

Smart Contract Security Audit V1

Platzee NFT Smart Contract

2/3/2022



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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:** Ethereum
- **Contract Address:** 0x94fbb54Ae4174d5d05C6959b21BC0713682B071e
- **Code:**

<https://rinkeby.etherscan.io/address/0x94fbb54ae4174d5d05c6959b21bc0713682b071e#code>

NFT Information

- Name: PLATZEEGT3
- Total Supply: 100
- Holders:
- Total transactions:

Contracts address deployed to test net (ETH)

PLATZEEGT3 Smart contract on ETH test net to test write functions by the auditor.

<https://rinkeby.etherscan.io/address/0x94fbb54ae4174d5d05c6959b21bc0713682b071e>

Executive Summary

According to our assessment, the customer`s solidity smart contract is **Insecured**.

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 1 critical, 1 high, 0 medium, 4 low, 0 very low-level issues and 0 note in all solidity files of the contract

The files:

PlatzeeNFT.sol

File and Function Level Report

File in Scope:

Contract Name	SHA 256 hash	Contract Address
PlatzeeNFT.sol	1a4595e837119e7b0b4b6c3b10fe25e9e36220fb79445f50a433db03ca9f59b5	0x94fbb54Ae4174d5d05C6959b21BC0713682B071e

- Contract: PlatzeeNFT
- Inherit: ERC721, ERC721Enumerable, ERC721URIStorage
- 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
tokenOfOwnerByIndex	✓	Read / public	Passed
supportsInterface	✓	Read / public	Passed
ownerOf	✓	Read / public	Passed
balanceOf	✓	Read / public	Passed
totalSupply	✓	Read / public	Passed
MAX_SUPPLY	✓	Read / public	Passed
baseURI	✓	Read / public	Passed
getApprovedForAll	✓	Read / public	Passed
tokenByIndex	✓	Read / public	Passed
getApproved	✓	Read / public	Passed

tokenURI	✓	Read / public	Passed
totalSupplyRemaining	✓	Read / public	Passed
mintable	✓	Read / public	Passed
getTokenIds	✓	Read / public	Passed
mint_to_address	✓	Write / public	Passed
approve	✓	Write / public	Passed
safeTransferFrom	✓	Write / public	Passed
safeTransferFrom	✓	Write / public	Passed
transferFrom	✓	Write / public	Passed
setMintable	✓	Write / public	Passed
mint	✓	Write / public	Passed
setBaseURI	✓	Write / public	Passed
mintAll	✓	Write / public	Passed
setApprovalForAll	✓	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 with Notes
7	Integer Overflow and Underflow.	Passed
8	DoS with Revert.	Passed
9	DoS with block gas limit.	Passed
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:

#There aren't any limits per address

Description

When the auditor tested the mint function found one address can mint the total supply (100) for 100 times, every time can mint 1 NFT/ Transaction.

```
function mint() public isMintable {  
  
    uint256 newItemId = _tokenIds.current();  
    _safeMint(msg.sender, newItemId);  
    _tokenIds.increment();  
    totalSupplyRemaining--;  
    console.log("An NFT w/ ID %s has been minted to %s", newItemId,  
msg.sender);  
    emit minted(msg.sender, newItemId);  
}
```

Remediation

The developer should add limits per address like 3 per address. Like this statement.

```
require(_mintAmount <= 3, "Mint limit exceeded." );
```

Status: **Open.**

High:

#There isn't any transferOwnership function or renounceOwnership function

Description

The developer didn't add transfer the ownership to a new address and make it as the controller, which mean the developer is the only controller in this project and the same for renounceOwnership function.

Remediation

The developer has to add ownable library to the contract and make platzeeNFT contract inherit ERC721, ERC721Enumerable, ERC721URIStorage, Ownable.

```
import "@openzeppelin/contracts/access/Ownable.sol";
```

Status: **Open.**

Medium:

No Medium severity vulnerabilities were found

Low:

#Pragm version not fixed

Description

It is a good practice to lock the solidity version for a live deployment (use 0.8.2 instead of ^0.8.0). 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 ^ sign to lock the pragma version.

Status: **Open.**

mint functions aren't payable

Description

The developer adds mint, mintAll, mint_to_address as public write functions not public payable function, this maybe lead to a vulnerability or make unauthorized or unintended state changes.

