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Valid Proof

Bring trust into your projects

Blockchain Security | Smart Contract Audits | KYC

Audit

Security Assessment

May 2022

For

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Version	Date	Description
1.0	May 2022	• Layout project • Automated- /Manual-Security •Testing • Summary

Network

Binance Smart Chain (BEP20)

Website

https://hotdogfinance.io

Doc

https://hotdogfinance.gitbook.io/hotdog-finance/

Twitter

https://twitter.com/HotdogFinance

Discord

https://discord.gg/EUhPjuTm

Description

HOTDOG Finance is BUSD pegged algorithmic stablecoin ecosystem running on BNB Chain.

The protocol's underlying mechanisms are designed in a way to ensure a peg of HOG:BUSD is achieved, and once achieved, it is maintained to establish $HOG as a mirrored, liquid asset to $BUSD. Protocol accomplishes this by introducing unique economic and game-theory centric dynamics into the market through its three tokens. HOTDOG Finance is inspired by Tomb Finance.

Our main goal is a bit different than other Tomb forks – we aim to contribute to a bigger ecosystem by increasing $BUSD liquidity on BNB Chain. We'll be pegged to a stablecoin and this will require us to invest our DAO fund to bring back profit to the protocol.

Project Engagement

During the 28th of May 2022, Hotdog engaged Valid Proof to audit smart contracts that they created. The engagement was technical in nature and focused on identifying security flaws in the design and implementation of the contracts. They provided Valid Proof with access to their code repository and whitepaper.

Logo

Contract Link

v1.0

Contract: https://bscscan.com/address/0x724df0162eb5f18b865f0108f4234a09c9c1b5ba

Vulnerability & Risk Level

Risk represents the probability that a certain source-threat will exploit vulnerability, and the impact of that event on the organization or system. Risk Level is computed based on CVSS version 3.0.

Level	Value	Vulnerability	Risk (Required Action)
Critical	9 - 10	A vulnerability that can disrupt the contract functioning in a number of scenarios, or creates a risk that the contract may be broken.	Immediate action to reduce risk level.
High	7 – 8.9	A vulnerability that affects the desired outcome when using a contract, or provides the opportunity to use a contract in an unintended way.	Implementation of corrective actions as soon aspossible.
Medium	4 – 6.9	A vulnerability that could affect the desired outcome of executing the contract in a specific scenario.	Implementation of corrective actions in a certain period.
Low	2 – 3.9	A vulnerability that does not have a significant impact on possible scenarios for the use of the contract and is probably subjective.	Implementation of certain corrective actions or accepting the risk.
Information	0 – 1.9	A vulnerability that have informational character but is not effecting any of the code.	An observation that does not determine a level of risk

Auditing Strategy and Techniques Applied

Throughout the review process, care was taken to evaluate the repository for security-related issues, code quality, and adherence to specification and best practices. To do so, reviewed line-by-line by our team of expert pentesters and smart contract developers, documenting any issues as there were discovered.

Methodology

The auditing process follows a routine series of steps:
1. Code review that includes the following:
i) Review of the specifications, sources, and instructions provided to Valid Proof to make sure we understand the size, scope, and functionality of the smart contract.
ii) Manual review of code, which is the process of reading source code line-by- line in an attempt to identify potential vulnerabilities.
iii) Comparison to specification, which is the process of checking whether the code does what the specifications, sources, and instructions provided to Valid Proof describe.

2. Testing and automated analysis that includes the following:
i) Test coverage analysis, which is the process of determining whether the test cases are actually covering the code and how much code is exercised when we run those test cases.
ii) Symbolic execution, which is analysing a program to determine what inputs causes each part of a program to execute.

3. Best practices review, which is a review of the smart contracts to improve efficiency, effectiveness, clarify, maintainability, security, and control based on the established industry and academic practices, recommendations, and research.

4. Specific, itemized, actionable recommendations to help you take steps to secure your smart contracts.

Used Code from other Frameworks/Smart Contracts (direct imports)

Imported packages:

- IERC20
- IERC20Metadata
- Context
- Ownable
- SafeMath
- SafeMathInt
- SafeMathUint

Tested Contract Files

All files and codes of the contract, whose address is below, have been tested.

