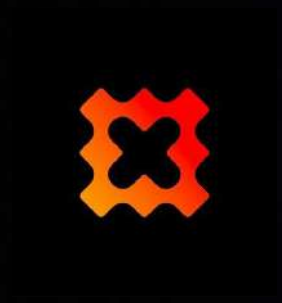
RUGFREECOINS



# Audinals Token

RugfreeCoins Verified on August 15th, 2023

# Overview

✅ No mint function found, the owner cannot mint tokens after initial deployment.

✅ The owner can't set a max transaction limit

✅ The owner can't pause trading once it's enabled

❌ The owner must enable trade for the holders, if trading remains disabled, no one would be able to buy and sell.

✅ The owner can't change fees.

❌ The owner can blacklist wallets. By using transferProtection function owner can blacklist any wallets from selling.

✅ The owner can't set a max wallet limit

✅ The owner can't claim the contract's balance of its own token.

## ❗ HIGH SEVERITY ISSUES

The owner must enable trade for the holders, if trading remains disabled, no one would be able to buy and sell.

```
function launch() external onlyOwner {
    require(tradingActiveTime == 0);
    tradingActiveTime = block.number;
}
```

By using transferProtection function owner can blacklist any wallets from selling

```
function transferProtection(
    address[] calldata _wallets,
    uint256 _enabled
) external onlyOwner {
    for (uint256 i = 0; i < _wallets.length; i++) {
        walletProtection[_wallets[i]] = _enabled;
    }
}
```

The owner has the capability to modify the distributor address to any chosen address. In the event that the owner designates this action to an inactive contract, trading will cease. For instance, if a new contract does not possess the "setShare" function, trading will be halted.

```
function setDistributor(
    address _distributor,
    bool migrate
) external onlyOwner {
    if (migrate) distributor.migrate(_distributor);

    distributor = IDividendDistributor(_distributor);
    distributor.initialize();
}
```

# Contents

# Audit details

**Audited project**

Audinals Token

**Contract Address**

0x2a52368E42a081BB46453Ffc4D562A2014438D98

**Client contact**

Audinals Token Team

**Blockchain**

Ethereum

**Project website**

https://www.audinals.io/

# Disclaimer

This is a limited report on our findings based on our analysis, in accordance with good industry practice as 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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The analysis of the security is purely based on the smart contracts alone. No applications or operations were reviewed for security. No product code has been reviewed.

# Background

**RugfreeCoins** was commissioned by the **Audinals Token Team** to perform an audit of the smart contract.

**https://etherscan.io/token/0x2a52368E42a081BB46453Ffc4D562A2014438D98**

This audit focuses on verifying that the smart contract is secure, resilient, and working according to the specifications.

The information in this report should be used to understand the risk exposure of the smart contract, project feasibility, and long-term sustainability, and as a guide to improving the smart contract's security posture by remediating the identified issues.

# Tokenomics

### ▲ 15% tax when buying & selling in the 1st block

15% of trade goes to the reward tracker in ETH and will be converted to USDT and distributed among holders: Holders will have to manually claim rewards.

### ▲ 5% tax when buying & selling

5% of trade goes to the reward tracker in ETH and will be converted to USDT and distributed among holders: Holders will have to manually claim rewards.

---

# Target market and the concept

- Anyone who’s interested in the Crypto space with long-term investment plans.
- Anyone who’s ready to earn a passive income by holding tokens.
- Anyone who’s interested in trading tokens.
- Anyone who’s interested in taking part in the Audinals token ecosystem.
- Anyone who’s interested in taking part in the future plans of Audinals Token.
- Anyone who’s interested in making financial transactions with any other party using Audinals Token as the currency.

