Cyberscope

Audit Report

DUZU Coin

Aug 2023

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	Unresolved
●	BT	Burns Tokens	Passed
●	BC	Blacklists Addresses	Passed

Diagnostics

● Critical   ● Medium   ● Minor / Informative

Severity	Code	Description	Status
●	L04	Conformance to Solidity Naming Conventions	Unresolved
●	L19	Stable Compiler Version	Unresolved
●	L20	Succeeded Transfer Check	Unresolved

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Review

Contract Name	DUZU_Coin
Compiler Version	v0.8.21+commit.d9974bed
Optimization	200 runs
Explorer	https://bscscan.com/address/0xb032de897cfeac9dc76cccf36a62040b24e4ec8a
Address	0xb032de897cfeac9dc76cccf36a62040b24e4ec8a
Network	BSC
Symbol	DUZU
Decimals	8
Total Supply	1,000,000,000

Audit Updates

Initial Audit	12 Aug 2023

Source Files

Filename	SHA256
DUZU_Coin.sol	96d0d12babb3758cc3aceba8594c9270feeee562a753bfa02a7bff0197041bbc

Findings Breakdown
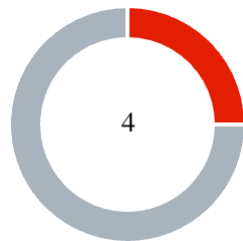
	Critical	1
	Medium	0
	Minor / Informative	3

Severity	Unresolved	Acknowledged	Resolved	Other
● Critical	1	0	0	0
● Medium	0	0	0	0
● Minor / Informative	3	0	0	0

MT - Mints Tokens

Criticality	Critical
Location	DUZU_Coin.sol#L399
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.

```solidity
function mint(address account, uint256 amount) external canMint {
    _mint(account, amount);
}
```

Recommendation

The team should carefully manage the private keys of the owner's account. We strongly recommend a powerful security mechanism that will prevent a single user from accessing the contract admin functions. Some suggestions are:

- Introduce a time-locker mechanism with a reasonable delay.
- Introduce a multi-sign wallet so that many addresses will confirm the action.
- Introduce a governance model where users will vote about the actions.
- Renouncing the ownership will eliminate the threats but it is non-reversible.

L04 - Conformance to Solidity Naming Conventions

Criticality	Minor / Informative
Location	DUZU_Coin.sol#L9,10,456
Status	Unresolved

Description

The Solidity style guide is a set of guidelines for writing clean and consistent Solidity code. Adhering to a style guide can help improve the readability and maintainability of the Solidity code, making it easier for others to understand and work with.

The followings are a few key points from the Solidity style guide:

1. Use camelCase for function and variable names, with the first letter in lowercase (e.g., myVariable, updateCounter).
2. Use PascalCase for contract, struct, and enum names, with the first letter in uppercase (e.g., MyContract, UserStruct, ErrorEnum).
3. Use uppercase for constant variables and enums (e.g., MAX_VALUE, ERROR_CODE).
4. Use indentation to improve readability and structure.
5. Use spaces between operators and after commas.
6. Use comments to explain the purpose and behavior of the code.
7. Keep lines short (around 120 characters) to improve readability.

```solidity
address private __target
string private __identifier

...
```

Recommendation

By following the Solidity naming convention guidelines, the codebase increased the readability, maintainability, and makes it easier to work with.

Find more information on the Solidity documentation
https://docs.soliditylang.org/en/v0.8.17/style-guide.html#naming-convention.

L19 - Stable Compiler Version

Criticality	Minor / Informative
Location	DUZU_Coin.sol#L7
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 ^0.8.21;
```

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.

L20 - Succeeded Transfer Check

Criticality	Minor / Informative
Location	DUZU_Coin.sol#L88
Status	Unresolved

Description

According to the ERC20 specification, the transfer methods should be checked if the result is successful. Otherwise, the contract may wrongly assume that the transfer has been established.

