Cyberscope

Audit Report

MoonappToken

October 2022

Github https://github.com/moonappxxx/moonapp-contracts

Commit 7a608c12ac6f7a750f5a109dd5513d0a7941ba03

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Table of Contents

Contract Review

Contract Name	MoonappToken
Compiler Version	v0.8.11+commit.d7f03943
Github	https://github.com/moonappxxx/moonapp-contracts
Commit	7a608c12ac6f7a750f5a109dd5513d0a7941ba03
Testing Deploy	https://testnet.bscscan.com/address/0xDBdf78cc2343d3408Deb80571329B60d8C21F4F9#code
Symbol	tst
Decimals	18
Total Supply	99,999
Domain	https://moonapp.org

Audit Updates

Initial Audit	3rd October 2022 https://github.com/cyberscope-io/audits/blob/main/1-xxx/v1/moonappToken.pdf
Corrected Phase 1	7th October 2022 https://github.com/cyberscope-io/audits/blob/main/1-xxx/v2/moonappToken.pdf
Corrected Phase 2	11th October 2022

Source Files

Filename	SHA256
@openzeppelin/contracts/token/ERC20/ERC20.sol	5031430cc2613c32736d598037d3075985a2a09e61592a013dbd09a5bc2041b8
@openzeppelin/contracts/token/ERC20/extensions/ERC20Burnable.sol	0344809a1044e11ece2401b4f7288f414ea41fa9d1dad24143c84b737c9fc02e
@openzeppelin/contracts/token/ERC20/extensions/IERC20Metadata.sol	af5c8a77965cc82c33b7ff844deb9826166689e55dc037a7f2f790d057811990
@openzeppelin/contracts/token/ERC20/IERC20.sol	94f23e4af51a18c2269b355b8c7cf4db8003d075c9c541019eb8dcf4122864d5
@openzeppelin/contracts/utils/Context.sol	1458c260d010a08e4c20a4a517882259a23a4baa0b5bd9add9fb6d6a1549814a
@openzeppelin/contracts/utils/math/SafeMath.sol	0dc33698a1661b22981abad8e5c6f5ebca0dfe5ec14916369a2935d888ff257a
contracts/Governed.sol	216f03644d4e517caba4b44b8f3b74c358462601918a7be264790ef1cc1bde4c
contracts/MoonappToken.sol	4f008238f35900a28f6da3b057b0715ec0a7e5f38c93f03ed25cc1639d3a1a0c

Contract 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	Unresolved
●	BT	Burns Tokens	Unresolved
●	BC	Blacklists Addresses	Passed

MT - Mints Tokens

Criticality	critical
Location	contract.sol#L56
Status	Unresolved

Description

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

There is a maximum mint limit number. The contract owner can mint up to 100000000000000000000000000000 tokens. That is 1000 times more than the initial total supply.

```
function mint(address _account, uint256 _amount) external onlyGovernor {
        require(mintLockTime < block.timestamp, "mint is locked");

        uint256 _totalSupply = totalSupply();
        require(
            _totalSupply.add(_amount) <= totalSupplyLimit,
            "We are reached the limit in the total supply"
        );

        _mint(_account, _amount);
    }
```

Recommendation

The owner should carefully manage the credentials of the owner's account. We advised considering an extra-strong security mechanism that the actions may be quarantined by many users instead of one. The owner could also renounce the contract ownership for a period of time or pass the access to the zero address.

BT - Burns Tokens

Criticality	critical
Location	contract.sol#L47
Status	Unresolved

Description

The contract owner has the authority to burn tokens from a specific address. The owner may take advantage of it by calling the `burnFrom` function. As a result the targeted contract address will lose the corresponding tokens.

```
function burnFrom(address _account, uint256 _amount)
        public
        override
        onlyGovernor
    {
        require(burnLockTime < block.timestamp, "burn is locked");
        _burn(_account, _amount);
    }
```

Recommendation

The owner should carefully manage the credentials of the owner's account. We advised considering an extra-strong security mechanism that the actions may be quarantined by many users instead of one. The owner could also renounce the contract ownership for a period of time or pass the access to the zero address.

Contract Diagnostics

Critical Medium Minor / Informative

Severity	Code	Description	Status
●	L01	Public Function could be Declared External	Unresolved
●	L04	Conformance to Solidity Naming Conventions	Unresolved
●	L11	Unnecessary Boolean equality	Unresolved
●	L15	Local Scope Variable Shadowing	Unresolved

L01 - Public Function could be Declared External

Criticality	minor / informative
Location	contracts/MoonappToken.sol#L47
Status	Unresolved

Description

Public functions that are never called by the contract should be declared external to save gas.

```
burnFrom
```

Recommendation

Use the external attribute for functions never called from the contract.

L04 - Conformance to Solidity Naming Conventions

Criticality	minor / informative
Location	contracts/MoonappToken.sol#L56,47,42,37 contracts/Governed.sol#L54
Status	Unresolved

Description

Solidity defines a naming convention that should be followed. Rule exceptions:

- Allow constant variable name/symbol/decimals to be lowercase.
- Allow _ at the beginning of the mixed_case match for private variables and unused parameters.

```
_account
_amount
_burnLockTime
_newGovernor
_mintLockTime
```

Recommendation

Follow the Solidity naming convention.
https://docs.soliditylang.org/en/v0.4.25/style-guide.html#naming-conventions.

