

Smart Contract Security Audit V1

Envo Verse 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:** Ethereum
- **Contract Address:** 0x9e69fF516FE879905284B1334198E47962187225
- **Code:**

<https://rinkeby.etherscan.io/address/0x9e69ff516fe879905284b1334198e47962187225#code>

NFT Information

- Name: ENVO
- Total Supply: 10000
- Holders:
- Total transactions:

Contracts address deployed to test net (ETH)

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

<https://rinkeby.etherscan.io/address/0x1f4ff02422b9b476be6fd99fba4d5680c1d0a9cc>

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

The files:

envoContract.sol

File and Function Level Report

File in Scope:

Contract Name	SHA 256 hash	Contract Address
envoContract.sol	64a3e6f48ca0c5326d4ca035bf6537c3667b60c136c556ced02874c8212a7ca	0x9e69fF516FE879905284B1334198E47962187225

- Contract: StrongSpartans
- 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
currentPrice	✓	Read / public	Passed
supportsInterface	✓	Read / public	Passed
baseExtension	✓	Read / public	Passed
balanceOf	✓	Read / public	Passed
Owner	✓	Read / public	Passed
contractCreator	✓	Read / public	Passed
addressMintedBalance	✓	Read / public	Passed
getApprovedForAll	✓	Read / public	Passed
endDate	✓	Read / public	Passed
getApproved	✓	Read / public	Passed

ownerOf	✓	Read / public	Passed
baseTokenURI	✓	Read / public	Passed
tokenByIndex	✓	Read / public	Passed
tokenOfOwnerByIndex	✓	Read / public	Passed
giveRightNumber	✓	Read / public	Passed
MAX_ELEMENTS	✓	Read / public	Passed
META_REVEAL	✓	Read / public	Passed
MAX_VIPWA	✓	Read / public	Passed
isActive	✓	Read / public	Passed
MAX_ENVOS	✓	Read / public	Passed
RES_ENVOS	✓	Read / public	Passed
showBCtime	✓	Read / public	Passed
endPrice	✓	Read / public	Passed
ENVOSAVAIL	✓	Read / public	Passed
VIPMerkleRoot	✓	Read / public	Passed
vipPrice	✓	Read / public	Passed
vipDate	✓	Read / public	Passed
vipCounter	✓	Read / public	Passed
VIPchecker	✓	Read / public	Passed
VIP_ENVOS	✓	Read / public	Passed
showCurrentPrice	✓	Read / public	Passed
startDate	✓	Read / public	Passed
startPrice	✓	Read / public	Passed
showVipProof	✓	Read / public	Passed
setEndPrice	✓	Write / public	Passed
approve	✓	Write / public	Passed
safeTransferFrom	✓	Write / public	Passed

safeTransferFrom	✓	Write / public	Passed
setBaseURI	✓	Write / public	Passed
setEndDate	✓	Write / public	Passed
mint	✓	Write / payable	Passed
setStartDate	✓	Write / public	Passed
transferOwnership	✓	Write / public	Passed
setApprovalForAll	✓	Write / public	Passed
transferFrom	✓	Write / public	Passed
setStartPrice	✓	Write / public	Passed
setMerkleProof	✓	Write / public	Passed
setVIPDate	✓	Write / public	Passed
renounceOwnership	✓	Write / public	Passed
withdraw	✓	Write / payable	Passed
VIPmint	✓	Write / payable	Passed
changeOwner	✓	Write / public	Passed
setVIPMerkleRoot	✓	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:

No critical severity vulnerabilities were found.

High:

#Can't change the owner using this function

Description

The developer adds changeOwner to transfer the ownership to a new address after the auditor used this function the old owner was still the owner of the contract and can control everything on the contract and the new one can't control anything.

```
function changeOwner(address newOwner) public onlyOwner {  
    contractCreator = newOwner;  
}
```

Remediation

The team have to remove this function and the team have another transferOwnership function in your contract and it works very well and to save some ETH Gas.

Status: **Closed**. Fixed in version2.

Medium:

No Medium severity vulnerabilities were found

Low:

#Pragma version not fixed

Description

It is a good practice to lock the solidity version for a live deployment (use 0.8.10 instead of ^0.8.10). 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: **Closed**. Fixed in version2.

Functions that do not have a function visibility

Description

Functions that do not have a function visibility type specified are public by default. This can lead to a vulnerability if a developer forgot to set the visibility and a malicious user is able to make unauthorized or unintended state changes.

```
constructor(  
    string memory _name,  
    string memory _symbol,  
    string memory _initBaseURI  
) ERC721(_name, _symbol) {  
    contractCreator = msg.sender;  
    setBaseURI(_initBaseURI);  
    mint(contractCreator, 14); // mint the first 14 to the founders envolabs  
wallet  
}
```

Remediation

The team should add the name, symbol, and BaseURI in the constructor and the team have write function if you want to change BaseURI it anytime.

