



CACTUS

Smart Contract Audit Report

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AUDITED DETAILS

Audited Project

Project name	Token ticker	Blockchain
CACTUS	CACTUS	Binance Smart Chain

Addresses

Contract address	0x6034120575f3a4FDC03196128f4AD2011D570A96
Contract deployer address	0x8ACf11258D871276973a9933f985a400FeDe72B7

Project Website

<https://cactustoken.com/>

Codebase

<https://bscscan.com/address/0x6034120575f3a4FDC03196128f4AD2011D570A96#code>

SUMMARY

CACTUS is a deflationary community token that equally rewards every participant in its ecosystem. Hold CACTUS & Earn BUSD! | 3% to Holders, 2% to Liquidity & 3% to Ecosystem.

Contract Summary

Documentation Quality

CACTUS 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 CACTUS 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 305, 324, 346, 379, 381, 402, 403, 428, 430, 601, 615, 630, 631, 644, 656, 671, 685, 699, 713, 729, 752, 775, 801, 1720, 1739, 1761, 1794, 1796, 1817, 1818, 1843, 1845, 2072, 2076, 2088, 2095, 2104, 2205, 2309, 2344, 2431, 2716, 2726, 2730, 2937, 2937, 2957 and 2205.
- 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 2174, 2206, 2211, 2722, 2875, 2876, 2886, 2887, 2888, 2897, 2904, 2958, 3267, 3268, 3284, 3285 and 3286.
- SWC-115 | tx.origin should not be used for authorization, use msg.sender instead on lines 3123 and 3223.

CONCLUSION

We have audited the CACTUS project released on January -2023 to discover issues and identify potential security vulnerabilities in CACTUS 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 CACTUS 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, tx.origin as a part of authorization control and out of bounds array access which the index access expression can cause an exception in case of the use of an invalid array index value. We recommend avoiding "tx.origin" using "tx.origin" as a security control can lead to authorization bypass vulnerabilities. Consider using "msg.sender" unless you really know what you are doing.

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.	PASS
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.	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.	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.	ISSUE FOUND
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 <code>abi.encodePacked()</code> with multiple variable length arguments can, in certain situations, lead to a hash collision.	PASS
Hardcoded gas amount	SWC-134	The <code>transfer()</code> and <code>send()</code> 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 Jan 04 2023 17:32:53 GMT+0000 (Coordinated Universal Time)
Finished	Thursday Jan 05 2023 16:40:27 GMT+0000 (Coordinated Universal Time)
Mode	Standard
Main Source File	BABYTOKEN.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-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	COMPILER-REWRITABLE "<UINT> - 1" DISCOVERED	low	acknowledged
SWC-115	USE OF "TX.ORIGIN" AS A PART OF AUTHORIZATION CONTROL.	low	acknowledged
SWC-115	USE OF "TX.ORIGIN" AS A PART OF AUTHORIZATION CONTROL.	low	acknowledged

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 305

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
304 unchecked {  
305   _approve(sender, _msgSender(), currentAllowance - amount);  
306 }  
307  
308 return true;  
309
```

SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 324

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
323  function increaseAllowance(address spender, uint256 addedValue) public virtual
returns (bool) {
324  _approve(_msgSender(), spender, _allowances[_msgSender()][spender] + addedValue);
325  return true;
326  }
327
328
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 346

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
345     unchecked {
346         _approve(_msgSender(), spender, currentAllowance - subtractedValue);
347     }
348
349     return true;
350
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 379

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
378     unchecked {  
379         _balances[sender] = senderBalance - amount;  
380     }  
381     _balances[recipient] += amount;  
382  
383
```


SWC-101 | ARITHMETIC OPERATION "+=" DISCOVERED

LINE 381

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
380     }
381     _balances[recipient] += amount;
382
383     emit Transfer(sender, recipient, amount);
384
385
```

SWC-101 | ARITHMETIC OPERATION "+=" DISCOVERED

LINE 402

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
401
402  _totalSupply += amount;
403  _balances[account] += amount;
404  emit Transfer(address(0), account, amount);
405
406
```

