0x Guard

Smart contracts security assessment

Final report

Tariff: Standard

PulseAXE

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Contents

Introduction

The report has been prepared for **PulseAXE**.

The PulseAXE project is a Tomb Finance fork, allowing users to acquire AXE and share CHOP tokens. Both AXE and CHOP tokens are ERC20 standard tokens with transfer tax up to 40%. AXE has privileged account allowed to mint.

RewardPool contract may charge a fee of up to 4% for each deposit.

The code is available at the @PulseAXEcom/contracts_v3 Github repo and was audited in the 26ebd8e commit.

The updated code was rechecked after the commit fc6bfea.

Name	PulseAXE
Audit date	2023-07-19 - 2023-07-22
Language	Solidity
Platform	Pulse Chain

Contracts checked

Name	Address
AXE.sol	
CHOP.sol	
MAUL.sol	
Masonry.sol	
RewardPool.sol	
Treasury.sol	
Oracle.sol	
Centralization risks	

Procedure

We perform our audit according to the following procedure:

Automated analysis

- Scanning the project's smart contracts with several publicly available automated Solidity analysis tools
- Manual verification (reject or confirm) all the issues found by the tools

Manual audit

- Manually analyze smart contracts for security vulnerabilities
- Smart contracts' logic check

Known vulnerabilities checked

Title	Check result
Unencrypted Private Data On-Chain	passed
Code With No Effects	passed
Message call with hardcoded gas amount	passed
Typographical Error	passed
DoS With Block Gas Limit	passed
Presence of unused variables	passed
Incorrect Inheritance Order	passed
Requirement Violation	passed
Weak Sources of Randomness from Chain Attributes	passed
Shadowing State Variables	passed

Incorrect Constructor Name	passed
Block values as a proxy for time	passed
Authorization through tx.origin	passed
DoS with Failed Call	passed
Delegatecall to Untrusted Callee	passed
Use of Deprecated Solidity Functions	passed
Assert Violation	passed
State Variable Default Visibility	passed
Reentrancy	passed
Unprotected SELFDESTRUCT Instruction	passed
Unprotected Ether Withdrawal	passed
Unchecked Call Return Value	passed
Floating Pragma	passed
Outdated Compiler Version	passed
Integer Overflow and Underflow	passed
Function Default Visibility	passed

Classification of issue severity

High severity	High severity issues can cause a significant or full loss of funds, change of contract ownership, major interference with contract logic. Such issues require immediate attention.
Medium severity	Medium severity issues do not pose an immediate risk, but can be detrimental to the client's reputation if exploited. Medium severity issues may lead to a contract failure and can be fixed by modifying the contract state or redeployment. Such issues require attention.

Low severity	Low severity issues do not cause significant destruction to the contract's functionality. Such issues are recommended to be taken into consideration.

Issues

High severity issues

1. Owner capabilities (Centralization risks)

Status: Partially fixed

The project is fully centralized.

AXE token is open for minting by operator account, which is assigned by the owner, other contracts are highly dependent on the owner's account.

Recommendation: Renounce ownership wherever possible and/or secure owner's account.

Team comment: Contracts will be renounced right after ensuring the smooth launch of the protocol.

Medium severity issues

1. Sell tax increase is avoidable (AXE.sol)

Status: Fixed

Sell tax percent is increased from 2.5% up to 40% based on AXE de-peg in Uniswap-like pair, see more in Oracle contract section. Since pair reserves can be manipulated, tax percent increase may be avoided.

```
    function _transfer(
        address sender,
        address recipient,
        uint256 amount
    ) internal override {
        if (automatedMarketMakerPairs[recipient]) {
            uint256 _fee = basicSellFee;
```

```
            uint256 _axeCurrentPrice = twap();
            while (_axeCurrentPrice < axePriceOne) {
                _fee = _fee.mul(2);
                _axeCurrentPrice = _axeCurrentPrice.add(5 * 10 ** 16);
            }
            if (_fee > maxSellFee) _fee = maxSellFee;
            uint256 _feeAmount = amount.mul(_fee).div(1000);
            amount = amount.sub(_feeAmount);
            super._transfer(sender, communityFund, _feeAmount);
        }
        super._transfer(sender, recipient, amount);
    }

    function twap() public view returns (uint256 _amountOut) {
        return IOracle(oracle).twap(address(this), 1e18);
    }
```

Recommendation: Fix the Oracle.

2. Sell tax increase is avoidable (CHOP.sol)
Status: Fixed

Sell tax implementation is identical to the AXE contract. Tax percent increase may be avoided.

Recommendation: Fix the Oracle.

Low severity issues

No issues were found

Conclusion

PulseAXE AXE.sol, CHOP.sol, MAUL.sol, Masonry.sol, RewardPool.sol, Treasury.sol, Oracle.sol, Centralization risks contracts were audited. 1 high, 2 medium severity issues were found.
2 medium severity issues have been fixed in the update.

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