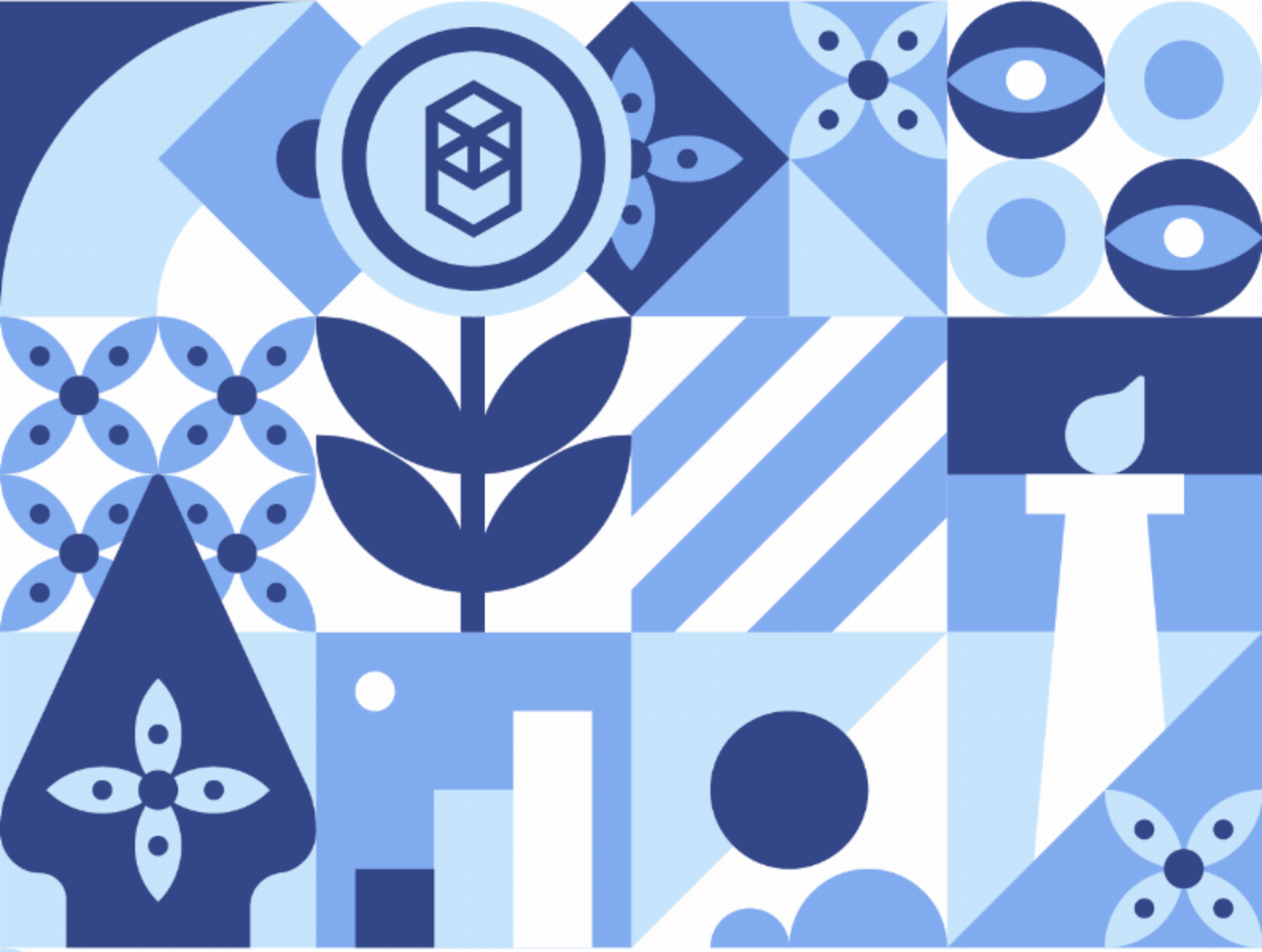

SpiritSwap Token

Smart Contract Audit Report

SYSFIXED

25 Apr 2021

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AUDITED DETAILS

Audited Project

Project name	Token ticker	Blockchain
SpiritSwap Token	SPIRIT	Fantom

Addresses

Contract address	0x5cc61a78f164885776aa610fb0fe1257df78e59b
Contract deployer address	0x635be83d56FE9B6a9F9A232f8d051eFf9A415f13