P.S: There isn't any price for the NFT and there isn't any withdraw function.

```
function mintAll() public isMintable onlyOwner {
    for (uint256 index = 0; index < MAX_SUPPLY; index++) {
        uint256 newItemId = _tokenIds.current();
        _safeMint(msg.sender, newItemId);
        _tokenIds.increment();
        totalSupplyRemaining--;
        console.log("An NFT w/ ID %s has been minted to %s", newItemId,
msg.sender);
    }
    emit minted(msg.sender, 1);
}

function mint_to_address(address addressToMint, uint256 quantity) public isMintable
isNotExceedAvailableSupplyByAmount(quantity) onlyOwner{
    // Get the current tokenId, this starts at 0.

    for (uint256 index = 0; index < quantity; index++) {
        uint256 newItemId = _tokenIds.current();
        _safeMint(addressToMint, newItemId);
    }
}
```

```

        _tokenIds.increment();
        totalSupplyRemaining--;
        console.log("An NFT w/ ID %s has been minted to %s", newItemId,
addressToMint);
    }
}

```

Remediation

The team should make it public and payable, and there any price for NFT should add and add withdraw function to transfer the funds to the owner or any address.

Status: **Open.**

#Missing zero address validation

Description

The developer missing to check the zero address in the most the code , it should be checked for zero address. Otherwise, they may lose the ability to use the privileged functions.

Remediation

Use the require statement to check for zero addresses.

```

require(account != address(0), "ERC20: mint to the zero address");

```

Status: **Open.**

#Unnecessary import Strings library

Description

The developer import Strings library in the main contract and no need for that because it already imported in ERC721 contract so it useless import just costing more ETH gas.

```

import "@openzeppelin/contracts/utils/Strings.sol";

```

Remediation

Remove Strings Library to save ETH gas fees.

Status: **Open.**

Very Low:

No Very Low severity vulnerabilities were found.

Notes:

No Notes were found.

Automatic Testing

1- Check for security

1a4595e837119e7b0b4b6c3b10fe25e9e36220fb79445f50a433db03ca9f59b5

File: PlatzeeN... | Language: solidity | Size: 5106 bytes | Date: 2022-03-02T11:06:06.477Z

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

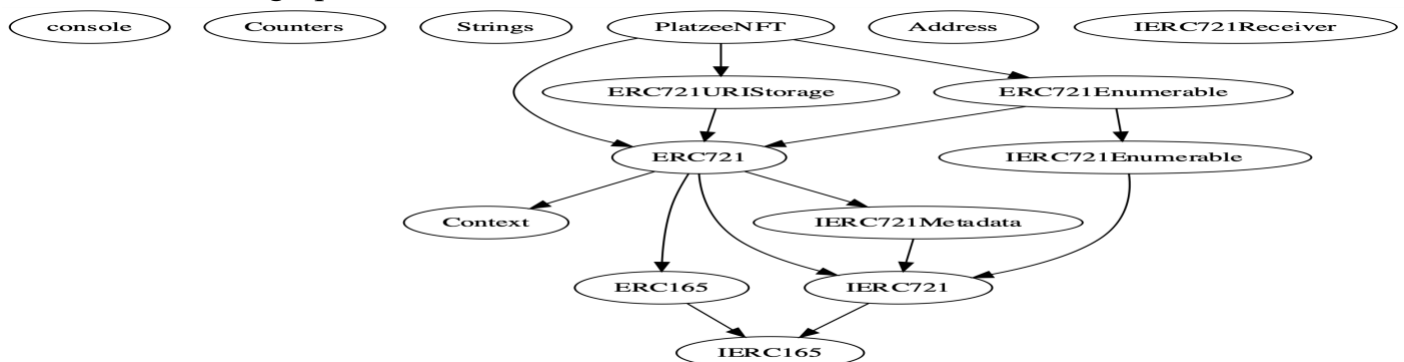
- ☒ ERC20:
'decimals' should be 'uint8'

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/PlatzeeNFT_flat_test.sol

Progress: 1 finished (of 1)

PASS

 testSuite

(tests/PlatzeeNFT_flat_test.sol)

