

# PlateauFinance

smart contracts  
audit report

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# 1 Disclaimer

This is a limited report on our findings based on our analysis, in accordance with good industry practice at 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 us on the basis of what it says or doesn't say, or how we produced it, and it is important for you to conduct your own independent investigations before making any decisions. We go into more detail on this in the disclaimer below – please make sure to read it in full.

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## 2 Overview

HashEx was commissioned by the PlateauFinance team to perform an audit of their smart contracts. The audit was conducted between October 18 and October 21, 2021. The code is available at the address [0xCfE536a209e405Db19887830b366E397f5B917a](https://avascan.info/blockchain/c/address/0xCfE536a209e405Db19887830b366E397f5B917a).

The purpose of this audit was to achieve the following:

- Identify potential security issues with smart contracts.
- Formally check the logic behind given smart contracts.

Information in this report should be used for understanding the risk exposure of smart contracts, and as a guide to improving the security posture of smart contracts by remediating the issues that were identified.

### 2.1 Summary

Project name	PlateauFinance
URL	<a href="https://avascan.info/blockchain/c/address/0xCfE536a209e405Db19887830b366E397f5B917a">https://avascan.info/blockchain/c/address/0xCfE536a209e405Db19887830b366E397f5B917a</a>
Platform	Avalanche Network
Language	Solidity

### 2.2 Contracts

Name	Address
PlateauFinance	0xCfE536a209e405Db19887830b366E397f5B917a

## 3 Found issues



■ High	1 (11%)
■ Medium	5 (56%)
■ Low	3 (33%)

## PlateauFinance

ID	Title	Severity	Status
01	Input data is not checked	■ High	Acknowledged
02	ERC20 standard violation	■ Medium	Acknowledged
03	Locked AVAX	■ Medium	Acknowledged
04	Hardcoded addresses	■ Medium	Acknowledged
05	Missing Approval event	■ Medium	Acknowledged
06	No cap for amount of tokens used for adding liquidity	■ Medium	Acknowledged
07	Confusing comment	■ Low	Acknowledged
08	Unused variables	■ Low	Acknowledged

09	Functions may be declared external	■ Low	Acknowledged
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## 4 Contracts

### 4.1 PlateauFinance

#### 4.1.1 Overview

The contract is an ERC20 token with a commission on transfers. Some addresses may be excluded from the commissions by the contract owner. Commissions are taken for burning and for adding liquidity.

#### 4.1.2 Issues

##### 01. Input data is not checked

- High      ⓘ Acknowledged

The function `setFee` receives and sets new values `BURN_FEE` and `LP_FEE`. The new values aren't checked before setting. Setting a wrong value may completely break token transfers for not excluded addresses.

##### Recommendation

Since the values represent shares in percents we recommend checking whether that fits into a suitable range of values.



## 02. ERC20 standard violation

- Medium      ⓘ Acknowledged

Implementation of the `transfer()` function does not allow to input zero amount as it's demanded in ERC20 and BEP20 standards. This issue may break the interaction with smart contracts that rely on full ERC20 support. Also, transfer functions of the reviewed contract don't throw error messages for the amounts bigger than the sender's balance (like "ERC20: transfer amount exceeds allowance" in OpenZeppelin's ERC20 implementation) which may confuse users.

## 03. Locked AVAX

- Medium      ⓘ Acknowledged

The payable `receive()` function in makes it possible for the contract to receive ether/bnb. Moreover, `addLiquidityAVAX` from `JoeRouter02` returns any ETH/AVAX leftovers back to the sender. There's no implemented mechanism for handling this contract's ETH/AVAX balance.

## 04. Hardcoded addresses

- Medium      ⓘ Acknowledged

The addresses of `JoeRouter02` and `pair` are immutable. This may cause a partial malfunction in case of future upgrades of `TraiderJoe`'s services.

