expelee

Building the Futuristic Blockchain Ecosystem

SECURITY AUDIT REPORT

FELINE

TOKEN OVERVIEW

Risk Findings

Severity	Found
High	2
Medium	0
Low	1
Informational	2

Centralization Risks

Owner Privileges	Description
Can Owner Set Taxes >25% ?	Not Detected
Owner needs to enable trading ?	Yes, owner needs to enable trades
Can Owner Disable Trades ?	Not Detected
Can Owner Mint ?	Not Detected
Can Owner Blacklist ?	Not Detected
Can Owner set Max Wallet amount ?	Not Detected
Can Owner Set Max TX amount ?	Not Detected

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OVERVIEW

The Expelee team has performed a line-by-line manual analysis and automated review of the smart contract. The smart contract was analysed mainly for common smart contract vulnerabilities, exploits, and manipulation hacks. According to the smart contract audit:

Audit Result	**Failed**
KYC Verification	**-**
Audit Date	**25 Jan 2024**

CONTRACT DETAILS

Token Address: --

Name: FELINE

Symbol: FLN

Decimals: 18

Network: BscScan

Token Type: BEP-20

Owner: --

Deployer: --

Token Supply: 10000000

Checksum: A17acbefe2a12642d388659dffd20732

Testnet:
https://testnet.bscscan.com/address/0x104ea8ff0ec9f0a2a819a5d9001dc2060d7b95fb#code

AUDIT METHODOLOGY

Audit Details

Our comprehensive audit report provides a full overview of the audited system's architecture, smart contract codebase, and details on any vulnerabilities found within the system.

Audit Goals

The audit goal is to ensure that the project is built to protect investors and users, preventing potentially catastrophic vulnerabilities after launch , that lead to scams and rugpulls.

Code Quality

Our analysis includes both automatic tests and manual code analysis for the following aspects:

- Exploits
- Back-doors
- Vulnerability
- Accuracy
- Readability

Tools

- DE
- Open Zeppelin
- Code Analyzer
- Solidity Code
- Compiler
- Hardhat

VULNERABILITY CHECKS

Design Logic	Passed
Compiler warnings	Passed
Private user data leaks	Passed
Timestamps dependence	Passed
Integer overflow and underflow	Passed
Race conditions & reentrancy. Cross-function race conditions	Passed
Possible delays in data delivery	Passed
Oracle calls	Passed
Front Running	Passed
DoS with Revert	Passed
DoS with block gas limit	Passed
Methods execution permissions	Passed
Economy model	Passed
Impact of the exchange rate on the logic	Passed
Malicious event log	Passed
Scoping and declarations	Passed
Uninitialized storage pointers	Passed
Arithmetic accuracy	Passed
Cross-function race conditions	Passed
Safe Zepplin module	Passed

RISK CLASSIFICATION

When performing smart contract audits, our specialists look for known vulnerabilities as well as logical and acces control issues within the code. The exploitation of these issues by malicious actors may cause serious financial damage to projects that failed to get an audit in time. We categorize these vulnerabilities by the following levels:

High Risk

Issues on this level are critical to the smart contract's performance/functionality and should be fixed before moving to a live environment.

Medium Risk

Issues on this level are critical to the smart contract's performance/functionality and should be fixed before moving to a live environment.

