Cyberscope

Audit Report

RIZIN

January 2024

Network	BSC
Address	0xa6add0873adbeae659484722bd5390f7cbbc29b8
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
	RSML	Redundant SafeMath Library	Unresolved
	L09	Dead Code Elimination	Unresolved
	L17	Usage of Solidity Assembly	Unresolved
	L18	Multiple Pragma Directives	Unresolved
	L19	Stable Compiler Version	Unresolved

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Review

Contract Name	RIZIN
Compiler Version	v0.8.18+commit.87f61d96
Optimization	200 runs
Testing Deploy	https://testnet.bscscan.com/address/0x774796da14ce3e4b068176ad8cd7c1ba7c13f544
Explorer	https://bscscan.com/address/0xa6add0873adbeae659484722bd5390f7cbbc29b8
Address	0xa6add0873adbeae659484722bd5390f7cbbc29b8
Network	BSC
Symbol	RZN
Decimals	18
Total Supply	196,800,000
Badge Eligibility	Yes

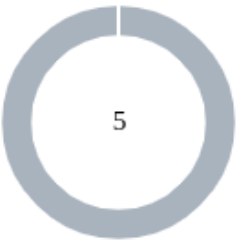
Audit Updates

Initial Audit	17 Jan 2024

Source Files

Filename	SHA256
RIZIN.sol	05d0241c8933db3105db857b52fde23dd9c4994cfff24fe770db028f1fd0e410

Findings Breakdown



Critical	0
Medium	0
Minor / Informative	5

Severity	Unresolved	Acknowledged	Resolved	Other
Critical	0	0	0	0
Medium	0	0	0	0
Minor / Informative	5	0	0	0

RSML - Redundant SafeMath Library

Criticality	Minor / Informative
Location	RIZIN.sol
Status	Unresolved

Description

SafeMath is a popular Solidity library that provides a set of functions for performing common arithmetic operations in a way that is resistant to integer overflows and underflows.

Starting with Solidity versions that are greater than or equal to 0.8.0, the arithmetic operations revert to underflow and overflow. As a result, the native functionality of the Solidity operations replaces the SafeMath library. Hence, the usage of the SafeMath library adds complexity, overhead and increases gas consumption unnecessarily.

```
library SafeMath {...}
```

Recommendation

The team is advised to remove the SafeMath library. Since the version of the contract is greater than `0.8.0` then the pure Solidity arithmetic operations produce the same result.

If the previous functionality is required, then the contract could exploit the `unchecked { ... }` statement.

Read more about the breaking change on https://docs.soliditylang.org/en/v0.8.16/080-breaking-changes.html#solidity-v0-8-0-breaking-changes.

L09 - Dead Code Elimination

Criticality	Minor / Informative
Location	RIZIN.sol#L272,301,314,326,335,345,366,377,675,900,908,916,925,940,955,974,1254
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 sendValue(address payable recipient, uint256 amount)
internal {
        if (address(this).balance < amount) {
            revert AddressInsufficientBalance(address(this));
        }

        (bool success, ) = recipient.call{value: amount}("");
        if (!success) {
            revert FailedInnerCall();
        }
    }

function functionCall(address target, bytes memory data) internal
returns (bytes memory) {
        return functionCallWithValue(target, data, 0);
    }

...
```

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.

L17 - Usage of Solidity Assembly

Criticality	Minor / Informative
Location	RIZIN.sol#L382
Status	Unresolved

Description

Using assembly can be useful for optimizing code, but it can also be error-prone. It's important to carefully test and debug assembly code to ensure that it is correct and does not contain any errors.

Some common types of errors that can occur when using assembly in Solidity include Syntax, Type, Out-of-bounds, Stack, and Revert.

```
assembly {
                let returndata_size := mload(returndata)
                revert(add(32, returndata), returndata_size)
            }
```

Recommendation

It is recommended to use assembly sparingly and only when necessary, as it can be difficult to read and understand compared to Solidity code.

L18 - Multiple Pragma Directives

Criticality	Minor / Informative
Location	RIZIN.sol#L17,235,397,489,654,685,787,869,989,1018,1334
Status	Unresolved

Description

If the contract includes multiple conflicting pragma directives, it may produce unexpected errors. To avoid this, it's important to include the correct pragma directive at the top of the contract and to ensure that it is the only pragma directive included in the contract.

