Smart Contract Security Audit V1

Proxy Admin 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

• Platform: Binance Smart Chain

• Name: ProxyAdmin

• Language : Solidity

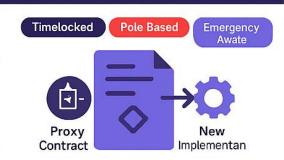
• **Contract Address**: 0x6738bb8ca7c2d9c99605e491d502924d37b3ade0 , 0x963e958cb843dd184cc155a81fec8e7d1faf94b2

• Code Source: https://github.com/TerraDharitri/drt-pREWA/tree/main/contracts

ProxyAdmin

Secure Management of UpgradeableProposeyes

Overiew



Manages upgrades for transparent upgradale provies, ensuring secure and controlled updates with a timelock mechanism.

Core Components

C Contracts

- AccessControl
- emergrecyConizoller
- Implementations
- Implementation count
- upgradeProposals
- upgradeTmelock

Key Variables

UpgradeProposed

(avems mortreloarxndes treather 6 om termillm

■ changeProxyAdmin delesees (pncky addréce turbentin)

Query Functions getProxyAdmin

Main Functions

Upgrade Management



- - changeProxyAdmain taddress proxy admit/
- Query Functions
 - getProxyAdmin(qqdress proxy) Teellene./proxy admin
- Cancellaprade consel.a ai pmsin

Upgrade Mechanics

Proposal PRODOGRAGPORK



Specifying prozy and new implementatok

Wait Timelock



Wait period required duration

Execution/ Cancellation



Ensures non care addresss, valid timelocks

Events

Error Handling



UpgradeProposed(proxy Interimplementation, encourrofter,

UpgradeExecuted (proxy. Imaimplomatracion)

UpgradeCancelledt(proxy intermplementa)

Usage Flow

Step 1

Inttalize contract posanísdion admitt) AccessControl and EmergencyController

Step 2

Propose upgrade proposel/pgrade



Execute or cancel



Custom errors

PA. UpgradePropExists

PA. TimelockNotYetExpired



Executive Summary

According to our assessment, the customer's solidity smart contract is Well-Secured.



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, 0 low, 0 very low-level issues and 2 notes in all solidity files of the contract

The files:

ProxyAdmin.sol

Audit Score:

100% secure



File and Function Level Report

File in Scope:

Contract Name	SHA 256 hash	Contract Address
ProxyAdmin.soi	5d6df39057e92d0053b0 38fdfc39e4d5e886b8a3	0x6738bb8ca7c2d9c99605e491d502924d37b3a de0, 0x963e958cb843dd184cc155a81fec8e7d1faf94 b2

• Contract: ProxyAdmin

• Inherit: Initializable, IEmergencyAware

• Observation: All passed including security check

• Test Report: passed

• Score: passed

• Conclusion: passed

Function	Test Result	Type / Return Type	Score
accessControl	✓	Read / public	Passed
checkEmergancyState	✓	Read / public	Passed
emergencyController	✓	Read / public	Passed
getEmergencyController	✓	Read / public	Passed
isEmergencyPaused	✓	Read / public	Passed
getImplementationCount	✓	Read / public	Passed
getProxyImplementation	✓	Read / public	Passed
getProxyAdmin	✓	Read / public	Passed
getUpgradeProposal	✓	Read / public	Passed
implementationCount	✓	Read / public	Passed
upgradeProposals	✓	Read / public	Passed
upgradeTimelock	✓	Read / public	Passed
validImplementations	✓	Read / public	Passed
addValidImplementation	√	Write / public	Passed

cancelUpgrade	✓	Write / public	Passed
changeProxyAdmin	✓	Write / public	Passed
emegrencyShutdown	✓	Write / public	Passed
initialize	✓	Write / public	Passed
executeUpgrade	√	Write / payable	Passed
proposeUpgrade	✓	Write / public	Passed
proposeUpgradeAndCall	✓	Write / public	Passed
removeValidImplementatio	√	Write / public	Passed
updateTimelock	√	Write / public	Passed
setEmergencyController	√	Write / public	Passed

Issues Checking Status

SWC Attack Analysis

The Smart Contract Weakness Classification Registry (SWC Registry) is an implementation of the weakness classification scheme proposed in EIP-1470. It is loosely aligned to the terminologies and structure used in the Common Weakness Enumeration (CWE) for more info check https://swcregistry.io/