# Potential to grow with score points

| | |
|---|---|
| ⚡ Project efficiency | 8 / 10 |
| 🌟 Project uniqueness | 8 / 10 |
| 📊 Information quality | 8 / 10 |
| 👌 Service quality | 8 / 10 |
| 💻 System quality | 8 / 10 |
| 🌍 Impact on the community | 8 / 10 |
| 💼 Impact on the business | 9 / 10 |
| 🔮 Preparing for the future | 8 / 10 |
| 🔒 Smart contract security | 7 / 10 |
| 🛠️ Smart contract functionality assessment | 9 / 10 |
| 🏆 **Total Score** | **8.1** / 10 |

# Contract details

Token contract details for 31st of July 2023

| | |
|---|---|
| Contract name | **Audinals** |
| Contract address | **0x2a52368E42a081BB46453Ffc4D562A2014438D98** |
| Token supply | **1,000,000,000** |
| Token ticker | **AUDO** |
| Decimals | **9** |
| Token holders | **1** |
| Transaction count | **1** |
| Contract deployer address | **0x389346E15bd2D4CFB046E1C70911Dc1D9b9B639B** |
| Contract's current owner address | **0x389346E15bd2D4CFB046E1C70911Dc1D9b9B639B** |
| Distributor | **0x75cbAA24e3f2f8aa95E700a95528bB926151689b** |

# Contract code function details

| № | Category | Item | Result |
|---|---|---|---|
| 1 | Coding conventions | BRC20 Token standards | PASS |
| | | Compile errors | PASS |
| | | Compiler version security | PASS |
| | | Visibility specifiers | PASS |
| | | Gas consumption | PASS |
| | | SafeMath features | PASS |
| | | Fallback usage | PASS |
| | | tx.origin usage | PASS |
| | | Deprecated items | PASS |
| | | Redundant code | PASS |
| | | Overriding variables | PASS |
| 2 | Function call audit | Authorization of function call | PASS |
| | | Low level function (call/delegate call) security | PASS |
| | | Returned value security | PASS |
| | | Self destruct function security | PASS |
| 3 | Business security & centralisation | Access control of owners | HIGH |
| | | Business logics | PASS |
| | | Business implementation | PASS |
| 4 | Integer overflow/underflow | | PASS |
| 5 | Reentrancy | | PASS |
| 6 | Exceptional reachable state | | PASS |
| 7 | Transaction ordering dependence | | PASS |
| 8 | Block properties dependence | | PASS |
| 9 | Pseudo random number generator (PRNG) | | PASS |
| 10 | DoS (Denial of Service) | | PASS |
| 11 | Token vesting implementation | | PASS |
| 12 | Fake deposit | | PASS |
| 13 | Event security | | PASS |

# Contract description table

The below table represents the summary of the contracts and methods in the token contract. We scanned the whole contract and listed down all the Interfaces, functions, and implementations with their visibility and mutability.

| Contract | Type | Bases | | |
|---|---|---|---|---|
| L | Function Name | Visibility | Mutability | Modifiers |
| | | | | |
| **Context** | **Implementation** | | | |
| L | _msgSender | Internal 🔒 | | |
| L | _msgData | Internal 🔒 | | |
| | | | | |
| **IERC20** | **Interface** | | | |
| L | totalSupply | External ❗ | | NO ❗ |
| L | balanceOf | External ❗ | | NO ❗ |
| L | transfer | External ❗ | 🛑 | NO ❗ |
| L | allowance | External ❗ | | NO ❗ |
| L | approve | External ❗ | 🛑 | NO ❗ |
| L | transferFrom | External ❗ | 🛑 | NO ❗ |
| | | | | |
| **IERC20Metadata** | **Interface** | **IERC20** | | |
| L | name | External ❗ | | NO ❗ |
| L | symbol | External ❗ | | NO ❗ |
| L | decimals | External ❗ | | NO ❗ |
| | | | | |
| **ERC20** | **Implementation** | **Context, IERC20, IERC20 Metadata** | | |
| L | | Public ❗ | 🛑 | NO ❗ |
| L | name | Public ❗ | | NO ❗ |