SWC-101 | ARITHMETIC OPERATION "+=" DISCOVERED

LINE 403

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
402  _totalSupply += amount;  
403  _balances[account] += amount;  
404  emit Transfer(address(0), account, amount);  
405  
406  _afterTokenTransfer(address(0), account, amount);  
407
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 428

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
427     unchecked {  
428         _balances[account] = accountBalance - amount;  
429     }  
430     _totalSupply -= amount;  
431  
432
```

SWC-101 | ARITHMETIC OPERATION "-=" DISCOVERED

LINE 430

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
429     }
430     _totalSupply -= amount;
431
432     emit Transfer(account, address(0), amount);
433
434
```

SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 601

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
600  unchecked {  
601  uint256 c = a + b;  
602  if (c < a) return (false, 0);  
603  return (true, c);  
604  }  
605
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 615

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
614     if (b > a) return (false, 0);
615     return (true, a - b);
616   }
617 }
618
619
```

SWC-101 | ARITHMETIC OPERATION "*" DISCOVERED

LINE 630

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
629   if (a == 0) return (true, 0);
630   uint256 c = a * b;
631   if (c / a != b) return (false, 0);
632   return (true, c);
633   }
634
```


SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 631

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
630  uint256 c = a * b;
631  if (c / a != b) return (false, 0);
632  return (true, c);
633  }
634  }
635
```

SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 644

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
643     if (b == 0) return (false, 0);
644     return (true, a / b);
645   }
646 }
647
648
```

SWC-101 | ARITHMETIC OPERATION "%" DISCOVERED

LINE 656

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
655     if (b == 0) return (false, 0);
656     return (true, a % b);
657   }
658 }
659
660
```

SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 671

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
670     function add(uint256 a, uint256 b) internal pure returns (uint256) {
671         return a + b;
672     }
673
674     /**
675
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 685

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
684     function sub(uint256 a, uint256 b) internal pure returns (uint256) {  
685         return a - b;  
686     }  
687  
688     /**  
689
```

SWC-101 | ARITHMETIC OPERATION "*" DISCOVERED

LINE 699

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
698     function mul(uint256 a, uint256 b) internal pure returns (uint256) {
699         return a * b;
700     }
701
702     /**
703
```

SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 713

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
712     function div(uint256 a, uint256 b) internal pure returns (uint256) {  
713         return a / b;  
714     }  
715  
716     /**  
717
```

SWC-101 | ARITHMETIC OPERATION "%" DISCOVERED

LINE 729

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
728     function mod(uint256 a, uint256 b) internal pure returns (uint256) {  
729         return a % b;  
730     }  
731  
732     /**  
733
```


SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 752

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
751   require(b <= a, errorMessage);  
752   return a - b;  
753   }  
754   }  
755  
756
```

SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 775

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
774   require(b > 0, errorMessage);  
775   return a / b;  
776   }  
777   }  
778  
779
```

SWC-101 | ARITHMETIC OPERATION "%" DISCOVERED

LINE 801

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
800     require(b > 0, errorMessage);
801     return a % b;
802   }
803 }
804 }
805
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 1720

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
1719 unchecked {  
1720   _approve(sender, _msgSender(), currentAllowance - amount);  
1721 }  
1722  
1723 return true;  
1724
```

SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 1739

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
1738     function increaseAllowance(address spender, uint256 addedValue) public virtual
returns (bool) {
1739     _approve(_msgSender(), spender, _allowances[_msgSender()][spender] + addedValue);
1740     return true;
1741 }
1742
1743
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 1761

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
1760 unchecked {  
1761   _approve(_msgSender(), spender, currentAllowance - subtractedValue);  
1762 }  
1763  
1764 return true;  
1765
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 1794

