



Coinsult

Advanced Manual Smart Contract Audit



Project: ApeRewards

Website: <https://aperewards.net/>

Low-risk

5 low-risk code
issues found

1 resolved and fixed

Medium-risk

2 medium-risk code
issues found

2 resolved and fixed

High-risk

0 high-risk code
issues found

Contract address

0xd1575001ED95508a78d01bFD417472EC03A6c9a6

Disclaimer: Coinsult is not responsible for any financial losses. Nothing in this contract audit is financial advice, please do your own research.

Disclaimer

Coinsult is not responsible if a project turns out to be a scam, rug-pull or honeypot. We only provide a detailed analysis for your own research.

Coinsult is not responsible for any financial losses. Nothing in this contract audit is financial advice, please do your own research.

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Tokenomics

Rank	Address	Quantity (Token)	Percentage
1	0xc7da479275743fb08a3701b652d7fc384c7a5870	300,000	100.0000%

Source code

Coinsult was commissioned by ApeRewards to perform an audit based on the following smart contract:

<https://bscscan.com/address/0xd1575001ED95508a78d01bFD417472ECO3A6c9a6#code>

Manual Code Review

● Low-risk

5 low-risk code issues found.

Could be fixed, will not bring problems.

- Contract contains Reentrancy vulnerabilities:

`_transferFrom(address,address,uint256)`

Additional information: This combination increases risk of malicious intent. While it may be justified by some complex mechanics (e.g. rebase, reflections, buyback).

More information: [Slither](#)

```
function _transferFrom(
    address sender,
    address recipient,
    uint256 amount
) internal returns (bool) {
    require(!blacklist[sender] && !blacklist[recipient], "in_blacklist");

    if (inSwap) {
        return _basicTransfer(sender, recipient, amount);
    }
    if (shouldRebase()) {
        rebase();
    }

    if (shouldAddLiquidity()) {
        addLiquidity();
    }

    if (shouldSwapBack()) {
        swapBack();
    }

    uint256 gonAmount = amount.mul(_gonsPerFragment);
    _gonBalances[sender] = _gonBalances[sender].sub(gonAmount);
    uint256 gonAmountReceived = shouldTakeFee(sender, recipient)
        ? takeFee(sender, recipient, gonAmount)
        : gonAmount;
    _gonBalances[recipient] = _gonBalances[recipient].add(
        gonAmountReceived
    );

    emit Transfer(
        sender,
        recipient,
        gonAmountReceived.div(_gonsPerFragment)
    );
    return true;
}
```

- Function which sends eth to arbitrary destination

Ensure that an arbitrary user cannot withdraw unauthorized funds. More information: [Slither](#)

```
(bool success, ) = payable(VaultReceiver).call{
    value: amountETHToVaultAndSIF.mul(VaultFee).div(
        VaultFee.add(InsuranceFundFee)
    ),
    gas: 30000
}("");
(success, ) = payable(InsuranceFundReceiver).call{
    value: amountETHToVaultAndSIF.mul(InsuranceFundFee).div(
        VaultFee.add(InsuranceFundFee)
    ),
    gas: 30000
}("");
```

- Block.timestamp can be manipulated by miners.

Avoid relying on block.timestamp.

More information:

<https://github.com/crytic/slither/wiki/Detector-Documentation#block-timestamp>

```
function shouldRebase() internal view returns (bool) {
    return
        _autoRebase &&
        (_totalSupply < MAX_SUPPLY) &&
        msg.sender != pair &&
        !inSwap &&
        block.timestamp >= (_lastRebasedTime + 3 seconds);
}
```

- Variable written twice

Fix or remove the writes.

More information:

<https://github.com/crytic/slither/wiki/Detector-Documentation#write-after-write>

```
(bool success, ) = payable(VaultReceiver).call{
    value: amountETHToVaultAndSIF.mul(VaultFee).div(
        VaultFee.add(InsuranceFundFee)
    ),
    gas: 30000
}("");
(success, ) = payable(InsuranceFundReceiver).call{
    value: amountETHToVaultAndSIF.mul(InsuranceFundFee).div(
        VaultFee.add(InsuranceFundFee)
    ),
    gas: 30000
}("");
```

- Missing zero address validation (● Acknowledged and changed)
Check that the new address is not zero.

```
function setFeeReceivers(  
    address _autoLiquidityReceiver,  
    address _VaultReceiver,  
    address _InsuranceFundReceiver,  
    address _BurntBanana  
) external onlyOwner {  
    autoLiquidityReceiver = _autoLiquidityReceiver;  
    VaultReceiver = _VaultReceiver;  
    InsuranceFundReceiver = _InsuranceFundReceiver;  
    BurntBanana = _BurntBanana;  
}
```

● New changed function:

```
function setFeeReceivers(  
    address _autoLiquidityReceiver,  
    address _VaultReceiver,  
    address _InsuranceFundReceiver,  
    address _BurntBanana  
) external onlyOwner {  
    require(_autoLiquidityReceiver != address(0));  
    require(_VaultReceiver != address(0));  
    require(_InsuranceFundReceiver != address(0));  
    require(_BurntBanana != address(0));  
    autoLiquidityReceiver = _autoLiquidityReceiver;  
    VaultReceiver = _VaultReceiver;  
    InsuranceFundReceiver = _InsuranceFundReceiver;  
    BurntBanana = _BurntBanana;  
}
```

● Medium-risk

2 medium-risk code issues found.