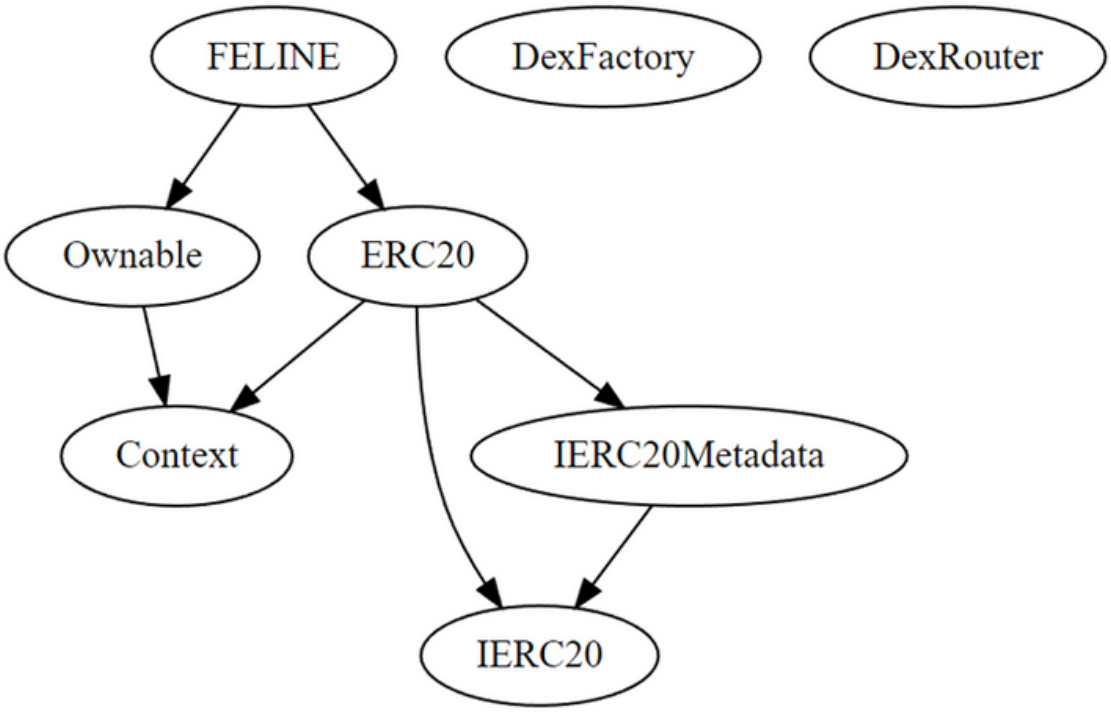
Low Risk

Issues on this level are minor details and warning that can remain unfixed.

Informational

Issues on this level are minor details and warning that can remain unfixed.

