Cyberscope

Audit Report

OpenVoiceCoin

May 2025

Network ETH

Address 0x1fa30eb4b4b969698e9d292f8882d96a93ebc0ea

Audited by © cyberscope

Analysis

Critical Medium Minor / Informative Pass

Severity	Code	Description	Status
●	ST	Stops Transactions	Passed
●	OTUT	Transfers User's Tokens	Passed
●	ELFM	Exceeds Fees Limit	Passed
●	MT	Mints Tokens	Passed
●	BT	Burns Tokens	Passed
●	BC	Blacklists Addresses	Passed

Diagnostics

Critical Medium Minor / Informative

Severity	Code	Description	Status
●	IDI	Immutable Declaration Improvement	Unresolved
●	RF	Redundant Functionality	Unresolved
●	UDO	Unnecessary Decimals Override	Unresolved
●	L09	Dead Code Elimination	Unresolved
●	L19	Stable Compiler Version	Unresolved
●	L22	Potential Locked Ether	Unresolved

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Risk Classification

The criticality of findings in Cyberscope's smart contract audits is determined by evaluating multiple variables. The two primary variables are:

1. **Likelihood of Exploitation**: This considers how easily an attack can be executed, including the economic feasibility for an attacker.
2. **Impact of Exploitation**: This assesses the potential consequences of an attack, particularly in terms of the loss of funds or disruption to the contract's functionality.

Based on these variables, findings are categorized into the following severity levels:

1. **Critical**: Indicates a vulnerability that is both highly likely to be exploited and can result in significant fund loss or severe disruption. Immediate action is required to address these issues.
2. **Medium**: Refers to vulnerabilities that are either less likely to be exploited or would have a moderate impact if exploited. These issues should be addressed in due course to ensure overall contract security.
3. **Minor**: Involves vulnerabilities that are unlikely to be exploited and would have a minor impact. These findings should still be considered for resolution to maintain best practices in security.
4. **Informative**: Points out potential improvements or informational notes that do not pose an immediate risk. Addressing these can enhance the overall quality and robustness of the contract.

Severity	Likelihood / Impact of Exploitation
Critical	Highly Likely / High Impact
Medium	Less Likely / High Impact or Highly Likely/ Lower Impact
Minor / Informative	Unlikely / Low to no Impact

Review

Contract Name	OpenVoiceCoin
Compiler Version	v0.8.25+commit.b61c2a91
Optimization	200 runs
Explorer	https://etherscan.io/address/0x1fa30eb4b4b969698e9d292f8882d96a93ebc0ea
Address	0x1fa30eb4b4b969698e9d292f8882d96a93ebc0ea
Network	ETH
Symbol	OPENVC
Decimals	18
Total Supply	1.000.000.000

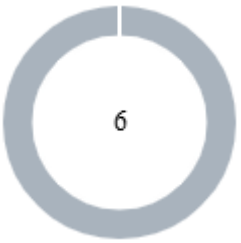
Audit Updates

Initial Audit	15 May 2025

Source Files

Filename	SHA256
OpenVoiceCoin.sol	a66c0bda4ff7eaf7c1773b82c5551f63f4dfd8e3c09beabfc7d8b1414f621010

Findings Breakdown



Critical	0
Medium	0
Minor / Informative	6

Severity	Unresolved	Acknowledged	Resolved	Other
Critical	0	0	0	0
Medium	0	0	0	0
Minor / Informative	6	0	0	0

IDI - Immutable Declaration Improvement

Criticality	Minor / Informative
Location	OpenVoiceCoin.sol#L523
Status	Unresolved

Description

The contract declares state variables that their value is initialized once in the constructor and are not modified afterwards. The `immutable` is a special declaration for this kind of state variables that saves gas when it is defined.

```
_decimals
```

Recommendation

By declaring a variable as immutable, the Solidity compiler is able to make certain optimizations. This can reduce the amount of storage and computation required by the contract, and make it more gas-efficient.

RF - Redundant Functionality

Criticality	Minor / Informative
Location	OpenVoiceCoin.sol#L535
Status	Unresolved

Description

The contract has a function called `getBalance` that returns the contract's balance in ETH. This function is redundant since balance is a public method that can be called for any address.

```
function getBalance() private view returns (uint256) {
    return address(this).balance;
}
```

Recommendation

It is recommended to remove redundant functionalities to enhance code optimization and readability.

