SOLIDProof

Bring trust into your projects

Blockchain Security | Smart Contract Audits | KYC

MADE IN GERMANY

Audit

Security Assessment
10. December, 2021

For

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Version	Date	Description
1.0	10. December 2021	• Layout project • Automated- /Manual-Security Testing • Summary

Network
Binance Smart Chain (BEP20)

Website
https://dragonverse.finance

Twitter
https://twitter.com/Dragonverse_OA

Telegram
https://t.me/Dragonverse_Ann
https://t.me/Dragonverse_Official

YouTube
https://www.youtube.com/channel/UCo0vTv47JEf6rdbqQHT2Row

Medium
https://medium.com/@dragonverse

Description

Dragon Verse is an upcoming Play-to-earn game with PvP/PvE Genre, built on Binance Smart Chain to take advantage of low fees, fast transaction speed, and large user base. Prepare all the weapons for your Dragon Pet and gather your strength to fight against Dark Lord Dragon and other players!

Dragon Verse is designed to focus on the NFT Marketplace system and staking, where players and the DRV community can trade accessories and raise their dragon pets to a higher level. The stronger the dragon pet, the more valuable it is on the trading market. Let's play a simple, fun, relaxing game and make real money!

From the beginning, Dragon Metaverse has aimed to develop long-term assets for the metaverse world, and we are in progress of transferring all of your NFT into the virtual world. In the future, you can use your NFTs to receive rare accessories and gain more profits.

Project Engagement

During the 2nd of December 2021, **DragonVerse Team** engaged Solidproof.io 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 Solidproof.io with access to their code repository and whitepaper.

Logo

Contract Link

v1.0

- https://bscscan.com/address/0xcd9442d70eb0e6ecf26919e62278fc4fd24c3ed2#code

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.
Informational	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

<u>Auditing Strategy and Techniques Applied</u>

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 SolidProof 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 SolidProof 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:

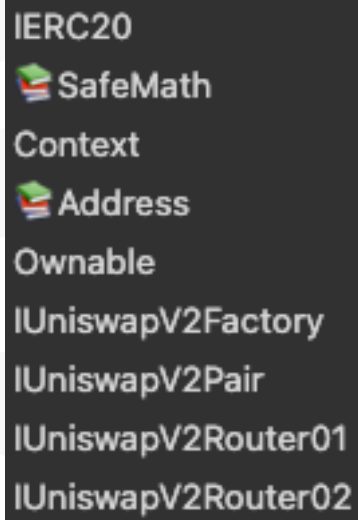| File Name	SHA-1 Hash
contracts/dragonverse.sol	393476bfdcb8aacdef89ea7d035d5bcb2719389b

Tested Contract Files

This audit covered the following files listed below with a SHA-1 Hash.

A file with a different Hash has been modified, intentionally or otherwise, after the security review. A different Hash could be (but not necessarily) an indication of a changed condition or potential vulnerability that was not within the scope of this review.
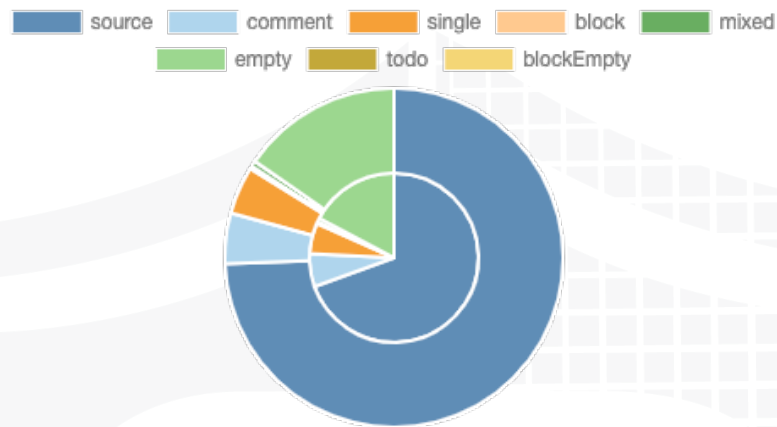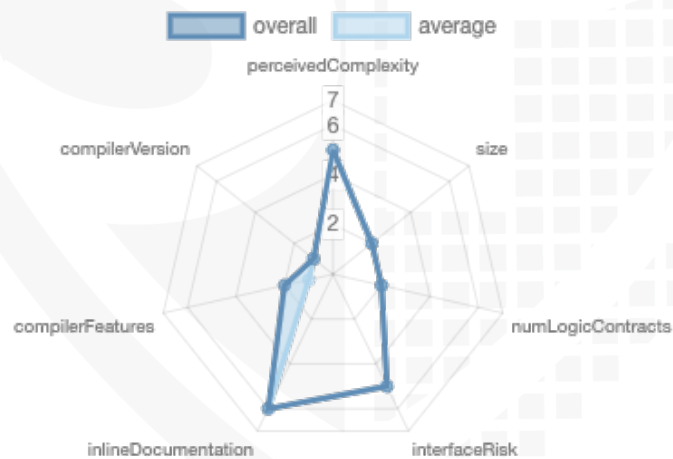
v1.0

