Smart Contract Security Audit V1

Dung Transparent Upgradeable Proxy Smart Contract Audit

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Background

The purpose of the audit was to achieve the following:

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

The information in this report should be used 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.

Project Information

- **Website**: https://dungtoken.com/
- **Twitter**: https://twitter.com/TokenDung
- **Telegram**: https://t.me/Dung_Token
- **Whitepaper**: https://dungtoken.com/assets/dungtoken_whitepaper.c3827862.pdf
- **discord**: https://discord.io/dung
- **reddit**: https://www.reddit.com/u/Dung_Token
- **Platform**: Polygon
- **Contract Address**: 0x11baeaa0812953dabad3b7abaac084783408cd4a
- **Code Source**: https://polygonscan.com/address/0x11baeaa0812953dabad3b7abaac084783408cd4a#code
- **Audit Report**: https://github.com/Saferico/Dung-Transparent-Upgradeable-Proxy-Smart-Contract-Security-Audit

Token Information:

- **Name:** DUNG
- **Symbol:** DUNG
- **Total supply:** 21,000,000,000,000

Contracts address deployed to test net (Polygon)
Dung Transparent Upgradeable Proxy smart contracts on Polygon test-net by the auditor to test every function .

https://mumbai.polygonscan.com/address/0x734fd50312aa9d9a8defb4b3f1ce986c5c074677

Executive Summary

According to our assessment, the customer`s solidity smart contract is **Secured**.

Secured	✓
Poor Secured	
Insecure	

Automated checks are with remix IDE. All issues were performed by the team, which included the analysis of code functionality, manual audit found during automated analysis were manually reviewed and applicable vulnerabilities are presented in the audit overview section. The general overview is presented in the Project Information section and all issues found are located in the audit overview section.

Team found 0 critical, 0 high, 0 medium, 2 low, 0 very low-level issues and 0 note in all solidity files of the contract

The files:

TransparentUpgradeableProxy.sol

File and Function Level Report

File in Scope:

Contract Name	SHA 256 hash	Contract Address
TransparentUpgradeable Proxy.sol	**0a2ca5e107d715fdd106dfecbaa0e6c463b21f4e**	0x11baeaa0812953dabad3b7abaac084783408cd4a

- Contract: TransparentUpgradeableProxy
- Inherit: ERC1967Proxy
- Observation: All passed including security check
- Test Report: passed
- Score: passed
- Conclusion: passed

Function	Test Result	Type / Return Type	Score
changeAdmin	✓	Write / public	**Passed**
admin	✓	Write / public	**Passed**
implementation	✓	Write / public	**Passed**
upgradeToAndCall	✓	Write / public	**Passed**

Issues Checking Status

No.	Issue Description	Checking Status
1	Compiler warnings.	**Passed**
2	Race conditions and Reentrancy. Cross-function race conditions.	**Passed**
3	Possible delays in data delivery.	**Passed**
4	Oracle calls.	**Passed**
5	Design Logic.	**Passed**
6	Timestamp dependence.	**Passed**
7	Integer Overflow and Underflow.	**Passed**
8	DoS with Revert.	**Passed**
9	DoS with block gas limit.	**Passed with notes**
10	Methods execution permissions.	**Passed**
11	Economy model. If application logic is based on an incorrect economic model, the application would not function correctly and participants would incur financial losses. This type of issue is most often found in bonus rewards systems, Staking and Farming contracts, Vault and Vesting contracts, etc.	**Passed**
12	The impact of the exchange rate on the logic.	**Passed**
13	Private user data leaks.	**Passed**
14	Malicious Event log.	**Passed**
15	Scoping and Declarations.	**Passed**
16	Uninitialized storage pointers.	**Passed**
17	Arithmetic accuracy.	**Passed**

Severity Definitions

Risk Level	Description
Critical	Critical vulnerabilities are usually straightforward to exploit and can lead to tokens loss etc.
High	High-level vulnerabilities are difficult to exploit; however, they also have 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 tokens lose
Low	Low-level vulnerabilities are mostly related to outdated, unused etc. code snippets, that can't have significant impact on execution
Note	Lowest-level vulnerabilities, code style violations and info statements can't affect smart contract execution and can be ignored.

