



Cyberscope

Audit Report

Hentai Token

March 2024

Network ETH

Address 0xb5881acED41b76dBe7a4e2B9C58B9cAc7198b3D9

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Analysis

● Critical ● Medium ● Minor / Informative ● Pass

Severity	Code	Description	Status
●	ST	Stops Transactions	Passed
●	OTUT	Transfers User's Tokens	Passed
●	ELFM	Exceeds Fees Limit	Passed
●	MT	Mints Tokens	Passed
●	BT	Burns Tokens	Passed
●	BC	Blacklists Addresses	Passed

Diagnostics

● Critical ● Medium ● Minor / Informative

Severity	Code	Description	Status
●	IDI	Immutable Declaration Improvement	Unresolved
●	MEE	Missing Events Emission	Unresolved
●	RRS	Redundant Require Statement	Unresolved
●	RSML	Redundant SafeMath Library	Unresolved
●	RVR	Redundant Variable Reassignment	Unresolved
●	L04	Conformance to Solidity Naming Conventions	Unresolved
●	L16	Validate Variable Setters	Unresolved

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Review

Contract Name	HENTAITOKEN
Compiler Version	v0.8.17+commit.8df45f5f
Optimization	200 runs
Explorer	https://etherscan.io/address/0xb5881aced41b76dbe7a4e2b9c58b9cac7198b3d9
Address	0xb5881aced41b76dbe7a4e2b9c58b9cac7198b3d9
Network	ETH
Symbol	HENTAI
Decimals	9
Total Supply	2,800,000,000

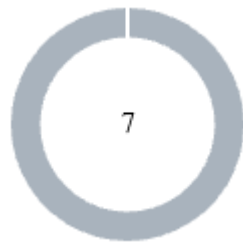
Audit Updates

Initial Audit	21 Mar 2024
Corrected Phase 2	27 Mar 2024

Source Files

Filename	SHA256
HENTAITOKEN.sol	3c53382f768eaa0e67d4b089b77a67cdb1df82960f990d5aca0009b4f93df7cd

Findings Breakdown



● Critical	0
● Medium	0
● Minor / Informative	7

Severity	Unresolved	Acknowledged	Resolved	Other
● Critical	0	0	0	0
● Medium	0	0	0	0
● Minor / Informative	7	0	0	0

IDI - Immutable Declaration Improvement

Criticality	Minor / Informative
Location	HENTAITOKEN.sol#L162
Status	Unresolved

Description

The contract declares state variables that their value is initialized once in the constructor and are not modified afterwards. The `immutable` is a special declaration for this kind of state variables that saves gas when it is defined.

```
_taxWallet
```

Recommendation

By declaring a variable as immutable, the Solidity compiler is able to make certain optimizations. This can reduce the amount of storage and computation required by the contract, and make it more gas-efficient.

MEE - Missing Events Emission

Criticality	Minor / Informative
Location	contracts/hentai.sol#L304,312
Status	Unresolved

Description

The contract performs actions and state mutations from external methods that do not result in the emission of events. Emitting events for significant actions is important as it allows external parties, such as wallets or dApps, to track and monitor the activity on the contract. Without these events, it may be difficult for external parties to accurately determine the current state of the contract.

```
tradingOpen = true;  
antisniper[accounts[i]] = true;
```

Recommendation

It is recommended to include events in the code that are triggered each time a significant action is taking place within the contract. These events should include relevant details such as the user's address and the nature of the action taken. By doing so, the contract will be more transparent and easily auditable by external parties. It will also help prevent potential issues or disputes that may arise in the future.