## 05. Missing Approval event

- Medium      ⚠ Acknowledged

The token does not emit `Approval(address,address,uint256)` event which must be triggered on any successful call to `approve(address _spender, uint256 _value)`.

### Recommendation

Emit Approval event in the `approve()` function.

## 06. No cap for amount of tokens used for adding liquidity

- Medium      ⚠ Acknowledged

If a big amount of tokens is accumulated on the token contract, adding liquidity will lead to a significant dump in the token price because half of the tokens are sold for AVAX. This may be the case if the `maxLPCap` parameter is set to a big number or `swapAndLiquify` functionality is turned off for a long period of time.

## 07. Confusing comment

- Low      ⚠ Acknowledged

At the L855 there is a comment `//exclude owner and this contract from fee`, but only the address of the contract is actually excluded.

## 08. Unused variables

- Low      Ⓢ Acknowledged

Values `_previousBurnFee` and `_previousLPFee` are only defined and set, but never used.

## 09. Functions may be declared external

- Low      Ⓢ Acknowledged

View functions that implement the ERC20 interface should be defined as `external` instead of `public`, to save gas.

## 5. Conclusion

The contract is highly dependent on the owner account. If the owner account is compromised, the token may be completely broken. We recommend securing the owner account by putting it behind a Timelock contract or using a multisig.

Audit includes recommendations on code improvement.

**PlateauFinance team response:** There is only one major issue that is fee should not be set with certain percentage. We determined that this will not affect the contract and believe there is no need for redeployment.

## Appendix A. Issues' severity classification

**Critical.** Issues that may cause an unlimited loss of funds or entirely break the contract workflow. Malicious code (including malicious modification of libraries) is also treated as a critical severity issue. These issues must be fixed before deployments or fixed in already running projects as soon as possible.

**High.** Issues that may lead to a limited loss of funds, break interaction with users, or other contracts under specific conditions. Also, issues in a smart contract, that allow a privileged account the ability to steal or block other users' funds.

**Medium.** Issues that do not lead to a loss of funds directly, but break the contract logic. May lead to failures in contracts operation.

**Low.** Issues that are of a non-optimal code character, for instance, gas optimization tips, unused variables, errors in messages.

**Informational.** Issues that do not impact the contract operation. Usually, informational severity issues are related to code best practices, e.g. style guide.

## Appendix B. List of examined issue types

- Business logic overview
- Functionality checks
- Following best practices
- Access control and authorization
- Reentrancy attacks
- Front-run attacks
- DoS with (unexpected) revert
- DoS with block gas limit
- Transaction-ordering dependence
- ERC/BEP and other standards violation
- Unchecked math
- Implicit visibility levels
- Excessive gas usage
- Timestamp dependence
- Forcibly sending ether to a contract
- Weak sources of randomness
- Shadowing state variables
- Usage of deprecated code

## Appendix C. Static Analyzer's output





- Ownable.owner() (downclorox.sol#742-744) (function)

Reference: <https://github.com/crytic/slither/wiki/Detector-Documentation#local-variable-shadowing>

PlateauFinance.setFee(uint256,uint256) (downclorox.sol#863-869) should emit an event for:

- BURN\_FEE = \_burnFee (downclorox.sol#864)
- LP\_FEE = \_lpFee (downclorox.sol#866)

PlateauFinance.setMaxLPCap(uint256) (downclorox.sol#879-881) should emit an event for:

- maxLPCap = cap (downclorox.sol#880)

Reference: <https://github.com/crytic/slither/wiki/Detector-Documentation#missing-events-arithmetic>

PlateauFinance.constructor(address).\_lpReceiverAddress (downclorox.sol#840) lacks a zero-check on :

- lpReceiverAddress = \_lpReceiverAddress (downclorox.sol#844)

PlateauFinance.changeLpReceiverAddress(address).wallet (downclorox.sol#871) lacks a zero-check on :

- lpReceiverAddress = wallet (downclorox.sol#872)

