Coinsult

Advanced Manual Smart Contract Audit

Project: RunEarner

Website: https://www.Runearner.com

🟢 Low-Risk	🟡 Medium-Risk	🔴 High-Risk
10 low-risk code issues found	1 medium-risk code issues found	0 high-risk code issues found

Contract Address

0x5B13175262335022EE37c647751DdE2A46b75135

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.

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Tokenomics

Rank	Address	Quantity (Token)	Percentage
1	0x7cf0e9c4eba47059a942e4f07efb1b94b8d8286d	500,000	100.0000%

Source Code

Coinsult was comissioned by RunEarner to perform an audit based on the following smart contract:

https://bscscan.com/address/0x5B13175262335022EE37c647751DdE2A46b75135#code

Manual Code Review

In this audit report we will highlight all these issues:

● Low-Risk

10 low-risk code issues found

● Medium-Risk

1 medium-risk code issues found

● High-Risk

0 high-risk code issues found

The detailed report continues on the next page...

🟢 **Low-Risk:** Could be fixed, will not bring problems.

Contract contains Reentrancy vulnerabilities

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] &amp;&amp; !blacklist[recipient], "in_blacklist");

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

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

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

Recommendation

Apply the check-effects-interactions pattern.

Exploit scenario

```
function withdrawBalance(){
    // send userBalance[msg.sender] Ether to msg.sender
    // if mgs.sender is a contract, it will call its fallback function
    if( ! (msg.sender.call.value(userBalance[msg.sender])() ) ){
        throw;
    }
    userBalance[msg.sender] = 0;
}
```

Bob uses the re-entrancy bug to call withdrawBalance two times, and withdraw more than its initial deposit to the contract.

🟢 **Low-Risk:** Could be fixed, will not bring problems.

Avoid relying on block.timestamp

block.timestamp can be manipulated by miners.

```
function shouldDistribute(address shareholder) internal view returns (bool) {
    return shareholderClaims[shareholder] + minPeriod  minDistribution;
}
```

Recommendation

Do not use `block.timestamp`, now or `blockhash` as a source of randomness

Exploit scenario

```
contract Game {

    uint reward_determining_number;

    function guessing() external{
      reward_determining_number = uint256(block.blockhash(10000)) % 10;
    }
}
```

Eve is a miner. Eve calls `guessing` and re-orders the block containing the transaction. As a result, Eve wins the game.

● **Low-Risk:** Could be fixed, will not bring problems.

Too many digits

Literals with many digits are difficult to read and review.

```
uint256 distributorGas = 2500000;
```

Recommendation

Use: Ether suffix, Time suffix, or The scientific notation

Exploit scenario

```
contract MyContract{
    uint 1_ether = 10000000000000000000;
}
```

While `1_ether` looks like `1 ether`, it is `10 ether`. As a result, it’s likely to be used incorrectly.

🟢 **Low-Risk:** Could be fixed, will not bring problems.

No zero address validation for some functions

Detect missing zero address validation.

```
function setFeeReceivers(
    address _autoLiquidityReceiver,
    address _treasuryReceiver,
    address _insuranceFundReceiver
) external onlyOwner {
    autoLiquidityReceiver = _autoLiquidityReceiver;
    treasuryReceiver = _treasuryReceiver;
    insuranceFundReceiver = _insuranceFundReceiver;
}
```

Recommendation

Check that the new address is not zero.

Exploit scenario

```
contract C {

  modifier onlyAdmin {
    if (msg.sender != owner) throw;
    _;
  }

  function updateOwner(address newOwner) onlyAdmin external {
    owner = newOwner;
  }
}
```

Bob calls `updateOwner` without specifying the `newOwner`, soBob loses ownership of the contract.

● **Low-Risk:** Could be fixed, will not bring problems.

Functions that send Ether to arbitrary destinations

Unprotected call to a function sending Ether to an arbitrary address.

```
function swapBack() internal swapping {

    uint256 amountToSwap = _gonBalances[address(this)].div(_gonsPerFragment);

    if( amountToSwap == 0) {
        return;
    }

    uint256 balanceBefore = address(this).balance;
    address[] memory path = new address[](2);
    path[0] = address(this);
    path[1] = router.WETH();


    router.swapExactTokensForETHSupportingFeeOnTransferTokens(
        amountToSwap,
        0,
        path,
        address(this),
        block.timestamp
    );
```

Recommendation

Ensure that an arbitrary user cannot withdraw unauthorized funds.

Exploit scenario

```
contract ArbitrarySend{
    address destination;
    function setDestination(){
        destination = msg.sender;
    }

    function withdraw() public{
        destination.transfer(this.balance);
    }
}
```

Bob calls `setDestination` and `withdraw`. As a result he withdraws the contract’s balance.

🟢 **Low-Risk:** Could be fixed, will not bring problems.

