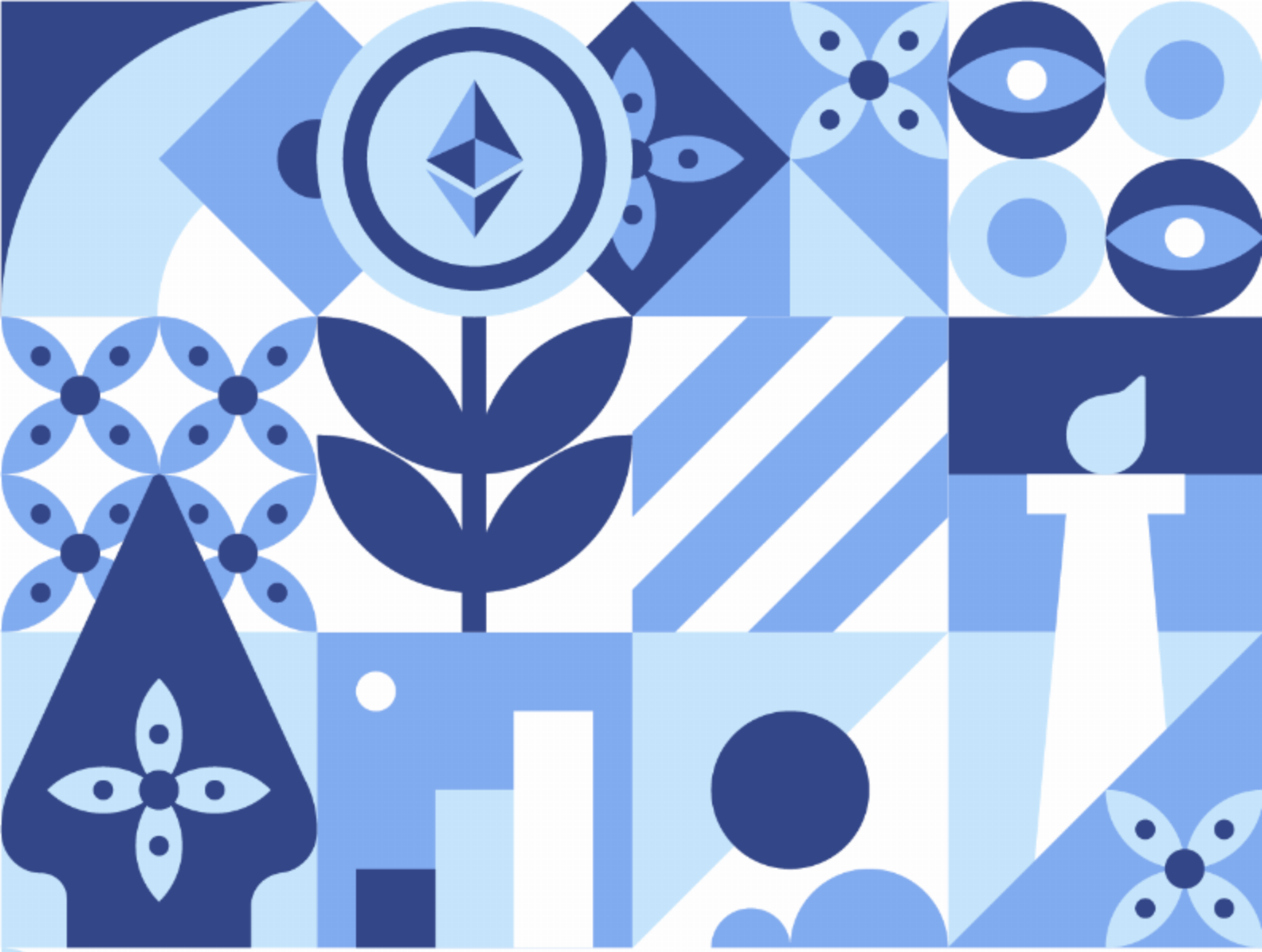

Stone

Smart Contract Audit Report

SYSFIXED

25 Apr 2022

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AUDITED DETAILS

Audited Project

Project name	Token ticker	Blockchain
Stone	0NE	Ethereum

Addresses

Contract address	0x73A83269b9bbAFC427E76Be0A2C1a1db2a26f4C2
Contract deployer address	0x46DaD8f630736C7265849422F943efD77CB8714f

Project Website

https://civfund.org/stone/

Codebase

https://etherscan.io/address/0x73A83269b9bbAFC427E76Be0A2C1a1db2a26f4C2#code

SUMMARY

While $CIV remains the Civilization's ecosystem Store of Value, $0NE (Stone) plays the role of the utility token of the Civilization ecosystem.

Contract Summary

Documentation Quality

Stone 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 Stone 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 11, 38, 108, 188, 405, 712, 904, 980, 1070, 1197 and 1246.
- SWC-107 | It is recommended to use a reentrancy lock, reentrancy weaknesses detected on lines 828.
- 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 828.
- SWC-113 SWC-128 | It is recommended to implement the contract logic to handle failed calls and block gas limit on lines 828.

CONCLUSION

We have audited the Stone project released on April 2022 to discover issues and identify potential security vulnerabilities in Stone 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 Stone 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 a floating pragma is set, a call to a user-supplied address is executed, multiple calls are executed in the same transaction, and Requirement violation. We recommend specifying 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. A requirement was violated in a nested call and the call was reverted as a result. Make sure valid inputs are provided to the nested call (for instance, via passed arguments). For "A call to a user-supplied address is executed" issue we recommend using an external message call to an address specified by the caller is executed. Note that the callee account might contain arbitrary code and could re-enter any function within this contract. Reentering the contract in an intermediate state may lead to unexpected behavior. Make sure that no state modifications are executed after this call and/or reentrancy guards are in place.

