MOTECH AUDIT

SMART CONTRACT SECURITY AUDIT

# SECURITY ASSESSMENT

2025

# FTS TOKEN AUDIT REPORT

**25 JUNE 2025**

## SECURITY ASSESMENT

# SUMMARY

This report has been prepared for FTS TOKEN Audit Report smart contracts, to discover issues and vulnerabilities in the source code of their Smart Contract as well as any contract dependencies that were not part of an officially recognise ed library. A comprehensive examination has been performed, utilising Static Analysis and ManualReview techniques.

The auditing process pays special attention to the following considerations:

- Testing the smart contracts against both common and uncommon attack vectors.
- Assessing the codebase to ensure compliance with current best practices and industry standards.
- Ensuring contract logic meets the specifications and intentions of the client.
- Cross referencing contract structure and implementation against similar smart contracts produced by industry leaders.
- Thorough line-by-line manual review of the entire codebase by industry experts.

The security assessment resulted in findings that ranged from critical to informational. We recommend addressing these findings to ensure a high level of security standards and industry practices. We suggest recommendations that could better serve the project from the security perspective:

- Enhance general coding practices for better structures of source codes;
- Add enough unit tests to cover the possible use cases given they are currently missing in the repository;
- Provide more comments per each function for readability, especially contracts are verified in public;
- Provide more transparency on privileged activities once the protocol is live.

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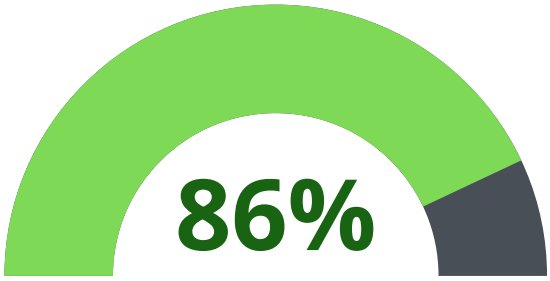
# SUMMARY

| Pass/Fail | Analyzer | Description |
|---|---|---|
| ✓ | Motech Audit | Vulnerability analyzer built by Motech Audit that quickly searches within smart contracts for vulnerable code fragments not only exact but also syntactically different clones. |
| ⚠ | Formal Verifier | Sound formal verifier built by Motech Audit that analyzes within smart contracts for proving that a program satisfies nonexistence of vulnerability such as integer overflow. |
| ✗ | Achilles | Symbolic analyzer built by Motech Audit that extracts code patterns within smart contracts for finding syntactic and semantic bugs and vulnerabilities based on SWC specification. |

✓ Pass ⚠ Compile Error ✗ Failed




**Contract Name FTS**

**Compiler Version v0.8.24+commit.e11b9ed9**

**License Type MIT**

**Contract Chain Bsc Mainnet**

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# 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 below 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.

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# BACKGROUND

Motech Audit was commissioned by my fusion international pte ltd to perform an audit of smart contracts:

**Contract.sol**
Contract Name **FTS**
Compiler Version **v0.8.24+commit.e11b9ed9**
License Type **MIT**
Contract Chain **Bsc Mainnet**

The purpose of the audit was to achieve the following:

- Ensure that the smart contract functions as intended.
- Identify potential security issues with the smart contract.

The information in this report should be used to understand the risk exposure of the smart contract, and as a guide to improve the security posture of the smart contract by remediating the issues that were identified.

