Cyberscope

Audit Report

Hide Coin

April 2024

Repository	https://github.com/secretblock/hidecoin-smart-contracts
Commit	88a843aa5ff46559ceebda0180b06e76c8e8b5de
Audited by	© cyberscope

Table of Contents

Review

Contract Name	HideCoin
Repository	https://github.com/secretblock/hidecoin-smart-contracts
Commit	88a843aa5ff46559ceebda0180b06e76c8e8b5de
Testing Deploy	https://bscscan.com/address/0xbc4d19d6ab09fafe720db304fac0e9ec941a932b
Symbol	HIDE
Decimals	18

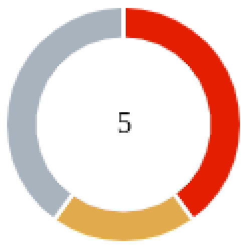
Audit Updates

Initial Audit	1 May 2024

Source Files

Filename	SHA256
contracts/HideCoin.sol	4503d12c480e8b4ce1355728f3a3ed2a4fc6dd83dc57f482aee785b96691f9f8

Findings Breakdown



●	Critical	2
●	Medium	1
●	Minor / Informative	2

Severity		Unresolved	Acknowledged	Resolved	Other
●	Critical	0	2	0	0
●	Medium	0	1	0	0
●	Minor / Informative	0	2	0	0

Diagnostics

● Critical ● Medium ● Minor / Informative

Severity	Code	Description	Status
●	BC	Blacklists Addresses	Acknowledged
●	ST	Stops Transactions	Acknowledged
●	MT	Mints Tokens	Acknowledged
●	RSW	Redundant Storage Writes	Acknowledged
●	L19	Stable Compiler Version	Acknowledged

BC - Blacklists Addresses

Criticality	Critical
Location	contracts/HideCoin.sol#L81
Status	Acknowledged

Description

The contract owner has the authority to massively blacklist addresses thereby preventing these addresses from transactions. The owner may take advantage of it by calling the `setBots` function.

```
function setBots(address[] calldata accounts, bool value)
public onlyOwner {
    for (uint256 i = 0; i < accounts.length; i++) {
        if (
            (accounts[i] != address(this)) &&
            (!_isExcludedFromLimits[accounts[i]])
        ) _setBots(accounts[i], value);
    }
}
```

Recommendation

The team should carefully manage the private keys of the owner's account. We strongly recommend a powerful security mechanism that will prevent a single user from accessing the contract admin functions.

Temporary Solutions:

These measurements do not decrease the severity of the finding

- Introduce a time-locker mechanism with a reasonable delay.
- Introduce a multi-signature wallet so that many addresses will confirm the action.
- Introduce a governance model where users will vote about the actions.

Permanent Solution:

- Renouncing the ownership, which will eliminate the threats but it is non-reversible.

ST - Stops Transactions

Criticality	Critical
Location	contracts/HideCoin.sol#L52
Status	Acknowledged

Description

The transactions are initially disabled for all users excluding the authorized addresses. The owner can enable the transactions for all users. Once the transactions are enable the owner will not be able to disable them again.

```
require(
    launched || from == ownr || to == ownr || to == address(0xdead),
    "HideCoin: Not launched."
);
```

Recommendation

The team should carefully manage the private keys of the owner's account. We strongly recommend a powerful security mechanism that will prevent a single user from accessing the contract admin functions. Some suggestions are:

- Introduce a multi-sign wallet so that many addresses will confirm the action.
- Introduce a governance model where users will vote about the actions.

MT - Mints Tokens

Criticality	Medium
Location	contracts/HideCoin.sol#L43
Status	Acknowledged

Description

The contract owner has the authority to mint tokens until the `maxSupply` is reached. The owner may take advantage of it by calling the `mint` function. As a result, the contract tokens will be highly inflated.

```
    function mint(address to, uint256 amount) public onlyOwner {
          uint256 supply = _currentSupply + amount;

          require(supply <= maxSupply, "HideCoin: Exceeds max supply");
          _mint(to, amount);
          _currentSupply += amount;
          emit Mint(to, amount);
    }
```

Recommendation

The team should carefully manage the private keys of the owner's account. We strongly recommend a powerful security mechanism that will prevent a single user from accessing the contract admin functions.

