Cyberscope

Audit Report

Metaburst

September 2022

Type	BEP20
Network	BSC
Address	0xd945d69d165505d1d96259B1902f143d63b89bc3
Audited by	© cyberscope

Table of Contents

Contract Review

Contract Name	Token
Compiler Version	v0.8.12+commit.f00d7308
Optimization	20 runs
Licence	MIT
Explorer	https://bscscan.com/token/0xd945d69d165505d1d96259B1902f143d63b89bc3
Symbol	MEBU
Decimals	18
Total Supply	100,000,000
Domain	https://metaburst.io

Source Files

Filename	**SHA256**
contract.sol	1afc9d62425705de89014ee3cda4a91fe6c7291afb4971456372a4a74048b16a

Audit Updates

Initial Audit	9th September 2022
Corrected	

Contract Analysis

● Critical ● Medium ● Minor / Informative ● Pass

Severity	Code	Description	Status
●	ST	Stops Transactions	Passed
●	OCTD	Transfers Contract's Tokens	Unresolved
●	OTUT	Transfers User's Tokens	Passed
●	ELFM	Exceeds Fees Limit	Passed
●	ULTW	Transfers Liquidity to Team Wallet	Unresolved
●	MT	Mints Tokens	Passed
●	BT	Burns Tokens	Passed
●	BC	Blacklists Addresses	Passed

OCTD - Transfers Contract's Tokens

Criticality	minor / informative
Location	contract.sol#L1544
Status	Unresolved

Description

The contract owner has the authority to claim all the balance of the contract. The owner may take advantage of it by calling the withDraw function.

```
function withDraw() external onlyRole(PROJECT_CONTROL_ROLE) {
        // just in-case swap not work
        uint256 contractTokenBalance = balanceOf(address(this));
        _transfer(address(this), projectWallet, contractTokenBalance);
    }
```

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. That risk can be prevented by temporarily locking the contract or renouncing ownership.

ULTW - Transfers Liquidity to Team Wallet

Criticality	minor / informative
Location	contract.sol#L1550,1529
Status	Unresolved

Description

The contract owner has the authority to transfer funds without limit to the team wallet. These funds have been accumulated from fees collected from the contract. The owner may take advantage of it by calling the `claimStuckTokens` and `swapAndSendProject` methods.

```
function claimStuckTokens(address token)
        external
        onlyRole(PROJECT_CONTROL_ROLE)
    {
        require(token != address(this), "Owner cannot claim native tokens");
        if (token == address(0x0)) {
            payable(msg.sender).transfer(address(this).balance);
            return;
        }
        IERC20 ERC20token = IERC20(token);
        uint256 balance = ERC20token.balanceOf(address(this));
        ERC20token.transfer(msg.sender, balance);
    }

function swapAndSendProject(uint256 tokenAmount)
        external
        onlyRole(SWEEPER_ROLE)
    {
        uint256 contractTokenBalance = balanceOf(address(this));
        if (tokenAmount > contractTokenBalance) {
            tokenAmount = contractTokenBalance;
        }
        if (tokenAmount >= tokenForProject) {
            _swapTokensForEth(tokenForProject);
        } else {
            _swapTokensForEth(tokenAmount);
        }
    }
```

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. That risk can be prevented by temporarily locking the contract or renouncing ownership.

Contract Diagnostics

Critical Medium Minor / Informative

Severity	Code	Description	Status
	FSA	Fixed Swap Address	Unresolved
	STC	Succeeded Transfer Check	Unresolved
	L01	Public Function could be Declared External	Unresolved
	L02	State Variables could be Declared Constant	Unresolved
	L04	Conformance to Solidity Naming Conventions	Unresolved
	L09	Dead Code Elimination	Unresolved
	L14	Uninitialized Variables in Local Scope	Unresolved
	L15	Local Scope Variable Shadowing	Unresolved

FSA - Fixed Swap Address

Criticality	minor / informative
Location	contract.sol#L1523
Status	Unresolved

Description

The swap address is assigned once in the constructor and it can not be changed. The decentralized swaps sometimes create a new swap version or abandon the current. A contract that cannot change the swap address may not be able to catch-up the upgrade.

```
constructor(
      string memory name,
      string memory symbol,
      address newRouter,
      address multiSigWallet
  ) ERC20(name, symbol) {
      _mint(_msgSender(), maxSupply);
      IUniswapV2Router02 _uniswapV2Router = IUniswapV2Router02(
          newRouter // address uniswap
      );
      uniswapV2Pair = IUniswapV2Factory(_uniswapV2Router.factory())
          .createPair(address(this), _uniswapV2Router.WETH());
      uniswapV2Router = _uniswapV2Router;

      _setupRole(DEFAULT_ADMIN_ROLE, multiSigWallet);
  }
```

Recommendation

It could be better to allow the swap address mutation in case of future swap updates.