```
pragma solidity ^0.8.0;
pragma solidity ^0.8.18;
...
```

Recommendation

It is important to include only one pragma directive at the top of the contract and to ensure that it accurately reflects the version of Solidity that the contract is written in.

By including all required compiler options and flags in a single pragma directive, the potential conflicts could be avoided and ensure that the contract can be compiled correctly.

L19 - Stable Compiler Version

Criticality	Minor / Informative
Location	RIZIN.sol#L17
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.

Functions Analysis

Contract	Type	Bases		
	Function Name	**Visibility**	**Mutability**	**Modifiers**
SafeMath	Library			
	tryAdd	Internal		
	trySub	Internal		
	tryMul	Internal		
	tryDiv	Internal		
	tryMod	Internal		
	add	Internal		
	sub	Internal		
	mul	Internal		
	div	Internal		
	mod	Internal		
	sub	Internal		
	div	Internal		
	mod	Internal		
Address	Library			
	sendValue	Internal	✓	
	functionCall	Internal	✓	
	functionCallWithValue	Internal	✓	

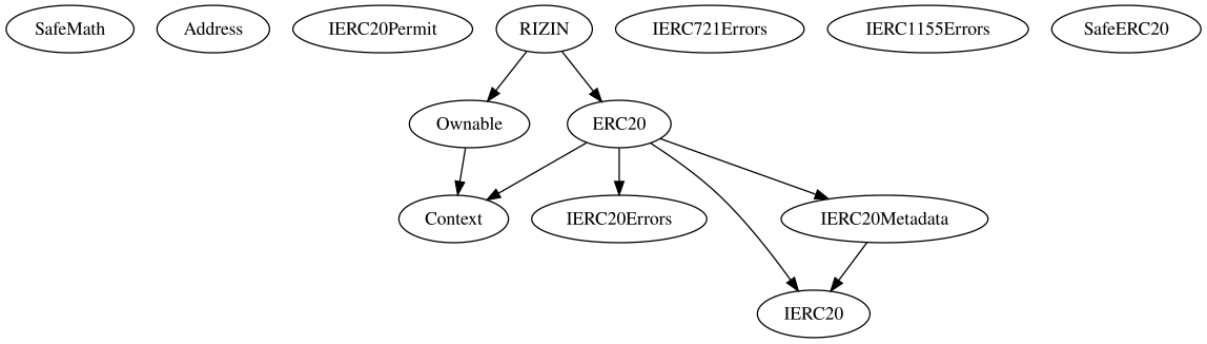
	functionStaticCall	Internal		
	functionDelegateCall	Internal	✓	
	verifyCallResultFromTarget	Internal		
	verifyCallResult	Internal		
	_revert	Private		
IERC20Permit	Interface			
	permit	External	✓	-
	nonces	External		-
	DOMAIN_SEPARATOR	External		-
IERC20Errors	Interface			
IERC721Errors	Interface			
IERC1155Errors	Interface			
Context	Implementation			
	_msgSender	Internal		
	_msgData	Internal		
	_contextSuffixLength	Internal		
Ownable	Implementation	Context		

		Public	✓	-
	owner	Public		-
	_checkOwner	Internal		
	renounceOwnership	Public	✓	onlyOwner
	transferOwnership	Public	✓	onlyOwner
	_transferOwnership	Internal	✓	
IERC20	Interface			
	totalSupply	External		-
	balanceOf	External		-
	transfer	External	✓	-
	allowance	External		-
	approve	External	✓	-
	transferFrom	External	✓	-
SafeERC20	Library			
	safeTransfer	Internal	✓	
	safeTransferFrom	Internal	✓	
	safeIncreaseAllowance	Internal	✓	
	safeDecreaseAllowance	Internal	✓	
	forceApprove	Internal	✓	
	_callOptionalReturn	Private	✓	
	_callOptionalReturnBool	Private	✓	

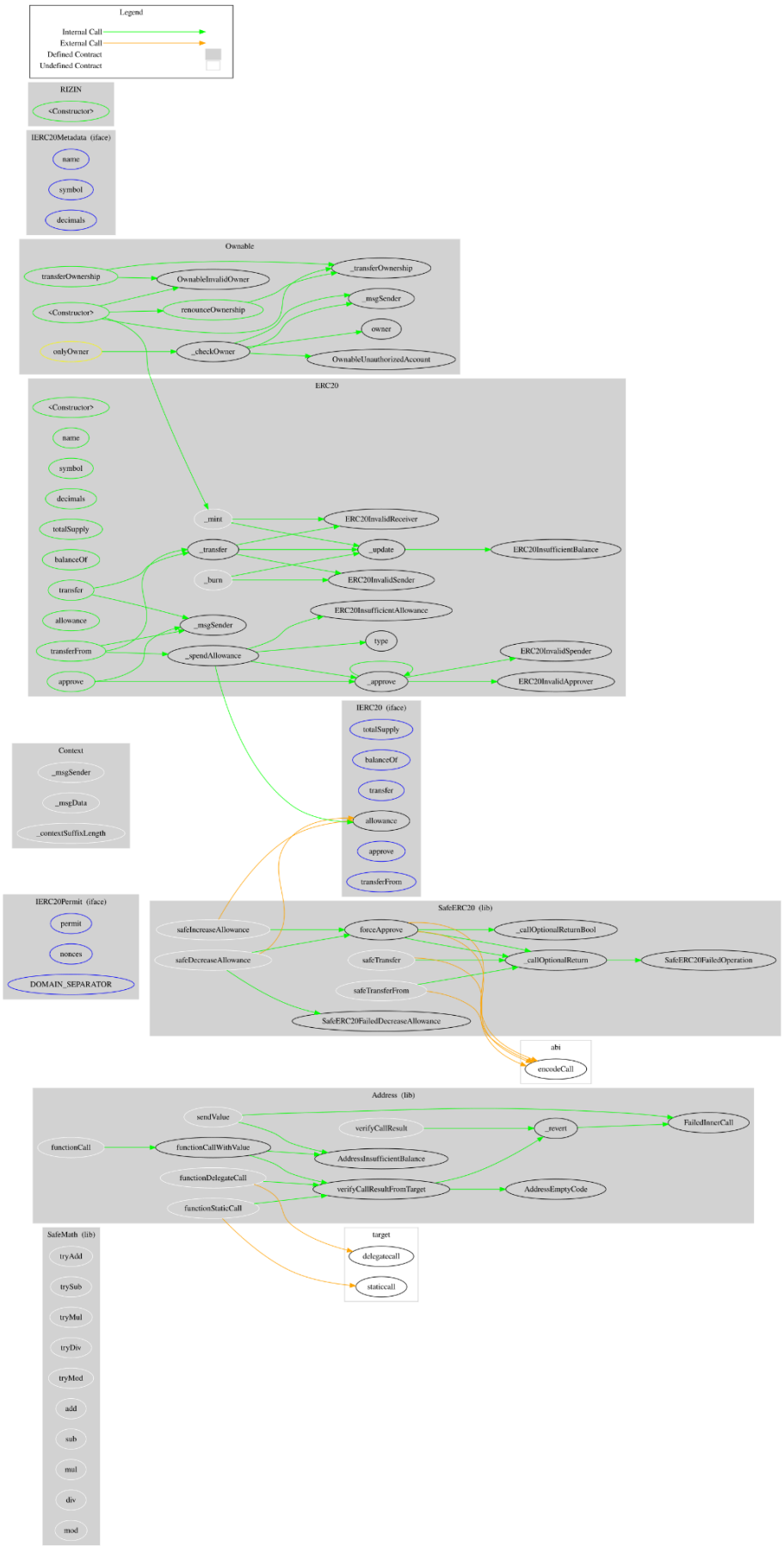
IERC20Metadata	Interface	IERC20		
	name	External		-
	symbol	External		-
	decimals	External		-