✓ Before all

⛔

✓ Check success

⛔

✓ Check success2

⛔

✓ Check failure

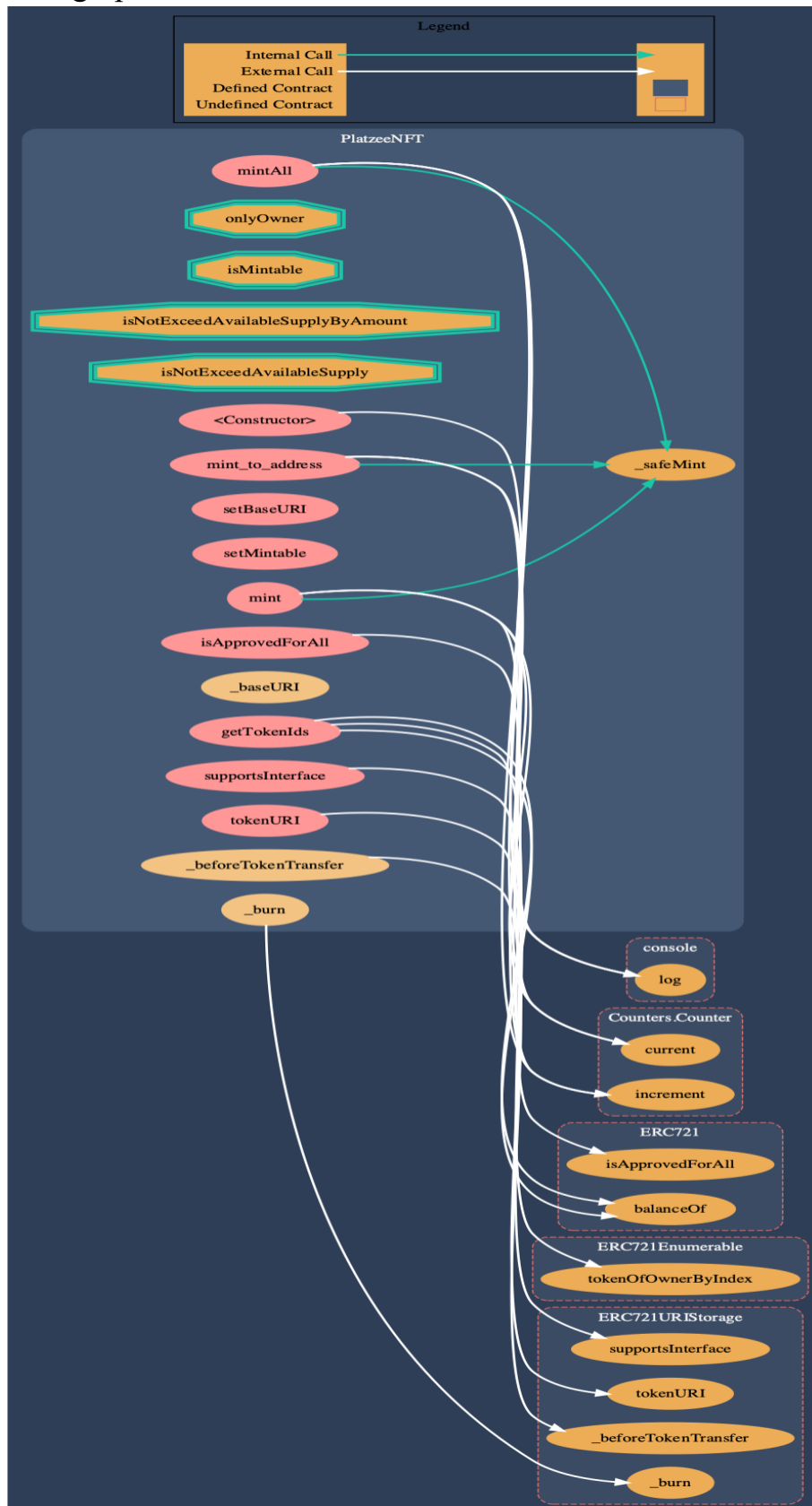
⛔

✓ Check sender and value