IERC20
SafeMath
Context
Address
Ownable
IUniswapV2Factory
IUniswapV2Pair
IUniswapV2Router01
IUniswapV2Router02

Metrics

Source Lines
v1.0

Risk Level
v1.0

Capabilities

Components

Version	Contracts	Libraries	Interfaces	Abstract
1.0	2	2	5	1

Exposed Functions

This section lists functions that are explicitly declared public or payable. Please note that getter methods for public stateVars are not included.

Version	Public	Payable
1.0	100	5

Version	External	Internal	Private	Pure	View
1.0	73	91	25	19	44

State Variables

Version	Total	Public
1.0	29	9

Capabilities

Version	Solidity Versions observed	Experimental Features	Can Receive Funds	Uses Assembly	Has Destroyable Contracts
1.0	`^0.6.12`		yes	yes (2 asm blocks)	

Version	Transfers ETH	Low-Level Calls	DelegateCall	Uses Hash Functions	ECRecover	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)

Inheritance Graph
v1.0

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. decreaseAllowance

3. deliver

4. excludeFromFee

5. excludeFromReward

6. includeInFee

7. includeInReward

8. increaseAllowance

9. renounceOwnership

10. setAutomatedMarketMakerPair

11. setDevAddress

12. setDevFeePercent

13. setLiquidityFeePercent

14. setMaxTxPercent

15. setSwapAndLiquifyEnabled

16. setTaxFeePercent

17. transfer

18. transferFrom

19. transferOwnership

20. withdrawBNB

21. withdrawTokens

Deployer cannot mint any new tokens

Name	Exist	Tested	Verified
Deployer cannot mint	–	–	–

Max / Total Supply: 300.000.000

Comments:

v1.0

.

Deployer cannot burn or lock user funds

Name	Exist	Tested	Verified
Deployer cannot lock	✓	✓	✗
Deployer cannot burn	✓	✓	✓

Comments:
v1.0

· Deployer can lock user funds by setting _maxTxAmount to 0

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	–

Modifiers

```
excludeFromReward

includeInReward

excludeFromFee

includeInFee

setTaxFeePercent

setLiquidityFeePercent

setDevFeePercent

setMaxTxPercent
```

```
setSwapAndLiquifyEnabled

setAutomatedMarketMakerPair

withdrawTokens

withdrawBNB
```

Comments

- Deployer can set following state variables without any limitations
  - _taxFee
  - _liquidityFee
  - _devFee
  - _maxTxAmount
- Deployer can enable/disable following state variables
  - swapAndLiquifyEnabled