Audit Findings

Critical:

No Critical severity vulnerabilities were found.

High:

No High severity vulnerabilities were found.

Medium:

No Medium severity vulnerabilities were found.

Low:

#Pragam version not fixed

Description

It is a good practice to lock the solidity version for a live deployment (use 0.8.19 instead of ^0.8.0). contracts should be deployed with the same compiler version and flags that they have been tested the most with. Locking the pragma helps ensure that contracts do not accidentally get deployed using, for example, the latest compiler which may have higher risks of undiscovered bugs. Contracts may also be deployed by others and the pragma indicates the compiler version intended by the original authors.

Remediation

Remove the ^ sign to lock the pragma version.

Status: Acknowledged

#Missing Read functions

Description

In every smart contract has read and write functions, the read allows the users to read the info in the smart contract if they aren't developers, in this smart contract has 2 functions need to be external to allow users to see it and read it like admin address and implementation address.

```
function _admin() internal view virtual returns (address) {
        return _getAdmin();
    }
function _implementation() internal view virtual override returns
(address impl) {
        return ERC1967Upgrade._getImplementation();
    }
```

Remediation

Change both functions from internal to external to be able to read it and see it.

Status: Acknowledged

Very Low:

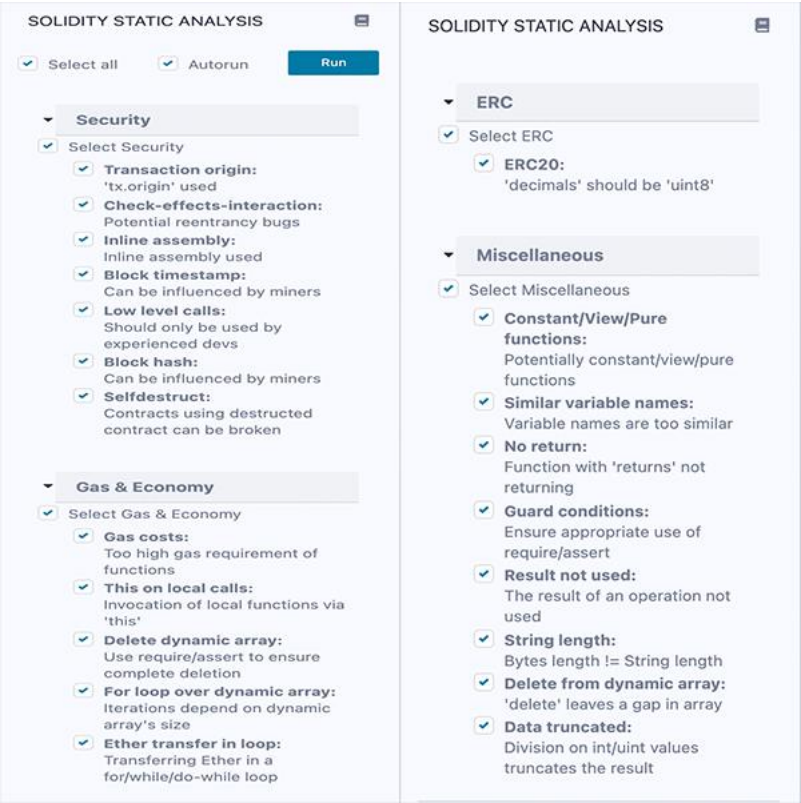
No Very Low severity vulnerabilities were found.

