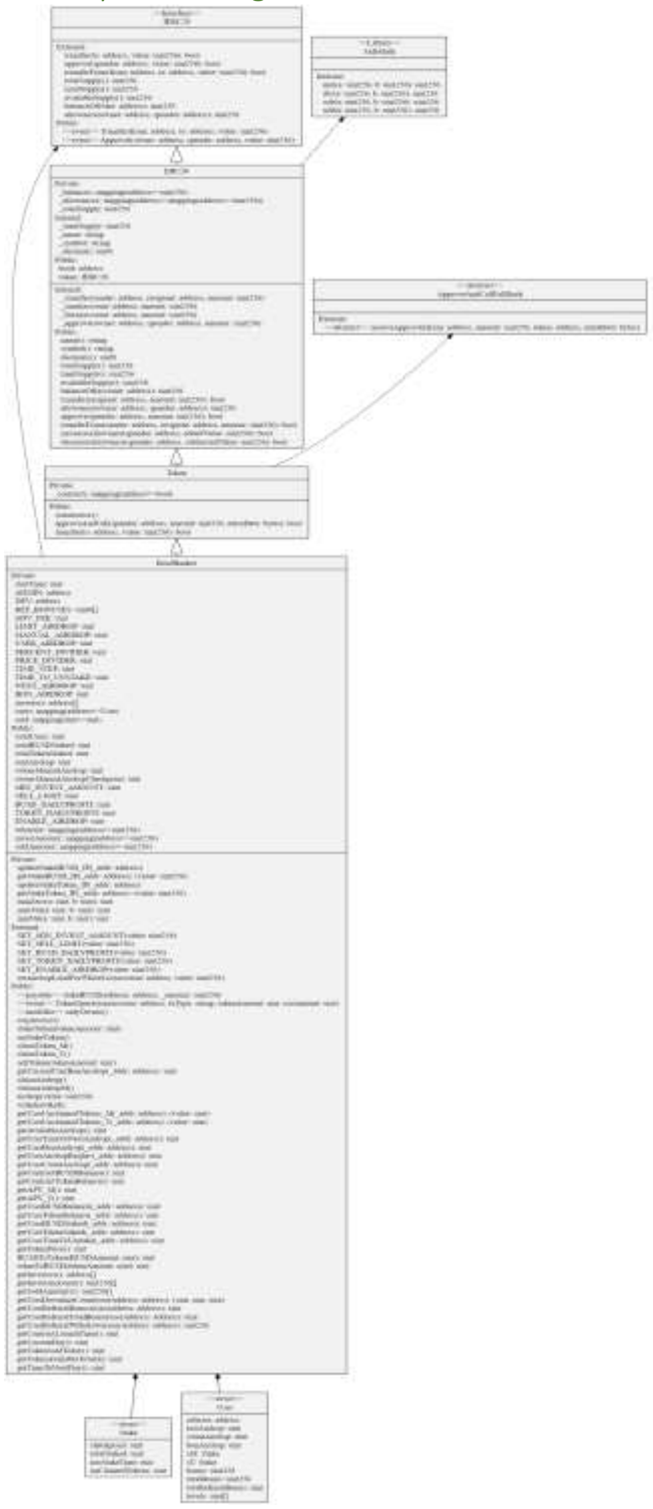
```
address busd = 0xe9e7CEA3DedcA5984780Bafc599bD69ADd087D56; // live busd
// address busd = 0x78867BbEeF44f2326bF8DDd1941a4439382EF2A7; // test busd
IERC20 token;
mapping (address => uint256) private _balances;

```

Compiler specific version warnings:

The compiled contract might be susceptible to NestedCallataArrayAbiReencodingSizeValidation (very low-severity), ABIDecodeTwoDimensionalArrayMemory (very low-severity), KeccakCaching (medium-severity), EmptyByteArrayCopy (medium-severity), DynamicArrayCleanup (medium-severity), ImplicitConstructorCallvalueCheck (very low-severity), TupleAssignmentMultiStackSlotComponents (very low-severity), MemoryArrayCreationOverflow (low-severity), privateCanBeOverridden (low-severity), YulOptimizerRedundantAssignmentBreakContinue0.5 (low-severity), ABIEncoderV2CalldataStructsWithStaticallySizedAndDynamicallyEncodedMembers (low-severity), SignedArrayStorageCopy (low/medium-severity), ABIEncoderV2StorageArrayWithMultiSlotElement (low-severity), DynamicConstructorArgumentsClippedABIV2 (very low-severity) Solidity Compiler Bugs.

Solidity UML Diagram



For Zoomable view of diagram please visit: https://storage.googleapis.com/sol2uml-storage/bsc-0xc5bc8e114c802245855d9199b877cddba4e12b6d.svg

Methodology

The goal of a security audit is to reduce residual risk, improve the security of the smart contract and the quality of its code by identifying possible vulnerabilities and security risks and providing feedback and recommendations based on analysis and findings to help protect users. We use the following methodology in our security audit process.

Manual Code Review

In manual code review, we look for any potential issues with code logic, error handling, cryptographic errors, protocol and header parsing, and random number generators. Although our primary focus is on the in-scope code, we examine dependency code and behavior when if relevant.

Vulnerability Analysis

Our audit methods included manual code analysis, automated vulnerability scanners and analyzers, user interface interaction, and penetration testing. We examine the project's website and whitepaper to form a high-level understanding of what functionality the project intends to provide. We may review other audit reports, and similar projects, examine source code dependencies and generally investigate details other than the implementation.

Documenting Results

We follow our transparent audit process described in this document for analyzing potential security vulnerabilities. Whenever a potential issue is discovered, we immediately create an entry describing the nature of the issue, even though the feasibility and impact of the issue may not yet be verified. Furthermore, we provide recommendations based on findings.

DISCLAIMER

The audit makes no statements or warranties on security of the code / the smart contract(s). It also cannot be considered as a sufficient assessment regarding the utility and safety of the code, bug free status or any other statements of the contract. While the KaliAnalytics' Solidity Audit Team have done the best in conducting the analysis, it is important to note that you should not rely on this security audit only. We also suggest conducting a bug bounty program to confirm the high level of security of this smart contract.

Smart contracts are deployed and executed on the blockchain. The blockchain, its programming language, and other software related to the smart contract can have their own vulnerabilities that can lead to critical issues.

The scope of the audit is strictly only the smart contract code at the specified address. Any concerns about the project must be raised directly to the project team. This document does not constitute an offer to purchase or solicitation to sell, nor is it a recommendation to buy or sell, any token, cryptocurrency, or other product or service. Neither the authors of this document nor any participants in the audit accept any liability for losses or taxes that holders, purchasers, users, or sellers of the token, cryptocurrency, product, or service may incur. The value of the token/cryptocurrency may decrease and may be highly volatile. All product names, logos, brands, trademarks, and registered trademarks are property of their respective owners and use of them does not imply endorsement. You should not construe any information or other material on this document as legal, tax, investment, financial, security, or other advice.

KALIANALYTICS SOLIDITY AUDIT TEAM / NEO

16th May 2022