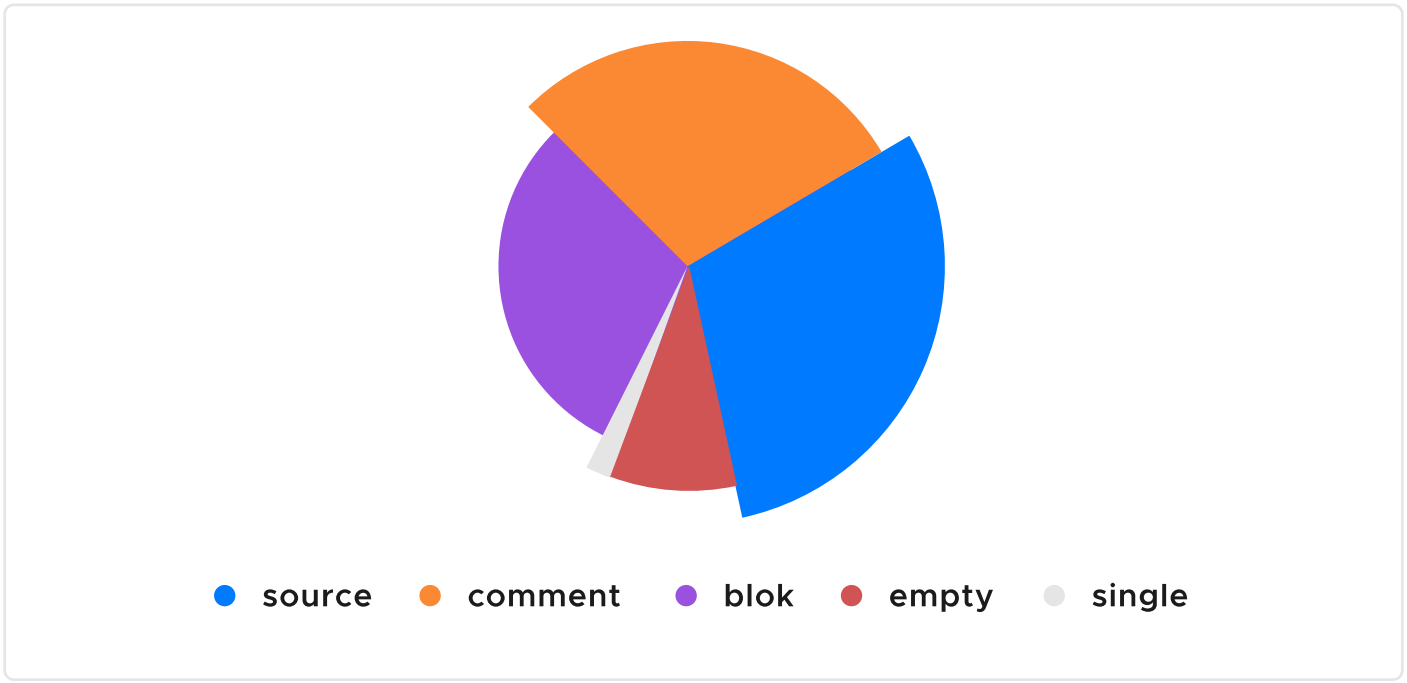
v1.0

File Name	Address
Contract Source Code	0x724df0162eb5f18b865f0108f4234a09c9c1b5ba