Notes:

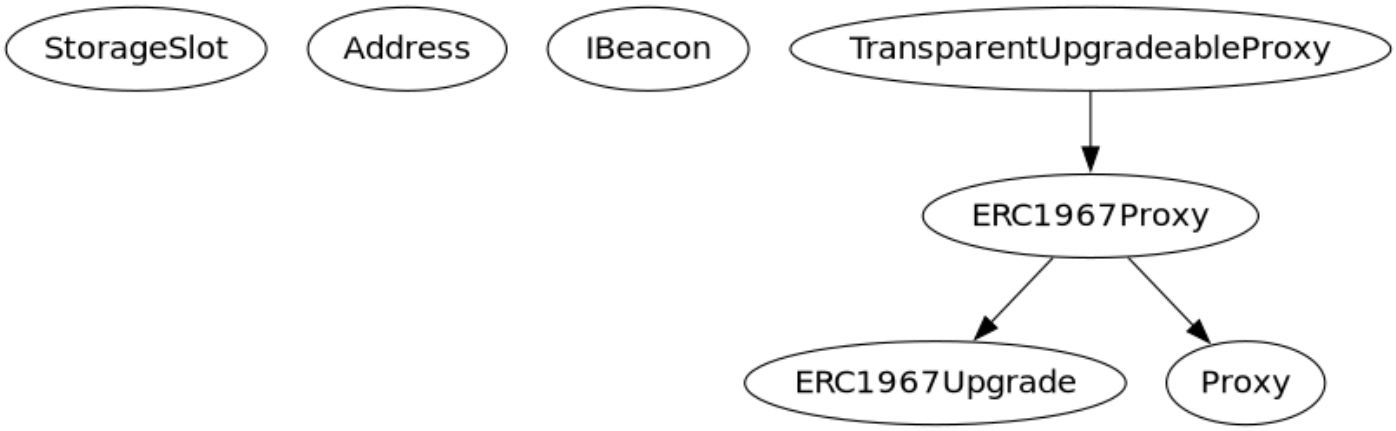
No Notes were found.

