Cyberscope

Audit Report

Hollywood X PEPE

June 2023

Network	BSC
Address	0x42a1607b0aa32e99e54d2048254e9c335a1fd8db
Audited by	© cyberscope

Analysis

● Critical ● Medium ● Minor / Informative ● Pass

Severity	Code	Description	Status
●	ST	Stops Transactions	Unresolved
●	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
●	DDP	Decimal Division Precision	Unresolved
●	RSD	Redundant Swap Duplication	Unresolved
●	PTRP	Potential Transfer Revert Propagation	Unresolved
●	PVC	Price Volatility Concern	Unresolved
●	IDI	Immutable Declaration Improvement	Unresolved
●	L02	State Variables could be Declared Constant	Unresolved
●	L04	Conformance to Solidity Naming Conventions	Unresolved
●	L09	Dead Code Elimination	Unresolved
●	L11	Unnecessary Boolean equality	Unresolved
●	L14	Uninitialized Variables in Local Scope	Unresolved
●	L17	Usage of Solidity Assembly	Unresolved
●	L20	Succeeded Transfer Check	Unresolved

Table of Contents

Review

Contract Name	HXPE
Compiler Version	v0.8.17+commit.8df45f5f
Optimization	200 runs
Explorer	https://bscscan.com/address/0x42a1607b0aa32e99e54d2048254e9c335a1fd8db
Address	0x42a1607b0aa32e99e54d2048254e9c335a1fd8db
Network	BSC
Symbol	HXPE
Decimals	9
Total Supply	420,690,000,000,000

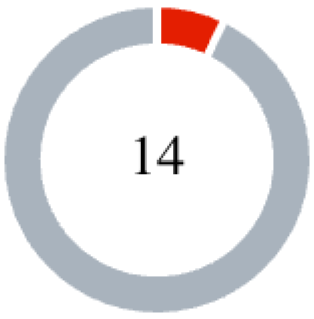
Audit Updates

Initial Audit	04 Jun 2023

Source Files

Filename	SHA256
HXPE.sol	64f0cd3618d0deb09c702b76caf5fd0cb0ee39ef1a99bfa6ad97151761594fbb

Findings Breakdown



●	Critical	1
●	Medium	0
●	Minor / Informative	13

	Severity	Unresolved	Acknowledged	Resolved	Other
●	Critical	1	0	0	0
●	Medium	0	0	0	0
●	Minor / Informative	13	0	0	0

ST - Stops Transactions

Criticality	Critical
Location	HXPE.sol#L710
Status	Unresolved

Description

The transactions are initially disabled for all users excluding the authorized addresses. The owner can enable the transactions for all users. Once the transactions are enable the owner will not be able to disable them again.

```
if(!_isExcludedFromFees[from] && !_isExcludedFromFees[to]) {
    require(tradingEnabled, "Trading is not enabled yet");
}
```

Recommendation

The team should carefully manage the private keys of the owner's account. We strongly recommend a powerful security mechanism that will prevent a single user from accessing the contract admin functions. Some suggestions are:

- Introduce a multi-sign wallet so that many addresses will confirm the action.
- Introduce a governance model where users will vote about the actions.

RLF - Redundant Liquidity Feature

Criticality	Minor / Informative
Location	HXPE.sol#L435
Status	Unresolved

Description

The contract implements an auto-generated liquidity pool mechanism. The fees that are going to the liquidity pool are always zero. As a result, the entire liquidity pool mechanism is redundant.

```
taxFeeonBuy = 0;
taxFeeonSell = 1;

liquidityFeeonBuy = 0;
liquidityFeeonSell = 0;

marketingFeeonBuy = 0;
marketingFeeonSell = 3;
```

Recommendation

The team is advices to either remove the liquidity poll feature or add some fees to the `liquidityFeeonBuy/liquidityFeeonSell` variables.

