

Smart Contract Security Audit V1

Mentally Ill But Worth It Smart Contract

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Background

The purpose of the audit was to achieve the following:

- Ensure that the smart contract functions as intended.
- Identify potential security issues with the smart contract.

The information in this report should be used to understand the risk exposure of the smart contract, and as a guide to improve the security posture of the smart contract by remediating the issues that were identified.

Project Information

- **Platform:** Polygon
- **Contract Address:** 0xB964c5Da3ED9366243572e9bD6a421798254320E
- **Code:**

<https://polygonscan.com/address/0xb964c5da3ed9366243572e9bd6a421798254320e#code>

NFT Information

- Name: Mentally Ill But Worth It
- MAX Supply: 10000
- Holders:
- Total transactions:

Contracts address deployed to test net (Polygon)

Mentally Ill But Worth It smart contract on Polygon test net to test every function by the auditor.

<https://mumbai.polygonscan.com/address/0xf48d3966bb59d7dffc570560e35dc61b34f175c2>

Executive Summary

According to our assessment, the customer`s solidity smart contract is **“WELL SECURED”**. The team has fixed the low-level issues.

Well Secured	✓
Secured	
Poor Secured	
Insecure	

Automated checks are with remix IDE. All issues were performed by the team, which included the analysis of code functionality, manual audit found during automated analysis were manually reviewed and applicable vulnerabilities are presented in the audit overview section. The general overview is presented in the Project Information section and all issues found are located in the audit overview section.

Team found 0 critical, 0 high, 0 medium, 3 low, 0 very low-level issues and 0 note in all solidity files of the contract

The files:

MentallyIllButWorthIt.sol

File and Function Level Report

File in Scope:

Contract Name	SHA 256 hash	Contract Address
MentallyIllButWorthIt.sol	93bf4d26644df68224f31adae899d83fad9610f1a1e7b7dd4d38e2ae01dd85b0	0xB964c5Da3ED9366243572e9bD6a421798254320E

- Contract: MentallyIllButWorthIt
- Inherit: ERC721, Ownable, ReentrancyGuard
- Observation: All passed including security check
- Test Report: passed
- Score: passed
- Conclusion: passed

Function	Test Result	Type / Return Type	Score
name	✓	Read / public	Passed
symbol	✓	Read / public	Passed
cost	✓	Read / public	Passed
supportsInterface	✓	Read / public	Passed
maxMintAmountPerTx	✓	Read / public	Passed
balanceOf	✓	Read / public	Passed
Owner	✓	Read / public	Passed
whitelistClaimed	✓	Read / public	Passed
tokenOfOwner	✓	Read / public	Passed
getApprovedForAll	✓	Read / public	Passed
hiddenMetadataUri	✓	Read / public	Passed
getApproved	✓	Read / public	Passed

ownerOf	✓	Read / public	Passed
tokenURI	✓	Read / public	Passed
totalSupply	✓	Read / public	Passed
maxSupply	✓	Read / public	Passed
revealed	✓	Read / public	Passed
paused	✓	Read / public	Passed
merkleRoot	✓	Read / public	Passed
uriPrefix	✓	Read / public	Passed
uriSuffix	✓	Read / public	Passed
whitelistClaimed	✓	Read / public	Passed
whitelistMint	✓	Write / payable	Passed
mint	✓	Write / payable	Passed
approve	✓	Write / public	Passed
safeTransferFrom	✓	Write / public	Passed
safeTransferFrom	✓	Write / public	Passed
setPaused	✓	Write / public	Passed
withdraw	✓	Write / public	Passed
setRevealed	✓	Write / public	Passed
transferOwnership	✓	Write / public	Passed
setApprovalForAll	✓	Write / public	Passed
transferFrom	✓	Write / public	Passed
setMerkleRoot	✓	Write / public	Passed
setHiddenMetadataUri	✓	Write / public	Passed
renounceOwnership	✓	Write / public	Passed
mintForAddress	✓	Write / public	Passed
setMaxMintAmountPerTx	✓	Write / public	Passed
setCost	✓	Write / public	Passed

setWhitelistMintEnabled	✓	Write / public	Passed
setUriPrefix	✓	Write / public	Passed
setUriSuffix	✓	Write / public	Passed

