Cyberscope

Audit Report

Mr. Beast

July 2023

Network	ETH
Address	0x0722A1eE1D73c5BfF050AF07288861C86E33cA5e
Audited by	© cyberscope

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
●	L04	Conformance to Solidity Naming Conventions	Unresolved
●	L14	Uninitialized Variables in Local Scope	Unresolved
●	L16	Validate Variable Setters	Unresolved
●	L20	Succeeded Transfer Check	Unresolved

Table of Contents

Analysis 1
Diagnostics 2
Table of Contents 3
Review 4
Audit Updates 4
Source Files 5
Findings Breakdown 6
L04 - Conformance to Solidity Naming Conventions 7
Description 7
Recommendation 8
L14 - Uninitialized Variables in Local Scope 9
Description 9
Recommendation 9
L16 - Validate Variable Setters 10
Description 10
Recommendation 10
L20 - Succeeded Transfer Check 11
Description 11
Recommendation 11
Functions Analysis 12
Inheritance Graph 16
Flow Graph 17
Summary 18
Disclaimer 19
About Cyberscope 20

Review

Contract Name	MrBeast
Compiler Version	v0.8.18+commit.87f61d96
Optimization	200 runs
Explorer	https://etherscan.io/address/0x11a48f96ec6977e6da669141dd57bddeb80940d5
Address	0x11a48f96ec6977e6da669141dd57bddeb80940d5
Network	ETH
Symbol	Mr.beast
Decimals	18
Total Supply	500,000,000,000

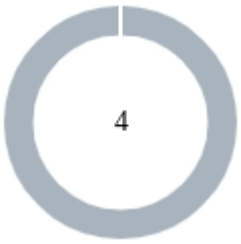
Audit Updates

Initial Audit	16 Jul 2023 https://github.com/cyberscope-io/audits/blob/main/mrbeast/v1/audit.pdf
Corrected Phase 2	19 Jul 2023 https://github.com/cyberscope-io/audits/blob/main/mrbeast/v2/audit.pdf
Corrected Phase 3	20 Jul 2023

Source Files

Filename	SHA256
MrbeastETH.sol	0ca5d0cc16da41761fe62b6a1eca302463ddf4ae20ebb102611f6fbc53a3894d

Findings Breakdown



Critical	0
Medium	0
Minor / Informative	4

Severity	Unresolved	Acknowledged	Resolved	Other
Critical	0	0	0	0
Medium	0	0	0	0
Minor / Informative	4	0	0	0

L04 - Conformance to Solidity Naming Conventions

Criticality	Minor / Informative
Location	contracts/MrBeast.sol#L33,109,110,111,112,113,119,246,273
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 = 500_000_000_000
string constant private _name = "Mr.beast ETH"
string constant private _symbol = "Mr.beast"
uint8 constant private _decimals = 9
uint256 constant private _tTotal = startingSupply *
10**_decimals
bool public _hasLiqBeenAdded = false
address _initializer
bool _antiSnipe
bool _antiBlock
```

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.

L14 - Uninitialized Variables in Local Scope

Criticality	Minor / Informative
Location	contracts/MrBeast.sol#L250,372,373
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 constructorLP
address router
bool checked
bool check
```

Recommendation

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

L16 - Validate Variable Setters

Criticality	Minor / Informative
Location	contracts/MrBeast.sol#L176
Status	Unresolved

Description

The contract performs operations on variables that have been configured on user-supplied input. These variables are missing of proper check for the case where a value is zero. This can lead to problems when the contract is executed, as certain actions may not be properly handled when the value is zero.

```
operator = newOperator
```

Recommendation

By adding the proper check, the contract will not allow the variables to be configured with zero value. This will ensure that the contract can handle all possible input values and avoid unexpected behavior or errors. Hence, it can help to prevent the contract from being exploited or operating unexpectedly.

