



SMART CONTRACT AUDIT REPORT

For

In Blockchain Time Token (TIME)



Prepared By: SFI Team

Prepared on: 21/12/2021

Prepared for: In Blockchain Team

Contract Address:

0x39D4cc0c5E47b3Dc22e5769977396d4F20CD74d7

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• Disclaimer

This is a limited report on our findings based on our analysis, in accordance with good industry practice as of the date of this report, in relation to cybersecurity vulnerabilities and issues in the framework and algorithms based on smart contracts, the details of which are set out in this report. In order to get a full view of our analysis, it is crucial for you to read the full report. While we have done our best in conducting our analysis and producing this report, it is important to note that you should not rely on this report and cannot claim against the team on the basis of what it says or doesn't say, or how team produced it, and it is important for you to conduct your own independent investigations before making any decisions. team go into more detail on this in the below disclaimer below – please make sure to read it in full.

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• Scope of the audit

The scope of this audit was to analyze and document the In blockchain Time (TIME) smart contract codebase for quality, security, and correctness (automatically)

• Introduction

During the period of **December 20, 2021, to December 21, 2021** - SaferICO

Team performed a security audit for **In blockchain Time (TIME)** smart contracts.

The project has 1 file. It contains approx 740 lines of Solidity code. Most of the functions and state variables are well commented on using the Nat spec documentation, but that does not create any vulnerability.

Source Code: <https://bscscan.com/address/0x39D4cc0c5E47b3Dc22e5769977396d4F20CD74d7#code>

• Check Vulnerabilities

In order to check for the security of the contract, we tested several attacks in order to make sure that the contract is secure and follows best practices automatically.

1. Unit tests passing.
2. Compiler warnings;
3. Race Conditions. Reentrancy. Cross-function Race Conditions. Pitfalls in Race Condition solutions;
4. Possible delays in data delivery;
5. Transaction-Ordering Dependence (front running);
6. Timestamp Dependence;

7. Integer Overflow and Underflow;

8. DoS with (unexpected) Revert;

9. DoS with Block Gas Limit

10. Call Depth Attack. Not relevant in modern ethereum network

11. Methods execution permissions;

12. Oracles calls;

13. Economy model. It's important to forecast scenarios when a user is provided with additional economic motivation or faced with limitations. If application logic is based on incorrect economy model, the application will not function correctly and participants will incur financial losses. This type of issue is most often found in bonus rewards systems.

14. The impact of the exchange rate on the logic;

15. Private user data leaks.

• Issue Categories

Every issue in this report has been assigned to a severity level. There are four levels of severity, and each of them has been explained below.

Risk-level	Description
High	A high severity issue or vulnerability means that your smart contract can be exploited. Issues on this level are critical to the smart contract's performance or functionality, and we recommend these issues be fixed before moving to a live environment.
Medium	The issues marked as medium severity usually arise because of errors and deficiencies in the smart contract code. Issues on this level could potentially bring problems, and they should still be fixed.
Low	Low-level severity issues can cause minor impact and or are just warnings that can remain unfixed for now. It would be better to fix these issues at some point in the future.
Informational	These are severity issues that indicate an improvement request, a general question, a cosmetic or documentation error, or a request for information. There is low-to-no impact.

- **Issues Found – Code Review Automatically**

High severity issues

There are no High severity vulnerabilities found

Medium severity issues

There are no Medium severity vulnerabilities found

Low severity issues

There are no Low severity vulnerabilities found

Informational issues

#Gas Costs:

Gas requirement of function Inblockchain.functions is infinite: If the gas requirement of a function is higher than the block gas limit, it cannot be executed Please avoid loops in your functions or actions that modify large areas of storage
(This includes clearing or copying arrays in storage)

```
function name() public view virtual returns (string memory) {  
    return _name;  
}  
function symbol() public view virtual returns (string memory) {  
    return _symbol;  
}  
function decimals() public view virtual returns (uint8) {  
    return _decimals;  
}  
function totalSupply() public view virtual override returns (uint256) {  
    return _totalSupply;  
}
```

Remediation

Make these methods external instead public.

