GroveC

Smart Contract Audit Report

SYSFIXED

19 Nov 2022

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AUDITED DETAILS

Audited Project

Project name	Token ticker	Blockchain
GroveC	GRV	Binance Smart Chain

Addresses

Contract address	0xf33893de6eb6ae9a67442e066ae9abd228f5290c
Contract deployer address	0xa24c4553AcF893219e8A44e5500FBCFC522BCDd9

Project Website

https://www.grovetoken.com/

Codebase

https://bscscan.com/address/0xf33893de6eb6ae9a67442e066ae9abd228f5290c#code

SUMMARY

The energy consumption and electronic waste generated by traditional cryptocurrency mining methods has widereaching environmental consequences. As the world looks for greener solutions to tackle climate change the public perception of cryptocurrency hampers its massive, untapped potential to be a driving force for positive change. The Grove Green Plan is how GroveToken aims to reverse that negative view and help crypto realize its latent potential. It is the guiding outline for the hybrid 'green crypto' blockchain ecosystem and planetfriendly investment business GroveToken is building to pursue the mission of a healthier and wealthier future for all.

Contract Summary

Documentation Quality

GroveC 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 GroveC 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 30, 44, 59, 60, 73, 85, 100, 114, 128, 142, 158, 181, 204, 230, 645, 668, 701, 703, 724, 725, 750, 752, 801, 900, 919, 956 and 981.
- SWC-103 | Pragma statements can be allowed to float when a contract is intended on lines 10, 240, 267, 352, 437, 467 and 850.

CONCLUSION

We have audited the GroveC project released on November 2022 to discover issues and identify potential security vulnerabilities in GroveC 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 GroveC 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 ""^0.8.0"". 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.

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	Friday Nov 18 2022 17:20:31 GMT+0000 (Coordinated Universal Time)
Finished	Saturday Nov 19 2022 11:26:58 GMT+0000 (Coordinated Universal Time)
Mode	Standard
Main Source File	Token.sol

Detected Issues

ID	Title	Severity	Status
SWC-101	ARITHMETIC OPERATION "+" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "*" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "/" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "/" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "%" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "+" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "*" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "/" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "%" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "/" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "%" DISCOVERED	low	acknowledged

SWC-101	ARITHMETIC OPERATION "+" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "+=" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "+=" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "+=" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-=" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "**" DISCOVERED	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-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 30

low SEVERITY

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

Source File

- Token.sol

Locations

```
29   unchecked {
30   uint256 c = a + b;
31   if (c < a) return (false, 0);
32   return (true, c);
33   }
34
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 44

low SEVERITY

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

Source File

- Token.sol

Locations

```
43   if (b > a) return (false, 0);
44   return (true, a - b);
45   }
46   }
47
48
```

SWC-101 | ARITHMETIC OPERATION "*" DISCOVERED

LINE 59

low SEVERITY

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

Source File

- Token.sol

Locations

```
58   if (a == 0) return (true, 0);
59   uint256 c = a * b;
60   if (c / a != b) return (false, 0);
61   return (true, c);
62   }
63
```

SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 60

low SEVERITY

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

Source File

- Token.sol

Locations

```
59   uint256 c = a * b;
60   if (c / a != b) return (false, 0);
61   return (true, c);
62   }
63   }
64
```

SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 73

low SEVERITY

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

Source File

- Token.sol

Locations

```
72   if (b == 0) return (false, 0);
73   return (true, a / b);
74   }
75   }
76
77
```

SWC-101 | ARITHMETIC OPERATION "%" DISCOVERED

LINE 85

low SEVERITY

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

Source File

- Token.sol

Locations

```
84   if (b == 0) return (false, 0);
85   return (true, a % b);
86   }
87   }
88
89
```

SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 100

low SEVERITY

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

Source File

- Token.sol

Locations

```
99   function add(uint256 a, uint256 b) internal pure returns (uint256) {
100   return a + b;
101   }
102
103   /**
104
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 114

low SEVERITY

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

Source File

- Token.sol

Locations

```
113   function sub(uint256 a, uint256 b) internal pure returns (uint256) {
114   return a - b;
115   }
116
117   /**
118
```

SWC-101 | ARITHMETIC OPERATION "*" DISCOVERED

LINE 128

low SEVERITY

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

Source File

- Token.sol

Locations

```
127   function mul(uint256 a, uint256 b) internal pure returns (uint256) {
128   return a * b;
129   }
130
131   /**
132
```

SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 142

low SEVERITY

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

Source File

- Token.sol

Locations

```
141   function div(uint256 a, uint256 b) internal pure returns (uint256) {
142   return a / b;
143   }
144
145   /**
146
```

SWC-101 | ARITHMETIC OPERATION "%" DISCOVERED

LINE 158

low SEVERITY

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

Source File

- Token.sol

Locations

```
157   function mod(uint256 a, uint256 b) internal pure returns (uint256) {
158   return a % b;
159   }
160
161   /**
162
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 181

low SEVERITY

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

Source File

- Token.sol

Locations

