InterFi NETWORK

SMART CONTRACT AUDIT

interfinetwork

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PREPARED FOR

DRAGONCOIN

INTRODUCTION

Auditing Firm	InterFi Network
Client Firm	DragonCoin
Methodology	Automated Analysis, Manual Code Review
Language	Solidity
Contract	0xf35f36dEbb1Fe0B75572BF8B1417315ce9416847
Blockchain	Binance chain
Centralization	Active ownership
Commit	f549cfb51bee86c329eb28138a85bbfba6eb8a08
Website	https://dragoncoin.club/
Telegram	https://t.me/DragonCoinOfficial
Report Date	January 17, 2024

ℹ️ Verify the authenticity of this report on our website: https://www.github.com/interfinetwork

EXECUTIVE SUMMARY

InterFi has performed the automated and manual analysis of solidity codes. Solidity codes were reviewed for common contract vulnerabilities and centralized exploits. Here's a quick audit summary:

Status	Critical 🔴	Major 🟠	Medium 🟡	Minor 🟢	Unknown 🟤
Open	0	0	0	2	0
Acknowledged	0	1	0	1	1
Resolved	0	1	0	3	0
Important Privileges	**Blacklist**, Airdrop, Set Taxes, Set Tax Rates, Withdraw Ether, Set Pair Address				

ℹ️ Please note that smart contracts deployed on blockchains aren't resistant to exploits, vulnerabilities and/or hacks. Blockchain and cryptography assets utilize new and emerging technologies. These technologies present a high level of ongoing risks. For a detailed understanding of risk severity, source code vulnerability, and audit limitations, kindly review the audit report thoroughly.

ℹ️ Please note that centralization privileges regardless of their inherited risk status - constitute an elevated impact on smart contract safety and security.

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SCOPE OF WORK

InterFi was consulted by DragonCoin to conduct the smart contract audit of their solidity source codes.

The audit scope of work is strictly limited to mentioned solidity file(s) only:

- DragonCoin.sol

ℹ️ If source codes are not deployed on the main net, they can be modified or altered before main-net deployment. Verify the contract's deployment status below:

Public Contract Link	
https://bscscan.com/address/0xf35f36dEbb1Fe0B75572BF8B1417315ce9416847#code	
Contract Name	DragonCoin
Compiler Version	0.8.13
License	MIT

AUDIT METHODOLOGY

Smart contract audits are conducted using a set of standards and procedures. Mutual collaboration is essential to performing an effective smart contract audit. Here's a brief overview of InterFi's auditing process and methodology:

CONNECT

- The onboarding team gathers source codes, and specifications to make sure we understand the size, and scope of the smart contract audit.

AUDIT

- Automated analysis is performed to identify common contract vulnerabilities. We may use the following third-party frameworks and dependencies to perform the automated analysis:
  - Remix IDE Developer Tool
  - Open Zeppelin Code Analyzer
  - SWC Vulnerabilities Registry
  - DEX Dependencies, e.g., Pancakeswap, Uniswap
- Simulations are performed to identify centralized exploits causing contract and/or trade locks.
- A manual line-by-line analysis is performed to identify contract issues and centralized privileges. We may inspect below mentioned common contract vulnerabilities, and centralized exploits:

Centralized Exploits	○ Token Supply Manipulation ○ Access Control and Authorization ○ Assets Manipulation ○ Ownership Control ○ Liquidity Access ○ Stop and Pause Trading ○ Ownable Library Verification

Common Contract Vulnerabilities	○ Integer Overflow ○ Lack of Arbitrary limits ○ Incorrect Inheritance Order ○ Typographical Errors ○ Requirement Violation ○ Gas Optimization ○ Coding Style Violations ○ Re-entrancy ○ Third-Party Dependencies ○ Potential Sandwich Attacks ○ Irrelevant Codes ○ Divide before multiply ○ Conformance to Solidity Naming Guides ○ Compiler Specific Warnings ○ Language Specific Warnings

REPORT

- The auditing team provides a preliminary report specifying all the checks which have been performed and the findings thereof.
- The client's development team reviews the report and makes amendments to solidity codes.
- The auditing team provides the final comprehensive report with open and unresolved issues.