RRS - Redundant Require Statement

Criticality	Minor / Informative
Location	contracts/hentai.sol#L24
Status	Unresolved

Description

The contract utilizes a `require` statement within the `add` function aiming to prevent overflow errors. This function is designed based on the SafeMath library's principles. In Solidity version 0.8.0 and later, arithmetic operations revert on overflow and underflow, making the overflow check within the function redundant. This redundancy could lead to extra gas costs and increased complexity without providing additional security.

```
function add(uint256 a, uint256 b) internal pure returns (uint256) {  
    uint256 c = a + b;  
    require(c >= a, "SafeMath: addition overflow");  
    return c;  
}
```

Recommendation

It is recommended to remove the `require` statement from the `add` function since the contract is using a Solidity pragma version equal to or greater than 0.8.0. By doing so, the contract will leverage the built-in overflow and underflow checks provided by the Solidity language itself, simplifying the code and reducing gas consumption. This change will uphold the contract's integrity in handling arithmetic operations while optimizing for efficiency and cost-effectiveness.

RSML - Redundant SafeMath Library

Criticality	Minor / Informative
Location	HENTAITOKEN.sol
Status	Unresolved

Description

SafeMath is a popular Solidity library that provides a set of functions for performing common arithmetic operations in a way that is resistant to integer overflows and underflows.

Starting with Solidity versions that are greater than or equal to 0.8.0, the arithmetic operations revert to underflow and overflow. As a result, the native functionality of the Solidity operations replaces the SafeMath library. Hence, the usage of the SafeMath library adds complexity, overhead and increases gas consumption unnecessarily in cases where the explanatory error message is not used.

```
library SafeMath {...}
```

Recommendation

The team is advised to remove the SafeMath library in cases where the revert error message is not used. Since the version of the contract is greater than `0.8.0` then the pure Solidity arithmetic operations produce the same result.

If the previous functionality is required, then the contract could exploit the `unchecked { ... }` statement.

Read more about the breaking change on

<https://docs.soliditylang.org/en/v0.8.16/080-breaking-changes.html#solidity-v0-8-0-breaking-changes>.

RVR - Redundant Variable Reassignment

Criticality	Minor / Informative
Location	contracts/hentai.sol#L241
Status	Unresolved

Description

There are code segments that could be optimized. A segment may be optimized so that it becomes a smaller size, consumes less memory, executes more rapidly, or performs fewer operations.

The contract assigns the same value to the variable `taxAmount` more than once in the transfer flow. As are result, the second assignment is redundant.

```
taxAmount = amount.mul(_tax).div(10000);
```

Recommendation

The team is advised to take these segments into consideration and rewrite them so the runtime will be more performant. That way it will improve the efficiency and performance of the source code and reduce the cost of executing it.

L04 - Conformance to Solidity Naming Conventions

Criticality	Minor / Informative
Location	HENTAITOKEN.sol#L62,100,116,117,118,119,120,125,126,127,128,129,132,145,146
Status	Unresolved

Description

The Solidity style guide is a set of guidelines for writing clean and consistent Solidity code. Adhering to a style guide can help improve the readability and maintainability of the Solidity code, making it easier for others to understand and work with.

The followings are a few key points from the Solidity style guide:

1. Use camelCase for function and variable names, with the first letter in lowercase (e.g., myVariable, updateCounter).
2. Use PascalCase for contract, struct, and enum names, with the first letter in uppercase (e.g., MyContract, UserStruct, ErrorEnum).
3. Use uppercase for constant variables and enums (e.g., MAX_VALUE, ERROR_CODE).
4. Use indentation to improve readability and structure.
5. Use spaces between operators and after commas.
6. Use comments to explain the purpose and behavior of the code.
7. Keep lines short (around 120 characters) to improve readability.

```
address public _owner
function WETH() external pure returns (address);
uint256 public _tax = 0
uint256 private constant _tier1 = 4000
uint256 private constant _tier2 = 2000
uint256 private constant _tier3 = 1000
uint256 private constant _tier4 = 33
uint256 private constant _antiSniperCount = 30
uint256 private constant _reductingPeriod1 = 60
uint256 private constant _reductingPeriod2 = 90
uint256 private constant _reductingPeriod3 = 45 minutes
uint256 private constant _preventSwapBefore= 31
uint256 public _tradingOpened
uint256 private constant _taxSwapThreshold= 280000 * 10**_decimals

...
```

Recommendation

By following the Solidity naming convention guidelines, the codebase increased the readability, maintainability, and makes it easier to work with.