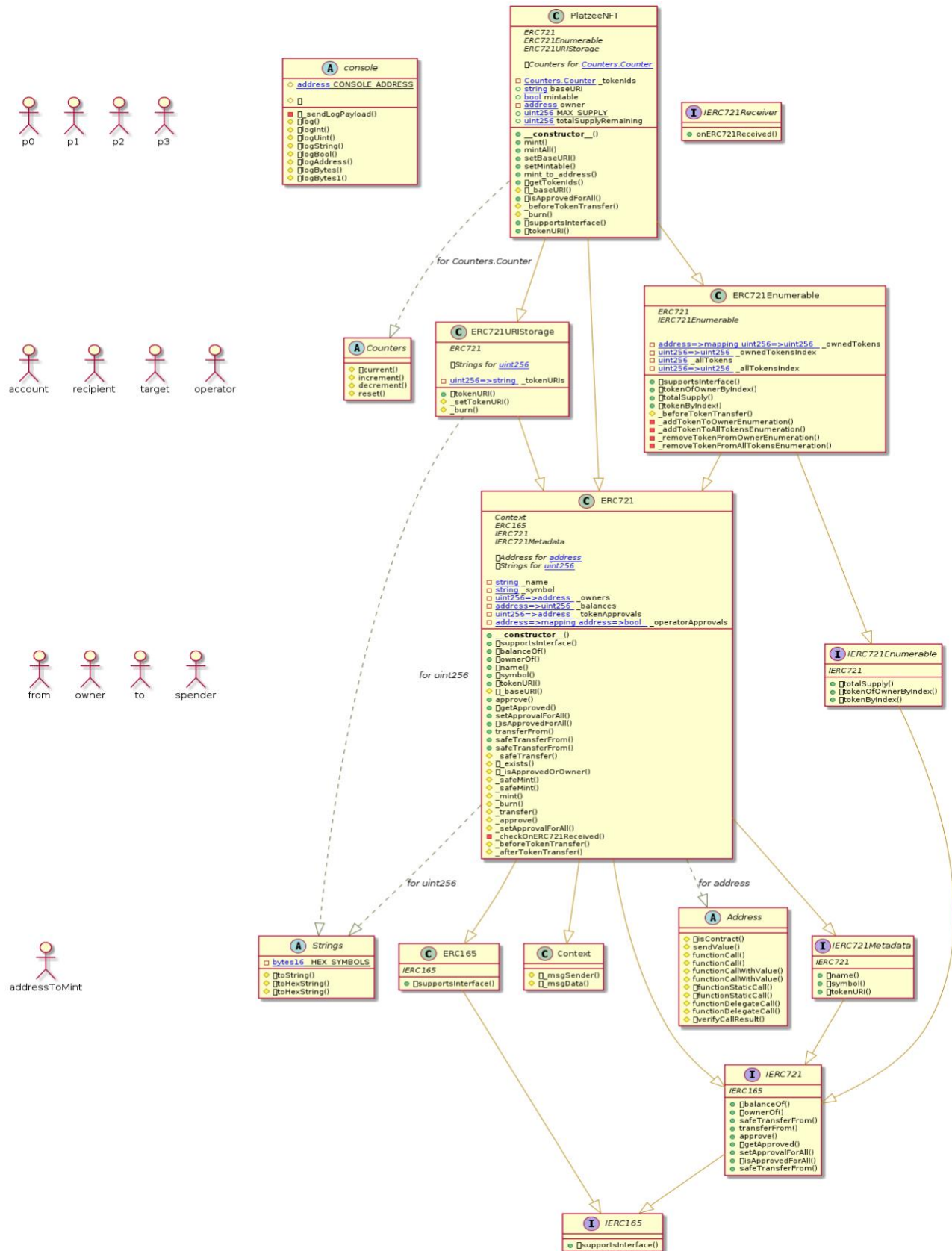
⛔

Result for
tests/PlatzeeNFT_flat_test.sol
Passed: 5
Failed: 0
Time Taken: 0.42s

5- Call graph



Unified Modeling Language (UML)



