



SOLIDProof
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Blockchain Security | Smart Contract Audits | KYC

MADE IN GERMANY

FistFarm

Audit

Security Assessment

01. June, 2022

For



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Version	Date	Description
1.0	01. June 2022	<ul style="list-style-type: none">• Layout project• Automated- /Manual-Security Testing• Summary

Network

Binance Smart Chain (BEP20)

Website

<https://www.fistfarm.io/#/>

Telegram

<https://t.me/FistFarmFinance>

Twitter

<https://twitter.com/fistfarmfinance>



Description

TBA

Project Engagement

During the 30th of May 2022, **FistFarm Team** engaged Solidproof.io to audit smart contracts that they created. The engagement was technical in nature and focused on identifying security flaws in the design and implementation of the contracts. They provided Solidproof.io with access to their code repository and whitepaper.

Logo



Contract Link

v1.0

- TBA
 - Provided as files

Vulnerability & Risk Level

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	Value	Vulnerability	Risk (Required Action)
Critical	9 - 10	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	7 – 8.9	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	4 – 6.9	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 – 3.9	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.
Informational	0 – 1.9	A vulnerability that have informational character but is not effecting any of the code.	An observation that does not determine a level of risk

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:
 - i) Review of the specifications, sources, and instructions provided to SolidProof to make sure we understand the size, scope, and functionality of the smart contract.
 - ii) Manual review of code, which is the process of reading source code line-by-line in an attempt to identify potential vulnerabilities.
 - iii) Comparison to specification, which is the process of checking whether the code does what the specifications, sources, and instructions provided to SolidProof describe.
2. Testing and automated analysis that includes the following:
 - i) 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.
 - ii) 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.

Used Code from other Frameworks/Smart Contracts (direct imports)

Imported packages:

 SafeMath
 Address
 SafeERC20
 EnumerableSet
Context
Ownable
Pausable
ERC20
IStrategy
IUniswapV2Pair
IMvpERC20
IFstswapFSTSWAP_ROUTERV2
IFistFactory
IReward
IOskStorage
IChef
OSKStorage
Chef IERC20
 Address
Context
 SafeMath
ERC20
IFistChef
IFstswapRouterV2
IFstswapV2Pair
Ownable
strat_fist

Tested Contract Files

This audit covered the following files listed below with a SHA-1 Hash.

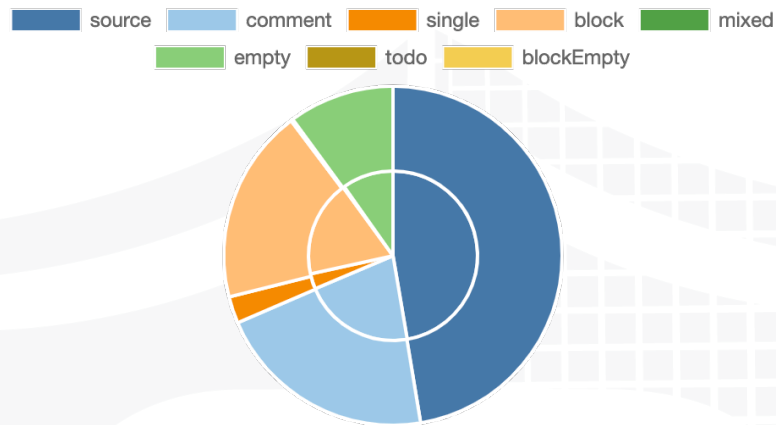
A file with a different Hash has been modified, intentionally or otherwise, after the security review. A different Hash could be (but not necessarily) an indication of a changed condition or potential vulnerability that was not within the scope of this review.

