Cyberscope

Audit Report

Opulence Migrate

March 2022

SHA256 e602bb51636f9d09cfa6186295e012525e3567b215a9649aa0d20c507e34e430

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Table of Contents

Source Files

Filename	SHA256
contract.sol	e602bb51636f9d09cfa6186295e012525e3567b215a9649aa0d20c507e34e430

Audit Updates

Initial Audit	28th March 2022
Corrected	

Contract Analysis

The migrate contract is responsible for transforming an legacy token to a new one.

The old and the new tokens are created once in the constructor and cannot be changed.

When a users calls the “migrate” method, the amount of his legacy tokens are moved to the migrator contract and the migrator contract sends him the corresponding amount of the new tokens.

Contract Diagnostics

Critical Medium Minor

Severity	Code	Description
●	MC	Missing Check
●	L01	Public Function could be Declared External
●	L02	State Variables could be Declared Constant
●	L04	Conformance to Solidity Naming Conventions
●	L09	Dead Code Elimination

MC - Missing Check

Criticality	medium
Location	contract.sol#L365

Description

The contract should check if the amount of the new token is enough to cover the old user’s amount. Otherwise, the user may transfer his tokens without receiving the corresponding amount.

```
uint256 oldBalance;
oldBalance = oldToken.balanceOf(address(msg.sender));

oldToken.transferFrom(msg.sender, address(this), oldBalance);
newToken.transfer(msg.sender, oldBalance);
```

Recommendation

The contract should properly check the variables according to the required specifications

L01 - Public Function could be Declared External

Criticality	minor
Location	contract.sol#L277,296,305,364,372

Description

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

```
burnToken
migrate
transferOwnership
renounceOwnership
owner
```

Recommendation

Use the external attribute for functions never called from the contract

L02 - State Variables could be Declared Constant

Criticality	minor
Location	contract.sol#L349

Description

Constant state variables should be declared constant to save gas.

```
_burnAddress
```

Recommendation

Add the constant attribute to state variables that never change.

L04 - Conformance to Solidity Naming Conventions

Criticality	minor
Location	contract.sol#L356,357,349

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.

```
_burnAddress
_oldToken
_newToken
```

Recommendation

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

L09 - Dead Code Elimination

Criticality	minor
Location	contract.sol#L248

Description

Functions that are not used in the contract, and make the code's size bigger.

```
_msgSender
```

Recommendation

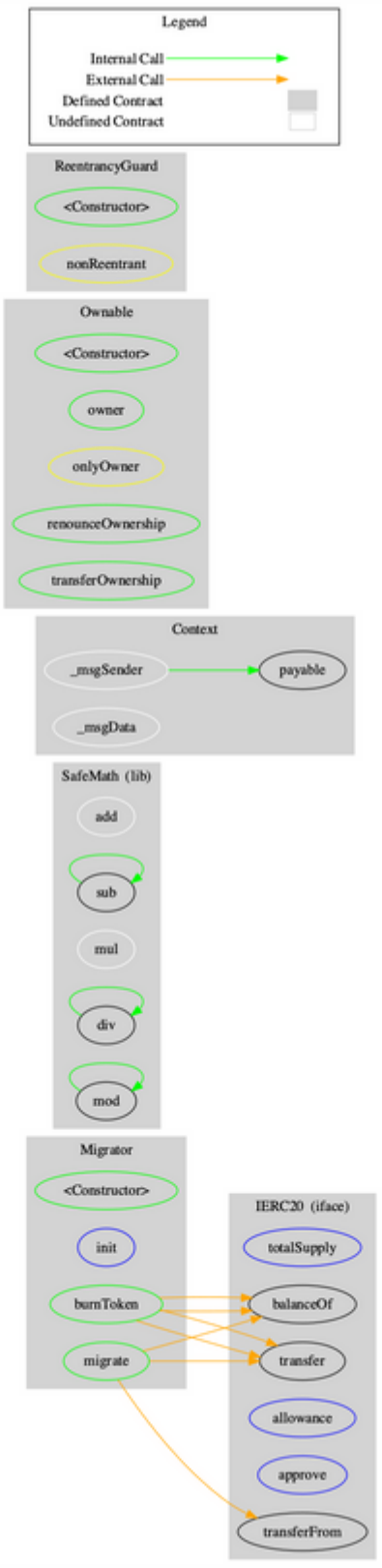
Remove unused functions.

Contract Functions

Contract	Type	Bases		
	Function Name	**Visibility**	**Mutability**	**Modifiers**
IERC20	Interface			
	totalSupply	External		-
	balanceOf	External		-
	transfer	External	✓	-
	allowance	External		-
	approve	External	✓	-
	transferFrom	External	✓	-
SafeMath	Library			
	add	Internal		
	sub	Internal		
	sub	Internal		
	mul	Internal		
	div	Internal		
	div	Internal		
	mod	Internal		
	mod	Internal		
Context	Implementation			
	_msgSender	Internal		
	_msgData	Internal		
Ownable	Implementation			
	<Constructor>	Public	✓	-
	owner	Public		-
	renounceOwnership	Public	✓	onlyOwner
	transferOwnership	Public	✓	onlyOwner

ReentrancyGuard	Implementation			
	<Constructor>	Public	✓	-
Migrator	Implementation	Context, Ownable, ReentrancyGuard		
	<Constructor>	Public	✓	-
	init	External	✓	onlyOwner
	migrate	Public	✓	-
	burnToken	Public	✓	onlyOwner

Contract Flow



Summary

The migrator is a contract that is responsible for converting a legacy to a new token. This audit focuses on the correct functionality, the security concerns and some performance improvements.

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