INHERITANCE TREE



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STATIC ANALYSIS

```
INFO:Detectors:
Reentrancy in FELINE.internalSwap() (FELINE.sol#813-828):
        External calls:
        - swapToETH(balanceOf(address(this))) (FELINE.sol#819)
                - uniswapRouter.swapExactTokensForETHSupportingFeeOnTransferTokens(_amount,0,path,address(this),block.timestamp) (FELINE.sol#835-841)
        - (success) = marketingWallet.call{value: address(this).balance}() (FELINE.sol#820)
        External calls sending eth:
        - (success) = marketingWallet.call{value: address(this).balance}() (FELINE.sol#820)
        State variables written after the call(s):
        - isSwapping = false (FELINE.sol#826)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#reentrancy-vulnerabilities-2
INFO:Detectors:
Reentrancy in FELINE._transfer(address,address,uint256) (FELINE.sol#784-811):
        External calls:
        - internalSwap() (FELINE.sol#807)
                - uniswapRouter.swapExactTokensForETHSupportingFeeOnTransferTokens(_amount,0,path,address(this),block.timestamp) (FELINE.sol#835-841)
                - (success) = marketingWallet.call{value: address(this).balance}() (FELINE.sol#820)
        External calls sending eth:
        - internalSwap() (FELINE.sol#807)
                - (success) = marketingWallet.call{value: address(this).balance}() (FELINE.sol#820)
        Event emitted after the call(s):
        - Transfer(from,to,amount) (FELINE.sol#470)
                - super._transfer(_from,_to,toTransfer) (FELINE.sol#810)
Reentrancy in FELINE.internalSwap() (FELINE.sol#813-828):
        External calls:
        - swapToETH(balanceOf(address(this))) (FELINE.sol#819)
                - uniswapRouter.swapExactTokensForETHSupportingFeeOnTransferTokens(_amount,0,path,address(this),block.timestamp) (FELINE.sol#835-841)
        - (success) = marketingWallet.call{value: address(this).balance}() (FELINE.sol#820)
        External calls sending eth:
        - (success) = marketingWallet.call{value: address(this).balance}() (FELINE.sol#820)
        Event emitted after the call(s):
        - TransferFailed(marketingWallet,address(this).balance) (FELINE.sol#823)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#reentrancy-vulnerabilities-3
```

```
INFO:Detectors:
Context._msgData() (FELINE.sol#20-22) is never used and should be removed
ERC20._burn(address,uint256) (FELINE.sol#510-526) is never used and should be removed
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#dead-code
INFO:Detectors:
Pragma version^0.8.0 (FELINE.sol#3) allows old versions
Pragma version^0.8.0 (FELINE.sol#30) allows old versions
Pragma version^0.8.0 (FELINE.sol#115) allows old versions
Pragma version^0.8.0 (FELINE.sol#200) allows old versions
Pragma version^0.8.0 (FELINE.sol#230) allows old versions
Pragma version0.8.19 (FELINE.sol#621) necessitates a version too recent to be trusted. Consider deploying with 0.8.18.
solc-0.8.19 is not recommended for deployment
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#incorrect-versions-of-solidity
INFO:Detectors:
Low level call in FELINE.internalSwap() (FELINE.sol#813-828):
        - (success) = marketingWallet.call{value: address(this).balance}() (FELINE.sol#820)
Low level call in FELINE.withdrawStuckETH() (FELINE.sol#844-849):
        - (success) = address(msg.sender).call{value: address(this).balance}() (FELINE.sol#845-847)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#low-level-calls
INFO:Detectors:
Function DexRouter.WETH() (FELINE.sol#633) is not in mixedCase
Event FELINE.marketingWalletChanged(address) (FELINE.sol#688) is not in CapWords
Parameter FELINE.setmarketingWallet(address)._newmarketing (FELINE.sol#708) is not in mixedCase
Parameter FELINE.setBuyTaxes(uint256)._marketingTax (FELINE.sol#723) is not in mixedCase
Parameter FELINE.setSellTaxes(uint256)._marketingTax (FELINE.sol#729) is not in mixedCase
Parameter FELINE.setSwapTokensAtAmount(uint256)._newAmount (FELINE.sol#734) is not in mixedCase
Parameter FELINE.setWhitelistStatus(address,bool)._wallet (FELINE.sol#748) is not in mixedCase
Parameter FELINE.setWhitelistStatus(address,bool)._status (FELINE.sol#749) is not in mixedCase
Parameter FELINE.checkWhitelist(address)._wallet (FELINE.sol#755) is not in mixedCase
Parameter FELINE.swapToETH(uint256)._amount (FELINE.sol#830) is not in mixedCase
Parameter FELINE.withdrawStuckTokens(address).BEP20_token (FELINE.sol#851) is not in mixedCase
Constant FELINE._totalSupply (FELINE.sol#661) is not in UPPER_CASE_WITH_UNDERSCORES
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#conformance-to-solidity-naming-conventions
INFO:Detectors:
FELINE.slitherConstructorVariables() (FELINE.sol#656-862) uses literals with too many digits:
        - swapTokensAtAmount = _totalSupply / 100000 (FELINE.sol#676)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#too-many-digits
INFO:Slither:FELINE.sol analyzed (8 contracts with 93 detectors), 31 result(s) found
```

TESTNET VERSION

1- Approve (passed):
https://testnet.bscscan.com/tx/0x205a7c0210e74bcefd7bc0a803113851f5af895391a307c74809dc96540cd495

2- Set Buy Taxes (passed):
https://testnet.bscscan.com/tx/0x9e1434902ca3638648463046 64cd2b2bf000c976165bdf2e555179ddc6b6ab68

3- Set Sell Taxes (passed):
https://testnet.bscscan.com/tx/0xb3fee83d68af2ca7b276dccc57a04f036132a581882fb8f45038932a84ec8f37

4- Enable Trading (passed):
https://testnet.bscscan.com/tx/0xcbc5dcdaaa36e49c37c225e6c789d12584bbc7ad74999bd6cc0b8b17daa25376

5- Set Marketing Wallet (passed):
https://testnet.bscscan.com/tx/0x16dd7c3dcf4ee042b3100b2119a463716bde6cd48ab8b84f334b90ba56e920ad

MANUAL REVIEW

Severity Criteria

Expelee assesses the severity of disclosed vulnerabilities according to methodology based on OWASP standarts.

