

Hundred Finance
Smart Contract
Audit Report





TABLE OF CONTENTS

| Audited Details

- Audited Project
- Blockchain
- Addresses
- Project Website
- Codebase

Summary

- Contract Summary
- Audit Findings Summary
- Vulnerabilities Summary

Conclusion

| Audit Results

Smart Contract Analysis

- Detected Vulnerabilities

Disclaimer

About Us



AUDITED DETAILS

Audited Project

Project name	Token ticker	Blockchain
Hundred Finance	HND	Fantom

Addresses

Contract address	0x10010078a54396f62c96df8532dc2b4847d47ed3
Contract deployer address	0x8FcBA7279af1d5d12C77e7062cAf1E09A0623f97

Project Website

https://hundred.finance/

Codebase

https://ftmscan.com/address/0x10010078a54396f62c96df8532dc2b4847d47ed3#code



SUMMARY

Hundred Finance is a decentralized application (dApp) that enables the lending and borrowing of cryptocurrencies. A multi-chain protocol, it integrates with Chainlink oracles to ensure market health and stability while specializing in providing markets for long-tail assets.

Contract Summary

Documentation Quality

Hundred Finance provides a very good documentation with standard of solidity base code.

• The technical description is provided clearly and structured and also dont have any high risk issue.

Code Quality

The Overall quality of the basecode is standard.

 Standard solidity basecode and rules are already followed by Hundred Finance with the discovery of several low issues.

Test Coverage

Test coverage of the project is 100% (Through Codebase)

Audit Findings Summary

- SWC-101 | It is recommended to use vetted safe math libraries for arithmetic operations consistently on lines 138, 138, 195, 200, 227, 235, 384, 385, 403, 404, 450, 469, 479, 480, 518, 519, 542, 551, 552, 572 and 573.
- SWC-110 SWC-123 | It is recommended to use of revert(), assert(), and require() in Solidity, and the new REVERT opcode in the EVM on lines 143.



CONCLUSION

We have audited the Hundred Finance project released in October 2021 to discover issues and identify potential security vulnerabilities in NamaFile Project. This process is used to find technical issues and security loopholes which might be found in the smart contract.

The security audit report provides a satisfactory result with some low-risk issues.

The issues found in the Hundred Finance smart contract code do not pose a considerable risk. The writing of the contract is close to the standard of writing contracts in general. The low-risk issues found are some arithmetic operation issues.



AUDIT RESULT

Article	Category	Description	Result
Default Visibility	SWC-100 SWC-108	Functions and state variables visibility should be set explicitly. Visibility levels should be specified consciously.	PASS
Integer Overflow and Underflow	SWC-101	If unchecked math is used, all math operations should be safe from overflows and underflows.	ISSUE FOUND
Outdated Compiler Version	SWC-102	It is recommended to use a recent version of the Solidity compiler.	PASS
Floating Pragma	SWC-103	Contracts should be deployed with the same compiler version and flags that they have been tested thoroughly.	PASS
Unchecked Call Return Value	SWC-104	The return value of a message call should be checked.	PASS
Unprotected Ether Withdrawal	SWC-105	Due to missing or insufficient access controls, malicious parties can withdraw from the contract.	PASS
SELFDESTRUCT Instruction	SWC-106	The contract should not be self-destructible while it has funds belonging to users.	PASS
Reentrancy	SWC-107	Check effect interaction pattern should be followed if the code performs recursive call.	PASS
Uninitialized Storage Pointer	SWC-109		PASS
Assert Violation	SWC-110 SWC-123	Properly functioning code should never reach a failing assert statement.	ISSUE FOUND
Deprecated Solidity Functions	SWC-111	Deprecated built-in functions should never be used.	PASS
Delegate call to Untrusted Callee	SWC-112	Delegatecalls should only be allowed to trusted addresses.	PASS



DoS (Denial of Service)	SWC-113 SWC-128	Execution of the code should never be blocked by a specific contract state unless required.	PASS
Race Conditions	SWC-114	Race Conditions and Transactions Order Dependency should not be possible.	
Authorization through tx.origin	SWC-115	tx.origin should not be used for authorization.	PASS
Block values as a proxy for time	SWC-116	Block numbers should not be used for time calculations.	PASS
Signature Unique ID	SWC-117 SWC-121 SWC-122	Signed messages should always have a unique id. A transaction hash should not be used as a unique id.	PASS
Incorrect Constructor Name	SWC-118 Constructors are special functions that are called only once during the contract creation.		PASS
Shadowing State Variable	SWC-119	-119 State variables should not be shadowed.	
Weak Sources of Randomness	SWC-120	Random values should never be generated from Chain Attributes or be predictable.	
Write to Arbitrary		The contract is responsible for ensuring that only authorized user or contract accounts may write to sensitive storage locations.	PASS
Incorrect Inheritance Order SWC-125 identical fun inheritance i		When inheriting multiple contracts, especially if they have identical functions, a developer should carefully specify inheritance in the correct order. The rule of thumb is to inherit contracts from more /general/ to more /specific/.	PASS
Insufficient Gas Griefing	Insufficient gas griefing attacks can be performed on contracts which accept data and use it in a sub-call on another contract.		PASS
Arbitrary Jump Function	SWC-127	As Solidity doesnt support pointer arithmetics, it is impossible to change such variable to an arbitrary value.	PASS