Automatic Testing

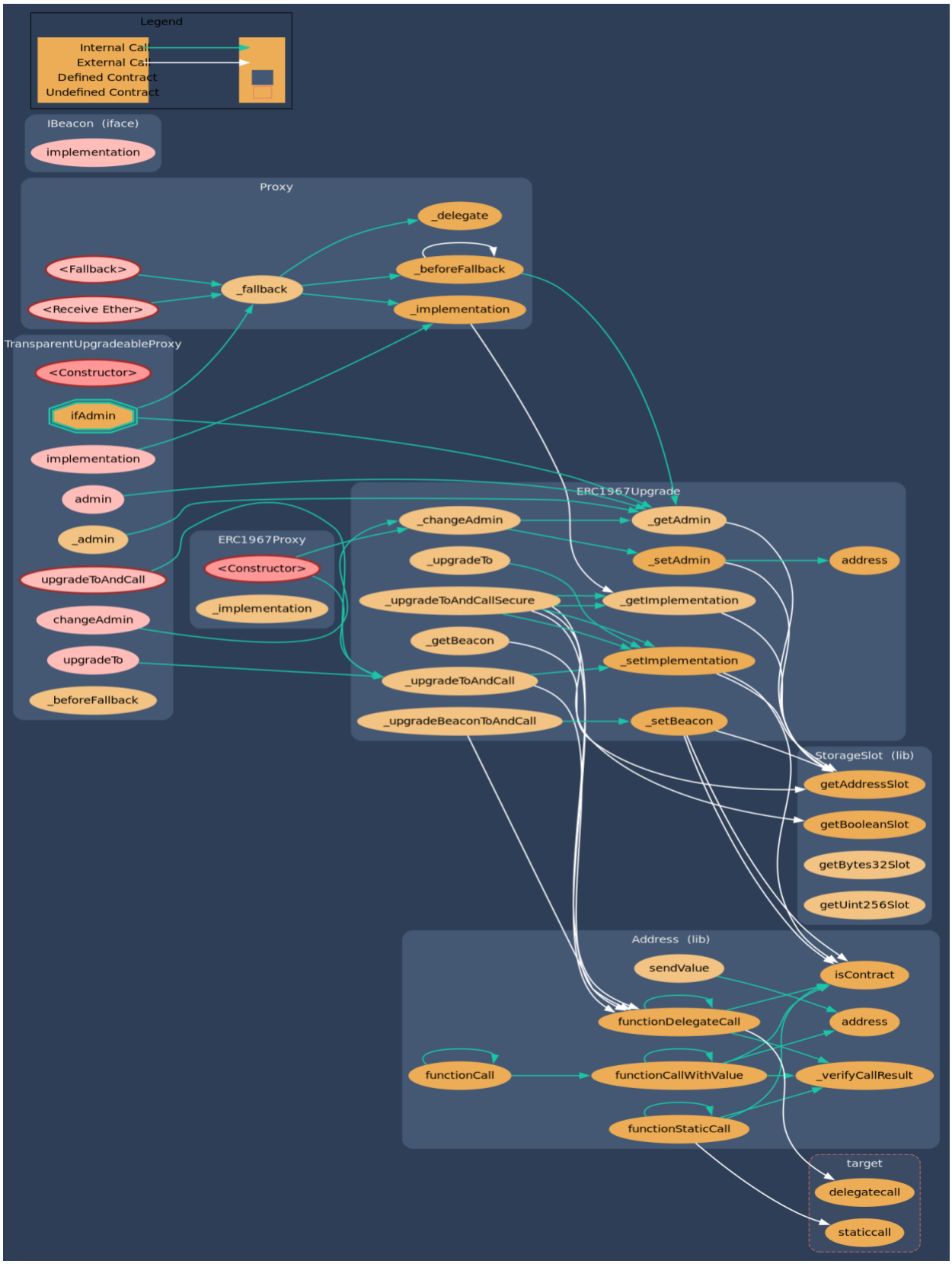
1- SOLIDITY STATIC ANALYSIS



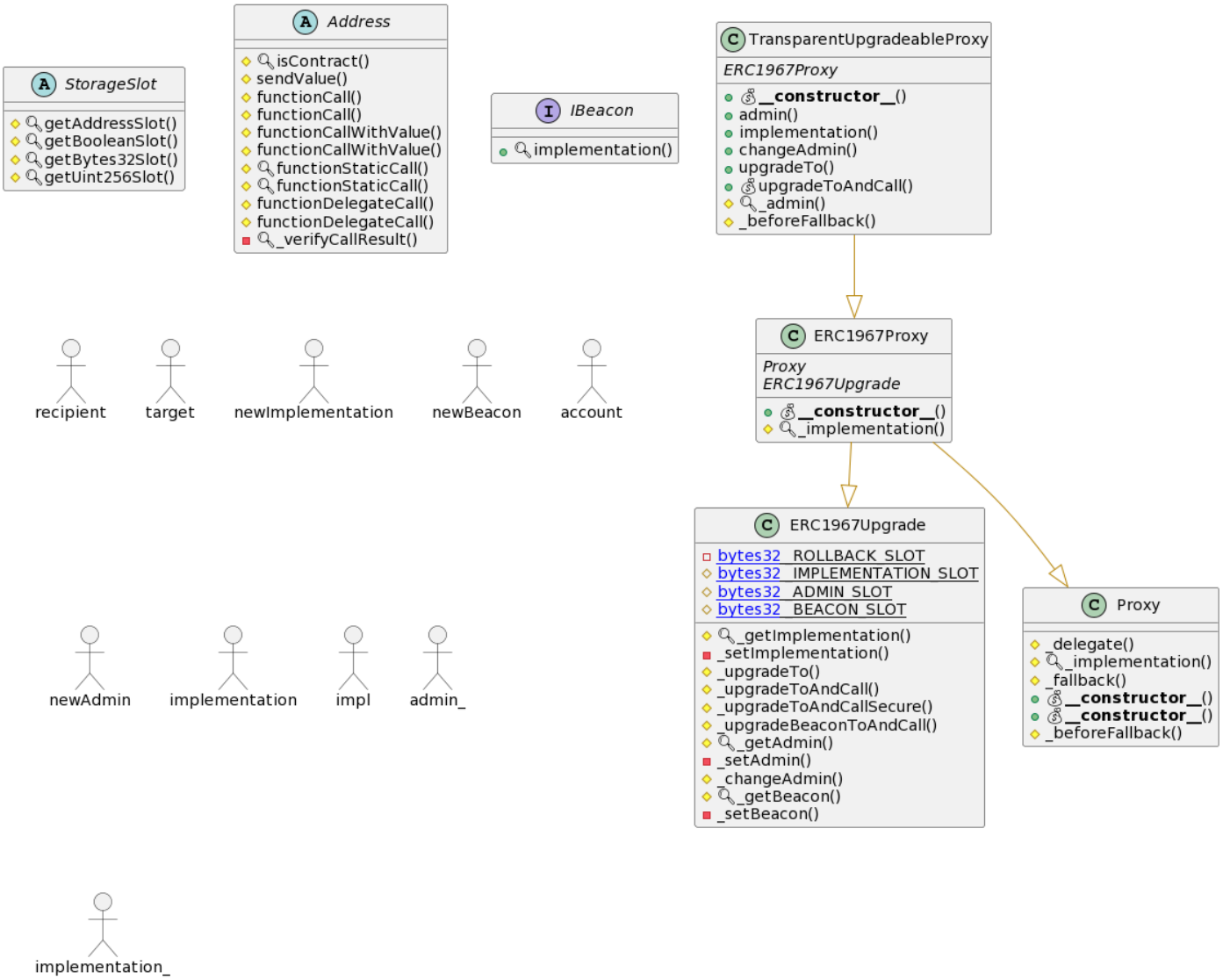
2- Inheritance graph



3- Call graph


Legend
Internal Call
External Call
Defined Contract
Undefined Contract
IBeacon (iface)
implementation
Proxy
_delegate
<Fallback>
_beforeFallback
_fallback
<Receive Ether>
_implementation
TransparentUpgradeableProxy
<Constructor>
ifAdmin
implementation
admin
_admin
upgradeToAndCall
changeAdmin
upgradeTo
_beforeFallback
ERC1967Proxy
<Constructor>
_implementation
ERC1967Upgrade
_changeAdmin
_getAdmin
_setAdmin
address
_upgradeTo
_upgradeToAndCallSecure
_getImplementation
_getBeacon
_setImplementation
_upgradeToAndCall
_upgradeBeaconToAndCall
_setBeacon
StorageSlot (lib)
getAddressSlot
getBooleanSlot
getBytes32Slot
getUint256Slot
Address (lib)
sendValue
isContract
functionDelegateCall
address
functionCall
functionCallWithValue
_verifyCallResult
functionStaticCall
target
delegatecall
staticcall

Unified Modeling Language (UML)



Functions signature

```
Sighash   |   Function Signature