No.	Issue Description	Checking Status
136	Unencrypted Private Data On-Chain	Passed
135	Code With No Effects	Passed
134	Message call with hardcoded gas amount	Passed
133	Hash Collisions With Multiple Variable Length Arguments	Passed
132	Unexpected Ether balance	Passed
131	Presence of unused variables	Passed
130	Right-To-Left-Override control character (U+202E)	Passed
129	Typographical Error	Passed
128	DoS with block gas limit.	Passed
127	Arbitrary Jump with Function Type Variable	Passed
126	Insufficient Gas Griefing	Passed
125	Incorrect Inheritance Order	Passed
124	Write to Arbitrary Storage Location	Passed
123	Requirement Violation	Passed
122	Lack of Proper Signature Verification	Passed
121	Missing Protection against Signature Replay Attacks Passe	
120	Weak Sources of Randomness from Chain Attributes	Passed
119	Shadowing State Variables	Passed

118	Incorrect Constructor Name	Passed
117	Signature Malleability	Passed
116	Block values as a proxy for time	Not Passed
115	Authorization through tx.origin	Passed
114	Transaction Order Dependence	Passed
113	DoS with Failed Call	Passed
112	Delegatecall to Untrusted Callee	Passed
111	Use of Deprecated Solidity Functions	Passed
110	Assert Violation	Passed
109	Uninitialized Storage Pointer	Passed
108	State Variable Default Visibility	Passed
107	Reentrancy	Passed
106	Unprotected SELFDESTRUCT Instruction	Passed
105	Unprotected Ether Withdrawal	Passed
104	Unchecked Call Return Value	Passed
103	Floating Pragma	Not Passed
102	Outdated Compiler Version	Passed
101	Integer Overflow and Underflow	Passed
100	Function Default Visibility	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:

No Very Low severity vulnerabilities were found.

Very Low:

No Very Low severity vulnerabilities were found.

Notes:

#Pragam version not fixed

Description

It is a good practice to lock the solidity version for a live deployment (use 0.8.28 instead of ^0.8.28). 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. And avoid Solidity compiler Bugs check here

https://sepolia.etherscan.io/solcbuginfo

Remediation

Remove the ^ sign to lock the pragma version.

Use of block.timestamp for comparisons

The value of block.timestamp can be manipulated by the miner. And conditions with strict equality is difficult to achieve - block.timestamp.

```
upgradeProposals[proxy] = UpgradeProposal(
```

newImplementationProposed,

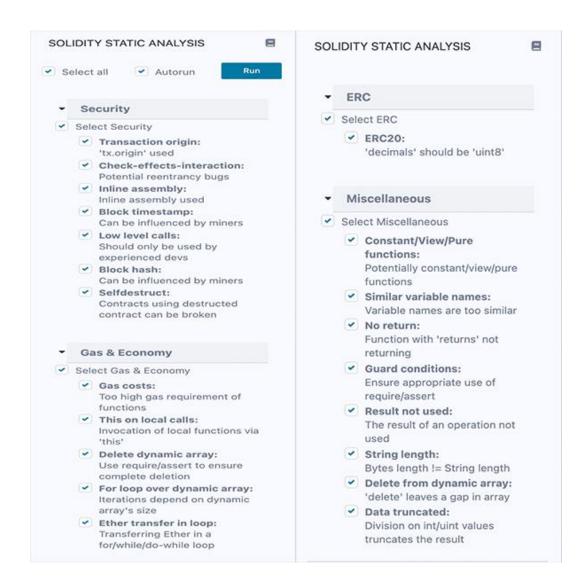
block.timestamp,
bytes(""),
false,
isVerifiedFlag,
msg.sender

Recommendation

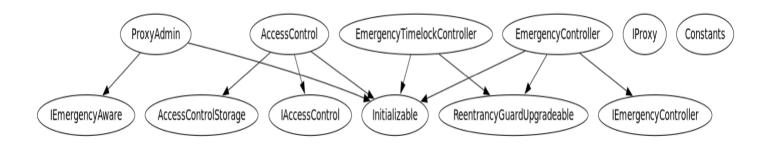
Avoid use of block.timestamp.

