pTokens TLOS

Smart Contract Audit Report

SYSFIXED

20 Apr 2021

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AUDITED DETAILS

Audited Project

Project name	Token ticker	Blockchain
pTokens TLOS	TLOS	Binance Smart Chain

Addresses

Contract address	https://bscscan.com/address/0xb6c53431608e626ac81a9776ac3e999c5556717c#code
Contract deployer address	0x03eC7b0e8e8889de5E1c2f021535B2fD615ACbfF

Project Website

https://p.network/

Codebase

https://dashboard.mythx.io/#/console/analyses/96c71130-eb60-4db6-b4dc-43748a5872b9

SUMMARY

The value proposition of the pNetwork protocol is to create a seamless multi-chain world for dApps and crypto enthusiasts. pNetwork is focused on creating connections across blockchains, sidechains and L2 networks with a unique user-friendly process. Since 2020, pNetwork has continuously evolved with pNetwork v1/v2 having processed more than $1 Billion volume in cross-chain transactions!

Contract Summary

Documentation Quality

pTokens TLOS 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 pTokens TLOS 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 273, 353, 273 and 353.
- SWC-103 | Pragma statements can be allowed to float when a contract is intended on lines 9, 87, 253 and 331.

CONCLUSION

We have audited the pTokens TLOS project released on April 2021 to discover issues and identify potential security vulnerabilities in pTokens TLOS 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 pTokens TLOS 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, and a floating pragma is set. The current pragma Solidity directive is ""^0.6.0"". 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.

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.	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.	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	Monday Apr 19 2021 19:01:02 GMT+0000 (Coordinated Universal Time)
Finished	Tuesday Apr 20 2021 19:32:03 GMT+0000 (Coordinated Universal Time)
Mode	Standard
Main Source File	AdminUpgradeabilityProxy.sol

Detected Issues

ID	Title	Severity	Status
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	COMPILER-REWRITABLE "<UINT> - 1" DISCOVERED	low	acknowledged
SWC-101	COMPILER-REWRITABLE "<UINT> - 1" DISCOVERED	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
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 273

low SEVERITY

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

Source File

- AdminUpgradeabilityProxy.sol

Locations

```
272   constructor(address _logic, bytes memory _data) public payable {
273   assert(IMPLEMENTATION_SLOT ==
bytes32(uint256(keccak256('eip1967.proxy.implementation')) - 1));
274   _setImplementation(_logic);
275   if(_data.length > 0) {
276   (bool success,) = _logic.delegatecall(_data);
277
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 353

low SEVERITY

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

Source File

- AdminUpgradeabilityProxy.sol

Locations

```
352   constructor(address _logic, address _admin, bytes memory _data)
UpgradeabilityProxy(_logic, _data) public payable {
353   assert(ADMIN_SLOT == bytes32(uint256(keccak256('eip1967.proxy.admin')) - 1));
354   _setAdmin(_admin);
355   }
356
357
```

SWC-101 | COMPILER-REWRITABLE "<UINT> - 1" DISCOVERED

LINE 273

low SEVERITY

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

Source File

- AdminUpgradeabilityProxy.sol

Locations

```
272   constructor(address _logic, bytes memory _data) public payable {
273   assert(IMPLEMENTATION_SLOT ==
bytes32(uint256(keccak256('eip1967.proxy.implementation')) - 1));
274   _setImplementation(_logic);
275   if(_data.length > 0) {
276   (bool success,) = _logic.delegatecall(_data);
277
```

SWC-101 | COMPILER-REWRITABLE "<UINT> - 1" DISCOVERED

LINE 353

low SEVERITY

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

Source File

- AdminUpgradeabilityProxy.sol

Locations

```
352   constructor(address _logic, address _admin, bytes memory _data)
UpgradeabilityProxy(_logic, _data) public payable {
353   assert(ADMIN_SLOT == bytes32(uint256(keccak256('eip1967.proxy.admin')) - 1));
354   _setAdmin(_admin);
355   }
356
357
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 9

low SEVERITY

The current pragma Solidity directive is ""^0.6.0"". 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

- AdminUpgradeabilityProxy.sol

Locations

```
8
9   pragma solidity ^0.6.0;
10
11   /**
12   * @title Proxy
13
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 87

low SEVERITY

The current pragma Solidity directive is "">=0.6.2<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

- AdminUpgradeabilityProxy.sol

Locations

```
86
87   pragma solidity >=0.6.2 <0.8.0;
88
89   /**
90   * @dev Collection of functions related to the address type
91
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 253

low SEVERITY

The current pragma Solidity directive is ""^0.6.0"". 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

- AdminUpgradeabilityProxy.sol

Locations

```
252
253   pragma solidity ^0.6.0;
254
255
256
257
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 331

low SEVERITY

The current pragma Solidity directive is ""^0.6.0"". 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

- AdminUpgradeabilityProxy.sol

Locations

```
330
331   pragma solidity ^0.6.0;
332
333
334   /**
335
```

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