L20 - Succeeded Transfer Check

Criticality	Minor / Informative
Location	contracts/MrBeast.sol#L360
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

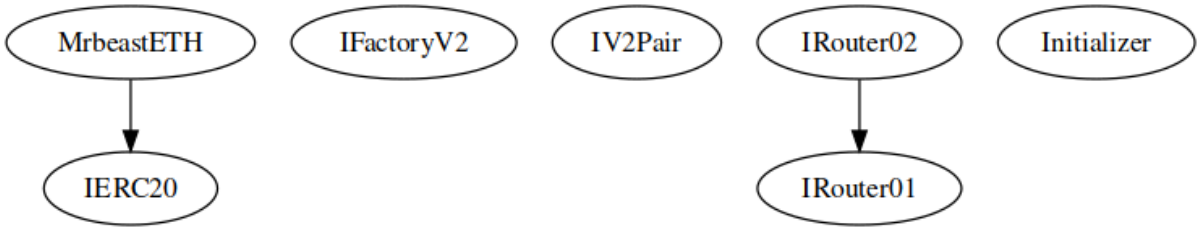
Contract	Type	Bases		
	Function Name	**Visibility**	**Mutability**	**Modifiers**
IERC20	Interface			
	totalSupply	External		-
	decimals	External		-
	symbol	External		-
	name	External		-
	getOwner	External		-
	balanceOf	External		-
	transfer	External	✓	-
	allowance	External		-
	approve	External	✓	-
	transferFrom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

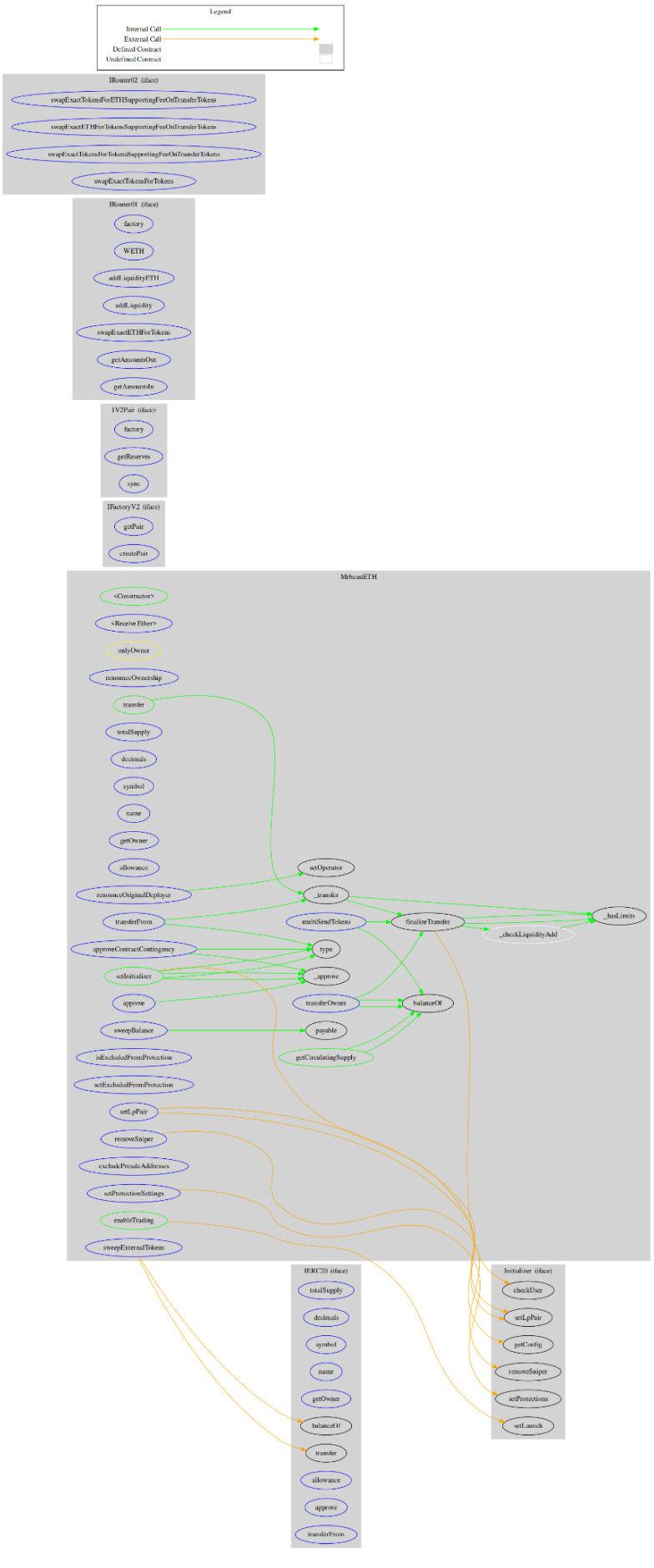
	setProtections	External	✓	-
	removeSniper	External	✓	-
MrbeastETH	Implementation	IERC20		
		Public	Payable	-
		External	Payable	-
	transferOwner	External	✓	onlyOwner
	renounceOwnership	External	✓	onlyOwner
	setOperator	Public	✓	-
	renounceOriginalDeployer	External	✓	-
	totalSupply	External		-
	decimals	External		-
	symbol	External		-
	name	External		-
	getOwner	External		-
	allowance	External		-
	balanceOf	Public		-
	transfer	Public	✓	-
	approve	External	✓	-
	_approve	Internal	✓	
	approveContractContingency	External	✓	onlyOwner
	transferFrom	External	✓	-
	setLpPair	External	✓	onlyOwner