PUBLISH

- The client may use the audit report internally or disclose it publicly.

ℹ️ It is important to note that there is no pass or fail in the audit, it is recommended to view the audit as an unbiased assessment of the safety of solidity codes.

RISK CATEGORIES

Smart contracts are generally designed to hold, approve, and transfer tokens. This makes them very tempting attack targets. A successful external attack may allow the external attacker to directly exploit. A successful centralization-related exploit may allow the privileged role to directly exploit. All risks which are identified in the audit report are categorized here for the reader to review:

Risk Type	Definition
Critical 🔴	These risks could be exploited easily and can lead to asset loss, data loss, asset, or data manipulation. They should be fixed right away.
Major 🟠	These risks are hard to exploit but very important to fix, they carry an elevated risk of smart contract manipulation, which can lead to high-risk severity.
Medium 🟡	These risks should be fixed, as they carry an inherent risk of future exploits, and hacks which may or may not impact the smart contract execution. Low-risk re-entrancy-related vulnerabilities should be fixed to deter exploits.
Minor 🟢	These risks do not pose a considerable risk to the contract or those who interact with it. They are code-style violations and deviations from standard practices. They should be highlighted and fixed nonetheless.
Unknown 🟤	These risks pose uncertain severity to the contract or those who interact with it. They should be fixed immediately to mitigate the risk uncertainty.

All statuses which are identified in the audit report are categorized here for the reader to review:

Status Type	Definition
Open	Risks are open.
Acknowledged	Risks are acknowledged, but not fixed.
Resolved	Risks are acknowledged and fixed.

CENTRALIZED PRIVILEGES

Centralization risk is the most common cause of cryptography asset loss. When a smart contract has a privileged role, the risk related to centralization is elevated.

There are some well-intended reasons have privileged roles, such as:

- Privileged roles can be granted the power to `pause()` the contract in case of an external attack.
- Privileged roles can use functions like, `include()`, and `exclude()` to add or remove wallets from fees, swap checks, and transaction limits. This is useful to run a presale and to list on an exchange.

Authorizing privileged roles to externally-owned-account (EOA) is dangerous. Lately, centralization-related losses are increasing in frequency and magnitude.

- The client can lower centralization-related risks by implementing below mentioned practices:
- Privileged role's private key must be carefully secured to avoid any potential hack.
- Privileged role should be shared by multi-signature (multi-sig) wallets.
- Authorized privilege can be locked in a contract, user voting, or community DAO can be introduced to unlock the privilege.
- Renouncing the contract ownership, and privileged roles.
- Remove functions with elevated centralization risk.

Understand the project's initial asset distribution. Assets in the liquidity pair should be locked. Assets outside the liquidity pair should be locked with a release schedule.

AUTOMATED ANALYSIS

Symbol	Definition
🛑	Function modifies state
💸	Function is payable
🔒	Function is internal
🔐	Function is private
!	Function is important

ERC20Capped	Implementation	ERC20		
└	<Constructor>	Public !	🛑	NO!
└	cap	Public !		NO!
└	_update	Internal 🔒	🛑	
Ownable	Implementation	Context		
└	<Constructor>	Public !	🛑	NO!
└	owner	Public !		NO!
└	_checkOwner	Internal 🔒		
└	renounceOwnership	Public !	🛑	onlyOwner
└	transferOwnership	Public !	🛑	onlyOwner
└	_transferOwnership	Internal 🔒	🛑	
DragonCoin	Implementation	ERC20, ERC20Capped, Ownable		
└	<Constructor>	Public !	🛑	ERC20 ERC20Capped
└	_transfer	Internal 🔒	🛑	