Reference: <https://github.com/crytic/slither/wiki/Detector-Documentation#missing-zero-address-validation>

Reentrancy in PlateauFinance.constructor(address) (downclorox.sol#840-860):

External calls:

- \_pair =

IJoeFactory(\_router.factory()).createPair(address(this),\_router.WAVAX()) (downclorox.sol#850-851)

State variables written after the call(s):

- \_excluded[address(this)] = true (downclorox.sol#857)
- router = \_router (downclorox.sol#853)

Reentrancy in PlateauFinance.swapAndLiquify(uint256) (downclorox.sol#1160-1180):

External calls:

- swapTokensForEth(half) (downclorox.sol#1172)
- router.swapExactTokensForAVAXSupportingFeeOnTransferTokens(tokenAmount,0,path,address(this),block.timestamp) (downclorox.sol#1190-1196)
- addLiquidity(otherHalf,newBalance) (downclorox.sol#1177)

```

- router.addLiquidityAVAX{value: ethAmount}
(address(this),tokenAmount,0,0,lpReceiverAddress,block.timestamp)
(downclorox.sol#1206-1213)
External calls sending eth:
- addLiquidity(otherHalf,newBalance) (downclorox.sol#1177)
- router.addLiquidityAVAX{value: ethAmount}
(address(this),tokenAmount,0,0,lpReceiverAddress,block.timestamp)
(downclorox.sol#1206-1213)
State variables written after the call(s):
- addLiquidity(otherHalf,newBalance) (downclorox.sol#1177)
- _allowances[owner][spender] = amount (downclorox.sol#1077)
Reentrancy in PlateauFinance.transferFrom(address,address,uint256)
(downclorox.sol#1004-1012):
External calls:
- _transfer(sender,recipient,amount) (downclorox.sol#1005)
- router.addLiquidityAVAX{value: ethAmount}
(address(this),tokenAmount,0,0,lpReceiverAddress,block.timestamp)
(downclorox.sol#1206-1213)
- router.swapExactTokensForAVAXSupportingFeeOnTransferTokens(tokenAmount,0,path,a
ddress(this),block.timestamp) (downclorox.sol#1190-1196)
External calls sending eth:
- _transfer(sender,recipient,amount) (downclorox.sol#1005)
- router.addLiquidityAVAX{value: ethAmount}
(address(this),tokenAmount,0,0,lpReceiverAddress,block.timestamp)
(downclorox.sol#1206-1213)
State variables written after the call(s):
- _approve(sender,_msgSender(),currentAllowance - amount) (downclorox.sol#1009)
- _allowances[owner][spender]= amount (downclorox.sol#1077)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#reentrancy-vulnerabilities-2

```

```

Reentrancy in PlateauFinance._transfer(address,address,uint256)
(downclorox.sol#1098-1154):
External calls:
- swapAndLiquify(contractTokenBalance) (downclorox.sol#1120)
- router.addLiquidityAVAX{value: ethAmount}
(address(this),tokenAmount,0,0,lpReceiverAddress,block.timestamp)
(downclorox.sol#1206-1213)

```



- INLINE ASM (downclorox.sol#625-628)

Reference: <https://github.com/crytic/slither/wiki/Detector-Documentation#assembly-usage>

PlateauFinance.\_transfer(address,address,uint256) (downclorox.sol#1098-1154)  
compares to a boolean constant:

- swapAndLiquifyEnable == true && overMinTokenBalance && from != \_pair  
(downclorox.sol#1114-1116)

PlateauFinance.\_transfer(address,address,uint256) (downclorox.sol#1098-1154)  
compares to a boolean constant:

- \_excluded[from] == true (downclorox.sol#1130)

Reference: <https://github.com/crytic/slither/wiki/Detector-Documentation#boolean-equality>

Different versions of Solidity is used:

