Cyberscope

Audit Report

Meme Casino

November 2023

SHA256 8c5ae104f13ea3a8cdfd02609b81011f7ce84c7c61a32425576e8f43ba685b59

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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	Passed
●	BT	Burns Tokens	Passed
●	BC	Blacklists Addresses	Passed

Diagnostics

Critical Medium Minor / Informative

Severity	Code	Description	Status
	MC	Missing Check	Unresolved
	RSW	Redundant Storage Writes	Unresolved
	L04	Conformance to Solidity Naming Conventions	Unresolved
	L07	Missing Events Arithmetic	Unresolved
	L13	Divide before Multiply Operation	Unresolved
	L14	Uninitialized Variables in Local Scope	Unresolved
	L20	Succeeded Transfer Check	Unresolved

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Review

Contract Name	MemeCasino
Testing Deploy	https://testnet.bscscan.com/address/0xd2b412dd393c17a32c8306be3f5cce469c107dc3
Symbol	MEMEC
Decimals	18
Total Supply	1,000,000

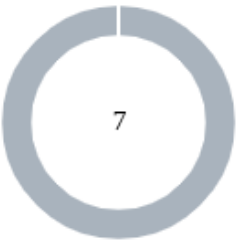
Audit Updates

Initial Audit	27 Oct 2023 https://github.com/cyberscope-io/audits/blob/main/memec/v1/audit.pdf
Corrected Phase 2	01 Nov 2023

Source Files

Filename	SHA256
MemeCasino.sol	8c5ae104f13ea3a8cdfd02609b81011f7ce84c7c61a32425576e8f43ba685b59

Findings Breakdown



Critical	0
Medium	0
Minor / Informative	7

Severity	Unresolved	Acknowledged	Resolved	Other
Critical	0	0	0	0
Medium	0	0	0	0
Minor / Informative	7	0	0	0

MC - Missing Check

Criticality	Minor / Informative
Location	MemeCasino.sol#L376
Status	Unresolved

Description

The contract is processing variables that have not been properly sanitized and checked that they form the proper shape. These variables may produce vulnerability issues.

Specifically the parameters `thresholdDivisor` and `amountDivisor` can be set to zero.

```
 function setSwapSettings(uint256 thresholdPercent, uint256
thresholdDivisor, uint256 amountPercent, uint256 amountDivisor) external
onlyOwner {
        swapThreshold = (_tTotal * thresholdPercent) / thresholdDivisor;
        swapAmount = (_tTotal * amountPercent) / amountDivisor;
        ...
    }
```

Recommendation

The team is advised to properly check the variables according to the required specifications.

RSW - Redundant Storage Writes

Criticality	Minor / Informative
Location	MemeCasino.sol#L366
Status	Unresolved

Description

The contract modifies the state of the following variables without checking if their current value is the same as the one given as an argument. As a result, the contract performs redundant storage writes, when the provided parameter matches the current state of the variables, leading to unnecessary gas consumption and inefficiencies in contract execution.

```
   function setExcludedFromLimits(address account, bool enabled)
external onlyOwner {
        _isExcludedFromLimits[account] = enabled;
    }

    function setExcludedFromFees(address account, bool enabled) public
onlyOwner {
        _isExcludedFromFees[account] = enabled;
    }

    function setExcludedFromProtection(address account, bool enabled)
external onlyOwner {
        _isExcludedFromProtection[account] = enabled;
    }

    function removeSniper(address account) external onlyOwner {
        initializer.removeSniper(account);
    }

    function setProtectionSettings(bool _antiSnipe, bool _antiBlock)
external onlyOwner {
        initializer.setProtections(_antiSnipe, _antiBlock);
    }
```

Recommendation

The team is advised to implement additional checks within to prevent redundant storage writes when the provided argument matches the current state of the variables. By incorporating statements to compare the new values with the existing values before proceeding with any state modification, the contract can avoid unnecessary storage operations, thereby optimizing gas usage.