Functions signature

Sighash		Function Signature
=====		
16279055	=>	isContract (address)
47ee4fe3	=>	_sendLogPayload (bytes)
51973ec9	=>	log ()
6525b5f5	=>	logInt (int256)
9905b744	=>	logUint (uint256)
0bb563d6	=>	logString (string)
ba7ab84e	=>	logBool (bool)
5f91b0af	=>	logAddress (address)
e17bf956	=>	logBytes (bytes)
6f4171c9	=>	logBytes1 (bytes1)
f808da20	=>	log (address, address, address, string)
0e378994	=>	log (address, address, address, bool)
665bf134	=>	log (address, address, address, address)
ad04a8d1	=>	current (Counter)
e2bee435	=>	increment (Counter)
854ec98e	=>	decrement (Counter)
440d212a	=>	reset (Counter)
6900a3ae	=>	toString (uint256)
8fba8d5c	=>	toHexString (uint256)
63e1cbea	=>	toHexString (uint256, uint256)
119df25f	=>	_msgSender ()
8b49d47e	=>	_msgData ()
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)
42842e0e	=>	safeTransferFrom (address, address, uint256)
23b872dd	=>	transferFrom (address, address, uint256)
095ea7b3	=>	approve (address, uint256)
081812fc	=>	getApproved (uint256)
a22cb465	=>	setApprovalForAll (address, bool)
e985e9c5	=>	isApprovedForAll (address, address)
b88d4fde	=>	safeTransferFrom (address, address, uint256, bytes)
18160ddd	=>	totalSupply ()
2f745c59	=>	tokenOfOwnerByIndex (address, uint256)
4f6ccce7	=>	tokenByIndex (uint256)
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)
1fd01de1 => _checkOnERC721Received(address,address,uint256,bytes)
cad3be83 => _beforeTokenTransfer(address,address,uint256)
8f811a1c => _afterTokenTransfer(address,address,uint256)
69025b5f => _addTokenToOwnerEnumeration(address,uint256)
e03d890b => _addTokenToAllTokensEnumeration(uint256)
68df0d53 => _removeTokenFromOwnerEnumeration(address,uint256)
4cbb4a0a => _removeTokenFromAllTokensEnumeration(uint256)
01538868 => _setTokenURI(uint256,string)
1249c58b => mint()
595882b3 => mintAll()
55f804b3 => setBaseURI(string)
285d70d4 => setMintable(bool)
0eb2df91 => mint_to_address(address,uint256)
67f718a9 => getTokenIds()
```

Automatic general report




Files Description Table

File Name	SHA-1 Hash
/Users/macbook/Desktop/smart contracts/PlatzeeNFT.sol	5c648c301cb3f3ad0e395264c60c174f2e774f13

Contracts Description Table

Contract	Type	Bases		
:-----: :-----: :-----: :-----: :-----:				
L	**Function Name**	**Visibility**	**Mutability**	
Modifiers				
console	Library			
L _sendLogPayload	Private			
L log	Internal			
L logInt	Internal			
L logUint	Internal			
L logString	Internal			
L logBool	Internal			
L logAddress	Internal			
L logBytes	Internal			
L log	Internal			
L log	Internal			
L log	Internal			
L log	Internal			
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			
Context	Implementation			
L _msgSender	Internal			
L _msgData	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 | transferFrom | External |  |  | NO |
| L | approve | External |  |  | NO |
| L | getApproved | External |  | | NO |
| L | setApprovalForAll | External |  |  | NO |
| L | isApprovedForAll | External |  | | NO |
| L | safeTransferFrom | External |  |  | NO |
| | | |
| **IERC721Enumerable** | Interface | IERC721 | | |
| L | totalSupply | External |  | | NO |
| L | tokenOfOwnerByIndex | External |  | | NO |
| L | tokenByIndex | 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 | _checkOnERC721Received | Private | 🔒 | 🔍 | | |
| L | _beforeTokenTransfer | Internal | 🔒 | 🔍 | | |
| L | _afterTokenTransfer | Internal | 🔒 | 🔍 | | |
| | | | |
| **ERC721Enumerable** | Implementation | ERC721, IERC721Enumerable | | |
| L | supportsInterface | Public | ! | NO! |
| L | tokenOfOwnerByIndex | Public | ! | NO! |
| L | totalSupply | Public | ! | NO! |
| L | tokenByIndex | Public | ! | NO! |
| L | _beforeTokenTransfer | Internal | 🔒 | 🔍 | | |
| L | _addTokenToOwnerEnumeration | Private | 🔒 | 🔍 | | |
| L | _addTokenToAllTokensEnumeration | Private | 🔒 | 🔍 | | |
| L | _removeTokenFromOwnerEnumeration | Private | 🔒 | 🔍 | | |
| L | _removeTokenFromAllTokensEnumeration | Private | 🔒 | 🔍 | | |
| | | | |
| **ERC721URIStorage** | Implementation | ERC721 | | |
| L | tokenURI | Public | ! | NO! |
| L | _setTokenURI | Internal | 🔒 | 🔍 | | |
| L | _burn | Internal | 🔒 | 🔍 | | |
| | | | |
| **PlatzeeNFT** | Implementation | ERC721, ERC721Enumerable, ERC721URIStorage | | |
| L | <Constructor> | Public | ! | 🔍 | ERC721 |
| L | mint | Public | ! | 🔍 | isMintable |
| L | mintAll | Public | ! | 🔍 | isMintable onlyOwner |
| L | setBaseURI | Public | ! | 🔍 | onlyOwner |
| L | setMintable | Public | ! | 🔍 | onlyOwner |
| L | mint_to_address | Public | ! | 🔍 | isMintable
isNotExceedAvailableSupplyByAmount onlyOwner |
| L | getTokenIds | Public | ! | NO! | | |
| L | _baseURI | Internal | 🔒 | | |
| L | isApprovedForAll | Public | ! | NO! |
| L | _beforeTokenTransfer | Internal | 🔒 | 🔍 | | |
| L | _burn | Internal | 🔒 | 🔍 | | |
| L | supportsInterface | Public | ! | NO! |
| L | tokenURI | Public | ! | NO! |

```

Legend

Symbol	Meaning
:-----:	-----
🔍	Function can modify state
🔒	Function is payable

Conclusion

Team found high issues. So, it is not 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 “ In secured”.

✓ Has high severity issues were found.

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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