Automatic Testing

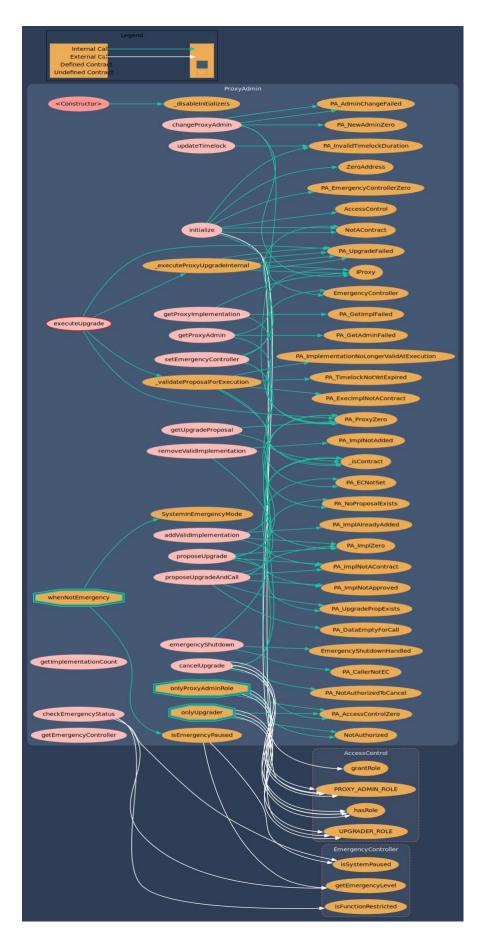
1- SOLIDITY STATIC ANALYSIS



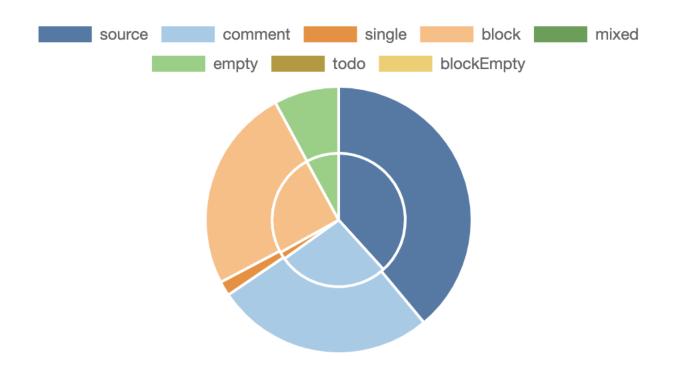
2- Inheritance graph



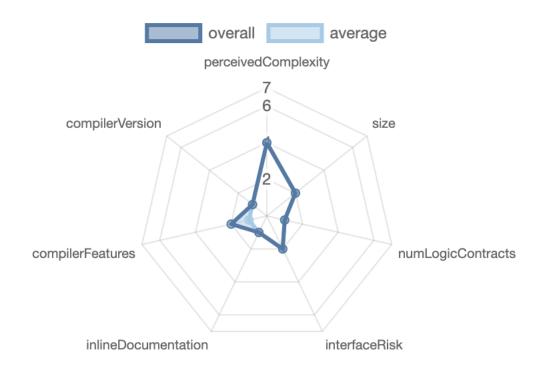
3- Call graph



Source lines



Risk level



Source units in scope

Source Units in Scope

Source Units Analyzed: 1
Source Units in Scope: 1 (100%)

Туре	File	Logic Contracts	Interfaces	Lines	nLines	nSLOC	Comment Lines	Complex. Score	Capabilities
2	contracts/proxy/ProxyAdmin.sol	1		541	533	279	196	279	■ <u>&</u> •
2	Totals	1		541	533	279	196	279	■ <u>&</u> ©

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, ...)

Capabilities

Components



Exposed Functions

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



External	Internal	Private	Pure	View
17	13	2	0	9

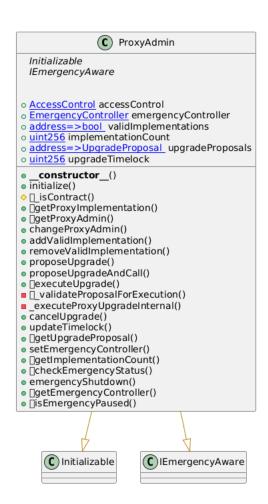
StateVariables



Capabilities



Unified Modeling Language (UML)