Typographical Error	SWC-129	A typographical error can occur for example when the intent of a defined operation is to sum a number to a variable.	PASS
Override control character	SWC-130	Malicious actors can use the Right-To-Left-Override unicode character to force RTL text rendering and confuse users as to the real intent of a contract.	
Unused variables	SWC-131 SWC-135	Unused variables are allowed in Solidity and they do not pose a direct security issue.	PASS
Unexpected Ether balance	SWC-132	Contracts can behave erroneously when they strictly assume a specific Ether balance.	PASS
Hash Collisions Variable	SWC-133	Using abi.encodePacked() with multiple variable length arguments can, in certain situations, lead to a hash collision.	
Hardcoded gas amount	SWC-134	The transfer() and send() functions forward a fixed amount of 2300 gas.	PASS
Unencrypted Private Data	SWC-136	It is a common misconception that private type variables cannot be read.	PASS



SMART CONTRACT ANALYSIS

Started	Saturday Oct 30 2021 01:55:51 GMT+0000 (Coordinated Universal Time)		
Finished	Sunday Oct 31 2021 15:48:11 GMT+0000 (Coordinated Universal Time)		
Mode	Standard		
Main Source File	Hundred.sol		

Detected Issues

ID	Title	Severity	Status
SWC-101	ARITHMETIC OPERATION "*" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "*" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "+" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "+" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "+" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "+" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "+=" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "+=" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-=" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-=" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "++" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "++" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "+=" DISCOVERED	low	acknowledged



SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "+=" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "+=" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "+=" DISCOVERED	low	acknowledged
SWC-110	PUBLIC STATE VARIABLE WITH ARRAY TYPE CAUSING REACHABLE EXCEPTION BY DEFAULT.	low	acknowledged



LINE 138

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- Hundred.sol

```
// configurable delay for timelock functions
uint public delay = 2*24*3600;

139
140
141 // set of minters, can be this bridge or other bridges
142
```



LINE 138

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- Hundred.sol

```
// configurable delay for timelock functions
uint public delay = 2*24*3600;

139
140
141 // set of minters, can be this bridge or other bridges
142
```



LINE 195

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- Hundred.sol

```
194 pendingMinter = _auth;
195 delayMinter = block.timestamp + delay;
196 }
197
198 function setVault(address _vault) external onlyVault {
199
```



LINE 200

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- Hundred.sol

```
199  pendingVault = _vault;
200  delayVault = block.timestamp + delay;
201  }
202
203  function applyVault() external onlyVault {
204
```



LINE 227

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- Hundred.sol

```
pendingVault = newVault;

227  delayVault = block.timestamp + delay;

228  emit LogChangeVault(vault, pendingVault, delayVault);

229  return true;

230  }

231
```



LINE 235

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- Hundred.sol

```
pendingVault = newVault;
delayVault = block.timestamp + delay;
emit LogChangeMPCOwner(vault, pendingVault, delayVault);
return true;
}
```



LINE 384

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- Hundred.sol

```
383
384  _totalSupply += amount;
385  balanceOf[account] += amount;
386  emit Transfer(address(0), account, amount);
387 }
388
```



LINE 385

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- Hundred.sol

```
384 _totalSupply += amount;
385 balanceOf[account] += amount;
386 emit Transfer(address(0), account, amount);
387 }
388
389
```



LINE 403

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- Hundred.sol

```
402
403 balanceOf[account] -= amount;
404 _totalSupply -= amount;
405 emit Transfer(account, address(0), amount);
406 }
407
```



LINE 404

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- Hundred.sol

```
balanceOf[account] -= amount;
404   _totalSupply -= amount;
405   emit Transfer(account, address(0), amount);
406  }
407
408
```



LINE 450

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- Hundred.sol

```
449 value,
450 nonces[target]++,
451 deadline));
452
453 require(verifyEIP712(target, hashStruct, v, r, s) || verifyPersonalSign(target, hashStruct, v, r, s));
454
```



LINE 469

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- Hundred.sol

```
468 value,
469 nonces[target]++,
470 deadline));
471
472 require(verifyEIP712(target, hashStruct, v, r, s) || verifyPersonalSign(target, hashStruct, v, r, s));
473
```