Issues Checking Status

No.	Issue Description	Checking Status
1	Compiler warnings.	Passed
2	Race conditions and Reentrancy. Cross-function race conditions.	Passed
3	Possible delays in data delivery.	Passed
4	Oracle calls.	Passed
5	Design Logic.	Passed
6	Timestamp dependence.	Passed
7	Integer Overflow and Underflow.	Passed
8	DoS with Revert.	Passed
9	DoS with block gas limit.	Passed with Notes
10	Methods execution permissions.	Passed
11	Economy model. If application logic is based on an incorrect economic model, the application would not function correctly and participants would incur financial losses. This type of issue is most often found in bonus rewards systems, Staking and Farming contracts, Vault and Vesting contracts, etc.	Passed
12	The impact of the exchange rate on the logic.	Passed
13	Private user data leaks.	Passed
14	Malicious Event log.	Passed
15	Scoping and Declarations.	Passed
16	Uninitialized storage pointers.	Passed
17	Arithmetic accuracy.	Passed

Severity Definitions

Risk Level	Description
Critical	Critical vulnerabilities are usually straightforward to exploit and can lead to tokens loss etc.
High	High-level vulnerabilities are difficult to exploit; however, they also have significant impact on smart contract execution, e.g. public access to crucial functions
Medium	Medium-level vulnerabilities are important to fix; however, they can't lead to tokens lose
Low	Low-level vulnerabilities are mostly related to outdated, unused etc. code snippets, that can't have significant impact on execution
Note	Lowest-level vulnerabilities, code style violations and info statements can't affect smart contract execution and can be ignored.

Audit Findings

Critical:

No Critical severity vulnerabilities were found.

High:

No High severity vulnerabilities were found.

Medium:

No Medium severity vulnerabilities were found

Low:

#Missing zero address validation

Description

When the owner wants to mint NFTs for investors, he has to check for the zero address to make, he didn't mint for the zero address. Otherwise, the mint function will act like burn function.

```
function mintForAddress(uint256 _mintAmount, address _receiver) public  
mintCompliance(_mintAmount) onlyOwner {  
    _mintLoop(_receiver, _mintAmount);  
}
```

Remediation

Use the require statement to check for zero addresses, require to check if the contract is paused or not, and check the amount + total mint <= Max Supply.

Status: **Closed**. Fixed in version 2.

#Pragam version not fixed

Description

It is a good practice to lock the solidity version for a live deployment (use the newest 0.8.15 instead of $\geq 0.8.9 < 0.9.0$). contracts should be deployed with the same compiler version and flags that they have been tested the most with. Locking the pragma helps ensure that contracts do not accidentally get deployed using, for example, the latest compiler which may have higher risks of undiscovered bugs. Contracts may also be deployed by others and the pragma indicates the compiler version intended by the original authors.

Remediation

Remove the $\geq 0.8.9 < 0.9.0$ sign to lock the pragma version and replace it with the newest compiler.

Status: **Closed**. Fixed in version 2.

#Owner privileges (In the period when the owner isn't renounced)

Description

The owner can mint the NFT to any address.

The owner can pause and un pause the contract.

The owner can change the price and the max supply.

The owner can open and close the whitelist stage.

```
function mintForAddress(uint256 _mintAmount, address _receiver) public  
mintCompliance(_mintAmount) onlyOwner {  
    _mintLoop(_receiver, _mintAmount);  
}  
  
function setCost(uint256 _cost) public onlyOwner {  
    cost = _cost;  
}  
function setPaused(bool _state) public onlyOwner {  
    paused = _state;  
}  
function setWhitelistMintEnabled(bool _state) public onlyOwner {  
    whitelistMintEnabled = _state;  
}
```

Remediation

Make these functions internal in next version or the team should announce the investors before doing anything to give them time if they want to do anything.

P.S: This issue is common to the majority of NFT smart contracts.

