

SMART CONTRACT AUDIT REPORT

For

The Avenging Justice Onniverse

Prepared By: SFI Team

Prepared on: 3/11/2022

Prepared for: TAJO Team

Contract address: Not deployed yet

Table of Content

- Disclaimer
- Scope of the audit
- Check Vulnerabilities
- Issue Categories
- Issues Found Code Review
- Source Lines
- Risk Level
- Capabilities
- Testing proves
- Inheritance graph
- Call Graph
- Source Units In Scope
- Unified Modeling Language (UML)
- Functions signature
- Automatic general report
- Summary of the audit

• Disclaimer

This is a limited report on our findings based on our analysis, in accordance with good industry practice as of 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 the team on the basis of what it says or doesn't say, or how team produced it, and it is important for you to conduct your own independent investigations before making any decisions, team go into more detail on this in the below disclaimer below – please make sure to read it in full. By reading this report or any part of it, you agree to the terms of this disclaimer. If you do not agree to the terms, then please immediately cease reading this report, and delete and destroy any and all copies of this report downloaded and/or printed by you. This report is provided for information purposes only and on a non-reliance basis, and does not constitute investment advice. No one shall have any right to rely on the report or its contents, and Saferico and its affiliates (including holding companies, shareholders, subsidiaries, employees, directors, officers and other representatives) (SaferICO) owe no duty of care towards you or any other person, nor does Saferico make any warranty or representation to any person on the accuracy or completeness of the report. The report is provided "as is", without any conditions, warranties or other terms of any kind except as set out in this disclaimer, and Saferico hereby excludes all representations, warranties, conditions and other terms (including, without limitation, the warranties implied by law of satisfactory quality, fitness for purpose and the use of reasonable care and skill) which, but for this clause, might have effect in relation to the report. Except and only to the extent that it is prohibited by law, Saferico hereby excludes all liability and responsibility, and neither you nor any other person shall have any claim against Saferico, for any amount or kind of loss or damage that may result to you or any other person (including without limitation, any direct, indirect, special, punitive, consequential or pure economic loss or damages, or any loss of income, profits, goodwill, data, contracts, use of money, or business interruption, and whether in delict, tort (including without limitation negligence), contract, breach of statutory duty, misrepresentation (whether innocent or negligent) or otherwise under any claim of any nature whatsoever in any jurisdiction) in any way arising from or connected with this report and the use, inability to use or the results of use of this report, and any reliance on this report. 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.

Scope of the audit

The scope of this audit was to analyze and document The Avenging Justice Onniverse smart contract codebase for quality, security, and correctness.

• Introduction

During the period of November 2, 2022, to November 3, 2022- SaferICO

Team performed a security audit for **The Avenging Justice Onniverse** smart contracts.

The project has 1 file. It contains approx 1420 lines of Solidity code. Most of the functions and state variables are well commented on using the Nat spec documentation, but that does not create any vulnerability.

Source Code: https://github.com/Saferico/Smart-Contracts-for-Projects/blob/main/TAJO.sol

Check Vulnerabilities

In order to check for the security of the contract, we tested several attacks in order to make sure that the contract is secure and follows best practices automatically.

- 1. Unit tests passing.
- 2. Compilator warnings;
- 3. Race Conditions. Reentrancy. Cross-function Race Conditions. Pitfalls in Race Condition solutions:
- 4. Possible delays in data delivery;
- 5. Transaction-Ordering Dependence (front running);
- 6. Timestamp Dependence;

- 7. Integer Overflow and Underflow;
- 8. DoS with (unexpected) Revert;
- 9. DoS with Block Gas Limit
- 10. Call Depth Attack. Not relevant in modern ethereum network
- 11. Methods execution permissions;
- 12. Oracles calls;
- 13. Economy model. It's important to forecast scenarios when a user is provided with additional economic motivation or faced with limitations. If application logic is based on incorrect economy model, the application will not function correctly and participants will incur financial losses. This type of issue is most often found in bonus rewards systems.
- 14. The impact of the exchange rate on the logic;
- 15. Private user data leaks.

• Issue Categories

Every issue in this report has been assigned to a severity level. There are four levels of severity, and each of them has been explained below.