Status: [Acknowledged](#).

#Use of block.timestamp for comparisons

Description

The value of block.timestamp can be manipulated by the miner.
And conditions with strict equality is difficult to achieve block.timestamp

```
uint256 currentTime = block.timestamp;
```

Remediation

Avoid use of block.timestamp

Status: [Acknowledged](#)

Very Low:

No Very Low severity vulnerabilities were found.

Notes:

No Very Notes were found.

Automatic Testing

1- Check for security

64a3e6f48ca0c5326d4ca035bf6537c3667b60c136c556cede02874c8212a7ca

File: envoCon... | Language: solidity | Size: 11722 bytes | Date: 2022-02-26T19:47:12.110Z

Critical	High	Medium	Low	Note
0	0	0	0	0

✓

2- SOLIDITY STATIC ANALYSIS

SOLIDITY STATIC ANALYSIS

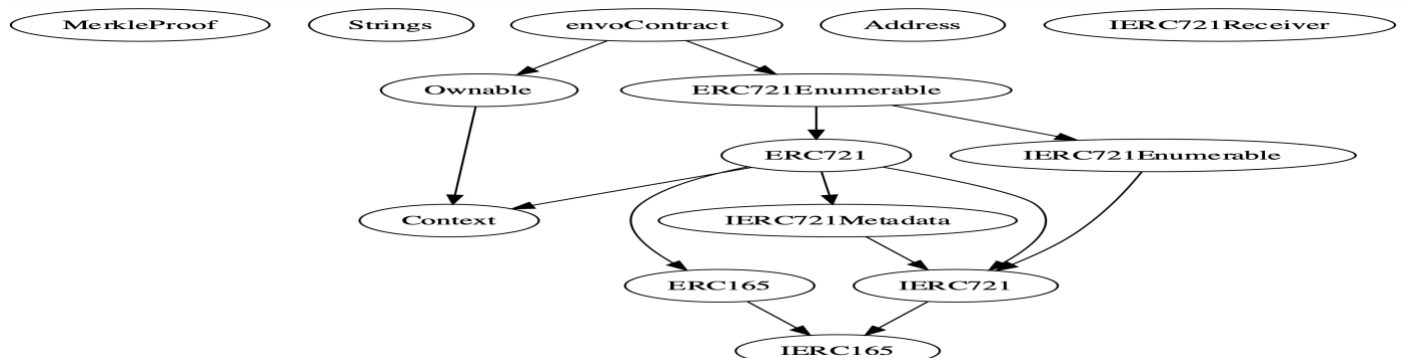
☒ Select all ☒ Autorun Run

- 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/envoContract_test.sol

Progress: 1 finished (of 1)

PASS testSuite

(tests/envoContract_test.sol)