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.	ISSUE FOUND
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.	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.	ISSUE FOUND
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.	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	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.	PASS
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	Sunday Apr 24 2022 12:59:58 GMT+0000 (Coordinated Universal Time)
Finished	Monday Apr 25 2022 22:47:07 GMT+0000 (Coordinated Universal Time)
Mode	Standard
Main Source File	Stone.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-107	A CALL TO A USER-SUPPLIED ADDRESS IS EXECUTED.	low	acknowledged
SWC-113	MULTIPLE CALLS ARE EXECUTED IN THE SAME TRANSACTION.	low	acknowledged
SWC-123	REQUIREMENT VIOLATION.	low	acknowledged

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 11

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

- Stone.sol

Locations

```
10
11   pragma solidity >=0.6.0 <0.8.0;
12
13   /*
14   * @dev Provides information about the current execution context, including the
15
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 38

low SEVERITY

The current pragma Solidity directive is ""^0.7.0"". 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

- Stone.sol

Locations

```
37
38   pragma solidity ^0.7.0;
39
40   /**
41   * @dev Contract module which provides a basic access control mechanism, where
42
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 108

low SEVERITY

The current pragma Solidity directive is ""^0.7.0"". 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

- Stone.sol

Locations

```
107
108   pragma solidity ^0.7.0;
109
110   /**
111   * @dev Interface of the ERC20 standard as defined in the EIP.
112
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 188

low SEVERITY

The current pragma Solidity directive is ""^0.7.0"". 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

- Stone.sol

Locations

```
187
188   pragma solidity ^0.7.0;
189
190   /**
191   * @dev Wrappers over Solidity's arithmetic operations with added overflow
192
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 405

low SEVERITY

The current pragma Solidity directive is ""^0.7.0"". 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

- Stone.sol

Locations

```
404
405   pragma solidity ^0.7.0;
406
407
408
409
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 712

low SEVERITY

The current pragma Solidity directive is ""^0.7.0"". 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

- Stone.sol

Locations

```
711
712   pragma solidity ^0.7.0;
713
714   /**
715   * @dev Collection of functions related to the address type
716
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 904

low SEVERITY

The current pragma Solidity directive is ""^0.7.0"". 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

- Stone.sol

Locations

```
903
904   pragma solidity ^0.7.0;
905
906
907
908
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 980

low SEVERITY

The current pragma Solidity directive is ""^0.7.0"". 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

- Stone.sol

Locations

```
979
980   pragma solidity ^0.7.0;
981
982   /**
983   * @dev Contract module which allows children to implement an emergency stop
984
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 1070

low SEVERITY

The current pragma Solidity directive is ""=0.4.0<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

- Stone.sol

Locations

```
1069
1070   pragma solidity >=0.4.0 <0.8.0;
1071
1072   /// @title Contains 512-bit math functions
1073   /// @notice Facilitates multiplication and division that can have overflow of an
intermediate value without any loss of precision
1074
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 1197

low SEVERITY

The current pragma Solidity directive is ""^0.7.0"". 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

- Stone.sol

Locations

```
1196
1197   pragma solidity ^0.7.0;
1198
1199   /// @title Optimized overflow and underflow safe math operations
1200   /// @notice Contains methods for doing math operations that revert on overflow or
underflow for minimal gas cost
1201
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 1246

low SEVERITY

The current pragma Solidity directive is ""^0.7.6"". 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

- Stone.sol

Locations

```
1245
1246   pragma solidity ^0.7.6;
1247
1248
1249
1250
```

SWC-107 | A CALL TO A USER-SUPPLIED ADDRESS IS EXECUTED.

LINE 828

low SEVERITY

An external message call to an address specified by the caller is executed. Note that the callee account might contain arbitrary code and could re-enter any function within this contract. Reentering the contract in an intermediate state may lead to unexpected behaviour. Make sure that no state modifications are executed after this call and/or reentrancy guards are in place.

Source File

- Stone.sol

Locations

```
827   // solhint-disable-next-line avoid-low-level-calls
828   (bool success, bytes memory returndata) = target.call{ value: value }(data);
829   return _verifyCallResult(success, returndata, errorMessage);
830   }
831
832
```

SWC-113 | MULTIPLE CALLS ARE EXECUTED IN THE SAME TRANSACTION.

LINE 828

low SEVERITY

This call is executed following another call within the same transaction. It is possible that the call never gets executed if a prior call fails permanently. This might be caused intentionally by a malicious callee. If possible, refactor the code such that each transaction only executes one external call or make sure that all callees can be trusted (i.e. they're part of your own codebase).

Source File

- Stone.sol

Locations

```
827   // solhint-disable-next-line avoid-low-level-calls
828   (bool success, bytes memory returndata) = target.call{ value: value }(data);
829   return _verifyCallResult(success, returndata, errorMessage);
830   }
831
832
```

SWC-123 | REQUIREMENT VIOLATION.

LINE 828

low SEVERITY

A requirement was violated in a nested call and the call was reverted as a result. Make sure valid inputs are provided to the nested call (for instance, via passed arguments).

Source File

- Stone.sol

Locations

```
827   // solhint-disable-next-line avoid-low-level-calls
828   (bool success, bytes memory returndata) = target.call{ value: value }(data);
829   return _verifyCallResult(success, returndata, errorMessage);
830   }
831
832
```

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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.

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