Risk-level	Description
High	A high severity issue or vulnerability means that your smart contract can be exploited. Issues on this level are critical to the smart contract's performance or functionality, and we recommend these issues be fixed before moving to a live environment.
Medium	The issues marked as medium severity usually arise because of errors and deficiencies in the smart contract code. Issues on this level could potentially bring problems, and they should still be fixed.
Low	Low-level severity issues can cause minor impact and or are just warnings that can remain unfixed for now. It would be better to fix these issues at some point in the future.
Informational	These are severity issues that indicate an improvement request, a general question, a cosmetic or documentation error, or a request for information. There is low-to-no impact.

• Issues Found – Code Review

High severity issues

There are no High severity vulnerabilities found.

Medium severity issues

There are no Medium severity vulnerabilities found.

Low severity issues

#Missing zero address validation

Description

When the owner to mint for the team, he has to check for the zero address, he didn't add the burn address to the team mint list. Otherwise, it will cost him more ETH gas and burn some NFT.

```
function teamMint(address _to, uint _quantity) external onlyOwner {
    require(totalSupply() + _quantity <= MaxSupply, "Reached max Supply");
    _safeMint(_to, _quantity);
}</pre>
```

Remediation

Use the require statement to check for zero addresses.

Status: Closed. Fixed in version2.

#Multiple pragma statements

line	complier
7	pragma solidity ^0.8.0;
75	pragma solidity ^0.8.0;

145 pragma solidity ^0.8.0; 172 pragma solidity ^0.8.0; 250 pragma solidity ^0.8.1; 475 pragma solidity ^0.8.0; 505 pragma solidity ^0.8.0; 533 pragma solidity ^0.8.0; 564 pragma solidity ^0.8.0; 700 pragma solidity ^0.8.0;
pragma solidity ^0.8.1; pragma solidity ^0.8.0;
pragma solidity ^0.8.0;
505 pragma solidity \(^0.8.0\); 533 pragma solidity \(^0.8.0\); 564 pragma solidity \(^0.8.0\);
533 pragma solidity ^0.8.0; 564 pragma solidity ^0.8.0;
564 pragma solidity ^0.8.0;
1 8
700
709 pragma solidity ^0.8.0;
pragma solidity ^0.8.0;
pragma solidity ^0.8.4;
pragma solidity ^0.8.0;

Description

There are multiple pragma statements in the code. The newest compiler version 0.8.17 will work with the code, but keeping only one pragma statement helps in maintaining readability of the code.

Remediation

Keep a single pragma statement.

Status: Closed. Fixed In version 2

#Use of block.timestamp for comparisons

Description

The value of block.timestamp can be manipulated by the miner.

And conditions with strict equality is difficult to achieve -

block.timestamp

Remediation

Avoid use of block.timestamp

Status: Acknowledged

#Owner privileges (In the period when the owner isn't renounced)
Description

The owner can change the mint price in presale and public sale.

The owner can add any address to the airdrop list.

The owner can change the sale statue of the smart contract.

Remediation

Make these functions internal in next version or the team should announce the investors before doing anything to give them time if they want to do anything.

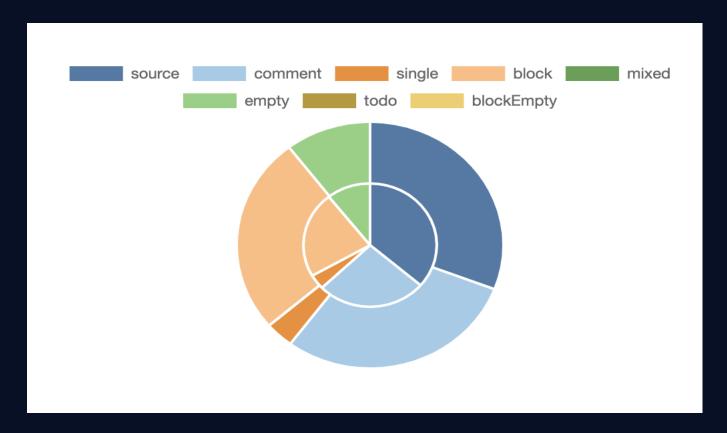
P.S: This issue is common to the majority of NFT smart contracts.

Status: Acknowledged.