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
1793     unchecked {
1794         _balances[sender] = senderBalance - amount;
1795     }
1796     _balances[recipient] += amount;
1797
1798
```

SWC-101 | ARITHMETIC OPERATION "+=" DISCOVERED

LINE 1796

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
1795     }  
1796     _balances[recipient] += amount;  
1797  
1798     emit Transfer(sender, recipient, amount);  
1799  
1800
```


SWC-101 | ARITHMETIC OPERATION "+=" DISCOVERED

LINE 1817

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
1816
1817     _totalSupply += amount;
1818     _balances[account] += amount;
1819     emit Transfer(address(0), account, amount);
1820
1821
```

SWC-101 | ARITHMETIC OPERATION "+=" DISCOVERED

LINE 1818

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
1817     _totalSupply += amount;  
1818     _balances[account] += amount;  
1819     emit Transfer(address(0), account, amount);  
1820  
1821     _afterTokenTransfer(address(0), account, amount);  
1822
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 1843

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
1842 unchecked {  
1843   _balances[account] = accountBalance - amount;  
1844 }  
1845 _totalSupply -= amount;  
1846  
1847
```

SWC-101 | ARITHMETIC OPERATION "-=" DISCOVERED

LINE 1845

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
1844 }
1845 _totalSupply -= amount;
1846
1847 emit Transfer(account, address(0), amount);
1848
1849
```

SWC-101 | ARITHMETIC OPERATION "*" DISCOVERED

LINE 2072

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
2071 function mul(int256 a, int256 b) internal pure returns (int256) {
2072     int256 c = a * b;
2073
2074     // Detect overflow when multiplying MIN_INT256 with -1
2075     require(c != MIN_INT256 || (a & MIN_INT256) != (b & MIN_INT256));
2076 }
```

SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 2076

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
2075     require(c != MIN_INT256 || (a & MIN_INT256) != (b & MIN_INT256));
2076     require((b == 0) || (c / b == a));
2077     return c;
2078 }
2079
2080
```

SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 2088

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
2087 // Solidity already throws when dividing by 0.  
2088 return a / b;  
2089 }  
2090  
2091 /**  
2092
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 2095

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
2094 function sub(int256 a, int256 b) internal pure returns (int256) {
2095     int256 c = a - b;
2096     require((b >= 0 && c <= a) || (b < 0 && c > a));
2097     return c;
2098 }
2099
```


SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 2104

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
2103 function add(int256 a, int256 b) internal pure returns (int256) {
2104     int256 c = a + b;
2105     require((b >= 0 && c >= a) || (b < 0 && c < a));
2106     return c;
2107 }
2108
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 2205

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
2204 uint256 index = map.indexOf[key];
2205 uint256 lastIndex = map.keys.length - 1;
2206 address lastKey = map.keys[lastIndex];
2207
2208 map.indexOf[lastKey] = index;
2209
```

SWC-101 | ARITHMETIC OPERATION "**" DISCOVERED

LINE 2309

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
2308 // see https://github.com/ethereum/EIPs/issues/1726#issuecomment-472352728
2309 uint256 internal constant magnitude = 2**128;
2310
2311 uint256 internal magnifiedDividendPerShare;
2312
2313
```

SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 2344

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
2343     magnifiedDividendPerShare = magnifiedDividendPerShare.add(  
2344         (amount).mul(magnitude) / totalSupply()  
2345     );  
2346     emit DividendsDistributed(msg.sender, amount);  
2347  
2348
```

SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 2431

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
2430     return
2431     magnifiedDividendPerShare
2432     .mul(balanceOf(_owner))
2433     .toInt256Safe()
2434     .add(magnifiedDividendCorrections[_owner])
2435
```

SWC-101 | ARITHMETIC OPERATION "++" DISCOVERED

LINE 2716

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
2715 while (gasUsed < gas && iterations < numberOfTokenHolders) {
2716   _lastProcessedIndex++;
2717
2718   if (_lastProcessedIndex >= tokenHoldersMap.keys.length) {
2719     _lastProcessedIndex = 0;
2720
```

SWC-101 | ARITHMETIC OPERATION "++" DISCOVERED

LINE 2726

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
2725   if (processAccount payable(account), true) {  
2726     claims++;  
2727   }  
2728   }  
2729  
2730
```

