Cyberscope

Audit Report

ETHnothing

June 2023

Network	ETH
Address	0x6039D8fE10208fafBb59C393A015B6Cc9d497FaB
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
●	PAV	Pair Address Validation	Unresolved
●	EFLC	Exclude Function Logic Concern	Unresolved
●	L02	State Variables could be Declared Constant	Unresolved

Table of Contents

Review

Contract Name	Nothing
Compiler Version	v0.8.17+commit.8df45f5f
Optimization	200 runs
Explorer	https://etherscan.io/address/0x6039d8fe10208fafbb59c393a015b6cc9d497fab
Address	0x6039d8fe10208fafbb59c393a015b6cc9d497fab
Network	ETH
Symbol	NOTHING
Decimals	8
Total Supply	666,666,666,666,666

Audit Updates

Initial Audit	01 Jun 2023 https://github.com/cyberscope-io/audits/blob/main/ethnothing/v1/audit.pdf
Corrected Phase 2	22 Jun 2023 https://github.com/cyberscope-io/audits/blob/main/ethnothing/v2/audit.pdf
Corrected Phase 3	23 Jun 2023 https://github.com/cyberscope-io/audits/blob/main/ethnothing/v3/audit.pdf
Corrected Phase 4	27 Jun 2023

Source Files

Filename	SHA256
@openzeppelin/contracts/access/Ownable.sol	9353af89436556f7ba8abb3f37a6677249a a4df6024fbfaa94f79ab2f44f3231
@openzeppelin/contracts/token/ERC20/ERC20.sol	bce14c3fd3b1a668529e375f6b70ffdf9cef 8c4e410ae99608be5964d98fa701
@openzeppelin/contracts/token/ERC20/extensions /ERC20Burnable.sol	0344809a1044e11ece2401b4f7288f414ea 41fa9d1dad24143c84b737c9fc02e
@openzeppelin/contracts/token/ERC20/extensions /IERC20Metadata.sol	af5c8a77965cc82c33b7ff844deb9826166 689e55dc037a7f2f790d057811990
@openzeppelin/contracts/token/ERC20/IERC20.sol	94f23e4af51a18c2269b355b8c7cf4db800 3d075c9c541019eb8dcf4122864d5
@openzeppelin/contracts/utils/Context.sol	1458c260d010a08e4c20a4a517882259a2 3a4baa0b5bd9add9fb6d6a1549814a
contracts/tokens/Nothing.sol	6fc0d0b2af1b691d5f9c38b10113b1d70cc 313e1833d0d3e67db8ff94f153c4a

Findings Breakdown

Critical	0
Medium	0
Minor / Informative	3

Severity	Unresolved	Acknowledged	Resolved	Other
Critical	0	0	0	0
Medium	0	0	0	0
Minor / Informative	3	0	0	0

PAV - Pair Address Validation

Criticality	Minor / Informative
Location	contracts/Nothing.sol#L62
Status	Unresolved

Description

The contract is missing address validation in the pair address argument. The absence of validation reveals a potential vulnerability, as it lacks proper checks to ensure the integrity and validity of the pair address provided as an argument. The pair address is a parameter used in certain methods of decentralized exchanges for functions like token swaps and liquidity provisions.

The absence of address validation in the pair address argument can introduce security risks and potential attacks. Without proper validation, if the owner's address is compromised, the contract may lead to unexpected behavior like loss of funds.

```
function setMarketPair(address pair, bool state) public onlyOwner {
    require(pair != address(0), "Pair can't be address zero");
    if (marketPairs[pair] != state) {
        marketPairs[pair] = state;
        emit MarketPairUpdated(pair, state);
    }
}
```

Recommendation

To mitigate the risks associated with the absence of address validation in the pair address argument, it is recommended to implement comprehensive address validation mechanisms. A recommended approach could be to verify pair existence in the decentralized application. Prior to interacting with the pair address contract, perform checks to verify the existence and validity of the contract at the provided address. This can be achieved by querying the provider's contract or utilizing external libraries that provide contract verification services.

EFLC - Exclude Function Logic Concern

Criticality	Minor / Informative
Location	contracts/Nothing.sol#L121
Status	Unresolved

Description

The contract implements an exclusion mechanism to exempt addresses from being charged fees. However, the implementation only checks if the sender `from` address is excluded from fees and not recipient `to` too. This inconsistency can lead to unintended fee deductions for recipients who should be exempted from fees.

```
bool isExcludedFromFees = excludedFromFees[from];
if (!isExcludedFromFees) {
    // If to == marketPairs::true state, then it is a sell transfer
    if (marketPairs[to]) {
        taxAmount = (amount * SELL_FEE / 10_000);
    }
}
```

Recommendation

It is recommended to check the exclusion status of both recipient and sender addresses before deducting any fees.