DDP - Decimal Division Precision

Criticality	Minor / Informative
Location	HXPE.sol#L728
Status	Unresolved

Description

Division of decimal (fixed point) numbers can result in rounding errors due to the way that division is implemented in Solidity. Thus, it may produce issues with precise calculations with decimal numbers.

Solidity represents decimal numbers as integers, with the decimal point implied by the number of decimal places specified in the type (e.g. decimal with 18 decimal places). When a division is performed with decimal numbers, the result is also represented as an integer, with the decimal point implied by the number of decimal places in the type. This can lead to rounding errors, as the result may not be able to be accurately represented as an integer with the specified number of decimal places.

Hence, the splitted shares will not have the exact precision and some funds may not be calculated as expected.

```
uint256 liquidityTokens = (contractTokenBalance * liquidityShare) /
totalShare;
...
uint256 marketingTokens = (contractTokenBalance * marketingShare) /
totalShare;
```

Recommendation

The team is advised to take into consideration the rounding results that are produced from the solidity calculations. The contract could calculate the subtraction of the divided funds in the last calculation in order to avoid the division rounding issue.

RSD - Redundant Swap Duplication

Criticality	Minor / Informative
Location	HXPE.sol#L728
Status	Unresolved

Description

The contract contains multiple swap methods that individually perform token swaps and transfer promotional amounts to specific addresses and features. This redundant duplication of code introduces unnecessary complexity and increases dramatically the gas consumption. By consolidating these operations into a single swap method, the contract can achieve better code readability, reduce gas costs, and improve overall efficiency.

```
if(liquidityShare > 0) {
    uint256 liquidityTokens = (contractTokenBalance *
liquidityShare) / totalShare;
    swapAndLiquify(liquidityTokens);
}

if(marketingShare > 0) {
    uint256 marketingTokens = (contractTokenBalance *
marketingShare) / totalShare;
    swapAndSendMarketing(marketingTokens);
}
```

Recommendation

A more optimized approach could be adopted to perform the token swap operation once for the total amount of tokens and distribute the proportional amounts to the corresponding addresses, eliminating the need for separate swaps.

PTRP - Potential Transfer Revert Propagation

Criticality	Minor / Informative
Location	HXPE.sol#L792
Status	Unresolved

Description

The contract sends funds to a `marketingWallet` as part of the transfer flow. This address can either be a wallet address or a contract. If the address belongs to a contract then it may revert from incoming payment. As a result, the error will propagate to the token's contract and revert the transfer.

```
payable(marketingWallet).sendValue(newBalance);
```

Recommendation

The contract should tolerate the potential revert from the underlying contracts when the interaction is part of the main transfer flow. This could be achieved by not allowing set contract addresses or by sending the funds in a non-revertable way.

PVC - Price Volatility Concern

Criticality	Minor / Informative
Location	HXPE.sol#L715
Status	Unresolved

Description

The contract accumulates tokens from the taxes to swap them for ETH. The variable `swapTokensAtAmount` sets a threshold where the contract will trigger the swap functionality. If the variable is set to a big number, then the contract will swap a huge amount of tokens for ETH.

It is important to note that the price of the token representing it, can be highly volatile. This means that the value of a price volatility swap involving Ether could fluctuate significantly at the triggered point, potentially leading to significant price volatility for the parties involved.

```
bool overMinTokenBalance = contractTokenBalance >=
swapTokensAtAmount;
```

Recommendation

The contract could ensure that it will not sell more than a reasonable amount of tokens in a single transaction. A suggested implementation could check that the maximum amount should be less than a fixed percentage of the total supply. Hence, the contract will guarantee that it cannot accumulate a huge amount of tokens in order to sell them.

IDI - Immutable Declaration Improvement

Criticality	Minor / Informative
Location	HXPE.sol#L422,424,428,429,431,432,434,435,437,438
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.

```
uniswapV2Pair
uniswapV2Router
taxFeeonBuy
taxFeeonSell
liquidityFeeonBuy
liquidityFeeonSell
marketingFeeonBuy
marketingFeeonSell
totalBuyFees
totalSellFees
```

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.

