Smart Contract
Security Audit
V1

Stompers Smart Contract

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https://saferico.com/

business@saferico.com
https://t.me/SFI_ANN

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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**: 0xe6731cf66868e3e41f34ea0aec3280a9d5320bf3
- **Code:**

https://rinkeby.etherscan.io/address/0x10924039ccbe60804f4853a40bf3999bd64a1ba4#code

NFT Information

- Name: STM
- Total Supply: 5555
- Holders:
- Total transactions:

Contracts address deployed to test net (ETH)

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

https://rinkeby.etherscan.io/address/0xe6731cf66868e3e41f34ea0aec3280a9d5320bf3

Executive Summary

According to our assessment, the customer`s solidity smart contract is **Well-Secured**.

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, 2 low, 0 very low-level issues and 0 note in all solidity files of the contract

The files:

Stompers.sol

File and Function Level Report

File in Scope:

Contract Name	SHA 256 hash	Contract Address
Stompers.sol	**16bb12fc82128ed87f7414b9e21025d2e5024d5ca6ccf9857e6b712c8bdac082**	0xe6731cf66868e3e41f34ea0aec3280a9d5320bf3

- Contract: stompers
- Inherit: ERC721Enumerable, Ownable
- 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**
isWhitelisted	✓	Read / public	**Passed**
balanceOf	✓	Read / public	**Passed**
Owner	✓	Read / public	**Passed**
notRevealedUri	✓	Read / public	**Passed**
maxMintAmount	✓	Read / public	**Passed**
getApprovedForAll	✓	Read / public	**Passed**
ownerOf	✓	Read / public	**Passed**
getApproved	✓	Read / public	**Passed**

tokenURI	✓	Read / public	**Passed**
tokenByIndex	✓	Read / public	**Passed**
tokenOfOwnerByIndex	✓	Read / public	**Passed**
onlyWhitelisted	✓	Read / public	**Passed**
nftPerAddressLimit	✓	Read / public	**Passed**
whitelistedAddresses	✓	Read / public	**Passed**
paused	✓	Read / public	**Passed**
revealed	✓	Read / public	**Passed**
maxSupply	✓	Read / public	**Passed**
WalletOfOwner	✓	Read / public	**Passed**
totalSupply	✓	Read / public	**Passed**
addressMintedBalance	✓	Read / public	**Passed**
baseExtension	✓	Read / public	**Passed**
baseURI	✓	Read / public	**Passed**
reveal	✓	Write / public	**Passed**
approve	✓	Write / public	**Passed**
safeTransferFrom	✓	Write / public	**Passed**
safeTransferFrom	✓	Write / public	**Passed**
setBaseExtension	✓	Write / public	**Passed**
mint	✓	Write / payable	**Passed**
transferOwnership	✓	Write / public	**Passed**
setApprovalForAll	✓	Write / public	**Passed**
transferFrom	✓	Write / public	**Passed**
setPaused	✓	Write / public	**Passed**
setBaseURI	✓	Write / public	**Passed**
setmaxMintAmount	✓	Write / public	**Passed**
renounceOwnership	✓	Write / public	**Passed**

withdraw	✓	Write / payable	**Passed**
setCost	✓	Write / public	**Passed**
setNftPerAddressLimit	✓	Write / public	**Passed**
setOnlyWhitelisted	✓	Write / public	**Passed**
setNotRevealedURI	✓	Write / public	**Passed**
whitelistUsers	✓	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:

#Multiple pragma statements

Line	Pragma
11	pragma solidity ^0.8.0;
34	pragma solidity ^0.8.0;
174	pragma solidity ^0.8.0;
200	pragma solidity ^0.8.1;
228	pragma solidity ^0.8.0;
297	pragma solidity ^0.8.0;
516	pragma solidity ^0.8.0;
544	pragma solidity ^0.8.0;
593	pragma solidity ^0.8.0;
998	pragma solidity ^0.8.0;
1160	pragma solidity ^0.8.0;
1229	pragma solidity >=0.7.0 <0.9.0;

Description

There are multiple pragma statements in the code. Only the compiler version 0.8.13 will work with the code, but keeping only one pragma statement helps in maintaining readability of the code.