CallGraph
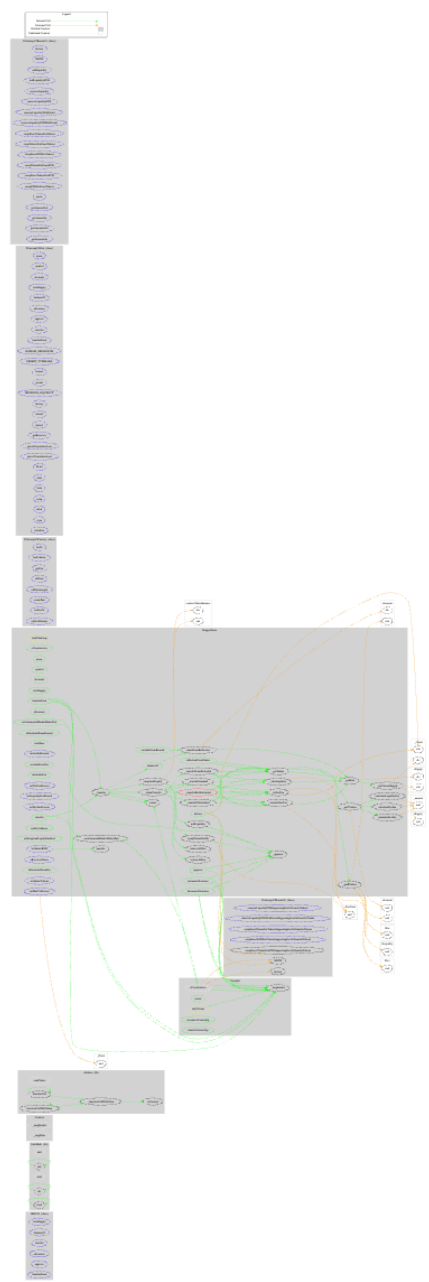
Source Units in Scope
v1.0

Type	File	Logic Contracts	Interfaces	Lines	nLines	nSLOC	Comment Lines	Complex. Score	Capabilities
📝🔍🎨	contracts/dragonverse.sol	5	5	913	690	519	47	567	🖥️💰🐦☀️
📝🔍🎨	Totals	5	5	913	690	519	47	567	🖥️💰🐦☀️

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

<div style="background-color: #7CE846; text-align: center;">

AUDIT PASSED

</div>

Critical issues
- no critical issues found -

High issues
- no high issues found -

Medium issues

Issue	File	Type	Line	Description
#1	Main	Reentrancy vulnerabilities	741	Apply the [`check-effects-interactions pattern`](http://solidity.readthedocs.io/en/v0.4.21/security-considerations.html#re-entrancy).or nonReentrant modifier from OpenZeppelin

Low issues

Issue	File	Type	Line	Description
#1	Main	Contract doesn't import npm packages from source (like OpenZeppelin etc.)	-	We recommend to import all packages from npm directly without flatten the contract. Functions could be modified or can be susceptible to vulnerabilities
#2	Main	A floating pragma is set	7	The current pragma Solidity directive is „"^0.6.12"".
#3	Main	State variable visibility is not set	417	It is best practice to set the visibility of state variables explicitly

Informational issues

Issue	File	Type	Line	Description

#1	Main	State variables that could be declared constant (constable-states)	401, 399, 400, 395, 421	Add the `constant` attributes to state variables that never change
#2	Main	Unused return values	833	Ensure that all the return values of the function calls are used and handle both success and failure cases if needed by the business logic
#3	Main	Unused state variables	148	Remove unused state variables

Commented Code exist

There are some instances of code being commented out in the following files that should be removed:

Line	Comment
58	// assert(a == b * c + a % b); // There is no case in which this doesn't hold

Recommendation

Remove the commented code, or address them properly.