Status: *Acknowledged*

Constant calculations in the contract

Description

recalculated initialization will save 2847 units of gas in deployment

```
uint256 constant CAP = 500000000 * 10 ** 18;
```

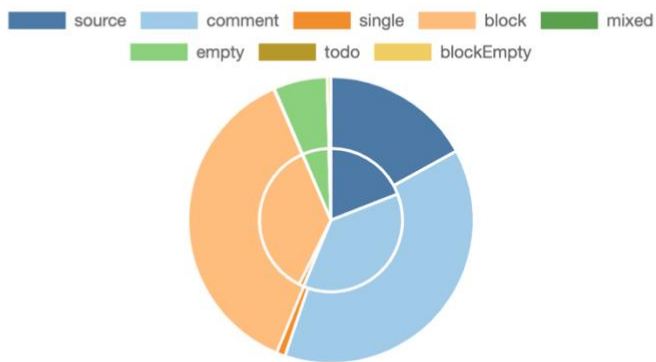
Recommendation

Replace the initialization as

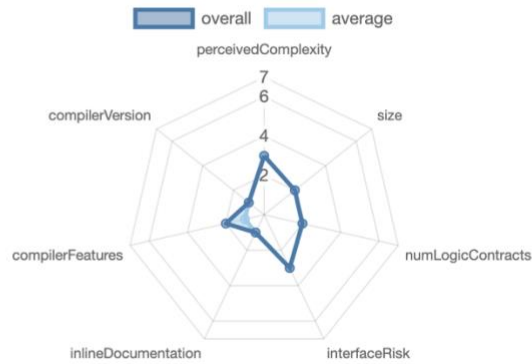
```
uint256 constant CAP = 5000000000000000000000000000;
```

Status: *Acknowledged*

- Source Lines




- Risk Level



- Testing proves
- Check for security

e8a896cb98d4b284f27a0fc270421b1cab7d7e2af36ebd44f11b2b55d0065130
File: In Block... | Language: solidity | Size: 26635 bytes | Date: 2021-12-21T06:23:08.594Z

Critical	High	Medium	Low	Note
0	0	0	0	2



- Solidity Static Analysis

SOLIDITY STATIC ANALYSIS

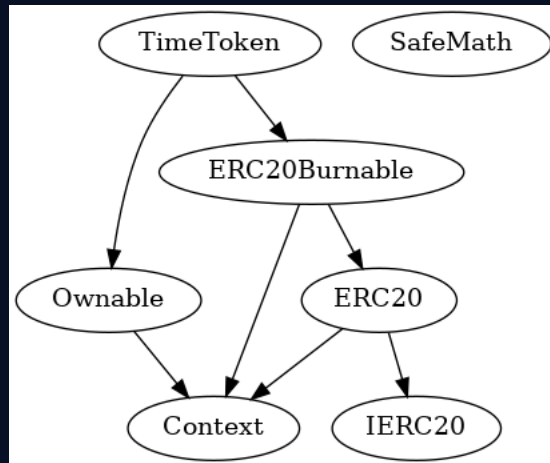
- ▼ ERC
 - ☒ Select ERC
 - ☒ ERC20: 'decimals' should be 'uint8'
- ▼ Miscellaneous
 - ☒ Select Miscellaneous
 - ☒ Constant/View/Pure functions: Potentially constant/view/pure functions
 - ☒ Similar variable names: Variable names are too similar
 - ☒ No return: Function with 'returns' not returning
 - ☒ Guard conditions: Ensure appropriate use of require/assert
 - ☒ Result not used: The result of an operation not used
 - ☒ String length: Bytes length != String length
 - ☒ Delete from dynamic array: 'delete' leaves a gap in array
 - ☒ Data truncated: Division on int/uint values truncates the result

SOLIDITY STATIC ANALYSIS

☒ Select all
☒ Autorun

- ▼ Security
 - ☒ Select Security
 - ☒ Transaction origin: 'tx.origin' used
 - ☒ Check-effects-interaction: Potential reentrancy bugs
 - ☒ Inline assembly: Inline assembly used
 - ☒ Block timestamp: Can be influenced by miners
 - ☒ Low level calls: Should only be used by experienced devs
 - ☒ Block hash: Can be influenced by miners
 - ☒ Selfdestruct: Contracts using destructured contract can be broken
- ▼ Gas & Economy
 - ☒ Select Gas & Economy
 - ☒ Gas costs: Too high gas requirement of functions
 - ☒ This on local calls: Invocation of local functions via 'this'
 - ☒ Delete dynamic array: Use require/assert to ensure complete deletion
 - ☒ For loop over dynamic array: Iterations depend on dynamic array's size
 - ☒ Ether transfer in loop: Transferring Ether in a for/while/do-while loop