Remediation
Keep a single pragma statement.

Status: Closed. Fixed In version 2

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

Description

The owner can pause and un Pause mint.
The owner can add any address to whitelist mint stage.
The owner can change the price in WL or non WL stage.

```
function setCost (uint256 _newCost) public onlyOwner {
  cost = _newCost;
}

function pause(bool _state) public onlyOwner {
  paused = _state;
}

function setOnlyWhitelisted(bool _state) public onlyOwner {
  onlyWhitelisted = _state;
}

function whitelistUsers(address[] calldata _users) public onlyOwner {
  delete whitelistedAddresses;
  whitelistedAddresses = _users;
}
```

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:

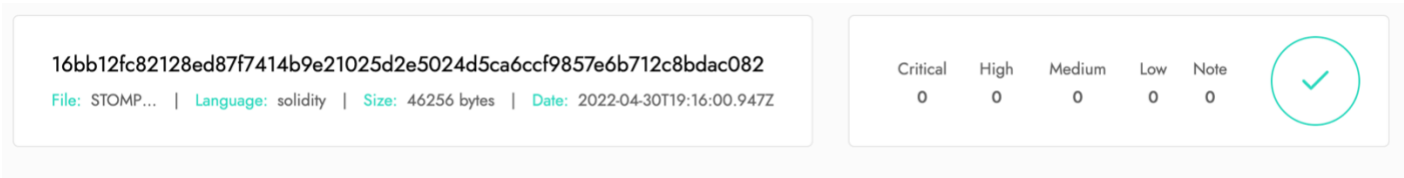
No Very Low severity vulnerabilities were found.

Notes:

No Notes were found.