Status: **Acknowledged.**

Very Low:

No Very Low severity vulnerabilities were found.

Notes:

No Notes vulnerabilities were found.

Automatic Testing

1- Check for security

93bf4d26644df68224f31adae899d83fad9610f1a1e7b7dd4d38e2ae01dd85b0

File: MentallyIll... | Language: solidity | Size: 5164 bytes | Date: 2022-07-28T11:15:51.411Z

Critical	High	Medium	Low	Note
0	0	0	0	0



2- SOLIDITY STATIC ANALYSIS

SOLIDITY STATIC ANALYSIS

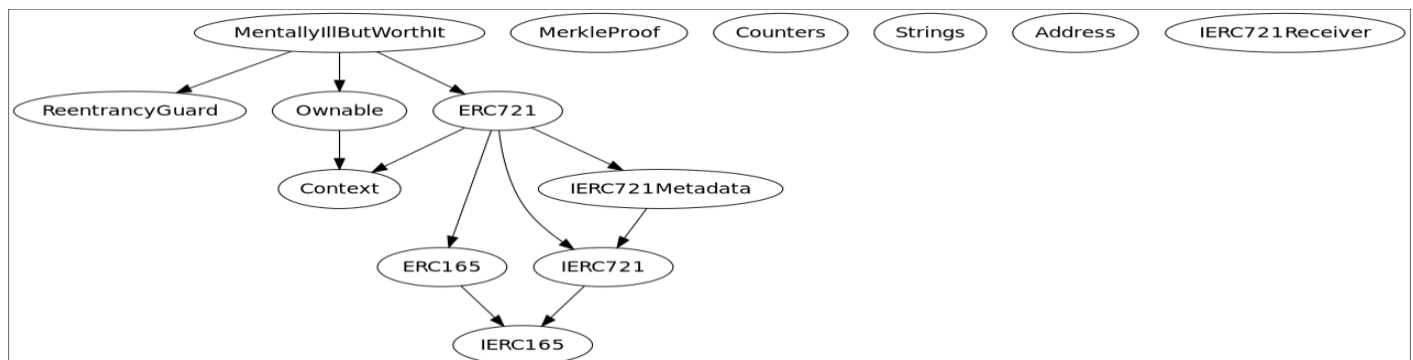
☒ Select all ☒ Autorun Run

- Security**
 - ☒ Select Security
 - ☒ **Transaction origin:**
'tx.origin' used
 - ☒ **Check-effects-interaction:**
Potential reentrancy bugs
 - ☒ **Inline assembly:**
Inline assembly used
 - ☒ **Block timestamp:**
Can be influenced by miners
 - ☒ **Low level calls:**
Should only be used by experienced devs
 - ☒ **Block hash:**
Can be influenced by miners
 - ☒ **Selfdestruct:**
Contracts using destructed contract can be broken
- Gas & Economy**
 - ☒ Select Gas & Economy
 - ☒ **Gas costs:**
Too high gas requirement of functions
 - ☒ **This on local calls:**
Invocation of local functions via 'this'
 - ☒ **Delete dynamic array:**
Use require/assert to ensure complete deletion
 - ☒ **For loop over dynamic array:**
Iterations depend on dynamic array's size
 - ☒ **Ether transfer in loop:**
Transferring Ether in a for/while/do-while loop

SOLIDITY STATIC ANALYSIS

- ERC**
 - ☒ Select ERC
 - ☒ **ERC20:**
'decimals' should be 'uint8'
- Miscellaneous**
 - ☒ Select Miscellaneous
 - ☒ **Constant/View/Pure functions:**
Potentially constant/view/pure functions
 - ☒ **Similar variable names:**
Variable names are too similar
 - ☒ **No return:**
Function with 'returns' not returning
 - ☒ **Guard conditions:**
Ensure appropriate use of require/assert
 - ☒ **Result not used:**
The result of an operation not used
 - ☒ **String length:**
Bytes length != String length
 - ☒ **Delete from dynamic array:**
'delete' leaves a gap in array
 - ☒ **Data truncated:**
Division on int/uint values truncates the result

3- Inheritance graph



4- SOLIDITY UNIT TESTING

SOLIDITY UNIT TESTING

✓ >

Test your smart contract in Solidity.

