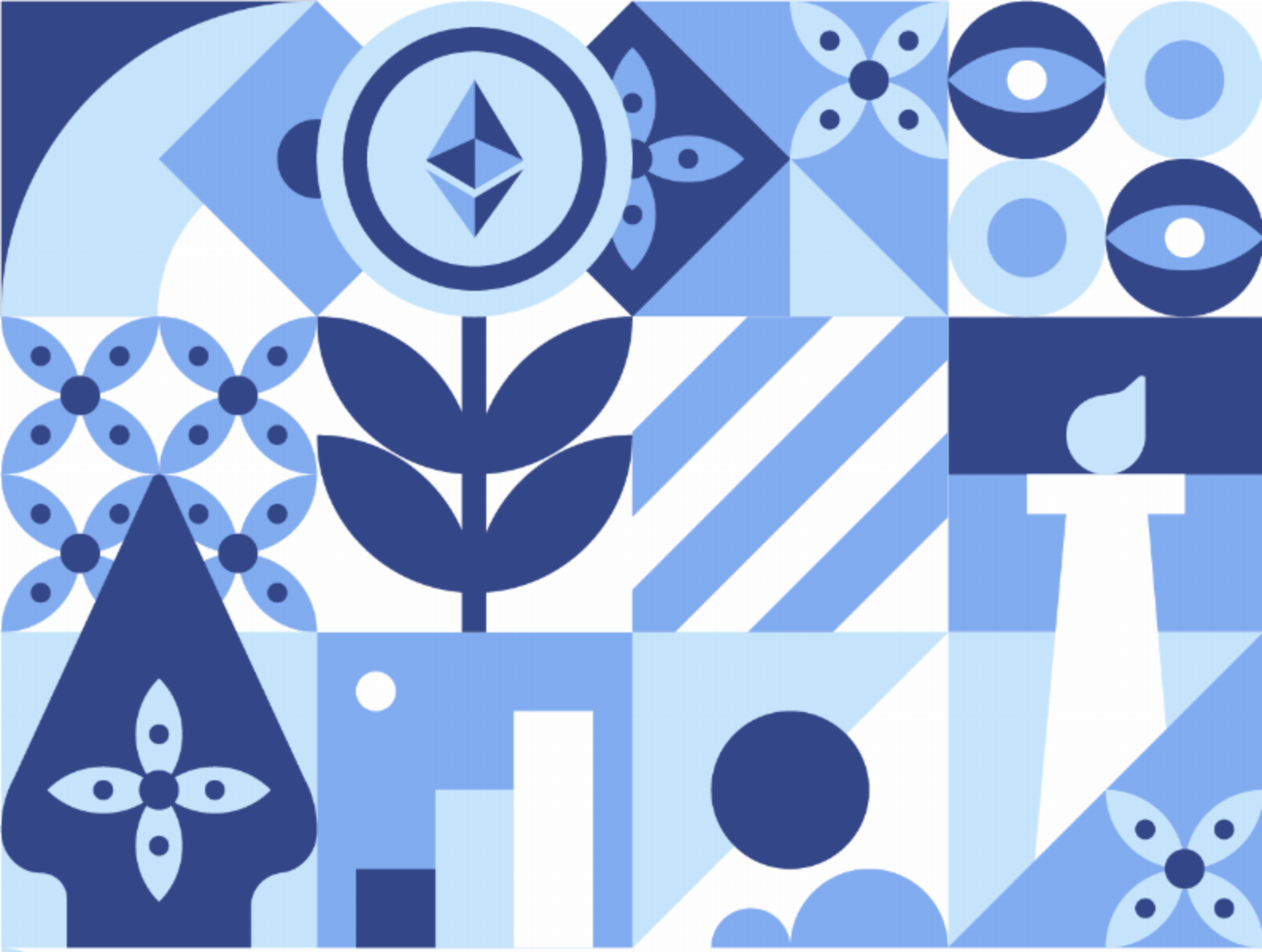

Stratos

Smart Contract Audit Report

SYSFIXED

10 Jun 2021

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AUDITED DETAILS

Audited Project

Project name	Token ticker	Blockchain
Stratos	STOS	Ethereum

Addresses

Contract address	0x08c32b0726C5684024ea6e141C50aDe9690bBdcc
Contract deployer address	0xB7573c14A5ECE5d92f17569855C64BD43392F8b1

Project Website

https://www.thestratos.org/

Codebase

https://etherscan.io/address/0x08c32b0726C5684024ea6e141C50aDe9690bBdcc#code

SUMMARY

"Stratos has the main goal of being a solid infrastructure for the entire blockchain industry in a decentralized manner. Stratos offers blockchain, storage, database, and computation services. Users and developers can combine the four different services together to customize their own products. "

Contract Summary

Documentation Quality

Stratos provides a very poor documentation with standard of solidity base code.

- The technical description is provided unclear and disorganized.

Code Quality

The Overall quality of the basecode is poor.

- Solidity basecode and rules are unclear and disorganized by Stratos.