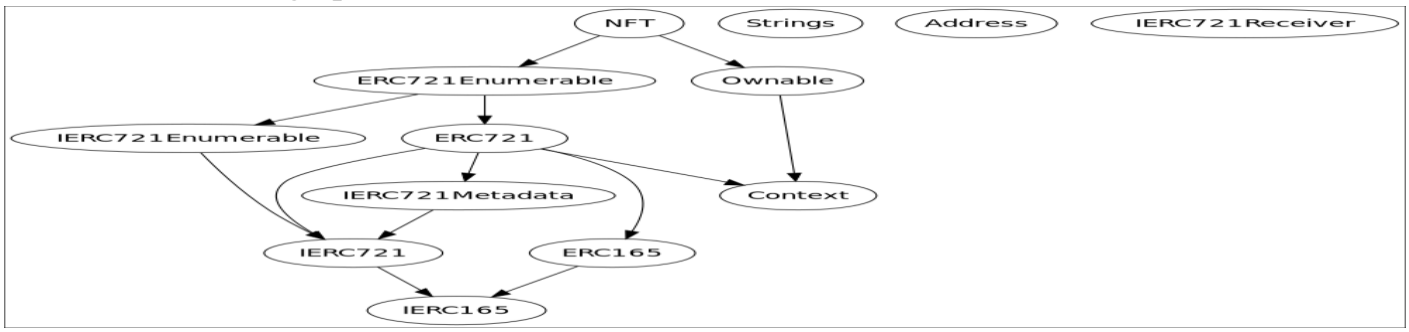
Automatic Testing

1- Check for security

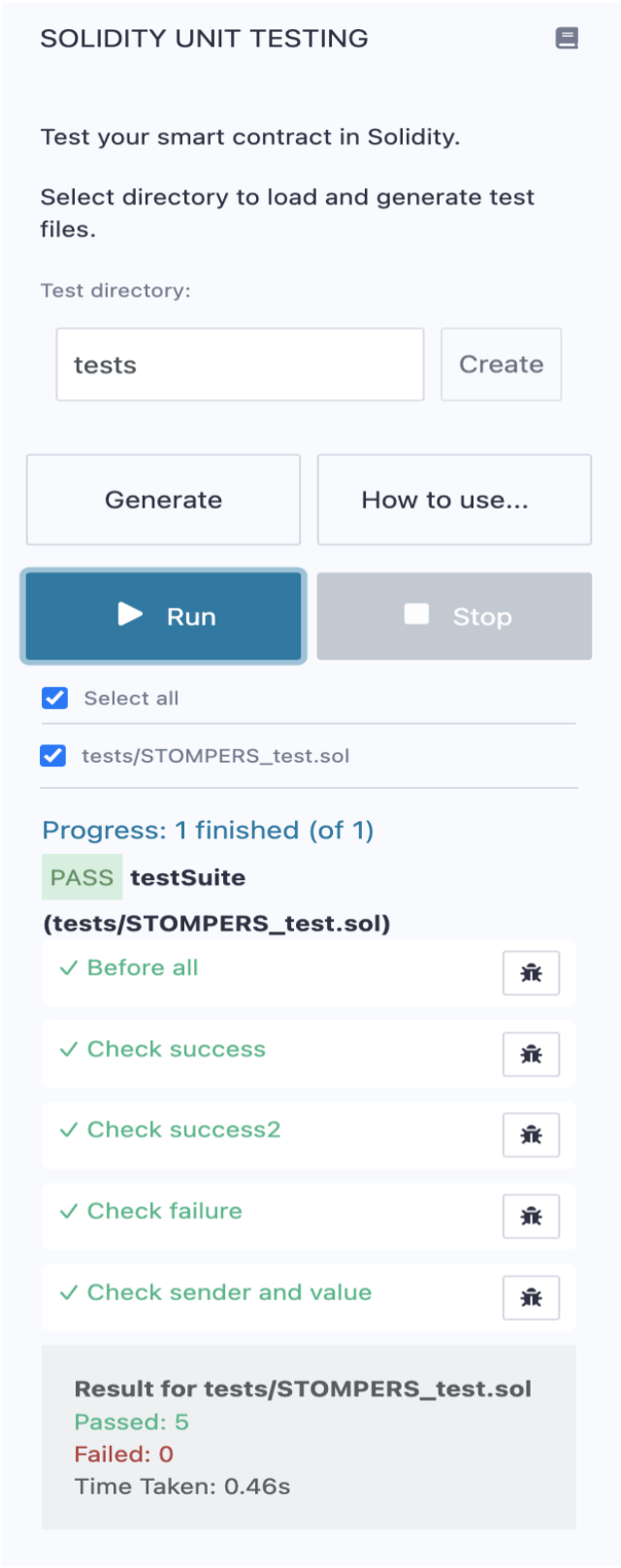


2- SOLIDITY STATIC ANALYSIS

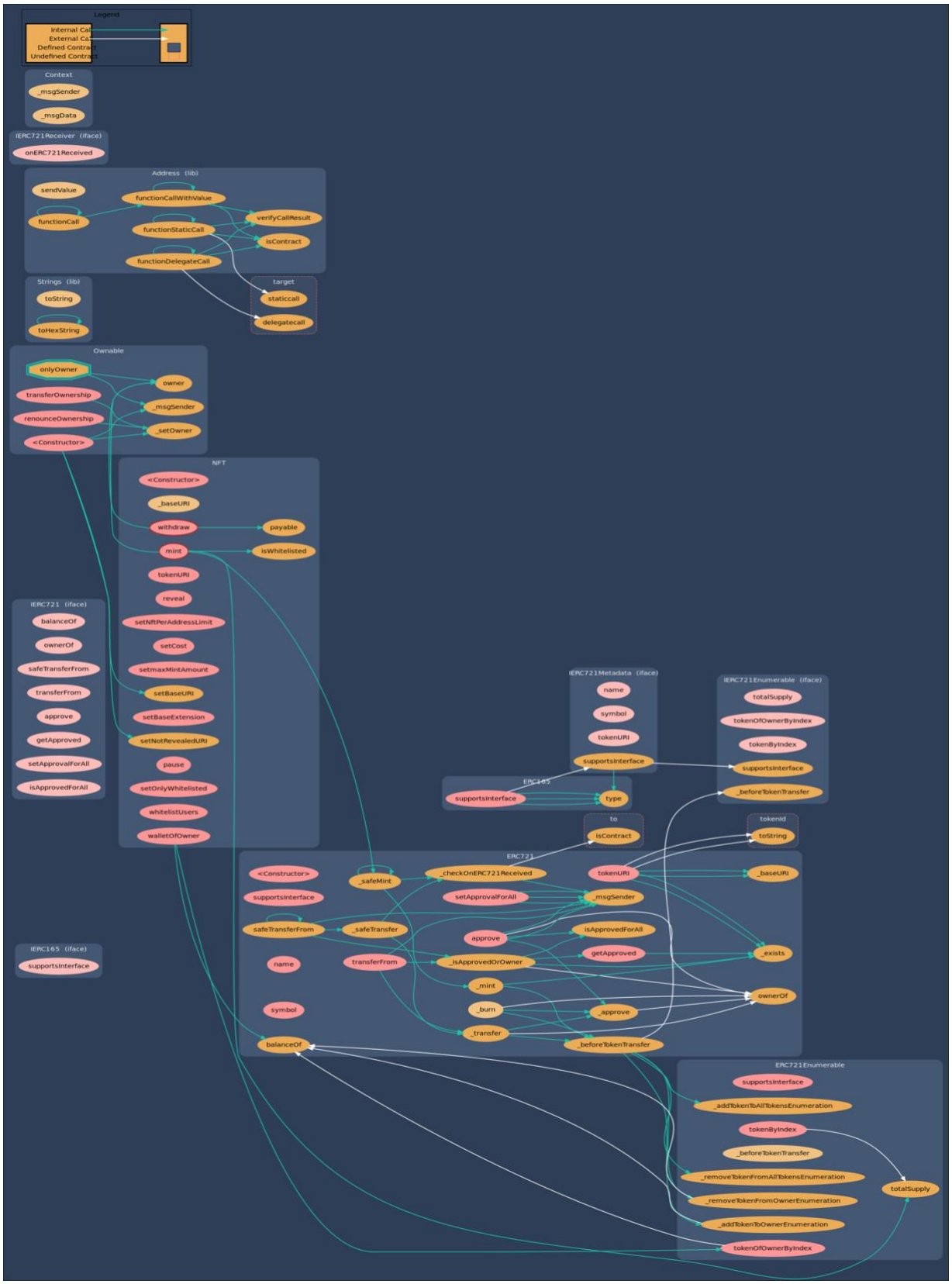
3- Inheritance graph



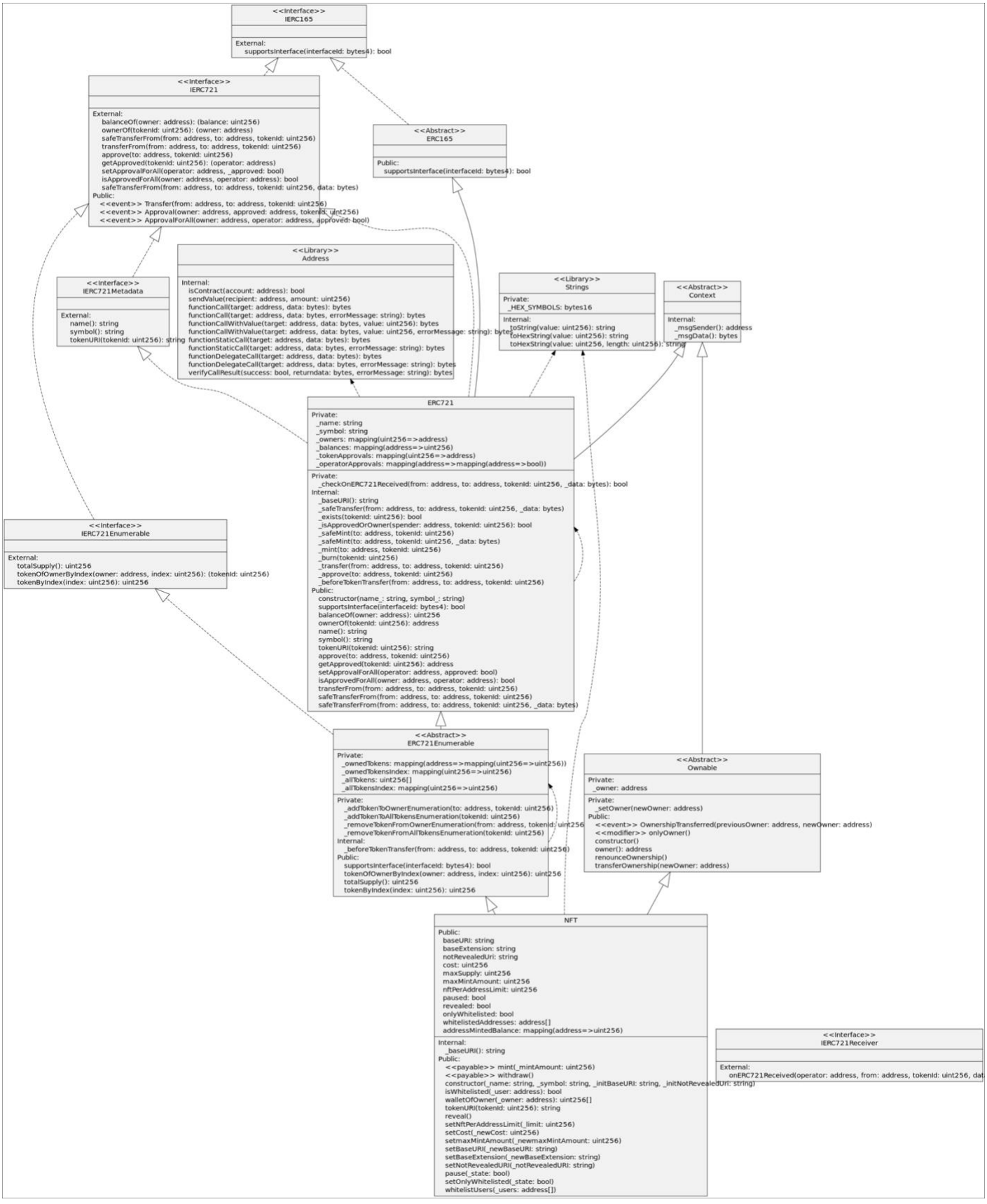
4- SOLIDITY UNIT TESTING



5- Call graph


Legend
Internal Call
External Call
Defined Contract
Undefined Contract
Context
_msgSender
_msgData
IERC721Receiver (iface)
onERC721Received
Address (lib)
sendValue
functionCallWithValue
functionCall
verifyCallResult
functionStaticCall
isContract
functionDelegateCall
target
staticcall
delegatecall
Strings (lib)
toString