| | | | | |
|---|---|---|---|---|
| L | symbol | Public ❗ | | NO ❗ |
| L | decimals | Public ❗ | | NO ❗ |
| L | totalSupply | Public ❗ | | NO ❗ |
| L | balanceOf | Public ❗ | | NO ❗ |
| L | transfer | Public ❗ | 🛑 | NO ❗ |
| L | allowance | Public ❗ | | NO ❗ |
| L | approve | Public ❗ | 🛑 | NO ❗ |
| L | transferFrom | Public ❗ | 🛑 | NO ❗ |
| L | increaseAllowance | Public ❗ | 🛑 | NO ❗ |
| L | decreaseAllowance | Public ❗ | 🛑 | NO ❗ |
| L | _transfer | Internal 🔒 | 🛑 | |
| L | _approve | Internal 🔒 | 🛑 | |
| L | _initialTransfer | Internal 🔒 | 🛑 | |
| | | | | |
| **Ownable** | **Implementation** | **Context** | | |
| L | | Public ❗ | 🛑 | NO ❗ |
| L | owner | Public ❗ | | NO ❗ |
| L | renounceOwnership | Public ❗ | 🛑 | onlyOwner |
| L | transferOwnership | Public ❗ | 🛑 | onlyOwner |
| | | | | |
| **IDividendDistributor** | **Interface** | | | |
| L | initialize | External ❗ | 🛑 | NO ❗ |
| L | setDistributionCriteria | External ❗ | 🛑 | NO ❗ |
| L | setShare | External ❗ | 🛑 | NO ❗ |
| L | deposit | External ❗ | 💵 | NO ❗ |
| L | claimDividend | External ❗ | 🛑 | NO ❗ |
| L | getUnpaidEarnings | External ❗ | | NO ❗ |
| L | getPaidDividends | External ❗ | | NO ❗ |
| L | getTotalPaid | External ❗ | | NO ❗ |

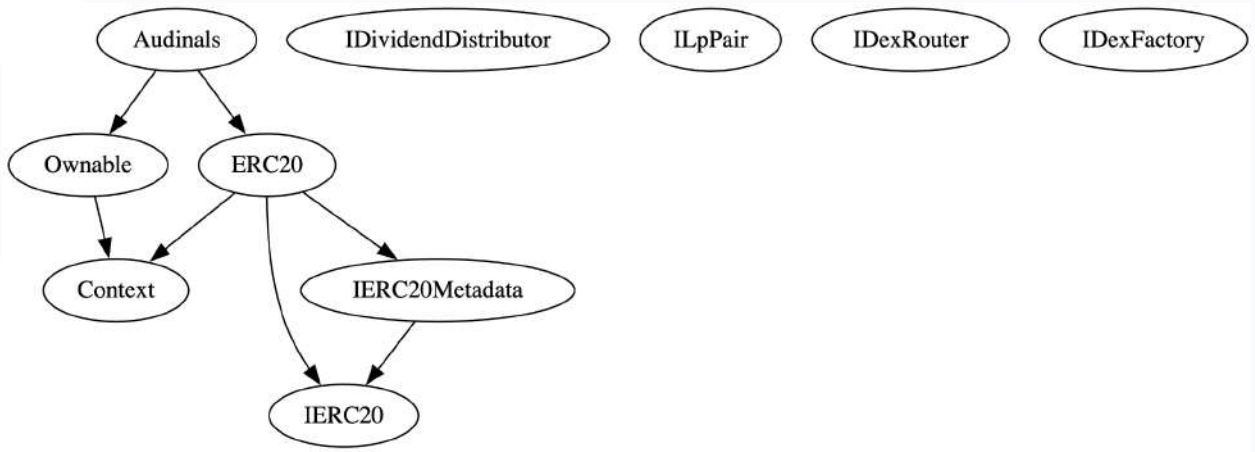
| | | | | |
|---|---|---|---|---|
| L | getClaimTime | External ❗ | | NO ❗ |
| L | getLostRewards | External ❗ | | NO ❗ |
| L | getTotalDividends | External ❗ | | NO ❗ |
| L | getTotalDistributed | External ❗ | | NO ❗ |
| L | getTotalSacrificed | External ❗ | | NO ❗ |
| L | countShareholders | External ❗ | | NO ❗ |
| L | migrate | External ❗ | 🛑 | NO ❗ |
| | | | | |
| **ILpPair** | **Interface** | | | |
| L | sync | External ❗ | 🛑 | NO ❗ |
| | | | | |
| **IDexRouter** | **Interface** | | | |
| L | factory | External ❗ | | NO ❗ |
| L | WETH | External ❗ | | NO ❗ |
| L | swapExactTokensForETHSupportingFeeOnTransferTokens | External ❗ | 🛑 | NO ❗ |
| L | swapExactETHForTokensSupportingFeeOnTransferTokens | External ❗ | 💵 | NO ❗ |
| L | swapExactETHForTokens | External ❗ | 💵 | NO ❗ |
| L | swapETHForExactTokens | External ❗ | 💵 | NO ❗ |
| L | addLiquidityETH | External ❗ | 💵 | NO ❗ |
| L | getAmountsOut | External ❗ | | NO ❗ |
| | | | | |
| **IDexFactory** | **Interface** | | | |
| L | createPair | External ❗ | 🛑 | NO ❗ |
| | | | | |
| **Audinals** | **Implementation** | **ERC20, Ownable** | | |
| L | | Public ❗ | 🛑 | ERC20 |
| L | | External ❗ | 💵 | NO ❗ |
| L | decimals | Public ❗ | | NO ❗ |
| L | updateSwapTokens | External ❗ | 🛑 | onlyOwner |