ERC20	Implementation	Context, IERC20, IERC20Metadata, IERC20Errors		
		Public	✓	-
	name	Public		-
	symbol	Public		-
	decimals	Public		-
	totalSupply	Public		-
	balanceOf	Public		-
	transfer	Public	✓	-
	allowance	Public		-
	approve	Public	✓	-
	transferFrom	Public	✓	-
	_transfer	Internal	✓	
	_update	Internal	✓	
	_mint	Internal	✓	
	_burn	Internal	✓	

	_approve	Internal	✓	
	_approve	Internal	✓	
	_spendAllowance	Internal	✓	
RIZIN	Implementation	ERC20, Ownable		
		Public	✓	Ownable ERC20

Inheritance Graph



Flow Graph


Legend
Internal Call
External Call
Defined Contract
Undefined Contract
RIZIN
<Constructor>
IERC20Metadata (iface)
name
symbol
decimals
Ownable
transferOwnership
OwnableInvalidOwner
_transferOwnership
<Constructor>
renounceOwnership
msgSender
owner
onlyOwner
_checkOwner
OwnableUnauthorizedAccount
ERC20
<Constructor>
name
symbol
decimals
totalSupply
balanceOf
transfer
allowance
transferFrom
approve
_mint
_transfer
_burn
_update
ERC20InvalidReceiver
ERC20InsufficientBalance
ERC20InvalidSender
ERC20InsufficientAllowance
_msgSender
_spendAllowance
type
_approve
ERC20InvalidSpender
ERC20InvalidApprover
IERC20 (iface)
totalSupply
balanceOf
transfer
allowance
approve
transferFrom
Context
_msgSender
_msgData
_contextSuffixLength
IERC20Permit (iface)
permit
nonces
DOMAIN_SEPARATOR
SafeERC20 (lib)
safeIncreaseAllowance
safeDecreaseAllowance
forceApprove
safeTransfer
safeTransferFrom
SafeERC20FailedDecreaseAllowance
_callOptionalReturnBool
_callOptionalReturn
SafeERC20FailedOperation
abi
encodeCall
Address (lib)
functionCall
sendValue
functionCallWithValue
functionDelegateCall
functionStaticCall
verifyCallResult
AddressInsufficientBalance
verifyCallResultFromTarget
_revert
FailedInnerCall
AddressEmptyCode
target
delegatecall
staticcall
SafeMath (lib)
tryAdd
trySub
tryMul
tryDiv
tryMod
add
sub
mul
div
mod

Summary

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

The contract's ownership has been renounced. The information regarding the transaction can be accessed through the following link:

https://bscscan.com/tx/0x05823163e320150d21acec8ceca21390a29197053855f00fcc0ce96e881bea71

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The Cyberscope team

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