| └ | distributeTaxes | Private 🔐 | 🛑 | | |

| └ | _mint | Internal 🔒 | 🛑 | | |

| └ | excludeFromTaxes | Public ❗ | 🛑 | onlyOwner |

| └ | includeInTaxes | Public ❗ | 🛑 | onlyOwner |

| └ | airdrop | External ❗ | 🛑 | onlyOwner |

| └ | isExcludedFromTaxes | Public ❗ | | NO❗ |

| └ | setBot | External ❗ | 🛑 | onlyOwner |

| └ | isBot | Public ❗ | | NO❗ |

| └ | enableTaxes | External ❗ | 🛑 | onlyOwner |

| └ | disableTaxes | External ❗ | 🛑 | onlyOwner |

| └ | setPairAddress | External ❗ | 🛑 | onlyOwner |

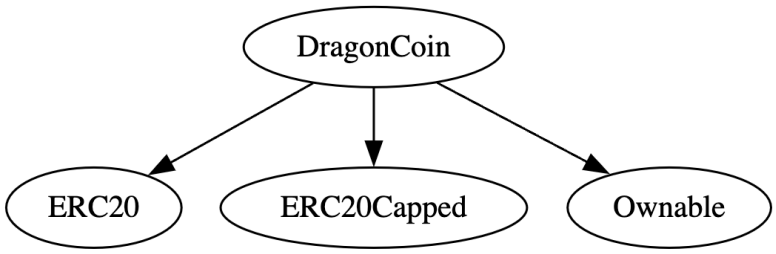
| └ | withdrawEther | External ❗ | 🛑 | onlyOwner |

| └ | updateTaxRates | External ❗ | 🛑 | onlyOwner |

| └ | updateTaxes | External ❗ | 🛑 | onlyOwner |

| └ | <Receive Ether> | External ❗ | 💵 | NO❗ |

INHERITANCE GRAPH



MANUAL REVIEW

Identifier	Definition	Severity
CEN-01	Centralized privileges	Major 🟠
CEN-03	Privileged role can blacklist addresses and contracts	

- Important `onlyOwner` centralized privileges are listed below:

```
renounceOwnership()
transferOwnership()
excludeFromTaxes()
includeInTaxes()
airdrop()
setBot()
enableTaxes()
disableTaxes()
setPairAddress()
withdrawEther()
updateTaxRates()
updateTaxes()
```

- Smart contract allows the owner to label addresses as bots, which could be used maliciously to freeze assets or hinder transactions of specific addresses.

RECOMMENDATION

Deployers', owners', administrators', and all other privileged roles' private-keys/access-keys/admin-keys should be secured carefully. These entities can have a single point of failure that compromises the security of the project. Manage centralized and privileged roles carefully. It is recommended to:

Implement multi-signature wallets: Require multiple signatures from different parties to execute certain sensitive functions within contracts. This spreads control and reduces the risk of a single party having complete authority.

Use a decentralized governance model: Implement a governance model that enables token holders or other stakeholders to participate in decision-making processes. This can include voting on contract upgrades, parameter changes, or any other critical decisions that impact the contract's functioning.

ACKNOWLEDGEMENT

DragonCoin team commented that privileged roles are used as required. DragonCoin team argued that blacklist function is used to stop bot activities. DragonCoin project will implement multi-signature wallet authorization whenever possible.

Identifier	Definition	Severity
CEN-02	Initial asset distribution	Minor

All of the initially minted assets are sent to the beneficiary when deploying the contract. This can be an issue as the beneficiary can distribute tokens without consulting the community.

```
_mint(beneficiary, SafeMath.mul(supply, 1 ether));
```

RECOMMENDATION

Project must communicate with stakeholders and obtain the community consensus while distributing assets.

