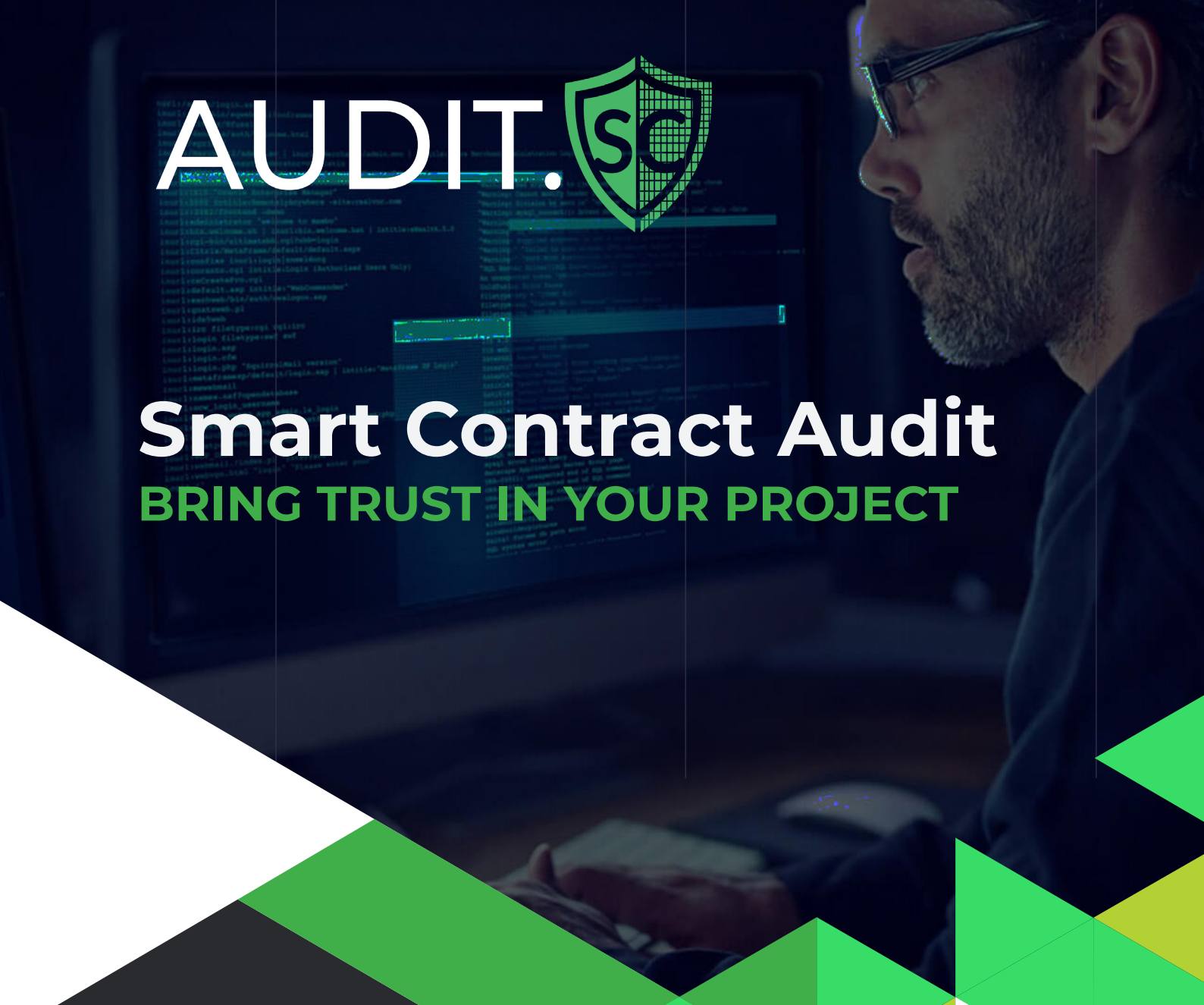

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Smart Contract Audit

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2021

FULL SMART CONTRACT AUDIT

SOLIDITY CHECK

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OVERVIEW

PROJECT SUMMARY

Project Name	**Bitcoin Anonymous**
Platform	Binance Smartchain
Language	Solidity

AUDIT SUMMARY

Date	14-10-2021
Audit Type	Static Analysis, Manual Review
Audit Result	**Passed**

RISK SUMMARY

Risk Level	Total	Found	Pending	Solved	Acknowledgde	Objected
Critical	0	0	0	0	0	0
Major	0	0	0	0	0	0
Medium	2	2	1	0	1	0
Minor	1	1	1	0	0	0
Informative	4	4	0	0	4	0
Discussion	0	0	0	0	0	0

FINDINGS

Centralization Risk

Description:
The owner of the contract has sole power over the following functions:

- transferOwnership()

Without obtaining external consensus (of the holders or community).