v1.0

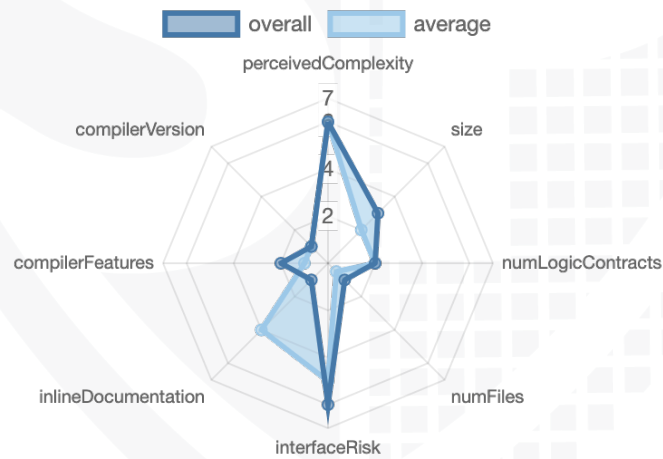
File Name	SHA-1 Hash
contracts/Chef-v2022-05-27.sol	96c9e32dd70912a46036669933ddea897fc54188
contracts/Strat_v2022-05-27.sol	bccc1b371114db2a7d8ec96a4ef28384d34e4e4c

Metrics

Source Lines v1.0



Risk Level v1.0



Capabilities

Components

Version	Contracts	Libraries	Interfaces	Abstract
1.0	5	6	13	5

Exposed Functions

This section lists functions that are explicitly declared public or payable. Please note that getter methods for public stateVars are not included.

Version	Public	Payable
1.0	177	7

Version	External	Internal	Private	Pure	View
1.0	116	233	22	25	90

State Variables

Version	Total	Public
1.0	60	43

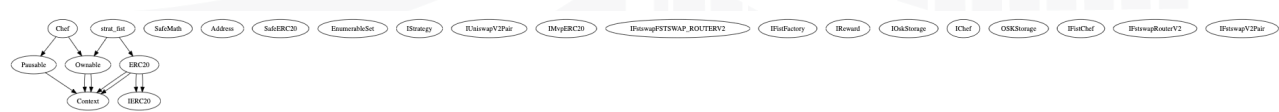
Capabilities

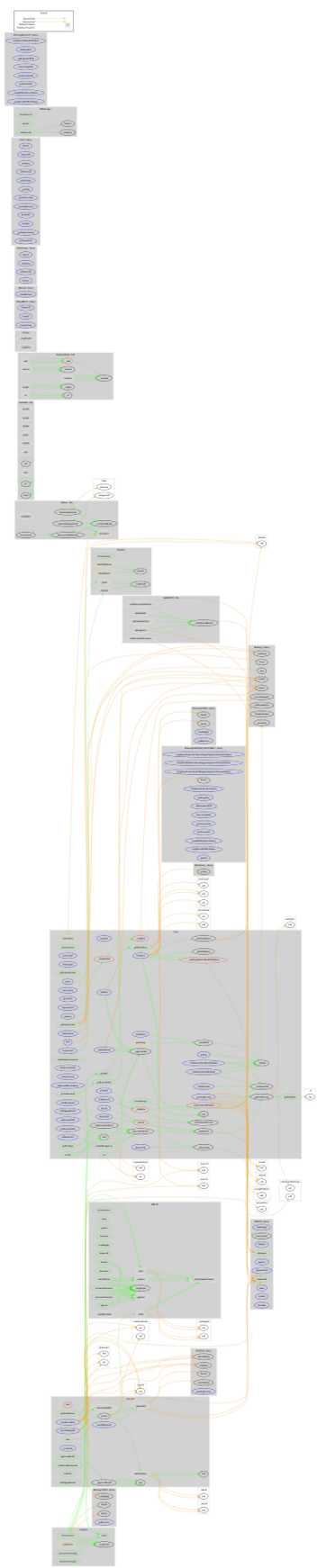
Version	Solidity Versions observed	Experimental Features	Can Receive Funds	Uses Assembly	Has Destroyable Contracts
1.0	^0.8.4		yes	yes (3 asm blocks)	

Version	Transfers ETH	Low-Level Calls	DelegateCall	Uses Hash Functions	EC Recover	New/Create/Create2
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1.0	yes		yes			yes → NewContract:OSKStorage
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Inheritance Graph v1.0





Scope of Work/Verify Claims

The above token Team provided us with the files that needs to be tested (Github, Bscscan, Etherscan, files, etc.). The scope of the audit is the main contract (usual the same name as team appended with .sol).