Unchecked transfer

The return value of an external transfer/transferFrom call is not checked.

```
function distributeDividend(address shareholder) internal {
    if(shares[shareholder].amount == 0){ return; }

    uint256 amount = getUnpaidEarnings(shareholder);
    if(amount &gt; 0){
        totalDistributed = totalDistributed.add(amount);
        uint256 reward = amount.div(2);
        uint256 otherreward = amount.sub(reward);
        GMT.transfer(shareholder, reward);
        GMT.approve(address(0x10ED43C718714eb63d5aA57B78B54704E256024E), otherreward);

        address[] memory path = new address[](2);
        path[0] = address(GMT);
        path[1] = router.WETH();
        router.swapExactTokensForETHSupportingFeeOnTransferTokens(
            otherreward,
            0,
            path,
            shareholder,
            block.timestamp
        );
```

Recommendation

Use `SafeERC20`, or ensure that the transfer/transferFrom return value is checked.

Exploit scenario

```
contract Token {
    function transferFrom(address _from, address _to, uint256 _value) public returns (bool success);
}
contract MyBank{
    mapping(address => uint) balances;
    Token token;
    function deposit(uint amount) public{
        token.transferFrom(msg.sender, address(this), amount);
        balances[msg.sender] += amount;
    }
}
```

Several tokens do not revert in case of failure and return false. If one of these tokens is used in `MyBank`, `deposit` will not revert if the transfer fails, and an attacker can call `deposit` for free..

🟢 **Low-Risk:** Could be fixed, will not bring problems.

Write after write

Variables that are written but never read and written again.

```
function swapBack() internal swapping {

    uint256 amountToSwap = _gonBalances[address(this)].div(_gonsPerFragment);

    if( amountToSwap == 0) {
        return;
    }

    uint256 balanceBefore = address(this).balance;
    address[] memory path = new address[](2);
    path[0] = address(this);
    path[1] = router.WETH();


    router.swapExactTokensForETHSupportingFeeOnTransferTokens(
        amountToSwap,
        0,
        path,
        address(this),
        block.timestamp
    );
```

Recommendation

Fix or remove the writes.

Exploit scenario

~~~
```solidity
contract Buggy{
    function my_func() external initializer{
        // ...
        a = b;
        a = c;
        // ..
    }
}
~~~

`a` is first asigned to `b`, and then to `c`. As a result the first write does nothing.

🟢 **Low-Risk:** Could be fixed, will not bring problems.

Divide before multiply

Solidity integer division might truncate. As a result, performing multiplication before division can sometimes avoid loss of precision.

```
_gonBalances[address(this)] = _gonBalances[address(this)].add(
            gonAmount.div(feeDenominator).mul(_treasuryFee.add(gmtWbnbFee).add(insuranceFundFee))
```

Recommendation

Consider ordering multiplication before division.

Exploit scenario

```
contract A {
    function f(uint n) public {
        coins = (oldSupply / n) * interest;
    }
}
```

If n is greater than `oldSupply`, `coins` will be zero. For example, with `oldSupply = 5; n = 10, interest = 2`, coins will be zero. If `(oldSupply * interest / n)` was used, `coins` would have been `1`. In general, it's usually a good idea to re-arrange arithmetic to perform multiplication before division, unless the limit of a smaller type makes this dangerous.

🟢 **Low-Risk:** Could be fixed, will not bring problems.

Missing events arithmetic

Detect missing events for critical arithmetic parameters.

```
function setDistributionCriteria(uint256 _minPeriod, uint256 _minDistribution) external override onl
    minPeriod = _minPeriod;
    minDistribution = _minDistribution;
}
```

Recommendation

Emit an event for critical parameter changes.

Exploit scenario

```
contract C {

  modifier onlyAdmin {
    if (msg.sender != owner) throw;
    _;
  }

  function updateOwner(address newOwner) onlyAdmin external {
    owner = newOwner;
  }
}
```

`updateOwner()` has no event, so it is difficult to track off-chain changes in the buy price.

🟢 **Low-Risk:** Could be fixed, will not bring problems.

Costly operations inside a loop

Costly operations inside a loop might waste gas, so optimizations are justified.

```
function process(uint256 gas) external override onlyToken {
    uint256 shareholderCount = shareholders.length;

    if(shareholderCount == 0) { return; }

    uint256 gasUsed = 0;
    uint256 gasLeft = gasleft();
    uint256 iterations = 0;

    while(gasUsed &lt; gas &amp;&amp; iterations = shareholderCount){
            currentIndex = 0;
        }

        if(shouldDistribute(shareholders[currentIndex])){
            distributeDividend(shareholders[currentIndex]);
        }

        gasUsed = gasUsed.add(gasLeft.sub(gasleft()));
```

Recommendation

Use a local variable to hold the loop computation result.

Exploit scenario

```
contract CostlyOperationsInLoop{

    function bad() external{
        for (uint i=0; i < loop_count; i++){
            state_variable++;
        }
    }

    function good() external{
      uint local_variable = state_variable;
      for (uint i=0; i < loop_count; i++){
        local_variable++;
      }
      state_variable = local_variable;
    }
}
```

Incrementing `state_variable` in a loop incurs a lot of gas because of expensive `SSTORE`s, which might lead to an `out-of-gas`.

● **Medium-Risk:** Should be fixed, could bring problems.

Unused parameter