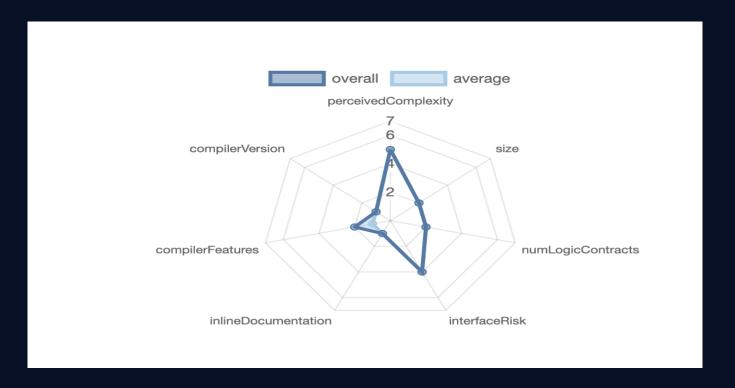
Informational issues

There are no Informational issues found.

• Source Lines

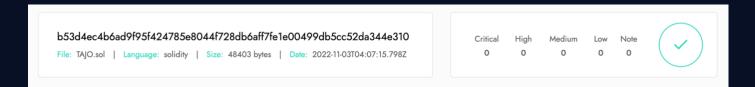


• Risk Level



Testing proves

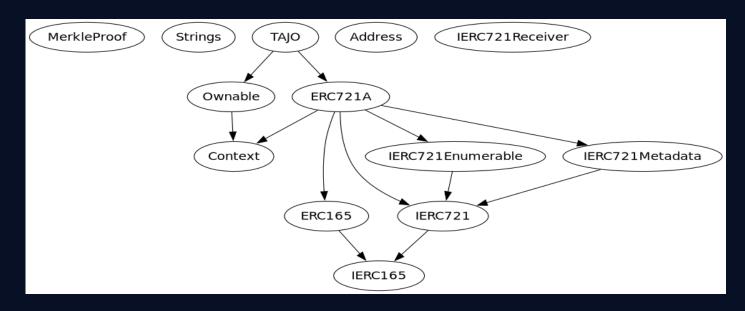
• Check for security



• Solidity Static Analysis



• Inheritance graph



• Solidity Unit Testing Code & Results

```
// SPDX-License-Identifier: GPL-3.0

pragma solidity >=0.4.22 <0.9.0;

// This import is automatically injected by Remix
import "remix_tests.sol";

// This import is required to use custom transaction context

// Although it may fail compilation in 'Solidity Compiler' plugin

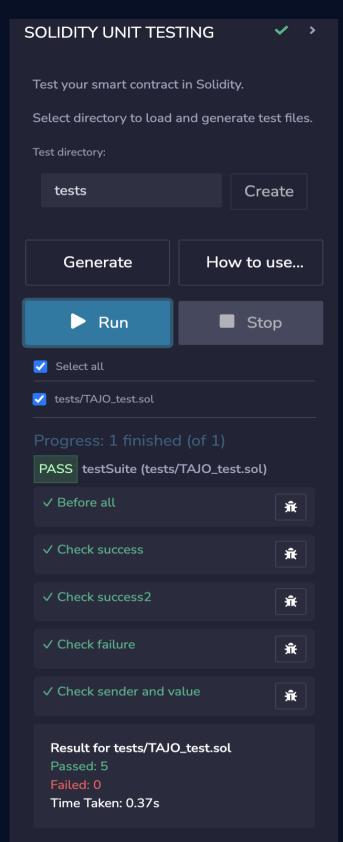
// But it will work fine in 'Solidity Unit Testing' plugin
import "remix_accounts.sol";
import "../ TAJO.sol";

// File name has to end with '_test.sol', this file can contain more than one testSuite contracts

contract testSuite {

/// 'beforeAll' runs before all other tests

/// More special functions are: 'beforeEach', 'beforeAll', 'afterEach' & 'afterAll'
function beforeAll() public {
```