L02 - State Variables could be Declared Constant

Criticality	Minor / Informative
Location	HXPE.sol#L361,362,363,388
Status	Unresolved

Description

State variables can be declared as constant using the constant keyword. This means that the value of the state variable cannot be changed after it has been set. Additionally, the constant variables decrease gas consumption of the corresponding transaction.

```
event ExcludeFromFees(address indexed a

 bool isExcluded);
    event Mar
alletChanged(address marketi

704E256024E;
        } else if (block.chainid == 97) {
```

Recommendation

Constant state variables can be useful when the contract wants to ensure that the value of a state variable cannot be changed by any function in the contract. This can be useful for storing values that are important to the contract's behavior, such as the contract's address or the maximum number of times a certain function can be called. The team is advised to add the constant keyword to state variables that never change.

L04 - Conformance to Solidity Naming Conventions

Criticality	Minor / Informative
Location	HXPE.sol#L180,181,197,216,379,380,381,388,645,649,653,799,882
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.

```
() external view returns (uint);
    function kLast() exter

ew returns (uint);

    function burn(address to) externa
...
        uint amountAMin,
        u

nt amountToken, uint amountETH);
    function r
vent WalletToWalletTra
thoutFeeEnabled(bool enabled

...
```

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.

L09 - Dead Code Elimination

Criticality	Minor / Informative
Location	HXPE.sol#L89,108,112,116,120,125
Status	Unresolved

Description

In Solidity, dead code is code that is written in the contract, but is never executed or reached during normal contract execution. Dead code can occur for a variety of reasons, such as:

- Conditional statements that are always false.
- Functions that are never called.
- Unreachable code (e.g., code that follows a return statement).

Dead code can make a contract more difficult to understand and maintain, and can also increase the size of the contract and the cost of deploying and interacting with it.

```
(target, data, "Address: low-level call failed");
    }

    function functionCall(address target, bytes memory data, string
memory errorMessage) internal returns (bytes memory) {
        return _functionCallWithValue(target, data, 0,
errorMessage);
    }

    function functionCallWithValue(address target, bytes memory
data, uint256 value) internal returns (bytes memory) {
        return functionCallWithValue(target, data, value, "Address:
low-level call with value failed");
    }

    function functionCallWithValue(address target, bytes memory
data, uint256 value, string memory errorMessage) internal

...
```

Recommendation

To avoid creating dead code, it's important to carefully consider the logic and flow of the contract and to remove any code that is not needed or that is never executed. This can help improve the clarity and efficiency of the contract.

L11 - Unnecessary Boolean equality

Criticality	Minor / Informative
Location	HXPE.sol#L694
Status	Unresolved

Description

Boolean equality is unnecessary when comparing two boolean values. This is because a boolean value is either true or false, and there is no need to compare two values that are already known to be either true or false.

it's important to be aware of the types of variables and expressions that are being used in the contract's code, as this can affect the contract's behavior and performance. The comparison to boolean constants is redundant. Boolean constants can be used directly and do not need to be compared to true or false.

```
iquidityShare;
            if(totalShare > 0) {
```

Recommendation

Using the boolean value itself is clearer and more concise, and it is generally considered good practice to avoid unnecessary boolean equalities in Solidity code.

L14 - Uninitialized Variables in Local Scope

Criticality	Minor / Informative
Location	HXPE.sol#L410
Status	Unresolved

Description

Using an uninitialized local variable can lead to unpredictable behavior and potentially cause errors in the contract. It's important to always initialize local variables with appropriate values before using them.

```
marketingWall
```

Recommendation

By initializing local variables before using them, the contract ensures that the functions behave as expected and avoid potential issues.

L17 - Usage of Solidity Assembly

Criticality	Minor / Informative
Location	HXPE.sol#L96,138
Status	Unresolved

Description

Using assembly can be useful for optimizing code, but it can also be error-prone. It's important to carefully test and debug assembly code to ensure that it is correct and does not contain any errors.