L04 - Conformance to Solidity Naming Conventions

Criticality	Minor / Informative
Location	contracts/MemeCasino.sol#L33,114,115,116,117,118,137,143,152,164,177
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.

```
function WETH() external pure returns (address);
uint256 constant private startingSupply = 1_000_000
string constant private _name = "Meme Casino"
string constant private _symbol = "MEMEC"
uint8 constant private _decimals = 18
uint256 constant private _tTotal = startingSupply * 10**_decimals

Fees public _taxRates = Fees({
        buyFee: 500,
        sellFee: 500,
        transferFee: 0
    })

...
```

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.

L07 - Missing Events Arithmetic

Criticality	Minor / Informative
Location	contracts/MemeCasino.sol#L377,387
Status	Unresolved

Description

Events are a way to record and log information about changes or actions that occur within a contract. They are often used to notify external parties or clients about events that have occurred within the contract, such as the transfer of tokens or the completion of a task.

It's important to carefully design and implement the events in a contract, and to ensure that all required events are included. It's also a good idea to test the contract to ensure that all events are being properly triggered and logged.

```
swapThreshold = (_tTotal * thresholdPercent) / thresholdDivisor
piSwapPercent = priceImpactSwapPercent
```

Recommendation

By including all required events in the contract and thoroughly testing the contract's functionality, the contract ensures that it performs as intended and does not have any missing events that could cause issues with its arithmetic.

L13 - Divide before Multiply Operation

Criticality	Minor / Informative
Location	contracts/MemeCasino.sol#L680,681,682
Status	Unresolved

Description

It is important to be aware of the order of operations when performing arithmetic calculations. This is especially important when working with large numbers, as the order of operations can affect the final result of the calculation. Performing divisions before multiplications may cause loss of prediction.

```
uint256 feeAmount = (tAmount * currentFee) / masterTaxDivisor
values.tFee = (feeAmount * ratios.reflection) / total
```

Recommendation

To avoid this issue, it is recommended to carefully consider the order of operations when performing arithmetic calculations in Solidity. It's generally a good idea to use parentheses to specify the order of operations. The basic rule is that the multiplications should be prior to the divisions.

L14 - Uninitialized Variables in Local Scope

Criticality	Minor / Informative
Location	contracts/MemeCasino.sol#L325,536,658
Status	Unresolved

Description

Using an uninitialized local variable can lead to unpredictable behavior and potentially cause errors in the contract. It's important to always initialize local variables with appropriate values before using them.

```
address router
address constructorLP
uint256 initSwapAmount
uint256 initThreshold
ExtraValues memory values
```

Recommendation

By initializing local variables before using them, the contract ensures that the functions behave as expected and avoid potential issues.

L20 - Succeeded Transfer Check

Criticality	Minor / Informative
Location	contracts/MemeCasino.sol#L555
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.

```
TOKEN.transfer(_owner, TOKEN.balanceOf(address(this)))
```

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**
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		-

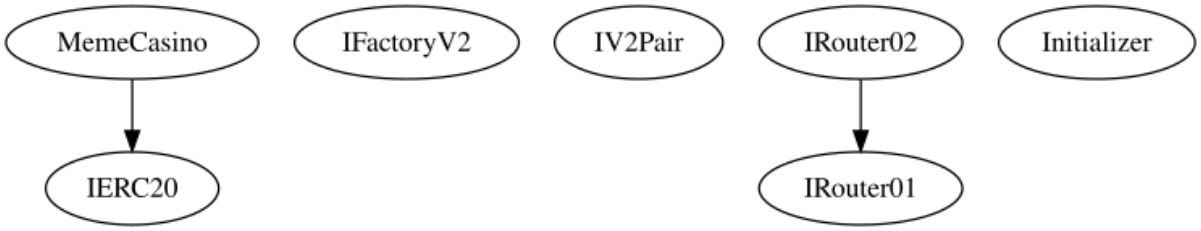
	getReserves	External		-
	sync	External	✓	-
IRouter01	Interface			
	factory	External		-
	WETH	External		-
	addLiquidityETH	External	Payable	-
	addLiquidity	External	✓	-
	swapExactETHForTokens	External	Payable	-
	getAmountsOut	External		-
	getAmountsIn	External		-
IRouter02	Interface	IRouter01		
	swapExactTokensForETHSupportingFeeOnTransferTokens	External	✓	-
	swapExactETHForTokensSupportingFeeOnTransferTokens	External	Payable	-
	swapExactTokensForTokensSupportingFeeOnTransferTokens	External	✓	-
	swapExactTokensForTokens	External	✓	-
Initializer	Interface			
	setLaunch	External	✓	-
	getConfig	External	✓	-
	getInits	External	✓	-
	setLpPair	External	✓	-