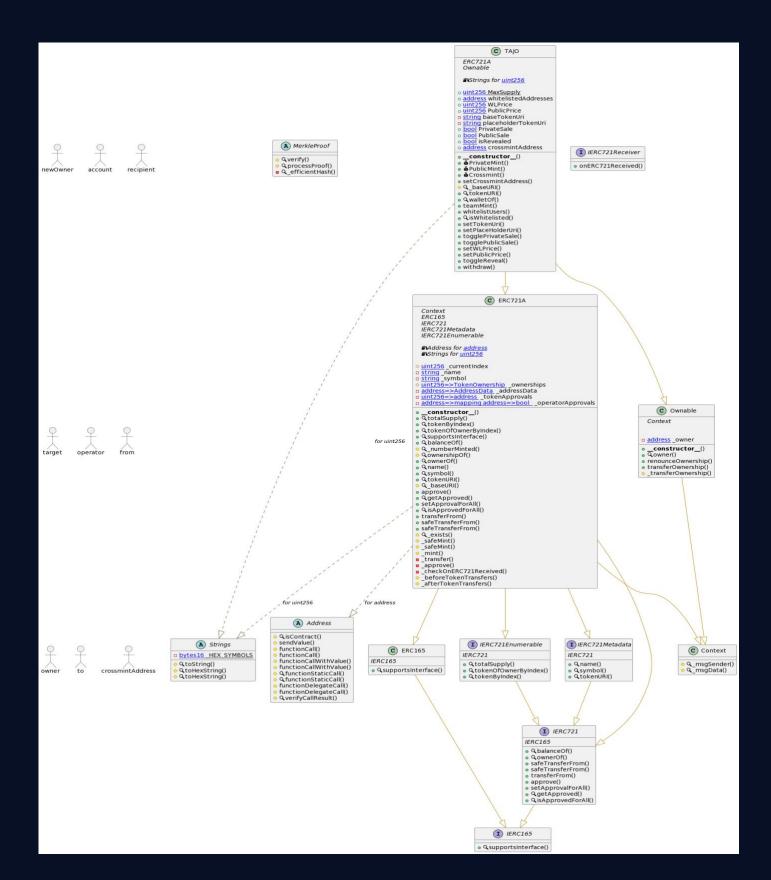


```
// <instantiate contract>
     Assert.equal(uint(1), uint(1), "1 should be equal to 1");
  function checkSuccess() public {
     // Use 'Assert' methods: https://remix-
     Assert.ok(2 == 2, 'should be true');
     Assert.greaterThan(uint(2), uint(1), "2 should be greater than
to 1");
     Assert.lesserThan(uint(2), uint(3), "2 should be lesser than to
3");
  function checkSuccess2() public pure returns (bool) {
  function checkFailure() public {
     Assert.notEqual(uint(1), uint(2), "1 should not be equal to 1");
  /// #value: 100
  function checkSenderAndValue() public payable {
     // account index varies 0-9, value is in wei
     Assert.equal(msg.sender, TestsAccounts.getAccount(1),
"Invalid sender");
     Assert.equal(msg.value, 100, "Invalid value");
```

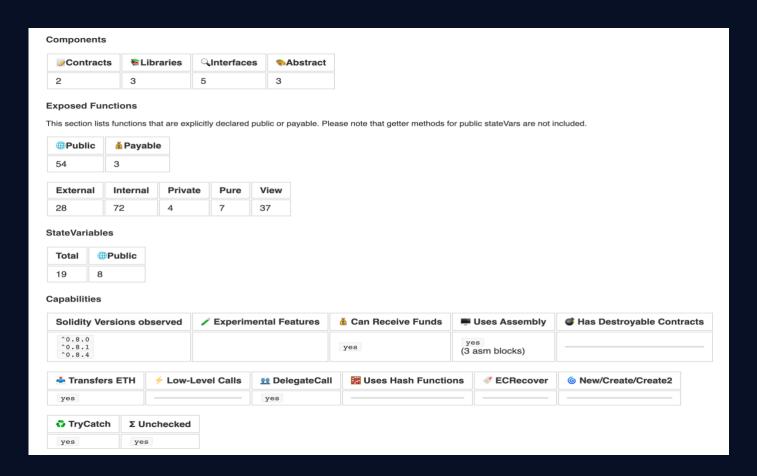
Call Graph



• Unified Modeling Language (UML)



• Capabilities



• Source Units In Scope



Legend: [-]

- 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, ...)