L02 - State Variables could be Declared Constant

Criticality	Minor / Informative
Location	contracts/tokens/Nothing.sol#L19
Status	Unresolved

Description

State variables can be declared as constant using the constant keyword. This means that the value of the state variable cannot be changed after it has been set. Additionally, the constant variables decrease gas consumption of the corresponding transaction.

```
uint8 private _decimals = 8
```

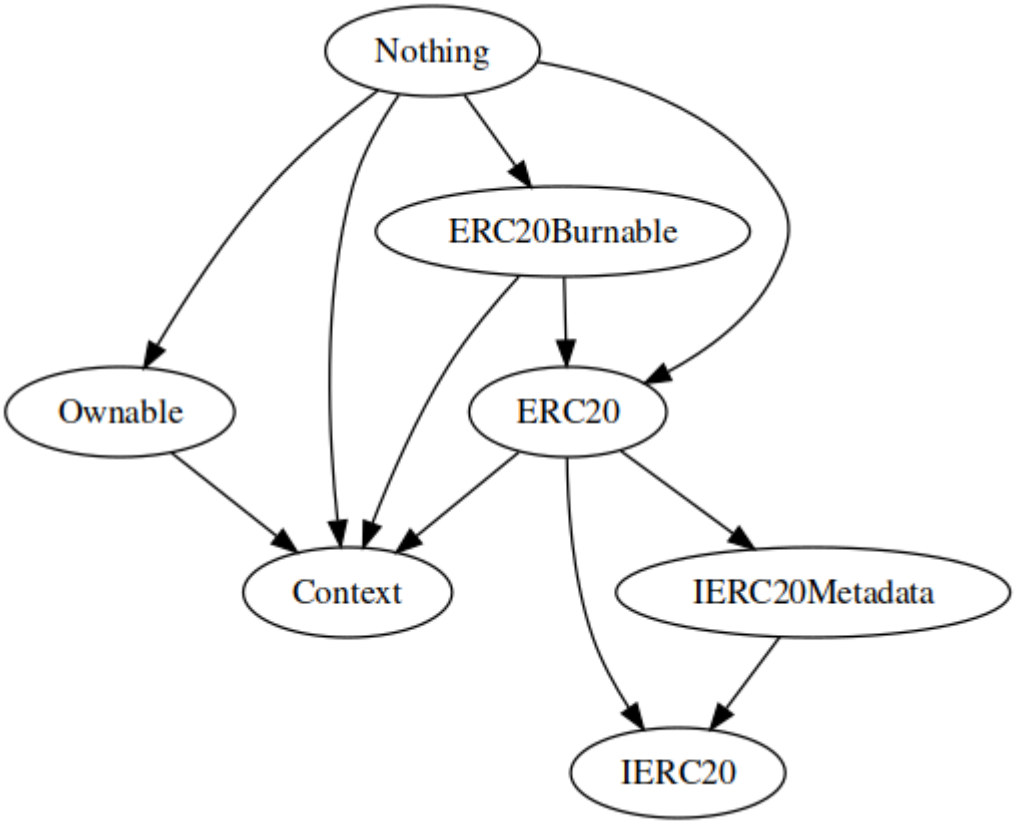
Recommendation

Constant state variables can be useful when the contract wants to ensure that the value of a state variable cannot be changed by any function in the contract. This can be useful for storing values that are important to the contract's behavior, such as the contract's address or the maximum number of times a certain function can be called. The team is advised to add the constant keyword to state variables that never change.

Functions Analysis

Contract	Type	Bases		
	Function Name	**Visibility**	**Mutability**	**Modifiers**
Nothing	Implementation	Context, ERC20, ERC20Burnable, Ownable		
		Public	✓	ERC20
	setFeeReceiver	Public	✓	onlyOwner
	setRewardReceiver	Public	✓	onlyOwner
	setMarketPair	Public	✓	onlyOwner
	excludeFromFees	Public	✓	onlyOwner
	decimals	Public		-
	_mint	Internal	✓	
	_beforeTokenTransfer	Internal	✓	
	_transfer	Internal	✓	
	_distributeFees	Internal	✓	

Inheritance Graph



Flow Graph


Legend
Internal Call
External Call
Defined Contract
Undefined Contract
Context
_msgSender
_msgData
IERC20 (iface)
totalSupply
balanceOf
transfer
allowance
approve
transferFrom
IERC20Metadata (iface)
name
symbol
decimals
Nothing
setFeeReceiver
setRewardReceiver
setMarketPair
excludeFromFees
decimals
balanceOf
_distributeFees
Ownable
onlyOwner
<Constructor>
_msgSender
_transfer
_checkOwner
owner
_beforeTokenTransfer
renounceOwnership
_transferOwnership
_mint
transferOwnership
ERC20
<Constructor>
name
symbol
decimals
totalSupply
balanceOf
transferFrom
transfer
_transfer
_mint
_burn
_afterTokenTransfer
_beforeTokenTransfer
_spendAllowance
decreaseAllowance
increaseAllowance
approve
type
allowance
_approve
_msgSender
ERC20Burnable
burn
burnFrom

Summary

ETHnothing contract implements a token mechanism. This audit investigates security issues, business logic concerns, and potential improvements. ETHnothing 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. There is also a limit of max 5% fee.

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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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