Project Website

https://www.spiritswap.finance/home

Codebase

https://ftmscan.com/address/0x5cc61a78f164885776aa610fb0fe1257df78e59b#code

SUMMARY

SpiritSwap is a decentralized exchange (DEX) on the Fantom Opera Chain. SpiritSwap's design is based on the Uniswap constant-product automated market maker (AMM). In an AMM, liquidity providers simply deposit a pair of tokens and an algorithm automatically makes markets for the token pair. Traders can easily swap between tokens in the AMM and get guaranteed rates for the swaps. Each swap on SpiritSwap incurs a fee, which gets distributed to liquidity providers as their payment for work.

Contract Summary

Documentation Quality

SpiritSwap Token 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 SpiritSwap Token with the discovery of several low issues.

Test Coverage

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

Audit Findings Summary

- SWC-103 | Pragma statements can be allowed to float when a contract is intended on lines 10, 37, 105, 202 and 364.
- SWC-116 | It is recommended to use oracles for block values as a proxy for time on lines 776.
- SWC-120 | It is recommended to use external sources of randomness via oracles on lines 806, 879 and 806.

CONCLUSION

We have audited the SpiritSwap Token project released on April 2021 to discover issues and identify potential security vulnerabilities in SpiritSwap Token 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 SpiritSwap Token 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 floating pragmas set on several lines, a weak source of randomness, a control flow decision is made based on The block.number environment variable and a control flow decision is made based on The block.timestamp environment variable. Avoid using any of those environment variables as sources of randomness and be aware that the use of these variables introduces a certain level of trust into miners.

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.	PASS
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.	ISSUE FOUND
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	Uninitialized local storage variables can point to unexpected storage locations in the contract.	PASS
Assert Violation	SWC-110 SWC-123	Properly functioning code should never reach a failing assert statement.	PASS
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.	PASS
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.	ISSUE FOUND
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	State variables should not be shadowed.	PASS
Weak Sources of Randomness	SWC-120	Random values should never be generated from Chain Attributes or be predictable.	ISSUE FOUND
Write to Arbitrary Storage Location	SWC-124	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	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	SWC-126	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.	PASS
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.	PASS
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 Apr 24 2021 20:12:56 GMT+0000 (Coordinated Universal Time)
Finished	Sunday Apr 25 2021 06:44:40 GMT+0000 (Coordinated Universal Time)
Mode	Standard
Main Source File	SpiritToken.sol

Detected Issues

ID	Title	Severity	Status
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
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SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-116	A CONTROL FLOW DECISION IS MADE BASED ON THE BLOCK.TIMESTAMP ENVIRONMENT VARIABLE.	low	acknowledged
SWC-120	POTENTIAL USE OF "BLOCK.NUMBER" AS SOURCE OF RANDOMNESS.	low	acknowledged
SWC-120	POTENTIAL USE OF "BLOCK.NUMBER" AS SOURCE OF RANDOMNESS.	low	acknowledged
SWC-120	A CONTROL FLOW DECISION IS MADE BASED ON THE BLOCK.NUMBER ENVIRONMENT VARIABLE.	low	acknowledged

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 10

low SEVERITY

The current pragma Solidity directive is ""=0.6.0<0.8.0"". It is recommended to specify a fixed compiler version to ensure that the bytecode produced does not vary between builds. This is especially important if you rely on bytecode-level verification of the code.

Source File

- SpiritToken.sol

Locations

```
9
10   pragma solidity >=0.6.0 <0.8.0;
11
12   /*
13   * @dev Provides information about the current execution context, including the
14
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 37

low SEVERITY

The current pragma Solidity directive is ""=0.6.0<0.8.0"". It is recommended to specify a fixed compiler version to ensure that the bytecode produced does not vary between builds. This is especially important if you rely on bytecode-level verification of the code.

Source File

- SpiritToken.sol

Locations

```
36
37   pragma solidity >=0.6.0 <0.8.0;
38
39   /**
40   * @dev Contract module which provides a basic access control mechanism, where
41
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 105

low SEVERITY

The current pragma Solidity directive is ""^0.6.4"". It is recommended to specify a fixed compiler version to ensure that the bytecode produced does not vary between builds. This is especially important if you rely on bytecode-level verification of the code.