Find more information on the Solidity documentation

<https://docs.soliditylang.org/en/v0.8.17/style-guide.html#naming-convention>.

L16 - Validate Variable Setters

Criticality	Minor / Informative
Location	HENTAITOKEN.sol#L67,162
Status	Unresolved

Description

The contract performs operations on variables that have been configured on user-supplied input. These variables are missing of proper check for the case where a value is zero. This can lead to problems when the contract is executed, as certain actions may not be properly handled when the value is zero.

```
_owner = msgSender  
_taxWallet = payable(taxWallet)
```

Recommendation

By adding the proper check, the contract will not allow the variables to be configured with zero value. This will ensure that the contract can handle all possible input values and avoid unexpected behavior or errors. Hence, it can help to prevent the contract from being exploited or operating unexpectedly.

Functions Analysis

Contract	Type	Bases		
	Function Name	Visibility	Mutability	Modifiers
Context	Implementation			
	_msgSender	Internal		
IERC20	Interface			
	totalSupply	External		-
	balanceOf	External		-
	transfer	External	✓	-
	allowance	External		-
	approve	External	✓	-
	transferFrom	External	✓	-
SafeMath	Library			
	add	Internal		
	sub	Internal		
	sub	Internal		
	mul	Internal		
	div	Internal		
	div	Internal		

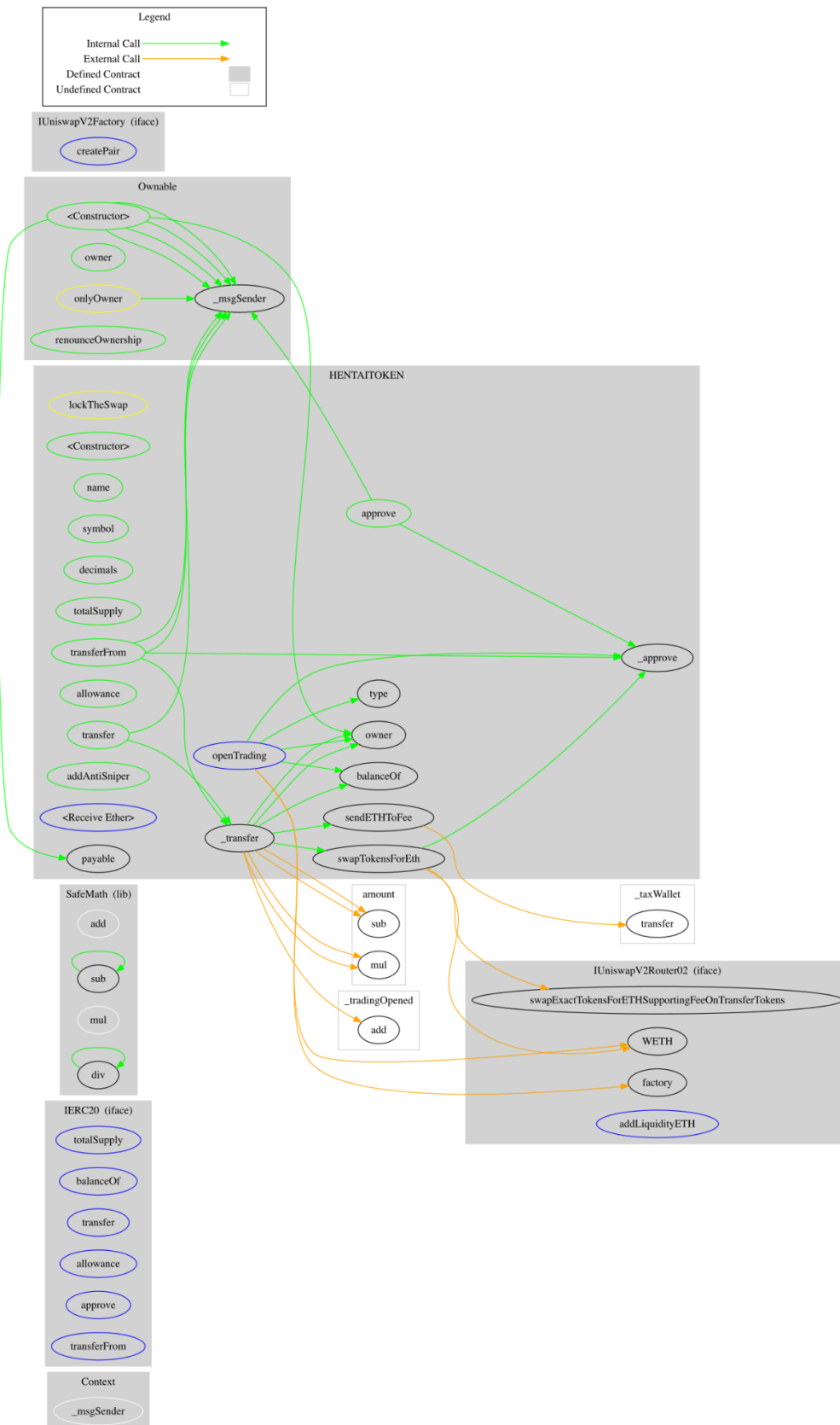
Ownable	Implementation	Context		
		Public	✓	-
	owner	Public		-
	renounceOwnership	Public	✓	onlyOwner
IUniswapV2Factory	Interface			
	createPair	External	✓	-
IUniswapV2Router02	Interface			
	swapExactTokensForETHSupportingFeeOnTransferTokens	External	✓	-
	factory	External		-
	WETH	External		-
	addLiquidityETH	External	Payable	-
HENTAITOKEN	Implementation	Context, IERC20, Ownable		
		Public	✓	-
	name	Public		-
	symbol	Public		-
	decimals	Public		-
	totalSupply	Public		-
	balanceOf	Public		-

