

TechRate  
July, 2022



# SMART CONTRACTS SECURITY AUDIT REPORT



Techrate\_audits



Techrate



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# Audit Details



Audited project

Crosswise-finance



Deployer address

Not deployed



Client contacts:

Crosswise-finance team



Blockchain

Not provided



Project website:

<https://crosswise.finance>

# 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

**TechRate was commissioned by Crosswise-finance to perform an audit of smart contracts on commit:**

<https://github.com/crosswise-finance/crosswise-contracts/commit/10e12addb6b5d6cbaf375d1a52b630b452df6e96>

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.

# Issues Checking Status

Issue description	Checking status
1. <b>Compiler errors.</b>	Passed
2. <b>Race conditions and Reentrancy. Cross-function race conditions.</b>	Passed
3. <b>Possible delays in data delivery.</b>	Passed
4. <b>Oracle calls.</b>	Passed
5. <b>Front running.</b>	Passed
6. <b>Timestamp dependence.</b>	Passed
7. <b>Integer Overflow and Underflow.</b>	Passed
8. <b>DoS with Revert.</b>	Passed
9. <b>DoS with block gas limit.</b>	Low issues
10. <b>Methods execution permissions.</b>	Passed
11. <b>Economy model of the contract.</b>	Passed
12. <b>The impact of the exchange rate on the logic.</b>	Passed
13. <b>Private user data leaks.</b>	Passed
14. <b>Malicious Event log.</b>	Passed
15. <b>Scoping and Declarations.</b>	Passed
16. <b>Uninitialized storage pointers.</b>	Passed
17. <b>Arithmetic accuracy.</b>	Passed
18. <b>Design Logic.</b>	Passed
19. <b>Cross-function race conditions.</b>	Passed
20. <b>Safe Open Zeppelin contracts implementation and usage.</b>	Passed
21. <b>Fallback function security.</b>	Passed

# Security Issues

## ✓ High Severity Issues

No high severity issues found.

## ✓ Medium Severity Issues

No medium severity issues found.

## ✓ Low Severity Issues

### 1. Out of gas

#### Issue:

- (CrossFarm) `add(uint256 _allocPoint, ...)` and `set(uint256 _pid, ...)`, `setCrssPerBlock()` functions could invoke `massUpdatePools()` function, that can fail due to block gas limit if the pool size is too big.

#### Recommendation:

Check that the pool array length is not too big.

#### Issue:

- (Repay) `loadLossDataSplit()` function uses the loop to iterate through losses list. Function will be aborted with `OUT_OF_GAS` exception if there will be a long list.
- (RCrssToken) `loadSplit()` function uses the loop to iterate through losses list. Function will be aborted with `OUT_OF_GAS` exception if there will be a long list.

#### Recommendation:

Check that the array length is not too big.

## Notes:

- (CrossTaker) `swapExactETHForTokensSupportingFeeOnTransferTokens` calls `_payTransactonFee` with `address(this)` value.
- (CrssToken) do not forget to remove `_mint` line in constructor.

## Owner privileges (In the period when the owner is not renounced)

- CrossFactory:
  - Owner can change feeTo and owner addresses.
- CrossPair:
  - Factory address can change maker, farm, token and taker addresses.
  - Factory address can change status.
- CrossFarm:
  - Owner can change patrolCycle.
  - Owner can change crssPerBlock.
  - Owner can change fee params.
  - Owner can change backendCaller address.
  - Owner can change bonusMultiplier.
  - Owner can change trustedForwarder address.
  - Owner can change migrator address.
- Repay:
  - Owner can change instantFeeRate.
  - Owner can change cakePerBlock.
  - Owner can change BONUS\_MULTIPLIER.
  - Owner can change migrator address.
  - Owner can pause/unpause the contract.
  - Owner can change crssFarm address.

# Conclusion

Smart contracts contain low severity issues! The further transfers and operations with the funds raise are not related to this particular contract.

*TechRate 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.*