Vulnerabilities are dividend into three primary risk categroies:
High
Medium
Low

High-level considerations for vulnerabilities span the following key areas when conducting assessments:

- Malicious input handling
- Escalation of privileges
- Arithmetic
- Gas use

Overall Risk Severity				
Impact	HIGH	Medium	High	Critical
	MEDIUM	Low	Medium	High
	LOW	Note	Low	Medium
		LOW	MEDIUM	HIGH
	Likelihood			

HIGH RISK FINDING

Centralization – Enabling Trades

Severity: High

function: EnableTrading

Status: Open

Overview:

The EnableTrading function permits only the contract owner to activate trading capabilities. Until this function is executed, no investors can buy, sell, or transfer their tokens. This places a high degree of control and centralization in the hands of the contract owner.

```
function enableTrading() external onlyOwner {
        require(!tradingEnabled, "Trading is already enabled");
        tradingEnabled = true;
       startTradingBlock = block.number;
}
```

Suggestion

To reduce centralization and potential manipulation, consider one of the following approaches:

1. Automatically enable trading after a specified condition, such as the completion of a presale, is met.

2.If manual activation is still desired, consider transferring the ownership of the contract to a trustworthy, third-party entity like a certified "PinkSale Safu" developer. This can give investors more confidence in the eventual activation of trading capabilities, mitigating concerns of potential bad-faith actions by the original owner.

HIGH RISK FINDING

Centralization – Missing Require Check
Severity: High
function: setmarketingWallet
Status: Open

Overview:
The owner can set any arbitrary address excluding zero address as this is not recommended because if the owner sets the address to the contract address, then the ETH will not be sent to that address and the transaction will fail and this will lead to a potential honeypot in the contract.

```
function setmarketingWallet(address _newmarketing) external
onlyOwner {
require(
    _newmarketing != address(0),
"can not set marketing to dead wallet"
  );
  marketingWallet = _newmarketing;
emit marketingWalletChanged(_newmarketing);
 }
```

Suggestion:

It is recommended that the address should not be able to be set as a contract address.

LOW RISK FINDING

Centralization – Missing Events

Severity: Low

subject: Missing Events

Status: Open

Overview:

They serve as a mechanism for emitting and recording data onto the blockchain, making it transparent and easily accessible.

```
function enableTrading() external onlyOwner {
require(!tradingEnabled, "Trading is already enabled");
   tradingEnabled = true;
   startTradingBlock = block.number;
  }
function setWhitelistStatus(
address _wallet,
bool _status
  ) external onlyOwner {
   whitelisted[_wallet] = _status;
emit Whitelist(_wallet, _status);
  }
```

INFORMATIONAL & OPTIMIZATIONS

Optimization

Severity: Informational

Subject: Floating Pragma.

Status: Open

Overview:

It is considered best practice to pick one compiler version and stick with it. With a floating pragma, contracts may accidentally be deployed using an outdated.

pragma solidity ^0.8.19;

Suggestion:

Adding the latest constant version of solidity is recommended, as this prevents the unintentional deployment of a contract with an outdated compiler that contains unresolved bugs.

INFORMATIONAL & OPTIMIZATIONS

Optimization

Severity: Optimization

subject: Remove unused code.

Status: Open

Overview:

Unused variables are allowed in Solidity, and they do. not pose a direct security issue. It is the best practice. though to avoid them

```
function _msgData() internal view virtual returns (bytes calldata) {
return msg.data;
  }
```

ABOUT EXPELEE

Expelee is a product-based aspirational Web3 start-up. Coping up with numerous solutions for blockchain security and constructing a Web3 ecosystem from deal making platform to developer hosting open platform, while also developing our own commercial and sustainable blockchain.

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