



# Audit Report

## **Doge SpaceX**

January 2022

Type	BEP20
Network	BSC
Address	0xF0fa085b7c3737745E683128D4F80E619f7641Cb
Audited by	© coinscope

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# Contract Review

<b>Contract Name</b>	HeroNFT
<b>Compiler Version</b>	v0.8.3+commit.8d00100c
<b>Optimization</b>	200 runs
<b>Licence</b>	
<b>Explorer</b>	<a href="https://bscscan.com/token/0xf0fa085b7c3737745e683128d4f80e619f7641cb">https://bscscan.com/token/0xf0fa085b7c3737745e683128d4f80e619f7641cb</a>
<b>Symbol</b>	DHNFT
<b>Source</b>	contracts_bsc/game/HeroNFT.sol, @openzeppelin/contracts/token/ERC721/ERC721.sol, @openzeppelin/contracts/token/ERC721/extensions/ERC721Burnable.sol, @openzeppelin/contracts/utils/structs/EnumerableSet.sol, contracts_bsc/owner/AdminRole.sol, @openzeppelin/contracts/token/ERC721/IERC721.sol, @openzeppelin/contracts/token/ERC721/IERC721Receiver.sol, @openzeppelin/contracts/token/ERC721/extensions/IERC721Metadata.sol, @openzeppelin/contracts/token/ERC721/extensions/IERC721Enumerable.sol, @openzeppelin/contracts/utils/Address.sol, @openzeppelin/contracts/utils/Context.sol, @openzeppelin/contracts/utils/Strings.sol, @openzeppelin/contracts/utils/introspection/ERC165.sol, @openzeppelin/contracts/utils/introspection/IERC165.sol
<b>Domain</b>	doge.sx

## Audit Updates

<b>Initial Audit</b>	3rd January 2022
<b>Corrected</b>	

# Contract Diagnostics

● Critical    ● Medium    ● Minor

Severity	Code	Description
●	L01	Public Function could be Declared External
●	L03	Redundant Statements
●	L04	Conformance to Solidity Naming Conventions
●	L09	Dead Code Elimination
●	CR	Code Repetition

## L01 - Public Function could be Declared External

<b>Criticality</b>	minor
<b>Location</b>	@openzeppelin/contracts/token/ERC721/ERC721.sol#L69,L62,L54 and 30 more

### Description

Public functions that are never called by the contract should be declared external to save gas.

```
renounceAdmin  
removeAdmin  
addAdmin  
...
```

### Recommendation

Use the external attribute for functions never called from the contract

## L03 - Redundant Statements

**Criticality**

minor

**Location**

@openzeppelin/contracts/utils/Context.sol#L21

### Description

Detect the usage of redundant statements that have no effect.

Context

### Recommendation

Remove redundant statements if they congest code but offer no value.

## L04 - Conformance to Solidity Naming Conventions

**Criticality**

minor

**Location**

@openzeppelin/contracts/token/ERC721/ERC721.sol#L13,L246,L239 and 40 more

### Description

Solidity defines a naming convention that should be followed. Rule exceptions:

- Allow constant variable name/symbol/decimals to be lowercase.
- Allow \_ at the beginning of the mixed\_case match for private variables and unused parameters.

```
    durableMax
    _value
    _nftNo
    ...
```

### Recommendation

Follow the Solidity naming convention.

<https://docs.soliditylang.org/en/v0.4.25/style-guide.html#naming-conventions>



## L09 - Dead Code Elimination

**Criticality**

minor

**Location**

@openzeppelin/contracts/utils/Address.sol#L55,L39,L157 and 15 more

### Description

Functions that are not used in the contract, and make the code's size bigger.

```
toHexString  
remove  
length  
...
```

### Recommendation

Remove unused functions.

## CR - Code Repetition

<b>Criticality</b>	minor
<b>Location</b>	HeroNFT.sol#L44,L60,L85

### Description

There are code segments that are repetitive in the contract. Those segments increase the code size of the contract unnecessarily.

```
if (_startNo >= ownerNFTs[_acc].length()){
    _endNo = _startNo;
} else if (_endNo > ownerNFTs[_acc].length()) {
    _endNo = ownerNFTs[_acc].length();
}
```

### Recommendation

Create an internal function that contains the code segment and remove it from all the sections.