LINE 479

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- Hundred.sol

```
478
479 balanceOf[target] = balance - value;
480 balanceOf[to] += value;
481 emit Transfer(target, to, value);
482
483
```



LINE 480

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- Hundred.sol

```
balanceOf[target] = balance - value;

480 balanceOf[to] += value;

481 emit Transfer(target, to, value);

482

483 return true;

484
```



LINE 518

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- Hundred.sol

```
517
518 balanceOf[msg.sender] = balance - value;
519 balanceOf[to] += value;
520 emit Transfer(msg.sender, to, value);
521
522
```



LINE 519

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- Hundred.sol

```
518 balanceOf[msg.sender] = balance - value;
519 balanceOf[to] += value;
520 emit Transfer(msg.sender, to, value);
521
522 return true;
523
```



LINE 542

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- Hundred.sol

```
require(allowed >= value, "AnyswapV3ERC20: request exceeds allowance");
uint256 reduced = allowed - value;
allowance[from][msg.sender] = reduced;
emit Approval(from, msg.sender, reduced);
}

546
```



LINE 551

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- Hundred.sol

```
550
551 balanceOf[from] = balance - value;
552 balanceOf[to] += value;
553 emit Transfer(from, to, value);
554
555
```



LINE 552

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- Hundred.sol

```
551 balanceOf[from] = balance - value;
552 balanceOf[to] += value;
553 emit Transfer(from, to, value);
554
555 return true;
556
```



LINE 572

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- Hundred.sol

```
571
572 balanceOf[msg.sender] = balance - value;
573 balanceOf[to] += value;
574 emit Transfer(msg.sender, to, value);
575
576
```



LINE 573

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- Hundred.sol

```
572 balanceOf[msg.sender] = balance - value;
573 balanceOf[to] += value;
574 emit Transfer(msg.sender, to, value);
575
576 return ITransferReceiver(to).onTokenTransfer(msg.sender, value, data);
577
```



SWC-110 | PUBLIC STATE VARIABLE WITH ARRAY TYPE CAUSING REACHABLE EXCEPTION BY DEFAULT.

LINE 143

low SEVERITY

The public state variable "minters" in "AnyswapV5ERC20" contract has type "address[]" and can cause an exception in case of use of invalid array index value.

Source File

- Hundred.sol

```
142 mapping(address => bool) public isMinter;
143 address[] public minters;
144
145 // primary controller of the token contract
146 address public vault;
147
```



DISCLAIMER

This report is subject to the terms and conditions (including without limitation, description of services, confidentiality, disclaimer and limitation of liability) set forth in the Services Agreement, or the scope of services, and terms and conditions provided to you ("Customer" or the "Company") in connection with the Agreement. This report provided in connection with the Services set forth in the Agreement shall be used by the Company only to the extent permitted under the terms and conditions set forth in the Agreement. This report may not be transmitted, disclosed, referred to, or relied upon by any person for any purposes, nor may copies be delivered to any other person other than the Company, without Sysfixed's prior written consent in each instance.

This report is not, nor should be considered, an "endorsement" or "disapproval" of any particular project or team. This report is not, nor should be considered, an indication of the economics or value of any "product" or "asset" created by any team or project that contracts Sysfixed to perform a security assessment. This report does not provide any warranty or guarantee regarding the absolute bug-free nature of the technology analyzed, nor do they provide any indication of the technologies proprietors, business, business model, or legal compliance.

This is a limited report on our findings based on our analysis, in accordance with good industry practice as of 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.

This report should not be used in any way to make decisions around investment or involvement with any particular project. This report in no way provides investment advice, nor should be leveraged as investment advice of any sort. This report represents an extensive assessing process intending to help our customers increase the quality of their code while reducing the high level of risk presented by cryptographic tokens and blockchain technology.

This report is provided for information purposes only and on a non-reliance basis and does not constitute investment advice. No one shall have any right to rely on the report or its contents, and Sysfixed and its affiliates (including holding companies, shareholders, subsidiaries, employees, directors, officers, and other representatives) (Sysfixed) owe no duty of care.



ABOUT US

Sysfixed is a blockchain security certification organization established in 2021 with the objective to provide smart contract security services and verify their correctness in blockchain-based protocols. Sysfixed automatically scans for security vulnerabilities in Ethereum and other EVM-based blockchain smart contracts. Sysfixed a comprehensive range of analysis techniques—including static analysis, dynamic analysis, and symbolic execution—can accurately detect security vulnerabilities to provide an in-depth analysis report. With a vibrant ecosystem of world-class integration partners that amplify developer productivity, Sysfixed can be utilized in all phases of your project's lifecycle. Our team of security experts is dedicated to the research and improvement of our tools and techniques used to fortify your code.