RESOLUTION

DragonCoin project has amended asset distribution. All initially minted assets are transferred to project wallets as per their project tokenomics.

```
// Mint 80% of the tokens to LP/DEPLOYER address
uint256 lpTokens = (supply * 1 ether * 80) / 100;
_mint(deployerWallet, lpTokens);

// Mint 5% of the tokens to STAKING address
uint256 stakingTokens = (supply * 1 ether * 5) / 100;
_mint(stakingWallet, stakingTokens);

// Mint 4% of the tokens to CEX address
uint256 cexTokens = (supply * 1 ether * 4) / 100;
_mint(cexWallet, cexTokens);

// Mint 6% of the tokens to P2E address
uint256 p2eTokens = (supply * 1 ether * 5) / 100;
_mint(p2eWalletOne, p2eTokens);

uint256 remainingPercentage = (supply * 1 ether * 5) / 1000; // 0.5% as 5 / 1000
```

```
_mint(p2eWalletTwo, remainingPercentage);
_mint(p2eWalletThree, remainingPercentage);
_mint(marketingWalletOne, remainingPercentage);
_mint(marketingWalletTwo, remainingPercentage);
_mint(marketingWalletThree, remainingPercentage);
_mint(marketingWalletFour, remainingPercentage);
_mint(marketingWalletFive, remainingPercentage);
_mint(marketingWalletSix, remainingPercentage);
_mint(marketingWalletSev, remainingPercentage);
_mint(marketingWalletEig, remainingPercentage);
_mint(marketingWalletNine, remainingPercentage);
_mint(marketingWalletTen, remainingPercentage);
```

Identifier	Definition	Severity
DRC-01	Arbitrary minting	Major 🟠
DRC-02	`_pair` variable initialization	

`mint` function in the constructor could potentially `mint` more tokens than intended if the supply parameter is not properly validated before deployment.

`_pair` variable is excluded from taxes but isn't initialized in the constructor.

RECOMMENDATION

Initialize `_pair` and `supply` appropriately.

RESOLUTION

DragonCoin project has added `MAX_SUPPLY` to allow `supply` initialization below specified limit. `_pair` is not being initialized in constructor.

Identifier	Definition	Severity
LOG-02	Potential front-running	Minor

Potential front-running also classified as – sandwich attack happens when an attacker observes a transaction swapping tokens or adding liquidity without setting restrictions on slippage or minimum output amount. The attacker can manipulate the exchange rate by front-running a transaction to purchase assets and make profits by back-running a transaction to sell assets.

RECOMMENDATION

Functions responsible for transfer should be provided reasonable minimum output amounts, instead of zero.

ACKNOWLEDGEMENT

DragonCoin team argued that transaction tax should lower front-running viability. Smart contract owner has the ability to blacklist front-running bots.

Identifier	Definition	Severity
COD-06	Unknown externally owned account	Minor

An externally owned account (EOA) has no code, and one can send messages from an externally owned account by creating and signing a transaction.

```
address private deployerWallet = 0xE670de93DC7D1944F57C61a9314b06DFF7BBEd1D;
address private stakingWallet = 0xbF003d1988b6EE92cFaDDe09bA43E916B76a3A3C;
address private cexWallet = 0xF2556F64B17f72C8A2E80E1caD80eD6D4EeA7849;
address private lpWallet = 0x5023ec088779AFd7569508F86DBDaDd839E8E02a;
address private p2eWalletOne = 0x1C8cC019dEAEf654Aeb3c8fb948A130aE2EacB22;
address private p2eWalletTwo = 0xdF51D96B5aB16c753D34c278E7E6185B1eD4E21C;
address private p2eWalletThree = 0x612f209901Fb0d5e3A0525b3b3d5F921288F56cE;
address private marketingWallet = 0x2C1bd5DF1F8F9C829f8Bbab0F7576ECEf12f65E9;
address private marketingWalletOne = 0xC66fe47981a8E65bFb3f18741b9742B00A76bCCC;
address private marketingWalletTwo = 0xd96541330657Fee4f27268577827320Feb20ebaE;
address private marketingWalletThree = 0xd17360C901faF0Fa9B671d219a60793073d283D1;
address private marketingWalletFour = 0xd0F1EA13970ECb65596f76B5a77870C870d66D00;
address private marketingWalletFive = 0xaaD141D497366BD299dcf98fC33bd65d544D2D5c;
address private marketingWalletSix = 0x3111F6930d768fCc2f336e82eB5D22ED281bD2Ee;
address private marketingWalletSev = 0x397123D20fBF39545F2E897D18af928859009859;
address private marketingWalletEig = 0x14444FbF063dF1456AB813d4b9588F4efC9848cA;
address private marketingWalletNine = 0xC89d320AfdC0B3305617268890c9E45b26404E74;
address private marketingWalletTen = 0xAb3DaF14BD077f34ca0746AC99ED1CF720503D85;
address private redistributionWallet = 0x25fF47A614e6D0BE79A5d61691E6eadD4a57Ed21;

    address[5] memory teamWallets = [
        0xe30828551bE2230cf6bfB39055D7557da4deb287,
        0xe63351353B064D99c652F64F86D0121CFAC74eF1,
        0x52f2D80c879C96209C4A7eB9b355a344ca6A132B,
        0x36F83890173C68Af527e4d74D581873490E7A0BC,
        0x04ae22013966860cf675C99AC43Ce613E2C5E30e
```