toHexString
Ownable
onlyOwner
owner
transferOwnership
_msgSender
renounceOwnership
_setOwner
<Constructor>
NFT
<Constructor>
_baseURI
withdraw
payable
mint
isWhitelisted
tokenURI
reveal
setNftPerAddressLimit
setCost
setmaxMintAmount
setBaseURI
setBaseExtension
setNotRevealedURI
pause
setOnlyWhitelisted
whitelistUsers
walletOfOwner
IERC721 (iface)
balanceOf
ownerOf
safeTransferFrom
transferFrom
approve
getApproved
setApprovalForAll
isApprovedForAll
IERC721Metadata (iface)
name
symbol
tokenURI
supportsInterface
IERC721Enumerable (iface)
totalSupply
tokenOfOwnerByIndex
tokenByIndex
supportsInterface
_beforeTokenTransfer
IERC165
supportsInterface
type
to
isContract
tokenId
toString
ERC721
<Constructor>
supportsInterface
_safeMint
checkOnERC721Received
setApprovalForAll
tokenURI
_baseURI
_msgSender
safeTransferFrom
_safeTransfer
approve
isApprovedForAll
name
transferFrom
_isApprovedOrOwner
getApproved
_exists
_mint
ownerOf
symbol
_burn
_approve
_transfer
balanceOf
_beforeTokenTransfer
IERC165 (iface)
supportsInterface
ERC721Enumerable
supportsInterface
_addTokenToAllTokensEnumeration
tokenByIndex
_beforeTokenTransfer
_removeTokenFromAllTokensEnumeration
totalSupply
_removeTokenFromOwnerEnumeration
_addTokenToOwnerEnumeration
tokenOfOwnerByIndex

