Audit Report

MetaGameSpace

February 2022

Type	BEP20
Network	BSC
Address	0xBB77D0A1181E38a0374Dc6891E2847C2b61B3545
Audited by	© coinscope

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Contract Review

Contract Name	MetaGameSpace
Compiler Version	v0.8.11+commit.d7f03943
Optimization	200 runs
Licence	MIT
Explorer	https://bscscan.com/token/0xBB77D0A1181E38a0374Dc6891E2847C2b61B3545
Symbol	METAGS
Decimals	9
Total Supply	10,000,000,000
Source	contract.sol
Domain	metagamespace.net

Audit Updates

Initial Audit	11th February 2022
Corrected	

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	critical
Location	contract.sol#L586,589,712

Description

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

```
require(amount <= (_maxTxAmountPercent * getCirculatingSupply()) / 1000,
"Transfer amount exceeds the maxTxAmount.");
```

```
require(balanceOf(to) + amount <= (_maxWalletSizePercent *
getCirculatingSupply()) / 1000, "Transfer amount exceeds the maxWalletSize.");
            }
```

The contract owner has the authority to explicitly stop the sales or the buys for all users excluding the owner. The owner may take advantage of it by setting the buyTaxe or sellTax to 10000.

```
uint256 currentFee;
if (from == lpPair) {
    currentFee = _taxRates.buyFee;
} else if (to == lpPair) {
    currentFee = _taxRates.sellFee;
} else {
    currentFee = _taxRates.transferFee;
}

uint256 feeAmount = amount * currentFee / staticVals.masterTaxDivisor;
```

Recommendation

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

Regarding the explicit transaction stops, read more on the fees manipulation section.

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	critical
Location	contract.sol#L498

Description

The contract owner has the authority to increase over the allowed limit of 25%. The owner may take advantage of it by calling the `setTaxes` function with a high percentage value.

For instance:

```
// assumed that the contract owner calls setTaxes(10000, 10000, 10000)
uint256 feeAmount = amount * currentFee / staticVals.masterTaxDivisor;
uint256 feeAmount = amount * 10000 / 10000;
uint256 feeAmount = amount;
```

```
StaticValuesStruct public staticVals = StaticValuesStruct({
    maxBuyTaxes: 10000,
    maxSellTaxes: 10000,
    maxTransferTaxes: 10000,
    masterTaxDivisor: 10000
    });

...

function setTaxes(uint16 buyFee, uint16 sellFee, uint16 transferFee) external
onlyOwner {
    require(buyFee <= staticVals.maxBuyTaxes
            && sellFee <=staticVals. maxSellTaxes
            && transferFee <= staticVals.maxTransferTaxes,
            "Cannot exceed maximums.");
    _taxRates.buyFee = buyFee;
    _taxRates.sellFee = sellFee;
    _taxRates.transferFee = transferFee;
}

...

uint256 feeAmount = amount * currentFee / staticVals.masterTaxDivisor;
```

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
●	L01	Public Function could be Declared External
●	L02	State Variables could be Declared Constant
●	L05	Unused State Variable
●	L04	Conformance to Solidity Naming Conventions
●	L09	Dead Code Elimination
●	L11	Unnecessary Boolean equality
●	L07	Missing Events Arithmetic

L01 - Public Function could be Declared External

Criticality	minor
Location	contract.sol#L365,382,387,400,413,418 and 10 more

Description

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

```
enableTrading
a_checkCBalance
cTokens
...
```

Recommendation

Use the external attribute for functions never called from the contract

L02 - State Variables could be Declared Constant

Criticality	minor
Location	contract.sol#L209,202,205

Description

Constant state variables should be declared constant to save gas.

```
startingSupply
allowedPresaleExclusion
_decimals
```

Recommendation

Add the constant attribute to state variables that never change.

L05 - Unused State Variable

Criticality	minor
Location	contract.sol#L199

Description

There are segments that contain unused state variables.

```
_excluded
```

Recommendation

Remove unused state variables.