RECOMMENDATION

Private keys of externally owned accounts must be secured carefully.

Identifier	Definition	Severity
COD-10	Direct and indirect dependencies	Unknown

Smart contract is interacting with third party protocols e.g., Market Makers, External Contracts, `ERC20Capped`, `SafeMath` contract libraries, Web 3 Applications, Open Zeppelin tools. The scope of the audit treats these entities as black boxes and assumes their functional correctness. However, in the real world, all of them can be compromised, and exploited. Moreover, upgrades in these entities can create severe impacts, e.g., increased transactional fees, deprecation of previous routers, etc.

RECOMMENDATION

Inspect third party dependencies regularly, and mitigate severe impacts whenever necessary.

ACKNOWLEDGEMENT

DragonCoin team will inspect third party dependencies regularly, and push updates as required.

Identifier	Definition	Severity
COD-12	Lack of event-driven architecture	Minor

Smart contract uses function calls to update state, which can make it difficult to track and analyze changes to the contract over time.

RECOMMENDATION

Use events to track state changes. Events improve transparency and provide a more granular view of contract activity.

RESOLUTION

DragonCoin team has added events to track state changes in most of the functions.

Identifier	Definition	Severity
COM-01	Floating pragma	Minor 🟢
COM-02	Multiple pragma directives	

Smart contract uses multiple pragma solidity versions `^0.8.13` and `^0.8.20`.

RECOMMENDATION

Pragma should be fixed to the version that you're indenting to deploy your contracts with. Use one pragma directive to ensure consistent compiler behavior.

RESOLUTION

DragonCoin team will deploy smart contract with stable compiler.

Identifier	Definition	Severity
COM-04	Potential resource exhaustion errors	Minor 🟢
COM-05	Efficiency concerns	

Below mentioned functions iterate over arrays without a limit on their size, which could lead to gas limit issues or denial-of-service vulnerabilities:

`airdrop()`

In `distributeTaxes()`, there's a loop over `teamWallets` with repeated transfer calls. This is not gas efficient.

RECOMMENDATION

Limit array size in multi-address calls.

DISCLAIMERS

InterFi Network provides the easy-to-understand audit of solidity source codes (commonly known as smart contracts).

The smart contract for this particular audit was analyzed for common contract vulnerabilities, and centralization exploits. This audit report makes no statements or warranties on the security of the code. This audit report does not provide any warranty or guarantee regarding the absolute bug-free nature of the smart contract analyzed, nor do they provide any indication of the client's business, business model or legal compliance. This audit report does not extend to the compiler layer, any other areas beyond the programming language, or other programming aspects that could present security risks. Cryptographic tokens are emergent technologies, they carry high levels of technical risks and uncertainty. You agree that your access and/or use, including but not limited to any services, reports, and materials, will be at your sole risk on an as-is, where-is, and as-available basis. This audit report could include false positives, false negatives, and other unpredictable results.

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InterFi Network provides intelligent blockchain solutions. We provide solidity development, testing, and auditing services. We have developed 150+ solidity codes, audited 1000+ smart contracts, and analyzed 500,000+ code lines. We have worked on major public blockchains e.g., Ethereum, Binance, Cronos, Doge, Polygon, Avalanche, Metis, Fantom, Bitcoin Cash, Velas, Oasis, etc.

InterFi Network is built by engineers, developers, UI experts, and blockchain enthusiasts. Our team currently consists of 4 core members, and 6+ casual contributors.

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SMART CONTRACT AUDITS | SOLIDITY DEVELOPMENT AND TESTING

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