Select directory to load and generate test files.

Test directory:

☒ Select all

☒ tests/MentallyIllButWorthIt_test.sol

Progress: 1 finished (of 1)

PASS

 testSuite

(tests/MentallyIllButWorthIt_test.sol)

✓ Before all

⛔

✓ Check success

⛔

✓ Check success2

⛔

✓ Check failure

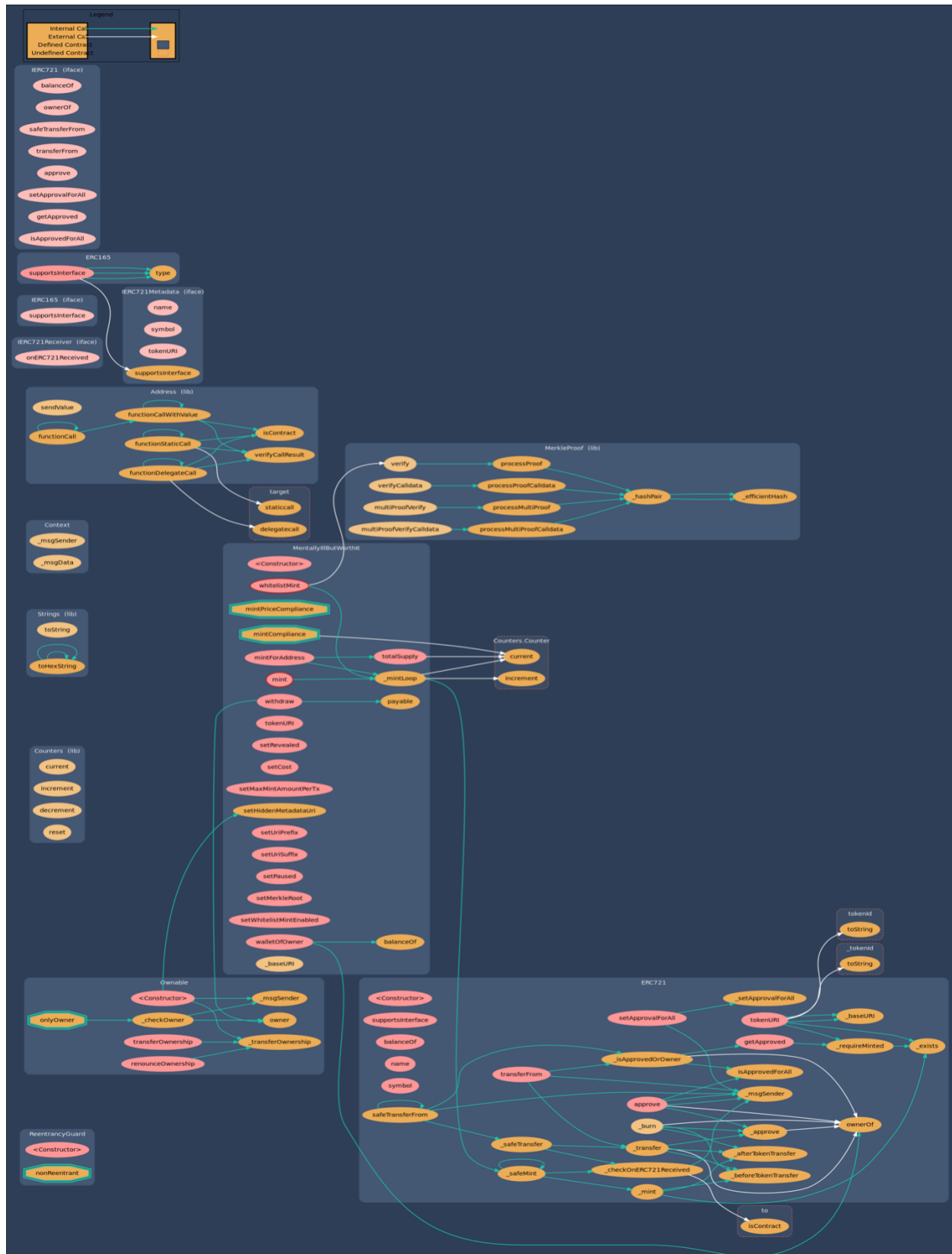
⛔

✓ Check sender and value

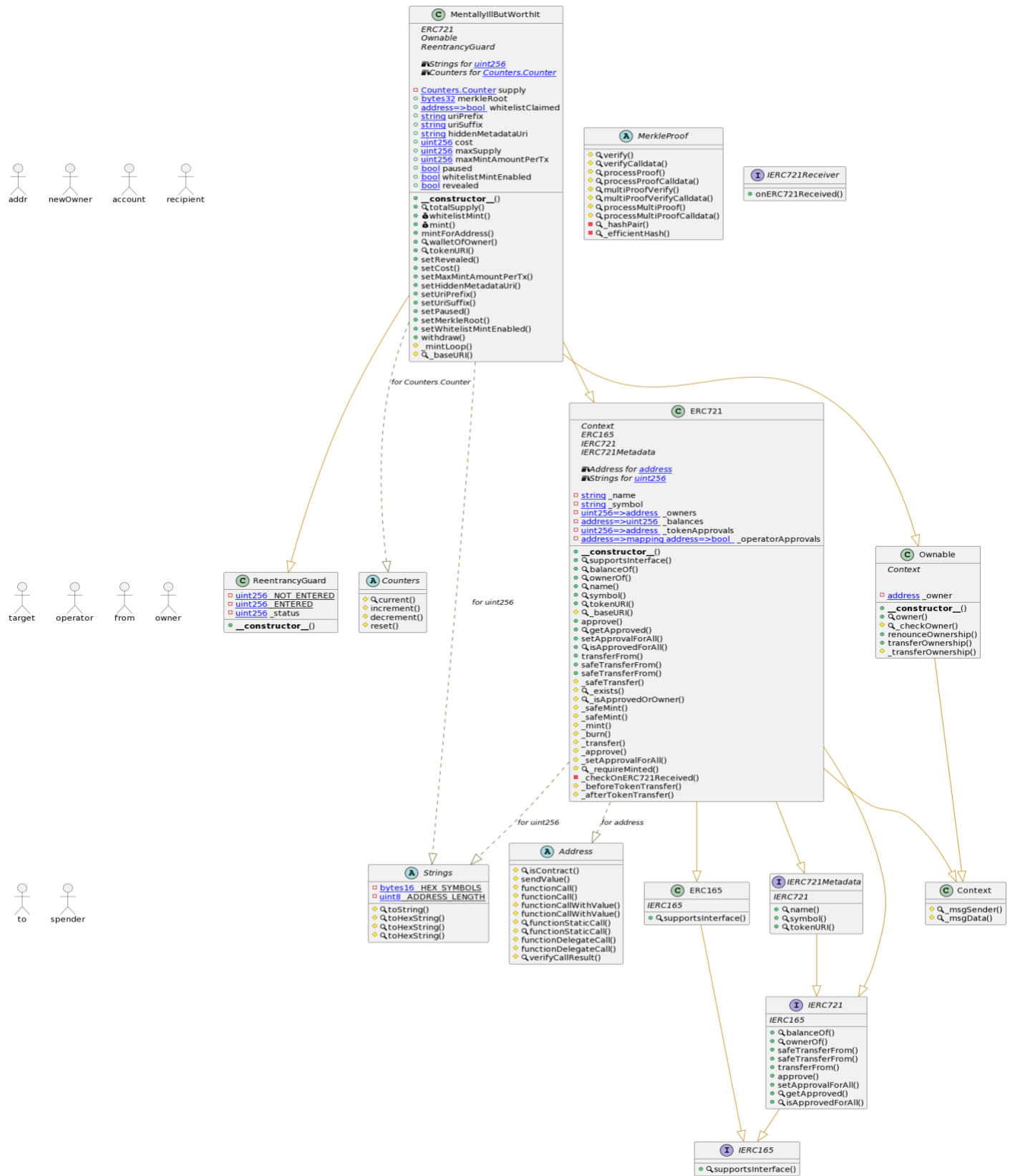
⛔

Result for
tests/MentallyIllButWorthIt_test.sol
Passed: 5
Failed: 0
Time Taken: 0.35s