========================
16279055  =>  isContract(address)
34140748  =>  _upgradeTo(address)
42404e07  =>  _getImplementation()
bb913f41  =>  _setImplementation(address)
e8ff0b1d  =>  getAddressSlot(bytes32)
37f4a46d  =>  getBooleanSlot(bytes32)
dd4e2762  =>  getBytes32Slot(bytes32)
949a352c  =>  getUint256Slot(bytes32)
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)
18c2c6a2  =>  _verifyCallResult(bool,bytes,string)
5c60da1b  =>  implementation()
267b04ae  =>  _upgradeToAndCall(address,bytes,bool)
ce2ea66a  =>  _upgradeToAndCallSecure(address,bytes,bool)
9ba186fe  =>  _upgradeBeaconToAndCall(address,bytes,bool)
839f5fb8  =>  _getAdmin()
3a74a767  =>  _setAdmin(address)
353dfc01  =>  _changeAdmin(address)
2bad8ba0  =>  _getBeacon()
073d36b4  =>  _setBeacon(address)
f13101e9  =>  _delegate(address)
59679b0f  =>  _implementation()
af8f35c4  =>  _fallback()
50c727ad  =>  _beforeFallback()
f851a440  =>  admin()
8f283970  =>  changeAdmin(address)
3659cfe6  =>  upgradeTo(address)
4f1ef286  =>  upgradeToAndCall(address,bytes)
01bc45c9  =>  _admin()
```