Functions signature

```
| Function Name | Sighash | Function Signature |
| ----- | ------ |
| initialize | be203094 | initialize(address,address,uint256,address) |
| getProxyImplementation | 204e1c7a | getProxyImplementation(address) |
| getProxyAdmin | f3b7dead | getProxyAdmin(address) |
| changeProxyAdmin | 7eff275e | changeProxyAdmin(address, address) |
| addValidImplementation | 3d381b44 | addValidImplementation(address) |
| removeValidImplementation | 3d2d5535 |
removeValidImplementation(address) |
| proposeUpgrade | 887fbd1c | proposeUpgrade (address, address) |
| proposeUpgradeAndCall | 684bdb2c |
proposeUpgradeAndCall(address,address,bytes) |
| executeUpgrade | 394d4bf3 | executeUpgrade(address) |
| cancelUpgrade | c44fb8ec | cancelUpgrade(address) |
| updateTimelock | falccffd | updateTimelock(uint256) |
| qetUpgradeProposal | 2aa1bda0 | qetUpgradeProposal(address) |
| setEmergencyController | 6ca7dc89 | setEmergencyController(address) |
| getImplementationCount | 5495a8fa | getImplementationCount() |
| checkEmergencyStatus | 8aed668a | checkEmergencyStatus(bytes4) |
| emergencyShutdown | eb1676c1 | emergencyShutdown(uint8) |
| getEmergencyController | c993cc9d | getEmergencyController() |
| isEmergencyPaused | 290d10c4 | isEmergencyPaused() |
```

