



Audit Report RainbowSix

May 2023



Network BSC

Address 0x4Fc0Dc6f38D9FCf01F25627Abb809aa1BE934d6F
Audited by © Security Token RSIX



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Review

Contract Name	RainbowSix
Compiler Version	v0.8.16+commit.07a7930e
Optimization	200 runs
Explorer	https://bscscan.com/address/0x4fc0dc6f38d9fcf01f25627abb809aa1be934d6f
Address	0x4fc0dc6f38d9fcf01f25627abb809aa1be934d6f
Network	BSC
Symbol	RainbowSix
Decimals	18
Total Supply	1,000,000,000

Audit Updates

Initial Audit	3 May 2023
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Source Files

Filename	Security RSIX
StandardToken.sol	0x31f361a41610a140273fe1dd722194342963f432f0232c44801ddbb8a4c1cf1d



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



Analysis

● Critical ● Medium ● Minor / Informative ● Pass

Severity	Code	Description	Status
●	ST	Stops Transactions	Passed
●	OCTD	Transfers Contract's Tokens	Passed
●	OTUT	Transfers User's Tokens	Passed
●	ELFM	Exceeds Fees Limit	Passed
●	ULTW	Transfers Liquidity to Team Wallet	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
●	IDI	Immutable Declaration Improvement	Unresolved
●	L01	Public Function could be Declared External	Unresolved
●	L09	Dead Code Elimination	Unresolved
●	L16	Validate Variable Setters	Unresolved





RSML - Redundant SafeMath Library

Criticality	Minor / Informative
Location	RainbowSix.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 0.8.16, the arithmetic operations revert on 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 the gas consumption unnecessarily.

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

Recommendation

The team is advised to remove the SafeMath library. Since the version of the contract is greater than `0.8.16` then the pure Solidity arithmetic operations produce the same result.

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



IDI - Immutable Declaration Improvement

Criticality	Minor / Informative
Location	RainbowSix.sol
Status	Unresolved

Description

The contract is using variables that initialize them only in the constructor. The other functions are not mutating the variables. These variables are not defined as `immutable`.

```
_name  
_symbol
```

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.



L01 - Public Function could be Declared External

Criticality	Minor / Informative
Location	RainbowSix.sol
Status	Unresolved

Description

A public function is a function that can be called from external contracts or from within the contract itself. An external function is a function that can only be called from external contracts, and cannot be called from within the contract itself.

It's generally a good idea to declare functions as external if they are only intended to be called from external contracts, as this can help make the contract's code easier to understand and maintain. Declaring a function as external can also help to improve the contract's performance and gas consumption.

```
function renounceOwnership() public virtual onlyOwner {
    _setOwner(address(0));
}

function transferOwnership(address newOwner) public virtual onlyOwner {
    require(newOwner != address(0), "Ownable: new owner is the zero address");
    ...
function name() public view virtual returns (string memory) {
    return _name;
}

function symbol() public view virtual returns (string memory) {
    return _symbol;
}

...
```



Recommendation

It's important to choose the appropriate visibility for each function based on how it is intended to be used. Declaring a function as external when it should be public, or vice versa can lead to unnecessary gas consumption.





L09 - Dead Code Elimination

Criticality	Minor / Informative
Location	RainbowSix.sol
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 manual_burn(address account, uint256 amount) internal virtual {
    require(account != address(0), "ERC20: burn from the zero address");

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

    _balances[account] = _balances[account].sub(
        amount,
        "ERC20: burn amount exceeds balance"
    );
    _totalSupply = _totalSupply.sub(amount);
    emit Transfer(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.





L16 - Validate Variable Setters

Criticality	Minor / Informative
Location	RainbowSix.sol
Status	Unresolved

Description

The contract performs operations on variables that have been configured on user-supplied input. These variables are missing of proper check for the case where a value is zero. This can lead to problems when the contract is executed, as certain actions may not be properly handled when the value is zero.

```
payable(serviceFeeReceiver_).transfer(serviceFee_)
```

Recommendation

By adding the proper check, the contract will not allow the variables to be configured with zero value. This will ensure that the contract can handle all possible input values and avoid unexpected behavior or errors. Hence, it can help to prevent the contract from being exploited or operating unexpectedly.



Functions Analysis

Contract	Type	Bases		
	Function Name	Visibility	Mutability	Modifiers
IERC20	Interface			
	totalSupply	External		-
	balanceOf	External		-
	transfer	External	✓	-
	allowance	External		-
	approve	External	✓	-
	transferFrom	External	✓	-
Context	Implementation			
	_msgSender	Internal		
	_msgData	Internal		
Ownable	Implementation	Context		
		Public	✓	-
	owner	Public		-
	renounceOwnership	Public	✓	onlyOwner
	transferOwnership	Public	✓	onlyOwner
	_setOwner	Private	✓	