- **Inheritance Graph**



- **Solidity Unit Testing Code & Results**

```
// SPDX-License-Identifier: GPL-3.0

pragma solidity >=0.4.22 <0.9.0;

// This import is automatically injected by Remix
import "remix_tests.sol";

// This import is required to use custom transaction context
// Although it may fail compilation in 'Solidity Compiler' plugin
// But it will work fine in 'Solidity Unit Testing' plugin
import "remix_accounts.sol";
import "../Blockchain Token.sol";

// File name has to end with '_test.sol', this file can contain more than one testSuite contracts
contract testSuite {

    /// 'beforeAll' runs before all other tests
    /// More special functions are: 'beforeEach', 'beforeAll', 'afterEach' & 'afterAll'
```

SOLIDITY UNIT TESTING



Test your smart contract in Solidity.

Select directory to load and generate test files.

Test directory:

tests

Create

Generate

How to use...



Run



Stop

☒ Select all

☒ tests/In Blockchain Token_test.sol

Progress: 1 finished (of 1)

testSuite (tests/In Blockchain Token_test.sol)

✓ Before all



✓ Check success



✓ Check success2



✓ Check failure



✓ Check sender and value



Result for tests/In Blockchain
Token_test.sol

Passing: 5

Total time: 0.26s

```
function beforeAll() public {
    // <instantiate contract>

    Assert.equal(uint(1), uint(1), "1 should be equal to 1");
}

function checkSuccess() public {
    // Use 'Assert' methods: https://remix-
    ide.readthedocs.io/en/latest/assert_library.html

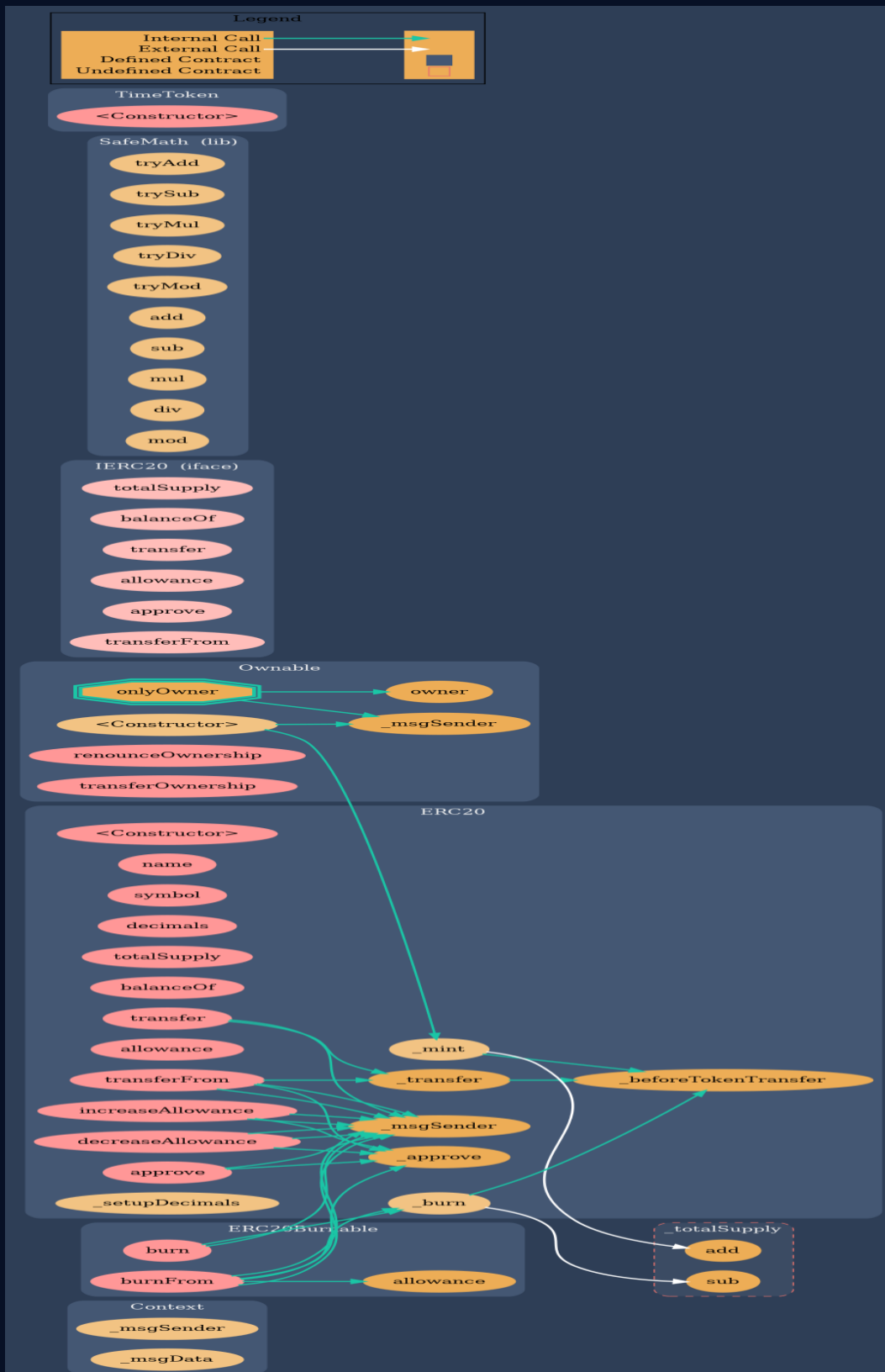
    Assert.ok(2 == 2, 'should be true');
    Assert.greaterThan(uint(2), uint(1), "2 should be greater than to 1");
    Assert.lessThan(uint(2), uint(3), "2 should be lesser than to 3");
}

function checkSuccess2() public pure returns (bool) {
    // Use the return value (true or false) to test the contract
    return true;
}

function checkFailure() public {
    Assert.notEqual(uint(1), uint(2), "1 should not be equal to 1");
}

/// Custom Transaction Context: https://remix-
ide.readthedocs.io/en/latest/unittesting.html#customization
/// #sender: account-1
/// #value: 100
function checkSenderAndValue() public payable {
    // account index varies 0-9, value is in wei
    Assert.equal(msg.sender, TestsAccounts.getAccount(1), "Invalid sender");
    Assert.equal(msg.value, 100, "Invalid value");
}
}
```