Some common types of errors that can occur when using assembly in Solidity include Syntax, Type, Out-of-bounds, Stack, and Revert.

```
ction functionCallWithValue(address target, b

  function name() external pure returns (string memory);
    function symbol() external pure returns (string memory);
    function decimals() external pure
```

Recommendation

It is recommended to use assembly sparingly and only when necessary, as it can be difficult to read and understand compared to Solidity code.

L20 - Succeeded Transfer Check

Criticality	Minor / Informative
Location	HXPE.sol#L577
Status	Unresolved

Description

According to the ERC20 specification, the transfer methods should be checked if the result is successful. Otherwise, the contract may wrongly assume that the transfer has been established.

```
}

    function _getRValues(uint
```

Recommendation

The contract should check if the result of the transfer methods is successful. The team is advised to check the SafeERC20 library from the Openzeppelin library.

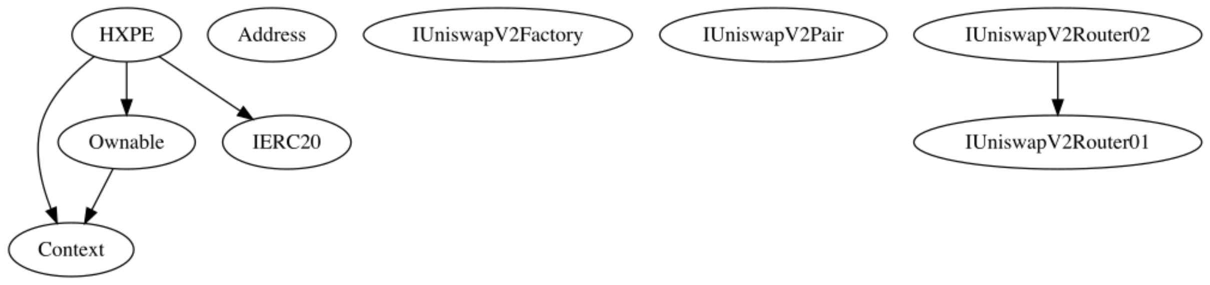
Functions Analysis

Contract	Type	Bases		
	Function Name	**Visibility**	**Mutability**	**Modifiers**
HXPE	Implementation	Context, IERC20, Ownable		
		Public	✓	-
	name	Public		-
	symbol	Public		-
	decimals	Public		-
	totalSupply	Public		-
	balanceOf	Public		-
	transfer	Public	✓	-
	allowance	Public		-
	approve	Public	✓	-
	transferFrom	Public	✓	-
	increaseAllowance	Public	✓	-
	decreaseAllowance	Public	✓	-
	isExcludedFromReward	Public		-
	totalReflectionDistributed	Public		-
	deliver	Public	✓	-
	reflectionFromToken	Public		-