- Version used: ['>=0.6.2', '^0.8.0']
- >=0.6.2 (downclorox.sol#5)
- >=0.6.2 (downclorox.sol#164)
- ^0.8.0 (downclorox.sol#223)
- ^0.8.0 (downclorox.sol#447)
- ^0.8.0 (downclorox.sol#473)
- ^0.8.0 (downclorox.sol#637)
- ^0.8.0 (downclorox.sol#711)
- ^0.8.0 (downclorox.sol#778)

Reference: <https://github.com/crytic/slither/wiki/Detector-Documentation#different-pragma-directives-are-used>

Address.\_functionCallWithValue(address,bytes,uint256,string)  
(downclorox.sol#612-633) is never used and should be removed

Address.functionCall(address,bytes) (downclorox.sol#572-574) is never used and  
should be removed

Address.functionCall(address,bytes,string) (downclorox.sol#582-584) is never used  
and should be removed

Address.functionCallWithValue(address,bytes,uint256) (downclorox.sol#597-599) is  
never used and should be removed

Address.functionCallWithValue(address,bytes,uint256,string)  
(downclorox.sol#607-610) is never used and should be removed

`Address.isContract(address)` (downclorox.sol#519-528) is never used and should be removed

`Address.sendValue(address,uint256)` (downclorox.sol#546-552) is never used and should be removed

`Context._msgData()` (downclorox.sol#490-493) is never used and should be removed

`SafeERC20._callOptionalReturn(IERC20,bytes)` (downclorox.sol#695-705) is never used and should be removed

`SafeERC20.safeApprove(IERC20,address,uint256)` (downclorox.sol#668-677) is never used and should be removed

`SafeERC20.safeDecreaseAllowance(IERC20,address,uint256)` (downclorox.sol#684-687) is never used and should be removed

`SafeERC20.safeIncreaseAllowance(IERC20,address,uint256)` (downclorox.sol#679-682) is never used and should be removed

`SafeERC20.safeTransfer(IERC20,address,uint256)` (downclorox.sol#653-655) is never used and should be removed

`SafeERC20.safeTransferFrom(IERC20,address,address,uint256)` (downclorox.sol#657-659) is never used and should be removed

`SafeMath.add(uint256,uint256)` (downclorox.sol#237-242) is never used and should be removed

`SafeMath.mod(uint256,uint256)` (downclorox.sol#347-349) is never used and should be removed

`SafeMath.mod(uint256,uint256,string)` (downclorox.sol#363-366) is never used and should be removed

Reference: <https://github.com/crytic/slither/wiki/Detector-Documentation#dead-code>

`PlateauFinance._previousBurnFee` (downclorox.sol#822) is set pre-construction with a non-constant function or state variable:

- `BURN_FEE`

`PlateauFinance._previousLPFee` (downclorox.sol#823) is set pre-construction with a non-constant function or state variable:

- `LP_FEE`

`PlateauFinance.maxLPCap` (downclorox.sol#824) is set pre-construction with a non-constant function or state variable:

- `1000 * 10 ** decimals()`

`PlateauFinance.MAX_SUPPLY` (downclorox.sol#831) is set pre-construction with a non-constant function or state variable:

- `10000000000 * 10 ** decimals()`

Reference: <https://github.com/crytic/slither/wiki/Detector-Documentation#function-initializing-state>

Pragma version>=0.6.2 (downclorox.sol#5) allows old versions

Pragma version>=0.6.2 (downclorox.sol#164) allows old versions

Pragma version^0.8.0 (downclorox.sol#223) necessitates a version too recent to be trusted. Consider deploying with 0.6.12/0.7.6

Pragma version^0.8.0 (downclorox.sol#447) necessitates a version too recent to be trusted. Consider deploying with 0.6.12/0.7.6

Pragma version^0.8.0 (downclorox.sol#473) necessitates a version too recent to be trusted. Consider deploying with 0.6.12/0.7.6

Pragma version^0.8.0 (downclorox.sol#637) necessitates a version too recent to be trusted. Consider deploying with 0.6.12/0.7.6