Metrics

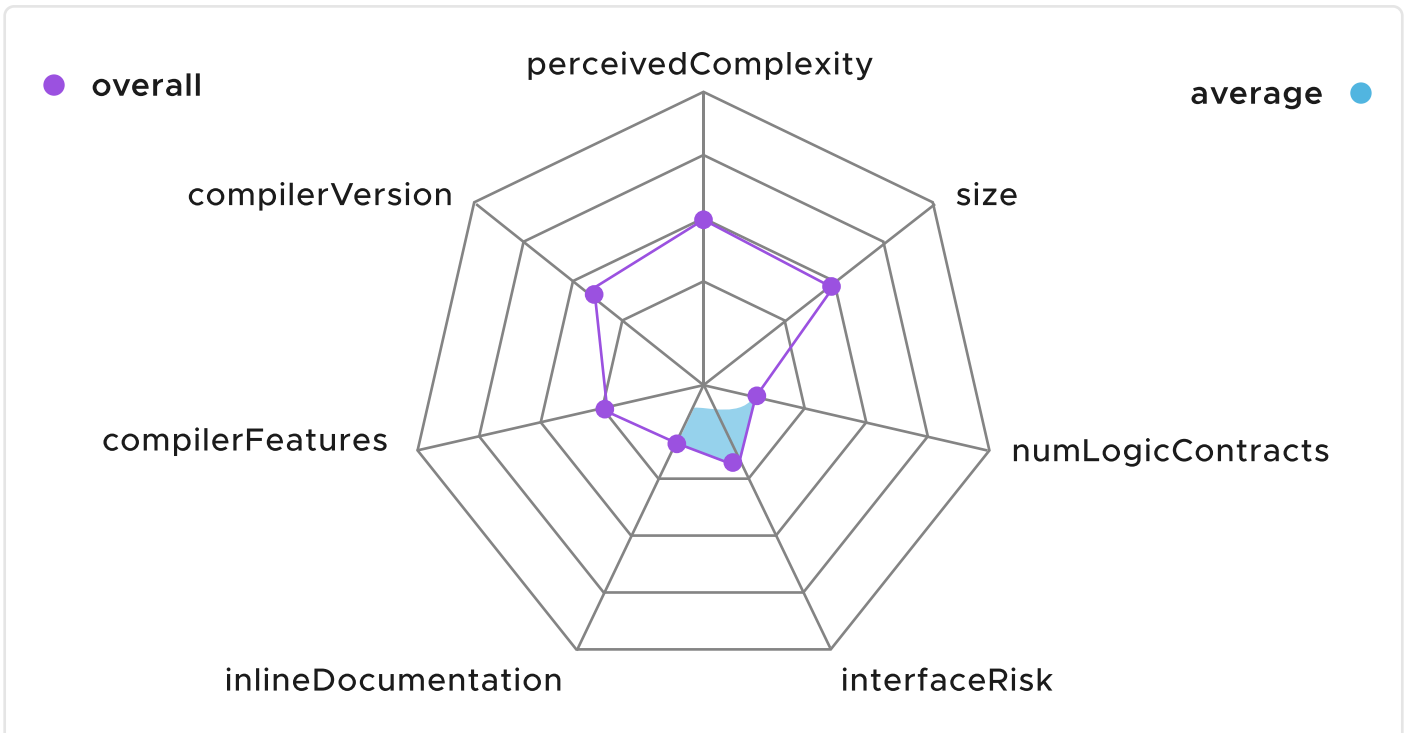
Source Lines

v1.0



Risk Level

v1.0



Capabilities

Version	Solidity Versions observed	Experim ental Features	Can Receive Funds	Uses Assembl y	Has Destroya ble Contract s
1.0	0.6.0 <0.8.0			**** (0 asm blocks)	

Version	Transf ers ETH	Low- Level Calls	Delega teCall	Uses Hash Functi ons	ECRec over	New/ Create/ Create 2
1.0	yes					

Scope of Work

The above token Team provided us with the files that needs to be tested (Github, Bscscan, Etherscan, files, etc.). The scope of the audit is the main contract (usual the same name as team appended with .sol).

We will verify the following claims:
1. Correct implementation of Token standard
2. Deployer cannot mint any new tokens
3. Deployer cannot burn or lock user funds
4. Deployer cannot pause the contract
5. Overall checkup (Smart Contract Security)

Verify Claims

Correct implementation of Token standard

Tested	Verified
✓	✓

Function	Description	Exist	Tested	Verified
TotalSupply	provides information about the total token supply	✓	✓	✓
BalanceOf	provides account balance of the owner's account	✓	✓	✓
Transfer	executes transfers of a specified number of tokens to a specified address	✓	✓	✓
TransferFrom	executes transfers of a specified number of tokens from a specified address	✓	✓	✓
Approve	allow a spender to withdraw a set number of tokens from a specified account	✓	✓	✓
Allowance	returns a set number of tokens from a spender to the owner	✓	✓	✓

Write functions of contract

1. approve
2. burn
3. burnFrom
4. decreaseAllowance
5. distributeReward
6. governanceRecoverUnsupported
7. increaseAllowance
8. mint
9. renounceOwnership
10. transfer
11. transferFrom
12. transferOperator
13. transferOwnership

Deployer cannot mint any new tokens

Name	Exist	Tested	Verified	File
Deployer cannot mint	✓	✓	✓	Main
Comment	Line: -			

Deployer cannot burn or lock user funds

Name	Exist	Tested	Verified
Deployer cannot mint	✅	✅	✅
Deployer cannot burn	✅	✅	✅

Comments:
v1.0
• Deployer don’t lock users.

Deployer cannot pause the contract

Name	Exist	Tested	Verified
Deployer cannot pause	✓	✓	✓

Overall checkup (Smart Contract Security)

Tested	Verified
✓	✓

Legend

Attribute	Symbol
Verfified / Checked	✓
Partly Verified	⚑
Unverified / Not checked	✗
Not available	–

Source Units in Scope

v1.0

Legend

Attribute	Description
Lines	total lines of the source unit
nLines	normalized lines of the source unit (e.g. normalizes functions spanning multiple lines)
nSLOC	normalized source lines of code (only source-code lines; no comments, no blank lines)
Comment Lines	lines containing single or block comments
Complexity Score	a custom complexity score derived from code statements that are known to introduce code complexity (branches, loops, calls, external interfaces, ...)