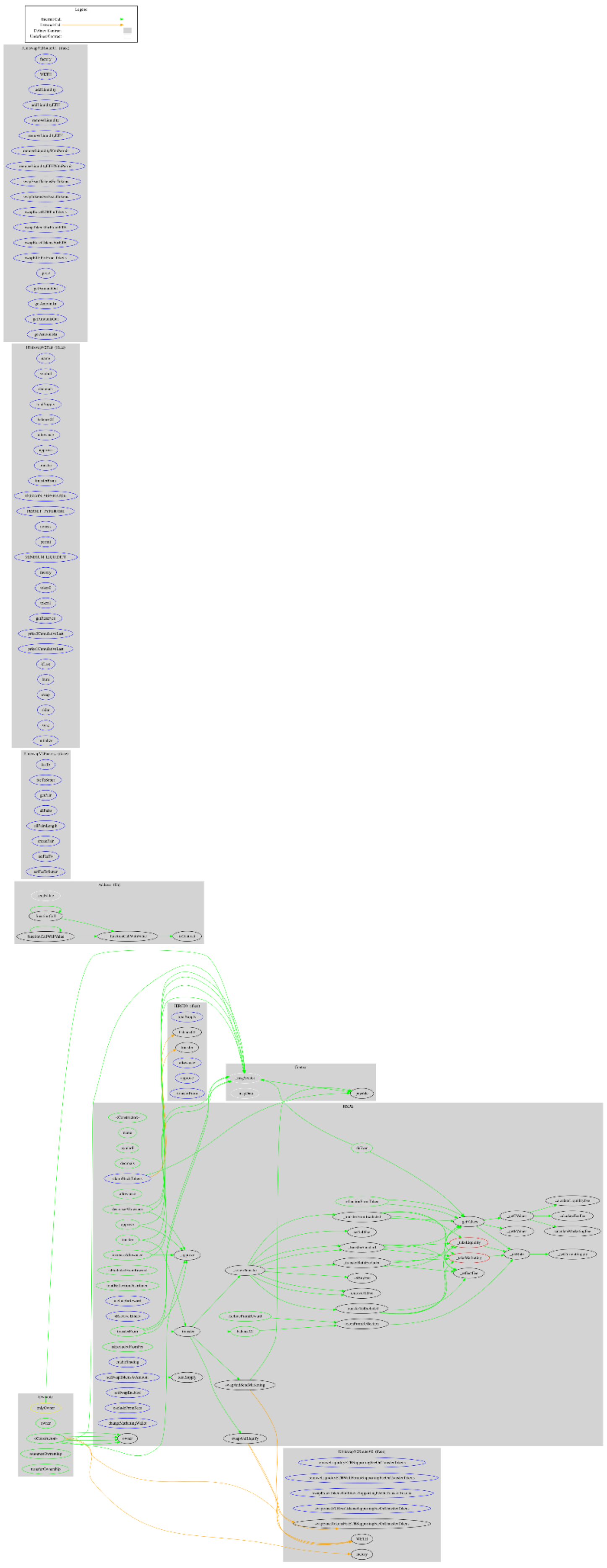
	tokenFromReflection	Public		-
	excludeFromReward	Public	✓	onlyOwner
	includeInReward	External	✓	onlyOwner
		External	Payable	-
	claimStuckTokens	External	✓	onlyOwner
	_reflectFee	Private	✓	
	_getValues	Private		
	_getTValues	Private		
	_getRValues	Private		
	_getRate	Private		
	_getCurrentSupply	Private		
	_takeLiquidity	Private	✓	
	_takeMarketing	Private	✓	
	calculateTaxFee	Private		
	calculateLiquidityFee	Private		
	calculateMarketingFee	Private		
	removeAllFee	Private	✓	
	setBuyFee	Private	✓	
	setSellFee	Private	✓	
	isExcludedFromFee	Public		-
	_approve	Private	✓	
	enableTrading	External	✓	onlyOwner
	_transfer	Private	✓	

	swapAndLiquify	Private	✓	
	swapAndSendMarketing	Private	✓	
	setSwapTokensAtAmount	External	✓	onlyOwner
	setSwapEnabled	External	✓	onlyOwner
	_tokenTransfer	Private	✓	
	_transferStandard	Private	✓	
	_transferToExcluded	Private	✓	
	_transferFromExcluded	Private	✓	
	_transferBothExcluded	Private	✓	
	excludeFromFees	External	✓	onlyOwner
	changeMarketingWallet	External	✓	onlyOwner

Inheritance Graph



Flow Graph



Summary

Hollywood X PEPE contract implements a token mechanism. This audit investigates security issues, business logic concerns and potential improvements. There are some functions that can be abused by the owner like stop transactions. A multi-wallet signing pattern will provide security against potential hacks. Temporarily locking the contract or renouncing ownership will eliminate all the contract threats. The fees are fixed to 4% in sales.

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The Cyberscope team

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