L04 - Conformance to Solidity Naming Conventions

Criticality	minor
Location	contract.sol#L141,489,545,619,207,208 and 7 more

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.

```
_hasLiqBeenAdded
_taxWallets
_ratios
...
```

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#L31,669

Description

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

```
_checkLiquidityAdd
_msgData
```

Recommendation

Remove unused functions.

L11 - Unnecessary Boolean equality

Criticality	minor
Location	contract.sol#L436

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.

```
enabled == false
```

Recommendation

Remove the equality to the boolean constant.

L07 - Missing Events Arithmetic

Criticality	minor
Location	contract.sol#L515,520,533

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.

```
swapThreshold = (_tTotal * thresholdPercent) / thresholdDivisor
_maxWalletSizePercent = percent
_maxTxAmountPercent = percent
```

Recommendation

Emit an event for critical parameter changes.

Contract Functions

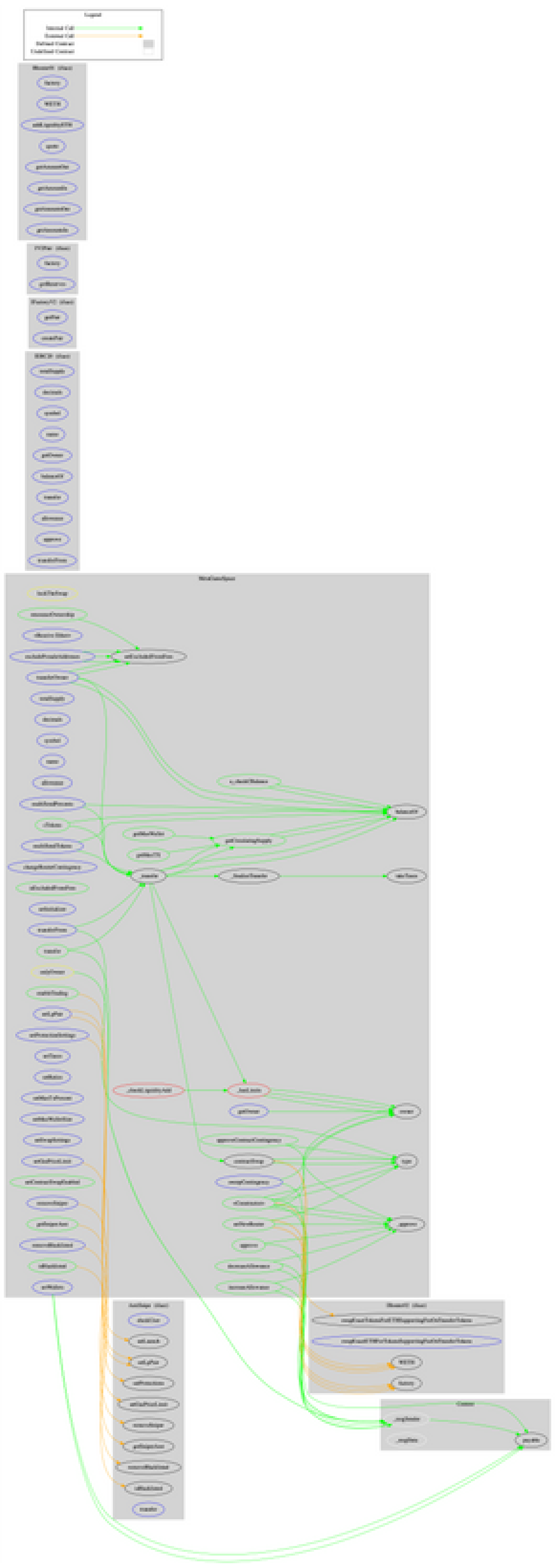
Contract	Type	Bases		
	Function Name	**Visibility**	**Mutability**	**Modifiers**
Context	Implementation			
	_msgSender	Internal		
	_msgData	Internal		
IERC20	Interface			
	totalSupply	External		-
	decimals	External		-
	symbol	External		-
	name	External		-
	getOwner	External		-
	balanceOf	External		-
	transfer	External	✓	-
	allowance	External		-
	approve	External	✓	-
	transferFrom	External	✓	-
IFactoryV2	Interface			
	getPair	External		-
	createPair	External	✓	-
IV2Pair	Interface			
	factory	External		-
	getReserves	External		-
IRouter01	Interface			
	factory	External		-
	WETH	External		-
	addLiquidityETH	External	Payable	-
	quote	External		-