• Function Signature

```
Sighash | Function Signature
16279055 => isContract(address)
99755624 => setCrossmintAddress(address)
5a9a49c7 => verify(bytes32[],bytes32,bytes32)
62702a6b => processProof(bytes32[],bytes32)
41ed615b => _efficientHash(bytes32,bytes32)
6900a3ae => toString(uint256)
8fba8d5c => toHexString(uint256)
63e1cbea => toHexString(uint256,uint256)
119df25f => _msgSender()
8b49d47e => _msgData()
8da5cb5b => owner()
715018a6 => renounceOwnership()
f2fde38b => transferOwnership(address)
d29d44ee => _transferOwnership(address)
24a084df => sendValue(address,uint256)
a0b5ffb0 => functionCall(address,bytes)
241b5886 => functionCall(address,bytes,string)
2a011594 => functionCallWithValue(address,bytes,uint256)
d525ab8a => functionCallWithValue(address,bytes,uint256,string)
c21d36f3 => functionStaticCall(address,bytes)
dbc40fb9 => functionStaticCall(address,bytes,string)
ee33b7e2 => functionDelegateCall(address,bytes)
57387df0 => functionDelegateCall(address,bytes,string)
946b5793 => verifyCallResult(bool,bytes,string)
150b7a02 => onERC721Received(address,address,uint256,bytes)
01ffc9a7 => supportsInterface(bytes4)
70a08231 => balanceOf(address)
6352211e => ownerOf(uint256)
b88d4fde => safeTransferFrom(address,address,uint256,bytes)
42842e0e => safeTransferFrom(address,address,uint256)
23b872dd => transferFrom(address,address,uint256)
095ea7b3 => approve(address,uint256)
a22cb465 => setApprovalForAll(address,bool)
```

```
081812fc => getApproved(uint256)
e985e9c5 => isApprovedForAll(address,address)
18160ddd => totalSupply()
2f745c59 => tokenOfOwnerByIndex(address,uint256)
4f6ccce7 => tokenByIndex(uint256)
06fdde03 => name()
95d89b41 => symbol()
c87b56dd => tokenURI(uint256)
4d388a98 => _numberMinted(address)
140364a1 => ownershipOf(uint256)
743976a0 => _baseURI()
f8e76cc0 => exists(uint256)
b3e1c718 => _safeMint(address,uint256)
6a4f832b => _safeMint(address,uint256,bytes)
de0d9900 => _mint(address,uint256,bytes,bool)
30e0789e => _transfer(address,address,uint256)
f272404d => _approve(address,uint256,address)
1fd01de1 => _checkOnERC721Received(address,address,uint256,bytes)
ef435773 => _beforeTokenTransfers(address,address,uint256,uint256)
08c018f7 => _afterTokenTransfers(address,address,uint256,uint256)
8075fa47 => PrivateMint(uint256)
9fb17e34 => PublicMint(uint256)
fa778f3b => Crossmint(address,uint256)
83a974a2 => walletOf()
add5a4fa => teamMint(address,uint256)
edec5f27 => whitelistUsers(address[])
3af32abf => isWhitelisted(address)
0675b7c6 => setTokenUri(string)
b0962c53 => setPlaceHolderUri(string)
dfe5dd68 => togglePrivateSale()
e222c7f9 => togglePublicSale()
f6a5b8e6 => setWLPrice(uint256)
c6275255 => setPublicPrice(uint256)
5b8ad429 => toggleReveal()
3ccfd60b => withdraw()
```