SWC-101 | ARITHMETIC OPERATION "++" DISCOVERED

LINE 2730

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
2729
2730  iterations++;
2731
2732  uint256 newGasLeft = gasleft();
2733
2734
```


SWC-101 | ARITHMETIC OPERATION "/" DISCOVERED

LINE 2937

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
2936     require(  
2937     amount > totalSupply() / 10**5,  
2938     "BABYTOKEN: Amount must be greater than 0.001% of total supply"  
2939     );  
2940     swapTokensAtAmount = amount;  
2941
```

SWC-101 | ARITHMETIC OPERATION "**" DISCOVERED

LINE 2937

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
2936     require(  
2937     amount > totalSupply() / 10**5,  
2938     "BABYTOKEN: Amount must be greater than 0.001% of total supply"  
2939     );  
2940     swapTokensAtAmount = amount;  
2941
```

SWC-101 | ARITHMETIC OPERATION "++" DISCOVERED

LINE 2957

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
2956  {
2957  for (uint256 i = 0; i < accounts.length; i++) {
2958  _isExcludedFromFees[accounts[i]] = true;
2959  }
2960
2961
```

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

LINE 2205

low SEVERITY

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

Source File

- BABYTOKEN.sol

Locations

```
2204 uint256 index = map.indexOf[key];
2205 uint256 lastIndex = map.keys.length - 1;
2206 address lastKey = map.keys[lastIndex];
2207
2208 map.indexOf[lastKey] = index;
2209
```

SWC-115 | USE OF "TX.ORIGIN" AS A PART OF AUTHORIZATION CONTROL.

LINE 3123

low SEVERITY

Using "tx.origin" as a security control can lead to authorization bypass vulnerabilities. Consider using "msg.sender" unless you really know what you are doing.

Source File

- BABYTOKEN.sol

Locations

```
3122     gas,  
3123     tx.origin  
3124   );  
3125   }  
3126  
3127
```

SWC-115 | USE OF "TX.ORIGIN" AS A PART OF AUTHORIZATION CONTROL.

LINE 3223

low SEVERITY

Using "tx.origin" as a security control can lead to authorization bypass vulnerabilities. Consider using "msg.sender" unless you really know what you are doing.

Source File

- BABYTOKEN.sol

Locations

```
3222     gas,  
3223     tx.origin  
3224     );  
3225   } catch {}  
3226   }  
3227
```

SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 2174

low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

Source File

- BABYTOKEN.sol

Locations

```
2173  {  
2174  return map.keys[index];  
2175  }  
2176  
2177  function size(Map storage map) public view returns (uint256) {  
2178
```

SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 2206

low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

Source File

- BABYTOKEN.sol

Locations

```
2205 uint256 lastIndex = map.keys.length - 1;
2206 address lastKey = map.keys[lastIndex];
2207
2208 map.indexOf[lastKey] = index;
2209 delete map.indexOf[key];
2210
```


SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 2211

low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

Source File

- BABYTOKEN.sol

Locations

```
2210
2211     map.keys[index] = lastKey;
2212     map.keys.pop();
2213 }
2214 }
2215
```

SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 2722

low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

Source File

- BABYTOKEN.sol

Locations

```
2721
2722     address account = tokenHoldersMap.keys[_lastProcessedIndex];
2723
2724     if (canAutoClaim(lastClaimTimes[account])) {
2725         if (processAccount payable(account), true) {
2726
```

SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 2875

low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

Source File

- BABYTOKEN.sol

Locations

```
2874 ) payable ERC20(name_, symbol_) {
2875     rewardToken = addr[0];
2876     _marketingWalletAddress = addr[2];
2877     require(
2878         msg.sender != _marketingWalletAddress,
2879
```

SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 2876

low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

Source File

- BABYTOKEN.sol

Locations

```
2875   rewardToken = addr[0];
2876   _marketingWalletAddress = addr[2];
2877   require(
2878     msg.sender != _marketingWalletAddress,
2879     "Owner and marketing wallet cannot be the same"
2880
```

SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 2886

low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

Source File

- BABYTOKEN.sol

Locations

```
2885
2886 tokenRewardsFee = feeSettings[0];
2887 liquidityFee = feeSettings[1];
2888 marketingFee = feeSettings[2];
2889 totalFees = tokenRewardsFee.add(liquidityFee).add(marketingFee);
2890
```

SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 2887

low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

Source File

- BABYTOKEN.sol

Locations

```
2886 tokenRewardsFee = feeSettings[0];
2887 liquidityFee = feeSettings[1];
2888 marketingFee = feeSettings[2];
2889 totalFees = tokenRewardsFee.add(liquidityFee).add(marketingFee);
2890 require(totalFees <= 25, "Total fee is over 25%");
2891
```

SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 2888

low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

Source File

- BABYTOKEN.sol

Locations

```
2887 liquidityFee = feeSettings[1];
2888 marketingFee = feeSettings[2];
2889 totalFees = tokenRewardsFee.add(liquidityFee).add(marketingFee);
2890 require(totalFees <= 25, "Total fee is over 25%");
2891 swapTokensAtAmount = totalSupply_.div(1000); // 0.1%
2892
```

SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 2897

low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

Source File

- BABYTOKEN.sol

Locations

```
2896 dividendTracker = BABYTOKENDividendTracker(  
2897 payable(Clones.clone(addr[3]))  
2898 );  
2899 dividendTracker.initialize(  
2900 rewardToken,  
2901
```


SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 2904

low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

Source File

- BABYTOKEN.sol

Locations

```
2903
2904 IUniswapV2Router02 _uniswapV2Router = IUniswapV2Router02(addr[1]);
2905 // Create a uniswap pair for this new token
2906 address _uniswapV2Pair = IUniswapV2Factory(_uniswapV2Router.factory())
2907 .createPair(address(this), _uniswapV2Router.WETH());
2908
```

SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 2958

low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

Source File

- BABYTOKEN.sol

Locations

```
2957   for (uint256 i = 0; i < accounts.length; i++) {  
2958     _isExcludedFromFees[accounts[i]] = true;  
2959   }  
2960  
2961   emit ExcludeMultipleAccountsFromFees(accounts);  
2962
```

SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 3267

low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

Source File

- BABYTOKEN.sol

Locations

```
3266 address[] memory path = new address[](2);
3267 path[0] = address(this);
3268 path[1] = uniswapV2Router.WETH();
3269
3270 _approve(address(this), address(uniswapV2Router), tokenAmount);
3271
```

SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 3268

low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

Source File

- BABYTOKEN.sol

Locations

```
3267 path[0] = address(this);
3268 path[1] = uniswapV2Router.WETH();
3269
3270 _approve(address(this), address(uniswapV2Router), tokenAmount);
3271
3272
```

SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 3284

low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

Source File

- BABYTOKEN.sol

Locations

```
3283     address[] memory path = new address[](3);
3284     path[0] = address(this);
3285     path[1] = uniswapV2Router.WETH();
3286     path[2] = rewardToken;
3287
3288
```

SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 3285

low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

Source File

- BABYTOKEN.sol

Locations

```
3284 path[0] = address(this);
3285 path[1] = uniswapV2Router.WETH();
3286 path[2] = rewardToken;
3287
3288 _approve(address(this), address(uniswapV2Router), tokenAmount);
3289
```

SWC-110 | OUT OF BOUNDS ARRAY ACCESS

LINE 3286

low SEVERITY

The index access expression can cause an exception in case of use of invalid array index value.

Source File

- BABYTOKEN.sol

Locations

```
3285     path[1] = uniswapV2Router.WETH();
3286     path[2] = rewardToken;
3287
3288     _approve(address(this), address(uniswapV2Router), tokenAmount);
3289
3290
```

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