L11 - Unnecessary Boolean equality

Criticality	minor / informative
Location	contracts/Governed.sol#L34,54
Status	Unresolved

Description

The comparison to boolean constants is redundant. Boolean constants can be used directly and do not need to be compared to true or false.

```
require(bool,string)(governors[msg.sender].ownershipAccepted == true,Only Governor can call)
require(bool,string)(governors[_newGovernor].ownershipAccepted != true,Permissions granted already)
```

Recommendation

Remove the equality to the boolean constant.

L15 - Local Scope Variable Shadowing

Criticality	minor / informative
Location	contracts/MoonappToken.sol#L59
Status	Unresolved

Description

The are variables that are defined in the local scope containing the same name from an upper scope.

```
_totalSupply
```

Recommendation

The local variables should have different names from the upper scoped variables.

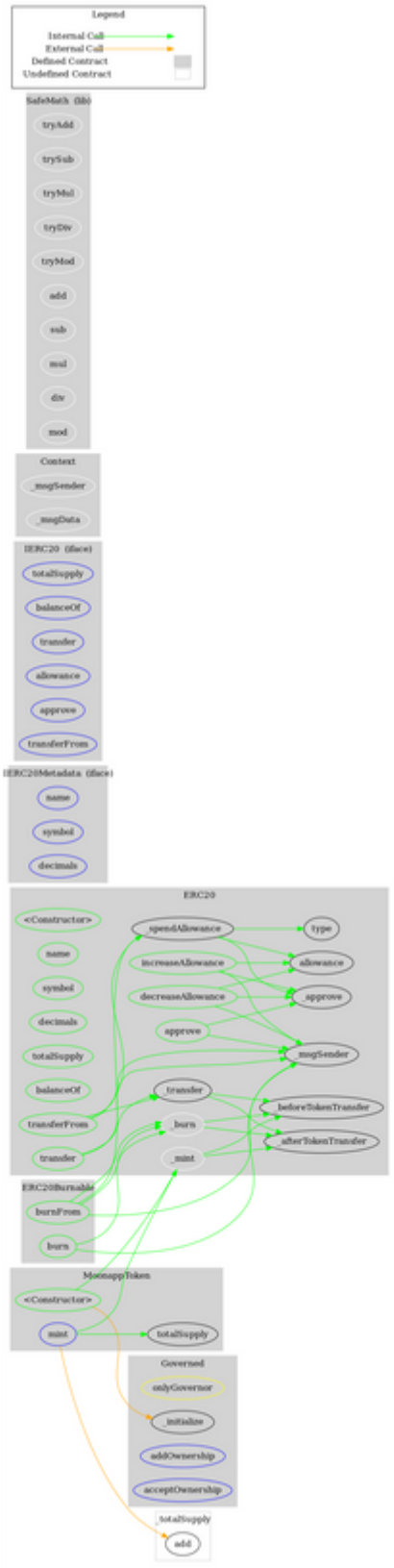
Contract Functions

Contract	Type	Bases		
	Function Name	**Visibility**	**Mutability**	**Modifiers**
ERC20	Implementation	Context, IERC20, IERC20Metadata		
	<Constructor>	Public	✓	-
	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	✓	
	_spendAllowance	Internal	✓	
	_beforeTokenTransfer	Internal	✓	
	_afterTokenTransfer	Internal	✓	
ERC20Burnable	Implementation	Context, ERC20		
	burn	Public	✓	-
	burnFrom	Public	✓	-

IERC20Metadata	Interface	IERC20		
	name	External		-
	symbol	External		-
	decimals	External		-
IERC20	Interface			
	totalSupply	External		-
	balanceOf	External		-
	transfer	External	✓	-
	allowance	External		-
	approve	External	✓	-
	transferFrom	External	✓	-
Context	Implementation			
	_msgSender	Internal		
	_msgData	Internal		
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		
Governed	Implementation			
	_initialize	Internal	✓	

	addOwnership	External	✓	onlyGovernor
	acceptOwnership	External	✓	-
MoonappToken	Implementation	ERC20, ERC20Burnable, Governed		
	<Constructor>	Public	✓	ERC20
	burnFrom	Public	✓	onlyGovernor
	mint	External	✓	onlyGovernor

Contract Flow



Domain Info

Domain Name	moonapp.org
Registry Domain ID	ebf9cc2ae696406f89ddb496f15a1e47-LROR
Creation Date	2022-01-23T16:44:59Z
Updated Date	2022-03-25T03:49:23Z
Registry Expiry Date	2023-01-23T16:44:59Z
Registrar WHOIS Server	http://whois.reg.com
Registrar URL	http://www.reg.com
Registrar	Registrar of Domain Names REG.RU LLC
Registrar IANA ID	1606

The domain was created 8 months before the creation of the audit. It will expire in 4 months.

There is no public billing information, the creator is protected by the privacy settings.

Summary

There are some functions that can be abused by the owner like minting tokens and burning tokens. if the contract owner abuses the mint functionality, then the contract will be highly inflated. if the contract owner abuses the burn functionality, then the users could lost their tokens. A multi-wallet signing pattern will provide security against potential hacks. Temporarily locking the contract or renouncing ownership will eliminate all the contract threats.

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About Cyberscope

Coinscope audit and K.Y.C. service has been rebranded to Cyberscope.

Coinscope is the leading early coin listing, voting and auditing authority firm. The audit process is analyzing and monitoring many aspects of the project. That way, it gives the community a good sense of security using an informative report and a generic score.

Cyberscope and Coinscope are aiming to make crypto discoverable and efficient globally. They provide all the essential tools to assist users draw their own conclusions.

The Cyberscope team

https://www.cyberscope.io