• Automatic General Report

Files Description Table
File Name SHA-1 Hash
/Users/macbook/Desktop/smart contracts/TAJO.sol d5302335cbc8bb6fc8809115b7e2800e2ba78c91
Contracts Description Table
Contract Type Bases
: :
L **Function Name** **Visibility** **Mutability** **Modifiers**
MerkleProof Library
L verify Internal
L processProof Internal A
L _efficientHash Private 🖺
Strings Library
L toString Internal A
L toHexString Internal A
L toHexString Internal A
Context Implementation
L _msgSender Internal
L _msgData Internal
Ownable Implementation Context
L <constructor> Public NO </constructor>
L owner Public NO
L renounceOwnership Public [
L transferOwnership Public [
L _transferOwnership Internal 🖺 🔘

```
| **Address** | Library | ||| | |
| L | isContract | Internal 🖺 | | |
| L | sendValue | Internal A | D | |
| <sup>L</sup> | functionCall | Internal 🖺 | 🔘 ||
| L | functionCall | Internal 🖺 | 🔘 | |
| L | functionCallWithValue | Internal 🖺 | 🔘 | |
| L | functionCallWithValue | Internal A | D | |
| L | functionStaticCall | Internal 🖺 | | |
| L | functionStaticCall | Internal 🖺 | | |
| L | functionDelegateCall | Internal 🖺 | 🔘 | |
| L | functionDelegateCall | Internal A | D | |
| L | verifyCallResult | Internal A | | |
| **IERC721Receiver** | Interface | |||
| L | onERC721Received | External | | | NO | |
| **IERC165** | Interface | |||
| L | supportsInterface | External | | NO | |
| **ERC165** | Implementation | IERC165 |||
| L | supportsInterface | Public | | NO | |
IIIIII
| **IERC721** | Interface | IERC165 ||| | | | | | | | |
| L | balanceOf | External | | | | | | | | | | |
| L | ownerOf | External | | | | | | | | | | |
| L | safeTransferFrom | External | | | NO | |
| L | safeTransferFrom | External | | | | NO | |
| L | transferFrom | External | | | | NO | |
| L | setApprovalForAll | External | | | NO | |
| L | getApproved | External | | NO | |
| L | isApprovedForAll | External | | NO | |
| **IERC721Enumerable** | Interface | IERC721 |||
| L | totalSupply | External | | | NO | |
| L | tokenOfOwnerByIndex | External | | NO | |
| L | tokenByIndex | External | | NO | |
IIIIII
```

```
| **IERC721Metadata** | Interface | IERC721 ||| | | |
| L | name | External | | | NO | |
| L | symbol | External | | | | NO | |
| L | tokenURI | External | | NO | |
| **ERC721A** | Implementation | Context, ERC165, IERC721, IERC721Metadata, IERC721Enumerable | | |
| L | <Constructor> | Public | | | | NO | |
| L | totalSupply | Public | | | NO | |
| L | tokenByIndex | Public | | NO | |
| L | tokenOfOwnerByIndex | Public | | NO | |
| L | supportsInterface | Public | | NO | |
| L | balanceOf | Public | | NO | |
| L | numberMinted | Internal 🖺 | | |
| L | ownershipOf | Internal 🖺 | ||
| L | ownerOf | Public | | NO | |
| L | name | Public [ | NO [ |
| L | symbol | Public | | NO | |
| L | _baseURI | Internal 🖺 |   | |
| L | approve | Public | | | | NO | |
| L | getApproved | Public | | NO | |
| L | isApprovedForAll | Public | | NO | |
| L | transferFrom | Public | | | | NO | |
| <sup>L</sup> | _exists | Internal 🖺 |  ||
| L | _safeMint | Internal 🖺 | 🔘 | |
| L | _safeMint | Internal 🖺 | 🔘 | |
| L | _mint | Internal 🖺 | 🔘 | |
| L | _transfer | Private 🖺 | 🔘 | |
| L | _approve | Private 🖺 | 🔘 | |
| L | _checkOnERC721Received | Private 🖺 | 🔘 | |
| └ | _beforeTokenTransfers | Internal 🖺 | 🔘 | |
| **TAJO** | Implementation | ERC721A, Ownable ||
```

```
| L | PrivateMint | External | | @ | callerIsUser | | |
| L | PublicMint | External | | @ | callerIsUser |
| L | Crossmint | External | | @ | callerIsUser |
| L | setCrossmintAddress | Public | | | | onlyOwner |
| L | _baseURI | Internal 🖺 | | |
| L | tokenURI | Public | | INO | |
| L | walletOf | External | | NO | |
| L | teamMint | External | | | | onlyOwner |
| L | whitelistUsers | Public | | | | | onlyOwner |
| L | isWhitelisted | Public | | NO | |
| L | setTokenUri | External | | | | onlyOwner |
| L | setPlaceHolderUri | External | | | | onlyOwner |
| L | togglePrivateSale | External | | | | onlyOwner |
| L | togglePublicSale | External 🛭 | 🔘 | onlyOwner |
| L | setWLPrice | Public | | | | onlyOwner |
| L | setPublicPrice | Public | | | | | onlyOwner |
| L | toggleReveal | External 🛭 | 🔘 | onlyOwner |
| L | withdraw | External | | | | onlyOwner |
Legend
| Symbol | Meaning |
   Function can modify state |
    | Function is payable |
```

• Summary of the Audit

According to all test, the customer's solidity smart contract is Well Secure.

The general overview is presented in the Project Information section and all issues found are located in the audit overview section.

The test found 0 critical, 0 high, 0 medium, 4 low issues, and 0 notes.