Meta Bank

Smart Contract Audit Report

SYSFIXED

25 Jan 2023

TABLE OF CONTENTS

AUDITED DETAILS

Audited Project

Project name	Token ticker	Blockchain
Meta Bank	MetaBank	Binance Smart Chain

Addresses

Contract address	0xBc533395231a53D21b350e405a77e589bC9Eba8E
Contract deployer address	0xFEdAaDC3b1b23858b27Dbb457Fa446Ed040F489a

Project Website

https://meta-bank.net/

Codebase

https://bscscan.com/address/0xBc533395231a53D21b350e405a77e589bC9Eba8E#code

SUMMARY

The first bank in Metaverse which gives high rewards for any transaction. 7% USDT rewards, Low MC (less than 10k), No team tokens, KYC'd team, Safe and Audited contract, Meta bank NFT and wallet APP, CMC & CG after launch, Aggressive marketing strategy, LP Locked for 1 year. Join our social media accounts for more information.

Contract Summary

Documentation Quality

Meta Bank 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 Meta Bank 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 Meta Bank project released on January 2023 to discover issues and identify potential security vulnerabilities in Meta Bank 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 Meta Bank 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 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	Tuesday Jan 24 2023 20:16:49 GMT+0000 (Coordinated Universal Time)
Finished	Wednesday Jan 25 2023 07:58:55 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	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-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	low	acknowledged
SWC-110	OUT OF BOUNDS ARRAY ACCESS	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 = addrs[0];
2876   _marketingWalletAddress = addrs[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 = addrs[0];
2876   _marketingWalletAddress = addrs[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(addrs[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(addrs[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
```

DISCLAIMER

This report is subject to the terms and conditions (including without limitation, description of services, confidentiality, disclaimer and limitation of liability) set forth in the Services Agreement, or the scope of services, and terms and conditions provided to you ("Customer" or the "Company") in connection with the Agreement. This report provided in connection with the Services set forth in the Agreement shall be used by the Company only to the extent permitted under the terms and conditions set forth in the Agreement. This report may not be transmitted, disclosed, referred to, or relied upon by any person for any purposes, nor may copies be delivered to any other person other than the Company, without Sysfixed's prior written consent in each instance.

This report is not, nor should be considered, an "endorsement" or "disapproval" of any particular project or team. This report is not, nor should be considered, an indication of the economics or value of any "product" or "asset" created by any team or project that contracts Sysfixed to perform a security assessment. This report does not provide any warranty or guarantee regarding the absolute bug-free nature of the technology analyzed, nor do they provide any indication of the technologies proprietors, business, business model, or legal compliance.

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.

This report should not be used in any way to make decisions around investment or involvement with any particular project. This report in no way provides investment advice, nor should be leveraged as investment advice of any sort. This report represents an extensive assessing process intending to help our customers increase the quality of their code while reducing the high level of risk presented by cryptographic tokens and blockchain technology.

This report is provided for information purposes only and on a non-reliance basis and does not constitute investment advice. No one shall have any right to rely on the report or its contents, and Sysfixed and its affiliates (including holding companies, shareholders, subsidiaries, employees, directors, officers, and other representatives) (Sysfixed) owe no duty of care.

ABOUT US

Sysfixed is a blockchain security certification organization established in 2021 with the objective to provide smart contract security services and verify their correctness in blockchain-based protocols. Sysfixed automatically scans for security vulnerabilities in Ethereum and other EVM-based blockchain smart contracts. Sysfixed a comprehensive range of analysis techniques—including static analysis, dynamic analysis, and symbolic execution—can accurately detect security vulnerabilities to provide an in-depth analysis report. With a vibrant ecosystem of world-class integration partners that amplify developer productivity, Sysfixed can be utilized in all phases of your project's lifecycle. Our team of security experts is dedicated to the research and improvement of our tools and techniques used to fortify your code.