	transfer	Public	✓	-
	allowance	Public		-
	approve	Public	✓	-
	transferFrom	Public	✓	-
	_approve	Private	✓	
	_transfer	Private	✓	
	swapTokensForEth	Private	✓	lockTheSwap
	sendETHToFee	Private	✓	
	openTrading	External	✓	onlyOwner
	addAntiSniper	Public	✓	onlyOwner
		External	Payable	-

Inheritance Graph



Flow Graph



Summary

Hentai Token contract implements a token mechanism. This audit investigates security issues, business logic concerns, and potential improvements. Hentai Token is an interesting project that has a friendly and growing community. The Smart Contract analysis reported no compiler errors or critical issues.

The contract includes an automatic fee mechanism that adjusts the fees based on the number of buy transactions that have been executed.

1. The fee starts at 0% until 30 buy transactions have been completed.
2. Then the fee goes up to 40% until 60 buy transactions have been completed.
3. Then the fee is reduced to 20% until 60 buy transactions have been completed.
4. Then the fee is reduced to 10% until 90 buy transactions have been completed.
5. Finally, the fee is locked at 0.33% 45 minutes after the trading is enabled and the fee has reached the 10% stage.

Contract Renouncement

The contract's ownership has been renounced. The information regarding the transaction can be accessed through the following link:

<https://etherscan.io/tx/0xf8cda8e3ee194436773b838a65da951efac6b5ad80d7e3fb9bfc0efe2d6a09f8>.

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Cyberscope is a blockchain cybersecurity company that was founded with the vision to make web3.0 a safer place for investors and developers. Since its launch, it has worked with thousands of projects and is estimated to have secured tens of millions of investors' funds.

Cyberscope is one of the leading smart contract audit firms in the crypto space and has built a high-profile network of clients and partners.



The Cyberscope team

<https://www.cyberscope.io>