



Cyberscope

Audit Report

Metfx

July 2022

Type BEP20

Network BSC

Address 0x6266018F1605DA94e8317232ff0634C746460c40

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Contract Review

Contract Name	MetFx
Compiler Version	v0.8.15+commit.e14f2714
Optimization	200 runs
Licence	MIT
Explorer	https://bscscan.com/token/0x6266a18F1605DA94e8317232ffa634C74646ac40
Symbol	MTX
Decimals	18
Total Supply	1,000,000,000
Domain	metfx.io

Source Files

Filename	SHA256
contract.sol	5b6438b53261b766dc534223fd21b6e2e3d7a98821250d29a252cb380ee67050

Audit Updates

Initial Audit	29th May 2022
Corrected phase 1	3rd June 2022
Corrected phase 2	12th July 2022

Contract Analysis

● Critical ● Medium ● Minor ● Pass

Severity	Code	Description
●	ST	Contract Owner is not able to stop or pause transactions
●	OCTD	Contract Owner is not able to transfer tokens from specific address
●	OTUT	Owner Transfer User's Tokens
●	ELFM	Contract Owner is not able to increase fees more than a reasonable percent (25%)
●	ULTW	Contract Owner is not able to increase the amount of liquidity taken by dev wallet more than a reasonable percent
●	MT	Contract Owner is not able to mint new tokens
●	BT	Contract Owner is not able to burn tokens from specific wallet
●	BC	Contract Owner is not able to blacklist wallets from selling

ST - Stop Transactions

Criticality	minor
Location	contract.sol#L316

Description

The contract owner has the authority to stop all buy transactions for all users excluding the owner. The owner may take advantage of it by setting the `cooldownTimeInterval` to zero.

```
require(cooldownTimer[recipient] < block.timestamp, "Please wait for 1min between two buys");  
cooldownTimer[recipient] = block.timestamp + cooldownTimeInterval;
```

Recommendation

The contract could embody a check for not allowing setting the `cooldownTimeInterval` to a reasonable amount. A suggested implementation could check that the maximum amount should be more than a fixed percentage of the total supply.

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.

OCTD - Owner Contract Tokens Drain

Criticality	minor
Location	contract.sol#L381

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 `clearStuckBalance` and `clearStuckToken` function.

```
function clearStuckBalance(uint256 amountPercentage) external authorized {  
    uint256 amountBNB = address(this).balance;  
    payable(msg.sender).transfer(amountBNB * amountPercentage / 100);  
}
```

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.

OTUT - Owner Transfer User's Tokens

Criticality	critical
Location	contract.sol#L515

Description

The contract owner has the authority to transfer the balance of a user's contract to the owner's contract. The owner may take advantage of it by calling the `multiTransfer` function.

```
for(uint i=0; i < addresses.length; i++){  
    _basicTransfer(from,addresses[i],tokens[i]);  
}
```

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.

ELFM - Exceed Limit Fees Manipulation

Criticality	medium
Location	contract.sol#L398

Description

The contract owner has the authority to increase over the allowed limit of 25% to 50% on selling transactions. The owner may take advantage of it by calling the `set_sell_multiplier` function with the max acceptable value.

```
function set_sell_multiplier(uint256 Multiplier) external onlyOwner{
    require(Multiplier <= 200, "Can't set sell fees to more than double the buy fees");
    sellMultiplier = Multiplier;
}
```

Recommendation

The contract could embody a check for the maximum acceptable value.

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

Severity	Code	Description
●	ZD	Zero Division
●	L01	Public Function could be Declared External
●	L02	State Variables could be Declared Constant
●	L04	Conformance to Solidity Naming Conventions
●	L07	Missing Events Arithmetic
●	L08	Tautology or Contradiction
●	L13	Divide before Multiply Operation

ZD - Zero Division

Criticality	minor
Location	contract.sol#L360

Description

The contract is using variables that may be set to zero as denominators. As a result, the transactions will revert.

The value `totalFee` can be setted to zero.

```
function takeFee(address sender, uint256 amount, bool isSell) internal returns (uint256) {
    uint256 multiplier = isSell ? sellMultiplier : 100;
    uint256 feeAmount = amount.mul(totalFee).mul(multiplier).div(feeDenominator * 100);
    uint256 burnTokens = feeAmount.mul(burnFee).div(totalFee);
}
```

Recommendation

The contract should prevent those variables to be set to zero or should not allow to execute the corresponding statements.

L01 - Public Function could be Declared External

Criticality

minor

Location

contract.sol#L98,400,110,94,406

Description

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

```
cooldownEnabled  
authorize  
transferOwnership  
_openTrading  
unauthorize
```

Recommendation

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

L02 - State Variables could be Declared Constant

Criticality

minor

Location

contract.sol#L186,180,179,178

Description

Constant state variables should be declared constant to save gas.

```
WBNB  
DEAD  
ZERO  
_totalSupply
```

Recommendation

Add the constant attribute to state variables that never change.