```
180   require(b <= a, errorMessage);
181   return a - b;
182   }
183   }
184
185
```

SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 204

low SEVERITY

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

Source File

- Token.sol

Locations

```
203   require(b > 0, errorMessage);
204   return a / b;
205   }
206   }
207
208
```

SWC-101 | ARITHMETIC OPERATION "%" DISCOVERED

LINE 230

low SEVERITY

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

Source File

- Token.sol

Locations

```
229   require(b > 0, errorMessage);
230   return a % b;
231   }
232   }
233   }
234
```

SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 645

low SEVERITY

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

Source File

- Token.sol

Locations

```
644   address owner = _msgSender();
645   _approve(owner, spender, allowance(owner, spender) + addedValue);
646   return true;
647   }
648
649
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 668

low SEVERITY

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

Source File

- Token.sol

Locations

```
667   unchecked {
668   _approve(owner, spender, currentAllowance - subtractedValue);
669   }
670
671   return true;
672
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 701

low SEVERITY

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

Source File

- Token.sol

Locations

```
700   unchecked {
701   _balances[from] = fromBalance - amount;
702   }
703   _balances[to] += amount;
704
705
```

SWC-101 | ARITHMETIC OPERATION "+=" DISCOVERED

LINE 703

low SEVERITY

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

Source File

- Token.sol

Locations

```
702   }
703   _balances[to] += amount;
704
705   emit Transfer(from, to, amount);
706
707
```

SWC-101 | ARITHMETIC OPERATION "+=" DISCOVERED

LINE 724

low SEVERITY

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

Source File

- Token.sol

Locations

```
723
724   _totalSupply += amount;
725   _balances[account] += amount;
726   emit Transfer(address(0), account, amount);
727
728
```

SWC-101 | ARITHMETIC OPERATION "+=" DISCOVERED

LINE 725

low SEVERITY

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

Source File

- Token.sol

Locations

```
724   _totalSupply += amount;
725   _balances[account] += amount;
726   emit Transfer(address(0), account, amount);
727
728   _afterTokenTransfer(address(0), account, amount);
729
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 750

low SEVERITY

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

Source File

- Token.sol

Locations

```
749   unchecked {
750   _balances[account] = accountBalance - amount;
751   }
752   _totalSupply -= amount;
753
754
```

SWC-101 | ARITHMETIC OPERATION "-=" DISCOVERED

LINE 752

low SEVERITY

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

Source File

- Token.sol

Locations

```
751   }
752   _totalSupply -= amount;
753
754   emit Transfer(account, address(0), amount);
755
756
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 801

low SEVERITY

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

Source File

- Token.sol

Locations

```
800   unchecked {
801   _approve(owner, spender, currentAllowance - amount);
802   }
803   }
804   }
805
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 900

low SEVERITY

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

Source File

- Token.sol

Locations

```
899   if(tax > 0){
900   amount = amount - tax;
901   _transfer(from, _taxAccount, tax);
902   }
903
904
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 919

low SEVERITY

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

Source File

- Token.sol

Locations

```
918   if(tax > 0){
919   amount = amount - tax;
920   _transfer(owner, _taxAccount, tax);
921   }
922
923
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 956

low SEVERITY

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

Source File

- Token.sol

Locations

```
955
956   if(_Restrictions[to].delay > 0 && _UserRestrictions[from] >  block.timestamp -
_Restrictions[to].delay)
957   return false;
958
959   if(_Restrictions[to].delay > 0)
960
```

SWC-101 | ARITHMETIC OPERATION "**" DISCOVERED

LINE 981

low SEVERITY

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

Source File

- Token.sol

Locations

```
980   if(_tax > 0)
981   return _amount.mul(_tax).div(10**2);
982   else
983   return 0;
984   }
985
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 10

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

- Token.sol

Locations

```
9
10   pragma solidity ^0.8.0;
11
12   // CAUTION
13   // This version of SafeMath should only be used with Solidity 0.8 or later,
14
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 240

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

- Token.sol

Locations

```
239
240   pragma solidity ^0.8.0;
241
242   /**
243   * @dev Provides information about the current execution context, including the
244
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 267

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

- Token.sol

Locations

```
266
267   pragma solidity ^0.8.0;
268
269
270   /**
271
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 352

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

- Token.sol

Locations

```
351
352   pragma solidity ^0.8.0;
353
354   /**
355   * @dev Interface of the ERC20 standard as defined in the EIP.
356
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 437

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

- Token.sol

Locations

```
436
437   pragma solidity ^0.8.0;
438
439
440   /**
441
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 467

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

- Token.sol

Locations

```
466
467   pragma solidity ^0.8.0;
468
469
470
471
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 850

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

- Token.sol

Locations

```
849   //SPDX-License-Identifier: MIT
850   pragma solidity >=0.8.0;
851
852
853
854
```

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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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