Call graph



addr newOwner account recipient



Functions signature

Sighash		Function Signature
=====		
16279055	=>	isContract(address)
86333816	=>	multiProofVerify(bytes32[],bool[],bytes32,bytes32[])
5a9a49c7	=>	verify(bytes32[],bytes32,bytes32)
7ffe9d8c	=>	verifyCalldata(bytes32[],bytes32,bytes32)
62702a6b	=>	processProof(bytes32[],bytes32)
53b0f85f	=>	processProofCalldata(bytes32[],bytes32)
862aac96	=>	multiProofVerifyCalldata(bytes32[],bool[],bytes32,bytes32[])
ea5d3eb6	=>	processMultiProof(bytes32[],bool[],bytes32[])
32712d22	=>	processMultiProofCalldata(bytes32[],bool[],bytes32[])
00a4cf28	=>	_hashPair(bytes32,bytes32)
41ed615b	=>	_efficientHash(bytes32,bytes32)
ad04a8d1	=>	current(Counter)
e2bee435	=>	increment(Counter)
854ec98e	=>	decrement(Counter)
440d212a	=>	reset(Counter)
6900a3ae	=>	toString(uint256)
8fba8d5c	=>	toHexString(uint256)
63e1cbea	=>	toHexString(uint256,uint256)
1bb0c665	=>	toHexString(address)
119df25f	=>	_msgSender()
8b49d47e	=>	_msgData()
8da5cb5b	=>	owner()
53a72975	=>	_checkOwner()
715018a6	=>	renounceOwnership()
f2fde38b	=>	transferOwnership(address)
d29d44ee	=>	_transferOwnership(address)
24a084df	=>	sendValue(address,uint256)
a0b5ffb0	=>	functionCall(address,bytes)
241b5886	=>	functionCall(address,bytes,string)
2a011594	=>	functionCallWithValue(address,bytes,uint256)
d525ab8a	=>	functionCallWithValue(address,bytes,uint256,string)
c21d36f3	=>	functionStaticCall(address,bytes)
dbc40fb9	=>	functionStaticCall(address,bytes,string)
ee33b7e2	=>	functionDelegateCall(address,bytes)
57387df0	=>	functionDelegateCall(address,bytes,string)
946b5793	=>	verifyCallResult(bool,bytes,string)
150b7a02	=>	onERC721Received(address,address,uint256,bytes)
01ffc9a7	=>	supportsInterface(bytes4)
70a08231	=>	balanceOf(address)
6352211e	=>	ownerOf(uint256)
b88d4fde	=>	safeTransferFrom(address,address,uint256,bytes)
42842e0e	=>	safeTransferFrom(address,address,uint256)
23b872dd	=>	transferFrom(address,address,uint256)
095ea7b3	=>	approve(address,uint256)
a22cb465	=>	setApprovalForAll(address,bool)
081812fc	=>	getApproved(uint256)
e985e9c5	=>	isApprovedForAll(address,address)
06fdde03	=>	name()
95d89b41	=>	symbol()
c87b56dd	=>	tokenURI(uint256)
743976a0	=>	_baseURI()


```
24b6b8c0 => _safeTransfer(address,address,uint256,bytes)
f8e76cc0 => _exists(uint256)
4cdc9549 => _isApprovedOrOwner(address,uint256)
b3e1c718 => _safeMint(address,uint256)
6a4f832b => _safeMint(address,uint256,bytes)
4e6ec247 => _mint(address,uint256)
9b1f9e74 => _burn(uint256)
30e0789e => _transfer(address,address,uint256)
7b7d7225 => _approve(address,uint256)
8c4e3f32 => _setApprovalForAll(address,address,bool)
a0aea85d => _requireMinted(uint256)
1fd01de1 => _checkOnERC721Received(address,address,uint256,bytes)
cad3be83 => _beforeTokenTransfer(address,address,uint256)
8f811a1c => _afterTokenTransfer(address,address,uint256)
18160ddd => totalSupply()
d2cab056 => whitelistMint(uint256,bytes32[])
a0712d68 => mint(uint256)
efbd73f4 => mintForAddress(uint256,address)
438b6300 => walletOfOwner(address)
e0a80853 => setRevealed(bool)
44a0d68a => setCost(uint256)
b071401b => setMaxMintAmountPerTx(uint256)
4fdd43cb => setHiddenMetadataUri(string)
7ec4a659 => setUriPrefix(string)
16ba10e0 => setUriSuffix(string)
16c38b3c => setPaused(bool)
7cb64759 => setMerkleRoot(bytes32)
b767a098 => setWhitelistMintEnabled(bool)
3ccfd60b => withdraw()
0d43db94 => _mintLoop(address,uint256)
```