Source File

- SpiritToken.sol

Locations

```
104
105   pragma solidity ^0.6.4;
106
107   interface IBEP20 {
108   /**
109
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 202

low SEVERITY

The current pragma Solidity directive is ""=0.6.0<0.8.0"". It is recommended to specify a fixed compiler version to ensure that the bytecode produced does not vary between builds. This is especially important if you rely on bytecode-level verification of the code.

Source File

- SpiritToken.sol

Locations

```
201
202   pragma solidity >=0.6.0 <0.8.0;
203
204   /**
205   * @dev Wrappers over Solidity's arithmetic operations with added overflow
206
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 364

low SEVERITY

The current pragma Solidity directive is ""=0.4.0"". It is recommended to specify a fixed compiler version to ensure that the bytecode produced does not vary between builds. This is especially important if you rely on bytecode-level verification of the code.

Source File

- SpiritToken.sol

Locations

```
363
364   pragma solidity >=0.4.0;
365
366
367
368
```

SWC-116 | A CONTROL FLOW DECISION IS MADE BASED ON THE BLOCK.TIMESTAMP ENVIRONMENT VARIABLE.

LINE 776

low SEVERITY

The block.timestamp environment variable is used to determine a control flow decision. Note that the values of variables like coinbase, gaslimit, block number and timestamp are predictable and can be manipulated by a malicious miner. Also keep in mind that attackers know hashes of earlier blocks. Don't use any of those environment variables as sources of randomness and be aware that use of these variables introduces a certain level of trust into miners.

Source File

- SpiritToken.sol

Locations

```
775   require(nonce == nonces[signatory]++, "SPIRIT::delegateBySig: invalid nonce");
776   require(now <= expiry, "SPIRIT::delegateBySig: signature expired");
777   return _delegate(signatory, delegatee);
778   }
779
780
```

SWC-120 | POTENTIAL USE OF "BLOCK.NUMBER" AS SOURCE OF RANDOMNESS.

LINE 806

low SEVERITY

The environment variable "block.number" looks like it might be used as a source of randomness. Note that the values of variables like coinbase, gaslimit, block number and timestamp are predictable and can be manipulated by a malicious miner. Also keep in mind that attackers know hashes of earlier blocks. Don't use any of those environment variables as sources of randomness and be aware that use of these variables introduces a certain level of trust into miners.

Source File

- SpiritToken.sol

Locations

```
805   {
806   require(blockNumber < block.number, "SPIRIT::getPriorVotes: not yet determined");
807
808   uint32 nCheckpoints = numCheckpoints[account];
809   if (nCheckpoints == 0) {
810
```

SWC-120 | POTENTIAL USE OF "BLOCK.NUMBER" AS SOURCE OF RANDOMNESS.

LINE 879

low SEVERITY

The environment variable "block.number" looks like it might be used as a source of randomness. Note that the values of variables like coinbase, gaslimit, block number and timestamp are predictable and can be manipulated by a malicious miner. Also keep in mind that attackers know hashes of earlier blocks. Don't use any of those environment variables as sources of randomness and be aware that use of these variables introduces a certain level of trust into miners.

Source File

- SpiritToken.sol

Locations

```
878   {
879   uint32 blockNumber = safe32(block.number, "SPIRIT::_writeCheckpoint: block number
exceeds 32 bits");
880
881   if (nCheckpoints > 0 && checkpoints[delegatee][nCheckpoints - 1].fromBlock ==
blockNumber) {
882   checkpoints[delegatee][nCheckpoints - 1].votes = newVotes;
883
```

SWC-120 | A CONTROL FLOW DECISION IS MADE BASED ON THE BLOCK.NUMBER ENVIRONMENT VARIABLE.

LINE 806

low SEVERITY

The block.number environment variable is used to determine a control flow decision. Note that the values of variables like coinbase, gaslimit, block number and timestamp are predictable and can be manipulated by a malicious miner. Also keep in mind that attackers know hashes of earlier blocks. Don't use any of those environment variables as sources of randomness and be aware that use of these variables introduces a certain level of trust into miners.

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808   uint32 nCheckpoints = numCheckpoints[account];
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