# Contract Functions

Contract	Type	Bases		
	Function Name	Visibility	Mutability	Modifiers
ERC721	Implementation	Context, ERC165, IERC721, IERC721Me tadata		
	<Constructor>	Public	✓	-
	supportsInterface	Public		-
	balanceOf	Public		-
	ownerOf	Public		-
	name	Public		-
	symbol	Public		-
	tokenURI	Public		-
	_baseURI	Internal		
	approve	Public	✓	-
	getApproved	Public		-
	setApprovalForAll	Public	✓	-
	isApprovedForAll	Public		-
	transferFrom	Public	✓	-
	safeTransferFrom	Public	✓	-
	safeTransferFrom	Public	✓	-
	_safeTransfer	Internal	✓	
	_exists	Internal		
	_isApprovedOrOwner	Internal		
	_safeMint	Internal	✓	
	_safeMint	Internal	✓	
	_mint	Internal	✓	
	_burn	Internal	✓	
	_transfer	Internal	✓	
	_approve	Internal	✓	

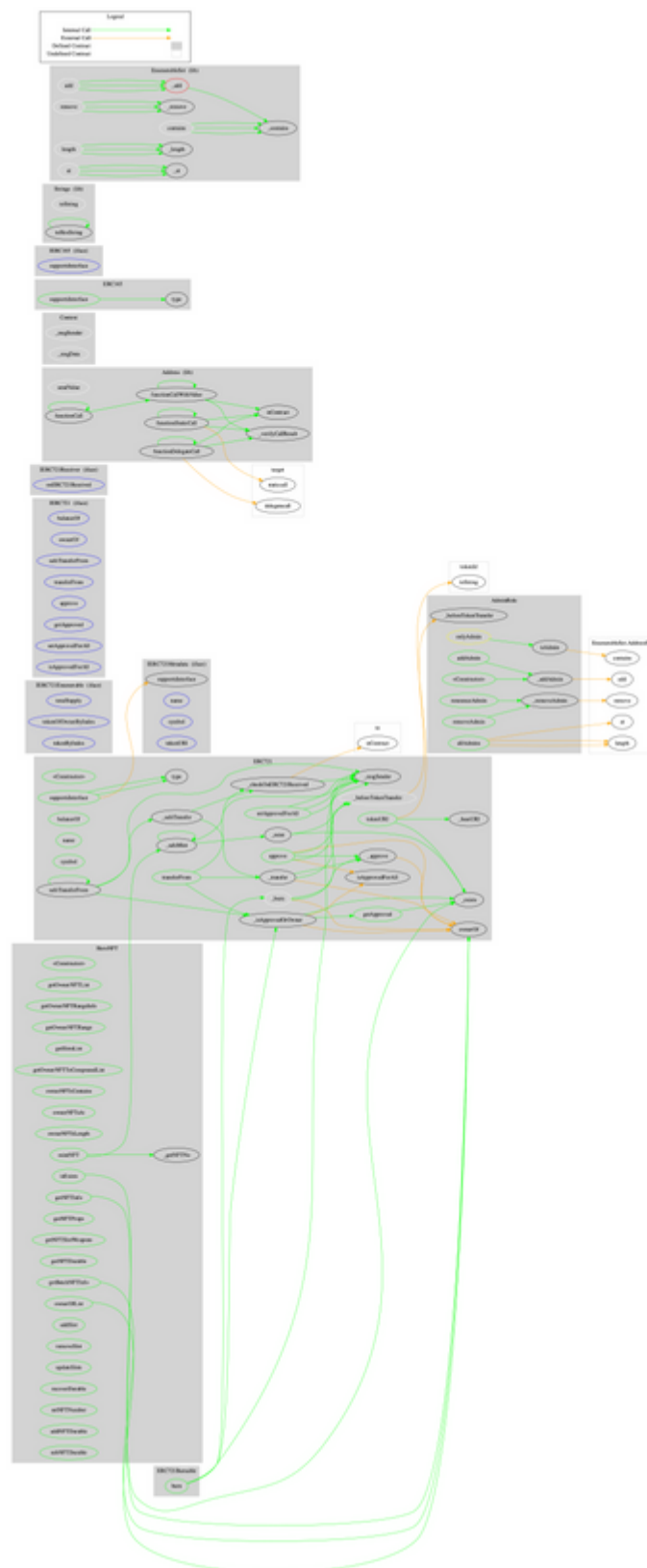
	_checkOnERC721Received	Private	✓	
	_beforeTokenTransfer	Internal	✓	
<b>ERC721Burnable</b>	Implementation	Context, ERC721		
	burn	Public	✓	-
<b>IERC721Enumerable</b>	Interface	IERC721		
	totalSupply	External		-
	tokenOfOwnerByIndex	External		-
	tokenByIndex	External		-
<b>IERC721Metadata</b>	Interface	IERC721		
	name	External		-
	symbol	External		-
	tokenURI	External		-
<b>IERC721</b>	Interface	IERC165		
	balanceOf	External		-
	ownerOf	External		-
	safeTransferFrom	External	✓	-
	transferFrom	External	✓	-
	approve	External	✓	-
	getApproved	External		-
	setApprovalForAll	External	✓	-
	isApprovedForAll	External		-
	safeTransferFrom	External	✓	-
<b>IERC721Receiver</b>	Interface			
	onERC721Received	External	✓	-
<b>Address</b>	Library			
	isContract	Internal		
	sendValue	Internal	✓	