Automatic general report


Files Description Table

File Name	SHA-1 Hash
/Users/macbook/Desktop/smart contracts/MentallyIllButWorthIt.sol	2dd50ee9e26301cf580f5edeabc8c5c92ccce22a

Contracts Description Table





















Contract	Type	Bases	
:-----: :-----: :-----: :-----:			
L	**Function Name**	**Visibility**	**Mutability**
Modifiers			
ReentrancyGuard Implementation			
L	<Constructor>	Public !	NO !
MerkleProof Library			
L	verify	Internal	
L	verifyCalldata	Internal	
L	processProof	Internal	
L	processProofCalldata	Internal	
L	multiProofVerify	Internal	
L	multiProofVerifyCalldata	Internal	
L	processMultiProof	Internal	
L	processMultiProofCalldata	Internal	
L	_hashPair	Private	
L	_efficientHash	Private	
Counters Library			
L	current	Internal	
L	increment	Internal	
L	decrement	Internal	
L	reset	Internal	
Strings Library			
L	toString	Internal	
L	toHexString	Internal	
L	toHexString	Internal	
L	toHexString	Internal	
Context Implementation			
L	_msgSender	Internal	
L	_msgData	Internal	
Ownable Implementation Context			
L	<Constructor>	Public !	NO !
L	owner	Public !	NO !
L	_checkOwner	Internal	
L	renounceOwnership	Public !	onlyOwner

```

| L | transferOwnership | Public ! |  | onlyOwner |
| L | _transferOwnership | Internal  |  |
|
|
| **Address** | Library | |
| L | isContract | Internal  |
| L | sendValue | Internal   |
| L | functionCall | Internal   |
| L | functionCall | Internal   |
| L | functionCallWithValue | Internal   |
| L | functionCallWithValue | Internal   |
| L | functionStaticCall | Internal  |
| L | functionStaticCall | Internal  |
| L | functionDelegateCall | Internal   |
| L | functionDelegateCall | Internal   |
| L | verifyCallResult | Internal  |
|
|
| **IERC721Receiver** | Interface |
| L | onERC721Received | External ! |  | NO! |
|
|
| **IERC165** | Interface |
| L | supportsInterface | External ! | NO! |
|
|
| **ERC165** | Implementation | IERC165 |
| L | supportsInterface | Public ! | NO! |
|
|
| **IERC721** | Interface | IERC165 | |
| L | balanceOf | External ! | NO! |
| L | ownerOf | External ! | NO! |
| L | safeTransferFrom | External ! |  NO! |
| L | safeTransferFrom | External ! |  NO! |
| L | transferFrom | External ! |  NO! |
| L | approve | External ! |  NO! |
| L | setApprovalForAll | External ! |  NO! |
| L | getApproved | External ! | NO! |
| L | isApprovedForAll | External ! | NO! |
|
|
| **IERC721Metadata** | Interface | IERC721 | |
| L | name | External ! | NO! |
| L | symbol | External ! | NO! |
| L | tokenURI | External ! | NO! |
|
|
| **ERC721** | Implementation | Context, ERC165, IERC721, IERC721Metadata | |
| L | <Constructor> | Public ! |  NO! |
| L | supportsInterface | Public ! | NO! |
| L | balanceOf | Public ! | NO! |
| L | ownerOf | Public ! | NO! |
| L | name | Public ! | NO! |
| L | symbol | Public ! | NO! |
| L | tokenURI | Public ! | NO! |
| L | _baseURI | Internal  |
| L | approve | Public ! |  NO! |
| L | getApproved | Public ! | NO! |
| L | setApprovalForAll | Public ! |  NO! |
| L | isApprovedForAll | Public ! | NO! |
| L | transferFrom | Public ! |  NO! |