- **Call Graph**



• Capabilities

Components

 Contracts	 Libraries	 Interfaces	 Abstract
2	1	1	3

Exposed Functions

This section lists functions that are explicitly declared public or payable. Please note that getter methods for public stateVars are not included.












 Public	 Payable
24	0

External	Internal	Private	Pure	View
6	43	0	13	12

StateVariables

Total	 Public
8	0

Capabilities

Solidity Versions observed	 Experimental Features	 Can Receive Funds	 Uses Assembly	 Has Destroyable Contracts	
0.6.12					
 Transfers ETH	 Low-Level Calls	 DelegateCall	 Uses Hash Functions	 ECREcover	 New/Create/Create2
 TryCatch	Σ Unchecked				

• Source Units In Scope

Source Units in Scope

Source Units Analyzed: 1

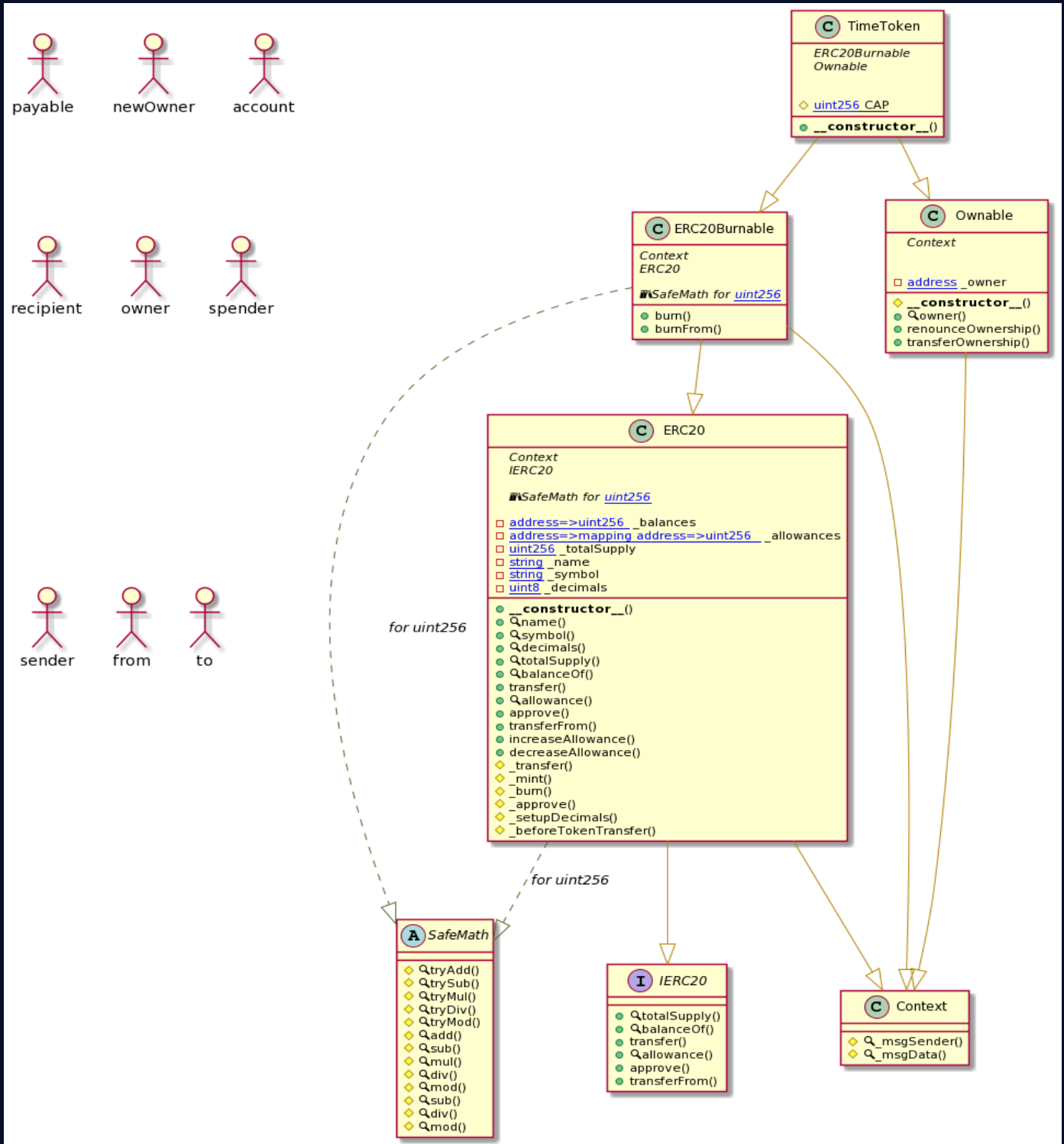
Source Units in Scope: 1 (100%)

Type	File	Logic Contracts	Interfaces	Lines	nLines	nSLOC	Comment Lines	Complex. Score	Capabilities
   	In Blockchain Token.sol	6	1	740	689	213	465	162	
   	Totals	6	1	740	689	213	465	162	

Legend: [=]

- **Lines**: total lines of the source unit
- **nLines**: normalized lines of the source unit (e.g. normalizes functions spanning multiple lines)
- **nSLOC**: normalized source lines of code (only source-code lines; no comments, no blank lines)
- **Comment Lines**: lines containing single or block comments
- **Complexity Score**: a custom complexity score derived from code statements that are known to introduce code complexity (branches, loops, calls, external interfaces, ...)