MemeCasino	Implementation	IERC20		
		Public	Payable	-
	transferOwner	External	✓	onlyOwner
	renounceOwnership	External	✓	onlyOwner
		External	Payable	-
	totalSupply	External		-
	decimals	External		-
	symbol	External		-
	name	External		-
	getOwner	External		-
	allowance	External		-
	balanceOf	Public		-
	transfer	Public	✓	-
	approve	External	✓	-
	_approve	Internal	✓	
	approveContractContingency	External	✓	onlyOwner
	transferFrom	External	✓	-
	setNewRouter	External	✓	onlyOwner
	setLpPair	External	✓	onlyOwner
	setInitializer	Public	✓	onlyOwner
	isExcludedFromLimits	External		-
	setExcludedFromLimits	External	✓	onlyOwner

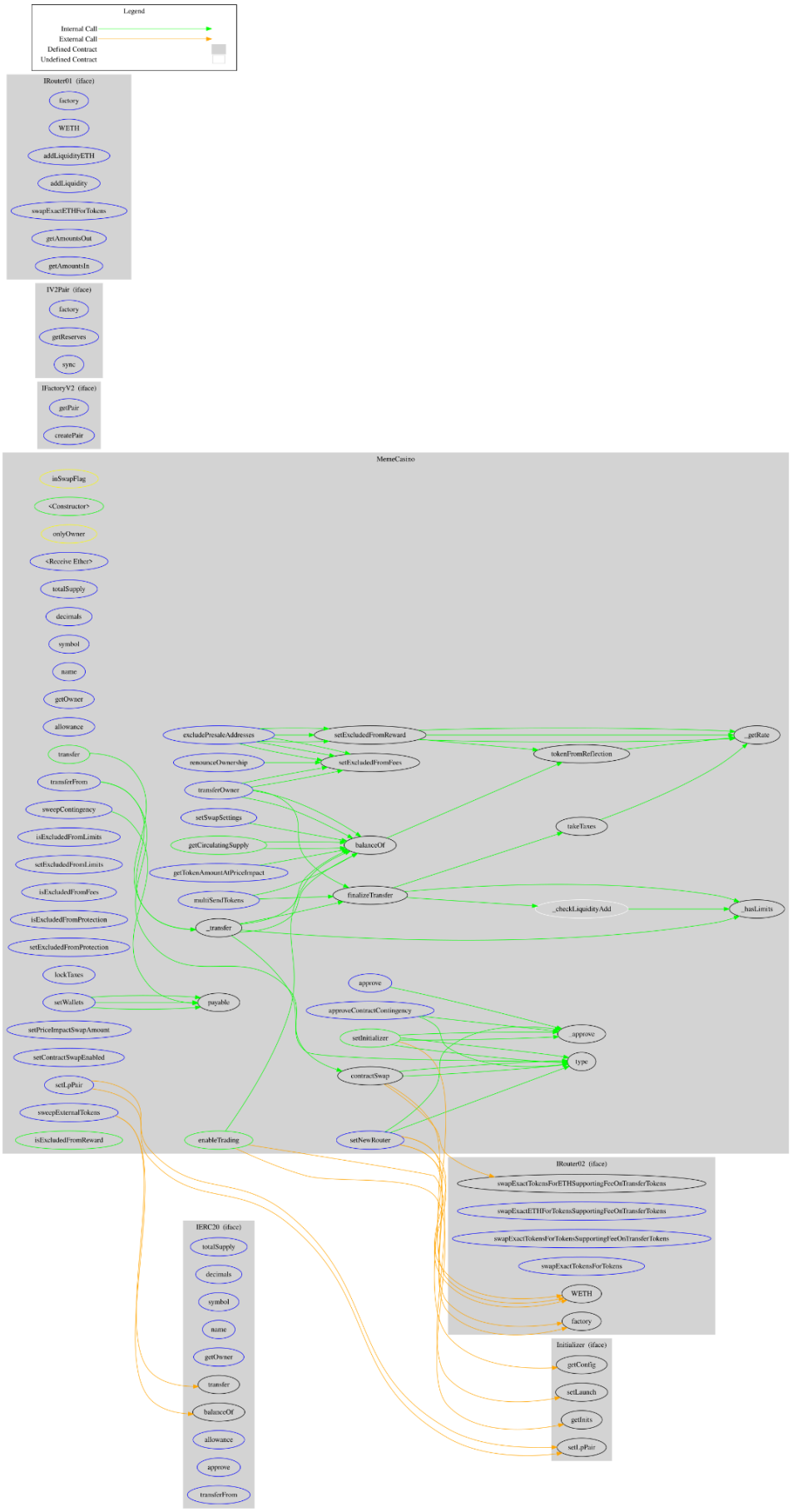
	isExcludedFromFees	External		-
	setExcludedFromFees	Public	✓	onlyOwner
	isExcludedFromProtection	External		-
	setExcludedFromProtection	External	✓	onlyOwner
	getCirculatingSupply	Public		-
	lockTaxes	External	✓	onlyOwner
	setWallets	External	✓	onlyOwner
	getTokenAmountAtPriceImpact	External		-
	setSwapSettings	External	✓	onlyOwner
	setPriceImpactSwapAmount	External	✓	onlyOwner
	setContractSwapEnabled	External	✓	onlyOwner
	excludePresaleAddresses	External	✓	onlyOwner
	_hasLimits	Internal		
	_transfer	Internal	✓	
	contractSwap	Internal	✓	inSwapFlag
	_checkLiquidityAdd	Internal	✓	
	enableTrading	Public	✓	onlyOwner
	sweepContingency	External	✓	onlyOwner
	sweepExternalTokens	External	✓	onlyOwner
	multiSendTokens	External	✓	onlyOwner
	isExcludedFromReward	Public		-
	setExcludedFromReward	Public	✓	onlyOwner
	tokenFromReflection	Public		-