```

```

| L | safeTransferFrom | Public ! |  | NO! |
| L | safeTransferFrom | Public ! |  | NO! |
| L | _safeTransfer | Internal  |  | |
| L | _exists | Internal  | | |
| L | _isApprovedOrOwner | Internal  | | |
| L | _safeMint | Internal  |  | |
| L | _safeMint | Internal  |  | |
| L | _mint | Internal  |  | |
| L | _burn | Internal  |  | |
| L | _transfer | Internal  |  | |
| L | _approve | Internal  |  | |
| L | _setApprovalForAll | Internal  |  | |
| L | _requireMinted | Internal  | | |
| L | _checkOnERC721Received | Private  |  | |
| L | _beforeTokenTransfer | Internal  |  | |
| L | _afterTokenTransfer | Internal  |  | |
| | | |
| **MentallyIllButWorthIt** | Implementation | ERC721, Ownable, ReentrancyGuard | |
| L | <Constructor> | Public ! |  | ERC721 |
| L | totalSupply | Public ! | | NO! |
| L | whitelistMint | Public ! |  | mintCompliance mintPriceCompliance |
| L | mint | Public ! |  | mintCompliance mintPriceCompliance |
| L | mintForAddress | Public ! |  | mintCompliance onlyOwner |
| L | walletOfOwner | Public ! | | NO! |
| L | tokenURI | Public ! | | NO! |
| L | setRevealed | Public ! |  | onlyOwner |
| L | setCost | Public ! |  | onlyOwner |
| L | setMaxMintAmountPerTx | Public ! |  | onlyOwner |
| L | setHiddenMetadataUri | Public ! |  | onlyOwner |
| L | setUriPrefix | Public ! |  | onlyOwner |
| L | setUriSuffix | Public ! |  | onlyOwner |
| L | setPaused | Public ! |  | onlyOwner |
| L | setMerkleRoot | Public ! |  | onlyOwner |
| L | setWhitelistMintEnabled | Public ! |  | onlyOwner |
| L | withdraw | Public ! |  | onlyOwner nonReentrant |
| L | _mintLoop | Internal  |  | |
| L | _baseURI | Internal  | | |

```

Legend

Symbol	Meaning
	Function can modify state
	Function is payable

Conclusion

The contracts are written systematically. Team found no critical issues. So, it is good to go for production.

Since possible test cases can be unlimited and developer level documentation (code flow diagram with function level description) not provided, for such an extensive smart contract protocol, we provide no such guarantee of future outcomes. We have used all the latest static tools and manual observations to cover maximum possible test cases to scan Everything.

Security state of the reviewed contract is “ Well Secured”.

- ✓ No volatile code.
- ✓ No many high severity issues were found.
- ✓ Low (or very low) level issues have been fixed.

Disclaimer

This is a limited report on our findings based on our analysis, in accordance with good industry practice as of the date of this report, in relation to cybersecurity vulnerabilities and issues in the framework and algorithms based on smart contracts, the details of which are set out in this report. In order to get a full view of our analysis, it is crucial for you to read the full report. While we have done our best in conducting our analysis and producing this report, it is important to note that you should not rely on this report and cannot claim against the team on the basis of what it says or doesn't say, or how team produced it, and it is important for you to conduct your own independent investigations before making any decisions. team go into more detail on this in the below disclaimer below – please make sure to read it in full.

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