L04 - Conformance to Solidity Naming Conventions

Criticality	minor
Location	contract.sol#L394,491,125,406,178,469,180,188,293,486,479,179,183,191,184,189,289,182,186,192,400,389

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.

```
setMaxTxPercent_base1000
_developmentFee
_router
_openTrading
_burnFee
_allowances
_totalSupply
_amount
_denominator
...
```

Recommendation

Follow the Solidity naming convention.

<https://docs.soliditylang.org/en/v0.4.25/style-guide.html#naming-conventions>.

L07 - Missing Events Arithmetic

Criticality	minor
Location	contract.sol#L469,394,486,491,293,298

Description

Detected missing events for critical arithmetic parameters. There are functions that have no event emitted, so it is difficult to track off-chain changes.

```
_maxTxAmount = amount * 10 ** _decimals
_maxTxAmount = (_totalSupply * maxTXPercentage_base1000) / 1000
targetLiquidity = _target
swapThreshold = _amount
sellMultiplier = Multiplier
liquidityFee = _liquidityFee
```

Recommendation

Emit an event for critical parameter changes.

L08 - Tautology or Contradiction

Criticality

minor

Location

contract.sol#L406

Description

Detects expressions that are tautologies or contradictions. For instance, an uint variable will always be greater than or equal to zero.

```
require(bool,string)(_interval < 601,Can't set cooldown interval to more than 10 minutes)
```

Recommendation

Fix the incorrect comparison by changing the value type or the comparison.

L13 - Divide before Multiply Operation

Criticality

minor

Location

contract.sol#L351

Description

Performing divisions before multiplications may cause lose of prediction.

```
feeAmount = amount.mul(totalFee).mul(multiplier).div(feeDenominator * 100)
```

Recommendation

The multiplications should be prior to the divisions.