STC - Succeeded Transfer Check

Criticality	minor / informative
Location	contract.sol#L1561
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.

```
function claimStuckTokens(address token)
        external
        onlyRole(PROJECT_CONTROL_ROLE)
    {
        require(token != address(this), "Owner cannot claim native tokens");
        if (token == address(0x0)) {
            payable(msg.sender).transfer(address(this).balance);
            return;
        }
        IERC20 ERC20token = IERC20(token);
        uint256 balance = ERC20token.balanceOf(address(this));
        ERC20token.transfer(msg.sender, balance);
    }
```

Recommendation

The contract should check if the result of the transfer methods is successful.

L01 - Public Function could be Declared External

Criticality	minor / informative
Location	contract.sol#L529,458,572,441,484,552,433,1126,1141,465,507,1161
Status	Unresolved

Description

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

```
transferFrom
decimals
decreaseAllowance
symbol
transfer
increaseAllowance
name
grantRole
revokeRole
...
```

Recommendation

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

L02 - State Variables could be Declared Constant

Criticality	minor / informative
Location	contract.sol#L1506
Status	Unresolved

Description

Constant state variables should be declared constant to save gas.

```
maxSupply
```

Recommendation

Add the constant attribute to state variables that never change.

L04 - Conformance to Solidity Naming Conventions

Criticality	minor / informative
Location	contract.sol#L1469,1429,1455,1237,1442,1419
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.

```
_buyFeeRate
_sellFeeRate
_target
_tokenForProject
WETH
_projectWallet
```

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 / informative
Location	contract.sol#L1196,889,864,651,920
Status	Unresolved

Description

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

```
_setRoleAdmin
toHexString
toString
_burn
```

Recommendation

Remove unused functions.

L14 - Uninitialized Variables in Local Scope

Criticality	minor / informative
Location	contract.sol#L1582
Status	Unresolved

Description

The are variables that are defined in the local scope and are not initialized.

```
transferFeeRate
```

Recommendation

All the local scoped variables should be initialized.

L15 - Local Scope Variable Shadowing

Criticality	minor / informative
Location	contract.sol#L1510,1509
Status	Unresolved

Description

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

```
symbol
name
```

Recommendation

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

Contract Functions

Contract	Type	Bases		
	Function Name	Visibility	Mutability	Modifiers
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		
IERC20	Interface			
	totalSupply	External		-
	balanceOf	External		-
	transfer	External	✓	-
	allowance	External		-
	approve	External	✓	-
	transferFrom	External	✓	-
IERC20Metadata	Interface	IERC20		
	name	External		-
	symbol	External		-
	decimals	External		-

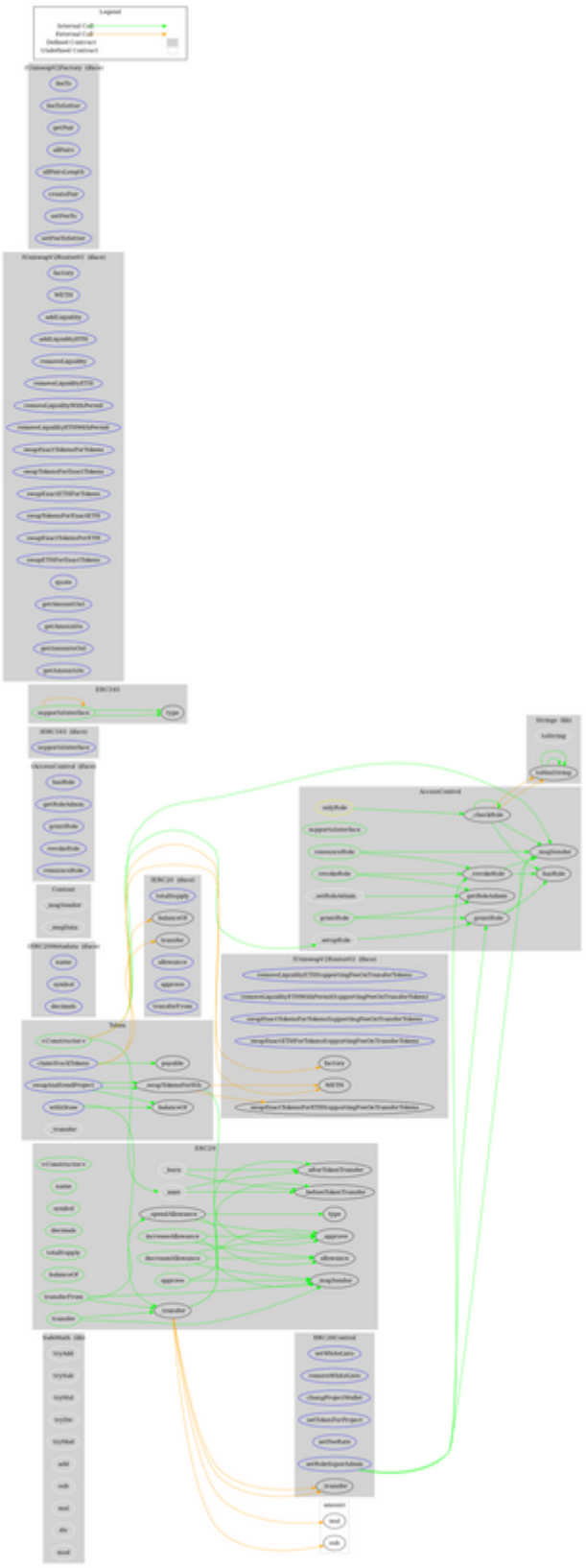
Context	Implementation			
	_msgSender	Internal		
	_msgData	Internal		
ERC20	Implementation	Context, IERC20, IERC20Metadata		
	<Constructor>	Public	✓	-
	name	Public		-
	symbol	Public		-
	decimals	Public		-
	totalSupply	Public		-
	balanceOf	Public		-
	transfer	Public	✓	-
	allowance	Public		-
	approve	Public	✓	-
	transferFrom	Public	✓	-
	increaseAllowance	Public	✓	-
	decreaseAllowance	Public	✓	-
	_transfer	Internal	✓	
	_mint	Internal	✓	
	_burn	Internal	✓	
	_approve	Internal	✓	
	_spendAllowance	Internal	✓	
	_beforeTokenTransfer	Internal	✓	
	_afterTokenTransfer	Internal	✓	
IAccessControl	Interface			
	hasRole	External		-
	getRoleAdmin	External		-
	grantRole	External	✓	-
	revokeRole	External	✓	-
	renounceRole	External	✓	-