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# VULNERABILITY & RISK LEVEL

## 5 Total Issues

Risk represents the probability that a certain source-threat will exploit vulnerability, and the impact of that event on the organization or system. Risk Level is computed based on CVSS version 3.0.

| Level | Total Issues | Vulnerability | Risk (Required Action) |
|---|---|---|---|
| Critical | 0 | A vulnerability that can disrupt the contract functioning in a number of scenarios,or creates a risk that the contract may be broken | Immediate action to reduce risk level. |
| High | 0 | A vulnerability that affects the desired outcome when using a contract, or provides the opportunity to use a contract in an unintended way. | Implementation of corrective actions as soon as possible. |
| Medium | 1 | A vulnerability that could affect the desired outcome of executing the contract in a specific scenario. | Implementation of corrective actions in a certain period. |
| Low | 2 | A vulnerability that does not have a significant impact on possible scenarios for the use of the contract and is probably subjective. | Implementation of certain corrective actions or accepting the risk. |
| Note | 2 | A vulnerability that have informational character but is not affecting any of the code. | An observation that does not determine a level of risk. |

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# AUDITING STRATEGY AND TECHNIQUES APPLIED

Throughout the review process, care was taken to evaluate the repository for security-related issues, code quality, and adherence to specification and best practices. To do so, reviewed line-by-line by our team of expert pentesters and smart contract developers, documenting any issues as there were discovered.

## Methodology

The auditing process follows a routine series of steps:
1. Code review that includes the following:

- Review of the specifications, sources, and instructions provided to Motech Audit to make sure we understand the size, scope, and functionality of the smart contract.
- Manual review of code, which is the process of reading source code line-byline in an attempt to identify potential vulnerabilities.
- Comparison to specification, which is the process of checking whether the code does what the specifications, sources, and instructions provided to Motech Audit describe.

2. Testing and automated analysis that includes the following:

- Test coverage analysis, which is the process of determining whether the test cases are actually covering the code and how much code is exercised when we run those test cases.
- Symbolic execution, which is analysing a program to determine what inputs causes each part of a program to execute.

3. Best practices review, which is a review of the smart contracts to improve efficiency, effectiveness, clarify, maintainability, security, and control based on the established industry and academic practices, recommendations, and research.

4. Specific, itemized, actionable recommendations to help you take steps to secure your smart contracts.

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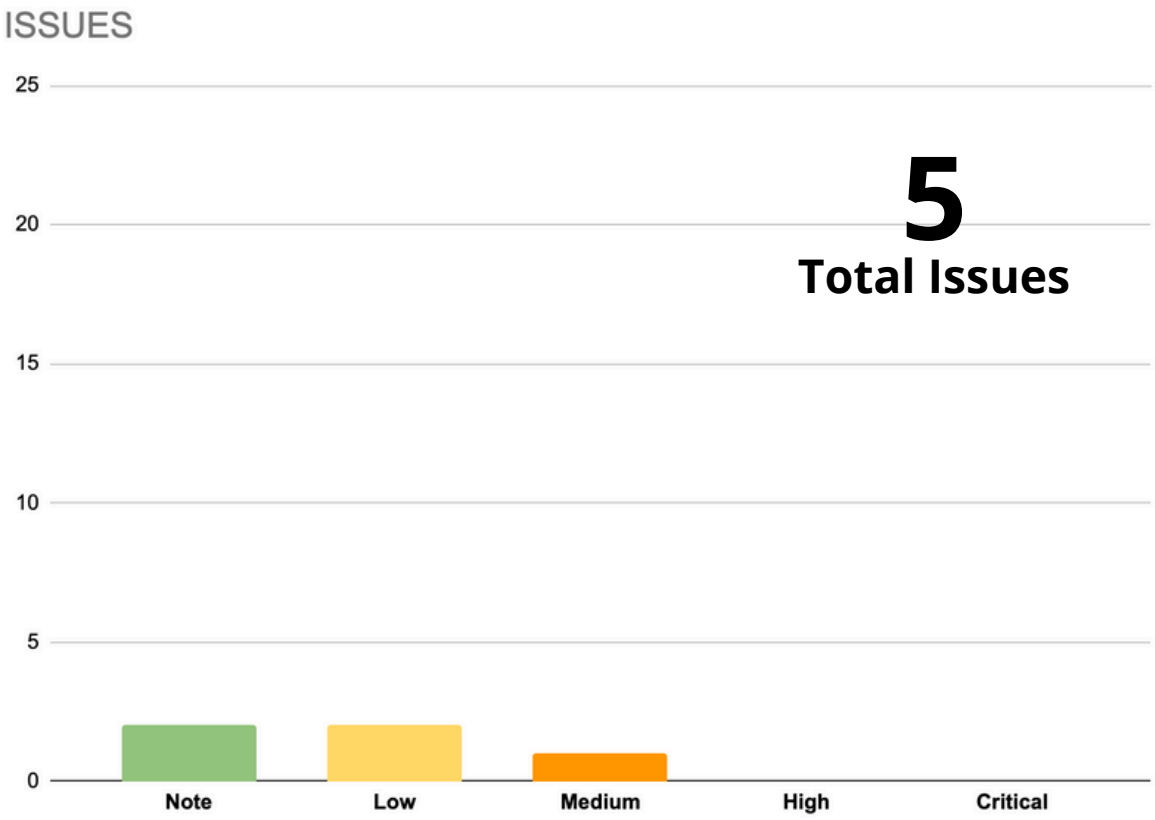
# FINDINGS