✓ Before all

✓ Check success

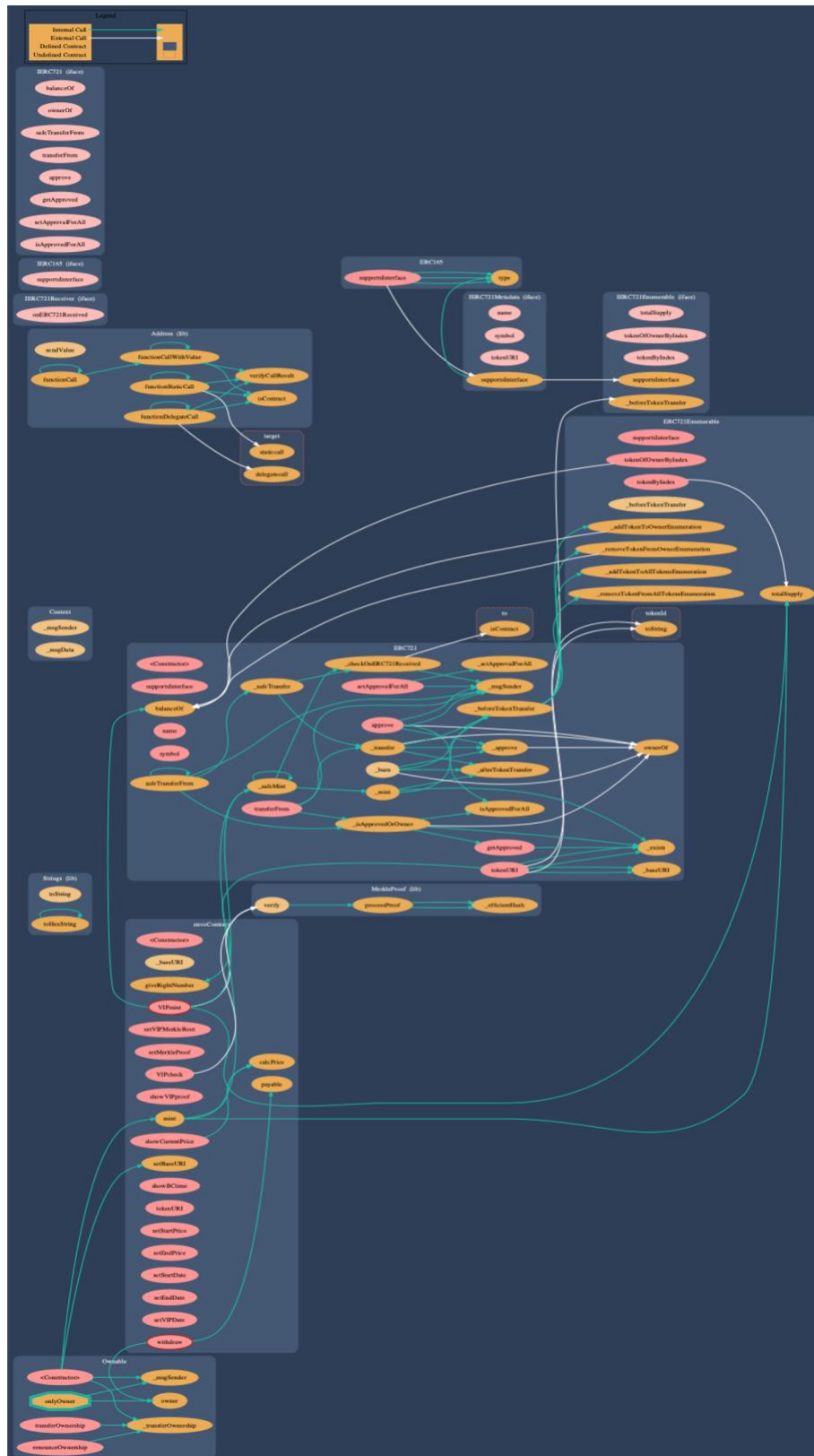
✓ Check success2

✓ Check failure

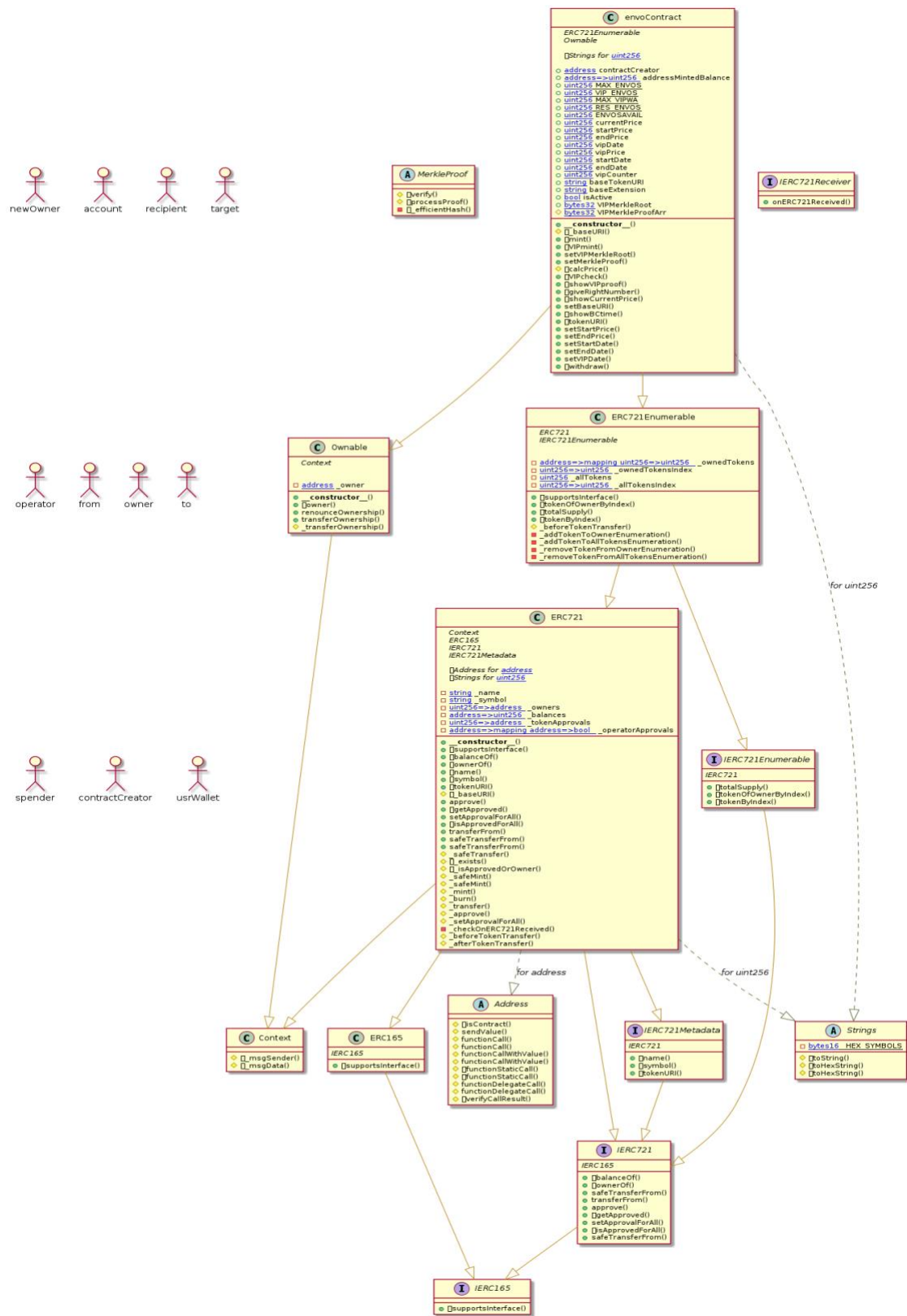
✓ Check sender and value

Result for
tests/envoContract_test.sol
Passed: 5
Failed: 0
Time Taken: 0.50s

5- Call graph



Unified Modeling Language (UML)



Functions signature

Sighash		Function Signature
=====		
16279055	=>	isContract (address)
52090749	=>	setMerkleProof (bytes32 [])
5a9a49c7	=>	verify (bytes32 [], bytes32, bytes32)
62702a6b	=>	processProof (bytes32 [], bytes32)
41ed615b	=>	_efficientHash (bytes32, bytes32)
6900a3ae	=>	toString (uint256)
8fba8d5c	=>	toHexString (uint256)
63e1cbea	=>	toHexString (uint256, uint256)
119df25f	=>	_msgSender ()
8b49d47e	=>	_msgData ()
8da5cb5b	=>	owner ()
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)
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)
40c10f19 => mint(address,uint256)
398f0c72 => VIPmint(bytes32[])
5be532e7 => setVIPMerkleRoot(bytes32)
d98c4408 => calcPrice()
a970a47f => VIPcheck(address)
05d855b2 => showVIPproof()
e2423e8b => giveRightNumber(uint256)
c628f441 => showCurrentPrice()
55f804b3 => setBaseURI(string)
1bb3c4ea => showBCtime()
17d86154 => setStartPrice(uint256)
08d6f96c => setEndPrice(uint256)
82d95df5 => setStartDate(uint256)
3784f000 => setEndDate(uint256)
bb43dd5f => setVIPDate(uint256)
3ccfd60b => withdraw()
```

Automatic general report

Files Description Table

File Name	SHA-1 Hash
/Users/macbook/Desktop/smart contracts/envoContract.sol	4f35bdccceee988bb424f8c38b6f92aa05492c88

Contracts Description Table