Automatic general report

```
Files Description Table
| File Name | SHA-1 Hash |
|----|
| /Users/macbook/Desktop/drt-pREWA/contracts/proxy/ProxyAdmin.sol |
5d6df39057e92d0053b038fdfc39e4d5e886b8a3
| /Users/macbook/Desktop/drt-pREWA/contracts/proxy/interfaces/IProxy.sol
36b989d4dcc83011c7a0d54ae2e8abfd07fa001e
| /Users/macbook/Desktop/drt-pREWA/contracts/access/AccessControl.sol |
40163fa249f10365c03cf1fa9ddd26e2f6eb1005 |
| /Users/macbook/Desktop/drt-
pREWA/contracts/access/storage/AccessControlStorage.sol |
2a1f4c3d6956a89011b090a62b15254b1d720d65
| /Users/macbook/Desktop/drt-
pREWA/contracts/access/interfaces/IAccessControl.sol |
540ec54eaade1c05a650af086ebf959654ec6322
| /Users/macbook/Desktop/drt-pREWA/contracts/libraries/Errors.sol |
0974f6f49e3b655fa93a2792154f1b506ec03c74 |
| /Users/macbook/Desktop/drt-
pREWA/contracts/interfaces/IEmergencyAware.sol |
be6e0a371b0a5f62d5c7dc06e5c0c4121dcc7ca1 |
| /Users/macbook/Desktop/drt-
pREWA/contracts/controllers/EmergencyController.sol |
8e73765eaa98f95db8f5eb7a40cd13b0dc845266
| /Users/macbook/Desktop/drt-
pREWA/contracts/interfaces/IEmergencyController.sol |
40bc149ec8a1da85c0e4c6170b06f3a0f3b77f3b |
| /Users/macbook/Desktop/drt-
pREWA/contracts/controllers/EmergencyTimelockController.sol |
94735e88ad7f750ead488b7ad618b1486cbdb483
| /Users/macbook/Desktop/drt-pREWA/contracts/libraries/Constants.sol |
62835a8af9d7ab21c0cad9ca03abff6cf4e8e68f
Contracts Description Table
 Contract |
                    Type | Bases |
                 -----:|:-----
     | **Function Name** | **Visibility** | **Mutability**
| **Modifiers** |
| **ProxyAdmin** | Implementation | Initializable, IEmergencyAware ||| | |
| L | <Constructor> | Public | | | NO | |
 | L | isContract | Internal 🖰 | | |
```

```
L | getProxyAdmin | External | | | NO |
| L | changeProxyAdmin | External | | OnlyProxyAdminRole
whenNotEmergency |
| L | addValidImplementation | External | | OnlyUpgrader |
| | removeValidImplementation | External | | ( ) | onlyUpgrader |
| L | proposeUpgrade | External | | OnlyUpgrader whenNotEmergency
 L | proposeUpgradeAndCall | External | | ● | onlyUpgrader
whenNotEmergency |
| L | executeUpgrade | External | | III | onlyUpgrader whenNotEmergency
 | validateProposalForExecution | Private 🖺 | | |
 - | executeProxyUpgradeInternal | Private 🖺 | 🛑 | |
 cancelUpgrade | External | | | | | | | | | | | |
 └ | updateTimelock | External │ | ● | onlyProxyAdminRole |
 | getUpgradeProposal | External | | NO | |
 L | setEmergencyController | External [ | OnlyProxyAdminRole |
 | getImplementationCount | External | | | NO | |
 L | checkEmergencyStatus | External | | NO | |
 |NON |
 | isEmergencyPaused | Public | | NO | |
**IProxy** | Interface | |||
 | admin | External | | | NO | |
 L | upgradeTo | External | | ● | NO| |
 | **AccessControl** | Implementation | Initializable,
AccessControlStorage, IAccessControl | | |
| L | <Constructor> | Public | | | NO | |
 └ | initialize | External │ | ● | initializer |
 | hasRole | External | | | NO | |
 | getRoleAdmin | External | | NO | |
 | grantRole | External | |
 renounceRole | External | | NO | |
 L | setRoleAdmin | External | | NO | |
 L | getRoleMember | External | | | | NO| |
 | getRoleMemberCount | External | | | NO | |
 L | _grantRole | Internal 🖺 | 🔘 | |
 | revokeRole | Internal | |
 - | setRoleAdmin | Internal 🖺 | 🌑
**AccessControlStorage** | Implementation | ||
**IAccessControl** | Interface | |||
```

```
| hasRole | External | | NO | |
 L | getRoleAdmin | External | | | NO | |
 | L | revokeRole | External | | NO | |
 renounceRole | External | | NO | |
 | getRoleMember | External | | | NO | |
 L | getRoleMemberCount | External | | | NO | |
 | getRoleMembersPaginated | External | | NO | | | |
| **IEmergencyAware** | Interface | |||
| L | checkEmergencyStatus | External | | NO | |
| L | emergencyShutdown | External | | ( ) | NO | |
L | getEmergencyController | External | | NO | | L | setEmergencyController | External | | NO | |
 | | isEmergencyPaused | External | | | | | | |
| **EmergencyController** | Implementation | Initializable,
ReentrancyGuardUpgradeable, IEmergencyController | | |
| L | initialize | External | | O | initializer |
| L | setRequiredApprovals | External | | O | onlyAdminRole |
| L | setLevel3TimelockDuration | External | | OnlyAdminRole |
| approveLevel3Emergency | External | | | | onlyEmergencyRole
nonReentrant |
| L | executeLevel3Emergency | External | | OnlyEmergencyRole
nonReentrant |
nonReentrant |
| | enableEmergencyWithdrawal | External | | | onlyEmergencyRole
nonReentrant |
| L | pauseSystem | External [ ] OnlyPauserRole nonReentrant |
L | unpauseSystem | External | | onlyPauserRole nonReentrant | l | recoverTokens | External | onlyEmergencyRole nonReentrant
| | registerEmergencyAwareContract | External | |
onlyEmergencyRole |
onlyEmergencyRole |
| getEmergencyLevel | External | | | NO | |
 | getEmergencyWithdrawalSettings | External | | | NO | |
 L | isSystemPaused | External | | NO | |
 L | getEmergencyAwareContractsPaginated | External | | | NO | |
| L | isFunctionRestricted | External | | NO | |
 resetApprovals | Internal A | 🔘 | |
```

```
**IEmergencyController** | Interface | ||
 L | setEmergencyLevel | External | | NO | |
 | enableEmergencyWithdrawal | External | | | NO | |
 L | pauseSystem | External | | | NO | |
 L | unpauseSystem | External | |
                             INOLL
 recoverTokens | External | |
 | getEmergencyLevel | External | | NO | |
 L | getEmergencyWithdrawalSettings | External | | | NO | |
 | isSystemPaused | External | | NO | |
| L | getEmergencyAwareContractsPaginated | External [ | NO[ |
| **EmergencyTimelockController** | Implementation | Initializable,
ReentrancyGuardUpgradeable | | |
| initialize | External | | initializer |
| L | setAllowedTarget | External | | OnlyEmergencyRole |
| L | setAllowedFunctionSelector | External | | OnlyEmergencyRole
| L | proposeEmergencyAction | External | | OnlyEmergencyRole
nonReentrant |
| L | executeEmergencyAction | External | | OnlyEmergencyRole
nonReentrant |
nonReentrant |
| L | getAllActionIds | External | | | | |
                             |NO|| |
| L | getActionDetails | External | | | NO | |
| L | isFunctionSelectorAllowed | External | |
| L | isTargetAllowed | External | | NO| |
| **Constants** | Library | |||
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 "Well Secured".

- ✓ 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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