UDO - Unnecessary Decimals Override

Criticality	Minor / Informative
Location	OpenVoiceCoin.sol#L539
Status	Unresolved

Description

The contract is currently implementing an override of the decimals function, which returns the `_decimals`. `_decimals` is equal to 18 so this override is redundant since the extending token contract already specifies 18 decimals as its standard. In the context of ERC-20 tokens, 18 decimals is a common default, and overriding this function to return the same value adds unnecessary complexity to the contract. This redundancy does not contribute to the functionality of the contract and could potentially lead to confusion about the necessity of this override.

```
function decimals() public view virtual override returns (uint8) {
    return _decimals;
}
```

Recommendation

Since the inherited ERC-20 contract already defines the decimals number, maintaining an overriding function that merely repeats this value does not contribute to the contract's effectiveness. As a result, it is recommended to remove the redundant `decimals` function from the contract. Removing this function will simplify the contract, making it more straightforward to maintain without impacting its operational capabilities.

L09 - Dead Code Elimination

Criticality	Minor / Informative
Location	OpenVoiceCoin.sol#L430
Status	Unresolved

Description

In Solidity, dead code is code that is written in the contract, but is never executed or reached during normal contract execution. Dead code can occur for a variety of reasons, such as:

- Conditional statements that are always false.
- Functions that are never called.
- Unreachable code (e.g., code that follows a return statement).

Dead code can make a contract more difficult to understand and maintain, and can also increase the size of the contract and the cost of deploying and interacting with it.

```
function _burn(address account, uint256 amount) internal virtual {
        require(account != address(0), "ERC20: burn from the zero
address");

        _beforeTokenTransfer(account, address(0), amount);

        uint256 accountBalance = _balances[account];
...
        }
        _totalSupply -= amount;

        emit Transfer(account, address(0), amount);

        _afterTokenTransfer(account, address(0), amount);
    }
```

Recommendation

To avoid creating dead code, it's important to carefully consider the logic and flow of the contract and to remove any code that is not needed or that is never executed. This can help improve the clarity and efficiency of the contract.

L19 - Stable Compiler Version

Criticality	Minor / Informative
Location	OpenVoiceCoin.sol#L3
Status	Unresolved

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 ^0.8.0;
```

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.

L22 - Potential Locked Ether

Criticality	Minor / Informative
Location	OpenVoiceCoin.sol#L533
Status	Unresolved

Description

The contract is able to receive Ether via the `receive` function. This Ether cannot be transferred. Thus, it is impossible to access the locked Ether. This may produce a financial loss for the users that have called the `receive` method.