	getAmountOut	External		-
	getAmountIn	External		-
	getAmountsOut	External		-
	getAmountsIn	External		-
IRouter02	Interface	IRouter01		
	swapExactTokensForETHSupportingFeeOnTransferTokens	External	✓	-
	swapExactETHForTokensSupportingFeeOnTransferTokens	External	Payable	-
AntiSnipe	Interface			
	checkUser	External	✓	-
	setLaunch	External	✓	-
	setLpPair	External	✓	-
	setProtections	External	✓	-
	setGasPriceLimit	External	✓	-
	removeSniper	External	✓	-
	getSniperAmt	External		-
	removeBlacklisted	External	✓	-
	isBlacklisted	External		-
	transfer	External	✓	-
MetaGameSpace	Implementation	Context, IERC20		
	<Constructor>	Public	Payable	-
	<Receive Ether>	External	Payable	-
	owner	Public		-
	transferOwner	External	✓	onlyOwner
	renounceOwnership	Public	✓	onlyOwner
	totalSupply	External		-
	decimals	External		-
	symbol	External		-
	name	External		-
	getOwner	External		-
	allowance	External		-

	balanceOf	Public		-
	transfer	Public	✓	-
	approve	Public	✓	-
	_approve	Private	✓	
	approveContractContingency	Public	✓	onlyOwner
	transferFrom	External	✓	-
	increaseAllowance	Public	✓	-
	decreaseAllowance	Public	✓	-
	setNewRouter	Public	✓	onlyOwner
	setLpPair	External	✓	onlyOwner
	changeRouterContingency	External	✓	onlyOwner
	getCirculatingSupply	Public		-
	isExcludedFromFees	Public		-
	setExcludedFromFees	Public	✓	onlyOwner
	setInitializer	External	✓	onlyOwner
	removeBlacklisted	External	✓	onlyOwner
	isBlacklisted	Public		-
	getSniperAmt	Public		-
	removeSniper	External	✓	onlyOwner
	setProtectionSettings	External	✓	onlyOwner
	setGasPriceLimit	External	✓	onlyOwner
	setTaxes	External	✓	onlyOwner
	setRatios	External	✓	onlyOwner
	setMaxTxPercent	External	✓	onlyOwner
	setMaxWalletSize	External	✓	onlyOwner
	getMaxTX	Public		-
	getMaxWallet	Public		-
	setSwapSettings	External	✓	onlyOwner
	setWallets	External	✓	onlyOwner
	setContractSwapEnabled	Public	✓	onlyOwner
	excludePresaleAddresses	External	✓	onlyOwner
	_hasLimits	Private		
	_transfer	Internal	✓	
	cTokens	Public	✓	onlyOwner
	a_checkCBalance	Public	✓	onlyOwner

	contractSwap	Private	✓	lockTheSwap
	_checkLiquidityAdd	Private	✓	
	enableTrading	Public	✓	onlyOwner
	sweepContingency	External	✓	onlyOwner
	multiSendTokens	External	✓	-
	multiSendPercents	External	✓	-
	takeTaxes	Internal	✓	
	_finalizeTransfer	Private	✓	

Contract Flow



Domain Info

Domain Name	
Registry Domain ID	2667233552_DOMAIN_NET-VRSN
Creation Date	2022-01-10T15:19:52.00Z
Updated Date	0001-01-01T00:00:00.00Z
Registry Expiry Date	
Registrar WHOIS Server	whois.namecheap.com
Registrar URL	http://www.namecheap.com
Registrar	NAMECHEAP INC
Registrar IANA ID	1068

The domain has been created about 1 month before the creation of the audit.

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 manipulating fees and stopping transactions. If the fees are abused by the contract owner then the contract could operate as a honeypot. 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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The Coinscope.co team

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