	finalizeTransfer	Internal	✓	
	takeTaxes	Internal	✓	
	_getRate	Internal		

Inheritance Graph



Flow Graph


Legend
Internal Call
External Call
Defined Contract
Undefined Contract
IRouter01 (iface)
factory
WETH
addLiquidityETH
addLiquidity
swapExactETHForTokens
getAmountsOut
getAmountsIn
IV2Pair (iface)
factory
getReserves
sync
IFactoryV2 (iface)
getPair
createPair
MemeCasino
inSwapFlag
<Constructor>
onlyOwner
<Receive Ether>
totalSupply
decimals
symbol
name
getOwner
allowance
transfer
transferFrom
sweepContingency
isExcludedFromLimits
setExcludedFromLimits
isExcludedFromFees
isExcludedFromProtection
setExcludedFromProtection
lockTaxes
setWallets
setPriceImpactSwapAmount
setContractSwapEnabled
setLpPair
sweepExternalTokens
isExcludedFromReward
excludePresaleAddresses
renounceOwnership
transferOwner
setSwapSettings
getCirculatingSupply
getTokenAmountAtPriceImpact
multiSendTokens
_transfer
setExcludedFromReward
setExcludedFromFees
balanceOf
finalizeTransfer
payable
enableTrading
tokenFromReflection
takeTaxes
_checkLiquidityAdd
_getRate
_hasLimits
approve
approveContractContingency
setInitializer
contractSwap
setNewRouter
_approve
type
IERC20 (iface)
totalSupply
decimals
symbol
name
getOwner
transfer
balanceOf
allowance
approve
transferFrom
IRouter02 (iface)
swapExactTokensForETHSupportingFeeOnTransferTokens
swapExactETHForTokensSupportingFeeOnTransferTokens
swapExactTokensForTokensSupportingFeeOnTransferTokens
swapExactTokensForTokens
WETH
factory
Initializer (iface)
getConfig
setLaunch
getInits
setLpPair

Summary

Meme Casino contract implements a token mechanism. This audit investigates security issues, business logic concerns and potential improvements. Meme Casino is an interesting project that has a friendly and growing community. The Smart Contract analysis reported no compiler error or critical issues. The contract Owner can access some admin functions that can not be used in a malicious way to disturb the users' transactions. There is also a limit of max 5% fees on buy and sell transactions.

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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

https://www.cyberscope.io