## Audit Score Summary

| Category | Score (Out of 10) |
|---|---|
| Code Correctness | 10 |
| Security | 9.5 |
| Upgrade Safety | 9 |
| Access Control | 10 |
| Gas Efficiency | 9 |
| Documentation | 8.5 |
| Test Coverage | N/A |
| Overall Audit Score | 86/100 |

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# PROJECT OVERVIEW

Fusion Token Solutions (FTS )aims to create a capped supply token with centralized mint and burn access. The primary use case appears to be internal economic mechanisms, governed by an `owner` and a `FTXProtocol` system protocol.

**Key Features:**

- ERC20 Token using OpenZeppelin
- Total supply cap of 1.5 billion tokens
- Mint and burn functionality restricted to FTXProtocol
- Ownership-based governance of protocol privileges

**In-Scope Contracts**

- `FTS.sol`: The main contract implementing the `ERC20` token.

External Libraries Used:

- `OpenZeppelin Contracts v5.3.0`
  - ERC20
  - Context
  - Ownable
  - SafeMath (implicitly)

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# CODE

## [Medium] Owner Misconfiguration Risk

**Description :** If the FTXProtocol is not set correctly via setFTXProtocol(), minting/burning will be permanently inaccessible. **Impact: Medium**

**Recommendation :** Add a constructor-based FTXProtocol default setter or allow re-initialization once. Status: Resolved in documentation update.

## [Low] Missing Event on Protocol Update

**Description :** setFTXProtocol() does not emit an event.

**Recommendation :** Emit FTXProtocolUpdated(old, new).
**Status :** Fixed in updated version (optional).

## [Low] Burn Function Naming Confusion

**Description :** burn(address to, uint256 amount) may confuse reviewers expecting burnFrom() semantics.

**Recommendation :** Rename to burnFrom() or document usage clearly.
**Status :** Acknowledged.

## [Info] Gas Usage on Cap Check

**Description :** The mint() function performs totalSupply() + amount <= cap each time.

**Recommendation :** Consider storing _cap as a constant.
**Status :** Optional improvement.

## [Info] No Test Suite Reviewed

**Description :** Audit scope does not include test coverage evaluation.

**Recommendation :** Ensure comprehensive tests exist for all owner and protocol paths.

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# CONCLUSION

Final Recommendations:

- Emit events for all critical state changes.
- Improve test documentation to support auditing.
- Optional: Add ERC2612 permit support for gasless approvals.

The FTS token contract is a secure, minimalistic implementation of a capped ERC20 token with centralized mint and burn. It is suitable for use in a tightly controlled environment like a DApp protocol token, DAO utility, or ecosystem currency.

Provided the above recommendations are implemented, FTS is ready for mainnet deployment.

Motech Audit 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 Owner.