RainbowSix Token Audit

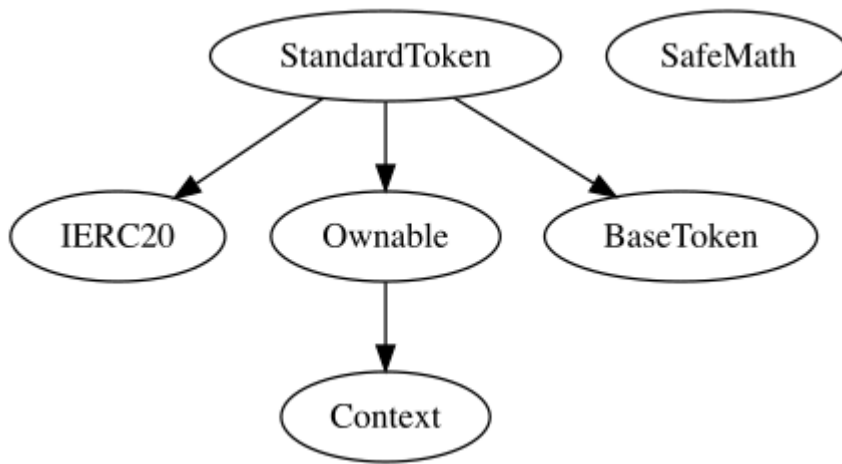
SafeMath	Library			
	tryAdd	Internal		
	trySub	Internal		
	tryMul	Internal		
	tryDiv	Internal		
	tryMod	Internal		
	add	Internal		
	sub	Internal		
	mul	Internal		
	div	Internal		
	mod	Internal		
	sub	Internal		
	div	Internal		
	mod	Internal		
BaseToken	Implementation			
StandardToken	Implementation	IERC20, Ownable, BaseToken		
		Public	Payable	-
	name	Public		-
	symbol	Public		-
	decimals	Public		-



	totalSupply	Public		-
	balanceOf	Public		-
	transfer	Public	✓	-
	allowance	Public		-
	approve	Public	✓	-
	transferFrom	Public	✓	-
	increaseAllowance	Public	✓	-
	decreaseAllowance	Public	✓	-
	_transfer	Internal	✓	
	_mint	Internal	✓	
	_burn	Internal		
	_approve	Internal	✓	
	_setupDecimals	Internal	✓	
	_beforeTokenTransfer	Internal	✓	

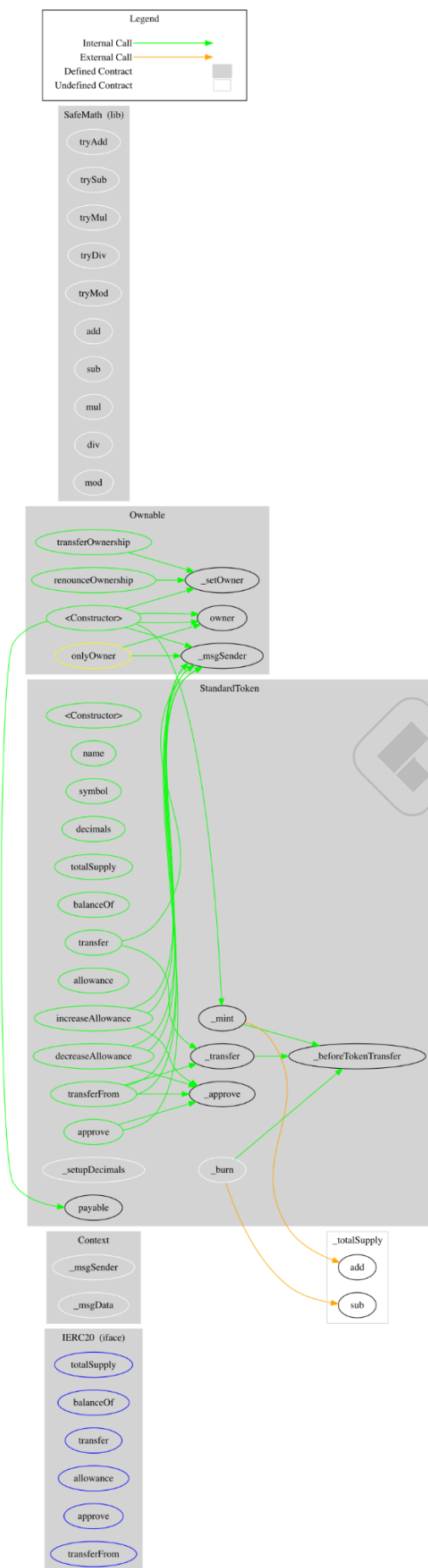


Inheritance Graph





Flow Graph





Summary

RainbowSix Coin contract implements a token mechanism. This audit investigates security issues, business logic concerns and potential improvements. RainbowSix Coin is an interesting project that has a friendly and growing community. The Smart Contract analysis reported no compiler error or critical issues. The contract Owner can access some admin functions that can not be used in a malicious way to disturb the users' transactions.





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About SECURITY

Security is a blockchain security company that was founded with the vision to make web 3.0 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.

Security 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 RainbowSix team

<https://www.rainbowsix.biz/>