We will verify the following claims:

1. Overall checkup (Smart Contract Security)



Write functions of contract v1.0

STRAT_FIST
approve
approveMaxAll
decreaseAllowance
earn
enterStakingAll
excute
excuteAll
increaseAllowance
leaveStakingAll
renounceOwnership
setfonTo
setSlippageFactor
setTokenMinAmount
transfer
transferFrom
transferOwnership
withdrawToken

CHEF
add
addStrat
addStratHead
createStorage
deposit
depositAll
depositOsk
doAllStrat
doStrat
doStratSome
earn
massUpdatePools
pause
pauseStrat
rebalance
removeStrat
renounceOwnership
set
setAll
setAll
setAllowContract
setAndReApprove
setAutoComp
setBiasFactor
setDecreasePath
setIncreasePath
setMinAmount
setRewardMintAddress
setRewardPerBlock
setSlippageFactor
stopStrat
stopStratAll
transferOwnership
unpause
unpauseStrat
updatePool
withdraw
withdrawAll
withdrawOsk
withdrawOskAndDoStrat
withdrawOskAndDoStra...

Overall checkup (Smart Contract Security)

Tested	Verified
✓	✓

Legend

Attribute	Symbol
Verified / Checked	✓
Partly Verified	⚠
Unverified / Not checked	✗
Not available	—

Modifiers and public functions

v1.0

```

    ✓  approveMaxAll
      |  Ⓜ onlyOwner
      |  excuteAll
    ✓  enterStakingAll
      |  Ⓜ onlyOwner
      |  leaveStakingAll
      |  excute
      |  withdrawToken
      |  earn
    ✓  setTokenMinAmount
      |  Ⓜ onlyOwner
    ✓  setfonTo
      |  Ⓜ onlyOwner
    ✓  setSlippageFactor
      |  Ⓜ onlyOwner
  
```

```

    ✓  renounceOwnership
      |  Ⓜ onlyOwner
    ✓  transferOwnership
      |  Ⓜ onlyOwner
  
```

```

    transfer
    approve
    transferFrom
    increaseAllowance
    decreaseAllowance
  
```

```

    ✓  add
      |  Ⓜ onlyOwner
    ✓  set
      |  Ⓜ onlyOwner
    ✓  setAndReApprove
      |  Ⓜ onlyOwner
      |  massUpdatePools
      |  updatePool
      |  deposit
      |  depositAll
      |  withdraw
      |  withdrawAll
    ✓  doAllStrat
      |  Ⓜ onlyOwner
    ✓  doStratSome
      |  Ⓜ onlyOwner
    ✓  doStrat
      |  Ⓜ onlyOwner
    ✓  withdrawOskAndDoStrat
      |  Ⓜ onlyOwner
    ✓  withdrawOskAndDoStratSome
      |  Ⓜ onlyOwner
    ✓  addStratHead
      |  Ⓜ onlyOwner
    ✓  addStrat
      |  Ⓜ onlyOwner
    ✓  removeStrat
      |  Ⓜ onlyOwner
    ✓  pauseStrat
      |  Ⓜ onlyOwner
    ✓  unpauseStrat
      |  Ⓜ onlyOwner
    ✓  rebalance
      |  Ⓜ onlyOwner
      |  earn
    ✓  stopStrat
      |  Ⓜ onlyOwner
    ✓  stopStratAll
      |  Ⓜ onlyOwner
    ✓  depositOsk
      |  Ⓜ onlyOwner
    ✓  withdrawOsk
      |  Ⓜ onlyOwner
      |  createStorage
    ✓  setAllowContract
      |  Ⓜ onlyOwner
    ✓  setAutoComp
      |  Ⓜ onlyOwner
    ✓  setRewardMintAddress
      |  Ⓜ onlyOwner
    ✓  setAll
      |  Ⓜ onlyOwner
  
```

```

    ✓  setMinAmount
      |  Ⓜ onlyOwner
    ✓  setRewardPerBlock
      |  Ⓜ onlyOwner
    ✓  setSlippageFactor
      |  Ⓜ onlyOwner
    ✓  setIncreasePath
      |  Ⓜ onlyOwner
    ✓  setDecreasePath
      |  Ⓜ onlyOwner
    ✓  setBiasFactor
      |  Ⓜ onlyOwner
    ✓  pause
      |  Ⓜ onlyOwner
    ✓  unpause
      |  Ⓜ onlyOwner
  
```

Comments

- Deployer can set following state variables without any limitations
 - Chef
 - poolInfos[_pid].allocPoint
 - poolInfos[_pid].maxiAmount
 - biasFactor
 - REWARD_PER_BLOCK