```
receive() external payable {}
```

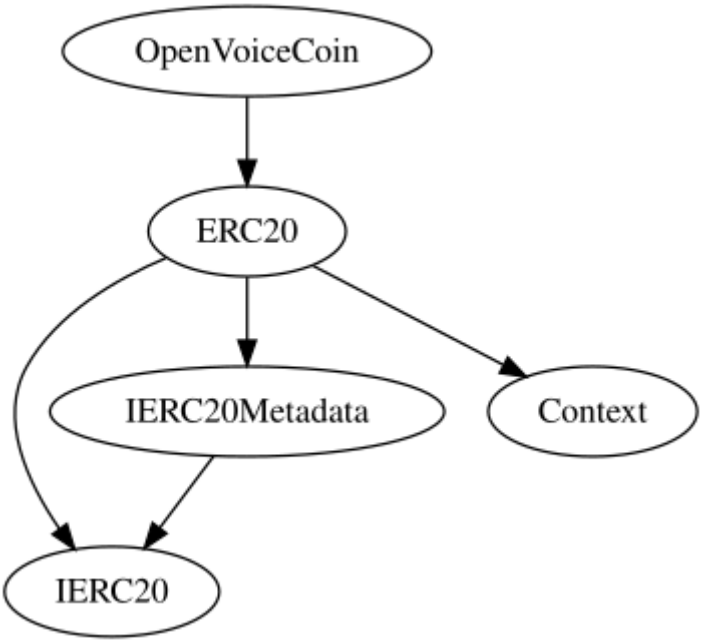
Recommendation

The team is advised to either remove the payable method or add a withdraw functionality. it is important to carefully consider the risks and potential issues associated with locked Ether.

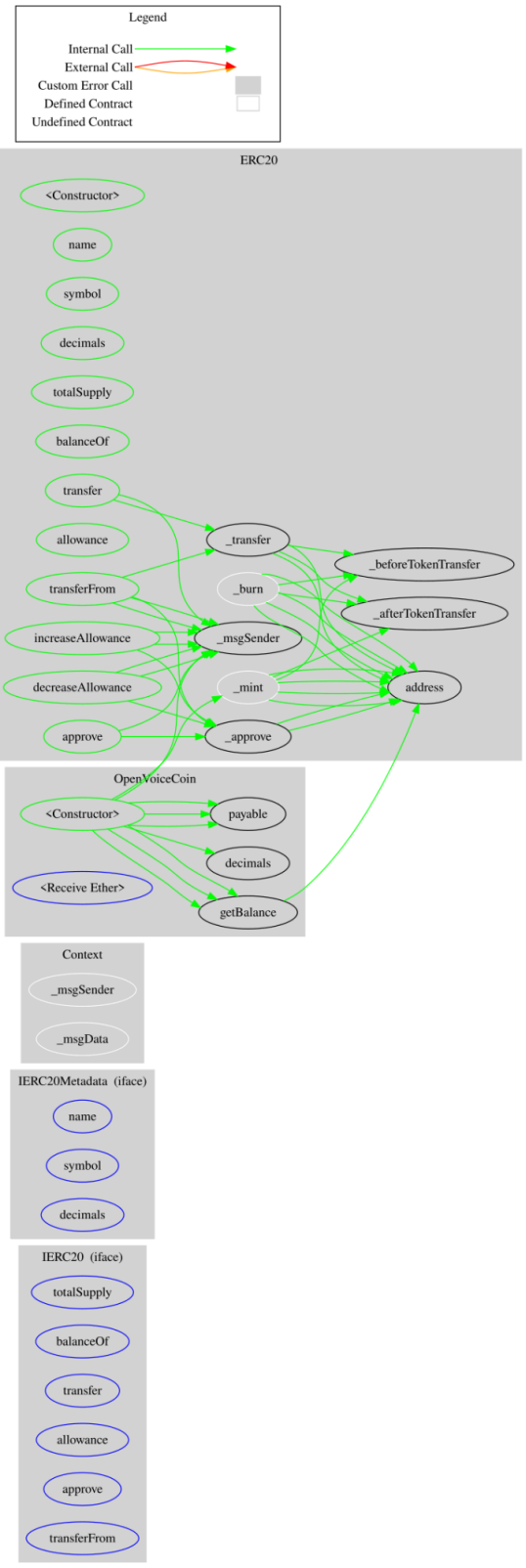
Functions Analysis

Contract	Type	Bases		
	Function Name	**Visibility**	**Mutability**	**Modifiers**
OpenVoiceCoin	Implementation	ERC20		
		Public	Payable	ERC20
		External	Payable	-
	getBalance	Private		
	decimals	Public		-

Inheritance Graph



Flow Graph


Legend
Internal Call
External Call
Custom Error Call
Defined Contract
Undefined Contract
ERC20
<Constructor>
name
symbol
decimals
totalSupply
balanceOf
transfer
allowance
transferFrom
increaseAllowance
decreaseAllowance
approve
_transfer
_burn
_msgSender
_mint
_approve
_beforeTokenTransfer
_afterTokenTransfer
address
OpenVoiceCoin
<Constructor>
<Receive Ether>
payable
decimals
getBalance
Context
_msgSender
_msgData
IERC20Metadata (iface)
name
symbol
decimals
IERC20 (iface)
totalSupply
balanceOf
transfer
allowance
approve
transferFrom

Summary

OpenVoiceCoin contract implements a token mechanism. This audit investigates security issues, business logic concerns and potential improvements. OpenVoiceCoin is an interesting project that has a friendly and growing community. The Smart Contract analysis reported no compiler error or critical issues.

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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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