Temporary Solutions:

These measurements do not decrease the severity of the finding

- Introduce a time-locker mechanism with a reasonable delay.
- Introduce a multi-signature wallet so that many addresses will confirm the action.
- Introduce a governance model where users will vote about the actions.

Permanent Solution:

- Renouncing the ownership, which will eliminate the threats but it is non-reversible.

RSW - Redundant Storage Writes

Criticality	Minor / Informative
Location	contracts/HideCoin.sol#L72,81
Status	Acknowledged

Description

The contract modifies the state of the following variables without checking if their current value is the same as the one given as an argument. As a result, the contract performs redundant storage writes, when the provided parameter matches the current state of the variables, leading to unnecessary gas consumption and inefficiencies in contract execution.

```
function excludeFromLimits(
    address[] calldata accounts,
    bool value
) public onlyOwner {
    for (uint256 i = 0; i < accounts.length; i++) {
        _excludeFromLimits(accounts[i], value);
    }
}

function setBots(address[] calldata accounts, bool value) public
onlyOwner {
    for (uint256 i = 0; i < accounts.length; i++) {
        if (
            (accounts[i] != address(this)) &&
            (!_isExcludedFromLimits[accounts[i]])
        ) _setBots(accounts[i], value);
    }
}
```

Recommendation

The team is advised to implement additional checks within to prevent redundant storage writes when the provided argument matches the current state of the variables. By incorporating statements to compare the new values with the existing values before proceeding with any state modification, the contract can avoid unnecessary storage operations, thereby optimizing gas usage.

L19 - Stable Compiler Version

Criticality	Minor / Informative
Location	contracts/HideCoin.sol#L2
Status	Acknowledged

Description

The `^` symbol indicates that any version of Solidity that is compatible with the specified version (i.e., any version that is a higher minor or patch version) can be used to compile the contract. The version lock is a mechanism that allows the author to specify a minimum version of the Solidity compiler that must be used to compile the contract code. This is useful because it ensures that the contract will be compiled using a version of the compiler that is known to be compatible with the code.

```
pragma solidity ^0.8.20;
```

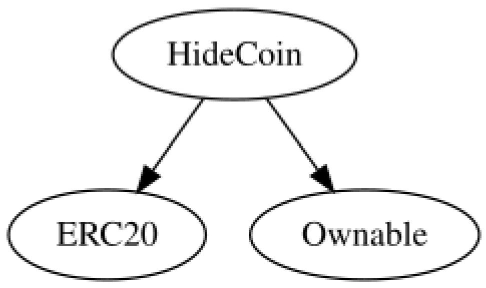
Recommendation

The team is advised to lock the pragma to ensure the stability of the codebase. The locked pragma version ensures that the contract will not be deployed with an unexpected version. An unexpected version may produce vulnerabilities and undiscovered bugs. The compiler should be configured to the lowest version that provides all the required functionality for the codebase. As a result, the project will be compiled in a well-tested LTS (Long Term Support) environment.