```
function takeFee(
    address sender,
    address recipient,
    uint256 gonAmount
) internal  returns (uint256) {
    uint256 _totalFee = totalFee;
    uint256 _treasuryFee = treasuryFee;

    // if (recipient == pair) {
    //       totalFee = totalFee.add(sellFee);
```

Recommendation

Remove unused parameter (recipient) from function input, code is commented.

Owner privileges

- 🟢 Owner cannot set fees higher than 25%
- 🟢 Owner cannot pause trading
- 🟡 Owner can change max transaction amount
- 🟡 Owner can exclude from fees

⚠️ Can blacklist contract addresses
⚠️ Owner can exlude addresses from dividends

Extra notes by the team

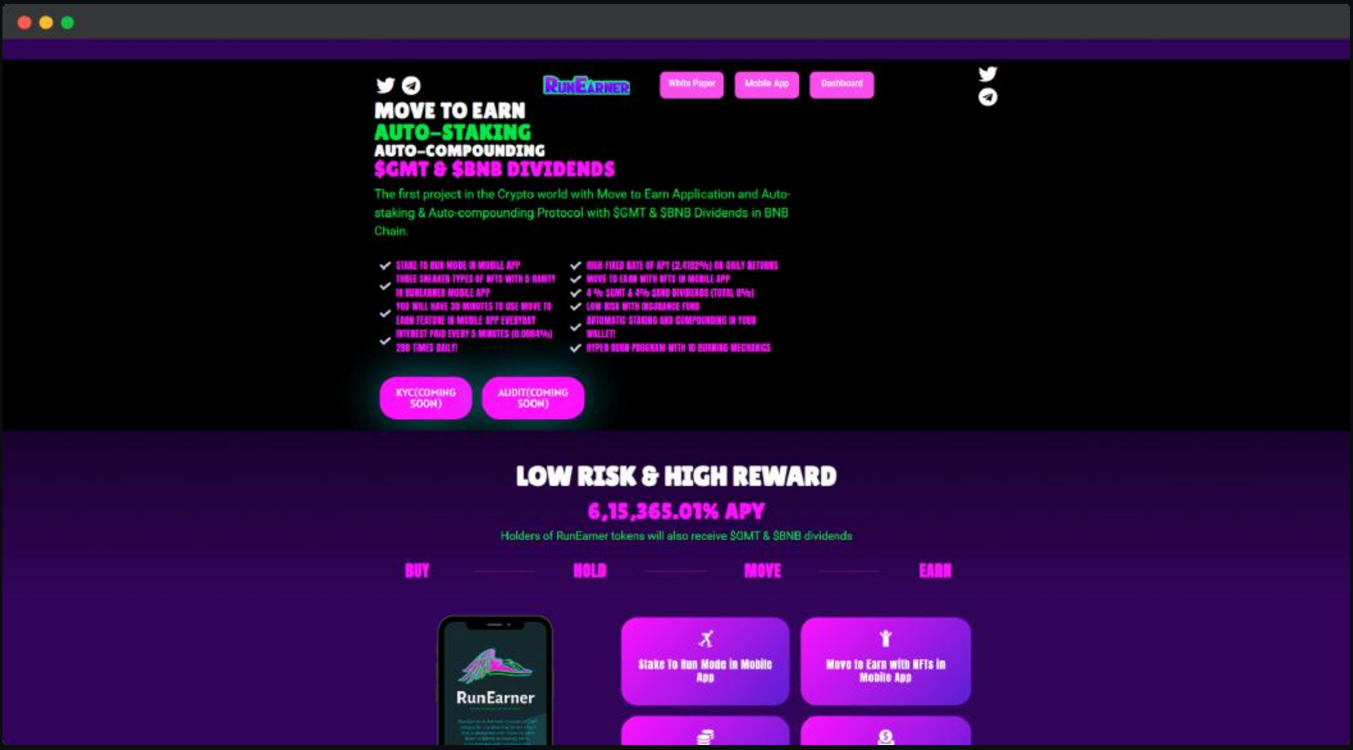
No notes

Contract Snapshot

```
contract RunEarner is ERC20Detailed, Ownable {

using SafeMath for uint256;
using SafeMathInt for int256;

event LogRebase(uint256 indexed epoch, uint256 totalSupply);

IPancakeSwapPair public pairContract;
mapping(address =&gt; bool) _isFeeExempt;

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

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.



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- ✓ HYPER BURN PROGRAM WITH 10 BURNING MECHANICS

LOW RISK & HIGH REWARD

6,15,365.01% APY

Holders of RunEarner tokens will also receive $GMT & $BNB dividends

BUY
HOLD
MOVE
EARN
RunEarner
Stake To Run Mode in Mobile App
Move to Earn with NFTs in Mobile App

● Mobile Friendly

● Does not contain jQuery errors

● SSL Secured

● No major spelling errors

Project Overview

● Not KYC verified by Coinsult

RunEarner

Audited by Coinsult.net

Date: 21 August 2022

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