Pragma version^0.8.0 (downclorox.sol#711) necessitates a version too recent to be trusted. Consider deploying with 0.6.12/0.7.6

Pragma version^0.8.0 (downclorox.sol#778) necessitates a version too recent to be trusted. Consider deploying with 0.6.12/0.7.6

solc-0.8.7 is not recommended for deployment

Reference: <https://github.com/crytic/slither/wiki/Detector-Documentation#incorrect-versions-of-solidity>

Low level call in Address.sendValue(address,uint256) (downclorox.sol#546-552):

- (success) = recipient.call{value: amount}() (downclorox.sol#550)

Low level call in Address.\_functionCallWithValue(address,bytes,uint256,string) (downclorox.sol#612-633):

- (success,returndata) = target.call{value: weiValue}(data) (downclorox.sol#616)

Reference: <https://github.com/crytic/slither/wiki/Detector-Documentation#low-level-calls>

PlateauFinance (downclorox.sol#807-1216) should inherit from IERC20Metadata (downclorox.sol#455-470)

Reference: <https://github.com/crytic/slither/wiki/Detector-Documentation#missing-inheritance>

Function IJoeRouter01.WAVAX() (downclorox.sol#10) is not in mixedCase

Parameter PlateauFinance.setFee(uint256,uint256).\_burnFee (downclorox.sol#863) is not in mixedCase



PlateauFinance.slitherConstructorVariables() (downclorox.sol#807-1216) uses literals with too many digits:

- MAX\_SUPPLY = 10000000000 \* 10 \*\* decimals() (downclorox.sol#831)

Reference: <https://github.com/crytic/slither/wiki/Detector-Documentation#too-many-digits>

renounceOwnership() should be declared external:

- Ownable.renounceOwnership() (downclorox.sol#761-764)

transferOwnership(address) should be declared external:

- Ownable.transferOwnership(address) (downclorox.sol#770-774)

setFee(uint256,uint256) should be declared external:

- PlateauFinance.setFee(uint256,uint256) (downclorox.sol#863-869)

changeLpReceiverAddress(address) should be declared external:

- PlateauFinance.changeLpReceiverAddress(address) (downclorox.sol#871-873)

exclude(address,bool) should be declared external:

- PlateauFinance.exclude(address,bool) (downclorox.sol#875-877)

setMaxLPCap(uint256) should be declared external:

- PlateauFinance.setMaxLPCap(uint256) (downclorox.sol#879-881)

setSwapAndLiquify(bool) should be declared external:

- PlateauFinance.setSwapAndLiquify(bool) (downclorox.sol#898-900)

name() should be declared external:

- PlateauFinance.name() (downclorox.sol#918-920)

symbol() should be declared external:

- PlateauFinance.symbol() (downclorox.sol#926-928)

totalSupply() should be declared external:

- PlateauFinance.totalSupply() (downclorox.sol#950-952)

allowance(address,address) should be declared external:

- PlateauFinance.allowance(address,address) (downclorox.sol#966-968)

approve(address,uint256) should be declared external:

- PlateauFinance.approve(address,uint256) (downclorox.sol#977-981)

transfer(address,uint256) should be declared external:

- PlateauFinance.transfer(address,uint256) (downclorox.sol#985-988)

transferFrom(address,address,uint256) should be declared external:

- PlateauFinance.transferFrom(address,address,uint256) (downclorox.sol#1004-1012)

increaseAllowance(address,uint256) should be declared external:

- PlateauFinance.increaseAllowance(address,uint256) (downclorox.sol#1026-1029)

decreaseAllowance(address,uint256) should be declared external:



- PlateauFinance.decreaseAllowance(address,uint256) (downclorox.sol#1045-1051)

Reference: <https://github.com/crytic/slither/wiki/Detector-Documentation#public-function-that-could-be-declared-external>

. analyzed (11 contracts with 75 detectors), 84 result(s) found

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