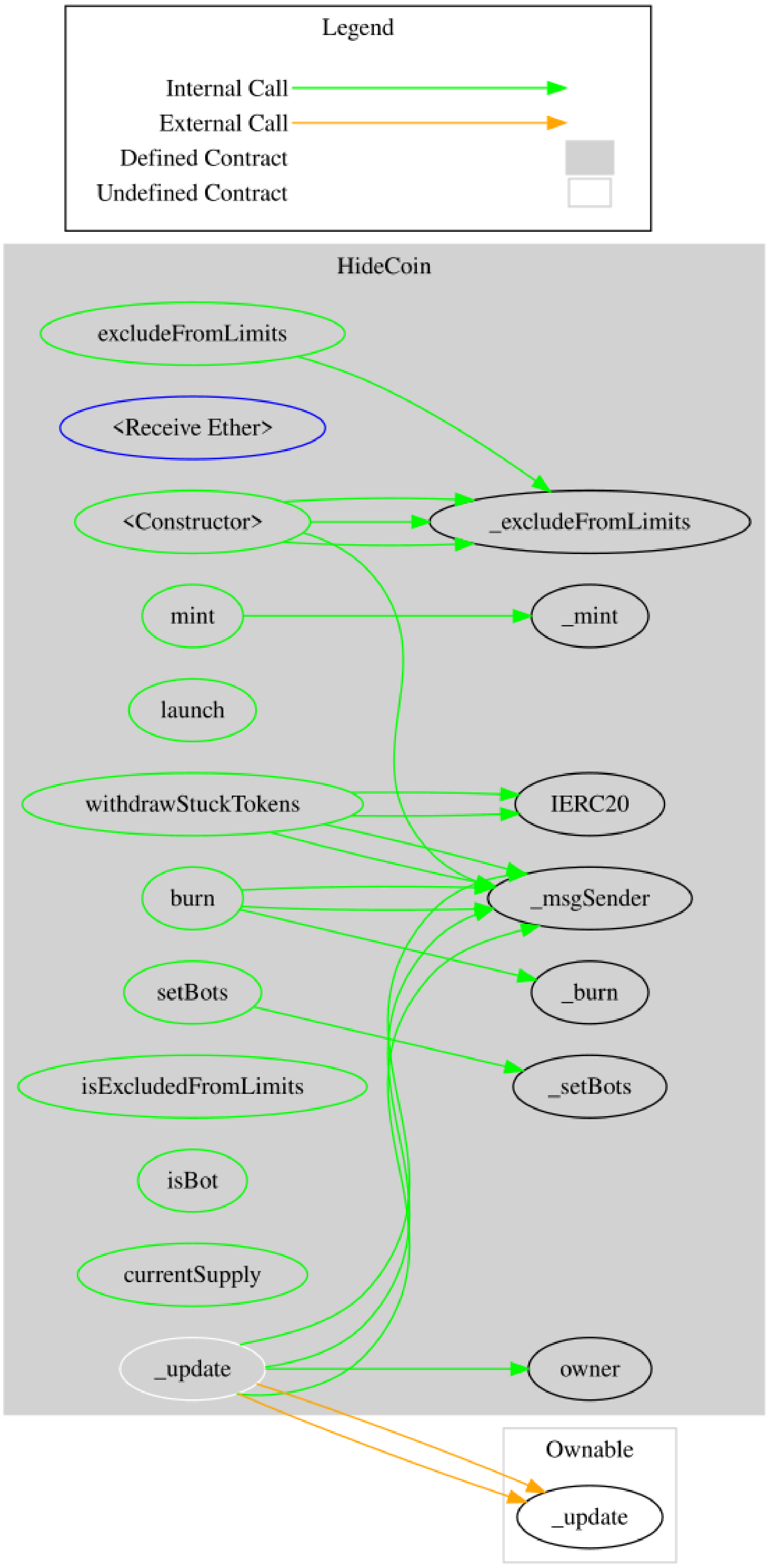
Functions Analysis

Contract	Type	Bases		
	Function Name	**Visibility**	**Mutability**	**Modifiers**
HideCoin	Implementation	ERC20, Ownable		
		Public	✓	ERC20 Ownable
		External	Payable	-
	burn	Public	✓	-
	mint	Public	✓	onlyOwner
	launch	Public	✓	onlyOwner
	withdrawStuckTokens	Public	✓	onlyOwner
	excludeFromLimits	Public	✓	onlyOwner
	setBots	Public	✓	onlyOwner
	isExcludedFromLimits	Public		-
	isBot	Public		-
	currentSupply	Public		-
	_update	Internal	✓	
	_excludeFromLimits	Internal	✓	
	_setBots	Internal	✓	

Inheritance Graph



Flow Graph


Legend
Internal Call
External Call
Defined Contract
Undefined Contract
HideCoin
excludeFromLimits
<Receive Ether>
<Constructor>
_excludeFromLimits
mint
_mint
launch
withdrawStuckTokens
IERC20
burn
_msgSender
setBots
_burn
isExcludedFromLimits
_setBots
isBot
currentSupply
_update
owner
Ownable
_update

Summary

Hide Coin contract implements a token mechanism. This audit investigates security issues, business logic concerns and potential improvements. There are some functions that can be abused by the owner like stop transactions, mint tokens and massively blacklist addresses. if the contract owner abuses the mint functionality, then the contract will be highly inflated. A multi-wallet signing pattern will provide security against potential hacks. Temporarily locking the contract or renouncing ownership will eliminate all the contract threats. The team has acknowledged the findings.

Disclaimer

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Cyberscope is a blockchain cybersecurity company that was founded with the vision to make web3.0 a safer place for investors and developers. Since its launch, it has worked with thousands of projects and is estimated to have secured tens of millions of investors' funds.

Cyberscope is one of the leading smart contract audit firms in the crypto space and has built a high-profile network of clients and partners.

The Cyberscope team

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