- minAmount
- Strat_Fist
 - slippageFactor
 - minAmount
- Deployer can enable/disable following state variables
 - Chef
 - _paused
 - isAutoComp
 - allowContractList[_contract]
 - isStrategy[_strategy]
- Deployer can set following addresses
 - Chef
 - rewardMintAddress
 - Strat_Fist
 - fonTo
- Existing Modifiers
 - Chef
 - onlyOwner
 - whenNotPaused
 - whenPaused
 - autoComp
 - notContract
 - Can still allow contract addresses
 - Strat_Fist
 - onlyOwner
- There are several authorities which are authorized to call some functions, that means, if the owner is renounced, another address is still authorized to call functions
 - Be aware of this
- Chef
 - Owner can
 - Pause contract
 - Add new poolinfo
 - Lock deposit function by setting too low poolinfo maxiamount
 - Checking twice amount is higher 0 or is not 0 in L1524 and in safeTransferReward function L1599, same for L1576
 - Everybody can create new oskstorage
 - createStorage has no restriction




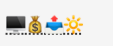


- Owner can leave staking
- Strat_Fist
 - IFistChef was not provided to solidproof. Do your own research

Please check if an OnlyOwner or similar restrictive modifier has been forgotten.



Source Units in Scope

v1.0

Type	File	Logic Contracts	Interfaces	Lines	nLines	nSLOC	Comment Lines	Complex. Score	Capabilities
	contracts/Chef-v2022-05-27.sol	10	9	2041	1812	992	699	974	
	contracts/Strat_v2022-05-27.sol	6	4	566	454	379	4	409	
	Totals	16	13	2607	2266	1371	703	1383	

Legend

Attribute	Description
Lines	total lines of the source unit
nLines	normalized lines of the source unit (e.g. normalizes functions spanning multiple lines)
nSLOC	normalized source lines of code (only source-code lines; no comments, no blank lines)
Comment Lines	lines containing single or block comments
Complexity Score	a custom complexity score derived from code statements that are known to introduce code complexity (branches, loops, calls, external interfaces, ...)

Audit Results

AUDIT PASSED

Critical issues

No critical issues

High issues

No high issues

Medium issues

No medium issues

Low issues

Issue	File	Type	Line	Description
#1	All	Contract doesn't import npm packages from source (like OpenZeppelin etc.)		We recommend to import all packages from npm directly without flatten the contract. Functions could be modified or can be susceptible to vulnerabilities
#2	Chef	Missing Zero Address Validation (missing-zero-check)	1948, 1361	Check that the address is not zero
#3	Strat	Missing Zero Address Validation (missing-zero-check)	370, 559	Check that the address is not zero

#4	Chef	Missing Events Arithmetic	1468 1482 1955 1956 1957 1965 1966 1967 1490 1979	Emit an event for critical parameter changes
#5	Strat	Missing Events Arithmetic	564 556 524	Emit an event for critical parameter changes
#6	Chef	Floating pragma	2	Use a specific pragma version instead of a range of versions
#7	Strat	Floating pragma	2	Use a specific pragma version instead of a range of versions
#8	Strat	Visibility	352, 353	Specify a visibility for state variable

Informational issues

Issue	File	Type	Line	Description
#1	Chef	State variables that could be declared constant (constable-states)	1418, 1417	Add the `constant` attributes to state variables that never change
#2	Strat	Unused function parameter	362	Leave the type and remove the variable name of the function parameters
#3	Strat	Move state variable to local	352, 353	Contract is using state variable only in one internal function. You can move state variable into the removeLiquidity function in L437

Audit Comments

We recommend you to use the special form of comments (NatSpec Format, Follow link for more information <https://docs.soliditylang.org/en/v0.5.10/natspec-format.html>) for your contracts to provide rich

documentation for functions, return variables and more. This helps investors to make clear what that variables, functions etc. do.

