Thetan Gem

Smart Contract Audit Report

SYSFIXED

13 Sep 2021

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AUDITED DETAILS

Audited Project

Project name	Token ticker	Blockchain
Thetan Gem	THG	Binance Smart Chain

Addresses

Contract address	0x9fd87aefe02441b123c3c32466cd9db4c578618f
Contract deployer address	0x28551E18882Ca4aB1f0B5105AbFAf1d8A23E8d3d

Project Website

https://thetanarena.com/#home

Codebase

https://bscscan.com/address/0x9fd87aefe02441b123c3c32466cd9db4c578618f#code

SUMMARY

Thetan Arena is an e-sport game based on Blockchain technology. You can gather your friends, form a team, battle with others, and earn token rewards with just your skills. Thetan Arena's gameplay is designed to revolve around the combination of your skills and teamwork. Challenge yourself with various game modes: MOBA & Battle Royale, with monthly updates and attractive rewards. You are guaranteed a gaming experience that's never known before and certified to lose to anyone the second you pause the fighting too. Gear your heroes up with a large selection of hundreds of weapons. You'd better devise a good tactic as well because the most fierce war awaits you right from when the starship drops you off on the battlefield.

Contract Summary

Documentation Quality

Thetan Gem 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 Thetan Gem 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, 122, 153, 507, 599, 672, 901, 946, 991, 1040, 1236 and 1283.

CONCLUSION

We have audited the Thetan Gem project released on September 2021 to discover issues and identify potential security vulnerabilities in Thetan Gem 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 satisfactory results with low-risk issues.

The Thetan Gem smart contract code issues 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 are some arithmetic operation issues, and a floating pragma is set. The current pragma Solidity directive is ""^0.8.0"". Specifying a fixed compiler version is recommended 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.	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.	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 Sep 12 2021 03:06:41 GMT+0000 (Coordinated Universal Time)
Finished	Monday Sep 13 2021 20:31:54 GMT+0000 (Coordinated Universal Time)
Mode	Standard
Main Source File	THGToken.sol

Detected Issues

ID	Title	Severity	Status
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
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SWC-103 | A FLOATING PRAGMA IS SET.

LINE 11

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

- THGToken.sol

Locations

```
10
11   pragma solidity ^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 ""^0.8.0"". 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

- THGToken.sol

Locations

```
37
38   pragma solidity ^0.8.0;
39
40   /**
41   * @dev Interface of the ERC20 standard as defined in the EIP.
42
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 122

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

- THGToken.sol

Locations

```
121
122   pragma solidity ^0.8.0;
123
124
125   /**
126
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 153

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

- THGToken.sol

Locations

```
152
153   pragma solidity ^0.8.0;
154
155
156
157
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 507

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

- THGToken.sol

Locations

```
506
507   pragma solidity ^0.8.0;
508
509
510   /**
511
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 599

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

- THGToken.sol

Locations

```
598
599   pragma solidity ^0.8.0;
600
601
602   /**
603
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 672

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

- THGToken.sol

Locations

```
671
672   pragma solidity ^0.8.0;
673
674   // CAUTION
675   // This version of SafeMath should only be used with Solidity 0.8 or later,
676
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 901

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

- THGToken.sol

Locations

```
900
901   pragma solidity ^0.8.0;
902
903   /**
904   * @title Counters
905
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 946

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

- THGToken.sol

Locations

```
945
946   pragma solidity ^0.8.0;
947
948   /**
949   * @dev Standard math utilities missing in the Solidity language.
950
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 991

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

- THGToken.sol

Locations

```
990
991   pragma solidity ^0.8.0;
992
993
994   /**
995
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 1040

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

- THGToken.sol

Locations

```
1039
1040   pragma solidity ^0.8.0;
1041
1042
1043
1044
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 1236

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

- THGToken.sol

Locations

```
1235
1236   pragma solidity ^0.8.0;
1237
1238
1239
1240
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 1283

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

- THGToken.sol

Locations

```
1282
1283   pragma solidity ^0.8.0;
1284
1285
1286
1287
```

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