Test Coverage

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

Audit Findings Summary

- SWC-127 | A developer should not allow a user to assign arbitrary values to function type variables on lines 862.
- SWC-100 SWC-108 | Explicitly define visibility for all state variables on lines 1072.
- SWC-103 | Pragma statements can be allowed to float when a contract is intended on lines 9, 36, 106, 133, 163, 408, 488, 517, 823, 893 and 984.

CONCLUSION

We have audited the Stratos project released in June 2021 to find issues and identify potential security vulnerabilities in the Stratos project. This process is used to find technical issues and security loopholes that may be found in smart contracts.

The security audit report gave unsatisfactory results with the discovery of high-risk issues and several other low-risk issues.

Writing a contract that does not follow the Solidity style guide can pose a significant risk. The high risk problem we found is the caller can redirect execution to arbitrary bytecode locations. It is possible to redirect the control flow to arbitrary locations in the code. This may allow an attacker to bypass security controls or manipulate the business logic of the smart contract. It is recommended to avoid using low-level operations and assembly to prevent this issue.

Whereas Low risk Issues we found are floating pragmas set on several lines and state variable visibility is not set. It is best practice to set the visibility of state variables explicitly.

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.	ISSUE FOUND
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.	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.	ISSUE FOUND

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	Wednesday Jun 09 2021 18:30:55 GMT+0000 (Coordinated Universal Time)
Finished	Thursday Jun 10 2021 07:11:52 GMT+0000 (Coordinated Universal Time)
Mode	Standard
Main Source File	Stratos.sol

Detected Issues

ID	Title	Severity	Status
SWC-127	THE CALLER CAN REDIRECT EXECUTION TO ARBITRARY BYTECODE LOCATIONS.	high	acknowledged
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
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-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-108	STATE VARIABLE VISIBILITY IS NOT SET.	low	acknowledged

SWC-127 | THE CALLER CAN REDIRECT EXECUTION TO ARBITRARY BYTECODE LOCATIONS.

LINE 862

high SEVERITY

It is possible to redirect the control flow to arbitrary locations in the code. This may allow an attacker to bypass security controls or manipulate the business logic of the smart contract. Avoid using low-level-operations and assembly to prevent this issue.

Source File

- Stratos.sol

Locations

```
861   modifier onlyOwner() {
862   require(owner() == _msgSender(), "Ownable: caller is not the owner");
863   _;
864   }
865
866
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 9

low SEVERITY

The current pragma Solidity directive is ""^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

- Stratos.sol

Locations

```
8
9   pragma solidity ^0.8.0;
10
11   /*
12   * @dev Provides information about the current execution context, including the
13
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 36

low SEVERITY

The current pragma Solidity directive is ""^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

- Stratos.sol

Locations

```
35
36   pragma solidity ^0.8.0;
37
38   /**
39   * @dev String operations.
40
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 106

low SEVERITY

The current pragma Solidity directive is ""^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

- Stratos.sol

Locations

```
105
106   pragma solidity ^0.8.0;
107
108   /**
109   * @dev Interface of the ERC165 standard, as defined in the
110
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 133

low SEVERITY

The current pragma Solidity directive is ""^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

- Stratos.sol

Locations

```
132
133   pragma solidity ^0.8.0;
134
135
136   /**
137
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 163

low SEVERITY

The current pragma Solidity directive is ""^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

- Stratos.sol

Locations

```
162
163   pragma solidity ^0.8.0;
164
165
166
167
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 408

low SEVERITY

The current pragma Solidity directive is ""^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

- Stratos.sol

Locations

```
407
408   pragma solidity ^0.8.0;
409
410   /**
411   * @dev Interface of the ERC20 standard as defined in the EIP.
412
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 488

low SEVERITY

The current pragma Solidity directive is ""^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

- Stratos.sol

Locations

```
487
488   pragma solidity ^0.8.0;
489
490
491   /**
492
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 517

low SEVERITY

The current pragma Solidity directive is ""^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

- Stratos.sol

Locations

```
516
517   pragma solidity ^0.8.0;
518
519
520
521
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 823

low SEVERITY

The current pragma Solidity directive is ""^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

- Stratos.sol

Locations

```
822
823   pragma solidity ^0.8.0;
824
825   /**
826   * @dev Contract module which provides a basic access control mechanism, where
827
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 893

low SEVERITY

The current pragma Solidity directive is ""^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

- Stratos.sol

Locations

```
892
893   pragma solidity ^0.8.0;
894
895
896   /**
897
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 984

low SEVERITY

The current pragma Solidity directive is ""^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

- Stratos.sol

Locations

```
983
984   pragma solidity ^0.8.0;
985
986
987
988
```

SWC-108 | STATE VARIABLE VISIBILITY IS NOT SET.

LINE 1072

low SEVERITY

It is best practice to set the visibility of state variables explicitly. The default visibility for "MAX_SUPPLY" is internal. Other possible visibility settings are public and private.

Source File

- Stratos.sol

Locations

```
1071
1072   uint256 MAX_SUPPLY = 1 * 10 ** 8 * 10 ** 18; // 100,000,000 STOS Token Max Supply
1073
1074   // deployer address is the default admin(owner)
1075   // deployer address is the first address with MINT_BURN_ROLE role
1076
```

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