Contract	Type	Bases	
:-----: :-----: :-----: :-----: :-----: :-----			
L	**Function Name**	**Visibility**	**Mutability**
Modifiers			
MerkleProof Library			
L verify	Internal		
L processProof	Internal		
L _efficientHash	Private		
Strings Library			
L toString	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 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 | 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 🔒 | 🔒 | |
| | | |
| **envoContract** | Implementation | ERC721Enumerable, Ownable | |
| L | <Constructor> | Public ! | 🔒 | ERC721 |
| L | _baseURI | Internal 🔒 | | |
| L | mint | Public ! | 💰 NO! |
| L | VIPmint | Public ! | 💰 NO! |
| L | setVIPMerkleRoot | Public ! | 🔒 | onlyOwner |
| L | setMerkleProof | Public ! | 🔒 | onlyOwner |
| L | calcPrice | Internal 🔒 | | |
| L | VIPcheck | Public ! | NO! |
| L | showVIPproof | Public ! | NO! |
| L | giveRightNumber | Public ! | NO! |
| L | showCurrentPrice | Public ! | NO! |
| L | setBaseURI | Public ! | 🔒 | onlyOwner |
| L | showBCtime | Public ! | NO! |
| L | tokenURI | Public ! | NO! |
| L | setStartPrice | Public ! | 🔒 | onlyOwner |
| L | setEndPrice | Public ! | 🔒 | onlyOwner |
| L | setStartDate | Public ! | 🔒 | onlyOwner |
| L | setEndDate | Public ! | 🔒 | onlyOwner |
| L | setVIPDate | Public ! | 🔒 | onlyOwner |
| L | 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 and no need for redeploy the contract.

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 “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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