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AUDIT COMPANY

Stable Magnet
Smart Contract Security Audit

TechRate

June, 2021

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.

Background

TechRate was commissioned by Stable Magnet to perform an audit of smart contracts:

https://github.com/stablemagnet/stablemagnet-contracts/tree/main/contracts

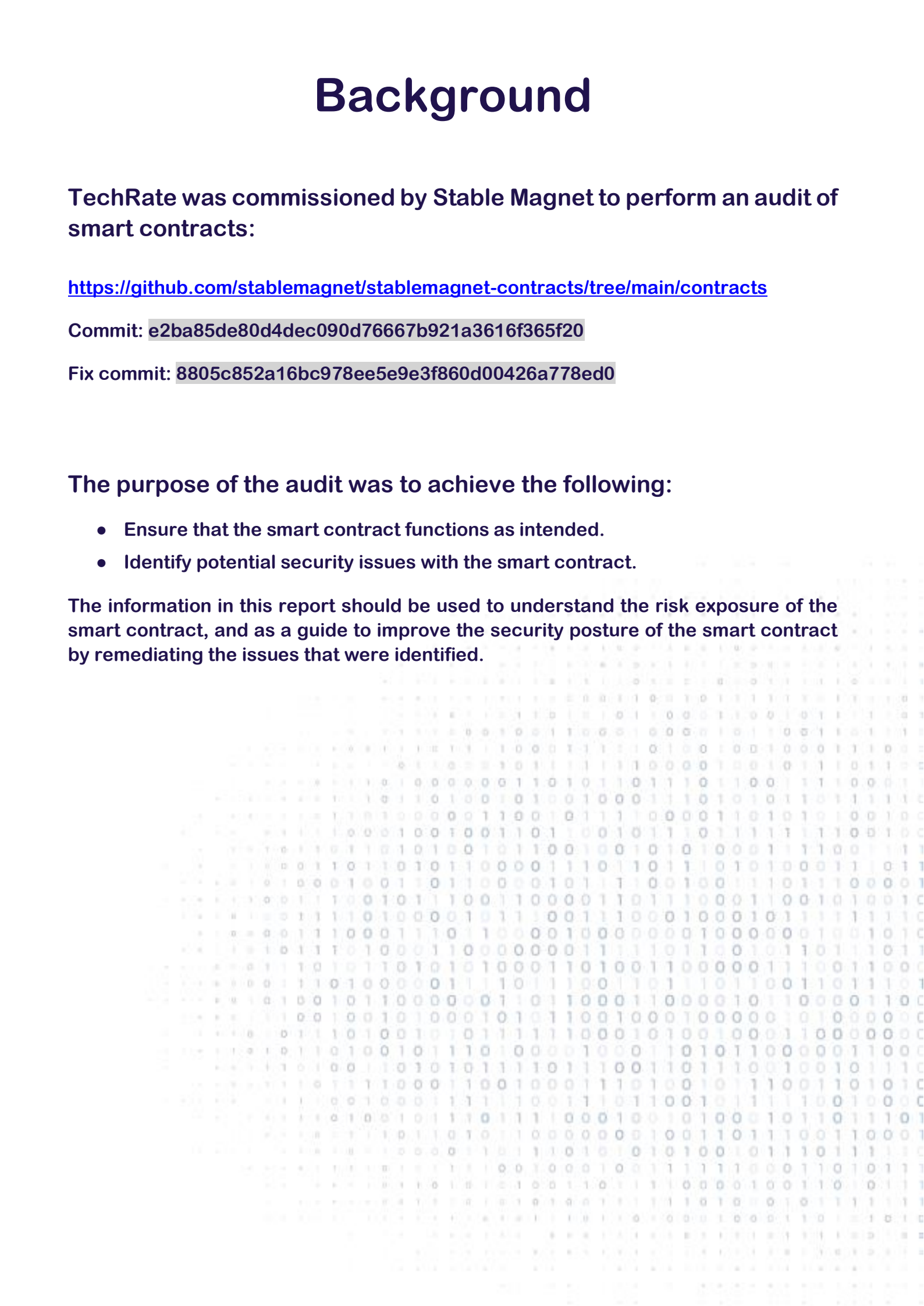
Commit: e2ba85de80d4dec090d76667b921a3616f365f20

Fix commit: 8805c852a16bc978ee5e9e3f860d00426a778ed0

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

Security Issues

High Severity Issues

No high severity issues found.

Medium Severity Issues

No medium severity issues found.

Low Severity Issues

1. Gas issues

1.1. Issue:

- MasterChef contract has functions `massUpdateStakePools()` and `massUpdatePools()` use the loop to update all pools. Function will be aborted with `OUT_OF_GAS` exception if there will be a long pool ids list.

Recommendation:
Check that arrays lengths are not too big.

~~1.2. Issue:~~ (fixed)

- MagneticField contract has `isDuplicatedPool()` function that uses the loop to find stake token address.

Recommendation:
Create map and use addresses as a key.

~~1.3. Issue:~~ (fixed)

- MagnetToken contract has `unlock()` function does not contain checking of equality unlock amount to zero.

Recommendation:
Add `require(amount > 0, “unlock zero amount”)` right after getting amount by `canUnlockAmount()` function.

2. ~~Double event~~ (fixed)

Issue:

- SwapUtils contract emits `TokenSwap` event twice in `swap()` function.

Recommendation:
Remove first emit.

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

MagneticField:

- Owner can change amount of magnet per block.
- Owner can change bonus settings.
- Owner can add new pools.
- Owner can change allocation points amount for pools.

MagnetToken:

- Owner can change start and end release block number.
- Owner can mint, burn and lock tokens.

Swap:

- Owner can initialize contract.
- Owner can withdraw admin fee.
- Owner can change admin fee but not higher 100%.
- Owner can set swap and default withdraw fee.
- Owner can start and stop ramping.

Conclusion

Smart contracts contain one low severity issue!

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.