Recommendation:
In order to mitigate the security risks involved with potential centralization, we recommend that the owner account's power is distributed across multiple roles, or it's privileges being part of a decentralized protocol to improve the project's security. In case the client choses to maintain the current distribution of privilege, we recommend the private key being stored in a secure place, and security enhanced to multi-signature wallets.

A further improvement on the fairness and awareness of the privileged protocols could be made by adding a mandatory latency on privileged functions. This way, the community has reasonable time to respond and adjust to centralized changes.

Category	Risk Level	Number of Findings	Status
Overflow	Minor	**1**	Acknowledged

Integer Overflow and Underflow

SWC-ID: SWC-101

Relationship:
CWE-682: Incorrect Calculation

Description:
An overflow/underflow happens when an arithmetic operation reaches the maximum or minimum size of a type. For instance if a number is stored in the uint8 type, it means that the number is stored in a 8 bits unsigned number ranging from 0 to 2^8-1. In computer programming, an integer overflow occurs when an arithmetic operation attempts to create a numeric value that is outside of the range that can be represented with a given number of bits – either larger than the maximum or lower than the minimum representable value. In the case of Bitcoin Anonymous, the multiTransfer() function is realistically vulnerable to unexpected behavior as a result of an integer underflow or overflow.

Severity: Medium
Status: Acknowledged

After bringing the potential bug to the client's attention, they responded as follows:
"*The multiTransfer() function is mainly used by the BTCA core team. We have advised the community to make sure their transfers are not out of bounds. For internal use, we have updated our protocols to ensure no miscalculations or unexpected behavior will occur.*"

Function Default Visibility

SWC-ID: SWC-100

Relationship:
CWE-710: Improper Adherence to Coding Standards

Description:

Functions that do not have a function visibility type specified are public by default. This can lead to a vulnerability if a developer forgot to set the visibility and a malicious user is able to make unauthorized or unintended state changes or unnecessary gas usage.
Relevance:
public functions that are never called by the contract should be declared external to save gas.

Category	Risk Level	Number of Findings	Status
Optimization	Informative	**3**	Pending

Incorrect Interface Usage

Description:

Incorrect return values for ERC(20) standards can cause unexpected and unwanted behavior while interacting with other smart contracts. Contracts compiled withcompiler versions >0.4.22 interacting with another contract that is not using the correct return values for standardized functions will fail to execute them.

Category	Risk Level	Number of Findings	Status
Interfaces	Medium	**1**	Pending

AUDIT DETAILS

SCW-100 Function Default Visibility

approve() should be declared external

multiTransfer) should be declared external

transferFrom() should be declared external:

transferOwnership() should be declared external

AUDIT RESULT

Basic Coding Bugs

1. Constructor Mismatch

o Description: Whether the contract name and its constructor are not identical to each other.

o Result: PASSED

o Severity: Critical

Ownership Takeover

o Description: Whether the set owner function is not protected.

o Result: PASSED

o Severity: Critical

Redundant Fallback Function

o Description: Whether the contract has a redundant fallback function.

o Result: PASSED

o Severity: Critical

Overflows & Underflows

Description: Whether the contract has general overflow or underflow Vulnerabilities

o Result: Failed

o Severity: Kglmp

Reentrancy

o Description: Reentrancy is an issue when code can call back into your contract and change state, such as withdrawing ETHs.

o Result: PASSED

o Severity: Critical

MONEY-Giving Bug

o Description: Whether the contract returns funds to an arbitrary address.

o Result: PASSED

o Severity: High

Blackhole

- o Description: Whether the contract locks ETH indefinitely: merely in without out.
- o Result: PASSED
- o Severity: High

Unauthorized Self-Destruct

- o Description: Whether the contract can be killed by any arbitrary address.
- o Result: PASSED
- o Severity: Medium

Revert DoS

- o Description: Whether the contractis vulnerable to DoSattack because of unexpected revert.
- o Result: PASSED
- o Severity: Medium

Unchecked External Call

- o Description: Whether the contract has any external call without checking the return value.
- o Result: PASSED
- o Severity: Medium

Gasless Send

- o Description: Whether the contractis vulnerable to gasless send.
- o Result: PASSED
- o Severity: Medium

Send Instead of Transfer

- o Description: Whether the contract uses send instead of transfer.
- o Result: PASSED
- o Severity: Medium

Costly Loop

- o Description: Whether the contract has any costly loop which may lead to Out-Of-Gas exception.
- o Result: PASSED
- o Severity: Medium

(Unsafe) Use of Untrusted Libraries

- o Description: Whether the contract use any suspicious libraries.
- o Result: PASSED
- o Severity: Medium

(Unsafe) Use of Predictable Variables

- o Description: Whether the contract contains any randomness variable, but its value can be predicated.
- o Result: PASSED
- o Severity: Medium

Transaction Ordering Dependence

- o Description: Whether the final state of the contract depends on the order of the transactions.
- o Result: PASSED
- o Severity: Medium

. Deprecated Uses

- o Description: Whether the contract use the deprecated tx.origin to perform the authorization.
- o Result: PASSED
- o Severity: Medium

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