Strings	Library			
	toString	Internal		
	toHexString	Internal		
	toHexString	Internal		
	toHexString	Internal		
IERC165	Interface			
	supportsInterface	External		-
ERC165	Implementation	IERC165		
	supportsInterface	Public		-
AccessControl	Implementation	Context, IAccessControl, ERC165		
	supportsInterface	Public		-
	hasRole	Public		-
	_checkRole	Internal		
	_checkRole	Internal		
	getRoleAdmin	Public		-
	grantRole	Public	✓	onlyRole
	revokeRole	Public	✓	onlyRole
	renounceRole	Public	✓	-
	_setupRole	Internal	✓	
	_setRoleAdmin	Internal	✓	
	_grantRole	Internal	✓	
	_revokeRole	Internal	✓	
IUniswapV2Router01	Interface			
	factory	External		-
	WETH	External		-
	addLiquidity	External	✓	-
	addLiquidityETH	External	Payable	-
	removeLiquidity	External	✓	-

	removeLiquidityETH	External	✓	-
	removeLiquidityWithPermit	External	✓	-
	removeLiquidityETHWithPermit	External	✓	-
	swapExactTokensForTokens	External	✓	-
	swapTokensForExactTokens	External	✓	-
	swapExactETHForTokens	External	Payable	-
	swapTokensForExactETH	External	✓	-
	swapExactTokensForETH	External	✓	-
	swapETHForExactTokens	External	Payable	-
	quote	External		-
	getAmountOut	External		-
	getAmountIn	External		-
	getAmountsOut	External		-
	getAmountsIn	External		-
IUniswapV2Router02	Interface	IUniswapV2Router01		
	removeLiquidityETHSupportingFeeOnTransferTokens	External	✓	-
	removeLiquidityETHWithPermitSupportingFeeOnTransferTokens	External	✓	-
	swapExactTokensForTokensSupportingFeeOnTransferTokens	External	✓	-
	swapExactETHForTokensSupportingFeeOnTransferTokens	External	Payable	-
	swapExactTokensForETHSupportingFeeOnTransferTokens	External	✓	-
IUniswapV2Factory	Interface			
	feeTo	External		-
	feeToSetter	External		-
	getPair	External		-
	allPairs	External		-
	allPairsLength	External		-
	createPair	External	✓	-
	setFeeTo	External	✓	-

	setFeeToSetter	External	✓	-
ERC20Control	Implementation	AccessControl		
	setWhiteLists	External	✓	onlyRole
	removeWhiteLists	External	✓	onlyRole
	changProjectWallet	External	✓	onlyRole
	setTokenForProject	External	✓	onlyRole
	setFeeRate	External	✓	onlyRole
	setRoleSuperAdmin	External	✓	onlyRole
Token	Implementation	ERC20, ERC20Control		
	<Constructor>	Public	✓	ERC20
	swapAndSendProject	External	✓	onlyRole
	withDraw	External	✓	onlyRole
	claimStuckTokens	External	✓	onlyRole
	_swapTokensForEth	Private	✓	
	_transfer	Internal	✓	

Contract Flow



Domain Info

Domain Name	metaburst.io
Registry Domain ID	ed752fba07a84638ab935a2a219c69ba-DONUTS
Creation Date	2021-12-15T08:23:13Z
Updated Date	2022-08-01T09:03:35Z
Registry Expiry Date	2022-12-15T08:23:13Z
Registrar WHOIS Server	whois.namecheap.com
Registrar URL	https://www.namecheap.com/
Registrar	NameCheap, Inc.
Registrar IANA ID	1068

The domain was created 9 months before the creation of the audit. It will expire in 3 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 transferring tokens to the team’s wallet and transferring funds to the team’s wallet. A multi-wallet signing pattern will provide security against potential hacks. Temporarily locking the contract or renouncing ownership will eliminate all the contract threats. There is also a limit of max 20% fees.

Disclaimer

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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