Unified Modeling Language (UML)



Functions signature

```
Sighash   |   Function Signature
========================
16279055  =>  isContract(address)
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)
6900a3ae  =>  toString(uint256)
8fba8d5c  =>  toHexString(uint256)
63e1cbea  =>  toHexString(uint256,uint256)
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)
06fdde03  =>  name()
95d89b41  =>  symbol()
c87b56dd  =>  tokenURI(uint256)
150b7a02  =>  onERC721Received(address,address,uint256,bytes)
119df25f  =>  _msgSender()
8b49d47e  =>  _msgData()
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)
1fd01de1  =>  _checkOnERC721Received(address,address,uint256,bytes)
cad3be83  =>  _beforeTokenTransfer(address,address,uint256)
69025b5f  =>  _addTokenToOwnerEnumeration(address,uint256)
e03d890b  =>  _addTokenToAllTokensEnumeration(uint256)
68df0d53  =>  _removeTokenFromOwnerEnumeration(address,uint256)
4cbb4a0a  =>  _removeTokenFromAllTokensEnumeration(uint256)
8da5cb5b  =>  owner()
715018a6  =>  renounceOwnership()
```

```
f2fde38b  =>  transferOwnership(address)
fc201122  =>  _setOwner(address)
a0712d68  =>  mint(uint256)
3af32abf  =>  isWhitelisted(address)
438b6300  =>  walletOfOwner(address)
a475b5dd  =>  reveal()
d0eb26b0  =>  setNftPerAddressLimit(uint256)
44a0d68a  =>  setCost(uint256)
7f00c7a6  =>  setmaxMintAmount(uint256)
55f804b3  =>  setBaseURI(string)
da3ef23f  =>  setBaseExtension(string)
f2c4ce1e  =>  setNotRevealedURI(string)
02329a29  =>  pause(bool)
3c952764  =>  setOnlyWhitelisted(bool)
edec5f27  =>  whitelistUsers(address[])
3ccfd60b  =>  withdraw()
```

Automatic general report

Files Description Table

File Name	SHA-1 Hash
/Users/macbook/Desktop/smart contracts/STOMPERS.sol	0f2f9fe90eb386954e7d244761c0551d0d89f93e

Contracts Description Table

Contract	Type	Bases		
└	**Function Name**	**Visibility**	**Mutability**	**Modifiers**
IERC165	Interface			
└	supportsInterface	External ❗		NO❗
IERC721	Interface	IERC165		
└	balanceOf	External ❗		NO❗
└	ownerOf	External ❗		NO❗
└	safeTransferFrom	External ❗	🛑	NO❗
└	transferFrom	External ❗	🛑	NO❗
└	approve	External ❗	🛑	NO❗
└	getApproved	External ❗		NO❗
└	setApprovalForAll	External ❗	🛑	NO❗
└	isApprovedForAll	External ❗		NO❗
└	safeTransferFrom	External ❗	🛑	NO❗
IERC721Enumerable	Interface	IERC721		
└	totalSupply	External ❗		NO❗
└	tokenOfOwnerByIndex	External ❗		NO❗
└	tokenByIndex	External ❗		NO❗
ERC165	Implementation	IERC165		
└	supportsInterface	Public ❗		NO❗
Strings	Library			
└	toString	Internal 🔒		
└	toHexString	Internal 🔒		
└	toHexString	Internal 🔒		
Address	Library			
└	isContract	Internal 🔒		
└	sendValue	Internal 🔒	🛑	
└	functionCall	Internal 🔒	🛑	
└	functionCall	Internal 🔒	🛑	
└	functionCallWithValue	Internal 🔒	🛑	
└	functionCallWithValue	Internal 🔒	🛑	
└	functionStaticCall	Internal 🔒		
└	functionStaticCall	Internal 🔒		