- Unified Modeling Language (UML)



• Function Signature

Sighash | Function Signature

=====

```
39509351 => increaseAllowance(address,uint256)
119df25f => _msgSender()
8b49d47e => _msgData()
8da5cb5b => owner()
715018a6 => renounceOwnership()
f2fde38b => transferOwnership(address)
18160ddd => totalSupply()
70a08231 => balanceOf(address)
a9059cbb => transfer(address,uint256)
dd62ed3e => allowance(address,address)
095ea7b3 => approve(address,uint256)
23b872dd => transferFrom(address,address,uint256)
884557bf => tryAdd(uint256,uint256)
a29962b1 => trySub(uint256,uint256)
6281efa4 => tryMul(uint256,uint256)
736ecb18 => tryDiv(uint256,uint256)
38dc0867 => tryMod(uint256,uint256)
771602f7 => add(uint256,uint256)
b67d77c5 => sub(uint256,uint256)
c8a4ac9c => mul(uint256,uint256)
a391c15b => div(uint256,uint256)
f43f523a => mod(uint256,uint256)
e31bdc0a => sub(uint256,uint256,string)
b745d336 => div(uint256,uint256,string)
71af23e8 => mod(uint256,uint256,string)
06fdde03 => name()
95d89b41 => symbol()
313ce567 => decimals()
a457c2d7 => decreaseAllowance(address,uint256)
30e0789e => _transfer(address,address,uint256)
4e6ec247 => _mint(address,uint256)
6161eb18 => _burn(address,uint256)
104e81ff => _approve(address,address,uint256)
```



```
61e9edb2 => _setupDecimals(uint8)
cad3be83 => _beforeTokenTransfer(address,address,uint256)
42966c68 => burn(uint256)
79cc6790 => burnFrom(address,uint256)
```

• Automatic General Report

Files Description Table

File Name	SHA-1 Hash
/Users/macbook/Desktop/smart contracts/In Blockchain Token.sol	1cf9d222492bddc7ce7c973e7d8a6d4f24214325

Contracts Description Table

Contract	Type	Bases		
↳	**Function Name**	**Visibility**	**Mutability**	**Modifiers**
Context Implementation				
↳	_msgSender	Internal	🔒	
↳	_msgData	Internal	🔒	
Ownable Implementation Context				
↳	<Constructor>	Internal	🔒	🔴
↳	owner	Public	🔑	NO🔑
↳	renounceOwnership	Public	🔑	🔴 onlyOwner
↳	transferOwnership	Public	🔑	🔴 onlyOwner
IERC20 Interface				
↳	totalSupply	External	🔑	NO🔑
↳	balanceOf	External	🔑	NO🔑
↳	transfer	External	🔑	🔴 NO🔑
↳	allowance	External	🔑	NO🔑
↳	approve	External	🔑	🔴 NO🔑
↳	transferFrom	External	🔑	🔴 NO🔑
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 | | |
|||||
| **ERC20** | Implementation | Context, IERC20 |||
| ^ | <Constructor> | Public | | NO |
| ^ | name | Public | | NO |
| ^ | symbol | Public | | NO |
| ^ | decimals | Public | | NO |
| ^ | totalSupply | Public | | NO |
| ^ | balanceOf | Public | | NO |
| ^ | transfer | Public | | NO |
| ^ | allowance | Public | | NO |
| ^ | approve | Public | | NO |
| ^ | transferFrom | Public | | NO |
| ^ | increaseAllowance | Public | | NO |
| ^ | decreaseAllowance | Public | | NO |
| ^ | _transfer | Internal | | |
| ^ | _mint | Internal | | |
| ^ | _burn | Internal | | |
| ^ | _approve | Internal | | |
| ^ | _setupDecimals | Internal | | |
| ^ | _beforeTokenTransfer | Internal | | |
|||||
| **ERC20Burnable** | Implementation | Context, ERC20 |||
| ^ | burn | Public | | NO |
| ^ | burnFrom | Public | | NO |
|||||
| **TimeToken** | Implementation | ERC20Burnable, Ownable |||
| ^ | <Constructor> | Public | | ERC20 |


```

Legend

	Symbol		Meaning	
--	--------	--	---------	--

	:-----:		-----	
--	---------	--	-------	--

			Function can modify state	
--	---	--	---------------------------	--

			Function is payable	
--	---	--	---------------------	--

- **Summary of the Audit**

According to automatically test, the customer`s solidity smart contract is **Secured**.

The general overview is presented in the Project Information section and all issues found are located in the audit overview section.

The test found 0 critical, 0 high, 0 medium, 0 low issues, and 2 notes.