| | | | | |
|---|---|---|---|---|
| L | toggleSwap | External ❗ | 🛑 | onlyOwner |
| L | setPair | External ❗ | 🛑 | onlyOwner |
| L | getSellFees | Public ❗ | | NO ❗ |
| L | getBuyFees | Public ❗ | | NO ❗ |
| L | excludeFromFees | Public ❗ | 🛑 | onlyOwner |
| L | setDividendExempt | External ❗ | 🛑 | onlyOwner |
| L | _transfer | Internal 🔒 | 🛑 | |
| L | swapTokensForEth | Private 🔐 | 🛑 | |
| L | swapBack | Private 🔐 | 🛑 | |
| L | withdrawStuckETH | External ❗ | 🛑 | onlyOwner |
| L | prepare | External ❗ | 💵 | onlyOwner |
| L | launch | External ❗ | 🛑 | onlyOwner |
| L | setDistributor | External ❗ | 🛑 | onlyOwner |
| L | setDistributionCriteria | External ❗ | 🛑 | onlyOwner |
| L | manualDeposit | External ❗ | 💵 | NO ❗ |
| L | getPoolStatistics | External ❗ | | NO ❗ |
| L | myStatistics | External ❗ | | NO ❗ |
| L | checkClaimTime | External ❗ | | NO ❗ |
| L | claim | External ❗ | 🛑 | NO ❗ |
| L | airdropToWallets | External ❗ | 🛑 | onlyOwner |
| L | transferProtection | External ❗ | 🛑 | onlyOwner |
| L | _beforeTokenTransfer | Internal 🔒 | | |

## Legend

| Symbol | Meaning |
|---|---|
| 🛑 | Function can modify state |
| 💵 | Function is payable |

# Inheritance Hierarchy



# Security issue checking status

❖ High severity issues

The owner must enable trade for the holders, if trading remains disabled, no one would be able to buy and sell.

```
function launch() external onlyOwner {
    require(tradingActiveTime == 0);
    tradingActiveTime = block.number;
}
```

By using transferProtection function owner can blacklist any wallets from selling

```
function transferProtection(
    address[] calldata _wallets,
    uint256 _enabled
) external onlyOwner {
    for (uint256 i = 0; i < _wallets.length; i++) {
        walletProtection[_wallets[i]] = _enabled;
    }
}
```

The owner has the capability to modify the distributor address to any chosen address. In the event that the owner designates this action to an inactive contract, trading will cease. For instance, if a new contract does not possess the "setShare" function, trading will be halted.

```
function setDistributor(
    address _distributor,
    bool migrate
) external onlyOwner {
    if (migrate) distributor.migrate(_distributor);

    distributor = IDividendDistributor(_distributor);
    distributor.initialize();
}
```