	setInitializer	Public	✓	onlyOwner
	isExcludedFromProtection	External		-
	setExcludedFromProtection	External	✓	onlyOwner
	getCirculatingSupply	Public		-
	removeSniper	External	✓	onlyOwner
	setProtectionSettings	External	✓	onlyOwner
	excludePresaleAddresses	External	✓	onlyOwner
	_hasLimits	Internal		
	_transfer	Internal	✓	
	_checkLiquidityAdd	Internal	✓	
	enableTrading	Public	✓	onlyOwner
	sweepBalance	External	✓	onlyOwner
	sweepExternalTokens	External	✓	onlyOwner
	multiSendTokens	External	✓	onlyOwner
	finalizeTransfer	Internal	✓	

Inheritance Graph



Flow Graph


Legend
Internal Call
External Call
Defined Contract
Undefined Contract
IRouter02 (iface)
swapExactTokensForETHSupportingFeeOnTransferTokens
swapExactETHForTokensSupportingFeeOnTransferTokens
swapExactTokensForTokensSupportingFeeOnTransferTokens
swapExactTokensForTokens
IRouter01 (iface)
factory
WETH
addLiquidityETH
addLiquidity
swapExactETHForTokens
getAmountsOut
getAmountsIn
IV2Pair (iface)
factory
getReserves
sync
IFactoryV2 (iface)
getPair
createPair
MrbeastETH
<Constructor>
<Receive Ether>
onlyOwner
renounceOwnership
transfer
totalSupply
decimals
symbol
name
getOwner
allowance
renounceOriginalDeployer
transferFrom
approveContractContingency
setInitializer
approve
sweepBalance
isExcludedFromProtection
setExcludedFromProtection
setLpPair
removeSniper
excludePresaleAddresses
setProtectionSettings
enableTrading
sweepExternalTokens
setOperator
_transfer
multiSendTokens
finalizeTransfer
_hasLimits
_checkLiquidityAdd
type
_approve
transferOwner
balanceOf
payable
getCirculatingSupply
IERC20 (iface)
totalSupply
decimals
symbol
name
getOwner
balanceOf
transfer
allowance
approve
transferFrom
Initializer (iface)
checkUser
setLpPair
getConfig
removeSniper
setProtections
setLaunch

Summary

Mr. Beast contract implements a token mechanism. This audit investigates security issues, business logic concerns and potential improvements. Mr.Beast is an interesting project that has a friendly and growing community. The Smart Contract analysis reported no compiler errors 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.

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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

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