└	functionDelegateCall	Internal 🔒	🛑		
└	functionDelegateCall	Internal 🔒	🛑		
└	verifyCallResult	Internal 🔒			
IERC721Metadata	Interface	IERC721			
└	name	External ❗		NO❗	
└	symbol	External ❗		NO❗	
└	tokenURI	External ❗		NO❗	
IERC721Receiver	Interface				
└	onERC721Received	External ❗	🛑	NO❗	
Context	Implementation				
└	_msgSender	Internal 🔒			
└	_msgData	Internal 🔒			
ERC721	Implementation	Context, ERC165, IERC721, IERC721Metadata			
└	<Constructor>	Public ❗	🛑	NO❗	
└	supportsInterface	Public ❗		NO❗	
└	balanceOf	Public ❗		NO❗	
└	ownerOf	Public ❗		NO❗	
└	name	Public ❗		NO❗	
└	symbol	Public ❗		NO❗	
└	tokenURI	Public ❗		NO❗	
└	_baseURI	Internal 🔒			
└	approve	Public ❗	🛑	NO❗	
└	getApproved	Public ❗		NO❗	
└	setApprovalForAll	Public ❗	🛑	NO❗	
└	isApprovedForAll	Public ❗		NO❗	
└	transferFrom	Public ❗	🛑	NO❗	
└	safeTransferFrom	Public ❗	🛑	NO❗	
└	safeTransferFrom	Public ❗	🛑	NO❗	
└	_safeTransfer	Internal 🔒	🛑		
└	_exists	Internal 🔒			
└	_isApprovedOrOwner	Internal 🔒			
└	_safeMint	Internal 🔒	🛑		
└	_safeMint	Internal 🔒	🛑		
└	_mint	Internal 🔒	🛑		
└	_burn	Internal 🔒	🛑		
└	_transfer	Internal 🔒	🛑		
└	_approve	Internal 🔒	🛑		
└	_checkOnERC721Received	Private 🔐	🛑		
└	_beforeTokenTransfer	Internal 🔒	🛑		
ERC721Enumerable	Implementation	ERC721, IERC721Enumerable			
└	supportsInterface	Public ❗		NO❗	
└	tokenOfOwnerByIndex	Public ❗		NO❗	
└	totalSupply	Public ❗		NO❗	
└	tokenByIndex	Public ❗		NO❗	
└	_beforeTokenTransfer	Internal 🔒	🛑		
└	_addTokenToOwnerEnumeration	Private 🔐	🛑		
└	_addTokenToAllTokensEnumeration	Private 🔐	🛑		
└	_removeTokenFromOwnerEnumeration	Private 🔐	🛑		
└	_removeTokenFromAllTokensEnumeration	Private 🔐	🛑		

Ownable	Implementation	Context		
└	<Constructor>	Public ❗	🛑	NO❗
└	owner	Public ❗		NO❗
└	renounceOwnership	Public ❗	🛑	onlyOwner
└	transferOwnership	Public ❗	🛑	onlyOwner
└	_setOwner	Private 🔐	🛑	
NFT	Implementation	ERC721Enumerable, Ownable		
└	<Constructor>	Public ❗	🛑	ERC721
└	_baseURI	Internal 🔒		
└	mint	Public ❗	💵	NO❗
└	isWhitelisted	Public ❗		NO❗
└	walletOfOwner	Public ❗		NO❗
└	tokenURI	Public ❗		NO❗
└	reveal	Public ❗	🛑	onlyOwner
└	setNftPerAddressLimit	Public ❗	🛑	onlyOwner
└	setCost	Public ❗	🛑	onlyOwner
└	setmaxMintAmount	Public ❗	🛑	onlyOwner
└	setBaseURI	Public ❗	🛑	onlyOwner
└	setBaseExtension	Public ❗	🛑	onlyOwner
└	setNotRevealedURI	Public ❗	🛑	onlyOwner
└	pause	Public ❗	🛑	onlyOwner
└	setOnlyWhitelisted	Public ❗	🛑	onlyOwner
└	whitelistUsers	Public ❗	🛑	onlyOwner
└	withdraw	Public ❗	💵	onlyOwner

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.
✓ Not many 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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