Should be fixed, could bring problems.

- If statements might never be reached (● Acknowledged and changed)
If the second statement is reached (≥ 365 days), then the other two below will not be called upon.

```
if (deltaTimeFromInit < (365 days)) {  
    rebaseRate = 9;  
} else if (deltaTimeFromInit >= (365 days)) {  
    rebaseRate = 3;  
} else if (deltaTimeFromInit >= ((15 * 365 days) / 10)) {  
    rebaseRate = 2;  
} else if (deltaTimeFromInit >= (7 * 365 days)) {  
    rebaseRate = 1;  
}
```

● New changed function:

```
if (deltaTimeFromInit < (365 days)) {  
    rebaseRate = 9;  
} else if (deltaTimeFromInit >= (7 * 365 days)) {  
    rebaseRate = 1;  
} else if (deltaTimeFromInit >= ((15 * 365 days) / 10)) {  
    rebaseRate = 2;  
} else if (deltaTimeFromInit >= (365 days)) {  
    rebaseRate = 3;  
}
```

- Fees can be set up to 100% (Acknowledged and changed)

It was probably intended to limit the fees up to 25% but, sellFee is never added to the totalfee in this limit function so this way the totalfee can be set to 100%

```
function changeFees(
    uint256 _liquidityFee,
    uint256 _VaultFee,
    uint256 _InsuranceFundFee,
    uint256 _sellFee,
    uint256 _BurntBananaFee
) external onlyOwner {
    liquidityFee = _liquidityFee;
    VaultFee = _VaultFee;
    InsuranceFundFee = _InsuranceFundFee;
    sellFee = _sellFee;
    BurntBananaFee = _BurntBananaFee;
    totalFee = _liquidityFee
        .add(_VaultFee)
        .add(_InsuranceFundFee)
        .add(_BurntBananaFee);

    require(totalFee <= 250, "Total fees can not be greater than 25%");
}
```

New changed function:

```
function changeFees(
    uint256 _liquidityFee,
    uint256 _VaultFee,
    uint256 _InsuranceFundFee,
    uint256 _sellFee,
    uint256 _BurntBananaFee
) external onlyOwner {
    totalFee = _liquidityFee
        .add(_VaultFee)
        .add(_InsuranceFundFee)
        .add(_sellFee)
        .add(_BurntBananaFee);

    require(totalFee <= 250, "Total fees can not be greater than 25%");

    liquidityFee = _liquidityFee;
    VaultFee = _VaultFee;
    InsuranceFundFee = _InsuranceFundFee;
    sellFee = _sellFee;
    BurntBananaFee = _BurntBananaFee;
}
```


● High-risk

0 high-risk code issues found

Must be fixed, and will bring problems.

Extra notes by the team

● Owner can change the fees up to 25%

It was probably intended to limit the fees up to 25% but, sellFee is never added to the totalfee in this limit function so this way the totalfee can be set to 100%

```
function changeFees(
    uint256 _liquidityFee,
    uint256 _VaultFee,
    uint256 _InsuranceFundFee,
    uint256 _sellFee,
    uint256 _BurntBananaFee
) external onlyOwner {
    totalFee = _liquidityFee
        .add(_VaultFee)
        .add(_InsuranceFundFee)
        .add(_sellFee)
        .add(_BurntBananaFee);

    require(totalFee <= 250, "Total fees can not be greater than 25%");

    liquidityFee = _liquidityFee;
    VaultFee = _VaultFee;
    InsuranceFundFee = _InsuranceFundFee;
    sellFee = _sellFee;
    BurntBananaFee = _BurntBananaFee;
}
```

● Owner can blacklist contract addresses

● Owner can exclude from fees

● Contract uses rebase

```
function rebase() internal {
    if (inSwap) return;
    uint256 rebaseRate;
    uint256 deltaTimeFromInit = block.timestamp -
_initRebaseMaxAPYtTime;

    uint256 deltaTime = block.timestamp - _lastRebasedTime;
    uint256 times = deltaTime.div(3 seconds);
    uint256 epoch = times.mul(3);

    if (deltaTimeFromInit < (365 days)) {
        rebaseRate = 9;
    } else if (deltaTimeFromInit >= (7 * 365 days)) {
        rebaseRate = 1;
    } else if (deltaTimeFromInit >= ((15 * 365 days) / 10)) {
        rebaseRate = 2;
    } else if (deltaTimeFromInit >= (365 days)) {
        rebaseRate = 3;
    }

    for (uint256 i = 0; i < times; i++) {
        _totalSupply = _totalSupply
            .mul((10**RATE_DECIMALS).add(rebaseRate))
            .div(10**RATE_DECIMALS);
    }

    _gonsPerFragment = TOTAL_GONS.div(_totalSupply);
    _lastRebasedTime = _lastRebasedTime.add(times.mul(3 seconds));

    pairContract.sync();

    emit LogRebase(epoch, _totalSupply);
}
```