01. June 2022:

- Read whole report for more information



SWC Attacks

ID	Title	Relationships	Status
SW C-1 36	Unencrypted Private Data On-Chain	CWE-767: Access to Critical Private Variable via Public Method	PASSED
SW C-1 35	Code With No Effects	CWE-1164: Irrelevant Code	PASSED
SW C-1 34	Message call with hardcoded gas amount	CWE-655: Improper Initialization	PASSED
SW C-1 33	Hash Collisions With Multiple Variable Length Arguments	CWE-294: Authentication Bypass by Capture-replay	PASSED
SW C-1 32	Unexpected Ether balance	CWE-667: Improper Locking	PASSED
SW C-1 31	Presence of unused variables	CWE-1164: Irrelevant Code	PASSED
SW C-1 30	Right-To-Left-Override control character (U+202E)	CWE-451: User Interface (UI) Misrepresentation of Critical Information	PASSED
SW C-1 29	Typographical Error	CWE-480: Use of Incorrect Operator	PASSED
SW C-1 28	DoS With Block Gas Limit	CWE-400: Uncontrolled Resource Consumption	PASSED

SW C-1 27	Arbitrary Jump with Function Type Variable	CWE-695: Use of Low-Level Functionality	PASSED
SW C-1 25	Incorrect Inheritance Order	CWE-696: Incorrect Behavior Order	PASSED
SW C-1 24	Write to Arbitrary Storage Location	CWE-123: Write-what-where Condition	PASSED
SW C-1 23	Requirement Violation	CWE-573: Improper Following of Specification by Caller	PASSED
SW C-1 22	Lack of Proper Signature Verification	CWE-345: Insufficient Verification of Data Authenticity	PASSED
SW C-1 21	Missing Protection against Signature Replay Attacks	CWE-347: Improper Verification of Cryptographic Signature	PASSED
SW C-1 20	Weak Sources of Randomness from Chain Attributes	CWE-330: Use of Insufficiently Random Values	PASSED
SW C-11 9	Shadowing State Variables	CWE-710: Improper Adherence to Coding Standards	PASSED
SW C-11 8	Incorrect Constructor Name	CWE-665: Improper Initialization	PASSED
SW C-11 7	Signature Malleability	CWE-347: Improper Verification of Cryptographic Signature	PASSED

SW C-11 6	Timestamp Dependence	CWE-829: Inclusion of Functionality from Untrusted Control Sphere	PASSED
SW C-11 5	Authorization through tx.origin	CWE-477: Use of Obsolete Function	PASSED
SW C-11 4	Transaction Order Dependence	CWE-362: Concurrent Execution using Shared Resource with Improper Synchronization ('Race Condition')	PASSED
SW C-11 3	DoS with Failed Call	CWE-703: Improper Check or Handling of Exceptional Conditions	PASSED
SW C-11 2	Delegatecall to Untrusted Callee	CWE-829: Inclusion of Functionality from Untrusted Control Sphere	PASSED
SW C-11 1	Use of Deprecated Solidity Functions	CWE-477: Use of Obsolete Function	PASSED
SW C-11 0	Assert Violation	CWE-670: Always-Incorrect Control Flow Implementation	PASSED
SW C-1 09	Uninitialized Storage Pointer	CWE-824: Access of Uninitialized Pointer	PASSED
SW C-1 08	State Variable Default Visibility	CWE-710: Improper Adherence to Coding Standards	NOT PASSED
SW C-1 07	Reentrancy	CWE-841: Improper Enforcement of Behavioral Workflow	PASSED
SW C-1 06	Unprotected SELFDESTRUCT Instruction	CWE-284: Improper Access Control	PASSED

SW C-1 05	Unprotected Ether Withdrawal	CWE-284: Improper Access Control	PASSED
SW C-1 04	Unchecked Call Return Value	CWE-252: Unchecked Return Value	PASSED
SW C-1 03	Floating Pragma	CWE-664: Improper Control of a Resource Through its Lifetime	NOT PASSED
SW C-1 02	Outdated Compiler Version	CWE-937: Using Components with Known Vulnerabilities	PASSED
SW C-1 01	Integer Overflow and Underflow	CWE-682: Incorrect Calculation	PASSED
SW C-1 00	Function Default Visibility	CWE-710: Improper Adherence to Coding Standards	PASSED

The logo features the words "SolidProof" in a white, handwritten-style script. The text is superimposed on a blue background that includes a faint, stylized shield emblem with a grid pattern.

SolidProof

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A small horizontal bar representing the German flag, with black, red, and gold stripes.

MADE IN GERMANY