```
IERC20(tokenAddress).transfer(owner(), tokenAmount)
```

Recommendation

The contract should check if the result of the transfer methods is successful. The team is advised to check the SafeERC20 library from the Openzeppelin library.

Functions Analysis

Contract	Type	Bases		
	Function Name	Visibility	Mutability	Modifiers
DUZURun	Implementation			
		Public	Payable	-
	createdByDUZU	Public		-
	getIdentifier	Public		-
Context	Implementation			
	_msgSender	Internal		
	_msgData	Internal		
ERC20Ownable	Implementation	Context		
		Public	✓	-
	owner	Public		-
	renounceOwnership	Public	✓	onlyOwner
	transferOwnership	Public	✓	onlyOwner
IERC20	Interface			
	name	External		-
	symbol	External		-
	decimals	External		-

	totalSupply	External		-
	balanceOf	External		-
	allowance	External		-
	approve	External	✓	-
	transfer	External	✓	-
	transferFrom	External	✓	-
TokenRecover	Implementation	ERC20Ownable		
	recoverToken	Public	✓	onlyOwner
ERC20	Implementation	Context, IERC20		
		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	✓	
	_beforeTokenTransfer	Internal	✓	
ERC20Mintable	Implementation	ERC20		
	mintingFinished	External		-
	mint	External	✓	canMint
	finishMinting	External	✓	canMint
	_finishMinting	Internal	✓	
ERC20Decimals	Implementation	ERC20		
		Public	✓	-
	decimals	Public		-
ERC20Burnable	Implementation	Context, ERC20		
	burn	Public	✓	-
	burnFrom	Public	✓	-
DUZU_Coin	Implementation	ERC20Decimals, ERC20Mintable, ERC20Burnable, TokenRecov		

		er, DUZURun		
		Public	Payable	ERC20 ERC20Decimals DUZURun
	decimals	Public		-
	_mint	Internal	✓	onlyOwner
	_finishMinting	Internal	✓	onlyOwner

Inheritance Graph
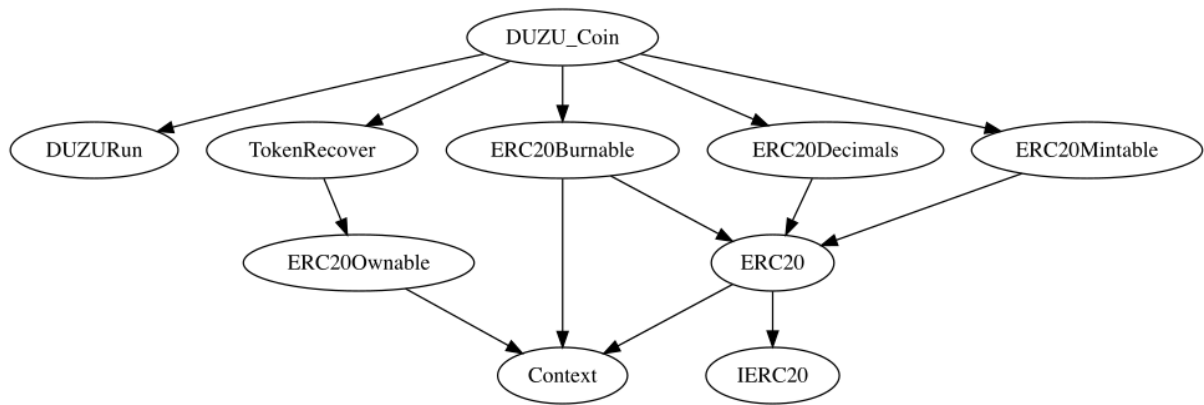
Flow Graph
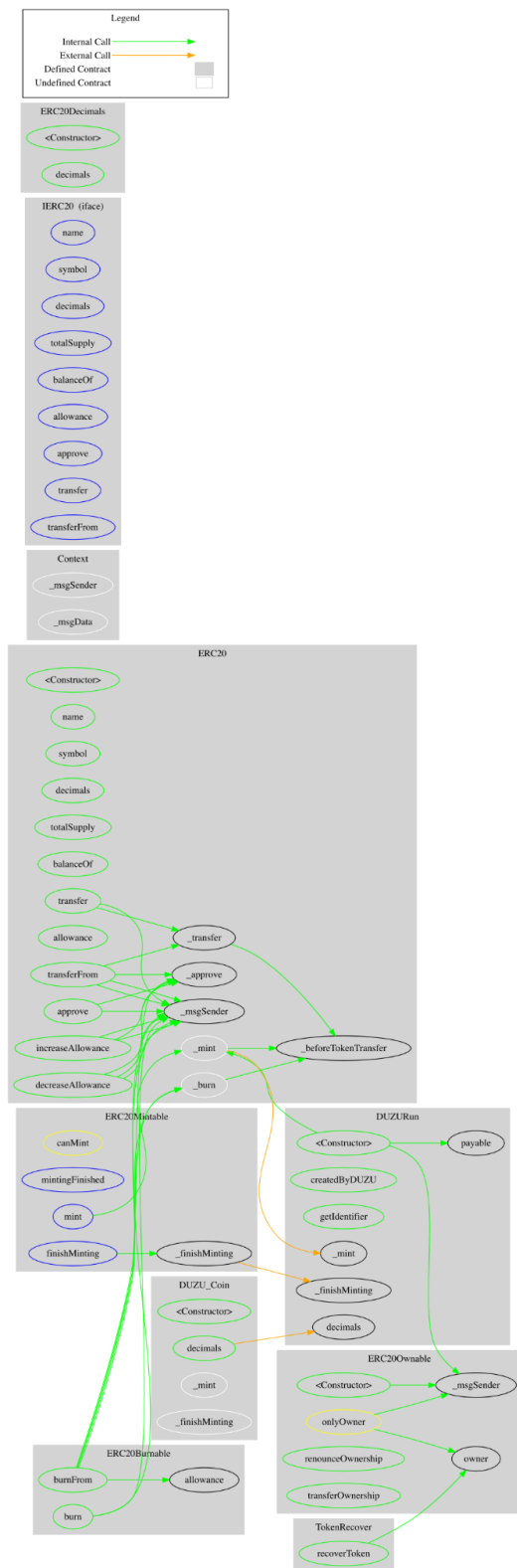
Summary

DUZU Coin contract implements a token mechanism. This audit investigates security issues, business logic concerns and potential improvements. There are some functions that can be abused by the owner like mint tokens. if the contract owner abuses the mint functionality, then the contract will be highly inflated. 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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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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