Audit Comments
10. December 2021:
- Read whole report for more information

SWC Attacks

ID	Title	Relationships	Status
SWC-136	Unencrypted Private Data On-Chain	CWE-767: Access to Critical Private Variable via Public Method	**PASSED**
SWC-135	Code With No Effects	CWE-1164: Irrelevant Code	**PASSED**
SWC-134	Message call with hardcoded gas amount	CWE-655: Improper Initialization	**PASSED**
SWC-133	Hash Collisions With Multiple Variable Length Arguments	CWE-294: Authentication Bypass by Capture-replay	**PASSED**
SWC-132	Unexpected Ether balance	CWE-667: Improper Locking	**PASSED**
SWC-131	Presence of unused variables	CWE-1164: Irrelevant Code	**PASSED**
SWC-130	Right-To-Left-Override control character (U+202E)	CWE-451: User Interface (UI) Misrepresentation of Critical Information	**PASSED**
SWC-129	Typographical Error	CWE-480: Use of Incorrect Operator	**PASSED**
SWC-128	DoS With Block Gas Limit	CWE-400: Uncontrolled Resource Consumption	**PASSED**

[SWC-127](#)	Arbitrary Jump with Function Type Variable	[CWE-695: Use of Low-Level Functionality](#)	**PASSED**
[SWC-125](#)	Incorrect Inheritance Order	[CWE-696: Incorrect Behavior Order](#)	**PASSED**
[SWC-124](#)	Write to Arbitrary Storage Location	[CWE-123: Write-what-where Condition](#)	**PASSED**
[SWC-123](#)	Requirement Violation	[CWE-573: Improper Following of Specification by Caller](#)	**PASSED**
[SWC-122](#)	Lack of Proper Signature Verification	[CWE-345: Insufficient Verification of Data Authenticity](#)	**PASSED**
[SWC-121](#)	Missing Protection against Signature Replay Attacks	[CWE-347: Improper Verification of Cryptographic Signature](#)	**PASSED**
[SWC-120](#)	Weak Sources of Randomness from Chain Attributes	[CWE-330: Use of Insufficiently Random Values](#)	**PASSED**
[SWC-119](#)	Shadowing State Variables	[CWE-710: Improper Adherence to Coding Standards](#)	**PASSED**
[SWC-118](#)	Incorrect Constructor Name	[CWE-665: Improper Initialization](#)	**PASSED**
[SWC-117](#)	Signature Malleability	[CWE-347: Improper Verification of Cryptographic Signature](#)	**PASSED**

SWC-116	Timestamp Dependence	CWE-829: Inclusion of Functionality from Untrusted Control Sphere	PASSED
SWC-115	Authorization through tx.origin	CWE-477: Use of Obsolete Function	PASSED
SWC-114	Transaction Order Dependence	CWE-362: Concurrent Execution using Shared Resource with Improper Synchronization ('Race Condition')	PASSED
SWC-113	DoS with Failed Call	CWE-703: Improper Check or Handling of Exceptional Conditions	PASSED
SWC-112	Delegatecall to Untrusted Callee	CWE-829: Inclusion of Functionality from Untrusted Control Sphere	PASSED
SWC-111	Use of Deprecated Solidity Functions	CWE-477: Use of Obsolete Function	PASSED
SWC-110	Assert Violation	CWE-670: Always-Incorrect Control Flow Implementation	PASSED
SWC-109	Uninitialized Storage Pointer	CWE-824: Access of Uninitialized Pointer	PASSED
SWC-108	State Variable Default Visibility	CWE-710: Improper Adherence to Coding Standards	NOT PASSED
SWC-107	Reentrancy	CWE-841: Improper Enforcement of Behavioral Workflow	NOT PASSED
SWC-106	Unprotected SELFDESTRUCT Instruction	CWE-284: Improper Access Control	PASSED

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SWC-105	Unprotected Ether Withdrawal	CWE-284: Improper Access Control	PASSED
SWC-104	Unchecked Call Return Value	CWE-252: Unchecked Return Value	NOT PASSED
SWC-103	Floating Pragma	CWE-664: Improper Control of a Resource Through its Lifetime	NOT PASSED
SWC-102	Outdated Compiler Version	CWE-937: Using Components with Known Vulnerabilities	PASSED
SWC-101	Integer Overflow and Underflow	CWE-682: Incorrect Calculation	PASSED
SWC-100	Function Default Visibility	CWE-710: Improper Adherence to Coding Standards	PASSED