Audit Results

AUDIT PASSED

Security Issues

Critical Severity Issues

No critical severity issues found.

High Severity Issues

No medium severity issues found.

Medium Severity Issues

No medium severity issues found.

Low Severity Issues

No low severity issues found.

Audit Comments

30 May 2022 :

- It is up to the users to choose. This contract can be terminated at any time. Deployer can prevent any user from trading at any time.

SWC Attacks

ID	Title	Relationships	Type
SW C-13 6	Unencrypted Private Data On-Chain	CWE-767: Access to Critical Private Variable via Public Method	PASSED
SW C-13 5	Code With No Effects	CWE-1164: Irrelevant Code	PASSED
SW C-13 4	Message call with hardcoded gas amount	CWE-655: Improper Initialization	PASSED
SW C-13 3	Hash Collisions With Multiple Variable Length Arguments	CWE-294: Authentication Bypass by Capture-replay	PASSED
SW C-13 2	Unexpected Ether balance	CWE-667: Improper Locking	PASSED
SW C-13 1	Presence of unused variables	CWE-1164: Irrelevant Code	PASSED
SW C-13 0	Right-To-Left-Override control character (U+202E)	CWE-451: User Interface (UI) Misrepresentation of Critical Information	PASSED
SW C-12 9	Typographical Error	CWE-480: Use of Incorrect Operator	PASSED
SW C-12 8	DoS With Block Gas Limit	CWE-400: Uncontrolled Resource Consumption	PASSED

SW C-12 7	Arbitrary Jump with Function Type Variable	CWE-695: Use of Low-Level Functionality	PASSED
SW C-12 5	Incorrect Inheritance Order	CWE-696: Incorrect Behavior Order	PASSED
SW C-12 4	Write to Arbitrary Storage Location	CWE-123: Write-what-where Condition	PASSED
SW C-12 3	Requirement Violation	CWE-573: Improper Following of Specification by Caller	PASSED
SW C-12 2	Lack of Proper Signature Verification	CWE-345: Insufficient Verification of Data Authenticity	PASSED
SW C-12 1	Missing Protection against Signature Replay Attacks	CWE-347: Improper Verification of Cryptographic Signature	PASSED
SW C-12 0	Weak Sources of Randomness from Chain Attributes	CWE-330: Use of Insufficiently Random Values	PASSED
SW C-11 9	Shadowing State Variables	CWE-710: Improper Adherence to Coding Standards	PASSED
SW C-11 8	Incorrect Constructor Name	CWE-665: Improper Initialization	PASSED
SW C-11 7	Signature Malleability	CWE-347: Improper Verification of Cryptographic Signature	PASSED

SW C-11 6	Timestamp Dependence	CWE-829: Inclusion of Functionality from Untrusted Control Sphere	PASSED
SW C-11 5	Authorization through tx.origin	CWE-477: Use of Obsolete Function	PASSED
SW C-11 4	Transaction Order Dependence	CWE-362: Concurrent Execution using Shared Resource with Improper Synchronization ('Race Condition')	PASSED
SW C-11 3	DoS with Failed Call	CWE-703: Improper Check or Handling of Exceptional Conditions	PASSED
SW C-11 2	Delegatecall to Untrusted Callee	CWE-829: Inclusion of Functionality from Untrusted Control Sphere	PASSED
SW C-111	Use of Deprecated Solidity Functions	CWE-670: Always-Incorrect Control Flow Implementation	PASSED
SW C-11 0	Assert Violation	CWE-824: Access of Uninitialized Pointer	PASSED
SW C-10 9	Uninitialized Storage Pointer	CWE-710: Improper Adherence to Coding Standards	PASSED
SW C-10 8	State Variable Default Visibility	CWE-841: Improper Enforcement of Behavioral Workflow	PASSED
SW C-10 7	Reentrancy	CWE-284: Improper Access Control	PASSED

SW C-10 5	Unprotected Ether Withdrawal	CWE-284: Improper Access Control	PASSED
SW C-10 4	Unchecked Call Return Value	CWE-252: Unchecked Return Value	PASSED
SW C-10 3	Floating Pragma	CWE-664: Improper Control of a Resource Through its Lifetime	PASSED
SW C-10 2	Outdated Compiler Version	CWE-937: Using Components with Known Vulnerabilities	PASSED
SW C-10 1	Integer Overflow and Underflow	CWE-682: Incorrect Calculation	PASSED
SW C-10 0	Function Default Visibility	CWE-710: Improper Adherence to Coding Standards	PASSED

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