Contract Snapshot

```
contract ApeRewards is ERC20Detailed, Ownable {
    using SafeMath for uint256;
    using SafeMathInt for int256;

    event LogRebase(uint256 indexed epoch, uint256 totalSupply);

    string public _name = "Ape Rewards";
    string public _symbol = "APER";
    uint8 public _decimals = 5;

    IPancakeSwapPair public pairContract;
    mapping(address => bool) _isFeeExempt;

    modifier validRecipient(address to) {
        require(to != address(0x0));
        _;
    }

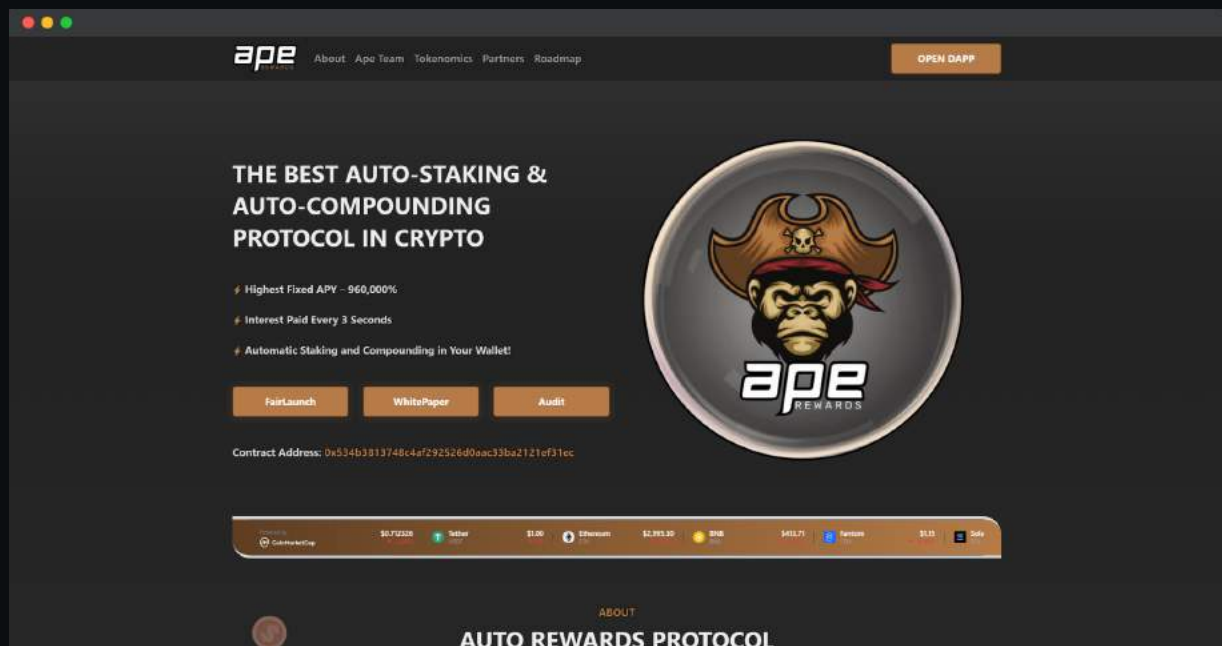
    uint256 public constant DECIMALS = 5;
    uint256 public constant MAX_UINT256 = ~uint256(0);
    uint8 public constant RATE_DECIMALS = 7;

    uint256 private constant INITIAL_FRAGMENTS_SUPPLY =
        300 * 10**3 * 10**DECIMALS;

    uint256 public liquidityFee = 40;
    uint256 public VaultFee = 25;
    uint256 public InsuranceFundFee = 50;
    uint256 public sellFee = 20;
    uint256 public BurntBananaFee = 25;
    uint256 public totalFee =

liquidityFee.add(VaultFee).add(InsuranceFundFee).add(BurntBananaFee);
    uint256 public feeDenominator = 1000;
```

Website Review



Coinsult checks the website completely manually and looks for visual, technical and textual errors. We also look at the security, speed and accessibility of the website. In short, a complete check to see if the website meets the current standard of the web development industry.

- Mobile Friendly
- Contains no jQuery errors
- SSL Secured
- No major spelling errors

Loading speed: 92%

Rug-pull Review

Based on the available information analyzed by us, we come to the following conclusions:

- Locked Liquidity - No liquidity yet
- Large unlocked wallets - Tokens not yet distributed
- No doxxed Team

Honeypot Review

Based on the available information analyzed by us, we come to the following conclusions:

- Ability to sell
- Owner is not able to pause the contract
- Router hard coded in the contract

Note: Please check the disclaimer above and note, the audit makes no statements or warranties on business model, investment attractiveness or code sustainability. The report is provided for the only contract mentioned in the report and does not include any other potential contracts deployed by the project owner.