	functionCall	Internal	✓	
	functionCall	Internal	✓	
	functionCallWithValue	Internal	✓	
	functionCallWithValue	Internal	✓	
	functionStaticCall	Internal		
	functionStaticCall	Internal		
	functionDelegateCall	Internal	✓	
	functionDelegateCall	Internal	✓	
	_verifyCallResult	Private		
<b>Context</b>	Implementation			
	_msgSender	Internal		
	_msgData	Internal		
<b>ERC165</b>	Implementation	IERC165		
	supportsInterface	Public		-
<b>IERC165</b>	Interface			
	supportsInterface	External		-
<b>Strings</b>	Library			
	toString	Internal		
	toHexString	Internal		
	toHexString	Internal		
<b>EnumerableSet</b>	Library			
	_add	Private	✓	
	_remove	Private	✓	
	_contains	Private		
	_length	Private		
	_at	Private		
	add	Internal	✓	
	remove	Internal	✓	
	contains	Internal		
	length	Internal		

	at	Internal		
	add	Internal	✓	
	remove	Internal	✓	
	contains	Internal		
	length	Internal		
	at	Internal		
	add	Internal	✓	
	remove	Internal	✓	
	contains	Internal		
	length	Internal		
	at	Internal		
<b>HeroNFT</b>	Implementation	ERC721Burnable, AdminRole		
	<Constructor>	Public	✓	ERC721
	_beforeTokenTransfer	Internal	✓	
	getOwnerNFTList	Public		-
	getOwnerNFTRangeInfo	Public		-
	getOwnerNFTRange	Public		-
	getSlotsList	Public		-
	getOwnerNFTToCompoundList	Public		-
	ownerNFTsContains	Public		onlyAdmin
	ownerNFTsAt	Public		onlyAdmin
	ownerNFTsLength	Public		onlyAdmin
	isExists	Public		-
	getNFTInfo	Public		-
	getBatchNFTInfo	Public		-
	getNFTProps	Public		-
	getNFTSlotWeapons	Public		-
	getNFTDurable	Public		-
	ownerOfList	Public		-
	_getNFTNo	Private		
	mintNFT	Public	✓	onlyAdmin
	addSlot	Public	✓	onlyAdmin
	removeSlot	Public	✓	onlyAdmin

	updateSlots	Public	✓	onlyAdmin
	recoverDurable	Public	✓	onlyAdmin
	setNFTNumber	Public	✓	onlyAdmin
	addNFTDurable	Public	✓	onlyAdmin
	subNFTDurable	Public	✓	onlyAdmin
<b>AdminRole</b>	Implementation			
	<Constructor>	Public	✓	-
	isAdmin	Public		-
	allAdmins	Public		-
	addAdmin	Public	✓	onlyAdmin
	removeAdmin	Public	✓	onlyAdmin
	renounceAdmin	Public	✓	-
	_addAdmin	Internal	✓	
	_removeAdmin	Internal	✓	

# Contract Flow





## Domain Info

<b>Domain Name</b>	doge.sx
<b>Registry Domain ID</b>	378581-SX
<b>Creation Date</b>	2021-11-08T11:03:10Z
<b>Updated Date</b>	2021-11-13T11:04:50Z
<b>Registry Expiry Date</b>	2022-11-08T11:03:10Z
<b>Registrar WHOIS Server</b>	whois.sx
<b>Registrar URL</b>	www.dynadot.com
<b>Registrar</b>	Dynadot LLC
<b>Registrar IANA ID</b>	472

The domain has been created about 2 months before the creation of the audit. It will expire in 10 months.

There is no public billing information, the creator is protected by the privacy settings.

## Summary

Doge SpaceX is aiming to implement a zombie-themed game based on NFT. The project has a friendly and growing community. The contract analysis did not report any major issues. There are some informative comments that do not affect the contract security.

# Disclaimer

All the content provided in this document is for general information only and should not be used as financial advice or a reason to buy any investment.

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## About Coinscope

Coinscope is the leading early coin listing, voting and auditing authority firm. The audit process is analyzing and monitoring many aspects of the project. That way, it gives the community a good sense of security using an informative report and a generic score.

Coinscope is aiming to make crypto discoverable and efficient globally. It provides all the essential tools to assist users draw their own conclusions.



The Coinscope.co team

<https://www.coinscope.co>