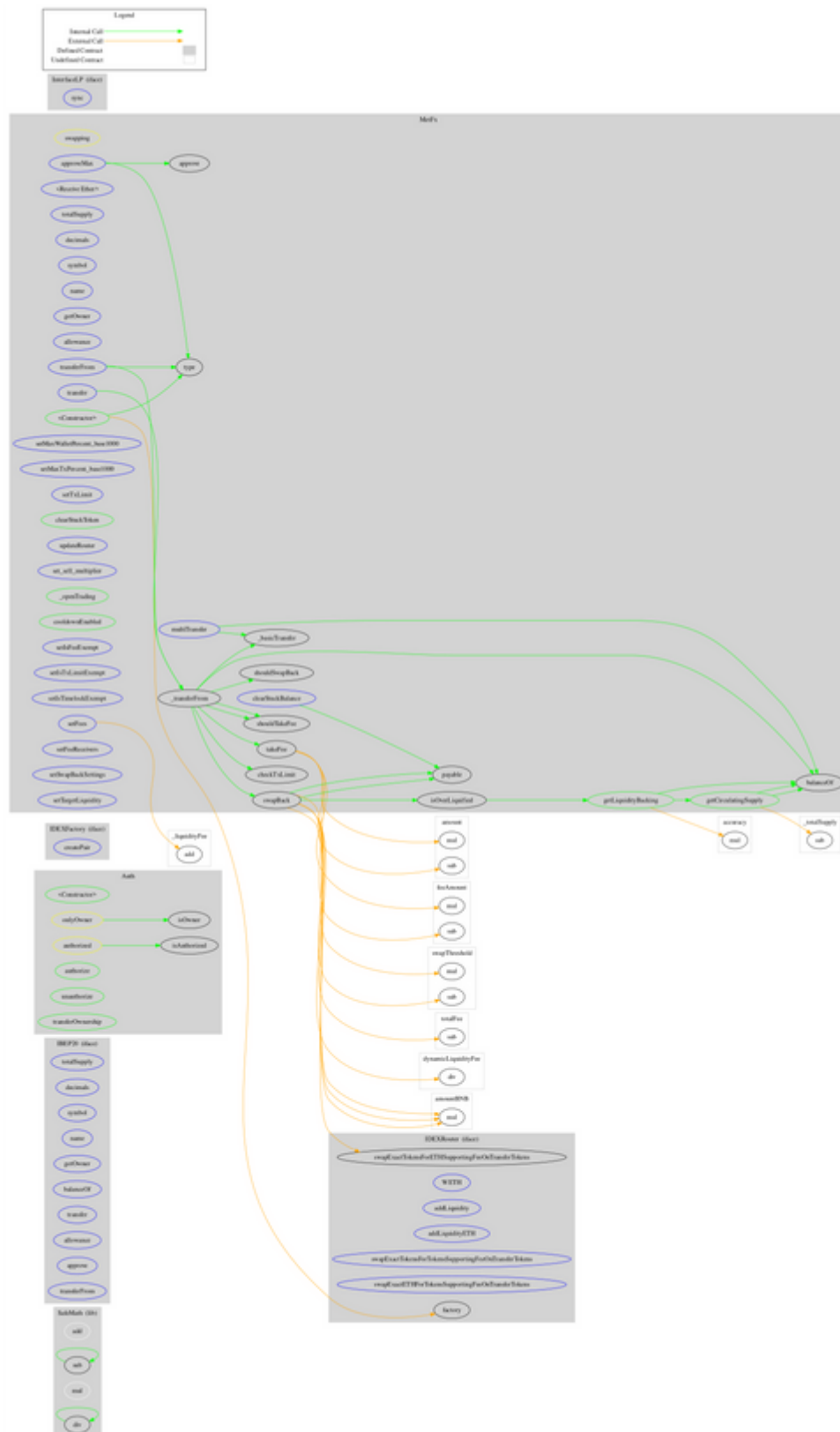
Contract Functions

Contract	Type	Bases		
	Function Name	Visibility	Mutability	Modifiers
SafeMath	Library			
	add	Internal		
	sub	Internal		
	sub	Internal		
	mul	Internal		
	div	Internal		
	div	Internal		
IBEP20	Interface			
	totalSupply	External		-
	decimals	External		-
	symbol	External		-
	name	External		-
	getOwner	External		-
	balanceOf	External		-
	transfer	External	✓	-
	allowance	External		-
	approve	External	✓	-
	transferFrom	External	✓	-
Auth	Implementation			
	<Constructor>	Public	✓	-
	authorize	Public	✓	onlyOwner
	unauthorize	Public	✓	onlyOwner
	isOwner	Public		-
	isAuthorized	Public		-
	transferOwnership	Public	✓	onlyOwner

IDEXFactory	Interface			
	createPair	External	✓	-
IDEXRouter	Interface			
	factory	External		-
	WETH	External		-
	addLiquidity	External	✓	-
	addLiquidityETH	External	Payable	-
	swapExactTokensForTokensSupportingFeeOnTransferTokens	External	✓	-
	swapExactETHForTokensSupportingFeeOnTransferTokens	External	Payable	-
	swapExactTokensForETHSupportingFeeOnTransferTokens	External	✓	-
InterfaceLP	Interface			
	sync	External	✓	-
MetFx	Implementation	IBEP20, Auth		
	<Constructor>	Public	✓	Auth
	<Receive Ether>	External	Payable	-
	totalSupply	External		-
	decimals	External		-
	symbol	External		-
	name	External		-
	getOwner	External		-
	balanceOf	Public		-
	allowance	External		-
	approve	Public	✓	-
	approveMax	External	✓	-
	transfer	External	✓	-
	transferFrom	External	✓	-
	setMaxWalletPercent_base1000	External	✓	onlyOwner
	setMaxTxPercent_base1000	External	✓	onlyOwner
	setTxLimit	External	✓	authorized

	_transferFrom	Internal	✓	
	_basicTransfer	Internal	✓	
	checkTxLimit	Internal		
	shouldTakeFee	Internal		
	takeFee	Internal	✓	
	shouldSwapBack	Internal		
	clearStuckBalance	External	✓	authorized
	clearStuckToken	Public	✓	authorized
	updateRouter	External	✓	authorized
	set_sell_multiplier	External	✓	onlyOwner
	_openTrading	Public	✓	onlyOwner
	cooldownEnabled	Public	✓	onlyOwner
	swapBack	Internal	✓	swapping
	setIsFeeExempt	External	✓	authorized
	setIsTxLimitExempt	External	✓	authorized
	setIsTimelockExempt	External	✓	authorized
	setFees	External	✓	onlyOwner
	setFeeReceivers	External	✓	authorized
	setSwapBackSettings	External	✓	authorized
	setTargetLiquidity	External	✓	authorized
	getCirculatingSupply	Public		-
	getLiquidityBacking	Public		-
	isOverLiquified	Public		-
	multiTransfer	External	✓	onlyOwner

Contract Flow



Domain Info

Domain Name	metfx.io
Registry Domain ID	d2cf44ba7edb4a1baff3af71c6ed8b25-DONUTS
Creation Date	2022-01-11T23:47:57Z
Updated Date	2022-02-24T08:15:24Z
Registry Expiry Date	2023-01-11T23:47:57Z
Registrar WHOIS Server	whois.namesilo.com
Registrar URL	http://www.namesilo.com
Registrar	NameSilo, LLC
Registrar IANA ID	1479

The domain has been created 5 months before the creation of the audit. It will expire in 8 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 stopping transactions, transferring tokens to the team's wallet, transferring the user's tokens and manipulating fees. A multi-wallet signing pattern will provide security against potential hacks. Temporarily locking the contract or renouncing ownership will eliminate all the contract threats.

Disclaimer

All the content provided in this document is for general information only and should not be used as financial advice or a reason to buy any investment.

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The Cyberscope team disclaims any liability for the resulting losses.

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>