## ❖ Medium severity issues

No medium severity issues found

## ❖ Low severity issues

No low-severity issues found

# Owner privileges

- Owner can change swap point and maximum swapping token amount maximum up to 1%

```
function updateSwapTokens(
    uint256 atAmount,
    uint256 maxAmount
) external onlyOwner {
    require(
        maxAmount <= (totalSupply() * 1) / 100,
        "Max swap cannot be higher than 1% supply."
    );
    swapTokensAtAmount = atAmount;
    maxSwapTokens = maxAmount;
}
```

- Owner can enable/disable swapping

```
function toggleSwap() external onlyOwner {
    swapEnabled = !swapEnabled;
}
```

❖ Owner can add remove new pairs

```
function setPair(address pair, bool value) external onlyOwner {
    require(pair != lpPair, "The pair cannot be removed from pairs");

    pairs[pair] = value;
    isDividendExempt[pair] = true;
    emit SetPair(pair, value);
}
```

❖ Owner can include/exclude wallets from fees

```
function excludeFromFees(address account, bool excluded) public onlyOwner {
    _isExcludedFromFees[account] = excluded;
    emit ExcludeFromFees(account, excluded);
}
```

❖ Owner can include/exclude wallets from rewards

```
function setDividendExempt(address holder, bool exempt) external onlyOwner {
    require(
        holder != address(this) &&
            !pairs[holder] &&
            holder != address(0xdead)
    );
    isDividendExempt[holder] = exempt;
    if (exempt) {
        distributor.setShare(holder, 0);
    } else {
        distributor.setShare(holder, balanceOf(holder));
    }
}
```

❖ Owner can get contract ETH balance

```
function withdrawStuckETH() external onlyOwner {
    bool success;
    (success, ) = address(msg.sender).call{value: address(this).balance}(
        ""
    );
}
```

❖ Owner can add Liquidity using prepare function

```
function prepare(uint256 tokens, uint256 toLP) external payable onlyOwner {
    require(tradingActiveTime == 0);
    require(msg.value >= toLP, "Insufficient funds");
    require(tokens > 0, "No LP tokens specified");

    address ETH = dexRouter.WETH();

    lpPair = IDexFactory(dexRouter.factory()).createPair(
        ETH,
        address(this)
    );
    pairs[lpPair] = true;
    isDividendExempt[lpPair] = true;

    super._transfer(msg.sender, address(this), tokens * _decimalFactor);

    dexRouter.addLiquidityETH{value: toLP}(
        address(this),
        balanceOf(address(this)),
        0,
        0,
        msg.sender,
        block.timestamp
    );
}
```

❖ Owner can enable trading, once enabled can not disable again

```
function launch() external onlyOwner {
    require(tradingActiveTime == 0);
    tradingActiveTime = block.number;
}
```

❖ Owner can change distributor address

```
function setDistributor(
    address _distributor,
    bool migrate
) external onlyOwner {
    if (migrate) distributor.migrate(_distributor);

    distributor = IDividendDistributor(_distributor);
    distributor.initialize();
}
```

❖ Owner can block/unblock waller from transferring tokens

```
function transferProtection(
    address[] calldata _wallets,
    uint256 _enabled
) external onlyOwner {
    for (uint256 i = 0; i < _wallets.length; i++) {
        walletProtection[_wallets[i]] = _enabled;
    }
}
```

# Audit conclusion

RugFreeCoins team has performed in-depth testing, line-by-line manual code review, and automated audit of the smart contract. The smart contract was analyzed mainly for common smart contract vulnerabilities, exploits, manipulations, and hacks. According to the smart contract audit.

| | |
|---|---|
| Smart contract functional Status: | PASS |
| Number of risk issues: | 3 |
| Solidity code functional issue level: | PASS |
| Number of owner privileges: | 10 |
| Centralization risk correlated to the active owner: | HIGH |
| Smart contract active ownership: | ACTIVE |