Automatic general report

```
Files Description Table

|  File Name  |  SHA-1 Hash  |
|-------------|--------------|
| /Users/macbook/Desktop/smart contracts/TransparentUpgradeableProxy.sol
| 0a2ca5e107d715fdd106dfecbaa0e6c463b21f4e |

 Contracts Description Table

|  Contract  |         Type        |       Bases      |
|                  |
|:----------:|:-------------------:|:----------------:|:----------------
:|:---------------:|
|     └      |  **Function Name**  |  **Visibility**  |  **Mutability**
|  **Modifiers**  |
||||||
| **StorageSlot** | Library |  |||
| └ | getAddressSlot | Internal 🔒 |   | |
| └ | getBooleanSlot | Internal 🔒 |   | |
| └ | getBytes32Slot | Internal 🔒 |   | |
| └ | getUint256Slot | Internal 🔒 |   | |
||||||
| **Address** | Library |  |||
| └ | isContract | Internal 🔒 |   | |
| └ | sendValue | Internal 🔒 | 🛑  | |
| └ | functionCall | Internal 🔒 | 🛑  | |
| └ | functionCall | Internal 🔒 | 🛑  | |
| └ | functionCallWithValue | Internal 🔒 | 🛑  | |
| └ | functionCallWithValue | Internal 🔒 | 🛑  | |
| └ | functionStaticCall | Internal 🔒 |   | |
| └ | functionStaticCall | Internal 🔒 |   | |
| └ | functionDelegateCall | Internal 🔒 | 🛑  | |
| └ | functionDelegateCall | Internal 🔒 | 🛑  | |
| └ | _verifyCallResult | Private 🔐 |   | |
||||||
| **IBeacon** | Interface |  |||
| └ | implementation | External ❗ |   |NO❗ |
||||||
| **ERC1967Upgrade** | Implementation |  |||
| └ | _getImplementation | Internal 🔒 |   | |
| └ | _setImplementation | Private 🔐 | 🛑  | |
| └ | _upgradeTo | Internal 🔒 | 🛑  | |
| └ | _upgradeToAndCall | Internal 🔒 | 🛑  | |
| └ | _upgradeToAndCallSecure | Internal 🔒 | 🛑  | |
| └ | _upgradeBeaconToAndCall | Internal 🔒 | 🛑  | |
| └ | _getAdmin | Internal 🔒 |   | |
| └ | _setAdmin | Private 🔐 | 🛑  | |
| └ | _changeAdmin | Internal 🔒 | 🛑  | |
```

└	_getBeacon	Internal 🔒		
└	_setBeacon	Private 🔐	🛑	
Proxy	Implementation			
└	_delegate	Internal 🔒	🛑	
└	_implementation	Internal 🔒		
└	_fallback	Internal 🔒	🛑	
└	<Fallback>	External ❗	💵	NO❗
└	<Receive Ether>	External ❗	💵	NO❗
└	_beforeFallback	Internal 🔒	🛑	
ERC1967Proxy	Implementation	Proxy, ERC1967Upgrade		
└	<Constructor>	Public ❗	💵	NO❗
└	_implementation	Internal 🔒		
TransparentUpgradeableProxy	Implementation	ERC1967Proxy		
└	<Constructor>	Public ❗	💵	ERC1967Proxy
└	admin	External ❗	🛑	ifAdmin
└	implementation	External ❗	🛑	ifAdmin
└	changeAdmin	External ❗	🛑	ifAdmin
└	upgradeTo	External ❗	🛑	ifAdmin
└	upgradeToAndCall	External ❗	💵	ifAdmin
└	_admin	Internal 🔒		
└	_beforeFallback	Internal 🔒	🛑	

Legend

Symbol	Meaning
🛑	Function can modify state
💵	Function is payable

Conclusion

The contracts are written systematically. Team found no critical issues. So, it is good to go for production.

Since possible test cases can be unlimited and developer level documentation (code flow diagram with function level description) not provided, for such an extensive smart contract protocol, we provide no such guarantee of future outcomes. We have used all the latest static tools and manual observations to cover maximum possible test cases to scan Everything.

Security state of the reviewed contract is “Secured”.

✓ No mint function.
✓ No volatile code.
✓ No high severity issues were found.

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.

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